

# TOSHIBA



## LOW VOLTAGE MOTOR IEC Standard

- IE3 Premium Efficiency
- IE2 High Efficiency

# TOSHIBA

## About Toshiba Industrial Products Asia

Established in 2008, Toshiba Industrial Products Asia (TIPA) is one of the leading manufacturers of low voltage, high efficiency electric motors in Vietnam. TIPA inherited the technologies and manufacturing best practices from TOSHIBA Corporation, with over 150 years of expertise in electric motor manufacturing. Since the official production in 2010, TIPA has become one of the largest manufacturers of electric motors for Japan, America, Australia, Vietnam and Southeast Asia markets.



## Toshiba Industrial Products Asia always provides the appropriate products

Since TIPA's establishment, our engineers and sales team have been listening to the Voice of Customer (VOC), adhering to International Standards (JIS, IEC, NEMA) and proactively taking necessary steps to improve our products. TIPA continually improves and enhances the performance of our production lines.

With TIPA's philosophy is always listening to our customers, that drives us forward, enables us produce high quality and reliable products.

## Providing quality products to the industry

To stay competitive in the electric motor manufacturing industry and manufacture the highest quality products, TIPA must continue to obtain updated qualifications and certification each year for both our workforce and production plant. We are certified by ISO (9001, 14001, 45001). TIPA is the only company in Southeast Asia that has a laboratory that meets NVLAP (National Voluntary Laboratory Accreditation Program) standard, certified by The United States Department of Commerce and The National Institute of Standards and Technology (NIST) to test the reliability of motor products.

## Basic Commitment of The Toshiba Group

# Committed to People, Committed to the Future.

At Toshiba, we commit to raising the quality of life for people around the world, ensuring progress that is in harmony with our planet.



# 1. CERTIFICATION



**ISO 9001 - 2015**



**ISO 14001 - 2015**



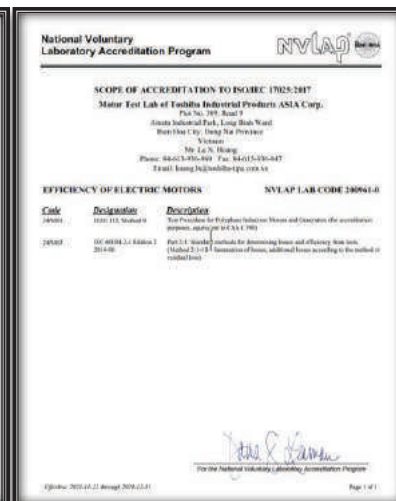
**ISO 45001 - 2018**



**Highest Energy Efficiency Products 2021, 2022 and 2023**  
(for more than 60 models)



**NVLAP: National Voluntary Laboratory Accreditation Program**



## 2. PROFILE

### 2.1 General Information

Toshiba is proud to introduce the new IEC motors product lines. This cutting-edge motor product line is designed to meet or exceed the competitive demands of the global market, as well as the requirements of the IEC 60034, while maintaining the high reliability and quality expected from Toshiba.

The IEC motor series is designed for severe duty applications. Building on over 20 years of success with the high efficiency motor series, the IEC features multiple new design enhancements that make it one of the lowest cost-of-ownership products in the industry.

Toshiba provides solutions and Global Supply Chain Management Systems (GSCMS) to meet the evolving needs of global customers.

### 2.2 Available Features

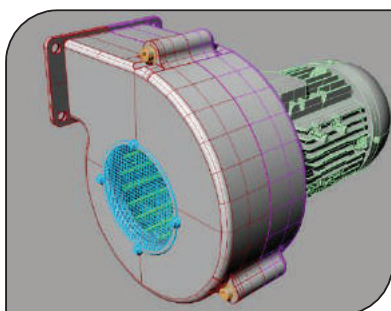
- IE3 Efficiency Levels per IEC 60034-30-1
- Meets or Exceeds Global Standard Specifications
- Aluminum Frame with Removable Base for 90 through 160 Frames
- Available Interchangeable Flange Options (B5/B35 and B14/34)
- IEC:  
Aluminum - 160 & Smaller Frame  
Cast Iron - 160 & Larger Frame

### 2.3 Suitable for various application

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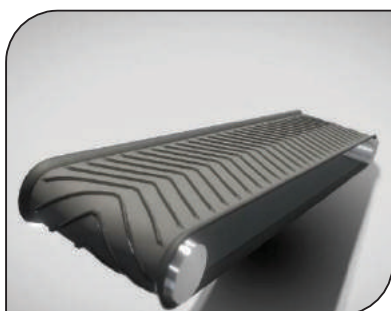


#### **Industrial Fans & Blowers**

Applied in HVAC System (Heating Ventilating and Air Conditioning), Cooling Tower, Chiller System

#### **Compressors**

Applied in agriculture, pharmaceutical industry, food, railway, automobile manufacturing, wood processing and other manufacturing industries

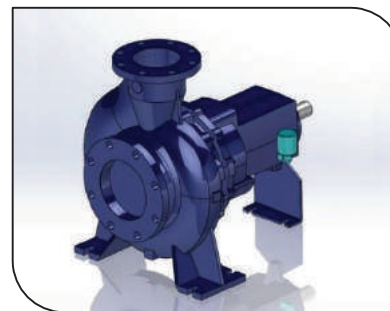


#### **Conveyor**

Applied in construction materials, chemicals, food, metallurgy, mining and other light industries

#### **Industrial Pumps**

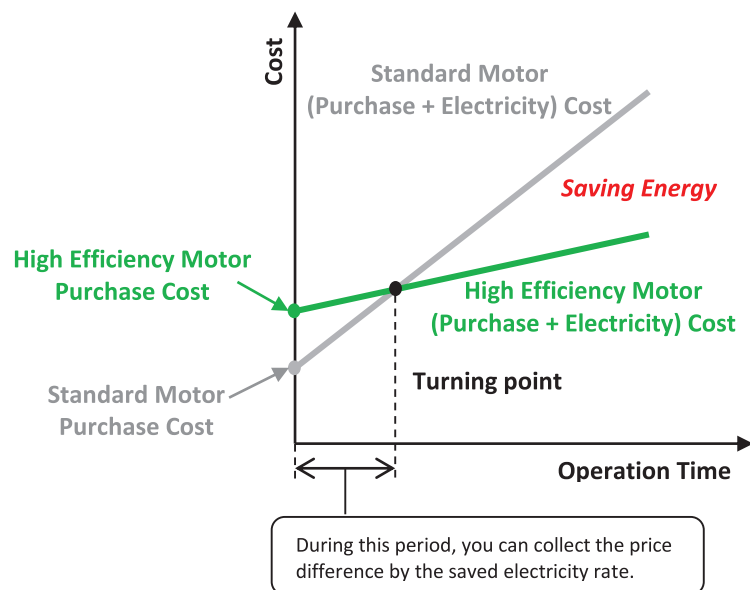
Applied in water supply and drainage systems, paint, printing, food, chemical, oil and gas industries and ceramic and porcelain production



## 2.4 Operational cost saving

High efficiency motor (IE3) can recover the price gap of initial purchase cost between IE3 motor and standard efficiency motor for a short period of time because of 30~40% loss reduction. IE3 motor improved energy saving effects because of much lower running cost than that of the existing high efficiency motor.

Note: This is a result of a trial comparison between our standard efficiency motors and high efficiency motor at rated output power. Loss reduction rate and payback period will depend on the usage condition.



### Calculating electricity cost

The following calculation formula indicates annual electricity cost saved by use of high efficiency motor. (Unit: US\$ per year)

$$S = W \times C \times N$$

W = Input power difference between standard efficiency motor and high efficiency motor (kW)

C = Electric utility rate (US\$/kWh)

\*Electric utility rate includes basic rate, taxes, etc., depending on contracted amount of electricity.

N = annual operation time (h/year)

<Example>

4poles-3.7kW-380V-50Hz, Operation time 5,000h/year, Electricity rate 0.1US\$/kWh

W = 0.363kW (from the table below), C = 0.1US\$/kWh, N = 5,000h/year.

Saved Electricity Rate S = W×C×N = 0.363×0.1×5,000 = 181.5US\$/year

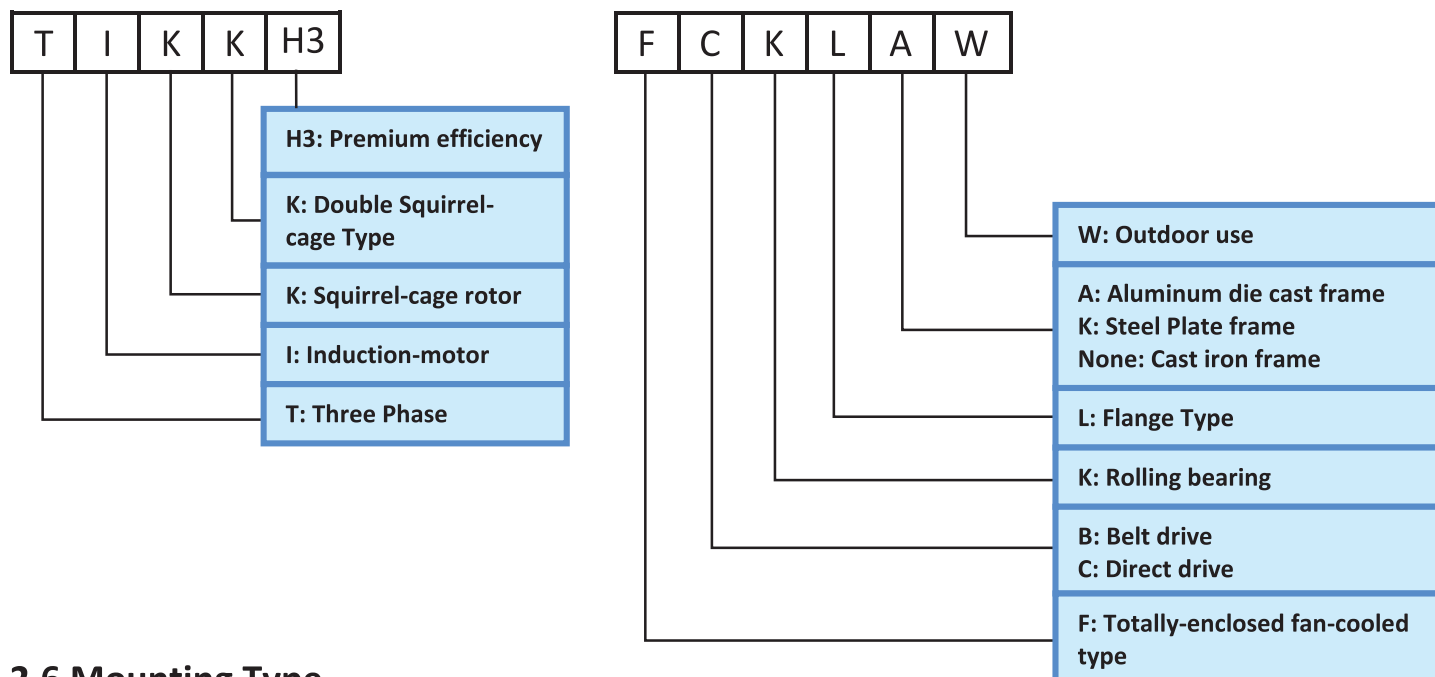
| Output (kW) | Voltage (V) | Frequency (Hz) | Input power difference between standard efficiency and high efficiency (kW) (at 100% load) |         |         |
|-------------|-------------|----------------|--------------------------------------------------------------------------------------------|---------|---------|
|             |             |                | 2 Poles                                                                                    | 4 Poles | 6 Poles |
| 0.75        | 380         | 50             | 0.040                                                                                      | 0.047   | 0.116   |
|             | 400         | 50             | 0.060                                                                                      | 0.047   | 0.112   |
|             | 415         | 50             | 0.066                                                                                      | 0.048   | 0.090   |
| 1.5         | 380         | 50             | 0.111                                                                                      | 0.136   | 0.307   |
|             | 400         | 50             | 0.082                                                                                      | 0.106   | 0.273   |
|             | 415         | 50             | 0.089                                                                                      | 0.095   | 0.229   |
| 2.2         | 380         | 50             | 0.143                                                                                      | 0.236   | 0.478   |
|             | 400         | 50             | 0.129                                                                                      | 0.201   | 0.460   |
|             | 415         | 50             | 0.156                                                                                      | 0.156   | 0.362   |
| 3.7         | 380         | 50             | 0.265                                                                                      | 0.363   | 0.455   |
|             | 400         | 50             | 0.309                                                                                      | 0.355   | 0.497   |
|             | 415         | 50             | 0.336                                                                                      | 0.295   | 0.411   |
| 5.5         | 380         | 50             | 0.292                                                                                      | 0.421   | 0.636   |
|             | 400         | 50             | 0.341                                                                                      | 0.383   | 0.675   |
|             | 415         | 50             | 0.407                                                                                      | 0.322   | 0.577   |

| Output (kW) | Voltage (V) | Frequency (Hz) | Input power difference between standard efficiency and high efficiency (kW) (at 100% load) |         |         |
|-------------|-------------|----------------|--------------------------------------------------------------------------------------------|---------|---------|
|             |             |                | 2 Poles                                                                                    | 4 Poles | 6 Poles |
| 7.5         | 380         | 50             | 0.391                                                                                      | 0.528   | 0.376   |
|             | 400         | 50             | 0.442                                                                                      | 0.432   | 0.407   |
|             | 415         | 50             | 0.345                                                                                      | 0.396   | 0.393   |
| 11          | 380         | 50             | 0.460                                                                                      | 0.744   | 0.632   |
|             | 400         | 50             | 0.384                                                                                      | 0.797   | 0.678   |
|             | 415         | 50             | 0.514                                                                                      | 0.647   | 0.639   |
| 15          | 380         | 50             | 0.491                                                                                      | 1.090   | 0.271   |
|             | 400         | 50             | 0.512                                                                                      | 1.210   | 0.257   |
|             | 415         | 50             | 0.542                                                                                      | 0.889   | 0.303   |
| 18.5        | 380         | 50             | 0.464                                                                                      | 0.794   | 0.608   |
|             | 400         | 50             | 0.404                                                                                      | 0.791   | 0.636   |
|             | 415         | 50             | 0.465                                                                                      | 0.695   | 0.631   |
| 22          | 380         | 50             | 1.110                                                                                      | 0.810   | 0.590   |
|             | 400         | 50             | 1.150                                                                                      | 0.832   | 0.563   |
|             | 415         | 50             | 1.330                                                                                      | 0.714   | 0.675   |

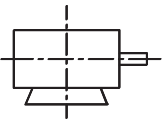
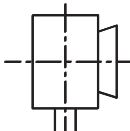
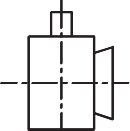
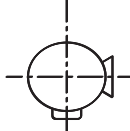
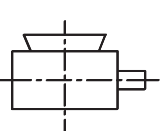
| Output (kW) | Voltage (V) | Frequency (Hz) | Input power difference between standard efficiency and high efficiency (kW) (at 100% load) |         |         |
|-------------|-------------|----------------|--------------------------------------------------------------------------------------------|---------|---------|
|             |             |                | 2 Poles                                                                                    | 4 Poles | 6 Poles |
| 30          | 380         | 50             | 1.24                                                                                       | 1.16    | 1.32    |
|             | 400         | 50             | 1.21                                                                                       | 1.16    | 1.27    |
|             | 415         | 50             | 1.16                                                                                       | 1.11    | 1.21    |
| 37          | 380         | 50             | 1.34                                                                                       | 1.16    | 1.21    |
|             | 400         | 50             | 2.09                                                                                       | 1.37    | 1.49    |
|             | 415         | 50             | 2.03                                                                                       | 1.23    | 1.22    |
| 45          | 380         | 50             | 2.69                                                                                       | 1.87    | 1.51    |
|             | 400         | 50             | 3.46                                                                                       | 1.97    | 1.62    |
|             | 415         | 50             | 3.25                                                                                       | 1.80    | 1.49    |
| 55          | 380         | 50             | 2.69                                                                                       | 2.58    | -       |
|             | 400         | 50             | 3.54                                                                                       | 3.26    | -       |
|             | 415         | 50             | 3.17                                                                                       | 2.70    | -       |



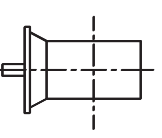
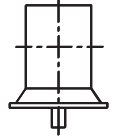
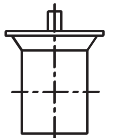
### 2.5 Type -Form



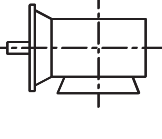
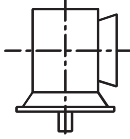
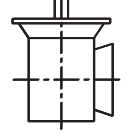
### 2.6 Mounting Type

|                   |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       |
|-------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Mount<br>Standard |  |  |  |  |  |
|                   | JEM1408                                                                             | IMB3                                                                                | IMV5                                                                                | IMV6                                                                                  | IMB6 IMB7 IMB8                                                                        |

|                   |                                                                                     |                                                                                     |                                                                                     |
|-------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Mount<br>Standard |  |  |  |
|                   | JEM1408                                                                             | IMB5                                                                                | IMV1 IMV3                                                                           |

|                   |                                                                                     |                                                                                     |                                                                                     |
|-------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Mount<br>Standard |  |  |  |
|                   | JEM1408                                                                             | IMB35                                                                               | IMV15 IMV36                                                                         |

# 3. WIRING

## Motor wiring connection

| Voltage                        | Number of lead wires | Starting method                 | Connection method                                                                                                                                                                                                                                                                                                                                                |                |          |                                 |  |  |         |         |       |  |  |  |
|--------------------------------|----------------------|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------|---------------------------------|--|--|---------|---------|-------|--|--|--|
| Single voltage                 | 3                    | Direct on line                  |                                                                                                                                                                                                                                                                                                                                                                  |                |          |                                 |  |  |         |         |       |  |  |  |
|                                | 6                    | Direct on line<br>Y- start      | <table border="1"> <thead> <tr> <th>DIRECT ON LINE</th><th>Y- START</th><th colspan="2">CHANGE OVER OF STARTER TERMINAL</th></tr> <tr> <th></th><th>STARTER</th><th>Y START</th><th>Δ RUN</th></tr> </thead> <tbody> <tr> <td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> <p>Note: Please remove connection plates at starting method of Y-Δ</p> | DIRECT ON LINE | Y- START | CHANGE OVER OF STARTER TERMINAL |  |  | STARTER | Y START | Δ RUN |  |  |  |
| DIRECT ON LINE                 | Y- START             | CHANGE OVER OF STARTER TERMINAL |                                                                                                                                                                                                                                                                                                                                                                  |                |          |                                 |  |  |         |         |       |  |  |  |
|                                | STARTER              | Y START                         | Δ RUN                                                                                                                                                                                                                                                                                                                                                            |                |          |                                 |  |  |         |         |       |  |  |  |
|                                |                      |                                 |                                                                                                                                                                                                                                                                                                                                                                  |                |          |                                 |  |  |         |         |       |  |  |  |
| Dual voltage<br>(Ex. 220/380V) | 6                    | Direct on line                  | <p>High voltage (Y)      Low voltage ( )</p>                                                                                                                                                                                                                                                                                                                     |                |          |                                 |  |  |         |         |       |  |  |  |

| Voltage                                 | Number of lead wires | Starting method                       | Connection method                                                                                                                                                                                                                                                                                                                                                                   |                |  |           |  |  |  |                                       |  |              |             |              |             |  |  |  |
|-----------------------------------------|----------------------|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--|-----------|--|--|--|---------------------------------------|--|--------------|-------------|--------------|-------------|--|--|--|
| Dual voltage<br>(Ex. 190/380V 220/440V) | 9                    | Direct on line                        | <p>High voltage (Y)      Low voltage (2Y)</p>                                                                                                                                                                                                                                                                                                                                       |                |  |           |  |  |  |                                       |  |              |             |              |             |  |  |  |
|                                         | 12                   | Direct on line<br>Y- start            | <table border="1"> <thead> <tr> <th colspan="2">DIRECT ON LINE</th><th colspan="2">Y-Δ START</th></tr> <tr> <th colspan="2"></th><th colspan="2">CONNECTIONS BETWEEN MOTOR AND STARTER</th></tr> <tr> <th>High voltage</th><th>Low voltage</th><th>High voltage</th><th>Low voltage</th></tr> </thead> <tbody> <tr> <td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> | DIRECT ON LINE |  | Y-Δ START |  |  |  | CONNECTIONS BETWEEN MOTOR AND STARTER |  | High voltage | Low voltage | High voltage | Low voltage |  |  |  |
| DIRECT ON LINE                          |                      | Y-Δ START                             |                                                                                                                                                                                                                                                                                                                                                                                     |                |  |           |  |  |  |                                       |  |              |             |              |             |  |  |  |
|                                         |                      | CONNECTIONS BETWEEN MOTOR AND STARTER |                                                                                                                                                                                                                                                                                                                                                                                     |                |  |           |  |  |  |                                       |  |              |             |              |             |  |  |  |
| High voltage                            | Low voltage          | High voltage                          | Low voltage                                                                                                                                                                                                                                                                                                                                                                         |                |  |           |  |  |  |                                       |  |              |             |              |             |  |  |  |
|                                         |                      |                                       |                                                                                                                                                                                                                                                                                                                                                                                     |                |  |           |  |  |  |                                       |  |              |             |              |             |  |  |  |

