

DRIESCHER - Medium voltage- switchgear- and substation accessories



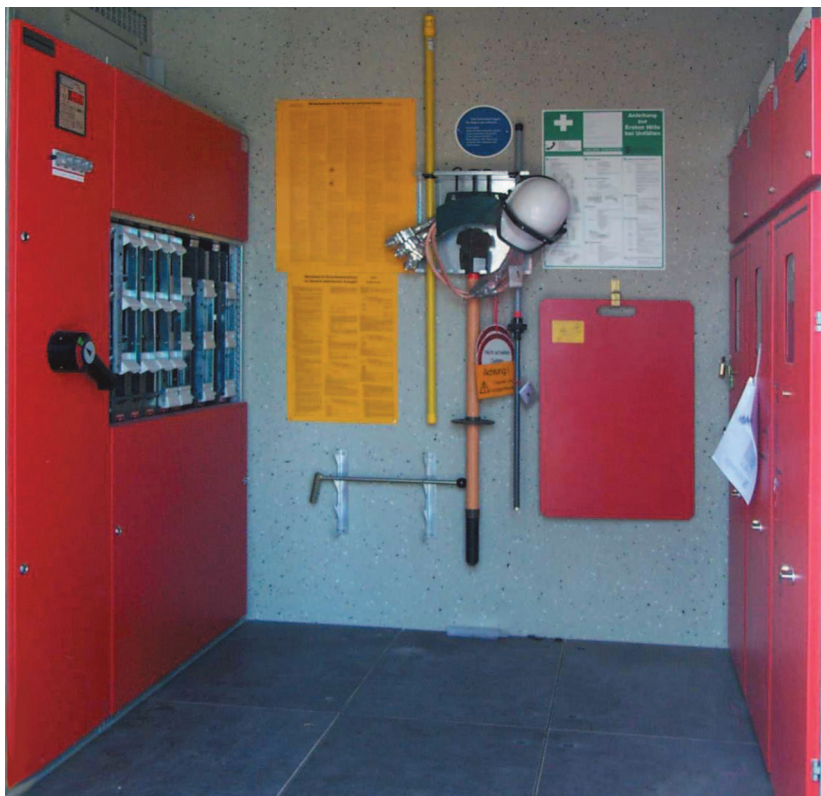
ELEKTROTECHNISCHE WERKE
FRITZ DRIESCHER & SÖHNE GMBH

D-85366 MOOSBURG • PHONE +49 87 61 6 81-0 • FAX +49 87 61 68 11 37
<http://www.driescher.de> infoservice@driescher.de



DRIESCHER - Medium voltage- switchgear- and substation accessories

• 2	Index of contents
• 3	Insulating sticks, earthing sticks
• 4	Switching sticks, fuse tongs
• 5	Voltage detectors
• 6	Spherical and ground terminal studs
• 7	Earthing and short-circuiting devices
• 8	Insulating protective barriers
• 9	Operating levers, hand cranks
• 10	Key, storage devices for substation accessories, insulating protective barrier and HH-capacity fuses
• 11	Warning and information signs
• 12	Other substation accessories
• 13	Conductor support for flat bars, cable fixing cross-arms
• 14	LV-cable connection cross-arm, MV-connection cross-arm, earthing switch for transformer earthing
• 15	Lubricants and cleaning agents, short-circuit indicator, General
• 16	Production program

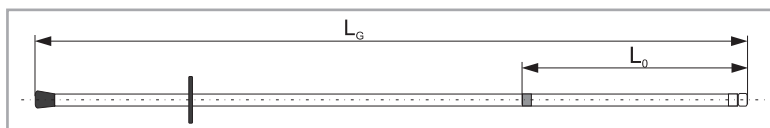


DRIESCHER - substation accessories

- medium voltage range -

Insulating sticks

DIN VDE 0681 part 1
made of glass fibre re-inforced polyester
with bayonet input for the handling of
insulating protective barriers
Only for indoor substations!



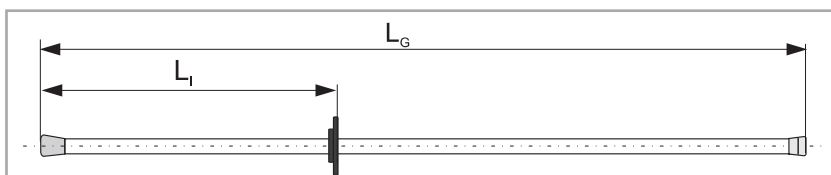
Rated voltage	Part-no.	L_G	L_0	Weight approx. kg
30 kV	773 43015	1500	500	1,25
30 kV	773 43020	2000	900	1,55



Pic. 1: Insulating stick

Earthing sticks

DIN EN 61235 made of
glass fibre re-inforced polyester
Only for indoor substations!



