TOSHIBA

PREMIUM EFFICIENCY

TOTALLY ENCLOSED FAN COOLED

ELECTRIC MOTORS

HEAVY DUTY INDUSTRIAL

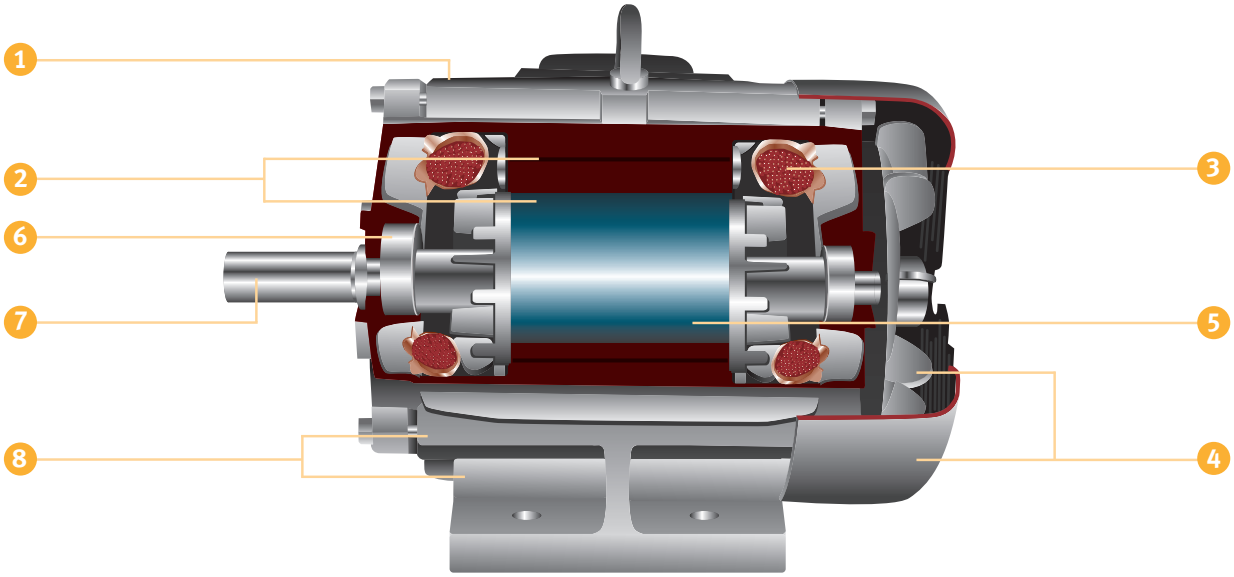
INCLUDES Exe, Exn & DIP RANGES

0.37kW to 355kW • 200volt to 1100volt

S O L U T I O N S • S E R V I C E • S U P P O R T

N1971

PREMIUM FEATURES INCLUDE:



HEAVY DUTY CONSTRUCTION (1)

- Frames are high grade cast iron,
  - Machined to close tolerance to ensure accurate alignment and fits in accordance with our high standards.
  - Exceptional corrosion resistance & high structural rigidity are inherent in Toshiba motor construction.
- Steel fan covers standard with cast iron option.
- Sintered bronze drain plugs are fitted as standard for frames D160 and above. Available as an option on smaller frames.

STANDARDS

- Toshiba Premium Efficiency Motors comply with AS1359 and MEPS 2006 requirements.
- Special motors to other Standards are also available, eg NEMA, CENELEC or other national standards.

PREMIUM EFFICIENCY LAMINATIONS (2)

- Premium-grade silicon steel and longer cores lower operating flux densities and losses achieving optimum efficiency.

LOW LOSS STATOR WINDINGS (3)

- Toshiba's use of greater cross sectional area of copper lowers winding resistance, reduces losses giving improved efficiency.
- All windings are insulated with non-hygroscopic materials, ensuring reliable motor operation in humid, corrosive and abrasive industrial environments.

INSULATION & THERMAL ADVANTAGE

- Toshiba motors are insulated with class 'F' materials and feature excellent thermal reserve, offering low temperature rise characteristics generally below class 'E'.
- These characteristics allow optimal flexibility in regard to variable frequency drives, higher altitude and higher ambient applications, and are also forgiving to intermittent current overloads.

FLEXIBLE TERMINAL BOX DESIGN

- Cast iron terminal boxes are diagonally split, and have flanges and neoprene gaskets. Larger frames have oversized fabricated steel boxes.
- All terminal boxes are fitted with removable gland plates, drilled and tapped to dimensions specified on pages 10-15. Blank or customised gland plates are available as an option.
- Terminal boxes may be rotated 90° by four positions for conduit entry on frames smaller than D315.
- Terminal boxes are mounted right hand side, viewed from drive end, and can be mounted on the opposite side if required on frames up to D225. On frames D250 and above, for non-standard terminal box positions contact Toshiba office at time of order.

LOW NOISE LEVELS (4)

- Special attention to the fan and cowl design achieves quiet operation with efficient cooling. Toshiba can supply motors with special low noise level fans and/or acoustic covers.
- Fans are cast iron or fabricated steel depending on frame size.

HIGH TORQUE ROTOR (5)

- Pressure cast aluminium rotors with integrally cast bars, end rings and cooling fans, provide reliable operation.
- Specially designed rotors give Toshiba motors advantageous torque characteristics and minimise losses.

LONG LIFE BEARINGS (6)

- The use of oversized bearings assures long life and quiet operation. Motors in frame sizes up to D132 have sealed bearings. Larger sizes have regreaseable bearings.

HARDWARE

- All fastenings are zinc passivated for resistance to corrosion.
- Threads are metric.

OUTPUT SHAFTS (7)

- Output shafts are fitted with water/dust excluders.

DURABLE NAMEPLATE

- Stainless steel nameplate provides complete motor ratings including bearing sizes for quick reference.

CORROSION RESISTANT FINISH (8)

- Toshiba motors are Alkyd Resin primed and finished with Alkyd Resin semi gloss. Standard colour is Wood Smoke Grey. Customer specified colours and paint finishes available.

CONNECTIONS

- All motors are fitted with stud type terminal blocks with 6 (terminations) winding leads. Motors in frames D112 and below may be configured for 240V Delta operation, suitable for VVVF Drives. Motors in larger frames are suitable for Star Delta starting.
- Thermistors are fitted as standard on motors, frame D160 and above and can be fitted on smaller sizes if specified. Thermistor terminals are marked T1, T2.
- An earthing terminal is provided inside the main terminal box, with an additional external earthing facility on all frames.
- Toshiba motors can be supplied wound for voltages up to 1100 volts.

DEGREE OF PROTECTION

- Toshiba Premium Efficiency Motors have IP56 degree of protection as standard with enclosure options up to IP66 available, conforming to AS 60529-2004.
- Degrees of protection laid down in the standards are designated by means of the letters IP followed by two figures. The first digit states the degree of protection against contact and the penetration of solid objects. The second digit states the degree of protection against water.

IP56	Dust protected Protection against heavy seas or strong jet of water
IP65	Dust tight Hose proof (low pressure jet)
IP66	Dust tight Protected against heavy seas or strong jet of water

The IP rating is standard for IM B3 & B5 mounting and can be modified for other nominated mounting positions upon request.

ORDERING

- When ordering, as a minimum please nominate supply details, kW, rpm, degree of protection (IP rating), method of starting, mounting type and required direction of rotation. (Refer to Drive applications below)
- If in doubt about motor selection please provide Toshiba starting and application details.
- Give details of any additional specification or requirements.

DRIVE APPLICATIONS

- Motors 4 pole and slower are generally suitable for normal vee-belt drive. Motors of higher speeds are generally for direct coupling only. For confirmation of application suitability, please contact Toshiba.
- 2 Pole motors with frames D280 and above have unidirectional fans, normally set for clockwise rotation when viewed from the drive end (CCW fans also available), therefore direction of rotation for these motors should be stated at time of enquiry.

CONTENTS

GENERAL INFORMATION

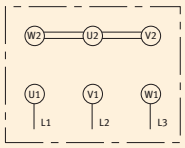
MOTOR TERMINATING PROCEDURES

The following should be used only as a guide. Only persons with the relevant qualifications should connect / disconnect electrical apparatus. Each motor should be checked individually.