## 4. PERFORMANCE DATA

### 4.1 Characteristics and Performance Data: 2 Pole

0.75kW ~ 5.5kW

| Rated Output | Frame | Hz | Volts | Full Load Current | Full Load Speed   | Lock Rotor Current | Lock Rotor Torque | Break Down Torque | Efficiency (%) Load |      |      | Power Factor (%) Load |      |      | Sound Pressure dB(A) @ 1m | Rotor GD <sup>2</sup> | NET Weight |
|--------------|-------|----|-------|-------------------|-------------------|--------------------|-------------------|-------------------|---------------------|------|------|-----------------------|------|------|---------------------------|-----------------------|------------|
| kW           |       |    |       | A                 | min <sup>-1</sup> | %                  | %                 | %                 | 100%                | 75%  | 50%  | 100%                  | 75%  | 50%  | dB(A)                     | Kg.m <sup>2</sup>     | kg         |
| 0.75         | 80M   | 50 | 380   | 1.60              | 2870              | 565                | 204               | 272               | 80.7                | 81.2 | 79.0 | 89.5                  | 84.6 | 74.3 | 54                        | 0.0012                | 16         |
|              |       |    | 400   | 1.60              | 2870              | 611                | 229               | 301               | 80.9                | 81.5 | 79.4 | 86.4                  | 79.7 | 67.6 |                           |                       |            |
|              |       |    | 415   | 1.60              | 2875              | 632                | 249               | 322               | 81.2                | 81.8 | 80.0 | 82.7                  | 75.1 | 62.1 |                           |                       |            |
| 1.1          | 80M   | 50 | 380   | 2.30              | 2870              | 778                | 300               | 461               | 82.7                | 83.5 | 81.0 | 89.5                  | 85.5 | 76.5 | 54                        | 0.0020                | 19         |
|              |       |    | 400   | 2.10              | 2875              | 865                | 338               | 508               | 83.0                | 83.9 | 81.2 | 88.7                  | 84.1 | 74.5 |                           |                       |            |
|              |       |    | 415   | 2.10              | 2875              | 924                | 367               | 545               | 83.5                | 84.1 | 81.4 | 87.4                  | 82.3 | 71.9 |                           |                       |            |
| 1.5          | 90L   | 50 | 380   | 3.10              | 2870              | 704                | 239               | 316               | 84.2                | 85.0 | 83.4 | 88.5                  | 85.7 | 77.5 | 54                        | 0.0028                | 20         |
|              |       |    | 400   | 3.00              | 2875              | 766                | 271               | 348               | 84.5                | 85.3 | 83.9 | 86.4                  | 81.5 | 71.2 |                           |                       |            |
|              |       |    | 415   | 3.00              | 2875              | 797                | 295               | 371               | 84.8                | 85.6 | 84.1 | 83.8                  | 76.9 | 65.0 |                           |                       |            |
| 2.2          | 90L   | 50 | 380   | 4.40              | 2875              | 817                | 282               | 275               | 85.9                | 86.7 | 85.1 | 88.7                  | 85.9 | 78.3 | 54                        | 0.0037                | 22.8       |
|              |       |    | 400   | 4.30              | 2875              | 895                | 319               | 304               | 86.2                | 86.9 | 85.5 | 86.8                  | 82.4 | 72.7 |                           |                       |            |
|              |       |    | 415   | 4.20              | 2880              | 935                | 348               | 324               | 86.5                | 87.1 | 85.8 | 84.5                  | 78.1 | 66.7 |                           |                       |            |
| 3            | 100L  | 50 | 380   | 6.00              | 2875              | 892                | 421               | 323               | 87.1                | 87.8 | 87.5 | 88.5                  | 86.0 | 90.0 | 54                        | 0.0047                | 28         |
|              |       |    | 400   | 5.90              | 2880              | 976                | 476               | 356               | 87.5                | 88.2 | 86.0 | 86.7                  | 82.5 | 73.1 |                           |                       |            |
|              |       |    | 415   | 5.80              | 2880              | 1023               | 520               | 381               | 87.8                | 88.6 | 86.3 | 83.8                  | 78.3 | 67.2 |                           |                       |            |
| 4            | 112M  | 50 | 380   | 7.70              | 2890              | 815                | 274               | 344               | 88.1                | 89.2 | 88.0 | 91.5                  | 90.0 | 85.5 | 54                        | 0.0087                | 34         |
|              |       |    | 400   | 7.30              | 2905              | 863                | 309               | 380               | 88.5                | 89.8 | 88.5 | 90.5                  | 88.0 | 81.5 |                           |                       |            |
|              |       |    | 415   | 7.10              | 2905              | 892                | 336               | 406               | 88.8                | 90.2 | 89.0 | 89.4                  | 86.0 | 77.9 |                           |                       |            |
| 5.5          | 132S  | 50 | 380   | 10.8              | 2890              | 638                | 240               | 307               | 89.2                | 89.7 | 88.3 | 89.0                  | 86.7 | 80.4 | 58                        | 0.0186                | 53         |
|              |       |    | 400   | 10.4              | 2905              | 696                | 271               | 337               | 89.5                | 90.0 | 88.4 | 86.8                  | 83.2 | 74.7 |                           |                       |            |
|              |       |    | 415   | 10.3              | 2905              | 736                | 294               | 359               | 89.7                | 90.2 | 88.6 | 84.7                  | 80.1 | 70.0 |                           |                       |            |

The above characteristics and performance are design data and shall be guaranteed with tolerance of application standards.



## 4. PERFORMANCE DATA

### 4.1 Characteristics and Performance Data: 2 Pole

#### 7.5kW ~ 45kW

| Rated Output | Frame | Hz | Volts | Full Load Current | Full Load Speed   | Lock Rotor Current | Lock Rotor Torque | Break Down Torque | Efficiency (%) Load |      |      | Power Factor (%) Load |      |      | Sound Pressure dB(A) @ 1m | Rotor GD <sup>2</sup> | NET Weight |
|--------------|-------|----|-------|-------------------|-------------------|--------------------|-------------------|-------------------|---------------------|------|------|-----------------------|------|------|---------------------------|-----------------------|------------|
| kW           |       |    |       | A                 | min <sup>-1</sup> | %                  | %                 | %                 | 100%                | 75%  | 50%  | 100%                  | 75%  | 50%  | dB(A)                     | Kg.m <sup>2</sup>     | kg         |
| 7.5          | 132M  | 50 | 380   | 14.7              | 2905              | 740                | 280               | 414               | 90.1                | 90.4 | 89.5 | 87.0                  | 83.5 | 74.5 | 58                        | 0.0227                | 61         |
|              |       |    | 400   | 14.4              | 2915              | 795                | 315               | 455               | 90.3                | 90.7 | 90.0 | 84.0                  | 78.4 | 67.1 |                           |                       |            |
|              |       |    | 415   | 14.3              | 2920              | 834                | 342               | 483               | 90.5                | 90.9 | 90.3 | 81.5                  | 75.0 | 62.9 |                           |                       |            |
| 11           | 160M  | 50 | 380   | 21.5              | 2925              | 648                | 217               | 297               | 91.2                | 92.3 | 89.6 | 88.3                  | 86.1 | 80.0 | 61                        | 0.0458                | 93         |
|              |       |    | 400   | 20.5              | 2935              | 707                | 243               | 326               | 91.5                | 92.5 | 89.8 | 86.4                  | 83.0 | 74.8 |                           |                       |            |
|              |       |    | 415   | 20.0              | 2940              | 748                | 264               | 347               | 91.7                | 92.8 | 90.0 | 84.5                  | 80.1 | 70.4 |                           |                       |            |
| 15           | 160M  | 50 | 380   | 29.0              | 2935              | 734                | 238               | 344               | 91.9                | 91.5 | 89.0 | 87.6                  | 84.9 | 77.8 | 69                        | 0.0568                | 103        |
|              |       |    | 400   | 28.0              | 2945              | 799                | 268               | 377               | 91.9                | 91.7 | 89.3 | 85.3                  | 81.3 | 72.2 |                           |                       |            |
|              |       |    | 415   | 28.0              | 2945              | 843                | 291               | 401               | 91.9                | 91.8 | 89.5 | 83.1                  | 78.0 | 67.6 |                           |                       |            |
| 18.5         | 160L  | 50 | 380   | 35.0              | 2930              | 746                | 271               | 372               | 92.4                | 92.6 | 92.5 | 88.5                  | 86.0 | 79.5 | 70                        | 0.0698                | 116        |
|              |       |    | 400   | 34.0              | 2940              | 822                | 306               | 408               | 92.4                | 92.9 | 92.6 | 86.5                  | 83.0 | 74.5 |                           |                       |            |
|              |       |    | 415   | 33.5              | 2940              | 871                | 333               | 437               | 92.4                | 92.9 | 92.6 | 84.9                  | 80.0 | 69.7 |                           |                       |            |
| 22           | 180M  | 50 | 380   | 41.0              | 2950              | 819                | 248               | 386               | 92.7                | 93.3 | 93.0 | 88.5                  | 85.5 | 78.0 | 71                        | 0.1680                | 212        |
|              |       |    | 400   | 40.0              | 2955              | 913                | 279               | 424               | 93.0                | 93.5 | 93.2 | 86.7                  | 82.7 | 73.6 |                           |                       |            |
|              |       |    | 415   | 39.0              | 2960              | 968                | 305               | 454               | 93.2                | 93.6 | 93.2 | 84.8                  | 79.9 | 69.6 |                           |                       |            |
| 30           | 200L  | 50 | 380   | 58.0              | 2965              | 979                | 350               | 418               | 93.5                | 93.7 | 93.1 | 85.7                  | 82.2 | 74.2 | 71                        | 0.2775                | 304        |
|              |       |    | 400   | 57.0              | 2965              | 1055               | 394               | 458               | 93.8                | 94.0 | 93.3 | 82.7                  | 77.9 | 67.8 |                           |                       |            |
|              |       |    | 415   | 56.0              | 2970              | 1110               | 429               | 488               | 94.0                | 94.2 | 93.6 | 80.4                  | 74.7 | 63.4 |                           |                       |            |
| 37           | 200L  | 50 | 380   | 70.0              | 2965              | 901                | 303               | 369               | 95.0                | 95.2 | 94.6 | 86.0                  | 83.0 | 75.5 | 71                        | 0.3330                | 332        |
|              |       |    | 400   | 68.0              | 2965              | 991                | 342               | 404               | 95.2                | 95.4 | 94.7 | 84.0                  | 79.7 | 70.2 |                           |                       |            |
|              |       |    | 415   | 67.0              | 2970              | 1044               | 372               | 431               | 95.6                | 95.7 | 95.2 | 81.8                  | 76.5 | 65.8 |                           |                       |            |
| 45           | 225S  | 50 | 380   | 85.0              | 2960              | 879                | 285               | 350               | 94.4                | 94.8 | 94.4 | 86.0                  | 83.0 | 75.5 | 71                        | 0.3530                | 343        |
|              |       |    | 400   | 83.0              | 2965              | 976                | 322               | 384               | 94.6                | 94.8 | 94.2 | 84.0                  | 79.6 | 69.9 |                           |                       |            |
|              |       |    | 415   | 82.0              | 2965              | 1031               | 351               | 409               | 94.8                | 94.9 | 94.2 | 81.9                  | 76.6 | 65.7 |                           |                       |            |

The above characteristics and performance are design data and shall be guaranteed with tolerance of application standards.

## 4. PERFORMANCE DATA

### 4.2 Characteristics and Performance Data: 4 Pole

0.75kW ~ 5.5kW

| Rated Output | Frame | Hz | Volts | Full Load Current | Full Load Speed   | Lock Rotor Current | Lock Rotor Torque | Break Down Torque | Efficiency (%) Load |      |      | Power Factor (%) Load |      |      | Sound Pressure dB(A) @ 1m | Rotor GD <sup>2</sup> | NET Weight |
|--------------|-------|----|-------|-------------------|-------------------|--------------------|-------------------|-------------------|---------------------|------|------|-----------------------|------|------|---------------------------|-----------------------|------------|
| kW           |       |    |       | A                 | min <sup>-1</sup> | %                  | %                 | %                 | 100%                | 75%  | 50%  | 100%                  | 75%  | 50%  | dB(A)                     | Kg.m <sup>2</sup>     | kg         |
| 0.75         | 80M   | 50 | 380   | 1.90              | 1435              | 663                | 367               | 498               | 85.0                | 85.4 | 83.1 | 72.5                  | 65.0 | 52.5 | 44                        | 0.0042                | 20         |
|              |       |    | 400   | 1.90              | 1440              | 722                | 415               | 548               | 85.5                | 85.8 | 83.9 | 69.0                  | 61.0 | 48.5 |                           |                       |            |
|              |       |    | 415   | 1.80              | 1445              | 749                | 453               | 586               | 86.0                | 86.2 | 84.2 | 68.2                  | 59.6 | 47.1 |                           |                       |            |
| 1.1          | 90L   | 50 | 380   | 2.60              | 1430              | 615                | 221               | 266               | 84.0                | 85.4 | 83.1 | 79.8                  | 75.3 | 65.6 | 44                        | 0.0049                | 21         |
|              |       |    | 400   | 2.50              | 1440              | 671                | 252               | 293               | 84.5                | 85.5 | 83.5 | 77.3                  | 71.6 | 60.5 |                           |                       |            |
|              |       |    | 415   | 2.50              | 1445              | 704                | 275               | 313               | 85.0                | 85.6 | 83.8 | 74.7                  | 68.1 | 56.2 |                           |                       |            |
| 1.5          | 90L   | 50 | 380   | 3.50              | 1435              | 608                | 221               | 272               | 85.3                | 86.9 | 86.1 | 79.8                  | 75.1 | 65.1 | 44                        | 0.0055                | 21         |
|              |       |    | 400   | 3.40              | 1445              | 658                | 251               | 299               | 85.3                | 86.7 | 85.0 | 76.6                  | 70.6 | 59.1 |                           |                       |            |
|              |       |    | 415   | 3.30              | 1450              | 686                | 274               | 318               | 85.3                | 86.4 | 84.9 | 73.6                  | 66.5 | 57.9 |                           |                       |            |
| 2.2          | 100L  | 50 | 380   | 5.20              | 1460              | 925                | 361               | 433               | 86.7                | 88.4 | 86.5 | 73.7                  | 67.3 | 55.6 | 45                        | 0.0100                | 30         |
|              |       |    | 400   | 5.20              | 1465              | 974                | 410               | 475               | 86.7                | 88.0 | 86.1 | 69.4                  | 61.8 | 49.4 |                           |                       |            |
|              |       |    | 415   | 5.10              | 1465              | 990                | 448               | 505               | 86.7                | 87.4 | 85.5 | 65.3                  | 57.0 | 44.4 |                           |                       |            |
| 3            | 100L  | 50 | 380   | 6.60              | 1445              | 755                | 296               | 342               | 87.7                | 88.9 | 88.7 | 79.0                  | 74.5 | 64.5 | 45                        | 0.0104                | 30         |
|              |       |    | 400   | 6.50              | 1450              | 835                | 336               | 377               | 87.7                | 88.7 | 87.0 | 76.2                  | 70.2 | 58.7 |                           |                       |            |
|              |       |    | 415   | 6.40              | 1455              | 862                | 368               | 402               | 87.7                | 88.4 | 86.1 | 72.6                  | 65.5 | 53.2 |                           |                       |            |
| 4            | 112M  | 50 | 380   | 8.60              | 1455              | 873                | 322               | 424               | 89.6                | 90.5 | 90.4 | 80.5                  | 76.0 | 67.0 | 54                        | 0.0210                | 39         |
|              |       |    | 400   | 8.10              | 1455              | 946                | 367               | 467               | 90.3                | 91.3 | 91.2 | 77.4                  | 71.8 | 60.6 |                           |                       |            |
|              |       |    | 415   | 8.00              | 1460              | 990                | 402               | 500               | 90.6                | 91.5 | 91.2 | 74.6                  | 67.9 | 59.7 |                           |                       |            |
| 5.5          | 132S  | 50 | 380   | 11.7              | 1460              | 810                | 371               | 425               | 89.6                | 89.8 | 87.8 | 81.3                  | 76.6 | 66.5 | 54                        | 0.0386                | 62         |
|              |       |    | 400   | 11.5              | 1465              | 867                | 419               | 468               | 89.6                | 89.7 | 87.3 | 78.0                  | 71.9 | 60.3 |                           |                       |            |
|              |       |    | 415   | 11.4              | 1470              | 904                | 456               | 501               | 89.6                | 89.7 | 87.9 | 75.1                  | 68.0 | 55.5 |                           |                       |            |

The above characteristics and performance are design data and shall be guaranteed with tolerance of application standards.

