

# SIRCO

Load break switches for power distribution  
from 125 to 630 A



sirco-ac\_001\_La\_1\_cat.eps

## Function

SIRCO are manually operated multipolar load break switches. They make and break under load conditions and provide safety isolation. SIRCO are designed for heavy duty applications up to 690 VAC - AC 23 and DC low voltage electrical circuits.

## References

Rating (A)	No of poles	Operation type	Particularity	Reference
125 ... 630 A	3 P	Front	Standard applications	2600 3***
	4 P			2600 4***
	3 P	Right side		2605 3***
	4 P			2605 4***

\* Stands for an alphanumeric character depending on the rating and configuration of the switch.

## Characteristics according to CEI 60947-3

Thermal current $I_{th}$ at 40°C	125 A	160 A	200 A	250 A	315 A	400 A	500 A	630 A
Frame size	B3	B3	B4	B4	B5	B5	B5	B5
Rated insulation voltage $U_i$ (V)	800	800	800	800	1000	1000	1000	1000
Rated impulse withstand voltage $U_{imp}$ (kV)	8	8	8	8	12	12	12	12

### Rated operational currents $I_e$ (A)

Rated voltage	Utilisation category	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>	A/B <sup>(1)</sup>
415 VAC	AC-20 A / AC-20 B	125/125	160/160	200/200	250/250	315/315	400/400	500/500	630/630
415 VAC	AC-21 A / AC-21 B	125/125	160/160	200/200	250/250	315/315	400/400	500/500	630/630
415 VAC	AC-22 A / AC-22 B	125/125	160/160	200/200	250/250	315/315	400/400	500/500	630/630
415 VAC	AC-23 A / AC-23 B	125/125	160/160	200/200	250/250	315/315	400/400	500/500	500/500
220 VDC	DC-20 A / DC-20 B	125/125	160/160	200/200	250/250	315/315	400/400	500/500	630/630
220 VDC	DC-21 A / DC-21 B	125/125	160/160	160/200	250/250	315/315	400/400	500/500	630/630
220 VDC	DC-22 A / DC-22 B	125/125	160/160	160/200	250/250	315/315	400/400	400/500	500/500
220 VDC	DC-23 A / DC-23 B	125/125	125/125	160/160	200/200	315/315	400/400	400/400	500/500
440 VDC	DC-20 A / DC-20 B	125/125	160/160	200/200	250/250	315/315	400/400	500/500	630/630
440 VDC	DC-21 A / DC-21 B	125 <sup>(3)</sup> /125 <sup>(3)</sup>	160 <sup>(3)</sup> /160 <sup>(3)</sup>	160 <sup>(3)</sup> /200 <sup>(3)</sup>	200 <sup>(3)</sup> /200 <sup>(3)</sup>	315 <sup>(3)</sup> /315 <sup>(3)</sup>	400 <sup>(3)</sup> /400 <sup>(3)</sup>	400 <sup>(3)</sup> /400 <sup>(3)</sup>	500 <sup>(3)</sup> /500 <sup>(3)</sup>
440 VDC	DC-22 A / DC-22 B	125 <sup>(3)</sup> /125 <sup>(3)</sup>	125 <sup>(3)</sup> /125 <sup>(3)</sup>	160 <sup>(3)</sup> /160 <sup>(3)</sup>	200 <sup>(3)</sup> /200 <sup>(3)</sup>	315 <sup>(3)</sup> /315 <sup>(3)</sup>	400 <sup>(3)</sup> /400 <sup>(3)</sup>	400 <sup>(3)</sup> /400 <sup>(3)</sup>	500 <sup>(3)</sup> /500 <sup>(3)</sup>
440 VDC	DC-23 A / DC-23 B	125 <sup>(4)</sup> /125 <sup>(4)</sup>	125 <sup>(4)</sup> /125 <sup>(4)</sup>	160 <sup>(4)</sup> /160 <sup>(4)</sup>	200 <sup>(4)</sup> /200 <sup>(4)</sup>	315 <sup>(4)</sup> /315 <sup>(4)</sup>	400 <sup>(4)</sup> /400 <sup>(4)</sup>	400 <sup>(4)</sup> /400 <sup>(4)</sup>	500/500
500 VDC	DC-20 A / DC-20 B	125/125	160/160	200/200	250/250	315/315	400/400	500/500	630/630
500 VDC	DC-21 A / DC-21 B	125 <sup>(3)</sup> /125 <sup>(3)</sup>	125 <sup>(3)</sup> /125 <sup>(3)</sup>	160 <sup>(3)</sup> /200 <sup>(3)</sup>	200 <sup>(3)</sup> /200 <sup>(3)</sup>	315 <sup>(3)</sup> /315 <sup>(3)</sup>	400 <sup>(3)</sup> /400 <sup>(3)</sup>	400 <sup>(3)</sup> /400 <sup>(3)</sup>	500 <sup>(3)</sup> /500 <sup>(3)</sup>
500 VDC	DC-22 A / DC-22 B	125 <sup>(4)</sup> /125 <sup>(4)</sup>	125 <sup>(4)</sup> /125 <sup>(4)</sup>	160 <sup>(4)</sup> /160 <sup>(4)</sup>	200 <sup>(4)</sup> /200 <sup>(4)</sup>	315 <sup>(4)</sup> /315 <sup>(4)</sup>	315 <sup>(4)</sup> /400 <sup>(4)</sup>	315 <sup>(4)</sup> /400 <sup>(4)</sup>	500 <sup>(4)</sup> /500 <sup>(4)</sup>
500 VDC	DC-23 A / DC-23 B	125 <sup>(4)</sup> /125 <sup>(4)</sup>	125 <sup>(4)</sup> /125 <sup>(4)</sup>	160 <sup>(4)</sup> /160 <sup>(4)</sup>	200 <sup>(4)</sup> /200 <sup>(4)</sup>	315 <sup>(4)</sup> /315 <sup>(4)</sup>	315 <sup>(4)</sup> /400 <sup>(4)</sup>	315 <sup>(4)</sup> /400 <sup>(4)</sup>	500 <sup>(4)</sup> /500 <sup>(4)</sup>

