Notes

Fuses gG 500V, 690V and gG/LP 400V

Advantageous features:
Low power dissipation
Top- and middle indicator construction
Insulated gripping lugs
High breaking capacity
Marking: MEEI; VDE

Function
gG characteristic: general purpose (eg. wire protection)
Standard conformity
EN 60 269-1
EN 60 269-2
HD 630.2.1
IEC 60269-1
IEC 60269-2
DIN 0636/201
VDE 0636/201

Technical data: gG 500V, 690V and gG/LP 400V

Size range

	gG 500 V	gG 690 V	gG/LP 400 V
000 (00C)	2 - 100 A	-	2 - 100 A
00	2 - 160 A	2 - 100 A	2 - 160 A
0	6 - 160 A	6 - 160 A	-
1C	6 - 160 A	6 - 160 A	-
1	25 – 250 A	25 – 250 A	25 – 250 A
2C	25 – 250 A	25 – 250 A	-
2	63 – 400 A	63 – 400 A	63 - 400 A
3C	63 – 400 A	63 – 400 A	-
3	160 – 630 A	160 – 400 A	160 – 630 A
4 *	400 – 1250 A	-	-
4a**	400 – 1250 A	-	-
NHL1	25 – 250 A	-	-
NHL2	63 – 400 A	-	-

* Breaking capacity 80kA
Rated voltage 400V~
** Breaking capacit 50kA

Rated voltage: 500V~, 690~
Rated frequency: 50Hz
Selectivity: 1:1,6
Curent breaking capacity: 120kA (gG 500V)
100kA (gG 690V, LP 400V)

Additionally
The printing on the fuses are black (gG) or blue (LP). NHL type fuses listed among the size-range come with screw connection instead of blades (see at typerange). NHL type fuses are always made with middle indicators.

Type marking

NH 3 gG MK 160A

Rated current
Construction: no character: top indicator
M: middle indicator
MK: insulated gripp
Characteristic: gG or LP
Size: according to DIN
Type sign

Constructions with:
- Top indicator
- Middle indicator
- Middle indicator and insulated gripping lugs (plastic cover-plate)

Fuses: aM 500 V a 690 V

Advantageous features:
Low power dissipation
Top- and middle indicator construction
Insulated gripping lugs
High breaking capacity
Marking: VDE

Function:
aM characteristic: partial-range breaking capacity, motor circuits protection (formerly back-up protection)

Standard conformity:
EN 60 269-1
EN 60 269-2
HD 630.2.1
IEC 60269-1
IEC 60269-2
DIN 0636/201
VDE 0636/201

Technical data: aM 500 V a 690 V

Size range

	aM 500V	aM 690V
000 (00C)	6-100A	6-63A
00	6-160A	6-100A
0	6-160A	6-160A
1C	6-160A	6-160A
1	25-250A	25-250A
2C	25-250A	25-250A
2	63-400A	63-400A
3C	63-400A	63-400A
3	160-400A	160-400A

Additionally
The printing on the fuses are green. The partial interval protection operates in case of high overcurrent, when the thermal circuit breakers are not able to melt (e.g. because of being burned).

Rated voltage: 500V~, 690V~
Rated frequency: 50Hz
Selectivity: 1:1,6
Current breaking capacity: 100kA

Constructions with: Top indicator
Middle indicator
Middle indicator and insulated gripping lugs (plastic Cover-plate)

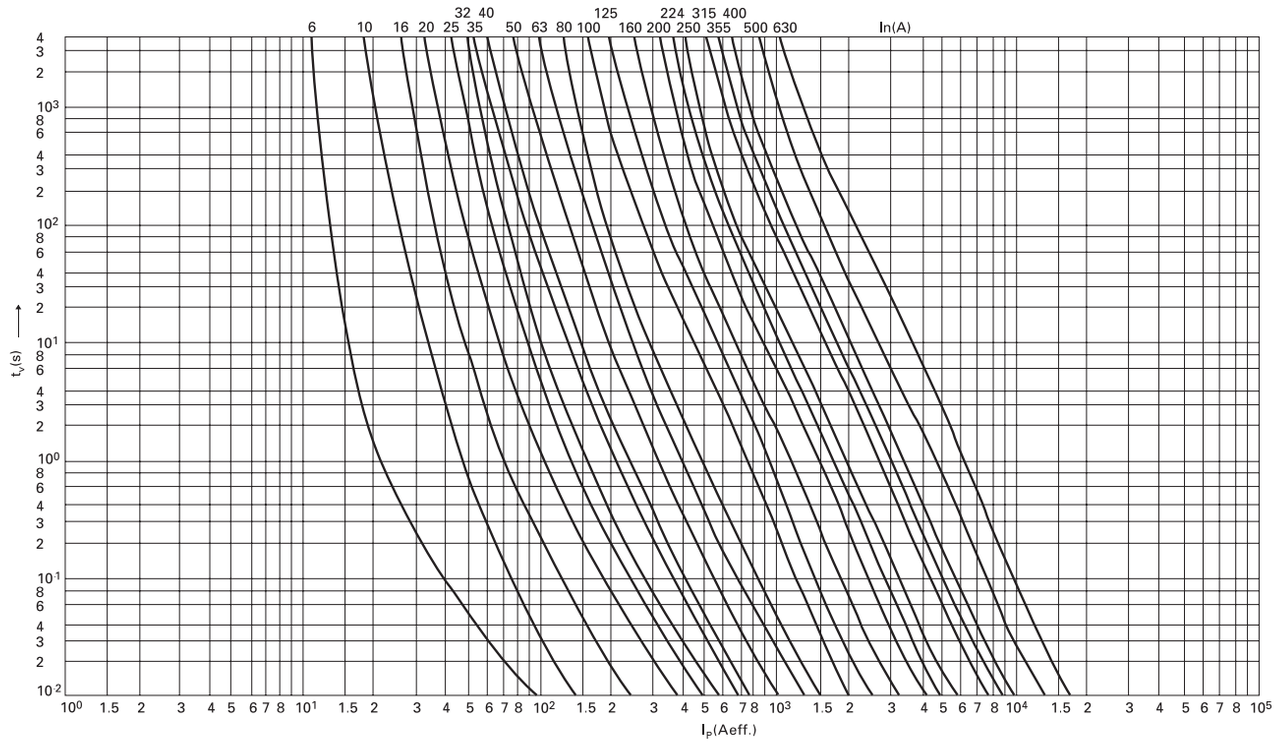
Type marking

NH 3 aM MK 160A

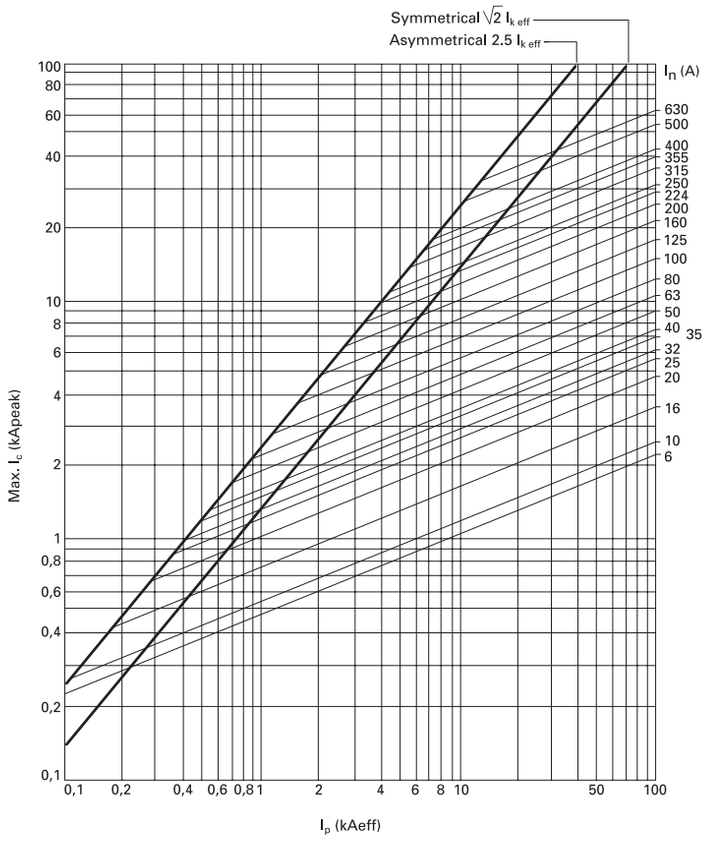
Rated current
Construction: no character: top indicator
M: middle indicator
MK: insulated gripp
Characteristic
Size: according to DIN
Type sign

Characteristics of NH fuses; gG 500V and 690V

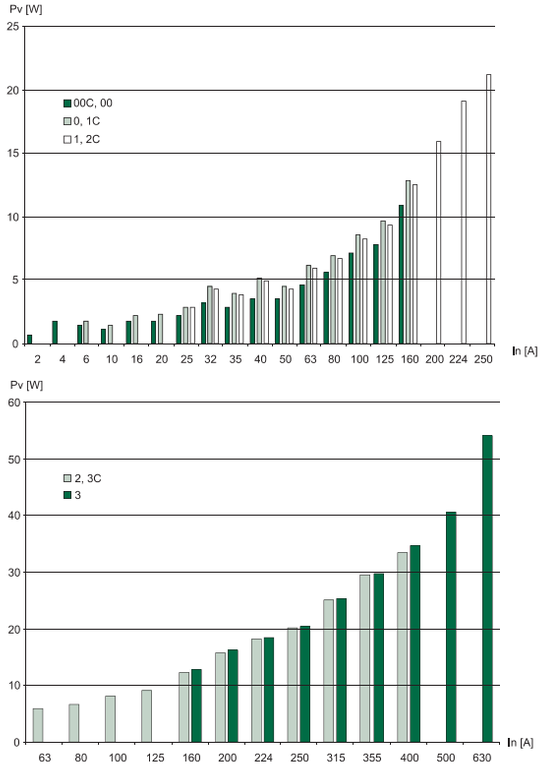
Time-current characteristics



Cut-off current characteristics

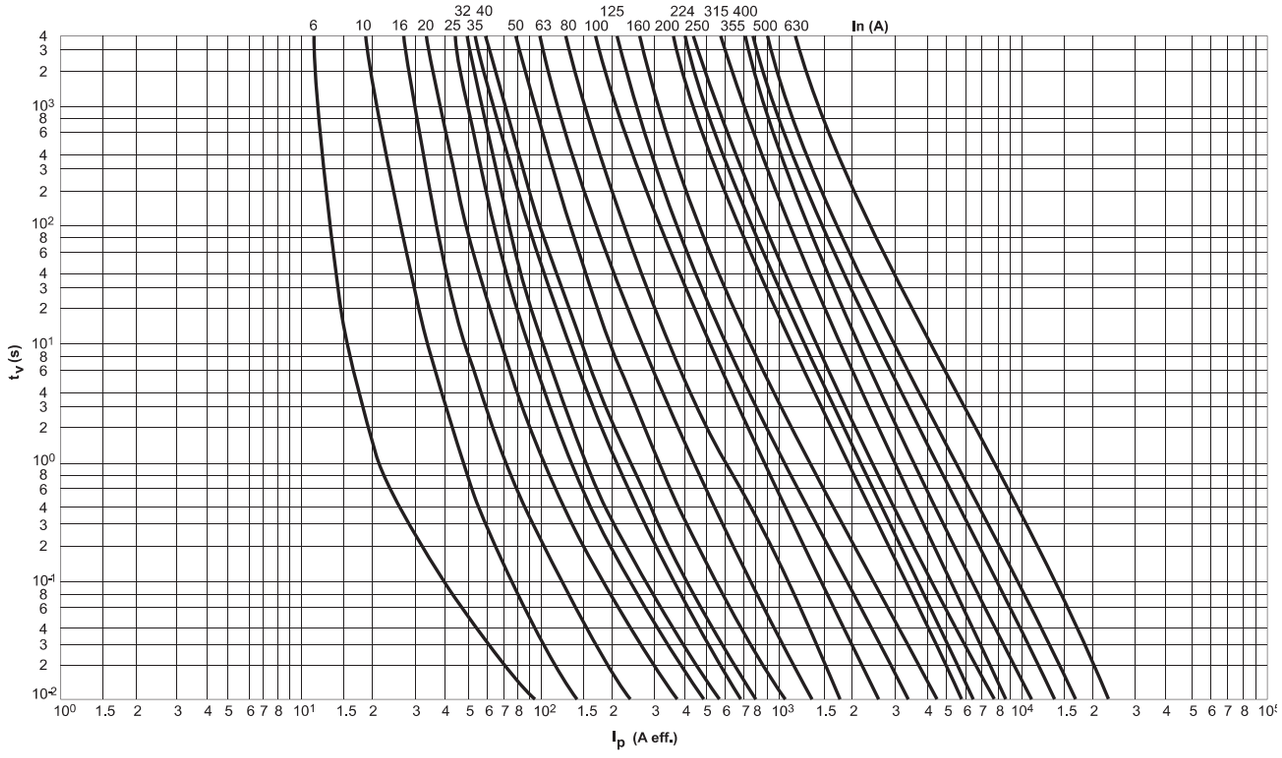


Power dissipation

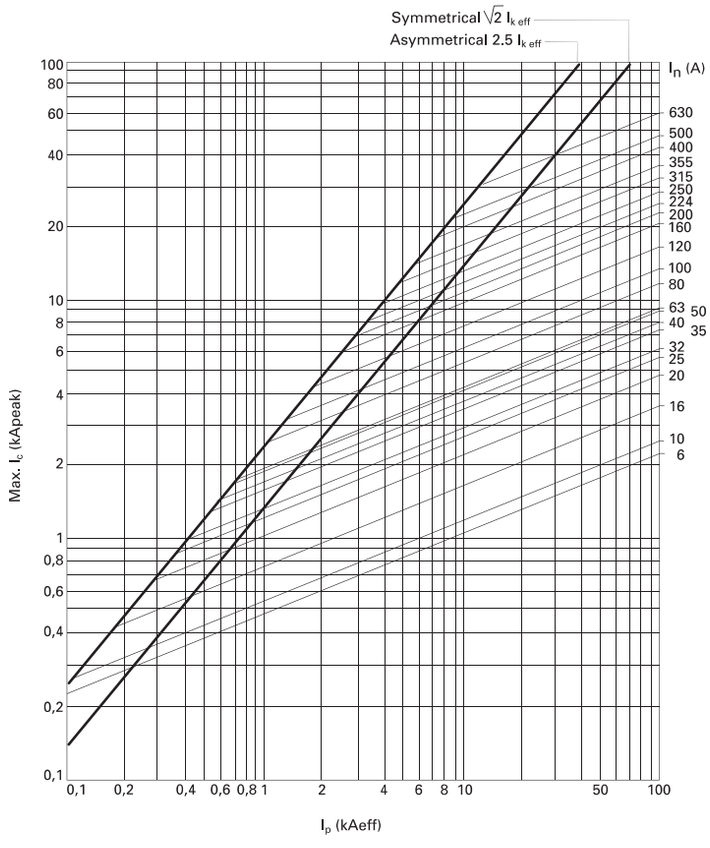


Characteristics of NH fuses; gG/LP 400V

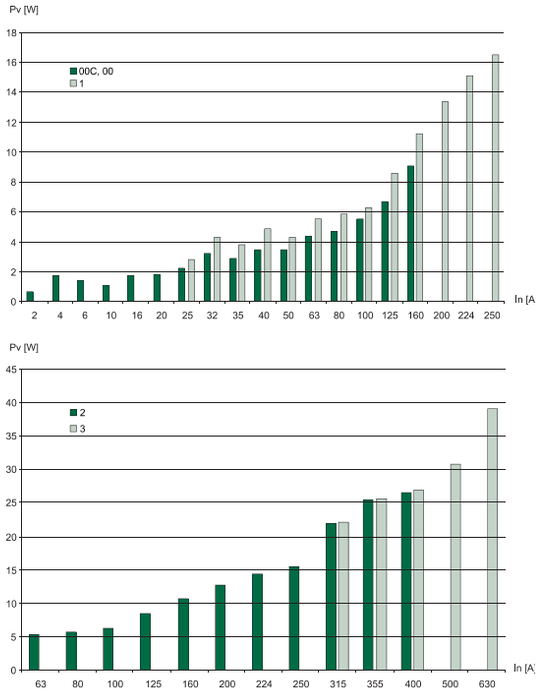
Time-current characteristics



Cut-off current characteristics

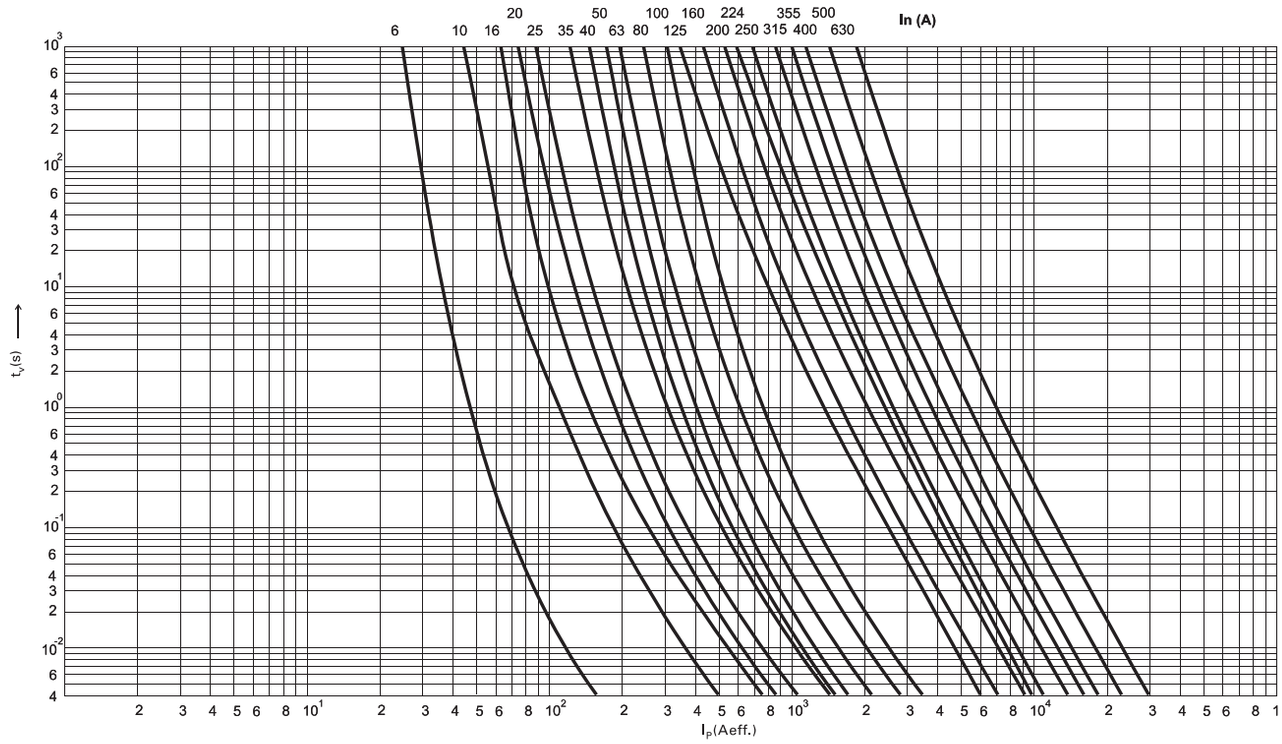


Power dissipation

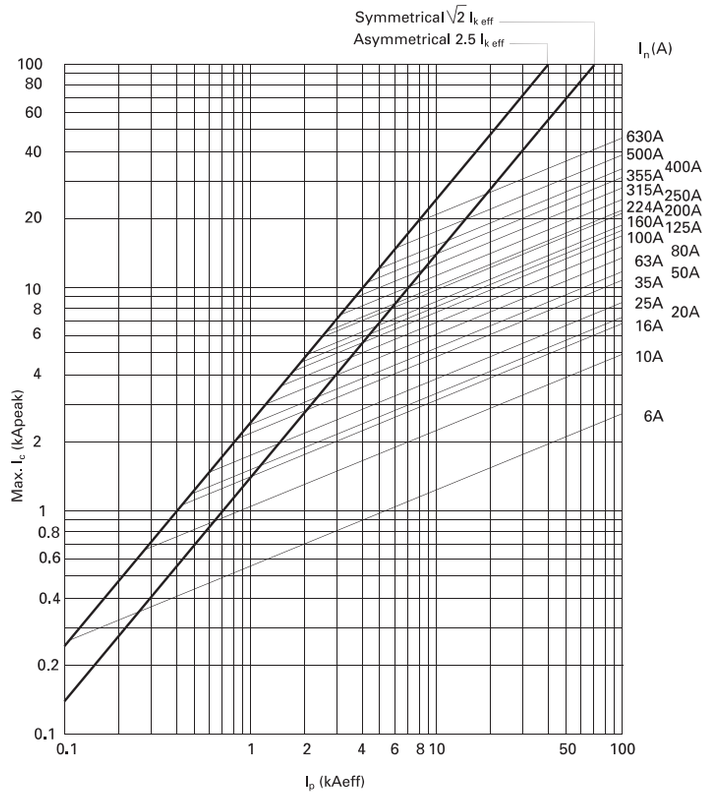


Characteristics of NH fuses; aM 500V and 690V

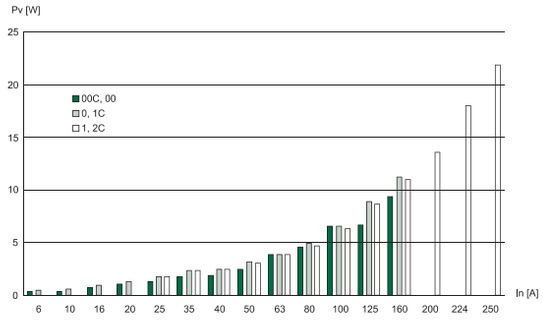
Time-current characteristics

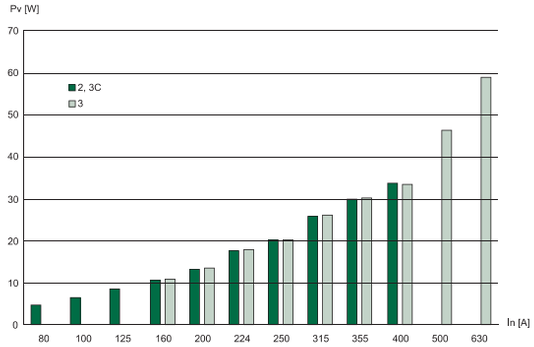


Cut-off current characteristics



Power dissipation





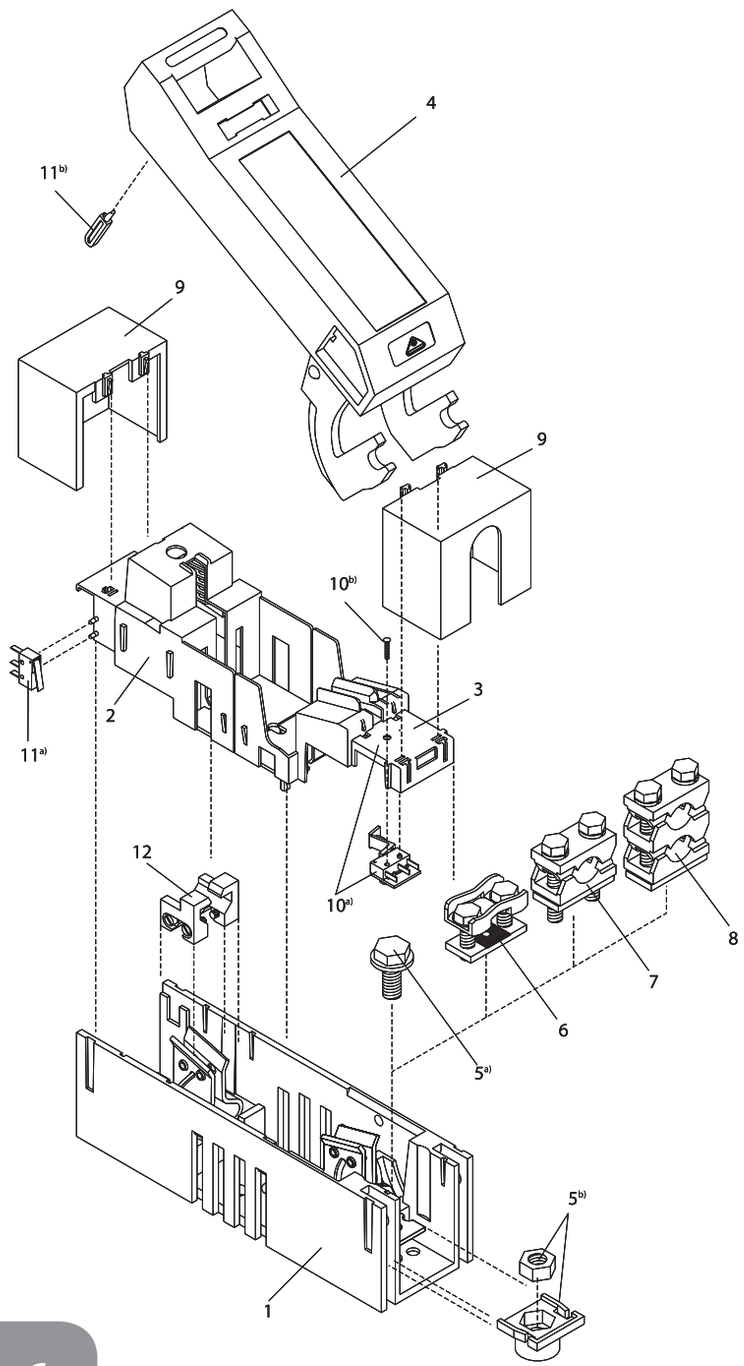
LV HRC fuse switch-disconnectors

The "9" series LV HRC fuse switch-disconnectors of the DIN sizes 00 - 4a are suitable for surface mounting on mounting plates and for direct mounting on busbars. The different sizes are available as 1-pole, 2-pole, 3-pole and 4 -pole versions.