Part-no.	L_G	L_I	for the spindle of the earthing device	max. load in kg	Weight approx. kg
773 12110	1000	430	with cross pin	35	0,90
773 12115	1500	930	with cross pin	35	1,16
773 12120	2000	1430	with cross pin	20	1,48
773 12410	1000	430	with hexagon	35	0,45
773 12415	1500	930	with hexagon	35	0,60
773 12420	2000	1430	with hexagon	20	0,75



Pic. 2: Earthing stick while mounting of a earthing device



Pic. 3: Earthing stick with universal clamp with cross pin



Pic. 4: Earthing stick for spindle with cross pin

DRIESCHER - substation accessories

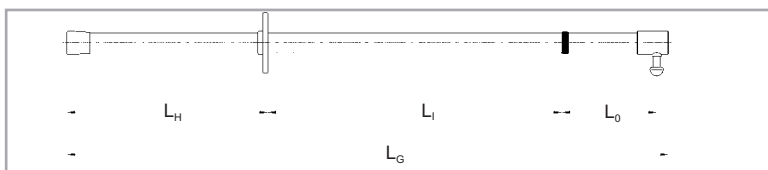
- medium voltage range -

Switching sticks

DIN VDE 0681 part 2 made of glass fibre re-inforced polyester
Only for indoor substations!



Pic. 5: Switching stick with switching rod head

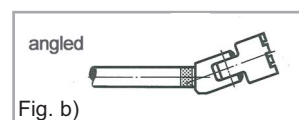
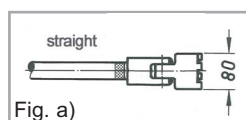
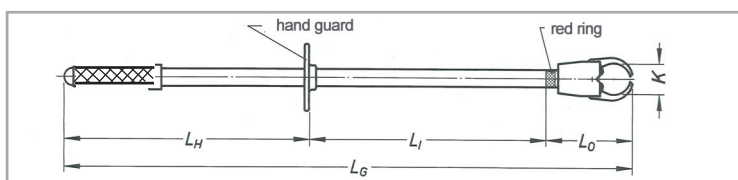


Rated voltage	Part-no.	L_G	L_H	L_I	L_O	Weight approx. kg
12-36 kV	772 11001	1000	300	525	175	0,85
12-36 kV	772 11002	1500	400	525	575	1,20
12-54 kV	772 11003	2000	500	720	780	1,50
12-54 kV	772 11004	2500	600	720	1180	1,80

Fuse tongs

DIN VDE 0681 part 3 made of glass fibre re-inforced polyester
Only for indoor substations!

3) K=clamping range for min. and max. protective diameter.
Clamping range with reducer (accessories) 30 - 60 mm



Rated voltage	Fig.	Part-no.	L_G	L_H	L_I	L_O	K ³⁾ mm	Weight approx. kg	Drawing-no.
bis 36 kV	a	772 12101	1060	350	525	185	50 - 90	3,1	HE 4-98650/1
bis 36 kV	a	772 12110	1500	780	525	195	50 - 90	3,2	HE 4-98650/2
bis 36 kV	b	772 12201	1250	540	525	185	50 - 90	2,9	HE 4-102322



Pic. 6: Fuse tongs straight



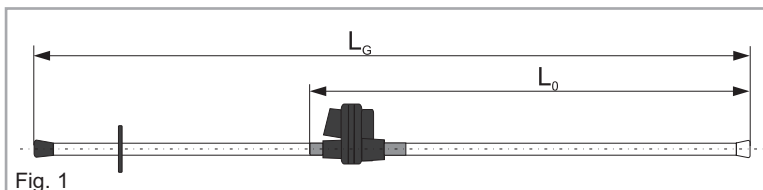
Pic. 7: Fuse tongs angled

DRIESCHER - substation accessories

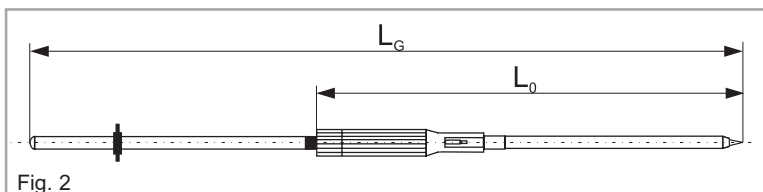
- medium voltage range -

Voltage detectors

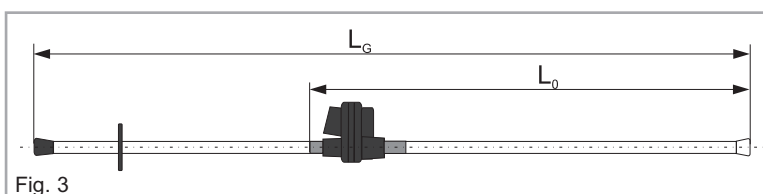
DIN VDE 0682 part 411 / EN 61243-1
made of glass fibre re-inforced polyester
passive voltage detector with
optically LED-indicator
Only for indoor substations!



DIN VDE 0682 part 411 / EN 61243-1
made of glass fibre re-inforced polyester
optically indicator with implemented
operator control mechanism
Only for indoor substations!



DIN VDE 0682 part 411 / EN 61243-1
made of glass fibre re-inforced polyester
optically indicator with implemented
operator control mechanism
For indoor and outdoor substations!



