

3-pole contactors CTX³

9 A to 100 A industrial contactors



Technical characteristics **p. 188**
 Dimensions and coordination with circuit breakers **see e-catalogue**

Conform to IEC 60947-1, IEC 60947-4-1
 Can be equipped with RTX³ thermal relays (p. 184) add-on auxiliary contact blocks, time delay blocks, capacitor switching units and CTX³ interlocking (p. 186)

Pack	Cat.Nos	CTX ³ 22		
		With integrated auxiliary contacts Power terminals: screw terminals		
		9 A (AC3) - 25 A (AC1)		
		Screw terminals	3-phase motor 400/415 V	Control Voltage
1	4 160 80		4 kW	24 V \sim
1	4 160 81		4 kW	24 V \equiv
1	4 160 84		4 kW	110 V \sim
1	4 160 86		4 kW	230 V \sim
1	4 160 89		4 kW	415 V \sim
				Integrated auxiliary contacts
				1 NO + 1 NC
				1 NO + 1 NC
				1 NO + 1 NC
				1 NO + 1 NC
				1 NO + 1 NC
		12 A (AC3) - 25 A (AC1)		
1	4 160 90		5.5 kW	24 V \sim
1	4 160 91		5.5 kW	24 V \equiv
1	4 160 94		5.5 kW	110 V \sim
1	4 160 96		5.5 kW	230 V \sim
1	4 160 99		5.5 kW	415 V \sim
				1 NO + 1 NC
				1 NO + 1 NC
				1 NO + 1 NC
				1 NO + 1 NC
				1 NO + 1 NC
		18 A (AC3) - 40 A (AC1)		
1	4 161 00		7.5 kW	24 V \sim
1	4 161 01		7.5 kW	24 V \equiv
1	4 161 04		7.5 kW	110 V \sim
1	4 161 06		7.5 kW	230 V \sim
1	4 161 09		7.5 kW	415 V \sim
				1 NO + 1 NC
				1 NO + 1 NC
				1 NO + 1 NC
				1 NO + 1 NC
				1 NO + 1 NC
		22 A (AC3) - 40 A (AC1)		
1	4 161 10		11 kW	24 V \sim
1	4 161 11		11 kW	24 V \equiv
1	4 161 14		11 kW	110 V \sim
1	4 161 16		11 kW	230 V \sim
1	4 161 19		11 kW	415 V \sim
				1 NO + 1 NC

Pack	Cat.Nos	CTX ³ 40		
		With integrated auxiliary contacts Power terminals: screw terminals		
		32 A (AC3) - 50 A (AC1)		
		Screw terminals	3-phase motor 400/415 V	Control Voltage
1	4 161 20		15 kW	24 V \sim
1	4 161 21		15 kW	24 V \equiv
1	4 161 24		15 kW	110 V \sim
1	4 161 26		15 kW	230 V \sim
1	4 161 29		15 kW	415 V \sim
				Integrated auxiliary contacts
				2 NO + 2 NC
				2 NO + 2 NC
				2 NO + 2 NC
				2 NO + 2 NC
				2 NO + 2 NC
		40 A (AC3) - 60 A (AC1)		
1	4 161 30		18.5 kW	24 V \sim
1	4 161 31		18.5 kW	24 V \equiv
1	4 161 34		18.5 kW	110 V \sim
1	4 161 36		18.5 kW	230 V \sim
1	4 161 39		18.5 kW	415 V \sim
				2 NO + 2 NC
				2 NO + 2 NC
				2 NO + 2 NC
				2 NO + 2 NC
				2 NO + 2 NC

