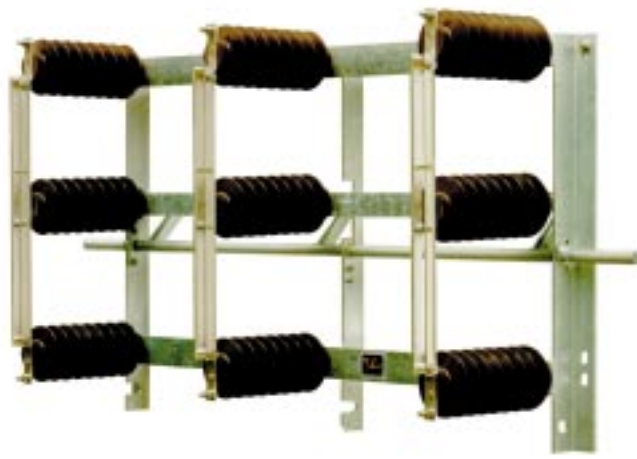


DRIESCHER
Outdoor Disconnecting Switches
Fuse-Bases
Earthing Switches

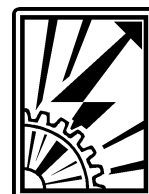
Single- and three-pole
Rated voltage 12 kV, 24 kV, 36 kV
Rated current 400 A and 630 A



6400

**ELEKTROTECHNISCHE WERKE
FRITZ DRIESCHER & SÖHNE GMBH**

D-85366 MOOSBURG • TEL. (0 87 61) 6 81-0 • FAX (0 87 61) 6 81-1 37



DRIESCHER - Outdoor Disconnecting Switches

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- 2 General information
- 3 Three-pole disconnecting switches
- 4 Three-pole disconnecting switches with fuse holders mounted below
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- 9 Single-pole fuse holders and fuse bases
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- 11 Arrangement of actuators
- 12 Installation

General Information

All switchgears mentioned in this list comply with the specifications of VDE 0670 Part 2 (rated insulation level List 2) and are only destined to dead switching. All switchgears are equipped with epoxy resin insulators (colour brown, RAL 8017).

The disconnecting switches shown on pages 3 to 6 may only be mounted vertically. For decades the simple, robust construction proved a success in climatical different regions. The base frames - a welded work made of sectional steel - and the operating shafts made of bronze are hot-galvanized. All insulators used for construction are made of cycloaliphatic epoxy resin (List 712).

All contacts with flat terminations according to DIN 46206 and double disconnecting blades made of electrolytic copper are silver-plated and form loopless current paths. The fuse holder contacts are designed to the operation of high-voltage, high-breaking capacity fuse-links according to DIN 43625.

Adequate cross-sections and suitable contact

pressures result in an easy and troublefree switching even after many years of operation, even under extreme conditions.

Outdoor actuators as described in our List 775 are available for operating disconnecting and earthing switches.

All disconnecting switches (except type 1350) and three-pole fuse bases can be delivered with an earthing switch. Disconnecting switches of types 2054, 6400 and 6410 can also be equipped with spark quenching horns for disconnecting low currents.

Further on, it is possible to add compressed-air actuators and metal clad signalling switches as well as to operate by means of a motorized actuator.

Terminal screws, washers and spring washers are made of stainless steel.

The required short-circuit strengths according to DIN 43635 include great safety margins. They are valid for disconnecting switches as well as for earthing switches attached to the switchgear.

