



# **LIVE WORKING**

Tools and equipment. Catalogue 2014.























#### **Dear Customers**

A new edition of our product catalogue coincides with the celebration of 30 years of business and is the opportunity to recall the most significant events involving a design and implementation of live working tools and equipment, allowing development of new live working technologies. In cooperation with the Energy Training Centres in Poland we have developed several unique live working tools and equipment which have been implemented in Polish power industry:

- Dry cleaning systems for live LV (up to 1 kV) devices.
- Dry and wet cleaning systems for live MV (up to 36 kV) devices.
- Tools for tightening screw joints on live MV (up to 36 kV) devices.

We have also implemented products and technologies awarded at the International Power Industry Trade Fair ENERGATAB, including:

- Method of live working on LV (up to 1 kV) cables and switchgear - the Cup of the President of the Polish Power Transmission and Distribution Organisation - ENERGTAB 2000
- Implementing lot production of tools and equipment for MV (up to 36 kV) live working - the Kazimierz Szpotański Award - ENERGETAB 2003
- Impregnate refilling technology for live MV cable terminations Bronze Medal, ENERGETAB 2004 in cooperation with ZIAD Bielsko-Biała
- Implementing production technology for LV (up to 1 kV) live working insulating tools - the Cup of the Minister of Economy - ENERGATAB 2006
- Implementing production of SECRA insulating safety helmet with integrated face shield The Cup of the Minister of Economy ENERGATAB 2010 and the Award of the Minister of Labour and Social Policy in the 39th Competition to Improve Work Safety Conditions in 2012.

The company have implemented a PN ISO 9001:2009 Quality Management System, HUBIX is also a member of the Technical Committee No. 72 of the Polish Standardization Committee and the Board of the Work Safety Committee

in Electrical Engineering within the Association of Polish Electrical Engineers.

Within the last ten years HUBIX obtained author's certificates for 4 patents and 8 national and European designs for offered products.

We are proud to recommend our latest product - SECRA 2 insulating safety helmet, the first safety helmet in the world to have an integrated Class 2 arc resistant face shield. It was filed as a European, Canadian and US patent. Increased activity on the Polish market also resulted in introduction of many products on the foreign markets, including: Czech Republic, Slovak Republic, Lithuania, Latvia, Russia, Germany, France, Spain, Portugal, Italy, Finland, Greece, Romania, Great Britain, Saudi Arabia, United Arab Emirates, Israel, Slovenia, Croatia.

We hope the information contained in the Product Catalogue will help you choose proper tools and equipment to guarantee the highest quality, usability, and most of all safety of live working. The new layout meets the factual and visual requirements of our Clients.

We hope you will be satisfied with the level of service we provide.

Yours sincerely

Jerzy Nowikow, MSc (Eng)

**HUBIX Founder and Chief Executive** 

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## **LOW VOLTAGE** Tools and equipment for live working up to 1kV

#### **Tools**

Equipment

Dry cleaning set

Personal protective equipment and selected equipment for safety working on poles

Sets up to 1kV



on overhead lines



on cable lines and switchgear connecting boxes



#### **INSULATING HOLDER FOR CONNECTORS**

IEC 60900:2012

Totally made of insulating material, polyamide with the addition

#### **CLAMP DEVICE FOR SCREW** CONNECTORS

IEC 60900:2012

Tool is made of stainless steel. Single insulation layer, orange made of plastisol.







REFERENCE	SIZE	LENGTH	WEIGHT
НС	13mm	210mm	120g





REFERENCE	CROSS SECTION	LENGTH	WIEGHT
H106	35-240mm <sup>2</sup>	300mm	525g









#### **HEX. MALE WRENCH No 6**

IEC 60900:2012

Insert made of CrV steel. Handle is totally made of insulating material, polyamide with the addition of fiberglass.

# RING SPANNER FOR INSULATION PIERCING CONNECTORS

IEC 60900:2012

Insert is made of CrV steel. Handle is totally made of insulating material, polyamide with the addition of fiberglass.





REFERENCE	SIZE	ARM LENGTH	WEIGHT
HI-5*	5mm	160mm	50g
HI-6	6mm	160mm	55g







REFERENCE	SIZE	LENGTH	WEIGHT
HOZ-13	13mm	220mm	120g









#### **INSULATED TORQUE WRENCH 1/2"**

IEC 60900:2012

Insulated tool, made of CrV steel. Isolation made of an elastomer and polyamide with the addition of fiberglass. Black handle made of insulating material. Capacity: 7,5 Nm to 55 Nm. Scaling protocol is provided.

#### **REVERSIBLE RATCHET ½" SQUARE DRIVE**

IEC 60900:2012

Insulated tool, made of CrV steel. Insulation made of polyamide with the addition of fiberglass. Black handle part made of insulating material. Direction change switch.







REFERENCE	LENGHT	WEIGHT
HD	360mm	740g







REFERENCE	LENGHT	WIEGHT
HG	230mm	665g









#### **CROSS SOCKET WRENCH**

IEC 60900:2012

4-socket end, galvanically separated, made of CrV steel. Handle is made of insulating material, polyamide with the addition of fiberglass.

#### **TUBULAR SOCKET WRENCH 1/2"**

IEC 60900:2012

Insulated tool, made of CrV steel. Two insulation layers, white and  $\,$ orange made of plastisol. Single layer of insulation in the tubular  $\operatorname{part}.$  Used for loosening or tightening screws in fuse bases.





REFERENCE	SIZES OF INSERTS	ARM LENGTH	WEIGHT
HK 6x8x10x12	6x8x10x12mm	150mm	225g
HK 7x9x11x13	7x9x11x13mm	150mm	230g
HK 8x10x12x14	8x10x12x14mm	150mm	235g
HK 8x10x13x17	8x10x13x17mm	150mm	275g
HK 10x13x14x17	10x13x14x17mm	150mm	280g
HK 10x13x17x19	10x13x17x19mm	150mm	290g
HK 13x14x16x17	13x14x16x17mm	150mm	290g
HK 13x16x17x19	13x16x17x19mm	150mm	310g





REFERENCE	SIZE	LENGHT	WIEGHT
HKR-10	10mm	92mm	110g
HKR-13	13mm	92mm	120g
HKR-14	14mm	92mm	125g
HKR-17	17mm	92mm	130g
HKR-19	19mm	92mm	140g

Other sizes on demand.











### DRIVE HANDLE "L" ½"

IEC 60900:2012

Insert made of CrV steel. Handle is totally made of insulating material, polyamide with the addition of fiberglass.

#### DRIVE HANDLE "T" ½"

IEC 60900:2012

Insert made of CrV steel. Handle is totally made of insulating material, polyamide with the addition of fiberglass.





REFERENCE	ARM LENGTH	WEIGHT
HL	230mm	170g







REFERENCE	ARM LENGTH	WEIGHT
нт	115mm	180g









#### **INSULATED EXTENSION BAR 1/2"**

IEC 60900:2012

Tool made of CrV steel. Insulation made of polyamide with the addition of fiberglass.







REFERENCE	LENGTH	WEIGHT
HPN-125	135mm	170g
HPN-250	265mm	300g





#### SHORT SOCKET WRENCH 1/2"

IEC 60900:2012

Insulated tool, made of CrV steel. Insulation made of polyamide with the addition of fiberglass.







REFERENCE	SIZE	LENGTH	WIEGHT
HN-8	8mm	55mm	50g
HN-10	10mm	55mm	55g
HN-11	11mm	55mm	55g
HN-12	12mm	55mm	55g
HN-13	13mm	55mm	60g
HN-14	14mm	55mm	60g
HN-15	15mm	55mm	65g
HN-16	16mm	55mm	70g
HN-17	17mm	55mm	75g
HN-18	18mm	55mm	<b>75</b> g
HN-19	19mm	55mm	80g
HN-22	22mm	55mm	100g
HN-24	24mm	55mm	110g
HN-27	27mm	60mm	160g

#### SHORT SOCKET WRENCH 1/2"

IEC 60900:2012

Insulated tool, made of CrV steel. Two insulation layers, white and  $\,$ orange, made of plastisol.







REFERENCE	SIZE	LENGTH	WEIGHT
HN-30	30mm	90mm	210g
HN-32	32mm	90mm	245g











#### LONG SOCKET WRENCH 1/2"

IEC 60900:2012

Insulated tool, made of CrV steel. Insulation made of polyamide with the addition of fiberglass .  $\,$ 

Insulated tool, made of CrV steel. Two insulation layers, white and  $\,$ orange, made of plastisol.







REFERENCE	SIZE	LENGTH	WEIGHT
HNL-8	8mm	92mm	115g
HNL-10	10mm	92mm	125g
HNL-11	11mm	92mm	130g
HNL-12	12mm	92mm	135g
HNL-13	13mm	92mm	135g
HNL-14	14mm	92mm	140g
HNL-15	15mm	92mm	140g
HNL-16	16mm	92mm	145g
HNL-17	17mm	92mm	150g
HNL-18	18mm	92mm	160g
HNL-19	19mm	92mm	165g
HNL-22	22mm	92mm	250g
HNL-24	24mm	92mm	270g
HNL-27	27mm	92mm	350g



IEC 60900:2012





LONG SOCKET WRENCH 1/2"

REFERENCE	SIZE	LENGTH	WEIGHT
HNL-30	30mm	90mm	330g
HNL-32	32mm	90mm	375g











#### SPECIAL LONG SOCKET WRENCH 1/2"

IEC 60900:2012

Insulated tool, made of CrV steel. Insulation made of polyamide with the addition of fiberglass.

### SPECIAL LONG SOCKET WRENCH 1/2"

IEC 60900:2012

Insulated tool, made of CrV steel. Two insulation layers, white and  $\,$ orange, made of plastisol.





REFERENCE	SIZE	LENGTH	WEIGHT
HNLS-8	8mm	92mm	115g
HNLS-10	10mm	92mm	125g
HNLS-11	11mm	92mm	130g
HNLS-12	12mm	92mm	135g
HNLS-13	13mm	92mm	135g
HNLS-14	14mm	92mm	140g
HNLS-15	15mm	92mm	140g
HNLS-16	16mm	92mm	145g
HNLS-17	17mm	92mm	150g
HNLS-18	18mm	92mm	160g
HNLS-19	19mm	92mm	165g
HNLS-22	22mm	92mm	250g
HNLS-24	24mm	92mm	270g
HNLS-27	27mm	92mm	350g





REFERENCE	SIZE	LENGTH	WEIGHT
HNLS-30	30mm	90mm	330g
HNLS-32	32mm	90mm	375g









#### **NUT SPINNER**

IEC 60900:2012

Tool made of C45 steel. Insulation made of polyethylene.

#### **ALLEN WRENCH "T"**

IEC 60900:2012

Insulated tool, made of CrV steel. Insulation made of polyamide with the addition of fiberglass.





REFERENCE	SIZE	LENGTH	WEIGHT
RWSN 5	5mm	230mm	105g
RWSN 7	7mm	230mm	110g
RWSN 8	8mm	230mm	110g
RWSN 10	10mm	230mm	120g
RWSN 13	13mm	245mm	185g





REFERENCE	SIZE	LENGTH	WEIGHT
HTI-6	6mm	115mm	110g
HTI-8	8mm	115mm	120g









#### **ALLEN SHORT SOCKET WRENCH 1/2"**

IEC 60900:2012

Insulated tool, made of CrV steel. Insulation made of polyamide with the addition of fiberglass.

#### ALLEN SHORT SOCKET WRENCH 1/2"

IEC 60900:2012

Insulated tool, made of CrV steel. Two insulation layers, white and  $\,$ orange made of plastisol.







REFERENCE	SIZE	LENGTH	WEIGHT
HNI-4	4mm	105mm	75g
HNI-5	5mm	105mm	75g
HNI-6	6mm	105mm	80g
HNI-7 *	7mm	105mm	85g
HNI-8	8mm	105mm	85g
HNI-9 *	9mm	105mm	100g
HNI-10	10mm	105mm	105g

<sup>\* -</sup> Special version.







REFERENCE	SIZE	LENGTH	WEIGHT
HNI-11	11mm	105mm	120g
HNI-12	12mm	105mm	128g
HNI-13	13mm	105mm	145g
HNI-14	14mm	105mm	155g
HNI-17	17mm	105mm	185g







#### ALLEN LONG SOCKET WRENCH 1/2"

#### IEC 60900:2012

Insulated tool, made of CrV steel. Insulation made of polyamide with the addition of fiberglass.

#### **ALLEN LONG SOCKET WRENCH 1/2"**

IEC 60900:2012

Insulated tool, made of CrV steel. Two insulation layers, white and  $\,$ orange, made of plastisol.





REFERENCE	SIZE	LENGTH	WEIGHT
HNIL-4	4mm	155mm	84g
HNIL-5	5mm	155mm	88g
HNIL-6	6mm	155mm	95g
HNIL-8	8mm	155mm	115g
HNIL-10	10mm	155mm	140g

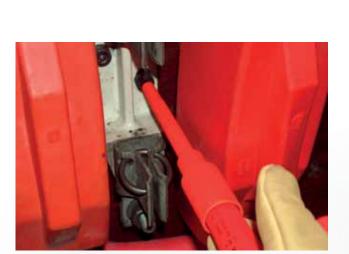




REFERENCE	SIZE	LENGTH	WEIGHT
HNIL-12	12mm	155mm	185g
HNIL-13	13mm	155mm	210g
HNIL-14	14mm	155mm	240g
HNIL-17 *	17mm	155mm	290g
HNIL-19 *	19mm	155mm	310g

<sup>\* -</sup> Special version.







#### **CABLE WIRES CUTTER**

IEC 60900:2012

Two insulation layers, white and orange, made of plastisol. Cutter can be used to cut the live wire (Al, Cu).

#### **RATCHET CABLE WIRES CUTTER**

IEC 60900:2012

Two insulation layers, white and orange, made of plastisol. Cutter can be used to cut the live wires (Al, Cu).

#### Do not cut ACSR and steel!







REFERENCE	MAX. DIAMETER	LENGTH	WEIGHT
HN8N	13mm	240mm	525g

#### Do not cut ACSR and steel!







REFERENCE	MAX. CROSS- SECTION	LENGTH	WEIGHT
HN9N	300mm <sup>2</sup>	380mm	920g







#### **CABLE WIRES CUTTER**

IEC 60900:2012

Two insulation layers, white and orange, made of plastisol. Cutter can be used to cut the live wire (Al, Cu).

#### Do not cut ACSR and steel!





REFERENCE	MAX. DIAMETER	LENGTH	WEIGHT
HN10N	35mm	540mm	1760g



#### **INSULATED KNIFE**

IEC 60900:2012

Blade made of stainless steel. Blade cover is made of soft polyethylene. Handle is totally made of polyamide with the addition of fiberglass.

#### **INSULATED STRIPPING KNIFE**

IEC 60900:2012

Blade made of stainless steel. Blade cover is made of soft polyethylene. Handle is totally made of polyamide with the addition of fiberglass.







REFERENCE	LENGTH	WEIGHT
ним	200mm	<b>8</b> 5g





REFERENCE	LENGTH	WEIGHT
HNMS	190mm	95g









#### **CABLE SHEATH CUTTER**

IEC 60900:2012

Blade and fence are made of stainless steel. Black part is made of polyamide with the addition fiberglass. Handle is totally made of insulating materials, additionally coated with an insulation layer. Made of plastisol in orange color.





REFERENCE	ADJUSTABLE CUTTING DEPTH	WEIGHT
HPG	0÷5mm	180g





#### **BLOCKING WRENCH**

#### IEC 60900:2012

Insert made of CrV steel. Handle is totally made of insulating material, polyamide with the addition of fiberglass.





REFERENCE	SIZE	ARM LENGTH	WEIGHT
HNS-10	10mm	150mm	160g
HNS-12	12mm	150mm	180g
HNS-13	13mm	150mm	180g
HNS-14	14mm	150mm	180g
HNS-17	17mm	150mm	190g
HNS-19	19mm	150mm	195g
HNS-22	22mm	150mm	205g
HNS-24	24mm	150mm	210g





#### **BLOCKING SPANNER**

IEC 60900:2012

Insert made of CrV steel. Handle is totally made of insulating material, polyamide with the addition of fiberglass. Sizes 17 and 19 have a special cut down.





REFERENCE	SIZE	ARM LENGTH	WEIGHT
HOS-10	10mm	115mm	60g
HOS-12	12mm	115mm	65g
HOS-13	13mm	115mm	65g
HOS-14	14mm	115mm	65g
HOS-15 *	15mm	130mm	80g
HOS-16 *	16mm	130mm	85g
HOS-17	17mm	130mm	90g
HOS-18 *	18mm	130mm	120g
HOS-19	19mm	130mm	120g
HOS-22	22mm	155mm	175g
HOS-24	24mm	155mm	135g

<sup>\* -</sup> Insulated tool, made of CrV steel. Two insulation layers, white and orange, made of plastisol.







#### **BLOCKING WRENCH**

#### IEC 60900:2012

Tool is made of CrV. Two insulation layers, white and orange, made of plastisol.

#### **RATCHET WRENCH**

IEC 60900:2012

Tool is made of CrV. Two insulation layers, white and orange, made of plastisol.





REFERENCE	SIZE	ARM LENGTH	WEIGHT
HNSC-13	13mm	190mm	320g
HNSC-14	14mm	190mm	325g
HNSC-15	15mm	190mm	330g
HNSC-16	16mm	190mm	340g
HNSC-17	17mm	190mm	340g
HNSC-18	18mm	190mm	345g
HNSC-19	19mm	190mm	350g
HNSC-22	22mm	190mm	355g
HNSC-24	24mm	190mm	360g







REFERENCE	SIZE	LENGTH	WEIGHT
HOG-10	10mm	130mm	55g
HOG-13	13mm	145mm	95g
HOG-14	14mm	160mm	125g
HOG-17	17mm	175mm	160g
HOG-19	19mm	190mm	200g
HOG-24	24mm	220mm	300g

Other sizes on demand.









#### **SINGLE ENDED RING SPANNER**

IEC 60900:2012

Tool is made of CrV steel. Handle is totally made of insulating material, polyamide with the addition of fiberglass.







REFERENCE	SIZE	LENGTH	WEIGHT
HO-8	8mm	150mm	30g
HO-10	10mm	160mm	35g
HO-11	11mm	180mm	55g
HO-12	12mm	180mm	60g
HO-13	13mm	180mm	60g
HO-14	14mm	190mm	65g
HO-15	15mm	210mm	85g
HO-16	16mm	210mm	90g
HO-17	17mm	210mm	90g
HO-18	18mm	225mm	120g
HO-19	19mm	225mm	120g
HO-22	22mm	270mm	175g
HO-24	24mm	270mm	185g

#### **SINGLE ENDED RING SPANNER**

IEC 60900:2012

Tool is made of CrV steel. Two insulation layers, white and orange, made of plastisol. Single layer of insulation in working head, orange.