Rated voltage	Fig.	Part-no.	L ₀	L _G	Weight approx. kg
6 kV	1	773 13109	720	1425	0,83
10 kV	1	773 13110	720	1425	0,87
20 kV	1	773 13224	720	1425	0,95
20 kV	2	773 13124	775	1480	0,97
6 - 20 kV	3	773 13126	770	1665	1,00

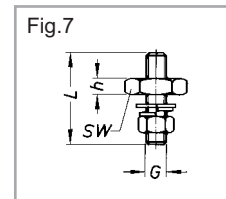
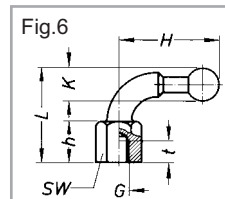
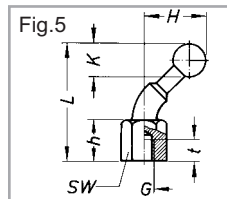
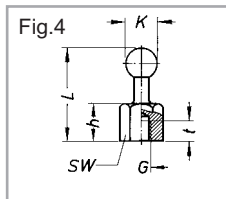
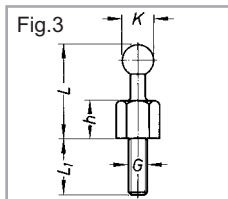


Pic. 8: Passive voltage detector with optically LED-indicator

DRIESCHER - substation accessories

- medium voltage range -

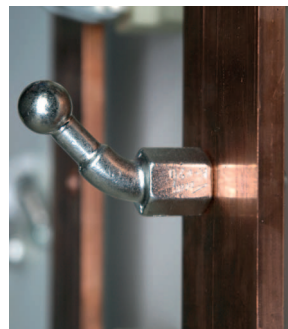
Spherical terminal and ground terminal studs



Spherical $\varnothing$	Fig.	Part-no.	G	h	H	L	L ₁	SW	t	Weight approx. kg
20 K	3	381 00042	M 12	25	-	59	35	24	-	0,19
20 K	4	381 00002	M 12	25	-	59	-	24	15	0,13
20 K	5	381 00040	M 12	25	37	60	-	24	15	0,17
20 K	6	381 00041	M 12	25	60	57	-	24	15	0,19
Spherical $\varnothing$	Fig.	Part-no.	G	h	H	L	L ₁	SW	t	Weight approx. kg
25 K	3	381 00047	M 12	24	-	68	45	27	-	0,27
25 K	4	381 00003	M 12	24	-	68	-	27	15	0,22
25 K	5	381 00045	M 12	33	53	98	-	27	15	0,36
25 K	6	381 00046	M 12	33	75	73	-	27	15	0,44
Spherical $\varnothing$	Fig.	Part-no.	G	h	H	L	L ₁	SW	t	Weight approx. kg
-	7	381 00004	M 12	10	-	55	-	32	-	0,12
-	7	381 00005	M 16	12	-	62	-	41	-	0,26



Pic. 9: Ground terminal studs



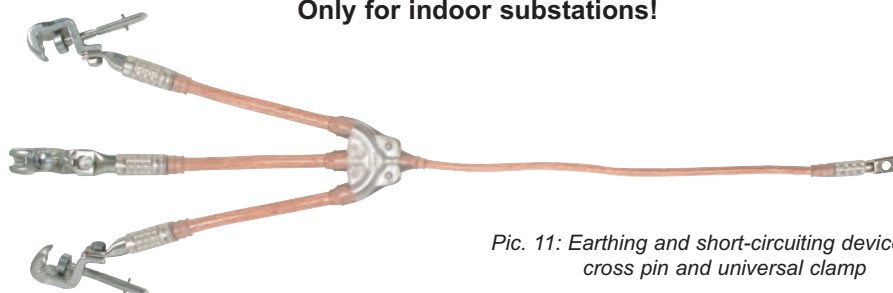
Pic. 10: Spherical terminal studs

DRIESCHER - substation accessories

- medium voltage range -

Earthing and short-circuiting devices

DIN VDE 0683 Teil 100 / EN 61230
Only for indoor substations!



Pic. 11: Earthing and short-circuiting devices with cross pin and universal clamp

rope diameter for shorting / earthing	short-circuit current I_k 1s	Part-no.	Type phase end	Type operating spindle	Type earthing end	Weight approx. kg
50/25 mm ²	9,9 kA	773 11600	universal head	with cross pin	M 12	3,9
70/35 mm ²	13,8 kA	773 11605	universal head	with cross pin	M 12	4,6
95/35 mm ²	18,7 kA	773 11610	universal head	with cross pin	M 12	4,6
120/50 mm ²	23,7 kA	773 11615	universal head	with cross pin	M 12	5,9
50/25 mm ²	9,9 kA	773 11620	universal head	with hexagon	M 12	3,9
70/35 mm ²	13,8 kA	773 11625	universal head	with hexagon	M 12	4,6
95/35 mm ²	18,7 kA	773 11630	universal head	with hexagon	M 12	4,6
120/50 mm ²	23,7 kA	773 11635	universal head	with hexagon	M 12	5,9
50/50 mm ²	9,9 kA	773 11640	universal head	with cross pin	M 12	4,2
70/70 mm ²	13,8 kA	773 11645	universal head	with cross pin	M 12	4,6
95/95 mm ²	18,7 kA	773 11650	universal head	with cross pin	M 12	7,6
120/120 mm ²	23,7 kA	773 11655	universal head	with cross pin	M 12	8,5
50/50 mm ²	9,9 kA	773 11660	universal head	with hexagon	M 12	4,2
70/70 mm ²	13,8 kA	773 11665	universal head	with hexagon	M 12	4,6
95/95 mm ²	18,7 kA	773 11670	universal head	with hexagon	M 12	7,6
120/120 mm ²	23,7 kA	773 11675	universal head	with hexagon	M 12	8,5

All ES-devices earthing end are also available with universal earthing clamp with synthetic handle.
Further earthing and short-circuiting devices on demand.

For switchgear with segregated-phase busbar.
Enables earthing of the busbar via insert contacts.

