



Safety Equipment

Catalogue

Valid from October 2023

DEHN protects.

www.dehn-international.com



Solutions for safe working on electrical installations



Safe when it matters most

Protect people and systems from electrical accidents. You can mitigate the risks posed by arc faults with the help of a comprehensive protection concept.

You will find an overview on our **website**.



Go to comprehensive arc fault protection website:

<http://de.hn/2wntv>



DEHNcare - in touch with people

The solution portfolio includes protective clothing for employees working on electrical installations. You will find arc-fault-tested protective clothing of the arc fault protection classes APC 1 and APC 2 as well as various risk classes (up to HRC 4) according to NFPA 70E here in the catalogue **from page 111**.



Go to personal protective equipment website:

<http://de.hn/b3Eaa>



Safe handling of high-voltage installations

The solution portfolio includes protective equipment for safe working on high-voltage installations such as charging posts, e-vehicles, bus charging stations, etc.

You can find an overview on our **website**.



Go to safe working in electric mobility website:

<http://de.hn/8MtpD>



Safe working on electric railways

The portfolio of solutions for safe working specifically for railway applications has been further enhanced.

Products for rail customers can be found here in a special chapter of this catalogue **from page 151** and on the **website**.



Go to website on protection of people and systems in the rail environment:

<http://de.hn/aThFc>

Content

| | |
|---|----------|
| Foreword | Page 3 |
| Services | Page 9 |
| DEHNarX - Risk assessment | Page 12 |
| DEHNproX - Safe working on electric systems | Page 19 |
| DEHNproX - Live working | Page 103 |
| DEHNcare - Personal protective equipment | Page 111 |
| DEHNshort - Arc fault protection system | Page 145 |
| Safe working on electric railways | Page 151 |
| Directories | Page 173 |





Safe when it matters most

Comprehensive arc fault protection concept

Every company has an obligation under occupational health and safety legislation to protect its employees from possible accidents.

Step-by-step to your protection concept

Analyse the work situations for your electrical installations. Use the

- arc fault risk check list
- the "Let's check!" online seminar
- and the dialogue guideline

to assess and optimise arc fault protection measures.

Go to comprehensive
arc fault protection



DEHN protects.

www.dehn-international.com



DEHN protects.

Dear business associates,

For more than 110 years, the family-owned company DEHN SE has stood for safety and pioneering spirit in the fields of lightning protection, surge protection and safety equipment. With great passion and commitment, our employees develop safe and effective protection solutions and components for key issues of this day and age. Such as the expansion of renewable energy, e-mobility and its entire infrastructure, and the protection of those who work in these newly emerging ecosystems. Since 1952, the "DEHN Safety Equipment" range of products and services has centred around safe work on electrical installations.

- Due to the steady expansion of electric mobility, high-voltage (HV) systems are becoming increasingly common in vehicles of all kinds. New working conditions due to the use of e-vehicles or charging stations can lead to electrical hazards. Some of these dangers are new and need to be assessed in order to protect your own employees and external service personnel.
- **DEHNarX** supports industrial companies and manufacturers with the **risk assessment**. **By assessing the risks when working on electrical installations, suitable protective measures**, especially correct selection and provision of appropriate protective equipment, can be defined.
- **Railways** stand for climate-friendly mobility. Safety and availability are essential assets in this area. This applies to the planning of new systems as well as to maintenance and repair. You can find the requisite safety devices in a separate chapter of this catalogue.

- Technical measures such as the **DEHNshort** arc fault protection system protect people and optimise the availability of the energy supply. The use of these protection systems is established with all renowned manufacturers of low-voltage switchgear assemblies and long since regarded as state of the art.
- **Modern, comfortable and well-fitting protective equipment** is essential for both the safety and motivation of your employees when working on electrical installations. This is the reason why we are constantly optimising our **DEHNcare range** of protective clothing against the effects of arc faults. For jobs where high arc fault energies are to be expected, the new DEHNcare ArcFit High Level Protection (HLP) offers PPE 4 category protection according to NFPA 70E.

Benefit from our more than 70-year experience in electrical safety. In this catalogue you will find all the necessary measures and means of protection, e.g. to develop a **comprehensive protection concept against arc faults**. **The TOP principle from the German Occupational Health and Safety Act** provides orientation when defining protection measures.

Develop a protection concept for electrical risk situations in your company step by step. This keeps your employees safe when it matters most.

I appreciate your interest and the opportunity to work with you!

Dr. Philipp Dehn, Chairman of the Board (CEO)



Safe work on high-voltage transmission lines.
Voltage tester PHE4 high voltage can be found on page 35.

On the following pages, you will find basic information which helps you find your way around the DEHN Safety Equipment catalogue and presents important additional information on the product in a structured way.

In the 1st part you will find all relevant standards and in the 2nd part practical additional information.

Detailed structure of the DEHN informative pages:

STANDARDS

1. Standards for tools, equipment, protective and auxiliary equipment
2. Standards and test principles for personal protective equipment
3. Standards for active protection against arc faults
4. Provisions for periodic inspections

PRACTICAL Additional Information

5. Short descriptions
 - 5.1 Materials
 - 5.2 Surface treatment
 - 5.3 Conductor types
6. Minimum lengths of insulating elements
7. Explanation of symbols

STANDARDS

1. Standards for tools, equipment, protective and auxiliary equipment

DIN VDE 0680

Personal protective equipment, protective equipment and devices for working on live parts up to 1000 V

| | |
|--------|--|
| Part 1 | Insulating protective devices |
| Part 4 | NH fuse puller |
| Part 7 | Fuse handles for low-tension HRC-fuses |

DIN VDE V 0681

Operating, testing and safeguarding devices for work on electrically energized systems with rated voltages exceeding 1 kV

| | |
|--------|---|
| Part 1 | General specifications for DIN VDE V 0681 Part 2-3 |
| Part 2 | Switching sticks |
| Part 3 | Fuse tongs |
| Part 6 | Voltage detectors for the overhead contact line systems of electric railways (DIN VDE 0681-6) |

DIN VDE 0682

Devices and equipment for working on live parts

| | |
|----------|--|
| Part 201 | Live working - Hand tools for use up to 1000 V AC and 1500 V DC (IEC/EN 60900) |
| Part 211 | Live working - Insulating sticks and interchangeable operating heads - Part 1: Insulating sticks |
| Part 212 | Live working - Insulating sticks and interchangeable operating heads - Part 2: Interchangeable operating heads |
| Part 213 | Multipurpose insulating sticks for electrical operations in high-voltage installations (EN 50508) |
| Part 401 | Two-pole voltage detector for low-voltage system (IEC/EN 61243-3) |

| | |
|----------|--|
| Part 411 | Voltage detector, capacitive type for voltages exceeding 1 kV AC (IEC/EN 61243-1) |
| Part 412 | Voltage detector, resistive (ohmic) type for voltages of 1 kV to 36 kV AC (IEC/EN 61243-2) |
| Part 415 | Voltage detecting systems (IEC/EN 61243-5) |
| Part 417 | Voltage detectors, distance voltage detectors (preliminary standard DIN VDE 0682-417) |
| Part 421 | Voltage detectors, capacitive type for voltages exceeding 1 kV AC and a frequency of 16.7 Hz (preliminary standard DIN VDE V 0682-421) |
| Part 431 | Part 1: Phase comparator Capacitive type for voltages exceeding 1 kV AC (IEC/EN 61481-1) |
| Part 431 | Part 2: Phase comparator Resistive (ohmic) type for voltages exceeding 1 kV to 36 kV AC (IEC/EN 61481-2) |
| Part 511 | Electrically insulating blankets (IEC/EN 61112) |
| Part 512 | Electrically insulating mats (IEC/EN 61111) |
| Part 552 | Insulating protective shutters over 1kV |
| Part 603 | Telescopic sticks and telescopic measuring sticks (IEC/EN 62193) |
| Part 621 | Equipment for suction cleaning of live parts with a rated voltage from 1 kV to 36 kV |

DIN VDE 0683

Portable equipment for earthing or earthing and short-circuiting

| | |
|----------|---|
| Part 100 | Portable equipment for earthing or earthing and short-circuiting (IEC/EN 61230) |
| Part 200 | Earthing or earthing and short-circuiting equipment using lances as a short-circuiting device - Lance earthing (IEC/EN 61219) |

2. Standards and test principles for personal protective equipment

| | |
|-----------------|--|
| EN ISO 13688 | Protective clothing - General requirements |
| EN ISO 21420 | Protective gloves - General requirements and test methods |
| EN 61482-1-1 | Protective clothing against the thermal hazards of an electric arc - Part 1-1: Test methods - Method 1: Determination of the arc rating (ELIM, ATPV and/or EBT) of clothing materials and of protective clothing using an open arc |
| EN 61482-1-2 | Protective clothing against the thermal hazards of an electric arc - Part 1-2: Test methods - Method 2: Determination of arc protection class of material and clothing by using a constrained and directed arc (box test) |
| EN ISO 11611 | Protective clothing for welding and related processes |
| EN ISO 11612 | Clothing to protect against heat and flame - Minimum performance requirements |
| EN ISO 14116 | Protective clothing - Protection against flame - Limited flame spread materials, material assemblies and clothing |
| EN 1149 | Protective clothing - Electrostatic properties |
| EN 17353 | Protective clothing - Enhanced visibility equipment for medium risk situations - Test methods and requirements |
| EN ISO 20471+A1 | High-visibility clothing - Test methods and requirements |
| EN 13034+A1 | Protective clothing against liquid chemicals - Performance requirements for chemical protective clothing offering limited protective performance against liquid chemicals (type 6 and type PB [6] equipment) |
| EN 388+A1 | Protective gloves against mechanical risks |
| EN 407 | Protective gloves and other hand protection equipment against thermal risks (heat and/or fire) |
| GS-ET 42-2 | Additional requirements for the testing and certification of heat-protective gloves for protection against the thermal effects of an arc fault |
| EN 166 | Personal eye protection - Specifications |

| | |
|--------------|--|
| EN 170 | Personal eye protection - Ultraviolet filters - Transmittance requirements and recommended use |
| GS-ET 29 | Principles of testing and certification of face shields for electrical work |
| EN 60903 | Live working - gloves of insulating material |
| EN 50365 | Electrically insulating helmets for use on low voltage installations |
| EN ISO 20345 | Personal protective equipment - Safety footwear |
| GS-IFA-P15 | Test principles for the testing and certification of personal protective equipment (PPE) according to EC Directive 89/686/EEC - Protective clothing against high-pressure water jets |
| ASTM F1959 | Standard Test Method for Determining the Arc Rating of Materials for Clothing |
| ASTM F2178 | Standard Specification for Arc Rated Eye or Face Protective Products |
| ASTM F2675 | Standard Test Method for Determining Arc Ratings of Hand Protective Products Developed and Used for Electrical Arc Flash Protection |

3. Standards for active protection against arc faults

| | |
|----------------------|--|
| EN IEC 60947-9-1 | Low-voltage switchgear and controlgear - Active arc-fault mitigation systems - Part 9-1: Arc quenching devices |
| EN IEC 60947-9-2 | Low-voltage switchgear and controlgear - Active arc-fault mitigation systems - Part 9-2: Optical-based internal arc-detection and mitigation devices |
| IEC 60363-4-42 | Low-voltage electrical installations - Part 4-42: Protection for safety - Protection against thermal effects |
| IEC TS 63107 | Integration of internal arc-fault mitigation systems in power switchgear and controlgear assemblies (PSC-Assemblies) according to IEC 61439-2 |
| EN 61439-2, Suppl. 1 | Low-voltage switchgear and controlgear assemblies - Part 2: Power switchgear and controlgear assemblies; Supplement 1: Guide for testing under conditions of arcing due to internal fault (IEC/TR 61641) |

4. Provisions for periodic inspections



Criteria for maintenance tests

| | German Social Accident Insurance (DGUV) Regulation 3 (formerly accident prevention regulations (BGV A3)) | EN 50110-1 (DIN VDE 0105-100) | Equipment standard |
|---|---|--|---|
| Earthing and short-circuiting devices | § 5 (1) [... equipment is to be checked for proper condition ...] (2) [... at specific intervals. The intervals shall be selected such that defects which are to be anticipated are detected in good time!] | 4.6, Note 1 [Maintained in a condition suitable for use means periodic visual inspections and electrical testing where necessary. (for example via working aids of the BG ETEM professional association for visual inspection during everyday work (1)) 5.5 [Periodic Inspection] | EN 61230 Annex C (informative) C.3.2.2 [It is recommended to perform an inspection at least every five years in case of outdoor use and every ten years in case of indoor use.] DIN EN 61230 supplement 1, paragraph 4.2 Maintenance inspections [Regular inspection using a non-destructive, multi-stage method (LoRe measurement method) that detects possible internal cable damage without destroying the EaS device (2)]. |
| Voltage detectors, phase comparators and voltage detecting systems | § 5: Table 1C [Tests for compliance with the limit values specified in the electrotechnical rules must be carried out at least every six years] | 6.2.4.1 [Test shall be proved immediately before and where possible after use] 5.5 [Periodic Inspection] | DIN EN 61243-1 Appendix G (informative) Tests for capacitive testers > 1 kV [No voltage tester should be used that has not been retested for 6 years.] DIN EN 61243-5 Description of tests for voltage detecting system (VDS) DIN EN 61481 Appendix G (informative) Tests for phase comparators 1-36 kV AC. [The maximum interval for maintenance tests is 6 years] |
| Operating and earthing sticks | § 5: Table 1C [A visual inspection for signs of damage or defect must be carried out prior to each use.] | 5.5 [Periodic Inspection] | VDE 0681-1 to 3: Description of tests for operating sticks Note: Operating sticks must also be subjected to electrotechnical tests, so that we, DEHN, recommend the test intervals for voltage testers. E DIN VDE V 0681-1-3 Appendix B (informative) [Maintenance tests of operating sticks within 6 years.] |

(1) BG ETEM "Visual inspection of portable earthing and short-circuiting devices (portable EaS devices) before installation"; flyer order no. S034 and S035; dated November 2020

(2) BG ETEM "Testing of portable earthing and short-circuiting devices (EaS) Sighting + measuring = testing!" from the magazine "etem", issue 04.2014

PRACTICAL Additional Information

5. Short descriptions

5.1 Materials

| Short designation | Materials |
|-------------------|--------------------------------|
| Al | Aluminium |
| AlMgSi | Aluminium alloy |
| Cu | E-copper, copper |
| Ms | Brass |
| StSt | Stainless steel |
| St | Steel |
| MCI | Malleable-cast iron |
| ZDC | zinc die casting |
| GRP | Glass-fibre reinforced plastic |
| PP | Polypropylene |
| PUR | Polyurethane |

6. Minimum length of the insulating element for

- 1) Operating sticks as per DIN VDE 0681
- 2) Voltage detectors as per DIN VDE 0682-411 (IEC/EN 61243-1)
- 3) Phase comparator as per DIN VDE 0682-431 (IEC/EN 61481)

| Nominal voltage | Rated voltage | Minimum length of the insulating element | | |
|-------------------|----------------|--|---------|--------|
| | | L _{I min} | | |
| U _N *) | U _r | 1) | 2) | 3) |
| up to 10 kV | 12 kV | 500 mm | 520 mm | 525 mm |
| 20 kV | 24 kV | 500 mm | 520 mm | 525 mm |
| 30 kV | 36 kV | 525 mm | 520 mm | 525 mm |
| 45 kV | 52 kV | 720 mm | 830 mm | – |
| 60 kV | 72.5 kV | 900 mm | 830 mm | – |
| 110 kV | 123 kV | 1300 mm | 1300 mm | – |
| 150 kV | 170 kV | 1750 mm | 1700 mm | – |
| 220 kV | 245 kV | 2400 mm | 2300 mm | – |
| 380 kV | 420 kV | 3200 mm | 3600 mm | – |

*) For nominal voltages outside the preferred values of the nominal voltages listed here, the rated voltage next highest to the nominal voltage should be applied. In borderline cases the nominal voltage is the same as the rated voltage.

5.2 Surface treatment

| Short designation | Surface treatment |
|-------------------|--------------------|
| gal Sn | tin-plated |
| gal Zn | zinc-plated |
| HDG | hot-dip galvanised |
| Bronze gal Sn | Bronze tin-plated |

5.3 Conductor types

| Short designation | Conductor types |
|-------------------|-----------------|
| Fl | Flat conductor |
| Rd | Round conductor |

7. Explanation of symbols

| Symbol | Use |
|--------|---|
| | Installation instructions, see www.dehn-international.com |
| | Not for use in wet weather conditions For indoor and outdoor installations For use in indoor and outdoor installations, but not in wet weather. |
| | for use in wet weather conditions For indoor and outdoor installations For use in indoor and outdoor installations in all weathers (including weather in which the operating sticks might get damp). |
| | Use in indoor installations only |
| | Switchgear installations |
| | Overhead lines |
| | Kits for railway applications |
| | New products |
| | Discontinued products |

Services

Shortcut to the right service:
[www.dehn-international.com/en/
services-dehn](http://www.dehn-international.com/en/services-dehn)

| | |
|---|---------|
| High-voltage test laboratory - Automatic product testing | Page 11 |
| DEHNarX - Detecting and evaluating the risk of an arc fault | Page 12 |
| Periodic inspection of protective and auxiliary equipment | Page 14 |
| Earthing and short-circuiting devices - Configure | Page 15 |
| Earthing and short-circuiting devices - Technical testing | Page 16 |
| DEHNacademy - More knowledge for safe working | Page 17 |



Ensuring everyday safety

DEHN offers practical all-round services for **the organisation** of personal protection in your everyday electrotechnical work.

Buying high-quality and tested products for the implementation of electrical safety rules is only the first step towards safety. By law and by standard, you must regularly check your safety devices

(voltage detectors, EaS devices, insulating sticks). We can do this for you!

You can also leave the professional cleaning of your medium- and low-voltage switchgear installations to us. Another important point:

What is the situation when it comes to assessing the risk of arc faults in your installations? When was the last risk assessment? Here, too, we can now offer you assistance with the DEHNarX service.

You will find your contact person on the next few pages:

One of its kind worldwide: Digitalised high-voltage test laboratory

Thousands of periodic inspections are carried out annually in the DEHN high-voltage test facility. In 2021, significant investments were made in the test facility, which has been in use since 1993. Alongside hardware modifications, such as a new frequency converter, the interactive voice assistant, a globally unique feature, was implemented on the software front. These extensive modifications make the DEHN test facility with voice assistant a unique innovation. The updated emergency shut-off and the safety circuit control system also put the test facility on a high level as far as occupational and plant safety are concerned.

If you have any questions about our test facility or range of services, please contact us: retoure@dehn.de



Automated product testing - advantages for you

- **Quicker periodic inspection**
The processing times for periodic inspections are shorter. Thanks to the optimised, digitalised processes in our high-voltage test field, your safety devices are available again sooner.
- **The test spectrum is widening**
With the new frequency converter, installed for the first time worldwide, it is possible to generate voltages of up to 250 kV in a frequency range of 16.7 to 200 Hz. The voltage quality remains consistently high over the entire voltage range.
- **Process-reliable periodic inspections**
Existing processes are set-up-automated and the entire plant is raised to a new technical level. DEHN employees can initiate the respective test steps via voice assistant. The automation sets the appropriate voltage and the travel of the test setup. The settings and measured values can be monitored on the screens in the test facility.
- **New benchmarks for occupational and plant safety**
The modernisations achieve the highest safety level (Performance Level E) currently achievable for a plant of this type.
- **Customised high-voltage testing**
Contact us for your individual high-voltage tests.





Detecting and evaluating the risk of an arc fault.

DEHNarX Risk Assessment

Evaluate the risk of arc faults and define protection measures according to the TOP principle

Meet the requirements of work safety legislation

The specific task of an "arc fault risk assessment" is not properly clarified in many companies. According to §5 of the German Occupational Health and Safety Act, every employer must carry out an assessment of the electrical hazards for their employees in order to deduce adequate work protection measures.

Can be booked in modular and customised form

The DEHNarX service evaluates arc fault risks/energies according to DGVU-I 203-077 or the American process NFPA 70E / IEEE 1584.

The existing protection measures in your company are checked and optimised, and additional state-of-the-art measures are recommended. Comprehensive documentation right through to safety-increasing system marking can be booked individually. Get in touch with us so that we can put together a customised offer for you.

Which method do you use for risk assessment?

DGVU-I 203-077 is course of action recommended by BG ETEM for dealing with thermal hazards caused by arc faults.

Benefits of DEHNarX Risk Assessment

- **Legitimate.** According to §5 of the German Occupational Health and Safety Act, every employer must carry out an assessment of the electrical hazards for their employees in order to deduce adequate work protection measures.
- **Standard-compliant.** The risk assessment is performed according to DGUV-I 203-077 or the American procedure NFPA 70E / IEEE 1584
- **Modular.** The services of the risk assessment can be customised to requirements.
- **Authoritative.** Based on the assessment, suitable protection measures can be defined as per the TOP principle.
- **Activating.** The results of the risk assessment help the people in charge and fitters reduce the probability of an arc fault occurring.

Those responsible for occupational safety and installations ensure a transparent arc fault protection concept

Create transparency about your arc fault protection concept for all those concerned working on electrical workstations. According to the TOP principle, and in descending order or priority, this includes technical, organisational and personal arc fault protection measures.

When was the last arc fault risk assessment performed at your organisation?

You want to download the customer presentation or require a consultation. Information can be found on the DEHNarX website:





Check voltage detectors regularly

Periodic inspection of protective and auxiliary equipment

DGUV Regulation 3 "Electrical installations and equipment" is the central German accident prevention regulation for electrical engineering. It applies to electrical installations and equipment such as voltage detectors, phase comparators and voltage detecting systems. It is also recommended for non-electrical work in the vicinity of electrical installations and equipment. The inspection intervals for protective and auxiliary equipment are specified in §5 Inspections. As the operator, you are responsible for maintenance, keeping deadlines and conducting the inspection!

Only tested devices protect lives

- Regular maintenance tests ensure that your devices are in a proper and safe condition
Get the benefit of our reminder service
<https://www.dehn.de/de/erinnerungsservice-zur-wiederkehrenden-pruefung>

- Test is documented on the device and in a separate test report
- Periodic inspection of voltage detectors, phase comparators, earthing and short-circuiting devices, etc. at the DEHN Service Centre.
- Periodic inspection at your location earthing and short-circuiting devices

It's simple! Send operating devices such as voltage detectors to DEHN without any prior notification.

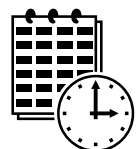
You can find all information here:



Use the reminder service!

Here you have the option of having us remind you free of charge of the prescribed periodic inspections in line with DGUV. You can register devices of all manufacturers for the reminder service.

Customers who have DEHN voltage detectors are automatically reminded every **six years!**



Configure earthing and short-circuiting devices online

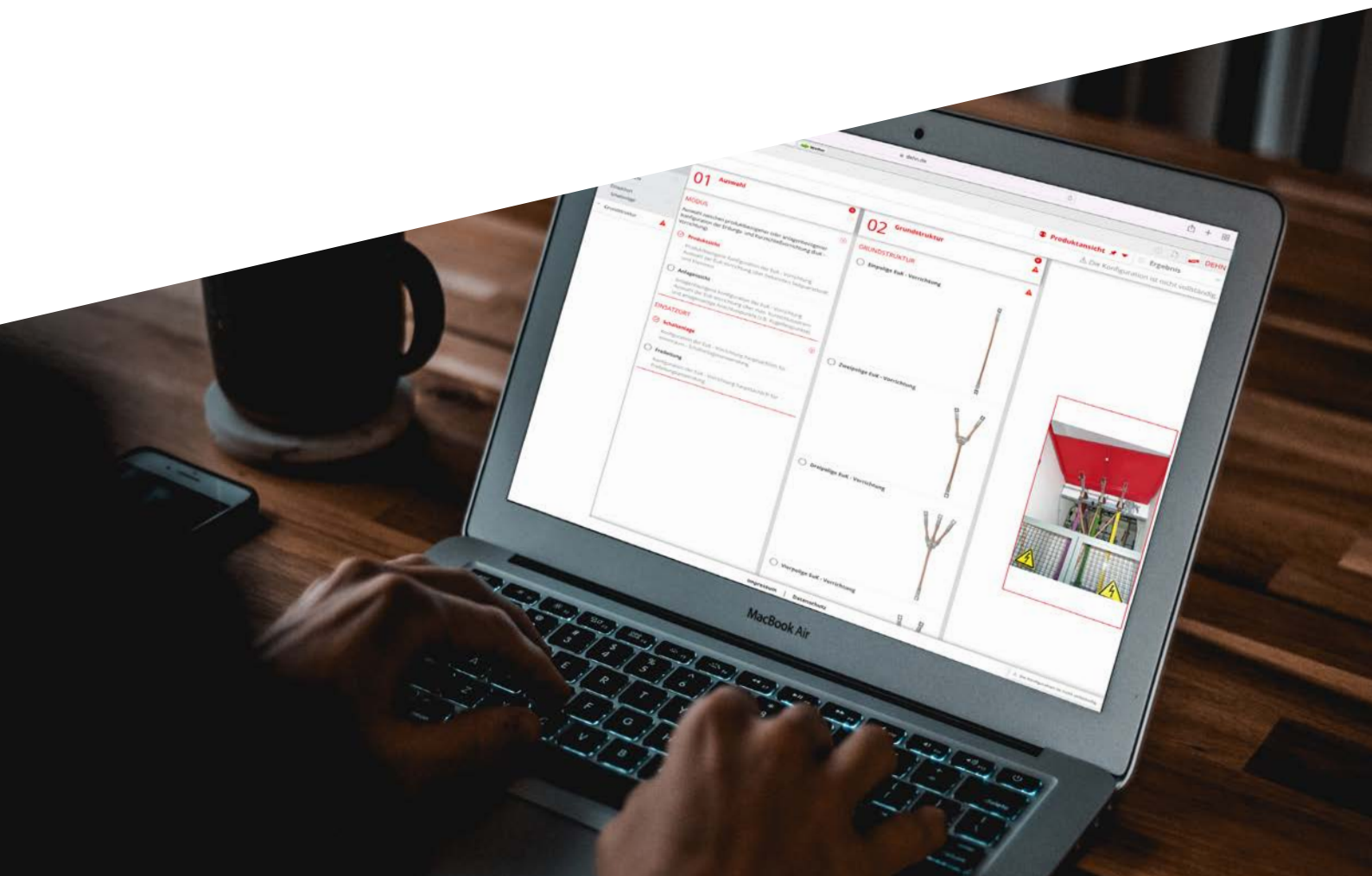
The 4th safety rule when working on electrical installations is "earthing and short-circuiting". This secures the de-energised state of the system for the duration of the work against interference voltages, atmospheric surges, unforeseen feedback and erroneous re-connection.

Only an EaS device that has been adapted to your system will ensure that you are safe when working on electrical systems. So, use the EaS configurator with its intuitive navigation to choose the right EaS device.

Customised for you:

- Select place of use, basic structure of the device: 1-pole, 2-pole, 3-pole, material type, cable cross-section, length, connection elements, clamp and earthing stick
- With a variant number you can order a finished product again and again.
A permanent plausibility check takes place in the background.

You can find the new EaS configurator and a demo version here:





Technical testing of earthing and short-circuiting devices with the LoRe measuring device

Make sure you keep the regular inspection intervals for earthing and short-circuiting devices.

You have two ways of technically assessing the overall condition of your EuK devices with a measurement procedure:

1. Have your EuK devices checked by DEHN

Send us your EaS and we will check your portable safety devices to ensure that they are in perfect working order.

Alternatively, we can inspect your EaS at your location.

Shipping information can be found here:



2. Test your EaS device yourself

With the Lore measuring device, you can detect hidden damage that cannot be revealed by a visual inspection alone. Whereas previously the strands had to be cut open for testing, the EaS devices are now tested non-destructively. Measured values confirm that your EaS is in perfect working order.

More about the loRe measuring device: MikroQmeter LoRe EaS



DEHNAcademy - More knowledge for safe working

In the DEHNAcademy, you will find free online seminars on the subject of "Safe working on electrical installations". You raise awareness among your employees, safeguard and increase plant availability and avoid electrical accidents.

Develop a comprehensive protection concept for your electrical installations step by step, in which you assess the hazards of the activities on your installations, take suitable protective measures and apply them in accordance with the DGUV.

These free online seminars support you in assessing the hazards in your electrical installations, taking suitable protective measures and applying them in compliance with regulations.

Enrol now, for example, for

- **Let's check! Evaluating the arc hazards in your electrical installations**
(approx. 45 min.)

TIP: Search for "Online-Seminar" and "English" in the selection form.

(Last update September 2023 -
Changes are possible)

Registration via the DEHNAcademy platform here:





Safely driving forward electric mobility in your company

Almost 50 percent of new vehicles in Germany were (partially) electric in 2022 – a rapidly increasing trend!

Caution required – comply with occupational health and safety

Ensure the occupational safety of employees working on high-voltage systems during maintenance, salvage, repair, or recovery. DEHN can supply the appropriate safety devices, arc-fault-tested personal protective equipment and necessary warning and barrier products for marking high-voltage work areas.

We are happy to share our knowledge with you in short but informative online seminars.

More information here:



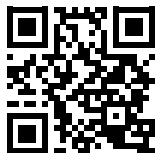
Advertisements

DEHN protects.

www.dehn-international.com

DEHNproX - Safe working on electrical installations

Find the right product quickly and
easily: **EaS Configurator**



| | |
|---|----------|
| Work according to the five safety rules | Page 20 |
| 1. Disconnect | Page 21 |
| 2. Secure against re-connection | Page 28 |
| 3. Verify that the installation is dead | Page 32 |
| 4. Earthing and short-circuiting | Page 59 |
| 5. Provide protection against adjacent live parts | Page 93 |
| Live working | Page 103 |










Safe working on electric systems

Good to know: We have a new product family name for our protective and operating equipment for working on electrical installations:

DEHNproX. This made-up word is a combination of DEHN + protect + X. You are already familiar with the company slogan DEHNprotects. It describes DEHN's basic philosophy of providing

protection against hazards. The "X" in the DEHNproX product family name stands for all the hazards averted by high-quality protective equipment (X = crossing out danger). In the area of electrical occupational safety, these are electric shocks and arc faults.

In the DEHNproX product family, you will find all operating and protective equipment for safe working on electrical installations. Listed are products for the implementation of the five safety rules and products for live working.

| Application | Nominal voltage U_N / Frequency f_N | Product | Page |
|---|---|---|------|
| <p>IS insulating sticks</p> <ul style="list-style-type: none"> For use in indoor and outdoor installations Screw-on switching stick head allows for use as switching stick Supporting head for hexagon shaft or T pin shaft For use as earthing stick For use as operating stick for insulating protective shutters | up to 123 kV / 50 Hz |  | 22 |
| <p>Wireless inspection camera</p> <ul style="list-style-type: none"> Periodic visual inspection and documentation of electrical installations and equipment (also without special training) Wireless WiFi camera operation via smartphon/tablet No downtimes due to disconnection of the installation | up to 150 kV / 15 ... 60 Hz |  | 24 |
| <p>SCS switching sticks</p> <ul style="list-style-type: none"> For use in indoor and outdoor installations Fully insulated, massive switching stick head Allows a deep and safe reach into the installation For use as operating stick for insulating protective shutters | up to 123 kV / 50 Hz |  | 26 |
| <p>RST rescue rods</p> <ul style="list-style-type: none"> For use in indoor and outdoor installations Fully insulated and fixed rescue hook For rescuing persons from the live working zone in the event of an electrical accident | up to 72.5 kV / 50 Hz |  | 26 |
| <p>SZ fuse tongs</p> <ul style="list-style-type: none"> Operating head with two adjustable jaws Straight or 20° angled operating head Secure clamping Wide clamping range from Ø30 to 90 mm | up to 36 kV / 50 Hz |  | 27 |
| <p>Insulating stick with crank handle</p> <ul style="list-style-type: none"> For emergency operating of engine drives For indoor and outdoor installations | up to 36 kV |  | 28 |
| <p>German Social Accident Insurance (DGUV) Regulation 3 (formerly accident prevention regulations (BGV A3))</p> <p>Operating sticks must be checked according to the DGUV regulation 3 (previously BGV A3) for compliance with the limit values as specified in the electrotechnical rules. This test is carried out in the high-voltage test laboratory at DEHN and includes, among other things:</p> <ul style="list-style-type: none"> Testing the discharge current Testing the protection against bridging Testing by visual inspection, manual test and measuring <p>The maintenance test is documented in a test report and on the device itself. Prior to each use, a visual inspection for outwardly visible damage and defects must be carried out.</p> | |  | 7 |

IS Insulating Sticks



Switching a disconnector by means of an IS SK insulating stick fitted with switching stick head.

Nominal voltages up to 123 kV / 50 Hz

Easy and safe working

- Cost-effective since the application of different supporting heads allows universal use
- Easy handling

General Information:

| | |
|---------------------------------------|---------------------------------------|
| Standard (switching stick head) | DIN VDE V 0681-2 |
| Standard (insulating stick) | DIN VDE V 0681-1 |
| Standard (operating stick) | DIN VDE 0682-552 |
| Not for use in wet weather conditions | |
| For use in wet weather conditions | |
| For | Indoor and outdoor installations |
| Material | Glass-fibre reinforced polyester tube |

IS SK insulating stick fitted with SSK M12 switching stick head.



IS SQ insulating stick fitted with SSK SQ switching stick head. Black knurled nut for additional locking on the insulating stick.



Insulating Stick, Hexagon Shaft

Operating head with spring locking mechanism and M12 threaded bushing



- Can be used as switching and operating stick by attaching a SSK M12 switching stick head
- Can be used as earthing stick
- Handle closed with end cap



| Type | IS 36 SK 1000 | IS 36 SK 1500 |
|-----------------------------------|---------------|---------------|
| Part No. | 766 001 | 766 002 |
| Nominal voltage (U _N) | 1 ... 36 kV | 1 ... 36 kV |
| Total length (l _G) | 1000 mm | 1500 mm |
| Insertion depth (l _O) | 175 mm | 475 mm |
| For use at | | |

Insulating Stick, Hexagon Shaft, Plug-in Coupling

Operating head with spring locking mechanism and M12 threaded bushing



- Can be used as switching and operating stick by attaching a SSK M12 switching stick head
- Can be used as earthing stick
- Handle closed with plastic plug-in coupling for extending the handle



| Type | IS 36 SK STK 1000 | IS 123 SK STK 2000 |
|-----------------------------------|-------------------|--------------------|
| Part No. | 766 100 | 766 122 |
| Nominal voltage (U _N) | 1 ... 36 kV | 1 ... 123 kV |
| Total length (l _G) | 1000 mm | 2000 mm |
| Insertion depth (l _O) | 175 mm | 200 mm |
| For use at | | |

| Type | ISN 36 SK STK 1000 |
|-----------------------------------|--------------------|
| Part No. | 766 111 |
| Nominal voltage (U _N) | 1 ... 36 kV |
| Total length (l _G) | 1000 mm |
| Insertion depth (l _O) | 175 mm |
| For use at | |

Accessories for IS Insulating Sticks

Screw-on switching stick head for IS SK insulating Sticks

With M12 thread.

In accordance with DIN VDE V 0681-2.



| Type | SSK M12 |
|----------|-------------------------|
| Part No. | 765 005 |
| Material | Steel, plastic-sheathed |

Insulating Stick, T Pin Shaft

Operating head with spring-loaded bayonet coupling



- Can be used as switching and operating stick by attaching a SSK SQ switching stick head
- Can be used as operating stick for inserting insulating protective shutters
- Can be used as earthing stick
- Handle closed with end cap



| General Information: | |
|----------------------|--|
| For use at | |

| Type | IS 36 SQ 1000 | IS 36 SQ 1500 |
|-----------------------------------|---------------|---------------|
| Part No. | 766 311 | 766 315 |
| Nominal voltage (U _N) | 1 ... 36 kV | 1 ... 36 kV |
| Total length (l _G) | 1025 mm | 1525 mm |
| Insertion depth (l _O) | 150 mm | 500 mm |

| Type | IS 72.5 SQ SN7743 |
|-----------------------------------|-------------------|
| Part No. | 766 312 |
| Nominal voltage (U _N) | 1 ... 72.5 kV |
| Total length (l _G) | 1300 mm |
| Insertion depth (l _O) | 90 mm |

DEHNproX - 1. Disconnect completely - Operating sticks

Insulating Stick, T Pin Shaft, Plug-in Coupling

Operating head with spring-loaded bayonet coupling



- Can be used as switching and operating stick by attaching a SSK SQ switching stick head
- Can be used as operating stick for inserting insulating protective shutters
- Can be used as earthing stick
- Handle closed with plastic plug-in coupling for extending the handle



Ø30 mm

| Type | IS 36 SQ STK 1000 | IS 123 SQ STK 2000 |
|-----------------------------------|-------------------|--------------------|
| Part No. | 766 301 | 766 322 |
| Nominal voltage (U _N) | 1 ... 36 kV | 1 ... 123 kV |
| Total length (l _G) | 1025 mm | 2000 mm |
| Insertion depth (l _O) | 150 mm | 200 mm |
| For use at | | |

| Type | ISN 36 SQ STK 1000 |
|-----------------------------------|--------------------|
| Part No. | 766 310 |
| Nominal voltage (U _N) | 1 ... 36 kV |
| Total length (l _G) | 1025 mm |
| Insertion depth (l _O) | 150 mm |
| For use at | |

Insulating Stick, detachable, T Pin Shaft, Plug-in Coupling

Operating head with bayonet coupling with spring locking mechanism



- Can be used as switching stick and operating stick by attaching the switching stick head SSK SQ
- Can be used as operating stick for inserting insulating protective shutters
- Can be used as earthing stick
- Can be used as handle termination with end cap



Ø30 mm

Ø43 mm

| Type | ISN 123 SQ STK 2500 |
|-----------------------------------|---------------------|
| Part No. | 766 332 |
| Nominal voltage (U _N) | 110 ... 123 kV |
| Total length (l _G) | 2495 mm |
| Insertion depth (l _O) | 290 mm |
| For use at | |

Accessories for IS Insulating Sticks

Switching stick head for IS SQ insulating sticks

With T pin shaft (bayonet locking mechanism). In accordance with DIN VDE V 0681-2. T pin shaft in accordance with DIN 48087. Switching stick head is fixed on the insulating stick via the knurled nut.



| Type | SSK SQ |
|----------|-----------|
| Part No. | 765 009 |
| Material | Polyamide |

Insulating Stick, Plug-in Coupling at both ends

Plug-in coupling at both ends for attaching extension elements, operating heads or adapters.



Ø30 mm

| General Information: | |
|-----------------------------------|-------------|
| Nominal voltage (U _N) | 1 ... 36 kV |

| Type | IS 36 STK 30 1280 | ISN 36 STK 30 1280 |
|--------------------------------|-------------------|--------------------|
| Part No. | 766 363 | 766 367 |
| Total length (l _G) | 1280 mm | 1280 mm |
| For use at | | |

| Type | ISN 36 STK 930SN7688 |
|--------------------------------|----------------------|
| Part No. | 766 362 |
| Total length (l _G) | 930 mm |
| For use at | |

Accessories for IS Insulating Sticks

STK switching stick head



Ø30 mm

| Type | SSK 36 STK 560 |
|--------------------------------|----------------|
| Part No. | 766 164 |
| Total length (l _G) | 560 mm |

STK operating head / hexagon shaft

Operating head with tension spring locking and M12 threaded bushing for indoor use.



Ø30 mm

| Type | AK 36 SK STK 330 |
|--------------------------------|------------------|
| Part No. | 766 364 |
| Total length (l _G) | 330 mm |

STK operating head / T pin shaft

Operating head with spring-loaded bayonet coupling for indoor use.



Ø30 mm

| Type | AK 36 SQ STK 360 |
|--------------------------------|------------------|
| Part No. | 766 365 |
| Total length (l _G) | 360 mm |

Adapter with flat lock bushing

and plug-in coupling for attaching WOLF gardening tools



Ø30 mm

| Type | AD FB18 7 STK SN7007 |
|---------------------|----------------------|
| Part No. | 766 321 |
| Total length | 300 mm |
| Dimension (bushing) | 18 x 7 mm |

Note: WOLF gardening tools with adapter are not protected against bridging (electrical safety)!

Wireless Inspection Camera



System monitoring with wireless inspection camera and live display on a smartphone.

Nominal voltages up to 150 kV / 15 to 60 Hz

- Wireless inspection camera for periodic visual inspection and for documenting the state of electrical installations and equipment (also without special training)
- Brings the invisible to light
- Facilitates work, increases safety, saves time



General Information:

| | |
|---------------------------------------|--------------------------------------|
| Standard | based on EN 50508 (DIN VDE 0682-213) |
| Temperature range (T _U) | 0 °C ... +40 °C |
| Not for use in wet weather conditions | ☀ |
| Material (enclosure) | PUR |
| Material (camera) | Aluminium |

AC2 digital camera set



Kit includes:

| No. | Description | Type |
|-----|--|---------------|
| 1 | Plastic case | KKL DIGIK AC2 |
| 2 | Digital camera enclosure | G DIGIK AC2 |
| 3 | Camera and battery module incl. magn. protective cover | DIGIK AC2 |
| 4 | Magnetic adapter holder with ¼" thread | MAH DIGIK AC2 |
| 5 | Rigid adapter gear coupling | ADS ZK 185 |

| Type | SET DIGIK AC2 |
|-----------------------------------|---------------------------------------|
| Part No. | 766 480 <small>NEW</small> |
| Nominal voltage (U _N) | up to 150 kV |
| Frequency | 15-60 Hz |
| Resolution | 12 megapixels |
| Objective | Ultra-wide angle (155° field of view) |
| Digital zoom | 4x |
| sensor | 1/1.7" 4K CMOS sensor |
| Image stabiliser | Electronic |
| Formats | JPEG/RAW and MP4 |
| Internal memory | 22 GB |
| Ext. SD card | microSD (max. 256 GB) *) |
| Equipment | Remote control via app |
| Voice command | Yes |
| Interfaces | USB type-C |
| Dimensions (case) | 395 x 290 x 105 mm |

*) Handle, insulating sticks and micro SD card are not included.

Accessories for wireless Inspection Camera

Macro lens

For close-ups



| | |
|------------|----------------------------|
| Type | MO DIGIK AC2 |
| Part No. | 766 483 <small>NEW</small> |
| Dimensions | 40 x 40 x 10 mm |

Handle with gear coupling



| | |
|-----------------------------------|-----------------------------|
| Type | HG ZK 230 |
| Part No. | 766 393 |
| Nominal voltage U _N AC | up to 1000 V / 15 ... 60 Hz |
| Nominal voltage U _N DC | up to 1500 V |
| Total length (l _G) | 230 mm |

Insulating stick with handle and plug-in coupling

Consisting of one element.



| | |
|-----------------------------------|-------------------|
| Type | IS 36 ZK STK 1300 |
| Part No. | 785 325 |
| Nominal voltage (U _N) | up to 36 kV |
| Total length (l _G) | 1300 mm |
| Length (handle) (l _H) | 560 mm |

Insulating stick with handle and plug-in coupling

Modular. For use as operating stick with handle, hand guard, insulating element, red ring and extension, extendible handle.



| | |
|-----------------------------------|---------------------|
| Type | IS T 36 ZK STK 1300 |
| Part No. | 785 315 |
| Nominal voltage (U _N) | up to 36 kV |
| Total length | 1300 mm |
| Length (handle) (l _H) | 560 mm |

Adapter with gear coupling

With plug-in coupling.



| | |
|--------------------------------|------------------|
| Type | AD ZK STK 30 360 |
| Part No. | 766 359 |
| Total length (l _G) | 360 mm |

Operating stick set

Set for animal guard adapter and wireless inspection camera.



| | |
|---|----------------|
| Type | ASSN 36 STK ZK |
| Part No. | 766 380 |
| Nominal voltage (U _N) | 1 ... 36 kV |
| Max. total length (l _{G,max}) | 6780 mm |
| DB drawing No. | 3 Egbw 04.61 |

Insulating stick (T pin shaft)

Operating head with spring loaded bayonet coupling.



| | | |
|-----------------------------------|---------------|---------------|
| Type | IS 36 SQ 1000 | IS 36 SQ 1500 |
| Part No. | 766 311 | 766 315 |
| Nominal voltage (U _N) | 1 ... 36 kV | 1 ... 36 kV |
| Total length (l _G) | 1025 mm | 1525 mm |
| Length (handle) (l _H) | 350 mm | 500 mm |

Adapter (T pin shaft / gear coupling)

For insulating sticks with cone coupling for T pin shafts (bayonet locking mechanism). The lock nut allows to fix the adapter on the insulating stick.



| | |
|----------|--------------|
| Type | AD SQ ZK 165 |
| Part No. | 766 396 |
| Length | 182 mm |

Rigid adapter with gear coupling

With 1/4" thread for housing wireless inspection camera.



| | |
|--------------------------------|------------|
| Type | ADS ZK 185 |
| Part No. | 766 389 |
| Total length (l _G) | 185 mm |
| Thread | 1/4" BS |
| Colour | yellow |

Flexible adapter with gear coupling

With 1/4" thread for housing wireless inspection camera.



| | |
|--------------------------------|-----------|
| Type | AD ZK 185 |
| Part No. | 766 392 |
| Total length (l _G) | 185 mm |
| Colour | yellow |

Extension with gear coupling



| | | |
|--------------------------------|---------------|---------------|
| Type | ISV 220 ZK MS | ISV 320 ZK MS |
| Part No. | 785 316 | 785 317 |
| Total length (l _G) | 220 mm | 320 mm |

| | | |
|--------------------------------|---------------|---------------|
| Type | ISV 420 ZK MS | ISV 820 ZK MS |
| Part No. | 785 318 | 785 319 |
| Total length (l _G) | 420 mm | 820 mm |

ISV 36 STK insulating stick extension

Plug-in coupling at both ends for extending the insertion depth or the handle.



| | | |
|--------------------------------|-------------------|--------------------|
| Type | ISV 36 STK 30 910 | ISV 36 STK 30 1280 |
| Part No. | 766 356 | 766 366 |
| Total length (l _G) | 910 mm | 1280 mm |

HV STK extension handle

Plug-in coupling at both ends for extending the handle.



| | | |
|--------------|---------------|---------------|
| Type | HV STK 30 710 | HV STK 43 910 |
| Part No. | 766 335 | 766 456 |
| Total length | 710 mm | 910 mm |
| Diameter | 30 mm | 43 mm |

| | |
|--------------|----------------|
| Type | HV STK 43 1280 |
| Part No. | 766 466 |
| Total length | 1280 mm |
| Diameter | 43 mm |

Insulating stick (T pin shaft / plug-in coupling)

Operating head with spring loaded bayonet coupling.



| | |
|-----------------------------------|--------------------|
| Type | IS 123 SQ STK 2000 |
| Part No. | 766 322 |
| Nominal voltage (U _N) | 1 ... 123 kV |
| Total length (l _G) | 2000 mm |
| Length (handle) (l _H) | 500 mm |

Insulating stick extensions

With gear coupling



| | |
|-----------------------------------|--------|
| General Information: | |
| Nominal voltage (U _N) | 123 kV |

| | | |
|--------------------------------|-----------------------|-----------------------|
| Type | ISV 220 ZK 123 SN7739 | ISV 320 ZK 123 SN7740 |
| Part No. | 785 311 | 785 312 |
| Total length (l _G) | 220 mm | 320 mm |

| | | |
|--------------------------------|-----------------------|-----------------------|
| Type | ISV 420 ZK 123 SN7741 | ISV 820 ZK 123 SN7742 |
| Part No. | 785 313 | 785 314 |
| Total length (l _G) | 420 mm | 820 mm |

SCS Switching Sticks



Switching a disconnector by means of an SCS switching stick.

Nominal voltages up to 72.5 kV / 50 Hz

Easy and safe working

- Cost-effective
- User-friendly

General Information:

| | |
|---------------------------------------|---|
| Standard (switching stick head) | DIN VDE V 0681-2 |
| Standard (switching stick) | DIN VDE V 0681-1 and -2 |
| Standard (insulating stick) | DIN VDE V 0681-1 |
| Standard (operating stick) | DIN VDE 0682-552 |
| Not for use in wet weather conditions | ☀ |
| For use in wet weather conditions | ☔ |
| For | For indoor and outdoor installations |
| Design | Fully insulated, massive switching stick head |
| Material (insulating tube) | Glass-fibre reinforced polyester tube |
| Material (switching pin) | Steel, plastic-sheathed |

Nominal Voltages up to 72.5 kV

With end cap.



General Information:

| | |
|------------|---|
| For use at | ☀ |
|------------|---|

| Type | SCS 36 1000 | SCS 36 1500 |
|-----------------------------------|-------------|-------------|
| Part No. | 763 610 | 763 611 |
| Nominal voltage (U _N) | 1 ... 36 kV | 1 ... 36 kV |
| Total length (l _G) | 1030 mm | 1500 mm |
| Insertion depth (l _O) | 135 mm | 415 mm |

| Type | SCS 36 2000 | SCS 72 1500 |
|-----------------------------------|-------------|---------------|
| Part No. | 763 612 | 763 615 |
| Nominal voltage (U _N) | 1 ... 36 kV | 1 ... 72.5 kV |
| Total length (l _G) | 2000 mm | 1500 mm |
| Insertion depth (l _O) | 765 mm | 290 mm |

| Type | SCS 72 2000 | SCS 72 3000 |
|-----------------------------------|---------------|---------------|
| Part No. | 763 620 | 763 630 |
| Nominal voltage (U _N) | 1 ... 72.5 kV | 1 ... 72.5 kV |
| Total length (l _G) | 2000 mm | 3000 mm |
| Insertion depth (l _O) | 690 mm | 1500 mm |

Nominal Voltages up to 36 kV

Handle sealed with plastic plug-in coupling for extending the handle.



| Type | SCS 36 STK 1000 | SCSN 36 STK 1000 |
|-----------------------------------|-----------------|------------------|
| Part No. | 763 100 | 763 111 |
| Nominal voltage (U _N) | 1 ... 36 kV | 1 ... 36 kV |
| Total length (l _G) | 1000 mm | 1000 mm |
| Insertion depth (l _O) | 135 mm | 135 mm |
| For use at | ☀ | ☔ |

RST Rescue Rods



Insulated RST rescue rod used to rescue a victim of electrical shock from the live working zone.

Nominal voltages up to 72.5 kV / 50 Hz

- For use in indoor and outdoor installations
- Fixed rescue hook (protected against bridging)
- For rescuing persons weighing up to approximately 100 kg from the live working zone in the event of an electrical accident



General Information:

| | |
|---------------------------------------|---------------------------------------|
| Standard | based on DIN VDE V 0681-1 |
| Not for use in wet weather conditions | ☀ |
| Material (hook) | PVC-HI solid rod |
| Material (insulating tube) | Glass-fibre reinforced polyester tube |
| End fitting | Non-slip plastic cap |



Rescue Rod up to 36 kV



| Type RST ... | 36 1000 | 36 1500 |
|-----------------------------------|-------------|-------------|
| Part No. | 766 040 | 766 041 |
| Nominal voltage (U _N) | 1 ... 36 kV | 1 ... 36 kV |
| Total length (l _G) | 1235 mm | 1695 mm |
| Insertion depth (l _O) | 410 mm | 620 mm |

| Type RST ... | 36 2000 | 72.5 1500 |
|-----------------------------------|-------------|----------------------------|
| Part No. | 766 042 | 766 043 <small>NEW</small> |
| Nominal voltage (U _N) | 1 ... 36 kV | 1 ... 72.5 kV |
| Total length (l _G) | 2195 mm | 1525 mm |
| Insertion depth (l _O) | 970 mm | 325 mm |

SZ Fuse Tong



SZ fuse tongs for inserting and removing HH fuses.

Nominal voltages up to 36 kV / 50 Hz Easy and safe working

- User-friendly



The reducing insert delivered with the SZ fuse tong allows low clamping ranges from Ø30 to 50 mm. Without reducing insert, HV HBC fuses from Ø50 to 90 mm can be actuated.



In practice, the 20° angled operating head allows safe and easy actuation of HH fuses that are not easily accessible.



| General Information: | |
|---------------------------------------|---------------------------------------|
| Standard | DIN VDE V 0681-3 |
| Not for use in wet weather conditions | ☀ |
| Design | Straight and 20° angled clamp body |
| Clamping range | Wide clamping range from Ø30 to 90 mm |
| Material (insulating stick) | Glass-fibre reinforced polyester tube |
| Material (operating head) | Glass-fibre reinforced polyamide |
| Material (adjustable handle) | Polyamide |
| Material (reducing insert) | Polyamide |
| Colour | Grey ● |

Straight version



| General Information: | |
|-----------------------------------|--|
| Nominal voltage (U _N) | 1 ... 36 kV |
| Clamping range | 30 ... 50 ^{*)} / 50 ... 90 mm |
| Insertion depth (l ₀) | 185 mm |

| Type SZ HH ... | 1060 | 1250 |
|--------------------------------|---------|---------|
| Part No. | 765 040 | 765 041 |
| Total length (l _G) | 1060 mm | 1250 mm |

| Type SZ HH ... | 1500 |
|--------------------------------|---------|
| Part No. | 765 042 |
| Total length (l _G) | 1500 mm |

^{*)} Only if used with reducing insert

20° angled version



| General Information: | |
|-----------------------------------|--|
| Nominal voltage (U _N) | 1 ... 36 kV |
| Clamping range | 30 ... 50 ^{*)} / 50 ... 90 mm |
| Insertion depth (l ₀) | 195 mm |

| Type SZ HH ... | W20 1070 | W20 1250 |
|--------------------------------|----------|----------|
| Part No. | 765 050 | 765 051 |
| Total length (l _G) | 1070 mm | 1250 mm |

| Type SZ HH ... | W20 1500 |
|--------------------------------|----------|
| Part No. | 765 052 |
| Total length (l _G) | 1500 mm |

^{*)} Only if used with reducing insert

Accessories for SZ Fuse Tongs

Storage device for HH fuses

Wall-mounted.



| Type | HV 3HH ET |
|----------|-----------|
| Part No. | 700 005 |
| For | HH fuses |

Note: Two storage devices are required!

Storage device for HH fuses and fuse tong

Wall-mounted.



| Type | HV 3HH SZ ET |
|----------|------------------------|
| Part No. | 700 004 |
| For | HH fuses and fuse tong |

Note: Two storage devices are required!

Storage device kit for HH fuses or HH fuses and fuse tong

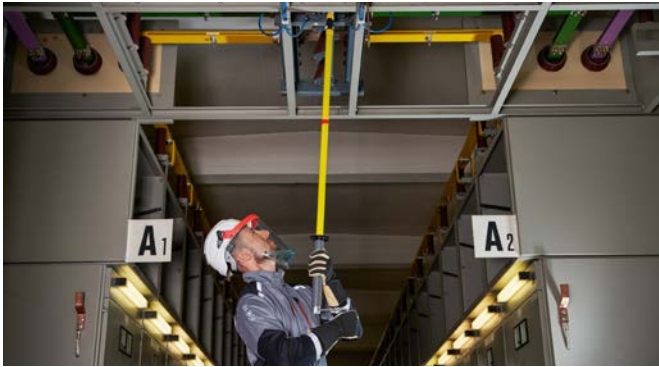
Wall-mounted.



| Type | HV 3HH | HV 3HH SZ |
|---------------|--------------|----------------------------------|
| Part No. | 700 015 | 700 014 |
| Consisting of | 2x HV 3HH ET | 1x HV 3HH ET and 1x HV 3HH ZS ET |

DEHNproX - 1. Disconnect completely

Insulating Stick with Crank Handle



Insulating stick with crank handle for emergency operation of motor-driven disconnectors.

Nominal voltages up to 36 kV / 15 ... 60 Hz

- For emergency operating of engine drives
- For indoor and outdoor installations



General Information:

| | |
|---------------------------------------|---------------------------------------|
| Standard | DIN VDE V 0681-1 |
| Not for use in wet weather conditions | ☀ |
| Material (operating head) | Plastic |
| Material (extension) | Glass-fibre reinforced polyester tube |
| Material (test unit) | Glass-fibre reinforced polyester tube |

Operating Head

With hexagon shaft 24 mm and hexagon coupling 12 mm.



Ø30 mm

| | |
|--------------------------------|--------------|
| Type | AK SK24 SK12 |
| Part No. | 763 712 |
| Total length (l _G) | 120 mm |
| For use at | ☀ |

Insulating Stick with Crank Handle

With hexagon coupling 12 mm and button.



Ø30 mm

| | |
|-----------------------------------|-----------------|
| Type | IS SK12 HK 1720 |
| Part No. | 763 710 |
| Nominal voltage (U _N) | 1 ... 36 kV |
| Total length (l _G) | 1720 mm |
| Insertion depth (l _O) | 540 mm |
| For use at | ☀ |

Insulating Stick Extension

With hexagon coupling 12 mm and button.



Ø30 mm

| | |
|-----------------------------------|---------------|
| Type | ISV SK12 1060 |
| Part No. | 763 711 |
| Nominal voltage (U _N) | 1 ... 36 kV |
| Total length (l _G) | 1060 mm |
| For use at | ☀ |

2. Secure against Re-Connection

Lock-Out Systems



Lock-out system for three modular widths.

Nominal voltages up to 1000 V

- Protection against re-connection
- Symbol „Nicht schalten“ [Do not close the circuit] acc. to German regulation (ASR A13)



Insulating Plug

For screw inserts.



General technical data:

| | |
|----|----------|
| PU | 10 pc(s) |
|----|----------|

| | | |
|-------------|-------------|-------------|
| Type SE ... | E14 | E18 |
| Part No. | 785 639 | 785 650 |
| Size | E14 | E18 |
| Diameter | 20 mm | 25 mm |
| Dimensions | Ø20 x 40 mm | Ø25 x 40 mm |

| | |
|-------------|-------------|
| Type SE ... | E27 E33 |
| Part No. | 785 640 |
| Size | E27 and E33 |
| Diameter | 45 mm |
| Dimensions | Ø45 x 55 mm |

Insulating Blade

For NH fuse holders and distribution blocks.



General technical data:

| | |
|----|----------|
| PU | 10 pc(s) |
|----|----------|

| | | |
|-------------|-----------|-----------|
| Type SE ... | NH00 | NH0 |
| Part No. | 785 641 | 785 642 |
| Size | 00 | 0 |
| Blade | 13 x 5 mm | 38 x 5 mm |
| Dimensions | 80 mm | 125 mm |

| | | |
|-------------|-----------|-----------|
| Type SE ... | NH1 | NH2 3 |
| Part No. | 785 643 | 785 644 |
| Size | 1 | 2 and 3 |
| Blade | 38 x 5 mm | 38 x 5 mm |
| Dimensions | 135 mm | 150 mm |

Lock-Out System

For single-pole and multipole circuit breakers with a clamping range of 45 mm.



General technical data:

| | | |
|--------------------|------------------|------------------|
| PU | 10 pc(s) | |
| Type SE ... | REG 1TE | REG 2TE |
| Part No. | 785 638 | 785 652 |
| Size | 1 modular width | 2 modular widths |
| Dimensions | 52 x 17 mm | 52 x 34 mm |
| Type SE ... | REG 3TE | |
| Part No. | 785 637 | |
| Size | 3 modular widths | |
| Dimensions | 52 x 51 mm | |

Barrier and Accessories



Barrier in a transformer station.

- Barrier and accessories for providing protection for installation parts.

Barrier

Robust design, suitable for indoor and outdoor installations.



| | |
|--------------------|----------------------------------|
| Type | AB 32 46 RW K L... |
| Part No. | 700 099 |
| Material | Glass-fibre reinforced polyester |
| Dimensions (W x H) | 32 x 46 mm |
| Length | Any up to 6000 mm *) |
| Material thickness | 6 mm |
| Colour | Red ● / white ○ |

*) Length to be specified when ordering!

Barrier Holder

1 pack = 2 pieces.



| | |
|--------------------|---------------------|
| Type | H AB 32 46 K |
| Part No. | 700 098 |
| Material | Plastic |
| Material thickness | 6 mm |
| Colour | Red ● |

E-mobility warning signs



Clearly visible warning signs on the e-vehicle.

Warning cross: "Attention - Voltage! Unauthorised access prohibited"

With suction cups for secure placement and fixing.



| | |
|------------------------|------------------------------|
| Type WHS AS ... | ZFUV |
| Part No. | 700 060 NEW |
| Dimensions (L x W x H) | 280 x 280 x 150 mm |
| Material | Free foam, weather-resistant |

Warning sign: "Attention - Voltage! Unauthorised access and contact prohibited"

Including attachment contour for plastic posts.



| | |
|--------------------|------------------------------|
| Type WHS AS ... | BSZFUV |
| Part No. | 700 059 NEW |
| Dimensions (W x H) | 210 x 280 mm |
| Material | Free foam, weather-resistant |

Warning sign: "Attention - Voltage! Switching prohibited"

Including drill hole.



| | |
|--------------------|--------------------|
| Type WHS AS ... | SV |
| Part No. | 700 058 NEW |
| Dimensions (W x H) | 54 x 86 mm |
| Material | Plastic |

Chain post set



Chain post set for securing the work area.

- For sealing off the workplace (6 posts, 10-m chain, 10 links, 10 hooks).

Chain post set Secur



| | | |
|------------------------|--------------------|--------------------|
| Type KTST SET 6ZFS ... | RTWS 10M KT | GBSW 10M KT |
| Part No. | 700 110 NEW | 700 111 NEW |
| Colour | Red ● / white ○ | Yellow ● / black ● |
| Post material | Plastic | Plastic |
| Base material | Cement | Cement |

Accessories for Chain post set

Barrier chain Secur

Colour change after 13 links.












| | | |
|----------------|--------------------|--------------------|
| Type | ASKT RTWS 10 M KST | ASKT GBSW 10 M KST |
| Part No. | 700 112 NEW | 700 113 NEW |
| Material | Plastic | Plastic |
| Colour | Rot ● / white ○ | Yellow ● / black ● |
| Link thickness | 6 mm | 6 mm |



DEHNproX - 3. Verify that the installation is dead - Voltage detectors

DEHNproX - Safe working on electrical installations / Live working

| Description / Type | Nominal voltage U_N / Frequency f_N | Product | Page |
|---|--|---|----------------|
| <p>PHE4 voltage detector</p> <ul style="list-style-type: none"> For use in wet weather conditions For indoor and outdoor installations Visual and acoustic indication Self-test of all live parts (up to 36 kV) Large nominal voltage range | <p>up to 30 kV / 50 or 60 Hz up to 30 ... 420 kV / 50 Hz up to 33 kV / 50 Hz (British Influenced Voltage Level)</p> |  | 34 |
| <p>PHE III voltage detector / PHE III ZK indicator with test prod / PHE III set</p> <ul style="list-style-type: none"> For use in wet weather conditions For indoor and outdoor installations With self-testing element Visual and acoustic indication Quick battery replacement, without tools | <p>up to 30 kV / 50 Hz up to 30 kV / 50 Hz (with standby function) 20 and 60 ... 110 kV / 50 Hz</p> |  | 37 38 40 |
| <p>PHG II voltage detector</p> <ul style="list-style-type: none"> Use in indoor installations only Visual indication via three LEDs offset by 120° Passive voltage detector without batteries | 6 / 10 / 20 kV / 50 Hz |  | 39 |
| <p>ASP /HSA distance voltage detector</p> <ul style="list-style-type: none"> For use in wet weather conditions Distance voltage detector For overhead lines and outdoor switching stations With self-testing element Visual and acoustic indication | <p>110 ... 420 kV / 50 Hz or 16.7 Hz 1 ... 420 kV / 50 Hz, 60 Hz or 16.7 Hz</p> |  | 41 42 |
| <p>PHE/G DC voltage detector</p> <ul style="list-style-type: none"> For use in wet weather conditions For indoor and outdoor installations With self-testing element Visual indicator Two-pole (one-/two-stick) | up to 24 kV / DC voltage |  | 44 |
| <p>SPN voltage detector for power supply</p> <ul style="list-style-type: none"> For use in wet weather conditions No battery required For use in overhead line networks by attaching extension prods | <p>50 ... 500 V 50 ... 1000 V</p> |  | 45 |
| <p>SPN voltage detector for the electrical trade and industry</p> <ul style="list-style-type: none"> Analogue and digital version No batteries required for analog device | <p>12 ... 1000 V AC / DC 1.0 ... 1000 V AC / 1200 V DC</p> |  | 46 |
| <p>Accessories, storage and transport cases</p> <ul style="list-style-type: none"> Electrodes, probes, adapters, end fittings, storage devices Cases, bags |  | | 54 55 |
| <p>Discharge devices</p> <ul style="list-style-type: none"> For discharging static charges Different contact electrodes |  | | 57 |

German Social Accident Insurance (DGUV) Regulation 3 (formerly accident prevention regulations (BGV A3))

Voltage detectors must be checked according to the DGUV regulation 3 (previously BGV A3) for compliance with the limit values as specified in the electrotechnical rules. This test is carried out in the high-voltage test laboratory at DEHN and includes, among other things:

- Testing the discharge current
- Testing for clear indication
- Testing the protection against bridging
- Testing by visual inspection, manual test and measuring

The maintenance test is documented in a test report and on the device itself.

The intervals for maintenance tests of voltage detectors depend on their conditions of use, e.g. frequency of use, stress due to environmental conditions and transport, etc, however, according to DGUV regulation 3, **at least every 6 years.**



Structure of the voltage detector

Voltage detectors according to IEC/EN 61243-1 (DIN VDE 0682-411) are designed to verify on all poles at the work location that the installation is dead according to EN 50110-1 (DIN VDE 0105-100). Only electrotechnically skilled or instructed persons are allowed to verify on all poles at the work location or as close as possible to the work location that the installation is dead.

Voltage detectors must be tested for correct operation immediately before and after use. Correct operation of voltage detectors without self-testing element must be verified by contacting a part of the installation connected to operating voltage. Verifying that the installation is dead using a voltage detector is considered live working.

Voltage detectors may only be used for the nominal voltages / nominal voltage ranges as indicated on the rating plate. The user may be at risk if the voltage detector is used for voltages other than indicated on the rating plate (incorrect indication, electric shock, arcing).

Voltage detectors labelled with "For indoor use only" may only be used in indoor installations.

Voltage detectors labelled with "For use in wet weather conditions" may be used in all weather conditions (rain, snow, fog and dew).

Voltage detectors according to IEC/EN 61243-1 (DIN VDE 0682-411) are only suitable to a limited extent for use in **factory assembled (type-tested) installations**. If space in installations is confined, flashover may occur when inserting the test prod into the installation. The user of the voltage detector or the operator of the switchgear installation must contact the manufacturer of the type-tested installation to find out whether the voltage detector may be used in the installation (please refer to the table on the next page: Application of voltage detectors in type-tested, factory assembled switchgear installations).

Design of voltage detectors

Voltage detectors according to IEC/EN 61243-1 (DIN VDE 0682-411) are **single-pole** devices designed to make contact with the part of the installation to be tested.

There are **two mechanically different designs** of voltage detectors: Complete and separate voltage detectors.

Complete voltage detectors (PHE4, PHE III, PHE and PHG II) consist of an insulating stick, indicator and test prod and are tested as a complete unit.

Separate voltage detectors (PHE III indicator with test prod) must be attached to a suitably rated insulating stick.

Single-pole **voltage detectors** typically consist of a **handle, insulating element, indicator** and **test prod with contact electrode**.

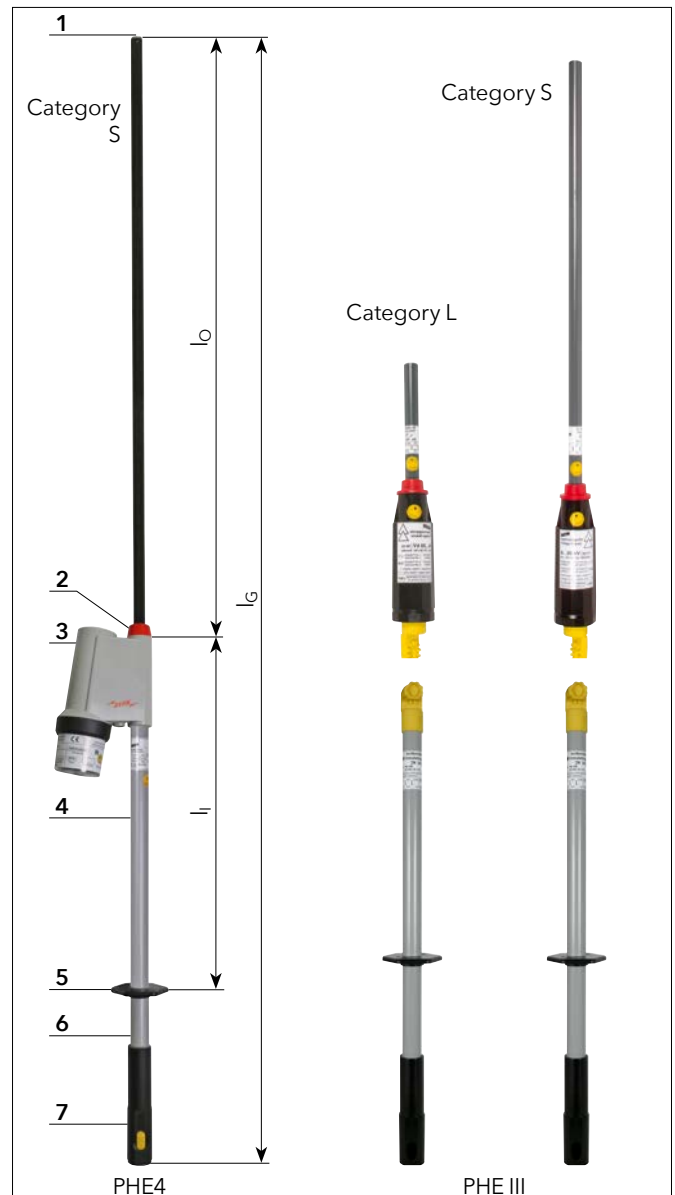
The **insulating element** is the section of a voltage detector between the hand guard and the red ring. It ensures that the user maintains an adequate safety distance for safe operation. The **test prod** (contact electrode extension) with a contact electrode **above the red ring** allows to reach remote parts of the installation and to **eliminate** the influence of **interference fields**. Voltage detectors are classified into two categories based on their behaviour in case of interference fields or their field of application. Voltage detectors of **category "L"** (line) with a short test prod (without contact electrode extension) are designed for use on overhead lines.

Voltage detector of **category "S"** (switchgear) with a long test prod (with contact electrode extension) are resistant to interference fields and are therefore used in switchgear installations. They are also suitable for overhead lines.

The **hand guard** provides a visible barrier between the handle and the insulating element and prevents the user from making contact with the insulating element.

The **red ring** indicates the end of the insulating element in the direction of the test electrode. This provides the user with a visible limit for contact with live parts in the installation. The **insulating element** between the red ring and the hand guard must not contact live parts, however, it may contact earthed parts.

The **test electrode** is the part of the voltage detector that is used to make contact with the part of the installation to be tested.



- 1 Test electrode
- 2 Red ring
- 3 Operating head / Indicator
- 4 Insulating element
- 5 Hand guard
- 6 Handle
- 7 Plug-in coupling for extending the handle

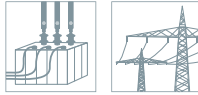
- l_G Total length of the voltage detector
- l_0 Length of the top section
- l_I Length of the insulating element

PHE4 Voltage Detector Medium Voltage



PHE4 voltage detector with visual and acoustic indication.

- Self-test of all live parts including test prod
- Unique plug-in coupling system
- Integrated visual and acoustic indication
- Also for use in wet weather conditions



General technical data:

| | |
|-----------------------------------|--|
| Standard | EN/IEC 61243-1 (DIN VDE 0682-411) |
| Temperature range | -25 °C ... +70 °C, climatic category N and W |
| Design | Complete |
| For use in wet weather conditions | |
| For | Indoor and outdoor installations |
| Indication | Acoustic and visual |
| Self-testing element | Yes |
| Material (test electrode) | Cu alloy/gal Sn |
| Material (test prod) | Glass-fibre reinforced epoxy resin tube |
| Material (indicator) | Plastic, fully insulated |
| Material (insulating stick) | Glass-fibre reinforced polyester tube |

Nominal Voltages up to 30 kV / 50 Hz, M12 Thread

Category "S" for switchgear installations and overhead lines.



| | | |
|-----------------------------------|---------|---------|
| Type PHE4 ... | 3 S | 6 S |
| Part No. | 783 003 | 783 006 |
| Nominal voltage (U _N) | 3 kV | 6 kV |
| Total length (l _G) | 1030 mm | 1030 mm |
| Insertion depth (l _O) | 230 mm | 230 mm |

| | | |
|-----------------------------------|---------|---------|
| Type PHE4 ... | 10 S | 20 S |
| Part No. | 783 010 | 783 020 |
| Nominal voltage (U _N) | 10 kV | 20 kV |
| Total length (l _G) | 1030 mm | 1200 mm |
| Insertion depth (l _O) | 230 mm | 400 mm |

| | |
|-----------------------------------|---------|
| Type PHE4 ... | 30 S |
| Part No. | 783 030 |
| Nominal voltage (U _N) | 30 kV |
| Total length (l _G) | 1720 mm |
| Insertion depth (l _O) | 920 mm |

Nominal Voltages up to 36 kV / 50 Hz, M12 Thread

Category "S" for switchgear installations and overhead lines.



| | | |
|-----------------------------------|------------|-------------|
| Type PHE4 ... | 1 3 S | 3 10 S |
| Part No. | 783 013 | 783 231 |
| Nominal voltage (U _N) | 1 ... 3 kV | 3 ... 10 kV |
| Total length (l _G) | 1410 mm | 1410 mm |
| Insertion depth (l _O) | 610 mm | 610 mm |

| | | |
|-----------------------------------|-------------|--------------|
| Type PHE4 ... | 6 20 S | 10 20 S |
| Part No. | 783 235 | 783 240 |
| Nominal voltage (U _N) | 6 ... 20 kV | 10 ... 20 kV |
| Total length (l _G) | 1600 mm | 1410 mm |
| Insertion depth (l _O) | 800 mm | 610 mm |

| | | |
|-----------------------------------|--------------|--------------|
| Type PHE4 ... | 10 30 S | 20 36 S |
| Part No. | 783 250 | 783 245 |
| Nominal voltage (U _N) | 10 ... 30 kV | 20 ... 36 kV |
| Total length (l _G) | 1720 mm | 1720 mm |
| Insertion depth (l _O) | 920 mm | 920 mm |

Nominal Voltages up to 36 kV / 50 Hz, switchable, M12 Thread

Category "S" for switchgear installations and overhead lines.



| | | |
|-----------------------------------|-----------------------|-------------------------|
| Type PHE4 ... | U 2 20 S | U 3 30 S |
| Part No. | 783 520 | 783 530 |
| Nominal voltage (U _N) | 2 ... 6 / 6 ... 20 kV | 3 ... 10 / 10 ... 30 kV |
| Total length (l _G) | 1600 mm | 1720 mm |
| Insertion depth (l _O) | 800 mm | 920 mm |

| | |
|-----------------------------------|-------------------------|
| Type PHE4 ... | U 6 36 S |
| Part No. | 783 536 |
| Nominal voltage (U _N) | 6 ... 15 / 15 ... 36 kV |
| Total length (l _G) | 1720 mm |
| Insertion depth (l _O) | 920 mm |

Nominal Voltages up to 30 kV / 50 Hz, Gear Coupling

Category "S" for switchgear installations and overhead lines.



| | | |
|-----------------------------------|---------|---------|
| Type PHE4 ... | 3 S ZK | 6 S ZK |
| Part No. | 783 103 | 783 106 |
| Nominal voltage (U _N) | 3 kV | 6 kV |
| Total length (l _G) | 1070 mm | 1070 mm |
| Insertion depth (l _O) | 230 mm | 230 mm |

| | | |
|-----------------------------------|---------|---------|
| Type PHE4 ... | 10 S ZK | 20 S ZK |
| Part No. | 783 110 | 783 120 |
| Nominal voltage (U _N) | 10 kV | 20 kV |
| Total length (l _G) | 1070 mm | 1240 mm |
| Insertion depth (l _O) | 230 mm | 400 mm |

| | |
|-----------------------------------|---------|
| Type PHE4 ... | 30 S ZK |
| Part No. | 783 130 |
| Nominal voltage (U _N) | 30 kV |
| Total length (l _G) | 1760 mm |
| Insertion depth (l _O) | 920 mm |

DEHNproX - 3. Verify that the installation is dead - Voltage detectors

**Nominal Voltages up to bis
30 kV / 50 Hz, Gear Coupling**
Category "S" for switchgear
installations and overhead lines.



| | | |
|-----------------------------------|-------------|-------------|
| Type PHE4 ... | 3 10 S ZK | 6 20 S ZK |
| Part No. | 783 141 | 783 151 |
| Nominal voltage (U _N) | 3 ... 10 kV | 6 ... 20 kV |
| Total length (l _G) | 1450 mm | 1640 mm |
| Insertion depth (l _O) | 610 mm | 800 mm |

| | |
|-----------------------------------|--------------|
| Type PHE4 ... | 10 30 S ZK |
| Part No. | 783 161 |
| Nominal voltage (U _N) | 10 ... 30 kV |
| Total length (l _G) | 1760 mm |
| Insertion depth (l _O) | 920 mm |

**Nominal Voltages up to
36 kV / 60 Hz, M12 Thread**
Category "S" for switchgear
installations and overhead lines.



| | |
|--------------------------------|-------|
| General technical data: | |
| Frequency | 60 Hz |

| | | |
|-----------------------------------|-------------|-------------|
| Type PHE4 ... | 3 10 S 60 | 6 20 S 60 |
| Part No. | 783 332 | 783 335 |
| Nominal voltage (U _N) | 3 ... 10 kV | 6 ... 20 kV |
| Total length (l _G) | 1410 mm | 1600 mm |
| Insertion depth (l _O) | 610 mm | 800 mm |

| | | |
|-----------------------------------|--------------|--------------|
| Type PHE4 ... | 10 30 S 60 | 20 36 S 60 |
| Part No. | 783 345 | 783 342 |
| Nominal voltage (U _N) | 10 ... 30 kV | 20 ... 36 kV |
| Total length (l _G) | 1720 mm | 1720 mm |
| Insertion depth (l _O) | 920 mm | 920 mm |

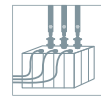
| | |
|-----------------------------------|-------------------------|
| Type PHE4 ... | U 3 36 S 60 |
| Part No. | 783 395 |
| Nominal voltage (U _N) | 3 ... 10 / 12 ... 36 kV |
| Total length (l _G) | 1720 mm |
| Insertion depth (l _O) | 920 mm |

PHE4 Voltage Detector High Voltage



PHE4 voltage detector applied in a 110 kV outdoor switching station.

- High nominal voltage range
- Unique plug-in coupling system
- Integrated visual and acoustic indication
- Also for use in wet weather conditions



| | |
|-----------------------------------|--|
| General technical data: | |
| Standard | EN/IEC 61243-1 (DIN VDE 0682-411) |
| Temperature range | -25 °C ... +70 °C, climatic category N and W |
| Design | Complete |
| For use in wet weather conditions | |
| For | Indoor and outdoor installations |
| Indication | Acoustic and visual |
| Self-testing element | Yes |
| Material (test electrode) | Cu-alloy/gal Sn |
| Material (test prod) | PP |
| Material (indicator) | Plastic, fully insulated |
| Material (insulating stick) | Glass-fibre reinforced polyester tube |

**Nominal voltage ranges
30 ... 132 kV / 50 Hz,
M12 thread**



Category "S" for switchgear
installations and overhead lines.



| | |
|-----------------------------------|--------|
| General technical data: | |
| Insertion depth (l _O) | 910 mm |

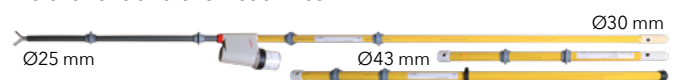
| | | |
|-----------------------------------|--------------|---------------|
| Type PHE4 ... | 30 60 S | 60 110 S |
| Part No. | 783 270 | 783 275 |
| Nominal voltage (U _N) | 30 ... 60 kV | 60 ... 110 kV |
| Total length (l _G) | 2560 mm | 3010 mm |

| | |
|-----------------------------------|---------------|
| Type PHE4 ... | 60 132 S |
| Part No. | 783 280 |
| Nominal voltage (U _N) | 60 ... 132 kV |
| Total length (l _G) | 3420 mm |

**Nominal Voltage Ranges
110 ... 420 kV / 50 Hz,
M12 Thread**



Category "S" for switchgear
installations and overhead lines.



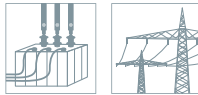
| | | |
|-----------------------------------|----------------|----------------|
| Type PHE4 ... | 110 220 S | 220 420 S |
| Part No. | 783 285 | 783 290 |
| Nominal voltage (U _N) | 110 ... 220 kV | 220 ... 420 kV |
| Total length (l _G) | 4420 mm | 5750 mm |
| Insertion depth (l _O) | 910 mm | 910 mm |

PHE4 Voltage Detector (British Influenced Voltage Level)




PHE4 voltage detector with visual and acoustic indication.

- Self-test of all live parts (including test prod category „S“)
- Unique plug-in coupling system
- Integrated visual and acoustic indication
- Also for use in wet weather conditions



General technical data:

| | |
|-----------------------------------|---|
| Standard | EN/IEC 61243-1 (DIN VDE 0682-411) |
| Temperature range | -25 °C ... +70 °C, climatic category N and W |
| Design | Complete |
| For use in wet weather conditions |  |
| For | Indoor and outdoor installations |
| Indication | Acoustic and visual |
| Self-testing element | Yes |
| Material (test electrode) | Copper alloy/gal Sn |
| Material (test prod) | Glass-fibre reinforced epoxy resin tube |
| Material (indicator) | Plastic, fully insulated |
| Material (insulating stick) | Glass-fibre reinforced polyester tube |

Nominal Voltages up to 33 kV / 50 Hz, M12 Thread
Category "S" for switchgear installations and overhead lines.



| | | |
|-----------------------------------|---------|---------|
| Type PHE4 ... | 3.3 S | 6.6 S |
| Part No. | 783 033 | 783 066 |
| Nominal voltage (U _N) | 3.3 kV | 6.6 kV |
| Total length (l _G) | 1030 mm | 1030 mm |
| Insertion depth (l _O) | 230 mm | 230 mm |

| | | |
|-----------------------------------|---------|---------|
| Type PHE4 ... | 11 S | 22 S |
| Part No. | 783 011 | 783 022 |
| Nominal voltage (U _N) | 11 kV | 22 kV |
| Total length (l _G) | 1030 mm | 1200 mm |
| Insertion depth (l _O) | 230 mm | 400 mm |

| | |
|-----------------------------------|---------|
| Type PHE4 ... | 33 S |
| Part No. | 783 045 |
| Nominal voltage (U _N) | 33 kV |
| Total length (l _G) | 1720 mm |
| Insertion depth (l _O) | 920 mm |

Nominal Voltage Ranges up to 33 kV / 50 Hz, M12 Thread
Category "S" for switchgear installations and overhead lines.



| | | |
|-----------------------------------|---------------|---------------|
| Type PHE4 ... | 3.3 11 S | 6.6 22 S |
| Part No. | 783 233 | 783 243 |
| Nominal voltage (U _N) | 3.3 ... 11 kV | 6.6 ... 22 kV |
| Total length (l _G) | 1410 mm | 1600 mm |
| Insertion depth (l _O) | 610 mm | 800 mm |

| | |
|-----------------------------------|--------------|
| Type PHE4 ... | 11 33 S |
| Part No. | 783 255 |
| Nominal voltage (U _N) | 11 ... 33 kV |
| Total length (l _G) | 1720 mm |
| Insertion depth (l _O) | 920 mm |

Nominal Voltage Ranges up to 33 kV / 50 Hz, switchable, M12 Thread



Category "S" for switchgear installations and overhead lines.



| | | |
|-----------------------------------|-------------|---------------------------|
| Type PHE4 ... | U 6.6 11 S | U 3.3 33 S |
| Part No. | 783 511 | 783 533 |
| Nominal voltage (U _N) | 6.6 / 11 kV | 3.3 ... 11 / 11 ... 33 kV |
| Total length (l _G) | 1030 mm | 1720 mm |
| Insertion depth (l _O) | 230 mm | 920 mm |

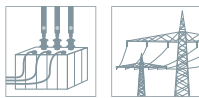
PHE III Voltage Detector




PHE III voltage detector with visual and acoustic indicator used for an indoor switchgear installation.

Nominal voltages up to 30 kV / 50 Hz Safe verification of isolation from supply voltage

- Reliable indication
- Easy to use
- Cost-effective / space-saving transport



General technical data:

| | |
|-----------------------------------|---|
| Standard | EN/IEC 61243-1 (DIN VDE 0682-411) |
| Temperature range | -25 °C ... +55 °C, climatic category N |
| Design | Complete |
| For use in wet weather conditions |  |
| For | Indoor and outdoor installations |
| Indication | Acoustic and visual |
| Self-testing element | Yes |
| Material (test electrode) | Copper alloy/gal Sn |
| Material (test prod) | Glass-fibre reinforced epoxy resin tube |
| Material (indicator) | Plastic, fully insulated |
| Material (insulating stick) | Glass-fibre reinforced polyester tube |

Nominal Voltages up to 30 kV / 50 Hz, M12 Thread

Category "S" for switchgear installations and overhead lines.



| | | |
|-----------------------------------|---------|---------|
| Type PHE3 ... | 3 S | 6 S |
| Part No. | 767 703 | 767 706 |
| Nominal voltage (U _N) | 3 kV | 6 kV |
| Total length (l _G) | 1080 mm | 1080 mm |
| Insertion depth (l _O) | 285 mm | 285 mm |

| | | |
|-----------------------------------|---------|---------|
| Type PHE3 ... | 10 S | 20 S |
| Part No. | 767 710 | 767 720 |
| Nominal voltage (U _N) | 10 kV | 20 kV |
| Total length (l _G) | 1080 mm | 1230 mm |
| Insertion depth (l _O) | 285 mm | 435 mm |

| | | |
|-----------------------------------|---------|--|
| Type PHE3 ... | 30 S | |
| Part No. | 767 730 | |
| Nominal voltage (U _N) | 30 kV | |
| Total length (l _G) | 1415 mm | |
| Insertion depth (l _O) | 620 mm | |

Nominal Voltage Ranges up to 30 kV / 50 Hz, M12 Thread

Category "S" for switchgear installations and overhead lines.



| | | |
|-----------------------------------|-------------|-------------|
| Type PHE3 ... | 3 10 S | 6 20 S |
| Part No. | 767 711 | 767 721 |
| Nominal voltage (U _N) | 3 ... 10 kV | 6 ... 20 kV |
| Total length (l _G) | 1415 mm | 1575 mm |
| Insertion depth (l _O) | 620 mm | 780 mm |

| | | |
|-----------------------------------|--------------|--|
| Type PHE3 ... | 10 30 S | |
| Part No. | 767 731 | |
| Nominal voltage (U _N) | 10 ... 30 kV | |
| Total length (l _G) | 1675 mm | |
| Insertion depth (l _O) | 880 mm | |

Nominal Voltage Ranges up to 30 kV / 50 Hz, M12 Thread, switchable

The nominal voltage selector switch allows to switch between two nominal voltage ranges. For safety reasons, the voltage detector can only be switched on if the selector switch is switched to the most sensitive range of 3 kV to 10 kV. The switch snaps into the relevant position, thus providing protection against inadvertent switching. A magnetically operated, wear-resistant reed switch changes the switching position.



Category "S" for switchgear installations and overhead lines.



| | | |
|-----------------------------------|-------------------------|--|
| Type PHE3 ... | U 3 30 S | |
| Part No. | 767 733 | |
| Nominal voltage (U _N) | 3 ... 10 / 10 ... 30 kV | |
| Total length (l _G) | 1675 mm | |
| Insertion depth (l _O) | 880 mm | |

Nominal Voltage Ranges up to 30 kV / 50 Hz, Test Kit, Thread M12

With two test prods of Category "S" for switchgear installations and overhead lines and of Category "L" for overhead lines.



| | | |
|-----------------------------------|---------------|---------------|
| Type PHE3 ... | 6 20 SL | 10 30 SL |
| Part No. | 767 740 | 767 750 |
| Nominal voltage (U _N) | 6 ... 20 kV | 10 ... 30 kV |
| Total length (l _G) | 1575 / 980 mm | 1675 / 980 mm |
| Insertion depth (l _O) | 780 / 185 mm | 880 / 185 mm |

DEHNproX - 3. Verify that the installation is dead - Voltage detectors

Nominal Voltages up to 30 kV / 50 Hz, Gear Coupling
Category "S" for switchgear installations and overhead lines.



| Type PHE3 ... | 3 S ZK | 6 S ZK |
|-----------------------------------|---------|---------|
| Part No. | 767 903 | 767 906 |
| Nominal voltage (U _N) | 3 kV | 6 kV |
| Total length (l _G) | 1150 mm | 1150 mm |
| Insertion depth (l _O) | 285 mm | 285 mm |

| Type PHE3 ... | 10 S ZK | 20 S ZK |
|-----------------------------------|---------|---------|
| Part No. | 767 910 | 767 920 |
| Nominal voltage (U _N) | 10 kV | 20 kV |
| Total length (l _G) | 1150 mm | 1300 mm |
| Insertion depth (l _O) | 285 mm | 435 mm |

| Type PHE3 ... | 30 S ZK |
|-----------------------------------|---------|
| Part No. | 767 930 |
| Nominal voltage (U _N) | 30 kV |
| Total length (l _G) | 1485 mm |
| Insertion depth (l _O) | 620 mm |

Nominal Voltage Ranges up to 30 kV / 50 Hz, Gear Coupling
Category "S" for switchgear installations and overhead lines.



| Type PHE3 ... | 3 10 S ZK | 6 20 S ZK |
|-----------------------------------|-------------|-------------|
| Part No. | 767 941 | 767 951 |
| Nominal voltage (U _N) | 3 ... 10 kV | 6 ... 20 kV |
| Total length (l _G) | 1485 mm | 1645 mm |
| Insertion depth (l _O) | 620 mm | 780 mm |

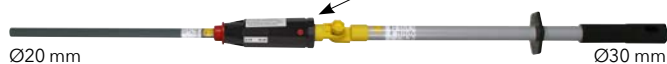
| Type PHE3 ... | 10 30 S ZK |
|-----------------------------------|--------------|
| Part No. | 767 961 |
| Nominal voltage (U _N) | 10 ... 30 kV |
| Total length (l _G) | 1745 mm |
| Insertion depth (l _O) | 880 mm |

Nominal Voltage Ranges up to 36 kV / 50 Hz, Gear Coupling, switchable



The nominal voltage selector switch allows to switch between two nominal voltage ranges. For safety reasons, the voltage detector can only be switched on if the selector switch is switched to the most sensitive range of (3 kV to 10 kV or 6 kV to 20 kV). The switch snaps into the relevant position, thus providing protection against inadvertent switching. A magnetically operated, wear-resistant reed switch changes the switching position.

Category "S" for switchgear installations and overhead lines.



| Type PHE3 ... | U 3 30 S ZK | U 6 36 S SN7728 |
|-----------------------------------|-------------------------|-------------------------|
| Part No. | 767 960 | 767 944 |
| Nominal voltage (U _N) | 3 ... 10 / 10 ... 30 kV | 6 ... 20 / 20 ... 36 kV |
| Total length (l _G) | 1745 mm | 1745 mm |
| Insertion depth (l _O) | 880 mm | 880 mm |

Nominal Voltage Ranges up to 30 kV / 50 Hz, Test Kit, Gear Coupling



With two test prods of Category "S" for switchgear installations and overhead lines and of Category "L" for overhead lines.



| Type PHE3 ... | 6 20 SL ZK | 10 30 SL ZK |
|-----------------------------------|----------------|----------------|
| Part No. | 767 940 | 767 950 |
| Nominal voltage (U _N) | 6 ... 20 kV | 10 ... 30 kV |
| Total length (l _G) | 1650 / 1050 mm | 1750 / 1050 mm |
| Insertion depth (l _O) | 780 / 185 mm | 880 / 185 mm |

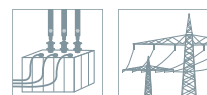
PHE III ZK Indicator with Test Prod



PHE III indicator with test prod, universal gear coupling and insulating stick.

Nominal voltages up to 30 kV / 50 Hz
Safe verification of isolation from supply voltage

- Reliable indication with standby function
- Easy to use
- Cost-effective / space-saving transport



General technical data:

| | |
|-------------------------------------|---|
| Standard (indicator with test prod) | EN/IEC 61243-1 (DIN VDE 0682-411) |
| Standard (universal gear coupling) | EN/IEC 60832 (DIN VDE 0682-211) |
| Temperature range | -25 °C ... +55 °C, climatic category N |
| Design | Separate |
| For use in wet weather conditions | |
| For | Indoor and outdoor installations |
| Indication | Acoustic and visual |
| Self-testing element | Yes |
| Material (test electrode) | Copper alloy/gal Sn |
| Material (test prod) | Glass-fibre reinforced epoxy resin tube |
| Material (indicator) | Plastic, fully insulated |

Standby function

The PHE III indicator with test prod has a standby function meaning that the device is automatically activated as soon as contact with energised equipment is made (without previous self-test) and visually and acoustically indicates "voltage present". When making contact with de-energised equipment, the indicator is not activated.

Attention

The PHE III indicator with test prod may only be used in combination with a suitably rated insulating stick.

DEHNproX - 3. Verify that the installation is dead - Voltage detectors

Nominal Voltage Ranges up to 30 kV / 50 Hz, Category "S"
Category "S" for switchgear installations and overhead lines.



| Type PHE3 ... | PK6 20 S SB ZK | PK10 30 S SB ZK |
|-----------------------------------|----------------|-----------------|
| Part No. | 767 921 | 767 931 |
| Nominal voltage (U _N) | 6 ... 20 kV | 10 ... 30 kV |
| Total length (l _G) | 1010 mm | 1110 mm |
| Insertion depth (l _O) | 780 mm | 880 mm |

Nominal Voltage Ranges up to 30 kV / 50 Hz, Category "L"
Category "L" for overhead lines.



| Type PHE3 ... | PK6 20 L SB ZK | PK10 30 L SB ZK |
|-----------------------------------|----------------|-----------------|
| Part No. | 767 922 | 767 932 |
| Nominal voltage (U _N) | 6 ... 20 kV | 10 ... 30 kV |
| Total length (l _G) | 415 mm | 415 mm |
| Insertion depth (l _O) | 185 mm | 185 mm |

Accessories for PHE III ZK Indicator with Test Prod

Insulating stick for PHE4 and PHE III with universal gear coupling

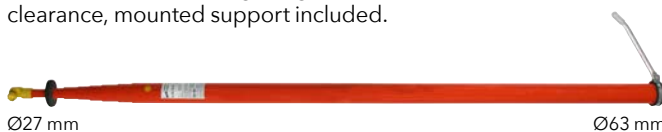
Handle end fitting with plastic plug-in coupling as extension handle.



| | |
|-----------------------------------|---------------------------------------|
| Type | IS ZK STK 670 |
| Part No. | 766 368 |
| Total length (l _G) | 670 mm |
| Length (handle) (l _H) | 265 mm |
| Diameter | 30 mm |
| Material | Glass-fibre reinforced polyester tube |

Telescopic insulating stick, with universal gear coupling

With scale for measuring the ground clearance, mounted support included.



| | |
|---|---|
| Type | ISMTC N 36 ZK 10600 |
| Part No. | 766 037 |
| Nominal voltage (U _N) | Up to 36 kV |
| Total length (l _{G max} / l _{G min}) | 10,600 / 1750 mm |
| Length (handle) (l _{H min}) | 1680 mm |
| Material | Glass-fibre reinforced epoxy resin tube |

PHG II Voltage Detector

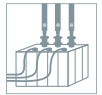


PHG II voltage detector used in a type-tested switchgear installation.

Nominal voltages up to 20 kV / 50 Hz

Easy and safe testing

- Cost-effective
- Reliable indication



General technical data:

| | |
|-------------------------------|--|
| Standard | EN/IEC 61243-1 (DIN VDE 0682-411) |
| Temperature range | -25 °C ... +55 °C, climatic category N |
| Design | Complete |
| Only for indoor installations | |
| For | Indoor installations |
| Indication | Visual, 3 LEDs |
| Function | Passive voltage detector without batteries |
| Material (test electrode) | Cu/gal Sn |
| Material (test prod) | Glass-fibre reinforced polyester tube |
| Material (indicator) | Plastic |
| Material (insulating stick) | Glass-fibre reinforced polyester tube |

Test for correct operation:

The EN 50110-1 (DIN VDE 0105-100) standard requires that voltage detectors be tested for correct operation directly before and after they are used.

Voltage detectors without self-testing element must be tested for correct operation by contacting parts of the installation connected to operating voltage.

On the test prod of the voltage detector there is a fork-shaped electrode.

Nominal Voltages up to 20 kV / 50 Hz

Category "S" for indoor switchgear installations.



General technical data:

| | |
|-----------------------------------|---------|
| Total length (l _G) | 1425 mm |
| Insertion depth (l _O) | 720 mm |

| | | |
|-----------------------------------|---------|---------|
| Type PHG2 ... | 6 | 10 |
| Part No. | 766 706 | 766 710 |
| Nominal voltage (U _N) | 6 kV | 10 kV |

| | |
|-----------------------------------|---------|
| Type PHG2 ... | 20 |
| Part No. | 766 720 |
| Nominal voltage (U _N) | 20 kV |

PHE III Voltage Detector Kit

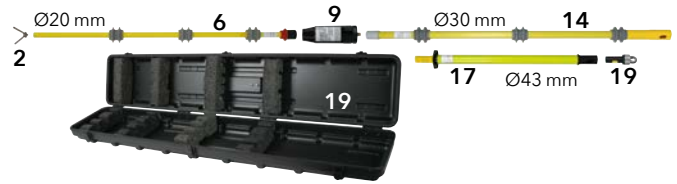


PHE III voltage detector used on a 110 kV outdoor station.

Nominal Voltage Range

60 ... 110 kV / 50 Hz

Category "S" for switchgear installations and overhead lines.

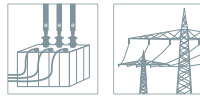


| | |
|-----------------------------------|-----------------|
| Type | PHE3S2 60 110 S |
| Part No. | 767 980 |
| Nominal voltage (U _N) | 60 ... 110 kV |
| Total length (l _G) | 2980 mm |
| Insertion depth (l _O) | 880 mm |

Nominal voltage 20 and 60 ... 110 kV / 50 Hz

Safe verification of isolation from supply voltage

- Reliable indication
- Easy to use
- Multi-purpose kit
- Cost-effective / space-saving transport



General technical data:

| | |
|-----------------------------------|---|
| Standard | EN/IEC 61243-1 (DIN VDE 0682-411) |
| Temperature range | -25 °C ... +55 °C, climatic category N |
| Design | Complete |
| For use in wet weather conditions | |
| For | Indoor and outdoor installations |
| Indication | Acoustic and visual |
| Self-testing element | Yes |
| Material (test electrode) | Copper alloy/gal Sn |
| Material (test prod) | Glass-fibre reinforced epoxy resin tube |
| Material (indicator) | Plastic, fully insulated |
| Material (insulating stick) | Glass-fibre reinforced polyester tube |

Parts list:

| No. | Part No. | No. | Part No. |
|-----|----------|-----|----------|
| 1 | 766 927 | 11 | 766 335 |
| 2 | 766 924 | 12 | 766 115 |
| 3 | 766 960 | 13 | 766 116 |
| 4 | 767 763 | 14 | 766 117 |
| 5 | 767 771 | 15 | 766 120 |
| 6 | 769 701 | 16 | 766 077 |
| 7 | 767 722 | 17 | 766 889 |
| 8 | 767 734 | 18 | 767 996 |
| 9 | 769 713 | 19 | 766 998 |
| 10 | 766 368 | | |

For more detailed information on these products, see * www.dehn-international.com.

Nominal Voltage Range

60 ... 110 kV / 50 Hz CODED

Special test prod and indicator are mutually coded, i.e. no other test prod fits mechanically for the used indicator. Thus confusion of test prods is avoided.

Category "S" for switchgear installations and overhead lines as coded type.



| | |
|---|-------------------------|
| Type | PHE3S60 110S CSN7774 |
| Part No. | 769 712 |
| Nominal voltage (U _N) | 60 ... 110 kV |
| Total length (l _{G max} / l _{G min}) | 4470 / 2840 mm |
| Insertion depth (l _O) | 880 mm |

Nominal Voltage 20 kV / 50 Hz

Category "S" for switchgear installations and overhead lines.



Possible lengths:

| Length l _G (mm) | Insertion depth l _O (mm) | Pos. No. |
|----------------------------|-------------------------------------|-----------------------|
| 3080 | 1580 | 1+3+4 +7+10 +11 |
| 2290 | 800 | 1+4+7 +10+11 |
| 1660 | 800 | 1+4+7 +10 |



| | |
|---------------------------------------|---------------|
| Type | PHE3S 20 S ZK |
| Part No. | 767 724 |
| Nominal voltage (U _N) | 20 kV |
| Total length (l _{G max}) | 3080 mm |
| Insertion depth (l _{O max}) | 1580 mm |

ASP Non-Contact Voltage Detector Kit



Use of an ASP distance voltage detector in an outdoor switching station.

Nominal voltage range 110 ... 420 kV / 16.7 and 50 Hz

Easy and safe testing

- Easy to use due to compact design
- Cost-effective / space-saving transport



General technical data:

| | |
|-----------------------------------|---|
| Temperature range | -25 °C ... +55 °C |
| For use in wet weather conditions | |
| For | Overhead lines and outdoor switching stations |
| Indication | Acoustic and visual |
| Self-testing element | Yes |
| Material (indicator) | Plastic, fully insulated, black |
| Material (electric field sensor) | Plastic, black |
| Material (insulating stick) | Glass-fibre reinforced polyester tube |

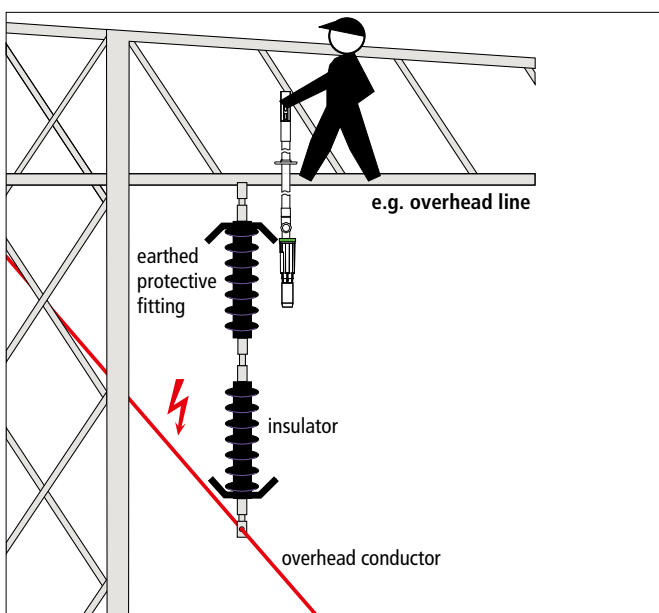
Parts list:

| No. | Part No. | No. | Part No. |
|-----|----------|-----|----------|
| 1 | 767 576 | 5 | 767 593 |
| 2 | 767 577 | 6 | 766 369 |
| 3 | 767 591 | 7 | 767 574 |
| 4 | 767 592 | 8 | 767 996 |

For more detailed information on these products, see * www.dehn-international.com.

