

## 0.75kW to 315kW – Frame 80 to 355

Techtop's TCI/TCP cast iron series motors combine superior electrical characteristics, high quality design and the robust strength of cast iron, making this series ideal for all industrial applications.



### Operating parameters

Standard TCI/TCP series motors are designed with the following parameters:

- 🔌 380V to 415V, 50Hz & 440V to 480V, 60Hz supply
- 🔌 Continuous (S1) duty
- 🌡️ Ambient temperatures up to 40°C
- 🌍 Installation up to 1000 MASL

### Connection

- 🔌 230V Delta / 400V Star (3kW & below)
- 🔌 400V Delta / 690V Star (4kW & above)

### Standards

Dimensions and rated outputs for the TCI/TCP series conform to Australian Standard AS/NZS 1359 and International Standards IEC 60034 and IEC 60072.

### Standard & High Efficiency

The TCI range complies with MEPS2 requirements of AS/NZS 1359.5:2004 Table A2 (**Standard Efficiency**). The TCP range complies with MEPS2 requirements of AS/NZS 1359.5:2004 Table A3 (**High Efficiency**). Motors are tested in accordance with Test Method A of AS/NZS 1359.102.3 as per IEC 60034-2-1.

### Insulation class

TCI/TCP motors are insulated with Class F materials and limited to Class B temperature rise. The windings are spike resistant making them suitable for use with VVVF drives.

### Thermistors

As standard all TCI/TCP series motors from 160 frame and above are fitted with one set of PTC thermistors. The thermistor termination is located in the main terminal box and has a trip temperature of 150°C as standard. Additional 130°C thermistors can be fitted as an option for alarm connection. Thermistors are available as an option for smaller frame sizes.

### IP Protection

The standard degree of enclosure protection is IP 55 (increased IP protection is available). Shafts are fitted with an oil seal as standard.

### Multi-mount design

TCI/TCP series motors from frame size 80 to 280 are fitted with detachable feet. The multi-mount design allows for the motor feet to be removed and repositioned to either side to produce a side mounted terminal box.

### Terminal box

The terminal box is manufactured from cast iron and is mounted on top of the motor as standard. Terminal box is separate to the motor body and can be rotated in 90° increments.

### Surface Finish

As standard TCI/TCP motors are painted with high quality alkyd enamel with the final colour being RAL 9005 Jet Black. Other colours are available upon request.

### Bearings

Bearings fitted are high quality NSK bearings with C3 diametrical clearances. As standard, frame sizes 80 to 132 have sealed for life deep groove ball bearings. Frame sizes 160 to 355 have re-greaseable bearings with facilities to replenish the grease during operation. Grease nipples are fitted to the top of the end shields with a grease relief fitted at the bottom.

Frame size	Bearing	
	Cast Iron	N.D.E
80	6204 ZZ C3	
90	6205 ZZ C3	
100	6206 ZZ C3	
112	6306 ZZ C3	
132	6308 ZZ C3	
160	6309 C3	
180	6311 C3	
200	6312 C3	
225	6313 C3	
250	6314 C3	
280	6316 C3	
315 (2P)	6317 C3	
315 (4/6/8)	NU319 C3	6319 C3
355 (2P)	6319 C3	
355 (4/6/8)	NU322 C3	6322 C3



## Part Number Logic

Detailed below is the part number logic which should be specified when placing orders. The part number is composed in accordance with the following example:

T	C	4	B	0	2	2	5	TCI	
1	2	3	4	5 - 7		8	9 - 12		13

### Position 1

T = Techtop

### Position 2

A = Aluminium

C = Cast Iron

### Position 3

2 = 2 Pole

4 = 4 Pole

6 = 6 Pole

8 = 8 Pole

### Position 4

A = less than 0.99kW

B = 1.0kW to 9.9kW

C = 10.0kW to 99.9kW

D = 100kW to 999kW

### Position 5 to 7

Output kW

### Position 8

Mounting position

1 = V1

3 = B3

4 = B3/5

5 = B5

6 = B3/B14A

7 = B14A

8 = B3/B14B

9 = B14B

### Position 9 to 12

TCI = Cast iron Std Eff.

TCP = Cast iron Hi-Eff.

TCIM = Cast iron Mine Spec.