### Operational power in AC-23 A (kW) <sup>(1)(5)</sup>

At 415 VAC without pre-break in AC <sup>(1)</sup>	63/63	80/80	100/100	132/132	160/160	220/220	280/280	280/280
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### Reactive power (kvar)

At 400 VAC (kvar) <sup>(5)</sup>	55	75	90	115	145	185	230	290
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### Fuse protected short-circuit withstand (kA rms prospective)<sup>(6)</sup>

Prospective short-circuit current (kA rms)	100	100	80	50	100	100	100	70
Associated fuse rating (A)	125	160	200	250	315	400	500	630

### Circuit breaker protected short-circuit withstand with any circuit breaker that ensures tripping in less than 0.3s

Rated short-time withstand current 0.3s. $I_{sw}$ (kA rms)	15	15	17	17	25	25	25	25
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### Short-circuit capacity (without protection)

Rated short-time withstand current 1s. $I_{sw}$ (kA rms)	7	7	9	9	13	13	13	13
Rated peak withstand current (kA peak) <sup>(6)(7)</sup>	20	20	30	30	45	45	45	45

### Connection

Maximum Cu cable cross-section (mm <sup>2</sup> )	35	50	70	95	150	185	240	2 x 150
Minimum Cu busbar cross-section (mm <sup>2</sup> )								2 x 30 x 5
Maximum Cu cable cross-section (mm <sup>2</sup> )	50	95	95	150	240	240	240	2 x 300
Maximum Cu busbar width (mm)	25	25	32	32	40	40	40	50
Tightening torque min/max (Nm)	9/-	9/-	20/-	20/-	20/-	20/-	20/-	20/-

### Mechanical characteristics

Durability (number of operating cycles)	10000	10000	10000	10000	10000	10000	10000	10000
Operating effort (Nm)	6,5	6,5	10	10	10	14,5	14,5	14,5
Weight of a 3 pole device (kg)	1	1,5	2	2	3,5	3,5	3,5	3,5
Weight of a 4 pole device (kg)	1,5	1,5	2	2	4	4	4,5	4,5

(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  $U_n = 415$  VAC.