Pack	Cat.Nos	CTX ³ 65		
		With integrated auxiliary contacts		
		50 A (AC3) - 70 A (AC1)		
		Screw terminals	Cage terminals	3-phase motor 400/415 V
1	4 161 40	4 161 50		22 kW
1	4 161 41	4 161 51		22 kW
1	4 161 44	4 161 54		22 kW
1	4 161 46	4 161 56		22 kW
1	4 161 49	4 161 59		22 kW
				Control Voltage
				24 V \sim
				24 V \equiv
				110 V \sim
				230 V \sim
				415 V \sim
				Integrated auxiliary contacts
				2 NO + 2 NC
				2 NO + 2 NC
				2 NO + 2 NC
				2 NO + 2 NC
				2 NO + 2 NC
		65 A (AC3) - 100 A (AC1)		
1	4 161 60	4 161 70		30 kW
1	4 161 61	4 161 71		30 kW
1	4 161 64	4 161 74		30 kW
1	4 161 66	4 161 76		30 kW
1	4 161 69	4 161 79		30 kW
				24 V \sim
				24 V \equiv
				110 V \sim
				230 V \sim
				415 V \sim
				2 NO + 2 NC
				2 NO + 2 NC
				2 NO + 2 NC
				2 NO + 2 NC
				2 NO + 2 NC

Pack	Cat.Nos	CTX ³ 100		
		With integrated auxiliary contacts		
		75 A (AC3) - 110 A (AC1)		
		Screw terminals	Cage terminals	3-phase motor 400/415 V
1	4 161 80	4 161 90		37 kW
1	4 161 81	4 161 91		37 kW
1	4 161 84	4 161 94		37 kW
1	4 161 86	4 161 96		37 kW
1	4 161 89	4 161 99		37 kW
				Control Voltage
				24 V \sim
				24 V \equiv
				110 V \sim
				230 V \sim
				415 V \sim
				Integrated auxiliary contacts
				2 NO + 2 NC
				2 NO + 2 NC
				2 NO + 2 NC
				2 NO + 2 NC
				2 NO + 2 NC
		85 A (AC3) - 135 A (AC1)		
1	4 162 00	4 162 10		45 kW
1	4 162 01	4 162 11		45 kW
1	4 162 04	4 162 14		45 kW
1	4 162 06	4 162 16		45 kW
1	4 162 09	4 162 19		45 kW
				24 V \sim
				24 V \equiv
				110 V \sim
				230 V \sim
				415 V \sim
				2 NO + 2 NC
				2 NO + 2 NC
				2 NO + 2 NC
				2 NO + 2 NC
				2 NO + 2 NC
		100 A (AC3) - 160 A (AC1)		
1	4 162 20	4 162 30		55 kW
1	4 162 21	4 162 31		55 kW
1	4 162 24	4 162 34		55 kW
1	4 162 26	4 162 36		55 kW
1	4 162 29	4 162 39		55 kW
				24 V \sim
				24 V \equiv
				110 V \sim
				230 V \sim
				415 V \sim
				2 NO + 2 NC
				2 NO + 2 NC
				2 NO + 2 NC
				2 NO + 2 NC
				2 NO + 2 NC

For dimensions, wiring capacity and coordination with circuit breakers **see e-catalogue**



Add-on auxiliary contact blocks **p. 186**



Contactors CTX³

technical characteristics

Environmental conditions

- Storage temperature: -50 °C to +40 °C
- Operating temperature: -5 °C to +40 °C
- Operating altitude: 3000 m
- Protection degree: IP 20
- Shock resistance: open 8 G / closed 10 G
- Vibration resistance (5-300 Hz): open 2 G / closed 4 G

Type 2 coordination with MPCBs MPX³

According to IEC 60947-4-1
Short circuit current I_q = 50 kA Voltage 400/415 V~ 50/60 Hz