REFERENCE	SIZE	LENGTH	WEIGHT
HO-21	21mm	270mm	170g
HO-27	27mm	255mm	370g
HO-30	30mm	280mm	425g
HO-32	32mm	310mm	555g







#### **SINGLE HEADED SPANNER**

IEC 60900:2012

Tool is made of CrV steel. Two insulation layers, white and orange, made of plastisol. Single layer of insulation in working head, orange.







REFERENCE	SIZE	LENGTH	WEIGHT
HP-7	7mm	90mm	20g
HP-8	8mm	100mm	25g
HP-9	9mm	110mm	35g
HP-10	10mm	115mm	<b>4</b> 5g
HP-11	11mm	120mm	50g
HP-12	12mm	130mm	60g
HP-13	13mm	140mm	<b>75</b> g
HP-14	14mm	145mm	100g
HP-15	15mm	155mm	105g
HP-16	16mm	165mm	110g
HP-17	17mm	170mm	120g
HP-18	18mm	175mm	130g
HP-19	19mm	180mm	155g
HP-20	20mm	185mm	185g
HP-21	21mm	190mm	200g
HP-22	22mm	195mm	210g
HP-23	23mm	200mm	240g
HP-24	24mm	205mm	265g
HP-25	25mm	215mm	270g
HP-27	27mm	235mm	275g
HP-30	30mm	245mm	480g
HP-32	32mm	275mm	535g





#### **SPECIAL SINGLE HEADED SPANNER**

IEC 60900:2012





REFERENCE	SIZE	LENGTH	WEIGHT
HPL-27	27mm	500mm	1000g
HPL-30	30mm	500mm	1000g
HPL-32	32mm	500mm	1000g



#### **INSULATING BRUSH**

IEC 60900:2012

Made of natural bristle, handle is made of insulating material.

#### **INSULATING ANGULAR BRUSH**

IEC 60900:2012

Made of natural bristle, handle is made of insulating material.





REFERENCE	DIAMETER OF BRISTLE	LENGTH	WEIGHT
HPE-10	10mm	210mm	18g
HPE-14	14mm	220mm	26g





REFERENCE	WIDTH OF BRISTLE	LENGTH	WEIGHT
HPE-25	1" / 25mm	360mm	<b>4</b> 5g
HPE-39	1,5" / 39mm	360mm	60g
HPE-50	2" / 50mm	360mm	75g





#### **INSULATING BRUSH**

IEC 60900:2012

Made of natural bristle, handle is made of insulating material





REFERENCE	DIMENSIONS OF BRISTLE	LENGTH	WEIGHT
HPE-100x30	100x30mm	200mm	105g



#### **PLIERS**

IEC 60900:2012

Insulated tool, made of CrV steel. Two insulation layers, white and orange, made of plastisol.

#### **PLIERS WITH INSULATED HEAD**

IEC 60900:2012







REFERENCE	LENGTH	WIEGHT
HS-1-160/C	160mm	240g
HS-1-180/C	180mm	270g
HS-1-200/C	200mm	320g





REFERENCE	LENGTH	WEIGHT
HS-10	180mm	290g





#### **CUTTING NIPPER**

IEC 60900:2012

Insulated tool, made of CrV steel. Two insulation layers, white and  $\,$ orange, made of plastisol.







REFERENCE	MAX. CROSS SECTION	LENGTH	WEIGHT
HS-2-160/C	10mm²	160mm	225g
HS-2-180/C *	10mm²	180mm	260g

<sup>\* -</sup> special version



#### **WATERPUMP PLIERS**

IEC 60900:2012

Insulated tool, made of CrV steel. Two insulation layers, white and orange, made of plastisol.

#### **ADJUSTABLE SPANNER**

IEC 60900:2012





REFERENCE	MAX. JAW SPACING	NUMBER OF CLAMPING POSITIONS	MAX. LENGTH	WEIGHT
HS-3	45mm	7	270mm	440g







REFERENCE	MAX. JAW SPACING	LENGTH	WEIGHT
HSZ	28mm	235mm	475g





#### **END CUTTING NIPPER**

IEC 60900:2012

Insulated tool, made of CrV steel. Two insulation layers, white and orange, made of plastisol.

#### **INSULATION STRIPPING PLIERS**

IEC 60900:2012











REFERENCE	CROSS SECTION	LENGTH	WEIGHT
HS-7	0,5 - 10mm²	160mm	190g





#### **ROUND NOSE PLIERS**

IEC 60900:2012

Insulated tool, made of CrV steel. Two insulation layers, white and orange, made of plastisol.

#### **TELEPHONE, CURVED PLIERS**

IEC 60900:2012











REFERENCE	LENGTH	WEIGHT
HS-14	160mm	150g





#### **LONG FLAT NOSED PLIERS**

IEC 60900:2012

Insulated tool, made of CrV steel. Two insulation layers, white and orange, made of plastisol.

# LONG FLAT NOSED PLIERS WITH INSULATED HEAD

IEC 60900:2012





REFERENCE	LENGTH	WEIGHT
HS-6	200mm	210g





REFERENCE	LENGTH	WEIGHT
HS-12	200mm	240g





#### **INSULATING PLIERS**

IEC 60900:2012

Totally made of insulating material – fiber glass reinforced polyamide. Tool steel insert in jaws, for wire holding.

#### **INSULATING LONG-NOSE PLIERS**

IEC 60900:2012

Totally made of insulating material – fiber glass reinforced polyamide.





REFERENCE	LENGTH	WEIGHT
HS-8	200mm	140g





REFERENCE	LENGTH	WEIGHT
HS-9	200mm	120g





# TELEPHONE PLIERS WITH INSULATED WORKING HEAD

IEC 60900:2012

Insulated tool, made of CrV steel. Two insulation layers, white and orange, made of plastisol.

#### **TELEPHONE PLIERS**

IEC 60900:2012





REFERENCE	LENGTH	WEIGHT
HS-11	200mm	220g





REFERENCE	LENGTH	WEIGHT
HS-13	200mm	190g





#### **INSULATED FILE**

IEC 60900:2012

Made of tool steel. Two insulation layers, white and orange, made of plastisol.





REFERENCE	LENGTH	WEIGHT
HPI	155mm	115g





#### **INSULATED HAMMER**

IEC 60900:2012

Insert made of improved steel 40HM-N. Tool is totally made of polyamide with the addition of fiberglass.

#### **HACK-SAW**

IEC 60900:2012

Frame is made of polyamide with the addition of fiberglass.





REFERENCE	LENGTH	WEIGHT
HM-3	300mm	610g







REFERENCE	LENGTH	DŁUGOŚĆ BRZESZCZOTU	WEIGHT
HR	460mm	310mm	650g









#### **SCREWDRIVERS**

IEC 60900:2012

Insulated tool, made of CrV steel. Single layer of polyethylene insulation.

#### **BENT SCREWDRIVER**

IEC 60900:2012





REFERENCE	LENGHT	WEIGHT	
RWWE 0,8x4x100	180mm	40g	-
RWWE 1,0x5,5x125	220mm	65g	-
RWWE 1,2x6,5x125	230mm	85g	-
RWWE 1,6x8x150	250mm	140g	-
RWWE PH 0x60	130mm	20g	+
RWWE PH 1x75	170mm	55g	+
RWWE PH 2x100	200mm	80g	+
RWWE PH 3x150	250mm	140g	+





REFERENCE	SIZE	ARM LENGHT	WEIGHT	
RWWS	8mm	110mm	155g	-







## **LOW VOLTAGE** Tools and equipment for live working up to 1kV

Tools

## **Equipment**

Dry cleaning set

Personal protective equipment and selected equipment for safety working on poles Sets up to 1kV



on overhead lines



on cable lines and switchgear connecting boxes



#### **UNIVERSAL INSULATING STICK**

IEC 60832-1:2010

Made of fiberglass-epoxy foam filled tube in orange color. Two universal adaptors for tools and equipment to be attached. Used on overhead lines and electrical devices up to 36kV.

#### **WIRE CUTTER STICK**

IEC 60832-1:2010

Made of fiberglass-epoxy foam filled tube in orange color. Steel cutting head, movable rod made of fiberglass. For copper and aluminium wires 16 to 95 mm2 and ACSR wires with steel core up to 3 mm diameter. Used on overhead lines and electrical devices up to 36kV.





REFERENCE	DIAMETER	LENGTH	WEIGHT
H010	32mm	2100mm	1200g





REFERENCE	DIAMETER	LENGTH	WEIGHT
H011	36mm	2100mm	3500g









#### **HOOK STICK**

IEC 60832-1:2010

Made of fiberglass-epoxy foam filled tube in orange color. Hook operated by rod made of fiberglass and ratchet gear. Used on overhead lines and electrical devices up to 36kV.

#### **WIRES HOLDER**

Clamps made of aluminum alloy connected to a polypropylene rope.





REFERENCE	DIAMETER	LENGTH	WEIGHT
H012	32mm	2100mm	2000g



REFERENCE	WIRES CROSS-SECTION	ROPE DIAMETER	ROPE LENGTH	WEIGHT
H024	16mm² - 95mm²	6mm	1200mm	590g









## **PRUNING SAW straight**

IEC 60832-2:2010

Can be attached to the universal insulating stick (see H010). Used for the trimming of tree branches near the overhead lines.

#### **PRUNING SAW curved**

IEC 60832-2:2010

Can be attached to the universal insulating stick (see H010). Used for the trimming of tree branches near the overhead lines.





SYMBOL	LENGTH OF CUTTING EDGE	WEIGHT
H013	350mm	150g





SYMBOL	LENGTH OF CUTTING EDGE	WEIGHT
H014	350mm	140g







#### **PRUNNING SAW**

IEC 60832-2:2010

Can be attached to the universal insulating stick (see H010). Used for the trimming of tree branches near the overhead lines.







REFERENCE	LENGTH OF CUTTING EDGE	WEIGHT
H014A	400mm	490g



IEC 60832-2:2010

Drop forged steel double cutting action blades. The rope made of polypropylene Can be attached to the universal insulating stick (see H010). Used for the trimming of tree branches near the overhead lines.







REFERENCE	LENGTH	WEIGHT
H014S	740mm	~1kg







#### Equipment

#### **CONDUCTOR CLEANING BRUSH**

IEC 60832-2:2010

Can be attached to the universal insulating stick (see H010). Used to clean wires (up to  $95\,\mathrm{mm}^2$ ).

#### **SPIRAL HOOK**

IEC 60832-2:2010





REFERENCE	WIDTH	WEIGHT
H015	65mm	170g





REFERENCE	HOOK DIAMETER	WEIGHT
H016	10mm	130g









# COME ALONG CLAMP (BARE CONDUCTOR)

For tensioning overhead line spans of single wires. Made of steel, anti-corrosion coating.

# COME ALONG CLAMP (INSULATED CONDUCTOR)

For tensioning overhead line spans of four core cables. Made of cast iron, anti-corrosion coating.



REFERENCE	WIRES CROSS-SECTION	MAX. LOAD	WEIGHT
H022	16-95mm²	1500daN	1370g



REFERENCE	WIRES CROSS-SECTION	MAX. LOAD	WEIGHT
H023	2x25mm² - 4x95mm²	1200daN	2240g









#### **ROPE BLOCKS**

Two blocks made of fiberglass-reinforced polyamide in red color with polypropylene rope. Blocs equipped with insulated hooks made of steel:

- rope lenght 25 m
- used for tensioning wires on overhead lines

#### SLING (double-eye type)

Made of braided rope, eyes on both ends. Used for tensioning wires on overhead lines.



SYMBOL	ROPE DIAMETER	MAX. LOAD	WEIGHT
H017-250	10mm	250daN	3100g
H017-500	10mm	500daN	3100g



SYMBOL	ROPE DIAMETER	LENGTH	MAX. LOAD	WEIGHT
H018-6	16mm	600mm	500daN	120g
H018-10	16mm	1000mm	500daN	155g









#### **ROPE-SNUBBING BRACKET**

Made of nylon tape and an aluminum alloy corps with a screw. Used to take the rope tension for rope block and transport block.



REFERENCE	LENGTH OF TAPE	TENSION FORCE	WEIGHT
H020	1000mm	max 80daN	1760g





#### **TRANSPORT BAG long**

Bag made of polyester fabric, impregnated, reinforced webbing. Used for wires covers transportation.

#### **TRANSPORT BAG short**

Bag made of polyester fabric, impregnated, reinforced webbing. Used for tools and equipment transportation.



REFERENCE	DEPTH	DIAMETER	WEIGHT
H035	1250mm	230mm	750g



REFERENCE	DEPTH	DIAMETER	WEIGHT
H036	400mm	300mm	530g









#### TRANSPORT BLOCK

Block made of fiberglass-reinforced polyamide in red color with polypropylene rope. Block equipped with insulated hook made of steel.

Rope lenght 20 m.

Used for tools and equipment transportation.

# INSULATING TRANSPORT HOOK TYPE "T"

IEC 60900:2012

Totally made of insulating material, polyamide with the addition of fibreglass. Used with the transport block H019.



REFERENCE	DIAMETER ROPE	MAX. LOAD	MAX. LOAD OF TRANSPORT HOOK	WEIGHT
H019	10mm	100daN	50daN	1600g



REFERENCE	MAX. LOAD	HOLES DIAMETER	WEIGHT
H038-T	50daN	16mm	45g









#### **STRAP BINDER WITH RINGS**

Made of nylon tape with steel rings. Designed for hanging transport bags, sticks and other equipment.

## **INSULATING TRANSPORT HOOK TYPE "S"**IEC 60900:2012

Totally made of insulating material, polyamide with the addition of fibreglass.



SYMBOL	LENGTH OF TAPE	WEIGHT
H021	900mm	1000g





REFERENCE	MAX. LOAD	WEIGHT
H0-38S	50daN	90g









#### **SHACKLE**

#### **SWIVEL**

Made of hard steel, anti-corrosion coating.

Made of stainless steel. Used during uncoiling wires or cables.



REFERENCE	BOLT DIAMETER	MAX. LOAD	WEIGHT
H026/8	8mm	250daN	53g
H026/10	10mm	400daN	95g
H026/12	12mm	800daN	170g





REFERENCE	MAX. LOAD	WEIGHT
H041	1350daN	440g





Equipment

## LINE HOSE TYPE " $\Omega$ "

IEC 61479:2001

Flexible cover made of elastomer in red or black colors.

### LINE HOSE TYPE "S"

IEC 61479:2001

Flexible cover made of elastomer in red color.





REFERENCE	CLASS	INT. DIAMETER	LENGTH	WEIGHT
H027	0	16mm ±2mm	1375mm * ±15mm	300g

st - or other on customers` request





REFERENCE	CLASS	INT. DIAMETER	LENGTH	WEIGHT
H028	0	16mm ±2mm	1375mm * ±15mm	240g

st - or other on customers` request







#### LINE HOSE TYPE "S" INSTALLER

IEC 60900:2012

Totally made of insulating material, polyamide with the addition of fiberglass.

# INSULATING CONDUCTOR PULLING GRIP

Made of polyamide for cables AsXSn –  $2x16mm^2 \div 4x70mm^2$ .





REFERENCE	WIRE CROSS SECTION	WEIGHT
H0-28P	16-95mm²	150g



SYMBOL	LENGTH	MAX. LOAD	WEIGHT
H0CN 16.35	1300mm ±15mm	1000daN	140g







#### **INSULATING END CAPS**

IEC 61479:2001

End caps H019-15,20,30,40 made of an EVA copolymer in red. End caps H019-60,80 made of polyethylene in red.

#### **FLEXIBLE INSULATING WIRE SLEEVES**

IEC 61479:2001

Made of transparent PVC. Length 25m.

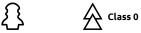






REFERENCE	EXT. DIAMETER	LENGTH	WEIGHT
H029-15	19mm	96mm	<b>8</b> g
H029-20	24mm	106mm	10g
H029-30	33mm	124mm	20g
H029-40	49mm	158mm	40g
H029-60	62mm	175mm	80g
H029-80	83mm	195mm	150g





REFERENCE	DIAMETER
H030-10	10mm
H030-16	16mm









#### **INSULATING FOIL**

IEC 61479:2001

Two layers made of PVC in red color.

Foil length: 12.5m. Roll contains: 16.25 m².

#### **INSULATING TAPE**

IEC 61479:2001

Two layers made of PVC in red color. Tape length: 25m.





REFERENCE	WIDTH	THICKNESS
H032	1300mm	0,3mm





REFERENCE	WIDTH	THICKNESS
H033	100mm	0,3mm









#### **FLEXIBLE FUSE COVERS**

IEC 61479:2001

Flexible cover made of elastomer in red color.

#### **RIGID FUSE BASE COVERS**

EN 61229:1995/A2:2002

Rigid cover made of polyamide in red.





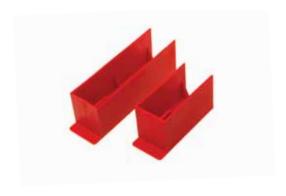
REFERENCE	CLASS	THICKNESS	LENGTH	WEIGHT
H053	0	2mm	345mm	150g
H053M	0	2mm	195mm	35g





REFERENCE	CLASS	LENGTH	WEIGHT
H054-D	0	190mm	150g
H054-K	0	120mm	100g









# FUSE HOLDER WITH PROTECTIVE SLEEVE

Used with NH00, NH1 and NH2 fuses.





REFERENCE	SLEEVE LENGTH	WEIGHT
H066	350mm	410g





#### **BUS BAR INSULATING COVER**

IEC 61479:2001

Flexible cover made of elastomer in red color.

#### **NEUTRAL BUS BAR INSULATING COVER**

IEC 61479:2001

Flexible cover made of elastomer in red color.





REFERENCE	CLASS	THICKNESS	LENGHT	WEIGHT
H055	0	2mm	450mm*	90g

<sup>\* (</sup>or other on customers' request)

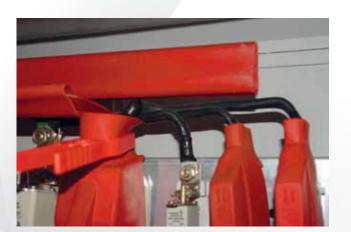




REFERENCE	CLASS	THICKNESS	LENGHT	WEIGHT
H073	0	2mm	360mm	180g







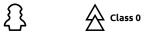


#### **INSULATOR COVER**

IEC 61479:2001

Flexible cover made of elastomer in red color.





REFERENCE	CLASS	THICKNESS	LENGTH	HEIGHT	DIAMETER	WEIGHT
H078	0	2mm	335mm	180mm	120mm	415g





#### **INSULATING CLAMP**

IEC 60900:2012

Made of insulating material - fiberglass reinforced polyamide. Designed to fasten covers and blankets.