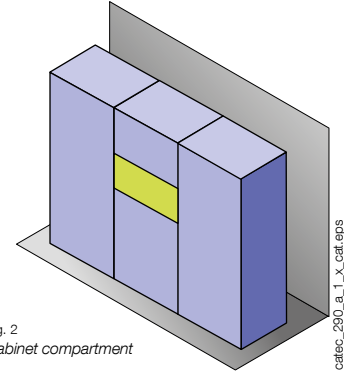
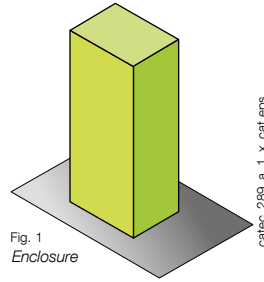
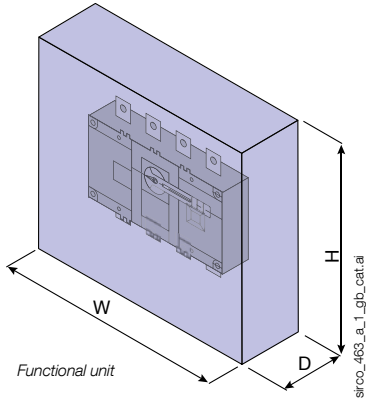
(7) For coordination tables with circuit-breakers, please consult us.

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## Product integration data in compliance with IEC / EN 61439-1

Below listed data is applicable to:



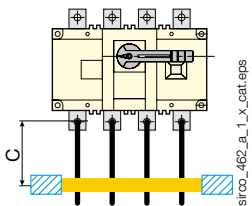
Dimensions of the functional unit			Mounting		Max operational current (A)								
H (mm)	W (mm)	D (mm)	Enclosure	Orientation	125 A	160 A	200 A	250A	315 A	400 A	500 A	630 A	
250	200	200	Fig. 1/2	V/H <sup>(1)</sup>	125	160	-	-	-	-	-	-	
300	300	200	Fig. 1/2	V/H <sup>(1)</sup>	125	160	200	250	300	350	-	-	
400	300	200	Fig. 1/2	V/H <sup>(1)</sup>	-	-	-	-	315	400	500	535	
400	400	200	Fig. 1/2	V/H <sup>(1)</sup>	-	-	-	-	-	-	-	550	
600	400	200	Fig. 1/2	V/H <sup>(1)</sup>	-	-	-	-	-	-	-	630	
					Min cross-section (mm)								
Insulated flat copper braids					25	25	50	50	120	120	240	240	
Cable					50	70	95	120	185	240	2 x 150	2 x 185	
Cu busbar					-	-	-	-	-	-	2 x 30 x 5	2 x 40 x 5	

(1) V: vertical mounting; H: horizontal mounting.

Heat dissipation								
Rating (A)	125 A	160 A	200 A	250 A	315 A	400 A	500 A	630 A
SIRCO heat dissipation W/pole	1,8	3	4	5,8	7,6	10,8	16	30,9

Maximum ambient temperature	
External	35°C
Internal	60°C

## Wiring requirements



	C (mm)
Min power connections length	400
Min distance to first bus bar support	400

Recommended tightening torque	Maximum tightening torque
M6: 4,5 N.m	M6: 5,4 N.m
M8: 8,3 N.m	M8: 13 N.m
M10: 20 N.m	M10: 26 N.m
M12: 40 N.m	M12: 45 N.m

## Circuit breaker protected short-circuit withstand\*

	SCHNEIDER NS & NSX 160/250						SCHNEIDER NS & NSX 400			SCHNEIDER NS & NSX 630 (+ 800L)			SCHNEIDER NS 1000	SCHNEIDER NS 800/1000/1250/1600	
	E	NE	N	SX	H	L	N	H	L	N	H	L	L	N	H
$I_{cu}$	16 KA	25 KA	36 KA	50 KA	70 KA	150 KA	45 KA	70 KA	150 KA	45 KA	70 KA	150 KA	150 KA	50 KA	70 KA
$I_n$	16 KA	25 KA	36 KA	50 KA	70 KA	150 KA	45 KA	70 KA	150 KA	45 KA	70 KA	150 KA	150 KA	50 KA	70 KA
Rating (A)															
125	T	T	T	43	57	57	-	-	-	-	-	-	-	-	-
160	T	T	T	43	57	57	-	-	-	-	-	-	-	-	-
200	T	T	T	T	T	100	45	53	53	-	-	-	-	-	-
250	T	T	T	T	T	100	45	53	53	-	-	-	-	-	-
315	T	T	T	T	T	T	45	T	100	T	T	100	43	24	24
400	T	T	T	T	T	T	45	T	100	T	T	100	43	24	24
500	T	T	T	T	T	T	T	T	T	T	T	100	43	24	24
630	T	T	T	T	T	T	T	T	T	T	T	100	43	24	24

\* Subjected to MCCB's short circuit current limiting curves reading precision and data.

