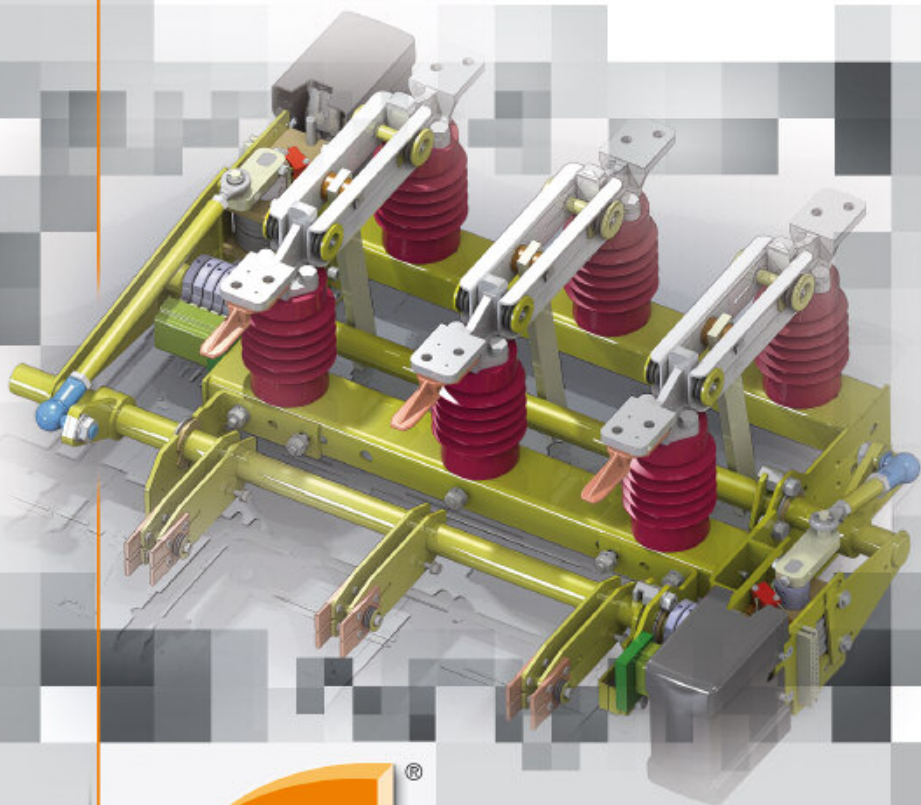
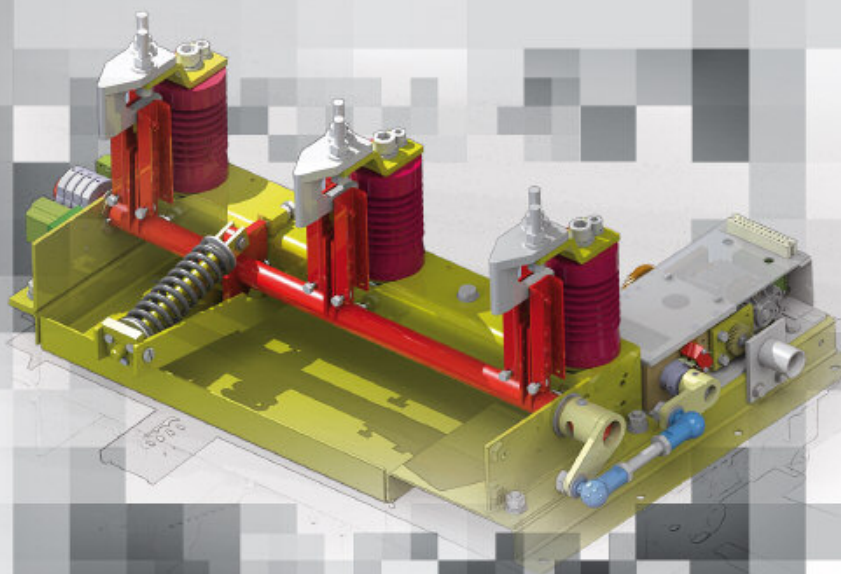


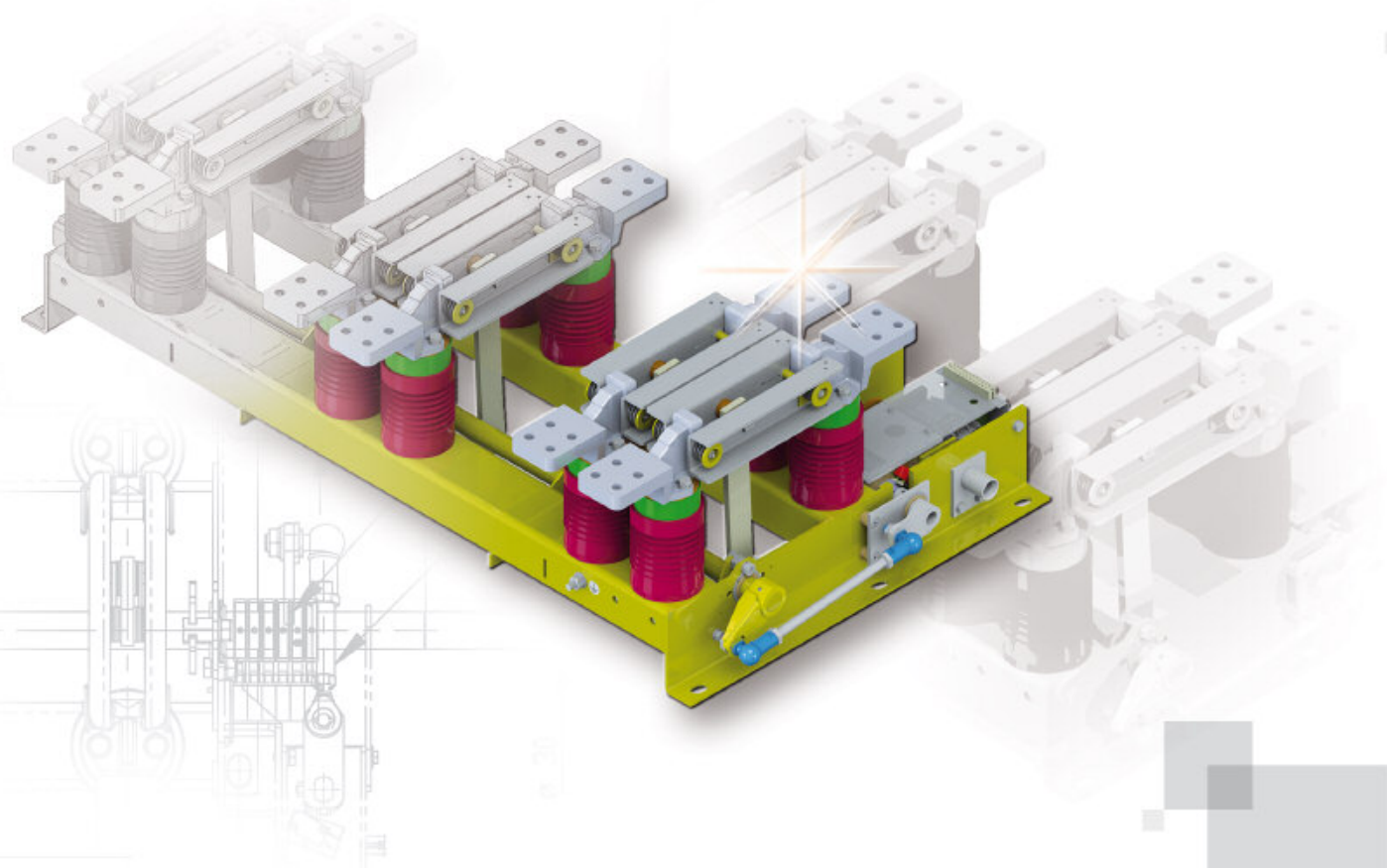


MEDIUM-VOLTAGE SWITCHGEAR...



FLOHE HAS STOOD FOR QUALITY GERMAN PRODUCTS

IN THE FIELD OF LOW AND MEDIUM VOLTAGE EQUIPMENT SINCE 1946

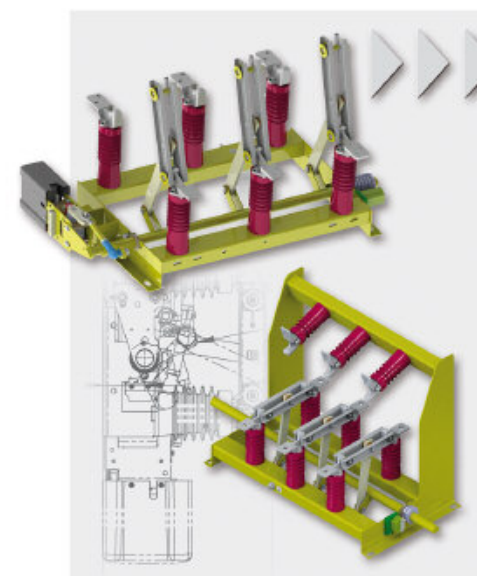


THE DIVISION RELATING TO MEDIUM VOLTAGE EQUIPMENT
IS THE LATEST DEVELOPMENT FROM FLOHE

- In recent years, an independent and solid part of the group has emerged from the takeover of a small company in central Germany. Through the acquisition of the sales and manufacturing activities of a major German electrical company, it has been possible to extend the range continuously.
- Today, in the field of medium voltage equipment, we deal with all kinds of circuit breakers. Our range covers equipment from 1.5 kV to 40.5 kV. We achieve maximum amperages of up to 12000 A. In addition, standard grounding connections and grounding connections which cannot be powered up are part of the range of products. Here, we achieve surge currents up to 210 kA.
- Our equipment is based on a modular-system. Despite this, we implement application-specific and customer specific solutions in each of our orders.

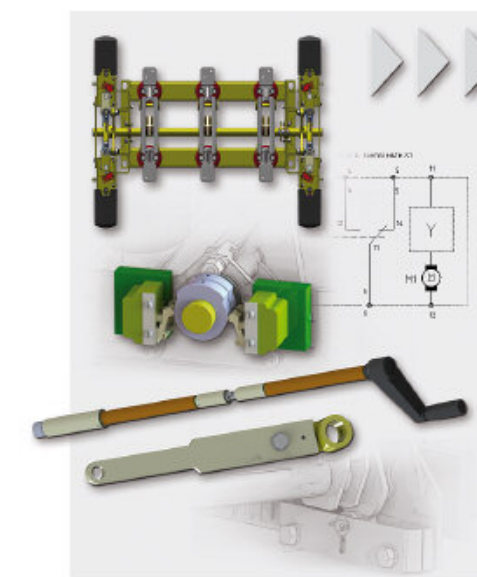
THE CATALOGUE PROVIDES A BRIEF OVERVIEW
OF THE TECHNICAL RANGE. CONTACT US!

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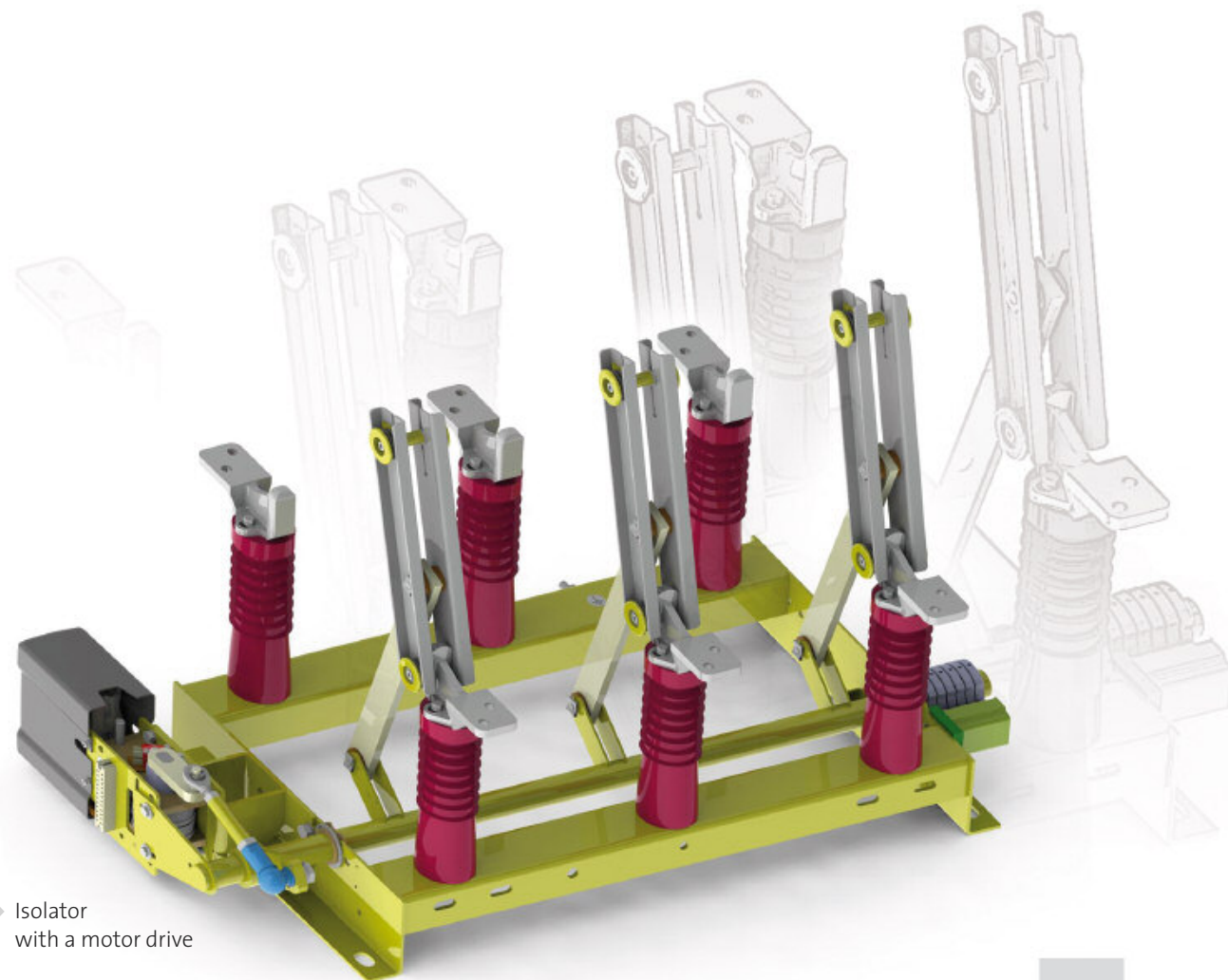


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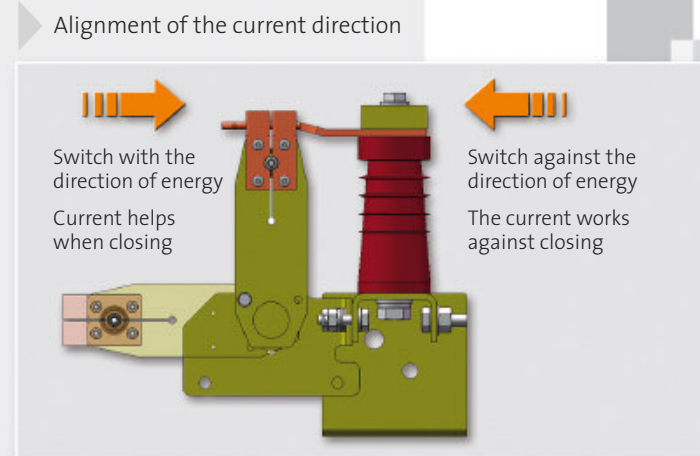


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SHORT CIRCUIT RESISTANCE

- The short circuit resistance of powered up isolator is tested in accordance with VDE/IEC. As a result of the loopless flowpath, the isolators do not need to be secured from being released by short circuit forces.
- Grounding switches, which are mounted to isolators or exist as independent devices, have to be secured in the case of surge currents over 50 kA if the grounding switch is installed in such a way that the flow current (in accordance with the drawing on the right) flows in direction 2 via the grounding switches. Strong opening forces are effective in this direction.
- In the case of a motor drive and self-closing manual drives (e.g. a ball joint drive), sufficient interlocking is assured.
- In the case of grounding switches, which are mounted on circuit breakers, the mechanical interlock between the disconnecter and grounding switch is a simple means of eliminate the disadvantages of the energy direction with inside force action.



TYPE GT

THE ISOLATORS ARE SUITABLE FOR INDOOR PLANT BETWEEN 1.5 kV TO 40.5 kV.

Through the use of ribbed insulators made from cast resin, it is also possible to use the isolators in areas of high air humidity and occasional condensation, e.g. in the tropics. The devices are protected against corrosion. Steel parts are either zinc plated and yellow chromated or electrostatically-coated or via a phosphate coating with an epoxy powder coating. The switches can be installed in any position where the shaft is horizontal. Versions for installation with a vertical shaft are also available.

SERVICE LIFE

As a rule, isolators are rarely switched. Therefore, they are not built for high switching cycles. The mechanical service life and the contact service life is:

- 5.000 switching cycles in the case of isolators. On request, up to 25.000 switching cycles can be realised.

SWITCH FUNCTIONS

ISOLATORS HAVE THE FOLLOWING TASKS:

- Opening or closing circuits when either negligibly small currents have to be interrupted, or turned on when there is no appreciable voltage difference between the circuits to be separated or connected.
- To form an isolating distance in the open position between the terminals of each pole.

INFORMATION ON THE RATING PLATE

FLOHE Schaltgeräte GmbH					
GT1.25-12.0-01-M1-A19-E06					
Serien-Nr.	A12468/S203471	-001			
IEC 62271-102	Zg-Nr.	WF16_15808			
U _i 12,0 kV	I _n 1,25 kA	fr	50/60Hz		
U _p 75 kV	I _p 80 kA	Bj	2016		
U _s 28 kV	I _s 31,5 kA /1s	M	19 kg		

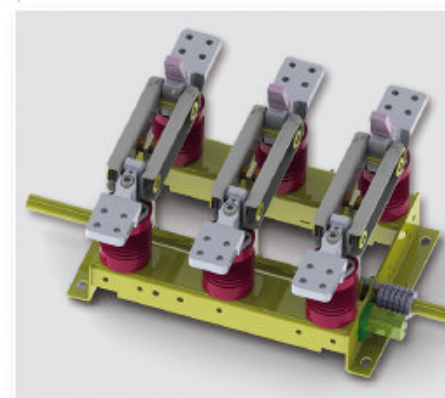
Note:

When asking questions in order to determine spare parts, additional deliveries, etc. the following four pieces of information are required:

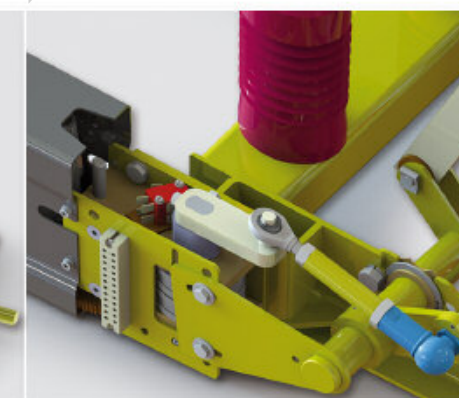
- Type
- Factory no.
- Type indicator
- Year



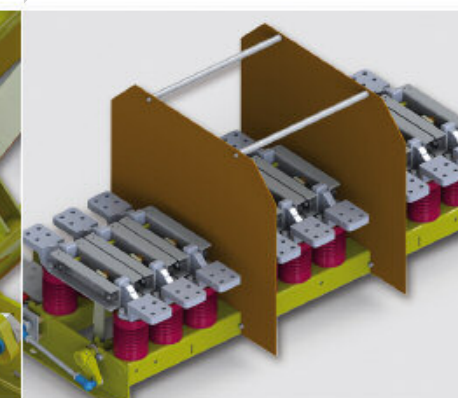
Isolator without motor drive



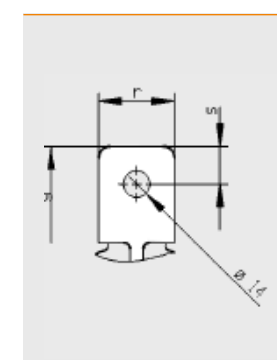
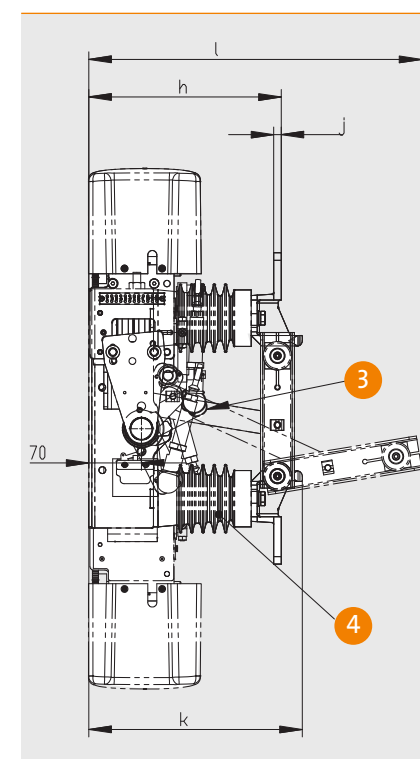
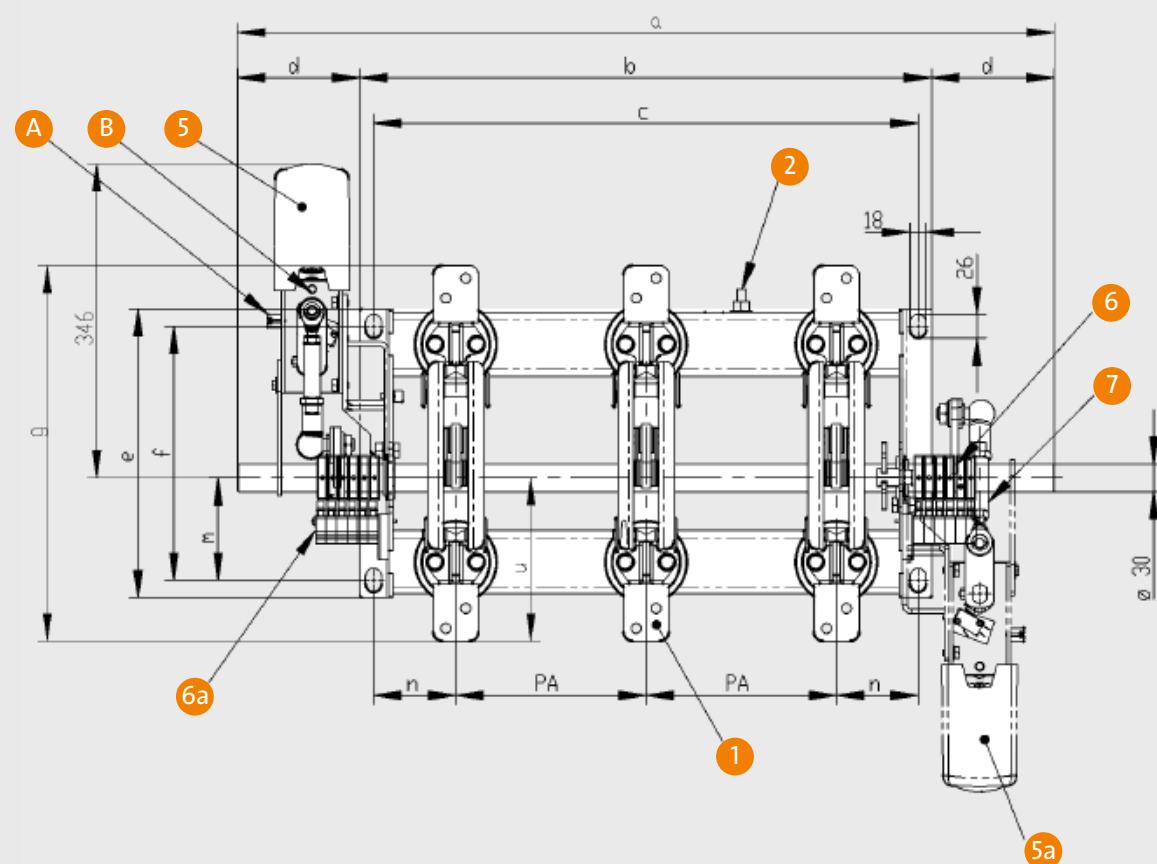
Motor drive a isolator