#### **INSULATING CLAMP MAX**

IEC 60900:2012

Made of insulating material – fiberglass reinforced polyamide. Designed to fasten covers and blankets.







REFERENCE	MAX. JAW SPACING	LENGTH	WEIGHT
H034	40mm	165mm	60g







REFERENCE	MAX. JAW SPACING	LENGTH	WEIGHT
H034M	50mm	180mm	70g









#### **WEDGES**

IEC 60900:2012

Totally made of insulating material, polyamide with the addition  $of \ fibreglass.\\$ 



IEC 60900:2012

Totally made of insulating material, polyamide with the addition of fibreglass.





REFERENCE	DIAMETER LINKS	LENGTH OF LINKS	WEIGHT
H039	4mm	1000mm	130g





REFERENCE	LENGTH	WIDTH	WEIGHT
H079	170mm	20mm	35g









#### **INSULATING BLANKET**

IEC 61112:2009

Made of synthetic rubber, thickness: 1.3 mm  $\pm$  0.2 mm.

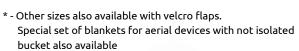
Weight: 1250g/m² Tensile strength: 12MPa







STANDARD VERSION				
reference	class	dimensions		
H031-4/3	0	400x300mm		
H031-4/3-R	0	400x300mm	velcro flap	
H031-5/4	0	500x400mm		
H031-5/4-R	0	500x400mm	velcro flap	
H031-6/4	0	600x400mm		
H031-6/5	0	600x500mm		
H031-8/6	0	800x600mm		
H031-9/5	0	900x500mm		
H031-10/8	0	1000x800mm		
	SPECIAL VER	SION		
H031-2,3/1,3	0	230x130mm		
H031-4/4	0	400x400mm		
H031-6/3	0	600x300mm		
H031-6/3-R	0	600x300mm	velcro flap	
H031-6/4-R	0	600x400mm	velcro flap	
H031-6/6	0	600x600mm		
H031-10/8-R	0	1000x800mm	velcro flap	
H031-12/12	0	1200x1200mm		









#### **NSULATING MATTING**

IEC 61111:2009

Made of rubber, ribbed.





REFERENCE	CLASS	THICKNESS	DIMENSIONS	WEIGHT
H052	0	3mm ±0,2mm	1000x2000mm *	~7kg
H052-KL2	2	6mm ±0,3mm	1000x8000mm *	~60kg

<sup>\* -</sup> standard 1000mm width / length on demand a bag to transport matting on demand.





## **EQUIPMENT FOR THE WORKPLACE MARKING - BOUNDARY POST**

Made of PVC pipe to be stuck in the ground or a special base (see H070), to be used with warning board (see H042-T) and chain (see H043). Anti-corrosion protection rod.

## **EQUIPMENT FOR THE WORKPLACE MARKING - WARNING BOARD**

Made of ABS plastic.





REFERENCE	THE DIAMETER OF THE ROD	LENGTH	WEIGHT
H042-S	8mm	1500mm	400g





REFERENCE	DIMENSIONS	WEIGHT
H042-T	280x200mm	185g





## **EQUIPMENT FOR THE WORKPLACE MARKING - BASE**

Made of polyethylene, filled with water or sand. For the placement of the probe where the substrate too hard it impossible the driving into the ground.

## **EQUIPMENT FOR THE WORKPLACE MARKING – CHAIN**

Made of polypropylene in white and red color.





REFERENCE	DIMENSION	WEIGHT
H042-P	360x360x120mm	950g





SYMBOL	LENGHT	WEIGHT
H043	25m	1660g









### SINGLE POLE PORTABLE SHUNT DEVICE

To be used as a one-phase bypass for live connections in Low Voltage Systems (repairs, replacement).







REFERENCE	NUMBER OF INPUTS	NUMBER OF OUTPUTS	STANDARD CABLES
PRB-1F 1/1	1	1	H100/200K 2
PRB-1F 1/2	1	2	H100/100K 1 H100/200K 2
PRB-1F 1/3	1	3	H100100K 1 H100/200K 3

Other set of cables on demand (see CONNECTION CABLES page. 231).

rated operating current	200A
half-hour current (wire with 200A clamp )	250A
rated operating voltage	690V/AC
	250V/DC
rated insulation voltage	500V/AC
rated impulse withstand voltage	8kV
short-time withstand current	6kA/0,5s
max. fuse link	250A
size of fuse link	1
weight (whitout wires and fuse links)	~9kg
ambient temperature	
mechanical strength	-25°C¸ +55°C
	1400cycles
casing	OTU 26/40
external dimensions	260x400x250mm
degree of protection	IP44







#### **MULTI-POLE PORTABLE SHUNT DEVICE**

To be used as three-phase bypass for live connections in Low Voltage Systems (repairs, replacement).







REFERENCE	NUMBER OF INPUTS	NUMBER OF OUTPUTS	STANDARD CABLES
PRB-3F 3/3	3	3	H100/200K 6
PRB-3F 3/6	3	6	H100/100K 3 H100/200K 6
PRB-3F 3/9	3	9	H100100K 3 H100/200K 9

Other set of cables on demand (see CONNECTION CABLES page. 231).

rated operating current	200A
half-hour current (wire with 200A clamp )	250A
rated operating voltage	690V/AC
	250V/DC
rated insulation voltage	500V/AC
rated impulse withstand voltage	8kV
short-time withstand current	6kA/0,5s
max. fuse link	250A
size of fuse link	1
weight (whitout wires and fuse links)	~13kg
ambient temperature	
mechanical strength	-25°C¸ +55°C
	1400cycles
casing	OTU 40/40
external dimensions	400x400x250mm
degree of protection	IP44



PRB-3F 3/3



PRB-3F 3/6



PRB-3F 3/9

#### SINGLE POLE PORTABLE SHUNT DEVICE

To be used as one-phase bypass for live connections in Low Voltage Systems (repairs, replacement). Can be attached to the pole. Delivered with connection cables H100/200P (2 pieces) and H100/100G (2 pieces). Allows connecting bare conductors to insulated ones. Allows to disconnect charged conductors in a safe way.





REFERENCE	NUMBER OF INPUTS	NUMBER OF OUTPUTS		
PRB-B1H	1	1		
rated operating current	100A			
rated operating voltage	2	690V/AC		
rated insulation voltage	2	500V/AC		
rated impulse withstan	d voltage	8kV		
short-time withstand cu	4kA/0,5s			
max. fuse link	160A			
size of fuse link	000			
weight (whitout wires a	1,7kg			
ambient temperature				
mechanical strength	mechanical strength			
		2000cycles		
casing		5100667P		
external dimensions		170x90x65mm		





#### **CONNECTION SHUNT CABLES**

Connection cables SILICOUL 1,1kV to be used with portable shunt devices PRB.

temperature range for continuous operation -60°C do +180°C,

- temporary maximum temperature +220°C,
- resistance to thermal shock and UV,
- resistance to aging,
- resistance to most impregnation varnishes.





REFERENCE	CABLES	USED RANGE	RATED CURRENT	CURRENT HALF-HOUR	CABLES CROSS-SECTION	LENGTH OF CABLES
H100/200S	with bus bar clamp	1÷20mm	200A	250A	35mm²	2m
H100/100K	with end of the cable clamp	10÷70mm²	100A	160A	25mm²	2m
H100/200K		50÷240mm²	200A	250A	35mm²	2m
H100/200P	with perforation clamp	16÷240mm²	200A	_	25mm²	1,5 / 2m*
H100/100G	with bare wire clamp	16 ÷ 95mm²	100A	-	16mm²	1,5m

<sup>\* - 1,5</sup>m to switch PRB-B1H



## **INSULATED SHUNT**

Flexible insulated copper cable SILICOUL 1.1 kV, with clamps for bare conductors. Long-pass load: 100A.



REFERENCE	USED RANGE	CABLES CROSS- -SECTION	LENGTH	WEIGHT
В1-Н	16 – 95mm²	16mm²	2,8m	1700g





## INSULATED HYDRAULIC CRIMPING DEVICE

- Device with hydraulic foot-operated lever.
- crimping head type C, connected to the pump with insulating hose  $% \left( \mathbf{r}\right) =\left( \mathbf{r}\right)$
- quick hose release system
- overload valve (set pressure 600 bar max)
- pressure gauge (range 0 to 1000bar)
- electrically insulating oil (class 1).
- pressure line length: 3m (or other on request)
- equipment:
- 1. crimping dies: 16, 25, 35, 50, 70, 95, 120, 150, 185, 240 i 300 mm<sup>2</sup>
- Transport bag or box

## MANUAL INSULATED HYDRAULIC CRIMPING TOOL

- Manually operated
- crimping head type C
- electrical insulating oil (class 1).
- equipment:
- 1. crimping dies: 16, 25, 35, 50, 70, 95, 120, 150, 185, 240 i 300 mm²
- Transport bag or box











REFERENCE	RANGE OF WORK	WEIGHT
PHIR	16÷300mm²	5,5kg





# TARPAULIN SHEET FOR TOOLS AND EQUIPMENT

Made of impregnated polyester fabric.

#### **EMERGENCY SHORT CIRCUIT SET**

Polypropylene rope with ground probe. Rope is placed in bag in a special way ,it allows rope to be ejected when the bag is thrown over the conductors.





RFERENCE	DIMENSION	WEIGHT
H037	1500x2700mm	1,6kg



REFERENCE	ROPE DIAMETER	ROPE LENGTH	WEIGHT
H051	10mm	25m	2,6kg





# LOW VOLTAGE Tools and equipment for live working up to 1kV

Tools Equipment

## Dry cleaning set

Personal protective equipment and selected equipment for safety working on poles  ${\sf Sets\ up\ to\ 1kV}$ 



on cable lines and switchgear connecting boxes



#### THE VACUUM CLEANER WITH HOSE

Protection class II. Supplied in a carry bag.





REFERENCE	POWER SUPPLY	POWER INPUT	VACCUM	AIR FLOW	CONTAINER CAPACITY	WEIGHT
SE 62	1/230/50 ~/V/Hz	1400W	210mbar	3600 l/min	20l	7,5kg



See sets 550, 551, 555: page 461-463

#### **SERVICE SOCKET WITH CLAMPS**

Designed to connect electrical devices with voltage 230V, allowing to carry out maintenance work in areas where access to a stationary socket contact is difficult. Equipped with three clamps for connecting devices class I or II (vacuum cleaners, power tools, etc.) to the elements of the cable connector panel. Supplied in a carry bag.



REFERENCE	FUSE	CABLE CROSS-SECTION	LENGTH	WEIGHT
H0-ZK	B 16A	4mm²	1,5m	1,7kg



#### **CONICAL NIPPLE**

IEC 60900:2012

Made of polyamide, allows to connect a vacuum cleaner suction hose on one side and the suction tube on the other.

#### **INSULATING SUCTION TUBE**

IEC 60900:2012

Made of polycarbonate, polyamide threaded end for nozzle and brush connection.





REFERENCE	LENGTH	EXT. DIAMETER	WEIGHT
H091-27/1	95mm	40mm	45g





REFERENCE	LENGTH	EXT. DIAMETER	INT. DIAMETER	WEIGHT
H091-04/1	200mm	40mm	36mm	120g





#### **CIRCULAR SMALL BRUSH**

IEC 60900:2012

Made of polyamide and natural bristle.

#### **RECTANGULAR SMALL BRUSH**

IEC 60900:2012

Made of polyamide and natural bristle.





REFERENCE	LENGTH	DIAMETER	WEIGHT
H091-07/1	210mm	65mm	110g





REFERENCE	LENGTH	BRISTLE DIMENSIONS	WEIGHT
H091-09/1	140mm	40x60mm	80g





#### **NARROW SUCTION NOZZLE**

IEC 60900:2012

Made of polyamide.

#### **ANGULAR SUCTION NOZZLE**

IEC 60900:2012

Made of polyamide and PVC.





REFERENCE	LENGTH	WIDTH	WEIGHT
H091-11/1	230mm	30mm	75g





REFERENCE	LENGTH	WIDTH	ANGLE	WEIGHT
H091-26/1	230mm	30mm	25°	70g





#### **SUCTION NOZZLE WITH WIDE BRISTLE**

IEC 60900:2012

Made of polyamide and natural bristle.

# SUCTION NOZZLE WITH NARROW BRISTLE

IEC 60900:2012

Made of polyamide and natural bristle.





REFERENCE	LENGTH	BRISTLE LENGTH	WEIGHT
H091-22/1	270mm	25mm	80g





REFERENCE	LENGTH	BRISTLE LENGTH	WEIGHT
H091-23/1	280mm	30mm	80g





#### **FLAT SUCTION NOZZLE WITH BRISTLE**

IEC 60900:2012

Made of polyamide and natural bristle.

### **REPLACEABLE BRUSH FOR H091-28/1**

IEC 60900:2012

Made of polyamide and natural bristle.





REFERENCE	LENGTH (WITHOUT BRISTLE)	WIDTH	WEIGHT
H091-28/1	235mm	38mm	95g





REFERENCE	BRISTLE LENGTH	BRISTLE WIDTH	WEIGHT
H091-28/1P	30mm	40mm	17g





#### **INSULATING BRUSH**

IEC 60900:2012

Made of natural bristle, handle is made of insulating material.

#### **INSULATING ANGULAR BRUSH**

IEC 60900:2012

Made of natural bristle, handle is made of insulating material.





REFERENCE	BRISTLE DIAMETER	LENGTH	WEIGHT
HPE-10	10mm	210mm	18g
HPE-14	14mm	220mm	26g





REFERENCE	BRISTLE WIDTH	LENGTH	WEIGHT
HPE-25	1" / 25mm	360mm	<b>4</b> 5g





#### **SET CLEANING SMALL BRUSH**

Made of fiber glass rod, polyamide and natural bristle. Brush is to be used only for cleaning the internal surfaces of the suction tube.

Do not clean live elements.

REFERENCE	LENGTH	WEIGHT
H091-16/1	300mm	110g



310

# LOW VOLTAGE Tools and equipment for live working up to 1kV

Tools Equipment Dry cleaning set

Personal protective equipment and selected equipment for safety working on poles

Sets up to 1kV



#### **SAFETY HARNESS**

Reference CA121Q

Full body harness suitable for intensive use and long term work in supported position.

Safety suspenders equipped with automatic buckles.

- Large, back attachment buckle
- Extension of back attachment point available as an option
- Snap hook for front attachment point in set
- Revolving belt with wide, ergonomic pad
- Two lateral buckles for work in supported position
- Hip belt fit out with five tool buckles for a tool bag, tools or belt for work in suspended position
- Full adjustment of thigh, shoulder straps and hip belt



Reference CA021Q

Safety belt for work in supported position.

- Automatic buckle
- Revolving
- Two lateral buckles for work in supported position
- Hip belt fit out with five tool buckles for a tool bag or tools Universal size

















#### **POLE CLIMBERS**

Reference BE 601B

To climb on a utility poles. Made of steel, rubber and natural leather. Max size 220mm.









#### **SHOCK ABSORBER ABW-L WITH LINE**

Reference CE201 R GG

- Shock absorber made of polyamide webbing by wove technique with additional protecting webbing
- Permanently connected with lanyard made of twisted rope Ø 14mm
- Aluminum buckle in version with adjustable lanyard
- Total length adjustable type: to 1.9m
- With snap hooks: 1xAJ510/1xAJ510









#### **MANUBLOK WITH ROPE**

Reference AF775/2,5m H-1

Lanyard with two functions: work positioning lanyard with rope  $length\ regulator\ and\ safety\ lanyard\ for\ limited\ the\ range\ of\ move.$ 

- Positioning devices slides on twisted rope Ø14mm in both directions
- Available length of lanyard: from 2 to 40m
- Positioning devices made of galvanized steel
- Equipped with AJ560 snap hook

**MANUSTOP WITH ROPE** 

Reference AF764/2,5m

Lanyard with two functions: work positioning lanyard with rope length regulator and safety lanyard for limited the range of move.

- Positioning devices slides on twisted rope Ø16mm in both directions
- Positioning devices made of galvanized steel

















#### **INSULATING GLOVES**

IEC 60903:2002 +AC1:2003 + AC2:2005

Made of flexible rubber. Thickness of 00 class gloves doesn't exceeding 0.5 mm.  $\,$ 

#### **GLOVE BAG**

Made of impregnated polyester fabric, resistant to mechanical damage. For protection and proper storage of insulating gloves, protective leather gloves and cotton gloves.











REFERENCE	CLASS	CODE	TEST VOLTAGE	MAX. USED. VOLTAGE [AC]	SIZE
H044-N9	00	BOU-E36Y	2500 V	500 V	9
H044-N10					10
H044-N11					11
H044-N12 *					12
H044-20-N10	2	YOU-E36Y	20000 V	17000 V	10
H044-20-N11					11

REFERENCE	DIMENSION	WEIGHT
H047	400x200mm	120g

<sup>\* -</sup> special version





#### **LEATHER PROTECTION GLOVE**

EN 388:2003

Hand protecting part is made of a soft, flexible goatskin in natural color, cuff made of cow leather in brown colour.

#### **COTTON GLOVE**

100% cotton made. Absorb moisture and provide protection against excessive sweating of hands.







REFE- RENCE	RESI- STANCE TO ABRA- SION	RESI- STANCE TO CUTT	RESI- STANCE TO TEAR	RESI- STANCE TO PUNC- TURE	DEXTE- RITY	SIZE
H045/D	2	1	1	1	5 (5.2 / EN 420)	9,10,11,12 *
H045/C	3	1	2	1	3 (5.2 / EN 420)	9,10,11,12 *

<sup>\* -</sup> Size 12 on request.



REFERENCE	SIZE
H046	universal







#### **SAFETY SPECTACLES**

EN 166:2001

Sunglare lens, 5-3.1 UV filter. Low energy impact resistance.

#### **KNEE PADS**

Gel knee pads, plastic cover. Fixing straps velcro fastened, enable fixing on legs. Due to soft pad provide comfort without causing disturbance.





REFERENCE	OPTICAL CLASS	WEIGHT
H049	1	30g







REFERENCE	WEIGHT (2 PCS.)
ONSTONE	580g







#### **ELECTRICALLY INSULATING HELMET SECRA WITH FACE SHIELD**

EN 397:2012 EN 50365:2002 EN 166:2001 GS-ET 29:2010 Directive 89/686/EEC

reference H058S









4kA/0,5s calculated approx 3cal/cm<sup>2</sup>

#### Characteristics

#### Helmet:

- Stroke absorption after conditioning in temperatures of (-30°C, +50°C)
- Resistance to penetration after conditioning in temperatures of (-30°C, +50°C)
- Protection against molten metal splash (MM)
- Protection against lateral deformations (LD)
- Protection against electric shock (class 0) 1000V AC, 1500V DC
- -Adjustment range of head circumference 53-63cm



Helmet is available in colors: white, yellow, red and blue. Others colours can be made for demand – please contact with us. Helmet has an in-use life of up to 60 months.



