

PM Series – PB Type Bevel-Helical Gear Units



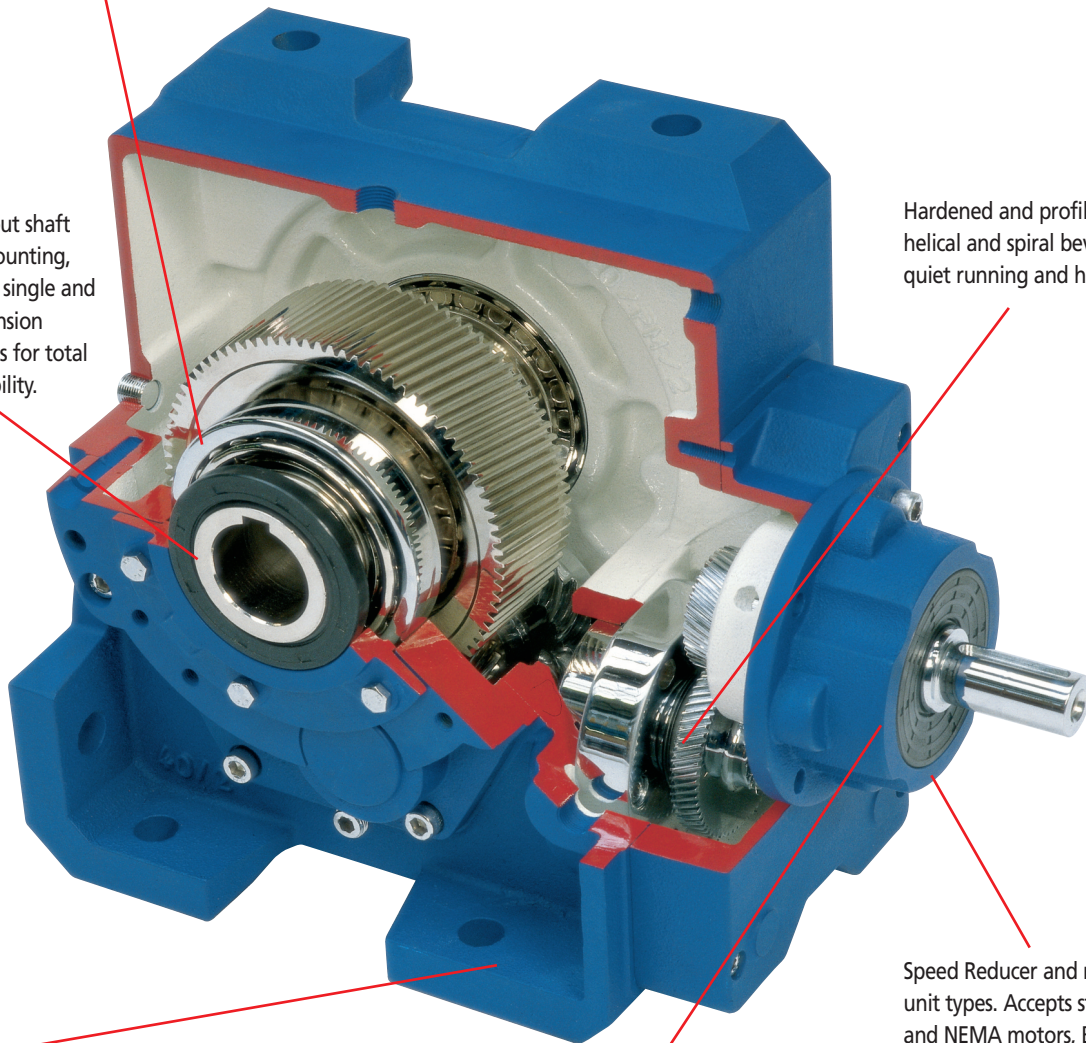
RENOLD
Superior Gear Technology

RENOLD PM Series - PB Type Product Features

Heavy duty taper roller bearings fitted for maximum load capacity and long life.

Hollow output shaft for direct mounting, with plug-in single and double extension output shafts for total design flexibility.

Hardened and profile ground helical and spiral bevel gears for quiet running and high efficiency.



One piece close grained cast iron gear case for strength and absorption of vibration for quiet running

Sprag clutch back stop option on motorised units to prevent drive reversals

Speed Reducer and motorised unit types. Accepts standard IEC and NEMA motors, B5 and B14 flanges.

Applications:

- Conveyors
- Mining
- Timber
- Textiles
- Materials Handling
- Packaging Machinery
- Food Process Machinery
- Water Treatment
- Foundry equipment

Contents

| | Page No |
|---|---------|
| PM Series - PB Type Unit Product Features | 2 |
| ATEX Approval Details | 4 |
| General Specification | 5 |
| Product Design Variations | 6 - 7 |
| Unit Mounting and Handing Details | 8 - 9 |
| Electric Motor Specifications | 10 - 12 |
| Ordering Designation Code | 13 |
| Inertia Values | 14 |
| Selection of PM Series - PB Type Unit | 15 - 16 |
| Load Classification by Application | 17 |
| Overhung and Thrust Loads | 18 |
| Motorised Unit - Selection Data | 19 - 31 |
| Motorised Unit - Dimensions | 32 - 35 |
| Speed Reducer Unit - Overhung and Axial Load Capacities | 36 |
| Speed Reducer Unit - Exact Ratio | 37 |
| Speed Reducer Unit - Selection Data | 38 - 47 |
| Speed Reducer Unit - Dimensions | 48 - 50 |
| Plug-in Output Shaft Dimensions | 51 |
| Torque Restraint Bracket | 52 |
| Shrink Disc | 53 |
| Torque Arm Assembly | 54 |
| Installation, Maintenance and Storage | 55 |
| Lubrication | 56 |
| Oil Capacities | 57 |
| Weights | 58 - 59 |

ATEX Approval Details

ATEX Approval

RENOLD Gears products for operating in potentially explosive atmospheres.

General

- **RENOLD** Gears units are classified as ATEX Group II Category 2 equipment, which embodies sufficient safeguards to be suitable for use in potentially explosive atmospheres for normal operation and for operation during an expected malfunction.
- It is essential that there is sufficient lubricant to prevent the gears and bearings running 'dry'. Gear units should be inspected daily for signs of oil leakage, overheating or noisy operation.
- Gear units should be cleaned at regular intervals depending on the operating conditions, to ensure that dust coatings never exceed 5mm. Plastic parts should be wiped clean with a damp cloth.
- Oil leaks should be dealt with as quickly as practical. Compound joint faces and shims should be cleaned and thread-locking sealant should be applied to bolts and plugs prior to re-assembly.

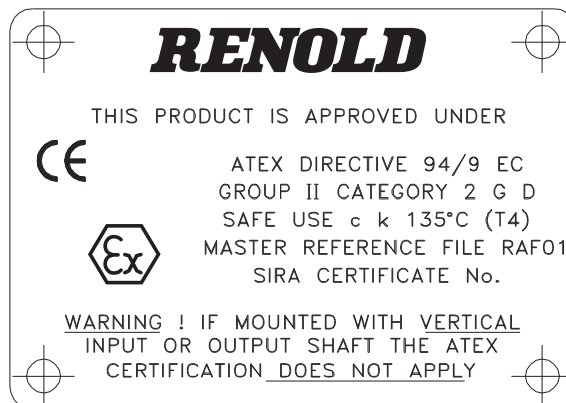
- The temperature of any external surfaces must not exceed the permitted maximum of 135°C (T4).
- Higher temperature class T3 is available dependant on unit mounting, ratio and gear type. For further details consult **RENOLD**.
- As a general rule, gear units should be mounted with their feet horizontal. For other mountings, particularly with shaft mounted units, consult **RENOLD** Gears.

WARNING: IF MOUNTING WITH VERTICAL INPUT OR OUTPUT SHAFTS, THE ATEX CERTIFICATION DOES NOT APPLY.

Unit Selection

- The gear unit selection procedures must include an additional reliability factor of 1.25 for mechanical ratings and 1.25 for thermal ratings.

ATEX Nameplate



RENOLD PM Series - PB Type Product Specification

Gear Case

The gear cases are of close grained cast iron with all joints and bearing bores accurately machined to ensure oil tightness and precise gear location.

Shafts

Standard shaft extensions are to metric dimensions, but imperial shaft extensions for units complying with BS3027: 1968 or to suit the requirements of the North American market are also available. The output Shaft is manufactured in carbon steel, but if required by applicational conditions, can be made from high tensile steel, in single or double extension.

Bearings

Standard metric taper/roller bearings are fitted throughout the **RENOLD** PM Series range of units in both single and double extension shaft options.

Oil Seals

Semi-dual lip oil seals are fitted to all hollow output shaft units. However, provision has been made to fit two oil seals if weatherproofing or dustproofing is required.

Lubrication

Gear and bearings are positively lubricated by oil from the sump in the underdriven and overdriven versions at normal motor speeds. With the vertical type, grease lubrication is necessary to the wheel line bearings.

For lower speeds it may be necessary to consider grease lubrication of certain bearings and in this instance it is advisable to consult with Renolds Engineers. Full lubrication details can be found under the "Installation & Maintenance" section.

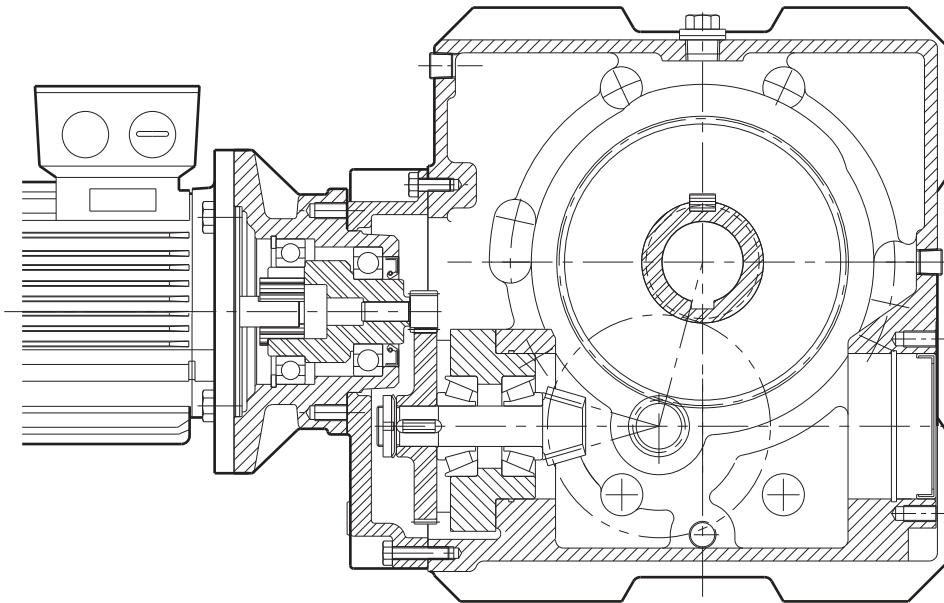
Input Housing

When the **RENOLD** PM Series unit is supplied as a non-motorised unit i.e. for direct coupling or driven via a V-belt or chain drive, a high speed input shaft housing is fitted. This consists of a robust housing containing the input shaft which is supported in maintenance-free bearings.

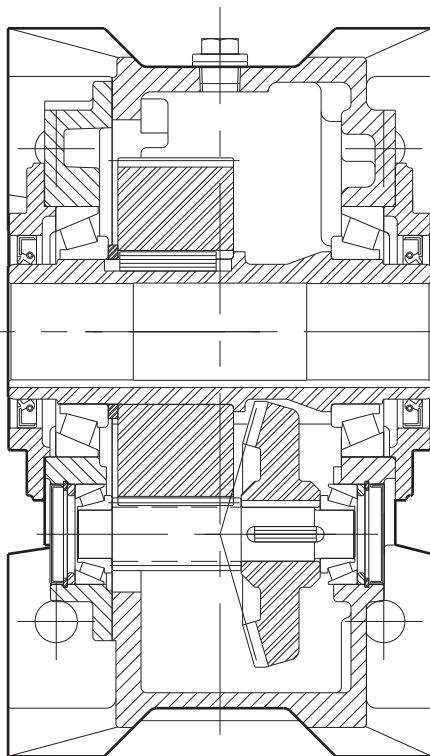
Backstop

Sprag clutch backstops can be fitted to most motorised PB units to prevent unit run back when required. See pages 32 to 34 for unit sizes and motor frame sizes.

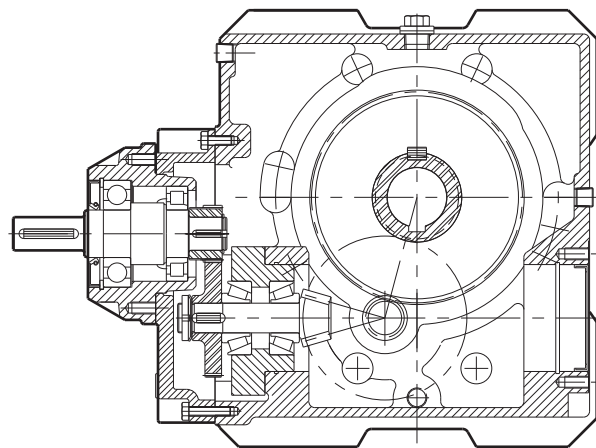
RENOLD PM Series PB Type - Product Design Variations



Motorised unit with hollow output shaft.
Motor adaptor suitable for all standard IEC
and NEMA motors.

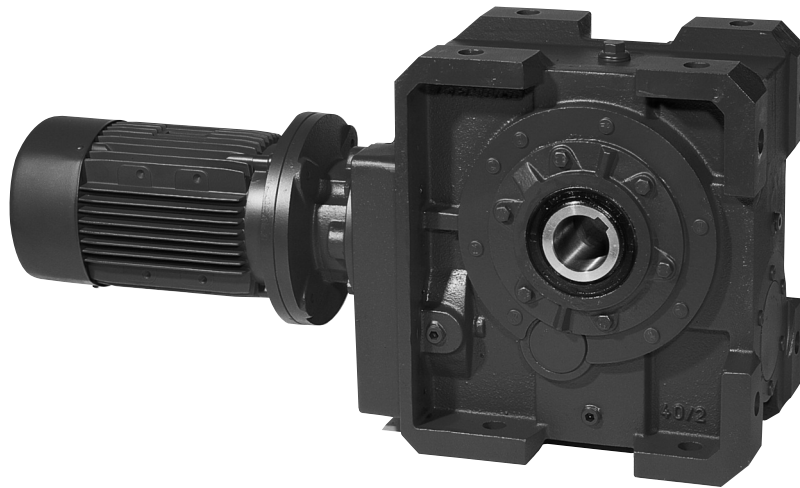


Standard hollow output shaft with
semi dual lip oil seal for added oil
retention.

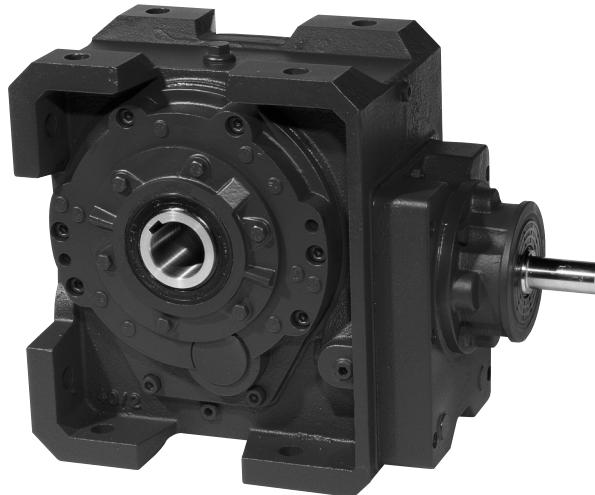


Speed reducer unit with input
shaft housing.

RENOLD PM Series PB Type - Product Design Variations



PM Series - PB type motorised unit

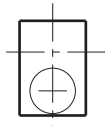


PM Series - PB type speed reducer unit

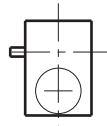
RENOLD PM Series - PB Type - Mounting & Handing

Underdriven

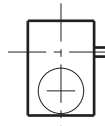
No Sprag backstop fitted.
*Sprag backstop fitted.



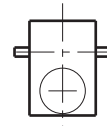
UA
UB



UC
UD

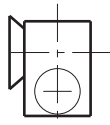


UE
UF

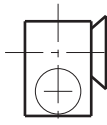


UG
UH

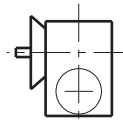
No Sprag backstop fitted.
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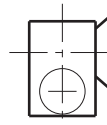
UJ
UK



UL
UM

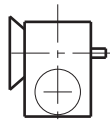


UN
UP

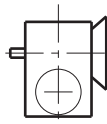


UQ
UR

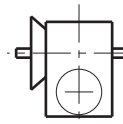
No Sprag backstop fitted.
*Sprag backstop fitted.



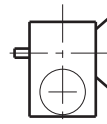
US
UT



UU
UV



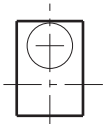
UW
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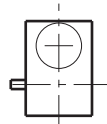
UY
UZ

Overdriven

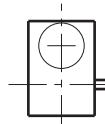
No Sprag backstop fitted.
*Sprag backstop fitted.



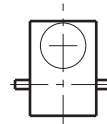
OA
OB



OC
CD

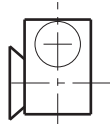


OE
OF

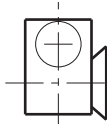


OG
OH

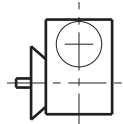
No Sprag backstop fitted.
*Sprag backstop fitted.



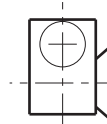
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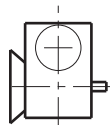


ON
OP

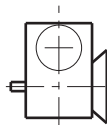


OQ
OR

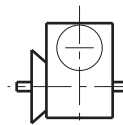
No Sprag backstop fitted.
*Sprag backstop fitted.



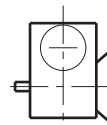
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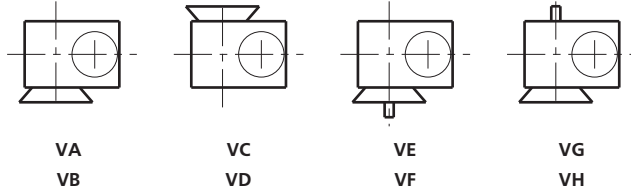
* BACKSTOP FITTED TO MOTORIZED UNITS - D100 TO D200 FRAME SIZES ONLY

* FOR ANY OTHER MOUNTING PLEASE REFER TO RENOLD GEARS

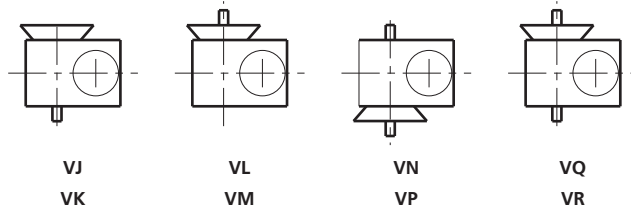
RENOLD PM Series - PB Type - Mounting & Handing

Vertical

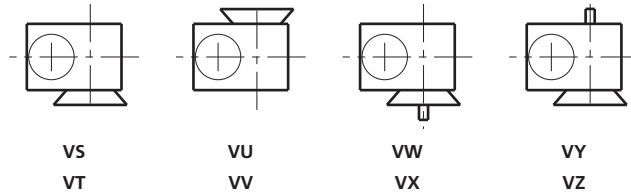
No Sprag backstop fitted.
*Sprag backstop fitted.



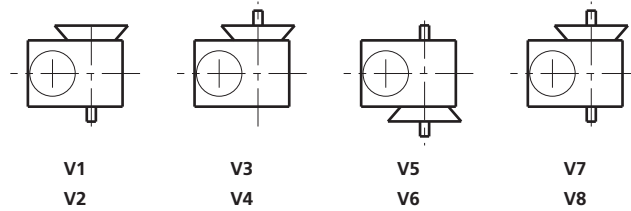
No Sprag backstop fitted.
*Sprag backstop fitted.



No Sprag backstop fitted.
*Sprag backstop fitted.

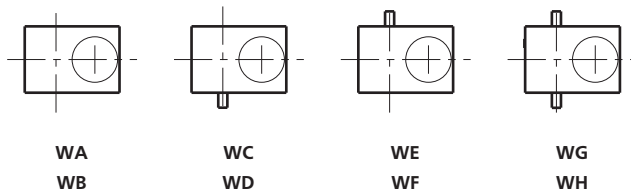


No Sprag backstop fitted.
*Sprag backstop fitted.

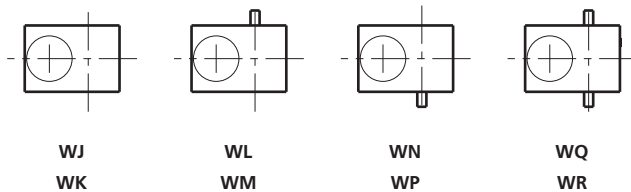


Wall Mounting

No Sprag backstop fitted.
*Sprag backstop fitted.



No Sprag backstop fitted.
*Sprag backstop fitted.



* BACKSTOP FITTED TO MOTORISED UNITS - D100 TO D200 FRAME SIZES ONLY

* FOR ANY OTHER MOUNTING PLEASE REFER TO RENOLD GEARS

Electric Motor Specification

4POLE/1500 RPM

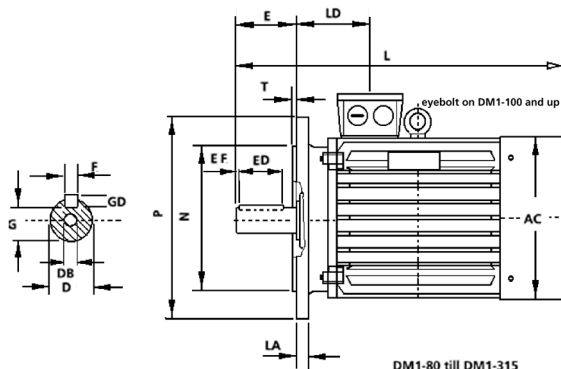
| DMA1 = aluminium series 1 DM1 = cast iron series 1 IEC-DIN | | | Rated Output Power PN kW | Full Load Current | | | Full-Load Speed nN min-1 | Full-Load Power Factor cos | Full-Load Efficiency % | Locked Rotor Current La/LN | Locked Rotor Torque Ma/MN | Breakdown Torque Mk/MN | Moment of Inertia J kgm2 | Nett Weight IM B3 m kg |
|--|-----|-----|--------------------------------|---------------------|---------------------|---------------------|--------------------------------|-------------------------------|---------------------------|-------------------------------|------------------------------|---------------------------|--------------------------------|---------------------------------|
| | | | | 380 V IU A | 400 V IN A | 420 V IO A | | | | | | | | |
| DMA1 | 80 | K4 | 0.55 | 1.58 | 1.55 | 1.56 | 1365 | 0.79 | 64.7 | 4.0 | 1.8 | 2.1 | 0.001146 | 8.9 |
| DMA1 | 80 | G4 | 0.75 | 2.00 | 1.99 | 2.00 | 1345 | 0.80 | 67.9 | 4.0 | 2.0 | 2.3 | 0.001263 | 9.6 |
| DMA1 | 90 | S4 | 1.10 | 2.75 | 2.76 | 2.73 | 1380 | 0.78 | 72.8 | 4.6 | 2.1 | 2.4 | 0.002761 | 12.5 |
| DMA1 | 90 | L4 | 1.50 | 3.72 | 3.78 | 3.93 | 1370 | 0.77 | 73.9 | 4.6 | 2.1 | 2.4 | 0.003283 | 15.0 |
| DMA1 | 100 | L4 | 2.20 | 5.13 | 5.12 | 4.80 | 1430 | 0.76 | 80.5 | 5.7 | 2.2 | 2.7 | 0.003119 | 19.2 |
| DMA1 | 100 | LX4 | 3.00 | 6.78 | 6.66 | 6.51 | 1400 | 0.82 | 79.5 | 5.2 | 2.0 | 2.6 | 0.004704 | 23.0 |
| DMA1 | 112 | M4 | 4.00 | 8.93 | 8.48 | 8.08 | 1430 | 0.82 | 83.2 | 5.8 | 2.1 | 2.6 | 0.006418 | 29.0 |
| DMA1 | 132 | S4 | 5.50 | 11.80 | 11.39 | 10.84 | 1435 | 0.85 | 82.3 | 6.5 | 2.0 | 2.5 | 0.013249 | 43.5 |
| DMA1 | 132 | M4 | 7.50 | 15.77 | 15.50 | 14.77 | 1435 | 0.82 | 84.8 | 6.5 | 2.2 | 2.5 | 0.016912 | 61.0 |
| DM1 | 160 | M4 | 11.00 | 22.1 | 21.2 | 21.3 | 1450 | 0.85 | 88.1 | 7.6 | 2.5 | 3.0 | 0.0724 | 113 |
| DM1 | 160 | L4 | 15.00 | 27.6 | 28.1 | 28.2 | 1460 | 0.86 | 89.5 | 7.9 | 2.7 | 3.1 | 0.0929 | 133 |
| DM1 | 180 | M4 | 18.50 | 35.3 | 33.4 | 33.4 | 1470 | 0.88 | 90.9 | 7.5 | 2.5 | 3.0 | 0.1350 | 167 |
| DM1 | 180 | L4 | 22.00 | 42.0 | 39.8 | 39.5 | 1465 | 0.88 | 90.9 | 7.5 | 2.2 | 3.1 | 0.1360 | 181 |
| DM1 | 200 | L4 | 30.00 | 55.6 | 53.3 | 52.0 | 1480 | 0.88 | 92.0 | 7.2 | 2.5 | 3.2 | 0.2450 | 232 |
| DM1 | 225 | S4 | 37.00 | 68.2 | 65.5 | 64.0 | 1485 | 0.88 | 92.3 | 7.3 | 2.0 | 2.8 | 0.3900 | 287 |
| DM1 | 225 | M4 | 45.00 | 81.3 | 79.1 | 76.0 | 1480 | 0.89 | 92.4 | 7.5 | 2.2 | 3.0 | 0.4500 | 322 |
| DM1 | 250 | M4 | 55.00 | 101 | 96.0 | 95.0 | 1480 | 0.89 | 93.0 | 7.0 | 2.3 | 3.1 | 0.6400 | 381 |
| DM1 | 280 | S4 | 75.00 | 137 | 131 | 126 | 1480 | 0.88 | 93.5 | 6.1 | 2.0 | 2.9 | 1.0450 | 510 |
| DM1 | 280 | M4 | 90.00 | 168 | 152 | 155 | 1485 | 0.88 | 94.2 | 7.8 | 2.7 | 3.3 | 1.3960 | 600 |