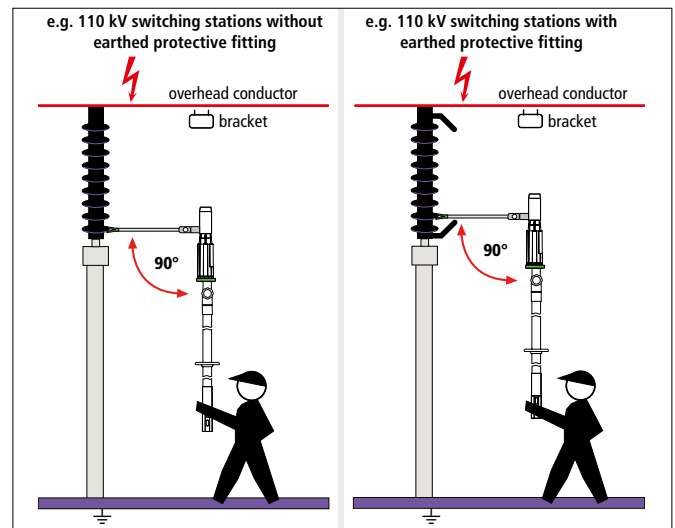
Category „S“ and „L“

Devices of category „S“ may only be used in outdoor switching stations, devices of category „L“ for overhead lines only. Devices of category „S“ / „L“ may be used both for outdoor switching stations and overhead lines.



Use for overhead lines

The green ring on the ASP distance voltage detector with category „L“ electric field sensor is used to make contact with the last earthed protective fitting in such a way that the electric field sensor points in the direction of the overhead conductor fixed at the other end of the insulator.



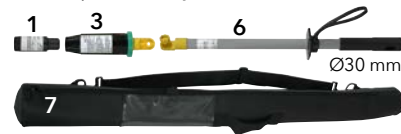
Use in outdoor switching stations

The green ring on the arm of the ASP distance voltage detector with category „S“ electric field sensor is used to make contact with the lowest insulator plate at a right angle.

If an earthed protective fitting is available, contact is made at the next possible insulator plate above the protective fitting.

Category „L“, 50 Hz

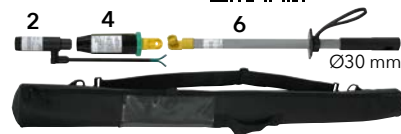
Category „L“ for overhead lines in accordance with the DIN VDE V 0682-417/10.2013 preliminary standard.



| Type | ASPS 110 420 L |
|-----------------------------------|----------------|
| Part No. | 767 571 |
| Nominal voltage (U _N) | 110 ... 420 kV |
| Frequency | 50 Hz |
| Total length (l _G) | 960 mm |

Category „S“, 50 Hz

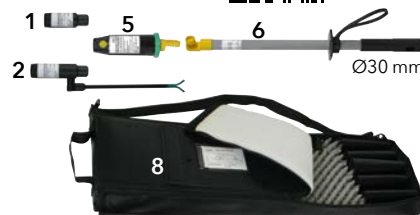
Category „S“ for outdoor switching stations.



| Type | ASPS 110 420 S | ASP 110 420 S |
|-----------------------------------|----------------|----------------|
| Part No. | 767 572 | 767 582 |
| Nominal voltage (U _N) | 110 ... 420 kV | 110 ... 420 kV |
| Frequency | 50 Hz | 50 Hz |
| Total length (l _G) | 1000 mm | 1000 mm |

Category „S / L“, 50 Hz

Category „S / L“ for overhead lines and outdoor switching stations.



| Type | ASPS 110 420 S L |
|-----------------------------------|------------------|
| Part No. | 767 573 |
| Nominal voltage (U _N) | 110 ... 420 kV |
| Frequency | 50 Hz |
| Total length (l _G) | 1000 mm |

HSA 194 High-Voltage Indicator

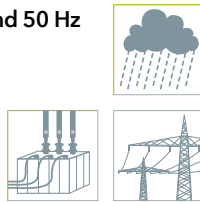


High-voltage indicator used on a 110 kV overhead line.

Nominal voltage range 110 ... 420 kV / 16.7 and 50 Hz

Easy and safe testing

- For contactlessly verifying that switchgear and high-voltage overhead lines or centre-earthed monophasic traction power lines are dead
- Cost-effective / space-saving transport



Special instructions for the use of HSA 194 110 420 SN7737 (Part No. 767539)

The device can be switched between the „climbing check“ mode (switch position when climbing the tower) and the „110 ... 420 kV“ mode for verifying that the overhead conductor is dead.

Switch position „climbing check“

When climbing the lattice tower, the switch position „climbing check“ allows to check from the corner leg whether the next overhead conductor (or conductor bundle) is still energised when approaching it. During this check, the high-voltage indicator is moved closer towards the next overhead conductor and moved within 0.5 m (see Fig. 1). If the conductor is energised, there is a visual (red flashing light) and acoustic signal. The **minimum distance A (min)** (according to the nominal voltage in Table 2) between the operating head of the high-voltage indicator and the overhead conductor must be observed. The customer must determine the maximum distance A (max) (safe tripping of the high-voltage indicator when approaching the overhead conductor) depending on the nominal voltage and document it in the operating instructions.

Using the high-voltage indicator when climbing lattice towers does not replace verifying absence of voltage from the cross arm.

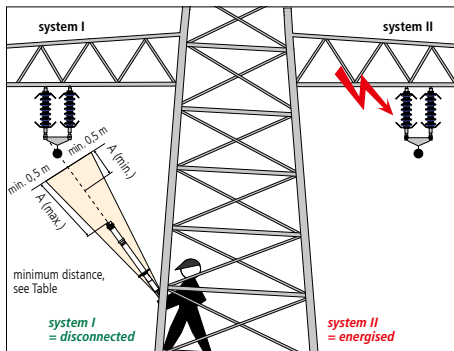


Figure 1: Example of application on the corner leg of a lattice tower with switch position „climbing check“ (only HSA 194 110 420 SN7737)

| Nominal voltage | Min safety distance A (min.) |
|-----------------|------------------------------|
| 110 kV | 2000 mm |
| 220 kV | 3000 mm |
| 380 kV | 4000 mm |
| 420 kV | 4400 mm |

Table 2

General technical data:

| | |
|-----------------------------------|--|
| Temperature range | - 25 °C ... + 55 °C, climatic category N |
| For use in wet weather conditions | |
| Indication | Acoustic and visual |
| Self-testing element | Yes |
| Material (insulating stick) | Glass-fibre reinforced polyester tube |

General application notes for the HSA 194

Switch position voltage range „110 ... 420 kV“

To verify absence of voltage from the tower cross arm, place the green ring of the high-voltage indicator on the last earthed protective fitting (or earthed insulator cap) of the insulator so that the operating head of the high-voltage indicator (see Fig. 2) points towards the overhead conductor to be tested, which is attached to the other insulator end (longitudinal axis of the device in parallel to the longitudinal axis of the insulator). If the conductor is energised, there is a visual (red flashing light) and acoustic signal.

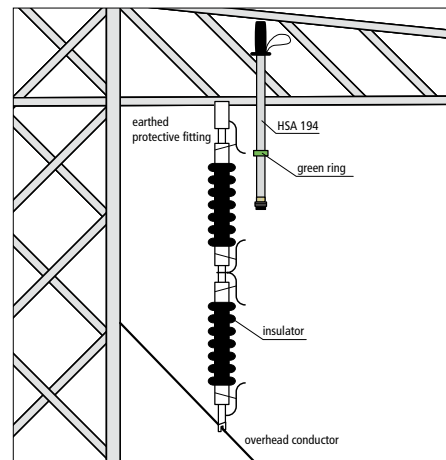


Figure 2: Example of application on the tower cross arm with switch position „110 ... 420 kV“

Nominal Voltage Range 110 ... 420 kV

With plug-in coupling as end fitting for extending the handle. Storage bag included in delivery.



| | |
|---|--------------------|
| Type | HSA194 110 420 STK |
| Part No. | 767 541 |
| Nominal voltage range (U _N) | 110 ... 420 kV |
| Frequency | 50 Hz |
| Total length (l _G) | 940 mm |
| Insulating clearance (l _I) | 540 mm |
| Verification while climbing the tower | No |

Nominal Voltage Range 110 ... 420 kV, with verification while climbing the tower

With plug-in coupling as end fitting for extending the handle. Storage bag included in delivery.



| | |
|---|----------------|
| Type HSA 194 ... | 110 420 SN7737 |
| Part No. | 767 539 |
| Nominal voltage range (U _N) | 110 ... 420 kV |
| Frequency | 50 Hz |
| Total length (l _G) | 940 mm |
| Insulating clearance (l _I) | 540 mm |
| Verification while climbing the tower | Yes |

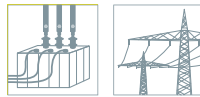
HSA 205 High-Voltage Indicator



HSA 205 high-voltage indicator with insulating cap used on a switchgear installation.

Nominal voltage range 1 ... 420 kV / 50 or 60 Hz

- For contactlessly verifying that switchgear installations and high-voltage overhead lines are dead
- Wide nominal voltage range



General technical data:

| | |
|-----------------------------------|--|
| Temperature range | -25 °C ... +55 °C, climatic category N |
| For use in wet weather conditions | |
| Indication | Visual and acoustic |
| Self-testing element | Yes |
| Material (insulating stick) | Glass-fibre reinforced polyester tube |

Nominal Voltage Ranges up to 420 kV, switchable

With insulating cap and plug-in coupling as end fitting for extending the handle. Storage bag included in delivery.



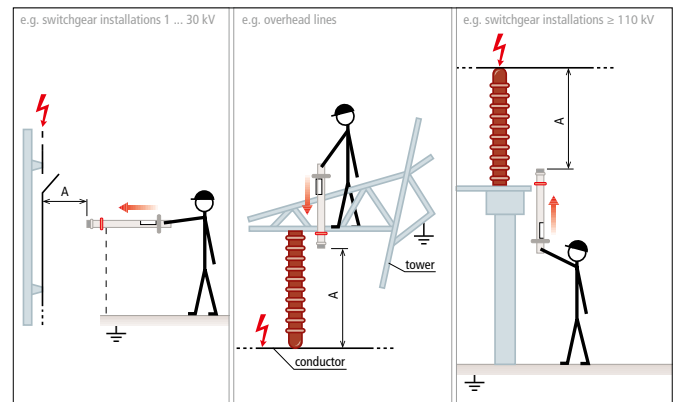
| Type HSA205 U 1 ... | 420 STK | 420SN7608 |
|---|--|--|
| Part No. | 767 552 | 767 547 |
| Nominal voltage range (U _N) | 1 ... 30 / 30 ... 220 / 110 ... 420 kV | 1 ... 30 / 30 ... 220 / 110 ... 420 kV |
| Frequency | 50 Hz | 60 Hz |
| Total length (l _G) | 950 mm | 950 mm |
| Insulating clearance (l _I) | 540 mm | 540 mm |

Application notes

The operating head of HSA 205 high-voltage indicator is fitted with a yellow switching ring, which is used to set the required nominal voltage range, either 1 to 30 kV, 30 to 220 kV or 110 to 420 kV. The transparent insulating cap must be used in the voltage range from 1 to 30 kV. Provided that the insulating tube and cap of the high-voltage indicator are in a dry and clean condition, the minimum distance A can be reduced for nominal voltages up to 30 kV. If these conditions cannot be ensured, the minimum distance A must be maintained!

Minimum distances A according to nominal voltage:

| Selected voltage range | Nominal voltage acc. to DIN VDE 0105 Part 1 | Min. safety distance A DIN VDE 0105 Part 1 |
|--------------------------|---|---|
| Red 1 ... 30 kV | over 1 up to 6 kV | 90 mm indoor installations |
| | over 6 up to 10 kV | 120 mm indoor installations |
| | over 1 up to 10 kV | 150 mm outdoor installations |
| | over 10 up to 20 kV | 220 mm indoor and outdoor installations |
| White 30 ... 220 kV | over 20 up to 30 kV | 320 mm indoor and outdoor installations |
| | over 30 up to 45 kV | 480 mm indoor and outdoor installations |
| | over 45 up to 60 kV | 630 mm indoor and outdoor installations |
| Yellow 110 ... 420 kV | over 60 up to 110 kV | 1100 mm indoor and outdoor installations |
| | over 110 up to 220 kV | 2100 mm indoor and outdoor installations |
| | over 110 up to 220 kV | 2100 mm indoor and outdoor installations |
| | over 220 up to 420 kV | 2900/3400 mm indoor and outdoor installations |



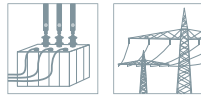
PHE/G DC Voltage Detector



PHE/G II DC voltage detector for DC links (ICE power car).

Nominal voltages up to 24 kV DC Safe verification of isolation from supply voltage

- For use in direct voltage systems (electrified rail networks, DC links)
- Reliable indication
- Easy to use due to compact design
- User-friendly



The test prod of DC voltage detectors is colour-coded according to the polarity of the test prod:

- positive pole - red;
- negative pole - blue.

General technical data:

| | |
|--|--|
| Standard | Based on EN/IEC 61243-1 (DIN VDE 0682-411) |
| Temperature range | -25 °C ... +55 °C, climatic category N |
| For use in wet weather conditions | |
| For | Indoor and outdoor installations |
| Indication | Visual |
| Self-testing element | Yes |
| Material (test prod) | Glass-fibre reinforced polyester tube |
| Material (indicator) | Plastic, fully insulated |
| Material (insulating stick) | Glass-fibre reinforced polyester tube |
| Material (earthing / connecting cable) | Copper cable, highly flexible |

PHE/G I for Switchgear Installations, positive pole on indicator with test prod



One stick

- For direct voltage systems with earthed negative pole
- Positive pole: indicator with test prod
- Negative pole: earth clamp with magnet



| | |
|-------------------------------------|------------------|
| Type | PHEG1.S P SN7401 |
| Part No. | 767 666 |
| Threshold voltage (U _t) | 120 V |
| Nominal voltage (U _N) | 1 ... 24 kV |
| Length (earthing cable) | 2000 mm |
| Total length (l _G) | 1260 mm |
| Insertion depth (l ₀) | 535 mm |

PHE/G I for Switchgear Installations, positive pole on indicator with test prod, angled

One stick

- For direct voltage systems with earthed negative pole
- Positive pole: Indicator with test prod
- Negative pole: Earth clamp



| | |
|-------------------------------------|------------------|
| Type | PHEG1 S P SN7240 |
| Part No. | 767 636 |
| Threshold voltage (U _t) | 60 V |
| Nominal voltage (U _N) | 3.8 kV |
| Length (earthing cable) | 4000 mm |
| Total length (l _G) | 1100 mm |

PHE/G II for Switchgear Installations

Two sticks

- For unearthed direct voltage installations
- For DC links
- Positive pole: Indicator with test prod
- Negative pole: Insulating stick



| | |
|-------------------------------------|----------------|
| Type | PHEG2.P SN7517 |
| Part No. | 767 671 |
| Threshold voltage (U _t) | 90 V |
| Nominal voltage (U _N) | 1 ... 24 kV |
| Length (connecting cable) | 1200 mm |
| Total length (l _G) | 1260 mm |
| Insertion depth (l ₀) | 545 mm |

PHE/G II for Switchgear Installations and DC Links

Two sticks

- For unearthed direct voltage installations
- For DC links (e.g. electric locomotives; Part No. 767 647)
- Positive pole: Indicator with test prod
- Negative pole: Insulating stick



General technical data:

| | |
|---------------------------|---------|
| Length (connecting cable) | 1200 mm |
|---------------------------|---------|

| | | |
|-------------------------------------|----------------|----------------|
| Type | PHEG2 P SN7552 | PHEG2 P SN7259 |
| Part No. | 767 647 | 767 645 |
| Threshold voltage (U _t) | 90 V | 120 V |
| Nominal voltage (U _N) | 1 ... 4.2 kV | 1 ... 12 kV |
| Total length (l _G) | 600 mm | 1085 mm |

| | | |
|-------------------------------------|----------------|----------------|
| Type | PHEG2 P SN7407 | PHEG2 P SN7194 |
| Part No. | 767 640 | 767 637 |
| Threshold voltage (U _t) | 350 V | 750 V |
| Nominal voltage (U _N) | 600 ... 750 V | 1.5 kV |
| Total length (l _G) | 1085 mm | 1085 mm |

Two-pole SPN voltage detector for power supply




Two-pole SPN voltage detector used with extension prods for overhead lines.

Nominal voltages up to 1000 V

- Extremely shock-resistant, waterproof and dust-proof enclosure
- Test ball with additional phase, rotation field and continuity test
- Two versions with different measuring ranges
- For use in overhead line networks by attaching extension prods
- No battery required



General technical data:

| | |
|-----------------------------------|---|
| Standard | EN/IEC 61243-3 (DIN VDE 0682-401) |
| Temperature range | -15 °C ... +45 °C |
| Degree of protection | IP 65 |
| For use in wet weather conditions |  |
| Material (indicator) | Safety enclosure made of solid rubber |
| Indication | Direct-reading instrument, LCD and LED |
| Connecting cable | PUR-sheathed cable, highly flexible, 1000 mm |
| Overtoltage category | SPN 500B: CAT IV 500 V; SPN 1000B: CAT IV 1000 V |

Nominal Voltage Range up to 1000 V

Basic devices.



| Type SPN ... | 500B | 1000B |
|---|----------------------|----------------------|
| Part No. | 766 660 | 766 665 |
| Nominal voltage range (U _N) | 50 ... 500 V | 50 ... 1000 V |
| Frequency range | 15 ... 500 Hz and DC | 15 ... 500 Hz and DC |
| Dimensions (indicator) | 274 x 75 x 47 mm | 274 x 75 x 47 mm |

Accessories for Two-pole SPN voltage detector for power supply

Extension prod

For use in overhead line networks, to be screwed onto the basic device.



| | |
|----------|---------------|
| Type | VS 500 SPN II |
| Part No. | 766 542 |
| Length | 500 mm |

Artificial leather bag, empty

For SPN voltage detectors (basic device with extension prods).



| | |
|------------|--------------|
| Type | AT SPN II |
| Part No. | 766 543 |
| Dimensions | 535 x 160 mm |
| Colour | Black ● |

Two-pole SPN voltage detector for the electrical trade and industry



Testing the high DC voltage of a HV electric vehicle.

- Direct display system with low stress on the test point
- Switchable vibration motor
- Ideal for voltage testing on photovoltaic and wind power plants; on hybrid vehicles; on high system voltages in industry; in service and in trades

General technical data:

| | |
|----------------------|---------------------------|
| Standard | EN 61243-3 (VDE 0682-401) |
| Degree of protection | IP 65 |
| Overvoltage category | CAT IV 600 V |

Nominal voltage range
1 to 1000 V AC / 1200 DC,
digital



| | |
|---|--|
| Type SPN ... | 1200 D |
| Part No. | 700 102 <small>NEW</small> |
| Indicator | LED/LCD (lights up) |
| Voltage range | 1.0 V - 1000 V AC / 1200 V DC |
| Frequency measurement range | 1 - 1000 Hz |
| Acoustic and visual continuity test | Buzzer + yellow LED 0 - 100 kΩ |
| Diode test | 0.3 - 2.0 V |
| Resistance measuring range | 0.1 kΩ - 300 kΩ |
| Rotating field test | Green LEDs (right/left) |
| Single-pole line conductor test (phase) | Red "flash" LED |
| Polarity test | LCD (+/-) |
| Cable break detector | Yellow LED (flashing) |
| Load switching via pushbutton | I _S = 550 mA (1000 V) 30 mA RCD trip |
| Vibration alarm | yes |
| Measuring point lighting | White LED |

Nominal voltage range
12 to 1,000 V AC/DC,
analogue



| | |
|---|--|
| Type SPN ... | 1000 A |
| Part No. | 700 100 <small>NEW</small> |
| Indicator | Plunger coil (illuminated)/LED |
| Voltage range | 12 V - 1000 V AC/DC |
| Frequency measurement range | - |
| Acoustic and visual continuity test | - |
| Diode test | - |
| Resistance measuring range | - |
| Rotating field test | LCD (R icon) |
| Single-pole line conductor test (phase) | LCD (R icon) |
| Polarity test | LED (+/-) |
| Cable break detector | - |
| Load switching via pushbutton | I _S = 550 mA (1000 V) 30 mA RCD trip |
| Vibration alarm | yes |
| Measuring point lighting | - |

Structure of phase comparators

Phase comparators in accordance with EN/IEC 61481-1 (DIN VDE 0682-431-1) are designed for testing for in-phase condition of three-phase systems.

Only electrically skilled or instructed persons are allowed to test for in-phase condition. Phase comparators have to be tested for correct operation immediately before and after use.

Phase comparators without self-testing element have to be tested for correct operation by making contact with a part of the installation connected to operating voltage. Testing for in-phase condition by means of a phase comparator is considered live working. Phase comparators may only be used for the nominal voltages / nominal voltage ranges as indicated on the rating plate. The user may be at risk if the voltage detector is used for voltages other than indicated on the rating plate (incorrect indication, electric shock, arcing).

Phase comparators labelled "For indoor and outdoor installations" must not be used in wet weather conditions.

Phase comparators labelled "Also suitable for use in wet weather conditions" may be used in all weather conditions such as rain, snow, fog and dew. Phase comparators in accordance with IEC/EN 61481-1 (DIN VDE 0682-431-1) are only suitable to a limited extent for use in factory assembled (type-tested) installations.

When inserting the test prod, flashovers may occur due to the restricted space in these installations. The user of the phase comparator or the operator of the switchgear must ask the manufacturer of the type-tested equipment whether the existing phase comparator may be used.

Structure of phase comparators

Phase comparators can be designed as a two-pole device (resistive phase comparator) in accordance with IEC/EN 61481-2 (DIN VDE 0682-431-2) or as a single-pole device (capacitive phase comparator) in accordance with IEC/EN 61481-1 (DIN VDE 0682-431-1). The structure of the PHV I single-pole phase comparator is similar to that of a capacitive voltage detector. The functional principle of single-pole phase comparator is based on a microprocessor controlled electronic storage system.

Single-pole phase comparators consist of a handle with hand guard, insulating element, indicator and test prod with contact electrode.

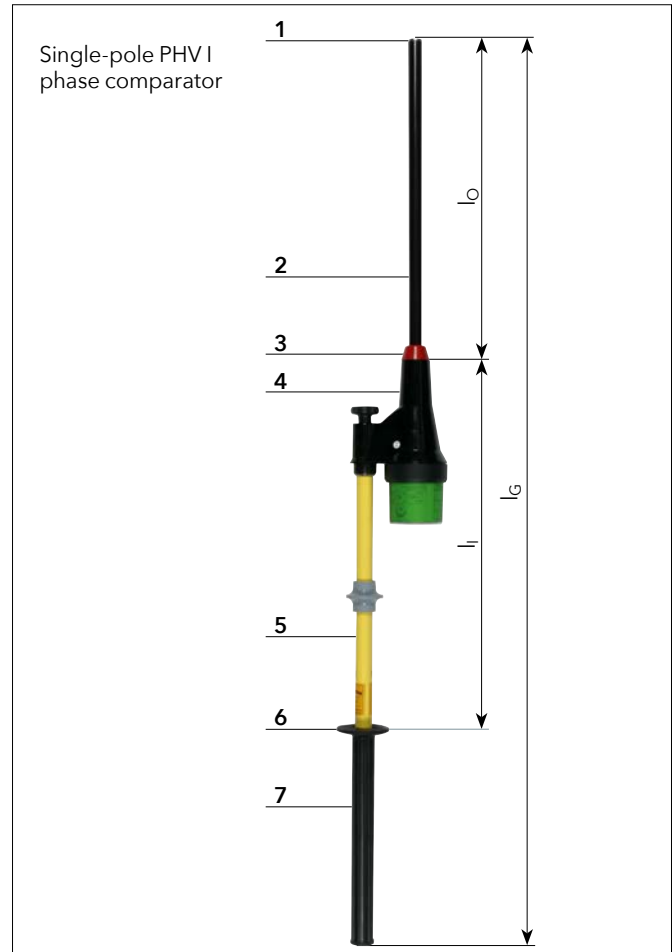
The **insulating element** is the section of a phase comparator between the hand guard and the red ring. It ensures that the user maintains an adequate safety distance for safe operation.

The **test prod** with a contact electrode above the red ring makes it possible to reach remote parts of the installation and to eliminate the influence of interference fields.

The **hand guard** is a clearly visible and tangible barrier between the handle and the insulating element. It prevents the user's hand from slipping off the handle and making accidental contact with the insulating element.

The **red ring** marks the end of the insulating element towards the test electrode. It provides the user with a visible limitation for contact with live parts of the installation. The insulating clearance between the red ring and hand guard must not contact live parts, but contact with earthed parts is allowed.

The **test electrode** is part of the phase comparator which is used to make contact with the uninsulated part of the installation to be tested.



- 1 Test electrode
- 2 Test prod
- 3 Red ring
- 4 Indicator
- 5 Insulating element
- 6 Hand guard
- 7 Handle

- l_G Total length of the phase comparator
- l_0 Length of the top section
- l_1 Length of the insulating element

Storage bags and transport cases

- Cases: Sheet steel or plastic
- Bags: Artificial leather or canvas



55
56

German Social Accident Insurance (DGUV) Regulation 3 (formerly accident prevention regulations (BGV A3))

Phase comparators must be checked according to the DGUV regulation 3 (previously BGV A3) for compliance with the limit values as specified in the electrotechnical rules. This test is carried out in the high-voltage test laboratory at DEHN and includes, among other things:

- Testing the discharge current
- Testing for clear indication
- Testing the protection against bridging
- Testing by visual inspection, manual test and measuring

The maintenance test is documented in a test report and on the device itself.

The intervals for maintenance tests of phase comparators depend on their conditions of use, e.g. frequency of use, stress due to environmental conditions and transport, etc, however, according to DGUV regulation 3, **at least every 6 years**.



7

Single-pole PHV I Phase Comparator



Single-pole PHV I phase comparator used in a switchgear installation.

Nominal voltages up to 36 kV / 50 Hz

Safe testing

- Reliable indication



General technical data:

| | |
|-----------------------------------|--|
| Standard | EN/IEC 61481-1 (DIN VDE 0682-431-1) |
| Temperature range | -25 °C ... +55 °C, climatic category N |
| For use in wet weather conditions | |
| For | Indoor and outdoor installations |
| Self-testing element | Yes |
| Material (test prod) | Plastic |
| Material (indicator) | Plastic, fully insulated |
| Material (insulating stick) | Glass-fibre reinforced polyester tube |

Nominal Voltage Ranges up to 36 kV / 50 Hz



| | | |
|-----------------------------------|-------------|--------------|
| Type PHV1P ... | 6 12 | 10 20 |
| Part No. | 759 706 | 759 712 |
| Nominal voltage (U _N) | 6 ... 12 kV | 10 ... 20 kV |
| Total length (l _G) | 1270 mm | 1270 mm |
| Insertion depth (l _O) | 450 mm | 450 mm |

| | |
|-----------------------------------|--------------|
| Type PHV1P ... | 20 36 |
| Part No. | 759 736 |
| Nominal voltage (U _N) | 20 ... 36 kV |
| Total length (l _G) | 1730 mm |
| Insertion depth (l _O) | 910 mm |

Nominal Voltage Ranges up to 36 kV / 50 Hz, switchable



| | |
|-----------------------------------|-------------------------|
| Type PHV1P ... | U 5 36 |
| Part No. | 759 716 |
| Nominal voltage (U _N) | 5 ... 10 / 20 ... 36 kV |
| Total length (l _G) | 1730 mm |
| Insertion depth (l _O) | 910 mm |

DEHNproX - 3. Verify that the installation is dead - DEHNcap voltage detecting system

| Application, indication | Nominal voltage U_N / Frequency f_N | Product | Page |
|--|---|---|------|
| DEHNcap/P voltage indicator / DEHNcap/P test unit | | | |
| <ul style="list-style-type: none"> Passive indicator without batteries LED display Also suitable for use as permanent voltage indicator | up to 45 kV / 50 Hz |  | 50 |
| <ul style="list-style-type: none"> For simple functional test Simple operation on a 230 V socket outlet For HR and LRM indicators | 230 V / 50 Hz |  | |
| DEHNcap/A voltage indicator | | | |
| <ul style="list-style-type: none"> Active voltage indicator Indication via two separate LEDs With self-testing element and battery monitoring device Automatic deactivation after use | up to 45 kV / 50 Hz |  | 51 |
| DEHNcap/IT interface test unit | | | |
| <ul style="list-style-type: none"> Active indicator for maintenance tests Indication via two separate LEDs With self-testing element and battery monitoring device Automatic deactivation after use | up to 45 kV / 50 Hz |  | 51 |
| DEHNcap HR-LRM test set | | | |
| <ul style="list-style-type: none"> Complete test set | up to 45 kV / 50 Hz |  | 52 |
| DEHNcap/PC phase comparator | | | |
| <ul style="list-style-type: none"> Active indicator for testing in-phase conditions Indication via three separate LEDs Can be used at HR test sockets with two HR-LRM test adapters Comparator detects zero crossings of the systems to be compared With battery monitoring function | up to 45 kV / 50 Hz |  | 52 |
| DEHNcap test adapter | | | |
| <ul style="list-style-type: none"> HR-LRM test adapter LR-LRM test adapter | |  | 53 |
| German Social Accident Insurance (DGUV) Regulation 3 (formerly accident prevention regulations (BGV A3)) | | | |
| <p>Capacitive voltage detecting systems must be checked according to the DGUV regulation 3 (previously BGV A3) for compliance with the limit values as specified in the electrotechnical rules. This test is carried out in the high-voltage test laboratory at DEHN.</p> <p>The maintenance test is documented in a test report and on the device itself.</p> <p>The intervals for maintenance tests of capacitive voltage detecting systems depend on their conditions of use, e.g. frequency of use, stress due to environmental conditions and transport, etc, however, according to DGUV regulation 3, at least every 6 years.</p> | | | 7 |



DEHNcap/P Voltage Indicator



DEHNcap/P passive voltage indicator used in an encapsulated switchgear installation.

Nominal voltages up to 45 kV / 50 Hz
Easy verification of isolation from supply voltage

- Cost-effective

| General technical data: | |
|-------------------------|---|
| Standard | EN/IEC 61243-5 (DIN VDE 0682-415) |
| Temperature range | -25 °C ... +55 °C |
| Degree of protection | IP 66 |
| Type of device | Voltage indicator |
| Use | Can also be used as permanent voltage indicator |

Test for correct operation

EN 50110-1 (DIN VDE 0105-100) requires that voltage indicators be tested for correct operation shortly before and after use. Passive indicators without self-testing element must be tested for correct operation by plugging them into test sockets connected to operating voltage or into a test unit (DEHNcap/P test unit).

DEHNcap/P-HR



| Type SAG DCA P ... | HR GA |
|----------------------------------|-----------------|
| Part No. | 767 101 |
| Dimensions | 40 x 48 x 35 mm |
| Plug spacing | 19 mm |
| Indication threshold (HR system) | 90 V |
| Input impedance (HR system) | 36 MOhms |

DEHNcap/P-LRM



| Type SAG DCA P ... | LRM GA |
|-----------------------------------|-----------------|
| Part No. | 767 102 |
| Dimensions | 40 x 48 x 35 mm |
| Plug spacing | 14 mm |
| Indication threshold (LRM system) | 5 V |
| Input impedance (LRM system) | 2 MOhms |

Accessories for DEHNcap/P Voltage Indicator

Test unit for DEHNcap/P



| | |
|---|-----------------|
| Type | TG DCA |
| Part No. | 767 110 |
| Nominal voltage (U _N) | 230 V |
| Frequency | 50 Hz |
| Nominal capacity | 500 mW |
| Max. short-circuit current at the test socket | Approx. 20 µA |
| Dimensions | 43 x 75 x 35 mm |

Electrical and mechanical interface requirements for pluggable HR, LR and LRM voltage detecting systems

| System description | | HR high resistance | LR low resistance | LRM low resistance, modified |
|---|------------------|-----------------------|----------------------|------------------------------------|
| Input impedance of the indicator | X _C | 36 MΩ | 2 MΩ | 2 MΩ |
| Electrical response conditions of the interface | I | 2.5 µA | 2.5 µA | 2.5 µA |
| Electrical response conditions of the interface | U | 90 V | 5 V | 5 V |
| Socket arrangement and minimum spare area A for indicator or plug | | | | |
| | Plug arrangement | | | |

DEHNcap/A Voltage Indicator



Self-test of a DEHNcap/A voltage indicator.

Nominal voltages up to 45 kV / 50 Hz
Safe verification of isolation from supply voltage

- User-friendly
- Easy application

General technical data:

| | |
|----------------------|--------------------------------------|
| Standard | EN/IEC 61243-5 (DIN VDE 0682-415) |
| Temperature range | - 25 °C ... + 55 °C |
| Field of application | Active voltage indicator for testing |
| Self-testing element | Yes |

Self-testing element

DEHNcap/A electronic voltage indicators have an integrated self-testing element. By simply pressing the test button, the electronic circuit is tested for correct operation. The self-test is automatically performed as soon as the indicator is switched on. The voltage indicator is only operational if the test button is pressed, i.e. the function test was performed successfully.

DEHNcap/A-LRM



| | |
|-----------------------------------|--------------------------|
| Type | SAG DCA A LRM |
| Part No. | 767 112 |
| Dimensions | 120 x 60 x 25 mm |
| Plug spacing | 14 mm |
| Type of plug | 2 multilam plugs (Ø4 mm) |
| Indication threshold (LRM system) | 5 V |
| Input impedance (LRM system) | 2 MOhms |

DEHNcap/IT Interface Test Unit



DEHNcap/IT interface test unit allows to carry out maintenance tests on coupling systems of switchgear installations according to IEC/EN 61243-5 (DIN VDE 0682-415).

Nominal voltages up to 45 kV / 50 Hz
Easy and safe testing

- User-friendly
- Easy handling

General technical data:

| | |
|----------------------|--|
| Standard | EN/IEC 61243-5 (DIN VDE 0682-415) |
| Temperature range | - 25 °C ... + 55 °C |
| Field of application | Active indicator for maintenance tests on coupling systems |
| Self-testing element | Yes |

Self-testing element

The DEHNcap/IT interface test unit has an integrated self-testing element. By simply pressing the test button, the electronic circuit is tested for correct operation. The self-test is automatically performed as soon as the indicator is switched on. The interface test unit is only operational if the test button is pressed i.e. the function test was performed successfully.

DEHNcap/IT-LRM



| | |
|------------------------------|--------------------------|
| Type | SPG DCA IT LRM |
| Part No. | 767 122 |
| Dimensions | 120 x 60 x 25 mm |
| Plug spacing | 14 mm |
| Type of plug | 2 multilam plugs (Ø4 mm) |
| Input impedance (LRM system) | 2 MOhms |
| Test threshold | 3.2 µA |

DEHNcap HR-LRM Test Kit



Kit in a plastic case for verifying that the installation is dead and testing the interface as well as for in-phase conditions in HR and LRM systems.

Nominal voltages up to 45 kV / 50 Hz

Easy and safe testing

- Complete test kit for universal use
- Easy operation

General technical data:

| | |
|-------------------|-----------------------------------|
| Standard | EN/IEC 61243-5 (DIN VDE 0682-415) |
| Temperature range | -25 °C ... +55 °C |

DEHNcap HR-LRM Test Kit

Kit includes:

| No. | Part No. | No. | Part No. |
|-----|--------------|-----|--------------|
| 1 | 767 112 (1x) | 4 | 767 133 (2x) |
| 2 | 767 122 (1x) | 5 | 767 107 (1x) |
| 3 | 767 132 (1x) | | |

For more detailed information on these products, see Accessories chapter.

| | |
|------------|--------------------|
| Type | PS DCA HR LRM |
| Part No. | 767 150 |
| Dimensions | 395 x 295 x 105 mm |



DEHNcap/PC-LRM Phase Comparator



DEHNcap/PC-LRM phase comparator with two HR-LRM test adapters used in an HR switchgear installation.

Nominal voltages up to 45 kV / 50 Hz

Easy and safe testing

- User-friendly
- Easy handling

General technical data:

| | |
|----------------------|--|
| Standard | EN/IEC 61243-5 (DIN VDE 0682-415) |
| Temperature range | -25 °C ... +55 °C |
| Design | Active indicator for testing for in-phase conditions on LRM test sockets |
| Field of application | For HR test sockets with two HR-LRM test adapters |
| Self-testing element | Yes |

By attaching two optional HR-LRM adapters (Part No. 767 133), the DEHNcap/PC-LRM phase comparator can also be used for phase comparison in HR systems. DEHNcap/PC-LRM is designed as a universal phase comparator in accordance with EN/IEC 61243-5 (DIN VDE 0682-415) and detects zero crossings, but no voltage values.

DEHNcap/PC-LRM



| | |
|-----------------------------------|---|
| Type PV DCA PC ... | LRM |
| Part No. | 767 132 |
| Dimensions | 145 x 85 x 32 mm |
| Measuring cables | 3 measuring cables with multilam plug (Ø4 mm) |
| Length (measuring cable) | 2000 mm |
| Indication threshold (LRM system) | 5 V |
| Input impedance (LRM system) | 2 MOhms |

DEHNproX - 3. Verify that the installation is dead - DEHNcap voltage detecting system

DEHNcap/PC-LRM Phase Comparator Kit

Phase comparator in an artificial leather bag (KLT 23 164).



| | |
|-----------------------------------|---|
| Type PV DCA PC ... | LRM T |
| Part No. | 767 139 |
| Dimensions | 145 x 85 x 32 mm |
| Measuring cables | 3 measuring cables with multilam plug (Ø4 mm) |
| Length (measuring cable) | 2000 mm |
| Indication threshold (LRM system) | 5 V |
| Input impedance (LRM system) | 2 MOhms |

Accessories for DEHNcap/PC-LRM Phase Comparator

Artificial leather bag, empty

With carrying strap.



| | |
|--------------|-------------------|
| Type | KLT 23 16 4 |
| Part No. | 767 500 |
| Suitable for | DCA PC |
| Dimensions | 235 x 160 x 40 mm |
| Colour | Black ● |

DEHNcap Test Adapter



The HR-LRM test adapter for plugging an LRM indicator into a HR test socket.

Easy and safe testing

- Easy mechanical and electrical adaptation to HR, LR test sockets
- Measuring impedance for maintenance tests on coupling systems with suitable μA meter
- 4 mm safety plugs or sockets
- Energised HR plug, insulated

General technical data:

| | |
|-------------------|-----------------------------------|
| Standard | EN/IEC 61243-5 (DIN VDE 0682-415) |
| Temperature range | -25 °C ... +55 °C |

HR-LRM Test Adapter

For electrical and mechanical adaptation of HR (HO) to LRM systems.



Used as a measuring impedance with $X_C = 36 \text{ MOhms}$ for maintenance tests on HR coupling systems (with suitable μA meter).

| | |
|---------------------|--------------------------|
| Type MA DCA ... | HR LRM |
| Part No. | 767 133 |
| Dimensions | 90 x 50 x 30 mm |
| Plug spacing | 19 mm |
| Socket spacing | 14 mm |
| Type of plug | 2 multilam plugs (Ø4 mm) |
| Type of test socket | 2 sockets (Ø4 mm) |

LR-LRM Test Adapter

For mechanical adaptation of LR (NO) to LRM systems.



| | |
|---------------------|-------------------|
| Type MA DCA ... | LR LRM |
| Part No. | 767 136 |
| Dimensions | 100 x 50 x 30 mm |
| Plug spacing | jack, 6.3 mm |
| Socket spacing | 14 mm |
| Type of plug | 1 jack |
| Type of test socket | 2 sockets (Ø4 mm) |

Electrodes

- Safe contact with the part of an installation to be tested
- With M8 thread, to be screwed on the test prods of PHE4, PHE III, PHE voltage detectors as well as PHV I phase comparators

Onion-shaped Electrode

For contacting varnished busbars.



| | |
|-----------------------------------|----------------|
| Type EL M8 ... | SZ PHE PHV |
| Part No. | 766 913 |
| Nominal voltage (U _N) | From 3 kV |
| Material | Brass/gal CuSn |

Pin-shaped Electrode

For contacting varnished busbars.



| | |
|-----------------------------------|-----------|
| Type EL M8 ... | S PHE PHV |
| Part No. | 766 925 |
| Nominal voltage (U _N) | From 3 kV |
| Material | StSt |

V-shaped Electrode

For contacting round conductors.



| | |
|-----------------------------------|-----------|
| Type EL M8 ... | V PHE PHV |
| Part No. | 766 927 |
| Nominal voltage (U _N) | From 3 kV |
| Material | Cu/gal Sn |

Hook-shaped Electrode

For contacting overhead line conductors.



| | |
|----------------|-------------------------|
| Type EL M8 ... | H PHE |
| Part No. | 766 923 |
| Application | For overhead lines only |
| Material | St/gal Zn |

Fork-shaped Electrode

For contacting overhead line conductors.



| | |
|----------------|-------------------------|
| Type EL M8 ... | G PHE |
| Part No. | 766 924 |
| Application | For overhead lines only |
| Material | StSt |

Eaton Holec Magnefix Electrode

For Eaton Holec Magnefix switchgear installations of type MA, MD4, MF, MG, MY.



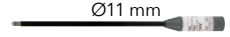
| | |
|-----------------------------------|---------------------|
| Type EL M8 ... | MAG PHE PHV |
| Part No. | 766 915 |
| Nominal voltage (U _N) | 3 ... 15 kV |
| Material | Brass/gal CuSn, PVC |

Test Probes

- Safe contact with the part of an installation to be tested
- With M8 thread, to be screwed on test electrodes of PHE4, PHE III and PHE voltage detectors
- For switchgear installations with limited access
- Available in different lengths and angles

Test Probe, straight

For switchgear installations with limited access (e.g. Calor Emag/ Isopond and Krone/KES)



| | |
|-----------------------------------|--------------------|
| Type PSO M8 ... | PHE |
| Part No. | 766 916 |
| Nominal voltage (U _N) | 3 ... 24 kV |
| Total length (l _G) | 420 mm |
| Length (l _I) | 300 mm |
| For use at | |
| Suitable for | PHE4, PHE III, PHE |

Test Probe, straight, 800 mm

For transformer stations and switchgear installations that require a greater insertion depth.



| | |
|-----------------------------------|--------------------|
| Type PSO M8 ... | PHE L800 |
| Part No. | 766 960 |
| Nominal voltage (U _N) | 3 ... 24 kV |
| Total length (l _G) | 890 mm |
| For use at | |
| Suitable for | PHE4, PHE III, PHE |

Test Probe, 25° angled

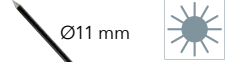
For switchgear installations with limited access.



| | |
|-----------------------------------|--------------------|
| Type PSO M8 ... | W25 PHE |
| Part No. | 766 940 |
| Nominal voltage (U _N) | 3 ... 24 kV |
| Total length (l _G) | 450 mm |
| Length (l _I) | 280 mm |
| For use at | |
| Suitable for | PHE4, PHE III, PHE |

Test Probe, 45° angled

For switchgear installations with limited access.



| | |
|-----------------------------------|--------------------|
| Type PSO M8 ... | W45 PHE |
| Part No. | 766 941 |
| Nominal voltage (U _N) | 3 ... 24 kV |
| Total length (l _G) | 395 mm |
| Length (l _I) | 280 mm |
| For use at | |
| Suitable for | PHE4, PHE III, PHE |

Test Probe, 90° angled

For switchgear installations with a limited tulip-shaped access from bottom to top.



| | |
|-----------------------------------|--------------------|
| Type PSO M8 ... | W90 PHE |
| Part No. | 766 950 |
| Nominal voltage (U _N) | 3 ... 36 kV |
| Total length (l _G) | 200 mm |
| Length (l _I) | 370 mm |
| For use at | |
| Suitable for | PHE4, PHE III, PHE |

Adapters and End Fittings

Adapter (Plug-In Coupling / T Pin Shaft)

For extending the handle of IS ... STK insulating sticks by an ES SQ or ES SQL earthing stick.



| | |
|--------------------------------|--------------|
| Type | AD HV STK SQ |
| Part No. | 766 313 |
| Total length (l _G) | 275 mm |

End Fitting STK (Plug-in Coupling)

For use as termination and protection



| | |
|--------------------------------|------------|
| Type | A STK |
| Part No. | 766 888 |
| Total length (l _G) | 85 mm |
| Diameter | 30 / 43 mm |

End Fitting STK with Eye

For use as protection and transport eye when working on overhead lines.



| | |
|--------------------------------|------------|
| Type | AR STK |
| Part No. | 766 889 |
| Total length (l _G) | 150 mm |
| Diameter | 30 / 43 mm |

Storage Bags and Transport Cases / Easy Choice

See Page 56

Note: All storage bags and transport cases are delivered without content.

| Storage Bags and Transport Cases | Sheet Steel Case | | Plastic Case | | | | | Artificial Leather Bag | | | | | Storage Bag | | | | |
|--|------------------|---------|--------------|---------|---------|---------|---------|------------------------|---------|---------|---------|---------|-------------|---------|---------|---------|---------|
| | 767 701 | 767 997 | 767 999 | 766 036 | 766 998 | 766 995 | 766 994 | 767 107 | 767 996 | 766 602 | 766 996 | 767 574 | | 767 500 | 766 614 | 766 543 | 766 601 |
| Safety Equipment | | | | | | | | | | | | | | | | | |
| PHE4 up to l _G 1450 mm | | | | | | | | | | | | | | | | | |
| PHE4 up to l _G 3010 mm / * up to l _G 1760 mm | | | | | | | | | | | | | | | | * | |
| PHE4 from l _G 4420 mm (l _G 5750 mm) | | | | | | | | | | | | | | | | | |
| PHE III up to l _G 1675 mm | | | | | | | | | | | | | | | | | |
| PHE III ZK Indicator with Test Prod | | | | | | | | | | | | | | | | | |
| PHE III Kit * up to 1270 mm | | | | | * | | | | | | | | | | | | |
| ASP * from Part No. 767 573 | | | | | | | | * | | | | | | | | | |
| HSA | | | | | | | | | | | | | | | | | |
| PHE/G | | | | | | | | | | | | | | | | | |
| Voltage detectors for LV Installations | | | | | | | | | | | | | | | | | |
| PHV I up to l _G 1270 mm | | | | | | | | | | | | | | | | | |
| PHV I up to l _G 1730 mm | | | | | | | | | | | | | | | | | |
| DEHNcap | | | | | | | | | | | | | | | | | |

Storage Devices

- Wall-mounted
- Easy and safe storage of earthing and short-circuiting devices, voltage detectors and operating sticks (Ø30 or 43 mm)

For a Voltage Detector and an Earthing Stick

For a voltage detector and an earthing stick of any length
Hole spacing: 290/390 mm, holes: Ø7 mm



| Type HV ... | P ST D24 | P ST D30 |
|---------------------|-------------------|-------------------|
| Part No. | 700 006 | 700 007 |
| Dimensions | 530 x 30 x 136 mm | 430 x 30 x 136 mm |
| For stick diameters | 24 mm | 30 mm |
| DB material No. | - | 828 077 |

| Type HV ... | P ST D40 45 |
|---------------------|-------------------|
| Part No. | 700 008 |
| Dimensions | 530 x 30 x 149 mm |
| For stick diameters | 40 ... 45 mm |
| DB material No. | - |

For an Earthing and Short-Circuiting Device and an Earthing Stick

For an earthing and short-circuiting device and an earthing stick of any length
Hole spacing: 424 mm, holes: Ø7 mm



| Type HV ... | EKV ES30 | EKV ES40 |
|---------------------|--------------------|--------------------|
| Part No. | 700 000 | 700 002 |
| Dimensions | 525 x 175 x 214 mm | 525 x 175 x 214 mm |
| For stick diameters | 30 mm | 43 mm |
| DB drawing No. | 3 Ebgw 01.70 | - |
| DB material No. | 742 395 | - |

For an Earthing and Short-Circuiting Device and an Earthing Stick up to 1.5 m

For an earthing and short-circuiting device and an earthing stick with a length up to 1.5 m
Hole spacing: 104 mm, holes: Ø7 mm



| Type HV ... | EKV ES30 1500 |
|---------------------|---------------|
| Part No. | 700 003 |
| Dimensions | 214 x 150 mm |
| For stick diameters | 30 / 43 mm |

Sheet Steel Case

Sheet Steel Case for PHE III
Hammer-tone finished with foam padding.



| | |
|------------|--------------------|
| Type | SKL 95 21 10 |
| Part No. | 767 701 |
| Dimensions | 950 x 210 x 115 mm |
| Colour | Blue ● |

Plastic Case

Universal Plastic Case for PHE4, PHE III and PHV I
With aluminium frame and convoluted foam.



| | | |
|--------------|--------------------|---------------------|
| Type KKL ... | 92 28 12 | 127 28 12 |
| Part No. | 766 994 | 766 995 |
| Dimensions | 920 x 280 x 126 mm | 1270 x 280 x 126 mm |
| Colour | Black ● | Black ● |

Plastic Case for PHE III
With foam padding



| | | |
|--------------|--------------------|---------------------|
| Type KKL ... | PHE3 | PHE3 L |
| Part No. | 767 997 | 767 999 |
| Dimensions | 940 x 235 x 140 mm | 1290 x 235 x 140 mm |
| Colour | Black ● | Black ● |

Plastic Case for PHE III Indicator with Test Prod
With foam padding



| | |
|--------------|-------------------|
| Type KKL ... | PK PHE3 L |
| Part No. | 766 036 |
| Dimensions | 390 x 280 x 80 mm |
| Colour | Grey ● |

Plastic Case for PHE III - Kit
With foam padding



| | |
|--------------|---------------------|
| Type KKL ... | PHE3 60 110 |
| Part No. | 766 998 |
| Dimensions | 1290 x 235 x 140 mm |
| Colour | Black ● |

Plastic Case for DEHNcap
With foam padding



| | |
|--------------|-------------------|
| Type KKL ... | DCA |
| Part No. | 767 107 |
| Dimensions | 390 x 280 x 84 mm |
| Colour | Grey ● |

Artificial Leather Bag

Artificial Leather Bag for PHE4, PHE III, ASP, PHV I and IS STK
With zip, carrier handle and shoulder strap.



| | | |
|--------------|---------------------|---------------------|
| Type KLT ... | 101 30 10 | 133 34 10 |
| Part No. | 767 996 | 766 996 |
| Dimensions | 1010 x 300 x 100 mm | 1300 x 345 x 100 mm |
| Colour | Black ● | Black ● |

Artificial Leather Bag for PHE4 and PHE
With carrier handle



| | |
|--------------|---------------------|
| Type KLT ... | 247 10 22 |
| Part No. | 766 602 |
| Dimensions | 2470 x 220 x 100 mm |
| Colour | Black ● |

Artificial Leather Bag for PHE4, PHE and PHV I
With carrier handle



| | |
|--------------|---------------------|
| Type KLT ... | 121 25 16 |
| Part No. | 766 601 |
| Dimensions | 1200 x 250 x 160 mm |
| Colour | Black ● |

Artificial Leather Bag for ASP and HSA
With zip and carrier handle.



| | |
|--------------|---------------|
| Type KLT ... | 104 9 |
| Part No. | 767 574 |
| Dimensions | Ø90 x 1040 mm |
| Colour | Black ● |

Artificial Leather Bag for PHE/G
With carrier handle



| | |
|--------------|----------------|
| Type KLT ... | 160 17 |
| Part No. | 766 614 |
| Dimensions | Ø170 x 1600 mm |
| Colour | Black ● |

Canvas Bag

Canvas Bag for PHE and PHE/G I
With carrier handle.



| | |
|--------------|---------------------|
| Type STT ... | 120 30 15 |
| Part No. | 766 704 |
| Dimensions | 1220 x 390 x 150 mm |
| Colour | Olive ● |

Discharge and Equipotential Bonding Devices



Single-pole device for discharging static charges.

- For discharging static charges
- Different contact electrodes
- Coupling electrode, especially for round conductors (Ø12 ... 26.5 mm) of electrostatic precipitator systems
- Waterproof, plastic-sheathed cable entries, with additional anti-kink protection



General technical data:

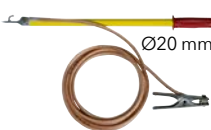
| | |
|---|---------------------------------------|
| Not for use in wet weather conditions | ☀ |
| Material (contact electrode) | Cu alloy/gal Sn |
| Material (contact and coupling electrode) | Zamak |
| Material (coupling electrode) | Bronze/gal Sn |
| Material (insulating tube) | Glass-fibre reinforced polyester tube |
| Material (earthing cable) | Cu, highly flexible |

Discharge Device with Handle and Earth Clamp with Wing Bolt



| | |
|--------------------------------|--------------------|
| Type | EV TES 465 EK |
| Part No. | 758 020 |
| Cable length | 3500 mm |
| Cable cross-section | 16 mm ² |
| Cable sheath | Transparent |
| Total length (l _G) | 550 mm |
| Clamping range | Up to 20 mm |

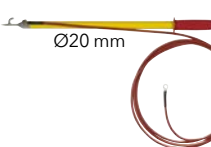
Discharge Device with Handle and Spring-loaded Earth Pliers



| | |
|--------------------------------|-------------------------|
| Type | EV TES 465 EZ |
| Part No. | 758 021 |
| Cable length | 3500 mm |
| Cable cross-section | 16 mm ² |
| Cable sheath | Transparent |
| Total length (l _G) | 550 mm |
| Clamping range Rd / Fl | up to Ø16 mm / to 13 mm |

Discharge Device with Handle and Cable Lug at the Earth Cable End

Hole (Ø8.4 mm) and silicone cable



| | |
|--------------------------------|--------------------|
| Type | EV TES 465 KS10 |
| Part No. | 758 022 |
| Cable length | 3500 mm |
| Cable cross-section | 10 mm ² |
| Cable sheath | Red silicone cable |
| Total length (l _G) | 550 mm |

Discharge Device with Earth Clamp with Wing Bolt



| | |
|--------------------------------|--------------------|
| Type | EV TS 2000 EK |
| Part No. | 758 001 |
| Cable length | 3500 mm |
| Cable cross-section | 16 mm ² |
| Cable sheath | Transparent |
| Total length (l _G) | 2050 mm |
| Clamping range | Up to 20 mm |

Discharge Device with Spring-loaded Earth Pliers



| | |
|--------------------------------|-------------------------|
| Type | EV TS 2000 EZ |
| Part No. | 758 003 |
| Cable length | 3500 mm |
| Cable cross-section | 16 mm ² |
| Cable sheath | Transparent |
| Total length (l _G) | 2050 mm |
| Clamping range Rd / Fl | up to Ø16 mm / to 13 mm |

Earthing Device with Earth Clamp with Tommy Bar

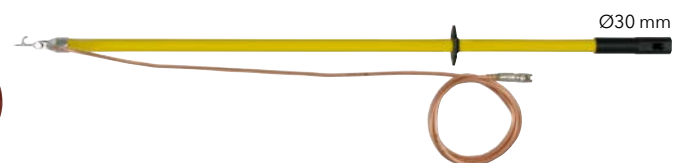
For round conductors (Ø12 ... 26.5 mm) of electrostatic precipitator systems



| | |
|--------------------------------|--------------------|
| Type | EV EH 1725 EK |
| Part No. | 758 015 |
| Cable length | 3500 mm |
| Cable cross-section | 25 mm ² |
| Cable sheath | Transparent |
| Total length (l _G) | 1725 mm |
| Clamping range | Up to 30 mm |

Discharge Device with Contact and Coupling Electrode and Cable Lug at the Earth Cable End

PK1 anti-rotation crimped cable lug (hole Ø12.5 mm).



| | |
|--------------------------------|--------------------|
| Type | EV TES STK 1500 KS |
| Part No. | 758 025 |
| Cable length | 3500 mm |
| Cable cross-section | 16 mm ² |
| Cable sheath | Transparent |
| Total length (l _G) | 1500 mm |

DEHNproX - 3. Verify that the installation is dead - Discharge Devices

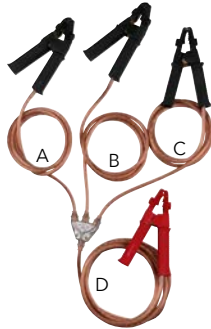
Discharge Device with Clamp and Cable Lug at the Earth Cable End

PK1 anti-rotation crimped cable lug (hole Ø12.5 mm).



| | |
|--------------------------------|--------------------|
| Type | EV EHB 1600 SN7114 |
| Part No. | 758 028 |
| Cable length | 3500 mm |
| Cable cross-section | 16 mm ² |
| Cable sheath | Transparent |
| Total length (l _G) | 1600 mm |

Equipotential Bonding Device with Insulated Earth Clamps



| | |
|--------------------------|--------------------|
| Type | PAV 3+1 16 ZAK |
| Part No. | 758 099 |
| Cable length (A / B / C) | 1750 mm |
| Cable length (D) | 3200 mm |
| Cable cross-section | 16 mm ² |
| Cable sheath | transparent |
| Clamping range | 5-25 mm |

Discharge Device with Handle, without Earth Cable



| | |
|--------------------------------|-------------------|
| Type | EV TES 465 SN7215 |
| Part No. | 758 036 |
| Total length (l _G) | 550 mm |
| Screw | M8 x 20 mm |

Discharge Device with Contact Electrode without Earth Cable



| | |
|--------------------------------|----------------|
| Type | EV TS STK 1470 |
| Part No. | 758 075 |
| Total length (l _G) | 1470 mm |
| Screw | M8 x 20 mm |

Discharge Device with Contact and Coupling Electrode without Earth Cable



| | |
|--------------------------------|-----------------|
| Type | EV TES STK 1500 |
| Part No. | 758 085 |
| Total length (l _G) | 1500 mm |
| Screw | M8 x 20 mm |

Discharge Device with Hook without Earth Cable



| | |
|--------------------------------|-----------------|
| Type | EV EHB STK 1600 |
| Part No. | 758 095 |
| Total length (l _G) | 1600 mm |
| Screw | M8 x 20 mm |

Accessories for Discharge and Equipotential Bonding Devices

Earth cable with crimped cable lug

Earthing cable combinable with discharge device.

PK1 crimped cable lug for connection with earth connecting elements.



General technical data:

| | |
|---------------------------|---|
| Material | Cu |
| Type of crimped cable lug | PK1 (Ø12.5 mm) and PK2 (Ø8.5 mm) |
| Cable length | To be specified on order (500-25000 mm) |

| | | |
|---------------------|--------------------|--------------------|
| Type | EL 16CU KS12.5 8.5 | EL 25CU KS12.5 8.5 |
| Part No. | 758 116 | 758 125 |
| Cable cross-section | 16 mm ² | 25 mm ² |

| | |
|---------------------|--------------------|
| Type | EL 35CU KS12.5 8.5 |
| Part No. | 758 135 |
| Cable cross-section | 35 mm ² |

Earthing cable length to be specified when ordering (in steps of 500 mm).







Earth cable with earth pliers

Earth cable combinable with discharge device.



| | |
|---------------------------|---|
| Type | EL 16CU EZ KS8.5 |
| Part No. | 758 216 |
| Material (cable) | Cu |
| Type of crimped cable lug | PK2 (Ø8.5 mm) |
| Material of pliers | StSt |
| Clamping range Rd / Fl | Up to Ø16 mm / up to 13 mm |
| Cable cross-section | 16 mm ² |
| Cable length | To be specified on order (500-25000 mm) |

Earthing cable length to be specified when ordering (in steps of 500 mm).

| Type / Application | Product | Page |
|--|--|------|
| Fixed phase and earthing points |  | 63 |
| EaS cables, unequipped ▪ Single to five-pole |  | 67 |
| Phase connection elements ▪ For switchgear installations ▪ For overhead lines |  | 70 |
| Earth-side connection elements ▪ Earthing kit/spike ▪ For switchgear installations and overhead lines |  | 74 |
| Earthing sticks ▪ For switchgear installations, single and two-part ▪ For overhead lines, telescopic and multi-part |  | 77 |
| EaS devices, short-circuiting bars |  | 79 |

Maintenance test according to German Social Accident Insurance (DGUV) Regulation 3 (formerly accident prevention regulations (BGV A3))

According to DGUV regulation 3 (formerly BGV A3), §5 paragraph 1, operating equipment, which also includes EaS devices, must be checked to ensure it is in good condition and at specific intervals. The intervals shall be selected in such a way that defects which are to be anticipated are detected in good time. This test is carried out at DEHN or on the customer's premises according to a new measuring method^{*)} and includes

- Visual inspection to detect visible defects.
- Measurement of the total resistance at the stationary EaS device (static test)
- Measurement of the relative change in resistance in the cable and at the connection points of the moving EaS device (dynamic test).

The maintenance test is documented in a test report and on the device itself.

^{*)} This measuring procedure was developed on behalf of BG ETEM (German trade association for energy, textiles, electrical goods and media products) at the University of Applied Sciences Dresden (HTW Dresden).



Earthing and Short-Circuiting Devices

The key point of the five safety rules for dead working is earthing and short-circuiting at the work location. This measure ensures the de-energised state for the duration of the work, also with regard to interference voltages, atmospheric surges or erroneous reconnection.

Portable devices for earthing and short-circuiting may only be used if the absence of voltage has been verified immediately beforehand at the place of installation.

When connecting the earthing and short-circuiting device, the earthing cable must always be connected to the earthing system first, so that any residual or interference voltages present are discharged.

Portable devices for earthing or earthing and short-circuiting according to DIN VDE 0683-100 (EN/IEC 61230) are devices to be used manually which are brought up to and connected with the fixed connection points of parts of electrical installations for the purpose of earthing and short-circuiting (according to DIN VDE 0105-100 or EN 50110-1, section 6.2.4) without forced guidance (e.g. slots, sockets, guide rails). They consist of earthing and short-circuiting devices (EaS devices) and earthing sticks.

The **earthing and short-circuiting device** is a device with which electrical conductors can be both earthed and short-circuited. It consists of an earthing device and a short-circuiting device. The earthing device is a device for connecting the earth-termination system to a short-circuiting device or to the equipment to be earthed. It consists of a connection component (1) and earthing cable (4).

The short-circuiting device is a device for connecting the line conductors to be short-circuited. It consists of connection components (1+2), short-circuiting cables or bars (3) and, where necessary, connecting clusters (5).

The **short-circuiting bar** is a rigid short-circuiting device.

Connecting clusters connect the short-circuiting cables to each other and to the earthing cable or the short-circuiting bar to the earthing cable.

Connection components connect the earthing and short-circuiting cables or busbars directly or via intermediate links, e.g. via cable lugs, to the earthing system and the system parts, where necessary via fixed connection points. Fixed connection points are those points on system parts to which the earthing and short-circuiting devices are connected, e.g. cables, bars, fixed ball points, cylinder bolts, stirrups. The connection of the fixed ball point and the ball head cap of the earthing and short-circuiting device ensures the highest degree of short-circuit strength.

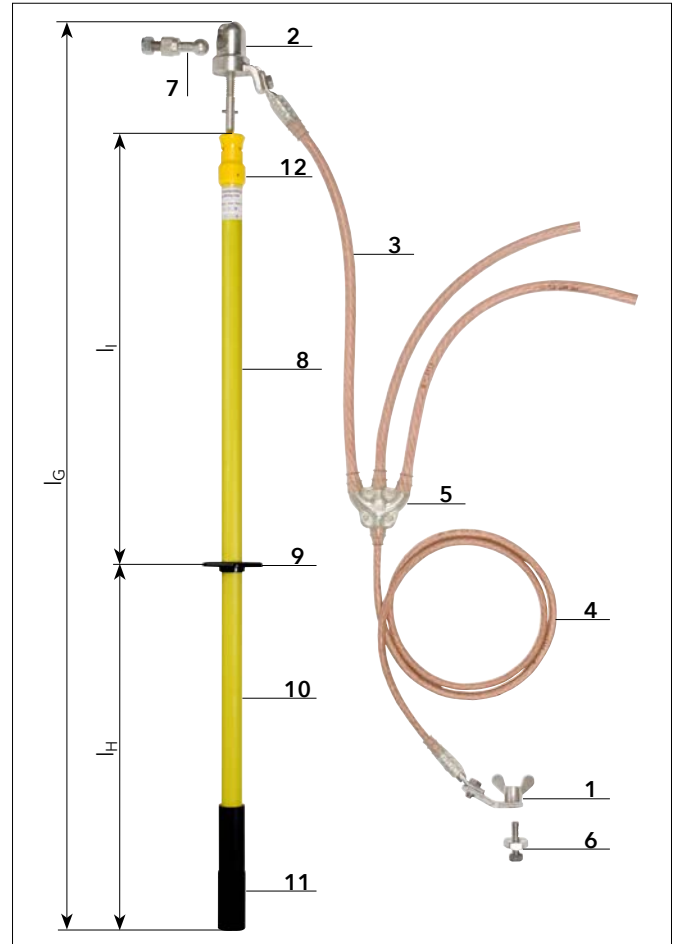
Fixed connection points are parts of the installation to which earthing and short-circuiting devices are connected (e.g. conductors, bars, fixed ball points, cylinder bolts, clamps etc.). Maximum short-circuit strength can be achieved by connecting the fixed ball point with the ball head cap of the earthing and short-circuiting device.

Earthing sticks are hand-held insulating sticks for bringing the connection components of earthing and short-circuiting devices up to parts of power installations for the purpose of earthing and short-circuiting. They consist of an insulating element, black ring, handle and coupling for holding a connection component. Earthing sticks must be selected according to the weight of the earthing and short-circuiting device to be installed (see specification: "maximum permissible load on the operating head in kg").

The **insulating element** is the part of the earthing stick between the black ring and the end of the earthing stick in the direction of the connection component. It ensures that the user maintains the required safety distance, and it provides sufficient insulation. In installations exceeding 1 kV, the insulating element must have a minimum length l_i of 500 mm.

A complete device for earthing and short-circuiting according to DIN VDE 0683-100 (EN/IEC 61230) consists of, e.g.:

- Fixed point/fixed ball point
- One or three-pole earthing and short-circuiting device or short-circuiting bar
- Fixed earthing terminal
- Earthing stick



- | | |
|--|--|
| 1 Connection component to earth-termination system | 7 Line connection point |
| 2 Connection component to line | 8 Insulating element with length l_i |
| 3 Short-circuiting cable | 9 Hand guard |
| 4 Earthing cable | 10 Handle with length l_H |
| 5 Connecting cluster | 11 End fitting with plug-in coupling |
| 6 Earth connection point | 12 Coupling |

Portable devices for earthing or earthing and short-circuiting

Earthed and short-circuiting devices as well as fixed ball and earthing points must be rated for the **short-circuit current** possible at the point of use. The required cable cross-sections depend on the max. short-circuit current I_k in A and the short-circuit duration T_k in s.

Note:

In the event of a short-circuit, the short-circuit current flows via short-circuiting devices, which is what the devices are rated for – but this is not the case with earthing devices. These do not carry short-circuit current and can therefore have a weaker design.

Cable cross-section:

In the case of three-pole earthing and short-circuiting devices, the cross-section of the earthing cable can always be reduced according to the following table for short-circuiting cables of 50 mm² and larger.

These earthing and short-circuiting devices with reduced earthing cable cross-section can be used in all networks without direct neutral earthing (e.g. compensated system with impedance neutral earthing).

For networks with direct (rigid) neutral earthing, the short-circuiting and earthing cables must have the same cross-section.

The required cable or bar cross-sections of the short-circuiting device can be determined from the diagrams or the table according to the short-circuit current and the short-circuit duration for an installation.

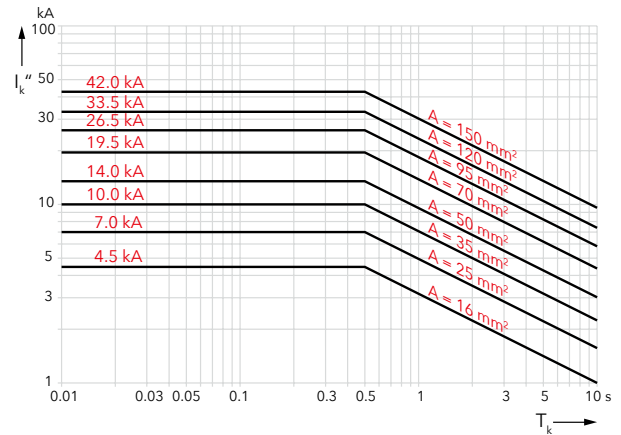
| Cable Cross-Section | |
|------------------------|--------------------|
| Short-circuiting cable | Earthing cable |
| 16 mm ² | 16 mm ² |
| 25 mm ² | 25 mm ² |
| 35 mm ² | 35 mm ² |
| 50 mm ² | 25 mm ² |
| 70 mm ² | 35 mm ² |
| 95 mm ² | 35 mm ² |
| 120 mm ² | 50 mm ² |
| 150 mm ² | 50 mm ² |

The current carrying capacity of the short-circuiting cable and the short-circuiting bar depends on the material, cross-section (A) and short-circuit duration (T_k).

The calculations were based on the worst case of the off-generator short-circuit (μ = 1) and the highest DC component (χ = 1.8) with I_k'' as the maximum initial short-circuit alternating current, which according to DIN VDE 0102 is equal to the sustained short-circuit current I_k and equal to the breaking current I_a:

$$I_k'' = I_k = I_a$$

Current carrying capacity of copper short-circuiting cables for use in three-phase systems

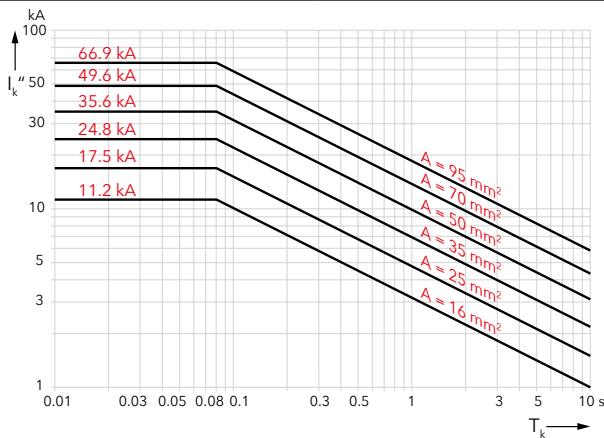


Initial cable temperature 20 °C
Final cable temperature 250 °C

Meaning here:
A Cable cross-section in mm²
I_k'' maximum initial symmetrical short-circuit current in kA as per DIN VDE 0102
T_k short-circuit duration in s

$$A = 5.07 I_k'' \sqrt{T_k} \quad \text{for } T_k \geq 0.5 \text{ s}$$

Current carrying capability of copper short-circuiting cables for use in DC installations

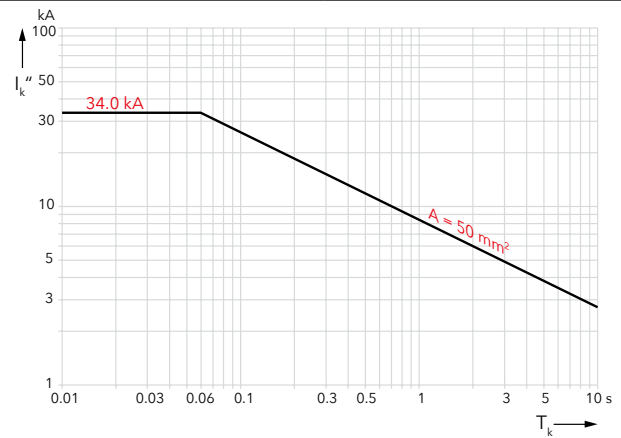


Initial cable temperature 20 °C
Final cable temperature 250 °C

Meaning here:
A Cable cross-section in mm²
I_k'' maximum initial symmetrical short-circuit current in kA as per DIN VDE 0102
T_k short-circuit duration in s

$$A = 5.07 I_k'' \sqrt{T_k} \quad \text{for } T_k \geq 0.08 \text{ s}$$

Current carrying capability of copper short-circuiting cables for use on the overhead contact lines of electric railways



Initial cable temperature 20 °C
Final cable temperature 250 °C

Meaning here:
A Cable cross-section in mm²
I_k'' maximum initial symmetrical short-circuit current in kA as per DIN VDE 0102
T_k short-circuit duration in s

$$A = 6.0 I_k'' \sqrt{T_k} \quad \text{for } T_k \geq 0.06 \text{ s}$$

Calculation example:

Specified: mains breaking capacity S_a
short-circuit duration T_k

Sought: required cable or bar cross-section A.

The off-generator short-circuit is used as a basis.

$$\text{Three-phase current} \quad I_k'' = I_k = I_a = \frac{S_a}{\sqrt{3} \cdot U_N}$$

$$\text{Single-phase alternating current} \quad I_k'' = I_k = I_a = \frac{S_a}{U_N}$$

With " I_k " the required cable or bar cross-section can now be calculated from the above equations or taken from the diagrams. The permissible current-time load capacity of an earthing and short-circuiting device is indicated by the cross-section specification on the short-circuiting cables or bars.

Note:

- Earthing and short-circuiting devices are only rated for a one-off exposure to the permissible current-time load!
- Short-circuiting cables of multipole earthing and short-circuiting devices must have the same cross-sections.
- The cable lengths of the earthing and short-circuiting devices should be at least 1.2 times the distance between two fixed connection points. Furthermore, the cable lengths selected should be as short as possible, as the cables will move violently in the event of a short-circuit.
- If earthing and short-circuiting devices are connected in parallel with cables to reach certain total cable cross-sections, the following conditions are to be observed:
 1. same cable lengths and cross-sections,
 2. same connection components and points,
 3. installation of the devices close together with parallel arrangement of the cables,
 4. for each cable, the permissible load capacity must be reduced to 75% of that of the corresponding the cable cross-section.

Note:

If it is ensured that earthing and short-circuiting devices connected in parallel are only loaded once with the full short-circuit current (no automatic reclosing or short interruption), the devices may be fully loaded.

Table:

Cable cross-section of the earthing and short-circuiting device depending on the maximum short-circuit current I_k and the maximum short-circuit duration T_k

▪ for copper (Cu)

| Cross-section of the copper cable | Maximum permissible short-circuit current I_k for a duration of | | | | |
|-----------------------------------|---|----------|----------|-------------------|-----------------------|
| | 10 s | 5 s | 2 s | 1 s ^{*)} | ≤ 0.5 s ^{*)} |
| 16 mm ² | 1 000 A | 1 400 A | 2 200 A | 3 200 A | 4 500 A |
| 25 mm ² | 1 600 A | 2 200 A | 3 500 A | 4 900 A | 7 000 A |
| 35 mm ² | 2 200 A | 3 100 A | 4 900 A | 6 900 A | 10 000 A |
| 50 mm ² | 3 100 A | 4 400 A | 7 000 A | 9 900 A | 14 000 A |
| 70 mm ² | 4 400 A | 6 200 A | 9 800 A | 13 800 A | 19 500 A |
| 95 mm ² | 5 900 A | 8 400 A | 13 200 A | 18 700 A | 26 500 A |
| 120 mm ² | 7 500 A | 10 600 A | 16 700 A | 23 700 A | 33 500 A |
| 150 mm ² | 9 400 A | 13 200 A | 20 900 A | 29 600 A | 42 000 A |

^{*)} catalogue data

▪ for aluminium (Al)

| Cross-section of the aluminium cable | Maximum permissible short-circuit current I_k for a duration of | | | | |
|--------------------------------------|---|---------|---------|-------------------|-----------------------|
| | 10 s | 5 s | 2 s | 1 s ^{*)} | ≤ 0.5 s ^{*)} |
| 35 mm ² | 1 400 A | 2 000 A | 3 200 A | 4 600 A | 6 500 A |
| 50 mm ² | 2 100 A | 2 900 A | 4 600 A | 6 600 A | 9 300 A |

^{*)} catalogue data

Fixed Ball Points



Straight fixed ball point mounted on a busbar.

Ø20 or 25 mm

- Suitable for fixing busbar connections according to DIN 43673-1
- Self-locking nut
- M12 or M16 non-cutting formed female thread
- M12 or M16 threaded pin

General technical data:

| | |
|-----------------------------|--|
| Standard | EN/IEC 61230 (DIN VDE 0683-100) and based on DIN 48088-1 |
| Material (fixed ball point) | E-Cu/gal Sn |
| Material (threaded pin) | StSt A2-70 |
| Hexagon nut | DIN 985-M12-8 / gal Zn; DIN 985-M16-8 / gal Zn |
| Tightening torque | M10: 30-40 Nm; M12: 50-65 Nm; M16: 100-110 Nm |

Angled with Terminal Lug



| Type KFP ... | 20 S AL 12 | 25 S AL 12 |
|---|--------------------|--------------------|
| Part No. | 706 300 | 756 300 |
| Fixed ball point Ø | 20 mm | 25 mm |
| Bore Ø | 12.5 mm | 12.5 mm |
| Dimensions | 45 x 30 x 9 mm | 50 x 30 x 9 mm |
| Max. cable cross-section Cu | 50 mm ² | 95 mm ² |
| Max. short-circuit current I _k 0.5 s | 14.0 kA | 26.5 kA |
| Max. short-circuit current I _k 1 s | 9.9 kA | 18.7 kA |

Straight with Round Conductor Half Shell for Round Copper Conductors



General technical data:

| | |
|---|--------------------|
| Fixed ball point Ø | 25 mm |
| Max. cable cross-section Cu | 95 mm ² |
| Max. short-circuit current I _k 0.5 s | 26.5 kA |
| Max. short-circuit current I _k 1 s | 18.7 kA |

| Type KFP ... | 25 RL 10 | 25 RL 12 |
|------------------------|----------|----------|
| Part No. | 725 010 | 725 012 |
| For round conductor Ød | 10 mm | 12 mm |

| Type KFP ... | 25 RL 14 | 25 RL 16 |
|------------------------|----------|----------|
| Part No. | 725 014 | 725 016 |
| For round conductor Ød | 14 mm | 16 mm |

| Type KFP ... | 25 RL 18 | 25 RL 20 |
|------------------------|----------|----------|
| Part No. | 725 018 | 725 020 |
| For round conductor Ød | 18 mm | 20 mm |

Straight with Threaded Pin and Self-locking Nut



| Type KFP ... | 20 M12 35 SSM | 20 M12 45 SN7078 |
|---|---------------------|---------------------|
| Part No. | 754 235 | 754 238 |
| Fixed ball point Ø | 20 mm | 20 mm |
| Dimensions | M12 x 35 mm | M12 x 45 mm |
| Wrench size | 24 mm | 24 mm |
| Max. cable cross-section Cu | 120 mm ² | 120 mm ² |
| Max. short-circuit current I _k 0.5 s | 33.5 kA | 33.5 kA |
| Max. short-circuit current I _k 1 s | 23.7 kA | 23.7 kA |

| Type KFP ... | 20 M16 45 SSM | 25 M12 25 SSM |
|---|---------------------|---------------------|
| Part No. | 754 645 | 755 225 |
| Fixed ball point Ø | 20 mm | 25 mm |
| Dimensions | M16 x 45 mm | M12 x 25 mm |
| Wrench size | 24 mm | 27 mm |
| Max. cable cross-section Cu | 120 mm ² | 150 mm ² |
| Max. short-circuit current I _k 0.5 s | 33.5 kA | 42.0 kA |
| Max. short-circuit current I _k 1 s | 23.7 kA | 29.6 kA |

| Type KFP ... | 25 M12 45 SSM | 25 M16 45 SSM |
|---|---------------------|---------------------|
| Part No. | 755 245 | 755 645 |
| Fixed ball point Ø | 25 mm | 25 mm |
| Dimensions | M12 x 45 mm | M16 x 45 mm |
| Wrench size | 27 mm | 27 mm |
| Max. cable cross-section Cu | 150 mm ² | 150 mm ² |
| Max. short-circuit current I _k 0.5 s | 42.0 kA | 42.0 kA |
| Max. short-circuit current I _k 1 s | 29.6 kA | 29.6 kA |

Straight with Female Thread



| Type KFP ... | 20 M10 | 20 M12 |
|---|---------------------|---------------------|
| Part No. | 754 205 | 754 200 |
| Fixed ball point Ø | 20 mm | 20 mm |
| Dimensions | M10 | M12 |
| Wrench size | 24 mm | 24 mm |
| Max. cable cross-section Cu | 120 mm ² | 120 mm ² |
| Max. short-circuit current I _k 0.5 s | 33.5 kA | 33.5 kA |
| Max. short-circuit current I _k 1 s | 23.7 kA | 23.7 kA |

| Type KFP ... | 20 M16 | 25 M12 |
|---|---------------------|---------------------|
| Part No. | 754 600 | 755 200 |
| Fixed ball point Ø | 20 mm | 25 mm |
| Dimensions | M16 | M12 |
| Wrench size | 24 mm | 27 mm |
| Max. cable cross-section Cu | 120 mm ² | 150 mm ² |
| Max. short-circuit current I _k 0.5 s | 33.5 kA | 42.0 kA |
| Max. short-circuit current I _k 1 s | 23.7 kA | 29.6 kA |

| Type KFP ... | 25 M16 |
|---|---------------------|
| Part No. | 755 600 |
| Fixed ball point Ø | 25 mm |
| Dimensions | M16 |
| Wrench size | 27 mm |
| Max. cable cross-section Cu | 150 mm ² |
| Max. short-circuit current I _k 0.5 s | 42.0 kA |
| Max. short-circuit current I _k 1 s | 29.6 kA |

45° angled with Threaded Pin and Self-locking Nut



| Type KFP ... | 20 W45M12 SN7024 | 20 W45 M12 35SSM |
|---|--------------------|--------------------|
| Part No. | 706 239 | 706 235 |
| Fixed ball point Ø | 20 mm | 20 mm |
| Dimensions | M12 x 30 mm | M12 x 35 mm |
| Wrench size | 24 mm | 24 mm |
| Max. cable cross-section Cu | 70 mm ² | 70 mm ² |
| Max. short-circuit current I _k 0.5 s | 19.5 kA | 19.5 kA |
| Max. short-circuit current I _k 1 s | 13.8 kA | 13.8 kA |

| Type KFP ... | 20 W45 M16 45SSM | 25 W45 M12 45SSM |
|---|--------------------|--------------------|
| Part No. | 706 645 | 756 245 |
| Fixed ball point Ø | 20 mm | 25 mm |
| Dimensions | M16 x 45 mm | M12 x 45 mm |
| Wrench size | 24 mm | 27 mm |
| Max. cable cross-section Cu | 70 mm ² | 95 mm ² |
| Max. short-circuit current I _k 0.5 s | 19.5 kA | 26.5 kA |
| Max. short-circuit current I _k 1 s | 13.8 kA | 18.7 kA |

| Type KFP ... | 25 W45 M16 45SSM |
|---|--------------------|
| Part No. | 756 645 |
| Fixed ball point Ø | 25 mm |
| Dimensions | M16 x 45 mm |
| Wrench size | 27 mm |
| Max. cable cross-section Cu | 95 mm ² |
| Max. short-circuit current I _k 0.5 s | 26.5 kA |
| Max. short-circuit current I _k 1 s | 18.7 kA |

45° angled with Female Thread



| Type KFP ... | 20 W45 M12 | 20 W45 M16 |
|---|--------------------|--------------------|
| Part No. | 706 200 | 706 600 |
| Fixed ball point Ø | 20 mm | 20 mm |
| Dimensions | M12 | M16 |
| Wrench size | 24 mm | 24 mm |
| Max. cable cross-section Cu | 70 mm ² | 70 mm ² |
| Max. short-circuit current I _k 0.5 s | 19.5 kA | 19.5 kA |
| Max. short-circuit current I _k 1 s | 13.8 kA | 13.8 kA |

| Type KFP ... | 25 W45 M12 | 25 W45 M16 |
|---|--------------------|--------------------|
| Part No. | 756 200 | 756 600 |
| Fixed ball point Ø | 25 mm | 25 mm |
| Dimensions | M12 | M16 |
| Wrench size | 27 mm | 27 mm |
| Max. cable cross-section Cu | 95 mm ² | 95 mm ² |
| Max. short-circuit current I _k 0.5 s | 26.5 kA | 26.5 kA |
| Max. short-circuit current I _k 1 s | 18.7 kA | 18.7 kA |

90° angled with Threaded Pin and Self-locking Nut



| Type KFP ... | 20 W90 M12 35SSM | 20 W90 M16 45SSM |
|---|--------------------|--------------------|
| Part No. | 707 235 | 707 645 |
| Fixed ball point Ø | 20 mm | 20 mm |
| Dimensions | M12 x 35 mm | M16 x 45 mm |
| Wrench size | 24 mm | 24 mm |
| Max. cable cross-section Cu | 70 mm ² | 70 mm ² |
| Max. short-circuit current I _k 0.5 s | 19.5 kA | 19.5 kA |
| Max. short-circuit current I _k 1 s | 13.8 kA | 13.8 kA |

| Type KFP ... | 25 W90 M12 45SSM | 25 W90 M16 45SSM |
|---|--------------------|--------------------|
| Part No. | 757 245 | 757 645 |
| Fixed ball point Ø | 25 mm | 25 mm |
| Dimensions | M12 x 45 mm | M16 x 45 mm |
| Wrench size | 27 mm | 27 mm |
| Max. cable cross-section Cu | 95 mm ² | 95 mm ² |
| Max. short-circuit current I _k 0.5 s | 26.5 kA | 26.5 kA |
| Max. short-circuit current I _k 1 s | 18.7 kA | 18.7 kA |

90° angled with Female Thread



| Type KFP ... | 20 W90 M12 | 20 W90 M16 |
|---|--------------------|--------------------|
| Part No. | 707 200 | 707 600 |
| Fixed ball point Ø | 20 mm | 20 mm |
| Dimensions | M12 | M16 |
| Wrench size | 24 mm | 24 mm |
| Max. cable cross-section Cu | 70 mm ² | 70 mm ² |
| Max. short-circuit current I _k 0.5 s | 19.5 kA | 19.5 kA |
| Max. short-circuit current I _k 1 s | 13.8 kA | 13.8 kA |

| Type KFP ... | 25 W90 M12 | 25 W90 M16 |
|---|--------------------|--------------------|
| Part No. | 757 200 | 757 600 |
| Fixed ball point Ø | 25 mm | 25 mm |
| Dimensions | M12 | M16 |
| Wrench size | 27 mm | 27 mm |
| Max. cable cross-section Cu | 95 mm ² | 95 mm ² |
| Max. short-circuit current I _k 0.5 s | 26.5 kA | 26.5 kA |
| Max. short-circuit current I _k 1 s | 18.7 kA | 18.7 kA |

Fixed Earthing Points



Fixed earthing point with ring groove and earth bushing.

Ring groove and connecting elements

- For connecting earth bushings or earth connecting plates in accordance with DIN 48088-2
- Welding-type or bolted-type connector for connecting earth connectors with wing nut or wing bolt on the earth cable end
- Connectors with M12 or M16 threaded pin
- M12 or M16 female thread

Ring Groove Fixed Point with Threaded Pin and Nut



| Type | EFP 16 RN M12 35 SSM | EFP 16 RN M16 45 SSM |
|---|--------------------------|--------------------------|
| Part No. | 790 251 | 790 261 |
| Dimensions | M12 x 35 mm | M16 x 45 mm |
| Diameter | 16 mm | 16 mm |
| Wrench size | 22 mm | 22 mm |
| Max. cable cross-section Cu | 150 mm ² | 150 mm ² |
| Max. short-circuit current I _k 0.5 s | 42.0*) kA | 42.0*) kA |
| Max. short-circuit current I _k 1 s | 29.6*) kA | 29.6*) kA |
| Material | Brass (CuNi2Si) / gal Sn | Brass (CuNi2Si) / gal Sn |
| Material (threaded pin) | StSt A2-70 | StSt A2-70 |
| Material (nut) | DIN 985-M12-8 / gal Zn | DIN 985-M16-8 / gal Zn |

*) For earthing and short-circuiting devices with cable lengths > 4000 mm: 26.5 kA / 0.5 s (18.7 kA / 1 s)

Ring Groove Fixed Point with Female Thread



| Type | EFP 16 RN M12 | EFP 16 RN M16 |
|---|--------------------------|--------------------------|
| Part No. | 790 250 | 790 260 |
| Dimensions | M12 | M16 |
| Diameter | 16 mm | 16 mm |
| Wrench size | 22 mm | 22 mm |
| Max. cable cross-section Cu | 150 mm ² | 150 mm ² |
| Max. short-circuit current I _k 0.5 s | 42.0*) kA | 42.0*) kA |
| Max. short-circuit current I _k 1 s | 29.6*) kA | 29.6*) kA |
| Material | Brass (CuNi2Si) / gal Sn | Brass (CuNi2Si) / gal Sn |

*) For earthing and short-circuiting devices with cable lengths > 4000 mm: 26.5 kA / 0.5 s (18.7 kA / 1 s)

General technical data:

| | |
|-------------------|--|
| Standard | EN/IEC 61230 (DIN VDE 0683-100) and DIN 48088-2 and -5 |
| Tightening torque | M12: 50 ... 65 Nm; M16: 100 ... 110 Nm |

Weld-on Connector with Threaded Pin



| Type | AS SCHW M12 25 | AS SCHW M16 30 |
|------------|----------------|----------------|
| Part No. | 705 501 | 755 501 |
| Dimensions | M12 x 25 mm | M16 x 30 mm |
| Material | St/gal Zn | St/gal Zn |

Weld-on Connector with Female Thread



| Type | AS SCHW M12 | AS SCHW M16 |
|------------|-------------|-------------|
| Part No. | 336 020 | 336 025 |
| Dimensions | M12 | M16 |
| Material | St/gal Zn | St/gal Zn |

Bolted-type Connector with Female Thread



| Type | AS SCHR M12 M12 40 |
|-------------|---------------------|
| Part No. | 705 504 |
| Dimensions | M12 / M12 x 40 mm |
| Wrench size | 27 mm |
| Material | Copper alloy/gal Sn |

Bolted-type Connector with Threaded Pin and Separate Hexagon Nut



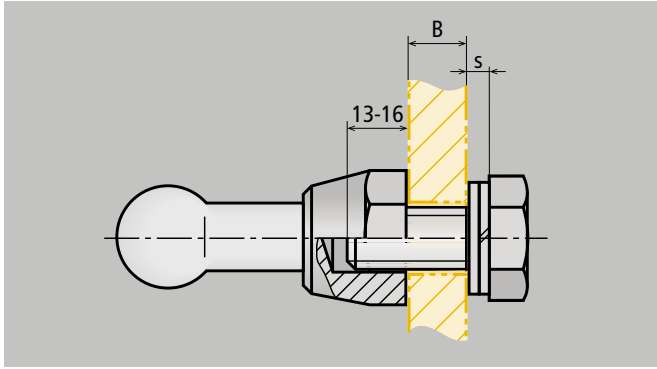
| Type | AS SCHR M12 55 | AS SCHR M16 65 |
|-------------------------|---------------------------------|---------------------------------|
| Part No. | 705 500 | 750 500 |
| Dimensions | M12 x 55 mm | M16 x 65 mm |
| Wrench size | 32 mm | 41 mm |
| Material (threaded pin) | StSt | StSt |
| Material (nut) | Copper alloy/gal Sn / HDG steel | Copper alloy/gal Sn / HDG steel |

Bolted-type Connector for Converting from M12 to M16 Threaded Pin



| Type | AS SCHR M16 55 M12 |
|-------------------------|---------------------------|
| Part No. | 705 510 |
| Dimensions | M12 x 20 mm / M16 x 55 mm |
| Wrench size | 41 mm |
| Material (threaded pin) | StSt |
| Material (nut) | Copper alloy/gal Sn |

Fastening Material



Determination of the required bolt length.

For fixed ball and earthing points

- Hexagon bolt for fixing busbar connections according to DIN 43673-1
- Resilient pressure plate for installing M12 or M16 fixed points on aluminium busbars

General technical data:

| | |
|---------------------------|--|
| Standard (hexagon bolts) | In accordance with DIN 933 and DIN 43673-1 |
| Standard (spring washers) | In accordance with DIN 128 |
| Standard (washers) | In accordance with DIN 125 |

Determination of the bolt length l

$$l \text{ (mm)} = B + s + 13 \dots 16$$

- l = Bolt length
- B = Thickness of the busbar
- s = Thickness of the spring washer and washer

Hexagon Bolts



General technical data:

| | | |
|-----------------|----------------|----------------|
| Material | StSt A2-70 | |
| Type | SKS M10X30 V2A | SKS M12X25 V2A |
| Part No. | 561 924 | 561 925 |
| Dimensions | M10 x 30 mm | M12 x 25 mm |
| Type | SKS M12X30 V2A | SKS M12X35 V2A |
| Part No. | 561 930 | 561 935 |
| Dimensions | M12 x 30 mm | M12 x 35 mm |
| Type | SKS M16X30 V2A | |
| Part No. | 561 931 | |
| Dimensions | M16 x 30 mm | |

Resilient Square Pressure Plate

For reliable contact and permanent installation of fixed ball points on aluminium busbars. Pressure plates must be shimmed on both sides of the busbar.



| | | |
|-----------------|---------------------------|---------------------------|
| Type | DP 40 40 B13 AL | DP 50 50 B17 AL |
| Part No. | 525 001 | 525 002 |
| Dimensions | M12, 40 x 40 x 6 mm | M16, 50 x 50 x 8 mm |
| Material | Highly resistant Al alloy | Highly resistant Al alloy |

Spring Washers



General technical data:

| | | |
|-----------------|------------------|------------------|
| Material | StSt A2-70 | |
| Type | FR A10 V2A | FR A12 V2A |
| Part No. | 524 910 | 524 912 |
| Dimensions | A10 (s = 2.2) mm | A12 (s = 2.4) mm |
| Type | FR A16 V2A | |
| Part No. | 524 913 | |
| Dimensions | A16 (s = 2.8) mm | |

Washers



| | | |
|-----------------|--------------------|------------------|
| Type | SCH A10.5 V4A | SCH A13 V4A |
| Part No. | 525 910 | 525 912 |
| Dimensions | A10.5 (s = 2.0) mm | A13 (s = 2.4) mm |
| Material | StSt A4-70 | StSt A4-70 |
| Type | SCH A17 V2A | |
| Part No. | 525 916 | |
| Dimensions | A17 (s = 3.0) mm | |
| Material | StSt A2-70 | |

Earth Connecting Plates



Earth connecting plate with fixed ball points and ball head cap with plastic handle.

- Connecting plate with high short-circuit current carrying capacity
- Single-pole connection of the phase arms
- For connecting single-pole earthing and short-circuiting devices to transformers of overhead line masts or to fuse holders
- For fixed ball points (Ø20 mm, Ø25 mm) or ring groove pins (Ø16 mm)

| General technical data: | |
|-------------------------|---|
| Standard | EN/IEC 61230 (DIN VDE 0683-100) and fixed points in accordance with DIN 48088-1 |
| Material (plate) | Aluminium |
| Material (terminal lug) | 4 mm: Cu / gal Sn; 6 mm: HDG steel |
| Material (fixed point) | E-Cu / brass (CuNi2Si) / gal Sn |

With three Fixed Ball Points and Ball Head Cap



| Type EAPA 3 ... | KFP 20 KKH | KFP 25 KKH |
|---|---------------------|---------------------|
| Part No. | 728 620 | 728 625 |
| Fixed point Ø | 20 mm | 25 mm |
| Max. cable cross-section Cu | 120 mm ² | 150 mm ² |
| Max. short-circuit current I _k 0.5 s | 33.5 kA | 42.0 kA |
| Max. short-circuit current I _k 1 s | 23.7 kA | 29.6 kA |

With three Fixed Ball Points

For mounting on earth connecting clamps with PK1 anti-rotation protection.



| Type EAPA 3 ... | KFP 20 B13 | KFP 25 B13 |
|---|---------------------|---------------------|
| Part No. | 728 522 | 728 526 |
| Fixed point Ø | 20 mm | 25 mm |
| Max. cable cross-section Cu | 120 mm ² | 150 mm ² |
| Max. short-circuit current I _k 0.5 s | 33.5 kA | 42.0 kA |
| Max. short-circuit current I _k 1 s | 23.7 kA | 29.6 kA |

With three Ring Groove Fixed Points and Earth Bushing



| Type EAPA 3 ... | RN 16 EAB |
|---|--------------------|
| Part No. | 728 516 |
| Fixed point Ø | 16 mm |
| Max. cable cross-section Cu | 95 mm ² |
| Max. short-circuit current I _k 0.5 s | 26.5 kA |
| Max. short-circuit current I _k 1 s | 18.7 kA |

Earthing and Short-Circuiting Cables, unequipped



Equipped three-pole earthing and short-circuiting device in a switchgear installation.

- To be equipped with connecting components
- Transparent sheath
- Waterproof and plastic-sheathed cable entries and node unit, additional anti-kink protection
- Standard anti-rotation crimped cable lugs (type PK1)
- Other cable lengths and crimped cable lugs can be selected online via the earthing and short-circuiting configurator
- Earthing and short-circuiting devices can be configured online via the earthing and short-circuiting configurator

| General technical data: | |
|-------------------------|---|
| Standard | EN/IEC 61138 (DIN VDE 0283-3) and EN/IEC 61230 (DIN VDE 0683-100) |
| Temperature range | - 25 °C ... +55 °C |
| Material (cable) | Al, flexible; E-Cu, extra finely stranded and highly flexible |
| Material (sheath) | Thermoplastic polymer (flexible PVC compound YM2) |
| Hole (cable lug) | Ø12.5 mm |



Crimped cable lugs, type PK1: Standard anti-rotation cable lug with cut-out.



Crimped cable lugs, type PK2: Cable lugs without cut-out for connecting parts from other manufacturers are available on request.



Crimped cable lugs, type PK3: Hook-type cable lugs up to cable cross-sections of 35 mm² are available on request.

Earthing Cable Cu in accordance with IEC 61138

The cable is delivered without crimped cable lugs and can be ordered by the metre.



| General technical data: | | |
|---------------------------|---------------------|---------------------|
| Minimum order quantity *) | 1 m | |
| Type | ES YM2 16 | ES YM2 25 |
| Part No. | 716 001 | 725 001 |
| Cable cross-section | 16 mm ² | 25 mm ² |
| Type | ES YM2 35 | ES YM2 50 |
| Part No. | 735 001 | 750 001 |
| Cable cross-section | 35 mm ² | 50 mm ² |
| Type | ES YM2 70 | ES YM2 95 |
| Part No. | 770 001 | 795 001 |
| Cable cross-section | 70 mm ² | 95 mm ² |
| Type | ES YM2 120 | ES YM2 150 |
| Part No. | 712 001 | 715 001 |
| Cable cross-section | 120 mm ² | 150 mm ² |

*) Length of earthing cable to be specified when ordering (in whole metres).

Single-pole Earthing and Short-circuiting Cables, aluminium version



| | | |
|---|--------------------|--------------------|
| Type EKV1+0 ... | 35 VGHVBP5 | 50 VKVBG8W |
| Part No. | VGHVBP5 | VKVBG8W |
| Cable cross-section | 35 mm ² | 50 mm ² |
| Material | Al | Al |
| Max. short-circuit current I _k 0.5 s | 6.5 kA | 9.3 kA |
| Max. short-circuit current I _k 1 s | 4.6 kA | 6.6 kA |
| Crimped cable lug | PK1 | PK1 |

Attention: Please state the relevant Variant No. when ordering.

Single-pole Earthing and Short-circuiting Cables, copper version



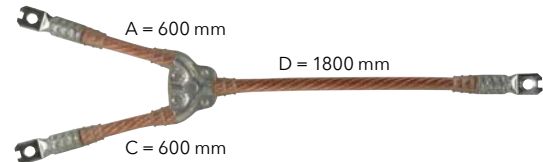
| General technical data: | | |
|---|--------------------|--------------------|
| Material | Cu | |
| Crimped cable lug | PK1 | |
| Type EKV1+0 ... | 16 V4YPRGE | 25 VSY71K4 |
| Part No. | V4YPRGE | VSY71K4 |
| Cable cross-section | 16 mm ² | 25 mm ² |
| Max. short-circuit current I _k 0.5 s | 4.5 kA | 7.0 kA |
| Max. short-circuit current I _k 1 s | 3.2 kA | 4.9 kA |
| Type EKV1+0 ... | 35 V9JF26K | 50 VRJG23Y |
| Part No. | V9JF26K | VRJG23Y |
| Cable cross-section | 35 mm ² | 50 mm ² |
| Max. short-circuit current I _k 0.5 s | 10.0 kA | 14.0 kA |
| Max. short-circuit current I _k 1 s | 6.9 kA | 9.9 kA |

| | | |
|---|--------------------|--------------------|
| Type EKV1+0 ... | 70 VPZBBSL | 95 VZC3FST |
| Part No. | VPZBBSL | VZC3FST |
| Cable cross-section | 70 mm ² | 95 mm ² |
| Max. short-circuit current I _k 0.5 s | 19.5 kA | 26.5 kA |
| Max. short-circuit current I _k 1 s | 13.8 kA | 18.7 kA |

| | | |
|---|---------------------|---------------------|
| Type EKV1+0 ... | 120 V797FE6 | 150 VB53TC9 |
| Part No. | V797FE6 | VB53TC9 |
| Cable cross-section | 120 mm ² | 150 mm ² |
| Max. short-circuit current I _k 0.5 s | 33.5 kA | 42.0 kA |
| Max. short-circuit current I _k 1 s | 23.7 kA | 29.6 kA |

Attention: Please state the relevant Variant No. when ordering.

Two-pole Earthing and Short-circuiting Cables, copper version



| General technical data: | |
|-------------------------|-----|
| Material | Cu |
| Crimped cable lug | PK1 |

| | | |
|---|---------------------|---------------------|
| Type EKV2+0 ... | 16 G V7265NS | 25 G VZL6TGH |
| Part No. | V7265NS | VZL6TGH |
| Cable cross-section | 16 mm ² | 25 mm ² |
| Max. short-circuit current I _k 0.5 s | 4.5 kA | 7.0 kA |
| Max. short-circuit current I _k 1 s | 3.2 kA | 4.9 kA |

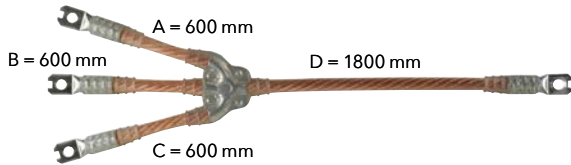
| | | |
|---|---------------------|---------------------|
| Type EKV2+0 ... | 35 G VPHPZV2 | 50 G VJ13VWW |
| Part No. | VPHPZV2 | VJ13VWW |
| Cable cross-section | 35 mm ² | 50 mm ² |
| Max. short-circuit current I _k 0.5 s | 10.0 kA | 14.0 kA |
| Max. short-circuit current I _k 1 s | 6.9 kA | 9.9 kA |

| | | |
|---|---------------------|---------------------|
| Type EKV2+0 ... | 70 G VTJKEZU | 95 G VAM7M6H |
| Part No. | VTJKEZU | VAM7M6H |
| Cable cross-section | 70 mm ² | 95 mm ² |
| Max. short-circuit current I _k 0.5 s | 19.5 kA | 26.5 kA |
| Max. short-circuit current I _k 1 s | 13.8 kA | 18.7 kA |

| | | |
|---|----------------------|----------------------|
| Type EKV2+0 ... | 120 G VFV1Z7K | 150 G VLL6JWS |
| Part No. | VFV1Z7K | VLL6JWS |
| Cable cross-section | 120 mm ² | 150 mm ² |
| Max. short-circuit current I _k 0.5 s | 33.5 kA | 42.0 kA |
| Max. short-circuit current I _k 1 s | 23.7 kA | 29.6 kA |

Attention: Please state the relevant Variant No. when ordering.

Three-pole Earthing and Short-Circuiting Cables, copper version, same cable cross-section



| General technical data: | |
|-------------------------|-----|
| Material | Cu |
| Crimped cable lug | PK1 |

| Type EKV3+0 ... | 16 G VE5MT89 | 25 G VNC1S9W |
|---|--------------------|--------------------|
| Part No. | VE5MT89 | VNC1S9W |
| Cable cross-section | 16 mm ² | 25 mm ² |
| Max. short-circuit current I _k 0.5 s | 4.5 kA | 7.0 kA |
| Max. short-circuit current I _k 1 s | 3.2 kA | 4.9 kA |

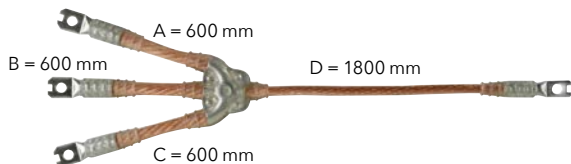
| Type EKV3+0 ... | 35 G V18JQHQ | 50 G VJ7VGZD |
|---|--------------------|--------------------|
| Part No. | V18JQHQ | VJ7VGZD |
| Cable cross-section | 35 mm ² | 50 mm ² |
| Max. short-circuit current I _k 0.5 s | 10.0 kA | 14.0 kA |
| Max. short-circuit current I _k 1 s | 6.9 kA | 9.9 kA |

| Type EKV3+0 ... | 70 G VH95BZZ | 95 G VM2J7S3 |
|---|--------------------|--------------------|
| Part No. | VH95BZZ | VM2J7S3 |
| Cable cross-section | 70 mm ² | 95 mm ² |
| Max. short-circuit current I _k 0.5 s | 19.5 kA | 26.5 kA |
| Max. short-circuit current I _k 1 s | 13.8 kA | 18.7 kA |

| Type EKV3+0 ... | 120 G V8D4AQ2 | 150 G VG3V6T2 |
|---|---------------------|---------------------|
| Part No. | V8D4AQ2 | VG3V6T2 |
| Cable cross-section | 120 mm ² | 150 mm ² |
| Max. short-circuit current I _k 0.5 s | 33.5 kA | 42.0 kA |
| Max. short-circuit current I _k 1 s | 23.7 kA | 29.6 kA |

Attention: Please state the relevant Variant No. when ordering.