#### Face shield:

- Optical powers, light transmission factor, luminance factor of dispersed light – optical class 1
- Protection against UV radiation (level of protection 2-1,2)
- Protection against thermal hazards of an electric arc
   VLT factor >75%
   class 0
- Stroke absorption of average energy (speed of stroke up to 120m/s –mass of the ball 0,86g) (B)
- Protection against liquid drop and splash (3)
- Protection against molten metal and hot solid substances (9)
- Resistance to damage by fine particles (K)
- Resistance to fogging (N)

Protection against thermal hazards of an electric arc (BOX TEST 4kA/0,5s).

#### Spare parts:

- Front sweatband	[H058S/PC]
- Rear sweatband	[H058S/PT]
- Chinstrap with safety catches	[H058S/PS]

#### Additional equipment:

[H058S/WR]
[H058S/CL]
[H058S/LT]







#### **ELECTRICALLY INSULATING HELMET SECRA WITH FACE SHIELD class 2**

EN 397:2012 EN 50365:2002 EN 166:2001 GS-FT 29:2011 Directive 89/686/EEC

Reference H058S-2

# SECRA-2







#### 7kA/0,5s calculated approx 8cal/cm<sup>2</sup>

# NEW

#### Characteristics

#### Helmet:

- Stroke absorption after conditioning in temperatures of (-30°C, +50°C)
- Resistance to penetration after conditioning in temperatures of (-30°C, +50°C)
- Protection against molten metal splash (MM)
- Protection against lateral deformations (LD)
- Protection against electric shock (class 0) 1000V AC, 1500V DC
- -Adjustment range of head circumference 53-63cm



Helmet is available in colors: white, yellow, red and blue. Others colours can be made for demand – please contact with us. Helmet has an in-use life of up to 48 months.





#### Face shield:

- Optical powers, light transmission factor, luminance factor of dispersed light - optical class 1
- Protection against UV radiation (level of protection 2C-1,2)
- Protection against thermal hazards of an electric arc
- VLT factor >75%
- Stroke absorption of average energy (speed of stroke up to 120m/s -mass of the ball 0,86g) (B)

class 0

- Protection against liquid drop and splash (3)
- Protection against molten metal and hot solid substances (9)
- Resistance to fogging (N)

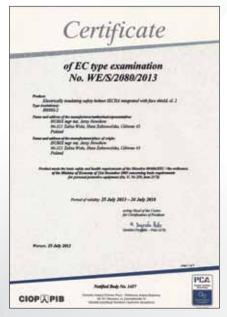
Protection against thermal hazards of an electric arc (BOX TEST 7kA/0,5s).

#### Spare parts:

- Front sweatband	[H058S/PC]
- Rear sweatband	[H058S/PT]
- Chinstrap with safety catches	[H058S/PS]

#### Additional equipment:

- Storage and transport bag	[H058S/WR]
- Visor cleaning cloth	[H058S/CL]
- Head light	[H058S/LT]







#### **PROTECTIVE CLOTHING - JACKET**

symbol K-150-01 PN-EN 61482-1-2 PN-EN ISO 11611 PN-EN ISO 11612 PN-EN 13034 PN-EN 1149-5 PN-EN 13034

Made from flame retardant material - TenCate Tecasafe-XL9300 with the weight of 300 g/m $^2$ . Protects against thermal hazards caused by electrical arc (BOX TEST class 1)

Protective sweatshirt with a grey collar and a rubber drawstring in a tunnel on the sides

to better fit the user. Two upper pockets with pouches and velcro flaps, two straight lower pockets with pouches and flaps. Straight sleeves ending with rubber drawstrings. All main seams are made with three needle bind off. Parts subject to tearing reinforced with cross bars.

#### **PROTECTIVE CLOTHING - BIB OVERALLS**

symbol K-150-03 PN-EN 61482-1-2 PN-EN ISO 11611 PN-EN ISO 11612 PN-EN 13034 PN-EN 1149-5 PN-EN 13034

Made from flame retardant material - TenCate Tecasafe-XL9300 with the weight of 300 g/m². Protect against thermal hazards caused by electrical arc (BOX TEST class 1)

Gray trousers with straps made from basic fabric reinforced with rubber and separation buckles. Trousers have buttoned sides, a zipped breast pocket, an additional breast pocket for a phone, two angular side pockets in side seams with pouches and two thigh pockets. Main seams made with three needle bind off. Parts subject to tearing reinforced with cross bars.





















#### **INSULATIG HALF-KNEE FOOTWEAR**

Made of rubber compound in gray color, molded and vulcanized in molds. Upper with turned down on the outside the flange 50mm - Model C design. Footwear designed for worn on other boots.





REFERENCE	CLASS	SIZE	INT. BOOTS SIZE	WEIGHT
DIELEKTRYK	20kV	345	43/44	2.01-
ART.03	ZUKV	352	45/46	~ 2,8kg



# LOW VOLTAGE Tools and equipment for live working up to 1kV

Tools

Equipment

Dry cleaning set

Personal protective equipment and selected equipment for safety working on poles

Sets up to 1kV

# Optimal set ZST 100

Tools, equipment and personal protective equipment for live working on overhead lines with bare or insulated conductors up to 1kV.

	EQUIPMENT		
#	product name	reference	quantity
1	Universal insulating stick + cover	H010	1 pc.
2	Wire cutter stick + cover	H011	1 pc.
3	Hook stick + cover	H012	1 pc.
4	Pruning saw straight	H013	1 pc.
5	Pruning saw curved	H014	1 pc.
6	Conductor cleaning brush	H015	1 pc.
7	Spiral hook	H016	1 pc.
8	Rope block	H017-250	1 pc.
9	Sling 1000mm	H018-10	1 pc.
10	Sling 600 mm	H018-6	1 pc.
11	Transport block	H019	1 pc.
12	Rope-snubbing bracket	H020	1 pc.
13	Strap binder with rings	H021	1 pc.
14	Come along clamp (bare conductor)	H022	1 pc.
15	Come along clamp (insulated conductor)	H023	1 pc.
16	Wires holder	H024	1 pc.
17	Shackle	H026	3 pcs.
18	Single pole portable shunt device + cables	PRB-B1H	1 set
19	Line hose type " $\Omega$ "	H027	30 pcs.
20	Line hose type "S"	H028	4 pcs.
21	Line hose type "S" installer	H028-P	1 pc.
22	Insulating end caps φ15mm	H029-15	10 pcs.
23	Insulating end caps φ20mm	H029-20	10 pcs.
24	Insulating end caps φ30mm	H029-30	10 pcs.
25	Flexible insulating wire sleeves $\phi$ 10mm	H030-10	1 roll
26	Flexible insulating wire sleeves $\phi$ 16mm	H030-16	1 roll
27	Insulating blanket 400x300mm	H031-4/3	8 pcs.
28	Insulating blanket 500x400mm	H031-5/4	8 pcs.
29	Insulator cover	H078	12 pcs.
30	Insulating foil	H032	1 roll
31	Insulating tape	H033	1 roll
32	Insulating clamp	H034	45 pcs.
33	Transport bag (long)	H035	1 pc.
34	Transport bag (short)	H036	2 pcs.
35	Tarpaulin sheet for tools and equipment	H037	1 pc.
36	Insulating transport hook type "S"	H038-S	4 pcs.
37	Wedges	H039	1 pc.
38	Insulating conductor pulling grip	H0CN 16.35	1 pc.
39	Swivel	H041	1 pc.
40	Equipment for the workplace marking - boundary post	H042-S	4 pcs.
41	Equipment for the workplace marking - warning board	H042-T	4 pcs.
42	Equipment for the workplace marking - chain	H043	1 set
48	Digital clamp meter with insulation tester unit	266/261	1 pc.
49	Emergency short circuit set	H051	1 pc.

# Optimal set ZST 100

 $Tools, equipment\ and\ personal\ protective\ equipment\ for\ live\ working\ on\ overhead\ lines\ with\ bare\ or\ insulated\ conductors\ up\ to\ 1kV.$ 

	SUPPLEMENTARY EQUIPMENT		
#	product name	reference	quantity
50	Insulating blanket 400x300mm with velcro flap	H031-4/3-R	8 pcs.
51	Insulating blanket 500x400mm with velcro flap	H031-5/4-R	8 pcs.
	TOOLS		
#	product name	reference	quantity
52	Screwdrivers (4 pieces)	RWWE/KPL4	1 set.
53	Insulated knife	HNM	1 pc.
54	Hack-saw	HR	1 pc.
55	Pliers	HS-1-200/C	1 pc.
56	Cutting nipper	HS-2-160/C	1 pc.
57	Waterpump pliers	HS-3	1 pc.
58	Cable wires cutter max. diameter 13mm	HN8N	1 pc.
59	Adjustable spanner	HSZ	1 pc.
60	Single headed spanner no.10	HP-10	1 pc.
61	Single headed spanner no.13	HP-13	1 pc.
62	Single headed spanner no.14	HP-14	1 pc.
63	Single headed spanner no.17	HP-17	1 pc.
64	Single headed spanner no.19	HP-19	1 pc.
65	Single headed spanner no.22	HP-22	1 pc.
66	Single headed spanner no.24	HP-24	1 pc.
67	Single ended ring spanner no.10	HO-10	1 pc.
68	Single ended ring spanner no.13	HO-13	1 pc.
69	Single ended ring spanner no.14	HO-14	1 pc.
70	Single ended ring spanner no.17	HO-17	1 pc.
71	Single ended ring spanner no.19	HO-19	1 pc.
72	Single ended ring spanner no.22	HO-22	1 pc.
73	Single ended ring spanner no.24	HO-24	1 pc.
74	Drive handle "T" ½"	НТ	1 pc.
75	Insulated torque wrench ½" 7,5÷55Nm	HD	1 pc.
76	Short socket wrench no.10	HN-10	1 pc.
77	Short socket wrench no.13	HN-13	1 pc.
78	Long socket wrench no.17	HNL-17	1 pc.
79	Long socket wrench no.19	HNL-19	1 pc.
80	Allen short socket wrench no.6	HNI-6-90	1 pc.
81	Hex. Male wrench no.6	HI-6	1 pc.
82	Insulating holder for connectors	НС	1 pc.
83	Cross socket wrench no.10x13x14x17	HK 10/13/14/17	1 pc.
84	Tool bag	НТО	1 pc.

# Optimal set ZST 100

Tools, equipment and personal protective equipment for live working on overhead lines with bare or insulated conductors up to 1kV.

	SUPLEMENTARY TOOLS		
#	product name	reference	quantity
85	End cutting nipper	HS-4	1 pc.
86	Round nose pliers	HS-5	1 pc.
37	Long flat nosed pliers	HS-6	1 pc.
88	Insulation stripping pliers	HS-7	1 pc.
39	Cable wires cutter max. cross section 300mm²	HN9N	1 pc.
90	Cable wires cutter max. diameter 35mm	HN10N	1 pc.
91	Reversible ratchet 1/2" square drive	HG	1 pc.
92	Insulated extension bar ½"	HPN-125	1 pc.
93	Ring spanner for insulation piercing connectors	HOZ-13	1 pc.
94	Ratchet wrench no.10	HOG-10	1 pc.
95	Ratchet wrench no.13	HOG-13	1 pc.
96	Ratchet wrench no.14	HOG-14	1 pc.
97	Ratchet wrench no.17	HOG-17	1 pc.
98	Ratchet wrench no.19	HOG-19	1 pc.
99	Ratchet wrench no.24	HOG-24	1 pc.
100	Single headed spanner no. 27	HP-27	1 pc.
101	Single headed spanner no. 30	HP-30	1 pc.
102	Single ended ring spanner no.27	HO-27	1 pc.
103	Single ended ring spanner no.30	HO-30	1 pc.
104	Allen wrench "T" no.6	HTI-6	1 pc.
105	Allen wrench "T" no.8	HTI-8	1 pc.
	PERSONAL PROTECTIVE EQUIPMENT AND SELECTED EQUIPMENT FOR SAFETY WORL	KING ON POLES	
#	product name	reference	quantity
106	Insulating glove class 00 (*)	H044N	6 pairs
107	Leather protection glove (*)	H045/D	3 pairs
108	Cotton glove	H046	12 pairs
109	Electrically insulating helmet SECRA with face shield class 1(**)	H058S	3 pcs.
110	Safety spectacles	H049	3 pcs.
111	Safety harness	CA121	1 pc.
112	Shock absorber ABW-L with line	CE201R GG	1 pc.
113	Manublok with rope	AF77-025	1 pc.

<sup>(\*) -</sup> available sizes 9,10,11

114 Pole climbers

1 pc.

BE601B

<sup>(\*\*)</sup> - color: white and yellow on the stock

#### **ZST 110 set**

The set of tools for the insulated overhead low voltage network up to 1kV.

	TOOLS		
#	product name	reference	quantity
1	Insulated torque wrench ½" 7,5÷55Nm	HD	1 pc.
2	Cable wires cutter max. diameter 13mm	HN8N	1 pc.
3	Insulating holder for connectors	НС	1 pc.
4	Pliers	HS-1-200/C	1 pc.
5	Hex. Male wrench no.6	HI-6	1 pc.
6	Ring spanner for insulation piercing connectors	HOZ-13	1 pc.
7	Cross socket wrench no.10x13x14x17	HK 10/13/14/17	1 pc.
8	Allen short socket wrench no.6	HNI-6-90	1 pc.
9	Short socket wrench no.10	HN-10	1 pc.
10	Short socket wrench no.13	HN-13	1 pc.
11	Long socket wrench no.17	HNL-17	1 pc.
12	Long socket wrench no.19	HNL-19	1 pc.
13	Wedges	H039	1 pc.
14	Tool bag	ZST110	1 pc.



# Optimal set ZTS 200

Tools, equipment and personal protective equipment for live working on cable lines and switchgear connecting boxes up to 1kV.

	EQUIPMENT		
#	product name	reference	quantity
1	Insulating matting	H052	1 pc.
2	Insulating blanket 1000 x 800mm	H031-10/8	2 pcs.
3	Insulating blanket 900 x 500mm	H031-9/5	4 pcs.
4	Insulating blanket 800 x 600mm	H031-8/6	2 pcs.
5	Insulating blanket 600 x 500mm	H031-6/5	2 pcs.
6	Flexible fuse covers	H053	6 pcs.
7	Flexible fuse covers MINI	H053M	4 pcs.
8	Rigid fuse base covers (short)	H054-K	6 pcs.
9	Rigid fuse base covers (long)	H054-D	3 pcs.
10	Bus bar insulating cover	H055	6 pcs.
11	Neutral bus bar insulating cover	H073	4 pcs.
12	Fuse holder with protective sleeve	H066	1 pc.
13	Insulating end caps φ20mm	H029-20	10 pcs.
14	Insulating end caps φ30mm	H029-30	10 pcs.
15	Insulating end caps φ40mm	H029-40	10 pcs.
16	Insulating clamp	H034	15 pcs.
17	Insulating clamp MAX	H034M	10 pcs.
18	Insulating tape	H033	1 roll
19	Equipment for the workplace marking - boundary post	H042-S	4 pcs.
20	Equipment for the workplace marking - warning board	H042-T	4 pcs.
21	Equipment for the workplace marking - chain	H043	1 set
22	Equipment bag	H059	1 pc.
23	Wedge	H079	2 pcs.
	MULTIMETERS, HYDRAULIC DEVICES AND PORTABLE SHUNTING DEVICE	E	
#	product name	reference	quantity
24	Digital clamp meter with insulation tester unit	266/261	1 pc.
25	Digital earth clamp tester	KEW 4200	1 pc.
26	Infrared thermometer 8:1	EM520B	1 pc.
27	Unipolar acoustic-optical phasing device and indicator rotation direction	JUFr-0,05/0,5	1 pc.
28	Voltage tester and rotary field indication Easy Volt plus	306214	1 pc.
29	Insulated hydraulic crimping device	PHI	1 pc.
80	Hydraulic cutting device	INK-80	1 pc.
1	Cable wires cutter max. diameter 35mm	HN10N	1 pc.
2	Single pole portable shunting disconnector (*)	PRB-1F 1/1	1 pc.
33	Single pole portable shunting disconnector (*)	PRB-1F 1/3	1 pc.
34	Multi-pole portable shunting disconnector (*)	PRB-3F 3/3	1 pc.
	Multi-pole portable shunting disconnector (*)	PRB-3F 3/9	1 pc.

<sup>(\*) -</sup> To configure the system to live working, select one of the shunting disconnectors PRB.

# Optimal set ZTS 200

Tools, equipment and personal protective equipment for live working on cable lines and switchgear connecting boxes up to 1kV.

	TOOLS		
#	product name	reference	quantity
36	Single headed spanner no.13	HP-13	1 pc.
37	Single headed spanner no.14	HP-14	1 pc.
38	Single headed spanner no.17	HP-17	1 pc.
39	Single headed spanner no.19	HP-19	1 pc.
40	Single headed spanner no.24	HP-24	1 pc.
41	Hack-saw	HR	1 pc.
42	Screwdrivers (4 pieces)	RWWE/KPL4	1 set
43	Insulated knife	HNM	1 pc.
44	Insulated stripping knife	HNMS	1 pc.
45	Insulated hammer	HM-3	1 pc.
46	Adjustable spanner	HSZ	1 pc.
47	Blocking wrench no.13	HNS-13	1 pc.
48	Blocking wrench no.14	HNS-14	1 pc.
49	Blocking wrench no.17	HNS-17	1 pc.
50	Blocking wrench no.19	HNS-19	1 pc.
51	Blocking wrench no.24	HNS-24	1 pc.
52	Blocking spanner no.13	HOS-13	1 pc.
53	Blocking spanner no.14	HOS-14	1 pc.
54	Blocking spanner no.17	HOS-17	1 pc.
55	Blocking spanner no.19	HOS-19	1 pc.
56	Blocking spanner no.24	HOS-24	1 pc.
57	Special long socket wrench no.13	HNLS-13	1 pc.
58	Special long socket wrench no.14	HNLS-14	1 pc.
59	Special long socket wrench no.17	HNLS-17	1 pc.
60	Special long socket wrench no.19	HNLS-19	1 pc.
61	Special long socket wrench no.24	HNLS-24	1 pc.
62	Special long socket wrench no.30	HNLS-30	1 pc.
63	Allen long socket wrench no.5	HNIL-5-140	1 pc.
64	Allen long socket wrench no.6	HNIL-6-140	1 pc.
65	Allen long socket wrench no.8	HNIL-8-140	1 pc.
66	Allen long socket wrench no.10	HNIL-10-140	1 pc.
67	Drive handle "L" ½"	HT	1 pc.
68	Drive handle "T" ½"	HL	1 pc.
69	Insulated extension bar ½"	HPN-125	1 pc.
70	Insulated extension bar ½"	HPN-250	1 pc.
71	Insulated torque wrench ½" 7,5÷55Nm	HD	1 pc.
72	Insulating pliers	HS-8	1 pc.
73	Insulating long-nose pliers	HS-9	1 pc.
74	Cable wires cutter max. diameter 13mm	HN8N	1 pc.
75	Bent screwdriver	RWWS	1 pc.
76	Insulating brush	HPE-100x30	1 pc.
77	Insulating angular brush 25mm	HPE-25	1 pc.
78	Insulating brush φ10	HPE-10	1 pc.
79	Insulating brush φ14	HPE-14	1 pc.
80	Insulated file	HPI	1 pc.
81	Tubular socket wrench no.13	HKR-13	1 pc.