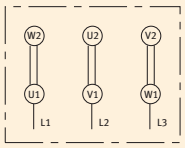
- Where terminal block links are to be used, check nameplate for the correct link configuration for the supply voltage.
- Ensure all lugs and links are in intimate contact with each other (no nuts, washers or studs should form part of the current path).
- Ensure the motor frame and terminal box are earthed in accordance with all relevant procedures and authorities.
- Ensure all cable lugs are crimped correctly, and all cables, lugs and glands are in accordance with all relevant procedures and authorities.
- Check all nuts are correctly tightened.
- Ensure all gaskets and any required sealants are present and correctly fitted.

CONNECTION DIAGRAMS

Single Speed

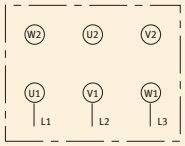


Star Connection – Y

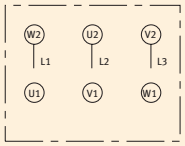


Delta Connection – △

2 Speed Dual Wound

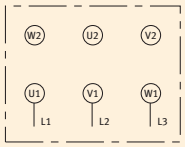


Low-Speed

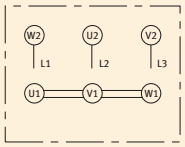


High-Speed

2 Speed Tap Wound



Low-Speed

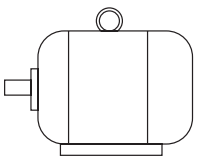


High-Speed

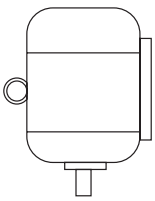
EXAMPLES OF COMMON MOUNTING ARRANGEMENTS

Foot mounted motor:

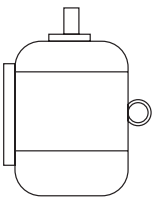
2 bearings, shaft with one free extension, stator frame with feet.



IM 1001
B3



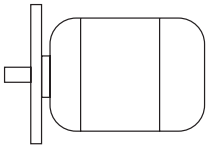
IM 1011
V5



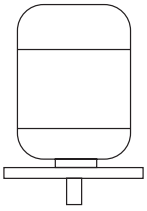
IM 1031
V6

Flange mounted motor:

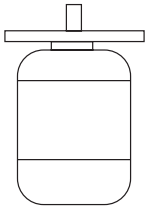
2 bearings, shaft with one free extension, stator frame without feet, large flange with clearance fixing holes.



IM 3001
B5



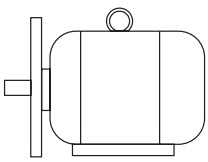
IM 3011
V1



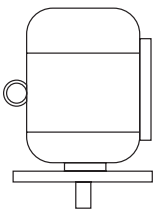
IM 3031
V3

Foot and Flange mounted motor:

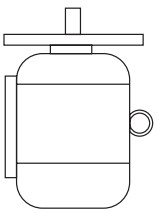
2 bearings, shaft with one free extension, stator frame with feet, large flange with clearance fixing hole.



IM 2001
B35



IM 2011
V15



IM 2031
V36

LOW VOLTAGE MOTOR RANGES

Premium Efficiency Motor

Heavy Duty Industrial Motor - Energy Efficient

Explosion Protected Motor

PREMIUM EFFICIENCY MOTORS

(Premium Efficiency)

Ratings: 0.37kW to 800kW (200V - 1100V)
2,4,6,8 Pole (Specials Available)
Protection Classification IP56 - IP66

Benefits: High starting torque with low starting current ensures premium performance under arduous load conditions. Easily adapted for VVVF control or reduced voltage starting, this range offers a high degree of flexibility in application while providing efficient performance.

HEAVY DUTY INDUSTRIAL MOTORS

(Energy Efficient) - Motors Above AS1359.30

Ratings: 185kW to 800kW (200V - 1100V)
2,4,6 Pole (Specials available)
Protection classification IP55 - IP66

Benefits: Designed and built for Heavy Duty Industrial applications. Adaptable for VVVF control or reduced voltage starting, this range offers a high degree of flexibility in application.

HAZARDOUS AREA MOTORS

Both our Premium Efficiency and Energy Efficient Motor ranges are suitable for modification to suit Hazardous Areas, Ex'e', Ex'n' and DIP classifications and are certified to current Australian Standards. Refer to table on page 7, for more detail.

EXPLOSION PROTECTED MOTORS

Ratings: 0.37kW to 700kW (200V - 1100V)
2,4,6,8 Pole (Specials Available)
Protection Classification IP55 - IP66
Ex'd' certified to current Australian Standards including Group I mining.

Benefits: Suitable for Industrial applications such as mining and petrochemical. Versatile construction, side or top mounting of terminal box, foot, foot & flange and flange mounting options. Modifications to satisfy individual customer requirements and specifications. Refer to Toshiba's Flameproof Catalogue.

SPECIAL MOTORS

Toshiba offers a range of motors to suit individual customer requirements. Special applications include - Multi Speed Motors, Brake Motors, Direct Current Motors, Open Drip Proof Motors, Wound Rotor Motors, Variable Speed Motors, CENELEC and NEMA standard motors and most special application motors.

MOTORS FOR HAZARDOUS AREAS

Toshiba offers the widest range of Hazardous Area certified motors in Australia.

Both our Premium Efficiency and Energy Efficient motor ranges are certified for modification for use in hazardous areas as per tables 1 and 2 on page 7.

Some typical areas of use

- Petrochemical, Mining, Oil & Gas, Chemical.

FLAMEPROOF Ex'd'

Motors so constructed as to contain an internal explosion and prevent the transmission of flame to external atmosphere. Temperature of operation is such that surrounding flammable atmosphere cannot be ignited.

Certification and approvals

Toshiba's Flameproof motors are Ex'd' approved for explosive gases groups IIA, IIB & IIC temperature class T4, and are also approved for underground Coal Mines, apparatus group I (methane).

For more information please refer to Toshiba's Flameproof Catalogue.

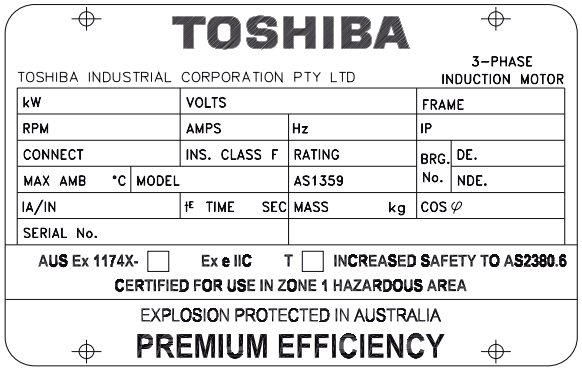
INCREASED SAFETY Ex'e'

These motors are not built to withstand an internal explosion (flameproof). They are designed to ensure safety by means of a number of special features to ensure freedom from arcs, sparks or dangerous surface temperatures. They resemble standard motors in appearance but have special increased safety terminals within an IP56 terminal box.

The main features of increased safety motors are:

- Special attention to air gap concentricity and clearance of all rotating parts
- Components subject to impact tests
- Temperature rise 10°C lower than the permitted maximum for that class of insulation
- Maximum surface temperature T2 or T3
- Compliance with t^E characteristics
- Special terminal block to accommodate specified creepage and clearances
- Terminal block material ensures anti tracking

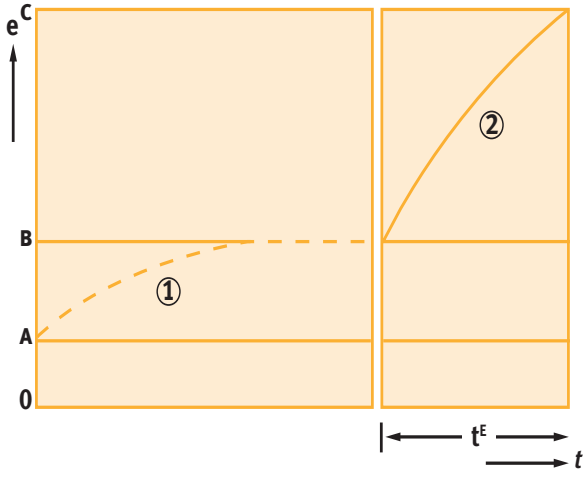
The maximum surface temperature T applies to all surfaces of the motor, both internal and external. Under locked rotor conditions, the rotor temperature in certain designs increases faster than that of the stator windings. In either event this is catered for in conjunction with the t^E time.



