

Compact Load Break Switch CLBS

Characteristics according to IEC 60947-3									
Type			CLBS 16	CLBS 25	CLBS 40	CLBS 63	CLBS 80	CLBS 100	CLBS 125
Current	(I _n)		16A	25A	40A	63A	80A	100A	125A
Rated insulation voltage	(U _i)	(V)	800	800	800	800	800	800	800
Rated impulse withstand voltage	(U _{imp})	(kV)	8	8	8	8	8	8	8
Thermal current 40°C	(I _m)	(A)	16	25	40	63	80	100	125
Rated operational currents (I _e)	AC-20 A/B	415V AC (A)	16	25	40	63	80	100	125
	AC-21 A/B	415V AC (A)							
	AC-22 A/B	415V AC (A)							
	AC-23 A/B	415V AC (A)							
	AC-20 A/B	500V AC (A)							
	AC-21 A/B	500V AC (A)							
	AC-22 A/B	500V AC (A)							
	AC-23 A/B	500V AC (A)			25	63	80	100	
	AC-20 A/B	690V AC (A)			40	80	100	125	
	AC-21 A/B	690V AC (A)			32/40	40/63	63/80	80/100	100/125
	AC-22 A/B	690V AC (A)							
	AC-23 A/B	690V AC (A)							
	DC-20 A/B	110V DC (A)							
	DC-21 A/B ⁽¹⁾	110V DC (A)			40	63	80	100	125
	DC-20 A/B	250V DC (A)							
DC-21 A/B ⁽²⁾	250V DC (A)								
DC-20 A/B	400V DC (A)								
DC-21 A/B ⁽³⁾	400V DC (A)	25	40	40	63	63			
Operational power in AC 23 ⁽⁴⁾	400V AC	(kW)	7,5	11	18,5	30	37	45	55
	500V AC	(kW)	7,5	11	18,5	30	37	45	55
	690V AC	(kW)	7,5	15	15	30	37	45	55
Short-circuit capacity I _{cw}	1 s.	(kA)	1,26	1,26	1,26	1,5	1,5	2,75	2,75
	0,25 s.	(kA)	1,8	1,8	1,8	2,1	2,1	3,9	3,9
Fuse protected short-circuit withstand (kA rms prospective) ⁽⁵⁾									
Associated fuse rating		(A)	16	25	40	63	80	100	125
Prospective short-circuit current		(kA)	50	50	50	50	50	25	25
Circuit breaker protected short-circuit withstand with any circuit breaker that ensures tripping in less than 0.3s									
Rated short-time withstand current	0,3 s.	(kA)	2,5	2,5	2,5	3	3	5	5
Connection									
Minimum Cu cable cross-section	mm ²		1,5	1,5	1,5	2,5	2,5	10	10
Maximum Cu cable cross-section	mm ²		16	16	16	35	35	70	70
Tightening torque min/max	Nm		2/2,2	2/2,2	2/2,2	3,5/3,85	3,5/3,85	4/4,4	4/4,4
Durability (number of operating cycles)	cycles		100 000	100 000	100 000	100 000	100 000	100 000	100 000
Operating effort - 3 pole device	Nm		1	1	1	1,4	1,4	1,6	1,6
Operating effort - 4 pole device	Nm		1,2	1,2	1,2	1,6	1,6	2	2
Power dissipation	W/pole		0,15	0,4	0,9	1,5	2,4	4,3	7,1

Category with index A = frequent operation

Category with index B = infrequent operation.

⁽¹⁾ - one pole per polarity.

⁽²⁾ - 3-pole device with 2 poles in series for the "+" and 1 pole for the "-".

⁽³⁾ - 4-pole device with 2 poles in series per polarity.

⁽⁴⁾ - The power value is given for information only, the current values vary from one manufacturer to another.

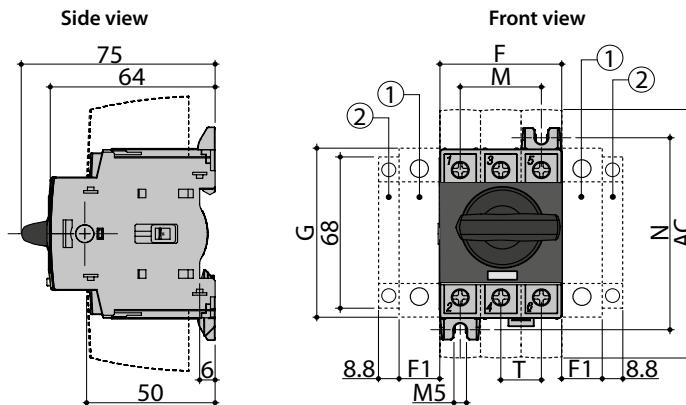
⁽⁵⁾ - For a rated operational voltage U_e = 415 VAC.

Technical data					
Type			CLBSCD 63 3P	CLBSCD 100 3P	
Thermal current 40°C	(I _m)		(A)	63	100
Rated insulation voltage	(U _i)		(V)	800	800
Rated impulse withstand voltage	(U _{imp})		(kV)	8	8
Rated operational currents (I _e)	AC-21A/B	415V	(A)	63/63	100/100
	AC-22A/B	415V	(A)	63/63	100/100
	AC-23A/B	415V	(A)	63/63	100/100
	AC-21A/B	690V	(A)	63/63	100/100
Rated short-time withstand current I _{cw}	1 s.		(kA)	-	1,5
Rated short-circuit making capacity I _{cm}			(kA)	-	2,1
Rated conditional short-circuit					
Associated gG fuse rating			(A)	-	100
Prospective short-circuit			(kA)	-	25
Limited cut off current			(kA)	-	8,6

Dimensions

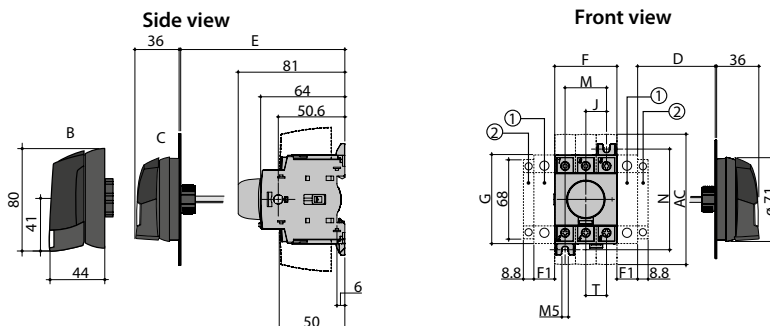
CLBS 16 - CLBS 80 3P, CLBSCD 63 3P, CLBSCD 100 3P - direct operation with handle

- 1. Location for: 1 switched fourth pole module (1 per device max.)
or 1 unswitched neutral pole
or 1 protective earth module
or 1 auxiliary contact.
 - 2. Position for 1 auxiliary contact only.
Note: max 2 additional blocks.
- More information about acceptable combinations of auxiliary switches and additional poles on the following page.



CLBS 16 - CLBS 80 3P, CLBSCD 63 3P, CLBSCD 100 3P
External front operation External side operation

- 1. Location for: 1 switched fourth pole module (1 per device max.)
or 1 unswitched neutral pole
or 1 protective earth module
or 1 auxiliary contact.
 - 2. Position for 1 auxiliary contact only.
Note: max 2 additional blocks.
- More information about acceptable combinations of auxiliary switches and additional poles on the following page.

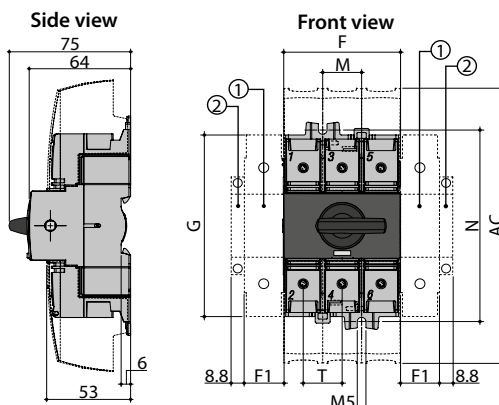


B. CLBS-EH125/01
C. CLBS-EH80

Rating (A)	Overall dimensions, (mm)				Terminal shrouds, (mm) AC	Switch body, (mm)				Switch mounting, (mm)		Connection, (mm) T
	D min	D max	E min	E max		F	F1	G	J	M	N	
16-40	30	235	100	372	110	45	15	68	15	30	75	15
63-80	30	235	100	372	110	52.5	17.5	76	17.5	35	85	17.5

CLBS 100-CLBS 125 3P - direct operation with handle

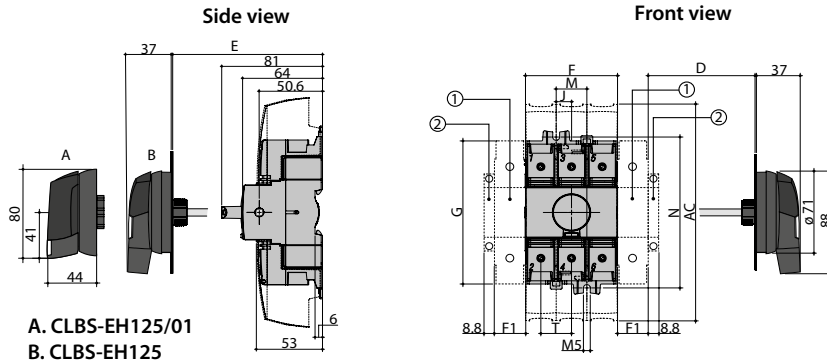
- 1. Location for: 1 switched fourth pole module (1 per device max.)
or 1 unswitched neutral pole
or 1 protective earth module
or 1 auxiliary contact.
 - 2. Position for 1 auxiliary contact only.
Note: max 2 additional blocks.
- More information about acceptable combinations of auxiliary switches and additional poles on the following page.



CLBS 100-CLBS 125

External front operation

External side operation



A. CLBS-EH125/01
B. CLBS-EH125

1. Location for: 1 switched fourth pole module (1 per device max.)
or 1 unswitched neutral pole
or 1 protective earth module
or 1 auxiliary contact.
 2. Position for 1 auxiliary contact only.
Note: max 2 additional blocks.
- More information about acceptable combinations of auxiliary switches and additional poles below.

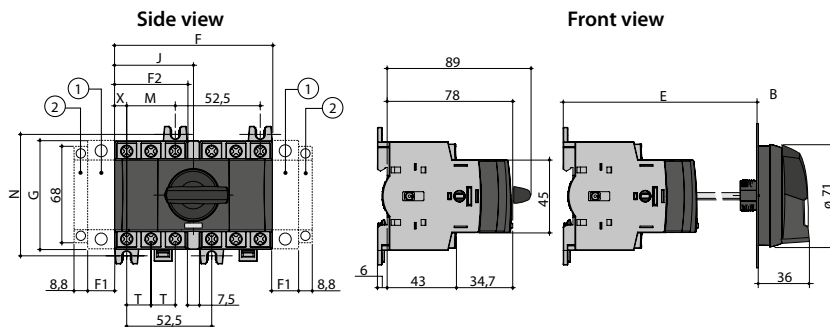
Rating (A)	Overall dimensions, (mm)				Terminal shrouds, (mm) AC	Switch body, (mm)				Switch mounting, (mm)		Connection, (mm) T
	D min	D max	E min	E max		F	F1	G	J	M	N	
100-125	30	201	100	372	189	78	26	124.6	13	26	131.4	26

Direct operation

CLBS 16 - CLBS 80 3P, CLBSCD 63 3P, CLB-SCD 100 3P - with change over kit

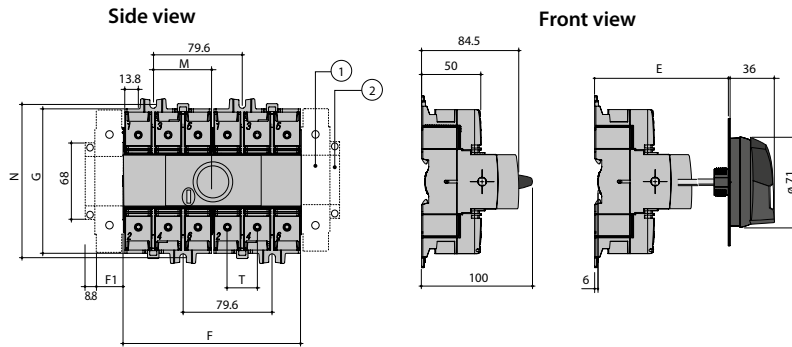
External front operation

CLBS 16 - CLBS 80 3P, CLBSCD 63 3P, CLB-SCD 100 3P - with change over kit



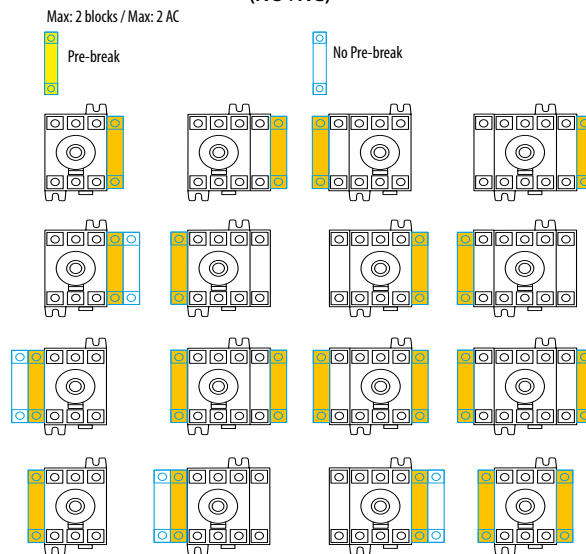
Rating (A)	Overall dimensions, (mm)		Switch body, (mm)					Switch mounting, (mm)		Connection, (mm)	
	E min	E max	F	F1	F2	G	J	M	N	T	X
16-40	105	372	97.5	15	45	68	48.75	30	75	15	7.5
63-80	105	372	105	17.5	52.5	76	52.5	35	85	17.5	8.75

Direct front operation External front operation
 CLBS 100 - CLBS 125 -with change over kit CLBS 100 - CLBS 125 -with change over kit



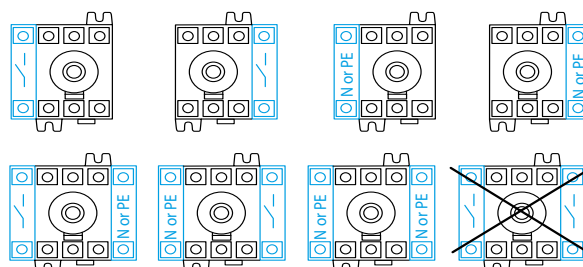
Rating (A)	Overall dimensions, (mm)		Switch body, (mm)			Switch mounting, (mm)		Connection, (mm)
	E min	E max	F	F1	G	M	N	
100-125	105	372	159	26	124.5	52.8	131.5	26

Auxiliary contact configurations CLBS-PS11
 (NO+NC)

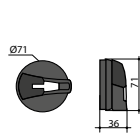


Contact type	Nominal current (A)	Operating current I _e (A), 230V AC	
		AC-13	AC-15
NO+NC	10	10	6

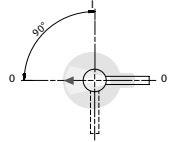
Configuration additional pole, solid neutral pole
 and protective earth pole



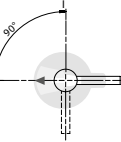
**CLBS-EH80
(16-80A)**



**Direct front
operation**

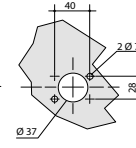


**Right side
operation**

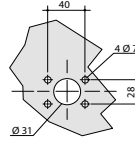


Door drilling

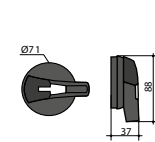
**IP55 with 2 fixing
clips**



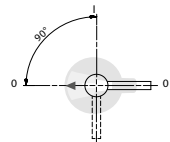
**IP65 with 4 fixing
screws**



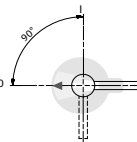
**CLBS-EH125
(100-125A)**



**Direct front
operation**

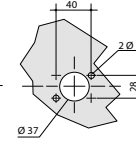


**Right side opera-
tion**

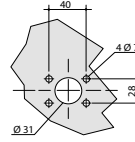


Door drilling

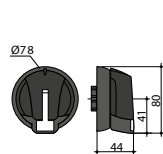
**IP55 with 2 fixing
clips**



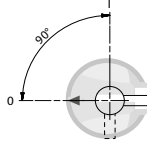
**IP65 with 4 fixing
screws**



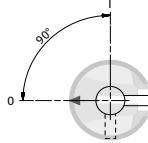
**CLBS-EH125/01
(16-125A)**



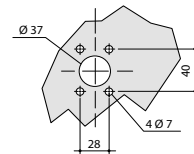
**Direct front
operation**



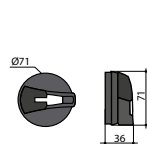
**Right side opera-
tion**



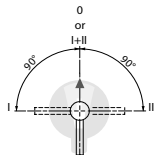
Door drilling



**CLBS-EH80/G CO
CLBS-EH125/G CO**

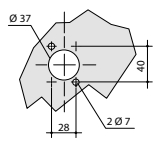


**Direct front
operation**

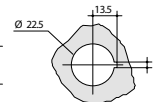
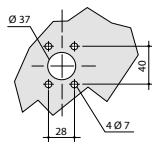