# 4. PERFORMANCE DATA

## 4.2 Characteristics and Performance Data: 4 Pole

### 7.5kW ~ 45kW

| Rated Output | Frame | Hz | Volts | Full Load Current | Full Load Speed   | Lock Rotor Current | Lock Rotor Torque | Break Down Torque | Efficiency (%) Load |      |      | Power Factor (%) Load |      |      | Sound Pressure dB(A) @ 1m | Rotor GD <sup>2</sup> | NET Weight |
|--------------|-------|----|-------|-------------------|-------------------|--------------------|-------------------|-------------------|---------------------|------|------|-----------------------|------|------|---------------------------|-----------------------|------------|
| kW           |       |    |       | A                 | min <sup>-1</sup> | %                  | %                 | %                 | 100%                | 75%  | 50%  | 100%                  | 75%  | 50%  | dB(A)                     | Kg.m <sup>2</sup>     | kg         |
| 7.5          | 132M  | 50 | 380   | 15.2              | 1460              | 761                | 350               | 400               | 90.4                | 91.5 | 91.3 | 82.5                  | 79.0 | 70.0 | 54                        | 0.0484                | 70         |
|              |       |    | 400   | 14.9              | 1465              | 849                | 396               | 441               | 91.1                | 91.9 | 91.6 | 80.6                  | 75.5 | 65.0 |                           |                       |            |
|              |       |    | 415   | 14.8              | 1465              | 891                | 432               | 473               | 91.4                | 92.0 | 91.6 | 78.2                  | 72.1 | 60.4 |                           |                       |            |
| 11           | 160M  | 50 | 380   | 23.0              | 1470              | 843                | 309               | 334               | 91.7                | 92.3 | 91.7 | 80.1                  | 75.6 | 65.9 | 60                        | 0.0875                | 102        |
|              |       |    | 400   | 23.0              | 1470              | 906                | 349               | 368               | 92.0                | 92.2 | 91.2 | 77.0                  | 71.2 | 59.9 |                           |                       |            |
|              |       |    | 415   | 22.5              | 1475              | 947                | 380               | 393               | 92.0                | 92.2 | 91.5 | 74.3                  | 67.6 | 55.4 |                           |                       |            |
| 15           | 160L  | 50 | 380   | 31.0              | 1465              | 768                | 296               | 351               | 92.1                | 92.7 | 92.6 | 82.5                  | 79.0 | 70.5 | 60                        | 0.1130                | 119        |
|              |       |    | 400   | 30.0              | 1470              | 870                | 335               | 387               | 92.4                | 92.8 | 92.4 | 80.0                  | 75.0 | 65.0 |                           |                       |            |
|              |       |    | 415   | 29.0              | 1470              | 917                | 365               | 413               | 92.6                | 93.1 | 92.7 | 77.8                  | 72.2 | 61.0 |                           |                       |            |
| 18.5         | 180M  | 50 | 380   | 38.0              | 1470              | 924                | 201               | 345               | 92.6                | 92.7 | 91.0 | 81.9                  | 77.0 | 66.7 | 62                        | 0.2100                | 206        |
|              |       |    | 400   | 37.0              | 1475              | 1004               | 227               | 378               | 92.6                | 92.7 | 91.0 | 79.4                  | 73.5 | 61.9 |                           |                       |            |
|              |       |    | 415   | 36.0              | 1475              | 1057               | 248               | 404               | 92.6                | 92.7 | 91.0 | 77.2                  | 70.5 | 58.1 |                           |                       |            |
| 22           | 180L  | 50 | 380   | 43.0              | 1465              | 817                | 172               | 304               | 92.7                | 93.0 | 91.3 | 84.3                  | 80.8 | 72.3 | 62                        | 0.2240                | 212        |
|              |       |    | 400   | 42.0              | 1470              | 896                | 194               | 334               | 92.8                | 93.1 | 91.4 | 82.5                  | 77.9 | 68.0 |                           |                       |            |
|              |       |    | 415   | 41.0              | 1470              | 951                | 212               | 357               | 92.9                | 93.2 | 91.5 | 80.7                  | 75.4 | 64.4 |                           |                       |            |
| 30           | 200L  | 50 | 380   | 59.0              | 1475              | 886                | 188               | 354               | 93.6                | 94.2 | 94.1 | 83.8                  | 80.4 | 72.1 | 62                        | 0.4841                | 294        |
|              |       |    | 400   | 58.0              | 1480              | 968                | 213               | 389               | 93.8                | 94.1 | 93.8 | 81.8                  | 77.2 | 67.3 |                           |                       |            |
|              |       |    | 415   | 57.0              | 1480              | 1026               | 232               | 415               | 94.2                | 94.7 | 94.3 | 80.0                  | 74.6 | 63.6 |                           |                       |            |
| 37           | 225S  | 50 | 380   | 71.0              | 1480              | 1000               | 213               | 383               | 93.9                | 94.1 | 92.3 | 84.2                  | 80.6 | 72.2 | 63                        | 0.5150                | 344        |
|              |       |    | 400   | 70.0              | 1480              | 1091               | 242               | 420               | 93.9                | 94.1 | 92.3 | 82.0                  | 77.3 | 67.2 |                           |                       |            |
|              |       |    | 415   | 68.0              | 1480              | 1165               | 264               | 449               | 93.9                | 94.1 | 92.3 | 80.7                  | 75.4 | 64.5 |                           |                       |            |
| 45           | 225S  | 50 | 380   | 86.0              | 1480              | 989                | 216               | 381               | 94.7                | 94.9 | 94.5 | 84.5                  | 82.5 | 76.5 | 63                        | 0.6200                | 374        |
|              |       |    | 400   | 84.0              | 1480              | 1110               | 246               | 419               | 94.9                | 95.2 | 94.8 | 82.7                  | 78.3 | 68.6 |                           |                       |            |
|              |       |    | 415   | 82.0              | 1480              | 1178               | 268               | 448               | 95.0                | 95.2 | 94.7 | 81.0                  | 75.8 | 65.0 |                           |                       |            |

The above characteristics and performance are design data and shall be guaranteed with tolerance of application standards.

## 4. PERFORMANCE DATA

### 4.3 Characteristics and Performance Data: 6 Pole

0.75kW ~ 4kW

| Rated Output | Frame | Hz | Volts | Full Load Current | Full Load Speed   | Lock Rotor Current | Lock Rotor Torque | Break Down Torque | Efficiency (%) Load |      |      | Power Factor (%) Load |      |      | Sound Pressure dB(A) @ 1m | Rotor GD <sup>2</sup> | NET Weight |
|--------------|-------|----|-------|-------------------|-------------------|--------------------|-------------------|-------------------|---------------------|------|------|-----------------------|------|------|---------------------------|-----------------------|------------|
| kW           |       |    |       | A                 | min <sup>-1</sup> | %                  | %                 | %                 | 100%                | 75%  | 50%  | 100%                  | 75%  | 50%  | dB(A)                     | Kg.m <sup>2</sup>     | kg         |
| 0.75         | 90L   | 50 | 380   | 2.10              | 960               | 708                | 446               | 433               | 79.3                | 80.8 | 78.9 | 68.8                  | 61.9 | 50.3 | 46                        | 0.0064                | 19.5       |
|              |       |    | 400   | 2.00              | 960               | 757                | 507               | 475               | 79.6                | 80.6 | 78.4 | 65.6                  | 57.9 | 49.6 |                           |                       |            |
|              |       |    | 415   | 2.00              | 965               | 781                | 556               | 506               | 79.9                | 80.4 | 78.0 | 62.6                  | 54.5 | 42.8 |                           |                       |            |
| 1.1          | 90L   | 50 | 380   | 3.00              | 970               | 920                | 594               | 515               | 81.0                | 82.8 | 81.0 | 66.0                  | 60.5 | 50.0 | 46                        | 0.0123                | 28         |
|              |       |    | 400   | 2.90              | 970               | 1025               | 680               | 564               | 81.3                | 82.9 | 81.3 | 63.7                  | 55.7 | 43.9 |                           |                       |            |
|              |       |    | 415   | 2.90              | 975               | 1069               | 748               | 602               | 81.5                | 83.0 | 81.5 | 61.3                  | 53.0 | 41.2 |                           |                       |            |
| 1.5          | 100L  | 50 | 380   | 3.90              | 965               | 674                | 284               | 495               | 86.4                | 86.6 | 85.0 | 69.0                  | 61.5 | 49.5 | 46                        | 0.0141                | 32         |
|              |       |    | 400   | 3.80              | 970               | 751                | 325               | 542               | 86.7                | 86.9 | 85.1 | 66.1                  | 58.3 | 46.1 |                           |                       |            |
|              |       |    | 415   | 3.80              | 970               | 785                | 358               | 579               | 86.8                | 87.0 | 85.2 | 63.6                  | 55.4 | 47.1 |                           |                       |            |
| 2.2          | 112M  | 50 | 380   | 5.20              | 965               | 899                | 427               | 537               | 89.3                | 89.8 | 89.1 | 73.5                  | 68.5 | 58.5 | 46                        | 0.0292                | 46         |
|              |       |    | 400   | 5.10              | 970               | 1008               | 494               | 590               | 89.7                | 90.0 | 89.3 | 71.6                  | 65.1 | 53.3 |                           |                       |            |
|              |       |    | 415   | 5.00              | 970               | 1075               | 547               | 630               | 90.0                | 90.3 | 89.5 | 70.0                  | 62.9 | 50.9 |                           |                       |            |
| 3            | 132S  | 50 | 380   | 6.80              | 965               | 857                | 426               | 418               | 88.8                | 89.5 | 88.8 | 75.5                  | 70.5 | 59.5 | 48                        | 0.0403                | 55         |
|              |       |    | 400   | 6.60              | 970               | 973                | 485               | 459               | 89.3                | 89.8 | 88.9 | 74.4                  | 68.2 | 56.7 |                           |                       |            |
|              |       |    | 415   | 6.50              | 975               | 1038               | 532               | 490               | 89.7                | 90.1 | 89.0 | 73.0                  | 66.2 | 54.3 |                           |                       |            |
| 4            | 132M  | 50 | 380   | 9.00              | 965               | 859                | 386               | 404               | 88.5                | 89.6 | 89.4 | 76.5                  | 72.0 | 61.5 | 48                        | 0.0480                | 62         |
|              |       |    | 400   | 8.70              | 970               | 991                | 440               | 442               | 89.0                | 90.0 | 89.6 | 75.6                  | 70.0 | 59.0 |                           |                       |            |
|              |       |    | 415   | 8.40              | 970               | 1061               | 483               | 473               | 89.6                | 90.4 | 89.8 | 74.4                  | 68.2 | 56.7 |                           |                       |            |

The above characteristics and performance are design data and shall be guaranteed with tolerance of application standards.

## 4. PERFORMANCE DATA

### 4.3 Characteristics and Performance Data: 6 Pole

#### 5.5kW ~ 30kW

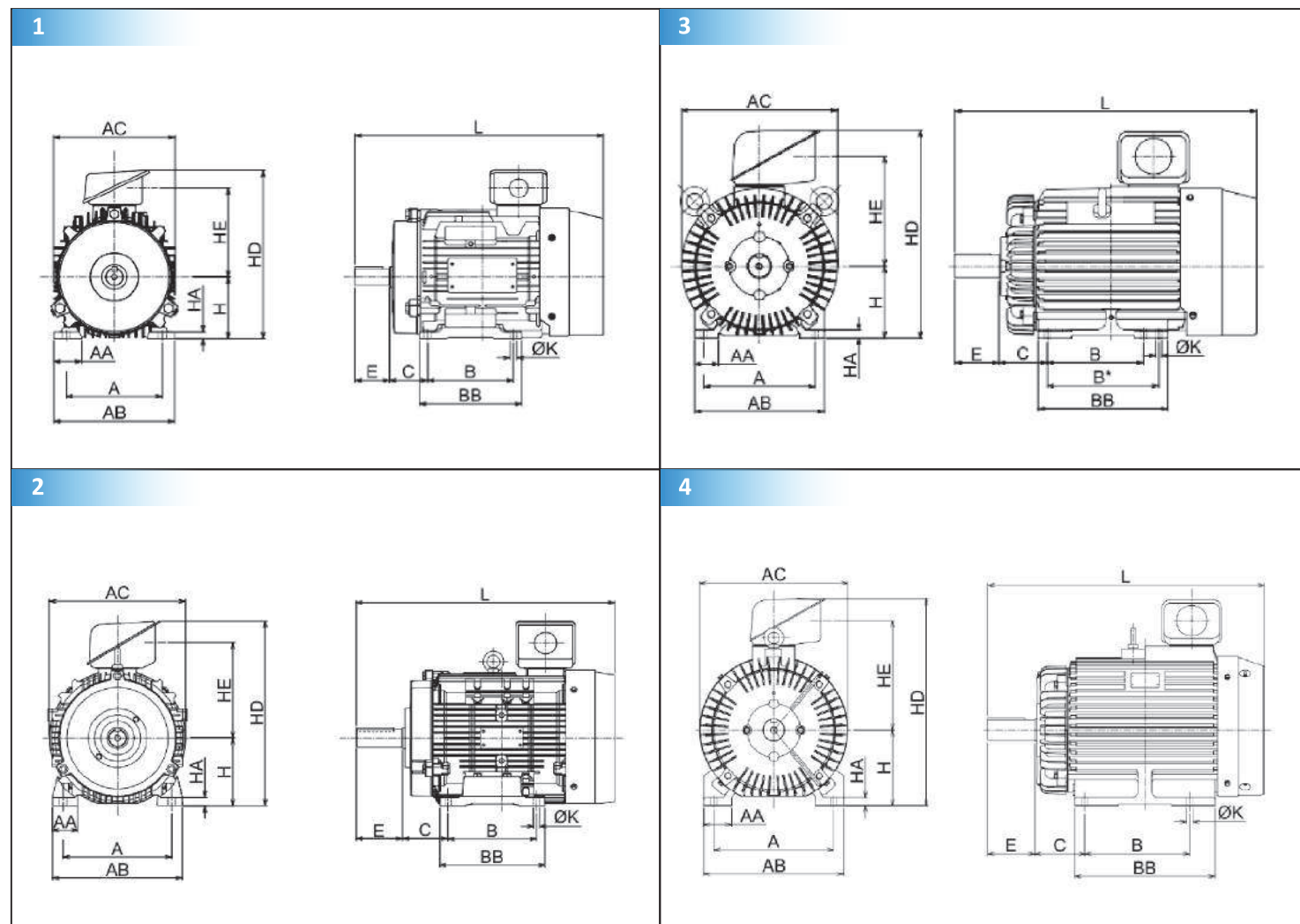
| Rated Output | Frame | Hz | Volts | Full Load Current | Full Load Speed   | Lock Rotor Current | Lock Rotor Torque | Break Down Torque | Efficiency (%) Load |      |      | Power Factor (%) Load |      |      | Sound Pressure dB(A) @ 1m | Rotor GD <sup>2</sup> | NET Weight |
|--------------|-------|----|-------|-------------------|-------------------|--------------------|-------------------|-------------------|---------------------|------|------|-----------------------|------|------|---------------------------|-----------------------|------------|
| kW           |       |    |       | A                 | min <sup>-1</sup> | %                  | %                 | %                 | 100%                | 75%  | 50%  | 100%                  | 75%  | 50%  | dB(A)                     | Kg.m <sup>2</sup>     | kg         |
| 5.5          | 132M  | 50 | 380   | 12.0              | 965               | 895                | 411               | 374               | 89.7                | 90.6 | 90.3 | 78.0                  | 74.0 | 64.5 | 48                        | 0.0672                | 75         |
|              |       |    | 400   | 11.5              | 970               | 1025               | 470               | 409               | 90.1                | 90.8 | 90.6 | 77.2                  | 72.1 | 61.6 |                           |                       |            |
|              |       |    | 415   | 11.2              | 970               | 1098               | 516               | 437               | 90.7                | 91.5 | 91.1 | 76.0                  | 70.3 | 59.1 |                           |                       |            |
| 7.5          | 160M  | 50 | 380   | 16.0              | 965               | 810                | 402               | 299               | 89.1                | 89.9 | 88.7 | 80.1                  | 76.5 | 67.7 | 52                        | 0.1020                | 95         |
|              |       |    | 400   | 15.3              | 965               | 900                | 458               | 329               | 89.3                | 90.3 | 88.9 | 79.0                  | 74.6 | 64.7 |                           |                       |            |
|              |       |    | 415   | 15.0              | 970               | 958                | 502               | 353               | 89.5                | 90.4 | 89.0 | 77.4                  | 72.1 | 61.3 |                           |                       |            |
| 11           | 160L  | 50 | 380   | 23.0              | 965               | 820                | 421               | 304               | 90.4                | 91.2 | 91.0 | 80.0                  | 76.5 | 68.0 | 52                        | 0.1410                | 115        |
|              |       |    | 400   | 22.5              | 965               | 940                | 479               | 334               | 90.8                | 91.6 | 91.3 | 79.2                  | 74.8 | 65.0 |                           |                       |            |
|              |       |    | 415   | 22.0              | 970               | 999                | 526               | 359               | 91.0                | 92.0 | 91.5 | 77.0                  | 72.0 | 61.0 |                           |                       |            |
| 15           | 180L  | 50 | 380   | 32.0              | 970               | 1166               | 245               | 272               | 90.6                | 91.7 | 91.0 | 79.7                  | 75.5 | 66.0 | 55                        | 0.2490                | 193        |
|              |       |    | 400   | 31.0              | 975               | 1272               | 277               | 297               | 91.1                | 92.0 | 91.4 | 77.0                  | 72.0 | 61.0 |                           |                       |            |
|              |       |    | 415   | 31.0              | 975               | 1340               | 302               | 314               | 91.6                | 92.7 | 92.0 | 75.3                  | 69.1 | 57.3 |                           |                       |            |
| 18.5         | 200L  | 50 | 380   | 38.0              | 975               | 581                | 238               | 321               | 91.7                | 92.1 | 91.0 | 82.2                  | 78.8 | 70.4 | 55                        | 0.5840                | 278        |
|              |       |    | 400   | 36.0              | 975               | 643                | 267               | 351               | 91.9                | 92.4 | 91.2 | 81.4                  | 77.2 | 67.7 |                           |                       |            |
|              |       |    | 415   | 35.0              | 975               | 690                | 292               | 374               | 92.1                | 92.6 | 91.4 | 80.4                  | 75.6 | 65.4 |                           |                       |            |
| 22           | 200L  | 50 | 380   | 45.0              | 975               | 612                | 257               | 340               | 92.4                | 93.3 | 93.0 | 82.0                  | 78.0 | 69.0 | 55                        | 0.6710                | 291        |
|              |       |    | 400   | 43.0              | 975               | 692                | 291               | 371               | 93.0                | 93.8 | 93.5 | 81.0                  | 76.4 | 66.4 |                           |                       |            |
|              |       |    | 415   | 42.0              | 980               | 739                | 318               | 395               | 93.3                | 94.3 | 93.8 | 79.7                  | 74.5 | 63.8 |                           |                       |            |
| 30           | 225S  | 50 | 380   | 61.0              | 980               | 608                | 297               | 389               | 93.9                | 94.4 | 94.1 | 80.0                  | 75.0 | 65.0 | 55                        | 0.7880                | 352        |
|              |       |    | 400   | 59.0              | 980               | 666                | 336               | 424               | 94.3                | 94.6 | 94.2 | 78.4                  | 72.8 | 61.7 |                           |                       |            |
|              |       |    | 415   | 58.0              | 985               | 706                | 368               | 450               | 94.5                | 94.8 | 94.4 | 76.7                  | 70.4 | 58.6 |                           |                       |            |

The above characteristics and performance are design data and shall be guaranteed with tolerance of application standards.



# 5. DIMENSION

## 5.1 Foot-mounted/IM B3.



| Frame Size | Fig | H   | A   | B(*) | C   | E   | K    | L   | HE    | HD    | HA | AA | AB  | AC  | BB  |
|------------|-----|-----|-----|------|-----|-----|------|-----|-------|-------|----|----|-----|-----|-----|
| 80M        | 1   | 80  | 125 | 100  | 50  | 40  | 10   | 303 | 116   | 221   | 9  | 40 | 157 | 179 | 135 |
| 90L        | 1   | 90  | 140 | 125  | 56  | 50  | 10   | 362 | 129.5 | 245   | 10 | 40 | 176 | 185 | 165 |
| 100L       | 2   | 100 | 160 | 140  | 63  | 60  | 12   | 370 | 129.5 | 255   | 12 | 40 | 200 | 199 | 180 |
| 112M       | 2   | 112 | 190 | 140  | 70  | 60  | 12   | 385 | 148.5 | 286   | 12 | 40 | 220 | 240 | 190 |
| 132S       | 2   | 132 | 216 | 140  | 89  | 80  | 12   | 450 | 181.5 | 343   | 15 | 50 | 260 | 284 | 205 |
| 132M       | 2   | 132 | 216 | 178  | 89  | 80  | 12   | 488 | 181.5 | 343   | 15 | 50 | 260 | 284 | 240 |
| 160M       | 2   | 160 | 254 | 210  | 108 | 110 | 14.5 | 613 | 226.5 | 439.5 | 18 | 60 | 308 | 318 | 265 |
| 160L       | 2   | 160 | 254 | 254  | 108 | 110 | 14.5 | 613 | 226.5 | 439.5 | 18 | 60 | 308 | 318 | 310 |
| 180M       | 3   | 180 | 279 | 241  | 121 | 110 | 14.5 | 755 | 275   | 520   | 20 | 60 | 324 | 390 | 315 |
| 180L       | 3   | 180 | 279 | 279  | 121 | 110 | 14.5 | 755 | 275   | 520   | 20 | 60 | 324 | 390 | 350 |
| 200L       | 4   | 200 | 318 | 305  | 133 | 110 | 18.5 | 853 | 295   | 560   | 20 | 80 | 378 | 450 | 380 |
| 225S       | 4   | 225 | 356 | 286  | 149 | 140 | 18.5 | 885 | 325   | 615   | 25 | 84 | 417 | 440 | 380 |

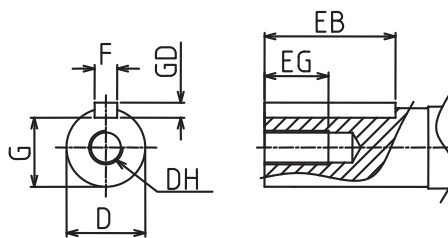
Note: Dimension B\* only apply for frame size 180L.  
All dimensions are mm.