Typical Ex'e namplate

t^E Time

This is defined as the time taken for a.c. windings when carrying the starting current iA to be heated up from temperature reached in rated service and at maximum ambient temperature, to the limiting temperature. In the graph below, 'A' represents the maximum ambient temperature and 'B' is that reached under normal load. If a fault should occur and the rotor becomes locked, then the conditions shown in part 2 of the graph will apply. The motor temperature will increase very rapidly to 'C', which is less than the T classification for the motor. The motor will reach point 'C' in time t^E. Control gear must be provided to disconnect the motor from the supply within this time t^E. These motors are certified and suitable for use in zone 1 and have a maximum temperature of T3. They are intended for continuous running and are unsuitable for duties involving frequent starts/stops or long run-up times or VVVF operation.

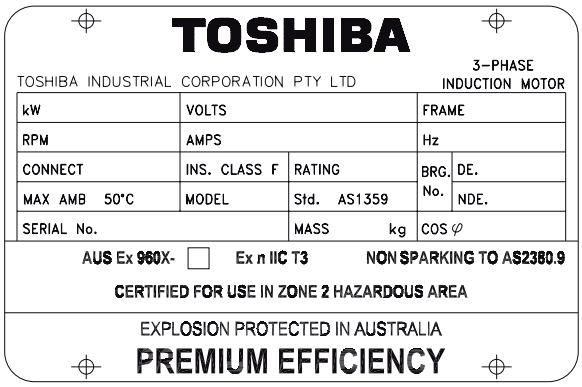


O =	*temperature °C*	*e =*	*temperature*
A =	*max. ambient temperature*	*①=*	*temperature rise*
B =	*temperature in rated service*		*in rated service*
C =	*limiting temperature*	*②=*	*temperature rise during*
t =	*time*		*stalled motor test*

NON SPARKING Ex'n'

These motors are for use in Zone 2 hazardous locations. The Ex'n' motor is very similar in construction to the TEFC machine. The main points of difference are:

- Special attention to air gap concentricity and clearance of all rotating parts
- Components subject to impact test
- Maximum internal or external surface temperature T3
- Terminal block material ensures anti-tracking
- Special terminal block stops creepage



Typical Ex'n nameplate

It will be seen that many of the above features will be similar to type Ex'e' except that standard outputs are obtained from the motors, i.e. no de-rating is involved. Because these motors are used in Zone 2 semi-hazardous locations, internal and external surfaces are limited to T3 at all times except during the starting period.

Temperature class	T1	T2	T3	T4	T5	T6
Temperature limit °C	450	300	200	135	100	85

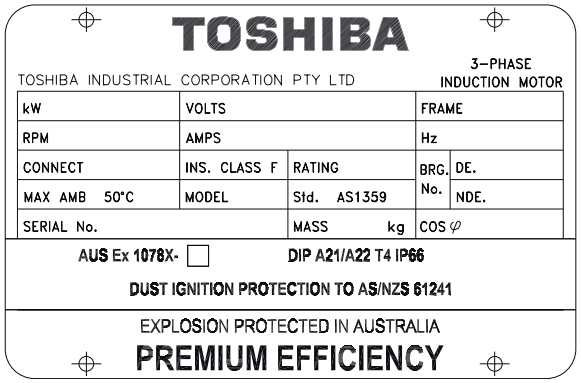
DUST-EXCLUDING IGNITION-PROOF DIP

These motors are built to exclude dust and to prevent, sparks or heat otherwise generated or liberated inside the enclosure to cause ignition of exterior accumulations or atmospheric suspensions of a specific dust on or in the vicinity of the enclosure.

Dust is excluded from the motor and terminal box enclosure and the exterior is kept below the ignition temperature of a dust cloud or layer, up to 5mm thick. As a rule dust layering should be avoided.

Examples of such dusts are wood, starch, coal dust and grain dusts including flour, cocoa, sugar, milk powder and tea as well as various metals and chemicals including bronze, zinc, sulphur and toner.

It should be noted that the distinction between dust types does not affect the selection of equipment for dust areas.



Typical D.I.P. nameplate

AUSTRALIAN / IEC STANDARD EXPLOSION PROTECTED

TABLE 1				TABLE 2
Type of Hazard	**Explosive Gases**			**Explosive Dusts**
Area Classification	Class 1, Zone 1 or 2		Class 1, Zone 2	Class 2 Div 1 & 2
Type of Motor	Explosion Protected Ex'd	Increased Safety Ex'e	Non-Sparking Ex'n	Dust Ignition Proof DIP
Toshiba Certificates of Compliance (Including Supplements)	AUS Ex 00.3695X AUS Ex 00.3697X AUS Ex 00.3698X	AUS Ex 1174x	Aus Ex 960X issue 5	AUS Ex 1078X
Apparatus Group	IIA, IIB & IIC	IIA, IIB & IIC	IIA, IIB & IIC	ZONE 21
Temperature Class	T4 (options T5 & T6)	T3 (and T2)	T3	T4
Standards	AS2236 IEC 60079/1	AS2380.6	AS2380.9	AS/NZS 61241.1.1:1999