Three-pole Earthing and Short-Circuiting Cables, copper version, reduced cable cross-section



| General technical data: | |
|-------------------------|-----|
| Material | Cu |
| Crimped cable lug | PK1 |

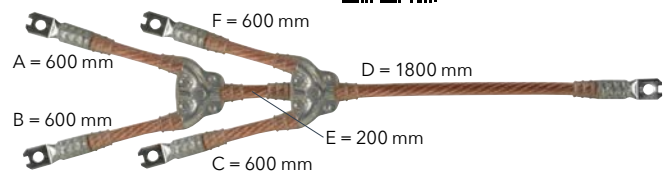
| Type EKV3+0 ... | 50 R VN35H5D | 70 R VTCS2XV |
|---|-----------------------|-----------------------|
| Part No. | VN35H5D | VTCS2XV |
| Cable cross-section | 50/25 mm ² | 70/35 mm ² |
| Max. short-circuit current I _k 0.5 s | 14.0 kA | 19.5 kA |
| Max. short-circuit current I _k 1 s | 9.9 kA | 13.8 kA |

| Type EKV3+0 ... | 95 R VLB2F3G | 120 R V8115WA |
|---|-----------------------|------------------------|
| Part No. | VLB2F3G | V8115WA |
| Cable cross-section | 95/35 mm ² | 120/50 mm ² |
| Max. short-circuit current I _k 0.5 s | 26.5 kA | 33.5 kA |
| Max. short-circuit current I _k 1 s | 18.7 kA | 23.7 kA |

| Type EKV3+0 ... | 150 R V11E77B |
|---|------------------------|
| Part No. | V11E77B |
| Cable cross-section | 150/50 mm ² |
| Max. short-circuit current I _k 0.5 s | 42.0 kA |
| Max. short-circuit current I _k 1 s | 29.6 kA |

Attention: Please state the relevant Variant No. when ordering.

Four-pole Earthing and Short-Circuiting Cables, copper version



| General technical data: | |
|-------------------------|-----|
| Material | Cu |
| Crimped cable lug | PK1 |

| Type EKV4u0 ... | 16 G VGUVRRG | 25 G VGM214B |
|---|--------------------|--------------------|
| Part No. | VGUVRRG | VGM214B |
| Cable cross-section | 16 mm ² | 25 mm ² |
| Max. short-circuit current I _k 0.5 s | 4.5 kA | 7.0 kA |
| Max. short-circuit current I _k 1 s | 3.2 kA | 4.9 kA |

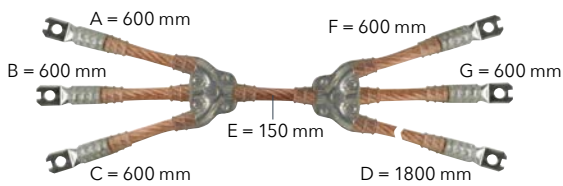
| Type EKV4u0 ... | 35 G V93UVAP | 50 G V3NCSSHX |
|---|--------------------|--------------------|
| Part No. | V93UVAP | V3NCSSHX |
| Cable cross-section | 35 mm ² | 50 mm ² |
| Max. short-circuit current I _k 0.5 s | 10.0 kA | 14.0 kA |
| Max. short-circuit current I _k 1 s | 6.9 kA | 9.9 kA |

| Type EKV4u0 ... | 70 G V7GN8WU | 95 G VABRSSE |
|---|--------------------|--------------------|
| Part No. | V7GN8WU | VABRSSE |
| Cable cross-section | 70 mm ² | 95 mm ² |
| Max. short-circuit current I _k 0.5 s | 19.5 kA | 26.5 kA |
| Max. short-circuit current I _k 1 s | 13.8 kA | 18.7 kA |

| Type EKV4u0 ... | 120 G V27E2GP | 150 G V291ZZT |
|---|---------------------|---------------------|
| Part No. | V27E2GP | V291ZZT |
| Cable cross-section | 120 mm ² | 150 mm ² |
| Max. short-circuit current I _k 0.5 s | 33.5 kA | 42.0 kA |
| Max. short-circuit current I _k 1 s | 23.7 kA | 29.6 kA |

Attention: Please state the relevant Variant No. when ordering.

Five-pole Earthing and Short-Circuiting Cables, copper version



General technical data:

| | | |
|-------------------|-----|--|
| Material | Cu | |
| Crimped cable lug | PK1 | |

| Type EKV5+0 ... | 16 G VQ7PF5A | 25 G VZKQZB5 |
|---|--------------------|--------------------|
| Part No. | VQ7PF5A | VZKQZB5 |
| Cable cross-section | 16 mm ² | 25 mm ² |
| Max. short-circuit current I _k 0.5 s | 4.5 kA | 7.0 kA |
| Max. short-circuit current I _k 1 s | 3.2 kA | 4.9 kA |

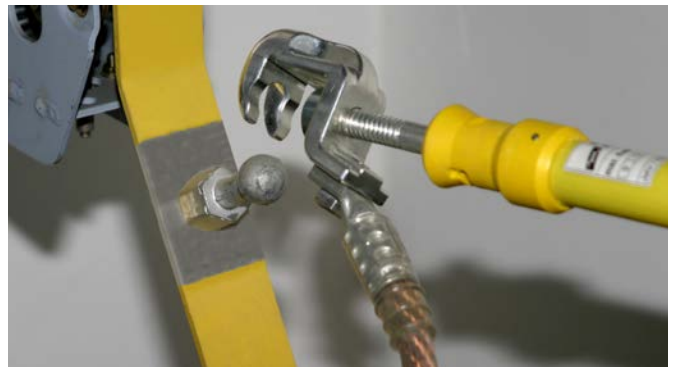
| Type EKV5+0 ... | 35 G V76D5TH | 50 G V6VE249 |
|---|--------------------|--------------------|
| Part No. | V76D5TH | V6VE249 |
| Cable cross-section | 35 mm ² | 50 mm ² |
| Max. short-circuit current I _k 0.5 s | 10.0 kA | 14.0 kA |
| Max. short-circuit current I _k 1 s | 6.9 kA | 9.9 kA |

| Type EKV5+0 ... | 70 G VDXTBGF | 95 G VGCMAA5 |
|---|--------------------|--------------------|
| Part No. | VDXTBGF | VGCMAA5 |
| Cable cross-section | 70 mm ² | 95 mm ² |
| Max. short-circuit current I _k 0.5 s | 19.5 kA | 26.5 kA |
| Max. short-circuit current I _k 1 s | 13.8 kA | 18.7 kA |

| Type EKV5+0 ... | 120 G VVL7AKP | 150 G VHV1NKR |
|---|---------------------|---------------------|
| Part No. | VVL7AKP | VHV1NKR |
| Cable cross-section | 120 mm ² | 150 mm ² |
| Max. short-circuit current I _k 0.5 s | 33.5 kA | 42.0 kA |
| Max. short-circuit current I _k 1 s | 23.7 kA | 29.6 kA |

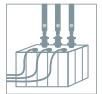
Attention: Please state the relevant Variant No. when ordering.

Phase Connecting Elements for Switchgear Installations



Connecting the phase cable end with universal clamp to a fixed ball point.

- To be fitted to the phase cable end of single-pole to five-pole earthing and short-circuiting devices
- Type PK1 anti-rotation protection
- Other earthing and short-circuiting devices can be configured online via the earthing and short-circuiting configurator



General technical data:

| | |
|---------------------------|---|
| Standard | EN/IEC 61230 (DIN VDE 0683-100), threaded T pin shaft DIN 48087 |
| Temperature range | -25 °C ... +55 °C |
| Material (clamp body) | Cu alloy/gal Sn |
| Material (terminal lug) | Cu alloy/gal Sn |
| Material (shaft) | Cu alloy/gal Sn |
| Material (pressure plate) | Cu alloy/gal Sn / St/Zn |

Two types of ball head caps are available:

- Rigid ball head cap
- Adjustable ball head cap (4x 90°)

The adjustable ball head cap allows the user to connect the earthing and short-circuiting device to fixed ball points that are installed in unfavourable positions. Thus, in the vast majority of cases, angled fixed ball points no longer have to be used.

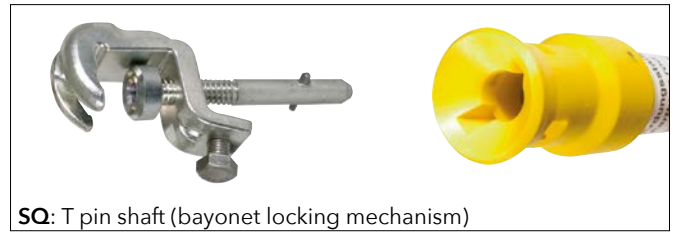


Rigid ball head cap.

Adjustable ball head cap (4x 90°).

*) Clamping range and maximum cable cross-section of universal clamps used for:

| Fixed ball point Ø | T Pin Collar width | Rd / Fl Clamping range | Max. cable cross-section Cu |
|--------------------|--------------------|------------------------|-----------------------------|
| 20 / 25 / 30 mm | 15 / 18 mm | 20 / 30 mm | 16 mm ² |
| 20 / 25 / 30 mm | 15 / 18 mm | 20 / 30 mm | 25 mm ² |
| 20 / 25 / 30 mm | 15 / 18 mm | 20 / 30 mm | 35 mm ² |
| 20 / 25 / 30 mm | 15 / 18 mm | 20 / 30 mm | 50 mm ² |
| 20 / 25 / 30 mm | 15 / 18 mm | 20 / 30 mm | 70 mm ² |
| 20 / 25 / 30 mm | 15 / 18 mm | - | 95 mm ² |
| - / 25 / 30 mm | - | - | 120 mm ² |
| - | - | - | 150 mm ² |



Rigid Ball Head Cap, Hexagon Shaft



Rigid Ball Head Cap, T Pin Shaft



| Type | KKH 20 SK | KKH 25 SK |
|---|----------------------------|----------------------------|
| Part No. | 772 310 | 772 320 |
| For fixed ball point Ø | 20 mm | 25 mm |
| Anti-rotation protection | PK1 | PK1 |
| For cable cross-section Cu | 16 ... 120 mm ² | 16 ... 150 mm ² |
| Max. short-circuit current I _k 0.5 s | 33.5 kA | 42.0 kA |
| Max. short-circuit current I _k 1 s | 23.7 kA | 29.6 kA |

| Type | KKH 20 SQ | KKH 25 SQ |
|---|----------------------------|----------------------------|
| Part No. | 772 311 | 772 321 |
| For fixed ball point Ø | 20 mm | 25 mm |
| Anti-rotation protection | PK1 | PK1 |
| For cable cross-section Cu | 16 ... 120 mm ² | 16 ... 150 mm ² |
| Max. short-circuit current I _k 0.5 s | 33.5 kA | 42.0 kA |
| Max. short-circuit current I _k 1 s | 23.7 kA | 29.6 kA |

Adjustable Ball Head Cap (4x 90°), Hexagon Shaft



Adjustable Ball Head Cap (4x 90°), T Pin Shaft



| Type | KKH 20 D SK | KKH 25 D SK |
|---|----------------------------|----------------------------|
| Part No. | 772 330 | 772 340 |
| For fixed ball point Ø | 20 mm | 25 mm |
| Anti-rotation protection | PK1 | PK1 |
| For cable cross-section Cu | 16 ... 120 mm ² | 16 ... 150 mm ² |
| Max. short-circuit current I _k 0.5 s | 33.5 kA | 42.0 kA |
| Max. short-circuit current I _k 1 s | 23.7 kA | 29.6 kA |

| Type | KKH 20 D SQ | KKH 25 D SQ |
|---|----------------------------|----------------------------|
| Part No. | 772 331 | 772 341 |
| For fixed ball point Ø | 20 mm | 25 mm |
| Anti-rotation protection | PK1 | PK1 |
| For cable cross-section Cu | 16 ... 120 mm ² | 16 ... 150 mm ² |
| Max. short-circuit current I _k 0.5 s | 33.5 kA | 42.0 kA |
| Max. short-circuit current I _k 1 s | 23.7 kA | 29.6 kA |

Universal Clamp, Hexagon Shaft



Universal Clamp, T Pin Shaft



| Type | UK 25 SK | UK 30 SK |
|---|--|--|
| Part No. | 773 034 | 773 130 |
| For fixed ball point Ø | 20 / 25 mm | 25 / 30 mm |
| For T pins with a collar width of | 15 mm | 18 mm |
| Rd / Fl clamping range | 20 mm | 30 mm |
| Anti-rotation protection | PK1 | PK1 |
| For cable cross-section Cu | 16 ... 120 ^{*)} mm ² | 16 ... 120 ^{*)} mm ² |
| Max. short-circuit current I _k 0.5 s | 33.5 kA | 33.5 kA |
| Max. short-circuit current I _k 1 s | 23.7 kA | 23.7 kA |

| Type | UK 25 SQ | UK 30 SQ |
|---|--|--|
| Part No. | 773 234 | 773 330 |
| For fixed ball point Ø | 20 / 25 mm | 25 / 30 mm |
| For T pins with a collar width of | 15 mm | 18 mm |
| Rd / Fl clamping range | 20 mm | 30 mm |
| Anti-rotation protection | PK1 | PK1 |
| For cable cross-section Cu | 16 ... 120 ^{*)} mm ² | 16 ... 120 ^{*)} mm ² |
| Max. short-circuit current I _k 0.5 s | 33.5 kA | 33.5 kA |
| Max. short-circuit current I _k 1 s | 23.7 kA | 23.7 kA |

^{*)} See table for „Clamping range and maximum cable cross-section of universal clamps used for“

^{*)} See table for „Clamping range and maximum cable cross-section of universal clamps used for“

Round Pin Clamp, T Pin Shaft

For round pins in switchgear installations.



General technical data:

| | |
|---|----------------------------|
| Anti-rotation protection | PK1 |
| For cable cross-section Cu | 16 ... 150 mm ² |
| Max. short-circuit current I _k 0.5 s | 42.0 kA |
| Max. short-circuit current I _k 1 s | 29.6 kA |

| Type | RBK 25 SQ SN7151 | RBK 26 SQ SN7255 |
|------------------|------------------|------------------|
| Part No. | 715 314 | 715 315 |
| For round pins Ø | 25 mm | 26 mm |

| Type | RBK 30 SQ SN7642 | RBK 35 SQ |
|------------------|------------------|-----------|
| Part No. | 715 313 | 715 312 |
| For round pins Ø | 30 mm | 35 mm |

Phase Connecting Element, T Pin Shaft

With M16 threaded pin for installation in switchgear installations.



| Type | PAS EK SQ 16 |
|---|----------------------------|
| Part No. | 771 316 |
| Dimensions | M16 |
| Anti-rotation protection | PK1 |
| For cable cross-section Cu | 16 ... 150 mm ² |
| Max. short-circuit current I _k 0.5 s | 42.0 kA |
| Max. short-circuit current I _k 1 s | 29.6 kA |

The clamps must have the same maximum short-circuit current as the earthing and short-circuiting cables!

Phase Connecting Elements for Overhead Lines



Attaching a phase screw clamp to an overhead line.

- For connecting the phase cables of single-pole and three-pole earthing and short-circuiting devices to overhead lines
- With coupling aid for safe attachment on conductor cables
- Easy coupling due to spring-loaded clamp
- Anti-rotation protection type PK1 or PK2 and long threaded T pin shaft
- Earthing and short-circuiting devices can be configured online via the earthing and short-circuiting configurator



General technical data:

| | |
|---------------------------|---|
| Standard | EN/IEC 61230 (DIN VDE 0683-100), threaded T pin shaft DIN 48087 |
| Temperature range | -25 °C ... +55 °C |
| Material (pressure plate) | Aluminium alloy |
| Material (clamp body) | Aluminium alloy |
| Material (shaft) | Copper alloy/gal Sn or StSt |
| Material (coupling aid) | St/gal Zn |



Spring-loaded phase screw clamp.



Phase screw clamp fitted with fixed coupling aid allows safe coupling.



Clamp with long shaft and earthing stick with aluminium cone coupling.



Crimped cable lug, type **PK1**: Standard anti-rotation cable lug with cut-out.



Crimped cable lug, type **PK2**: Cable lugs without cut-out for connecting parts from other manufacturers are available on request.

Standard Phase Screw Clamp

Short-circuit-proof, even if the conductor cables are corroded due to weathering.



| Type | PSK 4 30 SQL | PSK 10 65 SQL |
|---|---------------------------|----------------------------|
| Part No. | 784 201 | 784 301 |
| Clamping range Ø | 4 ... 30 mm | 10 ... 65 mm |
| Anti-rotation protection | PK1 | PK1 |
| For cable cross-section Cu | 16 ... 70 mm ² | 16 ... 120 mm ² |
| Max. short-circuit current I _k 0.5 s | 19.5 kA | 33.5 kA |
| Max. short-circuit current I _k 1 s | 13.8 kA | 23.7 kA |

Phase Screw Clamp with Coupling Aid

Short-circuit-proof, even if the conductor cables are corroded due to weathering.



| Type | PSK 4 30 SQL EH | PSK 10 65 SQL EH |
|---|---------------------------|----------------------------|
| Part No. | 784 401 | 784 501 |
| Clamping range Ø | 4 ... 30 mm | 10 ... 65 mm |
| Anti-rotation protection | PK1 | PK1 |
| For cable cross-section Cu | 16 ... 70 mm ² | 16 ... 120 mm ² |
| Max. short-circuit current I _k 0.5 s | 19.5 kA | 33.5 kA |
| Max. short-circuit current I _k 1 s | 13.8 kA | 23.7 kA |

Spring-loaded Phase Screw Clamp

Easy coupling due to spring-loaded clamp.



| Type | PSK FV 4 30 SQL |
|---|---------------------------|
| Part No. | 784 480 |
| Clamping range Ø | 4 ... 30 mm |
| Anti-rotation protection | PK1 |
| For cable cross-section Cu | 16 ... 70 mm ² |
| Max. short-circuit current I _k 0.5 s | 19.5 kA |
| Max. short-circuit current I _k 1 s | 13.8 kA |

Phase Screw Clamp with Wide Clamping Range

Ideally suited for use with Al and Al/St conductor cables, pipes and fixed phase points.



| Type | PSK 10 85 SQL |
|---|----------------------------|
| Part No. | 784 085 |
| Clamping range Ø | 10 ... 85 mm |
| Anti-rotation protection | PK2 |
| For cable cross-section Cu | 16 ... 150 mm ² |
| Max. short-circuit current I _k 0.5 s | 29.6 kA |
| Max. short-circuit current I _k 1 s | 29.6 kA |

Phase Screw Clamp with Wide Clamping Range and Telescopic Earthing Stick

Ideally suited for use with Al and Al/St conductor cables, pipes and fixed phase points.



| Type | ESTC PSK 5000 SN7249 |
|---|----------------------------|
| Part No. | 769 511 |
| Clamping range Ø | 10 ... 85 mm |
| Anti-rotation protection | PK2 |
| For cable cross-section Cu | 16 ... 150 mm ² |
| Max. short-circuit current I _k 0.5 s | 29.6 kA |
| Max. short-circuit current I _k 1 s | 29.6 kA |
| Total length (l _{G max} / l _{G min}) | 5200 / 2875 mm |
| Length (handle) | 1900 mm |

Phase Screw Clamp

Ideally suited for use in inclined positions.



| Type | PSK 10 32 SQL |
|---|---------------------------|
| Part No. | 784 032 |
| Clamping range Ø | 10 ... 32 mm |
| Anti-rotation protection | PK2 |
| For cable cross-section Cu | 16 ... 95 mm ² |
| Max. short-circuit current I _k 0.5 s | 18.7 kA |
| Max. short-circuit current I _k 1 s | 18.7 kA |

Phase Screw Clamp with Safety Bow

Ideally suited for use in inclined positions.



| Type | PSK 10 32 SQL SB |
|---|---------------------------|
| Part No. | 784 038 |
| Clamping range Ø | 10 ... 32 mm |
| Anti-rotation protection | PK2 |
| For cable cross-section Cu | 16 ... 95 mm ² |
| Max. short-circuit current I _k 0.5 s | 18.7 kA |
| Max. short-circuit current I _k 1 s | 18.7 kA |

Rigid Ball Head Cap



| Type | KKH 20 SQL | KKH 25 SQL |
|---|----------------------------|----------------------------|
| Part No. | 772 314 | 772 324 |
| For fixed ball point Ø | 20 mm | 25 mm |
| Anti-rotation protection | PK1 | PK1 |
| For cable cross-section Cu | 16 ... 120 mm ² | 16 ... 150 mm ² |
| Max. short-circuit current I _k 0.5 s | 33.5 kA | 42.0 kA |
| Max. short-circuit current I _k 1 s | 23.7 kA | 29.6 kA |

Universal Clamp



| Type | UK 25 SQL | UK 30 SQL |
|---|--|--|
| Part No. | 773 236 | 773 331 |
| For fixed ball point Ø | 20 / 25 mm | 25 / 30 mm |
| For T pins with a collar width of | 15 mm | 18 mm |
| Rd / Fl clamping range | 20 mm | 30 mm |
| Anti-rotation protection | PK1 | PK1 |
| For cable cross-section Cu | 16 ... 120 ^{*)} mm ² | 16 ... 120 ^{*)} mm ² |
| Max. short-circuit current I _k 0.5 s | 33.5 kA | 33.5 kA |
| Max. short-circuit current I _k 1 s | 23.7 kA | 23.7 kA |

*) See table for „Clamping range and maximum cable cross-section of universal clamps used for“

The clamps must be designed for the same maximum short-circuit current as the earthing and short-circuiting cables!

Accessories for Phase Connecting Elements for Overhead Lines

Two-pole phase connecting plate

Allows to connect two phase screw clamps with PK1 anti-rotation element.



| | |
|---|--------------------------|
| Type | PAP 2 M12 SSM B13 |
| Part No. | 728 312 |
| Anti-rotation cable lug | PK1 |
| Borehole | Ø12.5 mm |
| Max. short-circuit current I _k 0.5 s | 33.5 kA |
| Max. short-circuit current I _k 1 s | 23.7 kA |

Three-pole phase connecting plate with round pin

Phase connecting plate for phase clamps.



| | |
|---|-----------------------------|
| Type | PAP 3 M12 SSM B13 RB |
| Part No. | 728 313 |
| Anti-rotation cable lug | PK1 |
| Borehole | Ø12.5 mm |
| Max. short-circuit current I _k 0.5 s | 33.5 kA |
| Max. short-circuit current I _k 1 s | 23.7 kA |

*) Clamping range and maximum cable cross-section of universal clamps used for:

| Fixed ball point Ø | T Pin Collar width | Rd / Fl Clamping range | Max. cable cross-section Cu |
|--------------------|--------------------|------------------------|-----------------------------|
| 20 / 25 / 30 mm | 15 / 18 mm | 20 / 30 mm | 16 mm ² |
| 20 / 25 / 30 mm | 15 / 18 mm | 20 / 30 mm | 25 mm ² |
| 20 / 25 / 30 mm | 15 / 18 mm | 20 / 30 mm | 35 mm ² |
| 20 / 25 / 30 mm | 15 / 18 mm | 20 / 30 mm | 50 mm ² |
| 20 / 25 / 30 mm | 15 / 18 mm | 20 / 30 mm | 70 mm ² |
| 20 / 25 / 30 mm | 15 / 18 mm | – | 95 mm ² |
| – / 25 / 30 mm | – | – | 120 mm ² |
| – | – | – | 150 mm ² |

Earthing Kit



Earthing busbar and earthing cables mounted on a tubular earth electrode.

- For overhead line systems
- For driving the tubular earth electrode into the ground

General technical data:

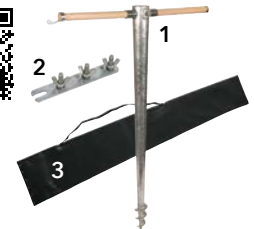
| | |
|------------------------------------|------------|
| Material (tubular earth electrode) | HDG steel |
| Material (bolt) | StSt (V2A) |
| Material (handle) | Wood |
| Material (earthing busbar) | HDG steel |



Crimped cable lugs, type **PK3**:
Anti-rotation hook-type cable lug mounted on a three-pole earthing busbar.

Earthing Kit

For three-pole earthing devices.



Kit includes:

| No. | Part No. | No. | Part No. |
|-----|----------|-----|----------|
| 1 | 644 000 | 3 | 766 601 |
| 2 | 799 019 | | |

For more information about the articles, see www.dehn-international.com

| | |
|--------------------------------|-------------------|
| Type | ES 3P FLER |
| Part No. | 799 009 |
| Total length (l _G) | 1000 mm |
| Bolt | M10 x 35 mm |

Accessories for Earthing Kit

Tubular earth electrode with drill



| | | |
|-----------------|---------------------------|-------------------|
| Type | ERO BSP ASSM10 ... | 1000 STTZN |
| Part No. | | 644 000 |
| Length (drill) | | 1000 mm |
| Stock No. | | 5975-12-120-0006 |

Three-pole earthing busbar

With slot for mounting the earthing busbar on the tubular earth electrode, for hook-type cable lugs of type PK3.



| | |
|-----------------|----------------------|
| Type | ESS 3P M10 FM |
| Part No. | 799 019 |
| Dimensions | 180 x 30 x 5 mm |
| Bolt | 3x M10 x 35 mm |

Earthing Spike



Earthing spike with coiled earthing cable.

- To be driven into the soil
- Two half-shells for earthing or extension cables
- Hot-dip galvanised version

General technical data:

| | |
|-----------------|-----------|
| Material | HDG steel |
| Material (bolt) | St/St |

Earthing Spike



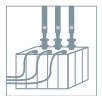
| | |
|--------------------------------|--------------|
| Type | ESP HVS 1500 |
| Part No. | 799 006 |
| Total length (l _G) | 1500 mm |
| Bolt | M12 x 25 mm |

Earth Connecting Elements for Switchgear Installations and Overhead Lines



Earth bushing with tommy bar on a fixed earthing point with ring groove.

- For connecting the earth cable end to fixed ball points, T pins, round and flat conductors, connecting elements and flat profiles
- For wide clamping ranges up to 40 mm
- Anti-rotation protection of type PK1 or PK2
- Earthing and short-circuiting devices can be configured online by means of the earthing and short-circuiting configurator



General technical data:

| | |
|---------------------------|---------------------------------|
| Standard | EN/IEC 61230 (DIN VDE 0683-100) |
| Temperature range | -25 °C ... +55 °C |
| Material (clamp body) | Cu alloy/gal Sn / MCl/gal Zn |
| Material (shaft) | Cu alloy/gal Sn / brass/gal Zn |
| Material (pressure plate) | Cu alloy/gal Sn / St/gal Zn |
| Material (terminal lug) | E-Cu/gal Sn |
| Material (wing nut) | Cu alloy/gal Sn |
| Material (milling plate) | Hardened/nikel-plated steel |
| Material (spring) | Spring steel |

Universal Clamp with Wing Bolt



| Type | UEK 25 FS | UEK 30 FS |
|---|--|--|
| Part No. | 774 034 | 774 130 |
| For fixed ball point Ø | 20 / 25 mm | 25 / 30 mm |
| For T pins with a collar width of | 15 mm | 18 mm |
| Rd / Fl clamping range | 20 mm | 30 mm |
| Anti-rotation cable lug | PK1 | PK1 |
| For cable cross-section Cu | 16 ... 120 ^{*)} mm ² | 16 ... 120 ^{*)} mm ² |
| Max. short-circuit current I _k 0.5 s | 33.5 kA | 33.5 kA |
| Max. short-circuit current I _k 1 s | 23.7 kA | 23.7 kA |

^{*)} See table for „Clamping range and maximum cable cross-section of universal clamps used for“

Universal Clamp with Handle



| Type | UEK 25 HG | UEK 30 HG |
|---|--|--|
| Part No. | 774 234 | 774 330 |
| For fixed ball point Ø | 20 / 25 mm | 25 / 30 mm |
| For T pins with a collar width of | 15 mm | 18 mm |
| Rd / Fl clamping range | 20 mm | 30 mm |
| Anti-rotation cable lug | PK1 | PK1 |
| For cable cross-section Cu | 16 ... 120 ^{*)} mm ² | 16 ... 120 ^{*)} mm ² |
| Max. short-circuit current I _k 0.5 s | 33.5 kA | 33.5 kA |
| Max. short-circuit current I _k 1 s | 23.7 kA | 23.7 kA |

^{*)} See table for „Clamping range and maximum cable cross-section of universal clamps used for“

Universal Clamp with Tommy Bar



| Type | UEK 25 SKN | UEK 30 SKN |
|---|--|--|
| Part No. | 774 434 | 774 530 |
| For fixed ball point Ø | 20 / 25 mm | 30 mm |
| For T pins with a collar width of | 15 mm | 18 mm |
| Rd / Fl clamping range | 20 mm | 30 mm |
| Anti-rotation cable lug | PK1 | PK1 |
| For cable cross-section Cu | 16 ... 120 ^{*)} mm ² | 16 ... 120 ^{*)} mm ² |
| Max. short-circuit current I _k 0.5 s | 33.5 kA | 33.5 kA |
| Max. short-circuit current I _k 1 s | 23.7 kA | 23.7 kA |

^{*)} See table for „Clamping range and maximum cable cross-section of universal clamps used for“

Rigid Ball Head Cap with Wing Bolt



| Type | KKH 20 FS | KKH 25 FS |
|---|----------------------------|----------------------------|
| Part No. | 772 312 | 772 322 |
| For fixed ball point Ø | 20 mm | 25 mm |
| Anti-rotation cable lug | PK1 | PK1 |
| For cable cross-section Cu | 16 ... 120 mm ² | 16 ... 150 mm ² |
| Max. short-circuit current I _k 0.5 s | 33.5 kA | 42.0 kA |
| Max. short-circuit current I _k 1 s | 23.7 kA | 29.6 kA |

Rigid Ball Head Cap with Handle



| Type | KKH 20 HG | KKH 25 HG |
|---|----------------------------|----------------------------|
| Part No. | 772 313 | 772 323 |
| For fixed ball point Ø | 20 mm | 25 mm |
| Anti-rotation cable lug | PK1 | PK1 |
| For cable cross-section Cu | 16 ... 120 mm ² | 16 ... 150 mm ² |
| Max. short-circuit current I _k 0.5 s | 33.5 kA | 42.0 kA |
| Max. short-circuit current I _k 1 s | 23.7 kA | 29.6 kA |

Earth Connecting Element with Wing Nut



| Type | EAS EK FM 12 | EAS EK FM 16 |
|---|----------------------------|----------------------------|
| Part No. | 775 621 | 775 631 |
| Dimensions | M12 | M16 |
| Anti-rotation cable lug | PK1 | PK1 |
| For cable cross-section Cu | 16 ... 150 mm ² | 16 ... 150 mm ² |
| Max. short-circuit current I _k 0.5 s | 42.0 kA | 42.0 kA |
| Max. short-circuit current I _k 1 s | 29.6 kA | 29.6 kA |

Earth Connecting Element with Wing Bolt



| Type | EAS EK FS 12 | EAS EK FS 16 |
|---|----------------------------|----------------------------|
| Part No. | 775 626 | 775 636 |
| Dimensions | M12 x 15 mm | M16 x 15 mm |
| Anti-rotation cable lug | PK1 | PK1 |
| For cable cross-section Cu | 16 ... 150 mm ² | 16 ... 150 mm ² |
| Max. short-circuit current I _k 0.5 s | 42.0 kA | 42.0 kA |
| Max. short-circuit current I _k 1 s | 29.6 kA | 29.6 kA |

Earth Bushing with Wing Bolt

For fixed earthing points with ring groove



| Type | EAB RN 16 FS |
|---|--|
| Part No. | 790 150 |
| Dimensions | Ø16 mm |
| Anti-rotation cable lug | PK1 |
| For cable cross-section Cu | 16 ... 150 ^{*)} mm ² |
| Max. short-circuit current I _k 0.5 s | 42.0 kA |
| Max. short-circuit current I _k 1 s | 29.6 kA |

^{*)} For cable lengths > 4000 mm: max. up to 95 mm² (26.5 kA / 0.5 s).

Earth Bushing with Tommy Bar

For fixed earthing points with ring groove



| Type | EAB RN 16 SKN |
|---|--|
| Part No. | 790 160 |
| Dimensions | Ø16 mm |
| Anti-rotation cable lug | PK2 |
| For cable cross-section Cu | 16 ... 150 ^{*)} mm ² |
| Max. short-circuit current I _k 0.5 s | 29.6 kA |
| Max. short-circuit current I _k 1 s | 29.6 kA |

^{**)} Max. short-circuit current of 29.6 kA even in case of a disconnection time I_k of 1 s.

Earth Milling Clamp with Tommy Bar and Disc Springs

Milling plate, disc springs and long tommy bar for reliable contact



| Type | EFK FL40 SKN |
|---|---------------------------|
| Part No. | 792 190 |
| Clamping range | up to 40 mm |
| Anti-rotation cable lug | PK1 |
| For cable cross-section Cu | 16 ... 95 mm ² |
| Max. short-circuit current I _k 0.5 s | 26.5 kA |
| Max. short-circuit current I _k 1 s | 18.7 kA |

Earth Milling Clamp with Tommy Bar

Milling plate and long tommy bar for reliable contact



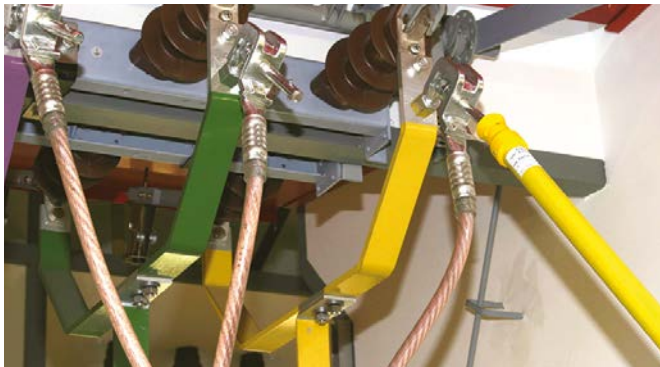
| | |
|---|---------------------------|
| Type | EFK FL30 SKN |
| Part No. | 792 030 |
| Clamping range | Up to 30 mm |
| Anti-rotation cable lug | PK1 |
| For cable cross-section Cu | 16 ... 50 mm ² |
| Max. short-circuit current I _k 0,5 s | 14.0 kA |
| Max. short-circuit current I _k 1 s | 9.9 kA |

The clamps must have the same maximum short-circuit current as the earthing and short-circuiting cables!

*) Clamping range and maximum cable cross-section of universal clamps used for:

| Fixed ball point Ø | T Pin Collar width | Rd / Fl Clamping range | Max. cable cross-section Cu |
|-----------------------|-----------------------|------------------------------|-----------------------------------|
| 20 / 25 / 30 mm | 15 / 18 mm | 20 / 30 mm | 16 mm ² |
| 20 / 25 / 30 mm | 15 / 18 mm | 20 / 30 mm | 25 mm ² |
| 20 / 25 / 30 mm | 15 / 18 mm | 20 / 30 mm | 35 mm ² |
| 20 / 25 / 30 mm | 15 / 18 mm | 20 / 30 mm | 50 mm ² |
| 20 / 25 / 30 mm | 15 / 18 mm | 20 / 30 mm | 70 mm ² |
| 20 / 25 / 30 mm | 15 / 18 mm | - | 95 mm ² |
| - / 25 / 30 mm | - | - | 120 mm ² |
| - | - | - | 150 mm ² |

Earthing Sticks for Switchgear Installations



Earthing stick used for attaching an earthing and short-circuiting device to an installation.

- For attaching earthing and short-circuiting devices
- Available in different lengths
- Modular for easy transport
- Light-weight construction
- Hexagon shaft (WS 19 mm) or T pin shaft



General technical data:

| | |
|----------------------------|---|
| Standard | T pin shaft DIN 48087 |
| Temperature range | -25 °C ... +55 °C |
| Material (insulating tube) | Glass-fibre reinforced polyester tube |
| End fitting | Non-slip plastic cap or plug-in coupling for extending the handle |



Earthing sticks with bayonet locking mechanism (T pin shaft) can also be used for clamps with hexagon shaft by attaching an AES SQ SK adapter.



The plug-in coupling allows for easy handle extension of ES STK earthing sticks.

Earthing sticks are hand-held insulating sticks for approaching clamps of earthing and short-circuiting devices to parts of electrical installations for earthing and short-circuiting purposes. They consist of an insulating element, black ring, handle and coupling for attaching clamps. Earthing sticks have to be selected according to the **weight** of the earthing and short-circuiting device.

The **insulating element** is the part of the earthing stick between the black ring and the end of the earthing stick in the direction of the clamp. It ensures that the user maintains the required safety distance and provides sufficient insulation. In installations exceeding 1 kV, the insulating element must have a minimum length of 500 mm.

With hexagon shaft

Handle termination with end cap (spring locking mechanism)



| | | |
|-----------------------------------|------------|------------|
| Type | ES SK 1000 | ES SK 1500 |
| Part No. | 761 010 | 761 015 |
| Total length (l _G) | 1000 mm | 1500 mm |
| Length (handle) (l _H) | 430 mm | 930 mm |

With T pin shaft

Handle termination with end cap (bayonet locking mechanism)



| | | |
|-----------------------------------|------------|------------|
| Type | ES SQ 1000 | ES SQ 1500 |
| Part No. | 761 011 | 761 016 |
| Total length (l _G) | 1000 mm | 1500 mm |
| Length (handle) (l _H) | 430 mm | 930 mm |

With hexagon shaft, plug-in coupling

Handle termination with plastic plug-in coupling for extending the handle (spring locking mechanism)



| | | |
|-----------------------------------|----------------|----------------|
| Type | ES SK STK 1000 | ES SK STK 2000 |
| Part No. | 761 001 | 761 003 |
| Total length (l _G) | 1000 mm | 2000 mm |
| Length (handle) (l _H) | 430 mm | 1430 mm |

With T pin shaft, plug-in coupling

Handle termination with plastic plug-in coupling for extending the handle (bayonet locking mechanism)



| Type | ES SQ STK 1000 | ES SQ STK 2000 |
|-----------------------------------|----------------|----------------|
| Part No. | 761 002 | 761 004 |
| Total length (l _G) | 1000 mm | 2000 mm |
| Length (handle) (l _H) | 430 mm | 1430 mm |

Telescopic with T pin shaft and plug-in coupling



| Type | ESTC SQ STK SN7562 |
|---|--------------------|
| Part No. | 769 304 |
| Total length (l _{G max} / l _{G min}) | 3040 / 1790 mm |
| Length (handle) (l _H) | 900 mm |

Two-part, with hexagon shaft

Handle termination with plastic plug-in coupling for extending the handle (spring locking mechanism)



| Type | EST SK STK 920 |
|-----------------------------------|----------------|
| Part No. | 761 070 |
| Total length (l _G) | 920 mm |
| Length (handle) (l _H) | 415 mm |

Two-part, with T pin shaft

Handle termination with plastic plug-in coupling for extending the handle (bayonet locking mechanism)



| Type | EST SQ STK 920 |
|-----------------------------------|----------------|
| Part No. | 761 075 |
| Total length (l _G) | 920 mm |
| Length (handle) (l _H) | 415 mm |

Accessories for Earthing Sticks for Switchgear Installations

Adapter (T pin shaft / hexagon shaft)

Suitable for putting on earthing sticks with coupling for T pin shaft (bayonet locking mechanism). The lock nut enables the adapter to be fixed to the earthing stick.



| Type | AD ES SQ SK |
|----------|-------------|
| Part No. | 765 001 |
| Length | 130 mm |

Earthing Sticks for Overhead Lines



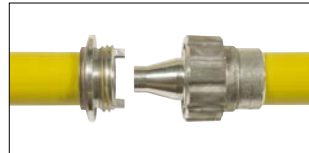
Telescopic earthing stick with aluminium cone coupling and phase screw clamp.

- For outdoor use
- Robust aluminium cone coupling
- Total lengths up to 6000 mm
- Telescopic stick, length continuously adjustable by star knob
- For phase screw clamps and clamps with long T pin shaft



General technical data:

| | |
|---|--|
| Temperature range | -25 °C ... +55 °C |
| Material (insulating tube) | Glass-fibre reinforced polyester tube |
| Material (threaded coupling, star knob) | Aluminium alloy |
| End fitting | Aluminium/rubber eye / Plug-in coupling for extending the handle |



Robust aluminium threaded coupling allows positive and non-positive connection due to the screw connection and gearing.



End fitting with eye (Al/rubber) or plug-in coupling with eye (Al/rubber) for extending the handle.

A square tube (26 mm) can be pulled out of the round insulating tube and can be fixed in any position between l_{min} and l_{max} using the star knob.

Lockable adjusting ring:

- The adjusting ring on the cone has the following functions:
- Position "AUF" (= OPEN): Stick can be removed after the clamp has been attached
- Position "ZU" (= CLOSED): Stick and clamp remain coupled even after the earthing and short-circuiting device has been attached



Permissible loads for the earthing sticks:

| Length l _G | No. | Max. load on the operating head |
|-----------------------|---------|---------------------------------|
| 6000 mm | 1+2+2+3 | 3.5 kg |
| 4500 mm | 1+2+3 | 10 kg |
| 3000 mm | 1+3 | 10 kg |
| 1500 mm | 1 | 20 kg |

Telescopic, with T pin shaft



| Type | ESTC SQL 4000 | ESTC SQL 5000 |
|---|----------------|----------------|
| Part No. | 769 400 | 769 500 |
| Total length (l _{G max} / l _{G min}) | 4015 / 2180 mm | 5015 / 2680 mm |
| Length (handle) (l _H) | 1400 mm | 1900 mm |
| Diameter | 43 mm | 43 mm |

Telescopic, with T pin shaft, plug-in coupling



| Type | ESTC SQL STK 3000 |
|---|-------------------|
| Part No. | 769 300 |
| Total length (l _{G max} / l _{G min}) | 3015 / 1760 mm |
| Length (handle) (l _H) | 900 mm |
| Diameter | 43 mm |

Multi-part, top section

With aluminium bayonet coupling and aluminium threaded coupling as end fitting.



| Type | EST KS SQL 1500 |
|--------------------------------|-----------------|
| Part No. | 769 503 |
| Total length (l _G) | 1600 mm |
| Diameter | 43 mm |

Multi-part, intermediate section

With aluminium threaded coupling, connector with nut and bushing.



| Type | EST ZS 1500 |
|--------------------------------|-------------|
| Part No. | 769 504 |
| Total length (l _G) | 1580 mm |
| Diameter | 43 mm |

Multi-part, end fitting

With connector and nut of the aluminium threaded coupling and end fitting with ring eye.



| Type | EST ES 1500 |
|--------------------------------|-------------|
| Part No. | 769 505 |
| Total length (l _G) | 1590 mm |
| Diameter | 43 mm |

Accessories for Earthing Sticks for Overhead Lines

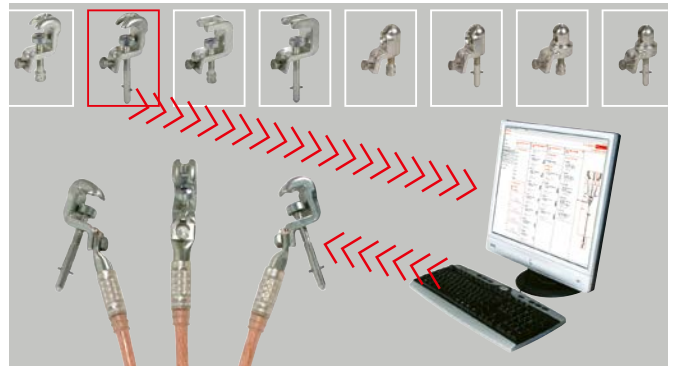
Adapter (T pin shaft / long T pin shaft)

Suitable for insertion into earthing sticks with aluminium cone coupling for T pin shafts (bayonet locking mechanism) to accept clamps with T pin shaft. The lock nut allows to fix the adapter on the earthing stick.



| Type | AD ES SQ SQL |
|----------|--------------|
| Part No. | 765 006 |
| Length | 185 mm |

EaS Configurator: Easy online configuration



You will find the EaS configurator at de.hn/4T1Uq

- Easy online selection of the suitable EaS device
- Unique laser marking of the EaS device
- Individual configuration
- Permanent plausibility check in the background
- User-friendly interface
- To start the configuration, simply enter the Variant No., Part No. or Product configuration



General technical data:

| | |
|---------------------|---|
| Standard | EN/IEC 61138 (DIN VDE 0283-3) and EN/IEC 61230 (DIN VDE 0683-100) |
| Temperature range | -25 °C ... +55 °C |
| Material (cable) | Al, flexible; E-Cu, extra finely stranded and highly flexible |
| Material (sheath) | Thermoplastic (soft PVC compound YM2) |
| Hole (terminal lug) | Ø12.5 mm |

Earthing and short-circuiting devices (EaS) for switchgear installations and overhead line application can be individually configured online on the DEHN homepage.

The configurator provides you with two options to start the configuration (product or system view).

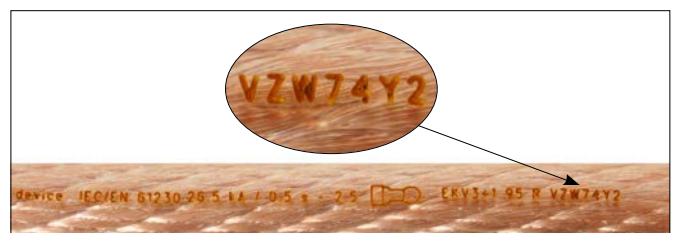
The product view is ideally suited for users who know exactly what they need and already have a concrete idea of, for example, the cable cross-section and clamps to be used.

As an alternative, the system view can be selected. For this extended version of the product view, information on the installation must be provided.

The application location of the EaS device determines which clamps are ultimately available for selection. A distinction is made here between switchgear installations and overhead line systems.

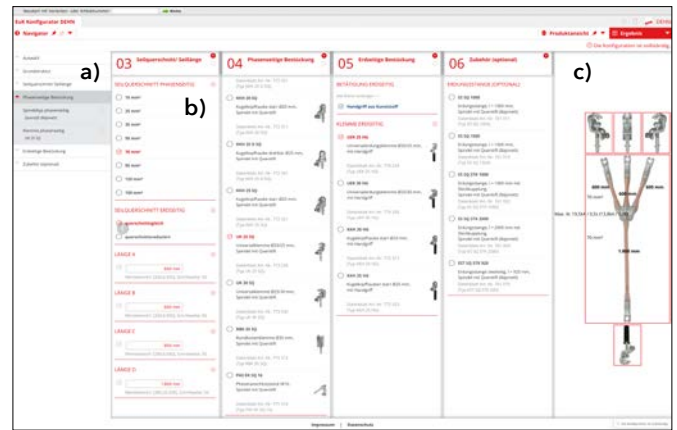
A permanent plausibility check ensures reliable selection of the right device. Further accessories such as earthing sticks are optionally displayed for the configured EaS devices.

At the end of the configuration the result is shown graphically and in a detailed description. In addition, a unique Variant No. is assigned to the application-specific earthing and short-circuiting device, which is lasered on the device later.



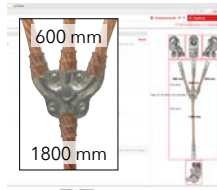
The EaS configurator is graphically divided into three parts:

- On the left, the modular features are displayed in a tree structure. The selection history is shown, and you can jump back to it at any time and change properties that have already been selected. The tree structure allows a clearly structured configuration.
- In the centre you can select or change the required information via the keyboard or mouse. This usually happens "step by step", i.e. only after a property has been evaluated is the next characteristic "visible" and selectable.
- On the right, the current status is graphically displayed in an active visualisation in order to support and simplify the right selection. Here too, data can be entered in the relevant fields.



**Three-pole,
same Cable Cross-Section
with Ball Head Caps**

... easy configuration ...



| General technical data: | |
|-------------------------|--------------|
| Earth cable end | EAS EK FM 12 |

| Type EKV3+1 ... | 16 G VGJD2QX | 25 G VRDSN66 |
|---|--------------------|--------------------|
| Part No. | VGJD2QX | VRDSN66 |
| Phase cable end | KKH 20 SK | KKH 20 SK |
| For fixed ball point Ø | 20 mm | 20 mm |
| Cable cross-section Cu | 16 mm ² | 25 mm ² |
| Max. short-circuit current I _k 0.5 s | 4.5 kA | 7.0 kA |
| Max. short-circuit current I _k 1 s | 3.2 kA | 4.9 kA |

| Type EKV3+1 ... | 35 G V3WJMY | 50 G VU8P6LE |
|---|--------------------|--------------------|
| Part No. | V3WJMY | VU8P6LE |
| Phase cable end | KKH 20 SK | KKH 20 SK |
| For fixed ball point Ø | 20 mm | 20 mm |
| Cable cross-section Cu | 35 mm ² | 50 mm ² |
| Max. short-circuit current I _k 0.5 s | 10.0 kA | 14.0 kA |
| Max. short-circuit current I _k 1 s | 6.9 kA | 9.9 kA |

| Type EKV3+1 ... | 70 G VCEY1U6 | 95 G VA3926U |
|---|--------------------|--------------------|
| Part No. | VCEY1U6 | VA3926U |
| Phase cable end | KKH 20 SK | KKH 20 SK |
| For fixed ball point Ø | 20 mm | 20 mm |
| Cable cross-section Cu | 70 mm ² | 95 mm ² |
| Max. short-circuit current I _k 0.5 s | 19.5 kA | 26.5 kA |
| Max. short-circuit current I _k 1 s | 13.8 kA | 18.7 kA |

| Type EKV3+1 ... | 120 G VAB3PJV | 150 G V1KPXFR |
|---|---------------------|---------------------|
| Part No. | VAB3PJV | V1KPXFR |
| Phase cable end | KKH 20 SK | KKH 25 SK |
| For fixed ball point Ø | 20 mm | 25 mm |
| Cable cross-section Cu | 120 mm ² | 150 mm ² |
| Max. short-circuit current I _k 0.5 s | 33.5 kA | 42.0 kA |
| Max. short-circuit current I _k 1 s | 23.7 kA | 29.6 kA |

**Three-pole,
reduced Cable Cross-Section
with Ball Head Caps**

... easy configuration ...



| General technical data: | |
|-------------------------|--------------|
| Earth cable end | EAS EK FM 12 |

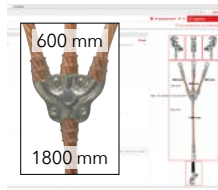
| Type EKV3+1 ... | 50 R VD28FAD | 70 R VQYP8B2 |
|---|-----------------------|-----------------------|
| Part No. | VD28FAD | VQYP8B2 |
| Phase cable end | KKH 20 SK | KKH 20 SK |
| For fixed ball point Ø | 20 mm | 20 mm |
| Cable cross-section Cu | 50/25 mm ² | 70/35 mm ² |
| Max. short-circuit current I _k 0.5 s | 14.0 kA | 19.5 kA |
| Max. short-circuit current I _k 1 s | 9.9 kA | 13.8 kA |

| Type EKV3+1 ... | 95 R V5SVXPH | 120 R VTSY9XH |
|---|-----------------------|------------------------|
| Part No. | V5SVXPH | VTSY9XH |
| Phase cable end | KKH 20 SK | KKH 20 SK |
| For fixed ball point Ø | 20 mm | 20 mm |
| Cable cross-section Cu | 95/35 mm ² | 120/50 mm ² |
| Max. short-circuit current I _k 0.5 s | 26.5 kA | 33.5 kA |
| Max. short-circuit current I _k 1 s | 18.7 kA | 23.7 kA |

| Type EKV3+1 ... | 150 R VHBWUNH |
|---|------------------------|
| Part No. | VHBWUNH |
| Phase cable end | KKH 25 SK |
| For fixed ball point Ø | 25 mm |
| Cable cross-section Cu | 150/50 mm ² |
| Max. short-circuit current I _k 0.5 s | 42.0 kA |
| Max. short-circuit current I _k 1 s | 29.6 kA |

Three-pole, same Cable Cross-Section with Universal Clamp

... easy configuration ...



| General technical data: | |
|-----------------------------------|------------|
| Phase cable end | UK 25 SQ |
| Earth cable end | UEK 25 HG |
| For fixed ball point Ø | 20 / 25 mm |
| For T pins with a collar width of | 15 mm |
| Rd / Fl clamping range | 20 mm |

| Type EKV3+1 ... | 16 G V8MCNWM | 25 G V8VF7CP |
|---|--------------------|--------------------|
| Part No. | V8MCNWM | V8VF7CP |
| Cable cross-section Cu | 16 mm ² | 25 mm ² |
| Max. short-circuit current I _k 0.5 s | 4.5 kA | 7.0 kA |
| Max. short-circuit current I _k 1 s | 3.2 kA | 4.9 kA |

| Type EKV3+1 ... | 35 G V5VN56Z | 50 G VPH98CT |
|---|--------------------|--------------------|
| Part No. | V5VN56Z | VPH98CT |
| Cable cross-section Cu | 35 mm ² | 50 mm ² |
| Max. short-circuit current I _k 0.5 s | 10.0 kA | 14.0 kA |
| Max. short-circuit current I _k 1 s | 6.9 kA | 9.9 kA |

| Type EKV3+1 ... | 70 G VMLM2BZ | 95 G VE9HQHJ |
|---|--------------------|--------------------|
| Part No. | VMLM2BZ | VE9HQHJ |
| Cable cross-section Cu | 70 mm ² | 95 mm ² |
| Max. short-circuit current I _k 0.5 s | 19.5 kA | 26.5 kA |
| Max. short-circuit current I _k 1 s | 13.8 kA | 18.7 kA |

| Type EKV3+1 ... | 120 G VKZLVU3 |
|---|---------------------|
| Part No. | VKZLVU3 |
| Cable cross-section Cu | 120 mm ² |
| Max. short-circuit current I _k 0.5 s | 33.5 kA |
| Max. short-circuit current I _k 1 s | 23.7 kA |

Three-pole, reduced Cable Cross-Section with Universal Clamp

... easy configuration ...



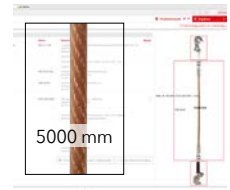
| General technical data: | |
|-----------------------------------|------------|
| Phase cable end | UK 25 SQ |
| Earth cable end | UEK 25 HG |
| For fixed ball point Ø | 20 / 25 mm |
| For T pins with a collar width of | 15 mm |
| Rd / Fl clamping range | 20 mm |

| Type EKV3+1 ... | 50 R VMBDCM1 | 70 R V4RJ7A2 |
|---|-----------------------|-----------------------|
| Part No. | VMBDCM1 | V4RJ7A2 |
| Cable cross-section Cu | 50/25 mm ² | 70/35 mm ² |
| Max. short-circuit current I _k 0.5 s | 14.0 kA | 19.5 kA |
| Max. short-circuit current I _k 1 s | 9.9 kA | 13.8 kA |

| Type EKV3+1 ... | 95 R VRAB9WB | 120 R VACNLP8 |
|---|-----------------------|------------------------|
| Part No. | VRAB9WB | VACNLP8 |
| Cable cross-section Cu | 95/35 mm ² | 120/50 mm ² |
| Max. short-circuit current I _k 0.5 s | 26.5 kA | 33.5 kA |
| Max. short-circuit current I _k 1 s | 18.7 kA | 23.7 kA |

Single-pole with Phase Screw Clamp

... easy configuration ...



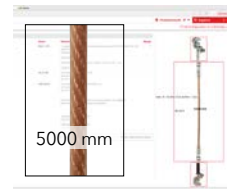
| Type EKV1+1 ... | 16 VE5E8FZ | 25 VF33XR2 |
|---|--------------------|--------------------|
| Part No. | VE5E8FZ | VF33XR2 |
| Phase cable end | PSK 4 30 SQL | PSK 4 30 SQL |
| Earth cable end | EFK FL40 SKN | EFK FL40 SKN |
| Clamping range Ø | 4 ... 30 mm | 4 ... 30 mm |
| Cable cross-section Cu | 16 mm ² | 25 mm ² |
| Max. short-circuit current I _k 0.5 s | 4.5 kA | 7.0 kA |
| Max. short-circuit current I _k 1 s | 3.2 kA | 4.9 kA |

| Type EKV1+1 ... | 35 V43FCV8 | 50 V2KWXUL |
|---|--------------------|--------------------|
| Part No. | V43FCV8 | V2KWXUL |
| Phase cable end | PSK 4 30 SQL | PSK 4 30 SQL |
| Earth cable end | EFK FL40 SKN | EFK FL40 SKN |
| Clamping range Ø | 4 ... 30 mm | 4 ... 30 mm |
| Cable cross-section Cu | 35 mm ² | 50 mm ² |
| Max. short-circuit current I _k 0.5 s | 10.0 kA | 14.0 kA |
| Max. short-circuit current I _k 1 s | 6.9 kA | 9.9 kA |

| Type EKV1+1 ... | 70 VRP32FL | 95 V2WPYVF | 120 VG4GXHQ |
|---|--------------------|--------------------|---------------------|
| Part No. | VRP32FL | V2WPYVF | VG4GXHQ |
| Phase cable end | PSK 4 30 SQL | PSK 10 65 SQL | PSK 10 65 SQL |
| Earth cable end | EFK FL40 SKN | UEK 30 HG | UEK 30 HG |
| Clamping range Ø | 4 ... 30 mm | 10 ... 65 mm | 10 ... 65 mm |
| Cable cross-section Cu | 70 mm ² | 95 mm ² | 120 mm ² |
| Max. short-circuit current I _k 0.5 s | 19.5 kA | 26.5 kA | 33.5 kA |
| Max. short-circuit current I _k 1 s | 13.8 kA | 18.7 kA | 23.7 kA |

Single-pole with Universal Clamp

... easy configuration ...



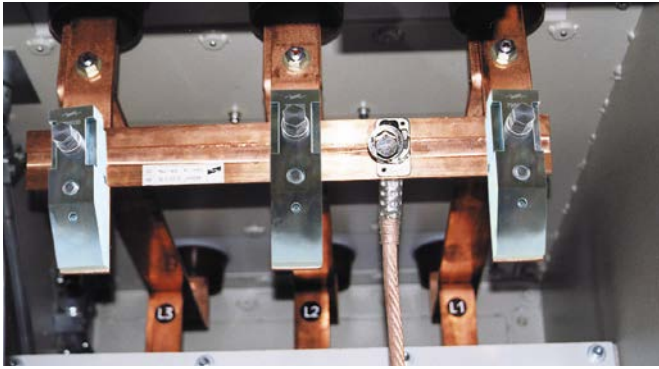
| General technical data: | |
|-----------------------------------|------------|
| Phase cable end | UK 25 SQ |
| Earth cable end | UEK 30 HG |
| For fixed ball point Ø | 20 / 25 mm |
| For T pins with a collar width of | 15 mm |
| Rd / Fl clamping range | 20 mm |

| Type EKV1+1 ... | 16 VMZDL8N | 25 VB1DETL |
|---|--------------------|--------------------|
| Part No. | VMZDL8N | VB1DETL |
| Cable cross-section Cu | 16 mm ² | 25 mm ² |
| Max. short-circuit current I _k 0.5 s | 4.5 kA | 7.0 kA |
| Max. short-cir. current I _k 1 s | 3.2 kA | 4.9 kA |

| Type EKV1+1 ... | 35 V8PPJEF | 50 VQY44GL |
|---|--------------------|--------------------|
| Part No. | V8PPJEF | VQY44GL |
| Cable cross-section Cu | 35 mm ² | 50 mm ² |
| Max. short-circuit current I _k 0.5 s | 10.0 kA | 14.0 kA |
| Max. short-cir. current I _k 1 s | 6.9 kA | 9.9 kA |

| Type EKV1+1 ... | 70 VFZ17TJ | 95 VWBDMP5 | 120 V3CM9FR |
|---|--------------------|--------------------|---------------------|
| Part No. | VFZ17TJ | VWBDMP5 | V3CM9FR |
| Cable cross-section Cu | 70 mm ² | 95 mm ² | 120 mm ² |
| Max. short-circuit current I _k 0.5 s | 19.5 kA | 26.5 kA | 33.5 kA |
| Max. short-cir. current I _k 1 s | 13.8 kA | 18.7 kA | 23.7 kA |

Short-Circuiting Bar

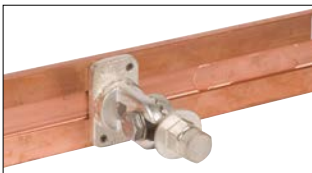


Short-circuiting bar with earthing cable on a switchgear installation.

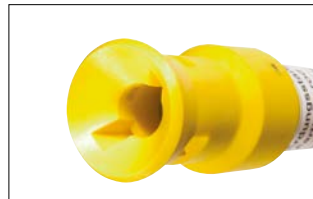
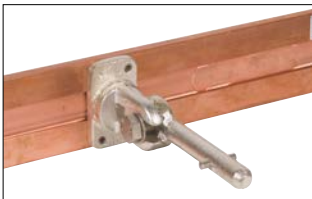
- Simply compile the right short circuit bar online
- Individual configuration
- Permanent plausibility check in the background
- With longitudinal slot for reliable contact
- High short-circuit current strength up to max. 130 kA / 0.5 s for low-voltage systems (LV) and 80 kA / 0.5 s for medium-voltage systems (MV)
- For use with earthing sticks for hexagon or T pin shafts
- Short-circuiting bar and earthing cable lengths can be selected online via the earthing and short-circuiting configurator



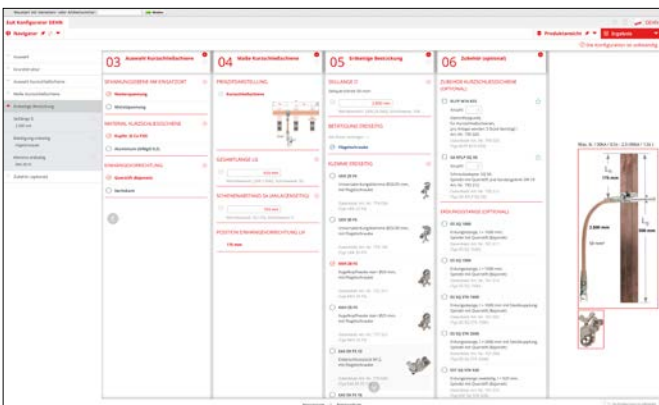
In order to connect the earthing cable to the earthing system, it is fitted with a rigid ball head cap with a wing bolt for fixed ball points (Ø20 mm) (Part No. 772 312 (type KKH 20 FS)). Other equipment or cable lengths can be selected online via the earthing and short-circuiting configurator. Short-circuiting bars are available with two different coupling mechanisms for earthing sticks:



SK: Hexagon shaft.



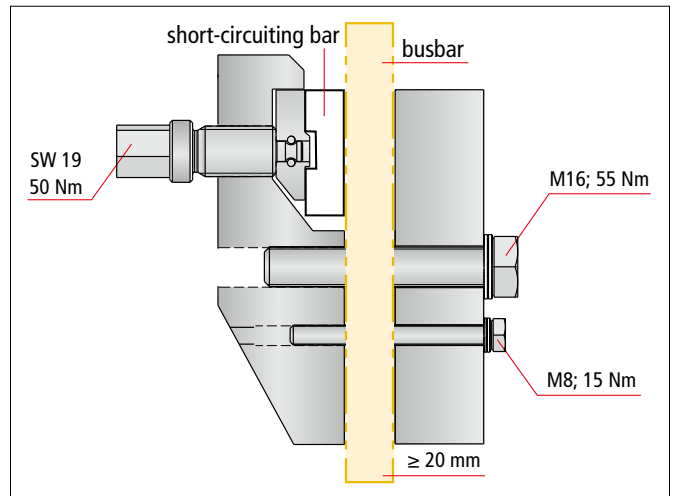
SQ: T pin shaft (bayonet locking mechanism).



You will find the EaS configurator at: de.hn/8C6wt

General technical data:

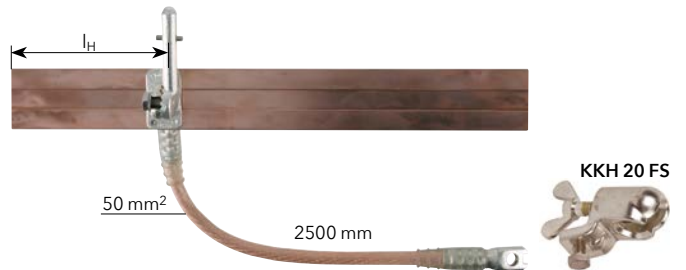
| | |
|---------------------------|---------------------------------|
| Standard | EN/IEC 61230 (DIN VDE 0683-100) |
| Temperature range | -25 °C ... +55 °C |
| Profile dimensions | 60 x 12 mm |
| Material (earthing cable) | Highly flexible copper |
| Cable cross-section | 50 mm ² |



Fixed clamping point mounted on busbar and inserted short-circuiting bar

Short-Circuiting Bar made of Copper

Rigid ball head cap (KKH 20 FS) on the earth cable end.

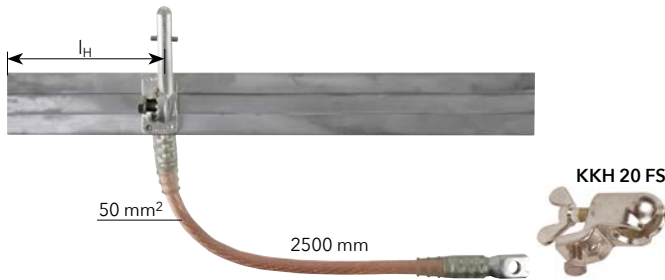


| Type | KS SQ C NS VL2FG28 | KS SK C NS VHNEFQE |
|--|--------------------|--------------------|
| Part No. | VL2FG28 | VHNEFQE |
| Application | LV | LV |
| Coupling mechanism | SQ | SK |
| Position of the coupling mechanism (I _H) | 175 mm | 175 mm |
| Total length (I _G) | 500 mm | 500 mm |
| Bar spacing (S _A) | 150 mm | 150 mm |
| Max. short-circuit current I _k 0.5 s | 130 kA | 130 kA |
| Max. short-circuit current I _k 1 s | 90 kA | 90 kA |

| Type KSX ... | SQ C MS VV7M6CQ | SK C MS V5DHK24 |
|--|-----------------|-----------------|
| Part No. | VV7M6CQ | V5DHK24 |
| Application | MV | MV |
| Coupling mechanism | SQ | SK |
| Position of the coupling mechanism (I _H) | 525 mm | 525 mm |
| Total length (I _G) | 1500 mm | 1500 mm |
| Bar spacing (S _A) | 450 mm | 450 mm |
| Max. short-circuit current I _k 0.5 s | 80 kA | 80 kA |
| Max. short-circuit current I _k 1 s | 80 kA | 80 kA |

Short-Circuiting Bar made of Aluminium

Rigid ball head cap (KKH 20 FS) on the earth cable end.



| Type | KS SQ A NS VNRLBXU | KS SK A NS VP33XYL |
|--|--------------------|--------------------|
| Part No. | VNRLBXU | VP33XYL |
| Application | LV | LV |
| Coupling mechanism | SQ | SK |
| Position of the coupling mechanism (l_H) | 175 mm | 175 mm |
| Total length (l_G) | 500 mm | 500 mm |
| Bar spacing (S_A) | 150 mm | 150 mm |
| Max. short-circuit current I_k 0.5 s | 90 kA | 90 kA |
| Max. short-circuit current I_k 1 s | 64 kA | 64 kA |

| Type KSX ... | SQ A MS VSJ3Y6N | SK A MS VANH53Y |
|--|-----------------|-----------------|
| Part No. | VSJ3Y6N | VANH53Y |
| Application | MV | MV |
| Coupling mechanism | SQ | SK |
| Position of the coupling mechanism (l_H) | 675 mm | 675 mm |
| Total length (l_G) | 1500 mm | 1500 mm |
| Bar spacing (S_A) | 450 mm | 450 mm |
| Max. short-circuit current I_k 0.5 s | 60 kA | 60 kA |
| Max. short-circuit current I_k 1 s | 60 kA | 60 kA |

Two coupling mechanisms are required for a total length > 1000 mm.

Note: When ordering, please specify the Variant No. generated online via the earthing and short-circuiting configurator.

Accessories for Short-Circuiting Bar

Clamping point for busbars

Fixed clamping point with fixing elements for a busbar thickness up to 25 mm for short-circuiting bars with longitudinal slot.

*) Note: max values see product data sheet for short-circuiting bar



| Type | KLFP M16 KSS |
|--|-----------------------------------|
| Part No. | 795 020 |
| Type | with hexagon shaft wrench size 19 |
| Material | Al / St |
| Max. short-circuit current I_k 0.5 s | 130 kA *) |
| Max. short-circuit current I_k 1 s | 90 kA *) |

SQ screw-type adapter

Screw-type adapter with Cardan joint spanner for fitting onto earthing sticks, T pin shaft (bayonet mechanism), for fixed clamping points.



| Type | SA KLFP SQ SK |
|----------------|-------------------|
| Part No. | 795 212 |
| Hexagon socket | wrench size 19 mm |

Adapter (T pin shaft / hexagon shaft)

Suitable for putting on earthing sticks with coupling for T pin shaft (bayonet locking mechanism). The lock nut enables the adapter to be fixed to the earthing stick.



| Type | AD ES SQ SK |
|----------|-------------|
| Part No. | 765 001 |
| Length | 130 mm |

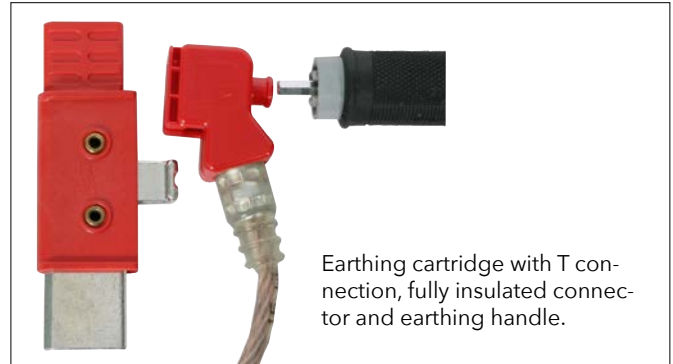
EaS Devices (fully insulated) for Low-Voltage Cable Distribution Cabinets



Attaching a fully insulated earthing and short-circuiting device using an earthing handle of type VI.

General technical data:

| | |
|-------------------|---------------------------------|
| Standard | EN/IEC 61230 (DIN VDE 0683-100) |
| Temperature range | -25 °C ... +55 °C |



Earthing cartridge with T-connection, fully insulated connector and earthing handle.

Kit for low-voltage installations, fully insulated type VI

- Fully insulated, shock-proof version
- Fully equipped kit for cable distribution cabinets
- Safe operation with insulated earthing handle of type VI (with dual function), suitable for both inserting and removing earthing cartridges with T connection as well as for attaching earthing and short-circuiting devices (EaS devices)
- Waterproof, plastic-sheathed cable entries and node unit, with additional anti-kink protection
- Other cable lengths can be selected online via the earthing and short-circuiting configurator

Kit in Plastic Case



Kit includes:

| No. | Part No. |
|-----|--------------|
| 1 | 745 902 (1x) |
| 3 | V162LDM (2x) |
| 4 | 745 905 (3x) |
| 5 | 745 910 (6x) |
| 6 | 745 922 (1x) |

For more detailed information on these products, see Single Parts.

| | |
|---------------------------|--------------------|
| Type EKS VI 2F KVS ... | KK |
| Part No. | 745 903 |
| Variant No. of EaS device | V162LDM |
| Dimensions | 450 x 350 x 110 mm |

Attention: Please state the relevant Variant No. when ordering.

Kit in Sheet Steel Case



Kit includes:

| No. | Part No. |
|-----|--------------|
| 2 | 745 900 (1x) |
| 3 | V162LDM (2x) |
| 4 | 745 905 (3x) |
| 5 | 745 910 (6x) |
| 6 | 745 922 (1x) |

For more detailed information on these products, see Single Parts.

| | |
|---------------------------|--------------------|
| Type EKS VI 2F KVS ... | SBK |
| Part No. | 745 901 |
| Variant No. of EaS device | V162LDM |
| Dimensions | 440 x 330 x 100 mm |

Attention: Please state the relevant Variant No. when ordering.

Accessories for EaS Devices (fully insulated) for Low-Voltage Cable Distribution Cabinets

Plastic case, empty
With foam padding.

| | |
|------------|--------------------|
| Type | KKL EKS VI KVS |
| Part No. | 745 902 |
| Dimensions | 450 x 350 x 110 mm |



Sheet steel case, empty
With foam padding.

| | |
|------------|--------------------|
| Type | SBKL EKS VI KVS |
| Part No. | 745 900 |
| Dimensions | 440 x 330 x 100 mm |



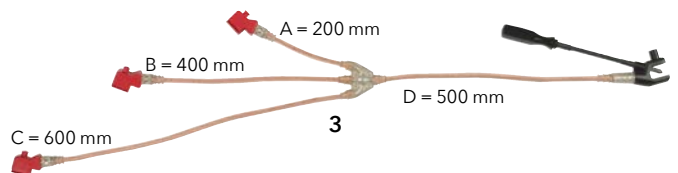
Plastic case, empty
With foam padding and hook-and-loop fastener.

| | |
|------------|----------------------|
| Type | KK 56 41 17 EK VI TI |
| Part No. | 745 952 |
| Dimensions | 565 x 410 x 170 mm |



EaS device VI, earth clamp with flexible adjustable handle

Adjustable handle with two positions, clamping range up to 20 mm. For cable distribution cabinets.

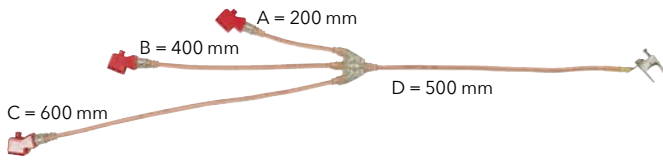


| Type EKV3 ... | 25VI DG V162LDM | 35VI DG VE5K3HM |
|---|-----------------------|-----------------------|
| Part No. | V162LDM | VE5K3HM |
| Cable cross-section Cu | 25/25 mm ² | 35/35 mm ² |
| Max. short-circuit current I _k 0.5 s | 7.0 kA | 10.0 kA |
| Max. short-circuit current I _k 1 s | 4.9 kA | 6.9 kA |

Note: When ordering, please specify a clear Variant No.

EaS device VI, spring-loaded earth clamp

Clamping range up to 24 mm, installation via adjustable handle DGF EKV VI.
For cable distribution cabinets.

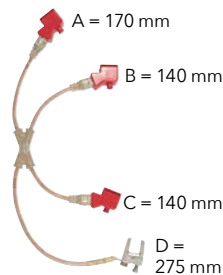


| Type EKV3 ... | 25VI EK VMRSJWD | 35VI EK VEH4JQY |
|---|-----------------------|-----------------------|
| Part No. | VMRSJWD | VEH4JQY |
| Cable cross-section Cu | 25/25 mm ² | 35/35 mm ² |
| Max. short-circuit current I _k 0.5 s | 7.0 kA | 10.0 kA |
| Max. short-circuit current I _k 1 s | 4.9 kA | 6.9 kA |

Note: Please state the relevant Variant No. when ordering.

Earthing and short-circuiting device VI, spring-loaded earth clamp

Clamping range up to 24 mm, attachment via adjustable handle DGF EKV VI.
For service entrance boxes.



| Type EKV3 ... | 16VI EK VZPW9LG |
|---|-----------------------|
| Part No. | VZPW9LG |
| Cable cross-section Cu | 16/16 mm ² |
| Max. short-circuit current I _k 0.5 s | 4.5 kA |
| Max. short-circuit current I _k 1 s | 3.2 kA |

Note: When ordering, please specify a clear Variant No.

Spring-loaded compact clamp

With T connection and hexagon locking screw (WS 10) for use with earthing handle VI and fixing via adjustable handle with flexible shaft.



| Type | KK TA 0 24 SK10 |
|---|-----------------|
| Part No. | 745 503 |
| Clamping range | Up to 24 mm |
| Max. short-circuit current I _k 0.5 s | 10.0 kA |
| Max. short-circuit current I _k 1 s | 6.9 kA |

Earthing adapter clamp for blade contacts

The earthing adapter clamp is particularly suitable for short-circuiting the LV blade contacts in NH fuse strips having a blade width of 33 or 44 mm and a blade depth of 6 and 8 mm.

With T connection and hexagon locking screw WS10. To be inserted by means of an earthing handle VI and to be fixed by means of an adjustable handle with flexible shaft.



| Type | EK SN7089 |
|---|------------|
| Part No. | 745 510 |
| for blade contact | 33 / 44 mm |
| Max. short-circuit current I _k 0.5 s | 10.0 kA |
| Max. short-circuit current I _k 1 s | 6.9 kA |

NH 00 earthing cartridges

With T connection for installation into NH fuse holders and blocks of size NH 00 using a VI earthing handle.



| Type | EP NH00 VI TA |
|---|--------------------|
| Part No. | 745 905 |
| Size | 00 |
| Max. cable cross-section Cu | 35 mm ² |
| Max. short-circuit current I _k 0.5 s | 4.9 kA |
| Max. short-circuit current I _k 1 s | 4.9 kA |

NH 1 ... 3 earthing cartridges

With T connection for installation into NH fuse holders and blocks of size NH 1 ... 3 using a VI earthing handle.



| Type | EP NH1 3 VI TA |
|---|--------------------|
| Part No. | 745 910 |
| Size | 1 ... 3 |
| Max. cable cross-section Cu | 35 mm ² |
| Max. short-circuit current I _k 0.5 s | 9.6 kA |
| Max. short-circuit current I _k 1 s | 6.9 kA |

NH 4a earthing cartridges



| Type | EP NH4A VI TA |
|---|--------------------|
| Part No. | 745 915 |
| Size | 4a |
| Max. cable cross-section Cu | 35 mm ² |
| Max. short-circuit current I _k 0.5 s | 10.0 kA |
| Max. short-circuit current I _k 1 s | 6.9 kA |

VI earthing handle

With dual function

- For installing earthing cartridges with T connection into NH fuse holders
- For connecting VI earthing and short-circuiting devices to earthing cartridges



| Type | EG 00 4A VI |
|----------|-------------|
| Part No. | 745 922 |
| Length | 285 mm |

Rotary handle with flexible shaft

With magnetic socket wrench insert. For connecting spring-loaded earth clamps.



| Type | DGF EKV VI |
|----------|------------|
| Part No. | 745 921 |
| Length | 290 mm |

EaS Devices (partly insulated) for Low-Voltage Cable Distribution Cabinets



Attaching a partly insulated earthing and short-circuiting device using an earthing handle of type TI.

General technical data:

| | |
|-------------------|---------------------------------|
| Standard | EN/IEC 61230 (DIN VDE 0683-100) |
| Temperature range | -25 °C ... +55 °C |

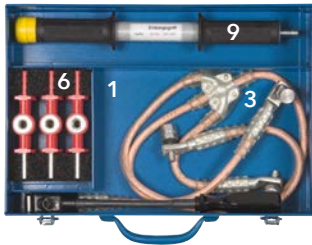


Earthing cartridge with M10 connection, partly insulated connector and earthing handle.

Kit for low-voltage installations, partly insulated type TI

- Fully equipped kit for cable distribution cabinets
- Safe operation with insulated earthing handle of type TI (with dual function), suitable both for installing and removing earthing cartridges with M10 connection as well as for attaching earthing and short-circuiting devices (EaS devices)
- Waterproof, plastic-sheathed cable entries and node unit, with additional anti-kink protection
- Other cable lengths can be selected online via the earthing and short-circuiting configurator

Kit I in Sheet Steel Case



Kit includes:

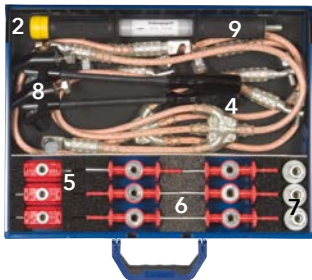
| No. | Part No. |
|-----|--------------|
| 1 | 766 300 (1x) |
| 3 | VSUN6NV (1x) |
| 6 | 745 018 (3x) |
| 9 | 745 400 (1x) |

For more detailed information on these products, see Single Parts.

| | |
|---------------------------|-------------------|
| Type EKS TI ... | KVS SBK |
| Part No. | 766 302 |
| Variant No. of EaS device | VSUN6NV |
| Dimensions | 380 x 260 x 80 mm |

Attention: Please state the relevant Variant No. when ordering.

Kit II in Sheet Steel Case



Kit includes:

| No. | Part No. |
|-----|--------------|
| 2 | 766 298 (1x) |
| 4 | VUKMT58 (2x) |
| 5 | 745 302 (3x) |
| 6 | 745 018 (6x) |
| 7 | 745 202 (3x) |
| 8 | 745 602 (2x) |
| 9 | 745 400 (1x) |

For more detailed information on these products, see Single Parts.

| | |
|---------------------------|-------------------|
| Type EKS TI ... | 2F KVS SBK |
| Part No. | 745 500 |
| Variant No. of EaS device | VUKMT58 |
| Dimensions | 440 x 330 x 66 mm |

Attention: Please state the relevant Variant No. when ordering.

Accessories for EaS Devices (partly insulated) for Low-Voltage Cable Distribution Cabinets

Sheet steel case, empty



| | |
|------------|-------------------|
| Type | SBKL EKS TI KVS |
| Part No. | 766 300 |
| Dimensions | 380 x 260 x 80 mm |

Sheet steel case, empty

With foam padding.



| | |
|------------|--------------------|
| Type | SBKL EKS TI KVS 2F |
| Part No. | 766 298 |
| Dimensions | 440 x 330 x 66 mm |

Plastic case, empty

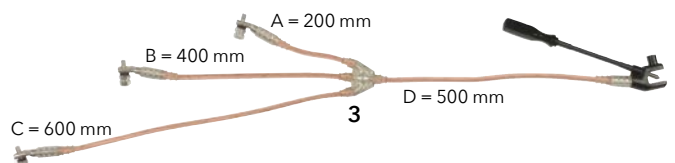
With foam padding and hook-and-loop fastener.



| | |
|------------|----------------------|
| Type | KK 56 41 17 EK VI TI |
| Part No. | 745 952 |
| Dimensions | 565 x 410 x 170 mm |

EaS device TI, earth clamp with flexible adjustable handle

Adjustable handle with two positions, clamping range up to 20 mm. For cable distribution cabinets.

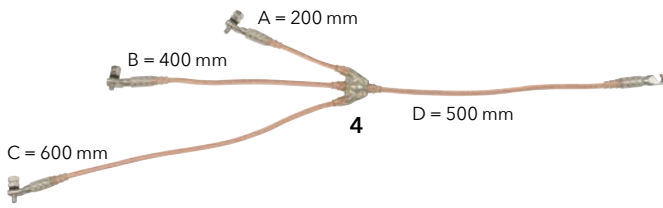


| Type EKV3 ... | 25TI DG VSUN6NV | 35TI DG VSHDQZB |
|---|-----------------------|-----------------------|
| Part No. | VSUN6NV | VSHDQZB |
| Cable cross-section Cu | 25/25 mm ² | 35/35 mm ² |
| Max. short-circuit current I _k 0.5 s | 7.0 kA | 10.0 kA |
| Max. short-circuit current I _k 1 s | 4.9 kA | 6.9 kA |

Note: When ordering, please specify a clear Variant No.

EaS device TI, with hook-shaped cable lug on the earth cable end

For installation of earth clamps EK I FL20 DGF or EK FL20 FS.
For cable distribution cabinets.



| Type EKV3 ... | 16TI HK V3RQASE | 25TI HK VUKMT58 |
|---|-----------------------|-----------------------|
| Part No. | V3RQASE | VUKMT58 |
| Cable cross-section Cu | 16/16 mm ² | 25/25 mm ² |
| Max. short-circuit current I _k 0.5 s | 4.5 kA | 7.0 kA |
| Max. short-circuit current I _k 1 s | 3.2 kA | 4.9 kA |

| Type EKV3 ... | 35TI HK VDZ2VDX |
|---|-----------------------|
| Part No. | VDZ2VDX |
| Cable cross-section Cu | 35/35 mm ² |
| Max. short-circuit current I _k 0.5 s | 10.0 kA |
| Max. short-circuit current I _k 1 s | 6.9 kA |

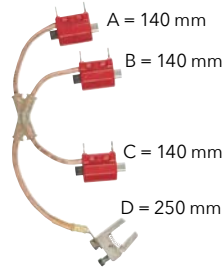
Note: When ordering, please specify a clear Variant No.

Earthing and short-circuiting device TI, spring-loaded earth clamp

Clamping range up to 24 mm and fixing via adjustable handle DGF EKV VI.

Earthing cartridges of size 00 fixed on the phase cable end.

For service entrance boxes.



| Type | EKV3 NH00 TI V1RC3P2 |
|---|-----------------------|
| Part No. | V1RC3P2 |
| Cable cross-section Cu | 16/16 mm ² |
| Max. short-circuit current I _k 0.5 s | 4.5 kA |
| Max. short-circuit current I _k 1 s | 3.2 kA |

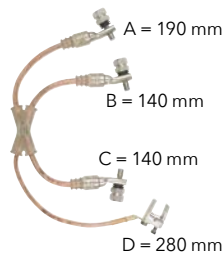
Note: When ordering, please specify a clear Variant No.

Earthing and short-circuiting device TI, spring-loaded earth clamp

Clamping range up to 24 mm and fixing via adjustable handle DGF EKV VI.

Screw-on cable lugs with M10 hexagon pin on the phase cable end.

To be screwed onto earthing cartridges with M10 connection of service entrance boxes.



| Type | EKV3 16TI EK VSB29AH |
|---|-----------------------|
| Part No. | VSB29AH |
| Cable cross-section Cu | 16/16 mm ² |
| Max. short-circuit current I _k 0.5 s | 4.5 kA |
| Max. short-circuit current I _k 1 s | 3.2 kA |

Note: When ordering, please specify a clear Variant No.

NH 00 earthing cartridges

With M10 connection for insertion into NH fuse holders and blocks of size NH 00 using a TI earthing handle.



| Type | EP NH00 TI M10 |
|---|--------------------|
| Part No. | 745 302 |
| Size | 00 |
| Max. cable cross-section Cu | 35 mm ² |
| Max. short-circuit current I _k 0.5 s | 4.9 kA |
| Max. short-circuit current I _k 1 s | 4.9 kA |

Earthing cartridge NH 00 with grip lugs

With M10 connection for use with earthing handle type TI or NH fuse puller with sleeve NHS AG 00 3 NS.



| Type | EP NH00 TI SN7379 |
|---|--------------------|
| Part No. | 745 307 |
| Size | 00 |
| Max. cable cross-section Cu | 35 mm ² |
| Max. short-circuit current I _k 0.5 s | 4.9 kA |
| Max. short-circuit current I _k 1 s | 4.9 kA |

NH 1 ... 3 earthing cartridges

With M10 connection for insertion into NH fuse holders and blocks of size NH 1 ... 3 using a TI earthing handle.



| Type | EP NH1 3 TI M10 |
|---|--------------------|
| Part No. | 745 018 |
| Size | 1 ... 3 |
| Max. cable cross-section Cu | 35 mm ² |
| Max. short-circuit current I _k 0.5 s | 9.6 kA |
| Max. short-circuit current I _k 1 s | 6.9 kA |

NH 1 ... 3 earthing cartridges with grip lugs

With M10 connection for use with TI earthing handle or NH fuse handle with sleeve NHS AG 00 3 NS.



| Type | EP NH1 3 TI GL M10 |
|---|--------------------|
| Part No. | 745 017 |
| Size | 1 ... 3 |
| Max. cable cross-section Cu | 35 mm ² |
| Max. short-circuit current I _k 0.5 s | 9.6 kA |
| Max. short-circuit current I _k 1 s | 6.9 kA |

NH 4a earthing cartridges

With M10 connection for insertion into NH fuse holders and blocks of size NH 4a.



| Type | EP NH4a TI M10 |
|---|--------------------|
| Part No. | 745 016 |
| Size | 4a |
| Max. cable cross-section Cu | 35 mm ² |
| Max. short-circuit current I _k 0.5 s | 10.0 kA |
| Max. short-circuit current I _k 1 s | 6.9 kA |

Adapter

Adapter for earthing cartridges NH 1...3, partly insulated, with M10 connection. For screwing in by means of earthing handle TI through opening (D_{min} = 11 mm) in the window of NH fuse switch disconnectors



| Type | AD EP TI M10 |
|---|----------------|
| Part No. | 745 022 |
| Material | Ms/gal CuSn |
| Thread size | M10 |
| Diameter (bolt) | 11 mm |
| Max. short-circuit current I _k 0.5 s | 9.6 kA |
| Max. short-circuit current I _k 1 s | 6.9 kA |

Contact blade

With M10 connection for insertion by means of earthing handle type TI.



| | |
|---|-------------------------|
| Type | KM AB M10 SN7280 |
| Part No. | 745 021 |
| Size | 1 ... 3 |
| Max. cable cross-section Cu | 35 mm ² |
| Max. short-circuit current I _k 0.5 s | 9.6 kA |
| Max. short-circuit current I _k 1 s | 6.9 kA |

Touch protection for earthing cartridges NH 1...3



| | |
|-----------------|-----------------------|
| Type | BS EP NH1 3 TI |
| Part No. | 745 506 |
| Size | 1 ... 3 |
| Material | Thermoplastic |

Screw-in earthing insert with M10 connection, insulated

Insulated thread.
To be screwed into E27 and E33 threaded fuse holders using a TI earthing handle.



| Type | ESE E27 TI M10 | ESE E33 TI M10 |
|--|----------------|----------------|
| Part No. | 745 201 | 745 202 |
| Size | E27 | E33 |
| Contact pin | Brass/gal CuSn | Brass/gal CuSn |
| Thread | Plastic | Plastic |
| Max. short-circuit current I _k 0.05 s | 4.5 kA | 7.0 kA |

Screw-in earthing insert with M10 connection

Conductive thread.
To be screwed into E27 and E33 threaded fuse holders using a TI earthing handle.



| Type | ESE E27 KBI M10 | ESE E33 KBI M10 |
|--|-----------------|-----------------|
| Part No. | 745 203 | 745 204 |
| Size | E27 | E33 |
| Contact pin | Plastic | Plastic |
| Thread | Brass/gal CuSn | Brass/gal CuSn |
| Max. short-circuit current I _k 0.05 s | 4.5 kA | 7.0 kA |

Earth clamp with flexible adjustable handle and two setting positions

To be connected to the earth cable end of earthing and short-circuiting devices for cable distribution cabinets, with M8 pin with anti-rotation protection and nut.



| | |
|-----------------|----------------------|
| Type | EK I FL20 DGF |
| Part No. | 745 602 |
| Clamping range | Up to 20 mm |

Bare earth clamp with wing bolt

To be connected to the earth cable end of earthing and short-circuiting devices for cable distribution cabinets, with M8 pin with anti-rotation protection and nut.



| | |
|-----------------|-------------------|
| Type | EK FL20 FS |
| Part No. | 745 502 |
| Clamping range | Up to 20 mm |

Spring-loaded compact clamp

With threaded bolt M8 x 12 mm and hexagon locking screw (wrench size 10). Fixed by means of adjustable handle with flexible shaft.



| | |
|---|-------------------------|
| Type | KK M8 0 24 SK 10 |
| Part No. | 745 508 |
| Clamping range | Up to 24 mm |
| Max. short-circuit current I _k 0.5 s | 10.0 kA |
| Max. short-circuit current I _k 1 s | 6.9 kA |

TI earthing handle

With dual function.

- For installing earthing cartridges or screw-in earthing inserts with M10 connection
- For connecting TI earthing and short-circuiting devices to earthing cartridges (wrench size 19)



| | |
|-----------------|------------------|
| Type | EG TI EKV |
| Part No. | 745 400 |
| Length | 355 mm |

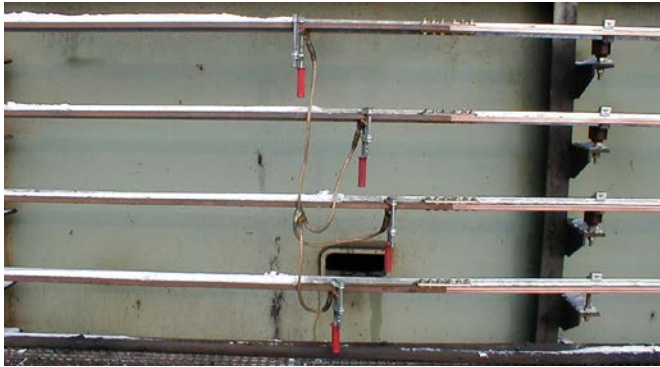
Rotary handle with flexible shaft

With magnetic socket wrench insert. For connecting spring-loaded earth clamps.



| | |
|-----------------|-------------------|
| Type | DGF EKV VI |
| Part No. | 745 921 |
| Length | 290 mm |

Earthing and Short-Circuiting Devices for Crane Conductor Bars



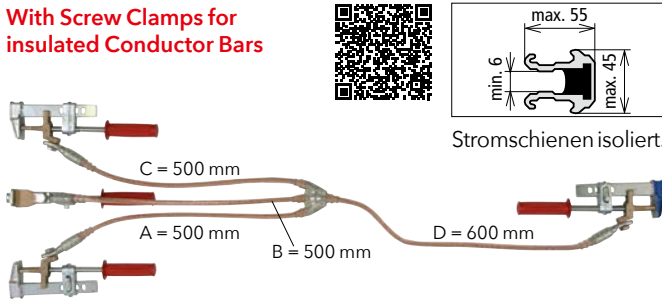
Three-pole earthing and short-circuiting device with screw clamps.

With screw clamps

- For insulated or bare conductor bars of cranes and lifting equipment
- Allows to lock the clamping range of the clamps in several positions
- Waterproof, plastic-sheathed cable entries and node unit, with additional ant-kink protection
- Other cable lengths can be selected online via the earthing and short-circuiting configurator

| General technical data: | |
|------------------------------------|---------------------------------|
| Standard | EN/IEC 61230 (DIN VDE 0683-100) |
| Temperature range | -25 °C ... +55 °C |
| Material (clamp body) | MCl/gal Zn |
| Material (pressure plates) | Cu alloy |
| Material (short-circuiting cables) | Cu, highly flexible |

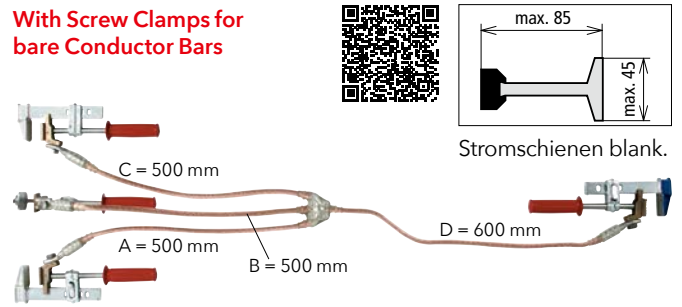
With Screw Clamps for insulated Conductor Bars



| General technical data: | |
|---|---|
| Clamping range | 55 mm |
| Type EKV3 ... | 25IS ZK VH8QTCZ 35IS ZK VKB2Q6J |
| Part No. | VH8QTCZ VKB2Q6J |
| Cable cross-section Cu | 25/25 mm ² 35/35 mm ² |
| Max. short-circuit current I _k 0.5 s | 7.0 kA 10.0 kA |
| Max. short-circuit current I _k 1 s | 4.9 kA 6.9 kA |
| Type EKV3 ... | 50IS ZK VP6YV4T |
| Part No. | VP6YV4T |
| Cable cross-section Cu | 50/50 mm ² |
| Max. short-circuit current I _k 0.5 s | 14.0 kA |
| Max. short-circuit current I _k 1 s | 9.9 kA |

Attention: Please state the relevant Variant No. when ordering.

With Screw Clamps for bare Conductor Bars



| Type EKV3 ... | 25BS ZK VQKTK4T | 35BS ZK VN63A91 |
|---|-----------------------|-----------------------|
| Part No. | VQKTK4T | VN63A91 |
| Clamping range | 85 mm | 85 mm |
| Cable cross-section Cu | 25/25 mm ² | 35/35 mm ² |
| Max. short-circuit current I _k 0.5 s | 7.0 kA | 10.0 kA |
| Max. short-circuit current I _k 1 s | 4.9 kA | 6.9 kA |

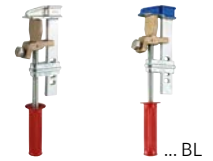
Attention: Please state the relevant Variant No. when ordering.

Die Klemme für den PEN-Leiter ist blau gekennzeichnet.

Accessories for Earthing and Short-Circuiting Devices for Crane Conductor Bars

Screw clamps for insulated conductor bars

With M12 bolt.



| Type | ZK55 IS | ZK55 IS BL |
|---|---------------------------|---------------------------|
| Part No. | 771 230 | 771 231 |
| Clamping range | 55 mm | 55 mm |
| Anti-rotation protection | PK2 | PK2 |
| For cable cross-section Cu | 25 ... 50 mm ² | 25 ... 50 mm ² |
| Max. short-circuit current I _k 0.5 s | 14.0 kA | 14.0 kA |
| Max. short-circuit current I _k 1 s | 9.9 kA | 9.9 kA |

Screw clamps for bare conductor bars

With M12 bolt.



| Type | ZK85 BS | ZK85 BS BL |
|---|---------------------------|---------------------------|
| Part No. | 771 232 | 771 233 |
| Clamping range | 85 mm | 85 mm |
| Anti-rotation protection | PK2 | PK2 |
| For cable cross-section Cu | 25 ... 35 mm ² | 25 ... 35 mm ² |
| Max. short-circuit current I _k 0.5 s | 10.0 kA | 10.0 kA |
| Max. short-circuit current I _k 1 s | 6.9 kA | 6.9 kA |

Earthing and Short-Circuiting Device for Street Lighting Systems



Earthing and short-circuiting device installed at a junction and fuse box of a street lighting mast.

- For junction and fuse boxes of street lighting systems
- For E14 fuse links
- E27 to E14 thread aluminium adapter
- Max. 125 A backup fuse, operating class: gL/gG

Kit in Plastic Case



Kit includes:

| No. | Part No. |
|-----|--------------|
| 1 | 745 106 (1x) |
| 2 | 745 107 (2x) |
| 3 | 745 108 (6x) |
| 4 | 745 109 (1x) |
| 5 | 745 921 (1x) |

For more detailed information on these products, see Single Parts.

| | |
|------------|--------------------|
| Type | EKV ÜGK MB S |
| Part No. | 745 105 |
| Dimensions | 395 x 295 x 105 mm |

Accessories for Earthing and Short-Circuiting Device for Street Lighting Systems

Plastic case, empty

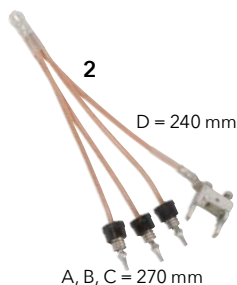
With foam padding.



| | |
|------------|--------------------|
| Type | KKL EKV ÜGK MB |
| Part No. | 745 106 |
| Dimensions | 395 x 280 x 110 mm |
| Colour | Grey ● |

Earthing and short-circuiting device for street lighting systems

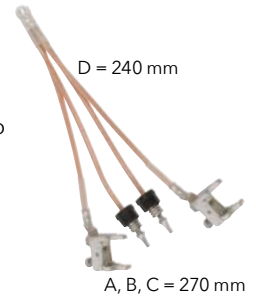
With three fixed E14 screw-in earthing inserts and spring-loaded earth clamp, clamping range up to 24 mm (fixed via rotary handle DGF EKV VI).



| | |
|---------------------|-------------------|
| Type | EKV ÜGK MB |
| Part No. | 745 107 |
| Cable cross-section | 6 mm ² |

Earthing and short-circuiting device for street lighting systems

With two permanently mounted E14 screw-in earthing inserts and two spring-loaded earth clamp, clamping range up to 24 mm (fixing via adjustable handle DGF EKV VI).

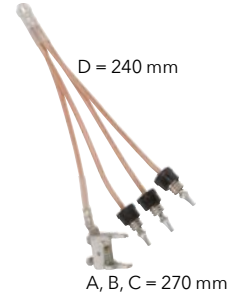


| | |
|----------------------------------|-------------------|
| Type | EKV ÜGK MB SN7724 |
| Part No. | 745 121 |
| Cable cross-section (phase side) | 6 mm ² |

Earthing and short-circuiting device for street lighting systems

With three permanently mounted E14 screw-in earthing inserts and spring-loaded earth clamp, clamping range up to 24 mm (fixing via adjustable handle DGF EKV VI).

Type Süwag



| | |
|---------------------|----------------------------|
| Type | EKV ÜGK MB SN7354 |
| Part No. | 745 115 |
| Cable cross-section | 6 mm ² |
| Type | with ratchet screw 4x10 mm |

Compact clamp for street lighting

With M8 x 12 mm threaded screw and hexagon locking screw WS10. To be fixed by means of turning handle with flexible shaft.



| | |
|----------------|------------------|
| Type | KKS M8 0 24 SK10 |
| Part No. | 745 509 |
| Clamping range | up to 24 mm |

E27 / E14 adapter

Reducing insert for converting from E27 to E14 threads.

Allows to use earthing and short-circuiting devices with E14 screw-in earthing inserts even for E27 threads.



| | |
|------------|---------------------|
| Type | REDE E27 E14 ÜGK MB |
| Part No. | 745 108 |
| Dimensions | Ø30 x 25 mm |
| Material | Al |

Installation adapter

For installing E27 / E14 adapters and gauge rings for D-fuses DII and DIII.



| | |
|------------|--------------|
| Type | PSS DII |
| Part No. | 745 109 |
| Dimensions | Ø30 x 110 mm |
| Material | Plastic |

Rotary handle with flexible shaft

With magnetic socket wrench insert. For connecting spring-loaded earth clamps.



| | |
|----------|------------|
| Type | DGF EKV VI |
| Part No. | 745 921 |
| Length | 290 mm |

Earthing Handle for Low-Voltage Installations



Attaching an earthing and short-circuiting device in a low-voltage switchgear installation using an earthing handle.

For low-voltage installations

- For attaching earthing and short-circuiting devices in low-voltage installations
- End fitting with plug-in coupling for extending the handle
- Light-weight construction
- Hexagon shaft (WS19) or T pin shaft

General technical data:

| | |
|-----------------------------|---|
| Standard | T pin shaft DIN 48087 |
| Temperature range | -25 °C ... +55 °C |
| Material (insulating tube) | Glass-fibre reinforced polyester tube |
| Material (coupling) | Plastic |
| Material (end fitting) | Plug-in coupling for extending the handle |

Earthing Handle for Hexagon Shafts, Plug-in Coupling

Handle termination with plastic plug-in coupling for extending the handle (spring locking mechanism)



| | |
|-----------------------------------|------------|
| Type EG ... | SK STK 400 |
| Part No. | 745 415 |
| Total length (l _G) | 400 mm |
| Length (handle) (l _H) | 185 mm |

Earthing Handle for T Pin Shafts, Plug-in Coupling

Handle termination with plastic plug-in coupling for extending the handle (bayonet locking mechanism)



| | |
|-----------------------------------|------------|
| Type EG ... | SQ STK 400 |
| Part No. | 745 414 |
| Total length (l _G) | 400 mm |
| Length (handle) (l _H) | 185 mm |

Storage Devices

For easy and safe storage of earthing and short-circuiting devices, voltage detectors and operating sticks (Ø30 or 43 mm).

