
Flameproof Motors



*Motoring the
Wheels of Success*



INTRODUCTION

RANGE

HINDUSTAN flameproof motors Ex'd' are available from frame sizes 63 FLP to 280M FLP in 2, 4, 6 & 8 pole designs. The motors are suitable for continuous duty (S1), ignition groups G1 to G4 or temperature class T1 to T4 as per IS 6381 with ambient temperature of 45°C & site altitudes of upto 1000 meters above mean sea level.

DESIGN FEATURES

The flameproof enclosure consists of sturdy cast iron parts, which are mechanically robust & very liberally designed. The cast iron enclosure of motors is built to withstand any internal explosion.

The gaps of joints & where the shaft passes through the frame are so dimensioned as to prevent transmission of igniting flame to the surrounding atmosphere. The motors are so designed that the frame temperature will remain below the ignition temperature of the gas-air mixture involved.

All cast iron parts forming the flameproof enclosure are tested at 14kg/cm² (required 10kg/cm²) hydraulic pressure. All the seats of joints are carefully machined to strict tolerances & rigidly inspected to ensure that the permissible gaps are not exceeded.

Flameproof motors are manufactured to serve the industries such as coalmines, refineries, petro-chemical industries where flammable gases, vapours, fumes & coal dust are natural atmospheric hazards.

The motors comply with Indian Standard IS: 2148-1981 for gas groups I, IIA, IIB & IIC. These motors can be used in all divisions I & certain division II areas as laid down in guide for selection of electrical equipment in hazardous area as per IS: 5571-1979.

VOLTAGE & FREQUENCY

The motors are designed for 3 phase 415V±10% & 50Hz±5% with combined variation of ±10%. Any other voltage &/or frequency is available upon request.

CABLE ENTRIES

Motors can be supplied with either conduit entry or cable entry system. Cable is suitable for paper insulated lead covered double wire armoured (PILCDWA) cables. Cable entry with flameproof cable glands can also be provided to suit PVC armoured mining cables.

PERFORMANCE

Performance is as per IS: 3682 for the motors used in underground mines & IS: 325 for any other industrial applications.

INSULATION & PROTECTION

Motors are designed with class F insulation having class B temp. rise & IP55 degree of protection as per IS: 4691.

MOUNTING

Standard mounting arrangements are foot mounted (B3) or flange mounted (B5). Any other than these can be provided on request.

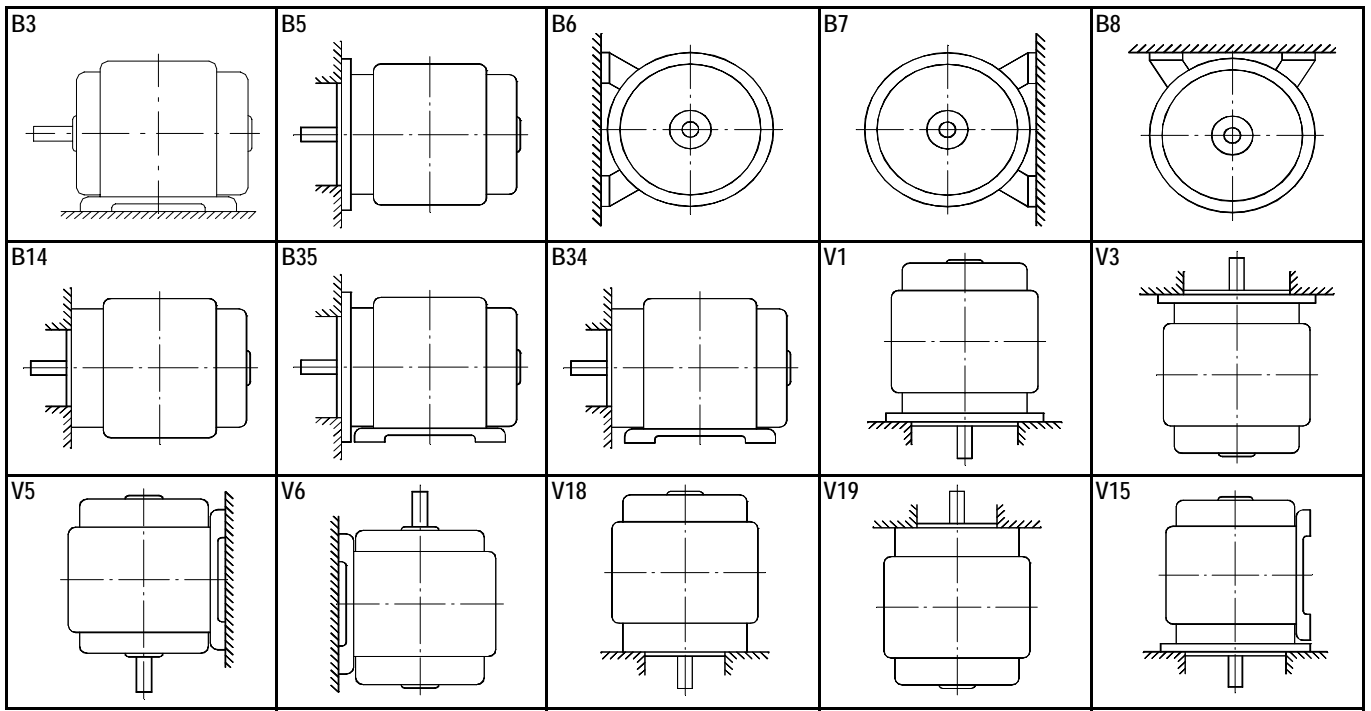
APPROVAL CERTIFICATES

- C. M. R. I. – Dhanbad
- D. G. F. A. S. L. & I. – Mumbai
- C. C. o E. – Nagpur
- BIS license IS: 2148-1981.

BEARING ARRANGEMENT

| Frame Size | Driving End | Non-Driving End | Regreasing Time (hrs) | |
|------------|-------------|-----------------|-----------------------|--------------|
| | | | 2 pole | 4, 6, 8 pole |
| 63 FLP | 6202ZZ | 6202ZZ | - | - |
| 71 FLP | 6203ZZ | 6203ZZ | - | - |
| 80 FLP | 6204ZZ | 6204ZZ | - | - |
| 90 FLP | 6205ZZ | 6205ZZ | - | - |
| 100L FLP | 6206ZZ | 6206ZZ | - | - |
| 112M FLP | 6306ZZ | 6206ZZ | - | - |
| 132M FLP | 6308ZZ | 6208ZZ | - | - |
| 160L FLP | 6309ZZ | 6309ZZ | - | - |
| 180L FLP | 6310ZZ | 6310ZZ | - | - |
| 200L FLP | 6312 | 6312 | 3,500 | 8,000 |
| 225M FLP | 6313 | 6313 | 3,500 | 8,000 |
| 250M FLP | 6315 | 6315 | 2,500 | 6,000 |
| 280M FLP | 6317 | 6317 | 2,000 | 5,000 |

