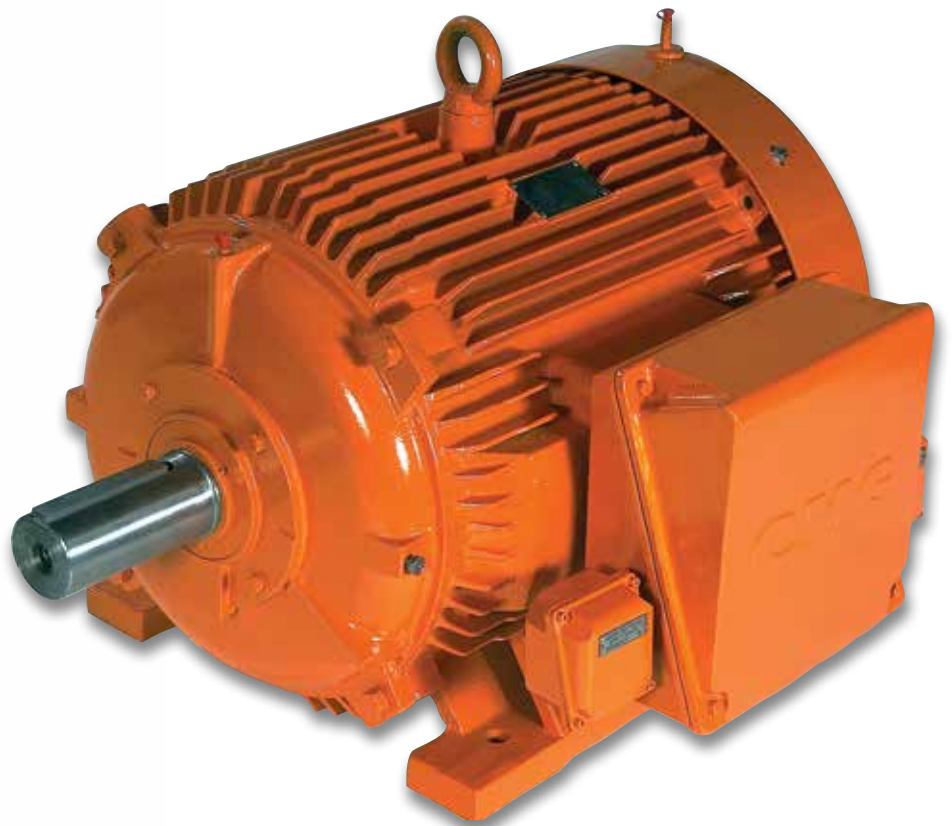


MOTORS

REGAL

**PPA SERIES
HIGH SPECIFICATION CAST IRON
ELECTRIC MOTOR**



CMG

REGAL

www.regalaustralia.com.au



Facts about Regal



Our Heritage

- Established in Wisconsin, USA in 1955. Officially listed on the NY Stock Exchange in 2005.
- Born in 1913, Marathon have gained over 100 years experience in design and manufacture of electric motors and generators.

Marathon has built their legacy on innovation combining magnetics and motors into a single leading technology. Their use of Magnology™ has led to the motor industry's first axial & radial flux motors used in pumping applications.

- Unico has been providing innovative motion control solutions since 1967. With operations in 10 countries, Unico drives incorporate application specific features & functions not found in general purpose drives.

Product Range

Broad product range covering the complete offering from motors, motor control & drives, gearboxes, brakes and couplings through to winding wire, insulation material, cables and varnishes. A one stop shop for complete electro mechanical, power transmission and speed control solutions.



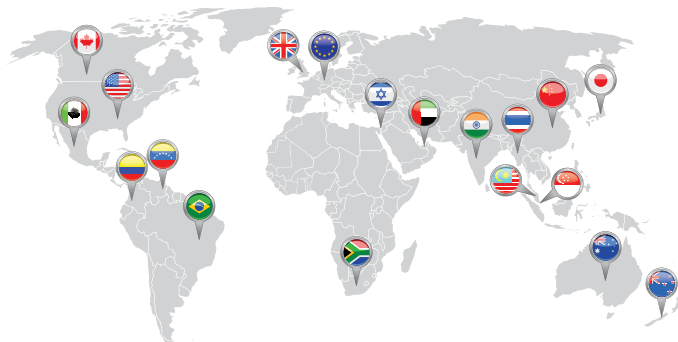
Local Expertise

Our Local Presence

- National company with 8 branches Australia wide
- 5 modifications centres; VIC, NSW, QLD, SA & WA
- Local engineering & R&D support teams
- Providing local expertise, support and product customisation to you and your customers

NATIONAL SALES
☎ 1300 888 853

TECHNICAL SUPPORT
☎ 1800 676 722



Worldwide Presence

The ability to meet our customers' needs around the world.

- 25,000 employees
- 63 manufacturing locations
- 16 design centres
- All accessible to our 'Regal' customers.

Our Regal brands:



PPA & PPC Mining Series Cast Iron motors

H Class, IP66, Sizes 80 to 450



Regal Australia's premium motor range up to 1000kW features all of your engineers' specifications as standard.

- **Meets world market needs and standards**

- Three phase 380V, 400V, 415V, 440V, 525V, 690V, 1000V & 1100V, 50Hz & 60Hz (page 9)
- Australian/British and CENELEC frame allocations

- **H Class insulation, B class (80°C) temperature rise** (page 9)

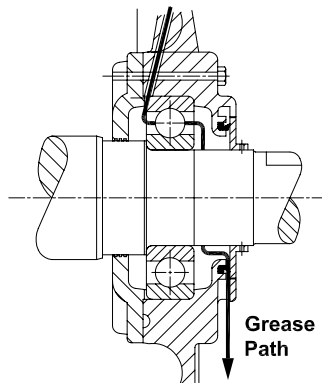
- **Totally enclosed IP66 protection standard** (page 6)

- **20 years design life** (page 4)

- **Maintenance without downtime**

- thru flushing grease relief valve system (page 4)

- **Designed and built for arduous environments and mining specifications**



- **Custom designs from 100 to 1100V, 40 to 60Hz available** (page 9)

- **Sensors and Protection built in**

- Thermistors
- SPM vibration stud
- Anti-condensation heaters
- Additional external earth screw

- **Low noise low vibration design** (page 8)

- **Cast iron fan, steel fan cover, and stainless steel nameplates** (page 5)

- **Standard 2-pack epoxy or customized surface finishes** (page 5)

- **MEPS2 efficiency** (page 4)

- **Oversized and reversible terminal box** (page 6)

- **Full cast iron construction** (page 5)

- **Hazardous locations motors, certified to IEC standards, are also available** (page 24)

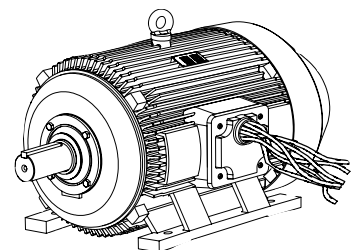
IECEX/ATEX

Exe Zone 1

ExnA Zone 2 (formerly Exn)

ExtD (Ex t)

Note: Features vary according to frame size.



Introduction

This catalogue details Regal Australia's premium range of PPA & PPC series motors. PPA & PPC motors are three phase squirrel cage TEFC (IC411), available in frame sizes 80 to 450, and have been designed and manufactured in accordance with AS/NZS1359 (IEC 60034 & IEC 60072). 'PPA' is commonly used to refer to both PPA and PPC ranges.

High specification design

Electric motors are installed in a wide range of conditions from sub zero temperatures to tropical environments and dusty deserts. The PPA range, with its rugged cast iron enclosure, is designed to suit these harsh conditions and provide both high operational reliability and low operating costs.

20 year design life

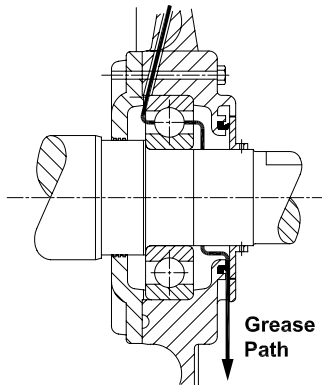
All motors in the PPA range are manufactured with Class H insulation. They are designed to operate with a temperature rise of 80°C or less (Class B), and provide a thermal reserve in excess of 45°C when operating in a 40°C ambient. This ample thermal reserve means the PPA has a winding design life of 20 years.

Ultimate protection

The entire PPA range has an enclosure protection rating of IP66. The windings are tropic protected and oil resistant with the motors being weather protected as standard.

MEPS2 compliance

The PPA range of motors exceed MEPS2 efficiency requirements as per AS/NZS 1359.5:2004 Table B2, that corresponds to the IE2 (high efficiency) of the international standard IEC 60034-30.



Thru-flushing grease relief valve

The pressure grease relief valve, incorporating a V-ring seal, eliminates downtime by enabling relubrication of the bearings without stopping the motor.

A complete selection

PPA series motors can be designed for use on 100 to 1100V systems and for all common world frequencies including 40Hz, 50Hz and 60Hz. The most common power supplies are 380V, 400V, 415V, 440V, 525V, 690V, 1000V and 1100V. Customer specified variations on these standards are readily available.

Standards and specifications

The main dimensions and rated outputs of PPA motors generally conform to IEC 60072 and AS/NZS1359 (Australian/British kW - frame size allocation table). The PPC range has a similar specification to that of the PPA range with the kW / frame allocation being taken from the CENELEC table. (The term 'PPC' is used only where the frame allocation is different from the PPA.)

Regal Australia offer full load testing in their NATA and ILAC accredited laboratory on all motors within the PPA and PPC ranges. Speed-torque / current / efficiency curves are available upon request.

Hazardous location certification

PPA motors are certified to IEC Ex and ATEX for use in hazardous locations as per IEC standards.

| Location | Protection | Ambient temp. |
|----------|--------------------------------|---------------|
| Zone 1 | Exe II T3 | 50°C |
| Zone 2 | ExnA II T3 | 60°C |
| | Ext (Ex tD) A21 T _A | 50°C |

Note: ExtD was formerly known as DIP.

Part number logic

When placing an order the motor product code should be specified. The product code of the motor is composed in accordance with the following example:

| | | | | | | | | | | | | | | | | |
|---|---|---|-----|---|---|---|---|---------|---|-------|---|--------|---|---|---|---|
| M | 3 | 2 | 0 | 0 | 1 | 5 | 0 | 3 | P | P | A | E | / | 4 | 0 | 5 |
| 1 | 2 | 3 | 4-8 | | | | 9 | 10 - 12 | | 13... | | Suffix | | | | |

Position 1

M = metric frame size

Position 2

Phase

3 = three phase single speed motor

Position 3

Number of poles

2 = 2 poles **4** = 4 poles
6 = 6 poles **8** = 8 poles
A = 10 poles **C** = 12 poles

Positions 4 to 8

Rated power output
(kW x 100)

Position 9

Mounting arrangement

1 = V1 **3** = B3
4 = B3/B5 **5** = B5

Positions 10 to 12

Series

PPA = PPA series motors
PPC = PPC series motors

Position 13...*

Series variation

Blank = Standard

E = Zone 1 Exe

F = Flying leads

N = Zone 2 ExnA

D = Ext

L = LHS terminal box

R = Airstream rated

* Multiple letters indicate multiple variation.

Suffix

Winding design

Blank = **415V / 50 Hz**

/385 = 380V / 50 Hz

/405 = 400V / 50 Hz

/445 = 440V / 50 Hz

/525 = 525V / 50 Hz

/695 = 690V / 50 Hz

/A05 = 1000V / 50 Hz

/B05 = 1100V / 50 Hz

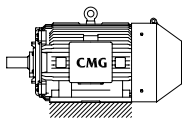
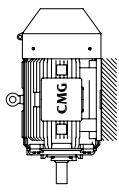
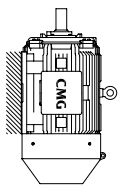
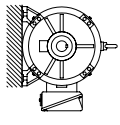
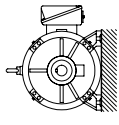
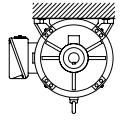
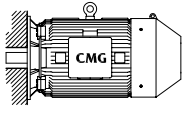
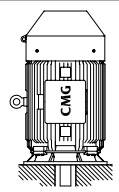
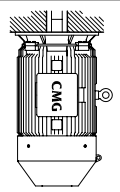
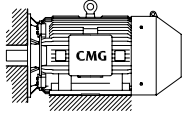
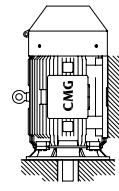
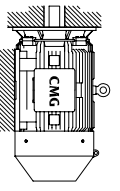
/386 = 380V / 60 Hz

/406 = 400V / 60 Hz

Mechanical design

Mountings

Regal Australia PPA motors are available in the mounting arrangements shown below. For all other mounting arrangements please contact Regal Australia directly.

| | | |
|--|--|--|
| <p>Foot mount</p>  <p>B3 (IM1001)* [PPA 80 - 450]</p> |  <p>V5 (IM1011) [PPA 80 - 280]</p> |  <p>V6 (IM1031) [PPA 80 - 280]</p> |
|  <p>B6 (IM1051) [PPA 80 - 280]</p> |  <p>B7 (IM1061) [PPA 80 - 280]</p> |  <p>B8 (IM1071) [PPA 80 - 280]</p> |
| <p>Flange mount</p>  <p>B5 (IM3001)* [PPA 80 - 280]</p> |  <p>V1 (IM3011)* [PPA 80 - 450]</p> |  <p>V3 (IM3031) [PPA 80 - 280]</p> |
| <p>Flange and feet</p>  <p>B3/B5 (IM2001)* [PPA 80 - 450]</p> |  <p>V1/V5 (IM2011) [PPA 80 - 280]</p> |  <p>V3/V6 (IM2031) [PPA 80 - 280]</p> |

* Most common mounting arrangements

Materials and construction

General

| | |
|----------------------|--|
| Frames 80-450 | Cast iron construction, one piece |
| Endshields | Cast iron construction |
| Terminal box | Cast iron construction |
| Fan | Bi-directional cast iron or fabricated steel |
| Fan Cowl | Fabricated steel (heavy gauge) |
| Fasteners | Corrosion protected (stainless optional) |

Endshields

Endshields are manufactured from close-grained pearlite grey cast iron having a 250MPa tensile strength. The endshields are adequately ribbed to provide cooling to the area around the bearing. Their shallow design ensures they remain rigid under the stresses of starting and running, and are designed to withstand the radial and axial forces encountered during most applications.

Stator frame

Stator frames are manufactured from close-grained pearlitic grey cast iron having a 250MPa tensile strength. Their one piece design ensures the stator remains rigid under all starting and running conditions. The ribs are designed to dissipate the optimum amount of heat with the lowest airflow over the motor. This helps to ensure that windage noise is minimized. Adequate spacing between ribs is maintained to lessen the possibility of blockage due to the build up of dirt.

Shaft

Shafts are manufactured from high quality steel and adequately proportioned to provide strength and rigidity in operation. Bearing journals are ground to ensure an accurate bearing fit and positioning. Keys are provided with each motor.

Shaft extension run out, concentricity, and perpendicularity to the face of standard flange mount motors comply with normal grade tolerance as specified in IEC 60072 and AS/NZS1359. Precision grade tolerance is available upon special order. Non-standard dimensions and shaft materials are available on request.

Rotor

Rugged one piece rotor cages are die cast aluminium. After fitting the rotor core to the shaft the rotor assembly is dynamically balanced to G1 limits for smooth operation.

Finish

All castings and steel parts are primed with a 2-pack epoxy coating, followed by a top coat of 2-pack epoxy to the customer's color specification.

Standard colours are as follows:

- RAL 5010 Gentian Blue (except Australia)
- RAL 2008 Bright Red Orange (Australia only)
- RAL 5019 Capri Blue (1000V motors only)

Special paint systems can be provided to accommodate stringent requirements for motors in corrosive environments, selected to resist substances such as acid, salt water and extreme climatic conditions.

Stainless steel nameplates

The motor nameplate is manufactured from stainless steel, with markings engraved, not printed, to provide permanency. Thermistor and heater labels are all manufactured from stainless steel.

Mechanical design

Protection

For vertically mounted motors

The PPA series motor can be mounted vertically shaft up without the need for additional covers or protection. When mounted vertically shaft down protective hoods are available upon request.

Solar radiation

High solar radiation from exposure to direct sunlight may result in an adverse total motor temperature. In these circumstances motors should be screened with adequate and appropriate sunshades without inhibiting airflow.

Degree of protection

Standard levels of enclosure protection for all PPA series motors is IP66 for both motor and terminal box. Sintered bronze porous drain plugs are fitted to the lowest point of the motor enclosure, as standard.

IP66 enclosure protection means dust tight (no ingress of dusts), and protection against heavy seas (water from heavy seas or water projected in powerful jets shall not enter the enclosure in harmful quantities).

Enclosure designations comply with IEC 60529 and AS 60529. The enclosure protection rating required depends upon the environmental and operational conditions in which the motor is to operate.

Additional earth terminal

Additional to the earth terminal fitted within the main terminal box an external earth, for grounding of the frame, is fitted on the motor foot for frame sizes 250 and above. (Optional on smaller sizes.)

Terminal box

Cast iron diagonally split terminal boxes are provided on all PPA motors. They are located on the centre line of the stator allowing easy change of the terminal box from the right hand side to the left (except 450 frame, which must be specifically ordered). Refer to the "Modification, variations and optional extras" section on page 27.

The terminal box is designed oversized to accommodate fitting of larger than standard cables used to minimise voltage drop over long cable runs. The box's ample dimensions also allow aluminium cables to be terminated using bi-metal lugs.

A removable gland plate is fitted to all terminal boxes, frame 225 and above (smaller frames optional). For frames 80 to 315 the gland entry is drilled and tapped with standard metric threads as per the accompanying table. Motor frames 355 and above are fitted with undrilled

ferrous gland plates. (Non ferrous optional). The terminal box is supplied with the conduit entry facing downward and can be rotated through 360° in 90° increments.

Conduit entries

| Motor frame | Standard | |
|-------------|-------------------|---------------|
| | Number of entries | Entry / pitch |
| 80 | 2 | M20 x 1.5 |
| 90 | 2 | M20 x 1.5 |
| 100 | 2 | M20 x 1.5 |
| 112 | 2 | M25 x 1.5 |
| 132 | 2 | M25 x 1.5 |
| 160 | 1 | M50 x 1.5 |
| 180 | 1 | M50 x 1.5 |
| 200 | 1 | M50 x 1.5 |
| 225 | 1 | M63 x 1.5 |
| 250 | 1 | M63 x 1.5 |
| 280 | 1 | M63 x 1.5 |
| 315 | 1 | M63 x 1.5 |
| 355 | Nil | BGP |
| 400 | Nil | BGP |
| 450 | Nil | BGP |

BGP = Blank Gland Plate.

Nitrile gaskets are fitted between all mating surfaces to ensure that the IP66 degree of protection is maintained.

During transportation and storage the conduit entry hole is fitted with a removable plug to limit the ingress of moisture.

Cooling

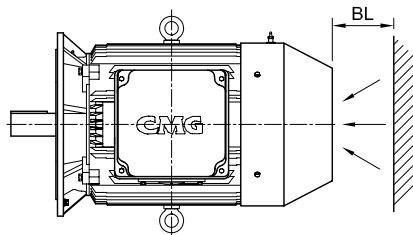
PPA motors are fitted with a low noise bi-directional cast iron or fabricated steel fan. The fan, with its radial blades, and the fan cover of a conical shape, is designed to minimise turbulence within the fan housing and allow smooth airflow.

In most instances the fan and cover are designed to eliminate the need for special acoustic attenuation required to meet stringent noise level standards.

For special applications such as low speed, operation through a VVVF drive, or frequent starting and stopping, a separately driven cooling fan is available as an optional extra. See VVVF Drive Kit A in the "Modification, variations and optional extras" section on page 27.

Mechanical design

Cooling air flows from the non-drive-end to the drive end. When the motor is installed care should be taken not to impede the airflow into the motor cowl.



As a guide the following minimum dimension BL should be adopted:

| Motor frame | BL [mm] |
|-------------|-----------|
| 80 - 132 | 40 |
| 160 - 200 | 60 |
| 225 - 450 | 80 |

Bearings and lubrication

Bearings

As standard all PPA motors have high quality bearings made from vacuum degassed steel. The standard bearings in the range are selected to provide long operational life, quiet running, and high load carrying capacity.

NU type roller bearings are fitted to the drive end of 4,6 & 8 pole motors, 315 frame and above. All other bearings are deep groove ball bearings as shown in the table below.

| Motor frame | DE Standard | DE Optional | NDE Standard |
|---------------|-------------|-------------|--------------|
| 80 | 6204ZZ | | 6204ZZ |
| 90 | 6205ZZ | | 6205ZZ |
| 100 | 6206ZZ | | 6206ZZ |
| 112 | 6306 | NU306 | 6306 |
| 132 | 6308 | NU308 | 6308 |
| 160 | 6309 | NU309 | 6309 |
| 180 | 6310 | NU310 | 6310 |
| 200 | 6312 | NU312 | 6312 |
| 225 | 6313 | NU313 | 6313 |
| 250 - 2 | 6313 | | 6313 |
| 250 - 4, 6, 8 | 6315 | NU315 | 6313 |
| 280 - 2 | 6314 | | 6314 |
| 280 - 4, 6, 8 | 6317 | NU317 | 6314 |
| 315 - 2 | 6316 | | 6316 |
| 315 - 4, 6, 8 | NU318 | | 6316 |
| 355 - 2 | 6318 | | 6318 |
| 355 - 4, 6, 8 | NU324 | | 6324 |
| 400 - 2 | 6318 | | 6318 |
| 400 - 4, 6, 8 | NU326 | | 6326 |
| 450 - 4, 6, 8 | NU328 | | 6326 |

In standard arrangement, non-drive end bearing is locked to prevent axial movement.

Drive and non-drive bearing housings

PPA motors frames 80 to 100 have sealed non-regreasable bearing housings. The bearings are prelubricated with a lithium based grease. All motors of frame 112 and above are fitted with a thru-flushing pressure grease relief valve incorporating a V-ring seal which allows the bearing to be re lubricated without stopping the motor.

Optional roller bearings

For motor frames 112 to 280, in applications with increased radial force, ball bearings can be substituted for cylindrical roller bearings at the drive end, in accordance with the bearings table on this page.

Shaft locking clamps

All motors within the PPA range 200 frame and above are fitted with a substantial shaft-locking clamp to help prevent false brinnelling in transport. The motors should always be transported or stored with this clamp fitted and tensioned to avoid bearing damage.

Once the motor has reached its final destination and is ready for installation the shaft-locking clamp must be removed before the motor is run no-load to confirm that the bearings are in good condition.

After this initial run normal installation can continue with additions of pulleys or couplings.

Lubrication

Standard bearings are lubricated with a lithium based rolling contact bearing grease, having an R3 consistency and suitable for operation within the cooling air temperature range of -20°C to +55°C. For operation outside this temperature range special lubricants are required.

Special lubricants or additional maintenance may also be required in cases where motors are exposed to a comparatively high degree of pollution, high humidity, increased or changed bearing loads, or prolonged continuous operation. For details of grease quantities, re-lubrication intervals, and recommended grease types refer to the "Installation and maintenance" section on page 28.

Mechanical design

Balancing, vibration and noise

Balancing

PPA motors have their rotor balanced separately to the external cooling fan so that the fan can be removed or changed without altering the balance of the rotor.

All rotors are balanced with a half key to fine tolerances (G1).

Pulleys or couplings used with motors must be appropriately balanced.

Vibration

PPA series motors fall within the limits of vibration severity as set out in IEC 60034-14, which are listed below. Values relate to rotating machinery measured in soft suspension.

Vibration severity limit

| Motor frame | Maximum RMS vibration velocity [mm/s] |
|-------------|---|
| 80 | 1.6 |
| 90 | 1.6 |
| 100 | 1.6 |
| 112 | 1.6 |
| 132 | 1.6 |
| 160 | 2.2 |
| 180 | 2.2 |
| 200 | 2.2 |
| 225 | 2.2 |
| 250 | 2.2 |
| 280 | 2.2 |
| 315 | 2.8 |
| 355 | 2.8 |
| 400 | 2.8 |
| 450 | 2.8 |

Vibration sensors

Provision for fitting vibration sensors for condition monitoring is standard on all motors of frame size 250 and above (optional on smaller sizes).

Vibration levels can be checked with an SPM monitor, or its equivalent, when the motor is new and on a regular basis, usually at the same time as re-greasing. This ensures optimum bearing life is achieved and bearing failures avoided.

Low noise

The PPA fan cooling system is designed to achieve the required air flow with minimum losses. This enables the fan to cool the motor whilst keeping noise levels to a minimum.

The table below shows the overall sound pressure levels of PPA motors at 1 metre (no load).