Door drilling

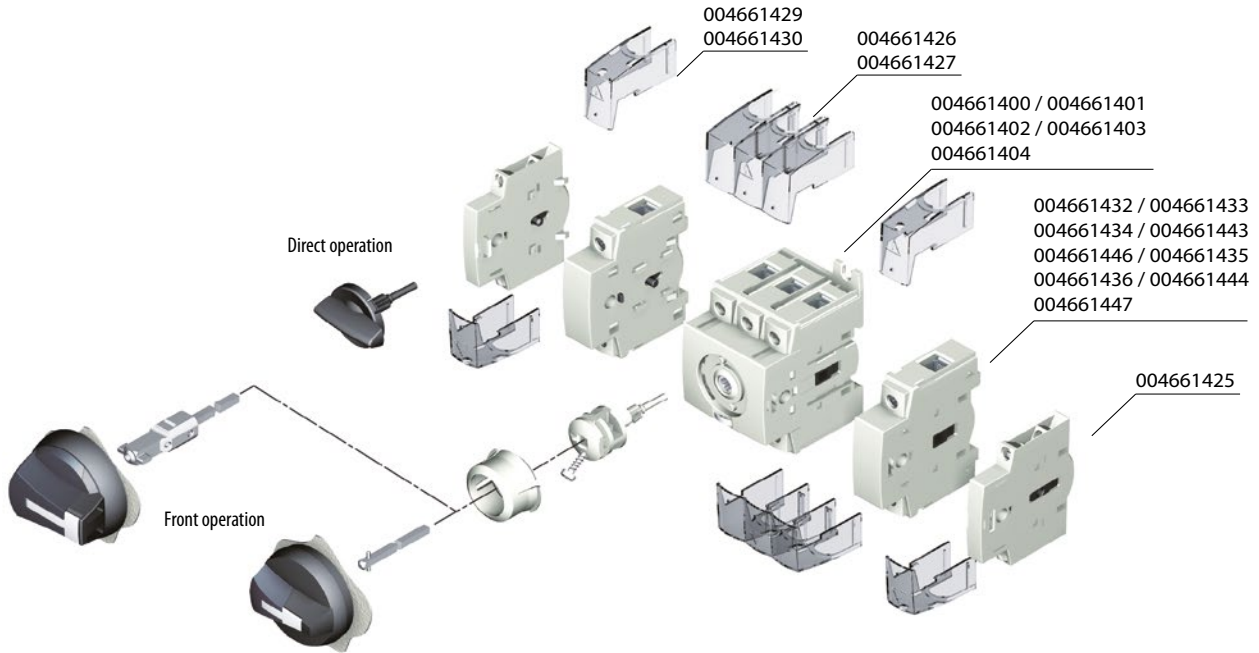
**IP55 with 2 fixing
clips**



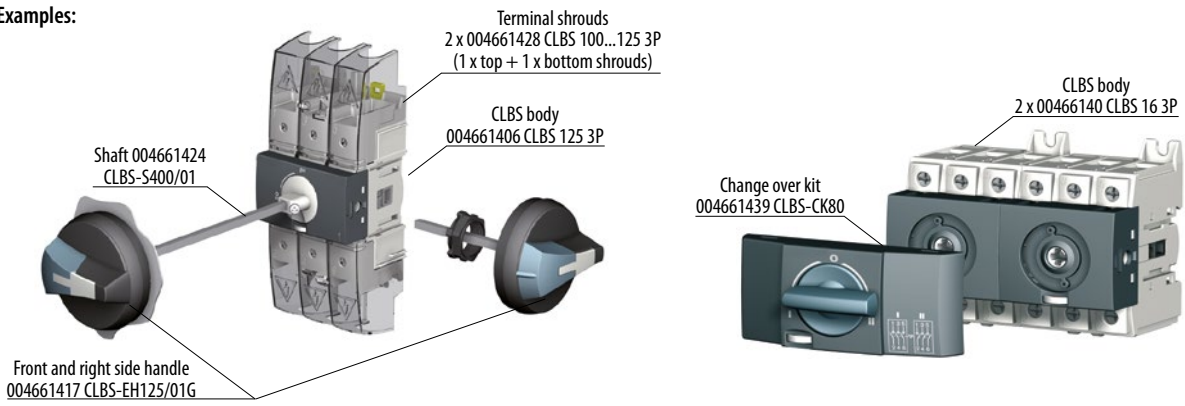
**IP65 with 4 fixing
screws**



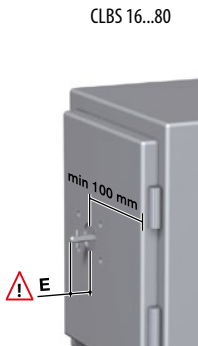
Installation of accessories



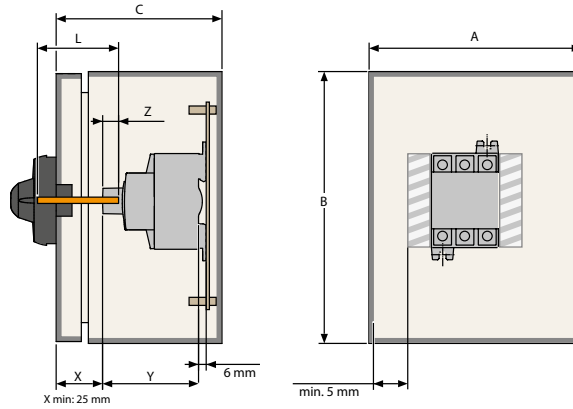
Examples:



Technical data



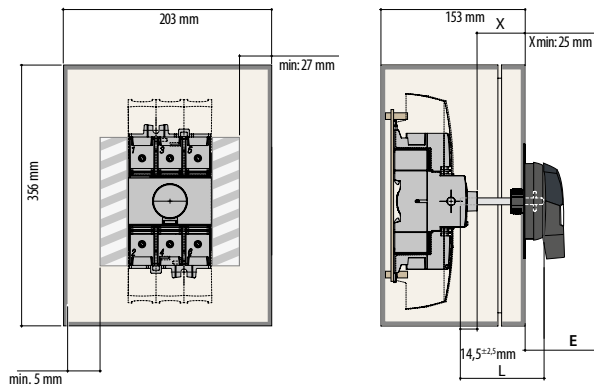
CLBS 16...80



	16A - 40A mm	60A - 80A mm
A	152	203
B	203	254
C	102	102
Y	75	75

	16-125A	E	
		min.	max.
CLB-EH80, CLBS-EH125	$L=X+32\text{ mm}$	13 mm	15mm
CLBS-EH125/01	$L=X+38,5\text{ mm}$	17,5 mm	21,5 mm

CLBS 100...125



Shafts and GT enclosures (ETIBOX) Z (depth of enclosure, mm)	X(mm)	Default shaft length used with handle(mm)	
		CLB-EH80, CLBS-EH125	CLBS-EH125/01
150mm	49	200	400
200mm	99	200	400
250mm	149	200	400
300mm	199	320	400

Load Break Switch LBS

Characteristics according to IEC 60947-3

Type			LBS 160	LBS 250	LBS 400	LBS 630	LBS 800	LBS 1000	LBS 1250	LBS 1600	LBS 2000	LBS 2500	LBS 3200
Current	(I _n)	(A)	160	250	400	630	800	1000	1250	1600	2000	2500	3200
Rated insulation voltage	(U)	(V)	800	800	1000	1000	1000	1000	1000	1000	1000	1000	1000
Rated impulse withstand voltage	(U _{imp})	(kV)	8	8	12	12	12	12	12	12	12	12	12
Thermal current 40°C	(I _{th})	(A)	160	250	400	630	800	1000	1250	1600	2000	2500	3200
Rated operational currents (I _o)	AC-20 A/B ⁽¹⁾	415V AC	160/160	250/250	400/400	630/630	800/800	1000/1000	1250/1250	1600/1600	2000/2000	2500/2500	3200/3200
	AC-21 A/B ⁽¹⁾	415V AC	(A) 160/160	250/250	400/400	630/630	800/800	1000/1000	1250/1250	1600/1600	2000/2000	2500/2500	3200/3200
	AC-22 A/B ⁽¹⁾	415V AC	(A) 160/160	250/250	400/400	630/630	800/800	1000/1000	1250/1250	1600/1600	2000/2000	2500/2500	2500/3200
	AC-23 A/B ⁽¹⁾	415V AC	(A) 160/160	250/250	400/400	500/500	800/800	1000/1000	1250/1250	1250/1250	1600/1600	1600/1600	1600/1600
	DC-20 A/B ⁽¹⁾	220V DC	(A) 160/160	250/250	400/400	630/630	800/800	1000/1000	1250/1250	1600/1600	2000/2000	2500/2500	3200/3200
	DC-21 A/B ⁽¹⁾	220V DC	(A) 160/160	250/250	400/400	630/630	800/800	1000/1000	1250/1250	1250/1600	2000/2000	2000/2500	2000/2500
	DC-22 A/B ⁽¹⁾	220V DC	(A) 160/160	250/250	400/400	500/500	800/800	1000/1000	1250/1250	1250/1250	1250/1600	1250/1600	1250/1600
	DC-23 A/B ⁽¹⁾	220V DC	(A) 125/125	200/200	400/400	500/500	800/800	1000/1000	1250/1250	1250/1250	1250/1250	1250/1250	1250/1250
	DC-20 A/B ⁽¹⁾	440V DC	(A) 160/160	250/250	400/400	630/630	800/800	1000/1000	1250/1250	1600/1600	2000/2000	2500/2500	3200/3200
	DC-21 A/B ⁽¹⁾	440V DC	(A) 160 ⁽³⁾ /160 ⁽³⁾	200 ⁽³⁾ /200 ⁽³⁾	400 ⁽³⁾ /400 ⁽³⁾	500 ⁽³⁾ /500 ⁽³⁾	800 ⁽⁴⁾ /800 ⁽⁴⁾	1000 ⁽⁴⁾ /1000 ⁽⁴⁾	1250 ⁽⁴⁾ /1250 ⁽⁴⁾	1250 ⁽⁴⁾ /1600 ⁽⁴⁾	2000 ⁽⁴⁾ /2000 ⁽⁴⁾	2000 ⁽⁴⁾ /2500 ⁽⁴⁾	2500 ⁽⁴⁾ /3200 ⁽⁴⁾
	DC-22 A/B ⁽¹⁾	440V DC	(A) 125 ⁽³⁾ /125 ⁽³⁾	200 ⁽³⁾ /200 ⁽³⁾	400 ⁽³⁾ /400 ⁽³⁾	500 ⁽³⁾ /500 ⁽³⁾	800 ⁽⁴⁾ /800 ⁽⁴⁾	1000 ⁽⁴⁾ /1000 ⁽⁴⁾	1250 ⁽⁴⁾ /1250 ⁽⁴⁾	1250 ⁽⁴⁾ /1250 ⁽⁴⁾	1250 ⁽⁴⁾ /1250 ⁽⁴⁾	1250 ⁽⁴⁾ /1250 ⁽⁴⁾	1250 ⁽⁴⁾ /1250 ⁽⁴⁾
	DC-23 A/B ⁽¹⁾	440V DC	(A) 125 ⁽⁴⁾ /125 ⁽⁴⁾	200 ⁽⁴⁾ /200 ⁽⁴⁾	400 ⁽⁴⁾ /400 ⁽⁴⁾	500/500	800 ⁽⁴⁾ /800 ⁽⁴⁾	1000 ⁽⁴⁾ /1000 ⁽⁴⁾	1250 ⁽⁴⁾ /1250 ⁽⁴⁾	1250 ⁽⁴⁾ /1250 ⁽⁴⁾	1250 ⁽⁴⁾ /1250 ⁽⁴⁾	1250 ⁽⁴⁾ /1250 ⁽⁴⁾	1250 ⁽⁴⁾ /1250 ⁽⁴⁾
	DC-20 A/B ⁽¹⁾	500V DC	(A) 160/160	250/250	400/400	630/630	800/800	1000/1000	1250/1250	1600/1600	2000/2000	2500/2500	3250/3250
	DC-21 A/B ⁽¹⁾	500V DC	(A) 125 ⁽³⁾ /125 ⁽³⁾	200 ⁽³⁾ /200 ⁽³⁾	400 ⁽³⁾ /400 ⁽³⁾	500 ⁽³⁾ /500 ⁽³⁾	800 ⁽⁴⁾ /800 ⁽⁴⁾	1000 ⁽⁴⁾ /1000 ⁽⁴⁾	1250 ⁽⁴⁾ /1250 ⁽⁴⁾	1250 ⁽⁴⁾ /1600 ⁽⁴⁾	1250 ⁽⁴⁾ /1250 ⁽⁴⁾	1250 ⁽⁴⁾ /1250 ⁽⁴⁾	1250 ⁽⁴⁾ /1250 ⁽⁴⁾
DC-22 A/B ⁽¹⁾	500V DC	(A) 125 ⁽⁴⁾ /125 ⁽⁴⁾	200 ⁽⁴⁾ /200 ⁽⁴⁾	315 ⁽⁴⁾ /400 ⁽⁴⁾	500 ⁽⁴⁾ /500 ⁽⁴⁾	800 ⁽⁴⁾ /800 ⁽⁴⁾	1000 ⁽⁴⁾ /1000 ⁽⁴⁾	1250 ⁽⁴⁾ /1250 ⁽⁴⁾	1250 ⁽⁴⁾ /1250 ⁽⁴⁾	1250 ⁽⁴⁾ /1250 ⁽⁴⁾	1250 ⁽⁴⁾ /1250 ⁽⁴⁾	1250 ⁽⁴⁾ /1250 ⁽⁴⁾	
DC-23 A/B ⁽¹⁾	500V DC	(A) 125 ⁽⁴⁾ /125 ⁽⁴⁾	200 ⁽⁴⁾ /200 ⁽⁴⁾	315 ⁽⁴⁾ /400 ⁽⁴⁾	500 ⁽⁴⁾ /500 ⁽⁴⁾	800 ⁽⁴⁾ /800 ⁽⁴⁾	1000 ⁽⁴⁾ /1000 ⁽⁴⁾	1250 ⁽⁴⁾ /1250 ⁽⁴⁾	1250 ⁽⁴⁾ /1250 ⁽⁴⁾	1000 ⁽⁴⁾ /1000 ⁽⁴⁾	1000 ⁽⁴⁾ /1000 ⁽⁴⁾	1000 ⁽⁴⁾ /1000 ⁽⁴⁾	
Operational power in AC 23 ^{(1) (5)}	415V AC	(kW)	80/80	132/132	220/220	280/280	450/450	560/560	710/710	710/710	710/710	710/710	710/710
Reactive power ⁽⁵⁾	400 V	(kVAr)	75	115	185	290	365	460	-	-	-	-	-
Short-circuit capacity I _{sc}	1 s.	(kA)	7	9	13	13	35	35	35	50	50	50	50
	0,25 s.	(kA)	11,9	15,3	26	26	73,5	73,5	73,5	75	80	80	80
Fuse protected short-circuit withstand (kA rms prospective)													
Associated fuse rating ⁽⁶⁾		(A)	160	250	400	630	800	1000	1250	2x800	2x1000	2x1250	-
Prospective short-circuit current		(kA)	100	50	100	70	50	100	100	100	100	100	-
Circuit breaker protected short-circuit withstand with any circuit breaker that ensures tripping in less than 0.3s													
Rated short-time withstand current I _{sw}	0,3 s.	(kA)	15	17	25	25	50	65	65	100	100	100	100
Connection													
Minimum Cu cable cross-section	mm ²		50	95	185	2x150	2x185	2x240	-	-	-	-	-
Maximum Cu cable cross-section	mm ²		95	150	240	2x300	2x300	4x185	4x185	4x185	-	-	-
Minimum Cu busbar cross-section	mm		-	-	-	2x30x5	2x40x5	2x50x5	2x60x5	2x80x5	3x100x5	4x100x5	4x100x5
Maximum Cu busbar width	mm		25	32	40	50	63	63	63	100	100	100	100
Tightening torque min/max	Nm		9/-	20/-	20/-	20/-	40/45	40/45	40/45	40/45	40/45	40/-	40/-
Operating effort	Nm		6,5	10	14,5	14,5	37	37	37	56	75	75	75
Durability (number of operating cycles)	cycles		10 000	10 000	10 000	10 000	3 000	3 000	3 000	4 000	3 000	3 000	3 000
Power dissipation	W/pole		3	5,8	10,8	30,9	39,7	42	80	122	140	205	340

⁽¹⁾ Category with index A = frequent operation - Category with index B = infrequent operation.
⁽²⁾ With terminal shrouds or phase barrier.
⁽³⁾ 3-pole device with 2 pole in series for the «+» and 1 pole for the «-».
⁽⁴⁾ 4-pole device with 2 poles in series per polarity.
⁽⁵⁾ The power value is given for information only, the current values vary from one manufacturer to another.
⁽⁶⁾ For a rated operational voltage U_e = 415 VAC.

