

Load Break Change Over Switch LBS..CO

Description

LBS CO is manual 3 pole or 4 pole changeover switch with positive break indication in range 160-3200A. It provides changeover under load for two low voltage power circuits, as well as its safety isolation by double breaking per pole. LBS CO switches have been designed, qualified and tested according to the criteria defined by standard IEC 60947-3 and IEC 60947-6-1. It can be utilised with a direct front or external operation handle.

Advantages

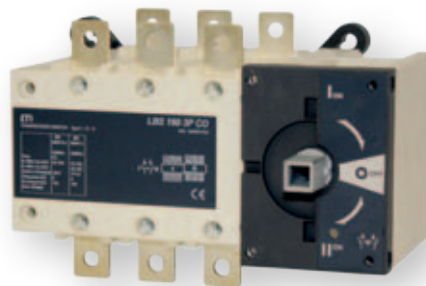
Double breaking per pole, achieved through its sliding bar contact system, is a proven design that offers very high durability and short-circuit withstand. The position indicator is located directly on the sliding bar contact mechanism, ensuring it can be seen in all circumstances. The use of glass fibre reinforced polyester gives the LBS high mechanical and thermal resistance.

General characteristics

- Double positive break indication given through a position indication window, located directly on the product, and by the operating handle.
- Severe utilisation categories (AC-22 and AC-23).
- High resistance to damp heat (supplied "tropicalised").
- A good centre-to-centre terminal distance (up to 120 mm).
- Connection up to 6x185 mm².
- Connection accessories which facilitate connection, both flat and edgewise connections.

Applications

- Generator manufacturers
- Heating
- Air conditioning
- Ventilation
- Power distribution
- Telecommunications



LBS 400 3P CO

Technical data

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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 _n) 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)		200	200	500							
	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		400	630	800	800	-	-	-
	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)			250								
	DC-22 A/B ⁽¹⁾	220V DC (A)			250								
	DC-23 A/B ⁽¹⁾	220V DC (A)			125								
	DC-20 A/B ⁽¹⁾	440V DC (A)	160	250	400	500	800	1000	1250	1600	2000	2500	3200
	DC-21 A/B ⁽¹⁾	440V DC (A)	125	200	200								
	DC-22 A/B ⁽¹⁾	440V DC (A)	125	200	200								
	DC-23 A/B ⁽¹⁾	440V DC (A)	125	200	200								
Rated operational currents (I _n) 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 _{cw} 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 _{cw} 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.

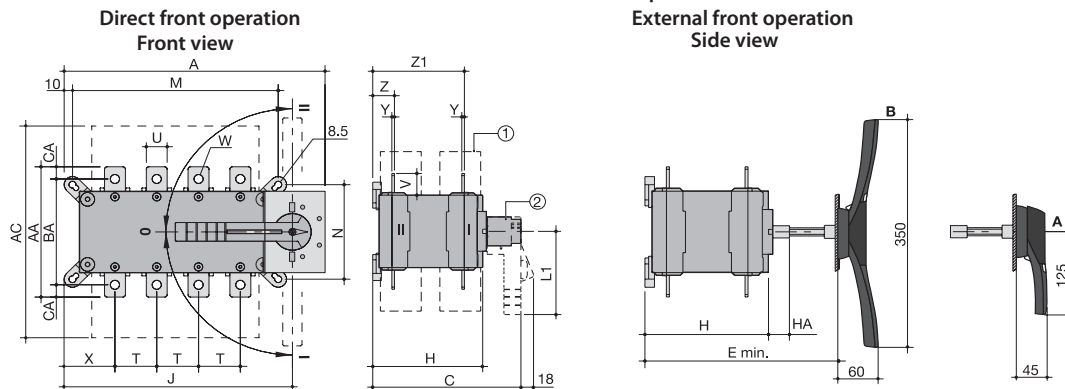
⁽³⁾ Value for coordination with any circuit breaker that ensures tripping in less than 0.3s.

