

GENERAL PURPOSE 3-PHASE INDUCTION MOTORS



NEMA PREMIUM

including motors for JM/JP close coupled pumps and for Hazardous Locations



POWER OF EXPERIENCE
PROFESSIONAL
DRIVING PROFESSIONAL
INTO **YOUR** ENERGY
ENERGY **BUSINESS** GLOBAL
CHALLENGING PROJECTS
MORE ENERGY
SOLID PARTNER
EXPERIENCE TOP QUALITY

INDIVIDUAL PROFESSIONAL
ENERGY TOP QUALITY
LEADERSHIP TURNED INTO
EFFICIENCY CONTINUOUS
SOLID PARTNER
MOST DEMANDING APPLICATIONS
EFFICIENT
POWER OF
INDIVIDUAL APPROACH PROFESSIONAL

CANTONI
MOTOR



Product Catalogue

Product range



| | | | |
|---|--|--------------------------|---|
| LOW VOLTAGE GENERAL PURPOSE 3-PHASE INDUCTION MOTORS | <p>Three-phase motors with squirrel-cage rotor series (2)Sg(m), Sh.</p> <p>High efficiency motors series 2SIE, 3SIE and 4SIE (efficiency classes IE2, IE3, IE4)</p> | from 0,04kW up to 2200kW | for general purpose applications like pumps, fans, compressors; complying with the newest efficiency requirements |
| GENERAL PURPOSE 1-PHASE INDUCTION MOTORS | <p>Single-phase motors with squirrel-cage rotor series SEh(R), SEMh(R).</p> <ul style="list-style-type: none"> – motors with standard starting torque – motors with increased starting torque – motors with high starting torque. | from 0,04kW up to 2,2kW | for general purpose applications like pumps, fans, compressors, woodworking machines, devices for food processing, concrete mixers etc. |
| HIGH VOLTAGE INDUCTION MOTORS UP TO 11kV | <p>Three-phase squirrel-cage high voltage and high efficiency motors series Sh with cast-iron housing.</p> <p>High voltage motors with module construction (steel/welded housing) series Sf (-E), Sfw, Sfr.</p> | from 160kW up to 6000kW | for general industrial use, drives used for own needs of power plants (pumps, fans, coal mills, conveyors) |
| BRAKE MOTORS | <p>Three-phase and single-phase brake motors with AC and DC brakes</p> | from 0,04kW up to 160kW | for applications with high safety requirements or where immediate stopping of the drive is required e.g.: theatres, concert, halls, lifts, platforms, etc. |
| MOTORS WITH FORCED VENTILATION | <p>Three-phase induction motors with forced ventilation</p> | from 0,06kW up to 2500kW | for variable frequency drives with very wide speed regulation |
| EXPLOSION-PROOF MOTORS | <p>Increased safety motors</p> <p>Flame-proof motors</p> | from 0,06kW up to 22kW | adapted for operation in areas endangered by explosion (without methane) |
| NEMA MOTORS | <p>Low voltage NEMA motors SIE series (in compliance with the NEMA PREMIUM requirements).</p> | from 1HP up to 250HP | for general industrial applications like pumps (including JM and JP), fans, compressors also for Hazardous Locations (Class I Div 2, Class II Div 2) with CSA certificate |
| TRACTION MOTORS | <p>Traction motors and traction generators.</p> | from 50kW up to 1500kW | various traction vehicles: trams (including low-deck trams), trolleybuses, subway and locomotives |

Contents

| | |
|--|-----------|
| General information..... | 2 |
| Efficiency of motors in the USA | 2 |
| Ratings – Tolerances | 3 |
| Standards..... | 3 |
| Insulation classification..... | 4 |
| Hazardous Locations Classification..... | 5 |
| Temperature Codes..... | 6 |
| Material of housing, end shields and feet | 6 |
| Cooling..... | 7 |
| Standard terminal box equipment..... | 8 |
| Vibration level..... | 8 |
| Noise level..... | 8 |
| Terminal box..... | 9 |
| Degree of protection IP | 10 |
| Painting and corrosivity classes..... | 11 |
| Mounting arrangements | 12 |
| NEMA Frame Letters | 13 |
| NEMA Design Letters | 14 |
| Definitions | 15 |
| Permissible shaft end loads | 16 |
| Bearing types and bearing nodes | 17 |
| JM/JP Pump Motors | 18 |
| Motors with UL (UR) certificate..... | 18 |
| Nomenclature | 19 |
| Frequency converter operation (VSD)..... | 19 |
| Totally Enclosed Motors IP 55, f=60Hz | 20 |
| Overall and Mounting Dimensions..... | 22 |
| List of Motor parts | 30 |
| Ordering information | 32 |
| Cantoni Group – Certifications..... | 33 |
| Our approach | 34 |
| Cantoni Group, Cantoni Motor | 35 |

Efficiency of motors in the USA

USA began to regulate efficiency of electric motors in 1992 with the “Energy Efficiency Provision” of the Energy Policy Act (EPAAct). In 1997, USA was the first country in the world to establish minimum energy performance standards (MEPS) for electric motors manufactured in or sold to USA. General-purpose motors 1HP-200HP were required to meet NEMA Energy Efficient standard (EPACT).

In June 2016, efficiency standards in the USA were increased once again with the Integral Horsepower Motor Rule (IHMR) which superseded the EISA standard. Under this final rule, almost all single-speed induction motors (including motors previously excluded from requirements) are required to meet NEMA Premium Efficiency levels.

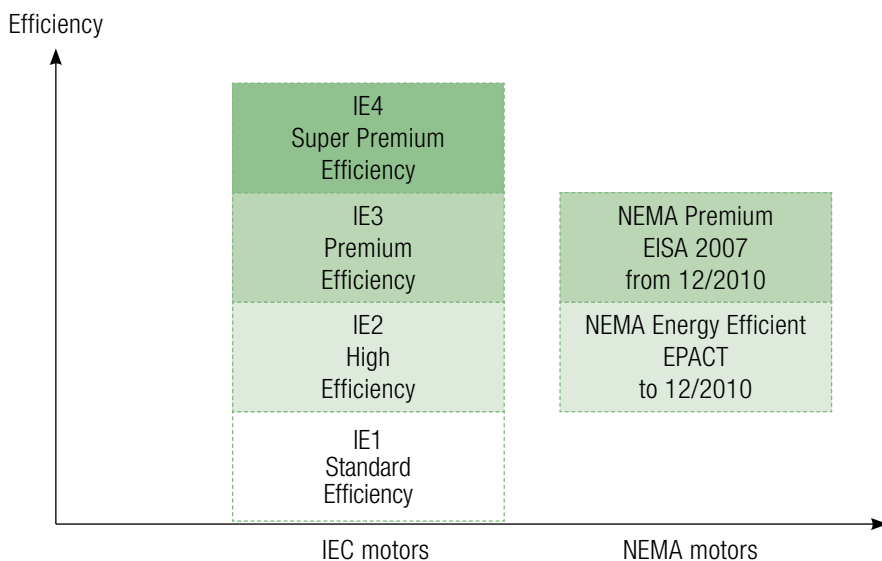
On 10 December 2010 the EISA (Energy Independence and Security Act of 2007) increased the requirement for general-purpose motors 1HP-200HP to NEMA Premium Efficiency.

Complying with above requirements the efficiency has to be determined in accordance with the requirements given in the CSA C390-10 or IEEE Std 112-2004 (Test Method B, Input-Output With Loss Segregation) standards.

From 1 June 2016: motors with a rated output between 1HP – 500HP shall have a minimum efficiency class NEMA PREMIUM.

New efficiency requirements are valid for single speed polyphase AC induction electric motors (60Hz) with the following specifications:

- with squirrel-cage rotor
- with rated voltage up to 600V
- with rated output from 1HP up to 500HP (or kW equivalents)
- rated for continuous duty operation (NEMA MG-1) or for duty type S1 (IEC 60034-1)
- 2p=2, 4, 6, 8
- complying with performance requirements of a NEMA design A, B or C or an IEC design N or H
- with three or four digit NEMA frame size (or IEC metric equivalent), including those designs between two consecutive NEMA frame sizes (or IEC metric equivalent) or an enclosed 56 NEMA frame size (or IEC metric equivalent).



As a Manufacturer participating in the NEMA Premium Efficient Electric Motor Program, Cantoni Motor S.A. has determined that our electric motors marked with NEMA Premium Mark meet NEMA Premium Efficient Electric Motor requirements.



NEMA Premium is a certification mark of the National Electrical Manufacturers Association

Ratings – Tolerances

Tolerances of motor parameters

Permissible deviations between catalogue values and real values:

| | |
|---|--|
| Power factor $\cos \varphi$ | $\Delta \cos \varphi = -1/6 (1 - \cos \varphi_N)$ |
| Efficiency η | NEMA PREMIUM minimum according to NEMA MG-1 |
| Speed n | $\Delta n = \pm 20\% (n_s - n_N)$ |
| Locked rotor current ratio I_L/I_N | $\Delta(I_L/I_N) = +20\% (I_L/I_N)$ |
| Locked rotor torque ratio T_L/T_N | $\min (T_L/T_N) = -15\% (T_L/T_N)$ $\max (T_L/T_N) = +25\% (T_L/T_N)$ |
| Breakdown torque ratio T_B/T_N | $\Delta(T_B/T_N) = -10\% (T_B/T_N)$ |
| Moment of inertia J [kgm ²] | $\Delta J = \pm 10\% J$ |
| Sound pressure level L_{pA} [dB] | $\Delta L_{pA} = +3 \text{ dB /A/}$ |

Tolerances of supply voltage value and frequency

Motors comply in standard with voltage value and voltage frequency variations according to the NEMA MG-1:

| | |
|-----------------------|--|
| Voltage value U | $\Delta U = \pm 10\%$ at rated frequency |
| Voltage frequency f | $\Delta f = \pm 5\%$ at rated voltage |

Other extended tolerances of supply voltage and their frequency are available on request.

Standards

Depending on the execution, electric motors are manufactured according to the following standards and requirements:

| | |
|---|------------------------------------|
| Motors and Generators | NEMA MG-1 |
| General requirements – Canadian Electrical Code, Part II | CSA C22.2 No. 0 |
| Bonding of electrical equipment | CSA C22.2 No. 0.4 |
| Motors and generators | CSA C22.2 No. 100 |
| Rotating Electrical Machines – General Requirements | UL 1004-1, 2 nd Edition |
| Nonincendive electrical equipment for use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations | CSA C22.2 No. 213 |
| Electric motors and generators for use in Hazardous (Classified) Locations | CSA C22.2 No. 145 |
| Enclosures for use in Class II, Division 1, Groups E, F, and G Hazardous Locations | CSA C22.2 No. 25 |
| Electric Motors and Generators for Use in Hazardous (Classified) Locations | UL Std. 674 |
| Test Methods, Marking Requirements, and Energy Efficiency Levels for Three-Phase Induction Motors | CSA C390-10 |
| Standard Test Procedure for Polyphase Induction Motors and Generators | IEEE 112-2004 |

All of our NEMA PREMIUM motors are also registered in DOE (CC number: CC117A) and Natural Resources Canada.

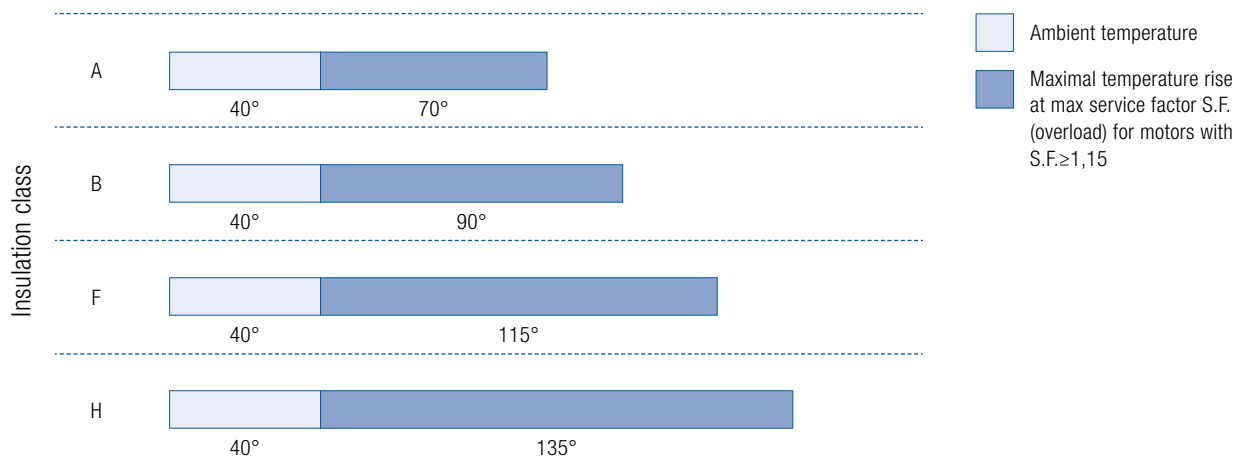
At the same time, our NEMA PREMIUM motors comply with European requirements – they can be CE marked.

Insulation classification

The insulation system of an electric motor is determined by a given insulation class on the basis of its thermal resistance. This thermal resistance should be guaranteed by the entire set of electric insulating materials used in the motor insulating system.

Thermal resistance classification is related to the temperature of the hotspot in the insulation occurring during rated operating conditions of the electric motor, allowing for the highest permissible rise in average temperature.

This rise should be selected so that at the highest permissible ambient temperature, the temperature of the hotspot in insulation will not exceed the value assigned to a given thermal resistance class.



Insulation class F in an electric motor means that at ambient temperature of 40°C and max service factor S.F. (overload) the temperature rise of the winding may be max. 115°C (under specified measuring conditions in accordance with the IEEE Std 112 standard).

4

Symbols of thermal resistance classes (permissible insulation temperatures at 40°C ambient temperature)

| Symbol | Temperature [°C] |
|--------|------------------|
| A | 105 |
| B | 130 |
| F | 155 |
| H | 180 |

SIE series Class F/B

The standard SIE NEMA motors made by Cantoni Motor in their basic version have the insulation class F while the temperature rise is limited to class B (at S.F.=1,0). This means longer life for motors.

For special request we can deliver motors equipped with insulation class H.

Strengthened insulation system gives possibility to safe operation with frequency converters – please check page 19.

Hazardous Locations Classification

Our NEMA PREMIUM motors can be delivered in special execution for Hazardous Locations and are certified for Groups A, B, C, D, F and G.

Class I Div 2 Class II Div 2

CLASS – Defines the type of hazardous material (explosive or ignitable substances).

| | |
|------------------|---|
| Class I | flammable gases, vapors or liquids, such as acetylene, hydrogen, ethylene, gasoline, etc. |
| Class II | combustible dust such as: coke dust, grain dust, etc. |
| Class III | easily ignitable fibers or flyings, such as: textile, saw dust, etc. |

DIVISION – Defines the likelihood of the hazardous material being present in an explosive or ignitable concentration.

| | |
|-------------------|--|
| DIVISION 1 | hazard can exist under normal, everyday operating conditions |
| DIVISION 2 | hazard is not likely to exist during regular operation |

GROUP – Hazardous materials classification based on their ignition temperatures and explosion pressures.

| | | |
|----------------|--|-----------------|
| Group A | acetylene | Class I |
| Group B | hydrogen, butadiene, ethylene oxide, propylene oxide and acrolein | |
| Group C | ethylene, cyclopropane and ethyl ether | |
| Group D | acetone, ammonia, benzene, butane, ethanol, gasoline, hexane, methane, methanol, naphtha, natural gas, propane and toluene | |
| Group E | combustible metal dusts: aluminum, commercial alloys and magnesium | Class II |
| Group F | combustible carbonaceous dusts: carbon black, charcoal, coal and coke dusts | |
| Group G | other combustible dusts: chemicals, flour, grain, plastic and wood | |

CAUTION: Design of equipment used in the Hazardous Locations should be always chosen based on the analysis of the final application done by the user in agreement with Local Safety Authorities.

Temperature Codes

T2B

The T-Code identifies the maximum absolute motor surface temperature that will develop under any conditions of operation.

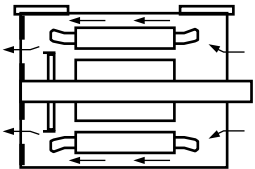
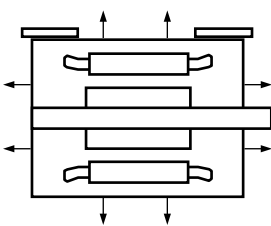
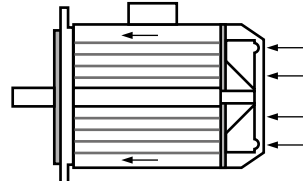
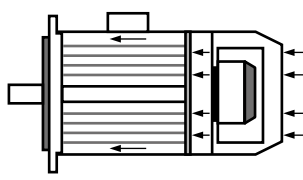
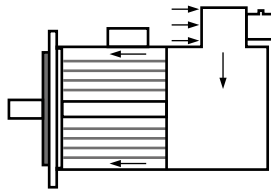
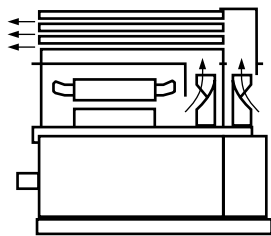
| Temperature class marking | Maximum Temperature |
|---------------------------|----------------------|
| T1 | 450°C (842°F) |
| T2 | 300°C (572°F) |
| T2A | 280°C (536°F) |
| T2B | 260°C (500°F) |
| T2C | 230°C (446°F) |
| T2D | 215°C (419°F) |
| T3 | 200°C (392°F) |
| T3A | 180°C (356°F) |
| T3B | 165°C (329°F) |
| T3C | 160°C (320°F) |
| T4 | 135°C (275°F) |
| T4A | 120°C (248°F) |
| T5 | 100°C (212°F) |
| T6 | 85°C (185°F) |

Material of housing, end shields and feet

| Frame size | Motor housing | End shields | Feet |
|-------------|---------------|-------------|------------------------|
| SIE143, 145 | Cast iron | Cast iron | Cast iron – integrated |
| SIE182, 184 | Cast iron | Cast iron | Cast iron – integrated |
| SIE213, 215 | Cast iron | Cast iron | Cast iron – integrated |
| SIE254, 256 | Cast iron | Cast iron | Cast iron – integrated |
| SIE284, 286 | Cast iron | Cast iron | Cast iron – screwed |
| SIE324, 326 | Cast iron | Cast iron | Cast iron – screwed |
| SIE364, 365 | Cast iron | Cast iron | Cast iron – screwed |
| SIE404, 405 | Cast iron | Cast iron | Cast iron – screwed |
| SIE444, 445 | Cast iron | Cast iron | Cast iron – screwed |
| SIE447 | Cast iron | Cast iron | Cast iron – screwed |

Cooling

General purpose motors from Cantoni Group are equipped with standard IC411 cooling. Other cooling methods (for example motors with external/separate cooling) are available on request.

| IC code | Description | Drawing |
|---------------|---|---|
| IC01 | <ul style="list-style-type: none"> – Open machine – Fan mounted on shaft – Often called “drip-proof” motor |  |
| IC410 | <ul style="list-style-type: none"> – Enclosed machine – Surface cooled by natural convection and radiation – Without internal or external fan |  |
| IC411 | <ul style="list-style-type: none"> – Enclosed machine – Smooth or finned casing – External shaft-mounted fan – Often called TEFC motor |  |
| IC416A | <ul style="list-style-type: none"> – Enclosed machine – Smooth or finned casing – External motorized axial fan integrated with the motor |  |
| IC416R | <ul style="list-style-type: none"> – Enclosed machine – Smooth or finned casing – External motorized radial fan integrated with the motor |  |
| IC611 | <ul style="list-style-type: none"> – Enclosed machine – Heat Exchanger fitted – Two separate air circuits – Shaft-mounted Fans – Often called CacA motor |  |

Standard terminal box equipment

| Motor frame size | Number of supply leads | Number of threaded inlet holes | Size of threaded inlet holes [inch] | Optional rotation of terminal box | Temperature sensors in the winding | Thermal protection of bearings |
|------------------|------------------------|--------------------------------|-------------------------------------|-----------------------------------|------------------------------------|--------------------------------|
| 143, 145 | 9 | 1 | 0.75 | 180° | on request | no |
| 182, 184 | 9 | 1 | 1 | 180° | on request | no |
| 213, 215 | 12 | 1 | 1 | 180° | on request | on request |
| 254, 256 | 12 | 1 | 1.25 | 180° | on request | on request |
| 284, 286 | 12 | 1 | 1.5 | 180° | on request | on request |
| 324, 326 | 12 | 1 | 2 | 4x90° | 3xPTC | on request |
| 364, 365 | 12 | 1 | 3 | 4x90° | 3xPTC | on request |
| 404, 405 | 12 | 1 | 3 | 4x90° | 3xPTC | on request |
| 444, 445, 447 | 12 | 2 | 3 | 4x90° | 3xPTC | on request |

Vibration level

The rotors balancing method guarantees that standard vibration level of motors is much lower than required for general industrial motors according to NEMA MG-1 (0.15in/s). On customer's demand the motors can be produced with even more reduced vibration level.