- Surface mounting
- Busbar mounting
- 1 - pole, 2 - pole, 3 - pole and 4 - pole
- Retrofittable cable connections
- Fuse monitor
- Position indication
- DIN rail fixing parts

LV HRC fuse switch-disconnectors, size 1

Example: Surface mounting with accessories, 1-pole



Basic construction
1 Base of disconnector U-LTL1-1
2 Protective cover, top BO-LTL1-1
3 Protective cover, bottom BU-LTL1-1
4 Swing-in device D-LTL1-1/9

Connection accessories
5ab) Screw terminal F-LTL1-M10
6 Clamp-type terminal S1
7 V terminal clamp P1
8 Double V-terminal clamp P12

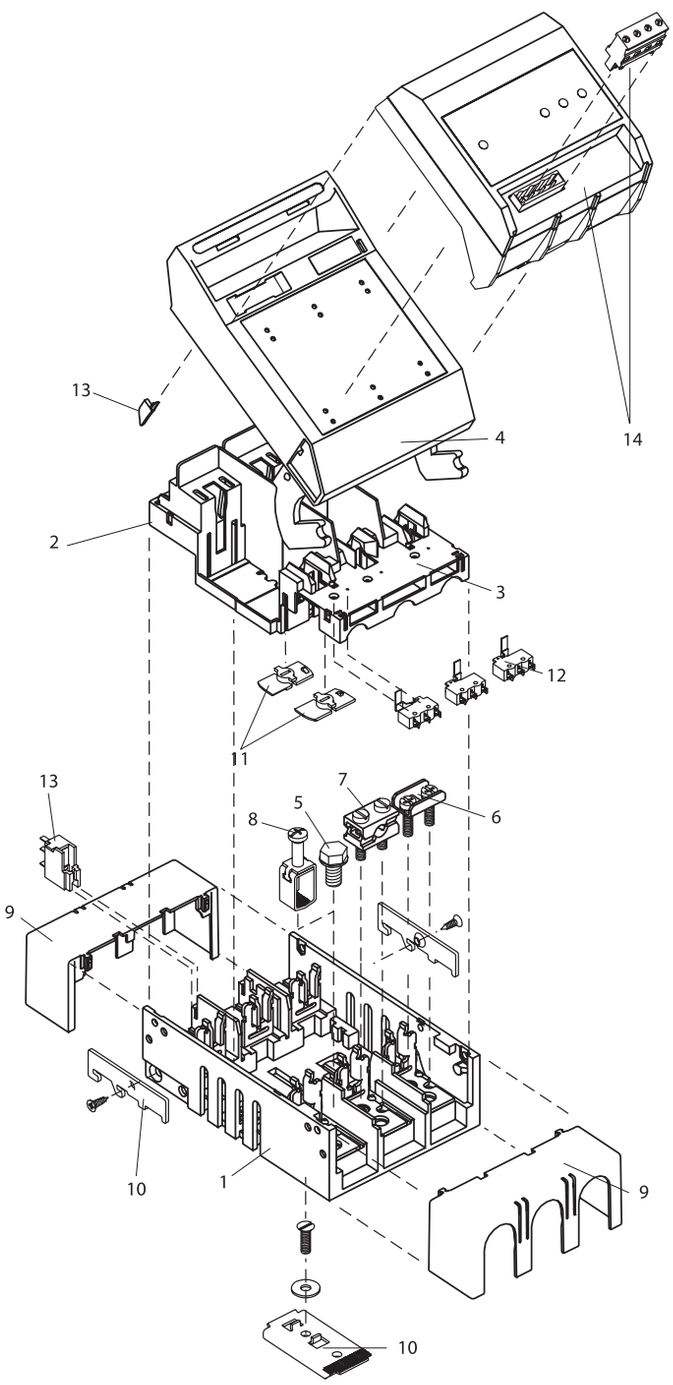
Covering accessories
(Protection against contact)
9 Handle protection, top and bottom GOU-LTL1-1

Accessories for mechanical fuse monitoring Position indicator, "ON"
10ab) Mech. fuse monitor K-LTL1-1/H
11ab) Position indicator,
"ON" (electrical interlocking) eV-LTL123-1

LV HRC fuse switch-disconnectors with quasi-instantaneous circuit
12 Quasi-instantaneous circuit LTL1-1/9/Q

LV HRC fuse switch-disconnectors, size 00

Example: Surface mounting with accessories, 3 - pole



Basic construction
1 Base of disconnector U - LTL00 - 3
2 Protective cover, top BO - LTL00 - 3
3 Protective cover, bottom BU - LTL00 - 3
4 Swing-in device D - LTL00 - 3/9

Connection accessories
5 Screw terminal F - M8x16
6 Clamp - type terminal S00
7 V - terminal clamp P0070
8 Box terminal F50

Covering accessories
(Protection against contact)
9 Handle protection, top/bottom GOU - LTL00 - 3

Fixing accessories
10 DIN rail fixing parts Z - LTL00 - 3

Accessories for interlocking, mechanical fuse monitoring and "ON" position indication
11 Protective cover interlock VHG - LTL00123 - 3
12 Mech. fuse monitor K - LTL00 - 3/H
13 Position indicator, "ON" (electrical interlocking) eV - LTL00 - 3

Accessories: Swing - in device with electronic fuse monitor
14 Swing-in device ES00 – D - LTL00

Sizes 00 - 4a / 160A - 1600A

1 - pole / surface mounting AC 690V

Product definition
LV HRC fuse switch-disconnectors in accordance with EN 60947-3 with swing-in device for accomodating one LV HRC fuse - link in accordance with DIN 43620, sizes 00/160 A to 4a/1600 A.
Applications
Switchgear for system, cable and motor protection in alternating and direct current systems. The disconnectors are frequently used in battery - powered direct current systems such as UPS systems.
Operational principle
Using amanually - operated swing - in device, the LV HRC fuse - link is swung in (making operation) and pulled out (breaking operation).
Product construction
Swing - in devicemade ofhalogen - free self – extinguishing plastics. Split latch - on contact cover. Standard disconnectors are equipped with screw terminals, but can be retrofitted with direct - connection terminals.

Size LTL...	Rated operational current (A)	Std.P	Type
Size 00	160	1	00-1/9
Size 1	250	1	1-1/9
Size 3	630	1	3-1/9
Size 4a	1250	1	4A-1X/1250/8
Size 4a	1600	1	4A-1X/1600/8

Sizes 00 - 3 / 160A - 630A

2 - pole / surface mounting AC 690V

Product definition
LV HRC fuse switch-disconnectors in accordance with EN 60947-3 with swing - in device for accomodating 2 LV HRC fuse-links in accordance with DIN 43620, sizes 00/160A to 3/630A.
Applications
Switchgear for system, cable and motor protection in direct current systems. The disconnectors are frequently used in battery - powered direct current systems such as UPS systems.
Operational principle
Usingmanually - operated swing - in devices, the LV HRC fuse - links are swung in (making operation) and pulled out (breaking operation).
Product construction
Swing-in devicemade of halogen-free self-extinguishing plastics. Split latch-on contact cover. Standard disconnectors are equipped with screw terminals, but can be retrofitted with direct-connection terminals.

Size LTL...	Rated operational current (A)	Std.P	Type
Size 00	160	1	00-2/9
Size 1	250	1	1-2/9
Size 3	630	1	3-2/9

Sizes 00 - 4a / 160A - 1600A

3 - pole / surface mounting AC 690V

Product definition
LV HRC fuse switch - disconnectors in accordance with EN 60947-3 with swing-in device for accomodating 3 LV HRC fuse - links in accordance with DIN 43620, sizes 00 - 4a / 160 A - 1600 A.
Applications
Switchgear for system, cable and motor protection in three - phase systems up to 690V AC. The disconnectors are fitted in switchgear cabinets or insulating cases.
Operational principle
Usingmanually - operated swing - in devices, the LV HRC fuse - links are swung in (making operation) and pulled out (breaking operation).
Product construction
Swing-in devicemade of halogen - free self – extinguishing plastics. Size 00 and 1 disconnectorswith seal. Split latch-on contact cover. Standard disconnectors are equipped with bolt connections, but can be retrofitted with direct - connection terminals.

Size LTL...	Rated operational current (A)	Switched poles	Electronic fuse monitor	Quasi-instantaneous circuit	Std.P	Type
Size 00	160	3-pole	Without	Without	1	00-3/9
Size 00	160	3-pole	With	Without	1	00-3/9/ES00
Size 1	250	3-pole	Without	Without	1	1-3/9
Size 1	250	3-pole	With	Without	1	1-3/9/ES00
Size 2	400	3-pole	Without	Without	1	2-3/9
Size 2	400	3-pole	With	Without	1	2-3/9/ES00
Size 3	630	3-pole	Without	Without	1	3-3/9
Size 3	630	3-pole	With	Without	1	3-3/9/ES00
Size 4a	1250	1-pole	Without	Without	1	4A-3X/1250/8
Size 4a	1250	3-pole	Without	With	1	4A-3X3/1250/8/Q
Size 4a	1600	1-pole	Without	Without	1	4A-3X/1600/8
Size 4a	1600	1-pole	Without	With	1	4A-3X/1600/8/Q
Size 4a	1250	3-pole	Without	Without	1	4A-3X3/1250/8
Size 4a	1250	1-pole	Without	With	1	4A-3X/1250/8/Q
Size 4a	1600	3-pole	Without	Without	1	4A-3X3/1600/8
Size 4a	1600	3-pole	Without	With	1	4A-3X3/1600/8/Q

Sizes 00 - 3 / 160A - 630A

4 - pole / surface mounting AC 690V

Product definition
LV HRC fuse switch - disconnectors in accordance with EN 60947-3 with swing-in device for accomodating 4 LV HRC fuse-links in accordance with DIN 43620 or 3 LV HRC fuse - links and one disconnecting blade, sizes 00-3 /160 A – 630 A.
Applications
Switchgear for system, cable and motor protection in three - phase networks (TN-S networks, separate N and PE conductors).
Operational principle
Usingmanually-operated swing - in devices, the LV HRC fuse - links are swung in (making operation) and pulled out (breaking operation). All 4 poles are switched simultaneously.
Product construction
Swing-in device made of halogen - free self - extinguishing plastics. Split latch - on contact cover. Standard disconnectors are equipped with screw terminals, but can be retrofitted with direct-connection terminals.

Size LTL...	Rated operational current (A)	Std.P	Type
Size 00	160	1	00-4/9
Size 1	250	1	1-4/9
Size 3	630	1	3-4/9

Technical data for fuse switch-disconnectors (in accordance with IEC/EN 60947-3 and VDE 0660 Part 107)

Type				LTL00-1/9				LTL1-2/9			
				LTL00-2/9				LTL1-3/9			
				LTL00-3/9				LTL1-3/9/60			
				LTL00-3/9/40 - 60				LTL1-3/9/100			
				LTL00-4/9				LTL1-4/9			
				LTL00aG-3/9				LTL1aG-3/9			
Electrical characteristics	Rated operational voltage	U_e	V	AC500	AC690	DC220	DC440	AC500	AC690	DC220	DC440
	Rated operational current	I_e	A	160	100	160	100	250	200	250	200
	Conventional free air thermal current with fuses	I_{th}	A	160	100	160	100	250	200	250	200
	Conventional free air thermal current with solid links	I_{th}	A	210(TM00)				325()TM1			
	Rated frequency	-	Hz	40-60	40-60	-	-	40-60	40-60	-	-
	Rated insulation voltage	U_i	V	AC750				AC750			
	Rated conditional short-circuit current	-	kAeff	50	50	25	25	50	50	25	25
	Rated short-time withstand current (1sec)	I_{cw}	kAeff	-				-			
	Utilization category	-	-	AC-22B	AC-22B	DC-22B	DC-21B	AC-22B	AC-22B	DC-22B	DC-21B
	Rated making capacity	-	A	480	300	640	150	750	600	1000	300
	Rated breaking capacity	-	A	480	300	640	150	750	600	1000	300
	Rated impulse withstand voltage	U_{imp}	kV	8							
	Operating cycles with current	-	-	200	300	200	300	200	200	200	200
	Total power loss at I_{th} (without fuse)[3]	P_v	W	6.9	2.7	6.2	2.7	12.9	8.3	8.6	5.5
Fuse links	Size to DIN 43 620	-	-	0				1			
	Max. rated current (gL/gG)	I_N	A	160	100	160	100	250	200	250	200
	Max. permis. power loss per fuse-link[3]	P_v	W	12				23			
Mechanical characteristics	Operating cycles without current	-	-	1700				1400			
	Weight[1]	-	kg	0,31/0,63/0,71/1,1				1,1/2,15/3,5/4,55			
	Busbar distance (3-pole)	-	mm	40/50/60				60/100			
Cable connection	Flat terminal Bolt diameter	-	-	M8				M10			
	Cable lug (DIN 46 235)	-	mm^2	1 x10- 95 (max. width 25mm)				1 x 25 -150			
	Flat bar	-	mm	20 x 10				30 x 10			
	Tightening torque	Ma	Nm	Dec-15				30 - 35			
	Clamping cross-section	-	mm^2	1,5 - 70 Cu/ribbon 6 x 9 x 0,8				25 - 150 Cu/ribbon 6 x 16 x 0,8			
				S 00				S 1			
	Tightening torque	Ma	Nm	2.6				9.5			
	Clamping cross-section	-	mm^2	10 - 70 Al/Cu				70 - 150 Al/Cu			
				P 00				P 1			
	Tightening torque	Ma	Nm	2.6				4.5			
	Clamping cross-section	-	mm^2	35 x 95 Al/Cu				2 x 70 - 95 Al/Cu			
				P00 - 95				P12			
	Tightening torque	Ma	Nm	2.6				4.5			
	Clamping cross-section	-	mm^2	2 x 1,5 - 25 Al/Cu							
	Tightening torque	Ma	Nm	9.5							
	Clamping cross-section	-	mm^2	1,5 - 70 Cu/ribbon 6 x 9 x 0,8							
				F 50/							
				F 70							
	Tightening torque	Ma	Nm	2.6							
Type of protection	Front side Device fitted										
	Operational state	-	-	IP20							
	Front cover open	-	-	IP10							
Operating conditions	Ambient temperature[2]	T_u	°C	- 25 to + 55							
	Rated operating mode	-	-	Continuous operation							
	Actuation	-	-	Dependent manual operation							
	Mounting position	-	-	Vertical, horizontal							
	Altitude	-	m	Up to 2000							
	Pollution degree	-	-	3							
	Overvoltage category	-	-	III							

Technical data for fuse switch-disconnectors (in accordance with IEC/EN 60947-3 and VDE 0660 Part 107)

Type				LTL2-3/9				LTL3-1/9			
				LTL2aG-3/9				LTL3-2/9			
								LTL3-3/9			
								LTL3-4/9			
								LTL3-aG3/9			
Electrical characteristics	Rated operational voltage	U_e	V	AC500	AC690	DC220	DC440	AC500	AC690	DC220	DC440
	Rated operational current	I_e	A	400	315	400	315	630	500	630	500
	Conventional free air thermal current with fuses	I_{th}	A	400	315	400	315	630	500	630	500
	Conventional free air thermal current with solid links	I_{th}	A	520(TM2)				1000(TM3)			
	Rated frequency	-	Hz	40-60	40-60	-	-	40-60	40-60	-	-
	Rated insulation voltage	U_i	V	AC750				AC750			
	Rated conditional short-circuit current	-	kAeff	50	50	25	25	50	50	25	25
	Rated short-time withstand current (1sec)	I_{cw}	kAeff	-				-			
	Utilization category	-	-	AC-22B	AC-22B	DC-22B	DC-21B	AC-22B	AC-22B	DC-22B	DC-21B
	Rated making capacity	-	A	1200	945	1600	475	1890	1500	2520	750
	Rated breaking capacity	-	A	1200	945	1600	475	1890	1500	2520	750
	Rated impulse withstand voltage	U_{imp}	kV	8							
	Operating cycles with current	-	-	200	200	200	200	200	200	200	200
	Total power loss at I_{th} (without fuse)[3]	P_v	W	27	16.7	18	11.2	52	32.8	34.6	21.8
Fuse links	Size to DIN 43 620	-	-	2				3			
	Max. rated current (gL/gG)	I_N	A	400	315	400	315	630	500	630	500
	Max. permis. power loss per fuse-link[3]	P_v	W	34				48			
Mechanical characteristics	Operating cycles without current	-	-	800				800			
	Weight[1]	-	kg	3.1				1,7/3,92/5,35/7,1			
	Busbar distance (3-pole)	-	mm	60/100				60/100			
Cable connection	Bolt diameter	-	-	M 10				M10			
	Cable lug (DIN 46 235)	-	mm^2	1 x 25 - 240				1 x 25 - 300			
	Flat bar	-	mm	30 x 10				40 x 10			
	Tightening torque	Ma	Nm	30 - 35				30 - 35			
	Clamping cross-section	-	mm^2	25 - 240 Cu/r. 10 x 16 x 0,8				Band 11 x21 x 1			
				S 2				S 3			
	Tightening torque	Ma	Nm	23				23			
	Clamping cross-section	-	mm^2	120 - 240 Al/Cu				120 - 240 Al/Cu			
				P 2				P 3			
	Tightening torque	Ma	Nm	11				11			
	Clamping cross-section	-	mm^2	2 x 120 - 150 Al/Cu				2 x 120 - 240 Al/Cu			
				P 22				P 32			
	Tightening torque	Ma	Nm	11				11			
Type of protection	Front side Device fitted										
	Operational state	-	-	IP20							
	Front cover open	-	-	IP10							
Operating conditions	Ambient temperature[2]	T_u	°C	- 25 to + 55							
	Rated operating mode	-	-	Continuous operation							
	Actuation	-	-	Dependent manual operation							
	Mounting position	-	-	Vertical, horizontal							
	Altitude	-	m	Up to 2000							
	Pollution degree	-	-	3							
	Overvoltage category	-	-	III							

Technical data for fuse switch-disconnectors (in accordance with IEC/EN 60947-3 and VDE 0660 Part 107)

Type				LTL4a-1/1250		LTL4a-1/1600	
				LTL4a-3/1250		LTL4a-1/1600	
Electrical characteristics	Rated operational voltage	U_e	V	AC500	AC690	AC500	AC690
	Rated operational current	I_e	A	1250	1000	1600	1000
	Conventional free air thermal current with fuses	I_{th}	A	1250	1000	1600	1000
	Conventional free air thermal current with solid links	I_{th}	A	1250	1600		
	Rated frequency	-	Hz	40-60			
	Rated insulation voltage	U_i	V	AC800			
	Rated conditional short-circuit current	-	kAeff	80	80	80	80
	Rated short-time withstand current (1sec)	I_{cw}	kAeff	-			
	Utilization category	-	-	AC-22B	AC-21B	AC-22B	AC-21B
	Rated making capacity	-	A	3750	1500	2400	1500
	Rated breaking capacity	-	A	3750	1500	2400	1500
	Rated impulse withstand voltage	U_{imp}	kV	8			
	Operating cycles with current	-	-	100			
	Total power loss at I_{th} (without fuse)[3]	P_v	W	32	20.5	52	33.3
Fuse links	Size to DIN 43 620	-	-	4a			
	Max. rated current (gL/gG)	I_N	A	1250	1000	1600	1000
	Max. permis. power loss per fuse-link[3]	P_v	W	110	110	164	164
Mech. charact.	Operating cycles without current	-	-	500			
	Weight[1]	–	kg	5,3/15,7			
Cable connection	Bolt diameter	-	-	1x M16		2 x M12	
	Cable lug (DIN 46 235)	-	mm^2	400		-	
	Flat bar	-	mm	max. 80 x 30			
	Tightening torque	Ma	Nm	50-60		35 - 40	
	Clamping cross-section	-	mm^2	KV2HG/2/300/AF40 - 50	2 x (95-300)	KV2HG/2/300/AF40-50	2 x (95-300)
	Tightening torque	Ma	Nm	40			
	Clamping cross-section	-	mm^2	K3G/3/A40-50	3 x (95-150)	K3G/3/A40-50	3x (95-150)
	Tightening torque	Ma	Nm	50			
	Clamping cross-section	-	mm^2	K3G/4/A40-50	4 x (95-150)	K3G/4/A40-50	4x (95-150)
	Tightening torque	Ma	Nm	50			
Type of protec.	Operational state	-	-	IP20			
	Front cover open	-	-	IP10			
Operating conditions	Ambient temperature[2]	T_u	°C	- 25 to +55			
	Rated operating mode	-	-	Continuous operation			
	Actuation	-	-	Dependent manual operation			
	Mounting position	-	-	Vertical			
	Altitude	-	m	Up to 2000			
	Pollution degree	-	-	3			
	Overvoltage category	-	-	III			

Technical data for switch - disconnectors

Type				LTL1-3/1200	LTL2-3/1200	LTL3-3/1200
Electrical characteristics	Rated operational voltage	U_e	V	AC 1200	AC 1200	AC 1200
	Rated operational current	I_e	A	250	400	630
	Conventional free air thermal current with fuses	I_{th}	A	200	315	630
	Conventional free air thermal current with solid links	I_{th}	A	325	520	1000
	Rated frequency	-	Hz	40-60	40-60	40-60
Fuse links	Size to DIN 43 620	-	-	1	2	3
	Max. rated current (gL/gG)	I_N	A	200	315	630
	Max. permis. power loss per fuse-link	P_v	W	25	35	70
Mech. charact.	Weight[1)]	–	kg	6.1	6.5	7.5
Cable connection	Flat terminal Bolt diameter	-	-	M9	M10	M16
	Cable lug (DIN 46 235	-	mm^2	25 -150	25 - 240	25 - 300
	Flat bar	-	mm	30x10	30x10	40x10
	Tightening torque	Ma	Nm	30-35	30-35	30-35
Type of protec.	Front side - operational state - Device fitted	-	-	IP 20		
	Front cover open		-	IP 10		
Operating conditions	Ambient temperature[2)]	T_u	°C	-25 to +55		
	Rated operating mode	-	-	Cont. operation		
	Actuation	-	-	-		
	Mounting position	-	-	Vert./ horizontal		
	Altitude	-	m	Up to 2000		
	Pollution degree	-	-	3		
	Overvoltage category	-	-	III		

1) Without packaging

2) 35°C normal temperature, at 55°C with reduced operating current

Technical data for fuse switch - disconnectors (in accordance with IEC/EN 60947-3 and VDE 0660 Part 107)

Type					LTL000-3/9/60...		
Electrical characteristics	Rated operational voltage		U_e	V	AC400	AC500	DC220
	Rated operational current		I_e	A	125	100	100
	Conventional free air thermal current with fuses		I_{th}	A	125	100	100
	Conventional free air thermal current with solid links		I_{th}	A	160(TM00)	160(TM00)	160(TM00)
	Rated frequency		-	Hz	40-60	40-60	
	Rated insulation voltage		U_i	V	AC500	AC500	AC500
	Rated conditional short-circuit current		-	kAeff	50	50	25
	Rated short-time withstand current (1sec)		I_{cw}	kAeff	-	-	-
	Utilization category		-	-	AC22B	AC22B	DC22B
	Rated making capacity		-	A	300	300	400
	Rated breaking capacity		-	A	300	300	400
	Rated impulse withstand voltage		U_{imp}	kV		8	
	Operating cycles with current		-	-	300	300	300
	Total power loss at I_{th} (without fuse)[3]		P_v	W	18	11.5	11.5
Fuse links	Size to DIN 43 620		-	-	0	0	0
	Max. rated current (gL/gG)		I_N	A	125	100	100
	Max. permis. power loss per fuse-link[3]		P_v	W	12		
Mechanical characteristics	Operating cycles without current		-	-	1700		
	Weight[1]		-	kg	0.57		
	Busbar distance (3-pole)		-	mm	60		
	Busbar thickness		-	mm	5 a 10		
	Busbar width		-	mm	20 a 30		
Cable connection	Flat terminal	Bolt diameter	-	-	-		
		Cable lug (DIN 46 235)	-	mm^2	-		
		Flat bar	-	mm	-		
		Tightening torque	Ma	Nm	-		
	Terminal	Clamping cross-section	-	mm^2	F50	1,5 -50Cu/páska 6 x 9 x 0,8	
		Tightening torque	Ma	Nm	F50	2.6	
	Terminal	Clamping cross-section	-	mm^2	-		
		Tightening torque	Ma	Nm	-		
	Terminal Clamping cross-section		-	mm^2	-		
	Tightening torque		Ma	Nm	-		
	Terminal Clamping cross-section		-	mm^2	-		
	Tightening torque		Ma	Nm	-		
Type of protec.	Front side Device fitted	Operational state	-	-	IP 20		
		Front cover open	-	-	IP 10		
Operating conditions	Ambient temperature[2]		T_u	°C	- 25 to +55		
	Rated operating mode		-	-	Continuous operation		
	Actuation		-	-	Dependent manual operation		
	Mounting position		-	-	Vertical, horizontal		
	Altitude		-	m	Up to 2000		
	Pollution degree		-	-	3		
	Overvoltage category		-	-	III		

1) Without packaging
2) 35°C normal temperature, at 55°C with reduced operating current
3) Data for 3-pole version

Product definition

CLAMP-TYPE TERMINAL
Direct - connection terminal – clamp - type terminal for Cu conductor and ribbon conductor connection.

V-TERMINAL CLAMP
Direct - connection terminal – V - terminal clamp for Cu conductor and Al conductor connection.
OUTPUT INDICATOR
Output indicator for indication of connected or disconnected state.

MECHANICAL FUSE MONITOR
In conjunction with LV HRC fuse – links with striker, the mechanical fuse monitor indicates fuse failure. Thestriker actuates a microswitch when the fuse-link is disconnected. The microswitch then passes the failure signal to a control centre.

OVERREACHING PROTECTION
The upper and lower latch - on overreaching protection covers the connection contacts or cable lugs or bare protruding conductors. The live parts are covered probe-safe.

HANDLE PROTECTION FOR BLADES
The overreaching protection for the contact blades of the LV HRC fuse - links ismovably fitted in the front plate. When the front plate is swung out, the overreaching protection is swung out from the front plate on the face, thus covering the contact blades of the fuse – links probe - safe.

SHROUD
The latch-on covering panels cover the switchboard apertures and ensure IP30 protection in the connected state.

DIN RAIL FIXING PARTS
The retrofittable DIN rail fixing parts consist of two hang - up hooks and a slide. They allow size 00 LV HRC fuse switch – disconnectors to be fixed on two standard rails in accordance with EN 50022 with 100mm to 150mm distance between rail centres.

PROTECTIVE COVER INTERLOCK
The protective cover interlock can be latched into the protective covers. It is interlocked with the basic frame by a 90° turn of a screwdriver.

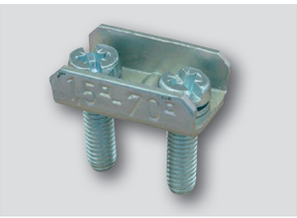
ELECTRONIC FUSE MONITORING
The electronic fuse monitoring feature ES00 can be used in the voltage range AC 400V to AC 690V. It is self-powered and the infeed can be at either end.

Applications

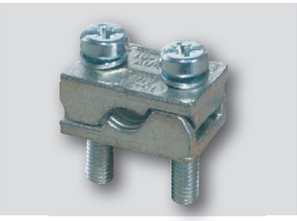
Direct-connection terminals replace cable lugs. They are suitable for Cu conductors, ribbon conductors and Cu busbars. Mechanical fuse monitors are used for remote indication of fuse failure. The overreaching protection prevents accidental contact with live parts. The overreaching protection for the contact blades of the LV HRC fuse-links is used for supply frombelow. It prevents accidental contact with the live contact blades of the fuse - links when the front plate is not entirely closed. Covering panels are used for panel mounting. They ensure complete covering of the panel cutouts and thus IP30 protection. The DIN rail fixing parts for size 00 LV HRC fuse switch - disconnectors are used in control cabinets in combination with miniature circuit - breakers and in distribution systems in which only standard rails in accordance with EN 50022 are integrated. Protective cover interlocks ensure that the covers can only be removed by a tool, thus complying with BGV A2 requirements.