Technical data

Characteristics according to IEC 60947-3

Type			LBSCD 200	LBSCD 315	LBSCD 400	
Current	(I _n)	(A)	200	315	400	
Rated insulation voltage	(U)	(V)	800	800	800	
Rated impulse withstand voltage	(U _{imp})	(kV)	8	8	8	
Thermal current 40°C	(I _{th})	(A)	200	315	400	
Rated operational currents (I _l)	AC-21 A/B ⁽¹⁾	400V AC (A)	200/200	315/315	400/400	
	AC-22 A/B ⁽¹⁾	400V AC (A)	200/200	315/315	400/400	
	AC-23 A/B ⁽¹⁾	400V AC (A)	160/160	250/250	250/250	
	AC-21 A/B ⁽¹⁾	500V AC (A)	160/160	250/250	250/250	
	AC-22 A/B ⁽¹⁾	500V AC (A)	125/125	250/250	250/250	
	AC-23 A/B ⁽¹⁾	500V AC (A)	100/100	200/250	200/250	
	AC-20 A/B ⁽¹⁾	690V AC (A)	200/200	315/315	400/400	
	AC-21 A/B ⁽¹⁾	690V AC (A)	160/160	200/250	200/250	
	AC-22 A/B ⁽¹⁾	690V AC (A)	125/125	125/160	125/160	
	AC-23 A/B ⁽¹⁾	690V AC (A)	63/80	100/125	100/125	
	DC-20 A/B ⁽¹⁾	220V DC (A)	200/200	315/315	400/400	
	DC-21 A/B ⁽¹⁾	220V DC (A)	160/160	250/250	250/250	
	DC-22 A/B ⁽¹⁾	220V DC (A)	160/160	250/250	250/250	
	DC-23 A/B ⁽¹⁾	220V DC (A)	125/125	200/200	200/200	
	DC-20 A/B ⁽¹⁾	400V DC (A)	200/200	315/315	400/400	
	DC-21 A/B ⁽¹⁾	400V DC (A)	160/160	250/250	250/250	
	DC-22 A/B ⁽¹⁾	400V DC (A)	125 ⁽³⁾ /125 ⁽³⁾	200 ⁽³⁾ /200 ⁽³⁾	200 ⁽³⁾ /200 ⁽³⁾	
	DC-23 A/B ⁽¹⁾	400V DC (A)	125 ⁽³⁾ /125 ⁽³⁾	200 ⁽³⁾ /200 ⁽³⁾	200 ⁽³⁾ /200 ⁽³⁾	
	Operational power in AC 23 ⁽¹⁾⁽⁵⁾	400V AC	(kW)	80/80	132/132	132/132
		500V AC	(kW)	63/63	140/160	140/160
690V AC		(kW)	55/75	150/185	150/185	
Reactive power ⁽⁵⁾	400V AC	(kVA _r)	75	115	145	
Fuse protected short-circuit withstand (kA rms prospective)						
Associated fuse rating ⁽⁶⁾		(A)	200	315	400	
Prospective short-circuit current		(kA)	50	30	18	
Short-circuit operation						
Rated short-time withstand current I _{cw}	1 s	(kA)	7	9	9	
Dynamic short-circuit withstand current		(kA)	18	23	23	
Connection						
Minimum Cu cable cross-section	mm ²		50	95	185	
Maximum Cu cable cross-section	mm ²		95	185	240	
Minimum Cu busbar cross-section	mm		-	-	-	
Maximum Cu busbar width	mm		25	32	32	
Tightening torque min/max	Nm		9	20	20	
Operating effort	Nm		6,5	10	14,5	
Durability (number of operating cycles)	cycles		10 000	10 000	5 000	

⁽¹⁾ Category with index A = frequent operation - Category with index B = infrequent operation.

⁽²⁾ With terminal shrouds or phase barrier.

⁽³⁾ 3-pole device with 2 pole in series for the «+» and 1 pole for the «-».

⁽⁴⁾ 4-pole device with 2 poles in series per polarity.

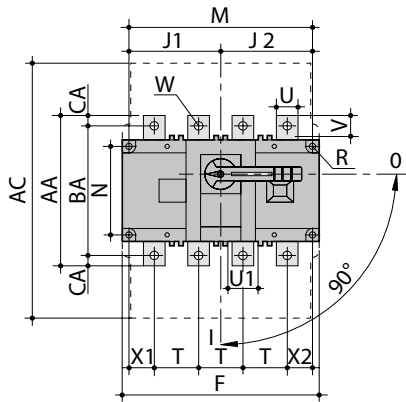
⁽⁵⁾ The power value is given for information only, the current values vary from one manufacturer to another.

⁽⁶⁾ For a rated operational voltage U_e = 415 VAC.

Dimensions

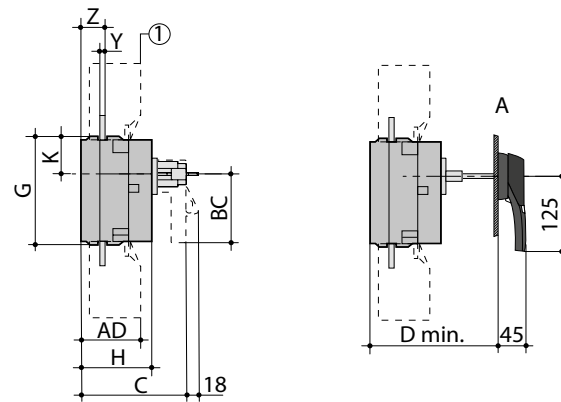
LBS 160 - LBS 630
LBS CD

Direct front operation
Front view



I. Terminal shrouds

External front operation
Side view

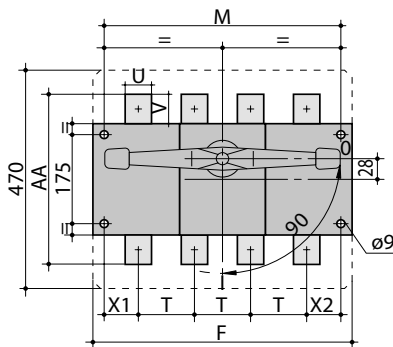


A. Handle type: LBS-EH630

Rating (A)	Overall dimensions (mm)		Terminal shrouds, (mm)		Switch body, (mm)								Switch mounting, (mm)				Connection, (mm)													
	C	D min	AC	AD	F (3p)	F (4p)	G	H	J1 (3p)	J1 (4p)	J2	K	BC	M (3p)	M (4p)	N	R	T	U	U1	V	W	X1 (3p)	X1 (4p)	X2	Y	Z	AA	BA	CA
160, CD 200			235	50	140	170	93	65	45	75	75	31.5	80	120	150	65	5.5	36	20	20.5	25	9	28	22	20	3.5	20.5	135	115	10
250, CD 315, 115 CD 400	125		280	60	180	230	108	75	55	105	105	34	115	160	210	80	5.5	50	20	25.5	21.5	11	33	33	27	3.5	22.5	160	130	15
400 630	160	165	401	89	230	290	170	110	75	135	135	55	115	210	270	140	7	65	32 45	45.5	29 41.5	11 13	42.5	37.5	37.5	5	36	235 260	205 220	15 20

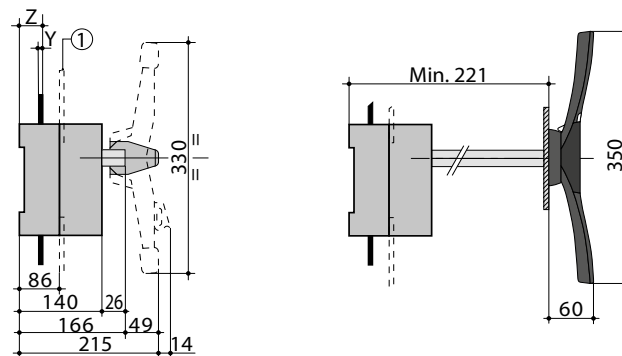
LBS 800 - LBS 1600

Direct front operation
Front view



I. Terminal shrouds

External front operation
Side view

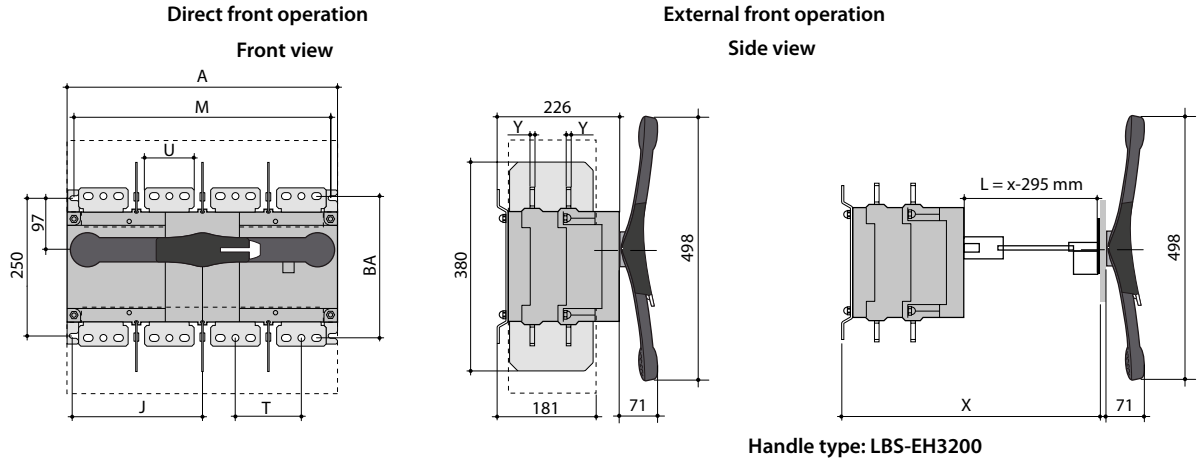


B. Handle type: LBS-EH1600

Rating (A)	Switch body, (mm)		Switch mounting, (mm)		Connection, (mm)							
	F (3p)	F (4p)	M (3p)	M (4p)	T	U	V	Y	X1	X2	Z	AA
800 - 1000	280	360	255	335	80	50	60.5	7	47.5	47.5	46.5	321
1250						60	65					330
1600	372	492	347	467	120	90	44	8	53.5	53.5	47.5	288

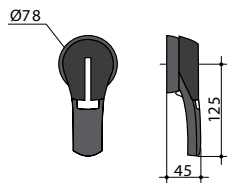
Technical data

LBS 2000 - LBS 3200

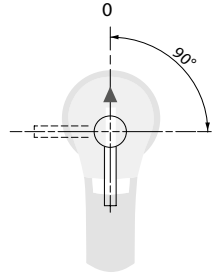


Rating (A)	Overall dimensions, (mm)		Switch body, (mm)		Switch mounting, (mm)		Connection, (mm)			
	A (3p)	A (4p)	J (3p)	J (4p)	M (3p)	M (4p)	T	U	Y	BA
2000-3200	372	492	173.5	233.5	347	367	120	90	8	258

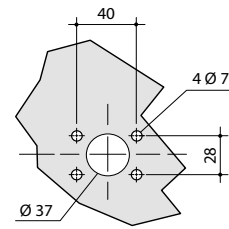
Handle type LBS-EH630



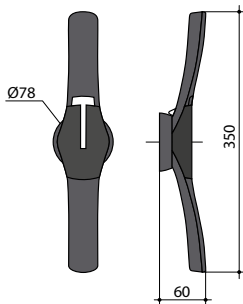
Direct front operation



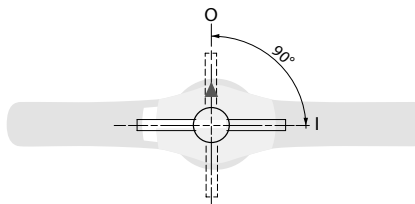
Door drilling



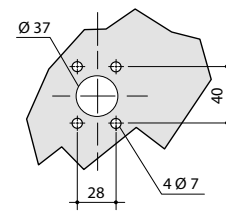
Handle type LBS-EH1600



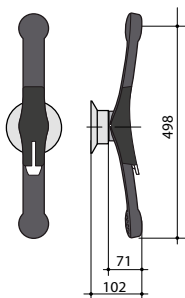
Direct front operation



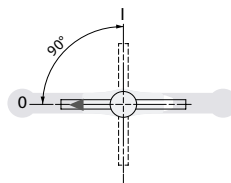
Door drilling



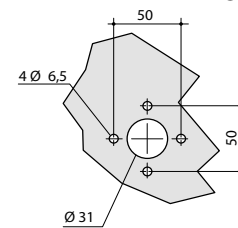
Handle type LBS-EH3200



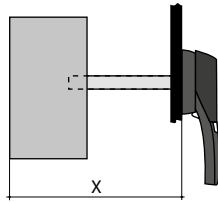
Direct front operation



Door drilling

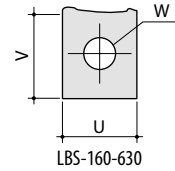


Rating (A)	Dimension X (mm)	Shaft length (mm)
LBS 160	125 - 250	200
	125 - 370	320
	125 - 550	500
LBS 250	135 - 265	200
	135 - 385	320
	135 - 565	500
LBS 400-630	165 - 295	200
	165 - 415	320
	165 - 595	500
LBS 800-1600	221 - 343	200
	221 - 463	320
	221 - 543	400
LBS 2000-3200	415 - 570	200
	415 - 690	320
	415 - 820	450

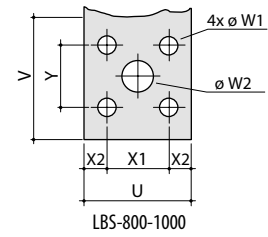


Rating (A)	U (mm)	V (mm)	W (mm)
160	20	25	9
250	25	21.5	11
400	32	29	11
630	45	41.5	13

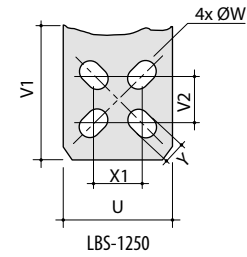
Connection terminal dimensions:



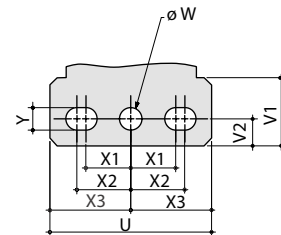
Rating (A)	U (mm)	V (mm)	W1 (mm)	W2 (mm)	X1 (mm)	X2 (mm)	Y (mm)
800 - 1000	50	60.5	9	16	28.5	11	33



Rating (A)	U (mm)	V1 (mm)	V2 (mm)	W (mm)	X1 (mm)	Y (mm)
1250	60	65	28.5	16	28.5	11