6POLE/1000 RPM

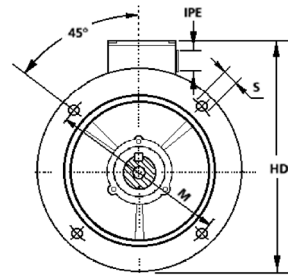
| DMA1 = aluminium series 1 DM1 = cast iron series 1 IEC-DIN | | | Rated Output Power PN kW | Full Load Current | | | Full-Load Speed nN min-1 | Full-Load Power Factor cos | Full-Load Efficiency % | Locked Rotor Current La/LN | Locked Rotor Torque Ma/MN | Breakdown Torque Mk/MN | Moment of Inertia J kgm2 | Nett Weight IM B3 m kg |
|--|-----|-----|--------------------------------|---------------------|---------------------|---------------------|--------------------------------|-------------------------------|---------------------------|-------------------------------|------------------------------|---------------------------|--------------------------------|---------------------------------|
| | | | | 380 V IU A | 400 V IN A | 420 V IO A | | | | | | | | |
| DMA1 | 80 | K6 | 0.37 | 1.19 | 1.26 | 1.26 | 915 | 0.67 | 63.0 | 3.5 | 2.0 | 2.4 | 0.001268 | 8.5 |
| DMA1 | 80 | G6 | 0.55 | 1.81 | 1.85 | 2.26 | 900 | 0.71 | 60.5 | 3.2 | 2.0 | 2.3 | 0.001392 | 9.2 |
| DMA1 | 90 | S6 | 0.75 | 2.35 | 2.31 | 2.30 | 910 | 0.71 | 65.6 | 3.5 | 2.0 | 2.3 | 0.00316 | 12.0 |
| DMA1 | 90 | L6 | 1.10 | 3.38 | 3.44 | 3.40 | 910 | 0.67 | 69.1 | 3.7 | 2.1 | 2.3 | 0.003794 | 14.0 |
| DMA1 | 100 | L6 | 1.50 | 3.92 | 3.88 | 3.87 | 935 | 0.76 | 73.3 | 4.1 | 1.9 | 2.2 | 0.004605 | 19.5 |
| DMA1 | 112 | M6 | 2.20 | 5.79 | 5.48 | 5.24 | 945 | 0.75 | 77.4 | 5.0 | 2.0 | 2.4 | 0.006949 | 28.0 |
| DMA1 | 132 | S6 | 3.00 | 7.39 | 7.07 | 6.97 | 960 | 0.78 | 78.3 | 5.4 | 1.8 | 2.2 | 0.012912 | 50.0 |
| DMA1 | 132 | M6 | 4.00 | 9.44 | 9.35 | 9.60 | 955 | 0.77 | 80.6 | 5.4 | 1.9 | 2.1 | 0.016082 | 58.0 |
| DMA1 | 132 | MX6 | 5.50 | 13.00 | 12.60 | 12.80 | 955 | 0.77 | 84.3 | 5.4 | 2.0 | 2.4 | 0.019174 | 65.0 |
| DM1 | 160 | M6 | 7.50 | 16.1 | 15.9 | 16.0 | 965 | 0.79 | 85.3 | 6.5 | 1.8 | 3.0 | 0.0800 | 108 |
| DM1 | 160 | L6 | 11.00 | 22.7 | 22.4 | 22.6 | 970 | 0.8 | 87.8 | 7.1 | 1.8 | 3.1 | 0.1080 | 131 |
| DM1 | 180 | L6 | 15.00 | 29.5 | 29.3 | 29.1 | 980 | 0.83 | 89.2 | 7.2 | 2.5 | 2.9 | 0.1670 | 171 |
| DM1 | 200 | L6 | 18.50 | 36.5 | 35.5 | 35.1 | 980 | 0.84 | 89.9 | 6.7 | 2.0 | 3.0 | 0.3020 | 216 |
| DM1 | 200 | LX6 | 22.00 | 42.3 | 40.6 | 39.8 | 975 | 0.87 | 89.8 | 6.7 | 2.0 | 2.8 | 0.3420 | 225 |
| DM1 | 225 | M6 | 30.00 | 57.6 | 55.4 | 54.2 | 985 | 0.85 | 91.7 | 6.2 | 2.3 | 2.8 | 0.5250 | 292 |
| DM1 | 250 | M6 | 37.00 | 69.5 | 67.3 | 65.7 | 985 | 0.87 | 91.5 | 6.8 | 2.1 | 3.1 | 0.8070 | 408 |
| DM1 | 280 | S6 | 45.00 | 79.1 | 80.2 | 77.3 | 985 | 0.88 | 92.4 | 6.5 | 2.0 | 2.9 | 1.3340 | 465 |
| DM1 | 280 | M6 | 55.00 | 97.6 | 99.0 | 95.4 | 985 | 0.87 | 92.7 | 6.7 | 2.1 | 3.0 | 1.5980 | 540 |

Electric Motor Dimensions

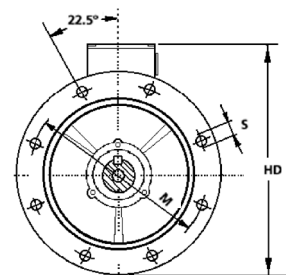
DM1 : 4 POLE/1500 RPM



DM1-80 till DM1-315



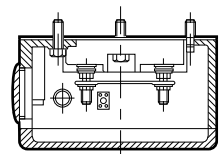
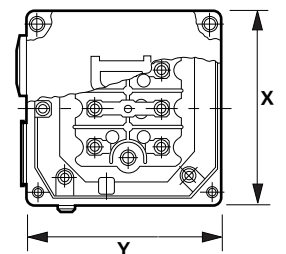
DM1-80 till DM1-200



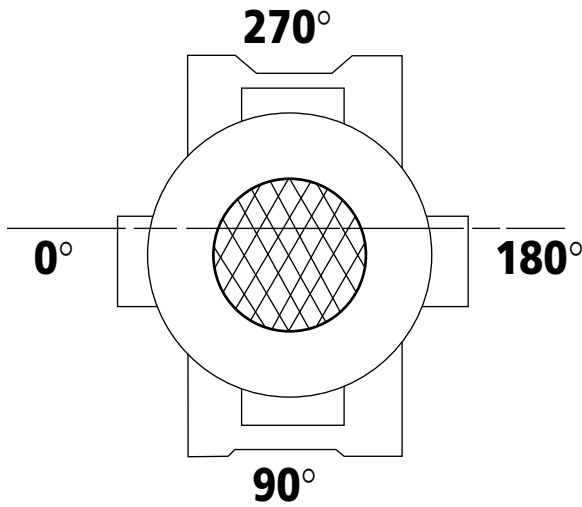
DM1-225 till DM1-280

| Type | Frame | Poles | AC | D | E | ED | EF | F | G | GD | HD | L | LA | LD |
|------|---------|-------|-----|----|-----|-----|-----|----|------|----|-----|------|----|-----|
| DMA1 | 80 | 4/6 | 146 | 19 | 40 | 25 | 7.5 | 6 | 15.5 | 6 | 224 | 268 | 12 | 83 |
| DMA1 | 90S | 4/6 | 158 | 24 | 50 | 32 | 7.5 | 8 | 20 | 7 | 230 | 312 | 12 | 88 |
| DMA1 | 90L | 4/6 | 158 | 24 | 50 | 32 | 7.5 | 8 | 20 | 7 | 230 | 332 | 12 | 88 |
| DMA1 | 100 | 4/6 | 190 | 28 | 60 | 45 | 7.5 | 8 | 24 | 7 | 271 | 367 | 15 | 83 |
| DMA1 | 112 | 4/6 | 216 | 28 | 60 | 45 | 7.5 | 8 | 24 | 7 | 290 | 384 | 15 | 100 |
| DMA1 | 132S | 4/6 | 246 | 38 | 80 | 56 | 7.5 | 10 | 33 | 8 | 330 | 445 | 15 | 105 |
| DMA1 | 132M | 4/6 | 246 | 38 | 80 | 56 | 7.5 | 10 | 33 | 8 | 330 | 483 | 15 | 105 |
| DM1 | 160M/MX | 4/6 | 311 | 42 | 110 | 100 | 5.0 | 12 | 37 | 8 | 505 | 615 | 14 | 150 |
| DM1 | 160L | 4/6 | 311 | 42 | 110 | 100 | 5.0 | 12 | 37 | 8 | 505 | 670 | 14 | 150 |
| DM1 | 180M | 4/6 | 352 | 48 | 110 | 100 | 5.0 | 14 | 42.5 | 9 | 530 | 700 | 16 | 160 |
| DM1 | 180L | 4/6 | 352 | 48 | 110 | 100 | 5.0 | 14 | 42.5 | 9 | 530 | 740 | 16 | 160 |
| DM1 | 200L/LX | 4/6 | 394 | 55 | 110 | 100 | 5.0 | 16 | 49 | 10 | 580 | 770 | 17 | 190 |
| DM1 | 225S | 4 | 442 | 60 | 140 | 125 | 7.5 | 18 | 53 | 11 | 640 | 815 | 20 | 190 |
| DM1 | 225M | 4/6 | 442 | 60 | 140 | 125 | 7.5 | 18 | 53 | 11 | 640 | 845 | 20 | 190 |
| DM1 | 250M | 4/6 | 481 | 65 | 140 | 125 | 7.5 | 18 | 58 | 11 | 695 | 910 | 20 | 203 |
| DM1 | 280S | 4/6 | 543 | 75 | 140 | 125 | 7.5 | 20 | 67.5 | 12 | 770 | 995 | 23 | 220 |
| DM1 | 280M | 4/6 | 543 | 75 | 140 | 125 | 7.5 | 20 | 67.5 | 12 | 770 | 1045 | 23 | 220 |

| Type | Frame | Poles | M | N | P | S | T | Flange | IPE | X | Y |
|------|---------|-------|-----|-------|-----|------|-----|--------|--------|-----|-----|
| DMA1 | 80 | 4/6 | 165 | 130j6 | 200 | 4x12 | 3.5 | FF165 | 2xPg16 | 80 | 65 |
| DMA1 | 90S | 4/6 | 165 | 130j6 | 200 | 4x12 | 3.5 | FF165 | 2xPg16 | 80 | 65 |
| DMA1 | 90L | 4/6 | 165 | 130j6 | 200 | 4x12 | 3.5 | FF165 | 2xPg16 | 80 | 65 |
| DMA1 | 100 | 4/6 | 215 | 180j6 | 250 | 4x15 | 4 | FF215 | 2xPg16 | 80 | 65 |
| DMA1 | 112 | 4/6 | 215 | 180j6 | 250 | 4x15 | 4 | FF215 | 2xPg21 | 100 | 100 |
| DMA1 | 132S | 4/6 | 265 | 230j6 | 300 | 4x15 | 4 | FF265 | 2xPg21 | 100 | 100 |
| DMA1 | 132M | 4/6 | 265 | 230j6 | 300 | 4x15 | 4 | FF265 | 2xPg21 | 100 | 100 |
| DM1 | 160M/MX | 4/6 | 300 | 250j6 | 350 | 4x19 | 5 | FF300 | 2xPg29 | 150 | 160 |
| DM1 | 160L | 4/6 | 300 | 250j6 | 350 | 4x19 | 5 | FF300 | 2xPg29 | 150 | 160 |
| DM1 | 180M | 4/6 | 300 | 250j6 | 350 | 4x19 | 5 | FF300 | 2xPg29 | 150 | 160 |
| DM1 | 180L | 4/6 | 300 | 250j6 | 350 | 4x19 | 5 | FF300 | 2xPg29 | 150 | 160 |
| DM1 | 200L/LX | 4/6 | 350 | 300h6 | 400 | 4x19 | 5 | FF350 | 2xPg36 | 188 | 208 |
| DM1 | 225S | 4 | 400 | 350h6 | 450 | 8x19 | 5 | FF400 | 2xPg36 | 188 | 208 |
| DM1 | 225M | 4/6 | 400 | 350h6 | 450 | 8x19 | 5 | FF400 | 2xPg36 | 188 | 208 |
| DM1 | 250M | 4/6 | 500 | 450h6 | 550 | 8x19 | 5 | FF500 | 2xPg42 | 216 | 246 |
| DM1 | 280S | 4/6 | 500 | 450h6 | 550 | 8x19 | 5 | FF550 | 2xPg42 | 216 | 246 |
| DM1 | 280M | 4/6 | 500 | 450h6 | 550 | 8x19 | 5 | FF500 | 2xPg42 | 216 | 246 |



Electric Motor - Terminal Box Position



| Terminal Box Position | |
|-----------------------|------|
| A | 0° |
| B | 90° |
| C | 180° |
| D | 270° |

Unless otherwise specified-position 'A' will be issued.

Terminal Box

On motor sizes 71 to 225 the terminal box is an integral part of the frame.

Motor sizes 250 and above have a conventional terminal box that can rotate 180°. As standard in this range the terminal box entries are on the right side of the motor viewed from shaft end.

By rotating the terminal box, these entries can be transferred to the left side.

On the table below are the standard terminal arrangements and terminal box entries.

| Motor Frame Size | Quantities and sizes | | |
|------------------|----------------------|----------------------|-----|
| | Terminals | Terminal box entries | |
| 71 | 6 X M4 | 2 X Ø22,5 | (1) |
| 100 | 6 X M4 | 2 X Ø28,5 | (1) |
| 112 | 6 X M4 | 4 X Ø28,5 | (2) |
| 132 | 6 X M6 | 4 X Ø28,5 | (2) |
| 160 | 6 X M6 | 4 X Ø37 | (2) |
| 180 | 6 X M8 | 4 X Ø37 | (2) |
| 200 and 255 | 6 X M8 | 4 X Ø47 | (2) |
| 250 and 280 | 6 X M10 | 2 X Pg 42 | (3) |
| 315 | 6 X M10 | 2 X Pg 48 | (3) |
| 315 to 400 | 6 X M12 | 2 X Pg 48 | (3) |

(1) One entry on each side

(2) Two entries on each side

(3) Two entries on the right side that can be transferred to the left side.

Alternative Types of TEFV Motors

| | |
|--------------|--|
| Single phase | Capacitor start / induction run Permanent capacitor Capacitor start / capacitor run |
| Three phase | Squirrel cage standard motors Two speed Increased safety - Eex e Flameproof Exd. non sparking Exn. Brake motors Marine requirements Smoke extract duty High Efficiency motors Dust Ignition Proof - BS6467 Zone Z Force ventilation + Encoders + |
| Tacho's | Variable speed drives Motor-inverter combination Wash down Tropicalised DC Hydraulic Air |

Ordering Procedure - Unit Designation Code

To ensure that the correct PM Series PB Type unit is supplied and that your order is processed without delay, please quote the full designation code as detailed below:

Motorised Unit

| | | | | | | | | | |
|-----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-----------------------|
| | PB4 | SC | D4P | 040 | UA | M | A | TS | |
| Unit type and size | ... | ... | ... | ... | ... | ... | ... | ... | Special features |
| Ratio Code | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | Motor terminal box |
| D flange 4 pole motor | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | Metric 'M' or |
| 4kW motor | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | Unit hand of assembly |

Motorised Ready Unit - To suit free issue motor

| | | | | | | | |
|--------------------|-------|-------|---------|-------|-------|-------|--------------------------------------|
| | PB4 | SC | D100RDY | UA | M | WP | |
| Unit type and size | ... | ... | ... | ... | ... | ... | Special features |
| Ratio Code | ..... | ..... | ..... | ..... | ..... | ..... | Metric 'M' or American 'A' shafts |
| D100 motor ready | ..... | ..... | ..... | ..... | ..... | ..... | Unit hand of assembly (see page 8-9) |

Reduction Gear or Speed Reducer Unit

| | | | | | | | |
|--------------------|-------|---------|-------|-------|-------|-------|--------------------------------------|
| | PB4 | Red XXX | SC | UA | M | SS | |
| Unit type and size | ... | ... | ... | ... | ... | ... | Special features |
| Reduction gear | ..... | ..... | ..... | ..... | ..... | ..... | Metric 'M' or American 'A' shafts |
| Ratio Code | ..... | ..... | ..... | ..... | ..... | ..... | Unit hand of assembly (see page 8-9) |

Ratio codes for gear units PB35 to PB50 only

Special Features include:-

- BM - Braked motor
- SS - Slow speed running
- WP - Weather proof

TR - Torque restraint bracket

SD - Shrink disc

TA - Torque arm bracket

| RATIO | CODE | RATIO | CODE | RATIO | CODE | RATIO | CODE |
|-------|------|-------|------|-------|------|-------|------|
| 016 | SA | 032 | SD | 063 | SG | 125 | SK |
| 020 | SB | 040 | SE | 080 | SH | 160 | SL |
| 025 | SC | 050 | SF | 100 | SJ | | |

Ratio codes for gear units PB60 to PB80 only

| RATIO | CODE | RATIO | CODE | RATIO | CODE | RATIO | CODE |
|-------|------|-------|------|-------|------|-------|------|
| 016 | TA | 032 | TD | 063 | TG | 125 | TK |
| 020 | TB | 040 | TE | 080 | TH | 160 | TL |
| 025 | TC | 050 | TF | 100 | TJ | | |

RENOLD PM Series - PB Type Inertia Values WR^2 (kgm²)

Input shaft (Reduction)

| Nominal Ratio | PB35 | PB40 | PB50 | PB60 | PB70 | PB80 |
|---------------|---------|---------|---------|---------|---------|---------|
| 20 | 0.00098 | 0.00098 | 0.00098 | 0.00496 | 0.00496 | 0.00496 |
| 25 | 0.00079 | 0.00079 | 0.00079 | 0.00331 | 0.00331 | 0.00331 |
| 32 | 0.00063 | 0.00063 | 0.00063 | 0.00297 | 0.00297 | 0.00297 |
| 40 | 0.00058 | 0.00058 | 0.00058 | 0.00695 | 0.00695 | 0.00695 |
| 50 | 0.00054 | 0.00054 | 0.00054 | 0.00415 | 0.00415 | 0.00415 |
| 63 | 0.00054 | 0.00054 | 0.00054 | 0.00325 | 0.00325 | 0.00325 |
| 80 | 0.00053 | 0.00053 | 0.00053 | 0.0021 | 0.0021 | 0.0021 |
| 100 | 0.00053 | 0.00053 | 0.00053 | 0.00207 | 0.00207 | 0.00207 |
| 125 | 0.00053 | 0.00053 | 0.00053 | 0.00206 | 0.00206 | 0.00206 |
| 160 | 0.00053 | 0.00053 | 0.00053 | 0.00212 | 0.00212 | 0.00212 |

Input shaft (Motorised)

| Nominal Ratio | PB35 | PB40 | PB50 | PB60 | PB70 | PB80 |
|---------------|---------|---------|---------|---------|---------|---------|
| 20 | 0.00118 | 0.00118 | 0.00118 | 0.00611 | 0.00611 | 0.00611 |
| 25 | 0.00099 | 0.00099 | 0.00099 | 0.00446 | 0.00446 | 0.00446 |
| 32 | 0.00083 | 0.00083 | 0.00083 | 0.00412 | 0.00412 | 0.00412 |
| 40 | 0.00078 | 0.00078 | 0.00078 | 0.00810 | 0.00810 | 0.00810 |
| 50 | 0.00074 | 0.00074 | 0.00074 | 0.00530 | 0.00530 | 0.00530 |
| 63 | 0.00074 | 0.00074 | 0.00074 | 0.00440 | 0.00440 | 0.00440 |
| 80 | 0.00073 | 0.00073 | 0.00073 | 0.00325 | 0.00325 | 0.00325 |
| 100 | 0.00073 | 0.00073 | 0.00073 | 0.00322 | 0.00322 | 0.00322 |
| 125 | 0.00073 | 0.00073 | 0.00073 | 0.00321 | 0.00321 | 0.00321 |
| 160 | 0.00073 | 0.00073 | 0.00073 | 0.00327 | 0.00327 | 0.00327 |

Bevel pinionshaft line

| Nominal Ratio | PB35 | PB40 | PB50 | PB60 | PB70 | PB80 |
|---------------|---------|---------|---------|---------|---------|---------|
| 20 | 0.00033 | 0.00037 | 0.00049 | 0.00547 | 0.00477 | 0.00575 |
| 25 | 0.00051 | 0.00055 | 0.00067 | 0.00682 | 0.00612 | 0.00710 |
| 32 | 0.00072 | 0.00076 | 0.00088 | 0.00891 | 0.00821 | 0.00919 |
| 40 | 0.00100 | 0.00104 | 0.00116 | 0.01104 | 0.01034 | 0.01132 |
| 50 | 0.00117 | 0.00121 | 0.00133 | 0.01286 | 0.01216 | 0.01314 |
| 63 | 0.00150 | 0.00154 | 0.00166 | 0.01496 | 0.01426 | 0.01524 |
| 80 | 0.00182 | 0.00186 | 0.00198 | 0.01790 | 0.01720 | 0.01818 |
| 100 | 0.00219 | 0.00223 | 0.00235 | 0.02073 | 0.02003 | 0.02101 |
| 125 | 0.00250 | 0.00254 | 0.00266 | 0.02261 | 0.02191 | 0.02289 |
| 160 | 0.00273 | 0.00277 | 0.00289 | 0.02463 | 0.02393 | 0.02491 |

Layshaft

| Nominal Ratio | PB35 | PB40 | PB50 | PB60 | PB70 | PB80 |
|---------------|---------|---------|---------|---------|---------|---------|
| ALL | 0.00273 | 0.00591 | 0.01401 | 0.02623 | 0.07315 | 0.12143 |

Hollow output shaft

| Nominal Ratio | PB35 | PB40 | PB50 | PB60 | PB70 | PB80 |
|---------------|---------|---------|---------|---------|---------|---------|
| ALL | 0.02143 | 0.04903 | 0.12337 | 0.29365 | 0.64782 | 1.23447 |

Plug-in output shaft

| Type | PB35 | PB40 | PB50 | PB60 | PB70 | PB80 |
|----------------------|---------|---------|---------|---------|---------|---------|
| Single Ext | 0.00059 | 0.00163 | 0.00398 | 0.00866 | 0.02554 | 0.03846 |
| Single Ext - Flanged | 0.00080 | 0.00226 | 0.00502 | 0.01023 | 0.03140 | 0.04690 |
| Double Ext | 0.00071 | 0.00205 | 0.00483 | 0.10588 | 0.32410 | 0.04979 |
| Double Ext - Flanged | 0.00092 | 0.00268 | 0.00588 | 0.01215 | 0.03827 | 0.05823 |

See page 16 for examples of total unit inertia.

RENOLD PM Series - PB Type Selection Information

To select a motorised or non-motorised gear unit for an application, the following information must be available.

Power/Torque

- Input or output (kW) or torque (Nm).
- Type and power output of prime mover (kW). Required mounting position.
- For input speeds below 250 rev/min consult our Technical Sales Department giving details of required output torque (Nm) and diameter of driven shaft (mm).

Speed

Gear unit input and output rev/min.

Duty

- The characteristics of the drive eg. degree of impulsiveness of the driven load.
- Duration of service in hours/day.
- Starting load (kW) and number of starts per day.
- For intermittent duty, reversing or shock loading, state normal power (kW) and frequency.
- Disposition and details of external loads imposed on input/output shafts.
Diameter of driven shaft in the case shaft mounting arrangement.
- Working conditions, i.e. clean, dusty, moist, abnormal temperatures etc.

If the operating conditions are in any way unusual it is advisable to consult our Technical Sales Department.

Enquiry/Ordering Procedure

At the order or enquiry stage, please quote the catalogue reference, shaft assembly number and nominal ratio or exact ratio if this is important (see tables). Non standard mounting positions should be indicated with a sketch. Where a double extension wormwheel shaft is required, please state any special requirements regarding alignment of keyways.

Mechanical Rating

The mechanical powers listed are those which the PM Series units will transmit for 10 hours each day and correspond to a service factor of 1.0. Where non-uniform loading or a working day other than 10 hours is involved, a service factor f_D should be applied to the selection power or torque which is taken from table 2. High numbers of

starts per hour also influence the mechanical selection. Table 3 shows the starts factor f_s which should also be applied to the selection power or torque.

For guidance a comprehensive list of the various load conditions for a number of applications is given in Table 1. When confirming the mechanical selection powers therefore, the rating must be equal to or greater than calculated power or torque demand \times application service factor f_D (table 1 and table 2) \times starts factor f_s (table 3)

Efficiencies

The efficiency figures are approximate only and are those that could be expected from a gearbox which is fully run-in and operating under full load with the lubricant at its full working temperature.

For intermittent rating where the lubricant may remain comparatively cool, the efficiency may be somewhat lower due to the increased oil churning losses associated with the higher viscosity of the cool oil. We shall be pleased to advise on any particular application.

Selection Procedure

MOTORISED UNIT SELECTION PROCEDURE PM SERIES MOTORISED

To select a PM series motorised unit, the following procedure should be followed.

- Determine required output speed.
- Select the total Mechanical Service Factor f_D (table 2) and Starts Factor f_s (table 3)
Total Mechanical = $f_D \times f_s$
Service Factor
- Determine the power absorbed by the machine.
Absorbed Power (kW) =
$$\frac{\text{Absorbed torque (Nm)} \times \text{Speed (RPM)}}{9550}$$
- Select an electric motor that will give an output power greater than that of the absorbed power above.
- Select a gear unit from the tables on pages 26 to 38 using the motor power and the output speed as the basis.
Ensure that the Mechanical service factor S_f of the unit selected exceeds the selection factor from b) above.

NON-MOTORISED UNIT SELECTION PROCEDURE

When a non-motorised gear unit is under consideration proceed as follows:-

- Establish the ratio, input speed and input power or output torque required.
- Determine the Load Classification for the appropriate application from table 1 and the corresponding Service Factor from table 2. Multiply this by the factor for starts per hour in table 3. The input power or output torque in 1 must now be multiplied by this factor in order to establish the required mechanical rating. This value must be equal to or less than the Mechanical Rating listed against the appropriate rating and input speed shown on pages 36 to 45.
- Where an output shaft is fitted, check that any Overhung and/or Axial loads applied are within the capabilities of the unit - see page 36.

RENOLD PM Series - Selection Examples

| | | | | | | |
|-----------------------------|--------|--------------------------------|---|---------------------------|---|---------------------|
| Mechanical Selection Torque | Nm = | Actual Torque (Nm) Requirement | X | Mechanical Service Factor | X | Starts (fs) Factors |
| Mechanical Selection Power | (kW) = | Actual Power (kW) Requirement | X | Mechanical Service Factor | X | Starts (fs) Factor |

Example 1 [Motorised Unit]

A motorised gear unit is required to drive an inclined chain elevator having a headshaft torque of 4200Nm, operating for 24 hours per day continuously at 44 RPM. The duty is considered a steady load.

$$\begin{aligned} \text{a) Approximate motor power (kW)} &= \frac{4200 \times 45}{9550} \\ &= 19.8 \text{ kW} \end{aligned}$$

Nearest motor power is 22 kW.

b) From the Load Classification and Service Factor tables 1 and 2, a steady load operating 24 hours/day the duty factor $f_D = 1.25$.

c) The starts factor from table 3 for continuous running is $f_S = 1$.

$$\begin{aligned} \text{d) Total selection factor } S &= f_D \times f_S \\ &= 1.25 \times 1 \\ &= 1.25 \end{aligned}$$

e) From the selection tables on pages 19 to 31 a 22kW drive can be found on page 30. 45 RPM is the closest speed to the one required offering a mechanical service factor SF of 1.76 which satisfies the selection factor in d) above.

The selected unit is a PB7SDD4P22***

MOTORISED UNIT INERTIA

| | | | | |
|------------------------------------|---|-----------------------------|---|-------------------------------|
| Total Input Shaft inertia | = | motor inertia | + | motorised input shaft inertia |
| Bevel pinion Shaft inertia | = | Bevel pinion Shaft inertia | | |
| Hollow output Shaft inertia | = | Hollow output shaft inertia | | |
| Total plug-in Output shaft Inertia | = | Hollow output shaft inertia | + | plug-in shaft inertia |

Example 2 Non-Motorised Unit [Speed Reducer]

A right angle gear unit is required to drive a machine using an electric motor as the prime mover @ 1500 RPM. The output torque required is 2100Nm with a gear ratio of 100:1.