Sound pressure level

| kW | Sound pressure level dB(A) at 1 metre | | | |
|------|---------------------------------------|------------|------------|-----------|
| | 3000 r/min | 1500 r/min | 1000 r/min | 750 r/min |
| 0.37 | 60 | 58 | 54 | 51 |
| 0.55 | 60 | 58 | 54 | 51 |
| 0.75 | 60 | 58 | 58 | 51 |
| 1.1 | 60 | 62 | 60 | 54 |
| 1.5 | 60 | 62 | 63 | 54 |
| 2.2 | 60 | 62 | 63 | 63 |
| 3 | 63 | 62 | 67 | 63 |
| 4 | 63 | 62 | 67 | 63 |
| 5.5 | 74 | 62 | 67 | 63 |
| 7.5 | 74 | 62 | 67 | 63 |
| 11 | 74 | 72 | 67 | 63 |
| 15 | 77 | 72 | 67 | 68 |
| 18.5 | 77 | 72 | 71 | 68 |
| 22 | 77 | 72 | 71 | 68 |
| 30 | 79 | 72 | 72 | 68 |
| 37 | 80 | 73 | 72 | 68 |
| 45 | 80 | 73 | 72 | 68 |
| 55 | 80 | 73 | 72 | 68 |
| 75 | 80 | 74 | 73 | 73 |
| 90 | 82 | 75 | 74 | 73 |
| 110 | 82 | 76 | 75 | 73 |
| 132 | 82 | 78 | 77 | 73 |
| 150 | 83 | 78 | 77 | 73 |
| 185 | 84 | 79 | 77 | 74 |
| 200 | 85 | 79 | 77 | 74 |
| 220 | 87 | 81 | 77 | 74 |
| 250 | 89 | 83 | 77 | 74 |
| 280 | 90 | 83 | 77 | 74 |
| 315 | 90 | 84 | 77 | 74 |
| 355 | 90 | 85 | 78 | 74 |
| 400 | 90 | 88 | 78 | |
| 450 | 95 | 88 | 78 | |
| 500 | 95 | 89 | 78 | |
| 560 | 95 | 90 | 85 | |
| 630 | | 90 | 85 | |
| 710 | | 91 | 85 | |
| 800 | | 93 | 85 | |
| 900 | | 93 | | |
| 1000 | | 93 | | |

Alternate devices are available for noise reduction where very low levels are specified. These include uni-directional fans, separately driven cooling fans, inlet attenuation, and full motor attenuation.

Electrical design

Operating parameters

Standard PPA series motors have the design and operating parameters listed below. Performance data is based on this standard.

| | |
|--|---------------------------------|
| Three phase | See voltage and frequency below |
| Ambient cooling air Temperature | 40°C |
| Altitude | up to 1000m |
| Duty cycle | S1 (continuous) |
| Rotation | Refer table on page 10. |

Any variation from these operating parameters should be examined and performance data altered in accordance with the information provided in this section.

Voltage and frequency

PPA motors are manufactured for various rated power supplies. Rated supplies include:

| | |
|------------------|------------|
| 380V 50Hz | 1000V 50Hz |
| 400V 50Hz | 1100V 50Hz |
| 415V 50Hz | 380V 60Hz |
| 525V 50Hz | 440V 60Hz |
| 690V 50Hz | |

Motors can be manufactured for any supply from 100 to 1100V and frequencies other than 50Hz or 60Hz.

PPA motors are designed to operate on VVVF drives and will provide constant torque on the condition that the voltage/frequency ratio remains constant.

PPA motors may operate when connected to other non-standard voltages and frequencies. Rated performance data values should be multiplied by the factors in the table below to give more realistic operating data values which, if used, will reduce additional motor temperature rise.

Apply these factors to motors rated at 415V 50Hz but operated on other supplies:

| Supply [Volts / Hz] | Rated speed | Rated power | Rated current I_N | Rated torque T_N | Locked rotor torque T_L | Break down torque T_B |
|--------------------------|----------------|----------------|---------------------------|--------------------------|------------------------------------|----------------------------------|
| 380/50 | 1.00 | 0.95 | 1.00 | 0.95 | 0.83 | 0.83 |
| 400/50 | 1.00 | 1.00 | 1.00 | 1.00 | 0.93 | 0.93 |
| 415/50 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| 440/50 | 1.00 | 1.00 | 1.00 | 1.00 | 1.10 | 1.10 |
| 415/60 | 1.20 | 1.00 | 1.00 | 0.83 | 0.69 | 0.69 |
| 440/60 | 1.20 | 1.05 | 1.00 | 0.87 | 0.77 | 0.77 |
| 460/60 | 1.20 | 1.10 | 1.00 | 0.91 | 0.85 | 0.85 |
| 480/60 | 1.20 | 1.15 | 1.00 | 0.96 | 0.92 | 0.92 |

For critical applications data should be confirmed.

The performance data for motors with other supply ratings is the same as that provided on pages 12, 14, 16 & 18 for 415V motors, except for the currents which are presented on pages 13, 15, 17 & 19.

Temperature and altitude

Rated output power specified in the performance data tables apply for standard ambient conditions of 40°C up to 1000m above sea level. Where temperature or altitude differ from the standard, multiplication factors in the table below should be used.

| Ambient temperature | Temperature factor | Altitude above sea level | Altitude factor |
|---------------------|--------------------|--------------------------|-----------------|
| 30°C | 1.06 | 1000m | 1.00 |
| 35°C | 1.03 | 1500m | 0.98 |
| 40°C | 1.00 | 2000m | 0.94 |
| 45°C | 0.97 | 2500m | 0.91 |
| 50°C | 0.93 | 3000m | 0.87 |
| 55°C | 0.88 | 3500m | 0.82 |
| 60°C | 0.82 | 4000m | 0.77 |

Effective power = Rated power x Temperature factor x Altitude factor

Insulation and varnish

PPA series motors are wound with H Class insulation and winding designs limit the temperature rise to 80K (unless otherwise noted). The use of H Class insulation provides an additional safety margin of 45K, as shown in the accompanying table, together with a design life in excess of 20 years.

All PPA motors are varnished based on the "Vacuum Pressure Impregnation" (VPI) system.

Due to their conservative design many sizes in the PPA range of motors have temperature rises considerably less than 80K and therefore provide even greater safety margins.

| | Insulation class | | |
|---|------------------|-----|------------|
| | B | F | H |
| Max. permissible winding temp. (°C) | 130 | 155 | 180 |
| Less ambient temp. (°C) | -40 | -40 | -40 |
| Less hotspot allowance (K) | -10 | -10 | -15 |
| Equals max. permissible temp. rise (K) | 80 | 105 | 125 |
| Less max. design temp. rise (K) | -80 | -80 | -80 |
| Equals min. safety margin (K) | - | 25 | 45 |

Duty

PPA motors are supplied suitable for S1 operation (continuous operation under rated load). To determine the correct motor size for duty cycles other than S1 please contact Regal Australia with the following information:

- Type and frequency of switching (short time, intermittent, periodic, high inertia, braking)
- Load torque variation during motor acceleration and braking (in graphical form)
- Moment of inertia of the load on the motor shaft
- Type of braking (e.g. mechanical, electrical through phase reversal or DC injection).

Electrical design

Rotation

For clockwise rotation (standard), viewed from drive end, standard three phase PPA motor terminal markings coincide with the sequence of the phase line conductors. For counter-clockwise rotation, viewed from drive end, two of the line conductors have to be reversed. This is made clear in the accompanying table.

Non-standard motors, with the terminal box located on the left when viewed from drive end, have a counter-clockwise rotation for coinciding markings, and reversing two of the line conductors will reverse the rotation to clockwise.

| Terminal box location (viewed from D-end) | Sequential connection of L1, L2 and L3 | | | Direction of rotation |
|---|--|----|----|-----------------------|
| Right | U1 | V1 | W1 | Clockwise |
| | V1 | U1 | W1 | Counter-clockwise |
| Left | V1 | U1 | W1 | Clockwise |
| | U1 | V1 | W1 | Counter-clockwise |

Connection and starting

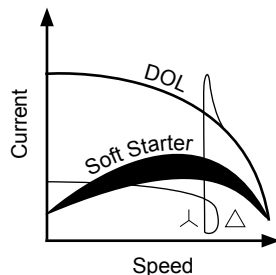
PPA motors are suitable for use with both rated voltage DOL operation and rated voltage three phase variable frequency drives. 3kW and below can also be used with 220-250V three phase variable frequency drives when connected in Delta.

Alternatively, 380-415V, 4kW to 630kW Delta connected motors can be operated DOL, or in the Star configuration with a 690V supply or with a 690V variable frequency drive. When used with a VVVF drive they must be supplied with an output reactor to protect the winding insulation. These motors are also suitable for Star/Delta starting. For motors 710kW and above the standard connection is Delta with a rated voltage of 690V.

Electronic soft starters and VVVF drives are available through Regal Australia Drives Division, and are best supplied together with the motor.

Electronic soft starters

Through the use of an electronic soft starter, which controls parameters such as current and voltage, the starting sequence can be totally controlled. The starter can be programmed to limit the amount of starting current where, by limiting the rate of the current increase, the startup time can be extended.



VVVF Drives

The PPA motor performs excellently without cogging at low speed when operating in conjunction with a VVVF (Variable Voltage Variable Frequency) Drive. Variable voltage variable frequency (VVVF) drives are primarily recognized for their ability to manipulate power from a constant 3 phase 50/60Hz supply converting it to variable voltage and variable frequency power. This enables the speed of the motor to be matched to its load in a flexible and energy efficient manner. The only way of producing starting torque equal to full load torque with full load current is by using VVVF drives. The functionally flexible VVVF drive is also commonly used to reduce energy consumption on fans, pumps and compressors and offer a simple and repeatable method of changing speeds or flow rates.

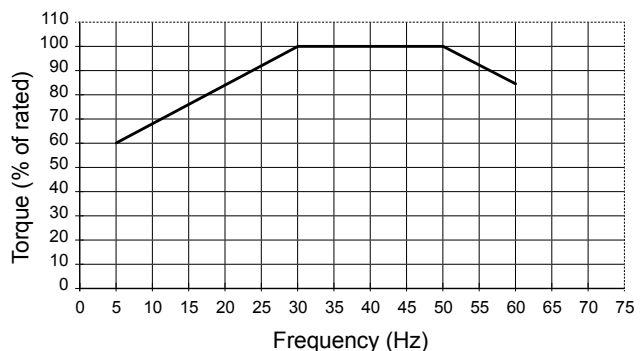
The standard insulation provided on PPA motors can accept a rise time of 3000V/ μ s and a peak voltage of 2600V. To ensure that this parameter is not exceeded care should be taken in the selection of the VVVF drive and, where necessary, suitable output voltage filters should be used. All drives supplied by the Regal Australia Drives Division will comply with this parameter.

For operation below 30Hz motor cooling fan efficiency drops significantly. Hence, in the constant torque applications, a separately driven cooling fan should be fitted to provide sufficient cooling of the motor.

For operation between 30Hz and 50Hz speed range the motor is capable of delivering full rated torque with its standard fan.

For operation above 50Hz, all PPA motors are capable of delivering constant rated power up to 60Hz. However, most of these motors are suitable to run and deliver constant power at much higher frequencies than 60Hz to a maximum of 100Hz. In the case of applications between 60Hz and 100Hz please contact Regal Australia for advice on suitability.

The PPA range of motors will operate without modification on VVVF drives however under certain conditions additional features should be considered (see EDM Concerns below). The graph below shows the PPA motors' loadability with a frequency converter.



Electrical design

EDM concerns

Capacitive voltages in the rotor can be generated due to an effect caused by harmonics in the waveform causing voltage discharge to earth through the bearings. This discharge results in etching of the bearing running surfaces. This effect is known as Electrical Discharge Machining (EDM). It can be controlled with the fitment of appropriate filters to the drive.

To further mitigate the risk of EDM damage to bearings, Regal Australia recommends the use of VVVF Drive Kits B1 or B2 as listed on page 27.

Thermal protection

Resistance Temperature Detectors (RTDs) and additional thermistors can be installed in both the windings and the bearings.

Thermistors

PPA motors are fitted, as standard, with one set (3) of PTC thermistors, selected for a tripping temperature of 145°C. These thermo-variable resistors have a positive temperature coefficient and are fitted one per phase in the motor windings.

Additional sets of thermistors, if required for such functions as alarm or spare, can be fitted with the same or alternate tripping temperatures.

Frames 80 to 132: the thermistors are terminated within the main terminal box.

Frames 160 and above: the thermistors are terminated in the right hand auxiliary terminal box.

RTDs

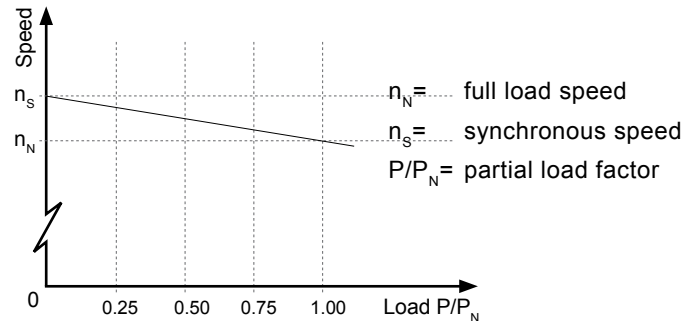
An additional method of monitoring temperature is to fit 3 wire PT100 Resistance Temperature Detectors (RTDs). RTDs are terminated in an auxiliary terminal box affixed to the main terminal box. These devices have a linear temperature / resistance gradient and can be used in conjunction with electronic control equipment e.g. PLC's. Winding RTDs are fitted as standard in 315 frame and above, optional in smaller frames.

Anti-condensation heaters

PPA motors frames 250 and above are fitted with anti-condensation heaters (optional on smaller sizes). These heaters are connected during manufacture for 220 - 250V operation and can be supplied connected for 380 - 440V operation against special order. They are terminated in the left hand auxiliary terminal box.

Speed at partial loads

The relationship between motor speed and degree of loading in a PPA motor is approximately linear up to the rated load.



Current at partial loads

Current at partial loads can be calculated using the following formula:

$$I_x = \frac{P_{out_x}}{\sqrt{3} \times U_N \times \cos \phi_x \times \eta_x} \times 10^5$$

I_x = partial load current (amps) P_{out_x} = partial load (kW)
 U_N = full load voltage η_x = partial load efficiency (%)
 $\cos \phi_x$ = partial load power factor

Torque characteristics

Typical characteristics of torque behaviour relative to speed are shown in the torque speed curve example below.

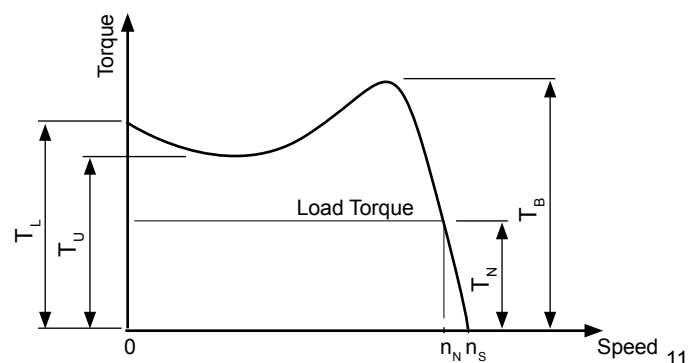
PPA motors all exceed the minimum starting torque requirements for Design N (Normal torque) as specified in IEC 60034-12.

Full load torque can be calculated with the following formula:

Where:

$$T_N = \frac{9550 \times P_N}{n_N}$$

T_N = full load torque (Nm) P_N = full load power (kW)
 n_N = full load speed (r/min) T_L = locked rotor torque
 T_U = pull-up torque T_B = break down torque
 n_s = synchronous speed



Performance data

PPA series, three phase, 415V 50Hz

IP66, H class insulation, B class temperature rise

| kW | Motor frame | Speed [r/min] | Efficiency [%] at % full load | | | Power factor [cos φ] at % full load | | | Current | | | Torque | | | | Moment of Inertia J=¼GD ² [kg·m ²] | Weight of foot mount motor [kg] | |
|-----------------------------|-------------|------------------|------------------------------------|------|------|---|------|------|---|---|---|--|---|--|---|---|---|------|
| | | | 100 | 75 | 50 | 100 | 75 | 50 | Full load I _N [A] | Locked rotor I _L /I _N | t _E ¹⁾ time [sec] | Full load T _N [Nm] | Locked rotor T _L /T _N | Pull up T _U /T _N | Break down T _B /T _N | | | |
| 3000 r/min = 2 poles | | | | | | | | | | | | | | | | | | |
| 0.55 | 80A | -19 | 2880 | 80.7 | 80.3 | 77.1 | 0.85 | 0.79 | 0.68 | 1.2 | 7.9 | - | 1.8 | 2.7 | 2.2 | 3.3 | 0.00020 | 20 |
| 0.75 | 80B | -19 | 2885 | 81.8 | 81.6 | 79.1 | 0.85 | 0.79 | 0.68 | 1.5 | 7.0 | 22 | 2.5 | 2.7 | 2.4 | 3.2 | 0.00022 | 21 |
| 1.1 | 80C | -19 | 2880 | 83.8 | 84.2 | 82.4 | 0.86 | 0.80 | 0.69 | 2.2 | 8.0 | 15 | 3.6 | 2.9 | 2.5 | 3.3 | 0.00023 | 24 |
| 1.5 | 90S | -24 | 2890 | 86.3 | 86.6 | 84.9 | 0.88 | 0.84 | 0.75 | 2.8 | 8.3 | 25 | 5.0 | 2.7 | 2.2 | 3.0 | 0.0003 | 29 |
| 2.2 | 90L | -24 | 2880 | 87.1 | 88.0 | 87.5 | 0.87 | 0.84 | 0.76 | 4.1 | 7.8 | 15 | 7.3 | 2.8 | 2.2 | 2.9 | 0.00035 | 33 |
| 3 | 100L | -28 | 2910 | 88.2 | 88.3 | 86.8 | 0.89 | 0.85 | 0.75 | 5.4 | 7.9 | 20 | 9.8 | 2.2 | 2.0 | 3.3 | 0.00073 | 45 |
| 4 | 112M | -28 | 2920 | 87.6 | 87.6 | 87.2 | 0.88 | 0.86 | 0.81 | 7.3 | 9.0 | 10 | 13.1 | 2.6 | 1.8 | 3.6 | 0.0014 | 55 |
| 5.5 | 132SA | -38 | 2940 | 89.3 | 88.8 | 86.8 | 0.89 | 0.86 | 0.78 | 9.6 | 7.8 | 30 | 17.9 | 2.3 | 1.7 | 3.6 | 0.0030 | 84 |
| 7.5 | 132SB | -38 | 2940 | 90.3 | 90.3 | 89.0 | 0.90 | 0.87 | 0.81 | 12.8 | 7.6 | 12 | 24.4 | 2.2 | 1.8 | 3.4 | 0.0032 | 88 |
| 11 | 160MA | -42 | 2930 | 90.6 | 90.5 | 88.9 | 0.91 | 0.90 | 0.83 | 18.5 | 7.0 | 20 | 35.9 | 2.0 | 1.4 | 2.5 | 0.054 | 139 |
| 15 | 160MB | -42 | 2940 | 91.3 | 91.1 | 89.8 | 0.90 | 0.89 | 0.84 | 25.5 | 7.4 | 9 | 48.7 | 2.1 | 1.5 | 2.5 | 0.056 | 144 |
| 18.5 | 160L | -42 | 2940 | 91.9 | 92.0 | 90.9 | 0.92 | 0.91 | 0.86 | 30.5 | 7.5 | 7 | 60.1 | 2.7 | 1.7 | 2.9 | 0.066 | 163 |
| 22 | 180M | -48 | 2945 | 92.2 | 92.1 | 90.6 | 0.92 | 0.90 | 0.82 | 36.5 | 7.9 | 11 | 71.3 | 3.3 | 1.8 | 3.4 | 0.094 | 217 |
| 30 | 200LA | -55 | 2950 | 92.9 | 92.7 | 91.4 | 0.90 | 0.88 | 0.82 | 50 | 8.0 | 8 | 97.1 | 2.4 | 1.7 | 2.9 | 0.167 | 282 |
| 37 | 200LB | -55 | 2955 | 93.3 | 93.2 | 92.2 | 0.91 | 0.89 | 0.84 | 61 | 7.8 | 6 | 120 | 2.7 | 1.7 | 2.9 | 0.174 | 290 |
| 45 | 225M | -55 | 2975 | 93.7 | 93.0 | 91.4 | 0.94 | 0.87 | 0.84 | 72 | 8.0 | 6 | 144 | 2.7 | 1.9 | 3.1 | 0.30 | 382 |
| 55 | 250S | -60 | 2975 | 94.3 | 94.1 | 92.9 | 0.89 | 0.88 | 0.83 | 91 | 7.2 | 6 | 177 | 2.2 | 1.6 | 2.8 | 0.38 | 437 |
| 75 | 250M | -60 | 2985 | 94.9 | 94.5 | 93.1 | 0.91 | 0.89 | 0.82 | 122 | 7.1 | 5 | 240 | 3.0 | 1.9 | 3.1 | 0.47 | 506 |
| 90 | 280S | -65 | 2972 | 95.3 | 95.2 | 94.5 | 0.90 | 0.89 | 0.85 | 146 | 6.8 | 6 | 289 | 3.0 | 2.4 | 3.2 | 0.79 | 645 |
| 110 | 280M | -65 | 2976 | 95.1 | 94.8 | 93.8 | 0.92 | 0.92 | 0.91 | 175 | 7.7 | 6 | 353 | 3.3 | 2.1 | 3.4 | 0.93 | 723 |
| 132 | 315S | -65 | 2982 | 95.6 | 95.2 | 94.1 | 0.93 | 0.91 | 0.87 | 207 | 6.4 | 8 | 423 | 1.9 | 1.7 | 2.9 | 1.40 | 1135 |
| 150 | 315M | -65 | 2979 | 95.6 | 95.2 | 94.2 | 0.92 | 0.91 | 0.88 | 237 | 6.4 | 7 | 481 | 2.0 | 1.7 | 2.9 | 1.55 | 1185 |
| 185 | 315L | -65 | 2979 | 95.8 | 95.4 | 94.5 | 0.90 | 0.88 | 0.84 | 298 | 7.5 | 6 | 593 | 2.1 | 1.6 | 2.9 | 1.73 | 1240 |
| 200 | 315LXA | -65 | 2980 | 95.9 | 95.7 | 94.7 | 0.93 | 0.92 | 0.90 | 312 | 6.3 | 6 | 641 | 2.0 | 1.5 | 3.0 | 1.81 | 1280 |
| 220 | 315LXB | -65 | 2978 | 95.7 | 95.4 | 94.3 | 0.92 | 0.91 | 0.87 | 348 | 7.5 | 6 | 706 | 2.7 | 1.5 | 2.6 | 2.00 | 1320 |
| 250 | 355LA | -85 | 2979 | 95.6 | 95.2 | 94.0 | 0.87 | 0.85 | 0.81 | 416 | 7.4 | 7 | 801 | 2.1 | 1.4 | 2.7 | 4.46 | 1630 |
| 280 | 355LB | -85 | 2979 | 96.0 | 95.8 | 94.6 | 0.90 | 0.89 | 0.86 | 452 | 7.2 | 7 | 898 | 2.0 | 1.6 | 2.9 | 4.87 | 1700 |
| 315 | 355LC | -85 | 2979 | 96.2 | 95.9 | 95.0 | 0.91 | 0.91 | 0.89 | 501 | 6.2 | 7 | 1010 | 1.9 | 1.6 | 2.8 | 4.90 | 1750 |
| 355 | 355LX | -85 | 2986 | 96.7 | 96.5 | 95.7 | 0.92 | 0.91 | 0.87 | 557 | 7.0 | 6 | 1135 | 2.2 | 1.9 | 3.2 | 5.46 | 2245 |
| 400 | 355LX | -85 | 2985 | 96.4 | 96.2 | 96.0 | 0.91 | 0.89 | 0.87 | 635 | 6.2 | 7 | 1280 | 1.8 | 1.4 | 2.5 | 5.60 | 2420 |
| 450 | 400LA | -85 | 2980 | 96.5 | 96.6 | 96.4 | 0.90 | 0.89 | 0.86 | 721 | 5.9 | | 1442 | 1.8 | 1.4 | 2.5 | 9.47 | 2700 |
| 500 | 400LX | -85 | 2985 | 96.6 | 96.8 | 96.5 | 0.91 | 0.89 | 0.86 | 791 | 6.9 | | 1600 | 2.0 | 1.7 | 2.9 | 11.39 | 3070 |
| 560 | 400LX | -85 | 2980 | 96.7 | 96.8 | 96.6 | 0.91 | 0.91 | 0.89 | 885 | 6.2 | | 1795 | 1.9 | 1.5 | 2.6 | 11.60 | 3170 |

PPC series 415V 50Hz

| | | | | | | | | | | | | | | | | | | |
|-------------------|-------|-----|------|------|------|------|------|------|------|-----|-----|---|-----|-----|-----|-----|------|------|
| 45 | 225M | -55 | 2975 | 93.7 | 93.0 | 91.4 | 0.94 | 0.87 | 0.84 | 72 | 9.5 | 6 | 144 | 2.7 | 1.9 | 3.1 | 0.30 | 382 |
| 55 | 250M | -60 | 2975 | 94.3 | 94.1 | 92.9 | 0.89 | 0.88 | 0.83 | 91 | 6.5 | 8 | 177 | 2.2 | 1.6 | 2.8 | 0.38 | 437 |
| 75 | 280S | -65 | 2975 | 94.6 | 94.8 | 94.5 | 0.90 | 0.89 | 0.85 | 123 | 7.9 | 7 | 241 | 3.0 | 2.1 | 3.1 | 0.67 | 550 |
| 90 | 280M | -65 | 2972 | 95.3 | 95.2 | 94.5 | 0.90 | 0.89 | 0.85 | 146 | 7.8 | 6 | 289 | 3.0 | 2.4 | 3.2 | 0.79 | 645 |
| 110 | 315S | -65 | 2981 | 95.1 | 94.5 | 93.0 | 0.91 | 0.89 | 0.85 | 178 | 6.7 | - | 352 | 2.0 | 1.7 | 3.1 | 1.15 | 965 |
| 132 | 315MA | -65 | 2982 | 95.6 | 95.2 | 94.1 | 0.93 | 0.91 | 0.87 | 207 | 6.5 | 9 | 423 | 1.9 | 1.7 | 2.9 | 1.40 | 1135 |
| 160 ²⁾ | 315MB | -65 | 2977 | 95.6 | 95.2 | 94.2 | 0.92 | 0.91 | 0.88 | 253 | 6.0 | - | 513 | 1.9 | 1.6 | 2.7 | 1.55 | 1185 |
| 200 | 355LA | -80 | 2980 | 95.5 | 95.6 | 95.4 | 0.89 | 0.88 | 0.85 | 328 | 6.6 | 7 | 641 | 2.0 | 1.7 | 2.7 | 3.78 | 1300 |
| 225 | 355LB | -80 | 2981 | 96.4 | 96.3 | 95.4 | 0.93 | 0.92 | 0.86 | 349 | 6.8 | - | 721 | 1.9 | 1.5 | 3.1 | 4.11 | 1535 |
| 250 | 355LC | -80 | 2980 | 95.5 | 95.6 | 95.4 | 0.89 | 0.88 | 0.85 | 409 | 6.8 | 7 | 801 | 2.2 | 1.8 | 2.8 | 4.46 | 1600 |
| 280 | 355LD | -80 | 2985 | 96.2 | 96.2 | 95.9 | 0.91 | 0.89 | 0.86 | 445 | 7.0 | 7 | 896 | 2.0 | 1.6 | 2.9 | 4.87 | 1700 |

¹⁾ t_E time applies to Ex e motors only and is explained in the hazardous areas section

²⁾ For the hazardous location version the rating will be 150kW and performance data as per PPA

This data is provided for guidance only, guaranteed only when confirmed by Regal Australia.

