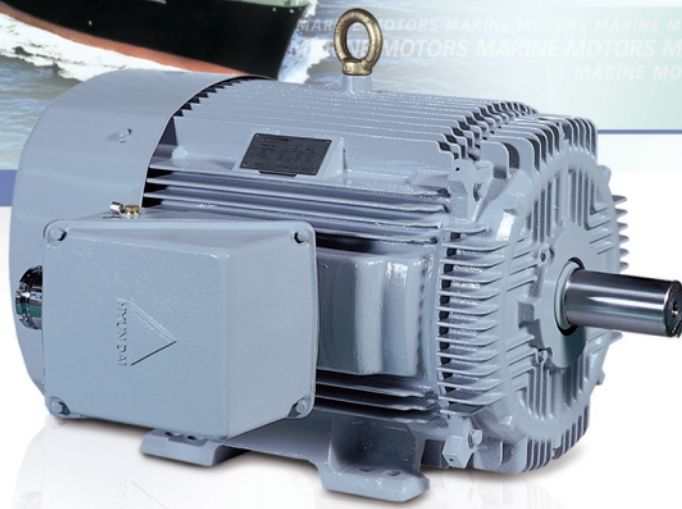




Medium & Low Voltage

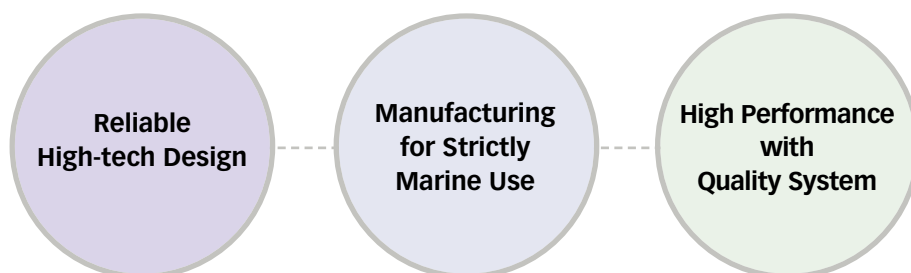
Marine Motors

Three Phase Induction Motors



Marine Motors

Combined with Experience and Technology in the Fields of Motors and Ships



Approved Products by Major Classifications

| | |
|---|---|
| ABS American Bureau of Shipping | KF Korean Fishing Vessel Society |
| BV Bureau Veritas | KR Korean Register of Shipping |
| CCS China Classification Society | LR Lloyd's Register of Shipping |
| DNV Det Norske Veritas | NK Nippon Kaiji Kyokai |
| GL Germanischer Lloyd | RINA Registro Italiano Navale |



C O N T E N T S

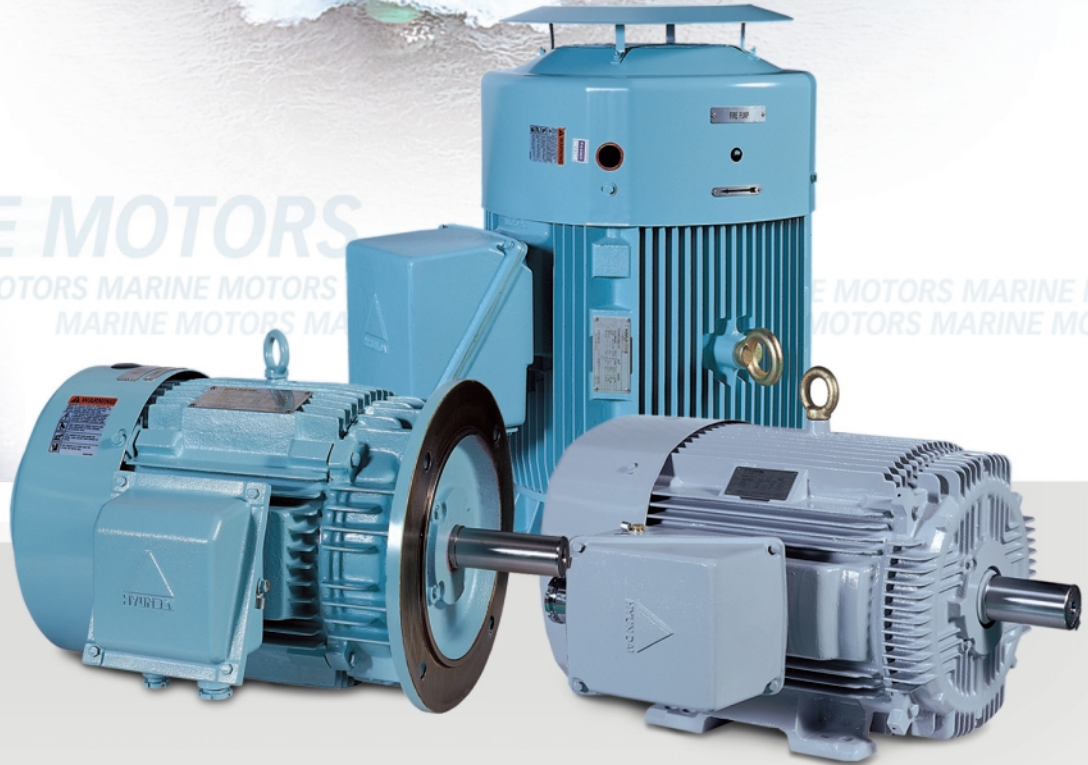
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MARINE MOTORS

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Features

Application of IEC Dimensions

Hyundai marine motors are designed and manufactured to meet the internationally interchangeable dimensions and characteristics according to IEC standards.

Insulation System

All Hyundai marine motors are applying a class F insulation system.

Others

- ▶ Aluminum die cast rotor with up to 400 kW
- ▶ Marine-use IP44 and IP22 enclosure for engine room
- ▶ Regreasable antifriction bearing for frame size 225 and above

Characteristics

Rating

Continuous operation in ambient temperatures of specified classification (IEC 60072 and JEM 1277)

Voltage and Frequency Variation

Hyundai standard motors will operate satisfactorily with a voltage variation not exceeding $\pm 10\%$ of the rated voltage, and the frequency varies within $\pm 5\%$ of the rated frequency.

Vibration

Vibration is in accordance with IEC 60034 and NEMA MG-1.

Temperature Rise

- ▶ Maximum allowable temperature : 155 °C
- ▶ Temperature rise limits : 95 °C or 100 °C (by the resistance method)

Noise Level

Hyundai motors are designed in accordance with IEC 60034-9 and JEM 1277 to minimize the noise level

Bearings

All motors are provided with antifriction bearings as standard which are designed for L-10 life of 40,000 hours in a normal direct coupled condition.

Others

Other characteristic values such as efficiency, power factor at rated output, no-load current, slip, current, torque, ect. are in compliance with IEC and JEM.

Special Application

Hyundai motors are flexibly applicable to Steering gear, oil purifier, provision crane, turning gear, auxiliary blower for engine, deck machinery.

Standard Specifications and Options

| Items | Standard Specification | Option |
|---------------------|--|--|
| Applicable Rules | KR, ABS, LR, DNV, NK, BV, GL, RINA, CR, CCS and Others | |
| Ambient Conditions | <ul style="list-style-type: none"> • Temperature : 45 °C or 50 °C • Relative Humidity : 95 % | |
| Voltage & Frequency | AC 440 V or 220 V for 60 Hz | <ul style="list-style-type: none"> • AC 690 V for 60 Hz • AC 380 V for 50 Hz |
| Insulation Class | Class F | |
| Protection | <ul style="list-style-type: none"> • Splash-proof(IP44) • Drip-proof(IP22) | Water-proof(IP55, 56) Explosion-proof |
| Cooling | Fan cooled | Natural cooled |
| Type of Rotor | Squirrel cage or wound rotor | |
| Bearing | Shielded(pre-lubricated) Ball bearing or open ball bearing | Roller bearing Angular bearing |
| Grease | Alvania No.2 | |
| Terminals & Gland | Compressed terminals and standard cable gland | |
| Duty | Continuous rating | Short time rating |
| Starting Method | Direct-on-line | Star-Delta, Auto T/R |
| Accessory | Shaft pulley key Earthing lug | Space heater WTD, BTD SPM adapter |
| Standards | KS, ISO, IEC, JEC, JEM | Others |

► ► ► *Technical specifications, designs and dimensions are subject to change without prior notice.*

Motor Characteristic Tables

2 Poles : HM, MNB Type

TEFC, 3-phase, 60 Hz, 440 V, 1.0 S.F, Continuous Duty, Insulation F Class, 45 °C or 50 °C, Relative humidity 95 %, Protection(IP44), Cooling(IC411).

| Type | Frame No. | Output | Temp. Rise | Full Load AMPS. | Full Load RPM | Efficiency | Power Factor | Start'g Current | Full Load Torque | Locked Rotor Torque | Break Down Torque | Start'g Power Factor | Rotor GD ² |
|------|-----------|--------|------------|-----------------|---------------|------------|--------------|-----------------|------------------|---------------------|-------------------|----------------------|-----------------------|
| | | kW | | A | RPM | % | % | A | kgm | % | % | % | kgm ² |
| HM | 71 | 0.4 | F or B | 1.0 | 3400 | 65.5 | 80.5 | 6.0 | 0.11 | 220 | 240 | 23.0 | 0.001 |
| | 80 | 0.75 | F or B | 1.5 | 3450 | 79.5 | 84.5 | 9.0 | 0.21 | 220 | 240 | 25.0 | 0.003 |
| | 90L | 1.5 | F or B | 3.1 | 3420 | 78.0 | 81.5 | 18.6 | 0.43 | 200 | 230 | 27.0 | 0.008 |
| | 90L | 2.2 | F or B | 4.2 | 3420 | 82.5 | 83.0 | 25.2 | 0.63 | 220 | 250 | 27.0 | 0.009 |
| | 112M | 3.7 | F or B | 6.9 | 3505 | 85.0 | 83.0 | 43.4 | 1.03 | 190 | 270 | 29.0 | 0.02 |
| | 132S | 5.5 | F or B | 10.0 | 3525 | 86.5 | 83.5 | 63.0 | 1.52 | 170 | 240 | 29.0 | 0.04 |
| | 132S | 7.5 | F or B | 13.6 | 3530 | 87.5 | 83.0 | 85.7 | 2.07 | 190 | 250 | 30.0 | 0.05 |
| | 160M | 11 | F | 19.3 | 3560 | 88.0 | 85.0 | 131.2 | 3.01 | 200 | 230 | 31.0 | 0.12 |
| | 160M | 15 | F | 25.3 | 3555 | 89.0 | 87.5 | 172.0 | 4.11 | 200 | 230 | 32.0 | 0.15 |
| | 160L | 18.5 | F | 30.6 | 3550 | 89.5 | 88.5 | 202.2 | 5.08 | 200 | 250 | 33.0 | 0.18 |
| | 180M | 22 | F | 36.0 | 3555 | 89.5 | 89.5 | 234.0 | 6.03 | 200 | 220 | 32.0 | 0.34 |
| | 180L | 26 | F | 42.1 | 3555 | 91.0 | 89.0 | 273.7 | 7.12 | 140 | 220 | 32.0 | 0.38 |
| | 180L | 30 | F | 48.2 | 3555 | 91.7 | 89.0 | 313.3 | 8.22 | 140 | 220 | 32.0 | 0.38 |
| | 200L | 33 | F | 51.7 | 3560 | 92.0 | 91.0 | 336.1 | 9.03 | 150 | 200 | 32.0 | 0.64 |
| | 200L | 37 | F | 57.1 | 3560 | 93.0 | 91.5 | 370.8 | 10.12 | 150 | 200 | 32.0 | 0.64 |
| | 200L | 40 | F | 61.3 | 3560 | 93.0 | 92.0 | 398.5 | 10.94 | 140 | 190 | 34.0 | 0.64 |
| 200L | 45 | F | 68.3 | 3560 | 93.0 | 93.0 | 443.8 | 12.31 | 140 | 190 | 34.0 | 0.64 | |
| MNB | 225S | 50 | F | 78.6 | 3570 | 91.7 | 91.0 | 541.9 | 13.64 | 150 | 250 | 39.0 | 1.63 |
| | 225S | 55 | F | 86.0 | 3570 | 91.7 | 91.5 | 541.9 | 15.01 | 150 | 250 | 39.0 | 1.63 |
| | 250S | 65 | F | 103.2 | 3570 | 91.8 | 90.0 | 747.1 | 17.73 | 150 | 230 | 45.0 | 2.10 |
| | 250S | 70 | F | 110.9 | 3570 | 91.7 | 90.3 | 747.1 | 19.10 | 150 | 230 | 45.0 | 2.10 |
| | 250S | 75 | F | 118.6 | 3570 | 91.7 | 90.5 | 747.1 | 20.46 | 150 | 230 | 45.0 | 2.10 |
| | 250M | 80 | F | 125.7 | 3565 | 92.1 | 90.7 | 888.7 | 21.86 | 160 | 250 | 46.0 | 2.98 |
| | 250M | 85 | F | 133.7 | 3565 | 92.0 | 90.7 | 888.7 | 23.22 | 150 | 230 | 46.0 | 2.98 |
| | 250M | 90 | F | 141.1 | 3565 | 92.0 | 91.0 | 888.7 | 24.59 | 150 | 230 | 46.0 | 2.98 |
| | 280S | 95 | F | 149.7 | 3570 | 92.0 | 90.5 | 1120.7 | 25.92 | 130 | 230 | 31.0 | 5.16 |
| | 280S | 100 | F | 157.6 | 3570 | 92.0 | 90.5 | 1120.7 | 27.28 | 130 | 230 | 31.0 | 5.16 |
| | 280S | 105 | F | 165.5 | 3570 | 92.0 | 90.5 | 1120.7 | 28.65 | 130 | 230 | 31.0 | 5.16 |
| 280S | 110 | F | 172.4 | 3570 | 92.0 | 91.0 | 1120.7 | 30.01 | 130 | 230 | 31.0 | 5.16 | |