Accessories

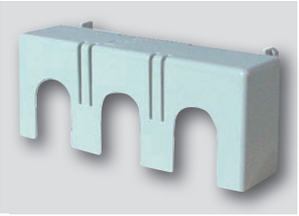
Flat termination	Std.P	Type
Size 00	3	F-LTL00-M8
Size 1	3	F-LTL1-M10
Size 2	3	F-LTL2-M10
Size 3	3	F-LTL3-M10



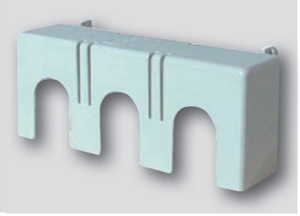
Clamp-type terminal	Std.P	Type
Size 00/1,5-70 mm² Cu (also for GU00)	3	S00-Z
Size 1	3	S1
Size 2	3	S2
Size 3	3	S3



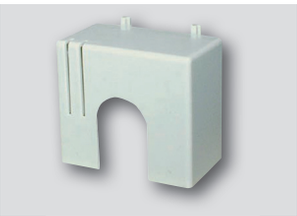
V-terminal clamp	Std.P	Type
Size 00/10-70 mm² Al/Cu	3	P0070-Z
Size 1	3	P1
Size 2	3	P2
Size 3	3	P3



Handle protection 3-pole, surface mounting	Std.P	Type
Size 00, top or bottom	1	LTL00-3
Size 1, top	1	GO-LTL1-3
Size 2, top	1	GO-LTL2-3
Size 3, top (also for busbar mounting)	1	GO-LTL3-3
Size 1, bottom	1	GU-LTL1-3
Size 2, bottom	1	GU-LTL2-3
Size 3, bottom, (also for busbar mounting)	1	GU-LTL3-3

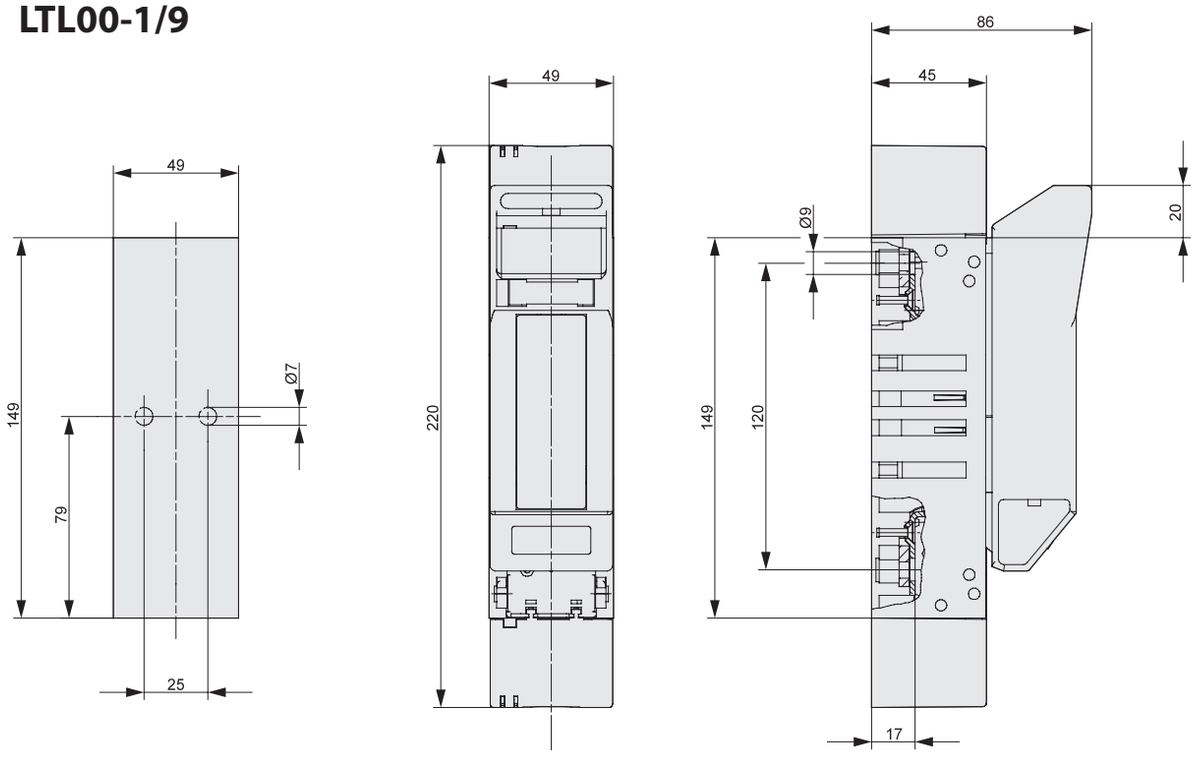


Handle protection 3-pole, busbar mounting	Std.P	Type
Size 00, top, system-measurement 195mm		GO-LTL00-3/195
Size 00, top, extended, system-measurement 230mm	1	GOV-LTL00-3/230
Size 2, top		GOV-LTL2-3
Size 1, top, extended		GOV-LTL1-3
Size 00, bottom, system-measurement 195mm		GU-LTL00-3/195
Size 2, bottom		GUV-LTL2-3
Size 00, bottom, extended, system-measurement 230mm	1	GUV-LTL00-3/230
Size 1, bottom, extended		GUV-LTL1-3
Size 2, extension top/bottom		GV-LTL2-3

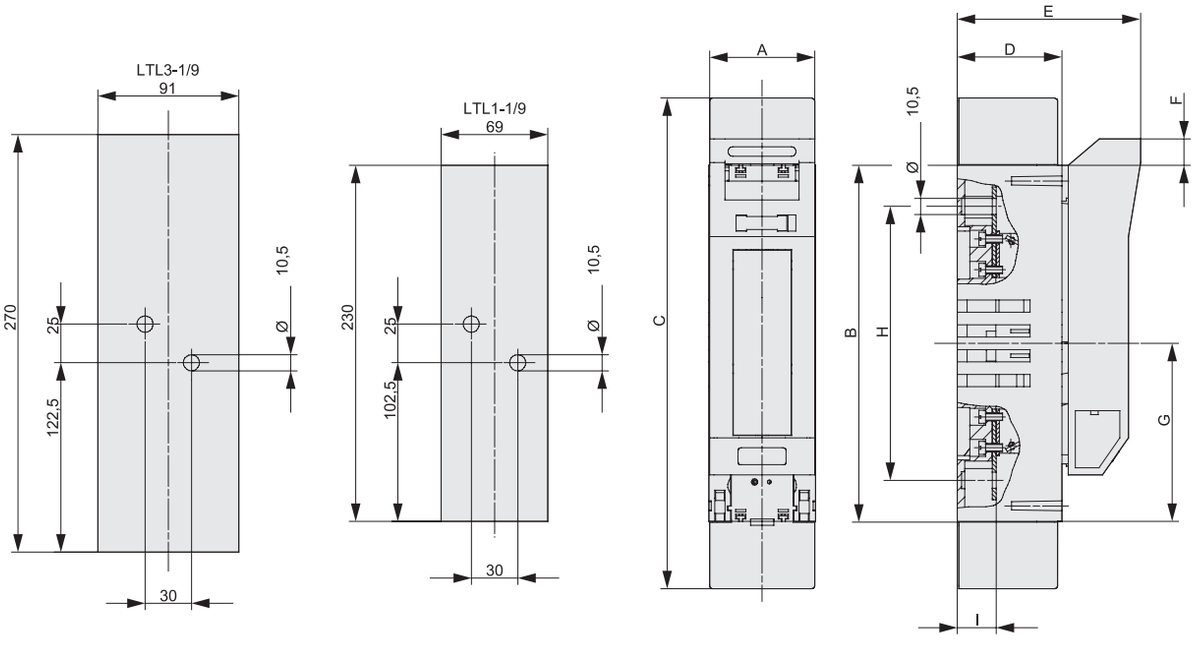


Handle protection 1-pole, surface- and busbar mounting	Std.P	Type
Size 00, top or bottom	1	GOU-LTL00-1
Size 1, top or bottom	1	GOU-LTL1-1
Size 3, top or bottom	1	GOU-LTL3-1

LTL00-1/9

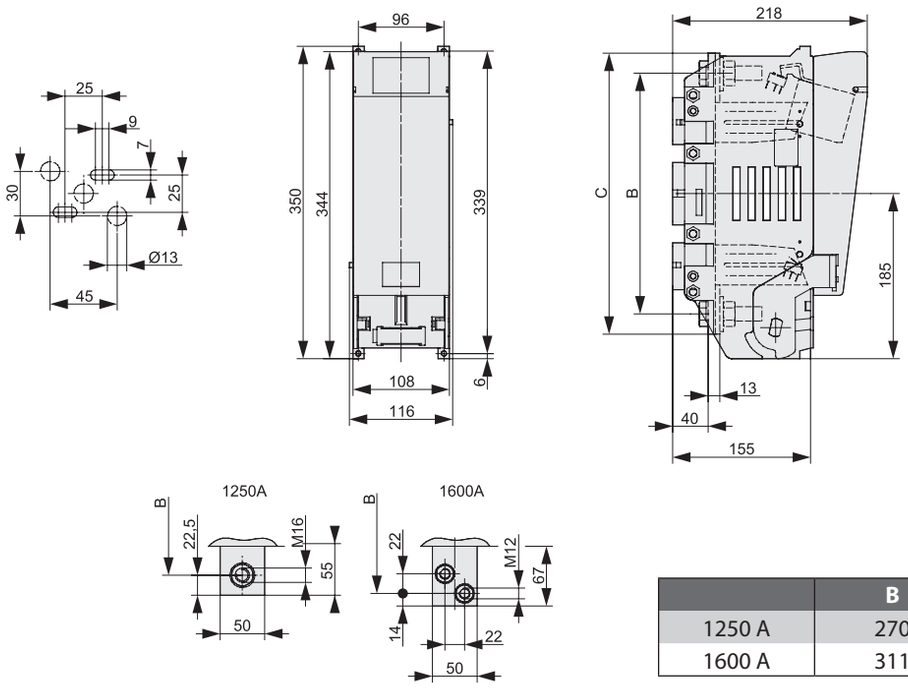


LTL1-1/9, LTL3-1/9



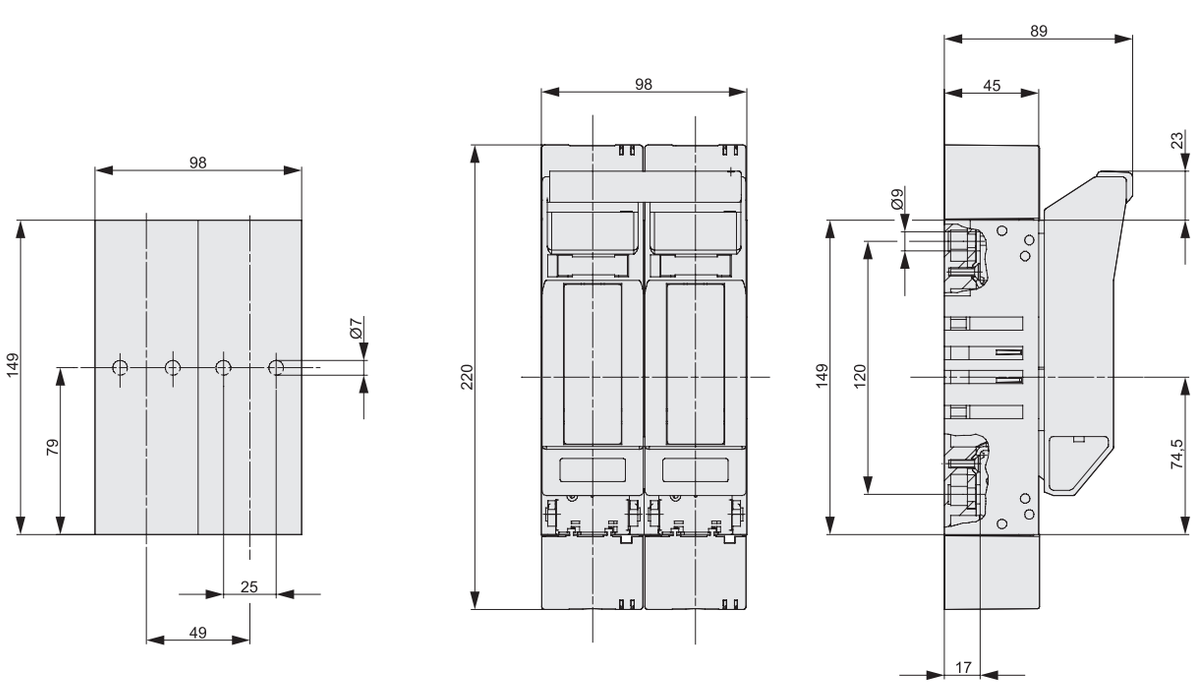
Type	A	B	C	D	E	F	G	H	I
LTL1-1/9	69	230	317	68	119	16,5	115	177	25
LTL3-1/9	91	270	430	96	147	9	135	220,5	30,5

LTL4A-1x/1250(1600)/8

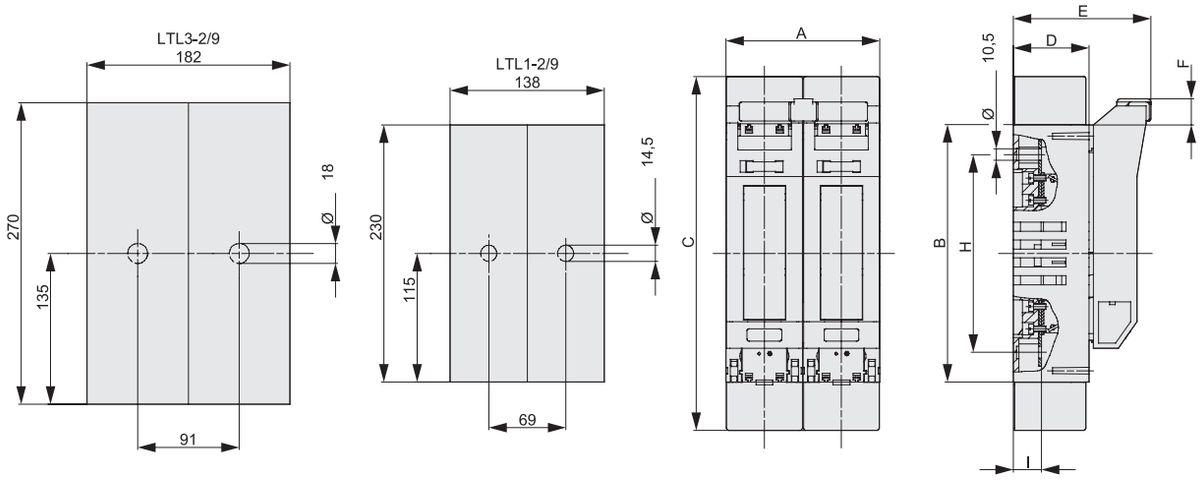


	B	C
1250 A	270	315
1600 A	311	339

LTL00-2/9

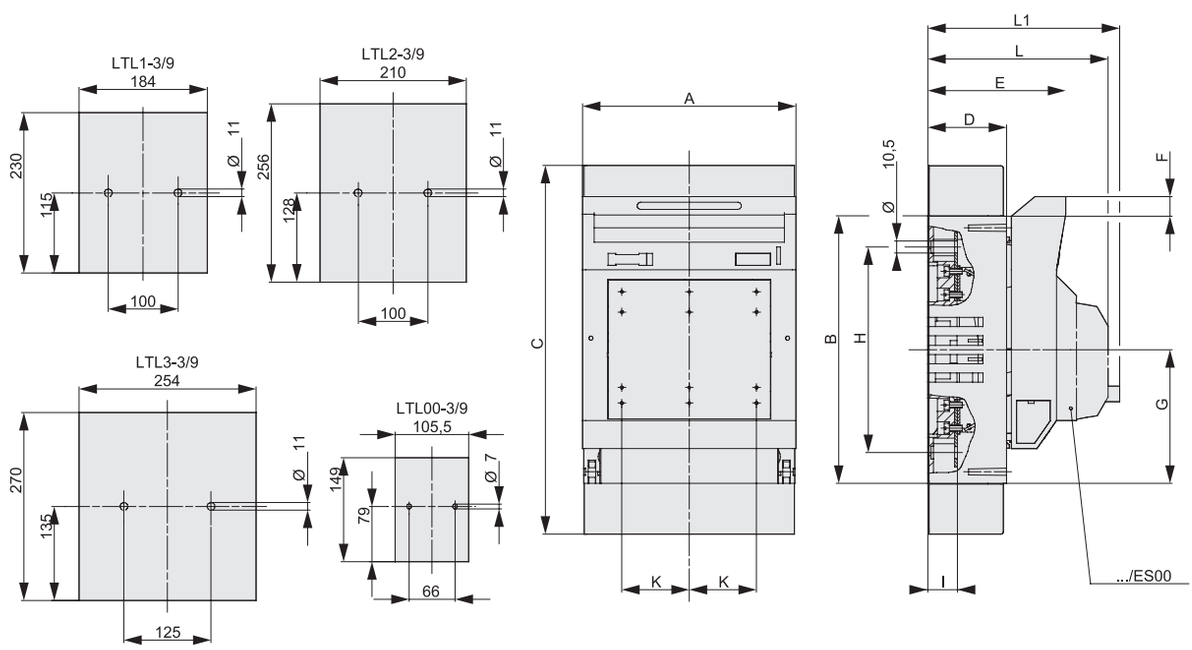


LTL1-2/9, LTL3-2/9



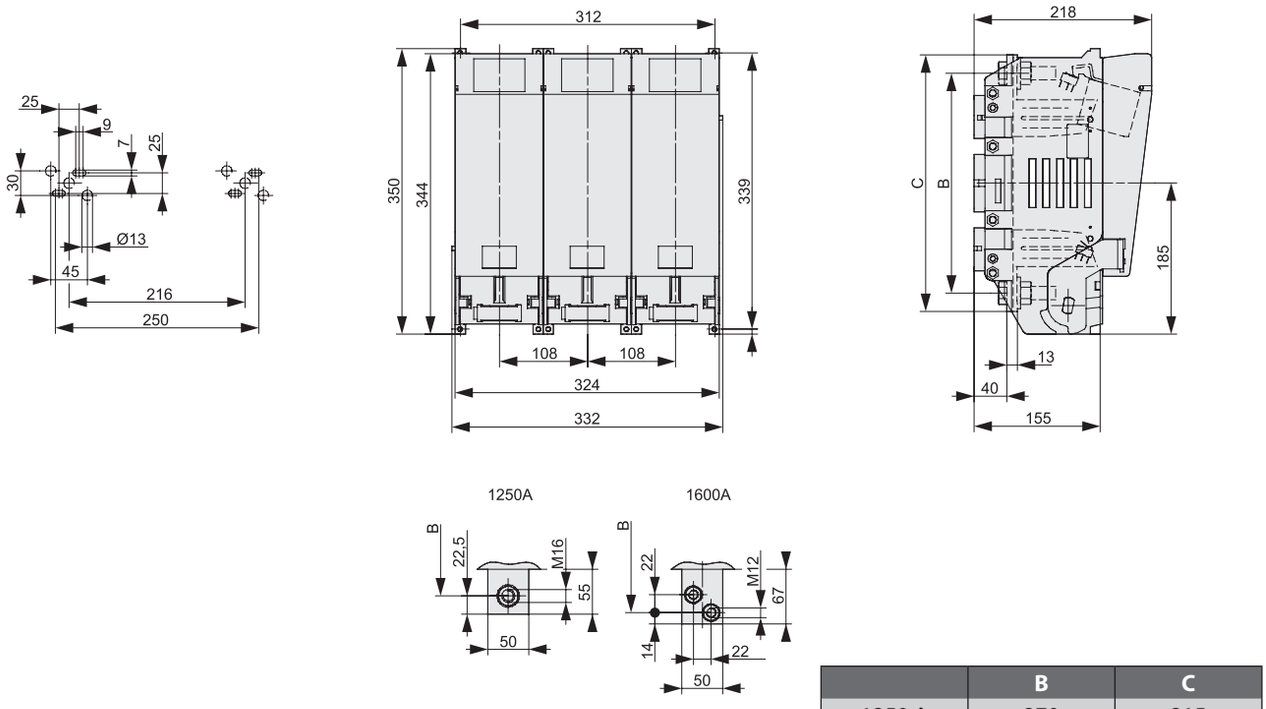
Type	A	B	C	D	E	F	G	H	I
LTL1-2/9	138	230	317	68	123,5	23	115	177	25
LTL3-2/9	182	270	430	96	151,5	15,5	135	220,5	30,5

LTL...-3/9, LTL...-3/9/ES00



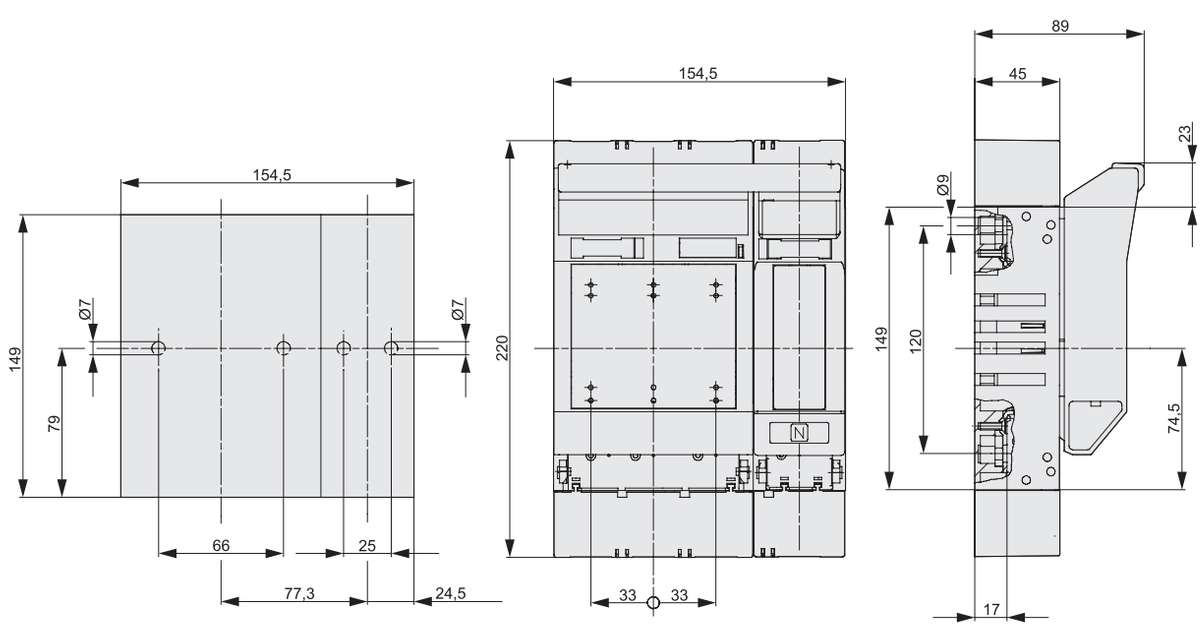
Type	A	B	C	D	E	F	G	H	I	K	L	L1
LTL00-3/9	105,5	149	220	45	86	20,5	74,5	120	17	33	116	126
LTL1-3/9	184	230	317	68	119	16,5	115	177	25	58	149	159
LTL2-3/9	210	256	397	81	133	16,5	128	205	25	66	163	173
LTL3-3/9	254	270	430	96	147	9	135	220,5	30,5	82	177	187

LTL4A-3x(3)/.../8/(Q)

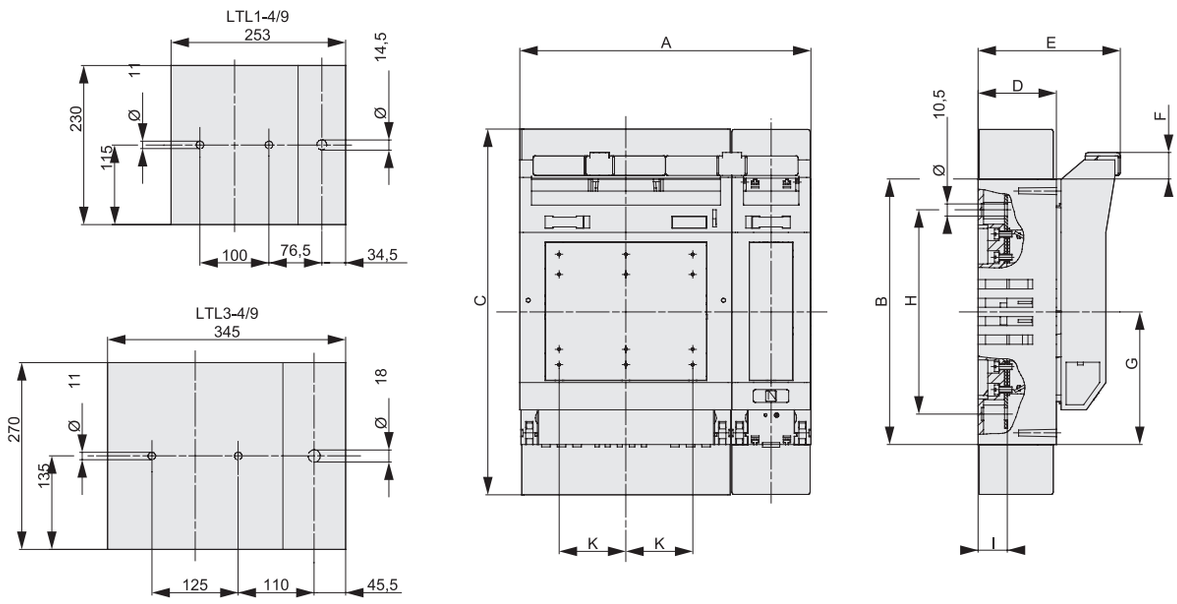


	B	C
1250 A	270	315
1600 A	311	339

LTL00-4/9

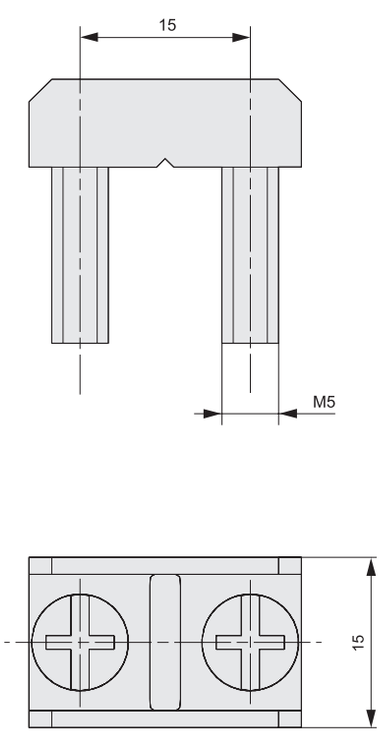


LTL1-4/9, LTL3-4/9

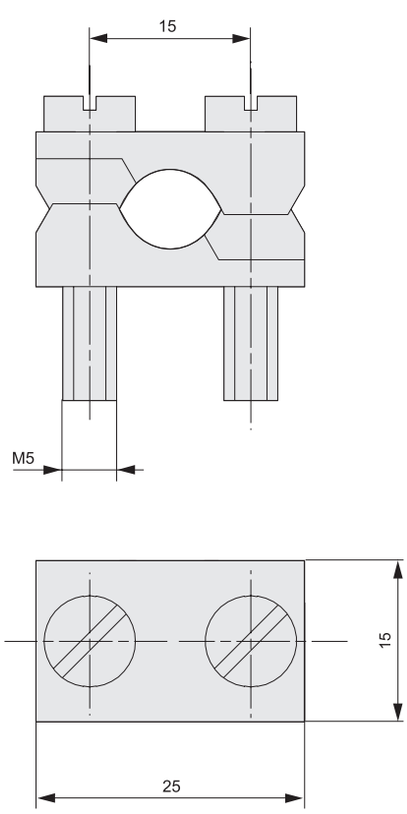


Type	A	B	C	D	E	F	G	H	I	K
LTL1-4/9	253	230	317	68	123,5	23	115	177	25	58
LTL3-4/9	345	270	430	96	151,5	15,5	135	220,5	30,5	82

