CRIMPING DIES - SERIES 600

SERIES 600



PP600



DIN STANDARD

Hexagon crimping dies according to DIN 48083

Copper

cable lugs (DIN 46235) - connectors
(DIN 46267, part 1)



ICD ICD_90 ICD_V ICD_VL

Aluminum

cable lugs (DIN 46239) - connectors
(DIN 46267, part 2)



ICAL_LD ICAL_LDV ICAL ICAL_V ICAL_V30 ICALCU ICALCU_V

Cross section (mm²)	Code No.	Compr. width (mm)	Order No.	Code No.	Compr. width (mm)	Order No.
16				12	14	MK12-600
25	10	14	MK10-600			
35	12	14	MK12-600	14	14	MK14-600
50	14	14	MK14-600	16	14	MK16-600
70	16	14	MK16-600	18	14	MK18-600
95	18	14	MK18-600	22	40	MK22B-600
120	20	14	MK20-600			
150	22	14	MK22-600	25	40	MK25B-600
185	25	14	MK25-600	28	40	MK28B-600
240	28	14	MK28-600	32	40	MK32B-600
300	32	17	MK32-600	34	40	MK34B-600
400	38	17	MK38-600	38	40	MK38B-600
500	42	17	MK42-600	44	40	MK44B-600
630	44	17	MK44-600	52	40	MK52B-600
800	52	25	MK52-600	58	25	MK58-600
1000	58	25	MK58-600	60	25	MK60-600
1200	60	25	MK60-600			
1600	70	25	MK70-600			

Dies for full tension and Aluminum-Steel, ACSR available on request



6

PUNCHING TOOLS

HP60-BL - Hand-operated hydraulic hole punching tool 60 kN

Suitable for punching round, square, and rectangular holes through materials up to a max. thickness of 3 mm

Technical characteristics:
- Light, compact, and rugged construction
- Head can be pivoted/rotated by 360°
- Hydraulic head made of high-strength aluminium
- Fast feed due to double-piston hydraulics
- Automatic pressure limiter
- Manual return possible in any position by turning the handle
- Application temperature range: -10°C / +40°C.
- Punching force: ..... 60 kN
- Operating pressure: ..... 700 bar

Punching capacity (max. sheet thicknesses):
- Up to Ø 63.5 mm: ..... 3.0 mm steel / 2.5 mm stainless steel
- Up to Ø 68.0 x 68.0 mm: ..... 3.0 mm steel / 1.5 mm stainless steel
- Up to Ø 92.0 x 92.0 mm: ..... 2.5 mm steel / 1.5 mm stainless steel
- Larger than 92.0 x 92.0 mm, up to 138.0 x 138.0 mm 2 mm steel

Pivoting/rotating head





Order No.	Description	Dimensions	Weight
HP60-BL	Hand-operated hydraulic hole punching tool 60 kN	700 x 260 x 105 mm	4.2 kg

Set equipment:
- Hand-operated hydraulic hole punching tool
- 1 draw stud 9.5 x 19.0 mm
- 1 draw stud 19.0 x 125.0 mm
- 1 spacer sleeve
- 1 tube of anti-wear paste
- 1 HSS-E step drill
- Operating instructions, safety and maintenance instructions
- Carrying case for the tool and accessories as well as 8 pairs of round hole inserts

Dimensions:
- Tool alone ..... 430 x 166 x 67 mm

Weight:
- Alone ..... approx 2.8 kg
- As a set ..... 4.2 kg

STILO-BL - Battery-operated hydraulic hole punching tool 18V

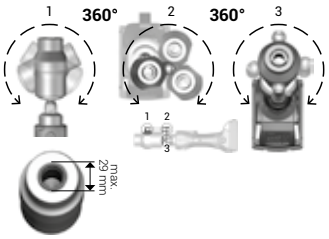
Suitable for punching round, square, and rectangular holes through materials up to a max. thickness of 3 mm.

Technical characteristics:
- Light, compact, and rugged construction
- Ergonomic 2-component handle allows fatigue-free working
- Head can be pivoted/rotated by 360°
- Hydraulic head made of high-strength aluminium
- Fast feed due to 3-stage axial piston pump
- Pressure monitored by an electronic pressure sensor
- Fast tool returns due to patented return valve
- Manual return possible in any position
- Automatic pressure limiter and monitor with pressure sensor
- Punch detection, automatic return after releasing the start switch when punching cycle complete
- Powerful Li-ion battery
- Fall protection provided by wrist strap
- Application temperature range: -10°C / +40°C.
- Punching force: ..... 60 kN
- Battery voltage: ..... 18V DC
- Battery capacity: ..... 1.5 Ah (2.0 Ah)
- Battery charging time: ..... approx. 30 - 40 min

Punching capacity (max. sheet thicknesses):
- Up to Ø 63.5 mm: ..... 3.0 mm steel / 2.5 mm stainless steel
- Up to Ø 68.0 x 68.0 mm: ..... 3.0 mm steel / 1.5 mm stainless steel
- Up to Ø 92.0 x 92.0 mm: ..... 2.5 mm steel / 1.5 mm stainless steel
- Larger than 92.0 x 92.0 mm, up to 138.0 x 138.0 mm 2 mm steel



Pivoting/rotating head





Order No.	Description	Dimensions	Weight
Stilo-BL	Battery-operated hydraulic hole punching tool 18V	540 x 360 x 120 mm	6.3 kg

Set equipment:
- Battery-operated hydraulic hole punching tool
- Li-ion battery 18V - 1.5Ah
- Battery charger LG8
- 1 draw stud 9.5 x 19.0 mm
- 1 draw stud 19.0 x 125.0 mm
- 1 spacer sleeve
- 1 tube of anti-wear paste
- 1 HSS-E step drill
- USB cable
- CD-ROM (software)
- Operating instructions, safety and maintenance instructions
- Carrying case for the tool, spare batteries, charger, and 8 pairs of round hole inserts

Dimensions:
- Alone with battery ..... 398 x 126 x 82 mm

Weight:
- With battery ..... 2.3 kg
- Without battery ..... 1.7 kg

PBL60 - Hydraulic hole punching tool 700 bar

Suitable for punching round, square, and rectangular holes through materials up to a max. thickness of 3 mm



Technical characteristics:
- Small, compact design
- Burnished surface
- Operating pressure: ..... 700 bar
- The punch head can be operated with a hydraulic pump (maximum pressure 700 bar / 70 MPa), see pages 204-207, hydraulic pumps

Punching capacity (max. sheet thicknesses):
- Up to Ø 63.5 mm: ..... 3.0 mm steel / 2.5 mm stainless steel
- Up to Ø 68.0 x 68.0 mm: ..... 3.0 mm steel / 1.5 mm stainless steel
- Up to Ø 92.0 x 92.0 mm: ..... 2.5 mm steel / 1.5 mm stainless steel
- Larger than 92.0 x 92.0 mm, up to 138.0 x 138.0 mm 2 mm steel

Dimensions:
- Tool alone ..... 150 x 73 mm

Weight:
- Alone ..... ca. 2.5 kg

Scope of delivery: Hydraulic cylinder (without draw bolts - see page 195-196).

Order No.	Description	Dimensions	Weight
PBL60	Hydraulic hole punching tool	150 x 73 mm	2.5 kg

6

Keyway punch

Quick and simple punching of keyways 3.2 mm and 4.8 mm wide in max. 2.0 mm thick steel. Makes the time-consuming sawing and filing of the anti-twist keyways on pushbuttons unnecessary.



Order No.	Description	Dimensions	Weight
KNZ	Keyway punch	400 x 120 x 30 mm	1.4 kg



TRE SPLIT hole punching tool (Steel)

The splitter hole punching system TRE SPLIT for ST 37 sheet steel splits the slug into 3 parts. This prevents the slug from getting stuck on the draw bolt and/or in the die. This in turn enables fast and burr-free hole punching.

Max. ST steel thicknesses:
- 2 mm with 9.5 mm draw bolt/draw stud
- 3 mm with 19 mm draw bolt/draw stud

Technical characteristics:
- The hole punches are suitable for manual and hydraulic operation.
- Due to the special cutting geometry of the TRE SPLIT punch, the cutting pressure required is reduced, which means less force is required when manually punching with ball bearing draw studs
  This also means less stress on the hydraulic tool
- The anti-wear paste protects against wear and seizing

Universal accessories / spare parts
- DB22 - Spacer sleeve 22 mm - short
- STB21 - HSS-E step drill Ø 9, 11, 12, 15, 17, 19, 21 mm
- AVP - Anti-wear paste

Hole dimensions			Order No.				Hole dimensions	
Ø of hole	Standard size	Weight gr.	Set punch die Order No.	Hydraulic operation/ draw stud Order No.	Manual operation/ draw stud with ball bearing Order No.	Replacement punch Order No.	Weight gr.	Thread / punch mm
16,2	M16	77	BLTM16	9,5x19 ZB9,5x19	9,5x50 ZSKL9,5x50	BLTM16S	35	9,5
20,4	M20	108	BLTM20	9,5x19 ZB9,5x19	9,5x50 ZSKL9,5x50	BLTM20S	47	9,5
25,4	M25	145	BLTM25	9,5x19 ZB9,5x19	9,5x50 ZSKL9,5x50	BLTM25S	65	9,5
32,5	M32	241	BLTM32	19x125 ZB19x125	19x55 ZSKL19x55	BLTM32S	97	19,0
40,5	M40	391	BLTM40	19x125 ZB19x125	19x55 ZSKL19x55	BLTM40S	173	19,0
50,5	M50	681	BLTM50	19x125 ZB19x125	19x75 ZSKL19x75	BLTM50S	287	19,0
63,5	M63	1011	BLTM63	19x125 ZB19x125	19x75 ZSKL19x75	BLTM63S	432	19,0
15,2	PG9	74	BLTPG9	9,5x19 ZB9,5x19	9,5x50 ZSKL9,5x50	BLTPG9S	32	9,5
18,6	PG11	84	BLTPG11	9,5x19 ZB9,5x19	9,5x50 ZSKL9,5x50	BLTPG11S	40	9,5
20,4	PG13	108	BLTPG13	9,5x19 ZB9,5x19	9,5x50 ZSKL9,5x50	BLTPG13S	47	9,5
22,5	PG16	108	BLTPG16	9,5x19 ZB9,5x19	9,5x50 ZSKL9,5x50	BLTPG16S	54	9,5
28,3	PG21	192	BLTPG21	9,5x19 ZB9,5x19	9,5x50 ZSKL9,5x50	BLTPG21S	80	9,5
37,0	PG29	359	BLTPG29	19x125 ZB19x125	19x75 ZSKL19x75	BLTPG29S	149	19,0
47,0	PG36	520	BLTPG36	19x125 ZB19x125	19x75 ZSKL19x75	BLTPG36S	250	19,0
54,0	PG42	671	BLTPG42	19x125 ZB19x125	9,5x50 ZSKL9,5x50	BLTPG42S	324	19,0
60,0	PG48	899	BLTPG48	19x125 ZB19x125	19x75 ZSKL19x75	BLTPG48S	377	19,0
30,5	-	192	BLTN30,5	9,5x19 ZB9,5x19	9,5x50 ZSKL9,5x50	BLTN30,5S	96	9,5

Bigger sizes with standard punching dies on request

PUNCHING/STAMPING/ELECTRIC BUS BAR PROCESSING UNIT



VA SPLIT hole punching tool (INOX)

This hole punching tool for stainless steel splits the slug into in 2 pieces. This prevents the slug from getting stuck on the draw bolt and/or in the die.

Max. ST steel thicknesses:
- 2 mm with 9.5 mm draw bolt/draw stud
- 3 mm with 19.0 mm draw bolt/draw stud

Technical characteristics:
- For manual and hydraulic operation
- We recommend the use of a hand-operated hydraulic tool
- Working with a ball bearing draw stud is possible, but is not recommended
- The used high-alloyed tool steel and the thermal treatment guarantee a long tool life

Universal accessories / spare parts
- DB22 - Spacer sleeve 22 mm - short
- STB21 - HSS-E step drill Ø 9, 11, 12, 15, 17, 19, 21 mm
- AVP - Anti-wear paste

Hole dimensions			Order No.				Hole dimensions	
Ø of hole	Standard size	Weight gr.	Set punch die Order No.	Hydraulic operation/ draw stud Order No.	Manual operation/draw stud with ball bearing Order No.	Replacement punch Order No.	Weight gr.	Thread / punch mm
16,2	M16	76	BLVAM16	11,1x19 ZB11,1x19		BLVAM16S	35	11,1
20,4	M20	112	BLVAM20	11,1x19 ZB11,1x19		BLVAM20S	53	11,1
25,5	M25	155	BLVAM25	11,1x19 ZB11,1x19		BLVAM25S	80	11,1
32,5	M32	265	BLVAM32	19x125 ZB19x125		BLVAM32S	97	19,0
40,5	M40	300	BLVAM40	19x125 ZB19x125		BLVAM40S	157	19,0
50,5	M50	780	BLVAM50	19x125 ZB19x125		BLVAM50S	378	19,0
63,5	M63	1200	BLVAM63	19x125 ZB19x125		BLVAM63S	580	19,0
15,2	PG9	66	BLVAPG9	11,1x19 ZB11,1x19		BLVAPG9S	32	11,1
18,6	PG11	95	BLVAPG11	11,1x19 ZB11,1x19		BLVAPG11S	47	11,1
20,4	PG13	112	BLVAPG13	11,1x19 ZB11,1x19		BLVAPG13S	64	11,1
22,5	PG16	117	BLVAPG16	11,1x19 ZB11,1x19		BLVAPG16S	64	11,1
28,3	PG21	179	BLVAPG21	11,1x19 ZB11,1x19		BLVAPG21S	69	11,1
37,0	PG29	377	BLVAPG29	19x125 ZB19x125		BLVAPG29S	147	19,0
47,0	PG36	515	BLVAPG36	19x125 ZB19x125		BLVAPG36S	275	19,0
54,0	PG42	780	BLVAPG42	19x125 ZB19x125		BLVAPG42S	430	19,0
60,0	PG48	870	BLVAPG48	19x125 ZB19x125		BLVAPG48S	550	19,0
30,5	-	227	BLVAN30,5	11,1x19 ZB11,1x19		BLVAN30,5S	82	11,1



Draw bolt with ball bearing

To extend the life of the draw bolts we recommend to lubricate the draw bolts with our anti-wear paste AVP

Order No.	Description	Dimensions	Weight
ZSKL19X55	Draw bold with ball bearing	19 x 55 mm	0,24 kg



Order No.	Description	Dimensions	Weight
ZSKL19xX75	Draw bold with ball bearing	19 x 75 mm	0,28 kg



Order No.	Description	Dimensions	Weight
ZSKL9,5X50	Draw bold with ball bearing	9,5 x 50 mm	0,06 kg

Draw stud for hydraulics

To extend the life of the draw bolts we recommend to lubricate the draw bolts with our anti-wear paste AVP



Order No.	Description	Ø	Weight
ZB11,1x19	Draw stud for hydraulics	11,1 X 19 mm	0,11 kg



Order No.	Description	Ø	Weight
ZB19x125	Draw stud for hydraulics	19 x 125 mm	0,26 kg



Order No.	Description	Ø	Weight
ZB9,5x19	Draw stud for hydraulics	9,5 x 19 mm	0,10 kg



Order No.	Description	Ø	Weight
ZB9,5x72	Draw stud for hydraulics	9,5 x 72 mm	0,04 kg



Set TRE SPLIT M16-M40

TRE SPLIT triple splitter hole punching tool for St steels
5 sizes. Delivered in a plastic case.