2 Poles : MNB, MRB Type

TEFC, 3-phase, 60 Hz, 440 V, 1.0 S.F, Continuous Duty, Insulation F Class, 45 °C or 50 °C,
Relative humidity 95 %, Protection(IP44), Cooling(IC411).

| Type | Frame No. | Output | Temp. Rise | Full Load AMPS. | Full Load RPM | Efficiency | Power Factor | Start'g Current | Full Load Torque | Locked Rotor Torque | Break Down Torque | Start'g Power Factor | Rotor GD ² |
|-------|-----------|--------|------------|-----------------|---------------|------------|--------------|-----------------|------------------|---------------------|-------------------|----------------------|-----------------------|
| | | kW | | A | RPM | % | % | A | kgm | % | % | % | kgm ² |
| MNB | 280M | 120 | F | 189.1 | 3565 | 92.5 | 90.0 | 1337.5 | 32.79 | 130 | 230 | 33.0 | 6.06 |
| | 280M | 125 | F | 195.9 | 3565 | 92.5 | 90.5 | 1337.5 | 34.15 | 130 | 230 | 33.0 | 6.06 |
| | 280M | 132 | F | 205.8 | 3565 | 92.5 | 91.0 | 1337.5 | 36.06 | 130 | 230 | 33.0 | 6.06 |
| | 280L | 140 | F | 219.4 | 3565 | 92.5 | 90.5 | 1511.6 | 38.25 | 120 | 210 | 32.0 | 7.18 |
| | 280L | 145 | F | 226.0 | 3565 | 92.5 | 91.0 | 1511.6 | 39.62 | 120 | 210 | 32.0 | 7.18 |
| | 280L | 150 | F | 232.6 | 3565 | 92.5 | 91.5 | 1511.6 | 40.98 | 120 | 210 | 32.0 | 7.18 |
| | 280LL | 160 | F | 256.5 | 3565 | 93.0 | 88.0 | 1905.5 | 43.71 | 120 | 220 | 33.0 | 9.94 |
| | 280LL | 165 | F | 263.1 | 3565 | 93.0 | 88.5 | 1905.5 | 45.08 | 120 | 220 | 33.0 | 9.94 |
| | 280LL | 170 | F | 269.5 | 3565 | 93.0 | 89.0 | 1905.5 | 46.45 | 120 | 220 | 33.0 | 9.94 |
| | 280LL | 175 | F | 275.3 | 3565 | 93.0 | 89.7 | 1905.5 | 47.81 | 120 | 220 | 33.0 | 9.94 |
| MRB | 280LL | 187 | F | 293.2 | 3565 | 93.0 | 90.0 | 1905.5 | 51.09 | 120 | 220 | 33.0 | 9.94 |
| | 225S | 50 | B | 76.7 | 3570 | 93.0 | 92.0 | 562.1 | 13.64 | 150 | 250 | 40.0 | 1.76 |
| | 225S | 55 | B | 83.9 | 3570 | 93.0 | 92.5 | 562.1 | 15.01 | 150 | 250 | 40.0 | 1.76 |
| | 250S | 65 | B | 100.7 | 3570 | 94.1 | 90.0 | 774.3 | 17.73 | 150 | 250 | 38.0 | 2.99 |
| | 250S | 70 | B | 108.5 | 3570 | 94.1 | 90.0 | 774.3 | 19.10 | 150 | 250 | 38.0 | 2.99 |
| | 250S | 75 | B | 115.6 | 3570 | 94.1 | 90.5 | 774.3 | 20.46 | 150 | 250 | 38.0 | 2.99 |
| | 250M | 80 | B | 123.3 | 3570 | 94.1 | 90.5 | 774.3 | 21.83 | 140 | 240 | 38.0 | 2.99 |
| | 280S | 85 | B | 131.1 | 3570 | 94.5 | 90.0 | 930.3 | 23.19 | 130 | 230 | 25.0 | 5.47 |
| | 280S | 90 | B | 138.9 | 3570 | 94.5 | 90.0 | 930.3 | 24.55 | 130 | 230 | 25.0 | 5.47 |
| | 280S | 95 | B | 146.6 | 3570 | 94.5 | 90.0 | 930.3 | 25.92 | 120 | 220 | 25.0 | 5.47 |
| | 280M | 100 | B | 153.4 | 3570 | 94.5 | 90.5 | 1124.5 | 27.28 | 150 | 250 | 26.0 | 6.08 |
| | 280M | 110 | B | 167.8 | 3570 | 94.5 | 91.0 | 1124.5 | 30.01 | 150 | 250 | 26.0 | 6.08 |
| | 280L | 132 | B | 200.4 | 3570 | 95.0 | 91.0 | 1517.1 | 36.01 | 150 | 230 | 27.0 | 7.21 |
| | 280L | 150 | B | 226.4 | 3570 | 95.0 | 91.5 | 1517.1 | 40.92 | 150 | 230 | 27.0 | 7.21 |
| | 280LL | 165 | B | 251.8 | 3570 | 95.0 | 90.5 | 1994.4 | 45.02 | 150 | 230 | 28.0 | 9.94 |
| 280LL | 175 | B | 265.6 | 3570 | 95.0 | 91.0 | 1994.4 | 47.75 | 150 | 230 | 28.0 | 9.94 | |
| 280LL | 180 | B | 273.2 | 3570 | 95.0 | 91.0 | 1994.4 | 49.11 | 150 | 230 | 28.0 | 9.94 | |

Motor Characteristic Tables

4 Poles : HM, MNB Type

TEFC, 3-phase, 60 Hz, 440 V, 1.0 S.F, Continuous Duty, Insulation F Class, 45 °C or 50 °C, Relative humidity 95 %, Protection(IP44), Cooling(IC411).

| Type | Frame No. | Output | Temp. Rise | Full Load AMPS. | Full Load RPM | Efficiency | Power Factor | Start'g Current | Full Load Torque | Locked Rotor Torque | Break Down Torque | Start'g Power Factor | Rotor GD ² |
|-------|-----------|--------|------------|-----------------|---------------|------------|--------------|-----------------|------------------|---------------------|-------------------|----------------------|-----------------------|
| | | kW | | A | RPM | % | % | A | kgm | % | % | % | kgm ² |
| HM | 71 | 0.4 | F or B | 1.2 | 1700 | 68.0 | 64.0 | 7.2 | 0.23 | 220 | 240 | 20.0 | 0.003 |
| | 80 | 0.75 | F or B | 1.7 | 1710 | 71.5 | 80.0 | 10.2 | 0.43 | 220 | 240 | 24.0 | 0.007 |
| | 90L | 1.5 | F or B | 3.2 | 1720 | 79.5 | 77.5 | 19.2 | 0.85 | 220 | 250 | 26.0 | 0.014 |
| | 100L | 2.2 | F or B | 4.2 | 1715 | 83.5 | 81.5 | 26.5 | 1.25 | 190 | 240 | 26.0 | 0.04 |
| | 112M | 3.7 | F or B | 6.9 | 1730 | 84.5 | 83.5 | 43.5 | 2.08 | 180 | 250 | 27.0 | 0.05 |
| | 132S | 5.5 | F or B | 10.3 | 1755 | 85.0 | 82.5 | 64.9 | 3.05 | 200 | 240 | 28.0 | 0.12 |
| | 132M | 7.5 | F or B | 14.1 | 1760 | 87.0 | 80.5 | 88.8 | 4.15 | 210 | 250 | 28.0 | 0.12 |
| | 160M | 11 | F | 20.0 | 1770 | 88.0 | 82.0 | 126.0 | 6.05 | 190 | 230 | 30.0 | 0.25 |
| | 160L | 15 | F | 26.8 | 1770 | 89.0 | 82.5 | 168.8 | 8.25 | 200 | 220 | 31.0 | 0.34 |
| | 180M | 18.5 | F | 32.8 | 1770 | 89.0 | 83.2 | 206.6 | 10.18 | 210 | 240 | 32.0 | 0.47 |
| | 180M | 22 | F | 38.4 | 1775 | 90.0 | 83.5 | 257.3 | 12.07 | 210 | 240 | 34.0 | 0.57 |
| | 180L | 26 | F | 45.1 | 1775 | 91.2 | 83.0 | 293.2 | 14.27 | 180 | 200 | 35.0 | 0.67 |
| | 180L | 30 | F | 51.4 | 1775 | 91.7 | 83.5 | 334.1 | 16.46 | 180 | 200 | 36.0 | 0.67 |
| | 200L | 33 | F | 56.9 | 1775 | 91.7 | 83.0 | 369.8 | 18.11 | 160 | 210 | 37.0 | 1.40 |
| | 200L | 37 | F | 62.8 | 1775 | 92.0 | 84.0 | 408.4 | 20.30 | 160 | 210 | 37.0 | 1.40 |
| | 200L | 40 | F | 67.9 | 1775 | 92.0 | 84.0 | 441.3 | 21.95 | 150 | 200 | 38.0 | 1.60 |
| | 200L | 45 | F | 75.5 | 1775 | 92.0 | 85.0 | 490.8 | 24.69 | 150 | 200 | 38.0 | 1.60 |
| | 225S | 50 | F | 83.8 | 1765 | 91.8 | 85.3 | 598.3 | 27.59 | 200 | 250 | 49.6 | 3.16 |
| | 225S | 55 | F | 92.1 | 1765 | 91.7 | 85.5 | 598.3 | 30.35 | 200 | 250 | 44.0 | 3.16 |
| | MNB | 250S | 60 | F | 98.9 | 1765 | 92.0 | 86.5 | 794.6 | 33.11 | 180 | 240 | 37.0 |
| 250S | | 65 | F | 106.2 | 1765 | 92.3 | 87.0 | 794.6 | 35.87 | 180 | 240 | 37.0 | 4.19 |
| 250S | | 70 | F | 114.2 | 1765 | 92.1 | 87.3 | 794.6 | 38.63 | 170 | 220 | 37.0 | 4.19 |
| 250S | | 75 | F | 122.3 | 1765 | 92.0 | 87.5 | 794.6 | 41.39 | 160 | 210 | 37.0 | 4.19 |
| 250M | | 80 | F | 129.4 | 1765 | 92.7 | 87.5 | 941.0 | 44.15 | 160 | 210 | 37.0 | 6.94 |
| 250M | | 85 | F | 137.5 | 1765 | 92.7 | 87.5 | 941.0 | 46.91 | 160 | 210 | 37.0 | 6.94 |
| 250M | | 90 | F | 144.8 | 1765 | 92.7 | 88.0 | 941.0 | 49.67 | 160 | 210 | 37.0 | 6.94 |
| 280S | | 95 | F | 152.2 | 1770 | 93.3 | 87.8 | 1195.2 | 52.28 | 160 | 240 | 32.0 | 7.38 |
| 280S | | 100 | F | 160.0 | 1770 | 93.1 | 88.1 | 1195.2 | 55.03 | 150 | 230 | 32.0 | 7.38 |
| 280S | | 105 | F | 168.2 | 1770 | 93.0 | 88.1 | 1195.2 | 57.78 | 140 | 210 | 32.0 | 7.38 |
| 280S | | 110 | F | 175.8 | 1770 | 93.0 | 88.3 | 1195.2 | 60.53 | 140 | 210 | 32.0 | 7.38 |
| 280M | | 120 | F | 192.4 | 1770 | 93.0 | 88.0 | 1423.0 | 66.03 | 160 | 220 | 31.0 | 10.13 |
| 280M | | 125 | F | 199.3 | 1770 | 93.0 | 88.5 | 1423.0 | 68.79 | 160 | 220 | 31.0 | 10.13 |
| 280M | | 132 | F | 209.3 | 1770 | 93.0 | 89.0 | 1423.0 | 72.64 | 160 | 220 | 31.0 | 10.13 |
| 280L | | 140 | F | 222.0 | 1770 | 93.5 | 88.5 | 1599.4 | 77.04 | 160 | 220 | 32.0 | 12.01 |
| 280L | | 145 | F | 228.6 | 1770 | 93.5 | 89.0 | 1599.4 | 79.79 | 160 | 220 | 32.0 | 12.01 |
| 280L | | 150 | F | 235.2 | 1770 | 93.5 | 89.5 | 1599.4 | 82.54 | 160 | 220 | 32.0 | 12.01 |
| 280LL | | 160 | F | 254.6 | 1770 | 93.7 | 88.0 | 1905.9 | 88.05 | 180 | 240 | 31.0 | 17.27 |
| 280LL | | 165 | F | 259.3 | 1770 | 93.7 | 89.1 | 1905.9 | 90.80 | 180 | 240 | 31.0 | 17.27 |
| 280LL | | 170 | F | 267.2 | 1770 | 93.7 | 89.1 | 1905.9 | 93.55 | 170 | 230 | 31.0 | 17.27 |
| 280LL | 175 | F | 274.7 | 1770 | 93.6 | 89.3 | 1905.9 | 96.30 | 170 | 230 | 31.0 | 17.27 | |
| 280LL | 187 | F | 293.2 | 1770 | 93.5 | 89.5 | 1905.9 | 102.90 | 160 | 220 | 31.0 | 17.27 | |