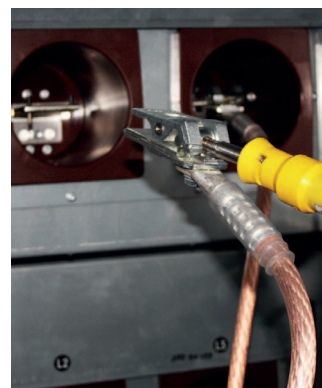
95/35 mm ²	18,7 kA	780 90070	Pointed clamp	with cross pin	Universal earthing clamp with synthetic handle
-----------------------	---------	-----------	---------------	----------------	--



Pic. 12: Mounting of a earthing and short-circuiting device with a earthing stick



Pic. 13: universal clamp with earthing end synthetic handle



Pic. 13a: Phase clamp for compartmented switchgear type E2K / E3K

DRIESCHER - substation accessories

- medium voltage range -

Insulating protective barriers

corresponding to pictures 1, 2, 3 and 4 according to DIN VDE 0682-552

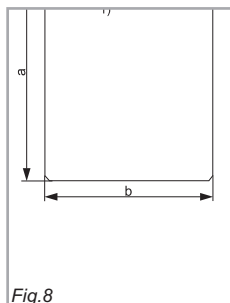


Fig. 8

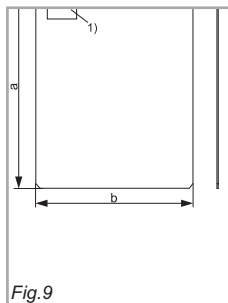


Fig. 9

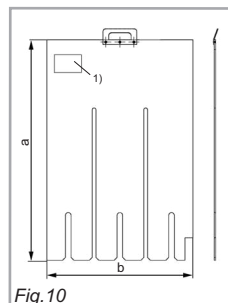


Fig. 10

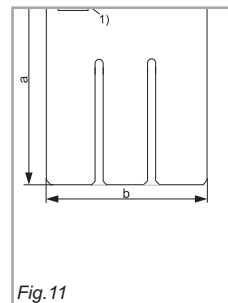


Fig. 11

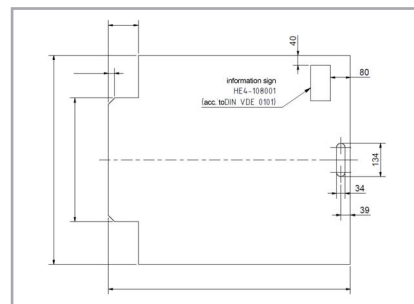
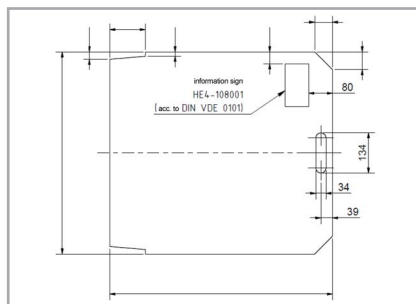
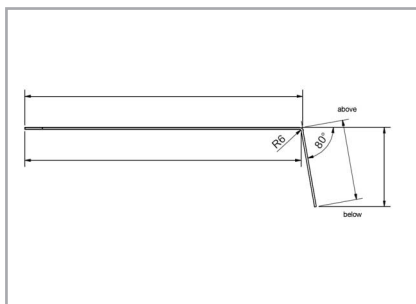
1) Information sign according to EN 62271-200

Fig.	For switchgear type	Part-no.	Length a	Width b	Thickness	Colour	Drawing-no
8	D24-601119	453 65858	1200	442	6	red	107715-001
8 ²⁾	W24-801121	677 05440	1146	690	6	red	107722-014
8	W24-901121	677 05420	1146	790	6	red	107722-013
8	W12-607519	453 65871	800	510	6	red	107724-001
8	F24-606519 without phase separating plates	453 65868	800	434	6	red	107723-001
11	F24-606519 with phase separating plates	453 65869	800	434	8	grey	107723-002
8	F24-756519	453 65870	800	544	6	red	107723-003
10 ²⁾	W36-901221/901226	453 75188	1180	795	8	red	107731-005
10 ²⁾	PRO-AIR H-a/H-c/K/T/L	453 75193	1180	778	8	red	107731-007

2) similar fig.

Insulating protective barriers with other dimensions, customer specific barriers or inflected protective barriers on request! Therefore please use attached register sheet.

Examples for customer specific barriers

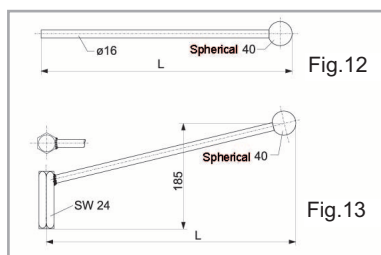


Pic. 14: Inserting of a protective barrier

DRIESCHER - substation accessories

- medium voltage range -

Operating levers



Steel parts galvanized!

Type	Fig.	Part-no.	L	Weight approx. kg	Drawing-no.
straight for operating	12	774 91350	365	0,66	AZ 4-37694
lever actuator	12	774 91500	515	0,88	AZ 4-37694
with hexagon head for D-actuator	13	774 92500	515	1,25	AZ 4-41399

Other customer specific versions on request.

