

Circuit-breakers for power distribution

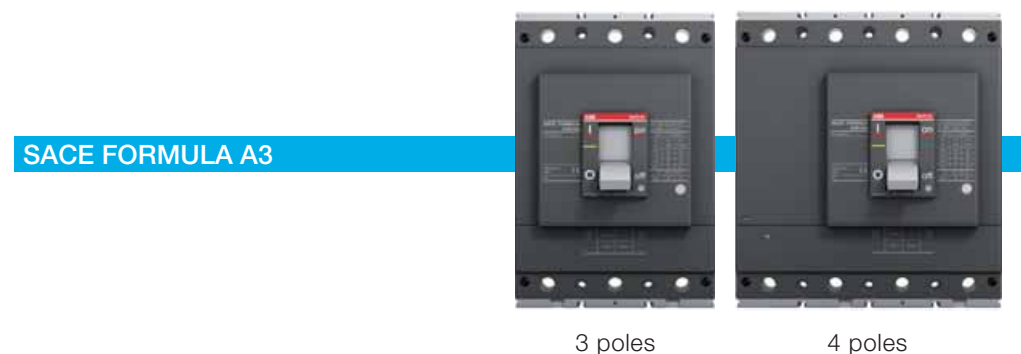
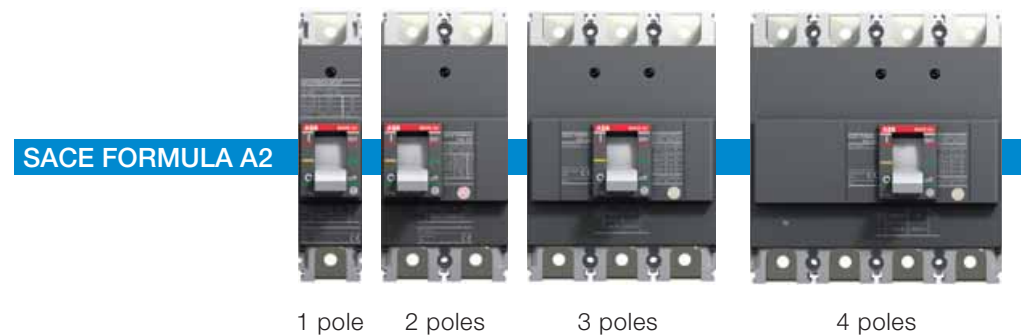
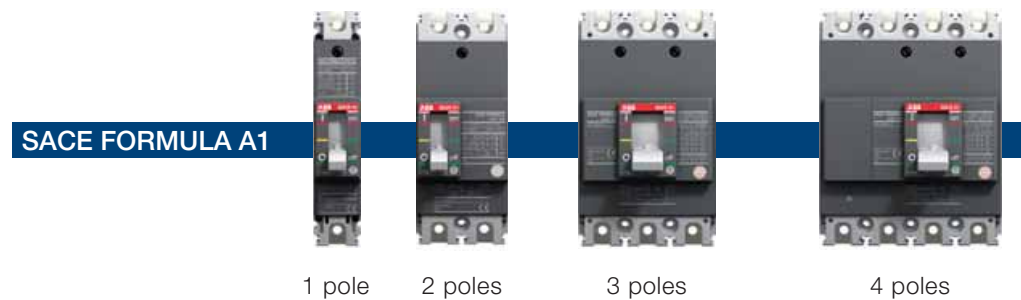
General characteristics

The SACE FORMULA circuit-breakers from 15A to 630A consist of the interruption part together with the trip unit and they can be installed:

- directly on the back plate of the cubicles;
- on a DIN rail (A1 and A2);
- back door (A1, A2 and A3, 2-3 4 poles).

They are characterised by:

- fixed version;
- polarity: 1 pole (A1 and A2), 2 poles (A1 and A2), 3 poles (A1, A2 and A3), 4 poles (A1, A2 and A3);
- maximum breaking capacity of 36kA for A1 and A2 and of 50kA for A3 at 415V AC;
- fixed thermomagnetic trip unit (TMF) for protection of networks in alternating and direct current (A1, A2, A3);
- ELT LI electronic trip unit with fixed thresholds for the protection of networks in alternating current (A3);
- only two depths: 60mm (A1, A2) and 103.5mm (A3);
- standard front terminals;
- the possibility of use at 50°C without derating up to 250A (except for A1 125A);
- a special version for A3 300A-400A for use at 50°C.