For a Voltage Detector and an Earthing Stick

For a voltage detector and an earthing stick of any length
Hole spacing: 290/390 mm, holes: Ø7 mm



| | | |
|---------------------|-------------------|-------------------|
| Type HV ... | P ST D24 | P ST D30 |
| Part No. | 700 006 | 700 007 |
| Dimensions | 530 x 30 x 136 mm | 430 x 30 x 136 mm |
| For stick diameters | 24 mm | 30 mm |
| DB material No. | - | 828 077 |

| | |
|---------------------|-------------------|
| Type HV ... | P ST D40 45 |
| Part No. | 700 008 |
| Dimensions | 530 x 30 x 149 mm |
| For stick diameters | 40 ... 45 mm |
| DB material No. | - |

For an Earthing and Short-Circuiting Device and an Earthing Stick

For an earthing and short-circuiting device and an earthing stick of any length
Hole spacing: 424 mm, holes: Ø7 mm



| | | |
|---------------------|--------------------|--------------------|
| Type HV ... | EKV ES30 | EKV ES40 |
| Part No. | 700 000 | 700 002 |
| Dimensions | 525 x 175 x 214 mm | 525 x 175 x 214 mm |
| For stick diameters | 30 mm | 43 mm |
| DB drawing No. | 3 Ebgw 01.70 | - |
| DB material No. | 742 395 | - |

For an Earthing and Short-Circuiting Device and an Earthing Stick up to 1.5 m

For an earthing and short-circuiting device and an earthing stick with a length up to 1.5 m
Hole spacing: 104 mm, holes: Ø7 mm



| | |
|---------------------|---------------|
| Type HV ... | EKV ES30 1500 |
| Part No. | 700 003 |
| Dimensions | 214 x 150 mm |
| For stick diameters | 30 / 43 mm |

Sheet Steel Case

Sheet Steel Case for Earthing and Short-Circuiting Device VI/TI

Optionally available with foam padding



General technical data:

Colour Blue ●

| Type SBKL EKS ... | VI KVS | TI KVS 2F |
|-------------------|--------------------|-------------------|
| Part No. | 745 900 | 766 298 |
| Dimensions | 440 x 330 x 100 mm | 440 x 330 x 66 mm |
| Design | With foam padding | With foam padding |

| Type SBKL EKS ... | TI KVS |
|-------------------|-------------------|
| Part No. | 766 300 |
| Dimensions | 380 x 260 x 80 mm |
| Design | - |

Plastic Case

Plastic Case for Earthing and Short-Circuiting Device VI/TI

With foam padding and hook-and-loop fastener.



| Type | KK 56 41 17 EK VI TI | KKL EKS VI KVS |
|------------|----------------------|--------------------|
| Part No. | 745 952 | 745 902 |
| Dimensions | 565 x 410 x 170 mm | 450 x 350 x 110 mm |
| Colour | Black ● | Black ● |

Plastic Case for Earthing and Short-Circuiting Devices

With retaining springs for two-part earthing stick.



| Type | KK 56 41 17 EK HK |
|------------|--------------------|
| Part No. | 745 953 |
| Dimensions | 565 x 410 x 170 mm |
| Colour | Black ● |

Canvas Bag

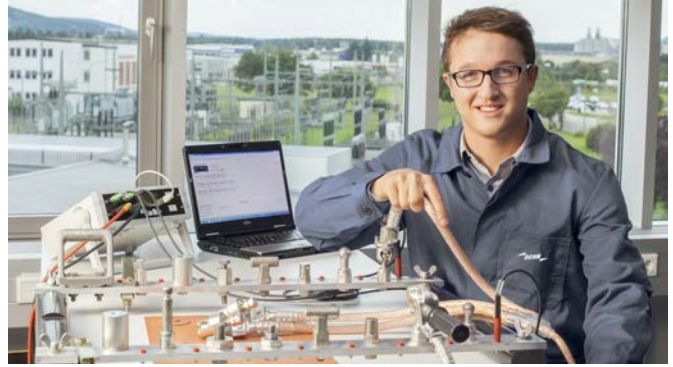
Canvas Bag for Earthing and Short-Circuiting Device

With two separate internal pockets and carrier handle.



| Type | STT 55 27 30 |
|----------------|--------------------|
| Part No. | 785 111 |
| Dimensions | 550 x 255 x 300 mm |
| Colour | Olive ● |
| DB drawing No. | 3 Ebgw 01.67 |

MicroΩmeter LoRe EaS



MicroΩmeter LoRe EaS

- Mobile measuring system for performing technical tests on portable earthing and short-circuiting devices (EaS) at regular intervals
- For determining minimum ohmic resistances of earthing and short-circuiting devices and the quality of electrical connections e.g. conductor rails or switch contacts
- Electronic transfer of measured values to the evaluation software via USB interface
- Software-aided procedure and automatic documentation of results
- Acoustic signal as soon as the limit values are exceeded
- Calibrated when delivered
- Software update via USB interface

MikroΩmeter LoRe EaS

Double rail system included in delivery.



| Type | MOMS LORE EUK |
|-------------------------------|----------------------------|
| Part No. | 799 100 |
| Measuring range | 0.01 μΩ ... 500 mΩ |
| Min. resolution | 1 nΩ |
| Measuring accuracy | 100 nΩ |
| Type of measurement | Four-conductor measurement |
| Measuring current | Approx. 30 A ... 70 A |
| Interface | USB 2.0 connection |
| Dimensions (case) (H x W x D) | 190 x 500 x 450 mm |
| Weight (with accessories) | Approx. 9 kg |
| Temperature range | -10 °C ... +40 °C |

Insulating Protective Shutters



Inserting a protective shutter of type A4 into a closed system.

According to the five safety rules, adjacent parts are parts situated in the vicinity zone. If parts of an installation near the work location cannot be disconnected, additional safety measures must be taken before starting work as is the case with work in the vicinity of live parts.

Insulating protective shutters according to DIN VDE 0682-522 are used to provide protection against accidental contact with live parts of an installation. They are portable and inserted under live conditions by hand or by using an operating stick. Insulating protective shutters are designed for short-term use in indoor electrical installations according to DIN VDE 0101 with voltages from 1 to 36 kV AC at nominal frequencies below 100 Hz to provide protection against direct contact according to DIN VDE 0105-100 when working in the vicinity of live parts. When used in medium-voltage installations, insulating protective shutters might have to be adapted, for example if it is not possible to insert shutters in the live working zone without risk due to unfavourably located drives, switch components or isolating plates. In such cases, a standard-compliant solution can be found by cutting out parts of the insulating protective shutter or cutting it to size. For that purpose, technical details must be provided. We have developed a special template for insulating protective shutters which can be used, for example, to mark the exact location of cut-outs.

For enquiries and orders, please fill in the template on our website www.dehn-international.com.

Note

Insulating protective shutters do not protect against re-connection. The protected area is the area which is separated from the area containing live parts by the insulating protective shutter. The minimum distances shown in the above table between shutters / shutter edges and live parts must be observed. The protective part (with length l_s and, if required, height h_s) of insulating protective shutters is the part that provides protection against accidental contact with live parts. It is fitted with either a handle or a coupling for attaching an operating stick.

Outside the live working zone, the following gaps are permissible between shutter edge and cell wall:

- Up to 10 mm without restriction
- Up to 40 mm, if the distance between the shutter edge and the live working zone is at least 100 mm
- Up to 100 mm near a switch subconstruction

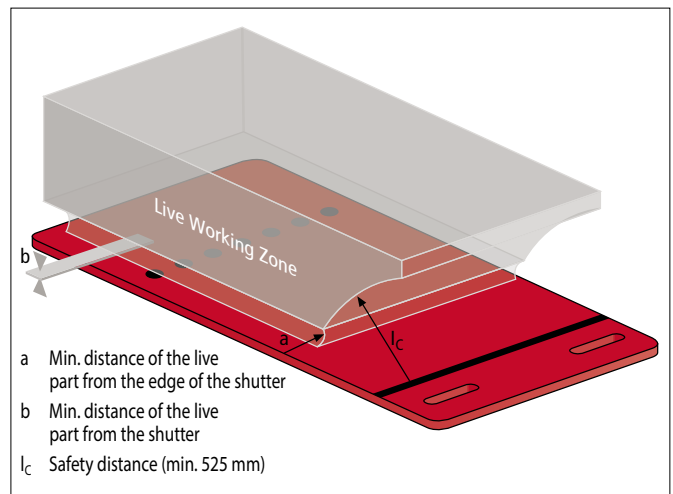
Rated voltages from 1 to 36 kV

- Protection against accidental contact with live parts of installations with rated voltages from 1 kV to 36 kV
- Four different designs for use in almost all types of switchgear installations



General technical data:

| | |
|----------|----------------------------------|
| Standard | DIN VDE 0682-522 |
| For | Use in indoor installations only |



Example of a live working zone in case of an insulating protective shutter of type A1.

| Rated voltage | Minimum distance of the live part | |
|---------------|-----------------------------------|----------------|
| | from shutter edge a | from shutter b |
| U_r | | |
| 3.6 kV | 60 mm | 0 mm |
| 7.2 kV | 90 mm | 0 mm |
| 12.0 kV | 120 mm | 20 mm |
| 24.0 kV | 220 mm | 60 mm |
| 36.0 kV | 320 mm | 100 mm |

Due to the various designs of switchgear installations, DIN VDE 0682-552 defines four different basic types of protective shutters:

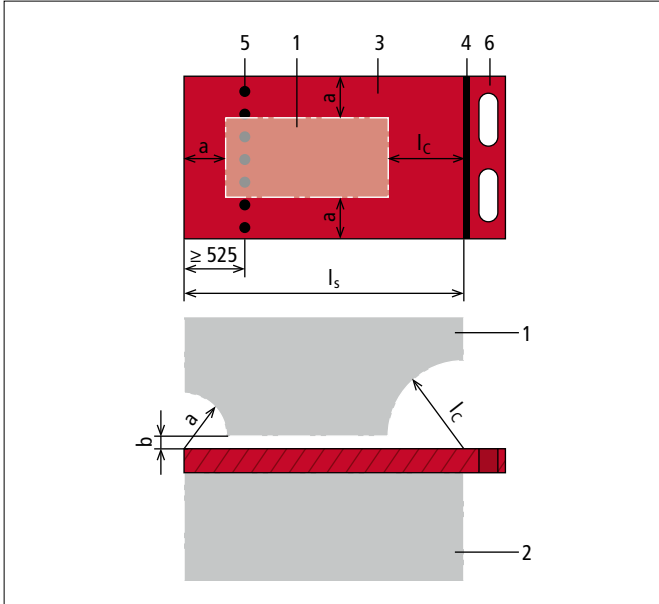
A1, safety distance provides protection during inserting and removing insulating protective shutters.

A2, protective section provides protection during inserting and removing insulating protective shutters.

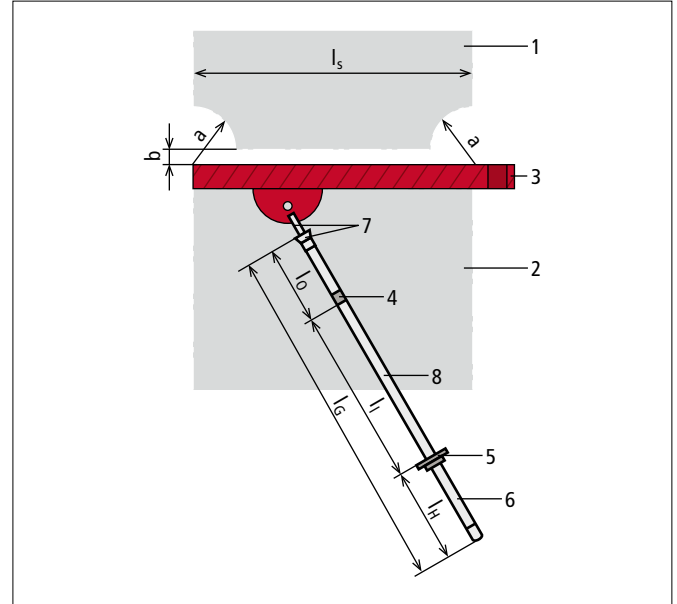
A3, operating stick provides protection during inserting and removing insulating protective shutters.

A4, protective device installed in the installation provides protection during inserting and removing insulating protective shutters.

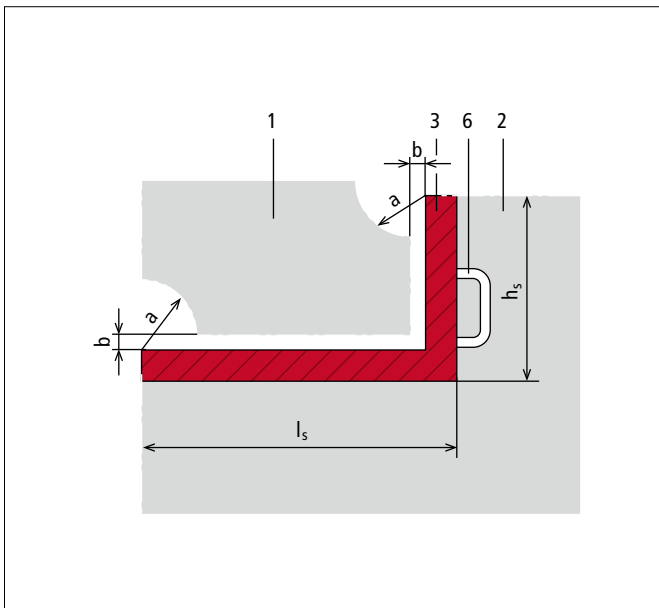
DEHNproX - Safe working on electrical installations / Live working



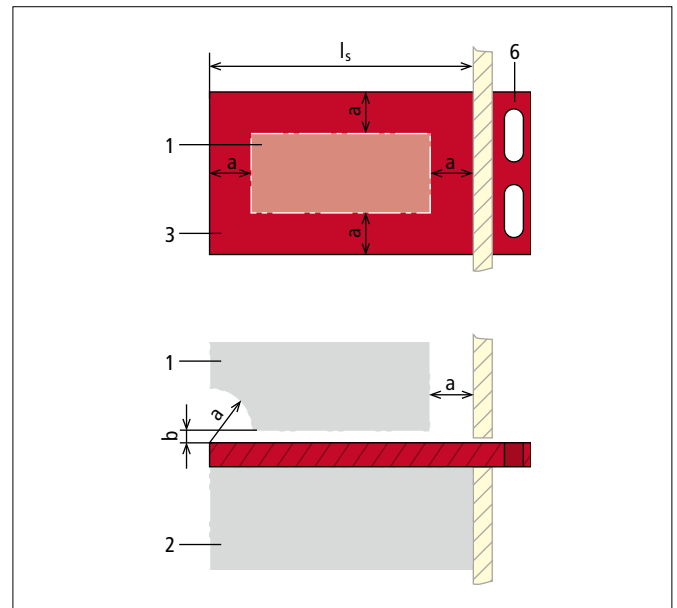
Protective shutter of type **A1** - Operation by hand.



Protective shutter of type **A3** - Operation by means of an operating stick.



Protective shutter of type **A2** - Operation by hand.



Protective shutter of type **A4** - Operation by hand.

- 1 Live working zone
- 2 Protected area
- 3 Protective section with length l_s (and height h_s)
- 4 Limit mark or red ring
- 5 Guide mark / hand guard
- 6 Handle
- 7 Coupling
- 8 Insulating element of the operating stick with length l_I

- l_G Total length of the operating stick
- l_0 Length of the top section of the operating stick
- l_H Length of the handle of the operating stick
- l_I Length of the insulating element of the operating stick
- l_s Length of the protective section
- l_c Safety distance
- a Minimum distance of live parts from the edge of the insulating protective shutter
- b Minimum distance of live parts from the insulating protective shutter

Type A1

With finger holes, guide and limit mark for inserting and removing insulating protective shutters into / from guide rails by hand.



The guide mark is a dotted line with a minimum distance of 525 mm from the rear shutter edge. The section beyond this mark must not be contacted when inserting the insulating protective shutter. The limit mark is a continuous line and separates the handle from the protective section. The section beyond this mark must not be contacted when inserting the insulating protective shutter and must be at least 525 mm away from live parts when the shutter has been inserted.

| | |
|---------------------------------|-------------|
| Type ISP 36 PVC ... | A1... |
| Part No. | 763 211 |
| Rated voltage (U _r) | Up to 36 kV |
| Material | Rigid PVC |

Type A3

With retaining device with bayonet pin for inserting and removing insulating protective shutters into / from guide rails using an operating stick.



This shutter type is also available with a longitudinal slot and a retaining device (rotatable shutter). In this case, the shutter is operated using an operating stick with switching stick head.

Two persons are required to insert / remove shutter sizes exceeding 1 m². For this purpose, two retaining devices for attaching operating sticks are required. Moreover, insulating protective shutters are also available with rolls.

| | |
|---------------------------------|-------------|
| Type ISP 36 PVC ... | A3... |
| Part No. | 763 231 |
| Rated voltage (U _r) | Up to 36 kV |
| Material | Rigid PVC |

Type A2

With 90° angled handle and hand grips for inserting or removing insulating protective shutters into / from guide rails by hand. Other angled handles (70° to 270°) are available on request.



The height of the handle has to be selected in such a way that live parts of the installation above the shutter are completely covered.

| | |
|---------------------------------|-------------|
| Type ISP 36 PVC ... | A2... |
| Part No. | 763 221 |
| Rated voltage (U _r) | Up to 36 kV |
| Material | Rigid PVC |

Type A4

With finger holes (without additional marks) for use in factory assembled switchgear panels. Instead of finger holes, the shutters are also available with a grip (minimum height: 35 mm).



The shutter is inserted through a slot into the closed installation. The protective device of the installation must ensure full protection when inserting and removing the shutter. In type-tested switchgear installations in accordance with DIN VDE 0670-6 and 7 or EN/IEC 62271-200 (DIN VDE 0671-200), insulating protective shutters may only be used in consultation with the manufacturer of the switchgear installation.

| | |
|---------------------------------|-------------|
| Type ISP 36 PVC ... | A4... |
| Part No. | 763 241 |
| Rated voltage (U _r) | Up to 36 kV |
| Material | Rigid PVC |

Guide rails and other accessories are listed in our template (DEHN Form No. 2090/E).

Insulating mats up to 1,000 V and 36 kV



Switch room with insulating mat fitted.

- For standing surface insulation for live working or in proximity to live installations
- Different lengths

General technical data:

Standard EN/IEC 61111

Insulating mat up to 1,000 V



General technical data:

| | |
|---|----------------|
| Class | 0 |
| Nominal voltage up to (U _N) | 1000 V |
| Temperature resistance | -40°C to +65°C |
| Width | 1000 mm |
| Thickness | 2 mm |
| Colour | Grey ● |

| | | |
|------------------------|----------------------------|----------------------------|
| Type ES0FI G - 1 X ... | 10 | 1 |
| Part No. | 787 457 <small>NEW</small> | 787 461 <small>NEW</small> |
| Length | 10 m | 1 m |

| | | |
|------------------------|----------------------------|----------------------------|
| Type ES0FI G - 1 X ... | 2 | 3 |
| Part No. | 787 462 <small>NEW</small> | 787 463 <small>NEW</small> |
| Length | 2 m | 3 m |

| | | |
|------------------------|----------------------------|----------------------------|
| Type ES0FI G - 1 X ... | 4 | 5 |
| Part No. | 787 464 <small>NEW</small> | 787 465 <small>NEW</small> |
| Length | 4 m | 5 m |

| | | |
|------------------------|----------------------------|----------------------------|
| Type ES0FI G - 1 X ... | 6 | 7 |
| Part No. | 787 466 <small>NEW</small> | 787 467 <small>NEW</small> |
| Length | 6 m | 7 m |

| | | |
|------------------------|----------------------------|----------------------------|
| Type ES0FI G - 1 X ... | 8 | 9 |
| Part No. | 787 468 <small>NEW</small> | 787 469 <small>NEW</small> |
| Length | 8 m | 9 m |

Insulating mat up to 36 kV



General technical data:

| | |
|---|----------------|
| Class | 4 |
| Nominal voltage up to (U _N) | 36 kV |
| Temperature resistance | -40°C to +65°C |
| Width | 1000 mm |
| Thickness | 5.2 mm |
| Colour | Grey ● |

| | | |
|------------------------|----------------------------|----------------------------|
| Type ES4FI G - 1 X ... | 10 | 1 |
| Part No. | 787 459 <small>NEW</small> | 787 471 <small>NEW</small> |
| Length | 10 m | 1 m |

| | | |
|------------------------|----------------------------|----------------------------|
| Type ES4FI G - 1 X ... | 2 | 3 |
| Part No. | 787 472 <small>NEW</small> | 787 473 <small>NEW</small> |
| Length | 2 m | 3 m |

| | | |
|------------------------|----------------------------|----------------------------|
| Type ES4FI G - 1 X ... | 4 | 5 |
| Part No. | 787 474 <small>NEW</small> | 787 475 <small>NEW</small> |
| Length | 4 m | 5 m |

| | | |
|------------------------|----------------------------|----------------------------|
| Type ES4FI G - 1 X ... | 6 | 7 |
| Part No. | 787 476 <small>NEW</small> | 787 477 <small>NEW</small> |
| Length | 6 m | 7 m |

| | | |
|------------------------|----------------------------|----------------------------|
| Type ES4FI G - 1 X ... | 8 | 9 |
| Part No. | 787 478 <small>NEW</small> | 787 479 <small>NEW</small> |
| Length | 8 m | 9 m |

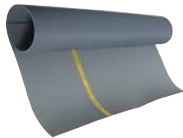
Insulating mats with dielectric strength 50 kV



Switch room with insulating mat fitted.

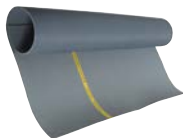
- For use in electrical switch and test rooms
- Not permitted as standing surface insulation for live working!
- Rolled goods or cut to size

Insulating mat with a dielectric strength of 50 kV, rolled goods



| | |
|---|-------------------|
| Type IMG SAN 1M ... | 10M |
| Part No. | 785 459 |
| Nominal voltage up to (U _N) | 50 kV |
| Material | Polymer NR/SBR |
| Temperature resistance | -55 °C ... +70 °C |
| Length | 10 m |
| Width | 1000 mm |
| Thickness | 4.5 mm |
| Colour | Grey ● |
| Standard | VDE 0303-21 |

Insulating mat with a dielectric strength of 50 kV, cut to size

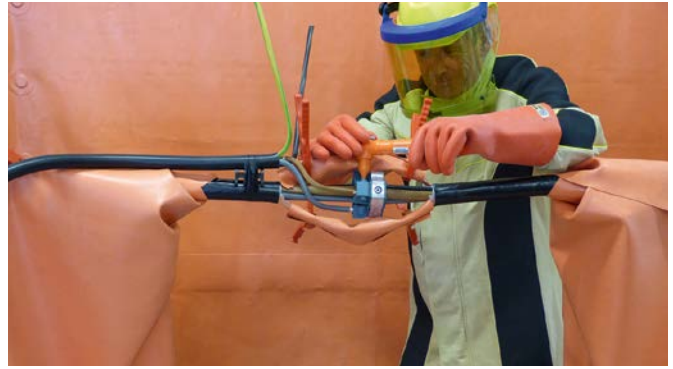


| | |
|---|-------------------|
| Type IMG SAN 1M ... | ..M |
| Part No. | 785 458 |
| Nominal voltage up to (U _N) | 50 kV |
| Material | Polymer NR/SBR |
| Temperature resistance | -55 °C ... +70 °C |
| Length | up to 10 m *) |
| Width | 1000 mm |
| Thickness | 4.5 mm |
| Colour | Grey ● |
| Standard | VDE 0303-21 |
| Minimum order length | 1000 mm |

*) Length to be specified when ordering!

Note: Can only be supplied in 500 mm increments.

Insulating blankets up to 1,000 V



Covering live parts.

- For protection against accidental and direct contact with live parts
- For covering adjacent live parts
- Different lengths, widths and thicknesses

General technical data:

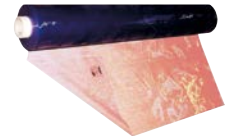
Standard DIN VDE 0682-511 (EN/IEC 61112)

Plastic insulating blanket, rolled goods



| Type | ATK 135 50M NS | ATK 120 25M NS |
|---|----------------|----------------|
| Part No. | 785 465 | 785 467 |
| Class | 0 | 0 |
| Nominal voltage up to (U _N) | 1000 V | 1000 V |
| Length | 50 m | 25 m |
| Width | 1350 mm | 1200 mm |
| Thickness | 0.5 mm | 1.0 mm |
| Colour | Crystal clear | Transparent |

Plastic insulating blanket, cut to size



| Type | ATK 135 ..M NS | ATK 120 ..M NS |
|---|-------------------|-------------------|
| Part No. | 785 466 | 785 468 |
| Class | 0 | 0 |
| Nominal voltage up to (U _N) | 1000 V | 1000 V |
| Length | Any up to 50 m *) | Any up to 25 m *) |
| Width | 1350 mm | 1200 mm |
| Thickness | 0.5 mm | 1.0 mm |
| Colour | Crystal clear | Transparent |
| Minimum order length | 500 mm | 500 mm |

*) Length to be specified when ordering!

Note: Can only be supplied in 500 mm increments.

EPDM elastomer wrapping tape, rolled goods

For covering insulators



| Type | WBN 200 2,5M NS |
|---|-----------------|
| Part No. | 785 646 |
| Class | 0 |
| Nominal voltage up to (U _N) | 1000 V |
| Length | 2.5 m |
| Width | 200 mm |
| Thickness | 1.0 mm |
| Colour | Red ● |

EPDM elastomer insulating blanket, rolled goods
With VDE / GS label, flexible at low temperatures.



| | |
|---|----------------|
| Type | ATN 140 10M NS |
| Part No. | 785 471 |
| Class | 0 |
| Nominal voltage up to (U _N) | 1000 V |
| Length | 10 m |
| Width | 1400 mm |
| Thickness | 1.0 mm |
| Colour | Red ● |

Insulating blanket from EPDM elastomer, cut to size



| | |
|---|-------------------|
| Type | ATN 140 ..M NS |
| Part No. | 785 472 |
| Class | 0 |
| Nominal voltage up to (U _N) | 1000 V |
| Length | Any up to 10 m *) |
| Width | 1400 mm |
| Thickness | 1.0 mm |
| Colour | Red ● |
| Minimum order length | 500 mm |

*) Length to be specified when ordering!

Note: Can only be supplied in 500 mm increments.

Accessories for Insulating blankets up to 1,000 V

Clip

With insulated steel spring.



| | |
|---------------------|--------------|
| Type | KK 35 NS |
| Part No. | 785 647 |
| Max. clamping range | 35 mm |
| Dimensions | 170 / 110 mm |
| Material | Plastic |

Hook



| | |
|------------|-----------------|
| Type | HK 8 NS |
| Part No. | 785 648 |
| Dimensions | Ø8, 126 / 72 mm |
| Material | Plastic |

Eye

Two-piece



| | |
|------------|-------------|
| Type | OEK 12 NS |
| Part No. | 785 649 |
| Dimensions | Ø12 / 26 mm |
| Material | Plastic |

Insulating caps up to 1,000 V



For insulating bare ends of electrical cables.

- For insulating bare ends of electrical conductors.

Insulating cap with collar



General technical data:

| | |
|-----------------------------------|---------|
| Nominal voltage (U _N) | 1000 V |
| Opening (Ø) | 10 mm |
| Material | Plastic |

| | | |
|--------------------|----------------------|-----------------------|
| Type ISK MS QS ... | 6 35 L100 | 10 50 L100 |
| Part No. | 700 120 NEW | 700 121 NEW |
| Suitable for | 6-35 mm ² | 10-50 mm ² |
| Length | 100 mm | 100 mm |

| | |
|--------------------|-----------------------|
| Type ISK MS QS ... | 35 95 L110 |
| Part No. | 700 122 NEW |
| Suitable for | 35-95 mm ² |
| Length | 110 mm |

Spare Parts

Electric Bulb



| | |
|--------------|-----------------------------------|
| Type | GL 3.5V 0.2A E10 |
| Part No. | 766 605 |
| Description | Small electric bulb 3.5 V / 0.2 A |
| Suitable for | PHE |

Mignon Battery

Dangerous goods transport regulations only allow delivery of Part No. 766 611 within Germany.



| | | |
|-------------|-------------------------------|--|
| Type | MZ 1.5V L91 FR6 LI 4 | MZ 1.5 IEC LR6 AL |
| Part No. | 766 611 | 766 618 |
| Description | Mignon battery 1.5 V, lithium | Mignon battery 1.5 V, alkaline manganese |
| PU | 4 pieces | 1 piece |

Block Battery

Dangerous goods transport regulations only allow delivery of Part No. 767 712 within Germany.



| | | |
|-------------|------------------------------|---|
| Type | EB 9V LI | EB 9V AL |
| Part No. | 767 712 | 767 713 |
| Description | 9 V E block battery, lithium | 9 V E block battery, alkaline manganese |
| PU | 1 piece | 1 piece |

Protective Rubber for PHE



| | |
|--------------|---------|
| Type | FSG PHE |
| Part No. | 767 776 |
| Suitable for | PHE |

Protective Rubber for PHG II



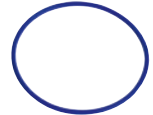
| | |
|--------------|----------------|
| Type | FSG PHG2 PHV |
| Part No. | 767 777 |
| Suitable for | PHG II and PHV |

Sealing Ring for PHE III



| | |
|--------------|---|
| Type | DR PS PHE3 |
| Part No. | 767 779 |
| Suitable for | PHE III test prod and ASP electric field sensor |

Sealing Ring for PHE4 and PHV I



| | |
|--------------|----------------|
| Type | DR PAG |
| Part No. | 759 798 |
| Suitable for | PHE4 and PHV I |

Threaded ring for PHE4 and PHV I



| | |
|--------------|----------------|
| Type | GRP PAG |
| Part No. | 759 799 |
| Suitable for | PHE4 and PHV I |

Test Prods



Test prod with integrated test electrode allows safe contact with the part of an installation to be tested.

General technical data:

| | |
|---------------------------|---|
| Colour | Grey ● or yellow ● |
| Diameter | 20 mm |
| Material (test electrode) | Cu alloy/gal Sn |
| Material (test prod) | Glass-fibre reinforced epoxy resin tube |

For PHE III up to 30 kV / Category "S"



| | | |
|-----------------------------------|----------------|----------------|
| Type | S60 PS PHE 285 | S61 PS PHE 435 |
| Part No. | 767 760 | 767 761 |
| Total length (l _G) | 320 mm | 470 mm |
| Insertion depth (l _O) | 285 mm | 435 mm |

| | | |
|-----------------------------------|----------------|----------------|
| Type | S62 PS PHE 620 | S63 PS PHE 780 |
| Part No. | 767 762 | 767 763 |
| Total length (l _G) | 655 mm | 815 mm |
| Insertion depth (l _O) | 620 mm | 780 mm |

| | |
|-----------------------------------|----------------|
| Type | S64 PS PHE 880 |
| Part No. | 767 764 |
| Total length (l _G) | 915 mm |
| Insertion depth (l _O) | 880 mm |

For PHE III above 30 kV /
Category "S"



| | |
|-----------------------------------|----------------|
| Type | S66 PS PHE 880 |
| Part No. | 767 771 |
| Total length (l _G) | 915 mm |
| Insertion depth (l ₀) | 880 mm |

For PHE III above 30 kV /
Category "S", CODED



| | |
|-----------------------------------|-----------------|
| Type S66PS ... | PHE880 C SN7771 |
| Part No. | 769 701 |
| Total length (l _G) | 915 mm |
| Insertion depth (l ₀) | 880 mm |
| Type | Coded |

For PHE III up to 30 kV /
Category "L"



| | |
|-----------------------------------|----------------|
| Type | L71 PS PHE 185 |
| Part No. | 767 766 |
| Total length (l _G) | 220 mm |
| Insertion depth (l ₀) | 185 mm |

For Siemens 8CK Switchgear
Installations

Category "S" for voltage detector PHE III Part No. 767 721, 767 951, 767 722, 767 740 and 767 940.



| | |
|-----------------------------------|----------------|
| Type | S63 PS PHE 8CK |
| Part No. | 767 768 |
| Total length (l _G) | 880 mm |
| Insertion depth (l ₀) | 845 mm |

Other versions are available on request.

Operating Heads

STK switching stick head



| | | |
|--------------------------------|----------------|----------------------|
| Type | SSK 36 STK 560 | SSK 36 STK 930SN7689 |
| Part No. | 766 164 | 766 169 |
| Total length (l _G) | 560 mm | 930 mm |

Screw-on switching stick head for
IS SK insulating sticks

With M12 thread.
In accordance with DIN VDE V 0681-2.



| | |
|----------|-------------------------|
| Type | SSK M12 |
| Part No. | 765 005 |
| Material | Steel, plastic-sheathed |

Switching stick head for
IS SQ insulating sticks

With T pin shaft (bayonet locking mechanism).
In accordance with DIN VDE V 0681-2.
T pin shaft in accordance with DIN 48087.
Switching stick head is fixed on the insulating stick via the knurled nut.



| | |
|----------|-----------|
| Type | SSK SQ |
| Part No. | 765 009 |
| Material | Polyamide |

STK operating head / T pin shaft

Operating head with spring-loaded bayonet coupling for indoor use.



| | |
|--------------------------------|------------------|
| Type | AK 36 SQ STK 360 |
| Part No. | 766 365 |
| Total length (l _G) | 360 mm |

STK operating head / hexagon shaft

Operating head with tension spring locking and M12 threaded bushing for indoor use.



| | |
|--------------------------------|------------------|
| Type | AK 36 SK STK 330 |
| Part No. | 766 364 |
| Total length (l _G) | 330 mm |

Insulating Sticks

Insulating stick for PHE4 with M12 threaded bushing



| | | |
|-----------------------------------|---------------------------------------|------------------------|
| General technical data: | | |
| Material | Glass-fibre reinforced polyester tube | |
| Type | IS PHE4 STK 700 | IS PHE4 STK 770 |
| Part No. | 783 900 | 783 905 |
| Total length (l _G) | 700 mm | 770 mm |
| Length (handle) (l _H) | 250 mm | 220 mm |
| Type | IS PHE4 STK 1110 | |
| Part No. | 783 906 | |
| Total length (l _G) | 1110 mm | |
| Length (handle) (l _H) | 520 mm | |

Insulating stick for PHE III with M12 threaded bushing

With plug-in coupling for extending the handle.



| | |
|-----------------------------------|---------------------------------------|
| Type | IS M12 STK 640 |
| Part No. | 766 331 |
| Total length (l _G) | 640 mm |
| Length (handle) (l _H) | 270 mm |
| Material | Glass-fibre reinforced polyester tube |

Insulating stick for PHE III with M12 threaded bushing

With end cap.



| | |
|---------------------------------|---------------------------------------|
| Type | IS M12 AK 635 |
| Part No. | 766 328 |
| Total length (l _G) | 635 mm |
| Handle length (l _H) | 270 mm |
| Material | Glass-fibre reinforced polyester tube |

Insulating stick for PHE4 and PHE III with universal gear coupling

Handle end fitting with plastic plug-in coupling as extension handle.



| | |
|-----------------------------------|---------------------------------------|
| Type | IS ZK STK 670 |
| Part No. | 766 368 |
| Total length (l _G) | 670 mm |
| Length (handle) (l _H) | 265 mm |
| Material | Glass-fibre reinforced polyester tube |

Insulating stick for ASP with universal gear coupling

Plug-in coupling for extending the handle.



| | |
|-----------------------------------|---------------------------------------|
| Type | IS ZK STK HS 670 |
| Part No. | 766 369 |
| Total length (l _G) | 670 mm |
| Length (handle) (l _H) | 270 mm |
| Material | Glass-fibre reinforced polyester tube |

IS STK insulating stick with plug-in coupling

Plug-in coupling at both ends for attaching extension elements, operating heads or adapters.



| | | |
|-----------------------------------|--------------------------|--|
| Type | IS 36 STK 30 1280 | |
| Part No. | 766 363 | |
| Nominal voltage (U _N) | Up to 36 kV | |
| Total length (l _G) | 1280 mm | |
| Length (handle) (l _H) | 560 mm | |

ISN 36 STK insulating stick with silicon insulator

Plug-in coupling at both ends for attaching extension elements, operating heads or adapters.



| | | |
|-----------------------------------|---------------------------------------|---------------------------------------|
| Type | ISN 36 STK 30 1280 | ISN 36 STK 930SN7688 |
| Part No. | 766 367 | 766 362 |
| Nominal voltage (U _N) | Up to 36 kV | Up to 36 kV |
| Total length (l _G) | 1280 mm | 930 mm |
| Length (handle) (l _H) | 560 mm | 190 mm |
| Material | Glass-fibre reinforced polyester tube | Glass-fibre reinforced polyester tube |

Telescopic insulating stick, with universal gear coupling

With scale for measuring the ground clearance, mounted support included.



| | | |
|---|---|--|
| Type | ISMTC N 36 ZK 10600 | |
| Part No. | 766 037 | |
| Nominal voltage (U _N) | Up to 36 kV | |
| Total length (l _{G max} / l _{G min}) | 10,600 / 1750 mm | |
| Length (handle) (l _{H min}) | 1680 mm | |
| Material | Glass-fibre reinforced epoxy resin tube | |

Accessories for Insulating Sticks ISMTC

Contacting aid

For telescopic insulating sticks.



| | |
|--------------------------------|-----------------------|
| Type | AK AH ZK ISMTC |
| Part No. | 766 049 |
| Total length (l _G) | 340 mm |

Support



| | |
|-----------------|-----------------------------|
| Type | AH ISMTC |
| Part No. | 766 038 |
| Suitable for | Telescopic insulating stick |

Plastic bolt with star knob



| | |
|-----------------|-------------------------|
| Type | KS SG BLS 8 |
| Part No. | 766 105 |
| Suitable for | Universal gear coupling |

Canvas bag, empty - With carrier handle

Max. capacity:

- 1 Telescopic insulating stick
- 1 Contacting aid
- 1 Test prod



| | |
|-----------------|-------------------|
| Type | STT 180 20 |
| Part No. | 766 039 |

Insulating Elements

Insulating element with M12 threaded bushing

With plug-in coupling for the handle.



| | | |
|-----------------------------------|--------------------|----------------------|
| Type | IT M12 STK 30 1150 | ISO M12 STK 30SN7563 |
| Part No. | 766 115 | 766 116 |
| Nominal voltage (U _N) | up to 110 kV | up to 110 kV |
| Total length (l _G) | 1150 mm | 780 mm |
| Type | - | coded |

Insulating element with hand guard



| | |
|--------------------------------|----------------------|
| Type | ISU STK STK 30SN7564 |
| Part No. | 766 117 |
| Nominal voltage | up to 110 kV |
| Total length (l _G) | 935 mm |
| Type | coded |

Insulating element with gear coupling

With plug-in coupling.

Setting angle of the gear coupling: - 30° / 0° / + 30°.



| | |
|--------------------------------|--------------------|
| Type | IT ZK30 STK 30 360 |
| Part No. | 766 358 |
| Total length (l _G) | 360 mm |

Insulating element for PHE4



| | | |
|--------------------------------|-----------------|------------------|
| Type | IT PHE4 STK 760 | IT PHE4 STK 1210 |
| Part No. | 783 920 | 783 925 |
| Total length (l _G) | 760 mm | 1210 mm |

Adapter

Adapter with M12 threaded bushing

With plug-in coupling.



| | | |
|--------------------------------|-------------------|-----------------|
| Type | AD M12 STK 30 350 | AD PHE4 STK 410 |
| Part No. | 766 352 | 783 930 |
| Total length (l _G) | 350 mm | 410 mm |

Adapter with gear coupling

With plug-in coupling.



| | |
|--------------------------------|------------------|
| Type | AD ZK STK 30 360 |
| Part No. | 766 359 |
| Total length (l _G) | 360 mm |

Adapter with cone-shaped support

With gear coupling and cone-shaped support, accommodates cleaning sponges (Part No. 766 056).



| | |
|--------------------------------|--------------|
| Type | AD ZK 25 200 |
| Part No. | 766 055 |
| Total length (l _G) | 200 mm |

Handle / Extensions

Handle

With hand guard and end fitting with plug-in coupling for extending the handle.



| | |
|--------------------------------|--------------|
| Type | H STK 43 800 |
| Part No. | 766 120 |
| Total length (l _G) | 830 mm |

Handle

With hand guard and end fitting with plug-in coupling for extending the handle.



| | |
|--------------------------------|--------------|
| Type | H STK 43 500 |
| Part No. | 766 520 |
| Total length (l _G) | 500 mm |

Insulating Stick Extension for PHE4

For nominal voltage range 110 ... 220 kV and 220 ... 420 kV.



| | |
|--------------------------------|------------------|
| Type | ISV PHE4 43 1100 |
| Part No. | 783 945 |
| Total length (l _G) | 1100 mm |

ISV 36 STK insulating stick extension

Plug-in coupling at both ends for extending the insertion depth or the handle.



| | | |
|--------------------------------|-------------------|--------------------|
| Type | ISV 36 STK 30 910 | ISV 36 STK 30 1280 |
| Part No. | 766 356 | 766 366 |
| Total length (l _G) | 910 mm | 1280 mm |

HV STK extension handle







Plug-in coupling at both ends for extending the handle.



| | | |
|--------------------------------|---------------|---------------|
| Type | HV STK 30 710 | HV STK 43 910 |
| Part No. | 766 335 | 766 456 |
| Total length (l _G) | 710 mm | 910 mm |
| Diameter | 30 mm | 43 mm |

| | | |
|--------------------------------|----------------|---------------|
| Type | HV STK 43 1280 | HV STK 43 975 |
| Part No. | 766 466 | 766 077 |
| Total length (l _G) | 1280 mm | 975 mm |
| Diameter | 43 mm | 43 mm |

| | | |
|--------------------------------|----------------|----------------|
| Type | HV STK 43 1045 | HV STK 43 2350 |
| Part No. | 766 076 | 766 073 |
| Total length (l _G) | 1045 mm | 2350 mm |
| Diameter | 43 mm | 43 mm |

| Type / Application | Nominal voltage U_N / Frequency f_N | Product | Page |
|---|---|---|------|
| <p>TRS NS dry cleaning kit</p> <ul style="list-style-type: none"> ▪ Suction cleaning under live conditions ▪ Specially adapted operating heads for intensive cleaning ▪ Plug-in coupling system for quick exchange of operating heads | up to 1,000 V / 15 ... 60 Hz |  | 105 |
| <p>FRS ZK MS damp cleaning kit</p> <ul style="list-style-type: none"> ▪ Damp cleaning equipment for use under live conditions with special cleaning liquid ▪ Universal gear coupling for replacing and adjusting the angle of operating heads ▪ Plug-in operating heads allow fast and easy replacement of the sponges | up to 36 kV / 15 ... 60 Hz |  | 105 |
| <p>TRS MS / TRS MS V1 dry cleaning kits</p> <ul style="list-style-type: none"> ▪ Suction cleaning under live conditions ▪ Transparent intake tubes for enhanced safety ▪ Specially adapted operating heads for intensive cleaning ▪ Plug-in coupling system for quick exchange of operating heads | up to 36 kV / 15 ... 60 Hz |  | 106 |
| <p>TFRS MS combined cleaning kit</p> <ul style="list-style-type: none"> ▪ Combined dry and damp cleaning ▪ Transparent intake tubes for enhanced safety ▪ Specially adapted operating heads for intensive cleaning ▪ Universal gear coupling for replacing and adjusting the angle of operating heads ▪ Plug-in operating heads allow fast and easy replacement of the sponges | up to 36 kV / 15 ... 60 Hz |  | 107 |
| <p>Hand oiler for switchgear installations</p> <ul style="list-style-type: none"> ▪ For lubricating movable parts in switchgear installations. ▪ Transparent insulating hand oiler ensures increased safety ▪ Easy to use thanks to flexible tip ▪ If required, the insertion depth of the hand oiler can be increased by means of optional extensions | up to 36 kV / 50 Hz |  | 109 |
| <p>Maintenance test according to German Social Accident Insurance (DGUV) Regulation 3 (formerly accident prevention regulations BGV A3)</p> <p>Operating sticks also have to be subjected to electrotechnical tests. Therefore we recommend testing according to German Social Accident Insurance (DGUV) Regulation 3 (formerly accident prevention regulations BGV A3) This entails testing for compliance with the limit values specified in the electrotechnical rules. The test includes:</p> <ul style="list-style-type: none"> ▪ Testing the discharge current ▪ Testing the protection against bridging ▪ Visual inspection <p>The maintenance test is documented in a test report and on the device itself.</p> <p>The intervals for maintenance tests depend on the conditions of use, e.g. frequency of use, stress due to environmental conditions and transport, etc, however, according to DGUV regulation 3, at least every 6 years.</p> | |  | 7 |

Permanent availability of electricity has become a decisive factor in international competition.

At the same time, increasing cost pressure in the energy supply sector means that less and less redundancy is being made available in the power supply. First of all, this requires increased operational reliability of existing plants, and secondly, it is not always possible to disconnect entire plant sections for the necessary maintenance and servicing work. Live working offers an alternative. DEHN has experience in this method of working and has developed products that can be found in the DELTEC product range.

Disconnecting installations for maintenance work

Electrical equipment and low, medium and high-voltage systems such as overhead lines, transformer substations, switchgear installations, distribution boards, transformer cells or cable distribution cabinets cannot be disconnected or can only be disconnected with great effort due to undesired downtimes or cost-intensive work on Sundays and public holidays.

Live cleaning

Clean installations increase system reliability

In case of adverse weather conditions (moisture), arc exposure may occur as a result of soiled installations, dust layers and residue from lubricants on insulators and cable sealing ends in medium-voltage installations, cobwebs and weeds in cable distribution boards as well as dust and lubricant layers in low-voltage installations, resulting in power failure, damage to the equipment and even injury or death.

Regular cleaning intervals

Surveys have shown that, depending on the type and degree of soiling, cleaning work on open indoor systems and cable distribution cabinets is required at regular intervals of between roughly six months and two years.

Dry cleaning by suction combined with damp cleaning

Dry cleaning work is performed by suction with operating heads or by brushing soiled parts of the installation while simultaneously sucking the dirt away. Loose dust layers and cobwebs are quickly and easily vacuumed away. In the case of oily and stubborn deposits, wet cleaning with sponges moistened with special insulating cleaning fluid has the desired cleaning effect. The work is carried out according to the live working procedure "hot stick working".

Dry suction cleaning equipment

Suction cleaning equipment consists of a cleaning head (operating heads, brushes), intake tube with handle, extension, intake hose and suction device. All individual parts are made of plastic and are fully insulated. The shape of the brushes and operating heads is largely adapted to the parts of installations to be cleaned. The special plug-in coupling system of the dry cleaning equipment prevents accidental use of accessories not intended for this application (e.g. industrial vacuum cleaner accessories).

Requirements on the suction device

The suction device used must meet the following requirements:

- The industrial suction cleaner must have a minimum air velocity of 20 m/s and a visual indication of the intake capacity.
- The intake hose must have a continuous inner diameter ≥ 30 mm and be free of metal parts.

Damp cleaning equipment

Damp cleaning equipment consists of special cleaning heads (sponge holders), an insulating stick with handle and extension elements. All individual parts are fully insulated. The plug-in system of operating heads and sponges allows easy and fast replacement of dirty sponges. Only approved sponges may be used for this purpose.

Requirements on installers

Selection of electrically skilled persons for live working

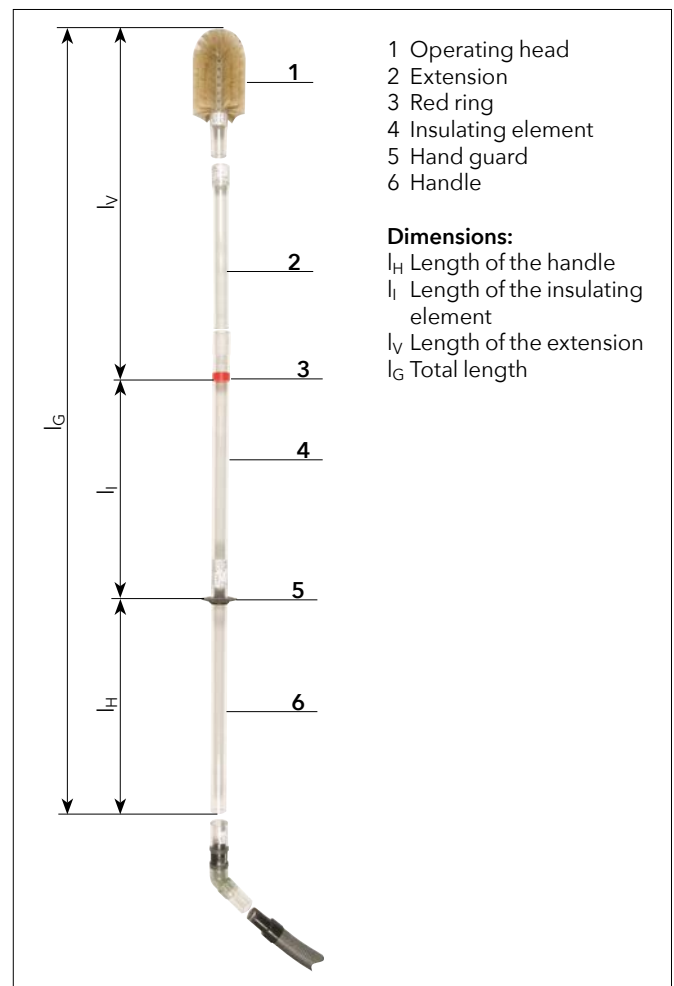
Maintenance and repair work may only be carried out by electrically skilled persons with several years of experience in operating or maintaining electrical installations who have also successfully completed a special training course for such work. During this training, both basic theoretical knowledge and practical skills (training of individual work processes) are taught.

Training as live worker

The training as a specialised live worker is based on detailed target descriptions as required by the German trade association BG ETEM "Live working on electrical installations and equipment", DGUV regulation 103-011 (previously BGR A3). It includes theoretical and practical training for the electrically skilled person and ends after a performance test with the presentation of a "live working" certificate.

"Live working" procedure

During hot stick working, the worker keeps a predefined distance from live parts of the installation and uses insulating sticks/operating sticks.



Schematic diagram

TRS NS Dry Cleaning Kit



Live cleaning of a low-voltage switchgear installation using the TRS NS dry cleaning kit.

Nominal voltages up to 1000 V / 15 ... 60 Hz

- For indoor and outdoor installations
- Equipment for suction cleaning under live conditions
- For dry cleaning of cable distribution cabinets, open indoor installations and control cabinets
- Specially adapted operating heads for intensive cleaning
- Plug-in coupling system allows fast replacement of operating heads
- Regulation of intake air in the handle area



General technical data:

| | |
|---------------------------------------|---------------------------|
| Standard | Based on DIN VDE 0682-621 |
| Not for use in wet weather conditions | ☀ |

Requirements

Cleaning work up to 1000 V generally is allowed to be done under supervision of a qualified electrician according to EN 50110-1 "Operation of electrical installations" and is allowed to be done in accordance with the national accident prevention regulations (UVV) "Elektrische Anlagen und Betriebsmittel" [Electrical installations and equipment] stipulated by the German Employer's Liability Association for the energy, textile, electrical and media product sector (BG ETEM) under observation of DGUV regulation 3 (previously BGV A3).



TRS NS Dry Cleaning Kit
Fully equipped plastic case.



Kit includes:

| No. | Part No. | No. | Part No. |
|-----|----------|-----|----------|
| 1 | 785 506 | 12 | 785 560 |
| 2 | 785 520 | 13 | 785 543 |
| 3 | 785 521 | 14 | 785 570 |
| 4 | 785 522 | 15 | 785 550 |
| 5 | 785 523 | 16 | 785 555 |
| 6 | 785 530 | 17 | 785 515 |
| 7 | 785 540 | 18 | 785 200 |
| 8 | 785 541 | 19 | 785 595 |
| 9 | 785 542 | 20 | 785 596 |
| 10 | 785 590 | 21 | 785 580 |
| 11 | 785 591 | 22 | 785 585 |

For more detailed information on these products, see www.dehn-international.com.

| Type | TRS NS |
|---|--------------------|
| Part No. | 785 502 |
| Dimensions | 560 x 410 x 170 mm |
| Total length (l _{G max} / l _{G min}) | 1350 / 560 mm |

FRS ZK MS Damp Cleaning Kit



Damp cleaning of a transformer using the FRS ZK MS damp cleaning kit.

Nominal voltages up to 36 kV / 15 ... 60 Hz

- For indoor and outdoor installations
- Damp cleaning equipment for use under live conditions with special cleaning liquid
- Universal gear coupling for replacing and adjusting the angle of operating heads
- Rigid and flexible plug-in operating heads allow fast and easy replacement of the sponges



General technical data:

| | |
|---------------------------------------|--|
| Standard | Based on DIN VDE 0681-1 and DIN VDE 0682-621 |
| Standard (universal gear coupling) | EN/IEC 60832 (DIN VDE 0682-211) |
| Not for use in wet weather conditions | ☀ |

Application

Damp sponges allow to remove tough pollution layers and to clean oily transformer surfaces. Special insulating cleaning liquids (e.g. Rivolta SLX 500; SLX TOP or SLX Super from Bremer & Leguil, Duisburg/Germany, and Florin 2000 from Flore, Koblenz/Germany) must be selected according to the rated voltage of the installation and the environmental conditions.

Requirements

Cleaning work from 1 to 36 kV must be carried out under supervision of a qualified electrician according to EN 50110-1 "Operation of electrical installations - Minimum Requirements", observing clauses 6.3.1 to 6.3.12. In Germany FRS ZK MS damp cleaning kits are subject to DGUV Vorschrift 3 (former BGV A3) and DGUV Regel 103-011 (former BGR A3) of the national accident prevention regulations (UVV) "Elektrische Anlagen und Betriebsmittel" [Electrical installations and equipment] stipulated by the German Employer's Liability Association for the energy, textile, electrical and media product sector (BG ETEM).



FRS ZK MS Damp Cleaning Kit
Fully equipped GRP case.



Kit includes:

| No. | Part No. | No. | Part No. |
|-----|----------|-----|----------|
| 2 | 785 229 | 32 | 785 324 |
| 8 | 785 315 | 33 | 785 322 |
| 11 | 785 316 | 34 | 785 323 |
| 12 | 785 317 | 35 | 785 274 |
| 13 | 785 318 | 36 | 785 275 |
| 14 | 785 319 | 37 | 785 279 |
| 30 | 785 320 | 38 | 785 280 |
| 31 | 785 321 | | |

For more detailed information on these products, see www.dehn-international.com.

| Type | FRS ZK MS |
|---|--------------------|
| Part No. | 785 940 |
| Dimensions | 945 x 285 x 170 mm |
| Total length (l _{G max} / l _{G min}) | 3250 / 1450 mm |
| Extension (l _{G max} / l _{G min}) | 2100 / 350 mm |

TRS MS Dry Cleaning Kit



Live cleaning of a transformer using the TRS MS dry cleaning kit.

General technical data:

| | |
|---------------------------------------|------------------|
| Standard | DIN VDE 0682-621 |
| Not for use in wet weather conditions | |

Requirements

Cleaning work from 1 to 36 kV must be carried out under supervision of a qualified electrician according to EN 50110-1 "Operation of electrical installations - Minimum Requirements", observing clauses 6.3.1 to 6.3.12. In Germany TRS MS dry cleaning kits are subject to DGUV Vorschrift 3 (previously BGV A3) and DGUV Regel 103-011 (previously BGR A3) of the national accident prevention regulations (UVV) "Elektrische Anlagen und Betriebsmittel" [Electrical installations and equipment] stipulated by the German Employer's Liability Association for the Energy, Textiles, Electric and Media Industry (BG ETEM).

Nominal voltages up to 36 kV / 15 ... 60 Hz

- For indoor and outdoor installations
- Equipment for live cleaning by means of suction
- For dry cleaning of transformers and switchgear installations
- Transparent intake tubes ensure enhanced safety
- Specially adapted operating heads for intensive cleaning
- Plug-in coupling system allows fast replacement of operating heads



TRS MS Dry Cleaning Kit

Fully equipped GRP case.



Kit includes:

| No. | Part No. | No. | Part No. |
|-----|-----------------------|-----|----------|
| 1 | 785 301 | 19 | 785 140 |
| 5 | 785 131 | 20 | 785 150 |
| 6 | 785 132 | 21 | 785 170 |
| 7 | 785 130 | 25 | 785 220 |
| 10 | 785 120 | 26 | 785 221 |
| 15 | 785 121 ^{*)} | 39 | 785 200 |
| 16 | 785 122 ^{*)} | 42 | 785 180 |
| 17 | 785 123 ^{*)} | 44 | 785 190 |
| 18 | 785 160 | 47 | 785 210 |

^{*)} 2 pieces in a set

For more detailed information on these products, see www.dehn-international.com.



TRS MS V1 Dry Cleaning Kit

Fully equipped GRP case.



Kit includes:

| No. | Part No. | No. | Part No. |
|-----|-----------------------|-----|----------|
| 1 | 785 301 | 21 | 785 170 |
| 5 | 785 131 | 22 | 785 171 |
| 6 | 785 132 | 23 | 785 172 |
| 7 | 785 130 | 25 | 785 220 |
| 10 | 785 120 | 26 | 785 221 |
| 15 | 785 121 ^{*)} | 39 | 785 200 |
| 16 | 785 122 ^{*)} | 40 | 785 212 |
| 17 | 785 123 | 42 | 785 180 |
| 18 | 785 160 | 44 | 785 190 |
| 19 | 785 140 | 47 | 785 210 |

^{*)} 2 pieces in a set

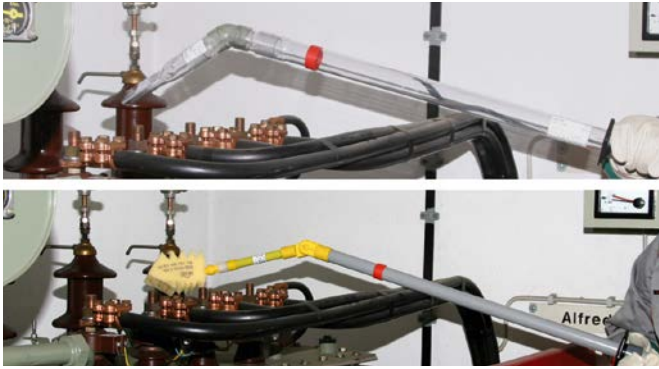
For more detailed information on these products, see www.dehn-international.com.



| Type TRS ... | MS |
|---|---------------------|
| Part No. | 785 100 |
| Dimensions | 1260 x 305 x 205 mm |
| Total length (l _{G max} / l _{G min}) | 3580 / 1180 mm |
| Extension (l _{G max} / l _{G min}) | 2515 / 115 mm |

| Type TRS ... | MS V1 |
|---|---------------------|
| Part No. | 785 112 |
| Dimensions | 1260 x 305 x 205 mm |
| Total length (l _{G max} / l _{G min}) | 3580 / 1180 mm |
| Extension (l _{G max} / l _{G min}) | 2515 / 115 mm |

TFRS MS Combined Cleaning Kit



TFRS MS combined cleaning kit used for dry and damp cleaning of a transformer under live conditions.

Nominal voltages up to 36 kV / 15 ... 60 Hz

- For indoor and outdoor installations
- Combined dry and damp cleaning kit for cleaning under live conditions
- Transparent intake tubes ensure enhanced safety
- Specially adapted operating heads for intensive cleaning
- Universal gear coupling for replacing and adjusting the angle of operating heads
- Rigid and flexible plug-in operating heads allow fast and easy replacement of the sponges



TFRS MS Combined Cleaning Kit

Fully equipped GRP case and leather bag.



| | |
|-------------------|--------------------|
| Type | TFRS MS |
| Part No. | 785 950 |
| Dimensions (bag) | 1400 x 280 mm |
| Dimensions (case) | 900 x 415 x 430 mm |

General technical data:

| | |
|---------------------------------------|--|
| Standard | Based on DIN VDE 0681-1 and DIN VDE 0682-621 |
| Standard (universal gear coupling) | EN/IEC 60832 (DIN VDE 0682-211) |
| Not for use in wet weather conditions | ☀ |

Application

Dry cleaning work is performed by suction cleaning with operating heads or brushing soiled parts of the installation while simultaneously sucking the dirt away. Loose dust layers and cobwebs are easily removed with little effort. Damp cleaning eliminates oily and tough contaminants with the help of sponges soaked with special insulating cleaning liquids.

Requirements

Cleaning work from 1 to 36 kV must be carried out under supervision of a qualified electrician according to EN 50110-1 "Operation of electrical installations - Minimum Requirements", observing clauses 6.3.1 to 6.3.12. In Germany TFRS MS combined cleaning kit are subject to DGUV Vorschrift 3 and DGUV Regel 103-011 (previously BGV A3 and BGR A3) of the national accident prevention regulations (UVV) "Elektrische Anlagen und Betriebsmittel" [Electrical installations and equipment] stipulated by the German Employer's Liability Association for the Energy, Textiles, Electric and Media Industry (BG ETEM).



Kit includes - Case:

| No. | Part No. | No. | Part No. |
|-----|------------|-----|----------|
| 3 | 785 951 | 27 | 785 223 |
| 5 | 785 131 | 28 | 785 551 |
| 6 | 785 132 | 29 | 785 552 |
| 7 | 785 130 | 30 | 785 320 |
| 11 | 785 316 | 31 | 785 321 |
| 12 | 785 317 | 32 | 785 324 |
| 13 | 785 318 | 33 | 785 322 |
| 14 | 785 319(2) | 34 | 785 323 |
| 15 | 785 121 | 35 | 785 274 |
| 16 | 785 122 | 36 | 785 275 |
| 17 | 785 123(2) | 37 | 785 279 |
| 18 | 785 160 | 38 | 785 280 |
| 19 | 785 140 | 39 | 785 200 |
| 20 | 785 150 | 40 | 785 212 |
| 21 | 785 170 | 41 | 785 259 |
| 22 | 785 171 | 43 | 785 181 |
| 23 | 785 172 | 44 | 785 190 |
| 24 | 785 151 | 45 | 785 953 |
| 25 | 785 220 | 46 | 785 224 |
| 26 | 785 221 | | |

Kit includes - Bag:

| No. | Part No. | No. | Part No. |
|-----|----------|-----|----------|
| 4 | 785 952 | 47 | 785 210 |
| 9 | 785 325 | 48 | 785 585 |
| 10 | 785 120 | 49 | 785 109 |

For more detailed information on these products, see www.dehn-international.com.

Accessory for NS and MS Cleaning Kits

Industrial vacuum cleaner

For dry and combined cleaning kits.



Equipment:

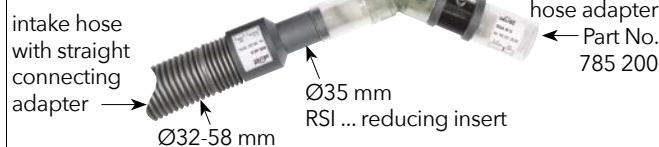
25 l special plastic container, 2 large wheels, 2 guide wheels with locking brakes, handle and cable holder, socket outlet with automatic switch-on mechanism, electromagnetic pulse filter cleaning, automatic vibration function, speed control, volume flow control, acceleration rate controller, electronic running feature, moisture identification with sensor-controlled disconnection, 2 new polyester filter cassettes, FKP 4300, filter area 2x 4300 cm² = 8600 cm², dust collection capacity 99,99 %, class L in accordance with DIN EN 60335-2-69 Annex AA, cord length 8 m.

Technical data:

Intake hose with straight connecting adapter Ø35 mm, 5 m long

| | |
|------------|--------------------|
| Type | HISC 1600 |
| Part No. | 785 310 |
| Dimensions | 450 x 390 x 490 mm |

Application:



Reducing inserts

For connection between SSA W D intake hose adapter and intake hoses from other manufacturers with different diameters and straight connecting adapter.



General technical data:

| | |
|--------------------------------|--------|
| Total length (l _G) | 105 mm |
|--------------------------------|--------|

| Type | RSI 32 | RSI 34 |
|----------|------------|------------|
| Part No. | 785 213 | 785 214 |
| Diameter | 35 / 32 mm | 35 / 34 mm |

| Type | RSI 35 | RSI 38 |
|----------|------------|------------|
| Part No. | 785 215 | 785 216 |
| Diameter | 35 / 35 mm | 35 / 38 mm |

| Type | RSI 45 | RSI 51 |
|----------|------------|------------|
| Part No. | 785 217 | 785 218 |
| Diameter | 35 / 45 mm | 35 / 51 mm |

| Type | RSI 58 |
|----------|------------|
| Part No. | 785 219 |
| Diameter | 35 / 58 mm |

Tubular brush 80 mm

Cylindrical bristles.



| | |
|--------------------------------|--------------|
| Type | STB 80 ZK MS |
| Part No. | 785 159 |
| Total length (l _G) | 250 mm |
| Diameter | 80 mm |

Rectangular brush



| | |
|------------|-----------------|
| Type | REB 25055 ZK MS |
| Part No. | 785 169 |
| Dimensions | 250 x 55 x 155 |

Scraper



| | |
|--------------------------------|-------------|
| Type | S 100 ZK MS |
| Part No. | 785 329 |
| Total length (l _G) | 310 mm |
| Diameter | 100 mm |

Cleaning head 55 with scraper

For TRS MS and TFRS MS.

Including 3 spare scrapers.



| | |
|--------------------------------|-----------------|
| Type | FD 60 MS SN7271 |
| Part No. | 785 225 |
| Total length (l _G) | 190 mm |
| Diameter | 40 mm |

90° angled flat cleaning head with detachable brush

For TRS NS dry cleaning kits.



| | |
|--------------------------------|-------------|
| Type | FWD 35 P NS |
| Part No. | 785 592 |
| Total length (l _G) | 200 mm |
| Diameter | 25 mm |

Intake tube with handle

For TRS MS and TFRS MS cleaning kits.



| | |
|--------------------------------|------------------------------------|
| Type | SRH 1180 IS 650 MS |
| Part No. | 785 119 |
| Total length (l _G) | 1180 mm, insulating element 650 mm |

Canvas bag, empty

With two separate internal pockets and carrier handle.

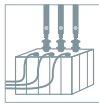


| | |
|------------|--------------------|
| Type | STT 55 27 30 |
| Part No. | 785 111 |
| Dimensions | 550 x 270 x 300 mm |
| Colour | Olive ● |

Hand Oiler for Switchgear Installations



- For lubricating movable parts in switchgear installations with a nominal voltage up to 36 kV / 50 Hz
- Transparent insulating hand oiler ensures increased safety
- Easy to use thanks to flexible tip
- If required, the insertion depth of the hand oiler can be increased by means of optional extensions



General technical data:

| | |
|---------------------------------------|--|
| Standard | Based on DIN VDE 0681-1 and DIN VDE 0682-621 |
| Temperature range | +5 °C ... +50 °C |
| Not for use in wet weather conditions | ☀ |

Hand Oiler



| | |
|-----------------------------------|-----------------|
| Type | HOEL 36 20 1100 |
| Part No. | 785 399 |
| Nominal voltage (U _N) | Up to 36 kV |
| Total length (l _G) | 1160 mm |
| Volume (oil container) | 200 ml |

Accessories for Hand Oiler for Switchgear Installations

Extension for hand oiler

Ø20 mm



| | |
|-----------------------------------|----------------|
| Type | VL HOEL 20 500 |
| Part No. | 785 398 |
| Nominal voltage (U _N) | Up to 36 kV |
| Total length (l _G) | 500 mm |
| Diameter | 20 mm |



DEHN

DEHNproX - Safe working on
electrical installations / Live working

Arc fault protection at your fingertips

Electrician set for protection against arc faults

Protect your workers from the thermal effects of an arc fault. With our electrician set, you have everything you need for working on electrical systems at your fingertips. Now also available as a configurable set.

- 1x DEHNcare ArcFit protective clothing Indoor or Outdoor
- 1 pair of protective gloves
- 1 x ESH safety helmet for electricians with APS T AS face shield.
- 1 x microfibre bag
- 1 x storage bag

More information here:



DEHN protects.

www.dehn-international.com

Advertisements

DEHNcare - Personal protective equipment

Find the right product quickly and easily: <https://www.dehn-international.com/en/en-dehncare-arcfit>



| | |
|---|---------------|
| DEHNcare PPE against arc faults | Page 112 |
| Body Protection | Page 114 |
| Hand Protection | Page 126 |
| Foot Protection | Page 131 |
| Head Protection | Page 132 |
| DEHNcare PPE sets | Page 136 |
| DEHNcare WJP against high-pressure water jets | Page 138 |
| Body Protection | Page 140 /142 |
| Hand Protection | Page 141 |
| Foot Protection | Page 141 |
| Head Protection | Page 142 |
| Size charts | Page 143 |












In touch with people: personal protective equipment

Arc faults are a serious hazard when working on electrical equipment. High-quality personal protective equipment (PPE) is essential to protect electricians. In this chapter, you will discover

protective clothing of various protection classes specifically designed to protect against the effects of an arc fault. Find out more about our personal protective equipment designed to offer electricians working in electrical hazard areas protection and comfort.



More information and images about personal protective equipment against the thermal effects of electric fault arcs can be found here:

| Type / Application | Product | Page |
|---|---|---|
| <p>Body protection - DEHNcare ArcFit Indoor and Outdoor *)</p> <p>Arc-fault-tested protective clothing</p> <ul style="list-style-type: none"> Protective jacket and trousers Protection from the thermal effects of an arc fault when working on electrical installations Arc flash protection class APC 2 or PPE 2 Multinorm clothing |  | <p>114</p> <p>117</p> |
| <p>Body protection - DEHNcare UnderWear</p> <p>Accessories for arc-fault-tested protective clothing</p> <ul style="list-style-type: none"> An elevated level of protection is provided when combined with DEHNcare ArcFit Undershirt and pants Polo shirt |  | 123 |
| <p>Body protection - DEHNcare ArcFit HLP 63 *)</p> <p>Arc-fault-tested protective clothing</p> <ul style="list-style-type: none"> Protective jacket and trousers (bib overall) Protection from the thermal effects of an arc fault when working on electrical installations Arc flash protection class APC 2 or PPE 4 Multinorm clothing |  | 124 |
| <p>Body protection - DEHNcare ArcClassic *)</p> <p>Arc-fault-tested protective clothing</p> <ul style="list-style-type: none"> Protective coat, jacket and trousers Protection from the thermal effects of an arc fault when working on electrical installations Arc flash protection class APC 2 or PPE 3 |  | 125 |
| <p>Hand protection - DEHNcare *)</p> <p>DEHNcare APG XT</p> <p>DEHNcare APG</p> <p>Insulating gloves up to 1000 V</p> <p>Insulating gloves up to 36 kV</p> |  | <p>126</p> <p>128</p> <p>128</p> <p>130</p> |
| <p>Foot protection - DEHNcare</p> <p>Safety shoes with insulating soles up to 1000 V</p> |  | 131 |
| <p>DEHNcare - Head protection</p> <p>DEHNcare APS with active protection</p> <p>Balaclava</p> <p>DEHNcare APS with headgear</p> <p>DEHNcare APS with lever arms</p> <p>DEHNcare APHO</p> <p>ESH U S safety helmet for electricians</p> |  | <p>132</p> <p>133</p> <p>133</p> <p>134</p> <p>134</p> <p>135</p> |
| <p>DEHNcare PPE sets - Indoor and Outdoor</p> <p>Appropriate starter set for electricians for outdoor and indoor use</p> |  | 136 |
| <p>DEHNcare WJP (Water Jet Protection) *)</p> <p>Personal protective equipment against high pressure water jets</p> <p>Protective overall "Advanced" up to 1000 bar</p> <p>Protective gloves up to 1000 bar</p> <p>Protective socks up to 1000 bar - in combination with S5 rubber safety boots</p> <p>Protective overall "Basic" up to 750 bar</p> <p>Head protection set</p> |  | <p>140</p> <p>141</p> <p>141</p> <p>142</p> <p>142</p> |

DEHNcare ArcFit Indoor



Arc-fault-tested protective clothing for everyday use.

The multinorm all-rounder: the all-round single-layer material ensures great mobility for all activities, a perfect fit for every figure and a comfortable feeling all day long.

- Environmentally friendly - washable up to 60°
- Individual design - personal online configuration
- Certified according to PPE regulation (EU) 2016/425

Arc-fault-tested protective jacket, standard men's sizes



| General technical data: | |
|--|-----------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc Rating - ATPV (Open Arc) | 18 cal / cm ² *) |
| Arc Rating - ELIM (Open Arc) | 13 cal / cm ² |
| PPE category (NFPA 70E) | PPE 2 |
| Weight per unit area | 450 g/m ² |
| Primary colour | grey |
| Secondary colour | black |
| Zipper | red |
| Design code | JIGRBLRE0000P0000 |

| Type | APJ ID 42 | APJ ID 44 |
|----------------------|--------------------|--------------------|
| Part No. | 787 600 NEW | 787 601 NEW |
| Size (international) | 42 (2XS) | 44 (2XS/XS) |

| Type | APJ ID 46 | APJ ID 48 |
|----------------------|-----------|-----------|
| Part No. | 785 330 | 785 331 |
| Size (international) | 46 (XS) | 48 (S) |

| Type | APJ ID 50 | APJ ID 52 |
|----------------------|-----------|-----------|
| Part No. | 785 332 | 785 333 |
| Size (international) | 50 (M) | 52 (M/L) |

| Type | APJ ID 54 | APJ ID 56 |
|----------------------|-----------|-----------|
| Part No. | 785 334 | 785 335 |
| Size (international) | 54 (L) | 56 (XL) |

| Type | APJ ID 58 | APJ ID 60 |
|----------------------|-------------|-----------|
| Part No. | 785 336 | 785 337 |
| Size (international) | 58 (XL/2XL) | 60 (2XL) |

| Type | APJ ID 62 | APJ ID 64 |
|----------------------|-----------|--------------------|
| Part No. | 785 338 | 787 602 NEW |
| Size (international) | 62 (3XL) | 64 (3XL/4XL) |

| Type | APJ ID 66 | APJ ID 68 |
|----------------------|--------------------|--------------------|
| Part No. | 787 603 NEW | 787 604 NEW |
| Size (international) | 66 (4XL) | 68 (4XL/5XL) |

*) Outer fabric after preparation

| General technical data: | |
|--------------------------|---|
| Standard | IEC 61482-2, EN ISO 11612, EN 1149-5, EN ISO 13688, EN ISO 11611, EN 17353 |
| Material | Cotton (52%), modacrylic (22%), viscose (19%), para-aramid (6%), static inhibitors (1%) |
| Material (sewing thread) | Kevlar (100%) |



Safety at a glance!



Elastic cuff



Configure your DEHNcare ArcFit according to your ideas.

Arc-fault-tested protective trousers, standard men's sizes



| General technical data: | |
|--|-----------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc Rating - ATPV (Open Arc) | 18 cal / cm ² *) |
| Arc Rating - ELIM (Open Arc) | 13 cal / cm ² |
| PPE category (NFPA 70E) | PPE 2 |
| Weight per unit area | 450 g/m ² |
| Primary colour | grey |
| Secondary colour | black |
| Zipper | red |
| Design code | TIGRBLRE0000P0 |

| Type | APT ID 42 | APT ID 44 |
|----------------------|--------------------|--------------------|
| Part No. | 787 650 NEW | 787 651 NEW |
| Size (international) | 42 (2XS) | 44 (2XS/XS) |

| Type | APT ID 46 | APT ID 48 |
|----------------------|-----------|-----------|
| Part No. | 785 340 | 785 341 |
| Size (international) | 46 (XS) | 48 (S) |

| Type | APT ID 50 | APT ID 52 |
|----------------------|-----------|-----------|
| Part No. | 785 342 | 785 343 |
| Size (international) | 50 (M) | 52 (M/L) |

| Type | APT ID 54 | APT ID 56 |
|----------------------|-----------|-----------|
| Part No. | 785 344 | 785 345 |
| Size (international) | 54 (L) | 56 (XL) |

| Type | APT ID 58 | APT ID 60 |
|----------------------|-------------|-----------|
| Part No. | 785 346 | 785 347 |
| Size (international) | 58 (XL/2XL) | 60 (2XL) |

| Type | APT ID 62 | APT ID 64 |
|----------------------|-----------|--------------------|
| Part No. | 785 348 | 787 652 NEW |
| Size (international) | 62 (3XL) | 64 (3XL/4XL) |

| Type | APT ID 66 | APT ID 68 |
|----------------------|--------------------|--------------------|
| Part No. | 787 653 NEW | 787 654 NEW |
| Size (international) | 66 (4XL) | 68 (4XL/5XL) |

*) Outer fabric after preparation

Arc-fault-tested protective jacket, men's short sizes



| General technical data: | |
|--|-----------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc Rating - ATPV (Open Arc) | 18 cal / cm ² *) |
| Arc Rating - ELIM (Open Arc) | 13 cal / cm ² |
| PPE category (NFPA 70E) | PPE 2 |
| Weight per unit area | 450 g/m ² |
| Primary colour | grey |
| Secondary colour | black |
| Zipper | red |
| Design code | JIGRBLRE0000P0000 |

| Type | APJ ID 22 | APJ ID 23 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 610 <small>NEW</small> | 787 611 <small>NEW</small> |
| Size (international) | 22 (2XS/XS-K) | 23 (XS-K) |

| Type | APJ ID 24 | APJ ID 25 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 612 <small>NEW</small> | 787 613 <small>NEW</small> |
| Size (international) | 24 (S-K) | 25 (M-K) |

| Type | APJ ID 26 | APJ ID 27 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 614 <small>NEW</small> | 787 615 <small>NEW</small> |
| Size (international) | 26 (M/L-K) | 27 (L-K) |

| Type | APJ ID 28 | APJ ID 29 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 616 <small>NEW</small> | 787 617 <small>NEW</small> |
| Size (international) | 28 (XL-K) | 29 (XL/2XL-K) |

| Type | APJ ID 30 |
|----------------------|----------------------------|
| Part No. | 787 618 <small>NEW</small> |
| Size (international) | 30 (2XL-K) |

*) Outer fabric after preparation

Arc-fault-tested protective jacket, men's long sizes



| General technical data: | |
|--|-----------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc Rating - ATPV (Open Arc) | 18 cal / cm ² *) |
| Arc Rating - ELIM (Open Arc) | 13 cal / cm ² |
| PPE category (NFPA 70E) | PPE 2 |
| Weight per unit area | 450 g/m ² |
| Primary colour | grey |
| Secondary colour | black |
| Zipper | red |
| Design code | JIGRBLRE0000P0000 |

| Type | APJ ID 90 | APJ ID 94 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 620 <small>NEW</small> | 787 621 <small>NEW</small> |
| Size (international) | 90 (XS-L) | 94 (S-L) |

| Type | APJ ID 98 | APJ ID 102 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 622 <small>NEW</small> | 787 623 <small>NEW</small> |
| Size (international) | 98 (M-L) | 102 (M/L-L) |

| Type | APJ ID 106 | APJ ID 110 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 624 <small>NEW</small> | 787 625 <small>NEW</small> |
| Size (international) | 106 (L-L) | 110 (XL-L) |

| Type | APJ ID 114 | APJ ID 118 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 626 <small>NEW</small> | 787 627 <small>NEW</small> |
| Size (international) | 114 (XL/2XL-L) | 118 (2XL-L) |

*) Outer fabric after preparation

Arc-fault-tested protective trousers, men's short sizes



| General technical data: | |
|--|-----------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc Rating - ATPV (Open Arc) | 18 cal / cm ² *) |
| Arc Rating - ELIM (Open Arc) | 13 cal / cm ² |
| PPE category (NFPA 70E) | PPE 2 |
| Weight per unit area | 450 g/m ² |
| Primary colour | grey |
| Secondary colour | black |
| Zipper | red |
| Design code | TIGRBLRE0000P0 |

| Type | APT ID 22 | APT ID 23 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 660 <small>NEW</small> | 787 661 <small>NEW</small> |
| Size (international) | 22 (2XS/XS-K) | 23 (XS-K) |

| Type | APT ID 24 | APT ID 25 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 662 <small>NEW</small> | 787 663 <small>NEW</small> |
| Size (international) | 24 (S-K) | 25 (M-K) |

| Type | APT ID 26 | APT ID 27 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 664 <small>NEW</small> | 787 665 <small>NEW</small> |
| Size (international) | 26 (M/L-K) | 27 (L-K) |

| Type | APT ID 28 | APT ID 29 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 666 <small>NEW</small> | 787 667 <small>NEW</small> |
| Size (international) | 28 (XL-K) | 29 (XL/2XL-K) |

| Type | APT ID 30 |
|----------------------|----------------------------|
| Part No. | 787 668 <small>NEW</small> |
| Size (international) | 30 (2XL-K) |

*) Outer fabric after preparation

Arc-fault-tested protective trousers, men's long sizes



| General technical data: | |
|--|-----------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc Rating - ATPV (Open Arc) | 18 cal / cm ² *) |
| Arc Rating - ELIM (Open Arc) | 13 cal / cm ² |
| PPE category (NFPA 70E) | PPE 2 |
| Weight per unit area | 450 g/m ² |
| Primary colour | grey |
| Secondary colour | black |
| Zipper | red |
| Design code | TIGRBLRE0000P0 |

| Type | APT ID 90 | APT ID 94 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 670 <small>NEW</small> | 787 671 <small>NEW</small> |
| Size (international) | 90 (XS-L) | 94 (S-L) |

| Type | APT ID 98 | APT ID 102 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 672 <small>NEW</small> | 787 673 <small>NEW</small> |
| Size (international) | 98 (M-L) | 102 (M/L-L) |

| Type | APT ID 106 | APT ID 110 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 674 <small>NEW</small> | 787 675 <small>NEW</small> |
| Size (international) | 106 (L-L) | 110 (XL-L) |

| Type | APT ID 114 | APT ID 118 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 676 <small>NEW</small> | 787 677 <small>NEW</small> |
| Size (international) | 114 (XL/2XL-L) | 118 (2XL-L) |

*) Outer fabric after preparation

Arc-fault-tested protective jacket, standard ladies' sizes



| General technical data: | |
|--|-----------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc Rating - ATPV (Open Arc) | 18 cal / cm ² *) |
| Arc Rating - ELIM (Open Arc) | 13 cal / cm ² |
| PPE category (NFPA 70E) | PPE 2 |
| Weight per unit area | 450 g/m ² |
| Primary colour | grey |
| Secondary colour | black |
| Zipper | red |
| Design code | JIGRBLRE0000P0000 |

| Type | APJ ID F 34 | APJ ID F 36 |
|----------------------|--------------------|--------------------|
| Part No. | 787 630 NEW | 787 631 NEW |
| Size (international) | 34 (XS) | 36 (S) |

| Type | APJ ID F 38 | APJ ID F 40 |
|----------------------|--------------------|--------------------|
| Part No. | 787 632 NEW | 787 633 NEW |
| Size (international) | 38 (M) | 40 (M/L) |

| Type | APJ ID F 42 | APJ ID F 44 |
|----------------------|--------------------|--------------------|
| Part No. | 787 634 NEW | 787 635 NEW |
| Size (international) | 42 (L) | 44 (XL) |

| Type | APJ ID F 46 | APJ ID F 48 |
|----------------------|--------------------|--------------------|
| Part No. | 787 636 NEW | 787 637 NEW |
| Size (international) | 46 (XL/2XL) | 48 (2XL) |

| Type | APJ ID F 50 | APJ ID F 52 |
|----------------------|--------------------|--------------------|
| Part No. | 787 638 NEW | 787 639 NEW |
| Size (international) | 50 (2XL/3XL) | 52 (3XL) |

| Type | APJ ID F 54 | APJ ID F 56 |
|----------------------|--------------------|--------------------|
| Part No. | 787 640 NEW | 787 641 NEW |
| Size (international) | 54 (3XL/4XL) | 56 (4XL) |

*) Outer fabric after preparation

Arc-fault-tested protective jacket - configurable



| Type | APJ ID KONFI |
|--|--|
| Part No. | 785 339 |
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc Rating - ATPV (Open Arc) | 18 cal / cm ² *) |
| Arc Rating - ELIM (Open Arc) | 13 cal / cm ² |
| PPE category (NFPA 70E) | PPE 2 |
| Weight per unit area | 450 g/m ² |
| Configurable: | |
| Primary colour | grey / black / dark blue / red / orange |
| Secondary colour | black / dark blue / red / orange |
| Zipper | red / black |
| Logo | yes / no |
| Logo position (1-4) | chest right / stand-up collar left / stand-up collar back / back |
| Name | yes / no (max. 22 characters) |
| Size (international) | from 46 (XS) to 62 (3XL) |
| Design code / Attention: Please indicate the unique design code when ordering | |

*) Outer fabric after preparation

Arc-fault-tested protective trousers, standard ladies' sizes



| General technical data: | |
|--|-----------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc Rating - ATPV (Open Arc) | 18 cal / cm ² *) |
| Arc Rating - ELIM (Open Arc) | 13 cal / cm ² |
| PPE category (NFPA 70E) | PPE 2 |
| Weight per unit area | 450 g/m ² |
| Primary colour | grey |
| Secondary colour | black |
| Zipper | red |
| Design code | TIGRBLRE0000P0 |

| Type | APT ID F 34 | APT ID F 36 |
|----------------------|--------------------|--------------------|
| Part No. | 787 680 NEW | 787 681 NEW |
| Size (international) | 34 (XS) | 36 (S) |

| Type | APT ID F 38 | APT ID F 40 |
|----------------------|--------------------|--------------------|
| Part No. | 787 682 NEW | 787 683 NEW |
| Size (international) | 38 (M) | 40 (M/L) |

| Type | APT ID F 42 | APT ID F 44 |
|----------------------|--------------------|--------------------|
| Part No. | 787 684 NEW | 787 685 NEW |
| Size (international) | 42 (L) | 44 (XL) |

| Type | APT ID F 46 | APT ID F 48 |
|----------------------|--------------------|--------------------|
| Part No. | 787 686 NEW | 787 687 NEW |
| Size (international) | 46 (XL/2XL) | 48 (2XL) |

| Type | APT ID F 50 | APT ID F 52 |
|----------------------|--------------------|--------------------|
| Part No. | 787 688 NEW | 787 689 NEW |
| Size (international) | 50 (2XL/3XL) | 52 (3XL) |

| Type | APT ID F 54 | APT ID F 56 |
|----------------------|--------------------|--------------------|
| Part No. | 787 690 NEW | 787 691 NEW |
| Size (international) | 54 (3XL/4XL) | 56 (4XL) |

*) Outer fabric after preparation

Arc-fault-tested protective trousers - configurable



| Type | APT ID KONFI |
|--|---|
| Part No. | 785 349 |
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc Rating - ATPV (Open Arc) | 18 cal / cm ² *) |
| Arc Rating - ELIM (Open Arc) | 13 cal / cm ² |
| PPE category (NFPA 70E) | PPE 2 |
| Weight per unit area | 450 g/m ² |
| Configurable: | |
| Primary colour | grey / black / dark blue / red / orange |
| Secondary colour | grey / black / dark blue / red / orange |
| Zipper | red / black |
| Logo | yes / no |
| Logo position (5) | Pocket left trouser leg |
| Size (international) | from 46 (XS) to 62 (3XL) |
| Design code / Attention: Please indicate the unique design code when ordering | |

*) Outer fabric after preparation

DEHNcare ArcFit Outdoor



Arc-fault-tested protective clothing with special properties for outdoor areas.

Best visibility to protect against accidents in any outdoor situation: this multinorm all-rounder fits every employee thanks to the variety of sizes and its modern cut. This clothing is comfortable all day due to its single layer material.

- Dirt-repellent and water-repellent
- Environmentally friendly - washable up to 60°
- Individual design - personal online configuration
- Certified according to PPE regulation (EU) 2016/425

Arc-fault-tested protective jacket - fluorescent yellow, standard men's sizes



| General technical data: | |
|--|-----------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc rating - ATPV (open arc) | 16 cal / cm ² *) |
| Arc rating - ELIM (open arc) | 13 cal / cm ² |
| PPE category (NFPA 70E) | PPE 2 |
| Weight per unit area | 300 g/m ² |
| Primary colour | fluorescent yellow |
| Secondary colour | grey |
| Zipper | red |
| Design code | JOYEGRRE0000P0000 |

| Type | APJ OD YE 42 | APJ OD YE 44 |
|----------------------|--------------------|--------------------|
| Part No. | 787 700 NEW | 787 701 NEW |
| Size (international) | 42 (2XS) | 44 (2XS/XS) |

| Type | APJ OD YE 46 | APJ OD YE 48 |
|----------------------|--------------|--------------|
| Part No. | 785 350 | 785 351 |
| Size (international) | 46 (XS) | 48 (S) |

| Type | APJ OD YE 50 | APJ OD YE 52 |
|----------------------|--------------|--------------|
| Part No. | 785 352 | 785 353 |
| Size (international) | 50 (M) | 52 (M/L) |

| Type | APJ OD YE 54 | APJ OD YE 56 |
|----------------------|--------------|--------------|
| Part No. | 785 354 | 785 355 |
| Size (international) | 54 (L) | 56 (XL) |

| Type | APJ OD YE 58 | APJ OD YE 60 |
|----------------------|--------------|--------------|
| Part No. | 785 356 | 785 357 |
| Size (international) | 58 (XL/2XL) | 60 (2XL) |

| Type | APJ OD YE 62 | APJ OD YE 64 |
|----------------------|--------------|--------------------|
| Part No. | 785 358 | 787 702 NEW |
| Size (international) | 62 (3XL) | 64 (3XL/4XL) |

| Type | APJ OD YE 66 | APJ OD YE 68 |
|----------------------|--------------------|--------------------|
| Part No. | 787 703 NEW | 787 704 NEW |
| Size (international) | 66 (4XL) | 68 (4XL/5XL) |

*) Outer fabric after preparation

| General technical data: | |
|--------------------------|--|
| Standard | IEC 61482-2, EN ISO 11612, EN 1149-5, EN ISO 20471, EN 13034, EN ISO 13688, EN ISO 11611 |
| Material | Modacrylic (40%), viscose (59%), static inhibitors (1%), PU membrane: meta-armid knitting (100%) |
| Material (sewing thread) | Kevlar (100%) |



Safety at a glance! Flame-resistant red zippers



Fully concealed zippers prevent the penetration of liquids



Arc-fault-tested protective trousers - fluorescent yellow, standard men's sizes



Configure your DEHNcare ArcFit according to your ideas.



| General technical data: | |
|--|-----------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc rating - ATPV (open arc) | 16 cal / cm ² *) |
| Arc rating - ELIM (open arc) | 13 cal / cm ² |
| PPE category (NFPA 70E) | PPE 2 |
| Weight per unit area | 300 g/m ² |
| Primary colour | fluorescent yellow |
| Secondary colour | grey |
| Zipper | red |
| Design code | TOYEGRRE0000P0 |

| Type | APT OD YE 42 | APT OD YE 44 |
|----------------------|--------------------|--------------------|
| Part No. | 787 750 NEW | 787 751 NEW |
| Size (international) | 42 (2XS) | 44 (2XS/XS) |

| Type | APT OD YE 46 | APT OD YE 48 |
|----------------------|--------------|--------------|
| Part No. | 785 360 | 785 361 |
| Size (international) | 46 (XS) | 48 (S) |

| Type | APT OD YE 50 | APT OD YE 52 |
|----------------------|--------------|--------------|
| Part No. | 785 362 | 785 363 |
| Size (international) | 50 (M) | 52 (M/L) |

| Type | APT OD YE 54 | APT OD YE 56 |
|----------------------|--------------|--------------|
| Part No. | 785 364 | 785 365 |
| Size (international) | 54 (L) | 56 (XL) |

| Type | APT OD YE 58 | APT OD YE 60 |
|----------------------|--------------|--------------|
| Part No. | 785 366 | 785 367 |
| Size (international) | 58 (XL/2XL) | 60 (2XL) |

| Type | APT OD YE 62 | APT OD YE 64 |
|----------------------|--------------|--------------------|
| Part No. | 785 368 | 787 752 NEW |
| Size (international) | 62 (3XL) | 64 (3XL/4XL) |

| Type | APT OD YE 66 | APT OD YE 68 |
|----------------------|--------------------|--------------------|
| Part No. | 787 753 NEW | 787 754 NEW |
| Size (international) | 66 (4XL) | 68 (4XL/5XL) |

*) Outer fabric after preparation

Arc-fault-tested protective jacket - fluorescent yellow, men's short sizes



| General technical data: | |
|--|-----------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc rating - ATPV (open arc) | 16 cal / cm ² *) |
| Arc rating - ELIM (open arc) | 13 cal / cm ² |
| PPE category (NFPA 70E) | PPE 2 |
| Weight per unit area | 300 g/m ² |
| Primary colour | fluorescent yellow |
| Secondary colour | grey |
| Zipper | red |
| Design code | JOYEGRRE0000P0000 |

| Type | APJ OD YE 22 | APJ OD YE 23 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 710 <small>NEW</small> | 787 711 <small>NEW</small> |
| Size (international) | 22 (2XS/XS-K) | 23 (XS-K) |

| Type | APJ OD YE 24 | APJ OD YE 25 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 712 <small>NEW</small> | 787 713 <small>NEW</small> |
| Size (international) | 24 (S-K) | 25 (M-K) |

| Type | APJ OD YE 26 | APJ OD YE 27 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 714 <small>NEW</small> | 787 715 <small>NEW</small> |
| Size (international) | 26 (M/L-K) | 27 (L-K) |

| Type | APJ OD YE 28 | APJ OD YE 29 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 716 <small>NEW</small> | 787 717 <small>NEW</small> |
| Size (international) | 28 (XL-K) | 29 (XL/2XL-K) |

| Type | APJ OD YE 30 |
|----------------------|----------------------------|
| Part No. | 787 718 <small>NEW</small> |
| Size (international) | 30 (2XL-K) |

*) Outer fabric after preparation

Arc-fault-tested protective jacket - fluorescent yellow, men's long sizes



| General technical data: | |
|--|-----------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc rating - ATPV (open arc) | 16 cal / cm ² *) |
| Arc rating - ELIM (open arc) | 13 cal / cm ² |
| PPE category (NFPA 70E) | PPE 2 |
| Weight per unit area | 300 g/m ² |
| Primary colour | fluorescent yellow |
| Secondary colour | grey |
| Zipper | red |
| Design code | JOYEGRRE0000P0000 |

| Type | APJ OD YE 90 | APJ OD YE 94 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 720 <small>NEW</small> | 787 721 <small>NEW</small> |
| Size (international) | 90 (XS-L) | 94 (S-L) |

| Type | APJ OD YE 98 | APJ OD YE 102 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 722 <small>NEW</small> | 787 723 <small>NEW</small> |
| Size (international) | 98 (M-L) | 102 (M/L-L) |

| Type | APJ OD YE 106 | APJ OD YE 110 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 724 <small>NEW</small> | 787 725 <small>NEW</small> |
| Size (international) | 106 (L-L) | 110 (XL-L) |

| Type | APJ OD YE 114 | APJ OD YE 118 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 726 <small>NEW</small> | 787 727 <small>NEW</small> |
| Size (international) | 114 (XL/2XL-L) | 118 (2XL-L) |

*) Outer fabric after preparation

Arc-fault-tested protective trousers - fluorescent yellow, men's short sizes



| General technical data: | |
|--|-----------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc rating - ATPV (open arc) | 16 cal / cm ² *) |
| Arc rating - ELIM (open arc) | 13 cal / cm ² |
| PPE category (NFPA 70E) | PPE 2 |
| Weight per unit area | 300 g/m ² |
| Primary colour | fluorescent yellow |
| Secondary colour | grey |
| Zipper | red |
| Design code | TOYEGRRE0000P0 |

| Type | APT OD YE 22 | APT OD YE 23 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 760 <small>NEW</small> | 787 761 <small>NEW</small> |
| Size (international) | 22 (2XS/XS-K) | 23 (XS-K) |

| Type | APT OD YE 24 | APT OD YE 25 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 762 <small>NEW</small> | 787 763 <small>NEW</small> |
| Size (international) | 24 (S-K) | 25 (M-K) |

| Type | APT OD YE 26 | APT OD YE 27 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 764 <small>NEW</small> | 787 765 <small>NEW</small> |
| Size (international) | 26 (M/L-K) | 27 (L-K) |

| Type | APT OD YE 28 | APT OD YE 29 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 766 <small>NEW</small> | 787 767 <small>NEW</small> |
| Size (international) | 28 (XL-K) | 29 (XL/2XL-K) |

| Type | APT OD YE 30 |
|----------------------|----------------------------|
| Part No. | 787 768 <small>NEW</small> |
| Size (international) | 30 (2XL-K) |

*) Outer fabric after preparation

Arc-fault-tested protective trousers - fluorescent yellow, men's long sizes



| General technical data: | |
|--|-----------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc rating - ATPV (open arc) | 16 cal / cm ² *) |
| Arc rating - ELIM (open arc) | 13 cal / cm ² |
| PPE category (NFPA 70E) | PPE 2 |
| Weight per unit area | 300 g/m ² |
| Primary colour | fluorescent yellow |
| Secondary colour | grey |
| Zipper | red |
| Design code | TOYEGRRE0000P0 |

| Type | APT OD YE 90 | APT OD YE 94 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 770 <small>NEW</small> | 787 771 <small>NEW</small> |
| Size (international) | 90 (XS-L) | 94 (S-L) |

| Type | APT OD YE 98 | APT OD YE 102 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 772 <small>NEW</small> | 787 773 <small>NEW</small> |
| Size (international) | 98 (M-L) | 102 (M/L-L) |

| Type | APT OD YE 106 | APT OD YE 110 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 774 <small>NEW</small> | 787 775 <small>NEW</small> |
| Size (international) | 106 (L-L) | 110 (XL-L) |

| Type | APT OD YE 114 | APT OD YE 118 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 776 <small>NEW</small> | 787 777 <small>NEW</small> |
| Size (international) | 114 (XL/2XL-L) | 118 (2XL-L) |

*) Outer fabric after preparation

Arc-fault-tested protective jacket - fluorescent yellow, standard ladies' sizes



General technical data:

| | |
|--|-----------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc rating - ATPV (open arc) | 16 cal / cm ² *) |
| Arc rating - ELIM (open arc) | 13 cal / cm ² |
| PPE category (NFPA 70E) | PPE 2 |
| Weight per unit area | 300 g/m ² |
| Primary colour | fluorescent yellow |
| Secondary colour | grey |
| Zipper | red |
| Design code | JOYEGRRE0000P0000 |

| | | |
|----------------------|-----------------------------------|-----------------------------------|
| Type | APJ OD YE F 34 | APJ OD YE F 36 |
| Part No. | 787 730 <small>NEW</small> | 787 731 <small>NEW</small> |
| Size (international) | 34 (XS) | 36 (S) |

| | | |
|----------------------|-----------------------------------|-----------------------------------|
| Type | APJ OD YE F 38 | APJ OD YE F 40 |
| Part No. | 787 732 <small>NEW</small> | 787 733 <small>NEW</small> |
| Size (international) | 38 (M) | 40 (M/L) |

| | | |
|----------------------|-----------------------------------|-----------------------------------|
| Type | APJ OD YE F 42 | APJ OD YE F 44 |
| Part No. | 787 734 <small>NEW</small> | 787 735 <small>NEW</small> |
| Size (international) | 42 (L) | 44 (XL) |

| | | |
|----------------------|-----------------------------------|-----------------------------------|
| Type | APJ OD YE F 46 | APJ OD YE F 48 |
| Part No. | 787 736 <small>NEW</small> | 787 737 <small>NEW</small> |
| Size (international) | 46 (XL/2XL) | 48 (2XL) |

| | | |
|----------------------|-----------------------------------|-----------------------------------|
| Type | APJ OD YE F 50 | APJ OD YE F 52 |
| Part No. | 787 738 <small>NEW</small> | 787 739 <small>NEW</small> |
| Size (international) | 50 (2XL/3XL) | 52 (3XL) |

| | | |
|----------------------|-----------------------------------|-----------------------------------|
| Type | APJ OD YE F 54 | APJ OD YE F 56 |
| Part No. | 787 740 <small>NEW</small> | 787 741 <small>NEW</small> |
| Size (international) | 54 (3XL/4XL) | 56 (4XL) |

*) Outer fabric after preparation

Arc-fault-tested protective trousers - fluorescent yellow, standard ladies' sizes



General technical data:

| | |
|--|-----------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc rating - ATPV (open arc) | 16 cal / cm ² *) |
| Arc rating - ELIM (open arc) | 13 cal / cm ² |
| PPE category (NFPA 70E) | PPE 2 |
| Weight per unit area | 300 g/m ² |
| Primary colour | fluorescent yellow |
| Secondary colour | grey |
| Zipper | red |
| Design code | TOYEGRRE0000P0 |

| | | |
|----------------------|-----------------------------------|-----------------------------------|
| Type | APT OD YE F 34 | APT OD YE F 36 |
| Part No. | 787 780 <small>NEW</small> | 787 781 <small>NEW</small> |
| Size (international) | 34 (XS) | 36 (S) |

| | | |
|----------------------|-----------------------------------|-----------------------------------|
| Type | APT OD YE F 38 | APT OD YE F 40 |
| Part No. | 787 782 <small>NEW</small> | 787 783 <small>NEW</small> |
| Size (international) | 38 (M) | 40 (M/L) |

| | | |
|----------------------|-----------------------------------|-----------------------------------|
| Type | APT OD YE F 42 | APT OD YE F 44 |
| Part No. | 787 784 <small>NEW</small> | 787 785 <small>NEW</small> |
| Size (international) | 42 (L) | 44 (XL) |

| | | |
|----------------------|-----------------------------------|-----------------------------------|
| Type | APT OD YE F 46 | APT OD YE F 48 |
| Part No. | 787 786 <small>NEW</small> | 787 787 <small>NEW</small> |
| Size (international) | 46 (XL/2XL) | 48 (2XL) |

| | | |
|----------------------|-----------------------------------|-----------------------------------|
| Type | APT OD YE F 50 | APT OD YE F 52 |
| Part No. | 787 788 <small>NEW</small> | 787 789 <small>NEW</small> |
| Size (international) | 50 (2XL/3XL) | 52 (3XL) |

| | | |
|----------------------|-----------------------------------|-----------------------------------|
| Type | APT OD YE F 54 | APT OD YE F 56 |
| Part No. | 787 790 <small>NEW</small> | 787 791 <small>NEW</small> |
| Size (international) | 54 (3XL/4XL) | 56 (4XL) |

*) Outer fabric after preparation



Arc-fault-tested protective jacket - fluorescent orange, standard men's sizes



| General technical data: | |
|--|-----------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc rating - ATPV (open arc) | 16 cal / cm ² *) |
| Arc rating - ELIM (open arc) | 13 cal / cm ² |
| PPE category (NFPA 70E) | PPE 2 |
| Weight per unit area | 300 g/m ² |
| Primary colour | fluorescent orange |
| Secondary colour | grey |
| Zipper | red |
| Design code | JOORGRRE0000P0000 |

| Type | APJ OD OG 42 | APJ OD OG 44 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 800 <small>NEW</small> | 787 801 <small>NEW</small> |
| Size (international) | 42 (2XS) | 44 (2XS/XS) |

| Type | APJ OD OG 46 | APJ OD OG 48 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 350 <small>NEW</small> | 787 351 <small>NEW</small> |
| Size (international) | 46 (XS) | 48 (S) |

| Type | APJ OD OG 50 | APJ OD OG 52 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 352 <small>NEW</small> | 787 353 <small>NEW</small> |
| Size (international) | 50 (M) | 52 (M/L) |

| Type | APJ OD OG 54 | APJ OD OG 56 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 354 <small>NEW</small> | 787 355 <small>NEW</small> |
| Size (international) | 54 (L) | 56 (XL) |

| Type | APJ OD OG 58 | APJ OD OG 60 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 356 <small>NEW</small> | 787 357 <small>NEW</small> |
| Size (international) | 58 (XL/2XL) | 60 (2XL) |

| Type | APJ OD OG 62 | APJ OD OG 64 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 358 <small>NEW</small> | 787 802 <small>NEW</small> |
| Size (international) | 62 (3XL) | 64 (3XL/4XL) |

| Type | APJ OD OG 66 | APJ OD OG 68 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 803 <small>NEW</small> | 787 804 <small>NEW</small> |
| Size (international) | 66 (4XL) | 68 (4XL/5XL) |

*) Outer fabric after preparation

Arc-fault-tested protective trousers - fluorescent orange, standard men's sizes



| General technical data: | |
|--|-----------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc rating - ATPV (open arc) | 16 cal / cm ² *) |
| Arc rating - ELIM (open arc) | 13 cal / cm ² |
| PPE category (NFPA 70E) | PPE 2 |
| Weight per unit area | 300 g/m ² |
| Primary colour | fluorescent orange |
| Secondary colour | grey |
| Zipper | red |
| Design code | TOORGRRE0000P0 |

| Type | APT OD OG 42 | APT OD OG 44 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 850 <small>NEW</small> | 787 851 <small>NEW</small> |
| Size (international) | 42 (2XS) | 44 (2XS/XS) |

| Type | APT OD OG 46 | APT OD OG 48 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 360 <small>NEW</small> | 787 361 <small>NEW</small> |
| Size (international) | 46 (XS) | 48 (S) |

| Type | APT OD OG 50 | APT OD OG 52 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 362 <small>NEW</small> | 787 363 <small>NEW</small> |
| Size (international) | 50 (M) | 52 (M/L) |

| Type | APT OD OG 54 | APT OD OG 56 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 364 <small>NEW</small> | 787 365 <small>NEW</small> |
| Size (international) | 54 (L) | 56 (XL) |

| Type | APT OD OG 58 | APT OD OG 60 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 366 <small>NEW</small> | 787 367 <small>NEW</small> |
| Size (international) | 58 (XL/2XL) | 60 (2XL) |

| Type | APT OD OG 62 | APT OD OG 64 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 368 <small>NEW</small> | 787 852 <small>NEW</small> |
| Size (international) | 62 (3XL) | 64 (3XL/4XL) |

| Type | APT OD OG 66 | APT OD OG 68 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 853 <small>NEW</small> | 787 854 <small>NEW</small> |
| Size (international) | 66 (4XL) | 68 (4XL/5XL) |

*) Outer fabric after preparation



Arc-fault-tested protective jacket - fluorescent orange, men's short sizes



| General technical data: | |
|--|-----------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc rating - ATPV (open arc) | 16 cal / cm ² *) |
| Arc rating - ELIM (open arc) | 13 cal / cm ² |
| PPE category (NFPA 70E) | PPE 2 |
| Weight per unit area | 300 g/m ² |
| Primary colour | fluorescent orange |
| Secondary colour | grey |
| Zipper | red |
| Design code | JOORGRRE0000P0000 |

| Type | APJ OD OG 22 | APJ OD OG 23 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 810 <small>NEW</small> | 787 811 <small>NEW</small> |
| Size (international) | 22 (2XS/XS-K) | 23 (XS-K) |

| Type | APJ OD OG 24 | APJ OD OG 25 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 812 <small>NEW</small> | 787 813 <small>NEW</small> |
| Size (international) | 24 (S-K) | 25 (M-K) |

| Type | APJ OD OG 26 | APJ OD OG 27 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 814 <small>NEW</small> | 787 815 <small>NEW</small> |
| Size (international) | 26 (M/L-K) | 27 (L-K) |

| Type | APJ OD OG 28 | APJ OD OG 29 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 816 <small>NEW</small> | 787 817 <small>NEW</small> |
| Size (international) | 28 (XL-K) | 29 (XL/2XL-K) |

| Type | APJ OD OG 30 |
|----------------------|----------------------------|
| Part No. | 787 818 <small>NEW</small> |
| Size (international) | 30 (2XL-K) |

*) Outer fabric after preparation

Arc-fault-tested protective jacket - fluorescent orange, men's long sizes



| General technical data: | |
|--|-----------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc rating - ATPV (open arc) | 16 cal / cm ² *) |
| Arc rating - ELIM (open arc) | 13 cal / cm ² |
| PPE category (NFPA 70E) | PPE 2 |
| Weight per unit area | 300 g/m ² |
| Primary colour | fluorescent orange |
| Secondary colour | grey |
| Zipper | red |
| Design code | JOORGRRE0000P0000 |

| Type | APJ OD OG 90 | APJ OD OG 94 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 820 <small>NEW</small> | 787 821 <small>NEW</small> |
| Size (international) | 90 (XS-L) | 94 (S-L) |

| Type | APJ OD OG 98 | APJ OD OG 102 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 822 <small>NEW</small> | 787 823 <small>NEW</small> |
| Size (international) | 98 (M-L) | 102 (M/L-L) |

| Type | APJ OD OG 106 | APJ OD OG 110 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 824 <small>NEW</small> | 787 825 <small>NEW</small> |
| Size (international) | 106 (L-L) | 110 (XL-L) |

| Type | APJ OD OG 114 | APJ OD OG 118 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 826 <small>NEW</small> | 787 827 <small>NEW</small> |
| Size (international) | 114 (XL/2XL-L) | 118 (2XL-L) |

*) Outer fabric after preparation

Arc-fault-tested protective trousers - fluorescent orange, men's short sizes



| General technical data: | |
|--|-----------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc rating - ATPV (open arc) | 16 cal / cm ² *) |
| Arc rating - ELIM (open arc) | 13 cal / cm ² |
| PPE category (NFPA 70E) | PPE 2 |
| Weight per unit area | 300 g/m ² |
| Primary colour | fluorescent orange |
| Secondary colour | grey |
| Zipper | red |
| Design code | TOORGRRE0000P0 |

| Type | APT OD OG 22 | APT OD OG 23 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 860 <small>NEW</small> | 787 861 <small>NEW</small> |
| Size (international) | 22 (2XS/XS-K) | 23 (XS-K) |

| Type | APT OD OG 24 | APT OD OG 25 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 862 <small>NEW</small> | 787 863 <small>NEW</small> |
| Size (international) | 24 (S-K) | 25 (M-K) |

| Type | APT OD OG 26 | APT OD OG 27 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 864 <small>NEW</small> | 787 865 <small>NEW</small> |
| Size (international) | 26 (M/L-K) | 27 (L-K) |

| Type | APT OD OG 28 | APT OD OG 29 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 866 <small>NEW</small> | 787 867 <small>NEW</small> |
| Size (international) | 28 (XL-K) | 29 (XL/2XL-K) |

| Type | APT OD OG 30 |
|----------------------|----------------------------|
| Part No. | 787 868 <small>NEW</small> |
| Size (international) | 30 (2XL-K) |

*) Outer fabric after preparation

Arc-fault-tested protective trousers - fluorescent orange, men's long sizes



| General technical data: | |
|--|-----------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc rating - ATPV (open arc) | 16 cal / cm ² *) |
| Arc rating - ELIM (open arc) | 13 cal / cm ² |
| PPE category (NFPA 70E) | PPE 2 |
| Weight per unit area | 300 g/m ² |
| Primary colour | fluorescent orange |
| Secondary colour | grey |
| Zipper | red |
| Design code | TOORGRRE0000P0 |

| Type | APT OD OG 90 | APT OD OG 94 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 870 <small>NEW</small> | 787 871 <small>NEW</small> |
| Size (international) | 90 (XS-L) | 94 (S-L) |

| Type | APT OD OG 98 | APT OD OG 102 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 872 <small>NEW</small> | 787 873 <small>NEW</small> |
| Size (international) | 98 (M-L) | 102 (M/L-L) |

| Type | APT OD OG 106 | APT OD OG 110 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 874 <small>NEW</small> | 787 875 <small>NEW</small> |
| Size (international) | 106 (L-L) | 110 (XL-L) |

| Type | APT OD OG 114 | APT OD OG 118 |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 876 <small>NEW</small> | 787 877 <small>NEW</small> |
| Size (international) | 114 (XL/2XL-L) | 118 (2XL-L) |

*) Outer fabric after preparation

Arc-fault-tested protective jacket - fluorescent orange, standard ladies' sizes



| General technical data: | |
|--|-----------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc rating - ATPV (open arc) | 16 cal / cm ² *) |
| Arc rating - ELIM (open arc) | 13 cal / cm ² |
| PPE category (NFPA 70E) | PPE 2 |
| Weight per unit area | 300 g/m ² |
| Primary colour | fluorescent orange |
| Secondary colour | grey |
| Zipper | red |
| Design code | JOORGRRE0000P0000 |

| Type | APJ OD OG F 34 | APJ OD OG F 36 |
|----------------------|--------------------|--------------------|
| Part No. | 787 830 NEW | 787 831 NEW |
| Size (international) | 34 (XS) | 36 (S) |

| Type | APJ OD OG F 38 | APJ OD OG F 40 |
|----------------------|--------------------|--------------------|
| Part No. | 787 832 NEW | 787 833 NEW |
| Size (international) | 38 (M) | 40 (M/L) |

| Type | APJ OD OG F 42 | APJ OD OG F 44 |
|----------------------|--------------------|--------------------|
| Part No. | 787 834 NEW | 787 835 NEW |
| Size (international) | 42 (L) | 44 (XL) |

| Type | APJ OD OG F 46 | APJ OD OG F 48 |
|----------------------|--------------------|--------------------|
| Part No. | 787 836 NEW | 787 837 NEW |
| Size (international) | 46 (XL/2XL) | 48 (2XL) |

| Type | APJ OD OG F 50 | APJ OD OG F 52 |
|----------------------|--------------------|--------------------|
| Part No. | 787 838 NEW | 787 839 NEW |
| Size (international) | 50 (2XL/3XL) | 52 (3XL) |

| Type | APJ OD OG F 54 | APJ OD OG F 56 |
|----------------------|--------------------|--------------------|
| Part No. | 787 840 NEW | 787 841 NEW |
| Size (international) | 54 (3XL/4XL) | 56 (4XL) |

*) Outer fabric after preparation

Arc-fault-tested protective trousers - fluorescent orange, standard ladies' sizes



| General technical data: | |
|--|-----------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc rating - ATPV (open arc) | 16 cal / cm ² *) |
| Arc rating - ELIM (open arc) | 13 cal / cm ² |
| PPE category (NFPA 70E) | PPE 2 |
| Weight per unit area | 300 g/m ² |
| Primary colour | fluorescent orange |
| Secondary colour | grey |
| Zipper | red |
| Design code | TOORGRRE0000P0 |

| Type | APT OD OG F 34 | APT OD OG F 36 |
|----------------------|--------------------|--------------------|
| Part No. | 787 880 NEW | 787 881 NEW |
| Size (international) | 34 (XS) | 36 (S) |

| Type | APT OD OG F 38 | APT OD OG F 40 |
|----------------------|--------------------|--------------------|
| Part No. | 787 882 NEW | 787 883 NEW |
| Size (international) | 38 (M) | 40 (M/L) |

| Type | APT OD OG F 42 | APT OD OG F 44 |
|----------------------|--------------------|--------------------|
| Part No. | 787 884 NEW | 787 885 NEW |
| Size (international) | 42 (L) | 44 (XL) |

| Type | APT OD OG F 46 | APT OD OG F 48 |
|----------------------|--------------------|--------------------|
| Part No. | 787 886 NEW | 787 887 NEW |
| Size (international) | 46 (XL/2XL) | 48 (2XL) |

| Type | APT OD OG F 50 | APT OD OG F 52 |
|----------------------|--------------------|--------------------|
| Part No. | 787 888 NEW | 787 889 NEW |
| Size (international) | 50 (2XL/3XL) | 52 (3XL) |

| Type | APT OD OG F 54 | APT OD OG F 56 |
|----------------------|--------------------|--------------------|
| Part No. | 787 890 NEW | 787 891 NEW |
| Size (international) | 54 (3XL/4XL) | 56 (4XL) |

*) Outer fabric after preparation

Arc-fault-tested protective jacket - configurable



| Type | APJ OD KONFI |
|--|--|
| Part No. | 785 359 |
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc rating - ATPV (open arc) | 16 cal / cm ² *) |
| Arc rating - ELIM (open arc) | 13 cal / cm ² |
| PPE category (NFPA 70E) | PPE 2 |
| Weight per unit area | 300 g/m ² |
| Configurable: | |
| Primary colour | fluorescent yellow / fluorescent orange |
| Secondary colour | grey / black |
| Zipper | red / black |
| Logo | yes / no |
| Logo position (1-4) | chest right / stand-up collar left / stand-up collar back / back |
| Name | yes / no (max. 22 characters) |
| Size (international) | from 46 (XS) to 62 (3XL) |
| Design code / Attention: Please indicate the unique design code when ordering | |

*) Outer fabric after preparation

Arc-fault-tested protective trousers - configurable



| Type | APT OD KONFI |
|--|---|
| Part No. | 785 369 |
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc rating - ATPV (open arc) | 16 cal / cm ² *) |
| Arc rating - ELIM (open arc) | 13 cal / cm ² |
| PPE category (NFPA 70E) | PPE 2 |
| Weight per unit area | 300 g/m ² |
| Configurable: | |
| Primary colour | fluorescent yellow / fluorescent orange |
| Secondary colour | grey / black |
| Zipper | red / black |
| Logo | yes / no |
| Logo position (5) | Pocket left trouser leg |
| Size (international) | from 46 (XS) to 62 (3XL) |
| Design code / Attention: Please indicate the unique design code when ordering | |

*) Outer fabric after preparation

Accessories for DEHNcare ArcFit Protective Trousers

Belt for APT ID / OD, flame-retardant



- Elastic

General technical data:

| | |
|--------|-------|
| Colour | black |
|--------|-------|

| Type | APA B 80 | APA B 90 |
|--------------------------|----------------|----------------|
| Part No. | 785 377 | 785 370 |
| Length | 80 cm | 90 cm |
| - Men's standard sizes | 42 | 44 + 46 |
| - Men's short sizes | - | 22 + 23 |
| - Men's long sizes | - | 90 |
| - Ladies' standard sizes | 34 + 36 | 38 + 40 |

| Type | APA B 100 | APA B 110 |
|--------------------------|----------------|----------------|
| Part No. | 785 371 | 785 372 |
| Length | 100 cm | 110 cm |
| - Men's standard sizes | 48 + 50 | 52 + 54 |
| - Men's short sizes | 24 + 25 | 26 + 27 |
| - Men's long sizes | 94 + 98 | 102 + 106 |
| - Ladies' standard sizes | 42 + 44 | 46 + 48 |

| Type | APA B 120 | APA B 130 |
|--------------------------|----------------|----------------|
| Part No. | 785 373 | 785 374 |
| Length | 120 cm | 130 cm |
| - Men's standard sizes | 56 + 58 | 60 + 62 |
| - Men's short sizes | 28 + 29 | 30 |
| - Men's long sizes | 110 + 114 | 118 |
| - Ladies' standard sizes | 50 + 52 | 54 + 56 |

| Type | APA B 140 | APA B 150 |
|--------------------------|----------------|----------------|
| Part No. | 785 375 | 785 376 |
| Length | 140 cm | 150 cm |
| - Men's standard sizes | 64 + 66 | 68 |
| - Men's short sizes | - | - |
| - Men's long sizes | - | - |
| - Ladies' standard sizes | - | - |

DEHNcare UnderWear



Increase the protection level of your PPE against arc faults with the new UnderWear.