MOUNTING POSITIONS



GROUP OF ENCLOSURES SUITABLE FOR PARTICULAR FLAMMABLE GAS OR VAPOUR AS PER IS: 2148-1981

| Group of Enclosure | Gas or Vapour | | | |
|--------------------|---------------------|---------------|---------------------|----------------|
| I | Methane (firedamp) | | | |
| IIA | Ammonia | Hexane | Acetone | Chloroethylene |
| | Industrial methane* | Heptane | Ethyl methyl ketone | Methanol |
| | Blast furnace gas | Iso octane | Methyl acetate | Ethanol |
| | Carbon monoxide | Decane | Ethyl acetate | Iso-butanol |
| | Propane | Benzene | n-Propyl acetate | n-Butanol |
| | Butane | Xylene | n-Butyl acetate | Amyl alcohol |
| | Pentane | Cyclohexene | Amyl acetate | Ethyl nitrate |
| IIB | 1,3-Butadiene | Diethyl ether | Ethylene oxide | Town gas** |
| | Ethelene | | | |
| IIC | Hydrogen | | | |

* Industrial methane includes methane mixed with not more than 10% by volume of hydrogen.

** Town gas may contain not more than 57% by volume of hydrogen & not more than 16% by volume of carbon monoxide. The remainder being the mixture of paraffin hydrocarbons & inert gas.

ELECTRICAL PERFORMANCE



2 POLE MOTOR

| Frame | Type Designation | Output | | Speed (rpm) | Curr. (A) | Torque (kgm) | Efficiency % | | | Power Factor | | | STA | STT | POT | GD ² (kgm ²) | Wt. (kg) |
|----------|------------------|--------|-------|-------------|-----------|--------------|--------------|------|------|--------------|------|------|-----|-----|-----|-------------------------------------|----------|
| | | KW | HP | | | | FL | 3/4L | 1/2L | FL | 3/4L | 1/2L | | | | | |
| 63 FLP | 2FD1 060-02 | 0.093 | 0.125 | 2720 | 0.36 | 0.03 | 60.0 | 57.0 | 50.0 | 0.60 | 0.52 | 0.40 | 4.0 | 2.0 | 2.3 | 0.0007 | 19 |
| 63 FLP | 2FD1 061-02 | 0.12 | 0.16 | 2750 | 0.45 | 0.04 | 62.0 | 60.0 | 54.0 | 0.60 | 0.52 | 0.40 | 4.0 | 2.0 | 2.3 | 0.0007 | 19 |
| 63 FLP | 2FD1 063-02 | 0.18 | 0.25 | 2780 | 0.50 | 0.06 | 65.0 | 65.0 | 58.0 | 0.77 | 0.71 | 0.57 | 4.7 | 2.0 | 2.3 | 0.0009 | 20 |
| 63 FLP | 2FD1 064-02 | 0.25 | 0.33 | 2790 | 0.67 | 0.09 | 66.0 | 66.0 | 60.0 | 0.79 | 0.69 | 0.57 | 4.7 | 2.0 | 2.3 | 0.0009 | 20 |
| 71 FLP | 2FD1 070-02 | 0.37 | 0.50 | 2790 | 0.91 | 0.13 | 67.0 | 66.0 | 61.0 | 0.84 | 0.78 | 0.68 | 4.7 | 2.4 | 2.7 | 0.0016 | 21 |
| 71 FLP | 2FD1 073-02 | 0.55 | 0.75 | 2815 | 1.25 | 0.19 | 72.5 | 72.0 | 64.0 | 0.84 | 0.79 | 0.71 | 4.7 | 2.4 | 2.7 | 0.0022 | 22 |
| 80 FLP | 2FD1 080-02 | 0.75 | 1.0 | 2845 | 1.7 | 0.26 | 73.5 | 72.0 | 67.0 | 0.84 | 0.80 | 0.73 | 5.5 | 2.3 | 2.6 | 0.0038 | 27 |
| 80 FLP | 2FD1 083-02 | 1.1 | 1.5 | 2850 | 2.3 | 0.38 | 77.0 | 74.0 | 70.0 | 0.86 | 0.82 | 0.75 | 5.5 | 2.3 | 2.6 | 0.0049 | 28 |
| 90 FLP | 2FD1 090-02 | 1.5 | 2.0 | 2860 | 3.1 | 0.51 | 78.5 | 75.0 | 68.0 | 0.86 | 0.77 | 0.61 | 6.0 | 2.5 | 3.0 | 0.0072 | 38 |
| 90 FLP | 2FD1 096-02 | 2.2 | 3.0 | 2880 | 4.3 | 0.74 | 81.0 | 78.5 | 72.5 | 0.88 | 0.80 | 0.70 | 6.0 | 2.5 | 3.0 | 0.0093 | 41 |
| 100L FLP | 2FD1 106-02 | 3.7 | 5.0 | 2900 | 7.1 | 1.24 | 84.0 | 84.0 | 82.0 | 0.86 | 0.83 | 0.75 | 6.0 | 2.5 | 3.0 | 0.0130 | 51 |
| 112M FLP | 2FD1 123-02 | 5.5 | 7.5 | 2905 | 10.0 | 1.84 | 85.7 | 85.7 | 82.0 | 0.89 | 0.86 | 0.78 | 6.0 | 2.5 | 3.0 | 0.0198 | 65 |
| 132M FLP | 2FD1 130-02 | 7.5 | 10.0 | 2910 | 13.3 | 2.51 | 87.0 | 86.0 | 84.0 | 0.90 | 0.87 | 0.81 | 6.0 | 2.3 | 2.8 | 0.0583 | 94 |
| 132M FLP | 2FD1 133-02 | 9.3 | 12.5 | 2915 | 16.4 | 3.11 | 87.0 | 87.0 | 85.0 | 0.91 | 0.87 | 0.81 | 6.0 | 2.3 | 2.8 | 0.0716 | 95 |
| 160L FLP | 2FD1 163-02 | 11.0 | 15.0 | 2920 | 20.0 | 3.67 | 88.5 | 87.5 | 85.5 | 0.86 | 0.84 | 0.79 | 6.5 | 2.2 | 2.5 | 0.1077 | 162 |
| 160L FLP | 2FD1 164-02 | 15.0 | 20.0 | 2925 | 26.5 | 4.99 | 89.5 | 88.5 | 86.0 | 0.88 | 0.86 | 0.80 | 6.5 | 2.2 | 2.5 | 0.1301 | 171 |
| 160L FLP | 2FD1 166-02 | 18.5 | 25.0 | 2930 | 32.0 | 6.15 | 90.0 | 89.5 | 87.0 | 0.89 | 0.86 | 0.81 | 6.5 | 2.2 | 2.5 | 0.1705 | 181 |
| 180L FLP | 2FD1 183-02 | 22.0 | 30.0 | 2935 | 37.0 | 7.30 | 91.0 | 90.0 | 88.0 | 0.91 | 0.87 | 0.81 | 6.5 | 2.2 | 2.5 | 0.3222 | 208 |
| 200L FLP | 2FD1 206-02 | 30.0 | 40.0 | 2950 | 51.0 | 9.91 | 91.5 | 91.0 | 90.0 | 0.89 | 0.87 | 0.82 | 6.5 | 2.2 | 2.5 | 0.4468 | 294 |
| 200L FLP | 2FD1 207-02 | 37.0 | 50.0 | 2950 | 62.0 | 12.22 | 92.0 | 92.0 | 91.0 | 0.90 | 0.88 | 0.83 | 6.5 | 2.2 | 2.5 | 0.5257 | 309 |
| 225M FLP | 2FD1 223-02 | 45.0 | 60.0 | 2955 | 74.0 | 14.83 | 92.5 | 92.5 | 91.5 | 0.91 | 0.89 | 0.85 | 6.5 | 2.2 | 2.5 | 0.7682 | 403 |
| 250M FLP | 2FD1 253-02 | 55.0 | 75.0 | 2965 | 91.0 | 18.07 | 93.0 | 92.5 | 91.0 | 0.90 | 0.88 | 0.84 | 6.5 | 2.2 | 2.5 | 1.0690 | 528 |
| 280S FLP | 2FD1 280-02 | 75.0 | 100.0 | 2975 | 124.0 | 24.55 | 93.5 | 93.0 | 92.0 | 0.90 | 0.87 | 0.83 | 6.5 | 2.2 | 2.5 | 2.5414 | |
| 280M FLP | 2FD1 283-02 | 90.0 | 120.0 | 2975 | 148.0 | 29.47 | 94.0 | 93.5 | 92.5 | 0.90 | 0.87 | 0.83 | 6.5 | 2.2 | 2.5 | 2.9368 | |