The above characteristics and performance are design data and shall be guaranteed with tolerance of application standards.

## 5. DIMENSION

### 5.1 Foot-mounted/IM B3.

Detail drawing of shaft

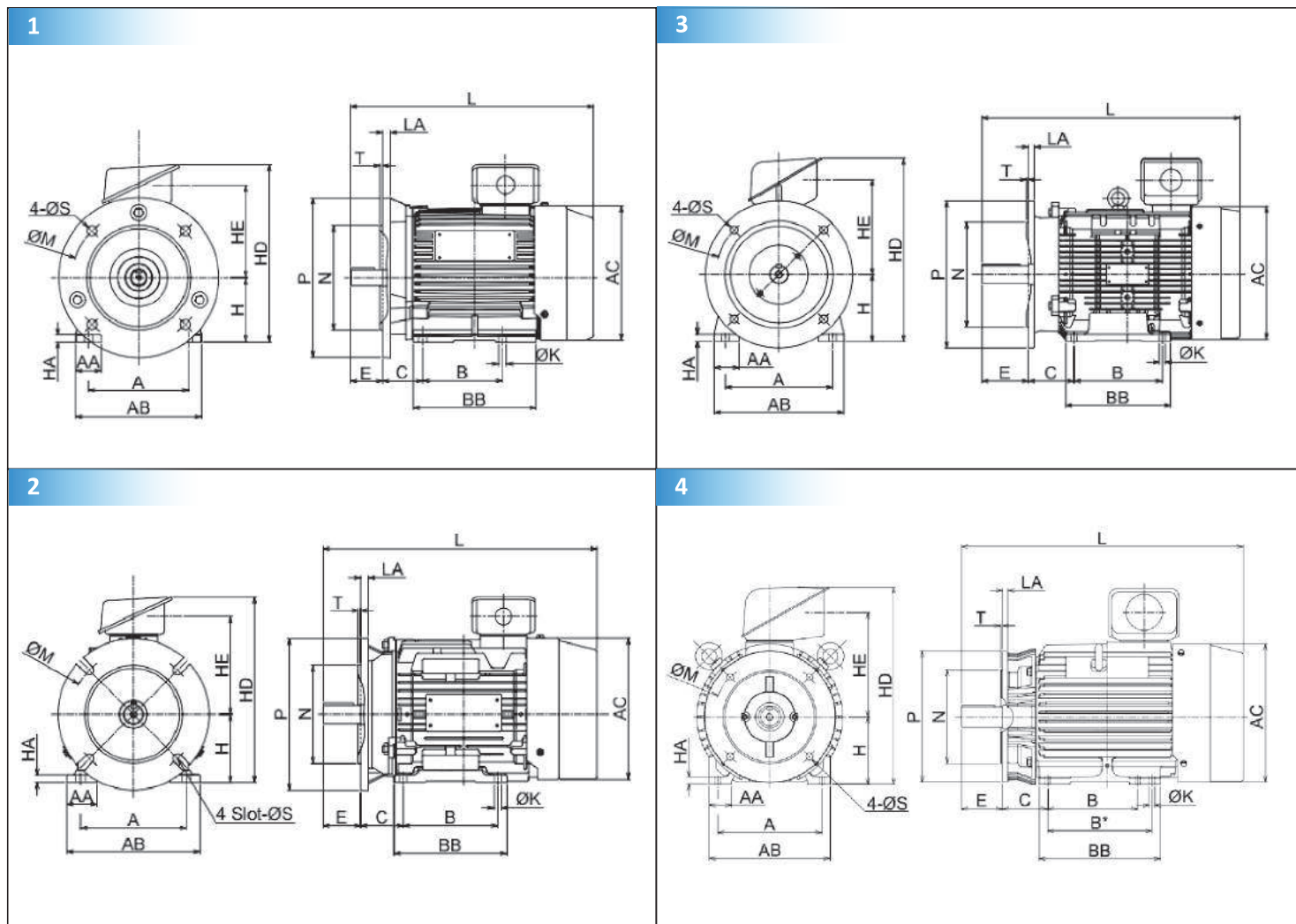


| Frame Size   | D    | G    | GD | F  | EB  | DH       | EG | Bearing   |                    |
|--------------|------|------|----|----|-----|----------|----|-----------|--------------------|
|              |      |      |    |    |     |          |    | Drive End | Opposite drive End |
| 80M          | 19j6 | 15.5 | 6  | 6  | 32  | M6X1.00  | 16 | 6204ZZC3  | 6204ZZC3           |
| 90L          | 24j6 | 20   | 7  | 8  | 40  | M8X1.25  | 19 | 6205ZZC3  | 6205ZZC3           |
| 100L         | 28j6 | 24   | 7  | 8  | 45  | M10X1.50 | 22 | 6206ZZC3  | 6205ZZC3           |
| 112M         | 28j6 | 24   | 7  | 8  | 45  | M10X1.50 | 22 | 6207ZZC3  | 6206ZZC3           |
| 132S         | 38k6 | 33   | 8  | 10 | 63  | M12X1.75 | 28 | 6308ZZC3  | 6208ZZC3           |
| 132M         | 38k6 | 33   | 8  | 10 | 63  | M12X1.75 | 28 | 6308ZZC3  | 6208ZZC3           |
| 160M         | 42k6 | 37   | 8  | 12 | 90  | M16X2.00 | 36 | 6310ZZC3  | 6208ZZC3           |
| 160L         | 42k6 | 37   | 8  | 12 | 90  | M16X2.00 | 36 | 6310ZZC3  | 6208ZZC3           |
| 180M         | 48k6 | 42.5 | 9  | 14 | 90  | M16X2.00 | 36 | 6312ZZC3  | 6310ZZC3           |
| 180L         | 48k6 | 42.5 | 9  | 14 | 90  | M16X2.00 | 36 | 6312ZZC3  | 6310ZZC3           |
| 200L (2P)    | 55m6 | 49   | 10 | 16 | 90  | M20X2.50 | 42 | 6312C3    | 6312C3             |
| 200L (4P-6P) | 55m6 | 49   | 10 | 16 | 90  | M20X2.50 | 42 | 6313C3    | 6312C3             |
| 225S (2P)    | 55m6 | 49   | 10 | 16 | 90  | M20X2.50 | 42 | 6312C3    | 6312C3             |
| 225S (4P-6P) | 60m6 | 53   | 11 | 18 | 110 | M20X2.50 | 42 | 6315C3    | 6312C3             |

Note: All dimensions are mm.

## 5. DIMENSION

### 5.2 Foot and Flange-mounted /IM B35.



| Frame Size | Fig | H   | A   | B(*) | C   | E   | K    | L   | HE    | HD    | HA | AA | AB  | AC  | BB  |
|------------|-----|-----|-----|------|-----|-----|------|-----|-------|-------|----|----|-----|-----|-----|
| 80M        | 1   | 80  | 125 | 100  | 50  | 40  | 10   | 303 | 116   | 221   | 9  | 40 | 157 | 179 | 135 |
| 90L        | 2   | 90  | 140 | 125  | 56  | 50  | 10   | 362 | 129.5 | 245   | 10 | 40 | 176 | 185 | 165 |
| 100L       | 3   | 100 | 160 | 140  | 63  | 60  | 12   | 370 | 129.5 | 255   | 12 | 40 | 200 | 199 | 180 |
| 112M       | 3   | 112 | 190 | 140  | 70  | 60  | 12   | 385 | 148.5 | 286   | 12 | 40 | 220 | 240 | 190 |
| 132S       | 3   | 132 | 216 | 140  | 89  | 80  | 12   | 450 | 181.5 | 343   | 15 | 50 | 260 | 284 | 205 |
| 132M       | 3   | 132 | 216 | 178  | 89  | 80  | 12   | 488 | 181.5 | 343   | 15 | 50 | 260 | 284 | 240 |
| 160M       | 3   | 160 | 254 | 210  | 108 | 110 | 14.5 | 613 | 226.5 | 439.5 | 18 | 60 | 308 | 318 | 265 |
| 160L       | 3   | 160 | 254 | 254  | 108 | 110 | 14.5 | 613 | 226.5 | 439.5 | 18 | 60 | 308 | 318 | 310 |
| 180M       | 4   | 180 | 279 | 241  | 121 | 110 | 14.5 | 755 | 275   | 520   | 20 | 60 | 324 | 390 | 315 |
| 180L       | 4   | 180 | 279 | 279  | 121 | 110 | 14.5 | 755 | 275   | 520   | 20 | 60 | 324 | 390 | 350 |
| 200L       | 4   | 200 | 318 | 305  | 133 | 110 | 18.5 | 853 | 295   | 560   | 20 | 80 | 378 | 450 | 380 |
| 225S       | 5   | 225 | 356 | 286  | 149 | 140 | 18.5 | 885 | 325   | 615   | 25 | 84 | 417 | 440 | 380 |

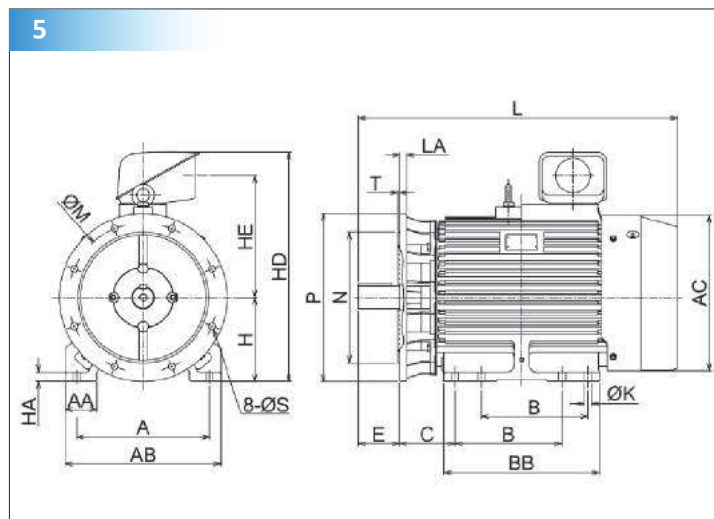
Note: Distance from the mounting surface of the flange to the shoulder on the shaft is 0 mm.

Dimension B\* only applies for frame size 180L.

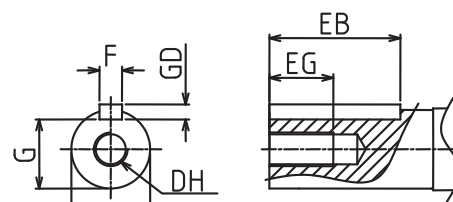
All dimensions are mm.

## 5. DIMENSION

### 5.2 Foot and Flange-mounted /IM B35.



Detail drawing of shaft

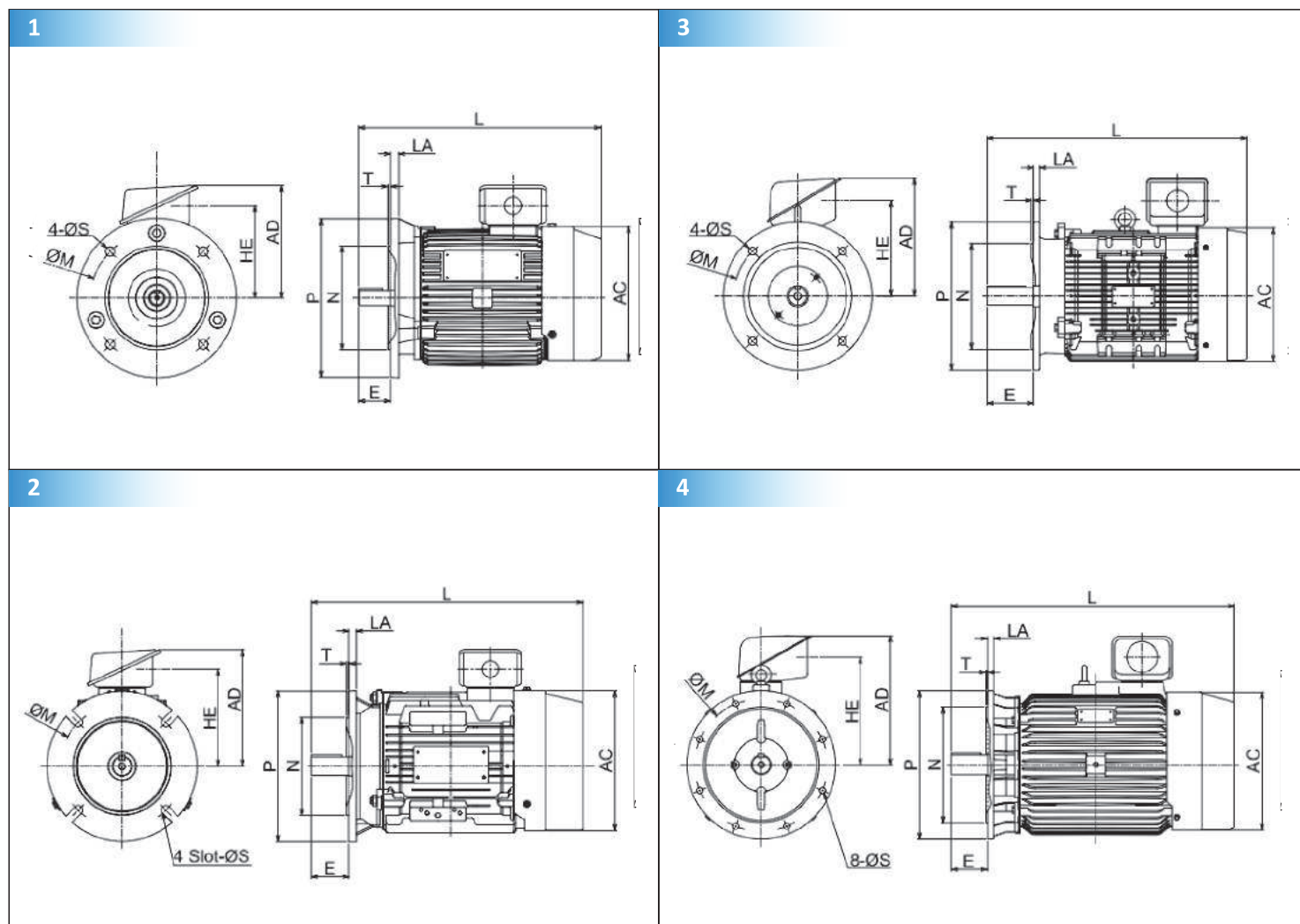


| Frame Size   | D    | G    | GD | F  | EB  | DH       | EG | P   | N     | LA   | T   | S    | M   | Bearing   |                    |
|--------------|------|------|----|----|-----|----------|----|-----|-------|------|-----|------|-----|-----------|--------------------|
|              |      |      |    |    |     |          |    |     |       |      |     |      |     | Drive End | Opposite Drive End |
| 80M          | 19j6 | 15.5 | 6  | 6  | 32  | M6X1.00  | 16 | 200 | 130j6 | 10   | 3.5 | 12   | 165 | 6204ZZC3  | 6204ZZC3           |
| 90L          | 24j6 | 20   | 7  | 8  | 40  | M8X1.25  | 19 | 200 | 130j6 | 10   | 3.5 | 12   | 165 | 6205ZZC3  | 6205ZZC3           |
| 100L         | 28j6 | 24   | 7  | 8  | 45  | M10X1.50 | 22 | 250 | 180j6 | 11   | 4   | 14.5 | 215 | 6206ZZC3  | 6205ZZC3           |
| 112M         | 28j6 | 24   | 7  | 8  | 45  | M10X1.50 | 22 | 250 | 180j6 | 11   | 4   | 14.5 | 215 | 6207ZZC3  | 6206ZZC3           |
| 132S         | 38k6 | 33   | 8  | 10 | 63  | M12X1.75 | 28 | 300 | 230j6 | 12   | 4   | 14.5 | 265 | 6308ZZC3  | 6208ZZC3           |
| 132M         | 38k6 | 33   | 8  | 10 | 63  | M12X1.75 | 28 | 300 | 230j6 | 12   | 4   | 14.5 | 265 | 6308ZZC3  | 6208ZZC3           |
| 160M         | 42k6 | 37   | 8  | 12 | 90  | M16X2.00 | 36 | 350 | 250j6 | 14   | 5   | 18.5 | 300 | 6310ZZC3  | 6208ZZC3           |
| 160L         | 42k6 | 37   | 8  | 12 | 90  | M16X2.00 | 36 | 350 | 250j6 | 14   | 5   | 18.5 | 300 | 6310ZZC3  | 6208ZZC3           |
| 180M         | 48k6 | 42.5 | 9  | 14 | 90  | M16X2.00 | 36 | 350 | 250j6 | 12   | 5   | 18.5 | 300 | 6312ZZC3  | 6310ZZC3           |
| 180L         | 48k6 | 42.5 | 9  | 14 | 90  | M16X2.00 | 36 | 350 | 250j6 | 12   | 5   | 18.5 | 300 | 6312ZZC3  | 6310ZZC3           |
| 200L (2P)    | 55m6 | 49   | 10 | 16 | 90  | M20X2.50 | 42 | 400 | 300j6 | 18.5 | 5   | 18.5 | 350 | 6312C3    | 6312C3             |
| 200L (4P-6P) | 55m6 | 49   | 10 | 16 | 90  | M20X2.50 | 42 | 400 | 300j6 | 18.5 | 5   | 18.5 | 350 | 6313C3    | 6312C3             |
| 225S (2P)    | 55m6 | 49   | 10 | 16 | 90  | M20X2.50 | 42 | 450 | 350j6 | 20   | 5   | 18.5 | 400 | 6312C3    | 6312C3             |
| 225S (4P-6P) | 60m6 | 53   | 11 | 18 | 110 | M20X2.50 | 42 | 450 | 350j6 | 20   | 5   | 18.5 | 400 | 6315C3    | 6312C3             |

Note: Distance from the mounting surface of the flange to the shoulder on the shaft is 0 mm.  
All dimensions are mm.

# 5. DIMENSION

## 5.3 Flange-mounted /IM B5.

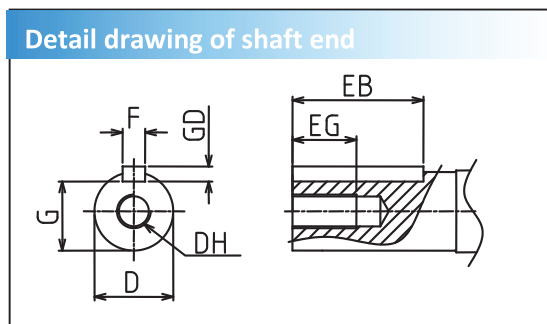


| Frame Size | Fig | E   | L   | P   | N     | LA   | T   | S    | M   | HE    | AC  | AD    |
|------------|-----|-----|-----|-----|-------|------|-----|------|-----|-------|-----|-------|
| 80M        | 1   | 40  | 303 | 200 | 130j6 | 10   | 3.5 | 12   | 165 | 116   | 179 | 141   |
| 90L        | 2   | 50  | 362 | 200 | 130j6 | 10   | 3.5 | 12   | 165 | 129.5 | 185 | 155   |
| 100L       | 3   | 60  | 370 | 250 | 180j6 | 11   | 4   | 14.5 | 215 | 129.5 | 199 | 155   |
| 112M       | 3   | 60  | 385 | 250 | 180j6 | 11   | 4   | 14.5 | 215 | 148.5 | 240 | 174   |
| 132S       | 3   | 80  | 450 | 300 | 230j6 | 12   | 4   | 14.5 | 265 | 181.5 | 284 | 211   |
| 132M       | 3   | 80  | 488 | 300 | 230j6 | 12   | 4   | 14.5 | 265 | 181.5 | 284 | 211   |
| 160M       | 3   | 110 | 613 | 350 | 250j6 | 14   | 5   | 18.5 | 300 | 226.5 | 318 | 279.5 |
| 160L       | 3   | 110 | 613 | 350 | 250j6 | 14   | 5   | 18.5 | 300 | 226.5 | 318 | 279.5 |
| 180M       | 3   | 110 | 755 | 350 | 250j6 | 12   | 5   | 18.5 | 300 | 275   | 390 | 340   |
| 180L       | 3   | 110 | 755 | 350 | 250j6 | 12   | 5   | 18.5 | 300 | 275   | 390 | 340   |
| 200L       | 3   | 110 | 853 | 400 | 300j6 | 18.5 | 5   | 18.5 | 350 | 295   | 450 | 390   |
| 225S       | 4   | 140 | 885 | 450 | 350j6 | 20   | 5   | 18.5 | 400 | 325   | 440 | 390   |

Note: Distance from the mounting surface of the flange to the shoulder on the shaft is 0 mm.  
All dimensions are mm.