4 Poles : MRB, HLE, HLB Type

TEFC, 3-phase, 60 Hz, 440 V, 1.0 S.F, Continuous Duty, Insulation F Class, 45 °C or 50 °C,
Relative humidity 95 %, Protection(IP44), Cooling(IC411).

| Type | Frame No. | Output | Temp. Rise | Full Load AMPS. | Full Load RPM | Efficiency | Power Factor | Start'g Current | Full Load Torque | Locked Rotor Torque | Break Down Torque | Start'g Power Factor | Rotor GD ² |
|-------|-----------|--------|------------|-----------------|---------------|------------|--------------|-----------------|------------------|---------------------|-------------------|----------------------|-----------------------|
| | | kW | | A | RPM | % | % | A | kgm | % | % | % | kgm ² |
| MRB | 225S | 50 | B | 81.6 | 1780 | 94.1 | 85.5 | 561.8 | 27.36 | 200 | 230 | 38.0 | 3.43 |
| | 225S | 55 | B | 89.2 | 1780 | 94.1 | 86.0 | 561.8 | 30.10 | 200 | 230 | 38.0 | 3.43 |
| | 250S | 60 | B | 97.9 | 1780 | 94.1 | 85.5 | 782.6 | 32.83 | 200 | 230 | 38.0 | 5.88 |
| | 250S | 65 | B | 105.4 | 1780 | 94.1 | 86.0 | 782.6 | 35.57 | 200 | 230 | 38.0 | 5.88 |
| | 250S | 75 | B | 120.9 | 1780 | 94.1 | 86.5 | 782.6 | 41.04 | 200 | 230 | 38.0 | 5.88 |
| | 250M | 80 | B | 129.0 | 1780 | 94.1 | 86.5 | 782.6 | 43.78 | 190 | 220 | 38.0 | 5.88 |
| | 280S | 85 | B | 135.7 | 1785 | 94.5 | 87.0 | 928.3 | 46.38 | 200 | 230 | 37.0 | 8.43 |
| | 280S | 90 | B | 142.8 | 1785 | 94.5 | 87.5 | 928.3 | 49.11 | 200 | 230 | 37.0 | 8.43 |
| | 280S | 95 | B | 150.8 | 1785 | 94.5 | 87.5 | 928.3 | 51.84 | 190 | 220 | 37.0 | 8.43 |
| | 280M | 100 | B | 157.9 | 1785 | 95.0 | 87.5 | 1128.7 | 54.57 | 190 | 230 | 38.0 | 11.05 |
| | 280M | 110 | B | 172.7 | 1785 | 95.0 | 88.0 | 1128.7 | 60.02 | 190 | 230 | 38.0 | 11.05 |
| | 280L | 132 | B | 207.2 | 1785 | 95.0 | 88.0 | 1618.5 | 72.03 | 180 | 230 | 39.0 | 12.01 |
| | 280L | 150 | B | 235.4 | 1785 | 95.0 | 88.0 | 1618.5 | 81.85 | 180 | 230 | 39.0 | 12.01 |
| | 280LL | 165 | B | 259.0 | 1785 | 95.0 | 88.0 | 2050.8 | 90.03 | 180 | 220 | 40.0 | 17.27 |
| | 280LL | 175 | B | 273.1 | 1785 | 95.0 | 88.5 | 2050.8 | 95.49 | 180 | 220 | 40.0 | 17.27 |
| 280LL | 180 | B | 280.9 | 1785 | 95.0 | 88.5 | 2050.8 | 98.22 | 180 | 220 | 40.0 | 17.27 | |
| HLE4 | 284 | 190 | F | 298.10 | 1786 | 94.5 | 88.5 | 2496.2 | 103.62 | 230 | 250 | 30.4 | 4.27 |
| | 284 | 200 | F | 312.03 | 1786 | 94.5 | 89.0 | 2496.2 | 109.07 | 230 | 250 | 30.4 | 4.27 |
| | 286 | 210 | F | 325.80 | 1786 | 94.5 | 89.5 | 2715.3 | 114.52 | 230 | 250 | 30.2 | 4.88 |
| | 286 | 220 | F | 339.42 | 1786 | 94.5 | 90.0 | 2715.3 | 119.98 | 230 | 250 | 30.2 | 4.88 |
| | 288 | 230 | F | 358.83 | 1786 | 94.5 | 89.0 | 3085.6 | 125.43 | 230 | 250 | 30.3 | 5.49 |
| | 288 | 240 | F | 372.34 | 1786 | 94.5 | 89.5 | 3085.6 | 130.88 | 230 | 250 | 30.3 | 5.49 |
| | 288 | 250 | F | 385.70 | 1786 | 94.5 | 90.0 | 3085.6 | 136.34 | 230 | 250 | 30.3 | 5.49 |
| HLB4 | 314 | 260 | F | 403.50 | 1786 | 95.0 | 89.0 | 3523.6 | 141.79 | 230 | 250 | 29.0 | 6.10 |
| | 314 | 270 | F | 416.68 | 1786 | 95.0 | 89.5 | 3523.6 | 147.25 | 230 | 250 | 29.0 | 6.10 |
| | 314 | 280 | F | 429.71 | 1786 | 95.0 | 90.0 | 3523.6 | 152.70 | 230 | 250 | 29.0 | 6.10 |
| | 314 | 290 | F | 452.60 | 1787 | 95.0 | 88.5 | 4004.0 | 158.06 | 230 | 250 | 29.4 | 6.10 |
| | 314 | 300 | F | 465.58 | 1787 | 95.0 | 89.0 | 4004.0 | 163.51 | 230 | 250 | 29.4 | 6.10 |
| | 315 | 310 | F | 478.41 | 1786 | 95.0 | 89.5 | 3964.1 | 169.06 | 230 | 250 | 29.4 | 6.85 |
| | 315 | 315 | F | 483.43 | 1786 | 95.0 | 90.0 | 3964.1 | 171.79 | 230 | 250 | 29.4 | 6.85 |
| | 35S | 325 | F | 507.23 | 1785 | 95.0 | 88.5 | 4211.2 | 177.34 | 230 | 250 | 26.0 | 9.30 |
| | 35S | 335 | F | 519.90 | 1785 | 95.0 | 89.0 | 4211.2 | 182.80 | 230 | 250 | 26.0 | 9.30 |
| | 350 | 345 | F | 538.44 | 1786 | 95.0 | 88.5 | 4683.0 | 188.15 | 230 | 250 | 26.4 | 10.30 |
| | 350 | 355 | F | 550.94 | 1786 | 95.0 | 89.0 | 4683.0 | 193.60 | 230 | 250 | 26.4 | 10.30 |
| | 352 | 365 | F | 563.29 | 1786 | 95.0 | 89.5 | 4776.7 | 199.05 | 230 | 250 | 26.3 | 11.50 |
| | 352 | 375 | F | 575.51 | 1786 | 95.0 | 90.0 | 4776.7 | 204.51 | 230 | 250 | 26.3 | 11.50 |
| | 352 | 380 | F | 589.73 | 1785 | 95.0 | 89.0 | 5033.8 | 207.35 | 230 | 250 | 26.5 | 11.50 |
| | 352 | 390 | F | 601.87 | 1785 | 95.0 | 89.5 | 5033.8 | 212.81 | 230 | 250 | 26.5 | 11.50 |
| | 352 | 400 | F | 613.88 | 1785 | 95.0 | 90.0 | 5033.8 | 218.26 | 230 | 250 | 26.5 | 11.50 |
| | 354 | 410 | F | 632.74 | 1785 | 95.0 | 89.5 | 5283.2 | 223.72 | 230 | 250 | 26.7 | 13.90 |
| 354 | 420 | F | 644.57 | 1785 | 95.0 | 90.0 | 5283.2 | 229.18 | 230 | 250 | 26.7 | 13.90 | |
| 354 | 425 | F | 652.24 | 1785 | 95.0 | 90.0 | 5283.2 | 231.90 | 230 | 250 | 26.7 | 13.90 | |
| 354 | 430 | F | 663.60 | 1786 | 95.0 | 89.5 | 5939.2 | 234.50 | 230 | 250 | 27.2 | 13.90 | |
| 354 | 440 | F | 675.26 | 1786 | 95.0 | 90.0 | 5939.2 | 239.96 | 230 | 250 | 27.2 | 13.90 | |
| 354 | 450 | F | 690.61 | 1786 | 95.0 | 90.0 | 5939.2 | 245.41 | 230 | 250 | 27.2 | 13.90 | |

Motor Characteristic Tables

6 Poles : HM, MNB Type

TEFC, 3-phase, 60 Hz, 440 V, 1.0 S.F, Continuous Duty, Insulation F Class, 45 °C or 50 °C,
Relative humidity 95 %, Protection(IP44), Cooling(IC411).

| Type | Frame No. | Output | Temp. Rise | Full Load AMPS. | Full Load RPM | Efficiency | Power Factor | Start'g Current | Full Load Torque | Locked Rotor Torque | Break Down Torque | Start'g Power Factor | Rotor GD ² |
|-------|-----------|--------|------------|-----------------|---------------|------------|--------------|-----------------|------------------|---------------------|-------------------|----------------------|-----------------------|
| | | kW | | A | RPM | % | % | A | kgm | % | % | % | kgm ² |
| HM | 80 | 0.4 | F or B | 1.2 | 1130 | 72.5 | 60.0 | 7.2 | 0.34 | 220 | 240 | 14.0 | 0.006 |
| | 90L | 0.75 | F or B | 2.0 | 1130 | 72.5 | 68.5 | 12.0 | 0.65 | 210 | 250 | 17.0 | 0.011 |
| | 100L | 1.5 | F or B | 3.5 | 1140 | 79.5 | 71.0 | 21.0 | 1.28 | 170 | 200 | 21.0 | 0.04 |
| | 112M | 2.2 | F or B | 4.9 | 1155 | 82.0 | 71.5 | 30.9 | 1.86 | 170 | 250 | 22.0 | 0.05 |
| | 132S | 3.7 | F or B | 7.8 | 1170 | 84.0 | 74.0 | 49.1 | 3.08 | 180 | 210 | 23.0 | 0.12 |
| | 132M | 5.5 | F or B | 11.0 | 1165 | 86.0 | 76.0 | 69.3 | 4.60 | 180 | 200 | 23.0 | 0.16 |
| | 160M | 7.5 | F | 14.6 | 1175 | 86.5 | 78.0 | 92.0 | 6.22 | 200 | 240 | 27.0 | 0.31 |
| | 160L | 11 | F | 21.0 | 1170 | 87.5 | 78.5 | 132.3 | 9.16 | 200 | 240 | 28.0 | 0.41 |
| | 180M | 15 | F | 28.0 | 1170 | 88.0 | 80.0 | 176.4 | 12.49 | 210 | 250 | 31.0 | 0.57 |
| | 180L | 18.5 | F | 33.5 | 1170 | 89.5 | 81.0 | 217.8 | 15.40 | 230 | 260 | 31.0 | 0.57 |
| | 180L | 22 | F | 39.8 | 1175 | 89.5 | 81.0 | 258.7 | 18.24 | 200 | 240 | 31.0 | 0.58 |
| | 200L | 30 | F | 53.0 | 1180 | 91.7 | 81.0 | 344.5 | 24.76 | 140 | 190 | 32.0 | 2.00 |
| 200L | 37 | F | 65.4 | 1175 | 91.7 | 81.0 | 425.1 | 30.67 | 140 | 190 | 33.0 | 2.50 | |
| MNB | 225S | 40 | F | 70.8 | 1176 | 91.0 | 81.5 | 498.5 | 33.13 | 170 | 200 | 44.0 | 4.79 |
| | 225S | 45 | F | 79.1 | 1176 | 91.0 | 82.0 | 498.5 | 37.27 | 170 | 200 | 44.0 | 4.79 |
| | 250S | 50 | F | 86.2 | 1180 | 91.7 | 83.0 | 597.4 | 41.27 | 160 | 200 | 40.0 | 6.15 |
| | 250S | 55 | F | 94.8 | 1180 | 91.7 | 83.0 | 597.4 | 45.40 | 160 | 200 | 40.0 | 6.15 |
| | 250M | 65 | F | 112.5 | 1180 | 92.5 | 82.0 | 813.3 | 53.65 | 190 | 230 | 40.0 | 8.23 |
| | 250M | 70 | F | 121.1 | 1180 | 92.5 | 82.0 | 813.3 | 57.78 | 170 | 200 | 40.0 | 8.23 |
| | 250M | 75 | F | 129.1 | 1180 | 92.4 | 82.5 | 813.3 | 61.91 | 170 | 200 | 40.0 | 8.23 |
| | 280S | 80 | F | 133.6 | 1180 | 93.0 | 84.5 | 971.0 | 66.03 | 140 | 200 | 36.0 | 13.02 |
| | 280S | 85 | F | 141.9 | 1180 | 93.0 | 84.5 | 971.0 | 70.16 | 130 | 200 | 36.0 | 13.02 |
| | 280S | 90 | F | 149.4 | 1180 | 93.0 | 85.0 | 971.0 | 74.29 | 130 | 200 | 36.0 | 13.02 |
| | 280M | 95 | F | 156.8 | 1180 | 93.0 | 85.5 | 1173.1 | 78.42 | 140 | 200 | 30.0 | 16.19 |
| | 280M | 100 | F | 165.0 | 1180 | 93.0 | 85.5 | 1173.1 | 82.54 | 130 | 200 | 30.0 | 16.19 |
| | 280M | 105 | F | 173.3 | 1180 | 93.0 | 85.5 | 1173.1 | 86.67 | 130 | 200 | 30.0 | 16.19 |
| | 280M | 110 | F | 180.5 | 1180 | 93.0 | 86.0 | 1173.1 | 90.80 | 130 | 200 | 30.0 | 16.19 |
| | 280L | 120 | F | 199.2 | 1180 | 93.0 | 85.0 | 1364.3 | 99.05 | 130 | 200 | 37.0 | 19.40 |
| | 280L | 125 | F | 206.3 | 1180 | 93.0 | 85.5 | 1364.3 | 103.18 | 130 | 200 | 37.0 | 19.40 |
| | 280L | 132 | F | 216.6 | 1180 | 93.0 | 86.0 | 1364.3 | 108.96 | 130 | 200 | 37.0 | 19.40 |
| | 280LL | 140 | F | 231.1 | 1180 | 93.5 | 85.0 | 1542.1 | 115.56 | 130 | 200 | 37.0 | 25.34 |
| 280LL | 145 | F | 238.0 | 1180 | 93.5 | 85.5 | 1542.1 | 119.69 | 130 | 200 | 37.0 | 25.34 | |
| 280LL | 150 | F | 244.8 | 1180 | 93.5 | 86.0 | 1542.1 | 123.81 | 130 | 200 | 37.0 | 25.34 | |