### Position 13

H = Class H insulation

## Vibration

Vibration levels are within Level N (normal) limits of vibration severity as per IEC 60034 – 14:2007 which are listed below:

Vibration Grade	Frame size	56 - 132	160 - 280	315 - 355
	Mounting Type	(mm/s)	(mm/s)	(mm/s)
A	Suspension	1.5	2.2	2.8
	Rigid Mount	1.3	1.8	2.3

## Conduit Entries

Frame Size	Entry Size	Number of Entries
80	M20 x 1.5	2
90	M20 x 1.5	2
100	M20 x 1.5	2
112	M25 x 1.5	2
132	M25 x 1.5	2
160*	M32 x 1.5	2
180*	M32 x 1.5	2
200*	M50 x 1.5	2
225*	M50 x 1.5	2
250*	M50 x 1.5	2
280*	M50 x 1.5	2
315*	M63 x 1.5	2
355*	M63 x 1.5	2

\*Frames fitted with 1 X M20 cable gland for thermistor termination.

## Noise Level

Noise levels comply with the limits shown in IEC 60034.9 and AS1359.109 standards.

Output kW	Sound pressure dB(A) @ 1 metre no load			
	2 Pole	4 Pole	6 Pole	8 Pole
0.75	64	60	58	55
1.1	64	60	59	55
1.5	68	60	59	55
2.2	68	62	59	55
3	71	62	63	58
4	71	66	63	58
5.5	69	63	58	58
7.5	69	63	61	58
11	75	67	61	58
15	75	67	61	61
18.5	75	67	63	66
22	75	67	63	66
30	75	70	66	66
37	75	70	66	66
45	75	70	66	66
55	77	70	66	69
75	78	73	73	69
90	78	73	73	69
110	80	77	73	69
132	80	77	73	79
160	80	77	82	79
200	80	77	82	79
250	86	84	82	-
315	86	84	-	-

## GREASE

TCI bearings are lubricated with polyurea (Mobil Polyrex EM) based bearing grease suitable for operation in ambient temperatures from -20°C to +55°C. Bearings are prepacked with grease but it is recommended to lubricate the bearings one hour after commissioning.

## RECOMMENDED BEARING MAINTENANCE

Frame	Bearing	Grease Qty (g)	Interval Hours			
			2P	4P	6P	8P
160	6309 C3	15	6,600	11,000	14,000	16,200
180	6311 C3	18	6,100	10,600	14,000	15,250
200	6312 C3	20	5,200	10,200	14,100	15,000
225	6313 C3	25	4,900	9,600	13,600	15,000
250	6314 C3	38	2,600	9,200	13,200	14,600
280	6316 C3	42	2,100	9,000	12,800	14,000
315 (2P)	6317 C3	44	2,000	–	–	–
315 (4/6/8)	NU/6319 C3	48	–	6,400	9,300	12,000
355 (2P)	6319 C3	48	1,900	–	–	–
355 (4/6/8)	NU/6322 C3	68	–	4,400	8,300	11,000

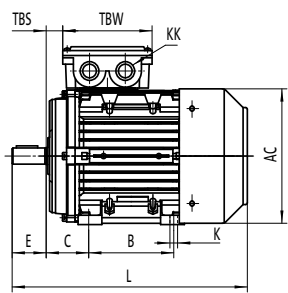
## RADIAL & AXIAL LOADS

The table below details the permissible force that can be applied to the motor shaft and are applicable for horizontal mounting only. The values shown are calculated on a basic bearing life of  $L_{10}$  of 40,000 hours.

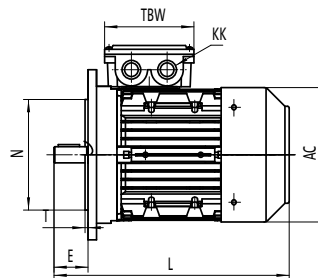
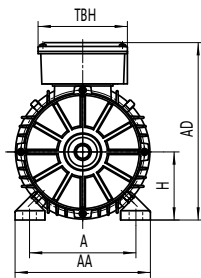
Frame size	Permissible Radial Load (N)				Permissible Axial Load (N)			
	2 Pole	4 Pole	6 Pole	8 Pole	2 Pole	4 Pole	6 Pole	8 Pole
80	470	595	690	750	395	540	655	635
90	485	625	720	785	420	570	685	690
100	710	890	1,035	1,150	570	780	940	1,075
112	950	1,240	1,420	1,580	790	1,085	1,310	1,520
132	1,420	1,820	2,100	2,325	1,160	1,590	1,915	2,210
160	1,800	2,350	2,720	3,040	1,480	2,035	2,450	2,810
180	2,490	3,200	3,780	4,215	1,990	2,710	3,270	3,760
200	2,915	3,750	4,350	4,835	2,225	3,065	3,710	4,235
225	3,270	4,000	4,700	5,210	2,460	3,390	4,130	4,750
250	3,590	4,650	5,400	5,980	2,725	3,780	4,575	5,225
280	3,700	8,100	9,375	10,300	3,280	4,560	5,590	6,375
315 (2P)	4,500	-	-	-	3,825	-	-	-
315 (4/6/8)	-	15,800	17,950	19,750	-	4,855	5,895	6,780
355 (2P)	4,560	-	-	-	3,980	-	-	-
355 (4/6/8)	-	22,145	25,360	27,890	-	6,135	7,395	8,555