Standard motors AC-3 at 400/415 V 1500 rpm	Manual motor starter				Contactor		
	Rated Power (kW)	Current (A)	MPCB type	Thermal overload release setting range (A)	Magnetic release response current (A)	Type	Rating (A)
-	-	MPX ³ 32S	0.16	0.1 - 0.16	2.08	CTX ³ 22	9
0.06	0.20	MPX ³ 32S	0.25	0.16 - 0.25	3.25	CTX ³ 22	9
0.09	0.30	MPX ³ 32S	0.40	0.25 - 0.4	5.2	CTX ³ 22	9
0.12	0.40	MPX ³ 32S	0.63	0.4 - 0.63	8.19	CTX ³ 22	9
0.18	0.60	MPX ³ 32S	0.63	0.4 - 0.63	8.19	CTX ³ 22	9
0.25	0.80	MPX ³ 32S	1	0.63 - 1	13	CTX ³ 22	9
0.37	1.1	MPX ³ 32S	1.6	1 - 1.6	20.8	CTX ³ 22	9
0.55	1.5	MPX ³ 32S	1.6	1 - 1.6	20.8	CTX ³ 22	9
0.75	1.9	MPX ³ 32S	2.5	1.6 - 2.5	32.5	CTX ³ 22	12
1.1	2.7	MPX ³ 32S	4	2.5 - 4	52	CTX ³ 22	18
1.5	3.6	MPX ³ 32S	4	2.5 - 4	52	CTX ³ 22	18
2.2	5.2	MPX ³ 32S	6	4 - 6	78	CTX ³ 22	18
3	6.8	MPX ³ 32S	8	5 - 8	104	CTX ³ 22	18
4	9	MPX ³ 32S	10	6 - 10	130	CTX ³ 22	18
5.5	11.5	MPX ³ 32H	13	9 - 13	169	CTX ³ 22	22
7.5	15.5	MPX ³ 32H	17	11 - 17	221	CTX ³ 22	22
10	20	MPX ³ 32H	22	14 - 22	286	CTX ³ 40	32
11	22	MPX ³ 32H	25	18 - 26	338	CTX ³ 40	32
15	29	MPX ³ 32H	32	22 - 32	416	CTX ³ 40	32
18.5	35	MPX ³ 63H	40	28 - 40	520	CTX ³ 65	50
22	41	MPX ³ 63H	50	34 - 50	650	CTX ³ 65	50
30	55	MPX ³ 63H	63	45 - 63	819	CTX ³ 65	65
37	67	MPX ³ 100H	75	55 - 75	975	CTX ³ 100	75
-	-	MPX ³ 100H	90	70 - 90	1170	CTX ³ 100	85
45	80	MPX ³ 100H	100	80 - 100	1300	CTX ³ 100	85

Definition type 2 coordination according to IEC 947-4-1:

- The contactor or the starter must not endanger persons or systems in the event of a short-circuit.
- The contactor or the starter must be suitable for further use.
- No damage to the overload relay or other parts may occur with the exception of welding of the contactor or starter contacts provided that these can be easily separated without significant deformation (such as with a screwdriver).

CTX³ capacitor switching units Cat.Nos 4 168 74/75/76/77

Capacitor unit is connected to the terminals of the contactor to reduce the high inrush current.
IEC 60947-4-1 AC 6b

Type	Contactor	Maximum operating power (kvar)			Max. Peak current (A)	
		220 - 240 V	400 - 440 V	500 - 550 V		
4 168 74	CTX ³ 22	9 A	5	9.7	14	560
	CTX ³ 22	12 A	6.7	12.5	18	560
	CTX ³ 22	18 A	8.5	16.7	24	850
	CTX ³ 22	22 A	10	18	26	1250
	CTX ³ 40	32 A	15	25	36	1900
4 168 75/76	CTX ³ 40	40 A	20	33.3	48	2160
	CTX ³ 65	50 A	20	40	58	2160
4 168 76/77	CTX ³ 65	65 A	25	45.7	66	3040
	CTX ³ 100	75 A	29.7	54	78	3040
	CTX ³ 100	85 A	35	60	92	3040
	CTX ³ 100	100 A	37	62	94	3040

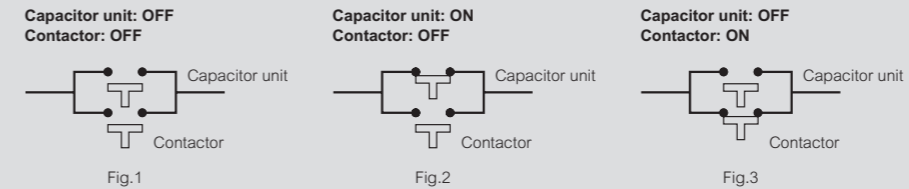
Note: - When the switch is closed capacitor must be discharged before recharged. (Maximum residual voltage at terminals ≤ 50 V)
- To prevent short current, gG type fuse must be 1.5 - 2 times than rated current

CTX³ capacitor switching units Cat.Nos 4 168 74/75/76/77 (continued)