S00-Z

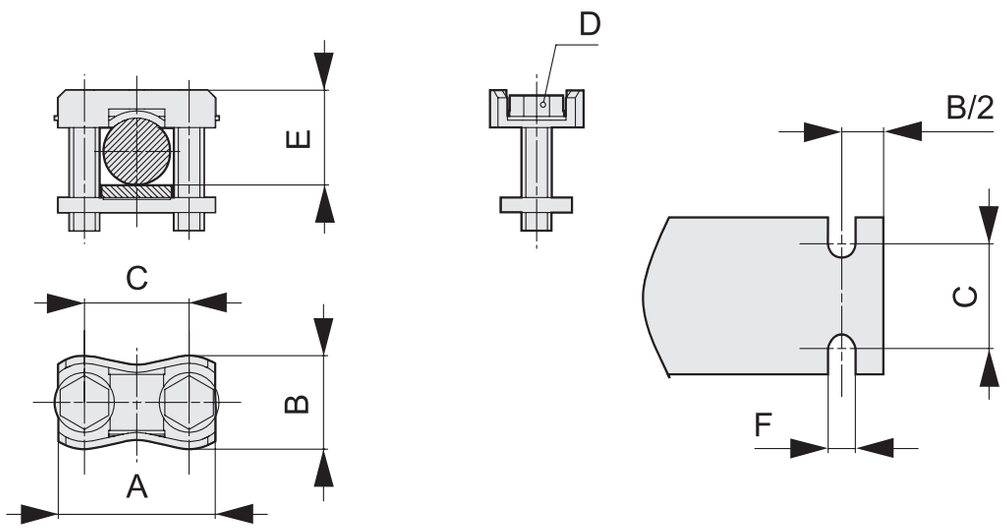


P0070-Z



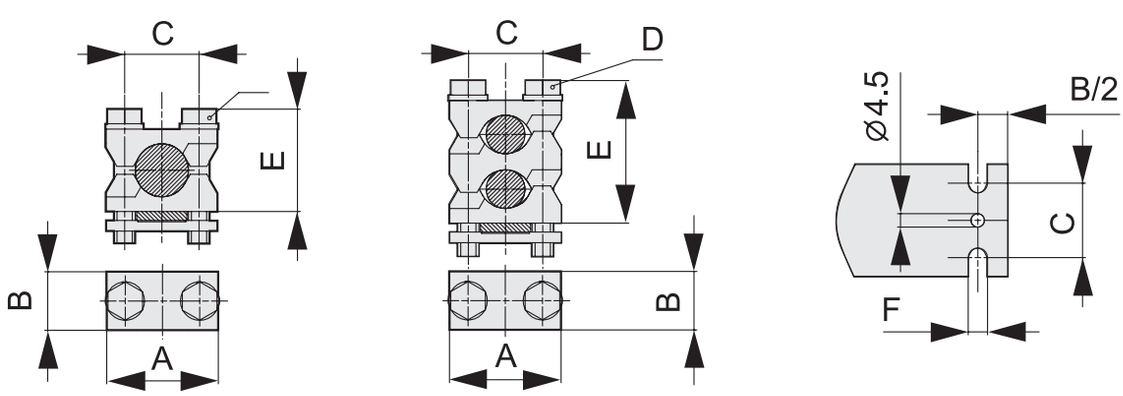
Dimensional drawings

S00, S1, S2, S3



Type	A	B	C	D	E	F
S00	25	15	15	M5	Max. 15	5,5
S1	37	20	25	M6	Max. 28	6,5
S2	42	22	28	M8	Max. 30	8,5
S3	50	25	30	M8	Max. 30	8,5

P1, P2, P3, P12, P22, P32



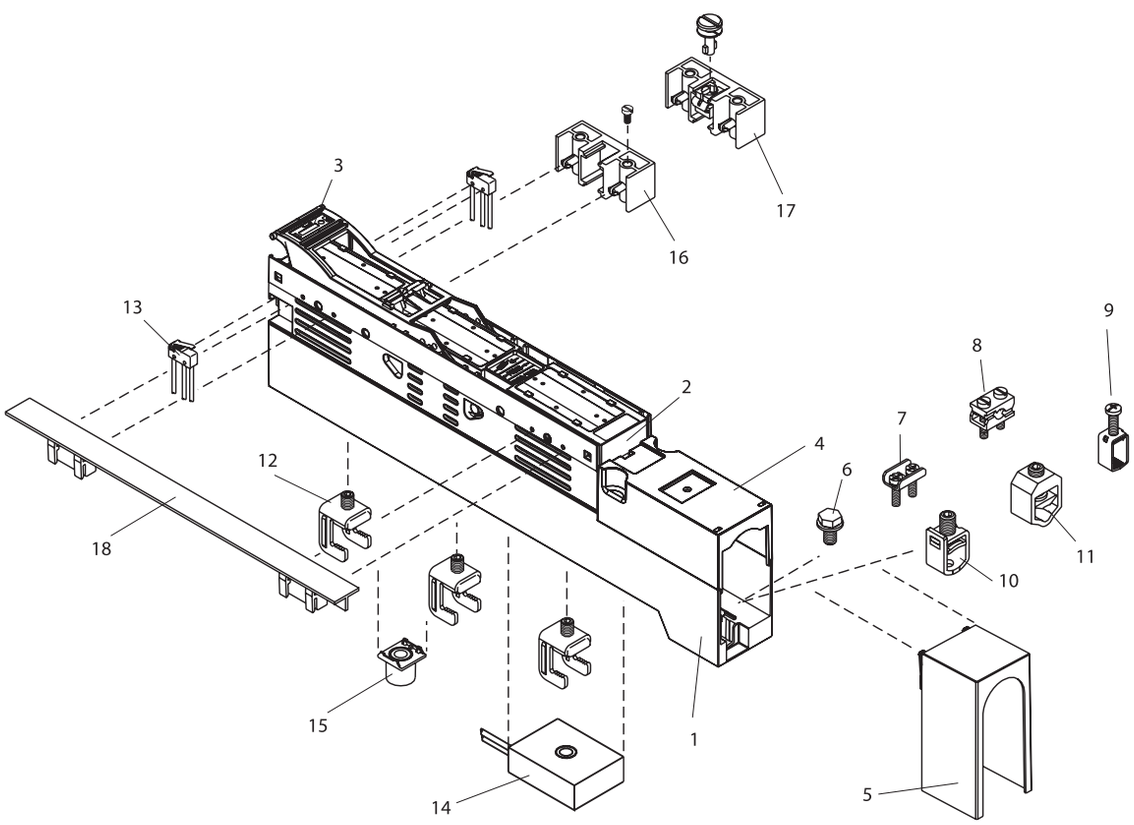
Type	A	B	C	D	E	F
P0070	25	15	15	M5	Max. 25	5,5
P0095	29	15	18	M5	Max. 28	5, 5
P1	37	20	25	M6	Max. 30	6,5
P12	37	20	25	M6	Max. 42	6,5
P2	42	22	28	M8	Max. 40	8,5
P22	42	22	28	M8	Max. 55	8,5
P3	50	25	30	M8	Max. 44	8,5
P32	50	25	30	M8	Max. 66	8,5

LV HRC strip type fuseswitch - disconnectors are mainly used for power distribution in low voltage assemblies in accordance with IEC/EN 60439-1 (VDE 0660 Teil 500). The strips are type tested in accordance with IEC/EN 60947- 3. Size 00 - 4a 1 - pole and 3 - pole switchable versions are available.

- Top or bottom cable connection as required
- Optimum fuse pick - up contact
- Direct – connection terminal
- Double strip up to 2000 A
- 910 A compact switch strips for 630 kVA transformer supply
- Multipurpose cover
- Modular design
- High breaking capacity
- Low power loss
- Use of standard earthing accessories

Mounting of LV HRC fuse switch strips SL00 - 3 x 3 /100

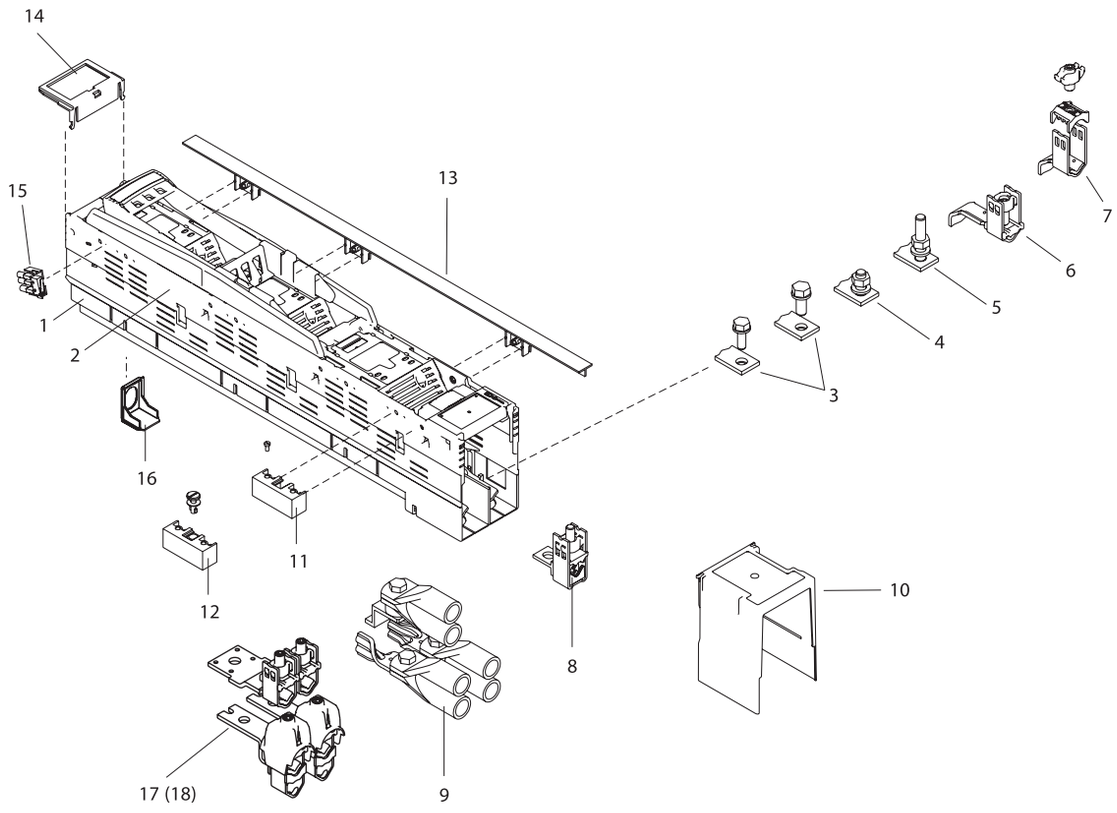
Example with device and system accessories, busbar distance 100mm, 3-pole switchable



1 Strip base U - SL00 - 3 x 3/100
2 Swing - in device D - SL00 - 3 x 3/100
3 Actuating lever SH - SL00 - 3 x 3/100
4 Terminal compartment cover HA - SL00 - 3 x 3/100
5 Terminal compartment extension HAV - SL00 - 3 x 3/100
6 Flat terminal F - M8x16
7 Clamp - type terminal S00 - Z
8 V - terminal clamp P0070 - Z
9 Elevator clamp F70
10 V box terminal KU00
11 V box terminal KM00
12 Busbar terminals SK - SL00
13 Position indicator EV - SL00/100
14 Current transformers WKD50
15 Holder for spacer roller HDR20
16 Cover holder AH - SL
17 Cover holder with quick - release lock AH - SL/S
18 Cover support AHCT - SL

Mounting of LV HRC fuse switch strips SL1 - 3 x 3, SL2 - 3 x 3, SL3 - 3 x 3

Example with device and system accessories, busbar distance 185mm, 3-pole switchable



1 Strip base	U-SL1
	U-SL2
	U-SL3
2 Strip top	O-SL1/3 x 3
	O-SL2/3 x 3
	O-SL3/3 x 3
3 Screw terminal	Connectiontype 3a
	Gr.1 M10x 25
	Gr.2, 3 M12x 30
4 Stud terminal	Connectiontype 4a
	Gr.1, 2, 3 M12x 35
5 Stud terminal	Connectiontype 4a - 60
	Gr.1, 2, 3 M12x 60
6 Multiple V box terminal	Connection type 9
	Terminal type KM2G - F 25 – 240 mm^2
7 Multiple box terminal	Connectiontype 9
	Terminal type KM2G 25 – 150 mm2 185 – 300 mm^2

8 Retrofittable direct - connection terminal K2G/A 70 - 240mm2
9 Kit for connection of 2 cable lugs per phase FK2 x 240
10 Terminal compartment cover HA - SL123/10
11 Cover holder AH - SL
12 Cover holder with quick - release lock AH - SL/S
13 Fastening clips with T profile AHCT - SL
14 Designation plate, top BZO - SL123
15 Position indicator EV - SL/3 x 3/10
16 Hang - up device MW - SL123
17 Terminal retrofit kit KM2x240 - SL123/3A
18 Terminal retrofit kit KM2x240 - SL123/9

Sizes 00 - 4a / 160A - 2000A

1 - pole switchable

Product definition
3 - pole LV HRC strip-type fuse switch-disconnectors for mounting on busbars. They combine three lengthwise - arranged 1- pole fuse switch - disconnectors in one unit. One contact of each phase (incoming contact) is connected to one phase of a 3 - pole busbar system. The other contacts(outgoing contacts) are equipped with conductor terminals.

Applications
The universal LV HRC fuse switch - disconnectors are used in low voltage distribution cabinets, network and transformer stations and cable distribution cabinets of power supply and industrial companies, where they complywith all power distribution requirements. The following current ratings are available: 160 A, 250 A, 400 A, 630 A, size 3/910 A, size 3/1000 A with disconnecting blades, size 3/1250 A as double strip, size 3/1600 A as double strip with disconnecting blades, size 3/2000 A as double strip with disconnecting blades. Still, the series in size 4a is available up to 1250 A.

Operational principle
The fuse switch - disconnectors are used for accomodating LV HRC fuse - links and thus for breaking of circuits. They are 1-pole switchable and can be switched under load. The universal swing - in devices allow the use of current meters in conjunction with meter fuses and piggyback fuses for worksite tapping. The cable outlet (top or bottom) can be freely selected on site.

Product construction
The one - piece strip body, which accomodates current - carrying parts, consists of high - strength glass –fibre - reinforced polyester. The silver - plated contact system for accomodating the LV HRC fuse - links equipped with tin - plated discharge rails ensures low power loss, optimum thermal characteristics and high switching capacity. The downward connecting bars are designed for flat termination as standard, but it is also possible to fit direct - connection terminals. The live parts of size 1 - 3 strips, such as contacts and discharge rails, remain back – of - hand proof after removal of the upper part due to the contact coverswith integrated arcing chamber which remain at the base. Twist locks allow straightforward removal and fitting of the upper parts of the stripswith the swing-in devices.

LV HRC strip type fuse-switch-disconnectors

Size	Busbar system	Type of connection, sizes 00 – 3 (F: flat termination, B: box terminal, S: screw terminal, ST: stud, MB: multiple box terminal)	Cable outlet (C: connection, V: variable, R: rear, T: top, B: bottom, L: lateral)	Swing - in device (S: standard, RH: retract-able handle)	Std.P	Type
0	185mm	F	T/B	S	1	00 - 3X/F
0	185mm	F	T/B	RH	1	00 - 3X/F/GV
0	185mm	B	T/B	S	1	00 - 3X/KU00
0	185mm	B	T/B	RH	1	00 - 3X/KU00/GV
1	185mm	S	T/B	S	1	1 - 3X/3A
1	185mm	S	T/B	RH	1	1 - 3X/3A/GV
1	185mm	ST, M12x35	T/B	S	1	1 - 3X/4A
1	185mm	ST, M12x35	T/B	RH	1	1 - 3X/4A/GV
1	185mm	ST, M12x60	T/B	S	1	1 - 3X/4A - 60
1	185mm	ST, M12x60	T/B	RH	1	1 - 3X/4A - 60/GV
1	185mm	MB, fixed	T/B	S	1	1 - 3X/9/KM2G
1	185mm	MB, fixed	T/B	RH	1	1 - 3X/9/KM2G/GV
1	185mm	MB, loose	T/B	S	1	1 - 3X/9/KM2G - F
1	185mm	MB, loose	T/B	RH	1	1 - 3X/9/KM2G - F/GV
2	185mm	S	T/B	S	1	2 - 3X/3A
2	185mm	S	T/B	RH	1	2 - 3X/3A/GV
2	185mm	ST, M12x35	T/B	S	1	2 - 3X/4A
2	185mm	ST, M12x35	T/B	RH	1	2 - 3X/4A/GV
2	185mm	ST, M12x60	T/B	S	1	2 - 3X/4A - 60
2	185mm	ST, M12x60	T/B	RH	1	2 - 3X/4A - 60/GV
2	185mm	MB, fixed	T/B	S	1	2 - 3X/9/KM2G
2	185mm	MB, fixed	T/B	RH	1	2 - 3X/9/KM2G/GV
2	185mm	MB, loose	T/B	S	1	2 - 3X/9/KM2G - F
2	185mm	MB, loose	T/B	RH	1	2 - 3X/9/KM2G - F/GV
3/1000A	185mm	S	CRT	S	1	3 - 3X/1000/ARO
3/1000A	185mm	S	T/B	S	1	3 - 3X/1000/HA
3	185mm	S	T/B	S	1	3 - 3X/3A
3	185mm	S	T/B	RH	1	3 - 3X/3A/GV
3	185mm	ST, M12x35	T/B	S	1	3 - 3X/4A
3	185mm	ST, M12x35	T/B	RH	1	3 - 3X/4A/GV
3	185mm	ST, M12x60	T/B	S	1	3 - 3X/4A - 60
3	185mm	ST, M12x60	T/B	RH	1	3 - 3X/4A - 60/GV
3	185mm	MB, fixed	T/B	S	1	3 - 3X/9/KM2G
3	185mm	MB, fixed	T/B	RH	1	3 - 3X/9/KM2G/GV
3	185mm	MB, loose	T/B	S	1	3 - 3X/9/KM2G - F
3	185mm	MB, loose	T/B	RH	1	3 - 3X/9/KM2G - F/GV
3/910 A	185mm	S	T/B	S	1	3 - 3X/910/AO/AU-100
3/910 A	185mm	S	T/B	S	1	3 - 3X/910/AO/AU - 65
3/910 A	185mm	S	T/B	S	1	3 - 3X/910/AO/AU - 75
3/910 A	185mm	S	CRT	S	1	3 - 3X/910/ARO
3/910 A	185mm	S	CRT, 110	S	1	3 - 3X/910/ARO/110
3/910 A	185mm	S	CRBL	S	1	3 - 3X/910/ARUS
3/910 A	185mm	S	T/B	S	1	3 - 3X/910/HA
3/910 A	185mm	S	CRT, long	S	1	3 - 3x/910/AORL
3/910 A	185mm	S	CRT, short	S	1	3 - 3x/910/AORK
3/910 A	185mm	S	T	S	1	3 - 3X/910/AO - 102
3/1250 A	185mm	S	T/B	S	1	3 - 3X2/1250/HA
3/1600 A	185mm	S	T/B	S	1	3 - 3X2/1600/HA
3/2000A	185mm	S	T/B	S	1	3 - 3x2/2000/HA
4A	185mm	S	B	S	1	TL4A - 3AS/3X/4
4A/ width 147	185mm	S	B	S	1	TL4A -3AS/3X/2X3A/Q/147K
4A/ width 147	185mm	S	T	S	1	TL4A-3AS/3X/2X3A/Q/147K/AO
4A	185mm	S	T	S	1	TL4A - 3AS/3X/4/AO

Sizes 00 - 3 /160 A – 2000 A

3-pole switchable

Product definition
3 - pole LV HRC strip-type fuse switch - disconnectors for mounting on busbars. They combine three length-wise - arranged 1- pole fuse switch - disconnectors in one unit. One contact of each phase (incoming contact) is connected to one phase of a 3 - pole busbar system. The other contacts (outgoing contacts) are equipped with conductor terminals.

Applications
The universal LV HRC fuse switch - disconnectors are used in low voltage distribution cabinets, network and transformer stations and cable distribution cabinets of power supply and industrial companies, where they complywith all power distribution requirements. The following current ratings are available: 160 A, 250 A, 400 A, 630 A, size 3/910 A, size 3/1000 A with disconnecting blades, size 3/1250 A as double strip, size 3/1600 A as double strip with disconnecting blades, size 3/2000 A as double strip with disconnecting blades.

Operational principle
The fuse switch - disconnectors are used for accomodating LV HRC fuse - links and thus for breaking of circuits. They are 3 - pole switchable and can be switched under load. The universal swing - in devices allow the use of current meters in conjunction with meter fuses and piggyback fuses for worksite tapping. The cable outlet (top or bottom) can be freely selected on site.

Product construction
The one-piece strip body, which accomodates current - carrying parts, consists of high - strength glass –fibre - reinforced plastic. The silver - plated contact system for accomodating the LV HRC fuse - links equipped with tin - plated discharge rails ensures low power loss, optimum thermal characteristics and high switching capacity. The downward connecting bars are designed for flat termination as standard, but it is also possible to fit direct - connection terminals. The live parts of size 1 – 3 strips, such as contacts and discharge rails, remain back – of - hand proof after removal of the upper part due to the contact coverswith integrated arcing chamber which remain at the base. Twist **locks allow straightforward**
removal and fitting of the upper parts of the stripswith the swing - in devices. Electronic fuse monitor PLFuse (ES00) The PLFuse electronic fuse monitor is used for continuous fuse monitoring in 3 - phase low voltage networks. The potential - free relay contacts of the fuse monitor allow the make/break contacts to be designed for individual or centralized fault indication as required. No fuse failure is indicated in the event of network disconnection or phase failure.

LV HRC strip type fuse-switch-disconnectors

Size	Busbar system	Type of connection, sizes 00 – 3 (F: flat termination, B: box terminal, S: screw terminal, ST: stud, MB: multiple box terminal, F70: elevator terminal)	Cable outlet (C: connection, V: variable, R: rear, T: top, B: bottom, L: lateral)	Electronic fuse monitor (400 – 690 V AC)	Std.P	Type
0	100mm	F	B	With	1	00 - 3X3/100/F/ES00
0	100mm	F	T/B	Without	1	00 - 3X3/100/F
0	100mm	F70	T/B	Without	1	00 - 3X3/100/F70
0	100mm	B	T/B	Without	1	00 - 3X3/100/KU00
0	100mm	B	T/B	Without	1	00 - 3X3/100/KM00
0	185mm	F	T/B	Without	1	00 - 3X3/F
0	185mm	B	T/B	Without	1	00 - 3X3/KU
1	185mm	S	T/B	Without	1	1 - 3X3/3A
1	185mm	S	B	With	1	1 - 3X3/3A/ES00
1	185mm	ST, M12x35	T/B	Without	1	1 - 3X3/4A
1	185mm	ST, M12x60	T/B	Without	1	1 - 3X3/4A-60
1	185mm	MB, loose	T/B	Without	1	1 - 3X3/9/KM2G - F
1	185mm	MB, fixed	T/B	Without	1	1 - 3X3/9/KM2G
2	185mm	S	T/B	Without	1	2 - 3X3/3A
2	185mm	S	B	With	1	2 - 3X3/3A/ES00
2	185mm	ST, M12x35	T/B	Without	1	2 - 3X3/4A
2	185mm	ST, M12x60	T/B	Without	1	2 - 3X3/4A - 60
2	185mm	MB, fixed	T/B	Without	1	2 - 3X3/9/KM2G
2	185mm	MB, loose	T/B	Without	1	2 - 3X3/9/KM2G - F
3/1000A	185mm	S	T/B	Without	1	3 - 3X3/1000/HA
3	185mm	S	T/B	Without	1	3 - 3X3/3A
3	185mm	S	B	With	1	3 - 3X3/3A/ES00
3	185mm	ST, M12x35	T/B	Without	1	3 - 3X3/4A
3	185mm	ST, M12x60	T/B	Without	1	3 - 3X3/4A - 60
3	185mm	MB, fixed	T/B	Without	1	3 - 3X3/9/KM2G
3	185mm	MB, loose	T/B	Without	1	3 - 3X3/9/KM2G - F
3/910A	185mm	S	T/B	Without	1	3 - 3X3/910/AO/AU-65
3/910A	185mm	S	T/B	Without	1	3 - 3X3/910/AO/AU-75
3/910A	185mm	S	T	Without	1	3 - 3X3/910/AORK
3/910A	185mm	S	T	Without	1	3 - 3X3/910/AORL
3/910A	185mm	S	T	Without	1	3 - 3X/910/AO-102
3/910A	185mm	S	T/B	Without	1	3-3X3/910/AO/AU-100
3/910A	185mm	S	CRT	Without	1	3 - 3X3/910/ARO
3/910A	185mm	S	CRBL	Without	1	3 - 3X3/910/ARUS
3/910A	185mm	S	T/B	Without	1	3 - 3X3/910/HA
3/1250A	185mm	S	T/B	Without	1	3 - 3X6/1250/HA
3/1600A	185mm	S	T/B	Without	1	3 - 3X6/1600/HA
3/2000A	185mm	S	T/B	Without	1	3 - 3X6/2000/HA

Size 3 / 630 A – 2000 A

LV HRC busbar disconnect strip, 1 – and 3 - pole switchable

Product definition
LV HRC busbar disconnect strips are 3 - pole LV HRC strip - type fuse switch - disconnectors for mounting on busbars. They combine three lengthwise - arranged 1 - pole fuse switch - disconnectors in one unit. One contact of each phase (incoming contact) is connected to one phase of a 3 - pole busbar system. The lateral outgoing connections allow coupling of a second distribution system.

Applications
The LVHRC busbar disconnect strips are used in low voltage distribution cabinets, network and transformer stations and cable distribution cabinets of power supply and industrial companies, where they complywith all power distribution requirements. The following current ratings are available: 630 A, size 3/910 A, size 3/1000 A with disconnecting blades and size 3/2000 A as double strip. Sizes 3 for 1000 A and 2000 A are delivered with disconnecting blades.

Operational principle
The busbar disconnect strips are used for accomodating LV HRC fuse - links and thus for breaking of circuits. They are 1 - and 3 – pole switchable and can be switched under load. The universal swing - in devices allow the use of current meters in conjunction with meter fuses and piggyback fuses for worksite tapping. The terminal lugs led through at the right or left side, which allow coupling of a second busbar system, are arranged in such a way that the neighbouring strip can be fitted in a 100 mm grid.

Product construction
The one - piece strip body, which accomodates current - carrying parts, consists of high - strength glass –fibre - reinforced polyester. The silver - plated contact system for accomodating the LV HRC fuse-links equipped with tin – plated discharge rails ensures low power loss, optimum thermal characteristics and high switching capacity. The lateral (right or left) outgoing connections allow coupling of a second busbar system. The live parts such as contacts and terminal lugs remain back – of - hand proof after removal of the upper part due to the contact coverswith integrated arcing chamber which remain at the base. Twist locks allow straightforward removal and fitting of the upper parts of the stripswith the swing-in devices.