## 5. DIMENSION

### 5.3 Flange-mounted/IM B5.



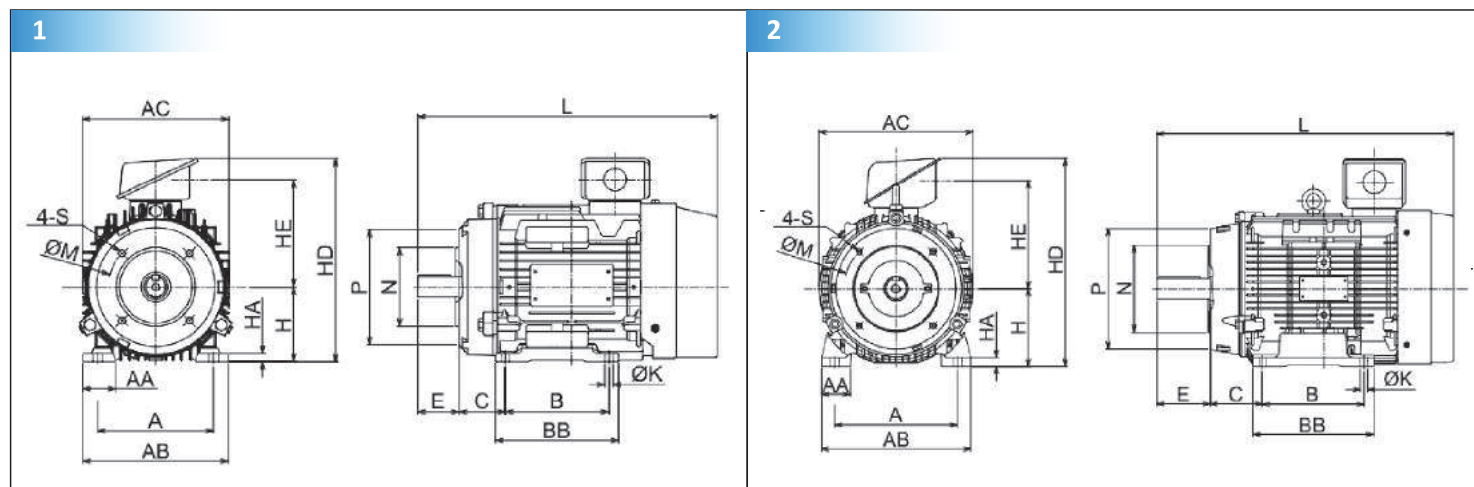
| Frame Size   | D    | G    | GD | F  | EB  | DH       | EG | Bearing   |                    |
|--------------|------|------|----|----|-----|----------|----|-----------|--------------------|
|              |      |      |    |    |     |          |    | Drive End | Opposite Drive End |
| 80M          | 19j6 | 15.5 | 6  | 6  | 32  | M6X1.00  | 16 | 6204ZZC3  | 6204ZZC3           |
| 90L          | 24j6 | 20   | 7  | 8  | 40  | M8X1.25  | 19 | 6205ZZC3  | 6205ZZC3           |
| 100L         | 28j6 | 24   | 7  | 8  | 45  | M10X1.50 | 22 | 6206ZZC3  | 6205ZZC3           |
| 112M         | 28j6 | 24   | 7  | 8  | 45  | M10X1.50 | 22 | 6207ZZC3  | 6206ZZC3           |
| 132S         | 38k6 | 33   | 8  | 10 | 63  | M12X1.75 | 28 | 6308ZZC3  | 6208ZZC3           |
| 132M         | 38k6 | 33   | 8  | 10 | 63  | M12X1.75 | 28 | 6308ZZC3  | 6208ZZC3           |
| 160M         | 42k6 | 37   | 8  | 12 | 90  | M16X2.00 | 36 | 6310ZZC3  | 6208ZZC3           |
| 160L         | 42k6 | 37   | 8  | 12 | 90  | M16X2.00 | 36 | 6310ZZC3  | 6208ZZC3           |
| 180M         | 48k6 | 42.5 | 9  | 14 | 90  | M16X2.00 | 36 | 6312ZZC3  | 6310ZZC3           |
| 180L         | 48k6 | 42.5 | 9  | 14 | 90  | M16X2.00 | 36 | 6312ZZC3  | 6310ZZC3           |
| 200L (2P)    | 55m6 | 49   | 10 | 16 | 90  | M20X2.50 | 42 | 6312C3    | 6312C3             |
| 200L (4P-6P) | 55m6 | 49   | 10 | 16 | 90  | M20X2.50 | 42 | 6313C3    | 6312C3             |
| 225S (2P)    | 55m6 | 49   | 10 | 16 | 90  | M20X2.50 | 42 | 6312C3    | 6312C3             |
| 225S (4P-6P) | 60m6 | 53   | 11 | 18 | 110 | M20X2.50 | 42 | 6315C3    | 6312C3             |

Note: All dimensions are mm.

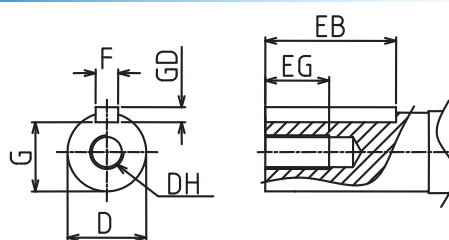


## 5. DIMENSION

### 5.4 Foot and Small Flange-mounted /IM B34.



Detail drawing of shaft



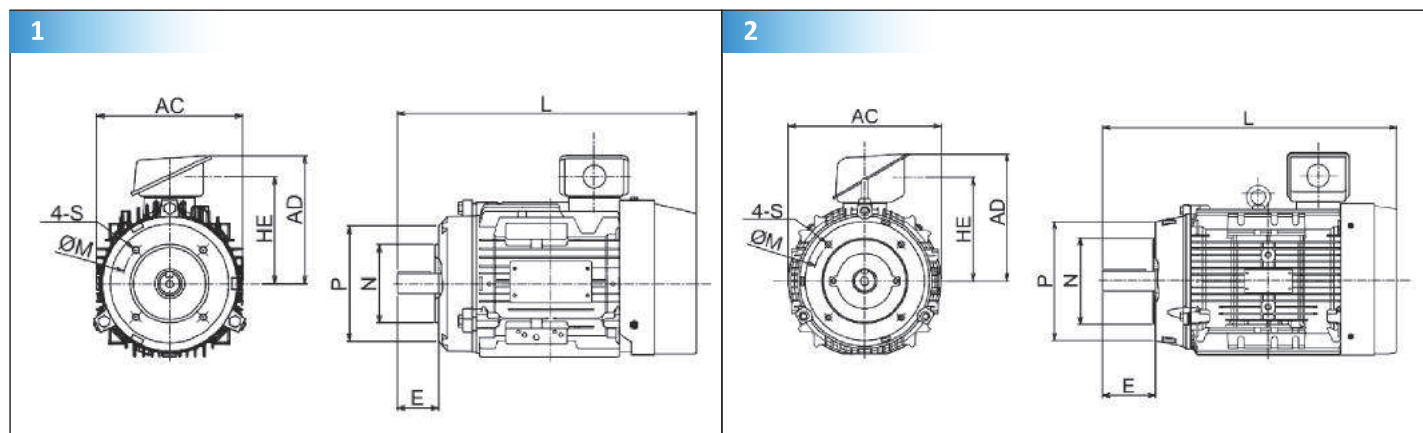
| Frame Size | Fig No. | H   | A   | B   | C   | E   | K    | L   | HE    | HD    | HA | AA | AB  | AC  | BB  |
|------------|---------|-----|-----|-----|-----|-----|------|-----|-------|-------|----|----|-----|-----|-----|
| 80M        | 1       | 80  | 125 | 100 | 50  | 40  | 10   | 303 | 116   | 221   | 9  | 40 | 157 | 179 | 135 |
| 90L        | 1       | 90  | 140 | 125 | 56  | 50  | 10   | 362 | 129.5 | 245   | 10 | 40 | 176 | 185 | 165 |
| 100L       | 2       | 100 | 160 | 140 | 63  | 60  | 12   | 370 | 129.5 | 255   | 12 | 40 | 200 | 199 | 180 |
| 112M       | 2       | 112 | 190 | 140 | 70  | 60  | 12   | 385 | 148.5 | 286   | 12 | 40 | 220 | 240 | 190 |
| 132S       | 2       | 132 | 216 | 140 | 89  | 80  | 12   | 450 | 181.5 | 343   | 15 | 50 | 260 | 284 | 205 |
| 132M       | 2       | 132 | 216 | 178 | 89  | 80  | 12   | 488 | 181.5 | 343   | 15 | 50 | 260 | 284 | 240 |
| 160M       | 2       | 160 | 254 | 210 | 108 | 110 | 14.5 | 613 | 226.5 | 439.5 | 18 | 60 | 308 | 318 | 265 |
| 160L       | 2       | 160 | 254 | 254 | 108 | 110 | 14.5 | 613 | 226.5 | 439.5 | 18 | 60 | 308 | 318 | 310 |

| Frame Size | D    | G    | GD | F  | EB | DH       | EG | P   | N     | T   | S   | S length | M   | Bearing   |                    |
|------------|------|------|----|----|----|----------|----|-----|-------|-----|-----|----------|-----|-----------|--------------------|
|            |      |      |    |    |    |          |    |     |       |     |     |          |     | Drive End | Opposite Drive End |
| 80M        | 19j6 | 15.5 | 6  | 6  | 32 | M6X1.00  | 16 | 120 | 80j6  | 3   | M6  | 12       | 100 | 6204ZZC3  | 6204ZZC3           |
| 90L        | 24j6 | 20   | 7  | 8  | 40 | M8X1.25  | 19 | 140 | 95j6  | 3   | M8  | 14       | 115 | 6205ZZC3  | 6205ZZC3           |
| 100L       | 28j6 | 24   | 7  | 8  | 45 | M10X1.50 | 22 | 160 | 110j6 | 3.5 | M8  | 16       | 130 | 6206ZZC3  | 6205ZZC3           |
| 112M       | 28j6 | 24   | 7  | 8  | 45 | M10X1.50 | 22 | 160 | 110j6 | 3.5 | M8  | 16       | 130 | 6207ZZC3  | 6206ZZC3           |
| 132S       | 38k6 | 33   | 8  | 10 | 63 | M12X1.75 | 28 | 200 | 130j6 | 3.5 | M10 | 20       | 165 | 6308ZZC3  | 6208ZZC3           |
| 132M       | 38k6 | 33   | 8  | 10 | 63 | M12X1.75 | 28 | 200 | 130j6 | 3.5 | M10 | 20       | 165 | 6308ZZC3  | 6208ZZC3           |
| 160M       | 42k6 | 37   | 8  | 12 | 90 | M16X2.00 | 36 | 250 | 180j6 | 4   | M12 | 20       | 215 | 6310ZZC3  | 6208ZZC3           |
| 160L       | 42k6 | 37   | 8  | 12 | 90 | M16X2.00 | 36 | 250 | 180j6 | 4   | M12 | 20       | 215 | 6310ZZC3  | 6208ZZC3           |

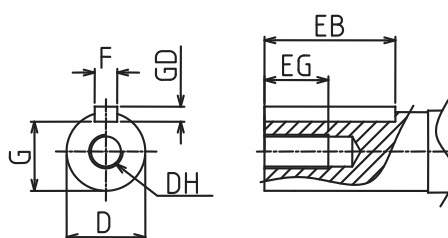
Note: Distance from the mounting surface of the flange to the shoulder on the shaft is 0 mm.  
All dimensions are mm.

## 5. DIMENSION

### 5.5 Small Flange-mounted /IM B14.



Detail drawing of shaft



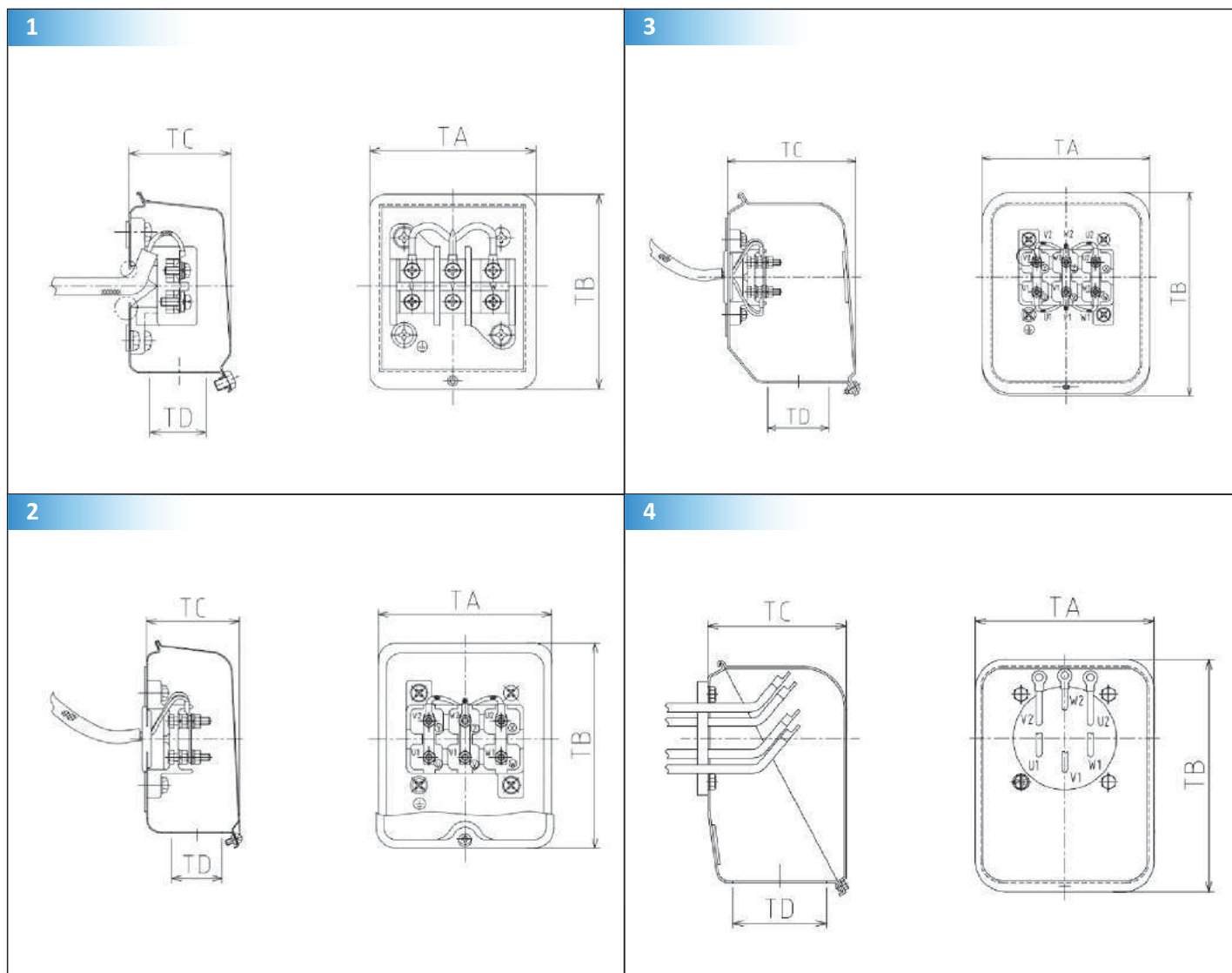
| Frame Size | Fig | E   | L   | P   | N     | T   | S   | S length | M   | HE    | AC  | AD    |
|------------|-----|-----|-----|-----|-------|-----|-----|----------|-----|-------|-----|-------|
| 80M        | 1   | 40  | 303 | 120 | 80j6  | 3   | M6  | 12       | 100 | 116   | 179 | 141   |
| 90L        | 1   | 50  | 362 | 140 | 95j6  | 3   | M8  | 14       | 115 | 129.5 | 185 | 155   |
| 100L       | 2   | 60  | 370 | 160 | 110j6 | 3.5 | M8  | 16       | 130 | 129.5 | 199 | 155   |
| 112M       | 2   | 60  | 385 | 160 | 110j6 | 3.5 | M8  | 16       | 130 | 148.5 | 240 | 174   |
| 132S       | 2   | 80  | 450 | 200 | 130j6 | 3.5 | M10 | 20       | 165 | 181.5 | 284 | 211   |
| 132M       | 2   | 80  | 488 | 200 | 130j6 | 3.5 | M10 | 20       | 165 | 181.5 | 284 | 211   |
| 160M       | 2   | 110 | 613 | 250 | 180j6 | 4   | M12 | 20       | 215 | 226.5 | 318 | 279.5 |
| 160L       | 2   | 110 | 613 | 250 | 180j6 | 4   | M12 | 20       | 215 | 226.5 | 318 | 279.5 |

| Frame Size | D    | G    | GD | F  | EB | DH       | EG | Bearing   |                    |
|------------|------|------|----|----|----|----------|----|-----------|--------------------|
|            |      |      |    |    |    |          |    | Drive End | Opposite Drive End |
| 80M        | 19j6 | 15.5 | 6  | 6  | 32 | M6X1.00  | 16 | 6204ZZC3  | 6204ZZC3           |
| 90L        | 24j6 | 20   | 7  | 8  | 40 | M8X1.25  | 19 | 6205ZZC3  | 6205ZZC3           |
| 100L       | 28j6 | 24   | 7  | 8  | 45 | M10X1.50 | 22 | 6206ZZC3  | 6205ZZC3           |
| 112M       | 28j6 | 24   | 7  | 8  | 45 | M10X1.50 | 22 | 6207ZZC3  | 6206ZZC3           |
| 132S       | 38k6 | 33   | 8  | 10 | 63 | M12X1.75 | 28 | 6308ZZC3  | 6208ZZC3           |
| 132M       | 38k6 | 33   | 8  | 10 | 63 | M12X1.75 | 28 | 6308ZZC3  | 6208ZZC3           |
| 160M       | 42k6 | 37   | 8  | 12 | 90 | M16X2.00 | 36 | 6310ZZC3  | 6208ZZC3           |
| 160L       | 42k6 | 37   | 8  | 12 | 90 | M16X2.00 | 36 | 6310ZZC3  | 6208ZZC3           |

Note: Distance from the mounting surface of the flange to the shoulder on the shaft is 0 mm.  
All dimensions are mm.