6 Poles : MRB, HLE, HLB Type

TEFC, 3-phase, 60 Hz, 440 V, 1.0 S.F, Continuous Duty, Insulation F Class, 45 °C or 50 °C,
Relative humidity 95 %, Protection(IP44), Cooling(IC411).

| Type | Frame No. | Output | Temp. Rise | Full Load AMPS. | Full Load RPM | Efficiency | Power Factor | Start'g Current | Full Load Torque | Locked Rotor Torque | Break Down Torque | Start'g Power Factor | Rotor GD ² |
|-------|-----------|--------|------------|-----------------|---------------|------------|--------------|-----------------|------------------|---------------------|-------------------|----------------------|-----------------------|
| | | kW | | A | RPM | % | % | A | kgm | % | % | % | kgm ² |
| MRB | 250S | 45 | B | 74.9 | 1185 | 92.7 | 85.0 | 472.1 | 36.99 | 200 | 230 | 40.0 | 4.60 |
| | 250M | 50 | B | 82.5 | 1185 | 93.0 | 85.5 | 568.5 | 41.10 | 180 | 230 | 34.0 | 7.64 |
| | 250M | 55 | B | 90.2 | 1185 | 93.0 | 86.0 | 568.5 | 45.21 | 180 | 230 | 34.0 | 7.64 |
| | 280S | 65 | B | 106.6 | 1185 | 93.6 | 85.5 | 794.7 | 53.43 | 200 | 230 | 28.0 | 12.11 |
| | 280S | 75 | B | 122.3 | 1185 | 93.6 | 86.0 | 794.7 | 61.65 | 200 | 230 | 28.0 | 12.11 |
| | 280S | 80 | B | 130.4 | 1185 | 93.6 | 86.0 | 794.7 | 65.76 | 180 | 220 | 28.0 | 12.11 |
| | 280M | 85 | B | 137.0 | 1185 | 94.1 | 86.5 | 943.1 | 69.86 | 200 | 230 | 28.0 | 14.83 |
| | 280M | 90 | B | 145.1 | 1185 | 94.1 | 86.5 | 943.1 | 73.97 | 200 | 230 | 28.0 | 14.83 |
| | 280M | 95 | B | 153.2 | 1185 | 94.1 | 86.5 | 943.1 | 78.08 | 190 | 220 | 28.0 | 14.83 |
| | 280L | 100 | B | 160.5 | 1185 | 94.5 | 86.5 | 1147.8 | 82.19 | 170 | 250 | 29.0 | 17.58 |
| | 280L | 110 | B | 176.6 | 1185 | 94.5 | 86.5 | 1147.8 | 90.41 | 170 | 250 | 29.0 | 17.58 |
| | 280LL | 132 | B | 210.7 | 1185 | 94.5 | 87.0 | 1556.1 | 108.50 | 170 | 230 | 27.0 | 24.43 |
| 280LL | 150 | B | 239.4 | 1185 | 94.5 | 87.0 | 1556.1 | 123.29 | 170 | 230 | 27.0 | 24.43 | |
| HLE4 | 284 | 160 | F | 282.72 | 1189 | 94.0 | 79.0 | 2421.0 | 131.07 | 230 | 250 | 31.8 | 5.54 |
| | 284 | 170 | F | 298.50 | 1189 | 94.0 | 79.5 | 2421.0 | 139.26 | 230 | 250 | 31.8 | 5.54 |
| | 284 | 180 | F | 314.08 | 1189 | 94.0 | 80.0 | 2421.0 | 147.45 | 230 | 250 | 31.8 | 5.54 |
| | 284 | 185 | F | 322.81 | 1189 | 94.0 | 80.0 | 2421.0 | 151.55 | 230 | 250 | 31.8 | 5.54 |
| | 286 | 190 | F | 329.47 | 1190 | 94.0 | 80.5 | 2585.0 | 155.51 | 230 | 250 | 32.4 | 6.29 |
| | 286 | 200 | F | 344.67 | 1190 | 94.0 | 81.0 | 2585.0 | 163.70 | 230 | 250 | 32.4 | 6.29 |
| | 288 | 210 | F | 361.90 | 1190 | 94.0 | 81.0 | 2826.1 | 171.88 | 230 | 250 | 32.2 | 7.03 |
| | 288 | 220 | F | 376.81 | 1190 | 94.0 | 81.5 | 2826.1 | 180.07 | 230 | 250 | 32.2 | 7.03 |
| HLB4 | 314 | 230 | F | 404.26 | 1191 | 94.5 | 79.0 | 3471.3 | 188.09 | 230 | 250 | 28.2 | 8.90 |
| | 314 | 240 | F | 419.18 | 1191 | 94.5 | 79.5 | 3471.3 | 196.27 | 230 | 250 | 28.2 | 8.90 |
| | 314 | 250 | F | 433.92 | 1191 | 94.5 | 80.0 | 3471.3 | 204.45 | 230 | 250 | 28.2 | 8.90 |
| | 315 | 260 | F | 456.98 | 1191 | 94.5 | 79.0 | 3985.1 | 212.63 | 230 | 250 | 28.7 | 9.92 |
| | 315 | 270 | F | 471.58 | 1191 | 94.5 | 79.5 | 3985.1 | 220.81 | 230 | 250 | 28.7 | 9.92 |
| | 315 | 280 | F | 485.99 | 1191 | 94.5 | 80.0 | 3985.1 | 228.98 | 230 | 250 | 28.7 | 9.92 |
| | 35S | 290 | F | 512.96 | 1190 | 94.5 | 78.5 | 3954.7 | 237.36 | 230 | 250 | 27.5 | 10.81 |
| | 35S | 300 | F | 527.29 | 1190 | 94.5 | 79.0 | 3954.7 | 245.55 | 230 | 250 | 27.5 | 10.81 |
| | 350 | 310 | F | 534.71 | 1190 | 94.5 | 80.5 | 4049.9 | 253.73 | 230 | 250 | 27.8 | 12.10 |
| | 350 | 315 | F | 539.98 | 1190 | 94.5 | 81.0 | 4049.9 | 257.82 | 230 | 250 | 27.8 | 12.10 |
| | 352 | 325 | F | 564.65 | 1191 | 95.0 | 79.5 | 4684.9 | 265.79 | 230 | 250 | 28.2 | 13.70 |
| | 352 | 335 | F | 578.39 | 1191 | 95.0 | 80.0 | 4684.9 | 273.96 | 230 | 250 | 28.2 | 13.70 |
| | 352 | 345 | F | 591.95 | 1191 | 95.0 | 80.5 | 4721.7 | 282.14 | 230 | 250 | 28.2 | 13.70 |
| | 352 | 355 | F | 605.35 | 1191 | 95.0 | 81.0 | 4721.7 | 290.32 | 230 | 250 | 28.2 | 13.70 |
| | 354 | 365 | F | 622.40 | 1191 | 95.0 | 81.0 | 5211.4 | 298.50 | 230 | 250 | 28.3 | 16.60 |
| | 354 | 375 | F | 635.53 | 1191 | 95.0 | 81.5 | 5211.4 | 306.68 | 230 | 250 | 28.3 | 16.60 |
| 354 | 380 | F | 652.00 | 1191 | 95.0 | 80.5 | 5390.1 | 310.76 | 230 | 250 | 27.9 | 16.60 | |
| 354 | 390 | F | 660.95 | 1191 | 95.0 | 81.5 | 5390.1 | 318.94 | 230 | 250 | 27.9 | 16.60 | |
| 354 | 400 | F | 673.77 | 1191 | 95.0 | 82.0 | 5390.1 | 327.12 | 230 | 250 | 27.9 | 16.60 | |

Motor Characteristic Tables

8 Poles : HM, MNB, MRB Type

TEFC, 3-phase, 60 Hz, 440 V, 1.0 S.F, Continuous Duty, Insulation F Class, 45 °C or 50 °C,
Relative humidity 95 %, Protection(IP44), Cooling(IC411).

| Type | Frame No. | Output | Temp. Rise | Full Load AMPS. | Full Load RPM | Efficiency | Power Factor | Start'g Current | Full Load Torque | Locked Rotor Torque | Break Down Torque | Start'g Power Factor | Rotor GD ² |
|------|-----------|--------|------------|-----------------|---------------|------------|--------------|-----------------|------------------|---------------------|-------------------|----------------------|-----------------------|
| | | kW | | A | RPM | % | % | A | kgm | % | % | % | kgm ² |
| HM | 112M | 1.5 | F or B | 4.2 | 860 | 79.0 | 59.0 | 18.9 | 1.70 | 170 | 200 | 13.0 | 0.05 |
| | 132S | 2.2 | F or B | 5.7 | 865 | 81.0 | 63.0 | 30.2 | 2.48 | 170 | 200 | 14.0 | 0.14 |
| | 132M | 3.7 | F or B | 9.0 | 865 | 83.0 | 65.0 | 47.7 | 4.17 | 160 | 200 | 14.0 | 0.24 |
| | 160M | 5.5 | F | 12.8 | 865 | 85.0 | 66.5 | 70.4 | 6.19 | 160 | 200 | 16.0 | 0.37 |
| | 160L | 7.5 | F | 17.2 | 870 | 85.5 | 67.0 | 94.6 | 8.40 | 160 | 190 | 19.0 | 0.47 |
| | 180M | 11 | F | 24.9 | 865 | 86.5 | 67.0 | 137.0 | 12.39 | 150 | 190 | 21.0 | 0.57 |
| | 180L | 15 | F | 33.8 | 870 | 87.0 | 67.0 | 185.9 | 16.79 | 140 | 190 | 24.0 | 0.57 |
| | 200L | 18.5 | F | 34.7 | 875 | 87.5 | 80.0 | 190.9 | 20.59 | 130 | 190 | 24.0 | 1.88 |
| | 200L | 22 | F | 40.3 | 875 | 88.5 | 81.0 | 221.7 | 24.49 | 120 | 190 | 28.0 | 2.24 |
| MNB | 225S | 25 | F or B | 46.3 | 880 | 91.5 | 77.5 | 320.2 | 27.67 | 120 | 200 | 42.0 | 4.60 |
| | 255S | 30 | F or B | 55.2 | 880 | 91.5 | 78.0 | 320.2 | 33.20 | 120 | 200 | 42.0 | 4.60 |
| | 250S | 37 | F or B | 66.5 | 880 | 92.0 | 79.5 | 385.4 | 40.95 | 130 | 200 | 41.0 | 7.06 |
| | 250M | 40 | F or B | 71.4 | 880 | 92.5 | 79.6 | 463.3 | 44.27 | 125 | 200 | 40.0 | 8.26 |
| | 250M | 45 | F or B | 79.9 | 880 | 92.5 | 80.0 | 463.3 | 49.81 | 125 | 200 | 40.0 | 8.26 |
| | 280S | 50 | F or B | 87.3 | 880 | 92.7 | 81.2 | 553.3 | 55.34 | 120 | 200 | 36.0 | 9.89 |
| | 280S | 55 | F or B | 95.4 | 880 | 92.7 | 81.7 | 553.3 | 60.88 | 120 | 200 | 36.0 | 9.89 |
| | 280M | 65 | F or B | 113.2 | 880 | 93.0 | 81.1 | 749.2 | 71.94 | 125 | 200 | 36.0 | 13.08 |
| | 280M | 70 | F or B | 121.2 | 880 | 93.0 | 81.6 | 749.2 | 77.48 | 125 | 200 | 36.0 | 13.08 |
| | 280M | 75 | F or B | 129.2 | 880 | 93.0 | 82.0 | 749.2 | 83.01 | 125 | 200 | 36.0 | 13.08 |
| | 280L | 80 | F | 136.0 | 880 | 93.0 | 83.1 | 877.7 | 88.55 | 110 | 200 | 35.0 | 17.67 |
| | 280L | 85 | F | 143.6 | 880 | 93.0 | 83.6 | 877.7 | 94.08 | 110 | 200 | 35.0 | 17.67 |
| | 280L | 90 | F | 151.3 | 880 | 93.0 | 84.0 | 877.7 | 99.61 | 110 | 200 | 35.0 | 17.67 |
| | 280LL | 95 | F | 161.5 | 880 | 93.3 | 82.8 | 1069.3 | 105.15 | 110 | 200 | 35.0 | 20.91 |
| | 280LL | 100 | F | 169.0 | 880 | 93.3 | 83.3 | 1069.3 | 110.68 | 110 | 200 | 35.0 | 20.91 |
| | 280LL | 105 | F | 176.4 | 880 | 93.3 | 83.8 | 1069.3 | 116.22 | 110 | 200 | 35.0 | 20.91 |
| | 280LL | 110 | F | 184.4 | 880 | 93.3 | 84.0 | 1069.3 | 121.75 | 110 | 200 | 35.0 | 20.91 |
| MRB | 280L | 90 | B | 151.3 | 880 | 93.0 | 84.0 | 877.7 | 99.61 | 110 | 200 | 35.0 | 17.67 |
| | 280LL | 110 | B | 184.4 | 880 | 93.3 | 84.0 | 1069.3 | 121.75 | 110 | 200 | 34.0 | 20.91 |