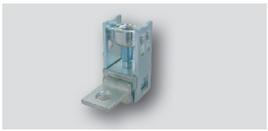
Size	Rated operational current (A)	Switched poles	Disconnecting blade	Busbar disconnection	Std.P	Type SLT3-3S...
3	630 A	1 - pole		Left side	1	L/3X
3/1000A	1000 A	1 - pole	TM3/1250	Left side	1	L/3X/1000
3/910 A	910 A	1 - pole		Left side	1	L/3X/910
3	630 A	1 - pole		Right side	1	R/3X
3/1000A	1000 A	1 - pole	TM3/1250	Right side	1	R/3X/1000
3/910 A	910 A	1 - pole		Right side	1	R/3X/910
3/2000 A	2000 A	1 - pole	TM3/1250	Right side	1	R/3X2/2000
3	630 A	3 - pole		Left side	1	L/3X3
3/1000 A	1000 A	3 - pole	TM3/1250	Left side	1	L/3X3/1000
3/910 A	910 A	3 - pole		Left side	1	L/3X3/910
3	630 A	3 - pole		Right side	1	R/3X3
3/1000 A	1000 A	3 - pole	TM3/1250	Right side	1	R/3X3/1000
3/910 A	910 A	3 - pole		Right side	1	R/3X3/910
3/2000 A	2000 A	3 - pole	TM3/1250	Right side	1	R/3X6/2000

Product definition

TERMINALS
Terminals are connectors for direct connection between connecting bars and lines.
V - TERMINAL CLAMP
The P0070 - Z V - terminal clamps are suitable for fitting to size 00 strips for the connection of circular and sector - shaped Al and Cu conductors.
CLAMP - TYPE TERMINAL
The S00 - Z terminals are suitable for fitting to size 00 strips for the connection of circular Cu conductors and Cu ribbon conductors.
KIT FOR 2 CABLE LUGS
The FK - 2x240 kit is used for the connection of 2 cable lugs ofmax. 2 x 300mm^2 perphase tosize 1 to3 stripswith screw terminal. It is suitable for cable lugs up to a width of 43mm.
KIT FOR 2 CABLES, TERMINAL RETROFITTING KIT
The clamping kit is used for two cables at one phase.
BUSBAR TERMINALS FOR SIZE 00
Busbar terminals are used for drill - free direct contacting of the strip - fuseways on the busbars.
BUSBAR TERMINALS FOR SIZE 1 - 3
With the aid of the busbar clamps, strips of the sizes 1 to 3 can be mounted directly on busbars without drilling holes. The SK clamps are available for busbars with thicknesses of 5 mm to 10mm.
BUSBAR ADAPTERS /ADAPTER CLIPS
The adapters are required for combining different strip sizes, e.g. size 00 with sizes 1 to 3.
TERMINAL COMPARTMENT /TERMINAL COVER
The terminal compartment and terminal covers provide probe - safe frontal protective covering of the terminal compartment.
BLANKING PLATE
The blanking plate is used for frontal covering of exposed strip locations. It is placed on the switchboard at the bottom and is fixed at the top using an espagnolette.
BUSBAR COVER, CLIP - TYPE
The clip - type protective covers of 100 mm width are suitable for bar thicknesses of 5 mm (6 mm),10 mm and 15 mm and bar widths of 30 mm to 100 mm. Due to their elevated position, they can also cover studs up to a length of 35 mm.
BUSBAR COVER, SCREW -TYPE
The screw - type covers of 100 mm width are fixed at busbars with M12 thread or stud. The covers of 50 mm width are fixed on busbars or adapters with M8 thread.
RESERVE PANEL COVER
The reserve panel cover is used for frontal covering of exposed strip locations and is fixed at the strip sides using AH - SL and AH - SL/S cover holders.
COVER HOLDER / LATERAL COVER SUPPORT
The cover holders and lateral cover support are used for fixing and supporting lateral covers.
DESIGNATION PLATE MOUNT
The designation plate mount is plugged on the strips at the end face. It allows fitting of an additional designation plate. When fitted in switchboards, it can also be used as support for a systemcover.
POSITION INDICATOR
The 3 - pole switchable strips of the sizes 00 - 3 and size 4A strips allow fitting of auxiliary switches with freely selectable make or break (changeover) function for indication of the connected or disconnected position.
CURRENT TRANSFORMER MOUNTING KIT
The current transformer mounting kit consists of the current transformer wiring aid with cable harness and a 9 - pin connector to be mounted on the back of the strip. It is available for SL - strips in the sizes 1 - 3 and also in the size 00 for the 100 mm and 185 mm series.
HOLDER WITH SPACER ROLLER
On strips for installation of current transformers (version „W"), the holder with spacer rollermust be fitted on the unmeasured phases if only single – phasemeasurement is used. The holderswith spacer rollers are already fitted on the strips for later installation of current transformers (version „WN").
ASSEMBLY AID
The assembly aid allows size 1 to 3 circuit strips to be hanged at the busbars while the system is energized.
BUSBAR SUPPORT
The 3 - pole busbar support is used for the fixing of flat bars at 100 mm and 185 mm distances. Lateral cover for busbar support The angled cover is screwed on to the busbar support and covers the ends of the busbars.
PIGGYBACK FUSE
The piggyback fuse enables fuse - rotected temporary connections (worksite electrical supply) to size 1 to 3 LV HRC strip - fuseways.
PEN TERMINAL FOR BUILDING SITE CONNECTION
When used with the piggyback fuse, the PEN clamp can be used to connect the neutral conductor directly to the PEN busbar.
RAILING KITS
The kit for 1000 A is used to expand the wiring space for 2 or 3 cable lugs per phase. The kit for 1250 A allows 2 strips to be connected at the terminal and 3 or 4 cables per phase to be connected.
CONNECTOR KITS
The connector kits are used for parallel switching of 2 strips.

Direct-connection terminal	Std.P	Type
Size 4a, 3 - wire connection, 95-150 mm^2, Al/Cu	1	K3G/3/AF40 - 50
Size 4a, 4 - wire connection, 95-150 mm^2, Al/Cu	1	K3G/4/AF40 - 50
Size 4a, 2 - wire connection, 120-300 mm^2, Al/Cu	1	KV2HG-F/2/300/AF40 - 50

Direct-connection terminal	Std.P	Type
Sizes 1- 3/70 - 240mm^2 Al/Cu	3	K2G/A K2201092



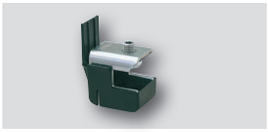
V - terminal clamp	Std.P	Type
Size 00/10 - 70 mm^2 Al/Cu	3	P0070 - Z

Clamp - type terminal	Std.P	Type
Size 00/1,5 - 70 mm^2 Cu (also for GU00)	3	S00 - Z

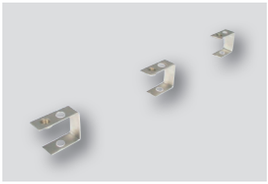
Kit for 2 cable lugs	Std.P	Type
For sizes 2 - 3	3	FK2x240 - SL23

Busbar terminal for size 00	Std.P	Type
Bar thickness 5 – 10 mm	3	SK - L/SL00
Bar thickness 10 – 15 mm	3	SK - L/SL00/15

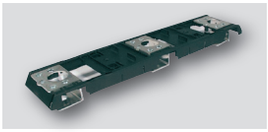
Busbar terminal for size 1 - 3	Std.P	Type
Bar thickness 5 – 10 mm	3	SK - L/SL123/10



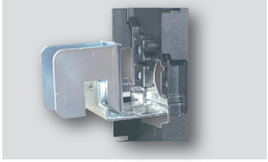
Adapter clip for size 00	Std.P	Type
For 1 strip, 185/185 mm	1	AB - SL00/1
For 1 strip, 185/100 mm	1	AB185 - SL00/100/1/52
For 1 strip, 60/100 mm	1	AB60 - SL00/100/1



Adapter strip for size 00	Std.P	Type
For 2 strips, 185/185 mm, height 42 mm	1	AL – SL00/42
For 2 strips, 185/100 mm	1	AL185 - SL00/100/52

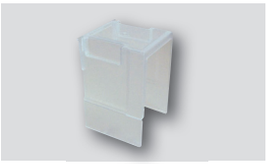


Adapterstrip for size 00 with busbar terminal	Std.P	Type
For 2 strips, 185/100 mm	1	AL185/SK - SL00/100/52
For 2 strips, 185/185 mm	1	AL/SK - SL00/42

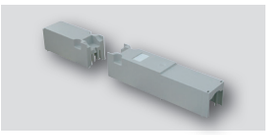


Shrouding cover	Std.P	Type
For KM2G multiple box terminals	3	HRV

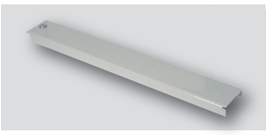
Accessories



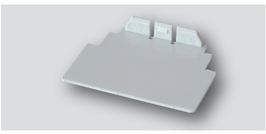
Terminal compartment cover	Std.P	Type
For SL00	1	HA - SL00
For SL123	1	HA - SL123/10
For SL3 - 3x2(6)	1	HA - SL3X2/10
For SL3/910(1000)	1	HA220 - SL123/10
For SL3/910(1000), extended	1	HA275 - SL123/10
For SL00 - 3x3/100	1	HAV - SL00/100



Compensating adapters	Std.P	Type
For SL00 - 3x3/100	1	BO/BU - SL00/100

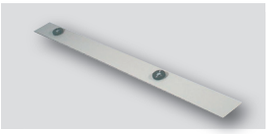


Blanking plate	Std.P	Type
For SL00 - 3x3/100 / width 50mm	1	B - SL00/100
For SL00, width 50 mm, Cover view 633 mm	1	B - SL00/633
For SL00, width 50 mm, Cover view 650 mm	1	B - SL00/650
For SL123, width 100 mm, Cover view 633 mm	1	B - SL123/633
For SL123, width 100 mm, Cover view 650 mm	10	B - SL123/650

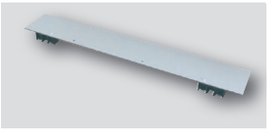


Cover support	Std.P	Type
For SL00 with cover view 650 mm	20	BA650 - SL00/185

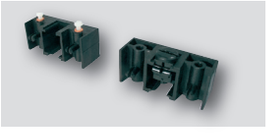
Busbar cover, clip-type	Std.P	Type
185mm busbar system / width 100 mm	3	H - RF



Busbar covers, screw-type	Std.P	Type
185 mm busbar system / width 50 mm, M8	3	H - SL00
100 mm busbar system / width 50 mm, M8	3	H - SL00/100
185 mm busbar system / width 100 mm, M12	2	H - SL123/662
185 mm busbar system / width 100 mm, M12/St	3	H - SL123/ST

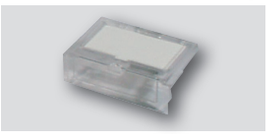


Reserve panel cover	Std.P	Type
For SL00 / width 50 mm	1	LA - SL00
For SL123 / width 100 mm	1	LA - SL123

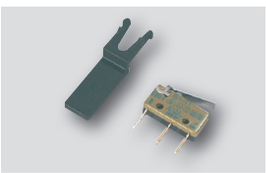


Cover holder	Std.P	Type
With fixing screw	4	AH - SL
With quick - release lock	4	AH - SL/S

Lateral cover support	Std.P	Type
3 clips with T profile (length 650 mm)	2	AHCT-SL00-3

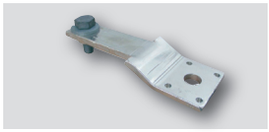


Designation plate, top	Std.P	Type
For SL00	5	BZO - SL00
For SL123	5	BZO - SL123/10



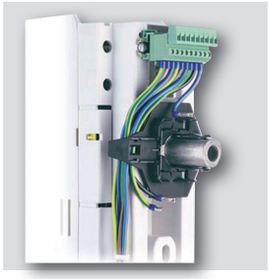
Position indicator	Std.P	Type
For SL00 - 3x3/100	1	EV - SL00/100
For SL00, 3 - pole switchable	1	EV - SL00/3X3
For SL123, 3 - pole switchable	1	EV - SL123/3X3/10

Current transformer mounting kit for size 1 - 3	Std.P	Type
For 1 current transformer type WSD30 in phase L3	1	1OW/L3 - L/SL123
For 3 current transformers type WSD30	1	3OW - L/SL123

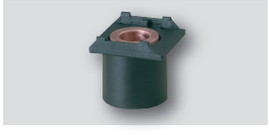


Transformer holder for strip size 00 - 3	Std.P	Type
1/250 A - 3/630 A with spacer sleeve 45 mm, for WSD25	3	WH123+DH45/DI12,5
1/250 A - 3/630 A with spacer sleeve 55 mm, for WSD30	3	WH123+DH55/DI12,5
00/160 A with spacer sleeve 45 mm, for WSD25	3	WH00+DH45/DI8,5
00/160 A with spacer sleeve 55 mm, for WSD30	3	WH00+DH55/DI8,5
3/1000 A with spacer sleeve 60 mm, for WSD40	3	WH3+DH60/DI12,5

Current-transformer upgrade kit for three transformers, complete with cable harness and plug-in terminal	Std.P	Type
with spacer sleeve 45mm, without transformer, for WSD25	1	WH123+DH45/DI12,5/KB
with spacer sleeve, without transformer, for WSD30	1	WH123+DH55/DI12,5/KB
SL00/100 with spacer sleeve 45 mm, for WSD25	1	WH00+DH45/DI8,5/KB/100
SL00/100 with spacer sleeve 55 mm, for WSD30	1	WH00+DH55/DI8,5/KB/100
SL00/185 with spacer sleeve 45 mm, for WSD25	1	WH00+DH45/DI8,5/KB/185
SL00/185 with spacer sleeve 55 mm, for WSD30	1	WH00+DH55/DI8,5/KB/185

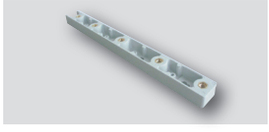


Holder with spacer roller	Std.P	Type
Hight 20 mm, for SL00/100	1	HDR20 - SL00/100
Hight 26 mm, for sizes 1-3	1	HDR26 - SL123
Hight 26 mm, for size 3/1000	1	HDR26 - SL123



Fixing bracket	Std.P	Type
For sizes 1-3	10	MW - SL123

Busbar support	Std.P	Type
For 100 mm and 185 mm busbar distance, M10, 30 Nm	10	SH100/185



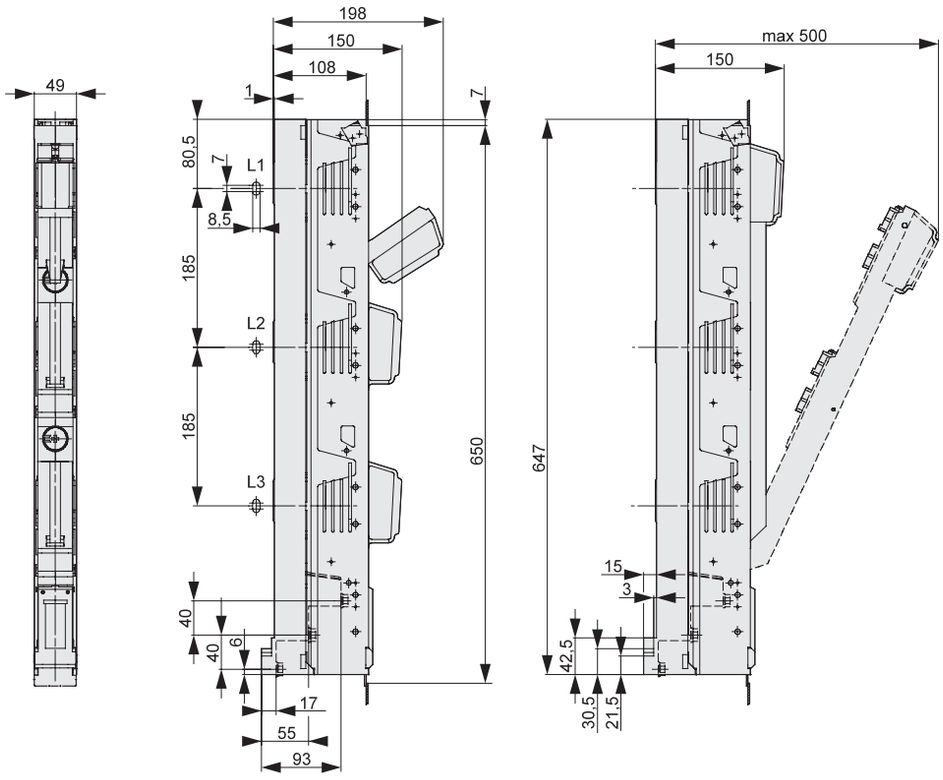
Lateral cover for busbar support	Std.P	Type
For 185 mm busbar distance	2	HW - SH/185
For 100 mm busbar distance	2	HW - SH/100

PEN terminal for building site connection	Std.P	Type
For 5 – 10 mm busbar thickness	1	SK-S0070

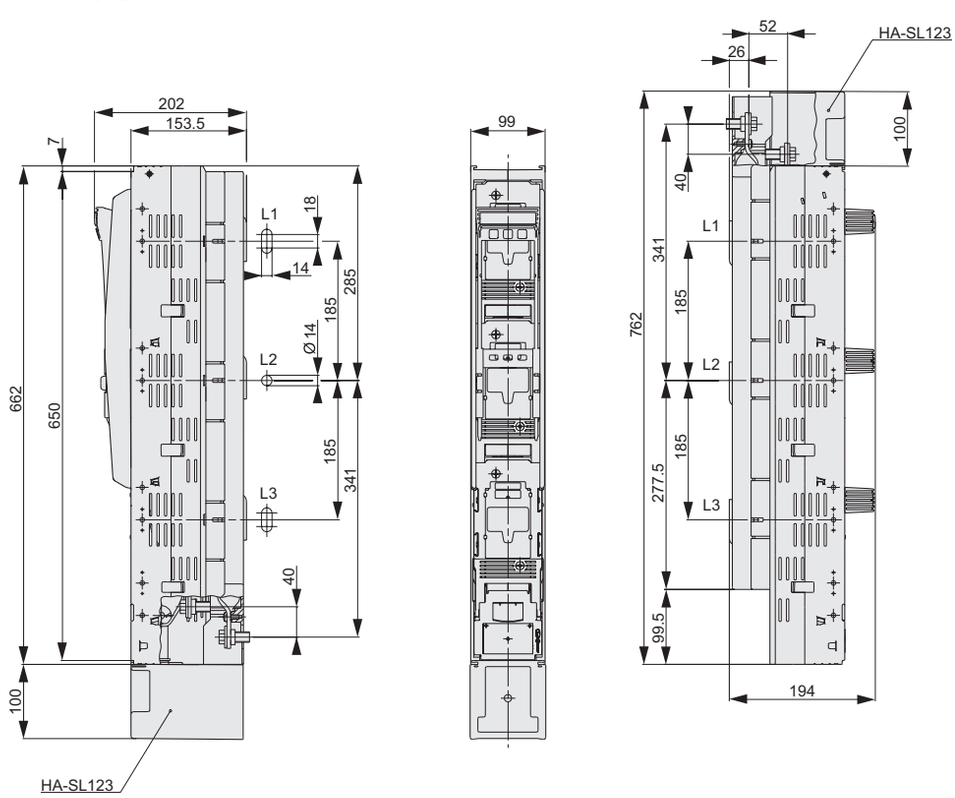
Fixing screws	Std.P	Type
For SL00	3	F - M8x40
For SL123	3	F - M12x50

Terminal strip	Std.P	Type
For SL00 - fuse strip with current transformer	1	BS – KL - SL00
For SL123 - fuse strip with current transformer	1	BS - KL - SL123

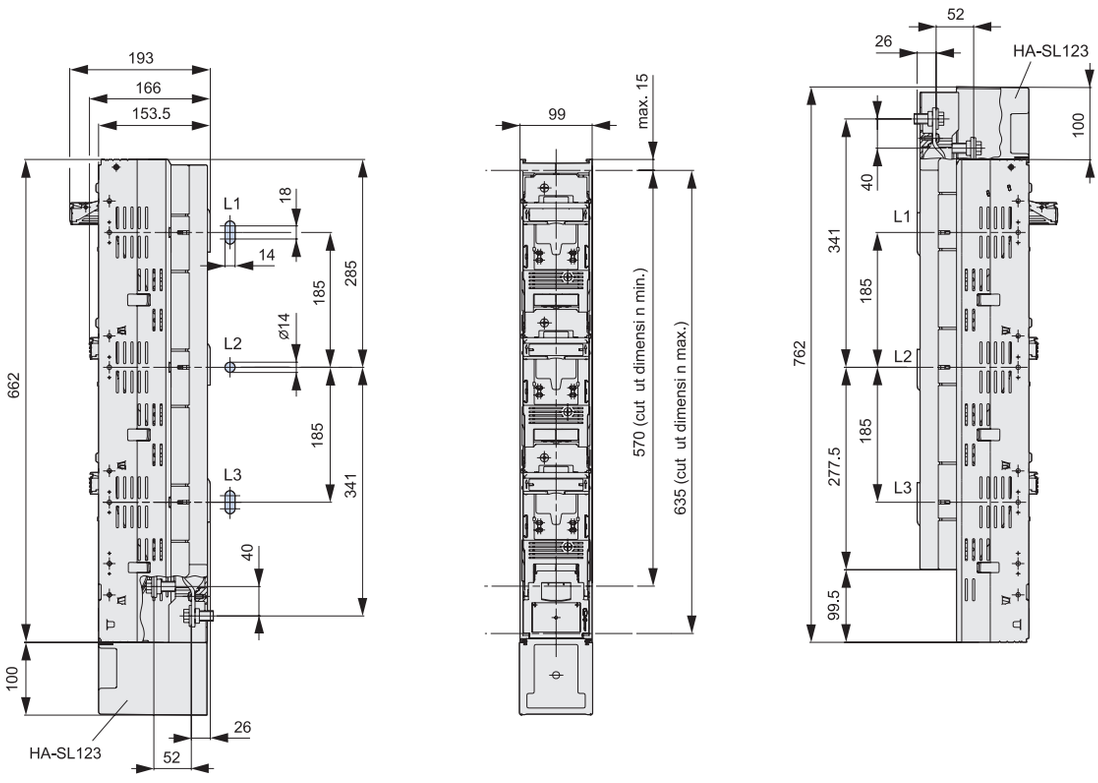
SL00 - 3X/..., SL00 - 3X3/...



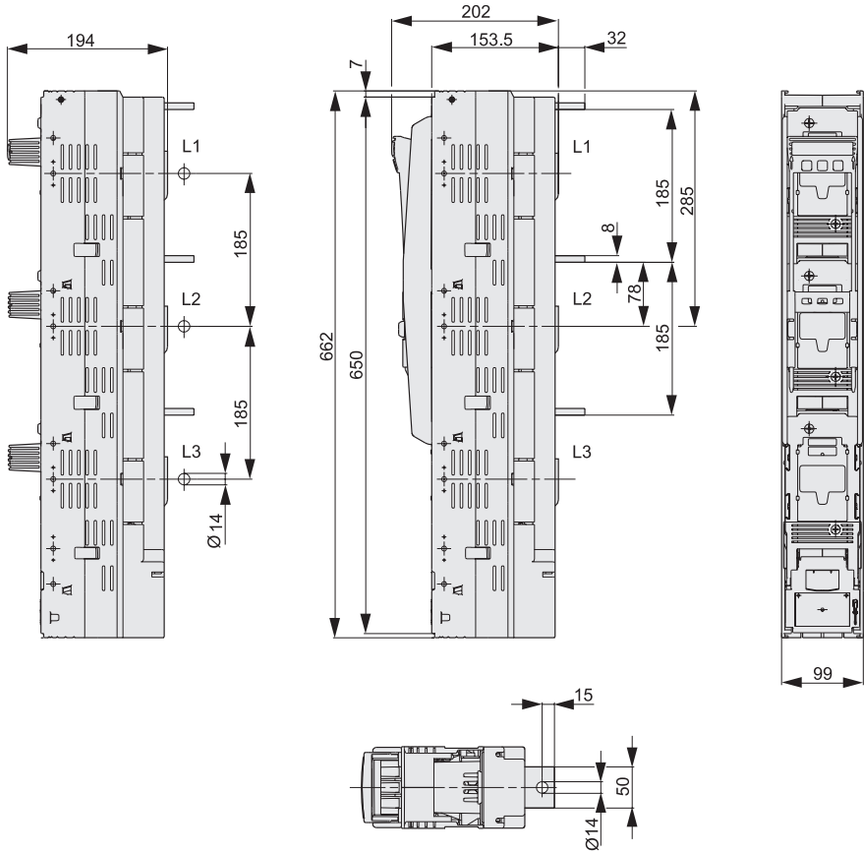
SL...- 3x(3)...