Features of capacitor unit (Pre-loading resistor)

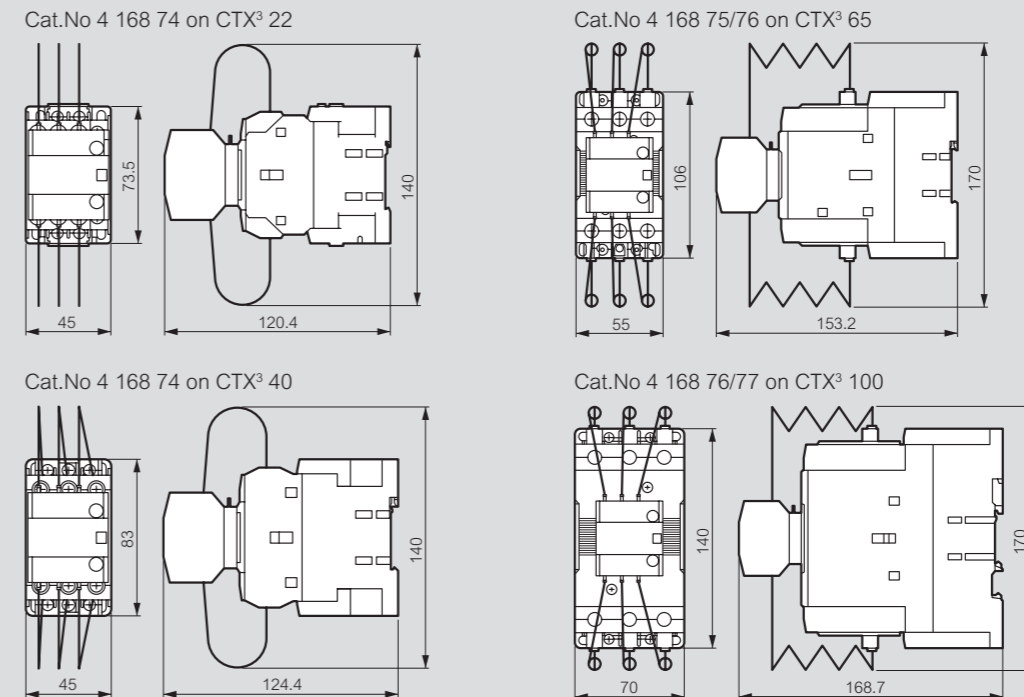
- Damping resistor that can limit the inrush current up to 60 x I_n by closing earlier than the main contacts of the contactor
- No heat loss by the serial resistor
- Eliminates the switching surge
- Improves the performance of the capacitor system

Operation sequence



Note - Closing sequence: Fig.1 => Fig.2 => Fig.3
Opening sequence: Fig.3 => Fig.1

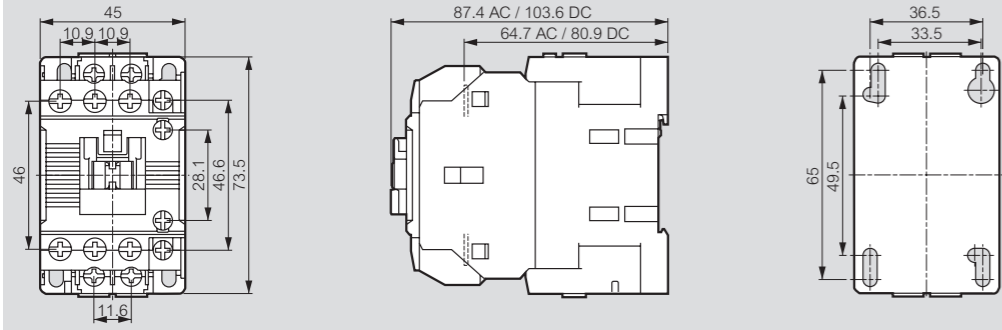
Overall dimensions of contactors equipped with CTX³ switching units