The duty cycle is heavy shock load, 10 hours/day running with 7 stops/starts per hour. Maximum ambient temperature is 32 degrees C.

$$\begin{aligned} \text{a) mechanical selection torque} &= \text{Actual torque} \times \text{mechanical service factor } f_D \times \text{starts factor } f_S \\ &= 2100 \times 1.75 \times 1.2 \\ &= 4410 \text{ Nm} \end{aligned}$$

The selection tables on page 38 to 47 show that for a gear ratio of 100:1 page 45 @ 1500 RPM the PB 6 unit is the size that fulfills both the selection criteria in a)

The unit selection is PB6REDXXXSJ***

NON MOTORISED INERTIA [SPEED REDUCER]

| | | |
|------------------------------------|---|---|
| Total Input Shaft inertia | = | input shaft (reduction) |
| Bevel pinion Shaft inertia | = | Bevel pinion Shaft inertia |
| Hollow output Shaft inertia | = | Hollow output shaft inertia |
| Total plug-in Output shaft Inertia | = | Hollow output shaft inertia + plug-in shaft inertia |

$$\begin{aligned} \text{TOTAL INERTIA VALUES With respect to INPUT} &= \text{input shaft values} + \frac{\text{bevel pinionshaft}}{\text{helical ratio}^2} + \frac{\text{layshaft values}}{1^{\text{st}} \text{ helical ratio}^2 \times \text{bevel ratio}^2} + \frac{\text{output values}}{\text{overall actual ratio}^2} \\ \text{TOTAL INERTIA VALUES With respect to OUTPUT} &= \text{output values} + \text{layshaft values} \times \left(\frac{\text{final}}{\text{helical ratio}} \right)^2 + \text{bevel pinion shaft} \times \left(\frac{\text{Bevel}^2}{\text{ratio}} \times \frac{\text{Final}^2}{\text{ratio}} \right) + \left(\frac{\text{input shaft value}}{\text{overall actual rate}} \right)^2 \end{aligned}$$

RENOLD PM Series - Load Classification by Application

Table 1

| | | | | | | | | | |
|--|---|--------------------------|-----|--|---|-------------------------------------|---|---------------------------------|---|
| Agitators | S | Sugar (1) | M | Medium duty | M | Individual drives | H | single acting: 1 or 2 cylinders | * |
| Pure liquids | S | Dredges | M | Skip hoist | M | Reversing | * | double acting: single cylinder | * |
| Liquids and solids | M | Cable reels | M | Laundry | M | Wire drawing and flattening machine | M | Rotary - gear type | S |
| Liquids-variable density | M | Conveyors | M | Washers - reversing | M | Wire winding machine | M | Rotary - lobe, vane | S |
| Blowers | S | Cutter head drives | H | Tumblers | M | Mills, rotary type | M | Rubber and plastics industries | S |
| Centrifugal | M | Jig drives | H | Line shafts | M | Ball (1) | M | Crackers (1) | H |
| Lobe | S | Manoeuvring winches | M | Driving processing equipment | M | Cement kilns (1) | M | Laboratory equipment | M |
| Vane | S | Pumps | M | Light | S | Dryers and coolers (1) | M | Mixed mills (1) | M |
| Brewing and Distilling | S | Screen drive | H | Other line shafts | S | Kilns other than cement | M | Refiners (1) | H |
| Bottling machinery | S | Stackers | M | Lumber industry | M | Pebble (1) | M | Rubber calenders (1) | M |
| Brew kettles-continuous duty | S | Utility winches | M | Barkers, hydraulic, mechanical | M | Rod, plain & wedge bar (1) | M | Rubber mill, 2 on line (1) | M |
| Cookers-continuous duty | S | Dry dock cranes | M | Burner conveyor | M | Tumbling barrels | H | Rubber mill, 3 on line (1) | M |
| Mash tubs-continuous duty | S | Main hoist | (2) | Chain saw and drag saw | H | Mixers | H | Sheeter (1) | M |
| Scale hopper-frequent starts | M | Auxiliary hoist | (2) | Chain transfer | H | Concrete mixers continuous | M | Tyre building machines | * |
| Can filling machines | S | Boom, luffing | (2) | Crane/way transfer | H | Concrete mixers intermittent | M | Tyre and tube press openers | * |
| Cane knives (1) | M | Rotating, swing or slew | (3) | De-barking drum | H | Constant density | S | Tubers and strainers (1) | M |
| Car dumpers | H | Tracking, drive wheels | (4) | Edger feed | M | Variable density | M | Warming mills (1) | M |
| Car pullers | M | Elevators | S | Gang feed | M | Oil industry | M | Sand miller | M |
| Classifiers | S | Bucket - uniform load | S | Green chain | M | Chillers | M | Screens | S |
| Classifiers | M | Bucket - heavy load | M | Live rolls | H | Oil well pumping | * | Air washing | S |
| Clay working machinery | M | Bucket - continuous | S | Log deck | H | Paraffin filter press | M | Rotary, stone or gravel | M |
| Brick press | H | Centrifugal discharge | S | Log haul-incline | H | Rotary kilns | M | Travelling water intake | S |
| Briquette machine | H | Escalators | S | Log haul-well type | H | Paper mills | M | Sewage disposal equipment | S |
| Clay working machinery | M | Freight | M | Log turning device | S | Agitators (mixers) | M | Bar screens | S |
| Pug mill | M | Gravity discharge | S | Main log conveyor | S | Barker-auxiliaries hydraulic | M | Chemical feeders | S |
| Compressors | S | Man lifts | * | Off bearing rolls | M | Barker-mechanical | H | Collectors | S |
| Centrifugal | S | Passenger | * | Planer feed chains | M | Barking drum | M | Dewatering screws | M |
| Lobe | M | Extruders (plastic) | M | Planer floor chains | M | Beater and pulper | M | Scum breakers | M |
| Reciprocating - multi-cylinder | M | Film | S | Planer tilting hoist | M | Bleacher | S | Slow or rapid mixers | M |
| Reciprocating - single cylinder | H | Sheet | S | Re-saw merry-go-round conveyor | M | Calenders | M | Thickeners | M |
| Conveyors - uniformly loaded or fed | S | Coating | S | Roll cases | H | Calenders-super | H | Vacuum filters | M |
| Apron | S | Rods | S | Slab conveyor | H | Converting machine except | M | Slab pushers | M |
| Assembly | S | Tubing | S | Small waste conveyor-belt | S | cutters, platers | M | Steering gear | M |
| Belt | S | Blow moulders | M | Small waste conveyor-chain | M | Conveyors | S | Stokers | * |
| Bucket | S | Pre-plasticisers | M | Sorting table | M | Couch | M | Sugar industry | M |
| Chain | S | Fans | S | Tipple hoist conveyor | M | Cutters, platers | H | Cane knives (1) | M |
| Flight | S | Centrifugal | S | Tipple hoist drive | M | Cylinders | M | Crushers (1) | M |
| Oven | S | Cooling towers | S | Transfer conveyors | M | Dryers | M | Mills (1) | M |
| Screw | S | Induced draft | * | Transfer rolls | M | Fell stretcher | M | Textile industry | M |
| Conveyors - heavy duty not uniformly fed | M | Forced draft | * | Tray drive | M | Fell whipper | H | Batchers | M |
| Apron | M | Induced draft | M | Trimmer feed | M | Jordans | M | Calenders | M |
| Assembly | M | Large, mine etc. | M | Waste conveyor | M | Log haul | H | Cards | M |
| Belt | M | Large, industrial | M | Machine tools | M | Presses | M | Dry cans | M |
| Bucket | M | Light, small diameter | S | Bending roll | H | Pulp machine reel | M | Dryers | M |
| Chain | M | Feeders | M | Punch press-gear driven | M | Stock chest | M | Dyeing machinery | M |
| Flight | M | Apron | M | Notching press-belt drive | M | Suction roll | * | Looms | M |
| Live roll | * | Belt | M | Plate planners | M | Washers and thickeners | M | Mangles | M |
| Oven | M | Disc | S | Tapping machine | H | Winders | M | Nappers | M |
| Reciprocating | H | Reciprocating | H | Other machine tools | M | Printing presses | * | Pads | M |
| Screw | M | Main drives | M | Main drives | M | Pullers | M | Range drives | * |
| Shaker | H | Auxiliary drives | M | Auxiliary drives | S | Barge haul | H | Slashers | M |
| Crane Drives - not dry dock | S | Metal mills | M | Metal mills | S | Pumps | M | Soapers | M |
| Main hoists | * | Cereal cooker | S | Drawn bench carriage | M | Centrifugal | S | Spinners | M |
| Bridge travel | * | Dough mixer | M | and main drive | M | Proportioning | M | Tenter frames | M |
| Trolley travel | * | Meat grinder | M | Pinch, dryer and scrubber | * | Reciprocating | M | Washers | M |
| Crushers | H | Generators - not welding | S | Slitters | * | single acting: | M | Winders | M |
| Ore | H | Hammer mills | H | Table conveyors non-reversing group drives | M | 3 or more cylinders | M | Windlass | * |
| Stone | H | Hoists | H | | | double acting: | | | |
| | | Heavy duty | H | | | 2 or more cylinders | M | | |

For multiple stop start applications and full load starts please refer to Renold Gears

Service Factors

Table 2 (Service Factor f_D)

| Prime mover (Drive input) | Driven machinery characteristics | | | |
|---|----------------------------------|----------------|---------------------|---------------------|
| | Duration Service hours/day | Steady load | Medium impulsive | Highly impulsive |
| Electric, Air & Hydraulic Motors or Steam Turbine (Steady input) | Intermittent - 3hrs/day max | 0.90 | 1.00 | 1.50 |
| | 3 - 10 | 1.00 | 1.25 | 1.75 |
| | over 10 | 1.25 | 1.50 | 2.00 |
| Multi-cylinder I.C. engine (Medium impulsive input) | Intermittent - 3hrs/day max | 1.00 | 1.25 | 1.75 |
| | 3 - 10 | 1.25 | 1.50 | 2.00 |
| | over 10 | 1.50 | 1.75 | 2.25 |
| Single-cylinder I.C. engine (Highly impulsive input) | Intermittent - 3hrs/day max | 1.25 | 1.50 | 2.00 |
| | 3 - 10 | 1.50 | 1.75 | 2.25 |
| | over 10 | 1.75 | 2.00 | 2.50 |

Table 3 Factor for Starts/Hours (f_S)


| Maximum number of starts per hour | 0 - 1 | 1 - 30 | 30 - 60 | 60 - |
|--------------------------------------|-------|--------|---------|------|
| Starts Factor f_S | 1.0 | 1.2 | 1.3 | 1.5 |

- S = Steady
- M = Medium Impulsive
- H = Highly Impulsive
- * = Refer to Renold

- (1) = Select on 24 hours per day service factor only.
- (2) = Use service factor of 1.00 for any duration of service.
- (3) = Use service factor of 1.25 for any duration of service.
- (4) = Use service factor of 1.50 for any duration of service.

Note

Machinery characteristics and service factors listed in this catalogue are a guide only. Some applications (e.g. constant power) may require special considerations. Consult Renold Gears.



IMPORTANT Units to ATEX approval must be selected with a minimum service factor of 1.25.

Table 4 Thermal Service Factor f_T

| Ambient °C | 10 | 20 | 30 | 40 | 50 | 60 |
|--------------|------|-----|------|------|------|------|
| Temp °F | 50 | 68 | 86 | 105 | 122 | 140 |
| Factor f_T | 0.87 | 1.0 | 1.16 | 1.35 | 1.62 | 1.97 |

RENOLD PM Series - Overhung and Thrust Loads

Output shafts of gear units are frequently fitted with a spur pinion, chain pinion or belt pulley causing an overhung load to be imposed on the output shaft and bearings. These loads can generally be sustained by the gear unit; however, if the load is greater than the maximum allowable load for the unit, it may be necessary to either select a larger unit or to lessen the effect of the load on the shaft bearings. This can be done in two ways. The pinion can be mounted on a shaft in its own bearings and the shaft coupled to the gear unit; or the wheel shaft may be extended beyond the overhung load and fitted with an outboard bearing. In order to obtain the best possible arrangement for a particular application (where large over hung loads are anticipated) customers are advised to submit details of the load to our Sales Technical Staff for their consideration.

In the interests of good design, the overhung member should be fitted as close as possible to the gear case in order to minimise the stresses and reduce the deflecting moment on the unit.

The maximum imposed axial thrust and overhung loads to which the units can be subjected are given in tables 5 and 6.

Imposed axial thrust loads can also be minimised by the use of flexible couplings on the input and output shafts.

For drives where both imposed thrust and overhung loads are encountered, it is advisable to consult our Technical Sales Staff.

Where a double extension shaft is fitted, the maximum overhung

loads listed apply in full to each shaft extension.

The overhung load may be calculated by the following formula:

$$\frac{9.55P \times 10^6 \times X}{R \times S} \times F \text{ (Newtons)}$$

Where P = Power absorbed at output shaft (kW)

S = Speed of output shaft in rev/min

R = Pitch circle radius of chain pinion, spur or helical gear, or belt pulley in mm.

F = Overhung drive application factor as follows:

Chain pinion 1.00

Spur or helical gear 1.25

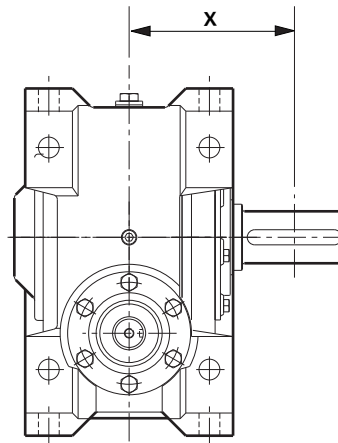
Vee pulley 1.50

Flat belt pulley 2.00

The overhung load capacities listed in table 5 assume the load is applied mid-way along the output shaft extension, the relevant dimension from the centre line of the unit being as given below.

| Unit Size | X |
|-----------|-----|
| PB35 | 150 |
| PB40 | 170 |
| PB50 | 200 |
| PB60 | 235 |
| PB70 | 270 |
| PB80 | 270 |

- based on Single Extension Plug-in Shaft



RENOLD PM Series - PB Type - Motorised - Selection Data

| P_1 0.55 kW | | 4P - D80KD 1365 RPM | | | | |
|---------------|----------------------|---------------------|-------|------------------------------|---------------------------|----------------|
| | | 6P - D80GD 900 RPM | | | | |
| n_2 rpm | Actual Ratio i | M_2 Nm | S_F | Overhung Load (max.) N | Axial Load (max.) N | Product Code |
| 73 | 18.78 | 70 | 12.12 | 9000 | 12000 | PB3SBD4P005*** |
| 55 | 24.76 | 92 | 9.20 | 9000 | 12000 | PB3SCD4P005*** |
| 43 | 31.64 | 118 | 7.20 | 9000 | 12000 | PB3SDD4P005*** |
| 33 | 41.09 | 153 | 5.54 | 9000 | 12000 | PB3SED4P005*** |
| 29 | 47.28 | 176 | 4.82 | 9000 | 12000 | PB3SFD4P005*** |
| 22 | 61.05 | 228 | 3.73 | 9000 | 12000 | PB3SGD4P005*** |
| 18 | 77.01 | 287 | 2.96 | 9000 | 12000 | PB3SHD4P005*** |
| 14 | 100.96 | 377 | 3.98 | 18000 | 16000 | PB4SJD4P005*** |
| 14 | 100.96 | 377 | 2.26 | 9000 | 12000 | PB3SJD4P005*** |
| 11 | 128.60 | 480 | 3.13 | 18000 | 16000 | PB4SKD4P005*** |
| 11 | 128.60 | 480 | 1.77 | 9000 | 12000 | PB3SKD4P005*** |
| 8.8 | 155.40 | 580 | 2.59 | 18000 | 16000 | PB4SLD4P005*** |
| 8.8 | 155.40 | 580 | 1.47 | 9000 | 12000 | PB3SLD4P005*** |
| 7.1 | 127.12 | 720 | 3.65 | 25000 | 20000 | PB5SKD6P005*** |
| 7.0 | 128.60 | 653 | 2.30 | 18000 | 16000 | PB4SKD6P005*** |
| 7.0 | 128.60 | 728 | 1.17 | 9000 | 12000 | PB3SKD6P005*** |
| 5.9 | 153.61 | 870 | 3.02 | 25000 | 20000 | PB5SLD6P005*** |
| 5.8 | 155.40 | 789 | 1.90 | 18000 | 16000 | PB4SLD6P005*** |
| 5.8 | 155.40 | 880 | 0.97 | 8450 | 12000 | PB3SLD6P005*** |

Key

- n_2 Output Speed, rpm
i Overall Ratio
 M_2 Output Torque Nm, Mechanical
 S_F Service Factor, Mechanical

For details of unit designation code see page 13.

The overhung load shown above is based on the maximum motor Power being transmitted. For higher overhung loads consult Renold.



Units to ATEX approval must be selected with a minimum service factor of 1.25.

| P_1 0.75 kW | | 4P - D80GD 1345 RPM | | | | |
|---------------|----------------------|---------------------|-------|------------------------------|---------------------------|----------------|
| | | 6P - D90SD 910 RPM | | | | |
| n_2 rpm | Actual Ratio i | M_2 Nm | S_F | Overhung Load (max.) N | Axial Load (max.) N | Product Code |
| 72 | 18.78 | 97 | 8.76 | 9000 | 12000 | PB3SBD4P007*** |
| 54 | 24.76 | 128 | 6.65 | 9000 | 12000 | PB3SCD4P007*** |
| 43 | 31.64 | 163 | 5.20 | 9000 | 12000 | PB3SDD4P007*** |
| 33 | 41.09 | 212 | 4.00 | 9000 | 12000 | PB3SED4P007*** |
| 28 | 47.28 | 244 | 3.48 | 9000 | 12000 | PB3SFD4P007*** |
| 22 | 61.05 | 315 | 2.70 | 9000 | 12000 | PB3SGD4P007*** |
| 17 | 77.01 | 398 | 3.77 | 18000 | 16000 | PB4SHD4P007*** |
| 17 | 77.01 | 398 | 2.14 | 9000 | 12000 | PB3SHD4P007*** |
| 13 | 100.96 | 521 | 2.88 | 18000 | 16000 | PB4SJD4P007*** |
| 13 | 100.96 | 521 | 1.63 | 9000 | 12000 | PB3SJD4P007*** |
| 11 | 127.12 | 657 | 4.00 | 25000 | 20000 | PB5SKD4P007*** |
| 10 | 128.60 | 664 | 2.26 | 18000 | 16000 | PB4SKD4P007*** |
| 10 | 128.60 | 664 | 1.28 | 9000 | 12000 | PB3SKD4P007*** |
| 8.8 | 153.61 | 793 | 3.31 | 25000 | 20000 | PB5SLD4P007*** |
| 8.7 | 155.40 | 803 | 1.87 | 18000 | 16000 | PB4SLD4P007*** |
| 8.7 | 155.40 | 803 | 1.06 | 9000 | 12000 | PB3SLD4P007*** |
| 7.2 | 127.12 | 970 | 2.70 | 25000 | 20000 | PB5SKD6P007*** |
| 7.1 | 128.60 | 881 | 1.70 | 18000 | 16000 | PB4SKD6P007*** |
| 7.1 | 128.60 | 982 | *0.87 | 5350 | 12000 | PB3SKD6P007*** |
| 5.9 | 153.61 | 1173 | 2.24 | 25000 | 20000 | PB5SLD6P007*** |
| 5.9 | 155.40 | 1064 | 1.41 | 18000 | 16000 | PB4SLD6P007*** |

Key

- n_2 Output Speed, rpm
- i Overall Ratio
- M_2 Output Torque Nm, Mechanical
- S_F Service Factor, Mechanical

For details of unit designation code see page 13.

The overhung load shown above is based on the maximum motor Power being transmitted. For higher overhung loads consult Renold.



Units to ATEX approval must be selected with a minimum service factor of 1.25.

RENOLD PM Series - PB Type - Motorised - Selection Data

| P_1 1.1 kW | | 4P - D90SD 1380 RPM | | | | |
|--------------|--------------|---------------------|-------|------------------------|---------------------|----------------|
| | | 6P - D90LD 910 RPM | | | | |
| n_2 | Actual Ratio | M_2 | S_F | Overhung Load (max.) N | Axial Load (max.) N | Product Code |
| rpm | i | Nm | | | | |
| 73 | 18.78 | 139 | 6.13 | 9000 | 12000 | PB3SBD4P011*** |
| 56 | 24.76 | 183 | 4.65 | 9000 | 12000 | PB3SCD4P011*** |
| 44 | 31.64 | 234 | 3.64 | 9000 | 12000 | PB3SDD4P011*** |
| 34 | 41.09 | 303 | 2.80 | 9000 | 12000 | PB3SED4P011*** |
| 29 | 47.28 | 349 | 4.30 | 18000 | 16000 | PB4SFD4P011*** |
| 29 | 47.28 | 349 | 2.43 | 9000 | 12000 | PB3SFD4P011*** |
| 23 | 61.05 | 451 | 3.33 | 18000 | 16000 | PB4SGD4P011*** |
| 23 | 61.05 | 451 | 1.89 | 9000 | 12000 | PB3SGD4P011*** |
| 18 | 77.01 | 569 | 2.64 | 18000 | 16000 | PB4SHD4P011*** |
| 18 | 77.01 | 569 | 1.49 | 9000 | 12000 | PB3SHD4P011*** |
| 14 | 99.80 | 737 | 3.56 | 25000 | 20000 | PB5SJD4P011*** |
| 14 | 100.96 | 745 | 2.01 | 18000 | 16000 | PB4SJD4P011*** |
| 14 | 100.96 | 745 | 1.14 | 9000 | 12000 | PB3SJD4P011*** |
| 11 | 127.12 | 939 | 2.80 | 25000 | 20000 | PB5SKD4P011*** |
| 11 | 128.60 | 949 | 1.58 | 18000 | 16000 | PB4SKD4P011*** |
| 11 | 128.60 | 949 | *0.90 | 6450 | 12000 | PB3SKD4P011*** |
| 9.0 | 153.61 | 1134 | 2.31 | 25000 | 20000 | PB5SLD4P011*** |
| 8.9 | 155.40 | 1147 | 1.31 | 18000 | 16000 | PB4SLD4P011*** |
| 7.2 | 127.12 | 1423 | 1.84 | 25000 | 20000 | PB5SKD6P011*** |
| 7.1 | 128.60 | 1291 | 1.16 | 18000 | 16000 | PB4SKD6P011*** |
| 5.9 | 153.61 | 1720 | 1.53 | 25000 | 20000 | PB5SLD6P011*** |
| 5.9 | 155.40 | 1561 | *0.96 | 14000 | 16000 | PB4SLD6P011*** |

* Max. Standard Plug-in Shaft Torque Nm

| PB35 | PB40 | PB50 | PB60 | PB70 | PB80 |
|------|------|------|------|------|-------|
| 1045 | 1550 | 2700 | 4450 | 7950 | 11350 |

Overhung Load Capacity is that what can be applied along with the lower of either M_2 or the value stated in the table above.

Key

- n_2 Output Speed, rpm
- i Overall Ratio
- M_2 Output Torque Nm, Mechanical
- S_F Service Factor, Mechanical

For details of unit designation code see page 13.

The overhung load shown above is based on the maximum motor Power being transmitted. For higher overhung loads consult Renold.



IMPORTANT

Units to ATEX approval must be selected with a minimum

RENOLD PM Series - PB Type - Motorised - Selection Data

| P ₁ 1.5 kW | | | | | | |
|-----------------------|----------------------|----------------------|----------------|------------------------------|---------------------------|----------------|
| 4P - D90LD 1370 RPM | | | | | | |
| 6P - D100LD 935 RPM | | | | | | |
| n ₂ rpm | Actual Ratio i | M ₂ Nm | S _F | Overhung Load (max.) N | Axial Load (max.) N | Product Code |
| 73 | 18.78 | 191 | 4.46 | 9000 | 12000 | PB3SBD4P015*** |
| 55 | 24.76 | 251 | 3.38 | 9000 | 12000 | PB3SCD4P015*** |
| 43 | 31.64 | 321 | 2.65 | 9000 | 12000 | PB3SDD4P015*** |
| 33 | 41.09 | 417 | 3.60 | 18000 | 16000 | PB4SED4P015*** |
| 33 | 41.09 | 417 | 2.04 | 9000 | 12000 | PB3SED4P015*** |
| 29 | 47.28 | 480 | 3.13 | 18000 | 16000 | PB4SFD4P015*** |
| 29 | 47.28 | 480 | 1.77 | 9000 | 12000 | PB3SFD4P015*** |
| 23 | 60.35 | 612 | 4.29 | 25000 | 20000 | PB5SGD4P015*** |
| 22 | 61.05 | 619 | 2.42 | 18000 | 16000 | PB4SGD4P015*** |
| 22 | 61.05 | 619 | 1.37 | 9000 | 12000 | PB3SGD4P015*** |
| 18 | 76.13 | 772 | 3.40 | 25000 | 20000 | PB5SHD4P015*** |
| 18 | 77.01 | 781 | 1.92 | 18000 | 16000 | PB4SHD4P015*** |
| 18 | 77.01 | 781 | 1.09 | 9000 | 12000 | PB3SHD4P015*** |
| 14 | 99.80 | 1012 | 2.59 | 25000 | 20000 | PB5SJD4P015*** |
| 14 | 100.96 | 1024 | 1.46 | 18000 | 16000 | PB4SJD4P015*** |
| 14 | 100.96 | 1024 | 0.83 | 3750 | 12000 | PB3SJD4P015*** |
| 11.4 | 82.23 | 1222 | 3.43 | 34000 | 35000 | PB6THD6P015*** |
| 11 | 127.12 | 1289 | 2.04 | 25000 | 20000 | PB5SKD4P015*** |
| 11 | 128.60 | 1304 | 1.15 | 18000 | 16000 | PB4SKD4P015*** |
| 8.9 | 153.61 | 1558 | 1.68 | 25000 | 20000 | PB5SLD4P015*** |
| 8.6 | 109.11 | 1621 | 2.59 | 34000 | 35000 | PB6TJD6P015*** |
| 8.8 | 155.40 | 1576 | *0.95 | 13650 | 16000 | PB4SLD4P015*** |
| 7.6 | 122.26 | 1817 | 4.20 | 42000 | 50000 | PB7TKD6P015*** |
| 7.3 | 128.76 | 1913 | 2.19 | 34000 | 35000 | PB6TKD6P015*** |
| 7.4 | 127.12 | 1889 | 1.39 | 25000 | 20000 | PB5SKD6P015*** |
| 7.3 | 128.60 | 1714 | *0.88 | 10800 | 16000 | PB4SKD6P015*** |
| 6.4 | 145.35 | 2160 | 3.55 | 42000 | 50000 | PB7TLD6P015*** |
| 6.1 | 153.61 | 2283 | 1.15 | 25000 | 20000 | PB5SLD6P015*** |
| 6.1 | 153.08 | 2275 | 1.84 | 34000 | 35000 | PB6TLD6P015*** |

Key

- n₂ Output Speed, rpm
- i Overall Ratio
- M₂ Output Torque Nm, Mechanical
- S_F Service Factor, Mechanical

For details of unit designation code see page 13.