Vibration level in standard and reduced execution:

| Vibration level | Mounting | in/s |
|-----------------|-------------|-------|
| Standard | Resiliently | 0.087 |
| | Rigid | 0.071 |
| Reduced | Resiliently | 0.043 |
| | Rigid | 0.035 |

Remark:

Limits stated in the table mentioned above are applicable for uncoupled (disconnected from the driven machine) and operating at no load motors.

Noise level

Motors in standard comply with a permissible sound power level according to NEMA MG-1.

On customer's demand the motors can be delivered with reduced noise level by using special cooling systems or additional external sound-absorbing covers.

Terminal box

The standard mounting position for NEMA motors is F1 – the terminal box is located on the left side of the motor facing the output shaft and it is equipped with 9 (size 143T...184T) or 12 (size 213T...447T) supply leads (without terminal block).

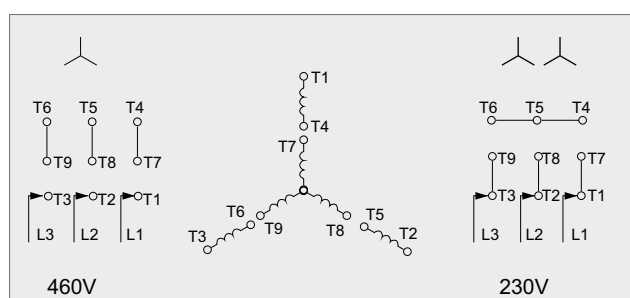
Our NEMA PREMIUM motors are also available with terminal box on right side (F2) or on top (F3).

As standard, motors are offered with aluminium terminal box for sizes 143–286, and cast iron for sizes 320–440.

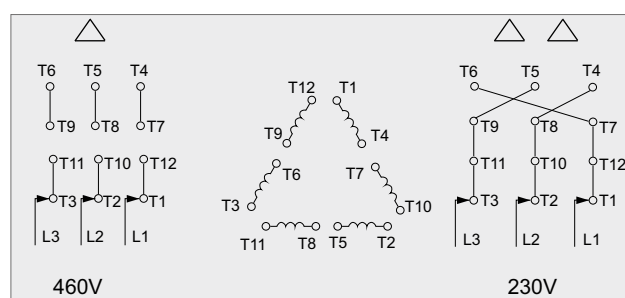
As optional execution, for sizes 143–286 can be also cast iron terminal box.

Basic Connection Diagrams

Connection diagram of 143T÷184T motors, nominal voltage 230/460V

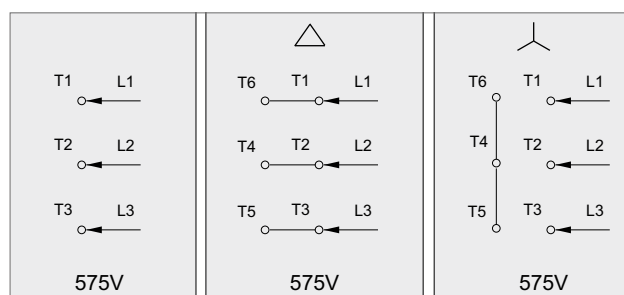


Connection diagram of 213T÷447T motors, nominal voltage 230/460V



Motors in 230V/460V execution are capable of Part Winding Starting (PWS).

Connection diagram of 143T÷447T motors, in special execution with nominal voltage 575V – 3 or 6 supply leads


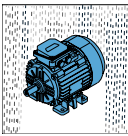

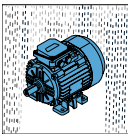
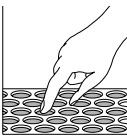
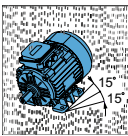
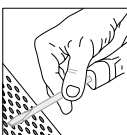
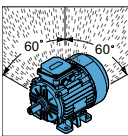
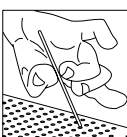
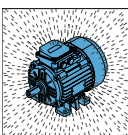
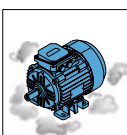
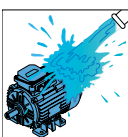
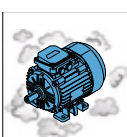

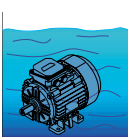
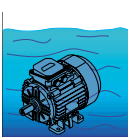


Degree of protection IP

IP 55

Standard degree of protection of our NEMA Premium general purpose and Class I Div 2 motors is IP55.
Class II Div 2 motors comply with requirements of IP66.

IP 66

| Protection against penetration of solid matter | | | Protection against penetration of fluids | | |
|--|---|--|--|---|--|
| 1st digit | Description | | 2nd digit | Description | |
| 0 |  Not protected | | 0 |  Not protected | |
| 1 |  Protected against solid bodies larger than 50 mm | | 1 |  Protected against vertically falling drops of water | |
| 2 |  Protected against solid bodies larger than 12 mm | | 2 |  Protected against vertically falling drops of water up to 15° | |
| 3 |  Protected against solid bodies larger than 2,5 mm | | 3 |  Protected against rain up to 60° | |
| 4 |  Protected against solid bodies larger than 1 mm | | 4 |  Protected against rain falling from any direction | |
| 5 |  Protected against deposition of dust | | 5 |  Protected against sprayed water from any direction | |
| 6 |  Totally protected against deposition of dust | | 6 |  Protected against temporary immersion | |
| | | | 7 |  Protected against immersion between 0,15 and 1 m | |
| | | | 8 |  Protected against immersion at preset pressure and time | |

Motors size 143 to 286 are equipped with seal rings (Simmerring or V-ring) on drive side and on non drive side. Labyrinth seals protect the motors from size 324 and above. The terminal box is sealed with a gasket.

Higher degree of protection is available on request.

Painting and corrosivity classes

Standard painting system with RAL5010 color used in all our motors comply with C3 corrosion class according to ISO 12944.

For special request motors can be painted with other colors and with alternative painting systems (up to C5M corrosion class).

RAL 5010/C3

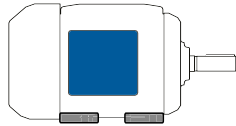


| Corrosion class | Environment | |
|---|---|--|
| | Interior | Exterior |
| C1 (very low) | Heated buildings with a clean atmosphere such as hotels, offices, shops, schools. | N/A |
| C2 (low) | Unheated buildings, where condensation may occur e.g. storehouses, sports halls. | Atmosphere contaminated to a small extent, mostly rural regions. |
| C3 (medium) | Production space of high humidity and certain air contamination e.g. foodstuff plants, laundries, breweries, dairies. | Industrial and urban atmosphere with an average Sulphur oxide (IV) contamination level. Inshore areas of low salinity. |
| C4 (high) | Chemical plants, swimming pools, ship repair yards. | Industrial areas and inshore areas of medium salinity. |
| C5I (very high – industrial) | Buildings and areas of almost constant condensation and high contamination. | Industrial areas of high humidity and aggressive atmosphere. |
| C5M (very high – marine) | Buildings and areas of almost constant condensation and high contamination. | Coast and offshore areas with high salt content. |

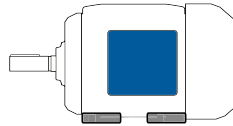
Mounting arrangements

According to the NEMA MG-1 standard

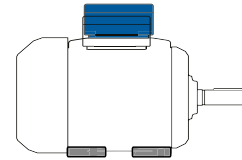
NEMA Floor Mountings



F1 ASSEMBLY

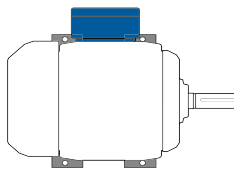


F2 ASSEMBLY

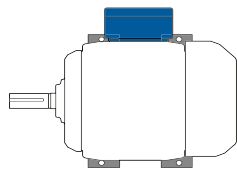


F3 ASSEMBLY

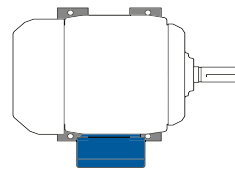
NEMA Wall Mountings



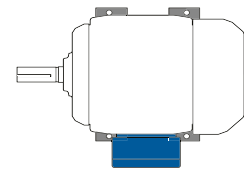
W1 ASSEMBLY



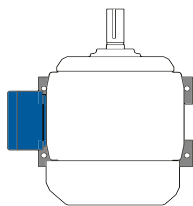
W2 ASSEMBLY



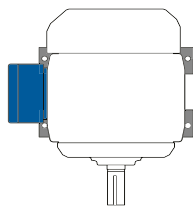
W3 ASSEMBLY



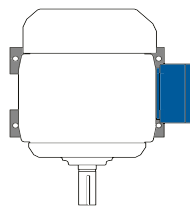
W4 ASSEMBLY



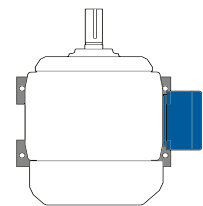
W5 ASSEMBLY



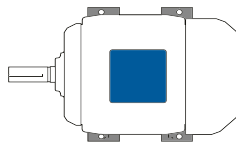
W6 ASSEMBLY



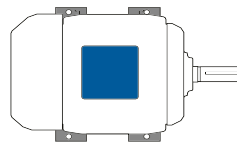
W7 ASSEMBLY



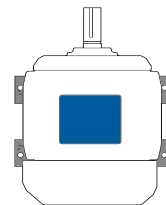
W8 ASSEMBLY



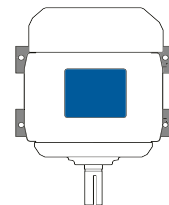
W9 ASSEMBLY



W10 ASSEMBLY

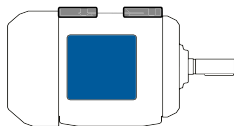


W11 ASSEMBLY

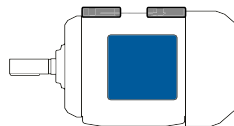


W12 ASSEMBLY

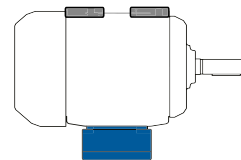
NEMA Ceiling Mountings



C1 ASSEMBLY



C2 ASSEMBLY



C3 ASSEMBLY

In standard, motors are offered in F1 execution – other mounting arrangements are available on request.
 Cantoni NEMA Premium motors frames 143 up to 286 can be easily converted from F1 to F2 terminal box position by housing rotation.
 Additionally, motors frames 284 up to 447 can be converted to round body by removing screwed feet.

NEMA Frame Letters

Our SIE NEMA PREMIUM motors are offered in different executions marked in motor type with proper Frame Letters according to NEMA MG-1 requirements: C, D, JM, JP and S. Frame Letter T is our standard execution. Other special executions of motors are available on request.

C-face D-flange

Frame letters according to NEMA MG-1:

| Letter | Definition |
|---------|---|
| A | Industrial direct-current machine |
| B | Carbonator pump motors (see NEMA MG-1, 18.270–18.281) |
| C | Type C face mounting on drive end |
| CH | Face mounting dimensions are different from those for the frame designator having the suffix letter „C” |
| D | Type D flange mounting on drive end |
| E | Shaft extension dimensions for elevator motors in frames larger than 326T frames |
| FC | Face mounting on opposite drive end |
| G | Gasoline pump motors (see NEMA MG-1, 18.91) |
| H | Indicates a small machine having an „F” dimension larger than that of the same frame without the suffix letter „H” (See NEMA MG-1, 4.4.1 and 4.5.1) |
| HP, HPH | Type P flange-mounted, vertical solid-shaft motors having dimensions in accordance with NEMA MG1-1, 18.252 |
| J | Jet pump motors (see NEMA MG1-1, 18.132) |
| JM | Face-mounted, close-coupled pump motor having antifriction bearings and dimensions in accordance with Table 1 of MG-1, 18.250 |
| JP | Type C face-mounted, close-couple pump motor having antifriction bearings and dimensions in accordance with Table 2 of MG-1, 18.250 |
| K | Sump pump motors (see NEMA MG-1, 18.78) |
| LP, LPH | Type P flange-mounted, vertical solid-shaft motors having dimensions in accordance with MG-1, 18.251 |
| M | Oil burner motors (see NEMA MG-1, 18.106) |
| N | Oil burner motors (see NEMA MG-1, 18.106) |
| P, PH | Type P flange-mounted, vertical hollow-shaft motors having dimensions in accordance with NEMA MG-1, 18.238 |
| R | Drive end tapered shaft extension having dimensions in accordance with NEMA MG-1, 4.4.2 |
| S | Standard short shaft for direct connection |
| T | Included as part of a frame designation for which standard dimensions have been established |
| U | Previously used as part of a frame designation for which standard dimensions had been established |
| V | Vertical mounting only |
| VP | Type P flange-mounted, vertical solid-shaft motors having dimensions in accordance with NEMA MG-1, 18.237 |
| X | Wound-rotor crane motors with double shaft extension (see NEMA MG-1, 18.229 and 18.230) |
| Y | Special mounting dimensions |
| Z | All mounting dimensions are standard except the shaft extension(s). It is also used to designate double shaft extension. |

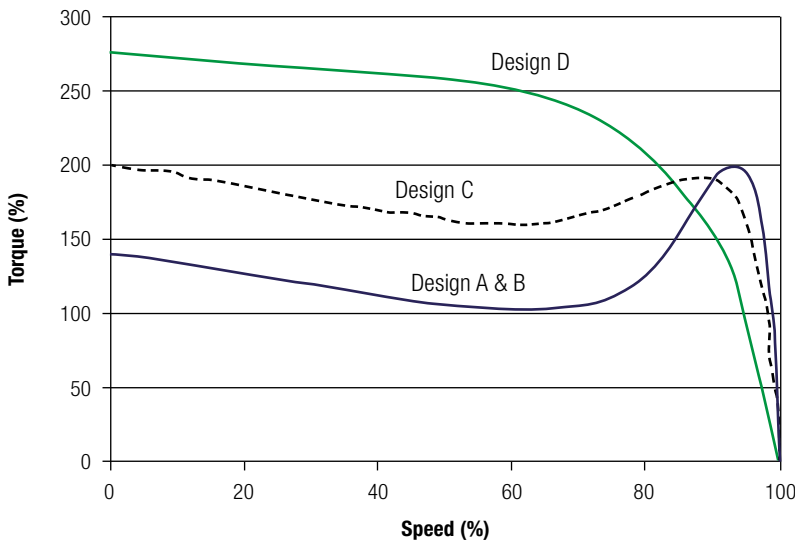
NEMA Design Letters

Standard definitions for design A, B, C and D. The letter designation describes the torque and current characteristics of the motors.

Design A or B

| | Locked Rotor Torque [%] | Pull Up Torque [%] | Breakdown Torque [%] | Slip | Typical applications | Features |
|---------------|-------------------------|--------------------|----------------------|------|---|---|
| NEMA DESIGN A | 70-275 | 65-190 | 175-300 | <5% | Fans, blowers, centrifugal pumps and compressors, motorgenerator sets, etc. where starting torque requirements are relatively low | Have normal starting torques but high starting currents. This is useful for applications with brief heavy overloads. |
| NEMA DESIGN B | 70-275 | 65-190 | 175-300 | <5% | Fans, blowers, centrifugal pumps and compressors, motorgenerator sets, etc. where starting torque requirements are relatively low | Have normal starting torque combined with a low starting current. This motors have sufficient locked rotor torques to start a wide variety of industrial applications. |
| NEMA DESIGN C | 200-285 | 140-195 | 190-225 | <5% | Conveyors, crushers, stirring motors, agitators, resiprocating pumps and compressors, etc., where starting under load is required | Have high starting torques with low starting currents. These motors are designed for starting heavy loads due to their high, locked rotor torques. |
| NEMA DESIGN D | 275 | N/A | N/A | ≥5% | High peak loads with or without flywheels such as punch presses, shears, elevators, winches, hoists, oil-well pumping and wire drawing motors | Have high starting torques and low starting current, however, they feature high slip. This reduces power peaks in the event that peak power is encountered, motor slip will increase. |

Torque vs Speed Characteristics



Relative torque characteristics of NEMA Design A, B, C, D motors

Cantoni NEMA Premium motors fulfil and even exceed (torque values) requirements for Design A, B or C. Other Design types are available upon request.