T - Coordination possible up to the Max  $I_{cu}$  value of the breaker.

## Circuit breaker protected short-circuit withstand\* (continued)

	ABB TMAX T1			ABB TMAX T2				ABB TMAX T3		ABB TMAX T4					ABB TMAX T5				
$I_{cu}$	B	C	N	N	S	H	L	N	S	N	S	H	L	V	N	S	H	L	V
$I_n$	16 KA	25 KA	36 KA	36 KA	50 KA	70 KA	85 KA	36 KA	50 KA	36 KA	50 KA	70 KA	120 KA	200 KA	36 KA	50 KA	70 KA	120 KA	200 KA
Rating (A)																			
125	T	T	T	T	T	T	T	25	25	-	-	-	-	-	-	-	-	-	-
160	T	T	T	T	T	T	T	25	25	-	-	-	-	-	-	-	-	-	-
200	T	T	T	T	T	T	T	T	T	T	T	T	100	100	-	-	-	-	-
250	T	T	T	T	T	T	T	T	T	T	T	T	100	100	-	-	-	-	-
315	T	T	T	T	T	T	T	T	T	T	T	T	100	100	-	-	-	-	-
400	T	T	T	T	T	T	T	T	T	T	T	T	100	100	36	50	70	120	200
500	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	100	100
630	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	100	100

	SIEMENS SENTRON VL 160X	SIEMENS SENTRON VL 160	SIEMENS SENTRON VL 250	SIEMENS SENTRON VL 400	SIEMENS SENTRON VL 630	SIEMENS SENTRON VL 800
$I_{cu}$	3VL1	3VL2	3VL3	3VL4	3VL5	3VL6
$I_n$	70 KA	100 KA	100 KA	100 KA	100 KA	100 KA
Rating (A)						
125	27	25	-	-	-	-
160	27	25	-	-	-	-
200	54	48	43	-	-	-
250	54	48	43	-	-	-
315	T	T	T	53	46	40
400	T	T	T	53	46	40
500	T	T	T	53	46	40
630	T	T	T	53	46	40

	LEGRAND DPX 125/160			LEGRAND DPX 250			LEGRAND DPX 250 ER			LEGRAND DPX 630		
$I_{cu}$										ER		
$I_n$	25 KA	36 KA	50 KA	36 KA	50 KA	100 KA	25 KA	36 KA	50 KA	36 KA	70 KA	100 KA
Rating (A)												
125	T	T	T	20	20	20	T	25	25	-	-	-
160	T	T	T	20	20	20	T	25	25	-	-	-
200	T	T	T	T	43	43	T	T	T	28	28	28
250	T	T	T	T	43	43	T	T	T	28	28	28
315	T	T	T	T	T	T	T	T	T	T	T	T
400	T	T	T	T	T	T	T	T	T	T	T	T
500	T	T	T	T	T	T	T	T	T	T	T	T
630	T	T	T	T	T	T	T	T	T	T	T	T

	HAGER x160			HAGER x250	HAGER h250 LSI	HAGER h630 LSI (250A - 400A)	HAGER h630 LSI (630A)	HAGER h1000 LSI	HAGER h1600			
$I_{cu}$	HDA	HHA	HNA	HNB	HNC	HND	HED	HNE	HEE	HNF	HEF	
$I_n$	18KA	25KA	40KA	40KA	50KA	50KA	70KA	50KA	70KA	50KA	70KA	
Rating (A)												
125	T	T	30	17	15	14	14	-	-	-	-	
160	T	T	30	17	15	14	14	-	-	-	-	
200	T	T	T	T	25	25	25	-	-	-	-	
250	T	T	T	T	25	25	25	-	-	-	-	
315	T	T	T	T	T	T	55	32	32	-	-	
400	T	T	T	T	T	T	55	32	32	34	34	
500	T	T	T	T	T	T	55	32	32	34	34	
630	T	T	T	T	T	T	55	32	32	34	34	

\* Subjected to MCCB's short circuit current limiting curves reading precision and data.

T - Coordination possible up to the Max Icu value of the breaker.