# Optimal set ZTS 200

Tools, equipment and personal protective equipment for live working on cable lines and switchgear connecting boxes up to 1kV.

	TOOLS		
82	Tubular socket wrench no.14	HKR-14	1 pc.
83	Tubular socket wrench no.17	HKR-17	1 pc.
84	Tool bag	НТО	2 pcs.
	SUPPLEMENTARY TOOLS		
#	product name	reference	quantity
85	Pliers with insulated head	HS-10	1 pc.
86	Telephone pliers with insulated working head	HS-11	1 pc.
87	Single ended ring spanner no.13	HO-13	1 pc.
88	Single ended ring spanner no.14	HO-14	1 pc.
89	Single ended ring spanner no.17	HO-17	1 pc.
90	Single ended ring spanner no.19	HO-19	1 pc.
91	Single ended ring spanner no.24	HO-24	1 pc.
92	Allen wrench "T" no.6	HTI-6	1 pc.
93	Allen wrench "T" no.8	HTI-8	1 pc.
	PERSONAL PROTECTIVE EQUIPMENT		
#	product name	reference	quantity
94	Electrically insulating helmet SECRA with face shield class 1(**)	H058S	1 pc.
95	Insulating glove class 00 (*)	H044-N	1 pair
96	Leather protection glove (*)	H045/D	1 pair
97	Cotton glove	H046	2 pairs
98	Glove bag	H047	1 pc.
99	Knee pads	ONSTONE	1 pair

<sup>(\*) -</sup> available sizes 9,10,11

<sup>(\*\*) -</sup> color: white and yellow on the stock

## ZST 210 set

The set of tools for the  $\,$  cable lines and switch gear connecting boxes up to 1kV.

	TOOLS					
#	product name	reference	quantity			
1	Reversible ratchet 1/2" square drive	HG	1 pc.			
2	Short socket wrench no.10	HN-10	1 pc.			
3	Short socket wrench no.13	HN-13	1 pc.			
4	Short socket wrench no.14	HN-14	1 pc.			
5	Short socket wrench no.17	HN-17	1 pc.			
6	Short socket wrench no.19	HN-19	1 pc.			
7	Short socket wrench no.24	HN-24	1 pc.			
8	Long socket wrench no.10	HNL-10	1 pc.			
9	Long socket wrench no.13	HNL-13	1 pc.			
10	Long socket wrench no.14	HNL-14	1 pc.			
11	Long socket wrench no.17	HNL-17	1 pc.			
12	Long socket wrench no.19	HNL-19	1 pc.			
13	Long socket wrench no.24	HNL-24	1 pc.			
14	Allen short socket wrench no.5	HNI-5-90	1 pc.			
15	Allen short socket wrench no.6	HNI-6-90	1 pc.			
16	Allen short socket wrench no.8	HNI-8-90	1 pc.			
17	Allen short socket wrench no.10	HNI-10-90	1 pc.			
18	Allen long socket wrench no.5	HNIL-5-140	1 pc.			
19	Allen long socket wrench no.6	HNIL-6-140	1 pc.			
20	Allen long socket wrench no.8	HNIL-8-140	1 pc.			
21	Allen long socket wrench no.10	HNIL-10-140	1 pc.			
22	Drive handle "T" ½"	НТ	1 pc.			
23	Insulated extension bar 1/2"	HPN-125	1 pc.			
24	Insulated extension bar 1/2"	HPN-250	1 pc.			
25	Box with foamed insert	ZST210	1 pc.			



## ZST 220 set

The set of equipment for safety the HRC fuses replacement

	TOOLS					
#	product name	reference	quantity			
1	Fuse holder with protective sleeve	H066	1 pc.			
2	Flexible fuse covers	H053	2 pcs.			
3	Flexible fuse covers MINI	H053M	2 pcs.			
4	Insulating clamp MAX	H034M	4 pcs.			
5	Box with foamed insert	ZST220	1 pc.			



## ZST 550 set

Dry cleaning set for live line maintenance up to 1kV.

EQUIPMENT				
#	product name	referencae		
1	The vacuum cleaner with hose	SE 62		

STANDARD EQUIPMENT ZST 550 SET						
#	product name	referencae				
1	Insulating suction tube	H091-04/1				
2	Circular small brush	H091-07/1				
3	Narrow suction nozzle	H091-11/1				
4	Angular suction nozzle	H091-26/1				
5	Conical nipple	H091-27/01				
6	Flat suction nozzle with bristle	H091-28/01				
7	Box with foamed insert	ZST550				





#### **ZST 551 set**

Dry cleaning set for live line maintenance up to 1kV.

	SUPPLEMENTARY EQUIPMENT ZST 551SET	T
#	product name	referencae
1	Rectangular small brush	H091-09/1
2	Suction nozzle with wide bristle	H091-22/1
3	Suction nozzle with narrow bristle	H091-23/1
4	Insulating brush φ10mm	HPE-10
5	Insulating brush φ14mm	HPE-14
6	Insulating angular brush 25mm	HPE-25
7	Box with foamed insert	ZST551

	ADDICTONAL EQUIPMENT	
#	product name	referencae
1	service soket with clamps	H0-ZK





## ZST 555 set

Dry cleaning set for live line maintenance up to 1kV.

FULL EQUIPMENT ZST 555 SET					
#	product name	referencae			
1	Insulating suction tube	H091-04/1			
2	Circular small brush	H091-07/1			
3	Narrow suction nozzle	H091-11/1			
4	Angular suction nozzle	H091-26/1			
5	Conical nipple	H091-27/01			
6	Flat suction nozzle with bristle	H091-28/01			
7	Rectangular small brush H091-09/1				
8	Suction nozzle with wide bristle H091-22/1				
9	Suction nozzle with narrow bristle	H091-23/1			
10	Set cleaning small brush	H091-16/1			
11	Insulating brush φ10mm	HPE-10			
12	Insulating brush φ14mm	HPE-14			
13	Insulating angular brush 25mm	HPE-25			
14	Equipment box	ZST 555			



#### **ZST 1020 set**

The set of minimum equipment with tools, equipment and personal protective elements to receive training in the live working technique on networks up to 1kV. (for 2 linemans).

	EQUIPMENT FOR OVERHEAD LINES					
#	product name	reference	quantity			
1	Transport block	H019	1 pc.			
2	Strap binder with rings	H021	1 pc.			
3	Line hose type " $\Omega$ "	H027	18 pcs.			
4	Insulating end caps φ15 mm	H029-15	4 pcs.			
5	Insulating end caps φ30 mm	H029-30	4 pcs.			
6	Single pole portable shunt device + cables	PRB-B1H	1 pc.			
7	Insulating blanket 600x400mm	H031-6/4	10 pcs.			
8	Insulating clamp	H034	20 pcs.			
9	Wedges	H039	1 pc.			
10	Insulator cover	H078	5 pcs.			
11	Transport bag (long)	H035	1 pc.			
12	Transport bag (short)	H036	1 pc.			
13	Insulating transport hook type "S"	H038-S	2 pcs.			
14	Equipment for the workplace marking - chain	H043	1 set			
15	Equipment for the workplace marking - warning board	H042-T	1 pc.			
16	Tarpaulin sheet for tools and equipment	H037	1 pc.			
	TOOLS FOR OVERHEAD LINES					
#	product name	reference	quantity			
17	Screwdrivers (4 pieces)	RWWE/KPL4	1 set			
18	Pliers	HS-1-200/C	1 pc.			
19	Cable wires cutter max. diameter 13mm	HN8N	1 pc.			
20	Adjustable spanner	HSZ	1 pc.			
21	Single headed spanner no.13	HP-13	1 pc.			
22	Single headed spanner no.17	HP-17	1 pc.			
23	Single headed spanner no.19	HP-19	1 pc.			
24	Single ended ring spanner no.13	HO-13	1 pc.			
25	Single ended ring spanner no.17	HO-17	1 pc.			
26	Single ended ring spanne no.19	HO-19	1 pc.			
27	Insulated torque wrench ½" 7,5÷55Nm	HD	1 pc.			
28	Insulating holder for connectors	HC	1 pc.			
29	Insulated knife	HNM	1 pc.			
30	Cross socket wrench no.10x13x14x17	HK 10/13/14/17	1 pc.			
31	Tool bag	НТО	1 pc.			
	PERSONAL PROTECTIVE EQUIPMENT AND SELECTED EQUIPMENT FOR SAFETY WORKING	G ON POLES				
	product name	reference	quantity			
#						
<b>#</b> 32	Insulating glove class 00 (*)	H044-N	2 pairs			
	Insulating glove class 00 (*) Leather protection glove (*)	H044-N H045/D	2 pairs 2 pairs			
32						
32 33	Leather protection glove (*)	H045/D	2 pairs			
32 33 34	Leather protection glove (*) Cotton glove	H045/D H046	2 pairs 4 pairs			
32 33 34 35	Leather protection glove (*)  Cotton glove  Electrically insulating helmet SECRA with face shield class 1(**) +spectacles	H045/D H046 H058S-1/D	2 pairs 4 pairs 2 pcs.			
32 33 34 35 36	Leather protection glove (*)  Cotton glove  Electrically insulating helmet SECRA with face shield class 1(**) +spectacles  Safety harness	H045/D H046 H0585-1/D CA121	2 pairs 4 pairs 2 pcs. 1 pc.			

(\*) - available sizes 9,10,11, (\*\*) - color: white and yellow on the stock

#### **ZST 1020 set**

The set of minimum equipment with tools, equipment and personal protective elements to receive training in the live working technique on networks up to 1kV. (for 2 linemans).

	EQUIPMENT ON CABLE LINES AND SWITCHGEAR CONNECTING BOXES		
#	product name	reference	quantity
40	Insulating matting	H052	1 pc.
41	Insulating blanket 1000 x 800mm	H031-10/8	2 pcs.
42	Insulating blanket 900 x 500mm	H031-9/5	2 pcs.
43	Insulating blanket 800 x 600mm	H031-8/6	2 pcs.
44	Insulating blanket 600 x 500mm	H031-6/5	2 pcs.
45	Flexible fuse covers	H053	6 pcs.
46	Rigid fuse base covers (short)	H054-D	3 pcs.
47	Rigid fuse base covers (long)	H054-K	3 pcs.
48	Neutral bus bar insulating cover	H073	2 pcs.
49	Fuse holder with protective sleeve	H066	1 pc.
50	Bus bar insulating cover	H055	3 pcs.
51	Insulating clamp MAX	H034M	10 pcs.
52	Equipment bag	H059	1 pc.
	TOOLS ON CABLE LINES AND SWITCHGEAR CONNECTING BOXES		
#	product name	reference	quantity
53	Drive handle "L" ½"	HT	1 pc.
54	Reversible ratchet ½" square drive	HG	1 pc.
55	Tubular socket wrench no.13	HKR-13	1 pc.
56	Tubular socket wrench no.14	HKR-14	1 pc.
57	Tubular socket wrench no.17	HKR-17	1 pc.
58	Tubular socket wrench no.19	HKR-19	1 pc.
59	Blocking wrench no.13	HNS-13	1 pc.
60	Blocking wrench no.17	HNS-17	1 pc.
61	Blocking wrench no.19	HNS-19	1 pc.
62	Blocking spanner no.13	HOS-13	1 pc.
63	Blocking spanner no.17	HOS-17	1 pc.
64	Blocking spanner no.19	HOS-19	1 pc.
65	Bent screwdriver	RWWS	1 pc.
66	Allen long socket wrench no.5	HNIL-5-140	1 pc.
67	Allen long socket wrench no.6	HNIL-6-140	1 pc.
68	Allen long socket wrench no.8	HNIL-8-140	1 pc.
69	Allen long socket wrench no.10	HNIL-10-140	1 pc.
70	Insulated extension bar 1/2"	HPN-250	1 pc.
71	Insulated hammer	HM-3	1 pc.
72	Wedge	H079	2 pcs.
73	Insulating pliers	HS-8	1 pc.
74	Insulated file	HPI	1 pc.
75	Insulating brush	HPE-100x30	1 pc.

# MEDIUM VOLTAGE Indoor transformer station up to 36kV

# Dry cleaning set

Wet cleaning set
Bolted connection manipulation set
Cable terminations filling set
Sets up to 36kV



## THE VACUUM CLEANER WITH HOSE

Protection class II

#### KÄRCHER

REFE- RENCE	POWER SUPPLY	POWER INPUT	VACCUM	AIR FLOW	CONTAINER CAPACITY
NT 65/2 Tact	1/230/50 ~/V/Hz	2750W	235mbar	2x56 l/s	65l



See sets ZST 500 and ZST 5060.

# MAIN SUCION TUBE WITH HAND LIMITER

Made of polycarbonate. Polyamide threaded end for nozzle, tube and brush connection. Hand limiter and a limit mark. Distance between the limiter and the limit mark should be at least 600 mm.

#### **TUBE EXTENSION**

Made of polycarbonate. Polyamide threaded end for nozzle, tube and brush connection.



REFERENCE	LENGTH	EXT. DIAMETER	INT. DIAMETER	WEIGHT
H091-01	1260mm	40mm	36mm	500g



REFERENCE	LENGTH	EXT. DIAMETER	INT. DIAMETER	WEIGHT
H091-02	800mm	40mm	36mm	320g
H091-03	400mm	40mm	36mm	210g
H091-04	200mm	40mm	36mm	120g









## ELBOW 90°

Made of white PVC. Polyamide threaded end for nozzle, tube and brush connection.

## **MOVABLE ELBOW 90°**

Made of white PVC. Polyamide threaded end for nozzle, tube and brush connection.



REFERENCE	ANGLE	WEIGHT
H091-05	90°	105g



REFERENCE	ANGLE	WEIGHT
H091-05-S	2x90°	190g









## ELBOW 135°

Made of white PVC. Polyamide threaded end for nozzle, tube and brush connection.



REFERENCE	ANGLE	WEIGHT
H091-06	135°	100g





#### **CIRCULAR BRUSH**

Made of red polyamide and natural bristle. Polyamide threaded end for tube and elbows connection.

#### **FORKED BRUSH**

Made of red polyamide and natural bristle. Polyamide threaded end for tube and elbows connection.



REFERENCE	LENGTH	DIAMETER	WEIGHT
H091-07	230mm	120mm	250g



REFERENCE	LENGTH	DIAMETER	WEIGHT
H091-08	250mm	2x100mm	250g









#### **RECTANGULAR SMALL BRUSH**

#### **LONG BRUSH**

Made of black polypropylene and natural bristle. Polyamide threaded end for tube and elbows connection. Bristle can be set in two positions.

Made of black polypropylene and natural bristle. Polyamide threaded end for tube and elbows connection.



REFERENCE	LENGTH	BRISTLE LENGTH	WEIGHT
H091-9	140mm	40x60mm	80g



REFERENCE	LENGTH	BRISTLE LENGTH	WEIGHT
H091-10	260mm	50x130mm	160g









## **NARROW SUCTION NOZZLE**

#### **WIDE SUCTION NOZZLE**

Made of red polyamide. Polyamide threaded end for tube and elbows connection.

Made of red polyamide. Polyamide threaded end for tube and elbows connection.



REFERENCE	LENGTH	WIDTH	WEIGHT
H091-11	230mm	30mm	75g



REFERENCE	LENGTH	WIDTH	WEIGHT
H091-12	320mm	40mm	110g







#### **WIDE-ANGULAR SUCTION NOZZLE**

#### **WIDE SUCTION BRUSH**

Made of black polyethylene. Polyamide threaded end for tube and elbows connection.

Made of black polyethylene. Polyamide threaded end for tube and elbows connection.



REFERENCE	LENGTH	WIDTH	WEIGHT
H091-13	360mm	95mm	160g



REFERENCE	DIMENSIONS	WEIGHT
H091-15	50x360mm	300g









## **INSULATORS TURBO BRUSH**

#### **TURBO BRUSH STANDARD**

Made of black polypropylene. Bristle is moved by intake air. Polyamide threaded end for tube and elbows connection.

Made of black polypropylene. Bristle is moved by intake air. Polyamide threaded end for tube and elbows connection.



REFERENCE	LENGTH	BRISTLE WIDTH	WEIGHT
H091-14	250mm	160mm	370g



REFERENCE	LENGTH	WIDTH	WEIGHT
H091-18	220mm	160mm	350g







#### **CONICAL NIPPLE**

IEC 60900:2012

Made of polyamide, allows to connect a vacuum cleaner suction hose on one side and nozzles, elbows, or brushes on the other. To be used up to 1000V only.

#### **INSULATING MIRROR**

Made of polyamide. To be used with tubes and elbows. Mirror can be set at different direction.



REFERENCE	LENGTH	INT. DIAMETER	WEIGHT
H091-20	95mm	45mm	55g



REFERENCE	LENGTH	DIAMETER	WEIGHT
H091-30	130mm	40mm	<b>4</b> 5g







## **SET CLEANING BRUSH**

Made of fiber glass rod, polyamide and natural bristle. Brush is used only to clean the inside surface of the suction tube and extensions. Do not use for live working.

#### **SILICONE TISSUE**

Cotton tissue soaked with silicone. To be used only to clean and maintain external surfaces of the suction tube, extensions and accessories.

REFERENCE	LENGTH	WEIGHT
H091-16	1300mm	240g

REFERENCE	DIMENSIONS	WEIGHT
991015	360x360mm	35g







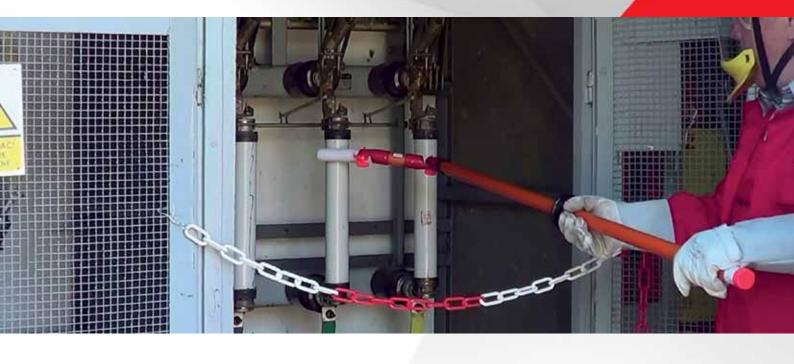


# MEDIUM VOLTAGE Indoor transformer station up to 36kV

Dry cleaning set

### Wet cleaning set

Bolted connection manipulation set Cable terminations filling set Sets up to 36kV



#### **INSULATING HANDLING STICK**

IEC 60832-1:2010

Made of fiberglass-epoxy foam filled tube in orange color. The universal adaptor for tools and equipment to be attached. Equipped with a hand limiter and a limit mark. The distance between the limiter and the limit mark should be at least 600 mm.