Definitions

Relation between rated output power and rated torque on motor shaft:

$$T = \frac{5252 \times P}{n}$$

where:

- T [Lbft] is rated output torque on motor shaft
- P [HP] is rated output power on motor shaft
- n [rpm] is rated speed of motor shaft

Relation between rated output power on shaft and rated consumed power from mains:

$$P_1 = \frac{745,6 \times P}{\eta} \times 100$$

where:

- P_1 [W] is rated consumed power from mains by motor
- P [HP] is rated output power on motor shaft
- η [%] is rated efficiency of motor

Relation between rated consumed power from mains and rated voltage, current, power factor:

$$P_1 = \sqrt{3} \times U \times I \times \cos\varphi$$

where:

- P_1 [W] is rated consumed power from mains by motor
- U [V] is rated supply voltage of motor
- I [A] is rated current consumed from mains by motor
- $\cos\varphi$ is rated power factor of motor

Units of measurement

| Parameter name | Symbol | Unit name | Symbol |
|----------------------|---------------|-------------|----------|
| Frequency | f | Hertz | Hz |
| Active power | P_1 | Watt | W |
| Shaft power | P | Horse Power | HP |
| Voltage | U | Volt | V |
| Electric Current | I | Amper | A |
| Power factor | $\cos\varphi$ | N/A | N/A |
| Resistance | R | Ohm | Ω |
| Sound power level | L_{WA} | decibel | dB |
| Sound pressure level | L_{PA} | decibel | dB |

Permissible shaft end loads

| Frame size | Number of poles | Horizontal operation | | Vertical operation | | | Frame size | Number of poles | Horizontal operation | | Vertical operation | | |
|--------------|-----------------|----------------------|---------------|--------------------|----------|----------|------------|-----------------|----------------------|---------------|--------------------|----------|----------|
| | | $F_R(x=0)$ | $F_R(x=\max)$ | F_P | F_{a1} | F_{a2} | | | $F_R(x=0)$ | $F_R(x=\max)$ | F_P | F_{a1} | F_{a2} |
| | | [kN] | | [kN] | | | | | [kN] | | [kN] | | |
| SIE 143, 145 | 2 | 0,79 | 0,66 | 0,64 | 0,44 | 0,84 | SIE364TS | 2 | 3,08 | 2,66 | 2,38 | 1,78 | 3,16 |
| | 4 | 1,00 | 0,83 | 0,80 | 0,65 | 1,05 | SIE364T | 4 | 3,67 | 2,95 | 2,94 | 2,05 | 4,09 |
| | 6 | 1,15 | 0,95 | 0,90 | 0,77 | 1,17 | | 6 | 4,15 | 3,33 | 3,72 | 2,61 | 5,17 |
| SIE 182, 184 | 2 | 1,56 | 1,22 | 1,23 | 0,84 | 1,60 | SIE365TS | 2 | 2,91 | 2,52 | 2,33 | 1,66 | 3,2 |
| | 4 | 1,92 | 1,58 | 1,50 | 1,19 | 1,96 | SIE365T | 4 | 3,46 | 2,78 | 2,88 | 1,88 | 4,16 |
| | 6 | 2,20 | 1,80 | 1,69 | 1,26 | 2,20 | | 6 | 3,98 | 3,2 | 3,66 | 2,47 | 5,25 |
| SIE 213, 215 | 2 | 2,11 | 1,65 | 1,82 | 0,98 | 2,37 | SIE404T | 6 | 5,15 | 4,05 | 4,13 | 2,63 | 6,07 |
| | 4 | 2,67 | 2,08 | 2,31 | 1,36 | 3,00 | SIE405TS | 2 | 3,84 | 3,31 | 2,94 | 2,17 | 3,93 |
| | 6 | 3,06 | 2,39 | 2,51 | 1,40 | 3,26 | SIE405T | 4 | 4,23 | 3,32 | 3,53 | 2,15 | 5,31 |
| SIE 254, 256 | 2 | 2,43 | 1,88 | 1,97 | 1,00 | 2,56 | | 6 | 4,92 | 3,87 | 4,07 | 2,41 | 6,19 |
| | 4 | 3,06 | 2,38 | 2,54 | 1,43 | 3,31 | SIE444TS | 2 | 3,44 | 2,98 | 2,83 | 1,65 | 4,35 |
| | 6 | 3,54 | 2,81 | 2,83 | 1,80 | 3,68 | SIE444T | 4 | 5,71 | 4,48 | 4,55 | 2,88 | 6,68 |
| SIE 284, 286 | 2 | 2,61 | 2,13 | 2,20 | 1,00 | 2,87 | | 6 | 6,46 | 5,07 | 3,35 | 1,34 | 5,9 |
| | 4 | 3,30 | 2,68 | 2,83 | 1,37 | 3,68 | SIE445TS | 2 | 3,25 | 2,81 | 2,77 | 1,49 | 4,43 |
| | 6 | 3,78 | 3,07 | 3,17 | 1,93 | 4,12 | SIE445T | 4 | 5,33 | 4,18 | 4,44 | 2,54 | 6,88 |
| SIE324TS | 2 | 2,86 | 2,45 | 2,14 | 1,68 | 2,74 | | 6 | 5,95 | 4,66 | 5,04 | 2,69 | 8,05 |
| SIE324T | 4 | 3,36 | 2,72 | 2,63 | 1,93 | 3,53 | SIE447TSA | 2 | 2,87 | 2,53 | 2,74 | 1,22 | 4,66 |
| | 6 | 3,96 | 3,21 | 3,37 | 2,62 | 4,38 | SIE447TA | 4 | 4,66 | 3,74 | 4,25 | 1,85 | 7,35 |
| SIE326TS | 2 | 2,73 | 2,34 | 2,1 | 1,58 | 2,78 | SIE447TSB | 2 | 2,3 | 2,02 | 2,4 | 0,57 | 4,69 |
| SIE326T | 4 | 3,11 | 2,52 | 2,55 | 1,73 | 3,63 | SIE447TB | 4 | 4,09 | 3,34 | 4,08 | 1,28 | 7,72 |
| | 6 | 3,87 | 3,14 | 3,35 | 2,55 | 4,41 | | | | | | | |

Value of radial force F_R acting on the shaft end for a given belt pulley diameter is calculated according to the following formula:

$$F_R = \frac{19\,600 \times P \times k}{D_k \times n} \text{ [N]}$$

where: P – motor output [kW]
 D_k – belt pulley diameter [m]
 n – speed [rpm]
 k – belt tension factor:
 for V-belts $k=2,2$
 for flat belts $k=3$

Value of force F_R acting on any point of the shaft end (between points $X=\max$ and $X=0$) may be calculated according to the following formula:

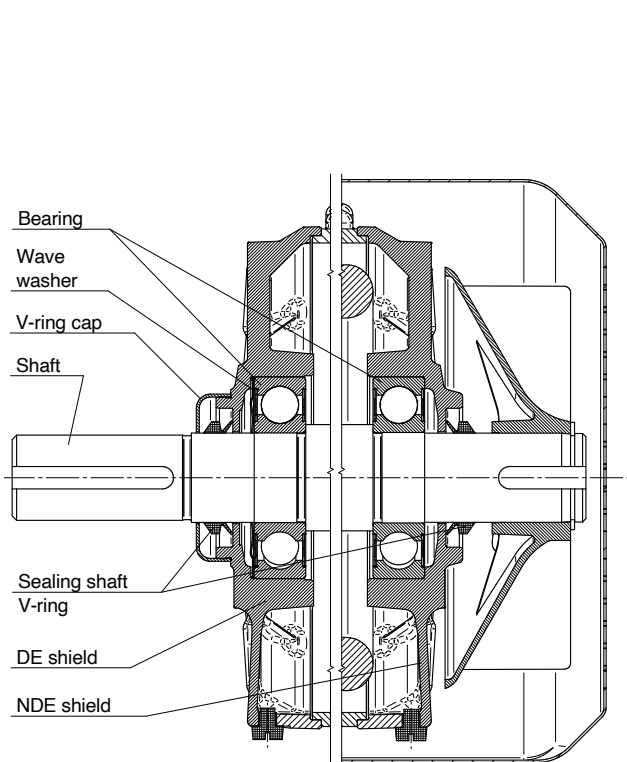
$$F_R = F_{x0} - \frac{X}{E} \times (F_{x0} - F_{xMAX}) \text{ [N]}$$

where: F_{x0} – value of F_R force acting on the beginning of the shaft end
 F_{xMAX} – value of F_R force acting on the end of the shaft end
 E – length of the shaft end

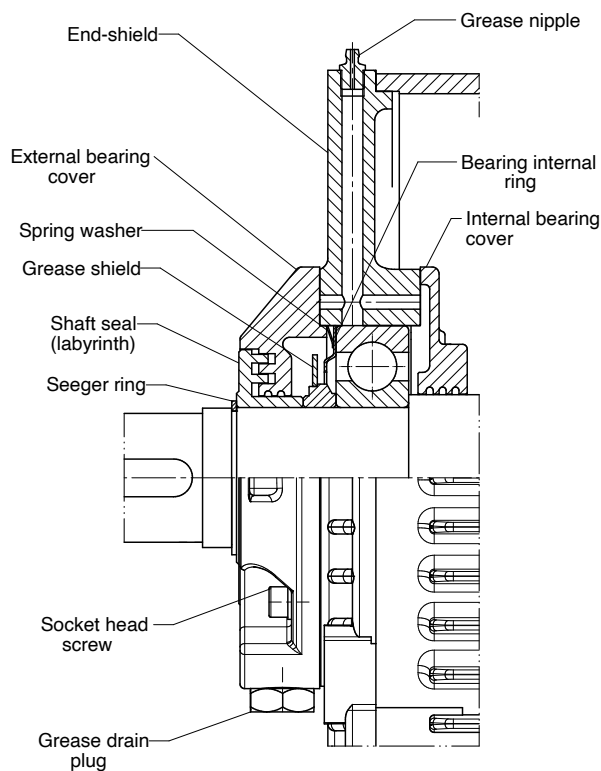
Bearing types and bearing nodes

| Frame size | Number of poles | Bearings | Frame size | Bearings lubrication on the run |
|---------------|-----------------|------------------------|---------------|---------------------------------|
| 143, 145 | 2÷6 | 6205 2Z C3 | 143, 145 | no |
| 182, 184 | 2÷6 | 6206 2Z C3 | 182, 184 | no |
| 213, 215 | 2÷6 | 6308 2Z C3/ 6306 2Z C3 | 213, 215 | on request |
| 254, 256 | 2÷6 | 6309 2Z C3 | 254, 256 | on request |
| 284, 286 | 2÷6 | 6311 2Z C3 | 284, 286 | on request |
| 324, 326 | 2÷6 | 6312 C3 | 324, 326 | yes |
| 364, 365 | 2÷6 | 6313 C3 | 364, 365 | yes |
| 404, 405 | 2÷6 | 6315 C3 | 404, 405 | yes |
| 444, 445, 447 | 2 | 6315 C3 | 444, 445, 447 | yes |
| 444, 445, 447 | 4-6 | 6318 C3 | | |

Frame size
SIE143 ÷ 286



Frame size
SIE324 ÷ 447



JM/JP Pump Motors

Three-phase JM/JP Pump Motors are designed for use with close-coupled pumps having NEMA JP or JM mounting end shaft dimensions. In such applications, the pump impeller is mounted directly on the motor shaft. All motors are designed for continuous duty service.

JM pump motors are available in frame sizes 143 up to 326 and JP pump motors are available in frame sizes from 143 up to 365 according to standard NEMA MG-1.

Except for dimensions, all motor features and electrical parameters of JM/JP pump motors offered by Cantoni Group are the same as in standard NEMA Premium motors.



Motors with UL (UR) certificate

We can deliver our SIE NEMA PREMIUM motors designed and produced according to UL requirements delivered with Certificate Of Compliance.



CERTIFICATE OF COMPLIANCE

| | |
|---------------------------|--------------------|
| Certificate Number | 20160630 – E233211 |
| Report Reference | E233211 - 20111214 |
| Issue Date | 2016-JUNE-30 |

| | |
|-------------------|--|
| Issued to: | CANTONI MOTOR SA ul 3 Maja 28 43-400 Cieszyn, POLAND |
|-------------------|--|

| | |
|--|--|
| This is to certify that representative samples of | Motors - Component (See following page for additional model information.) |
|--|--|

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

| | |
|--------------------------------|---|
| Standard(s) for Safety: | ANSI/UL 1004-1, "Rotating Electrical Machines - General Requirements" and CSA-C22.2 No. 100, "Motors and Generators." |
|--------------------------------|---|

| | |
|--------------------------------|---|
| Additional Information: | See the UL Online Certifications Directory at www.ul.com/database for additional information |
|--------------------------------|---|

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

The UL Recognized Component Mark generally consists of the manufacturer's identification and catalog number, model number or other product designation as specified under "Marking" for the particular Recognition as published in the appropriate UL Directory. As a supplementary means of identifying products that have been produced under UL's Component Recognition Program, UL's Recognized Component Mark: may be used in conjunction with the required Recognized Marks. The Recognized Component Mark is required when specified in the UL Directory preceding the recognitions or under "Markings" for the individual recognitions.

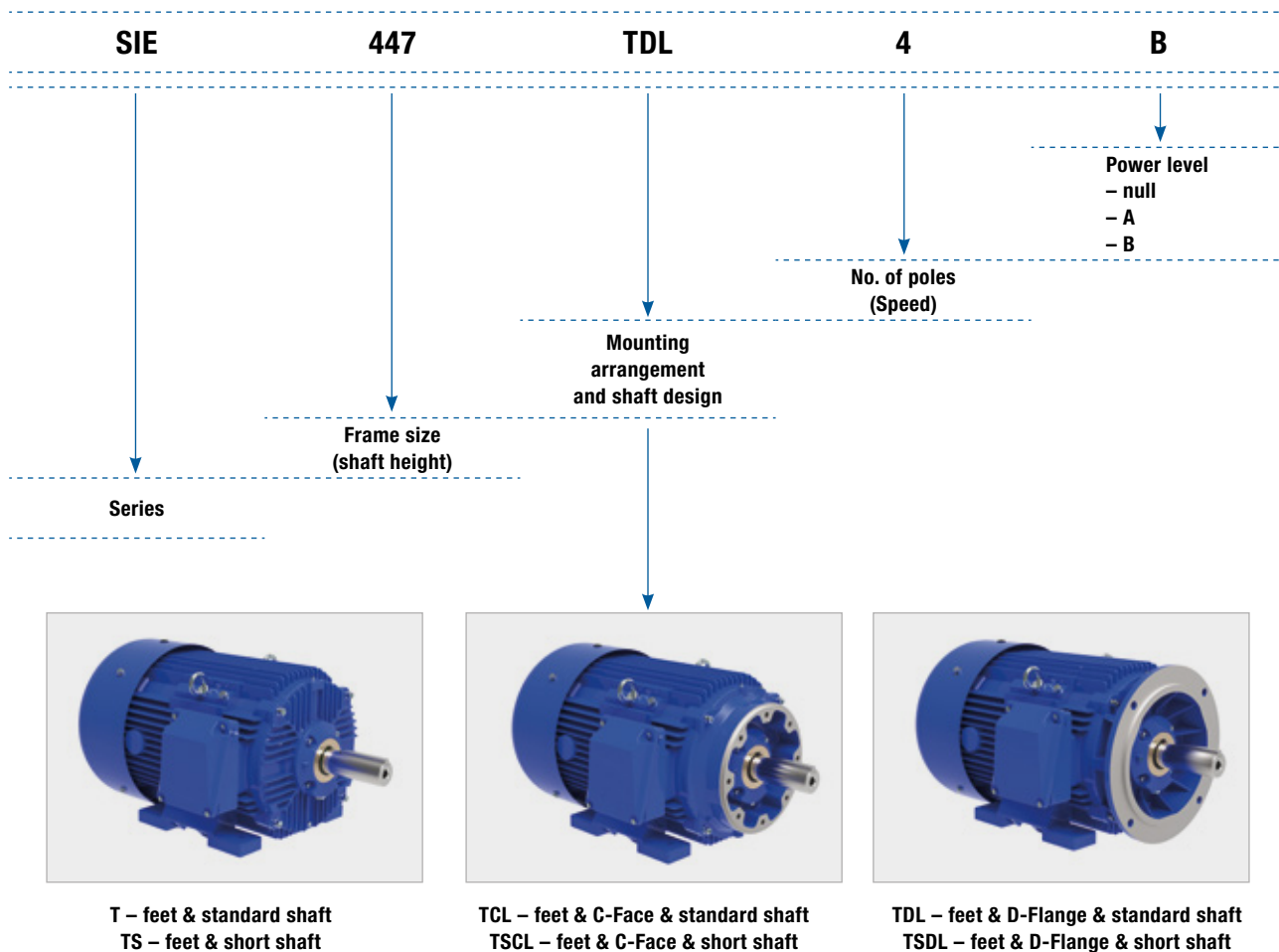
Recognized components are incomplete in certain constructional features or restricted in performance capabilities and are intended for use as components of complete equipment submitted for investigation rather than for direct separate installation in the field. The final acceptance of the component is dependent upon its installation and use in complete equipment submitted to UL LLC.

Look for the UL Certification Mark on the product.

Bruce Maheshwari, Director North American Certification Program
UL LLC
Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at <http://ul.com/customer-service>

In order to see Cantoni Motor's current range of UL certified products, you can log into UL Product iQ™ database at <https://productiq.ulprospector.com/>.