Full load currents at various power supplies

PPA series, three phase

Specifically wound for nominated power supply

| kW | Motor frame | | Current Full load I _N 50Hz | | | | | | | Current Full load I _N 60Hz | | Speed 60Hz [r/min] |
|----------------------------------|-------------|------|---------------------------------------|----------|----------|----------|----------|-----------|-----------|---------------------------------------|----------|-------------------------|
| | | | 380V [A] | 400V [A] | 415V [A] | 525V [A] | 690V [A] | 1000V [A] | 1100V [A] | 380V [A] | 440V [A] | |
| 3000\3600 r/min = 2 poles | | | | | | | | | | | | |
| 0.55 | 80A | - 19 | 1.3 | 1.2 | 1.2 | 0.9 | 0.7 | 0.5 | 0.5 | 1.3 | 1.1 | 3456 |
| 0.75 | 80B | - 19 | 1.6 | 1.6 | 1.5 | 1.2 | 0.9 | 0.6 | 0.6 | 1.6 | 1.4 | 3462 |
| 1.1 | 80C | - 19 | 2.4 | 2.3 | 2.2 | 1.7 | 1.3 | 0.9 | 0.8 | 2.4 | 2.1 | 3456 |
| 1.5 | 90S | - 24 | 3.1 | 2.9 | 2.8 | 2.2 | 1.7 | 1.2 | 1.1 | 3.1 | 2.6 | 3468 |
| 2.2 | 90L | - 24 | 4.5 | 4.3 | 4.1 | 3.2 | 2.5 | 1.7 | 1.5 | 4.5 | 3.9 | 3456 |
| 3 | 100L | - 28 | 5.9 | 5.6 | 5.4 | 4.3 | 3.2 | 2.2 | 2.0 | 5.9 | 5.1 | 3492 |
| 4 | 112M | - 28 | 8.0 | 7.6 | 7.3 | 5.8 | 4.4 | 3.0 | 2.8 | 8.0 | 6.9 | 3504 |
| 5.5 | 132SA | - 38 | 10.5 | 10 | 9.6 | 7.6 | 5.8 | 4.0 | 3.6 | 10.5 | 9.1 | 3528 |
| 7.5 | 132SB | - 38 | 14 | 13.3 | 12.8 | 10.1 | 7.7 | 5.3 | 4.8 | 14 | 12.1 | 3528 |
| 11 | 160MA | - 42 | 20.2 | 19.2 | 18.5 | 14.6 | 11.1 | 7.7 | 7.0 | 20.2 | 17.4 | 3516 |
| 15 | 160MB | - 42 | 27.8 | 26.5 | 25.5 | 20.2 | 15.3 | 10.6 | 9.6 | 27.8 | 24.1 | 3528 |
| 18.5 | 160L | - 42 | 33.3 | 31.6 | 30.5 | 24.1 | 18.3 | 12.7 | 11.5 | 33.3 | 28.8 | 3528 |
| 22 | 180M | - 48 | 39.9 | 37.9 | 36.5 | 28.9 | 22 | 15.1 | 13.8 | 39.9 | 34.4 | 3534 |
| 30 | 200LA | - 55 | 55 | 52 | 50 | 39.5 | 30.1 | 20.8 | 18.9 | 55 | 47.2 | 3540 |
| 37 | 200LB | - 55 | 67 | 63 | 61 | 48.2 | 36.7 | 25.3 | 23 | 67 | 58 | 3546 |
| 45 | 225M | - 55 | 79 | 75 | 72 | 57 | 43.3 | 29.9 | 27.2 | 79 | 68 | 3570 |
| 55 | 250S | - 60 | 99 | 94 | 91 | 72 | 55 | 37.8 | 34.3 | 99 | 86 | 3570 |
| 75 | 250M | - 60 | 133 | 127 | 122 | 96 | 73 | 51 | 46 | 133 | 115 | 3582 |
| 90 | 280S | - 65 | 159 | 151 | 146 | 115 | 88 | 61 | 55 | 159 | 138 | 3566 |
| 110 | 280M | - 65 | 191 | 182 | 175 | 138 | 105 | 73 | 66 | 191 | 165 | 3571 |
| 132 | 315S | - 65 | 226 | 215 | 207 | 164 | 125 | 86 | 78 | 226 | 195 | 3578 |
| 150 | 315M | - 65 | 259 | 246 | 237 | 187 | 143 | 98 | 89 | 259 | 224 | 3575 |
| 185 | 315L | - 65 | 325 | 309 | 298 | 236 | 179 | 124 | 112 | 325 | 281 | 3575 |
| 200 | 315LXA | - 65 | 341 | 324 | 312 | 247 | 188 | 129 | 118 | 341 | 294 | 3576 |
| 220 | 315LXB | - 65 | 380 | 361 | 348 | 275 | 209 | 144 | 131 | 380 | 328 | 3574 |
| 250 | 355LA | - 85 | 454 | 432 | 416 | 329 | 250 | 173 | 157 | 454 | 392 | 3575 |
| 280 | 355LB | - 85 | 494 | 469 | 452 | 357 | 272 | 188 | 171 | 494 | 426 | 3575 |
| 315 | 355LC | - 85 | 547 | 520 | 501 | 396 | 301 | 208 | 189 | 547 | 473 | 3575 |
| 355 | 355LD | - 85 | 608 | 578 | 557 | 440 | 335 | 231 | 210 | 608 | 525 | 3583 |
| 400 | 355LX | - 85 | 693 | 659 | 635 | 502 | 382 | 264 | 240 | 693 | 599 | 3582 |
| 450 | 400LA | - 85 | 787 | 748 | 721 | 570 | 434 | 299 | 272 | 787 | 680 | 3576 |
| 500 | 400LX | - 85 | 864 | 821 | 791 | 625 | 476 | 328 | 298 | 864 | 746 | 3582 |
| 560 | 400LX | - 85 | 967 | 918 | 885 | 700 | 532 | 367 | 334 | 967 | 835 | 3576 |
| PPC series | | | | | | | | | | | | |
| 45 | 225M | - 55 | 79 | 75 | 72 | 57 | 43.3 | 29.9 | 27.2 | 79 | 68 | 3570 |
| 55 | 250M | - 60 | 99 | 94 | 91 | 72 | 55 | 37.8 | 34.3 | 99 | 86 | 3570 |
| 75 | 280S | - 65 | 134 | 128 | 123 | 97 | 74 | 51 | 46.4 | 134 | 116 | 3570 |
| 90 | 280M | - 65 | 159 | 151 | 146 | 115 | 88 | 61 | 55 | 159 | 138 | 3566 |
| 110 | 315S | - 65 | 194 | 185 | 178 | 141 | 107 | 74 | 67 | 194 | 168 | 3577 |
| 132 | 315MA | - 65 | 226 | 215 | 207 | 164 | 125 | 86 | 78 | 226 | 195 | 3578 |
| 160 | 315MB | - 65 | 276 | 262 | 253 | 200 | 152 | 105 | 95 | 276 | 239 | 3572 |
| 200 | 355LA | - 80 | 358 | 340 | 328 | 259 | 197 | 136 | 124 | 358 | 309 | 3576 |
| 225 | 355LB | - 80 | 381 | 362 | 349 | 276 | 210 | 145 | 132 | 381 | 329 | 3577 |
| 250 | 355LC | - 80 | 403 | 383 | 369 | 292 | 222 | 153 | 139 | 403 | 348 | 3576 |
| 280 | 355LD | - 80 | 486 | 462 | 445 | 352 | 268 | 185 | 168 | 486 | 420 | 3582 |

This data is provided for guidance only, guaranteed only when confirmed by Regal Australia.

Performance data

PPA series, three phase, 415V 50Hz

IP66, H class insulation, B class temperature rise

| kW | Motor frame | Speed [r/min] | Efficiency [%] at % full load | | | Power factor [cos φ] at % full load | | | Current | | | Torque | | | | Moment of Inertia J=¼GD ² [kg·m ²] | Weight of foot mount motor [kg] | |
|-----------------------------|-------------|--------------------|------------------------------------|------|------|---|------|------|---|---|---|--|---|--|---|---|---|------|
| | | | 100 | 75 | 50 | 100 | 75 | 50 | Full load I _N [A] | Locked rotor I _L /I _N | t _E ¹⁾ time [sec] | Full load T _N [Nm] | Locked rotor T _L /T _N | Pull up T _U /T _N | Break down T _B /T _N | | | |
| 1500 r/min = 4 poles | | | | | | | | | | | | | | | | | | |
| 0.55 | 80A | -19 | 1440 | 81.0 | 80.4 | 77.0 | 0.71 | 0.62 | 0.49 | 1.4 | 8.4 | 30 | 3.6 | 2.7 | 2.5 | 3.0 | 0.00020 | 21 |
| 0.75 | 80B | -19 | 1445 | 83.1 | 82.4 | 79.2 | 0.72 | 0.63 | 0.50 | 1.8 | 7.4 | 28 | 5.0 | 3.3 | 3.0 | 3.4 | 0.00025 | 23 |
| 1.1 | 90S | -24 | 1440 | 85.7 | 85.7 | 83.7 | 0.77 | 0.7 | 0.57 | 2.4 | 7.7 | 35 | 7.3 | 3.3 | 2.6 | 3.2 | 0.0005 | 30 |
| 1.5 | 90L | -24 | 1440 | 85.8 | 85.7 | 83.6 | 0.76 | 0.68 | 0.55 | 3.2 | 7.9 | 25 | 9.9 | 3.5 | 2.8 | 3.2 | 0.0006 | 34 |
| 2.2 | 100LA | -28 | 1455 | 86.9 | 86.7 | 84.8 | 0.84 | 0.78 | 0.66 | 4.3 | 8.4 | 22 | 14.4 | 3.7 | 3.4 | 4.9 | 0.0007 | 40 |
| 3 | 100LB | -28 | 1455 | 87.6 | 87.6 | 85.9 | 0.84 | 0.79 | 0.68 | 5.7 | 8.5 | 17 | 19.7 | 2.7 | 2.4 | 3.3 | 0.0009 | 50 |
| 4 | 112M | -28 | 1445 | 87.7 | 88.3 | 87.7 | 0.88 | 0.83 | 0.74 | 7.3 | 7.8 | 13 | 26.4 | 2.7 | 2.5 | 3.1 | 0.002 | 57 |
| 5.5 | 132S | -38 | 1460 | 89.7 | 90.1 | 89.2 | 0.83 | 0.78 | 0.65 | 10.3 | 7.3 | 13 | 36.0 | 2.0 | 1.8 | 3.1 | 0.003 | 95 |
| 7.5 | 132M | -38 | 1465 | 91.0 | 91.4 | 90.6 | 0.83 | 0.77 | 0.64 | 13.8 | 8.7 | 12 | 48.9 | 1.8 | 1.6 | 3.3 | 0.007 | 98 |
| 11 | 160M | -42 | 1470 | 91.8 | 92.0 | 91.1 | 0.85 | 0.82 | 0.74 | 19.6 | 7.1 | 20 | 71.5 | 2.3 | 1.6 | 2.6 | 0.089 | 141 |
| 15 | 160L | -42 | 1470 | 91.8 | 91.7 | 90.7 | 0.84 | 0.81 | 0.73 | 27.0 | 7.6 | 10 | 97.4 | 2.6 | 1.6 | 2.7 | 0.103 | 163 |
| 18.5 | 180M | -48 | 1475 | 92.3 | 92.7 | 92.2 | 0.88 | 0.85 | 0.81 | 32.0 | 7.3 | 10 | 120 | 2.5 | 1.8 | 2.9 | 0.16 | 195 |
| 22 | 180L | -48 | 1475 | 92.7 | 93.1 | 92.8 | 0.91 | 0.88 | 0.81 | 36.5 | 7.4 | 10 | 142 | 2.3 | 1.7 | 2.8 | 0.18 | 215 |
| 30 | 200L | -55 | 1480 | 93.9 | 93.9 | 93.2 | 0.89 | 0.84 | 0.75 | 51 | 7.9 | 15 | 194 | 2.4 | 2.0 | 3.2 | 0.31 | 293 |
| 37 | 225S | -60 | 1485 | 94.6 | 94.6 | 93.9 | 0.90 | 0.88 | 0.82 | 61 | 8.1 | 20 | 238 | 2.4 | 1.7 | 2.9 | 0.53 | 370 |
| 45 | 225M | -60 | 1485 | 94.5 | 94.5 | 93.9 | 0.90 | 0.87 | 0.81 | 74 | 8.1 | 13 | 289 | 2.1 | 1.7 | 2.4 | 0.58 | 395 |
| 55 | 250S | -70 | 1480 | 94.5 | 94.8 | 94.3 | 0.90 | 0.90 | 0.88 | 90 | 7.5 | 13 | 355 | 2.5 | 1.7 | 2.7 | 0.79 | 487 |
| 75 | 250M | -70 | 1485 | 94.8 | 94.9 | 94.4 | 0.91 | 0.89 | 0.81 | 122 | 7.9 | 7 | 482 | 2.9 | 2.0 | 3.0 | 0.90 | 536 |
| 90 | 280S | -80 | 1489 | 95.2 | 95.2 | 94.5 | 0.91 | 0.89 | 0.84 | 145 | 7.0 | 13 | 577 | 2.5 | 1.9 | 3.0 | 1.60 | 692 |
| 110 | 280M | -80 | 1492 | 95.9 | 95.9 | 95.1 | 0.92 | 0.90 | 0.86 | 174 | 7.2 | 7 | 704 | 2.4 | 2.1 | 3.1 | 1.89 | 787 |
| 132 | 315S | -85 | 1486 | 95.6 | 95.5 | 94.7 | 0.87 | 0.85 | 0.80 | 220 | 7.9 | 13 | 848 | 2.3 | 1.2 | 2.6 | 2.73 | 1100 |
| 150 | 315M | -85 | 1486 | 95.7 | 95.7 | 95.0 | 0.87 | 0.86 | 0.81 | 250 | 8.3 | 15 | 964 | 2.2 | 1.2 | 2.6 | 3.04 | 1135 |
| 185 | 315LA | -85 | 1487 | 96.2 | 96.3 | 95.8 | 0.90 | 0.89 | 0.80 | 298 | 7.8 | 8 | 1188 | 2.4 | 1.2 | 2.5 | 3.43 | 1280 |
| 200 | 315LB | -85 | 1485 | 95.8 | 95.8 | 95.1 | 0.88 | 0.86 | 0.80 | 330 | 9.0 | 7 | 1287 | 2.4 | 1.3 | 2.7 | 3.62 | 1330 |
| 220 | 315LC | -85 | 1485 | 95.9 | 95.9 | 95.4 | 0.88 | 0.87 | 0.81 | 364 | 7.3 | 7 | 1415 | 2.4 | 1.3 | 2.7 | 3.89 | 1400 |
| 250 | 315LX | -85 | 1485 | 95.9 | 95.9 | 95.3 | 0.88 | 0.86 | 0.81 | 412 | 8.9 | 7 | 1608 | 2.4 | 1.4 | 2.7 | 4.14 | 1480 |
| 280 | 355LA | -110 | 1489 | 96.1 | 95.8 | 95.0 | 0.84 | 0.79 | 0.73 | 483 | 4.9 | 10 | 1795 | 1.6 | 1.3 | 2.3 | 7.82 | 2080 |
| 315 | 355LB | -110 | 1490 | 96.6 | 96.5 | 95.9 | 0.87 | 0.86 | 0.79 | 520 | 5.3 | 10 | 2019 | 1.5 | 1.3 | 2.4 | 8.27 | 2125 |
| 355 | 355LC | -110 | 1489 | 96.5 | 96.5 | 95.9 | 0.88 | 0.87 | 0.81 | 580 | 5.0 | 9 | 2277 | 1.5 | 1.3 | 2.4 | 8.90 | 2240 |
| 400 | 355LD | -110 | 1490 | 96.3 | 96.1 | 95.3 | 0.88 | 0.86 | 0.80 | 658 | 5.1 | 8 | 2564 | 1.4 | 1.4 | 2.4 | 9.76 | 2340 |
| 450 | 355LX | -110 | 1491 | 97.0 | 97.0 | 96.5 | 0.88 | 0.86 | 0.79 | 734 | 5.5 | 8 | 2882 | 1.7 | 1.5 | 2.6 | 10.76 | 2510 |
| 500 | 400LA | -110 | 1494 | 96.9 | 96.7 | 96.0 | 0.88 | 0.87 | 0.81 | 813 | 5.8 | 7 | 3196 | 1.9 | 1.6 | 2.8 | 18.68 | 3010 |
| 560 | 400LB | -110 | 1490 | 96.8 | 96.9 | 96.7 | 0.87 | 0.87 | 0.83 | 925 | 5.2 | 9 | 3589 | 1.7 | 1.5 | 2.5 | 19.70 | 3200 |
| 630 | 400LX | -110 | 1490 | 96.9 | 97.0 | 96.8 | 0.87 | 0.86 | 0.82 | 1040 | 5.4 | 11 | 4038 | 1.5 | 1.2 | 2.5 | 21.64 | 3320 |
| 800 | 450L | -125 | 1492 | 96.8 | 96.3 | 95.3 | 0.89 | 0.87 | 0.82 | 780 ²⁾ | 6.7 | - | 5121 | 1.7 | 1.3 | 3.0 | 37.1 | 5700 |
| 1000 | 450L | -125 | 1495 | 96.9 | 96.4 | 95.3 | 0.90 | 0.88 | 0.82 | 960 ²⁾ | 6.6 | - | 6401 | 1.6 | 1.2 | 3.0 | 46.4 | 6100 |

PPC series 415V 50Hz

| | | | | | | | | | | | | | | | | | | |
|-------------------|-------|------|------|------|------|------|------|------|------|-----|-----|----|------|-----|-----|-----|------|------|
| 37 | 225S | -60 | 1485 | 94.6 | 94.6 | 93.9 | 0.90 | 0.88 | 0.82 | 61 | 7.7 | 20 | 238 | 2.4 | 1.7 | 2.9 | 0.53 | 370 |
| 45 | 225M | -60 | 1485 | 94.5 | 94.5 | 93.9 | 0.90 | 0.87 | 0.81 | 74 | 7.8 | 13 | 289 | 2.1 | 1.7 | 2.4 | 0.58 | 395 |
| 55 | 250M | -65 | 1480 | 94.5 | 94.8 | 94.3 | 0.90 | 0.90 | 0.88 | 90 | 7.1 | 13 | 355 | 2.5 | 1.7 | 2.7 | 0.79 | 487 |
| 75 | 280S | -75 | 1485 | 94.9 | 94.8 | 94.2 | 0.90 | 0.89 | 0.84 | 123 | 6.9 | 13 | 482 | 2.9 | 2.0 | 2.9 | 0.92 | 655 |
| 90 | 280M | -75 | 1489 | 95.2 | 95.2 | 94.5 | 0.91 | 0.89 | 0.84 | 145 | 7.4 | 13 | 577 | 2.5 | 1.9 | 3.0 | 1.60 | 692 |
| 110 | 315S | -80 | 1484 | 95.3 | 95.3 | 94.5 | 0.86 | 0.83 | 0.77 | 188 | 6.6 | 25 | 708 | 2.0 | 1.3 | 2.5 | 1.96 | 985 |
| 132 | 315MA | -80 | 1486 | 95.6 | 95.5 | 94.7 | 0.87 | 0.85 | 0.80 | 220 | 6.9 | 13 | 848 | 2.3 | 1.2 | 2.6 | 2.73 | 1100 |
| 160 ³⁾ | 315MB | -80 | 1485 | 95.6 | 95.7 | 95.0 | 0.87 | 0.86 | 0.81 | 268 | 6.6 | 15 | 1029 | 2.0 | 1.1 | 2.4 | 3.04 | 1135 |
| 200 | 355LA | -100 | 1488 | 96.0 | 95.8 | 95.1 | 0.87 | 0.84 | 0.78 | 335 | 7.5 | 10 | 1284 | 2.3 | 1.3 | 2.7 | 3.62 | 1480 |
| 225 | 355LC | -100 | 1485 | 95.7 | 95.8 | 95.6 | 0.87 | 0.85 | 0.78 | 376 | 7.1 | 10 | 1447 | 2.4 | 1.3 | 2.7 | 3.89 | 1500 |
| 250 | 355LD | -100 | 1487 | 96.1 | 96.1 | 95.6 | 0.87 | 0.85 | 0.80 | 416 | 7.6 | 10 | 1606 | 2.5 | 1.4 | 2.7 | 4.14 | 1630 |
| 280 | 355LE | -100 | 1485 | 95.8 | 95.8 | 95.4 | 0.88 | 0.86 | 0.80 | 462 | 5.3 | 10 | 1801 | 1.5 | 1.3 | 2.4 | 7.82 | 2080 |

¹⁾ t_E time applies to Ex e motors only (see page 24)

³⁾ For the hazardous location version the rating will be 150kW and performance data as per PPA

²⁾ Current at 690V 50Hz

Notes on page 15 also apply.