PERFORMANCE DATA

PREMIUM EFFICIENCY PERFORMANCE DATA AT 415V - 50HZ

Output kW	RPM	Frame Number	Full Load Current (A)			No Load Current (A)	Locked Rotor Current % F/L	Locked Rotor Torque (%)	Pull Up Torque (%)	Breakdown Torque (%)	Efficiency (%)			Power Factor			Rotor GD² (kg.m²)	Sound Pressure dB(A) at 1 metre*
			@ 415V	@ 400V	@ 380V						Full Load	0.75 Load	0.50 Load	Full Load	0.75 Load	0.50 Load		
0.37	2830	D71	0.95	TBA	TBA	0.68	521	378	300	470	73.93	72.58	68.46	0.74	0.64	0.52	0.003	67.2
	1410	D71M	1.05	1.05	1.05	0.79	571	383	306	396	75.52	73.93	69.07	0.65	0.56	0.43	0.006	56.1
0.55	2805	D71	1.18	TBA	TBA	0.64	594	226	190	300	77.42	78.38	76.98	0.84	0.76	0.63	0.003	67.1
	1430	D80	1.32	1.32	1.33	0.95	784	433	350	481	80.8	79.43	75.19	0.72	0.62	0.48	0.012	55.6
0.75	2845	D80	1.58	1.59	1.63	0.91	850	450	370	537	81.64	80.77	77.48	0.73	0.61	0.61	0.006	55.4
	1425	D80	1.75	1.74	1.75	1.2	726	406	355	426	82.2	81.5	78.3	0.73	0.63	0.5	0.012	53.3
	945	D90S	1.99	1.98	1.99	1.4	508	215	201	304	81.1	81.5	79.2	0.65	0.55	0.42	0.019	55
	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA
1.1	2855	D80	2.17	2.33	2.41	1.12	857	432	372	447	83.8	83.7	81.1	0.84	0.77	0.64	0.008	66.4
	1420	D90S	2.5	2.52	2.57	1.29	664	326	315	349	84.7	85.5	84.5	0.77	0.69	0.56	0.017	57
	935	D90L	2.66	2.69	2.77	1.62	490	215	196	255	80.9	81.5	79.5	0.71	0.63	0.5	0.025	57.4
	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA
1.5	2875	D90S	2.73	2.8	2.94	1.04	802	303	235	379	87.4	88.2	87.6	0.87	0.83	0.73	0.010	64
	1420	D90L	3.26	3.29	3.35	1.92	675	358	286	390	86.18	87.05	86.32	0.74	0.66	0.52	0.021	53
	945	D100L	3.5	3.5	3.6	2.16	571	300	282	350	85	85.3	82.8	0.7	0.62	0.49	0.050	51
	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA
2.2	2875	D90L	3.9	4.01	4.19	1.38	915	351	276	362	88.7	89.4	88.9	0.89	0.84	0.75	0.013	63
	1425	D100L	4.35	4.4	4.6	2.14	736	302	261	388	87.1	87.7	86.9	0.81	0.74	0.62	0.045	57
	960	D112M	4.6	4.7	4.8	2.84	652	325	263	481	88.2	88.4	87.8	0.75	0.67	0.53	0.084	59
	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA
3	2910	D100L	5.4	5.5	5.7	1.95	898	329	256	382	88.3	88.2	86.5	0.88	0.85	0.76	0.034	73
	1430	D100L	5.9	6	6.1	3.03	785	341	317	369	87.2	87.8	86.7	0.81	0.74	0.62	0.050	57.2
	970	D132S	6.7	6.51	6.65	3.62	681	237	233	381	89	89.5	88.3	0.73	0.65	0.52	0.158	53
	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA
4	2905	D112M	7.04	7.23	7.65	2.47	860	258	210	365	89.39	90.24	89.95	0.88	0.84	0.75	0.032	67.1
	1450	D112M	7.84	7.97	8.24	3.67	746	323	258	363	88.33	88.5	87.31	0.8	0.75	0.64	0.084	65.7
	965	D132M	8.14	8.3	8.62	3.86	643	224	221	322	88.7	89.5	89.2	0.77	0.71	0.59	0.183	57
	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA
5.5	2915	D132S	10	10	10.5	2.92	679	263	254	308	91.3	91.5	90.3	0.86	0.84	0.77	0.068	64
	1460	D132S	10.17	10.4	10.9	3.8	737	264	211	319	90.51	90.71	89.42	0.83	0.79	0.69	0.156	52.6
	965	D132M	11.7	11.5	11.8	5.76	689	236	260	374	89.6	90.3	89.9	0.76	0.69	0.56	0.223	58
	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA
7.5	2915	D132S	12.9	13.3	14	3.46	802	242	194	355	91.68	91.74	91.07	0.88	0.86	0.81	0.083	60.8
	1455	D132M	14.67	14.82	15.23	6.45	695	288	230	317	91.13	91.54	90.84	0.78	0.73	0.62	0.194	54.7
	970	D160M	14.6	15	15.7	6.3	524	198	184	276	91.1	91.9	92	0.79	0.74	0.63	0.506	TBA
	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA
11	2925	D160M	18.1	18.8	19.8	4.07	702	216	147	311	92.6	92.9	92.3	0.91	0.9	0.86	0.179	79.4
	1465	D160M	20.37	20.79	21.62	8.08	648	247	198	308	92.26	92.36	91.6	0.81	0.77	0.68	0.337	58
	970	D160L	21.1	21.6	22.5	8.77	597	215	197	295	91.4	92.2	91.9	0.79	0.74	0.64	0.591	65.2
	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA
15	2925	D160M	24.9	25.8	27.6	6.1	699	205	136	307	93.2	92.7	92.1	0.91	0.89	0.84	0.197	73
	1465	D160L	27.99	28.5	29.5	11.35	675	280	230	305	92.51	92.69	91.95	0.81	0.76	0.67	0.401	58
	975	D180L	27.2	28.5	29.8	11.45	665	234	216	408	92.1	92.7	92.6	0.82	0.77	0.66	1.108	61
	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA
18.5	2940	D160L	30.8	31.7	33.2	8.85	844	292	252	343	93.6	93.6	92.7	0.89	0.86	0.8	0.234	80
	1470	D180M	34.4	34.97	36.37	13.45	584	205	164	217	93.58	93.84	93.16	0.8	0.77	0.66	0.756	65.5
	975	D200L	32.1	33.2	34.9	11.56	623	346	299	372	92.5	93.3	93.4	0.87	0.83	0.75	1.988	65
	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA
22	2955	D180M	36.8	37.9	39.8	9.93	785	282	226	308	93.86	93.92	93.02	0.89	0.86	0.8	0.456	65.2
	1480	D180L	41.26	41.88	43.41	17.5	625	262	210	274	94.08	93.7	92.96	0.79	0.74	0.63	0.821	56.1
	980	D200L	39.6	40.6	42.4	15.87	626	319	288	358	93.4	93.8	93.4	0.83	0.78	0.68	2.286	59
	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA

PERFORMANCE DATA

PREMIUM EFFICIENCY PERFORMANCE DATA AT 415V - 50HZ

Output kW	RPM	Frame Number	Full Load Current (A)			No Load Current (A)	Locked Rotor Current % F/L	Locked Rotor Torque (%)	Pull Up Torque (%)	Breakdown Torque (%)	Efficiency (%)			Power Factor			Rotor GD² (kg.m²)	Sound Pressure dB(A) at 1 metre*
			@ 415V	@ 400V	@ 380V						Full Load	0.75 Load	0.50 Load	Full Load	0.75 Load	0.50 Load		
30	2950	D200L	50.8	52.5	55.1	13.27	697	249	206	327	93.1	92.8	91.7	0.88	0.87	0.83	0.850	85
	1480	D200L	52.4	53.8	56.3	17.42	706	191	153	290	94.1	94.03	93	0.85	0.82	0.74	1.751	65.4
	980	D225M	53.2	54.8	57.3	17.91	624	260	229	391	94.3	94.7	94.6	0.83	0.8	0.72	3.565	67
	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA
37	2950	D200L	61.3	63.4	66.9	14.46	690	311	254	390	94	94.1	93.8	0.89	0.88	0.86	1.019	84
	1480	D225S	68.05	69.1	71.6	27.33	705	210	168	314	94.56	94.47	93.8	0.8	0.75	0.66	2.267	67
	985	D250S	67	69.1	72.7	22.98	561	277	252	336	94.5	94.8	94.6	0.81	0.78	0.7	5.947	71
	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA
45	2965	D225M	73.5	76	80.1	17.09	763	242	210	476	94.4	94.2	93.3	0.9	0.89	0.84	1.697	84
	1480	D225M	79.9	82.3	85.5	27.17	650	219	180	346	95.1	95.3	94.3	0.82	0.8	0.7	2.563	66.4
	985	D250M	82.5	84.3	87.7	33.39	669	353	282	354	94.9	94.9	94.4	0.8	0.75	0.65	7.282	66
	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA
55	2965	D250S	91.3	94.4	99.5	22.68	680	217	210	397	94.4	94.2	93.3	0.89	0.87	0.83	3.176	82
	1480	D250S	97.9	99.99	103.91	33.86	807	274	219	242	94.36	94.18	93.33	0.83	0.79	0.71	4.166	72.1
	990	D280S	98.6	101.5	106.5	34.38	672	231	218	380	95.4	95.5	95	0.81	0.78	0.7	10.789	67
	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA
75	2960	D250M	125	127	134	31.38	768	199	193	285	94.9	94.9	94.3	0.89	0.87	0.83	3.969	82
	1485	D250M	130.6	133.5	138.9	44.1	743	200	175	280	95.6	95.86	95.91	0.84	0.8	0.74	5.357	68.3
	990	D280M	139	143	148	43.14	640	227	215	405	95.6	95.9	95.8	0.78	0.76	0.68	14.784	69
	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA
90	2980	D280S	149	150	157	31.48	735	161	150	276	96	95.7	95	0.9	0.89	0.84	4.568	73.2
	1485	D280S	150.5	155.2	163.6	40.13	701	178.1	134	246	95.57	95.5	94.73	0.87	0.85	0.8	8.766	76.8
	985	D315S	158	163	171	52.03	659	248	210	263	95.6	95.8	95.3	0.83	0.8	0.72	12.6	70
	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA
110	2980	D280M	176	181	188	43.23	904	212	201	347	96.2	96	95.1	0.91	0.88	0.82	5.814	82.3
	1470	D280M	179.4	185	194.2	46.23	715	261	214	282	95.3	95.3	94.6	0.91	0.89	0.84	10.644	75
	985	D315M	193	199	209	60.37	664	197	180	296	95.7	95.8	95.4	0.83	0.8	0.73	15.1	73.5
	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA
132	2980	D315S	213	220	230	53.81	1081	242	227	394	95.8	95.4	94.3	0.9	0.88	0.83	9.05	86.9
	1485	D315S	224	225	236	41.04	602	255	193	205	95.5	95.7	95.3	0.86	0.86	0.82	13.149	80
	985	D315M	230	237	248	72.6	677	215	187	273	95.6	96	95.5	0.92	0.81	0.73	17.9	69.6
150	2970	D315M	236	245	260	39.36	725	153	145	287	95.6	95.8	95.6	0.92	0.92	0.89	10.3	85.4
	1480	D315M	245	264	278	44.67	644	253	191	207	95.5	95.7	95.3	0.89	0.89	0.86	15.027	77.5
	985	D315M	263	272	285	86.3	741	253	208	310	95.8	96	95.6	0.83	0.8	0.73	TBA	70.9