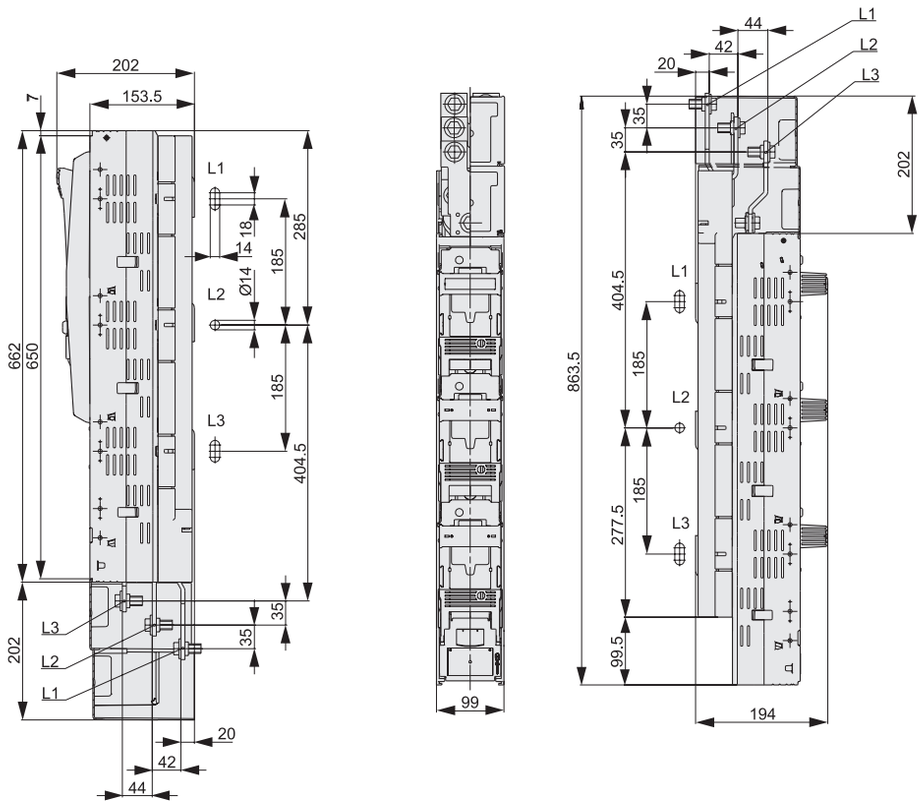
SL...- 3x/.../GV



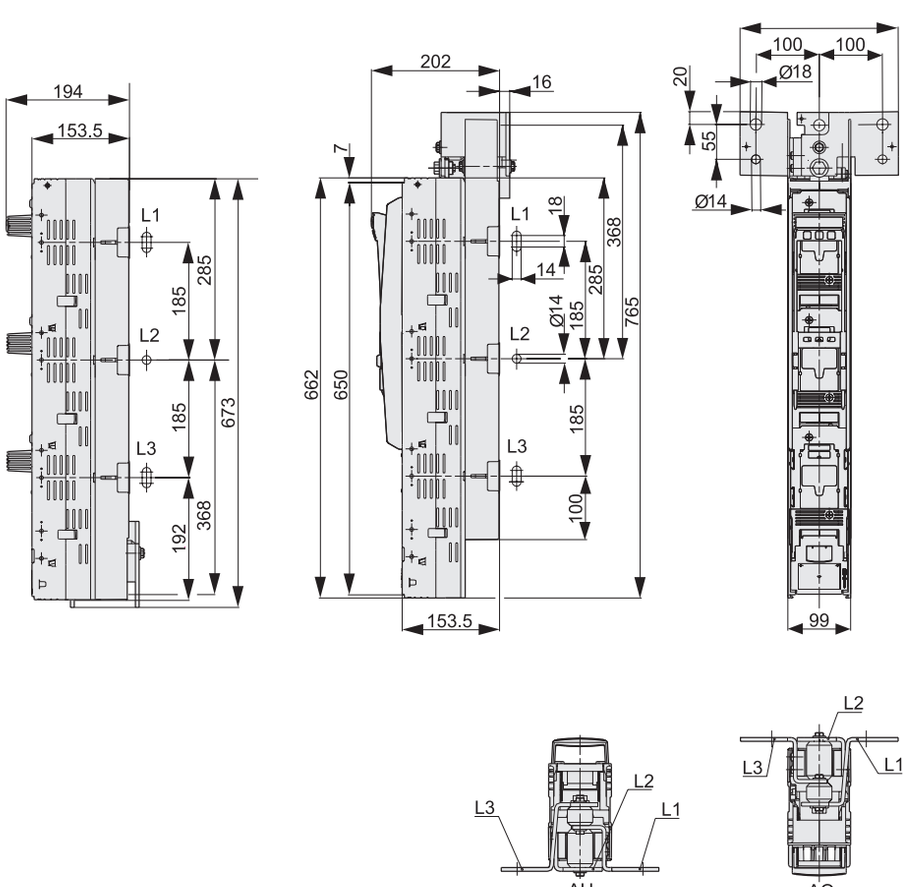
SL3 - 3X(3)/.../ARO



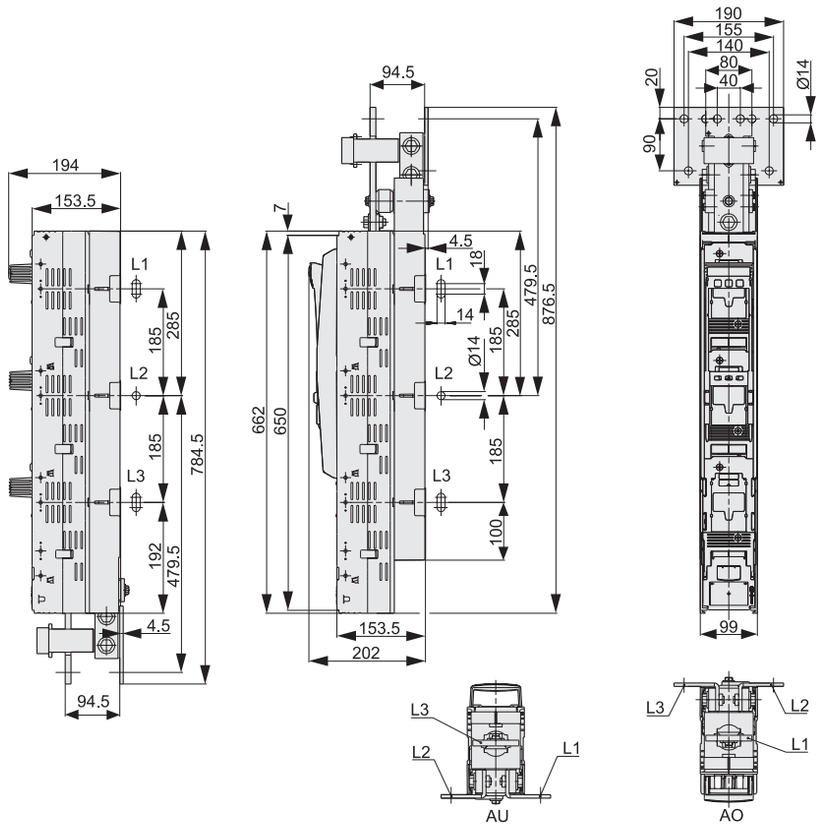
SL3 - 3X(3)/1000/HA



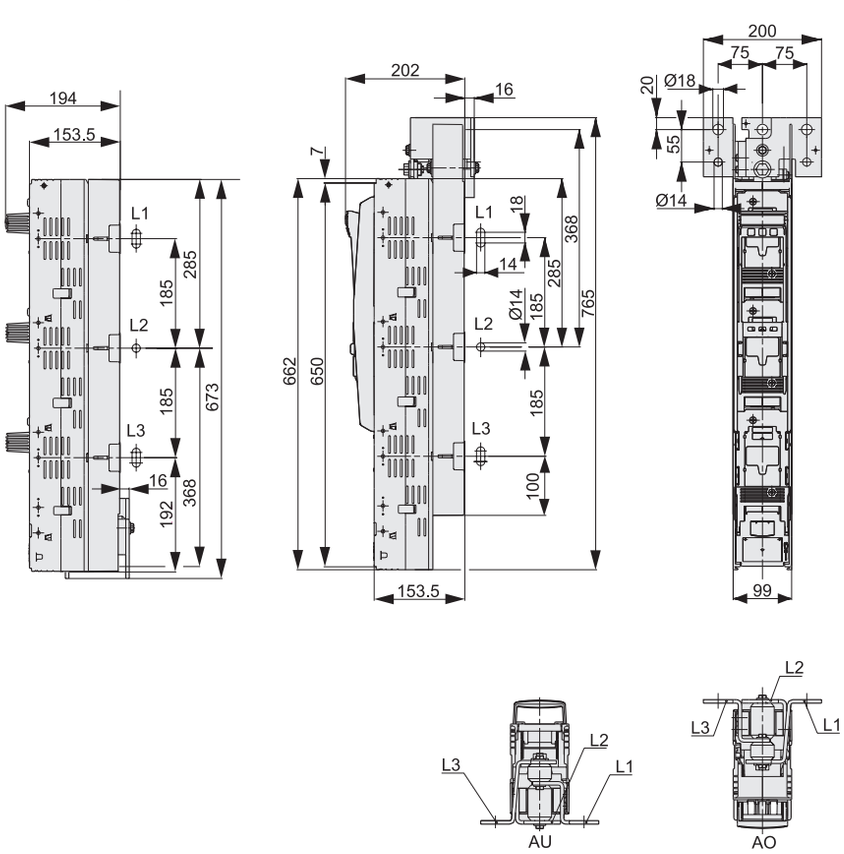
SL3 - 3X(3)/910/AO/AU - 100



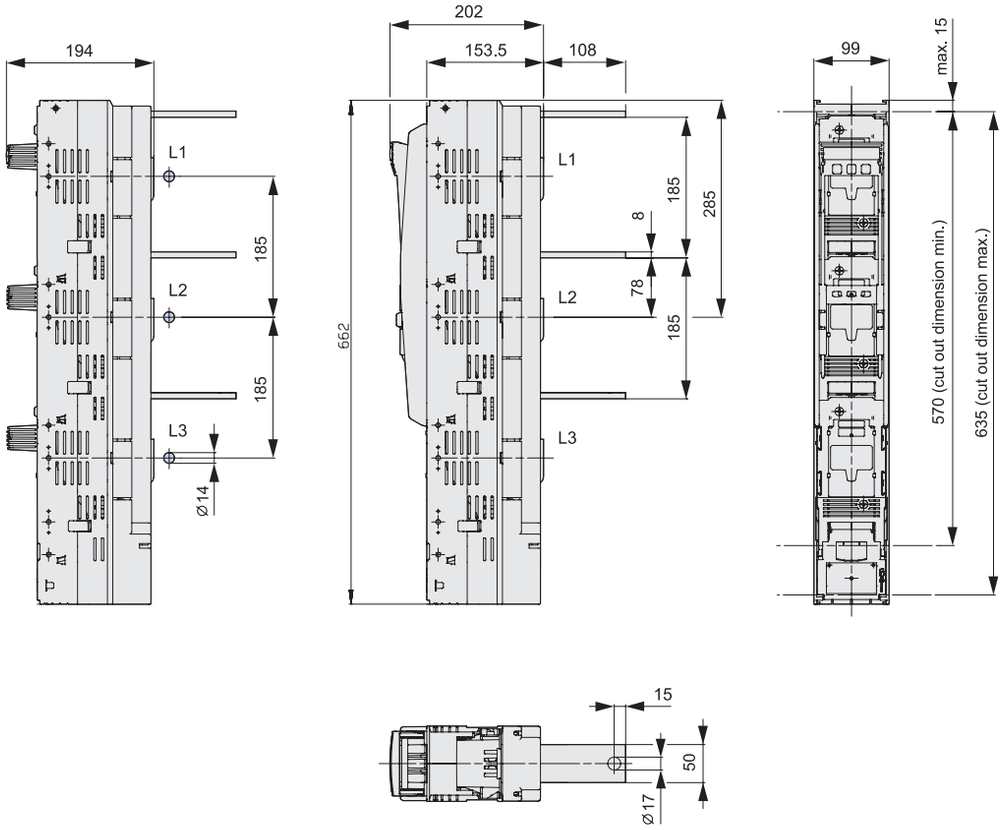
SL3 - 3X(3)/910/AO/AU - 65



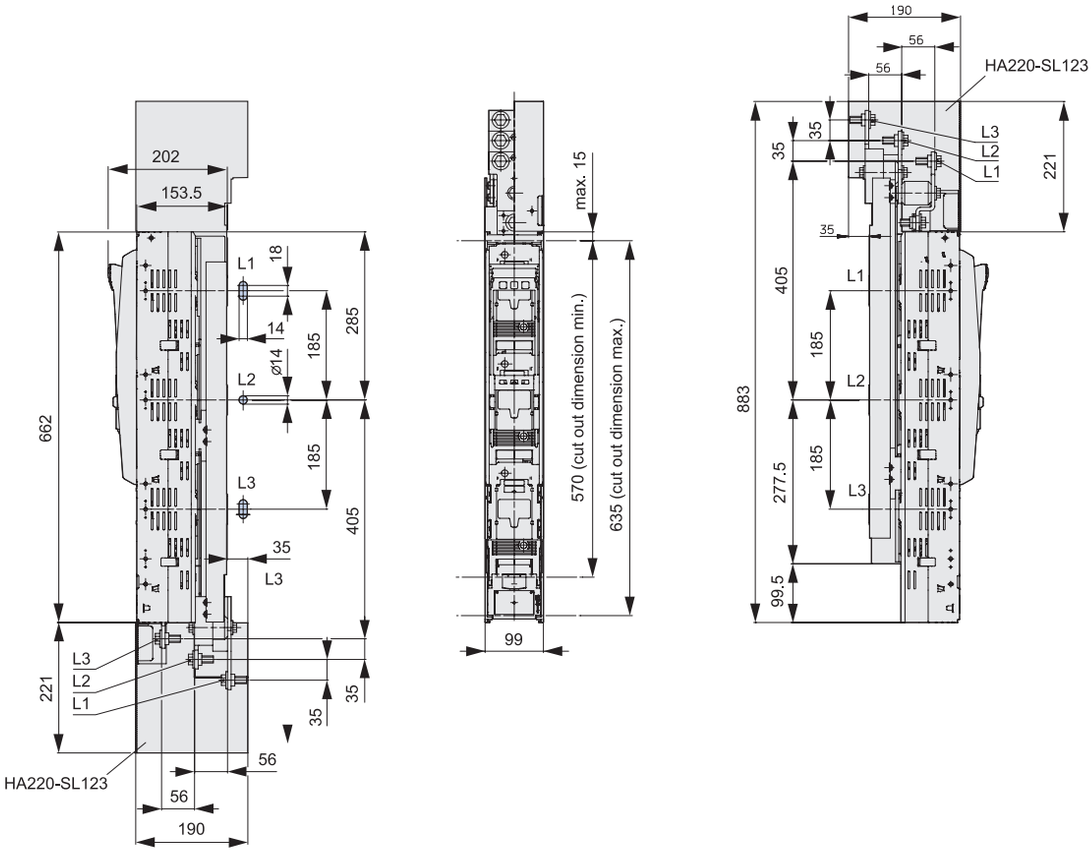
SL3 - 3X(3)/910/AO/AU - 75



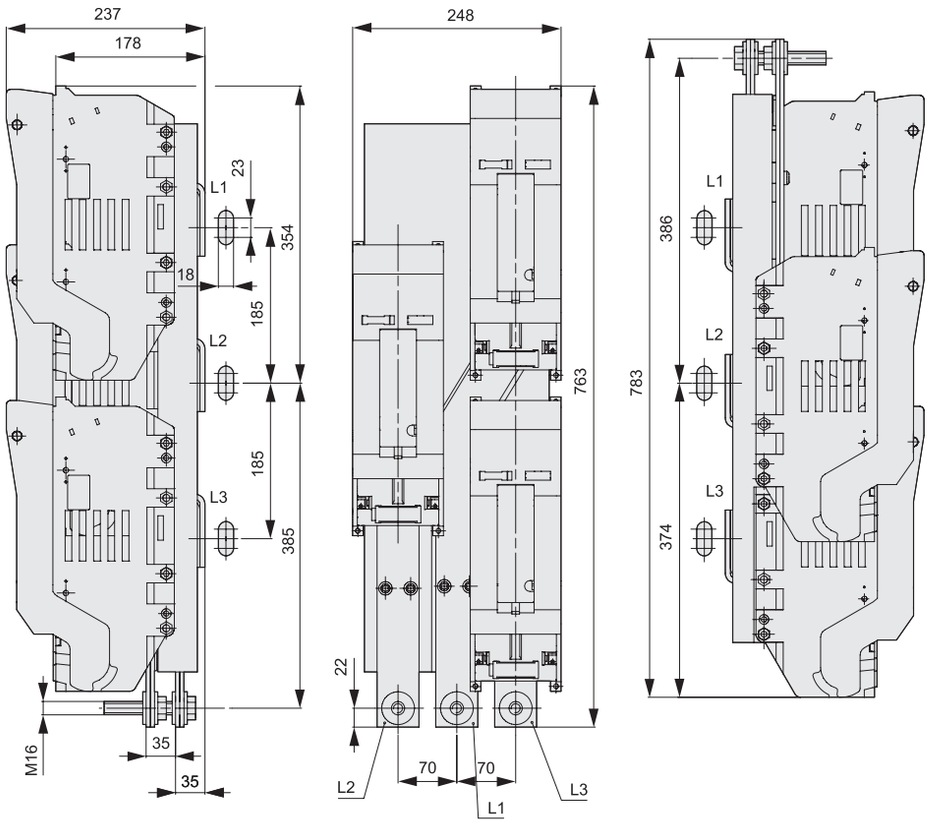
SL3 - 3x(3)/910/ARO/110



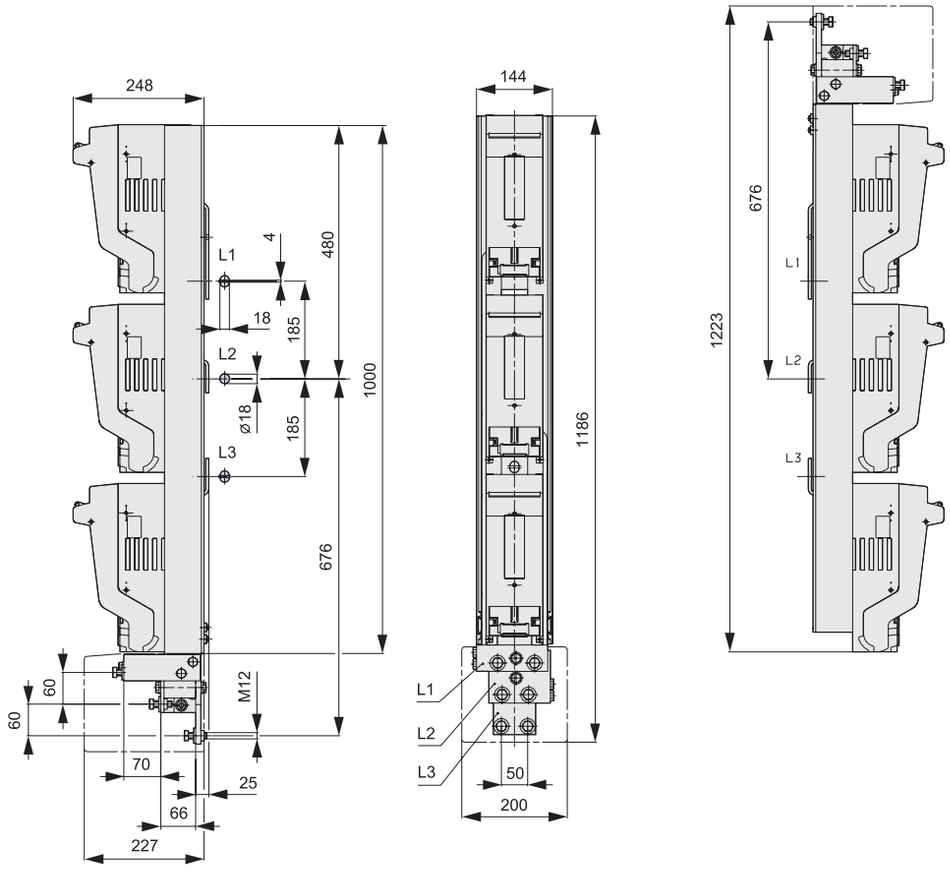
SL3 - 3X/910/HA



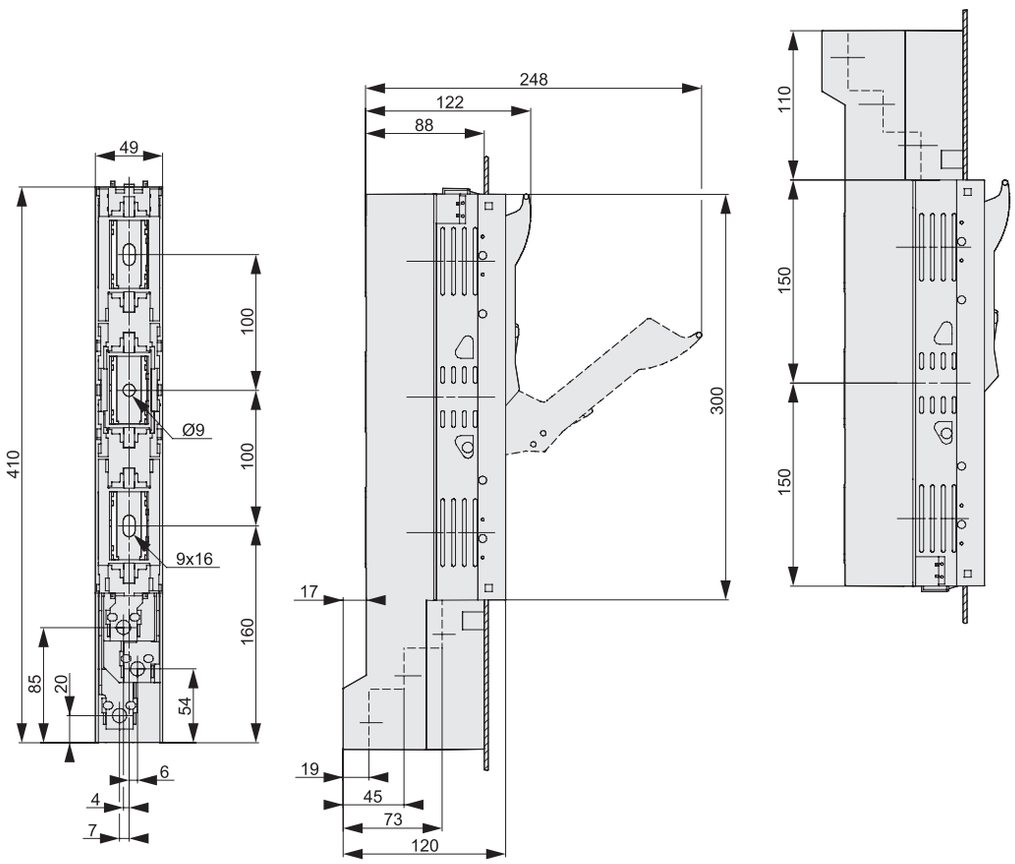
SLTL4A - 3AS/3x/4/(AO)



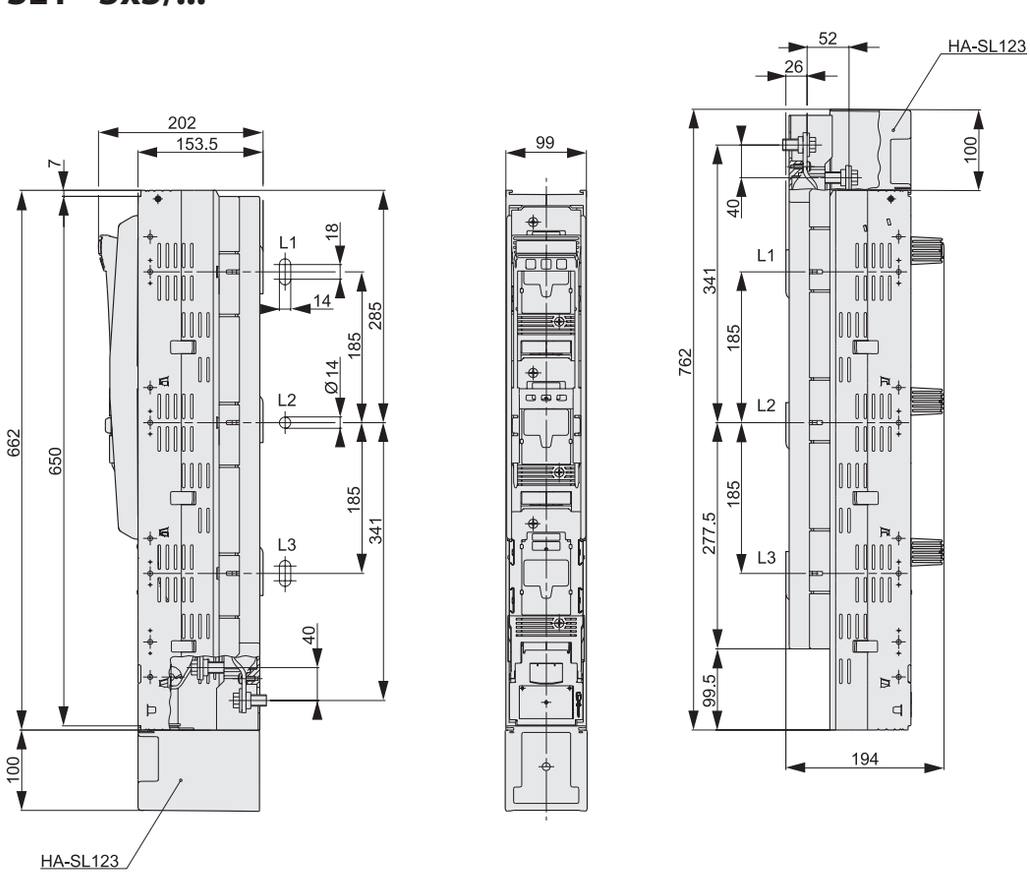
SLTL4A - 3AS/3X/2X3A/Q/147K/AO



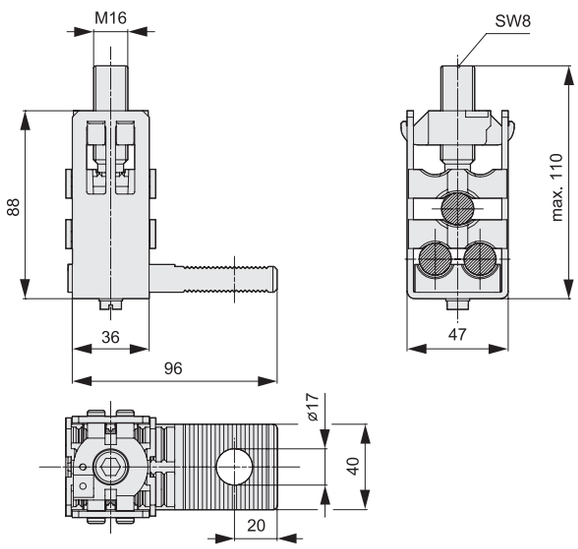
SL00 - 3X3/100/...



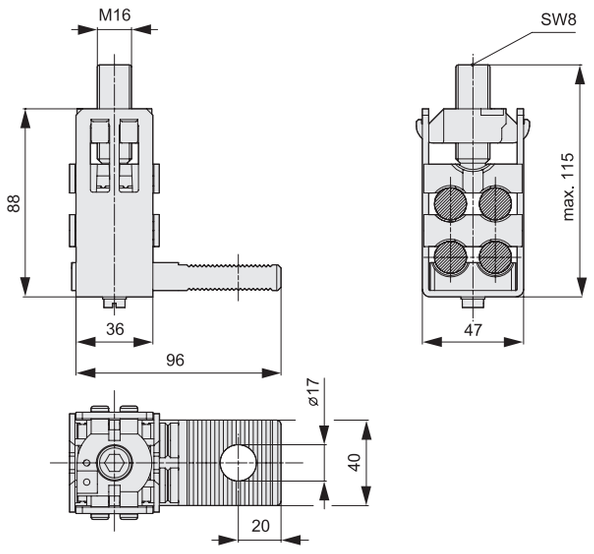
SL1 - 3x3/...