⁽⁴⁾ Data at 415 VAC

⁽⁵⁾ Data at 30 ms

Dimensions

LBS 160 CO - LBS 1600 CO 3/4 p

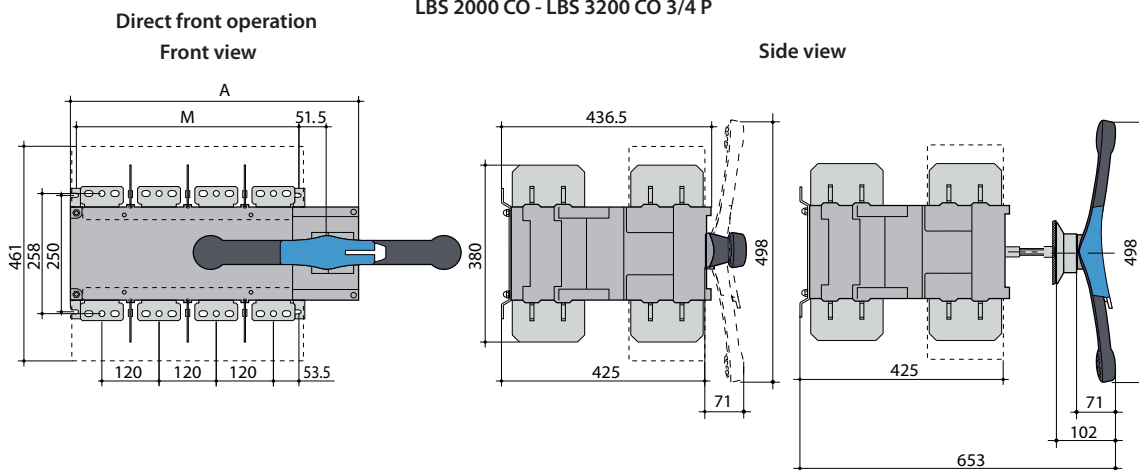


A. Handle type LBS-EH630 CO for external operation: 160 to 630 A
 B. Handle type LBS-EH1600 CO for external operation: 800 to 1600 A

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

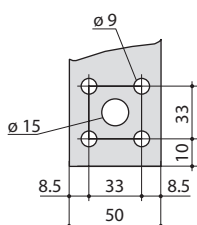
Rating (A)	Overall dimensions, (mm)				Terminal shrouds, (mm)	Switch body, (mm)				Switch mounting, (mm)			Connection, (mm)											
	A (3p)	A (4p)	C	E min		H	HA	J (3p)	J (4p)	M (3p)	M (4p)	N	T	U	V	W	X (3p)	X (4p)	Y	Z	Z1	AA	BA	CA
160	221	251	218	208-436	235	148	25	182	212	156	186	101	36	20	25	8.5	56	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



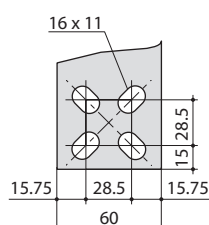
Rating (A)	A, (mm) (3p)	A, (mm) (4p)	M, (mm) (3p)	M, (mm) (4p)
2000-3200	478	598	347	467