PREMIUM EFFICIENCY PERFORMANCE DATA AT 415V - 50HZ – LARGER SIZES (BEYOND AS 1359.30) AVAILABLE FROM STOCK

Output kW	RPM	Frame Number	Full Load Current (A)			No Load Current (A)	Locked Rotor Current % F/L	Locked Rotor Torque (%) F/L	Pull Up Torque (%) F/L	Breakdown Torque (%) F/L	Efficiency (%)			Power Factor			Rotor GD² (kg.m²)	Sound Pressure dB(A) at 1 metre*
			@ 415V	@ 400V	@ 380V						Full Load	75% Load	50% Load	Full Load	75% Load	50% Load		
185	2955	D315M	295	TBA	TBA	61.5	678	152	134	273	95.7	95.5	94.5	0.92	0.91	0.87	16	85
	1480	D315M	310	TBA	TBA	66.3	600	175	152	226	95.9	96.1	95.5	0.87	0.86	0.82	25	82
	985	D315M	314	TBA	TBA	99.2	637	140	119	225	95.9	96	95	0.86	0.84	0.78	27	82.5
200	2955	D315LL	323	TBA	TBA	53.8	619	143	126	243	95.5	95.3	94.8	0.92	0.92	0.9	16	85
	1480	D315M	316	TBA	TBA	52	661	128	110	260	95.9	96.1	95.5	0.93	0.93	0.9	25	80
	985	D315M	339	TBA	TBA	111	649	136	116	230	96	95.9	95.5	0.85	0.83	0.76	27	82
220	2955	D315LL	348	TBA	TBA	63.8	661	152	134	272	95.9	95.8	95	0.93	0.92	0.88	24	85
	1480	D315M	347	TBA	TBA	52	605	117	98	235	95.7	96.2	96	0.93	0.93	0.91	25	80
	985	D315LL	373	TBA	TBA	152	670	142	120	238	95.7	95.6	95	0.84	0.8	0.71	38	79
250	2955	D315LL	396	TBA	TBA	74.6	679	140	120	270	95.8	95.9	95.1	0.92	0.92	0.88	24	85
	1485	D315LL	396	TBA	TBA	57.2	626	130	110	227	95.9	96.3	96.2	0.92	0.94	0.92	37	78
	985	D315LL	421	TBA	TBA	166	641	140	120	235	96	95.5	95	0.84	0.81	0.72	38	82.5
280	1480	D315LL	442	TBA	TBA	61.5	577	115	98	224	95.8	96.2	95.6	0.92	0.93	0.92	37	81
315	1485	D355LL	498	TBA	TBA	75.2	592	131	110	210	95.5	95.8	95.4	0.92	0.93	0.91	50	81.5
355	1485	D355LL	559	TBA	TBA	105.5	666	142.2	121	236	96	96.1	95.7	0.92	0.92	0.89	50	80

PERFORMANCE DATA

HEAVY DUTY INDUSTRIAL - ENERGY EFFICIENT PERFORMANCE DATA AT 415V - 50HZ
– LARGER SIZES (BEYOND AS 1359.30) AVAILABLE FROM STOCK

Output kW	RPM	Frame Number	Full Load Current (A)			No Load Current (A)	Locked Rotor Current (A)	Locked Rotor Current % F/L	Locked Rotor Torque (%)	Pull Up Torque	Breakdown Torque	Efficiency (%)			Power Factor			Rotor GD² (kg.m²)	Sound Pressure dB(A) at 1 metre*
			@ 415V	@ 400V	@ 380V							Full Load	75% Load	50% Load	Full Load	75% Load	50% Load		
185	1480	D315M	310	322	339	87.7	1713	553	186	161	223	95	94.9	94	0.88	0.86	0.8	25	81
	2970	D315M	332	331	348	75.6	2000	602	210	168	260	95.2	94.9	93.7	0.89	0.88	0.84	16	87
200	1467	D315M	349	TBA	TBA	115.4	1990	570	204	177	237	94.8	94.8	93.7	0.87	0.85	0.78	TBA	84
	985	D315M	371	376	384	177.7	2315	624	212	180	252	95	95.1	94.2	0.79	0.73	0.61	27	78.5
220	1467	D315M	375	387	407	115.4	1990	531	204	177	237	94.8	94.8	93.8	0.87	0.85	0.78	25	84
	2980	D315LL	430	430	440	120	3150	733	255	170	295	95.9	95.9	95.2	0.9	0.88	0.81	24	89
250	1480	D315LL	415	430	453	110	2592	625	115	98	230	96	96	95.6	0.88	0.86	0.81	37	83
	985	D315LL	455	472	496	169.9	2340	514	183	159	218	95.3	95.6	95.3	0.82	0.79	0.69	38	81
280	1468	D315LL	485	503	530	158.4	2577	531	211	183	241	94.9	94.9	94	0.85	0.82	0.75	37	84
355	1475	D355LL	580	602	634	134.1	3090	533	190.5	161.9	211	95.4	95.6	94.9	0.9	0.89	0.87	50	82

BEARING INFORMATION

BEARINGS FOR PREMIUM EFFICIENCY MOTORS

*** ALSO REFERS TO HEAVY DUTY INDUSTRIAL**

Frame Number	D71	D80	D90S	D90L	D100L	D112M	D132S, M	D160M, L		D180M, L		D200L	
Poles	2, 4, 6, 8	2, 4, 6, 8	2, 4, 6, 8	2, 4, 6, 8	2, 4, 6, 8	2, 4, 6, 8	2, 4, 6, 8	2	4, 6, 8	2	4, 6, 8	2	4, 6, 8
Drive End	6203ZZ	6204ZZ	6205ZZ	6205ZZ	6206ZZ	6207ZZ	6308ZZ	6310C3	6310	6310C3	6310	6312C3	6312
Non-Drive End	6203ZZ	6204ZZ	6205ZZ	6205ZZ	6205ZZ	6206ZZ	6208ZZ	6208C3	6208	6210C3	6210	6212C3	6212

Frame Number	D225S, M		D250S, M		D280S, M		D315S, M		D315M		D315LL		D355LL
Poles	2	4, 6, 8	2	4, 6, 8	2	4, 6, 8	2	4, 6, 8	2	4, 6, 8	2	4, 6, 8	4, 6, 8
Drive End	6312C3	NU215	6313C3	NU218	6314C3	NU220	6314C3	NU320	6314C3	NU2224	6314C3	NU2224	NU2224
Non-Drive End	6312C3	6312	6313C3	6313	6313C3	6315	6313C3	6318	6313C3	6318	6313C3	6318	6320

RE-GREASING INFORMATION TABLE

Bearing No.	Grease Qty (Grams)	Replenish Intervals (days) 2P	4P	6P	8P
6208	25	70	130	130	130
6209	25	70	130	130	130
6210	30	70	130	130	130
6211	30	70	130	130	130
6212	30	70	130	130	130
6213	30	50	130	130	130
6214	30	50	130	130	130
6310	30	50	130	130	130
6311	30	50	130	130	130
6312	30	50	130	130	130
6313	30	50	130	130	130
6314	50	40	100	130	130
6315	50	N/A	100	130	130
6316	50	N/A	100	130	130