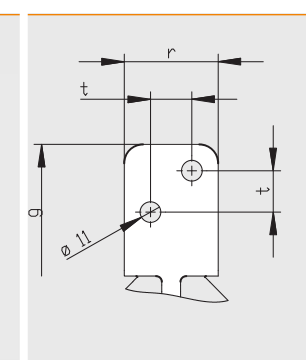
Isolator with separating walls



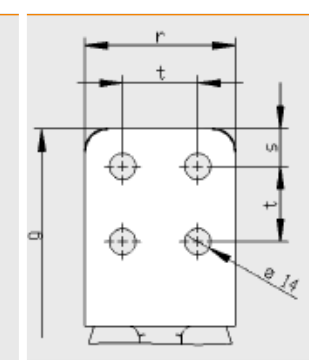
TYPE GT



630 A



1250 A / 1600 A



2500 A / 3150 A

- | | | |
|--|---|---|
| 1 Connection screws
630 A: M12x45
1250 A / 1600 A: M12x60
2500 A / 3150 A: M12x80 | 5 Motor drive
Weight of the drive 4.8 kg | A Cable connection |
| 2 Grounding screw
1x M12 630A / 1250 A / 1600 A
2x M12 2500 A / 3150 A | 5a Motor drive
Optional position | B Crank handle connection |
| 3 Switching angle 90° | 6 Auxiliary switches | |
| 4 Supporter | 6a Auxiliary switches
Optional position | Specify actuating voltage when ordering |
| | 7 Motor drive coupling | |

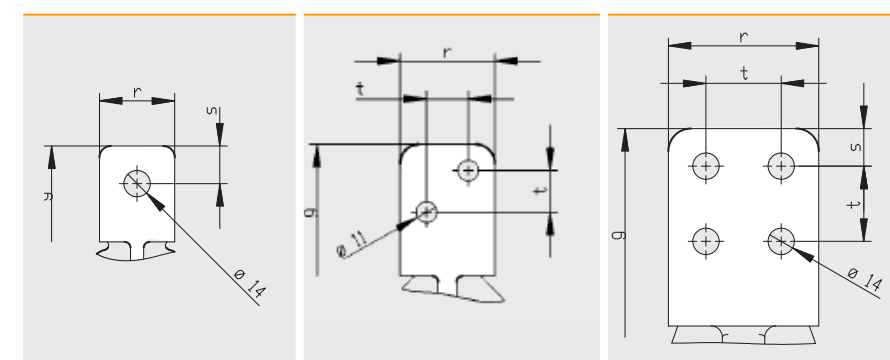
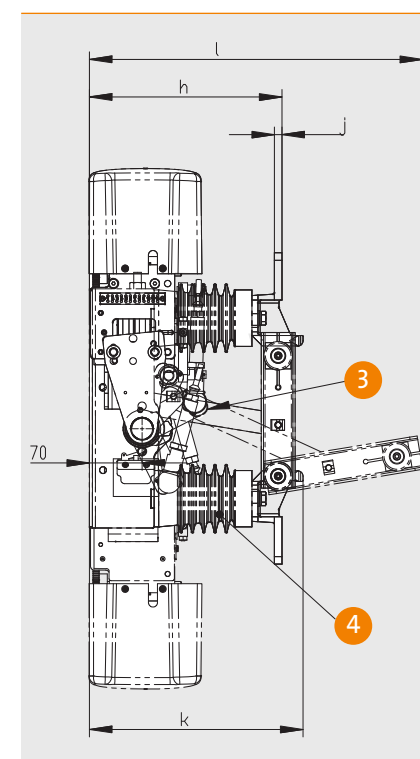
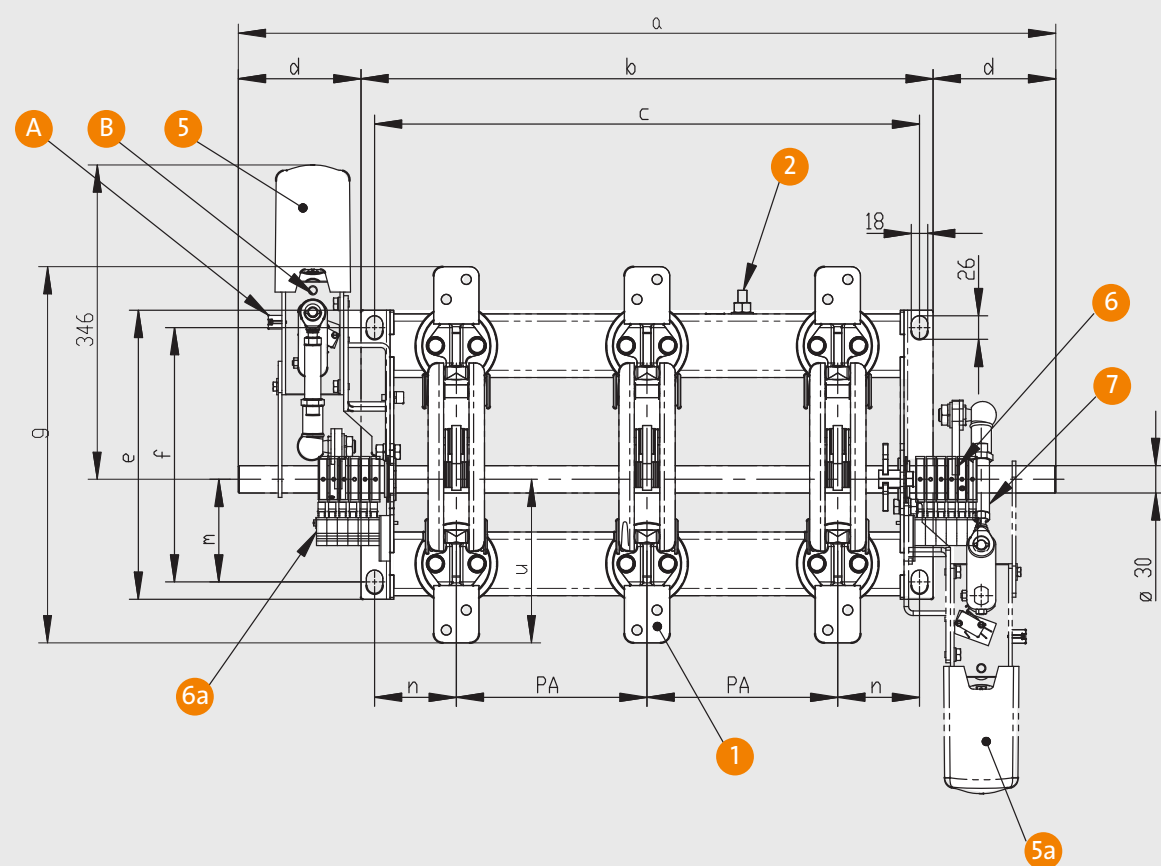
►►► pto – for other GT types, see p. 8-9

Type	U _n [kV]	U _p [kV]	U _d [kV]	I _n [kA]	I _{th} [kA]	I _{dyn} [kA]	Weight [kg]	PA	a	b	c	d
12 kV												
GT 0.63 -12.0-03-210-L1	12	75	28	630	20	50	20,5	210	900	630	600	135
GT 0.63 -12.0-03-210-M1	12	75	28	630	31,5	80	20,5	210	900	630	600	135
GT 1.25 -12.0-03-210-M1	12	75	28	1250	31,5	80	36	210	900	630	600	135
GT 1.25 -12.0-03-210-P1	12	75	28	1250	50	125	48	210	880	618	580	131
GT 1.25 -12.0-03-210-R1	12	75	28	1250	63	160	56	210	880	618	580	131
GT 1.60 -12.0-03-210-M1	12	75	28	1600	31,5	80	36	210	900	630	600	135
GT 1.60 -12.0-03-210-P1	12	75	28	1600	50	125	48	210	880	618	580	131
GT 1.60 -12.0-03-210-R1	12	75	28	1600	63	160	56	210	880	618	580	131
GT 2.50 -12.0-03-210-M1	12	75	28	2500	31,5	80	64	210	880	618	580	131
GT 2.50 -12.0-03-210-P1	12	75	28	2500	50	125	65	210	880	618	580	131
GT 2.50 -12.0-03-210-R1	12	75	28	2500	63	160	73	210	880	618	580	131
GT 3.15 -12.0-03-210-P1	12	75	28	3150	50	125	66	230	920	658	620	131
GT 3.15 -12.0-03-210-R1	12	75	28	3150	63	160	67	230	920	658	620	131
GT 0.63 -12.0-03-150-L1	12	60	28	630	20	50	19	150	590	388	346	101
GT 0.63 -12.0-03-150-M1	12	60	28	630	31,5	80	19	150	590	388	346	101
GT 1.25 -12.0-03-150-M1	12	60	28	1250	31,5	80	25,5	150	590	388	346	101
GT 0.63 -12.0-03-210-L1	12	75	28	630	20	50	21	210	780	582	552	99
GT 0.63 -12.0-03-210-M1	12	75	28	630	31,5	80	21	210	780	582	552	99
GT 1.25 -12.0-03-210-M1	12	75	28	1250	31,5	80	36,5	210	780	582	552	99
GT 1.25 -12.0-03-210-P1	12	75	28	1250	50	125	47,5	210	780	618	580	81
GT 1.60 -12.0-03-210-M1	12	75	28	1600	31,5	80	36,5	210	780	582	552	99
GT 1.60 -12.0-03-210-P1	12	75	28	1600	50	125	47,5	210	780	618	580	81
GT 2.50 -12.0-03-210-M1	12	75	28	2500	31,5	80	63	210	780	618	580	81
GT 2.50 -12.0-03-210-P1	12	75	28	2500	50	125	63	210	780	618	580	81

e	f	g	h	j	k	l	m	n	r	s	t	u	Type
318	280	370	242	6	270	445	90	113	40	20	--	158	GT 0.63 -12.0-03-210-L1
318	280	370	242	6	270	445	90	113	40	20	--	158	GT 0.63 -12.0-03-210-M1
318	280	414	256	10	284	445	90	113	50	14	22	180	GT 1.25 -12.0-03-210-M1
348	280	440	270	10	355 *	470	80	113	50	14	22	193	GT 1.25 -12.0-03-210-P1
348	280	440	270	10	355 *	470	80	113	50	14	22	193	GT 1.25 -12.0-03-210-R1
318	280	414	256	10	284	445	90	113	50	14	22	180	GT 1.60 -12.0-03-210-M1
348	280	440	270	10	355 *	470	80	113	50	14	22	193	GT 1.60 -12.0-03-210-P1
348	280	440	270	10	355 *	470	80	113	50	14	22	193	GT 1.60 -12.0-03-210-R1
408	340	570	289	22	320	525	80	113	80	20	40	228	GT 2.50 -12.0-03-210-M1
408	340	570	289	22	395 *	525	80	113	80	20	40	228	GT 2.50 -12.0-03-210-P1
408	340	570	289	22	395 *	525	80	113	80	20	40	228	GT 2.50 -12.0-03-210-R1
408	340	570	289	22	395 *	525	80	113	80	20	40	228	GT 3.15 -12.0-03-210-P1
318	280	414	268	6	296	470	23	113	40	20	--	158	GT 0.63 -12.0-03-150-L1
318	280	414	268	6	296	470	23	113	40	20	--	158	GT 0.63 -12.0-03-150-M1
318	280	414	282	10	310	470	23	113	50	14	22	180	GT 1.25 -12.0-03-150-M1
318	280	370	242	6	270	445	66	113	40	20	--	158	GT 0.63 -12.0-03-210-L1
318	280	370	242	6	270	445	66	113	40	20	--	158	GT 0.63 -12.0-03-210-M1
318	280	414	256	10	284	445	66	113	50	14	22	180	GT 1.25 -12.0-03-210-M1
348	280	440	270	10	355 *	470	80	113	50	14	22	193	GT 1.25 -12.0-03-210-P1
318	280	414	256	10	284	445	66	113	50	14	22	180	GT 1.60 -12.0-03-210-M1
348	280	440	270	10	355 *	470	80	113	50	14	22	180	GT 1.60 -12.0-03-210-P1
408	340	570	289	22	320	525	80	113	80	20	40	228	GT 2.50 -12.0-03-210-M1
408	340	570	289	22	395 *	525	80	113	80	20	40	228	GT 2.50 -12.0-03-210-P1

* Incl. inlet aid

TYPE GT



630 A

1250 A / 1600 A

2500 A / 3150 A

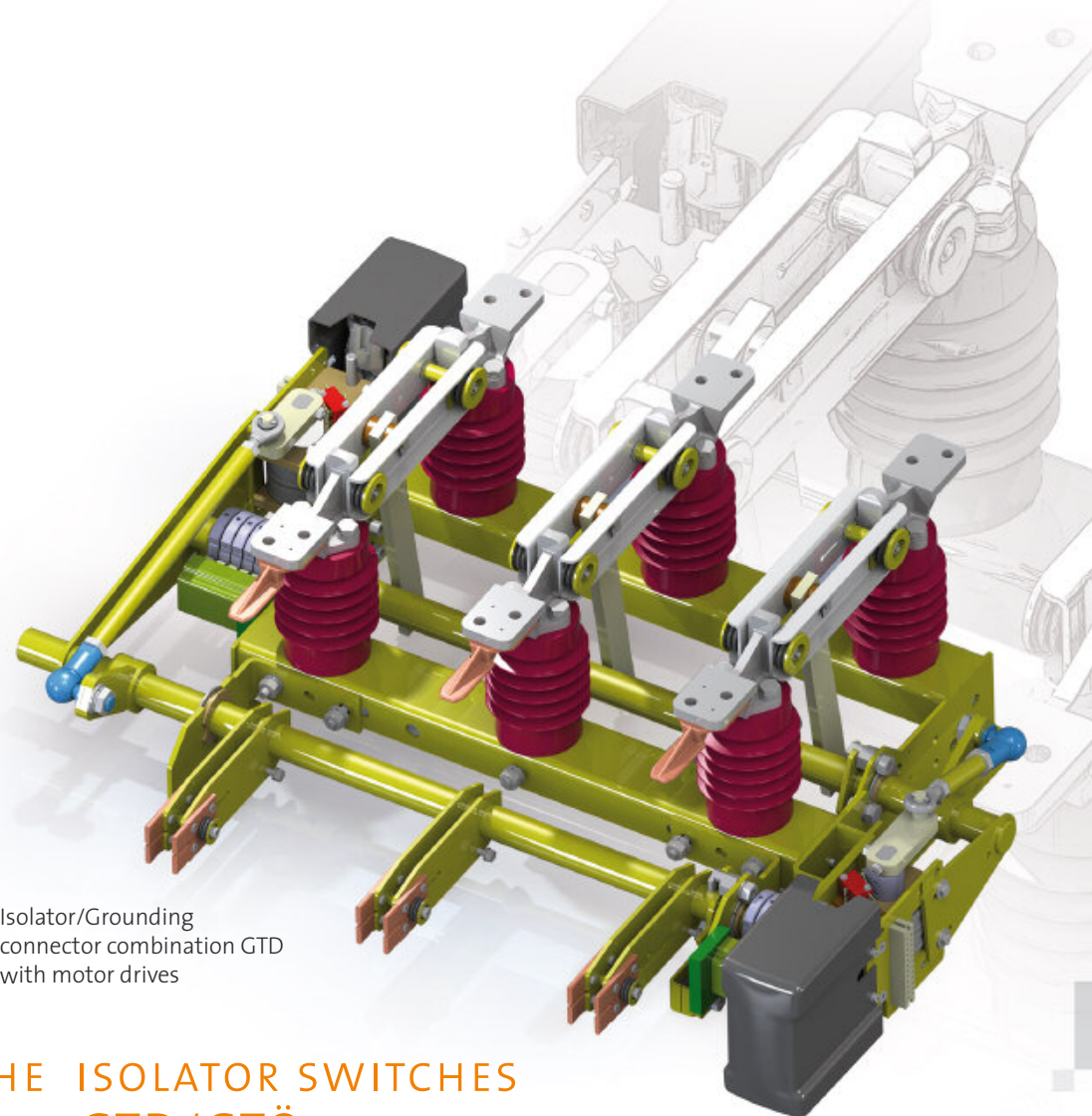
- 1 Connection screws
630 A: M12x45
1250 A / 1600 A: M12x60
2500 A / 3150 A: M12x80
- 2 Grounding screw
1x M12 630A / 1250 A / 1600 A
2x M12 2500 A / 3150 A
- 3 Switching angle 90°
- 4 Supporter
- 5 Motor drive
Weight of the drive 4.8 kg
- 5a Motor drive
Optional position
- 6 Auxiliary switches
- 6a Auxiliary switches
Optional position
- 7 Motor drive coupling
- A Cable connection
- B Crank handle connection
- Specify actuating voltage when ordering

pto – for other GT types, see p. 6-7

Type	U _n [kV]	U _p [kV]	U _d [kV]	I _n [kA]	I _{th} [kA]	I _{dyn} [kA]	Weight [kg]	PA	a	b	c	d
17.5 kV	GT 0.63 -17.5-03-275-L1	17,5	75	28	630	50	20,5	275	970	630	670	135
	GT 0.63 -17.5-03-275-M1	17,5	75	28	630	80	31,5	275	970	700	670	135
	GT 1.25 -17.5-03-275-M1	17,5	75	28	1250	80	31,5	275	970	700	670	135
	GT 1.25 -17.5-03-275-P1	17,5	75	28	1250	125	50	275	970	700	670	135
	GT 1.25 -17.5-03-275-R1	17,5	75	28	1250	160	63	275	970	700	670	135
	GT 1.60 -17.5-03-275-M1	17,5	75	28	1600	80	31,5	275	970	748	710	111
	GT 1.60 -17.5-03-275-P1	17,5	75	28	1600	125	50	275	970	748	710	111
	GT 1.60 -17.5-03-275-R1	17,5	75	28	1600	160	63	275	970	748	710	111
	GT 2.50 -17.5-03-275-M1	17,5	75	28	2500	80	31,5	275	1010	748	710	131
	GT 2.50 -17.5-03-275-P1	17,5	75	28	2500	125	50	275	1010	748	710	131
	GT 2.50 -17.5-03-275-R1	17,5	75	28	2500	160	63	275	1010	748	710	131
	GT 3.15 -17.5-03-275-P1	17,5	75	28	3150	125	50	275	1010	748	710	131
	GT 3.15 -17.5-03-275-R1	17,5	75	28	3150	160	63	275	1010	748	710	131
24 kV	GT 0.63 -24.0-03-275-L1	24	125	50	630	50	20	275	1130	788	750	171
	GT 1.25 -24.0-03-275-M1	24	125	50	1250	80	31,5	275	1130	788	750	171
	GT 1.60 -24.0-03-275-M1	24	125	50	1600	80	31,5	275	1130	788	750	171
	GT 2.50 -24.0-03-300-M1	24	125	50	2500	80	31,5	300	1180	838	800	171
	GT 0.63 -24.0-03-210-L1	24	95	50	630	50	20	210	780	618	580	81
	GT 1.25 -24.0-03-210-M1	24	95	50	1250	80	31,5	210	780	618	580	81
36 kV	GT 0.63 -36.0-03-400-L1	36	170	70	630	50	20	400	1550	1038	1000	256
	GT 1.25 -36.0-03-400-M1	36	170	70	1250	80	31,5	400	1550	1038	1000	256
	GT 2.50 -36.0-03-400-M1	36	170	70	2500	80	31,5	400	1550	1038	1000	256
	GT 3.15 -36.0-03-420-M1	36	170	70	3150	80	31,5	420	1590	1078	1040	256

e	f	g	h	j	k	l	m	n	r	s	t	u	Type	
318	280	370	272	6	300	475	90	113	40	20	--	158	GT0.63 -17.5-03-275-L1	17.5 kV
318	280	370	272	6	300	475	90	113	40	20	--	158	GT0.63 -17.5-03-275-M1	
318	280	414	286	10	314	475	90	113	50	14	22	180	GT 1.25 -17.5-03-275-M1	
348	280	440	300	10	385*	500	80	113	50	14	22	193	GT 1.25 -17.5-03-275-P1	
348	280	440	300	10	385*	500	80	113	50	14	22	193	GT 1.25 -17.5-03-275-R1	
318	280	414	286	10	314	475	90	113	50	14	22	180	GT 1.60 -17.5-03-275-M1	
348	280	440	300	10	385*	500	80	113	50	14	22	193	GT 1.60 -17.5-03-275-P1	
348	280	440	300	10	385*	500	80	113	50	14	22	193	GT 1.60 -17.5-03-275-R1	
408	340	570	319	22	350	555	80	113	80	20	40	228	GT 2.50 -17.5-03-275-M1	
408	340	570	319	22	425*	555	80	113	80	20	40	228	GT 2.50 -17.5-03-275-P1	
408	340	570	319	22	425*	555	80	113	80	20	40	228	GT 2.50 -17.5-03-275-R1	
408	340	570	319	22	425*	555	80	113	80	20	40	228	GT 3.15 -17.5-03-275-P1	
408	340	570	319	22	425*	555	80	113	80	20	40	228	GT 3.15 -17.5-03-275-R1	
418	350	470	338	6	366	637	100	98	40	20	--	158	GT0.63 -24.0-03-275-L1	24 kV
418	350	514	352	10	380	637	100	98	50	14	22	180	GT 1.25 -24.0-03-275-M1	
418	350	514	352	10	380	637	100	98	50	14	22	180	GT 1.60 -24.0-03-275-M1	
498	350	660	371	22	402	682	100	73	80	20	40	228	GT 2.50 -24.0-03-300-M1	
418	350	470	338	6	366	637	80	98	40	20	--	158	GT0.63 -24.0-03-210-L1	
418	350	514	352	10	380	637	80	98	50	14	20	180	GT 1.25 -24.0-03-210-M1	
528	450	570	452	6	480	852	100	93	40	20	--	153	GT0.63 -36.0-03-400-L1	36 kV
528	450	614	466	10	494	852	100	93	50	14	22	175	GT 1.25 -36.0-03-400-M1	
588	450	750	485	22	516	890	100	78	80	20	22	228	GT 2.50 -36.0-03-400-M1	
588	450	750	485	22	516	890	100	78	80	20	22	228	GT 3.15 -36.0-03-420-M1	

* Incl. inlet aid



Isolator/Grounding
connector combination GTD
with motor drives

THE ISOLATOR SWITCHES TYPE GTD/GTÖ

ARE INTERIOR DEVICES FOR LOAD-FREE SWITCHING.

The following models are available:

- **GTD:** Mounting of the grounding connector on the side of the pivot
- **GTÖ:** Mounting of the grounding connector on the side of the opening
- **GTS:** Mounting of the grounding connector on both sides

The drive of the isolator / grounding connector combination can be executed differently:

- Individual drive the isolator shaft
- Individual drive of the grounding connector shaft
- Common drive of both shafts via a motor unit

The following drives are available:

- Electric
- Manual
- Pneumatic

A combination of the drives is also possible.

The rated values of the insulation level are related to normal atmospheric conditions and altitude. At altitudes higher than 1,000 m above sea level, the reduced insulation level must be considered.

The switchgear correspond to the standard IEC 62271-102; 2001-12, as well as DIN VDE 0111 Part 1/10.79 and IEC 129.1854.

INFORMATION ON THE RATING PLATE

FLOHE Schaltgeräte GmbH					
GTÖ2.50-12.0-03-210-P1-A093-B32-E25					
Serien-Nr.	A12422/S204904	-001			
IEC 62271-102	Zg-Nr.	VF16_41809			
U _i 12.0 kV	I _h 2.50 kA	fr 50/60Hz			
U _p 75 kV	I _p 125 kA	Bj 2016			
U _s 28 kV	I _s 50.0 kA /1s	M 92 kg			

Note:

When asking questions in order to determine spare parts, additional deliveries, etc. the following four pieces of information are required:

- Type
- Factory no.
- Type indicator
- Year



TYPE GTD / GTÖ

ISOLATOR / GROUNDING CONNECTOR COMBINATIONS

ARE THE COST-EFFECTIVE AND SPACE-SAVING
ALTERNATIVE TO INDIVIDUAL DEVICES.

- Grounding connector units can be mounted on the side of the opening and on the side of the pivot.
- The drive can take place individually as well as via a unit.
- Both manual, electric and pneumatic drives are available.