Equipment:
- 1 punch of each size: M 16 - M 20 - M 25 - M 32 - M 40
- 2 ball bearing draw studs 9.5 × 50.0 mm
- 1 ball bearing draw stud 19.0 × 55.0 mm
- 1 tube of anti-wear paste
- 1 HSS-Co pilot drill bit (multi-step drill)
- Plastic case with foam liner

Order No.	Description	Dimensions	Weight
SETBLTM40	Set TRE SPLIT M16-M40	340 x 275 mm	2.25 kg

Other accessories available on request



Set TRE SPLIT M16-M63

TRE SPLIT triple splitter hole punching tool for St steels
7 sizes. Delivered in a plastic case.

Equipment:
- 1 punch of each size: M 16 - M 20 - M 25 - M 32 - M 40 - M 50 - M 63
- 2 ball bearing draw studs 9.5 × 50.0 mm
- 1 ball bearing draw stud 19.0 × 55.0 mm
- 1 ball bearing draw stud 19.0 × 75.0 mm
- 1 tube of anti-wear paste
- 1 HSS-Co pilot drill bit (multi-step drill)
- Plastic case with foam liner

Order No.	Description	Dimensions	Weight
SETBLTM63	Set TRE SPLIT M16-M63	340 x 275 mm	3.85 kg

Other accessories available on request



Set TRE SPLIT M16-M40

VA SPLIT double splitter hole punching tool for VA steels 5 sizes.
Delivered in a plastic case.

Equipment:
- 1 punch of each size: M 16 - M 20 - M 25 - M 32 - M 40
- 1 tube of anti-wear paste
- 1 HSS-Co pilot drill bit (multi-step drill)
- Plastic case with foam liner

Order No.	Description	Dimensions	Weight
SETBLVAM40	Set VA SPLIT M16-M40	340 x 275 mm	1.55 kg

Other accessories available on request



Set VA SPLIT M16-M63

VA SPLIT double splitter hole punching tool for VA steels
7 sizes. Delivered in a plastic case.

Equipment:
- 1 punch of each size: M 16 - M 20 - M 25 - M 32 - M 40 - M 50 - M 63
- 1 tube of anti-wear paste
- 1 HSS-Co pilot drill bit (multi-step drill)
- Plastic case with foam liner

Order No.	Description	Dimensions	Weight
SETBLVAM63	Set VA SPLIT M16-M63	340 x 275 mm	3.45 kg

Other accessories available on request





Rectangular/shaped hole punch tool for heavy connectors with 2 centering tips integrated into the die

Workable with St steels - equipped with centering tips integrated into the matrix for marking the mounting holes. Only for hydraulic operations.

Equipment:
- Shaped hole punch
- Draw stud
- Locknut
- Plastic case with foam inlay

Size mm	Max. sheet thickness	Order No.	Pole	Axle	Weight
24,0 x 42,0	3,0 mm	BLF24x42	6	B	0,85 kg
24,0 x 65,0	3,0 mm	BLF24x65	10	B	1,81 kg
24,0 x 86,0	3,0 mm	BLF24x86	16	B	1,87 kg
24,0 x 112,0	3,0 mm	BLF24x112	24	B	2,52 kg

Other sizes available on request
Universal accessories / spare parts see page xxx

Accessories / spare parts:



Draw stud 19 mm flattened on two sides for shaped hole punch

Order No.	Description	Dimensions	Weight
ZA19X14X120	Draw stud 19 mm	14 x 120 mm	0,24 kg



Locknut for shaped hole punch

Order No.	Description	Ø	Weight
KM19	Locknut	19 mm	0,13 kg





Square / shape punch for St steels

Very long service life of the tool due to special protective gas hardening. The CAD-optimized cutting geometry of the punch reduces the need for cutting pressure and thus the effort of work. When using a hand-held hydraulic device, the reduced pressure requirement reduces the pressure on the seals.

Equipment:
- Shaped hole punch
- Draw stud
- Locknut
- Plastic case with foam liner

Size mm	Max. sheet thickness mm	Order No.		Weight
45,0 x 45,0	3,0	BLF45x45	✓	2,30 kg
46,0 x 46,0	3,0	BLF46x46	✓	2,30 kg
68,0 x 68,0	3,0	BLF68x68	✓	3,35 kg
92,0 x 92,0	3,0	BLF92x92	✓	5,05 kg

Other sizes available on request
Universal accessories / spare parts see page 196





Rectangular/shaped hole punch tool for heavy connectors with 4 centering tips integrated into the die

For St steels - equipped with centering tips integrated into the matrix for marking the mounting holes. Only for hydraulic operations.

Equipment:
- Shaped hole punch
- Draw stud
- Locknut
- Plastic case with foam liner

Size mm	Max. sheet thickness	Order No.		Pole	Axle	Weight
36,0 x 52,0	3,0 mm	BLF36x52	✓	6	B	1,78 kg
36,0 x 65,0	3,0 mm	BLF36x65	✓	10	B	2,14 kg
36,0 x 86,0	3,0 mm	BLF36x86	✓	16	B	2,55 kg
36,0 x 112,0	3,0 mm	BLF36x112	✓	24	B	3,05 kg

Other sizes available on request
Universal accessories / spare parts see page 196

Accessories / spare parts:



Draw stud 25 mm flattened on two sides for shaped hole punch

Order No.	Description	Dimensions	Weight
ZA25X21X150	Draw stud 25 mm	21 x 150 mm	0,38 kg



Locknut for shaped hole punch

Order No.	Description	Ø	Weight
KM19	Locknut	19 mm	0,13 kg





Rectangular/shaped hole punching tool for St steels

Very long service life of the tool due to special protective gas hardening. The CAD-optimized cutting geometry of the punch reduces the need for cutting pressure and thus the effort of work. When using a hand-held hydraulic device, the reduced pressure requirement reduces the pressure on the seals.

Equipment:
- Shaped hole punch
- Draw stud
- Locknut
- Ball bearing pressure nut
- Adapter
- Plastic case with foam inlay

Size mm	Max. sheet thickness mm	Order No.			Weight
22,0 x 42,0	2,0	BLF22x42	✓	✓	0,73 kg
22,0 x 45,0	2,0	BLF22x45	✓	✓	0,73 kg

Other sizes available on request
Universal accessories / spare parts see page 196



Accessories / spare parts:

Draw stud 13 mm flattened on one side for shaped hole punch

Order No.	Description	Dimensions	Weight
ZA13X11X105	Draw stud 13 mm	11 x 105 mm	0,09 kg



Locknut for shaped hole punch

Order No.	Description	Ø	Weight
KM12,7	Locknut	12,7 mm	0,02 kg



Ball bearing pressure nut for hole punch (manual operation)

Order No.	Description	Ø	Weight
KMKL12,7	Ball bearing pressure	12,7 mm	0,10 kg

manual application

hydraulic application

Universal accessories / spare parts:



Adapter for hydraulics Ø 19,0 x 48 mm

Order No.	Description	Inside thread Ø	Weight
ZBA19x9,5	Adapter Ø 19,0 x 48 mm	9,5 mm	0,07 kg



Spacer sleeve 22 mm - short

Order No.	Description	Lenght	Weight
DB22	Spacer sleeve - short	22 mm	0,16 kg



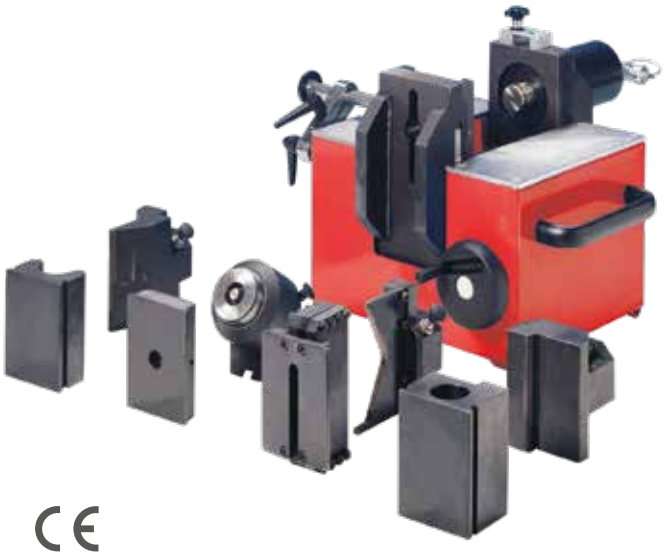
HSS-E step drill

Order No.	Description	Ø mm	Weight
STB21	HSS-E step drill	9, 11, 12, 15, 17, 19, 21	0,05 kg



Anti-wear paste

Order No.	Description	Weight
AVP	Anti-wear paste	0,01 kg



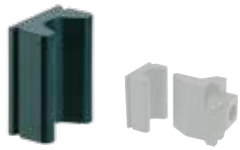
BLS120 - Power rail work station

Designed to bend, punch, cut and crimp bus bars in copper or aluminium up to 120 x 12 mm. The works station must becombined with a hydraulic pump (max. pressure 700bar/70MPa). (s. pages 201-208, Hydraulic Pumps)

Technical characteristics:
- Sturdy and compact, suitable for use in workshops and on construction sites
- Composed of a base unit and a variety of work tools, interchangeable tools depending on the task being performed
- Simple and quick tool changing
- The electrical proximity switch guarantees 100% bending repeatability
- The work bench adjusts in height with a side stop to make holes without tracing and measuring
- Quick automatic-lock connection of hydraulics and undetachable dust cap
- Cutting tool for clean burr-free cuts due to special shape of the blade
- Exact dimensional bending of bow in one operation
- Perforates and cutts laminated power rails and earthing strips

Force generated: ..... max. 185 kN
Operating pressure: ..... 700bar (70 MPa)
Bus bar width: ..... up to 120 mm
Bus bar thickness: ..... up to 12 mm

Order No.	Description	Dimensions	Weight
BLS-120	Power rail work station	480x500x360 mm	53 kg



Accessories:

Order No.	Description	Power rail dimensions	Weight
BLS-M	Bending female die	up to 120 x 12 mm	3,3 kg



Order No.	Description	Bending radius	Bending angle	Weight
BLS-R5	Bending tool	R5 mm	up to 110°	4 kg
BLS-R8	Bending tool	R8 mm	up to 110°	4,1 kg
BLS-R10	Bending tool	R10 mm	up to 110°	4,4 kg
BLS-R20	Bending tool	R20 mm	up to 110°	5 kg
BLS-R	Back pending die			3,8 kg

Attention: The necessary bending female die BLS-M must be ordered separately



Order No.	Description	Power rail dimensions	Weight
BLS-S	Cutting tool for massive power rails	up to 120 x 12 mm	5,8 kg



Order No.	Description	Power rail dimensions	Weight
BLS-SL	Cutting tool for laminated power rails	up to 120 x 12 mm	9,0 kg



Order No.	Description	Power rail dimensions	Weight
BLS-K	Offset shaping tool	up to 120 x 12 mm	11,0 kg

PUNCHING/STAMPING/ELECTRIC BUS BAR PROCESSING UNIT



Technical characteristics:
- For solid and laminated bus bars
- Perforation near the isolation possible (min. 5 mm) by step in the tool
- Round hole: Ø 6.5 to 21.0 mm
- Longitudinal slot: 6.5 x 13 tos 17 x 20 mm

Order No.	Description	Power rail dimensions	Weight
BLS-L4	Perforation tool IV for laminated and solid rails	up to 120 x 12 mm	4,3 kg



Description	Ø	Female die	Punch	Stripper
Round hole punch and female dies for laminated and solid bus bars	6,5 mm	LS4R06,5M	LS4R06,5S	LS4R06,5N
	7,0 mm	LS4R07,0M	LS4R07,0S	LS4R07,0N
	8,5 mm	LS4R08,5M	LS4R08,5S	LS4R08,5N
	9,0 mm	LS4R09,0M	LS4R09,0S	LS4R09,0N
	10,0 mm	LS4R10,0M	LS4R10,0S	LS4R10,0N
	10,5 mm	LS4R10,5M	LS4R10,5S	LS4R10,5N
	11,0 mm	LS4R11,0M	LS4R11,0S	LS4R11,0N
	12,0 mm	LS4R12,0M	LS4R12,0S	LS4R12,0N
	13,0 mm	LS4R13,0M	LS4R13,0S	LS4R13,0N
	14,0 mm	LS4R14,0M	LS4R14,0S	LS4R14,0N
	14,5 mm	LS4R14,5M	LS4R14,5S	LS4R14,5N
	15,0 mm	LS4R15,0M	LS4R15,0S	LS4R15,0N
	17,0 mm	LS4R17,0M	LS4R17,0S	LS4R17,0N
	18,0 mm	LS4R18,0M	LS4R18,0S	LS4R18,0N
	19,0 mm	LS4R19,0M	LS4R19,0S	LS4R19,0N
	21,0 mm	LS4R21,0M	LS4R21,0S	LS4R21,0N



Description	Ø	Female die	Punch	Stripper
Long hole punch and female dies for laminated and solid bus bars on request	6,5x13,0	LS4L06,5x13,0M	LS4L06,5x13,0S	LS4L06,5x13,0N
	10,5x13,0	LS4L10,5x13,0M	LS4L10,5x13,0S	LS4L10,5x13,0N
	8,5x16,0	LS4L08,5x16,0M	LS4L08,5x16,0S	LS4L08,5x16,0N
	6,5x21,0	LS4L06,5x21,0M	LS4L06,5x21,0S	LS4L06,5x21,0N
	8,0x20,0	LS4L08,0x20,0M	LS4L08,0x20,0S	LS4L08,0x20,0N
	9,0x20,0	LS4L09,0x20,0M	LS4L09,0x20,0S	LS4L09,0x20,0N
	13,0x20,0	LS4L13,0x17,0M	LS4L13,0x17,0S	LS4L13,0x17,0N
	11,0x20,0	LS4L11,0x20,0M	LS4L11,0x20,0S	LS4L11,0x20,0N
	13,0x20,0	LS4L13,0x20,0M	LS4L13,0x20,0S	LS4L13,0x20,0N
	14,0x20,0	LS4L14,0x20,0M	LS4L14,0x20,0S	LS4L14,0x20,0N
	17,0x20,0	LS4L17,0x20,0M	LS4L17,0x20,0S	LS4L17,0x20,0N

Accessories:

Description	Order No.	Dimensions	Weight
Trolley for BLS	BLS-W	800x500x750 mm	ca. 45 kg
Trestle for BLS	BLS-B	800x440 mm	ca. 5 kg
Plastic case for BLS	ACBLSWZG	400x250x250	6,5 kg
Spray Metalflux	SPRAY-M	400 ml	ca. 450 g



Plastic case for BLS tools and dies (Accessories)



Spray for cutting and punching



Trolley/Trestle for positioning the Bus Bar Work Station on ergonomic high



LSK120 - Hydraulic punching head

Designed to punch bus bars rails (dimensions up to 120 x 12mm) made of copper, aluminium or steel with tensile strength up to 470N/mm². The hydraulic punching head must be combined with a hydraulic pump (Maximum pressure 700bar/70MPa)
(s. pages 201-208, Hydraulic Pumps)

Technical characteristics:
- Strong and compact structure
- "C" head for easy positioning of the power rails
- Easy insertion of inserts (die and punch)
- Also useable on mounted bus bars without disassembly
- Quick automatic-lock connection and undetachable dust cap
- Centrally punched holes in bars up to 120 mm wide
- Functional range for the following bars:

12 mm Cu/Al ..... max. Ø 21,0 mm
8 mm steel ..... max. Ø 21,0 mm
9 mm steel ..... max. Ø 19,5 mm
12 mm steel ..... max. Ø 14,0 mm
Punching force: ..... max. 218 kN
Operating pressure: 700bar (70MPa)

Description	Order No.	Dimensions	Weight
Hydraulic punching head	LSK120	234x174x88 mm	ca. 9,3 kg
Rigid case	KKLSK120	400x365x135 mm	ca. 1,8 kg



Description	Ø	Punch	Stripper
Round hole punch and female dies for solid rails	6,0 mm	LSR06,0M	LSR06,0S
	6,5 mm	LSR06,5M	LSR06,5S
	7,0 mm	LSR07,0M	LSR07,0S
	8,0 mm	LSR08,0M	LSR08,0S
	8,5 mm	LSR08,5M	LSR08,5S
	9,0 mm	LSR09,0M	LSR09,0S
	10,0 mm	LSR10,0M	LSR10,0S
	10,5 mm	LSR10,5M	LSR10,5S
	11,0 mm	LSR11,0M	LSR11,0S
	12,0 mm	LSR12,0M	LSR12,0S
	12,5 mm	LSR12,5M	LSR12,5S
	13,0 mm	LSR13,0M	LSR13,0S
	13,5 mm	LSR13,5M	LSR13,5S
	14,0 mm	LSR14,0M	LSR14,0S
	14,5 mm	LSR14,5M	LSR14,5S
	15,0 mm	LSR15,0M	LSR15,0S
	16,0 mm	LSR16,0M	LSR16,0S
	17,0 mm	LSR17,0M	LSR17,0S
	18,0 mm	LSR18,0M	LSR18,0S
	18,5 mm	LSR18,5M	LSR18,5S
	19,0 mm	LSR19,0M	LSR19,0S
	19,5 mm	LSR19,5M	LSR19,5S
	20,0 mm	LSR20,0M	LSR20,0S
	21,0 mm	LSR21,0M	LSR21,0S

Already fan of intercable ?