A layered clothing principle increases the level of protection in conjunction with DEHNcare ArcFit.

- Bicolour polo shirt, arc fault protection class APC 1; high-visibility clothing class 1
- Certified according to PPE regulation (EU) 2016/425

General technical data:

| | |
|----------|--|
| Standard | IEC 61482-2, EN ISO 11612, EN 1149-5, EN ISO 20471 |
|----------|--|

Arc-fault-tested polo shirt, long-sleeved



General technical data:

| | |
|--|---|
| Arc fault protection class (box test 4 kA/0.5 s - single-pole) | APC 1 |
| Arc power (W_{arc} or W_{LBP}) | 168 kJ |
| Arc Rating - ATPV (Open Arc Test) | 5.4 cal / cm ² |
| Material | Cotton (50%), modacrylic (39%), viscose (10%), static inhibitors (1%) |
| Weight per unit area | 160 g/m ² |
| Colour | fluorescent yellow/blue |
| High-visibility clothing class | 1 |

| Type | APPS BC XS | APPS BC S |
|----------------------|-----------------------------------|-----------------------------------|
| Part No. | 787 001 <small>NEW</small> | 787 002 <small>NEW</small> |
| Size (international) | XS | S |

| Type | APPS BC M | APPS BC L |
|----------------------|-----------------------------------|-----------------------------------|
| Part No. | 787 003 <small>NEW</small> | 787 004 <small>NEW</small> |
| Size (international) | M | L |

| Type | APPS BC XL | APPS BC 2XL |
|----------------------|-----------------------------------|-----------------------------------|
| Part No. | 787 005 <small>NEW</small> | 787 006 <small>NEW</small> |
| Size (international) | XL | 2XL |

| Type | APPS BC 3XL | APPS BC 4XL |
|----------------------|-----------------------------------|-----------------------------------|
| Part No. | 787 007 <small>NEW</small> | 787 008 <small>NEW</small> |
| Size (international) | 3XL | 4XL |

Arc-fault-tested undershirt, long-sleeved



General technical data:

| | | |
|---|---|--|
| Arc fault protection class (box test 4 kA/0.5 s - single-pole) | APC 1 | |
| Arc power (W_{arc} or W_{LBP}) | 168 kJ | |
| Arc Rating - ATPV (Open Arc Test) | 4.1 cal / cm ² | |
| In combination with DEHNcare ArcFit Indoor | 31 cal / cm ² | |
| In combination with DEHNcare ArcFit Outdoor | 37 cal / cm ² | |
| Arc Rating - ELIM (in combination with DEHNcare ArcFit Indoor) | 28 cal / cm ² | |
| Arc Rating - ELIM (in combination with DEHNcare ArcFit Outdoor) | 34 cal / cm ² | |
| Material | Cotton (50%), modacrylic (39%), viscose (10%), static inhibitors (1%) | |
| Weight per unit area | 160 g/m ² | |
| Colour | blue | |

| Type | APUS XS | APUS S |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 011 <small>NEW</small> | 787 012 <small>NEW</small> |
| Size (international) | XS | S |

| Type | APUS M | APUS L |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 013 <small>NEW</small> | 787 014 <small>NEW</small> |
| Size (international) | M | L |

| Type | APUS XL | APUS 2XL |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 015 <small>NEW</small> | 787 016 <small>NEW</small> |
| Size (international) | XL | 2XL |

| Type | APUS 3XL | APUS 4XL |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 017 <small>NEW</small> | 787 018 <small>NEW</small> |
| Size (international) | 3XL | 4XL |

Arc-fault-tested underpants



General technical data:

| | | |
|---|---|--|
| Arc fault protection class (box test 4 kA/0.5 s - single-pole) | APC 1 | |
| Arc power (W_{arc} or W_{LBP}) | 168 kJ | |
| Arc Rating - ATPV (Open Arc Test) | 4.1 cal / cm ² | |
| In combination with DEHNcare ArcFit Indoor | 31 cal / cm ² | |
| In combination with DEHNcare ArcFit Outdoor | 37 cal / cm ² | |
| Arc Rating - ELIM (in combination with DEHNcare ArcFit Indoor) | 28 cal / cm ² | |
| Arc Rating - ELIM (in combination with DEHNcare ArcFit Outdoor) | 34 cal / cm ² | |
| Material | Cotton (50%), modacrylic (39%), viscose (10%), static inhibitors (1%) | |
| Weight per unit area | 160 g/m ² | |
| Colour | blue | |

| Type | APUP XS | APUP S |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 021 <small>NEW</small> | 787 022 <small>NEW</small> |
| Size (international) | XS | S |

| Type | APUP M | APUP L |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 023 <small>NEW</small> | 787 024 <small>NEW</small> |
| Size (international) | M | L |

| Type | APUP XL | APUP 2XL |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 025 <small>NEW</small> | 787 026 <small>NEW</small> |
| Size (international) | XL | 2XL |

| Type | APUP 3XL | APUP 4XL |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 027 <small>NEW</small> | 787 028 <small>NEW</small> |
| Size (international) | 3XL | 4XL |

DEHNcare ArcFit HLP 63



Personal protective clothing for work on electrical installations with higher energies.

- All-round protection with arc flash protection class APC 2 - PPE 4 as per NFPA 70E
- Even more safety for demanding work - APC 2 also with increased arc energy of 630 kJ (W_{arc} or W_{LBP})
- Environmentally friendly - washable up to 60°
- Certified according to PPE regulation (EU) 2016/425

General technical data:

| | |
|--|--|
| Standard | IEC 61482-2, EN ISO 11612, EN 1149-5, EN ISO 13688, EN ISO 11611, EN 17353, ASTM F1959 |
| Material - outer fabric | Modacrylic (46%), HT viscose (22%), FR viscose (18%), para-aramid (12%), static inhibitors (2%) |
| Material - lining / non-woven material | Lining: Aramid (34%), FR viscose (34%), Reg. viscose (32%) / non-woven material: FR viscose (85%), para-aramid (15%) |
| Material (sewing thread) | Kevlar (100%) |

Arc-fault-tested protective jacket



General technical data:

| | | |
|---|--------------------------|--|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 | |
| Arc energy (W_{arc} or W_{LBP}) | 320 kJ | |
| Extended electric arc energy (W_{arc} or W_{LBP}) (based on box test) | 630 kJ | |
| Arc Rating - ATPV (Open Arc) | 63 cal / cm ² | |
| Arc Rating - ELIM (Open Arc) | 58 cal / cm ² | |
| PPE category (NFPA 70E) | PPE 4 | |
| Outer fabric weight per unit area | 225 g / m ² | |
| Lining / non-woven material weight per unit area | 430 g / m ² | |
| Colour | navy blue | |
| Zipper | red | |

| Type | APJ 63C S | APJ 63C M |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 370 <small>NEW</small> | 787 371 <small>NEW</small> |
| Size (international) | 48 (S) | 50/52 (M) |

| Type | APJ 63C L | APJ 63C XL |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 372 <small>NEW</small> | 787 373 <small>NEW</small> |
| Size (international) | 52/54 (L) | 56/58 (XL) |

| Type | APJ 63C 2XL | APJ 63C 3XL |
|----------------------|----------------------------|----------------------------|
| Part No. | 787 374 <small>NEW</small> | 787 375 <small>NEW</small> |
| Size (international) | 58/60 (2XL) | 62/64 (3XL) |

| Type | APJ 63C 4XL |
|----------------------|----------------------------|
| Part No. | 787 376 <small>NEW</small> |
| Size (international) | 64/66 (4XL) |

Arc-fault-tested protective trousers (bib overall as over-trousers)



General technical data:

| | |
|---|--------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W_{arc} or W_{LBP}) | 320 kJ |
| Extended electric arc energy (W_{arc} or W_{LBP}) (based on box test) | 630 kJ |
| Arc Rating - ATPV (Open Arc) | 63 cal / cm ² |
| Arc Rating - ELIM (Open Arc) | 58 cal / cm ² |
| PPE category (NFPA 70E) | PPE 4 |
| Outer fabric weight per unit area | 225 g / m ² |
| Lining / non-woven material weight per unit area | 430 g / m ² |
| Colour | navy blue |
| Zipper | red |

| | | |
|----------------------|-----------------------------------|-----------------------------------|
| Type | APD 63C S | APD 63C M |
| Part No. | 787 380 <small>NEW</small> | 787 381 <small>NEW</small> |
| Size (international) | 48 (S) | 50/52 (M) |

| | | |
|----------------------|-----------------------------------|-----------------------------------|
| Type | APD 63C L | APD 63C XL |
| Part No. | 787 382 <small>NEW</small> | 787 383 <small>NEW</small> |
| Size (international) | 52/54 (L) | 56/58 (XL) |

| | | |
|----------------------|-----------------------------------|-----------------------------------|
| Type | APD 63C 2XL | APD 63C 3XL |
| Part No. | 787 384 <small>NEW</small> | 787 385 <small>NEW</small> |
| Size (international) | 58/60 (2XL) | 62/64 (3XL) |

| | |
|----------------------|-----------------------------------|
| Type | APD 63C 4XL |
| Part No. | 787 386 <small>NEW</small> |
| Size (international) | 64/66 (4XL) |

DEHNcare ArcClassic



The ArcClassic is ideal as protective equipment in transformer stations and switchgear installations for non-routine switching operations.

- Comfortable to wear due to the use of breathable leather and neoprene
- Flame-retardant zippers and hook-and-loop fasteners
- Reflective strips
- Certified according to PPE regulation (EU) 2016/425

General technical data:

| | |
|--------------------------|---|
| Standard | IEC 61482-2, EN ISO 14116 |
| Outer material | Siliconised calf grain leather, 100% Kevlar® interlock knit |
| Inner material | 100% cotton |
| Material (sewing thread) | 100% Kevlar® |



Jacket with reinforced stand-up collar and useful side arm pockets.



Trousers with adjustable belt and useful leg pockets.

Arc-fault-tested protective coat

- Reinforced stand-up collar
- Useful side arm pockets
- Zip and hook-and-loop fasteners



General technical data:

| | |
|---|----------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W_{arc} or W_{LBP}) | 320 kJ |
| Extended electric arc energy (W_{arc} or W_{LBP}) (based on box test) | 630 kJ |
| EuroTest PIP001 (10 kA / 1 s - three-pole) | Yes |
| Arc Rating - ATPV (Open Arc Test) | 33.1 cal / cm ² |
| PPE category (NFPA 70E) | PPE 3 |

| | | |
|----------------------|------------------|------------------|
| Type | APC 48 50 | APC 52 54 |
| Part No. | 785 755 | 785 756 |
| Size (international) | 48 / 50 (M) | 52 / 54 (L) |

| | | |
|----------------------|------------------|------------------|
| Type | APC 56 58 | APC 60 62 |
| Part No. | 785 757 | 785 758 |
| Size (international) | 56 / 58 (XL) | 60 / 62 (XXL) |

| | |
|----------------------|------------------|
| Type | APC 64 66 |
| Part No. | 785 759 |
| Size (international) | 64 / 66 (3XL) |

Arc-fault-tested protective jacket

- Reinforced stand-up collar
- Useful side arm pockets
- Zip and hook-and-loop fastener



General technical data:

| | | |
|---|----------------------------|--|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 | |
| Arc energy (W_{arc} or W_{LBP}) | 320 kJ | |
| Extended electric arc energy (W_{arc} or W_{LBP}) (based on box test) | 630 kJ | |
| EuroTest PIP001 (10 kA / 1 s - three-pole) | Yes | |
| Arc Rating - ATPV (Open Arc Test) | 33.1 cal / cm ² | |
| PPE category (NFPA 70E) | PPE 3 | |

| | | |
|----------------------|----------------|----------------|
| Type | APJ 46 | APJ 48 |
| Part No. | 785 769 | 785 770 |
| Size (international) | 46 (XS) | 48 (S) |

| | | |
|----------------------|----------------|----------------|
| Type | APJ 50 | APJ 52 |
| Part No. | 785 771 | 785 772 |
| Size (international) | 50 (M) | 52 (L) |

| | | |
|----------------------|----------------|----------------|
| Type | APJ 54 | APJ 56 |
| Part No. | 785 773 | 785 774 |
| Size (international) | 54 (XL) | 56 (XXL) |

| | |
|----------------------|----------------|
| Type | APJ 58 |
| Part No. | 785 775 |
| Size (international) | 58 (3XL) |

Arc-fault-tested protective trousers

- Knee pads and pair of braces included
- Pockets for knee pads
- Adjustable belt



General technical data:

| | | |
|---|----------------------------|--|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | PC 2 | |
| Arc energy (W_{arc} or W_{LBP}) | 320 kJ | |
| Extended electric arc energy (W_{arc} or W_{LBP}) (based on box test) | 630 kJ | |
| Arc Rating - ATPV (Open Arc Test) | 29.2 cal / cm ² | |
| PPE category (NFPA 70E) | PPE 3 | |

| | | |
|----------------------|----------------|----------------|
| Type | APT 46 | APT 48 |
| Part No. | 785 779 | 785 780 |
| Size (international) | 46 (XS) | 48 (S) |

| | | |
|----------------------|----------------|----------------|
| Type | APT 50 | APT 52 |
| Part No. | 785 781 | 785 782 |
| Size (international) | 50 (M) | 52 (L) |

| | | |
|----------------------|----------------|----------------|
| Type | APT 54 | APT 56 |
| Part No. | 785 783 | 785 784 |
| Size (international) | 54 (XL) | 56 (XXL) |

| | |
|----------------------|----------------|
| Type | APT 58 |
| Part No. | 785 785 |
| Size (international) | 58 (3XL) |

In case of very heavy soiling, the protective trousers can be dry cleaned by a specialist leather cleaner.

Accessories for DEHNcare ArcClassic Protective Trousers

Pair of braces

For arc-fault-tested protective trousers with four hook-and-loop fasteners.



| | |
|-----------------|----------------|
| Type | APA B |
| Part No. | 785 788 |
| Colour | Black 1 |

Knee pads

For arc-fault-tested protective trousers, to be inserted into the lining of the trouser legs (slit pockets).



| | |
|-----------------|----------------|
| Type | APA KP |
| Part No. | 785 789 |
| Material | Foam |

DEHNcare APG XT



Arc-fault-tested protective gloves of protection class APC 2 150 for working on electrical installations.

- First gloves on the German market which have obtained protection class APC 2 at 150 mm in accordance with the GS-ET 42-2 test principle.
- The wearing comfort previously offered through a tried-and-tested combination of leather and neoprene remains in place in the new model despite the greater protective effect
- The gauntlet length of 100 mm in the normal design (APG) has been lengthened to 140 mm in the APG XT
- Certified according to PPE regulation (EU) 2016/425

General technical data:

| | |
|--------------------------|--|
| Standard | GS-ET 42-2, ASTM F2675, EN 388, EN 407 |
| Material (glove palm) | Siliconised calf grain leather |
| Material (glove back) | 100% Kevlar interlock knit |
| Material (sewing thread) | Kevlar |

Arc-fault-tested protective glove, protection class: APC 2 150



| General technical data: | |
|--|--------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 150 |
| Arc energy (W_{arc} or W_{LBP}) | 320 kJ |
| Arc Rating - ATPV (Open Arc Test) | 40 cal / cm ² |
| PPE category (NFPA 70E) | PPE 4 |
| Gauntlet length | 140 mm |

| Type APG XT ... | 7 APC 2 150 | 8 APC 2 150 |
|----------------------|----------------------------|----------------------------|
| Part No. | 785 830 <small>NEW</small> | 785 831 <small>NEW</small> |
| Total length | 330 mm | 335 mm |
| Size (international) | 7 (S) | 8 (M) |

| Type APG XT ... | 9 APC 2 150 | 10 APC 2 150 |
|----------------------|----------------------------|----------------------------|
| Part No. | 785 832 <small>NEW</small> | 785 833 <small>NEW</small> |
| Total length | 340 mm | 350 mm |
| Size (international) | 9 (L) | 10 (XL) |

| Type APG XT ... | 11 APC 2 150 | 12 APC 2 150 |
|----------------------|----------------------------|----------------------------|
| Part No. | 785 834 <small>NEW</small> | 785 835 <small>NEW</small> |
| Total length | 355 mm | 360 mm |
| Size (international) | 11 (XXL) | 12 (3XL) |

| Type APG XT ... | 13 APC 2 150 |
|----------------------|----------------------------|
| Part No. | 785 836 <small>NEW</small> |
| Total length | 365 mm |
| Size (international) | 13 (4XL) |

Arc-fault-tested protective gloves with long gauntlet, protection class: APC 2 150



| General technical data: | |
|--|--------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 150 |
| Arc energy (W_{arc} or W_{LBP}) | 320 kJ |
| Arc Rating - ATPV (Open Arc Test) | 40 cal / cm ² |
| PPE category (NFPA 70E) | PPE 4 |
| Gauntlet length | 230 mm |

| Type APG XT ... | 7 L APC 2 150 | 8 L APC 2 150 |
|----------------------|----------------------------|----------------------------|
| Part No. | 785 840 <small>NEW</small> | 785 841 <small>NEW</small> |
| Total length | 410 mm | 420 mm |
| Size (international) | 7 (S) | 8 (M) |

| Type APG XT ... | 9 L APC 2 150 | 10 L APC 2 150 |
|----------------------|----------------------------|----------------------------|
| Part No. | 785 842 <small>NEW</small> | 785 843 <small>NEW</small> |
| Total length | 430 mm | 435 mm |
| Size (international) | 9 (L) | 10 (XL) |

| Type APG XT ... | 11 L APC 2 150 | 12 L APC 2 150 |
|----------------------|----------------------------|----------------------------|
| Part No. | 785 844 <small>NEW</small> | 785 845 <small>NEW</small> |
| Total length | 440 mm | 445 mm |
| Size (international) | 11 (XXL) | 12 (3XL) |

| Type APG XT ... | 13 L APC 2 150 |
|----------------------|----------------------------|
| Part No. | 785 846 <small>NEW</small> |
| Total length | 450 mm |
| Size (international) | 13 (4XL) |

Arc-fault-tested protective glove, protection class: APC 1 150



| General technical data: | |
|--|--------------------------|
| Arc fault protection class (box test 4 kA / 0.5 s - single-pole) | APC 1 150 |
| Arc energy (W_{arc} or W_{LBP}) | 168 kJ |
| Arc Rating - ATPV (Open Arc Test) | 35 cal / cm ² |
| PPE category (NFPA 70E) | PPE 3 |
| Gauntlet length | 140 mm |

| Type APG XT ... | 7 APC 1 150 | 8 APC 1 150 |
|----------------------|-------------|----------------------------|
| Part No. | 785 850 | 785 851 <small>NEW</small> |
| Total length | 330 mm | 335 mm |
| Size (international) | 7 (S) | 8 (M) |

| Type APG XT ... | 9 APC 1 150 | 10 APC 1 150 |
|----------------------|----------------------------|----------------------------|
| Part No. | 785 852 <small>NEW</small> | 785 853 <small>NEW</small> |
| Total length | 340 mm | 350 mm |
| Size (international) | 9 (L) | 10 (XL) |

| Type APG XT ... | 11 APC 1 150 | 12 APC 1 150 |
|----------------------|----------------------------|----------------------------|
| Part No. | 785 854 <small>NEW</small> | 785 855 <small>NEW</small> |
| Total length | 355 mm | 360 mm |
| Size (international) | 11 (XXL) | 12 (3XL) |

| Type APG XT ... | 13 APC 1 150 |
|----------------------|----------------------------|
| Part No. | 785 856 <small>NEW</small> |
| Total length | 365 mm |
| Size (international) | 13 (4XL) |

Arc-fault-tested protective gloves with long gauntlet, protection class: APC 1 150



| General technical data: | |
|--|--------------------------|
| Arc fault protection class (box test 4 kA / 0.5 s - single-pole) | APC 1 150 |
| Arc energy (W_{arc} or W_{LBP}) | 168 kJ |
| Arc Rating - ATPV (Open Arc Test) | 35 cal / cm ² |
| PPE category (NFPA 70E) | PPE 3 |
| Gauntlet length | 230 mm |

| Type APG XT ... | 7 L APC 1 150 | 8 L APC 1 150 |
|----------------------|----------------------------|----------------------------|
| Part No. | 785 860 <small>NEW</small> | 785 861 <small>NEW</small> |
| Total length | 410 mm | 420 mm |
| Size (international) | 7 (S) | 8 (M) |

| Type APG XT ... | 9 L APC 1 150 | 10 L APC 1 150 |
|----------------------|----------------------------|----------------------------|
| Part No. | 785 862 <small>NEW</small> | 785 863 <small>NEW</small> |
| Total length | 430 mm | 435 mm |
| Size (international) | 9 (L) | 10 (XL) |

| Type APG XT ... | 11 L APC 1 150 | 12 L APC 1 150 |
|----------------------|----------------------------|----------------------------|
| Part No. | 785 864 <small>NEW</small> | 785 865 <small>NEW</small> |
| Total length | 440 mm | 445 mm |
| Size (international) | 11 (XXL) | 12 (3XL) |

| Type APG XT ... | 13 L APC 1 150 |
|----------------------|----------------------------|
| Part No. | 785 866 <small>NEW</small> |
| Total length | 450 mm |
| Size (international) | 13 (4XL) |

DEHNcare APG



Arc-fault-tested protective gloves for working on electrical installations.

- For protection against thermal and mechanical risks
- Excellent fit due to special glove cut
- Good touch sensitivity due to soft leather inner surface of the gloves
- Comfortable to wear due to the use of breathable materials
- Certified according to PPE regulation (EU) 2016/425

General technical data:

| | |
|--------------------------|--|
| Standard | IEC 61482-1-2; IEC 61482-1-1; EN 388, EN 407 |
| Material (glove palm) | Siliconised calf grain leather |
| Material (glove back) | 100% Kevlar® interlock knit |
| Material (sewing thread) | Kevlar® |

Arc-fault-tested protective gloves



General technical data:

| | |
|--|----------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W_{arc} or W_{LBP}) | 320 kJ |
| Arc Rating - ATPV (Open Arc Test) | 32.8 cal / cm ² |
| PPE category (NFPA 70E) | PPE 3 |
| Gauntlet length | 115 mm |

| | | |
|----------------------|---------|---------|
| Type APG ... | 8 | 9 |
| Part No. | 785 796 | 785 797 |
| Total length | 310 mm | 315 mm |
| Size (international) | 8 (M) | 9 (L) |

| | | |
|----------------------|---------|----------|
| Type APG ... | 10 | 11 |
| Part No. | 785 798 | 785 799 |
| Total length | 325 mm | 330 mm |
| Size (international) | 10 (XL) | 11 (XXL) |

| | |
|----------------------|----------|
| Type APG ... | 12 |
| Part No. | 785 800 |
| Total length | 335 mm |
| Size (international) | 12 (3XL) |

Arc-fault-tested protective gloves with long gauntlet



General technical data:

| | |
|--|----------------------------|
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W_{arc} or W_{LBP}) | 320 kJ |
| Arc Rating - ATPV (Open Arc Test) | 32.8 cal / cm ² |
| PPE category (NFPA 70E) | PPE 3 |
| Gauntlet length | 250 mm |

| | | |
|----------------------|---------|---------|
| Type APG ... | 8 L | 9 L |
| Part No. | 785 808 | 785 809 |
| Total length | 440 mm | 450 mm |
| Size (international) | 8 (M) | 9 (L) |

| | | |
|----------------------|---------|----------|
| Type APG ... | 10 L | 11 L |
| Part No. | 785 810 | 785 811 |
| Total length | 455 mm | 460 mm |
| Size (international) | 10 (XL) | 11 (XXL) |

| | |
|----------------------|----------|
| Type APG ... | 12 L |
| Part No. | 785 812 |
| Total length | 465 mm |
| Size (international) | 12 (3XL) |

Insulating gloves up to 1000 V



Work on an electric vehicle with insulating gloves.

- For working on live parts
- The gloves provide an excellent fit and high elasticity with maximum insulating capacity
- Different designs available to suit your needs
- Certified according to PPE regulation (EU) 2016/425

General technical data:

| | |
|---------------------------|----------------------|
| Standard (gloves) | EN 60903 |
| Standard (NH fuse handle) | VDE 0680-4; GS-ET-38 |

NH Fuse Handle with Sleeve

For actuating NH fuses of sizes 00, 1, 2 and 3



| | |
|---------------------------------|----------------------|
| Type | NHS AG 00 3 NS |
| Part No. | 785 645 |
| Nominal voltage up to (U_N) | 1000 V |
| Colour | Beige 1 |
| Material | Coated cotton fabric |

Insulating gloves, category AZC Acid, ozone and cold-resistant



General technical data:

| | |
|--------------|----------------|
| Colour | red |
| Total length | 360 mm |
| Material | Natural rubber |

| Type | KL-A-8-36-S | KL-A-9-36-S |
|---|-------------|-------------|
| Part No. | 787 480 | 787 481 |
| Class | 00 | 00 |
| Nominal voltage up to (U _N) | 500 V | 500 V |
| Thickness | 0.5 mm | 0.5 mm |
| Size | 8 | 9 |

| Type | KL-A-10-36-S | KL-A-11-36-S |
|---|--------------|--------------|
| Part No. | 787 482 | 787 483 |
| Class | 00 | 00 |
| Nominal voltage up to (U _N) | 500 V | 500 V |
| Thickness | 0.5 mm | 0.5 mm |
| Size | 10 | 11 |

| Type | KL-B-8-36-S | KL-B-9-36-S |
|---|-------------|-------------|
| Part No. | 787 484 | 787 485 |
| Class | 0 | 0 |
| Nominal voltage up to (U _N) | 1000 V | 1000 V |
| Thickness | 1.0 mm | 1.0 mm |
| Size | 8 | 9 |

| Type | KL-B-10-36-S | KL-B-11-36-S |
|---|--------------|--------------|
| Part No. | 787 486 | 787 487 |
| Class | 0 | 0 |
| Nominal voltage up to (U _N) | 1000 V | 1000 V |
| Thickness | 1.0 mm | 1.0 mm |
| Size | 10 | 11 |

Insulating gloves, category RC, arc-fault-tested to protection class APC 2



General technical data:

| | |
|---|---------------|
| Class | 0 |
| Nominal voltage up to (U _N) | 1000 V |
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Colour | red |
| Thickness | 1.0 mm |
| Total length | 360 mm |
| Material | Natural latex |

| Type | CG-10/S2 A R 8 | CG-10/S2 B R 9 |
|----------|----------------|----------------|
| Part No. | 785 381 | 785 382 |
| Size | 8 | 9 |

| Type | CG-10/S2 C R 10 | CG-10/S2 D R 11 |
|----------|-----------------|-----------------|
| Part No. | 785 383 | 785 384 |
| Size | 10 | 11 |

Insulating gloves, category RC Resistant against acids, ozone and oil, as well as extremely low temperatures



General technical data:

| | |
|--------------|----------------|
| Colour | black |
| Total length | 360 mm |
| Material | Natural rubber |

| Type | KC-AI-8-36-S | KC-AI-9-36-S |
|---|--------------|--------------|
| Part No. | 787 490 | 787 491 |
| Class | 00 | 00 |
| Nominal voltage up to (U _N) | 500 V | 500 V |
| Thickness | 1.8 mm | 1.8 mm |
| Size | 8 | 9 |

| | | |
|--|--------------------------|--------------------------|
| Arc rating in accordance with ASTM F2675 | 14 cal / cm ² | 14 cal / cm ² |
|--|--------------------------|--------------------------|

| Type | KC-AI-10-36-S | KC-AI-11-36-S |
|---|---------------|---------------|
| Part No. | 787 492 | 787 493 |
| Class | 00 | 00 |
| Nominal voltage up to (U _N) | 500 V | 500 V |
| Thickness | 1.8 mm | 1.8 mm |
| Size | 10 | 11 |

| | | |
|--|--------------------------|--------------------------|
| Arc rating in accordance with ASTM F2675 | 14 cal / cm ² | 14 cal / cm ² |
|--|--------------------------|--------------------------|

| Type | KC-BI-8-36-S | KC-BI-9-36-S |
|---|--------------|--------------|
| Part No. | 787 494 | 787 495 |
| Class | 0 | 0 |
| Nominal voltage up to (U _N) | 1000 V | 1000 V |
| Thickness | 2.3 mm | 2.3 mm |
| Size | 8 | 9 |

| | | |
|--|--------------------------|--------------------------|
| Arc rating in accordance with ASTM F2675 | 25 cal / cm ² | 25 cal / cm ² |
|--|--------------------------|--------------------------|

| Type | KC-BI-10-36-S | KC-BI-11-36-S |
|---|---------------|---------------|
| Part No. | 787 496 | 787 497 |
| Class | 0 | 0 |
| Nominal voltage up to (U _N) | 1000 V | 1000 V |
| Thickness | 2.3 mm | 2.3 mm |
| Size | 10 | 11 |

| | | |
|--|--------------------------|--------------------------|
| Arc rating in accordance with ASTM F2675 | 25 cal / cm ² | 25 cal / cm ² |
|--|--------------------------|--------------------------|

Accessories for Insulating gloves up to 1000 V

Pneumatic glove tester

Suitable for the periodic inspection pursuant to EN 60903.



| | |
|----------|---------|
| Type | VPG90 |
| Part No. | 787 000 |
| Colour | Grey ● |

Storage bag, empty



| | |
|------------|-------------------|
| Type | AT IHS NS |
| Part No. | 785 490 |
| Dimensions | 400 x 180 x 50 mm |
| Colour | Brown ● |

Insulating gloves up to 36 kV



Work on live parts with insulating gloves.

- For live working up to 36 kV AC
- Category RC = Resistant against acids, ozone and oil, as well as extremely low temperatures
- Certified according to PPE regulation (EU) 2016/425

General technical data:

Standard EN 60903

Insulating gloves - class 1

Resistant against acids, ozone and oil, as well as extremely low temperatures



General technical data:

| | |
|------------------------|--------|
| Max. operating voltage | 7.5 kV |
| Test voltage | 10 kV |
| Total length | 360 mm |
| Packaging colour | white |

| | | |
|----------|---------------------|---------------------|
| Type | KL-C-8-41-S | KL-C-9-41-S |
| Part No. | 787 100 NEW! | 787 101 NEW! |
| Size | 8 | 9 |

| | | |
|----------|---------------------|---------------------|
| Type | KL-C-10-41-S | KL-C-11-41-S |
| Part No. | 787 102 NEW! | 787 103 NEW! |
| Size | 10 | 11 |

Insulating gloves - class 2

Resistant against acids, ozone and oil, as well as extremely low temperatures



General technical data:

| | |
|------------------------|----------------|
| Max. operating voltage | 17 kV |
| Test voltage | 20 kV |
| Total length | 410 mm |
| Packaging colour | white / yellow |

| | | |
|----------|---------------------|---------------------|
| Type | KL-D-8-41-S | KL-D-9-41-S |
| Part No. | 787 104 NEW! | 787 105 NEW! |
| Size | 8 | 9 |

| | | |
|----------|---------------------|---------------------|
| Type | KL-D-10-41-S | KL-D-11-41-S |
| Part No. | 787 106 NEW! | 787 107 NEW! |
| Size | 10 | 11 |

Insulating gloves - class 3

Resistant against acids, ozone and oil, as well as extremely low temperatures



General technical data:

| | |
|------------------------|---------------|
| Max. operating voltage | 26.5 kV |
| Test voltage | 30 kV |
| Total length | 410 mm |
| Packaging colour | white / green |

| | | |
|----------|---------------------|---------------------|
| Type | KL-E-8-41-S | KL-E-9-41-S |
| Part No. | 787 108 NEW! | 787 109 NEW! |
| Size | 8 | 9 |

| | | |
|----------|---------------------|---------------------|
| Type | KL-E-10-41-S | KL-E-11-41-S |
| Part No. | 787 110 NEW! | 787 111 NEW! |
| Size | 10 | 11 |

Insulating gloves - class 4

Resistant against acids, ozone and oil, as well as extremely low temperatures



General technical data:

| | |
|------------------------|---------------|
| Max. operating voltage | 36 kV |
| Test voltage | 40 kV |
| Total length | 410 mm |
| Packaging colour | white / green |

| | | |
|----------|---------------------|---------------------|
| Type | KL-F-9-41-S | KL-F-10-41-S |
| Part No. | 787 112 NEW! | 787 113 NEW! |
| Size | 9 | 10 |

| | |
|----------|---------------------|
| Type | KL-F-11-41-S |
| Part No. | 787 114 NEW! |
| Size | 11 |

Zubehör für Isolierende Handschuhe 1000 V bis 36 kV

Pneumatischer Handschuhprüfer

Geeignet für die wiederkehrende Prüfung gemäß der EN 60903.



| | |
|----------|---------|
| Type | VPG90 |
| Part No. | 787 000 |
| Farbe | grau ● |

Storage bag, empty



| | |
|------------|-------------------|
| Type | AT IHS NS |
| Part No. | 785 490 |
| Dimensions | 400 x 180 x 50 mm |
| Colour | Brown ● |

Safety shoes with insulating soles up to 1000 V



Safety shoes are an important part of personal protective equipment.

- Safety shoes and boots for electricians
- Insulating outsole for up to 1,000 V
- Certified according to PPE regulation (EU) 2016/425

| General technical data: | |
|--|----------------------------|
| Standard | EN ISO 20345:2011 |
| Material | Leather |
| Lining | Textile |
| Classification as per EN ISO 20345:2011 | Class I |
| Protection class as per EN ISO 20345:2011 | SB |
| Protective cap | Plastic |
| Sealed with | Shoelaces |
| Sole type | Polyurethane |
| Penetration protection | Composite textile material |
| Metal-free equipment | Yes |
| Colour | Black / orange |
| Application | Electrical engineering |
| Special properties: The outsole provides electrical insulation at voltages up to 1,000 V - MΩ > 1,000 if requirements are met (no moisture, does not refer to the upper shaft). | |
| Electrical resistance acc. Canadian standard CSA Z 195 14 Increase by 1 kV/sec - Voltage 20,000 V / 60 Hz duration of 1 minute. Electrical resistance acc. the ASTM 2413-11 standard increase of 1 kV/sec - Voltage 20,000 V / 60 Hz duration of 1 minute. Requirement of electric flow lower than 1.0 mA. | |

Low shoe, type FLOW
Shoe shape A



| | | |
|----------|---------------------------------|---------------------------------|
| Type | FLOW SB FO E P CI WRU SRC 36 | FLOW SB FO E P CI WRU SRC 37 |
| Part No. | 787 200 NEW | 787 201 NEW |
| Size | 36 | 37 |

| | | |
|----------|---------------------------------|---------------------------------|
| Type | FLOW SB FO E P CI WRU SRC 38 | FLOW SB FO E P CI WRU SRC 39 |
| Part No. | 787 202 NEW | 787 203 NEW |
| Size | 38 | 39 |

| | | |
|----------|---------------------------------|---------------------------------|
| Type | FLOW SB FO E P CI WRU SRC 40 | FLOW SB FO E P CI WRU SRC 41 |
| Part No. | 787 204 NEW | 787 205 NEW |
| Size | 40 | 41 |

| | | |
|----------|---------------------------------|---------------------------------|
| Type | FLOW SB FO E P CI WRU SRC 42 | FLOW SB FO E P CI WRU SRC 43 |
| Part No. | 787 206 NEW | 787 207 NEW |
| Size | 42 | 43 |

| | | |
|----------|---------------------------------|---------------------------------|
| Type | FLOW SB FO E P CI WRU SRC 44 | FLOW SB FO E P CI WRU SRC 45 |
| Part No. | 787 208 NEW | 787 209 NEW |
| Size | 44 | 45 |

| | | |
|----------|---------------------------------|---------------------------------|
| Type | FLOW SB FO E P CI WRU SRC 46 | FLOW SB FO E P CI WRU SRC 47 |
| Part No. | 787 210 NEW | 787 211 NEW |
| Size | 46 | 47 |

Laced boots, type LIGHT
Shoe shape B



| | | |
|----------|----------------------------------|----------------------------------|
| Type | LIGHT SB FO E P CI WRU SRC 36 | LIGHT SB FO E P CI WRU SRC 37 |
| Part No. | 787 220 NEW | 787 221 NEW |
| Size | 36 | 37 |

| | | |
|----------|----------------------------------|----------------------------------|
| Type | LIGHT SB FO E P CI WRU SRC 38 | LIGHT SB FO E P CI WRU SRC 39 |
| Part No. | 787 222 NEW | 787 223 NEW |
| Size | 38 | 39 |

| | | |
|----------|----------------------------------|----------------------------------|
| Type | LIGHT SB FO E P CI WRU SRC 40 | LIGHT SB FO E P CI WRU SRC 41 |
| Part No. | 787 224 NEW | 787 225 NEW |
| Size | 40 | 41 |

| | | |
|----------|----------------------------------|----------------------------------|
| Type | LIGHT SB FO E P CI WRU SRC 42 | LIGHT SB FO E P CI WRU SRC 43 |
| Part No. | 787 226 NEW | 787 227 NEW |
| Size | 42 | 43 |

| | | |
|----------|----------------------------------|----------------------------------|
| Type | LIGHT SB FO E P CI WRU SRC 44 | LIGHT SB FO E P CI WRU SRC 45 |
| Part No. | 787 228 NEW | 787 229 NEW |
| Size | 44 | 45 |

| | | |
|----------|----------------------------------|----------------------------------|
| Type | LIGHT SB FO E P CI WRU SRC 46 | LIGHT SB FO E P CI WRU SRC 47 |
| Part No. | 787 230 NEW | 787 231 NEW |
| Size | 46 | 47 |

DEHNcare APS with Active Protection



Arc-fault-tested face shield with additional illumination.

- Active protection (darkening) in case of an arc fault
- Best visual perception due to ergonomic chin protection
- Anti-mist coating
- Full protection even with scratches
- Service life of 10 years
- Certified according to PPE regulation (EU) 2016/425

General technical data:

| | |
|----------|--------------------------|
| Standard | GS-ET-29, EN 166, EN 147 |
|----------|--------------------------|

Arc-fault-tested face shield with tensioning strap



- Suitable for all standard safety helmets for electricians
- With slot on both sides for LED face shield light

General technical data:

| | | |
|--|---------------|--|
| Material | Polycarbonate | |
| Thickness | 1.5 mm | |
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 | |
| Arc energy (W_{arc} or W_{LBP}) | 318 kJ | |

| Type APS T AS ... | CL2 FS | 14C FS |
|-----------------------------------|----------------|--------------------------|
| Part No. | 785 824 | 785 825 |
| Colour | Transparent | Light grey |
| Arc Rating - ATPV (Open Arc Test) | - | 14 cal / cm ² |
| Visible light transmittance (VLT) | 74.4 ... 100 % | 43.2 ... 58.1 % |
| Light transmittance class | 0 | 2 |

| Type APS T AS ... | 25C FS |
|-----------------------------------|--------------------------|
| Part No. | 785 826 |
| Colour | Grey |
| Arc Rating - ATPV (Open Arc Test) | 25 cal / cm ² |
| Visible light transmittance (VLT) | 43.2 ... 58.1 % |
| Light transmittance class | 2 |

Arc-fault-tested face shield with clip



- Fits the slot in the ESH U S safety helmet for electricians
- With slot on both sides for LED face shield light

General technical data:

| | | |
|--|---------------|--|
| Material | Polycarbonate | |
| Thickness | 1.5 mm | |
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 | |
| Arc energy (W_{arc} or W_{LBP}) | 318 kJ | |

| Type APS T AS ... | CL2 SC | 14C SC |
|-----------------------------------|----------------|--------------------------|
| Part No. | 785 821 | 785 822 |
| Colour | Transparent | Light grey |
| Arc Rating - ATPV (Open Arc Test) | - | 14 cal / cm ² |
| Visible light transmittance (VLT) | 74.4 ... 100 % | 43.2 ... 58.1 % |
| Light transmittance class | 0 | 2 |

| Type APS T AS ... | 25C SC |
|-----------------------------------|--------------------------|
| Part No. | 785 823 |
| Colour | Grey |
| Arc Rating - ATPV (Open Arc Test) | 25 cal / cm ² |
| Visible light transmittance (VLT) | 43.2 ... 58.1 % |
| Light transmittance class | 2 |

Accessories for DEHNcare APS with Active Protection

LED face shield lamp

Suitable for slots on DEHNcare APS T AS face shields ...

Note: Battery not included!



| Type | LED APS T AS |
|----------------------|--------------|
| Part No. | 785 829 |
| Degree of protection | IPX4 |
| Max. luminous flux | 60 lumen |

Accessories for DEHNcare APS with Active Protection

Visor holder with clip

For arc-fault-tested face shields with clip; APS T AS CL2 SC / APS T AS 14C SC / APS T AS 25C SC.



| Type | VH SC APS T AS |
|----------|----------------|
| Part No. | 785 820 |
| Material | Nylon |
| Colour | Red |

Visor holder with strap

For arc-fault-tested face shields with strap; APS T AS CL2 FS / APS T AS 14C FS / APS T AS 25C FS.



| Type | VH FS APSTAS |
|----------|--------------|
| Part No. | 785 827 |
| Material | Nylon |
| Colour | Red |

Microfibre bag

For cleaning and storing the DEHNcare APS face shields.



| Type | MFB APS |
|--------------|--------------|
| Part No. | 785 724 |
| Suitable for | DEHNcare APS |
| Dimension | 450 x 400 mm |
| Colour | black ● |

Spare parts for visor holder with clip

Spare part for visor holders with clips consisting of two clips (left and right), including fixing bolts.



| Type | R KIT APS ... SC |
|----------|------------------|
| Part No. | 785 828 |
| Material | Plastic |

Balaclava



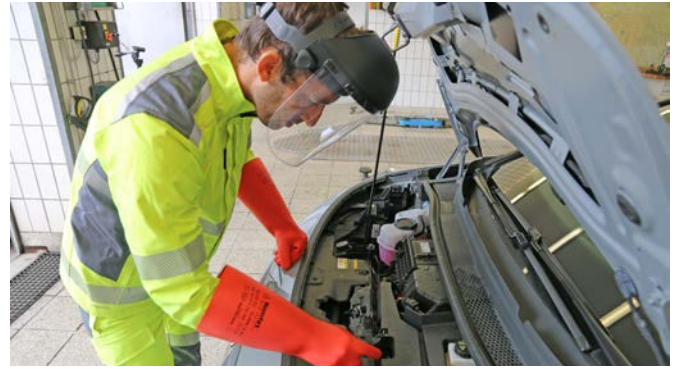
The protection level is increased by wearing a balaclava.

- Increases the protective effect in combination with the face shield DEHNcare APS T AS ...
- Large face opening
- Large collar protects the neck
- Certified according to PPE regulation (EU) 2016/425

General technical data:

| | |
|----------|--|
| Standard | EN ISO 13688, EN ISO 11612, EN 61482-1-2 |
|----------|--|

DEHNcare APS with headgear



Face shield can be worn without additional helmet.

- Face shield with headgear for protection against the mechanical and thermal hazards of an electric arc during live working or when in close proximity to live parts.
- Arcing class APC 1
- Certified according to PPE regulation (EU) 2016/425

General technical data:

| | |
|----------|------------------|
| Standard | GS-ET 29, EN 166 |
|----------|------------------|

Arc-fault-tested balaclava



| | |
|--|--------------------------------|
| Type | APB APC2 29C |
| Part No. | 785 790 <small>NEW</small> |
| Material | Modacrylic (55%), cotton (45%) |
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 *) |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc Rating - ATPV (Open Arc Test) | 29 cal / cm ² |
| PPE category (NFPA 70E) | PPE 3 |
| Colour | navy blue |
| Size (international) | One size |

*) Outer fabric after preparation

Arc-fault-tested face shield with headgear



| | |
|--|----------------------------|
| Type | APS ARC E1 SK7 |
| Part No. | 785 870 <small>NEW</small> |
| Nominal voltage up to (U _N) | 1000 V |
| Colour | Transparent |
| Material | Polycarbonate |
| Wall thickness | approx. 2 mm |
| Arc fault protection class (box test 4 kA / 0.5 s - single-pole) | APC 1 |
| Arc energy (W _{arc} or W _{LBP}) | 168 kJ |

Accessories for DEHNcare APS with headgear

Microfibre bag

For cleaning and storing the DEHNcare APS face shields.



| | |
|--------------|--------------|
| Type | MFB APS |
| Part No. | 785 724 |
| Suitable for | DEHNcare APS |
| Dimension | 450 x 400 mm |
| Colour | black ● |

DEHNcare APS with Lever



Fitter wearing protective equipment for charging post maintenance.

- Fog-free on the inside
- Extremely scratch-resistant
- Chemical-resistant on the outside
- Certified according to PPE regulation (EU) 2016/425

General technical data:

| | |
|----------|--------------------------|
| Standard | GS-ET-29, EN 166, EN 170 |
|----------|--------------------------|

Arc-fault-tested Face Shield with mechanical Lever



| | |
|--|---------------|
| Type APS ... | CL1 MEHA |
| Part No. | 785 721 |
| Nominal voltage up to (U _N) | 1000 V |
| Colour | Transparent |
| Material | Polycarbonate |
| Wall thickness | approx. 2 mm |
| Arc fault protection class (box test 4 kA / 0.5 s - single-pole) | APC 1 |
| Arc energy (W _{arc} or W _{LBP}) | 158 kJ |
| Visible light transmittance (VLT) | ≥ 75 % |

Arc-fault-tested Face Shield with magnetic Lever



| | |
|--|---------------|
| Type APS ... | CL2 MAHA |
| Part No. | 785 722 |
| Nominal voltage up to (U _N) | 1000 V |
| Colour | blue |
| Material | polycarbonate |
| Wall thickness | approx. 2 mm |
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 318 kJ |
| Visible light transmittance (VLT) | ≥ 74.4 % |

Accessories for DEHNcare APS with Lever

Microfibre bag

For cleaning and storing the DEHNcare APS face shields.



| | |
|--------------|--------------|
| Type | MFB APS |
| Part No. | 785 724 |
| Suitable for | DEHNcare APS |
| Dimension | 450 x 400 mm |
| Colour | black ● |

DEHNcare APHO



An arc-fault-tested protective hood must be worn, depending on the work environment.

- Frontal protection in case of direct incident energy from switchgear (zone 1 = heat shield)
- Secondary protection in case of indirect incident energy, e.g. in case of energy reflection from the side and from the back (zone 2 = all-round protection)
- Protection against parts flying around or falling down (zone 3)
- Certified according to PPE regulation (EU) 2016/425

General technical data:

| | |
|----------|--|
| Standard | GS-ET-29; IEC 61482-1-2; IEC 61482-1-1, EN 166, EN 170 |
|----------|--|

Arc-fault-tested Protective Hood

Note: Safety helmet for electricians ESH U S is not included in delivery!



| | |
|--|----------------------------|
| Type | APHO |
| Part No. | 785 760 |
| Material | plastic, neoprene, leather |
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc Rating - ATPV (Open Arc Test) | 37.2 cal / cm ² |
| PPE category (NFPA 70E) | PPE 3 |
| Visible light transmittance (VLT) | 29.1 ... 43.2 % |

ESH U S Safety Helmet for Electricians



Monteur mit notwendiger Schutzausrüstung.

- With slot for APS ... SC face shield
- Adjustable to head sizes from 52 to 61 cm via push / rotary knob
- Six-point suspension with sweatband
- Certified according to PPE regulation (EU) 2016/425

| | |
|--------------------------------|------------------|
| General technical data: | |
| Standard | EN 50365, EN 397 |

ESH U S
Safety helmet with short peak



| | |
|---|---------------|
| General technical data: | |
| Nominal voltage up to (U _N) | 1000 V |
| Material | HDPE plastics |

| | | |
|------------------------------|----------------|----------------|
| Type ESH U 1000 S ... | SY | SW |
| Part No. | 785 705 | 785 706 |
| Colour | Yellow ● | White ○ |

| | | |
|------------------------------|----------------|----------------|
| Type ESH U 1000 S ... | SO | SB |
| Part No. | 785 707 | 785 708 |
| Colour | Orange ● | Blue ● |

| | |
|------------------------------|----------------|
| Type ESH U 1000 S ... | SR |
| Part No. | 785 709 |
| Colour | Red ● |

Accessories for ESH U S Safety Helmet for Electricians

Chin strap

For safety helmets for electricians ESH U S 1000, adjustable.



| | |
|-----------------|----------------------|
| Type | KR ESH U 1000 |
| Part No. | 785 738 |
| Colour | Black ● |

Sweat band

For replacement on the ESH U S safety helmet for electricians



| | |
|-----------------|----------------------------------|
| Type | SB ESH U 1000 |
| Part No. | 785 739 |
| Material | Hydro-flock (S31F) PVC (S31P) |
| PU | 10 pc(s). |

LED head torch

- Fits the slot of the ESH US safety helmet for electricians, in connection with face shield APS CL1 MEHA and APS CL2 MAHA
- With two separate reflectors for distance and area lighting, with 4 switching steps
- Two charging options: micro USB or charging cradle. Charging unit with with charging cradle included in delivery



| | |
|-----------------------------|-------------------|
| Type | LED HL ESH |
| Part No. | 785 723 |
| Degree of protection | IP 67 |
| Light current max. | 115 lumens |

DEHNcare PPE sets - Indoor and Outdoor



To have everything you need for working on electrical systems, simply grab your bag.

- Various sets for indoor and outdoor use
- Available in different sizes
- Components comply with arc fault protection class 2 (APC 2)
- Protective equipment is certified according to PPE regulation (EU) 2016/425

Indoor - configurable

For the configurable indoor electrician set, the DEHNcare ArcFit is only available in the standard colours grey/black. The helmet colour and sizes are freely selectable.



| Type PSA ESET ... | KONFI ID |
|---|--|
| Part No. | 785 960 <small>NEW</small> |
| Protective jacket/trousers | |
| Men's standard sizes: | 42 (2XS) - 68 (4XL/5XL) |
| Men's short sizes: | 22 (2XS/XS-K) - 30 (2XL-K) |
| Men's long sizes: | 90 (XS-L) - 118 (2XL-L) |
| Ladies' standard sizes: | 34 (XS) - 56 (4XL) |
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Protective gloves 7 (S) / 8 (M) / 9 (L) / 10 (XL) / 11 (XXL) / 12 (3XL) / 13 (4XL) | |
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc Rating - ATPV (Open Arc Test) | 40 cal / cm ² |
| PPE category (NFPA 70E) | 4 |
| Face shield | |
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | transparent |
| Arc energy (W _{arc} or W _{LBP}) | 318 kJ |
| Visible light transmittance (VLT) | 74.4 to 100% |
| Light transmittance class | 0 |
| Safety helmet for electricians yellow / white / orange / blue / red | |
| Nominal voltage up to (U _N) | 1000 V |
| Belt | 80 / 90 / 100 / 110 / 120 / 130 / 140 / 150 cm |
| Microfibre bag | 450 x 400 mm |
| Storage rucksack | 650 x 400 mm |

Indoor

For the indoor electrician set, the DEHNcare ArcFit is only available in the standard colours grey/black.



| General technical data: | |
|--|----------------------------|
| Protective jacket/trousers | |
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Protective gloves | |
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc Rating - ATPV (Open Arc Test) | 32.8 cal / cm ² |
| PPE category (NFPA 70E) | PPE 3 |
| Face shield | |
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | transparent |
| Arc energy (W _{arc} or W _{LBP}) | 318 kJ |
| Visible light transmittance (VLT) | 74.4 ... 100 % |
| Light transmittance class | 0 |
| Safety helmet for electricians yellow | |
| Nominal voltage up to (U _N) | 1000 V |
| Microfibre bag | 450 x 400 mm |
| Storage bag | Ø300, 500 mm |

| Type PSA ESET ... | S ID | M ID |
|-----------------------------------|-----------------------------------|-----------------------------------|
| Part No. | 785 906 <small>NEW</small> | 785 900 <small>NEW</small> |
| Protective jacket/trousers | 48 (S) | 50 (M) |
| Protective gloves | 9 (L) | 10 (XL) |
| Belt | 100 cm | 110 cm |

| Type PSA ESET ... | L ID | XL ID |
|-----------------------------------|-----------------------------------|-----------------------------------|
| Part No. | 785 901 <small>NEW</small> | 785 902 <small>NEW</small> |
| Protective jacket/trousers | 54 (L) | 56 (XL) |
| Protective gloves | 10 (XL) | 10 (XL) |
| Belt | 110 cm | 120 cm |

| Type PSA ESET ... | 2XL ID |
|-----------------------------------|-----------------------------------|
| Part No. | 785 907 <small>NEW</small> |
| Protective jacket/trousers | 60 (2XL) |
| Protective gloves | 11 (XXL) |
| Belt | 130 cm |

Outdoor

For the outdoor electrician set, the DEHNcare ArcFit is only available in the standard colours yellow/grey.



| General technical data: | |
|--|----------------------------|
| Protective jacket/trousers | |
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Protective gloves | |
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W _{arc} or W _{LBP}) | 320 kJ |
| Arc Rating - ATPV (Open Arc Test) | 32.8 cal / cm ² |
| PPE category (NFPA 70E) | PPE 3 |
| Face shield | |
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | transparent |
| Arc energy (W _{arc} or W _{LBP}) | 318 kJ |
| Visible light transmittance (VLT) | 74.4 ... 100 % |
| Light transmittance class | 0 |
| Safety helmet for electricians yellow | |
| Nominal voltage up to (U _N) | 1000 V |
| Microfibre bag | 450 x 400 mm |
| Storage bag | Ø300, 500 mm |

| Type PSA ESET ... | S OD | M OD |
|-----------------------------------|-----------------------------------|-----------------------------------|
| Part No. | 785 908 <small>NEW</small> | 785 903 <small>NEW</small> |
| Protective jacket/trousers | 48 (S) | 50 (M) |
| Protective gloves | 9 (L) | 10 (XL) |
| Belt | 100 cm | 110 cm |

| Type PSA ESET ... | L OD | XL OD |
|-----------------------------------|-----------------------------------|-----------------------------------|
| Part No. | 785 904 <small>NEW</small> | 785 905 <small>NEW</small> |
| Protective jacket/trousers | 54 (L) | 56 (XL) |
| Protective gloves | 10 (XL) | 10 (XL) |
| Belt | 110 cm | 120 cm |

| Type PSA ESET ... | 2XL OD |
|-----------------------------------|-----------------------------------|
| Part No. | 785 909 <small>NEW</small> |
| Protective jacket/trousers | 60 (2XL) |
| Protective gloves | 11 (XXL) |
| Belt | 130 cm |

Outdoor - configurable

For the configurable outdoor electrician set, the DEHNcare ArcFit is only available in the standard colours yellow/grey. The helmet colour and sizes are freely selectable.



| | |
|---|--|
| Type PSA ESET ... | KONFI OD YE |
| Part No. | 785 961 <small>NEW</small> |
| Protective jacket/trousers | |
| Men's standard sizes: | 42 (2XS) - 68 (4XL/5XL), |
| Men's short sizes: | 22 (2XS/XS-K) - 30 (2XL-K), |
| Men's long sizes: | 90 (XS-L) - 118 (2XL-L), |
| Ladies' standard sizes: | 34 (XS) - 56 (4XL) |
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W_{arc} or W_{LBP}) | 320 kJ |
| Protective gloves 7 (S) / 8 (M) / 9 (L) / 10 (XL) / 11 (XXL) / 12 (3XL) / 13 (4XL) | |
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W_{arc} or W_{LBP}) | 320 kJ |
| Arc Rating - ATPV (Open Arc Test) | 40 cal / cm ² |
| PPE category (NFPA 70E) | 4 |
| Face shield | |
| Arc fault protection class (box test 7 kA / 0.5 s - single-pole) | APC 2 |
| Arc energy (W_{arc} or W_{LBP}) | 318 kJ |
| Visible light transmittance (VLT) | 74.4 to 100% |
| Light transmittance class | 0 |
| Safety helmet for electricians yellow / white / orange / blue / red | |
| Nominal voltage up to (U_N) | 1000 V |
| Belt | 80 / 90 / 100 / 110 / 120 / 130 / 140 / 150 cm |
| Microfibre bag | 450 x 400 mm |
| Storage rucksack | 650 x 400 mm |

Plastic Bag / Rucksack

For DEHNcare protective equipment.

Storage Bag

With side handle, carrying strap and string.



| | |
|--------------|------------------------------|
| Type | AT 50 30 |
| Part No. | 785 442 |
| Suitable for | ESH U + DEHNcare APS and APG |
| Dimensions | Ø300, 500 mm |
| Colour | Red ● |

Storage Rucksack

With carrying straps and side net pocket with string.



| | |
|--------------|-------------------------------|
| Type | ARS 65 40 |
| Part No. | 785 443 |
| Suitable for | DEHNcare protective equipment |
| Dimensions | 650 x 400 mm |
| Colour | Red ● |

Microfibre Bag

For cleaning and keeping of face shields DEHNcare APS.



| | |
|--------------|--------------|
| Type | MFB APS |
| Part No. | 785 724 |
| Suitable for | DEHNcare APS |
| Dimensions | 450 x 400 mm |
| Colour | Black ● |



High-pressure resistant.
Water-repellent.
Comfortable.

A lot of people think "it's only water". True, but at high pressure, water can have devastating consequences for employees who use high-pressure water jets to clean surfaces and equipment.

From 250 bar, you definitely need more than just basic protection against moisture (DGUV 100-500). This is because water jets emitted at high pressure have a dangerous cutting effect. Serious and even fatal injuries can result if the body is hit unprotected.

The DEHNcare WJP protective clothing protects your employees during high-pressure cleaning with water jets up to 1000 bar.

Reliable protection when working with high-pressure water jets up to 1000 bar

Working with high-pressure water jets, represents a special hazard for workers. To prevent accidents caused by the enormous penetrating power of the water, DEHN has developed a protective overall made of a special material mix.

Extra protection for vulnerable parts of the body

In addition to the proven DEHNcare WJP Advanced protective overall, further WJP protective clothing components to protect those parts of the body that are particularly exposed to high-pressure water jets are now available.

Branding Service

3 good reasons for branding your protective overalls:

- Build brand awareness by displaying your logo and company name on the protective overall.
- Motivate your employees by providing them with their own personal protective overall – with their name on it.
- Present yourself as a service company equipped with high-quality PPE. This gives your client a sense of security and stimulates trust.

Your logo could be here!



The branding service is available for orders of 10 or more protective overalls. Simply get in touch with us.



DEHNcare WJP (Water Jet Protection) is the first protective overall against high-pressure water jets tested and certified according to GSIFA- P15 principles for testing and certifying personal protective equipment (PPE) and to the new EU regulation 2016/425.

Reliable protection in many branches

In industrial plants, for concrete refurbishment, in commercial construction ...

This overall, made of a newly developed material mix, offers protection when cleaning with high-pressure water jets in a wide variety of applications, e.g.:

- Cleaning industrial plants
- Cleaning public spaces
- Stripping metal surfaces, e.g. bridges or monuments
- Cleaning machines and vehicles, e.g. in the commercial construction sector, agriculture, and the transport industry
- Concrete cleaning and refurbishment

Prevention of cuts and lacerations - one worry less!



Safety bonus

The protective overall has been tested at up to 1,000 bars and is resistant to high pressure. Increased protection against abrasions and cuts, in the particularly endangered areas, on the arms, legs and knees.



A true lightweight

The overall only weighs 2.3 kg and is therefore especially light. You have freedom of movement and mobility whatever the job.



Untroubled work

The 2-layer composite material is watertight and cut-resistant yet still breathable. For a high degree of comfort.



Soon ready for use again

The overall can be washed at 60 degrees or dry cleaned. Conserve environmental resources: The overall is reusable, so you need fewer disposable ones.

DEHNcare WJP Protective Overall "Advanced"



"Advanced" protective overall for working with high-pressure water jets.

- High-pressure resistant up to 1000 bar (tested with flat-jet nozzle based on test principle GS-IFA-P15)
- Completely waterproof - including the seams
- Breathable, thus comfortable to wear
- Great freedom of movement due to especially light material
- Environmentally friendly - washable up to 60°
- Certified according to PPE regulation (EU) 2016/425

Protective Overall Against High-Pressure Water Jets

Protective overall against high-pressure water jets, complete with arm and leg protectors.



| General technical data: | |
|--|--|
| High-pressure resistant | ≤ 1000 bar |
| Material | multilayer laminate |
| Type | breathable and waterproof |
| Standards / test principles | EN 343, EN 13034 (type 6), GS-IFA-P15 (as basis) |
| Test parameters according to GS-IFA-P15 flat jet nozzle type B | |
| - Distance (nozzle - surface of test sample) | 7.5 cm |
| - Angle (high-pressure water jet) | 15 ° |
| - Speed (feed) | 0.5 m/s |
| - Quantity of water (high-pressure water jet) | 22 l/min |
| - Pressure (high-pressure water jet) | 1200 bar* |

| Type WJP OC ... | S | M |
|-----------------|---------|---------|
| Part No. | 786 741 | 786 742 |
| Size | 48 (S) | 50 (M) |

| Type WJP OC ... | L | XL |
|-----------------|---------|---------|
| Part No. | 786 743 | 786 744 |
| Size | 52 (L) | 54 (XL) |

| Type WJP OC ... | XXL | 3XL |
|-----------------|----------|----------|
| Part No. | 786 745 | 786 746 |
| Size | 56 (XXL) | 58 (3XL) |

Accessories for DEHNcare WJP Protective Overall "Advanced"

Hood

Hood for protective overall against high-pressure water jets.



| Type | WJPOH |
|-----------|-------------------|
| Part No. | 786 770 |
| Fastening | using press studs |



Attachable hood.



Replaceable arm and leg protectors.

Accessories for DEHNcare WJP Protective Overall "Advanced"

Overall

Overall without arm and leg protectors.



| Type | WJPO S | WJPO M |
|----------|---------|---------|
| Part No. | 786 751 | 786 752 |
| Size | 48 (S) | 50 (M) |

| Type | WJPO L | WJPO XL |
|----------|---------|---------|
| Part No. | 786 753 | 786 754 |
| Size | 52 (L) | 54 (XL) |

| Type | WJPO XXL | WJPO 3XL |
|----------|----------|----------|
| Part No. | 786 755 | 786 756 |
| Size | 56 (XXL) | 58 (3XL) |

*) The test for protection against penetration of high-pressure water jets is performed with a safety factor of 1.2.

***) Only in conjunction with arm and leg protectors of corresponding size.

Arm protectors

- Increased protection against cuts and puncture wounds
- Reflectors for better visibility
- Silver popper - to start with buttoning



| Type | WJPO AP S | WJPO AP M |
|----------|-----------|-----------|
| Part No. | 786 761 | 786 762 |
| Size | 48 (S) | 50 (M) |

| Type | WJPO AP L | WJPO AP XL |
|----------|-----------|------------|
| Part No. | 786 763 | 786 764 |
| Size | 52 (L) | 54 (XL) |

| Type | WJPO AP XXL | WJPO AP 3XL |
|----------|-------------|-------------|
| Part No. | 786 765 | 786 766 |
| Size | 56 (XXL) | 58 (3XL) |

Leg protectors

- Increased protection against cuts and puncture wounds
- Reflectors for better visibility
- Silver popper - to start with buttoning



| Type | WJPO LP S | WJPO LP M |
|----------|-----------|-----------|
| Part No. | 786 781 | 786 782 |
| Size | 48 (S) | 50 (M) |

| Type | WJPO LP L | WJPO LP XL |
|----------|-----------|------------|
| Part No. | 786 783 | 786 784 |
| Size | 52 (L) | 54 (XL) |

| Type | WJPO LP XXL | WJPO LP 3XL |
|----------|-------------|-------------|
| Part No. | 786 785 | 786 786 |
| Size | 56 (XXL) | 58 (3XL) |

DEHNcare WJP Protective Gloves



Protective gloves protect when working with high-pressure water jets up to 1000 bar.

- Safe up to 1,000 bar based on the test principle GS-IFA-P15 (flat-jet nozzle)
- Back of glove with textile reinforcement to protect against mechanical risks
- Excellent fit in five sizes
- Environmentally friendly - washable:
- Certified according to PPE regulation (EU) 2016/425

Protective gloves



| General technical data: | | |
|---|--|------------------------|
| High-pressure resistant | ≤ 1000 bar | |
| Material | Multi-layer laminate, Kevlar | |
| Type | waterproof | |
| Standards / test principles | EN 420, EN 388, EN 13034 (type 6), GS-IFA-P15 (as basis) | |
| Test parameters according to GS-IFA-P15 | | flat jet nozzle type B |
| - Distance (nozzle - surface of test sample) | 7.5 cm | |
| - Angle (high-pressure water jet) | 15 ° | |
| - Speed (feed) | 0.5 m/s | |
| - Quantity of water (high-pressure water jet) | 22 l/min | |
| - Pressure (high-pressure water jet) | 1200 bar* | |
| Type WJP HP ... | 9 | 10 |
| Part No. | 786 717 | 786 718 |
| Size | 9 (L) | 10 (XL) |
| Type WJP HP ... | 11 | 12 |
| Part No. | 786 719 | 786 720 |
| Size | 11 (XXL) | 12 (3XL) |
| Type WJP HP ... | 13 | |
| Part No. | 786 721 | |
| Size | 13 (4XL) | |

*) The test against high pressure water jet penetration is performed with a safety factor of 1,2.

DEHNcare WJP Protective Socks



The feet are the part of the body most frequently injured.

- Optimal toe, instep and shin protection up to 1,000 bar
NOTE: Protection is only provided when combined with S5 rubber safety boots!
- Tested based on the test principle GS-IFA-P 15 (flat-jet nozzle)
- Excellent fit in four sizes
- Environmentally friendly - washable up to 30°
- Certified according to PPE regulation (EU) 2016/425

Protective socks



| General technical data: | | |
|---|-------------------------------------|------------------------|
| High-pressure resistant | ≤ 1000 bar** | |
| Material | Polyamid / Polyester | |
| Type | Worn with S5 rubber safety boots | |
| Standards / test principles | EN ISO 13688, GS-IFA-P15 (as basis) | |
| Test parameters according to GS-IFA-P15 | | flat jet nozzle type B |
| - Distance (nozzle - surface of test sample) | 7.5 cm | |
| - Angle (high-pressure water jet) | 15 ° | |
| - Speed (feed) | 0.5 m/s | |
| - Quantity of water (high-pressure water jet) | 22 l/min | |
| - Pressure (high-pressure water jet) | 1200 bar* | |
| Type WJP FP ... | 39 40 | 41 42 |
| Part No. | 786 722 | 786 723 |
| Size | 39-40 (M) | 41-42 (L) |
| Type WJP FP ... | 43 44 | 45 46 |
| Part No. | 786 724 | 786 725 |
| Size | 43-44 (XL) | 45-46 (XXL) |

*) The test for protection against penetration of high-pressure water jets is performed with a safety factor of 1.2.

***) Protection is only provided when combined with S5 rubber safety boots!

DEHNcare WJP Protective Overall "Basic"



Modern protective clothing for working with high pressure water jets up to 750 bar.

- Safe up to 750 bar based on the test principle GS-IFA-P 15 (flat-jet nozzle)
- A true lightweight at only 1.6 kg (size M)
- Waterproof and breathable
- Environmentally friendly - washable up to 60°
- Certified according to PPE regulation (EU) 2016/425

Protective overall against high-pressure water jets



| General technical data: | | |
|--|--|----------------|
| High-pressure resistant | ≤ 750 bar | |
| Material | multilayer laminate | |
| Type | breathable and waterproof | |
| Standards / test principles | EN 343, EN 13034 (type 6), GS-IFA-P15 (as basis) | |
| Test parameters according to GS-IFA-P15 | flat jet nozzle type B | |
| - Distance (nozzle - surface of test sample) | 7.5 cm | |
| - Angle (high-pressure water jet) | 15 ° | |
| - Speed (feed) | 0.5 m/s | |
| - Quantity of water (high-pressure water jet) | 22 l/min | |
| - Pressure (high-pressure water jet) | 900 bar* | |
| Type WJP O B ... | S | M |
| Part No. | 786 711 <small>NEW</small> | 786 712 |
| Size | 48 (S) | 50 (M) |
| Type WJP O B ... | L | XL |
| Part No. | 786 713 | 786 714 |
| Size | 52 (L) | 54 (XL) |
| Type WJP O B ... | XXL | 3XL |
| Part No. | 786 715 | 786 716 |
| Size | 56 (XXL) | 58 (3XL) |

*) The test against high-pressure water jet penetration is performed with a safety factor of 1.2.

DEHNcare WJP Head Protection Set



Protected from all sides when working with high-pressure water jets, also against flying particles.

- All-round protection for the head, face and ears
- Components certified according to PPE regulation (EU) 2016/425

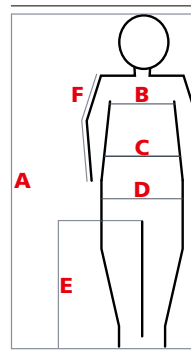
Head protection set



| Type | WJP HFP SET |
|---------------------------|----------------|
| Part No. | 786 726 |
| Head circumference helmet | 52-61 cm |
| Material of helmet | HDPE plastic |
| Thickness of face shield | approx. 2 mm |
| Material of face shield | polycarbonate |
| SNR value ear muffs | 27 dB |

Find the right size to get the perfect fit with your DEHNcare personal protective equipment.

Protective clothing - How to take your measurements (cm):



- A Body size:** without shoes, from the top of your head to the soles of your feet
- B Chest measurement:** measure under your arms round the widest part of your chest
- C Waistband:** measure around your waist with the tape measure snug but not digging in
- D Hip size:** measure with the tape measure around the widest part of the hips
- E Inside leg length:** measure from the crotch to the hemline
- F Sleeve length:** measure from the top of the shoulder over the elbow to the wrist bone

DEHNcare ArcFit Indoor / Outdoor

Standard men's sizes (cm)

| Ordering size | 42 | 44 | 46 | 48 | 50 | 52 | 54 | 56 | 58 | 60 | 62 | 64 | 66 | 68 |
|-------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------|-----------|---------|-----------|---------|-----------|
| | 2XS | 2XS/XS | XS | S | M | M/L | L | XL | XL/2XL | 2XL | 3XL | 3XL/4XL | 4XL | 4XL/5XL |
| Body size | 159-171 | 162-174 | 165-177 | 168-180 | 171-183 | 174-186 | 176-188 | 178-190 | 180-192 | 182-194 | 184-196 | 186-198 | 188-200 | 190-202 |
| Chest measurement | 81-87 | 85-91 | 89-95 | 93-99 | 97-103 | 101-107 | 105-111 | 109-115 | 113-119 | 117-123 | 121-127 | 125-131 | 129-135 | 133-139 |
| Waistband | 69-77 | 73-81 | 77-85 | 81-89 | 85-93 | 89-97 | 93-101 | 99-107 | 105-113 | 111-119 | 117-127 | 122-132 | 127-137 | 132-142 |
| Hip size | 91 | 95 | 99 | 103 | 107 | 111 | 115 | 119 | 123 | 127 | 131 | 135 | 139 | 143 |
| Inside leg length | 77.5/78.5 | 78.5/79.5 | 79.5/80.5 | 80.5/81.5 | 81.5/82.5 | 82.5/83.5 | 83.5/84.5 | 84.5/85.5 | 85/86 | 85.5/86.5 | 86/87 | 86.5/87.5 | 87/88 | 87.5/88.5 |
| Sleeve length | 63/63.5 | 64/64.5 | 65/65.5 | 66/66.5 | 67/67.5 | 68/68.5 | 69/69.5 | 70/70.5 | 70.5/71 | 71/71.5 | 71.5/72 | 72/72.5 | 72.5/73 | 73/73.5 |

Men's short sizes (cm)

| Ordering size | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
|-------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|-----------|
| | 2XS/XS-K | XS-K | S-K | M-K | M/L-K | L-K | XL-K | XL/2XL-K | 2XL-K |
| Body size | 157-166 | 160-169 | 163-172 | 166-175 | 169-178 | 171-180 | 173-182 | 175-184 | 177-186 |
| Chest measurement | 85-91 | 89-95 | 93-99 | 97-103 | 101-107 | 105-111 | 109-115 | 113-119 | 117-123 |
| Waistband | 75-83 | 79-87 | 83-91 | 87-95 | 92-100 | 97-105 | 102-110 | 107-115 | 113-121 |
| Hip size | 95 | 99 | 103 | 107 | 111 | 115 | 119 | 123 | 127 |
| Inside leg length | 74.5/75.5 | 75.5/76.5 | 76.5/77.5 | 77.5/78.5 | 78.5/79.5 | 79.5/80.5 | 80.5/81.5 | 81/82 | 81.5/82.5 |
| Sleeve length | 61/61.5 | 62/62.5 | 63/63.5 | 64/64.5 | 65/65.5 | 66/66.5 | 67/67.5 | 67.5/68 | 68/68.5 |

Men's long sizes (cm)

| Ordering size | 90 | 94 | 98 | 102 | 106 | 110 | 114 | 118 |
|-------------------|-----------|-----------|-----------|-----------|-----------|-----------|----------|-----------|
| | XS-L | S-L | M-L | M/L-L | L-L | XL-L | XL/2XL-L | 2XL-L |
| Body size | 173-182 | 176-185 | 179-188 | 182-191 | 184-193 | 186-195 | 188-197 | 190-199 |
| Chest measurement | 89-95 | 93-99 | 97-103 | 101-107 | 105-111 | 109-115 | 113-119 | 117-123 |
| Waistband | 75-83 | 79-87 | 83-91 | 87-95 | 91-99 | 97-105 | 103-111 | 109-117 |
| Hip size | 99 | 103 | 107 | 111 | 115 | 119 | 123 | 127 |
| Inside leg length | 83.5/84.5 | 84.5/85.5 | 85.5/86.5 | 86.5/87.5 | 87.5/88.5 | 88.5/89.5 | 89/90 | 89.5/90.5 |
| Sleeve length | 68/68.5 | 69/69.5 | 70/70.5 | 71/71.5 | 72/72.5 | 73/73.5 | 73.5/74 | 74/74.5 |

Standard ladies' sizes (cm)

| Ordering size | 34 | 36 | 38 | 40 | 42 | 44 | 46 | 48 | 50 | 52 | 54 | 56 |
|-------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | XS | S | M | M/L | L | XL | XL/2XL | 2XL | 2XL/3XL | 3XL | 3XL/4XL | 4XL |
| Body size | 163-175 | 163-175 | 163-175 | 163-175 | 163-175 | 163-175 | 163-175 | 163-175 | 163-175 | 163-175 | 163-175 | 163-175 |
| Chest measurement | 78-85 | 82-89 | 86-93 | 90-97 | 94-102 | 99-108 | 104-113 | 111-120 | 117-126 | 124-133 | 131-140 | 138-147 |
| Waistband | 70-78 | 74-82 | 78-86 | 82-90 | 86-94 | 90-98 | 95-103 | 100-108 | 105-113 | 110-118 | 115-123 | 120-128 |
| Hip size | 94 | 98 | 102 | 106 | 110 | 114 | 118 | 122 | 126 | 130 | 134 | 138 |
| Inside leg length | 77.5 | 77.5 | 77.5 | 77.5 | 77.5 | 77.5 | 77.5 | 77.5 | 77.5 | 77.5 | 77.5 | 77.5 |
| Sleeve length | 59 | 59.5 | 60 | 60.5 | 61 | 61.5 | 62 | 62.5 | 62.5 | 62.5 | 62.5 | 62.5 |

DEHNcare ArcFit HLP 63

Standard men's sizes (cm)

| Ordering size | 48 | 50/52 | 52/54 | 56/58 | 58/60 | 62/64 | 64/66 |
|-------------------|---------|---------|---------|---------|---------|---------|---------|
| | S | M | L | XL | 2XL | 3XL | 4XL |
| Body size | 166-178 | 170-182 | 174-188 | 178-190 | 182-194 | 184-196 | 188-200 |
| Chest measurement | 92-102 | 98-108 | 104-114 | 110-120 | 116-126 | 122-132 | 128-138 |
| Waistband | 80-90 | 86-96 | 92-102 | 98-108 | 104-114 | 110-120 | 116-126 |
| Hip size | 107 | 115 | 123 | 131 | 139 | 147 | 155 |
| Inside leg length | 79.5 | 81.5 | 83.5 | 85.5 | 86.5 | 87.5 | 88.5 |
| Sleeve length | 64 | 65.5 | 67 | 68.5 | 70 | 71.5 | 73 |

DEHNcare ArcClassic jacket and trousers

DEHNcare ArcClassic coat

Standard men's sizes (cm)

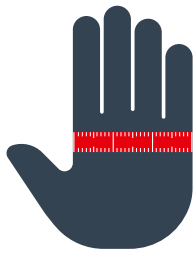
| Ordering size | 46 | 48 | 50 | 52 | 54 | 56 | 58 | 48/50 | 52/54 | 56/58 | 60/62 | 64/66 |
|-------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | XS | S | M | L | XL | 2XL | 3XL | M | L | XL | 2XL | 3XL |
| Body size | 165-177 | 168-180 | 171-183 | 174-186 | 176-188 | 178-190 | 180-192 | 172-180 | 178-185 | 182-189 | 186-191 | 190-197 |
| Chest measurement | 92-95 | 96-100 | 101-103 | 104-107 | 108-111 | 112-115 | 116-119 | 96-103 | 104-111 | 112-119 | 120-127 | 128-135 |
| Waistband | 79-82 | 83-86 | 87-90 | 91-94 | 95-98 | 99-102 | 103-107 | - | - | - | - | - |
| Hip size | 104 | 108 | 112 | 116 | 120 | 124 | 128 | - | - | - | - | - |
| Inside leg length | 83.5 | 84.5 | 85.5 | 86 | 86.5 | 87 | 87.5 | - | - | - | - | - |
| Sleeve length | 69.6 | 70.2 | 70.8 | 71.4 | 72 | 72.6 | 73.2 | 71 | 73 | 75 | 77 | 79 |

DEHNcare WJP protective overall "Advanced" (cm)

DEHNcare WJP protective overall "Basic" (cm)

| Ordering size | 48 | 50 | 52 | 54 | 56 | 58 | 48 | 50 | 52 | 54 | 56 | 58 |
|-------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | S | M | L | XL | 2XL | 3XL | S | M | L | XL | 2XL | 3XL |
| Body size | 166-178 | 170-182 | 174-186 | 178-190 | 182-194 | 186-198 | 166-178 | 170-182 | 174-186 | 178-190 | 182-194 | 186-198 |
| Chest measurement | 88-96 | 94-102 | 100-108 | 106-114 | 112-120 | 118-126 | 88-96 | 94-102 | 100-108 | 106-114 | 112-120 | 118-126 |
| Waistband | 80-88 | 86-94 | 92-100 | 98-106 | 104-112 | 110-118 | 80-88 | 86-94 | 92-100 | 98-106 | 104-112 | 110-118 |
| Hip size | 108 | 114 | 120 | 126 | 132 | 138 | 108 | 114 | 120 | 126 | 132 | 138 |
| Inside leg length | 80.5 | 82 | 83.5 | 85 | 86 | 88 | 80.5 | 82 | 83.5 | 85 | 86 | 88 |
| Sleeve length | 61.5 | 63 | 64.5 | 66 | 67.5 | 69 | 61.5 | 63 | 64.5 | 66 | 67.5 | 69 |

Glove - Determine size (cm):



Please use a tape measure to measure the circumference of your hand at the knuckles (without the thumb). Your hand should be open with the fingers together.

DEHNcare APG XT - normal gauntlet (cm)

DEHNcare APG XT - long gauntlet (cm)

| Ordering size | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | S | M | L | XL | 2XL | 3XL | 4XL | S | M | L | XL | 2XL | 3XL | 4XL |
| Total length | 330 | 335 | 340 | 350 | 355 | 360 | 365 | 410 | 420 | 430 | 435 | 440 | 445 | 450 |
| Gauntlet length | 140 | 140 | 140 | 140 | 140 | 140 | 140 | 230 | 230 | 230 | 230 | 230 | 230 | 230 |
| Hand circumference | 205 | 220 | 240 | 250 | 265 | 270 | 280 | 205 | 220 | 240 | 250 | 265 | 270 | 280 |

DEHNcare APG - normal gauntlet (cm)

DEHNcare APG - long gauntlet (cm)

| Ordering size | 8 | 9 | 10 | 11 | 12 | 8 | 9 | 10 | 11 | 12 |
|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | M | L | XL | 2XL | 3XL | M | L | XL | 2XL | 3XL |
| Total length | 310 | 315 | 325 | 330 | 335 | 440 | 450 | 455 | 460 | 465 |
| Gauntlet length | 115 | 115 | 115 | 115 | 115 | 250 | 250 | 250 | 250 | 250 |
| Hand circumference | 220 | 240 | 250 | 265 | 270 | 220 | 240 | 250 | 265 | 270 |

DEHNcare WJP protective gloves (cm)

| Ordering size | 9 | 10 | 11 | 12 | 13 |
|--------------------|-------|-----|-------|-----|-------|
| | L | XL | 2XL | 3XL | 4XL |
| Total length | 372.5 | 375 | 377.5 | 380 | 382.5 |
| Gauntlet length | 165 | 165 | 165 | 165 | 165 |
| Hand circumference | 295 | 300 | 305 | 310 | 315 |

DEHNshort - Arc fault protection system

Further information on arc fault
protection:



| | |
|--|----------|
| DEHNshort active arc fault protection system | Page 146 |
| Introduction | Page 147 |
| System description | Page 147 |
| Components | Page 148 |
| Light sensors and accessories | Page 148 |
| Detection devices | Page 148 |
| Quenching devices | Page 149 |
| References | Page 150 |



DEHNshort -
Arc fault protection system

Safe when it matters most

The importance of arc fault protection is highly relevant for switchgear manufacturers and operators because arc faults in low-voltage switchgear assemblies pose an existential threat to people and equipment. As the operator of electrical installations, you are obliged to take suitable

technical protection measures to protect employees in accordance with occupational health and safety legislation.

In addition to occupational safety, availability requirements, and thus system protection, must be evaluated when planning an electrical power distribution system.

Active arc fault protection systems in low-voltage switchgear assemblies are increasingly becoming established in all relevant regulations and have long since been regarded as state of the art. Your will receive comprehensive support during the planning process. Feel free to contact us.

DEHNshort - Active Arc Fault Protection System



Active arc fault protection system DEHNshort in a switchgear cabinet.

- Protection of persons and installations and system functions in accordance with EN 61439-2, Suppl. 1 (IEC/TR 61641 ed. 3, 2014)
- Use in low-voltage switchgear and controlgear assemblies according to EN 61439-2 after integration tests according to IEC TS 63107: 2020
- Maximum system availability
- Modular system structure
- System status is indicated at the front of the installation

| General technical data: | |
|---|------------------------|
| Rated operating voltage (U_n) | 400 - 690 V AC / 50 Hz |
| Rated short-time withstand current of the quenching devices (I_{cw}) | 110 kA, 300 ms |
| Lower response threshold (I_{parc}) | 5 kA |
| Max. admissible ambient temperature of the point sensors (during operation) | -20 °C ... +85 °C |
| Max. admissible ambient temperature of the fibre-optic sensors (during operation) | -5 °C ... +85 °C |
| Max. admissible ambient temperature of the quenching devices (during operation) | -5 °C ... +70 °C |
| Typical arc fault extinction times (t_{mtA}) | < 3-4 ms at 100 kA |
| Typical arc fault energies (E_{arc}) | 40-60 kW |



Built-in protective current transformers



Built-in light sensors



Detection devices integrated in the door



Built-in quenching devices

DEHNshort offers optimum protection for persons and switchgear assemblies against the effects of an arc fault. To ensure this, particularly short response times are required in energy-intensive switchgear assemblies. A few milliseconds decide the extent of the effects of an arc fault. DEHNshort is a system that detects the arc fault immediately after ignition, evaluates the recorded sensor signals and quenches the arc fault by generating a three-phase bolted short-circuit.

Functional principle:

Detect

In all feeders, protective current transformers positioned upstream of the feeding circuit breakers detect the overcurrent associated with the arc fault. As a second detection variable, special light sensors detect the extremely bright light of the arc fault. Depending on system requirements, the light sensors are available as a point sensor or fibre-optic sensor.

Evaluate

Electronic detection devices link the sensor signals and activate the quenching devices of the relevant busbar as well as the shunt releases of all feeder circuit breakers in the event of both detection variables appearing.

Quench

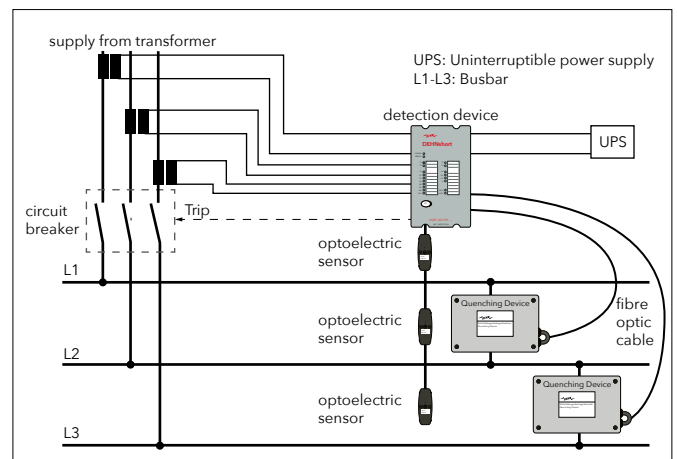
By activating the quenching devices, a bolted short-circuit is created in parallel to the arc fault in a very short time. Due to this low-resistance bypass, the voltage collapses and the arc fault is immediately quenched. The thyristors that short-circuit the three phases of the busbar immediately after activation of the quenching devices should be explicitly mentioned in this context. Subsequently, a contact device driven by a spring takes over the channelling of the short-circuit current until it is disconnected by the feeding circuit breakers.

Disconnect completely

To ensure that the switchgear assembly is not loaded with the short-circuit current for longer than necessary - and to ensure additional safety - all feeder circuit breakers receive a disconnection command via floating contacts on the respective shunt releases. This disconnects the arcing busbar section from the mains.

Restoration of service

After rectifying the original fault, replacing the quenching devices and carrying out an insulation test, the system can be put back into operation within a very short time. The arc fault protection realised in this way is considerably higher than the requirements of test criteria 1-7 from EN 61439-2, Suppl. 1 (IEC TR 61641 ed3 of 2014). DEHNshort is used wherever there is a high demand for the protection of people and availability of the electrical power supply.