6 POLE MOTOR

| Frame | Type Designation | Output | | Speed (rpm) | Curr. (A) | Torque (kgm) | Efficiency % | | | Power Factor | | | STA | STT | POT | GD ² (kgm ²) | Wt. (kg) |
|-----------|------------------|--------|-------|-------------|-----------|--------------|--------------|------|------|--------------|------|------|-----|-----|-----|-------------------------------------|----------|
| | | KW | HP | | | | FL | 3/4L | 1/2L | FL | 3/4L | 1/2L | | | | | |
| 71 FLP | 2FD1 070-06 | 0.093 | 0.125 | 870 | 0.45 | 0.10 | 52.0 | 49.0 | 40.0 | 0.55 | 0.44 | 0.33 | 3.0 | 2.0 | 2.1 | 0.0024 | 20 |
| 71 FLP | 2FD1 071-06 | 0.12 | 0.16 | 880 | 0.55 | 0.13 | 55.0 | 52.0 | 41.0 | 0.55 | 0.45 | 0.34 | 3.0 | 2.0 | 2.1 | 0.0024 | 20 |
| 71 FLP | 2FD1 073-06 | 0.18 | 0.25 | 900 | 0.65 | 0.19 | 60.0 | 55.0 | 42.0 | 0.64 | 0.55 | 0.38 | 3.0 | 2.0 | 2.1 | 0.0033 | 21 |
| 71 FLP | 2FD1 074-06 | 0.25 | 0.33 | 905 | 0.85 | 0.27 | 64.0 | 59.0 | 44.0 | 0.64 | 0.55 | 0.38 | 3.0 | 2.0 | 2.1 | 0.0033 | 21 |
| 80 FLP | 2FD1 080-06 | 0.37 | 0.50 | 915 | 1.10 | 0.39 | 67.0 | 66.0 | 63.0 | 0.70 | 0.63 | 0.51 | 4.0 | 2.0 | 2.1 | 0.0049 | 27 |
| 80 FLP | 2FD1 083-06 | 0.55 | 0.75 | 920 | 1.55 | 0.58 | 70.0 | 69.0 | 66.0 | 0.71 | 0.63 | 0.51 | 4.0 | 2.0 | 2.1 | 0.0063 | 28 |
| 90 FLP | 2FD1 090-06 | 0.75 | 1.0 | 925 | 2.0 | 0.79 | 72.0 | 71.0 | 66.0 | 0.72 | 0.64 | 0.52 | 5.0 | 2.2 | 2.4 | 0.0095 | 38 |
| 90 FLP | 2FD1 096-06 | 1.1 | 1.5 | 930 | 2.9 | 1.15 | 75.0 | 74.0 | 69.0 | 0.70 | 0.58 | 0.42 | 5.0 | 2.2 | 2.4 | 0.0122 | 41 |
| 100L FLP | 2FD1 106-06 | 1.5 | 2.0 | 940 | 3.5 | 1.55 | 76.0 | 75.0 | 71.0 | 0.78 | 0.73 | 0.60 | 5.0 | 2.0 | 2.3 | 0.0269 | 51 |
| 112M FLP | 2FD1 123-06 | 2.2 | 3.0 | 945 | 4.9 | 2.27 | 80.0 | 79.5 | 75.5 | 0.78 | 0.70 | 0.55 | 5.0 | 2.0 | 2.3 | 0.0047 | 63 |
| 132M FLP | 2FD1 130-06 | 3.7 | 5.0 | 950 | 7.5 | 3.79 | 82.5 | 82.5 | 81.5 | 0.83 | 0.73 | 0.64 | 5.0 | 2.0 | 2.3 | 0.0826 | 87 |
| 132M FLP | 2FD1 133-06 | 5.5 | 7.5 | 950 | 11.0 | 5.64 | 85.0 | 85.0 | 83.5 | 0.82 | 0.77 | 0.67 | 5.0 | 2.0 | 2.3 | 0.1156 | 94 |
| 160L FLP | 2FD1 163-06 | 7.5 | 10.0 | 960 | 15.0 | 7.61 | 87.0 | 87.0 | 84.5 | 0.80 | 0.76 | 0.68 | 5.5 | 2.0 | 2.3 | 0.2625 | 162 |
| 160L FLP | 2FD1 166-06 | 9.3 | 12.5 | 965 | 17.5 | 9.39 | 88.0 | 88.0 | 85.0 | 0.84 | 0.81 | 0.70 | 5.5 | 2.0 | 2.3 | 0.3440 | 169 |
| 160L FLP | 2FD1 167-06 | 11.0 | 15.0 | 970 | 20.5 | 11.05 | 88.5 | 88.5 | 87.5 | 0.84 | 0.81 | 0.70 | 5.5 | 2.0 | 2.3 | 0.3440 | 169 |
| 180L FLP | 2FD1 186-06 | 15.0 | 20.0 | 970 | 27.5 | 15.06 | 89.5 | 89.5 | 88.0 | 0.85 | 0.82 | 0.72 | 5.5 | 2.0 | 2.3 | 0.5949 | 213 |
| 200L FLP | 2FD1 206-06 | 18.5 | 25.0 | 975 | 34.0 | 18.48 | 90.5 | 90.5 | 89.0 | 0.84 | 0.82 | 0.73 | 5.5 | 2.0 | 2.3 | 0.8605 | 286 |
| 200L FLP | 2FD1 207-06 | 22.0 | 30.0 | 975 | 40.0 | 21.98 | 91.0 | 91.0 | 90.5 | 0.84 | 0.82 | 0.73 | 5.5 | 2.0 | 2.3 | 1.0123 | 301 |
| 225MX FLP | 2FD1 223-06 | 30.0 | 40.0 | 980 | 54.0 | 29.82 | 92.0 | 92.0 | 90.5 | 0.84 | 0.82 | 0.74 | 6.0 | 2.0 | 2.3 | 1.8378 | 421 |
| 250MX FLP | 2FD1 253-06 | 37.0 | 50.0 | 982 | 66.5 | 36.70 | 92.5 | 92.5 | 90.5 | 0.84 | 0.82 | 0.74 | 6.0 | 2.0 | 2.3 | 2.5127 | 560 |
| 280SX FLP | 2FD1 280-06 | 45.0 | 60.0 | 983 | 79.0 | 44.59 | 93.0 | 93.0 | 92.0 | 0.85 | 0.83 | 0.75 | 6.0 | 2.1 | 2.4 | 4.3751 | |
| 280MX FLP | 2FD1 283-06 | 55.0 | 75.0 | 983 | 96.0 | 54.50 | 93.0 | 93.0 | 92.0 | 0.86 | 0.84 | 0.76 | 6.0 | 2.1 | 2.4 | 5.2502 | |