## EXTENSION FOR INSULATING HANDLING STICK

IEC 60832-1:2010

Made of fiberglass-epoxy foam filled tube in orange color. Two universal adaptors for tools and sticks to be attached.



REFERENCE	DIAMETER	LENGTH	WEIGHT
H090-01	32mm	1300mm	950g



REFERENCE	DIAMETER	LENGTH	WEIGHT
H090-02	32mm	500mm	430g







#### **UNIVERSAL EXTENSION**

IEC 60832-2:2010

Made of fiberglass-epoxy foam filled tube in orange color. Two universal adaptors for tools and sticks to be attached. Designed to reach each side of cleaned item.



REFERENCE	DIMENSION	LENGTH	ANGLE BETWE- EN THE HEADS	WEIGHT
H090-03	32mm	150mm	180°	180g
H090-04	32mm	150mm	90°	180g





#### **ROUND SPONGE WITH STICK ADAPTER**

IEC 60832-2:2010

#### **REPLACEABLE SPONGE**

Sponge made of polyurethane foam.

Stem made of polyamide in red color. Sponge made of polyure-thane foam. Protection nut made of polyethylene.



REFERENCE	LENGTH	WEIGHT
H090-06	100mm	<b>15</b> g
H090-07	150mm	18g

REFERENCE	DIAMETER	LENGTH	TAMPONS QUANTITY IN THE ELEMENT
SH090-06-09/02	35mm	55mm	1
SH090-07-10/02	35mm	110mm	1







#### **LARGE SPONGE WITH STICK ADAPTER**

IEC 60832-2:2010

Stem made of polyamide in red color. Sponge made of polyure-thane foam.

#### **REPLACEABLE SPONGE**

Sponge made of polyurethane foam.



REFERENCE	LENGTH	WEIGHT
H090-08	110mm	<b>4</b> 5g

REFERENCE	DIMENSIONS	TAMPONS QUANTITY IN THE ELEMENT
SH090-08/02	90x140x40mm	2







#### **FORKED SPONGE WITH STICK ADAPTER**

#### **REPLACEABLE SPONGE**

Stem made of polyamide in red color. Sponge made of polyure-thane foam. Protection nut made of polyethylene.

Sponge made of polyurethane foam.





REFERENCE	DIAMETER	LENGTH	TAMPONS QUANTITY IN THE ELEMENT
SH090-06-09/02	35mm	55mm	2
SH090-07-10/02	35mm	110mm	2







#### **FLAT SPONGE WITH STICK ADAPTER**

#### **REPLACEABLE SPONGE**

#### IEC 60832-2:2010

Stem made of polyamide in red color. Sponge made of polyure-

Sponge made of polyurethane foam.

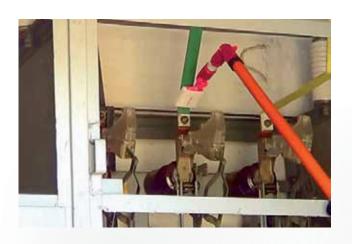




REFERENCE	DIMENSIONS	TAMPONS QUANTITY IN THE ELEMENT
SH090-11/02	75x50x20mm	1
SH090-12/02	80x60x20mm	1
SH090-13/02	80x70x20mm	1







#### **BRUSH WITH STICK ADAPTER**

PN-EN 60832-2:2010 / IEC 60832-2:2010

Made of natural bristle, adaptor is made of insulating material.



REFERENCE	LENGHT	DIAMETER	DIMENSION	WEIGHT
H090-14	140mm	10mm	-	40g
H090-15	160mm	14mm	-	50g
H090-16	160mm	_	30x100mm	110g







## INSULATING MIRROR WITH STICK ADAPTER

IEC 60832-2:2010

Made of polyamide. Mirror can be set at any direction.

#### **SILICONE TISSUE**

Cotton tissue soaked with silicone. To be used only to clean and maintain external surfaces of the suction tube, extensions and accessories.





REFERENCE	DIMENSIONS	WEIGHT
991015	360x360mm	35g







## CLEANING DIELECTRIC LIQUID - ASOREL CN

Reference 991019

Gigh purity liquid, isoparaffin type C10-12. Dissolves grease, oils, glues without disturbing surface: metal, metal alloys, base paint, rubber, plexiglass, electrical insulation. Approved by EDF SERECT (France) for live working, especially for the removal of silicone.

- Dielectric strength of> 30kV
- Packaging: 1l

#### **DIELECTRIC LIQUID SPRAYER**

Reference 08231214002

Made of polypropylene. Designed for aggressive chemicals and cleaning products.







# MEDIUM VOLTAGE Indoor transformer station up to 36kV

Dry cleaning set Wet cleaning set

### **Bolted connection manipulation set**

Cable terminations filling set Sets up to 36kV



#### **INSULATING HANDLING STICK**

IEC 60832-1:2010

Made of fiberglass-epoxy foam filled tube in orange color. The universal adaptor for tools and equipment to be attached. Equipped with a hand limiter and a limit mark. The distance between the limiter and the limit mark should be at least 600 mm.

## EXTENSION FOR INSULATING HANDLING STICK

IEC 60832-1:2010

Made of fiberglass-epoxy foam filled tube in orange color. Two universal adaptors for tools and sticks to be attached.



REFERENCE	DIAMETER	LENGTH	WEIGHT
H090-01	32mm	1300mm	950g



REFERENCE	DIAMETER	LENGTH	WEIGHT
H090-02	32mm	500mm	430g







#### **UNIVERSAL EXTENSION**

IEC 60832-2:2010

Made of fiberglass-epoxy foam filled tube in orange color. Two universal adaptors for tools and sticks to be attached. Designed to reach each side of cleaned item.



REFERENCE	DIMEN- SION	LENGTH	ANGLE BETWE- EN THE HEADS	WEIGHT
H090-03	32mm	150mm	180°	180g
H090-04	32mm	150mm	90°	180g



#### **INSULATING ROTATING STICK**

IEC 60832-1:2010

Made of fiberglass-epoxy foam filled tube in orange color. Movable, rotating head, made of glassfibre reinforced polyamide. Equipped with a movable hand limiter and a limit mark. Distance between the limiter and the limit mark should be at least 600 mm.

#### **SCREWDRIVER SOCKET 1/2"**

IEC 60832-2:2010

Insert made of CrV steel. Insulation is made of fiberglass reinforced polyamide. To be used with rotating stick H094.



REFERENCE	DIAMETER	LENGTH	WEIGHT
H094	39mm	1900mm	2000g



PRODUCT NAME	REFERENCE	BLADE WIDTH	BLADE THICKNESS	LENGTH	WEIGHT
covered screwdriver socket	HN-18x2,5/1	18mm	2,5mm	50mm	65g
wide screwdriver socket	HN-18x2,5/2	18mm	2,5mm	50mm	55g
narrow screwdriver socket	HN-10x1,6	10mm	1,6mm	55mm	30g







#### SHORT SOCKET WRENCH 1/2"

IEC 60832-2:2010

Made of CrV steel. Insulation made of polyamide with the addition of fiberglass. To be used with rotating stick H094 or ratchet spanner H090 28.

### RATCHET SPANNER ½" WITH STICK ADAPTER

IEC 60832-2:2010

Insert made of CrV steel. Corps made of glassfiber reinforced polyamide.



REFERENCE	SIZE	LENGTH	WEIGHT
H094-N10	10mm	38mm	50g
H094-N13	13mm	38mm	55g
H094-N14	14mm	38mm	55g
H094-N17	17mm	38mm	70g
H094-N19	19mm	38mm	70g
H094-N22	22mm	38mm	95g
H094-N24	24mm	38mm	100g



REFERENCE	LENGTH	WEIGHT
H090-28	110mm	200g





### SINGLE HEADED SPANNERS WITH STICK ADAPTER

IEC 60832-2:2010

Insert made of CrV steel. Corps made of fiberglass reinforced polyamide.

#### **RING WRENCHES WITH STICK ADAPTER**

IEC 60832-2:2010

Insert made of CrV steel. Corps made of fiberglass reinforced polyamide.



REFERENCE	SIZE	LENGTH	WEIGHT	USED RANGE
H090-21/W-10	10mm	100mm	45g	
H090-21/W-13	13mm	100mm	50g	
H090-21/W-14	14mm	100mm	55g	6÷36kV
H090-21/W-17	17mm	110mm	80g	
H090-21/W-19	19mm	110mm	90g	
H090-21/W-22	22mm	120mm	120g	15÷36kV
H090-21/W-24	24mm	125mm	165g	13+36KV



REFERENCE	SIZE	LENGTH	WEIGHT	USED RANGE
H090-22/O-10	10mm	130mm	50g	
H090-22/O-13	13mm	130mm	105g	
H090-22/O-14	14mm	130mm	115g	
H090-22/O-17	17mm	140mm	125g	6÷36kV
H090-22/O-19	19mm	150mm	140g	
H090-22/O-22	22mm	150mm	160g	
H090-22/O-24	24mm	150mm	165g	





## REVERSIBLE RING WRENCHES WITH STICK ADAPTER

IEC 60832-2:2010

Insert made of CrV steel. Corps made of fiberglass reinforced polyamide.

#### **SILICONE TISSUE**

Cotton tissue soaked with silicone. To be used only to clean and maintain external surfaces of the suction tube, extensions and accessories.



REFERENCE	SIZE	LENGTH	WEIGHT	USED RANGE
H090-23/G-10	10mm	100mm	50g	
H090-23/G-13	13mm	100mm	55g	
H090-23/G-14	14mm	105mm	60g	6÷36kV
H090-23/G-17	17mm	110mm	90g	
H090-23/G-19	19mm	115mm	95g	
H090-23/G-22	22mm	135mm	215g	15÷36kV
H090-23/G-24	24mm	135mm	200g	13730KV

REFERENCE	DIMENSIONS	WEIGHT
991015	360x360mm	35g









## INSULATING MIRROR WITH STICK ADAPTER

IEC 60832-2:2010

Made of polyamide. Mirror can be set at different direction.

## LENGTH INDICATOR WITH STICK ADAPTER

Made of polyamide. Graduation - 25mm.



REFERENCE	LENGTH	DIAMETER	WEIGHT
H090-30	150mm	40mm	40g



REFERENCE	LENGTH	WEIGHT
H090-31	260mm	17g





# MEDIUM VOLTAGE Indoor transformer station up to 36kV

Dry cleaning set

Wet cleaning set

Bolted connection manipulation set

### Cable terminations filling set

Sets up to 36kV



#### **CABLE TERMINATIONS FILLING DEVICE**

Reference H092

Device for filling terminations consists of pump, heat cover, isolating pressure hose and the nozzle with stick adapter. Impregnate tank is equipped with a special electric heater. Temperature control unit is connected to the heater pump with HAN-D connector. Cylindrical cover prevents heat emission to the outside and does not allow impregnation to cool down especially at low temperatures.

Technical characteristics

- Tank capacity
 - Heating power
 - Power supply
 - Temperature range
 - Thermo-couple type
 - Insulating hose length
 - 4,5 dcm³
 - 230V/50Hz
 - 0÷110°C
 - Pt-100
 - Insulating hose length

weight: 13,2kg (pump with cover) weight: 2,5kg (control box)











#### **INSULATING ROTATING STICK**

IEC 60832-1:2010

Made of fiberglass-epoxy foam filled tube in orange color. Movable, rotating head, made of glass fibre reinforced polyamide. Equipped with movable hand limiter and limit mark. Distance between the limiter and the limit mark should be at least 600 mm.

#### **SCREWDRIVER SOCKET 1/2"**

IEC 60832-2:2010

Insert made of CrV steel. Insulation is made of fiberglass reinforced polyamide. To be used with rotating stick H094.



REFERENCE	DIAMETER	LENGTH	WEIGHT
H094	39mm	1900mm	2000g



NAZWA	REFERENCE	BLADE WIDTH	BLADE THICKNESS	LENGTH	WE- IGHT
covered screwdriver socket	HN- -18x2,5/1	18mm	2,5mm	50mm	65g
wide screw- driver socket	HN- -18x2,5/2	18mm	2,5mm	50mm	55g
narrow screwdriver socket	HN-10x1,6	10mm	1,6mm	55mm	30g









#### **INSULATING HANDLING STICK**

IEC 60832-1:2010

Made of fiberglass-epoxy foam filled tube in orange color. The universal adaptor for tools and equipment to be attached. Equipped with a hand limiter and a limit mark. The distance between the limiter and the limit mark should be at least 600 mm.

## EXTENSION FOR INSULATING HANDLING STICK

IEC 60832-1:2010

Made of fiberglass-epoxy foam filled tube in orange color. Two universal adaptors for tools and sticks to be attached.



REFERENCE	DIAMETER	LENGTH	WEIGHT
H090-01	32mm	1300mm	950g



REFERENCE	DIAMETER	LENGTH	WEIGHT
H090-02	32mm	500mm	430g







#### **UNIVERSAL EXTENSION**

IEC 60832-2:2010

Made of fiberglass-epoxy foam filled tube in orange color. Two universal adaptors for tools and sticks to be attached. Designed to reach each side of cleaned item.



REFERENCE	DIMEN- SION	LENGTH	ANGLE BETWE- EN THE HEADS	WE- IGHT
H090-03	32mm	150mm	180°	180g
H090-04	32mm	150mm	90∘	180g



## INSULATING HOOK WITH STICK ADAPTER

IEC 60832-2:2010

Totally made of insulating material. To be used to remove or fix filler hole plugs.

#### **INSULATING ROD WITH STICK ADAPTER**

IEC 60832-2:2010

Totally made of insulating material. To be used to puncture the solidified impregnation layer in filler hole.



REFERENCE	LENGTH	WEIGHT
H016-90	100mm	<b>2</b> 0g



REFERENCE	LENGTH	WEIGHT
H090-18	265mm	17g







#### **FILLING HOLE PLUG**

#### Made of EVA copolymer. Resistant to grease and oil.

#### **SILICONE TISSUE**

Cotton tissue soaked with silicone. To be used only to clean and maintain external surfaces of the suction tube, extensions and accessories.

REFERENCE	DIAMETER	LENGTH	WEIGHT
H090-05/8	8mm	55mm	<b>5</b> g
H090-05/10	10mm	60mm	7g

REFERENCE	DIMENSIONS	WEIGHT
991015	360x360mm	35g







# MEDIUM VOLTAGE Indoor transformer station up to 36kV

Dry cleaning set
Wet cleaning set
Bolted connection manipulation set
Cable terminations filling set

Sets up to 36kV

#### ZST 500 set

Dry cleaning set for live line maintenance up to 36kV.

#	product name	reference
1	The vacuum cleaner with hose	NT 65-2 Tact
	ZST 500 set	
#	product name	reference
2	Main sucion tube with hand limiter	H091-01
3	Tube extension	H091-02
4	Tube extension	H091-03
5	Tube extension	H091-04
6	Elbow 90°	H091-05
7	Movable elbow 90°	H091-05-S
8	Elbow 135°	H091-06
9	Circular brush	H091-07
10	Forked brush	H091-08
11	Rectangular small brush	H091-09
12	Long brush	H091-10
13	Narrow suction nozzle	H091-11
14	Wide suction nozzle	H091-12
15	Wide-angular suction nozzle	H091-13
16	Insulators turbo brush	H091-14
17	Wide suction brush	H091-15
18	Cleaning set brush	H091-16
19	Turbo brush standard	H091-18
20A	Dry cleaning set bag	H091-19
20B	Cleaning and maintenance set 36kV box	ZST 500
21	Conical nipple	H091-20
22	Insulating mirror	H091-30
23	Silicone tissue	991015
24	Dry and wet cleaning set box	ZST 5060





#### ZST 600 set

Wet cleaning set for live line maintenance up to 36kV.

	ZST 600 sett	
#	product name	reference
1	Insulating handling stick	H090-01
2	Extension of insulating handling stick	H090-02
3	Universal extension 180°	H090-03
4	Universal extension 90°	H090-04
5	Replaceable sponges with stick adapter φ35/55mm	H090-06
6	Replaceable sponges with stick adapter φ35/110mm	H090-07
7	Replaceable sponges with stick adapter 90x140x40mm	H090-08
8	Replaceable forked sponges with stick adapter	H090-09
9	Replaceable forked sponges with stick adapter	H090-10
10	Replaceable sponges with stick adapter 75x50x20mm	H090-11
11	Replaceable sponges with stick adapter 80x60x20mm	H090-12
12	Replaceable sponges with stick adapter 80x70x20mm	H090-13
13	Brush with stick adapter φ10mm	H090-14
14	Brush with stick adapter φ14mm	H090-15
15	Brush with stick adapter 30x70mm	H090-16
16A	Cleaning and maintenance set bag	H090-17/19
16B	Cleaning and maintenance set box	ZST 600
17	Insulating mirror with stick adapter	H090-30
18	Silicone tissue	991015
19	Cleaning preparation ASOREL CN	991019
20	Sprayer for preparation ASOREL CN	8231214002
21	Dry and wet cleaning set box	ZST 5060





#### ZST 700 set

Bolted connection manipulation set for live maintenance up to 36kV.

	ZST 700 set		
#	product name	reference	
1	Insulating handling stick	H090-01	
2	Extension for insulating handling stick	H090-02	
3	Universal extension 180°	H090-03	
4	Universal extension 90°	H090-04	
5A	Cleaning and maintenance set bag	H090-17/19	
5B	Cleaning and maintenance set box	ZST 700	
6	Single headed spanners with stick adapter nr: 10,13,14,17,19	H090-21/W-1019	
7	Ring wrenches with stick adapter nr: 10,13,14,17,19,22,24	H090-22/O-1024	
8	Reversible ring wrenches with stick adapter nr: 10,13,14,17,19	H090-23/G-1019	
9	Ratchet spanner with stick adapter	H090-28	
10	Insulating mirror with stick adapter	H090-30	
11	Length indicator with stick adapter	H090-31	
12	Silicone tissue	991015	
	additional equipment		
13	Single headed spanners with stick adapter nr: 22,24	H090-21/W-22,24	
14	Reversible ring wrenches with stick adapter nr: 22,24	H090-23/G-22,24	
	ZST 701 set		
#	product name	reference	
15	Insulating rotating stick	H094	
16	Screwdriver socket 18x2,5	HN18x2,5/1	
17	Screwdriver socket 18x2,5	HN18x2,5/2	
18	Screwdriver socket 10x1,6	HN10x1,6	
19	Short socket wrench nr: 10,13,14,17,19,22,24	H094-N1024	
20	Stick cover	H090-20	





#### ZST 800 set

Cable terminations filling set for live line maintenance from 6kV to 36kV.