Basic circuit diagram

Detection Device (Current + Light)

Detection unit DSRT DD CPS for current and light detection (DSRT PS point sensors), including output for connecting two DSRT QD II quenching devices.



| Type DSRT ... | DD CPS BACA | DD CPS AACA |
|--|---|---|
| Part No. | 782 030 | 782 031 |
| Min. / max. voltage (U _N) | 18-72 V DC | 92-265 V AC / DC |
| Degree of protection (front side) | IP 50 | IP 50 |
| Degree of protection (rear side) | IP 20 | IP 20 |
| Dimensions of the front plate (H x W) | 177 x 102 mm | 177 x 102 mm |
| Mounting dimensions (H x W x D) | 157 x 82 x 164 mm | 157 x 82 x 164 mm |
| Sensor inputs | S1, S2, S3, S4 (3 sensors (DSRT PS) can be connected per channel) | S1, S2, S3, S4 (3 sensors (DSRT PS) can be connected per channel) |
| Current inputs | 1 A / 5 A (IL1, IL2, IL3, Io) | 1 A / 5 A (IL1, IL2, IL3, Io) |
| Binary inputs | 24 V DC, 3 mA (BI1, BI2) | 24 V DC, 3 mA (BI1, BI2) |
| Tripping relay | Up to 250 V AC/DC 5 A (T1, T2, T3, T4) | Up to 250 V AC/DC 5 A (T1, T2, T3, T4) |
| High-speed outputs | Up to 250 V AC/DC 2 A (HS01, HS02) | Up to 250 V AC/DC 2 A (HS01, HS02) |
| Quenching device outputs | Optical fibre cable (at least 43 mA) (2x TX) | Optical fibre cable (at least 43 mA) (2x TX) |
| Binary output | 24 V d.c 20 mA (B01) | 24 V DC 20 mA (B01) |
| Operating temperature (T _U) | -35 °C ... +70 °C | -35 °C ... +70 °C |
| Tripping time of the relay | 7 ms | 7 ms |
| Tripping time HSO | < 2 ms | < 2 ms |
| Tripping time TX | < 2 ms | < 2 ms |
| Arc fault quenching time (t _{mtA}) | < 3-4 ms with DSRT QD II | < 3-4 ms with DSRT QD II |
| Approvals | VdS | VdS |

Detection Device (Point Sensor)

DSRT DD PS detection device for light detection (DSRT PS point sensors), including output for connecting two DSRT QD II quenching devices.



| Type DSRT ... | DD PS BACA | DD PS AACA |
|--|---|---|
| Part No. | 782 040 | 782 041 |
| Min. / max. voltage (U _N) | 18-72 V DC | 92-265 V AC / DC |
| Degree of protection (front side) | IP 50 | IP 50 |
| Degree of protection (rear side) | IP 20 | IP 20 |
| Dimensions of the front plate (H x W) | 177 x 52 mm | 177 x 52 mm |
| Mounting dimensions (H x W x D) | 157 x 45 x 164 mm | 157 x 45 x 164 mm |
| Sensor inputs | S1, S2, S3, S4 (3 sensors (DSRT PS) can be connected per channel) | S1, S2, S3, S4 (3 sensors (DSRT PS) can be connected per channel) |
| Binary inputs | 24 V DC, 3 mA (BI1, BI2) | 24 V DC, 3 mA (BI1, BI2) |
| Tripping relay | Up to 250 V AC/DC 5 A (T1, T2, T3, T4) | Up to 250 V AC/DC 5 A (T1, T2, T3, T4) |
| Quenching device outputs | Optical fibre cable (at least 43 mA) (2x TX) | Optical fibre cable (at least 43 mA) (2x TX) |
| Binary output | 24 V DC 20 mA (B01) | 24 V DC 20 mA (B01) |
| Operating temperature (T _U) | -35 °C ... +70 °C | -35 °C ... +70 °C |
| Tripping time of the relay | 7 ms | 7 ms |
| Tripping time TX | < 2 ms | < 2 ms |
| Arc fault quenching time (t _{mtA}) | < 3-4 ms with DSRT QD II | < 3-4 ms with DSRT QD II |
| Approvals | VdS | VdS |

Detection Device (Fibre Optic Sensor)

DSRT DD FS detection device for light detection (DSRT FS fibre optic sensor).



| Type DSRT ... | DD FS BAAA | DD FS AAAA |
|--|--|--|
| Part No. | 782 050 | 782 051 |
| Min. / max. voltage (U _N) | 18-72 V DC | 92-265 V AC / DC |
| Degree of protection (front side) | IP 50 | IP 50 |
| Degree of protection (rear side) | IP 20 | IP 20 |
| Dimensions of the front plate (H x W) | 177 x 52 mm | 177 x 52 mm |
| Mounting dimensions (H x W x D) | 157 x 45 x 164 mm | 157 x 45 x 164 mm |
| Sensor inputs | S1, S2, S3 (one fibre optic sensor (DSRT FS) can be connected per channel) | S1, S2, S3 (fibre optic sensor (DSRT FS) can be connected per channel) |
| Binary inputs | 24 V DC, 3 mA (BI1, BI2) | 24 V DC, 3 mA (BI1, BI2) |
| Tripping relay | Up to 250 V AC/DC 5 A (T1, T2, T3, T4) | Up to 250 V AC/DC 5 A (T1, T2, T3, T4) |
| Binary output | 24 V DC 20 mA (B01) | 24 V DC 20 mA (B01) |
| Operating temperature (T _U) | -35 °C ... +70 °C | -35 °C ... +70 °C |
| Tripping time of the relay | 7 ms | 7 ms |
| Arc fault quenching time (t _{mtA}) | < 3-4 ms with DSRT QD II | < 3-4 ms with DSRT QD II |
| Approvals | VdS | VdS |

Point Sensor

DSRT PS point sensor for arc detection. Serial connection of max. 3 sensors at each sensor input of DSRT DD CPS and DSRT DD PS devices.



| Type DSRT ... | PS |
|---|--|
| Part No. | 782 060 |
| Dimensions (L x W x H) | 90 x 32.8 x 19.5 mm |
| Fixing holes | 2x 3.2 mm |
| Lower response threshold (I _{parc}) | 5 kA |
| Detection radius | 90° (180°) |
| Max. distance to the arc fault | 2 m (0.5 m) |
| Sensor wiring | Two cores and shielding |
| Sensor cable specification | Twisted pair max. 0,5 mm ² , shielded |
| Max. sensor cable length per sensor channel | 100 m |
| Degree of protection | IP 60 |
| Operating temperature (T _U) | -20 °C ... +85 °C |
| Approvals | VdS |

Accessories for Point Sensor

Fixing clip for point sensors

Fixing clip for securing the DSRT PS point sensor in the switchgear cabinet.



| Type | SPBCLPS |
|------------|---------|
| Part No. | 782 097 |
| Hole pitch | 25 mm |
| Hole Ø | 5 mm |
| PU | 5 pc(s) |

Fibre Optic Sensor

DSRT FS fibre optic sensor for arc detection. Connection of one sensor at each sensor input of DSRT DD FS devices.



| General technical data: | |
|---|------------------|
| Diameter | 1.2 mm |
| Bending radius | 50 mm |
| Lower response threshold (I_{parc}) | 5 kA |
| Detection radius | 360° |
| Operating temperature (T_U) | -5 °C ... +85 °C |

| Type DSRT ... | FS 8 1.5 | FS 10 1.5 |
|--------------------------------|----------------|----------------|
| Part No. | 782 077 | 782 081 |
| Sensor length | 8 m | 10 m |
| Active sensor length | 5 m | 7 m |
| Max. distance to the arc fault | max. 10 cm | max. 10 cm |

| Type DSRT ... | FS 12 1.5 | FS 15 1.5 |
|--------------------------------|----------------|----------------|
| Part No. | 782 085 | 782 091 |
| Sensor length | 12 m | 15 m |
| Active sensor length | 9 m | 12 m |
| Max. distance to the arc fault | max. 10 cm | max. 10 cm |

| Type DSRT ... | FS 17 1.5 |
|--------------------------------|----------------|
| Part No. | 782 092 |
| Sensor length | 17 m |
| Active sensor length | 14 m |
| Max. distance to the arc fault | max. 10 cm |

Accessories for Fibre Optic Sensor

Foam rubber

For fibre optic sensors DSRT FS.



| | |
|-----------------|-----------------------|
| Type | DSRT SR D8 L20 |
| Part No. | 782 098 |
| Length | 20 mm |
| Diameter | 8 mm |
| PU | 50 pc(s) |

Fixing clip

For fibre optic sensors DSRT FS.



| | |
|-----------------|-------------------|
| Type | DSRT FC D8 |
| Part No. | 782 099 |
| Diameter | 8 mm |
| Mounting bore | Ø6.5 mm |
| PU | 50 pc(s) |

Quenching Device QD II

Quenching device for connection to DSRT DD CPS and DSRT DD PS detection devices.



| Type DSRT ... | QD II |
|---|-----------------------|
| Part No. | 782 002 |
| Rated operating voltage (U_e) | 400 - 690 V AC, 50 Hz |
| Rated short-time withstand current (I_{cw}) | 110 kA, 300 ms |
| Rated peak withstand current (I_{pk}) | 242 kA |
| Standard | IEC 60947-9-1:2019 |
| Dimensions (H x W x D) | 177 x 120 x 180 mm |
| System configurations | TN, TT, IT |
| Degree of protection | IP 00 |
| Approvals | VdS |

Fibre Optic Cable

Prewired fibre optic cables for connecting DSRT DD CPS, DSRT DD PS detection devices and DSRT QD II quenching device units.
1 set = 2 pieces



| General technical data: | |
|-------------------------|--------|
| Diameter | 2.2 mm |
| Approvals | VdS |

| Type DSRT ... | LWL 0.75 | LWL 2.00 |
|-----------------|----------------|----------------|
| Part No. | 782 020 | 782 022 |
| Length | 0.75 m | 2 m |

| Type DSRT ... | LWL 4.00 | LWL 8.00 |
|-----------------|----------------|----------------|
| Part No. | 782 024 | 782 028 |
| Length | 4 m | 8 m |

These manufacturers of low-voltage switchgear assemblies have integrated the DEHNshort active arc fault protection system into their switchgear systems in accordance with IEC TS 63107:



TECHNIK FÜR DIE ZUKUNFT



INDUSTRIAL SOLUTION SYSTEMS



Schaltanlagen für Energietechnik GmbH



Further information can be found here:



Safe working on electric railways

You can find more information on our protection solutions for the railway environment at: <https://www.dehn-international.com/en/safely-working-on-electrified-tracks>



Safety equipment for railway workers, technical emergency services and emergency management

| | |
|---|----------|
| Ice removal rod | Page 154 |
| Wireless inspection camera | Page 154 |
| Insulating stick kit for cleaning windscreens | Page 155 |
| Voltage detectors | Page 156 |
| Earthing and short-circuiting devices | Page 164 |
| Voltage-limiting device SDS | Page 171 |













Safe working on electric railways

In modern rail technology, safety is of paramount importance. The DEHN safety equipment portfolio offers you tools and equipment, including protective and auxiliary equipment, for working in accordance with the five safety rules in the areas of electrified track systems and electrical supply

systems. In this chapter you will find our solutions for safe working on overhead contact lines, substations, switchgear installations, for frequencies of 50 or 16.7 Hz or for DC systems.

Be it a wireless inspection camera or voltage detector, or telescopic earthing sticks and earthing and short-circuiting devices for railway earthing. All DEHN products have been tried and tested over many years and are as a rule approved by Deutsche Bahn with material and drawing numbers.

| Application | Nominal voltage U_N / Frequency f_N | Product | Page |
|---|---|---|------|
| Ice removal rod <ul style="list-style-type: none"> For removing icicles in the vicinity of live parts Solid ice removal hammer Telescopic handle | up to 15 kV / 16.5 Hz and 25 kV / 50 Hz |  | 154 |
| Wireless inspection camera <ul style="list-style-type: none"> Periodic visual inspection and documentation of the state of electrical installations and equipment (also without special training) Wireless Wi-Fi operation of the camera via smartphone / tablet No downtimes due to disconnection of the installations | up to 150 kV / 15 ... 60 Hz |  | 154 |
| Insulating stick kit for cleaning windscreens <ul style="list-style-type: none"> Insulating stick kit for cleaning the windscreens of electric locomotives | up to 7.5 kV / DC and 25 kV / AC |  | 155 |
| Voltage detector for overhead contact line systems <ul style="list-style-type: none"> Suitable for use in wet weather conditions Cost-effective / space-saving transport | up to 15 kV / 16.7 Hz up to 25 kV / 50 Hz |  | 156 |
| Voltage detectors for switchgear installations <ul style="list-style-type: none"> Suitable for use in wet weather conditions Easy handling | 20 kV / 50 Hz or 16.7 Hz switchable |  | 157 |
| Voltage detectors for traction power lines <ul style="list-style-type: none"> Suitable for use in wet weather conditions Easy handling | up to 15 kV / 16.7 Hz |  | 158 |
| Voltage detectors for outdoor switching stations <ul style="list-style-type: none"> Suitable for use in wet weather conditions Kit for universal use Cost-effective / space-saving transport | 110 ... 132 kV / 50 and 16.7 Hz 66 kV / 16.7 Hz 110...420kV/16.7Hz |  | 159 |
| Voltage detector for direct current systems <ul style="list-style-type: none"> Suitable for use in wet weather conditions, for indoor and outdoor installations Two-pole (one-/two-stick) | up to 24 kV / DC voltage |  | 162 |
| Earthing and short-circuiting | |  | 164 |
| Voltage-limiting devices SDS | |  | 171 |

German Social Accident Insurance (DGUV) Regulation 3 (formerly accident prevention regulations (BGV A3))

Operating sticks, voltage detectors and EaS devices must be checked according to the DGUV regulation 3 (previously BGV A3) to ensure that they are in good condition and comply with the limit values as specified in the electrotechnical rules. This test is carried out in the high-voltage test laboratory at DEHN and includes, among other things:

- Testing the discharge current
- Testing the protection against bridging
- Testing by visual inspection, manual test and measuring
- Measurement of the total resistance on EaS devices
- Measurement of the relative change in resistance on EaS devices

The maintenance test is documented in a test report and on the device itself.

The intervals for maintenance tests depend on the conditions of use, e.g. frequency of use, stress due to environmental conditions and transport, etc, however, according to DGUV regulation 3, **at least every 6 years**.



Ice Removal Rod



Removing icicles on a tunnel entrance.

Nominal voltages up to 25 kV

- For removing ice in the vicinity of live parts e.g. outdoor overhead contact lines or tunnel systems
- Solid ice removal hammer made of insulating material
- Insulating stick for 15 kV / 16.7 Hz and 25 kV / 50 Hz systems
- With telescopic handle up to a total length of 3420 mm to 5270 mm

General technical data:

| | |
|-----------------------------------|--|
| Standard (operating head) | Based on DIN VDE 0682-411 and DIN VDE V 0681-1 |
| Standard (insulating stick) | Based on DIN VDE 0682-411 and DIN VDE V 0681-1 |
| For use in wet weather conditions | |
| Material (insulating stick) | Glass-fibre reinforced polyester tube |
| Material (handle) | Glass-fibre reinforced polyester tube |

Operating Head (Hammer)

With plug-in coupling.



| | |
|-----------------------------------|-----------------------------|
| Type | AK 25 ESH STK SN7361 |
| Part No. | 766 372 |
| Nominal voltage (U _N) | 1 ... 25 kV |
| Total length (l _G) | 400 mm |
| Dimensions (operating head) | 300 x 56 mm |
| For use at | |

Insulating Stick

With plug-in coupling for operating head (hammer).



| | |
|-----------------------------------|-----------------------------|
| Type | ISN 25 STK 900SN7360 |
| Part No. | 766 371 |
| Nominal voltage (U _N) | 1 ... 25 kV |
| Total length (l _G) | 920 mm |
| For use at | |

Telescopic Extension Handle

With plug-in coupling for the insulating stick and end fitting with eye.



| | |
|---|-----------------------------|
| Type | HVTC STK 4100 SN7359 |
| Part No. | 766 469 |
| Total length (l _{G max} / l _{G min}) | 4120 / 2290 mm |
| For use at | |

Wireless Inspection Camera



System monitoring with wireless inspection camera and live display on a smartphone.

Nominal voltages up to 150 kV / 15 to 60 Hz

- Wireless inspection camera for periodic visual inspection and for documenting the state of electrical installations and equipment (also without special training)
- Brings the invisible to light
- Facilitates work, increases safety, saves time



General technical data:

| | |
|---------------------------------------|--------------------------------------|
| Standard | Based on EN 50508 (DIN VDE 0682-213) |
| Temperature range (T _U) | 0 °C ... +40 °C |
| Not for use in wet weather conditions | |
| Material (enclosure) | PUR |
| Material (camera) | Aluminium |

AC2 digital camera set



Kit includes:

| No. | Description | Type |
|-----|--|---------------|
| 1 | Plastic case | KKL DIGIK AC2 |
| 2 | Digital camera enclosure | G DIGIK AC2 |
| 3 | Camera and battery module incl. magn. protective cover | DIGIK AC2 |
| 4 | Magnetic adapter holder with 1/4" thread | MAH DIGIK AC2 |
| 5 | Rigid adapter gear coupling | ADS ZK 185 |

| Type | SET DIGIK AC2 |
|-----------------------------------|---------------------------------------|
| Part No. | 766 480 ^{NEW} |
| Nominal voltage (U _N) | up to 150 kV |
| Frequency | 15-60 Hz |
| Resolution | 12 megapixels |
| Objective | Ultra-wide angle (155° field of view) |
| Digital zoom | 4x |
| sensor | 1/1.7" 4K CMOS sensor |
| Image stabiliser | Electronic |
| Formats | JPEG/RAW and MP4 |
| Internal memory | 22 GB |
| Ext. SD card | microSD (max. 256 GB) *) |
| Equipment | Remote control via app |
| Voice command | Yes |
| Interfaces | USB type-C |
| Dimensions (case) | 395 x 290 x 105 mm |

*) Handle, insulating sticks and micro SD card are not included.

Macro lens

For close-ups



| | |
|-----------------|-------------------------------|
| Type | MO DIGIK AC2 |
| Part No. | 766 483 ^{NEW} |
| Dimensions | 40 x 40 x 10 mm |

Accessories for wireless Inspection Camera

Operating stick set

Set for animal guard adapter and wireless inspection camera.



| | |
|---|----------------|
| Type | ASSN 36 STK ZK |
| Part No. | 766 380 |
| Nominal voltage (U _N) | 1 ... 36 kV |
| Max. total length (l _{G,max}) | 6780 mm |
| DB drawing No. | 3 Egbw 04.61 |

Accessories for Operating sticks



Installation of the "animal guard" with the help of an adapter to protect birds and small animals.

Adapter for animal guard

Adapter with gear coupling for mounting the 3M Animal Guard.



| | |
|--------------------------------|--------------|
| Type | AD ZK 3M 170 |
| Part No. | 766 059 |
| Total length (l _G) | 170 mm |
| DB drawing No. | Egbw 04.71 |

Insulating Stick Kit for Cleaning the Windscreens of Electric Locomotives



Insulating stick kit used for cleaning the windscreen of an electric locomotive.

Nominal voltages up to 7.5 kV / DC and 25 kV / AC

- For cleaning the windscreens of electric locomotives
- Protection against accidental contact with live parts (e.g. overhead contact lines)
- Adjustable inclination angle of the operating head



General technical data:

| | |
|-----------------------------------|---|
| Standard | Wet test in accordance with EN/IEC 61243-1 (DIN VDE 0682-411) |
| For use in wet weather conditions | |
| Material (insulating tube) | Glass-fibre reinforced polyester tube |
| End fitting | Non-slip plastic cap |



Insulating Stick Kit for Cleaning Windscreens



| | | | |
|-------------|----------|-----|----------|
| Parts list: | | | |
| No. | Part No. | No. | Part No. |
| 1 | 766 048 | 3 | 766 056 |
| 2 | 766 055 | 4 | 766 057 |

For more detailed information on these products, see * www.dehn-international.com.

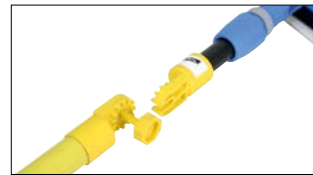
| | |
|-----------------------------------|------------------|
| Type | IS 25 ZK RK 3160 |
| Part No. | 766 340 |
| Nominal voltage U _N AC | Up to 25 kV |
| Nominal voltage U _N DC | Up to 7.5 kV |
| Total length (l _G) | 3160 mm |
| Insertion depth (l ₀) | 1630 mm |



Adapter with gear coupling for attaching the cleaning head.



The hook-and-loop fastener allows fast replacement of the cleaning pad.



The universal gear coupling can be adjusted from 0° to 90° in 30° increments.

Note:

In accordance with EN/IEC 61243-1 (DIN VDE 0682-411), IS 25 ZK 2885 insulating sticks and AD ZK 25 200 adapters can also be used in wet weather conditions for nominal voltages up to 7.5 kV DC and 25 kV AC. The cleaning agent must not exceed the maximum conductivity of 1000 µS / cm. Due to the risk of bridging, water and cleaning agents must not be used to clean live parts of installations.

Spare Parts for Insulating Stick Kit

Cleaning head

Flexibly adjustable, for attaching cleaning pads.



| | |
|------------|-----------------|
| Type | RK 230 100 AS25 |
| Part No. | 766 056 |
| Dimensions | 230 x 100 mm |
| Diameter | 25 mm |

Rectangular cleaning pad



| | |
|------------|-------------------|
| Type | RP 250 115 20 |
| Part No. | 766 057 |
| Dimensions | 250 x 115 x 20 mm |
| PU | 10 pc(s) |

Voltage detectors for overhead contact line systems

PHE Voltage Detector Kit



PHE voltage detector with visual indicator used on an overhead contact line of German Railways (DB).

| General Information: | |
|-----------------------------------|---------------------------------------|
| Standard | DIN VDE 0681-6 |
| For use in wet weather conditions | |
| Indication | Visual |
| Self-testing element | Yes |
| Material (test electrode) | St/gal Zn |
| Material (test prod) | Glass-fibre reinforced polyester tube |
| Material (indicator) | Plastic, fully insulated |
| Material (insulating stick) | Glass-fibre reinforced polyester tube |

Parts list:

| No. | Part No. | No. | Part No. |
|-----|----------|-----|----------|
| 1 | 766 619 | 7 | 766 076 |
| 2 | 766 678* | 8 | 766 077 |
| 3 | 766 677* | 9 | 766 889 |
| 4 | 766 072 | 10 | 766 602 |
| 5 | 766 075 | 11 | 766 704 |
| 6 | 766 073 | | |

For more detailed information on these products, see * www.dehn-international.com.

Nominal voltage 15 kV / 16.7 Hz

Easy and safe testing

- For overhead contact lines of electric railways
- Cost-effective / space-saving transport
- Easy to use due to simple plug-in system



Nominal Voltage 15 kV / 16.7 Hz

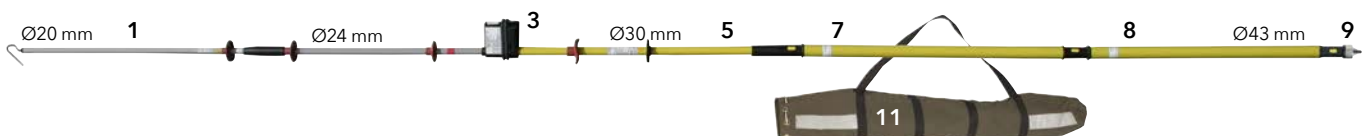
Detachable (four elements).



| | |
|-----------------------------------|--------------|
| Type PHE 15 16.7 ... | 4T TA |
| Part No. | 766 616 |
| Nominal voltage (U _N) | 15 kV |
| Frequency | 16.7 Hz |
| Total length (l _G) | 4890 mm |
| Insertion depth (l _O) | 1675 mm |
| DB drawing No. | 3 Ebgw 02.51 |
| DB material No. | 237 129 |

Nominal Voltage 15 kV / 16.7 Hz
(for Transport in Motor Vehicles)

Detachable (six elements).



| | |
|-----------------------------------|--------------|
| Type PHE 15 16.7 ... | 6T TA |
| Part No. | 766 617 |
| Nominal voltage (U _N) | 15 kV |
| Frequency | 16.7 Hz |
| Total length (l _G) | 4900 mm |
| Insertion depth (l _O) | 1675 mm |
| DB drawing No. | 3 Ebgw 02.53 |
| DB material No. | 652 975 |



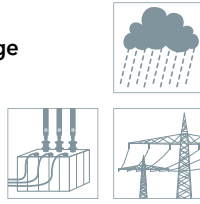
Two-part test prod with robust threaded coupling (six-part kit for transport in motor vehicles).

Volt. detec. f. overhead contact line systems

PHE III Voltage Detector

Nominal voltages up to 25 kV / 50 Hz
Safe verification of isolation from supply voltage

- Reliable indication
- Easy to use
- Cost-effective / space-saving transport



| General technical data: | |
|-----------------------------------|---|
| Standard | EN/IEC 61243-1 (DIN VDE 0682-411) |
| Temperature range | -25 °C ... +55 °C, climatic category N |
| Design | Complete |
| For use in wet weather conditions | |
| For | Indoor and outdoor installations |
| Indication | Acoustic and visual |
| Self-testing element | Yes |
| Material (test electrode) | Copper alloy/gal Sn |
| Material (test prod) | Glass-fibre reinforced epoxy resin tube |
| Material (indicator) | Plastic, fully insulated |
| Material (insulating stick) | Glass-fibre reinforced polyester tube |

Nominal Voltages up to 25 kV / 50 Hz

For the overhead contact lines of electric railways.
Category "S" for single-ended monophas systems.

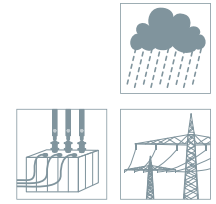


| | |
|-----------------------------------|-----------------|
| Type | PHE3 25 S 50 1P |
| Part No. | 767 125 |
| Nominal voltage (U _N) | 25 kV |
| Total length (l _G) | 1680 mm |
| Insertion depth (l _O) | 880 mm |

Voltage detectors for switching stations

PHE4 Voltage Detector Medium Voltage

- Self-test of all live parts including test prod
- Unique plug-in coupling system
- Integrated visual and acoustic indication
- Also for use in wet weather conditions



| General technical data: | |
|-----------------------------------|--|
| Standard | EN/IEC 61243-1 (DIN VDE 0682-411) |
| Temperature range | -25 °C ... +70 °C, climatic category N and W |
| Design | Complete |
| For use in wet weather conditions | |
| For | Indoor and outdoor installations |
| Indication | Acoustic and visual |
| Self-testing element | Yes |
| Material (test electrode) | Cu alloy/gal Sn |
| Material (test prod) | Glass-fibre reinforced epoxy resin tube |
| Material (indicator) | Plastic, fully insulated |
| Material (insulating stick) | Glass-fibre reinforced polyester tube |

Nominal Voltage up to 20 kV / 50 Hz or 16.7 Hz, switchable

Category "S" for switchgear installations and overhead lines.



| | |
|-----------------------------------|------------------|
| Type PHE4 ... | U 6 20 S 16.7 50 |
| Part No. | 783 430 |
| Nominal voltage (U _N) | 6 ... 20 kV |
| Frequency | 50 / 16.7 Hz |
| Total length (l _G) | 1600 mm |
| Insertion depth (l _O) | 800 mm |

^{*)} all circuits including test prod

Nominal Voltage up to 20 kV / 16.7 Hz, M12 Thread

Category "S" for switchgear installations and overhead lines.



| | |
|-----------------------------------|-------------|
| Type PHE4 ... | 6 20 S 16.7 |
| Part No. | 783 420 |
| Nominal voltage (U _N) | 6 ... 20 kV |
| Frequency | 16.7 Hz |
| Total length (l _G) | 1600 mm |
| Insertion depth (l _O) | 800 mm |

^{*)} all circuits including test prod

Voltage detectors for switching stations

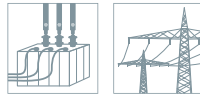
PHE Voltage Detector



PHE voltage detector with visual indication.

Nominal voltages up to 20 kV / 50 Hz or 16.7 Hz
Easy and safe testing

- Reliable indication
- Easy to use



General Information:

| | |
|-----------------------------------|--|
| Standard | EN/IEC 61243-1 (DIN VDE 0682-411) and DIN VDE V 0682-421 |
| Temperature range | -25 °C ... +55 °C, climatic category N |
| Design | Complete |
| For use in wet weather conditions | |
| For | Indoor and outdoor installations |
| Indication | Visual |
| Self-testing element | Yes |
| Material (test electrode) | Copper alloy/gal Sn |
| Material (test prod) | Glass-fibre reinforced epoxy resin tube |
| Material (indicator) | Plastic, fully insulated |
| Material (insulating stick) | Glass-fibre reinforced polyester tube |

Nominal Voltage Ranges up to 20 kV / 16.7 Hz

For single-ended monophasic switchgear installations and point heating systems.



| | |
|-----------------------------------|----------------|
| Type PHE ... | 6 20 S 16.7 1P |
| Part No. | 767 415 |
| Nominal voltage (U _N) | 6 ... 20 kV |
| Frequency | 16.7 Hz |
| Total length (l _G) | 1560 mm |
| Insertion depth (l _O) | 770 mm |
| DB drawing No. | 3 Ebgw 02.52 |
| DB material No. | 738 302 |

Nominal Voltage Ranges
20 kV / 50 Hz or 16.7 Hz,
switchable



For three-phase systems and single-ended monophasic installations.

Special features of the switchable voltage detector:

The selector switch can be moved into three positions for the relevant voltage and frequency ranges:

- 3 ... 10 kV / 50 Hz - three-phase systems
- 6 ... 20 kV / 50 Hz - three-phase systems
- 6 ... 20 kV / 16.7 Hz - single-ended monophasic systems

For safety reasons, the detector can only be switched on if the selector switch is switched to the most sensitive range of 3 kV to 10 kV / 50 Hz. The switch snaps into the relevant position and provides protection against accidental switching.

A magnetically operated, wear-resistant reed switch changes the switching position.



| | |
|-----------------------------------|----------------|
| Type PHE ... | 3 20 S FU 1P |
| Part No. | 767 416 |
| Nominal voltage (U _N) | 3 ... 20 kV |
| Frequency | 16.7 and 50 Hz |
| Total length (l _G) | 1560 mm |
| Insertion depth (l _O) | 770 mm |
| DB drawing No. | 3 Ebgw 02.54 |
| DB material No. | 743 361 |

Voltage detectors for traction power lines

Nominal Voltage 15 kV / 16.7 Hz

For traction power lines. Hook-shaped electrode and end fitting with plug-in coupling and non-slip eye included.



Use for traction power lines

Voltage detectors for traction power lines have a shorter extension than voltage detectors for overhead contact lines. To ensure reliable indication, the PHE 15 16.7 BEL STK voltage detector may only be used for traction power lines and not for other components of overhead contact lines. Moreover, it must not be used from ladder trolleys for overhead contact lines. Traction power lines are supply lines, line feeders, bypass lines, connecting lines, feeder lines, 15 kV cables, cable sealing ends, switch lines and transverse switch lines.



| | |
|-----------------------------------|-----------------|
| Type PHE ... | 15 16.7 BEL STK |
| Part No. | 767 413 |
| Nominal voltage (U _N) | 15 kV |
| Frequency | 16.7 Hz |
| Total length (l _G) | 1645 mm |
| Insertion depth (l _O) | 765 mm |
| DB drawing No. | 3 Ebgw 02.55 |
| DB material No. | 964 851 |

Voltage detectors for outdoor switching stations

PHE III Voltage Detector Kit

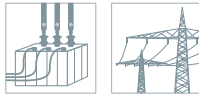


PHE III voltage detector used on a 110 kV outdoor station.

Nominal voltages up to 110 ... 132 kV / 50 and 16.7 Hz and 66 kV / 16.7 Hz

Safe verification of isolation from supply voltage

- Reliable indication
- Easy to use
- Multi-purpose kit
- Cost-effective / space-saving transport



| General technical data: | |
|-----------------------------------|---|
| Standard | EN/IEC 61243-1 (DIN VDE 0682-411) |
| Temperature range | -25 °C ... +55 °C, climatic category N |
| Design | Complete |
| For use in wet weather conditions | |
| For | Indoor and outdoor installations |
| Indication | Acoustic and visual |
| Self-testing element | Yes |
| Material (test electrode) | Copper alloy/gal Sn |
| Material (test prod) | Glass-fibre reinforced epoxy resin tube |
| Material (indicator) | Plastic, fully insulated |
| Material (insulating stick) | Glass-fibre reinforced polyester tube |

| Parts list: | | | |
|-------------|----------|-----|----------|
| No. | Part No. | No. | Part No. |
| 1 | 766 924 | 7 | 767 128 |
| 2 | 766 923 | 8 | 766 115 |
| 3 | 767 771 | 9 | 766 120 |
| 4 | 767 129 | 10 | 766 889 |
| 5 | 769 715 | 11 | 767 996 |
| 6 | 766 352 | | |

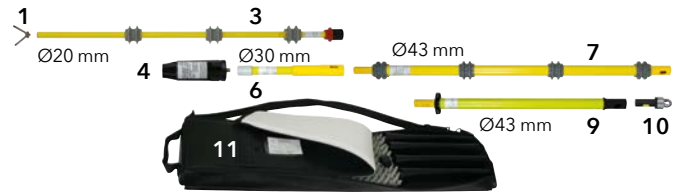
For more detailed information on these products, see * www.dehn-international.com.

Nominal Voltage Range 110 ... 132 kV / 50 and 16.7 Hz

For 50 Hz three-phase systems and 16.7 Hz centre-earthed monophas traction power lines. Range does not have to be switched.



Category "S"



| | |
|-----------------------------------|-----------------|
| Type | PHE3S 110 132 S |
| Part No. | 767 131 |
| Nominal voltage (U _N) | 110 ... 132 kV |
| Total length (l _G) | 3440 mm |
| Insertion depth (l _O) | 880 mm |
| DB drawing No. | 3 Eku 710 001 |
| DB material No. | 01 101 358 |

Nominal Voltage 66 kV / 16.7 Hz

Category "S" for single-ended monophas systems



| | |
|-----------------------------------|----------------------|
| Type | PHE3 66 16.7S SN7705 |
| Part No. | 769 714 |
| Nominal voltage (U _N) | 66 kV |
| Total length (l _G) | 2980 mm |
| Insertion depth (l _O) | 880 mm |

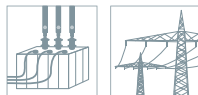
Voltage detectors for outdoor switching stations

PHE4 Voltage Detector High Voltage



PHE4 voltage detector applied in a 110 kV outdoor switching station.

- High nominal voltage range
- Unique plug-in coupling system
- Integrated visual and acoustic indication
- Also for use in wet weather conditions



General Information:

| | |
|-----------------------------------|--|
| Norm | EN/IEC 61243-1 (DIN VDE 0682-411) |
| Temperature range | -25 °C ... +70 °C, climatic category N and W |
| Design | Complete |
| For use in wet weather conditions | |
| For | Indoor and outdoor installations |
| Indication | Acoustic and visual |
| Self-testing element | Yes |
| Material (test electrode) | Copper alloy/gal Sn |
| Material (test prod) | PP |
| Material (indicator) | Plastic, fully insulated |
| Material (insulating stick) | Glass-fibre reinforced polyester tube |

Nominal Voltage Range
110 ... 132 kV / 50 & 16.7 Hz,
M12 Thread



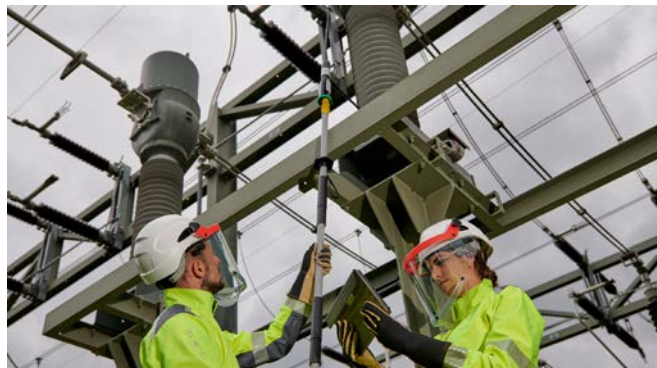
Category "S" for switchgear installations and overhead lines.



| | |
|-----------------------------------|-------------------|
| Type PHE4 ... | 110 132 S 16.7 50 |
| Part No. | 783 460 |
| Nominal voltage (U _N) | 110 ... 132 kV |
| Frequency | 50 & 16.7 Hz |
| Total length (l _G) | 3420 mm |
| Insertion depth (l ₀) | 910 mm |

^{*)} all circuits without test prod

ASP Non-Contact Voltage Detector Kit



Use of an ASP distance voltage detector in an outdoor switching station.

Nominal voltage range 110 ... 132 kV / 16.7 Hz
Easy and safe testing

- Easy to use due to compact design
- Cost-effective / space-saving transport



General Information:

| | |
|-----------------------------------|---|
| Temperature range | -25 °C ... +55 °C |
| For use in wet weather conditions | |
| For | Overhead lines and outdoor switching stations |
| Indication | Acoustic and visual |
| Self-testing element | Yes |
| Design | Single-pole |
| Material (indicator) | Plastic, fully insulated, black |
| Material (electric field sensor) | Plastic, black |
| Material (insulating stick) | Glass-fibre reinforced polyester tube |

Parts list:

| No. | Part No. | No. | Part No. |
|-----|----------|-----|----------|
| 1 | 767 576 | 3 | 766 369 |
| 2 | 767 564 | 4 | 767 574 |

For more detailed information on these products, see * www.dehn-international.com.

Category "L", 16.7 Hz

Category "L" for centre-earthed monophasic traction power lines.



| | |
|-----------------------------------|---------------------|
| Type | ASPS 110 132 16.7 L |
| Part No. | 767 565 |
| Nominal voltage (U _N) | 110 ... 132 kV |
| Frequency | 16.7 Hz |
| Total length (l _G) | 960 mm |
| DB drawing no. | 3 Eku 710 002 |

Voltage detectors for outdoor switching stations

HSA 194 High-Voltage Indicator



High-voltage indicator used on a 110 kV overhead line.

Nominal Voltage Range
110 ... 420 kV

With plug-in coupling as end fitting for extending the handle.
Storage bag included in delivery.



| | |
|---|---------------------|
| Type | HSA194 110 420 16.7 |
| Part No. | 767 542 |
| Nominal voltage range (U _N) | 110 ... 420 kV |
| Frequency | 16.7 Hz |
| Total length (l _G) | 940 mm |
| Insulating clearance (l _I) | 540 mm |
| DB drawing No. | 3 Ekgw 02.54 |
| Verification while climbing the tower | No |

Nominal voltage rang 110 ... 420 kV / 16.7 Hz
Easy and safe testing

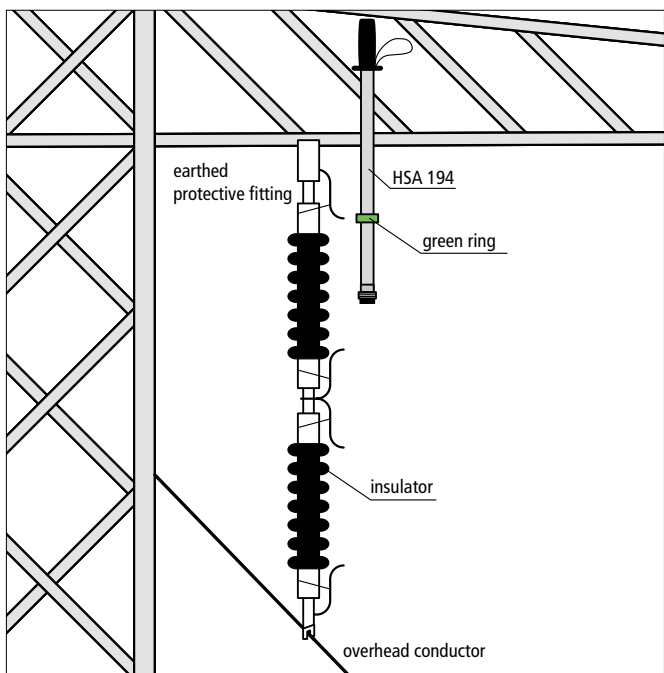
- For contactlessly verifying that switchgear and high-voltage overhead lines or centre-earthed monophas traction power lines are dead
- Cost-effective / space-saving transport



General Information:

| | |
|-----------------------------------|--|
| Temperature range | - 25 °C ... + 55 °C, climatic category N |
| For use in wet weather conditions | |
| Indication | Acoustic and visual |
| Self-testing element | Yes |
| Material (insulating stick) | Glass-fibre reinforced polyester tube |

To verify absence of voltage from the tower cross arm, place the green ring of the high-voltage indicator on the last earthed protective fitting (or earthed insulator cap) of the insulator so that the operating head of the high-voltage indicator (see Fig.) points towards the overhead conductor to be tested, which is attached to the other insulator end (longitudinal axis of the device in parallel to the longitudinal axis of the insulator). If the conductor is energised, there is a visual (red flashing light) and acoustic signal.



Voltage detectors for DC voltage systems

PHE/G DC Voltage Detector

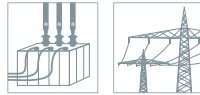


PHE/G II DC voltage detector for DC links (ICE power car).

Nominal voltages up to bis 24 kV DC

Safe verification of isolation from supply voltage

- For use in direct voltage systems (electrified rail networks, DC links)
- Reliable indication
- Easy to use due to compact design
- User-friendly



The test prod of DC voltage detectors is colour-coded according to the polarity of the test prod:

- positive pole - red;
- negative pole - blue.

General technical data:

| | |
|--|--|
| Standard | Based on EN/IEC 61243-1 (DIN VDE 0682-411) |
| Temperature range | -25 °C ... +55 °C, climatic category N |
| For use in wet weather conditions | |
| For | Indoor and outdoor installations |
| Indication | Visual |
| Self-testing element | Yes |
| Material (test prod) | Glass-fibre reinforced polyester tube |
| Material (indicator) | Plastic, fully insulated |
| Material (insulating stick) | Glass-fibre reinforced polyester tube |
| Material (earthing / connecting cable) | Copper cable, highly flexible |

PHE/G I for Switchgear Installations, positive pole on indicator with test prod



One stick

- For direct voltage systems with earthed negative pole
- Positive pole: indicator with test prod
- Negative pole: earth clamp with magnet



| | |
|-------------------------------------|------------------|
| Type | PHEG1.S P SN7401 |
| Part No. | 767 666 |
| Threshold voltage (U _t) | 120 V |
| Nominal voltage (U _N) | 1 ... 24 kV |
| Length (earthing cable) | 2000 mm |
| Total length (l _G) | 1260 mm |
| Insertion depth (l _O) | 535 mm |

PHE/G I for Switchgear Installations, positive pole on indicator with test prod, angled



One stick

- For direct voltage systems with earthed negative pole
- Positive pole: Indicator with test prod
- Negative pole: Earth clamp



| | |
|-------------------------------------|------------------|
| Type | PHEG1.S P SN7240 |
| Part No. | 767 636 |
| Threshold voltage (U _t) | 60 V |
| Nominal voltage (U _N) | 3.8 kV |
| Length (earthing cable) | 4000 mm |
| Total length (l _G) | 1100 mm |

Voltage detectors for DC voltage systems

PHE/G I for Overhead Contact Lines, positive pole on indicator with test prod



One stick (three elements)

- For direct voltage systems with earthed negative pole
- Positive pole: Indicator with test prod
- Negative pole: Earth clamp

PHE/G I for Overhead Contact Lines, negative pole on indicator with test prod



One stick (four elements)

- For DC voltage systems with earthed positive pole
- Negative pole: Indicator with test prod
- Positive pole: Earth clamp



| | |
|-------------------------------------|--------------|
| Type | PHEG1 FD P 3 |
| Part No. | 767 610 |
| Threshold voltage (U _t) | 1.1 kV |
| Nominal voltage (U _N) | 3.0 kV |
| Length (earthing cable) | 6000 mm |
| Total length (l _G) | 4125 mm |

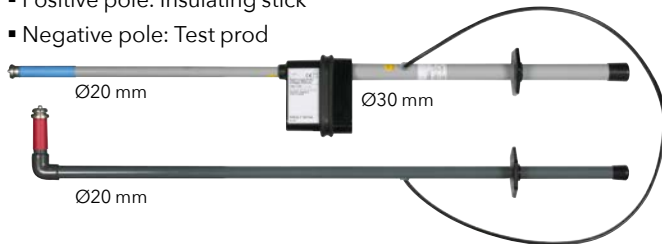
| | |
|-------------------------------------|-------------------|
| Type | PHEG1 FD M SN7223 |
| Part No. | 767 614 |
| Threshold voltage (U _t) | 0.825 kV |
| Nominal voltage (U _N) | 1.65 kV |
| Length (earthing cable) | 8000 mm |
| Total length (l _G) | 4060 mm |

PHE/G II, angled positive pole



Two sticks

- For unearthed direct voltage installations
- For DC links
- Positive pole: Insulating stick
- Negative pole: Test prod



| | |
|-------------------------------------|----------------|
| Type | PHEG2 P SN7346 |
| Part No. | 767 639 |
| Threshold voltage (U _t) | 150 V |
| Nominal voltage (U _N) | 750 V |
| Length (connecting cable) | 1200 mm |
| Total length (l _G) | 1100 mm |

PHE/G II for Switchgear Installations and DC Links



Two sticks

- For unearthed direct voltage installations
- For DC links (e.g. electric locomotives; Part No. 767 647)
- Positive pole: Indicator with test prod
- Negative pole: Insulating stick



| | |
|--------------------------------|---------|
| General technical data: | |
| Length (connecting cable) | 1200 mm |

| | | |
|-------------------------------------|----------------|----------------|
| Type | PHEG2 P SN7552 | PHEG2 P SN7259 |
| Part No. | 767 647 | 767 645 |
| Threshold voltage (U _t) | 90 V | 120 V |
| Nominal voltage (U _N) | 1 ... 4.2 kV | 1 ... 12 kV |
| Total length (l _G) | 600 mm | 1085 mm |

PHE/G II for Switchgear Installations



Two sticks

- For unearthed direct voltage installations
- For DC links
- Positive pole: Indicator with test prod
- Negative pole: Insulating stick



| | |
|-------------------------------------|----------------|
| Type | PHEG2.P SN7517 |
| Part No. | 767 671 |
| Threshold voltage (U _t) | 90 V |
| Nominal voltage (U _N) | 1 ... 24 kV |
| Length (connecting cable) | 1200 mm |
| Total length (l _G) | 1260 mm |
| Insertion depth (l ₀) | 545 mm |

Accessories

Artificial Leather Bag

Artificial Leather Bag for PHE4 and PHE

With carrier handle



| | |
|--------------|---------------------|
| Type KLT ... | 247 10 22 |
| Part No. | 766 602 |
| Dimensions | 2470 x 220 x 100 mm |
| Colour | Black ● |

Artificial Leather Bag for PHE/G

With carrier handle



| | |
|--------------|----------------|
| Type KLT ... | 160 17 |
| Part No. | 766 614 |
| Dimensions | Ø170 x 1600 mm |
| Colour | Black ● |

Canvas Bag

Canvas Bag for PHE and PHE/G I

With carrier handle.



| | |
|--------------|---------------------|
| Type STT ... | 120 30 15 |
| Part No. | 766 704 |
| Dimensions | 1220 x 390 x 150 mm |
| Colour | Olive ● |

Fixed Ball Points



Straight fixed ball point mounted on a busbar.

- Suitable for fixing busbar connections according to DIN 43673-1
- Self-locking nut
- M12 or M16 non-cutting formed female thread
- M12 or M16 threaded pin

General technical data:

| | |
|-----------------------------|--|
| Standard | EN/IEC 61230 (DIN VDE 0683-100) and based on DIN 48088-1 |
| Material (fixed ball point) | E-Cu/gal Sn |
| Material (threaded pin) | StSt A2-70 |
| Hexagon nut | DIN 985-M12-8 / gal Zn; DIN 985-M16-8 / gal Zn |
| Tightening torque | M10: 30-40 Nm; M12: 50-65 Nm; M16: 100-110 Nm |

Straight with Threaded Pin, Nut and Washer



General technical data:

| | |
|---|--------------|
| Fixed ball point Ø | 25 mm |
| Max. short-circuit current I_k 0.06 s | 34.0 kA |
| DB drawing No. | 3 Ebgw 01.63 |

| | | |
|-----------------|-------------|-------------|
| Type KFP 25 ... | M16 25 SKM | M12 35 SKM |
| Part No. | 755 626 | 755 627 |
| Dimensions | M16 x 25 mm | M12 x 35 mm |
| DB material No. | 157 541 | 622 014 |

| | |
|-----------------|-------------|
| Type KFP 25 ... | M16 45 SKM |
| Part No. | 755 646 |
| Dimensions | M16 x 45 mm |
| DB material No. | 157 542 |

Straight with Threaded Pin



| | |
|---|--------------|
| Type KFP 25 ... | M16 25 |
| Part No. | 755 636 |
| Fixed ball point Ø | 25 mm |
| Dimensions | M16 x 25 mm |
| Max. short-circuit current I_k 0.06 s | 34.0 kA |
| DB drawing No. | 3 Ebgw 01.63 |
| DB material No. | 609 426 |

Earth Connecting Plates



Earth connecting plate with fixed ball points and ball head cap with plastic handle.

- Connecting plate with high short-circuit current carrying capacity
- Single-pole connection of the phase arms
- For connecting single-pole earthing and short-circuiting devices to transformers of overhead line masts or to fuse holders
- For fixed ball points (Ø20 mm, Ø25 mm)

General technical data:

| | |
|-------------------------|---|
| Standard | EN/IEC 61230 (DIN VDE 0683-100) and fixed points in accordance with DIN 48088-1 |
| Material (plate) | Aluminium |
| Material (terminal lug) | 4 mm: Cu / gal Sn; 6 mm: HDG steel |
| Material (fixed point) | E-Cu / brass (CuNi2Si) / gal Sn |

With two Fixed Ball Points and Ball Head Cap

With adjustable ball head cap (Ø25 mm) and plastic handle.

For connecting two single-pole earthing and short-circuiting devices to one fixed ball point (Ø25 mm).



| | |
|-----------------|--------------|
| Type EAP ... | 2 25 KKH HG |
| Part No. | 728 501 |
| Fixed point Ø | 25 mm |
| DB drawing No. | 3 Ebgw 01.66 |
| DB material No. | 157 540 |

Terminal Lug with one Fixed Ball Point

For connection to a fuse holder.



| | |
|-----------------|--------------|
| Type EAP ... | 25 SIT US OL |
| Part No. | 728 503 |
| Fixed point Ø | 25 mm |
| DB drawing No. | 4 Ebgw 01.60 |
| DB material No. | 157 545 |

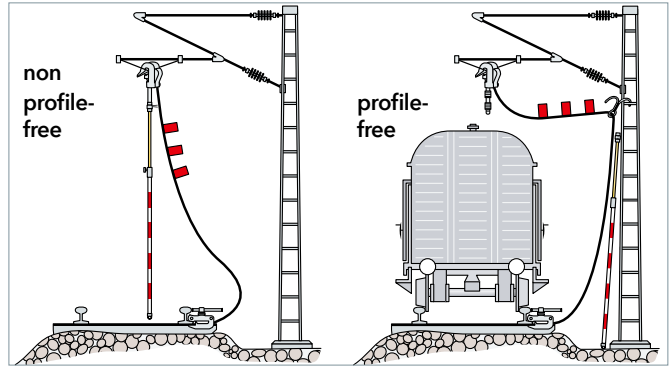
Terminal Lug with two Fixed Ball Points

For connection to the mast.



| | |
|-----------------|---------------|
| Type EAP ... | 2 25 MA US OL |
| Part No. | 728 502 |
| Fixed point Ø | 25 mm |
| DB drawing No. | 3 Ebgw 01.61 |
| DB material No. | 157 548 |

Kits for Railway Applications



General technical data:

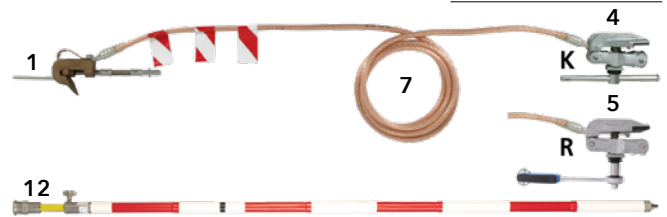
| | |
|-------------------|---------------------------------|
| Standard | EN/IEC 61230 (DIN VDE 0683-100) |
| Temperature range | -25 °C ... +55 °C |

Parts list:

| No. | Part No. | No. | Part No. |
|-----|----------|-----|----------|
| 1 | 784 755 | 10 | 751 150 |
| 2 | 773 251 | 11 | 740 124 |
| 3 | 784 352 | 12 | 769 502 |
| 4 | 792 450 | 13 | 769 508 |
| 5 | 792 455 | 14 | 769 515 |
| 6 | 774 251 | 15 | 769 352 |
| 7 | 751 085 | 16 | 761 015 |
| 8 | 751 120 | 17 | 785 111 |
| 9 | 751 040 | 18 | 700 000 |

Kit for Overhead Contact Lines (non-profile-free)

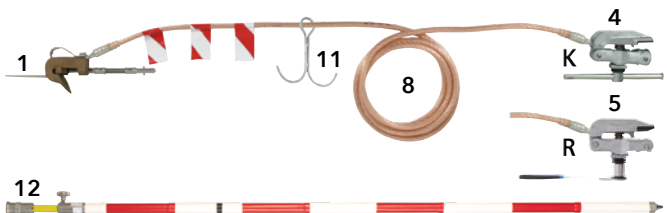
Telescopic earthing stick with adjusting ring (max. 5 m long)



| Type BEV ... | OL NPF K | OL NPF R |
|--|--------------------|--------------------|
| Part No. | 750 210 | 750 218 |
| Design | Tommy bar | Ratchet |
| Cable cross-section | 50 mm ² | 50 mm ² |
| Cable length | 8500 mm | 8500 mm |
| Max. short-circuit current I _k 0.06 s | 32.0 kA | 32.0 kA |
| DB drawing No. | 3 Ebgw 01.51 | 3 Ebgw 01.51 |
| DB material No. | 237 117 | - |

Kit for Overhead Contact Lines (profile-free *)

Telescopic earthing stick with adjusting ring (max. 5 m long).

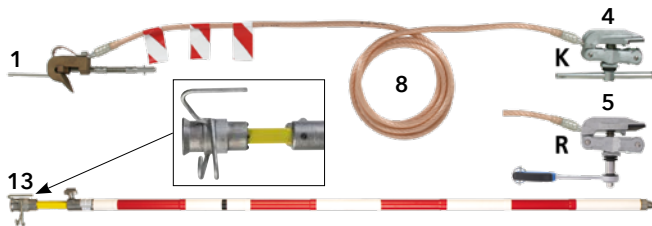


| Type BEV ... | OL PF K | OL PF R |
|--|--------------------|--------------------|
| Part No. | 750 211 | 750 219 |
| Design | Tommy bar | Ratchet |
| Cable cross-section | 50 mm ² | 50 mm ² |
| Cable length | 12000 mm | 12000 mm |
| Max. short-circuit current I _k 0.06 s | 32.0 kA | 32.0 kA |
| DB drawing No. | 3 Ebgw 01.51 | 3 Ebgw 01.51 |
| DB material No. | 237 118 | - |

*) Profile-free earthing means that the earthing cable can be suspended on the tower thus allowing for limited diesel locomotive operation.

Kit for Overhead Contact Lines (profile-free *)

Telescopic earthing stick with cable entry and suspension hook (max. 5 m long).



| Type BEV ... | OL PF V2 K | OL PF V2 R |
|--|--------------------|--------------------|
| Part No. | 750 214 | 750 221 |
| Design | Tommy bar | Ratchet |
| Cable cross-section | 50 mm ² | 50 mm ² |
| Cable length | 12000 mm | 12000 mm |
| Max. short-circuit current I _k 0.06 s | 32.0 kA | 32.0 kA |
| DB drawing No. | 3 Ebgw 01.51 | 3 Ebgw 01.51 |
| DB material No. | 237 115 | - |

*) Profile-free earthing means that the earthing cable can be suspended on the tower thus allowing for limited diesel locomotive operation.

Kit for Overhead Contact Lines for Transport in Motor Vehicles (non-profile-free)

For technical emergency service and emergency management
Telescopic earthing stick kit consisting of six elements, pluggable (max. 5 m long).



| Type BEV ... | OL NPF PKW K | OL NPF PKW R |
|--|--------------------|--------------------|
| Part No. | 750 196 | 750 216 |
| Design | Tommy bar | Ratchet |
| Cable cross-section | 50 mm ² | 50 mm ² |
| Cable length | 8500 mm | 8500 mm |
| Max. short-circuit current I _k 0.06 s | 32.0 kA | 32.0 kA |
| DB drawing No. | 3 Ebgw 01.67 | 3 Ebgw 01.67 |
| DB material No. | 237 125 | - |

Kit for Overhead Contact Lines for Transport in Motor Vehicles (profile-free *)

For technical emergency service and emergency management

Telescopic earthing stick kit consisting of six elements, pluggable (max. 5 m long).

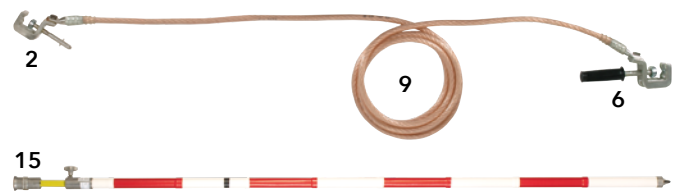


| Type BEV ... | OL PF PKW K | OL PF PKW R |
|--|--------------------|--------------------|
| Part No. | 750 200 | 750 217 |
| Design | Tommy bar | Ratchet |
| Cable cross-section | 50 mm ² | 50 mm ² |
| Cable length | 12000 mm | 12000 mm |
| Max. short-circuit current I _k 0.06 s | 32.0 kA | 32.0 kA |
| DB drawing No. | 3 Ebgw 01.67 | 3 Ebgw 01.67 |

*) Profile-free earthing means that the earthing cable can be suspended at the tower, thus allowing for limited diesel locomotive operation.

Kit for Transformers at Overhead Line Towers

For earthing on fuse carriers
Telescopic earthing stick with adjusting ring (max. 3.5 m long).



| Type BEV ... | US OL ST |
|--|--------------------|
| Part No. | 750 212 |
| Cable cross-section | 50 mm ² |
| Cable length | 4000 mm |
| Max. short-circuit current I _k 0.06 s | 34.0 kA |
| DB drawing No. | 3 Ebgw 01.57 |
| DB material No. | 237 121 |

Accessories for Kits for Railway Applications

Canvas bag, empty

With two separate inside pockets and carrier handle.



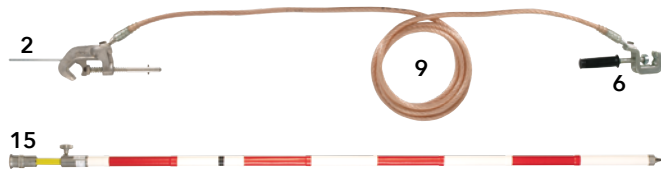
| Type | STT 55 27 30 |
|------------|--------------------|
| Part No. | 785 111 |
| Dimensions | 550 x 270 x 300 mm |
| Colour | Olive ● |

Kit for Supply Lines, Line Feeders, Bypass Lines and other Types of Lines



For earthing the supply line and traction current lines

Telescopic earthing stick with adjusting ring (max. 3.5 m long).

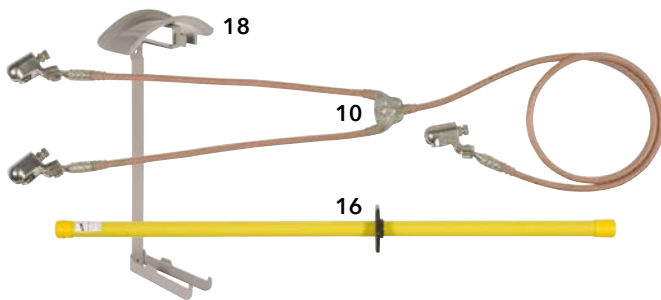


| | |
|---|--------------------|
| Type BEV ... | SVUL |
| Part No. | 750 213 |
| Cable cross-section | 50 mm ² |
| Cable length | 4000 mm |
| Max. short-circuit current I_k 0.06 s | 34.0 kA |
| DB drawing No. | 3 Ebgw 01.57 |
| DB material No. | 237 119 |

Kit for Electric Point and Train Pre-Heating Systems



For the initial equipment of a transformer of electric point and train pre-heating systems.



| | |
|---|--------------------|
| Type BEV ... | WHA ZVA |
| Part No. | 750 215 |
| Cable cross-section | 50 mm ² |
| Cable length | 600 / 1800 mm |
| Max. short-circuit current I_k 0.06 s | 34.0 kA |
| DB drawing No. | 3 Ebgw 01.70 |
| DB material No. | 742 402 |

For voltage detectors for electric point heating systems, please refer to the PHE voltage detector chapter.

Accessories for Kits for Railway Applications

Canvas bag for six-part earthing stick

With carrier handle



| | |
|----------------|----------------|
| Type | STT 110 15 |
| Part No. | 769 509 |
| Suitable for | EST |
| Dimensions | Ø150 x 1100 mm |
| Colour | Olive ● |
| DB drawing No. | 3 Ebgw 01.67 |

Earthing Sticks for Railway Applications



Attaching a railway earthing device.

For threaded T pin shafts (bayonet locking mechanism)

- For outdoor use
- Robust aluminium cone coupling
- Telescopic stick, length continuously adjustable by star knob
- Only suitable for phase screw clamps and clamps with long T pin shaft

General technical data:

| | |
|-------------------|---------------------------------|
| Standard | EN/IEC 61230 (DIN VDE 0683-100) |
| Temperature range | -25 °C ... +55 °C |

Telescopic, with T pin shaft

For threaded T pin shaft (bayonet locking mechanism).



| | | |
|--|------------------|------------------|
| Type | ESTC SQL RW 3500 | ESTC SQL RW 5000 |
| Part No. | 769 352 | 769 502 |
| Total length ($l_{G \max}$ / $l_{G \min}$) | 3515 / 1935 mm | 5015 / 2685 mm |
| DB drawing No. | 3 Ebgw 01.58 | 3 Ebgw 01.52 |
| DB material No. | 157 534 | 157 533 |

Telescopic, with T pin shaft and cable entry

For threaded T pin shaft (bayonet locking mechanism).

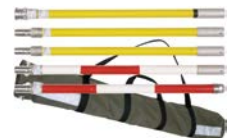
The coupling is additionally fitted with a cable entry and a hook for securing the earthing cable and earthing stick at the tower (without adjusting ring).



| | |
|--|--------------------|
| Type | ESTC SQL H RW 5000 |
| Part No. | 769 508 |
| Total length ($l_{G \max}$ / $l_{G \min}$) | 5015 / 2685 mm |
| DB drawing No. | 3 Ebgw 01.55 |
| DB material No. | 612 142 |

Six-part, with T pin shaft and aluminium coupling

For threaded T pin shafts (bayonet locking mechanism)



| | |
|--|--------------------|
| Type | EST SQL RW 4855 TA |
| Part No. | 769 515 |
| Total length ($l_{G \max}$ / $l_{G \min}$) | 4855 / 1035 mm |
| DB drawing No. | 3 Ebgw 01.68-1 |

Phase Connecting Elements for Railway Applications



Coupling the earth clamp to the overhead contact line.

- Safe positive-locking earth clamps for railway applications

Earth Clamp for Overhead Contact Lines

With contact electrode and flexible threaded T pin shaft according to DIN 48087. For AC 80 to AC 120 overhead contact lines.



| Type | FEK 4 15 TS FSQL | FEK4 15 TS FSQL AB29 |
|--|--------------------|----------------------|
| Part No. | 784 755 | 784 756 |
| Clamping range Ø | 4 ... 15 mm | 4 ... 15 mm |
| Anti-rotation cable lug | PK2 (Ø10.5 mm) | PK2 (Ø10.5 mm) |
| For cable material | Cu | Al |
| For cable cross-section | 50 mm ² | 70 mm ² |
| Max. short-circuit current I _k 0.06 s | 34.0 kA | 32.0 kA |
| DB drawing No. | 3 Ebgw 01.54 | Ebgw 01.85 |
| DB material No. | 157 536 | – |

Line Clamp

With contact electrode and threaded T pin shaft according to DIN 48087. For supply and traction power lines.



| Type | LK 4 40 TS SQL |
|-------------------------|----------------|
| Part No. | 784 352 |
| Clamping range Ø | 4 ... 40 mm |
| Anti-rotation cable lug | PK2 (Ø10.5 mm) |
| DB drawing No. | 3 Ebgw 01.65 |
| DB material No. | 157 539 |

Earth Connecting Elements for Railway Applications



Clamp for railway tracks mounted on the track profile.

- Safe earth connection elements for railway applications

Clamp for Railway Tracks with Tommy Bar

With detachable tommy bar (locking spring). For profile-free earthing of track profiles S49, S54, S64 and UIC60.



| Type | SAK PFE KN | SAK PFE KN AB29 |
|--|--------------------|--------------------|
| Part No. | 792 450 | 792 451 |
| Anti-rotation cable lug | PK2 (Ø10.5 mm) | PK2 (Ø10.5 mm) |
| Cable material | Cu | Al |
| For cable cross-section | 50 mm ² | 70 mm ² |
| Max. short-circuit current I _k 0.06 s | 34.0 kA | 32.0 kA |
| DB drawing No. | 3 Ebgw 01.53 Bl. 1 | Ebgw 01.82 |
| DB material No. | 157 535 | – |

Clamp for Railway Tracks with Ratchet

With detachable ratchet. For profile-free earthing of track profiles S49, S54, S64 and UIC60.



| Type | SAK PFE ARA | SAK PFE ARA AB29 |
|--|--------------------|--------------------|
| Part No. | 792 455 | 792 456 |
| Anti-rotation cable lug | PK2 (Ø10.5 mm) | PK2 (Ø10.5 mm) |
| Cable material | Cu | Al |
| For cable cross-section | 50 mm ² | 70 mm ² |
| Max. short-circuit current I _k 0.06 s | 32.0 kA | 32.0 kA |
| DB drawing No. | 3 Ebgw 01.53 Bl. 2 | 3 Ebgw 01.83-1 |

Universal Clamp, T Pin Shaft

T pin according to DIN 48087.



Universal Clamp with Handle



| Type | UK K25 FL30 SQL | UK K25 FL30 HG |
|--|--------------------|--------------------|
| Part No. | 773 251 | 774 251 |
| For fixed ball point Ø | 25 / 30 mm | 25 / 30 mm |
| Anti-rotation cable lug | PK2 (Ø10.5 mm) | PK2 (Ø10.5 mm) |
| For cable cross section Cu | 50 mm ² | 50 mm ² |
| Max. short-circuit current I _k 0.06 s | 34.0 kA | 34.0 kA |
| DB drawing No. | 4 Ebgw 01.59 | 4 Ebgw 01.64 |
| DB material No. | 157 538 | 157 537 |

Earthing and Short-Circuiting Devices for Railway Applications

Earthing and short-circuiting devices in accordance with EN/IEC 61230 (DIN VDE 0683-100) for earthing and short-circuiting electrical installations at the work location in accordance with EN 50110 (DIN VDE 0105-100).

| General technical data: | |
|-------------------------|---|
| Standard | EN/IEC 61230 (DIN VDE 0683-100) and IEC 61138 |
| Temperature range | - 25 °C ... + 55 °C |

| Parts list: | | | |
|-------------|------------|-----|------------|
| No. | Part No. | No. | Part No. |
| 1 | Cu 784 755 | 7 | Cu 751 085 |
| 1 | Al 784 756 | 7 | Al 752 085 |
| 2 | 773 251 | 8 | Cu 751 120 |
| 3 | 784 352 | 8 | Al 752 120 |
| 4 | Cu 792 450 | 9 | Cu 751 040 |
| 4 | Al 792 451 | 9 | Al 752 040 |
| 5 | Cu 792 455 | 10 | 750 202 |
| 5 | Al 792 456 | 11 | 740 124 |
| 6 | 774 251 | | |

For more detailed information on these products, see * www.dehn-international.com.

With Earth Clamp for Overhead Contact Lines and Clamp for Railway Tracks with Tommy Bar

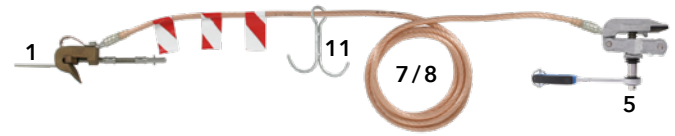


| Type | EKV K 50 8500 | EKV K 50 12000 |
|--|--------------------|--------------------|
| Part No. | 751 086 | 751 126 |
| Material (cable) | Cu | Cu |
| Cable cross-section | 50 mm ² | 50 mm ² |
| Cable length | 8500 mm | 12000 mm |
| Hook | – | – |
| Max. short-circuit current I _k 0.06 s | 34.0 kA | 34.0 kA |
| DB drawing No. | 3 Ebgw 01.51/67 | 3 Ebgw 01.51/67 |

| Type | EKV K H 50 12000 | EKV FD K 70 8500AL |
|--|--------------------|--------------------|
| Part No. | 751 121 | 752 086 |
| Material (cable) | Cu | Al |
| Cable cross-section | 50 mm ² | 70 mm ² |
| Cable length | 12000 mm | 8500 mm |
| Hook | ✓ | – |
| Max. short-circuit current I _k 0.06 s | 34.0 kA | 32.0 kA |
| DB drawing No. | 3 Ebgw 01.51/67 | Ebgw 01.74 |

| Type | EKV FD K 70 12000AL | EKV FD K H70 12000AL |
|--|---------------------|----------------------|
| Part No. | 752 126 | 752 121 |
| Material (cable) | Al | Al |
| Cable cross-section | 70 mm ² | 70 mm ² |
| Cable length | 12000 mm | 12000 mm |
| Hook | – | ✓ |
| Max. short-circuit current I _k 0.06 s | 32.0 kA | 32.0 kA |
| DB drawing No. | Ebgw 01.74 | Ebgw 01.79 |

With Earth Clamp for Overhead Contact Lines and Clamp for Railway Tracks with Ratchet



| Type | EKV R 50 8500 | EKV R 50 12000 |
|--|--------------------|--------------------|
| Part No. | 751 087 | 751 127 |
| Material (cable) | Cu | Cu |
| Cable cross-section | 50 mm ² | 50 mm ² |
| Cable length | 8500 mm | 12000 mm |
| Hook | – | – |
| Max. short-circuit current I _k 0.06 s | 34.0 kA | 34.0 kA |
| DB drawing No. | 3 Ebgw 01.51/67 | 3 Ebgw 01.51/67 |

| Type | EKV R H 50 12000 | EKV FD R 70 8500AL |
|--|--------------------|--------------------|
| Part No. | 751 122 | 752 087 |
| Material (cable) | Cu | Al |
| Cable cross-section | 50 mm ² | 70 mm ² |
| Cable length | 12000 mm | 8500 mm |
| Hook | ✓ | – |
| Max. short-circuit current I _k 0.06 s | 34.0 kA | 32.0 kA |
| DB drawing No. | 3 Ebgw 01.51/67 | Ebgw 01.78 |

| Type | EKV FD R 70 12000AL | EKV FD R H70 12000AL |
|--|---------------------|----------------------|
| Part No. | 752 127 | 752 122 |
| Material (cable) | Al | Al |
| Cable cross-section | 70 mm ² | 70 mm ² |
| Cable length | 12000 mm | 12000 mm |
| Hook | – | ✓ |
| Max. short-circuit current I _k 0.06 s | 32.0 kA | 32.0 kA |
| DB drawing No. | Ebgw 01.78 | Ebgw 01.80 |

With Universal Clamp (T Pin Shaft) and Universal Clamp (Handle)



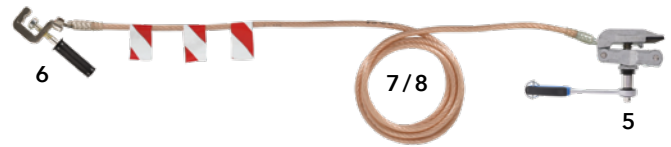
| Type | EKV UK 50 4000 | EKV UKQ UKH70 4000AL |
|--|--------------------|----------------------|
| Part No. | 750 041 | 752 041 |
| Material (cable) | Cu | Al |
| Cable cross-section | 50 mm ² | 70 mm ² |
| Cable length | 4000 mm | 4000 mm |
| Max. short-circuit current I _k 0.06 s | 34.0 kA | 32.0 kA |
| DB drawing No. | 3 Ebgw 01.57 | Ebgw 01.73 |

With Conductor Clamp and Universal Clamp (Handle)



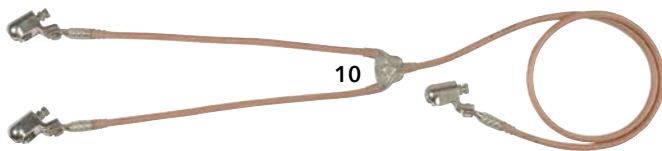
| Type | EKV LK 50 4000 | EKV LK UKH 70 4000AL |
|--|--------------------|----------------------|
| Part No. | 750 042 | 752 042 |
| Material (cable) | Cu | Al |
| Cable cross-section | 50 mm ² | 70 mm ² |
| Cable length | 4000 mm | 4000 mm |
| Max. short-circuit current I _k 0.06 s | 34.0 kA | 32.0 kA |
| DB drawing No. | 3 Ebgw 01.57 | Ebgw 01.77 |

With Universal Clamp (Handle) and Clamp for Railway Tracks with Ratchet



| Type | BEV MF SE R | BEV BM HZ BDW R |
|--|--------------------|--------------------|
| Part No. | 751 196 | 751 197 |
| Material (cable) | Cu | Cu |
| Cable cross-section | 50 mm ² | 50 mm ² |
| Cable length | 8500 mm | 12000 mm |
| Max. short-circuit current I _k 0.06 s | 34.0 kA | 34.0 kA |
| DB drawing No. | 3 Ebgw 01.56 | 3 Ebgw 01.56 |

With Ball Head Caps (Ø25 mm)



| Type | EKV2 50 KKH 600 1800 |
|--|----------------------|
| Part No. | 751 150 |
| Material (cable) | Cu |
| Cable cross-section | 50 mm ² |
| Cable length | 600 / 1800 mm |
| Max. short-circuit current I _k 0.06 s | 34.0 kA |
| DB drawing No. | 3 Ebgw 01.70 |
| DB material No. | 742 400 |

| Type | BEV UKH R 70 8500AL | BEV UKH R 70 12000AL |
|--|---------------------|----------------------|
| Part No. | 752 196 | 752 197 |
| Material (cable) | Al | Al |
| Cable cross-section | 70 mm ² | 70 mm ² |
| Cable length | 8500 mm | 12000 mm |
| Max. short-circuit current I _k 0.06 s | 32.0 kA | 32.0 kA |
| DB drawing No. | Ebgw 01.76 | Ebgw 01.76 |

With Universal Clamps (Handle) on both sides



| Type | BEV MF LTE | BEV 2XUKH 70 8500AL |
|--|--------------------|---------------------|
| Part No. | 751 192 | 752 192 |
| Material (cable) | Cu | Al |
| Cable cross-section | 50 mm ² | 70 mm ² |
| Cable length | 8500 mm | 8500 mm |
| Max. short-circuit current I _k 0.06 s | 34.0 kA | 32.0 kA |
| DB drawing No. | 3 Ebgw 01.56 | Ebgw 01.72 |

With Universal Clamp (Handle) and Clamp for Railway Tracks with Tommy Bar



| Type | BEV MF SE K | BEV BM HZ BDW K |
|--|--------------------|--------------------|
| Part No. | 751 191 | 751 193 |
| Material (cable) | Cu | Cu |
| Cable cross-section | 50 mm ² | 50 mm ² |
| Cable length | 8500 mm | 12000 mm |
| Max. short-circuit current I _k 0.06 s | 34.0 kA | 34.0 kA |
| DB drawing No. | 3 Ebgw 01.56 | 3 Ebgw 01.56 |

| Type | BEV UKH K 70 8500AL | BEV UKH K 70 12000AL |
|--|---------------------|----------------------|
| Part No. | 752 191 | 752 193 |
| Material (cable) | Al | Al |
| Cable cross-section | 70 mm ² | 70 mm ² |
| Cable length | 8500 mm | 12000 mm |
| Max. short-circuit current I _k 0.06 s | 32.0 kA | 32.0 kA |
| DB drawing No. | Ebgw 01.75 | Ebgw 01.75 |

Accessories for Earthing and Short-Circuiting Devices for Railway Applications

Single-pole EaS cable, copper, unequipped

With red and white marking and cable lug with borehole Ø10.5 mm.



General technical data:

| | |
|---------------------|--------------------|
| Material | Cu |
| Crimped cable lug | PK2 (Ø10.5 mm) |
| Cable cross-section | 50 mm ² |

| Type | EKS 50 BEV 4M | EKS 50 BEV 8.5M |
|-----------------|---------------|-----------------|
| Part No. | 751 040 | 751 085 |
| Cable length | 4000 mm | 8500 mm |
| DB material No. | 157 511 | 157 512 |

| Type | EKS 50 BEV 12M | EKS 50 BEV 13M |
|-----------------|----------------|----------------|
| Part No. | 751 120 | 751 130 |
| Cable length | 12000 mm | 13000 mm |
| DB material No. | 157 513 | – |

| Type | EKS 50 BEV 14M |
|-----------------|----------------|
| Part No. | 751 140 |
| Cable length | 14000 mm |
| DB material No. | – |

Single-pole EaS cable, aluminium, unequipped

With small red/white marking flags and cable lug with drill hole Ø10.5 mm.



General technical data:

| | |
|--------------------------|--------------------|
| Material | Al |
| Crimped cable lug design | PK2 (Ø10.5 mm) |
| Cable cross-section | 70 mm ² |

| Type | EKS B10.5 70 4000AL | EKS B10.5 70 8500AL |
|--------------|---------------------|---------------------|
| Part No. | 752 040 | 752 085 |
| Cable length | 4000 mm | 8500 mm |

| Type | EKS B10.5 70 12000AL |
|--------------|----------------------|
| Part No. | 752 120 |
| Cable length | 12000 mm |

Suspension hook

For (profile-free) suspension of earthing cables on towers.

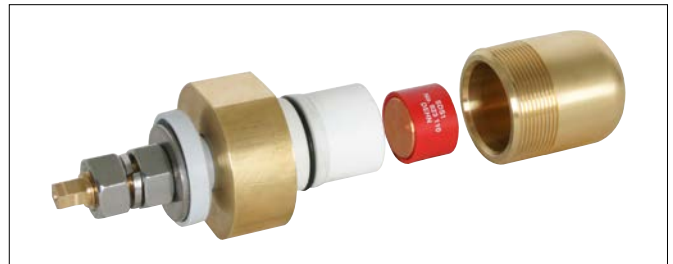


| Type | EHH BEV OL |
|-----------------|------------|
| Part No. | 740 124 |
| DB material No. | 778 794 |

Voltage Limiting Devices



- Electrical isolation of insulated track sections and earthed parts of installations
- Safe equipotential bonding in case of a short-circuit or earth fault at the overhead contact line due to high-current-resistant welding of the electrodes
- Discharge of lightning overvoltages without short-circuit formation due to lightning-resistant SDS ... voltage limiting device
- Short-circuit withstand capability up to 25 kA_{rms} / 100 ms; 36 kA_{rms} / 75 ms



EN 50122-1 describes the use of voltage limiting devices for DC and AC traction systems for so-called "open traction system earthing" of conductive components of the overhead contact line and pantograph zone.

Voltage limiting devices (SDS ...) are used to prevent the occurrence of hazardous surges between the insulated tracks or track sections of electric railways and earthed parts of the installation.

Their function is to permanently connect parts of the installation in the overhead contact line and pantograph zone to the return circuit as soon as the threshold voltage is exceeded.

In case of atmospheric overvoltages, the lightning-resistant SDS ... voltage limiting device is capable of returning to its initial state after discharging the impulse current. Only when the specified lightning current load is exceeded, does a permanent short circuit occur due to high-current-resistant welding of the electrodes, making it necessary to replace the fuse link.

The SDS voltage limiting device consists of a spark gap unit and the respective connecting kit and can be directly connected to the rail or overhead contact line tower.

The spark gap unit of type SDS 1 (Part No. 923 110) developed by DEHN has also been approved by the German Federal Railway Authority (EBA).

SDS 1

Voltage limiting device for a power-frequency sparkover voltage ≤ 940 V.



| | |
|---|--|
| Type SDS ... | 1 |
| Part No. | 923 110 |
| VLD type (EN 50122-1) | VLD-F |
| Power frequency sparkover voltage (U_{aw}) | ≤ 940 V |
| DC sparkover voltage (U_{ag}) | 700 V -14% ... +28% |
| Impulse sparkover voltage | ≤ 1400 V (1 kV/ μ s) |
| Self-extinguishing capability | 300 A / 65 V |
| Lightning current discharge capacity (10/350 μ s) 0.1x / 0.5x / 1x | 5 kA |
| Lightning current withstand capability (10/350 μ s) | 100 kA |
| Safe short-circuit due to welding of the electrodes in case of alternating currents | ≥ 2.5 kA / 1000 V / 30 ms, ≥ 1.5 kA / 1000 V / 100 ms |
| Safe short-circuit due to welding of the electrodes in case of direct currents | ≥ 750 A / 250 ms |
| Short-circuit withstand capability | 25 kA _{rms} / 100 ms; 36 kA _{rms} / 75 ms |
| Long-term current | 1 kA _{rms} for $t \leq 120$ s |
| Leakage current (I_{lc}) | < 1 μ A for 100 V DC |
| Operating temperature range (T_U) | -40 °C ... +80 °C |
| To be mounted with mast adapter MA SDS M12 or SIEMENS No. 8WL6503-xx | |
| Approvals | EBA |
| DB drawing No. | 4 Ebs 15.13.20 Sheet 2 |

SDS 2

Voltage limiting device for a DC sparkover voltage of 350 V.



| | |
|--|--|
| Type SDS ... | 2 |
| Part No. | 923 117 |
| VLD type (EN 50122-1) | VLD-F |
| DC sparkover voltage (U_{ag}) | 350 V +/- 20 % |
| Impulse sparkover voltage | ≤ 900 V (1 kV/ μ s) |
| Lightning current discharge capacity (10/350 μ s) 0.1x / 0.5x / 1x | 2 kA |
| Lightning current withstand capability (10/350 μ s) | 25 kA |
| Safe short-circuit due to welding of the electrodes in case of direct currents | ≥ 600 A / 250 ms |
| Short-circuit withstand capability | 25 kA _{rms} / 100 ms; 36 kA _{rms} / 75 ms |
| Long-term current | 1 kA _{rms} for $t \leq 120$ s |
| Leakage current (I_{lc}) | < 1 μ A for 100 V DC |
| Operating temperature range (T_U) | -40 °C ... +80 °C |
| To be mounted with mast adapter MA SDS M12 or SIEMENS No. 8WL6503-xx | |

SDS 3

Voltage limiting device for a DC sparkover voltage of 550 V.



| | |
|--|-------------------------------|
| Type SDS ... | 3 |
| Part No. | 923 116 |
| VLD type (EN 50122-1) | VLD-F |
| DC sparkover voltage (U_{ag}) | 550 V +/- 20 % |
| Impulse sparkover voltage | ≤ 1000 V (1 kV/ μ s) |
| Lightning current discharge capacity (10/350 μ s) 0.1x / 0.5x / 1x | 2.5 kA |
| Lightning current withstand capability (10/350 μ s) | 25 kA |
| Short-circuit withstand capability | 25 kA _{rms} / 100 ms |
| Operating temperature range (T_U) | -40 °C ... +80 °C |
| To be mounted with mast adapter MA SDS M12 or SIEMENS Nr. 8WL6503-xx | |

SDS 4

Voltage limiting device for a DC sparkover voltage of 230 V.



| | |
|--|--|
| Type SDS ... | 4 |
| Part No. | 923 118 |
| VLD type (EN 50122-1) | VLD-F |
| DC sparkover voltage (U_{ag}) | 230 V +/- 20% |
| Impulse sparkover voltage | ≤ 650 V (1 kV/ μ s) |
| Lightning current discharge capacity (10/350 μ s) 0.1x / 0.5x / 1x | 2.5 kA |
| Lightning current withstand capability (10/350 μ s) | 25 kA |
| Impulse current discharge capacity (8/20 μ s) 0.1x / 0.5x / 1x | 20 kA |
| Safe short-circuit due to welding of the electrodes in case of direct currents | ≥ 600 A / 250 ms |
| Short-circuit withstand capability | 25 kA _{rms} / 100 ms; 36 kA _{rms} / 75 ms |
| Long-term current | 1 kA _{rms} for $t \leq 120$ s |
| Leakage current (I_{lc}) | < 1 μ A for 100 V DC |
| Operating temperature range (T_U) | -40 °C ... +80 °C |
| To be mounted with mast adapter MA SDS M12 or SIEMENS No. 8WL6503-xx | |

SDS 5

Voltage limiting device for a DC sparkover voltage of 120 V.



| | |
|--|--|
| Type SDS ... | 5 |
| Part No. | 923 119 |
| VLD type (EN 50122-1) | VLD-F |
| DC sparkover voltage (U_{ag}) | 120 V +/- 20 % |
| Impulse sparkover voltage | ≤ 600 V (1 kV/ μ s) |
| Lightning current discharge capacity (10/350 μ s) 0.1x / 0.5x / 1x | 2 kA |
| Lightning current withstand capability (10/350 μ s) | 25 kA |
| Impulse current discharge capacity (8/20 μ s) 0.1x / 0.5x / 1x | 20 kA |
| Safe short-circuit due to welding of the electrodes in case of direct currents | ≥ 600 A / 250 ms |
| Short-circuit withstand capability | 25 kA _{rms} / 100 ms; 36 kA _{rms} / 75 ms |
| Long-term current | 1 kA _{rms} for $t \leq 120$ s |
| Leakage current (I_{lc}) | < 1 μ A for 100 V DC |
| Operating temperature range (T_U) | -40 °C ... +80 °C |
| To be mounted with mast adapter MA SDS M12 or SIEMENS No. 8WL6503-xx | |

Accessories for Voltage Limiting Devices

Mast adapter for SDS voltage-limiting devices

For mounting on the mast support profile of a contact wire mast with FI 8-12 mm.



| | |
|--|---------------------------------------|
| Type | MA SDS M12 |
| Part No. | 723 199 |
| Lightning current carrying capability (10/350 μ s) | 25 kA |
| Short-circuit withstand capability | 21 kA _{rms} / 30 ms |
| Long-term current | 1 kA _{rms} at $t \leq 120$ s |
| Leakage current (I_{lc}) | < 1 μ A at 100 V DC |
| Dimensions of the threaded pin | M12 |
| Material | Brass |
| Degree of protection of the inner enclosure | IP 67 |

| Part No. | GTIN* | PG | Weight | PU | SU | Page | Part No. | GTIN* | PG | Weight | PU | SU | Page |
|----------|--------|-------------|-----------|----|-------|------|----------|--------|-------------|---------|----|-------|------|
| 336 020 | 003941 | 05 00 04 01 | 118 g | 1 | pc(s) | 65 | 715 314 | 132474 | 05 00 04 08 | 1.61 kg | 1 | pc(s) | 72 |
| 336 025 | 003958 | 05 00 04 01 | 252 g | 1 | pc(s) | 65 | 715 315 | 135338 | 05 00 04 08 | 1.60 kg | 1 | pc(s) | 72 |
| 524 910 | 039339 | 01 50 50 01 | 2 g | 1 | pc(s) | 66 | 716 001 | 010406 | 05 00 04 02 | 184 g/m | 1 | m | 68 |
| 524 912 | 039360 | 01 06 01 01 | 4 g | 1 | pc(s) | 66 | 723 199 | 151703 | 05 03 01 01 | 750 g | 1 | pc(s) | 172 |
| 524 913 | 053250 | 01 06 01 01 | 8 g | 1 | pc(s) | 66 | 725 001 | 011793 | 05 00 04 02 | 207 g/m | 1 | m | 68 |
| 525 001 | 004986 | 05 00 04 50 | 19 g | 10 | pc(s) | 66 | 725 010 | 003750 | 05 00 04 01 | 410 g | 1 | pc(s) | 63 |
| 525 002 | 004993 | 05 00 04 50 | 37 g | 10 | pc(s) | 66 | 725 012 | 003767 | 05 00 04 01 | 400 g | 1 | pc(s) | 63 |
| 525 910 | 390911 | 01 50 50 01 | 3 g | 1 | pc(s) | 66 | 725 014 | 003774 | 05 00 04 01 | 385 g | 1 | pc(s) | 63 |
| 525 912 | 053267 | 01 50 50 01 | 5 g | 1 | pc(s) | 66 | 725 016 | 003781 | 05 00 04 01 | 365 g | 1 | pc(s) | 63 |
| 525 916 | 053274 | 01 06 01 01 | 10 g | 1 | pc(s) | 66 | 725 018 | 078048 | 05 00 04 01 | 345 g | 1 | pc(s) | 63 |
| 561 924 | 047280 | 01 50 50 01 | 26 g | 1 | pc(s) | 66 | 725 020 | 003804 | 05 00 04 01 | 320 g | 1 | pc(s) | 63 |
| 561 925 | 056244 | 01 06 01 01 | 35 g | 1 | pc(s) | 66 | 728 312 | 128712 | 05 00 04 08 | 270 g | 1 | pc(s) | 74 |
| 561 930 | 053298 | 01 06 01 01 | 39 g | 1 | pc(s) | 66 | 728 313 | 157132 | 05 00 04 08 | 612 g | 1 | pc(s) | 74 |
| 561 931 | 053311 | 01 06 01 01 | 77 g | 1 | pc(s) | 66 | 728 501 | 079618 | 05 00 04 07 | 900 g | 1 | pc(s) | 165 |
| 561 935 | 056053 | 01 06 01 01 | 42 g | 1 | pc(s) | 66 | 728 502 | 079571 | 05 00 04 07 | 708 g | 1 | pc(s) | 165 |
| 644 000 | 030268 | 03 07 01 01 | 4.45 kg | 1 | pc(s) | 74 | 728 503 | 079564 | 05 00 04 07 | 453 g | 1 | pc(s) | 165 |
| 700 000 | 004122 | 05 05 01 06 | 1.16 kg | 1 | pc(s) | 55 | 728 516 | 147898 | 05 00 04 09 | 1.44 kg | 1 | pc(s) | 67 |
| 700 000 | 004122 | 05 05 01 06 | 1.16 kg | 1 | pc(s) | 91 | 728 522 | 147874 | 05 00 04 09 | 676 g | 1 | pc(s) | 67 |
| 700 002 | 004139 | 05 05 01 06 | 1.15 kg | 1 | pc(s) | 55 | 728 526 | 147881 | 05 00 04 09 | 934 g | 1 | pc(s) | 67 |
| 700 002 | 004139 | 05 05 01 06 | 1.15 kg | 1 | pc(s) | 91 | 728 620 | 147843 | 05 00 04 09 | 985 g | 1 | pc(s) | 67 |
| 700 003 | 004146 | 05 05 01 06 | 700 g | 1 | pc(s) | 55 | 728 625 | 147867 | 05 00 04 09 | 984 g | 1 | pc(s) | 67 |
| 700 003 | 004146 | 05 05 01 06 | 700 g | 1 | pc(s) | 91 | 735 001 | 011847 | 05 00 04 02 | 366 g/m | 1 | m | 68 |
| 700 004 | 004153 | 05 05 01 06 | 1.00 kg | 1 | pc(s) | 27 | 740 124 | 051072 | 05 00 04 06 | 255 g | 1 | pc(s) | 171 |
| 700 005 | 004160 | 05 05 01 06 | 707 g | 1 | pc(s) | 27 | 745 016 | 052000 | 05 00 04 13 | 467 g | 1 | pc(s) | 87 |
| 700 006 | 004177 | 05 05 01 06 | 780 g | 1 | pc(s) | 55 | 745 017 | 052017 | 05 00 04 13 | 277 g | 1 | pc(s) | 87 |
| 700 006 | 004177 | 05 05 01 06 | 780 g | 1 | pc(s) | 91 | 745 018 | 052048 | 05 00 04 13 | 271 g | 1 | pc(s) | 87 |
| 700 007 | 004184 | 05 05 01 06 | 780 g | 1 | pc(s) | 55 | 745 021 | 155336 | 05 00 04 13 | 289 g | 1 | pc(s) | 88 |
| 700 007 | 004184 | 05 05 01 06 | 780 g | 1 | pc(s) | 91 | 745 022 | 353138 | 05 00 04 13 | 114 g | 3 | pc(s) | 87 |
| 700 008 | 004191 | 05 05 01 06 | 803 g | 1 | pc(s) | 55 | 745 105 | 104457 | 05 00 04 15 | 1.83 kg | 1 | pc(s) | 90 |
| 700 008 | 004191 | 05 05 01 06 | 803 g | 1 | pc(s) | 91 | 745 106 | 104495 | 05 05 01 02 | 890 g | 1 | pc(s) | 90 |
| 700 014 | 007208 | 05 05 01 06 | 1.71 kg | 1 | pc(s) | 27 | 745 107 | 104501 | 05 00 04 15 | 286 g | 1 | pc(s) | 90 |
| 700 015 | 007192 | 05 05 01 06 | 1.41 kg | 1 | pc(s) | 27 | 745 108 | 104518 | 05 00 04 15 | 20 g | 1 | pc(s) | 90 |
| 700 058 | 511682 | 05 00 02 02 | 5 g | 1 | mm | 30 | 745 109 | 104525 | 05 00 04 15 | 18 g | 1 | pc(s) | 90 |
| 700 059 | 511699 | 05 00 02 02 | 172 g | 1 | mm | 30 | 745 115 | 155299 | 05 00 04 15 | 296 g | 1 | pc(s) | 90 |
| 700 060 | 511705 | 05 00 02 02 | 348 g | 1 | mm | 30 | 745 121 | 268418 | 05 00 04 15 | 415 g | 1 | pc(s) | 90 |
| 700 098 | 157422 | 05 00 02 03 | 180 g/kit | 1 | kit | 29 | 745 201 | 008007 | 05 00 04 15 | 65 g | 1 | pc(s) | 88 |
| 700 099 | 157415 | 05 00 02 03 | 1.28 g/mm | 1 | mm | 29 | 745 202 | 007871 | 05 00 04 15 | 90 g | 1 | pc(s) | 88 |
| 700 100 | 500280 | 05 00 03 09 | 318 g | 1 | pc(s) | 46 | 745 203 | 008014 | 05 00 04 15 | 102 g | 1 | pc(s) | 88 |
| 700 102 | 500297 | 05 00 03 09 | 345 g | 1 | pc(s) | 46 | 745 204 | 018655 | 05 00 04 15 | 145 g | 1 | pc(s) | 88 |
| 700 110 | 501546 | 05 00 02 03 | 18.74 kg | 1 | pc(s) | 30 | 745 302 | 052024 | 05 00 04 15 | 110 g | 1 | pc(s) | 87 |
| 700 111 | 502055 | 05 00 02 03 | 19.93 kg | 1 | pc(s) | 30 | 745 307 | 155404 | 05 00 04 15 | 116 g | 1 | pc(s) | 87 |
| 700 112 | 502062 | 05 00 02 03 | 660 g | 1 | pc(s) | 30 | 745 400 | 006959 | 05 00 04 13 | 250 g | 1 | pc(s) | 88 |
| 700 113 | 502079 | 05 00 02 03 | 680 g | 1 | pc(s) | 30 | 745 414 | 116085 | 05 00 04 11 | 285 g | 1 | pc(s) | 91 |
| 700 120 | 501560 | 05 01 01 05 | 15 g | 1 | pc(s) | 98 | 745 415 | 116092 | 05 00 04 11 | 275 g | 1 | pc(s) | 91 |
| 700 121 | 501577 | 05 01 01 05 | 20 g | 1 | pc(s) | 98 | 745 500 | 007888 | 05 00 04 13 | 7.57 kg | 1 | pc(s) | 86 |
| 700 122 | 501584 | 05 01 01 05 | 29 g | 1 | pc(s) | 98 | 745 502 | 072213 | 05 00 04 13 | 360 g | 1 | pc(s) | 88 |
| 705 500 | 000025 | 05 00 04 50 | 122 g | 1 | pc(s) | 65 | 745 503 | 133570 | 05 00 04 12 | 154 g | 1 | pc(s) | 85 |
| 705 501 | 003927 | 05 00 04 01 | 152 g | 1 | pc(s) | 65 | 745 506 | 307667 | 05 00 04 13 | 114 g | 1 | pc(s) | 88 |
| 705 504 | 008021 | 05 00 04 50 | 183 g | 5 | pc(s) | 65 | 745 508 | 149366 | 05 00 04 13 | 137 g | 1 | pc(s) | 88 |
| 705 510 | 089587 | 05 00 04 50 | 240 g | 1 | pc(s) | 65 | 745 509 | 149915 | 05 00 04 13 | 127 g | 1 | pc(s) | 90 |
| 706 200 | 004276 | 05 00 04 01 | 172 g | 1 | pc(s) | 64 | 745 510 | 155671 | 05 00 04 13 | 225 g | 1 | pc(s) | 85 |
| 706 235 | 004290 | 05 00 04 01 | 219 g | 1 | pc(s) | 64 | 745 602 | 072220 | 05 00 04 13 | 406 g | 1 | pc(s) | 88 |
| 706 239 | 155145 | 05 00 04 01 | 227 g | 1 | pc(s) | 64 | 745 900 | 082731 | 05 05 01 01 | 3.71 kg | 1 | pc(s) | 84 |
| 706 300 | 003675 | 05 00 04 01 | 129 g | 1 | pc(s) | 63 | 745 900 | 082731 | 05 05 01 01 | 3.71 kg | 1 | pc(s) | 92 |
| 706 600 | 004283 | 05 00 04 01 | 158 g | 1 | pc(s) | 64 | 745 901 | 083530 | 05 00 04 12 | 6.89 kg | 1 | pc(s) | 84 |
| 706 645 | 004306 | 05 00 04 01 | 274 g | 1 | pc(s) | 64 | 745 902 | 093591 | 05 05 01 02 | 1.62 kg | 1 | pc(s) | 84 |
| 707 200 | 004368 | 05 00 04 01 | 204 g | 1 | pc(s) | 64 | 745 902 | 093591 | 05 05 01 02 | 1.62 kg | 1 | pc(s) | 92 |
| 707 235 | 004382 | 05 00 04 01 | 259 g | 1 | pc(s) | 64 | 745 903 | 093577 | 05 00 04 12 | 7.00 kg | 1 | pc(s) | 84 |
| 707 600 | 004375 | 05 00 04 01 | 191 g | 1 | pc(s) | 64 | 745 905 | 082021 | 05 00 04 12 | 75 g | 1 | pc(s) | 85 |
| 707 645 | 004399 | 05 00 04 01 | 299 g | 1 | pc(s) | 64 | 745 910 | 082038 | 05 00 04 12 | 190 g | 1 | pc(s) | 85 |
| 712 001 | 011823 | 05 00 04 02 | 1.23 kg/m | 1 | m | 68 | 745 915 | 082045 | 05 00 04 12 | 420 g | 1 | pc(s) | 85 |
| 715 001 | 011830 | 05 00 04 02 | 1.52 kg/m | 1 | m | 68 | 745 921 | 082069 | 05 00 04 12 | 216 g | 1 | pc(s) | 85 |
| 715 312 | 150386 | 05 00 04 08 | 1.50 kg | 1 | pc(s) | 72 | 745 921 | 082069 | 05 00 04 12 | 216 g | 1 | pc(s) | 88 |
| 715 313 | 154971 | 05 00 04 08 | 1.55 kg | 1 | pc(s) | 72 | 745 921 | 082069 | 05 00 04 12 | 216 g | 1 | pc(s) | 90 |
| | | | | | | | 745 922 | 082434 | 05 00 04 12 | 220 g | 1 | pc(s) | 85 |
| | | | | | | | 745 952 | 137066 | 05 05 01 02 | 4.90 kg | 1 | pc(s) | 84 |
| | | | | | | | 745 952 | 137066 | 05 05 01 02 | 4.90 kg | 1 | pc(s) | 86 |