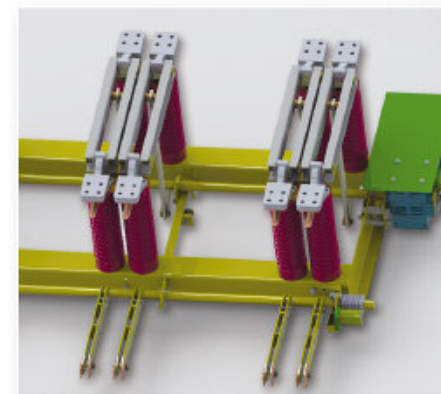
Additional equipment can be found from page 32 onwards.

Individual designs – even in small quantities – at any time.

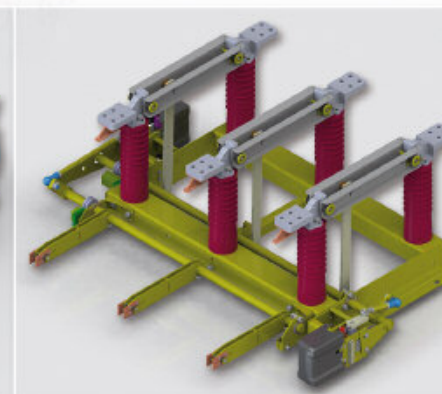
Our products are characterised by many years of experience.



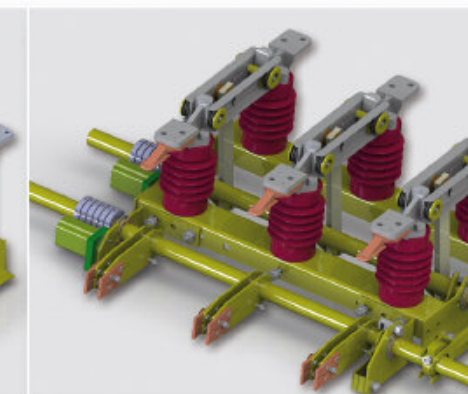
GTD with an AC drive

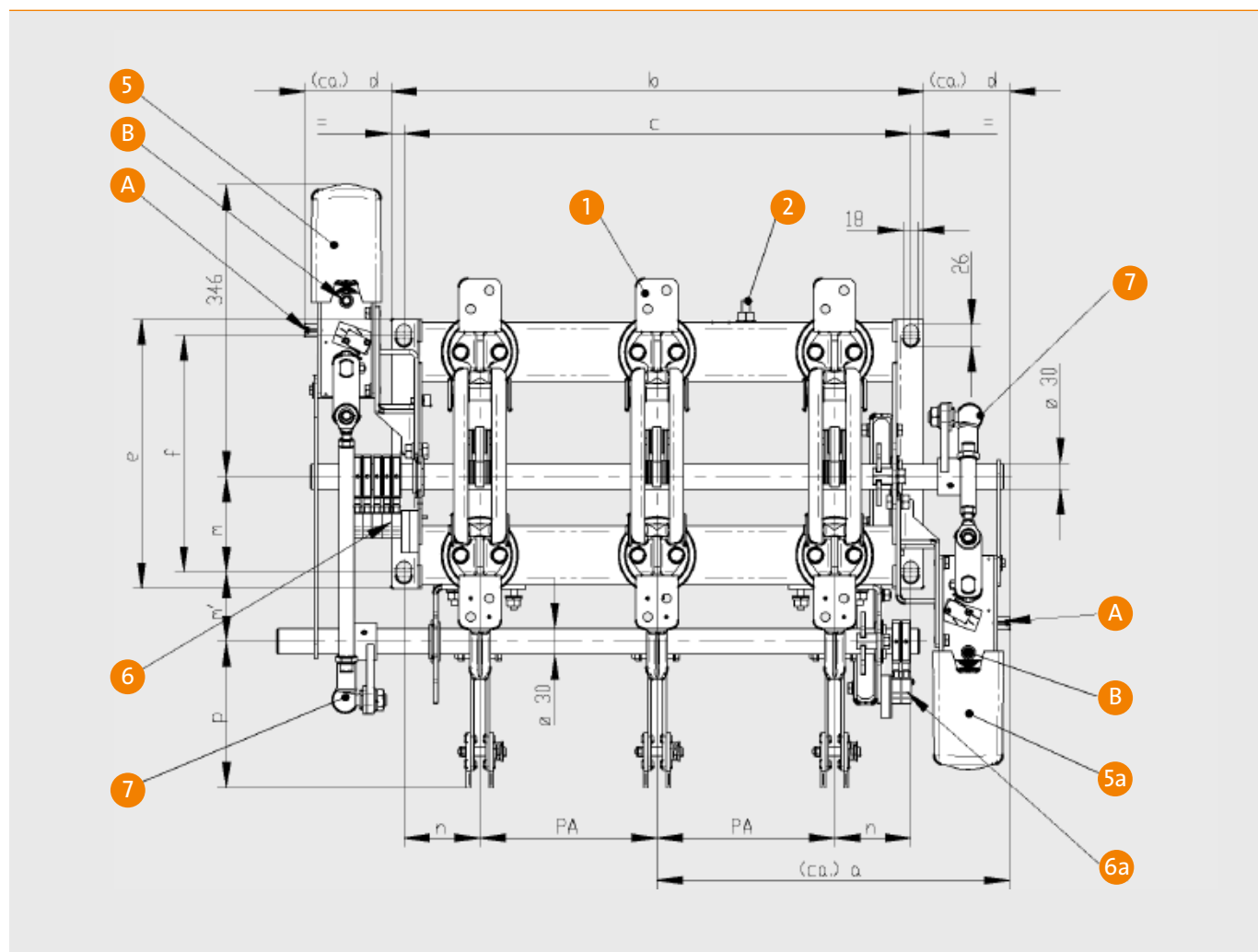


GTD

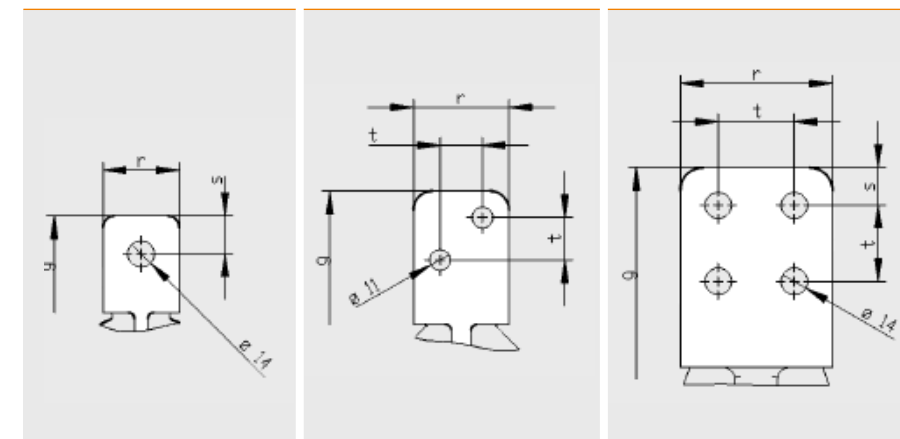
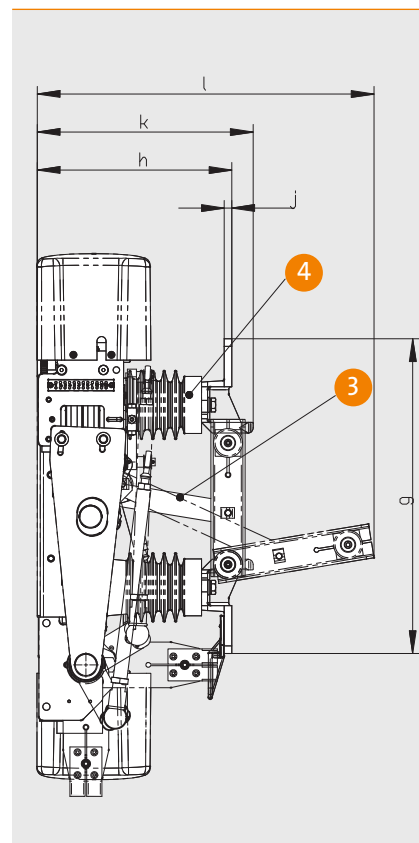


GTD with a mechanical interlock





TYPE GTD



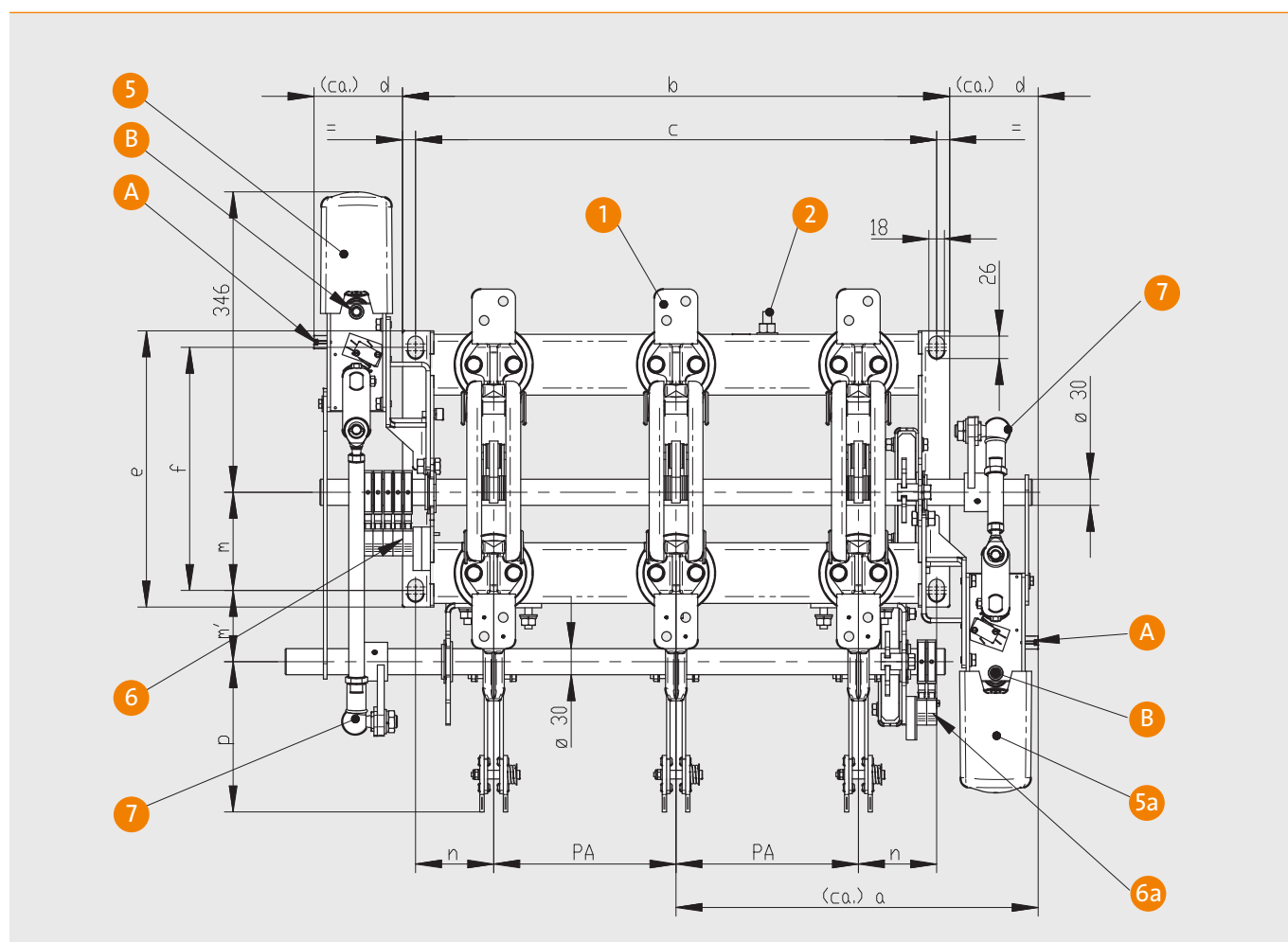
- 630 A 1250 A / 1600 A 2500 A / 3150 A
- 1 Connection screws
630 A: M12x45
1250 A / 1600 A: M12x60
2500 A / 3150 A: M12x80
 - 2 Grounding screw
1x M12 630A / 1250 A / 1600 A
2x M12 2500 A / 3150 A
 - 3 Switching angle 90°
 - 4 Supporter
 - 5 Motor drive
Weight of the drive 4.8 kg
 - 5a Motor drive
 - 6 Auxiliary switches
 - 6a Auxiliary switches
 - 7 Motor drive coupling
 - A Cable connection
 - B Crank handle connection
 - Specify actuating voltage when ordering

►► pto – for other GTD types, see p. 14-15

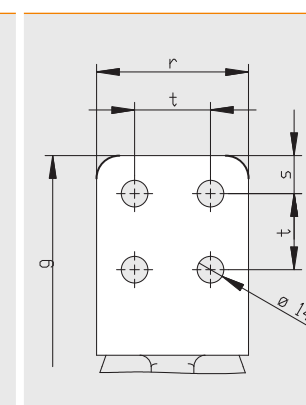
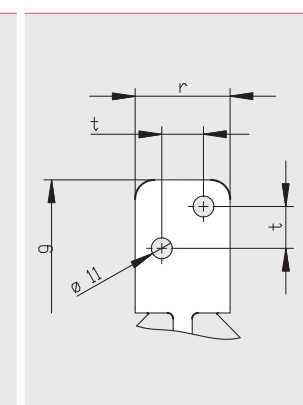
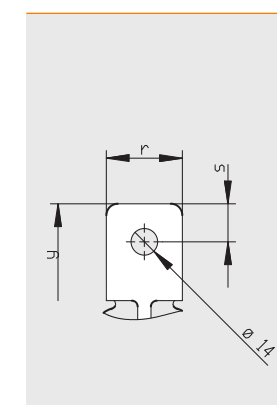
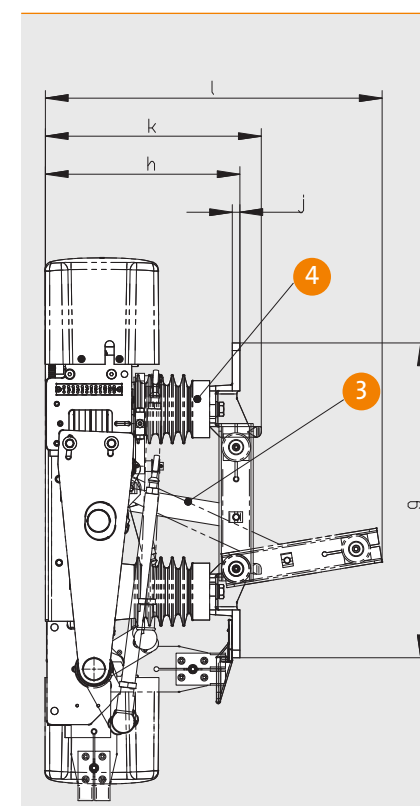
Type	U _n [kV]	U _p [kV]	U _d [kV]	I _n [kA]	I _{th} [kA]	I _{dyn} [kA]	Weight [kg]	PA	a	b	c	d	e
12 kV													
GTD0.63-12.0-03-150-L1	12	60	28	630	20	50	30	150	305	388	346	111	318
GTD0.63-12.0-03-150-M1	12	60	28	630	31,5	80	30	150	305	388	346	111	318
GTD0.63-12.0-03-210-L1	12	75	28	630	20	50	35	210	393	582	552	102	318
GTD0.63-12.0-03-210-L1	12	75	28	630	20	50	45	210	417	630	600	207	318
GTD0.63-12.0-03-210-M1	12	75	28	630	31,5	80	45	210	417	630	600	207	318
GTD0.63-12.0-03-210-M1	12	75	28	630	31,5	80	38	210	393	582	552	102	318
GTD 1.25-12.0-03-150-M1	12	60	28	1250	31,5	80	33	150	305	388	346	111	318
GTD 1.25-12.0-03-210-M1	12	75	28	1250	31,5	80	52	210	417	630	600	207	318
GTD 1.25-12.0-03-210-P1	12	75	28	1250	50	125	67	210	399	618	580	90	348
GTD 1.25-12.0-03-210-R1	12	75	28	1250	63	160	76	210	399	618	580	90	348
GTD 1.25-12.0-03-210-M1	12	75	28	1250	31,5	80	43	210	393	582	552	102	318
GTD 1.60-12.0-03-210-M1	12	75	28	1600	31,5	80	46	210	393	582	552	102	318
GTD 1.60-12.0-03-210-M1	12	75	28	1600	31,5	80	52	210	417	630	600	207	318
GTD 1.60-12.0-03-210-P1	12	75	28	1600	50	125	67	210	399	618	580	90	348
GTD 1.60-12.0-03-210-R1	12	75	28	1600	63	160	76	210	399	618	580	90	348
GTD 2.50-12.0-03-210-M1	12	75	28	2500	31,5	80	87	210	399	618	580	90	408
GTD 2.50-12.0-03-210-P1	12	75	28	2500	50	125	93	210	399	618	580	90	408
GTD 2.50-12.0-03-210-R1	12	75	28	2500	63	160	102	210	399	618	580	90	408
GTD 3.15-12.0-03-210-P1	12	75	28	3150	50	125	95	230	419	658	620	90	408
GTD 3.15-12.0-03-210-R1	12	75	28	3150	63	160	105	230	419	658	620	90	408

f	g	h	j	k	l	m	m'	n	p	r	s	t	u	Type	12 kV
280	414	268	6	296	470	23	82	113	173	40	20	--	158	GTD 0.63-12.0-03-150-L1	
280	414	268	6	296	470	23	82	113	173	40	20	--	158	GTD 0.63-12.0-03-150-M1	
280	370	242	6	270	445	66	82	113	173	40	20	--	158	GTD 0.63-12.0-03-210-L1	
280	370	242	6	270	445	90	82	113	173	40	20	--	158	GTD 0.63-12.0-03-210-L1	
280	370	242	6	270	445	90	82	113	173	40	20	--	158	GTD 0.63-12.0-03-210-M1	
280	370	242	6	270	445	66	82	113	173	40	20	--	158	GTD 0.63-12.0-03-210-M1	
280	414	282	10	310	470	23	82	113	173	50	14	22	180	GTD 1.25-12.0-03-150-M1	
280	414	256	10	284	445	90	82	113	173	50	14	22	180	GTD 1.25-12.0-03-210-M1	
280	440	270	10	355*	470	80	97	113	166	50	14	22	193	GTD 1.25-12.0-03-210-P1	
280	440	270	10	355*	470	80	97	113	166	50	14	22	193	GTD 1.25-12.0-03-210-R1	
280	414	256	10	284	445	66	82	113	173	50	14	22	180	GTD 1.25-12.0-03-210-M1	
280	414	256	10	284	445	66	82	113	173	50	14	22	180	GTD 1.60-12.0-03-210-M1	
280	414	256	10	284	445	90	82	113	173	50	14	22	180	GTD 1.60-12.0-03-210-M1	
280	440	270	10	355*	470	80	97	113	166	50	14	22	193	GTD 1.60-12.0-03-210-P1	
280	440	270	10	355*	470	80	97	113	166	50	14	22	193	GTD 1.60-12.0-03-210-R1	
340	570	289	22	320	525	80	97	113	166	80	20	40	228	GTD 2.50-12.0-03-210-M1	
340	570	289	22	395*	525	80	97	113	166	80	20	40	228	GTD 2.50-12.0-03-210-P1	
340	570	289	22	395*	525	80	97	113	166	80	20	40	228	GTD 2.50-12.0-03-210-R1	
340	570	289	22	395*	525	80	97	113	166	80	20	40	228	GTD 3.15-12.0-03-210-P1	
340	570	289	22	395*	525	80	97	113	166	80	20	40	228	GTD 3.15-12.0-03-210-R1	

* Incl. inlet aid



TYPE GTD



630 A

▶ 1250 A / 1600 A

▶ 2500 A / 3150 A

- | | | | | | |
|---|--|----|---|---|---|
| 1 | Connection screws
630 A: M12x45
1250 A / 1600 A: M12x60
2500 A / 3150 A: M12x80 | 5 | Motor drive
Weight of the drive 4.8 kg | A | Cable connection |
| 2 | Grounding screw
1x M12 630A / 1250 A / 1600 A
2x M12 2500 A / 3150 A | 5a | Motor drive | B | Crank handle connection |
| 3 | Switching angle 90° | 6 | Auxiliary switches | | |
| 4 | Supporter | 6a | Auxiliary switches | | Specify actuating voltage when ordering |
| | | 7 | Motor drive coupling | | |

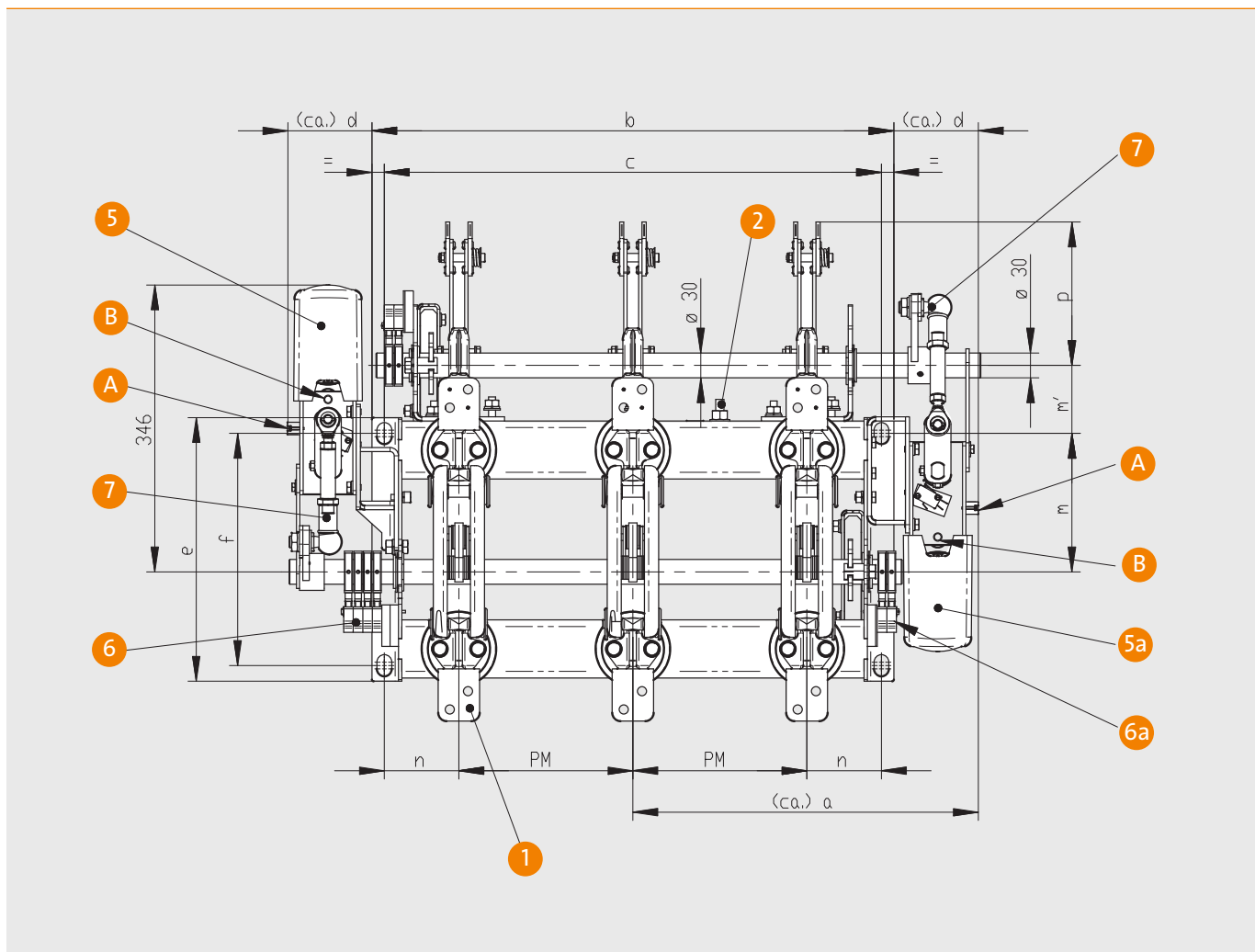
◀◀ pto – for other GTD types, see p. 12-13

[illegible]