7

HYDRAULIC PUMPS

SERIES CP700

- **Small** - 205 x 290 x 190 mm
- Light - 4,5 kg
- Powerful - 700 bar / LP= 1,2 lit/min. / HP= 0,2 lit/min.

i-Drive

Several setting possibilities, selection through setting knob.
- hold function (CP700 version only)
- pressure adjustment (CP700 version only)
- selectable piston return

USB Port

Direct USB-port on the pump allows special settings and detailed reporting of your daily work



Comfort

Light, compact and robust structure

Reliable

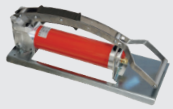
Long lifetime, the first maintenance is not necessary before 20,000 cycles

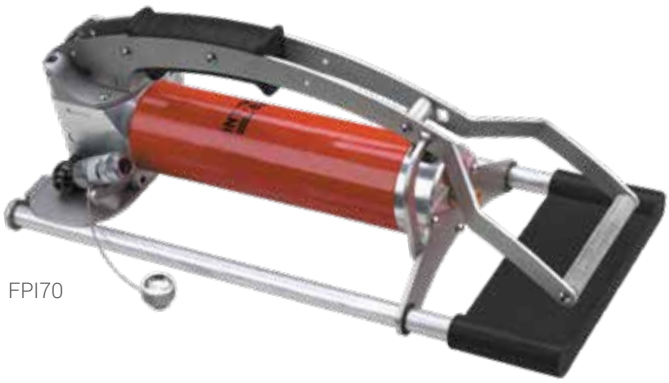
Powerful

Powerful and replaceable 18V lithium-ion battery with own management controlled by the pump for max. safe and efficient working.

Resistant

Body made of polyamide reinforced with fibreglass, completely insulating and shock resistant

	Pump	Operation	Set equipment (pump + ...)	
FPI70	FPI70 	Foot	• Metal case • Pressure gauge	PAGE 204
FPI AS85 70S	FPI70S 	Foot	• Flexible hose 3m • Metal case • Pressure gauge	PAGE 204
FPI70 EC	FPI70 EC 	Foot	• Metal case	PAGE 204
FPI70S EC	FPI70S EC 	Foot	• Flexible hose 3m • Metal case	PAGE 204
CP700	CP700 	Battery ↳ Main adapter available	• Battery and charger • Flexible hose 1,5 m • Remote control 1,5 m • USB-cable • Nylon bag with shoulder strap	PAGE 205
CP700 EC	CP700 EC 	Battery ↳ Main adapter available	• Battery and charger • Flexible hose 1,5 m • Remote controle 1,5 m • USB-Cable • Nylon bag with shoulder strap	PAGE 205
ANP24/220	ANP24/220 	Battery or Mains	• Remote controle 5 m • Power cord 3 m • Shoulder strap	PAGE 206
NP220	NP220 	Mains	• Remote control 5 m • Power cord 3 m	PAGE 206
90404	90404 	Mains	• Remote control 5 m • Power cord 3 m	PAGE 207
90418	90418 	Mains	• Remote control 5 m • Power cord 3 m	PAGE 207
90415	90415 	Mains	• Remote control 5 m • Power cord 3 m	PAGE 208
91421	91421 	Mains	• Remote control 5 m • Power cord 3 m	PAGE 208



FPI70



Pressure gauge and tilting coupling is standard on FPI70 and FPI70s models (not on models "-EC")



FPI70S



FPI70S EC



FPI70 EC
Hose must be ordered seperately



Set FPI70

FPI70 / FPI70-EC – Foot operated hydraulic pump

Designed to operate hydraulic tools up to 700bar (70MPa).

Technical characteristics:
- Compact dimensions
- Lightweight due to use of light alloys and corrosion-resistant materials
- Handy and stable due to a firm fitting pedal and sturdy non slip base
- Automatic two speed device (fast advancing under no-load and slow under load)
- Tilting system for coupler (not on models "-EC")
- Pressure monitoring by oil pressure gauge (not on models "-EC")
- Manual pressure release at any time
- High mounted quick release coupling with dust cap
- Operating pressure: ..... 700 bar (70 MPa)
- Low pressure pump capacity: ..... 18,3 cm³/stroke
- High pressure pump capacity: ..... 2 cm³/stroke
- Amount of oil: ..... 1200 ml
- Operating temperature: ..... -20°C to a +40°C

Tool dimensions:
- FPI70 ..... 570 x 230 x 209 mm
- FPI70S ..... 570 x 230 x 209 mm
- FPI70 EC ..... 545 x 212 x 198 mm
- FPI70S EC ..... 545 x 212 x 198 mm

Tool weight:
- FPI70 ..... 9,6 kg
- FPI70S ..... 10,9 kg
- FPI70 EC ..... 9,6 kg
- FPI70S EC ..... 10,3 kg

Description	Order No.	Dimensions	Weight
Set: Foot pump	FPI70	650 x 240 x 220 mm	19 kg
Set: Foot pump with flexible hose 3 m	FPI70S	650 x 240 x 220 mm	21 kg
Set: Foot pump EC	FPI70 EC	650 x 240 x 220 mm	19 kg
Set: Foot pump EC with flexible hose 3 m	FPI70S EC	750 x 300 x 220 mm	24 kg

Accessories see pages 209 - 212
On request special models with different operating-pressures up to a maximum of 850bar (85MPa).

Set equipment FPI70:
- Foot operated pump with oil pressure gauge
- Metal case

Set equipment FPI70S:
- Foot operated pump with oil pressure gauge
- Flexible hose 3 m
- Metal case

Set equipment FPI70 EC:
- Foot operated pump
- Metal case

Set equipment FPI70S EC:
- Foot operated pump
- Flexible hose 3 m
- Metal case



CP700EC

CP700 - Compact hydraulic pump with battery

Designed to operate hydraulic tools up to 700bar (70MPa).

Technical characteristics:
- Light, compact and robust structure
- Ergonomic design for right or left handers
- Optional transportation bag with pockets, with a shoulder strap or attached to a belt (optional)
- Manual or automatic return
- Rapid return of piston due to high return capacity
- Free pressure calibration (only model CP700)
- Freely programmable pump (only model CP700)
- Preinstalled standard programs for cutting and crimping
- Maintenance program (only model CP700)
- Possibility to set up maintenance times (only model CP700)
- Electronic sensor pressure control
- High performance lithium ion battery
- Charge indicator on the battery
- Double piston technology for rapid high pressure feed
- Flow range at low pressures < 100 bar: 1.2 lit./min.
- Flow range at pressures up to 700 bar: 0.2 lit./min.
- Operating pressure: ..... 700 bar (70 MPa)
- Power: ..... 200 W
- Battery voltage: ..... 18,0 V DC
- Battery capacity: ..... 3,0 Ah
- Range of use: ..... -20°C / +55°C (integrated cooling system)
- Remote control (1.5 m) two buttons and LED indicator
- Possibility to attach the remote control to the unit with the integrated magnet
- A belt or shoulder strap can be added through a clamp support
- Anti-scratch and shock resistant display protection (only model CP700)
- Current and required pressure visible on display (only model CP700)
- Error indication
- Possibility of reading the curves on the pump (only model CP700) and on PC
- Possibility of reading all the cycles and error indications by USB
- Including software

Tool dimensions: ..... 290 x 190 x 205 mm
Tool weight: ..... 4,5 kg

Description	Order No.	Dimensions	Weight
Set: Hydraulic pump	CP700	480 x 250 x 250 mm	7,7 kg
Set: Hydraulic pump	CP700EC	480 x 250 x 250 mm	7,7 kg

Accessories see pages 209 - 212
On request special models with different operating-pressures up to a maximum of 850bar (85MPa).

Set equipment:
- Compact hydraulic pump
- Battery 18 V/3,0 Ah lithium-ion (RA11)
- Battery charger (LG8)
- Flexible high pressure hose – length 1,5 m
- Remote control 1,5 m (CP-F)
- Shoulder strap (TG3)
- USB cable + software
- Comfortable sturdy nylon bag

Top version CP700 (with display):



- Selectable piston return
- Hold function
- Free pressure calibration
- Patented cable cutting detection
- Installed cutting / crimping programes
- Freely programmable
- Possibility of reading all cycles and error indications directly on the pump and on the PC by USB

Standard version CP700EC:



- Selectable piston return
- Patented cable cutting detection
- Installed cutting / crimping programmes
- Possibility of reading all cycles and error indications on the PC by USB

Application:







ANP 24/220 - Combined electro hydraulic battery and mains pump

Designed to operate hydraulic tools up to 700bar (70MPa).

Technical characteristics:
- Battery-operated or mains-operated
- High pump performance in 2 stages (fast and slow)
- Remote control
- Manual pressure release at any time
- Automatic pressure release when maximum force is achieved
- Engine brake operates when pressure released
- Fitted battery charger with battery condition indicator
- Quick automatic-lock hydraulic connection and undetachable dustcap
- Compact design, light weight
- Pump capacity: 0,4 l/min - 0,7 l/min
- Mains voltage: ..... 230 V (50/60 Hz)
- Cell Voltage: ..... 2 x 12 V
- Motor rating: ..... 360 W
- Protection class: IP43
- Operating temperature: ..... -10°C to +40°C

Description	Order No.	Dimensions	Weight
Electro hydraulic battery pump	ANP24/220	550 x 350 x 180 mm	20 kg

Accessories see pages 209 - 212
On request special models with different mains voltage.

Set equipment ANP24/220:
- Electro-hydraulic battery-mains pump
- Remote control with 5m connecting cable
- Power cord 3m
- Carrying shoulder strap with shoulder pads

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NP220-1 and NP220-2 mains operated hydraulic pump

Designed to operate hydraulic tools up to 700bar (70MPa).

Technical characteristics:
- Mains-operated
- High pump performance (fast and slow in 2 stages only NP220-2)
- High pump performance in application of large cross-sections and power rails processing
- Protection support
- Remote control
- Oil check by external sensor
- Engine brake operates when pressure released
- Quick automatic-lock connection and undetachable dust cap
- Pump capacity: ..... 0.6 l/min (NP220-1) 0.6 - 1.1 l/min (NP220-2)
- Mains voltage: ..... 230 V (50/60 Hz)
- Motor rating: ..... 750 W
- Protection class: IP54
- Operating temperature: ..... -10°C to +40°C

Description	Order No.	Dimensions	Weight
Pump 1 stage	NP220-1	370 x 185 x 490 mm	25 kg
Pump 2 stage	NP220-2	370 x 185 x 490 mm	25 kg

Accessories see pages 209 - 212
On request special models (NP220-1; NP220-2) with different mains voltage.

Set equipment:
- Mains-operated hydraulic pump – NP220-1 or NP220-2
- Remote control push-button with 5m connecting cable
- Power cord 3m



Art.-no.: 90404

Electro-hydraulic 3-cylinder-radial-piston-pump with transport cart

Our electro-hydraulic pumps are delivered completely with an electrical control, pressure control valve, magnet valve, oil sight glass and a 3 meter high-pressure hose. The operating pressure is normally set to 700 bar. The control is effected with a foot pedal. The pedal is equipped with a high-quality 3-point-safety wiring. All our pumps are delivered without cutting and crimping tool.

The following variants are deliverable:

- Operating pessure ..... max. 700 bar (70 MPa)
- Operating voltage/pump delivery volume: ..... 230V 50Hz / 0.64 l/min. 3 x 400V 50Hz / 0.82 l/min.
- With transport cart or with rack
- Foot pedal with one switch = version without positioning
- Foot pedal with two switches = version with positioning

The version with positioning should be used at the power rail work station and the hydraulic puncher (catalogue pages xx). The positioning guaranteed a save and point exactly work. We recommend to use the pump (art.-no. 91421) if you buy the power rail work station BLS 120 (page 195). This tool combination ensures you a high precision.

Further components and special solutions are available on request

Description	Order No.	Weight
Electro-hydraulic 3-cylinder-radial-piston-pump	90404	31,0 kg

- Transport cart, with positioning
- Nominal capacity: ..... 0.75 kW
- Voltage: ..... 3 x 400V 50Hz
- Delivery rate: ..... 0.82 l/min.

Description	Order No.	Weight
Electro-hydraulic 3-cylinder-radial-piston-pump	90417	31,0 kg

- Transport cart, with positioning and automatic pressure shutdown
- Nominal capacity: ..... 0.75 kW
- Voltage: ..... 3 x 400V 50 Hz
- Delivery rate: ..... 0.82 l/min.



Art.-no.: 90418

Description	Order No.	Weight
Electro-hydraulic 3-cylinder-radial-piston-pump	90407	30,4 kg

- Transport cart
- Nominal capacity: ..... 0.75 kW
- Voltage: ..... 3 x 400V 50 Hz
- Delivery rate: ..... 0.82 l/min.

Description	Order No.	Weight
Electro-hydraulic 3-cylinder-radial-piston-pump	90413	33,0 kg

- Transport cart, with positioning
- Nominal capacity: ..... 0.75 kW
- Voltage: ..... 230V 50 Hz
- Delivery rate: ..... 0.64 l/min.

Description	Order No.	Weight
Electro-hydraulic 3-cylinder-radial-piston-pump	90418	33,0 kg

- Transport cart
- Nominal capacity: ..... 0.75 kW,
- Voltage: ..... 230V 50 Hz
- Delivery rate: ..... 0.64 l/min.

HYDRAULIC PUMPS



Art.-no.: 90415

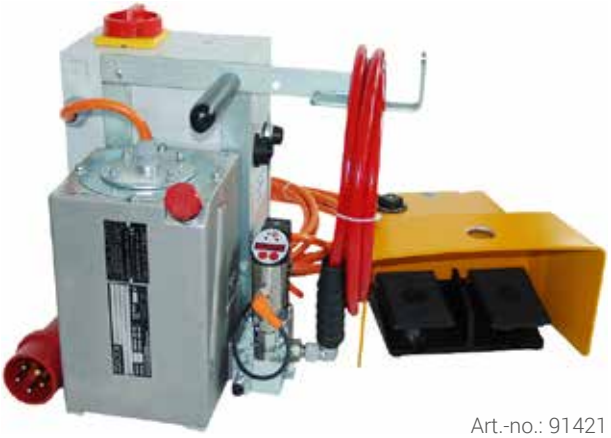
Electro-hydraulic 3-cylinder-radial-piston-pump with rack

Description	Order No.	Weight
Electro-hydraulic 3-cylinder-radial-piston-pump	99962	24,0 kg

- Rack, with positioning
- Nominal capacity: ..... 0.75 kW
- Voltage: ..... 3 x 400V 50Hz
- Delivery rate: ..... 0.82 l/min.