Full load currents at various power supplies

PPA series, three phase

Specifically wound for nominated power supply

| kW | Motor frame | | Current Full load I _N 50Hz | | | | | | | Current Full load I _N 60Hz | | Speed 60Hz [r/min] |
|----------------------------------|-------------|-------|---------------------------------------|----------|----------|----------|----------|-----------|-----------|---------------------------------------|----------|-------------------------|
| | | | 380V [A] | 400V [A] | 415V [A] | 525V [A] | 690V [A] | 1000V [A] | 1100V [A] | 380V [A] | 440V [A] | |
| 1500\1800 r/min = 4 poles | | | | | | | | | | | | |
| 0.55 | 80A | - 19 | 1.5 | 1.5 | 1.4 | 1.1 | 0.8 | 0.6 | 0.5 | 1.5 | 1.3 | 1728 |
| 0.75 | 80B | - 19 | 2.0 | 1.9 | 1.8 | 1.4 | 1.1 | 0.7 | 0.7 | 2.0 | 1.7 | 1734 |
| 1.1 | 90S | - 24 | 2.6 | 2.5 | 2.4 | 1.9 | 1.4 | 1.0 | 0.9 | 2.6 | 2.3 | 1728 |
| 1.5 | 90L | - 24 | 3.5 | 3.3 | 3.2 | 2.5 | 1.9 | 1.3 | 1.2 | 3.5 | 3.0 | 1728 |
| 2.2 | 100LA | - 28 | 4.7 | 4.5 | 4.3 | 3.4 | 2.6 | 1.8 | 1.6 | 4.7 | 4.1 | 1746 |
| 3 | 100LB | - 28 | 6.2 | 5.9 | 5.7 | 4.5 | 3.4 | 2.4 | 2.2 | 6.2 | 5.4 | 1746 |
| 4 | 112M | - 28 | 8.0 | 7.6 | 7.3 | 5.8 | 4.4 | 3.0 | 2.8 | 8.0 | 6.9 | 1734 |
| 5.5 | 132S | - 38 | 11.2 | 10.7 | 10.3 | 8.1 | 6.2 | 4.3 | 3.9 | 11.2 | 9.7 | 1752 |
| 7.5 | 132M | - 38 | 15.1 | 14.3 | 13.8 | 10.9 | 8.3 | 5.7 | 5.2 | 15.1 | 13 | 1758 |
| 11 | 160M | - 42 | 21.4 | 20.3 | 19.6 | 15.5 | 11.8 | 8.1 | 7.4 | 21.4 | 18.5 | 1764 |
| 15 | 160L | - 42 | 29.5 | 28 | 27.0 | 21.3 | 16.2 | 11.2 | 10.2 | 29.5 | 25.5 | 1764 |
| 18.5 | 180M | - 48 | 34.9 | 33.2 | 32.0 | 25.3 | 19.2 | 13.3 | 12.1 | 34.9 | 30.2 | 1770 |
| 22 | 180L | - 48 | 39.9 | 37.9 | 36.5 | 28.9 | 22 | 15.1 | 13.8 | 39.9 | 34.4 | 1770 |
| 30 | 200L | - 55 | 56 | 53 | 51 | 40.3 | 30.7 | 21.2 | 19.2 | 56 | 48.1 | 1776 |
| 37 | 225S | - 60 | 67 | 63 | 61 | 48.2 | 36.7 | 25.3 | 23 | 67 | 58 | 1782 |
| 45 | 225M | - 60 | 81 | 77 | 74 | 58 | 44.5 | 30.7 | 27.9 | 81 | 70 | 1782 |
| 55 | 250S | - 70 | 98 | 93 | 90 | 71 | 54 | 37.4 | 34 | 98 | 85 | 1776 |
| 75 | 250M | - 70 | 133 | 127 | 122 | 96 | 73 | 51 | 46 | 133 | 115 | 1782 |
| 90 | 280S | - 80 | 158 | 150 | 145 | 115 | 87 | 60 | 55 | 158 | 137 | 1787 |
| 110 | 280M | - 80 | 190 | 181 | 174 | 138 | 105 | 72 | 66 | 190 | 164 | 1790 |
| 132 | 315S | - 85 | 240 | 228 | 220 | 174 | 132 | 91 | 83 | 240 | 208 | 1783 |
| 150 | 315M | - 85 | 273 | 259 | 250 | 198 | 150 | 104 | 94 | 273 | 236 | 1783 |
| 185 | 315LA | - 85 | 325 | 309 | 298 | 236 | 179 | 124 | 112 | 325 | 281 | 1784 |
| 200 | 315LB | - 85 | 360 | 342 | 330 | 261 | 198 | 137 | 125 | 360 | 311 | 1781 |
| 220 | 315LC | - 85 | 398 | 378 | 364 | 288 | 219 | 151 | 137 | 398 | 343 | 1781 |
| 250 | 315LX | - 85 | 450 | 427 | 412 | 326 | 248 | 171 | 155 | 450 | 389 | 1782 |
| 280 | 355LA | - 110 | 527 | 501 | 483 | 382 | 291 | 200 | 182 | 527 | 456 | 1787 |
| 315 | 355LB | - 110 | 568 | 540 | 520 | 411 | 313 | 216 | 196 | 568 | 490 | 1788 |
| 355 | 355LC | - 110 | 633 | 602 | 580 | 458 | 349 | 241 | 219 | 633 | 547 | 1787 |
| 400 | 355LD | - 110 | 719 | 683 | 658 | 520 | 396 | 273 | 248 | 719 | 621 | 1788 |
| 450 | 355LX | - 110 | 802 | 762 | 734 | 580 | 441 | 305 | 277 | 802 | 692 | 1789 |
| 500 | 400LA | - 110 | 888 | 843 | 813 | 643 | 489 | 337 | 307 | 888 | 767 | 1793 |
| 560 | 400LB | - 110 | 1010 | 960 | 925 | 731 | 556 | 384 | 349 | 1010 | 872 | 1788 |
| 630 | 400LX | - 110 | 1136 | 1079 | 1040 | 822 | 626 | 432 | 392 | 1136 | 981 | 1788 |
| 800 | 450LB | - 125 | - | - | - | - | 780 | 538 | 489 | - | - | - |
| 1000 | 450LD | - 125 | - | - | - | - | 960 | 662 | 602 | - | - | - |
| PPC series | | | | | | | | | | | | |
| 37 | 225S | - 60 | 67 | 63 | 61 | 48.2 | 36.7 | 25.3 | 23 | 67 | 58 | 1782 |
| 45 | 225M | - 60 | 81 | 77 | 74 | 58 | 44.5 | 30.7 | 27.9 | 81 | 70 | 1782 |
| 55 | 250M | - 65 | 98 | 93 | 90 | 71 | 54 | 37.4 | 34 | 98 | 85 | 1776 |
| 75 | 280S | - 75 | 134 | 128 | 123 | 97 | 74 | 51 | 46.4 | 134 | 116 | 1782 |
| 90 | 280M | - 75 | 158 | 150 | 145 | 115 | 87 | 60 | 55 | 158 | 137 | 1787 |
| 110 | 315S | - 80 | 205 | 195 | 188 | 149 | 113 | 78 | 71 | 205 | 177 | 1781 |
| 132 | 315MA | - 80 | 240 | 228 | 220 | 174 | 132 | 91 | 83 | 240 | 208 | 1783 |
| 160 | 315MB | - 80 | 293 | 278 | 268 | 212 | 161 | 111 | 101 | 293 | 253 | 1782 |
| 200 | 355LA | - 100 | 366 | 348 | 335 | 265 | 201 | 139 | 126 | 366 | 316 | 1786 |
| 225 | 355LC | - 100 | 411 | 390 | 376 | 297 | 226 | 156 | 142 | 411 | 355 | 1782 |
| 250 | 355LD | - 100 | 454 | 432 | 416 | 329 | 250 | 173 | 157 | 454 | 392 | 1784 |
| 280 | 355LE | - 100 | 505 | 479 | 462 | 365 | 278 | 192 | 174 | 505 | 436 | 1782 |

For the performance data of motors 710kW and 900kW please refer to Regal Australia
This data is provided for guidance only, guaranteed only when confirmed by Regal Australia.

Performance data

PPA series, three phase, 415V 50Hz

IP66, H class insulation, B class temperature rise

| kW | Motor frame | Speed [r/min] | Efficiency [%] at % full load | | | Power factor [cos φ] at % full load | | | Current | | | Torque | | | | Moment of Inertia J=1/4GD ² [kg·m ²] | Weight of foot mount motor [kg] | |
|-----------------------------|-------------|--------------------|------------------------------------|------|------|---|------|------|---|---|---|--|---|--|---|---|---|------|
| | | | 100 | 75 | 50 | 100 | 75 | 50 | Full load I _N [A] | Locked rotor I _L /I _N | t _E ¹⁾ time [sec] | Full load T _N [Nm] | Locked rotor T _L /T _N | Pull up T _U /T _N | Break down T _B /T _N | | | |
| 1000 r/min = 6 poles | | | | | | | | | | | | | | | | | | |
| 0.37 | 80A | -19 | 930 | 69.3 | 69.4 | 65.4 | 0.71 | 0.61 | 0.48 | 1.1 | 3.9 | - | 3.8 | 1.8 | 1.4 | 2.4 | 0.0004 | 20 |
| 0.55 | 80B | -19 | 930 | 72.3 | 72.3 | 68.5 | 0.70 | 0.60 | 0.46 | 1.6 | 4.2 | - | 5.6 | 2.1 | 1.7 | 2.7 | 0.0005 | 21 |
| 0.75 | 90S | -24 | 950 | 79.1 | 78.8 | 75.5 | 0.70 | 0.61 | 0.48 | 1.9 | 5.3 | 45 | 7.5 | 2.2 | 1.8 | 2.7 | 0.0007 | 28 |
| 1.1 | 90L | -24 | 950 | 80.6 | 80.5 | 77.5 | 0.70 | 0.61 | 0.47 | 2.7 | 5.1 | 25 | 11.1 | 2.3 | 1.8 | 2.7 | 0.0009 | 32 |
| 1.5 | 100L | -28 | 970 | 82.4 | 81.5 | 78.0 | 0.72 | 0.63 | 0.50 | 3.6 | 6.5 | 20 | 14.8 | 2.3 | 1.8 | 2.9 | 0.0017 | 49 |
| 2.2 | 112M | -28 | 960 | 84.0 | 84.0 | 81.7 | 0.73 | 0.65 | 0.51 | 5.0 | 6.4 | 17 | 21.9 | 2.4 | 1.7 | 2.9 | 0.035 | 53 |
| 3 | 132S | -38 | 975 | 87.0 | 87.1 | 85.5 | 0.77 | 0.70 | 0.57 | 6.2 | 7.1 | 20 | 29.4 | 2.0 | 1.4 | 2.8 | 0.007 | 78 |
| 4 | 132MA | -38 | 970 | 86.9 | 87.5 | 86.5 | 0.79 | 0.73 | 0.60 | 8.2 | 6.7 | 12 | 39.4 | 2.3 | 1.8 | 2.6 | 0.009 | 91 |
| 5.5 | 132MB | -38 | 970 | 87.8 | 88.6 | 87.9 | 0.79 | 0.73 | 0.62 | 11.0 | 7.0 | 11 | 54.1 | 2.0 | 1.9 | 2.6 | 0.046 | 100 |
| 7.5 | 160M | -42 | 975 | 89.4 | 89.5 | 88.3 | 0.78 | 0.73 | 0.62 | 15.0 | 6.3 | 15 | 73.5 | 2.5 | 1.9 | 2.8 | 0.11 | 139 |
| 11 | 160L | -42 | 970 | 89.7 | 89.8 | 88.5 | 0.76 | 0.70 | 0.57 | 22.5 | 7.2 | 19 | 108 | 2.5 | 1.9 | 2.6 | 0.13 | 161 |
| 15 | 180L | -48 | 975 | 90.6 | 91.1 | 90.4 | 0.86 | 0.81 | 0.69 | 27.0 | 7.5 | 12 | 147 | 2.4 | 2.0 | 2.6 | 0.25 | 211 |
| 18.5 | 200LA | -55 | 985 | 91.8 | 91.9 | 90.7 | 0.84 | 0.79 | 0.68 | 33.5 | 7.4 | 10 | 179 | 2.7 | 1.9 | 2.7 | 0.31 | 262 |
| 22 | 200LB | -55 | 975 | 91.6 | 92.2 | 91.8 | 0.85 | 0.83 | 0.76 | 39.5 | 6.8 | 13 | 215 | 2.4 | 1.8 | 2.6 | 0.41 | 282 |
| 30 | 225M | -60 | 985 | 92.8 | 92.7 | 91.6 | 0.84 | 0.80 | 0.75 | 54 | 7.0 | 25 | 291 | 2.4 | 2.0 | 3.0 | 0.67 | 373 |
| 37 | 250S | -70 | 985 | 93.0 | 93.5 | 93.1 | 0.88 | 0.87 | 0.82 | 63 | 6.5 | 15 | 359 | 2.1 | 1.6 | 2.6 | 0.94 | 443 |
| 45 | 250M | -70 | 990 | 93.9 | 94.2 | 93.7 | 0.90 | 0.88 | 0.83 | 75 | 7.0 | 20 | 434 | 2.2 | 1.8 | 2.6 | 1.15 | 501 |
| 55 | 280S | -80 | 994 | 94.8 | 94.8 | 94.3 | 0.90 | 0.89 | 0.87 | 90 | 6.6 | 20 | 528 | 2.4 | 1.9 | 2.7 | 1.82 | 613 |
| 75 | 280M | -80 | 992 | 94.9 | 95.0 | 94.3 | 0.90 | 0.89 | 0.83 | 123 | 6.6 | 13 | 722 | 2.8 | 2.1 | 3.0 | 2.33 | 735 |
| 90 | 315S | -85 | 991 | 94.9 | 94.8 | 93.9 | 0.87 | 0.84 | 0.77 | 152 | 6.6 | 22 | 867 | 2.2 | 1.8 | 2.6 | 4.57 | 1015 |
| 110 | 315MA | -85 | 991 | 95.5 | 95.6 | 95.1 | 0.86 | 0.84 | 0.77 | 185 | 6.1 | 15 | 1060 | 2.1 | 2.0 | 3.4 | 4.83 | 1075 |
| 132 | 315MB | -85 | 990 | 95.4 | 95.6 | 95.2 | 0.87 | 0.85 | 0.80 | 222 | 6.1 | 7 | 1274 | 2.0 | 1.5 | 2.4 | 5.32 | 1145 |
| 150 | 315L | -85 | 990 | 95.5 | 95.8 | 95.5 | 0.90 | 0.90 | 0.89 | 244 | 6.0 | 10 | 1447 | 2.3 | 1.4 | 2.3 | 5.95 | 1170 |
| 185 | 315LX | -85 | 990 | 95.8 | 95.9 | 95.9 | 0.88 | 0.88 | 0.86 | 306 | 4.9 | 6 | 1785 | 2.2 | 1.3 | 2.1 | 6.64 | 1570 |
| 200 | 355LA | -110 | 989 | 95.8 | 96.0 | 95.7 | 0.87 | 0.86 | 0.80 | 334 | 5.5 | 8 | 1931 | 1.7 | 1.1 | 2.3 | 8.63 | 1900 |
| 220 | 355LB | -110 | 987 | 95.7 | 96.1 | 96.0 | 0.88 | 0.88 | 0.84 | 362 | 5.2 | 8 | 2129 | 1.6 | 1.0 | 2.2 | 9.17 | 1985 |
| 250 | 355LC | -110 | 989 | 96.1 | 96.3 | 96.0 | 0.87 | 0.86 | 0.82 | 415 | 5.7 | 9 | 2414 | 1.5 | 1.1 | 2.4 | 9.83 | 2050 |
| 280 | 355LD | -110 | 989 | 95.9 | 96.3 | 96.3 | 0.88 | 0.87 | 0.84 | 462 | 5.2 | 9 | 2704 | 1.4 | 0.8 | 2.4 | 10.64 | 2150 |
| 315 | 355LX | -110 | 992 | 96.1 | 96.2 | 95.7 | 0.88 | 0.86 | 0.81 | 521 | 6.1 | 7 | 3033 | 1.8 | 1.2 | 2.5 | 11.25 | 2245 |
| 355 | 400LA | -110 | 994 | 96.6 | 96.6 | 96.0 | 0.88 | 0.86 | 0.80 | 584 | 8.1 | 8 | 3411 | 2.4 | 1.3 | 3.0 | 16.56 | 2790 |
| 400 | 400LB | -110 | 993 | 96.9 | 97.0 | 96.7 | 0.88 | 0.86 | 0.81 | 655 | 7.6 | 7 | 3847 | 2.3 | 1.3 | 2.8 | 19.26 | 2960 |
| 450 | 400LX | -110 | 994 | 96.6 | 96.8 | 96.7 | 0.88 | 0.87 | 0.83 | 737 | 7.9 | 8 | 4323 | 2.3 | 0.8 | 2.8 | 20.34 | 3050 |
| 500 | 400LX | -110 | 994 | 96.7 | 96.6 | 96.0 | 0.87 | 0.85 | 0.79 | 824 | 8.4 | 7 | 4804 | 2.7 | 1.4 | 3.1 | 21.83 | 3140 |
| 630 | 450L | -125 | 995 | 96.7 | 96.3 | 95.4 | 0.86 | 0.85 | 0.79 | 1055 | 6.6 | - | 6047 | 2.2 | 1.7 | 2.9 | 36.5 | 4800 |
| 800 | 450L | -125 | 995 | 96.7 | 96.4 | 95.5 | 0.86 | 0.85 | 0.78 | 810 ²⁾ | 8.0 | - | 7678 | 2.4 | 2.0 | 3.2 | 43.1 | 5800 |

PPC series 415V 50Hz

| | | | | | | | | | | | | | | | | | | |
|-------------------|-------|------|-----|------|------|------|------|------|------|-----|-----|----|------|-----|-----|-----|-------|------|
| 30 | 225M | -60 | 985 | 92.8 | 92.7 | 91.6 | 0.84 | 0.80 | 0.75 | 54 | 7.3 | 25 | 291 | 2.4 | 2.0 | 3.0 | 0.67 | 373 |
| 37 | 250M | -65 | 985 | 93.0 | 93.5 | 93.1 | 0.88 | 0.87 | 0.82 | 63 | 6.5 | 20 | 359 | 2.1 | 1.6 | 2.6 | 0.94 | 443 |
| 45 | 280S | -75 | 990 | 93.5 | 93.6 | 92.8 | 0.88 | 0.87 | 0.80 | 76 | 6.3 | 12 | 434 | 2.3 | 1.8 | 2.6 | 1.20 | 558 |
| 55 | 280M | -75 | 994 | 94.8 | 94.8 | 94.3 | 0.90 | 0.89 | 0.87 | 90 | 7.4 | 12 | 528 | 2.4 | 1.9 | 2.7 | 1.82 | 613 |
| 75 | 315S | -80 | 990 | 94.4 | 94.3 | 93.2 | 0.86 | 0.83 | 0.76 | 129 | 6.4 | 7 | 723 | 1.9 | 1.7 | 2.5 | 3.80 | 930 |
| 90 | 315MA | -80 | 991 | 94.9 | 94.8 | 93.9 | 0.87 | 0.84 | 0.77 | 152 | 6.5 | 7 | 867 | 2.2 | 1.8 | 2.6 | 4.57 | 1015 |
| 110 | 315MB | -80 | 991 | 95.5 | 95.6 | 95.1 | 0.86 | 0.84 | 0.77 | 185 | 6.5 | 6 | 1060 | 2.1 | 2.0 | 3.4 | 4.83 | 1075 |
| 132 | 315MC | -80 | 990 | 95.4 | 95.6 | 95.2 | 0.87 | 0.85 | 0.80 | 222 | 6.2 | 7 | 1274 | 2.0 | 1.5 | 2.4 | 5.32 | 1145 |
| 160 ³⁾ | 315L | -80 | 989 | 95.5 | 95.8 | 95.5 | 0.90 | 0.90 | 0.89 | 259 | 5.8 | 6 | 1545 | 2.1 | 1.3 | 2.1 | 5.95 | 1170 |
| 185 | 355LA | -100 | 989 | 95.8 | 95.9 | 95.9 | 0.88 | 0.88 | 0.86 | 306 | 5.9 | 8 | 1786 | 2.2 | 1.3 | 2.1 | 6.64 | 1620 |
| 200 | 355LB | -100 | 989 | 95.8 | 96.2 | 96.2 | 0.87 | 0.86 | 0.84 | 334 | 5.2 | 8 | 1931 | 1.4 | 0.9 | 2.2 | 8.63 | 1900 |
| 225 | 355LC | -100 | 986 | 95.8 | 96.0 | 96.1 | 0.88 | 0.87 | 0.84 | 372 | 5.0 | 8 | 2179 | 1.6 | 0.9 | 2.2 | 9.17 | 2000 |
| 250 | 355LD | -100 | 989 | 95.9 | 96.2 | 96.2 | 0.87 | 0.86 | 0.83 | 417 | 5.6 | 9 | 2414 | 1.5 | 0.8 | 2.4 | 9.83 | 2050 |
| 280 | 355LE | -100 | 989 | 95.9 | 96.3 | 96.3 | 0.88 | 0.87 | 0.84 | 462 | 5.2 | 9 | 2704 | 1.4 | 0.8 | 2.2 | 10.84 | 2150 |

¹⁾ t_E time applies to Ex e motors only (see page 24)

³⁾ For the hazardous location version the rating will be 150kW and performance data as per PPA
For the performance data of motors 560kW and 710kW please refer to Regal Australia.

²⁾ Current at 690V 50Hz

Notes on page 17 also apply

Full load currents at various power supplies

PPA series, three phase

Specifically wound for nominated power supply

| kW | Motor frame | | Current Full load I _N 50Hz | | | | | | | Current Full load I _N 60Hz | | Speed 60Hz [r/min] |
|----------------------------------|-------------|-------|---------------------------------------|-------------|-------------|-------------|-------------|--------------|--------------|---------------------------------------|-------------|-------------------------|
| | | | 380V [A] | 400V [A] | 415V [A] | 525V [A] | 690V [A] | 1000V [A] | 1100V [A] | 380V [A] | 440V [A] | |
| 1000\1200 r/min = 6 poles | | | | | | | | | | | | |
| 0.37 | 80A | - 19 | 1.2 | 1.1 | 1.1 | 0.9 | 0.7 | 0.5 | 0.4 | 1.2 | 1.0 | 1116 |
| 0.55 | 80B | - 19 | 1.7 | 1.7 | 1.6 | 1.3 | 1.0 | 0.7 | 0.6 | 1.7 | 1.5 | 1116 |
| 0.75 | 90S | - 24 | 2.1 | 2.0 | 1.9 | 1.5 | 1.1 | 0.8 | 0.7 | 2.1 | 1.8 | 1140 |
| 1.1 | 90L | - 24 | 2.9 | 2.8 | 2.7 | 2.1 | 1.6 | 1.1 | 1.0 | 2.9 | 2.5 | 1140 |
| 1.5 | 100L | - 28 | 3.9 | 3.7 | 3.6 | 2.8 | 2.2 | 1.5 | 1.4 | 3.9 | 3.4 | 1164 |
| 2.2 | 112M | - 28 | 5.5 | 5.2 | 5.0 | 4.0 | 3.0 | 2.1 | 1.9 | 5.5 | 4.7 | 1152 |
| 3 | 132S | - 38 | 6.8 | 6.4 | 6.2 | 4.9 | 3.7 | 2.6 | 2.3 | 6.8 | 5.8 | 1170 |
| 4 | 132MA | - 38 | 9.0 | 8.5 | 8.2 | 6.5 | 4.9 | 3.4 | 3.1 | 9.0 | 7.7 | 1164 |
| 5.5 | 132MB | - 38 | 12 | 11.4 | 11.0 | 8.7 | 6.6 | 4.6 | 4.2 | 12 | 10.4 | 1164 |
| 7.5 | 160M | - 42 | 16.4 | 15.6 | 15.0 | 11.9 | 9.0 | 6.2 | 5.7 | 16.4 | 14.1 | 1170 |
| 11 | 160L | - 42 | 24.6 | 23.3 | 22.5 | 17.8 | 13.5 | 9.3 | 8.5 | 24.6 | 21.2 | 1164 |
| 15 | 180L | - 48 | 29.5 | 28 | 27.0 | 21.3 | 16.2 | 11.2 | 10.2 | 29.5 | 25.5 | 1170 |
| 18.5 | 200LA | - 55 | 36.6 | 34.8 | 33.5 | 26.5 | 20.1 | 13.9 | 12.6 | 36.6 | 31.6 | 1182 |
| 22 | 200LB | - 55 | 43.1 | 41 | 39.5 | 31.2 | 23.8 | 16.4 | 14.9 | 43.1 | 37.3 | 1170 |
| 30 | 225M | - 60 | 59 | 56 | 54 | 42.7 | 32.5 | 22.4 | 20.4 | 59 | 51 | 1182 |
| 37 | 250S | - 70 | 69 | 65 | 63 | 50 | 37.9 | 26.1 | 23.8 | 69 | 59 | 1182 |
| 45 | 250M | - 70 | 82 | 78 | 75 | 59 | 45.1 | 31.1 | 28.3 | 82 | 71 | 1188 |
| 55 | 280S | - 80 | 98 | 93 | 90 | 71 | 54 | 37.4 | 34 | 98 | 85 | 1193 |
| 75 | 280M | - 80 | 134 | 128 | 123 | 97 | 74 | 51 | 46.4 | 134 | 116 | 1190 |
| 90 | 315S | - 85 | 166 | 158 | 152 | 120 | 91 | 63 | 57 | 166 | 143 | 1189 |
| 110 | 315MA | - 85 | 202 | 192 | 185 | 146 | 111 | 77 | 70 | 202 | 174 | 1189 |
| 132 | 315MB | - 85 | 242 | 230 | 222 | 175 | 134 | 92 | 84 | 242 | 209 | 1188 |
| 150 | 315L | - 85 | 266 | 253 | 244 | 193 | 147 | 101 | 92 | 266 | 230 | 1188 |
| 185 | 315LX | - 85 | 334 | 317 | 306 | 242 | 184 | 127 | 115 | 334 | 289 | 1188 |
| 200 | 355LA | - 110 | 365 | 347 | 334 | 264 | 201 | 139 | 126 | 365 | 315 | 1187 |
| 220 | 355LB | - 110 | 395 | 376 | 362 | 286 | 218 | 150 | 137 | 395 | 341 | 1184 |
| 250 | 355LC | - 110 | 453 | 431 | 415 | 328 | 250 | 172 | 157 | 453 | 391 | 1187 |
| 280 | 355LD | - 110 | 505 | 479 | 462 | 365 | 278 | 192 | 174 | 505 | 436 | 1187 |
| 315 | 355LX | - 110 | 569 | 541 | 521 | 412 | 313 | 216 | 197 | 569 | 491 | 1190 |
| 355 | 400LA | - 110 | 638 | 606 | 584 | 462 | 351 | 242 | 220 | 638 | 551 | 1193 |
| 400 | 400LB | - 110 | 715 | 680 | 655 | 518 | 394 | 272 | 247 | 715 | 618 | 1192 |
| 450 | 400LX | - 110 | 805 | 765 | 737 | 583 | 443 | 306 | 278 | 805 | 695 | 1193 |
| 500 | 400LX | - 110 | 900 | 855 | 824 | 651 | 496 | 342 | 311 | 900 | 777 | 1193 |
| 630 | 450LB | - 125 | 1152 | 1095 | 1055 | 834 | 635 | 438 | 398 | 1152 | 995 | 1194 |
| 800 | 450LD | - 125 | - | - | - | - | 810 | 559 | 508 | - | - | - |
| PPC series | | | | | | | | | | | | |
| 30 | 225M | - 60 | 59 | 56 | 54 | 42.7 | 32.5 | 22.4 | 20.4 | 59 | 51 | 1182 |
| 37 | 250M | - 65 | 69 | 65 | 63 | 50 | 37.9 | 26.1 | 23.8 | 69 | 59 | 1182 |
| 45 | 280S | - 75 | 83 | 79 | 76 | 60 | 45.7 | 31.5 | 28.7 | 83 | 72 | 1188 |
| 55 | 280M | - 75 | 98 | 93 | 90 | 71 | 54 | 37.4 | 34 | 98 | 85 | 1193 |
| 75 | 315S | - 80 | 141 | 134 | 129 | 102 | 78 | 54 | 48.7 | 141 | 122 | 1188 |
| 90 | 315MA | - 80 | 166 | 158 | 152 | 120 | 91 | 63 | 57 | 166 | 143 | 1189 |
| 110 | 315MB | - 80 | 202 | 192 | 185 | 146 | 111 | 77 | 70 | 202 | 174 | 1189 |
| 132 | 315MC | - 80 | 242 | 230 | 222 | 175 | 134 | 92 | 84 | 242 | 209 | 1188 |
| 160 | 315L | - 80 | 283 | 269 | 259 | 205 | 156 | 107 | 98 | 283 | 244 | 1187 |
| 185 | 355LA | - 100 | 334 | 317 | 306 | 242 | 184 | 127 | 115 | 334 | 289 | 1187 |
| 200 | 355LB | - 100 | 365 | 347 | 334 | 264 | 201 | 139 | 126 | 365 | 315 | 1187 |
| 225 | 355LC | - 100 | 406 | 386 | 372 | 294 | 224 | 154 | 140 | 406 | 351 | 1183 |
| 250 | 355LD | - 100 | 455 | 433 | 417 | 330 | 251 | 173 | 157 | 455 | 393 | 1187 |
| 280 | 355LE | - 100 | 505 | 479 | 462 | 365 | 278 | 192 | 174 | 505 | 436 | 1187 |

This data is provided for guidance only, guaranteed only when confirmed by Regal Australia.

