

# robusta (9A ~ 95A)

## 3 & 4 Pole Contactors with AC operating coil Specifications



TC1-D65 -XX

### 3 Pole Contactor with AC operating coil

Maximum Current		Maximum HP						Aux. Contacts Built-in per contactor		Catalog Number
Inductive	Continuous	Single Phase		Three Phase				NO	NC	
		120V	230V	200V	230V	480V	600V			
AC-3 A	AC-1 A									
9	20	0.5	1	2	2	5	7.5	1	0	TC1-D0910-XX
								0	1	TC1-D0901-XX
12	25	1	2	3	3	7.5	10	1	0	TC1-D1210-XX
								0	1	TC1-D1201-XX
18	32	1	3	5	5	10	15	1	0	TC1-D1810-XX
								0	1	TC1-D1801-XX
22	32	2	3	5	7.5	15	20	1	0	TC1-D2210-XX
								0	1	TC1-D2201-XX
25	40	2	3	5	7.5	15	20	1	0	TC1-D2510-XX
								0	1	TC1-D2501-XX
32	50	2	5	10	10	20	25	1	0	TC1-D3210-XX
								0	1	TC1-D3201-XX
38	60	3	5	10	10	30	30	1	0	TC1-D3810-XX
								0	1	TC1-D3801-XX
40	60	3	5	10	10	30	30	1	1	TC1-D4011-XX
50	80	3	7.5	15	15	40	40	1	1	TC1-D5011-XX
65	80	5	10	20	20	50	50	1	1	TC1-D6511-XX
80	125	7.5	15	25	25	60	60	1	1	TC1-D8011-XX
95	125	7.5	15	25	25	60	60	1	1	TC1-D9511-XX

Note : Standard Fault Ratings  $\text{UL}$   $\text{SF}$  High Fault Ratings  $\text{UL}$  (100kA with class J/CC Fuse)

### 4 Pole Contactor with AC operating coil



TC1-D09004

Maximum Current		Maximum HP						Main Pole Configuration		Catalog Number
Inductive	Resistive	Single Phase		Three Phase				NO	NC	
		120V	230V	200V	230V	480V	600V			
AC-3 A	AC-1 A									
9	25	0.5	1	2	2	5	7.5	4	0	TC1-D09004-XX
		0.5	1	2	2	5	7.5	0	4	TC1-D09006-XX
		0.5	1	-	-	-	-	2	2	TC1-D09008-XX
12	25	1	2	3	3	7.5	10	4	0	TC1-D12004-XX
		1	2	3	3	7.5	10	0	4	TC1-D12006-XX
		1	2	-	-	-	-	2	2	TC1-D12008-XX
25	40	2	3	5	7.5	15	20	4	0	TC1-D25004-XX
		2	3	5	7.5	15	20	0	4	TC1-D25006-XX
		2	3	-	-	-	-	2	2	TC1-D25008-XX
40	60	3	5	10	10	30	30	4	0	TC1-D40004-XX
		3	5	-	-	-	-	2	2	TC1-D40008-XX
65	80	5	10	20	20	50	50	4	0	TC1-D65004-XX
		5	10	-	-	-	-	2	2	TC1-D65008-XX
80	125	7.5	15	20	25	60	60	4	0	TC1-D80004-XX
		7.5	15	-	-	-	-	2	2	TC1-D80008-XX

### 3 Pole Mechanically Interlocked Contactor with AC coil (Pre-wired)



TC2-D09 -XX

Maximum Current			Maximum HP 3 Phase				Aux. Contacts Built-in per contactor		Catalog Number	
Inductive A	AC-3	Resistive A	AC-1	3 Phase				NO		NC
				200V	230V	480V	600V			
9		25		2	2	5	7.5	0	1	TC2-D0901-XX
								1	0	TC2-D0911-XX
12		25		3	3	7.5	10	0	1	TC2-D1201-XX
								1	0	TC2-D1211-XX
18		32		5	5	10	15	0	1	TC2-D1801-XX
								1	0	TC2-D1811-XX
22		32		5	5	10	15	0	1	TC2-D2201-XX
								1	0	TC2-D2211-XX
25		40		5	7.5	15	20	0	1	TC2-D2501-XX
								1	0	TC2-D2511-XX
32		50		10	10	20	25	0	1	TC2-D3201-XX
								1	0	TC2-D3211-XX
38		50		10	10	20	25	0	1	TC2-D3801-XX
								1	0	TC2-D3811-XX
40		60		10	10	30	30	1	1	TC2-D4011-XX
50		80		15	15	40	40	1	1	TC2-D5011-XX
65		80		20	20	50	50	1	1	TC2-D6511-XX
80		125		20	25	60	60	1	1	TC2-D8011-XX
95		125		20	25	60	60	1	1	TC2-D9511-XX