## 5. DIMENSION

### 5.6 Terminal box dimension (IP44)

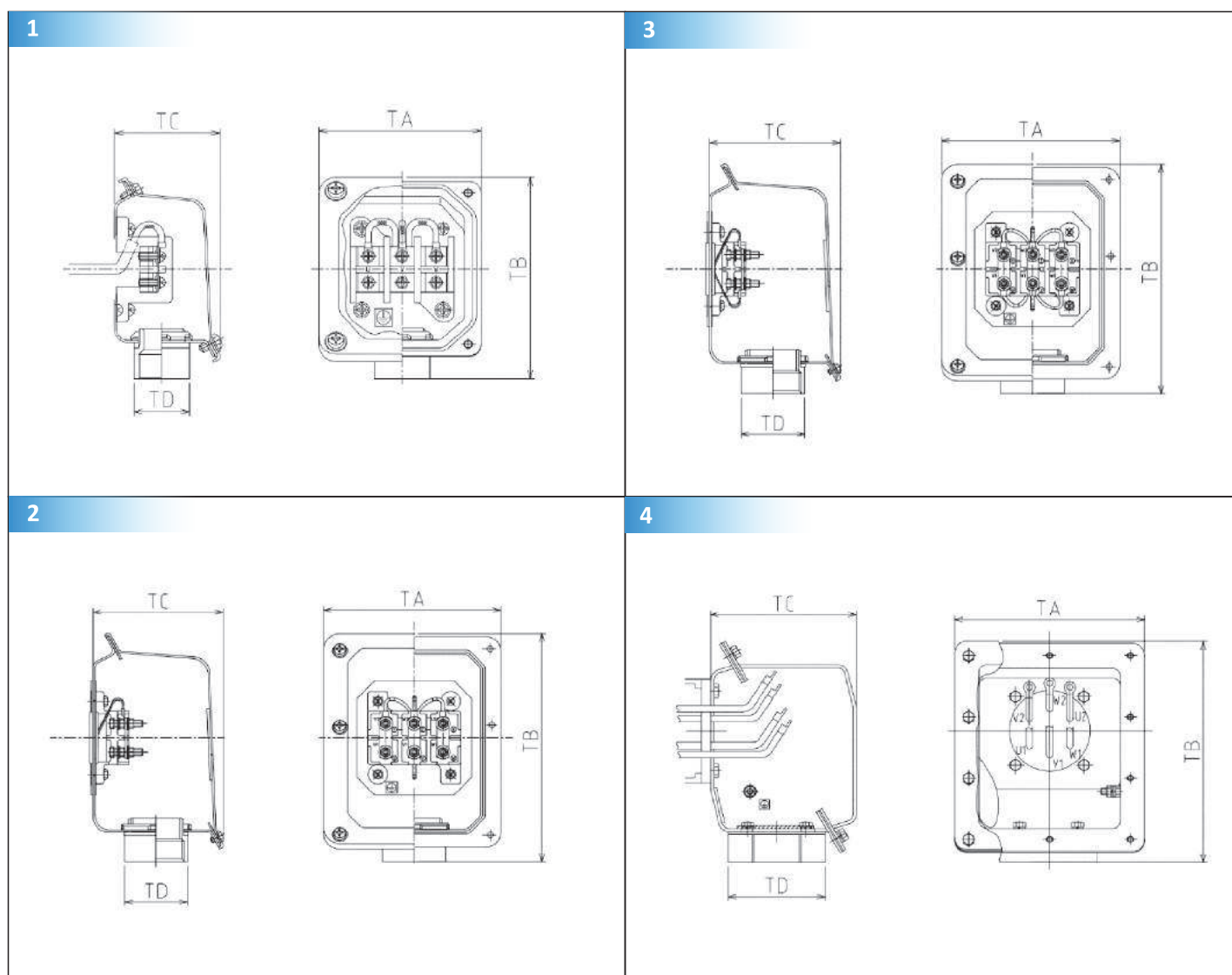


| Frame size             | Fig | TA  | TB  | TC  | TD    | Thermistor |
|------------------------|-----|-----|-----|-----|-------|------------|
| 80, 90L, 100L, 112M    | 1   | 83  | 94  | 49  | 22~27 | No         |
| 132S, 132M             | 2   | 123 | 142 | 65  | 35    | No         |
| 160M, 160L             | 3   | 142 | 173 | 111 | 52    | No         |
| 180M, 180L, 200L, 225S | 4   | 174 | 225 | 135 | 91    | No         |

Note: All dimensions are mm.

## 5. DIMENSION

### 5.7 Terminal box dimension (IP55)



| Frame size             | Fig | TA  | TB  | TC  | TD  | Thermistor |
|------------------------|-----|-----|-----|-----|-----|------------|
| 80, 90L, 100L, 112M    | 1   | 96  | 116 | 60  | 32  | No         |
| 132S, 132M             | 2   | 158 | 199 | 113 | 55  | No         |
| 160M, 160L             | 3   | 158 | 199 | 113 | 55  | No         |
| 180M, 180L, 200L, 225S | 4   | 235 | 274 | 180 | 110 | No         |

Note: All dimensions are mm.

## 6. IE2 EFFICIENCY MOTOR

### 6.1 Characteristics and Performance Data: 2 Pole

0.75kW ~ 7.5kW

| Rated Output | Frame | Hz | Volts | Full Load Current | Full Load Speed   | Lock Rotor Current | Lock Rotor Torque | Break Down Torque | Efficiency (%) Load |      |      | Power Factor (%) Load |      |      | Sound Pressure dB(A) @ 1m | Rotor GD <sup>2</sup> | NET Weight |
|--------------|-------|----|-------|-------------------|-------------------|--------------------|-------------------|-------------------|---------------------|------|------|-----------------------|------|------|---------------------------|-----------------------|------------|
| kW           |       |    |       | A                 | min <sup>-1</sup> | %                  | %                 | %                 | 100%                | 75%  | 50%  | 100%                  | 75%  | 50%  | dB(A)                     | Kg.m <sup>2</sup>     | kg         |
| 0.75         | 80M   | 50 | 380   | 1.70              | 2825              | 522                | 154               | 171               | 75.1                | 78.6 | 79.2 | 91.5                  | 86.6 | 75.5 | 61                        | 0.0012                | 9          |
|              |       |    | 400   | 1.70              | 2845              | 551                | 172               | 189               | 76.7                | 80.0 | 80.1 | 88.5                  | 81.8 | 69.7 |                           |                       |            |
|              |       |    | 415   | 1.60              | 2855              | 608                | 187               | 203               | 77.5                | 80.0 | 79.6 | 85.5                  | 77.4 | 64.4 |                           |                       |            |
| 1.5          | 90L   | 50 | 380   | 3.40              | 2855              | 621                | 218               | 294               | 80.9                | 84.9 | 85.8 | 85.2                  | 79.9 | 69.3 | 54                        | 0.0025                | 18         |
|              |       |    | 400   | 3.30              | 2875              | 676                | 246               | 323               | 82.0                | 85.1 | 85.5 | 81.5                  | 74.8 | 62.7 |                           |                       |            |
|              |       |    | 415   | 3.30              | 2885              | 703                | 268               | 344               | 82.4                | 85.2 | 85.1 | 78.2                  | 70.5 | 57.6 |                           |                       |            |
| 2.2          | 90L   | 50 | 380   | 4.70              | 2840              | 623                | 215               | 229               | 81.9                | 85.0 | 86.6 | 90.0                  | 85.7 | 76.2 | 54                        | 0.0034                | 21         |
|              |       |    | 400   | 4.50              | 2860              | 691                | 243               | 253               | 83.2                | 86.5 | 87.4 | 87.4                  | 80.5 | 69.0 |                           |                       |            |
|              |       |    | 415   | 4.40              | 2875              | 736                | 265               | 270               | 84.0                | 86.7 | 87.3 | 84.8                  | 76.6 | 64.0 |                           |                       |            |
| 3.7          | 112M  | 50 | 380   | 7.20              | 2875              | 700                | 202               | 281               | 86.8                | 89.0 | 90.0 | 92.3                  | 89.4 | 81.6 | 54                        | 0.0069                | 30         |
|              |       |    | 400   | 6.90              | 2890              | 772                | 227               | 309               | 87.9                | 90.2 | 91.0 | 90.3                  | 86.5 | 77.6 |                           |                       |            |
|              |       |    | 415   | 6.70              | 2905              | 828                | 247               | 331               | 88.6                | 90.6 | 91.1 | 89.1                  | 84.6 | 74.7 |                           |                       |            |
| 5.5          | 132S  | 50 | 380   | 11.2              | 2875              | 548                | 211               | 278               | 86.2                | 89.2 | 90.4 | 88.3                  | 86.0 | 79.7 | 58                        | 0.0175                | 49         |
|              |       |    | 400   | 10.8              | 2895              | 602                | 238               | 306               | 87.3                | 89.6 | 90.4 | 86.4                  | 82.9 | 74.5 |                           |                       |            |
|              |       |    | 415   | 10.5              | 2905              | 645                | 258               | 327               | 87.9                | 89.9 | 90.4 | 84.9                  | 80.5 | 71.0 |                           |                       |            |
| 7.5          | 132S  | 50 | 380   | 14.7              | 2880              | 630                | 218               | 262               | 88.4                | 90.3 | 91.2 | 89.5                  | 86.9 | 80.1 | 58                        | 0.0206                | 54         |
|              |       |    | 400   | 14.1              | 2895              | 696                | 245               | 288               | 89.3                | 91.2 | 91.8 | 87.8                  | 84.2 | 75.6 |                           |                       |            |
|              |       |    | 415   | 13.8              | 2905              | 739                | 267               | 308               | 89.8                | 91.4 | 91.8 | 86.1                  | 81.6 | 71.7 |                           |                       |            |

**Note:** Do not use IE2 motor for Compressor, Boiler applications

For IE2 motor dimensions, please refer to section 5 (Dimension)

The above characteristics and performance are design data and shall be guaranteed with tolerance of application standards.

## 6. IE2 EFFICIENCY MOTOR

### 6.2 Characteristics and Performance Data: 4 Pole

0.75kW ~ 15kW

| Rated Output | Frame | Hz | Volts | Full Load Current | Full Load Speed   | Lock Rotor Current | Lock Rotor Torque | Break Down Torque | Efficiency (%) Load |      |      | Power Factor (%) Load |      |      | Sound Pressure dB(A) @ 1m | Rotor GD <sup>2</sup> | NET Weight |
|--------------|-------|----|-------|-------------------|-------------------|--------------------|-------------------|-------------------|---------------------|------|------|-----------------------|------|------|---------------------------|-----------------------|------------|
| kW           |       |    |       | A                 | min <sup>-1</sup> | %                  | %                 | %                 | 100%                | 75%  | 50%  | 100%                  | 75%  | 50%  | dB(A)                     | Kg.m <sup>2</sup>     | kg         |
| 0.75         | 80M   | 50 | 380   | 1.90              | 1405              | 503                | 230               | 309               | 79.9                | 81.7 | 81.0 | 77.6                  | 69.5 | 55.7 | 47                        | 0.0033                | 12         |
|              |       |    | 400   | 1.80              | 1420              | 561                | 259               | 341               | 81.2                | 83.1 | 82.4 | 74.6                  | 67.1 | 54.7 |                           |                       |            |
|              |       |    | 415   | 1.80              | 1430              | 583                | 283               | 366               | 81.8                | 83.1 | 81.9 | 72.3                  | 64.3 | 51.7 |                           |                       |            |
| 1.5          | 90L   | 50 | 380   | 3.50              | 1425              | 514                | 177               | 200               | 81.5                | 84.1 | 84.5 | 83.3                  | 77.0 | 64.5 | 44                        | 0.0052                | 18.5       |
|              |       |    | 400   | 3.40              | 1435              | 562                | 201               | 220               | 82.9                | 85.7 | 86.2 | 80.4                  | 73.8 | 61.9 |                           |                       |            |
|              |       |    | 415   | 3.40              | 1440              | 585                | 219               | 234               | 83.7                | 86.1 | 86.4 | 76.4                  | 69.0 | 56.3 |                           |                       |            |
| 2.2          | 100L  | 50 | 380   | 5.00              | 1430              | 568                | 206               | 217               | 83.5                | 85.5 | 85.7 | 82.2                  | 75.5 | 62.8 | 45                        | 0.0073                | 23.5       |
|              |       |    | 400   | 4.90              | 1440              | 616                | 234               | 238               | 84.7                | 87.0 | 87.3 | 78.4                  | 71.7 | 59.6 |                           |                       |            |
|              |       |    | 415   | 4.90              | 1445              | 643                | 256               | 252               | 85.4                | 87.4 | 88.3 | 74.6                  | 67.0 | 56.9 |                           |                       |            |
| 3.7          | 112M  | 50 | 380   | 8.00              | 1435              | 609                | 187               | 250               | 84.6                | 86.9 | 88.0 | 84.7                  | 80.1 | 69.9 | 45                        | 0.0176                | 34         |
|              |       |    | 400   | 7.70              | 1445              | 673                | 213               | 277               | 85.9                | 88.7 | 89.8 | 82.6                  | 78.1 | 68.1 |                           |                       |            |
|              |       |    | 415   | 7.50              | 1450              | 723                | 233               | 297               | 86.8                | 89.2 | 90.0 | 80.5                  | 75.0 | 63.8 |                           |                       |            |
| 5.5          | 132S  | 50 | 380   | 11.6              | 1450              | 602                | 207               | 236               | 87.8                | 89.9 | 90.6 | 84.2                  | 80.4 | 71.6 | 54                        | 0.0336                | 54         |
|              |       |    | 400   | 11.3              | 1455              | 655                | 233               | 259               | 88.7                | 90.3 | 90.6 | 81.5                  | 76.4 | 65.7 |                           |                       |            |
|              |       |    | 415   | 11.1              | 1460              | 695                | 254               | 278               | 89.2                | 90.5 | 90.6 | 79.1                  | 73.0 | 61.2 |                           |                       |            |
| 7.5          | 132M  | 50 | 380   | 15.5              | 1445              | 585                | 202               | 226               | 87.7                | 89.4 | 90.0 | 85.2                  | 81.3 | 71.8 | 54                        | 0.0401                | 60         |
|              |       |    | 400   | 15.0              | 1450              | 641                | 228               | 250               | 88.6                | 90.4 | 90.9 | 83.1                  | 78.9 | 69.3 |                           |                       |            |
|              |       |    | 415   | 14.8              | 1455              | 676                | 249               | 268               | 89.2                | 90.7 | 91.0 | 81.1                  | 75.9 | 65.1 |                           |                       |            |
| 11           | 160M  | 50 | 380   | 22.6              | 1445              | 553                | 195               | 234               | 88.6                | 91.0 | 92.1 | 85.2                  | 82.7 | 75.7 | 60                        | 0.0677                | 86         |
|              |       |    | 400   | 21.7              | 1450              | 608                | 221               | 258               | 89.5                | 91.5 | 92.2 | 83.4                  | 79.6 | 70.6 |                           |                       |            |
|              |       |    | 415   | 21.3              | 1455              | 648                | 241               | 276               | 90.1                | 91.8 | 92.3 | 81.6                  | 76.8 | 66.5 |                           |                       |            |
| 15           | 160L  | 50 | 380   | 30.5              | 1450              | 597                | 214               | 245               | 89.8                | 91.3 | 92.0 | 85.6                  | 82.3 | 73.9 | 60                        | 0.0904                | 101        |
|              |       |    | 400   | 29.3              | 1455              | 659                | 242               | 270               | 90.6                | 92.2 | 92.8 | 83.8                  | 80.0 | 71.0 |                           |                       |            |
|              |       |    | 415   | 28.7              | 1460              | 704                | 264               | 290               | 91.1                | 92.5 | 92.8 | 82.0                  | 77.3 | 67.0 |                           |                       |            |

**Note: Do not use IE2 motor for Compressor, Boiler applications**

**For IE2 motor dimensions, please refer to section 5 (Dimension)**

*The above characteristics and performance are design data and shall be guaranteed with tolerance of application standards.*



## 7. APPENDIX

### 7.1 Characteristics and Performance Data: 2 Pole (Big Frame, NEMA Standard)

#### 100HP ~ 200HP

| Rated Output | Frame   | Hz | Volts | Full Load Current | Full Load Speed   | Lock Rotor Current | Lock Rotor Torque | Break Down Torque | Efficiency (%) Load |      |      | Power Factor (%) Load |      |      | Rotor GD <sup>2</sup> | NET Weight |
|--------------|---------|----|-------|-------------------|-------------------|--------------------|-------------------|-------------------|---------------------|------|------|-----------------------|------|------|-----------------------|------------|
| HP           |         |    |       | A                 | min <sup>-1</sup> | %                  | %                 | %                 | 100%                | 75%  | 50%  | 100%                  | 75%  | 50%  | Kg.m <sup>2</sup>     | kg         |
| 100          | 405TS   | 50 | 380   | 142               | 2960              | 910                | 200               | 200               | 94.1                | 94.3 | 94.2 | 86.0                  | 83.5 | 76.5 | 0.736                 | 560        |
| 125          | 444/5TS | 50 | 380   | 172               | 2970              | 900                | 110               | 220               | 95.0                | 95.4 | 95.0 | 88.5                  | 87.5 | 83.5 | 1.702                 | 940        |
| 150          | 444/5TS | 50 | 380   | 208               | 2975              | 1180               | 130               | 200               | 95.2                | 95.7 | 95.5 | 87.5                  | 87.0 | 84.2 | 1.850                 | 980        |
| 200          | 445/7TS | 50 | 380   | 282               | 2975              | 1770               | 135               | 200               | 95.5                | 95.7 | 95.5 | 85.5                  | 84.0 | 79.5 | 2.229                 | 1060       |

### 7.2 Characteristics and Performance Data: 4 Pole (Big Frame, NEMA Standard)

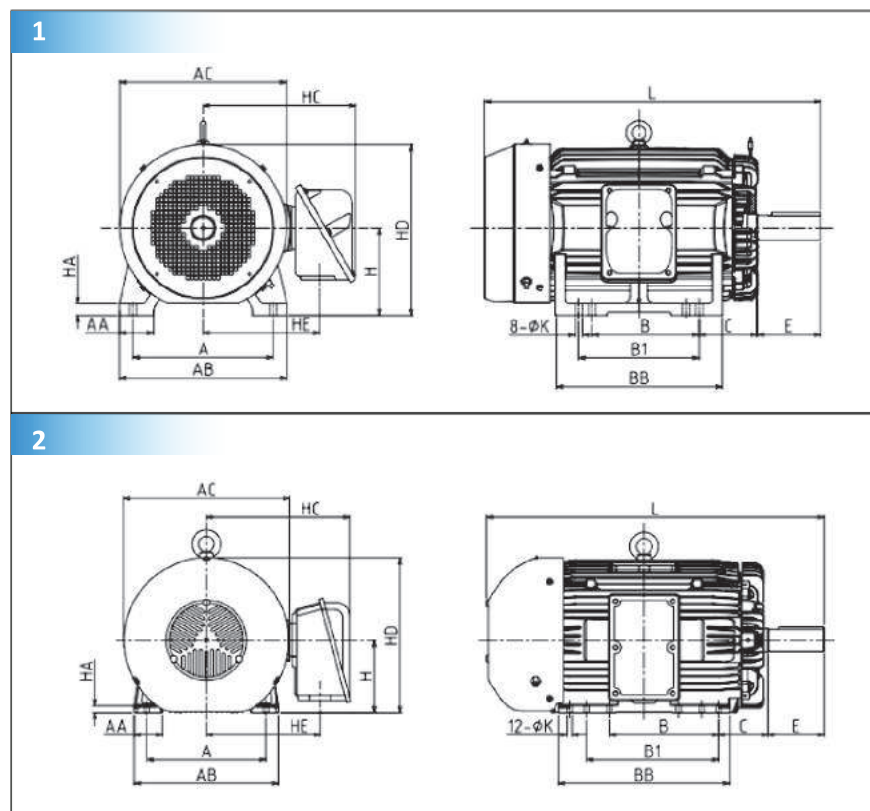
#### 100HP ~ 200HP

| Rated Output | Frame   | Hz | Volts | Full Load Current | Full Load Speed   | Lock Rotor Current | Lock Rotor Torque | Break Down Torque | Efficiency (%) Load |      |      | Power Factor (%) Load |      |      | Rotor GD <sup>2</sup> | NET Weight |
|--------------|---------|----|-------|-------------------|-------------------|--------------------|-------------------|-------------------|---------------------|------|------|-----------------------|------|------|-----------------------|------------|
| HP           |         |    |       | A                 | min <sup>-1</sup> | %                  | %                 | %                 | 100%                | 75%  | 50%  | 100%                  | 75%  | 50%  | Kg.m <sup>2</sup>     | kg         |
| 100          | 405TS   | 50 | 380   | 145               | 1475              | 900                | 200               | 250               | 95.0                | 95.6 | 95.5 | 84.8                  | 81.9 | 74.0 | 1.110                 | 560        |
| 125          | 444/5TS | 50 | 380   | 178               | 1480              | 905                | 150               | 200               | 95.3                | 95.5 | 95.4 | 85.0                  | 84.5 | 81.0 | 2.292                 | 870        |
| 150          | 444/5TS | 50 | 380   | 211               | 1485              | 1180               | 130               | 200               | 95.5                | 96.1 | 95.9 | 86.0                  | 84.0 | 78.5 | 2.861                 | 950        |
| 200          | 445/7TS | 50 | 380   | 295               | 1485              | 1720               | 160               | 200               | 95.8                | 95.8 | 95.5 | 82.0                  | 78.1 | 69.3 | 3.147                 | 1045       |

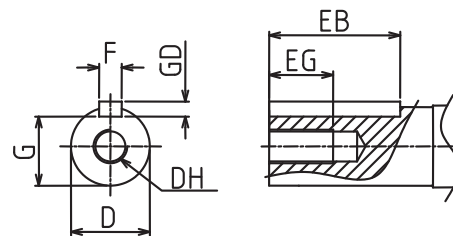
The above characteristics and performance are design data and shall be guaranteed with tolerance of application standards.