ELECTRICAL PERFORMANCE



4 POLE MOTOR

| Frame | Type Designation | Output | | Speed (rpm) | Curr. (A) | Torque (kgm) | Efficiency % | | | Power Factor | | | STA | STT | POT | GD ² (kgm ²) | Wt. (kg) |
|-----------|------------------|--------|-------|-------------|-----------|--------------|--------------|------|------|--------------|------|------|-----|-----|-----|-------------------------------------|----------|
| | | KW | HP | | | | FL | 3/4L | 1/2L | FL | 3/4L | 1/2L | | | | | |
| 63 FLP | 2FD1 060-04 | 0.093 | 0.125 | 1340 | 0.42 | 0.07 | 53.0 | 50.0 | 41.0 | 0.58 | 0.49 | 0.40 | 3.5 | 1.9 | 2.1 | 0.0008 | 19 |
| 63 FLP | 2FD1 061-04 | 0.12 | 0.16 | 1350 | 0.52 | 0.09 | 56.0 | 52.0 | 43.0 | 0.57 | 0.48 | 0.40 | 3.5 | 1.9 | 2.1 | 0.0008 | 19 |
| 63 FLP | 2FD1 063-04 | 0.18 | 0.25 | 1360 | 0.57 | 0.13 | 60.0 | 53.0 | 38.0 | 0.73 | 0.58 | 0.45 | 3.5 | 1.9 | 2.1 | 0.0010 | 20 |
| 71 FLP | 2FD1 070-04 | 0.25 | 0.33 | 1370 | 0.76 | 0.18 | 62.0 | 61.0 | 53.0 | 0.74 | 0.63 | 0.47 | 3.5 | 1.9 | 2.1 | 0.0016 | 20 |
| 71 FLP | 2FD1 073-04 | 0.37 | 0.50 | 1380 | 1.05 | 0.26 | 66.0 | 65.0 | 58.0 | 0.74 | 0.64 | 0.53 | 3.5 | 1.9 | 2.1 | 0.0022 | 20 |
| 80 FLP | 2FD1 080-04 | 0.55 | 0.75 | 1410 | 1.45 | 0.38 | 73.0 | 72.0 | 69.0 | 0.72 | 0.62 | 0.52 | 4.3 | 2.0 | 2.3 | 0.0038 | 26 |
| 80 FLP | 2FD1 083-04 | 0.75 | 1.0 | 1415 | 1.75 | 0.52 | 74.0 | 73.0 | 68.0 | 0.81 | 0.70 | 0.55 | 4.5 | 2.0 | 2.3 | 0.0049 | 27 |
| 90 FLP | 2FD1 090-04 | 1.1 | 1.5 | 1415 | 2.5 | 0.76 | 76.5 | 76.0 | 74.0 | 0.80 | 0.70 | 0.55 | 5.0 | 2.2 | 2.5 | 0.0072 | 38 |
| 90 FLP | 2FD1 096-04 | 1.5 | 2.0 | 1420 | 3.3 | 1.03 | 79.0 | 79.0 | 77.0 | 0.80 | 0.70 | 0.55 | 5.0 | 2.2 | 2.5 | 0.0093 | 40 |
| 100L FLP | 2FD1 106-04 | 2.2 | 3.0 | 1430 | 4.4 | 1.50 | 82.0 | 82.0 | 80.0 | 0.85 | 0.81 | 0.63 | 5.5 | 2.2 | 2.5 | 0.0182 | 50 |
| 112M FLP | 2FD1 123-04 | 3.7 | 5.0 | 1440 | 7.2 | 2.50 | 85.0 | 85.0 | 84.0 | 0.84 | 0.78 | 0.70 | 5.5 | 2.2 | 2.5 | 0.0342 | 64 |
| 132M FLP | 2FD1 130-04 | 5.5 | 7.5 | 1450 | 10.6 | 3.69 | 87.0 | 87.0 | 86.0 | 0.83 | 0.78 | 0.63 | 5.5 | 2.3 | 2.5 | 0.0676 | 92 |
| 132M FLP | 2FD1 133-04 | 7.5 | 10.0 | 1450 | 14.2 | 5.04 | 87.0 | 87.0 | 86.0 | 0.84 | 0.79 | 0.69 | 5.5 | 2.3 | 2.5 | 0.0912 | 93 |
| 160L FLP | 2FD1 163-04 | 9.3 | 12.5 | 1455 | 17.2 | 6.23 | 88.0 | 88.0 | 87.0 | 0.85 | 0.77 | 0.66 | 6.0 | 2.2 | 2.5 | 0.1404 | 160 |
| 160L FLP | 2FD1 164-04 | 11.0 | 15.0 | 1455 | 20.8 | 7.36 | 89.0 | 89.0 | 87.0 | 0.83 | 0.75 | 0.66 | 6.0 | 2.2 | 2.5 | 0.1696 | 167 |
| 160L FLP | 2FD1 166-04 | 15.0 | 20.0 | 1455 | 27.0 | 10.04 | 90.0 | 90.5 | 89.0 | 0.86 | 0.84 | 0.75 | 6.0 | 2.2 | 2.5 | 0.2222 | 181 |
| 180L FLP | 2FD1 183-04 | 18.5 | 25.0 | 1460 | 34.0 | 12.34 | 90.5 | 90.5 | 89.5 | 0.84 | 0.81 | 0.74 | 6.0 | 2.2 | 2.5 | 0.3222 | 204 |
| 180L FLP | 2FD1 186-04 | 22.0 | 30.0 | 1460 | 39.0 | 14.68 | 91.0 | 91.0 | 90.0 | 0.86 | 0.82 | 0.76 | 6.0 | 2.2 | 2.5 | 0.3790 | 215 |
| 200L FLP | 2FD1 206-04 | 30.0 | 40.0 | 1465 | 52.0 | 19.95 | 92.0 | 92.0 | 91.0 | 0.87 | 0.84 | 0.77 | 6.0 | 2.2 | 2.5 | 0.8066 | 308 |
| 225MX FLP | 2FD1 220-04 | 37.0 | 50.0 | 1470 | 64.0 | 24.52 | 92.5 | 92.5 | 91.5 | 0.87 | 0.85 | 0.79 | 6.0 | 2.2 | 2.5 | 1.2224 | 411 |
| 225MX FLP | 2FD1 223-04 | 45.0 | 60.0 | 1475 | 77.0 | 29.72 | 93.0 | 93.0 | 92.0 | 0.87 | 0.85 | 0.79 | 6.0 | 2.2 | 2.5 | 1.4552 | 423 |
| 250MX FLP | 2FD1 253-04 | 55.0 | 75.0 | 1480 | 92.0 | 36.20 | 94.0 | 94.0 | 93.0 | 0.88 | 0.87 | 0.82 | 6.0 | 2.2 | 2.5 | 2.2563 | 536 |
| 280SX FLP | 2FD1 280-04 | 75.0 | 100.0 | 1482 | 130.0 | 49.29 | 94.0 | 94.0 | 93.0 | 0.85 | 0.83 | 0.80 | 6.0 | 2.2 | 2.5 | 3.9994 | |
| 280MX FLP | 2FD1 283-04 | 90.0 | 120.0 | 1482 | 155.0 | 59.15 | 94.5 | 94.5 | 93.5 | 0.85 | 0.83 | 0.80 | 6.0 | 2.2 | 2.5 | 4.7993 | |