### Replace XX with voltage code from table - 1

Table - 1 : XX-AC Coil Voltages

Volts AC	24	48	110	120	208	220	230	235	240	277	380	400	415	440	480	575	600
50 Hz	B5	E5	F5	-	-	M5	P5	C5W*	U5	-	Q5	V5	N5	R5	-	-	-
60 Hz	B6	E6	F6	G6	L6	M6	-	-	U6	W6	Q6	-	-	R6	T6	S6	X6
50/60 Hz	B7	E7	F7	G7	-	M7	P7	-	U7	-	Q7	V7	N7	R7	-	-	-

\* C5W coil available only upto 25Amps.

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## 3 & 4 Pole Contactors with AC operating coil Characteristics

### General Characteristics

Type		Unit	TC1-D09 ~ TC1-D95
Rated insulation voltage (Ui)	IEC 60947-4-1	V	1000
Conforming to standards			NFCEN 60947, VDE0660, BSEN60947, IEC 60947 & IS 13947
Approvals			UL, CSA
Degree of Protection	Conforming to VDE 0106		Protection against direct finger contacts
Protective treatment	Standard version		"TH"
Ambient air temperature (around the device)	Storage	°C	-60 to +80
	Operation	°C	-5 to +55 (0.8 to 1.1Uc)
	Permissible	°C	-40 to +70, for operation at Uc
Maximum operating altitude	Without derating	Mtr.	3000
Operating Position	Without derating		+30° possible, in relation to normal vertical mounting plane

### Pole Characteristics

Type	TC1-	Unit	D09	D12	D18	D22	D25	D32	D38	D40	D50	D65	D80	D95															
Number of poles (Power)			3 or 4	3 or 4	3	3	3 or 4	3	3	3 or 4	3 or 4	3 or 4	3 or 4	3 or 4															
Power + Auxiliary			3+1	3+1	3+1	3+1	3+1	3+1	3+1	3+2	3+2	3+2	3+2	3+2															
Rated current (Ie)	AC3 up to 440V @ 55°C	A	9	12	18	22	25	32	38	40	50	65	80	95															
Rated operating Voltage	Up to	V	690	690	690	690	690	690	690	690	690	690	690	690															
Frequency limits	Of the operational current	Hz	25-400																										
Rated thermal current (Ith)	$\theta < 40^\circ\text{C}$	A	25	25	32	32	45	50	50	60	80	80	125	125															
Rated making capacity	Irms conforming to IEC-60947-4	A	250	250	300	300	450	550	550	800	900	1000	1100	1200															
Rated breaking capacity	Irms conforming to 220-440V	A	250	250	300	300	450	550	550	800	900	1000	1100	1100															
															IEC-60947-4	500V	A	175	175	250	250	400	450	450	800	900	1000	1000	1100
																660-690V	A	85	85	120	120	180	180	180	400	500	630	640	640
Average impedance per pole	At Ith and 50Hz	Milli $\Omega$	Max.	2.5	2.5	2.5	2.5	2	2	2	1.5	1.5	1	0.8	0.8														
Power dissipation per pole for the above operational currents	AC-3	W	0.2	0.36	0.8	0.8	1.25	2	2	2.4	3.7	4.2	5.1	7.2															