# 7. APPENDIX

## 7.3 Frames 400 & 440 Foot-mounted.



Detail drawing of shaft end



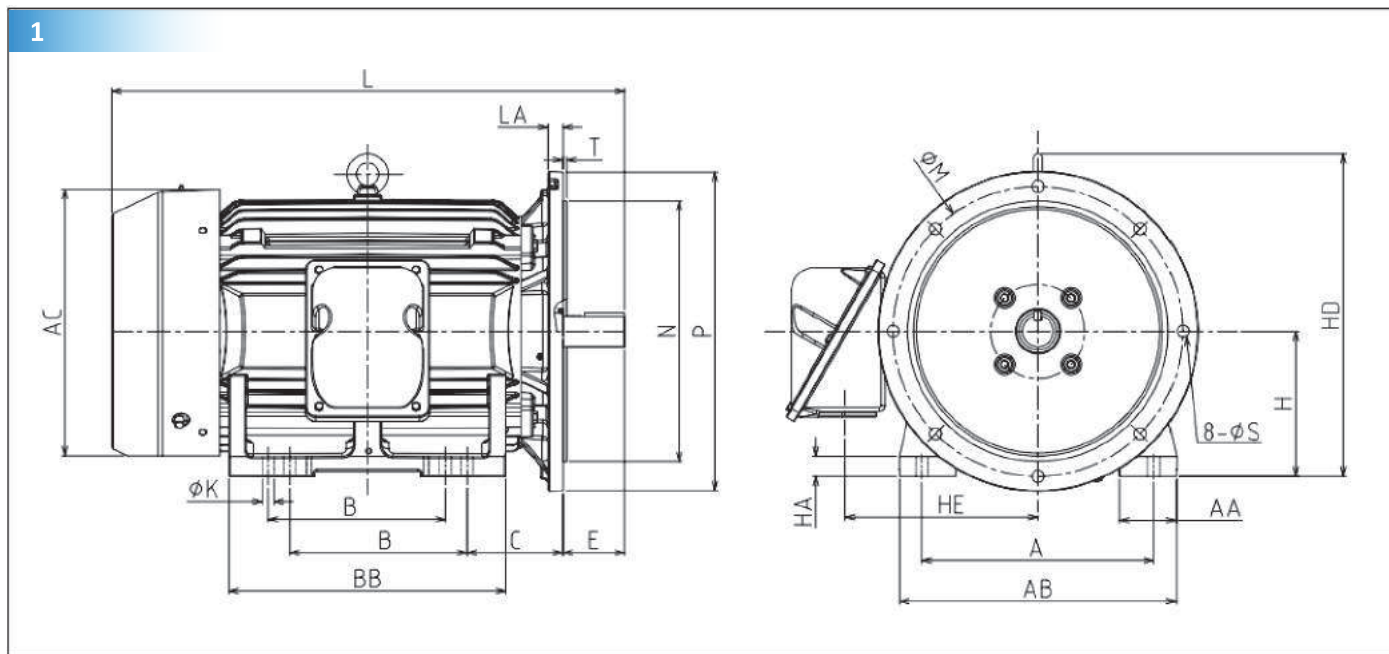
| Frame Size   | Fig | H     | A     | B      | B1     | C      | E      | K  | L    | HE  | HD     | HA | HC     | AA  | AB  | AC  | BB  |
|--------------|-----|-------|-------|--------|--------|--------|--------|----|------|-----|--------|----|--------|-----|-----|-----|-----|
| 365T(2P)     | 1   | 228.6 | 355.6 | 285.75 | 311.15 | 149.35 | 95.25  | 17 | 786  | 325 | 467.6  | 25 | 410    | 80  | 413 | 484 | 366 |
| 404/5T(2P)   | 1   | 254   | 406.4 | 311    | 349.25 | 168.15 | 107.95 | 21 | 899  | 338 | 495.75 | 35 | 441.25 | 100 | 486 | 484 | 485 |
| 404/5T(4-6P) | 1   | 254   | 406.4 | 311    | 349.25 | 168.15 | 184.15 | 21 | 975  | 338 | 495.75 | 35 | 441.25 | 100 | 486 | 484 | 485 |
| 444/5T(2P)   | 2   | 279.4 | 457.2 | 368.3  | 419.1  | 190.5  | 120.65 | 21 | 1150 | 438 | 599.4  | 27 | 550    | 108 | 555 | 640 | 610 |
| 444/5T(4-6P) | 2   | 279.4 | 457.2 | 368.3  | 419.1  | 190.5  | 215.9  | 21 | 1246 | 438 | 599.4  | 27 | 550    | 108 | 555 | 640 | 610 |
| 445/7(2P)    | 2   | 279.4 | 457.2 | 419.1  | 508    | 190.5  | 120.65 | 21 | 1204 | 438 | 599.4  | 27 | 550    | 108 | 555 | 640 | 660 |
| 445/7(4-6P)  | 2   | 279.4 | 457.2 | 419.1  | 508    | 190.5  | 215.9  | 21 | 1299 | 438 | 599.4  | 27 | 550    | 108 | 555 | 640 | 660 |

| Frame Size   | D      | G      | GD     | F      | EB    | DH | EG | Bearing   |                    |
|--------------|--------|--------|--------|--------|-------|----|----|-----------|--------------------|
|              |        |        |        |        |       |    |    | Drive End | Opposite Drive End |
| 365T(2P)     | 47.625 | 40.410 | 12.700 | 12.700 | 50.8  | -  | -  | 6312ZC3   | 6312ZC3            |
| 404/5T(2P)   | 53.975 | 46.863 | 12.700 | 12.700 | 69.9  | -  | -  | 6313C3    | 6313C3             |
| 404/5T(4-6P) | 73.025 | 62.23  | 19.050 | 19.050 | 142.9 | -  | -  | 6317C3    | 6313C3             |
| 444/5T(2P)   | 60.325 | 51.333 | 15.875 | 15.875 | 76.2  | -  | -  | 6313C3    | 6313C3             |
| 444/5T(4-6P) | 85.725 | 73.152 | 22.225 | 22.225 | 174.6 | -  | -  | 6318C3    | 6316C3             |
| 445/7(2P)    | 60.325 | 51.333 | 15.875 | 15.875 | 76.2  | -  | -  | 6313C3    | 6313C3             |
| 445/7(4-6P)  | 85.725 | 73.152 | 22.225 | 22.225 | 174.6 | -  | -  | 6318C3    | 6316C3             |

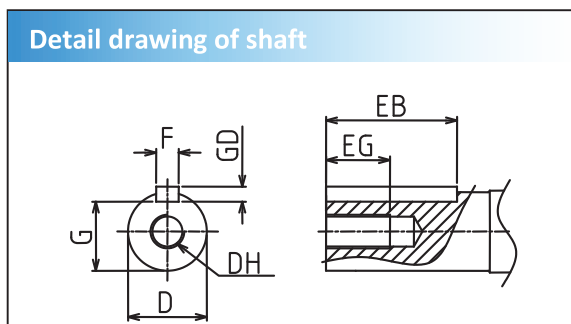
Note: All dimensions are mm.

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### 7.4 Frames 400 & 440 Flange, Foot-mounted.



Detail drawing of shaft



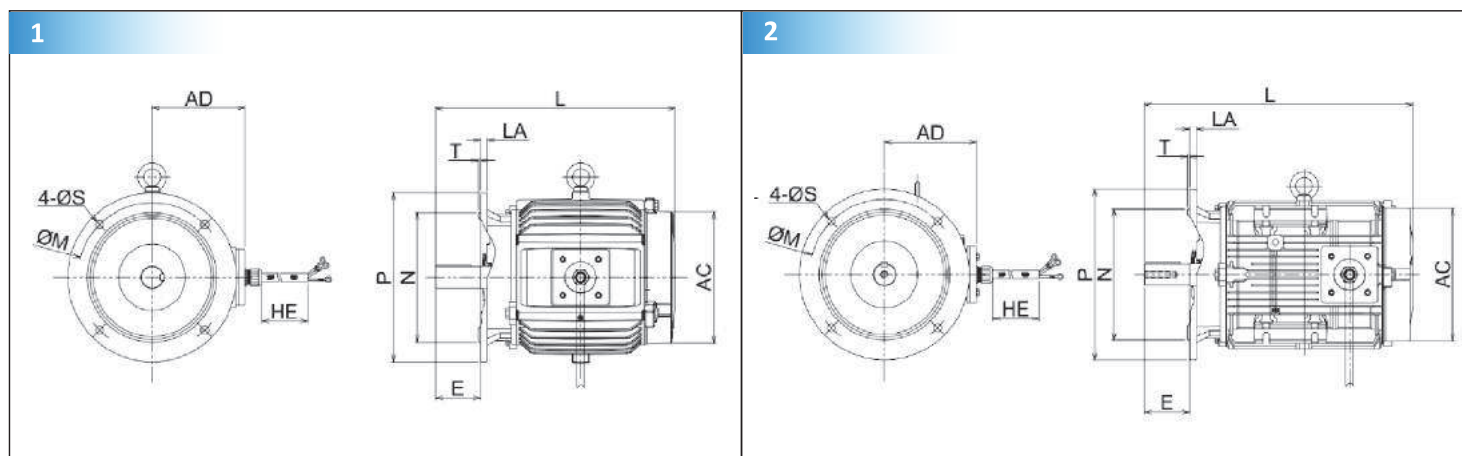
| Frame Size   | Fig | H   | A     | B   | C      | E      | K  | L   | HE  | HD  | HA | AA  | AB  | AC  | BB  |
|--------------|-----|-----|-------|-----|--------|--------|----|-----|-----|-----|----|-----|-----|-----|-----|
| 404/5TS (2P) | 1   | 254 | 406.4 | 311 | 168.15 | 107.95 | 21 | 899 | 338 | 565 | 35 | 100 | 486 | 460 | 485 |

| Frame Size   | D     | G     | GD   | F    | EB   | DH | EG | P   | N     | LA   | T    | S  | M   | Bearing   |                    |
|--------------|-------|-------|------|------|------|----|----|-----|-------|------|------|----|-----|-----------|--------------------|
|              |       |       |      |      |      |    |    |     |       |      |      |    |     | Drive End | Opposite Drive End |
| 404/5TS (2P) | 53.97 | 46.87 | 12.7 | 12.7 | 69.9 | -  | -  | 558 | 457.2 | 26.4 | 6.55 | 21 | 508 | 6313C3    | 6313C3             |

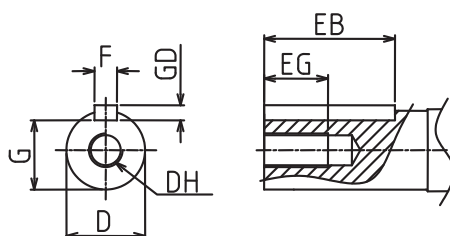
Note: Distance from the mounting surface of the flange to the shoulder on the shaft is 0 mm.

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### 7.5 Flange-mounted /IM B5, Frozen motor.



Detail drawing of shaft



| Frame Size | Fig No. | Pole | Rated Output |     | E   | L   | P   | N     | LA | T | S    | M   | HE   | AC  | AD    |
|------------|---------|------|--------------|-----|-----|-----|-----|-------|----|---|------|-----|------|-----|-------|
|            |         |      | kW           | HP  |     |     |     |       |    |   |      |     |      |     |       |
| 132S       | 1       | 4    | 5.5          | 7.5 | 80  | 426 | 300 | 230j6 | 12 | 4 | 14.5 | 265 | 1500 | 234 | 165.5 |
| 132M       | 2       | 4    | 7.5          | 10  | 80  | 488 | 300 | 230j6 | 12 | 4 | 14.5 | 265 | 1500 | 234 | 162   |
| 160M       | 1       | 4    | 11           | 15  | 110 | 569 | 350 | 250j6 | 14 | 5 | 18.5 | 300 | 1500 | 273 | 186   |

| Frame Size | D    | G  | GD | F  | EB | DH       | EG | Bearing    |                    |
|------------|------|----|----|----|----|----------|----|------------|--------------------|
|            |      |    |    |    |    |          |    | Drive End  | Opposite Drive End |
| 132S       | 38k6 | 33 | 8  | 10 | 63 | -        | -  | AC6308ZZC3 | AC6208ZZC3         |
| 132M       | 38k6 | 33 | 8  | 10 | 63 | M12X1.75 | 28 | AC6308ZZC3 | AC6208ZZC3         |
| 160M       | 42k6 | 37 | 8  | 12 | 90 | -        | -  | AC6310ZZC3 | AC6209ZZC3         |

| Rated Output | Frame | Hz | Volts | Full Load Current | Full Load Speed   | Lock Rotor Current | Lock Rotor Torque | Break Down Torque | Power Factor | Vibration | Sound Pressure dB(A) @ 1m | Rotor GD <sup>2</sup> | NET Weight |
|--------------|-------|----|-------|-------------------|-------------------|--------------------|-------------------|-------------------|--------------|-----------|---------------------------|-----------------------|------------|
|              |       |    |       |                   | min <sup>-1</sup> | %F/L               | %F/L              | %F/L              | 100% Load    | mm/s      | dB(A)                     | Kg.m <sup>2</sup>     | kg         |
| 5.5          | 132S  | 50 | 380   | 11.8              | 1465              | 809.6              | 371               | 425               | 79.5         | 0.8       | 54                        | 0.0386                | 61         |
| 7.5          | 132M  | 50 | 380   | 15.4              | 1460              | 760.7              | 350               | 400               | 83.0         | 1.2       | 54                        | 0.0484                | 70         |
| 11           | 160M  | 50 | 380   | 23.0              | 1470              | 842.7              | 309               | 334               | 80.0         | 1.2       | 60                        | 0.0875                | 102        |

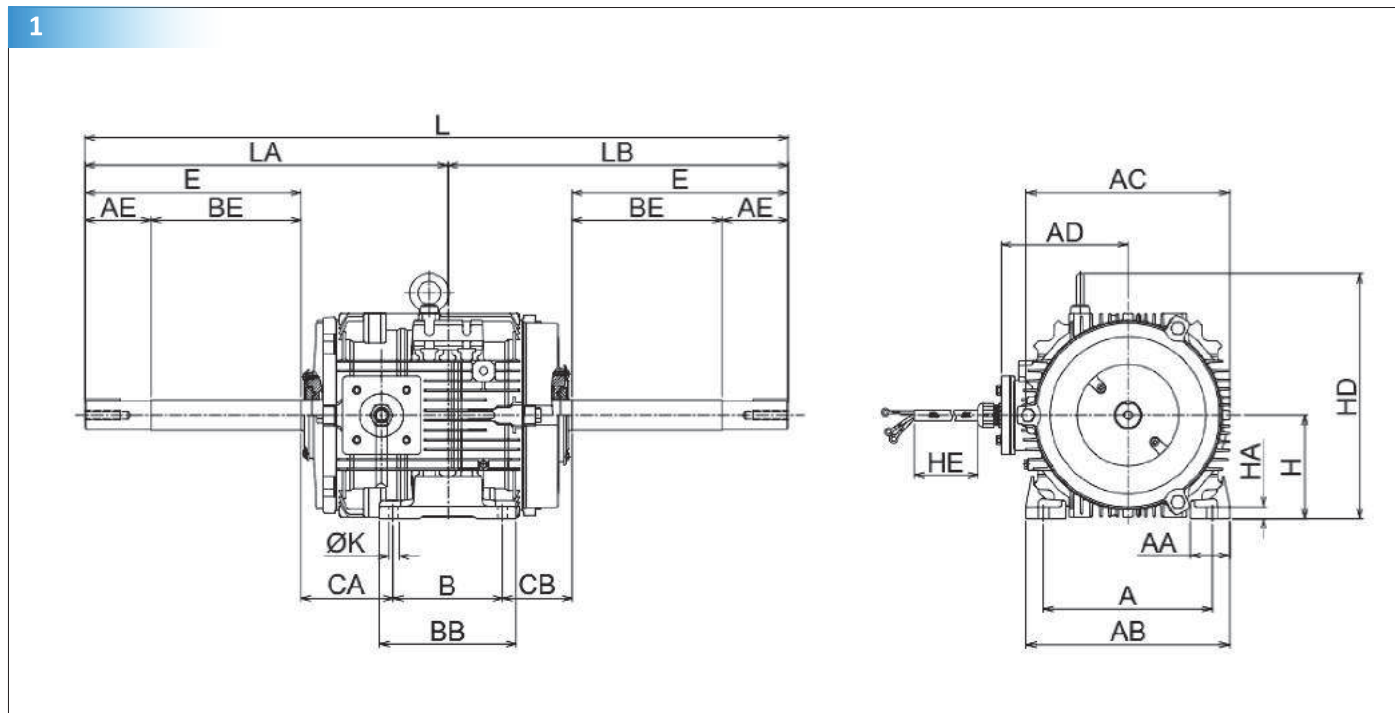
Note: Distance from the mounting surface of the flange to the shoulder on the shaft is 0 mm.

All dimensions are mm.

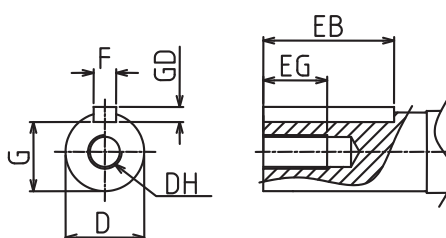
The above characteristics and performance are design data and shall be guaranteed with tolerance of application standards.

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### 7.6 Foot-mounted-Special shaft/IM B3, Frozen motor.