Nomenclature



Frequency converter operation (VSD)

Electronic speed control is carried out using a frequency converter (VSD) that adjusts the speed of the motor – and therefore the torque produced – based on the energy needed.

| Motor size | SIE143-286 | SIE324-444 | SIE445-447 |
|--|---|---|---|
| In standard designed for frequency converter supply | Yes | Yes | Yes |
| Permissible output parameters of the frequency converter (measured on motor terminals – including supply cable between motor and frequency converter): | | $U_{peak} \leq 1,35kV$ $t_r \geq 0,8\mu s$ | |
| Insulated bearing or bearing chamber on NDE-side | N/A | Available on request | Recommended in motors designed for frequency converter supply with rated power >125HP |
| Speed control range | Permissible speed control range will depend on the application (load curve) and parameters of the frequency converter thus it should be established individually. | | |

Totally Enclosed Motors IP55 f=60Hz

| Item | Type | Rated power | | Rated speed | Rated torque | | | Rated Efficiency [%] | | | Power factor | | | Current Amps at 460V | | Current Amps at 575V | | Locked rotor torque ratio | Breakdown torque ratio | NEMA Code Letter | WK ² | Service factor | Net Weight |
|-----------------------|-------------|-------------|------|-------------|--------------|----------|----------|----------------------|----------|----------|--------------|---------------|------------------|----------------------|------------------|----------------------|---|---------------------------|------------------------|------------------|-----------------|----------------|------------|
| | | HP | RPM | | Lbft | 50% load | 75% load | 100% load | 50% load | 75% load | 100% load | Full load [A] | Locked rotor [A] | Full load [A] | Locked rotor [A] | % | % | | | | | | |
| RPM=3600 min-1 | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | SIE 143T2 | 1.5 | 3540 | 2.2 | 79.8 | 83.2 | 84.0 | 0.57 | 0.69 | 0.78 | 2.1 | 20.0 | 1.7 | 16.0 | 350 | 410 | M | 0.07 | 1.4 | 56 | | | |
| 2 | SIE 145T2 | 2 | 3525 | 3.0 | 83.3 | 85.7 | 85.5 | 0.62 | 0.75 | 0.82 | 2.7 | 25.4 | 2.2 | 20.3 | 360 | 400 | L | 0.08 | 1.4 | 57 | | | |
| 3 | SIE 182T2 | 3 | 3500 | 4.5 | 84.4 | 86.4 | 86.5 | 0.65 | 0.76 | 0.82 | 4.0 | 32.0 | 3.2 | 25.6 | 310 | 320 | K | 0.12 | 1.4 | 76 | | | |
| 4 | SIE 184T2 | 5 | 3535 | 7.4 | 86.7 | 88.6 | 88.5 | 0.68 | 0.80 | 0.85 | 6.2 | 73.0 | 5.0 | 58.4 | 450 | 530 | N | 0.2 | 1.4 | 102 | | | |
| 5 | SIE 213T2 | 7.5 | 3525 | 11.2 | 88.7 | 90.0 | 89.5 | 0.81 | 0.89 | 0.92 | 8.5 | 76.0 | 6.8 | 60.8 | 290 | 315 | K | 0.45 | 1.3 | 159 | | | |
| 6 | SIE 215T2 | 10 | 3535 | 14.8 | 89.3 | 90.4 | 90.2 | 0.80 | 0.88 | 0.91 | 11.4 | 93.0 | 9.1 | 74.4 | 300 | 335 | J | 0.5 | 1.3 | 173 | | | |
| 7 | SIE 254T2 | 15 | 3540 | 22.3 | 90.5 | 91.8 | 91.7 | 0.77 | 0.85 | 0.87 | 17.6 | 112 | 14.1 | 90.0 | 240 | 250 | G | 1.15 | 1.3 | 258 | | | |
| 8 | SIE 256T2 | 20 | 3540 | 29.7 | 91.7 | 92.4 | 91.7 | 0.82 | 0.88 | 0.89 | 22.9 | 138 | 18.3 | 110 | 230 | 260 | F | 1.47 | 1.3 | 306 | | | |
| 9 | SIE 284TS2 | 25 | 3555 | 36.9 | 91.3 | 92.4 | 92.4 | 0.74 | 0.82 | 0.86 | 29.5 | 205 | 23.6 | 164 | 260 | 300 | H | 1.72 | 1.2 | 348 | | | |
| 10 | SIE 286TS2 | 30 | 3540 | 44.5 | 91.2 | 92.0 | 91.7 | 0.80 | 0.85 | 0.87 | 35.2 | 215 | 28.2 | 172 | 250 | 300 | G | 1.92 | 1.2 | 390 | | | |
| 11 | SIE 324TS2 | 40 | 3552 | 59 | 92.7 | 93.0 | 92.4 | 0.88 | 0.91 | 0.92 | 44.0 | 290 | 35.0 | 234 | 145 | 200 | G | 4.0 | 1.2 | 608 | | | |
| 12 | SIE 326TS2 | 50 | 3552 | 74 | 93.5 | 93.7 | 93.0 | 0.89 | 0.92 | 0.92 | 55.0 | 362 | 44.0 | 290 | 145 | 200 | G | 4.7 | 1.2 | 655 | | | |
| 13 | SIE 364TS2 | 60 | 3562 | 88.5 | 93.8 | 94.1 | 93.6 | 0.87 | 0.91 | 0.92 | 65.0 | 435 | 52.0 | 348 | 125 | 200 | G | 6.5 | 1.2 | 860 | | | |
| 14 | SIE 365TS2 | 75 | 3560 | 111 | 94.2 | 94.3 | 93.6 | 0.89 | 0.91 | 0.92 | 82.0 | 545 | 65.0 | 435 | 120 | 200 | G | 7.9 | 1.2 | 933 | | | |
| 15 | SIE 405TS2 | 100 | 3565 | 147 | 95.3 | 95.6 | 95.4 | 0.83 | 0.88 | 0.90 | 109 | 725 | 87.0 | 580 | 170 | 240 | G | 10.0 | 1.2 | 1058 | | | |
| 16 | SIE 444TS2 | 125 | 3578 | 184 | 95.1 | 95.3 | 95.0 | 0.86 | 0.90 | 0.92 | 134 | 956 | 107 | 768 | 140 | 260 | G | 22.5 | 1.2 | 1488 | | | |
| 17 | SIE 445TS2 | 150 | 3578 | 220 | 95.2 | 95.3 | 95.0 | 0.86 | 0.91 | 0.92 | 161 | 1192 | 129 | 955 | 160 | 270 | G | 28.4 | 1.2 | 1594 | | | |
| 18 | SIE 447TS2A | 200 | 3578 | 294 | 95.8 | 95.8 | 95.4 | 0.88 | 0.92 | 0.93 | 211 | 1507 | 169 | 1206 | 150 | 250 | G | 29.1 | 1.2 | 2161 | | | |
| 19 | SIE 447TS2B | 250 | 3579 | 367 | 96.1 | 96.2 | 95.8 | 0.89 | 0.92 | 0.93 | 263 | 1912 | 210 | 1528 | 180 | 270 | G | 36.9 | 1.2 | 2271 | | | |
| RPM=1800 min-1 | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | SIE 143T4 | 1 | 1765 | 3 | 81.3 | 84.5 | 85.5 | 0.57 | 0.70 | 0.78 | 1.4 | 12.9 | 1.1 | 10.3 | 300 | 320 | M | 0.09 | 1.4 | 53 | | | |
| 21 | SIE 145T4 | 1.5 | 1750 | 4.5 | 85.0 | 86.8 | 86.5 | 0.59 | 0.72 | 0.79 | 2.1 | 16.6 | 1.6 | 13.3 | 300 | 400 | K | 0.1 | 1.4 | 57 | | | |
| 22 | SIE 145T4 | 2 | 1745 | 6 | 85.8 | 87.1 | 86.5 | 0.64 | 0.77 | 0.83 | 2.6 | 19.2 | 2.1 | 15.4 | 260 | 340 | J | 0.13 | 1.4 | 59 | | | |
| 23 | SIE 182T4 | 3 | 1775 | 8.9 | 85.8 | 88.5 | 89.5 | 0.54 | 0.67 | 0.75 | 4.2 | 38.0 | 3.4 | 30.4 | 320 | 400 | M | 0.27 | 1.4 | 102 | | | |
| 24 | SIE 184T4 | 5 | 1770 | 14.8 | 87.6 | 89.2 | 89.5 | 0.58 | 0.71 | 0.78 | 6.7 | 61.0 | 5.4 | 48.8 | 300 | 380 | L | 0.34 | 1.3 | 108 | | | |
| 25 | SIE 213T4 | 7.5 | 1765 | 22.3 | 90.5 | 91.6 | 91.7 | 0.67 | 0.78 | 0.82 | 9.3 | 71.0 | 7.4 | 56.8 | 240 | 290 | J | 0.87 | 1.3 | 167 | | | |
| 26 | SIE 215T4 | 10 | 1770 | 29.6 | 90.4 | 91.7 | 91.7 | 0.66 | 0.77 | 0.82 | 12.5 | 87.0 | 10.0 | 69.6 | 230 | 280 | H | 0.99 | 1.3 | 185 | | | |
| 27 | SIE 254T4 | 15 | 1775 | 44.3 | 90.7 | 92.0 | 92.4 | 0.76 | 0.84 | 0.88 | 17.3 | 168 | 13.8 | 134.4 | 380 | 440 | K | 2.89 | 1.3 | 301 | | | |
| 28 | SIE 256T4 | 20 | 1775 | 59.1 | 91.4 | 92.7 | 93.0 | 0.76 | 0.84 | 0.88 | 22.9 | 230 | 18.3 | 184 | 380 | 450 | L | 3.57 | 1.2 | 390 | | | |
| 29 | SIE 284T4 | 25 | 1780 | 73.7 | 91.6 | 93.1 | 93.6 | 0.66 | 0.76 | 0.82 | 30.5 | 300 | 24.4 | 240 | 380 | 420 | L | 3.59 | 1.2 | 397 | | | |
| 30 | SIE 286T4 | 30 | 1780 | 88.4 | 91.3 | 93.0 | 93.6 | 0.61 | 0.73 | 0.80 | 37.5 | 350 | 30.0 | 280 | 370 | 390 | L | 3.84 | 1.2 | 441 | | | |
| 31 | SIE 324T4 | 40 | 1780 | 118 | 94.3 | 94.7 | 94.1 | 0.78 | 0.86 | 0.88 | 45.0 | 290 | 36.0 | 232 | 240 | 270 | G | 9.3 | 1.3 | 690 | | | |
| 32 | SIE 326T4 | 50 | 1781 | 148 | 94.9 | 95.1 | 94.5 | 0.78 | 0.85 | 0.88 | 56.0 | 362 | 45.0 | 290 | 250 | 270 | G | 11.6 | 1.3 | 769 | | | |
| 33 | SIE 364T4 | 60 | 1786 | 177 | 95.3 | 95.6 | 95.0 | 0.80 | 0.87 | 0.88 | 67.0 | 435 | 54.0 | 348 | 140 | 200 | G | 15.5 | 1.2 | 926 | | | |
| 34 | SIE 365T4 | 75 | 1787 | 221 | 95.5 | 95.8 | 95.4 | 0.80 | 0.86 | 0.88 | 84.0 | 542 | 67.0 | 434 | 150 | 210 | G | 17.8 | 1.2 | 1012 | | | |
| 35 | SIE 405T4 | 100 | 1785 | 294 | 95.7 | 95.9 | 95.4 | 0.84 | 0.89 | 0.91 | 108 | 790 | 86.0 | 632 | 220 | 230 | G | 29.8 | 1.2 | 1241 | | | |
| 36 | SIE 444T4 | 125 | 1788 | 367 | 95.7 | 95.8 | 95.4 | 0.85 | 0.89 | 0.90 | 136 | 909 | 109 | 726 | 175 | 210 | G | 42.9 | 1.2 | 1662 | | | |
| 37 | SIE 445T4 | 150 | 1788 | 441 | 96.1 | 96.2 | 95.8 | 0.86 | 0.90 | 0.91 | 161 | 1085 | 129 | 868 | 180 | 200 | G | 52.7 | 1.2 | 1823 | | | |
| 38 | SIE 447T4A | 200 | 1790 | 587 | 96.2 | 96.7 | 96.5 | 0.81 | 0.87 | 0.89 | 218 | 1550 | 174 | 1240 | 170 | 200 | G | 68.0 | 1.2 | 2310 | | | |
| 39 | SIE 447T4B | 250 | 1788 | 735 | 96.5 | 96.6 | 96.2 | 0.85 | 0.90 | 0.91 | 267 | 1825 | 214 | 1460 | 160 | 200 | G | 81.5 | 1.2 | 2447 | | | |

We offer special JM pump motors up to frame size 326 and JP pump motors up to frame size 365.

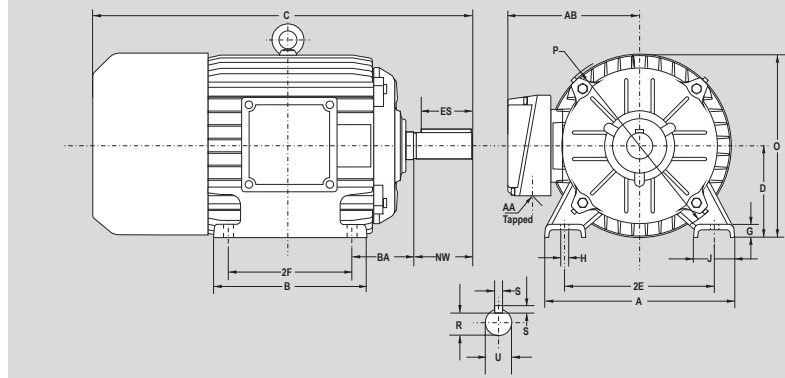
Totally Enclosed Motors IP55 f=60Hz

| Item | Type | Rated power | | | Rated speed | | | Rated torque | | | Rated Efficiency [%] | | | Power factor | | | Current Amps at 460V | | Current Amps at 575V | | Locked rotor torque ratio | Breakdown torque ratio | NEEMA Code Letter | WK ² | Service factor | Net Weight |
|-----------------------|-----------|-------------|------|------|-------------|----------|-----------|--------------|----------|-----------|----------------------|------------------|---------------|------------------|-----|-----|----------------------|--------------------|----------------------|------|---------------------------|------------------------|-------------------|-----------------|----------------|------------|
| | | HP | RPM | Lbft | 50% load | 75% load | 100% load | 50% load | 75% load | 100% load | Full load [A] | Locked rotor [A] | Full load [A] | Locked rotor [A] | % | % | — | Lb-Ft ² | — | Lbs | | | | | | |
| RPM=1200 min-1 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | SIE 145T6 | 1 | 1160 | 4.5 | 78.6 | 81.9 | 82.5 | 0.46 | 0.59 | 0.68 | 1.7 | 10.0 | 1.4 | 8.0 | 240 | 300 | K | 0.15 | 1.4 | 55 | | | | | | |
| 41 | SIE 182T6 | 1.5 | 1170 | 6.7 | 84.5 | 86.9 | 87.5 | 0.47 | 0.59 | 0.68 | 2.4 | 14.0 | 1.9 | 11.2 | 190 | 280 | J | 0.4 | 1.4 | 85 | | | | | | |
| 42 | SIE 184T6 | 2 | 1170 | 9.0 | 86.9 | 88.6 | 88.5 | 0.51 | 0.64 | 0.72 | 3.0 | 25.0 | 2.4 | 20.0 | 200 | 300 | L | 0.45 | 1.4 | 98 | | | | | | |
| 43 | SIE 213T6 | 3 | 1165 | 13.5 | 88.0 | 89.5 | 89.5 | 0.56 | 0.68 | 0.74 | 4.2 | 32.0 | 3.4 | 25.6 | 260 | 360 | K | 1.45 | 1.4 | 205 | | | | | | |
| 44 | SIE 215T6 | 5 | 1170 | 22.4 | 88.2 | 89.6 | 89.5 | 0.57 | 0.69 | 0.75 | 7.0 | 46.0 | 5.6 | 36.8 | 250 | 350 | J | 1.56 | 1.3 | 220 | | | | | | |
| 45 | SIE 254T6 | 7.5 | 1185 | 33.2 | 88.6 | 90.6 | 91.0 | 0.54 | 0.67 | 0.74 | 10.4 | 77.5 | 8.3 | 62.0 | 320 | 350 | K | 2.63 | 1.3 | 321 | | | | | | |
| 46 | SIE 256T6 | 10 | 1180 | 44.5 | 89.2 | 90.8 | 91.0 | 0.58 | 0.70 | 0.77 | 13.4 | 94.0 | 10.7 | 75.2 | 290 | 330 | J | 3.31 | 1.3 | 363 | | | | | | |
| 47 | SIE 284T6 | 15 | 1185 | 66.4 | 89.0 | 91.2 | 91.7 | 0.61 | 0.73 | 0.79 | 19.5 | 180 | 15.6 | 144 | 470 | 380 | L | 5.19 | 1.3 | 371 | | | | | | |
| 48 | SIE 286T6 | 20 | 1185 | 88.5 | 89.1 | 91.1 | 91.7 | 0.63 | 0.74 | 0.80 | 25.5 | 221 | 20.4 | 177 | 380 | 320 | L | 6.03 | 1.2 | 421 | | | | | | |
| 49 | SIE 324T6 | 25 | 1190 | 110 | 92.4 | 93.3 | 93.0 | 0.65 | 0.75 | 0.80 | 31.5 | 182 | 25 | 146 | 230 | 240 | G | 12.9 | 1.3 | 653 | | | | | | |
| 50 | SIE 326T6 | 30 | 1190 | 132 | 92.6 | 93.3 | 93.0 | 0.69 | 0.78 | 0.82 | 37.0 | 217 | 30 | 174 | 230 | 240 | G | 14.7 | 1.3 | 681 | | | | | | |
| 51 | SIE 364T6 | 40 | 1192 | 176 | 93.5 | 94.2 | 94.1 | 0.68 | 0.78 | 0.82 | 48.5 | 290 | 39 | 232 | 180 | 210 | G | 23.1 | 1.3 | 917 | | | | | | |
| 52 | SIE 365T6 | 50 | 1191 | 221 | 93.7 | 94.3 | 94.1 | 0.71 | 0.80 | 0.83 | 60.0 | 362 | 48 | 290 | 170 | 200 | G | 25.9 | 1.3 | 970 | | | | | | |
| 53 | SIE 404T6 | 60 | 1192 | 264 | 93.7 | 94.4 | 94.5 | 0.68 | 0.78 | 0.82 | 72.0 | 435 | 58 | 348 | 180 | 200 | G | 36.8 | 1.3 | 1127 | | | | | | |
| 54 | SIE 405T6 | 75 | 1191 | 331 | 94.4 | 94.9 | 94.5 | 0.70 | 0.79 | 0.82 | 91.0 | 542 | 73 | 434 | 140 | 200 | G | 41.9 | 1.2 | 1210 | | | | | | |
| 55 | SIE 444T6 | 100 | 1192 | 441 | 93.9 | 94.9 | 95.0 | 0.65 | 0.75 | 0.80 | 123 | 725 | 98 | 580 | 190 | 200 | G | 64.1 | 1.2 | 1726 | | | | | | |
| 56 | SIE 445T6 | 125 | 1192 | 551 | 95.3 | 95.6 | 95.4 | 0.67 | 0.77 | 0.80 | 153 | 910 | 122 | 728 | 190 | 200 | G | 76.3 | 1.2 | 1931 | | | | | | |

We offer special JM pump motors up to frame size 326 and JP pump motors up to frame size 365.