### Control Circuit Characteristics

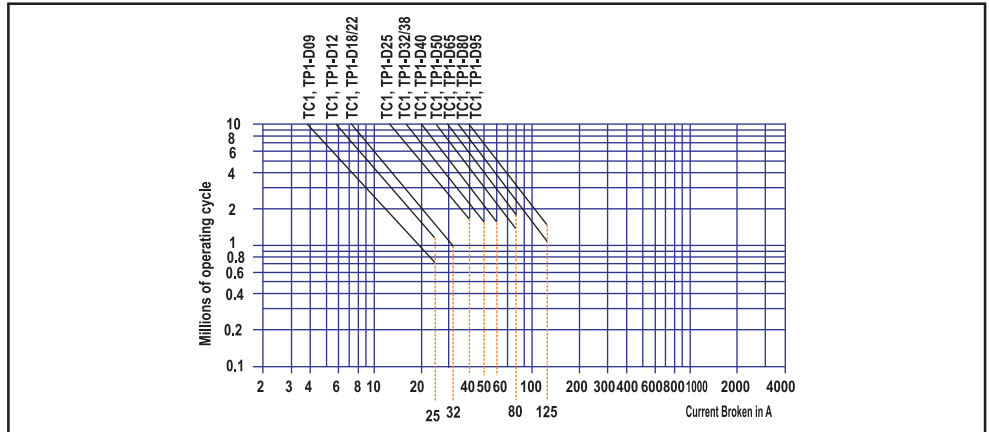
Type		Unit	TC1- D09~D22	TC1- D25~D38	TC1- D40~D65	TC1- D80~D95		
Rated control circuit voltage (Uc)	50 or 60 Hz	V	12 to 660					
Control voltage limits ( $\theta < 55^\circ\text{C}$ )	Operational		0.8 - 1.1 Uc					
	Drop out		0.3 - 0.6 Uc					
Average consumption at 20°C and at Uc	50/60Hz Coil		Operational				0.85 - 1.1 Uc at 60Hz	
	AC 50 Hz	Inrush	50 Hz Coil	VA	60	90	200	200
			50/60 Hz Coil	VA	70	100	245	245
			COS $\phi$		0.75	0.75	0.75	0.75
		Sealed	50 Hz Coil	VA	7	7.5	20	20
			50/60 Hz Coil	VA	8	8.5	26	26
			COS $\phi$		0.3	0.3	0.3	0.3
	AC 60 Hz	Inrush	60 Hz Coil	VA	70	100	220	220
			50/60 Hz Coil	VA	70	100	245	245
			COS $\phi$		0.75	0.75	0.75	0.75
		Sealed	60 Hz Coil	VA	7.5	8.5	22	22
			50/60 Hz Coil	VA	8	8.5	26	26
			COS $\phi$		0.3	0.3	0.3	0.3
	Average operating time at Uc	Closing time "C"	msec	12-22	15-24	20-26	20-35	
Opening time "O"		msec	04-12	05-19	8-12	6-20		
Mechanical life Uc (mechanical durability) in millions of operating cycles	50 or 60 Hz Coil		20(16 for TC1D18)	16	16	10		
	50/60 Hz Coil or 50 Hz		15	12	6	4		
Maximum operating rate	In operating cycle/hour		3600	3600	3600	3600		

### Integral Auxiliary Contact Characteristics

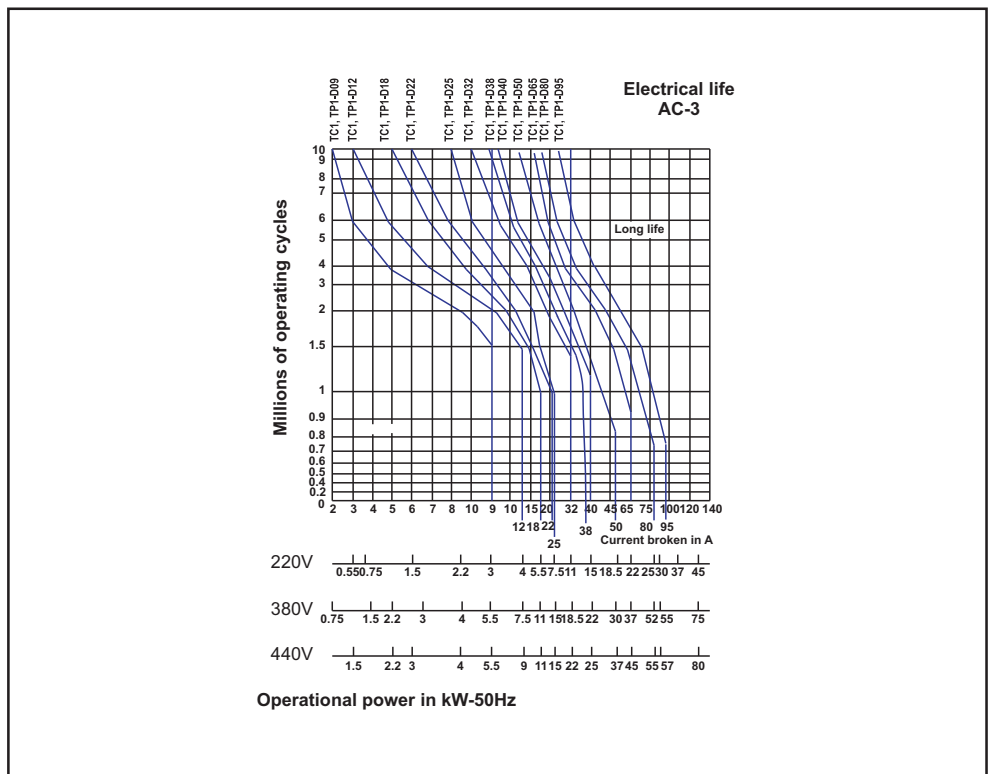
Type		Unit	TC1- D09 ~ TC1- D95
Rated thermal current (Ith)	$\theta < 55^\circ\text{C}$	A	10
Rated operational voltage (Ue)	Upto	V	660