Hand cranks

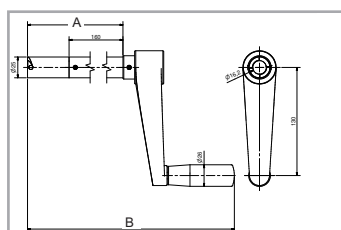


Fig. 14

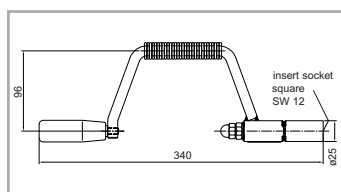


Fig. 15

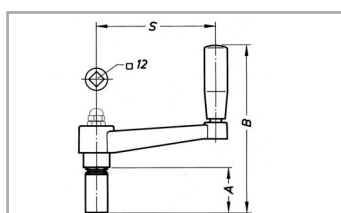


Fig. 16

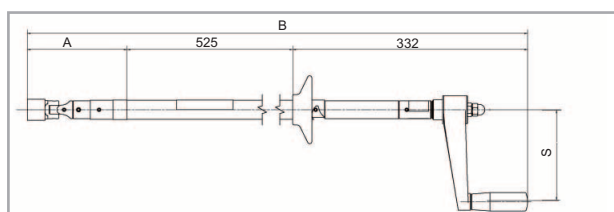


Fig. 17

Steel parts galvanized, partially with torque clutch
for indoor substations!

Application	Torque clutch	Part-no.	Fig.	A	B	S	Drawing-no.
Vakuum circuit breaker							
manual charging							
fixed mounting	-	770 60113	14	50	184	-	LS 4-096793
withdrawable version	yes	770 60118	15	-	-	-	AZ 4-100095
Motor drive UM							
hand crank UM20 / UM30	yes	776 01001	16	49	182	130	AZ 4-036348
extended hand crank for UM 10 / UM 15	yes	770 60125	17	141	1000	130	AZ 3-108317
extended hand crank for UM 10 / UM 15	yes	770 60121	17	1016	1875	130	AZ 3-104809
extended hand crank for UM 10 / UM 15	yes	770 60126	17	1516	2375	130	AZ 3-111076
extended hand crank for UM 10 / UM 15	yes	770 60127	17	2816	3675	130	AZ 3-111077

Further customer specific versions and different lengths on request.



Pic. 15: Operating lever, hand crank and key

DRIESCHER - substation accessories
- medium voltage range -

Key

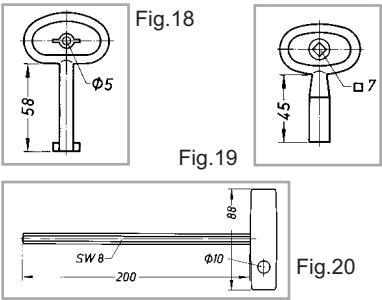
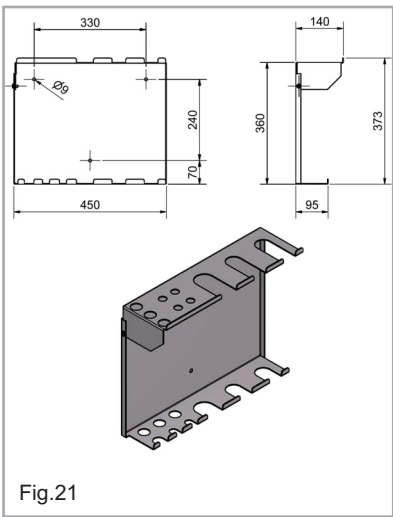


Fig.	Part-no.	Application	Weight ca. kg
18	382 00210	for fastener lock with thorn $\phi 5$	0,05
19	382 00209	for fastener lock with square 7	0,05
20	319 00004	for socket cap screw M10 with hexagon socket head	0,15

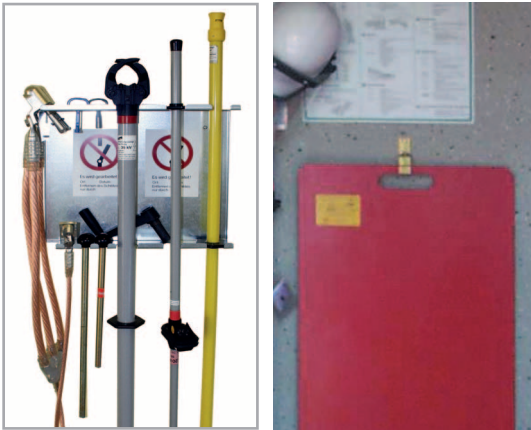
Storage devices



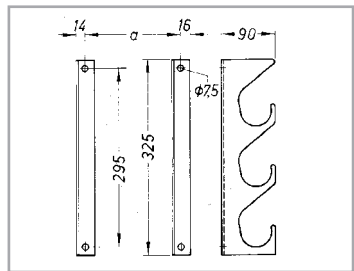
for optimal storage of your substation accssories
Steel parts galvanized

Clamp for	Fig.	Part-no.	Weight approx. kg	Drawing- no.
Substation accessories	21	641 00671	2,55	122651-001
Insulating protective barrier	-	611 30000	0,5	HA 4-064205