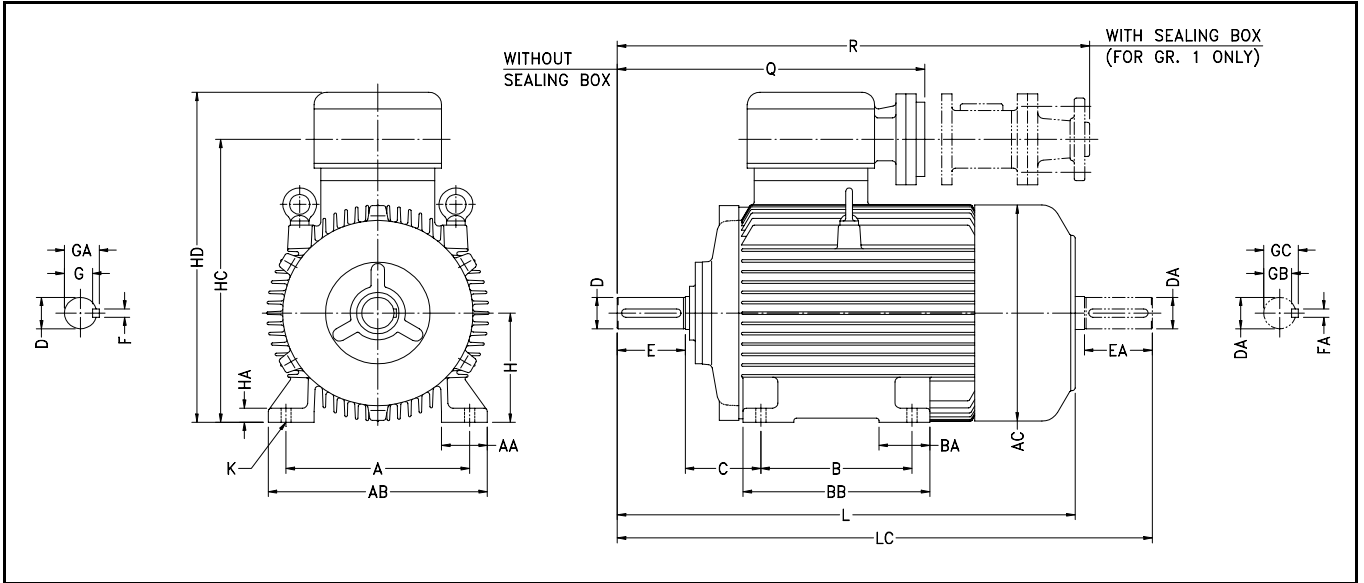
8 POLE MOTOR

| Frame | Type Designation | Output | | Speed (rpm) | Curr. (A) | Torque (kgm) | Efficiency % | | | Power Factor | | | STA | STT | POT | GD ² (kgm ²) | Wt. (kg) |
|-----------|------------------|--------|-------|-------------|-----------|--------------|--------------|------|------|--------------|------|------|-----|-----|-----|-------------------------------------|----------|
| | | KW | HP | | | | FL | 3/4L | 1/2L | FL | 3/4L | 1/2L | | | | | |
| 71 FLP | 2FD1 070-08 | 0.093 | 0.125 | 665 | 0.55 | 0.14 | 47.0 | 43.0 | 35.0 | 0.50 | 0.44 | 0.33 | 2.5 | 1.5 | 1.7 | 0.0024 | 21 |
| 71 FLP | 2FD1 073-08 | 0.12 | 0.16 | 665 | 0.65 | 0.18 | 50.0 | 46.0 | 38.0 | 0.51 | 0.45 | 0.35 | 2.5 | 1.5 | 1.7 | 0.0033 | 21 |
| 80 FLP | 2FD1 080-08 | 0.18 | 0.25 | 685 | 0.80 | 0.26 | 54.0 | 49.0 | 41.0 | 0.58 | 0.49 | 0.40 | 3.0 | 1.6 | 1.8 | 0.0049 | 28 |
| 80 FLP | 2FD1 083-08 | 0.25 | 0.33 | 690 | 1.05 | 0.35 | 57.0 | 54.0 | 45.0 | 0.58 | 0.49 | 0.40 | 3.0 | 1.6 | 1.8 | 0.0063 | 29 |
| 90 FLP | 2FD1 090-08 | 0.37 | 0.50 | 690 | 1.30 | 0.52 | 64.0 | 62.0 | 55.0 | 0.62 | 0.53 | 0.43 | 3.5 | 1.7 | 1.9 | 0.0095 | 38 |
| 90 FLP | 2FD1 096-08 | 0.55 | 0.75 | 690 | 1.85 | 0.78 | 67.0 | 66.0 | 61.0 | 0.62 | 0.53 | 0.43 | 3.5 | 1.7 | 1.9 | 0.0122 | 40 |
| 100L FLP | 2FD1 106-08 | 0.75 | 1.0 | 700 | 2.1 | 1.04 | 72.0 | 71.0 | 66.0 | 0.69 | 0.59 | 0.46 | 4.0 | 1.8 | 2.0 | 0.0228 | 48 |
| 100L FLP | 2FD1 107-08 | 1.1 | 1.5 | 700 | 3.0 | 1.53 | 74.0 | 73.0 | 71.0 | 0.69 | 0.60 | 0.48 | 4.0 | 1.8 | 2.0 | 0.0296 | 50 |
| 112M FLP | 2FD1 123-08 | 1.5 | 2.0 | 705 | 3.9 | 2.07 | 77.0 | 77.0 | 74.0 | 0.69 | 0.64 | 0.51 | 4.0 | 1.9 | 2.1 | 0.0467 | 63 |
