

Power Contactors 3TF

For more than 110 years, Siemens has been developing and manufacturing industrial control products. We offer a wide product range which fulfills the demands of our customers regarding performance and reliability. Our aim is to make industrial operation easier ensuring flexible mounting, modular construction and high functionality. With 3TF contactors Siemens has been offering a tried tested trusted solution to control, switch and protect your motors upto 250kW.

Applications

3TF power contactors are suitable for switching and controlling squirrel cage and slip-ring motors as well as other AC loads, such as solenoids, capacitors, lighting loads, heating loads and transformer loads.

Standards

Contactors conform to IS/IEC 60947-4-1. They also carry the CE mark.

Coordinated feeder

Contactors and bi-relays have been tested for type-2 coordination at Iq = 50kA, 415V AC, 50Hz as per IS/IEC 60947-4-1, for both fuse protected as well as fuseless motor feeders.

Range

Air break contactors are available from 9 A to 475A in 3 pole version.

Also available in 2 pole AC version from 45A to 400A.

Benefits and features

Flexibility

- Choice of Auxiliary contacts

Contactor	Aux. contacts on basic unit	Permissible add-on contact blocks
9A / 12A	1 NO	Upto 4NO or 4NC
9A / 12A	1 NC	Upto 4NO or 2NC
16A/22A	-	Upto 4NO or 4NC
32A/38A	-	Upto 4NO or 4NC
45A to 475A	2NO+2NC	2 x (1NO+1NC)

The customer can order desired number of contacts thereby reducing the cost.

- Choice of mounting

Contactor can be mounted on 35mm DIN and they are also suitable for screw mounting (9-38A – DIN / Screw mounting and 45-475A – Screw mounting).



- Choice of coil voltages

AC 50Hz coil code: 3TF30 to 3TF56

Coil voltage (V)	24	42	110	230	415
Code	B0	D0	F0	P0	R0

Wide band AC 50 Hz coil code: 3TF30 to 3TF35

Coil voltage (V)	70-140	150-280	260-460
Code	W110	W220	W415

AC 50/60 Hz coil code: 3TF57

Coil voltage (V)	110-132	220-240	380-460
Code	F7	M7	Q7

DC coil code: 3TF30 to 3TF57

Coil voltage (V)	24	42	48	110	220	250 ⁺
Code	B4	D4	W4	F4	M4	N4

+ For 3TF3 only

(Other coil voltages are also available.)

Technical data

Contactor	Size	0			1			2			
		Type	3TF30	3TF31	3TF32	3TF33	3TF34	3TF35			
Permissible ambient temperature	Storage	°C	-55 to +80								
	Service	°C	-25 to +55								
Maximum operating voltage		V	690								
Rated insulation voltage <i>Ui</i> (At Pollution Degree 3) ¹⁾		V	690								
Rated impulse strength <i>Uimp</i>		kV	8								
Mechanical endurance (make/break operations)	AC	Cycles	15 x 10 ⁶						10 x 10 ⁶		
	DC	Cycles	15 x 10 ⁶						10 x 10 ⁶		
Rating of contactors for AC loads											
AC-1 duty, switching resistive load											
Rated operational current <i>Ie</i>	at 40°C upto 690V at 55°C upto 690V	A	21			32			65		
		A	20			30			55		
Ratings of three-phase loads p.f.=1 at 55°C	at 415V 500V 690V	kW	13			19.7			36		
		kW	17			26			47.5		
		kW	22			34.			62.7		
AC-2 and AC-3 duty											
Rated operational current <i>Ie</i> ²⁾	upto 415V 500V 690V	A	9	12	16	22	32	38			
		A	9	12	16	17	32	38			
		A	6.6	8.8	12.2	12.2	27	27.			
Nominal rating of slipping or squirrel-cage motors at 50/60 Hz.	at 415V 500V 690V	kW	4	5.5	7.5	11	15	18.5			
		kW	5.5	7.5	10	11	21	25			
		kW	5.5	7.5	11	11	23	23.			
AC-4 duty (contact endurance approx. 2x10⁵ make-break operations at Ia=6Ie)											
Rated operational current <i>Ie</i>	upto 690V	A	3.3	4.3	7.7	8.5	15.6	18.5			
		kW	1.54	2.1	3.5	4	8.2	9.8			
Rating of squirrel-cage motors at 50/60Hz.	at 415V 500V	kW	1.7	2.5	4.6	5.2	9.8	11.8			
Max. permitted rated operational current <i>Ie</i> /AC-4 = <i>Ie</i> /AC-3 upto 500V. Ref. life curve for the life.	690V	kW	2.54	3.45	6	6.6	13	15.5			
Used as stator contactor (upto 690V) (AC-2 duty)											
Stator currents <i>Ies</i>	20%	A	20	20	25(46*)		85				
On-load factor (ED) ³⁾ with intermittent duty	40%	A	20	20	25(37*)		67				
	60%	A	20	20	25(33*)		60				
	80%	A	20	20	25(30*)		55				
* Applicable up to 500V											
Used as rotor contactor (upto 690V) (AC-2 duty)											
Rotor current <i>Ier</i>	20%	A	31			73			125		
		A	31			58			106		
		A	31			52			95		
		A	31			47			87		
On-load factor (ED) ³⁾ with intermittent duty	40%	A	31			52			95		
	60%	A	31			47			87		
Locked rotor voltage <i>Uer</i>	Starting	V	1320			1320			1320		
	Plugging / Control	V	660			660			660		
AC-6b duty, switching low-inductance individual three-phase capacitors at 50/60Hz⁴⁾ (we also offer special capacitor duty contactors)											
Thermal loading	10 s current	A	90	96	130	176	400	400			
		W	0.6	1.1	1	1.6	2	2.5			
Rating of contactors for DC loads											
DC-1 duty, switching resistive load (L/R < 1 mS)											
Rated operational current <i>Ie</i> (at 55°C)											
Number of current paths in series connection	at 24V 110V 220V 440V	A	1			2			3		
			20			30			55		
			2.1			4.5			6		
			0.8			1			1		
			0.6			0.4			0.4		
DC-3 and DC-5 duty, shunt & series motors (L/R < 15mS)											
Rated operational current <i>Ie</i> (at 55°C)											
Number of current paths in series connection	at 24V 110V 220V 440V	A	1			2			3		
			20			20			20		
			0.15			0.35			0.75		
			-			-			-		
			-			-			-		