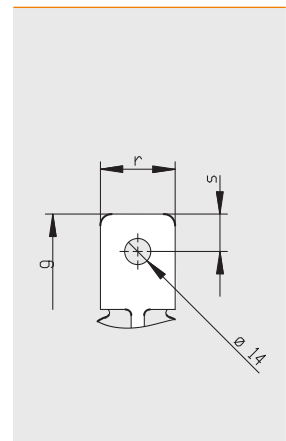
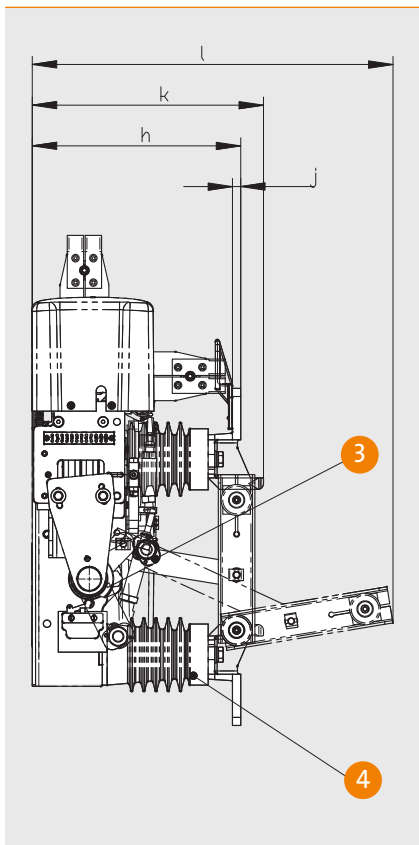
** Dimensions on request

f	g	h	j	k	l	m	m'	n	p	r	s	t	u	Type	
280	370	272	6	300	475	90	82	113	203	40	20	--	158	GTD 0.63 -17.5-03-275-L1	17.5 kV
280	370	272	6	300	475	90	82	113	203	40	20	--	158	GTD 0.63 -17.5-03-275-M1	
280	414	286	10	314	475	90	82	113	203	50	14	22	180	GTD 1.25 -17.5-03-275-M1	
280	440	300	10	385*	500	80	97	113	196	50	14	22	193	GTD 1.25 -17.5-03-275-P1	
280	440	300	10	385*	500	80	97	113	196	50	14	22	193	GTD 1.25 -17.5-03-275-R1	
280	414	286	10	314	475	90	82	113	203	50	14	22	180	GTD 1.60-17.5-03-275-M1	
280	440	300	10	385*	500	80	97	113	196	50	14	22	193	GTD 1.60-17.5-03-275-P1	
280	440	300	10	385*	500	80	97	113	196	50	14	22	193	GTD 1.60-17.5-03-275-R1	
340	570	319	22	350	555	80	97	113	203	80	20	40	228	GTD 2.50 -17.5-03-275-M1	
340	570	319	22	425*	555	80	97	113	196	80	20	40	228	GTD 2.50 -17.5-03-275-P1	
340	570	319	22	425*	555	80	97	113	196	80	20	40	228	GTD 2.50 -17.5-03-275-R1	
340	570	319	22	425*	555	80	97	113	196	80	20	40	228	GTD 3.15 -17.5-03-275-P1	
340	570	319	22	425*	555	80	97	113	196	80	20	40	228	GTD 3.15 -17.5-03-275-R1	
350	470	338	6	366	637	100	97	98	254	40	20	--	158	GTD 0.63 -24.0-03-275-L1	24 kV
350	514	352	10	380	637	100	97	98	254	50	14	22	180	GTD 1.25 -24.0-03-275-M1	
350	514	352	10	380	637	100	97	98	254	50	14	22	180	GTD 1.60-24.0-03-275-M1	
350	660	371	22	402	682	100	137	73	254	80	20	40	228	GTD 2.50 -24.0-03-300-M1	
450	570	452	6	480	852	100	102	93	343	40	20	--	153	GTD 0.63 -36.0-03-400-L1	36 kV
450	614	466	10	494	852	100	102	93	343	50	14	22	175	GTD 1.25 -36.0-03-400-M1	
450	750	485	22	516	890	100	132	78	343	80	20	22	228	GTD 2.50 -36.0-03-400-M1	
450	750	485	22	516	890	100	132	78	343	80	20	22	228	GTD 3.15 -36.0-03-420-M1	

* Incl. inlet aid



TYPE GTÖ



630 A

1250 A / 1600 A

2500 A / 3150 A

- 1 Connection screws
630 A: M12x45
1250 A / 1600 A: M12x60
2500 A / 3150 A: M12x80
- 2 Grounding screw
1x M12 630A / 1250 A / 1600 A
2x M12 2500 A / 3150 A
- 3 Switching angle 90°
- 4 Supporter
- 5 Motor drive
Weight of the drive 4.8 kg
- 5a Motor drive
- 6 Auxiliary switches
- 6a Auxiliary switches
- 7 Motor drive coupling
- A Cable connection
- B Crank handle connection
- Specify actuating voltage when ordering

Views without expansion joints

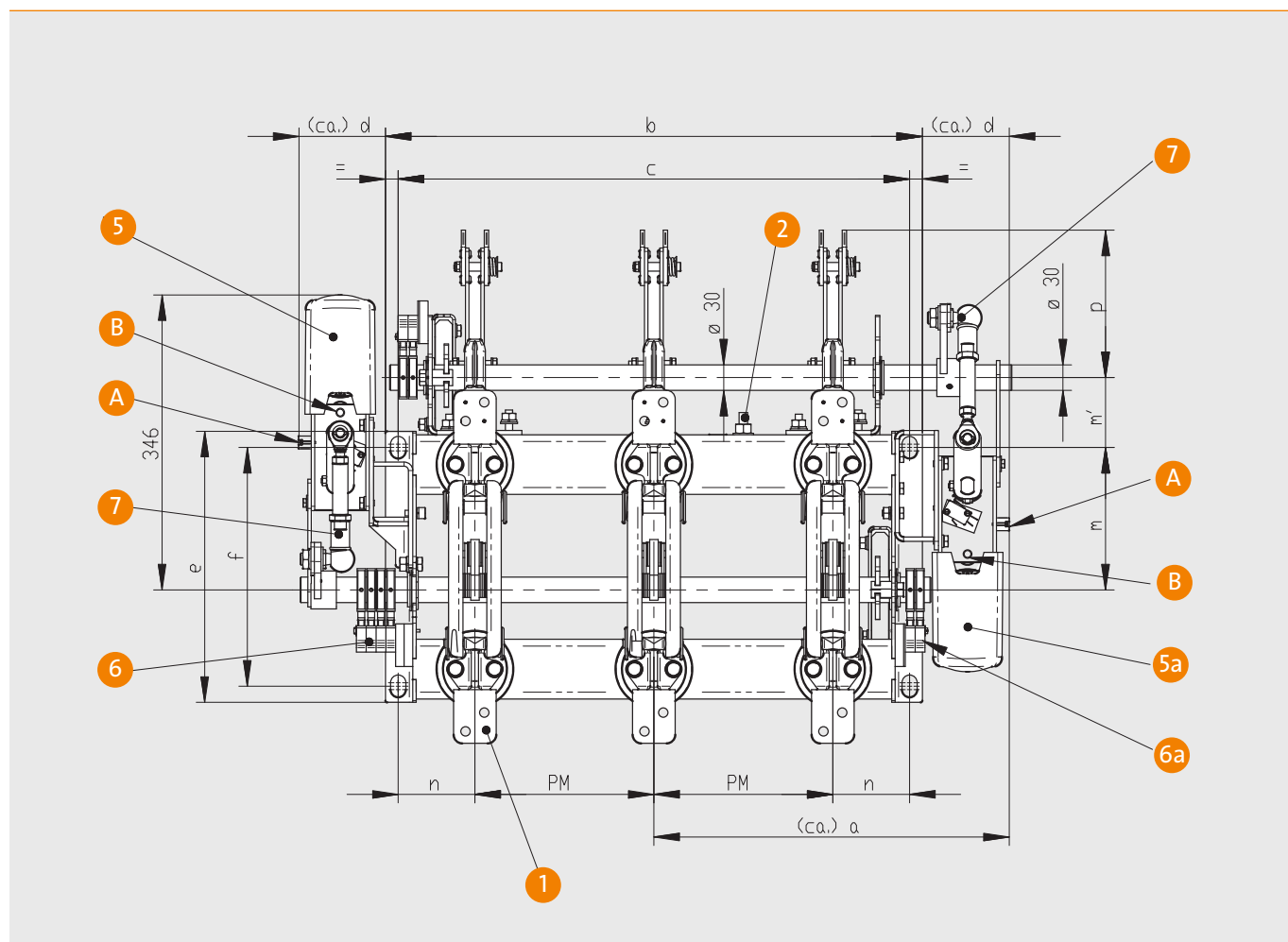
►► pto – for other GTÖ types, see p. 18-19

Type	U _n [kV]	U _p [kV]	U _d [kV]	I _n [kA]	I _{th} [kA]	I _{dyn} [kA]	Weight [kg]	PA	a	b	c	d	e
12 kV GTÖ 0.63 -12.0-03-150-L1	12	60	28	630	20	50	30	150	305	388	346	111	318
GTÖ 0.63 -12.0-03-150-M1	12	60	28	630	31,5	80	30	150	305	388	346	111	318
GTÖ 0.63 -12.0-03-210-L1	12	75	28	630	20	50	35	210	393	582	552	102	318
GTÖ 0.63 -12.0-03-210-L1	12	75	28	630	20	50	45	210	417	630	600	207	318
GTÖ 0.63 -12.0-03-210-M1	12	75	28	630	31,5	80	45	210	417	630	600	207	318
GTÖ 0.63 -12.0-03-210-M1	12	75	28	630	31,5	80	38	210	393	582	552	102	318
GTÖ 1.25 -12.0-03-150-M1	12	60	28	1250	31,5	80	33	150	305	388	346	111	318
GTÖ 1.25 -12.0-03-210-M1	12	75	28	1250	31,5	80	52	210	417	630	600	207	318
GTÖ 1.25 -12.0-03-210-P1	12	75	28	1250	50	125	67	210	399	618	580	90	348
GTÖ 1.25 -12.0-03-210-R1	12	75	28	1250	63	160	76	210	399	618	580	90	348
GTÖ 1.25 -12.0-03-210-M1	12	75	28	1250	31,5	80	43	210	393	582	552	102	318
GTÖ 1.60 -12.0-03-210-M1	12	75	28	1600	31,5	80	46	210	393	582	552	102	318
GTÖ 1.60 -12.0-03-210-M1	12	75	28	1600	31,5	80	52	210	417	630	600	207	318
GTÖ 1.60 -12.0-03-210-P1	12	75	28	1600	50	125	67	210	399	618	580	90	348
GTÖ 1.60 -12.0-03-210-R1	12	75	28	1600	63	160	76	210	399	618	580	90	348
GTÖ 2.50 -12.0-03-210-M1	12	75	28	2500	31,5	80	87	210	399	618	580	90	408
GTÖ 2.50 -12.0-03-210-P1	12	75	28	2500	50	125	93	210	399	618	580	90	408
GTÖ 2.50 -12.0-03-210-R1	12	75	28	2500	63	160	102	210	399	618	580	90	408
GTÖ 3.15 -12.0-03-210-P1	12	75	28	3150	50	125	95	230	419	658	620	90	408
GTÖ 3.15 -12.0-03-210-R1	12	75	28	3150	63	160	105	230	419	658	620	90	408

f	g	h	j	k	l	m	m'	n	p	r	s	t	u	Type	12 kV
280	414	268	6	296	470	23	82	113	173	40	20	--	158	GTÖ 0.63 -12.0-03-150-L1	12 kV
280	414	268	6	296	470	23	82	113	173	40	20	--	158	GTÖ 0.63 -12.0-03-150-M1	12 kV
280	370	242	6	270	445	66	82	113	173	40	20	--	158	GTÖ 0.63 -12.0-03-210-L1	12 kV
280	370	242	6	270	445	90	82	113	173	40	20	--	158	GTÖ 0.63 -12.0-03-210-L1	12 kV
280	370	242	6	270	445	90	82	113	173	40	20	--	158	GTÖ 0.63 -12.0-03-210-M1	12 kV
280	370	242	6	270	445	66	82	113	173	40	20	--	158	GTÖ 0.63 -12.0-03-210-M1	12 kV
280	414	282	10	310	470	23	82	113	173	50	14	22	180	GTÖ 1.25 -12.0-03-150-M1	12 kV
280	414	256	10	284	445	90	82	113	173	50	14	22	180	GTÖ 1.25 -12.0-03-210-M1	12 kV
280	440	270	10	355*	470	80	97	113	166	50	14	22	193	GTÖ 1.25 -12.0-03-210-P1	12 kV
280	440	270	10	355*	470	80	97	113	166	50	14	22	193	GTÖ 1.25 -12.0-03-210-R1	12 kV
280	414	256	10	284	445	66	82	113	173	50	14	22	180	GTÖ 1.25 -12.0-03-210-M1	12 kV
280	414	256	10	284	445	66	82	113	173	50	14	22	180	GTÖ 1.60 -12.0-03-210-M1	12 kV
280	414	256	10	284	445	90	82	113	173	50	14	22	180	GTÖ 1.60 -12.0-03-210-M1	12 kV
280	440	270	10	355*	470	80	97	113	166	50	14	22	193	GTÖ 1.60 -12.0-03-210-P1	12 kV
280	440	270	10	355*	470	80	97	113	166	50	14	22	193	GTÖ 1.60 -12.0-03-210-R1	12 kV
340	570	289	22	320	525	80	97	113	166	80	20	40	228	GTÖ 2.50 -12.0-03-210-M1	12 kV
340	570	289	22	395*	525	80	97	113	166	80	20	40	228	GTÖ 2.50 -12.0-03-210-P1	12 kV
340	570	289	22	395*	525	80	97	113	166	80	20	40	228	GTÖ 2.50 -12.0-03-210-R1	12 kV
340	570	289	22	395*	525	80	97	113	166	80	20	40	228	GTÖ 3.15 -12.0-03-210-P1	12 kV
340	570	289	22	395*	525	80	97	113	166	80	20	40	228	GTÖ 3.15 -12.0-03-210-R1	12 kV

* Incl. inlet aid

FLOHE ISOLATOR/GROUNDING CONNECTOR COMBINATION

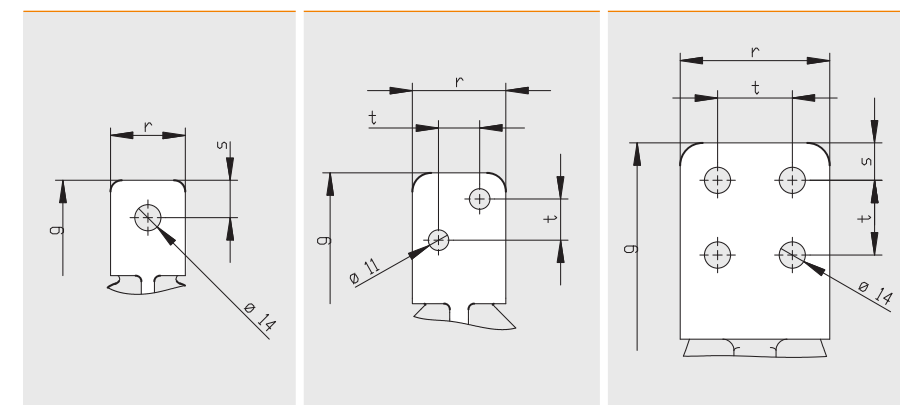
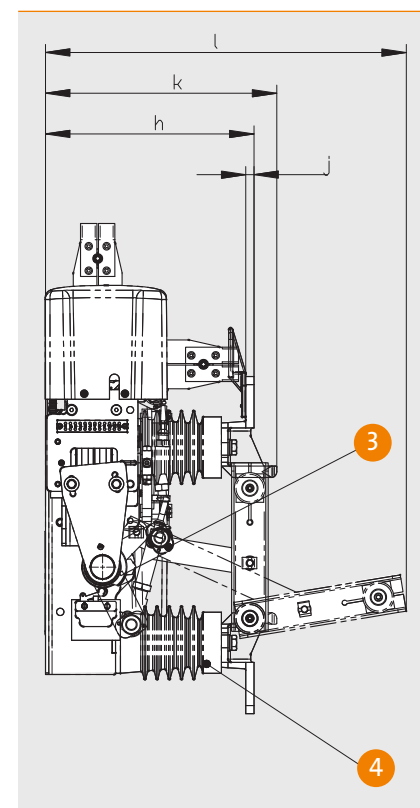


pto – for other GTÖ types, see p. 16-17

Type	U _n [kV]	U _p [kV]	U _d [kV]	I _n [kA]	I _{th} [kA]	I _{dyn} [kA]	Weight [kg]	PA	a	b	c	d	e
17.5 kV													
GTÖ 0.63 -17.5-03-275-L1	17,5	75	28	630	50	20	38	275	**	630	670	**	318
GTÖ 0.63 -17.5-03-275-M1	17,5	75	28	630	80	31,5	38	275	**	700	670	**	318
GTÖ 1.25 -17.5-03-275-M1	17,5	75	28	1250	80	31,5	55	275	**	700	670	**	318
GTÖ 1.25 -17.5-03-275-P1	17,5	75	28	1250	125	50	69	275	**	700	670	**	348
GTÖ 1.25 -17.5-03-275-R1	17,5	75	28	1250	160	63	78	275	**	700	670	**	348
GTÖ 1.60 -17.5-03-275-M1	17,5	75	28	1600	80	31,5	55	275	**	748	710	**	318
GTÖ 1.60 -17.5-03-275-P1	17,5	75	28	1600	125	50	69	275	**	748	710	**	348
GTÖ 1.60 -17.5-03-275-R1	17,5	75	28	1600	160	63	78	275	**	748	710	**	348
GTÖ 2.50 -17.5-03-275-M1	17,5	75	28	2500	80	31,5	84	275	**	748	710	**	408
GTÖ 2.50 -17.5-03-275-P1	17,5	75	28	2500	125	50	90	275	**	748	710	**	408
GTÖ 2.50 -17.5-03-275-R1	17,5	75	28	2500	160	63	95	275	**	748	710	**	408
GTÖ 3.15 -17.5-03-275-P1	17,5	75	28	3150	125	50	98	275	**	748	710	**	408
GTÖ 3.15 -17.5-03-275-R1	17,5	75	28	3150	160	63	108	275	**	748	710	**	408
24 kV													
GTÖ 0.63 -24.0-03-275-L1	24	125	50	630	50	20	58	275	523	788	750	130	418
GTÖ 1.25 -24.0-03-275-M1	24	125	50	1250	80	31,5	61	275	523	788	750	130	418
GTÖ 1.60 -24.0-03-275-M1	24	125	50	1600	80	31,5	70	275	523	788	750	130	418
GTÖ 2.50 -24.0-03-300-M1	24	125	50	2500	80	31,5	94	300	549	838	800	130	498
36 kV													
GTÖ 0.63 -36.0-03-400-L1	36	170	70	630	50	20	78	400	668	1038	1000	149	528
GTÖ 1.25 -36.0-03-400-M1	36	170	70	1250	80	31,5	82	400	668	1038	1000	149	528
GTÖ 2.50 -36.0-03-400-M1	36	170	70	2500	80	31,5	100	400	668	1038	1000	149	588
GTÖ 3.15 -36.0-03-420-M1	36	170	70	3150	80	31,5	120	420	688	1078	1040	149	588

** Dimensions on request

TYPE GTÖ



630 A

1250 A / 1600 A

2500 A / 3150 A

- | | | |
|--|---|---|
| 1 Connection screws
630 A: M12x45
1250 A / 1600 A: M12x60
2500 A / 3150 A: M12x80 | 5 Motor drive
Weight of the drive 4.8 kg | A Cable connection |
| 2 Grounding screw
1x M12 630A / 1250 A / 1600 A
2x M12 2500 A / 3150 A | 5a Motor drive | B Crank handle connection |
| 3 Switching angle 90° | 6 Auxiliary switches | |
| 4 Supporter | 6a Auxiliary switches | Specify actuating voltage when ordering |
| | 7 Motor drive coupling | |

Views without expansion joints

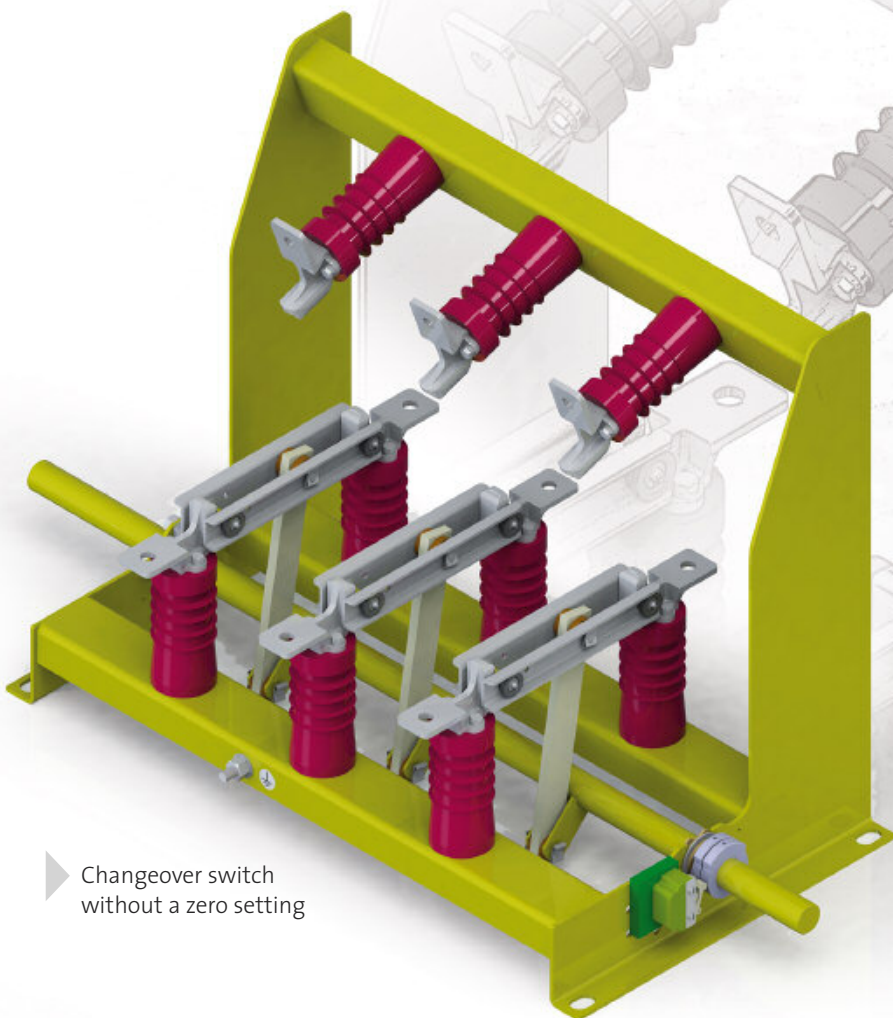
f	g	h	j	k	l	m	m'	n	p	r	s	t	u	Type
280	370	272	6	300	475	90	82	113	203	40	20	--	158	GTÖ 0.63 -17.5-03-275-L1
280	370	272	6	300	475	90	82	113	203	40	20	--	158	GTÖ 0.63 -17.5-03-275-M1
280	414	286	10	314	475	90	82	113	203	50	14	22	180	GTÖ 1.25 -17.5-03-275-M1
280	440	300	10	385*	500	80	97	113	196	50	14	22	193	GTÖ 1.25 -17.5-03-275-P1
280	440	300	10	385*	500	80	97	113	196	50	14	22	193	GTÖ 1.25 -17.5-03-275-R1
280	414	286	10	314	475	90	82	113	203	50	14	22	180	GTÖ 1.60 -17.5-03-275-M1
280	440	300	10	385*	500	80	97	113	196	50	14	22	193	GTÖ 1.60 -17.5-03-275-P1
280	440	300	10	385*	500	80	97	113	196	50	14	22	193	GTÖ 1.60 -17.5-03-275-R1
340	570	319	22	350	555	80	97	113	203	80	20	40	228	GTÖ 2.50 -17.5-03-275-M1
340	570	319	22	425*	555	80	97	113	196	80	20	40	228	GTÖ 2.50 -17.5-03-275-P1
340	570	319	22	425*	555	80	97	113	196	80	20	40	228	GTÖ 2.50 -17.5-03-275-R1
340	570	319	22	425*	555	80	97	113	196	80	20	40	228	GTÖ 3.15 -17.5-03-275-P1
340	570	319	22	425*	555	80	97	113	196	80	20	40	228	GTÖ 3.15 -17.5-03-275-R1
350	470	338	6	366	637	100	97	98	254	40	20	--	158	GTÖ 0.63 -24.0-03-275-L1
350	514	352	10	380	637	100	97	98	254	50	14	22	180	GTÖ 1.25 -24.0-03-275-M1
350	514	352	10	380	637	100	97	98	254	50	14	22	180	GTÖ 1.60 -24.0-03-275-M1
350	660	371	22	402	682	100	137	73	254	80	20	40	228	GTÖ 2.50 -24.0-03-300-M1
450	570	452	6	480	852	100	102	93	343	40	20	--	153	GTÖ 0.63 -36.0-03-400-L1
450	614	466	10	494	852	100	102	93	343	50	14	22	175	GTÖ 1.25 -36.0-03-400-M1
450	750	485	22	516	890	100	132	78	343	80	20	22	228	GTÖ 2.50 -36.0-03-400-M1
450	750	485	22	516	890	100	132	78	343	80	20	22	228	GTÖ 3.15 -36.0-03-420-M1