Bearing No.	Grease Qty (Grams)	Replenish Intervals (days) 2P	4P	6P	8P
6317	80	N/A	100	130	130
6318	80	N/A	100	130	130
6319	80	N/A	100	130	130
6320	80	N/A	100	130	130
NU214	30	N/A	100	130	130
NU215	30	N/A	100	130	130
NU216	30	N/A	100	130	130
NU217	30	N/A	100	130	130
NU218	30	N/A	100	130	130
NU219	50	N/A	100	130	130
NU220	50	N/A	100	130	130
NU318	80	N/A	70	130	130
NU320	80	N/A	50	130	130
NU2224	100	N/A	50	130	130

Note: *the above table is based on a motor running for 24 hours per day. For an 8-hour duty cycle multiply the interval by 3.*

RE-GREASING

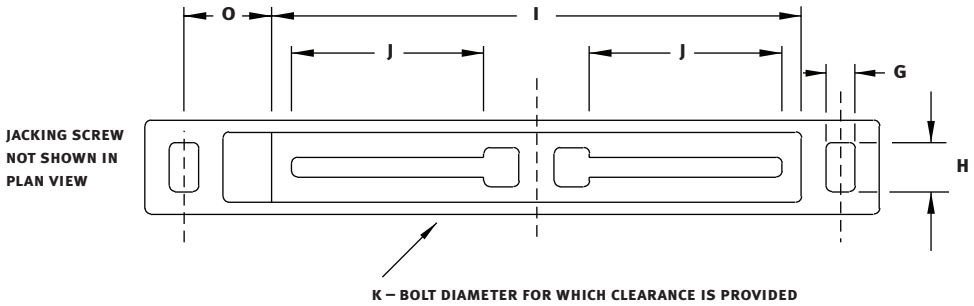
Motors with grease nipples will require periodic re-greasing. When re-greasing, use only recommended grease indicated below. The motor must be running and have grease exit ports opened during lubrication. Note: When regreasing a running motor ensure all safety precautions are observed. Ensure that the motor runs for a sufficient time to allow the used grease to purge before the exit ports are closed. For motors requiring special types of lubricant, the specification and quantity of grease to be used are noted on the nameplate. Motors without greasing facilities are fitted with sealed bearings. Sealed bearings are pre-lubricated for the life of the bearing but should be monitored by the user and replaced when necessary.

RECOMMENDED GREASE

Toshiba recommends the use of Shell Alvania RL 2 lithium based grease. Always regrease bearings with the same grease type.

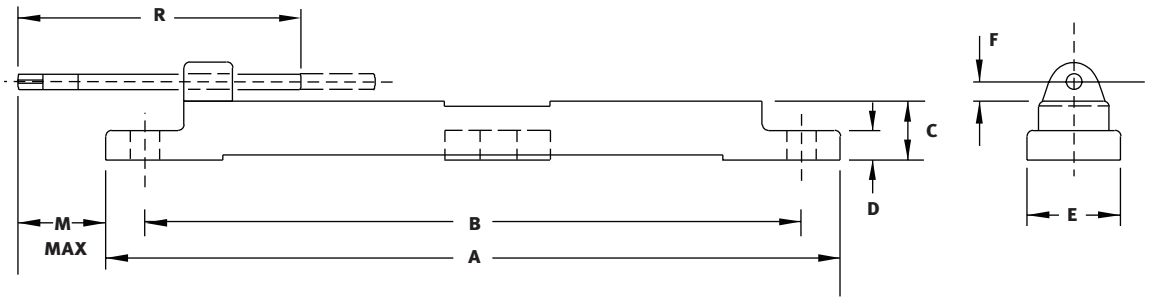
Note: *excess lubriction and/or incorrect grease type may cause an increase in bearing temperature. This may lead to an increased risk of premature bearing failure.*

DIMENSIONS – SLIDE RAIL



CONSTRUCTION:
SR80 to SR280 - Available as Cast Iron Construction standard. Also available as Prefabricated Steel upon request.

SR315 to SR355 - Available as Prefabrication Steel standard.

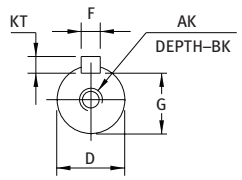


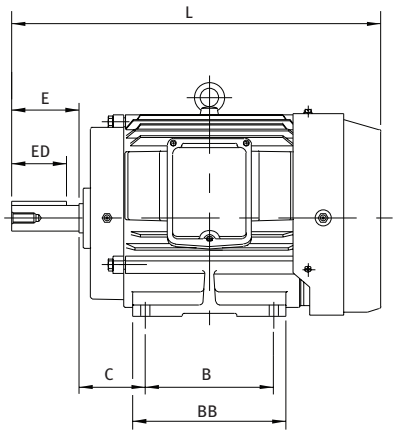
DIMENSIONS															
RAIL NO.	FRAME SIZE	A	B	C	D	E	F	G	H	I	J	K	M max.	O	R
SR 80 90	80 90	376	330	30	15	48	10	15	25	248	95	8	75	45	145
SR 100 132	100 112 132	475	425	34	19	72	10	14	30	360	135	10	135	40	200
SR 160 180	160 180	564	515	46	20	73	12	18	35	430	165	12	115	60	200
SR 200 225	200 225	795	730	61	32	90	20	25	25	645	260	16	200	60	290
SR 250 280	250 280	945	875	72	38	100	15	21	21	770	310	20	245	70	355
SR 315 355	315 355	1212	1115	125	40	120	20	29	29	910	380	24	385	109	450

Note: *Dimensions are shown in mm.*

DIMENSIONS - PREMIUM EFFICIENCY

FOOT MOUNTED





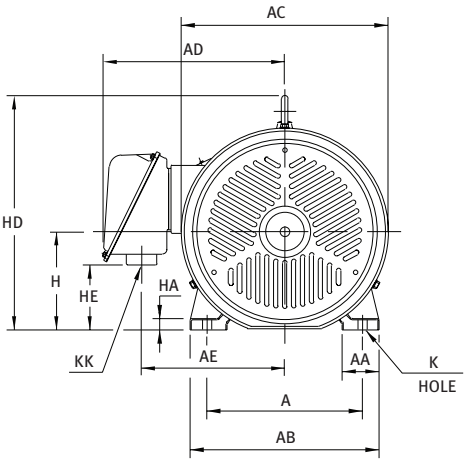


Illustration only
Not to scale

2, 4, 6, 8 POLE

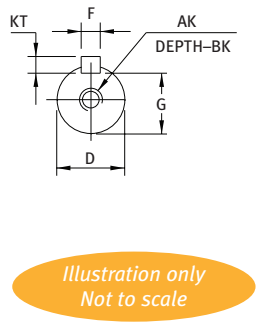
AUSTRALIAN STANDARD DIMENSIONS (mm)