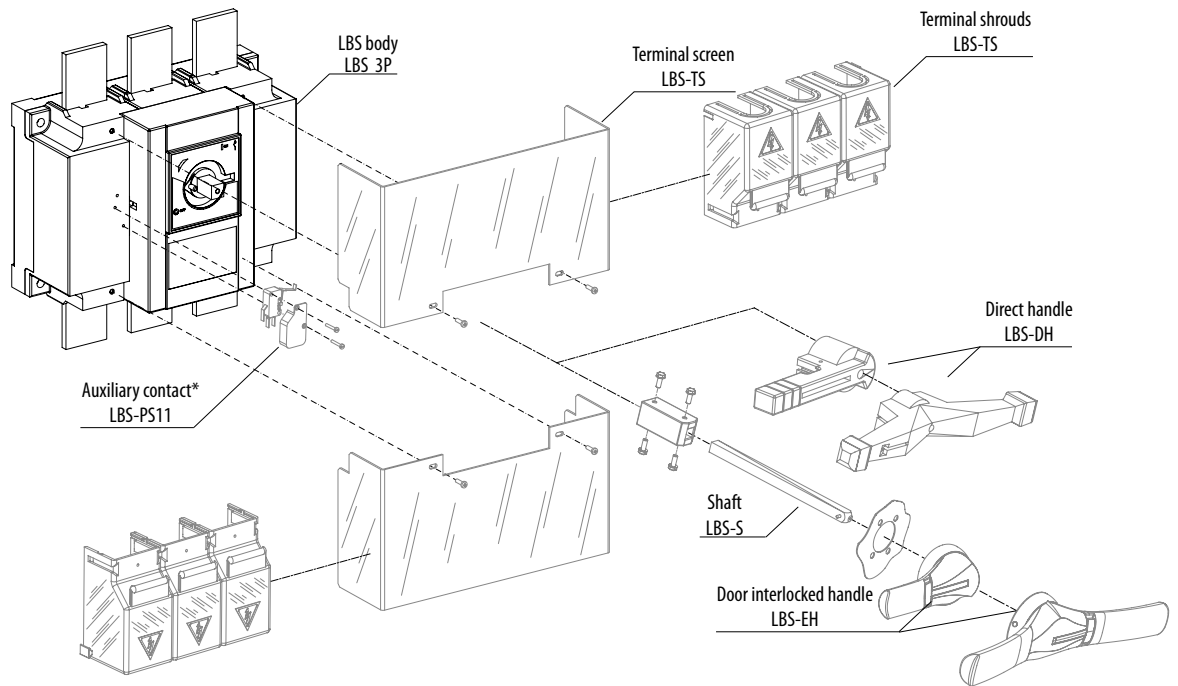
Rating (A)	U (mm)	V1 (mm)	V2 (mm)	W (mm)	X1 (mm)	X2 (mm)	X3 (mm)	Y (mm)
1600-3200	90	35.8	15	12.5	25	30	45	12.5



LBS-PS11 Auxiliary contact (change over NO/NC)

Rating (A)	Contact type	Current nominal (A)	Operating current I _e (A)									
			230 V AC		400 V AC		24 V DC			48 V DC		
			AC-12	AC-13/15	AC-12	AC-13/15	DC-12	DC-13	DC-14	DC-12	DC-13	DC-14
160-3200	C0	16	16	4	12	3	2,5	2,5	1	2,5	1,2	0,2

Installation of accessories



*Only one auxiliary contact can be mounted to each switch body

Load Break Change Over Switch LBS..CO

Characteristics according to IEC 60947-3, IEC 60947-6-1:

Type			LBS 160	LBS 250	LBS 400	LBS 630	LBS 800	LBS 1000	LBS 1250	LBS 1600	LBS 2000	LBS 2500	LBS 3200
Current	(I _n)		160A	250A	400A	630A	800A	1000A	1250A	1600A	2000A	2500A	3200A
Rated insulation voltage	(U _i)	(V)	800	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Rated impulse withstand voltage	(U _{imp})	(kV)	8	12	12	12	12	12	12	12	12	12	12
Thermal current 40°C	(I _{th})	(A)	160	250	400	630	800	1000	1250	1600	2000	2500	3200
Rated operational currents (I _o) IEC 60947-3	AC-20 A/B	415V AC (A)	160	250	400	630	800	1000	1250	1600	2000	2500	3200
	AC-21 A/B	415V AC (A)											
	AC-22 A/B	415V AC (A)											
	AC-23 A/B	415V AC (A)											
	AC-20 A/B	500V AC (A)											
	AC-21 A/B	500V AC (A)											
	AC-22 A/B	500V AC (A)	200/250	200/400	500	630	800	1000	-	-	-		
	AC-23 A/B	500V AC (A)	80	200	200	400	400	630	800	1000	-	-	-
	AC-20 A/B	690V AC (A)	160	250	400	630	800	1000	1250	1600	2000	2500	3200
	AC-21 A/B	690V AC (A)											
	AC-22 A/B	690V AC (A)	125	160	160	400	630	800	1000	1000	-	-	-
	AC-23 A/B	690V AC (A)	63/80	125	125								
	DC-20 A/B ⁽¹⁾	220V DC (A)	160	250	400	630	800	1000	1250	1600	2000	2500	3200
	DC-21 A/B ⁽¹⁾	220V DC (A)											
	DC-22 A/B ⁽¹⁾	220V DC (A)											
	DC-23 A/B ⁽¹⁾	220V DC (A)											
	DC-20 A/B ⁽¹⁾	440V DC (A)	160	250	400	630	800	1000	1250	1600	2000	2500	3200
	DC-21 A/B ⁽¹⁾	440V DC (A)											
DC-22 A/B ⁽¹⁾	440V DC (A)	125	200	200	500	800	1000	1250	1600	2000	2500	3200	
DC-23 A/B ⁽¹⁾	440V DC (A)												
Rated operational currents (I _o) IEC 60947-6-1	AC-31 A/B	415V AC (A)	160	250	400	630	800	1000	1250	1600	2000	2500	3200
	AC-32 A/B	415V AC (A)		200	400	500	800	1000	1250	1600	2000	2000	2000
	AC-33 A/B	415V AC (A)		200	200	400	800	800	800	1000	1250	1250	1250
Short-circuit capacity I _{sc} 690 V AC	1 s. ⁽⁴⁾	(kA)	7	8	8	10	26	35	35	50	50	50	50
	0,25 s.	(kA)	11,9	22	22	17	48	73,5	73,5	110	110	110	110
I _{sc} 415 V AC according to IEC 60947-6-1	0,06 s. ⁽⁵⁾	(kA)		10	10	12,6	16	20	25	32	40	50	50
	(400V)	(kW)	80	132	280	450	450	560	710	710	710	-	-
Operational power in AC 23 ⁽²⁾	(690V)	(kW)	55/75	90/110	150/185	185/220	185/220	475	475	750	750	-	-
	400 V	(kVAr)	75	115	185	290	365	460	575	-	-	-	-
Fuse protected short-circuit withstand (kA rms prospective), 690 V AC													
Associated fuse rating		(A)	160	250	400	630	800	1000	1250	2x800	-	-	-
Prospective short-circuit current		(kA)	100	50	50	50	50	100	100	100	100	100	-
Circuit breaker protected short-circuit withstand with any circuit breaker that ensures tripping in less than 0.3s ⁽³⁾													
Rated short-time withstand current I _{cw}	0,3 s.	(kA)	12	15	15	17	47	64	64	78	78	78	78
Connection													
Minimum Cu cable cross-section	mm ²		50	95	185	2x150	2x185	2x240	-	-	-	-	-
Maximum Cu cable cross-section	mm ²		95	150	240	2x300	2x300	4x185	4x185	4x185	-	-	-
Minimum Cu busbar cross-section	mm		-	-	-	2x30x5	2x40x5	2x50x5	2x60x5	2x80x5	2x100x10	2x100x10	4x100x10
Maximum Cu busbar width (Cu)	mm		25	32	32	50	63	63	63	100	100	100	100
Tightening torque min/max	Nm		9/13	20/26	20/26	20/26	20/26	20/26	20/26	40/45	40/45	40/45	40/45
Durability (number of operating cycles)	cycles		10 000	8 000	5 000	5 000	4 000	4 000	4 000	3 000	3 000	3 000	3 000
Power dissipation	W/pole		3,2	6	15,5	35	40	52,2	80	95	-	-	-

Category with index A = frequent operation

Category with index B = infrequent operation.

⁽¹⁾ 3-pole device with 2 poles in series for the „+“ and 1 pole for the „-“, 4-pole device with 2 poles in series per polarity.

⁽²⁾ The power value is given for information only, the current values vary from one manufacturer to another.

⁽³⁾ Value for coordination with any circuit breaker that ensures tripping in less than 0.3s.

⁽⁴⁾ Data at 415 VAC

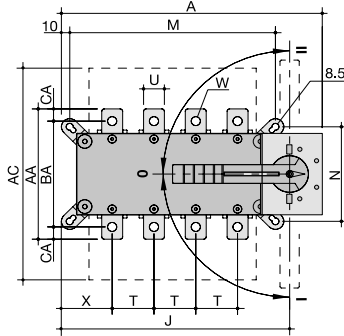
⁽⁵⁾ Data at 30 ms

Technical data

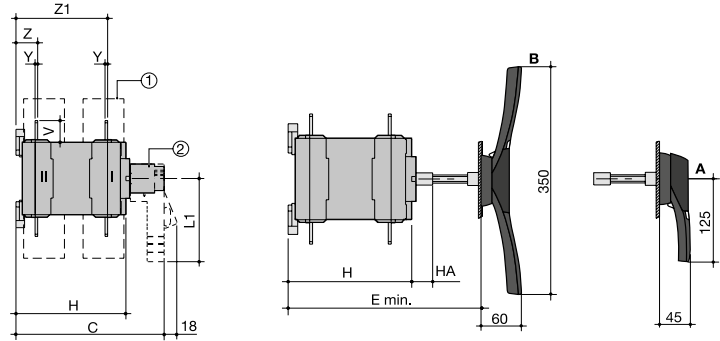
Dimensions

LBS 160 CO - LBS 1600 CO 3/4 p

Direct front operation
Front view



External front operation
Side view



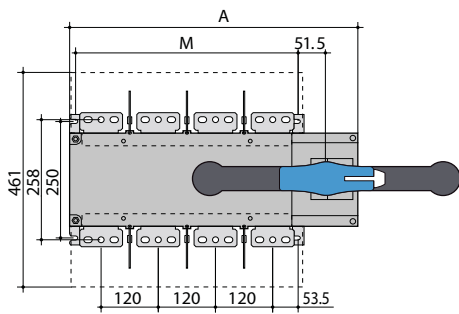
- A. Handle type LBS-EH630 CO for external operation: 160 to 630 A
- B. Handle type LBS-EH1600 CO for external operation: 800 to 1600 A

- I. Terminal shrouds
- II. Direct handle operation:
 - L1 = 140 mm: 160 to 630 A;
 - L1 = 210 mm: 800 to 1600 A;

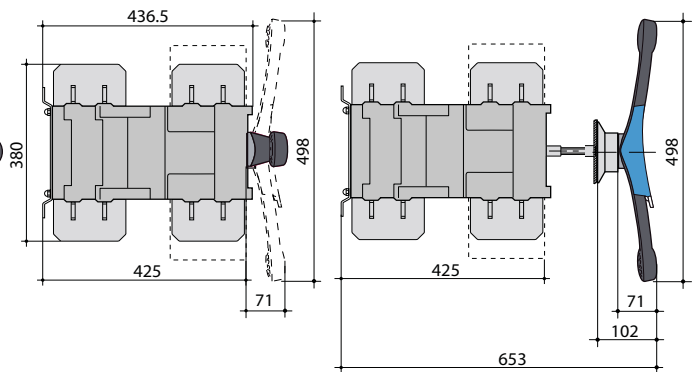
Rating (A)	Overall dimensions, (mm)				Terminal shrouds, (mm)	Switch body, (mm)				Switch mounting, (mm)			Connection, (mm)												
	A (3p)	A (4p)	C	E min		AC	H	HA	J (3p)	J (4p)	M (3p)	M (4p)	N	T	U	V	W	X (3p)	X (4p)	Y	Z	Z1	AA	BA	CA
160	221	251	218	208-436	235	148	25	182	212	156	186	101	36	20	25	8.5	56	50	3.5	28	124	135	115	10	
250	262	312	218	208-436	280	148	25	223	273	196	246	116	50	25	30	11	61	61	3.5	30	124	160	130	15	
400	262	312	218	208-436	280	148	25	223	273	196	246	116	50	35	35	11	61	61	3.5	30	124	170	140	15	
630	319	379	295	285-513	400	225	25	272	332	246	306	176	65	45	50	13	70.5	65.5	5	43	180	260	220	20	
800	386	466	375	425-577	459	298	29	306.5	386.5	255	336	250	80	50	60.5	15	48	48	7	66.5	253.5	321	26.5		
1000	386	466	375	425-577	459	298	29	306.5	386.5	255	336	250	80	50	60.5	15	48	48	7	66.5	253.5	321	26.5		
1250	386	466	375	425-577	459	298	29	306.5	386.5	255	336	250	80	60	65	16x11	48	48	7	66.5	255.5	330	29.5		
1600	478	598	375	425-577	461	298	29	388.5	518.5	347	467	250	120	90	43.5	12.5x5	54	54	8	66.5	255.5	288	15		

LBS 2000 CO - LBS 3200 CO 3/4 P

Direct front operation
Front view

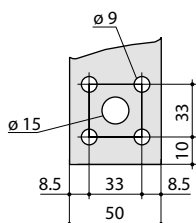


Side view



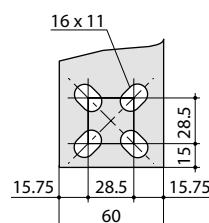
Rating (A)	A (mm) (3p)	A (mm) (4p)	M (mm) (3p)	M (mm) (4p)
2000-3200	478	598	347	467

LBS 800 3/4 P CO

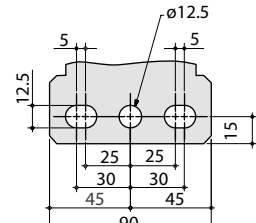


Connection terminals

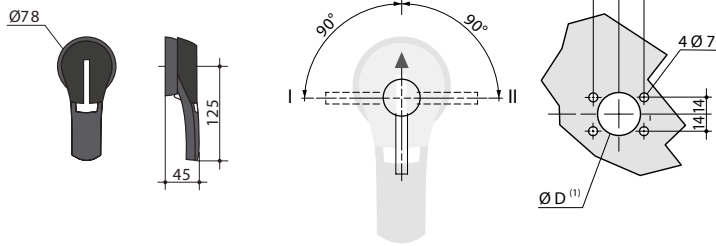
LBS 1250 3/4 P CO



LBS 1600 - 3200 3/4 P CO

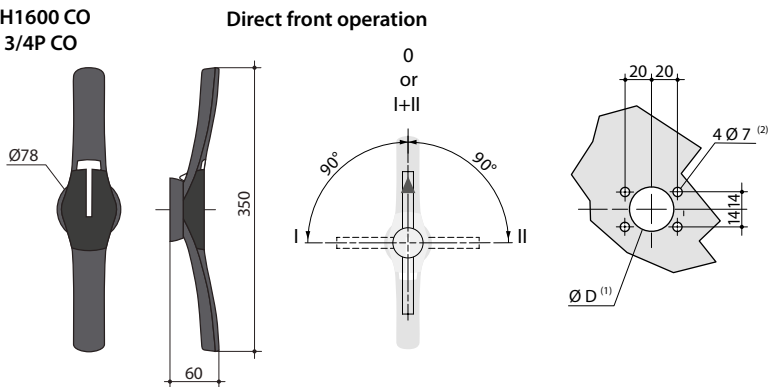


Handle type LBS-EH630 CO
for LBS 160 - 630 3/4P CO



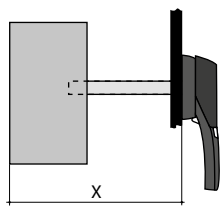
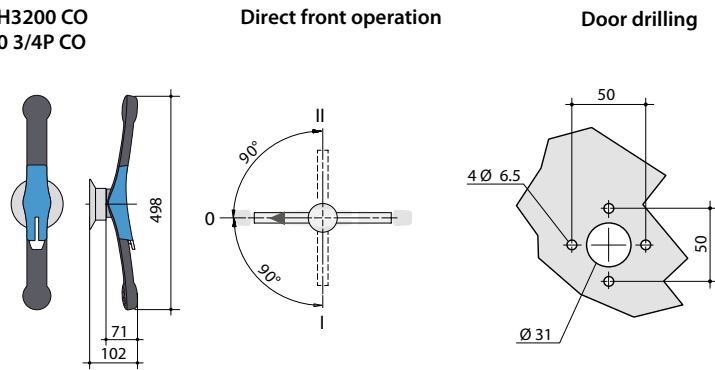
(1) Ø31 to Ø37: rear screw mounting Ø37: front clip mounting