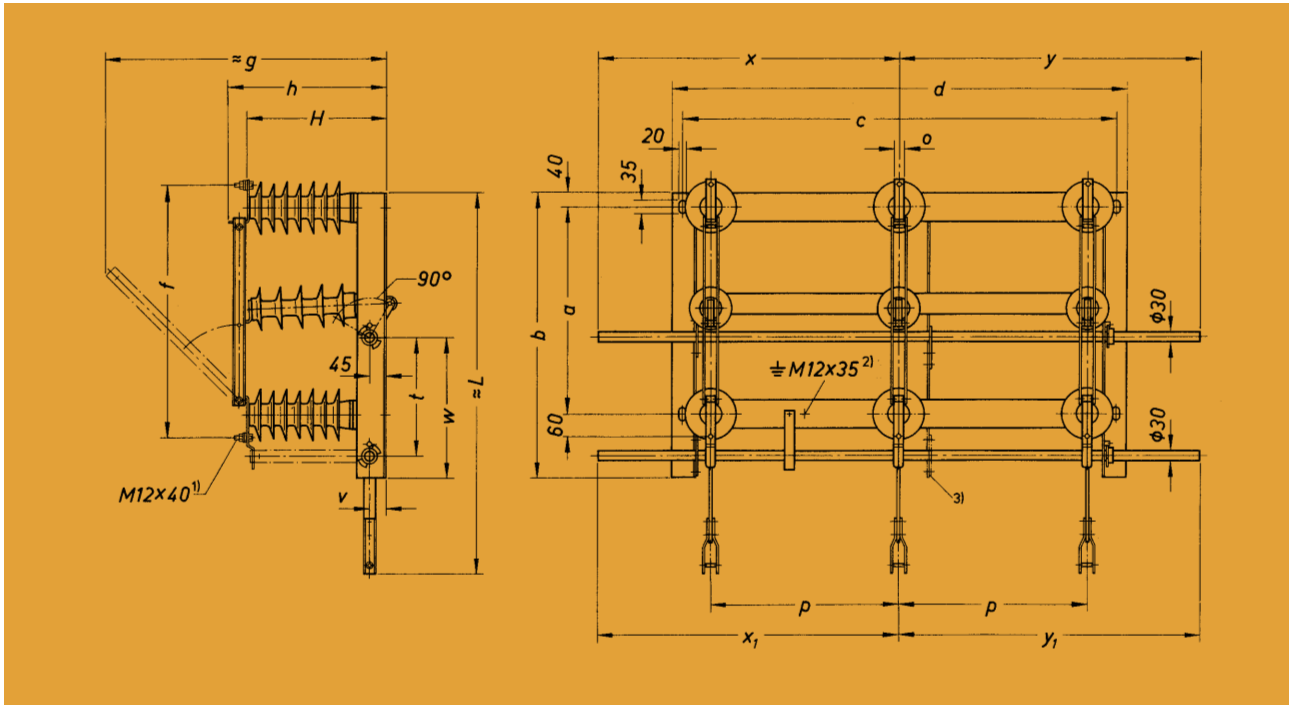
Technical Data

Rated voltage in kV	12	12	24	24	36	36
Rated current I_n in A	400	630	400	630	400	630
Rated short-time current $I_{th}^{1)}$ in kA	16	20	16	20	16	20
Rated peak withstand current I_{dyn} in kA	40	50	40	50	40	50

1) For loading times t between 1 and 5 seconds the 1-second short-time current is to be multiplied by $1/\sqrt{t}$

DRIESCHER - Outdoor Disconnecting Switches

Three-Pole Outdoor Disconnecting Switches 6400



- 1) Hexagon head screw with nut, washer and spring washer
 2) Hexagon head screw with nut, washer and spring washer
 3) Supporting bearing for earthing switch shaft only for rated voltage 36 kV

• without earthing switch

Rated voltage	Rated current	Part-No.	p	a	b	c	d	f	≈g	h	H	o	w	x/y	Weight approx. kg	Drawing-No.
12 kV	630 A	751 34003	400	500	710	950	1010	620	672	351	302	40	360	700	57	FT3-42135
24 kV	400 A	751 53004	500	550	760	1150	1210	670	740	421	372	30	375	800	73	FT3-49462
24 kV	630 A	751 64004	500	550	760	1150	1210	670	740	421	372	40	375	800	73	FT3-42135
36 kV	400 A	751 84005	700	750	960	1550	1610	870	915	501	452	30	450	950	114	FT3-42135
36 kV	630 A	751 94005	700	750	960	1550	1610	870	915	501	452	40	450	950	114	FT3-42135

• with earthing switch

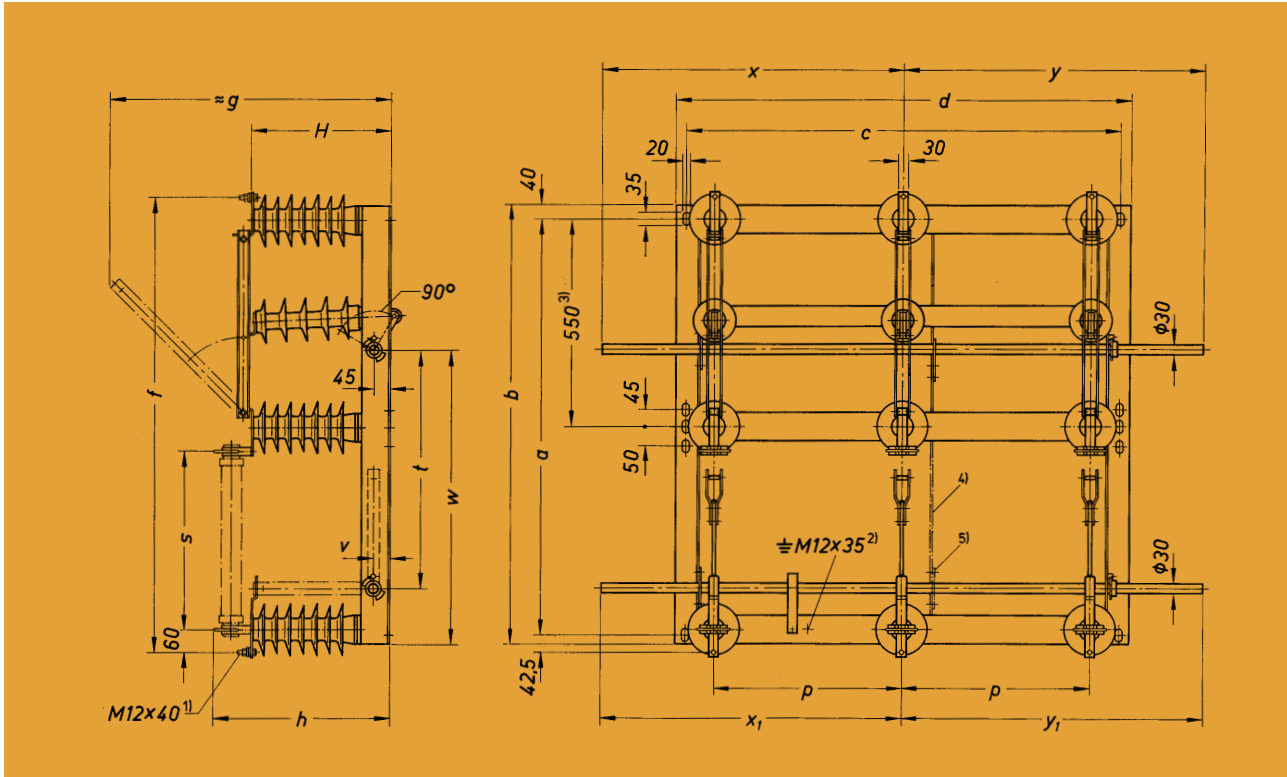
Rated voltage	Rated current	Part-No.	p	a	b	c	d	f	≈g	h	H	≈L	o	t	v	w	x/y x ₁ /y ₁	Weight approx. kg	Drawing-No.
12 kV	630 A	751 34103	400	500	710	950	1010	620	672	351	302	887	40	300	55	360	700	70	FT3-42135
24 kV	400 A	751 54504	500	550	760	1150	1210	670	740	421	372	1017	30	315	45	375	800	87	FT3-49462
24 kV	630 A	751 64504	500	550	760	1150	1210	670	740	421	372	1017	40	315	45	375	800	87	FT3-42135
36 kV	400 A	751 84505	700	750	960	1550	1610	870	915	501	452	1297	30	390	45	450	950	130	FT3-42135
36 kV	630 A	751 94505	700	750	960	1550	1610	870	915	501	452	1297	40	390	45	450	950	130	FT3-42135

Equipped with positive mechanical locking between disconnecting switch and earthing switch, spark quenching horns, auxiliary switches, motorized actuators and compressed-air drives for separate mounting (List 776) only if ordered additionally.