Performance data

PPA series, three phase, 415V 50Hz

IP66, H class insulation, B class temperature rise

| kW | Motor frame | Speed [r/min] | Efficiency [%] at % full load | | | Power factor [cos φ] at % full load | | | Current | | | Torque | | | | Moment of Inertia J=¼GD ² [kg·m ²] | Weight of foot mount motor [kg] |
|----|-------------|--------------------|------------------------------------|----|----|---|----|----|---|---|---|--|---|--|---|---|---|
| | | | 100 | 75 | 50 | 100 | 75 | 50 | Full load I _N [A] | Locked rotor I _L /I _N | t _E ¹⁾ time [sec] | Full load T _N [Nm] | Locked rotor T _L /T _N | Pull up T _U /T _N | Break down T _B /T _N | | |

750 r/min = 8 poles

| | | | | | | | | | | | | | | | | | | |
|------|--------|------|-----|------|------|------|------|------|------|------|-----|----|------|-----|-----|-----|--------|------|
| 1.1 | 100L | -28 | 700 | 76.3 | 70.5 | 64.7 | 0.82 | 0.54 | 0.42 | 2.5 | 3.5 | - | 15.0 | 2.3 | 1.8 | 2.8 | 0.0028 | 33 |
| 1.5 | 112M | -28 | 700 | 78.4 | 77.3 | 74.5 | 0.89 | 0.60 | 0.48 | 3.0 | 4.0 | - | 20.5 | 2.1 | 1.8 | 2.8 | 0.0062 | 45 |
| 2.2 | 132S | -38 | 705 | 80.9 | 84.0 | 84.6 | 0.73 | 0.69 | 0.59 | 5.2 | 5.5 | 20 | 29.8 | 2.1 | 1.5 | 2.1 | 0.031 | 65 |
| 3 | 132M | -38 | 705 | 82.7 | 85.6 | 86.2 | 0.73 | 0.69 | 0.59 | 6.9 | 5.5 | 18 | 40.6 | 2.1 | 1.6 | 2.1 | 0.040 | 80 |
| 4 | 160MA | -42 | 720 | 84.2 | 85.3 | 85.2 | 0.77 | 0.69 | 0.56 | 8.6 | 5.5 | 12 | 53.1 | 2.2 | 1.7 | 2.6 | 0.085 | 110 |
| 5.5 | 160MB | -42 | 720 | 85.8 | 87.0 | 86.7 | 0.78 | 0.70 | 0.57 | 11.4 | 5.6 | 10 | 73.0 | 2.3 | 1.8 | 2.6 | 0.10 | 115 |
| 7.5 | 160L | -42 | 720 | 87.2 | 88.1 | 87.6 | 0.76 | 0.68 | 0.55 | 15.7 | 5.8 | 8 | 99.5 | 2.6 | 2.0 | 2.8 | 0.18 | 139 |
| 11 | 180L | -48 | 730 | 88.8 | 89.3 | 88.6 | 0.78 | 0.71 | 0.56 | 22.1 | 6.2 | 15 | 144 | 2.3 | 1.7 | 2.7 | 0.24 | 205 |
| 15 | 200L | -55 | 730 | 90.0 | 90.8 | 90.6 | 0.78 | 0.70 | 0.58 | 29.7 | 5.3 | 11 | 196 | 2.1 | 1.5 | 2.4 | 0.37 | 300 |
| 18.5 | 225S | -60 | 735 | 90.7 | 91.0 | 90.4 | 0.77 | 0.72 | 0.58 | 36.9 | 5.8 | 12 | 240 | 2.3 | 1.6 | 2.5 | 0.60 | 360 |
| 22 | 225M | -60 | 735 | 91.2 | 91.5 | 90.9 | 0.77 | 0.72 | 0.58 | 43.6 | 5.9 | 11 | 286 | 2.3 | 1.6 | 2.6 | 0.69 | 400 |
| 30 | 250S | -70 | 740 | 92.1 | 92.6 | 92.5 | 0.79 | 0.75 | 0.63 | 57 | 5.7 | 10 | 387 | 2.0 | 1.6 | 2.4 | 0.96 | 565 |
| 37 | 250M | -70 | 740 | 92.7 | 93.2 | 93.0 | 0.80 | 0.76 | 0.68 | 69 | 5.3 | 11 | 478 | 1.9 | 1.4 | 2.2 | 1.15 | 575 |
| 45 | 280S | -80 | 745 | 93.2 | 93.6 | 93.4 | 0.82 | 0.79 | 0.71 | 82 | 5.8 | 10 | 577 | 2.1 | 1.5 | 2.4 | 1.82 | 650 |
| 55 | 280M | -80 | 743 | 94.0 | 93.7 | 92.5 | 0.80 | 0.74 | 0.63 | 103 | 6.5 | 8 | 707 | 2.7 | 2.2 | 3.0 | 2.14 | 678 |
| 75 | 315S | -85 | 740 | 94.4 | 94.8 | 94.2 | 0.82 | 0.78 | 0.70 | 135 | 4.9 | 10 | 968 | 1.5 | 1.2 | 2.0 | 4.60 | 1000 |
| 90 | 315M | -85 | 740 | 94.7 | 94.9 | 94.8 | 0.83 | 0.80 | 0.72 | 159 | 4.9 | 11 | 1161 | 1.5 | 1.3 | 2.0 | 5.32 | 1100 |
| 110 | 315L | -85 | 740 | 95.2 | 95.3 | 95.0 | 0.83 | 0.79 | 0.70 | 194 | 5.1 | 9 | 1420 | 1.6 | 1.2 | 2.1 | 5.95 | 1270 |
| 132 | 315LXA | -85 | 740 | 95.4 | 95.6 | 95.2 | 0.82 | 0.78 | 0.71 | 235 | 5.3 | 8 | 1704 | 1.6 | 1.3 | 2.1 | 6.70 | 1480 |
| 150 | 315LXB | -85 | 740 | 95.7 | 95.8 | 95.7 | 0.83 | 0.80 | 0.73 | 263 | 4.7 | 8 | 1936 | 1.2 | 0.9 | 1.8 | 9.11 | 1680 |
| 185 | 355LA | -110 | 740 | 95.5 | 95.6 | 95.1 | 0.83 | 0.80 | 0.73 | 327 | 5.1 | 12 | 2386 | 1.9 | 1.1 | 2.3 | 9.87 | 2125 |
| 200 | 355LB | -110 | 740 | 95.8 | 96.0 | 96.0 | 0.83 | 0.82 | 0.75 | 350 | 4.8 | 11 | 2581 | 1.3 | 0.9 | 1.8 | 10.64 | 2400 |
| 220 | 355LB | -110 | 740 | 95.8 | 96.0 | 96.1 | 0.83 | 0.82 | 0.76 | 385 | 4.7 | 11 | 2839 | 1.2 | 0.9 | 1.8 | 11.19 | 2580 |
| 250 | 355LX | -110 | 742 | 95.9 | 95.9 | 95.9 | 0.83 | 0.81 | 0.75 | 437 | 5.2 | 10 | 3218 | 1.6 | 1.1 | 2.2 | 12.48 | 2650 |
| 280 | 400LA | -110 | 745 | 96.1 | 96.3 | 96.2 | 0.83 | 0.82 | 0.75 | 488 | 6 | 13 | 3589 | 1.3 | 1.0 | 2.4 | 17.25 | 3000 |
| 315 | 400LB | -110 | 744 | 95.9 | 95.8 | 94.8 | 0.81 | 0.77 | 0.66 | 565 | 6.8 | 12 | 4043 | 1.8 | 1.2 | 3.2 | 18.24 | 3030 |
| 355 | 400LX | -110 | 745 | 96.2 | 96.5 | 96.4 | 0.83 | 0.82 | 0.76 | 618 | 6.1 | 11 | 4551 | 1.3 | 0.9 | 2.4 | 26.16 | 3500 |

PPC series 415V 50Hz

| | | | | | | | | | | | | | | | | | | |
|-------------------|-------|------|-----|------|------|------|------|------|------|-----|-----|----|------|-----|-----|-----|-------|------|
| 30 | 250M | -65 | 740 | 92.1 | 92.6 | 92.5 | 0.79 | 0.75 | 0.63 | 57 | 5.7 | 10 | 387 | 2.0 | 1.6 | 2.4 | 0.96 | 575 |
| 37 | 280S | -75 | 740 | 92.7 | 93.1 | 93.0 | 0.80 | 0.76 | 0.69 | 69 | 5.6 | 11 | 478 | 2.0 | 1.4 | 2.2 | 1.60 | 625 |
| 45 | 280M | -75 | 745 | 93.2 | 93.6 | 93.4 | 0.82 | 0.79 | 0.71 | 82 | 5.8 | 10 | 577 | 2.1 | 1.5 | 2.4 | 1.82 | 675 |
| 55 | 315S | -80 | 740 | 93.7 | 93.9 | 93.5 | 0.82 | 0.78 | 0.70 | 100 | 4.9 | 10 | 710 | 1.4 | 1.1 | 2.0 | 3.60 | 800 |
| 75 | 315MA | -85 | 740 | 94.4 | 94.8 | 94.2 | 0.82 | 0.78 | 0.70 | 135 | 4.9 | 10 | 968 | 1.5 | 1.2 | 2.0 | 4.60 | 1050 |
| 90 | 315MB | -80 | 740 | 94.7 | 94.9 | 94.8 | 0.83 | 0.80 | 0.72 | 160 | 4.9 | 11 | 1161 | 1.5 | 1.3 | 2.0 | 5.32 | 1100 |
| 110 | 315L | -80 | 740 | 95.4 | 95.3 | 95.0 | 0.83 | 0.79 | 0.70 | 194 | 5.1 | 9 | 1420 | 1.6 | 1.2 | 2.1 | 5.95 | 1270 |
| 132 | 355LA | -100 | 740 | 95.4 | 95.6 | 95.2 | 0.82 | 0.78 | 0.71 | 235 | 5.3 | 12 | 1704 | 1.6 | 1.3 | 2.1 | 7.60 | 1530 |
| 160 ²⁾ | 355LB | -100 | 740 | 95.7 | 95.8 | 95.7 | 0.83 | 0.80 | 0.73 | 281 | 4.5 | 12 | 2065 | 1.1 | 0.8 | 1.7 | 9.11 | 1730 |
| 185 | 355LC | -100 | 740 | 95.5 | 95.6 | 95.1 | 0.83 | 0.80 | 0.73 | 326 | 5.1 | 12 | 2388 | 1.9 | 1.1 | 2.3 | 9.87 | 2125 |
| 200 | 355LD | -100 | 740 | 95.8 | 96.0 | 96.0 | 0.83 | 0.82 | 0.75 | 350 | 4.8 | 11 | 2581 | 1.3 | 0.9 | 1.8 | 10.64 | 2400 |
| 220 | 355LE | -100 | 740 | 95.8 | 96.0 | 96.1 | 0.83 | 0.82 | 0.76 | 385 | 4.7 | 11 | 2839 | 1.2 | 0.9 | 1.8 | 11.19 | 2580 |
| 250 | 355LX | -100 | 742 | 95.7 | 96.1 | 96.1 | 0.83 | 0.82 | 0.76 | 438 | 5.0 | 10 | 3218 | 1.3 | 0.9 | 1.9 | 12.48 | 2650 |

¹⁾ t_E time applies to Ex e motors only (see page 24)

²⁾ For the hazardous location version the rating will be 150kW and performance data as per PPA

This data is provided for guidance only, guaranteed only when confirmed by Regal Australia.

Full load currents at various power supplies

PPA series, three phase

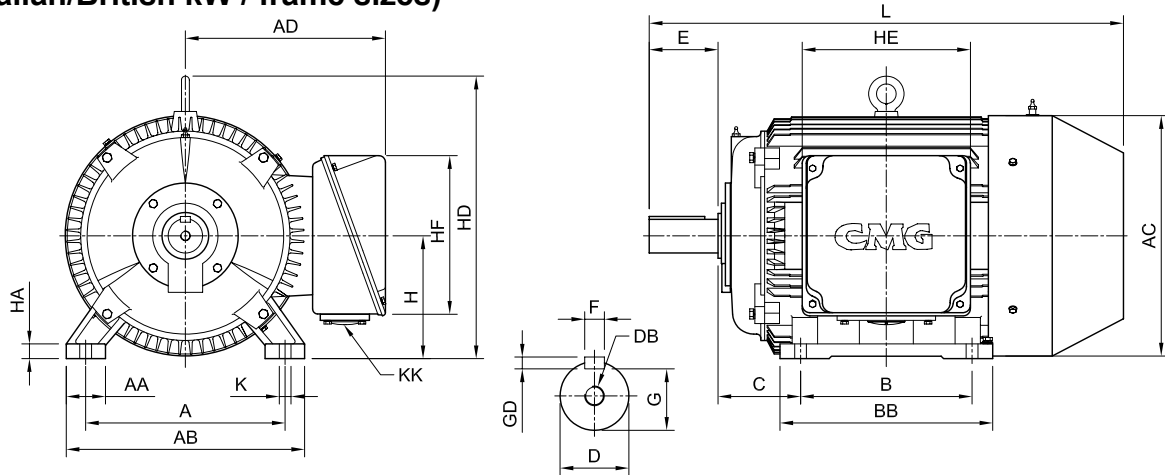
Specifically wound for nominated power supply

| kW | Motor frame | | Current Full load I _N 50Hz | | | | | | | Current Full load I _N 60Hz | | Speed 60Hz [r/min] |
|--------------------------------|-------------|-------|---------------------------------------|----------|----------|----------|----------|-----------|-----------|---------------------------------------|----------|----------------------|
| | | | 380V [A] | 400V [A] | 415V [A] | 525V [A] | 690V [A] | 1000V [A] | 1100V [A] | 380V [A] | 440V [A] | |
| 750\900 r/min = 8 poles | | | | | | | | | | | | |
| 1.1 | 100L | - 28 | 2.7 | 2.6 | 2.5 | 2.0 | 1.5 | 1.0 | 0.9 | 2.7 | 2.4 | 840 |
| 1.5 | 112M | - 28 | 3.3 | 3.1 | 3.0 | 2.4 | 1.8 | 1.2 | 1.1 | 3.3 | 2.8 | 840 |
| 2.2 | 132S | - 38 | 5.7 | 5.4 | 5.2 | 4.1 | 3.1 | 2.2 | 2.0 | 5.7 | 4.9 | 846 |
| 3 | 132M | - 38 | 7.5 | 7.2 | 6.9 | 5.5 | 4.2 | 2.9 | 2.6 | 7.5 | 6.5 | 846 |
| 4 | 160MA | - 42 | 9.4 | 8.9 | 8.6 | 6.8 | 5.2 | 3.6 | 3.2 | 9.4 | 8.1 | 864 |
| 5.5 | 160MB | - 42 | 12.5 | 11.8 | 11.4 | 9.0 | 6.9 | 4.7 | 4.3 | 12.5 | 10.8 | 864 |
| 7.5 | 160L | - 42 | 17.1 | 16.3 | 15.7 | 12.4 | 9.4 | 6.5 | 5.9 | 17.1 | 14.8 | 864 |
| 11 | 180L | - 48 | 24.1 | 22.9 | 22.1 | 17.5 | 13.3 | 9.2 | 8.3 | 24.1 | 20.8 | 876 |
| 15 | 200L | - 55 | 32.4 | 30.8 | 29.7 | 23.5 | 17.9 | 12.3 | 11.2 | 32.4 | 28 | 876 |
| 18.5 | 225S | - 60 | 40.3 | 38.3 | 36.9 | 29.2 | 22.2 | 15.3 | 13.9 | 40.3 | 34.8 | 882 |
| 22 | 225M | - 60 | 47.6 | 45.2 | 43.6 | 34.5 | 26.2 | 18.1 | 16.4 | 47.6 | 41.1 | 882 |
| 30 | 250S | - 70 | 63 | 60 | 57 | 45.4 | 34.5 | 23.8 | 21.7 | 63 | 54 | 888 |
| 37 | 250M | - 70 | 76 | 72 | 69 | 55 | 41.7 | 28.8 | 26.2 | 76 | 65 | 888 |
| 45 | 280S | - 80 | 89 | 85 | 82 | 65 | 49.3 | 34 | 30.9 | 89 | 77 | 894 |
| 55 | 280M | - 80 | 112 | 107 | 103 | 81 | 62 | 42.7 | 38.9 | 112 | 97 | 892 |
| 75 | 315S | - 85 | 147 | 140 | 135 | 107 | 81 | 56 | 51 | 147 | 127 | 888 |
| 90 | 315M | - 85 | 174 | 165 | 159 | 126 | 96 | 66 | 60 | 174 | 150 | 888 |
| 110 | 315L | - 85 | 212 | 201 | 194 | 153 | 117 | 81 | 73 | 212 | 183 | 888 |
| 132 | 315LXA | - 85 | 257 | 244 | 235 | 186 | 141 | 98 | 89 | 257 | 222 | 888 |
| 150 | 315LXB | - 85 | 287 | 273 | 263 | 208 | 158 | 109 | 99 | 287 | 248 | 888 |
| 185 | 355LA | - 110 | 357 | 339 | 327 | 258 | 197 | 136 | 123 | 357 | 308 | 888 |
| 200 | 355LB | - 110 | 382 | 363 | 350 | 277 | 211 | 145 | 132 | 382 | 330 | 888 |
| 220 | 355LB | - 110 | 420 | 399 | 385 | 304 | 232 | 160 | 145 | 420 | 363 | 888 |
| 250 | 355LX | - 110 | 477 | 453 | 437 | 345 | 263 | 181 | 165 | 477 | 412 | 890 |
| 280 | 400LA | - 110 | 533 | 506 | 488 | 386 | 294 | 203 | 184 | 533 | 460 | 894 |
| 315 | 400LB | - 110 | 617 | 586 | 565 | 447 | 340 | 234 | 213 | 617 | 533 | 893 |
| 355 | 400LX | - 110 | 675 | 641 | 618 | 489 | 372 | 256 | 233 | 675 | 583 | 894 |
| PPC series | | | | | | | | | | | | |
| 30 | 250M | - 65 | 63 | 60 | 57 | 45.4 | 34.5 | 23.8 | 21.7 | 63 | 54 | 888 |
| 37 | 280S | - 75 | 76 | 72 | 69 | 55 | 41.7 | 28.8 | 26.2 | 76 | 65 | 888 |
| 45 | 280M | - 75 | 89 | 85 | 82 | 65 | 49.3 | 34 | 30.9 | 89 | 77 | 894 |
| 55 | 315S | - 80 | 109 | 103 | 100 | 79 | 60 | 41.3 | 37.6 | 109 | 94 | 888 |
| 75 | 315MA | - 85 | 147 | 140 | 135 | 107 | 81 | 56 | 51 | 147 | 127 | 888 |
| 90 | 315MB | - 80 | 175 | 166 | 160 | 126 | 96 | 66 | 60 | 175 | 151 | 888 |
| 110 | 315L | - 80 | 212 | 201 | 194 | 153 | 117 | 81 | 73 | 212 | 183 | 888 |
| 132 | 355LA | - 100 | 257 | 244 | 235 | 186 | 141 | 98 | 89 | 257 | 222 | 888 |
| 160 | 355LB | - 100 | 307 | 292 | 281 | 222 | 169 | 117 | 106 | 307 | 265 | 888 |
| 185 | 355LC | - 100 | 356 | 338 | 326 | 258 | 196 | 135 | 123 | 356 | 307 | 888 |
| 200 | 355LD | - 100 | 382 | 363 | 350 | 277 | 211 | 145 | 132 | 382 | 330 | 888 |
| 220 | 355LE | - 100 | 420 | 399 | 385 | 304 | 232 | 160 | 145 | 420 | 363 | 888 |
| 250 | 355LF | - 100 | 478 | 454 | 438 | 346 | 263 | 182 | 165 | 478 | 413 | 890 |

This data is provided for guidance only, guaranteed only when confirmed by Regal Australia.