Handle type LBS-EH1600 CO
for LBS 800 - 1600 3/4P CO



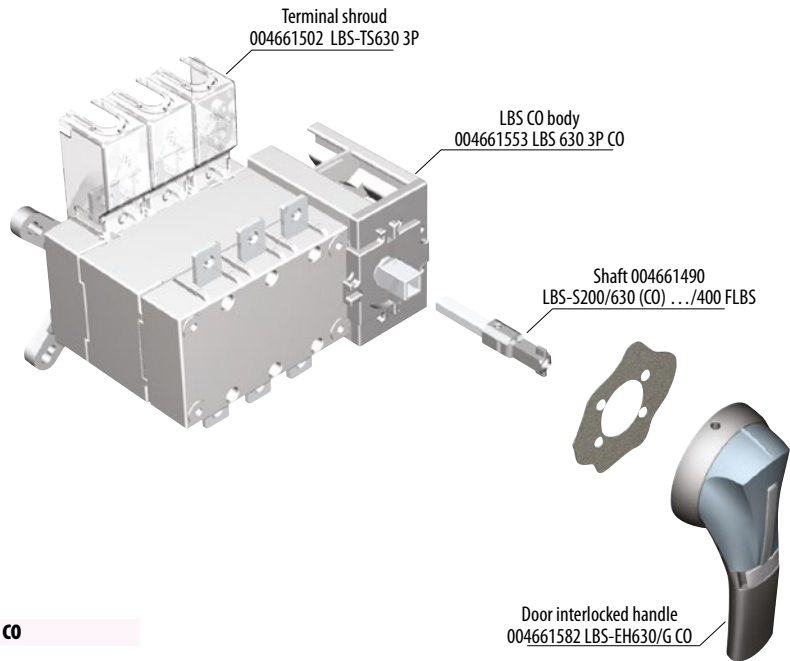
(1) Ø31 to Ø37: rear screw mounting Ø37: front clip mounting
(2) Ø6 to Ø7: clip mounting

Handle type LBS-EH3200 CO
for LBS 2000 - 3200 3/4P CO



Rating (A)	Dimension X (mm)	Length (mm)
160 - 400	210 - 310	200
	210 - 430	320
500 - 630	280 - 390	200
	280 - 510	320
800 - 1800	425 - 577	200
	425 - 697	320
	653 - 803	320
2000 - 3200	653 - 923	320
	653 - 1053	450

Installation of accessories



Connection LBS 2000-3200A CO

Enables:

- To allow connection between the two power terminals from a same pole for 2000 to 3200A ratings (Fig. 1 and Fig 2)
- Top or bottom bridging connection (Fig. 3).

For 3200 A rating, the connection pieces (part A) are delivered bridged from factory. Bolt sets must be ordered separately.

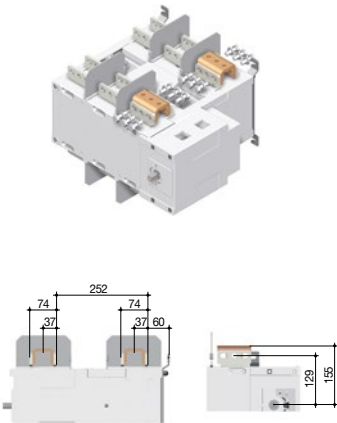


Fig. 1

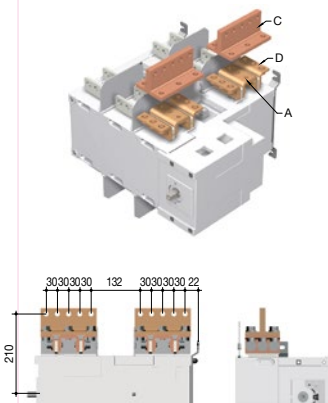


Fig. 2

Current (A)	Piece	Quantity to order per pole ⁽¹⁾	Code No.
2000 - 2500	Bridging bar part A	2	004661597
2000 - 2500	Bolt set - part B	2	004661598
3200	Bridging bar part A		included
3200	Bolt set - part B	2	004661598

Current (A)	Piece	Quantity to order per pole ⁽¹⁾	Code No.
2000 - 2500	Bridging bar part A	2	004661597
2000 - 2500	T piece - part C	2	004661599
2000 - 2500	Right angle - part D	2	004661600
3200	Bridging bar part A		included
3200	T piece - part C	2	004661599
3200	Right angle - part D	2	004661600

Current (A)	Piece	Quantity to order per pole ⁽¹⁾	Code No.
2000 - 2500	Bridging bar part A	2	004661597
2000 - 2500	Bolt set - part B	2	004661598
2000 - 2500	Bar - piece E	1	004661601
2000 - 2500	T piece - part C	1	004661599
3200	Bridging bar part A		included
3200	Bolt set - part B	2	004661598
3200	Bar - piece E	1	004661602
3200	T piece - part C	1	004661599

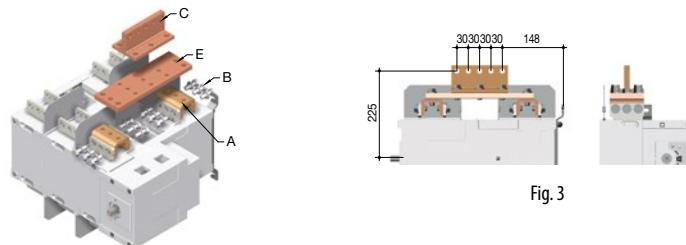


Fig. 3

Motorised Change Over Load Break Switch MLBS..CO (1-0-2)

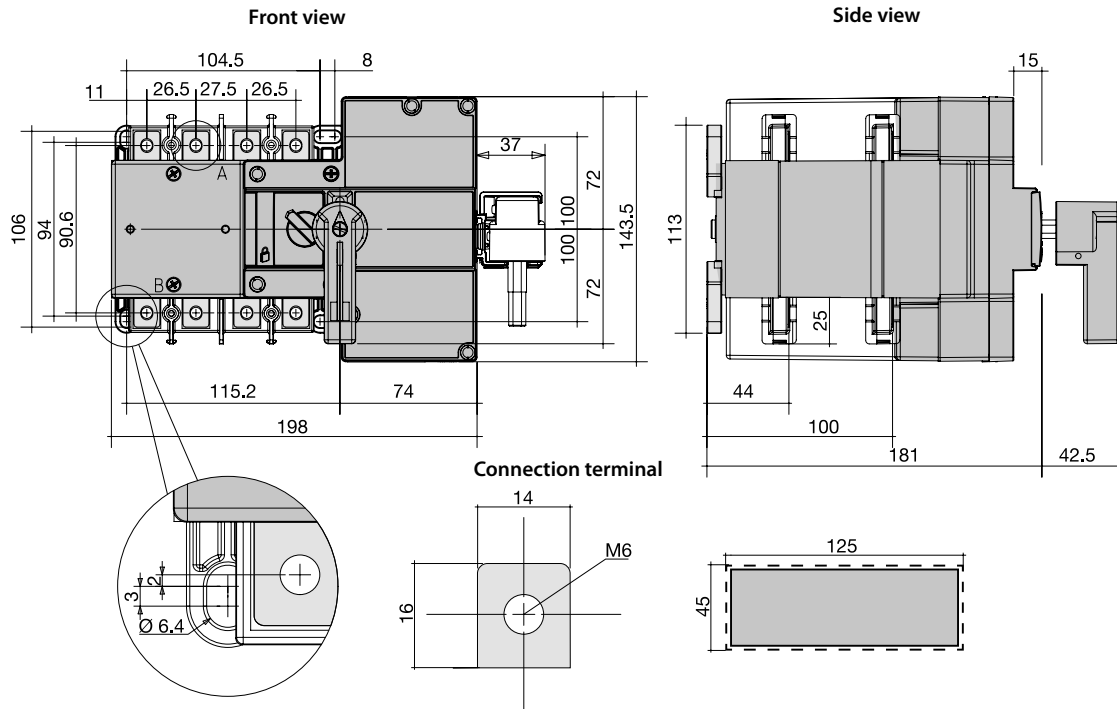
Characteristics according to IEC 60947-3, IEC 60947-6-1					
Type			MLBS 63 CO	MLBS 100 CO	MLBS 125 CO
Current	(I _n)	(A)	63A	100A	125A
Rated insulation voltage (power circuit)	(U _i)	(V)	800	800	800
Rated insulation voltage (operation circuit)	(U _o)	(V)	300	300	300
Rated impulse withstand voltage (power circuit)	(U _{imp})	(kV)	6	6	6
Rated impulse withstand voltage (operation circuit)	(U _{imp})	(kV)	4	4	4
Thermal current 40°C	(I _{th})	(A)	63	100	125
Rated operational currents (I _c) according to IEC 60947-3	AC-20A/B	415V	(A)		125
	AC-21A/B	415V	(A)	63	100
	AC-22A/B	415V	(A)		100/125
	AC-23A/B	415V	(A)	-/63	-/63
Rated operational currents (I _c) according to IEC 60947-6-1	AC-31B	415V	(A)	63	100
	AC-32B	415V	(A)	63	80
Short-circuit capacity I _{cw}		1 s.	(kA)	2,5	2,5
		0,25 s.	(kA)	4,5	4,5
Fuse protected short-circuit withstand (kA rms prospective)					
Associated fuse rating		(A)	63	100	125
Prospective short-circuit current		(kA)	50	25	15
Circuit breaker protected short-circuit withstand with any circuit breaker that ensures tripping in less than 0.3s ⁽¹⁾					
Rated short-time withstand current I _{sw}	0,3 s.	(kA)	3,5	3,5	3,5
Connection					
Maximum Cu cable cross-section	mm ²		50	50	50
Tightening torque min/max	Nm		1,2/3	1,2/3	1,2/3
Switching time (Standard setting)					
1-0 or 2-0	(ms)		500	500	500
1-2 or 2-1	(ms)		1000	1000	1000
Duration of "electrical blackout" 1-2 minimum	(ms)		500	500	500
Power supply					
Power supply 12 V DC min/max	(V)		9/15	9/15	9/15
Power supply 230 V AC min/max	(V)		160/310	160/310	160/310
Control supply power demand					
Power supply 12 V DC inrush/nominal	(VA)		200/40	200/40	200/40
Power supply 230 V AC inrush/nominal	(VA)		200/40	200/40	200/40
Durability (number of operating cycles)	cycles		10 000	10 000	10 000
Power dissipation	W/pole		1,7	4,5	6

⁽¹⁾ Value for coordination with any circuit breaker that ensures tripping in less than 0.3s.

Technical data

Dimensions

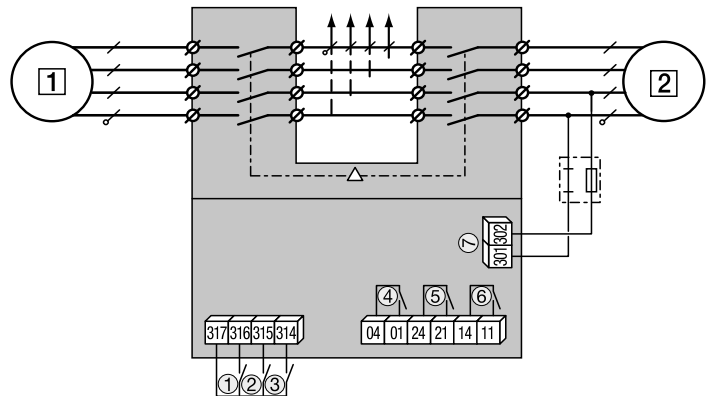
MLBS 63 4P CO - MLBS 125 4P CO



Power supply MLBS 63 - MLBS125 4P CO 230VAC

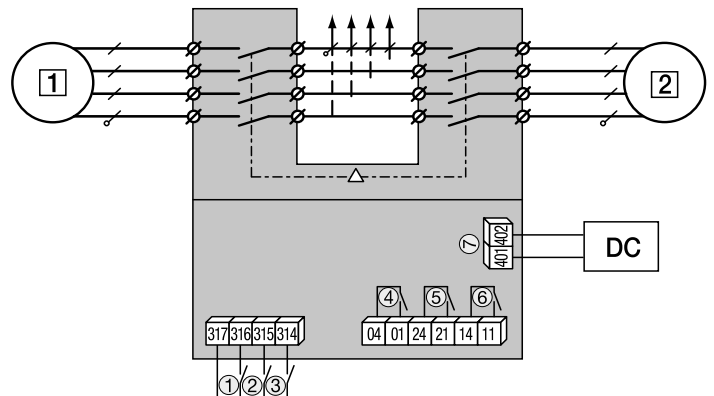
- 1 - preferred source
- 2 - alternate source
- 1 - position 0 control
- 2 - position I control
- 3 - position II control
- 4 - auxiliary contact, closed when the switch is in position 0
- 5 - auxiliary contact, closed when the switch is in position II
- 6 - auxiliary contact, closed when the switch is in position I
- 7 - power supply kit: 230 V AC (160 - 310 V AC)

MLBS 63...125 4P CO 230VAC



MLBS 63...125 4P CO 12VDC

- 1 - preferred source
- 2 - alternate source
- 1 - position 0 control
- 2 - position I control
- 3 - position II control
- 4 - auxiliary contact, closed when the switch is in position 0
- 5 - auxiliary contact, closed when the switch is in position II
- 6 - auxiliary contact, closed when the switch is in position I
- 7 - power supply kit: 12 V DC (9 - 15 V DC)



Characteristics according to IEC 60947-3, IEC 60947-6-1						
Type			MLBS 250 CO	MLBS 400 CO	MLBS 630 CO	
Current	(I _n)	(A)	250	400	630	
Rated insulation voltage (power circuit)	(U _i)	(V)	1000			
Rated insulation voltage (operation circuit)	(U _o)	(V)	300			
Rated impulse withstand voltage (power circuit)	(U _{imp})	(kV)	12			
Rated impulse withstand voltage (operation circuit)	(U _{imp})	(kV)	4			
Thermal current 40°C	(I _{th})	(A)	250	400	630	
Rated operational currents (I _e) according to IEC 60947-3	AC-21 A / AC-21 B	415 VAC	(A)	250/250	400/400	630/630
	AC-22 A / AC-22 B	415 VAC	(A)	250/250	400/400	630/630
	AC-23 A / AC-23 B	415 VAC	(A)	200/200	400/400	500/630
	AC-21 A / AC-21 B	500 VAC	(A)	250/250	400/400	630/630
	AC-22 A / AC-22 B	500 VAC	(A)	200/250	200/400	500/500
	AC-23 A / AC-23 B	500 VAC	(A)	200/200	200/200	400/400
	AC-21 A / AC-21 B	690 VAC ⁽³⁾	(A)	200/200	200/200	500/500
	AC-22 A / AC-22 B	690 VAC ⁽³⁾	(A)	160/160	160/160	400/400
	AC-23 A / AC-23 B	690 VAC ⁽³⁾	(A)	125/125	125/125	400/400
	DC-21 A / DC-21 B	220 VDC	(A)	250/250	250/250	630/630
	DC-22 A / DC-22 B	220 VDC	(A)	250/250	250/250	630/630
	DC-23 A / DC-23 B	220 VDC	(A)	200/200	200/200	630/630
Rated operational currents (I _e) according to IEC 60947-6-1	AC-31 B	415 VAC	(A)	250	400	630
	AC-32 B	415 VAC	(A)	200	400	500
	AC-33 B	415 VAC	(A)	200	200	400
Current rated as conditional short-circuit with fuse gG DIN, according to IEC 60947-3						
Prospective fuse protected short-circuit withstand	415 VAC	(kA)	50			
Prospective fuse protected short-circuit withstand	690 VAC	(kA)	50			
Associated fuse rating		(A)	250	400	630	
Short-circuit withstand without protection as per IEC 60947-3						
Rated short-time withstand current I _{cw} at 415 VAC	0,3 s	(kA)	15 ⁽⁴⁾		17 ⁽⁴⁾	
Rated short-time withstand current I _{cw} at 415 VAC	1s	(kA)	8 ⁽⁴⁾		10 ⁽⁴⁾	
Rated peak withstand current at 415 VAC		(kA)	30		45	
Short-circuit withstand without protection as per IEC 60947-6-1						
Rated short-time withstand current I _{cw} at 415 VAC	30 ms	(kA)	10			
Rated short-time withstand current I _{cw} at 415 VAC	60 ms	(kA)			12,6	
Connection						
Minimum Cu cable cross-section as per IEC 60947-1		(mm ²)	95	185	2x120	
Recommended Cu busbar cross-section		(mm ²)			2x40x5	
Maximum Cu cable cross-section		(mm ²)	150	240	2x300	
Maximum Cu busbar width		(mm)	32		50	
Min./max. tightening torque		Nm	20/26		40/45	
Switching time (rated voltage, after receiving command)						
Transfer time I-II or II-I		(s)	0,9		0,95	
I-0 or II-0		(s)	0,5		0,55	
Contact transfer time ("black-out" I-II) minimum		(s)	0,4			
Power supply						
Min./max. power	VAC		166/332			
Control supply power demand						
Demand/rated power	(VA)		276/115		276/150	
Durability (number of operating cycles)	cycles		8.000		5.000	

⁽¹⁾ Category with index A = frequent operation - Category with index B = infrequent operation.