| 132M FLP | 2FD1 130-08 | 2.2 | 3.0 | 710 | 5.2 | 3.02 | 79.0 | 79.0 | 76.0 | 0.75 | 0.65 | 0.52 | 5.0 | 2.2 | 2.4 | 0.0826 | 86 |
| 132M FLP | 2FD1 133-08 | 3.7 | 5.0 | 710 | 8.6 | 5.08 | 81.0 | 81.0 | 79.0 | 0.74 | 0.65 | 0.52 | 5.0 | 2.2 | 2.4 | 0.1156 | 93 |
| 160L FLP | 2FD1 163-08 | 5.5 | 7.5 | 720 | 12.0 | 7.44 | 86.0 | 86.0 | 83.0 | 0.74 | 0.68 | 0.58 | 5.0 | 2.0 | 2.2 | 0.2565 | 168 |
| 160L FLP | 2FD1 166-08 | 7.5 | 10.0 | 720 | 15.7 | 10.15 | 87.0 | 87.0 | 85.0 | 0.76 | 0.71 | 0.58 | 5.0 | 2.0 | 2.2 | 0.3440 | 182 |
| 180L FLP | 2FD1 183-08 | 9.3 | 12.5 | 725 | 20.0 | 12.49 | 87.5 | 87.5 | 85.0 | 0.74 | 0.70 | 0.57 | 5.0 | 2.0 | 2.2 | 0.5057 | 202 |
| 180L FLP | 2FD1 186-08 | 11.0 | 15.0 | 725 | 24.0 | 14.78 | 88.0 | 88.0 | 85.0 | 0.72 | 0.68 | 0.55 | 5.0 | 2.0 | 2.2 | 0.5949 | 213 |
| 200L FLP | 2FD1 206-08 | 15.0 | 20.0 | 725 | 31.0 | 20.15 | 88.5 | 88.0 | 86.0 | 0.76 | 0.72 | 0.60 | 5.0 | 2.0 | 2.2 | 1.0123 | 300 |
| 225MX FLP | 2FD1 220-08 | 18.5 | 25.0 | 728 | 37.0 | 24.75 | 89.5 | 89.5 | 88.0 | 0.78 | 0.74 | 0.68 | 5.0 | 2.0 | 2.2 | 1.5437 | 407 |
| 225MX FLP | 2FD1 223-08 | 22.0 | 30.0 | 730 | 44.0 | 29.35 | 90.5 | 90.5 | 89.0 | 0.77 | 0.73 | 0.68 | 5.0 | 2.0 | 2.2 | 1.8378 | 419 |
| 250MX FLP | 2FD1 253-08 | 30.0 | 40.0 | 730 | 60.0 | 40.03 | 91.0 | 91.0 | 89.5 | 0.76 | 0.73 | 0.67 | 5.0 | 2.0 | 2.2 | 2.5127 | 553 |
| 280SX FLP | 2FD1 280-08 | 37.0 | 50.0 | 735 | 71.0 | 49.03 | 92.0 | 92.0 | 90.0 | 0.79 | 0.76 | 0.66 | 5.0 | 2.0 | 2.2 | 4.8613 | |
| 280MX FLP | 2FD1 283-08 | 45.0 | 60.0 | 735 | 88.0 | 59.63 | 92.5 | 92.5 | 91.5 | 0.77 | 0.74 | 0.64 | 5.0 | 2.0 | 2.2 | 5.8335 | |

All figures are subject to tolerance as per IS: 325.

MECHANICAL DIMENSIONS

DIMENSIONS OF FOOT MOUNTED MOTORS (B3)