DRIESCHER - Outdoor Disconnecting Switches

Three-Pole Outdoor Disconnecting Switches 6410

with fuse holders mounted below for HV HBC fuse-links up to 200 A rated current



- 1) Hexagon head screw with nut, washer and spring washer
- 2) Hexagon head screw with nut, washer and spring washer
- 3) Additional oblong holes only for 24 kV version
- 4) Strut only for rated voltage 36 kV
- 5) Supporting bearing for earthing switch shaft only for 36 kV

• without earthing switch

Rated voltage	Rated current	Part-No.	p	a	b	c	d	f	≈g	h	H	s	w	x/y	Weight approx. kg	Drawing-No.
12 kV	400 A	751 26003	400	905	967	950	1010	1007.5	672	401	302	325	617	700	76	FT3-42136
24 kV	400 A	751 56004	500	1105	1167	1150	1210	1207.5	740	471	372	475	782	800	95	FT3-48637
36 kV	400 A	751 86005	700	1400	1462	1550	1610	1502.5	915	551	452	570	952	950	157	FT3-42136

• with earthing switch

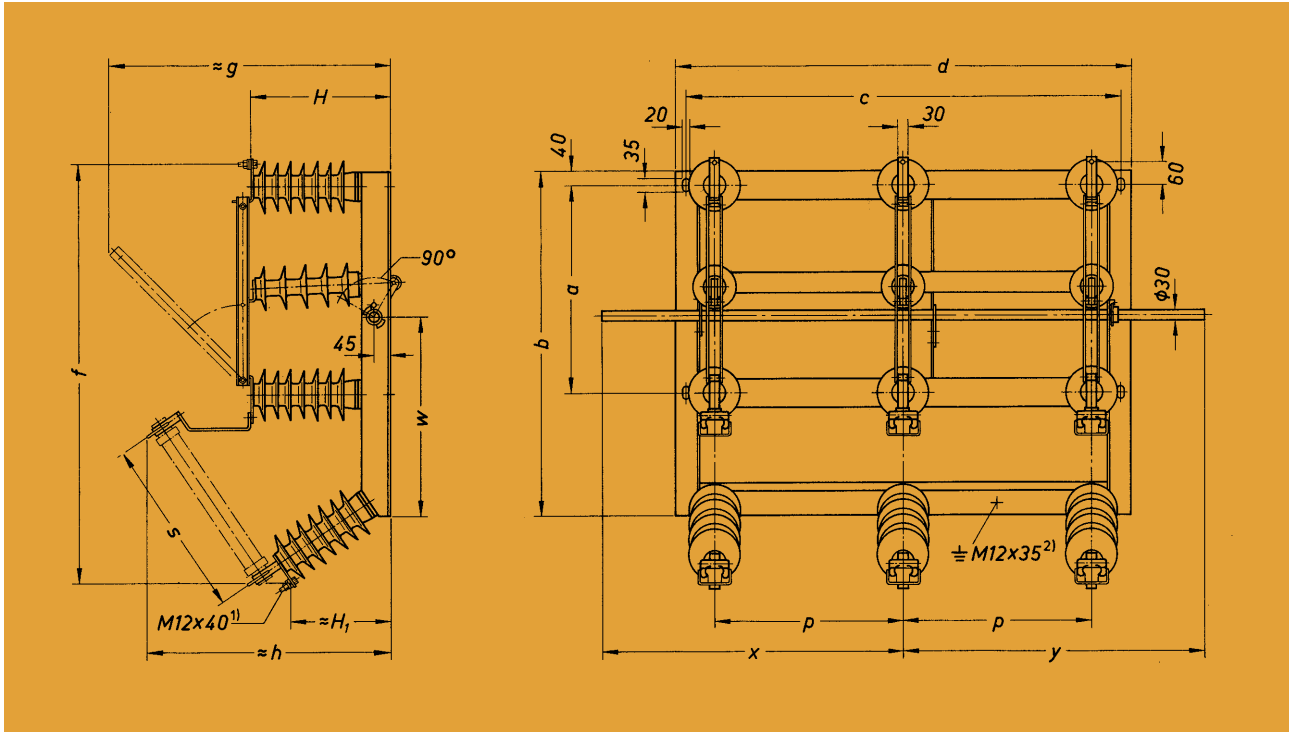
Rated voltage	Rated current	Part-No.	p	a	b	c	d	f	≈g	h	H	s	t	v	w	x/y x ₁ /y ₁	Weight approx. kg	Drawing-No.
12 kV	400 A	751 26103	400	905	967	950	1010	1007.5	672	401	302	325	487,5	55	617	700	89	FT3-42136
24 kV	400 A	751 56104	500	1105	1167	1150	1210	1207.5	740	471	372	475	632,5	45	782	800	109	FT3-48637
36 kV	400 A	751 86105	700	1400	1462	1550	1610	1502.5	915	551	452	570	802,5	45	952	950	173	FT3-42136

Equipped with positive mechanical locking between disconnecting switch and earthing switch, spark quenching horns, auxiliary switches, motorized actuators and compressed-air drives for separate mounting (List 776) only if ordered additionally.