⁽²⁾ 3-pole device with 2 pole in series for the "+" an 1 pole for the "-".

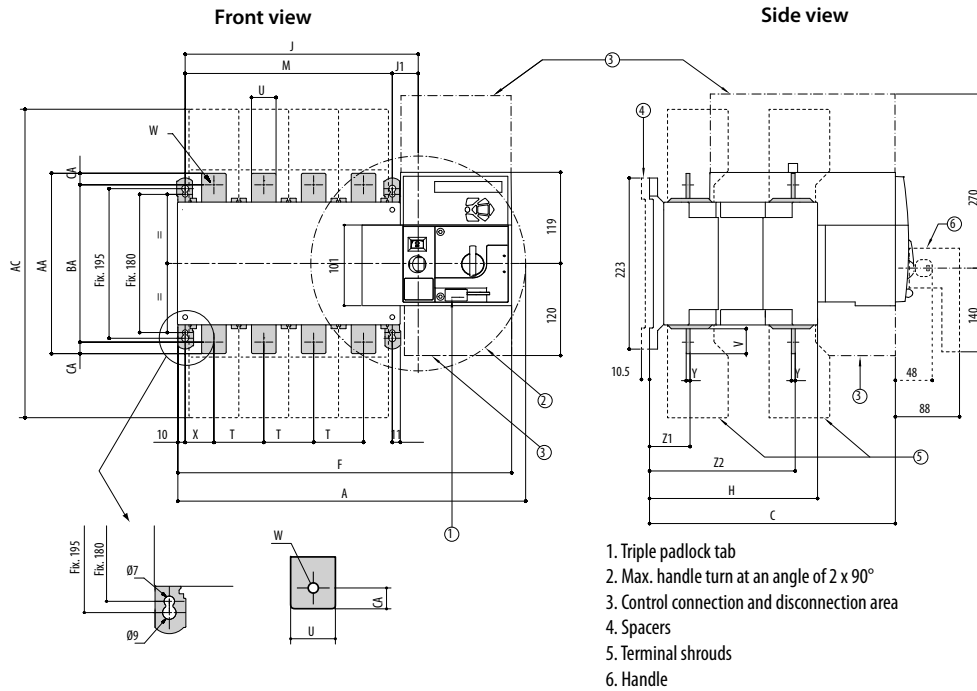
⁽³⁾ Interphase barriers must be installed on the products.

⁽⁴⁾ Values given at 690 VAC.

Technical data

Dimensions

MLBS 250 CO - MLBS 630 CO



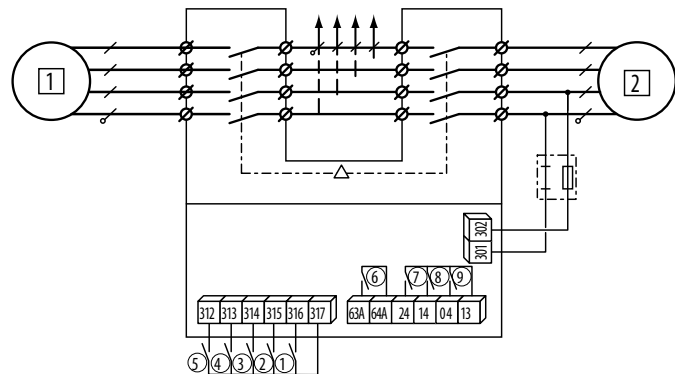
- 1. Triple padlock tab
- 2. Max. handle turn at an angle of 2 x 90°
- 3. Control connection and disconnection area
- 4. Spacers
- 5. Terminal shrouds
- 6. Handle

Rating (A)	Overall dimensions, (mm)			Terminal shrouds, (mm) AC	Switch body, (mm)						Switch mounting, (mm)		Connection, (mm)											
	A (3p)	A (4p)	C		F (3p)	F (4p)	H	J (3p)	J (4p)	J1	M (3p)	M (4p)	T	U	V	W	X (3p)	X (4p)	Y	Z1	Z2	AA	BA	AC
250	345	395	244	288	328	378	152	195	245	35	160	210	50	25	30	11	33	33	3,5	39,5	133,5	160	130	15
400	345	395	244	288	328	378	152	195	245	35	160	210	50	35	35	11	33	33	3,5	39,5	133,5	170	140	15
630	394	454	320,5	402	377	437	221	244	304	34	210	270	65	45	50	13	42,5	37,5	5	53	190	260	220	20

Connections and terminals

- 1 - primary source (network or genset)
- 2 - backup source (mains network or genset)
- 1 - position 0 control (contact or logic if closed)
- 2 - position I control
- 3 - position II control
- 4 - primary control position 0
- 5 - closing this contact allows position control commands
- 6 - product availability relay
- 7 - auxiliary contact - closed when the switch is in position II
- 8 - auxiliary contact - closed when the switch is in position I
- 9 - auxiliary contact - closed when the switch is in position 0

MLBS 250 CO - MLBS 630 CO



Fuse Load Break Switch FLBS

Characteristics according to IEC 60947-3							
Type			FLBS 125	FLBS 160	FLBS 250	FLBS 400	FLBS 630
Current	(I _n)	(A)	125A	160A	250A	400A	630A
Rated insulation voltage	(U _i)	(V)	750	750	750	1000	1000
Rated impulse withstand voltage	(U _{imp})	(kV)	8	8	8	12	12
NFC/DIN fuse size			00/00 C	00/00 C	1	2	3
Thermal current 40°C	(I _{th})	(A)	125	160	250	400	630
Rated operational currents (I _o)	AC-22A/B	400V (A)					630
	AC-23A/B	400V (A)	125	160		400	
	AC-22A/B ⁽¹⁾	690V (A)					500/630
	AC-23A/B ⁽¹⁾	690V (A)	100	125	250	315/400	315/400
	DC-20A/B	220V (A)				400	
	DC-21A/B	220V (A)	125	160		315	400/630
	DC-22A/B	220V (A)					315/630
	DC-23A/B	220V (A)	100	125	200	200/315	
	DC-20A/B ^{(2) (3)}	440V (A)				400	400/630
	DC-21A/B ^{(2) (3)}	440V (A)	125	160	250	315	
DC-22A/B ^{(2) (3)}	440V (A)					315/630	
DC-23A/B ^{(2) (3)}	440V (A)	100	125	200	250/315	400/630	
Operational power in AC 23 ⁽⁴⁾	400V AC	kW	63	80	132	220	355
	690V AC	kW	90	110	220	220/295	295/400
Reactive power ⁽⁴⁾	400V AC	(kVar)	55	75	115	185	290
Fuse protected short-circuit withstand (kA rms prospective)							
Associated fuse rating ⁽⁵⁾		(A)	125	160	250	400	630
Prospective short-circuit current ⁽⁵⁾		(kA)	100	50	100	100	100
Short-circuit capacity							
Rated peak withstand current	0,3 s.	(kA)	20	20	32,5	40	70
Connection							
Minimum Cu cable cross-section	mm ²		35	35	95	185	2x150
Maximum Cu cable cross-section	mm ²		95	95	240	240	2x300
Maximum Cu busbar width (Cu)	mm		20	20	32	45	63
Tightening torque min/max	Nm		8.3/13	8.3/13	20/26	20/26	40/45
Durability (number of operating cycles)	cycles		10 000	10 000	10 000	10 000	80 000
Power dissipation	W/pole		20,3	21,6	41,1	57,4	122
Frame pitch	(mm)		36	36	60	66	94

Category with index A = frequent operation; Category with index B = infrequent operation.

⁽¹⁾ - With terminal shrouds or terminal screen.

⁽²⁾ - Poles cannot be juxtaposed.

⁽³⁾ - 4-pole device with 2 poles in series per polarity.

⁽⁴⁾ - The power value is given for information only, the current values vary from one manufacturer to another.

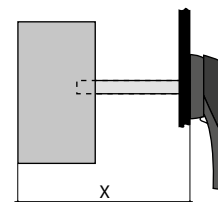
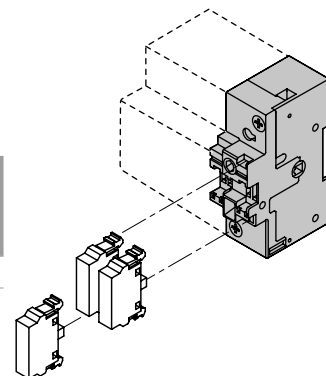
⁽⁵⁾ - For a rated operational voltage U_e = 415 VAC.

Characteristics FLBS-PS

Rating (A)	Operating current I _e (A)			
	250 V AC AC-15	400 V AC AC-15	24 V DC DC-13	48 V DC DC-13
125-630	3	1,8	2,8	1,4

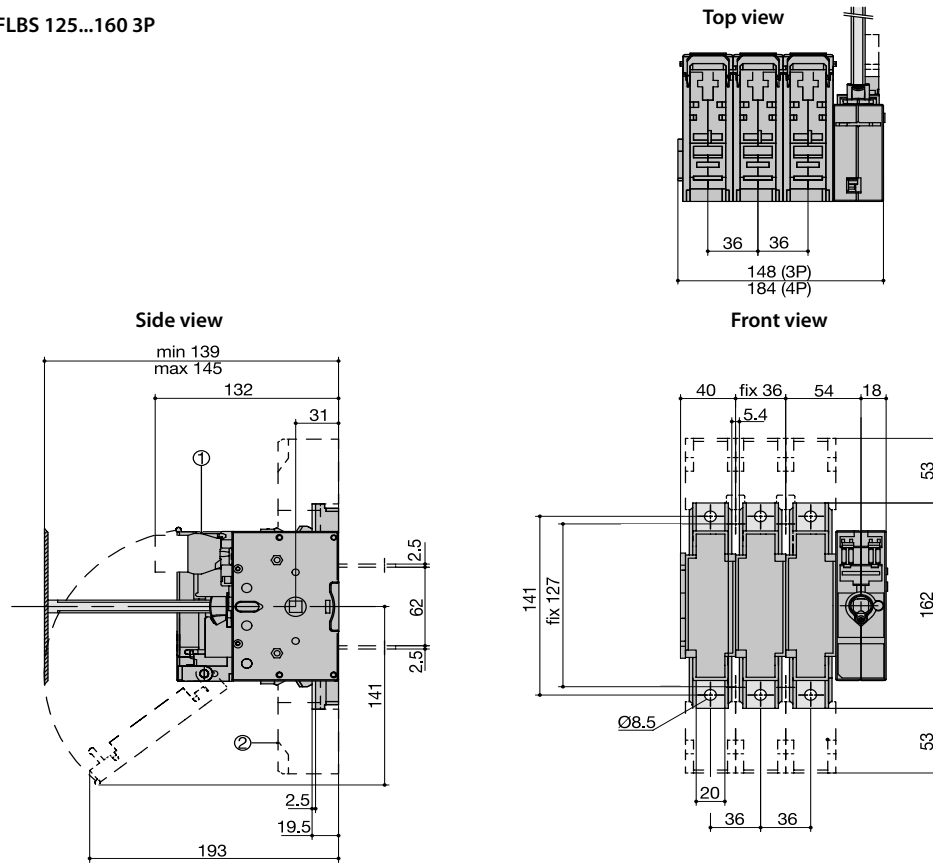
Shaft lengths

Rating (A)	125-160	250-400	630
Fuse size	00	1/2	3
Shaft length (mm)	X	X	X
200	135 - 230	160 - 230	270 - 304
320	135 - 350	160 - 350	270 - 424
400	135 - 430	160 - 430	270 - 504
500	135 - 530	160 - 530	270 - 604



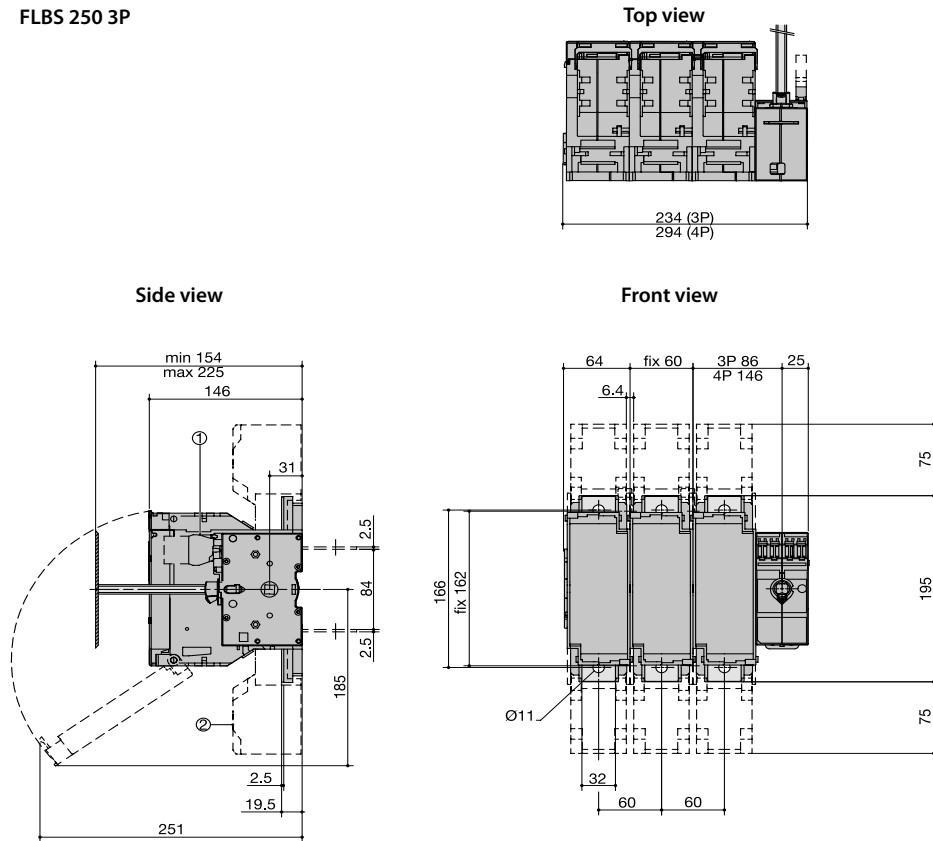
Dimensions

FLBS 125...160 3P



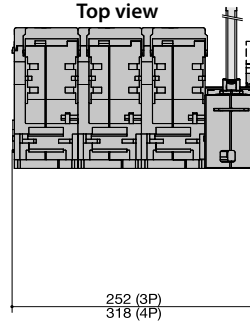
- 1 - Auxiliary contact
- 2 - Terminal shrouds

FLBS 250 3P

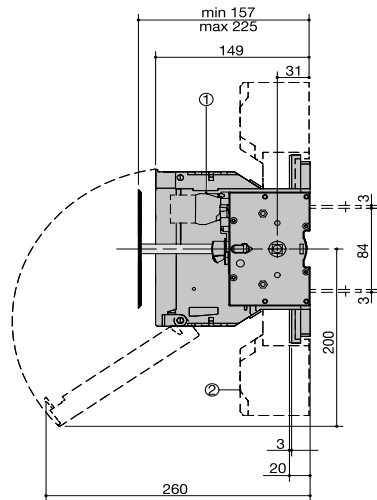


- 1 - Auxiliary contact
- 2 - Terminal shrouds

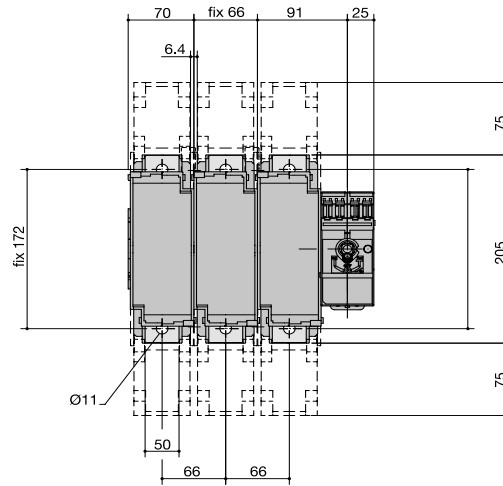
FLBS 400 3P



Side view



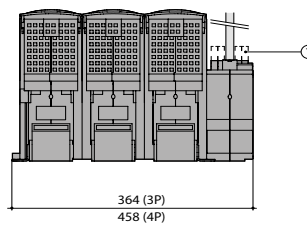
Front view



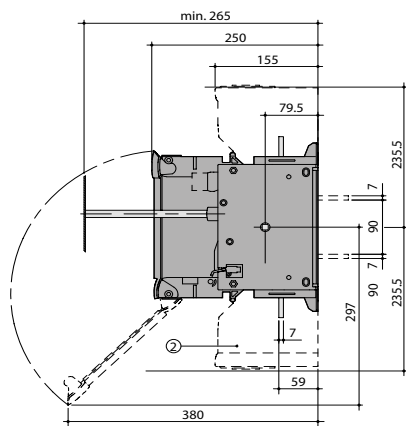
- 1 - Auxiliary contact
- 2 - Terminal shrouds