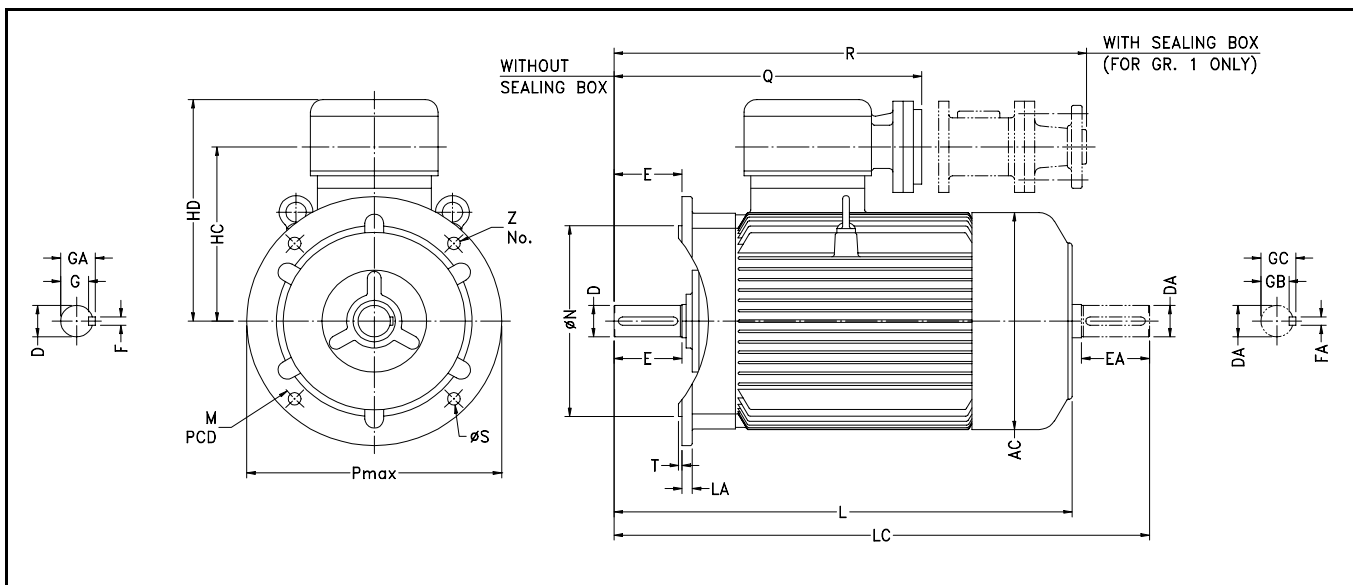


| Frame Size | A | B | C | H | K | L | LC | AA | AB | BB | BA | AC | HA | HC | HD | Q | R | D, DA | E, EA | F, FA | GA, GC | G, GB |
|------------|-----|-----|-----|-----|----|------|------|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-------|-------|-------|--------|-------|
| 63 FLP | 100 | 80 | 40 | 63 | 7 | 242 | 270 | 30 | 128 | 102 | 32 | 124 | 9 | 188 | 225 | 210 | 310 | 11 | 23 | 4 | 12.5 | 8.5 |
| 71 FLP | 112 | 90 | 45 | 71 | 7 | 284 | 319 | 35 | 140 | 112 | 35 | 140 | 10 | 205 | 247 | 225 | 322 | 14 | 30 | 5 | 16 | 11 |
| 80 FLP | 125 | 100 | 50 | 80 | 10 | 305 | 355 | 38 | 156 | 130 | 40 | 162 | 12 | 225 | 265 | 245 | 342 | 19 | 40 | 6 | 21.5 | 15.5 |
| 90 FLP | 140 | 125 | 56 | 90 | 10 | 375 | 435 | 40 | 180 | 155 | 48 | 182 | 12 | 260 | 316 | 305 | 460 | 24 | 50 | 8 | 27 | 20 |
| 100L FLP | 160 | 140 | 63 | 100 | 12 | 417 | 482 | 45 | 200 | 170 | 50 | 198 | 14 | 277 | 334 | 325 | 480 | 28 | 60 | 8 | 31 | 24 |
| 112M FLP | 190 | 140 | 70 | 112 | 12 | 438 | 505 | 53 | 226 | 180 | 55 | 226 | 15 | 302 | 358 | 325 | 480 | 28 | 60 | 8 | 31 | 24 |
| 132M FLP | 216 | 178 | 89 | 132 | 12 | 540 | 630 | 64 | 258 | 220 | 60 | 266 | 17 | 342 | 400 | 365 | 520 | 38 | 80 | 10 | 41 | 33 |
| 160L FLP | 254 | 254 | 108 | 160 | 15 | 666 | 786 | 72 | 320 | 306 | 78 | 330 | 25 | 400 | 460 | 454 | 630 | 42 | 110 | 12 | 45 | 37 |
| 180L FLP | 279 | 279 | 121 | 180 | 15 | 765 | 885 | 80 | 355 | 340 | 95 | 360 | 25 | 450 | 515 | 500 | 680 | 48 | 110 | 14 | 51.5 | 42.5 |
| 200L FLP | 318 | 305 | 133 | 200 | 19 | 820 | 940 | 82 | 398 | 370 | 95 | 400 | 28 | 495 | 565 | 535 | 695 | 55 | 110 | 16 | 59 | 49 |
| 225M FLP | 356 | 311 | 149 | 225 | 19 | 886 | 1006 | 97 | 440 | 379 | 123 | 440 | 30 | 544 | 615 | 532 | 692 | 55 | 110 | 16 | 59 | 49 |
| 225MX FLP | | | | | | 916 | 1066 | | | | | | | | | 562 | 722 | | | | | |
| 250M FLP | 406 | 349 | 168 | 250 | 24 | 1010 | 1160 | 109 | 496 | 439 | 120 | 484 | 33 | 594 | 665 | 569 | 729 | 60 | 140 | 18 | 64 | 53 |
| 250MX FLP | | | | | | | | | | | | | | | | | | 65 | | | | |
| 280S FLP | 457 | 368 | 190 | 280 | 24 | 1130 | 1280 | 120 | 557 | 519 | 170 | 543 | 40 | 700 | 797 | 689 | - | 65 | 140 | 18 | 69 | 58 |
| 280M FLP | | 419 | | | | | | | | | | | | | | | | | | | | |
| 280SX FLP | | 368 | | | | | | | | | | | | | | | | | | | | |
| 280MX FLP | | 419 | | | | | | | | | | | | | | | | 75 | | | | |

Suffix "X" denotes motors other than 2 pole motors.

MECHANICAL DIMENSIONS

DIMENSIONS OF FLANGE MOUNTED MOTORS (B5)