Medium Voltage Motors for Thruster

Unit : kW

TEFC (IP54)

S2 - 60 min., F/100K

3.3 kV / 60 Hz

| Model | 6P | 8P | |
|-------|-----|------|------|
| HLA9 | 630 | 1200 | 880 |
| | 632 | 1350 | 1000 |
| | 634 | 1500 | 1100 |
| | 636 | 1700 | 1250 |
| | 638 | 1900 | 1400 |
| | 710 | 2150 | 1550 |
| | 712 | 2400 | 1750 |
| | 714 | 2700 | 2000 |
| | 716 | 3050 | 2250 |
| | 800 | 3350 | 2450 |
| | 802 | 3700 | 2700 |
| | 804 | 4100 | 3000 |
| | 806 | 4500 | 3350 |

6.6 kV / 60 Hz

| Model | 6P | 8P | |
|-------|-----|------|------|
| HLA9 | 630 | 1100 | 800 |
| | 632 | 1200 | 900 |
| | 634 | 1350 | 1000 |
| | 636 | 1500 | 1100 |
| | 638 | 1700 | 1250 |
| | 710 | 1900 | 1400 |
| | 712 | 2150 | 1600 |
| | 714 | 2400 | 1800 |
| | 716 | 2700 | 2000 |
| | 800 | 2950 | 2200 |
| | 802 | 3350 | 2500 |
| | 804 | 3600 | 2700 |
| | 806 | 4000 | 3000 |

S2 - 60 min., F/90K(95K)

3.3 kV / 60 Hz

| Model | 6P | 8P | |
|-------|-----|------|------|
| HLA9 | 630 | 1050 | 750 |
| | 632 | 1150 | 820 |
| | 634 | 1250 | 900 |
| | 636 | 1400 | 1000 |
| | 638 | 1600 | 1150 |
| | 710 | 1900 | 1350 |
| | 712 | 2100 | 1500 |
| | 714 | 2350 | 1700 |
| | 716 | 2650 | 1900 |
| | 800 | 3050 | 2200 |
| | 802 | 3400 | 2450 |
| | 804 | 3750 | 2700 |
| | 806 | 4200 | 3000 |

6.6 kV / 60 Hz

| Model | 6P | 8P | |
|-------|-----|------|------|
| HLA9 | 630 | 950 | 690 |
| | 632 | 1050 | 770 |
| | 634 | 1150 | 840 |
| | 636 | 1300 | 950 |
| | 638 | 1450 | 1050 |
| | 710 | 1700 | 1250 |
| | 712 | 1900 | 1400 |
| | 714 | 2150 | 1550 |
| | 716 | 2400 | 1750 |
| | 800 | 2700 | 2000 |
| | 802 | 3000 | 2200 |
| | 804 | 3350 | 2450 |
| | 806 | 3750 | 2750 |

S2 - 30 min., F/100K

3.3 kV / 60 Hz

| Model | 6P | 8P | |
|-------|-----|------|------|
| HLA9 | 630 | 1450 | 1050 |
| | 632 | 1600 | 1150 |
| | 634 | 1800 | 1300 |
| | 636 | 2000 | 1400 |
| | 638 | 2200 | 1550 |
| | 710 | 2550 | 1850 |
| | 712 | 2850 | 2050 |
| | 714 | 3200 | 2300 |
| | 716 | 3600 | 2600 |
| | 800 | 4000 | 2900 |
| | 802 | 4500 | 3250 |
| | 804 | 5000 | 3600 |
| | 806 | 5500 | 4000 |

6.6 kV / 60 Hz

| Model | 6P | 8P | |
|-------|-----|------|------|
| HLA9 | 630 | 1300 | 950 |
| | 632 | 1450 | 1050 |
| | 634 | 1600 | 1150 |
| | 636 | 1800 | 1300 |
| | 638 | 2000 | 1450 |
| | 710 | 2300 | 1700 |
| | 712 | 2600 | 1900 |
| | 714 | 2900 | 2100 |
| | 716 | 3300 | 2400 |
| | 800 | 3600 | 2650 |
| | 802 | 4100 | 3000 |
| | 804 | 4500 | 3300 |
| | 806 | 5000 | 3700 |

S2 - 30 min., F/90K(95K)

3.3 kV / 60 Hz

| Model | 6P | 8P | |
|-------|-----|------|------|
| HLA9 | 630 | 1250 | 900 |
| | 632 | 1350 | 1000 |
| | 634 | 1500 | 1100 |
| | 636 | 1700 | 1250 |
| | 638 | 1900 | 1400 |
| | 710 | 2250 | 1650 |
| | 712 | 2500 | 1850 |
| | 714 | 2850 | 2050 |
| | 716 | 3150 | 2300 |
| | 800 | 3550 | 2600 |
| | 802 | 4000 | 2900 |
| | 804 | 4450 | 3250 |
| | 806 | 4900 | 3600 |

6.6 kV / 60 Hz

| Model | 6P | 8P | |
|-------|-----|------|------|
| HLA9 | 630 | 1150 | 830 |
| | 632 | 1250 | 900 |
| | 634 | 1400 | 1000 |
| | 636 | 1550 | 1100 |
| | 638 | 1750 | 1250 |
| | 710 | 2050 | 1500 |
| | 712 | 2250 | 1650 |
| | 714 | 2550 | 1850 |
| | 716 | 2850 | 2050 |
| | 800 | 3300 | 2400 |
| | 802 | 3600 | 2650 |
| | 804 | 4050 | 2950 |
| | 806 | 4500 | 3300 |

DP (IP22)

S2 - 60 minute

3.3 kV / 60 Hz

| Model | 6P | 8P | |
|-------|-----|------|------|
| HRA9 | 401 | 640 | 500 |
| | 403 | 800 | 630 |
| | 405 | 950 | 745 |
| | 451 | 1180 | 920 |
| | 453 | 1400 | 1100 |
| | 455 | 1600 | 1250 |
| | 501 | 1770 | 1400 |
| | 503 | 2000 | 1600 |
| | 505 | 2250 | 1800 |
| | 507 | 2500 | 2000 |

6.6 kV / 60 Hz

| Model | 6P | 8P | |
|-------|-----|------|------|
| HRA9 | 401 | 600 | 470 |
| | 403 | 750 | 590 |
| | 405 | 900 | 700 |
| | 451 | 1070 | 840 |
| | 453 | 1270 | 990 |
| | 455 | 1450 | 1140 |
| | 501 | 1580 | 1250 |
| | 503 | 1770 | 1400 |
| | 505 | 1980 | 1560 |
| | 507 | 2200 | 1750 |

S2 - 30 minute

3.3 kV / 60 Hz

| Model | 6P | 8P | |
|-------|-----|------|------|
| HRA9 | 401 | 660 | 520 |
| | 403 | 825 | 650 |
| | 405 | 980 | 770 |
| | 451 | 1200 | 1000 |
| | 453 | 1450 | 1150 |
| | 455 | 1650 | 1350 |
| | 501 | 1900 | 1550 |
| | 503 | 2100 | 1800 |
| | 505 | 2350 | 2000 |
| | 507 | 2600 | 2200 |

6.6 kV / 60 Hz

| Model | 6P | 8P | |
|-------|-----|------|------|
| HRA9 | 401 | 620 | 485 |
| | 403 | 770 | 610 |
| | 405 | 930 | 720 |
| | 451 | 1150 | 900 |
| | 453 | 1350 | 1050 |
| | 455 | 1500 | 1250 |
| | 501 | 1850 | 1400 |
| | 503 | 2000 | 1600 |
| | 505 | 2250 | 1800 |
| | 507 | 2500 | 2200 |