DRIESCHER - Outdoor Disconnecting Switches

Three-Pole Outdoor Disconnecting Switches 6410

with fuse holders mounted below at an angle for HV HBC fuse-links up to 200 A rated current



1) Hexagon head screw with nut, washer and spring washer

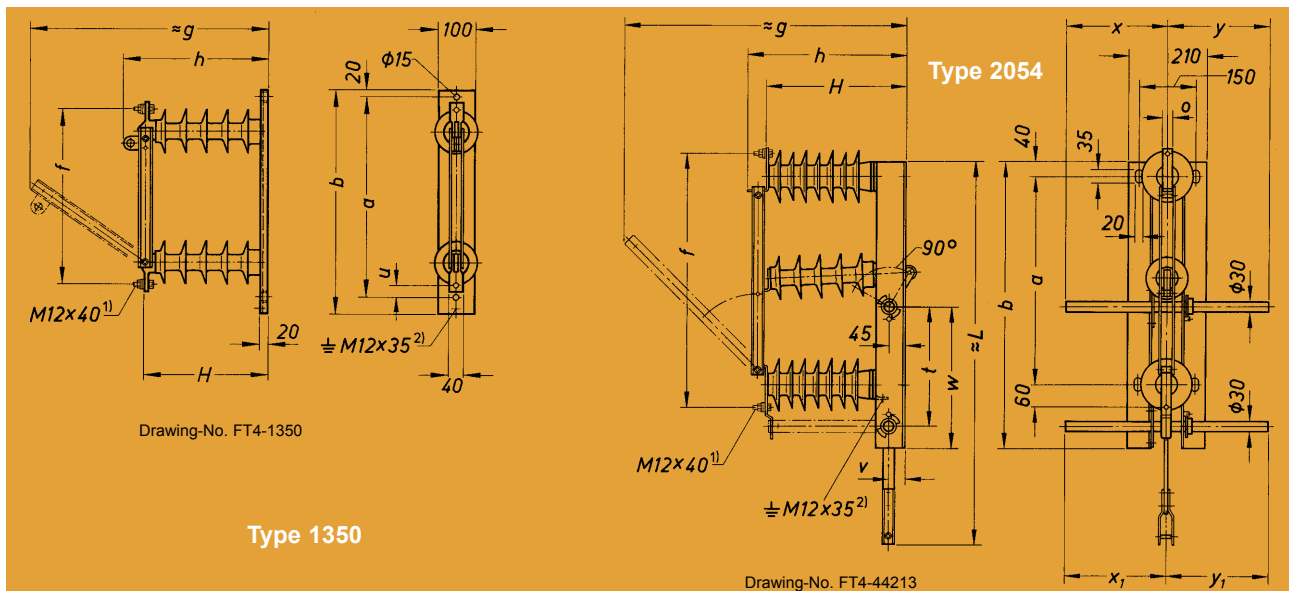
2) Hexagon head screw with nut, washer and spring washer

Rated voltage	Rated current	Part-No.	p	a	b	c	d	f	≈g	≈h	H	≈H ₁	s	w	x/y	Weight approx. kg	Drawing-No.
12 kV	400 A	751 28003	400	500	762	950	1010	922	672	502	302	198	325	412	700	74	FT3-18480
24 kV	400 A	751 58004	500	550	915	1150	1210	1111	740	648	372	265	475	530	800	93	FT3-18480
36 kV	400 A	751 88005	700	750	1190	1550	1610	1407	915	728	452	326	570	680	950	153	FT3-18480

Equipped with positive mechanical locking between disconnecting switch and earthing switch, spark quenching horns, auxiliary switches, motorized actuators and compressed-air drives for separate mounting (List 776) only if ordered additionally.

DRIESCHER - Outdoor Disconnecting Switches

Single-Pole Outdoor Disconnecting Switches



- 1) Hexagon head screw with nut, washer and spring washer
 2) Hexagon head screw with nut, washer and spring washer

with annular strap
 for operation by switch stick

Operation

by means of pulling eye (List 775) and switch stick, or linkage mechanism (List 775)

• Type 1350 without earthing switch

Rated voltage	Rated current	Part-No.	a	b	f	≈g	h	H	u	Weight approx. kg	Drawing-No.
12 kV	400 A	751 22000	410	475	380	488	315	255	15	9	FT4-1350
12 kV	630 A	751 32000	410	475	380	488	315	255	15	9	FT4-1350
24 kV	400 A	751 52000	535	600	470	638	385	325	32.5	9	FT4-1350
24 kV	630 A	751 62000	535	600	470	638	385	325	32.5	12	FT4-1350
36 kV	400 A	751 82000	660	725	580	808	465	405	40	18	FT4-1350
36 kV	630 A	751 92000	660	725	580	808	465	405	40	18	FT4-1350

• Type 2054 without earthing switch

Rated voltage	Rated current	Part-No.	a	b	f	≈g	h	H	o	w	x/y	Weight approx. kg	Drawing-No.
12 kV	400 A	751 22002	500	710	620	672	351	302	30	360	270	22	FT4-44213
12 kV	630 A	751 32002	500	710	620	672	351	302	40	360	270	22	FT4-44213
24 kV	400 A	751 52002	550	760	670	740	421	372	30	375	270	26	FT4-44213
24 kV	630 A	751 62002	550	760	670	740	421	372	40	375	270	26	FT4-44213
36 kV	400 A	751 82002	750	960	870	915	501	452	30	450	270	38	FT4-44213
36 kV	630 A	751 92002	750	960	870	915	501	452	40	450	270	38	FT4-44213