## Contactors' Selection Guide (according to the required electrical life)

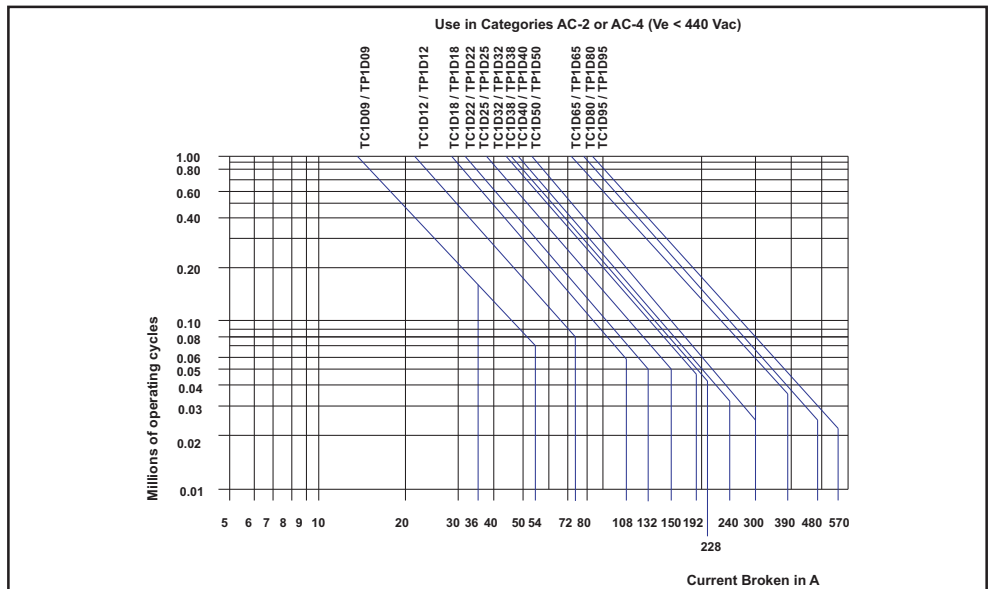
**Use in Category AC-1 ( $U_e < 440V$ ).** Control of resistive circuits ( $\cos \phi > 0.95$ ). The current broken ( $I_c$ ) in category AC-1 is equal to the current ( $I_e$ ) normally drawn by the load.



**Use in Category AC-3 ( $U_e < 440V$ ).** Control of 3-phase asynchronous squirrel cage motors with breaking whilst motor running. The current broken ( $I_c$ ) in category AC-3 is equal to the current ( $I_e$ ) normally drawn by the load.



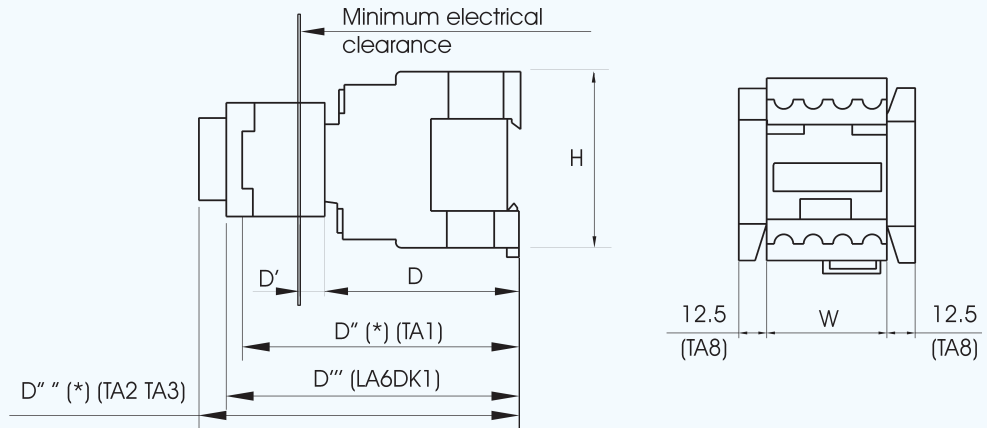
**Use in Categories AC-2, AC-4 ( $U_e < 440V$ ).** Control of 3-phase asynchronous squirrel cage (AC-4) or slip ring (AC-2) motors with breaking whilst motor stalled. The current broken in category AC-4 is equal to  $6I_e$ . ( $I_e$ =rated operational current of the motor).