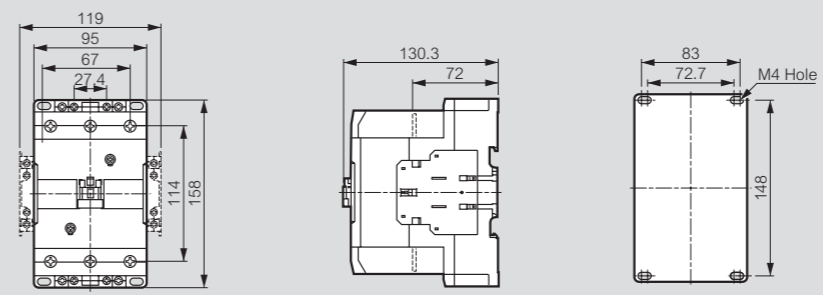
3-pole contactors CTX³

dimensions

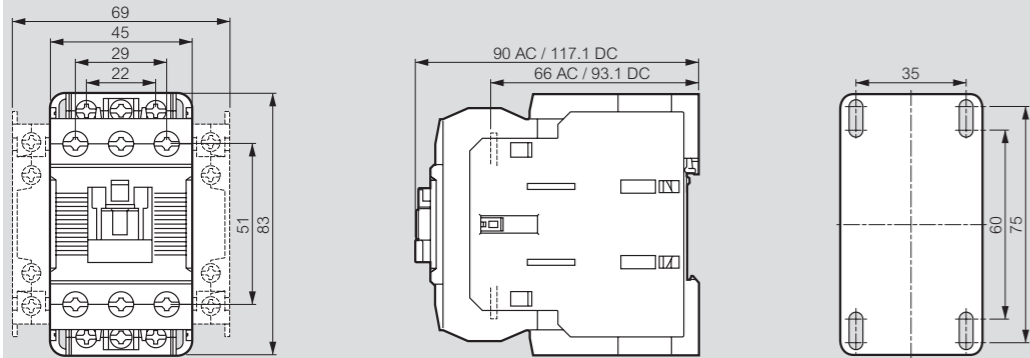
CTX³ 22



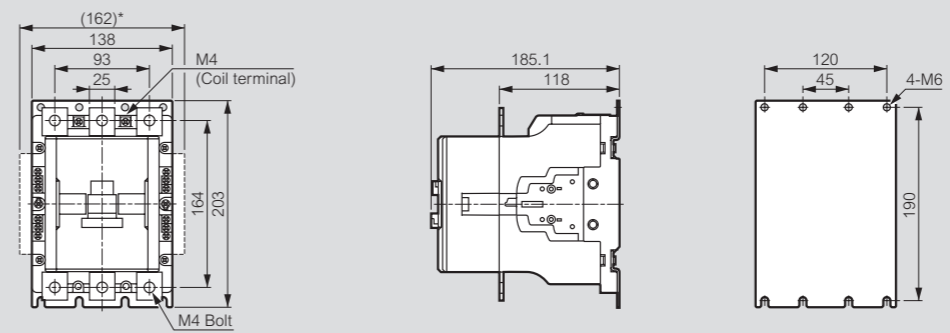
CTX³ 150



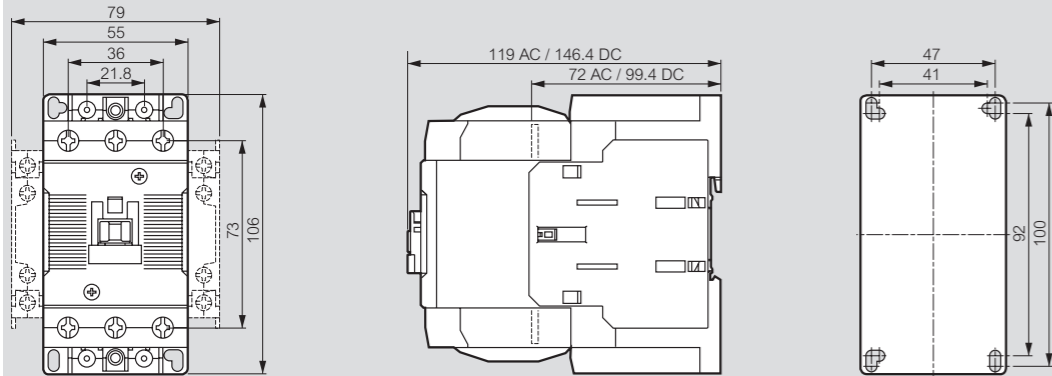
CTX³ 40



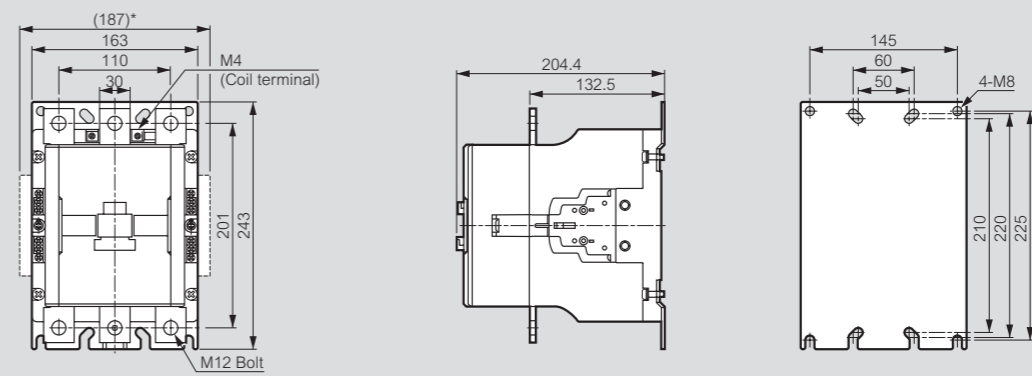
CTX³ 225



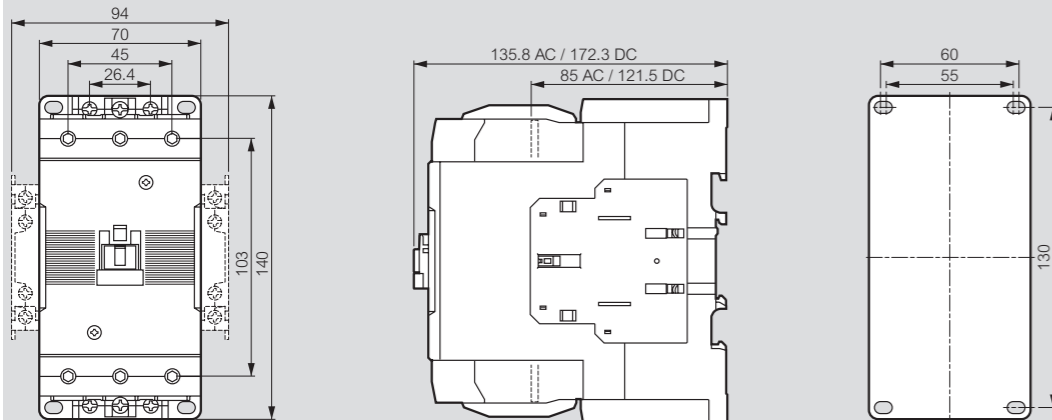
CTX³ 65



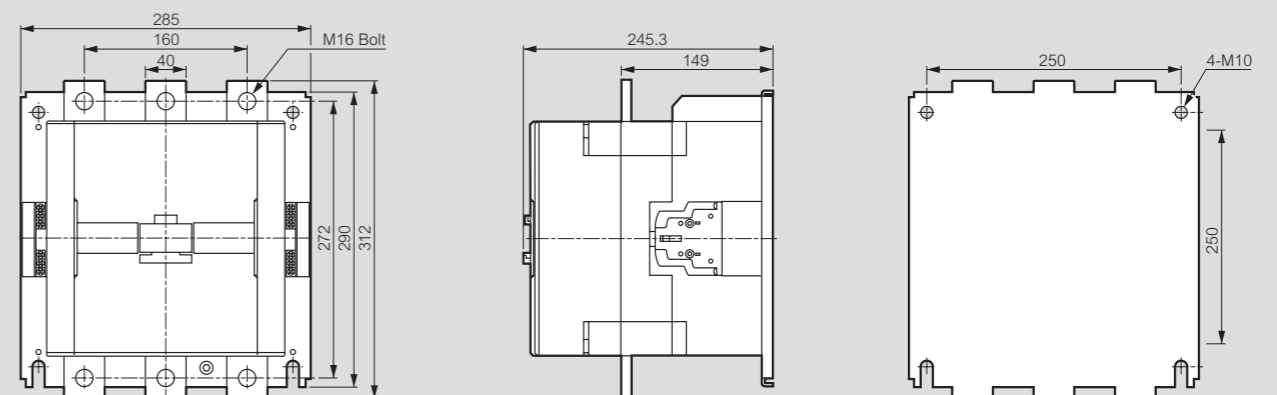
CTX³ 400



CTX³ 100





















CTX³ 800



3-pole contactors CTX³ and thermal overload relays RTX³

technical characteristics

																												
Contactor		CTX ³ mini				CTX ³ 22				CTX ³ 40		CTX ³ 65		CTX ³ 100			CTX ³ 150		CTX ³ 225		CTX ³ 400			CTX ³ 800				
Size		-				2				3		4		5			6		7		8			9				
Terminals type		screw				screw				screw		screw or cage		screw or cage			screw or cage		screw		screw			screw				
Rated operational voltage, U _e		690 V				690 V				690 V		690 V		690 V			690 V		690 V		690 V			690 V				
Rated insulation voltage, U _i		690 V				690 V				1000 V		1000 V		1000 V			1000 V		1000 V		1000 V			1000 V				
Rated frequency		50/60 Hz				50/60 Hz				50/60 Hz		50/60 Hz		50/60 Hz			50/60 Hz		50/60 Hz		50/60 Hz			50/60 Hz				
Rated impulse withstand voltage, U _{imp}		6 kV				6 kV				8 kV		8 kV		8 kV			8 kV		8 kV		8 kV			8 kV				
Max. operating rate in operation cycle per hour (AC-3)		1800				1800				1800		1800		1800			1200		1200		1200			1200				
Durability in millions of operations		Mechanical																										
		Electrical																										
Type		6 A	9 A	12 A	16 A	9 A	12 A	18 A	22 A	32 A	40 A	50 A	65 A	75 A	85 A	100 A	130 A	150 A	185 A	225 A	265 A	330 A	400 A	500 A	630 A	800 A		
Current and power		AC-1		Thermal current (A)																								