* Incl. inlet aid

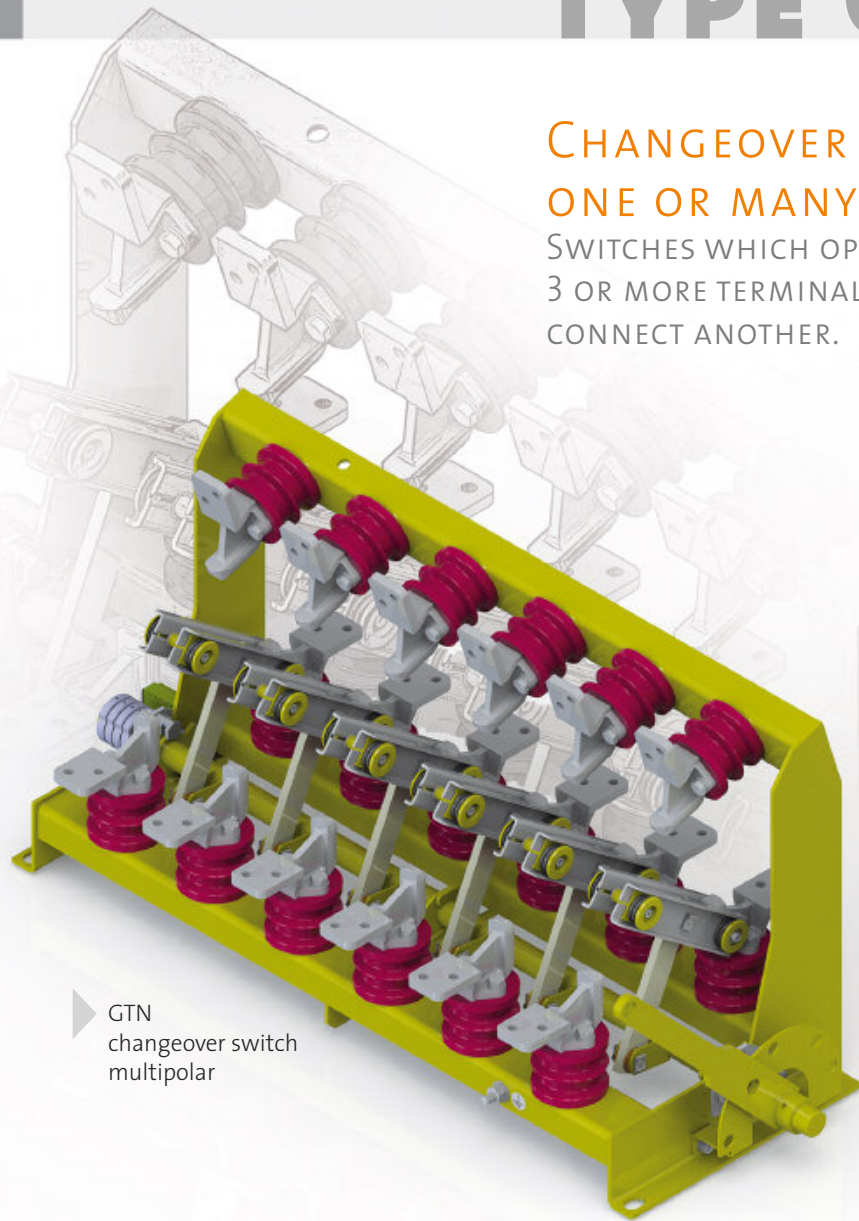
TYPE GTU/GTN

CHANGEOVER SWITCH (CHANGER) ONE OR MANY POLES

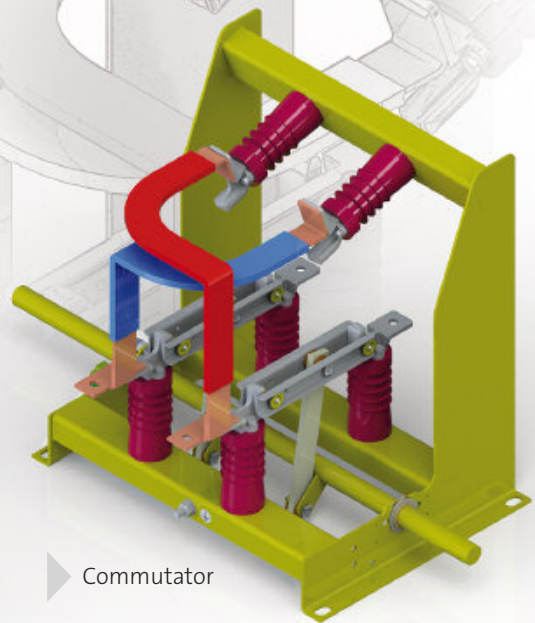
SWITCHES WHICH OPEN A CIRCUIT WITH
3 OR MORE TERMINALS SIMULTANEOUSLY
CONNECT ANOTHER.



Changeover switch
without a zero setting



GTN
changeover switch
multipolar



Commutator

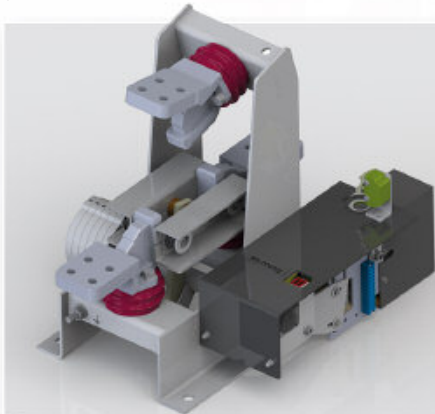
THERE ARE 4 VARIANTS

- **GTU** ▶ Changeover switch without a zero setting: makes a contact in every position
- **GTN** ▶ Changeover switch with a zero position: has 3 defined positions
- **GTP** ▶ Commutator without a zero position: change from plus to minus
- **GTPN** ▶ Commutator with a zero setting: from plus to minus

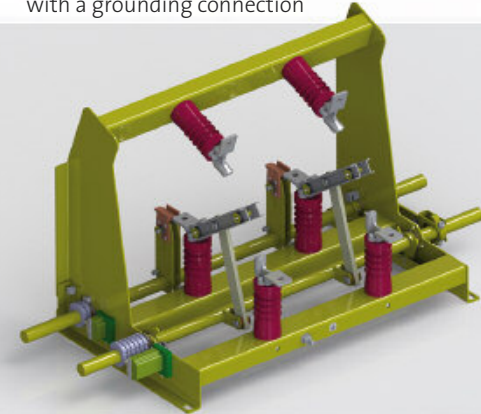
The technical connection requirements for medium voltage equipment apply.
The technical data is based on the empty isolators GT
(for the dimension sheets, see page 6 et seq.).

The units can be delivered at voltage levels between 500 V and 40,5 kV.
Currents up to 12,000 A are possible. Devices with more than 3 poles are always
available on request (see the diagram on page 21).

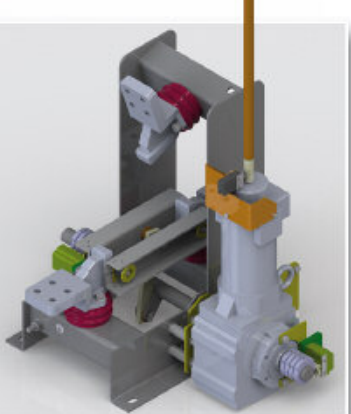
GTU with position indicator

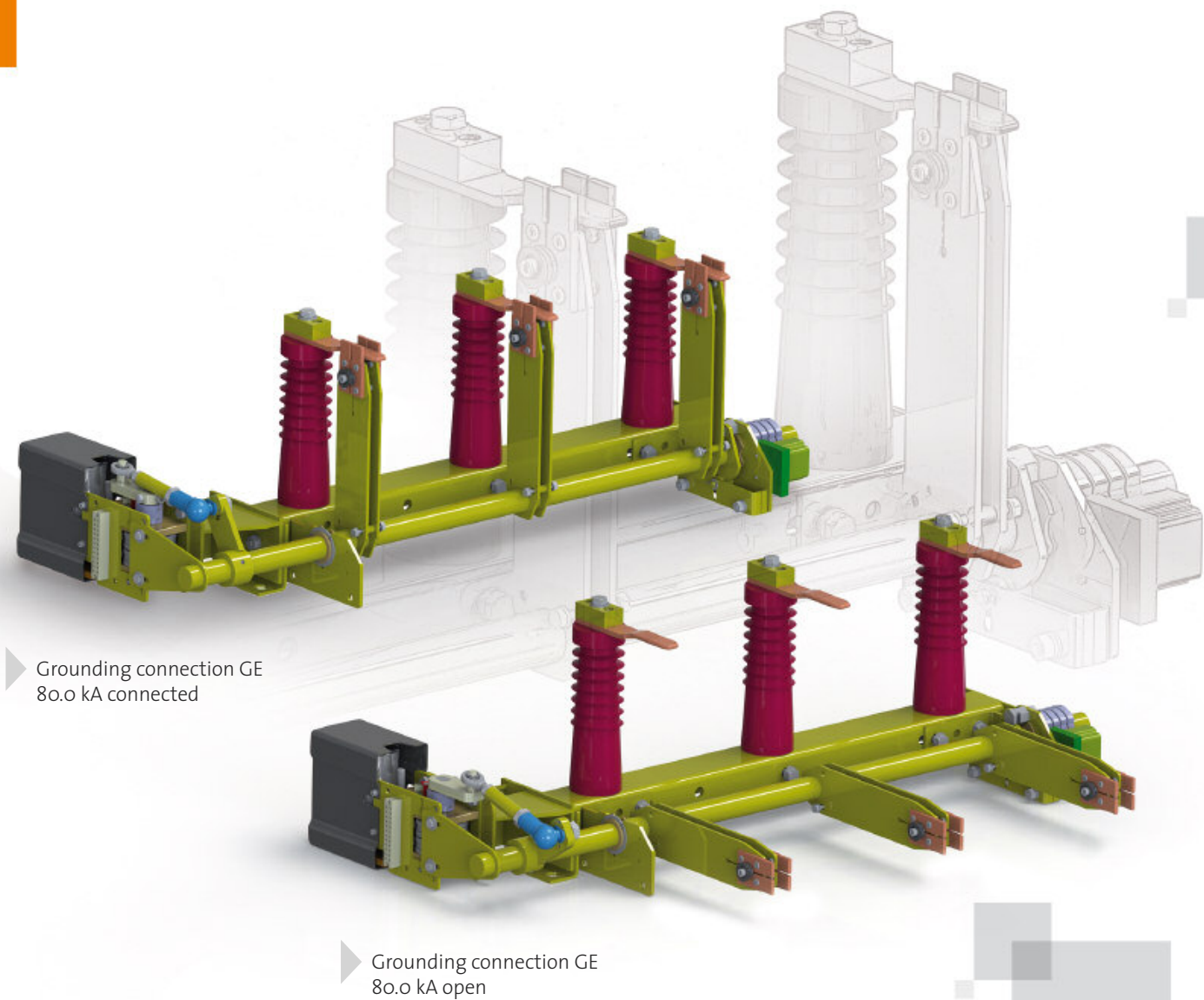


GTUE changeover switch
with a grounding connection



GTU with an AC drive





PROPERTIES...

SERVICE LIFE

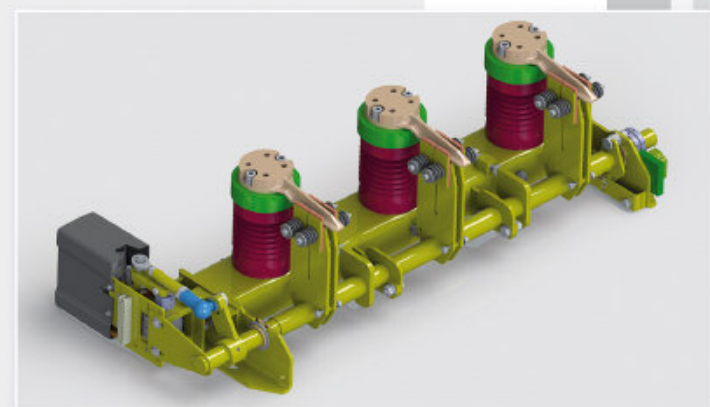
- As a rule, the grounding switches are connected relatively little. A high number of switching operations are not envisaged on account of the standard devices. The mechanical service life, which mainly due to wear and tear is 5,000 switching operations among grounding connections. A higher number of switching operations (up to 25,000) are available on request.

SHORT CIRCUIT RESISTANCE

- The short circuit resistance of the grounding connections is tested in accordance with IEC (VDE).

Equipment is offered with a rated voltage of 500 V to 40.5 kV and a rated peak current of up to 160 kA.

GE grounding connection
with a motor drive



INFORMATION ON THE RATING PLATE

FLOHE Schaltgeräte GmbH			
GE080.0-36.0-03-425-M-A04-B33-E06			
Series-Nr.	A12513/S205230	-001	
IEC 62271-102	Zg-Nr.	WF16	15808
U _i	36.0 kV	I _e	0.00 kA
U _p	170 kV	I _p	80 kA
U _s	70 kV	I _s	31.5 kA /1s

Note:

When asking questions in order to determine spare parts, additional deliveries, etc. the following four pieces of information are required:

- Type
- Factory no.
- Type indicator
- Year



TYPE GE

GROUNDING CONNECTION WHICH CAN BE POWERED UP

THE OBJECT OF THE GROUNDING CONNECTION IS TO GROUND AFTER OPENING THE CIRCUIT.

In the case of multi-pole grounding connections, the poles are additionally shorted together. In the case of grounding connections, grounding connections which cannot be powered up and grounding connections which can be powered up must be distinguished. In the standard, the differences are reflected in the designation.

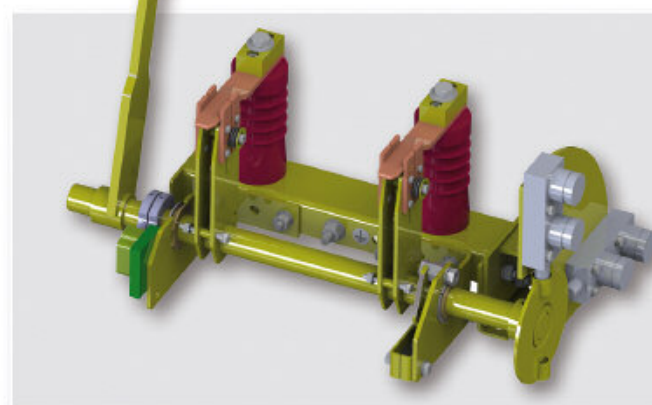
The Eo grounding connection is a connection which can be powered up, i.e. this grounding connection cannot be connected when voltage is applied (when they are live).

THE GROUNDING SWITCHES ARE PROVIDED FOR INTERIOR APPLICATIONS UP TO A RATED VOLTAGE OF 40.5 kV.

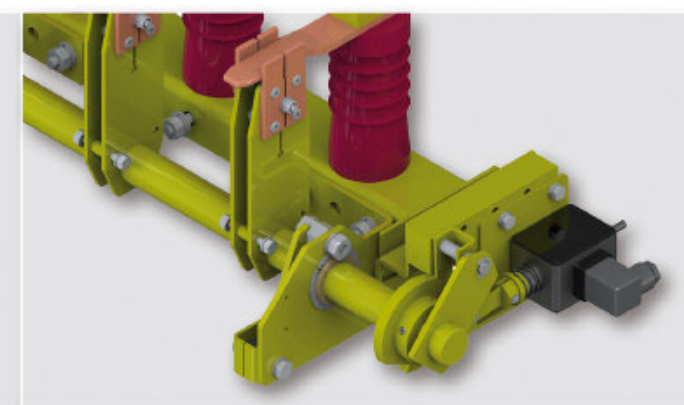
Through the use of insulators which have a ribbing, the grounding switches can also be used in areas where there is high humidity and occasional condensation. As such, use in the tropics is not a problem.

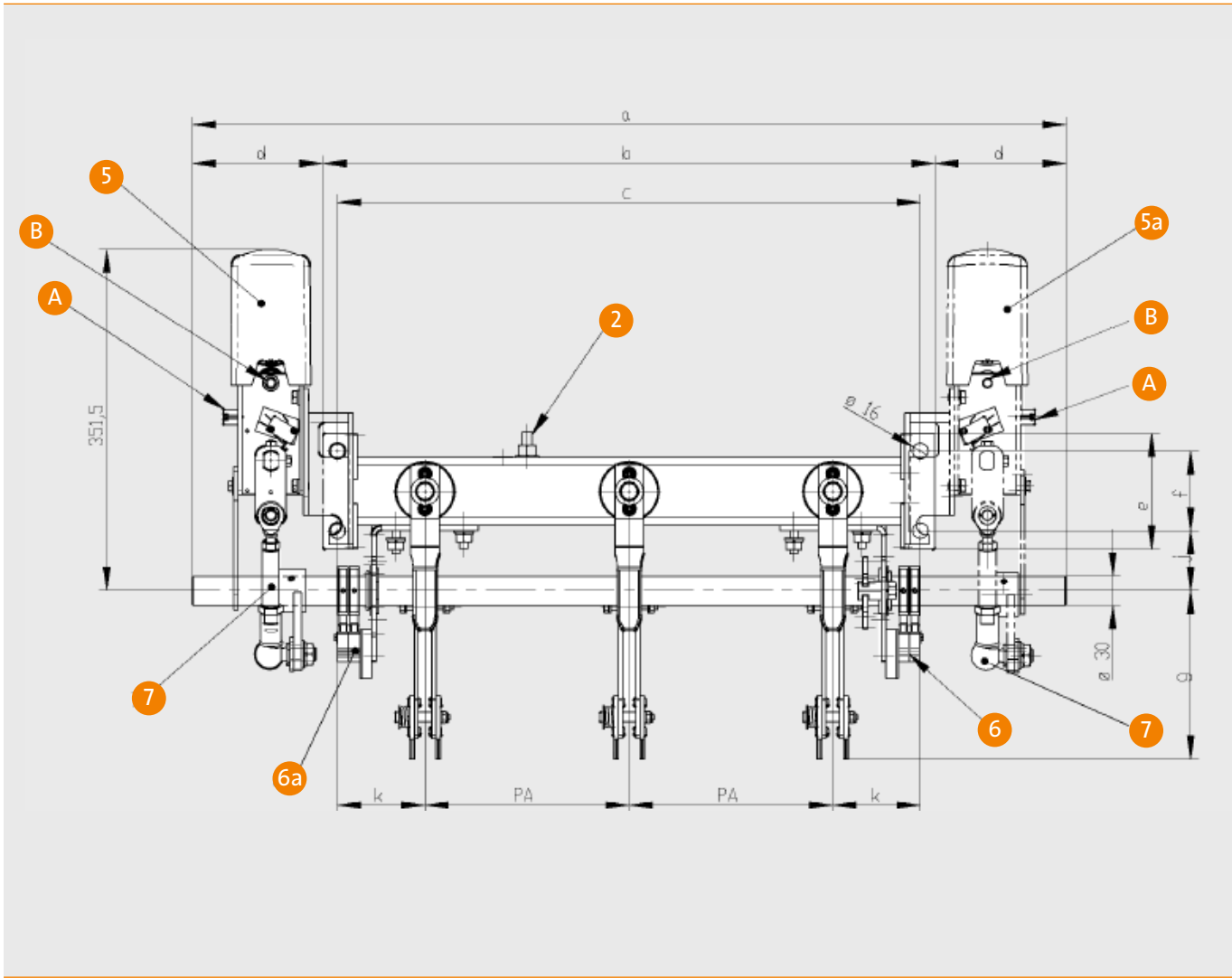
The switching devices can be installed in a horizontal position, i.e. a wall mounting, standing on the floor or hanging from the ceiling. The horizontal position based on the position of the switch shaft.