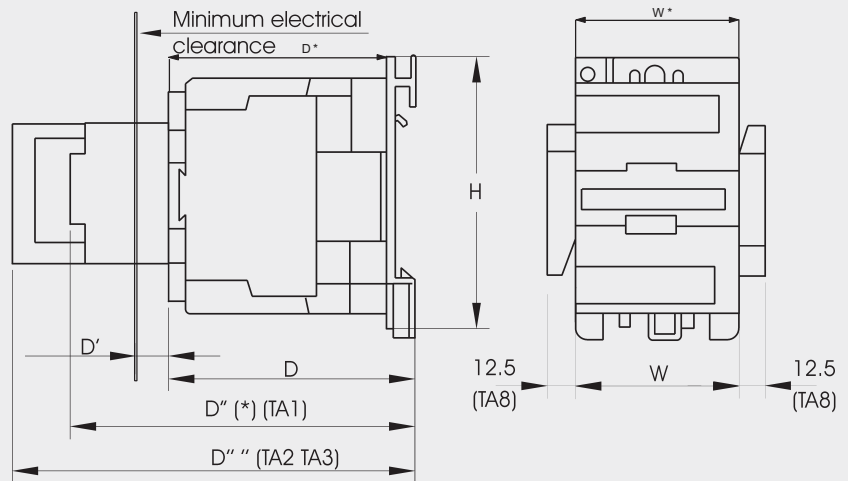
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## Contactors' Dimensions with AC operating coil

### Product Dimensions TC1-D09~D38 TP1-DC09/DC12/DC25



### TC1-D40 ~D95

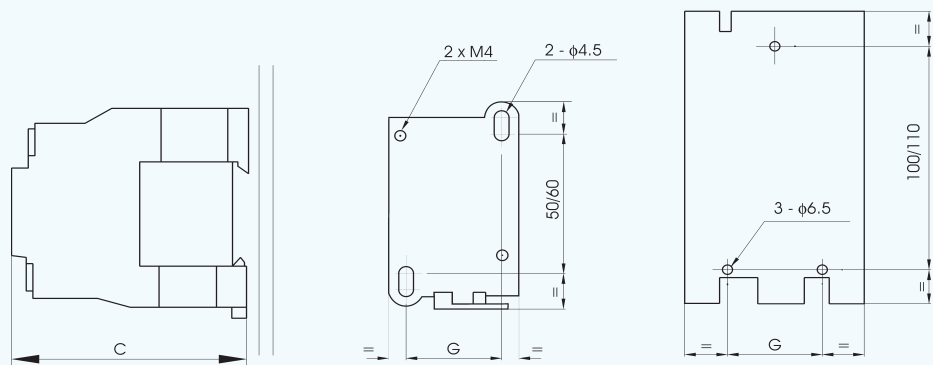


TC1-	D09	D12	D18	D22	D25	D32	D38	D40	D50	D65	D80~D95
TP1-	DC09	DC12	-	-	DC25	-	-	-	-	-	-
W (3 Pole)	45	45	45	45	56	56	56	75	75	75	85
W* (4 Pole)	45	45	-	-	56	-	-	85	85	85	96
H (3/4 Pole)	74	74	74	74	84	84	84	127	127	127	127
D (3/4 Pole)	80	80	85	85	94	99	99	114	114	114	120
D' (3/4 Pole)	10	10	10	10	10	10	10	12	12	12	12
D'' (3/4 Pole)	113	113	118	118	126	131	131	145	145	145	153
D''' (3/4 Pole)	120	120	125	125	135	140	140	-	-	-	-
D'''' (3/4 Pole)	133	133	138	138	147	152	152	166	166	166	173
D*(008)	-	-	-	-	-	-	-	124	124	124	140

### Panel Mounting Reference TC1-D09~D95 TP1-DC09/DC12/DC25

### TC1-D09~D38 TP1-DC09/DC12/DC25

### TC1-D40~D95



TC1-	D09	D12	D18	D22	D25	D32	D38	D40	D50	D65	D80	D95
TP1-	DC09	DC12	-	-	DC25	-	-	-	-	-	-	-
C	80	80	85	85	93	98	98	114	114	114	125	125
G	35	35	35	35	44	44	44	40	40	40	40	40