Dimensional drawings - PPA

(Australian/British kW / frame sizes)



Foot mount B3 (IM1001)

| Motor frame | A | AA | AB | AC | AD | B | BB | C | D | DB | E | F | GD | G | H | HA | HD | HE | HF | K | KK ³⁾ | L |
|-------------|-----|-----|-----|------|-----|------|------|-----|-----|-----|-----|----|----|------|-----|----|------|-----|-----|----|-------------------|------|
| 80 - 19 | 125 | 35 | 160 | 175 | 152 | 100 | 182 | 50 | 19 | M6 | 40 | 6 | 6 | 15.5 | 80 | 10 | 210 | 134 | 121 | 10 | M20 ¹⁾ | 340 |
| 90S - 24 | 140 | 40 | 180 | 185 | 158 | 100 | 196 | 56 | 24 | M8 | 50 | 8 | 7 | 20 | 90 | 12 | 215 | 134 | 121 | 10 | M20 ¹⁾ | 375 |
| 90L - 24 | 140 | 40 | 180 | 185 | 158 | 125 | 221 | 56 | 24 | M8 | 50 | 8 | 7 | 20 | 90 | 12 | 215 | 134 | 121 | 10 | M20 ¹⁾ | 400 |
| 100L - 28 | 160 | 40 | 200 | 220 | 186 | 140 | 235 | 63 | 28 | M10 | 60 | 8 | 7 | 24 | 100 | 14 | 250 | 134 | 121 | 12 | M20 ¹⁾ | 450 |
| 112M - 28 | 190 | 50 | 240 | 235 | 210 | 140 | 245 | 70 | 28 | M10 | 60 | 8 | 7 | 24 | 112 | 15 | 270 | 160 | 171 | 12 | M25 ¹⁾ | 470 |
| 132S - 38 | 216 | 60 | 276 | 265 | 230 | 140 | 238 | 89 | 38 | M12 | 80 | 10 | 8 | 33 | 132 | 18 | 315 | 160 | 171 | 12 | M25 ¹⁾ | 525 |
| 132M - 38 | 216 | 60 | 276 | 265 | 230 | 178 | 276 | 89 | 38 | M12 | 80 | 10 | 8 | 33 | 132 | 18 | 315 | 160 | 171 | 12 | M25 ¹⁾ | 565 |
| 160M - 42 | 254 | 70 | 325 | 320 | 280 | 210 | 314 | 108 | 42 | M16 | 110 | 12 | 8 | 37 | 160 | 20 | 380 | 238 | 223 | 15 | M50 | 655 |
| 160L - 42 | 254 | 70 | 325 | 320 | 280 | 254 | 354 | 108 | 42 | M16 | 110 | 12 | 8 | 37 | 160 | 20 | 380 | 238 | 223 | 15 | M50 | 695 |
| 180M - 48 | 279 | 70 | 349 | 355 | 305 | 241 | 349 | 121 | 48 | M16 | 110 | 14 | 9 | 42.5 | 180 | 22 | 420 | 238 | 223 | 15 | M50 | 715 |
| 180L - 48 | 279 | 70 | 349 | 355 | 305 | 279 | 349 | 121 | 48 | M16 | 110 | 14 | 9 | 42.5 | 180 | 22 | 420 | 238 | 223 | 15 | M50 | 715 |
| 200L - 55 | 318 | 70 | 395 | 395 | 325 | 305 | 380 | 133 | 55 | M20 | 110 | 16 | 10 | 49 | 200 | 25 | 470 | 238 | 223 | 19 | M50 | 805 |
| 225S - 60 | 356 | 75 | 435 | 442 | 390 | 286 | 370 | 149 | 60 | M20 | 140 | 18 | 11 | 53 | 225 | 25 | 525 | 342 | 326 | 19 | M63 | 860 |
| 225M - 55* | 356 | 75 | 435 | 442 | 390 | 311 | 395 | 149 | 55 | M20 | 110 | 16 | 10 | 49 | 225 | 25 | 525 | 342 | 326 | 19 | M63 | 855 |
| 225M - 60 | 356 | 75 | 435 | 442 | 390 | 311 | 395 | 149 | 60 | M20 | 140 | 18 | 11 | 53 | 225 | 25 | 525 | 342 | 326 | 19 | M63 | 885 |
| 250S - 60* | 406 | 80 | 485 | 485 | 415 | 311 | 395 | 168 | 60 | M20 | 140 | 18 | 11 | 53 | 250 | 30 | 580 | 342 | 326 | 24 | M63 | 930 |
| 250S - 70 | 406 | 80 | 485 | 485 | 415 | 311 | 395 | 168 | 70 | M20 | 140 | 20 | 12 | 62.5 | 250 | 30 | 580 | 342 | 326 | 24 | M63 | 930 |
| 250M - 60* | 406 | 80 | 485 | 485 | 415 | 349 | 433 | 168 | 60 | M20 | 140 | 18 | 11 | 53 | 250 | 30 | 580 | 342 | 326 | 24 | M63 | 965 |
| 250M - 70 | 406 | 80 | 485 | 485 | 415 | 349 | 433 | 168 | 70 | M20 | 140 | 20 | 12 | 62.5 | 250 | 30 | 580 | 342 | 326 | 24 | M63 | 965 |
| 280S - 65* | 457 | 85 | 550 | 544 | 445 | 368 | 530 | 190 | 65 | M20 | 140 | 18 | 11 | 58 | 280 | 35 | 660 | 342 | 326 | 24 | M63 | 1035 |
| 280S - 80 | 457 | 85 | 550 | 544 | 445 | 368 | 530 | 190 | 80 | M20 | 170 | 22 | 14 | 71 | 280 | 35 | 660 | 342 | 326 | 24 | M63 | 1065 |
| 280M - 65* | 457 | 85 | 550 | 544 | 445 | 419 | 580 | 190 | 65 | M20 | 140 | 18 | 11 | 58 | 280 | 35 | 660 | 342 | 326 | 24 | M63 | 1085 |
| 280M - 80 | 457 | 85 | 550 | 544 | 445 | 419 | 580 | 190 | 80 | M20 | 170 | 22 | 14 | 71 | 280 | 35 | 660 | 342 | 326 | 24 | M63 | 1115 |
| 315S - 65* | 508 | 114 | 622 | 700 | 610 | 406 | 508 | 216 | 65 | M20 | 140 | 18 | 11 | 58 | 315 | 32 | 775 | 470 | 445 | 28 | M63 | 1155 |
| 315S - 85 | 508 | 114 | 622 | 700 | 610 | 406 | 508 | 216 | 85 | M20 | 170 | 22 | 14 | 76 | 315 | 32 | 775 | 470 | 445 | 28 | M63 | 1185 |
| 315M - 65* | 508 | 114 | 622 | 700 | 610 | 457 | 559 | 216 | 65 | M20 | 140 | 18 | 11 | 58 | 315 | 32 | 775 | 470 | 445 | 28 | M63 | 1205 |
| 315M - 85 | 508 | 114 | 622 | 700 | 610 | 457 | 559 | 216 | 85 | M20 | 170 | 22 | 14 | 76 | 315 | 32 | 775 | 470 | 445 | 28 | M63 | 1235 |
| 315L - 65* | 508 | 114 | 622 | 700 | 610 | 508 | 610 | 216 | 65 | M20 | 140 | 18 | 11 | 58 | 315 | 32 | 775 | 470 | 445 | 28 | M63 | 1255 |
| 315L - 85 | 508 | 114 | 622 | 700 | 610 | 508 | 610 | 216 | 85 | M20 | 170 | 22 | 14 | 76 | 315 | 32 | 775 | 470 | 445 | 28 | M63 | 1285 |
| 315LX - 65* | 508 | 114 | 622 | 700 | 610 | 508 | 810 | 216 | 65 | M20 | 140 | 18 | 11 | 58 | 315 | 32 | 775 | 470 | 445 | 28 | M63 | 1455 |
| 315LX - 85 | 508 | 114 | 622 | 700 | 610 | 508 | 810 | 216 | 85 | M20 | 170 | 22 | 14 | 76 | 315 | 32 | 775 | 470 | 445 | 28 | M63 | 1485 |
| 355L - 85* | 610 | 145 | 735 | 810 | 675 | 630 | 810 | 254 | 85 | M20 | 170 | 22 | 14 | 76 | 355 | 40 | 845 | 530 | 500 | 28 | BGP ²⁾ | 1630 |
| 355L - 110 | 610 | 145 | 735 | 810 | 675 | 630 | 810 | 254 | 110 | M24 | 210 | 28 | 16 | 100 | 355 | 40 | 845 | 530 | 500 | 28 | BGP ²⁾ | 1670 |
| 355LX - 85* | 610 | 145 | 735 | 810 | 675 | 630 | 965 | 254 | 85 | M20 | 170 | 22 | 14 | 76 | 355 | 40 | 845 | 530 | 500 | 28 | BGP ²⁾ | 1760 |
| 355LX - 110 | 610 | 145 | 735 | 810 | 675 | 630 | 965 | 254 | 110 | M24 | 210 | 28 | 16 | 100 | 355 | 40 | 845 | 530 | 500 | 28 | BGP ²⁾ | 1800 |
| 400L - 85* | 686 | 165 | 810 | 910 | 725 | 710 | 920 | 280 | 85 | M20 | 170 | 22 | 14 | 76 | 400 | 45 | 935 | 530 | 500 | 35 | BGP ²⁾ | 1725 |
| 400L - 110 | 686 | 165 | 810 | 910 | 725 | 710 | 920 | 280 | 110 | M24 | 210 | 28 | 16 | 100 | 400 | 45 | 935 | 530 | 500 | 35 | BGP ²⁾ | 1765 |
| 400LX - 85* | 686 | 165 | 810 | 910 | 725 | 710 | 1070 | 280 | 85 | M20 | 170 | 22 | 14 | 76 | 400 | 45 | 935 | 530 | 500 | 35 | BGP ²⁾ | 1805 |
| 400LX - 110 | 686 | 165 | 810 | 910 | 725 | 710 | 1070 | 280 | 110 | M24 | 210 | 28 | 16 | 100 | 400 | 45 | 935 | 530 | 500 | 35 | BGP ²⁾ | 1845 |
| 450L - 125 | 800 | 200 | 980 | 1040 | 815 | 1120 | 1610 | 310 | 125 | M24 | 210 | 32 | 18 | 114 | 450 | 50 | 1080 | 530 | 500 | 35 | BGP ²⁾ | 2495 |

* 2 pole motors only

¹⁾ Two conduit entries provided

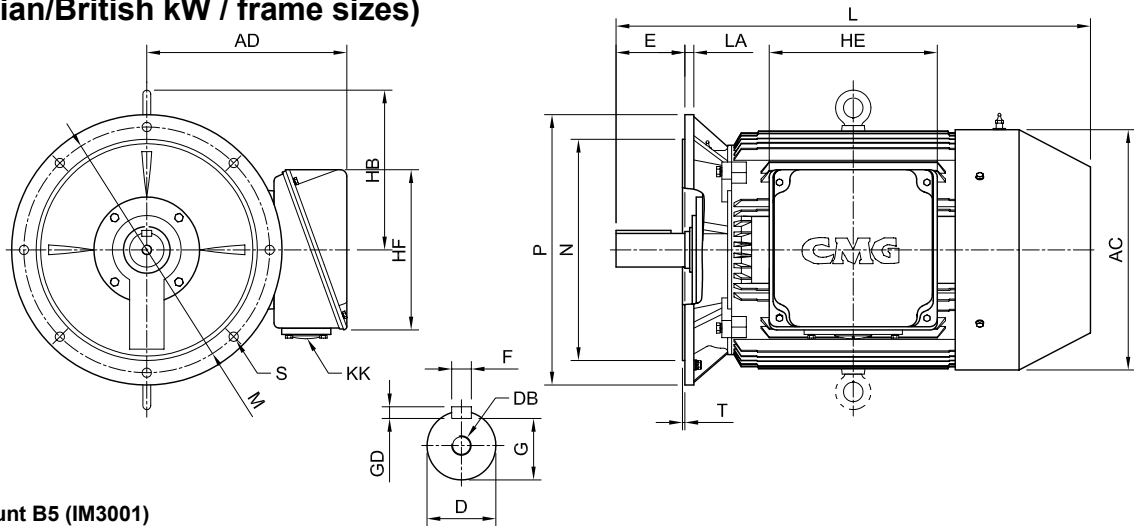
²⁾ BGP = Blank Gland Plate

³⁾ See page 6 for alternative conduit entry options

This data is provided for guidance only, guaranteed only when confirmed by Regal Australia.

Dimensional drawings - PPA

(Australian/British kW / frame sizes)



Flange mount B5 (IM3001)

| Motor frame | AC | AD | D | DB | E | F | GD | G | HB | HE | HF | KK ⁽³⁾ | L | LA | M | N | P | S ⁽⁴⁾ | T | |
|-------------|-------|------|-----|-----|-----|-----|----|----|------|-----|-----|-------------------|--------------------|------|----|------|------|------------------|----|-----|
| 80 | - 19 | 175 | 152 | 19 | M6 | 40 | 6 | 6 | 15.5 | 130 | 134 | 121 | M20 ⁽¹⁾ | 340 | 12 | 165 | 130 | 200 | 12 | 3.5 |
| 90S | - 24 | 185 | 158 | 24 | M8 | 50 | 8 | 7 | 20 | 125 | 134 | 121 | M20 ⁽¹⁾ | 375 | 12 | 165 | 130 | 200 | 12 | 3.5 |
| 90L | - 24 | 185 | 158 | 24 | M8 | 50 | 8 | 7 | 20 | 125 | 134 | 121 | M20 ⁽¹⁾ | 400 | 12 | 165 | 130 | 200 | 12 | 3.5 |
| 100L | - 28 | 220 | 186 | 28 | M10 | 60 | 8 | 7 | 24 | 150 | 134 | 121 | M20 ⁽¹⁾ | 450 | 14 | 215 | 180 | 250 | 12 | 4 |
| 112M | - 28 | 235 | 210 | 28 | M10 | 60 | 8 | 7 | 24 | 155 | 160 | 171 | M25 ⁽¹⁾ | 470 | 14 | 215 | 180 | 250 | 15 | 4 |
| 132S | - 38 | 266 | 230 | 38 | M12 | 80 | 10 | 8 | 33 | 183 | 160 | 171 | M25 ⁽¹⁾ | 525 | 14 | 265 | 230 | 300 | 15 | 4 |
| 132M | - 38 | 266 | 230 | 38 | M12 | 80 | 10 | 8 | 33 | 183 | 160 | 171 | M25 ⁽¹⁾ | 565 | 14 | 265 | 230 | 300 | 15 | 4 |
| 160M | - 42 | 320 | 280 | 42 | M16 | 110 | 12 | 8 | 37 | 220 | 238 | 223 | M50 | 655 | 16 | 300 | 250 | 350 | 19 | 5 |
| 160L | - 42 | 320 | 280 | 42 | M16 | 110 | 12 | 8 | 37 | 220 | 238 | 223 | M50 | 695 | 16 | 300 | 250 | 350 | 19 | 5 |
| 180M | - 48 | 355 | 305 | 48 | M16 | 110 | 14 | 9 | 42.5 | 240 | 238 | 223 | M50 | 715 | 16 | 300 | 250 | 350 | 19 | 5 |
| 180L | - 48 | 355 | 305 | 48 | M16 | 110 | 14 | 9 | 42.5 | 240 | 238 | 223 | M50 | 715 | 16 | 300 | 250 | 350 | 19 | 5 |
| 200L | - 55 | 395 | 325 | 55 | M20 | 110 | 16 | 10 | 49 | 270 | 238 | 223 | M50 | 805 | 16 | 350 | 300 | 400 | 19 | 5 |
| 225S | - 60 | 442 | 390 | 60 | M20 | 140 | 18 | 11 | 53 | 300 | 342 | 326 | M63 | 860 | 18 | 400 | 350 | 450 | 19 | 5 |
| 225M | - 55* | 442 | 390 | 55 | M20 | 110 | 16 | 10 | 49 | 300 | 342 | 326 | M63 | 855 | 18 | 400 | 350 | 450 | 19 | 5 |
| 225M | - 60 | 442 | 390 | 60 | M20 | 140 | 18 | 11 | 53 | 300 | 342 | 326 | M63 | 885 | 18 | 400 | 350 | 450 | 19 | 5 |
| 250S | - 60* | 485 | 415 | 60 | M20 | 140 | 18 | 11 | 53 | 330 | 342 | 326 | M63 | 930 | 18 | 500 | 450 | 550 | 19 | 5 |
| 250S | - 70 | 485 | 415 | 70 | M20 | 140 | 20 | 12 | 62.5 | 330 | 342 | 326 | M63 | 930 | 18 | 500 | 450 | 550 | 19 | 5 |
| 250M | - 60* | 485 | 415 | 60 | M20 | 140 | 18 | 11 | 53 | 330 | 342 | 326 | M63 | 965 | 18 | 500 | 450 | 550 | 19 | 5 |
| 250M | - 70 | 485 | 415 | 70 | M20 | 140 | 20 | 12 | 62.5 | 330 | 342 | 326 | M63 | 965 | 18 | 500 | 450 | 550 | 19 | 5 |
| 280S | - 65* | 544 | 445 | 65 | M20 | 140 | 18 | 11 | 58 | 380 | 342 | 326 | M63 | 1035 | 18 | 500 | 450 | 550 | 19 | 5 |
| 280S | - 80 | 544 | 445 | 80 | M20 | 170 | 22 | 14 | 71 | 380 | 342 | 326 | M63 | 1065 | 18 | 500 | 450 | 550 | 19 | 5 |
| 280M | - 65* | 544 | 445 | 65 | M20 | 140 | 18 | 11 | 58 | 380 | 342 | 326 | M63 | 1085 | 18 | 500 | 450 | 550 | 19 | 5 |
| 280M | - 80 | 544 | 445 | 80 | M20 | 170 | 22 | 14 | 71 | 380 | 342 | 326 | M63 | 1115 | 18 | 500 | 450 | 550 | 19 | 5 |
| 315S | - 65* | 700 | 610 | 65 | M20 | 140 | 18 | 11 | 58 | 460 | 470 | 445 | M63 | 1155 | 25 | 600 | 550 | 660 | 24 | 6 |
| 315S | - 85 | 700 | 610 | 85 | M20 | 170 | 22 | 14 | 76 | 460 | 470 | 445 | M63 | 1185 | 25 | 600 | 550 | 660 | 24 | 6 |
| 315M | - 65* | 700 | 610 | 65 | M20 | 140 | 18 | 11 | 58 | 460 | 470 | 445 | M63 | 1205 | 25 | 600 | 550 | 660 | 24 | 6 |
| 315M | - 85 | 700 | 610 | 85 | M20 | 170 | 22 | 14 | 76 | 460 | 470 | 445 | M63 | 1235 | 25 | 600 | 550 | 660 | 24 | 6 |
| 315L | - 65* | 700 | 610 | 65 | M20 | 140 | 18 | 11 | 58 | 460 | 470 | 445 | M63 | 1255 | 25 | 600 | 550 | 660 | 24 | 6 |
| 315L | - 85 | 700 | 610 | 85 | M20 | 170 | 22 | 14 | 76 | 460 | 470 | 445 | M63 | 1285 | 25 | 600 | 550 | 660 | 24 | 6 |
| 315LX | - 65* | 700 | 610 | 65 | M20 | 140 | 18 | 11 | 58 | 460 | 470 | 445 | M63 | 1455 | 25 | 600 | 550 | 660 | 24 | 6 |
| 315LX | - 85 | 700 | 610 | 85 | M20 | 170 | 22 | 14 | 76 | 460 | 470 | 445 | M63 | 1485 | 25 | 600 | 550 | 660 | 24 | 6 |
| 355L | - 85* | 810 | 675 | 85 | M20 | 170 | 22 | 14 | 76 | 490 | 530 | 500 | BGP ⁽²⁾ | 1630 | 30 | 740 | 680 | 800 | 24 | 6 |
| 355L | - 110 | 810 | 675 | 110 | M24 | 210 | 28 | 16 | 100 | 490 | 530 | 500 | BGP ⁽²⁾ | 1670 | 30 | 740 | 680 | 800 | 24 | 6 |
| 355LX | - 85* | 810 | 675 | 85 | M20 | 170 | 22 | 14 | 76 | 490 | 530 | 500 | BGP ⁽²⁾ | 1760 | 30 | 740 | 680 | 800 | 24 | 6 |
| 355LX | - 110 | 810 | 675 | 110 | M24 | 210 | 28 | 16 | 100 | 490 | 530 | 500 | BGP ⁽²⁾ | 1800 | 30 | 740 | 680 | 800 | 24 | 6 |
| 400L | - 85* | 910 | 725 | 85 | M20 | 170 | 22 | 14 | 76 | 535 | 530 | 500 | BGP ⁽²⁾ | 1725 | 30 | 940 | 880 | 1000 | 28 | 6 |
| 400L | - 110 | 910 | 725 | 110 | M24 | 210 | 28 | 16 | 100 | 535 | 530 | 500 | BGP ⁽²⁾ | 1765 | 30 | 940 | 880 | 1000 | 28 | 6 |
| 400LX | - 85* | 910 | 725 | 85 | M20 | 170 | 22 | 14 | 76 | 535 | 530 | 500 | BGP ⁽²⁾ | 1805 | 30 | 940 | 880 | 1000 | 28 | 6 |
| 400LX | - 110 | 910 | 725 | 110 | M24 | 210 | 28 | 16 | 100 | 535 | 530 | 500 | BGP ⁽²⁾ | 1845 | 30 | 940 | 880 | 1000 | 28 | 6 |
| 450L | - 125 | 1040 | 815 | 125 | M24 | 210 | 32 | 18 | 114 | 630 | 530 | 500 | BGP ⁽²⁾ | 2945 | 30 | 1080 | 1000 | 1150 | 28 | 7 |

* 2 pole motors only

⁽¹⁾ Two conduit entries provided

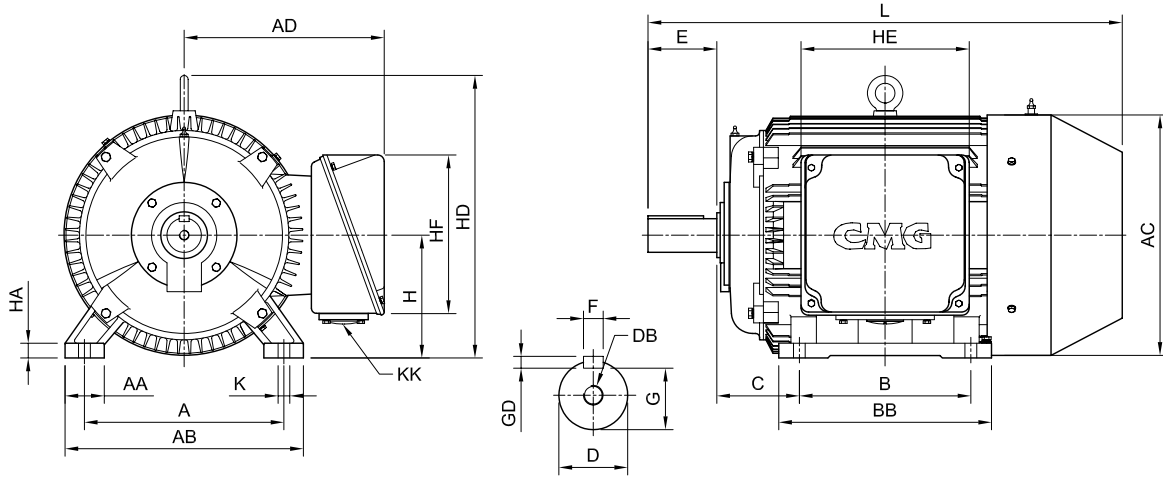
⁽²⁾ BGP = Blank Gland Plate

⁽³⁾ See page 6 for alternative conduit entry options

⁽⁴⁾ Mounting Holes: Frames 80 - 200 have 4 holes at 45° offset from top. Frames 225 and above have 8 holes at 0° offset from top. This data is provided for guidance only, guaranteed only when confirmed by Regal Australia.

Dimensional drawings - PPC

(CENELEC kW / frame sizes)



Foot mount B3 (IM1001)

| Motor frame | A | AA | AB | AC | AD | B | BB | C | D | DB | E | F | GD | G | H | HA | HD | HE | HF | K | KK ³⁾ | L |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|------|-----|----|-----|-----|-----|----|-------------------|------|
| 80 - 19 | 125 | 35 | 160 | 175 | 152 | 100 | 182 | 50 | 19 | M6 | 40 | 6 | 6 | 15.5 | 80 | 10 | 210 | 134 | 121 | 10 | M20 ¹⁾ | 340 |
| 90S - 24 | 140 | 40 | 180 | 185 | 158 | 100 | 196 | 56 | 24 | M8 | 50 | 8 | 7 | 20 | 90 | 12 | 215 | 134 | 121 | 10 | M20 ¹⁾ | 375 |
| 90L - 24 | 140 | 40 | 180 | 185 | 158 | 125 | 221 | 56 | 24 | M8 | 50 | 8 | 7 | 20 | 90 | 12 | 215 | 134 | 121 | 10 | M20 ¹⁾ | 400 |
| 100L - 28 | 160 | 40 | 200 | 220 | 186 | 140 | 235 | 63 | 28 | M10 | 60 | 8 | 7 | 24 | 100 | 14 | 250 | 134 | 121 | 12 | M20 ¹⁾ | 450 |
| 112M - 28 | 190 | 50 | 240 | 235 | 210 | 140 | 245 | 70 | 28 | M10 | 60 | 8 | 7 | 24 | 112 | 15 | 270 | 160 | 171 | 12 | M25 ¹⁾ | 470 |
| 132S - 38 | 216 | 60 | 276 | 265 | 230 | 140 | 238 | 89 | 38 | M12 | 80 | 10 | 8 | 33 | 132 | 18 | 315 | 160 | 171 | 12 | M25 ¹⁾ | 525 |
| 132M - 38 | 216 | 60 | 276 | 265 | 230 | 178 | 276 | 89 | 38 | M12 | 80 | 10 | 8 | 33 | 132 | 18 | 315 | 160 | 171 | 12 | M25 ¹⁾ | 565 |
| 160M - 42 | 254 | 70 | 325 | 320 | 280 | 210 | 314 | 108 | 42 | M16 | 110 | 12 | 8 | 37 | 160 | 20 | 380 | 238 | 223 | 15 | M50 | 655 |
| 160L - 42 | 254 | 70 | 325 | 320 | 280 | 254 | 354 | 108 | 42 | M16 | 110 | 12 | 8 | 37 | 160 | 20 | 380 | 238 | 223 | 15 | M50 | 695 |
| 180M - 48 | 279 | 70 | 349 | 355 | 305 | 241 | 349 | 121 | 48 | M16 | 110 | 14 | 9 | 42.5 | 180 | 22 | 420 | 238 | 223 | 15 | M50 | 715 |
| 180L - 48 | 279 | 70 | 349 | 355 | 305 | 279 | 349 | 121 | 48 | M16 | 110 | 14 | 9 | 42.5 | 180 | 22 | 420 | 238 | 223 | 15 | M50 | 715 |
| 200L - 55 | 318 | 70 | 395 | 395 | 325 | 305 | 380 | 133 | 55 | M20 | 110 | 16 | 10 | 49 | 200 | 25 | 470 | 238 | 223 | 19 | M50 | 805 |
| 225S - 60 | 356 | 75 | 435 | 442 | 390 | 286 | 370 | 149 | 60 | M20 | 140 | 18 | 11 | 53 | 225 | 25 | 525 | 342 | 326 | 19 | M63 | 860 |
| 225M* - 55 | 356 | 75 | 435 | 442 | 390 | 311 | 395 | 149 | 55 | M20 | 110 | 16 | 10 | 49 | 225 | 25 | 525 | 342 | 326 | 19 | M63 | 855 |
| 225M - 60 | 356 | 75 | 435 | 442 | 390 | 311 | 395 | 149 | 60 | M20 | 140 | 18 | 11 | 53 | 225 | 25 | 525 | 342 | 326 | 19 | M63 | 885 |
| 250M - 60* | 406 | 80 | 485 | 485 | 415 | 349 | 433 | 168 | 60 | M20 | 140 | 18 | 11 | 53 | 250 | 30 | 580 | 342 | 326 | 24 | M63 | 965 |
| 250M - 65 | 406 | 80 | 485 | 485 | 415 | 349 | 433 | 168 | 65 | M20 | 140 | 18 | 11 | 58 | 250 | 30 | 580 | 342 | 326 | 24 | M63 | 965 |
| 280S - 65* | 457 | 85 | 550 | 544 | 445 | 368 | 530 | 190 | 65 | M20 | 140 | 18 | 11 | 58 | 280 | 35 | 660 | 342 | 326 | 24 | M63 | 1035 |
| 280S - 75 | 457 | 85 | 550 | 544 | 445 | 368 | 530 | 190 | 75 | M20 | 140 | 20 | 12 | 67.5 | 280 | 35 | 660 | 342 | 326 | 24 | M63 | 1035 |
| 280M - 65* | 457 | 85 | 550 | 544 | 445 | 419 | 580 | 190 | 65 | M20 | 140 | 18 | 11 | 58 | 280 | 35 | 660 | 342 | 326 | 24 | M63 | 1085 |
| 280M - 75 | 457 | 85 | 550 | 544 | 445 | 419 | 580 | 190 | 75 | M20 | 140 | 20 | 12 | 67.5 | 280 | 35 | 660 | 342 | 326 | 24 | M63 | 1085 |
| 315S - 65* | 508 | 114 | 622 | 700 | 610 | 406 | 508 | 216 | 65 | M20 | 140 | 18 | 11 | 58 | 315 | 32 | 775 | 470 | 445 | 28 | M63 | 1155 |
| 315S - 80 | 508 | 114 | 622 | 700 | 610 | 406 | 508 | 216 | 80 | M20 | 170 | 22 | 14 | 71 | 315 | 32 | 775 | 470 | 445 | 28 | M63 | 1185 |
| 315M - 65* | 508 | 114 | 622 | 700 | 610 | 457 | 559 | 216 | 65 | M20 | 140 | 18 | 11 | 58 | 315 | 32 | 775 | 470 | 445 | 28 | M63 | 1205 |
| 315M - 80 | 508 | 114 | 622 | 700 | 610 | 457 | 559 | 216 | 80 | M20 | 170 | 22 | 14 | 71 | 315 | 32 | 775 | 470 | 445 | 28 | M63 | 1235 |
| 315L - 65* | 508 | 114 | 622 | 700 | 610 | 508 | 610 | 216 | 65 | M20 | 140 | 18 | 11 | 58 | 315 | 32 | 775 | 470 | 445 | 28 | M63 | 1255 |
| 315L - 80 | 508 | 114 | 622 | 700 | 610 | 508 | 610 | 216 | 80 | M20 | 170 | 22 | 14 | 71 | 315 | 32 | 775 | 470 | 445 | 28 | M63 | 1285 |
| 315LX - 65* | 508 | 114 | 622 | 700 | 610 | 508 | 610 | 216 | 65 | M20 | 140 | 18 | 11 | 58 | 315 | 32 | 775 | 470 | 445 | 28 | M63 | 1455 |
| 315LX - 80 | 508 | 114 | 622 | 700 | 610 | 508 | 610 | 216 | 80 | M20 | 170 | 22 | 14 | 71 | 315 | 32 | 775 | 470 | 445 | 28 | M63 | 1485 |
| 355L - 80* | 610 | 145 | 735 | 810 | 675 | 630 | 810 | 254 | 80 | M20 | 170 | 22 | 14 | 71 | 355 | 40 | 845 | 530 | 500 | 28 | BGP ²⁾ | 1603 |
| 355L - 100 | 610 | 145 | 735 | 810 | 675 | 630 | 810 | 254 | 100 | M24 | 210 | 28 | 16 | 90 | 355 | 40 | 845 | 530 | 500 | 28 | BGP ²⁾ | 1670 |
| 355LX - 80* | 610 | 145 | 735 | 810 | 675 | 630 | 810 | 254 | 80 | M20 | 170 | 22 | 14 | 71 | 355 | 40 | 845 | 530 | 500 | 28 | BGP ²⁾ | 1760 |
| 355LX - 100 | 610 | 145 | 735 | 810 | 675 | 630 | 810 | 254 | 100 | M24 | 210 | 28 | 16 | 90 | 355 | 40 | 845 | 530 | 500 | 28 | BGP ²⁾ | 1800 |