Ratings and Dimensions - TEFC, B3

Unit : mm

| Frame | Output (kW) | | | | Dimension | | | | | | | | | | |
|-------|-------------|------------|------------|------------|-----------|-----------------|-----|-----|------|-------|-----------------|-----|-----------------------|-----|---------------|
| | | | | | Overall | | | | | | Shaft | | | | |
| | 2P | 4P | 6P | 8P | AC | H ³⁾ | HB | HC | L | LB | D ¹⁾ | E | Key way ²⁾ | | |
| | | | | | | | | | | | | | F | GE | |
| 71 | 0.4 | 0.4 | 0.2 | - | 145 | 71 | 138 | 140 | 234 | 102 | 14 | 30 | 5 | 3 | 5 × 5 × 20 |
| 80 | 0.75 | 0.75 | 0.4 | 0.2 | 169 | 80 | 167 | 167 | 271 | 131 | 19 | 40 | 6 | 3.5 | 6 × 6 × 25 |
| 90L | 1.5 2.2 | 1.5 | 0.75 | 0.4 | 198 | 90 | 189 | 189 | 318 | 150 | 24 | 50 | 8 | 4 | 8 × 7 × 35 |
| 100L | - | 2.2 | 1.5 | 0.75 | 191 | 100 | 223 | 213 | 368 | 175 | 28 | 60 | 8 | 4 | 8 × 7 × 45 |
| 112M | 3.7 | 3.7 | 2.2 | 1.5 | 216 | 112 | 234 | 239 | 389 | 189 | 28 | 60 | 8 | 4 | 8 × 7 × 45 |
| 132S | 5.5 7.5 | 5.5 | 3.7 | 2.2 | 256 | 132 | 279 | 278 | 460 | 221 | 38 | 80 | 10 | 5 | 10 × 8 × 63 |
| 132M | - | 7.5 | 5.5 | 3.7 | 256 | 132 | 279 | 278 | 498 | 240 | 38 | 80 | 10 | 5 | 10 × 8 × 63 |
| 160M | 11 15 | 11 | 7.5 | 5.5 | 312 | 160 | 333 | 334 | 606 | 283 | 42 | 110 | 12 | 5 | 12 × 8 × 80 |
| 160L | 18.5 | 15 | 11 | 7.5 | 312 | 160 | 333 | 334 | 650 | 305 | 42 | 110 | 12 | 5 | 12 × 8 × 80 |
| 180M | 22 | 18.5 22 | 15 | 11 | 342 | 180 | 373 | 374 | 676 | 324 | 48 | 110 | 14 | 5.5 | 14 × 9 × 80 |
| 180L | 30 | 30 | 18.5 22 | 15 | 342 | 180 | 373 | 374 | 714 | 343 | 55 | 110 | 16 | 6 | 16 × 10 × 80 |
| 200L | 37 45 | - | - | - | 411 | 200 | 403 | 405 | 771 | 375.5 | 55 | 110 | 16 | 6 | 16 × 10 × 80 |
| | - | 37 45 | 30 37 | 18.5 22 | 411 | 200 | 403 | 405 | 801 | 375.5 | 60 | 140 | 18 | 7 | 18 × 11 × 110 |
| 200LL | 37 45 | - | - | - | 411 | 200 | 403 | 405 | 821 | 400.5 | 55 | 110 | 16 | 6 | 16 × 10 × 80 |
| | - | 37 45 | 30 37 | 18.5 22 | 411 | 200 | 403 | 405 | 851 | 400.5 | 60 | 140 | 18 | 7 | 18 × 11 × 110 |
| 225S | 55 | - | - | - | 463 | 225 | 470 | 456 | 824 | 409.5 | 55 | 110 | 16 | 6 | 16 × 10 × 80 |
| | - | 55 | 45 | 30 | 463 | 225 | 470 | 456 | 854 | 409.5 | 65 | 140 | 18 | 7 | 18 × 11 × 110 |
| 250S | 75 | - | - | - | 512 | 250 | 528 | 506 | 915 | 462.5 | 55 | 110 | 16 | 6 | 16 × 10 × 80 |
| | - | 75 | 55 | 37 | 512 | 250 | 528 | 506 | 945 | 462.5 | 75 | 140 | 20 | 7.5 | 20 × 12 × 110 |
| 250M | 90 | - | - | - | 512 | 250 | 528 | 506 | 915 | 462.5 | 55 | 110 | 16 | 6 | 16 × 10 × 80 |
| | - | 90 | 75 | 45 | 512 | 250 | 528 | 506 | 945 | 462.5 | 75 | 140 | 20 | 7.5 | 20 × 12 × 110 |
| 280S | 110 | - | - | - | 569 | 280 | 589 | 559 | 1031 | 521.5 | 55 | 110 | 16 | 6 | 16 × 10 × 80 |
| | - | 110 | 90 | 55 | 569 | 280 | 589 | 559 | 1091 | 521.5 | 85 | 170 | 22 | 9 | 22 × 14 × 140 |
| 280M | 132 | - | - | - | 569 | 280 | 589 | 559 | 1031 | 521.5 | 55 | 110 | 16 | 6 | 16 × 10 × 80 |
| | - | 132 | 110 | 75 | 569 | 280 | 589 | 559 | 1091 | 521.5 | 85 | 170 | 22 | 9 | 22 × 14 × 140 |
| 280L | 160 | - | - | - | 569 | 280 | 589 | 559 | 1120 | 566 | 55 | 110 | 16 | 6 | 16 × 10 × 80 |
| | - | 160 | 132 | 90 | 569 | 280 | 589 | 559 | 1180 | 566 | 85 | 170 | 22 | 9 | 22 × 14 × 140 |
| 280LL | 200 | - | - | - | 569 | 280 | 589 | 559 | 1250 | 632.5 | 55 | 110 | 16 | 6 | 16 × 10 × 80 |
| | - | 200 | 150 | 110 | 569 | 280 | 589 | 559 | 1310 | 632.5 | 85 | 170 | 22 | 9 | 22 × 14 × 140 |
| 284 | - | 200 | 185 | - | 650 | 280 | 845 | 588 | 1445 | 965.5 | 85 | 170 | 22 | 9 | 22 × 14 × 160 |
| 286 | - | 220 | 200 | - | 650 | 280 | 845 | 588 | 1445 | 965.5 | 85 | 170 | 22 | 9 | 22 × 14 × 160 |
| 288 | - | 250 | 220 | - | 650 | 280 | 845 | 588 | 1445 | 965.5 | 85 | 170 | 22 | 9 | 22 × 14 × 160 |
| 314 | - | 280 | 250 | - | 700 | 315 | 900 | 658 | 1550 | 1014 | 85 | 170 | 22 | 9 | 22 × 14 × 160 |
| 315 | - | 315 | 280 | - | 700 | 315 | 900 | 658 | 1550 | 1014 | 85 | 170 | 22 | 9 | 22 × 14 × 160 |
| 35S | - | 335 | 300 | - | 740 | 355 | 955 | 712 | 1810 | 1180 | 100 | 210 | 28 | 10 | 28 × 16 × 200 |
| 350 | - | 355 | 315 | - | 740 | 355 | 955 | 712 | 1810 | 1180 | 100 | 210 | 28 | 10 | 28 × 16 × 200 |
| 352 | - | 400 | 355 | - | 740 | 355 | 955 | 712 | 1810 | 1180 | 100 | 210 | 28 | 10 | 28 × 16 × 200 |
| 354 | - | 450 | 400 | - | 740 | 355 | 955 | 712 | 1810 | 1180 | 100 | 210 | 28 | 10 | 28 × 16 × 200 |

※ 1) Dimension D tolerance : ~ φ 28 : j6, ~ φ 48 : k6, φ 55~ : m6 2) Key way tolerance : N9 3) Dimension H tolerance : H ≤ 250 mm : 0, -0.5, H ≥ 280 mm : 0, -1.0

Fig. A

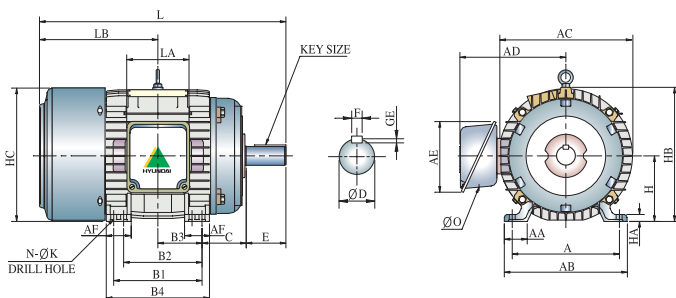
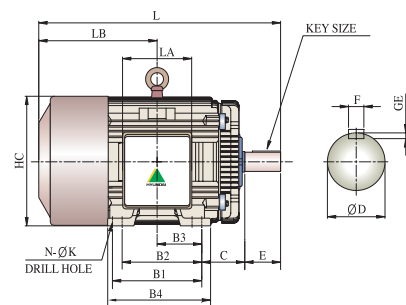


Fig. B





Unit : mm

| Frame | Mounting | | | | | | | | | | | Conduit Box | | | | | Approx Wt. (kg) | Fig. |
|-------|----------|-----|-----|----|-------|-------|-------|-----|-----|-----------------|---|-------------|-----|-----|----|------|-----------------|------|
| | A | AA | AB | HA | B1 | B2 | B3 | B4 | C | K ⁴⁾ | N | AD | AE | LA | O | | | |
| | Hole | | PF | | | | | | | | | | | | | | | |
| 71 | 112 | 30 | 145 | 7 | 90 | - | 45 | 112 | 45 | 7 | 4 | 144 | 90 | 70 | 10 | 0.75 | 15 | A |
| 80 | 125 | 30 | 158 | 10 | 100 | - | 50 | 125 | 50 | 10 | 4 | 149 | 90 | 88 | 13 | 0.75 | 18 | |
| 90L | 140 | 45 | 172 | 12 | 125 | - | 62.5 | 156 | 56 | 10 | 4 | 164 | 90 | 88 | 13 | 0.75 | 20 | |
| 100L | 160 | 44 | 194 | 12 | 140 | - | 70 | 166 | 63 | 12 | 4 | 175 | 105 | 88 | 22 | 0.5 | 30 | |
| 112M | 190 | 49 | 226 | 13 | 140 | (114) | 70 | 166 | 70 | 12 | 8 | 188 | 115 | 105 | 28 | 0.75 | 46 | |
| 132S | 216 | 50 | 264 | 14 | 140 | - | 70 | 172 | 89 | 12 | 4 | 218 | 146 | 125 | 35 | 1 | 61 | |
| 132M | 216 | 50 | 264 | 14 | 178 | (140) | 89 | 210 | 89 | 12 | 8 | 218 | 146 | 125 | 35 | 1 | 74 | |
| 160M | 254 | 50 | 285 | 16 | 210 | - | 105 | 243 | 108 | 15 | 4 | 287 | 193 | 150 | 44 | 1.25 | 116 | |
| 160L | 254 | 50 | 285 | 16 | 254 | (210) | 127 | 287 | 108 | 15 | 8 | 287 | 193 | 150 | 44 | 1.25 | 135 | |
| 180M | 279 | 57 | 315 | 18 | 241 | - | 120.5 | 280 | 121 | 15 | 4 | 301 | 193 | 150 | 50 | 1.5 | 172 | |
| 180L | 279 | 57 | 315 | 18 | 279 | (241) | 139.5 | 325 | 121 | 15 | 8 | 301 | 193 | 150 | 50 | 1.5 | 181 | |
| 200L | 318 | 60 | 364 | 23 | 305 | (267) | 152.5 | 350 | 133 | 19 | 8 | 362 | 260 | 180 | 60 | 2 | 297 | |
| | 318 | 60 | 364 | 23 | 305 | (267) | 152.5 | 350 | 133 | 19 | 8 | 362 | 260 | 180 | 60 | 2 | 297 | |
| 200LL | 318 | 60 | 364 | 23 | (355) | 305 | 177.5 | 350 | 133 | 19 | 8 | 362 | 260 | 180 | 60 | 2 | 320 | |
| | 318 | 60 | 364 | 23 | (355) | 305 | 177.5 | 350 | 133 | 19 | 8 | 362 | 260 | 180 | 60 | 2 | 320 | |
| 225S | 356 | 69 | 410 | 25 | (311) | 286 | 155.5 | 379 | 149 | 19 | 8 | 407 | 260 | 180 | 60 | 2 | 360 | |
| | 356 | 69 | 410 | 25 | (311) | 286 | 155.5 | 379 | 149 | 19 | 8 | 407 | 260 | 180 | 60 | 2 | 370 | |
| 250S | 406 | 77 | 468 | 30 | (349) | 311 | 174.5 | 418 | 168 | 24 | 8 | 497 | 296 | 270 | 76 | 2.5 | 450 | |
| | 406 | 77 | 468 | 30 | (349) | 311 | 174.5 | 418 | 168 | 24 | 8 | 497 | 296 | 270 | 76 | 2.5 | 490 | |
| 250M | 406 | 77 | 468 | 30 | 349 | (311) | 174.5 | 418 | 168 | 24 | 8 | 497 | 296 | 270 | 76 | 2.5 | 480 | |
| | 406 | 77 | 468 | 30 | 349 | (311) | 174.5 | 418 | 168 | 24 | 8 | 497 | 296 | 270 | 76 | 2.5 | 525 | |
| 280S | 457 | 78 | 521 | 36 | (419) | 368 | 209.5 | 488 | 190 | 24 | 8 | 527 | 296 | 270 | 76 | 2.5 | 700 | |
| | 457 | 78 | 521 | 36 | (419) | 368 | 209.5 | 488 | 190 | 24 | 8 | 527 | 296 | 270 | 76 | 2.5 | 710 | |
| 280M | 457 | 78 | 521 | 36 | 419 | (368) | 209.5 | 488 | 190 | 24 | 8 | 527 | 296 | 270 | 76 | 2.5 | 790 | |
| | 457 | 78 | 521 | 36 | 419 | (368) | 209.5 | 488 | 190 | 24 | 8 | 527 | 296 | 270 | 76 | 2.5 | 800 | |
| 280L | 457 | 78 | 521 | 36 | 508 | (457) | 254 | 577 | 190 | 24 | 8 | 527 | 296 | 270 | 76 | 2.5 | 850 | |
| | 457 | 78 | 521 | 36 | 508 | (457) | 254 | 577 | 190 | 24 | 8 | 527 | 296 | 270 | 76 | 2.5 | 860 | |
| 280LL | 457 | 78 | 521 | 36 | 635 | 508 | 317.5 | 704 | 190 | 24 | 8 | 527 | 296 | 270 | 76 | 2.5 | 1100 | |
| | 457 | 78 | 521 | 36 | 635 | 508 | 317.5 | 704 | 190 | 24 | 8 | 527 | 296 | 270 | 76 | 2.5 | 1130 | |
| 284 | 457 | 91 | 560 | 30 | 630 | - | 119.5 | 730 | 190 | 24 | 4 | 600 | 615 | 505 | - | - | 1250 | |
| 286 | 457 | 91 | 560 | 30 | 630 | - | 119.5 | 730 | 190 | 24 | 4 | 600 | 615 | 505 | - | - | 1330 | |
| 288 | 457 | 91 | 560 | 30 | 630 | - | 119.5 | 730 | 190 | 24 | 4 | 600 | 615 | 505 | - | - | 1410 | |
| 314 | 508 | 120 | 628 | 35 | 457 | - | 150 | 637 | 216 | 28 | 4 | 695 | 615 | 505 | - | - | 1470 | |
| 315 | 508 | 120 | 628 | 35 | 457 | - | 150 | 637 | 216 | 28 | 4 | 695 | 615 | 505 | - | - | 1560 | |
| 35S | 610 | 120 | 730 | 45 | 800 | - | 220 | 970 | 200 | 28 | 4 | 750 | 615 | 505 | - | - | 1700 | |
| 350 | 610 | 120 | 730 | 45 | 800 | - | 220 | 970 | 200 | 28 | 4 | 750 | 615 | 505 | - | - | 1800 | |
| 352 | 610 | 120 | 730 | 45 | 800 | - | 220 | 970 | 200 | 28 | 4 | 750 | 615 | 505 | - | - | 1950 | |
| 354 | 610 | 120 | 730 | 45 | 800 | - | 220 | 970 | 200 | 28 | 4 | 750 | 615 | 505 | - | - | 2200 | |