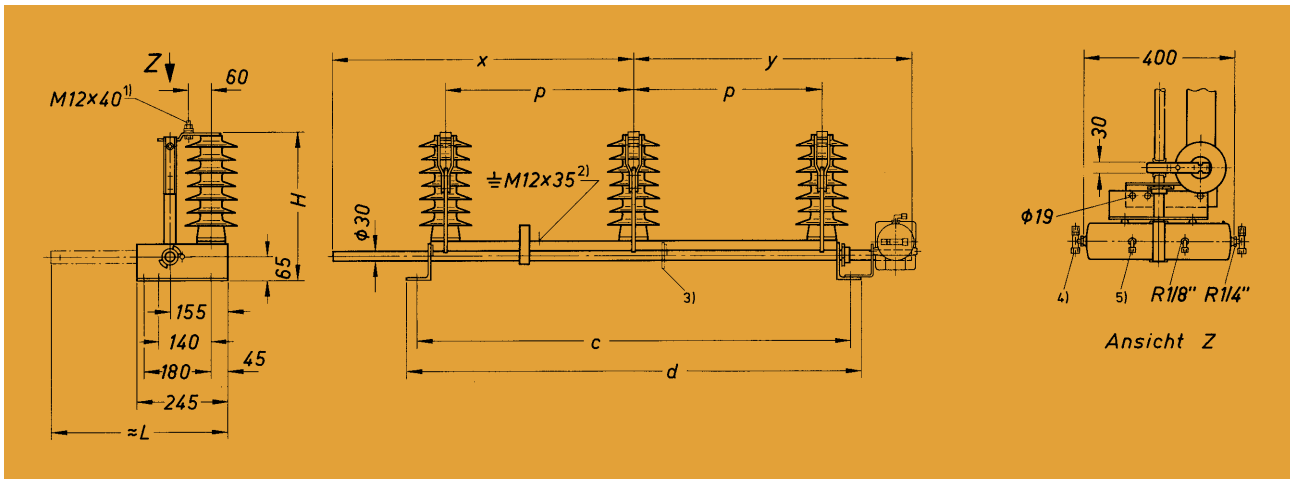
• Type 2054 with earthing switch

Rated voltage	Rated current	Part-No.	a	b	f	≈g	h	H	≈L	o	t	v	w	x/y	x ₁ /y ₁	Weight approx. kg	Drawing-No.
12 kV	400 A	751 22102	500	710	620	672	351	302	887	30	300	55	360	270	270	27	FT4-44213
12 kV	630 A	751 32102	500	710	620	672	351	302	887	40	300	55	360	270	270	27	FT4-44213
24 kV	400 A	751 52102	550	760	670	740	421	372	1017	30	315	45	375	270	270	31	FT4-44213
24 kV	630 A	751 62102	550	760	670	740	421	372	1017	40	315	45	375	270	270	31	FT4-44213
36 kV	400 A	751 82102	750	960	870	915	501	452	1297	30	390	45	450	270	270	43	FT4-44213
36 kV	630 A	751 92102	750	960	870	915	501	452	1297	40	390	45	450	270	270	43	FT4-44213

Equipped with positive mechanical locking between disconnecting switch and earthing switch, spark quenching horns, auxiliary switches, motorized actuators and compressed-air drives for separate mounting (List 776) only if ordered additionally.

DRIESCHER - Outdoor Disconnecting Switches

Three-Pole Outdoor Disconnecting Earthing Switches



- 1) Hexagon head screw with nut, washer and spring washer
- 2) Hexagon head screw with nut, washer and spring washer
- 3) Supporting bearing for switch shaft only for 36 kV version
- 4) Reduction elbow coupling R 1/4" with reduction valve, for pipe 10 x 1
- 5) Reduction elbow coupling R 1/6" for pipe 6 x 1 (pneumatic check-back signal)

(Control valves are not included in the delivery)

**with compressed-air actuator 2800
(mounted on the right)**
stroke volume: 865 cm³
max. torque: 150 Nm at 5 bar or
430 Nm at 15 bar

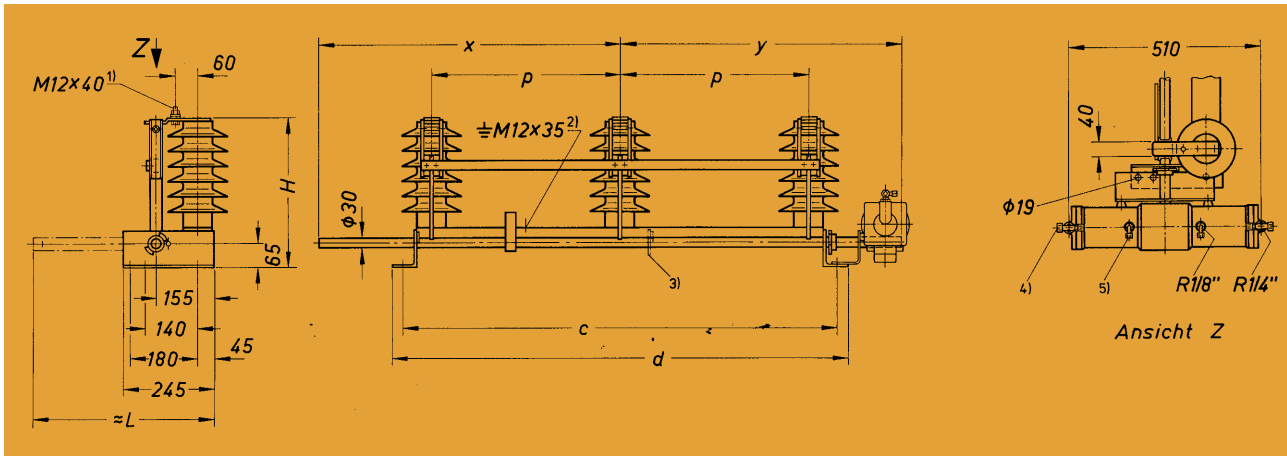
Rated voltage	Rated short-time current	Rated peak stand current I_{th}	Rated peak current I_{dyn}	Part-No.		p	c	d	H	$\approx L$	x	y ⁶⁾	Weight approx. kg	Drawing-No.
				without compressed-air	with compressed-air									
12 kV	20 kA	50 kA	753 14304			400	950	1010	322	402	700	700	31	FT3-44202
12 kV	20 kA	50 kA		753 14344		400	950	1010	322	402	700	647	45	FT3-44202
24 kV	20 kA	50 kA	753 44305			500	1150	1210	392	472	800	800	37	FT3-44202
24 kV	20 kA	50 kA		753 44345		500	1150	1210	392	472	800	747	51	FT3-44202
36 kV	20 kA	50 kA	753 74307			700	1550	1610	472	552	950	950	56	FT3-44202
36 kV	20 kA	50 kA		753 74347		700	1550	1610	472	552	950	990	70	FT3-44202