#	product name	reference	
1	Cable termination filling device	H092	
ZST 800 set			
#	product name	reference	
2	Insulating handling stick	H090-01	
3	Extension for insulating handling stick	H090-02	
4	Universal extension 180°	H090-03	
5	Universal extension 90°	H090-04	
6	Filling hole plug	H090-05	
7	Insulating hook with stick adapter	H016-90	
8	Insulating rod with stick adapter	H090-18	
9A	Cleaning and maintenance set bag	H090-17/19	
9B	Cleaning and maintenance set box	ZST 800	
10	Length indicator with stick adapter	H090-31	
11	Silicone tissue	991015	
	ZST 801 set		
#	product name	reference	
12	Insulating rotating stick	H094	
13	Screwdriver socket 18x2,5	HN18x2,5/1	
14	Screwdriver socket 18x2,5	HN18x2,5/2	
15	Screwdriver socket 10x1,6	HN10x1,6	
16	Stick cover	H090-20	





#### **ZST 5060 set**

Dry and wet cleaning set for live line maintenance up to 36kV.

#	product name	reference
1	The vacuum cleaner with hose	NT 65-2 Tact
	ZST 5060 set	
#	product name	reference
2	Main sucion tube with hand limiter	H091-01
3	Tube extension	H091-02
4	Tube extension	H091-03
5	Tube extension	H091-04
6	Elbow 90°	H091-05
7	Movable elbow 90°	H091-05-S
8	Elbow 135°	H091-06
9	Circular brush	H091-07
10	Forked brush	H091-08
11	Rectangular small brush	H091-09
12	Long brush	H091-10
13	Narrow suction nozzle	H091-11
14	Wide suction nozzle	H091-12
15	Wide-angular suction nozzle	H091-13
16	Insulators turbo brush	H091-14
17	Wide suction brush	H091-15
18	Cleaning set brush	H091-16
19	Turbo brush standard	H091-18
20	Conical nipple	H091-20
21	Insulating mirror	H091-30
22	Insulating handlingstick	H090-01
23	Extension for insulating handling stick	H090-02
24	Universal extension 180°	H090-03
25	Universal extension 90°	H090-04
26	Replaceable sponges with stick adapter φ35/55mm	H090-06
27	Replaceable sponges with stick adapter φ35/110mm	H090-07
28	Replaceable sponges with stick adapter 90x140x40mm	H090-08
29	Replaceable forked sponges with stick adapter	H090-09
30	Replaceable forked sponges with stick adapter	H090-10
31	Replaceable sponges with stick adapter 75x50x20mm	H090-11
32	Replaceable sponges with stick adapter 80x60x20mm	H090-12
33	Replaceable sponges with stick adapter 80x70x20mm	H090-13
34	Brush with stick adapter φ10mm	H090-14
35	Brush with stick adapter $\phi$ 14mm	H090-15
36	Brush with stick adapter 30x70mm	H090-16
37	Insulating mirror with stick adapter	H090-30
38	Silicone tissue	991015
39	Cleaning preparation ASOREL CN	991019
40	Sprayer for preparation ASOREL CN	8231214002
41	Dry and wet cleaning set box	ZST 5060



# MEDIUM VOLTAGE Cable lines up to 30kV

Hydraulic cutting device

#### **HYDRAULIC CUTTING DEVICE**

- Device with hydraulic foot-operated lever.
- Head with steel jaw blades, connected to the pump with insulating hose
- Quick hose release system
- Overload valve (set pressure 600 bar max)
- Pressure gauge (range 0 to 1000bar)
- Electrically insulating oil (class 1).
- Pressure hose length: 5-15m (on request)
- Both the head and the food-pump have a connector to connect the ground wire
- Transport bag or box

#### **HYDRAULIC CUTTING DEVICE**

- Device with hydraulic foot-operated lever.
- Head with guillotine blades, connected to the pump with insu lating hose
- Quick hose release system
- Overload valve (set pressure 600 bar max)
- Pressure gauge (range 0 to 1000bar)
- Electrically insulating oil (class 1).
- Pressure hose length: 5-15m (on request)
- Both the head and the food-pump have a connector to connect the ground wire
- Transport bag or box



REFERENCE	MAX. CABLE CROSS-SECTION	WEIGHT
INK-80	φ80mm	18,9kg



REFERENCE	MAX. CABLE CROSS-SECTION	WEIGHT
INK-100	φ100mm	22,4kg





#### **HYDRAULIC CUTTING DEVICE**

- Device with hydraulic foot-operated lever.
- Head with guillotine blades, connected to the pump with insulating hose
- Quick hose release system
- Overload valve (set pressure 600 bar max)
- Pressure gauge (range 0 to 1000bar)
- Electrically insulating oil (class 1).
- Pressure hose length: 5-15m (on request)
- Both the head and the food-pump have a connector to connect the ground wire
- Transport bag or box

#### **BIG HARD BOX**

Rigid box made of plywood with aluminium profiles, lined with polyurethane foam. It has wheels for easy transport. For transportation and storage of cable crimping or cutting device



REFERENCE	MAX. CABLE CROSS-SECTION	WEIGHT
INK-132	φ132mm	28,7kg

REFERENCE	DIMENSIONS	WEIGHT
SINK/PHI	820x590x230mm	12,6kg





### MEDIUM VOLTAGE The overhead lines 15kV-20kV

#### Set on overhead lines 15kV-20kV

Set up to 15kV-20kV



The chapter gives examples of symbols products. We reserve the right to supply products from other manufacturers with equivalent characteristics.

#### **RUBBER INSULATING GLOVES**

EN / IEC 60903, ASTM D120

#### **LEATHER PROTECTION GLOVES**

Manufactured from top grade leathers, all are sewn with heavy duty nylon thread. Each protector is equipped with non-metallic buckle on the pull strap as well as an extra wide leather reinforcement over the thumb seam. Should always be worn over rubber insulating gloves to protection against cuts, abrasions and punctures.





REFERENCE	CLASS	VOLTAGE RATING	MAX VOLTAGE USE	CUFF STYLE	LENGTH	SIZE
PSC216BCYB10	2	20,000 V	17 000 V	wide	16"/40cm	10
PSC216BCYB11	Z	20 000 V	17 000 V	wide	16 /400111	11
PSC316BCYB10	2	20,000.1/	26 500 14		1611/10	10
PSC316BCYB11	3	30 000 V	26 500 V	wide	16"/40cm	11

REFERENCE	LENGTH	SIZE
ILP5S	14" / 35cm	10, 11







#### **RUBBER INSULATING SLEEVES**

ASTM D-1051

#### **SLEEVE HARNESS WITH BUTTONS**

Used (one harness and four buttons) to hold one pair of insulating sleeves.





REFERENCE	CLASS	VOLTAGE RATING	MAX VOLTAGE USE	OVERALL LENGTH	WRIST OPENING
PSC3LYBEC	3	30 000 V	26 500 V	26,5"/ 673mm	5,25"/ 140mm
PSC3XLYBEC	3	30 000 V	20 300 V	26,5"/ 673mm	5,25"/ 140mm

REFERENCE	PRODUCT NAME	WEIGHT
H1	HARNESS	450g
PSC4060600	BUTTON	40g







#### **LINE HOSES**

#### **INSULATOR COVER**

Orange flexible hose. It is not damaged by ozone or ultra-violet rays.

Orange flexible cover. It is not damaged by ozone or ultra-violet rays.



REFERENCE	CLASS	INT. DIAMETER	LENGTH	WEIGHT
C4060298	3	1,5" / 40mm	4,5' / 915mm	2,1kg
C4060308	3	1,5" / 40mm	4,5' / 1372mm	2,6kg



REFERENCE	CLASS	LENGTH	WIDE	WEIGHT
OKRG	3	16" / 400mm	8" / 200mm	3,2kg









#### **INSULATING BLANKETS**

ASTM D1048

#### **INSULATING CLAMP**

Made from insulating material. Used to hold in place rubber insulating blankets.



REFERENCE	CLASS	DIMENSIONS	COLOUR	STYLE	WEIGHT
C4060346	4	36"x36" / 914x914mm	orange	eyelet	3,6kg
1000-E	4	27"x36" / 686x914mm	orange	eyelet	2,3kg
C4060348	4	36"x36" / 914x914mm	orange	slotted	3,6kg

REFERENCE	MAX. JAW SPACING	LENGTH	WEIGHT
C4060530	5" / 125mm	240mm	150g









#### **POLE COVERS**

#### **NYLON-STRAP RATCHET HOISTS**

The covers are made of high-dielectric linear polyethylene material that will not flash flame.

Device with ratchet mechanism and single nylon strap. Maximum tensile strength: 1T.

REFERENCE	CLASS	DIAMETER	LENGTH	WEIGHT
M49372	4	9" / 230mm	2' / 61cm	3,2kg
C4060029	4	12" / 305mm	2' / 61cm	3,6kg

REFERENCE	HOOK TO HOOK MIN. DISTANCE	HOOK TO HOOK MAX. DISTANCE	WEIGHT
C3090323	27" / 70cm	8' / 240cm	5,7kg







#### **INSULATED HANGER**

The hanger serves as a convenient parking stand while lineman are installing jumper clamps on lines. The bronze double stud fitting on each side.

#### **SPIRAL LINK STICK**

The stick is used in lieu of strain link stick in close places where the lineman cannot safely install a strain link stick by hand. Ferrule castings are of heat-treated aluminum alloy. Spiral hook and butt ring of galvanized steel.

REFERENCE	WEIGHT
S1600-7	1,0kg

REFERENCE	LENGTH	MAX. WORK LOAD	WEIGHT
H4722	27 <sup>1</sup> / <sub>2</sub> " / 70cm	1500kg	1,6kg







#### **GRIP-ALL CLAMPSTICK**

#### **WIRE-HOLDING STICK**

Made of fiber glass-epoxy. Complete metal head with a hook and rods and driving mechanism.

 $\mbox{\sc Made}$  of fiber glass-epoxy. Head and fittings made of aluminum alloy.

REFERENCE	DIAMETER	LENGTH	WEIGHT
C4030292	11/4" / 31mm	6'5½" / 1970mm	2,9kg

REFERENCE	DIAMETER	LENGTH	WEIGHT
C4033068	11/4" / 31mm	6'5½" / 1970mm	2,7kg







#### **RATCHET CABLE CUTTERS**

#### **INSULATED JUMPER SET**

Made of fiber glass-epoxy. Shear-type steel blades cut without deforming cable of copper through 500MCM (dia. 20,6mm) or aluminum through 1000MCM (dia. 29,2mm).

Used to lines up to 15kV. Has two C-type aluminum clamps with smooth jaws and bronze eyescrews.

REFERENCE	LENGTH	WEIGHT
C4031382	6' / 1830mm	5kg

REFERENCE	CURRENT RATING	LENGTH	WEIGHT
T6010281	200A	12' / 3,65m	4kg
T6010282	200A	15' / 4,57m	4,7kg









#### **TEMPORARY LOAD DISCONNECT TOOL**

#### **TEMPORARY CLAMP**

To interrupt load currents, the device makes use of a stainless-steel auxiliary blade within arc chute. The tool simply clamps onto primary conductor with a grip-all clampstick. Bronze stud at lower end accepts clamp on temporary tap jumper.

Made of aluminum alloy with two clamps. Clamp for mounting on a line with a screw–eye of bronze.

REFERENCE	MAX. LOAD	WEIGHT
PSC6010347	300A	5kg

REFERENCE	WEIGHT
S1530AA	420g







#### **BLANKET CANISTER**

#### **WEBBING SLING**

Made of hi-impact, hi-density polyethylene. Provide mechanical and contamination protection.

Made of a polyamide strip with a layer of latex to increase the abrasion resistance.

REFERENCE	DIAMTER	LENGTH	WEIGHT
C4032998	7" /177mm	37" / 940mm	2,7kg

REFERENCE	WIDE	LENGTH	MAX. LOAD
C4170136	1" / 25,4mm	5' / 1524mm	1000daN





#### **GLOVE BAG**

One piece front and back, bar-tacked at all corners. Double nylon stitching, velcro flap fasteners. Gusset has 4-inch top tapering to 2-inch bottom.

#### **SLEEVE BAG**

For flat storage of rubber sleeves. Bar-tacked at all corners. Double nylon stitching, velcro flap fasteners. Gusset has 4-inch top tapering to 2-inch bottom.

REFERENCE	WIDE	LENGTH
C4170148	8" /20cm	18" /46cm

REFERENCE	WIDE (BOTTOM)	LENGTH
C4170149	7" /18cm	27" /69cm





#### **LOADLOOKER AMMETER**

It has a splined end-fitting for attachment to the stick.

- power supply: 9Vbattery
- memory function
- the housing is resistant to shock water

## ( (

REFERENCE	MAX VOLTAGE	MEASREMENT RANGE	FREQU- ENCY	JAW SIZE	WEIGHT
8-020XTPLUS	500kV	1- 5000A	50HZ	2,5"/ 63,5mm	~1kg

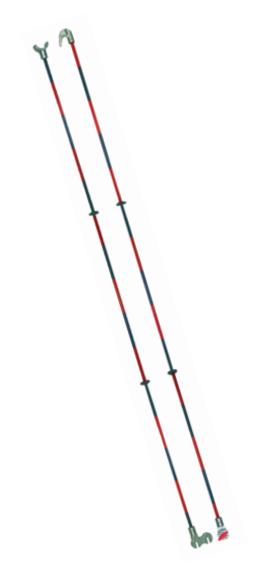
#### **MEASURING RODS**

The rod is made of fiberglass. The rod consists of two elements each having a length of 1500mm. Rods completed on one side made of an aluminum alloy terminals used to connect the splined ends of rods. On the other side, completed made of aluminum alloy hook and half ring.

The ring markers placed at 500mm. The colored markers (black and red) placed at 100mm.

REFERENCE	LENGTH	DIAMETER	WEIGHT
H069	2x1500mm	9mm	~0,5kg





### MEDIUM VOLTAGE The overhead lines 15kV-20kV

Set on overhead lines 15kV-20kV

Set up to 15kV-20kV

Set up to 15kV-20kV

The overhead lines 15kV-20kV

#### **ZST 900**

Set for live line maintenance on overhead lines 15kV-20kV. For the team (4 linemans).

	ZST 900		
#	product name	reference	quantity
1	Rubber insulating gloves class 2, size 10	PSC216BCYB 10	2 pairs
2	Rubber insulating gloves class 3, size 10	PSC316BCYB 10	2 pairs
3	Rubber insulating gloves class 2, size 11	PSC216BCYB 11	2 pairs
4	Rubber insulating gloves class 3, size 11	PSC316BCYB 11	2 pairs
5	Leather protection gloves	ILP5S	4 pairs
6	Glove bag	C4170148	8 pcs.
7	Rubber insulating sleeves class 3, size XL	PSC3LYBEC	2 pairs
8	Rubber insulating sleeves class 3, size L	PSC3XLYBEC	2 pairs
9	Sleeve harness	H1	4 pcs.
10	Buttons	PSC4060600	16 pcs.
11	Sleeve bag	C4170149	4 pcs.
12	Line hose	C4060298	6 pcs.
13	Line hose	C4060308	10 pcs.
14	Insulator cover	OKRG	6 pcs.
15	Insulating blanket eyelet style	C4060346	8 pcs.
16	Insulating blanket eyelet style	1000-E	6 pcs.
17	Insulating blanket slotted style	C4060348	4 pcs.
18	Blanket canister	C4032998	3 pcs.
19	Clamp	C4060530	24 pcs.
20	Pole cover	C4060029	1 pc.
21	Pole cover	M49372	1 pc.
22	Insulated hanger	S1600-7	2 pcs.
23	Spiral link stick	H4722	2 pcs.
24	Grip-all clampstick	C4030292	2 pcs.
25	Wire-holding stick	C4033068	1 pc.
26	Ratchet cable cutters	C4031382	1 pc.
27	Insulated jumper set	T6010281	3 pcs.
28	Insulated jumper set	T6010282	1 pc.
29	Jumper bag	SPRB-3F/02	4 pcs.
30	Nylon-strap ratchet hoists	PSC3090323	1 pc.
31	Nylon-strap ratchet hoists bag	SHN10/03	1 pc.
32	Loadlooker ammeter	8-020XTPLUS	1 pc.
33	Temporary clamp	S1530AA	6 pcs.
34	Temporary load disconnect tool	PSC6010347	3 pcs.
35	Wire grip	H022	1 pc.
36	Webbing sling	C4170136	4 pcs.
37	Tarpaulin sheet for tools and equipment	H037	1 pc.

### **HIGH VOLTAGE**

Sets up to 110kV, 220kV, 400kV



The equipment required to perform live working on high voltage overhead lines available from the catalog of CHANCE. www.hubbellpowersystems.com







# MULTIMETERS, INDICATORS, DETECTORS (low, medium and high voltage)



#### **DIGITAL CLAMP METER**

- automatic polarity indication
- overload indication
- low battery indication
- data hold
- power supply: 9V battery
- measurement ranges:
- DC voltage max. 1000V
- AC voltage max. 750V (rms)
- AC current max. 1000A (rms)
- resistance max.  $20k\Omega$
- continuity test (sound signal)
- insulation resistance test max 2000M  $\Omega$  (with insulation tester unit 261)

#### **INSULATION TESTER UNIT**

- Using DC-DC converter, it converts 6V DC to 500V DC.
- Power supply: 4 x AA size batteries is the adaptor for clamp meter 266
- Range insulation tester:
  - 1. from  $100k\Omega$  to  $20M\Omega$
  - 2. from  $20M\Omega$  to  $2000M\Omega$
- Accessories:
- 2 test leads with an alligator clip



REFERENCE	DIMENSIONS	JAW OPENING	WEIGHT
EM266	230x70x37mm	45mm	310g



REFERENCE	DIMENSIONS	WEIGHT
261	90x70x50mm	200g





#### **INFRARED THERMOMETER**

- Infrared non-contact thermometer with single spot laser sighting and LCD display. Possible also the temperature measurement with a K type thermo-couple.
- Memory function (max. number of data -99)
- Auto-power off function(8s after releasing the button)
- Low battery indication
- Power supply: 9Vbattery type 6F22, battery life normal 12h, alkaline 30h
- Measurement range:  $-58^{\circ} 2822^{\circ} F \ / \ -50^{\circ} 1550^{\circ} C$  (infrared)  $-58^{\circ} 3362^{\circ} F \ / \ -50^{\circ} 1850^{\circ} C$ 
  - (thermo-couple)
- Accuracy:  $\pm 4^{\circ}F/\pm 1,8^{\circ}C$  (infrared)  $\pm 2^{\circ}F/\pm 1^{\circ}C$  (thermo-couple) [for ambient temp.  $23^{\circ}C \div 25^{\circ}C$ ]
- Response time: 250ms - Spectral response: 8÷14µm
- Emissivity adjustment: 0,10÷1,00
- Distance to spot: 50:1

#### **INFRARED THERMOMETER**

- Infrared non-contact thermometer with single spot laser sighting and LCD display
- Auto-power off function (10s after releasing the button)
- Low battery indication
- Power supply: 9Vbattery type 6F22, battery life 12h
- Measurement range: -4° 968°F / -20° 520°C
- Accuracy: ±3°F / ±2°C
   Response time: 500ms
   Spectral response: 7 18µm
   Emissivity adjustment: 0,95
- Distance to spot: 8:1



REFERENCE	DIMENSIONS	WEIGHT
UT 305C	170x140x53mm	270g



REFERENCE	DIMENSIONS	WEIGHT
EM 520B	160x90x43mm	180g





#### **DIGITAL POWER CLAMP METER**

#### Measurement ranges:

- AC voltage max. 600V (rms)
- frequency 20 ~ 500 (Hz)
- AC current max. 1000A (rms)
- Active power 600 kW max (ranges: voltage 600 V, current 1000A)
- Apparent power 600 kVA max (ranges: voltage 600 V, current 1000A)
- Reactive power 600 kVar max (ranges: voltage 600 V, current 1000A)
- Power factor 0.3 ~ 1
- Phase angle  $0o \sim 360^{\circ}$
- Active energy 1 ~ 9999 (kWh)
- Temperature -50 $^{\circ}$ C ~ 1300 $^{\circ}$ C

#### Accessories:

- 1pair test leads (2,5m, 1000V),
- 1 pair alligator clip (1000V),
- Software,
- USB interface cable,
- Thermocouple,
- Tool box.