*2 pole motors only

¹⁾ Two conduit entries provided

²⁾ BGP = Blank Gland Plate

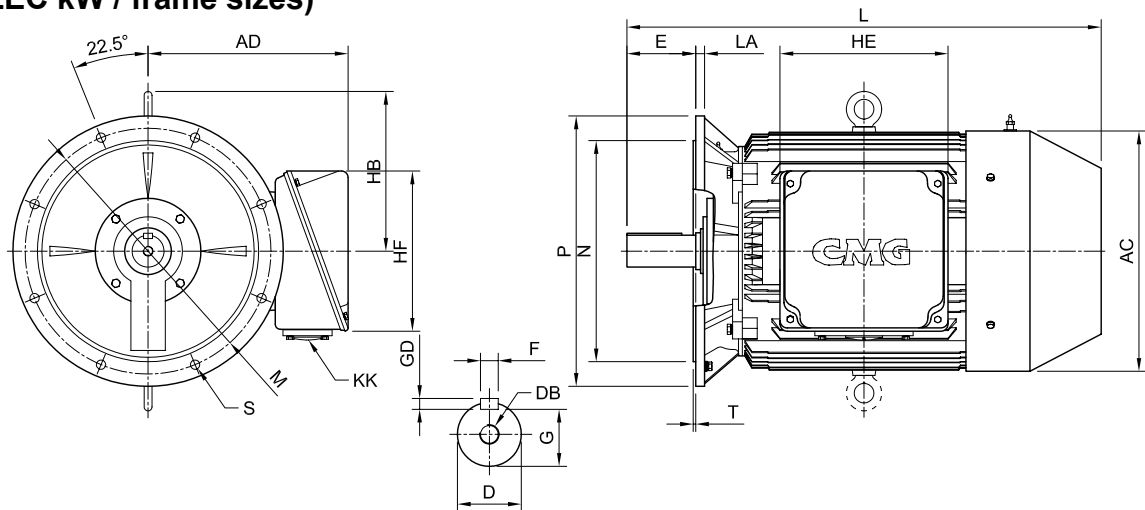
³⁾ See page 6 for alternative conduit entry options

Frames 400 and 450 are available in PPA

This data is provided for guidance only, guaranteed only when confirmed by Regal Australia.

Dimensional drawings - PPC

(CENELEC kW / frame sizes)



Flange mount B5 (IM3001)

| Motor frame | AC | AD | D | DB | E | F | GD | G | HB | HE | HF | KK ⁽³⁾ | L | LA | M | N | P | S ⁽⁴⁾ | T | |
|-------------|-------|-----|-----|-----|-----|-----|----|----|------|-----|-----|-------------------|--------------------|------|----|-----|-----|------------------|----|-----|
| 80 | - 19 | 175 | 152 | 19 | M6 | 40 | 6 | 6 | 15.5 | 130 | 134 | 121 | M20 ⁽¹⁾ | 340 | 12 | 165 | 130 | 200 | 12 | 3.5 |
| 90S | - 24 | 185 | 158 | 24 | M8 | 50 | 8 | 7 | 20 | 125 | 134 | 121 | M20 ⁽¹⁾ | 375 | 12 | 165 | 130 | 200 | 12 | 3.5 |
| 90L | - 24 | 185 | 158 | 24 | M8 | 50 | 8 | 7 | 20 | 125 | 134 | 121 | M20 ⁽¹⁾ | 400 | 12 | 165 | 130 | 200 | 12 | 3.5 |
| 100L | - 28 | 220 | 186 | 28 | M10 | 60 | 8 | 7 | 24 | 150 | 134 | 121 | M20 ⁽¹⁾ | 450 | 14 | 215 | 180 | 250 | 12 | 4 |
| 112M | - 28 | 234 | 210 | 28 | M10 | 60 | 8 | 7 | 24 | 155 | 160 | 171 | M25 ⁽¹⁾ | 470 | 14 | 215 | 180 | 250 | 15 | 4 |
| 132S | - 38 | 266 | 230 | 38 | M12 | 80 | 10 | 8 | 33 | 183 | 160 | 171 | M25 ⁽¹⁾ | 525 | 14 | 265 | 230 | 300 | 15 | 4 |
| 132M | - 38 | 266 | 230 | 38 | M12 | 80 | 10 | 8 | 33 | 183 | 160 | 171 | M25 ⁽¹⁾ | 565 | 14 | 265 | 230 | 300 | 15 | 4 |
| 160M | - 42 | 320 | 280 | 42 | M16 | 110 | 12 | 8 | 37 | 220 | 238 | 223 | M50 | 655 | 16 | 300 | 250 | 350 | 19 | 5 |
| 160L | - 42 | 320 | 280 | 42 | M16 | 110 | 12 | 8 | 37 | 220 | 238 | 223 | M50 | 695 | 16 | 300 | 250 | 350 | 19 | 5 |
| 180M | - 48 | 355 | 305 | 48 | M16 | 110 | 14 | 9 | 42.5 | 240 | 238 | 223 | M50 | 715 | 16 | 300 | 250 | 350 | 19 | 5 |
| 180L | - 48 | 355 | 305 | 48 | M16 | 110 | 14 | 9 | 42.5 | 240 | 238 | 223 | M50 | 715 | 16 | 300 | 250 | 350 | 19 | 5 |
| 200L | - 55 | 395 | 325 | 55 | M20 | 110 | 16 | 10 | 49 | 270 | 238 | 223 | M50 | 805 | 16 | 350 | 300 | 400 | 19 | 5 |
| 225S | - 60 | 442 | 390 | 60 | M20 | 140 | 18 | 11 | 53 | 300 | 342 | 326 | M63 | 860 | 18 | 400 | 350 | 450 | 19 | 5 |
| 225M | - 55* | 442 | 390 | 55 | M20 | 110 | 16 | 10 | 49 | 300 | 342 | 326 | M63 | 855 | 18 | 400 | 350 | 450 | 19 | 5 |
| 225M | - 60 | 442 | 390 | 60 | M20 | 140 | 18 | 11 | 53 | 300 | 342 | 326 | M63 | 885 | 18 | 400 | 350 | 450 | 19 | 5 |
| 250M | - 60* | 485 | 415 | 60 | M20 | 140 | 18 | 11 | 53 | 330 | 342 | 326 | M63 | 965 | 18 | 500 | 450 | 550 | 19 | 5 |
| 250M | - 65 | 485 | 415 | 65 | M20 | 140 | 18 | 11 | 58 | 330 | 342 | 326 | M63 | 965 | 18 | 500 | 450 | 550 | 19 | 5 |
| 280S | - 65* | 544 | 445 | 65 | M20 | 140 | 18 | 11 | 58 | 380 | 342 | 326 | M63 | 1035 | 18 | 500 | 450 | 550 | 19 | 5 |
| 280S | - 75 | 544 | 445 | 75 | M20 | 140 | 20 | 12 | 67.5 | 380 | 342 | 326 | M63 | 1035 | 18 | 500 | 450 | 550 | 19 | 5 |
| 280M | - 65* | 544 | 445 | 65 | M20 | 140 | 18 | 11 | 58 | 380 | 342 | 326 | M63 | 1085 | 18 | 500 | 450 | 550 | 19 | 5 |
| 280M | - 75 | 544 | 445 | 75 | M20 | 140 | 20 | 12 | 67.5 | 380 | 342 | 326 | M63 | 1085 | 18 | 500 | 450 | 550 | 19 | 5 |
| 315S | - 65* | 700 | 610 | 65 | M20 | 140 | 18 | 11 | 58 | 460 | 470 | 445 | M63 | 1155 | 25 | 600 | 550 | 660 | 24 | 6 |
| 315S | - 80 | 700 | 610 | 80 | M20 | 170 | 22 | 14 | 71 | 460 | 470 | 445 | M63 | 1185 | 25 | 600 | 550 | 660 | 24 | 6 |
| 315M | - 65* | 700 | 610 | 65 | M20 | 140 | 18 | 11 | 58 | 460 | 470 | 445 | M63 | 1205 | 25 | 600 | 550 | 660 | 24 | 6 |
| 315M | - 80 | 700 | 610 | 80 | M20 | 170 | 22 | 14 | 71 | 460 | 470 | 445 | M63 | 1235 | 25 | 600 | 550 | 660 | 24 | 6 |
| 315L | - 65* | 700 | 610 | 65 | M20 | 140 | 18 | 11 | 58 | 460 | 470 | 445 | M63 | 1255 | 25 | 600 | 550 | 660 | 24 | 6 |
| 315L | - 80 | 700 | 610 | 80 | M20 | 170 | 22 | 14 | 71 | 460 | 470 | 445 | M63 | 1285 | 25 | 600 | 550 | 660 | 24 | 6 |
| 315LX | - 65* | 700 | 610 | 65 | M20 | 140 | 18 | 11 | 58 | 460 | 470 | 445 | M63 | 1455 | 25 | 600 | 550 | 660 | 24 | 6 |
| 315LX | - 80 | 700 | 610 | 80 | M20 | 170 | 22 | 14 | 71 | 460 | 470 | 445 | M63 | 1485 | 25 | 600 | 550 | 660 | 24 | 6 |
| 355L | - 80* | 810 | 675 | 80 | M20 | 170 | 22 | 14 | 71 | 490 | 530 | 500 | BGP ⁽²⁾ | 1630 | 30 | 740 | 680 | 800 | 24 | 6 |
| 355L | - 100 | 810 | 675 | 100 | M24 | 210 | 28 | 16 | 90 | 490 | 530 | 500 | BGP ⁽²⁾ | 1670 | 30 | 740 | 680 | 800 | 24 | 6 |
| 355LX | - 80* | 810 | 675 | 80 | M20 | 170 | 22 | 14 | 71 | 490 | 530 | 500 | BGP ⁽²⁾ | 1760 | 30 | 740 | 680 | 800 | 24 | 6 |
| 355LX | - 100 | 810 | 675 | 100 | M24 | 210 | 28 | 16 | 90 | 490 | 530 | 500 | BGP ⁽²⁾ | 1800 | 30 | 740 | 680 | 800 | 24 | 6 |

* 2 pole motors only

⁽¹⁾ Two conduit entries provided

⁽²⁾ BGP = Blank Gland Plate

⁽³⁾ See page 6 for alternative conduit entry options

⁽⁴⁾ Mounting Holes: Frames 80- 200 have 4 holes at 45° offset from top. Frames 225 and above have 8 holes at 22.5° offset from top. Frames 400 and 450 are available in PPA

This data is provided for guidance only, guaranteed only when confirmed by Regal Australia.

Motors for hazardous areas

PPAE/PPAN/PPAD

Motors used within a hazardous location require a higher level of protection against the risk of harmful occurrences. PPA motors are available in the three most common high protection configurations, Exe, ExnA (formerly Exn) and Ext(formerly ExtD/DIP), all supplied with a protection rating of IP66. Most PPA hazardous area motor versions are available in frame sizes 80 to 400. Combinations of protection such as Exe and Ext, or ExnA and Ext, are also available.

International and Australian standards

IEC or AS/NZS 60079 series of standards specify general requirements for the selection of electrical equipment and its installation and maintenance, to ensure safe use in areas where flammable materials are generated, prepared, processed, handled, stored or otherwise used, and which are therefore potentially hazardous.

The term 'flammable material' includes gases, vapors, liquids, mists, solids, and dusts, but does not include those materials which are specifically manufactured as explosives or materials which are inherently explosive.

The requirements of the listed standards apply only to the use of electrical equipment under normal or near normal atmospheric conditions. The requirements specified for hazardous location electrical equipment are supplementary to and not alternative to any requirements which would apply to equipment and installations in non-hazardous areas. (See AS/NZS3000).

Paint

For PPA hazardous location motors sold in Australia (unless otherwise specified), the standard paint colours are as follows:

- PPAE (Exe) Golden Yellow (RAL 1004)
- PPAN (ExnA) Bright Red Orange (RAL 2008)
- PPAD (Ext) Bright Red Orange (RAL 2008)

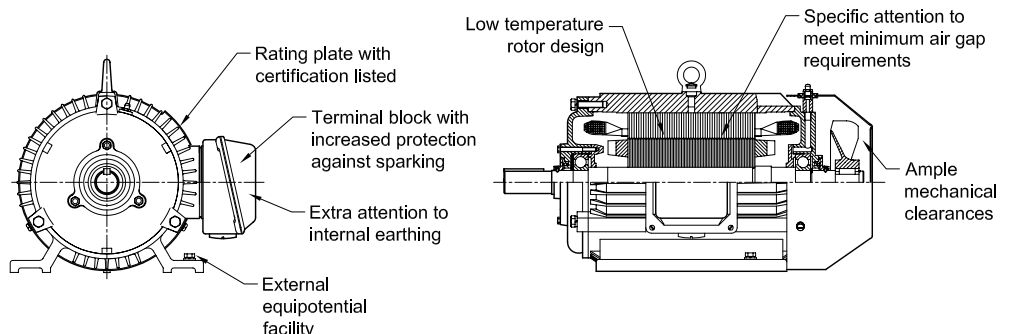
For paint specifications in all other countries, please contact your local Regal Australia office directly.

Motor protection types

PPAE – Exe

Exe motor protection designates increased safety as outlined in IEC 60079-7.

Exe type increased safety protection describes electrical equipment that does not produce arcs or sparks in normal service,



in which additional measures are applied so as to give increased security against the possibility of excessive temperatures, and of the occurrence of arcs and sparks.

Exe motors are suitable for Zone 1, Group II (A, B & C) hazardous areas, and Regal Australia provides for a temperature class of T3 (200°C) in a 50°C ambient.

Exe Protection – (t_E time)

t_E time is the time it takes for the stator winding or rotor cage to heat up from normal operating temperature, at the highest permitted ambient temperature, to the highest permitted limit temperature (temperature class), with the rotor locked and the stator winding loaded with the starting current.

For selection and setting of suitable current-dependent protection, the t_E time and the ratio of locked rotor current to nominal current are used. In the case of a rotor locking, this device must cut off the supply within the specified t_E time, which is listed in the performance data.

PPAN – ExnA (formerly Exn)

ExnA motor protection designates non-sparking as outlined in IEC 60079-15.

ExnA type non-sparking protection describes electrical equipment that, in normal operation, is not capable of igniting a surrounding explosive atmosphere, and a fault capable of causing ignition is not likely to occur.

ExnA motors are suitable for Zone 2, Group IIA,B&C hazardous areas, and Regal Australia provides for a temperature class of T3 (200°C) in a 60°C ambient.

PPAD – Ext (formerly Ex tD/DIP)

Ext motor protection designates electrical apparatus for use in presence of combustible dust, protection by enclosure as outlined in IEC 60079-31. Ext protection describes electrical equipment which is enclosed so that it excludes dust, and which will not permit arcs, sparks, or heat otherwise generated or liberated inside the enclosure to cause ignition of exterior accumulations or atmospheric suspensions of a specific dust on or in the vicinity of the enclosure.

Ext motors are suitable for Zone 21 and 22 dust laden hazardous areas, and Regal Australia provides for a temperature class of T135°C in a 50°C ambient.

Motors for hazardous areas

Hazardous area classifications

Hazardous areas fall into two categories; hazards due to flammable gases (vapors or mists), and hazards due to combustible dusts (fibres or particles).

Gaseous hazards

Explosive gas atmospheres are classified into zones based on the frequency and duration of their occurrence as below:

- Zone 0: an area in which an explosive gas atmosphere is present continuously, for long periods, or is present frequently
- Zone 1: an area in which an explosive gas atmosphere is likely to occur in normal operation occasionally
- Zone 2: an area in which an explosive gas atmosphere is not likely to occur in normal operation, and if it does occur it will exist for a short period only.

Electrical apparatus for potentially explosive atmospheres is divided into the following groups:

- Group I: mines susceptible to fire damp (methane)
- Group II: Explosive gas atmospheres other than mines susceptible to firedamp

High surface temperatures can cause ignition of flammable gases or vapors therefore the surface temperature of equipment in hazardous areas must not exceed the ignition temperature of these gases or vapors.

Group I electrical equipment may not have a surface temperature that exceeds 150°C where coal dust can form a layer, and 450°C for internal surfaces where the above risk is avoided by sealing against ingress or dust.

Group II electrical equipment may not have a surface temperature that exceeds its specified temperature class, as listed in the table below:

| Temperature class of electrical equipment | Maximum surface temperature of Group II electrical equipment | Ignition temperature of gas or vapor |
|---|--|--------------------------------------|
| T1 | ≤ 450°C | > 450°C |
| T2 | ≤ 300°C | > 300°C |
| T3 | ≤ 200°C | > 200°C |
| T4 | ≤ 135°C | > 135°C |
| T5 | ≤ 100°C | > 100°C |
| T6 | ≤ 85°C | > 85°C |

Electrical apparatus of Group II may be subdivided according to the nature of the potentially explosive atmosphere for which it is intended.

Group specification and characteristics of some common flammable liquids, gases, and vapors are listed in the table below:

| Material | Boiling point [°C] | Flash point [°C] | Ignition temp. [°C] | Gas group |
|------------------|----------------------|--------------------|-----------------------|-----------|
| Acetone | 56 | -20 | 465 | IIA |
| Acetylene | -83 | Gas | 305 | IIC |
| Ammonia | -33 | Gas | 651 | IIA |
| Benzene | 80 | 12 | 498 | IIA |
| Butane | -1 | Gas | 287 | IIA |
| Carbon monoxide | -192 | Gas | 609 | IIA |
| Ethane | -89 | Gas | 472 | IIA |
| Ethyl alcohol | 78 | 55 | 363 | IIA |
| Ethylene | -104 | Gas | 450 | IIB |
| Heptane | 98 | -4 | 204 | IIA |
| Hydrogen | -252 | Gas | 500 | IIC |
| Hydrogen cyanide | 26 | -18 | 538 | IIB |
| Methane | -162 | Gas | 537 | IIA |
| Propane | -42 | Gas | 432 | IIA |
| Toluene | 111 | 4 | 480 | IIA |

Note the data given in this table is derived from NFPA 325M. Flashpoint is the lowest temperature at which a material gives off sufficient vapor to form an explosive gas/air mixture in the air immediately above the surface.

Equipment within a specific group may only be used within a location with an equal or less level of hazard. Allowable groups are summarized in the table below:

| Equipment Group Certified to: | Allowable Gas Group |
|-------------------------------|---------------------|
| IIA | IIA |
| IIB | IIA, IIB |
| IIC | IIA, IIB, IIC |

Combustible dust hazards

Many dusts which are generated, processed, handled and stored, are combustible. When ignited, they can burn rapidly and with considerable explosive force if mixed with air in the appropriate proportions. Electrical apparatus used in locations where this hazard is present, requires adequate protection so as to reduce the likelihood of ignition of the external explosive atmosphere.

Areas where dusts, flyings and fibres in air occur in dangerous quantities are classified as hazardous and are divided into three zones according to the level of risk.

Zone 20: An area in which combustible dust, as a cloud, is present continuously or frequently during normal operation, in sufficient quantity to be capable of producing an explosive dust/air mixture, and/or where layers of dust of uncontrollable and excessive thickness can be formed.

Zone 21: An area not classified as Zone 20 in which combustible dust, as a cloud, is likely to occur during normal operation, in sufficient quantities to be capable of producing an explosive dust/air mixture.

Motors for hazardous areas

Zone 22: An area not classified as Zone 21 in which combustible dust clouds may occur infrequently, and persist for only a short period, or in which accumulations or layers of combustible dust may be present under abnormal conditions and give rise to combustible dust/air mixtures. Where, following an abnormal condition, the removal of dust accumulations or layers cannot be assured then the area is to be classified Zone 21.

Ignition protection is based on the limitation of the maximum surface temperature of the enclosure and on other surfaces which could be in contact with dust and on the restriction of dust ingress into the enclosure by the use of dust tight or dust protected enclosures.

Group III Electrical equipment is intended for use in places with an explosive dust atmosphere other than mines susceptible to firedamp.

Electrical equipment of Group III is subdivided according to the nature of the explosive atmosphere for which it is intended as-

- Group IIIA: Combustible flyings
- Group IIIB: Non-conductive dust
- Group IIIC: Conductive dust

Note: Equipment marked IIIB is suitable for applications requiring Group IIIA equipment. Similarly equipment marked IIIC is suitable for applications requiring Group IIIA or Group IIIB equipment.

Specifications and characteristics of some common combustible dusts are listed in the table below:

| Materials | Minimum ignition energy [mJ] | Ignition temperature | |
|--------------------|--------------------------------|----------------------|--------------|
| | | Cloud [°C] | Layer [°C] |
| Aluminium | 15 | 550 | 740 |
| Cellulose | 80 | 480 | 270 |
| Corn | 40 | 400 | 250 |
| Flax | 80 | 230 | 430 |
| Polypropylene | 30 | 420 | - |
| Rayon | 2400 | 520 | 250 |
| Rice | 50 | 440 | 220 |
| Rubber (synthetic) | 30 | 320 | - |
| Sugar | 30 | 370 | 400 |
| Wheat flour | 50 | 380 | 360 |

Modifications, variations, and optional extras

VVVF drives

Three types of VVVF drives kit are available for the PPA range to assist in maintaining satisfactory operation.

VVVF drive kit A – Separately driven cooling fan (240 & 415V)

This fan should be used when the motor speed is required to be reduced below 30Hz in constant torque mode. For centrifugal fan or pump, no separate cooling fan is required. For all other loads refer to the loadability curve in the section on VVVF Drives, refer page 10.