6) If the compressed-air actuator is to be mounted on the left, the values of dimension x and dimension y are reversed.

Equipment with auxiliary switches (List 776) or motorized actuator (List 776) only if ordered additionally.

DRIESCHER - Outdoor Disconnecting Switches

Three-Pole Outdoor Disconnecting Switches



- 1) Hexagon head screw with nut, washer and spring washer
- 2) Hexagon head screw with nut, washer and spring washer
- 3) Supporting bearing for switch shaft only for 36 kV version
- 4) Reduction elbow coupling R 1/4" with reduction valve, for pipe 10 x 1
- 5) Reduction elbow coupling R 1/8" for pipe 6 x 1 (pneumatic check-back signal)

(Control valves are not included in the delivery)

**with compressed-air actuator 10150
(mounted on the right)**
stroke volume: 578 cm³
max. torque: 90 Nm at 5 bar or
280 Nm at 15 bar

Rated voltage	Rated short-time current	Rated peak stand current I_{th}	Rated peak current I_{dyn}	Part-No.		p	c	d	H	≈L	x	y ⁶⁾	Weight approx. kg	Drawing-No.
				without compressed-air	with compressed-air									
12 kV	63 kA	160 kA		753 14604		400	950	1010	326	413	700	700	38	FT3-44203
12 kV	63 kA	160 kA			753 14624	400	950	1010	326	413	700	647	60	FT3-44203
24 kV	63 kA	160 kA		753 44605		500	1150	1210	396	483	800	800	49	FT3-44203
24 kV	63 kA	160 kA			753 44625	500	1150	1210	396	483	800	747	71	FT3-44203
36 kV	31,5 kA	80 kA		753 74407		700	1550	1610	476	563	950	950	65	FT3-44203
36 kV	31,5 kA	80 kA			753 74427	700	1550	1610	476	563	950	990	87	FT3-44203

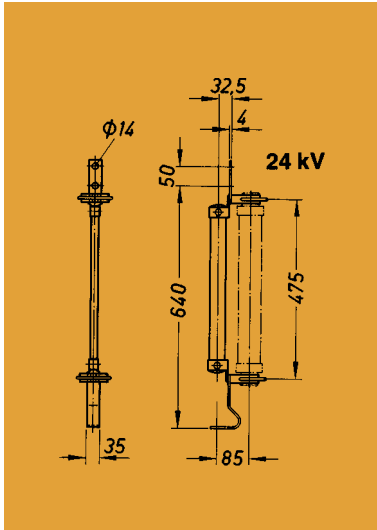
6) If the compressed-air actuator is to be mounted on the left, the values of dimension x and dimension y are reversed.

Equipment with auxiliary switches (List 776) or motorized actuator (List 776) only if ordered additionally.

DRIESCHER - Outdoor Disconnecting Switches

Single-Pole Outdoor Fuse Holders

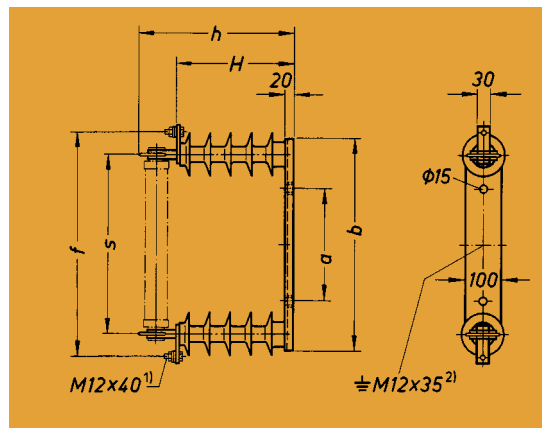
for HV HBC fuse-links up to 200 A rated current for direct mounting on the transformer bushing