The overhung load shown above is based on the maximum motor Power being transmitted. For higher overhung loads consult Renold.

* Max. Standard Plug-in Shaft Torque Nm

| PB35 | PB40 | PB50 | PB60 | PB70 | PB80 |
|------|------|------|------|------|-------|
| 1045 | 1550 | 2700 | 4450 | 7950 | 11350 |

Overhung Load Capacity is that what can be applied along with the lower of either M₂ or the value stated in the table above.



IMPORTANT

Units to ATEX approval must be selected with a minimum service factor of 1.25.

RENOLD PM Series - PB Type - Motorised - Selection Data

| P ₁ 2.2 kW | | | | | | |
|-----------------------|--------|----------------|----------------|----------|----------|----------------|
| 4P - D100LD 1430 RPM | | | | | | |
| 6P - D112MD 945 RPM | | | | | | |
| n ₂ | Actual | M ₂ | S _F | Overhung | Axial | Product Code |
| rpm | Ratio | | | Load | Load | |
| | i | Nm | | (max.) N | (max.) N | |
| 76 | 18.78 | 268 | 3.18 | 9000 | 12000 | PB3SBD4P022*** |
| 58 | 24.76 | 353 | 3.81 | 18000 | 16000 | PB4SCD4P022*** |
| 58 | 24.76 | 353 | 2.41 | 9000 | 12000 | PB3SCD4P022*** |
| 45 | 31.64 | 451 | 3.21 | 18000 | 16000 | PB4SDD4P022*** |
| 45 | 31.64 | 451 | 1.89 | 9000 | 12000 | PB3SDD4P022*** |
| 35 | 41.09 | 586 | 2.56 | 18000 | 16000 | PB4SED4P022*** |
| 35 | 41.09 | 586 | 1.45 | 9000 | 12000 | PB3SED4P022*** |
| 31 | 46.74 | 666 | 3.94 | 25000 | 20000 | PB5SFD4P022*** |
| 30 | 47.28 | 674 | 2.23 | 18000 | 16000 | PB4SFD4P022*** |
| 30 | 47.28 | 674 | 1.26 | 9000 | 12000 | PB3SFD4P022*** |
| 24 | 60.35 | 860 | 3.05 | 25000 | 20000 | PB5SGD4P022*** |
| 23 | 61.05 | 870 | 1.72 | 18000 | 16000 | PB4SGD4P022*** |
| 23 | 61.05 | 870 | *0.98 | 8700 | 12000 | PB3SGD4P022*** |
| 19 | 76.13 | 1085 | 2.42 | 25000 | 20000 | PB5SHD4P022*** |
| 19 | 77.01 | 1097 | 1.37 | 18000 | 16000 | PB4SHD4P022*** |
| 17 | 82.23 | 1172 | 3.65 | 34000 | 35000 | PB6THD4P022*** |
| 14 | 99.80 | 1422 | 1.85 | 25000 | 20000 | PB5SJD4P022*** |
| 14 | 100.96 | 1439 | 1.04 | 16100 | 16000 | PB4SJD4P022*** |
| 13 | 109.11 | 1555 | 2.75 | 34000 | 35000 | PB6TJD4P022*** |
| 11 | 128.76 | 1835 | 2.33 | 34000 | 35000 | PB6TKD4P022*** |
| 11 | 127.12 | 1812 | 1.45 | 25000 | 20000 | PB5SKD4P022*** |
| 11 | 128.60 | 1833 | *0.82 | 7700 | 16000 | PB4SKD4P022*** |
| 10 | 145.35 | 2071 | 3.65 | 42000 | 50000 | PB7TLD4P022*** |
| 9.3 | 153.61 | 2189 | 1.20 | 25000 | 20000 | PB5SLD4P022*** |

| P ₁ 2.2 kW (cont) | | | | | | |
|------------------------------|--------|----------------|----------------|----------|----------|----------------|
| 4P - D100LD 1430 RPM | | | | | | |
| 6P - D112MD 945 RPM | | | | | | |
| n ₂ | Actual | M ₂ | S _F | Overhung | Axial | Product Code |
| rpm | Ratio | | | Load | Load | |
| | i | Nm | | (max.) N | (max.) N | |
| 9 | 153.08 | 2181 | 1.96 | 34000 | 35000 | PB6TLD4P022*** |
| 7.7 | 122.26 | 2636 | 2.93 | 42000 | 50000 | PB7TKD6P022*** |
| 7.3 | 128.76 | 2777 | 1.53 | 34000 | 35000 | PB6TKD6P022*** |
| 7.4 | 127.12 | 2741 | *0.96 | 15800 | 20000 | PB5SKD6P022*** |
| 6.5 | 145.35 | 3134 | 2.54 | 42000 | 50000 | PB7TLD6P022*** |
| 6.2 | 153.61 | 3312 | *0.79 | # | 20000 | PB5SLD6P022*** |
| 6.2 | 153.08 | 3301 | 1.28 | 34000 | 35000 | PB6TLD6P022*** |

Key

- n₂ Output Speed, rpm
- i Overall Ratio
- M₂ Output Torque Nm, Mechanical
- S_F Service Factor, Mechanical

For details of unit designation code see page 13.


The overhung load shown above is based on the maximum motor Power being transmitted. For higher overhung loads consult Renold.

* Max. Standard Plug-in Shaft Torque Nm

| PB35 | PB40 | PB50 | PB60 | PB70 | PB80 |
|------|------|------|------|------|-------|
| 1045 | 1550 | 2700 | 4450 | 7950 | 11350 |

Overhung Load Capacity is that what can be applied along with the lower of either M₂ or the value stated in the table above.

Consult Renold Gears Technical Dept.



IMPORTANT Units to ATEX approval must be selected with a minimum service factor of 1.25.

RENOLD PM Series - PB Type - Motorised - Selection Data

| P ₁ 3.0 kW | | | | | | |
|-----------------------|--------------|----------------|----------------|---------------|------------|----------------|
| 4P - D100LXD 1400 RPM | | | | | | |
| 6P - D132SD 960 RPM | | | | | | |
| n ₂ | Actual Ratio | M ₂ | S _F | Overhung Load | Axial Load | Product Code |
| rpm | i | Nm | | (max.) N | (max.) N | |
| 75 | 18.78 | 373 | 3.29 | 18000 | 16000 | PB4SBD4P030*** |
| 75 | 18.78 | 373 | 2.28 | 9000 | 12000 | PB3SBD4P030*** |
| 57 | 24.76 | 491 | 2.75 | 18000 | 16000 | PB4SCD4P030*** |
| 57 | 24.76 | 491 | 1.73 | 9000 | 12000 | PB3SCD4P030*** |
| 45 | 31.27 | 621 | 4.23 | 25000 | 20000 | PB5SDD4P030*** |
| 44 | 31.64 | 628 | 2.32 | 18000 | 16000 | PB4SDD4P030*** |
| 44 | 31.64 | 628 | 1.35 | 9000 | 12000 | PB3SDD4P030*** |
| 34 | 40.62 | 806 | 3.26 | 25000 | 20000 | PB5SED4P030*** |
| 34 | 41.09 | 816 | 1.84 | 18000 | 16000 | PB4SED4P030*** |
| 34 | 41.09 | 816 | 1.04 | 9000 | 12000 | PB3SED4P030*** |
| 30 | 46.74 | 928 | 2.83 | 25000 | 20000 | PB5SFD4P030*** |
| 30 | 47.28 | 939 | 1.60 | 18000 | 16000 | PB4SFD4P030*** |
| 30 | 47.28 | 939 | 0.91 | 6750 | 12000 | PB3SFD4P030*** |
| 27 | 52.35 | 1039 | 4.03 | 34000 | 35000 | PB6TFD4P030*** |
| 23 | 60.35 | 1198 | 2.19 | 25000 | 20000 | PB5SGD4P030*** |
| 23 | 61.05 | 1212 | 1.24 | 18000 | 16000 | PB4SGD4P030*** |
| 22 | 64.69 | 1284 | 3.26 | 34000 | 35000 | PB6TGD4P030*** |
| 18 | 76.13 | 1511 | 1.74 | 25000 | 20000 | PB5SHD4P030*** |
| 18 | 77.01 | 1529 | *0.98 | 14500 | 16000 | PB4SHD4P030*** |
| 17 | 82.23 | 1632 | 2.56 | 34000 | 35000 | PB6THD4P030*** |
| 14 | 99.80 | 1981 | 1.33 | 25000 | 20000 | PB5SJD4P030*** |
| 14 | 103.60 | 2056 | 3.59 | 42000 | 50000 | PB7TJD4P030*** |
| 13 | 109.11 | 2166 | 1.93 | 34000 | 35000 | PB6TJD4P030*** |
| 11 | 122.26 | 2427 | 3.04 | 42000 | 50000 | PB7TKD4P030*** |

* Max. Standard Plug-in Shaft Torque Nm

| PB35 | PB40 | PB50 | PB60 | PB70 | PB80 |
|------|------|------|------|------|-------|
| 1045 | 1550 | 2700 | 4450 | 7950 | 11350 |

Overhung Load Capacity is that what can be applied along with the lower of either M₂ or the value stated in the table above.

| P ₁ 3.0 kW (cont) | | | | | | |
|------------------------------|--------------|----------------|----------------|---------------|------------|----------------|
| 4P - D100LD 1430 RPM | | | | | | |
| 6P - D112MD 945 RPM | | | | | | |
| n ₂ | Actual Ratio | M ₂ | S _F | Overhung Load | Axial Load | Product Code |
| rpm | i | Nm | | (max.) N | (max.) N | |
| 11 | 128.76 | 2556 | 1.64 | 34000 | 35000 | PB6TKD4P030*** |
| 11 | 127.12 | 2523 | 1.04 | 19400 | 20000 | PB5SKD4P030*** |
| 10 | 145.35 | 2885 | 2.56 | 42000 | 50000 | PB7TLD4P030*** |
| 9.1 | 153.61 | 3049 | *0.86 | 9300 | 20000 | PB5SLD4P030*** |
| 9.1 | 153.08 | 3038 | 1.38 | 34000 | 35000 | PB6TLD4P030*** |
| 8.0 | 120.37 | 3484 | 3.31 | 55000 | 55000 | PB8TKD6P030*** |
| 7.9 | 122.26 | 3539 | 2.21 | 42000 | 50000 | PB7TKD6P030*** |
| 7.5 | 128.76 | 3727 | 1.16 | 34000 | 35000 | PB6TKD6P030*** |
| 6.7 | 143.10 | 4142 | 2.80 | 55000 | 55000 | PB8TLD6P030*** |
| 6.6 | 145.35 | 4207 | 1.92 | 42000 | 50000 | PB7TLD6P030*** |
| 6.3 | 153.08 | 4431 | *0.97 | 24000 | 35000 | PB6TLD6P030*** |

Key

- n₂ Output Speed, rpm
- i Overall Ratio
- M₂ Output Torque Nm, Mechanical
- S_F Service Factor, Mechanical

For details of unit designation code see page 13.

The overhung load shown above is based on the maximum motor Power being transmitted. For higher overhung loads consult Renold.



Units to ATEX approval must be selected with a minimum service factor of 1.25.

RENOLD PM Series - PB Type - Motorised - Selection Data

| P ₁ 4.0 kW | | | | | | |
|-----------------------|--------|----------------|----------------|----------|----------|----------------|
| 4P - D112MD 1430 RPM | | | | | | |
| 6P - D132MD 955 RPM | | | | | | |
| n ₂ | Actual | M ₂ | S _F | Overhung | Axial | Product Code |
| rpm | Ratio | | | Load | Load | |
| | i | Nm | | (max.) N | (max.) N | |
| 76 | 18.78 | 487 | 2.51 | 18000 | 16000 | PB4SBD4P040*** |
| 76 | 18.78 | 487 | 1.75 | 9000 | 12000 | PB3SBD4P040*** |
| 58 | 24.48 | 634 | 4.14 | 25000 | 20000 | PB5SCD4P040*** |
| 58 | 24.76 | 642 | 2.10 | 18000 | 16000 | PB4SCD4P040*** |
| 58 | 24.76 | 642 | 1.32 | 9000 | 12000 | PB3SCD4P040*** |
| 46 | 31.27 | 810 | 3.24 | 25000 | 20000 | PB5SDD4P040*** |
| 45 | 31.64 | 820 | 1.76 | 18000 | 16000 | PB4SDD4P040*** |
| 45 | 31.64 | 820 | 1.04 | 9000 | 12000 | PB3SDD4P040*** |
| 35 | 40.62 | 1052 | 2.49 | 25000 | 20000 | PB5SED4P040*** |
| 35 | 41.09 | 1065 | 1.41 | 18000 | 16000 | PB4SED4P040*** |
| 35 | 41.09 | 1065 | *0.80 | # | 12000 | PB3SED4P040*** |
| 34 | 41.66 | 1079 | 3.96 | 34000 | 35000 | PB6TED4P040*** |
| 31 | 46.74 | 1211 | 2.17 | 25000 | 20000 | PB5SFD4P040*** |
| 30 | 47.28 | 1225 | 1.22 | 18000 | 16000 | PB4SFD4P040*** |
| 27 | 52.35 | 1356 | 3.15 | 34000 | 35000 | PB6TFD4P040*** |
| 24 | 60.35 | 1564 | 1.68 | 25000 | 20000 | PB5SGD4P040*** |
| 23 | 61.05 | 1582 | *0.95 | 13500 | 16000 | PB4SGD4P040*** |
| 22 | 64.69 | 1676 | 2.55 | 34000 | 35000 | PB6TGD4P040*** |
| 19 | 76.13 | 1973 | 1.33 | 25000 | 20000 | PB5SHD4P040*** |
| 18 | 78.07 | 2023 | 3.76 | 42000 | 50000 | PB7THD4P040*** |
| 17 | 82.23 | 2131 | 2.01 | 34000 | 35000 | PB6THD4P040*** |
| 14 | 99.80 | 2586 | 1.02 | 18400 | 20000 | PB5SJD4P040*** |
| 14 | 103.60 | 2684 | 2.82 | 42000 | 50000 | PB7TJD4P040*** |
| 13 | 109.11 | 2827 | 1.51 | 34000 | 35000 | PB6TJD4P040*** |

* Max. Standard Plug-in Shaft Torque Nm

| PB35 | PB40 | PB50 | PB60 | PB70 | PB80 |
|------|------|------|------|------|-------|
| 1045 | 1550 | 2700 | 4450 | 7950 | 11350 |

Overhung Load Capacity is that what can be applied along with the lower of either M₂ or the value stated in the table above.

Consult Renold Gears Technical Dept.

| P ₁ 4.0 kW (cont) | | | | | | |
|------------------------------|--------|----------------|----------------|----------|----------|----------------|
| 4P - D112MD 1430 RPM | | | | | | |
| 6P - D132MD 955 RPM | | | | | | |
| n ₂ | Actual | M ₂ | S _F | Overhung | Axial | Product Code |
| rpm | Ratio | | | Load | Load | |
| | i | Nm | | (max.) N | (max.) N | |
| 12 | 122.26 | 3168 | 2.38 | 42000 | 50000 | PB7TKD4P040*** |
| 11 | 128.76 | 3336 | 1.28 | 34000 | 35000 | PB6TKD4P040*** |
| 11 | 127.12 | 3294 | *0.80 | # | 20000 | PB5SKD4P040*** |
| 10 | 143.10 | 3708 | 3.07 | 55000 | 55000 | PB8TLD4P040*** |
| 10 | 145.35 | 3766 | 2.01 | 42000 | 50000 | PB7TLD4P040*** |
| 9.3 | 153.08 | 3966 | 1.08 | 31000 | 35000 | PB6TLD4P040*** |
| 7.9 | 120.37 | 4670 | 2.46 | 55000 | 55000 | PB8TKD6P040*** |
| 7.8 | 122.26 | 4743 | 1.64 | 42000 | 50000 | PB7TKD6P040*** |
| 7.4 | 128.76 | 4996 | *0.86 | 11600 | 35000 | PB6TKD6P040*** |
| 6.7 | 143.10 | 5552 | 2.08 | 55000 | 55000 | PB8TLD6P040*** |
| 6.6 | 145.35 | 5639 | 1.43 | 42000 | 50000 | PB7TLD6P040*** |

Key

n₂ Output Speed, rpm

i Overall Ratio

M₂ Output Torque Nm, Mechanical

S_F Service Factor, Mechanical

For details of unit designation code see page 13

The overhung load shown above is based on the maximum motor Power being transmitted. For higher overhung loads consult Renold.



Units to ATEX approval must be selected with a minimum service factor of 1.25.

RENOLD PM Series - PB Type - Motorised - Selection Data

| P_1 5.5 kW | | 4P - D132SD 1435 RPM 6P - D132MXD 955 RPM | | | | |
|--------------|--------------|--|-------|---------------|------------|----------------|
| n_2 | Actual Ratio | M_2 | S_F | Overhung Load | Axial Load | Product Code |
| rpm | i | Nm | | (max.) N | (max.) N | |
| 77 | 18.57 | 659 | 3.76 | 25000 | 20000 | PB5SBD4P055*** |
| 76 | 18.78 | 667 | 1.82 | 18000 | 16000 | PB4SBD4P055*** |
| 76 | 18.78 | 667 | 1.27 | 9000 | 12000 | PB3SBD4P055*** |
| 59 | 24.48 | 869 | 3.02 | 25000 | 20000 | PB5SCD4P055*** |
| 58 | 24.76 | 879 | 1.52 | 18000 | 16000 | PB4SCD4P055*** |
| 58 | 24.76 | 879 | 0.97 | 8450 | 12000 | PB3SCD4P055*** |
| 46 | 31.27 | 1110 | 2.36 | 25000 | 20000 | PB5SDD4P055*** |
| 45 | 31.64 | 1123 | 1.29 | 18000 | 16000 | PB4SDD4P055*** |
| 43 | 33.35 | 1184 | 3.58 | 34000 | 35000 | PB6TDD4P055*** |
| 35 | 40.62 | 1442 | 1.82 | 25000 | 20000 | PB5SED4P055*** |
| 35 | 41.09 | 1459 | 1.03 | 15800 | 16000 | PB4SED4P055*** |
| 34 | 41.66 | 1479 | 2.90 | 34000 | 35000 | PB6TED4P055*** |
| 31 | 46.74 | 1659 | 1.58 | 25000 | 20000 | PB5SFD4P055*** |
| 30 | 47.28 | 1679 | *0.89 | 11500 | 16000 | PB4SFD4P055*** |
| 29 | 49.71 | 1765 | 4.40 | 42000 | 50000 | PB7TFD4P055*** |
| 27 | 52.35 | 1859 | 2.31 | 34000 | 35000 | PB6TFD4P055*** |
| 23 | 61.42 | 2181 | 3.54 | 42000 | 50000 | PB7TGD4P055*** |
| 24 | 60.35 | 2142 | 1.23 | 25000 | 20000 | PB5SGD4P055*** |
| 22 | 64.69 | 2297 | 1.87 | 34000 | 35000 | PB6TGD4P055*** |
| 19 | 76.13 | 2703 | *0.97 | 16500 | 20000 | PB5SHD4P055*** |
| 18 | 78.07 | 2772 | 2.76 | 42000 | 50000 | PB7THD4P055*** |
| 17 | 82.23 | 2919 | 1.47 | 34000 | 35000 | PB6THD4P055*** |
| 14 | 102.00 | 3621 | 3.11 | 55000 | 55000 | PB8TJD4P055*** |
| 14 | 103.60 | 3678 | 2.07 | 42000 | 50000 | PB7TJD4P055*** |

* Max. Standard Plug-in Shaft Torque Nm

| PB35 | PB40 | PB50 | PB60 | PB70 | PB80 |
|------|------|------|------|------|-------|
| 1045 | 1550 | 2700 | 4450 | 7950 | 11350 |

Overhung Load Capacity is that what can be applied along with the lower of either M_2 or the value stated in the table above.


| P_1 5.5 kW (cont) | | 4P - D132SD 1435 RPM 6P - D132MXD 955 RPM | | | | |
|---------------------|--------------|--|-------|---------------|------------|----------------|
| n_2 | Actual Ratio | M_2 | S_F | Overhung Load | Axial Load | Product Code |
| rpm | i | Nm | | (max.) N | (max.) N | |
| 13 | 109.11 | 3874 | 1.11 | 32000 | 35000 | PB6TJD4P055*** |
| 12 | 120.37 | 4273 | 2.66 | 55000 | 55000 | PB8TKD4P055*** |
| 12 | 122.26 | 4340 | 1.74 | 42000 | 50000 | PB7TKD4P055*** |
| 11 | 128.76 | 4571 | *0.94 | 21000 | 35000 | PB6TKD4P055*** |
| 10 | 143.10 | 5080 | 2.25 | 55000 | 55000 | PB8TLD4P055*** |
| 10 | 145.35 | 5160 | 1.47 | 42000 | 50000 | PB7TLD4P055*** |
| 9.4 | 153.08 | 5435 | *0.79 | 3000 | 35000 | PB6TLD4P055*** |
| 7.9 | 120.37 | 6421 | 1.79 | 55000 | 55000 | PB8TKD6P055*** |
| 7.8 | 122.26 | 6522 | 1.20 | 42000 | 50000 | PB7TKD6P055*** |
| 6.7 | 143.10 | 7634 | 1.51 | 55000 | 55000 | PB8TLD6P055*** |
| 6.6 | 145.35 | 7754 | 1.04 | 37500 | 50000 | PB7TLD6P055*** |

Key

- n_2 Output Speed, rpm
- i Overall Ratio
- M_2 Output Torque Nm, Mechanical
- S_F Service Factor, Mechanical

For details of unit designation code see page 13.

The overhung load shown above is based on the maximum motor Power being transmitted. For higher overhung loads consult Renold.



IMPORTANT Units to ATEX approval must be selected with a minimum service factor of 1.25.

RENOLD PM Series - PB Type - Motorised - Selection Data

| P ₁ 7.5 kW | | | | | | | 4P - D132SD 1435 RPM | | | | | | |
|-----------------------|--------|----------------|----------------|----------|----------|----------------|----------------------|--------|----------------|----------------|----------|----------|----------------|
| n ₂ | Actual | M ₂ | S _F | Overhung | Axial | Product Code | n ₂ | Actual | M ₂ | S _F | Overhung | Axial | Product Code |
| rpm | Ratio | Nm | | Load | Load | | rpm | Ratio | Nm | | Load | Load | |
| | i | | | (max.) N | (max.) N | | | i | | | (max.) N | (max.) N | |
| 77 | 18.57 | 899 | 2.76 | 25000 | 20000 | PB5SBD4P075*** | 13 | 109.11 | 5282 | *0.81 | 2640 | 35000 | PB6TJD4P075*** |
| 76 | 18.78 | 909 | 1.34 | 18000 | 16000 | PB4SBD4P075*** | 12 | 120.37 | 5827 | 1.95 | 55000 | 55000 | PB8TKD4P075*** |
| 76 | 18.78 | 909 | 0.93 | 7700 | 12000 | PB3SBD4P075*** | 12 | 122.26 | 5919 | 1.28 | 42000 | 50000 | PB7TKD4P075*** |
| 53 | 27.05 | 1310 | 3.18 | 34000 | 35000 | PB6TCD4P075*** | 10 | 143.10 | 6928 | 1.65 | 55000 | 55000 | PB8TLD4P075*** |
| 59 | 24.48 | 1185 | 2.22 | 25000 | 20000 | PB5SCD4P075*** | 10 | 145.35 | 7037 | 1.08 | 42000 | 50000 | PB7TLD4P075*** |
| 58 | 24.76 | 1199 | 1.12 | 18000 | 16000 | PB4SCD4P075*** | | | | | | | |
| 46 | 31.27 | 1514 | 1.73 | 25000 | 20000 | PB5SDD4P075*** | | | | | | | |
| 45 | 31.64 | 1532 | 0.94 | 14400 | 16000 | PB4SDD4P075*** | | | | | | | |
| 43 | 33.35 | 1615 | 2.62 | 34000 | 35000 | PB6TDD4P075*** | | | | | | | |
| 35 | 40.62 | 1966 | 1.33 | 25000 | 20000 | PB5SED4P075*** | | | | | | | |
| 36 | 39.56 | 1915 | 4.05 | 42000 | 50000 | PB7TED4P075*** | | | | | | | |
| 34 | 41.66 | 2017 | 2.12 | 34000 | 35000 | PB6TED4P075*** | | | | | | | |
| 29 | 49.71 | 2407 | 3.23 | 42000 | 50000 | PB7TFD4P075*** | | | | | | | |
| 27 | 52.35 | 2534 | 1.69 | 34000 | 35000 | PB6TFD4P075*** | | | | | | | |
| 23 | 61.42 | 2973 | 2.60 | 42000 | 50000 | PB7TGD4P075*** | | | | | | | |
| 22 | 64.69 | 3132 | 1.37 | 34000 | 35000 | PB6TGD4P075*** | | | | | | | |
| 19 | 76.87 | 3721 | 3.00 | 55000 | 55000 | PB8THD4P075*** | | | | | | | |
| 18 | 78.07 | 3780 | 2.02 | 42000 | 50000 | PB7THD4P075*** | | | | | | | |
| 17 | 82.23 | 3981 | 1.08 | 30800 | 35000 | PB6THD4P075*** | | | | | | | |
| 14 | 102.00 | 4938 | 2.28 | 55000 | 55000 | PB8TJD4P075*** | | | | | | | |
| 14 | 103.60 | 5015 | 1.51 | 42000 | 50000 | PB7TJD4P075*** | | | | | | | |

| P ₁ 7.5 kW (cont) | | | | | | | 4P - D132SD 1435 RPM | | | | | | |
|------------------------------|--------|----------------|----------------|----------|----------|----------------|----------------------|--------|----------------|----------------|----------|----------|--------------|
| n ₂ | Actual | M ₂ | S _F | Overhung | Axial | Product Code | n ₂ | Actual | M ₂ | S _F | Overhung | Axial | Product Code |
| rpm | Ratio | Nm | | Load | Load | | rpm | Ratio | Nm | | Load | Load | |
| | i | | | (max.) N | (max.) N | | | i | | | (max.) N | (max.) N | |
| 13 | 109.11 | 5282 | *0.81 | 2640 | 35000 | PB6TJD4P075*** | | | | | | | |
| 12 | 120.37 | 5827 | 1.95 | 55000 | 55000 | PB8TKD4P075*** | | | | | | | |
| 12 | 122.26 | 5919 | 1.28 | 42000 | 50000 | PB7TKD4P075*** | | | | | | | |
| 10 | 143.10 | 6928 | 1.65 | 55000 | 55000 | PB8TLD4P075*** | | | | | | | |
| 10 | 145.35 | 7037 | 1.08 | 42000 | 50000 | PB7TLD4P075*** | | | | | | | |

Key

- n₂ Output Speed, rpm
- i Overall Ratio
- M₂ Output Torque Nm, Mechanical
- S_F Service Factor, Mechanical


For details of unit designation code see page 13.

The overhung load shown above is based on the maximum motor Power being transmitted. For higher overhung loads consult Renold.

* Max. Standard Plug-in Shaft Torque Nm

| PB35 | PB40 | PB50 | PB60 | PB70 | PB80 |
|------|------|------|------|------|-------|
| 1045 | 1550 | 2700 | 4450 | 7950 | 11350 |

Overhung Load Capacity is that what can be applied along with the lower of either M₂ or the value stated in the table above.