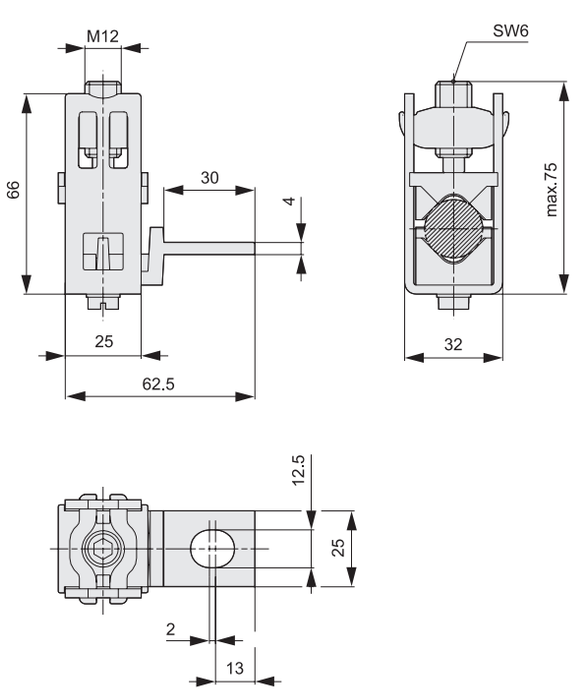
K3G/3/AF40 - 50



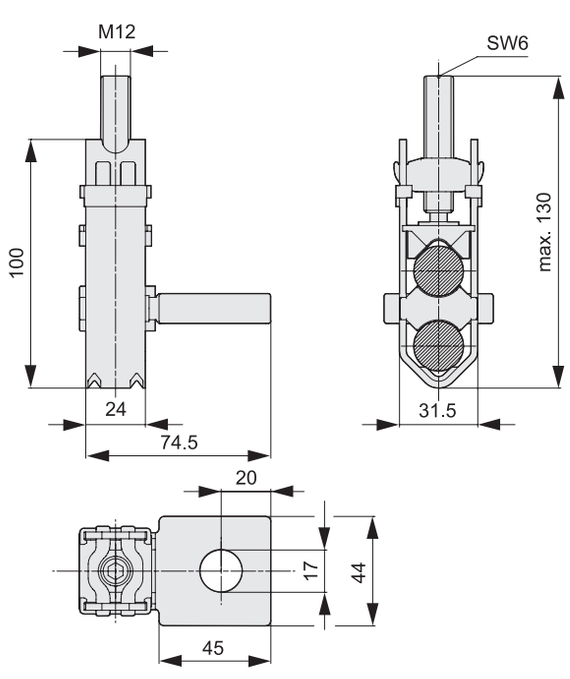
K3G/4/AF40 - 50



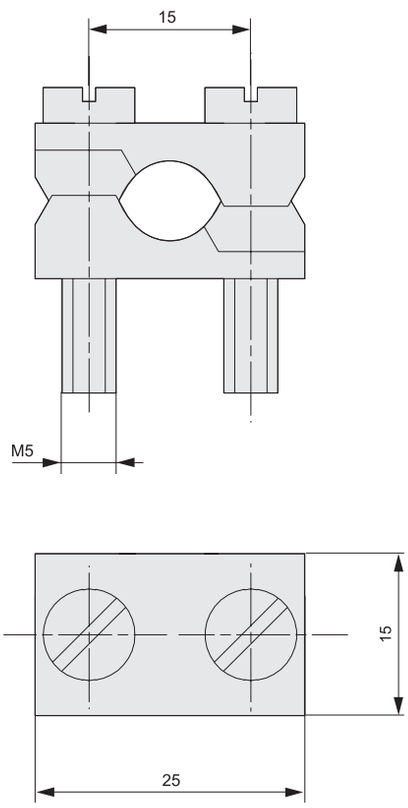
K2G/A



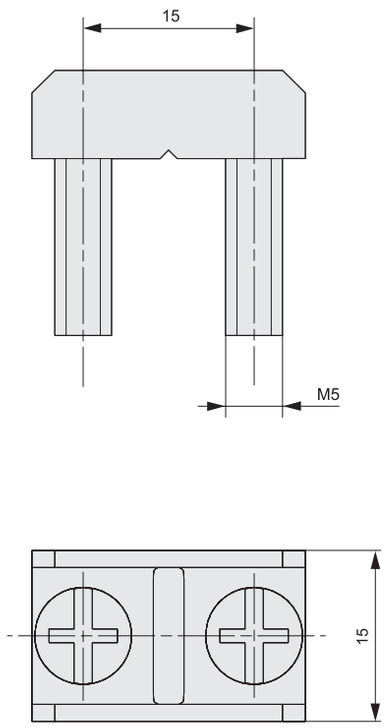
KV2HG - F/2/300/AF40 - 50



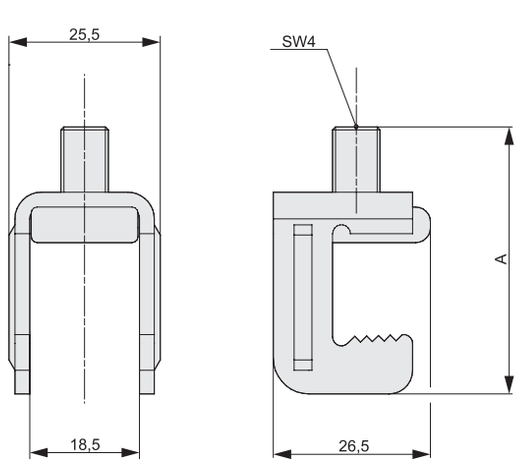
P0070 - Z



S00 - Z

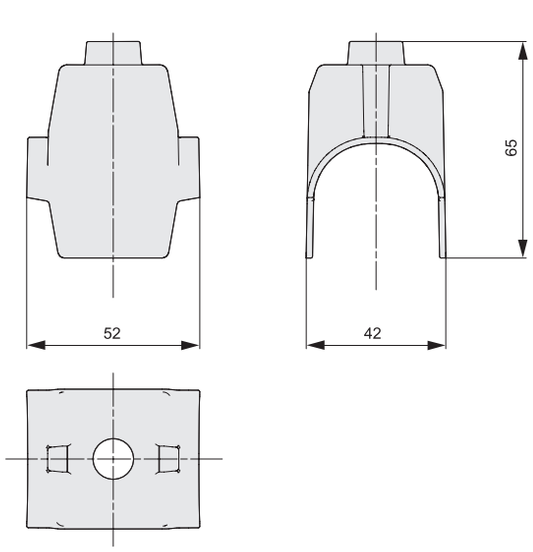


SK - SL00

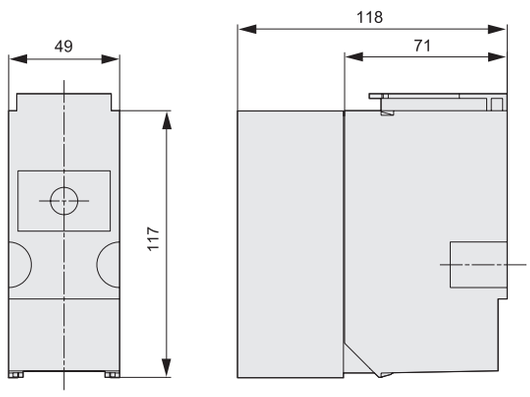


	A
SK-SL00/10	50
SK-SL00/15	55

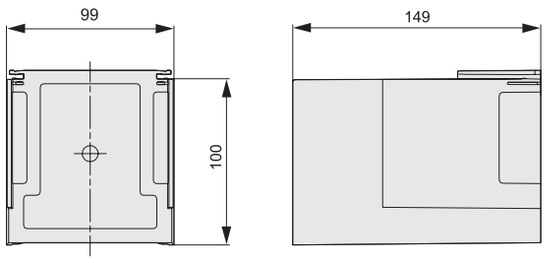
HRV - KM2.../



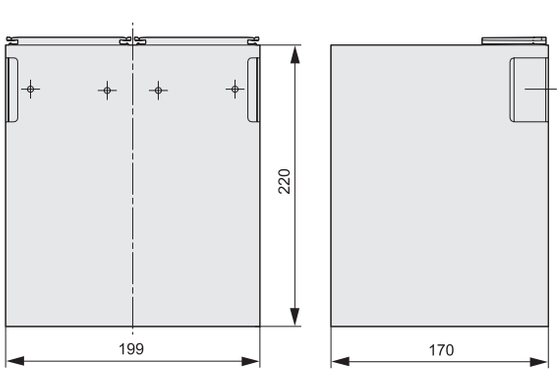
HA - SL00



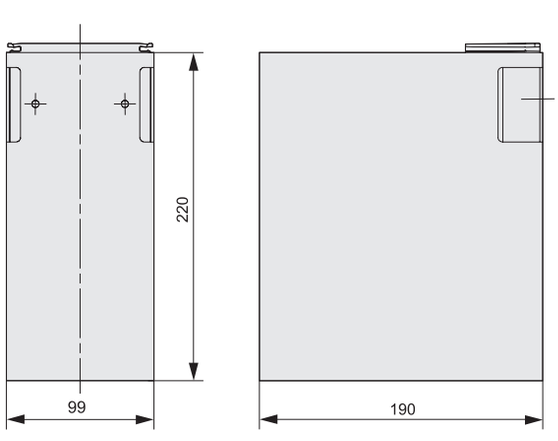
HA - SL123/10



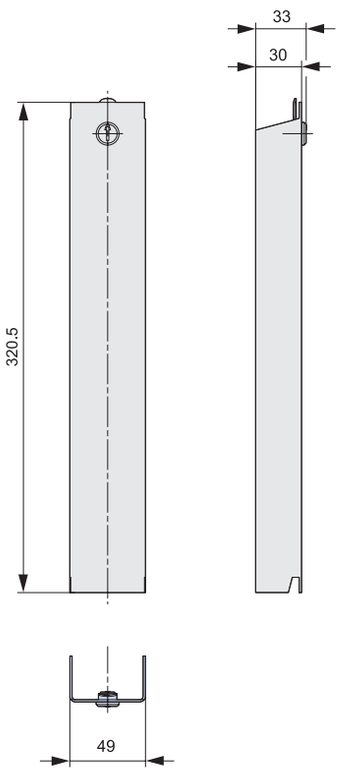
HA - SL3X2/10



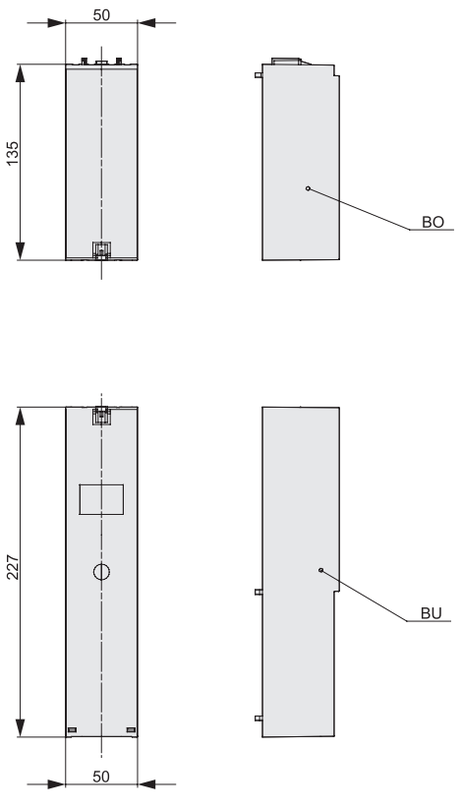
HA220 - SL123/10



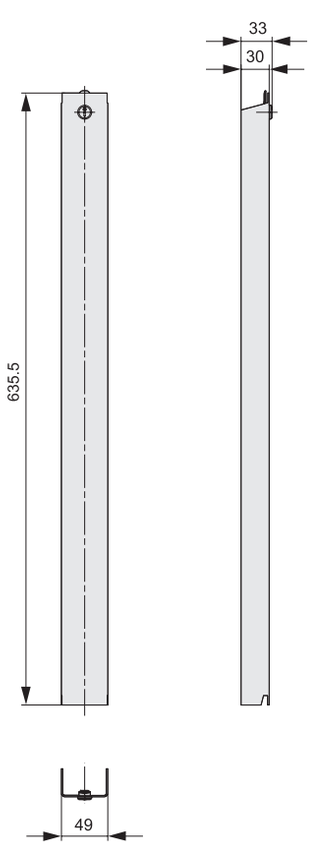
B - SL00/100



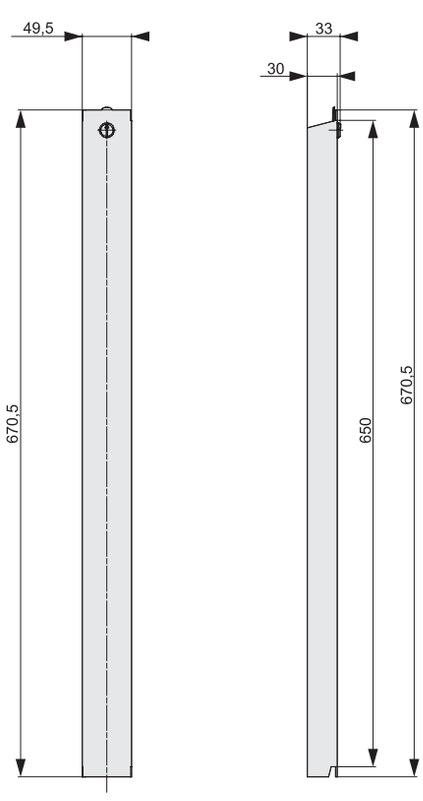
BO/BU - SL00/100



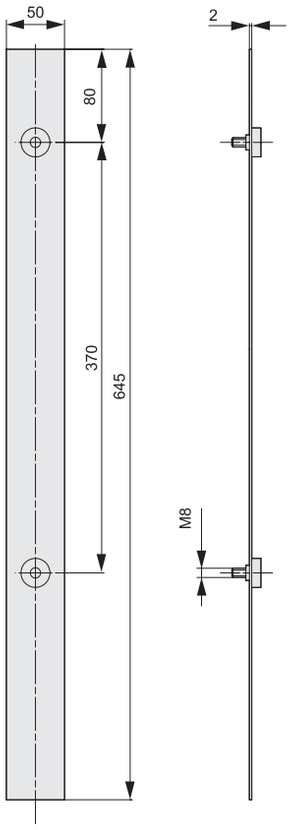
B - SL00/633



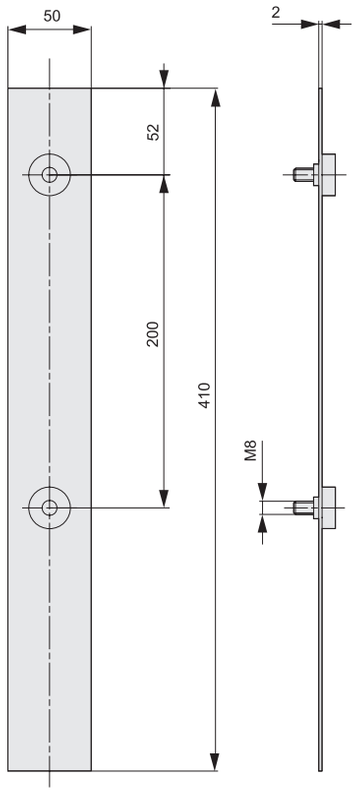
B - SL00/650



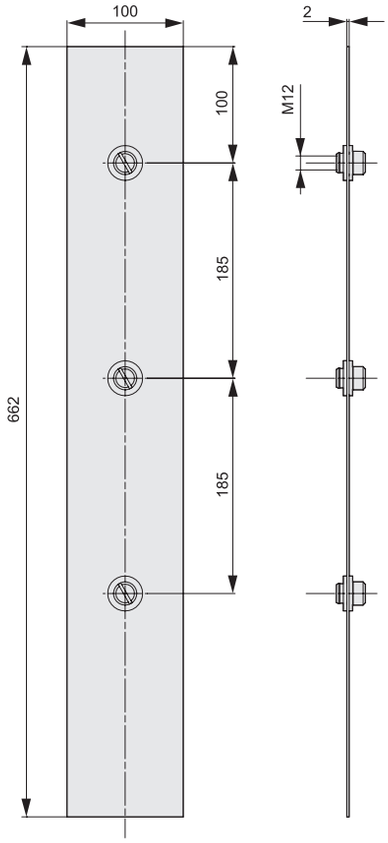
H - SL00



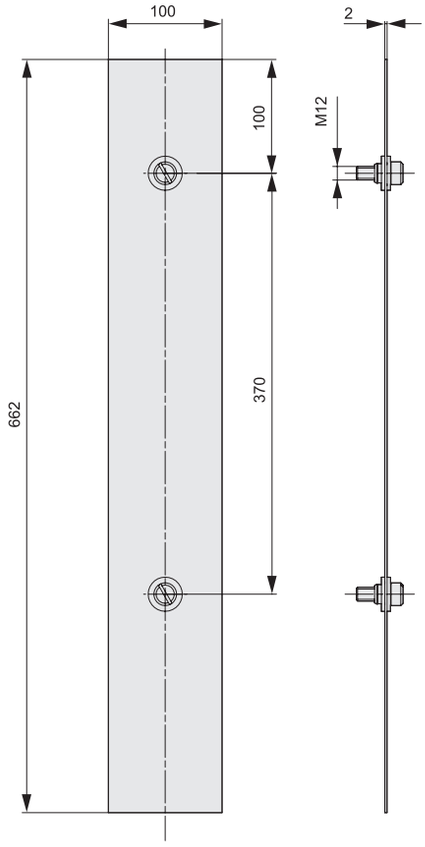
H - SL00/100



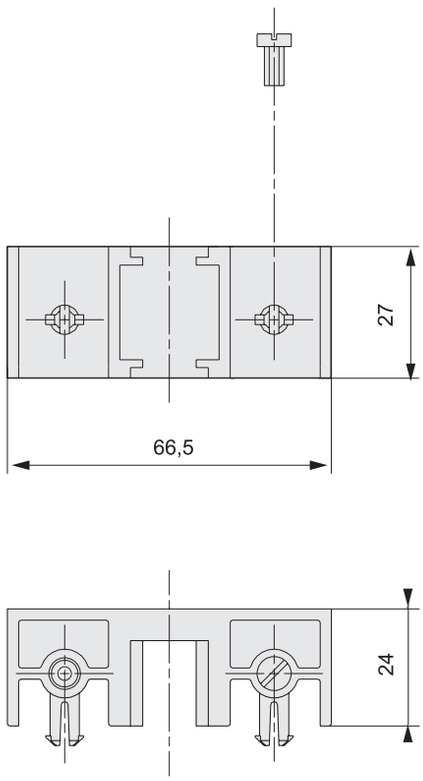
H - SL123/ST



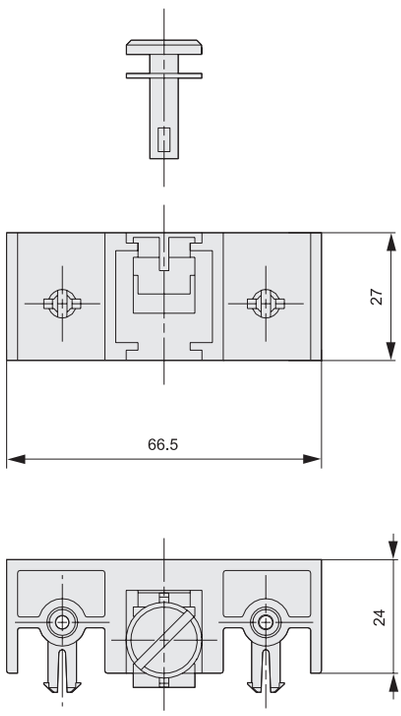
H - SL123/662



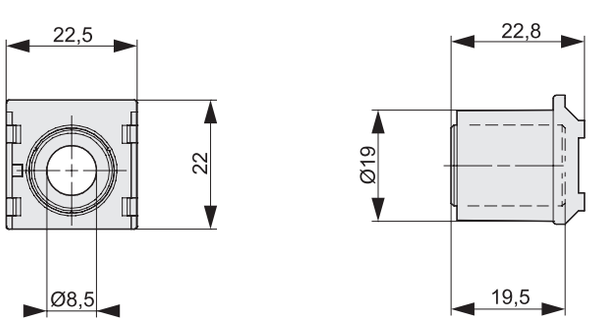
AH - SL



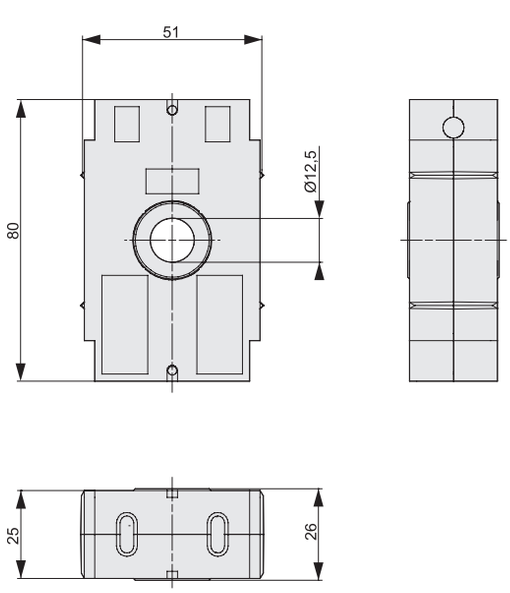
AH - SL/S



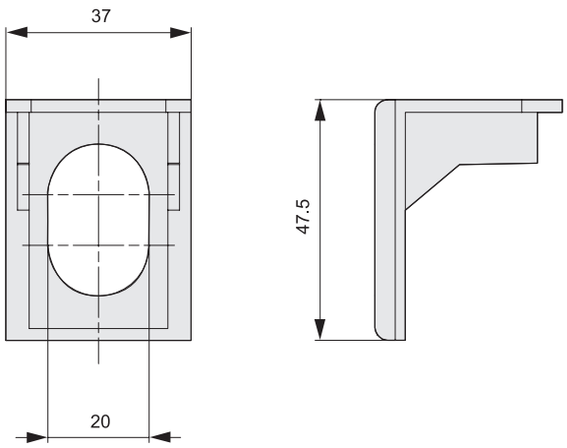
HDR20 - SL00/100

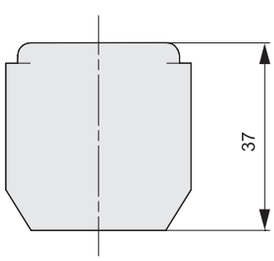


HDR25 - SL123

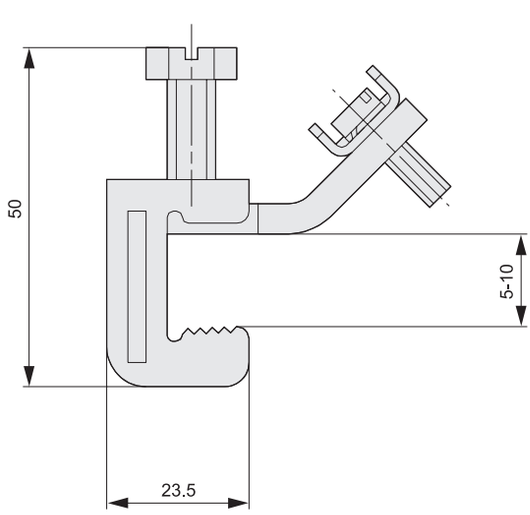


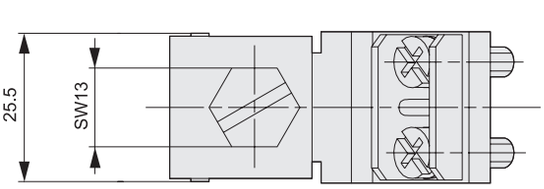
MW - SL123





SK - S0070





Technical data for LV HRC strip type fuse-switch-disconnector (in accordance with IEC/EN 60 947-3 and VDE 0660 Part 107)

Type					SL00/100				SL00/185			
Electrical characteristics	Rated operational voltage		U_e	V	AC500	AC690	DC220	DC440	AC500	AC690	DC220	DC440
	Rated operational current		I_e	A	160	100	160	100	160	100	160	100
	Conventional free air thermal current with fuses		I_{th}	A	160	100	160	100	160	100	160	100
	Conventional free air thermal current with solid links		I_{th}	A	210 A s TM00				210 A s TM00			
	Rated frequency		-	Hz	40 – 60	40 – 60	-	-	40 – 60	40 – 60	-	-
	Rated insulation voltage		U_i	V	AC 750							
	Rated conditional short-circuit current		-	kAeff	80	80	25	25	50	50	25	25
	Rated short-time withstandcurrent (1sec)		I_{cw}	kAeff	-							
	Utilization category		-	-	AC22B	AC22B	DC21B	DC21B	AC22B	AC22B	DC21B	DC21B
	Rated making capacity		-	A	480	300	240	150	480	300	240	150
	Rated breaking capacity		-	A	480	300	240	150	480	300	240	150
	Rated impulse withstand voltage		U_{imp}	kV	8				8			
	Operating cycles with current		-	-	200	300	200	300	200	300	200	300
	Total power loss at Ith (without fuse)		P_v	W	18	7	12	5	18	7	12	5
Fuse – links	Size to DIN 43 620		-	-	00				00			
	Max. rated current (gL/gG)		I_N	A	160	100	160	100	160	100	160	100
	Max. permis. power loss per fuse - link		P_v	W	12				12			
Mech. character.	Operating cycles without current		-	-	1700				1700			
	Weight [1]		-	g	1,1				2,4			
	Busbar distance		-	mm	100				185			
Cable connection	Flat terminal	Bolt diameter		-	M8							
		Cable lug (DIN 46 235)	-	mm^2	1x10 – 96 (max. 25 width)				1x10 – 96 max. 25 š			
		Flat bar	-	mm	20x10				20x10			
		Tightening torque	Ma	Nm	12-15				12-15			
	Terminal	Clamping cross-section	-	mm^2	S00 1,5 – 70 Cu/ ribbon 6x9x0,8				S00 1,5 – 70 Cu/páska 6x9x0,8			
		Tightening torque	Ma	Nm	2,6							
	Terminal	Clamping cross-section	-	mm^2	P 00 - 70 10-70 Al/Cu				P 00 - 70 10-70 Al/Cu			
		Tightening torque	Ma	Nm	2,6							
	Terminal	Clamping cross-section	-	mm^2	P 00 - 95 35-95 Al/Cu				P 00 - 95 35-95 Al/Cu			
		Tightening torque	Ma	Nm	2,6							
	Terminal	Clamping cross-section	-	mm^2	KU 00 10-95 Al/Cu				KU 00 10-95 Al/Cu			
		Tightening torque	Ma	Nm	10							
	Terminal	Clamping cross-section	-	mm^2	F70 1,5–70 Cu/ ribbon 6x9x0,8				F70 -			
		Tightening torque	Ma	Nm	2,6				-			
	Terminal	Clamping cross-section	-	mm^2	KM 00 16-95 Al/Cu				KM 00 -			
		Tightening torque	Ma	Nm	10				-			
Type of protec.	Front side device fitted	Operational state	-	-	IP 30							
		Front cover open	-	-	IP 10							
Operating conditions	Ambient temperature [2]		T_u	°C	-25 to + 55							
	Rated operating mode		-	-	Continuous operation							
	Actuation		-	-	Dependent manual operation							
	Mounting position		-	-	Vertical, horizontal							
	Altitude		-	m	Up to 2000							
	Pollution degree		-	-	3							
	Overvoltage category		-	-	III							

[1] Without packaging
[2] 35°C Normal temperature, at 55°C with reduced operating current

Technical data for LV HRC strip type fuse-switch-disconnector (in accordance with IEC/EN 60 947-3 and VDE 0660 Part 107)

Type					SL1				SL 2			
Electrical characteristics	Rated operational voltage		U_e	V	AC500	AC690	DC220	DC440	AC500	AC690	DC220	DC440
	Rated operational current		I_e	A	250	200	250	200	400	315	400	315
	Conventional free air thermal current with fuses		I_{th}	A	250	200	250	200	400	315	400	315
	Conventional free air thermal current with solid links		I_{th}	A	400 A s TM2				210 A s TM3			
	Rated frequency		-	Hz	40 – 60	40 – 60	-	-	40 – 60	40 – 60	-	-
	Rated insulation voltage		U_i	V	AC 1000							
	Rated conditional short-circuit current		-	kAeff	80	80	25	25	80	80	25	25
	Rated short-time withstandcurrent (1sec)		I_{cw}	kAeff	-							
	Utilization category		-	-	AC22B	AC22B	DC21B	DC21B	AC22B	AC22B	DC21B	DC21B
	Rated making capacity		-	A	1200	600	375	300	1890	945	600	475
	Rated breaking capacity		-	A	1200	600	375	300	1890	945	600	475
	Rated impulse withstand voltage		U_{imp}	kV	12	12	8	8	12	12	8	8
	Operating cycles with current		-	-	200							
	Total power loss at I_{th} (without fuse)		P_v	W	23	15	16	11	49	30	33	21
Fuse – links	Size to DIN 43 620		-	-	1				2			
	Max. rated current (gL/gG)		I_N	A	250	200	250	200	400	315	400	315
	Max. permis. power loss per fuse - link		P_v	W	32				45			
Mech. character.	Operating cycles without current		-	-	1400							
	Weight [1]		-	g	4,9							
	Busbar distance		-	mm	185							
Cable connection	Flat terminal	Bolt diameter	-	-	M10/M12				M12			
		Cable lug (DIN 46 235)	-	mm^2	1x25 - 150				1x25 - 240			
		Flat bar	-	mm	30x10							
		Tightening torque	Ma	Nm	30 - 35				30 - 40			
	Terminal	Clamping cross-section	-	mm^2	KM2G 2,5–150/185-300							
		Tightening torque	Ma	Nm	40							
	Terminal	Clamping cross-section	-	mm^2	KM2G - F 25 – 240							
		Tightening torque	Ma	Nm	40							
Type of protec.	Front side device fitted	Operational state	-	-	IP 30							
		Front cover open	-	-	IP 10							
Operating conditions	Ambient temperature [2]		T_u	°C	-25 to + 55							
	Rated operating mode		-	-	Continuous operation							
	Actuation		-	-	Dependent manual operation							
	Mounting position		-	-	Vertical, horizontal							
	Altitude		-	m	Up to 2000							
	Pollution degree		-	-	3							
	Overvoltage category		-	-	III				IV			

[1] Without packaging

[2] 35°C Normal temperature, at 55°C with reduced operating current

Technical data for LV HRC strip type fuse-switch-disconnector (in accordance with IEC/EN 60 947-3 and VDE 0660 Part 107)

Type					SL3				SL3/910
Electrical characteristics	Rated operational voltage		U_e	V	AC500	AC690	DC220	DC440	AC 400
	Rated operational current		I_e	A	630	500	630	500	910
	Conventional free air thermal current with fuses		I_{th}	A	630	500	630	500	910
	Conventional free air thermal current with solid links		I_{th}	A	800 A s TM3/1250				1250
	Rated frequency		-	Hz	40 – 60	40 – 60	-	-	50
	Rated insulation voltage		U_i	V	AC 1000				AC 500
	Rated conditional short-circuit current		-	kAeff	80	80	25		50
	Rated short-time withstandcurrent (1sec)		I_{cw}	kAeff	-				-
	Utilization category		-	-	AC22B	AC22B	DC21B	DC21B	AC22B
	Rated making capacity		-	A	2400	1500	945	750	3750
	Rated breaking capacity		-	A	2400	1500	945	750	3750
	Rated impulse withstand voltage		U_{imp}	kV	12	12	8	8	8
	Operating cycles with current		-	-	200	200	200	200	100
	Total power loss at I_{th} (without fuse)		P_v	W	110	70	74	47	260
Fuse – links	Size to DIN 43 620		-	-	3				3/910 A
	Max. rated current (gL/gG)		I_N	A	630	500	630	500	910
	Max. permis. power loss per fuse - link		P_v	W	48				61
Mech. character.	Operating cycles without current		-	-	1000				100
	Weight [1]		-	g	5,6				11,4
	Busbar distance		-	mm	185				185
Cable connection	Flat terminal	Bolt diameter	-	-	M12				2xM12
		Cable lug (DIN 46 235)	-	mm^2	1x25 – 300 (max. 43 width)				max. 2x300,3x185
		Flat bar	-	mm	30x10				80x10
		Tightening torque	Ma	Nm	35 - 40				35 - 40
	Terminal	Clamping cross-section	-	mm^2	KM2G 25–150/185-300				KM2G
		Tightening torque	Ma	Nm	40				
	Terminal	Clamping cross-section	-	mm^2	KM2G-F 25–240				KM2G-F
		Tightening torque	Ma	Nm	40				
Type of protec.	Front side device fitted	Operational state	-	-	IP 30				
		Front cover open	-	-	IP 10				
Operating conditions	Ambient temperature [2]		T_u	°C	-25 to + 55				
	Rated operating mode		-	-	Continuous operation				
	Actuation		-	-	Dependent manual operation				
	Mounting position		-	-	Vertical, horizontal				
	Altitude		-	m	Up to 2000				
	Pollution degree		-	-	3				
	Overvoltage category		-	-	IV				