Description	Order No.	Weight
Electro-hydraulic 3-cylinder-radial-piston-pump	90406	24,0 kg

- Rack
- Nominal capacity: ..... 0.75 kW
- Voltage: ..... 3 x 400V 50Hz
- Delivery rate : ..... 0.82 l/min.



Art.-no.: 91421

Description	Order No.	Weight
Electro-hydraulic 3-cylinder-radial-piston-pump	90416	30,0 kg

- Rack, with positioning
- Nominal capacity: ..... 0.75 kW
- Voltage: 230V 50Hz
- Delivery rate: ..... 0.64 l/min.

Description	Order No.	Weight
Electro-hydraulic 3-cylinder-radial-piston-pump	90415	24,0 kg

- Rack
- Nominal capacity: ..... 0.75 kW
- Voltage: 230V 50Hz,
- Delivery rate: ..... 0.64 l/min.

Description	Order No.	Weight
Electro-hydraulic 3-cylinder-radial-piston-pump	91421	24,0 kg

- rack, with positioning,
- nominal capacity: 0.75 kW, with automatical pressure switching-off and connection for end switch (for BLS120), voltage 3 x 400V 50Hz, delivery rate 0.82 l/min.



8

ACCESSORIES

ACCESSORIES



Shoulder strap (for hydraulic battery operated tools) - TG2



Shoulder strap for ANP 24/220 - TG1



Shoulder strap for CP700 / CP700-EC - TG3

Strap

Description	Order No.	Weight
Shoulder strap for ANP 24/220	TG1	150 g
Shoulder strap (for hydraulic battery operated tools)	TG2	90 g
Shoulder strap for CP700 / CP700-EC	TG3	90 g



NG3

Adapter

Description	Order No.	Weight
Adapter 18V for mains operation 230V AC/ 115V A	NG3	800 g



RA50



RA20

Storage batteries

Description	Order No.	Weight
Storage battery 18 V / 2.1 Ah Li-Ion	RA13	680 g
Storage battery 18 V / 4.1 Ah Li-Ion	RA14	680 g
Storage battery 18 V / 5.1 Ah Li-Ion	RA15	680 g
Storage battery 18 V / 2.0 Ah Li-Ion	RA20	680 g
Storage battery 18 V / 5.0 Ah Li-Ion	RA50	680 g



LG8



LGZ3 - Car lighter adapter Version

Battery charger

Description	Order No.	Weight
Battery charger	LG8	700 g
Vehicle battery charger (12 V source) - 18V	LGZ3	580 g

Battery charger	Tension						Battery										
	4,8 V	7,2 V	9,6 V	12,0 V	14,4 V	18 V	RA 4	RA 5	RA 6	RA 7	RA 9	RA 10	RA 11	RA 12	RA 12	RA 13	RA 14
LG8						•							✔	✔	✔	✔	✔
LGZ3						•							✔	✔	✔	✔	✔



Set PP130-C

Flexible hose

Description	Order No.	Dimensions	Weight
Hose without armour	SCH1,5	1,5 m	0,60 kg
	SCH3	3 m	1,19 kg
	SCH5	5 m	1,45 kg
	SCH10	10 m	2,29 kg
Hose with armour	SCHA3	3 m	1,19 kg
	SCHA5	5 m	1,7 kg
	SCHA10	10 m	3,8 kg

- Flexible High Pressure Hoses for connecting heads to pumps
- Cannot be used with insulated cable shears
- Quick male and female automatic locking connections mounted on the ends and with related protective plugs



Battery 24V - EA24-1

Storage battery for hydraulic pump

Description	Order No.	Weight
Storage battery for ANP24/220 (24V) ANP24/220)	EA24-1	4,5 kg



Voltage transformer (for hydraulic pump ANP24/220)

Description	Order No.	Weight
Voltage transformer 12 V DC to 230 V AC (50/60Hz)	SW12/230	0,8 kg

- to power the hydraulic pump ANP24/220 from an external12V-source



Remote control (for pump CP700/CP700-EC)

Description	Order No.	Weight
Remote control, 1,5 m	CP-F	150 g
Remote control, 3 m	CP-F3	230 g
Remote control, 5 m	CP-F5	320 g

ACCESSORIES



Foot operated switch – FS01



Foot operated switch – FS02

Electric bus bar processing units

Description	Order No.	Weight
Foot operated switch for ANP 24/220, NP 220 and BLS	FS01	1,6 kg
Foot operated switch for CP700 /CP700-EC	FS02	4,2 kg



Remote control extension Cable

Description	Order No.	Weight
Remote control extension cable, 5 m	KABEL5	120 g

• Extension cable for hand or foot operation



USB cable (for CP700/CP700-EC)

Description	Order No.	Weight
USB cable, 2 m	CP-USB	70 g



Bag for CP700 / CP700-EC - TTCP01



Accessory bag - TTPZ01

Accessory bags

Description	Order No.	Weight
Bag for CP700 / CP700-EC	TTCP01	1,2 kg
Accessory bag for hydraulic tools	TTPZ01	1,0 kg

• for hydraulic hose, storage battery and other accessories



ELECTROTECHNICAL EQUIPMENT

9



Standards:
- EN/CEI 60900
- EN/CEI 61010-2-31 (if applicable)
- EN/CEI 10020

Insulated D8mm pin

Designed to connect up a variety of electrotechnical equipment (for example: Shunt devices, current tappings, connection cables, etc.)

Technical characteristics:
- For application on contacts with hole diameter 8 mm (e.g. insulated terminals D8 mm, perforated insulation terminals or terminal strips)
- Spreader pin can be spread open up to a Ø of 8.5 mm
- Contact protection of the contact pin by means of a springy insulating sleeve
- Clamping device for connecting the conductor (max. 35 mm²) inside the pin
- Identification of terminals with phase colour coding
- Elbow form
- Protection against short circuits 8kA for 0,2 sec. or 1,3kA for 60 sec.
- For currents up to 200A for 60 min. or 250A for 15 min.
- Nominal voltage up to 600V AC / DC (50-60 Hz)
- Slip protection according to EN CEI 60900

Description	Order No.	Dimensions	Weight
Pin D8 black neutral	**21011**	110x105x30 mm	160 g
Pin D8 grey R	**21014**	110x105x30 mm	160 g
Pin D8 brown S	**21013**	110x105x30 mm	160 g
Pin D8 black T	**21012**	110x105x30 mm	160 g
Pin D8 blue N	**21015**	110x105x30 mm	160 g





Strudy case - AB4712

Connection cable with D8mm pin

Suitable for bridging a phase under load in LV systems (e.g. replacing / changing fuses, Connecting /disconnecting lines, etc.).

Technical characteristics:
- Connection by means of insulated spreader pins D8
- Flexible cable with double insulation according to IEC 228 standards
- Cable length 3 m
- Rated voltage of the cable up to U/U0 1.8 /3 kV
- Designed for a load of 200A for 60 min. or 250A for 15 min.
- Rated voltage up to 600V AC / DC (50-60Hz)
- Short-circuit strength 8kA for sec. or 1.3kA for 60 sec.

Description	Order No.	Color/Descrip.	Cable cross sect.
Connection cable	**21195**	black / L3	25 mm²
Connection cable	**21192**	blue / N	25 mm²
Connection cable	**21196**	brown / L2	25 mm²
Connection cable	**21197**	grey / L1	25 mm²

Set equipment:
- Connection cable - 2119...
- Strudy case

Other lenghts on request



Clamp 10 - 95 mm² - 2103 1



Clamp 70 - 240 mm² - 2103 4



Phases identified



Sturdy case - 2103 0

Insulated perforation clamp

Designed to connect up a variety of electrotechnical equipment (for example: Shunt devices, current tappings, connection cables, etc.)

Technical characteristics:
- Connection by perforation of the insulating covering
- Size 10 - 95 for NS cables from 10 to approx. 95 mm² (outer diameter max.16 mm)
- Size 95 - 240 for NS-cable up to 240 mm²
- **Note:** Maximum thickness of the insulation wall 3 mm
- Shock protection for the perforating point by spring loaded insulating sleeve
- Identification of terminals with phase colour coding, definable by grip rotation
- Nominal voltage up to 600V AC / DC (50-60Hz)
- Insulation and slip protection based on EN / IEC 60900: 2004
- Contact protection based on DIN EN 61010-034
- Connection socket D4mm according to DIN EN 61010-034 designed for one load by max. 16A (see picture D4)
- Connection socket D8 designed for a load of 200A for 60 min. or 250A 15 min.
- Rated voltage up to 600V AC / DC (50-60Hz)
- Slip protection according to EN CEI 60900

Standards:
EN/CEI 60900
EN/CEI 61010-2-31
EN/CEI 10020

Description	Order No.	Dimensions	Weight
Set 10-95	**21030**	200x170x75 mm	878 g
Insulated perforation clamp 10-95	**21033**	175x35x42 mm	187 g
Set 95-240	**21040**	200x170x80 mm	1300 g
Insulated perforation clamp 95-240	**21034**	185x38x50 mm	300 g

Set equipment:
- 4 insulated perforation clamps
- Sturdy case

D4



Socket D4 mm for current take-off and electric measurements

D8



Socket D8 mm with D8 Intercable plug for shunts and current take-off



Set of D4mm adapter for measurement kit

Used to connect up test or measurement instruments and equipment on hex or cylindrical heads and threaded bars or pins.

Technical characteristics:
- D4mm contact hole in compliance with standards EN CEI 61010-2-31
- Permanent use up to 32A
- Insulated terminals with 600V/Cat. III operating voltages

Standards:
EN/CEI 60900
EN/CEI 10020
EN/CEI 61010-2-31

Description	Order No.	Dimensions	Weight
Set: Measurement kit D6	**22305**	345x265x65 mm	1,8 kg
Case: empty	**2209080**	345x265x65 mm	-

Insulated clamp D4 mm
2130 003



Insulated clamp D4 mm
2130 002



Insulated clamp D4 mm
2130 001



Insulated clamp D4 mm
2130 005



Insulated clamp D4 mm
2130 004





Model Version A



Model Version B

Set adapters D8 mm for electrotechnical equipment

Adapter for current shunts and electrical measurements (e.g. shunts, current take-off devices, connection cables, measuring instruments, etc.) from hexagonal head bolts and socket head screws, studs, bolts and cylindrical plugs.

Technical characteristics:
- Connect the adapters or inserts using an insulated attachment handle
- Current capacity 200A for 60 min., 250A for 15 min.
- Nominal voltage up to 600 V AC / DC (50-60 Hz)

Description	Order No.	Dimensions
Set adapters with D6 (Vers. A) 1 pol.	**22202**	320x115x45 mm
Set adapters with D6 (Vers. A) 2 pol.	**22204**	320x115x45 mm
Set adapters with D6 (Vers. B) 3 pol.	**22206**	230x210x55 mm
Set adapters with D6 (Vers. B) 4 pol.	**22208**	230x210x55 mm
Set adapters with D6L (Vers. A) 1 pol.	**22212**	320x115x45 mm
Set adapters with D6L (Vers. A) 2 pol.	**22214**	320x115x45 mm
Set adapters with D6L (Vers. B) 3 pol.	**22216**	230x210x55 mm
Set adapters with D6L (Vers. B) 4 pol.	**22218**	230x210x55 mm
Version A empty: Transparent case	**D990112**	320x115x45 mm
Version B empty: Rigid case	**AB22208**	230x210x45 mm

- Short circuit protection 8 kA for 0,2 sec. or 1,3 kA for 60 sec.
- Slip protection according to IEC 60900

Set equipment: (*depending on the number of poles)
- 1 insulated grip - 2101 1
- * insulated clamp - 2202 1
- * Hex tightening inserts 13/17/19 mm - 2203 0...
- * Standard tightening insert D6 - 2203 106 or 2104 106
- Rigid case A or B



Insulated grip D8 mm - 2201 1



Allows adjustment of the connection torque of 10Nm via a torque wrench



Insulated D8 mm clamp - 2202 1



Protection ultra-rapid AC waR

• For screw fuse holder Item No. 073326

Description	Order No.	Dimensions	Tension
Protection ultra-rapid AC aR	07343081	27 x 60 mm	12 A
	07343083	27 x 60 mm	32 A
	07343086	27 x 60 mm	63 A
	07343087	27 x 60 mm	100 A
	07343088	27 x 60 mm	125 A
	07343089	27 x 60 mm	160 A
	07343090	27 x 60 mm	200 A
	07343091	27 x 60 mm	250 A



Insulated grip

• For assembly of insulated terminals D4mm/D8mm
• To standards EN/IEC 60900

Description	Order No.	Dimensions	Weight
Insulated grip	22011	180 x 55 mm	164 g



Insulated D4mm clamp for electrical measurements

• Connector D4mm to standards DIN EN 61010-031 for maximum current 16A
• Nominal voltage up to 600V AC / DC (50-60Hz)
• Over-volt protection category III

Description	Order No.	Color	Weight
Insulated clamp D4 mm	2130001	black	62 g
Insulated clamp D4 mm	2130002	green	64 g
Insulated clamp D4 mm	2130003	red	63 g
Insulated clamp D4 mm	2130004	blue	64 g
Insulated clamp D4 mm	2130005	yellow/green	62 g



Standard D6 tightening insert

- For use only in combination with insulated terminals D4/D8
- The internal expansion mechanism guarantees perfect connection to the socket head screws
- Current load 200A for 60 min. or 250A for 15 min.
- Short circuit protection 8kA for 0,2 sec. or 1,3kA for 60 sec.

Description	Order No.	Dimensions	Weight
Insert D6	**2203106**	21 x 19 mm	18 g



Hex tightening insert SW8-SW22 for insulated terminals

- For use only in combination with insulated terminals D4/D8
- The internal expansion mechanism guarantees perfect connection to the socket head screw
- Current load 200A for 60 min. or 250 A for 15 min.
- Short circuit protection 8kA for 0,2 sec. or 1,3kA for 60 sec.

Description	Order No.	Hex wrench	Weight
Insert SW8	**2203008**	SW8	16 g
Insert SW10	**2203010**	SW10	16 g
Insert SW11	**2203011**	SW11	16 g
Insert SW13	**2203013**	SW13	16 g
Insert SW14	**2203014**	SW14	12 g
Insert SW16	**2203016**	SW16	14 g
Insert SW17	**2203017**	SW17	14 g
Insert SW18	**2203018**	SW18	16 g
Insert SW19	**2203019**	SW19	28 g



Tightening insert for allen screws

- For use only in combination with insulated terminals D4/D8
- The internal expansion mechanism guarantees perfect connection to the socket head screw
- Current load 200A for 60 min. or 250 A for 15 min.
- Short circuit protection 8kA for 0,2 sec. or 1,3kA for 60 sec..

Description	Order No.	Size	Dimensions	Weight
Insert I-S8	**2208080**	SW 8	35 x 20 mm	24 g



Insulated clamp D8mm

- For shunts, current take-off devices, connection cables, etc.
- Connection socket D8mm
- Max. current load 200A for 60 min. or 250A for 15 min.
- Short circuit protection 8kA for 0,2 sec. or 1,3kA for 60 sec.
- Nominal voltage up to 600V AC / DC (50-60Hz)

Description	Order No.	Dimensions	Weight
Insulated clamp D8 mm	**22021**	45 x 39 mm	60 g



Insert for hexagonal socket screws with insulated shank

- For use only in combination with insulated terminals D4/D8
- The internal expansion mechanism guarantees perfect connection to the socket head screws
- Current load 200A for 60 min. or 250A for 15 min.
- Short circuit protection: SW 5 = 5kA for 0,2 sec.
  SW 6 = 6kA for 0,2 sec.
  SW 10 = 7kA for 0,2 sec.
- Shank insulation in plastic material

Description	Order No.	Size	Dimensions	Weight
Insert I-S5L	2208050	SW 5	56 x 20 mm	30 g
Insert I-S6L	2208060	SW 6	56 x 20 mm	34 g
Insert I-S10L	2208100	SW 10	56 x 20 mm	40 g



Insert for D8mm holes

- For use only in combination with insulated terminals D4/D8
- The internal expansion mechanism guarantees perfect connection to the
- socket head screws
- Current load 200A for 60 min. or 250A for 15 min.
- Short circuit protection 7kA for 0,2 sec.