| Part No. | GTIN* | PG | Weight | PU | SU | Page | Part No. | GTIN* | PG | Weight | PU | SU | Page |
|----------|--------|-------------|----------|----|-------|------|----------|--------|-------------|---------|----|-------|------|
| 745 952 | 137066 | 05 05 01 02 | 4.90 kg | 1 | pc(s) | 92 | 756 200 | 004313 | 05 00 04 01 | 357 g | 1 | pc(s) | 64 |
| 745 953 | 137073 | 05 05 01 02 | 4.95 kg | 1 | pc(s) | 92 | 756 245 | 004337 | 05 00 04 01 | 434 g | 1 | pc(s) | 64 |
| 750 001 | 011809 | 05 00 04 02 | 535 g/m | 1 | m | 68 | 756 300 | 003682 | 05 00 04 01 | 212 g | 1 | pc(s) | 63 |
| 750 041 | 126688 | 05 00 04 06 | 4.22 kg | 1 | pc(s) | 169 | 756 600 | 004320 | 05 00 04 01 | 356 g | 1 | pc(s) | 64 |
| 750 042 | 126695 | 05 00 04 06 | 3.89 kg | 1 | pc(s) | 170 | 756 645 | 004344 | 05 00 04 01 | 470 g | 1 | pc(s) | 64 |
| 750 196 | 123823 | 05 00 04 06 | 26.58 kg | 1 | pc(s) | 166 | 757 200 | 004405 | 05 00 04 01 | 395 g | 1 | pc(s) | 64 |
| 750 200 | 123830 | 05 00 04 06 | 16.95 kg | 1 | pc(s) | 166 | 757 245 | 004429 | 05 00 04 01 | 454 g | 1 | pc(s) | 64 |
| 750 210 | 123793 | 05 00 04 06 | 13.44 kg | 1 | pc(s) | 165 | 757 600 | 004412 | 05 00 04 01 | 370 g | 1 | pc(s) | 64 |
| 750 211 | 123809 | 05 00 04 06 | 15.55 kg | 1 | pc(s) | 165 | 757 645 | 004436 | 05 00 04 01 | 491 g | 1 | pc(s) | 64 |
| 750 212 | 123847 | 05 00 04 06 | 13.00 kg | 1 | pc(s) | 166 | 758 001 | 004030 | 05 00 04 16 | 2.21 kg | 1 | pc(s) | 57 |
| 750 213 | 123861 | 05 00 04 06 | 8.76 kg | 1 | pc(s) | 167 | 758 003 | 004047 | 05 00 04 16 | 1.95 kg | 1 | pc(s) | 57 |
| 750 214 | 123816 | 05 00 04 06 | 15.60 kg | 1 | pc(s) | 166 | 758 015 | 041608 | 05 00 04 16 | 2.62 kg | 1 | pc(s) | 57 |
| 750 215 | 123878 | 05 00 04 06 | 7.30 kg | 1 | pc(s) | 167 | 758 020 | 098992 | 05 00 04 16 | 1.34 kg | 1 | pc(s) | 57 |
| 750 216 | 157255 | 05 00 04 06 | 26.58 kg | 1 | pc(s) | 166 | 758 021 | 099005 | 05 00 04 16 | 1.10 kg | 1 | pc(s) | 57 |
| 750 217 | 157262 | 05 00 04 06 | 17.08 kg | 1 | pc(s) | 166 | 758 022 | 099012 | 05 00 04 16 | 650 g | 1 | pc(s) | 57 |
| 750 218 | 157224 | 05 00 04 06 | 14.73 kg | 1 | pc(s) | 165 | 758 025 | 127838 | 05 00 04 16 | 1.49 kg | 1 | pc(s) | 57 |
| 750 219 | 157231 | 05 00 04 06 | 16.87 kg | 1 | pc(s) | 165 | 758 028 | 132450 | 05 00 04 16 | 4.16 kg | 1 | pc(s) | 58 |
| 750 221 | 157248 | 05 00 04 06 | 15.51 kg | 1 | pc(s) | 166 | 758 036 | 133884 | 05 00 04 16 | 203 g | 1 | pc(s) | 58 |
| 750 500 | 000032 | 05 00 04 01 | 250 g | 1 | pc(s) | 65 | 758 075 | 247789 | 05 00 04 16 | 1.08 kg | 1 | pc(s) | 58 |
| 751 040 | 006041 | 05 00 04 02 | 2.60 kg | 1 | pc(s) | 171 | 758 085 | 247819 | 05 00 04 16 | 750 g | 1 | pc(s) | 58 |
| 751 085 | 006058 | 05 00 04 02 | 4.98 kg | 1 | pc(s) | 171 | 758 095 | 247826 | 05 00 04 16 | 1.32 kg | 1 | pc(s) | 58 |
| 751 086 | 126626 | 05 00 04 06 | 8.99 kg | 1 | pc(s) | 169 | 758 099 | 287587 | 05 00 04 16 | 3.06 kg | 1 | pc(s) | 58 |
| 751 087 | 126633 | 05 00 04 06 | 9.13 kg | 1 | pc(s) | 169 | 758 116 | 247918 | 05 00 04 16 | 220 g | 1 | pc(s) | 58 |
| 751 120 | 006065 | 05 00 04 02 | 6.86 kg | 1 | pc(s) | 171 | 758 125 | 247925 | 05 00 04 16 | 260 g | 1 | pc(s) | 58 |
| 751 121 | 126640 | 05 00 04 06 | 11.14 kg | 1 | pc(s) | 169 | 758 135 | 247932 | 05 00 04 16 | 301 g | 1 | pc(s) | 58 |
| 751 122 | 126657 | 05 00 04 06 | 11.41 kg | 1 | pc(s) | 169 | 758 216 | 247949 | 05 00 04 16 | 282 g | 1 | pc(s) | 58 |
| 751 126 | 126664 | 05 00 04 06 | 10.88 kg | 1 | pc(s) | 169 | 759 706 | 259232 | 05 00 03 11 | 1.24 kg | 1 | pc(s) | 48 |
| 751 127 | 126671 | 05 00 04 06 | 11.01 kg | 1 | pc(s) | 169 | 759 712 | 259256 | 05 00 03 11 | 1.24 kg | 1 | pc(s) | 48 |
| 751 130 | 041776 | 05 00 04 02 | 7.39 kg | 1 | pc(s) | 171 | 759 716 | 259270 | 05 00 03 11 | 1.52 kg | 1 | pc(s) | 48 |
| 751 140 | 018570 | 05 00 04 02 | 7.93 kg | 1 | pc(s) | 171 | 759 736 | 259263 | 05 00 03 11 | 1.46 kg | 1 | pc(s) | 48 |
| 751 150 | 084520 | 05 00 04 06 | 4.53 kg | 1 | pc(s) | 170 | 759 798 | 259317 | 05 00 03 50 | 2 g | 1 | pc(s) | 99 |
| 751 191 | 126602 | 05 00 04 06 | 8.82 kg | 1 | pc(s) | 170 | 759 799 | 259294 | 05 00 03 50 | 32 g | 1 | pc(s) | 99 |
| 751 192 | 123885 | 05 00 04 06 | 6.68 kg | 1 | pc(s) | 170 | 761 001 | 125179 | 05 00 04 11 | 525 g | 1 | pc(s) | 77 |
| 751 193 | 123892 | 05 00 04 06 | 10.28 kg | 1 | pc(s) | 170 | 761 002 | 125186 | 05 00 04 11 | 400 g | 1 | pc(s) | 78 |
| 751 196 | 157767 | 05 00 04 06 | 8.53 kg | 1 | pc(s) | 170 | 761 003 | 134348 | 05 00 04 11 | 830 g | 1 | pc(s) | 77 |
| 751 197 | 157774 | 05 00 04 06 | 14.41 kg | 1 | pc(s) | 170 | 761 004 | 134355 | 05 00 04 11 | 853 g | 1 | pc(s) | 78 |
| 752 040 | 230187 | 05 00 04 03 | 1.09 kg | 1 | pc(s) | 171 | 761 010 | 000155 | 05 00 04 11 | 980 g | 1 | pc(s) | 77 |
| 752 041 | 230569 | 05 00 04 05 | 3.18 kg | 1 | pc(s) | 169 | 761 011 | 000230 | 05 00 04 11 | 1.05 kg | 1 | pc(s) | 77 |
| 752 042 | 230576 | 05 00 04 05 | 3.57 kg | 1 | pc(s) | 170 | 761 015 | 000162 | 05 00 04 11 | 1.35 kg | 1 | pc(s) | 77 |
| 752 085 | 230637 | 05 00 04 03 | 2.32 kg | 1 | pc(s) | 171 | 761 016 | 000247 | 05 00 04 11 | 1.36 kg | 1 | pc(s) | 77 |
| 752 086 | 230217 | 05 00 04 07 | 7.02 kg | 1 | pc(s) | 169 | 761 070 | 136212 | 05 00 04 11 | 800 g | 1 | pc(s) | 78 |
| 752 087 | 230422 | 05 00 04 07 | 7.33 kg | 1 | pc(s) | 169 | 761 075 | 136229 | 05 00 04 11 | 800 g | 1 | pc(s) | 78 |
| 752 120 | 230644 | 05 00 04 03 | 3.28 kg | 1 | pc(s) | 171 | 763 100 | 125155 | 05 00 01 02 | 600 g | 1 | pc(s) | 26 |
| 752 121 | 230316 | 05 00 04 07 | 8.32 kg | 1 | pc(s) | 169 | 763 111 | 137226 | 05 00 01 02 | 580 g | 1 | pc(s) | 26 |
| 752 122 | 230453 | 05 00 04 07 | 8.48 kg | 1 | pc(s) | 169 | 763 211 | 081567 | 05 00 05 01 | 8.00 kg | 1 | pc(s) | 95 |
| 752 126 | 230262 | 05 00 04 07 | 8.05 kg | 1 | pc(s) | 169 | 763 221 | 081574 | 05 00 05 01 | 8.00 kg | 1 | pc(s) | 95 |
| 752 127 | 230439 | 05 00 04 07 | 8.21 kg | 1 | pc(s) | 169 | 763 231 | 081581 | 05 00 05 01 | 8.00 kg | 1 | pc(s) | 95 |
| 752 191 | 230330 | 05 00 04 07 | 6.34 kg | 1 | pc(s) | 170 | 763 241 | 081598 | 05 00 05 01 | 8.00 kg | 1 | pc(s) | 95 |
| 752 192 | 230590 | 05 00 04 07 | 4.66 kg | 1 | pc(s) | 170 | 763 610 | 003286 | 05 00 01 02 | 962 g | 1 | pc(s) | 26 |
| 752 193 | 230538 | 05 00 04 07 | 7.38 kg | 1 | pc(s) | 170 | 763 611 | 076921 | 05 00 01 02 | 610 g | 1 | pc(s) | 26 |
| 752 196 | 230545 | 05 00 04 07 | 6.52 kg | 1 | pc(s) | 170 | 763 612 | 078635 | 05 00 01 02 | 800 g | 1 | pc(s) | 26 |
| 752 197 | 230552 | 05 00 04 07 | 7.55 kg | 1 | pc(s) | 170 | 763 615 | 003309 | 05 00 01 02 | 1.42 kg | 1 | pc(s) | 26 |
| 754 200 | 004207 | 05 00 04 01 | 131 g | 1 | pc(s) | 63 | 763 620 | 003316 | 05 00 01 02 | 800 g | 1 | pc(s) | 26 |
| 754 205 | 097865 | 05 00 04 01 | 137 g | 1 | pc(s) | 63 | 763 630 | 003330 | 05 00 01 02 | 1.35 kg | 1 | pc(s) | 26 |
| 754 235 | 004221 | 05 00 04 01 | 184 g | 1 | pc(s) | 63 | 763 710 | 098558 | 05 00 01 01 | 1.20 kg | 1 | pc(s) | 28 |
| 754 238 | 131309 | 05 00 04 01 | 180 g | 1 | pc(s) | 63 | 763 711 | 098565 | 05 00 01 01 | 442 g | 1 | pc(s) | 28 |
| 754 600 | 004214 | 05 00 04 01 | 116 g | 1 | pc(s) | 63 | 763 712 | 098572 | 05 00 01 01 | 49 g | 1 | pc(s) | 28 |
| 754 645 | 004238 | 05 00 04 01 | 287 g | 1 | pc(s) | 63 | 765 001 | 051805 | 05 00 04 11 | 190 g | 1 | pc(s) | 78 |
| 755 200 | 000087 | 05 00 04 01 | 220 g | 1 | pc(s) | 63 | 765 001 | 051805 | 05 00 04 11 | 190 g | 1 | pc(s) | 83 |
| 755 225 | 004498 | 05 00 04 01 | 265 g | 1 | pc(s) | 63 | 765 005 | 051775 | 05 00 01 02 | 117 g | 1 | pc(s) | 22 |
| 755 245 | 000070 | 05 00 04 01 | 278 g | 1 | pc(s) | 63 | 765 005 | 051775 | 05 00 01 02 | 117 g | 1 | pc(s) | 100 |
| 755 501 | 003934 | 05 00 04 01 | 298 g | 1 | pc(s) | 65 | 765 006 | 156104 | 05 00 04 11 | 315 g | 1 | pc(s) | 79 |
| 755 600 | 000094 | 05 00 04 01 | 204 g | 1 | pc(s) | 63 | 765 009 | 051782 | 05 00 01 02 | 145 g | 1 | pc(s) | 23 |
| 755 626 | 079625 | 05 00 04 01 | 301 g | 1 | pc(s) | 164 | 765 009 | 051782 | 05 00 01 02 | 145 g | 1 | pc(s) | 100 |
| 755 627 | 077768 | 05 00 04 01 | 311 g | 1 | pc(s) | 164 | 765 040 | 093751 | 05 00 01 03 | 2.13 kg | 1 | pc(s) | 27 |
| 755 636 | 079670 | 05 00 04 01 | 310 g | 1 | pc(s) | 164 | 765 041 | 093768 | 05 00 01 03 | 2.28 kg | 1 | pc(s) | 27 |
| 755 645 | 000100 | 05 00 04 01 | 319 g | 1 | pc(s) | 63 | 765 042 | 093775 | 05 00 01 03 | 2.59 kg | 1 | pc(s) | 27 |
| 755 646 | 079632 | 05 00 04 01 | 330 g | 1 | pc(s) | 164 | 765 050 | 093782 | 05 00 01 03 | 2.15 kg | 1 | pc(s) | 27 |

| Part No. | GTIN* | PG | Weight | PU | SU | Page | Part No. | GTIN* | PG | Weight | PU | SU | Page |
|----------|--------|-------------|--------------|----|-------|------|----------|--------|-------------|-------------|----|-------|------|
| 765 051 | 093799 | 05 00 01 03 | 2.29 kg | 1 | pc(s) | 27 | 766 368 | 115026 | 05 00 01 01 | 340 g | 1 | pc(s) | 101 |
| 765 052 | 093805 | 05 00 01 03 | 2.59 kg | 1 | pc(s) | 27 | 766 369 | 125025 | 05 00 01 01 | 388 g | 1 | pc(s) | 101 |
| 766 001 | 017825 | 05 00 01 01 | 416 g | 1 | pc(s) | 22 | 766 371 | 139909 | 05 00 01 01 | 560 g | 1 | pc(s) | 154 |
| 766 002 | 017832 | 05 00 01 01 | 810 g | 1 | pc(s) | 22 | 766 372 | 139916 | 05 00 01 01 | 1.24 kg | 1 | pc(s) | 154 |
| 766 036 | 105584 | 05 05 01 02 | 968 g | 1 | pc(s) | 56 | 766 380 | 400863 | 05 00 01 01 | 6.67 kg | 1 | pc(s) | 25 |
| 766 037 | 125940 | 05 00 01 01 | 6.56 kg | 1 | pc(s) | 39 | 766 380 | 400863 | 05 00 01 01 | 6.67 kg | 1 | pc(s) | 155 |
| 766 037 | 125940 | 05 00 01 01 | 6.56 kg | 1 | pc(s) | 101 | 766 389 | 411838 | 05 00 01 05 | 79 g | 1 | pc(s) | 25 |
| 766 038 | 105355 | 05 00 01 01 | 275 g | 1 | pc(s) | 101 | 766 392 | 282902 | 05 00 01 05 | 78 g | 1 | pc(s) | 25 |
| 766 039 | 105362 | 05 05 01 04 | 712 g | 1 | pc(s) | 101 | 766 393 | 282926 | 05 00 01 05 | 153 g | 1 | pc(s) | 24 |
| 766 040 | 113046 | 05 00 01 04 | 820 g | 1 | pc(s) | 26 | 766 396 | 307056 | 05 00 01 05 | 123 g | 1 | pc(s) | 25 |
| 766 041 | 113053 | 05 00 01 04 | 1.02 kg | 1 | pc(s) | 26 | 766 456 | 121812 | 05 00 01 50 | 690 g | 1 | pc(s) | 25 |
| 766 042 | 113060 | 05 00 01 04 | 1.12 kg | 1 | pc(s) | 26 | 766 456 | 121812 | 05 00 01 50 | 690 g | 1 | pc(s) | 102 |
| 766 043 | 510142 | 05 00 01 04 | --- | 1 | pc(s) | 26 | 766 466 | 121805 | 05 00 01 50 | 900 g | 1 | pc(s) | 25 |
| 766 049 | 108059 | 05 00 01 01 | 165 g | 1 | pc(s) | 101 | 766 466 | 121805 | 05 00 01 50 | 900 g | 1 | pc(s) | 102 |
| 766 055 | 125063 | 05 00 01 01 | 120 g | 1 | pc(s) | 102 | 766 469 | 139893 | 05 00 01 01 | 3.42 kg | 1 | pc(s) | 154 |
| 766 056 | 125070 | 05 00 01 01 | 204 g | 1 | pc(s) | 155 | 766 480 | 511835 | 05 50 50 01 | --- | 1 | pc(s) | 24 |
| 766 057 | 125087 | 05 00 01 50 | 10 pc(s)/kit | 1 | kit | 155 | 766 480 | 511835 | 05 50 50 01 | --- | 1 | pc(s) | 154 |
| 766 059 | 378681 | 05 00 01 01 | 110 g | 1 | pc(s) | 155 | 766 483 | 513921 | 05 00 01 05 | --- | 1 | pc(s) | 24 |
| 766 073 | 126121 | 05 00 03 50 | 1.60 kg | 1 | pc(s) | 102 | 766 483 | 513921 | 05 00 01 05 | --- | 1 | pc(s) | 154 |
| 766 076 | 120464 | 05 00 04 11 | 770 g | 1 | pc(s) | 102 | 766 520 | 136243 | 05 00 04 11 | 306 g | 1 | pc(s) | 102 |
| 766 077 | 120457 | 05 00 04 11 | 730 g | 1 | pc(s) | 102 | 766 542 | 051706 | 05 00 03 09 | 71 g | 1 | pc(s) | 45 |
| 766 100 | 125117 | 05 00 01 01 | 400 g | 1 | pc(s) | 22 | 766 543 | 051683 | 05 05 01 03 | 148 g | 1 | pc(s) | 45 |
| 766 105 | 125988 | 05 00 03 50 | 10 g | 1 | pc(s) | 101 | 766 601 | 056596 | 05 05 01 03 | 319 g | 1 | pc(s) | 56 |
| 766 111 | 137295 | 05 00 01 01 | 560 g | 1 | pc(s) | 22 | 766 602 | 056626 | 05 05 01 03 | 1.31 kg | 1 | pc(s) | 56 |
| 766 115 | 136038 | 05 00 01 50 | 725 g | 1 | pc(s) | 102 | 766 602 | 056626 | 05 05 01 03 | 1.31 kg | 1 | pc(s) | 164 |
| 766 116 | 153073 | 05 00 01 01 | 1.05 kg | 1 | pc(s) | 102 | 766 605 | 054370 | 05 50 50 01 | 2 g | 1 | pc(s) | 99 |
| 766 117 | 153080 | 05 00 01 01 | 645 g | 1 | pc(s) | 102 | 766 611 | 146549 | 05 00 03 50 | 4 pc(s)/kit | 1 | kit | 99 |
| 766 120 | 136052 | 05 00 01 50 | 690 g | 1 | pc(s) | 102 | 766 614 | 056916 | 05 05 01 03 | 600 g | 1 | pc(s) | 164 |
| 766 122 | 134249 | 05 00 01 01 | 800 g | 1 | pc(s) | 22 | 766 616 | 126091 | 05 00 03 02 | 5.09 kg | 1 | pc(s) | 156 |
| 766 164 | 121751 | 05 00 01 02 | 400 g | 1 | pc(s) | 23 | 766 617 | 101760 | 05 00 03 02 | 4.95 kg | 1 | pc(s) | 156 |
| 766 164 | 121751 | 05 00 01 02 | 400 g | 1 | pc(s) | 100 | 766 618 | 148277 | 05 00 03 50 | 23 g | 1 | pc(s) | 99 |
| 766 169 | 230675 | 05 00 01 02 | 550 g | 1 | pc(s) | 100 | 766 660 | 302464 | 05 00 03 09 | 460 g | 1 | pc(s) | 45 |
| 766 298 | 007864 | 05 05 01 01 | 3.70 kg | 1 | pc(s) | 86 | 766 665 | 302488 | 05 00 03 09 | 460 g | 1 | pc(s) | 45 |
| 766 298 | 007864 | 05 05 01 01 | 3.70 kg | 1 | pc(s) | 92 | 766 704 | 069749 | 05 05 01 04 | 720 g | 1 | pc(s) | 164 |
| 766 300 | 007628 | 05 05 01 01 | 1.20 kg | 1 | pc(s) | 86 | 766 706 | 094307 | 05 00 03 07 | 800 g | 1 | pc(s) | 39 |
| 766 300 | 007628 | 05 05 01 01 | 1.20 kg | 1 | pc(s) | 92 | 766 710 | 094314 | 05 00 03 07 | 1.70 kg | 1 | pc(s) | 39 |
| 766 301 | 125124 | 05 00 01 01 | 400 g | 1 | pc(s) | 23 | 766 720 | 094321 | 05 00 03 07 | 1.70 kg | 1 | pc(s) | 39 |
| 766 302 | 051317 | 05 00 04 13 | 4.38 kg | 1 | pc(s) | 86 | 766 888 | 125209 | 05 00 03 50 | 63 g | 1 | pc(s) | 55 |
| 766 310 | 137318 | 05 00 01 01 | 560 g | 1 | pc(s) | 23 | 766 889 | 125193 | 05 00 03 50 | 172 g | 1 | pc(s) | 55 |
| 766 311 | 017856 | 05 00 01 01 | 419 g | 1 | pc(s) | 22 | 766 913 | 051836 | 05 00 03 50 | 42 g | 1 | pc(s) | 54 |
| 766 311 | 017856 | 05 00 01 01 | 419 g | 1 | pc(s) | 25 | 766 915 | 088207 | 05 00 03 50 | 220 g | 1 | pc(s) | 54 |
| 766 312 | 311985 | 05 00 01 01 | 540 g | 1 | pc(s) | 22 | 766 916 | 106840 | 05 00 03 50 | 125 g | 1 | pc(s) | 54 |
| 766 313 | 115040 | 05 00 01 50 | 413 g | 1 | pc(s) | 55 | 766 923 | 074590 | 05 00 03 50 | 71 g | 1 | pc(s) | 54 |
| 766 315 | 008281 | 05 00 01 01 | 820 g | 1 | pc(s) | 22 | 766 924 | 094840 | 05 00 03 50 | 46 g | 1 | pc(s) | 54 |
| 766 315 | 008281 | 05 00 01 01 | 820 g | 1 | pc(s) | 25 | 766 925 | 091672 | 05 00 03 50 | 10 g | 1 | pc(s) | 54 |
| 766 321 | 129528 | 05 00 01 50 | 187 g | 1 | pc(s) | 23 | 766 927 | 097452 | 05 00 03 50 | 12 g | 1 | pc(s) | 54 |
| 766 322 | 134256 | 05 00 01 01 | 800 g | 1 | pc(s) | 23 | 766 940 | 080485 | 05 00 03 50 | 145 g | 1 | pc(s) | 54 |
| 766 322 | 134256 | 05 00 01 01 | 800 g | 1 | pc(s) | 25 | 766 941 | 080478 | 05 00 03 50 | 150 g | 1 | pc(s) | 54 |
| 766 328 | 135765 | 05 00 01 01 | 283 g | 1 | pc(s) | 101 | 766 950 | 090668 | 05 00 03 50 | 339 g | 1 | pc(s) | 54 |
| 766 331 | 115002 | 05 00 01 01 | 375 g | 1 | pc(s) | 101 | 766 960 | 109629 | 05 00 03 50 | 310 g | 1 | pc(s) | 54 |
| 766 332 | 137325 | 05 00 01 01 | 2.38 kg | 1 | pc(s) | 23 | 766 994 | 247062 | 05 05 01 02 | 3.31 kg | 1 | pc(s) | 56 |
| 766 335 | 115033 | 05 00 01 50 | 420 g | 1 | pc(s) | 25 | 766 995 | 247147 | 05 05 01 02 | 4.38 kg | 1 | pc(s) | 56 |
| 766 335 | 115033 | 05 00 01 50 | 420 g | 1 | pc(s) | 102 | 766 996 | 128170 | 05 05 01 03 | 4.00 kg | 1 | pc(s) | 56 |
| 766 340 | 125056 | 05 00 01 01 | 3.00 kg | 1 | pc(s) | 155 | 766 998 | 115286 | 05 05 01 02 | 3.36 kg | 1 | pc(s) | 56 |
| 766 352 | 136069 | 05 00 01 50 | 250 g | 1 | pc(s) | 102 | 767 101 | 069541 | 05 00 03 12 | 60 g | 1 | pc(s) | 50 |
| 766 356 | 121799 | 05 00 01 50 | 400 g | 1 | pc(s) | 25 | 767 102 | 074064 | 05 00 03 12 | 62 g | 1 | pc(s) | 50 |
| 766 356 | 121799 | 05 00 01 50 | 400 g | 1 | pc(s) | 102 | 767 107 | 105577 | 05 05 01 02 | 880 g | 1 | pc(s) | 56 |
| 766 358 | 136137 | 05 00 01 50 | 200 g | 1 | pc(s) | 102 | 767 110 | 070905 | 05 00 03 12 | 119 g | 1 | pc(s) | 50 |
| 766 359 | 134379 | 05 00 01 50 | 200 g | 1 | pc(s) | 24 | 767 112 | 074361 | 05 00 03 12 | 150 g | 1 | pc(s) | 51 |
| 766 359 | 134379 | 05 00 01 50 | 200 g | 1 | pc(s) | 102 | 767 122 | 074385 | 05 00 03 12 | 185 g | 1 | pc(s) | 51 |
| 766 362 | 230705 | 05 00 01 01 | 635 g | 1 | pc(s) | 23 | 767 125 | 130319 | 05 00 03 01 | 1.26 kg | 1 | pc(s) | 157 |
| 766 362 | 230705 | 05 00 01 01 | 635 g | 1 | pc(s) | 101 | 767 131 | 139411 | 05 00 03 01 | 6.20 kg | 1 | pc(s) | 159 |
| 766 363 | 121737 | 05 00 01 01 | 600 g | 1 | pc(s) | 23 | 767 132 | 073005 | 05 00 03 12 | 640 g | 1 | pc(s) | 52 |
| 766 363 | 121737 | 05 00 01 01 | 600 g | 1 | pc(s) | 101 | 767 133 | 073494 | 05 00 03 12 | 85 g | 1 | pc(s) | 53 |
| 766 364 | 128262 | 05 00 01 01 | 240 g | 1 | pc(s) | 23 | 767 136 | 081109 | 05 00 03 12 | 65 g | 1 | pc(s) | 53 |
| 766 364 | 128262 | 05 00 01 01 | 240 g | 1 | pc(s) | 100 | 767 139 | 136953 | 05 00 03 12 | 820 g | 1 | pc(s) | 53 |
| 766 365 | 121768 | 05 00 01 01 | 200 g | 1 | pc(s) | 23 | 767 150 | 139473 | 05 00 03 12 | 1.94 kg | 1 | pc(s) | 52 |
| 766 365 | 121768 | 05 00 01 01 | 200 g | 1 | pc(s) | 100 | 767 413 | 128750 | 05 00 03 02 | 1.77 kg | 1 | pc(s) | 158 |
| 766 366 | 121782 | 05 00 01 50 | 600 g | 1 | pc(s) | 25 | 767 415 | 081116 | 05 00 03 02 | 1.52 kg | 1 | pc(s) | 158 |
| 766 366 | 121782 | 05 00 01 50 | 600 g | 1 | pc(s) | 102 | 767 416 | 084247 | 05 00 03 02 | 2.62 kg | 1 | pc(s) | 158 |
| 766 367 | 137042 | 05 00 01 01 | 600 g | 1 | pc(s) | 23 | 767 500 | 105676 | 05 05 01 03 | 280 g | 1 | pc(s) | 53 |
| 766 367 | 137042 | 05 00 01 01 | 600 g | 1 | pc(s) | 101 | 767 539 | 306769 | 05 00 03 06 | 1.40 kg | 1 | pc(s) | 42 |
| 766 368 | 115026 | 05 00 01 01 | 340 g | 1 | pc(s) | 39 | 767 541 | 115712 | 05 00 03 06 | 1.20 kg | 1 | pc(s) | 42 |

| Part No. | GTIN* | PG | Weight | PU | SU | Page | Part No. | GTIN* | PG | Weight | PU | SU | Page |
|----------|--------|-------------|---------|----|-------|------|----------|--------|-------------|----------|----|-------|------|
| 767 542 | 086616 | 05 00 03 06 | 5.35 kg | 1 | pc(s) | 161 | 769 352 | 007345 | 05 00 04 11 | 3.70 kg | 1 | pc(s) | 167 |
| 767 547 | 158276 | 05 00 03 06 | 2.00 kg | 1 | pc(s) | 43 | 769 400 | 080881 | 05 00 04 11 | 3.37 kg | 1 | pc(s) | 79 |
| 767 552 | 115736 | 05 00 03 06 | 2.00 kg | 1 | pc(s) | 43 | 769 500 | 080904 | 05 00 04 11 | 3.92 kg | 1 | pc(s) | 79 |
| 767 565 | 143760 | 05 00 03 06 | 2.03 kg | 1 | pc(s) | 160 | 769 502 | 004542 | 05 00 04 11 | 4.54 kg | 1 | pc(s) | 167 |
| 767 571 | 124967 | 05 00 03 06 | 1.99 kg | 1 | pc(s) | 41 | 769 503 | 003996 | 05 00 04 11 | 1.65 kg | 1 | pc(s) | 79 |
| 767 572 | 124974 | 05 00 03 06 | 2.01 kg | 1 | pc(s) | 41 | 769 504 | 004559 | 05 00 04 11 | 1.66 kg | 1 | pc(s) | 79 |
| 767 573 | 134270 | 05 00 03 06 | 3.57 kg | 1 | pc(s) | 41 | 769 505 | 004566 | 05 00 04 11 | 1.46 kg | 1 | pc(s) | 79 |
| 767 574 | 125971 | 05 05 01 03 | 500 g | 1 | pc(s) | 56 | 769 508 | 052383 | 05 00 04 11 | 4.50 kg | 1 | pc(s) | 166 |
| 767 610 | 135208 | 05 00 03 08 | 4.40 kg | 1 | pc(s) | 163 | 769 509 | 068230 | 05 05 01 04 | 358 g | 1 | pc(s) | 167 |
| 767 614 | 135307 | 05 00 03 08 | 6.00 kg | 1 | pc(s) | 163 | 769 511 | 135055 | 05 00 04 11 | 4.41 kg | 1 | pc(s) | 73 |
| 767 636 | 155886 | 05 00 03 08 | 2.31 kg | 1 | pc(s) | 44 | 769 515 | 157361 | 05 00 04 11 | 6.01 kg | 1 | pc(s) | 167 |
| 767 636 | 155886 | 05 00 03 08 | 2.31 kg | 1 | pc(s) | 162 | 769 701 | 242470 | 05 00 03 01 | 750 g | 1 | pc(s) | 100 |
| 767 637 | 155879 | 05 00 03 08 | 2.10 kg | 1 | pc(s) | 44 | 769 712 | 242517 | 05 00 03 01 | 5.23 kg | 1 | pc(s) | 40 |
| 767 637 | 155879 | 05 00 03 08 | 2.10 kg | 1 | pc(s) | 163 | 769 714 | 246768 | 05 00 03 01 | 2.80 kg | 1 | pc(s) | 159 |
| 767 639 | 155817 | 05 00 03 08 | 2.40 kg | 1 | pc(s) | 163 | | | | | | | |
| 767 640 | 155978 | 05 00 03 08 | 2.10 kg | 1 | pc(s) | 44 | 770 001 | 011762 | 05 00 04 02 | 753 g/m | 1 | m | 68 |
| 767 640 | 155978 | 05 00 03 08 | 2.10 kg | 1 | pc(s) | 163 | | | | | | | |
| 767 645 | 156067 | 05 00 03 08 | 2.60 kg | 1 | pc(s) | 44 | 771 230 | 144392 | 05 00 04 14 | 1.05 kg | 1 | pc(s) | 89 |
| 767 645 | 156067 | 05 00 03 08 | 2.60 kg | 1 | pc(s) | 163 | 771 231 | 144408 | 05 00 04 14 | 1.05 kg | 1 | pc(s) | 89 |
| 767 647 | 156081 | 05 00 03 08 | 2.10 kg | 1 | pc(s) | 44 | 771 232 | 144415 | 05 00 04 14 | 1.05 kg | 1 | pc(s) | 89 |
| 767 647 | 156081 | 05 00 03 08 | 2.10 kg | 1 | pc(s) | 163 | 771 233 | 144422 | 05 00 04 14 | 1.05 kg | 1 | pc(s) | 89 |
| 767 666 | 157071 | 05 00 03 08 | 2.20 kg | 1 | pc(s) | 44 | 771 316 | 150393 | 05 00 04 08 | 418 g | 1 | pc(s) | 72 |
| 767 666 | 157071 | 05 00 03 08 | 2.20 kg | 1 | pc(s) | 162 | | | | | | | |
| 767 671 | 156807 | 05 00 03 08 | 2.60 kg | 1 | pc(s) | 44 | 772 310 | 057593 | 05 00 04 08 | 469 g | 1 | pc(s) | 71 |
| 767 671 | 156807 | 05 00 03 08 | 2.60 kg | 1 | pc(s) | 163 | 772 311 | 057586 | 05 00 04 08 | 482 g | 1 | pc(s) | 71 |
| 767 701 | 071292 | 05 05 01 01 | 5.70 kg | 1 | pc(s) | 56 | 772 312 | 054431 | 05 00 04 08 | 480 g | 1 | pc(s) | 76 |
| 767 703 | 070899 | 05 00 03 01 | 1.01 kg | 1 | pc(s) | 37 | 772 313 | 054448 | 05 00 04 09 | 400 g | 1 | pc(s) | 76 |
| 767 706 | 070837 | 05 00 03 01 | 1.01 kg | 1 | pc(s) | 37 | 772 314 | 080171 | 05 00 04 08 | 446 g | 1 | pc(s) | 73 |
| 767 710 | 070851 | 05 00 03 01 | 1.01 kg | 1 | pc(s) | 37 | 772 320 | 057432 | 05 00 04 08 | 785 g | 1 | pc(s) | 71 |
| 767 711 | 070820 | 05 00 03 01 | 1.16 kg | 1 | pc(s) | 37 | 772 321 | 057449 | 05 00 04 08 | 756 g | 1 | pc(s) | 71 |
| 767 712 | 074699 | 05 50 50 01 | 37 g | 1 | pc(s) | 99 | 772 322 | 054455 | 05 00 04 09 | 747 g | 1 | pc(s) | 76 |
| 767 713 | 094925 | 05 50 50 01 | 45 g | 1 | pc(s) | 99 | 772 323 | 054462 | 05 00 04 09 | 876 g | 1 | pc(s) | 76 |
| 767 720 | 070844 | 05 00 03 01 | 1.89 kg | 1 | pc(s) | 37 | 772 324 | 080188 | 05 00 04 08 | 719 g | 1 | pc(s) | 73 |
| 767 721 | 070868 | 05 00 03 01 | 1.23 kg | 1 | pc(s) | 37 | 772 330 | 069220 | 05 00 04 08 | 560 g | 1 | pc(s) | 71 |
| 767 724 | 125902 | 05 00 03 01 | 4.22 kg | 1 | pc(s) | 40 | 772 331 | 066304 | 05 00 04 08 | 566 g | 1 | pc(s) | 71 |
| 767 730 | 070813 | 05 00 03 01 | 1.13 kg | 1 | pc(s) | 37 | 772 340 | 057456 | 05 00 04 08 | 878 g | 1 | pc(s) | 71 |
| 767 731 | 070875 | 05 00 03 01 | 1.29 kg | 1 | pc(s) | 37 | 772 341 | 057425 | 05 00 04 08 | 902 g | 1 | pc(s) | 71 |
| 767 733 | 070882 | 05 00 03 01 | 1.29 kg | 1 | pc(s) | 37 | | | | | | | |
| 767 740 | 071063 | 05 00 03 01 | 1.45 kg | 1 | pc(s) | 37 | 773 034 | 114562 | 05 00 04 08 | 634 g | 1 | pc(s) | 71 |
| 767 750 | 071070 | 05 00 03 01 | 1.51 kg | 1 | pc(s) | 37 | 773 130 | 057722 | 05 00 04 08 | 801 g | 1 | pc(s) | 71 |
| 767 760 | 072947 | 05 00 03 01 | 177 g | 1 | pc(s) | 99 | 773 234 | 114555 | 05 00 04 08 | 661 g | 1 | pc(s) | 71 |
| 767 761 | 072954 | 05 00 03 01 | 282 g | 1 | pc(s) | 99 | 773 236 | 114579 | 05 00 04 08 | 714 g | 1 | pc(s) | 74 |
| 767 762 | 072961 | 05 00 03 01 | 353 g | 1 | pc(s) | 99 | 773 251 | 005990 | 05 00 04 08 | 901 g | 1 | pc(s) | 168 |
| 767 763 | 072978 | 05 00 03 01 | 529 g | 1 | pc(s) | 99 | 773 330 | 057760 | 05 00 04 08 | 830 g | 1 | pc(s) | 71 |
| 767 764 | 072114 | 05 00 03 01 | 506 g | 1 | pc(s) | 99 | 773 331 | 069244 | 05 00 04 08 | 793 g | 1 | pc(s) | 74 |
| 767 766 | 091696 | 05 00 03 01 | 129 g | 1 | pc(s) | 100 | | | | | | | |
| 767 768 | 113190 | 05 00 03 01 | 445 g | 1 | pc(s) | 100 | 774 034 | 114586 | 05 00 04 09 | 662 g | 1 | pc(s) | 75 |
| 767 771 | 115118 | 05 00 03 01 | 600 g | 1 | pc(s) | 100 | 774 130 | 057739 | 05 00 04 09 | 780 g | 1 | pc(s) | 75 |
| 767 776 | 096486 | 05 50 50 01 | 58 g | 1 | pc(s) | 99 | 774 234 | 114593 | 05 00 04 09 | 772 g | 1 | pc(s) | 76 |
| 767 777 | 096493 | 05 50 50 01 | 46 g | 1 | pc(s) | 99 | 774 251 | 006003 | 05 00 04 09 | 955 g | 1 | pc(s) | 168 |
| 767 779 | 093942 | 05 00 03 50 | 3 g | 1 | pc(s) | 99 | 774 330 | 057715 | 05 00 04 09 | 941 g | 1 | pc(s) | 76 |
| 767 903 | 134737 | 05 00 03 01 | 992 g | 1 | pc(s) | 38 | 774 434 | 114609 | 05 00 04 09 | 712 g | 1 | pc(s) | 76 |
| 767 906 | 134744 | 05 00 03 01 | 992 g | 1 | pc(s) | 38 | 774 530 | 057746 | 05 00 04 09 | 700 g | 1 | pc(s) | 76 |
| 767 910 | 134751 | 05 00 03 01 | 992 g | 1 | pc(s) | 38 | | | | | | | |
| 767 920 | 134768 | 05 00 03 01 | 1.10 kg | 1 | pc(s) | 38 | 775 621 | 102545 | 05 00 04 09 | 311 g | 1 | pc(s) | 76 |
| 767 921 | 097360 | 05 00 03 01 | 1.65 kg | 1 | pc(s) | 39 | 775 626 | 102569 | 05 00 04 09 | 343 g | 1 | pc(s) | 76 |
| 767 922 | 097384 | 05 00 03 01 | 1.07 kg | 1 | pc(s) | 39 | 775 631 | 102552 | 05 00 04 09 | 290 g | 1 | pc(s) | 76 |
| 767 930 | 134775 | 05 00 03 01 | 1.17 kg | 1 | pc(s) | 38 | 775 636 | 102576 | 05 00 04 09 | 350 g | 1 | pc(s) | 76 |
| 767 931 | 097377 | 05 00 03 01 | 1.08 kg | 1 | pc(s) | 39 | | | | | | | |
| 767 932 | 097391 | 05 00 03 01 | 1.07 kg | 1 | pc(s) | 39 | 782 002 | 312562 | 05 20 10 02 | 5.23 kg | 1 | pc(s) | 149 |
| 767 940 | 134829 | 05 00 03 01 | 1.39 kg | 1 | pc(s) | 38 | 782 020 | 236509 | 05 20 10 02 | 10 g/kit | 1 | kit | 149 |
| 767 941 | 134782 | 05 00 03 01 | 1.17 kg | 1 | pc(s) | 38 | 782 022 | 236516 | 05 20 10 02 | 20 g/kit | 1 | kit | 149 |
| 767 944 | 277731 | 05 00 03 01 | 1.38 kg | 1 | pc(s) | 38 | 782 024 | 237193 | 05 20 10 02 | 36 g/kit | 1 | kit | 149 |
| 767 950 | 134836 | 05 00 03 01 | 1.44 kg | 1 | pc(s) | 38 | 782 028 | 237223 | 05 20 10 02 | 66 g/kit | 1 | kit | 149 |
| 767 951 | 134799 | 05 00 03 01 | 1.26 kg | 1 | pc(s) | 38 | 782 030 | 245792 | 05 20 10 02 | 1.19 kg | 1 | pc(s) | 148 |
| 767 960 | 134812 | 05 00 03 01 | 1.32 kg | 1 | pc(s) | 38 | 782 031 | 245815 | 05 20 10 02 | 1.19 kg | 1 | pc(s) | 148 |
| 767 961 | 134805 | 05 00 03 01 | 1.32 kg | 1 | pc(s) | 38 | 782 040 | 245822 | 05 20 10 02 | 784 g | 1 | pc(s) | 148 |
| 767 980 | 125926 | 05 00 03 01 | 5.98 kg | 1 | pc(s) | 40 | 782 041 | 245839 | 05 20 10 02 | 784 g | 1 | pc(s) | 148 |
| 767 996 | 120181 | 05 05 01 03 | 2.30 kg | 1 | pc(s) | 56 | 782 050 | 245846 | 05 20 10 02 | 851 g | 1 | pc(s) | 148 |
| 767 997 | 115682 | 05 05 01 02 | 2.42 kg | 1 | pc(s) | 56 | 782 051 | 245853 | 05 20 10 02 | 851 g | 1 | pc(s) | 148 |
| 767 999 | 115262 | 05 05 01 02 | 3.40 kg | 1 | pc(s) | 56 | 782 060 | 245860 | 05 20 10 02 | 27 g | 1 | pc(s) | 148 |
| | | | | | | | 782 077 | 273375 | 05 20 10 02 | 44 g | 1 | pc(s) | 149 |
| 769 300 | 080867 | 05 00 04 11 | 2.80 kg | 1 | pc(s) | 79 | 782 081 | 273344 | 05 20 10 02 | 49 g | 1 | pc(s) | 149 |
| 769 304 | 149144 | 05 00 04 11 | 2.00 kg | 1 | pc(s) | 78 | 782 085 | 273443 | 05 20 10 02 | 70 g | 1 | pc(s) | 149 |

| Part No. | GTIN* | PG | Weight | PU | SU | Page | Part No. | GTIN* | PG | Weight | PU | SU | Page |
|----------|--------|-------------|----------|----|-----------|------|----------|--------|-------------|----------|----|-------|------|
| 782 091 | 273474 | 05 20 10 02 | 77 g | 1 | pc(s) | 149 | 785 111 | 070257 | 05 05 01 04 | 612 g | 1 | pc(s) | 166 |
| 782 092 | 468092 | 05 20 10 02 | 70 g | 1 | pc(s) | 149 | 785 112 | 106550 | 05 01 01 01 | 17.80 kg | 1 | pc(s) | 106 |
| 782 097 | 445970 | 05 20 10 02 | 16 g/kit | 5 | pc(s)/kit | 148 | 785 119 | 098213 | 05 01 01 01 | 700 g | 1 | pc(s) | 108 |
| 782 098 | 274013 | 05 20 10 02 | 31 g/kit | 50 | pc(s)/kit | 149 | 785 159 | 284517 | 05 01 01 01 | 120 g | 1 | pc(s) | 108 |
| 782 099 | 274006 | 05 20 10 02 | 45 g/kit | 50 | pc(s)/kit | 149 | 785 169 | 284753 | 05 01 01 01 | 312 g | 1 | pc(s) | 108 |
| | | | | | | | 785 213 | 090279 | 05 01 01 01 | 320 g | 1 | pc(s) | 108 |
| 783 003 | 310179 | 05 00 03 03 | 1.24 kg | 1 | pc(s) | 34 | 785 214 | 090286 | 05 01 01 01 | 320 g | 1 | pc(s) | 108 |
| 783 006 | 310155 | 05 00 03 03 | 1.27 kg | 1 | pc(s) | 34 | 785 215 | 090293 | 05 01 01 01 | 320 g | 1 | pc(s) | 108 |
| 783 010 | 297869 | 05 00 03 03 | 1.23 kg | 1 | pc(s) | 34 | 785 216 | 090309 | 05 01 01 01 | 320 g | 1 | pc(s) | 108 |
| 783 011 | 310131 | 05 00 03 03 | 1.25 kg | 1 | pc(s) | 36 | 785 217 | 090316 | 05 01 01 01 | 320 g | 1 | pc(s) | 108 |
| 783 013 | 310186 | 05 00 03 03 | 1.47 kg | 1 | pc(s) | 34 | 785 218 | 090323 | 05 01 01 01 | 320 g | 1 | pc(s) | 108 |
| 783 020 | 310124 | 05 00 03 03 | 1.35 kg | 1 | pc(s) | 34 | 785 219 | 090330 | 05 01 01 01 | 320 g | 1 | pc(s) | 108 |
| 783 022 | 310117 | 05 00 03 03 | 1.35 kg | 1 | pc(s) | 36 | 785 225 | 136434 | 05 01 01 01 | 140 g | 1 | pc(s) | 108 |
| 783 030 | 310100 | 05 00 03 03 | 1.62 kg | 1 | pc(s) | 34 | 785 310 | 092013 | 05 01 01 01 | 12.70 kg | 1 | pc(s) | 108 |
| 783 033 | 310162 | 05 00 03 03 | 1.28 kg | 1 | pc(s) | 36 | 785 311 | 307551 | 05 00 01 05 | 110 g | 1 | pc(s) | 25 |
| 783 045 | 310094 | 05 00 03 03 | 1.35 kg | 1 | pc(s) | 36 | 785 312 | 307568 | 05 00 01 05 | 130 g | 1 | pc(s) | 25 |
| 783 066 | 310148 | 05 00 03 03 | 1.27 kg | 1 | pc(s) | 36 | 785 313 | 307582 | 05 00 01 05 | 150 g | 1 | pc(s) | 25 |
| 783 103 | 317277 | 05 00 03 03 | 1.27 kg | 1 | pc(s) | 34 | 785 314 | 307575 | 05 00 01 05 | 250 g | 1 | pc(s) | 25 |
| 783 106 | 317260 | 05 00 03 03 | 1.27 kg | 1 | pc(s) | 34 | 785 315 | 106277 | 05 01 01 01 | 632 g | 1 | pc(s) | 24 |
| 783 110 | 317253 | 05 00 03 03 | 1.27 kg | 1 | pc(s) | 34 | 785 316 | 106284 | 05 01 01 01 | 95 g | 1 | pc(s) | 25 |
| 783 120 | 317246 | 05 00 03 03 | 1.35 kg | 1 | pc(s) | 34 | 785 317 | 106291 | 05 01 01 01 | 130 g | 1 | pc(s) | 25 |
| 783 130 | 317239 | 05 00 03 03 | 1.61 kg | 1 | pc(s) | 34 | 785 318 | 106307 | 05 01 01 01 | 152 g | 1 | pc(s) | 25 |
| 783 141 | 317222 | 05 00 03 03 | 1.46 kg | 1 | pc(s) | 35 | 785 319 | 106314 | 05 01 01 01 | 247 g | 1 | pc(s) | 25 |
| 783 151 | 317215 | 05 00 03 03 | 1.55 kg | 1 | pc(s) | 35 | 785 325 | 106581 | 05 01 01 01 | 600 g | 1 | pc(s) | 24 |
| 783 161 | 317208 | 05 00 03 03 | 1.61 kg | 1 | pc(s) | 35 | 785 329 | 284760 | 05 01 01 01 | 135 g | 1 | pc(s) | 108 |
| 783 231 | 310087 | 05 00 03 03 | 1.46 kg | 1 | pc(s) | 34 | 785 330 | 451872 | 05 02 03 01 | 923 g | 1 | pc(s) | 114 |
| 783 233 | 310063 | 05 00 03 03 | 1.46 kg | 1 | pc(s) | 36 | 785 331 | 451889 | 05 02 03 01 | 916 g | 1 | pc(s) | 114 |
| 783 235 | 310049 | 05 00 03 03 | 1.55 kg | 1 | pc(s) | 34 | 785 332 | 451896 | 05 02 03 01 | 975 g | 1 | pc(s) | 114 |
| 783 240 | 310056 | 05 00 03 03 | 1.46 kg | 1 | pc(s) | 34 | 785 333 | 451902 | 05 02 03 01 | 976 g | 1 | pc(s) | 114 |
| 783 243 | 310018 | 05 00 03 03 | 1.55 kg | 1 | pc(s) | 36 | 785 334 | 451919 | 05 02 03 01 | 1.00 kg | 1 | pc(s) | 114 |
| 783 245 | 310032 | 05 00 03 03 | 1.61 kg | 1 | pc(s) | 34 | 785 335 | 451926 | 05 02 03 01 | 1.05 kg | 1 | pc(s) | 114 |
| 783 250 | 309999 | 05 00 03 03 | 1.61 kg | 1 | pc(s) | 34 | 785 336 | 451933 | 05 02 03 01 | 1.07 kg | 1 | pc(s) | 114 |
| 783 255 | 309982 | 05 00 03 03 | 1.61 kg | 1 | pc(s) | 36 | 785 337 | 451940 | 05 02 03 01 | 1.08 kg | 1 | pc(s) | 114 |
| 783 270 | 309852 | 05 00 03 03 | 2.48 kg | 1 | pc(s) | 35 | 785 338 | 451957 | 05 02 03 01 | 1.21 kg | 1 | pc(s) | 114 |
| 783 275 | 309845 | 05 00 03 03 | 2.91 kg | 1 | pc(s) | 35 | 785 339 | 462922 | 05 02 03 11 | 1.08 kg | 1 | pc(s) | 116 |
| 783 280 | 317284 | 05 00 03 03 | 3.31 kg | 1 | pc(s) | 35 | 785 340 | 451964 | 05 02 03 02 | 831 g | 1 | pc(s) | 114 |
| 783 285 | 316898 | 05 00 03 03 | 3.80 kg | 1 | pc(s) | 35 | 785 341 | 451988 | 05 02 03 02 | 823 g | 1 | pc(s) | 114 |
| 783 290 | 316904 | 05 00 03 03 | 5.56 kg | 1 | pc(s) | 35 | 785 342 | 451995 | 05 02 03 02 | 910 g | 1 | pc(s) | 114 |
| 783 332 | 310070 | 05 00 03 03 | 1.46 kg | 1 | pc(s) | 35 | 785 343 | 452015 | 05 02 03 02 | 912 g | 1 | pc(s) | 114 |
| 783 335 | 310001 | 05 00 03 03 | 1.55 kg | 1 | pc(s) | 35 | 785 344 | 452022 | 05 02 03 02 | 950 g | 1 | pc(s) | 114 |
| 783 342 | 310025 | 05 00 03 03 | 1.61 kg | 1 | pc(s) | 35 | 785 345 | 452039 | 05 02 03 02 | 955 g | 1 | pc(s) | 114 |
| 783 345 | 309975 | 05 00 03 03 | 1.61 kg | 1 | pc(s) | 35 | 785 346 | 452046 | 05 02 03 02 | 978 g | 1 | pc(s) | 114 |
| 783 395 | 309951 | 05 00 03 03 | 1.61 kg | 1 | pc(s) | 35 | 785 347 | 452053 | 05 02 03 02 | 1.02 kg | 1 | pc(s) | 114 |
| 783 420 | 309890 | 05 00 03 03 | 1.55 kg | 1 | pc(s) | 157 | 785 348 | 452060 | 05 02 03 02 | 1.09 kg | 1 | pc(s) | 114 |
| 783 430 | 309906 | 05 00 03 03 | 1.55 kg | 1 | pc(s) | 157 | 785 349 | 462908 | 05 02 03 12 | 1.02 kg | 1 | pc(s) | 116 |
| 783 460 | 309869 | 05 00 03 03 | 3.31 kg | 1 | pc(s) | 160 | 785 350 | 452077 | 05 02 03 03 | 777 g | 1 | pc(s) | 117 |
| 783 511 | 309937 | 05 00 03 03 | 1.27 kg | 1 | pc(s) | 36 | 785 351 | 452084 | 05 02 03 03 | 811 g | 1 | pc(s) | 117 |
| 783 520 | 309913 | 05 00 03 03 | 1.55 kg | 1 | pc(s) | 34 | 785 352 | 452091 | 05 02 03 03 | 830 g | 1 | pc(s) | 117 |
| 783 530 | 309968 | 05 00 03 03 | 1.61 kg | 1 | pc(s) | 34 | 785 353 | 452107 | 05 02 03 03 | 815 g | 1 | pc(s) | 117 |
| 783 533 | 309920 | 05 00 03 03 | 1.61 kg | 1 | pc(s) | 36 | 785 354 | 452114 | 05 02 03 03 | 833 g | 1 | pc(s) | 117 |
| 783 536 | 309944 | 05 00 03 03 | 1.61 kg | 1 | pc(s) | 34 | 785 355 | 452121 | 05 02 03 03 | 880 g | 1 | pc(s) | 117 |
| 783 900 | 292505 | 05 00 01 01 | 443 g | 1 | pc(s) | 101 | 785 356 | 452138 | 05 02 03 03 | 912 g | 1 | pc(s) | 117 |
| 783 905 | 292499 | 05 00 01 01 | 488 g | 1 | pc(s) | 101 | 785 357 | 452145 | 05 02 03 03 | 932 g | 1 | pc(s) | 117 |
| 783 906 | 292482 | 05 00 01 01 | 702 g | 1 | pc(s) | 101 | 785 358 | 452152 | 05 02 03 03 | 936 g | 1 | pc(s) | 117 |
| 783 920 | 292437 | 05 00 01 50 | 520 g | 1 | pc(s) | 102 | 785 359 | 462939 | 05 02 03 13 | 870 g | 1 | pc(s) | 122 |
| 783 925 | 292444 | 05 00 01 50 | 745 g | 1 | pc(s) | 102 | 785 360 | 452169 | 05 02 03 04 | 608 g | 1 | pc(s) | 117 |
| 783 930 | 292451 | 05 00 03 03 | 265 g | 1 | pc(s) | 102 | 785 361 | 452176 | 05 02 03 04 | 648 g | 1 | pc(s) | 117 |
| 783 945 | 436466 | 05 00 03 03 | 1.16 kg | 1 | pc(s) | 102 | 785 362 | 452183 | 05 02 03 04 | 674 g | 1 | pc(s) | 117 |
| | | | | | | | 785 363 | 452190 | 05 02 03 04 | 698 g | 1 | pc(s) | 117 |
| 784 032 | 018679 | 05 00 04 08 | 969 g | 1 | pc(s) | 73 | 785 364 | 452206 | 05 02 03 04 | 735 g | 1 | pc(s) | 117 |
| 784 038 | 138452 | 05 00 04 08 | 1.01 kg | 1 | pc(s) | 73 | 785 365 | 452213 | 05 02 03 04 | 763 g | 1 | pc(s) | 117 |
| 784 085 | 018686 | 05 00 04 08 | 872 g | 1 | pc(s) | 73 | 785 366 | 452220 | 05 02 03 04 | 760 g | 1 | pc(s) | 117 |
| 784 201 | 006591 | 05 00 04 08 | 880 g | 1 | pc(s) | 73 | 785 367 | 452237 | 05 02 03 04 | 775 g | 1 | pc(s) | 117 |
| 784 301 | 006553 | 05 00 04 08 | 1.70 kg | 1 | pc(s) | 73 | 785 368 | 452244 | 05 02 03 04 | 866 g | 1 | pc(s) | 117 |
| 784 352 | 006072 | 05 00 04 08 | 806 g | 1 | pc(s) | 168 | 785 369 | 462915 | 05 02 03 14 | 750 g | 1 | pc(s) | 122 |
| 784 401 | 006614 | 05 00 04 08 | 1.30 kg | 1 | pc(s) | 73 | 785 370 | 456006 | 05 02 03 50 | 76 g | 1 | pc(s) | 123 |
| 784 480 | 054479 | 05 00 04 08 | 600 g | 1 | pc(s) | 73 | 785 371 | 456037 | 05 02 03 50 | 80 g | 1 | pc(s) | 123 |
| 784 501 | 006560 | 05 00 04 08 | 1.95 kg | 1 | pc(s) | 73 | 785 372 | 456051 | 05 02 03 50 | 87 g | 1 | pc(s) | 123 |
| 784 755 | 054202 | 05 00 04 08 | 1.54 kg | 1 | pc(s) | 168 | 785 373 | 456075 | 05 02 03 50 | 92 g | 1 | pc(s) | 123 |
| 784 756 | 230118 | 05 00 04 08 | 1.60 kg | 1 | pc(s) | 168 | 785 374 | 456082 | 05 02 03 50 | 95 g | 1 | pc(s) | 123 |
| | | | | | | | 785 375 | 500242 | 05 02 03 50 | 102 g | 1 | pc(s) | 123 |
| 785 100 | 087606 | 05 01 01 01 | 18.00 kg | 1 | pc(s) | 106 | 785 376 | 500259 | 05 02 03 50 | 107 g | 1 | pc(s) | 123 |
| 785 111 | 070257 | 05 05 01 04 | 612 g | 1 | pc(s) | 92 | 785 377 | 501034 | 05 02 03 50 | 70 g | 1 | pc(s) | 123 |
| 785 111 | 070257 | 05 05 01 04 | 612 g | 1 | pc(s) | 108 | 785 381 | 461499 | 05 01 01 03 | 196 g | 1 | Pa | 129 |

| Part No. | GTIN* | PG | Weight | PU | SU | Page | Part No. | GTIN* | PG | Weight | PU | SU | Page |
|----------|--------|-------------|-----------|----|-------|------|----------|--------|-------------|----------|----|-------|------|
| 785 382 | 461512 | 05 01 01 03 | 215 g | 1 | Pa | 129 | 785 799 | 124950 | 05 02 01 01 | 337 g | 1 | Pa | 128 |
| 785 383 | 461529 | 05 01 01 03 | 243 g | 1 | Pa | 129 | 785 800 | 131019 | 05 02 01 01 | 340 g | 1 | Pa | 128 |
| 785 384 | 461543 | 05 01 01 03 | 244 g | 1 | Pa | 129 | 785 808 | 242265 | 05 02 01 02 | 250 g | 1 | Pa | 128 |
| 785 398 | 146532 | 05 01 01 02 | 156 g | 1 | pc(s) | 109 | 785 809 | 242296 | 05 02 01 02 | 270 g | 1 | Pa | 128 |
| 785 399 | 146525 | 05 01 01 02 | 757 g | 1 | pc(s) | 109 | 785 810 | 242302 | 05 02 01 02 | 451 g | 1 | Pa | 128 |
| 785 442 | 152847 | 05 05 01 05 | 280 g | 1 | pc(s) | 137 | 785 811 | 242319 | 05 02 01 02 | 452 g | 1 | Pa | 128 |
| 785 443 | 152854 | 05 05 01 05 | 550 g | 1 | pc(s) | 137 | 785 812 | 242326 | 05 02 01 02 | 463 g | 1 | Pa | 128 |
| 785 458 | 115064 | 05 01 01 05 | 6 g/mm | 1 | mm | 97 | 785 820 | 433182 | 05 02 05 50 | 83 g | 1 | pc(s) | 132 |
| 785 459 | 115057 | 05 01 01 05 | 56.00 kg | 1 | pc(s) | 97 | 785 821 | 426979 | 05 02 05 04 | 325 g | 1 | pc(s) | 132 |
| 785 465 | 088733 | 05 01 01 05 | 41.50 kg | 1 | pc(s) | 97 | 785 822 | 426993 | 05 02 05 04 | 327 g | 1 | pc(s) | 132 |
| 785 466 | 088030 | 05 01 01 05 | 0.83 g/mm | 1 | mm | 97 | 785 823 | 427013 | 05 02 05 04 | 329 g | 1 | pc(s) | 132 |
| 785 467 | 088740 | 05 01 01 05 | 38.00 kg | 1 | pc(s) | 97 | 785 824 | 426986 | 05 02 05 04 | 350 g | 1 | pc(s) | 132 |
| 785 468 | 088757 | 05 01 01 05 | 1.64 g/mm | 1 | mm | 97 | 785 825 | 427006 | 05 02 05 04 | 348 g | 1 | pc(s) | 132 |
| 785 471 | 088764 | 05 01 01 05 | 20.00 kg | 1 | pc(s) | 98 | 785 826 | 427020 | 05 02 05 04 | 352 g | 1 | pc(s) | 132 |
| 785 472 | 087057 | 05 01 01 05 | 1.95 g/mm | 1 | mm | 98 | 785 827 | 433199 | 05 02 05 50 | 103 g | 1 | pc(s) | 132 |
| 785 490 | 086890 | 05 01 01 03 | 240 g | 1 | pc(s) | 129 | 785 828 | 459953 | 05 02 05 50 | 23 g | 1 | kit | 132 |
| 785 490 | 086890 | 05 01 01 03 | 240 g | 1 | pc(s) | 130 | 785 829 | 459113 | 05 02 05 50 | 41 g | 1 | pc(s) | 132 |
| 785 502 | 087347 | 05 01 01 01 | 7.20 kg | 1 | pc(s) | 105 | 785 830 | 486157 | 05 02 01 07 | 207 g | 1 | Pa | 127 |
| 785 592 | 087552 | 05 01 01 01 | 50 g | 1 | pc(s) | 108 | 785 831 | 486164 | 05 02 01 07 | 210 g | 1 | Pa | 127 |
| 785 637 | 100701 | 05 00 02 01 | 14 g | 10 | pc(s) | 29 | 785 832 | 486171 | 05 02 01 07 | 244 g | 1 | Pa | 127 |
| 785 638 | 086920 | 05 00 02 01 | 6 g | 10 | pc(s) | 29 | 785 833 | 486188 | 05 02 01 07 | 266 g | 1 | Pa | 127 |
| 785 639 | 087019 | 05 00 02 01 | 15 g | 10 | pc(s) | 28 | 785 834 | 486195 | 05 02 01 07 | 272 g | 1 | Pa | 127 |
| 785 640 | 087026 | 05 00 02 01 | 55 g | 10 | pc(s) | 28 | 785 835 | 486201 | 05 02 01 07 | 290 g | 1 | Pa | 127 |
| 785 641 | 087897 | 05 00 02 01 | 55 g | 10 | pc(s) | 28 | 785 836 | 486218 | 05 02 01 07 | 305 g | 1 | Pa | 127 |
| 785 642 | 087903 | 05 00 02 01 | 75 g | 10 | pc(s) | 28 | 785 840 | 486232 | 05 02 01 08 | 300 g | 1 | Pa | 127 |
| 785 643 | 087910 | 05 00 02 01 | 80 g | 10 | pc(s) | 28 | 785 841 | 486249 | 05 02 01 08 | 305 g | 1 | Pa | 127 |
| 785 644 | 087927 | 05 00 02 01 | 80 g | 10 | pc(s) | 28 | 785 842 | 486256 | 05 02 01 08 | 326 g | 1 | Pa | 127 |
| 785 645 | 086869 | 05 01 01 03 | 420 g | 1 | pc(s) | 128 | 785 843 | 486263 | 05 02 01 08 | 369 g | 1 | Pa | 127 |
| 785 646 | 089174 | 05 01 01 05 | 760 g | 1 | pc(s) | 97 | 785 844 | 486270 | 05 02 01 08 | 369 g | 1 | Pa | 127 |
| 785 647 | 087040 | 05 01 01 05 | 73 g | 1 | pc(s) | 98 | 785 845 | 486287 | 05 02 01 08 | 392 g | 1 | Pa | 127 |
| 785 648 | 088047 | 05 01 01 05 | 19 g | 1 | pc(s) | 98 | 785 846 | 486294 | 05 02 01 08 | 405 g | 1 | Pa | 127 |
| 785 649 | 088054 | 05 01 01 05 | 2 g | 1 | pc(s) | 98 | 785 850 | 486300 | 05 02 01 05 | 297 g | 1 | Pa | 127 |
| 785 650 | 106536 | 05 00 02 01 | 22 g | 10 | pc(s) | 28 | 785 851 | 486317 | 05 02 01 05 | 310 g | 1 | Pa | 127 |
| 785 652 | 111479 | 05 00 02 01 | 8 g | 10 | pc(s) | 29 | 785 852 | 486324 | 05 02 01 05 | 320 g | 1 | Pa | 127 |
| 785 705 | 341449 | 05 02 04 01 | 400 g | 1 | pc(s) | 135 | 785 853 | 486331 | 05 02 01 05 | 330 g | 1 | Pa | 127 |
| 785 706 | 341456 | 05 02 04 01 | 400 g | 1 | pc(s) | 135 | 785 854 | 486348 | 05 02 01 05 | 343 g | 1 | Pa | 127 |
| 785 707 | 341487 | 05 02 04 01 | 400 g | 1 | pc(s) | 135 | 785 855 | 486355 | 05 02 01 05 | 363 g | 1 | Pa | 127 |
| 785 708 | 341463 | 05 02 04 01 | 400 g | 1 | pc(s) | 135 | 785 856 | 486362 | 05 02 01 05 | 367 g | 1 | Pa | 127 |
| 785 709 | 341470 | 05 02 04 01 | 400 g | 1 | pc(s) | 135 | 785 860 | 486379 | 05 02 01 06 | 380 g | 1 | Pa | 127 |
| 785 721 | 360198 | 05 02 05 03 | 182 g | 1 | pc(s) | 134 | 785 861 | 486386 | 05 02 01 06 | 383 g | 1 | Pa | 127 |
| 785 722 | 360242 | 05 02 05 03 | 294 g | 1 | pc(s) | 134 | 785 862 | 486393 | 05 02 01 06 | 390 g | 1 | Pa | 127 |
| 785 723 | 360266 | 05 02 04 50 | 148 g | 1 | pc(s) | 135 | 785 863 | 486430 | 05 02 01 06 | 390 g | 1 | Pa | 127 |
| 785 724 | 360310 | 05 02 05 50 | 52 g | 1 | pc(s) | 132 | 785 864 | 486409 | 05 02 01 06 | 420 g | 1 | Pa | 127 |
| 785 724 | 360310 | 05 02 05 50 | 52 g | 1 | pc(s) | 133 | 785 865 | 486416 | 05 02 01 06 | 427 g | 1 | Pa | 127 |
| 785 724 | 360310 | 05 02 05 50 | 52 g | 1 | pc(s) | 134 | 785 866 | 486423 | 05 02 01 06 | 447 g | 1 | Pa | 127 |
| 785 724 | 360310 | 05 02 05 50 | 52 g | 1 | pc(s) | 137 | 785 870 | 497504 | 05 02 05 05 | 410 g | 1 | pc(s) | 133 |
| 785 738 | 274716 | 05 02 04 50 | 39 g | 1 | pc(s) | 135 | 785 900 | 469556 | 05 02 03 50 | 2.43 kg | 1 | pc(s) | 136 |
| 785 739 | 274723 | 05 02 04 50 | 5 g | 10 | pc(s) | 135 | 785 901 | 469563 | 05 02 03 50 | 2.43 kg | 1 | pc(s) | 136 |
| 785 755 | 152861 | 05 02 02 03 | 2.62 kg | 1 | pc(s) | 125 | 785 902 | 469570 | 05 02 03 50 | 2.55 kg | 1 | pc(s) | 136 |
| 785 756 | 152878 | 05 02 02 03 | 2.73 kg | 1 | pc(s) | 125 | 785 903 | 469587 | 05 02 03 50 | 3.08 kg | 1 | pc(s) | 136 |
| 785 757 | 152885 | 05 02 02 03 | 2.83 kg | 1 | pc(s) | 125 | 785 904 | 469594 | 05 02 03 50 | 3.18 kg | 1 | pc(s) | 136 |
| 785 758 | 245150 | 05 02 02 03 | 3.21 kg | 1 | pc(s) | 125 | 785 905 | 469600 | 05 02 03 50 | 3.27 kg | 1 | pc(s) | 136 |
| 785 759 | 329362 | 05 02 02 03 | 3.28 kg | 1 | pc(s) | 125 | 785 906 | 476516 | 05 02 03 50 | 2.43 kg | 1 | pc(s) | 136 |
| 785 760 | 336384 | 05 02 02 04 | 800 g | 1 | pc(s) | 134 | 785 907 | 476523 | 05 02 03 50 | 2.55 kg | 1 | pc(s) | 136 |
| 785 769 | 152007 | 05 02 02 01 | 1.86 kg | 1 | pc(s) | 126 | 785 908 | 476530 | 05 02 03 50 | 3.08 kg | 1 | pc(s) | 136 |
| 785 770 | 149458 | 05 02 02 01 | 1.86 kg | 1 | pc(s) | 126 | 785 909 | 476547 | 05 02 03 50 | 3.27 kg | 1 | pc(s) | 136 |
| 785 771 | 149465 | 05 02 02 01 | 1.73 kg | 1 | pc(s) | 126 | 785 940 | 106253 | 05 01 01 01 | 10.85 kg | 1 | pc(s) | 105 |
| 785 772 | 149472 | 05 02 02 01 | 1.85 kg | 1 | pc(s) | 126 | 785 950 | 106383 | 05 01 01 01 | 27.30 kg | 1 | pc(s) | 107 |
| 785 773 | 149489 | 05 02 02 01 | 1.90 kg | 1 | pc(s) | 126 | 785 960 | 502796 | 05 99 00 00 | - | 1 | pc(s) | 136 |
| 785 774 | 149502 | 05 02 02 01 | 2.16 kg | 1 | pc(s) | 126 | 785 961 | 502789 | 05 99 00 00 | - | 1 | pc(s) | 137 |
| 785 775 | 149519 | 05 02 02 01 | 2.01 kg | 1 | pc(s) | 126 | | | | | | | |
| 785 779 | 151994 | 05 02 02 02 | 1.40 kg | 1 | pc(s) | 126 | 786 711 | 438958 | 05 08 01 03 | 1.30 kg | 1 | pc(s) | 142 |
| 785 780 | 149526 | 05 02 02 02 | 1.46 kg | 1 | pc(s) | 126 | 786 712 | 439047 | 05 08 01 03 | 1.37 kg | 1 | pc(s) | 142 |
| 785 781 | 149533 | 05 02 02 02 | 1.53 kg | 1 | pc(s) | 126 | 786 713 | 439054 | 05 08 01 03 | 1.43 kg | 1 | pc(s) | 142 |
| 785 782 | 149540 | 05 02 02 02 | 1.53 kg | 1 | pc(s) | 126 | 786 714 | 439061 | 05 08 01 03 | 1.50 kg | 1 | pc(s) | 142 |
| 785 783 | 149557 | 05 02 02 02 | 1.65 kg | 1 | pc(s) | 126 | 786 715 | 439078 | 05 08 01 03 | 1.59 kg | 1 | pc(s) | 142 |
| 785 784 | 149564 | 05 02 02 02 | 1.73 kg | 1 | pc(s) | 126 | 786 716 | 439085 | 05 08 01 03 | 1.67 kg | 1 | pc(s) | 142 |
| 785 785 | 149571 | 05 02 02 02 | 1.83 kg | 1 | pc(s) | 126 | 786 717 | 438965 | 05 08 01 02 | 298 g | 1 | Pa | 141 |
| 785 788 | 149588 | 05 02 02 02 | 112 g | 1 | pc(s) | 126 | 786 718 | 439108 | 05 08 01 02 | 323 g | 1 | Pa | 141 |
| 785 789 | 149595 | 05 02 02 02 | 75 g | 1 | Pa | 126 | 786 719 | 439115 | 05 08 01 02 | 329 g | 1 | Pa | 141 |
| 785 790 | 489776 | 05 02 05 50 | 167 g | 1 | mm | 133 | 786 720 | 439122 | 05 08 01 02 | 336 g | 1 | Pa | 141 |
| 785 796 | 124912 | 05 02 01 01 | 310 g | 1 | Pa | 128 | 786 721 | 439139 | 05 08 01 02 | 352 g | 1 | Pa | 141 |
| 785 797 | 124936 | 05 02 01 01 | 330 g | 1 | Pa | 128 | 786 722 | 439146 | 05 08 01 04 | 111 g | 1 | Pa | 141 |
| 785 798 | 124943 | 05 02 01 01 | 317 g | 1 | Pa | 128 | 786 723 | 439153 | 05 08 01 04 | 115 g | 1 | Pa | 141 |

| Part No. | GTIN* | PG | Weight | PU | SU | Page | Part No. | GTIN* | PG | Weight | PU | SU | Page |
|----------|--------|-------------|---------|----|-------|------|----------|--------|-------------|----------|----|-------|------|
| 786 724 | 439160 | 05 08 01 04 | 119 g | 1 | Pa | 141 | 787 204 | 507951 | 05 01 01 03 | 600 g | 1 | Pa | 131 |
| 786 725 | 439177 | 05 08 01 04 | 121 g | 1 | Pa | 141 | 787 205 | 507968 | 05 01 01 03 | 600 g | 1 | Pa | 131 |
| 786 726 | 430631 | 05 08 01 50 | 816 g | 1 | pc(s) | 142 | 787 206 | 507975 | 05 01 01 03 | 600 g | 1 | Pa | 131 |
| 786 741 | 365438 | 05 08 01 01 | 2.16 kg | 1 | pc(s) | 140 | 787 207 | 507982 | 05 01 01 03 | 600 g | 1 | Pa | 131 |
| 786 742 | 365445 | 05 08 01 01 | 2.19 kg | 1 | pc(s) | 140 | 787 208 | 507999 | 05 01 01 03 | 600 g | 1 | Pa | 131 |
| 786 743 | 365452 | 05 08 01 01 | 2.45 kg | 1 | pc(s) | 140 | 787 209 | 508002 | 05 01 01 03 | 600 g | 1 | Pa | 131 |
| 786 744 | 365469 | 05 08 01 01 | 2.53 kg | 1 | pc(s) | 140 | 787 210 | 508019 | 05 01 01 03 | 600 g | 1 | Pa | 131 |
| 786 745 | 365476 | 05 08 01 01 | 2.66 kg | 1 | pc(s) | 140 | 787 211 | 508026 | 05 01 01 03 | 600 g | 1 | Pa | 131 |
| 786 746 | 365483 | 05 08 01 01 | 2.76 kg | 1 | pc(s) | 140 | 787 220 | 508033 | 05 01 01 03 | 650 g | 1 | Pa | 131 |
| 786 751 | 365247 | 05 08 01 01 | 1.64 kg | 1 | pc(s) | 140 | 787 221 | 508040 | 05 01 01 03 | 650 g | 1 | Pa | 131 |
| 786 752 | 365254 | 05 08 01 01 | 1.68 kg | 1 | pc(s) | 140 | 787 222 | 508057 | 05 01 01 03 | 650 g | 1 | Pa | 131 |
| 786 753 | 365261 | 05 08 01 01 | 1.78 kg | 1 | pc(s) | 140 | 787 223 | 508064 | 05 01 01 03 | 650 g | 1 | Pa | 131 |
| 786 754 | 365278 | 05 08 01 01 | 1.86 kg | 1 | pc(s) | 140 | 787 224 | 508088 | 05 01 01 03 | 650 g | 1 | Pa | 131 |
| 786 755 | 365285 | 05 08 01 01 | 1.94 kg | 1 | pc(s) | 140 | 787 225 | 508095 | 05 01 01 03 | 650 g | 1 | Pa | 131 |
| 786 756 | 365292 | 05 08 01 01 | 2.03 kg | 1 | pc(s) | 140 | 787 226 | 508101 | 05 01 01 03 | 650 g | 1 | Pa | 131 |
| 786 761 | 365308 | 05 08 01 01 | 207 g | 1 | Pa | 140 | 787 227 | 508118 | 05 01 01 03 | 650 g | 1 | Pa | 131 |
| 786 762 | 365315 | 05 08 01 01 | 226 g | 1 | Pa | 140 | 787 228 | 508125 | 05 01 01 03 | 650 g | 1 | Pa | 131 |
| 786 763 | 365322 | 05 08 01 01 | 245 g | 1 | Pa | 140 | 787 229 | 508132 | 05 01 01 03 | 650 g | 1 | Pa | 131 |
| 786 764 | 365339 | 05 08 01 01 | 251 g | 1 | Pa | 140 | 787 230 | 508149 | 05 01 01 03 | 650 g | 1 | Pa | 131 |
| 786 765 | 365346 | 05 08 01 01 | 276 g | 1 | Pa | 140 | 787 231 | 508156 | 05 01 01 03 | 650 g | 1 | Pa | 131 |
| 786 766 | 365360 | 05 08 01 01 | 300 g | 1 | Pa | 140 | 787 350 | 478169 | 05 02 03 03 | 777 g | 1 | pc(s) | 120 |
| 786 770 | 365353 | 05 08 01 01 | 825 g | 1 | pc(s) | 140 | 787 351 | 478176 | 05 02 03 03 | 811 g | 1 | pc(s) | 120 |
| 786 781 | 365377 | 05 08 01 01 | 372 g | 1 | Pa | 140 | 787 352 | 478183 | 05 02 03 03 | 830 g | 1 | pc(s) | 120 |
| 786 782 | 365384 | 05 08 01 01 | 393 g | 1 | Pa | 140 | 787 353 | 478190 | 05 02 03 03 | 815 g | 1 | pc(s) | 120 |
| 786 783 | 365391 | 05 08 01 01 | 413 g | 1 | Pa | 140 | 787 354 | 478206 | 05 02 03 03 | 833 g | 1 | pc(s) | 120 |
| 786 784 | 365407 | 05 08 01 01 | 420 g | 1 | Pa | 140 | 787 355 | 478213 | 05 02 03 03 | 880 g | 1 | pc(s) | 120 |
| 786 785 | 365414 | 05 08 01 01 | 428 g | 1 | Pa | 140 | 787 356 | 478220 | 05 02 03 03 | 912 g | 1 | pc(s) | 120 |
| 786 786 | 365421 | 05 08 01 01 | 436 g | 1 | Pa | 140 | 787 357 | 478237 | 05 02 03 03 | 932 g | 1 | pc(s) | 120 |
| 787 000 | 483088 | 05 01 01 03 | 500 g | 1 | pc(s) | 129 | 787 358 | 478244 | 05 02 03 03 | 936 g | 1 | pc(s) | 120 |
| 787 000 | 483088 | 05 01 01 03 | 500 g | 1 | pc(s) | 130 | 787 360 | 478251 | 05 02 03 04 | 608 g | 1 | pc(s) | 120 |
| 787 001 | 482296 | 05 02 03 15 | 453 g | 1 | pc(s) | 123 | 787 361 | 478268 | 05 02 03 04 | 648 g | 1 | pc(s) | 120 |
| 787 002 | 482302 | 05 02 03 15 | 477 g | 1 | pc(s) | 123 | 787 362 | 478275 | 05 02 03 04 | 674 g | 1 | pc(s) | 120 |
| 787 003 | 482319 | 05 02 03 15 | 497 g | 1 | pc(s) | 123 | 787 363 | 478282 | 05 02 03 04 | 698 g | 1 | pc(s) | 120 |
| 787 004 | 482425 | 05 02 03 15 | 487 g | 1 | pc(s) | 123 | 787 364 | 478299 | 05 02 03 04 | 735 g | 1 | pc(s) | 120 |
| 787 005 | 482654 | 05 02 03 15 | 517 g | 1 | pc(s) | 123 | 787 365 | 478305 | 05 02 03 04 | 763 g | 1 | pc(s) | 120 |
| 787 006 | 482661 | 05 02 03 15 | 530 g | 1 | pc(s) | 123 | 787 366 | 478312 | 05 02 03 04 | 760 g | 1 | pc(s) | 120 |
| 787 007 | 482722 | 05 02 03 15 | 547 g | 1 | pc(s) | 123 | 787 367 | 478329 | 05 02 03 04 | 775 g | 1 | pc(s) | 120 |
| 787 008 | 482715 | 05 02 03 15 | 570 g | 1 | pc(s) | 123 | 787 368 | 478336 | 05 02 03 04 | 866 g | 1 | pc(s) | 120 |
| 787 011 | 482739 | 05 02 03 15 | 277 g | 1 | pc(s) | 124 | 787 370 | 512467 | 05 02 03 03 | --- | 1 | pc(s) | 124 |
| 787 012 | 482746 | 05 02 03 15 | 293 g | 1 | pc(s) | 124 | 787 371 | 512337 | 05 02 03 03 | --- | 1 | pc(s) | 124 |
| 787 013 | 482753 | 05 02 03 15 | 307 g | 1 | pc(s) | 124 | 787 372 | 512344 | 05 02 03 03 | --- | 1 | pc(s) | 124 |
| 787 014 | 482760 | 05 02 03 15 | 323 g | 1 | pc(s) | 124 | 787 373 | 512351 | 05 02 03 03 | --- | 1 | pc(s) | 124 |
| 787 015 | 482777 | 05 02 03 15 | 353 g | 1 | pc(s) | 124 | 787 374 | 512368 | 05 02 03 03 | --- | 1 | pc(s) | 124 |
| 787 016 | 482784 | 05 02 03 15 | 367 g | 1 | pc(s) | 124 | 787 375 | 512375 | 05 02 03 03 | --- | 1 | pc(s) | 124 |
| 787 017 | 482791 | 05 02 03 15 | 390 g | 1 | pc(s) | 124 | 787 376 | 512382 | 05 02 03 03 | --- | 1 | pc(s) | 124 |
| 787 018 | 482807 | 05 02 03 15 | 407 g | 1 | pc(s) | 124 | 787 380 | 512399 | 05 02 03 04 | --- | 1 | pc(s) | 125 |
| 787 021 | 482814 | 05 02 03 15 | 237 g | 1 | pc(s) | 124 | 787 381 | 512405 | 05 02 03 04 | --- | 1 | pc(s) | 125 |
| 787 022 | 482821 | 05 02 03 15 | 227 g | 1 | pc(s) | 124 | 787 382 | 512412 | 05 02 03 04 | --- | 1 | pc(s) | 125 |
| 787 023 | 482432 | 05 02 03 15 | 250 g | 1 | pc(s) | 124 | 787 383 | 512429 | 05 02 03 04 | --- | 1 | pc(s) | 125 |
| 787 024 | 482449 | 05 02 03 15 | 247 g | 1 | pc(s) | 124 | 787 384 | 512436 | 05 02 03 04 | --- | 1 | pc(s) | 125 |
| 787 025 | 482456 | 05 02 03 15 | 260 g | 1 | pc(s) | 124 | 787 385 | 512443 | 05 02 03 04 | --- | 1 | pc(s) | 125 |
| 787 026 | 482463 | 05 02 03 15 | 277 g | 1 | pc(s) | 124 | 787 386 | 512450 | 05 02 03 04 | --- | 1 | pc(s) | 125 |
| 787 027 | 482470 | 05 02 03 15 | 287 g | 1 | pc(s) | 124 | 787 457 | 480070 | 05 01 01 05 | 33.10 kg | 1 | pc(s) | 96 |
| 787 028 | 482487 | 05 02 03 15 | 293 g | 1 | pc(s) | 124 | 787 459 | 480087 | 05 01 01 05 | 83.20 kg | 1 | pc(s) | 96 |
| 787 100 | 483118 | 05 01 01 03 | 430 g | 1 | Pa | 130 | 787 461 | 513884 | 05 01 01 05 | --- | 1 | pc(s) | 96 |
| 787 101 | 483125 | 05 01 01 03 | 430 g | 1 | Pa | 130 | 787 462 | 513839 | 05 01 01 05 | --- | 1 | pc(s) | 96 |
| 787 102 | 483132 | 05 01 01 03 | 430 g | 1 | Pa | 130 | 787 463 | 513891 | 05 01 01 05 | --- | 1 | pc(s) | 96 |
| 787 103 | 483149 | 05 01 01 03 | 650 g | 1 | Pa | 130 | 787 464 | 513907 | 05 01 01 05 | --- | 1 | pc(s) | 96 |
| 787 104 | 483156 | 05 01 01 03 | 650 g | 1 | Pa | 130 | 787 465 | 513914 | 05 01 01 05 | --- | 1 | pc(s) | 96 |
| 787 105 | 483163 | 05 01 01 03 | 650 g | 1 | Pa | 130 | 787 466 | 513846 | 05 01 01 05 | --- | 1 | pc(s) | 96 |
| 787 106 | 483170 | 05 01 01 03 | 650 g | 1 | Pa | 130 | 787 467 | 513853 | 05 01 01 05 | --- | 1 | pc(s) | 96 |
| 787 107 | 483187 | 05 01 01 03 | 830 g | 1 | Pa | 130 | 787 468 | 513860 | 05 01 01 05 | --- | 1 | pc(s) | 96 |
| 787 108 | 483194 | 05 01 01 03 | 830 g | 1 | Pa | 130 | 787 469 | 513938 | 05 01 01 05 | --- | 1 | pc(s) | 96 |
| 787 109 | 483224 | 05 01 01 03 | 830 g | 1 | Pa | 130 | 787 471 | 513747 | 05 01 01 05 | --- | 1 | pc(s) | 96 |
| 787 110 | 483231 | 05 01 01 03 | 830 g | 1 | Pa | 130 | 787 472 | 513754 | 05 01 01 05 | --- | 1 | pc(s) | 96 |
| 787 111 | 483248 | 05 01 01 03 | 960 g | 1 | Pa | 130 | 787 473 | 513761 | 05 01 01 05 | --- | 1 | pc(s) | 96 |
| 787 112 | 483255 | 05 01 01 03 | 960 g | 1 | Pa | 130 | 787 474 | 513778 | 05 01 01 05 | --- | 1 | pc(s) | 96 |
| 787 113 | 483262 | 05 01 01 03 | 960 g | 1 | Pa | 130 | 787 475 | 513785 | 05 01 01 05 | --- | 1 | pc(s) | 96 |
| 787 114 | 483279 | 05 01 01 03 | 960 g | 1 | Pa | 130 | 787 476 | 513792 | 05 01 01 05 | --- | 1 | pc(s) | 96 |
| 787 200 | 507876 | 05 01 01 03 | 600 g | 1 | Pa | 131 | 787 477 | 513808 | 05 01 01 05 | --- | 1 | pc(s) | 96 |
| 787 201 | 507920 | 05 01 01 03 | 600 g | 1 | Pa | 131 | 787 478 | 513815 | 05 01 01 05 | --- | 1 | pc(s) | 96 |
| 787 202 | 507937 | 05 01 01 03 | 600 g | 1 | Pa | 131 | 787 479 | 513822 | 05 01 01 05 | --- | 1 | pc(s) | 96 |
| 787 203 | 507944 | 05 01 01 03 | 600 g | 1 | Pa | 131 | 787 480 | 479821 | 05 01 01 03 | 95 g | 1 | Pa | 129 |
| | | | | | | | 787 481 | 479838 | 05 01 01 03 | 115 g | 1 | Pa | 129 |

| Part No. | GTIN* | PG | Weight | PU | SU | Page | Part No. | GTIN* | PG | Weight | PU | SU | Page |
|----------|--------|-------------|---------|----|-------|------|----------|--------|-------------|---------|----|-------|------|
| 787 482 | 479845 | 05 01 01 03 | 123 g | 1 | Pa | 129 | 787 670 | 490604 | 05 02 03 02 | 1.08 kg | 1 | pc(s) | 115 |
| 787 483 | 479852 | 05 01 01 03 | 146 g | 1 | Pa | 129 | 787 671 | 490611 | 05 02 03 02 | 1.08 kg | 1 | pc(s) | 115 |
| 787 484 | 479814 | 05 01 01 03 | 183 g | 1 | Pa | 129 | 787 672 | 490628 | 05 02 03 02 | 1.08 kg | 1 | pc(s) | 115 |
| 787 485 | 479920 | 05 01 01 03 | 197 g | 1 | Pa | 129 | 787 673 | 490635 | 05 02 03 02 | 1.08 kg | 1 | pc(s) | 115 |
| 787 486 | 479937 | 05 01 01 03 | 200 g | 1 | Pa | 129 | 787 674 | 490642 | 05 02 03 02 | 1.08 kg | 1 | pc(s) | 115 |
| 787 487 | 479944 | 05 01 01 03 | 226 g | 1 | Pa | 129 | 787 675 | 490659 | 05 02 03 02 | 1.08 kg | 1 | pc(s) | 115 |
| 787 490 | 479951 | 05 01 01 03 | 303 g | 1 | Pa | 129 | 787 676 | 490666 | 05 02 03 02 | 1.08 kg | 1 | pc(s) | 115 |
| 787 491 | 479968 | 05 01 01 03 | 347 g | 1 | Pa | 129 | 787 677 | 490673 | 05 02 03 02 | 1.08 kg | 1 | pc(s) | 115 |
| 787 492 | 479975 | 05 01 01 03 | 363 g | 1 | Pa | 129 | 787 680 | 490680 | 05 02 03 02 | 878 g | 1 | pc(s) | 116 |
| 787 493 | 479982 | 05 01 01 03 | 353 g | 1 | Pa | 129 | 787 681 | 490697 | 05 02 03 02 | 878 g | 1 | pc(s) | 116 |
| 787 494 | 479999 | 05 01 01 03 | 427 g | 1 | Pa | 129 | 787 682 | 490703 | 05 02 03 02 | 878 g | 1 | pc(s) | 116 |
| 787 495 | 480001 | 05 01 01 03 | 433 g | 1 | Pa | 129 | 787 683 | 490710 | 05 02 03 02 | 878 g | 1 | pc(s) | 116 |
| 787 496 | 480018 | 05 01 01 03 | 483 g | 1 | Pa | 129 | 787 684 | 490727 | 05 02 03 02 | 878 g | 1 | pc(s) | 116 |
| 787 497 | 480025 | 05 01 01 03 | 487 g | 1 | Pa | 129 | 787 685 | 490734 | 05 02 03 02 | 878 g | 1 | pc(s) | 116 |
| 787 600 | 490130 | 05 02 03 01 | 2.00 kg | 1 | pc(s) | 114 | 787 686 | 490741 | 05 02 03 02 | 878 g | 1 | pc(s) | 116 |
| 787 601 | 490147 | 05 02 03 01 | 2.00 kg | 1 | pc(s) | 114 | 787 687 | 490758 | 05 02 03 02 | 878 g | 1 | pc(s) | 116 |
| 787 602 | 490154 | 05 02 03 01 | 2.00 kg | 1 | pc(s) | 114 | 787 688 | 490765 | 05 02 03 02 | 878 g | 1 | pc(s) | 116 |
| 787 603 | 490161 | 05 02 03 01 | 2.00 kg | 1 | pc(s) | 114 | 787 689 | 490772 | 05 02 03 02 | 878 g | 1 | pc(s) | 116 |
| 787 604 | 492165 | 05 02 03 01 | 2.00 kg | 1 | pc(s) | 114 | 787 690 | 490789 | 05 02 03 02 | 878 g | 1 | pc(s) | 116 |
| 787 610 | 490178 | 05 02 03 01 | 960 g | 1 | pc(s) | 115 | 787 691 | 496194 | 05 02 03 02 | 878 g | 1 | pc(s) | 116 |
| 787 611 | 490185 | 05 02 03 01 | 960 g | 1 | pc(s) | 115 | 787 700 | 490796 | 05 02 03 03 | 2.00 kg | 1 | pc(s) | 117 |
| 787 612 | 490192 | 05 02 03 01 | 960 g | 1 | pc(s) | 115 | 787 701 | 490802 | 05 02 03 03 | 2.00 kg | 1 | pc(s) | 117 |
| 787 613 | 490208 | 05 02 03 01 | 960 g | 1 | pc(s) | 115 | 787 702 | 490819 | 05 02 03 03 | 2.00 kg | 1 | pc(s) | 117 |
| 787 614 | 490215 | 05 02 03 01 | 960 g | 1 | pc(s) | 115 | 787 703 | 490826 | 05 02 03 03 | 2.00 kg | 1 | pc(s) | 117 |
| 787 615 | 490222 | 05 02 03 01 | 960 g | 1 | pc(s) | 115 | 787 704 | 490833 | 05 02 03 03 | 2.00 kg | 1 | pc(s) | 117 |
| 787 616 | 490239 | 05 02 03 01 | 960 g | 1 | pc(s) | 115 | 787 710 | 490840 | 05 02 03 03 | 980 g | 1 | pc(s) | 118 |
| 787 617 | 490246 | 05 02 03 01 | 960 g | 1 | pc(s) | 115 | 787 711 | 490857 | 05 02 03 03 | 980 g | 1 | pc(s) | 118 |
| 787 618 | 490253 | 05 02 03 01 | 960 g | 1 | pc(s) | 115 | 787 712 | 490864 | 05 02 03 03 | 980 g | 1 | pc(s) | 118 |
| 787 620 | 490260 | 05 02 03 01 | 1.11 kg | 1 | pc(s) | 115 | 787 713 | 490871 | 05 02 03 03 | 980 g | 1 | pc(s) | 118 |
| 787 621 | 490277 | 05 02 03 01 | 1.11 kg | 1 | pc(s) | 115 | 787 714 | 490888 | 05 02 03 03 | 980 g | 1 | pc(s) | 118 |
| 787 622 | 490284 | 05 02 03 01 | 1.11 kg | 1 | pc(s) | 115 | 787 715 | 490895 | 05 02 03 03 | 980 g | 1 | pc(s) | 118 |
| 787 623 | 490291 | 05 02 03 01 | 1.11 kg | 1 | pc(s) | 115 | 787 716 | 490901 | 05 02 03 03 | 980 g | 1 | pc(s) | 118 |
| 787 624 | 490307 | 05 02 03 01 | 1.11 kg | 1 | pc(s) | 115 | 787 717 | 490918 | 05 02 03 03 | 980 g | 1 | pc(s) | 118 |
| 787 625 | 490314 | 05 02 03 01 | 1.11 kg | 1 | pc(s) | 115 | 787 718 | 490925 | 05 02 03 03 | 980 g | 1 | pc(s) | 118 |
| 787 626 | 490321 | 05 02 03 01 | 1.11 kg | 1 | pc(s) | 115 | 787 720 | 490932 | 05 02 03 03 | 1.02 kg | 1 | pc(s) | 118 |
| 787 627 | 490338 | 05 02 03 01 | 1.11 kg | 1 | pc(s) | 115 | 787 721 | 490949 | 05 02 03 03 | 1.02 kg | 1 | pc(s) | 118 |
| 787 630 | 490345 | 05 02 03 01 | 960 g | 1 | pc(s) | 116 | 787 722 | 490956 | 05 02 03 03 | 1.02 kg | 1 | pc(s) | 118 |
| 787 631 | 490352 | 05 02 03 01 | 960 g | 1 | pc(s) | 116 | 787 723 | 490963 | 05 02 03 03 | 1.02 kg | 1 | pc(s) | 118 |
| 787 632 | 490369 | 05 02 03 01 | 960 g | 1 | pc(s) | 116 | 787 724 | 490970 | 05 02 03 03 | 1.02 kg | 1 | pc(s) | 118 |
| 787 633 | 490376 | 05 02 03 01 | 960 g | 1 | pc(s) | 116 | 787 725 | 490987 | 05 02 03 03 | 1.02 kg | 1 | pc(s) | 118 |
| 787 634 | 490383 | 05 02 03 01 | 960 g | 1 | pc(s) | 116 | 787 726 | 490994 | 05 02 03 03 | 1.02 kg | 1 | pc(s) | 118 |
| 787 635 | 490390 | 05 02 03 01 | 960 g | 1 | pc(s) | 116 | 787 727 | 491007 | 05 02 03 03 | 1.02 kg | 1 | pc(s) | 118 |
| 787 636 | 490406 | 05 02 03 01 | 960 g | 1 | pc(s) | 116 | 787 730 | 491014 | 05 02 03 03 | 880 g | 1 | pc(s) | 119 |
| 787 637 | 490413 | 05 02 03 01 | 960 g | 1 | pc(s) | 116 | 787 731 | 491021 | 05 02 03 03 | 880 g | 1 | pc(s) | 119 |
| 787 638 | 490420 | 05 02 03 01 | 960 g | 1 | pc(s) | 116 | 787 732 | 491038 | 05 02 03 03 | 880 g | 1 | pc(s) | 119 |
| 787 639 | 490437 | 05 02 03 01 | 960 g | 1 | pc(s) | 116 | 787 733 | 491045 | 05 02 03 03 | 880 g | 1 | pc(s) | 119 |
| 787 640 | 490444 | 05 02 03 01 | 960 g | 1 | pc(s) | 116 | 787 734 | 491052 | 05 02 03 03 | 880 g | 1 | pc(s) | 119 |
| 787 641 | 490451 | 05 02 03 01 | 960 g | 1 | pc(s) | 116 | 787 735 | 491069 | 05 02 03 03 | 880 g | 1 | pc(s) | 119 |
| 787 650 | 490468 | 05 02 03 02 | 2.00 kg | 1 | pc(s) | 114 | 787 736 | 491076 | 05 02 03 03 | 880 g | 1 | pc(s) | 119 |
| 787 651 | 490475 | 05 02 03 02 | 2.00 kg | 1 | pc(s) | 114 | 787 737 | 491083 | 05 02 03 03 | 880 g | 1 | pc(s) | 119 |
| 787 652 | 490482 | 05 02 03 02 | 2.00 kg | 1 | pc(s) | 114 | 787 738 | 491090 | 05 02 03 03 | 880 g | 1 | pc(s) | 119 |
| 787 653 | 490499 | 05 02 03 02 | 2.00 kg | 1 | pc(s) | 114 | 787 739 | 491106 | 05 02 03 03 | 880 g | 1 | pc(s) | 119 |
| 787 654 | 490505 | 05 02 03 02 | 2.00 kg | 1 | pc(s) | 114 | 787 740 | 491113 | 05 02 03 03 | 880 g | 1 | pc(s) | 119 |
| 787 660 | 490512 | 05 02 03 02 | 1.02 kg | 1 | pc(s) | 115 | 787 741 | 491120 | 05 02 03 03 | 880 g | 1 | pc(s) | 119 |
| 787 661 | 490529 | 05 02 03 02 | 1.02 kg | 1 | pc(s) | 115 | 787 750 | 491137 | 05 02 03 04 | 2.00 kg | 1 | pc(s) | 117 |
| 787 662 | 490536 | 05 02 03 02 | 1.02 kg | 1 | pc(s) | 115 | 787 751 | 491144 | 05 02 03 04 | 2.00 kg | 1 | pc(s) | 117 |
| 787 663 | 490543 | 05 02 03 02 | 1.02 kg | 1 | pc(s) | 115 | 787 752 | 491151 | 05 02 03 04 | 2.00 kg | 1 | pc(s) | 117 |
| 787 664 | 490550 | 05 02 03 02 | 1.02 kg | 1 | pc(s) | 115 | 787 753 | 491168 | 05 02 03 04 | 2.00 kg | 1 | pc(s) | 117 |
| 787 665 | 490567 | 05 02 03 02 | 1.02 kg | 1 | pc(s) | 115 | 787 754 | 491175 | 05 02 03 04 | 2.00 kg | 1 | pc(s) | 117 |
| 787 666 | 490574 | 05 02 03 02 | 1.02 kg | 1 | pc(s) | 115 | 787 760 | 491182 | 05 02 03 04 | 770 g | 1 | pc(s) | 118 |
| 787 667 | 490581 | 05 02 03 02 | 1.02 kg | 1 | pc(s) | 115 | 787 761 | 491199 | 05 02 03 04 | 770 g | 1 | pc(s) | 118 |
| 787 668 | 490598 | 05 02 03 02 | 1.02 kg | 1 | pc(s) | 115 | 787 762 | 491205 | 05 02 03 04 | 770 g | 1 | pc(s) | 118 |

| Part No. | GTIN* | PG | Weight | PU | SU | Page | Part No. | GTIN* | PG | Weight | PU | SU | Page |
|----------|--------|-------------|---------|----|-------|------|----------|--------|-------------|-----------|----|-------|------|
| 787 763 | 491212 | 05 02 03 04 | 770 g | 1 | pc(s) | 118 | 787 852 | 491847 | 05 02 03 04 | 2.00 kg | 1 | pc(s) | 120 |
| 787 764 | 491229 | 05 02 03 04 | 770 g | 1 | pc(s) | 118 | 787 853 | 491854 | 05 02 03 04 | 2.00 kg | 1 | pc(s) | 120 |
| 787 765 | 491236 | 05 02 03 04 | 770 g | 1 | pc(s) | 118 | 787 854 | 491861 | 05 02 03 04 | 2.00 kg | 1 | pc(s) | 120 |
| 787 766 | 491243 | 05 02 03 04 | 770 g | 1 | pc(s) | 118 | 787 860 | 491878 | 05 02 03 04 | 850 g | 1 | pc(s) | 121 |
| 787 767 | 491250 | 05 02 03 04 | 770 g | 1 | pc(s) | 118 | 787 861 | 491885 | 05 02 03 04 | 850 g | 1 | pc(s) | 121 |
| 787 768 | 491267 | 05 02 03 04 | 770 g | 1 | pc(s) | 118 | 787 862 | 491892 | 05 02 03 04 | 850 g | 1 | pc(s) | 121 |
| 787 770 | 491274 | 05 02 03 04 | 840 g | 1 | pc(s) | 118 | 787 863 | 491908 | 05 02 03 04 | 850 g | 1 | pc(s) | 121 |
| 787 771 | 491281 | 05 02 03 04 | 840 g | 1 | pc(s) | 118 | 787 864 | 491915 | 05 02 03 04 | 850 g | 1 | pc(s) | 121 |
| 787 772 | 491298 | 05 02 03 04 | 840 g | 1 | pc(s) | 118 | 787 865 | 491922 | 05 02 03 04 | 850 g | 1 | pc(s) | 121 |
| 787 773 | 491304 | 05 02 03 04 | 840 g | 1 | pc(s) | 118 | 787 866 | 491939 | 05 02 03 04 | 850 g | 1 | pc(s) | 121 |
| 787 774 | 491311 | 05 02 03 04 | 840 g | 1 | pc(s) | 118 | 787 867 | 491946 | 05 02 03 04 | 850 g | 1 | pc(s) | 121 |
| 787 775 | 491328 | 05 02 03 04 | 840 g | 1 | pc(s) | 118 | 787 868 | 491953 | 05 02 03 04 | 850 g | 1 | pc(s) | 121 |
| 787 776 | 491335 | 05 02 03 04 | 840 g | 1 | pc(s) | 118 | 787 870 | 491960 | 05 02 03 04 | 930 g | 1 | pc(s) | 121 |
| 787 777 | 491342 | 05 02 03 04 | 840 g | 1 | pc(s) | 118 | 787 871 | 491977 | 05 02 03 04 | 930 g | 1 | pc(s) | 121 |
| 787 780 | 491359 | 05 02 03 04 | 930 g | 1 | pc(s) | 119 | 787 872 | 491984 | 05 02 03 04 | 930 g | 1 | pc(s) | 121 |
| 787 781 | 491366 | 05 02 03 04 | 930 g | 1 | pc(s) | 119 | 787 873 | 491991 | 05 02 03 04 | 930 g | 1 | pc(s) | 121 |
| 787 782 | 491373 | 05 02 03 04 | 930 g | 1 | pc(s) | 119 | 787 874 | 492004 | 05 02 03 04 | 930 g | 1 | pc(s) | 121 |
| 787 783 | 491380 | 05 02 03 04 | 930 g | 1 | pc(s) | 119 | 787 875 | 492011 | 05 02 03 04 | 930 g | 1 | pc(s) | 121 |
| 787 784 | 491397 | 05 02 03 04 | 930 g | 1 | pc(s) | 119 | 787 876 | 492028 | 05 02 03 04 | 930 g | 1 | pc(s) | 121 |
| 787 785 | 491403 | 05 02 03 04 | 930 g | 1 | pc(s) | 119 | 787 877 | 492035 | 05 02 03 04 | 930 g | 1 | pc(s) | 121 |
| 787 786 | 491410 | 05 02 03 04 | 930 g | 1 | pc(s) | 119 | 787 880 | 492042 | 05 02 03 04 | 748 g | 1 | pc(s) | 122 |
| 787 787 | 491427 | 05 02 03 04 | 930 g | 1 | pc(s) | 119 | 787 881 | 492059 | 05 02 03 04 | 748 g | 1 | pc(s) | 122 |
| 787 788 | 491434 | 05 02 03 04 | 930 g | 1 | pc(s) | 119 | 787 882 | 492066 | 05 02 03 04 | 748 g | 1 | pc(s) | 122 |
| 787 789 | 491441 | 05 02 03 04 | 930 g | 1 | pc(s) | 119 | 787 883 | 492073 | 05 02 03 04 | 748 g | 1 | pc(s) | 122 |
| 787 790 | 491458 | 05 02 03 04 | 678 g | 1 | pc(s) | 119 | 787 884 | 492080 | 05 02 03 04 | 748 g | 1 | pc(s) | 122 |
| 787 791 | 491465 | 05 02 03 04 | 678 g | 1 | pc(s) | 119 | 787 885 | 492097 | 05 02 03 04 | 748 g | 1 | pc(s) | 122 |
| 787 800 | 491472 | 05 02 03 03 | 2.00 kg | 1 | pc(s) | 120 | 787 886 | 492103 | 05 02 03 04 | 748 g | 1 | pc(s) | 122 |
| 787 801 | 491489 | 05 02 03 03 | 2.00 kg | 1 | pc(s) | 120 | 787 887 | 492110 | 05 02 03 04 | 748 g | 1 | pc(s) | 122 |
| 787 802 | 491496 | 05 02 03 03 | 2.00 kg | 1 | pc(s) | 120 | 787 888 | 492127 | 05 02 03 04 | 748 g | 1 | pc(s) | 122 |
| 787 803 | 491502 | 05 02 03 03 | 2.00 kg | 1 | pc(s) | 120 | 787 889 | 492134 | 05 02 03 04 | 748 g | 1 | pc(s) | 122 |
| 787 804 | 491519 | 05 02 03 03 | 2.00 kg | 1 | pc(s) | 120 | 787 890 | 492141 | 05 02 03 04 | 748 g | 1 | pc(s) | 122 |
| 787 810 | 491526 | 05 02 03 03 | 950 g | 1 | pc(s) | 121 | 787 891 | 492158 | 05 02 03 04 | 748 g | 1 | pc(s) | 122 |
| 787 811 | 491533 | 05 02 03 03 | 950 g | 1 | pc(s) | 121 | 790 150 | 005365 | 05 00 04 09 | 450 g | 1 | pc(s) | 76 |
| 787 812 | 491540 | 05 02 03 03 | 950 g | 1 | pc(s) | 121 | 790 160 | 018693 | 05 00 04 09 | 737 g | 1 | pc(s) | 76 |
| 787 813 | 491557 | 05 02 03 03 | 950 g | 1 | pc(s) | 121 | 790 250 | 089495 | 05 00 04 01 | 193 g | 1 | pc(s) | 65 |
| 787 814 | 491564 | 05 02 03 03 | 950 g | 1 | pc(s) | 121 | 790 251 | 089501 | 05 00 04 01 | 248 g | 1 | pc(s) | 65 |
| 787 815 | 491571 | 05 02 03 03 | 950 g | 1 | pc(s) | 121 | 790 260 | 089518 | 05 00 04 01 | 180 g | 1 | pc(s) | 65 |
| 787 816 | 491588 | 05 02 03 03 | 950 g | 1 | pc(s) | 121 | 790 261 | 089525 | 05 00 04 01 | 277 g | 1 | pc(s) | 65 |
| 787 817 | 491595 | 05 02 03 03 | 950 g | 1 | pc(s) | 121 | 792 030 | 005853 | 05 00 04 09 | 610 g | 1 | pc(s) | 77 |
| 787 818 | 491601 | 05 02 03 03 | 950 g | 1 | pc(s) | 121 | 792 190 | 068315 | 05 00 04 09 | 1.22 kg | 1 | pc(s) | 76 |
| 787 820 | 491618 | 05 02 03 03 | 1.06 kg | 1 | pc(s) | 121 | 792 450 | 051744 | 05 00 04 09 | 2.60 kg | 1 | pc(s) | 168 |
| 787 821 | 491625 | 05 02 03 03 | 1.06 kg | 1 | pc(s) | 121 | 792 451 | 230170 | 05 00 04 09 | 2.60 kg | 1 | pc(s) | 168 |
| 787 822 | 491632 | 05 02 03 03 | 1.06 kg | 1 | pc(s) | 121 | 792 455 | 376724 | 05 00 04 09 | 2.89 kg | 1 | pc(s) | 168 |
| 787 823 | 491649 | 05 02 03 03 | 1.06 kg | 1 | pc(s) | 121 | 792 456 | 446625 | 05 00 04 09 | 2.94 kg | 1 | pc(s) | 168 |
| 787 824 | 491656 | 05 02 03 03 | 1.06 kg | 1 | pc(s) | 121 | 795 001 | 011816 | 05 00 04 02 | 1.00 kg/m | 1 | m | 68 |
| 787 825 | 491663 | 05 02 03 03 | 1.06 kg | 1 | pc(s) | 121 | 795 020 | 424296 | 05 00 04 10 | 2.87 kg | 1 | pc(s) | 83 |
| 787 826 | 491670 | 05 02 03 03 | 1.06 kg | 1 | pc(s) | 121 | 795 212 | 423237 | 05 00 04 10 | 331 g | 1 | pc(s) | 83 |
| 787 827 | 491687 | 05 02 03 03 | 1.06 kg | 1 | pc(s) | 121 | 799 006 | 157347 | 05 00 04 09 | 4.00 kg | 1 | pc(s) | 75 |
| 787 830 | 491694 | 05 02 03 03 | 880 g | 1 | pc(s) | 122 | 799 009 | 123298 | 05 00 04 09 | 5.10 kg | 1 | pc(s) | 74 |
| 787 831 | 491700 | 05 02 03 03 | 880 g | 1 | pc(s) | 122 | 799 019 | 123304 | 05 00 04 09 | 328 g | 1 | pc(s) | 74 |
| 787 832 | 491724 | 05 02 03 03 | 880 g | 1 | pc(s) | 122 | 799 100 | 237094 | 05 04 01 01 | 12.20 kg | 1 | pc(s) | 92 |
| 787 833 | 491731 | 05 02 03 03 | 880 g | 1 | pc(s) | 122 | 923 110 | 092426 | 05 03 01 01 | 46 g | 10 | pc(s) | 172 |
| 787 834 | 491748 | 05 02 03 03 | 880 g | 1 | pc(s) | 122 | 923 116 | 085978 | 05 03 01 01 | 42 g | 10 | pc(s) | 172 |
| 787 835 | 491755 | 05 02 03 03 | 880 g | 1 | pc(s) | 122 | 923 117 | 093478 | 05 03 01 01 | 42 g | 10 | pc(s) | 172 |
| 787 836 | 491762 | 05 02 03 03 | 880 g | 1 | pc(s) | 122 | 923 118 | 104969 | 05 03 01 01 | 38 g | 10 | pc(s) | 172 |
| 787 837 | 491779 | 05 02 03 03 | 880 g | 1 | pc(s) | 122 | 923 119 | 104976 | 05 03 01 01 | 38 g | 10 | pc(s) | 172 |
| 787 838 | 491786 | 05 02 03 03 | 880 g | 1 | pc(s) | 122 | | | | | | | |
| 787 839 | 491793 | 05 02 03 03 | 880 g | 1 | pc(s) | 122 | | | | | | | |
| 787 840 | 491809 | 05 02 03 03 | 880 g | 1 | pc(s) | 122 | | | | | | | |
| 787 841 | 491816 | 05 02 03 03 | 880 g | 1 | pc(s) | 122 | | | | | | | |
| 787 850 | 491823 | 05 02 03 04 | 2.00 kg | 1 | pc(s) | 120 | | | | | | | |
| 787 851 | 491830 | 05 02 03 04 | 2.00 kg | 1 | pc(s) | 120 | | | | | | | |