Detail drawing of shaft



| Frame Size | Fig | H   | A   | B   | E     | L   | HE   | HA | HD  | AA | AB  | AC  | AD  | AE   | BB  |
|------------|-----|-----|-----|-----|-------|-----|------|----|-----|----|-----|-----|-----|------|-----|
| 132S       | 1   | 132 | 216 | 140 | 276.5 | 900 | 1500 | 15 | 313 | 50 | 260 | 260 | 162 | 84.5 | 175 |

| Frame Size | BE  | CA  | CB | LA    | LB    | D    | G    | GD | F | EB | DH       | EG | Bearing    |                    |
|------------|-----|-----|----|-------|-------|------|------|----|---|----|----------|----|------------|--------------------|
|            |     |     |    |       |       |      |      |    |   |    |          |    | Drive End  | Opposite Drive End |
| 132S       | 192 | 118 | 90 | 164.5 | 435.5 | 35j6 | 31.5 | 6  | 6 | 45 | M12x1.75 | 45 | AC6308ZZC3 | AC6208ZZC3         |

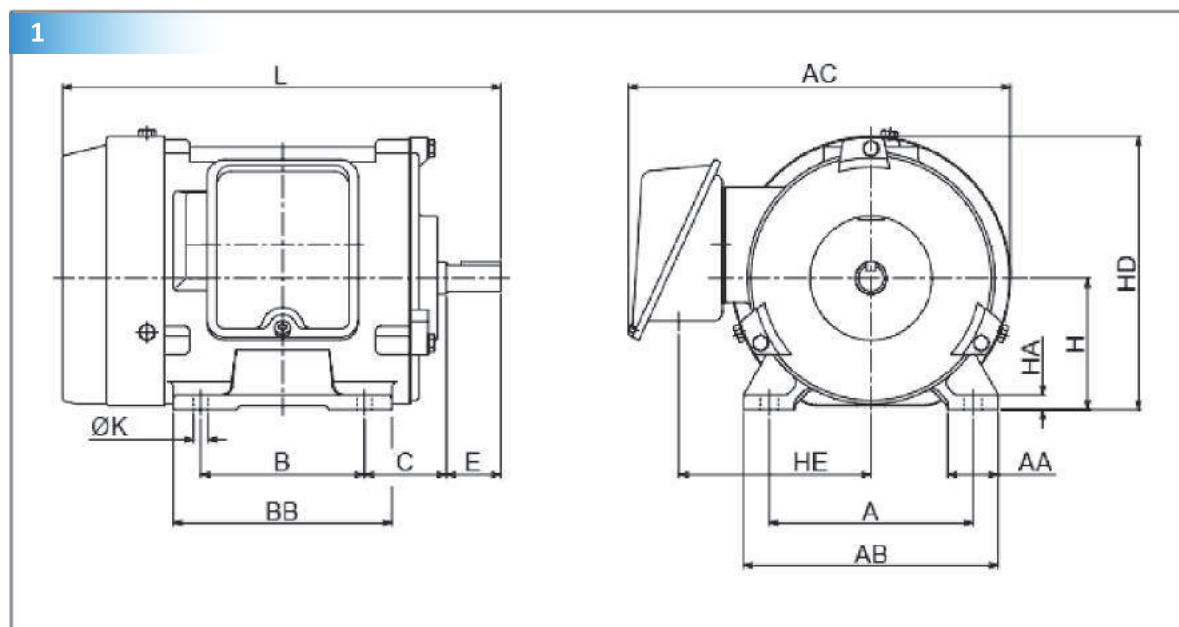
| Rated Output | Frame | Hz | Volts | Full Load Current | Full Load Speed   | Lock Rotor Current | Lock Rotor Torque | Break Down Torque | Power Factor | Sound Pressure dB(A) @ 1m | Rotor GD <sup>2</sup> | NET Weight |
|--------------|-------|----|-------|-------------------|-------------------|--------------------|-------------------|-------------------|--------------|---------------------------|-----------------------|------------|
| kW           |       |    |       | A                 | min <sup>-1</sup> | %F/L               | %F/L              | %F/L              | 100%         | dB(A)                     | Kg.m <sup>2</sup>     | kg         |
| 5.5          | 132S  | 50 | 380   | 11.8              | 1465              | 809.6              | 371               | 425               | 79.5         | 54                        | 0.0386                | 61         |

Note: All dimensions are mm.

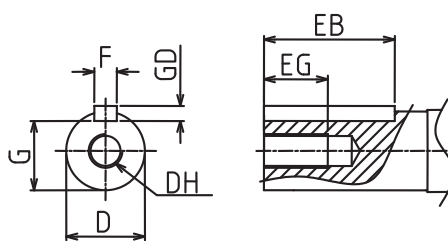
The above characteristics and performance are design data and shall be guaranteed with tolerance of application standards.

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### 7.7 Foot-mounted for Aluminum frame 71.



Detail drawing of shaft



| Frame Size | Fig | H  | A   | B  | C  | E  | K | L   | HE    | HD  | HA | AA | AB  | AC  | BB  |
|------------|-----|----|-----|----|----|----|---|-----|-------|-----|----|----|-----|-----|-----|
| 71M        | 1   | 71 | 112 | 90 | 45 | 30 | 8 | 241 | 105.5 | 148 | 8  | 28 | 140 | 209 | 120 |

| Frame Size | D    | G  | GD | F | EB | DH | EG | Bearing   |                    |
|------------|------|----|----|---|----|----|----|-----------|--------------------|
|            |      |    |    |   |    |    |    | Drive End | Opposite Drive End |
| 71M        | 14j6 | 11 | 5  | 5 | 22 | -  | -  | 6203ZZC3  | 6203ZZC3           |

| Rated Output | Frame | Hz | Volts | Full Load Current | Full Load Speed   | Lock Rotor Current | Lock Rotor Torque | Break Down Torque | Power Factor | Sound Pressure dB(A) @ 1m | Rotor GD <sup>2</sup> | NET Weight |
|--------------|-------|----|-------|-------------------|-------------------|--------------------|-------------------|-------------------|--------------|---------------------------|-----------------------|------------|
| kW           |       |    |       | A                 | min <sup>-1</sup> | %F/L               | %F/L              | %F/L              | 100% Load    | dB(A)                     | Kg.m <sup>2</sup>     | kg         |
| 0.4          | 71M   | 50 | 200   | 1.90              | 2800              | 547                | 283               | 285               | 85.1         | 61                        | 0.00057               | 7          |
| 0.4          | 71M   | 50 | 200   | 2.20              | 1400              | 505                | 334               | 329               | 72.6         | 50                        | 0.0012                | 8          |
| 0.4          | 71M   | 50 | 400   | 1.10              | 1400              | 518                | 340               | 335               | 72.9         | 50                        | 0.0012                | 8          |
| 0.2          | 71M   | 50 | 200   | 1.30              | 920               | 354                | 245               | 261               | 68.6         | 42                        | 0.0012                | 7          |

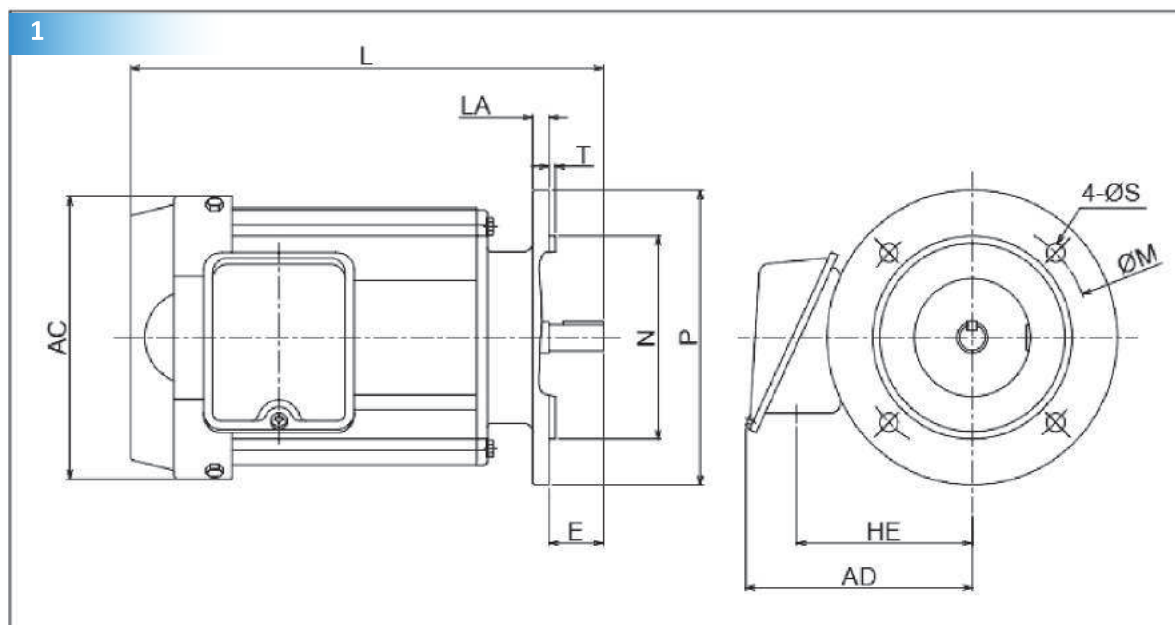
Note: All dimensions are mm.

The above characteristics and performance are design data and shall be guaranteed with tolerance of application standards.

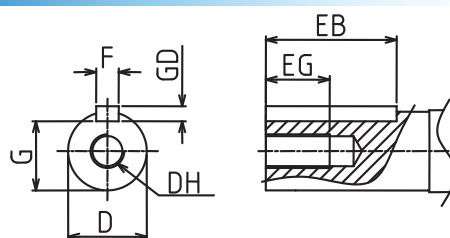


## 7. APPENDIX

### 7.8 Flange mounted for Aluminum frame 71.



Detail drawing of shaft



| Frame Size | Fig | E  | L   | P   | N     | LA | T   | S  | M   | HE | AC  | AD  |
|------------|-----|----|-----|-----|-------|----|-----|----|-----|----|-----|-----|
| 71M        | 1   | 30 | 261 | 160 | 110j6 | 9  | 3.5 | 10 | 130 | 97 | 154 | 125 |

| Frame Size | D    | G  | GD | F | EB | DH | EG | Bearing   |                    |
|------------|------|----|----|---|----|----|----|-----------|--------------------|
|            |      |    |    |   |    |    |    | Drive End | Opposite Drive End |
| 71M        | 14j6 | 11 | 5  | 5 | 22 | -  | -  | 6203ZZC3  | 6203ZZC3           |

| Rated Output | Frame | Hz | Volts | Full Load Current | Full Load Speed   | Lock Rotor Current | Lock Rotor Torque | Break Down Torque | Power Factor | Sound Pressure dB(A) @ 1m | Rotor GD <sup>2</sup> | NET Weight |
|--------------|-------|----|-------|-------------------|-------------------|--------------------|-------------------|-------------------|--------------|---------------------------|-----------------------|------------|
| kW           |       |    |       | A                 | min <sup>-1</sup> | %F/L               | %F/L              | %F/L              | 100% Load    | dB(A)                     | Kg.m <sup>2</sup>     | kg         |
| 0.4          | 71M   | 50 | 200   | 1.90              | 2800              | 547                | 283               | 285               | 85.1         | 61                        | 0.00057               | 8          |
| 0.4          | 71M   | 50 | 200   | 2.20              | 1400              | 505                | 334               | 329               | 72.6         | 50                        | 0.0012                | 9          |
| 0.4          | 71M   | 50 | 400   | 1.10              | 1400              | 518                | 340               | 335               | 72.9         | 50                        | 0.0012                | 9          |
| 0.2          | 71M   | 50 | 200   | 1.30              | 920               | 354                | 245               | 261               | 68.6         | 42                        | 0.0012                | 8          |

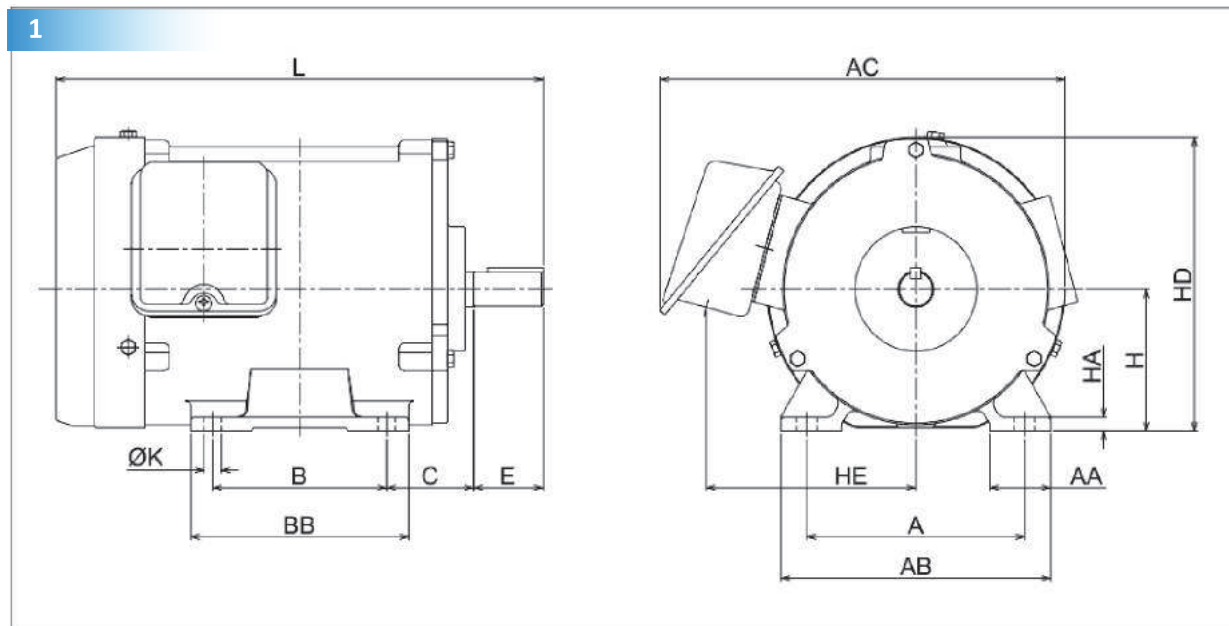
Note: All dimensions are mm.

Distance from the mounting surface of the flange to the shoulder on the shaft is 0 mm.

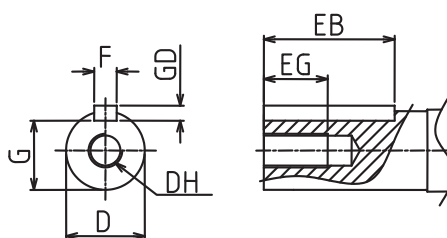
The above characteristics and performance are design data and shall be guaranteed with tolerance of application standards.

## 7. APPENDIX

### 7.9 Foot-mounted for Aluminum frame 80.



Detail drawing of shaft



| Frame Size | Fig | H  | A   | B   | C  | E  | K  | L   | HE  | HD  | HA | AA | AB  | AC  | BB  |
|------------|-----|----|-----|-----|----|----|----|-----|-----|-----|----|----|-----|-----|-----|
| 80M        | 1   | 80 | 125 | 100 | 50 | 40 | 10 | 280 | 121 | 166 | 8  | 35 | 155 | 233 | 125 |

| Frame Size | D    | G    | GD | F | EB | DH | EG | Bearing   |                    |
|------------|------|------|----|---|----|----|----|-----------|--------------------|
|            |      |      |    |   |    |    |    | Drive End | Opposite Drive End |
| 80M        | 19j6 | 15.5 | 6  | 6 | 32 | -  | -  | 6204ZZC3  | 6204ZZC3           |

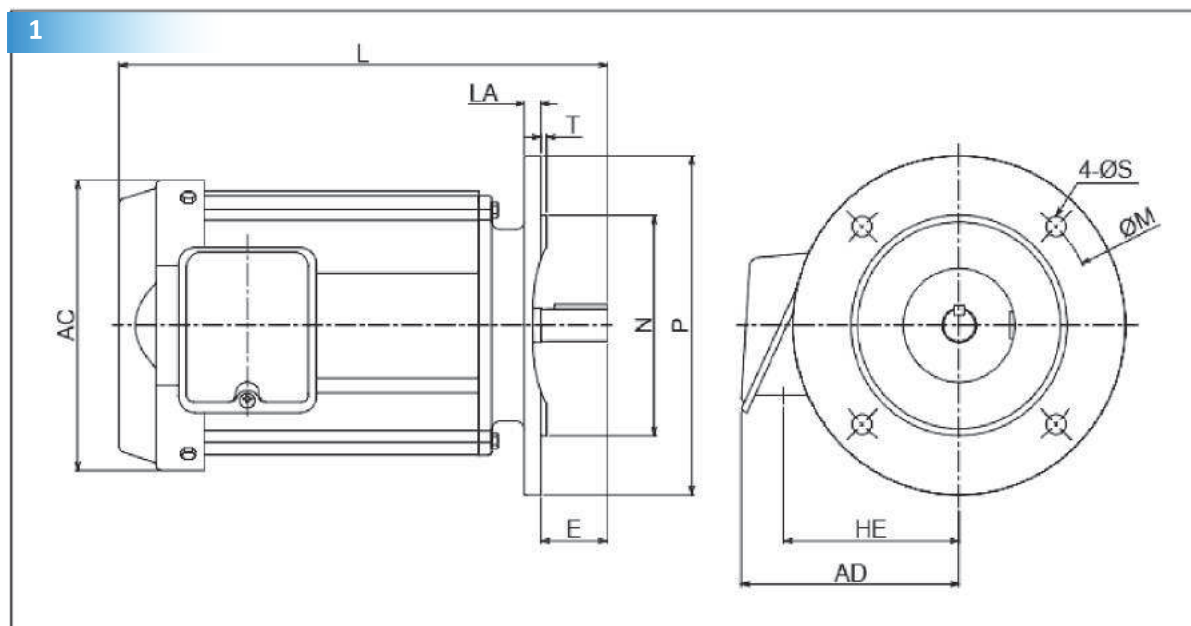
| Rated Output | Frame | Hz | Volts | Full Load Current | Full Load Speed   | Lock Rotor Current | Lock Rotor Torque | Break Down Torque | Power Factor | Sound Pressure dB(A) @ 1m | Rotor GD <sup>2</sup> | NET Weight |
|--------------|-------|----|-------|-------------------|-------------------|--------------------|-------------------|-------------------|--------------|---------------------------|-----------------------|------------|
| kW           |       |    |       | A                 | min <sup>-1</sup> | %F/L               | %F/L              | %F/L              | 100%         | dB(A)                     | Kg.m <sup>2</sup>     | kg         |
| 0.4          | 80M   | 50 | 200   | 2.60              | 920               | 435                | 326               | 336               | 67.2         | 51                        | 0.0031                | 10         |

Note: All dimensions are mm.

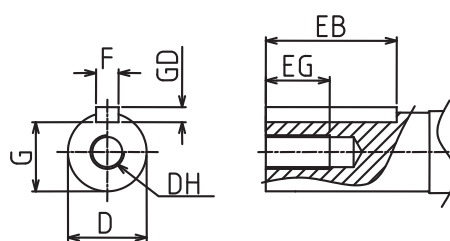
The above characteristics and performance are design data and shall be guaranteed with tolerance of application standards.

## 7. APPENDIX

### 7.10 Flange mounted for Aluminum frame 80.



Detail drawing of shaft



| Frame Size | Fig | E  | L     | P   | N   | LA | T   | S  | M   | HE    | AC  | AD  |
|------------|-----|----|-------|-----|-----|----|-----|----|-----|-------|-----|-----|
| 80M        | 1   | 40 | 293.5 | 200 | 130 | 10 | 3.5 | 12 | 165 | 105.5 | 172 | 132 |

| Frame Size | D    | G    | GD | F | EB | DH | EG | Bearing   |                    |
|------------|------|------|----|---|----|----|----|-----------|--------------------|
|            |      |      |    |   |    |    |    | Drive End | Opposite Drive End |
| 80M        | 19j6 | 15.5 | 6  | 6 | 32 | -  | -  | 6204ZZC3  | 6204ZZC3           |

| Rated Output | Frame | Hz | Volts | Full Load Current | Full Load Speed   | Lock Rotor Current | Lock Rotor Torque | Break Down Torque | Power Factor | Sound Pressure dB(A) @ 1m | Rotor GD <sup>2</sup> | NET Weight |
|--------------|-------|----|-------|-------------------|-------------------|--------------------|-------------------|-------------------|--------------|---------------------------|-----------------------|------------|
| kW           |       |    |       | A                 | min <sup>-1</sup> | %F/L               | %F/L              | %F/L              | 100%         | dB(A)                     | Kg.m <sup>2</sup>     | kg         |
| 0.4          | 80M   | 50 | 200   | 2.60              | 920               | 435                | 326               | 336               | 67.2         | 51                        | 0.0031                | 11         |

Note: All dimensions are mm.

Distance from the mounting surface of the flange to the shoulder on the shaft is 0 mm.

The above characteristics and performance are design data and shall be guaranteed with tolerance of application standards.

# TIPA COURSE OF ACTION



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