FLBS 630 3P

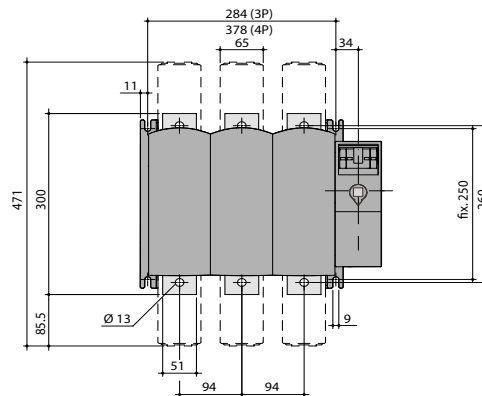
Top view



Side view



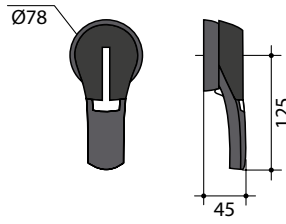
Front view



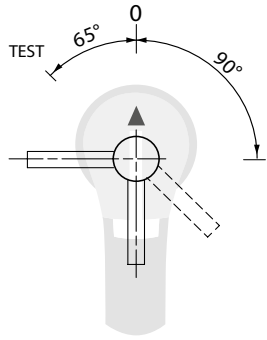
- 1 - Auxiliary contact
- 2 - Terminal shrouds

Technical data

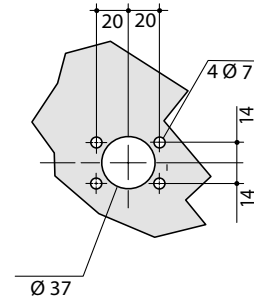
Handle type LBS-EH630/G ...400/G FLBS



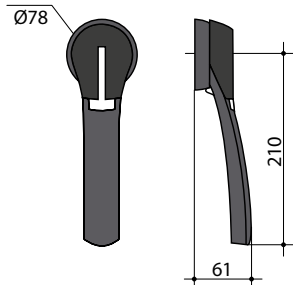
Direct front operation



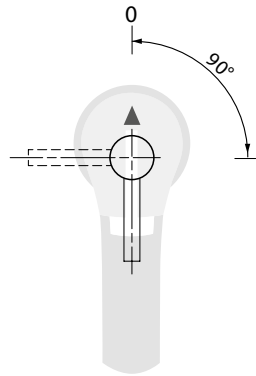
Door drilling



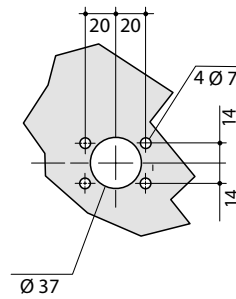
Handle type LBS-EH630/G



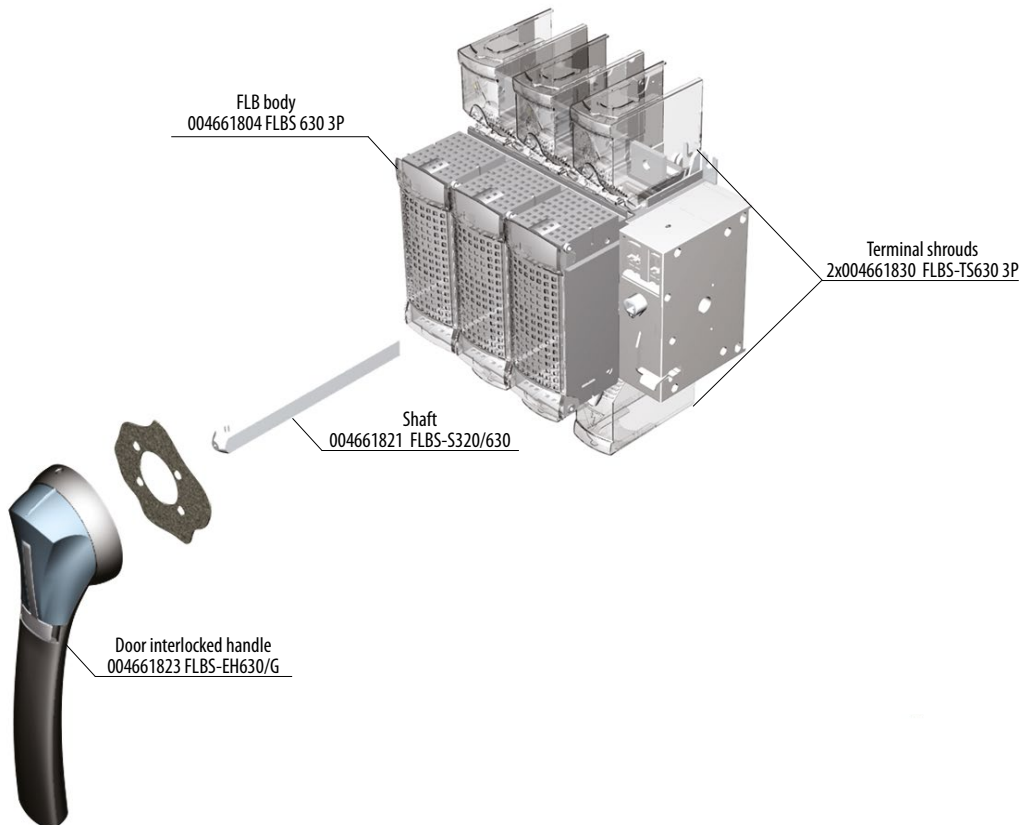
Direct front operation



Door drilling



Installation of accessories

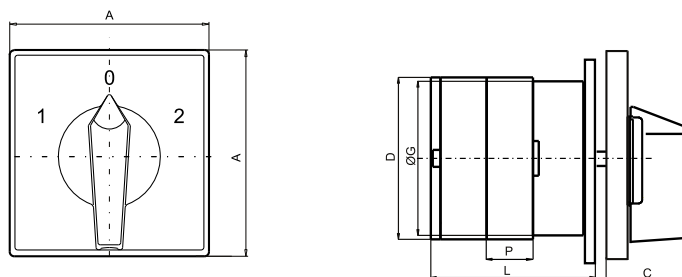


Rotary Cam Switches

Technical data

Type		CS 16	CS 25	CS 32	CS 40	CS 63	CS 80	CS 100		
Rated insulation voltage	U_i V	690	690	690	690	690	690	690		
Rated impulse withstand voltage	U_{imp} kV	4	6	6	6	6	6	6		
Rated thermal current	I_{th} A	20	25	32	50	70	85	100		
Main switch IEC 60947 (III/3)	Max. value of rated operational voltage	400	480	480	480	480	480	480		
	Rated impulse withstand voltage	4	4	4	4	4	4	4		
Max. fuse size for short-circuit protection gL 10kA		A	20	25	32	40	63	80	100	
Rated short-time withstand current I_{cw}	1 sec	A	250	400	600	800	800	1000	1800	
	3 sec	A	10	250	400	530	700	800	900	
	10 sec	A	80	140	240	290	350	400	450	
	30 sec	A	50	90	150	200	250	250	300	
	60 sec	A	40	70	120	150	150	160	200	
Rated operational current I_c AC1/AC21		A	16	25	32	40	63	80	85	
Rated operational current I_c AC15	110/120V	A	10	20	25	40	50			
	220/230V	A	8	20	25	30	40			
	380/400V	A	6	16	20	25	40			
	660/690V	A		8	8,5	8,5	10			
Motor switch in utilisation category AC3/AC23	3 phase	220/230V	KW	3/5	5,6/6,5	7,6/8	9/9	11/15	12/18,5	19/22
		380/400V	KW	5/7,5	7,5/11	11/15	15/18,5	18,5/22	22/32	32/37
		500/690V	KW		11/11	15/18,5	19/22	22/30	28/45	42/55
	1 phase 2 poles	110/120V	KW	0,8/0,8	1,5/1,5	2,5/2,5	2,5/3	3/3,5		
		220/230V	KW	2,2/2,5	3/3,7	4,8/5	5,5/6	6/9		
		380/400V	KW	3/3,7	5,5/5,5	6,5/7,5	7,5/9	11/15		
Motor switch in utilisation category AC4	3 phase	220/230V	KW	1,5	2,5	3	5	6	7	9,5
		380/400V	KW	3	4	5,5	8	11	12	16
		500/690V	KW		4	7,5	8	11	12	16
Mechanical endurance	switching cycles	10^6	3	3	3	3	2	2	2	
Terminal screw		M3.5	M35	M4	M5	M5	2xM5	2xM5		
Screw head				(+, -) PZ2				(-)		
Tightening torque		0,8	0,8	1,2	1,8	2	2	2		
Cable cross-section	Rigid	mm ²	2x(1-2,5)	2x(1-4)	2x(2,5-6)	2x(2,5-10)	2x(4-16)	10-25		
	Flexible	mm ²	2x(1-2,5)	2x(1-4)	2x(2,5-6)	2x(2,5-6)	2x(4-16)	6-25, 2x(6-10)		
Protection degree of terminals				IP20				IP00		
Permissible ambient temperature	$^{\circ}C$			-25 ... +55						
Standards				IEC 60947-3, VDE 0660, EN 60947 - 3						

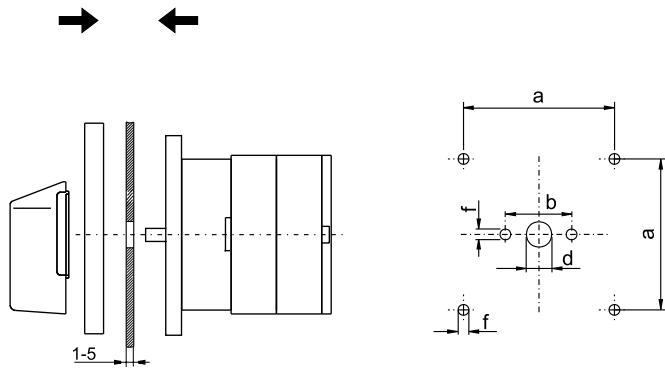
Dimensions



Type	Marking		Number of elements (L/mm)														
	A	C	D	ØG	P	1	2	3	4	5	6	7	8	9	10	11	12
CS 16	48	26	45,2	38,6	12,8	32,5	45,3	58,1	70,9	83,7	96,5	109,3	122,1	134,9	147,7	160,5	173,3
CS 25	48	26	45,2	38,6	12,8	32,5	45,3	58,1	70,9	83,7	96,5	109,3	122,1	134,9	147,7	160,5	173,3
CS 32	65	33	53	38,6	12,8	37	49,8	62,6	75,4	88,2	101	113,8	126,6	139,4	152,2	165	177,8
CS 40	65	33	61	56,4	17,5	50,6	68,1	85,6	103,1	120,6	138,1	155,6	173,1	190,6	208,1	225,6	243,1
CS 63	65	33	61	56,4	17,5	50,6	68,1	85,6	103,1	120,6	138,1	155,6	173,1	190,6	208,1	225,6	243,1
CS 80	90	41	84	80	25	67,5	92,5	117,5	142,5	167,5	192,5	217,5	242,5	267,5	292,5	317,5	342,5
CS 100	90	41	84	80	25	67,5	92,5	117,5	142,5	167,5	192,5	217,5	242,5	267,5	292,5	317,5	342,5

Technical data

Drilling plan

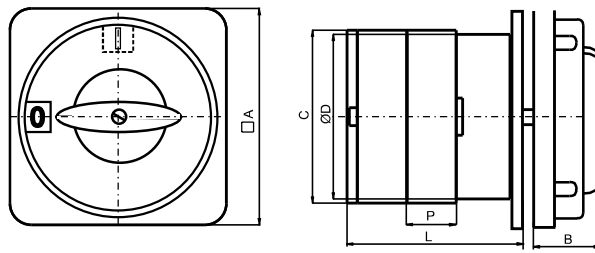


TYPE	a*	b**	d	f
CS 16				
CS 25	36	32	10	4.2
CS 32				
CS 40				
CS 63	48	45	10	4.2
CS 80				
CS 100	72	40	14	5.3

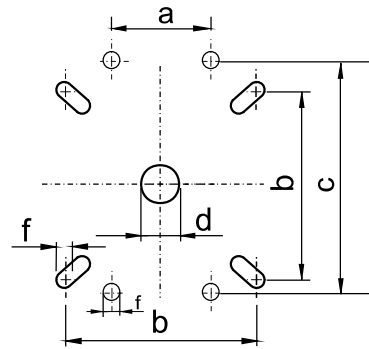
a* - for 5 and more then 5 elements

b** - up to 4 elements

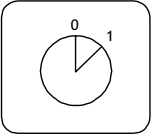
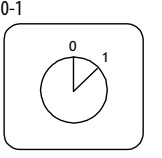
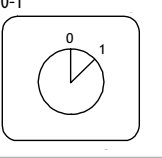
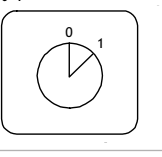
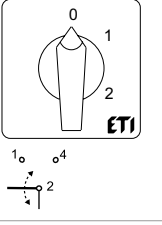
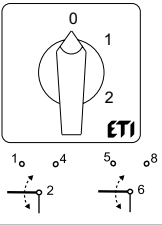
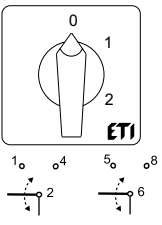
Dimensions LK (General Emergency)

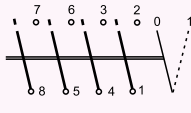


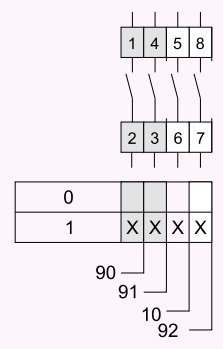
Drilling plan LK (General Emergency)



/(mm)	□A	C	ØD	P	B	L/2	b	d	f	a	c
CS 25 LK	49	45,2	38,6	12,8	35	45,3	36	10	3,2		
CS 32 LK	72	53	38,6	12,8	32	49,8	58	10	4,2		
CS 40 LK	72	61	56,4	17,5	32	68,1	58	10	4,2		
CS 50 LK											
CS 63 LK	72	68,6	56,4	20,5	32	63	58	10	4,2		
CS 80 LK	105	84	80	25	44	92,5	85	14	5,3		
CS 100 LK											
CS 125 LK											
CS 200 LK	130		110	39	62	100		18	5,3	30	90

Type, layout and symbol	Nr of poles / elements	Connection diagram
<p>0-1</p> 	1/1	90
<p>0-1</p> 	2/2	91
<p>0-1</p> 	3/3	10
<p>0-1</p> 	4/4	92
<p>0-1-2</p> 	1/1	107
<p>0-1-2</p> 	2/2	123
<p>0-1-2</p> 	3/3	135



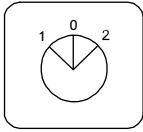
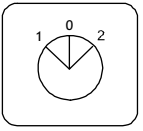
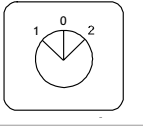
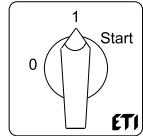
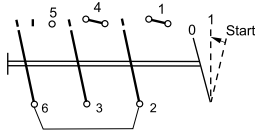
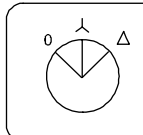
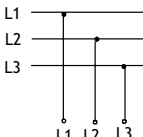
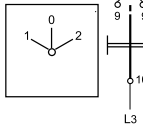
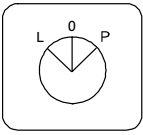