				20	20	20	20	25	25	40	40	50	60	70	100	110	135	160	160	210	230	275	300	350	450	580	660	900
		AC-3		200/240 V (kW)																								
				1.5	2.2	3	4	2.5	3.5	4.5	5.5	7.5	11	15	18.5	22	25	30	37	45	55	75	80	90	125	147	190	220
				(A)																								
				7	9	12	15	11	13	18	22	32	40	55	65	75	85	105	130	150	185	225	265	330	400	500	630	800
				380/440 V (kW)																								
				2.2	4	5.5	7.5	4	5.5	7.5	11	15	18.5	22	30	37	45	55	60	75	90	132	147	160	200	265	330	440
				(A)																								
				6	9	12	16	9	12	18	22	32	40	50	65	75	85	105	130	150	185	225	265	330	400	500	630	800
				500/550 V (kW)																								
				3	3.7	4	5.5	4	7.5	7.5	15	18.5	22	30	33	37	45	55	60	70	110	132	147	160	225	265	330	500
		(A)																										
		5	6	7	9	7	12	13	20	28	32	43	60	64	75	85	90	100	180	200	225	280	350	400	500	720		
		690 V (kW)																										
		3	4	4	4	4	7.5	7.5	15	18.5	22	30	33	37	45	55	55	55	110	140	160	200	250	300	400	500		
		(A)																										
		4	5	5	5	5	9	9	18	20	23	28	35	42	45	65	60	60	120	150	185	225	300	380	420	630		
		1000 V (kW)																										
		-	-	-	-	-	-	-	-	22	22	30	30	37	27	37	75	75	132	132	147	147	147	220	220	220		
		(A)																										
		-	-	-	-	-	-	-	-	17	17	23	23	28	28	28	53	53	90	90	105	105	105	280	280	280		
UL rating 50/60 Hz		Continuous current (A)																										
		20	20	20	20	25	25	40	40	50	60	70	100	110	135	160	160	210	230	275	300	350	450	580	660	900		
		Single phase		110/220 V (HP)																								
				1/2	1/2	1	-	0.5	0.75	1	2	2	3	3	5	5	7.5	10	10	15	15	15	15	15	-	-	-	-
		Three phase		220/240 V (HP)																								
				1	1.5	2	-	1.5	2	3	3	5	7.5	10	15	15	15	20	20	25	30	40	40	40	30	40	40	40