Overall and Mounting Dimensions

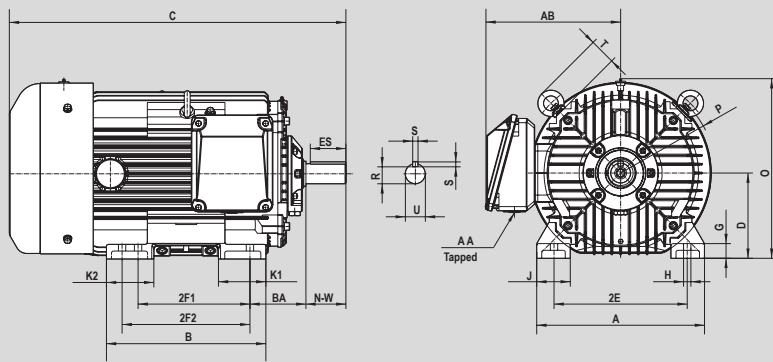
Rigid Base



| Motor Type | Mounting Dimensions (inches) | | | | | | | | | | | Overall Dimensions (inches) | | | | | | | |
|------------|------------------------------|------|------|------|------|------|------|------|-------|-------|-------|-----------------------------|------|-------|-------|-------|------|-------|-------|
| | Shaft End | | | | | | | | | | | A | AA | AB | B | C | J | O | P |
| | D | 2E | 2F | G | H | BA | ES | N-W | R | S | U | | | | | | | | |
| SIE 143T | 3.50 | 5.50 | 4.00 | 0.39 | 0.34 | 2.25 | 1.52 | 2.25 | 0.771 | 0.188 | 0.875 | 6.62 | 3/4 | 6.5 | 5.83 | 14.2 | 1.66 | 7.48 | 8.27 |
| SIE 145T | 3.50 | 5.50 | 5.00 | 0.39 | 0.34 | 2.25 | 1.52 | 2.25 | 0.771 | 0.188 | 0.875 | 6.62 | 3/4 | 6.5 | 7.00 | 15.15 | 1.66 | 7.48 | 8.27 |
| SIE 182T | 4.5 | 7.5 | 4.5 | 0.6 | 0.41 | 2.75 | 1.94 | 2.75 | 0.986 | 0.25 | 1.125 | 9 | 1 | 7.9 | 8.31 | 17.7 | 2.13 | 9.09 | 9.53 |
| SIE 184T | 4.5 | 7.5 | 5.5 | 0.6 | 0.41 | 2.75 | 1.94 | 2.75 | 0.986 | 0.25 | 1.125 | 9 | 1 | 7.9 | 8.31 | 17.7 | 2.13 | 9.09 | 9.53 |
| SIE 213T | 5.25 | 8.5 | 5.5 | 0.67 | 0.41 | 3.5 | 2.55 | 3.38 | 1.201 | 0.312 | 1.375 | 10.24 | 1 | 8.92 | 8.7 | 22.25 | 2.2 | 10.96 | 11.61 |
| SIE 215T | 5.25 | 8.5 | 7 | 0.67 | 0.41 | 3.5 | 2.55 | 3.38 | 1.201 | 0.312 | 1.375 | 10.24 | 1 | 8.92 | 10.28 | 22.88 | 2.2 | 10.96 | 11.61 |
| SIE 254T | 6.25 | 10 | 8.25 | 0.58 | 0.55 | 4.25 | 3.11 | 4 | 1.416 | 0.375 | 1.625 | 12.28 | 1.25 | 10.08 | 9.92 | 25.83 | 2.36 | 13.18 | 14.17 |
| SIE 256T | 6.25 | 10 | 10 | 0.58 | 0.55 | 4.25 | 3.11 | 4 | 1.416 | 0.375 | 1.625 | 12.28 | 1.25 | 10.08 | 11.65 | 27.6 | 2.36 | 13.18 | 14.17 |
| SIE 284T | 7 | 11 | 9.5 | 0.89 | 0.55 | 4.75 | 3.53 | 4.62 | 1.591 | 0.5 | 1.875 | 13.78 | 1.5 | 10.34 | 13.11 | 31.16 | 2.75 | 14.01 | 14.17 |
| SIE 284TS | 7 | 11 | 9.5 | 0.89 | 0.55 | 4.75 | 2.1 | 3.25 | 1.416 | 0.375 | 1.625 | 13.78 | 1.5 | 10.34 | 13.11 | 27.2 | 2.75 | 14.01 | 14.17 |
| SIE 286T | 7 | 11 | 11 | 0.89 | 0.55 | 4.75 | 3.53 | 4.62 | 1.591 | 0.5 | 1.875 | 13.78 | 1.5 | 10.34 | 13.11 | 31.16 | 2.75 | 14.01 | 14.17 |
| SIE 286TS | 7 | 11 | 11 | 0.89 | 0.55 | 4.75 | 2.1 | 3.25 | 1.416 | 0.375 | 1.625 | 13.78 | 1.5 | 10.34 | 13.11 | 27.2 | 2.75 | 14.01 | 14.17 |

Overall and Mounting Dimensions

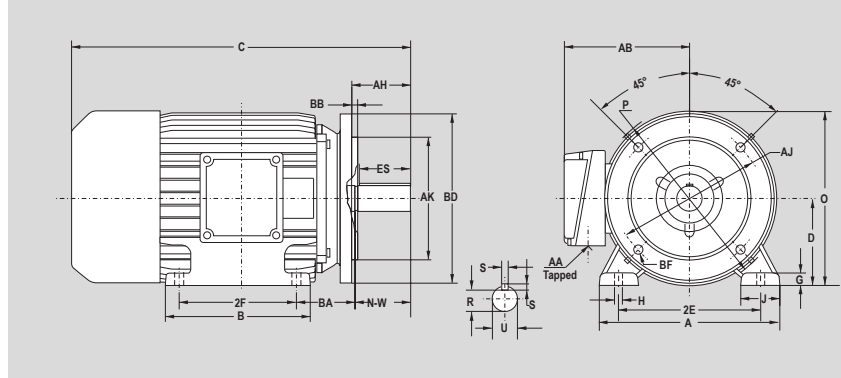
Rigid Base



| Motor Type | Mounting Dimensions (inches) | | | | | | | | | | | | | Overall Dimensions (inches) | | | | | | | | | | |
|------------|------------------------------|------|-------|-------|-------|------|------|------|------|-------|-------|-------|------|-----------------------------|------|------|------|------|------|------|------|------|------|---|
| | Shaft End | | | | | | | | | | | | | A | AA | AB | B | C | J | K1 | K2 | O | P | T |
| | D | 2E | 2F1 | 2F2 | G | H | BA | ES | N-W | R | S | U | | | | | | | | | | | | |
| SIE 324TS2 | 8 | 12.5 | 10.5 | 12 | 1.38 | 0.66 | 5.25 | 2.75 | 3.75 | 1.591 | 0.5 | 1.875 | 15.8 | 2 | 13 | 15 | 31.6 | 3.15 | 4.45 | 4.45 | 16.9 | 17.9 | 2.5 | |
| SIE 324T | 8 | 12.5 | 10.5 | 12 | 1.38 | 0.66 | 5.25 | 4.33 | 5.25 | 1.845 | 0.5 | 2.125 | 15.8 | 2 | 13 | 15 | 33.1 | 3.15 | 4.45 | 4.45 | 16.9 | 17.9 | 2.5 | |
| SIE 326TS2 | 8 | 12.5 | 10.5 | 12 | 1.38 | 0.66 | 5.25 | 2.75 | 3.75 | 1.591 | 0.5 | 1.875 | 15.8 | 2 | 13 | 15 | 31.6 | 3.15 | 4.45 | 4.45 | 16.9 | 17.9 | 2.5 | |
| SIE 326T | 8 | 12.5 | 10.5 | 12 | 1.38 | 0.66 | 5.25 | 4.33 | 5.25 | 1.845 | 0.5 | 2.125 | 15.8 | 2 | 13 | 15 | 33.1 | 3.15 | 4.45 | 4.45 | 16.9 | 17.9 | 2.5 | |
| SIE 364TS2 | 9 | 14 | 11.25 | 12.25 | 1.49 | 0.66 | 5.88 | 2.75 | 3.75 | 1.591 | 0.5 | 1.875 | 17.5 | 3 | 14.2 | 15 | 33.6 | 3.35 | 4.53 | 4.53 | 18.8 | 19.9 | 2.5 | |
| SIE 364T | 9 | 14 | 11.25 | 12.25 | 1.49 | 0.66 | 5.88 | 4.92 | 5.88 | 2.021 | 0.625 | 2.375 | 17.5 | 3 | 14.2 | 15 | 35.7 | 3.35 | 4.53 | 4.53 | 18.8 | 19.9 | 2.5 | |
| SIE 365TS2 | 9 | 14 | 11.25 | 12.25 | 1.49 | 0.66 | 5.88 | 2.75 | 3.75 | 1.591 | 0.5 | 1.875 | 17.5 | 3 | 14.2 | 15 | 33.6 | 3.35 | 4.53 | 4.53 | 18.8 | 19.9 | 2.5 | |
| SIE 365T | 9 | 14 | 11.25 | 12.25 | 1.49 | 0.66 | 5.88 | 4.92 | 5.88 | 2.021 | 0.625 | 2.375 | 17.5 | 3 | 14.2 | 15 | 35.7 | 3.35 | 4.53 | 4.53 | 18.8 | 19.9 | 2.5 | |
| SIE 404T | 10 | 16 | 12.25 | 13.75 | 1.57 | 0.81 | 6.62 | 6.3 | 7.25 | 2.45 | 0.75 | 2.875 | 18.9 | 3 | 15.5 | 17.6 | 40.4 | 3.54 | 5.32 | 5.32 | 20.8 | 21.3 | 2.95 | |
| SIE 405TS2 | 10 | 16 | 12.25 | 13.75 | 1.57 | 0.81 | 6.62 | 3.5 | 4.25 | 1.845 | 0.5 | 2.125 | 18.9 | 3 | 15.5 | 17.6 | 37.4 | 3.54 | 5.32 | 5.32 | 20.8 | 21.3 | 2.95 | |
| SIE 405T | 10 | 16 | 12.25 | 13.75 | 1.57 | 0.81 | 6.62 | 6.3 | 7.25 | 2.45 | 0.75 | 2.875 | 18.9 | 3 | 15.5 | 17.6 | 40.4 | 3.54 | 5.32 | 5.32 | 20.8 | 21.3 | 2.95 | |
| SIE 444TS2 | 11 | 18 | 14.5 | 16.5 | 1.57 | 0.81 | 7.5 | 4.3 | 4.75 | 2.021 | 0.625 | 2.375 | 21.7 | 2x3 | 17.6 | 20.5 | 42 | 4.15 | 5.12 | 6.5 | 23.4 | 24.4 | 3.75 | |
| SIE 444T | 11 | 18 | 14.5 | 16.5 | 1.57 | 0.81 | 7.5 | 7.9 | 8.5 | 2.88 | 0.875 | 3.375 | 21.7 | 2x3 | 17.6 | 20.5 | 45.7 | 4.15 | 5.12 | 6.5 | 23.4 | 24.4 | 3.75 | |
| SIE 445TS2 | 11 | 18 | 14.5 | 16.5 | 1.57 | 0.81 | 7.5 | 4.3 | 4.75 | 2.021 | 0.625 | 2.375 | 21.7 | 2x3 | 17.6 | 20.5 | 42 | 4.15 | 5.12 | 6.5 | 23.4 | 24.4 | 3.75 | |
| SIE 445T | 11 | 18 | 14.5 | 16.5 | 1.57 | 0.81 | 7.5 | 7.9 | 8.5 | 2.88 | 0.875 | 3.375 | 21.7 | 2x3 | 17.6 | 20.5 | 45.7 | 4.15 | 5.12 | 6.5 | 23.4 | 24.4 | 3.75 | |
| SIE 447TS2 | 11 | 18 | 20 | - | 1.654 | 0.81 | 7.5 | 4.3 | 4.75 | 2.021 | 0.625 | 2.375 | 22.1 | 2x3 | 19.5 | 24 | 46.3 | 4.18 | 6.8 | 6.8 | 23.4 | 24.4 | 3.75 | |
| SIE 447T4A | 11 | 18 | 20 | - | 1.654 | 0.81 | 7.5 | 7.9 | 8.5 | 2.88 | 0.875 | 3.375 | 22.1 | 2x3 | 19.5 | 24 | 50 | 4.18 | 6.8 | 6.8 | 23.4 | 24.4 | 3.75 | |
| SIE 447T4B | 11 | 18 | 20 | - | 1.654 | 0.81 | 7.5 | 7.9 | 8.5 | 2.88 | 0.875 | 3.375 | 22.1 | 2x3 | 19.5 | 24 | 53.5 | 4.18 | 7.95 | 5.63 | 23.4 | 24.4 | 3.75 | |

Overall and Mounting Dimensions

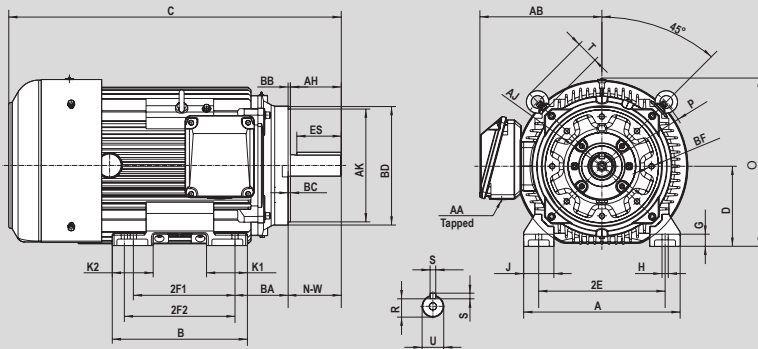
C-Face with Rigid Base



| Motor Type | Mounting Dimensions (inches) | | | | | | | | | | | | | | Overall Dimensions (inches) | | | | | | | | | | |
|-------------|------------------------------|-------|-------|------|------|------|------|--------|-------|-------|-------|------|------|------|-----------------------------|--------|-------|-------|-------|-------|-------|-------|------|-------|-------|
| | Shaft End | | | | | | | C-Face | | | | | | | | | | | | | | | | | |
| | D | 2E | 2F | G | H | BA | ES | N-W | R | S | U | AH | AJ | AK | BB | BF | A | AA | AB | B | BD | C | J | O | P |
| SIE 143TCL | 3.50 | 5.50 | 4.00 | 0.39 | 0.34 | 2.25 | 1.52 | 2.25 | 0.771 | 0.188 | 0.875 | 2.12 | 5.88 | 4.5 | 0.16 | 3/8-16 | 6.62 | 3/4 | 6.50 | 5.83 | 6.50 | 14.20 | 1.66 | 7.48 | 8.27 |
| SIE 145TCL | 3.50 | 5.50 | 5.00 | 0.39 | 0.34 | 2.25 | 1.52 | 2.25 | 0.771 | 0.188 | 0.875 | 2.12 | 5.88 | 4.5 | 0.16 | 3/8-16 | 6.62 | 3/4 | 6.50 | 7.00 | 6.50 | 15.15 | 1.66 | 7.48 | 8.27 |
| SIE 182TCL | 4.50 | 7.50 | 4.50 | 0.60 | 0.41 | 2.75 | 1.94 | 2.75 | 0.986 | 0.250 | 1.125 | 2.62 | 7.25 | 8.5 | 0.25 | 1/2-13 | 9.00 | 1 | 7.90 | 8.31 | 8.90 | 17.70 | 2.13 | 9.09 | 9.53 |
| SIE 184TCL | 4.50 | 7.50 | 5.50 | 0.60 | 0.41 | 2.75 | 1.94 | 2.75 | 0.986 | 0.250 | 1.125 | 2.62 | 7.25 | 8.5 | 0.25 | 1/2-13 | 9.00 | 1 | 7.90 | 8.31 | 8.90 | 17.70 | 2.13 | 9.09 | 9.53 |
| SIE 213TCL | 5.25 | 8.50 | 5.50 | 0.67 | 0.41 | 3.50 | 2.55 | 3.38 | 1.201 | 0.312 | 1.375 | 3.13 | 7.25 | 8.5 | 0.25 | 1/2-13 | 10.24 | 1 | 8.92 | 8.70 | 8.90 | 22.25 | 2.20 | 10.96 | 11.61 |
| SIE 215TCL | 5.25 | 8.50 | 7.00 | 0.67 | 0.41 | 3.50 | 2.55 | 3.38 | 1.201 | 0.312 | 1.375 | 3.13 | 7.25 | 8.5 | 0.25 | 1/2-13 | 10.24 | 1 | 8.92 | 10.28 | 8.90 | 22.88 | 2.20 | 10.96 | 11.61 |
| SIE 254TCL | 6.25 | 10.00 | 8.25 | 0.58 | 0.55 | 4.25 | 3.11 | 4.00 | 1.416 | 0.375 | 1.625 | 3.75 | 7.25 | 8.5 | 0.25 | 1/2-13 | 12.28 | 1 1/4 | 10.08 | 9.92 | 10.00 | 25.83 | 2.36 | 13.18 | 14.17 |
| SIE 256TCL | 6.25 | 10.00 | 10.00 | 0.58 | 0.55 | 4.25 | 3.11 | 4.00 | 1.416 | 0.375 | 1.625 | 3.75 | 7.25 | 8.5 | 0.25 | 1/2-13 | 12.28 | 1 1/4 | 10.08 | 11.65 | 10.00 | 27.60 | 2.36 | 13.18 | 14.17 |
| SIE 284TCL | 7.00 | 11.00 | 9.50 | 0.89 | 0.55 | 4.75 | 3.53 | 4.62 | 1.591 | 0.500 | 1.875 | 4.38 | 9.00 | 10.5 | 0.25 | 1/2-13 | 13.78 | 1 1/2 | 10.34 | 13.11 | 11.25 | 31.16 | 2.75 | 14.01 | 14.17 |
| SIE 284TSCL | 7.00 | 11.00 | 9.50 | 0.89 | 0.55 | 4.75 | 2.10 | 3.25 | 1.416 | 0.375 | 1.625 | 3.00 | 9.00 | 10.5 | 0.25 | 1/2-13 | 13.78 | 1 1/2 | 10.34 | 13.11 | 11.25 | 27.20 | 2.75 | 14.01 | 14.17 |
| SIE 286TCL | 7.00 | 11.00 | 11.00 | 0.89 | 0.55 | 4.75 | 3.53 | 4.62 | 1.591 | 0.500 | 1.875 | 4.38 | 9.00 | 10.5 | 0.25 | 1/2-13 | 13.78 | 1 1/2 | 10.34 | 13.11 | 11.25 | 31.16 | 2.75 | 14.01 | 14.17 |
| SIE 286TSCL | 7.00 | 11.00 | 11.00 | 0.89 | 0.55 | 4.75 | 2.10 | 3.25 | 1.416 | 0.375 | 1.625 | 3.00 | 9.00 | 10.5 | 0.25 | 1/2-13 | 13.78 | 1 1/2 | 10.34 | 13.11 | 11.25 | 27.20 | 2.75 | 14.01 | 14.17 |

Overall and Mounting Dimensions

C-Face with Rigid Base



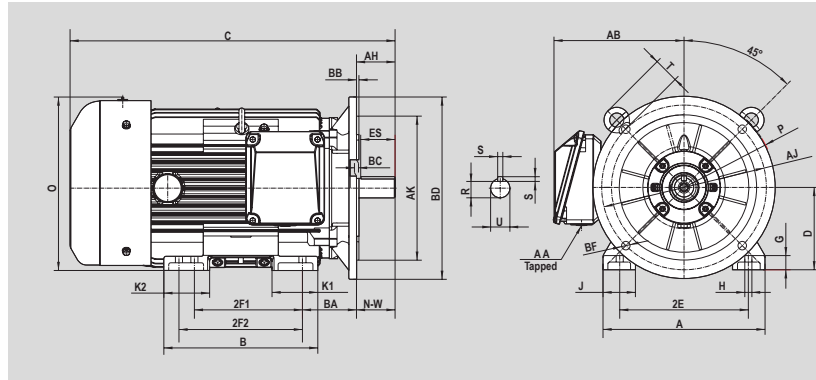
Mounting Dimensions (inches)