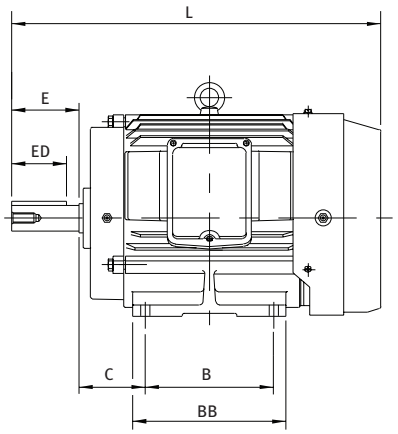
DIMENSIONS	FRAME											
	D71	D80	D90S	D90L	D100L	D112M	D132S	D132M	D160M	D160L	D180M	D180L
A	112	125	140	140	160	190	216	216	254	254	279	279
AA	35	35	40	40	45	40	50	50	60	60	60	60
AB	140	155	176	176	196	220	260	260	308	308	324	324
AC	160	180	207	207	223	242.5	284.5	284.5	324	324	390	390
AD	178	185	193	190	294.5	205	239	239	293	293	360	360
AE	135	144.5	142	142	166	158	181	181	220	220	275	275
AK	M5	M6	M8	M8	M10	M10	M12	M12	M16	M16	M16	M16
B	90	100	100	125	140	140	140	178	210	254	241	279
BB	114	130	124	149	176	168	175	213	250	294	286	324
BK	18	20	25	25	28	28	25	25	36	36	36	36
C	45	50	56	56	63	70	89	89	108	108	121	121
D	14	19	24	24	28	28	38	38	42	42	48	48
E	30	40	50	50	60	60	80	80	110	110	110	110
ED	22	30	40	40	50	50	65	65	90	90	90	90
F	5	6	8	8	8	8	10	10	12	12	14	14
G	11	15.5	20	20	24	24	33	33	37	37	42.5	42.5
H	71	80	90	90	100	112	132	132	160	160	180	180
HA	8	8	10	10	12	12	15	15	18	18	20	20
HD	152	168	198	198	246	274	316	316	373	373	440	440
HE	31.5	43.5	27	27.3	69	55	67.5	67.5	92.5	92.5	98	98
K	7	10	10	10	12	12	12	12	14.5	14.5	14.5	14.5
KK	M20	M20	M20	M20	M20	M20	M25	M25	M32	M32	M40	M40
KT	5	6	7	7	7	7	8	8	8	8	9	9
L	234	274	302	327	376	382	450	488	603	647	676.5	714.5
WEIGHT	12	18	24	27	32	43	80	83	115	143	180	230

* Tolerance on dimensions 'H', 'D' and 'F' to AS1359.10 ** Weight is given in kg as an approximate value.

DIMENSIONS - PREMIUM EFFICIENCY

FOOT MOUNTED





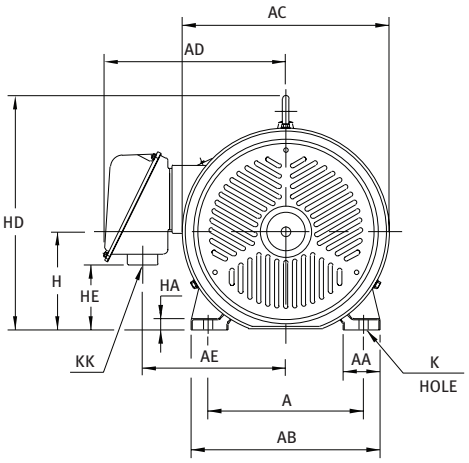


Illustration only
Not to scale

2, 4, 6, 8 POLE

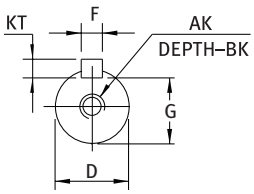
*** LARGER SIZES ADDITIONAL TO AS1359.30**

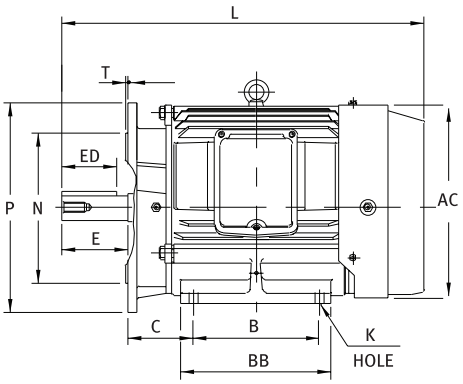
DIMENSIONS		FRAME									*LARGE FRAME		
POLE		D200L	D225S	D225M	D250S	D250M	D280S	D280M	D315S	D315M	D315M	D315LL	D355LL
A		318	356	356	406	406	457	457	508	508	508	508	610
AA		80	80	80	100	100	110	110	140	140	140	140	160
AB		378	416	416	486	486	560	560	630	630	645	645	710
AC		441	484	484	547	547	621	621	680	680	800	800	860
AD		385	410	410	520	520	545	545	552	552	850	850	890
AE		300	325	325	403	403	428	428	443	443	618	618	658
AK	2	M20	M20	M20	M20	M20	M20	M20	M20	M20	M20	M20	–
	4, 6, 8	M20	M20	M20	M20	M20	M20	M20	M20	M20	M24	M24	M24
B		305	286	311	311	349	368	419	406	457	457	710	900
BB		360	366	391	415	449	440	490	480	530	530	782	1020
BK		42	42	42	42	42	42	42	42	42	36	36	36
C		133	149	149	168	168	190	190	216	216	216	216	254
D	2	55	-	55	60	60	65	65	65	65	65	65	–
	4, 6, 8	55	60	60	70	70	80	80	85	85	95	110	110
E	2	110	140	110	140	140	140	140	140	140	140	140	–
	4, 6, 8	110	140	140	140	140	170	170	170	170	170	210	210
ED	2	90	110	90	110	110	110	110	110	110	110	110	–
	4, 6, 8	90	110	110	110	110	140	140	140	140	140	170	170
F	2	16	-	16	18	18	18	18	18	18	18	18	–
	4, 6, 8	16	18	18	20	20	22	22	22	22	25	28	28
G	2	49	-	49	53	53	58	58	58	58	58	58	–
	4, 6, 8	49	53	53	62.5	62.5	71	71	76	76	86	100	100
H		200	225	225	250	250	280	280	315	315	315	315	355
HA		20	22	22	30	30	30	30	35	35	35	35	40
HD		486	538	538	618	618	675	695	738	738	740	746	835
HE		143	173	173	81	81	127	127	63	63	33	33	90
K		18.5	18.5	18.5	24	24	24	24	28	28	28	28	28
KK		M50	M50	M50	M63	M63	M63	M63	M63	M63	NIL	NIL	NIL
KT	2	10	-	10	11	11	11	11	11	11	11	11	–
	4, 6, 8	10	11	11	12	12	14	14	14	14	14	16	16
L	2	772.5	817	812	946.5	984.5	1083.5	1134.5	1224	1275	1324.5	1433.5	–
	4, 6, 8	772.5	-	842	946.5	984.5	1113.5	1164.5	1341.5	1392.5	1434.5	1583.5	1900
WEIGHT		350	440	470	660	660	850	940	1062	1128	1480	1980	2780

**Tolerance on dimensions 'H', 'D' and 'F' to AS1359.10" ** Weight is given in kg as an approximate value.*

DIMENSIONS - PREMIUM EFFICIENCY

FOOT AND FLANGE MOUNTED





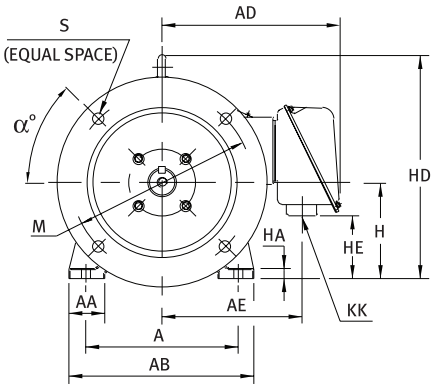


Illustration only
Not to scale

Flanges D71-D200 4 hole fixing
Flanges D225-D355 8 hole fixing

2, 4, 6, 8 POLE

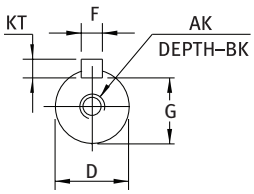
AUSTRALIAN STANDARD DIMENSIONS (mm)