				200/208 V (HP)																								
				-	-	-	-	2	3	5	7.5	7.5	15	20	25	25	30	30	40	40	60	60	75	100	125	150	150	200
				220/240 V (HP)																								
				1.5	3	3	-	3	5	7.5	10	10	15	25	30	30	40	40	40	50	60	75	100	125	150	150	200	200
				440/480 V (HP)																								
				3	5	7.5	-	5	7.5	10	15	20	30	40	50	50	60	75	75	100	125	150	200	250	300	400	500	600
				550/600 V (HP)																								
				3	5	7.5	-	7.5	10	15	20	25	30	50	60	60	75	75	75	75	125	150	200	250	300	400	500	600
		NEMA size																										
		00	00	00	0	00	00	0	1	1	1	2	2	2	3	3	3	4	4	4	5	5	5	6	6	7		
Weight and size		AC control		Weight (kg)																								
				0.17				0.34				0.4		0.9		1.6			2.4		5.4		9.2			22.4		
		DC control		Size (W x H x D) (mm)																								
				45 x 58 x 57				45 x 73.5 x 87.4				45 x 83 x 90		55 x 106 x 119		70 x 140 x 135.8			95 x 158 x 130.3		138 x 203 x 185.1		163 x 243 x 204.4			285 x 312 x 245.3		
Integrated auxiliary contacts		Weight (kg)																										
		0.23				0.41				0.6		1.2		2.6			2.4		5.4		9.2			22.4				
Add on auxiliary block		Size (W x H x D) (mm)																										
		45 x 58 x 69				45 x 73.5 x 103.6				45 x 83 x 117.1		55 x 106 x 146.4		70 x 140 x 172.3			95 x 158 x 130.3		138 x 203 x 185.1		163 x 243 x 204.4			285 x 312 x 245.3				
		Side mounting																										
		Yes				Yes				Yes		Yes		Yes			Yes		Yes		Yes			Yes				
		Front mounting																										
		Yes				Yes				Yes		Yes		Yes			Yes		No		No			No				
Thermal overload relay		RTX ³ mini				RTX ³ 40				RTX ³ 40		RTX ³ 65		RTX ³ 100			RTX ³ 150		RTX ³ 225		RTX ³ 400			RTX ³ 800				
																												