Overall Dimensions (inches)

| Motor Type | Shaft End | | | | | | | | | | | | | | C-Face | | | | | | | | | | | | | | | |
|--------------|-----------|------|-------|-------|-------|------|------|------|------|-------|-------|-------|------|----|--------|--------|--------|-----|------|-----|------|------|------|------|------|------|------|------|------|------|
| | D | 2E | 2F1 | 2F2 | G | H | BA | ES | N-W | R | S | U | AH | AJ | AK | BB/ BF | | No. | A | AA | AB | B | BD | C | J | K1 | K2 | O | P | T |
| | | | | | | | | | | | | | | | | size | size | | | | | | | | | | | | | |
| SIE 324TSCL2 | 8 | 12.5 | 10.50 | 12.00 | 1.38 | 0.66 | 5.25 | 2.75 | 3.75 | 1.591 | 0.5 | 1.875 | 3.50 | 11 | 12.5 | 0.25 | 5/8-11 | 4 | 15.8 | 2 | 13 | 15 | 13 | 31.6 | 3.15 | 4.45 | 4.45 | 16.9 | 17.9 | 2.5 |
| SIE 324TCL | 8 | 12.5 | 10.50 | 12.00 | 1.38 | 0.66 | 5.25 | 4.33 | 5.25 | 1.845 | 0.5 | 2.125 | 5.00 | 11 | 12.5 | 0.25 | 5/8-11 | 4 | 15.8 | 2 | 13 | 15 | 13 | 33.1 | 3.15 | 4.45 | 4.45 | 16.9 | 17.9 | 2.5 |
| SIE 326TSCL2 | 8 | 12.5 | 10.50 | 12.00 | 1.38 | 0.66 | 5.25 | 2.75 | 3.75 | 1.591 | 0.5 | 1.875 | 3.50 | 11 | 12.5 | 0.25 | 5/8-11 | 4 | 15.8 | 2 | 13 | 15 | 13 | 31.6 | 3.15 | 4.45 | 4.45 | 16.9 | 17.9 | 2.5 |
| SIE 326TCL | 8 | 12.5 | 10.50 | 12.00 | 1.38 | 0.66 | 5.25 | 4.33 | 5.25 | 1.845 | 0.5 | 2.125 | 5.00 | 11 | 12.5 | 0.25 | 5/8-11 | 4 | 15.8 | 2 | 13 | 15 | 13 | 33.1 | 3.15 | 4.45 | 4.45 | 16.9 | 17.9 | 2.5 |
| SIE 364TSCL2 | 9 | 14 | 11.25 | 12.25 | 1.49 | 0.66 | 5.88 | 2.75 | 3.75 | 1.591 | 0.5 | 1.875 | 3.50 | 11 | 12.5 | 0.25 | 5/8-11 | 8 | 17.5 | 3 | 14.2 | 15 | 13.2 | 33.6 | 3.35 | 4.53 | 4.53 | 18.8 | 19.9 | 2.5 |
| SIE 364TCL | 9 | 14 | 11.25 | 12.25 | 1.49 | 0.66 | 5.88 | 4.92 | 5.88 | 2.021 | 0.625 | 2.375 | 5.63 | 11 | 12.5 | 0.25 | 5/8-11 | 8 | 17.5 | 3 | 14.2 | 15 | 13.2 | 35.7 | 3.35 | 4.53 | 4.53 | 18.8 | 19.9 | 2.5 |
| SIE 365TSCL2 | 9 | 14 | 11.25 | 12.25 | 1.49 | 0.66 | 5.88 | 2.75 | 3.75 | 1.591 | 0.5 | 1.875 | 3.50 | 11 | 12.5 | 0.25 | 5/8-11 | 8 | 17.5 | 3 | 14.2 | 15 | 13.2 | 33.6 | 3.35 | 4.53 | 4.53 | 18.8 | 19.9 | 2.5 |
| SIE 365TCL | 9 | 14 | 11.25 | 12.25 | 1.49 | 0.66 | 5.88 | 4.92 | 5.88 | 2.021 | 0.625 | 2.375 | 5.63 | 11 | 12.5 | 0.25 | 5/8-11 | 8 | 17.5 | 3 | 14.2 | 15 | 13.2 | 35.7 | 3.35 | 4.53 | 4.53 | 18.8 | 19.9 | 2.5 |
| SIE 404TCL | 10 | 16 | 12.25 | 13.75 | 1.57 | 0.81 | 6.62 | 6.30 | 7.25 | 2.450 | 0.75 | 2.875 | 7.00 | 11 | 12.5 | 0.25 | 5/8-11 | 8 | 18.9 | 3 | 15.5 | 17.6 | 13.2 | 40.4 | 3.55 | 5.32 | 5.32 | 20.8 | 21.3 | 2.95 |
| SIE 405TSCL2 | 10 | 16 | 12.25 | 13.75 | 1.57 | 0.81 | 6.62 | 3.50 | 4.25 | 1.845 | 0.5 | 2.125 | 4.00 | 11 | 12.5 | 0.25 | 5/8-11 | 8 | 18.9 | 3 | 15.5 | 17.6 | 13.2 | 37.4 | 3.55 | 5.32 | 5.32 | 20.8 | 21.3 | 2.95 |
| SIE 405TCL | 10 | 16 | 12.25 | 13.75 | 1.57 | 0.81 | 6.62 | 6.30 | 7.25 | 2.450 | 0.75 | 2.875 | 7.00 | 11 | 12.5 | 0.25 | 5/8-11 | 8 | 18.9 | 3 | 15.5 | 17.6 | 13.2 | 40.4 | 3.55 | 5.32 | 5.32 | 20.8 | 21.3 | 2.95 |
| SIE 444TSCL2 | 11 | 18 | 14.50 | 16.50 | 1.57 | 0.81 | 7.5 | 4.30 | 4.75 | 2.021 | 0.625 | 2.375 | 4.50 | 14 | 16 | 0.25 | 5/8-11 | 8 | 21.7 | 2x3 | 17.6 | 20.5 | 16.6 | 42.0 | 4.15 | 5.12 | 6.5 | 23.4 | 24.4 | 3.75 |
| SIE 444TCL | 11 | 18 | 14.50 | 16.50 | 1.57 | 0.81 | 7.5 | 7.90 | 8.50 | 2.880 | 0.875 | 3.375 | 8.25 | 14 | 16 | 0.25 | 5/8-11 | 8 | 21.7 | 2x3 | 17.6 | 20.5 | 16.6 | 45.7 | 4.15 | 5.12 | 6.5 | 23.4 | 24.4 | 3.75 |
| SIE 445TSCL2 | 11 | 18 | 14.50 | 16.50 | 1.57 | 0.81 | 7.5 | 4.30 | 4.75 | 2.021 | 0.625 | 2.375 | 4.50 | 14 | 16 | 0.25 | 5/8-11 | 8 | 21.7 | 2x3 | 17.6 | 20.5 | 16.6 | 42.0 | 4.15 | 5.12 | 6.5 | 23.4 | 24.4 | 3.75 |
| SIE 445TCL | 11 | 18 | 14.50 | 16.50 | 1.57 | 0.81 | 7.5 | 7.90 | 8.50 | 2.880 | 0.875 | 3.375 | 8.25 | 14 | 16 | 0.25 | 5/8-11 | 8 | 21.7 | 2x3 | 17.6 | 20.5 | 16.6 | 45.7 | 4.15 | 5.12 | 6.5 | 23.4 | 24.4 | 3.75 |
| SIE 447TSCL2 | 11 | 18 | 20.00 | - | 1.654 | 0.81 | 7.5 | 4.30 | 4.75 | 2.021 | 0.625 | 2.375 | 4.50 | 14 | 16 | 0.25 | 5/8-11 | 8 | 22.1 | 2x3 | 19.5 | 24 | 16.6 | 46.3 | 4.18 | 6.8 | 6.8 | 23.4 | 24.4 | 3.75 |
| SIE 447TCL4A | 11 | 18 | 20.00 | - | 1.654 | 0.81 | 7.5 | 7.90 | 8.50 | 2.880 | 0.875 | 3.375 | 8.25 | 14 | 16 | 0.25 | 5/8-11 | 8 | 22.1 | 2x3 | 19.5 | 24 | 16.6 | 50.0 | 4.18 | 6.8 | 6.8 | 23.4 | 24.4 | 3.75 |
| SIE 447TCL4B | 11 | 18 | 20.00 | - | 1.654 | 0.81 | 7.5 | 7.90 | 8.50 | 2.880 | 0.875 | 3.375 | 8.25 | 14 | 16 | 0.25 | 5/8-11 | 8 | 22.1 | 2x3 | 19.5 | 24 | 16.6 | 53.5 | 4.18 | 6.8 | 6.8 | 23.4 | 24.4 | 3.75 |

Overall and Mounting Dimensions

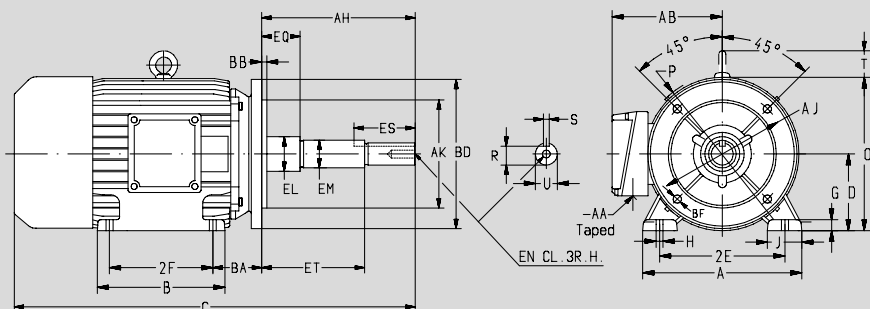
D-Flange with Rigid Base



| Motor Type | Mounting Dimensions (inches) | | | | | | | | | | | | | | | | Overall Dimensions (inches) | | | | | | | | | | | | | |
|--------------|------------------------------|------|-------|-------|-------|------|------|------|----------|-------|-------|-------|------|----|----|------|-----------------------------|---|------|-----|------|------|------|------|------|------|------|------|------|------|
| | Shaft End | | | | | | | | D-Flange | | | | | | | | | | | | | | | | | | | | | |
| | D | 2E | 2F1 | 2F2 | G | H | BA | ES | N-W | R | S | U | AH | AJ | AK | BB | BF size No. | A | AA | AB | B | BD | C | J | K1 | K2 | O | P | T | |
| SIE 324TSDL2 | 8 | 12.5 | 10.5 | 12 | 1.38 | 0.66 | 5.25 | 2.75 | 3.75 | 1.591 | 0.5 | 1.875 | 3.75 | 16 | 14 | 0.25 | 0.83 | 4 | 15.8 | 2 | 13 | 15 | 15.8 | 31.6 | 3.15 | 4.45 | 4.45 | 16.9 | 17.9 | 2.50 |
| SIE 324TDL | 8 | 12.5 | 10.5 | 12 | 1.38 | 0.66 | 5.25 | 4.33 | 5.25 | 1.845 | 0.5 | 2.125 | 5.25 | 16 | 14 | 0.25 | 0.83 | 4 | 15.8 | 2 | 13 | 15 | 15.8 | 33.1 | 3.15 | 4.45 | 4.45 | 16.9 | 17.9 | 2.50 |
| SIE 326TSDL2 | 8 | 12.5 | 10.5 | 12 | 1.38 | 0.66 | 5.25 | 2.75 | 3.75 | 1.591 | 0.5 | 1.875 | 3.75 | 16 | 14 | 0.25 | 0.83 | 4 | 15.8 | 2 | 13 | 15 | 15.8 | 31.6 | 3.15 | 4.45 | 4.45 | 16.9 | 17.9 | 2.50 |
| SIE 326TDL | 8 | 12.5 | 10.5 | 12 | 1.38 | 0.66 | 5.25 | 4.33 | 5.25 | 1.845 | 0.5 | 2.125 | 5.25 | 16 | 14 | 0.25 | 0.83 | 4 | 15.8 | 2 | 13 | 15 | 15.8 | 33.1 | 3.15 | 4.45 | 4.45 | 16.9 | 17.9 | 2.50 |
| SIE 364TSDL2 | 9 | 14 | 11.25 | 12.25 | 1.49 | 0.66 | 5.88 | 2.75 | 3.75 | 1.591 | 0.5 | 1.875 | 3.75 | 16 | 14 | 0.25 | 0.83 | 4 | 17.5 | 3 | 14.2 | 15 | 17.8 | 33.6 | 3.35 | 4.53 | 4.53 | 18.8 | 19.9 | 2.50 |
| SIE 364TDL | 9 | 14 | 11.25 | 12.25 | 1.49 | 0.66 | 5.88 | 4.92 | 5.88 | 2.021 | 0.625 | 2.375 | 5.88 | 16 | 14 | 0.25 | 0.83 | 4 | 17.5 | 3 | 14.2 | 15 | 17.8 | 35.7 | 3.35 | 4.53 | 4.53 | 18.8 | 19.9 | 2.50 |
| SIE 365TSDL2 | 9 | 14 | 11.25 | 12.25 | 1.49 | 0.66 | 5.88 | 2.75 | 3.75 | 1.591 | 0.5 | 1.875 | 3.75 | 16 | 14 | 0.25 | 0.83 | 4 | 17.5 | 3 | 14.2 | 15 | 17.8 | 33.6 | 3.35 | 4.53 | 4.53 | 18.8 | 19.9 | 2.50 |
| SIE 365TDL | 9 | 14 | 11.25 | 12.25 | 1.49 | 0.66 | 5.88 | 4.92 | 5.88 | 2.021 | 0.625 | 2.375 | 5.88 | 16 | 14 | 0.25 | 0.83 | 4 | 17.5 | 3 | 14.2 | 15 | 17.8 | 35.7 | 3.35 | 4.53 | 4.53 | 18.8 | 19.9 | 2.50 |
| SIE 404TDL | 10 | 16 | 12.25 | 13.75 | 1.57 | 0.81 | 6.62 | 6.30 | 7.25 | 2.45 | 0.75 | 2.875 | 7.25 | 20 | 18 | 0.25 | 0.83 | 8 | 18.9 | 3 | 15.5 | 17.6 | 21.7 | 40.4 | 3.55 | 5.32 | 5.32 | 20.8 | 21.3 | 2.95 |
| SIE 405TSDL2 | 10 | 16 | 12.25 | 13.75 | 1.57 | 0.81 | 6.62 | 3.50 | 4.25 | 1.845 | 0.5 | 2.125 | 4.25 | 20 | 18 | 0.25 | 0.83 | 8 | 18.9 | 3 | 15.5 | 17.6 | 21.7 | 37.4 | 3.55 | 5.32 | 5.32 | 20.8 | 21.3 | 2.95 |
| SIE 405TDL | 10 | 16 | 12.25 | 13.75 | 1.57 | 0.81 | 6.62 | 6.30 | 7.25 | 2.45 | 0.75 | 2.875 | 7.25 | 20 | 18 | 0.25 | 0.83 | 8 | 18.9 | 3 | 15.5 | 17.6 | 21.7 | 40.4 | 3.55 | 5.32 | 5.32 | 20.8 | 21.3 | 2.95 |
| SIE 444TSDL2 | 11 | 18 | 14.5 | 16.5 | 1.57 | 0.81 | 7.50 | 4.30 | 4.75 | 2.021 | 0.625 | 2.375 | 4.75 | 20 | 18 | 0.25 | 0.83 | 8 | 21.7 | 2x3 | 17.6 | 20.5 | 21.7 | 42 | 4.15 | 5.12 | 6.5 | 23.4 | 24.4 | 3.75 |
| SIE 444TDL | 11 | 18 | 14.5 | 16.5 | 1.57 | 0.81 | 7.50 | 7.90 | 8.50 | 2.88 | 0.875 | 3.375 | 8.50 | 20 | 18 | 0.25 | 0.83 | 8 | 21.7 | 2x3 | 17.6 | 20.5 | 21.7 | 45.7 | 4.15 | 5.12 | 6.5 | 23.4 | 24.4 | 3.75 |
| SIE 445TSDL2 | 11 | 18 | 14.5 | 16.5 | 1.57 | 0.81 | 7.50 | 4.30 | 4.75 | 2.021 | 0.625 | 2.375 | 4.75 | 20 | 18 | 0.25 | 0.83 | 8 | 21.7 | 2x3 | 17.6 | 20.5 | 21.7 | 42 | 4.15 | 5.12 | 6.5 | 23.4 | 24.4 | 3.75 |
| SIE 445TDL | 11 | 18 | 14.5 | 16.5 | 1.57 | 0.81 | 7.50 | 7.90 | 8.50 | 2.88 | 0.875 | 3.375 | 8.50 | 20 | 18 | 0.25 | 0.83 | 8 | 21.7 | 2x3 | 17.6 | 20.5 | 21.7 | 45.7 | 4.15 | 5.12 | 6.5 | 23.4 | 24.4 | 3.75 |
| SIE 447TSDL2 | 11 | 18 | 20 | - | 1.654 | 0.81 | 7.50 | 4.30 | 4.75 | 2.021 | 0.625 | 2.375 | 4.75 | 20 | 18 | 0.25 | 0.83 | 8 | 22.1 | 2x3 | 19.5 | 24 | 21.7 | 46.3 | 4.18 | 6.8 | 6.8 | 23.4 | 24.4 | 3.75 |
| SIE 447TDL4A | 11 | 18 | 20 | - | 1.654 | 0.81 | 7.50 | 7.90 | 8.50 | 2.88 | 0.875 | 3.375 | 8.50 | 20 | 18 | 0.25 | 0.83 | 8 | 22.1 | 2x3 | 19.5 | 24 | 21.7 | 50 | 4.18 | 6.8 | 6.8 | 23.4 | 24.4 | 3.75 |
| SIE 447TDL4B | 11 | 18 | 20 | - | 1.654 | 0.81 | 7.50 | 7.90 | 8.50 | 2.88 | 0.875 | 3.375 | 8.50 | 20 | 18 | 0.25 | 0.83 | 8 | 22.1 | 2x3 | 19.5 | 24 | 21.7 | 53.5 | 4.18 | 6.8 | 6.8 | 23.4 | 24.4 | 3.75 |