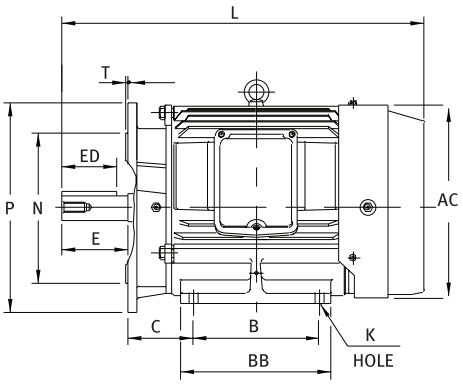
DIMENSIONS	FRAME											
	D71	D80	D90S	D90L	D100L	D112M	D132S	D132M	D160M	D160L	D180M	D180L
A	112	125	140	140	160	190	216	216	254	254	279	279
AA	35	35	40	40	45	40	50	50	60	60	60	60
AB	140	155	176	176	196	220	260	260	308	308	324	324
AC	160	180	207	207	223	242.5	284.5	284.5	324	324	390	390
AD	178	185	193	190	294.5	205	239	239	293	293	360	360
AE	135	144.5	142	142	166	158	181	181	220	220	275	275
AK	M5	M6	M8	M8	M10	M10	M12	M12	M16	M16	M16	M16
B	90	100	100	125	140	140	140	178	210	254	241	279
BB	114	130	124	149	176	168	175	213	250	294	286	324
BK	18	20	25	25	28	28	25	25	36	36	36	36
C	45	50	56	56	63	70	89	89	108	108	121	121
D	14	19	24	24	28	28	38	38	42	42	48	48
E	30	40	50	50	60	60	80	80	110	110	110	110
ED	22	30	40	40	50	50	65	65	90	90	90	90
F	5	6	8	8	8	8	10	10	12	12	14	14
G	11	15.5	20	20	24	24	33	33	37	37	42.5	42.5
H	71	80	90	90	100	112	132	132	160	160	180	180
HA	8	8	10	10	12	12	15	15	18	18	20	20
HD	198	198	168	152	246	274	316	316	373	373	440	440
HE	31.5	43.5	27	27.3	69	55	67.5	67.5	92.5	92.5	98	98
K	7	10	10	10	12	12	12	12	14.5	14.5	14.5	14.5
KK	M20	M20	M20	M20	M20	M20	M25	M25	M32	M32	M40	M40
KT	5	6	7	7	7	7	8	8	8	8	9	9
L	234	274	302	327	376	382	450	488	603	647	676.5	714.5
M	130	165	165	165	215	215	265	265	300	300	300	300
N	110	130	130	130	180	180	230	230	250	250	250	250
P	160	200	200	200	250	250	300	300	350	350	350	350
S	10	12	12	12	14.5	14.5	14.5	14.5	18.5	18.5	18.5	18.5
T	3.5	3.5	3.5	3.5	4	4	4	4	5	5	5	5
HOLES	4	4	4	4	4	4	4	4	4	4	4	4
WEIGHT	18	20	24	28	38	50	80	82	134	134	198	214

** Tolerance on dimensions 'H', 'D' and 'F' to AS1359.10* *** Weight is given in kg as an approximate value. Angle α° for 4 hole = 45°, 8 hole = 22.5°.*

DIMENSIONS - PREMIUM EFFICIENCY

FOOT AND FLANGE MOUNTED





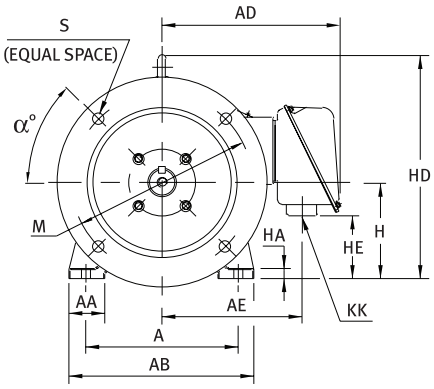


Illustration only
Not to scale

Flanges D71-D200 4 hole fixing
Flanges D225-D355 8 hole fixing

2, 4, 6, 8 POLE

*** LARGER SIZES ADDITIONAL TO AS1359.30**

DIMENSIONS		FRAME									*LARGE FRAME		
POLE		D200L	D225S	D225M	D250S	D250M	D280S	D280M	D315S	D315M	D315M	D315LL	D355LL
A		318	356	356	406	406	457	457	508	508	508	508	610
AA		80	80	80	100	100	110	110	140	140	140	140	160
AB		378	416	416	486	486	560	560	630	630	645	645	710
AC		441	484	484	547	547	621	621	680	680	800	800	860
AD		385	410	410	520	520	545	545	552	552	850	850	890
AE		300	325	325	403	403	428	428	443	443	618	618	658
AK	2	M20	–	M20	M20	M20	M20	M20	M20	M20	M20	M20	–
	4, 6, 8	M20	M20	M20	M20	M20	M20	M20	M20	M20	M24	M24	M24
B		305	286	311	311	349	368	419	406	457	457	710	900
BB		360	366	391	415	449	440	490	480	530	530	782	1020
BK		42	42	42	42	42	42	42	42	42	36	36	36
C		133	149	149	168	168	190	190	216	216	216	216	254
D	2	55	–	55	60	60	65	65	65	65	65	65	–
	4, 6, 8	55	60	60	70	70	80	80	85	85	95	110	110
E	2	110	–	110	140	140	140	140	140	140	140	140	–
	4, 6, 8	110	140	140	140	140	170	170	170	170	170	210	210
ED	2	90	–	90	110	110	110	110	110	110	110	110	–
	4, 6, 8	90	110	110	110	110	140	140	140	140	140	170	170
F	2	16	–	16	18	18	18	18	18	18	18	18	–
	4, 6, 8	16	18	18	20	20	22	22	22	22	25	28	28
G	2	49	–	49	53	53	58	58	58	58	58	58	–
	4, 6, 8	49	53	53	62.5	62.5	71	71	76	76	86	100	100
H		200	225	225	250	250	280	280	315	315	315	315	355
HA		20	22	22	30	30	30	30	35	35	35	35	40
HD		486	538	538	618	618	675	695	738	738	740	746	835
HE		143	173	173	81	81	127	127	63	63	33	33	90
K		18.5	18.5	18.5	24	24	24	24	28	28	28	28	28
KK		M50	M50	M50	M63	M63	M63	M63	M63	M63	NIL	NIL	NIL
KT	2	10	–	10	11	11	11	11	11	11	11	11	–
	4, 6, 8	10	11	11	12	12	14	14	14	14	14	16	16
L	2	772.5	–	812	946.5	984.5	1083.5	1134.5	1224	1275	1324.5	1433.5	–
	4, 6, 8	772.5	817	842	946.5	984.5	1113.5	1164.5	1341.5	1392.5	1434.5	1583.5	1900
M		350	400	400	500	500	500	500	600	600	600	600	740
N		300	350	350	450	450	450	450	550	550	550	550	680
P		400	450	450	550	550	550	550	660	660	660	660	800
S		18.5	18.5	18.5	18.5	18.5	18.5	18.5	24	24	24	24	24
T		5	5	5	5	5	5	5	5	6	6	6	6
HOLES		4	8	8	8	8	8	8	8	8	8	8	8
WEIGHT		320	382	420	594	674	814	930	1084	1154	1480	1980	2780

** Tolerance on dimensions 'H', 'D' and 'F' to AS1359.10 ** Weight is given in kg as an approximate value. Angle α° for 4 hole = 45°, 8 hole = 22.5°.*

Additional Products

(Detailed catalogues available)

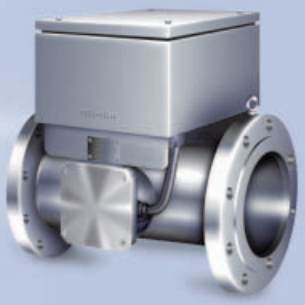
0.75 – 500kW
VF-AS1 Variable Speed Drive

2.2 – 280kW
High Performance VF-A7
Variable Speed Drive

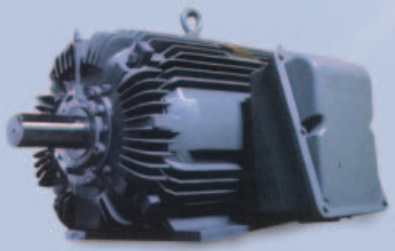
18.5 – 315kW
General Purpose
Variable Speed Drive

PLC

24 Hr After Sales Service
Plant Maintenance & Monitoring
Asset Management
Plant Alliance Management

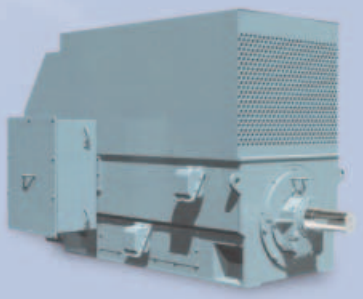


Magnetic Flow Meter



Premium Efficiency
AC Motor

Flame Proof
AC Motor



High Voltage
AC Motor

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