LBS 800 3/4 P CO

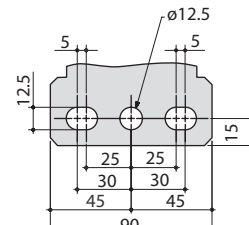


Connection terminals

LBS 1250 3/4 P CO

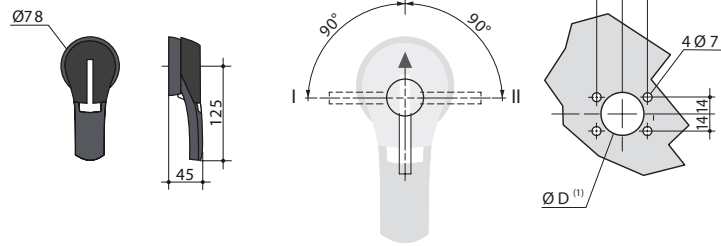


LBS 1600 - 3200 3/4 P CO



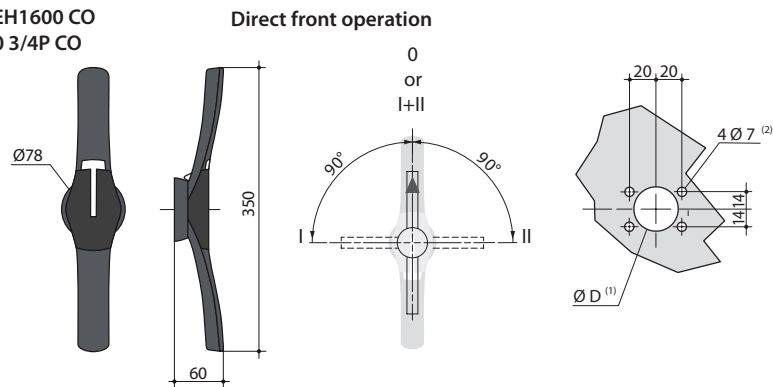
Technical data

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



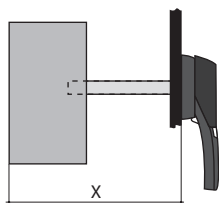
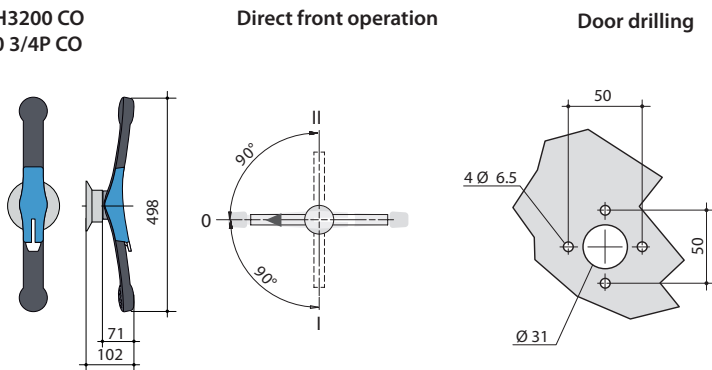
(1) Ø31 to Ø37: rear screw mounting Ø37: front clip mounting

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



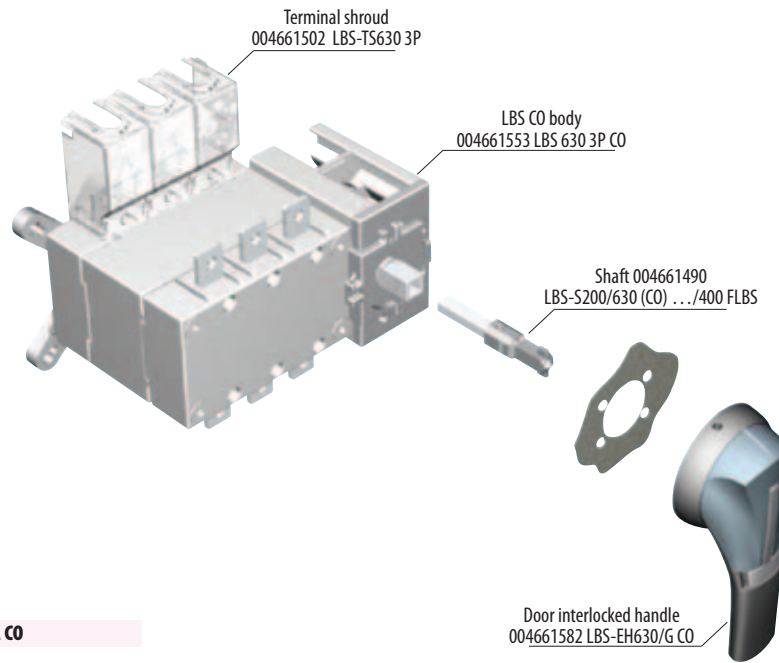
(1) Ø31 to Ø37: rear screw mounting Ø37: front clip mounting
(2) Ø6 to Ø7: clip mounting

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.

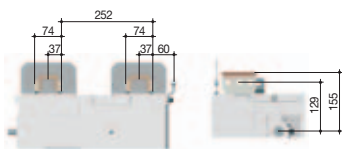
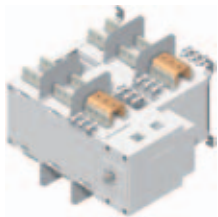


Fig. 1

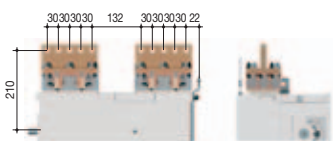
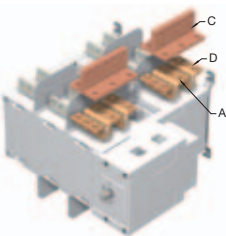


Fig. 2

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

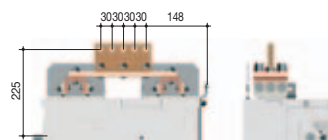
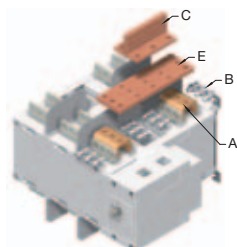


Fig. 3