IMPORTANT Units to ATEX approval must be selected with a minimum service factor of 1.25.

RENOLD PM Series - PB Type - Motorised - Selection Data

| P_1 11.0 kW | | 4P - D160MD 1450 RPM | | | | |
|---------------|----------------------|----------------------|-------|------------------------------|---------------------------|----------------|
| n_2 rpm | Actual Ratio i | M_2 Nm | S_F | Overhung Load (max.) N | Axial Load (max.) N | Product Code |
| 78 | 18.57 | 1305 | 1.89 | 25000 | 20000 | PB5SBD4P110*** |
| 69 | 21.05 | 1479 | 2.81 | 34000 | 35000 | PB6TBD4P110*** |
| 59 | 24.48 | 1720 | 1.53 | 25000 | 20000 | PB5SCD4P110*** |
| 56 | 25.69 | 1805 | 4.22 | 42000 | 50000 | PB7TCD4P110*** |
| 54 | 27.05 | 1901 | 2.22 | 34000 | 35000 | PB6TCD4P110*** |
| 46 | 31.27 | 2198 | 1.19 | 23900 | 20000 | PB5SDD4P110*** |
| 46 | 31.66 | 2225 | 3.48 | 42000 | 50000 | PB7TDD4P110*** |
| 43 | 33.35 | 2343 | 1.83 | 34000 | 35000 | PB6TDD4P110*** |
| 36 | 40.62 | 2854 | *0.92 | 13700 | 20000 | PB5SED4P110*** |
| 37 | 39.56 | 2780 | 2.82 | 42000 | 50000 | PB7TED4P110*** |
| 35 | 41.66 | 2927 | 1.48 | 34000 | 35000 | PB6TED4P110*** |
| 30 | 48.94 | 3439 | 3.21 | 55000 | 55000 | PB8TFD4P110*** |
| 29 | 49.71 | 3493 | 2.25 | 42000 | 50000 | PB7TFD4P110*** |
| 28 | 52.35 | 3679 | 1.18 | 34000 | 35000 | PB6TFD4P110*** |
| 24 | 60.47 | 4249 | 2.62 | 55000 | 55000 | PB8TGD4P110*** |
| 24 | 61.42 | 4316 | 1.81 | 42000 | 50000 | PB7TGD4P110*** |
| 22 | 64.69 | 4546 | *0.95 | 21500 | 35000 | PB6TGD4P110*** |
| 19 | 76.87 | 5402 | 2.09 | 55000 | 55000 | PB8THD4P110*** |
| 19 | 78.07 | 5486 | 1.41 | 42000 | 50000 | PB7THD4P110*** |
| 18 | 82.23 | 5778 | *0.75 | # | 35000 | PB6THD4P110*** |
| 14 | 102.00 | 7167 | 1.59 | 55000 | 55000 | PB8TJD4P110*** |
| 14 | 103.60 | 7280 | 1.05 | 42000 | 50000 | PB7TJD4P110*** |
| 12 | 120.37 | 8458 | 1.36 | 55000 | 55000 | PB8TKD4P110*** |
| 12 | 122.26 | 8591 | *0.89 | 24200 | 50000 | PB7TKD4P110*** |
| 10 | 143.10 | 10056 | 1.15 | 55000 | 55000 | PB8TLD4P110*** |

Key

- n_2 Output Speed, rpm
- i Overall Ratio
- M_2 Output Torque Nm, Mechanical
- S_F Service Factor, Mechanical

For details of unit designation code see page 13.

The overhung load shown above is based on the maximum motor Power being transmitted. For higher overhung loads consult Renold.

* Max. Standard Plug-in Shaft Torque Nm

| PB35 | PB40 | PB50 | PB60 | PB70 | PB80 |
|------|------|------|------|------|-------|
| 1045 | 1550 | 2700 | 4450 | 7950 | 11350 |

Overhung Load Capacity is that what can be applied along with the lower of either M_2 or the value stated in the table above.

Consult Renold Gears Technical Dept.



Units to ATEX approval must be selected with a minimum service factor of 1.25.

RENOLD PM Series - PB Type - Motorised - Selection Data

| P ₁ 15.0 kW | | | | | | | 4P - D160LD 1460 RPM | | | | | | |
|------------------------|--------|----------------|----------------|----------|----------|----------------|----------------------|--------|----------------|----------------|----------|----------|--------------|
| n ₂ | Actual | M ₂ | S _F | Overhung | Axial | Product Code | n ₂ | Actual | M ₂ | S _F | Overhung | Axial | Product Code |
| rpm | Ratio | Nm | | Load | Load | | rpm | Ratio | Nm | | Load | Load | |
| | i | | | (max.) N | (max.) N | | | | | | (max.) N | (max.) N | |
| 79 | 18.57 | 1767 | 1.39 | 25000 | 20000 | PB5SBD4P150*** | | | | | | | |
| 73 | 19.98 | 1901 | 3.97 | 42000 | 50000 | PB7TBD4P150*** | | | | | | | |
| 69 | 21.05 | 2003 | 2.09 | 34000 | 35000 | PB6TBD4P150*** | | | | | | | |
| 60 | 24.48 | 2329 | 1.13 | 22200 | 20000 | PB5SCD4P150*** | | | | | | | |
| 57 | 25.69 | 2445 | 3.14 | 42000 | 50000 | PB7TCD4P150*** | | | | | | | |
| 54 | 27.05 | 2574 | 1.65 | 34000 | 35000 | PB6TCD4P150*** | | | | | | | |
| 47 | 31.27 | 2976 | *0.88 | 10900 | 20000 | PB5SDD4P150*** | | | | | | | |
| 46 | 31.66 | 3013 | 2.59 | 42000 | 50000 | PB7TDD4P150*** | | | | | | | |
| 44 | 33.35 | 3174 | 1.36 | 34000 | 35000 | PB6TDD4P150*** | | | | | | | |
| 37 | 38.95 | 3707 | 2.97 | 55000 | 55000 | PB8TED4P150*** | | | | | | | |
| 37 | 39.56 | 3765 | 2.10 | 42000 | 50000 | PB7TED4P150*** | | | | | | | |
| 35 | 41.66 | 3965 | 1.10 | 31000 | 35000 | PB6TED4P150*** | | | | | | | |
| 30 | 48.94 | 4657 | 2.38 | 55000 | 55000 | PB8TFD4P150*** | | | | | | | |
| 29 | 49.71 | 4731 | 1.67 | 42000 | 50000 | PB7TFD4P150*** | | | | | | | |
| 28 | 52.35 | 4982 | *0.88 | 11900 | 35000 | PB6TFD4P150*** | | | | | | | |
| 24 | 60.47 | 5755 | 1.95 | 55000 | 55000 | PB8TGD4P150*** | | | | | | | |
| 24 | 61.42 | 5845 | 1.34 | 42000 | 50000 | PB7TGD4P150*** | | | | | | | |
| 19 | 76.87 | 7315 | 1.55 | 55000 | 55000 | PB8THD4P150*** | | | | | | | |
| 19 | 78.07 | 7430 | 1.05 | 41900 | 50000 | PB7THD4P150*** | | | | | | | |
| 14 | 102.00 | 9707 | 1.26 | 55000 | 55000 | PB8TJD4P150*** | | | | | | | |
| 14 | 103.60 | 9859 | *0.98 | # | 50000 | PB7TJD4P150*** | | | | | | | |
| 12 | 120.37 | 11455 | 1.01 | 40800 | 55000 | PB8TKD4P150*** | | | | | | | |
| 10 | 143.10 | 13618 | *0.85 | # | 55000 | PB8TLD4P150*** | | | | | | | |

* Max. Standard Plug-in Shaft Torque Nm

| PB35 | PB40 | PB50 | PB60 | PB70 | PB80 |
|------|------|------|------|------|-------|
| 1045 | 1550 | 2700 | 4450 | 7950 | 11350 |

Overhung Load Capacity is that what can be applied along with the lower of either M₂ or the value stated in the table above.

Consult Renold Gears Technical Dept.

| P ₁ 18.5 kW | | | | | | | 4P - D180MD 1470 RPM | | | | | | |
|------------------------|--------|----------------|----------------|----------|----------|----------------|----------------------|--------|----------------|----------------|----------|----------|--------------|
| n ₂ | Actual | M ₂ | S _F | Overhung | Axial | Product Code | n ₂ | Actual | M ₂ | S _F | Overhung | Axial | Product Code |
| rpm | Ratio | Nm | | Load | Load | | rpm | Ratio | Nm | | Load | Load | |
| | i | | | (max.) N | (max.) N | | | | | | (max.) N | (max.) N | |
| 74 | 19.98 | 2329 | 3.26 | 42000 | 50000 | PB7TBD4P185*** | | | | | | | |
| 70 | 21.05 | 2454 | 1.72 | 34000 | 35000 | PB6TBD4P185*** | | | | | | | |
| 57 | 25.69 | 2995 | 2.58 | 42000 | 50000 | PB7TCD4P185*** | | | | | | | |
| 54 | 27.05 | 3153 | 1.36 | 34000 | 35000 | PB6TCD4P185*** | | | | | | | |
| 47 | 31.18 | 3635 | 3.00 | 55000 | 55000 | PB8TDD4P185*** | | | | | | | |
| 46 | 31.66 | 3691 | 2.13 | 42000 | 50000 | PB7TDD4P185*** | | | | | | | |
| 44 | 33.35 | 3888 | 1.12 | 32200 | 35000 | PB6TDD4P185*** | | | | | | | |
| 38 | 38.95 | 4541 | 2.44 | 55000 | 55000 | PB8TED4P185*** | | | | | | | |
| 37 | 39.56 | 4612 | 1.72 | 42000 | 50000 | PB7TED4P185*** | | | | | | | |
| 35 | 41.66 | 4856 | *0.90 | 15000 | 35000 | PB6TED4P185*** | | | | | | | |
| 30 | 48.94 | 5705 | 1.96 | 55000 | 55000 | PB8TFD4P185*** | | | | | | | |
| 30 | 49.71 | 5795 | 1.37 | 42000 | 50000 | PB7TFD4P185*** | | | | | | | |
| 24 | 60.47 | 7049 | 1.60 | 55000 | 55000 | PB8TGD4P185*** | | | | | | | |
| 24 | 61.42 | 7160 | 1.10 | 42000 | 50000 | PB7TGD4P185*** | | | | | | | |
| 19 | 76.87 | 8961 | 1.28 | 55000 | 55000 | PB8THD4P185*** | | | | | | | |
| 19 | 78.07 | 9101 | *0.86 | 13500 | 50000 | PB7THD4P185*** | | | | | | | |
| 14 | 102.00 | 11890 | *0.97 | 33600 | 55000 | PB8TJD4P185*** | | | | | | | |
| 12 | 120.37 | 14032 | *0.83 | # | 55000 | PB8TKD4P185*** | | | | | | | |

Key

- n₂ Output Speed, rpm
- i Overall Ratio
- M₂ Output Torque Nm, Mechanical
- S_F Service Factor, Mechanical

For details of unit designation code see page 13.

The overhung load shown above is based on the maximum motor Power being transmitted. For higher overhung loads consult Renold.



Units to ATEX approval must be selected with a minimum service factor of 1.25.

RENOLD PM Series - PB Type - Motorised - Selection Data

| P ₁ 22.0 kW | | | | | | | 4P - D180LD 1465 RPM | | | | | | |
|------------------------|--------|----------------|----------------|----------|----------|----------------|----------------------|--------|----------------|----------------|----------|-------|--------------|
| n ₂ | Actual | M ₂ | S _F | Overhung | Axial | Product Code | n ₂ | Actual | M ₂ | S _F | Overhung | Axial | Product Code |
| rpm | Ratio | Nm | | Load | Load | | rpm | Ratio | Nm | | Load | Load | |
| | i | | | (max.) N | (max.) N | | | | | | | | |
| 73 | 19.98 | 2779 | 2.73 | 42000 | 50000 | PB7TBD4P220*** | | | | | | | |
| 70 | 21.05 | 2928 | 1.43 | 34000 | 35000 | PB6TBD4P220*** | | | | | | | |
| 58 | 25.29 | 3518 | 3.01 | 55000 | 55000 | PB8TCD4P220*** | | | | | | | |
| 57 | 25.69 | 3573 | 2.15 | 42000 | 50000 | PB7TCD4P220*** | | | | | | | |
| 54 | 27.05 | 3763 | 1.13 | 34000 | 35000 | PB6TCD4P220*** | | | | | | | |
| 47 | 31.18 | 4337 | 2.51 | 55000 | 55000 | PB8TDD4P220*** | | | | | | | |
| 46 | 31.66 | 4404 | 1.78 | 42000 | 50000 | PB7TDD4P220*** | | | | | | | |
| 44 | 33.35 | 4639 | *0.93 | 19700 | 35000 | PB6TDD4P220*** | | | | | | | |
| 38 | 38.95 | 5418 | 2.04 | 55000 | 55000 | PB8TED4P220*** | | | | | | | |
| 37 | 39.56 | 5503 | 1.44 | 42000 | 50000 | PB7TED4P220*** | | | | | | | |
| 30 | 48.94 | 6808 | 1.64 | 55000 | 55000 | PB8TFD4P220*** | | | | | | | |
| 29 | 49.71 | 6915 | 1.15 | 42000 | 50000 | PB7TFD4P220*** | | | | | | | |
| 24 | 60.47 | 8411 | 1.34 | 55000 | 55000 | PB8TGD4P220*** | | | | | | | |
| 24 | 61.42 | 8544 | *0.92 | 25000 | 50000 | PB7TGD4P220*** | | | | | | | |
| 19 | 76.87 | 10693 | 1.06 | 51900 | 55000 | PB8THD4P220*** | | | | | | | |
| 14 | 102.00 | 14188 | *0.81 | # | 55000 | PB8TJD4P220*** | | | | | | | |

| P ₁ 37.0 kW | | | | | | | 4P - D225SD 1485 RPM | | | | | | |
|------------------------|--------|----------------|----------------|----------|----------|----------------|----------------------|--------|----------------|----------------|----------|-------|--------------|
| n ₂ | Actual | M ₂ | S _F | Overhung | Axial | Product Code | n ₂ | Actual | M ₂ | S _F | Overhung | Axial | Product Code |
| rpm | Ratio | Nm | | Load | Load | | rpm | Ratio | Nm | | Load | Load | |
| | i | | | (max.) N | (max.) N | | | | | | | | |
| 75 | 19.67 | 4540 | 2.21 | 55000 | 55000 | PB8TBD4P370*** | | | | | | | |
| 74 | 19.98 | 4611 | 1.67 | 42000 | 50000 | PB7TBD4P370*** | | | | | | | |
| 71 | 21.05 | 4858 | *0.88 | 31200 | 35000 | PB6TBD4P370*** | | | | | | | |
| 59 | 25.29 | 5837 | 1.84 | 55000 | 55000 | PB8TCD4P370*** | | | | | | | |
| 58 | 25.69 | 5929 | 1.32 | 42000 | 50000 | PB7TCD4P370*** | | | | | | | |
| 48 | 31.18 | 7196 | 1.53 | 55000 | 55000 | PB8TDD4P370*** | | | | | | | |
| 47 | 31.66 | 7307 | 1.09 | 42000 | 50000 | PB7TDD4P370*** | | | | | | | |
| 38 | 38.95 | 8989 | 1.24 | 55000 | 55000 | PB8TED4P370*** | | | | | | | |
| 38 | 39.56 | 9130 | *0.88 | # | 50000 | PB7TED4P370*** | | | | | | | |

| P ₁ 30.0 kW | | | | | | | 4P - D200LD 1480 RPM | | | | | | |
|------------------------|--------|----------------|----------------|----------|----------|----------------|----------------------|--------|----------------|----------------|----------|-------|--------------|
| n ₂ | Actual | M ₂ | S _F | Overhung | Axial | Product Code | n ₂ | Actual | M ₂ | S _F | Overhung | Axial | Product Code |
| rpm | Ratio | Nm | | Load | Load | | rpm | Ratio | Nm | | Load | Load | |
| | i | | | (max.) N | (max.) N | | | | | | | | |
| 75 | 19.67 | 3693 | 2.71 | 55000 | 55000 | PB8TBD4P300*** | | | | | | | |
| 74 | 19.98 | 3751 | 2.04 | 42000 | 50000 | PB7TBD4P300*** | | | | | | | |
| 70 | 21.05 | 3952 | 1.07 | 31200 | 35000 | PB6TBD4P300*** | | | | | | | |
| 59 | 25.29 | 4748 | 2.26 | 55000 | 55000 | PB8TCD4P300*** | | | | | | | |
| 58 | 25.69 | 4824 | 1.61 | 42000 | 50000 | PB7TCD4P300*** | | | | | | | |
| 55 | 27.05 | 5079 | *0.85 | 9300 | 35000 | PB6TCD4P300*** | | | | | | | |
| 47 | 31.18 | 5854 | 1.87 | 55000 | 55000 | PB8TDD4P300*** | | | | | | | |
| 47 | 31.66 | 5944 | 1.33 | 42000 | 50000 | PB7TDD4P300*** | | | | | | | |
| 38 | 38.95 | 7313 | 1.52 | 55000 | 55000 | PB8TED4P300*** | | | | | | | |
| 37 | 39.56 | 7428 | 1.08 | 41900 | 50000 | PB7TED4P300*** | | | | | | | |

* Max. Standard Plug-in Shaft Torque Nm

| PB35 | PB40 | PB50 | PB60 | PB70 | PB80 |
|------|------|------|------|------|-------|
| 1045 | 1550 | 2700 | 4450 | 7950 | 11350 |

Overhung Load Capacity is that what can be applied along with the lower of either M₂ or the value stated in the table above.


Consult Renold Gears Technical Dept.

Key

- n₂ Output Speed, rpm
- i Overall Ratio
- M₂ Output Torque Nm, Mechanical
- S_F Service Factor, Mechanical

For details of unit designation code see page 13.

The overhung load shown above is based on the maximum motor Power being transmitted. For higher overhung loads consult Renold.



IMPORTANT Units to ATEX approval must be selected with a minimum service factor of 1.25.

RENOLD PM Series - PB Type - Motorised - Selection Data

| P ₁ 45.0 kW | | | | | | | 4P - D225MD 1480 RPM | | | | | | | |
|------------------------|--------|----------------|----------------|----------|----------|----------------|----------------------|--------|----------------|----------------|----------|-------|----------------|----------------|
| n ₂ | Actual | M ₂ | S _F | Overhung | Axial | Product Code | n ₂ | Actual | M ₂ | S _F | Overhung | Axial | Product Code | |
| rpm | Ratio | Nm | | Load | Load | | rpm | Ratio | Nm | | Load | Load | | |
| | | | | (max.) N | (max.) N | | | | | | | | | |
| 75 | 19.67 | 5540 | 1.80 | 55000 | 55000 | PB8TBD4P450*** | 75 | 19.67 | 9233 | 1.08 | 55000 | 55000 | PB8TBD4P750*** | |
| 74 | 19.98 | 5627 | 1.36 | 42000 | 50000 | PB7TBD4P450*** | 74 | 19.98 | 9379 | *0.82 | # | 50000 | 50000 | PB7TBD4P750*** |
| 59 | 25.29 | 7123 | 1.50 | 55000 | 55000 | PB8TCD4P450*** | 59 | 25.29 | 11871 | *0.90 | 34400 | 55000 | PB8TCD4P750*** | |
| 58 | 25.69 | 7235 | 1.07 | 42000 | 50000 | PB7TCD4P450*** | | | | | | | | |
| 47 | 31.18 | 8782 | 1.25 | 55000 | 55000 | PB8TDD4P450*** | | | | | | | | |
| 47 | 31.66 | 8917 | *0.89 | 17700 | 50000 | PB7TDD4P450*** | | | | | | | | |
| 38 | 38.95 | 10970 | *1.02 | 36000 | 55000 | PB8TED4P450*** | | | | | | | | |

| P ₁ 75.0 kW | | | | | | | D280SD 1480 RPM | | | | | | | |
|------------------------|--------|----------------|----------------|----------|----------|----------------|-----------------|--------|----------------|----------------|----------|-------|----------------|----------------|
| n ₂ | Actual | M ₂ | S _F | Overhung | Axial | Product Code | n ₂ | Actual | M ₂ | S _F | Overhung | Axial | Product Code | |
| rpm | Ratio | Nm | | Load | Load | | rpm | Ratio | Nm | | Load | Load | | |
| | | | | (max.) N | (max.) N | | | | | | | | | |
| 75 | 19.67 | 5540 | 1.80 | 55000 | 55000 | PB8TBD4P450*** | 75 | 19.67 | 9233 | 1.08 | 55000 | 55000 | PB8TBD4P750*** | |
| 74 | 19.98 | 5627 | 1.36 | 42000 | 50000 | PB7TBD4P450*** | 74 | 19.98 | 9379 | *0.82 | # | 50000 | 50000 | PB7TBD4P750*** |
| 59 | 25.29 | 7123 | 1.50 | 55000 | 55000 | PB8TCD4P450*** | 59 | 25.29 | 11871 | *0.90 | 34400 | 55000 | PB8TCD4P750*** | |
| 58 | 25.69 | 7235 | 1.07 | 42000 | 50000 | PB7TCD4P450*** | | | | | | | | |
| 47 | 31.18 | 8782 | 1.25 | 55000 | 55000 | PB8TDD4P450*** | | | | | | | | |
| 47 | 31.66 | 8917 | *0.89 | 17700 | 50000 | PB7TDD4P450*** | | | | | | | | |
| 38 | 38.95 | 10970 | *1.02 | 36000 | 55000 | PB8TED4P450*** | | | | | | | | |

| P ₁ 55.0 kW | | | | | | | 4P - D250MD 1480 RPM | | | | | | |
|------------------------|--------|----------------|----------------|----------|----------|----------------|----------------------|--------|----------------|----------------|----------|-------|----------------|
| n ₂ | Actual | M ₂ | S _F | Overhung | Axial | Product Code | n ₂ | Actual | M ₂ | S _F | Overhung | Axial | Product Code |
| rpm | Ratio | Nm | | Load | Load | | rpm | Ratio | Nm | | Load | Load | |
| | | | | (max.) N | (max.) N | | | | | | | | |
| 75 | 19.67 | 6771 | 1.48 | 55000 | 55000 | PB8TBD4P550*** | 75 | 19.67 | 6771 | 1.48 | 55000 | 55000 | PB8TBD4P550*** |
| 74 | 19.98 | 6878 | 1.11 | 42000 | 50000 | PB7TBD4P550*** | 74 | 19.98 | 6878 | 1.11 | 42000 | 50000 | PB7TBD4P550*** |
| 59 | 25.29 | 8705 | 1.23 | 55000 | 55000 | PB8TCD4P550*** | 59 | 25.29 | 8705 | 1.23 | 55000 | 55000 | PB8TCD4P550*** |
| 58 | 25.69 | 8843 | *0.88 | 19200 | 50000 | PB7TCD4P550*** | 58 | 25.69 | 8843 | *0.88 | 19200 | 50000 | PB7TCD4P550*** |
| 47 | 31.18 | 10733 | 1.02 | 40100 | 55000 | PB8TDD4P550*** | 47 | 31.18 | 10733 | 1.02 | 40100 | 55000 | PB8TDD4P550*** |
| 38 | 38.95 | 13408 | *0.83 | # | 55000 | PB8TED4P550*** | 38 | 38.95 | 13408 | *0.83 | # | 55000 | PB8TED4P550*** |

* Max. Standard Plug-in Shaft Torque Nm

| PB35 | PB40 | PB50 | PB60 | PB70 | PB80 |
|------|------|------|------|------|-------|
| 1045 | 1550 | 2700 | 4450 | 7950 | 11350 |

Overhung Load Capacity is that what can be applied along with the lower of either M₂ or the value stated in the table above.

Consult Renold Gears Technical Dept.

Key

- n₂ Output Speed, rpm
- i Overall Ratio
- M₂ Output Torque Nm, Mechanical
- S_F Service Factor, Mechanical

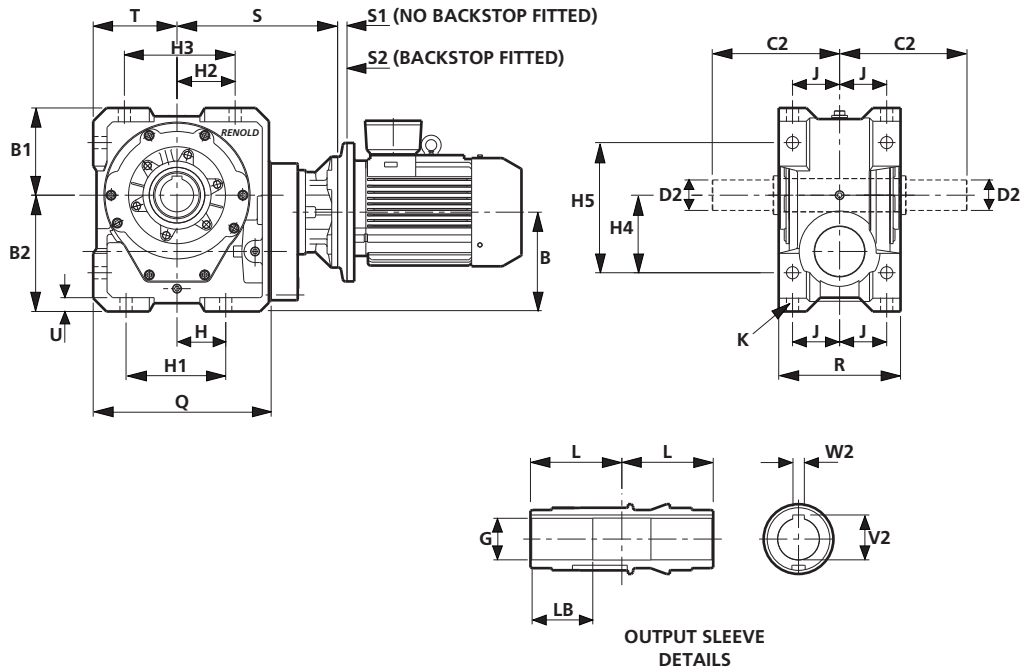
For details of unit designation code see page 13.

The overhung load shown above is based on the maximum motor Power being transmitted. For higher overhung loads consult Renold.



Units to ATEX approval must be selected with a minimum service factor of 1.25.