GE grounding connection
with a Castell lock

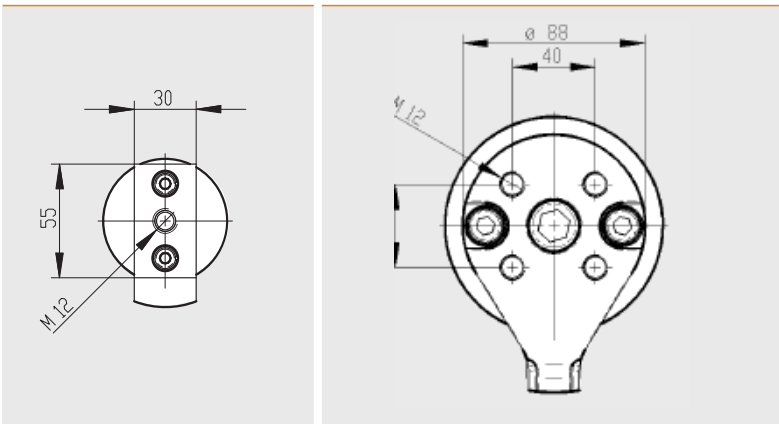
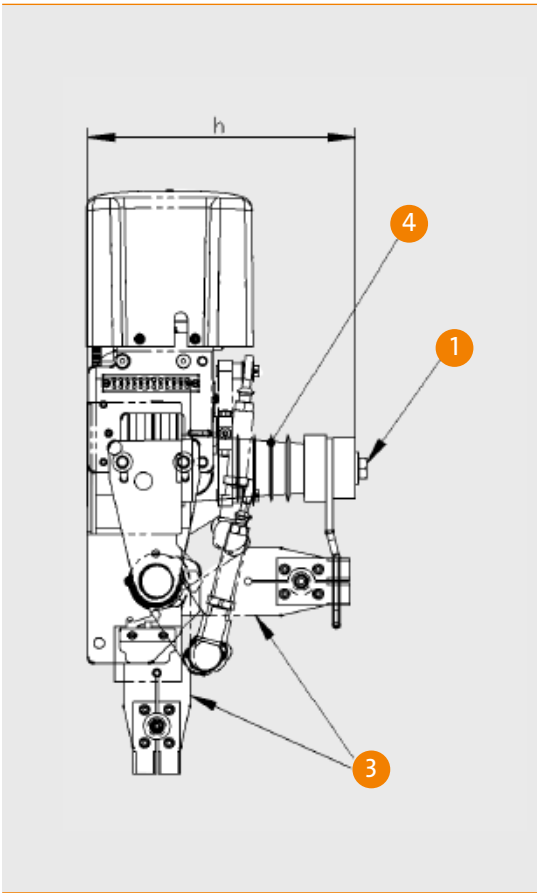


GE grounding connection
with electromechanical locking magnet





TYPE GE



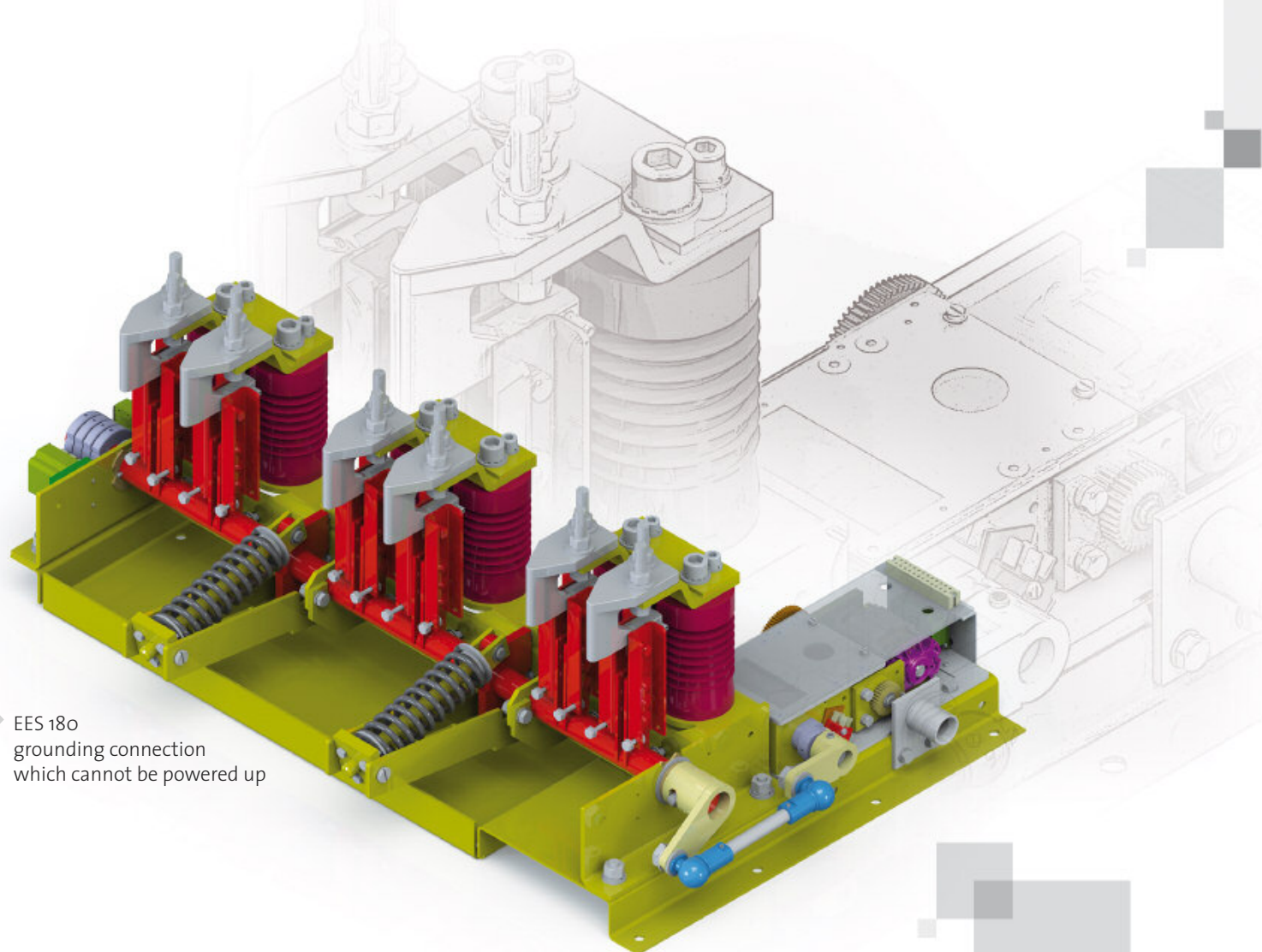
50 kA / 80 kA 125 kA

- 1 Connection screws
50 A / 80 kA: M12
125 kA: M12
- 2 Grounding screw
1x M12 50 kA / 80 kA
2x M12 125 kA
- 3 Switching angle 90°
- 4 Supporter
- 5 Motor drive
Weight of the drive 4.8 kg
- 5a Motor drive
Optional position
- 6 Auxiliary switches
- 6a Auxiliary switches
Optional position
- 7 Motor drive coupling
- A Cable connection
- B Crank handle connection
Specify actuating voltage
when ordering

Views without expansion joints

Type		U _n [kV]	U _p [kV]	U _d [kV]	I _{dyn} [kA]	I _{th} [kA]	Weight [kg]	PA	a
12 kV	GE 050.0-12.0-03-210-L	12	75	28	50	20	13,5	210	900
	GE 080.0-12.0-03-210-M	12	75	28	80	31,5	13,5	210	900
	GE 125.0-12.0-03-210-P	12	75	28	125	50	32	210	880
	GE 160.0-12.0-03-210-R	12	75	28	160	63	38	210	880
	GE 050.0-12.0-03-150-L	12	60	28	50	20	19	150	590
	GE 080.0-12.0-03-150-M	12	60	28	80	31,5	19	150	590
	GE 050.0-12.0-03-210-L	12	75	28	50	20	12,5	210	780
	GE 080.0-12.0-03-210-M	12	75	28	80	31,5	12,5	210	780
	GE 125.0-12.0-03-210-P	12	75	28	125	50	31,5	210	780
24 kV	GE 050.0-24.0-01-L	24	125	50	50	20	7		580
	GE 080.0-24.0-01-M	24	125	50	80	31,5	7		580
	GE 050.0-24.0-03-275-L	24	125	50	50	20	20	275	1130
	GE 080.0-24.0-03-275-M	24	125	50	80	31,5	20	275	1130
	GE 050.0-24.0-03-210-L	24	95	50	50	20	19	210	780
	GE 080.0-24.0-03-210-M	24	95	50	80	31,5	19	210	780
36 kV	GE 050.0-36.0-03-400-L	36	170	70	50	20	31	400	1550
	GE 080.0-36.0-03-400-M	36	170	70	80	31,5	31	400	1550

b	c	d	e	f	g	h	j	k	Type	
630	600	135	119	82	173	241	42,5	90	GE 050.0-12.0-03-210-L	12 kV
630	600	135	119	82	173	241	42,5	90	GE 080.0-12.0-03-210-M	
618	580	131	200	162	166	255	36	80	GE 125.0-12.0-03-210-P	
618	580	131	200	162	166	255	36	80	GE 160.0-12.0-03-210-R	
388	346	101	120	82	173	268	82	23	GE 050.0-12.0-03-150-L	
388	346	101	120	82	173	268	82	23	GE 080.0-12.0-03-150-M	
582	552	99	120	82	173	241	61	66	GE 050.0-12.0-03-210-L	
582	552	99	120	82	173	241	61	66	GE 080.0-12.0-03-210-M	
618	580	81	200	162	166	255	36	80	GE 125.0-12.0-03-210-P	
238	200	171	120	82	253	321	61	100	GE 050.0-24.0-01-L	24 kV
238	200	171	120	82	253	321	61	100	GE 080.0-24.0-01-M	
788	750	171	120	82	253	321	61	100	GE 050.0-24.0-03-275-L	
788	750	171	120	82	253	321	61	100	GE 080.0-24.0-03-275-M	
618	580	81	120	82	253	332	61	80	GE 050.0-24.0-03-210-L	
618	580	81	120	82	253	332	61	80	GE 080.0-24.0-03-210-M	
1038	1000	256	120	82	343	411	61	100	GE 050.0-36.0-03-400-L	36 kV
1038	1000	256	120	82	343	411	61	100	GE 080.0-36.0-03-400-M	



EES 180 grounding connection which cannot be powered up

PROPERTIES...

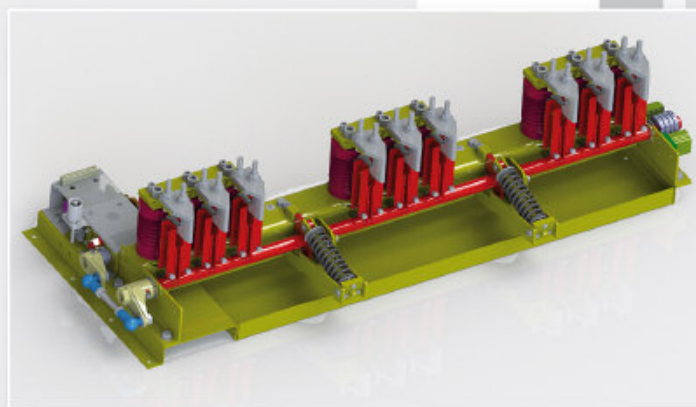
SERVICE LIFE

- As a rule, the grounding switches are connected relatively rarely. Due to this, a high number of switching operations are not envisaged among standard devices.

The mechanical service life, which is mainly due to the wear and tear of the contacts, is 500 switching operations in the case of grounding connections which cannot be powered up.

A high number of switching operations (up to 25.000) is possible upon request.

Grounding connection which cannot be powered up $I_p=210$ kA



INFORMATION ON THE RATING PLATE

FLOHE Schaltgeräte GmbH			
EES160.0-17.5-03-275-R-A64E58-G3-D			
Series-Nr.	A12458/S204955	-001	
IEC 62271-102	Zg-Nr.	WF16_2044	
U_n 17,5 kV	I_n 0,00 kA	fr	50/60Hz
U_k 95 kV	I_k 160 kA	Bj	2016
U_g 38 kV	I_g 63,0 kA /1s	M	60 kg

Note:

When asking questions in order to determine spare parts, additional deliveries, etc. the following four pieces of information are required:

- Type
- Factory no.
- Type indicator
- Year



TYPE EES

GROUNDING SWITCHES

ARE ESSENTIAL FOR THE SAFETY OF PERSONS.

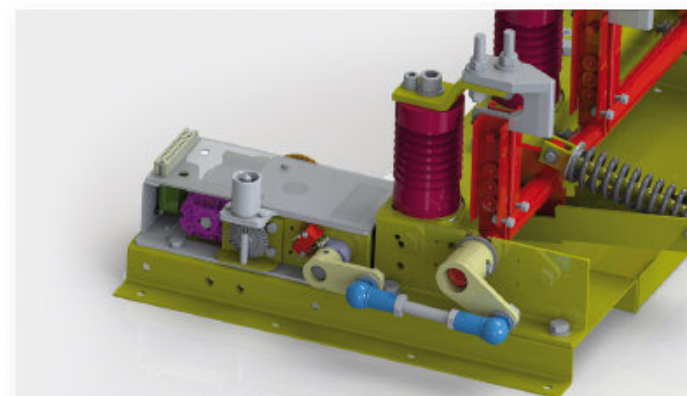
These kind of switching devices are used to protect staff at work on equipment, which are normally live. Therefore, they must be very reliable and safely operated – even under difficult operating conditions.

The object of the grounding connection is to ground after opening the circuit. In the case of multi-pole grounding connections, the poles are additionally shorted together. Among grounding connections, a distinction is made between grounding connections which can and cannot be powered up. In the standard, the differences are reflected in the designation. In the case of classes E1 and E2, these are grounding connections which cannot be powered up and can be connected when a voltage is applied.

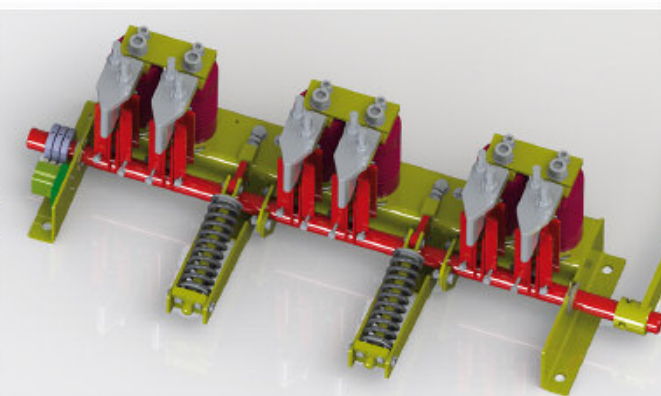
The grounding connections in the EES series are three-pole switching devices with a spring operated snap-action mechanism for powering up. As a rule, powering down is performed manually. The grounding connections are available for the rated voltages of 12 kV to 40.5 kV. The standard devices are designed for installation in interior-switching plant and tested in accordance with VDE 0670 – part 6, IEC 298 and VDE 0101.

In addition to the standard equipment, special designs are available, e.g. 1- or 2-pole devices. However devices with up to 12 poles are possible, which are adapted to the respective requirements. The standard units can be equipped with motor drive.

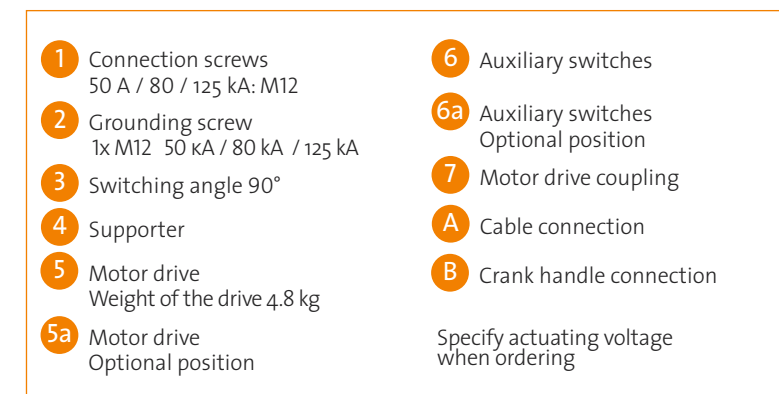
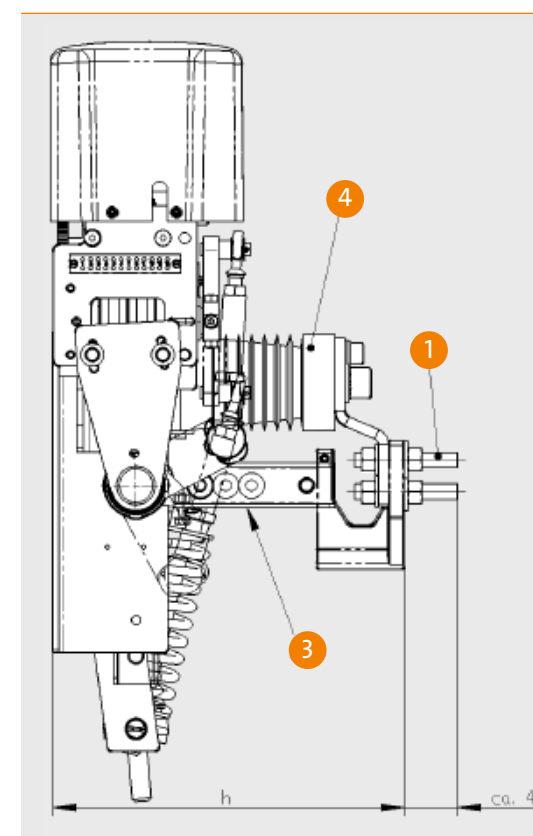
Grounding connections which cannot be powered up with a motor drive
Emergency manual crank operation from the top / front



Grounding connections which cannot be powered up with a manual lever



TYPE EES

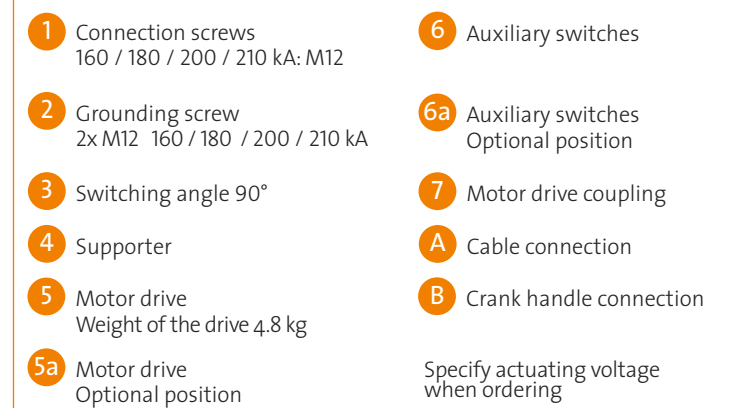
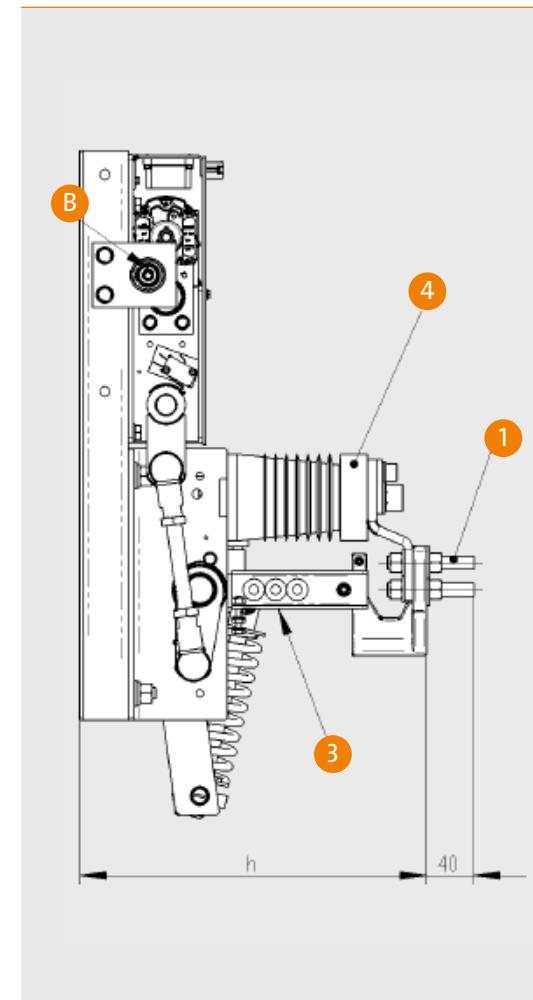


Views without expansion joints

b	c	d	e	f	g	h	j	k	Type	
510	470	99	250	200	155	274	105	60	EES 050.0-12.0-03-175-L	12 kV
580	540	99	250	200	155	274	105	60	EES 050.0-12.0-03-210-L	
510	470	99	250	200	155	274	105	60	EES 080.0-12.0-03-175-M	
580	540	99	250	200	155	274	105	60	EES 080.0-12.0-03-210-M	
510	470	99	250	200	155	274	105	60	EES 125.0-12.0-03-175-P	
580	540	99	250	200	155	274	105	60	EES 125.0-12.0-03-210-P	
580	540	**	250	200	185	304	105	60	EES 050.0-17.5-03-210-L	17.5 kV
710	670	**	250	200	185	304	105	60	EES 050.0-17.5-03-275-L	
580	540	**	250	200	185	304	105	60	EES 080.0-17.5-03-210-M	
710	670	**	250	200	185	304	105	60	EES 080.0-17.5-03-275-M	
580	540	**	250	200	185	304	105	60	EES 125.0-17.5-03-210-P	
710	670	**	250	200	185	304	105	60	EES 125.0-17.5-03-275-P	
760	720	134	250	200	235	354	95	85	EES 050.0-24.0-03-275-L	24 kV
810	770	134	250	200	235	354	95	85	EES 050.0-24.0-03-300-L	
760	720	134	250	200	235	354	95	85	EES 080.0-24.0-03-275-M	
810	770	134	250	200	235	354	95	85	EES 080.0-24.0-03-300-M	
760	720	134	250	200	235	354	95	85	EES 125.0-24.0-03-275-P	
810	770	134	250	200	235	354	95	85	EES 125.0-24.0-03-300-P	
1040	1000	154	250	200	325	444	95	100	EES 050.0-36.0-03-400-L	36 kV
1040	1000	154	250	200	325	444	95	100	EES 080.0-36.0-03-400-M	
1040	1000	154	250	200	325	444	95	100	EES 125.0-36.0-03-400-P	

** Dimensions on request

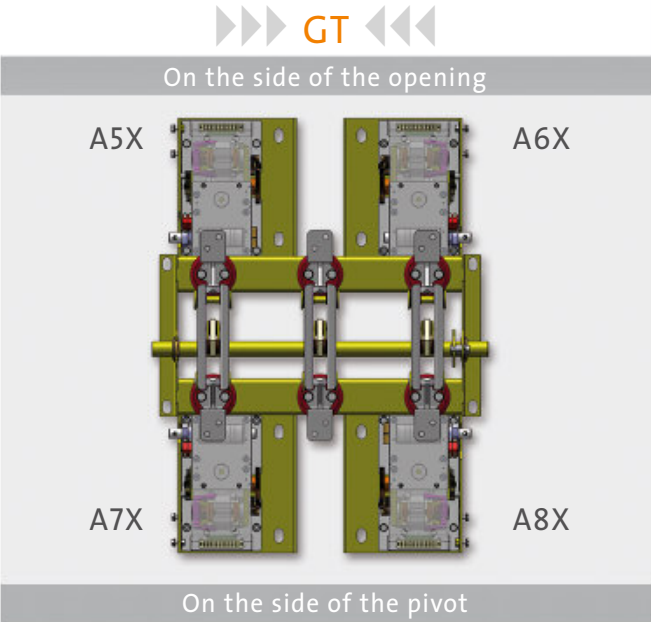
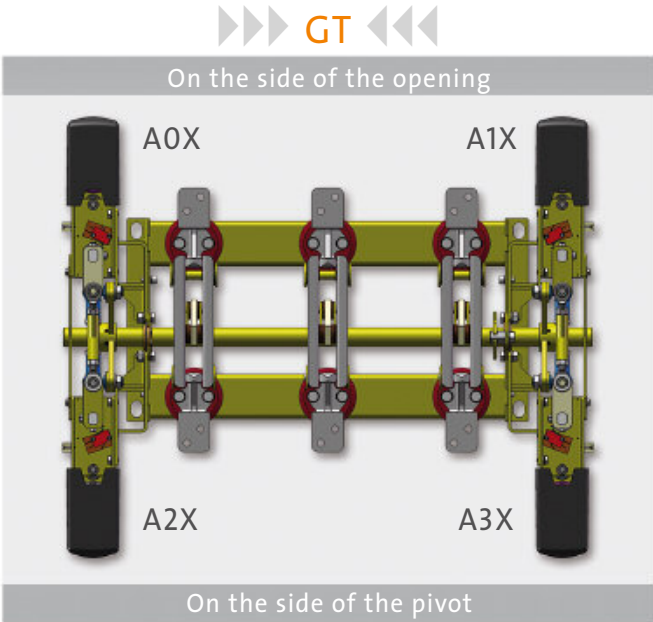
TYPE EES



◀◀◀ pto – for other EES types, see p. 28-29

c	d	e	e'	f	g	h	j	k	Type	
782	572	525	250	160	155	319	95	153	EES 160.0-12.0-03-275-R	12 kV
832	622	525	250	160	155	319	95	153	EES 160.0-12.0-03-300-R	
782	572	525	250	160	155	319	95	153	EES 180.0-12.0-03-275-S	
832	622	525	250	160	155	319	95	153	EES 180.0-12.0-03-300-S	
782	572	525	250	160	155	319	95	153	EES 200.0-12.0-03-275-T	
832	622	525	250	160	155	319	95	153	EES 200.0-12.0-03-300-T	
1019	799	525	250	160	155	319	95	197	EES 210.0-12.0-03-350-W	
1259	1039	525	250	160	155	319	95	197	EES 210.0-12.0-03-470-W	
720	732	525	250	160	235	399	95	153	EES 160.0-24.0-03-360-R	24 kV
770	812	525	250	160	235	399	95	153	EES 160.0-24.0-03-400-R	
720	732	525	250	160	235	399	95	153	EES 180.0-24.0-03-360-S	
770	812	525	250	160	235	399	95	153	EES 180.0-24.0-03-400-S	
720	732	525	250	160	235	399	95	153	EES 200.0-24.0-03-360-T	
770	812	525	250	160	235	399	95	153	EES 200.0-24.0-03-400-T	
1259	1039	525	250	160	235	399	95	197	EES 210.0-24.0-03-470-W	

ISOLATOR MOTOR DRIVE



POWER

IS FORMED ON THE DRIVE SHAFT BY THE MOTOR VIA A GEAR WHEEL WHICH, BOLTED ONTO THE MOTOR SHAFT, DRIVES A GEAR STAGE.

- In turn, the gear stage powers eccentric shaft via a plastic gear wheel, which intervenes in two rockers. When the eccentric shaft is set in rotation, the two rockers are displaced in a pendulum motion. As the rockers surround the drive shaft and are provided with a freewheel, the drive shaft is rotated by itself over a partial range with every swinging motion of the rocker. As both rockers are installed opposite to each other, a rocker runs empty, i.e. back, while the second continues to rotate the drive shaft slightly. As such, the freewheels transmit the force and/or the rotational movement of the drive shaft. As these movements are performed very quickly, this results in a rotational movement of the drive shaft. This design results in the technical feature that the drive releases the rotational movement in one direction.
- The 2 piece de-energising contacts of the motor are actuated via cams which sit directly on the drive shaft. There is a different de-energising behaviour depending on the operating voltage, i.e. the time until the motor comes to a stand, is different.
- The motor drives are not designed for continuous operation i.e. 1-2 minutes should pass between the individual operations.