1) As per IEC 60947-1

2) Ratings at 1000V AC - upon enquiry.

3) On-load factor (ED) in % = $\frac{\text{onTime} \times 100}{\text{cycle time}}$
Max. switching freq. z = 50 per hour. Ratings at higher frequency upon enquiry.

4		6		8		10		12			
3TF48	3TF49	3TF50	3TF51	3TF52	3TF53	3TF54	3TF55	3TF56	3TF57		
5000	5000	5000	5000	5000	5000	3000	3000	3000	2000		
1,000	1,000	1000	1000	1000	1000	1000	1000	1000	1000		
900	900	800	800	800	750	800	750	700	500		
400	350	400	300	300	250	300	250	200	170		
1000	850	1000	750	700	500	700	500	500	420		
300	300	300	200	200	130	200	130	150	150		
50		50		50		50		50	50/60 Lower ⁸⁾ Upper ⁷⁾		
330		550		910		1430		2450	1136 1900		
0.5		0.45		0.38		0.34		0.21	1 1		
32		39		58		84		115	16 45		
0.23		0.24		0.26		0.24		0.33	0.34 0.16		
420		500		876 ⁶⁾		1216 ⁶⁾		1306 ⁶⁾	1110 ⁶⁾		
2.7		2.7		11 ⁶⁾		13.3 ⁶⁾		14 ⁶⁾	24 ⁶⁾		
0.8 to 1.1 x Us											
22 - 35		22 - 37		25 - 50		25 - 40		25 - 40	48 - 70		
5 - 30		8 - 30		10 - 30		10 - 30		8 - 30	80 - 100		
32 - 40		28 - 32		32 - 45		36 - 45		40 - 55	44 - 60		
95 - 105		185 - 195		10 - 20		10 - 20		10 - 20	12 - 15		
10				10				10			
10				10				10			
6				6				6			
3.6				3.6				3.6			
2.5				2.5				2.5			
10				10				10			
3.2				3.2				3.2			
0.9				0.9				0.9			
0.33				0.33				0.33			
10				10				10			
5				5				5			
1.14				1.14				1.14			
0.48				0.48				0.48			
0.13				0.13				0.13			
		16 to 70 15 3 to 2/0 6 to 8	35 to 95 20 10 to 14	35 to 95 20 10 to 14	50 to 240 25 14 to 24	50 to 240 25 14 to 24	50 to 240 25 14 to 24	50 to 240 25 14 to 24	50 to 240 30 14 to 24		
2 x (0.5 to 1, 1 to 2.5), 1 x 4 2 x (0.75 to 2.5) 1 x (1 to 2.5) 2 x (18 to 12) 0.8 to 1.4				2 x (0.5 to 1, 1 to 2.5) 2 x (0.75 to 2.5) 1 x (1 to 2.5) 2 x (18 to 12) 0.8 to 1.4				2 x (0.5 to 1, 1 to 2.5) 2 x (0.75 to 2.5) 1 x (1 to 2.5) 2 x (18 to 12) 0.8 to 1.4			
250	250	400	400	400	400	500	500	800	800		
160	160	200	250	250	250	400	400	500	500		

8) The opening time delay increases when the contactor coil is protected against voltage peaks. (e.g. Varistor: +2 to +5ms)