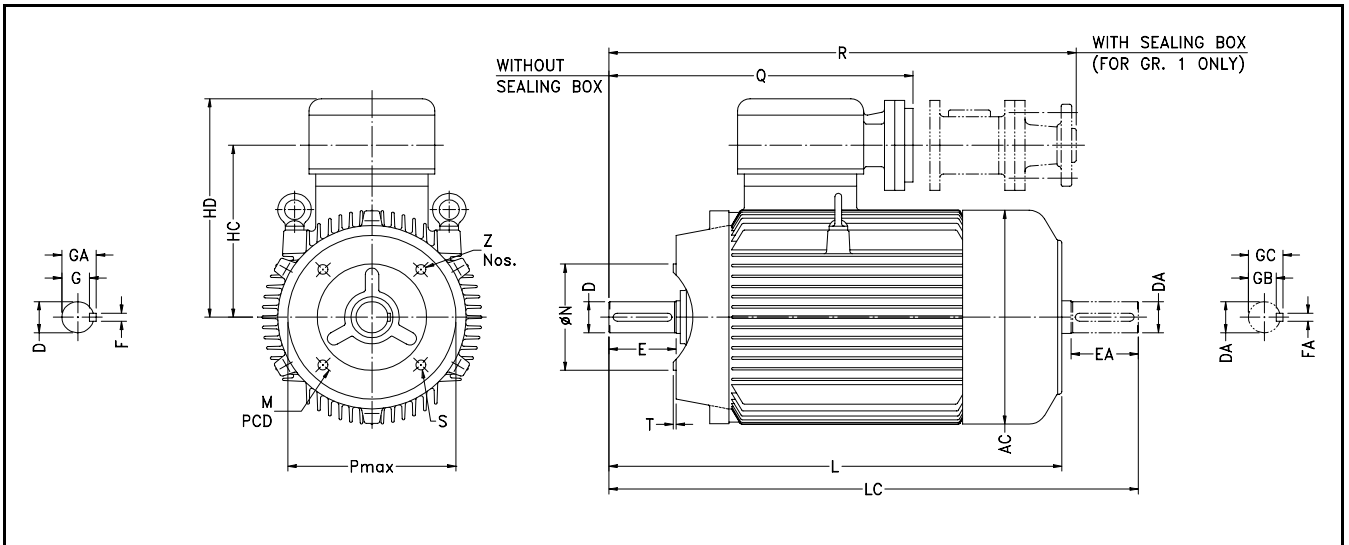


| Frame Size | L | LC | AC | HC | HD | Q | R | D, DA | E, EA | F, FA | GA, GC | G, GB | P max | M PCD | øN | øS | Z No. | T max | LA | |
|------------|------|------|-----|-----|-----|-----|-----|-------|-------|-------|--------|-------|-------|-------|-----|----|-------|-------|----|----|
| 63 FLP | 242 | 270 | 124 | 125 | 162 | 210 | 310 | 11 | 23 | 4 | 12.5 | 8.5 | 140 | 115 | 95 | 10 | 4 | 3 | 9 | |
| 71 FLP | 284 | 319 | 140 | 134 | 176 | 225 | 322 | 14 | 30 | 5 | 16 | 11 | 160 | 130 | 110 | 10 | 4 | 3.5 | 9 | |
| 80 FLP | 305 | 355 | 162 | 145 | 185 | 245 | 342 | 19 | 40 | 6 | 21.5 | 15.5 | 200 | 165 | 130 | 12 | 4 | 3.5 | 10 | |
| 90 FLP | 375 | 435 | 182 | 170 | 226 | 305 | 460 | 24 | 50 | 8 | 27 | 20 | 200 | 165 | 130 | 12 | 4 | 3.5 | 10 | |
| 100L FLP | 417 | 482 | 198 | 177 | 234 | 325 | 480 | 28 | 60 | 8 | 31 | 24 | 250 | 215 | 180 | 15 | 4 | 4 | 11 | |
| 112M FLP | 438 | 505 | 226 | 190 | 246 | 325 | 480 | 28 | 60 | 8 | 31 | 24 | 250 | 215 | 180 | 15 | 4 | 4 | 11 | |
| 132M FLP | 540 | 630 | 266 | 210 | 268 | 365 | 520 | 38 | 80 | 10 | 41 | 33 | 300 | 265 | 230 | 15 | 4 | 4 | 12 | |
| 160L FLP | 666 | 786 | 330 | 240 | 300 | 454 | 630 | 42 | 110 | 12 | 45 | 37 | 350 | 300 | 250 | 19 | 4 | 5 | 13 | |
| 180L FLP | 765 | 885 | 360 | 270 | 335 | 500 | 680 | 48 | 110 | 14 | 51.5 | 42.5 | 350 | 300 | 250 | 19 | 4 | 5 | 13 | |
| 200L FLP | 820 | 940 | 400 | 295 | 365 | 535 | 695 | 55 | 110 | 16 | 59 | 49 | 400 | 350 | 300 | 19 | 4 | 5 | 15 | |
| 225M FLP | 886 | 1006 | 440 | 544 | 615 | 532 | 692 | 55 | 110 | 16 | 59 | 49 | 450 | 400 | 350 | 19 | 8 | 5 | 16 | |
| 225MX FLP | 916 | 1066 | | | | 562 | 722 | 60 | 140 | 18 | 64 | 53 | | | | | | | | |
| 250M FLP | 1010 | 1160 | 484 | 594 | 665 | 569 | 729 | 60 | 140 | 18 | 64 | 53 | 550 | 500 | 450 | 24 | 8 | 5 | 18 | |
| 250MX FLP | | | | | | | | 65 | | | 69 | 58 | | | | | | | | |
| 280S FLP | 1130 | 1280 | 543 | 420 | 517 | 689 | - | 65 | 140 | 18 | 69 | 58 | 550 | 500 | 450 | 24 | 8 | 5 | 18 | |
| 280M FLP | | | | | | | | 75 | | | 20 | 80 | | | | | | | | 68 |
| 280SX FLP | | | | | | | | 75 | | | 20 | 80 | | | | | | | | 68 |
| 280MX FLP | | | | | | | | 75 | | | 20 | 80 | | | | | | | | 68 |

Suffix "X" denotes motors other than 2 pole motors.

MECHANICAL DIMENSIONS

DIMENSIONS OF FACE MOUNTED MOTORS (B14)



| Frame Size | L | LC | AC | HC | HD | Q | R | D, DA | E, EA | F, FA | GA, GC | G, GB | P max | M PCD | øN | S | Z No. | T |
|------------|-----|-----|-----|-----|-----|-----|-----|-------|-------|-------|--------|-------|-------|-------|-----|-----|-------|-----|
| 63 FLP | 242 | 270 | 124 | 125 | 162 | 210 | 310 | 11 | 23 | 4 | 12.5 | 8.5 | 90 | 75 | 60 | M5 | 4 | 2.5 |
| 71 FLP | 284 | 319 | 140 | 134 | 176 | 225 | 322 | 14 | 30 | 5 | 16 | 11 | 105 | 85 | 70 | M6 | 4 | 2.5 |
| 80 FLP | 305 | 355 | 162 | 145 | 185 | 245 | 342 | 19 | 40 | 6 | 21.5 | 15.5 | 120 | 100 | 80 | M6 | 4 | 3.0 |
| 90 FLP | 375 | 435 | 182 | 170 | 226 | 305 | 460 | 24 | 50 | 8 | 27 | 20 | 140 | 115 | 95 | M8 | 4 | 3.0 |
| 100L FLP | 417 | 482 | 198 | 177 | 234 | 325 | 480 | 28 | 60 | 8 | 31 | 24 | 160 | 130 | 110 | M8 | 4 | 3.5 |
| 112M FLP | 438 | 505 | 226 | 190 | 246 | 325 | 480 | 28 | 60 | 8 | 31 | 24 | 160 | 130 | 110 | M8 | 4 | 3.5 |
| 132M FLP | 540 | 630 | 266 | 210 | 268 | 365 | 520 | 38 | 80 | 10 | 41 | 33 | 200 | 165 | 130 | M12 | 4 | 3.5 |



Admin. Office:

P. O. Box 18701, 32/A, Vidyavilla Comp., Old Nagardas Road, Andheri (East), Mumbai 400069.

Tel.: 2838 0080, 2838 0081, 2836 0651, 2820 1316.

Fax: 022-28380947. Email: sales@hindmotors.com

Website: www.hindmotors.com

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