| Variant No. | GTIN* | PG | Weight | PU | SU | Page | Variant No. | GTIN* | PG | Weight | PU | SU | Page |
|-------------|--------|-------------|----------|----|-------|------|-------------|--------|-------------|----------|----|-------|------|
| V1KPXFR | 165427 | 05 00 04 04 | 9.85 kg | 1 | pc(s) | 80 | VGJD2QX | 165373 | 05 00 04 04 | 3.00 kg | 1 | pc(s) | 80 |
| V1RC3P2 | 163737 | 05 00 04 13 | 587 g | 1 | pc(s) | 87 | VGM214B | 164017 | 05 00 04 02 | 2.01 kg | 1 | pc(s) | 69 |
| V2KWXUL | 165588 | 05 00 04 04 | 4.99 kg | 1 | pc(s) | 81 | VGUVRRG | 164000 | 05 00 04 02 | 1.67 kg | 1 | pc(s) | 69 |
| V2WPYVF | 165601 | 05 00 04 04 | 8.06 kg | 1 | pc(s) | 81 | VH8QTCZ | 163775 | 05 00 04 14 | 5.43 kg | 1 | pc(s) | 89 |
| V3CM9FR | 165687 | 05 00 04 04 | 8.31 kg | 1 | pc(s) | 81 | VH95BZZ | 165274 | 05 00 04 02 | 3.54 kg | 1 | pc(s) | 69 |
| V3NC SHX | 164031 | 05 00 04 02 | 3.44 kg | 1 | pc(s) | 69 | VHBWUNH | 163645 | 05 00 04 04 | 7.86 kg | 1 | pc(s) | 80 |
| V3RQASE | 163744 | 05 00 04 13 | 1.09 kg | 1 | pc(s) | 87 | VHNEFQE | 450837 | 05 00 04 10 | 5.64 kg | 1 | pc(s) | 82 |
| V3WJMY | 163676 | 05 00 04 04 | 3.65 kg | 1 | pc(s) | 80 | VHV1NKR | 164147 | 05 00 04 02 | 10.00 kg | 1 | pc(s) | 70 |
| V4RJ7A2 | 165526 | 05 00 04 04 | 5.76 kg | 1 | pc(s) | 81 | VJ7VGZD | 163553 | 05 00 04 02 | 2.67 kg | 1 | pc(s) | 69 |
| V4YPRGE | 165243 | 05 00 04 02 | 1.14 kg | 1 | pc(s) | 68 | VJ13VWW | 162136 | 05 00 04 02 | 2.27 kg | 1 | pc(s) | 68 |
| V5DHK24 | 461970 | 05 00 04 10 | 10.00 kg | 1 | pc(s) | 82 | VKB2Q6J | 163829 | 05 00 04 14 | 5.58 kg | 1 | pc(s) | 89 |
| V5SVXPH | 164727 | 05 00 04 04 | 6.33 kg | 1 | pc(s) | 80 | VKVBG8W | 360136 | 05 00 04 05 | 1.51 kg | 1 | pc(s) | 68 |
| V5VN56Z | 165465 | 05 00 04 04 | 4.81 kg | 1 | pc(s) | 81 | VKZLVU3 | 165502 | 05 00 04 04 | 7.90 kg | 1 | pc(s) | 81 |
| V6VE249 | 164185 | 05 00 04 02 | 10.00 kg | 1 | pc(s) | 70 | VL2FG28 | 450820 | 05 00 04 10 | 5.68 kg | 1 | pc(s) | 82 |
| V7GN8WU | 162389 | 05 00 04 02 | 4.62 kg | 1 | pc(s) | 69 | VLB2F3G | 163607 | 05 00 04 02 | 3.83 kg | 1 | pc(s) | 69 |
| V8D4AQ2 | 163485 | 05 00 04 02 | 6.04 kg | 1 | pc(s) | 69 | VLL6JWS | 163348 | 05 00 04 02 | 6.08 kg | 1 | pc(s) | 68 |
| V8MCNWM | 165441 | 05 00 04 04 | 4.14 kg | 1 | pc(s) | 81 | VM2J7S3 | 165281 | 05 00 04 02 | 5.05 kg | 1 | pc(s) | 69 |
| V8PPJEF | 165649 | 05 00 04 04 | 3.67 kg | 1 | pc(s) | 81 | VMBDCM1 | 165519 | 05 00 04 04 | 5.09 kg | 1 | pc(s) | 81 |
| V8VF7CP | 165458 | 05 00 04 04 | 4.66 kg | 1 | pc(s) | 81 | VMLM2BZ | 165489 | 05 00 04 04 | 6.44 kg | 1 | pc(s) | 81 |
| V9JF26K | 163294 | 05 00 04 02 | 2.09 kg | 1 | pc(s) | 68 | VMRSJWD | 163805 | 05 00 04 12 | 1.10 kg | 1 | pc(s) | 85 |
| V11E77B | 163515 | 05 00 04 02 | 5.52 kg | 1 | pc(s) | 69 | VMZDL8N | 165625 | 05 00 04 04 | 2.75 kg | 1 | pc(s) | 81 |
| V18JQHQ | 163546 | 05 00 04 02 | 1.91 kg | 1 | pc(s) | 69 | VN35H5D | 163560 | 05 00 04 02 | 2.19 kg | 1 | pc(s) | 69 |
| V27E2GP | 163980 | 05 00 04 02 | 7.89 kg | 1 | pc(s) | 69 | VN63A91 | 163812 | 05 00 04 14 | 5.40 kg | 1 | pc(s) | 89 |
| V43FCV8 | 165571 | 05 00 04 04 | 10.00 kg | 1 | pc(s) | 81 | VNC1S9W | 163539 | 05 00 04 02 | 1.56 kg | 1 | pc(s) | 69 |
| V76D5TH | 164178 | 05 00 04 02 | 10.00 kg | 1 | pc(s) | 70 | VNRLBXU | 450868 | 05 00 04 10 | 10.00 kg | 1 | pc(s) | 83 |
| V93UVAP | 164024 | 05 00 04 02 | 2.42 kg | 1 | pc(s) | 69 | VP6YV4T | 162686 | 05 00 04 14 | 6.13 kg | 1 | pc(s) | 89 |
| V162LDM | 162655 | 05 00 04 12 | 1.38 kg | 1 | pc(s) | 84 | VP33XYL | 450875 | 05 00 04 10 | 10.00 kg | 1 | pc(s) | 83 |
| V291ZZT | 163997 | 05 00 04 02 | 9.39 kg | 1 | pc(s) | 69 | VPH98CT | 165472 | 05 00 04 04 | 5.75 kg | 1 | pc(s) | 81 |
| V797FE6 | 163188 | 05 00 04 02 | 6.65 kg | 1 | pc(s) | 68 | VPHPV2 | 163379 | 05 00 04 02 | 1.55 kg | 1 | pc(s) | 68 |
| V7265NS | 163355 | 05 00 04 02 | 1.04 kg | 1 | pc(s) | 68 | VPZBBSL | 163317 | 05 00 04 02 | 4.03 kg | 1 | pc(s) | 68 |
| V8115WA | 163508 | 05 00 04 02 | 4.60 kg | 1 | pc(s) | 69 | VQ7PF5A | 164154 | 05 00 04 02 | 1.86 kg | 1 | pc(s) | 70 |
| VA3926J | 165403 | 05 00 04 04 | 6.81 kg | 1 | pc(s) | 80 | VQKTK4T | 163768 | 05 00 04 14 | 5.23 kg | 1 | pc(s) | 89 |
| VAB3PJV | 165410 | 05 00 04 04 | 7.80 kg | 1 | pc(s) | 80 | VQY44GL | 165656 | 05 00 04 04 | 4.51 kg | 1 | pc(s) | 81 |
| VABRSSE | 164048 | 05 00 04 02 | 6.65 kg | 1 | pc(s) | 69 | VQYP8B2 | 163195 | 05 00 04 04 | 7.15 kg | 1 | pc(s) | 80 |
| VACNL P8 | 165540 | 05 00 04 04 | 7.51 kg | 1 | pc(s) | 81 | VRAB9WB | 165533 | 05 00 04 04 | 6.72 kg | 1 | pc(s) | 81 |
| VAM7M6H | 165267 | 05 00 04 02 | 4.25 kg | 1 | pc(s) | 68 | VRDSN66 | 163669 | 05 00 04 04 | 3.29 kg | 1 | pc(s) | 80 |
| VANH53Y | 461987 | 05 00 04 10 | 10.00 kg | 1 | pc(s) | 83 | VRJG23Y | 163300 | 05 00 04 02 | 2.93 kg | 1 | pc(s) | 68 |
| VB1DETL | 165632 | 05 00 04 04 | 1.53 kg | 1 | pc(s) | 81 | VRP32FL | 165595 | 05 00 04 04 | 6.12 kg | 1 | pc(s) | 81 |
| VB53TC9 | 163270 | 05 00 04 02 | 8.23 kg | 1 | pc(s) | 68 | VS B29AH | 162662 | 05 00 04 13 | 805 g | 1 | pc(s) | 87 |
| VCEY1U6 | 165397 | 05 00 04 04 | 5.33 kg | 1 | pc(s) | 80 | VSHDQZB | 163836 | 05 00 04 13 | 1.71 kg | 1 | pc(s) | 86 |
| VD28FAD | 165434 | 05 00 04 04 | 3.94 kg | 1 | pc(s) | 80 | VSJ3Y6N | 461994 | 05 00 04 10 | 10.00 kg | 1 | pc(s) | 83 |
| VDXTBGF | 164192 | 05 00 04 02 | 10.00 kg | 1 | pc(s) | 70 | VSUN6NV | 163782 | 05 00 04 13 | 1.56 kg | 1 | pc(s) | 86 |
| VDZ2VDX | 163843 | 05 00 04 13 | 1.38 kg | 1 | pc(s) | 87 | VSY71K4 | 163287 | 05 00 04 02 | 982 g | 1 | pc(s) | 68 |
| VE5E8FZ | 165557 | 05 00 04 04 | 3.20 kg | 1 | pc(s) | 81 | VTCS2XV | 163584 | 05 00 04 02 | 2.83 kg | 1 | pc(s) | 69 |
| VE5K3HM | 162679 | 05 00 04 12 | 1.53 kg | 1 | pc(s) | 84 | VTJKEZU | 165250 | 05 00 04 02 | 2.99 kg | 1 | pc(s) | 68 |
| VE5MT89 | 165522 | 05 00 04 02 | 1.24 kg | 1 | pc(s) | 69 | VTSY9XH | 163621 | 05 00 04 04 | 6.40 kg | 1 | pc(s) | 80 |
| VE9HQHJ | 165496 | 05 00 04 04 | 7.91 kg | 1 | pc(s) | 81 | VU8P6LE | 165380 | 05 00 04 04 | 4.38 kg | 1 | pc(s) | 80 |
| VEH4JQY | 163850 | 05 00 04 12 | 1.25 kg | 1 | pc(s) | 85 | VUKMT58 | 163799 | 05 00 04 13 | 1.25 kg | 1 | pc(s) | 87 |
| VF33XR2 | 165564 | 05 00 04 04 | 10.00 kg | 1 | pc(s) | 81 | VV7M6CQ | 461963 | 05 00 04 10 | 10.00 kg | 1 | pc(s) | 82 |
| VFV1Z7K | 163331 | 05 00 04 02 | 5.07 kg | 1 | pc(s) | 68 | VVL7AKP | 164130 | 05 00 04 02 | 10.00 kg | 1 | pc(s) | 70 |
| VFZ17TJ | 165663 | 05 00 04 04 | 5.68 kg | 1 | pc(s) | 81 | VWBDMP5 | 165670 | 05 00 04 04 | 7.12 kg | 1 | pc(s) | 81 |
| VG3V6T2 | 165298 | 05 00 04 02 | 7.32 kg | 1 | pc(s) | 69 | VZC3FST | 163324 | 05 00 04 02 | 5.47 kg | 1 | pc(s) | 68 |
| VG4GXHQ | 165618 | 05 00 04 04 | 10.00 kg | 1 | pc(s) | 81 | VZKQZB5 | 164161 | 05 00 04 02 | 2.28 kg | 1 | pc(s) | 70 |
| VGCMAA5 | 162518 | 05 00 04 02 | 10.00 kg | 1 | pc(s) | 70 | VZL6TGH | 163362 | 05 00 04 02 | 1.31 kg | 1 | pc(s) | 68 |
| VGHVBP5 | 360389 | 05 00 04 05 | 1.12 kg | 1 | pc(s) | 68 | VZPW9LG | 163751 | 05 00 04 12 | 675 g | 1 | pc(s) | 85 |

| Type | Part No. | Page | Type | Part No. | Page | Type | Part No. | Page |
|-----------------------|----------|------|-----------------------|----------|------|----------------|----------|------|
| AB 32 46 RW K L... | 700 099 | 29 | APG XT 11 APC 2 150 | 785 834 | 127 | APJ OD OG 25 | 787 813 | 121 |
| AD EP TI M10 | 745 022 | 87 | APG XT 11 L APC 1 150 | 785 864 | 127 | APJ OD OG 26 | 787 814 | 121 |
| AD ES SQ SK | 765 001 | 78 | APG XT 11 L APC 2 150 | 785 844 | 127 | APJ OD OG 27 | 787 815 | 121 |
| AD ES SQ SK | 765 001 | 83 | APG XT 12 APC 1 150 | 785 855 | 127 | APJ OD OG 28 | 787 816 | 121 |
| AD ES SQ SQL | 765 006 | 79 | APG XT 12 APC 2 150 | 785 835 | 127 | APJ OD OG 29 | 787 817 | 121 |
| AD FB18 7 STK SN7007 | 766 321 | 23 | APG XT 12 L APC 1 150 | 785 865 | 127 | APJ OD OG 30 | 787 818 | 121 |
| AD HV STK SQ | 766 313 | 55 | APG XT 12 L APC 2 150 | 785 845 | 127 | APJ OD OG 42 | 787 800 | 120 |
| AD M12 STK 30 350 | 766 352 | 102 | APG XT 13 APC 1 150 | 785 856 | 127 | APJ OD OG 44 | 787 801 | 120 |
| AD PHE4 STK 410 | 783 930 | 102 | APG XT 13 APC 2 150 | 785 836 | 127 | APJ OD OG 46 | 787 350 | 120 |
| AD SQ ZK 165 | 766 396 | 25 | APG XT 13 L APC 1 150 | 785 866 | 127 | APJ OD OG 48 | 787 351 | 120 |
| ADS ZK 185 | 766 389 | 25 | APG XT 13 L APC 2 150 | 785 846 | 127 | APJ OD OG 50 | 787 352 | 120 |
| AD ZK 3M 170 | 766 059 | 155 | APHO | 785 760 | 134 | APJ OD OG 52 | 787 353 | 120 |
| AD ZK 25 200 | 766 055 | 102 | APJ 46 | 785 769 | 126 | APJ OD OG 54 | 787 354 | 120 |
| AD ZK 185 | 766 392 | 25 | APJ 48 | 785 770 | 126 | APJ OD OG 56 | 787 355 | 120 |
| AD ZK STK 30 360 | 766 359 | 24 | APJ 50 | 785 771 | 126 | APJ OD OG 58 | 787 356 | 120 |
| AD ZK STK 30 360 | 766 359 | 102 | APJ 52 | 785 772 | 126 | APJ OD OG 60 | 787 357 | 120 |
| AH ISMTC | 766 038 | 101 | APJ 54 | 785 773 | 126 | APJ OD OG 62 | 787 358 | 120 |
| AK 25 ESH STK SN7361 | 766 372 | 154 | APJ 56 | 785 774 | 126 | APJ OD OG 64 | 787 802 | 120 |
| AK 36 SK STK 330 | 766 364 | 23 | APJ 58 | 785 775 | 126 | APJ OD OG 66 | 787 803 | 120 |
| AK 36 SK STK 330 | 766 364 | 100 | APJ 63C 2XL | 787 374 | 124 | APJ OD OG 68 | 787 804 | 120 |
| AK 36 SQ STK 360 | 766 365 | 23 | APJ 63C 3XL | 787 375 | 124 | APJ OD OG 90 | 787 820 | 121 |
| AK 36 SQ STK 360 | 766 365 | 100 | APJ 63C 4XL | 787 376 | 124 | APJ OD OG 94 | 787 821 | 121 |
| AK AH ZK ISMTC | 766 049 | 101 | APJ 63C L | 787 372 | 124 | APJ OD OG 98 | 787 822 | 121 |
| AK SK24 SK12 | 763 712 | 28 | APJ 63C M | 787 371 | 124 | APJ OD OG 102 | 787 823 | 121 |
| APA B 80 | 785 377 | 123 | APJ 63C S | 787 370 | 124 | APJ OD OG 106 | 787 824 | 121 |
| APA B 90 | 785 370 | 123 | APJ 63C XL | 787 373 | 124 | APJ OD OG 110 | 787 825 | 121 |
| APA B 100 | 785 371 | 123 | APJ ID 22 | 787 610 | 115 | APJ OD OG 114 | 787 826 | 121 |
| APA B 110 | 785 372 | 123 | APJ ID 23 | 787 611 | 115 | APJ OD OG 118 | 787 827 | 121 |
| APA B 120 | 785 373 | 123 | APJ ID 24 | 787 612 | 115 | APJ OD OG F 34 | 787 830 | 122 |
| APA B 130 | 785 374 | 123 | APJ ID 25 | 787 613 | 115 | APJ OD OG F 36 | 787 831 | 122 |
| APA B 140 | 785 375 | 123 | APJ ID 26 | 787 614 | 115 | APJ OD OG F 38 | 787 832 | 122 |
| APA B 150 | 785 376 | 123 | APJ ID 27 | 787 615 | 115 | APJ OD OG F 40 | 787 833 | 122 |
| APA B | 785 788 | 126 | APJ ID 28 | 787 616 | 115 | APJ OD OG F 42 | 787 834 | 122 |
| APA KP | 785 789 | 126 | APJ ID 29 | 787 617 | 115 | APJ OD OG F 44 | 787 835 | 122 |
| APB APC2 29C | 785 790 | 133 | APJ ID 30 | 787 618 | 115 | APJ OD OG F 46 | 787 836 | 122 |
| APC 48 50 | 785 755 | 125 | APJ ID 42 | 787 600 | 114 | APJ OD OG F 48 | 787 837 | 122 |
| APC 52 54 | 785 756 | 125 | APJ ID 44 | 787 601 | 114 | APJ OD OG F 50 | 787 838 | 122 |
| APC 56 58 | 785 757 | 125 | APJ ID 46 | 785 330 | 114 | APJ OD OG F 52 | 787 839 | 122 |
| APC 60 62 | 785 758 | 125 | APJ ID 48 | 785 331 | 114 | APJ OD OG F 54 | 787 840 | 122 |
| APC 64 66 | 785 759 | 125 | APJ ID 50 | 785 332 | 114 | APJ OD OG F 56 | 787 841 | 122 |
| APD 63C 2XL | 787 384 | 125 | APJ ID 52 | 785 333 | 114 | APJ OD YE 22 | 787 710 | 118 |
| APD 63C 3XL | 787 385 | 125 | APJ ID 54 | 785 334 | 114 | APJ OD YE 23 | 787 711 | 118 |
| APD 63C 4XL | 787 386 | 125 | APJ ID 56 | 785 335 | 114 | APJ OD YE 24 | 787 712 | 118 |
| APD 63C L | 787 382 | 125 | APJ ID 58 | 785 336 | 114 | APJ OD YE 25 | 787 713 | 118 |
| APD 63C M | 787 381 | 125 | APJ ID 60 | 785 337 | 114 | APJ OD YE 26 | 787 714 | 118 |
| APD 63C S | 787 380 | 125 | APJ ID 62 | 785 338 | 114 | APJ OD YE 27 | 787 715 | 118 |
| APD 63C XL | 787 383 | 125 | APJ ID 64 | 787 602 | 114 | APJ OD YE 28 | 787 716 | 118 |
| APG 8 | 785 796 | 128 | APJ ID 66 | 787 603 | 114 | APJ OD YE 29 | 787 717 | 118 |
| APG 8 L | 785 808 | 128 | APJ ID 68 | 787 604 | 114 | APJ OD YE 30 | 787 718 | 118 |
| APG 9 | 785 797 | 128 | APJ ID 90 | 787 620 | 115 | APJ OD YE 42 | 787 700 | 117 |
| APG 9 L | 785 809 | 128 | APJ ID 94 | 787 621 | 115 | APJ OD YE 44 | 787 701 | 117 |
| APG 10 | 785 798 | 128 | APJ ID 98 | 787 622 | 115 | APJ OD YE 46 | 785 350 | 117 |
| APG 10 L | 785 810 | 128 | APJ ID 102 | 787 623 | 115 | APJ OD YE 48 | 785 351 | 117 |
| APG 11 | 785 799 | 128 | APJ ID 106 | 787 624 | 115 | APJ OD YE 50 | 785 352 | 117 |
| APG 11 L | 785 811 | 128 | APJ ID 110 | 787 625 | 115 | APJ OD YE 52 | 785 353 | 117 |
| APG 12 | 785 800 | 128 | APJ ID 114 | 787 626 | 115 | APJ OD YE 54 | 785 354 | 117 |
| APG 12 L | 785 812 | 128 | APJ ID 118 | 787 627 | 115 | APJ OD YE 56 | 785 355 | 117 |
| APG XT 7 APC 1 150 | 785 850 | 127 | APJ ID F 34 | 787 630 | 116 | APJ OD YE 58 | 785 356 | 117 |
| APG XT 7 APC 2 150 | 785 830 | 127 | APJ ID F 36 | 787 631 | 116 | APJ OD YE 60 | 785 357 | 117 |
| APG XT 7 L APC 1 150 | 785 860 | 127 | APJ ID F 38 | 787 632 | 116 | APJ OD YE 62 | 785 358 | 117 |
| APG XT 7 L APC 2 150 | 785 840 | 127 | APJ ID F 40 | 787 633 | 116 | APJ OD YE 64 | 787 702 | 117 |
| APG XT 8 APC 1 150 | 785 851 | 127 | APJ ID F 42 | 787 634 | 116 | APJ OD YE 66 | 787 703 | 117 |
| APG XT 8 APC 2 150 | 785 831 | 127 | APJ ID F 44 | 787 635 | 116 | APJ OD YE 68 | 787 704 | 117 |
| APG XT 8 L APC 1 150 | 785 861 | 127 | APJ ID F 46 | 787 636 | 116 | APJ OD YE 90 | 787 720 | 118 |
| APG XT 8 L APC 2 150 | 785 841 | 127 | APJ ID F 48 | 787 637 | 116 | APJ OD YE 94 | 787 721 | 118 |
| APG XT 9 APC 1 150 | 785 852 | 127 | APJ ID F 50 | 787 638 | 116 | APJ OD YE 98 | 787 722 | 118 |
| APG XT 9 APC 2 150 | 785 832 | 127 | APJ ID F 52 | 787 639 | 116 | APJ OD YE 102 | 787 723 | 118 |
| APG XT 9 L APC 1 150 | 785 862 | 127 | APJ ID F 54 | 787 640 | 116 | APJ OD YE 106 | 787 724 | 118 |
| APG XT 9 L APC 2 150 | 785 842 | 127 | APJ ID F 56 | 787 641 | 116 | APJ OD YE 110 | 787 725 | 118 |
| APG XT 10 APC 1 150 | 785 853 | 127 | APJ ID KONFI | 785 339 | 116 | APJ OD YE 114 | 787 726 | 118 |
| APG XT 10 APC 2 150 | 785 833 | 127 | APJ OD KONFI | 785 359 | 122 | APJ OD YE 118 | 787 727 | 118 |
| APG XT 10 L APC 1 150 | 785 863 | 127 | APJ OD OG 22 | 787 810 | 121 | APJ OD YE F 34 | 787 730 | 119 |
| APG XT 10 L APC 2 150 | 785 843 | 127 | APJ OD OG 23 | 787 811 | 121 | APJ OD YE F 36 | 787 731 | 119 |
| APG XT 11 APC 1 150 | 785 854 | 127 | APJ OD OG 24 | 787 812 | 121 | APJ OD YE F 38 | 787 732 | 119 |

| Type | Part No. | Page | Type | Part No. | Page | Type | Part No. | Page |
|-----------------|----------|------|----------------|----------|------|---------------------|----------|------|
| APJ OD YE F 40 | 787 733 | 119 | APT ID F 54 | 787 690 | 116 | APT OD YE 106 | 787 774 | 118 |
| APJ OD YE F 42 | 787 734 | 119 | APT ID F 56 | 787 691 | 116 | APT OD YE 110 | 787 775 | 118 |
| APJ OD YE F 44 | 787 735 | 119 | APT ID KONFI | 785 349 | 116 | APT OD YE 114 | 787 776 | 118 |
| APJ OD YE F 46 | 787 736 | 119 | APT OD KONFI | 785 369 | 122 | APT OD YE 118 | 787 777 | 118 |
| APJ OD YE F 48 | 787 737 | 119 | APT OD OG 22 | 787 860 | 121 | APT OD YE F 34 | 787 780 | 119 |
| APJ OD YE F 50 | 787 738 | 119 | APT OD OG 23 | 787 861 | 121 | APT OD YE F 36 | 787 781 | 119 |
| APJ OD YE F 52 | 787 739 | 119 | APT OD OG 24 | 787 862 | 121 | APT OD YE F 38 | 787 782 | 119 |
| APJ OD YE F 54 | 787 740 | 119 | APT OD OG 25 | 787 863 | 121 | APT OD YE F 40 | 787 783 | 119 |
| APJ OD YE F 56 | 787 741 | 119 | APT OD OG 26 | 787 864 | 121 | APT OD YE F 42 | 787 784 | 119 |
| APPS BC 2XL | 787 006 | 123 | APT OD OG 27 | 787 865 | 121 | APT OD YE F 44 | 787 785 | 119 |
| APPS BC 3XL | 787 007 | 123 | APT OD OG 28 | 787 866 | 121 | APT OD YE F 46 | 787 786 | 119 |
| APPS BC 4XL | 787 008 | 123 | APT OD OG 29 | 787 867 | 121 | APT OD YE F 48 | 787 787 | 119 |
| APPS BC L | 787 004 | 123 | APT OD OG 30 | 787 868 | 121 | APT OD YE F 50 | 787 788 | 119 |
| APPS BC M | 787 003 | 123 | APT OD OG 42 | 787 850 | 120 | APT OD YE F 52 | 787 789 | 119 |
| APPS BC S | 787 002 | 123 | APT OD OG 44 | 787 851 | 120 | APT OD YE F 54 | 787 790 | 119 |
| APPS BC XL | 787 005 | 123 | APT OD OG 46 | 787 360 | 120 | APT OD YE F 56 | 787 791 | 119 |
| APPS BC XS | 787 001 | 123 | APT OD OG 48 | 787 361 | 120 | APUP 2XL | 787 026 | 124 |
| APS ARC E1 SK7 | 785 870 | 133 | APT OD OG 50 | 787 362 | 120 | APUP 3XL | 787 027 | 124 |
| APS CL1 MEHA | 785 721 | 134 | APT OD OG 52 | 787 363 | 120 | APUP 4XL | 787 028 | 124 |
| APS CL2 MAHA | 785 722 | 134 | APT OD OG 54 | 787 364 | 120 | APUP L | 787 024 | 124 |
| APS T AS 14C FS | 785 825 | 132 | APT OD OG 56 | 787 365 | 120 | APUP M | 787 023 | 124 |
| APS T AS 14C SC | 785 822 | 132 | APT OD OG 58 | 787 366 | 120 | APUP S | 787 022 | 124 |
| APS T AS 25C FS | 785 826 | 132 | APT OD OG 60 | 787 367 | 120 | APUP XL | 787 025 | 124 |
| APS T AS 25C SC | 785 823 | 132 | APT OD OG 62 | 787 368 | 120 | APUP XS | 787 021 | 124 |
| APS T AS CL2 FS | 785 824 | 132 | APT OD OG 64 | 787 852 | 120 | APUS 2XL | 787 016 | 124 |
| APS T AS CL2 SC | 785 821 | 132 | APT OD OG 66 | 787 853 | 120 | APUS 3XL | 787 017 | 124 |
| APT 46 | 785 779 | 126 | APT OD OG 68 | 787 854 | 120 | APUS 4XL | 787 018 | 124 |
| APT 48 | 785 780 | 126 | APT OD OG 90 | 787 870 | 121 | APUS L | 787 014 | 124 |
| APT 50 | 785 781 | 126 | APT OD OG 94 | 787 871 | 121 | APUS M | 787 013 | 124 |
| APT 52 | 785 782 | 126 | APT OD OG 98 | 787 872 | 121 | APUS S | 787 012 | 124 |
| APT 54 | 785 783 | 126 | APT OD OG 102 | 787 873 | 121 | APUS XL | 787 015 | 124 |
| APT 56 | 785 784 | 126 | APT OD OG 106 | 787 874 | 121 | APUS XS | 787 011 | 124 |
| APT 58 | 785 785 | 126 | APT OD OG 110 | 787 875 | 121 | ARS 65 40 | 785 443 | 137 |
| APT ID 22 | 787 660 | 115 | APT OD OG 114 | 787 876 | 121 | AR STK | 766 889 | 55 |
| APT ID 23 | 787 661 | 115 | APT OD OG 118 | 787 877 | 121 | ASKT GBSW 10 M KST | 700 113 | 30 |
| APT ID 24 | 787 662 | 115 | APT OD OG F 34 | 787 880 | 122 | ASKT RTWS 10 M KST | 700 112 | 30 |
| APT ID 25 | 787 663 | 115 | APT OD OG F 36 | 787 881 | 122 | ASPS 110 132 16.7 L | 767 565 | 160 |
| APT ID 26 | 787 664 | 115 | APT OD OG F 38 | 787 882 | 122 | ASPS 110 420 L | 767 571 | 41 |
| APT ID 27 | 787 665 | 115 | APT OD OG F 40 | 787 883 | 122 | ASPS 110 420 S | 767 572 | 41 |
| APT ID 28 | 787 666 | 115 | APT OD OG F 42 | 787 884 | 122 | ASPS 110 420 S L | 767 573 | 41 |
| APT ID 29 | 787 667 | 115 | APT OD OG F 44 | 787 885 | 122 | AS SCHR M12 55 | 705 500 | 65 |
| APT ID 30 | 787 668 | 115 | APT OD OG F 46 | 787 886 | 122 | AS SCHR M12 M12 40 | 705 504 | 65 |
| APT ID 42 | 787 650 | 114 | APT OD OG F 48 | 787 887 | 122 | AS SCHR M16 55 M12 | 705 510 | 65 |
| APT ID 44 | 787 651 | 114 | APT OD OG F 50 | 787 888 | 122 | AS SCHR M16 65 | 750 500 | 65 |
| APT ID 46 | 785 340 | 114 | APT OD OG F 52 | 787 889 | 122 | AS SCHW M12 25 | 705 501 | 65 |
| APT ID 48 | 785 341 | 114 | APT OD OG F 54 | 787 890 | 122 | AS SCHW M12 | 336 020 | 65 |
| APT ID 50 | 785 342 | 114 | APT OD OG F 56 | 787 891 | 122 | AS SCHW M16 30 | 755 501 | 65 |
| APT ID 52 | 785 343 | 114 | APT OD YE 22 | 787 760 | 118 | AS SCHW M16 | 336 025 | 65 |
| APT ID 54 | 785 344 | 114 | APT OD YE 23 | 787 761 | 118 | ASSN 36 STK ZK | 766 380 | 25 |
| APT ID 56 | 785 345 | 114 | APT OD YE 24 | 787 762 | 118 | ASSN 36 STK ZK | 766 380 | 155 |
| APT ID 58 | 785 346 | 114 | APT OD YE 25 | 787 763 | 118 | A STK | 766 888 | 55 |
| APT ID 60 | 785 347 | 114 | APT OD YE 26 | 787 764 | 118 | AT 50 30 | 785 442 | 137 |
| APT ID 62 | 785 348 | 114 | APT OD YE 27 | 787 765 | 118 | AT IHS NS | 785 490 | 129 |
| APT ID 64 | 787 652 | 114 | APT OD YE 28 | 787 766 | 118 | AT IHS NS | 785 490 | 130 |
| APT ID 66 | 787 653 | 114 | APT OD YE 29 | 787 767 | 118 | ATK 120 25M NS | 785 467 | 97 |
| APT ID 68 | 787 654 | 114 | APT OD YE 30 | 787 768 | 118 | ATK 120 ..M NS | 785 468 | 97 |
| APT ID 90 | 787 670 | 115 | APT OD YE 42 | 787 750 | 117 | ATK 135 50M NS | 785 465 | 97 |
| APT ID 94 | 787 671 | 115 | APT OD YE 44 | 787 751 | 117 | ATK 135 ..M NS | 785 466 | 97 |
| APT ID 98 | 787 672 | 115 | APT OD YE 46 | 785 360 | 117 | ATN 140 10M NS | 785 471 | 98 |
| APT ID 102 | 787 673 | 115 | APT OD YE 48 | 785 361 | 117 | ATN 140 ..M NS | 785 472 | 98 |
| APT ID 106 | 787 674 | 115 | APT OD YE 50 | 785 362 | 117 | AT SPN II | 766 543 | 45 |
| APT ID 110 | 787 675 | 115 | APT OD YE 52 | 785 363 | 117 | | | |
| APT ID 114 | 787 676 | 115 | APT OD YE 54 | 785 364 | 117 | BEV 2XUKH 70 8500AL | 752 192 | 170 |
| APT ID 118 | 787 677 | 115 | APT OD YE 56 | 785 365 | 117 | BEV BM HZ BDW K | 751 193 | 170 |
| APT ID F 34 | 787 680 | 116 | APT OD YE 58 | 785 366 | 117 | BEV BM HZ BDW R | 751 197 | 170 |
| APT ID F 36 | 787 681 | 116 | APT OD YE 60 | 785 367 | 117 | BEV MF LTE | 751 192 | 170 |
| APT ID F 38 | 787 682 | 116 | APT OD YE 62 | 785 368 | 117 | BEV MF SE K | 751 191 | 170 |
| APT ID F 40 | 787 683 | 116 | APT OD YE 64 | 787 752 | 117 | BEV MF SE R | 751 196 | 170 |
| APT ID F 42 | 787 684 | 116 | APT OD YE 66 | 787 753 | 117 | BEV OL NPF K | 750 210 | 165 |
| APT ID F 44 | 787 685 | 116 | APT OD YE 68 | 787 754 | 117 | BEV OL NPF PKW K | 750 196 | 166 |
| APT ID F 46 | 787 686 | 116 | APT OD YE 90 | 787 770 | 118 | BEV OL NPF PKW R | 750 216 | 166 |
| APT ID F 48 | 787 687 | 116 | APT OD YE 94 | 787 771 | 118 | BEV OL NPF R | 750 218 | 165 |
| APT ID F 50 | 787 688 | 116 | APT OD YE 98 | 787 772 | 118 | BEV OL PF K | 750 211 | 165 |
| APT ID F 52 | 787 689 | 116 | APT OD YE 102 | 787 773 | 118 | BEV OL PF PKW K | 750 200 | 166 |

| Type | Part No. | Page | Type | Part No. | Page | Type | Part No. | Page |
|----------------------|----------|------|----------------------|----------|------|----------------------|----------|------|
| BEV OL PF PKW R | 750 217 | 166 | EKS 50 BEV 4M | 751 040 | 171 | EKV3+1 95 G VE9HQHJ | VE9HQHJ | 81 |
| BEV OL PF R | 750 219 | 165 | EKS 50 BEV 8.5M | 751 085 | 171 | EKV3+1 95 R V5SVXPH | V5SVXPH | 80 |
| BEV OL PF V2 K | 750 214 | 166 | EKS 50 BEV 12M | 751 120 | 171 | EKV3+1 95 R VRAB9WB | VRAB9WB | 81 |
| BEV OL PF V2 R | 750 221 | 166 | EKS 50 BEV 13M | 751 130 | 171 | EKV3+1 120 G VAB3PJV | VAB3PJV | 80 |
| BEV SVUL | 750 213 | 167 | EKS 50 BEV 14M | 751 140 | 171 | EKV3+1 120 G VKZLVU3 | VKZLVU3 | 81 |
| BEV UKH K 70 8500AL | 752 191 | 170 | EKS B10.5 70 4000AL | 752 040 | 171 | EKV3+1 120 R VACNLP8 | VACNLP8 | 81 |
| BEV UKH K 70 12000AL | 752 193 | 170 | EKS B10.5 70 8500AL | 752 085 | 171 | EKV3+1 120 R VTSY9XH | VTSY9XH | 80 |
| BEV UKH R 70 8500AL | 752 196 | 170 | EKS B10.5 70 12000AL | 752 120 | 171 | EKV3+1 150 G V1KPFWR | V1KPFWR | 80 |
| BEV UKH R 70 12000AL | 752 197 | 170 | EK SN7089 | 745 510 | 85 | EKV3+1 150 R VHBWUNH | VHBWUNH | 80 |
| BEV US OL ST | 750 212 | 166 | EKS TI 2F KVS SBK | 745 500 | 86 | EKV3 16TI EK VSB29AH | VSB29AH | 87 |
| BEV WHA ZVA | 750 215 | 167 | EKS TI KVS SBK | 766 302 | 86 | EKV3 16TI HK V3RQASE | V3RQASE | 87 |
| BS EP NH1 3 TI | 745 506 | 88 | EKS VI 2F KVS KK | 745 903 | 84 | EKV3 16VI EK VZPW9LG | VZPW9LG | 85 |
| | | | EKS VI 2F KVS SBK | 745 901 | 84 | EKV3 25BS ZK VQKTK4T | VQKTK4T | 89 |
| CG-10/S2 A R 8 | 785 381 | 129 | EKV1+0 16 V4YPRGE | V4YPRGE | 68 | EKV3 25IS ZK VH8QTCZ | VH8QTCZ | 89 |
| CG-10/S2 B R 9 | 785 382 | 129 | EKV1+0 25 VSY71K4 | VSY71K4 | 68 | EKV3 25TI DG VSUN6NV | VSUN6NV | 86 |
| CG-10/S2 C R 10 | 785 383 | 129 | EKV1+0 35 V9JF26K | V9JF26K | 68 | EKV3 25TI HK VUKMT58 | VUKMT58 | 87 |
| CG-10/S2 D R 11 | 785 384 | 129 | EKV1+0 35 VGHVBP5 | VGHVBP5 | 68 | EKV3 25VI DG V162LDM | V162LDM | 84 |
| | | | EKV1+0 50 VKVBG8W | VKVBG8W | 68 | EKV3 25VI EK VMRSJWD | VMRSJWD | 85 |
| DGF EKV VI | 745 921 | 85 | EKV1+0 50 VRJG23Y | VRJG23Y | 68 | EKV3 35BS ZK VN63A91 | VN63A91 | 89 |
| DGF EKV VI | 745 921 | 88 | EKV1+0 70 VPZBBSL | VPZBBSL | 68 | EKV3 35IS ZK VKB2Q6J | VKB2Q6J | 89 |
| DGF EKV VI | 745 921 | 90 | EKV1+0 95 VZC3FST | VZC3FST | 68 | EKV3 35TI DG VSHDQZB | VSHDQZB | 86 |
| DP 40 40 B13 AL | 525 001 | 66 | EKV1+0 120 V797FE6 | V797FE6 | 68 | EKV3 35TI HK VDZ2VDX | VDZ2VDX | 87 |
| DP 50 50 B17 AL | 525 002 | 66 | EKV1+0 150 VB53TC9 | VB53TC9 | 68 | EKV3 35VI DG VE5K3HM | VE5K3HM | 84 |
| DR PAG | 759 798 | 99 | EKV1+1 16 VE5E8FZ | VE5E8FZ | 81 | EKV3 35VI EK VEH4JQY | VEH4JQY | 85 |
| DR PS PHE3 | 767 779 | 99 | EKV1+1 16 VMZDL8N | VMZDL8N | 81 | EKV3 50IS ZK VP6YV4T | VP6YV4T | 89 |
| DSRT DD CPS AACA | 782 031 | 148 | EKV1+1 25 VB1DETL | VB1DETL | 81 | EKV3 NH00 TI V1RC3P2 | V1RC3P2 | 87 |
| DSRT DD CPS BACA | 782 030 | 148 | EKV1+1 25 VF33XR2 | VF33XR2 | 81 | EKV4u0 16 G VGUVRRG | VGUVRRG | 69 |
| DSRT DD FS AAAA | 782 051 | 148 | EKV1+1 35 V8PPJEF | V8PPJEF | 81 | EKV4u0 25 G VGM214B | VGM214B | 69 |
| DSRT DD FS BAAA | 782 050 | 148 | EKV1+1 35 V43FCV8 | V43FCV8 | 81 | EKV4u0 35 G V93UVAP | V93UVAP | 69 |
| DSRT DD PS AACA | 782 041 | 148 | EKV1+1 50 V2KWXUL | V2KWXUL | 81 | EKV4u0 50 G V3NCSHX | V3NCSHX | 69 |
| DSRT DD PS BACA | 782 040 | 148 | EKV1+1 50 VQY44GL | VQY44GL | 81 | EKV4u0 70 G V7GN8WU | V7GN8WU | 69 |
| DSRT FC D8 | 782 099 | 149 | EKV1+1 70 VFZ17TJ | VFZ17TJ | 81 | EKV4u0 95 G VABRSSE | VABRSSE | 69 |
| DSRT FS 8 1.5 | 782 077 | 149 | EKV1+1 70 VRP32FL | VRP32FL | 81 | EKV4u0 120 G V27E2GP | V27E2GP | 69 |
| DSRT FS 10 1.5 | 782 081 | 149 | EKV1+1 95 V2WPYVF | V2WPYVF | 81 | EKV4u0 150 G V291ZZT | V291ZZT | 69 |
| DSRT FS 12 1.5 | 782 085 | 149 | EKV1+1 95 VWBDMPS | VWBDMP5 | 81 | EKV5+0 16 G VQ7PFA | VQ7PFA | 70 |
| DSRT FS 15 1.5 | 782 091 | 149 | EKV1+1 120 V3CM9FR | V3CM9FR | 81 | EKV5+0 25 G VZKQZB5 | VZKQZB5 | 70 |
| DSRT FS 17 1.5 | 782 092 | 149 | EKV1+1 120 VG4GXHQ | VG4GXHQ | 81 | EKV5+0 35 G V76D5TH | V76D5TH | 70 |
| DSRT LWL 0.75 | 782 020 | 149 | EKV2+0 16 G V7265NS | V7265NS | 68 | EKV5+0 50 G V6VE249 | V6VE249 | 70 |
| DSRT LWL 2.00 | 782 022 | 149 | EKV2+0 25 G VZL6TGH | VZL6TGH | 68 | EKV5+0 70 G VDXTBGF | VDXTBGF | 70 |
| DSRT LWL 4.00 | 782 024 | 149 | EKV2+0 35 G VPHZV2 | VPHZV2 | 68 | EKV5+0 95 G VGCMAA5 | VGCMAA5 | 70 |
| DSRT LWL 8.00 | 782 028 | 149 | EKV2+0 50 G VJ13VWW | VJ13VWW | 68 | EKV5+0 120 G VVL7AKP | VVL7AKP | 70 |
| DSRT PS | 782 060 | 148 | EKV2+0 70 G VTJKEZU | VTJKEZU | 68 | EKV5+0 150 G VHV1NKR | VHV1NKR | 70 |
| DSRT QD II | 782 002 | 149 | EKV2+0 95 G VAM7M6H | VAM7M6H | 68 | EKV FD K 70 8500AL | 752 086 | 169 |
| DSRT SR D8 L20 | 782 098 | 149 | EKV2+0 120 G VV1Z7K | VV1Z7K | 68 | EKV FD K 70 12000AL | 752 126 | 169 |
| | | | EKV2+0 150 G VLL6JWS | VLL6JWS | 68 | EKV FD K H70 12000AL | 752 121 | 169 |
| EAB RN 16 FS | 790 150 | 76 | EKV2 50 KKH 600 1800 | 751 150 | 170 | EKV FD R 70 8500AL | 752 087 | 169 |
| EAB RN 16 SKN | 790 160 | 76 | EKV3+0 16 G VE5MT89 | VE5MT89 | 69 | EKV FD R 70 12000AL | 752 127 | 169 |
| EAP 2 25 KKH HG | 728 501 | 165 | EKV3+0 25 G VNC1S9W | VNC1S9W | 69 | EKV FD R H70 12000AL | 752 122 | 169 |
| EAP 2 25 MA US OL | 728 502 | 165 | EKV3+0 35 G V18JQHQ | V18JQHQ | 69 | EKV K 50 8500 | 751 086 | 169 |
| EAP 25 SIT US OL | 728 503 | 165 | EKV3+0 50 G VJ7VGZD | VJ7VGZD | 69 | EKV K 50 12000 | 751 126 | 169 |
| EAPA 3 KFP 20 B13 | 728 522 | 67 | EKV3+0 50 R VN35H5D | VN35H5D | 69 | EKV K H 50 12000 | 751 121 | 169 |
| EAPA 3 KFP 20 KKH | 728 620 | 67 | EKV3+0 70 G VH95BZZ | VH95BZZ | 69 | EKV LK 50 4000 | 750 042 | 170 |
| EAPA 3 KFP 25 B13 | 728 526 | 67 | EKV3+0 70 R VTCS2XV | VTCS2XV | 69 | EKV LK UKH 70 4000AL | 752 042 | 170 |
| EAPA 3 KFP 25 KKH | 728 625 | 67 | EKV3+0 95 G VM2J7S3 | VM2J7S3 | 69 | EKV R 50 8500 | 751 087 | 169 |
| EAPA 3 RN 16 EAB | 728 516 | 67 | EKV3+0 95 R VLB2F3G | VLB2F3G | 69 | EKV R 50 12000 | 751 127 | 169 |
| EAS EK FM 12 | 775 621 | 76 | EKV3+0 120 G V8D4AQ2 | V8D4AQ2 | 69 | EKV R H 50 12000 | 751 122 | 169 |
| EAS EK FM 16 | 775 631 | 76 | EKV3+0 120 R V8115WA | V8115WA | 69 | EKV ÜGK MB | 745 107 | 90 |
| EAS EK FS 12 | 775 626 | 76 | EKV3+0 150 G VG3V6T2 | VG3V6T2 | 69 | EKV ÜGK MB S | 745 105 | 90 |
| EAS EK FS 16 | 775 636 | 76 | EKV3+0 150 R V11E77B | V11E77B | 69 | EKV ÜGK MB SN7354 | 745 115 | 90 |
| EB 9V AL | 767 713 | 99 | EKV3+1 16 G V8MCNWM | V8MCNWM | 81 | EKV ÜGK MB SN7724 | 745 121 | 90 |
| EB 9V LI | 767 712 | 99 | EKV3+1 16 G VGJD2QX | VGJD2QX | 80 | EKV UK 50 4000 | 750 041 | 169 |
| EFK FL30 SKN | 792 030 | 77 | EKV3+1 25 G V8VF7CP | V8VF7CP | 81 | EKV UKQ UKH70 4000AL | 752 041 | 169 |
| EFK FL40 SKN | 792 190 | 76 | EKV3+1 25 G VRDSN66 | VRDSN66 | 80 | EL 16CU EZ KS8.5 | 758 216 | 58 |
| EFP 16 RN M12 35 SSM | 790 251 | 65 | EKV3+1 35 G V3WJMY | V3WJMY | 80 | EL 16CU KS12.5 8.5 | 758 116 | 58 |
| EFP 16 RN M12 | 790 250 | 65 | EKV3+1 35 G V5VN56Z | V5VN56Z | 81 | EL 25CU KS12.5 8.5 | 758 125 | 58 |
| EFP 16 RN M16 45 SSM | 790 261 | 65 | EKV3+1 50 G VPH98CT | VPH98CT | 81 | EL 35CU KS12.5 8.5 | 758 135 | 58 |
| EFP 16 RN M16 | 790 260 | 65 | EKV3+1 50 G VU8P6LE | VU8P6LE | 80 | EL M8 G PHE | 766 924 | 54 |
| EG 00 4A VI | 745 922 | 85 | EKV3+1 50 R VD28FAD | VD28FAD | 80 | EL M8 H PHE | 766 923 | 54 |
| EG SK STK 400 | 745 415 | 91 | EKV3+1 50 R VMBDCM1 | VMBDCM1 | 81 | EL M8 MAG PHE PHV | 766 915 | 54 |
| EG SQ STK 400 | 745 414 | 91 | EKV3+1 70 G VCEY1U6 | VCEY1U6 | 80 | EL M8 S PHE PHV | 766 925 | 54 |
| EG TI EKV | 745 400 | 88 | EKV3+1 70 G VMLM2BZ | VMLM2BZ | 81 | EL M8 SZ PHE PHV | 766 913 | 54 |
| EHH BEV OL | 740 124 | 171 | EKV3+1 70 R V4RJ7A2 | V4RJ7A2 | 81 | EL M8 V PHE PHV | 766 927 | 54 |
| EK FL20 FS | 745 502 | 88 | EKV3+1 70 R VQYP8B2 | VQYP8B2 | 80 | EP NH00 TI M10 | 745 302 | 87 |
| EK I FL20 DGF | 745 602 | 88 | EKV3+1 95 G VA3926U | VA3926U | 80 | EP NH00 TI SN7379 | 745 307 | 87 |

| Type | Part No. | Page | Type | Part No. | Page | Type | Part No. | Page |
|---------------------------|----------|------|------------------------------|----------|------|-----------------------|----------|------|
| EP NH00 VI TA | 745 905 | 85 | EV TES 465 KS10 | 758 022 | 57 | IMG SAN 1M 10M | 785 459 | 97 |
| EP NH1 3 TI GL M10 | 745 017 | 87 | EV TES 465 SN7215 | 758 036 | 58 | IMG SAN 1M .M | 785 458 | 97 |
| EP NH1 3 TI M10 | 745 018 | 87 | EV TES STK 1500 | 758 085 | 58 | IS 25 ZK RK 3160 | 766 340 | 155 |
| EP NH1 3 VI TA | 745 910 | 85 | EV TES STK 1500 KS | 758 025 | 57 | IS 36 SK 1000 | 766 001 | 22 |
| EP NH4A TI M10 | 745 016 | 87 | EV TS 2000 EK | 758 001 | 57 | IS 36 SK 1500 | 766 002 | 22 |
| EP NH4A VI TA | 745 915 | 85 | EV TS 2000 EZ | 758 003 | 57 | IS 36 SK STK 1000 | 766 100 | 22 |
| ERO BSP ASSM10 1000 STTZN | 644 000 | 74 | EV TS STK 1470 | 758 075 | 58 | IS 36 SQ 1000 | 766 311 | 22 |
| ESOFI G - 1 X 1 | 787 461 | 96 | | | | IS 36 SQ 1000 | 766 311 | 25 |
| ESOFI G - 1 X 2 | 787 462 | 96 | FD 60 MS SN7271 | 785 225 | 108 | IS 36 SQ 1500 | 766 315 | 22 |
| ESOFI G - 1 X 3 | 787 463 | 96 | FEK 4 15 TS FSQ L | 784 755 | 168 | IS 36 SQ 1500 | 766 315 | 25 |
| ESOFI G - 1 X 4 | 787 464 | 96 | FEK4 15 TS FSQ L AB29 | 784 756 | 168 | IS 36 SQ STK 1000 | 766 301 | 23 |
| ESOFI G - 1 X 5 | 787 465 | 96 | FLOW SB FO E P CI WRU SRC 36 | 787 200 | 131 | IS 36 STK 30 1280 | 766 363 | 23 |
| ESOFI G - 1 X 6 | 787 466 | 96 | FLOW SB FO E P CI WRU SRC 37 | 787 201 | 131 | IS 36 STK 30 1280 | 766 363 | 101 |
| ESOFI G - 1 X 7 | 787 467 | 96 | FLOW SB FO E P CI WRU SRC 38 | 787 202 | 131 | IS 36 ZK STK 1300 | 785 325 | 24 |
| ESOFI G - 1 X 8 | 787 468 | 96 | FLOW SB FO E P CI WRU SRC 39 | 787 203 | 131 | IS 72.5 SQ SN7743 | 766 312 | 22 |
| ESOFI G - 1 X 9 | 787 469 | 96 | FLOW SB FO E P CI WRU SRC 40 | 787 204 | 131 | IS 123 SK STK 2000 | 766 122 | 22 |
| ESOFI G - 1 X 10 | 787 457 | 96 | FLOW SB FO E P CI WRU SRC 41 | 787 205 | 131 | IS 123 SQ STK 2000 | 766 322 | 23 |
| ES 3P FL ER | 799 009 | 74 | FLOW SB FO E P CI WRU SRC 42 | 787 206 | 131 | IS 123 SQ STK 2000 | 766 322 | 25 |
| ES4FI G - 1 X 1 | 787 471 | 96 | FLOW SB FO E P CI WRU SRC 43 | 787 207 | 131 | ISK MS QS 6 35 L100 | 700 120 | 98 |
| ES4FI G - 1 X 2 | 787 472 | 96 | FLOW SB FO E P CI WRU SRC 44 | 787 208 | 131 | ISK MS QS 10 50 L100 | 700 121 | 98 |
| ES4FI G - 1 X 3 | 787 473 | 96 | FLOW SB FO E P CI WRU SRC 45 | 787 209 | 131 | ISK MS QS 35 95 L110 | 700 122 | 98 |
| ES4FI G - 1 X 4 | 787 474 | 96 | FLOW SB FO E P CI WRU SRC 46 | 787 210 | 131 | IS M12 AK 635 | 766 328 | 101 |
| ES4FI G - 1 X 5 | 787 475 | 96 | FLOW SB FO E P CI WRU SRC 47 | 787 211 | 131 | IS M12 STK 640 | 766 331 | 101 |
| ES4FI G - 1 X 6 | 787 476 | 96 | FR A10 V2A | 524 910 | 66 | ISMTC N 36 ZK 10600 | 766 037 | 39 |
| ES4FI G - 1 X 7 | 787 477 | 96 | FR A12 V2A | 524 912 | 66 | ISMTC N 36 ZK 10600 | 766 037 | 101 |
| ES4FI G - 1 X 8 | 787 478 | 96 | FR A16 V2A | 524 913 | 66 | ISN 25 STK 900SN7360 | 766 371 | 154 |
| ES4FI G - 1 X 9 | 787 479 | 96 | FRS ZK MS | 785 940 | 105 | ISN 36 SK STK 1000 | 766 111 | 22 |
| ES4FI G - 1 X 10 | 787 459 | 96 | FSG PHE | 767 776 | 99 | ISN 36 SQ STK 1000 | 766 301 | 23 |
| ESE E27 KBI M10 | 745 203 | 88 | FSG PHG2 PHV | 767 777 | 99 | ISN 36 STK 30 1280 | 766 367 | 23 |
| ESE E27 TI M10 | 745 201 | 88 | FWD 35 P NS | 785 592 | 108 | ISN 36 STK 30 1280 | 766 367 | 101 |
| ESE E33 KBI M10 | 745 204 | 88 | | | | ISN 36 STK 930SN7688 | 766 362 | 23 |
| ESE E33 TI M10 | 745 202 | 88 | GL 3.5V 0.2A E10 | 766 605 | 99 | ISN 36 STK 930SN7688 | 766 362 | 101 |
| ESH U 1000 S SB | 785 708 | 135 | GR PAG | 759 799 | 99 | ISN 123 SQ STK 2500 | 766 332 | 23 |
| ESH U 1000 S SO | 785 707 | 135 | | | | ISO M12 STK 30SN7563 | 766 116 | 102 |
| ESH U 1000 S SR | 785 709 | 135 | H AB 32 46 K | 700 098 | 29 | ISP 36 PVC A1... | 763 211 | 95 |
| ESH U 1000 S SW | 785 706 | 135 | HG ZK 230 | 766 393 | 24 | ISP 36 PVC A2... | 763 221 | 95 |
| ESH U 1000 S SY | 785 705 | 135 | HISC 1600 | 785 310 | 108 | ISP 36 PVC A3... | 763 231 | 95 |
| ESP HVS 1500 | 799 006 | 75 | HK 8 NS | 785 648 | 98 | ISP 36 PVC A4... | 763 241 | 95 |
| ESS 3P M10 FM | 799 019 | 74 | HOEL 36 20 1100 | 785 399 | 109 | IS PHE4 STK 700 | 783 900 | 101 |
| ES SK 1000 | 761 010 | 77 | HSA194 110 420 16.7 | 767 542 | 161 | IS PHE4 STK 770 | 783 905 | 101 |
| ES SK 1500 | 761 015 | 77 | HSA 194 110 420 SN7737 | 767 539 | 42 | IS PHE4 STK 1110 | 783 906 | 101 |
| ES SK STK 1000 | 761 001 | 77 | HSA194 110 420 STK | 767 541 | 42 | IS SK12 HK 1720 | 763 710 | 28 |
| ES SK STK 2000 | 761 003 | 77 | HSA205 U 1 420SN7608 | 767 547 | 43 | IS T 36 ZK STK 1300 | 785 315 | 24 |
| ES SQ 1000 | 761 011 | 77 | HSA205 U 1 420 STK | 767 552 | 43 | ISU STK STK 30SN7564 | 766 117 | 102 |
| ES SQ 1500 | 761 016 | 77 | H STK 43 500 | 766 520 | 102 | ISV 36 STK 30 910 | 766 356 | 25 |
| ES SQ STK 1000 | 761 002 | 78 | H STK 43 800 | 766 120 | 102 | ISV 36 STK 30 910 | 766 356 | 102 |
| ES SQ STK 2000 | 761 004 | 78 | HV 3HH | 700 015 | 27 | ISV 36 STK 30 1280 | 766 366 | 25 |
| ESTC PSK 5000 SN7249 | 769 511 | 73 | HV 3HH ET | 700 005 | 27 | ISV 36 STK 30 1280 | 766 366 | 102 |
| ESTC SQL 4000 | 769 400 | 79 | HV 3HH SZ | 700 014 | 27 | ISV 220 ZK 123 SN7739 | 785 311 | 25 |
| ESTC SQL 5000 | 769 500 | 79 | HV 3HH SZ ET | 700 004 | 27 | ISV 220 ZK MS | 785 316 | 25 |
| ESTC SQL H RW 5000 | 769 508 | 166 | HV EKV ES30 | 700 000 | 55 | ISV 320 ZK 123 SN7740 | 785 312 | 25 |
| ESTC SQL RW 3500 | 769 352 | 167 | HV EKV ES30 | 700 000 | 91 | ISV 320 ZK MS | 785 317 | 25 |
| ESTC SQL RW 5000 | 769 502 | 167 | HV EKV ES30 1500 | 700 003 | 55 | ISV 420 ZK 123 SN7741 | 785 313 | 25 |
| ESTC SQL STK 3000 | 769 300 | 79 | HV EKV ES30 1500 | 700 003 | 91 | ISV 420 ZK MS | 785 318 | 25 |
| ESTC SQ STK SN7562 | 769 304 | 78 | HV EKV ES40 | 700 002 | 55 | ISV 820 ZK 123 SN7742 | 785 314 | 25 |
| EST ES 1500 | 769 505 | 79 | HV EKV ES40 | 700 002 | 91 | ISV 820 ZK MS | 785 319 | 25 |
| EST KS SQL 1500 | 769 503 | 79 | HV P ST D24 | 700 006 | 55 | ISV PHE4 43 1100 | 783 945 | 102 |
| EST SK STK 920 | 761 070 | 78 | HV P ST D24 | 700 006 | 91 | ISV SK12 1060 | 763 711 | 28 |
| EST SQL RW 4855 TA | 769 515 | 167 | HV P ST D30 | 700 007 | 55 | IS ZK STK 670 | 766 368 | 39 |
| EST SQ STK 920 | 761 075 | 78 | HV P ST D30 | 700 007 | 91 | IS ZK STK 670 | 766 368 | 101 |
| EST ZS 1500 | 769 504 | 79 | HV P ST D40 45 | 700 008 | 55 | IS ZK STK HS 670 | 766 369 | 101 |
| ES YM2 16 | 716 001 | 68 | HV P ST D40 45 | 700 008 | 91 | IT M12 STK 30 1150 | 766 115 | 102 |
| ES YM2 25 | 725 001 | 68 | HV STK 30 710 | 766 335 | 25 | IT PHE4 STK 760 | 783 920 | 102 |
| ES YM2 35 | 735 001 | 68 | HV STK 30 710 | 766 335 | 102 | IT PHE4 STK 1210 | 783 925 | 102 |
| ES YM2 50 | 750 001 | 68 | HV STK 43 910 | 766 456 | 25 | IT ZK30 STK 30 360 | 766 358 | 102 |
| ES YM2 70 | 770 001 | 68 | HV STK 43 910 | 766 456 | 102 | | | |
| ES YM2 95 | 795 001 | 68 | HV STK 43 975 | 766 077 | 102 | KC-AI-8-36-S | 787 490 | 129 |
| ES YM2 120 | 712 001 | 68 | HV STK 43 1045 | 766 076 | 102 | KC-AI-9-36-S | 787 491 | 129 |
| ES YM2 150 | 715 001 | 68 | HV STK 43 1280 | 766 466 | 25 | KC-AI-10-36-S | 787 492 | 129 |
| EV EH 1725 EK | 758 015 | 57 | HV STK 43 1280 | 766 466 | 102 | KC-AI-11-36-S | 787 493 | 129 |
| EV EHB 1600 SN7114 | 758 028 | 58 | HV STK 43 2350 | 766 073 | 102 | KC-BI-8-36-S | 787 494 | 129 |
| EV EHB STK 1600 | 758 095 | 58 | HVTC STK 4100 SN7359 | 766 469 | 154 | KC-BI-9-36-S | 787 495 | 129 |
| EV TES 465 EK | 758 020 | 57 | | | | KC-BI-10-36-S | 787 496 | 129 |
| EV TES 465 EZ | 758 021 | 57 | | | | KC-BI-11-36-S | 787 497 | 129 |

| Type | Part No. | Page | Type | Part No. | Page | Type | Part No. | Page |
|----------------------|----------|------|-------------------------------|----------|------|----------------------|----------|------|
| KFP 20 M10 | 754 205 | 63 | KL-A-10-36-S | 787 482 | 129 | NHS AG 00 3 NS | 785 645 | 128 |
| KFP 20 M12 35 SSM | 754 235 | 63 | KL-A-11-36-S | 787 483 | 129 | OEK 12 NS | 785 649 | 98 |
| KFP 20 M12 45 SN7078 | 754 238 | 63 | KL-B-8-36-S | 787 484 | 129 | PAP 2 M12 SSM B13 | 728 312 | 74 |
| KFP 20 M12 | 754 200 | 63 | KL-B-9-36-S | 787 485 | 129 | PAP 3 M12 SSM B13 RB | 728 313 | 74 |
| KFP 20 M16 45 SSM | 754 645 | 63 | KL-B-10-36-S | 787 486 | 129 | PAS EK SQ 16 | 771 316 | 72 |
| KFP 20 M16 | 754 600 | 63 | KL-B-11-36-S | 787 487 | 129 | PAV 3+1 16 ZAK | 758 099 | 58 |
| KFP 20 S AL 12 | 706 300 | 63 | KL-C-8-41-S | 787 100 | 130 | PHE3 3 10 S | 767 711 | 37 |
| KFP 20 W45 M12 35SSM | 706 235 | 64 | KL-C-9-41-S | 787 101 | 130 | PHE3 3 10 S ZK | 767 941 | 38 |
| KFP 20 W45 M12 | 706 200 | 64 | KL-C-10-41-S | 787 102 | 130 | PHE3 3 S ZK | 767 903 | 38 |
| KFP 20 W45M12 SN7024 | 706 239 | 64 | KL-C-11-41-S | 787 103 | 130 | PHE3 6 20 S | 767 721 | 37 |
| KFP 20 W45 M16 45SSM | 706 645 | 64 | KL-D-8-41-S | 787 104 | 130 | PHE3 6 20 SL | 767 740 | 37 |
| KFP 20 W45 M16 | 706 600 | 64 | KL-D-9-41-S | 787 105 | 130 | PHE3 6 20 SL ZK | 767 940 | 38 |
| KFP 20 W90 M12 35SSM | 707 235 | 64 | KL-D-10-41-S | 787 106 | 130 | PHE3 6 20 S ZK | 767 951 | 38 |
| KFP 20 W90 M12 | 707 200 | 64 | KL-D-11-41-S | 787 107 | 130 | PHE3 6 S | 767 706 | 37 |
| KFP 20 W90 M16 45SSM | 707 645 | 64 | KL-E-8-41-S | 787 108 | 130 | PHE3 6 S ZK | 767 906 | 38 |
| KFP 20 W90 M16 | 707 600 | 64 | KL-E-9-41-S | 787 109 | 130 | PHE3 10 30 S | 767 731 | 37 |
| KFP 25 M12 25 SSM | 755 225 | 63 | KL-E-10-41-S | 787 110 | 130 | PHE3 10 30 SL | 767 750 | 37 |
| KFP 25 M12 35 SKM | 755 627 | 164 | KL-E-11-41-S | 787 111 | 130 | PHE3 10 30 SL ZK | 767 950 | 38 |
| KFP 25 M12 45 SSM | 755 245 | 63 | KL-F-9-41-S | 787 112 | 130 | PHE3 10 30 S ZK | 767 961 | 38 |
| KFP 25 M12 | 755 200 | 63 | KL-F-10-41-S | 787 113 | 130 | PHE3 10 S | 767 710 | 37 |
| KFP 25 M16 25 | 755 636 | 164 | KL-F-11-41-S | 787 114 | 130 | PHE3 10 S ZK | 767 910 | 38 |
| KFP 25 M16 25 SKM | 755 626 | 164 | KLFP M16 KSS | 795 020 | 83 | PHE3 20 S | 767 720 | 37 |
| KFP 25 M16 45 SKM | 755 646 | 164 | KLT 23 16 4 | 767 500 | 53 | PHE 3 20 S FU 1P | 767 416 | 158 |
| KFP 25 M16 45 SSM | 755 645 | 63 | KLT 101 30 10 | 767 996 | 56 | PHE3 20 S ZK | 767 920 | 38 |
| KFP 25 M16 | 755 600 | 63 | KLT 104 9 | 767 574 | 56 | PHE3 25 S 50 1P | 767 125 | 157 |
| KFP 25 RL 10 | 725 010 | 63 | KLT 121 25 16 | 766 601 | 56 | PHE3 30 S | 767 730 | 37 |
| KFP 25 RL 12 | 725 012 | 63 | KLT 133 34 10 | 766 996 | 56 | PHE3 30 S ZK | 767 930 | 38 |
| KFP 25 RL 14 | 725 014 | 63 | KLT 160 17 | 766 614 | 164 | PHE3 66 16.7S SN7705 | 769 714 | 159 |
| KFP 25 RL 16 | 725 016 | 63 | KLT 247 10 22 | 766 602 | 56 | PHE3 PK6 20 L SB ZK | 767 922 | 39 |
| KFP 25 RL 18 | 725 018 | 63 | KLT 247 10 22 | 766 602 | 164 | PHE3 PK6 20 S SB ZK | 767 921 | 39 |
| KFP 25 RL 20 | 725 020 | 63 | KM AB M10 SN7280 | 745 021 | 88 | PHE3 PK10 30 L SB ZK | 767 932 | 39 |
| KFP 25 S AL 12 | 756 300 | 63 | KR ESH U 1000 | 785 738 | 135 | PHE3 PK10 30 S SB ZK | 767 931 | 39 |
| KFP 25 W45 M12 45SSM | 756 245 | 64 | KS SG BLS 8 | 766 105 | 101 | PHE3S2 60 110 S | 767 980 | 40 |
| KFP 25 W45 M12 | 756 200 | 64 | KS SK A NS VP33XYL | VP33XYL | 83 | PHE3S 20 S ZK | 767 724 | 40 |
| KFP 25 W45 M16 45SSM | 756 645 | 64 | KS SK C NS VHNEFQE | VHNEFQE | 82 | PHE3S60 110S CSN7774 | 769 712 | 40 |
| KFP 25 W45 M16 | 756 600 | 64 | KS SQ A NS VNRLBXU | VNRLBXU | 83 | PHE3S 110 132 S | 767 131 | 159 |
| KFP 25 W90 M12 45SSM | 757 245 | 64 | KS SQ C NS VL2FG28 | VL2FG28 | 82 | PHE3 U 3 30 S | 767 733 | 37 |
| KFP 25 W90 M12 | 757 200 | 64 | KSX SK A MS VANH53Y | VANH53Y | 83 | PHE3 U 3 30 S ZK | 767 960 | 38 |
| KFP 25 W90 M16 45SSM | 757 645 | 64 | KSX SK C MS V5DHK24 | V5DHK24 | 82 | PHE3 U 6 36 S SN7728 | 767 944 | 38 |
| KFP 25 W90 M16 | 757 600 | 64 | KSX SQ A MS VSJ3Y6N | VSJ3Y6N | 83 | PHE4 1 3 S | 783 013 | 34 |
| KK 35 NS | 785 647 | 98 | KSX SQ C MS VV7M6CQ | VV7M6CQ | 82 | PHE4 3.3 11 S | 783 233 | 36 |
| KK 56 41 17 EK HK | 745 953 | 92 | KTST SET 6ZFS GBSW 10M KT | 700 111 | 30 | PHE4 3.3 S | 783 033 | 36 |
| KK 56 41 17 EK VI TI | 745 952 | 84 | KTST SET 6ZFS RTWS 10M KT | 700 110 | 30 | PHE4 3 10 S 60 | 783 332 | 35 |
| KK 56 41 17 EK VI TI | 745 952 | 86 | L71 PS PHE 185 | 767 766 | 100 | PHE4 3 10 S | 783 231 | 34 |
| KKH 20 D SK | 772 330 | 71 | LED APS T AS | 785 829 | 132 | PHE4 3 10 S ZK | 783 141 | 35 |
| KKH 20 D SQ | 772 331 | 71 | LED HL ESH | 785 723 | 135 | PHE4 3 S | 783 003 | 34 |
| KKH 20 FS | 772 312 | 76 | LIGHT SB FO E P CI WRU SRC 36 | 787 220 | 131 | PHE4 3 S ZK | 783 103 | 34 |
| KKH 20 HG | 772 313 | 76 | LIGHT SB FO E P CI WRU SRC 37 | 787 221 | 131 | PHE4 6.6 22 S | 783 243 | 36 |
| KKH 20 SK | 772 310 | 71 | LIGHT SB FO E P CI WRU SRC 38 | 787 222 | 131 | PHE4 6.6 S | 783 066 | 36 |
| KKH 20 SQ | 772 311 | 71 | LIGHT SB FO E P CI WRU SRC 39 | 787 223 | 131 | PHE4 6 20 S 16.7 | 783 420 | 157 |
| KKH 20 SQL | 772 314 | 73 | LIGHT SB FO E P CI WRU SRC 40 | 787 224 | 131 | PHE4 6 20 S 60 | 783 335 | 35 |
| KKH 25 D SK | 772 340 | 71 | LIGHT SB FO E P CI WRU SRC 41 | 787 225 | 131 | PHE4 6 20 S | 783 235 | 34 |
| KKH 25 D SQ | 772 341 | 71 | LIGHT SB FO E P CI WRU SRC 42 | 787 226 | 131 | PHE4 6 20 S ZK | 783 151 | 35 |
| KKH 25 FS | 772 322 | 76 | LIGHT SB FO E P CI WRU SRC 43 | 787 227 | 131 | PHE4 6 S | 783 006 | 34 |
| KKH 25 HG | 772 323 | 76 | LIGHT SB FO E P CI WRU SRC 44 | 787 228 | 131 | PHE4 6 S ZK | 783 106 | 34 |
| KKH 25 SK | 772 320 | 71 | LIGHT SB FO E P CI WRU SRC 45 | 787 229 | 131 | PHE4 10 20 S | 783 240 | 34 |
| KKH 25 SQ | 772 321 | 71 | LIGHT SB FO E P CI WRU SRC 46 | 787 230 | 131 | PHE4 10 30 S 60 | 783 345 | 35 |
| KKH 25 SQL | 772 324 | 73 | LIGHT SB FO E P CI WRU SRC 47 | 787 231 | 131 | PHE4 10 30 S | 783 250 | 34 |
| KKL 92 28 12 | 766 994 | 56 | LK 4 40 TS SQL | 784 352 | 168 | PHE4 10 30 S ZK | 783 161 | 35 |
| KKL 127 28 12 | 766 995 | 56 | MA DCA HR LRM | 767 133 | 53 | PHE4 10 S | 783 010 | 34 |
| KKL DCA | 767 107 | 56 | MA DCA LR LRM | 767 136 | 53 | PHE4 10 S ZK | 783 110 | 34 |
| KKL EKS VI KVS | 745 902 | 84 | MA SDS M12 | 723 199 | 172 | PHE4 11 33 S | 783 255 | 36 |
| KKL EKS VI KVS | 745 902 | 92 | MFB APS | 785 724 | 132 | PHE4 11 S | 783 011 | 36 |
| KKL EKV ÜGK MB | 745 106 | 90 | MFB APS | 785 724 | 133 | PHE4 20 36 S 60 | 783 342 | 35 |
| KKL PHE3 60 110 | 766 998 | 56 | MFB APS | 785 724 | 137 | PHE4 20 36 S | 783 245 | 34 |
| KKL PHE3 | 767 997 | 56 | MO DIGIK AC2 | 766 483 | 24 | PHE4 20 S | 783 020 | 34 |
| KKL PHE3 L | 767 999 | 56 | MO DIGIK AC2 | 766 483 | 154 | PHE4 20 S ZK | 783 120 | 34 |
| KKL PK PHE3 L | 766 036 | 56 | MOMS LORE EUK | 799 100 | 92 | PHE4 22 S | 783 022 | 36 |
| KK M8 0 24 SK 10 | 745 508 | 88 | MZ 1.5 IEC LR6 AL | 766 618 | 99 | PHE4 30 60 S | 783 270 | 35 |
| KKS M8 0 24 SK10 | 745 509 | 90 | MZ 1.5V L91 FR6 LI 4 | 766 611 | 99 | PHE4 30 S | 783 030 | 34 |
| KK TA 0 24 SK10 | 745 503 | 85 | | | | PHE4 30 S ZK | 783 130 | 34 |
| KL-A-8-36-S | 787 480 | 129 | | | | | | |
| KL-A-9-36-S | 787 481 | 129 | | | | | | |

| Type | Part No. | Page | Type | Part No. | Page | Type | Part No. | Page |
|------------------------|----------|------|--------------------|----------|------|-----------------------|----------|------|
| PHE4 33 S | 783 045 | 36 | PSA ESET L OD | 785 904 | 136 | S60 PS PHE 285 | 767 760 | 99 |
| PHE4 60 110 S | 783 275 | 35 | PSA ESET M ID | 785 900 | 136 | S61 PS PHE 435 | 767 761 | 99 |
| PHE4 60 132 S | 783 280 | 35 | PSA ESET M OD | 785 903 | 136 | S62 PS PHE 620 | 767 762 | 99 |
| PHE4 110 132 S 16.7 50 | 783 460 | 160 | PSA ESET S ID | 785 906 | 136 | S63 PS PHE 8CK | 767 768 | 100 |
| PHE4 110 220 S | 783 285 | 35 | PSA ESET S OD | 785 908 | 136 | S63 PS PHE 780 | 767 763 | 99 |
| PHE4 220 420 S | 783 290 | 35 | PSA ESET XL ID | 785 902 | 136 | S64 PS PHE 880 | 767 764 | 99 |
| PHE4 U 2 20 S | 783 520 | 34 | PSA ESET XL OD | 785 905 | 136 | S66 PS PHE 880 | 767 771 | 100 |
| PHE4 U 3.3 33 S | 783 533 | 36 | PS DCA HR LRM | 767 150 | 52 | S66PS PHE880 C SN7771 | 769 701 | 100 |
| PHE4 U 3 30 S | 783 530 | 34 | PSK 4 30 SQL | 784 201 | 73 | S 100 ZK MS | 785 329 | 108 |
| PHE4 U 3 36 S 60 | 783 395 | 35 | PSK 4 30 SQL EH | 784 401 | 73 | SAG DCA A LRM | 767 112 | 51 |
| PHE4 U 6.6 11 S | 783 511 | 36 | PSK 10 32 SQL | 784 032 | 73 | SAG DCA P HR GA | 767 101 | 50 |
| PHE4 U 6 20 S 16.7 50 | 783 430 | 157 | PSK 10 32 SQL SB | 784 038 | 73 | SAG DCA P LRM GA | 767 102 | 50 |
| PHE4 U 6 36 S | 783 536 | 34 | PSK 10 65 SQL | 784 301 | 73 | SA KLFP SQ SK | 795 212 | 83 |
| PHE 6 20 S 16.7 1P | 767 415 | 158 | PSK 10 65 SQL EH | 784 501 | 73 | SAK PFE ARA | 792 455 | 168 |
| PHE 15 16.7 4T TA | 766 616 | 156 | PSK 10 85 SQL | 784 085 | 73 | SAK PFE ARA AB29 | 792 456 | 168 |
| PHE 15 16.7 6T TA | 766 617 | 156 | PSK FV 4 30 SQL | 784 480 | 73 | SAK PFE KN | 792 450 | 168 |
| PHE 15 16.7 BEL STK | 767 413 | 158 | PSO M8 PHE | 766 916 | 54 | SAK PFE KN AB29 | 792 451 | 168 |
| PHEG1 FD M SN7223 | 767 614 | 163 | PSO M8 PHE L800 | 766 960 | 54 | SB ESH U 1000 | 785 739 | 135 |
| PHEG1 FD P 3 | 767 610 | 163 | PSO M8 W25 PHE | 766 940 | 54 | SBKL EKS TI KVS 2F | 766 298 | 86 |
| PHEG1 S P SN7240 | 767 636 | 44 | PSO M8 W45 PHE | 766 941 | 54 | SBKL EKS TI KVS 2F | 766 298 | 92 |
| PHEG1 S P SN7240 | 767 636 | 162 | PSO M8 W90 PHE | 766 950 | 54 | SBKL EKS TI KVS | 766 300 | 86 |
| PHEG1.S P SN7401 | 767 666 | 44 | PSS DII | 745 109 | 90 | SBKL EKS TI KVS | 766 300 | 92 |
| PHEG1.S P SN7401 | 767 666 | 162 | PV DCA PC LRM | 767 132 | 52 | SBKL EKS VI KVS | 745 900 | 84 |
| PHEG2 P SN7194 | 767 637 | 44 | PV DCA PC LRM T | 767 139 | 53 | SBKL EKS VI KVS | 745 900 | 92 |
| PHEG2 P SN7194 | 767 637 | 163 | | | | SCH A10.5 V4A | 525 910 | 66 |
| PHEG2 P SN7259 | 767 645 | 44 | RBK 25 SQ SN7151 | 715 314 | 72 | SCH A13 V4A | 525 912 | 66 |
| PHEG2 P SN7259 | 767 645 | 163 | RBK 26 SQ SN7255 | 715 315 | 72 | SCH A17 V2A | 525 916 | 66 |
| PHEG2 P SN7346 | 767 639 | 163 | RBK 30 SQ SN7642 | 715 313 | 72 | SCS 36 1000 | 763 610 | 26 |
| PHEG2 P SN7407 | 767 640 | 44 | RBK 35 SQ | 715 312 | 72 | SCS 36 1500 | 763 611 | 26 |
| PHEG2 P SN7407 | 767 640 | 163 | REB 25055 ZK MS | 785 169 | 108 | SCS 36 2000 | 763 612 | 26 |
| PHEG2.P SN7517 | 767 671 | 44 | RED E27 E14 ÜGK MB | 745 108 | 90 | SCS 36 STK 1000 | 763 100 | 26 |
| PHEG2.P SN7517 | 767 671 | 163 | RK 230 100 AS25 | 766 056 | 155 | SCS 72 1500 | 763 615 | 26 |
| PHEG2 P SN7552 | 767 647 | 44 | R KIT APS ... SC | 785 828 | 132 | SCS 72 2000 | 763 620 | 26 |
| PHEG2 P SN7552 | 767 647 | 163 | RP 250 115 20 | 766 057 | 155 | SCS 72 3000 | 763 630 | 26 |
| PHG2 6 | 766 706 | 39 | RSI 32 | 785 213 | 108 | SCSN 36 STK 1000 | 763 111 | 26 |
| PHG2 10 | 766 710 | 39 | RSI 34 | 785 214 | 108 | SDS 1 | 923 110 | 172 |
| PHG2 20 | 766 720 | 39 | RSI 35 | 785 215 | 108 | SDS 2 | 923 117 | 172 |
| PHV1P 6 12 | 759 706 | 48 | RSI 38 | 785 216 | 108 | SDS 3 | 923 116 | 172 |
| PHV1P 10 20 | 759 712 | 48 | RSI 45 | 785 217 | 108 | SDS 4 | 923 118 | 172 |
| PHV1P 20 36 | 759 736 | 48 | RSI 51 | 785 218 | 108 | SDS 5 | 923 119 | 172 |
| PHV1P U 5 36 | 759 716 | 48 | RSI 58 | 785 219 | 108 | SE E14 | 785 639 | 28 |
| PSA ESET 2XL ID | 785 907 | 136 | RST 36 1000 | 766 040 | 26 | SE E18 | 785 650 | 28 |
| PSA ESET 2XL OD | 785 909 | 136 | RST 36 1500 | 766 041 | 26 | SE E27 E33 | 785 640 | 28 |
| PSA ESET KONFI ID | 785 960 | 136 | RST 36 2000 | 766 042 | 26 | SE NH00 | 785 641 | 28 |
| PSA ESET KONFI OD YE | 785 961 | 137 | RST 72.5 1500 | 766 043 | 26 | | | |
| PSA ESET L ID | 785 901 | 136 | | | | | | |

| Type | Part No. | Page | Type | Part No. | Page | Type | Part No. | Page |
|----------------------|----------|------|-----------------|----------|------|--------------|----------|------|
| SE NH0 | 785 642 | 28 | TFRS MS | 785 950 | 107 | WJP HP 13 | 786 721 | 141 |
| SE NH1 | 785 643 | 28 | TG DCA | 767 110 | 50 | WJP O 3XL | 786 756 | 140 |
| SE NH2 3 | 785 644 | 28 | TRS MS | 785 100 | 106 | WJP O AP 3XL | 786 766 | 140 |
| SE REG 1TE | 785 638 | 29 | TRS MS V1 | 785 112 | 106 | WJP O AP L | 786 763 | 140 |
| SE REG 2TE | 785 652 | 29 | TRS NS | 785 502 | 105 | WJP O AP M | 786 762 | 140 |
| SE REG 3TE | 785 637 | 29 | | | | WJPO AP S | 786 761 | 140 |
| SET DIGIK AC2 | 766 480 | 24 | UEK 25 FS | 774 034 | 75 | WJP O AP XL | 786 764 | 140 |
| SET DIGIK AC2 | 766 480 | 154 | UEK 25 HG | 774 234 | 76 | WJP O AP XXL | 786 765 | 140 |
| SKL 95 21 10 | 767 701 | 56 | UEK 25 SKN | 774 434 | 76 | WJP O B 3XL | 786 716 | 142 |
| SKS M10X30 V2A | 561 924 | 66 | UEK 30 FS | 774 130 | 75 | WJP O B L | 786 713 | 142 |
| SKS M12X25 V2A | 561 925 | 66 | UEK 30 HG | 774 330 | 76 | WJP O B M | 786 712 | 142 |
| SKS M12X30 V2A | 561 930 | 66 | UEK 30 SKN | 774 530 | 76 | WJPO B S | 786 711 | 142 |
| SKS M12X35 V2A | 561 935 | 66 | UK 25 SK | 773 034 | 71 | WJP O B XL | 786 714 | 142 |
| SKS M16X30 V2A | 561 931 | 66 | UK 25 SQ | 773 234 | 71 | WJP O B XXL | 786 715 | 142 |
| SPBCLPS | 782 097 | 148 | UK 25 SQL | 773 236 | 74 | WJP OC 3XL | 786 746 | 140 |
| SPG DCA IT LRM | 767 122 | 51 | UK 30 SK | 773 130 | 71 | WJP OC L | 786 743 | 140 |
| SPN 500B | 766 660 | 45 | UK 30 SQ | 773 330 | 71 | WJP OC M | 786 742 | 140 |
| SPN 1000 A | 700 100 | 46 | UK 30 SQL | 773 331 | 74 | WJP OC S | 786 741 | 140 |
| SPN 1000B | 766 665 | 45 | UK K25 FL30 HG | 774 251 | 168 | WJP OC XL | 786 744 | 140 |
| SPN 1200 D | 700 102 | 46 | UK K25 FL30 SQL | 773 251 | 168 | WJP OC XXL | 786 745 | 140 |
| SRH 1180 IS 650 MS | 785 119 | 108 | | | | WJPO H | 786 770 | 140 |
| SSK 36 STK 560 | 766 164 | 23 | VH FS APS T AS | 785 827 | 132 | WJP O L | 786 753 | 140 |
| SSK 36 STK 560 | 766 164 | 100 | VH SC APS T AS | 785 820 | 132 | WJP O LP 3XL | 786 786 | 140 |
| SSK 36 STK 930SN7689 | 766 169 | 100 | VL HOEL 20 500 | 785 398 | 109 | WJP O LP L | 786 783 | 140 |
| SSK M12 | 765 005 | 22 | VPG90 | 787 000 | 129 | WJP O LP M | 786 782 | 140 |
| SSK M12 | 765 005 | 100 | VPG90 | 787 000 | 130 | WJP O LP S | 786 781 | 140 |
| SSK SQ | 765 009 | 23 | VS 500 SPN II | 766 542 | 45 | WJP O LP XL | 786 784 | 140 |
| SSK SQ | 765 009 | 100 | | | | WJP O LP XXL | 786 785 | 140 |
| STB 80 ZK MS | 785 159 | 108 | WBN 200 2,5M NS | 785 646 | 97 | WJP O M | 786 752 | 140 |
| STT 55 27 30 | 785 111 | 92 | WHS AS BSZFUV | 700 059 | 30 | WJPO S | 786 751 | 140 |
| STT 55 27 30 | 785 111 | 108 | WHS AS SV | 700 058 | 30 | WJP O XL | 786 754 | 140 |
| STT 55 27 30 | 785 111 | 166 | WHS AS ZFUV | 700 060 | 30 | WJP O XXL | 786 755 | 140 |
| STT 110 15 | 769 509 | 167 | WJP FP 39 40 | 786 722 | 141 | | | |
| STT 120 30 15 | 766 704 | 164 | WJP FP 41 42 | 786 723 | 141 | ZK55 IS | 771 230 | 89 |
| STT 180 20 | 766 039 | 101 | WJP FP 43 44 | 786 724 | 141 | ZK55 IS BL | 771 231 | 89 |
| SZ HH 1060 | 765 040 | 27 | WJP FP 45 46 | 786 725 | 141 | ZK85 BS | 771 232 | 89 |
| SZ HH 1250 | 765 041 | 27 | WJP HFP SET | 786 726 | 142 | ZK85 BS BL | 771 233 | 89 |
| SZ HH 1500 | 765 042 | 27 | WJP HP 9 | 786 717 | 141 | | | |
| SZ HH W20 1070 | 765 050 | 27 | WJP HP 10 | 786 718 | 141 | | | |
| SZ HH W20 1250 | 765 051 | 27 | WJP HP 11 | 786 719 | 141 | | | |
| SZ HH W20 1500 | 765 052 | 27 | WJP HP 12 | 786 720 | 141 | | | |

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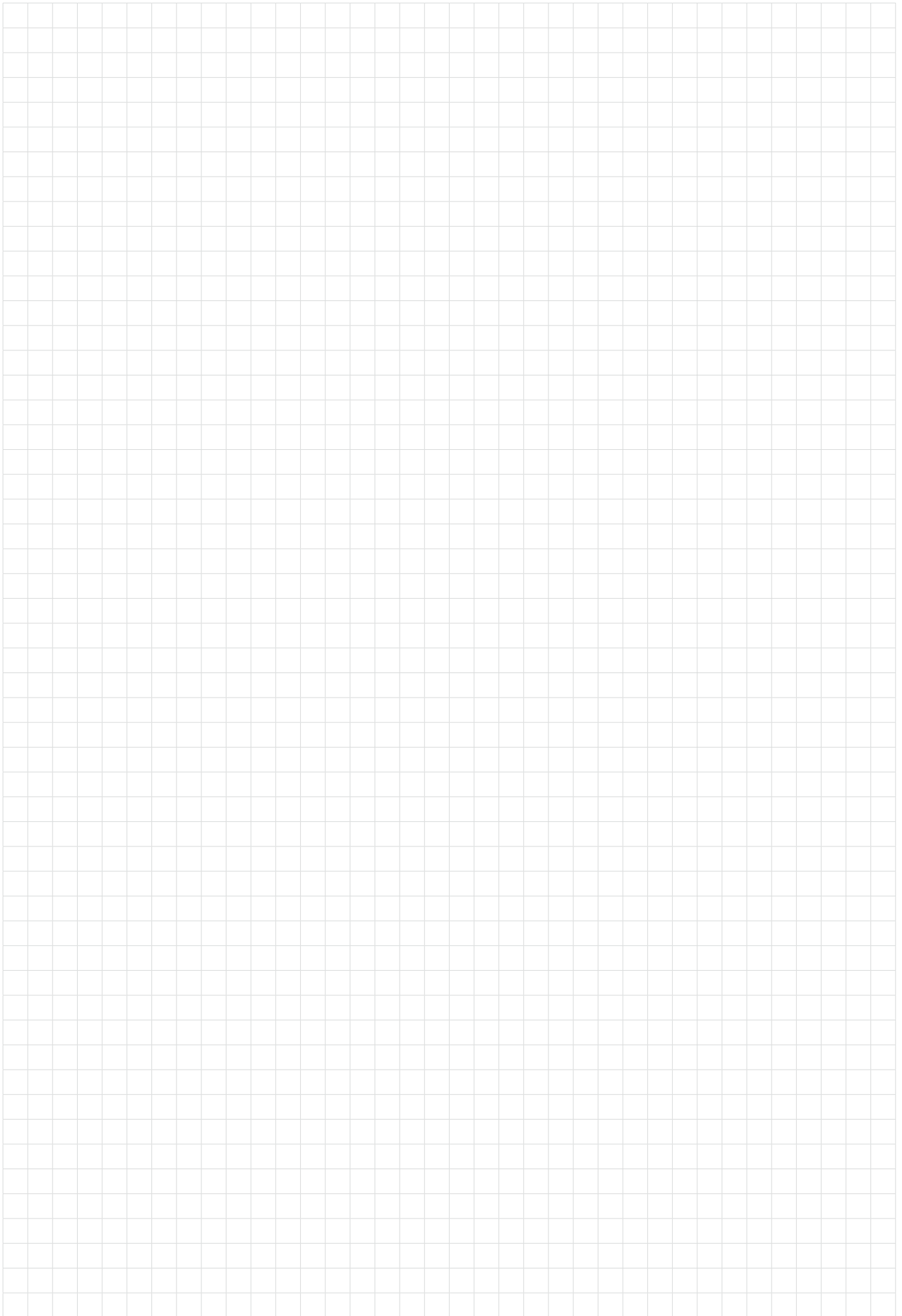
* GTIN (EAN-Code)

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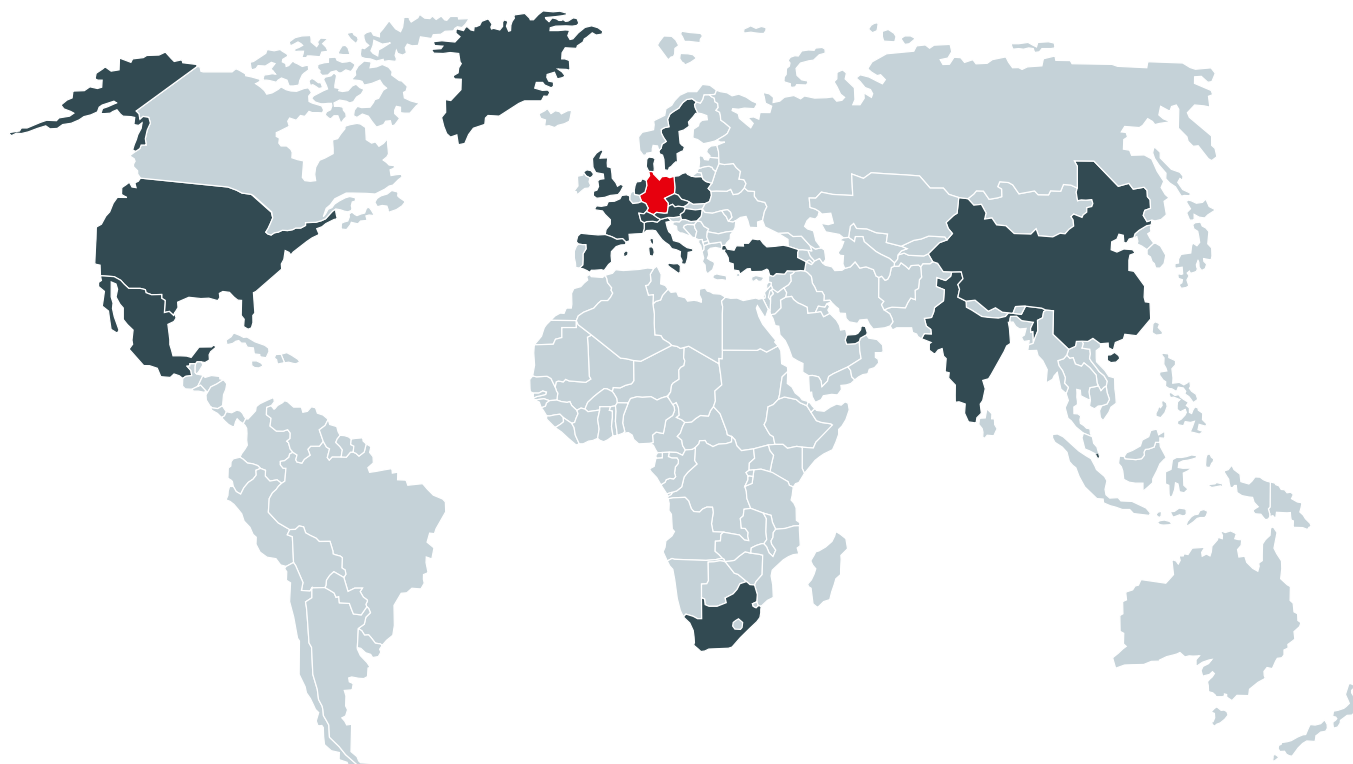
Abbreviations:

| | |
|---------------|---|
| PG | Product Group |
| PU | Packing Unit |
| SU | Sales Unit (piece, meter, millimeter, kilogram, grams, liter, kit or pair) |
| pc(s) | Piece |
| m | Meter |
| mm | Millimeter |
| kg | Kilogram |
| g | Grams |
| Ltr | Liter |
| Pa | Pair |
| Pak | Kit |
| Weight | Weight per sales unit |



| Product | Page | Product | Page | Product | Page |
|---|----------|--|------|---|----------------|
| Accessory for NS and MS Cleaning Kits Adapter | 108 | Earthing and Short-Circuiting Devices for Railway Applications | 169 | Phase Connecting Elements for Switchgear Installations | 70 |
| Adapters and End Fittings | 55 | Earthing Handle for Low-Voltage Installations | 91 | PHE III Voltage Detector | 37 |
| Arc Fault Protection System | 145 | Earthing Kit | 74 | PHE III Voltage Detector * | 157 |
| Artificial Leather Bag | 56 / 164 | Earthing Spike | 75 | PHE III Voltage Detector Kit | 40 |
| ASP Non-Contact Voltage Detector Kit | 41 | Earthing Sticks for Overhead Lines | 78 | PHE III Voltage Detector Kit * | 159 |
| ASP Non-Contact Voltage Detector Kit * | 160 | Earthing Sticks for Railway Applications | 167 | PHE III ZK Indicator with Test Prod | 38 |
| Balaclava | 133 | Earthing Sticks for Switchgear Installations | 77 | PHE Voltage Detector * | 158 |
| Barrier and Accessories | 29 | EaS Configurator: Easy online configuration | 79 | PHE Voltage Detector Kit * | 156 |
| Canvas Bag | 92 / 164 | EaS Devices (fully insulated) for Low-Voltage Cable Distribution Cabinets | 84 | PHE/G DC Voltage Detector | 44 |
| Chain post set | 30 | EaS Devices (partly insulated) for Low-Voltage Cable Distribution Cabinets | 86 | PHE/G DC Voltage Detector * | 162 |
| DEHN - Informative | 5 | Electrodes | 54 | PHE4 Voltage Detector | 36 |
| DEHNcap HR-LRM Test Kit | 52 | E-mobility warning signs | 30 | (British Influenced Voltage Level) | 36 |
| DEHNcap Test Adapter | 53 | ESH U S Safety Helmet for Electricians | 135 | PHE4 Voltage Detector High Voltage | 35 |
| DEHNcap/A Voltage Indicator | 51 | Extensions | 102 | PHE4 Voltage Detector High Voltage * | 160 |
| DEHNcap/IT Interface Test Unit | 51 | Fastening Material | 66 | PHE4 Voltage Detector Medium Voltage | 34 |
| DEHNcap/P Voltage Indicator | 50 | Fixed Ball Points | 63 | PHE4 Voltage Detector Medium Voltage * | 157 |
| DEHNcap/PC-LRM Phase Comparator | 52 | Fixed Ball Points * | 164 | PHG II Voltage Detector | 39 |
| DEHNcare - Personal Protective Equipment - Size charts | 143 | Fixed Earthing Points | 65 | Plastic Bag / Rucksack | 137 |
| DEHNcare APG | 128 | FRS ZK MS Damp Cleaning Kit | 105 | Plastic Bag / Rucksack | 137 |
| DEHNcare APG XT | 126 | Hand Oiler for Switchgear Installations | 109 | Plastic Case | 56 / 92 |
| DEHNcare APHO | 134 | Handle | 102 | PRACTICAL Additional Information | 8 |
| DEHNcare APS with Active Protection | 132 | HSA 194 High-Voltage Indicator | 42 | Quenching Device QD II | 149 |
| DEHNcare APS with headgear | 133 | HSA 194 High-Voltage Indicator * | 161 | Reliable protection when working with high-pressure water jets up to 1000 bar | 139 |
| DEHNcare APS with Lever | 134 | HSA 205 High-Voltage Indicator | 43 | RST Rescue Rods | 26 |
| DEHNcare ArcClassic | 125 | Ice Removal Rod | 154 | Safe working on electric railways | 151 |
| DEHNcare ArcFit HLP 63 / 124 | 114 | Insulated mats 1,000 V and 36 kV | 96 | Safety shoes with insulating soles up to 1,000 V | 131 |
| DEHNcare ArcFit Indoor | 117 | Insulating blankets up to 1,000 V | 97 | SCS Switching Sticks | 26 |
| DEHNcare ArcFit Outdoor | 117 | Insulating caps up to 1,000 V | 98 | Services | 9 |
| DEHNcare PPE sets - Indoor and Outdoor | 136 | Insulating Elements | 102 | Sheet Steel Case | 56 / 92 |
| DEHNcare UnderWear | 123 | Insulating Elements | 102 | Short-Circuiting Bar | 82 |
| DEHNcare WJP Head Protection Set | 142 | Insulating gloves up to 1,000 V | 128 | Single-pole PHV I Phase Comparator | 48 |
| DEHNcare WJP Protective Gloves | 141 | Insulating gloves up to 36 kV | 130 | Spare Parts | 99 |
| DEHNcare WJP Protective Overall „Advanced“ | 140 | Insulating mats with dielectric strength 50 kV | 97 | STANDARDS | 5 |
| DEHNcare WJP Protective Overall „Basic“ | 142 | Insulating Protective Shutters | 93 | Storage Devices | 55 / 91 |
| DEHNcare WJP Protective Socks | 141 | Insulating Stick Kit for Cleaning the Windscreens of Electric Locomotives | 155 | SZ Fuse Tongs | 27 |
| DEHNproX - Safe working on electrical installations | 19 | Insulating Stick with Crank Handle | 28 | Test Probes | 54 |
| DEHNshort - Active Arc Fault Protection System | 147 | Insulating Sticks | 101 | Test Prods | 99 |
| DEHNshort - Arc Fault Protection System | 145 | IS Insulating Sticks | 22 | Test unit for DEHNcap/P | 50 |
| Design of Phase Comparators | 47 | Kits for Railway Applications | 165 | TFRS MS Combined Cleaning Kit | 107 |
| Design of Voltage Detectors | 33 | Line Clamp | 168 | TRS MS Dry Cleaning Kit | 106 |
| Discharge and Equipotential Bonding Devices | 57 | Live working | 103 | TRS NS Dry Cleaning Kit | 105 |
| Earth Connecting Elements for Railway Applications | 168 | Lock-Out Systems | 28 | Two-pole SPN voltage detector for power supply | 45 |
| Earth Connecting Elements for Switchgear Installations and Overhead Lines | 75 | MicroΩmeter LoRe EaS | 92 | Two-pole SPN voltage detector for the electrical trade and industry | 46 |
| Earth Connecting Plates | 67 | Operating Heads | 100 | Universal Clamp | 71, 74, 75, 76 |
| Earth Connecting Plates * | 165 | Personal Protective Equipment | 111 | Voltage Limiting Devices | 171 |
| Earthing and Short-Circuiting Device for Street Lighting Systems | 90 | Personal Protective Equipment against High-pressure Water Jets | 138 | Wireless Inspection Camera | 24 / 154 |
| Earthing and Short-Circuiting Devices | 60 | Phase Connecting Elements for Overhead Lines | 72 | | |
| Earthing and Short-Circuiting Devices (unequipped) | 67 | Phase Connecting Elements for Railway Applications | 168 | | |
| Earthing and Short-Circuiting Devices for Crane Conductor Bars | 89 | | | | |

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