		A1						A2						A3		
Frame size ^(G2.1)	[A]	125						250						400/630		
Rated current, I_n ^(G2.2)	[A]	15...125						125...250						320...630		
Poles	[Nr]	1, 2, 3, 4						1, 2, 3, 4						3, 4		
Rated service voltage, U_e ^(G2.3)	(AC) 50-60 Hz	550 (2p-3p-4p); 415 (1p)						550 (2p-3p-4p); 415 (1p)						550		
	(DC)	250 (2p-3p-4p); 125 (1p)						250 (2p-3p-4p); 125 (1p)						250		
Rated insulation voltage, U_i ^(G2.4)	[V]	690						690						690		
Rated impulse withstand voltage, U_{imp} ^(G2.5)	[kV]	6						6						6		
Versions		Fixed						Fixed						Fixed		
Performance Level		A	B	C		N			B	C		N		N	S	
Poles	[Nr]	3/4	3/4	1	3/4	1	2	3/4	3/4	1	3/4	1	2	3/4	3/4	3/4
Rated ultimate short-circuit breaking capacity, I_{cu} ^(G2.6)																
I _{cu} @ 240 V 50-60 Hz (AC)	[kA]	10	25	18	30	25	50	100	25	18	50	25	50	85	85	100
I _{cu} @ 380 V 50-60 Hz (AC)	[kA]	10	18	2.5	25	5	36 ⁽⁵⁾	36 ⁽⁵⁾	18	2.5	25	5	36	36	36	50
I _{cu} @ 415 V 50-60 Hz (AC)	[kA]	10	18	2.5	25	5	36 ⁽⁵⁾	36 ⁽⁵⁾	18	2.5	25	5	36	36	36	50
I _{cu} @ 440 V 50-60 Hz (AC)	[kA]	8	15	-	20	-	25	25	15	-	20	-	25	25	36	50
I _{cu} @ 480 V 50-60 Hz (AC)	[kA]	7.5	10	-	15	-	18	18	15	-	18	-	18	25	25	35
I _{cu} @ 500 V 50-60 Hz (AC)	[kA]	5	5	-	8	-	10	10	5	-	8	-	10	10	20	25
I _{cu} @ 550 V 50-60 Hz (AC)	[kA]	5	5	-	8	-	10	10	5	-	8	-	10	10	15	20
I _{cu} @ 125 V (DC) 1 pole	[kA]	-	-	5	-	10	-	-	-	5	-	10	-	-	-	-
I _{cu} @ 250 V (DC) 2 poles in series	[kA]	5	5	-	10	-	10	10	18	-	25	-	10	36	36	50
Rated short-circuit service breaking capacity, I_{cs} ^(G2.7)																
I _{cs} @ 240 V 50-60 Hz (AC)	[kA]	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
I _{cs} @ 380 V 50-60 Hz (AC)	[kA]	50%	50%	50%	50%	50%	50%	50%	50%	100%	50%	50%	50%	50%	50%	50%
I _{cs} @ 415 V 50-60 Hz (AC)	[kA]	50%	25% ⁽¹⁾	50%	25% ⁽²⁾	25%	25%	25%	50%	100%	50%	50%	50%	50%	50%	50%
I _{cs} @ 440 V 50-60 Hz (AC)	[kA]	50%	25% ⁽¹⁾	-	25%	-	25%	25%	50%	-	50%	-	50%	50%	50%	50%
I _{cs} @ 480 V 50-60 Hz (AC)	[kA]	50%	50%	-	25% ⁽¹⁾	-	25%	25% ⁽¹⁾	50%	-	50%	-	50%	50%	50%	50%
I _{cs} @ 500 V 50-60 Hz (AC)	[kA]	50%	50%	-	25% ⁽³⁾	-	25%	25%	50%	-	50%	-	50%	50%	50%	50%
I _{cs} @ 550 V 50-60 Hz (AC)	[kA]	50%	50%	-	25% ⁽³⁾	-	25%	25%	50%	-	50%	-	50%	50%	50%	50%
I _{cs} @ 250 V (DC) 2 poles in series	[kA]	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Rated short-circuit making capacity, I_{cm} ^(G2.8)																
I _{cm} @ 240 V 50-60 Hz (AC)	[kA]	52.5	52.5	36	63	52.5	105	220	52.5	36	105	52.5	105	187	187	220
I _{cm} @ 380 V 50-60 Hz (AC)	[kA]	17	36	3.8	52.5	7.5	75.6	75.6	36	3.8	52.5	7.5	75.6	75.6	75.6	105
I _{cm} @ 415 V 50-60 Hz (AC)	[kA]	17	36	3.8	52.5	7.5	63	63	36	3.8	52.5	7.5	75.6	75.6	75.6	105
I _{cm} @ 440 V 50-60 Hz (AC)	[kA]	13.6	30	-	40	-	52.5	52.5	30	-	40	-	52.5	52.5	75.6	105
I _{cm} @ 480 V 50-60 Hz (AC)	[kA]	12.8	17	-	30	-	36	17	30	-	36	-	36	52.5	52.5	73.5
I _{cm} @ 500 V 50-60 Hz (AC)	[kA]	7.5	7.5	-	13.6	-	17	17	7.5	-	13.6	-	17	17	40	52.5
I _{cm} @ 550 V 50-60 Hz (AC)	[kA]	7.5	7.5	-	13.6	-	17	17	7.5	-	13.6	-	17	17	30	40
Utilization category (IEC 60947-2) ^(G2.9)		A						A						A		
Hold 100% I _n at 50°C	[A]	15...100						125...250						300-400 ⁽⁴⁾		
Reference Standard		IEC 60947-2						IEC 60947-2						IEC 60947-2		
Isolation behaviour		■						■						■		
Fixing onto DIN rail		DIN EN 50022						DIN EN 50022						-		
Mechanical life ^(G2.10)	[No. operations]	8500						10000						5000		
Electrical life @ 415 V (AC) ^(G2.11)	[No. operations]	1500						4000						2000		
Total opening time	Shunt opening release (SOR)	15						15						15		
	Undervoltage release (UVR)	15						15						≤ 25		
Dimensions (Width x Depth x Height)	1 pole	25.4x60x130						35x60x150						-		
	2 poles	50.8x60x130						70x60x150						-		
	3 poles	76.2x60x130						105x60x150						139.5x 103.5x 205		
	4 poles	101.6x60x130						140x60x150						186x 103.5x 205		
Weight	1 pole	0.245						0.370						-		
	2 poles	0.470						0.730						-		
	3 poles	0.700						1.100						3.25		
	4 poles	0.925						1.450						4.15		
Trip Unit ^(G3.1)																
Thermomagnetic TMF ^(G3.2)		■						■						■ (up to 500A)		
Electronic ELT LJ ^(G3.3)		■						■						■ (up to 630A)		

⁽¹⁾ 5kA; ⁽²⁾ 9kA; ⁽³⁾ 2.5kA; ⁽⁴⁾ Special version; ⁽⁵⁾ I_n=15A, I_{cu}=30kA