※ 4) Foot hole tolerance : φ K ≥ 200LL : 0 ~ +0.43, φ K ≤ 225S : 0 ~ +0.52

Fig. B

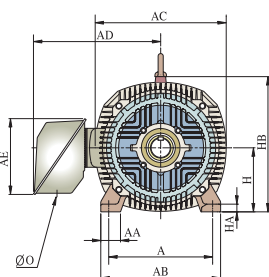
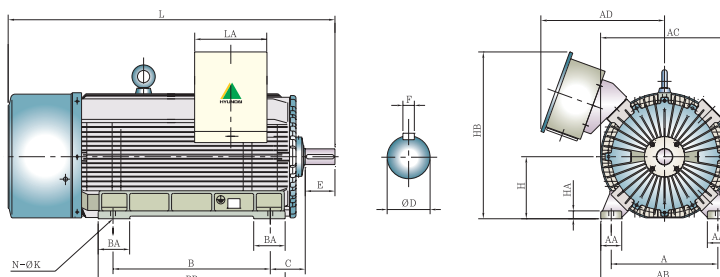


Fig. C



Ratings and Dimensions - TEFC, B5 and V1

Unit : mm

| Frame | KS & JIS Frame Number | Output (kW) | | | | Dimension | | | | | | | | |
|-------|-----------------------|-------------|------------|------------|------------|-----------|------|------|-------|-----------------|-----|-----------------------|----------|---------------|
| | | 2P | 4P | 6P | 8P | Overall | | | | Shaft | | | Key Size | |
| | | | | | | AC | L | LB | LC | D ¹⁾ | E | Key way ²⁾ | | |
| F | GE | | | | | | | | | | | | | |
| 71 | FF130 | 0.4 | 0.4 | 0.2 | 0.1 | 122 | 247 | 217 | 112 | 14 | 30 | 5 | 5 | 5 × 5 × 25 |
| 80 | FF165 | 0.75 | 0.75 | 0.4 | 0.2 | 131 | 293 | 253 | 127 | 19 | 40 | 6 | 6 | 6 × 6 × 30 |
| 90L | FF165 | 1.5 2.2 | 1.5 | 0.75 | 0.4 | 150 | 341 | 291 | 154 | 24 | 50 | 8 | 7 | 8 × 7 × 45 |
| 100L | FF215 | - | 2.2 | 1.5 | 0.75 | 191 | 368 | 308 | 175 | 28 | 60 | 8 | 4 | 8 × 7 × 45 |
| 112M | FF215 | 3.7 | 3.7 | 2.2 | 1.5 | 251 | 414 | 354 | 189 | 28 | 60 | 8 | 4 | 8 × 7 × 45 |
| 132S | FF265 | 5.5 7.5 | 5.5 | 3.7 | 2.2 | 292 | 495 | 415 | 221 | 38 | 80 | 10 | 5 | 10 × 8 × 63 |
| 132M | FF265 | - | 7.5 | 5.5 | 3.7 | 292 | 533 | 453 | 240 | 38 | 80 | 10 | 5 | 10 × 8 × 63 |
| 160M | FF300 | 11 15 | 11 | 7.5 | 5.5 | 347 | 660 | 550 | 283 | 42 | 110 | 12 | 5 | 12 × 8 × 80 |
| 160L | FF300 | 18.5 | 15 | 11 | 7.5 | 347 | 664 | 514 | 305 | 42 | 110 | 12 | 5 | 12 × 8 × 80 |
| 180M | FF350 | 22 | 18.5 22 | 15 | 11 | 387 | 669 | 609 | 324 | 48 | 110 | 14 | 5.5 | 14 × 9 × 80 |
| 180L | FF350 | 30 | 30 | 18.5 22 | 15 | 387 | 757 | 647 | 343 | 55 | 110 | 16 | 6 | 16 × 10 × 80 |
| 200L | FF400 | 37 45 | - | - | - | 405 | 771 | 661 | 375.5 | 55 | 110 | 16 | 6 | 16 × 10 × 80 |
| | | - | 37 45 | 30 37 | 18.5 22 | 405 | 801 | 661 | 375.5 | 60 | 140 | 18 | 7 | 18 × 11 × 110 |
| 200LL | FF400 | 37 45 | - | - | - | 405 | 821 | 711 | 400.5 | 55 | 110 | 16 | 6 | 16 × 10 × 80 |
| | | - | 37 45 | 30 37 | 18.5 22 | 405 | 851 | 711 | 400.5 | 60 | 140 | 18 | 7 | 18 × 11 × 110 |
| 225S | FF500 | 55 | - | - | - | 450 | 824 | 714 | 409.5 | 55 | 110 | 16 | 6 | 16 × 10 × 80 |
| | | - | 55 | 45 | 30 | 450 | 854 | 714 | 409.5 | 65 | 140 | 18 | 7 | 18 × 11 × 110 |
| 250S | FF500 | 75 | - | - | - | 500 | 915 | 805 | 462.5 | 55 | 110 | 16 | 6 | 16 × 10 × 80 |
| | | - | 75 | 55 | 37 | 500 | 945 | 805 | 462.5 | 75 | 140 | 20 | 7.5 | 20 × 12 × 110 |
| 250M | FF500 | 90 | - | - | - | 500 | 915 | 805 | 462.5 | 55 | 110 | 16 | 6 | 16 × 10 × 80 |
| | | - | 90 | 75 | 45 | 500 | 945 | 805 | 462.5 | 75 | 140 | 20 | 7.5 | 20 × 12 × 110 |
| 280S | FF600 | 110 | - | - | - | 570 | 1031 | 921 | 521.5 | 55 | 110 | 16 | 6 | 16 × 10 × 80 |
| | | - | 110 | 90 | 55 | 570 | 1091 | 921 | 521.5 | 85 | 170 | 22 | 9 | 22 × 14 × 140 |
| 280M | FF600 | 132 | - | - | - | 570 | 1031 | 921 | 521.5 | 55 | 110 | 16 | 6 | 16 × 10 × 80 |
| | | - | 132 | 110 | 75 | 570 | 1091 | 921 | 521.5 | 85 | 170 | 22 | 9 | 22 × 14 × 140 |
| 280L | FF600 | 160 | - | - | - | 570 | 1120 | 1010 | 566 | 55 | 110 | 16 | 6 | 16 × 10 × 80 |
| | | - | 160 | 132 | 90 | 570 | 1180 | 1010 | 566 | 85 | 170 | 22 | 9 | 22 × 14 × 140 |
| 280LL | FF600 | 200 | - | - | - | 570 | 1247 | 1137 | 629.5 | 55 | 110 | 16 | 6 | 16 × 10 × 80 |
| | | - | 187 | 150 | 110 | 570 | 1307 | 1137 | 629.5 | 85 | 170 | 22 | 9 | 22 × 14 × 140 |
| 284 | FF680 | - | 200 | 185 | - | 650 | 1560 | 1390 | - | 85 | 170 | 22 | 9 | 22 × 14 × 160 |
| 286 | FF680 | - | 220 | 200 | - | 650 | 1560 | 1390 | - | 85 | 170 | 22 | 9 | 22 × 14 × 160 |
| 288 | FF680 | - | 250 | 220 | - | 650 | 1560 | 1390 | - | 85 | 170 | 22 | 9 | 22 × 14 × 160 |
| 314 | FF680 | - | 280 | 250 | - | 700 | 1720 | 1550 | - | 85 | 170 | 22 | 9 | 22 × 14 × 160 |
| 315 | FF680 | - | 315 | 280 | - | 700 | 1720 | 1550 | - | 85 | 170 | 22 | 9 | 22 × 14 × 160 |
| 35S | FF680 | - | 335 | 300 | - | 732 | 2020 | 1810 | - | 100 | 210 | 28 | 10 | 28 × 16 × 200 |
| 350 | FF680 | - | 355 | 315 | - | 732 | 2020 | 1810 | - | 100 | 210 | 28 | 10 | 28 × 16 × 200 |
| 352 | FF680 | - | 400 | 355 | - | 732 | 2020 | 1810 | - | 100 | 210 | 28 | 10 | 28 × 16 × 200 |
| 354 | FF680 | - | 450 | 400 | - | 732 | 2020 | 1810 | - | 100 | 210 | 28 | 10 | 28 × 16 × 200 |

※ 1) Dimension D tolerance : ~ φ 28 : j6, ~ φ 48 : k6, φ 55- : m6 2) Key way tolerance : N9

Fig. A

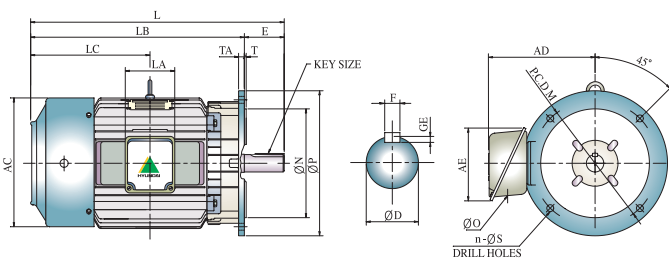
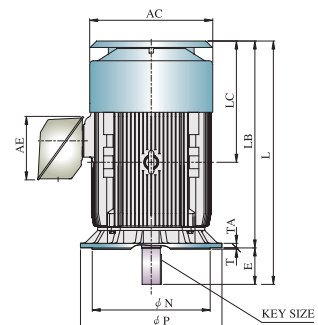
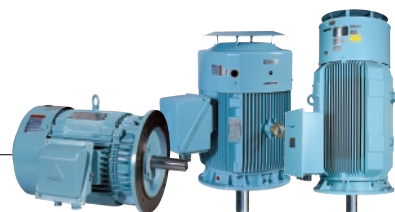


Fig. B





Unit : mm

| Frame | KS & JIS Frame Number | Flange | | | | | | | Conduit Box | | | | | Approx Wt. (kg) | Fig. |
|-------|-----------------------|--------|-----------------|-----|---|----|----|-----|-------------|-----|-----|------|------|-----------------|------|
| | | M | N ³⁾ | P | n | S | TA | T | AD | AE | LA | O | | | |
| | | | | | | | | | | | | Hole | PF | | |
| 71 | FF130 | 130 | 110 | 160 | 4 | 10 | 10 | 3.5 | - | 95 | 72 | 10 | 0.75 | 10 | A |
| 80 | FF165 | 165 | 130 | 200 | 4 | 12 | 12 | 3.5 | - | 97 | 86 | 13 | 0.75 | 12 | |
| 90L | FF165 | 165 | 130 | 200 | 4 | 12 | 12 | 3.5 | - | 97 | 86 | 13 | 0.75 | 14 | |
| 100L | FF215 | 215 | 180 | 250 | 4 | 15 | 13 | 4 | 175 | 105 | 88 | 22 | 0.75 | 30 | |
| 112M | FF215 | 215 | 180 | 250 | 4 | 15 | 13 | 4 | 188 | 115 | 105 | 28 | 0.75 | 46 | |
| 132S | FF265 | 265 | 230 | 300 | 4 | 15 | 16 | 4 | 218 | 146 | 125 | 35 | 1 | 61 | |
| 132M | FF265 | 265 | 230 | 300 | 4 | 15 | 16 | 4 | 218 | 146 | 125 | 35 | 1 | 74 | |
| 160M | FF300 | 300 | 250 | 350 | 4 | 19 | 16 | 5 | 287 | 193 | 150 | 44 | 1.25 | 116 | |
| 160L | FF300 | 300 | 250 | 350 | 4 | 19 | 16 | 5 | 287 | 193 | 150 | 44 | 1.25 | 135 | |
| 180M | FF350 | 350 | 300 | 400 | 4 | 19 | 16 | 5 | 301 | 193 | 150 | 50 | 1.5 | 172 | |
| 180L | FF350 | 350 | 300 | 400 | 4 | 19 | 16 | 5 | 301 | 193 | 150 | 50 | 1.5 | 181 | |
| 200L | FF400 | 400 | 350 | 450 | 8 | 19 | 21 | 5 | 362 | 260 | 180 | 60 | 2 | 297 | |
| | | 400 | 350 | 450 | 8 | 19 | 21 | 5 | 362 | 260 | 180 | 60 | 2 | 297 | |
| 200LL | FF400 | 400 | 350 | 450 | 8 | 19 | 21 | 5 | 362 | 260 | 180 | 60 | 2 | 297 | |
| | | 400 | 350 | 450 | 8 | 19 | 21 | 5 | 362 | 260 | 180 | 60 | 2 | 297 | |
| 225S | FF500 | 500 | 450 | 550 | 8 | 19 | 21 | 5 | 387 | 260 | 180 | 60 | 2 | 400 | |
| | | 500 | 450 | 550 | 8 | 19 | 21 | 5 | 387 | 260 | 180 | 60 | 2 | 410 | |
| 250S | FF500 | 500 | 450 | 550 | 8 | 19 | 22 | 5 | 474 | 296 | 270 | 76 | 2.5 | 500 | |
| | | 500 | 450 | 550 | 8 | 19 | 22 | 5 | 474 | 296 | 270 | 76 | 2.5 | 535 | |
| 250M | FF500 | 500 | 450 | 550 | 8 | 19 | 22 | 5 | 474 | 296 | 270 | 76 | 2.5 | 530 | |
| | | 500 | 450 | 550 | 8 | 19 | 22 | 5 | 474 | 296 | 270 | 76 | 2.5 | 565 | |
| 280S | FF600 | 600 | 550 | 660 | 8 | 24 | 25 | 5 | 510 | 296 | 270 | 76 | 2.5 | 780 | |
| | | 600 | 550 | 660 | 8 | 24 | 25 | 5 | 510 | 296 | 270 | 76 | 2.5 | 790 | |
| 280M | FF600 | 600 | 550 | 660 | 8 | 24 | 25 | 5 | 510 | 296 | 270 | 76 | 2.5 | 870 | |
| | | 600 | 550 | 660 | 8 | 24 | 25 | 5 | 510 | 296 | 270 | 76 | 2.5 | 880 | |
| 280L | FF600 | 600 | 550 | 660 | 8 | 24 | 25 | 5 | 510 | 296 | 270 | 76 | 2.5 | 930 | |
| | | 600 | 550 | 660 | 8 | 24 | 25 | 5 | 510 | 296 | 270 | 76 | 2.5 | 940 | |
| 280LL | FF600 | 600 | 550 | 660 | 8 | 24 | 25 | 5 | 510 | 296 | 270 | 76 | 2.5 | 1180 | |
| | | 600 | 550 | 660 | 8 | 24 | 25 | 5 | 510 | 296 | 270 | 76 | 2.5 | 1210 | |
| 284 | FF680 | 740 | 680 | 800 | 8 | 23 | 25 | 6 | 610 | 615 | 505 | - | - | 1320 | |
| 286 | FF680 | 740 | 680 | 800 | 8 | 23 | 25 | 6 | 610 | 615 | 505 | - | - | 1400 | |
| 288 | FF680 | 740 | 680 | 800 | 8 | 23 | 25 | 6 | 610 | 615 | 505 | - | - | 1480 | |
| 314 | FF680 | 740 | 680 | 800 | 8 | 23 | 25 | 6 | 630 | 615 | 505 | - | - | 1580 | |
| 315 | FF680 | 740 | 680 | 800 | 8 | 23 | 25 | 6 | 630 | 615 | 505 | - | - | 1670 | |
| 355 | FF680 | 740 | 680 | 800 | 8 | 23 | 25 | 6 | 650 | 615 | 505 | - | - | 1830 | |
| 350 | FF680 | 740 | 680 | 800 | 8 | 23 | 25 | 6 | 650 | 615 | 505 | - | - | 1930 | |
| 352 | FF680 | 740 | 680 | 800 | 8 | 23 | 25 | 6 | 650 | 615 | 505 | - | - | 2080 | |
| 354 | FF680 | 740 | 680 | 800 | 8 | 23 | 25 | 6 | 650 | 615 | 505 | - | - | 2330 | |