RENOLD PM Series - PB Type - Motorised Unit - Dimensions



PM Series - PB Motorised

| UNIT REF | B | B1 | B2 | H | H1 | H2 | H3 | H4 | H5 |
|----------|-------|-------|-----|-----|-----|-----|-----|-----|-----|
| PB35 | 162.0 | 140.0 | 180 | 60 | 135 | 85 | 160 | 120 | 205 |
| PB40 | 179.3 | 157.5 | 210 | 88 | 180 | 105 | 200 | 140 | 235 |
| PB50 | 183.9 | 195.0 | 240 | 88 | 180 | 125 | 230 | 160 | 280 |
| PB60 | 239.6 | 225.0 | 280 | 120 | 235 | 145 | 270 | 190 | 340 |
| PB70 | 269.0 | 255.5 | 335 | 140 | 290 | 160 | 310 | 240 | 412 |
| PB80 | 278.8 | 280.0 | 370 | 140 | 310 | 170 | 340 | 256 | 460 |

| UNIT REF | J | K | Q | R | S | S | T | U |
|----------|-----|------|-----|-----|----------|-----------|-----|----|
| Motor | | | | | D80-D200 | D225-D280 | | |
| PB35 | 75 | 17.0 | 274 | 186 | 264 | - | 130 | 25 |
| PB40 | 85 | 21.5 | 321 | 220 | 290 | - | 151 | 25 |
| PB50 | 100 | 21.5 | 365 | 250 | 310 | - | 175 | 30 |
| PB60 | 125 | 25.5 | 418 | 305 | 365 | 445 | 200 | 35 |
| PB70 | 150 | 25.5 | 458 | 360 | 380 | 460 | 225 | 35 |
| PB80 | 150 | 25.5 | 503 | 360 | 404 | 484 | 246 | 35 |

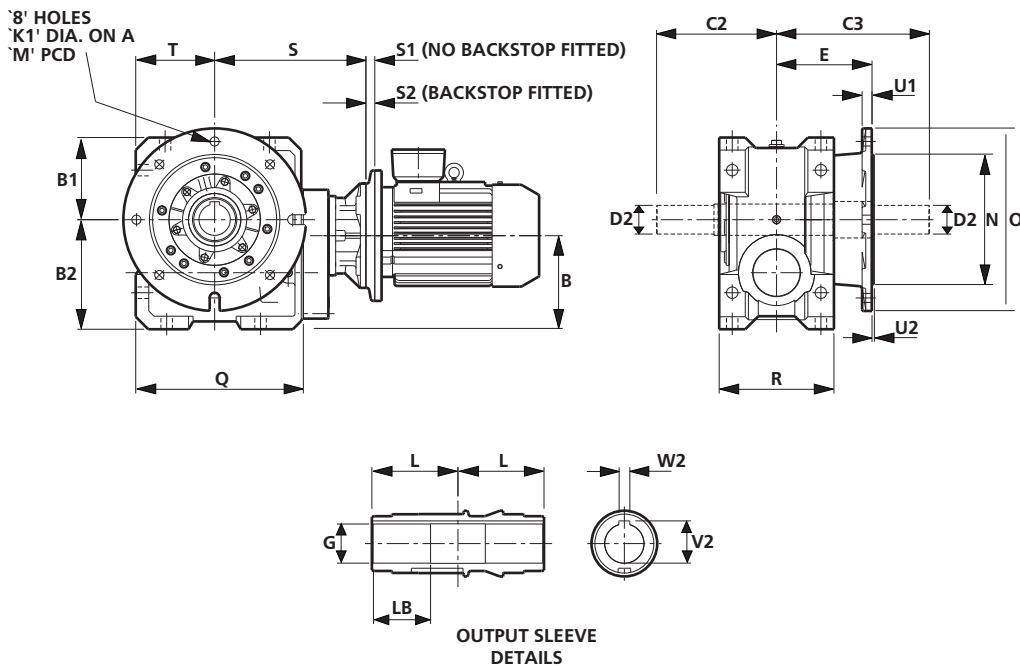
| UNIT REF | D80D | | D90D | | D100D | | D112D | | D132D | | D160D | | D180D | | D200D | | D225D | | D250D | |
|----------|------|-----|------|-----|-------|----|-------|----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|
| | S1 | S2 | S1 | S2 | S1 | S2 | S1 | S2 | S1 | S2 | S1 | S2 | S1 | S2 | S1 | S2 | S1 | S2 | S1 | S2 |
| PB35 | 0 | n/a | 0 | n/a | 11 | 81 | 11 | 81 | 30 | 125 | - | - | - | - | - | - | - | - | - | - |
| PB40 | 0 | n/a | 0 | n/a | 11 | 81 | 11 | 81 | 30 | 125 | - | - | - | - | - | - | - | - | - | - |
| PB50 | 0 | n/a | 0 | n/a | 11 | 81 | 11 | 81 | 30 | 125 | 41 | 171 | - | - | - | - | - | - | - | - |
| PB60 | n/a | n/a | n/a | n/a | 0 | 70 | 0 | 70 | 22 | 117 | 30 | 160 | 30 | 160 | 30 | 160 | 0 | n/a | - | - |
| PB70 | n/a | n/a | n/a | n/a | 0 | 70 | 0 | 70 | 22 | 117 | 30 | 160 | 30 | 160 | 30 | 160 | 0 | n/a | 33 | n/a |
| PB80 | n/a | n/a | n/a | n/a | 0 | 70 | 0 | 70 | 22 | 117 | 30 | 160 | 30 | 160 | 30 | 160 | 0 | n/a | 33 | n/a |

| UNIT REF | G | L | LB | V2 | W2 |
|----------|-------|-----|-----|-------|-------|
| PB35 | 40F7 | 103 | 65 | 43.3 | 12Js9 |
| PB40 | 50F7 | 110 | 75 | 53.8 | 14Js9 |
| PB50 | 60F7 | 130 | 95 | 64.4 | 18Js9 |
| PB60 | 70F7 | 155 | 130 | 74.9 | 20Js9 |
| PB70 | 90F7 | 174 | 125 | 95.4 | 25Js9 |
| PB80 | 100F7 | 174 | 115 | 106.4 | 28Js9 |

Plug-in Output Shaft

| UNIT REF | C2 | D2-SE | D2-DE |
|----------|-----|-------|-------|
| PB35 | 190 | 40k6 | 39k6 |
| PB40 | 220 | 50k6 | 49k6 |
| PB50 | 260 | 60m6 | 59m6 |
| PB60 | 305 | 70m6 | 69m6 |
| PB70 | 355 | 85m6 | 85m6 |
| PB80 | 355 | 95m6 | 95m6 |

RENOLD PM Series - PB Type - Motorised Unit - Dimensions



PM Series - PB Motorised - (Horizontal Flange Mounted)

| UNIT REF | B | B1 | B2 | E | K1 | M | N | O |
|----------|-------|-------|-----|-----|------|-----|-------|-----|
| PB35 | 162.0 | 140.0 | 180 | 154 | 13.5 | 265 | 230h8 | 300 |
| PB40 | 179.3 | 157.5 | 210 | 183 | 17.5 | 300 | 250h8 | 350 |
| PB50 | 183.9 | 195.0 | 240 | 197 | 17.5 | 350 | 300h8 | 400 |
| PB60 | 239.6 | 225.0 | 280 | 215 | 17.5 | 400 | 350h8 | 450 |
| PB70 | 269.0 | 255.5 | 335 | 248 | 17.5 | 500 | 450h8 | 550 |
| PB80 | 278.8 | 280.0 | 370 | 248 | 17.5 | 500 | 450h8 | 550 |

| UNIT REF | Q | R | S | S | T | U1 | U2 |
|----------|-----|-----|----------|-----------|-----|----|----|
| Motor | | | D80-D200 | D225-D280 | | | |
| PB35 | 274 | 186 | 264 | - | 130 | 13 | 4 |
| PB40 | 321 | 220 | 290 | - | 151 | 19 | 5 |
| PB50 | 365 | 250 | 310 | - | 175 | 19 | 5 |
| PB60 | 418 | 305 | 365 | 445 | 200 | 19 | 5 |
| PB70 | 458 | 360 | 380 | 460 | 225 | 24 | 5 |
| PB80 | 503 | 360 | 404 | 484 | 246 | 24 | 5 |

| UNIT REF | D80D | | D90D | | D100D | | D112D | | D132D | | D160D | | D180D | | D200D | | D225D | | D250D | | D280D | |
|----------|------|-----|------|-----|-------|----|-------|----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|
| | S1 | S2 | S1 | S2 | S1 | S2 | S1 | S2 | S1 | S2 | S1 | S2 | S1 | S2 | S1 | S2 | S1 | S2 | S1 | S2 | S1 | S2 |
| PB35 | 0 | n/a | 0 | n/a | 11 | 81 | 11 | 81 | 30 | 125 | - | - | - | - | - | - | - | - | - | - | - | - |
| PB40 | 0 | n/a | 0 | n/a | 11 | 81 | 11 | 81 | 30 | 125 | - | - | - | - | - | - | - | - | - | - | - | - |
| PB50 | 0 | n/a | 0 | n/a | 11 | 81 | 11 | 81 | 30 | 125 | 41 | 171 | - | - | - | - | - | - | - | - | - | - |
| PB60 | n/a | n/a | n/a | n/a | 0 | 70 | 0 | 70 | 22 | 117 | 30 | 160 | 30 | 160 | 30 | 160 | 0 | n/a | - | - | - | - |
| PB70 | n/a | n/a | n/a | n/a | 0 | 70 | 0 | 70 | 22 | 117 | 30 | 160 | 30 | 160 | 30 | 160 | 0 | n/a | 33 | n/a | 33 | n/a |
| PB80 | n/a | n/a | n/a | n/a | 0 | 70 | 0 | 70 | 22 | 117 | 30 | 160 | 30 | 160 | 30 | 160 | 0 | n/a | 33 | n/a | 33 | n/a |

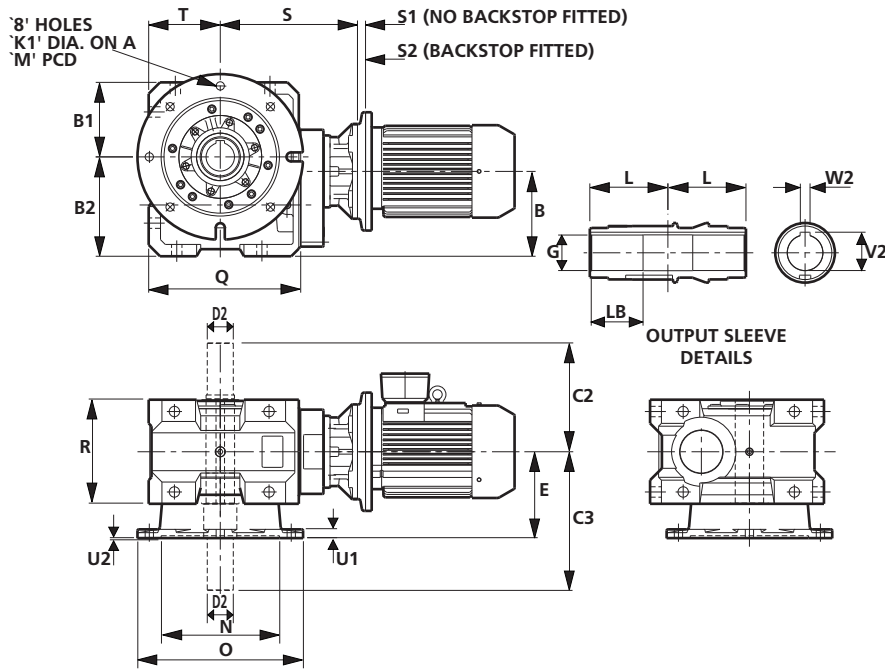
Output Sleeve

| UNIT REF | G | L | LB | V2 | W2 |
|----------|-------|-----|-----|-------|-------|
| PB35 | 40F7 | 103 | 65 | 43.3 | 12Js9 |
| PB40 | 50F7 | 110 | 75 | 53.8 | 14Js9 |
| PB50 | 60F7 | 130 | 95 | 64.4 | 18Js9 |
| PB60 | 70F7 | 155 | 130 | 74.9 | 20Js9 |
| PB70 | 90F7 | 174 | 125 | 95.4 | 25Js9 |
| PB80 | 100F7 | 174 | 115 | 106.4 | 28Js9 |

Plug-in Output Shaft

| UNIT REF | C2 | D2-SE | D2-DE |
|----------|-----|-------|-------|
| PB35 | 190 | 40k6 | 39k6 |
| PB40 | 220 | 50k6 | 49k6 |
| PB50 | 260 | 60m6 | 59m6 |
| PB60 | 305 | 70m6 | 69m6 |
| PB70 | 355 | 85m6 | 85m6 |
| PB80 | 355 | 95m6 | 95m6 |

RENOLD PM Series - PB Type - Motorised Unit - Dimensions



PM Series - PB Motorised - (Vertical Skirt)

| UNIT REF | B | B1 | B2 | E | K1 | M | N | O |
|----------|-------|-------|-----|-----|------|-----|-------|-----|
| PB35 | 162.0 | 140.0 | 180 | 154 | 13.5 | 265 | 230h8 | 300 |
| PB40 | 179.3 | 157.5 | 210 | 183 | 17.5 | 300 | 250h8 | 350 |
| PB50 | 183.9 | 195.0 | 240 | 197 | 17.5 | 350 | 300h8 | 400 |
| PB60 | 239.6 | 225.0 | 280 | 215 | 17.5 | 400 | 350h8 | 450 |
| PB70 | 269.0 | 255.5 | 335 | 248 | 17.5 | 500 | 450h8 | 550 |
| PB80 | 278.8 | 280.0 | 370 | 248 | 17.5 | 500 | 450h8 | 550 |

| UNIT REF | P | Q | R | S | S | T | U1 | U3 |
|----------|-----|-----|-----|----------|-----------|-----|----|----|
| Motor | | | | D80-D200 | D225-D280 | | | |
| PB35 | 134 | 274 | 186 | 264 | - | 130 | 13 | 5 |
| PB40 | 159 | 321 | 220 | 290 | - | 151 | 19 | 6 |
| PB50 | 184 | 365 | 250 | 310 | - | 175 | 19 | 6 |
| PB60 | 199 | 418 | 305 | 365 | 445 | 200 | 19 | 6 |
| PB70 | 225 | 458 | 360 | 380 | 460 | 225 | 24 | 6 |
| PB80 | 246 | 503 | 360 | 404 | 484 | 246 | 24 | 6 |

| UNIT REF | D80D | | D90D | | D100D | | D112D | | D132D | | D160D | | D180D | | D200D | | D225D | | D250D | |
|----------|------|-----|------|-----|-------|----|-------|----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|
| | S1 | S2 | S1 | S2 | S1 | S2 | S1 | S2 | S1 | S2 | S1 | S2 | S1 | S2 | S1 | S2 | S1 | S2 | S1 | S2 |
| PB35 | 0 | n/a | 0 | n/a | 11 | 81 | 11 | 81 | 30 | 125 | - | - | - | - | - | - | - | - | - | - |
| PB40 | 0 | n/a | 0 | n/a | 11 | 81 | 11 | 81 | 30 | 125 | - | - | - | - | - | - | - | - | - | - |
| PB50 | 0 | n/a | 0 | n/a | 11 | 81 | 11 | 81 | 30 | 125 | 41 | 171 | - | - | - | - | - | - | - | - |
| PB60 | n/a | n/a | n/a | n/a | 0 | 70 | 0 | 70 | 22 | 117 | 30 | 160 | 30 | 160 | 30 | 160 | 0 | n/a | - | - |
| PB70 | n/a | n/a | n/a | n/a | 0 | 70 | 0 | 70 | 22 | 117 | 30 | 160 | 30 | 160 | 30 | 160 | 0 | n/a | 33 | n/a |
| PB80 | n/a | n/a | n/a | n/a | 0 | 70 | 0 | 70 | 22 | 117 | 30 | 160 | 30 | 160 | 30 | 160 | 0 | n/a | 33 | n/a |

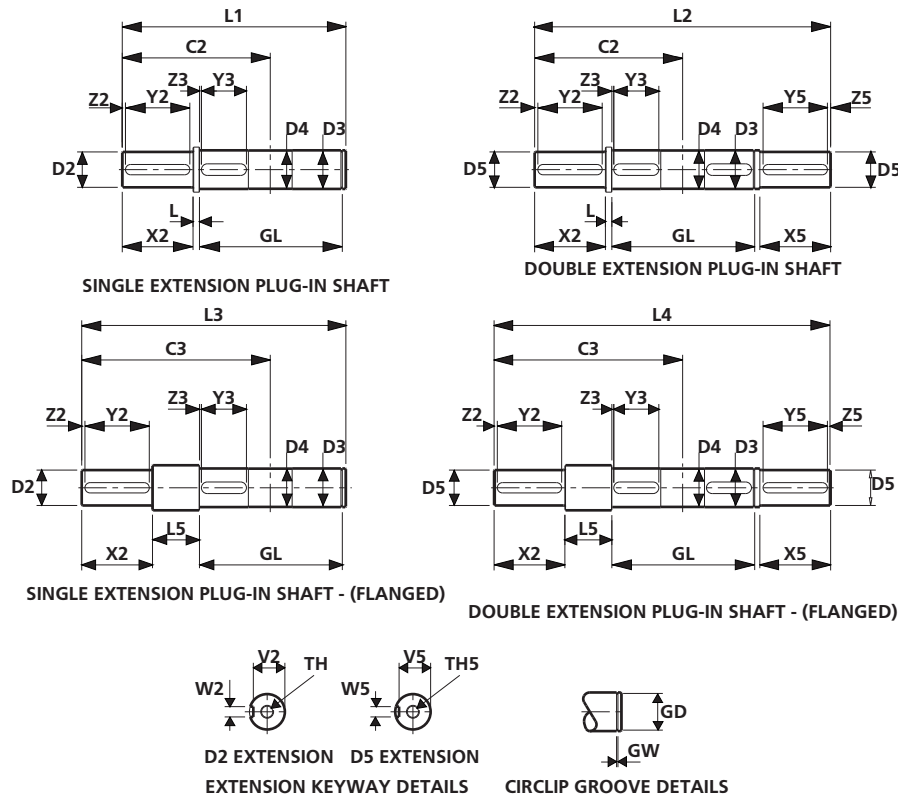
Output Sleeve

| UNIT REF | G | L | LB | V2 | W2 |
|----------|-------|-----|-----|-------|-------|
| PB35 | 40F7 | 103 | 65 | 43.3 | 12Js9 |
| PB40 | 50F7 | 110 | 75 | 53.8 | 14Js9 |
| PB50 | 60F7 | 130 | 95 | 64.4 | 18Js9 |
| PB60 | 70F7 | 155 | 130 | 74.9 | 20Js9 |
| PB70 | 90F7 | 174 | 125 | 95.4 | 25Js9 |
| PB80 | 100F7 | 174 | 115 | 106.4 | 28Js9 |

Plug-in Output Shaft

| UNIT REF | C2 | C3 | D2-SE | D2-DE |
|----------|-----|-----|-------|-------|
| PB35 | 190 | 264 | 40k6 | 39k6 |
| PB40 | 220 | 293 | 50k6 | 49k6 |
| PB50 | 260 | 337 | 60m6 | 59m6 |
| PB60 | 305 | 355 | 70m6 | 69m6 |
| PB70 | 355 | 418 | 85m6 | 85m6 |
| PB80 | 355 | 418 | 95m6 | 95m6 |

RENOLD PM Series - PB Type - Output Shaft Dimensions



Plug-in Shafts

| UNIT REF | C2 | C3 | L | L1 | L2 | L3 | L4 | L5 | GD | GL | GW |
|----------|-----|-----|----|-------|-----|-------|-----|----|-------|--------|------|
| PB35 | 190 | 234 | 7 | 300.5 | 380 | 344.5 | 424 | 51 | 37.50 | 207.65 | 1.99 |
| | | | | | | | | | 37.25 | 207.60 | 1.85 |
| PB40 | 220 | 283 | 10 | 337.5 | 440 | 400.5 | 503 | 73 | 47.00 | 222.15 | 2.29 |
| | | | | | | | | | 46.75 | 222.10 | 2.15 |
| | | | | | | | | | 46.75 | 222.10 | 2.15 |
| PB50 | 260 | 317 | 10 | 398.5 | 520 | 455.5 | 577 | 67 | 57.00 | 262.15 | 2.29 |
| | | | | | | | | | 56.7 | 262.10 | 2.15 |
| | | | | | | | | | 56.7 | 262.10 | 2.15 |
| PB60 | 305 | 355 | 10 | 469.5 | 610 | 519.5 | 660 | 60 | 67.00 | 312.65 | 2.79 |
| | | | | | | | | | 66.70 | 312.60 | 2.65 |
| | | | | | | | | | 66.70 | 312.60 | 2.65 |
| PB70 | 355 | 418 | 11 | 538.5 | 710 | 601.5 | 773 | 74 | 86.50 | 351.15 | 3.33 |
| | | | | | | | | | 86.15 | 351.10 | 3.15 |
| | | | | | | | | | 86.15 | 351.10 | 3.15 |
| PB80 | 355 | 418 | 11 | 538.5 | 710 | 601.5 | 773 | 74 | 96.50 | 351.15 | 3.33 |
| | | | | | | | | | 96.15 | 351.10 | 3.15 |
| | | | | | | | | | 96.15 | 351.10 | 3.15 |

| UNIT REF | D2 | V2 | W2 | X2 | Y2 | Z2 | TH | D3 | Y3 | Z3 |
|----------|------|-------|------|-----|-----|----|--------|-------|-------|----|
| PB35 | 40k6 | 35.00 | 12P9 | 80 | 70 | 5 | M16x36 | 40h6 | 63 | 3 |
| PB40 | 50k6 | 44.50 | 14P9 | 100 | 90 | 5 | M16x36 | 50h6 | 80 | 3 |
| PB50 | 60m6 | 53.00 | 18P9 | 120 | 110 | 5 | M20x42 | 60h6 | 100 | 3 |
| PB60 | 70m6 | 62.50 | 20P9 | 140 | 125 | 5 | M20x42 | 70h6 | 125 | 3 |
| PB70 | 85m6 | 76.00 | 22P9 | 170 | 160 | 5 | M20x42 | 90h6 | 140 | 3 |
| PB80 | 95m6 | 86.00 | 25P9 | 170 | 160 | 5 | M24x50 | 100h6 | 125 * | 3 |

| UNIT REF | D4 | D5 | V5 | W5 | X5 | Y5 | Z5 | TH5 |
|----------|----|------|-------|------|-----|-----|----|--------|
| PB35 | 38 | 39k6 | 34.00 | 12P9 | 80 | 70 | 5 | M16x36 |
| PB40 | 48 | 49k6 | 43.50 | 14P9 | 100 | 90 | 5 | M16x36 |
| PB50 | 58 | 59m6 | 52.00 | 18P9 | 120 | 110 | 5 | M20x42 |
| PB60 | 68 | 69m6 | 61.50 | 20P9 | 140 | 125 | 5 | M20x42 |
| PB70 | 88 | 85m6 | 76.00 | 22P9 | 170 | 160 | 5 | M20x42 |
| PB80 | 96 | 95m6 | 86.00 | 25P9 | 170 | 160 | 5 | M24x50 |

*Two Keys

RENOLD PM Series - PB Type - Overhung/Axial Load Capacities

PM SERIES PB - HELICAL/BEVEL/HELICAL

Overhung Load Capacities @ 1500 RPM Nominal Input Speed

| Ratio | Output Speed | Gear Unit Size | | | | | |
|-------|--------------|----------------|-------|-------|-------|-------|-------|
| | | PB35 | PB40 | PB50 | PB60 | PB70 | PB80 |
| 20 | 75 | 9000 | 18000 | 20500 | 27700 | 35100 | 51100 |
| 25 | 60 | 9000 | 17900 | 17800 | 26900 | 33500 | 42400 |
| 32 | 47 | 9000 | 16300 | 17800 | 25900 | 31800 | 38600 |
| 40 | 38 | 9000 | 15000 | 17800 | 25100 | 30400 | 36500 |
| 50 | 30 | 9000 | 15000 | 17800 | 25100 | 30400 | 35000 |
| 63 | 24 | 9000 | 15000 | 17800 | 25100 | 31000 | 33300 |
| 80 | 19 | 9000 | 15000 | 17800 | 25100 | 32200 | 31100 |
| 100 | 15 | 9000 | 15000 | 17800 | 25100 | 32700 | 29200 |
| 125 | 12 | 9000 | 15000 | 17800 | 25100 | 33100 | 27900 |
| 160 | 9 | 9000 | 15000 | 17800 | 25100 | 32900 | 26500 |

- based on Gear Unit transmitting Mechanical Rating

PM SERIES PB - HELICAL/BEVEL/HELICAL

Axial Load Capacities

| Ratio | Output Speed | Gear Unit Size | | | | | |
|-------|--------------|----------------|-------|-------|-------|-------|-------|
| | | PB35 | PB40 | PB50 | PB60 | PB70 | PB80 |
| 20 | 75 | 12000 | 16000 | 20000 | 35000 | 50000 | 55000 |
| 25 | 60 | 12000 | 16000 | 20000 | 35000 | 50000 | 55000 |
| 32 | 47 | 12000 | 16000 | 20000 | 35000 | 50000 | 55000 |
| 40 | 38 | 12000 | 16000 | 20000 | 35000 | 50000 | 55000 |
| 50 | 30 | 12000 | 16000 | 20000 | 35000 | 50000 | 55000 |
| 63 | 24 | 12000 | 16000 | 20000 | 35000 | 50000 | 55000 |
| 80 | 19 | 12000 | 16000 | 20000 | 35000 | 50000 | 55000 |
| 100 | 15 | 12000 | 16000 | 20000 | 35000 | 50000 | 55000 |
| 125 | 12 | 12000 | 16000 | 20000 | 35000 | 50000 | 55000 |
| 160 | 9 | 12000 | 16000 | 20000 | 35000 | 50000 | 55000 |

- based on Gear Unit transmitting Mechanical Rating

RENOLD PM Series - PB Type - Exact Ratio

PM Series PB Helical/Bevel/Helical Actual Ratios

| PB35/40 | | | | | | | |
|---------|---------|-------|--------|-------|---------|-------|---------------|
| R10 | Helical | | Bevel | | Helical | | Overall Ratio |
| | Pinion | Wheel | Pinion | Wheel | Pinion | Wheel | |
| 20 | 51 | 51 | 11 | 38 | 16 | 87 | 18.78 |
| 25 | 44 | 58 | 11 | 38 | 16 | 87 | 24.76 |
| 32 | 38 | 64 | 11 | 38 | 16 | 87 | 31.64 |
| 40 | 32 | 70 | 11 | 38 | 16 | 87 | 41.09 |
| 50 | 29 | 73 | 11 | 38 | 16 | 87 | 47.28 |
| 63 | 24 | 78 | 11 | 38 | 16 | 87 | 61.05 |
| 80 | 20 | 82 | 11 | 38 | 16 | 87 | 77.01 |
| 100 | 16 | 86 | 11 | 38 | 16 | 87 | 100.96 |

| PB50 | | | | | | | |
|------|---------|-------|--------|-------|---------|-------|---------------|
| R10 | Helical | | Bevel | | Helical | | Overall Ratio |
| | Pinion | Wheel | Pinion | Wheel | Pinion | Wheel | |
| 20 | 51 | 51 | 11 | 38 | 16 | 86 | 18.57 |
| 25 | 44 | 58 | 11 | 38 | 16 | 86 | 24.48 |
| 32 | 38 | 64 | 11 | 38 | 16 | 86 | 31.27 |
| 40 | 32 | 70 | 11 | 38 | 16 | 86 | 40.62 |
| 50 | 29 | 73 | 11 | 38 | 16 | 86 | 46.74 |
| 63 | 24 | 78 | 11 | 38 | 16 | 86 | 60.35 |
| 80 | 20 | 82 | 11 | 38 | 16 | 86 | 76.13 |
| 100 | 16 | 86 | 11 | 38 | 16 | 86 | 99.80 |

| PB60 | | | | | | | |
|------|---------|-------|--------|-------|---------|-------|---------------|
| R10 | Helical | | Bevel | | Helical | | Overall Ratio |
| | Pinion | Wheel | Pinion | Wheel | Pinion | Wheel | |
| 20 | 38 | 43 | 11 | 37 | 17 | 94 | 21.05 |
| 25 | 33 | 48 | 11 | 37 | 17 | 94 | 27.05 |
| 32 | 29 | 52 | 11 | 37 | 17 | 94 | 33.35 |
| 40 | 25 | 56 | 11 | 37 | 17 | 94 | 41.66 |
| 50 | 27 | 76 | 11 | 37 | 17 | 94 | 52.35 |
| 63 | 23 | 80 | 11 | 37 | 17 | 94 | 64.69 |
| 80 | 19 | 84 | 11 | 37 | 17 | 94 | 82.23 |
| 100 | 15 | 88 | 11 | 37 | 17 | 94 | 109.11 |

| PB70 | | | | | | | |
|------|---------|-------|--------|-------|---------|-------|---------------|
| R10 | Helical | | Bevel | | Helical | | Overall Ratio |
| | Pinion | Wheel | Pinion | Wheel | Pinion | Wheel | |
| 20 | 38 | 43 | 11 | 37 | 16 | 84 | 19.98 |
| 25 | 33 | 48 | 11 | 37 | 16 | 84 | 25.69 |
| 32 | 29 | 52 | 11 | 37 | 16 | 84 | 31.66 |
| 40 | 25 | 56 | 11 | 37 | 16 | 84 | 39.56 |
| 50 | 27 | 76 | 11 | 37 | 16 | 84 | 49.71 |
| 63 | 23 | 80 | 11 | 37 | 16 | 84 | 61.42 |
| 80 | 19 | 84 | 11 | 37 | 16 | 84 | 78.07 |
| 100 | 15 | 88 | 11 | 37 | 16 | 84 | 103.60 |

| PB80 | | | | | | | |
|------|---------|-------|--------|-------|---------|-------|---------------|
| R10 | Helical | | Bevel | | Helical | | Overall Ratio |
| | Pinion | Wheel | Pinion | Wheel | Pinion | Wheel | |
| 20 | 38 | 43 | 11 | 36 | 16 | 85 | 19.67 |
| 25 | 33 | 48 | 11 | 36 | 16 | 85 | 25.29 |
| 32 | 29 | 52 | 11 | 36 | 16 | 85 | 31.18 |
| 40 | 25 | 56 | 11 | 36 | 16 | 85 | 38.95 |
| 50 | 27 | 76 | 11 | 36 | 16 | 85 | 48.94 |
| 63 | 23 | 80 | 11 | 36 | 16 | 85 | 60.47 |
| 80 | 19 | 84 | 11 | 36 | 16 | 85 | 76.87 |
| 100 | 15 | 88 | 11 | 36 | 16 | 85 | 102.00 |