Description	Order No.	Dimensions	Weight
Adapter D8	2209080	8 mm	approx. 40 g



Hex cap nut SW13

- Used to make contact with threaded bolts M8, M10, M12 using SW13
- To allow correct assembly and disassembly, use an adapter for cap nuts and an insulated handle
- Current load 200A for 60 min. or 250A for 15 min.
- Short circuit protection 8kA for 0,2 sec. or 1,3kA for 60 sec.

Description	Order No.	Inside thread	Weight
Hex cap nut SW 13-M8	2206008	M8	10 g
Hex cap nut SW 13-M10	2208010	M10	8 g
Hex cap nut SW 13-M12	2208012	M12	4 g



Insulated hex cap nut SW13

- Use exclusively in combination with isolated handle (Item No. 22011) and Intercable cap nut SW13
- To fasten the SW13 cap nut on threaded rods and bolts
- Electrocution protection through plastic bushing

Description	Order No.	Dimensions	Weight
Hex cap nut	22051	-	38 g



Magnetic adapter Ø 6,6 mm

Suitable for connecting measuring analyzers, e.g. for applications on machines, contact with magnet.

Technical characteristics:
- Overvoltage category 1000V CATIII / 600V CAT IV
- Completely isolated from touch
- Connection of measuring device by means of D4 mm socket
- Maximum current carrying capacity 4A

Standards:
IEC 61010-031

Description	Order No.	Dimensions	Weight
Magnet adapter	DA606/6,6	60x50x16 mm	approx. 18 g



Clamp 10 - 95 mm² - 2105 0 ⚠1000V



Clamp 50 - 300 mm² - 2105 1 ⚠1000V

Perforation alligator clip

Suitable for measuring voltage by means of perforation directly on the cable.

Technical characteristics:
- Connection of measuring tips by means of a hole, lockable via a fixing screw
- Low perforation of the insulation on the cable

Standards:
EN/CEI 61010-031

Description	Order No.	Dimensions	Weight
Clamp 10 - 95 mm²	21050	-	approx. 44 g
Clamp 50 - 300 mm²	21051	-	approx. 52 g

Example of use:







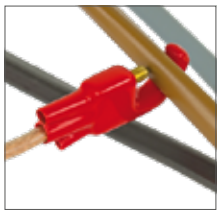


PEN - Clamp compact for rails up to 10 mm

Very narrow insulated version for attaching to the PEN rail. Due to the clamping range up to 10 mm, it is ideally suited to the current rails.

Description	Order No.	Weight
PEN - Clamp compact for rails up to 10 mm	07311102	100 g







Insulated perforation clamp up to 240 mm²

Very slim and compact design, especially for cramped connection conditions in the distribution cabinet or house connection box.

Description	Order No.	Weight
Insulated perforation clamp up to 240 mm²	073474	140 g



Adapter extension D8

Suitable as a connection element for bridging devices and current collecting devices, especially in hard-to-reach places in various cable distribution systems.

Technical characteristics:
- For currents of 200A for 60 min and/or 250A for 15 min
- Nominal voltage 600 V AC/DC (50-60 Hz)
- Protection against short circuit 8kA/0,2 sec.
- Extra flexible cable with double insulation, cable cross section 35 mm²
- Socket D8mm for connecting the spreading systems (ship lifting devices)
- Adapter D8 for holding all clamping inserts
- Can only be used with insulated handle - 2201 1

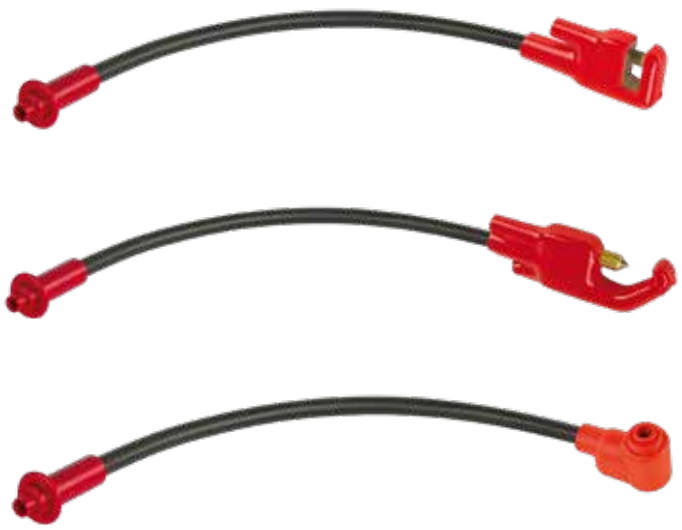
Description	Order No.	Lenght	Weight
Adapter extension	21211	404 mm	ca. 24 g



Flexible connections for temporary connections 35 mm²

Application range:
- Input for current loads 63 amps at 230V AC
- Connection via insulated screw connector for 50 mm²

Description	Order No.	Cable length
Earthing screw cap E27 with cable and screw connector	073333	400 mm
Earthing screw cap E33 with cable and screw connector	073334	400 mm



Flexible connections for temporary connections 35 mm²

Application range:
- For shunt device, current collection set and connection cable
- For current loads 250A for 3 min or 150A continuous load at 230V AC
- Connection via socket for insulated expansion pin D8 mm
- Fastening with hexagon socket screw SW4 mm to PEN and perforation clamp (Allen screwdriver SW4 Nr.: 2115304

Description	Order No.	Cable length
Isolated PEN terminal with cable and D8 connector for expanding pin	07332302	400 mm
Insulated perforation clamp and D8 connection for expanding pin	073323	400 mm
Insulated terminal D8 mm with cable and D8 connection for expansion pin	073322	400 mm



Flexible connections for temporary connections 35 mm²

Application range:
- For shunt device, current collection set and connection cable
- Taps with internal fuse Ultra Rapid AC 660V aR for current loads 250A for 3 min. or 150A continuous load at 230V AC
- Connection via socket for insulated expansion pin D8 mm
- Fuse must be ordered separately (No. 073430xx)

Description	Order No.	Cable length
Screw securing holder with terminal D8 mm	073325	400 mm



Flexible connections for temporary connections 35 mm²

Application range:
- Connection cable (bypass) for connecting phase - phase or PEN - PEN
- For cable distribution systems for temporary bridging
- Taps with internal fuse Ultra Rapid AC 660V aR for current loads 250A for 3 min. or 150A continuous load at 230V AC
- Connection via D8m jack for adapter system for frame, clamp and V terminals Current load 250A for 15 min., 200A 60 min. and continuous load 150A, nominal voltage up to 600V AC / DC (50 - 60 Hz)
- Fuse must be ordered separately (No. 073430xx)

Description	Order No.	Cable length
Connecting cable with 2 perforation clamps and screw securing holder	073324	1500 mm
Connecting cable with 2 perforation clamps	073327	1500 mm
Connection cable with 2x D8 terminal 35 mm² and screw fuse holder	073468	2000 mm



Current tapping device 230V

Designed for two-pole tapping of currents up to 16A to power electrical equipment.

Technical characteristics:
- Protection contact sockets IP44, 2x16A-230V
- Rubber cover insulation grade IP44
- 2 connection cables 16 mm², lenght 1500 mm
- Connection cable with double insulation; nominal voltage U/U0 1,8/3kV
- Overload switch 16A characteristic C, short circuit current 25kA
- Differential switch 0,03A
- Nominal voltage 230V AC / DC (50-60Hz)
- Short circuit protection 8kA for 0,2 sec or 1,3kA for 60 sec

Set equipment:
- Current tapping device
- Plastic case to contain the device housing

Standards (Housing):
- EN 61009
- EN 60493/4
- IEC 309

A= with pin



B= with bush cable terminal



C= with PEN connection terminal



Description	Order No.	Connection	Weight
Current tapping device	2320212	2 x A	approx. 4,8 kg
Current tapping device	2320213	2 x B	approx. 4,8 kg
Current tapping device	-	A + C	approx. 4,8 kg
Current tapping device	-	B + C	approx. 4,8 kg





Current tapping device 380V/16A three phase current

4 pole device for current take-off up to 16A for supply of electro-technical device.

Technical characteristics:
- 5 pole CEE three-phase sockets (3pol + N + PE) 380V/16a IP44
- Rubber cover protection grade IP44
- 4 connection cables 16 mm², length 1500 mm
- Connection cable with double insulation; nominal voltage U/U0 1,8/3 kV
- Overload switch 16A characteristic C, short circuit current 25 kA
- Differential switch 0,03A
- Nominal voltage 380/400V AC / DC (50-60Hz)
- Short circuit protection 8 kA for 0,2 sec. or 1,3 kA for 60 sec.

Set equipment:
- Current tapping device
- Plastic case to contain the device housing

Standards (Housing):
- EN 61009
- EN 60493/4
- IEC 309

Description	Order No.	Dimensions	Connection	Weight
Current tapping device	2320221	500x380x190 mm	3xB + 1xC	approx. 8 kg



Single-pole Shunt device

For opening and closing circuit breaker bridges in lines under load in low voltage systems (e.g. to replace fuses, connect/disconnect electric connections etc).

Technical characteristics:
- Red LED to signal polarity inversion
- Connection by insulated plug D8mm
- Cover protection grade IP44
- Connection cable 16 mm2, Length 1500 mm
- Connection cable with double insulation; nominal tension U/U0 1,8/3 kV
- With fixed overload cut-out level
- Nominal automatic switch current 160A; short circuit current 25 kA,
- Current load 160A for 30 min.
- Nominal tension max. 600V AC / DC (50-60Hz)
- Short circuit protection 8 kA for 0,2 sec. or 1,3 kA for 60 sec.

Set equipment:
- Single-pole Shunt device
- Plastic case to contain the Shunt device

Assembly option accessories for insulated terminal D8 + dies or insulation perforation terminal see page .xxx

Description	Order No.	Dimensions	Weight
Shunt device	21201160	430x310x120 mm	approx. 5,1 kg





Multi-pole Shunt device

Suitable for 3-pole bridging of external conductors under load in LV systems up to 230 / 400V AC - 50Hz (e.g. replacement / replacement of intact fuses or fuse strips, connection / disconnection of cables, etc.) without interrupting the power supply.

Technical characteristics:
- Protection against polarity inversion for correct phase connection
- Digital counter for number of operation cycles
- Connection by insulated pin D8 mm
- Cover protection grade IP44
- Connection cable 35 mm², length 6x1.800 mm
- Connection cable with double insulation, nominal tension U/U0-470/750V
- Circuit-breaker T3N-250-TMD (ABB) with thermomagnetic overcurrent release (TMD) 3-pole, rated current 200A. Rated operational voltage 380-415V AC, breaking capacity ICU 36kA, utilization category A acc.
- Max current load (maximum duration of use) of the bridging device: Current load (maximum operating time) of the bridging device: 200A for 60 minutes or 250A for 15 minutes at an ambient temperature of -5° C / + 40° C
- Short circuit protection 8kA for 0,2 sec. or 1,3kA for 60 sec.
- Integrated meter in the electronics for determining the maintenance intervals
- Display showing the phases (load supply side), faults, hazard warnings and prompts
- Push button green: Push button with integrated green light which signals that everything has been connected correctly and that the bridging can now be started by activating the circuit breaker
- Button: to acknowledge the buzzer in case of error message (approx. 5 sec.), as well as to acknowledge the message "Expiry of max. recommended circuits"
- LED red: Attention error, see display.
- Buzzer: electronic buzzer which sounds in the event of a fault during the bridging (if contacting of a spreader pin faulty, voltage drop)
- Electronic polarity reversal protection

Set equipment:
- Three-pole bridging device with electronic reverse polarity protection
- Plastic case to contain the Shunt device

Assembly option accessories for insulated terminal D8 and dies or insulation perforation terminal: see page 215.

Description	Order No.	Dimensions	Weight
Shunt 3-pole	212703250	430x310x200 mm	approx. 19,1 kg



PERSONAL PROTECTIVE EQUIPMENT

10





Electric arc flame and heat protection clothing 7kA

The electric arc protection clothing are usable in low voltage areas in order to protect people against the danger of an electric arc.

Description	Order No.	Size	Weight
Electric arc flame and heat protection safety jacket	AI0301	44	690 g
	AI0302	46	750 g
	AI0303	48	950 g
	AI0304	50	980 g
	AI0305	52	860 g
	AI0306	54	900 g
	AI0307	56	930 g
	AI0308	58	1130 g
	AI0309	60	1150 g
	AI0310	62	990 g
Electric arc flame and heat protection safety trousers	AI0401	44	560 g
	AI0402	46	600 g
	AI0403	48	670 g
	AI0404	50	870 g
	AI0405	52	710 g
	AI0406	54	720 g
	AI0407	56	750 g
	AI0408	58	940 g
	AI0409	60	970 g
	AI0410	62	800 g

Other sizes available on request

Tested and produced according following norms:
- UNI EN 340:2004
- UNI EN 11612/09 A1B1C1
- UNI EN 1149-5:2008
- IEC 61482-2/09
- IEC 61482-1-2/08
- Material: 87% cotton, 12% nylon, 1% antistatic fiber
- Colour: blue royal

1000V IEC 60900

- UNI EN 340:2004
- UNI EN 11612/09 A1B1C1
- UNI EN 1149-5:2008
- IEC 61482-2/09
- IEC 61482-1-2/08





Safety vest 4kA

Appropriate for wearing over electric arc flame and heat protection clothing.