Overall and Mounting Dimensions

JM/JP Pump Motors

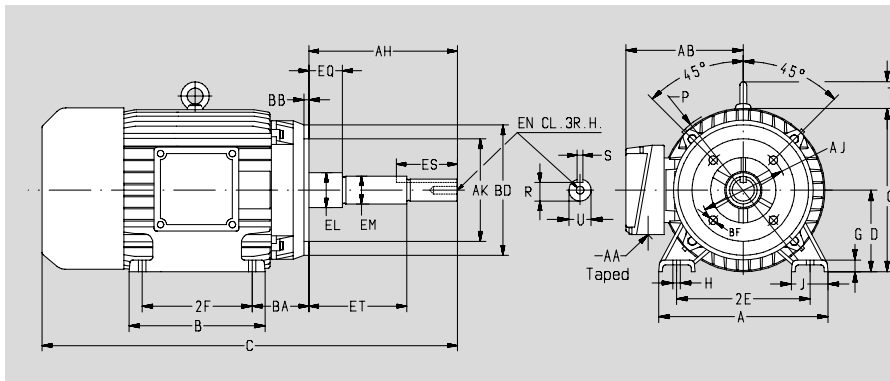


| Frame | U | AH | AJ | AK | BB | BD Max | BF | | | EL | EM | EN | | EQ | Keyseat | | | ET | |
|--------|--------|-------|-------|-------|-------|--------|--------|----------|----------------------------|-------|--------|----------|---------------------|------|----------------------------|-------|--------|-------|-------|
| | | | | | | | Number | Tap size | Bolt Penetration Allowance | | | Tap size | Tap Drill Depth Max | | Bolt Penetration Allowance | R | ES Min | | S |
| 143 JP | 0.8745 | 7.343 | 5.875 | 4.500 | 0.156 | 6.50 | 4 | 3/8-16 | 0.56 | 1.156 | 1.0000 | 3/8-16 | 1.12 | 0.85 | 1.578 | 0.771 | 1.65 | 0.190 | 5.952 |
| | 0.8740 | 7.281 | | 4.497 | 0.125 | | | | | 1.154 | 0.9995 | | | | 1.548 | 0.756 | 0.188 | 5.922 | |
| 145 JP | 0.8745 | 7.343 | 5.875 | 4.500 | 0.156 | 6.50 | 4 | 3/8-16 | 0.56 | 1.156 | 1.0000 | 3/8-16 | 1.12 | 0.85 | 1.578 | 0.771 | 1.65 | 0.190 | 5.952 |
| | 0.8740 | 7.281 | | 4.497 | 0.125 | | | | | 1.154 | 0.9995 | | | | 1.548 | 0.756 | 0.188 | 5.922 | |
| 182 JP | 0.8745 | 7.343 | 5.875 | 4.500 | 0.156 | 6.50 | 4 | 3/8-16 | 0.56 | 1.250 | 1.0000 | 3/8-16 | 1.12 | 0.85 | 1.578 | 0.771 | 1.65 | 0.190 | 5.952 |
| | 0.8740 | 7.281 | | 4.497 | 0.125 | | | | | 1.248 | 0.9995 | | | | 1.548 | 0.756 | 0.188 | 5.922 | |
| 184 JP | 0.8745 | 7.343 | 5.875 | 4.500 | 0.156 | 6.50 | 4 | 3/8-16 | 0.56 | 1.250 | 1.0000 | 3/8-16 | 1.12 | 0.85 | 1.578 | 0.771 | 1.65 | 0.190 | 5.952 |
| | 0.8740 | 7.281 | | 4.497 | 0.125 | | | | | 1.248 | 0.9995 | | | | 1.548 | 0.756 | 0.188 | 5.922 | |
| 143 JM | 0.8745 | 4.281 | 5.875 | 4.500 | 0.156 | 6.50 | 4 | 3/8-16 | 0.56 | 1.156 | 1.0000 | 3/8-16 | 1.12 | 0.85 | 0.640 | 0.771 | 1.65 | 0.190 | 2.890 |
| | 0.8740 | 4.219 | | 4.497 | 0.125 | | | | | 1.154 | 0.9995 | | | | 0.610 | 0.756 | 0.188 | 2.860 | |
| 145 JM | 0.8745 | 4.281 | 5.875 | 4.500 | 0.156 | 6.50 | 4 | 3/8-16 | 0.56 | 1.156 | 1.0000 | 3/8-16 | 1.12 | 0.85 | 0.640 | 0.771 | 1.65 | 0.190 | 2.890 |
| | 0.8740 | 4.219 | | 4.497 | 0.125 | | | | | 1.154 | 0.9995 | | | | 0.610 | 0.756 | 0.188 | 2.860 | |
| 182 JM | 0.8745 | 4.281 | 5.875 | 4.500 | 0.156 | 6.50 | 4 | 3/8-16 | 0.56 | 1.250 | 1.0000 | 3/8-16 | 1.12 | 0.85 | 0.640 | 0.771 | 1.65 | 0.190 | 2.890 |
| | 0.8740 | 4.219 | | 4.497 | 0.125 | | | | | 1.248 | 0.9995 | | | | 0.610 | 0.756 | 0.188 | 2.860 | |
| 184 JM | 0.8745 | 4.281 | 5.875 | 4.500 | 0.156 | 6.50 | 4 | 3/8-16 | 0.56 | 1.250 | 1.0000 | 3/8-16 | 1.12 | 0.85 | 0.640 | 0.771 | 1.65 | 0.190 | 2.890 |
| | 0.8740 | 4.219 | | 4.497 | 0.125 | | | | | 1.248 | 0.9995 | | | | 0.610 | 0.756 | 0.188 | 2.860 | |

| Frame | D | 2E | 2F | G | H | BA | A | AA | AB | B | C | J | O | P | T |
|--------|------|------|------|------|------|------|------|-----|------|------|--------|------|------|------|------|
| 143 JP | 3,50 | 5,50 | 4,00 | 0,39 | 0,34 | 2,36 | 6,62 | 3/4 | 6,50 | 5,83 | 18,183 | 1,66 | 7,48 | 8,27 | - |
| 145 JP | 3,50 | 5,50 | 5,00 | 0,39 | 0,34 | 2,36 | 6,62 | 3/4 | 6,50 | 7,00 | 19,373 | 1,66 | 7,48 | 8,27 | - |
| 182 JP | 4,50 | 7,50 | 4,50 | 0,60 | 0,41 | 2,78 | 9,00 | 1 | 7,90 | 8,31 | 21,353 | 2,13 | 9,09 | 9,53 | 1,77 |
| 184 JP | 4,50 | 7,50 | 5,50 | 0,60 | 0,41 | 2,78 | 9,00 | 1 | 7,90 | 8,31 | 21,353 | 2,13 | 9,09 | 9,53 | 1,77 |
| 143 JM | 3,50 | 5,50 | 4,00 | 0,39 | 0,34 | 2,36 | 6,62 | 3/4 | 6,50 | 5,83 | 15,125 | 1,66 | 7,48 | 8,27 | - |
| 145 JM | 3,50 | 5,50 | 5,00 | 0,39 | 0,34 | 2,36 | 6,62 | 3/4 | 6,50 | 7,00 | 16,315 | 1,66 | 7,48 | 8,27 | - |
| 182 JM | 4,50 | 7,50 | 4,50 | 0,60 | 0,41 | 2,78 | 9,00 | 1 | 7,90 | 8,31 | 18,291 | 2,13 | 9,09 | 9,53 | 1,77 |
| 184 JM | 4,50 | 7,50 | 5,50 | 0,60 | 0,41 | 2,78 | 9,00 | 1 | 7,90 | 8,31 | 18,291 | 2,13 | 9,09 | 9,53 | 1,77 |

Overall and Mounting Dimensions

JM/JP Pump Motors

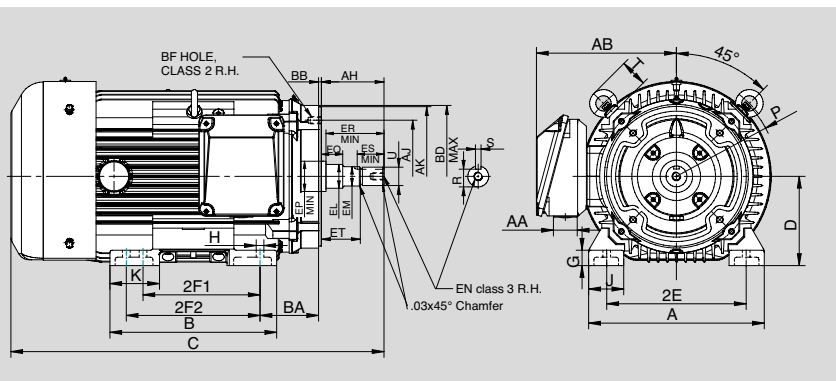


| Frame | U | AH | AJ | AK | BB | BD Max | BF | | | EN | | | Keyseat | | | | | | |
|--------|--------|--------|-------|--------|--------|--------|--------|----------|----------------------------|-------|--------|----------|---------------------|----------------------------|--------|-------|--------|-------|-------|
| | | | | | | | Number | Tap size | Bolt Penetration Allowance | EL | EM | Tap size | Tap Drill Depth Max | Bolt Penetration Allowance | EQ | R | ES Min | S | ET |
| 213 JP | 1.2495 | 8.156 | 7.250 | 8.500 | 0.312 | 9.00 | 4 | 3/8-16 | 0.85 | 1.750 | 1.3750 | 3/8-16 | 1.12 | 0.85 | 2.390 | 1.112 | 1.65 | 0.252 | 5.890 |
| | | 8.094 | | 8.497 | 0.250 | | | | | 1.748 | 1.3745 | | | | 2.360 | 1.097 | | 0.250 | 5.860 |
| 215 JP | 1.2495 | 8.156 | 7.250 | 8.500 | 0.312 | 9.00 | 4 | 3/8-16 | 0.85 | 1.750 | 1.3750 | 3/8-16 | 1.12 | 0.85 | 2.390 | 1.112 | 1.65 | 0.252 | 5.890 |
| | | 8.094 | | 8.497 | 0.250 | | | | | 1.748 | 1.3745 | | | | 2.360 | 1.097 | | 0.250 | 5.860 |
| 254 JP | 1.2495 | 8.156 | 7.250 | 8.500 | 0.312 | 10.00 | 4 | 1/2-13 | 1.00 | 1.750 | 1.3750 | 1/2-13 | 1.50 | 1.00 | 2.390 | 1.112 | 2.53 | 0.252 | 5.890 |
| | | 8.094 | | 8.497 | 0.250 | | | | | 1.748 | 1.3745 | | | | 2.360 | 1.097 | | 0.250 | 5.860 |
| 256 JP | 1.2495 | 8.156 | 7.250 | 8.500 | 0.312 | 10.00 | 4 | 1/2-13 | 1.00 | 1.750 | 1.3750 | 1/2-13 | 1.50 | 1.00 | 2.390 | 1.112 | 2.53 | 0.252 | 5.890 |
| | | 8.094 | | 8.497 | 0.250 | | | | | 1.748 | 1.3745 | | | | 2.360 | 1.097 | | 0.250 | 5.860 |
| 284 JP | 1.2495 | 8.156 | 11.00 | 12.500 | 0.312 | 14.00 | 4 | 1/2-13 | 1.00 | 1.750 | 1.3750 | 1/2-13 | 1.50 | 1.00 | 2.390 | 1.112 | 2.53 | 0.252 | 5.890 |
| | | 8.094 | | 12.495 | 0.250 | | | | | 1.748 | 1.3745 | | | | 2.360 | 1.097 | | 0.250 | 5.860 |
| 286 JP | 1.2495 | 8.156 | 11.00 | 12.500 | 0.312 | 14.00 | 4 | 1/2-13 | 1.00 | 1.750 | 1.3750 | 1/2-13 | 1.50 | 1.00 | 2.390 | 1.112 | 2.53 | 0.252 | 5.890 |
| | | 8.094 | | 12.495 | 0.250 | | | | | 1.748 | 1.3745 | | | | 2.360 | 1.097 | | 0.250 | 5.860 |
| 213 JM | 0.8745 | 4.281 | 7.250 | 8.500 | 0.312 | 9.00 | 4 | 1/2-13 | 0.85 | 1.250 | 1.0000 | 3/8-16 | 1.12 | 0.85 | 0.640 | 0.771 | 1.65 | 0.190 | 2.890 |
| | | 0.8740 | | 4.219 | 8.497 | | | | | 0.250 | 1.248 | | | | 0.9995 | 0.610 | | 0.756 | 0.188 |
| 215 JM | 0.8745 | 4.281 | 7.250 | 8.500 | 0.312 | 9.00 | 4 | 1/2-13 | 0.85 | 1.250 | 1.0000 | 3/8-16 | 1.12 | 0.85 | 0.640 | 0.771 | 1.65 | 0.190 | 2.890 |
| | | 0.8740 | | 4.219 | 8.497 | | | | | 0.250 | 1.248 | | | | 0.9995 | 0.610 | | 0.756 | 0.188 |
| 254 JM | 1.2495 | 5.281 | 7.250 | 8.500 | 0.312 | 10.00 | 4 | 1/2-13 | 1.00 | 1.750 | 1.3750 | 1/2-13 | 1.50 | 1.00 | 0.640 | 1.112 | 2.53 | 0.252 | 3.015 |
| | | 1.2490 | | 5.219 | 8.497 | | | | | 0.250 | 1.748 | | | | 1.3745 | 0.610 | | 1.097 | 0.250 |
| 256 JM | 1.2495 | 5.281 | 7.250 | 8.500 | 0.312 | 10.00 | 4 | 1/2-13 | 1.00 | 1.750 | 1.3750 | 1/2-13 | 1.50 | 1.00 | 0.640 | 1.112 | 2.53 | 0.252 | 3.015 |
| | | 1.2490 | | 5.219 | 8.497 | | | | | 0.250 | 1.748 | | | | 1.3745 | 0.610 | | 1.097 | 0.250 |
| 284 JM | 1.2495 | 5.281 | 11.00 | 12.500 | 0.312 | 14.00 | 4 | 5/8-11 | 1.00 | 1.750 | 1.3750 | 1/2-13 | 1.50 | 1.00 | 0.645 | 1.112 | 2.53 | 0.252 | 3.020 |
| | | 1.2490 | | 5.219 | 12.495 | | | | | 0.250 | 1.748 | | | | 1.3745 | 0.605 | | 1.097 | 0.250 |
| 286 JM | 1.2495 | 5.281 | 11.00 | 12.500 | 0.312 | 14.00 | 4 | 5/8-11 | 1.00 | 1.750 | 1.3750 | 1/2-13 | 1.50 | 1.00 | 0.645 | 1.112 | 2.53 | 0.252 | 3.020 |
| | | 1.2490 | | 5.219 | 12.495 | | | | | 0.250 | 1.748 | | | | 1.3745 | 0.605 | | 1.097 | 0.250 |

| Frame | D | 2E | 2F | G | H | BA | A | AA | AB | B | C | J | O | P | T |
|--------|------|-------|-------|------|------|------|-------|-------|-------|-------|--------|------|-------|-------|------|
| 213 JP | 5,25 | 8,50 | 5,50 | 0,72 | 0,41 | 3,80 | 10,24 | 1 | 8,45 | 9,00 | 25,686 | 2,20 | 10,55 | 10,94 | 1,77 |
| 215 JP | 5,25 | 8,50 | 7,00 | 0,72 | 0,41 | 3,80 | 10,24 | 1 | 8,45 | 9,60 | 25,686 | 2,20 | 10,55 | 10,94 | 1,77 |
| 254 JP | 6,25 | 10,00 | 8,25 | 0,58 | 0,55 | 4,50 | 12,28 | 1 1/4 | 10,08 | 9,92 | 28,447 | 2,36 | 13,18 | 14,17 | 2,08 |
| 256 JP | 6,25 | 10,00 | 10,00 | 0,58 | 0,55 | 4,50 | 12,28 | 1 1/4 | 10,08 | 11,65 | 30,176 | 2,36 | 13,18 | 14,17 | 2,08 |
| 284 JP | 7,00 | 11,00 | 9,50 | 0,89 | 0,55 | 4,95 | 13,78 | 1 1/2 | 10,34 | 13,11 | 32,326 | 2,75 | 14,01 | 14,17 | 2,08 |
| 286 JP | 7,00 | 11,00 | 11,00 | 0,89 | 0,55 | 4,95 | 13,78 | 1 1/2 | 10,34 | 13,11 | 32,326 | 2,75 | 14,01 | 14,17 | 2,08 |
| 213 JM | 5,25 | 8,50 | 5,50 | 0,72 | 0,41 | 3,80 | 10,24 | 1 | 8,45 | 9,60 | 21,811 | 2,20 | 10,55 | 10,94 | 1,77 |
| 215 JM | 5,25 | 8,50 | 7,00 | 0,72 | 0,41 | 3,80 | 10,24 | 1 | 8,45 | 9,60 | 21,811 | 2,20 | 10,55 | 10,94 | 1,77 |
| 254 JM | 6,25 | 10,00 | 8,25 | 0,58 | 0,55 | 4,50 | 12,28 | 1 1/4 | 10,08 | 9,92 | 25,571 | 2,36 | 13,18 | 14,17 | 2,08 |
| 256 JM | 6,25 | 10,00 | 10,00 | 0,58 | 0,55 | 4,50 | 12,28 | 1 1/4 | 10,08 | 11,65 | 27,301 | 2,36 | 13,18 | 14,17 | 2,08 |
| 284 JM | 7,00 | 11,00 | 9,50 | 0,89 | 0,55 | 4,95 | 13,78 | 1 1/2 | 10,34 | 13,11 | 28,071 | 2,75 | 14,01 | 14,17 | 2,08 |
| 286 JM | 7,00 | 11,00 | 11,00 | 0,89 | 0,55 | 4,95 | 13,78 | 1 1/2 | 10,34 | 13,11 | 28,071 | 2,75 | 14,01 | 14,17 | 2,08 |