RENOLD PM Series - PB Type - Selection Data

Mineral and Synthetic Oils

Nominal ratio: 20/1

| Input rpm | Nominal Output rpm | Product Code Actual Ratio Overall Ratio | PB3REDXXXSB*** | PB4REDXXXSB*** | PB5REDXXXSB*** | PB6REDXXXTB*** | PB7REDXXXTB*** | PB8REDXXXTB*** |
|-----------|--------------------|---|--|--|--|--|--|--|
| | | | Helical 51/51 Bevel 11/38 Helical 16/87 18.78 | Helical 51/51 Bevel 11/38 Helical 16/87 18.78 | Helical 51/51 Bevel 11/38 Helical 16/86 18.57 | Helical 38/43 Bevel 11/37 Helical 17/94 21.05 | Helical 38/43 Bevel 11/37 Helical 16/84 19.98 | Helical 38/43 Bevel 11/36 Helical 16/85 19.67 |
| 1800 | 90.0 | Actual Output Speed. rpm | 95.8 | 95.8 | 96.9 | 85.5 | 90.1 | 91.5 |
| | | Input kW. Mechanical | 8.79 | 11.7 | 24.2 | 38.1 | 73.7 | 94.7 |
| | | Output Torque Nm. Mechanical | 850 | 1135 | 2315 | 4130 | 7580 | 9585 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1500 | 75.0 | Actual Output Speed. rpm | 79.9 | 79.9 | 80.8 | 71.3 | 75.1 | 76.3 |
| | | Input kW, Mechanical | 7.33 | 10.3 | 21.4 | 33.0 | 62.9 | 83.4 |
| | | Output Torque Nm, Mechanical | 850 | 1200 | 2450 | 4295 | 7755 | 10125 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1200 | 60.0 | Actual Output Speed, rpm | 63.9 | 63.9 | 64.6 | 57.0 | 60.1 | 61.0 |
| | | Input kW, Mechanical | 5.86 | 8.86 | 18.2 | 26.8 | 51.1 | 71.3 |
| | | Output Torque Nm, Mechanical | 850 | 1285 | 2615 | 4355 | 7875 | 10825 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1000 | 50.0 | Actual Output Speed, rpm | 53.2 | 53.2 | 53.9 | 47.5 | 50.1 | 50.8 |
| | | Input kW, Mechanical | 4.89 | 7.79 | 15.3 | 22.6 | 43.0 | 60.8 |
| | | Output Torque Nm, Mechanical | 850 | 1355 | 2625 | 4400 | 7965 | 11075 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 750 | 37.5 | Actual Output Speed, rpm | 39.9 | 39.9 | 40.4 | 35.6 | 37.5 | 38.1 |
| | | Input kW, Mechanical | 3.66 | 6.38 | 11.4 | 17.2 | 32.8 | 46.4 |
| | | Output Torque Nm, Mechanical | 850 | 1480 | 2615 | 4470 | 8100 | 11270 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 500 | 25.0 | Actual Output Speed, rpm | 26.6 | 26.6 | 26.9 | 23.8 | 25.0 | 25.4 |
| | | Input kW, Mechanical | 2.44 | 4.31 | 7.63 | 11.5 | 21.8 | 31.6 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8070 | 11515 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 250 | 12.5 | Actual Output Speed, rpm | 13.3 | 13.3 | 13.5 | 11.9 | 12.5 | 12.7 |
| | | Input kW, Mechanical | 1.22 | 2.16 | 3.82 | 5.75 | 10.7 | 16.3 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 7910 | 11860 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |

For details of unit designation code see page 13.



Units to ATEX approval must be selected with a minimum service factor of 1.25.

RENOLD PM Series - PB Type - Selection Data

Mineral and Synthetic Oils

Nominal ratio: 25/1

| Input rpm | Nominal Output rpm | Product Code Actual Ratio Overall Ratio | PB3REDXXXSC*** | PB4REDXXXSC*** | PB5REDXXXSC*** | PB6REDXXXT*** | PB7REDXXXT*** | PB8REDXXXT*** |
|-----------|--------------------|---|--|--|--|--|--|--|
| | | | Helical 44/58 Bevel 11/38 Helical 16/87 24.76 | Helical 44/58 Bevel 11/38 Helical 16/87 24.76 | Helical 44/58 Bevel 11/38 Helical 16/86 24.48 | Helical 33/48 Bevel 11/37 Helical 17/94 27.05 | Helical 33/48 Bevel 11/37 Helical 16/84 25.69 | Helical 33/48 Bevel 11/36 Helical 16/85 25.29 |
| 1800 | 72.0 | Actual Output Speed, rpm | 72.7 | 72.7 | 73.5 | 66.5 | 70.1 | 71.2 |
| | | Input kW, Mechanical | 6.67 | 9.8 | 20.8 | 31.0 | 58.9 | 79.0 |
| | | Output Torque Nm, Mechanical | 850 | 1255 | 2625 | 4310 | 7785 | 10275 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1500 | 60.0 | Actual Output Speed, rpm | 60.6 | 60.6 | 61.3 | 55.0 | 58.4 | 59.3 |
| | | Input kW, Mechanical | 5.56 | 8.67 | 17.4 | 26.1 | 49.7 | 69.5 |
| | | Output Torque Nm, Mechanical | 850 | 1325 | 2625 | 4360 | 7880 | 10855 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1200 | 48.0 | Actual Output Speed, rpm | 48.5 | 48.5 | 49.0 | 44.0 | 46.7 | 47.4 |
| | | Input kW, Mechanical | 4.45 | 7.43 | 13.9 | 21.1 | 40.3 | 56.9 |
| | | Output Torque Nm, Mechanical | 850 | 1420 | 2625 | 4415 | 7990 | 11110 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1000 | 40.0 | Actual Output Speed, rpm | 40.4 | 40.4 | 40.8 | 37.0 | 38.9 | 39.5 |
| | | Input kW, Mechanical | 3.71 | 6.52 | 11.6 | 17.8 | 33.9 | 48.0 |
| | | Output Torque Nm, Mechanical | 850 | 1495 | 2625 | 4460 | 8075 | 11235 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 750 | 30.0 | Actual Output Speed, rpm | 30.3 | 30.3 | 30.6 | 27.7 | 29.2 | 29.7 |
| | | Input kW, Mechanical | 2.78 | 4.91 | 8.68 | 13.4 | 25.6 | 36.5 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8110 | 11415 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 500 | 20.0 | Actual Output Speed, rpm | 20.2 | 20.2 | 20.4 | 18.5 | 19.5 | 19.8 |
| | | Input kW, Mechanical | 1.85 | 3.27 | 5.79 | 8.95 | 16.8 | 24.8 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 7990 | 11640 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 250 | 10.0 | Actual Output Speed, rpm | 10.1 | 10.1 | 10.2 | 9.2 | 9.7 | 9.9 |
| | | Input kW, Mechanical | 0.93 | 1.64 | 2.89 | 4.47 | 8.34 | 12.8 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 7940 | 11955 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |

For details of unit designation code see page 13.



Units to ATEX approval must be selected with a minimum service factor of 1.25.

RENOLD PM Series - PB Type - Selection Data

Mineral and Synthetic Oils

Nominal ratio: 32/1

| Input rpm | Nominal Output rpm | Product Code Actual Ratio Overall Ratio | PPB3REDXXXSD*** | PB4REDXXXSD*** | PB5REDXXXSD*** | PB6REDXXXTD*** | PB7REDXXXTD*** | PB8REDXXXTD*** |
|-----------|--------------------|---|--|--|--|--|--|--|
| | | | Helical 38/64 Bevel 11/38 Helical 16/87 31.64 | Helical 38/64 Bevel 11/38 Helical 16/87 31.64 | Helical 38/64 Bevel 11/38 Helical 16/86 31.27 | Helical 29/52 Bevel 11/37 Helical 17/94 33.35 | Helical 29/52 Bevel 11/37 Helical 16/84 31.66 | Helical 29/52 Bevel 11/36 Helical 16/85 31.18 |
| 1800 | 56.3 | Actual Output Speed, rpm | 56.9 | 56.9 | 57.6 | 54.0 | 56.9 | 57.7 |
| | | Input kW, Mechanical | 5.22 | 8.29 | 16.3 | 25.5 | 48.6 | 68.6 |
| | | Output Torque Nm, Mechanical | 850 | 1350 | 2625 | 4380 | 7925 | 11015 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1500 | 46.9 | Actual Output Speed, rpm | 47.4 | 47.4 | 48.0 | 45.0 | 47.4 | 48.1 |
| | | Input kW, Mechanical | 4.35 | 7.29 | 13.6 | 21.5 | 41.0 | 57.9 |
| | | Output Torque Nm, Mechanical | 850 | 1425 | 2625 | 4425 | 8015 | 11145 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1200 | 37.5 | Actual Output Speed, rpm | 37.9 | 37.9 | 38.4 | 36.0 | 37.9 | 38.5 |
| | | Input kW, Mechanical | 3.48 | 6.14 | 10.9 | 17.4 | 33.2 | 46.9 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4480 | 8115 | 11290 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1000 | 31.3 | Actual Output Speed, rpm | 31.6 | 31.6 | 32.0 | 30.0 | 31.6 | 32.1 |
| | | Input kW, Mechanical | 2.90 | 5.12 | 9.06 | 14.5 | 27.7 | 39.5 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8115 | 11405 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 750 | 23.4 | Actual Output Speed, rpm | 23.7 | 23.7 | 24.0 | 22.5 | 23.7 | 24.1 |
| | | Input kW, Mechanical | 2.18 | 3.84 | 6.80 | 10.9 | 20.5 | 30.0 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8020 | 11570 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 500 | 15.6 | Actual Output Speed, rpm | 15.8 | 15.8 | 16.0 | 15.0 | 15.8 | 16.0 |
| | | Input kW, Mechanical | 1.45 | 2.56 | 4.53 | 7.26 | 13.5 | 20.4 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 7940 | 11775 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 250 | 7.8 | Actual Output Speed, rpm | 7.9 | 7.9 | 8.0 | 7.5 | 7.9 | 8.0 |
| | | Input kW, Mechanical | 0.73 | 1.28 | 2.27 | 3.63 | 7.35 | 10.4 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8625 | 12060 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |

For details of unit designation code see page 13.



Units to ATEX approval must be selected with a minimum service factor of 1.25.

RENOLD PM Series - PB Type - Selection Data

Mineral and Synthetic Oils

Nominal ratio: 40/1

| Input rpm | Nominal Output rpm | Product Code Actual Ratio Overall Ratio | PB3REDXXXSE*** | PB4REDXXXSE*** | PB5REDXXXSE*** | PB6REDXXXSE*** | PB7REDXXXSE*** | PB8REDXXXSE*** |
|-----------|--------------------|---|--|--|--|--|--|--|
| | | | Helical 32/70 Bevel 11/38 Helical 16/87 41.09 | Helical 32/70 Bevel 11/38 Helical 16/87 41.09 | Helical 32/70 Bevel 11/38 Helical 16/86 40.62 | Helical 25/56 Bevel 11/37 Helical 17/94 41.66 | Helical 25/56 Bevel 11/37 Helical 16/84 39.56 | Helical 25/56 Bevel 11/36 Helical 16/85 38.95 |
| 1800 | 45.0 | Actual Output Speed, rpm | 43.8 | 43.8 | 44.3 | 43.2 | 45.5 | 46.2 |
| | | Input kW, Mechanical | 4.02 | 7.09 | 12.6 | 20.7 | 39.5 | 55.8 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4435 | 8035 | 11175 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1500 | 37.5 | Actual Output Speed, rpm | 36.5 | 36.5 | 36.9 | 36.0 | 37.9 | 38.5 |
| | | Input kW, Mechanical | 3.35 | 5.91 | 10.5 | 17.4 | 33.2 | 47 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4480 | 8115 | 11295 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1200 | 30.0 | Actual Output Speed, rpm | 29.2 | 29.2 | 29.5 | 28.8 | 30.3 | 30.8 |
| | | Input kW, Mechanical | 2.68 | 4.73 | 8.37 | 13.9 | 26.5 | 38.0 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8100 | 11430 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1000 | 25.0 | Actual Output Speed, rpm | 24.3 | 24.3 | 24.6 | 24.0 | 25.3 | 25.7 |
| | | Input kW, Mechanical | 2.23 | 3.94 | 6.98 | 11.6 | 22.0 | 32.0 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8060 | 11535 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 750 | 18.8 | Actual Output Speed, rpm | 18.3 | 18.3 | 18.5 | 18.0 | 19.0 | 19.3 |
| | | Input kW, Mechanical | 1.67 | 2.96 | 5.23 | 8.72 | 16.3 | 24.3 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 7975 | 11690 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 500 | 12.5 | Actual Output Speed, rpm | 12.2 | 12.2 | 12.3 | 12.0 | 12.6 | 12.8 |
| | | Input kW, Mechanical | 1.12 | 1.97 | 3.49 | 5.81 | 10.8 | 16.5 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 7905 | 11880 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 250 | 6.3 | Actual Output Speed, rpm | 6.1 | 6.1 | 6.2 | 6.0 | 6.3 | 6.4 |
| | | Input kW, Mechanical | 0.56 | 0.99 | 1.74 | 2.91 | 5.84 | 8.41 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8555 | 12135 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |

For details of unit designation code see page 13.



Units to ATEX approval must be selected with a minimum service factor of 1.25.

RENOLD PM Series - PB Type - Selection Data

Mineral and Synthetic Oils

Nominal ratio: 50/1

| Input rpm | Nominal Output rpm | Product Code Actual Ratio Overall Ratio | PB3REDXXSF*** | PB4REDXXSF*** | PB5REDXXSF*** | PB6REDXXTF*** | PB7REDXXTF*** | PB8REDXXTF*** |
|-----------|--------------------|---|--|--|--|--|--|--|
| | | | Helical 29/73 Bevel 11/38 Helical 16/87 47.28 | Helical 29/73 Bevel 11/38 Helical 16/87 47.28 | Helical 29/73 Bevel 11/38 Helical 16/86 46.74 | Helical 27/76 Bevel 11/37 Helical 17/94 52.35 | Helical 27/76 Bevel 11/37 Helical 16/84 49.71 | Helical 27/76 Bevel 11/36 Helical 16/85 48.94 |
| 1800 | 36.0 | Actual Output Speed, rpm | 38.1 | 38.1 | 38.5 | 34.4 | 36.2 | 36.8 |
| | | Input kW, Mechanical | 3.49 | 6.17 | 10.9 | 16.6 | 31.7 | 44.8 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4480 | 8115 | 11290 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1500 | 30.0 | Actual Output Speed, rpm | 31.7 | 31.7 | 32.1 | 28.7 | 30.2 | 30.6 |
| | | Input kW, Mechanical | 2.91 | 5.14 | 9.09 | 13.9 | 26.4 | 37.7 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8115 | 11405 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1200 | 24.0 | Actual Output Speed, rpm | 25.4 | 25.4 | 25.7 | 22.9 | 24.1 | 24.5 |
| | | Input kW, Mechanical | 2.33 | 4.11 | 7.28 | 11.1 | 21.0 | 30.5 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8060 | 11535 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1000 | 20.0 | Actual Output Speed, rpm | 21.2 | 21.2 | 21.4 | 19.1 | 20.1 | 20.4 |
| | | Input kW, Mechanical | 1.94 | 3.43 | 6.06 | 9.25 | 17.4 | 25.7 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 7995 | 11630 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 750 | 15.0 | Actual Output Speed, rpm | 15.9 | 15.9 | 16.0 | 14.3 | 15.1 | 15.3 |
| | | Input kW, Mechanical | 1.46 | 2.57 | 4.55 | 6.94 | 12.9 | 19.5 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 7940 | 11775 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 500 | 10.0 | Actual Output Speed, rpm | 10.6 | 10.6 | 10.7 | 9.6 | 10.1 | 10.2 |
| | | Input kW, Mechanical | 0.97 | 1.71 | 3.03 | 4.62 | 8.61 | 13.2 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 7925 | 11950 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 250 | 5.0 | Actual Output Speed, rpm | 5.3 | 5.3 | 5.3 | 4.8 | 5.0 | 5.1 |
| | | Input kW, Mechanical | 0.49 | 0.86 | 1.52 | 2.31 | 4.74 | 6.73 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8725 | 12195 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |

For details of unit designation code see page 13.



Units to ATEX approval must be selected with a minimum service factor of 1.25.

RENOLD PM Series - PB Type - Selection Data

Mineral and Synthetic Oils

Nominal ratio: 63/1

| Input rpm | Nominal Output rpm | Product Code Actual Ratio Overall Ratio | PB3REDXXXSG*** | PB4REDXXXSG*** | PB5REDXXXSG*** | PB6REDXXXTG*** | PB7REDXXXTG*** | PB8REDXXXTG*** |
|-----------|--------------------|---|---|---|---|---|---|---|
| | | | Helical 24/78 Bevel 11/38 Helical 16/87 | Helical 24/78 Bevel 11/38 Helical 16/87 | Helical 24/78 Bevel 11/38 Helical 16/86 | Helical 23/80 Bevel 11/37 Helical 17/94 | Helical 23/80 Bevel 11/37 Helical 16/84 | Helical 23/80 Bevel 11/36 Helical 16/85 |
| | | | 61.05 | 61.05 | 60.35 | 64.69 | 61.42 | 60.47 |
| 1800 | 28.6 | Actual Output Speed, rpm | 29.5 | 29.5 | 29.8 | 27.8 | 29.3 | 29.8 |
| | | Input kW, Mechanical | 2.71 | 4.77 | 8.45 | 13.5 | 25.7 | 36.7 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8110 | 11410 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1500 | 23.8 | Actual Output Speed, rpm | 24.6 | 24.6 | 24.9 | 23.2 | 24.4 | 24.8 |
| | | Input kW, Mechanical | 2.25 | 3.98 | 7.04 | 11.2 | 21.3 | 30.8 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8070 | 11515 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1200 | 19.0 | Actual Output Speed, rpm | 19.7 | 19.7 | 19.9 | 18.6 | 19.5 | 19.8 |
| | | Input kW, Mechanical | 1.80 | 3.18 | 5.63 | 8.98 | 16.9 | 24.9 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 7995 | 11640 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1000 | 15.9 | Actual Output Speed, rpm | 16.4 | 16.4 | 16.6 | 15.5 | 16.3 | 16.5 |
| | | Input kW, Mechanical | 1.50 | 2.65 | 4.70 | 7.48 | 14.0 | 20.9 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 7960 | 11730 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 750 | 11.9 | Actual Output Speed, rpm | 12.3 | 12.3 | 12.4 | 11.6 | 12.2 | 12.4 |
| | | Input kW, Mechanical | 1.13 | 1.99 | 3.52 | 5.61 | 10.4 | 15.9 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 7910 | 11860 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 500 | 7.9 | Actual Output Speed, rpm | 8.2 | 8.2 | 8.3 | 7.7 | 8.1 | 8.3 |
| | | Input kW, Mechanical | 0.75 | 1.33 | 2.35 | 3.74 | 7.17 | 10.7 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8160 | 12025 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 250 | 4.0 | Actual Output Speed, rpm | 4.1 | 4.1 | 4.1 | 3.9 | 4.1 | 4.1 |
| | | Input kW, Mechanical | 0.38 | 0.66 | 1.17 | 1.87 | 3.85 | 5.47 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8765 | 12250 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |

For details of unit designation code see page 13.



Units to ATEX approval must be selected with a minimum service factor of 1.25.

RENOLD PM Series - PB Type - Selection Data

Mineral and Synthetic Oils

Nominal ratio: 80/1

| Input rpm | Nominal Output rpm | Product Code Actual Ratio Overall Ratio | PB3REDXXXSH*** | PB4REDXXXSH*** | PB5REDXXXSH*** | PB6REDXXXTH*** | PB7REDXXXTH*** | PB8REDXXXTH*** |
|-----------|--------------------|---|--|--|--|--|--|--|
| | | | Helical 20/82 Bevel 11/38 Helical 16/87 77.01 | Helical 20/82 Bevel 11/38 Helical 16/87 77.01 | Helical 20/82 Bevel 11/38 Helical 16/86 76.13 | Helical 19/84 Bevel 11/37 Helical 17/94 82.23 | Helical 19/84 Bevel 11/37 Helical 16/84 78.07 | Helical 19/84 Bevel 11/36 Helical 16/85 76.87 |
| 1800 | 22.5 | Actual Output Speed, rpm | 23.4 | 23.4 | 23.6 | 21.9 | 23.1 | 23.4 |
| | | Input kW, Mechanical | 2.14 | 3.79 | 6.70 | 10.6 | 20.0 | 29.2 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8025 | 11560 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1500 | 18.8 | Actual Output Speed, rpm | 19.5 | 19.5 | 19.7 | 18.2 | 19.2 | 19.5 |
| | | Input kW, Mechanical | 1.79 | 3.15 | 5.58 | 8.83 | 16.6 | 24.6 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 7985 | 11660 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1200 | 15.0 | Actual Output Speed, rpm | 15.6 | 15.6 | 15.8 | 14.6 | 15.4 | 15.6 |
| | | Input kW, Mechanical | 1.43 | 2.52 | 4.47 | 7.07 | 13.2 | 19.8 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 7945 | 11765 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1000 | 12.5 | Actual Output Speed, rpm | 13.0 | 13.0 | 13.1 | 12.2 | 12.8 | 13.0 |
| | | Input kW, Mechanical | 1.19 | 2.10 | 3.72 | 5.89 | 10.9 | 16.6 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 7915 | 11850 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 750 | 9.4 | Actual Output Speed, rpm | 9.7 | 9.7 | 9.9 | 9.1 | 9.6 | 9.8 |
| | | Input kW, Mechanical | 0.89 | 1.58 | 2.79 | 4.42 | 8.27 | 12.6 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 7975 | 11970 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 500 | 6.3 | Actual Output Speed, rpm | 6.5 | 6.5 | 6.6 | 6.1 | 6.4 | 6.5 |
| | | Input kW, Mechanical | 0.60 | 1.05 | 1.86 | 2.94 | 5.87 | 8.51 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8485 | 12115 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 250 | 3.1 | Actual Output Speed, rpm | 3.2 | 3.2 | 3.3 | 3.0 | 3.2 | 3.3 |
| | | Input kW, Mechanical | 0.30 | 0.53 | 0.93 | 1.47 | 3.05 | 4.32 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8810 | 12310 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |

For details of unit designation code see page 13.



Units to ATEX approval must be selected with a minimum service factor of 1.25.

RENOLD PM Series - PB Type - Selection Data

Mineral and Synthetic Oils

Nominal ratio: 100/1

| Input rpm | Nominal Output rpm | Product Code Actual Ratio Overall Ratio | PB3REDXXSJ*** | PB4REDXXSJ*** | PB5REDXXSJ*** | PB6REDXXXTJ*** | PB7REDXXXTJ*** | PB8REDXXXTJ*** |
|-----------|--------------------|---|---|---|--|---|---|---|
| | | | Helical 16/86 Bevel 11/38 Helical 16/87 100.96 | Helical 16/86 Bevel 11/38 Helical 16/87 100.96 | Helical 16/86 Bevel 11/38 Helical 16/86 99.80 | Helical 15/88 Bevel 11/37 Helical 17/94 109.11 | Helical 15/88 Bevel 11/37 Helical 16/84 103.60 | Helical 15/88 Bevel 11/36 Helical 16/85 102.00 |
| 1800 | 18.0 | Actual Output Speed, rpm | 17.8 | 17.8 | 18.0 | 16.5 | 17.4 | 17.6 |
| | | Input kW, Mechanical | 1.64 | 2.89 | 5.11 | 7.99 | 14.9 | 22.3 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 7970 | 11695 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1500 | 15.0 | Actual Output Speed, rpm | 14.9 | 14.9 | 15.0 | 13.7 | 14.5 | 14.7 |
| | | Input kW, Mechanical | 1.36 | 2.41 | 4.26 | 6.66 | 12.4 | 18.7 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 7940 | 11785 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1200 | 12.0 | Actual Output Speed, rpm | 11.9 | 11.9 | 12.0 | 11.0 | 11.6 | 11.8 |
| | | Input kW, Mechanical | 1.09 | 1.92 | 3.41 | 5.33 | 9.9 | 15.1 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 7905 | 11885 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1000 | 10.0 | Actual Output Speed, rpm | 9.9 | 9.9 | 10.0 | 9.2 | 9.7 | 9.8 |
| | | Input kW, Mechanical | 0.91 | 1.60 | 2.84 | 4.44 | 8.28 | 12.7 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 7945 | 11960 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 750 | 7.5 | Actual Output Speed, rpm | 7.4 | 7.4 | 7.5 | 6.9 | 7.2 | 7.4 |
| | | Input kW, Mechanical | 0.68 | 1.20 | 2.13 | 3.33 | 6.48 | 9.58 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8285 | 12065 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 500 | 5.0 | Actual Output Speed, rpm | 5.0 | 5.0 | 5.0 | 4.6 | 4.8 | 4.9 |
| | | Input kW, Mechanical | 0.45 | 0.80 | 1.42 | 2.22 | 4.55 | 6.46 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8730 | 12200 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 250 | 2.5 | Actual Output Speed, rpm | 2.5 | 2.5 | 2.5 | 2.3 | 2.4 | 2.5 |
| | | Input kW, Mechanical | 0.23 | 0.40 | 0.71 | 1.11 | 2.31 | 3.26 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8850 | 12310 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |

For details of unit designation code see page 13.