Description	Order No.	Size	Weight
Safety vest	AI0701	M	xx g
	AI0702	L	xx g
	AI0703	XL	xx g
	AI0704	XXL	xx g

- High visibility
- Covered zipper closure
- Left breast pocket with Velcro® closure and flap
- Two side pockets with covered zipper closure
- Encircling, reflective stripes, height 7 cm

Tested and produced according to the following norms:
- UNI EN ISO 13688:2013
- UNI EN ISO 1149-5:2008
- UNI EN ISO 20471:2013 (cl. 2)
- UNI EN ISO 11612 A1A2B1C1E1
- UNI EN ISO 13034 tipo 6
- IEC 61482-2/09 4kA (cl. 1)
- Materials: 87% cotton, 12% nylon, 1% conductive fiber
- Color: bright yellow

1000V IEC 60900

- UNI EN ISO 13688:2013
- UNI EN ISO 1149-5:2008
- UNI EN ISO 20471:2013 (cl. 2)
- UNI EN ISO 11612 A1A2B1C1E1
- UNI EN ISO 13034 tipo 6
- IEC 61482-2/09 4kA (cl. 1)

CE 1000V IEC 60900

EN 345
EN 50321
VDE 0680 part 1



Insulated electrical safety boots

Description	Order No.	Size	Weight
Electrical safety boots	661341	41	2,2 kg
	661342	42	2,3 kg
	661343	43	2,4 kg
	661344	44 / 45	2,5 kg
	661346	46	2,7 kg
	661347	47	2,8 kg

- Tested and produced according to EN 345 / EN 50321
- Safety Boots with steel toe cap
- Legs and soles are resistant to oil, petrol, grease, alkaline solution and acid complying with VDE 0680 Part 1
- Colour: Shaft white, sole: blue



CE 1000V IEC 60900

EN 60903 / IEC 903
VDE 0682 part 311

Insulated electrical safety gloves

Description	Order No.	Operating Voltage	Test Voltage	Thickness	Size
Safety gloves class 00	AV4711	500 V	2.500 V	0,5 mm	8
	AV4712	500 V	2.500 V	0,5 mm	9
	AV4713	500 V	2.500 V	0,5 mm	10
Safety gloves class 0	AV4720	1.000 V	5.000 V	1 mm	8
	AV4721	1.000 V	5.000 V	1 mm	9
	AV4722	1.000 V	5.000 V	1 mm	10
Safety gloves class 1	AV4731	7.500 V	10.000 V	1,35 mm	9
	AV4732	7.500 V	10.000 V	1,35 mm	10
Safety gloves class 2	AV4741	17.000 V	20.000 V	2 mm	9
	AV4742	17.000 V	20.000 V	2 mm	10
Safety gloves class 3	AV4750	26.500 V	30.000 V	2,6 mm	9
	AV4751	26.500 V	30.000 V	2,6 mm	10

- Tested and produced according to EN 60903 / IEC 903, VDE 0682 part 311
- For work on live MV/LV parts
- Material: natural latex
- Length: 360mm
- Smooth inside/outside
- Color: beige



CE 1000V IEC 60900

EN 60903 / IEC 903
EN 61482-1-2
VDE 0682 part 311

Insulated electrical arc 7kA protection gloves

Description	Order No.	Operating Voltage	Test Voltage	Size
Gloves class 0	**AV4701**	1000V - 7kA	5.000 V	8
Gloves class 0	**AV4702**	1000V - 7kA	5.000 V	9
Gloves class 0	**AV4703**	1000V - 7kA	5.000 V	10

- Tested and produced according to
  norm EN 61482-1-2 / class II (resistant to electric arc 7kA/0,5 seconds)
  norm EN 60903 / class 0 (suitable to work under voltage 1000 V)
  VDE 0682 part 31
- Mechanical protection
- Material: natural latex
- Length: 360 mm
- Color: red



1000V IEC 60900



Safety fuse (NH fuse) withdrawal glove

Description	Order No.	Dimensions	Weight
Withdrawal glove	**659001**	385x220 mm	460 g
Withdrawal glove long	**659004**	445x220 mm	460 g
↳ Leather cover	**659302**	360x220 mm	210 g
↳ Safety fuse hold.	**659500**	40x125 mm	250 g

The fuse withdrawal glove is suitable for removing or fitting fuses or other pieces of equipment such as earthing and short circuit protection devices, dummy fuse components etc. to protect the operator's hand and lower part of the arm. The operators limbs are under severe risk from the effects of power arcing.

- For removal of NH fuses sizes 00 - 3



Shockproof resin container

Description	Order No.	Dimensions	Weight
Resin container	**AB4700**	420x170x50 mm	350 g

- To contain and protect insulated gloves



Nylon case

Description	Order No.	Dimensions	Weight
Nylon case	**AB4710**	380x170x40 mm	170 g

- To carry insulated gloves at the belt



Pump for testing insulated gloves

Description	Order No.	Dimensions	Weight
Pump	631800	140 x Ø -130 mm	800 g

- To inflate insulating gloves and check for any leaks.
- Material: thermoplastic resin, light alloy, anti-oxidation metal and other equivalent material.



Anti–perspiration gloves

Description	Order No.	Size	Weight
Gloves	631000	Single	30 g

- Inner glove for insulating gloves to absorb skin perspiration
- Material: highly elastic interlock cotton
- Color: white



EN 420
EN 388

Protective gloves

Description	Order No.	Size	Weight
Protective gloves	AV4771	9	200 g
Protective gloves	AV4772	10	200 g
Protective gloves	AV4773	11	200 g

- Tested and produced according to EN 420 / EN 388
- Overglove to protect the insulating glove.
- Material: water-repellent silicone-treated grain leather

1000V IEC 60900

400V AC



EN 50362
EN 397

Safety helmet for electricians

Description	Order No.	Color	Weight
Helmet	AV9305	white	305 g

- Tested and produced accorind to EN 50362 / EN 397
- Adjustable headband
- Material: polyethylene
- Color: white



Visor for safety helmet

Description	Order No.	Dimensions	Weight
Visor	AV9306	395 x 240 mm	300 g

- Face screen to protect against electric arcs
- Shell: polycarbonate
- Protection against UV rays and short circuit



EN 166

Safety goggles

Description	Order No.	Weigth
Safety goggles	666000	27 g

- Tested and produced according to EN 166 3-1.21F
- Light weight and comfortable
- Clear scratch-resistant spectacle glass
- Modern design



1000V IEC 60900

400V AC

EN 397
VDE 0680 part 1

Safety helmet with built-in visor for electricians

Description	Order No.	Color	Weight
Safety helmet	AV9303W	white	740 g
Safety helmet	AV9303R	red	740 g

- Tested and produced according to EN 397, VDE 0680 part 1
- Protective helmet with built-in visor for working under live LV electrical systems
- Suitable for work on live parts
- Protection against electric arc
- Built-in visor: 1.2mm thick
- Adjustable headband from size 52 to 66 (rack-adjustment), neck strap with Velcro® closure
- Helmet material: polyethylene
- Visor material: scratchproof polycarbonate
- Color: white, red



1000V

Safety helmet with built-in visor for electricians 7kA

Description	Order No.	Color	Weight
Safety helmet	662555	white	740 g

- The safety helmet for electricians is a helmet constructed according the current insights of head protection development, which was designed especially for professional use in live electrical systems.
- The helmet has a visor that completely covers the face and can be retracted completely into the double-wall helmet as needed.
- The helmet has a single-handed screw cap that allows the modification of the headband without requiring the wearer to remove the helmet.
- With built-in, retractable visor that provides complete protection for the entire face area
- For protection against electric arcs up to 7 kA when working on live electrical systems
- Helmet material: HD polypropylene, UV stabilized, white
- Double wall helmet for increased protection and for storing the built-in visor and its safety cloth
- Interior helmet equipment: Adjustable 6-point textile band for all head sizes, sweatband, adjustable 4-point chin strap
- Visor made of high-impact, tinted polycarbonate with infrared filter and special surface treatment against fogging
- Aramid-base safety cloth, orange
- Minimum durability: 5 years
- Norms:
- Visor: EN 166, 170, ASTM F2178,GS-ET-29/ IEC 61482-1-2
- Class 2: 7kA electric arcs / 0.5 sec. light transition, 75% (Class 0 in accordance with GS-ET-29)
- Helmet: EN 397, EN 50365, ANSI Z89.1
- Safety cloth: IEC 61482-1-2 Class 2, ASTM F1959, 1506 NFPA 70E
- Identification, Visor: 2C-1,2 XXX 1 B 8-2-0 3 CE 0497



1000V

Rubber insulating matting

Description	Order No.	Dimensions	Weight
Insulating matting	**AV4301**	1 x 1 m	ca. 4,6 kg
Insulating matting	**AV4303**	3 x 1 m	ca. 12,0 kg
Insulating matting	**AV4310**	10 x 1 m	ca. 43,8 kg

Other dimensions available on request

- To insulate high-risk zones when making joints on LV-MV cables in trenches
- Non-slip surface
- Thickness: 4mm – 1.20g/cm2 (53 Shore)
- Material: natural rubber or vulcanized synthesis rubber
- Color: gray



IEC 61111:2009
VDE 0680 part 1

1000V

Rubber insulating matting

Description	Order No.	Dimensions	Weight
Insulating matting	**642415**	1,5 x 1 m	5,0 kg
Insulating matting	**642410**	10 x 1 m	33,5 kg

Other dimensions available on request

- Tested and produced according to VDE 0680 part 1
- To insulate high-risk zones when making joints on LV-MV cables in trenches
- Non-slip surface
- Thickness: 3mm – 166g/cm2 (56 Shore)
- Material: Chloroprene mixture
- Resistance: Mechanical Puncture, Oil, Acid, Slip and Ageing
- Flame Retardancy
- Color: gray



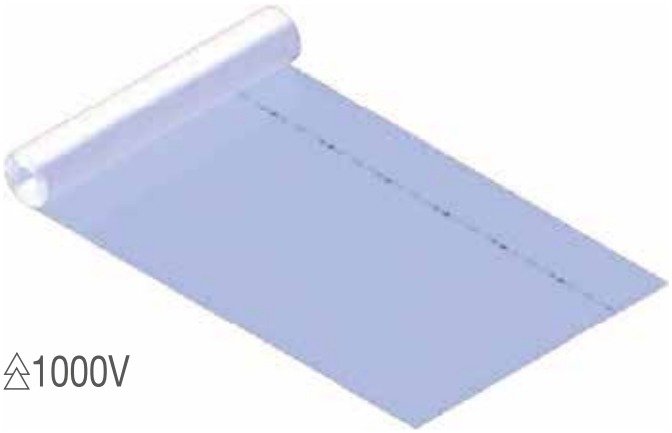
1000V

Rubber cover material

Description	Order No.	Dimensions	Weight
Rubber cover material	**AV4102**	0,60 x 0,60 m	ca. 0,7 kg
Rubber cover material	**AV4104**	1 x 1 m	ca. 2,1 kg
Rubber cover material	**AV4110**	10 x 1 m	ca. 20,6 kg
Rubber cover material	**AV4111**	1 x 1,20 m	ca. 2,3 kg
Rubber cover material	**AV4120**	10 x 1,20 m	ca. 25,1 kg

Other dimensions available on request

- Tested and produced according to VDE 0680 part 1
- For temporary protection of live uninsulated components of LV systems
- Resistant to oils and acids
- Self-extinguishing
- Thickness: 1.6mm - 1.21g/cm2 (44 Shore)
- Material: high quality neoprene
- Color: orange



1000V

Cover transparent

Description	Order No.	Dimensions	Weight
Cover	**641960**	10000 x 1400 mm	8000 g
Cover	**641952**	2000 x 1400 mm	1600 g
Cover	**641951**	1000 x 1400 mm	800 g
Cover	**641949**	600 x 600 mm	220 g
Cover	**641948**	250 x 350 mm	50 g
Cover	**641947**	130 x 230 mm	20 g
Cover	**641946**	120 x 120 mm	10 g

- In accordance with DIN EN 61112 (VDE 0682-511) : 2010-03
- EN/IEC 61112 : 2009
- Highly flexible, cold resistant
- Materials: UV-stabilized film
- Thickness: 0.5 mm



30.000V

IEC 61111:2009
VDE 0680 part 1

Tappeto isolante 30.000V

Description	Order No.	Dimensions	Weight
Safety carpet	AV4331	1 x 1 m	ca. 4,0 kg
Safety carpet	AV4335	5 x 1 m	ca. 11,0 kg
Safety carpet	AV4330	10 x 1 m	ca. 40,0 kg

Other dimensions available on request

- Tested and produced according to VDE 0303
- For permanent insulation in cabins or rooms that require a high degree of Insulation
- Non-slip pavement side / ribbed non-slip support side (top)
- Thickness: 4,5mm
- Material: natural rubber or vulcanized synthesis rubber
- Color: gray



50.000V

VDE 0303

Safety rubber carpet 50.000V

Description	Order No.	Dimensions	Weight
Safety carpet	AV4341	1 x 1m	5,6 kg
Safety carpet	AV4350	10 x 1m	57 kg
Safety carpet	AV4351	1 x 1.20m	6,8 kg
Safety carpet	AV4360	10 x 1.20m	69 kg

Other dimensions available on request

- Tested and produced according to VDE 0303
- For permanent insulation in cabins or rooms that require a high degree of Insulation
- Non-slip pavement side / ribbed non-slip support side (top)
- Thickness: 4,5mm - 1.65g/cm2 (77 Shore)
- Material: natural rubber or vulcanized synthesis rubber
- Color: gray



30.000V / 45.000V

30kV/45kV insulating platform

Description	Order No.	Dimensions	Weight
Platform 30.000V	AV5000	500 x 500 x 260 mm	3,2 kg
Platform 45.000V	AV5001	500 x 500 x 310 mm	4,2 kg

- To insulate workers from the pavement when working
- Material: glass-fiber reinforced plastic resin
- Non-slip surface
- 30.000V/45.000V operating insulating level



Thermal blanket

Description	Order No.	Dimensions	Weight
Thermal blanket	HSD1	1800 x1800 mm	3,8 kg
Thermal blanket	HSD2	1200 x 900 mm	1,3 kg
Thermal blanket	HSD3	450 x 600 mm	0,3 kg

- Free of asbestos and other dangerous ingredients
- Composed 98% of silicone oxide (amorphous SiO2)
- Usable for temperatures up to 1260°C
- Melting temperature above 1600°C
- Non-toxic product



1000V IEC 60900

Sheath spreader

Description	Order No.	Height	Dimensions	Weight
Sheath spreader	652002	30 to 0mm	165 x 20 mm	43 g

- Reinforced polyamide material
- Lightweight model



1000V IEC 60900

Sheath spreader

Description	Order No.	Height	Dimensions	Weight
Sheath spreader	652003	10 to 0mm	170 x 20 mm	100 g

- Reinforced polyamide material
- Designed for assembly of branch terminals



1000V IEC 60900

Bordering chisel

Description	Order No.	Diameter	Length	Weight
Bordering chisel	654000	Ø 25 mm	140 mm	63 g

- For NKBA-Cable
- Tape 70 mm with 30 mm radius
- Non brittle red plastic

WORKPLACE INSULATION



1000V IEC 60900
VDE 0680

Insulating safety clamp short

Description	Order No.	Dimensions	Weight
Insulating clamp	651409	140 x 85 mm	52 g

- Tested and produced according to VDE 0680
- For fastening insulating sheets in cramped quarters
- Rubber inserts inside the jaws
- Material: shockproof thermoplastic resin
- Opening: 45 mm



1000V IEC 60900
VDE 0680

Insulating safety clamp small

Description	Order No.	Dimensions	Weight
Insulating clamp	651406	80 x 40 mm	40 g

- Tested and produced according to VDE 0680
- For fastening insulating sheets in cramped quarters
- Rubber inserts inside the beaks
- Material: shockproof thermoplastic resin
- Opening: 25 mm



1000V IEC 60900
VDE 0680

Insulating safety clamp with hook

Description	Order No.	Dimensions	Weight
Insulating clamp	651402	165 x 130 mm	60 g

- Tested and produced according to VDE 0680
- For fastening insulating sheets in cramped quarters
- Rubber inserts inside the beaks
- Material: shockproof thermoplastic resin
- Opening: 45 mm



1000V IEC 60900
VDE 0680

Insulating safety clamp without hook

Description	Order No.	Dimensions	Weight
Insulating clamp	651407	175 x 110 mm	76 g

- Tested and produced according to VDE 0680
- For fastening insulating sheets in cramped quarters
- Rubber inserts inside the beaks
- Material: shockproof thermoplastic resin
- Opening: 40 mm



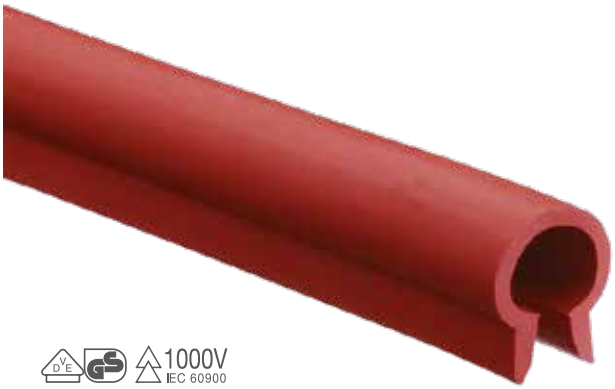
1000V IEC 60900
VDE 0680

Insulating safety clamp large opening

Description	Order No.	Dimensions	Weight
Insulating clamp	651412	160 x 115 mm	70 g