VVVF drive kit B1 – Standard motor (EDM)

This kit incorporates a single insulated bearing, normally at the non-drive end, and an earthing brush at the drive end. Together they are designed to remove the effect of electrical discharge through the bearings.

VVVF drive kit B2 – Hazardous location motors (EDM)

In hazardous locations earthing brushes are not permitted. In this case two insulated bearings should be fitted to control the effects of EDM.

Vertical hoods and dust shields

PPA motors have IP66 protection as standard and do not need rain hoods for motors mounted vertically shaft down. However, where additional protection from solids in the atmosphere is required hoods can be fitted.

For use in very dusty environments, dust shields are available manufactured from stainless steel. These shields are fitted over the motor in the IM1001 (B3), IM2001 (B3/B5) or IM3001 (B5) horizontal mounted position, and prevent the ribs of the motor from clogging with dust.

Special shafts

PPA motors come standard with a single output shaft to standard dimensions. Regal Australia can provide customer specific shaft designs including the following common alternatives:

- Double shaft extension
- Special shaft extension
- Stainless steel shaft material
- Reduced shafts for geared motors.

Bearings and bearing RTDs

In applications where bearings need special consideration Regal Australia can provide the following solutions:

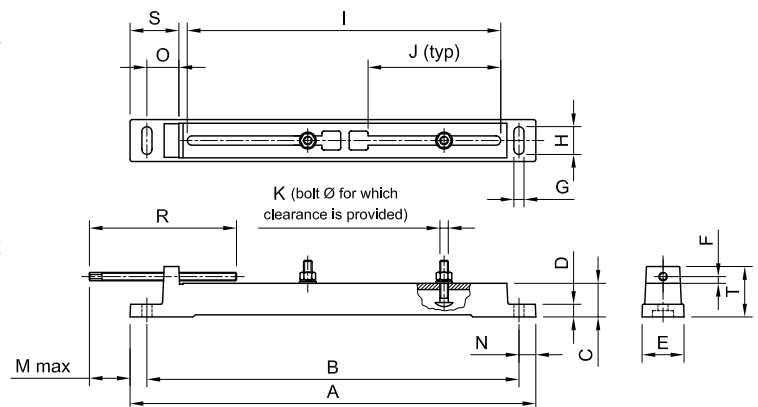
- Bearing monitors
- Alternative bearing types
- Low/high temperature bearing grease
- Insulated bearings.

In addition to the winding RTDs previously described in this catalogue, bearing RTDs (one per bearing) are available as an option on the full PPA range. These RTD can be terminated in the winding RTD terminal box or their own auxiliary box.

Slide rails

Slide rails are designed for motor position adjustment when belt drives are used. Applications include tension adjustment for belt driven equipment.

Regal Australia stock slide rails to suit frame sizes 80 to 355. Rail sets are manufactured from cast iron and provided with mounting bolts and nuts between motor and rail.



Slide rail dimensions

| Slide rail product code | To suit motor frame | Dimensions [mm] | | | | | | | | | | | | | | | | | Weight per set [kg] |
|-------------------------|---------------------|-------------------|------|-----|----|-----|----|----|----|-----|-----|----|-----|----|-----|-----|-----|-----|-----------------------|
| | | A | B | C | D | E | F | G | H | I | J | K | M | N | O | R | S | T | |
| MR080090 | 80 & 90 | 380 | 328 | 30 | 15 | 48 | 10 | 15 | 25 | 245 | 95 | 8 | 75 | 25 | 40 | 145 | 65 | 50 | 3 |
| MR100132 | 100, 112 & 132 | 475 | 425 | 37 | 19 | 70 | 10 | 14 | 35 | 340 | 150 | 10 | 135 | 26 | 42 | 200 | 68 | 62 | 6.5 |
| MR160180 | 160 & 180 | 567 | 515 | 48 | 19 | 72 | 11 | 18 | 35 | 390 | 162 | 12 | 115 | 28 | 57 | 200 | 85 | 70 | 10 |
| MR200225 | 200 & 225 | 790 | 730 | 60 | 32 | 92 | 16 | 20 | 20 | 610 | 265 | 16 | 200 | 30 | 60 | 290 | 90 | 92 | 22 |
| MR250280 | 250 & 280 | 945 | 870 | 70 | 38 | 105 | 16 | 21 | 21 | 725 | 305 | 20 | 240 | 35 | 70 | 350 | 105 | 110 | 40 |
| MR315355 | 315 & 355 | 1220 | 1115 | 125 | 40 | 122 | 22 | 30 | 30 | 920 | 420 | 24 | 285 | 50 | 105 | 450 | 155 | 170 | 105 |

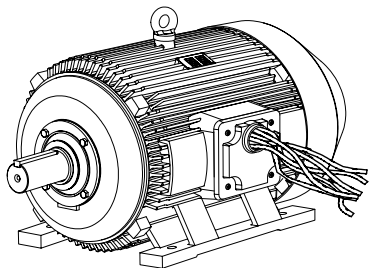
Modifications, variations, and optional extras

Terminal box

PPA motors come standard with a terminal box on the right hand side viewed from drive end.

The following alternatives are available:

- Left hand terminal box – **PPAL**
 - 80-400 frame by modification of standard unit
 - 450 frame new manufacturing
- Removed terminal box – **PPAF**
 - fitted with a blanking plate and threaded conduit entry, and extended leads, including earth connector.



Special identification plates

Additional identification and warning plates in stainless steel or other specified materials can be fitted to this PPA range. These include:

- Equipment number plates
- Direction of rotation (arrow) plates
- RTD plates
- Lubrication instruction plates.

Protection against harsh environments

Where environmental factors need special consideration Regal Australia can provide the following modifications:

- Winding temperature monitors
- Anti-condensation heaters on motors below frame 250
- Separately driven cooling fans
- Tropic proofing
- Special paint finish.

Where the motor is to be installed in harsh chemical conditions optional surface treatments are available to protect against acid and alkaline splashing. In addition to these surface systems we are able to supply stainless steel nuts, bolts and screws, plus inlet fan grills manufactured from stainless steel.

Special fans

Regal Australia offer a range of uni-directional and bi-directional low-noise fans.

Installation and maintenance

PPA series motors are designed and manufactured to be robust and reliable for minimal maintenance. The following items should be taken into consideration to ensure trouble free installation and reliable running throughout the motors' life.

Inspection

On receipt of the motor check the following:

- Rating plate details and enclosure are as ordered
- Shaft turns freely
- Motor was not damaged during transport
- Condensation drain holes are in the correct position for the motor mounting application. (They should be located at the lowest point of the motor when it is in its operating position.)
- If the winding is meggered to earth, ensure that the thermal protectors are not inadvertently damaged. (The thermistor leads should be shorted together whilst meggering takes place).

Storage

When the motor is not for immediate use store in a clean, dry location, free from vibration. (Bearings are susceptible to damage from vibration.)

Ensure shaft locking clamps, where supplied, are fitted securely. Anti-condensation heaters, where fitted, should be energised if the environment is likely to be damp.

Installation

The following items should be considered when installing to ensure motor reliability:

Surroundings

Ensure that the motor is properly protected against ingress of oil, water or dust if construction work is in progress around the motor.

Shaft locking clamp

Motors 200 frame and above are fitted with a shaft-locking clamp. The clamp should remain fitted for as long as possible, preferably until the motor is put into service. Motors that are likely to remain stationary for lengthy periods should have locking clamps refitted. Shaft-locking clamps stop axial movement of the rotor assembly caused by vibration. This causes a phenomenon known as 'false brinelling', which eventually leads to premature bearing failure particularly where roller bearings are fitted.

Pulleys and couplings

- Pulleys and couplings should be machined to H7 limits. Both shaft and bore should be cleaned and lubricated. If the fit is still too tight the pulley or coupling should be heated up in air or oil to approximately 95°C.
- Shock methods must not be used in removing pulleys

Installation and maintenance

and couplings. Proper wheel or pulley removers should be used to prevent shaft and bearing damage.

- Pulleys and couplings should be balanced before the keyway is cut to eliminate vibration caused by lack of balancing. (Rotor and shaft assemblies have been finely balanced during manufacture, and drive end shafts balanced with a half key.)
- When slide rails are used in conjunction with pulley drives the adjusting screw ends should be positioned between the motor and load at drive shaft end and the other diagonally opposite. This helps speedy and accurate belt aligning, tensioning and replacement.

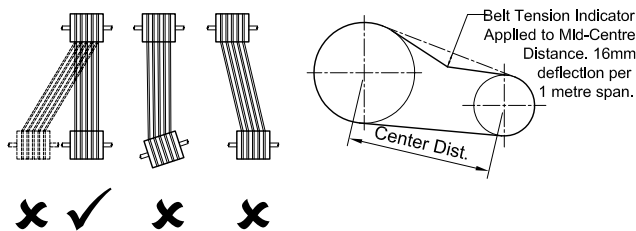
Shafts and keys

Shafts are machined to AS1359.10-1985 dimensions.

| Shaft diameter | Tolerance | | Length | Key size | Seat |
|----------------|-----------|--------|--------|-----------|------|
| 19 | +0.009 | -0.004 | 40 | 6x6x25 | 15.5 |
| 24 | +0.009 | -0.004 | 50 | 8x7x32 | 20 |
| 28 | +0.009 | -0.004 | 60 | 8x7x40 | 24 |
| 38 | +0.018 | +0.002 | 80 | 10x8x56 | 33 |
| 42 | +0.018 | +0.002 | 110 | 12x8x80 | 37 |
| 48 | +0.018 | +0.002 | 110 | 14x9x80 | 42.5 |
| 55 | +0.030 | +0.011 | 110 | 16x10x80 | 49 |
| 60 | +0.030 | +0.011 | 140 | 18x11x110 | 53 |
| 65 | +0.030 | +0.011 | 140 | 18x11x110 | 58 |
| 70 | +0.030 | +0.011 | 140 | 20x12x110 | 62.5 |
| 75 | +0.030 | +0.011 | 140 | 20x12x110 | 67.5 |
| 80 | +0.030 | +0.011 | 170 | 22x14x140 | 71 |
| 85 | +0.035 | +0.013 | 170 | 22x14x140 | 76 |
| 100 | +0.035 | +0.013 | 210 | 28x16x160 | 90 |
| 110 | +0.035 | +0.013 | 210 | 28x16x160 | 100 |
| 125 | +0.040 | +0.015 | 210 | 32x18x160 | 114 |

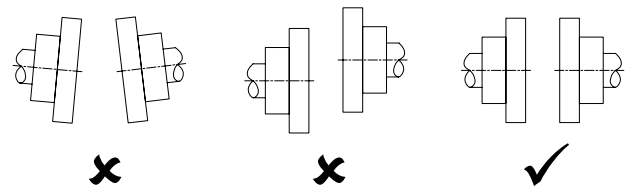
Belt Drives

The belt manufacturer's recommendations for installation, alignment and tensioning must be strictly adhered to when fitting belt drives.



Direct coupling

Care must be taken in checking alignment of driving and driven shafts. The motor and driven equipment must be in alignment from all aspects.



WARNING: MISALIGNMENT OF PULLEYS WILL LEAD TO PREMATURE BEARING FAILURE

Connection

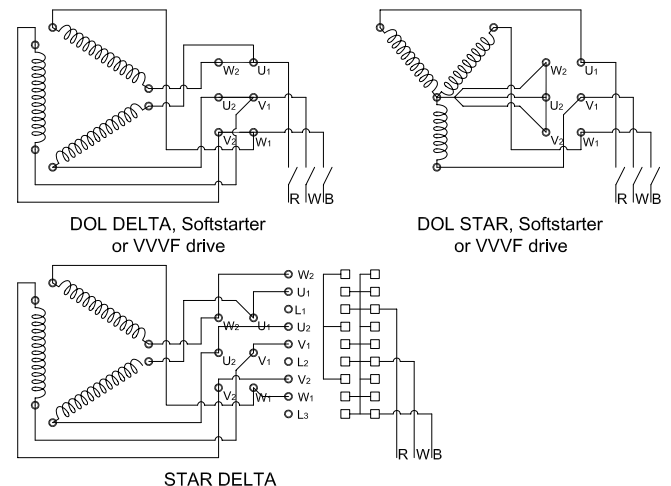
PPA motors should be connected to the rated voltage a follows:

| | |
|-----------------|-----------------------------------|
| up to 3kW | Star (220-250V three phase Delta) |
| 4kW to 630kW | Delta |
| 710kW and above | Delta (rated 690V) |

PPA motors are suitable for use with both rated voltage DOL operation and rated voltage three phase variable frequency drives. 3kW and below can also be used with 220-250V three phase variable frequency drives.

Alternatively, 380-415kW, 4kW to 630kW Delta connected motors can be operated DOL, or in the Star configuration with a 690V supply or with a 690V variable frequency drive. When used with a VVVF drive they must be used in conjunction with an output reactor to protect the winding insulation. These motors are also suitable for Star/Delta starting.

For motors 710kW and above the standard connection is



Delta with a minimum voltage of 690V.

Where special windings are supplied, a separate connection diagram will be supplied with the motor. All motors are provided with suitable earthing studs.

Running current check

Check the running current of the motor on no load and full load.

Installation and maintenance

Basic maintenance

Bearings

When re-greasing motors ensure that the correct type of grease is used. If in doubt about the existing grease type, clean out old grease thoroughly from bearings and bearing housings, prior to regreasing.

WARNING: NEVER MIX GREASE TYPES

Grease replenishment

The addition of fresh grease, to renew the original charge, must be made at regular intervals.

PPA motors with frames 80 to 100 are fitted with sealed bearing housing (non regreasable). Thru-flushing grease valves are fitted to all PPA motors. For frames 112 and above replenishment should be carried out whilst the motor is running. The rotating slinger expels excess grease through an exhaust port in the bearing cap ensuring the correct level of fresh grease is maintained in the bearing housing. See the table on page 31 for bearing relubrication volumes.

Grease packing

Assembly

The thru-flushing grease valve operates automatically and cannot be overgreased. This feature eliminates problems associated with overpacking as any excess will be expelled from the housing as the motor operates. (Overpacking can cause churning and over-heating which may result in breakdown of the grease and leakage from the housing. Too little grease can result in dry running and cage wear.)

Bearing

The bearing itself should always be packed as full as possible, working the grease thoroughly into the bearing parts in order to ensure proper lubrication immediately upon starting.

Bearing caps

The most convenient way of packing bearing caps is to fill the inner-bearing cap completely and the outer bearing cap to one third of its capacity, preferably on the opposite side to the exhaust port.

Dismantling

If a motor is dismantled, cover the bearings with a plastic sheet or clean lint free rag to prevent ingress of foreign matter. Never use cotton waste.

Removing and fitting bearings

If bearings are removed they should be renewed, not refitted. Proper drawing and fitting equipment must be used when removing bearings as the bearings have an interference fit on the shaft. Replacement bearings must be the correct size and have the correct internal clearance grade. See the table on page 31 for bearing sizes. C3 clearances are normally preferred.

Recommended grease types

General purpose grease (standard)

- Lithium hydroxy-stearate grease
- NLGI consistency No. 3
- Operating temperature -20°C to +120°C
- High oxidation resistance
- Retains consistency after extreme periods of service
- Contains effective rust inhibitors
- Shell Alvania no. 3 or equivalent.

Extreme temperature range grease (optional)

- PTFE (Teflon) additive base with mineral oils
- Operating temperature -40°C to +260°C
- Non melting with high oxidation resistance
- Retains consistency
- Contains rust inhibitors
- Magnalube G or equivalent.

Current

Check periodically that the current drawn is balanced and is the same as at the time of installation.

Cable terminations

Cable terminations should have all incoming supply leads compressed between two nuts, locked with a locking nut. Other combinations may cause overheating due to high resistance joints.

WARNING: THE CORRECT CLEARANCE BETWEEN LIVE PARTS MUST BE MAINTAINED

Thermal protection devices

Standard

One set (3) of PTC thermistors are embedded in the head windings. The leads are terminated in an auxiliary terminal box for PPA motors frame 160 and above, and terminate in the main terminal box for frames 80 to 132.

Resistance Temperature Detectors (RTDs) are fitted to windings of 315 frame and above (leads terminated in separate auxiliary terminal box).

Optional

Other thermal protection devices may be optionally fitted, including bearing RTDs, winding RTDs for smaller frames, additional sets of PTC thermistors, or bi-metal thermal protectors.

WARNING: DO NOT APPLY MORE THAN 2.5V ACROSS ANY PROTECTION DEVICE

Insulation testing

When checking for insulation resistance (IR) the test voltage must not be applied across the protection device. The correct procedure is to short the entire protector leads together and apply the test voltage between the shorted leads and earth and/or phases. 'Meggering' across the terminals of the device, when not shorted, is likely to cause irreparable damage, and must not be carried out.

PPA & PPC bearing size and relubrication data

| Standard bearings | | | | | Optional bearings | | | | | | | | | |
|----------------------------|-------------|--------------|---------------|------------------|------------------------------|--------------|---------------|------------------|-------------|----------------------------|---------------|------------------|--|--|
| Drive end (ball bearing) | | | | | Non-Drive end (ball bearing) | | | | | Drive end (roller bearing) | | | | |
| Frame size | Bearing no. | Bearing size | Relubrication | | Bearing no. | Bearing size | Relubrication | | Bearing no. | Bearing size | Relubrication | | | |
| | | | Qty [g] | Interval [hours] | | | Qty [g] | Interval [hours] | | | Qty [g] | Interval [hours] | | |
| 3000 r/min = 2 pole | | | | | | | | | | | | | | |
| 112 | 6306 | 30x72x19 | 7 | 9000 | 6306 | 30x72x19 | 7 | 9000 | | | | | | |
| 132 | 6308 | 40x90x23 | 11 | 7500 | 6308 | 40x90x23 | 11 | 7500 | | | | | | |
| 160 | 6309 | 45x100x25 | 13 | 6500 | 6309 | 45x100x25 | 13 | 6500 | | | | | | |
| 180 | 6310 | 50x110x27 | 15 | 6000 | 6310 | 50x110x27 | 15 | 6500 | | | | | | |
| 200 | 6312 | 60x130x31 | 20 | 5000 | 6312 | 60x130x31 | 20 | 5000 | | | | | | |
| 225 | 6313 | 65x140x33 | 23 | 4800 | 6313 | 65x140x33 | 23 | 4800 | | | | | | |
| 250 | 6313 | 65x140x33 | 30 | 4200 | 6313 | 65x140x33 | 23 | 4800 | | | | | | |
| 280 | 6314 | 70x150x35 | 37 | 2500 | 6314 | 70x150x35 | 26 | 4000 | | | | | | |
| 315 | 6316 | 80x170x39 | 41 | 2000 | 6316 | 80x170x39 | 41 | 2000 | | | | | | |
| 355 | 6318 | 90x190x43 | 41 | 2000 | 6318 | 90x190x43 | 41 | 2000 | | | | | | |
| 400 | 6318 | 90x190x43 | 41 | 2000 | 6318 | 90x190x43 | 41 | 2000 | | | | | | |
| 1500 r/min = 4 pole | | | | | | | | | | | | | | |
| 112 | 6306 | 30x72x19 | 7 | 12000 | 6306 | 30x72x19 | 7 | 12000 | NU306 | 30x72x19 | 7 | 11000 | | |
| 132 | 6308 | 40x90x23 | 11 | 11000 | 6308 | 40x90x23 | 11 | 11000 | NU308 | 40x90x23 | 11 | 9500 | | |
| 160 | 6309 | 45x100x25 | 13 | 11000 | 6309 | 45x100x25 | 13 | 11000 | NU309 | 45x100x25 | 13 | 8500 | | |
| 180 | 6310 | 50x110x27 | 15 | 10500 | 6310 | 50x110x27 | 15 | 11000 | NU310 | 50x110x27 | 15 | 8500 | | |
| 200 | 6312 | 60x130x31 | 20 | 10000 | 6312 | 60x130x31 | 20 | 10000 | NU312 | 60x130x31 | 20 | 6000 | | |
| 225 | 6313 | 65x140x33 | 23 | 9500 | 6313 | 65x140x33 | 23 | 9500 | NU313 | 65x140x33 | 23 | 7000 | | |
| 250 | 6315 | 75x160x37 | 30 | 9100 | 6313 | 65x140x33 | 23 | 9500 | NU315 | 75x160x37 | 30 | 7000 | | |
| 280 | 6317 | 85x180x41 | 37 | 8900 | 6314 | 70x150x35 | 26 | 8900 | NU317 | 85x180x41 | 37 | 6800 | | |
| 315 | NU318 | 90x190x43 | 41 | 6500 | 6316 | 80x170x39 | 41 | 7000 | | | | | | |
| 355 | NU324 | 120x260x55 | 72 | 4000 | 6324 | 120x260x55 | 72 | 7000 | | | | | | |
| 400 | NU326 | 130x280x58 | 81 | 3500 | 6326 | 130x280x58 | 81 | 6200 | | | | | | |
| 450 | NU328 | 140x210x62 | 93 | 2500 | 6326 | 130x280x58 | 81 | 6200 | | | | | | |
| 1000 r/min = 6 pole | | | | | | | | | | | | | | |
| 112 | 6306 | 30x72x19 | 7 | 17000 | 6306 | 30x72x19 | 7 | 17000 | NU306 | 30x72x19 | 7 | 14000 | | |
| 132 | 6308 | 40x90x23 | 11 | 15000 | 6308 | 40x90x23 | 11 | 15000 | NU308 | 40x90x23 | 11 | 11000 | | |
| 160 | 6309 | 45x100x25 | 13 | 14000 | 6309 | 45x100x25 | 13 | 14000 | NU309 | 45x100x25 | 13 | 8500 | | |
| 180 | 6310 | 50x110x27 | 15 | 14000 | 6310 | 50x110x27 | 15 | 14000 | NU310 | 50x110x27 | 15 | 8500 | | |
| 200 | 6312 | 60x130x31 | 20 | 14000 | 6312 | 60x130x31 | 20 | 14000 | NU312 | 60x130x31 | 20 | 6000 | | |
| 225 | 6313 | 65x140x33 | 23 | 13500 | 6313 | 65x140x33 | 23 | 13500 | NU313 | 65x140x33 | 23 | 7000 | | |
| 250 | 6315 | 75x160x37 | 30 | 13000 | 6313 | 65x140x33 | 23 | 13500 | NU315 | 75x160x37 | 30 | 7000 | | |
| 280 | 6317 | 85x180x41 | 37 | 12500 | 6314 | 70x150x35 | 26 | 12500 | NU317 | 85x180x41 | 37 | 6800 | | |
| 315 | NU318 | 90x190x43 | 41 | 9500 | 6316 | 80x170x39 | 41 | 10000 | | | | | | |
| 355 | NU324 | 120x260x55 | 72 | 8000 | 6324 | 120x260x55 | 72 | 7000 | | | | | | |
| 400 | NU326 | 130x280x58 | 81 | 7000 | 6326 | 130x280x58 | 81 | 6200 | | | | | | |
| 450 | NU328 | 140x210x62 | 93 | 4500 | 6326 | 130x280x58 | 81 | 6200 | | | | | | |
| 750 r/min = 8 pole | | | | | | | | | | | | | | |
| 112 | 6306 | 30x72x19 | 7 | 20000 | 6306 | 30x72x19 | 7 | 20000 | NU306 | 30x72x19 | 7 | 17000 | | |
| 132 | 6308 | 40x90x23 | 11 | 17000 | 6308 | 40x90x23 | 11 | 17000 | NU308 | 40x90x23 | 11 | 13000 | | |
| 160 | 6309 | 45x100x25 | 13 | 16000 | 6309 | 45x100x25 | 13 | 16000 | NU309 | 45x100x25 | 13 | 8500 | | |
| 180 | 6310 | 50x110x27 | 15 | 15500 | 6310 | 50x110x27 | 15 | 16000 | NU310 | 50x110x27 | 15 | 8500 | | |
| 200 | 6312 | 60x130x31 | 20 | 15000 | 6312 | 60x130x31 | 20 | 15000 | NU312 | 60x130x31 | 20 | 6000 | | |
| 225 | 6313 | 65x140x33 | 23 | 15000 | 6313 | 65x140x33 | 23 | 15000 | NU313 | 65x140x33 | 23 | 7000 | | |
| 250 | 6315 | 75x160x37 | 30 | 14500 | 6313 | 65x140x33 | 23 | 15000 | NU315 | 75x160x37 | 30 | 7000 | | |
| 280 | 6317 | 85x180x41 | 37 | 14000 | 6314 | 70x150x35 | 26 | 14000 | NU317 | 85x180x41 | 37 | 6800 | | |
| 315 | NU318 | 90x190x43 | 41 | 13000 | 6316 | 80x170x39 | 41 | 13000 | | | | | | |
| 355 | NU324 | 120x260x55 | 72 | 10000 | 6324 | 120x260x55 | 72 | 7000 | | | | | | |
| 400 | NU326 | 130x280x58 | 81 | 9000 | 6326 | 130x280x58 | 81 | 6200 | | | | | | |
| 450 | NU328 | 140x210x62 | 93 | 7500 | 6326 | 130x280x58 | 81 | 6200 | | | | | | |

Note: The bearings fitted to 80, 90 & 100 frames are greased for life. For these bearing sizes, refer to the table listed on page 7.



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