※ 3) Dimension N tolerance : - φ 450 : j6, - φ 550 : js6

Fig. B

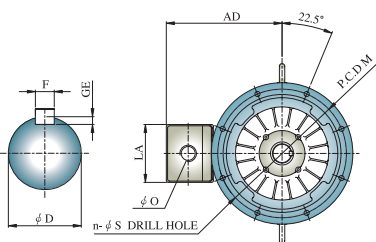
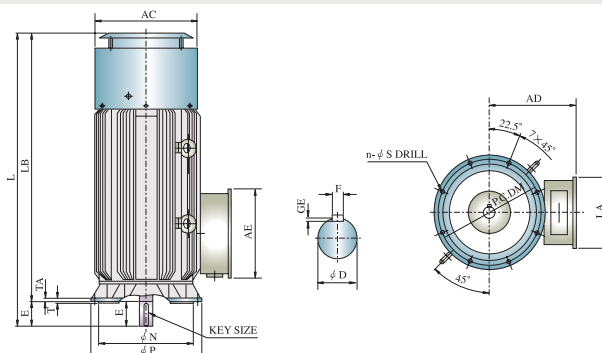
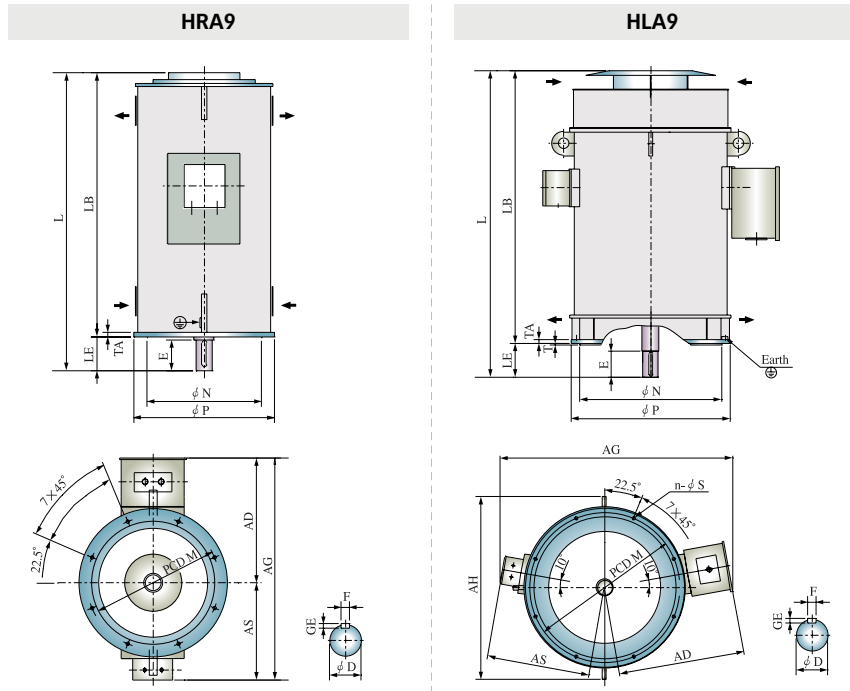


Fig. C



Outline Dimensions - HRA9 & HLA9



HRA9

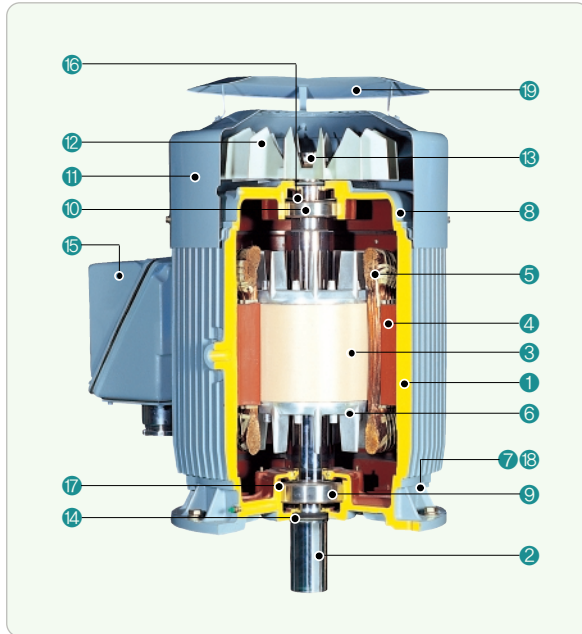
| Frame No. | AD | AG | AS | D | E | Key way | | L | LB | LE | M | N | P | n | S | T | TA |
|-----------|------|------|-----|-----|-----|---------|----|------|------|-----|------|-----|------|---|----|---|----|
| | | | | | | F | GE | | | | | | | | | | |
| 401 | 940 | 1575 | 635 | 130 | 250 | 32 | 18 | 1745 | 1485 | 260 | 960 | 795 | 1070 | 8 | 24 | | 30 |
| 403 | | | | 140 | | | | 1870 | 1610 | | | | | | | | |
| 405 | | | | 150 | | | | 1910 | 1650 | | | | | | | | |
| 451 | 980 | 1655 | 675 | 150 | 300 | 36 | 20 | 1910 | 1650 | 310 | 1080 | 885 | 1150 | 8 | 28 | | 30 |
| 453 | | | | 160 | | | | 2080 | 1770 | | | | | | | | |
| 455 | | | | 170 | | | | 2130 | 1820 | | | | | | | | |
| 501 | 1030 | 1755 | 725 | 170 | 300 | 40 | 22 | 2130 | 1820 | 310 | 1180 | 985 | 1250 | 8 | 28 | | 30 |
| 503 | | | | 180 | | | | 2320 | 2010 | | | | | | | | |
| 505 | | | | 180 | | | | 2320 | 2010 | | | | | | | | |
| 507 | | | | | | | | | | | | | | | | | |

HLA9

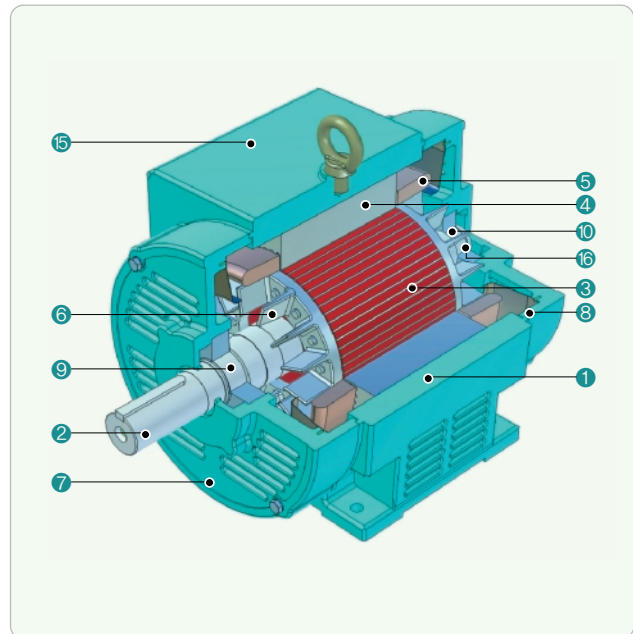
| Frame No. | AD | AG | AS | D | E | Key way | | L | LB | LE | M | N | P | n | S | T | TA |
|-----------|------|------|-----|-----|-----|---------|----|------|------|-----|------|------|------|----|----|---|----|
| | | | | | | F | GE | | | | | | | | | | |
| 630 | 1150 | 2020 | 810 | 120 | 250 | 32 | 18 | 1995 | 1060 | 135 | 1180 | 1120 | 1250 | 8 | 6 | | 36 |
| 632 | | | | | | | | 2125 | 1990 | | | | | | | | |
| 634 | | | | | | | | 2195 | 2060 | | | | | | | | |
| 636 | | | | | | | | 2275 | 2140 | | | | | | | | |
| 638 | | | | | | | | 2365 | 2230 | | | | | | | | |
| 710 | 1185 | 2090 | 845 | 140 | 250 | 36 | 20 | 2160 | 2012 | 148 | 1320 | 1250 | 1400 | 8 | 28 | | 39 |
| 712 | | | | | | | | 2220 | 2072 | | | | | | | | |
| 714 | | | | | | | | 2290 | 2142 | | | | | | | | |
| 716 | | | | | | | | 2370 | 2230 | | | | | | | | |
| 800 | | | | | | | | 2325 | 2135 | | | | | | | | |
| 802 | 1290 | 2280 | 890 | 160 | 300 | 40 | 22 | 2395 | 2205 | 190 | 1500 | 1400 | 1600 | 10 | | 8 | 42 |
| 804 | | | | | | | | 2475 | 2285 | | | | | | | | |
| 806 | | | | | | | | 2600 | 2410 | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Sectional Drawing

Totally Enclosed Fan Cooled(IP44)



Open Drip-proof(IP22)

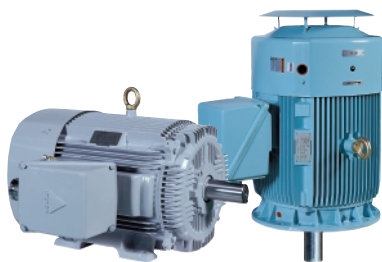


► Parts Description

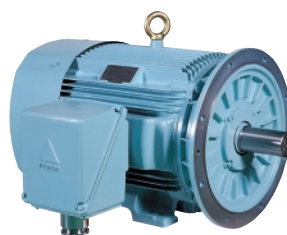
- | | | |
|------------------|----------------------------|----------------------|
| 1 Frame | 8 Bracket(O.D.E) | 15 Terminal Box |
| 2 Shaft | 9 Bearing(D.E) | 16 Wave Spring |
| 3 Rotor Core | 10 Bearing(O.D.E) | 17 Inner Bearing Cap |
| 4 Stator Core | 11 Fan Cover | 18 Flange |
| 5 Stator Coil | 12 Fan | 19 Canopy |
| 6 Bar & End Ring | 13 Fan Clamp | |
| 7 Bracket(D.E) | 14 V-Ring or Slinger(IP55) | |

Applications

Engine Room Pump Motor



Engine Aux. Blower Motor



Steering Gear Motor



LO Pump Motor



Bow Thruster Motor