Overall and Mounting Dimensions

JM/JP Pump Motors

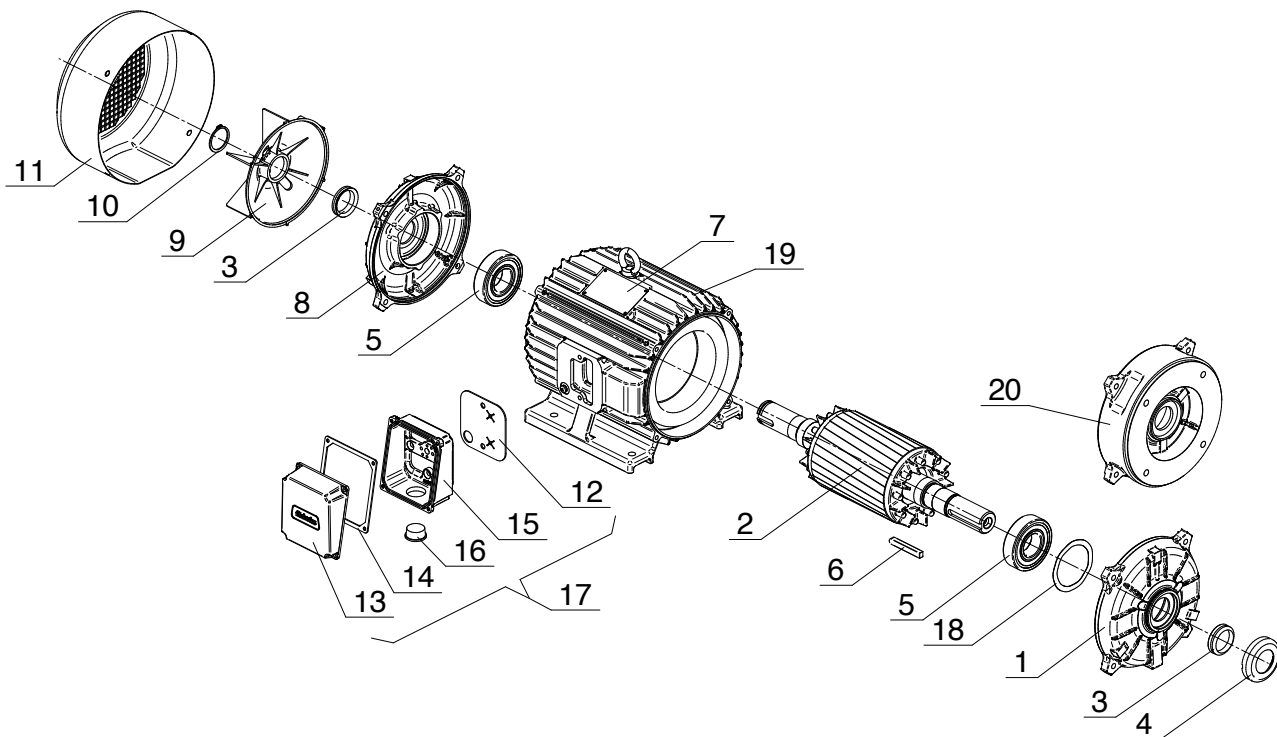


| Frame | U | AH | AJ | AK | BB | BD Max | BF | | | EN | | | | Keyseat | | | ET | | | | |
|--------|--------|-------|------|--------|-------|--------|--------|----------|----------------------------|-------|--------|----------|---------------------|----------------------------|--------|-------|-------|-------------|------|-------------|-------|
| | | | | | | | Number | Tap size | Bolt Penetration Allowance | EL | EM | Tap size | Tap Drill Depth Max | Bolt Penetration Allowance | EP Min | EQ | | ER Min | R | ES Min | S |
| 324 JP | 1.2495 | 8.156 | 11.0 | 12.500 | 0.312 | 14.0 | 4 | 5/8-11 | 0.94 | 1.750 | 1.3750 | 1/2-13 | 1.50 | 1.00 | 2.125 | 2.395 | 8.125 | 1.112-1.097 | 2.53 | 0.252-0.250 | 5.895 |
| | 1.2490 | 8.094 | | 12.495 | 0.250 | | | | | 1.748 | 1.3745 | | | | | 2.355 | | | | 5.855 | |
| 326 JP | 1.2495 | 8.156 | 11.0 | 12.500 | 0.312 | 14.0 | 4 | 5/8-11 | 0.94 | 1.750 | 1.3750 | 1/2-13 | 1.50 | 1.00 | 2.125 | 2.395 | 8.125 | 1.112-1.097 | 2.53 | 0.252-0.250 | 5.895 |
| | 1.2490 | 8.094 | | 12.495 | 0.250 | | | | | 1.748 | 1.3745 | | | | | 2.355 | | | | 5.855 | |
| 364 JP | 1.6245 | 8.156 | 11.0 | 12.500 | 0.312 | 14.0 | 4 | 5/8-11 | 0.94 | 2.125 | 1.7500 | 1/2-13 | 1.50 | 1.00 | 2.500 | 2.395 | 8.125 | 1.416-1.401 | 2.53 | 0.377-0.375 | 5.895 |
| | 1.6240 | 8.094 | | 12.495 | 0.250 | | | | | 2.123 | 1.7495 | | | | | 2.355 | | | | 5.855 | |
| 365 JP | 1.6245 | 8.156 | 11.0 | 12.500 | 0.312 | 14.0 | 4 | 5/8-11 | 0.94 | 2.125 | 1.7500 | 1/2-13 | 1.50 | 1.00 | 2.500 | 2.395 | 8.125 | 1.416-1.401 | 2.53 | 0.377-0.375 | 5.895 |
| | 1.6240 | 8.094 | | 12.495 | 0.250 | | | | | 2.123 | 1.7495 | | | | | 2.355 | | | | 5.855 | |
| 324 JM | 1.2495 | 5.281 | 11.0 | 12.500 | 0.312 | 14.0 | 4 | 5/8-11 | 0.94 | 1.750 | 1.3750 | 1/2-13 | 1.50 | 1.00 | 2.125 | 0.645 | 5.25 | 1.112-1.097 | 2.53 | 0.252-0.250 | 3.020 |
| | 1.2490 | 5.219 | | 12.495 | 0.250 | | | | | 1.748 | 1.3745 | | | | | 0.605 | | | | 2.980 | |
| 326 JM | 1.2495 | 5.281 | 11.0 | 12.500 | 0.312 | 14.0 | 4 | 5/8-11 | 0.94 | 1.750 | 1.3750 | 1/2-13 | 1.50 | 1.00 | 2.125 | 0.645 | 5.25 | 1.112-1.097 | 2.53 | 0.252-0.250 | 3.020 |
| | 1.2490 | 5.219 | | 12.495 | 0.250 | | | | | 1.748 | 1.3745 | | | | | 0.605 | | | | 2.980 | |

| Frame | D | 2E | 2F1 | 2F2 | G | H | BA | A | AA | AB | B | C | J | K | O | P | T |
|--------|---|------|-------|-------|------|------|------|------|----|------|------|-------|------|------|------|------|-----|
| 324 JP | 8 | 12.5 | 10.50 | 12.00 | 1.38 | 0.66 | 5.25 | 15.8 | 2 | 13.0 | 15.0 | 36.26 | 3.15 | 4.45 | 16.9 | 17.9 | 2.5 |
| 326 JP | 8 | 12.5 | 10.50 | 12.00 | 1.38 | 0.66 | 5.25 | 15.8 | 2 | 13.0 | 15.0 | 36.26 | 3.15 | 4.45 | 16.9 | 17.9 | 2.5 |
| 364 JP | 9 | 14.0 | 11.25 | 12.25 | 1.49 | 0.66 | 5.88 | 17.5 | 3 | 14.2 | 15.0 | 38.30 | 3.35 | 4.53 | 18.8 | 19.9 | 2.5 |
| 365 JP | 9 | 14.0 | 11.25 | 12.25 | 1.49 | 0.66 | 5.88 | 17.5 | 3 | 14.2 | 15.0 | 38.30 | 3.35 | 4.53 | 18.8 | 19.9 | 2.5 |
| 324 JM | 8 | 12.5 | 10.50 | 12.00 | 1.38 | 0.66 | 5.25 | 15.8 | 2 | 13.0 | 15.0 | 33.38 | 3.15 | 4.45 | 16.9 | 17.9 | 2.5 |
| 326 JM | 8 | 12.5 | 10.50 | 12.00 | 1.38 | 0.66 | 5.25 | 15.8 | 2 | 13.0 | 15.0 | 33.38 | 3.15 | 4.45 | 16.9 | 17.9 | 2.5 |

List of Motor parts

Frame Size: 143÷286
 Motor series SIE

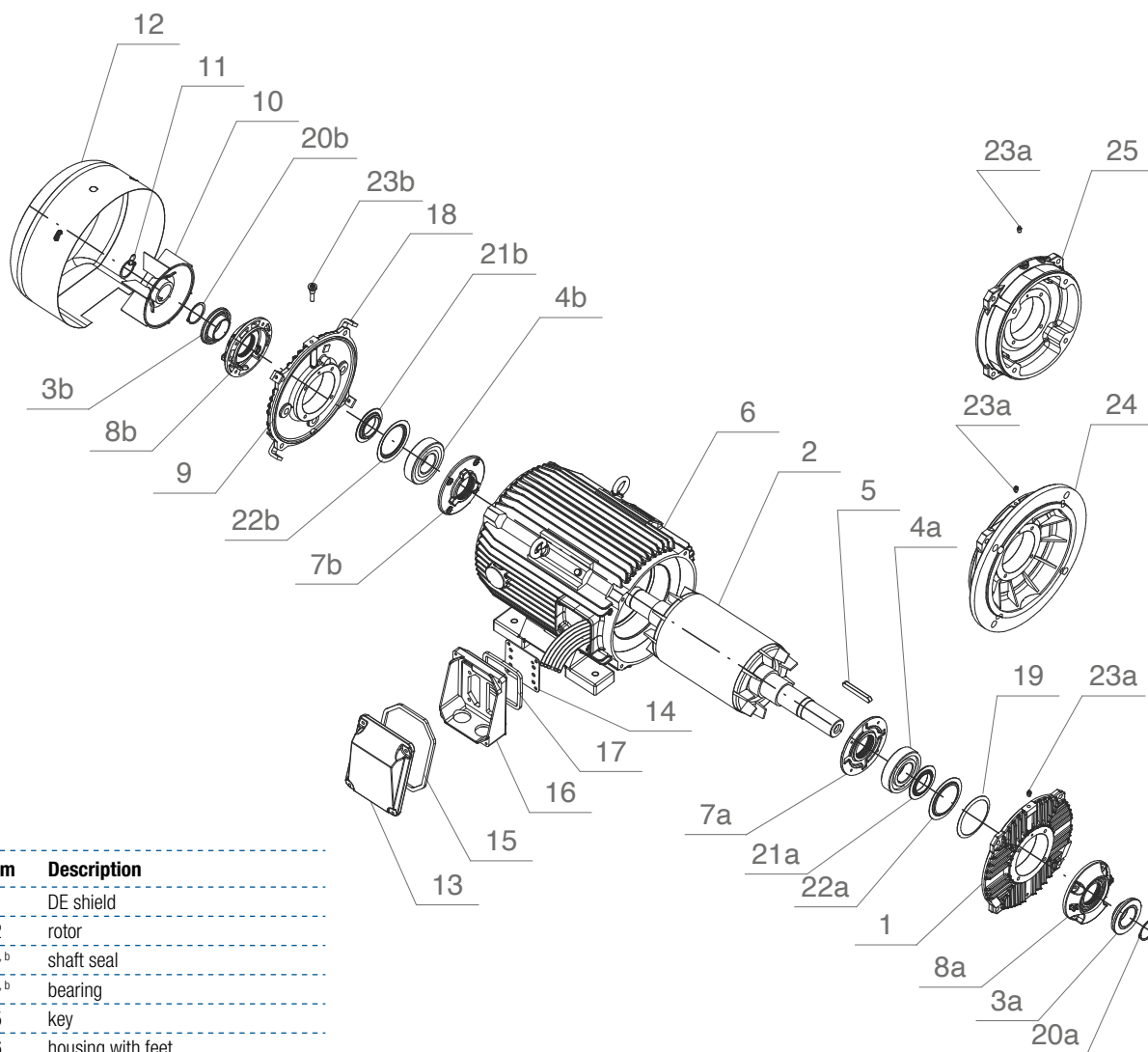


| Item | Description |
|------|-----------------------|
| 1 | DE shield |
| 2 | rotor |
| 3 | shaft seal |
| 4 | shaft seal cover |
| 5 | bearing |
| 6 | key |
| 7 | name plate |
| 8 | NDE shield |
| 9 | fan |
| 10 | seeger ring |
| 11 | fan cover |
| 12 | rubber gasket |
| 13 | terminal box cover |
| 14 | rubber gasket |
| 15 | terminal box |
| 16 | plug |
| 17 | terminal box complete |
| 18 | spring washer |
| 19 | stator |
| 20 | flange C |

DE – drive end
 NDE – non drive end

List of Motor parts

Frame Size: 320÷447
Motor series SIE



| Item | Description |
|-------------------|-----------------------|
| 1 | DE shield |
| 2 | rotor |
| 3 ^{a,b} | shaft seal |
| 4 ^{a,b} | bearing |
| 5 | key |
| 6 | housing with feet |
| 7 ^{a,b} | internal bearing cap |
| 8 ^{a,b} | external bearing cap |
| 9 | NDE shield |
| 10 | fan |
| 11 | seeger ring |
| 12 | fan cover |
| 13 | terminal box cover |
| 14 | rubber gasket |
| 15 | rubber gasket |
| 16 | terminal box housing |
| 17 | rubber gasket |
| 18 | fan cover support |
| 19 | spring washer |
| 20 ^{a,b} | seeger ring |
| 21 ^{a,b} | grease shield |
| 22 ^{a,b} | bearing internal ring |
| 23 ^{a,b} | grease nipple |
| 24 | flange „D” |
| 25 | flange „C” |

DE – drive end
NDE – non drive end

Ordering information

In order to select the proper motor and provide you the most accurate offer as the requirements of customer's applications are various, we ask you to specify below motor details:

Orders for motors should specify

- » motor type designation,
- » rated output,
- » rated speed,
- » operating duty,
- » supply voltage and connection,
- » frequency,
- » mounting arrangements, end shield material,
- » degree of protection,
- » type of driven machine,
- » other details regarding special requests,

and information concerning additional accessories e.g.

- » thermal protection,
- » anticondensation heaters,
- » vibration sensors,
- » etc.

When ordering special purpose motors one should also indicate:

- » required direction of rotation,
- » required degree of interior protection,
- » method of start-up,
- » method of coupling with the driven unit (gears, dimensions of belt pulleys, etc.),
- » type of driven machine (type of load), including the moment of inertia J or flywheel effect GD2 calculated to motor shaft,
- » other customer's specifications.

When ordering spare parts one should specify:

- » full designation of the motor type including its serial number (provided on the nameplate) or catalogue number,
- » degree of protection,
- » mounting arrangement,
- » name of part,
- » number of pieces.

As part of our development program, we reserve the right to alter or amend any of the specifications without giving prior notice.



Dear Customer,

Please complete the Order Form (included in the QR code on the left) and send it to motor@cantonigroup.com. In case you need assistance, do not hesitate to contact us at phone number: 0048 33 813 87 00. It will be our pleasure to help you.

Cantoni Motor Team

Download editable .pdf file from the website.

Cantoni Group - Certifications

Cantoni Group's factory, Celma Indukta was one of the first companies obtaining ISO 9001 certificate in Poland

All Cantoni Group manufacturing plants comply with the most important standards.

ISO 9001 is based on a number of quality management principles including a strong customer focus, the motivation and involvement of top management, the process approach and continuous improvement. Using ISO 9001 helps to ensure that customers get consistent, good quality products and services. Our aim is to produce high quality products certified according to the most important standards. We always focus our work to provide a product that meets the customer requirements, define the approach to continuous improvement and monitor

customer satisfaction. All employees in our Group are fully engaged and motivated to provide the top quality products. We achieve this thanks to skilled technicians, trained workers and customer oriented attitude.

As a demonstration of our aim to meet all high level international standard requirements, we are also certified ISO 14001 and OHSAS 18001 to prove our internal processes and behaviour.

ISO 14001 certification confirms that the organization manages their environmental responsibilities in an effective and internationally accepted way.

In Cantoni Group we know that taking care of the environment means taking care of our present and future.



With **OHSAS 18001** certificate, Cantoni Group confirms the necessity of controlling and improving health and safety aspects within the organization.

Employees are Cantoni Group's main asset, thus, their well-being and safety are our priority.

Our laboratory Celma Indukta is also **ISO 17025** certified by Canadian Standard Association (CSA) for two aspects: safety and energy efficiency verification requirements as independent unit.

The safety part – Supervised Manufacturers Testing Certification (SMTC) confirms that our laboratory is allowed for supervised manufactured safety certification program.

The energy efficiency part confirms that energy verification program for motors operating as SMTC can be performed according to CSA 390 standard at our facilities.

All our prototype motors are tested and approved before series production and samples of our final products are tested periodically to check compliance with all parameters defined. Our production range has also different types of products certifications based on specific technical requirements, like UL-CSA, GOST, EAC, ATEX, IEC Ex, CCC, Bureau Veritas, DNV-GL, etc.

Our technicians are constantly updated, informed and trained about every new regulation in order to provide all possible solutions to meet final customer requirements and also study and engineer ad-hoc products with customers developers.

Top quality electric motors

Cantoni Group's electric motors are manufactured in such a way as to provide a durable product that our customers can rely on:

- motors manufactured using high quality raw materials and components
- long-life bearings
- robust and tough construction
- raw materials only from European qualified suppliers
- production process from the beginning to the end at our facilities
- proven electrical performance

Our motors for many applications

Our motors are produced with the aim to be flexible and adaptable to many different applications. The long tradition and experience of our technical departments, supported by a flexible and strong organization, can assure an engineering of the motor series that meet the most common requirements and the more and more specific requests from the manufacturers of cutting-edge machines.

Our long collaboration with some of the most important players in the global industrial market has built a strong and stable organization that is able to support the customer in the development of the best solutions for its applications.

Cantoni Group continuous investments

The strategy of Cantoni Group is to realize a strong and continuous plan of investments with the aim to constantly increase the range of products, quality level and high productivity. Cantoni Group international market leadership has been created thanks to such open and future oriented attitude. Investments into the new professional machinery, equipment and infrastructure increase the quality control, capacity and save the environment.

The use of world class CNC, automatic and semi-automatic machinery guarantees precision, repeatability and accuracy. Such considerable development plan of Cantoni Group enhances the already wide range of production, maximizes the quality of offered products and has led to a growing number of innovations (new series for specific applications, new design and solutions) and international approvals.



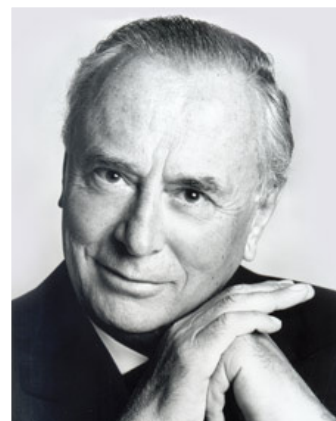
Cantoni Group



Giampiero Cantoni, Founder of Cantoni Group

Since almost a century, the Cantoni Group has been known worldwide as a leader in manufacturing and supplying electric motors, components and tools.

Thanks to the entrepreneurial commitment and great talent, the founder of the Group, **Prof. Giampiero Cantoni**, created diversified Group Enterprise that has gained outstanding success on the Domestic and International markets, placing us among the most important European manufacturers.



Cantoni Motor



Cantoni Motor, the International Sales Office and Headquarters, coordinates the sales and purchasing for the whole Cantoni Group.

The history of Cantoni Motor goes back to 1945 when Elektrim Export Office in Poland was created. Through the next years, many internal changes had occurred, the Office changed its name to Elektrim Motor, to become finally in the year 2000 – Cantoni Motor S.A. – a company with Italian ownership.

Cantoni Motor provides complete customer service, from offer submission until shipment, after-sales and full technical support. Thanks to the flexible organization, our technical and sales team

is able to face all requirements of modern market and realize the most challenging projects.

As the Headquarters, the company not only coordinates the sales and purchasing of key materials for the production of electric motors in the Group, but also is responsible for marketing and promotion actions as well as for certification processes, trademarks and patents.

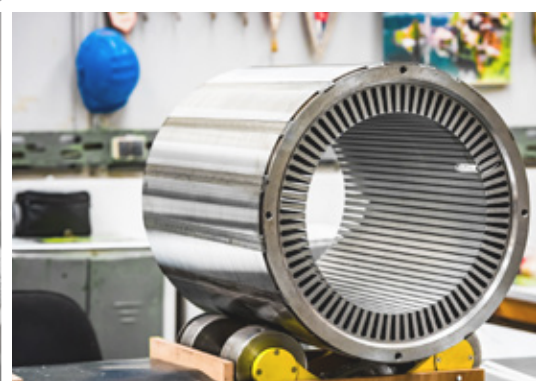
Cantoni Group produces and exports high quality industrial electric motors – from 0,04 kW up to 6000 kW, in standard and special executions. Our motors are tough and reliable and operate in almost all industrial segments from pumps, fans, compressors, conveyors, mining, processing to power plants, etc.



From the project to the application



Driving Your Business





CANTONI MOTOR S.A.
3 MAJA 28
43-400 CIESZYN, POLAND
tel. +48 33 813 87 00
fax +48 33 813 87 01
motor@cantonigroup.com
www.cantonigroup.com