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REFERENCE	DIMENSIONS	JAW OPENING	WEIGHT
UT 231	303x112x39mm	55mm	650g

## INSULATED PERFORATION MEASURING CLAMP

Blade made of hardened alloy steel. Cover made of polyamide with the addition of fiberglass.

REFERENCE	WIRES CROSS-SECTION	MAX LOAD
H100/1	10÷300mm²	1000mA





# UNIPOLAR ACOUSTIC-OPTICAL PHASING DEVICE AND INDICATOR ROTATION DIRECTION

EN 61243-1:2005

Used in three phase network with the voltage from 48 to 500V and 120  $^{\rm o}$  interphase angle

- Power supply: 9V battery, 6LR61 type
- Optical and acoustic signalling
- The phase info is saved for max. 25s
- Signals: saving the phase, compatibility and incompatibility the phases, measuring the direction of rotation,
- All featuring signals are strong and easily recognisable
- The device is delivered in hard case

## UNIPOLAR ACOUSTIC-OPTICAL BAR VOLTAGE INDICATORS

EN 61243-1:2005

Used in the networks from 200V to 36kV. The indicator is adjusted to be fitted on insulating stick (according to IEC 60832). Power supply: 9V battery, 6LR61 type

Operating and efficient indicator produces periodical audio and light signals. Voltage control is carried out in the way of touching to examined area with the contact stud. In the casa the place is under voltage, periodical audio and light signals change into constant.





REFERENCE	LENGTH	WEIHT
JUFr-0,05/0,5	240mm	350g





REFERENCE	VOLTAGE RANGE	LENGTH	WEIGHT
JWNd 0,2/1	200÷1000V	240mm	350g
JWNd 12/36	12÷36kV	240mm	350g





### VOLTAGE TESTER AND ROTARY FIELD INDICATION EAZY VOLT

Power supply: 2x1,5V IEC LR03 AAA Power consumption: max 32mA Operating temperature: -15°C÷45°C Storage temperature: -20°C÷60°C Casing protection: IP65

#### Voltage measurement:

- voltage range 12~750V AC/DC
- LED resolution ±12,24,50,120,230,400,750V
- automatic voltage detection
- frequency range DC, 45÷65Hz

Single-pole phase test:

- voltage range 12~750V
- frequency range 45~65Hz

Continuity test: threshold  $<200k\Omega$ 

Rotary field indication:

- -voltage range 100÷750V
- frequency range 50÷60Hz

measurement principle double-pole and firmly hold the grip (L2)

## VOLTAGE TESTER AND ROTARY FIELD INDICATION EAZY VOLT plus

Power supply: 2x1,5V IEC LR03 AAA Power consumption: max 32mA Operating temperature: -15°C÷45°C Storage temperature: -20°C÷60°C Casing protection: IP65

#### Voltage measurement:

- voltage range 12~750V AC/DC
- bargraph resolution ±12,24,50,120,230,400,7500V
- LCD voltage range 12~750V
- LCD resolution 1V
- automatic voltage detection
- frequency range DC, 45÷65Hz

Single-pole phase test:

- voltage range 12~750V
- frequency range 45~65Hz

Resistance measurement:

- resistance range 0÷2kΩ
- -resolution  $1\Omega$

Frequency measurement:

- frequency range 30Hz $\sim$ 999Hz Continuity test: threshold <200 $\Omega$ 

Diode test: 0.1~1.8V Rotary field indication:

- voltage range 100÷750V
- frequency range 50÷60Hz

measurement principle double-pole and firmly hold the grip (L2)



REFERENCE	DIMENSIONS	WEIGHT WITH BATTERY
306215	239x68x29	230g



REFERENCE	DIMENSIONS	WEIGHT WITH BATTERY
306214	239x68x29	240g





#### **VOLTAGE TESTER**

- Indication: LED lights up to voltage reading Voltage range:
- 12V/24V/50V/120V/230V/400V/600V
- Frequency range: 0÷60Hz

#### **DIGITAL THERMOHIGROMETER**

- Power supply: 9V battery (006P, MN1604)
- Auto-power off: after approx. 15 min.
- Display 4.5 digit LCD
- Measuring range: (0% ÷ 100%) RH, (-300C ÷ 100) °C
- Resolution: 0,01% RH, 0,01% °C/°F
- Precision:

humidity: %RH $\pm$ 2,5% (at 25°C and RH20-80%)  $\pm$ 3% all other ranges

temperature: ±0,8°C (at 25°C) ±1,2°C all other ranges

- HOLD function
- MIN/MAX function
- Dew point measuring

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REFERENCE	WIRE LENGTH	WEIGHT
GK 10	1000mm	180g

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REFERENCE	DIMENSIONS	WEIGHT WITH BATTERY
HT-200	225x45x34mm	200g





#### **DIGITAL EARTH CLAMP TESTER**

#### Earth resistance:

- Ranges 0...20-200-600-1200 $\Omega$
- Resolution. 0,01-0,1-1-10 $\Omega$

#### AC current:

- Ranges 0...100-1000mA-10-30A
- Resolution. 0,1-1mA-0,01-0,1A
- Auto-ranging wide measuring range
- -True rms measurement
- Memory function (max. number of data -99)
- Data hold function
- Noise check function
- Low battery indication
- Display LCD with a maximum count of 2099
- Sample rate 1x/s
- Response time 7s(resistance), 2s (current AC)

#### **LOADLOOKER AMMETER**

It has a splined end-fitting for attachment to the stick.

- power supply: 9Vbattery
- memory function
- the housing is resistant to shock water



REFERENCE	MAX WIRE DIAMETER	MEASUREMENT FREQUENCY	DIMENSIONS	WEIGHT
KEW 4200	32mm	2400Hz	246x120x54mm	780g



REFERENCE	MAX VOLTAGE	MEASREMENT RANGE	FREQU- ENCY	JAW SIZE	WEIGHT
8-020XTPLUS	500kV	1-5000A	50HZ	2,5" / 63,5mm	~1kg





#### **THERMAL IMAGER**

A fully radiometric camera which records temperature at each point of the image

#### reference KT-130

Detector type Non-cooled microbolometric matrix (160 x 120 pixel, 25µm)

Spectral range 8-14µm

Thermal sensitivity < 0,1°C przy 30°C

Field of view / focus distance 20.6° x 15.5° / 11mm (standard lens)

Focus Manual

Image refreshing 50 times per second

External display LCD TFT 3.6", high-resolution

Temperature range -20°C do 250°C

Accuracy ±2°C or 2% reading (in range 0...250°C)

Emissivity Adjustable from 0.01 to 1.00 (with 0.01 increments) atmospheric transmission and outside optical

conditions

Measurement properties Automatic correction for distance, relative humidity, atmospheric transmission and outside optical

conditions

Optical transmission correction Automatic, based on signals from sensors

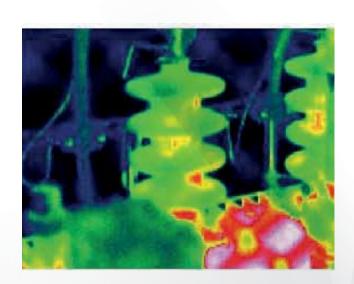
Image storage2GB replaceable SD cardFile formatJPG with thermograph dataCommunicationUSB 2.0: file transfer to PC

Power supply AA rechargeable cells, AA alkaline batteries
Battery operating time More than 3 hours of continuous operation

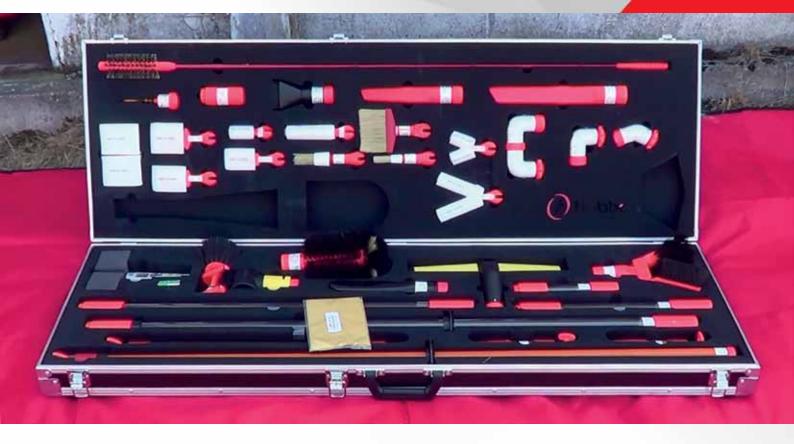
Casing IP54 Weight 730g







# BAGS, BOXES AND COVERS FOR STORAGE AND TRANSPORTATION



## **TOOL BAG**

## **TOOL BOX**

Made of hard leather, mechanical damage and moisture resistant. Corners of the bag are reinforced with aluminum slats.

Made of ABS. Double handles. Boxes can be connected for transport and storage. Tools are stored in foam inserts, made directly for type of tools. The possibility of configuring boxes.

REFERENCE	DIMENSIONS	WEIGHT
НТО	540x300x180	4,7kg

REFERENCE	DIMENSIONS	NUMBER OF FOAM INSERTS	WEIGHT
2608438692	442x357x151mm	1	2,2kg
2608438693	442x357x253mm	3	2,7kg
2608438694	442x357x389mm	4	3,3kg









## **STICKS COVER**

## **STICK COVER**

Made of impregnated polyester fabric, mechanical damage resistant. For H010, H011, H012 stick, transport.

Made of impregnated polyester fabric, mechanical damage resistant. For H094 stick, external pocket for sockets.

REFERENCE	DIMENSIONS	WEIGHT
SH10/11/12	2350x190mm	460g

REFERENCE	DIMENSIONS	WEIGHT
H090-20	1900x190mm	460g





## **EQUIPMENT BAG**

## **STICK H010 EQUIPMENT COVER**

Made of impregnated polyester fabric, mechanical damage resistant. Pockets for insulating equipment (blankets, flexible covers, rigid covers, clamps, etc.).

Made of impregnated polyester fabric, mechanical damage resistant. For stick H010 equipment (pruning saws: H013, H014,brush H015 and spiral hook H016) transport.

REFERENCE	DIMENSIONS	WEIGHT
H059	900x600mm	1500g

REFERENCE	DIMENSIONS	WEIGHT
SH013/14	590x210mm	150g





## **PORTABLE SHUNT CABLES BAG**

#### **MIDDLE BAG**

Made of impregnated polyester fabric, mechanical damage resistant. The bottom reinforced insert. For shunt cables transport.

Made of impregnated polyester fabric, mechanical damage resistant. For rope block H017, the transport block H019 or the equipment for the workplace marking transport.

REFERENCE	DIMENSIONS	WEIGHT
SPRB-3F/02	250x310x310	870g

REFERENCE	DIMENSIONS	WEIGHT
SH017/19	410x270x125mm	220g





## **DRY CLEANING SET BAG**

## **CLEANING AND MAINTENANCE SET BAG**

Made of impregnated polyester fabric, mechanical damage resistant. Internal pockets for dry cleaning equipment segregation.

Made of impregnated polyester fabric, mechanical damage resistant. Internal pockets for wet cleaning, bolted connection and cables terminations equipment segregation.

REFERENCE	DIMENSIONS	WEIGHT
H091-19	1440x320mm	1850g

REFERENCE	DIMENSIONS	WEIGHT
H090-17/19	1420x250mm	1480g









#### **DRY AND WET CLEANING SET BOX**

# Rigid box made of plywood with aluminium profiles. Lined with polyurethane foam with cut-outs for various equipment mounting. For dry and wet method equipment transport and storage.

## CLEANING AND MAINTENANCE SET BOX

Rigid box made of plywood with aluminium profiles. Lined with polyurethane foam with cut-outs for various equipment mounting. For live working equipment transport and storage.

REFERENCE	DIMENSIONS	WEIGHT
ZST 5060	1400x450x120mm	10kg

For special orders box dimensions may be changed.

REFERENCE	TYPE OF EQUIPMENT	DIMENSIONS	WEIGHT
ZST 500	dry cleaning method		
ZST 600	wet cleaning method	1400×410×120	71
ZST 700	handle bolted con- nections	1400x410x120mm	7kg
ZST 800	filling cable termi- nations		

For special orders box dimensions may be changed.







## **CABLES CUTTER COVER**

## **SMALL TOOL BAG**

Made of impregnated polyester fabric, mechanical damage resistant. For cables cutters HN10N transport and storage.

Made of artificial leather, mechanical damage resistant.

REFERENCE	DIMENSIONS	WEIGHT
SHN10/03	520x230mm	135g

REFERENCE	DIMENSIONS	WEIGHT
H025	320x320x60mm	470g







#### **GLOVE BAG**

## **SLEEVE BAG**

One piece front and back, bar-tacked at all corners. Double nylon stitching, velcro flap fasteners. Gusset has 4-inch top tapering to 2-inch bottom.

For flat storage of rubber sleeves. Bar-tacked at all corners. Double nylon stitching, velcro flap fasteners. Gusset has 4-inch top tapering to 2-inch bottom.

## CHANCE

## CHANCE

REFERENCE	WIDE	LENGTH
C4170148	8" /20cm	18" /46cm

REFERENCE	WIDE (BOTTOM)	LENGTH
C4170149	7" /18cm	27" /69cm





## **GLOVE BAG**

## **BOX WITH FOAMED INSERT**

Made of impregnated polyester fabric, mechanical damage resistant. It is used for protection and proper storage of dielectric gloves, leather protective gloves, and cotton gloves.

Made of polypropylene. For tool and equipment transport.

REFERENCE	DIMENSIONS	WEIGHT
H047	400x200mm	120g

REFERENCE	DIMENSIONS	WEIGHT
ZST 110		
ZST210		
ZST220	390x320x120mm	900g
ZST550		
ZST551		







## TRANSPORT BAG (long)

## **TRANSPORT BAG (short)**

Bag made of polyester fabric, impregnated, reinforced webbing. Used for wires covers transport.

Bag made of polyester fabric, impregnated, reinforced webbing Used for tools and equipment transport.



REFERENCE	DEPTH	DIAMETER	WEIGHT
H035	1250mm	230mm	750g



REFERENCE	DEPTH	DIAMETER	WEIGHT
H036	400mm	300mm	530g









## **BIG HARD BOX**

## **EQUIPMENT BOX**

Rigid box made of plywood with aluminium profiles, lined with polyurethane foam. It has wheels for easy transport. For transport and storage of cable crimping or cutting device.

Rigid box made of plywood with aluminium profiles lined with polyurethane with cut-outs foam for fixing various accessories. For dry method cleaning up to 1kV equipment transport and storage.

REFERENCE	DIMENSIONS	WEIGHT
SINK/PHI	820x590x230mm	12,6kg

REFERENCE	DIMENSIONS	WEIGHT
ZST 555	720x470x140mm	6,1kg





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## **NYLON-STRAP RATCHET HOISTS BAG**

Made of impregnated polyester fabric, mechanical damage resistant. For nylon-strap ratchet hoists store and transport.

REFERENCE	DIMENSIONS	WEIGHT
H068	800x200x100mm	400g



## LIST OF MAIN STANDARDS USED TO PERFORMANCE AND TESTING EQUIPMENT AND TOOLS FOR LIVE WORKING

#### EN 166:2001

"Personal eye-protection - Specification"

#### EN 170:2002

"Personal eye-protection - Ultraviolet filters - Transmittance requirements and recommended use"

#### EN 172:1994 + EN 172:1994/A2:2001

"Personal eye protection - Sunglare filters industrial use"

#### EN 388:2003

"Protective gloves against mechanical risks"

#### EN 397:2012

"Industrial safety helmets"

#### EN 420:2003 + EN 420:2003/AC:2006

"Protective gloves - General requirements and test methods"

#### EN-50340:2010

"Hydraulic cable cutting devices - Devices to be used on electrical installations with nominal voltage up to AC 30kV''

#### EN 60832-1:2010

"Live working - Insulating sticks and attachable devices - Part 1: Insulating sticks"

#### EN 60832-2:2010

"Live working - Insulating sticks and attachable devices - Part 2: Attachable devices"

#### EN 60855:1996

"Insulating foam-filled tubes and solid rods for live working"

#### EN 60900:2012

"Live working - Hand tools for use to 1 000 V a.c. and 1500 V d.c."

#### EN 60903:2003 + AC2:2005

"Live working - Gloves of insulating material"

#### EN 60947-3:2009 + EN 60947-3:2009/A21:2012

"Low-voltage switchgear and controlgear. Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units"

#### EN 61057:1993 + EN 61057:1993/AC:2005

"Aerial devices with insulating boom used for live working exceeding 1 kV a.c."

#### EN 61112:2009

"Live working - Electrical insulating blankets"

#### EN 61229:1995 + EN 61229:1995/A2:2002

"Rigid protective covers for live working on a.c. installation"

#### EN 61479:2001 + EN 61479:2001/A1:2002

"Live working - Flexible conductor covers (line hoses) of insulating material"

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