MOTOR DRIVE Axx

Motor voltages	
24 V DC	x = 1
48 V DC	x = 2
60 V DC	x = 3
110 V DC	x = 4
125 V DC	x = 5
220 V DC	x = 6
110 V AC	x = 7
125 V AC	x = 8
230 V AC	x = 9

IS USED AS THE MAIN SWITCHING SHAFT OF THE SWITCHING DEVICE.

BASICALLY, THERE ARE TWO TYPES OF DRIVES:

- Firstly, there are drives mounted in a vertical embodiment of the switching device i.e. the drive is secured laterally on the base frame of the switching device.
- The second option is the flat drive, which is mounted in a straight line on the device behind the current paths.
- Further, the drive can also be installed separately from the switching device. The drive of the switching device is then performed via a connecting shaft and corresponding adapter pieces.

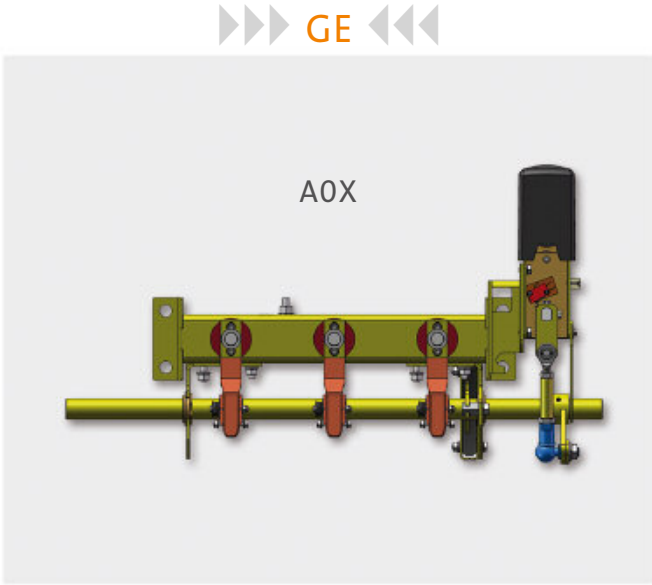
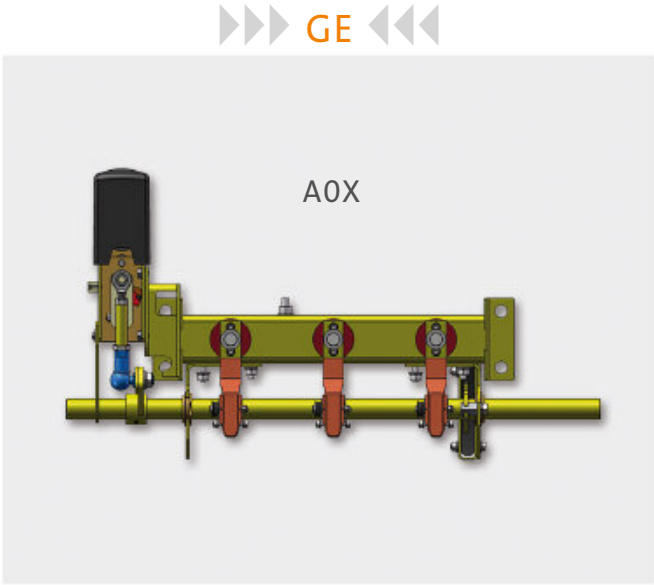
In all design variants, the motor drives comply with the VDE regulations 0530, built with insulation class B. The protection class of the drives is IP 00 in accordance with DIN 40050.

As standard, the drives are available with voltages between 24 V DC and 230 V AC. Depending on the motor voltage, there are different rated currents and torques. Drives with voltages above 230 V AC can be supplied as well, however the design is significantly different from the standard drive.

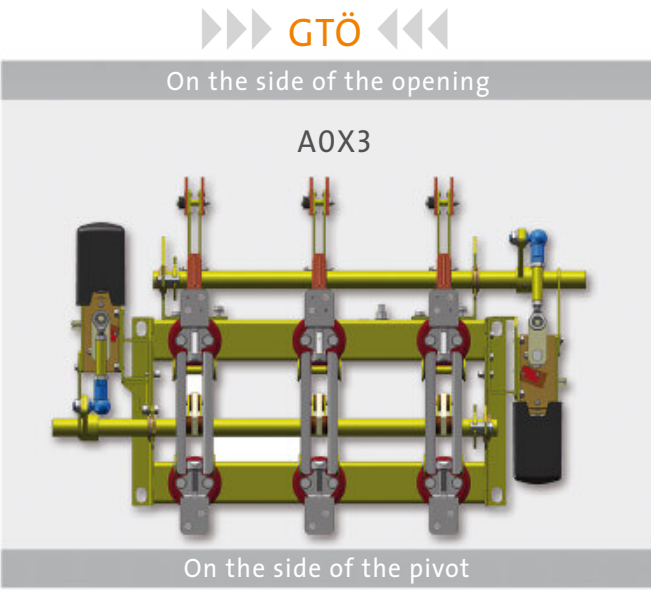
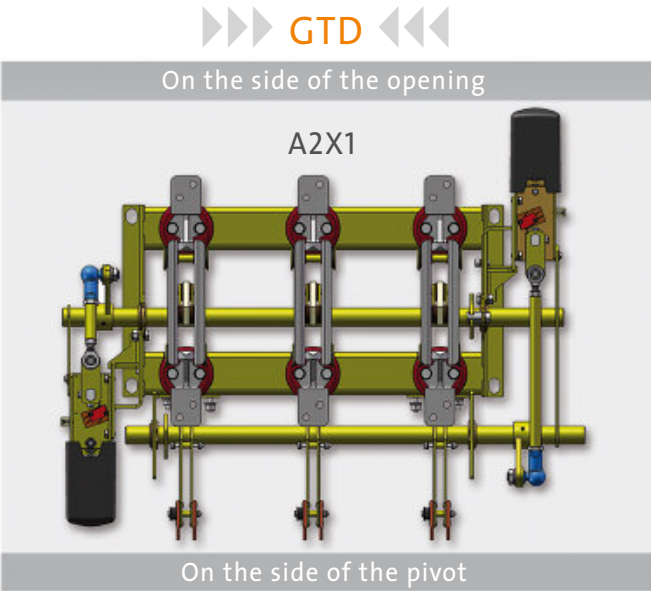
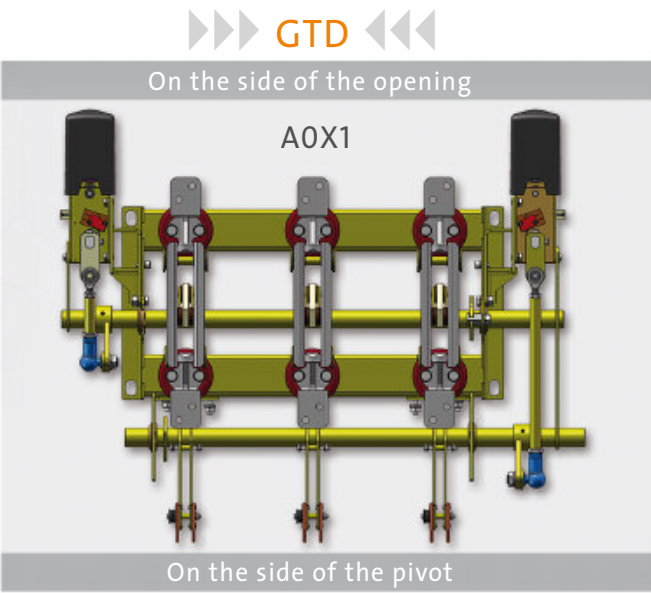
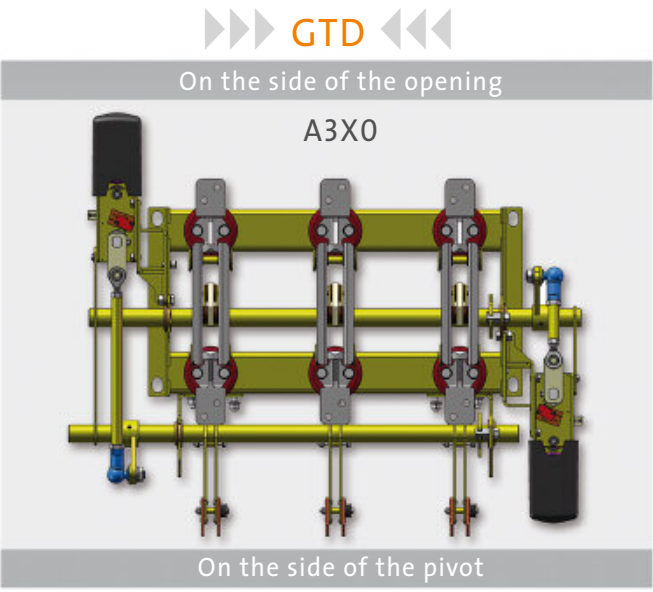
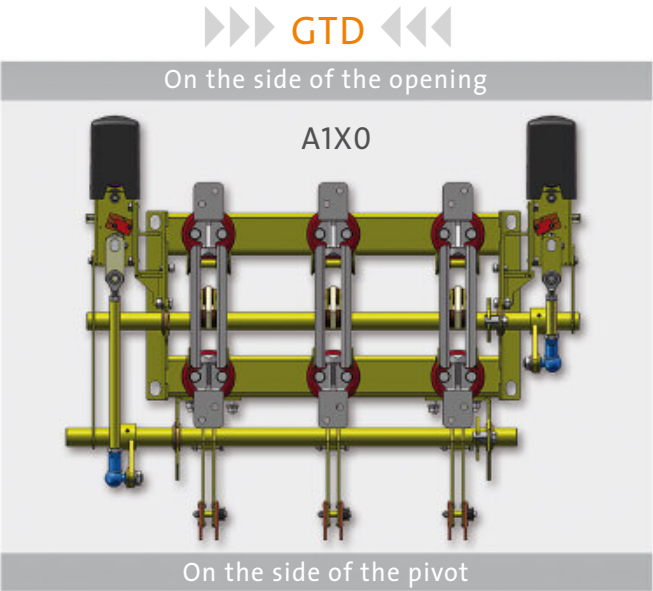
THE BASIC STRUCTURE OF THE DRIVES...

consists of two steel plates which are bolted to the bearing plates. The bearing bores for the eccentric shaft and the main drive shaft are incorporated in the bearing plates. The actual drive motor is mounted above the eccentric shaft. It is a universal motor. The motors can be designated with different voltages (see table). The motor is directly wired to the central, easily accessible terminal block.

MOTOR DRIVE OF GROUNDING CONNECTOR



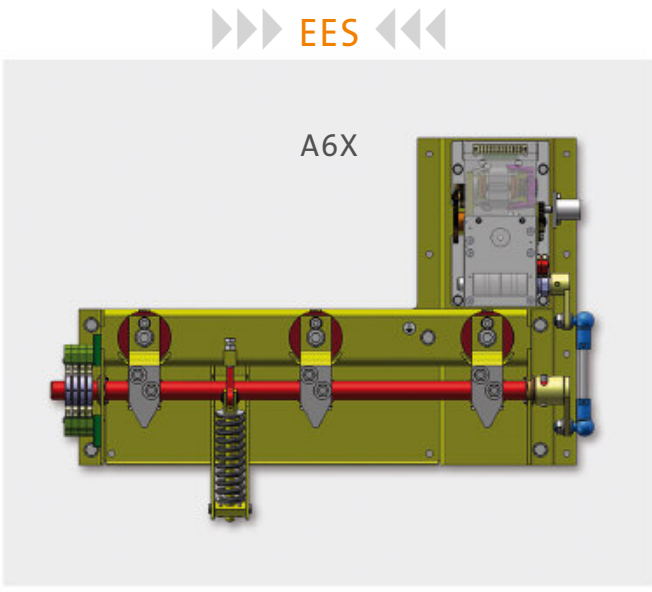
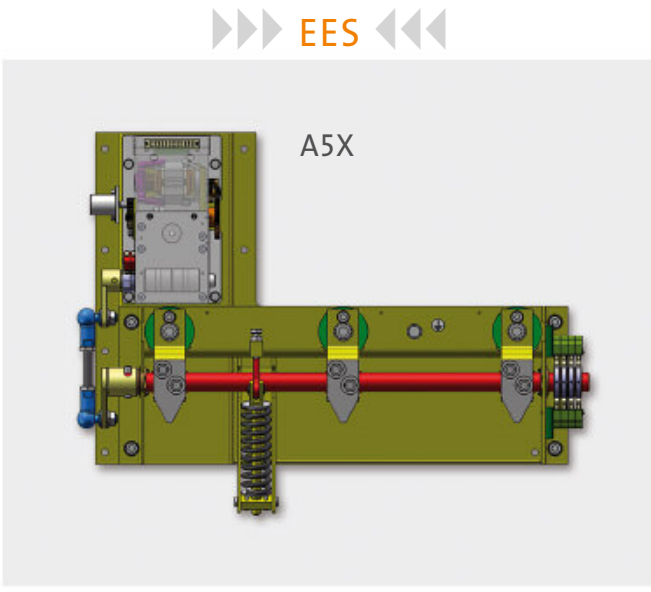
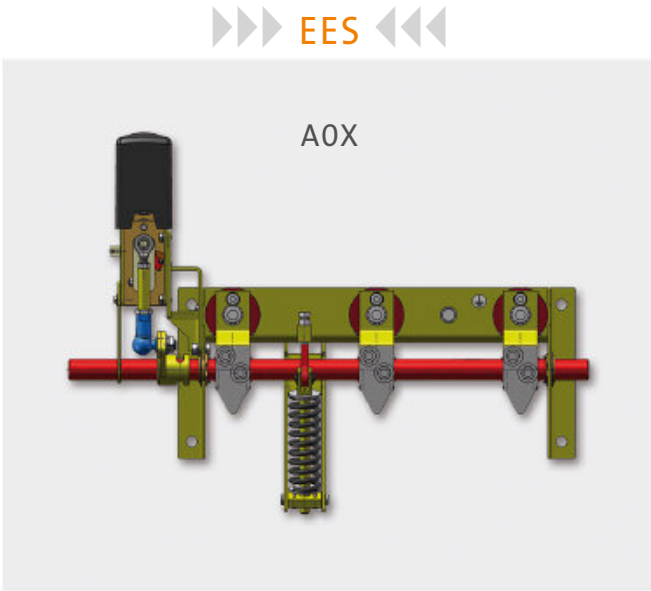
MOTOR DRIVE OF
ISOLATOR/GROUNDING
COMBINATION



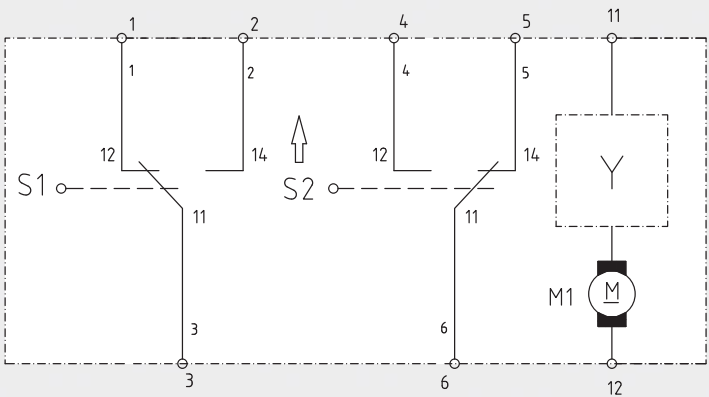
MOTOR
DRIVE Axx

Motor voltages	
24 V DC	x = 1
48 V DC	x = 2
60 V DC	x = 3
110 V DC	x = 4
125 V DC	x = 5
220 V DC	x = 6
110 V AC	x = 7
125 V AC	x = 8
230 V AC	x = 9

MOTOR DRIVE OF GROUNDING CONNECTION
WHICH CANNOT BE POWERED UP



MOTOR DRIVE MA 1.2 + 2.2 MA WITH A TERMINAL STRIP X1



Motor drive [MA1.2 / MA2.2] for switch "off" position of the disconnecting and grounding switch [Version 2 de-energising contacts]

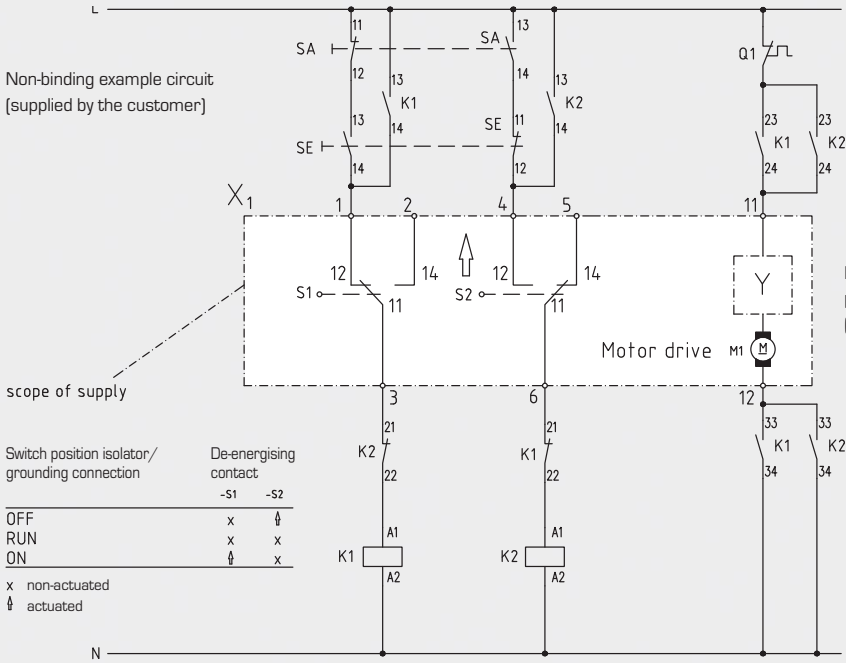
Switch position isolator/ grounding connection	De-energising contact	
	-S1	-S2
OFF	x	↓
RUN	x	x
ON	↓	x
x non-actuated ↓ actuated		

M1	Motor
S1, S2	Command release contact
Y	Motorbrake device

Circuit board connection motor MA1.2			
green	white	blue	black
1	2	3	4

Circuit board connection motor MA2.2			
green	white	blue	black
1	2	3	4

NON-BINDING EXAMPLE CIRCUIT

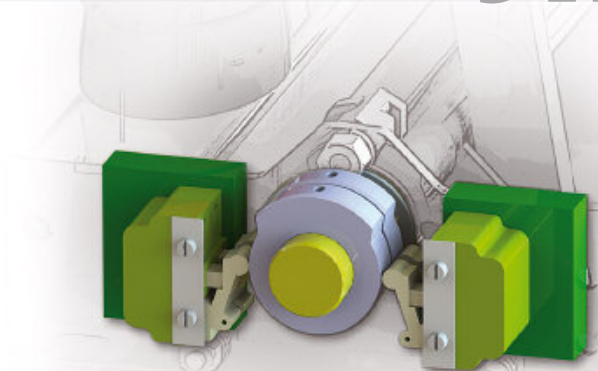


Motor drive [MA1.2 / MA2.2] for switch "off" position of the disconnecting and grounding switch [Version 2 de-energising contacts]

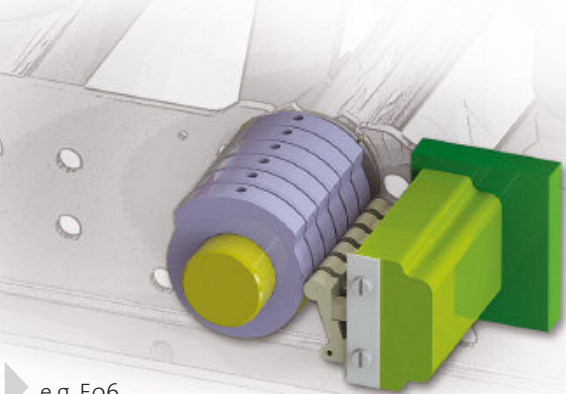
Switch position isolator/ grounding connection	De-energising contact	
	-S1	-S2
OFF	x	↓
RUN	x	x
ON	↓	x
x non-actuated ↓ actuated		

M1	Motor
S1,S2	Position switch on the motor drive
Y	Motor brake device
SA	Isolator/Grounding connection off
SE	Isolator/Grounding connection on
Q1	Motor protection switch

AUXILIARY SWITCHES



e.g. E54
4 auxiliary switches with 2 cams



e.g. Eo6
6 auxiliary switches with 6 cams

AUXILIARY SWITCH WITH
2S + 2Ö OR **6S + 6Ö**
CAN BE MOUNTED ON THE ISOLATORS
AND GROUNDING SWITCHES.

With the motor drive, the auxiliary switch
is on the side facing away from motor.
The rated current is 10 A.

STANDARDS

The isolators and grounding switches
conform to the following standards and
recommendations:

- DIN VDE o67o part 2
- DIN VDE o111 part 1
- IEC 129
- IEC 62271-1 (formerly IEC 6o694)

Auxiliary switches GT / GTU / GTN / GE / EES				Auxiliary switches GTD / GTÖ			
1S + 1Ö ON THE ISOLATOR	WITH 1 CAM	E01		1S + 1Ö ON THE ISOLATOR	1S + 1Ö ON THE GROUNDING CONNec.	EACH WITH 1 CAM	E01
2S + 2Ö ON THE ISOLATOR	WITH 2 CAMS	E02		2S + 2Ö ON THE ISOLATOR	2S + 2Ö ON THE GROUNDING CONNec.	EACH WITH 2 CAMS	E02
3S + 3Ö ON THE ISOLATOR	WITH 3 CAMS	E03		3S + 3Ö ON THE ISOLATOR	3S + 3Ö ON THE GROUNDING CONNec.	EACH WITH 3 CAMS	E03
4S + 4Ö ON THE ISOLATOR	WITH 4 CAMS	E04		4S + 4Ö ON THE ISOLATOR	4S + 4Ö ON THE GROUNDING CONNec.	EACH WITH 4 CAMS	E04
5S + 5Ö ON THE ISOLATOR	WITH 5 CAMS	E05		6S + 6Ö ON THE ISOLATOR	6S + 6Ö ON THE GROUNDING CONNec.	EACH WITH 6 CAMS	E06
6S + 6Ö ON THE ISOLATOR	WITH 6 CAMS	E06		8S + 8Ö ON THE ISOLATOR	8S + 8Ö ON THE GROUNDING CONNec.	EACH WITH 8 CAMS	E08
7S + 7Ö ON THE ISOLATOR	WITH 7 CAMS	E07		3S + 3Ö ON THE ISOLATOR	2S + 2Ö ON THE GROUNDING CONNec.	WITH 3 + 2 CAMS	E21
8S + 8Ö ON THE ISOLATOR	WITH 8 CAMS	E08		6S + 6Ö ON THE ISOLATOR	2S + 2Ö ON THE GROUNDING CONNec.	WITH 6 + 2 CAMS	E22
9S + 9Ö ON THE ISOLATOR	WITH 9 CAMS	E09		6S + 6Ö ON THE ISOLATOR	4S + 4Ö ON THE GROUNDING CONNec.	WITH 6 + 4 CAMS	E23
10S + 10Ö ON THE ISOLATOR	WITH 10 CAMS	E10		8S + 8Ö ON THE ISOLATOR	2S + 2Ö ON THE GROUNDING CONNec.	WITH 8 + 2 CAMS	E24
12S + 12Ö ON THE ISOLATOR	WITH 12 CAMS	E12		4S + 4Ö ON THE ISOLATOR	2S + 2Ö ON THE GROUNDING CONNec.	WITH 4 + 2 CAMS	E25
16S + 16Ö ON THE ISOLATOR	WITH 16 CAMS	E16					
2S + 2Ö ON THE ISOLATOR	WITH 1 CAM	E52		2S + 2Ö ON THE ISOLATOR	2S + 2Ö ON THE GROUNDING CONNec.	EACH WITH 1 CAM	E52
3S + 3Ö ON THE ISOLATOR	WITH 2 CAMS	E53		3S + 3Ö ON THE ISOLATOR	3S + 3Ö ON THE GROUNDING CONNec.	EACH WITH 2 CAMS	E53
4S + 4Ö ON THE ISOLATOR	WITH 2 CAMS	E54		4S + 4Ö ON THE ISOLATOR	4S + 4Ö ON THE GROUNDING CONNec.	EACH WITH 2 CAMS	E54
5S + 5Ö ON THE ISOLATOR	WITH 3 CAMS	E55					
6S + 6Ö ON THE ISOLATOR	WITH 3 CAMS	E56		6S + 6Ö ON THE ISOLATOR	6S + 6Ö ON THE GROUNDING CONNec.	EACH WITH 3 CAMS	E56
7S + 7Ö ON THE ISOLATOR	WITH 4 CAMS	E57					
8S + 8Ö ON THE ISOLATOR	WITH 4 CAMS	E58		8S + 8Ö ON THE ISOLATOR	8S + 8Ö ON THE GROUNDING CONNec.	EACH WITH 4 CAMS	E58
9S + 9Ö ON THE ISOLATOR	WITH 5 CAMS	E59					
10S + 10Ö ON THE ISOLATOR	WITH 5 CAMS	E60		6S + 6Ö ON THE ISOLATOR	2S + 2Ö ON THE GROUNDING CONNec.	WITH 3 + 1 CAMS	E71
12S + 12Ö ON THE ISOLATOR	WITH 6 CAMS	E62		6S + 6Ö ON THE ISOLATOR	4S + 4Ö ON THE GROUNDING CONNec.	WITH 3 + 4 CAMS	E72
16S + 16Ö ON THE ISOLATOR	WITH 8 CAMS	E66		8S + 8Ö ON THE ISOLATOR	8S + 8Ö ON THE GROUNDING CONNec.	WITH 4 + 8 CAMS	E73

MANUAL LEVER...