Rated voltage	Part-No.	Weight approx. kg	Drawing-No.
24 kV	752 40001	3	FT4-17281

Single-Pole Outdoor Fuse Bases

for HV HBC fuse-links (colour brown RAL 8017) up to 200 A rated current



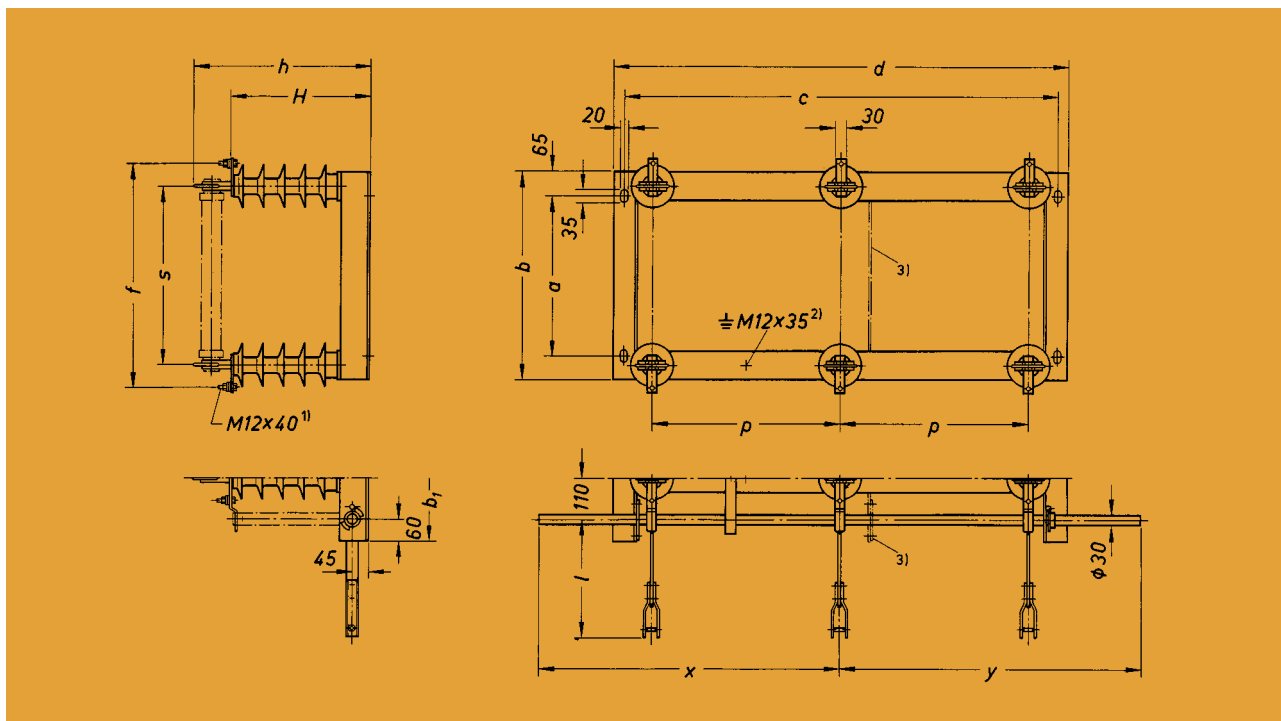
- 1) Hexagon head screw with nut, washer and spring washer
2) Hexagon head screw with nut, washer and spring washer

Rated voltage	Part-No.	a	b	f	≈ h	≈ H	s	Weight approx. kg	Drawing-No.
12 kV	752 12001	180	405	445	335	236	325	8	FT4-5092
24 kV	752 42001	300	565	595	405	306	475	8	FT4-5092
36 kV	752 72001	380	670	690	485	386	570	17	FT4-5092

DRIESCHER - Outdoor Disconnecting Switches

Three-Pole Outdoor Fuse Bases

for HV HBC fuse-links up to 200 A rated current



- 1) Hexagon head screw with nut, washer and spring washer
 2) Hexagon head screw with nut, washer and spring washer
 3) Strut and supporting bearing only for 36 kV with mounted earthing switch