Pic. 16: Clamp for substation accessories and insulating protective barriers



Storage devices for HH-capacity fuses



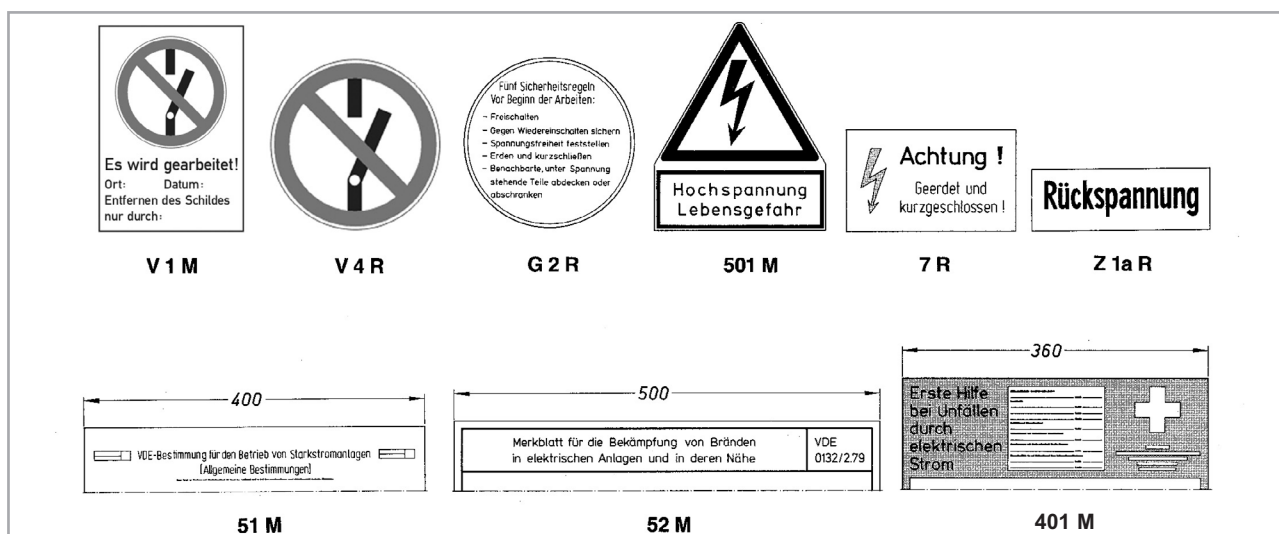
Steel parts galvanized

for kV	Part-no.	a	Weight approx. kg	Drawing- no.
12	773 60100	303	0,85	HH 4-014350
24	773 60100	453	0,85	HH 4-014350
36	773 60100	548	0,85	HH 4-014350

DRIESCHER - substation accessories

- medium voltage range -

Warning and information signs



Sign-no.	Part-no.	Dimensions mm		On set unit
V 1 M	410 01010	210 x 297	no switching - work is carried on- place- removal of the sign only by...	2
V 4 R	470 01012	ø 200	symbol / no switching - danger exists	1
G 2 R	470 01014	ø 200	five safety rules	1
501 M	410 01011	200 x 240	high voltage - danger of life	2
7 R	470 01002	200 x 120	Attention! - grounded and interconnected!	1
Z 1a R	470 01011	210 x 74	reverse voltage	2
51 M	410 01002	400 x 600	VDE-standard for operation of high voltage installations-VDE 0105 part 1/5.75	1
52 M	410 01003	500 x 700	leaflet for fire prevention - VDE 01 32t2.79	1
401 M	410 01005	360 x 520	emergency action in case of accident by electrical current	1
Satz	780 80800		set of warning and information signs standard according to VDE 0105	

All warning and informatin signs are also available for magnet mounting.



Pic. 17: Set of warning and information signs

DRIESCHER - substation accessories

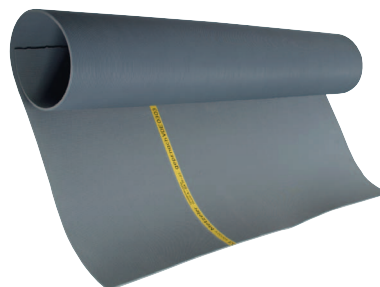
- medium voltage range -

Other substation accessories

Designation	Description	Part-no.
Insulating mat	Screen mat for elec. control rooms according to VDE 0303, width 1 m	175 71002
Insulating mat	Screen mat for elect. control rooms according to VDE 0303, width 1,2 m	175 71001
hand-held fire extinguisher	Carbon dioxide, 5 kg, suited for elec. substations according to DIN 14406	389 01000
LED- Work- and hand emergency light with charging set	Optimal lighting for operating area, LED, 6 V / 7 Ah	337 01044
Wall holder for emergency light		337 01045
Wall desk	Wood, DIN A3 resting surface with box	389 02005
Circuit-diagram pocket	Carbon dioxide, DIN A4 on edge, self-stick	316 01303
Safety bar	60 x 17 mm, L = 1200 mm, red, hardwood smooth planed	618 00030
Safety bar	60 x 40 mm, L = 1680 mm, red, hardwood smooth planed	618 00040
Mounting for safety bar	Sheet, for safety bar 60 x 17 mm, hot-galvanized	621 52700
Mounting for safety bar	Sheet, for safety bar 60 x 40 mm, hot-galvanized	621 46990
Occupational safety helmet without safety screen	Special-polyethylene, according to DIN EN 397	389 01020
Safety screen for occupational safety helmet	against internal fault, antifog, according to DIN EN 166	389 01021
Touch-up paint	1 kg (500ml), different RAL-colors	191 1xxxx
Plastic cable clamp	K 26/38	395 00015
Plastic cable clamp	K 36/52	395 00016
Substation documentation	DIN A4, 12 pages	819 00011