Terminals type		Standard RTX ³																										
		-				screw				screw		screw		screw			screw		-		-			-				
		Differential RTX ³																										
		screw				screw				screw		cage		cage			screw		screw		screw			screw				
Rated operational voltage, U _e		690 V				690 V				690 V		690 V		690 V			690 V		690 V		690 V			690 V				
Rated insulation voltage, U _i		690 V				690 V				690 V		690 V		690 V			690 V		690 V		690 V			690 V				
Rated impulse withstand voltage, U _{imp}		6 kV				6 kV				6 kV		6 kV		6 kV			6 kV		6 kV		6 kV			6 kV				
Trip class		10 A				10 A				10 A		10 A		10 A			10 A		10 A		10 A			10 A				
Setting		0.1 to 16 A				0.1 to 40 A				0.1 to 40 A		9 to 65 A		18 to 100 A			45 to 150 A		65 to 240 A		85 to 400 A			200 to 800 A				
Weight and size		Weight (kg)																										
		0.1				0.17				0.17		0.31/0.33		0.48/0.5			0.67		2.5		2.6			11.5				
		Size (W x H x D) (mm)																										
		45 x 73 x 63				45 x 75 x 90				45 x 75 x 90		55 x 81 x 100		70 x 97 x 110			95 x 109 x 113		147 x 141 x 184		151 x 171 x 198			360 x 530 x 212				