[1] Without packaging
[2] 35°C Normal temperature, at 55°C with reduced operating current

Technical data for LV HRC strip type fuse-switch-disconnector (in accordance with IEC/EN 60 947-3 and VDE 0660 Part 107)

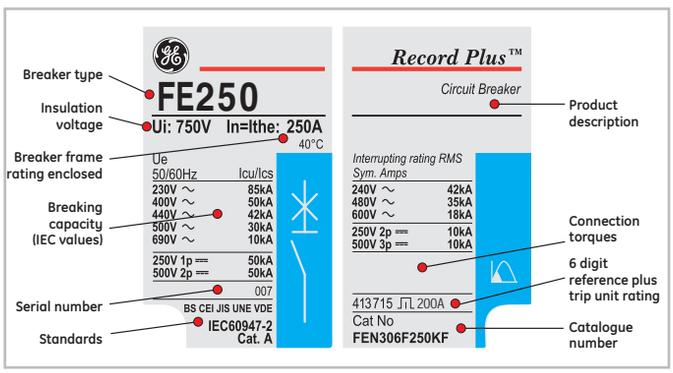
Type					SL00/400	SL3/1000	
Electrical characteristics	Rated operational voltage		U_e	V	AC 500	AC 500	AC 400
	Rated operational current		I_e	A	400	1000	1000
	Conventional free air thermal current with fuses		I_{th}	A	-		
	Conventional free air thermal current with solid links		I_{th}	A	400	1000	1000
	Rated frequency		-	Hz	40-60	40-60	40-60
	Rated insulation voltage		U_i	V	AC 750	AC 1000	AC 1000
	Rated conditional short-circuit current		-	kAeff	-		
	Rated short-time withstandcurrent (1sec)		I_{cw}	kAeff	17	25[1)]	25[1)]
	Utilization category		-	-	AC-21B	AC-21B	AC-22B
	Rated making capacity		-	A	-	2400	3000
	Rated breaking capacity		-	A	-	2400	3000
	Rated impulse withstand voltage		U_{imp}	kV	8	12	12
	Operating cycles with current		-	-	200	100	100
	Total power loss at I_{th} (without fuse)		P_v	W	49	300	300
Fuse of links	Size to DIN 43 620		-	-	TM00-26	TM3/1000	
	Max. rated current (gL/gG)		I_N	A	400	1000	
Mech. character.	Max. permis. power loss per fuse - link		-	-	800	800	
	Operating cycles without current		-	kg	3,5	8,5	
	Weight [1)]		-	mm	185	185	
Cable connection	Flat terminal	Bolt diameter	-	-		M12	
		Cable lug (DIN 46 235)	-	mm^2		max. 2x300,3x120	
		Flat bar	-	mm		80x10	
		Tightening torque	Ma	Nm		35 - 40	
	Terminal	Clamping cross-section	-	mm^2	KRO 1x25–150		
		Tightening torque	Ma	Nm	20		
Type of protec.	Front side device fitted	Operational state	-	-	IP 30		
		Front cover open	-	-	IP 10		
Operating conditions	Ambient temperature [2)]		T_u	°C	-25 to + 55		
	Rated operating mode		-	-	Continuous operation		
	Actuation		-	-	Dependent manual operation		
	Mounting position		-	-	Vertical, horizontal		
	Altitude		-	m	Up to 2000		
	Pollution degree		-	-	3		
	Overvoltage category		-	-	III	IV	

[1)] With interlock, without packaging
[2)] 35°C Normal temperature, at 55°C with reduced operating current

Technical data for LV HRC strip type fuse-switch-disconnector (in accordance with IEC/EN 60 947-3 and VDE 0660 Part 107)

Type					SL3/1250	SL3/2000
Electrical characteristics	Rated operational voltage		U_e	V	400	400
	Rated operational current		I_e	A	1250	2000
	Conventional free air thermal current with fuses		I_{th}	A	-	
	Conventional free air thermal current with solid links		I_{th}	A	1250	2000
	Rated frequency		-	Hz	40-60	
	Rated insulation voltage		U_i	V	AC 500	
	Rated conditional short-circuit current		-	kAeff	-	
	Rated short-time withstandcurrent (1sec)		I_{cw}	kAeff	25 (with locking)	
	Utilization category		-	-	-	
	Rated making capacity		-	A	-	
	Rated breaking capacity		-	A	-	
	Rated impulse withstand voltage		U_{imp}	kV	-	
	Operating cycles with current		-	-	-	
	Total power loss at I_{th} (without fuse)		P_v	W	400	520
Fuse – links	Size to DIN 43 620		-	-	2x3	2xTM3/1250
	Max. rated current (gL/gG)		I_N	A	-	
	Max. permis. power loss per fuse - link		P_v	W	-	
Mech. char.	Operating cycles without current		-	-	-	
	Weight [1]		-	kg	15,5	33
Cable connection	Flat terminal	Bolt diameter	-	-	3xM12	4xM12
		Cable lug (DIN 46 235)	-	mm^2	max. 3x300,4x185	max. 4x300
		Flat bar	-	mm	-	
		Tightening torque	Ma	Nm	35 - 40	
Type of protec.	Front side device fitted	Operational state	-	-	IP 30	
		Front cover open	-	-	IP 10	
Operating conditions	Ambient temperature [2]		T_u	°C	-25 to + 55	
	Rated operating mode		-	-	Continuous operation	
	Actuation		-	-	Dependent manual operation	
	Mounting position		-	-	Vertical, horizontal	
	Altitude		-	m	Up to 2000	
	Pollution degree		-	-	3	
	Overvoltage category		-	-	IV	

[1] Without packaging
[2] 35°C Normal temperature, at 55°C with reduced operating current



Certification

The ***Record Plus™*** line of circuit breakers has been designed to comply with the following standards:

EN 60947 Low-voltage switchgear and controlgear

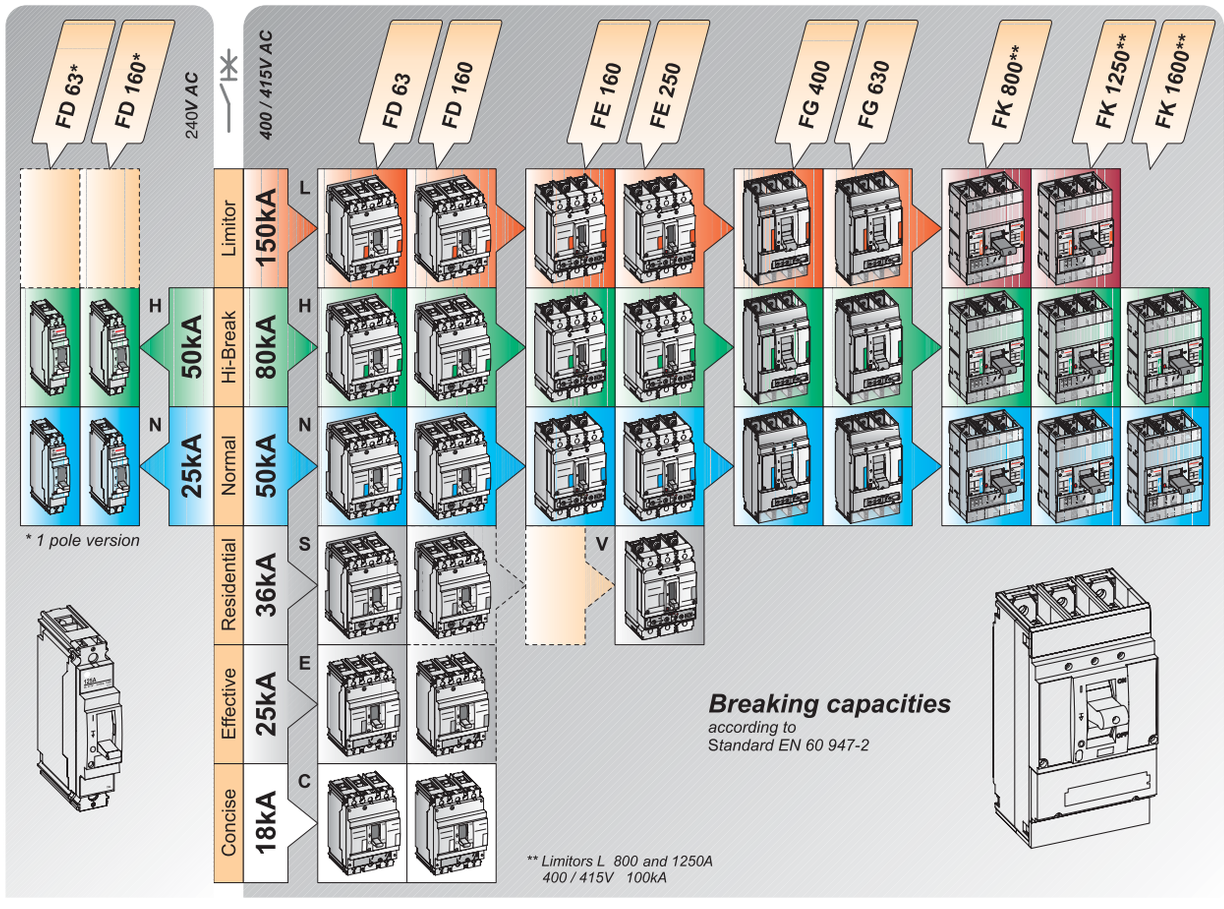
EN 60947-1: General rules
EN 60947-2: Circuit-breakers
EN 60947-3: Switches, disconnectors, switch-disconnectors and fuse-combination units
EN 60947-4-1: Contactors and motor-starters
Section One: Electromechanical contactors and motorstarters
EN 60947-5-1: Control circuit devices and switching elements
Section One: Electromechanical control circuit devices

The compliance has been verified by two testing authorities: LOVAG and KEMA (appropriate certificates are available on request)

Meeting the international standards. The requirements are met of **BS, VDE, UTE, KEMA, CEI**. Record Plus breakers have been tested in acordance with the NEMA standards

For the Record Plus product certificates are available from the following regulatory bodies:
Germanische Lloyds - RINA
Lloyds Register of Shipping - CCC (China)
Further tests are being undertaken to meet the requirements of the following regulatory bodies:
Bureau Veritas - Det Norske Veritas

Please contact us to check the availability of individual certificates.



Record Plus

Circuit Breaker type		FD160		FD63/160						FE160		
Denomination		N	H	C	E	S	N	H	L	N	H	L
EN 60947-2 standard												
Poles	Number of	1		3,4			2[1] 3,4			3,4		
Rated insulation voltage	Ui (Volts)	750		500	750	750	750			750		
Rated impulse withstand voltage	Uimp [Kilovolt]	3		6	8	8	8			8		
Rated operational voltage Ue	Volts AC	240		500	690	690	690			690		
	Volts DC	250		-	-	500	500			500		
Line protection device												
Category of use		A		A			A			A		
Suitable for use as a isolator	Positive ON & OFF	yes		yes			yes			yes		
Rated current Ith = Ie	A at 40°C	63 or 160		63 or 160			63 or 160			160		
Ultimate breaking capacity Icu [kA]	230/240V AC	25	50	25	40	50	85	100	200	85	100	200
	400/415V AC	-	-	18	25	36	50	80	150	50	80	150
	440V AC	-	-	12	14	25	30	65	130[4]	42	65	130
	500V AC	-	-	10	12	18	22	36	50[4]	30	50	100
	690V AC	-	-	-	4.5	6	8	10	12	10	22	75
	250V DC Single pole	-	50	-	-	25	40	65	100	50	85	100
	500V DC Two pole	-	-	-	-	25	40	65[2]	100[2]	50	85[2]	100[2]
Service breaking capacity Ics (%Icu)	≤ 500V	100%	100%	100%	75%	100%	100%	100%	100%	100%	100%	100%
	690V AC	-	-	-	75%	75%	50%	50%	35%	100%	75%	25%
Single phase breaking capacity I_{IT} [kA]	230V AC	25	50	16	25	30	50	80	150	50	80	150
	400/415V AC	-	-	-	4.5	6	8	10	12	15	22	36
Endurance (CO operations)	Mechanical	10000		10000			25000			40000		
	Electrical at In	5000		5000			10000			20000		
	Electrical at In/2	10000		10000			20000			30000		
Endurance (On-Tripped operations)	Mechanical	4000		4000			10000			16000		
Trip Units	Interchangeable	no		no			no			yes		
	Thermal magnetic line	LTM								LTM		
	Thermal magnetic generator						GTM			GTM		
	Thermal magnetic selective						LTMD			LTMD		
	Magnetic only						Mag Break™			Mag Break™		
	Electronic selective									SMR1		
	Electronic enhanced											
Circuit Breaker type and denomination		FD160Y		FD 63Y			FD160Y			FE160Y		
EN 60947-3 standard												
Non Automatic breaker (Switch)												
Rated current In (class AC23)	220V AC to 690V AC	160		63			160			160		
Rated making capacity	Icm (kA peak)	2.8		1.7			2.8			4.9		
Short-term withstand current Icw [kA]	Icw eff. 1 second	2		1.2			2			3		
	Icw eff. 3 seconds	2		1.2			2			3		
Circuit Breaker type							FD63/160			FE160		
Denomination							N	H	L	N	H	L
EN 60947-4 standard												
Use in motor circuits												
Rated current Ith	A at 65°C						FD50-50 FD160-100			150		
Endurance (CO operations)	Mechanical						25000			40000		
	Electrical at In class AC23						10000			20000		
	Operations per hour						120			120		
Protection	Short-circuit only (sep. overload device)						Mag Break™			Mag Break™		
	Overload class 10 and short-circuit									SMR1		
	Max In (A) class 10						FD63-50 FD160-100			150		
	Max In (A) class 30						FD63-50 FD160-80			150		
	Earth fault unit (differential)						Optional FDQ type			Optional FEQ type		
Circuit Breaker / Switch type		FD63/160 all types								FE160 all types		
NEMA AB1 standard												
3ph. interruption ratings [kA]	240V AC	-	-	-	-	50	65	100	-	100	150	200
	480V AC	-	-	-	-	25	36	50	-	50	65	130
	600V AC	-	-	-	-	6	8	10	-	25	36	42
Installation												
Mounting	On symmetrical DIN Rail	yes		yes			yes			no		
	Fixed	yes		yes			yes			yes		
	Plug in	no		yes			yes			yes		
	Draw out	no		no			no			yes		
Connection	Front	yes		yes			yes			yes		
	Rear	no		no			yes			yes		
Dimensions [w x h x d] mm	3 pole, fixed front connection	27 x 130 x 85		81 x 130 x 85			81 x 130 x 85			105 x 170 x 95		
	4 pole, fixed front connection	for single pole		108 x 130 x 85			108 x 130 x 85			140 x 170 x 95		
Weights [kg]	3 pole, fixed front connection	0.4		0.9			0.9			1.5		
	4 pole, fixed front connection	for single pole		1.3			1.3			2.0		

	FE250			FG400			FG630			FK800			FK1250			FK1600	
V	N	H	L	N	H	L	N	H	L	N	H	L	N	H	L	N	H
	3,4			3,4			3,4			3,4			3,4			3,4	
690	750			750			750			1000			1000			1000	
8	8			8			8			8			8			8	
500	690			690			690			690			690			690	
440	500			-			-			500			500			500	
	A			B[5]			B[5]			B			B			B	
	yes			yes			yes			yes			yes			yes	
	250			400			630			800			1250			1600	
65	85	100	200	85	100	200	85	100	200	85	100	170	85	100	170	85	100
36	50	80	150	50	80	150	50	80	150	50	80	100	50	80	100	50	80
25	42	65	130	42	65	130	42	65	130	42	65	80	42	65	80	42	65
18	30	50	100	30	50	100	30	50	100	36	42	50	36	42	50	36	42
-	10	15	22	10	22	75[7]	10	22	40[7]	20	25	30	20	25	30	20	25
25	50	85	100							50[3]	60[3]	80[3]	50[3]	60[3]	80[3]	-	-
-	50	85[2]	100[2]							36[2]	50[2]	60[2]	36[2]	50[2]	60[2]	-	-
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	75%	50%	100%	75%	50%	100%	75%
-	100%	75%	50%	100%	45%	25%	100%	45%	25%	100%	75%	50%	100%	75%	50%	100%	75%
36	50	80	150	50	80	150	50	80	150	50	80	100	50	80	100	50	80
-	10	15	22	10	(6)	(6)	10	(6)	(6)	20	25	30	20	25	30	20	25
10000	25000			20000			20000			10000			10000			10000	
5000	10000			7500			5000			4000			3000			2000	
10000	20000			15000			10000			8000			6000			4000	
4000	10000			8000			8000			4000			3000			2000	
no	yes			yes			yes			no			no			no	
LTM										LTM			LTM				
	GTM																
	LTMD																
	Mag Break™			Mag Break™													
	SMR1			SMR1									SMR1e				
				SMR2									SMR 1s & g				
	FE250Y			FG400Y			FG630Y			FK800Y			FK1250Y			FK1600Y	
	250			400			630			800			1250			1600	
	6.4			8.5			11.3			14.1			21.2			28.3	
	4			5			6.5			10			15			20	
	4			5			6.5			10			15			20	
	FE250			FG400			FG630			FK800			FK1250			FK1600	
	N	H	L	N	H	L	N	H	L	N	H	L	N	H	L	N	H
	225			350			500			720			1000				
	25000			20000			20000			10000			10000				
	10000			7500			5000			4000			3000				
	120			120			60			60			60				
	Mag Break™			Mag Break™			Mag Break™			Mag Break™			Mag Break™				
	SMR1			SMR1 or SMR2			SMR1 or SMR2										
	225			350			500			720			1000				
	225			350			500			720			1000				
	Optional FEQ type			Optional FGQ type			Optional FGQ type										
	FE250 all types			FG400 all types			FG630 all types			FK800 all types			FK1250 all types			FK1600 all types	
65	100	150	200	100	150	200	100	150	200	85	-	-	85	-	-	85	-
36	50	65	130	50	65	130	50	65	130	42	-	-	42	-	-	42	-
22	25	36	42	25	36	42	25	36	42	25	-	-	25	-	-	25	-
	no			no			no			no			no			no	
	yes			yes			yes			yes			yes			yes	
	yes			yes			yes			no			no			no	
	yes			yes			yes			yes			yes			yes	
	yes			yes			yes			yes			yes			yes	
	yes			yes			yes			yes			yes			yes	
	105 x 170 x 95			140 x 265 x 115			140 x 265 x 115			210 x 320 x 160			210 x 320 x 160			210 x 320 x 160	
	140 x 170 x 95			185 x 265 x 115			185 x 265 x 115			280 x 320 x 160			280 x 320 x 160			280 x 320 x 160	
	1.6			4.5			4.5			12.2			18.0			18.0	
	2.1			6.0			6.0			15.1			23.4			23.4	

How to order a standard breaker

To determine the basic breaker, the required current rating, the short circuit breaking capacity and the number of switched and protected poles must be defined. This information can be found on page 2 and 3 of this catalogue and is repeated in short-form within the ordering code part of each breaker size.

After selecting the basic device the circuit protection element or trip unit needs to be defined. These are available in numerous types, each of which is described briefly in the ordering code part of each breaker size, whilst a full functional description can be found in the relative section B of this catalogue.

With the above mentioned information the correct code for the required moulded case circuit breaker can be found in the order code pages. Here the selected product is a version suited for fixed mounting and front access connection.

Internal accessories
Common internal acessories are available from the FD63/160 frame size till the FG400/630 frame size. Taking into account the maximum breaker content the ordering procedure just requires a correct code selection.
The FK800, 1250 and 1600 types have equivalent accesories.

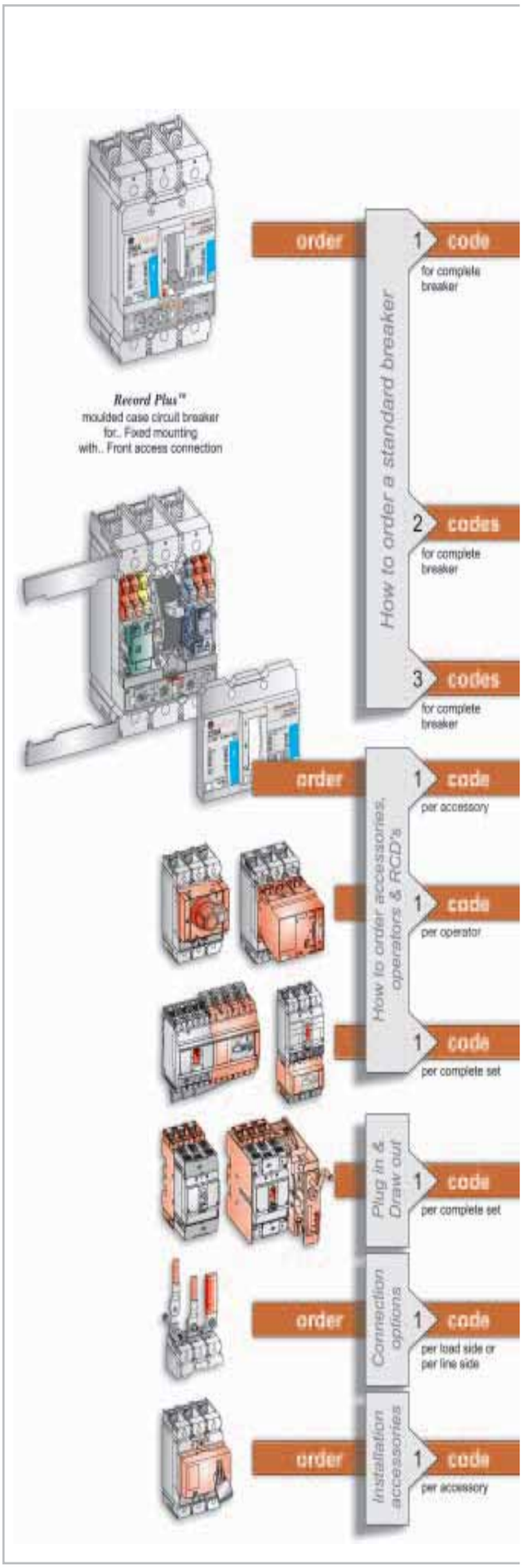
Operators
The breakers are normally supplied with an elongated toggle operator. Other operators, as rotary handles and electrical operators, can be ordered seperately.

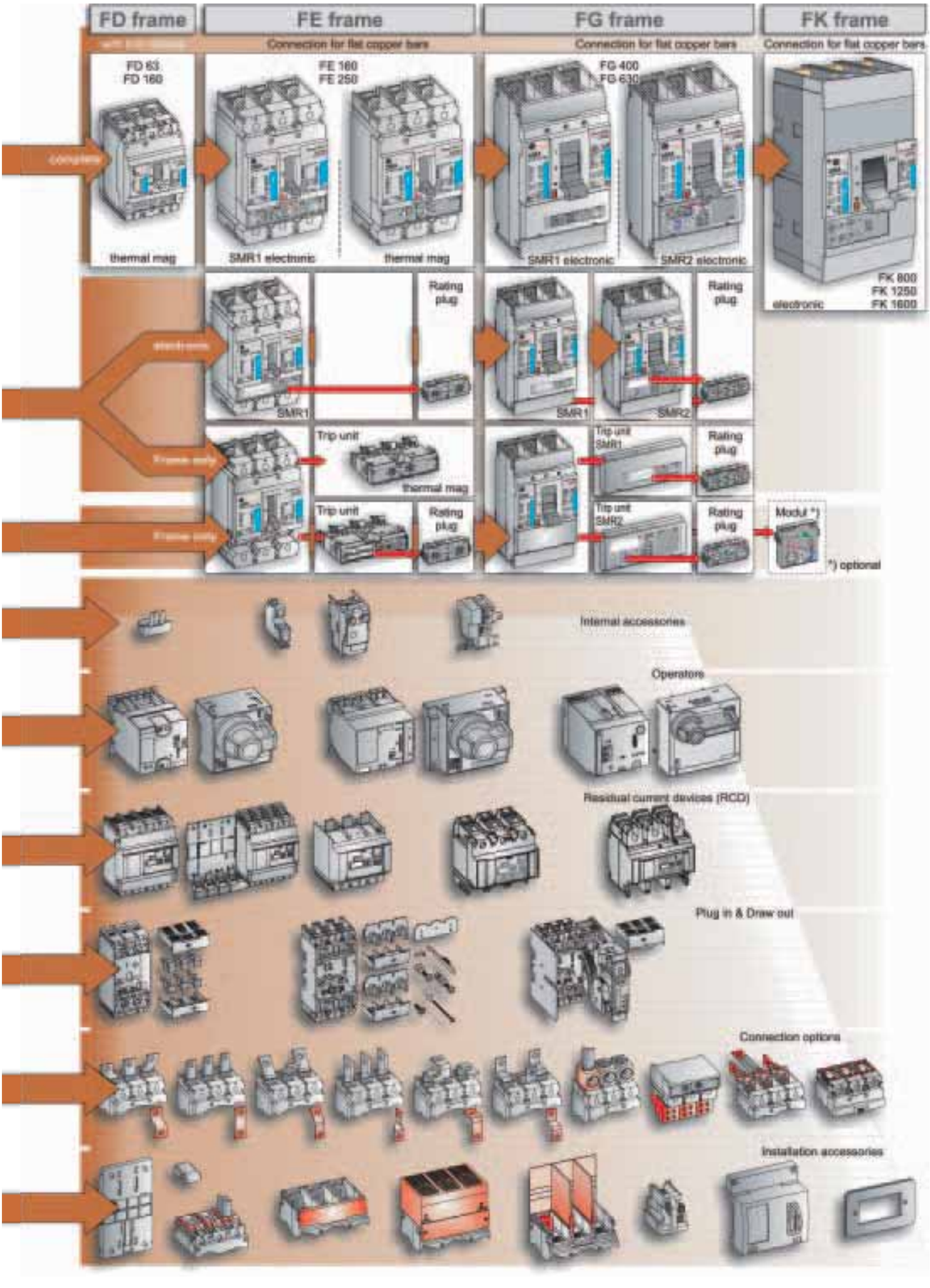
Residual Current devices (RCD)
Available as add-on devices for side mounting (FD63/160) or mounting below the trip unit area of the breaker (FD63/160, FE 160/250 and FG400/630). For breakers large than 630A seperate RCD relays and sensors are available.
On the FK800, FK1250 and FK1600 an integrated ground fault device can be used.

Breakers in Plug-in or Draw-out version
A breaker in fixed rating can easily be converted to a breaker in plug-in or draw-out rating. The plug-in device is supplied in two parts, one set for mounting on the breaker and one multipole base. The draw-out unit is ordered as one complete conversion kit for the required breaker. On ordering plug-in or draw-out breakers with accessories, please take into account that the auxiliary wiring also needs to be executed as such (6, 8 or 10 pole socket system required).

Connection options
If the standard connection options do not meet the requirements a wide variety of others is available.
The connection options are supplied in kit form for mounting on one side (load or line) of a breaker and can be used for the fixed, plug-in or draw-out version of the breaker.

Installation accessories
Additional requirements, as to the protection degree of the connection area, the locking or padlocking of the breaker and finishing of cut-outs for operators can be met by the use of these parts.




FD frame
FE frame
FG frame
FK frame
Connection for flat copper bars
Connection for flat copper bars
Connection for flat copper bars
FD 63
FD 160
FE 160
FE 250
FG 400
FG 630
thermal mag
SMR1 electronic
thermal mag
SMR1 electronic
SMR2 electronic
FK 800
FK 1250
FK 1600
electronic
Rating plug
Rating plug
SMR1
SMR1
SMR2
Trip unit
thermal mag
Trip unit SMR1
Rating plug
Trip unit
Rating plug
Trip unit SMR2
Rating plug
Modul *)
*) optional
Internal accessories
Operators
Residual current devices (RCD)
Plug in & Draw out
Connection options
Installation accessories

Notes