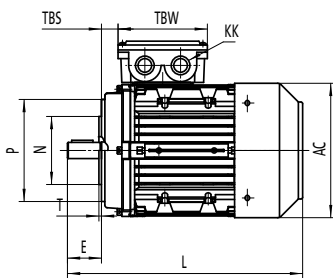
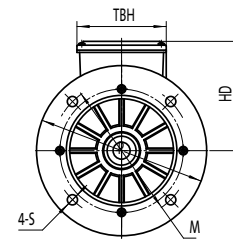
## TCI / TCP / TCIM SERIES MOTOR OUTLINE DIMENSIONS



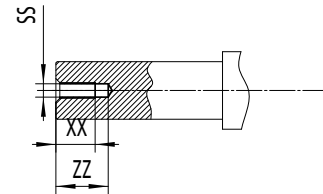
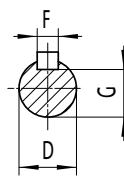
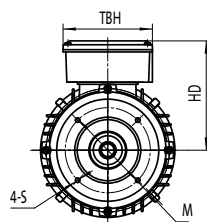
**B3**



**B5**



**B14**



**SHAFT**

## TCI / TCP / TCIM SERIES DIMENSIONAL DATA

Frame Size	Foot Mounting				Shaft					General								
	H	A	B	C	D	E	F	G	K	AA	AD	HD	AC	L	TBS	TBW	TBH	
80	80	125	100	50	19	40	6	15.5	9	154	209	129	158	290	48	105	105	
90S/L	90	140	100/125	56	24	50	8	20	10	178	231	150	176	320/345	49	114	114	
100	100	160	140	63	28	60	8	24	12	203	251	151	199	385	76	114	114	
112	112	190	140	70	28	60	8	24	12	231	292	180	220	405	73	134	134	
132S/M	132	216	140/178	89	38	80	10	33	12	264	330	198	259	457/505	62	134	134	
160M/L	160	254	210/254	108	42	110	12	37	15	316	404	244	313	605/650	91	162	162	
180M/L	180	279	241/279	121	48	110	14	42.5	15	361	442	262	360	687/725	160/180	162	187	
200L	200	318	305	133	55	110	16	49	19	392	500	300	399	769	193	186	233	
225S	4,8	225	356	286	149	60	140	18	53	19	438	557	332	465	810	199	186	233
225M	2	225	356	311	149	55	110	16	49	19	438	557	332	465	805	212	186	233
	4,6,8	225	356	311	149	60	140	18	53	19	438	557	332	465	835	212	186	233
250M	2	250	406	349	168	60	140	18	53	24	484	616	366	506	915	234	218	260
	4,6,8	250	406	349	168	65	140	18	58	24	484	616	366	506	915	234	218	260
280S/M	2	280	457	368/419	190	65	140	18	58	24	557	673/690	393/410	559	984/1035	265/277	218/245	260/280
	4,6,8	280	457	368/419	190	75	140	20	67.5	24	557	673/690	393/410	559	984/1035	265/277	218/245	260/280
315S	2	315	508	406	216	65	140	18	58	28	628	825	510	682	1205	200	290	350
	4,6,8	315	508	406	216	80	170	22	71	28	628	825	510	682	1235	200	290	350
315M/L	2	315	508	457/508	216	65	140	18	58	28	628	825	510	682	1355	200	290	350
	4,6,8	315	508	457/508	216	80	170	22	71	28	628	825	510	682	1385	200	290	350
355M/L	2	355	610	560/630	254	75	140	20	67.5	28	740	1010	655	820	1500	140	330	380
	4,6,8	355	610	560/630	254	100	210	28	90	28	740	1010	655	820	1570	140	330	380

Frame Size	B5				
	N	M	P	S	T
80 - 90	130	165	198	4-12	3.5
100 - 112	180	215	250	4-15	4
132	230	265	300	4-15	4
160 - 180	250	300	350	4-19	5
200	300	350	400	4-19	5
225	350	400	450	8-19	5
250 - 280	450	500	550	8-19	5
315	550	600	660	8-24	6
355	680	740	800	8-24	6

Frame Size	B14A				
	N	M	P	S	T
80	80	100	118	M6	3
90	95	115	138	M8	3
100 - 112	110	130	158	M8	3.5
132	130	165	198	M10	3.5