- Tested and produced according to VDE 0680
- For fastening insulation sheets in cramped quarters
- Rubber inserts inside the beaks
- Material: shockproof thermoplastic resin
- Opening: 65 mm

Protecting tube



1000V IEC 60900

EN 60529

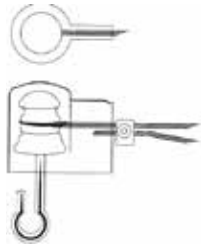
Description	Order No.	Length	Ø Conductor
Protective shaped profiles up to 10mm	AV4410 AV4413 AV4418	1m 3m 18m roll	up to 10mm up to 10mm up to 10mm
Protective shaped profiles up to 14mm	AV4510 AV4513 AV4518	1m 3m 18m roll	up to 14mm up to 14mm up to 14mm

Other lenghts available on request

- Tested and produced according to EN 60529
- For temporary insulation of bare aerial LV lines carrying up to 1000V of live voltage
- Material: natural rubber or synthetic vulcanized elastomer
- Weight per meter: approx. 350g
- Color: red
- Other lengths on request



1000V IEC 60900

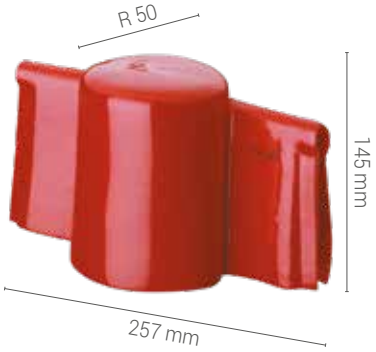


Insulator cap with single outlet

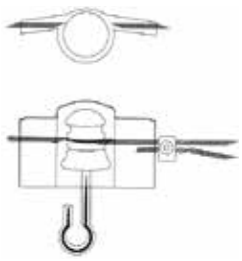
Description	Order No.	Version	Weight
Insulator cap	AV4401	1 Outlet	350g

Other insulator caps available on request

- Suitable for long-term operations
- Simple and robust design to slide over
- Material: flexible plastic resin
- Color: red



1000V IEC 60900



Insulator cap with double outlet

Description	Order No.	Version	Weight
Insulator cap	AV4402	2 Outlets	450g

Other insulator caps available on request

- Suitable for long-term operations
- Simple and robust design to slide over
- Material: flexible plastic resin
- Color: red



1000V IEC 60900

VDE 0680

Insulating safety caps

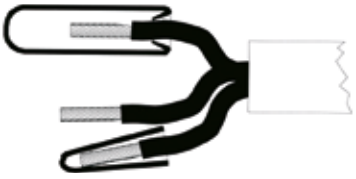
Description	Order No.	Ø	Length
Insulating caps	AV4094	8 - 13 mm	60mm
	AV4095	13 - 20 mm	80mm

- Tested and produced according to VDE 0680
- To protect rigid cables
- Material: rigid thermoplastic resin
- Color: red

Push on cover with grip



- Slip over side
- with grip



1000V IEC 60900

VDE 0680

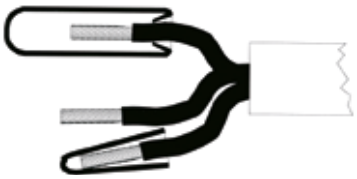
Description	Order No.	Length	Opening	Suitable for	Weight
Push on cover with grip	646004	40 mm	10 mm	1 - 25 mm²	4 g
	646006	60 mm	10 mm	6 - 35 mm²	14 g
	646010	100 mm	10 mm	6 - 35 mm²	21 g
	646015	100 mm	15 mm	10 - 50 mm²	31 g
	646020	110 mm	20 mm	35 - 95 mm²	40 g
	646030	130 mm	30 mm	95 - 185 mm²	70 g
	646040	150 mm	40 mm	185 - 240 mm²	135 g
	646050	185 mm	50 mm	240 - 400 mm²	140 g
	646060	185 mm	60 mm	240 - 500 mm²	220 g
	646070	210 mm	70 mm	300 - 500 mm²	300 g
	646090	255 mm	90 mm	- 630 mm²	550 g
	646120	240 mm	120 mm	- 800 mm²	700 g

- Tested and produced according to VDE 0680
- For temporary insulation of the ends of live LV single-pole cables
- Also suitable for protecting cables with cable terminals
- Material: flexible thermoplastic resin
- Color: red

Push on cover conical



Slip over side
without grip



1000V IEC 60900

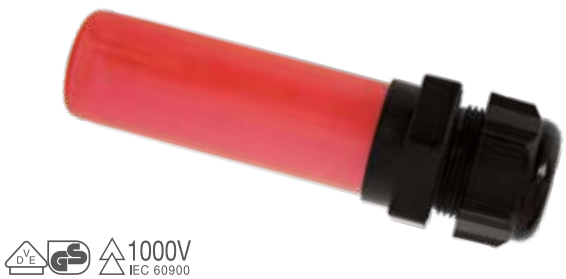
VDE 0680

Description	Order No.	Length	Opening	Suitable for	Weight
Push on cover conical	647030	30 mm	10 mm	10 - 25 mm²	10 g
	645006	50 mm	10 mm	10 - 25 mm²	10 g
	647010	60 mm	10 mm	6 - 25 mm²	15 g
	645000	100 mm	10 mm	10 - 35 mm²	7 g
	645001	100 mm	20 mm	120 - 150 mm²	19 g

Transparent conical puch on covers available on request

- Tested and produced according to VDE 0680
- For temporary insulation of the ends of live LV single-pole cables
- Also suitable for protecting cables with cable terminals
- Material: flexible thermoplastic resin
- Color: red

Insulating safety sleeve



1000V IEC 60900

EN 57680
VDE 0680

Description	Order No.	Ø	Length
Insulating sleeve	AV4082	5 – 12 mm	117 mm
Insulating sleeve	AV4083	12 – 21 mm	159 mm
Insulating sleeve	AV4084	21 – 30 mm	190 mm

- Tested and produced according to EN 57680, VDE 0680
- To protect ends of electric conductors
- Optimized holding force with the screw joint
- Material: Safety sleeve made out of flexible shock- resistant plastics
  Screw joint made out of a red transparent prim plastics
- Color: red



Safety bag with tools

Description	Order No.	Dimensions	Weigth
Safety bag with tools	AB7712	560x360x320mm	ca. 7,7 kg
Safety bag without tools	AB7710	560x360x320mm	ca. 1,7 kg

Equipment:
- 1 pair of insulated electrical safety gloves – size 10 ..... AV4722
- 1 pair of safety goggles 6660 00
- 1 safety helmet with build in visor AV9303W
- 1 rubber insulating matting 1000 x 1000 x 4 mm AV4301
- 1 pair of anti-perspiration gloves 6130 00
- 1 shockproof resin container AB4700

Optionals:
- 7 kA protection clothing (see page 42)
- 7 kA protection gloves (see page 43)



Bag with tools to work on LV

Description	Order No.	Dimensions	Weigth
Bag with tools	AB7721	560x360x320 mm	ca. 6,1 kg
Bag without tools	AB7720E	560x360x320 mm	ca. 1,7 kg

Equipment:
- 1 transparent cover material 560 x 560 mm AV4102E
- 1 transparent cover material 910 x 910 mm AV4104E
- 8 insulating safety clamps 6514 09
- 8 push on covers with grip, opening 15 mm 6460 15
- 8 push on covers with grip, opening 20 mm 6460 20
- 8 push on covers with grip, opening 30 mm 6460 30
- 1 insulating mastic 1033 74



Protective cover for distribution cabinets

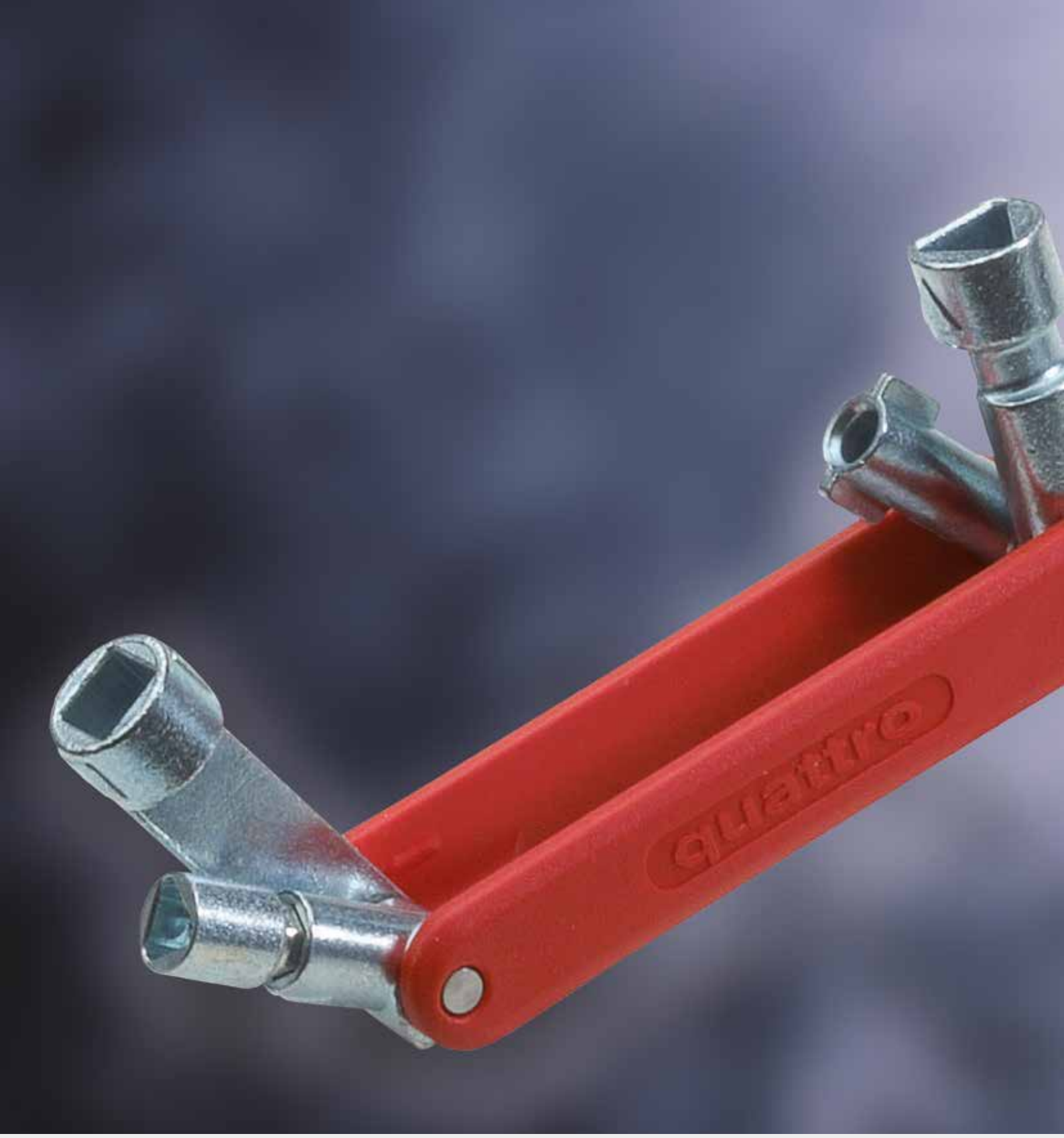
Description	Order No.	Dimensions	Weight
Prot. cover DIN Gr.00, F3, F3/1	06614710	1100x550x440 mm	3,3 kg
Prot. cover DIN Gr.0, F4	06614810	1100x700x440 mm	3,8 kg
Prot. cover DIN Gr.1, F5	06614510	1100x900x440 mm	4,5 kg
Prot. cover DIN Gr.2, F6	06614610	1100x1300x440 mm	5,8 kg
Prot. cover DIN Gr.3	06614910	1100x1600x440 mm	7,0 kg

- The protective cover serves to cover damaged distribution cabinets tem-
- porarily.
- Increased 1,100 mm height, suitable for also covering the base
- A belt has been inserted under the lower edge of the cover for securing the cover, when drawn tight.
- The protective cover has two layers, which have been permanently welded together.
- The internal layer consists of a 0.5 mm thick, highly flexible and transparent cloth
- The external layer is made of a PVC-coated, UV and weather resistant polyester fabric.
- Both layers are highly flexible and cold-resistant.
- Color: signal yellow and printed with the "Caution: Dangerous Electrical Voltage"

WE

LOVE

TOOLS



ADDITIONAL RANGE

ADDITIONAL RANGE



Universal cabinet key in pocket format

Description	Order No.	Dimensions	Weight
Universal Key	QUATTRO	91 x 26 x 15 mm	95 g
Universal Key - D	QUATTRO-D	91 x 26 x 15 mm	95 g
Universal kKey - S	QUATTRO-S	91 x 26 x 15 mm	103 g

- Designed to use in opening and closing electric panels and the most common systems of closure
- Suitable for all common electrical panels and cabinets
- Five different key profiles
- The magnetic attachment gives the possibility to use the key with any type of bit

Order No.	Additional Bit		Standard Bits			
						
QUATTRO		11,5 x 6 mm Triangular Key	10 x 6,5 mm 6.3 Bit magnetic Attachment	14 x 8 mm Square Key insert	14 x 9 mm Triangular Key insert	14 x 9 x 2 mm 2 x 14 Key Insert
QUATTRO-D		10 x 7,4 x 2 mm Square Key				
QUATTRO-S		10 x 7 mm Daimler Benz Key				



Switch cabinet spanner

					Order No.
8/9	14/8	12/7	9/5	6/9	AV9312

- With 1/4" bits adapter and two screwdriver insertsdimensions: 90 x 62 mm
- Weight approx. 65 g



Universal key - Sub key

						Order No.
¼"	7-8	5	9	7	3-5	AV9314

- With 1/4" bits adapter and two screwdriver inserts
- For all current systems of technical closures



Universal key

				Order No.
12/6,2	14/9	14/8	9/5	AV9310



Key set

Measures	Order No.
1,5 - 2 - 2,5 - 3 - 4 - 5 - 6 - 8 - 10	7110592

- Chrome vanadium steel



Key set TORX®

Measures	Order No.
9 - 10 - 15 - 20 - 25 - 27 - 30 - 40	7409002



Allen wrench set

Measures	Order No.
2,5 - 3 - 4 - 5 - 6 - 8	7401002



Allen wrench set

Measures	Order No.
2,5 - 3 - 4 - 5 - 6 - 8	7401202

- Easy opening via a lever integrated in the handle
- Shock-resistant resin handle
- Chrome-vanadium keys according DIN 911, galvanic coating

ADDITIONAL RANGE



Assortment of 1/4"socket wrenches (39 pcs)

Equipment	Order No.
Hexagonal sockets from mm 4 - 4.5 - 5 - 5.5 - 6-7 - 8 - 9 - 10 - 11 - 12 - 13 - 14 Inserts PH1 - PH2, Inserts PZ1 - PZ2 Slotted inserts mm 4 - 5.5 - 7 Hexagonal inserts mm 3 - 4 - 5 - 6 - 7 - 8 Torx inserts T10 - T15 - T20 - T25 - T27 - T30 - T40 1 adapter screwdriver 1 torsion bar 2 extensions of 50 mm and 100 mm 1 jointed adapter 1 reversible jack	7113104



Assortment of 1/2", 1/4" socket wrenches (108 pcs)