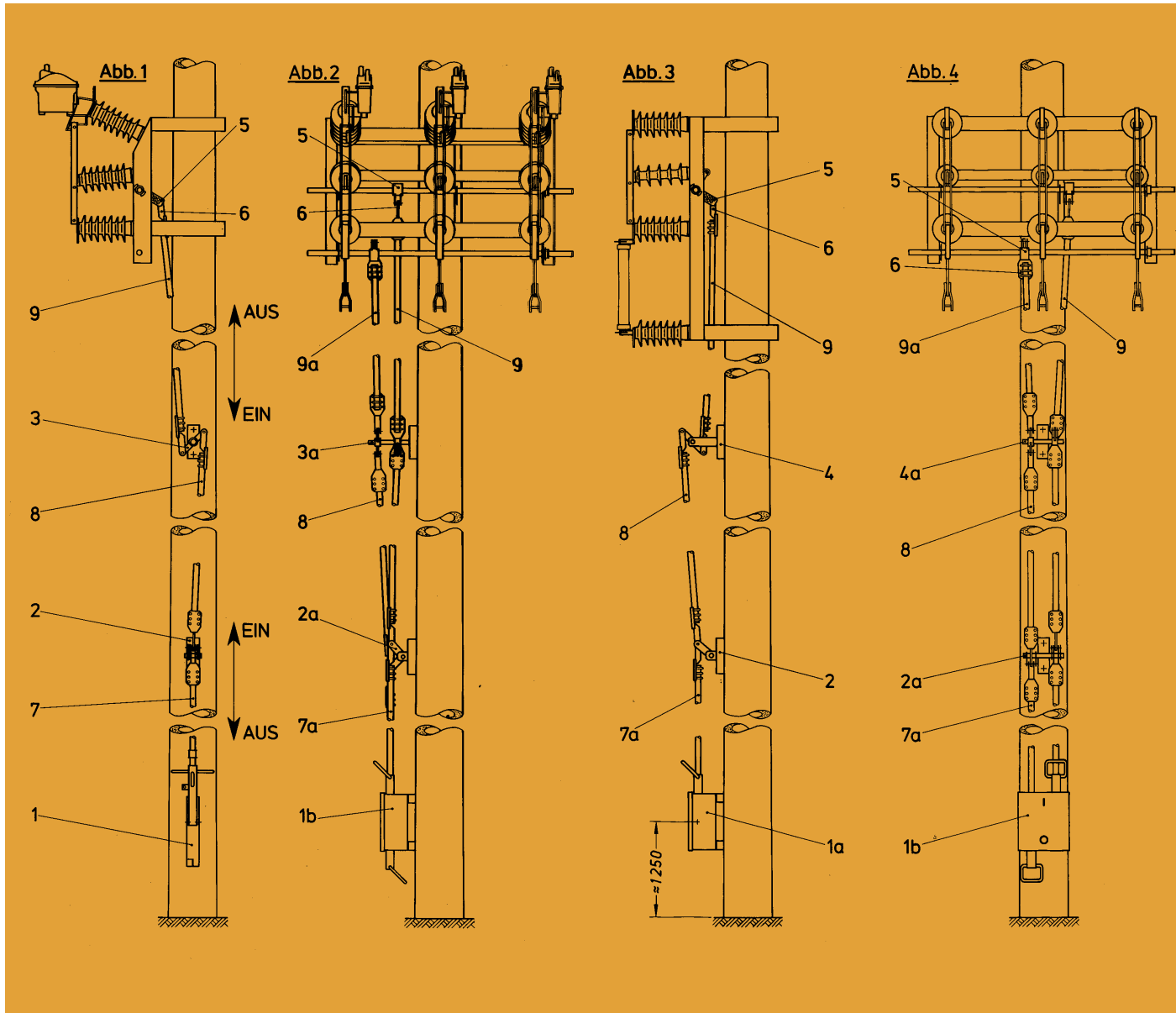
• without earthing switch

Rated voltage	Part-No.	p	a	b	c	d	f	h	H	s	Weight approx. kg	Drawing-No.
12 kV	752 14002	400	275	405	950	1010	445	401	302	325	33	FT3-7156
24 kV	752 44003	500	425	555	1150	1210	595	471	372	475	33	FT3-7156
36 kV	752 74004	700	520	650	1550	1610	690	551	452	570	63	FT3-7156

• with earthing switch

Rated voltage	Part-No.	p	a	b	b ₁	c	d	f	h	H	l	s	x/y	Weight approx. kg	Drawing-No.
12 kV	752 14102	400	275	405	535	950	1010	445	401	302	247	325	700	48	FT3-7156
24 kV	752 44103	500	425	555	685	1150	1210	595	471	372	317	475	800	49	FT3-7156
36 kV	752 74104	700	520	650	780	1550	1610	690	551	452	397	570	950	80	FT3-7156

Arrangement of actuators for outdoor load-break switches FLA 15/6400 and FLA 15/6410 respectively outdoor disconnecting switches 6400 and 6410



Figure

1. Load-break switch FLA 15/6400 with single drive
2. Load-break switch FLA 15/6400 with earthing switch mounted below, with double drive
3. Disconnecting switch 6410 with fuse holders mounted below, with single drive
4. Disconnecting switch 6400 with earthing switch mounted below, with double drive

Item

- 1 Single actuator L AZ4-10700, stroke 140 mm*
- 1a Single box-type actuator AZ4-7530/1, stroke 110 or 140 mm
- 1b Double box-type actuator AZ4-7530/2**
- 2 Single intermediate bearing AZ3-15936/1
- 2a Double intermediate bearing AZ3-15936/2
- 3 Single reversible bearing AZ3-17131/1
- 3a Double reversible bearing AZ3-17131/2
- 4 Single reversible bearing AZ3-17130/1
- 4a Double reversible bearing AZ3-17130/2
- 5 Forked clamping crank AZ3-9610/1 (gauge from 73 to 132.5 mm; hole matrix 8.5 mm)
- 6 Single rod head AZ3-9609/7 (with link bush)
- 7 Lower linkage rod, with thread
- 7a Lower linkage rod, with bearing bush
- 8 Linkage rod
- 9 Upper linkage rod for disconnecting switch or load-break switch
- 9a Upper linkage rod for earthing switch

*) Conversion to 110-mm stroke possible. Stroke settable to 110 or 140 mm.
 **) Earthing switch operating lever (left-hand lever) mechanically locked to the disconnecting switch operating lever.

Drawing no. AZ4-38848

DRIESCHER - Outdoor Disconnecting Switches

Installation

1. When fixing switches in place make sure that the frames are not distorted by uneven surfaces. Use a backing if necessary to compensate unevenness.

2. The actuator can be arranged laterally (at 90°) to the switch as shown in Figs. 1 and 2 or frontally as shown in Figs. 3 and 4.

The clamping cranks on the operating shafts should be mounted as close as possible to the centre of the switch. Concerning dual actuators the required distance between the two clamping cranks is obtained by means of the upper rocker arms of the dual reversible bearing or intermediate bearing.

3. In the lateral arrangement, a reversible bearing (item 3 or 3a) is used as the uppermost guide and at the same time to reverse the direction of thrust. In the frontal arrangement this is implemented by another reversible bearing (item 4 or 4a).

Depending on the length of the pole the linkage rod (items 7, 7a, 8, 9 and 9a) is guided with 1 or 2 intermediate bearings (item 2 or 2 a).

The intermediate bearing which precedes the reversible bearing is provided with a link bushing which enables the linkage rod to deflect sideways (avoid right-angle bends in the rod if possible). This intermediate bearing is marked with a red label. All bearings are held with two M16 screws each.

4. Individual bearings should not be more than 3.5 m apart.

5. The rod setting between the actuator (item 1, 1a or 1b) and clamping crank (item 5) must be made with a closed switch.

Any tension in the linkage at the clamping stub heads of the intermediate or reversible bearings must be released.

6. Actuator and linkage are correctly adjusted if the switch reaches the ON and OFF position even when the actuator is operated slowly in both directions.

7. All nuts and fixing screws must be tightened after several trial switching operations.

Application area

Contact surfaces
All bearings

Recommended materials

Contact grease Barrierta L 55/1
OmniGliss

Manufacturer

KLÜBER LUBRIKATION
DOW CORNING

• Note:

1. Disconnecting switches of type 6400 (page 3) and type 2054 (page 6 on the right side) can be supplied for higher rated currents.
2. Disconnecting switches with porcelain insulators manufactured from 1965 onwards can also be delivered with epoxy resin insulators. It is also possible to replace individual insulators. Please ask for the relevant literature.

Measures, weights, drawings and descriptions in this list are not binding and are subject to change without notice!

simple • safe • switching

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