Pic. 18: LED-Hand emergency light in the wall-mounting holder and mounting for insulating protective barriers

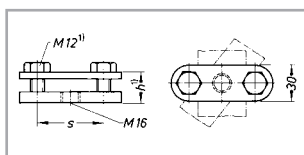


Pic. 19: Insulating mat

DRIESCHER - substation accessories

- medium voltage range -

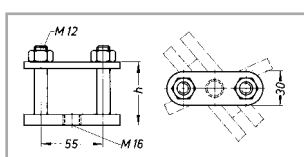
Conductor support for flat bars



Typ III

Ground and end plate hot galvanized
for indoor and outdoor

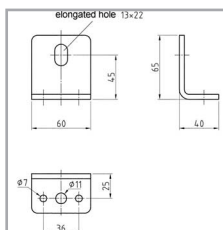
for flat bars	s	for single bus bars Part-no.	h	for double bus bars Part-no.	h	Weight approx. kg	Drawing- no.
up to 40 x 10	55	773 28040	26	773 28042	-	0,35	HE 4-43795
from 40 x 10 to 60 x 10	75	773 28060	26	773 28062	-	0,45	HE 4-43795
from 60 x 10 to 100 x 10	115	773 28100	28	773 28102	48	0,61	HE 4-43795



Typ IV

Ground and end plate hot galvanized
for indoor and outdoor,
stainless screws

for flat bars (vertical bars)	Part-no.	h	Weight approx. kg	Drawing- no.
40 x 10	773 29040	56	0,39	HE 4-043796
50 x 10	773 29050	66	0,42	HE 4-043796
60 x 10	773 29060	76	0,45	HE 4-043796
80 x 10	773 29080	96	0,51	HE 4-043796
100 x 10	773 29100	116	0,57	HE 4-043796



Conductor- and final conductor support

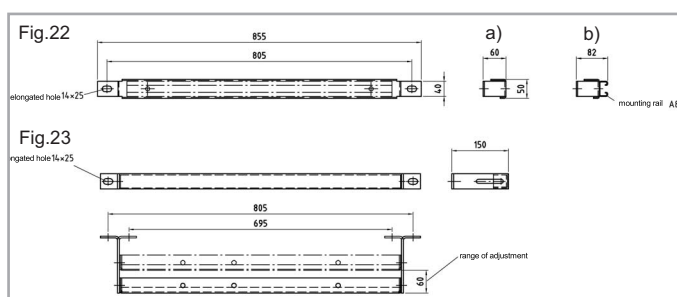
hot galvanized

Terminal screws M 12 x 40 with nut, spring washer and shed are included



Designation	Part-no.	Weight approx. kg	Drawing- no.
Conductor- and final conductor support	773 20040	0,38	HE 4-093292

Cable fixing cross-arms



Cable fixing cross-arms

hot galvanized

Fig.	Traverse	Part-no.	Weight approx. kg	Drawing- no.
22a	Angle section	621 05347	3,73	HA 4-021725/3a
22b	Anchor bar	641 33820	2,70	HA 4-021725/3b
23	Angle section adjustable	773 90400	3,40	HA 4-021725/4

DRIESCHER - substation accessories - and more -

Low voltage cable connection cross-arm

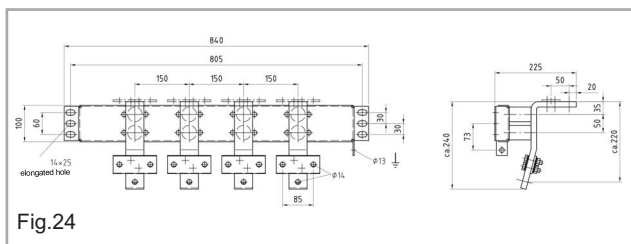
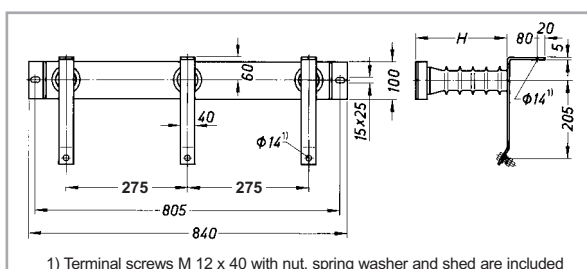


Fig.24

Low voltage cable connection cross-arm Steel parts hot galvanized

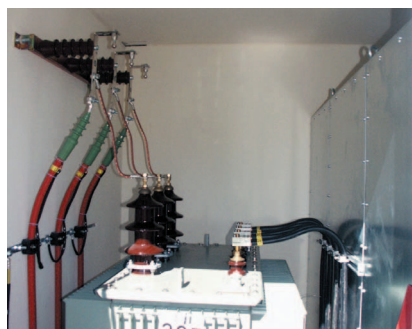
Fig.	Cable connection cross-arm	Part-no.	Drawing-no.
24	for 630 kVA transformer up to max. 910 A nominal current	773 90300	HA 4-021725/1
-	for 630 kVA transformer up to max. 1800 A nominal current	773 90230	HA 4-069771/1
-	for 630 kVA transformer up to max. 2900 A nominal current	773 90232	HA 4-069771/2