Equipment	Order No.
Sockets 1/2" mm 10-11-12-13-14-15-16-17-18-19-20-21-22-24-27-30-32 Sockets 1/4" mm 4-4,5-5-5,5-6-7-8-9-10-11-12-13-14 Ratchets 1/2" + 1/4" Joint 1/2" + 1/4" Sockets 1/2" for spark plugs (16+21 mm) Extensions 1/2" (125+250 mm) Extensions 1/4" (50+100 mm) Long sockets 1/4" mm 6-7-8-9-10-11-12-13 Long sockets 1/2" mm 13-15-17-19-22 Claw hammer handle with sliding panel 1/4" Claw hammer handle 1/2" Adapter 1/2" for inserts 5/16" Connector 1/4" Sockets 1/2" Torx E 10-11-12-14-16-18-20-24, Sockets 1/4" Torx E 4-5-6-7-8 Inserts 5/16" hex (7-8-10-12-14) TG (8-10-12) PH (3-4) PZ (3-4) Torx (T40-45-50-55-60) Bent male hex keys 1.5-2-2.5 Sockets chrome 1/4" + inserts hex (3-4-5-6) TG (4-5.5-6.5) PH (1-2) PZ (1-2) Torx (T8-10-15-20-25-27-30)	7113152



Combined wrenches

Equipment	Order No.
17 pieces: measures from 6 to 22	7112315

- DIN 3113
- Chrome vanadium steel
- Polished chrome plating



Assortment of double fork wrenches

Equipment	Order No.
8 pieces: 6x7 - 8x9 - 10x11 - 12x13 - 14x15 - 16x17 - 18x19 - 20x22	7112310
12 pieces: 6x7 - 8x9 - 10x11 - 12x13 - 14x15 - 16x17 - 18x19 - 20x22 - 21x23 - 24x27 - 25x28 - 30x32	7112312

- DIN 3110
- Chrome vanadium steel
- Polished chrome plating



Gripper universal key

Equipment	Order No.
Ratchet and compass set included of drill adapter	7410001
Compass	7410002

- Ratchet and compass set included of drill adapter
- The compass adapts perfectly to any screw or nut up to a diameter of 8 mm - 19 mm



Pipe wrenches

Length	Order No.
245 mm	7101237
180 mm	7101180

- Chrome vanadium steel
- With clamp
- closed zipper
- Handles with protection
- Finger anti-crushing



Precision screwdriver set

Dimensions	Order No.
1,0 1,5 1,8 2,3 2,9 3,6	7111810

- For slotted screws
- Nickel-plated handle
- Metal case

ADDITIONAL RANGE



Measuring tape

Length	Width	Order No.
3	16 mm	7406030
5	19 mm	7406050
8	25 mm	7406080

- Accuracy class 2
- Sturdy ABS case
- Double black graduation on a yellow background



Universal knife

Length	Order No.
135 mm	7120081
Replacement blade	7120082

- Very light two-component handle
- Pre-set sliding and adjustable blade



Universal scissors

Length	Order No.
190 mm	7120122

- Stainless steel
- Shockproof handle
- For cables and sheet metal
- Leather, plastic material etc.



Universal tube cutter

Length	Ø tube	Order No.
200 mm	max. 29 mm	7120450

replacement blade	Order No.
For hard PVC pipes	7120452
For rubber hoses	7120453

- With two types of interchangeable blades
- For insulating pipes, PVC pipes
- Hard and rubber hoses



Pipe cutter for resin pipes

Length	Order No.
For pipes with Ø from 6 to 35 mm	7120410
Replacement blade 135 mm	7120412





Set - EnerGrip

Equipment	Order No.
4 EnerGrip (AV8902)	AS8902

• Cable glands for excellent grip (Ø 3-12 mm)



Universal Marker

Color	Content	Order No.
Red	400 ml	7212110
Blue	400 ml	7212120
Black	400 ml	7212130

• Long lasting tracker, ideal for all markings



Gel / Liquid lubricant for cables (1 litro)

	Order No.
Liquid	7142160
Gel	7142161

ADDITIONAL RANGE



NYLON FISHTAPES PA6

Ø4 mm with interchangeable terminals M5, flexible head (mod. 7142145) and eyelet head (mod. 714148)

Ø mm	Colour	length m	Order No.
4		5	FTN4-05
		10	FTN4-10
		15	FTN4-15
		20	FTN4-20
		25	FTN4-25
		30	FTN4-30



PERLON® FISHTAPES PA6

Ø4 mm with interchangeable terminals M5, flexible head (mod. 7142145) and eyelet head (mod. 714148)

Ø mm	Colour	length m	Order No.
4		5	FTE4-05
		10	FTE4-10
		15	FTE4-15
		20	FTE4-20
		25	FTE4-25
		30	FTE4-30



THREE-WIRE POLYESTER FISHTAPES

Ø 4,2 mm with interchangeable terminals, flexible head (mod. 7142145) and eyelet head (mod. 714148)

Ø mm	Colour	length m	Order No.
4,2		10	FTP4-10
		15	FTP4-15
		20	FTP4-20
		25	FTP4-25
		30	FTP4-30
		40	FTP4-40
		50	FTP4-50
		60	FTP4-60



SINGLE-WIRE POLYESTER FISHTAPES

Ø 3,3 mm with fixed terminals, flexible head and eyelet head.

Ø mm	Colour	length m	Order No.
3,3		10	FTP3-10
		15	FTP3-15
		20	FTP3-20
		25	FTP3-25
		30	FTP3-30



CABLE DUCT RODDING SYSTEM WITH THREE-WIRE POLYESTER

Ø 4,2 mm with interchangeable terminals, flexible head (mod. 7142145) and eyelet head (mod. 714148)

Ø mm	Colour	length m	Order No.
4,2		10	FTP4-10AV
		15	FTP4-15AV
		20	FTP4-20AV
		25	FTP4-25AV
		30	FTP4-30AV

Description		Order No.
Flexible head with rolling ferrule Ø 7 mm		7142141
Flexible head with eyelet 4,8 x 3 mm		7142145
Flexible head with eyelet 8,5 x 3 mm		7142146
Flexible head Ø 6 mm		7142143
Pulling eyelet 6,5 x 3 mm		7142148
Pulling eyelet 10 x 3 mm		7142149



Cabinet level

Length	Width	Heigh	Order No.
250 mm	20 mm	40 mm	7211440

• Made of impact-resistant plastic



Aluminium level

Length	Order No.
400 mm	7211420
600 mm	7211422



PUK pocket saw

Length	Order No.
150 mm	7120502
Spare saw blade PUK pocket saw	7120506





Ultralight handy metal sawframe

Length	Order No.
300 mm	7120600
spare blade for metal HSS	7120610

• Ergonomical structural shape
• 2 component plastic handle, glass fiber reinforced
• Integrated clamping key and integrated blade magazine

ADDITIONAL RANGE



Foldable pocket knife with wooden handle

Length	Order No.
200 (110) mm	282001

- Extra strong blade with half round wire scraper
- Sturdy iron mountings



Folding ruler

Length	Order No.
2000 mm	525004

- Folding ruler made of fiberglass
- 10 links



Sledge- / engineer's hammer with wooden grip

Weight	Order No
1.250g	7130602
300g	7130582

- According to DIN1041 and DIN6475 with polished wooden handle
- Hammer head hardened and ground



Electrician chisel

Slot width	Length	Diameter body	Order No.
12 mm	250 mm	8 x 8	7130008
29 mm	300 mm	23 x 13	7130024

• Made of chrome vanadium steel

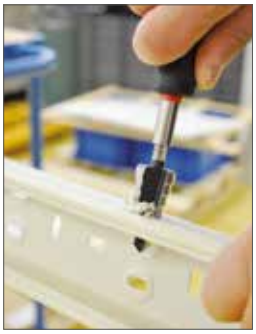


Painter's spatula

Width	Length	Order No.
50 mm	205 mm	7131326

• Made of steel, ground spade with wooden grip





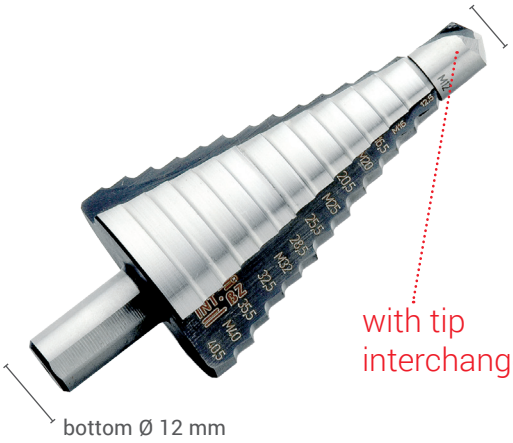


Set of multi diameter and conical drill bits with handle

	Order No.
Multi diameter drill set with handle	74130

• Ergonomic handle with magnetic attachment for bits 1/4"
• Multi diameter tip for through holes with Ø 9, 11, 12, 15, 17, 19, 21 mm
• Multi diameter tip for through holes with Ø 4, 6, 8, 10, 12 mm
• Conical tip Ø 3 - 14 mm
• 90° conical tip with 20.5 mm head diameter

ADDITIONAL RANGE



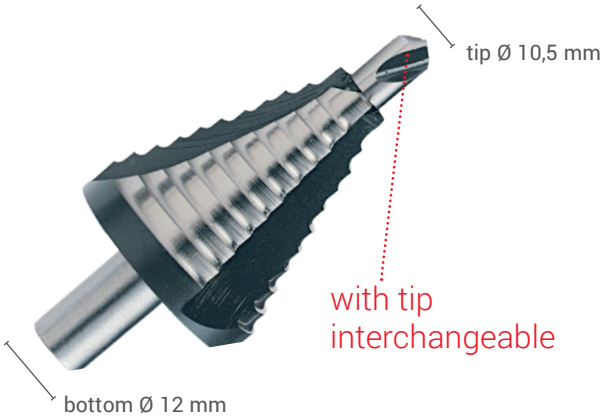
Multi diameter tips for cable glands with metric thread

Metric multi diameter tip	Clearance hole	Ø core hole mm	Order No.
M12-M40	M12, M16, M20, M25, M32, M40	12,5, 16,5, 20,5, 25,5, 28,5, 32,5, 35,5, 40,5	74121
Interchangeable tip M12			74129



Multi diameter tips for cable glands with metric thread

Metric multidiameter tip	Clearance hole	Ø core hole mm	Order No.
M12-M40	M12, M16, M20, M25, M32, M40	10,5, 14,5, 18,5, 23,5, 30,5, 38,5	74110



Multi diameter tips for cable glands with metric thread (HSS)

PG multi diameter tip	Ø core hole mm	Order No.
PG7 - PG29	PG7, PG9, PG11, PG13,5, PG16, PG21, PG29	7201200
Interchangeable tip		7201273



Multi diameter tips for cable glands with metric thread (HSS)

PG multi diameter tip	Ø core hole mm	Order No.
PG7 - PG29	PG7, PG9, PG11, PG13,5, PG16, PG21, PG29	7201100

- Multi diameter HSS steel tips for metal sheet, plastic, wood or other material up to a thickness of 3 mm
- Bottom diameter ø 12 mm



PCS chisels with SDS-plus connection

Equipment	Order No.
3 pieces	7212000

- High precision chisels
- Kit consisting of 3 pieces:
  - flat chisel
  - pointed chisel
  - wide flat chisel
- Reduced length (140 mm) to facilitate use



SDS-plus wall tips

Ø drill	Length	Order No.
5,0 mm	50/110 mm	98035601
5,0 mm	100/160 mm	98035602
6,0 mm	50/110 mm	98035603
6,0 mm	100/160 mm	98035604
8,0 mm	50/110 mm	98035606
8,0 mm	100/160 mm	98035607
8,0 mm	150/210 mm	98035608
8,0 mm	200/260 mm	98035609
10,0 mm	100/160 mm	98035610
10,0 mm	150/210 mm	98035611
10,0 mm	200/260 mm	98035612
12,0 mm	100/160 mm	98035613
12,0 mm	150/210 mm	98035614
12,0 mm	200/260 mm	98035615
12,0 mm	400/450 mm	98035616
14,0 mm	150/210 mm	98035617
14,0 mm	200/260 mm	98035618
16,0 mm	150/210 mm	98035619
16,0 mm	400/450 mm	98035634
18,0 mm	250/300 mm	98035621
20,0 mm	250/300 mm	98035623



Assortment of hammer drills

Ø drill	Order No.
5, 6, 8, 10, 12 x 100/160	93304001

- Carbide tips of special quality
- With SDS-PLUS connection



Bit box - Phillips, pozidriv and Torx inserts

Equipment	Order No.
32 pieces: PH 1–3, PZ 1–3, T 15–40	98041903



5 Bit box - Phillips, pozidriv and slotted inserts

Equipment	Order No.
10 pieces: PH 0–2, PZ 0–2, slotted head 4 –5,5–7	7114604



Assortment of twist drills

Pieces	Lengh mm	Thickness mm	Order No.
19	1-10	0,5	7201352

- With metal case



Range of holesawss

Ø mm	Order No.
20 22 25 29 35 40 51 60	74200

- Spindle M34
- Spindle M46PS
- Spare tip
- Storage box

Accessories (optional)

	Order No.
Holesaw 16	74216
Holesaw 20	74220
Holesaw 21	74221
Holesaw 22	74222
Holesaw 25	74225
Holesaw 29	74229
Holesaw 32	74232
Holesaw 35	74235
Holesaw 38	74238
Holesaw 40	74240
Holesaw 51	74251
Holesaw 60	74260
Holesaw 64	74264
Holesaw 67	74267
Holesaw 70	74270
Saw shaft 14-30	74280
Saw shaft 32-152	74284
Tip for product 7428 0	74290
Tip for product 7428 4	74292



Gas equipment for welding and heat shrinking

Equipment	Order No.
Two-component piezoelectric handle 8001001 Hot air burner 8001002 Soft flame burner 8001003 Burner for welding / brazing 8001004 Burner with pointed and precise flame 8001005 Copper tip for welding / brazing 8001006 Flexible hose 8001007 Safety valve unit and pressure reducer 8001008/8001009 Open-end spanners E17, E19, E25, Resin case with foam insert	80010

Technical characteristics:
- Piezoelectric handle in two-component material
- Bayonet quick coupling for burners
- Rotary knob on the handle for opening / closing and adjusting the flame
- Gas supply interruption when the burners are removed
- Burners in steel / brass material with chrome-plated surface treatment
- Hose connected with two metal spiral protection reinforcements
- Length 4 meters
- Safety valve and pressure reducer with adjustable angle connection
- Resin case with foam insert

Dimensions: 460 x 370 x 105 mm



8001 001


8001 002


8001 003


8001 004


8001 005


8001 006

Accessories	Order No.
Handle with piezoelectric device	8001001
Burner for soft flame	8001002
Burner for wide flame	8001003
Burner for welding	8001004
Burner for sharp-pointed/precise flame	8001005
Copper tip Ø 18 (to be used with 8001 005)	8001006
Flexible hose 4 m	8001007
Safety valve	8001008
Brass pressure reducer	8001009
Rigid plastic case	8001010



Gas / cartridge equipment for welding and heat shrinking

Equipment	Order No.
Piezoelectric handle 80024 - 2x Ultragas cartridges 80023 - Burner hot air for shrinking 80022 - Pin point burner for soldering 80025 - Soldering Iron Resin case with foam insert	80020

Technical characteristics:
- Shockproof plastic handle
- Bayonet quick coupling for burners
- Rotary knob on the handle for opening / closing and adjusting the flame
- Gas supply interruption in rest position and / or after extraction of the burners
- Holder for safe depositing
- Burners in steel / brass material with chrome-plated surface treatment
- Cartridges with propane / butane and propene gas mixture
- Resin case with foam insert

Dimensions: 460 x 370 x 105 mm



8002 4



8002 1



8002 5



8002 2



8002 3

Accessories	Order No.
Ultragas cartridge 210 gr.	80024
Piezoelectric handle	80021
Fine flame burner	80022
Copper stick with burner	80025
Burner for soft flame	80023
Rigid plastic case	8002020

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