DIRECT, MANUAL SHAFT ACTUATION

▶▶▶ METAL MANUAL LEVER

▶▶▶ PLASTIC MANUAL LEVER (insulated)

▶▶▶ METAL SWITCHING ROD LEVER

▶▶▶ PLASTIC SWITCHING ROD LEVER (insulated)



EMERGENCY MANUAL LEVERS...

FOR MOTOR DRIVES

▶▶▶ EMERGENCY MANUAL LEVER
NHLØ20x600 · NHLØ20x800
NHLØ20x1000

▶▶▶ EMERGENCY MANUAL LEVER
NHLØ30x600 · NHLØ30x800
NHLØ30x1500

▶▶▶ EMERGENCY MANUAL LEVER
NHL Berlin embodiment

▶▶▶ EMERGENCY MANUAL LEVER
NHL Ø20x670
1x universal joint

▶▶▶ EMERGENCY MANUAL LEVER
NHL Ø20x630 · 1x universal joint
and a square socket 12x12mm

▶▶▶ EMERGENCY MANUAL LEVER
NHL Ø20x1680 · 4x universal joint and
a square socket 12x12mm



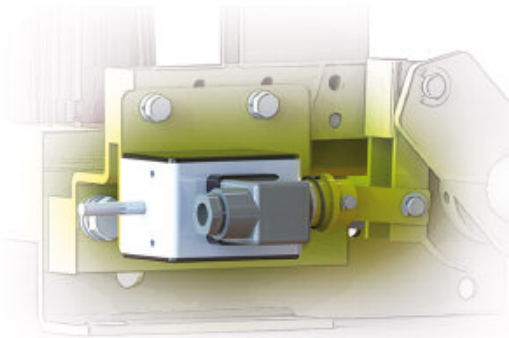
ADDITIONAL EQUIPMENT

MANUAL DRIVES

INSTEAD OF ACTUATION WITH A MOTOR, THE SWITCHING SHAFT CAN BE ACTUATED BY HAND.

Actuation by means of a switching rod depends on the mounting position and accessibility. Switching rods are made of a fibreglass reinforced polyester tube and can be used in systems with rated AC voltage over 1 kV. With them, the switching rod lever, mounted on the switching shaft is operated (available as accessory). Switching rod levers made of insulating material are used in cases where the required minimum distances are undershot. For fixing in the end positions, a sprung notch is always provided in the switching rod actuation (see Locking mechanisms).

Voltages Electromechanical interlock	
24 V DC	C01
48 V DC	C02
60 V DC	C03
110 V DC	C04
125 V DC	C05
220 V DC	C06
110 V AC	C07
125 V AC	C08
230 V AC	C09



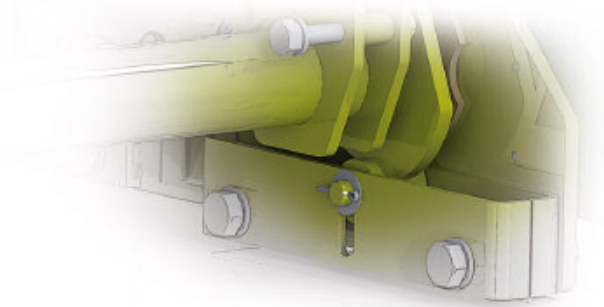
ELECTROMECHANICAL INTERLOCK

- Electromechanical interlocks can be mounted on all isolators and grounding switches without power drive.
- In the case of non-energised magnet, the interlocks lock the switch in the end positions. In the inter-mediate position, the lockout is not effective.
- The solenoids are suitable for permanent connection.

LOCKING MECHANISMS

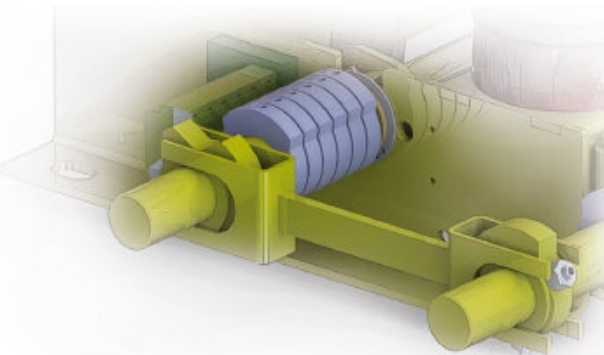
CATCH

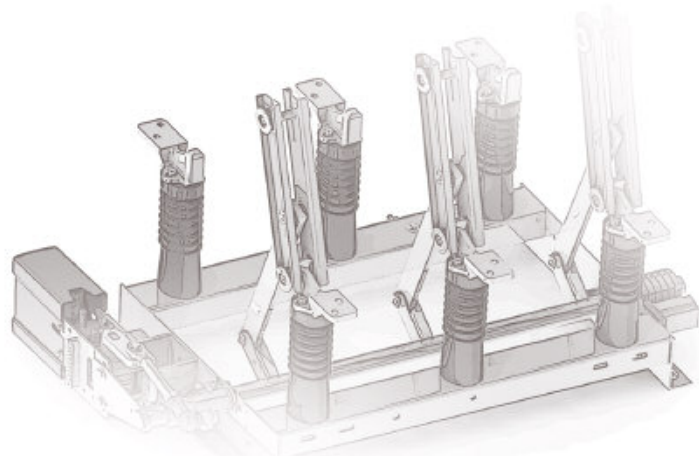
- For isolator and grounding switches, a catch is available, which spring snaps into the end positions.
- This catch is envisaged when actuating this switch manually with a shift bar.



MECHANICAL LOCKING

- The isolator with a mounted grounding switch can be fitted with a mechanical lock if the grounding switch is actuated by means of a switching rod.
- Switchgear with power drive must be interlocked with the associated driving means so that operation can be prevented. For this purpose, an auxiliary switch is required on the part, without a power drive.
- If neither the isolator nor the mounted grounding switch have a power drive, the mechanical lock can also be used in connection with an electromechanical interlock. The electromechanical interlock is then mounted to the isolator.





NAME: GT ISOLATOR

1	2	3	4	5	A	B	C	E	G	D	X

1 Switch type	
Isolator	GT
Changeover switch without a zero setting	GTU
Changeover switch with a zero setting	GTN
Rated current	
0.63 kA	0.63
1.25 kA	1.25
1.60 kA	1.60
2.50 kA	2.50
3.15 kA	3.15
4.00 kA	4.00
5.00 kA	5.00
6.30 kA	6.30
8.00 kA	8.00
12.0 kA	12.0

2 Rated voltage	
1.50 kV	1.50
3.60 kV	3.60
7.20 kV	7.20
12.0 kV	12.0
17.5 kV	17.5
24.0 kV	24.0
36.0 kV	36.0
40.5 kV	40.5

3 Number of poles	01
Selectable between 01 and 12	... 12

4 Pole centre	
e.g. 90 mm	090
e.g. 150 mm	150
e.g. 275 mm	275

5 Rated short term current I_k	
20 kA	L
25 kA	B
31.5 kA	M
40 kA	N
50 kA	P
63 kA	R
72 kA	S
75 kA	T
85 kA	W
Factor for surge current	
2.50	1
2.74	2
Short-time current 3 seconds	3

A Motor drive and position	A
Top left / upright design	0
Top right / upright design	1
Bottom left / upright design	2
Bottom right / upright design	3
Top left / flat design	5
Top right / flat design	6
Bottom left / flat design	7
Bottom right / flat design	8
Motor voltage	
24 V DC	1
48 V DC	2
60 V DC	3
110 V DC	4
125 V DC	5
220 V DC	6
110 V AC	7
125 V AC	8
230 V AC	9
Special voltage	X
pneumatic	P
manual	M
Manual lever / Switch rod lever	H
Bowden cable lug	Z

B Locking / Catch	B
on the isolator	31

C Blocking magnet / Electromech. interlock	C
Voltage	
24 V DC	01
48 V DC	02
60 V DC	03
110 V DC	04
125 V DC	05
220 V DC	06
110 V AC	07
125 V AC	08
230 V AC	09

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E Auxiliary switches (LYING IN A ROW)	E
1S + 1Ö on the isolator with 1 cam	01
2S + 2Ö on the isolator with 2 cams	02
3S + 3Ö on the isolator with 3 cams	03
4S + 4Ö on the isolator with 4 cams	04
6S + 6Ö on the isolator with 6 cams	06
8S + 8Ö on the isolator with 8 cams	08
9S + 9Ö on the isolator with 9 cams	09
12S + 12Ö on the isolator with 12 cams	12
16S + 16Ö on the isolator with 16 cams	16
etc.	
(OPPOSITE)	
2S + 2Ö on the isolator with 1 cam	52
3S + 3Ö on the isolator with 2 cams	53
4S + 4Ö on the isolator with 2 cams	54
6S + 6Ö on the isolator with 3 cams	56
8S + 8Ö on the isolator with 4 cams	58
9S + 9Ö on the isolator with 5 cams	59
12S + 12Ö on the isolator with 6 cams	62
16S + 16Ö on the isolator with 8 cams	66
etc.	

G with capacitive insulators	G
on the isolator /	
on the side of the pivot	1
on the isolator /	
on the side of the opening	2

D with partitions	D
--------------------------	---

X Special wishes	X
Additions which are not in the catalogue · must be clearly described	

Field size	
650 mm	FG 650
900 mm	FG 900

Rated lightning surge withstand voltage / Rated short term withstand voltage U_p / U_d	
75 / 28 kV	75/28
125 / 50 kV	125/50
95 / 50 kV	95/50
170 / 70 kV	170/70

Please enter decimal numbers in the short text (.). Only components which are incorporated in the designation are installed on the switching device.



CONFIGURATOR

NAME: EES AND GE GROUNDING CONNECTIONS

1	2	3	4	5	A	B	C	E	G	D	X

1 Switch type	
Grounding connection which cannot be powered up	EES
Grounding connection	GE
Surge current / Switch on capacity I_p	
50.0 kA	050.0
80.0 kA	080.0
125.0 kA	125.0
160.0 kA	160.0
180.0 kA	180.0
200.0 kA	200.0
210.0 kA	210.0

2 Rated voltage	
1.50 kV	1.50
3.60 kV	3.60
7.20 kV	7.20
12.0 kV	12.0
17.5 kV	17.5
24.0 kV	24.0
36.0 kV	36.0
40.5 kV	40.5

3 Number of poles	01
Selectable between 01 and 12	... 12

4 Pole centre	
e.g. 90 mm	090
e.g. 150 mm	150
e.g. 275 mm	275

5 Rated short term current I_k	
20 kA	L
20 kA/3s	H
31.5 kA	M
31.5 kA/3s	K
50 kA	P
50 kA/3s	J
63 kA	R
72 kA	S
75 kA	T
85 kA	W

A Motor drive and position	A
Grounding connection top left / upright design	0
Grounding connection top right / upright design	1
Grounding connection bottom left / upright design	2
Grounding connection bottom right / upright design	3
Grounding connection top left / flat design	5
Grounding connection top right / flat design	6
Grounding connection bottom left / flat design	7
Grounding connection bottom right / flat design	8
Motor voltage	
24 V DC	1
48 V DC	2
60 V DC	3
110 V DC	4
125 V DC	5
220 V DC	6
110 V AC	7
125 V AC	8
230 V AC	9
Special voltage	X
pneumatic	P
manual	M
Manual lever	H

B Locking / Catch	B
on the grounding connection	33

C Blocking magnet / Electromech. interlock	C
Voltage	
24 V DC	11
48 V DC	12
60 V DC	13
110 V DC	14
125 V DC	15
220 V DC	16
110 V AC	17
125 V AC	18
230 V AC	19

E Auxiliary switches (LYING IN A ROW)	E
2S + 2Ö on the grounding connection with 2 cams	02
4S + 4Ö on the grounding connection with 4 cams	04
6S + 6Ö on the grounding connection with 6 cams	06
8S + 8Ö on the grounding connection with 8 cams	08
etc. also see designation GT/NT	
(OPPOSITE)	
2S + 2Ö on the grounding connection with 1 cam	52
4S + 4Ö on the grounding connection with 2 cams	54
6S + 6Ö on the grounding connection with 3 cams	56
8S + 8Ö on the grounding connection mit 4 Nocken	58
etc. also see designation GT/NT	

G with capacitive insulators	G3
-------------------------------------	----

D with partitions	D
--------------------------	---

X Special wishes	X
Additions which are not in the catalogue · must be clearly described	

Field size	
650 mm	FG 650
900 mm	FG 900

Rated lightning surge withstand voltage / Rated short term withstand voltage U_p / U_d	
75 / 28 kV	75/28
125 / 50 kV	125/50
95 / 50 kV	95/50
170 / 70 kV	170/70

Please enter decimal numbers in the short text (.). Only components which are incorporated in the designation are installed on the switching device.

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NAME: ISOLATOR WITH GTD AND GTÖ GROUNDING CONNECTIONS

1	2	3	4	5	A	B	C	E	F	G	D	X
	-	-	-	-	-	-	-	-	-	-	-	-

1 Switch type	
Grounding connection on the side of the pivot	GTD
Grounding connection on the side of the opening	GTÖ
Grounding connection on the side of the pivot and the opening	GTS
EES on the side of the pivot	GTDE
EES on the side of the opening	GTÖE
Rated current	
0.63 kA	0.63
1.25 kA	1.25
1.60 kA	1.60
2.50 kA	2.50
3.15 kA	3.15
4.00 kA	4.00
5.00 kA	5.00
6.30 kA	6.30
8.00 kA	8.00
12.0 kA	12.0

2 Rated voltage	
1.50 kV	1.50
3.60 kV	3.60
7.20 kV	7.20
12.0 kV	12.0
17.5 kV	17.5
24.0 kV	24.0
36.0 kV	36.0
40.5 kV	40.5

3 Number of poles	01
Selectable between 01 and 12	...
	12

4 Pole centre	
e.g. 90 mm	090
e.g. 150 mm	150
e.g. 275 mm	275
etc.	

5 Rated short term current I_k	
20 kA	L
25 kA	B
31.5 kA	M
40 kA	N
50 kA	P
63 kA	R
72 kA	S
75 kA	T
85 kA	W
Factor for surge current	
2.50	1
2.74	2
Short-time current 3 seconds	3

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A Motor drive and position	A
on the isolator top left / upright design	0
on the isolator top right / upright design	1
on the isolator bottom left / upright design	2
on the isolator bottom right / upright design	3
on the isolator top left / flat design	5
on the isolator top right / flat design	6
on the isolator bottom left / flat design	7
on the isolator bottom right / flat design	8
Motor voltage	
24 V DC	1
48 V DC	2
60 V DC	3
110 V DC	4
125 V DC	5
220 V DC	6
110 V AC	7
125 V AC	8
230 V AC	9
Special voltage	X
pneumatic	P
manual	M
Manual lever / Switch rod lever	H
on the grounding connection top left / upright design	0
on the grounding connection top right / upright design	1
on the grounding connection bottom left / upright design	2
on the grounding connection bottom right / upright design	3
on the grounding connection top left / flat design	5
on the grounding connection top right / flat design	6
on the grounding connection bottom left / flat design	7
on the grounding connection bottom right / flat design	8

B Locking / Catch	B
on the isolator	31
on the isolator and grounding connection	32
on the grounding connection	33

C Blocking magnet / Electromech. interlock	C
Voltage	
24 V DC	01
48 V DC	02
60 V DC	03
110 V DC	04
125 V DC	05
220 V DC	06
110 V AC	07
125 V AC	08
230 V AC	09

E Auxiliary switches (LYING IN A ROW)	E
1S + 1Ö on the isolator / 1S + 1Ö on the grounding connection each with 1 cam	01
2S + 2Ö on the isolator / 2S + 2Ö on the grounding connection each with 2 cams	02
3S + 3Ö on the isolator / 3S + 3Ö on the grounding connection each with 3 cams	03

4S + 4Ö on the isolator / 4S + 4Ö on the grounding connection each with 4 cams	04
6S + 6Ö on the isolator / 6S + 6Ö on the grounding connection each with 6 cams	06
3S + 3Ö on the isolator / 2S + 2Ö on the grounding connection with 3 + 2 cams	21
6S + 6Ö on the isolator / 2S + 2Ö on the grounding connection with 6 + 2 cams	22
6S + 6Ö on the isolator / 4S + 4Ö on the grounding connection with 6 + 4 cams	23
8S + 8Ö on the isolator / 2S + 2Ö on the grounding connection with 8 + 2 cams	24
4S + 4Ö on the isolator / 2S + 2Ö on the grounding connection with 4 + 2 cams	25
etc.	
For unequal HIKO assignment, use consecutive no. 21-50, otherwise see GT/NT	
(OPPOSITE)	
2S + 2Ö on the isolator / 2S + 2Ö on the grounding connection each with 1 cam	52
3S + 3Ö on the isolator / 3S + 3Ö on the grounding connection each with 2 cams	53
4S + 4Ö on the isolator / 4S + 4Ö on the grounding connection each with 2 cams	54
6S + 6Ö on the isolator / 6S + 6Ö on the grounding connection each with 3 cams	56
6S + 6Ö on the isolator / 2S + 2Ö on the grounding connection each with 3 + 1 cams	71
6S + 6Ö on the isolator / 4S + 4Ö on the grounding connection each with 3 + 4 cams	72
8S + 8Ö on the isolator / 8S + 8Ö on the grounding connection each with 4 + 8 cams	73
etc.	
For unequal HIKO assignment, use consecutive no. 71-99, otherwise see GT/NT	

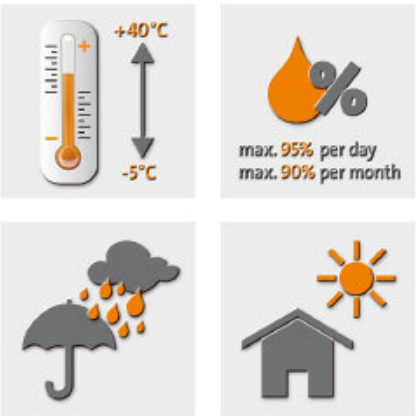
F Mechanical lock	F
between grounding connection and isolator	

G with capacitive insulators	G3
on the isolator / on the side of the pivot	1
on the isolator / on the side of the opening	2

D with partitions	D
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X Special wishes	X
Additions which are not in the catalogue · must be clearly described	
Field size	
650 mm	FG 650
900 mm	FG 900
Rated lightning surge withstand voltage / Rated short term withstand voltage U_p / U_d	
75 / 28 kV	75/28
125 / 50 kV	125/50
95 / 50 kV	95/50
170 / 70 kV	170/70
Please enter decimal numbers in the short text (.). Only components which are incorporated in the designation are installed on the switching device.	

ENVIRONMENTAL CONDITIONS



THE ISOLATORS AND GROUNDING SWITCHES ARE DESIGNED FOR THE NORMAL OPERATING CONDITIONS LAID DOWN IN THE STANDARDS.

Note: Condensation can occasionally occur under the described environmental conditions.

INSULATION CAPACITY

The insulating capacity of insulation in air decreases with increasing altitude due to low air density. The rated lightning surge withstand voltage values and rated short term withstand voltage values in the chapter "Technical Data" are valid in accordance with IEC 62271-1 up to a site altitude of 1000 m above sea level.

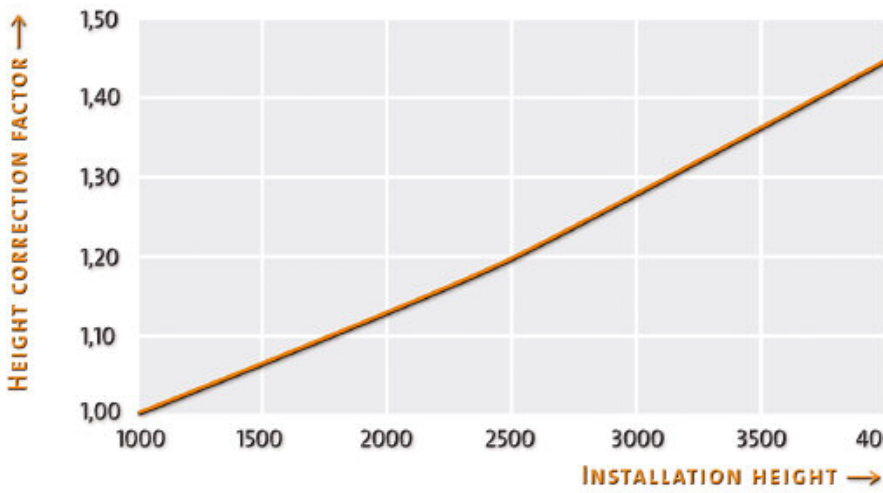
Above an altitude of 1000 m, the insulation level must be corrected according to the adjacent diagram. The characteristic curve shown applies to both rated withstand voltages.

FOR SELECTING THE DEVICES, THE FOLLOWING APPLIES:

$$U \geq U_o \times K_a$$

U Withstand voltage under reference atmosphere
U_o required rated withstand voltage for the installation site
K_a Altitude correction factor according to the chart below

Example: For a required rated lightning surge withstand vol-tage of 75 kV at an altitude of 2500 m, an insulatio-n level of at least 90 kV is needed under the reference atmosphere: $90 \text{ kV} \geq 75 \text{ kV} \times 1,2$



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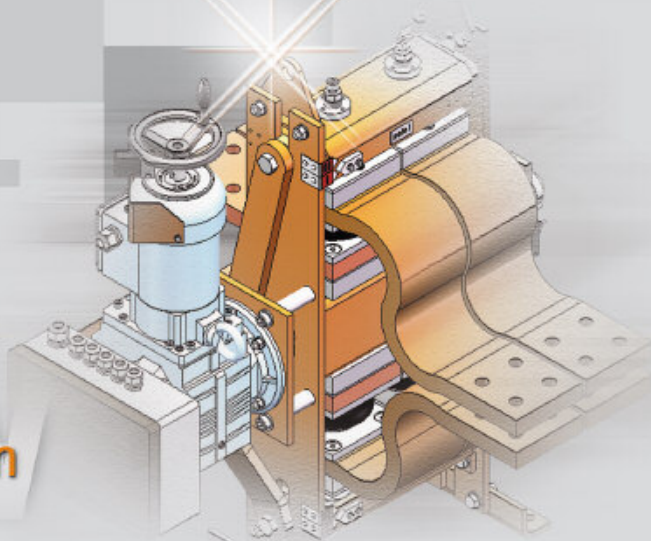
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