Medium voltage cable connection cross-arm



1) Terminal screws M 12 x 40 with nut, spring washer and shed are included

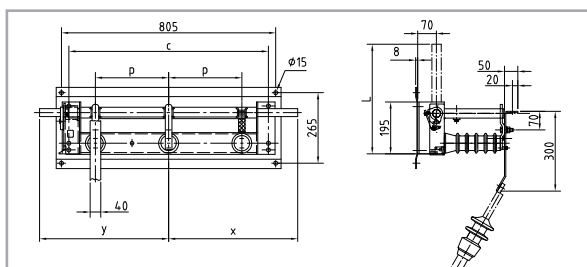
Medium voltage cable connection cross-arm Steel parts hot galvanized



Pic. 20: medium voltage
cable connection cross-arm

Rated voltage	Cable connection cross-arm	Part-no.	H	Weight approx. kg	Drawing-no.
12 kV	without spherical and ground terminal studs	773 90212	162	7,35	HA 4-021725/2a
24 kV	without spherical and ground terminal studs	773 90224	242	9,00	HA 4-021725/2b
24 kV	with spherical and ground terminal studs $\phi 20$ /M12	773 90225	242	10,00	HA 4-021725/2c
24 kV	with spherical and ground terminal studs $\phi 25$ /M12	773 90227	242	10,25	HA 4-021725/2e

3-pol. indoor earthing switch for transformer earthing on high voltage side



3-pol. Indoor earthing switch for high voltage transformer earthing Steel parts hot galvanized

Drive components:
shaft extension AZ 4-43851
bearing block AZ 3-46600/3, bushing for D-actuator
AZ 4-41400, operating lever AZ 4-41399

Rated voltage	Rated short-time current	x / y	c	p	L	Earthing switch	Part-no.	Weight approx. kg	Drawing-no.
12	20 kA	450	600	210	325	ES 12-20	734 61030		IT 4-103277/1
12	31,5 kA	450	600	210	325	ES 12-31,5	734 61040		IT 4-103277/2
24	20 kA	565	750	275	405	ES 24-20	734 71030		IT 4-103277/3

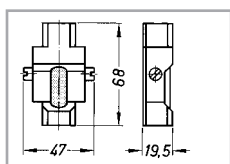
DRIESCHER - substation accessories

- and more -

Lubricants and cleaning agents

Designation	Application	Part-no.	Delivery type	Quantity
Rivolta S.K.D. 4002	contact lubricant for indoor switches	490 07011	tube	100 g
Barrierta L55/1	contact lubricant for outdoor switches and partly for indoor switches	490 07012	tube	10 g
Rivolta S.K.D. 16 N	lubricant for hinge and slide points	490 07110	spray	400 ml
SÄKA-cleaning paste	cleaning paste for insulators and other insulating parts	490 09003	tube	750 g
Rivolta S.L.X. 500	cleaning of contact surfaces covered with Barrierta	490 09102	spray	300 ml
Rivolta M.T.X. 60 forte	high capacity cleaner	490 09100	spray	400 ml

Short-circuit indicator



**Short-circuit indicator
with liquid crystal display**

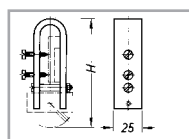


Fig. 25: Clamp yoke

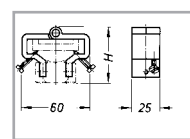


Fig. 26: Hinge yoke

Fig.	for flat bars	Mounting	Part-no.	Operating current (min)	H	Weight approx. kg
25	30 x 4 bis 40 x 15	Clamp yoke	337 03001	400 A	82	0,23
26	30 x 4 bis 40 x 10	Hinge yoke	337 03002	400 A	49	0,17

General

Brochure 711 indoor / outdoor - insulators and bushings

Brochure 774 indoor actuators and accessories

Brochure 776 outdoor actuators and accessories

Brochure 791 H. v. h. b. c. fuses

Brochure 810 low voltage switchgear and substation accessories

Our range of products includes:

Medium-voltage systems

- Single-busbar and duplicate-busbar switchgear
- Fixed mounting, withdrawable design and truck-type units
- Compact switchgear assemblies
- Customer-specific models
- Industrial switchgear
- Power factor correction and filter equipment

Medium-voltage switches

- Indoor load-break switches, disconnectors, and earthing switches (single and triple pole)
- Indoor circuit breakers (low oil content and vacuum)
- Outdoor load-break switches, disconnectors, and earthing switches (single and triple pole)
- Railway switches for power supply and catenary
- High-voltage high-breaking-capacity fuses
- Customer-specific switches

Low-voltage systems

- Open-framework design
- Enclosed switchgear (up to 6.300 A)
- Motor Control Center (MCC)
- Cable and fixed-station distribution cabinets

Low-voltage switches

- Switch disconnectors
- Switching strips and fuse blocks

Compact sub-station

- Concrete construction
- Container construction

Driving gear

- Hand-operated and motor-operated mechanisms for indoor and outdoor application

Accessories

- For medium and low voltage
- For station equipment
- Insulators (0,5 kV - 38,5 kV)
- Plastic and glass fibre-reinforced plastic screening

Service

- Maintenance and Service of all switches and switchgear
- Training courses and seminars
- Thermography; Live-line working

Dimensions, weights , diagrams and descriptions in the list are non-binding. Subject to change without notice.

STROM • SICHER • SCHALTEN

**ELEKTROTECHNISCHE WERKE
FRITZ DRIESCHER & SÖHNE GMBH**

D-85366 MOOSBURG • PHONE +49 87 61 6 81-0 • FAX +49 87 61 68 11 37
<http://www.driescher.de> infoservice@driescher.de