Type, layout and symbol	Nr of poles / elements	Connection diagram																												
<p>3 line and 3 phase</p>	<p>3 LINE AND 3 PHASE / 3</p>	<table border="1"> <tr><td>L3-L1</td><td>X</td><td>X</td><td></td></tr> <tr><td>L2-L3</td><td>X</td><td>X</td><td></td></tr> <tr><td>L1-L2</td><td></td><td>X</td><td>X</td></tr> <tr><td>0</td><td></td><td></td><td></td></tr> <tr><td>L1-N</td><td></td><td>X</td><td>X</td></tr> <tr><td>L2-N</td><td>X</td><td>X</td><td>X</td></tr> <tr><td>L3-N</td><td>X</td><td></td><td>X</td></tr> </table>	L3-L1	X	X		L2-L3	X	X		L1-L2		X	X	0				L1-N		X	X	L2-N	X	X	X	L3-N	X		X
L3-L1	X	X																												
L2-L3	X	X																												
L1-L2		X	X																											
0																														
L1-N		X	X																											
L2-N	X	X	X																											
L3-N	X		X																											
<p>3 line</p>	<p>3 LINE / 2</p>	<table border="1"> <tr><td>0</td><td></td><td></td><td></td></tr> <tr><td>L1-L2</td><td>X</td><td>X</td><td></td></tr> <tr><td>L2-L3</td><td></td><td>X</td><td>X</td></tr> <tr><td>L3-L1</td><td>X</td><td>X</td><td></td></tr> </table>	0				L1-L2	X	X		L2-L3		X	X	L3-L1	X	X													
0																														
L1-L2	X	X																												
L2-L3		X	X																											
L3-L1	X	X																												
<p>3 currents</p>	<p>1 POLE 3 CURRENT WITH TRANSFORMER / 4</p>	<table border="1"> <tr><td>0</td><td>X</td><td>X</td><td>X</td><td></td></tr> <tr><td>1</td><td>X</td><td>X</td><td></td><td>X</td></tr> <tr><td>2</td><td>X</td><td>X</td><td>X</td><td></td></tr> <tr><td>3</td><td>X</td><td></td><td>X</td><td>X</td></tr> </table>	0	X	X	X		1	X	X		X	2	X	X	X		3	X		X	X								
0	X	X	X																											
1	X	X		X																										
2	X	X	X																											
3	X		X	X																										
<p>3 currents</p>	<p>2 POLE 3 CURRENT WITH TRANSFORMER / 6</p>	<table border="1"> <tr><td>0</td><td></td><td>X</td><td>X</td><td>X</td><td>X</td><td></td></tr> <tr><td>1</td><td>X</td><td></td><td>X</td><td>X</td><td></td><td>X</td></tr> <tr><td>2</td><td></td><td>X</td><td>X</td><td>X</td><td>X</td><td></td></tr> <tr><td>3</td><td>X</td><td>X</td><td></td><td>X</td><td>X</td><td></td></tr> </table>	0		X	X	X	X		1	X		X	X		X	2		X	X	X	X		3	X	X		X	X	
0		X	X	X	X																									
1	X		X	X		X																								
2		X	X	X	X																									
3	X	X		X	X																									

Voltmeter Switches

Ammeter Switches

ETISWITCH

Type, layout and symbol	Nr of poles / elements	Connection diagram
Changeover Switches with 60° Switching Angle 1-0-2  1-0-2  1-0-2 	1/1	51
	2/2	52
	3/3	53
Start and Run Switches 0-start-1  	2/2	15
Star - Delta Switches 0-star-delta  	4/4	12
Motor Reversing Switches 1-0-2  L-0-P 	3/3	11
	3/3	11

ETISWITCH

Technical data

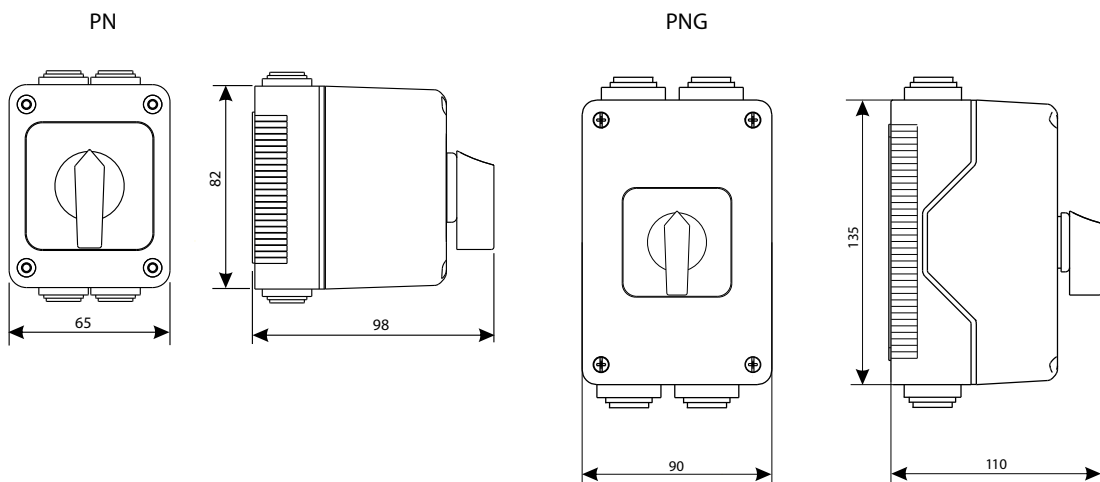
Type, layout and symbol	Nr of poles / elements	Connection diagram
<p>0-1</p>	1	10
<p>0-1</p>	2	91
<p>0-1</p>	3	10
<p>0-1</p>	4	92
<p>General Emergency On-Off Switch</p>		10

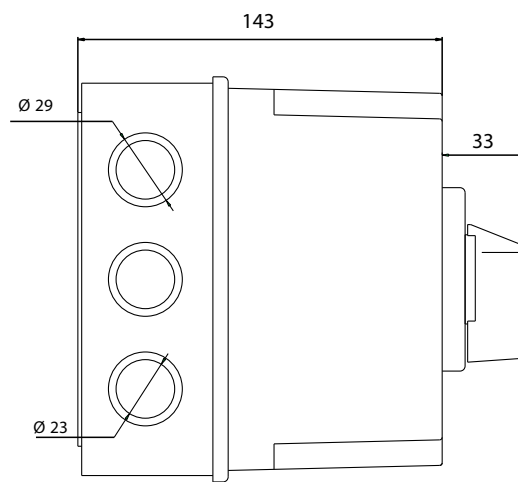
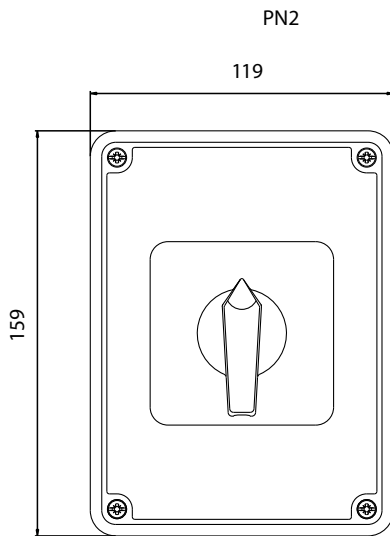
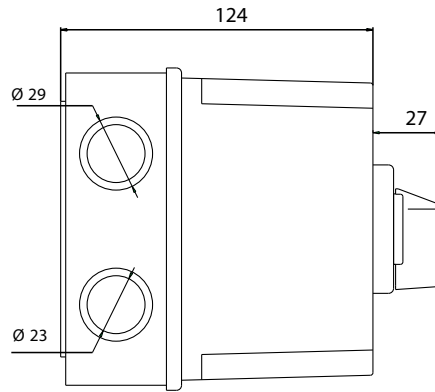
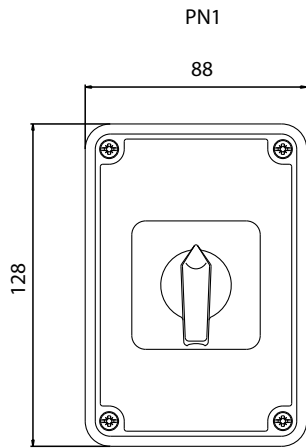
ETISWITCH

Rotary Cam Switches in insulated enclosures

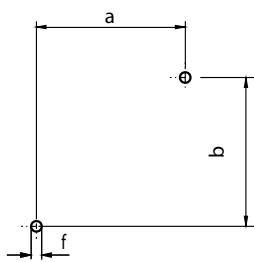
Technical data and connection diagrams for switches in insulated enclosures are the same as for those without enclosures.

Dimensions

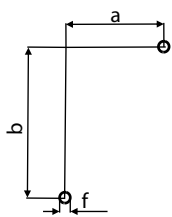




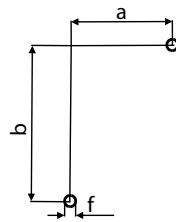
Drilling plan



	a	b	f
PN	44	48	4,3
PNG	48	100	4,3



	a	b	f
PN1	42	82	4,3



	a	b	f
PN2 32	72	112	4,5

Modular switches ModLBS

Data according to IEC 947-3, IEC 947-5-1, VDE 0660, EN 60947-3, EN 60947-5-1				
Type	ModLBS 16 1p / ModLBS 16 3p			
Rated thermal current $I_{th, open}$	A		20	
Rated thermal current $I_{th, enclosed}$	A		20	
Rated operational voltage U_e	V		690*	
Disconnection property ** acc. to VDE, IEC up to	V		440	
Breaking capacity	3x220-240V	A	160	
	3x500V	A	100	
	3x660-690V	A	120	
Utilization categ. AC21A, AC21B	Switching of resistive loads including moderate overloads			
	Rated operational current I_e	A	20	
Utilization categ. AC23A, AC23B	Switching of motor loads or other highly inductive loads			
	Rated current I_e	400V A	16	
	Power rating 3-phase 3-pole	220-240V	kW	4
		380-440V	kW	7,5
		500V	kW	7,5
660-690V		kW	7,5	
Star-Delta-Switches	for squirrel cage motors			
	Power rating	220-240V kW	3,7	
	3-phase 3-pole	380-415V kW	7,5	
Utilization category AC3	Switching of three-phase motors			
	Rated current I_e	400V A	12	
	Power rating 3-phase 3-pole	220-240V	kW	3
		380-440V	kW	5,5
		500V	kW	5,5
660-690V		kW	5,5	
Utilization category AC4	squirrel cage motors, inching			
	Power rating 3-phase 3-pole	220-240V	kW	0,55
		380-440V	kW	1,5
		500V	kW	1,5
660-690V		kW	1,5	
Utilization category AC15	Control of electromagnetic loads, contactors			
	Rated current I_e	$\leq 240V$ A	6	
		380-440V A	4	
2-pole in series	500V A	5		
Utilization categ. DC21A, DC21B	Switching of resistive loads Time constant $L/R \leq 1ms$			
	Rated current I_e 1-pole	30V A	20	
		60V A	4	
		110V A	0,6	
		220V A	0,3	
		440V A	-	
Utilization category DC3 - DC5	Switching of shunt motors and series motors Time constant $L/R \leq 15ms$			
	Rated current I_e 1-pole	30V A	8	
		60V A	1	
		110V A	0,3	
Protection class of terminals			IP20	

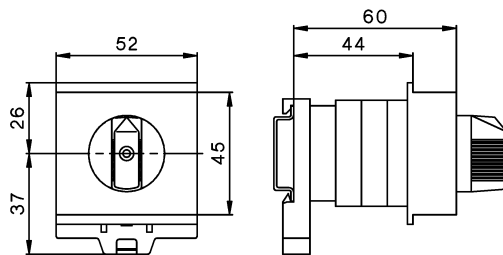
* suitable for: earthed-neutral systems, overvoltage category I to III, pollution degree 3 (standard-industry): $U_{imp} = 6kV$. Data for other conditions on request

** valid for lines with grounded common neutral termination, overvoltage category III, pollution degree 3.

Data according to IEC 947-3, IEC 947-5-1, VDE 0660, EN 60947-3, EN 60947-5-1			
Type	ModLBS 16 1p / ModLBS 16 3p		
Cable cross sections	solid or stranded	mm ²	1-2,5*
	flexible	mm ²	0,75-2,5*
	flexible (+ multicore cable end)	mm ²	0,75-1,5
	Conductors to clamp per pole		2
	Size of terminal screw		M3,5
	Tightening torque		Nm
		lb.inch	7-12
Short circuit protection	Max. fuse size	gL (gG) A	20
	Rated short-time withstand current (1sec. current)	A	250
	Rated conditional short-circuit current	kA _{eff}	10
Short-time capacity	Load duration	3s A	100
	Note: Ratings applies to contacts already closed	10s A	60
		30s A	35
		60s A	25
Power loss at AC21A per pole		A	20
		W	0,5
Switching of capacitive loads	maximum making capacity up to 500V	A	140

* Maximum cable cross-section with prepared conductor

Dimensions



Data according to IEC 947-3, IEC 947-5-1, VDE 0660, EN 60947-3, EN 60947-5-1			
Type			ModLBS 40 3p ES
Main contacts	Rated thermal current I_{th} open		A 40
	Rated thermal current I_{th} enclosed		A 40
Rated insulation voltage U_i^*			V 690
Rated operational current I_e			AC21A A 40
Rated operational voltage U_e max.			AC21A V 690
Making capacity I_{eff}			3x380-440V A 300
Breaking capacity	3x220-240V		A 250
	3x380-440V		A 250
	3x660-690V		A 170
Disconnection property performed up to			V 690
Motor Switch	AC3	3x400V	A 30
Motor Switch	AC3	3x220-240V	kW 7,5
Direct switching of single motors		3x380-440V	kW 15
		3x660-690V	kW 15
Main Switch	AC23	3x400V	A 32
Motor Switch	AC23A	3x220-240V	kW 9
Main Switch	AC23B	3x380-440V	kW 16
Safety Switch		3x660-690V	kW 15
Rated conditional short-circuit current			400V kAeff 10
Max. fuse size gL (gG)			400V A 40
Rated conditional short-circuit current			690V kAeff 1
Max. fuse size gL (gG)			690V A 40
A Mechanical life			$\times 10^3$ 200
Rated short-time withstand current (1sec. current)			A 500
Power loss per pole $AC21 = I_{th}$	P/pole	E, Z	W 1,288
		V, SMA, PF	W 1,458
	R/pole	E, Z	mOhm 0,805
		V, SMA, PF	mOhm 0,911
Maximum ambient temperature	Operation	open	-40°C ... +60°C (90°C)**
		enclosed	-40°C ... +40°C
	Storage		-50°C ... +90°C
Cable cross sections	solid or stranded		mm ² 0,5 - 10
			AWG 20 - 8 (10)
	flexible		mm ² 0,5 - 6
			AWG 20 - 10
	flexible (+ multicore cable end)		mm ² 0,5 - 6
			AWG 20 - 10
Size of terminal screw			M3,5
Tightening torque		Nm	1,7 - 2,3
Rated insulation voltage U_i^*			V 690
Rated thermal current I_{th}, I_{the}			A 10
Auxiliary contacts	Switching capacity	AC15 380-450V	A 2,5/1,5
		DC13 60-110V	A 2/0,4
	Rated conditional short-circuit current		kA _{eff}
Max. short circuit protection gL (gG)			A 10
Cable cross sections	solid or stranded		mm ² 0,75 - 2,5
			AWG 14 - 12
	flexible (+ multicore cable end)		mm ² 0,75 - 2,5 (1,5)
			AWG 18 - 14

* suitable for: earthed-neutral systems, overvoltage category I to III, pollution degree 3 (standard-industry): $U_{imp} = 6kV$.

** Derating acc. to cable cross sections

Data according to UL and cUL

Type		ModLBS 40 3p ES	
Rated voltage	V		600
Ampere-Rating "General use"	A		40
DOL-Rating 3-phase	110-120V	HP	2
	220-240V	HP	5
	440-480V	HP	10
	550-600V	HP	15
DOL-Rating 1-phase	110-120V	HP	1
	200-208V	HP	2
	220-240V	HP	3
Fuse size (RK5)	Manual Motor Controller	A	70
5kA / 600V	Motor Disconnect	A	50
Tightening torque		Nm	1,7-2,3
		lb.inch	15-20

Dimensions