Units to ATEX approval must be selected with a minimum service factor of 1.25.


RENOLD PM Series - PB Type - Selection Data

Mineral and Synthetic Oils

Nominal ratio: 125/1

| Input rpm | Nominal Output rpm | Product Code Actual Ratio Overall Ratio | PB3REDXXSK*** | PB4REDXXSK*** | PB5REDXXSK*** | PB6REDXXTK*** | PB7REDXXTK*** | PB8REDXXTK*** |
|-----------|--------------------|---|---|---|---|---|---|---|
| | | | Helical 13/89 Bevel 11/38 Helical 16/87 128.60 | Helical 13/89 Bevel 11/38 Helical 16/87 128.60 | Helical 13/89 Bevel 11/38 Helical 16/86 127.12 | Helical 13/90 Bevel 11/37 Helical 17/94 128.76 | Helical 13/90 Bevel 11/37 Helical 16/84 122.26 | Helical 13/90 Bevel 11/36 Helical 16/85 120.37 |
| 1800 | 14.4 | Actual Output Speed, rpm | 14.0 | 14.0 | 14.2 | 14.0 | 14.7 | 15.0 |
| | | Input kW, Mechanical | 1.28 | 2.27 | 4.01 | 6.77 | 12.6 | 19.0 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 7940 | 11780 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1500 | 12.0 | Actual Output Speed, rpm | 11.7 | 11.7 | 11.8 | 11.6 | 12.3 | 12.5 |
| | | Input kW, Mechanical | 1.07 | 1.89 | 3.34 | 5.64 | 10.5 | 16.0 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 7910 | 11865 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1200 | 9.6 | Actual Output Speed, rpm | 9.3 | 9.3 | 9.4 | 9.3 | 9.8 | 10.0 |
| | | Input kW, Mechanical | 0.86 | 1.51 | 2.68 | 4.51 | 8.41 | 12.9 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 7940 | 11955 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1000 | 8.0 | Actual Output Speed, rpm | 7.8 | 7.8 | 7.9 | 7.8 | 8.2 | 8.3 |
| | | Input kW, Mechanical | 0.71 | 1.26 | 2.23 | 3.76 | 7.21 | 10.8 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8165 | 12025 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 750 | 6.0 | Actual Output Speed, rpm | 5.8 | 5.8 | 5.9 | 5.8 | 6.1 | 6.2 |
| | | Input kW, Mechanical | 0.54 | 0.94 | 1.67 | 2.82 | 5.64 | 8.16 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8520 | 12125 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 500 | 4.0 | Actual Output Speed, rpm | 3.9 | 3.9 | 3.9 | 3.9 | 4.1 | 4.2 |
| | | Input kW, Mechanical | 0.36 | 0.63 | 1.11 | 1.88 | 3.87 | 5.49 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8765 | 12250 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 250 | 2.0 | Actual Output Speed, rpm | 1.9 | 1.9 | 2.0 | 1.9 | 2.0 | 2.1 |
| | | Input kW, Mechanical | 0.18 | 0.31 | 0.56 | 0.94 | 1.96 | 2.76 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8875 | 12310 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |

For details of unit designation code see page 13.



IMPORTANT Units to ATEX approval must be selected with a minimum service factor of 1.25.


RENOLD PM Series - PB Type - Selection Data

Mineral and Synthetic Oils

Nominal ratio: 160/1

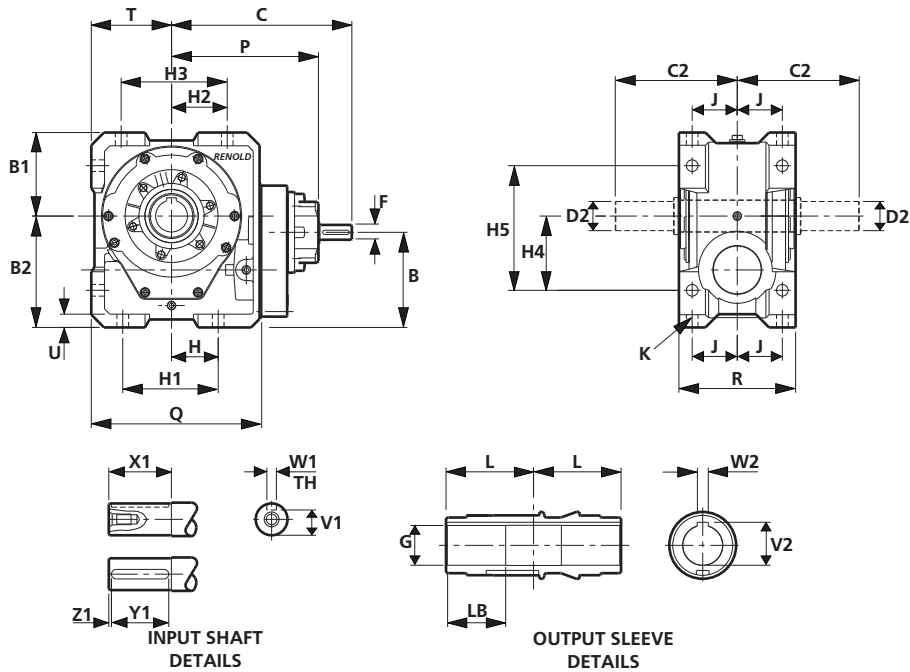
| Input rpm | Nominal Output rpm | Product Code Actual Ratio Overall Ratio | PB3REDXXXSL*** | PB4REDXXXSL*** | PB5REDXXXSL*** | PB6REDXXXTL*** | PB7REDXXXTL*** | PB8REDXXXTL*** |
|-----------|--------------------|---|---|---|---|--|--|--|
| | | | Helical 11/91 Bevel 11/38 Helical 16/87 155.40 | Helical 11/91 Bevel 11/38 Helical 16/87 155.40 | Helical 11/91 Bevel 11/38 Helical 16/86 153.61 | Helical 13/107 Bevel 11/37 Helical 17/94 153.08 | Helical 13/107 Bevel 11/37 Helical 16/84 145.35 | Helical 13/107 Bevel 11/36 Helical 16/85 143.10 |
| 1800 | 11.3 | Actual Output Speed, rpm | 11.6 | 11.6 | 11.7 | 11.8 | 12.4 | 12.6 |
| | | Input kW, Mechanical | 1.06 | 1.88 | 3.32 | 5.69 | 10.6 | 16.1 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 7905 | 11875 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1500 | 9.4 | Actual Output Speed, rpm | 9.7 | 9.7 | 9.8 | 9.8 | 10.3 | 10.5 |
| | | Input kW, Mechanical | 0.89 | 1.56 | 2.77 | 4.74 | 8.83 | 13.5 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 7925 | 11950 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1200 | 7.5 | Actual Output Speed, rpm | 7.7 | 7.7 | 7.8 | 7.8 | 8.3 | 8.4 |
| | | Input kW, Mechanical | 0.71 | 1.25 | 2.21 | 3.80 | 7.30 | 10.9 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8190 | 12035 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 1000 | 6.3 | Actual Output Speed, rpm | 6.4 | 6.4 | 6.5 | 6.5 | 6.9 | 7.0 |
| | | Input kW, Mechanical | 0.59 | 1.04 | 1.84 | 3.16 | 6.26 | 9.13 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8425 | 12100 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 750 | 4.7 | Actual Output Speed, rpm | 4.8 | 4.8 | 4.9 | 4.9 | 5.2 | 5.2 |
| | | Input kW, Mechanical | 0.44 | 0.78 | 1.38 | 2.37 | 4.86 | 6.90 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8725 | 12190 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 500 | 3.1 | Actual Output Speed, rpm | 3.2 | 3.2 | 3.3 | 3.3 | 3.4 | 3.5 |
| | | Input kW, Mechanical | 0.30 | 0.52 | 0.92 | 1.58 | 3.27 | 4.64 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8800 | 12305 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 250 | 1.6 | Actual Output Speed, rpm | 1.6 | 1.6 | 1.6 | 1.6 | 1.7 | 1.7 |
| | | Input kW, Mechanical | 0.15 | 0.26 | 0.46 | 0.79 | 1.65 | 2.32 |
| | | Output Torque Nm, Mechanical | 850 | 1500 | 2625 | 4485 | 8905 | 12310 |
| | | Efficiency % | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |

For details of unit designation code see page 13.



IMPORTANT Units to ATEX approval must be selected with a minimum service factor of 1.25.

RENOLD PM Series - PB Type - Speed Reducer Dimensions



PM Series - PB Reduction Gear

| UNIT REF | B | B1 | B2 | C | H | H1 | H2 | H3 | H4 | H5 |
|----------|-------|-------|-----|-----|-----|-----|-----|-----|-----|-----|
| PB35 | 162.0 | 140.0 | 180 | 314 | 60 | 135 | 85 | 160 | 120 | 205 |
| PB40 | 179.3 | 157.5 | 210 | 340 | 88 | 180 | 105 | 200 | 140 | 235 |
| PB50 | 183.9 | 195.0 | 240 | 360 | 88 | 180 | 125 | 230 | 160 | 280 |
| PB60 | 239.6 | 225.0 | 280 | 469 | 120 | 235 | 145 | 270 | 190 | 340 |
| PB70 | 269.2 | 255.5 | 335 | 484 | 140 | 290 | 160 | 310 | 240 | 412 |
| PB80 | 278.8 | 280.0 | 370 | 508 | 140 | 310 | 170 | 340 | 256 | 460 |

| UNIT REF | J | K | P | Q | R | T | U |
|----------|-----|------|-----|-----|-----|-----|----|
| PB35 | 75 | 17.0 | 251 | 274 | 186 | 130 | 25 |
| PB40 | 85 | 21.5 | 277 | 321 | 220 | 151 | 25 |
| PB50 | 100 | 21.5 | 297 | 365 | 250 | 175 | 30 |
| PB60 | 125 | 25.5 | 356 | 418 | 305 | 200 | 35 |
| PB70 | 150 | 25.5 | 371 | 458 | 360 | 225 | 35 |
| PB80 | 150 | 25.5 | 395 | 503 | 360 | 246 | 35 |

Input Shaft

| UNIT REF | F | V1 | W1 | X1 | Y1 | Z1 | TH |
|----------|------|------|------|-----|-----|----|--------|
| PB35 | 28j6 | 24.0 | 8P9 | 60 | 50 | 5 | M10x22 |
| PB40 | | | | | | | |
| PB50 | | | | | | | |
| PB60 | 42k6 | 37.0 | 12P9 | 110 | 100 | 5 | M16x36 |
| PB70 | | | | | | | |
| PB80 | | | | | | | |

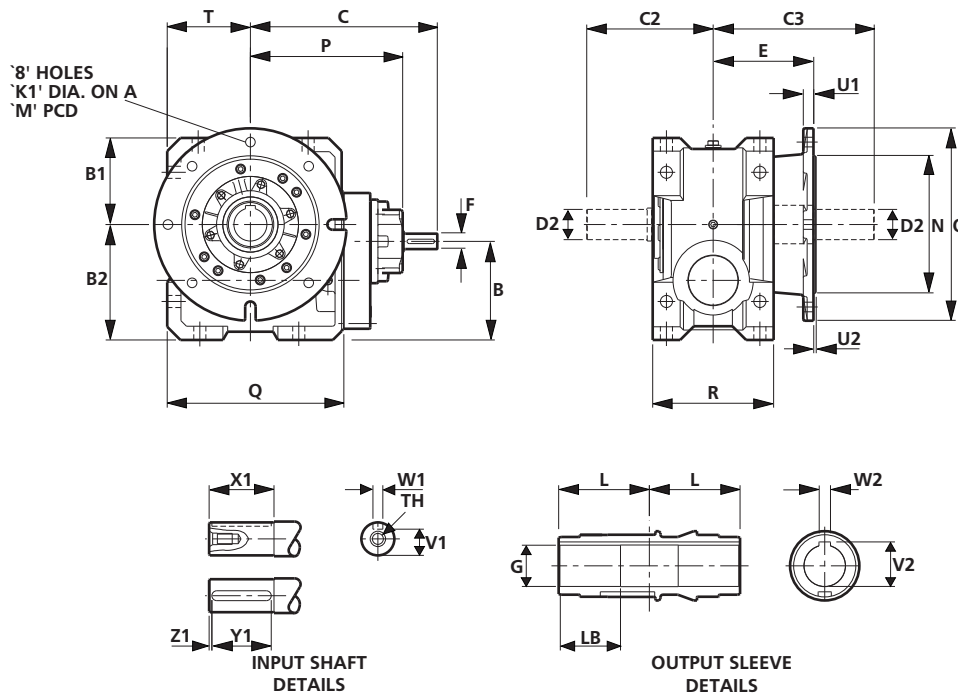
Output Sleeve

| UNIT REF | G | L | LB | V2 | W2 |
|----------|-------|-----|-----|-------|-------|
| PB35 | 40F7 | 103 | 65 | 43.3 | 12Js9 |
| PB40 | 50F7 | 110 | 75 | 53.8 | 14Js9 |
| PB50 | 60F7 | 130 | 95 | 64.4 | 18Js9 |
| PB60 | 70F7 | 155 | 130 | 74.9 | 20Js9 |
| PB70 | 90F7 | 174 | 125 | 95.4 | 25Js9 |
| PB80 | 100F7 | 174 | 115 | 106.4 | 28Js9 |

Plug-in Output Shaft

| UNIT REF | C2 | D2-SE | D2-DE |
|----------|-----|-------|-------|
| PB35 | 190 | 40k6 | 39k6 |
| PB40 | 220 | 50k6 | 49k6 |
| PB50 | 260 | 60m6 | 59m6 |
| PB60 | 305 | 70m6 | 69m6 |
| PB70 | 355 | 85m6 | 85m6 |
| PB80 | 355 | 95m6 | 95m6 |

RENOLD PM Series - PB Type - Speed Reducer Dimensions



PM Series - PB Reduction Gear - (Horizontal Flange Mounted)

| UNIT REF | B | B1 | B2 | C | E | K1 | M | N | O |
|----------|-------|-------|-----|-----|-----|------|-----|-------|-----|
| PB35 | 162.0 | 140.0 | 180 | 314 | 154 | 13.5 | 265 | 230h8 | 300 |
| PB40 | 179.3 | 157.5 | 210 | 340 | 183 | 17.5 | 300 | 250h8 | 350 |
| PB50 | 183.9 | 195.0 | 240 | 360 | 197 | 17.5 | 350 | 300h8 | 400 |
| PB60 | 239.6 | 225.0 | 280 | 469 | 215 | 17.5 | 400 | 350h8 | 450 |
| PB70 | 269.2 | 255.5 | 335 | 484 | 248 | 17.5 | 500 | 450h8 | 550 |
| PB80 | 278.8 | 280.0 | 370 | 508 | 248 | 17.5 | 500 | 450h8 | 550 |

| UNIT REF | P | Q | R | T | U1 | U2 |
|----------|-----|-----|-----|-----|----|----|
| PB35 | 251 | 274 | 186 | 130 | 13 | 4 |
| PB40 | 277 | 321 | 220 | 151 | 19 | 5 |
| PB50 | 297 | 365 | 250 | 175 | 19 | 5 |
| PB60 | 356 | 418 | 305 | 200 | 19 | 5 |
| PB70 | 371 | 458 | 360 | 225 | 24 | 5 |
| PB80 | 395 | 503 | 360 | 246 | 24 | 5 |

Input Housing - Reduction

| UNIT REF | F | V1 | W1 | X1 | Y1 | Z1 | TH |
|----------|------|------|------|-----|-----|----|--------|
| PB35 | 28j6 | 24.0 | 8P9 | 60 | 50 | 5 | M10x22 |
| PB40 | | | | | | | |
| PB50 | | | | | | | |
| PB60 | 42k6 | 37.0 | 12P9 | 110 | 100 | 5 | M16x30 |
| PB70 | | | | | | | |
| PB80 | | | | | | | |

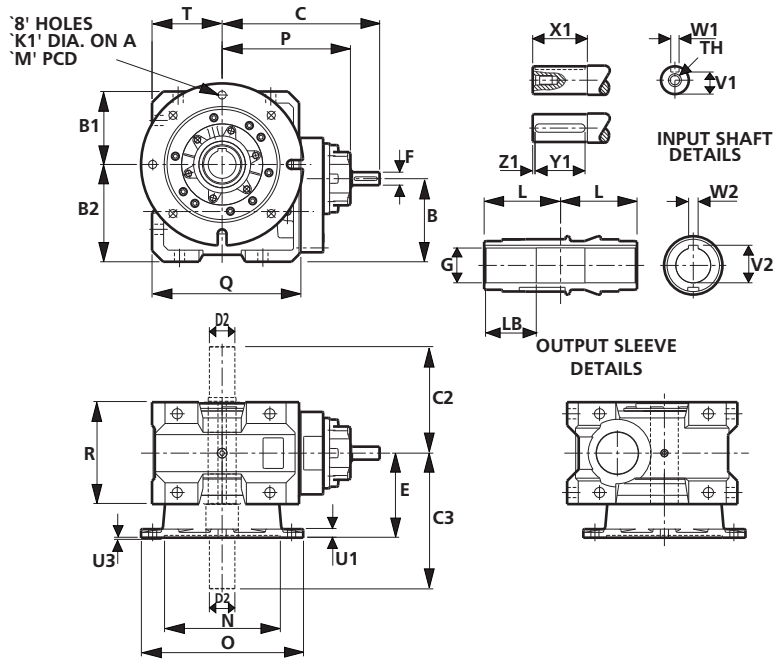
Output Sleeve

| UNIT REF | G | L | LB | V2 | W2 |
|----------|-------|-----|-----|-------|-------|
| PB35 | 40F7 | 103 | 65 | 43.3 | 12Js9 |
| PB40 | 50F7 | 110 | 75 | 53.8 | 14Js9 |
| PB50 | 60F7 | 130 | 95 | 64.4 | 18Js9 |
| PB60 | 70F7 | 155 | 130 | 74.9 | 20Js9 |
| PB70 | 90F7 | 174 | 125 | 95.4 | 25Js9 |
| PB80 | 100F7 | 174 | 115 | 106.4 | 28Js9 |

Plug-in Output Shaft

| UNIT REF | C2 | D2-SE | D2-DE |
|----------|-----|-------|-------|
| PB35 | 190 | 40k6 | 39k6 |
| PB40 | 220 | 50k6 | 49k6 |
| PB50 | 260 | 60m6 | 59m6 |
| PB60 | 305 | 70m6 | 69m6 |
| PB70 | 355 | 85m6 | 85m6 |
| PB80 | 355 | 95m6 | 95m6 |

RENOLD PM Series - PB Type - Speed Reducer Dimensions



PM Series - PB Reduction Gear - (Vertical Skirt)

| UNIT REF | B | B1 | B2 | C | E | K1 | M | N | O |
|----------|-------|-------|-----|-----|-----|------|-----|-------|-----|
| PB35 | 162.0 | 140.0 | 180 | 314 | 154 | 13.5 | 265 | 230H8 | 300 |
| PB40 | 179.3 | 157.5 | 210 | 340 | 183 | 17.5 | 300 | 250H8 | 350 |
| PB50 | 183.9 | 195.0 | 240 | 360 | 197 | 17.5 | 350 | 300H8 | 400 |
| PB60 | 239.6 | 225.0 | 280 | 469 | 215 | 17.5 | 400 | 350H8 | 450 |
| PB70 | 269.2 | 255.5 | 335 | 484 | 248 | 17.5 | 500 | 450H8 | 550 |
| PB80 | 278.8 | 280.0 | 370 | 508 | 248 | 17.5 | 500 | 450H8 | 550 |

| UNIT REF | P | Q | R | T | U1 | U3 |
|----------|-----|-----|-----|-----|----|----|
| PB35 | 251 | 274 | 186 | 130 | 13 | 5 |
| PB40 | 277 | 321 | 220 | 151 | 19 | 6 |
| PB50 | 297 | 365 | 250 | 175 | 19 | 6 |
| PB60 | 356 | 418 | 305 | 200 | 19 | 6 |
| PB70 | 371 | 458 | 360 | 225 | 24 | 6 |
| PB80 | 395 | 503 | 360 | 246 | 24 | 6 |

Input Shaft

| UNIT REF | F | V1 | W1 | X1 | Y1 | Z1 | TH |
|----------|------|------|------|-----|-----|----|--------|
| PB35 | 28j6 | 24.0 | 8P9 | 60 | 50 | 5 | M10x22 |
| PB40 | | | | | | | |
| PB50 | | | | | | | |
| PB60 | 42k6 | 37.0 | 12P9 | 110 | 100 | 5 | M16x30 |
| PB70 | | | | | | | |
| PB80 | | | | | | | |

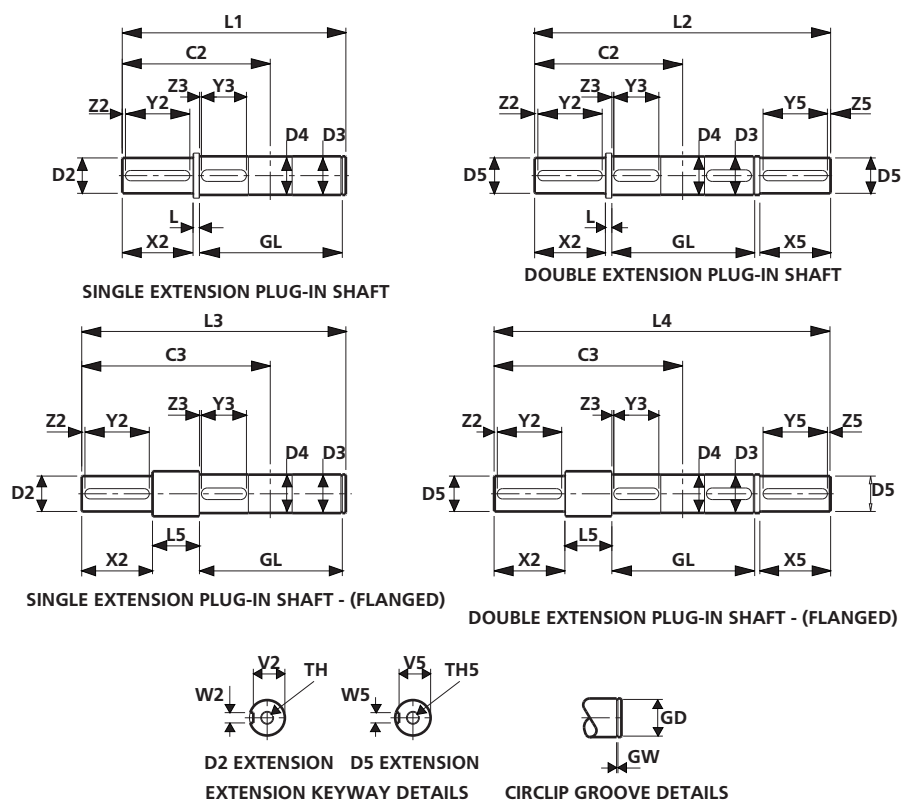
Output Sleeve

| UNIT REF | G | L | LB | V2 | W2 |
|----------|-------|-----|-----|-------|-------|
| PB35 | 40F7 | 103 | 65 | 43.3 | 12Js9 |
| PB40 | 50F7 | 110 | 75 | 53.8 | 14Js9 |
| PB50 | 60F7 | 130 | 95 | 64.4 | 18Js9 |
| PB60 | 70F7 | 155 | 130 | 74.9 | 20Js9 |
| PB70 | 90F7 | 174 | 125 | 95.4 | 25Js9 |
| PB80 | 100F7 | 174 | 115 | 106.4 | 28Js9 |

Plug-in Output Shaft

| UNIT REF | C2 | D2-SE | D2-DE |
|----------|-----|-------|-------|
| PB35 | 190 | 40k6 | 39k6 |
| PB40 | 220 | 50k6 | 49k6 |
| PB50 | 260 | 60m6 | 59m6 |
| PB60 | 305 | 70m6 | 69m6 |
| PB70 | 355 | 85m6 | 85m6 |
| PB80 | 355 | 95m6 | 95m6 |

RENOLD PM Series - PB Type - Output Shaft Dimensions



Plug-in Shafts

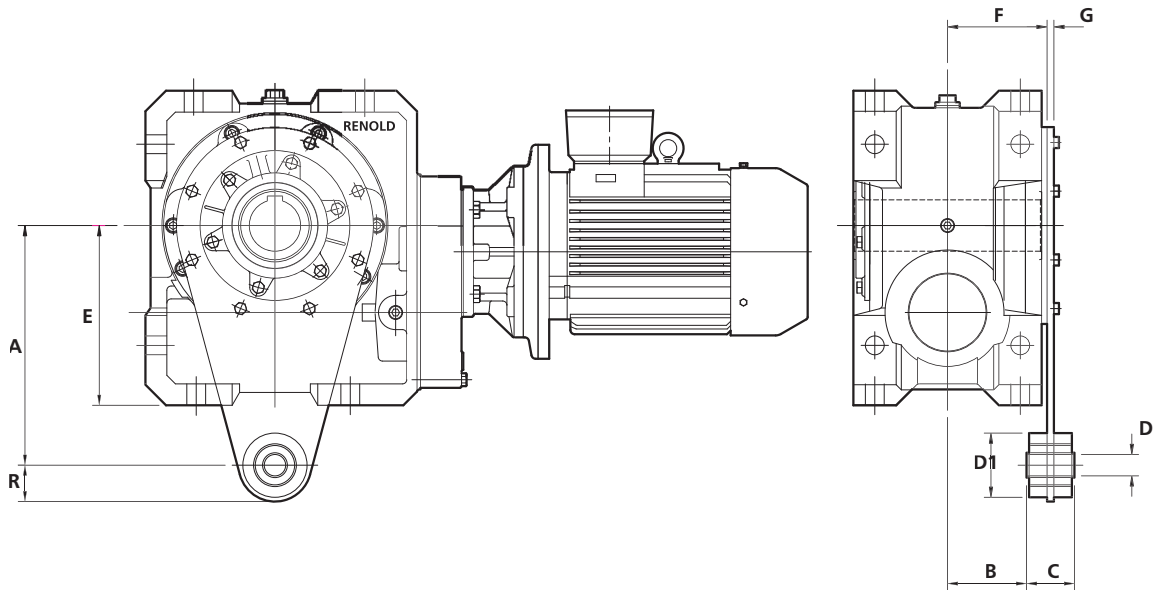
| UNIT REF | C2 | C3 | L | L1 | L2 | L3 | L4 | L5 | GD | GL | GW |
|----------|-----|-----|----|-------|-----|-------|-----|----|-------|--------|------|
| PB35 | 190 | 234 | 7 | 300.5 | 380 | 344.5 | 424 | 51 | 37.50 | 207.65 | 1.99 |
| | | | | | | | | | 37.25 | 207.60 | 1.85 |
| PB40 | 220 | 283 | 10 | 337.5 | 440 | 400.5 | 503 | 73 | 47.00 | 222.15 | 2.29 |
| | | | | | | | | | 46.75 | 222.10 | 2.15 |
| | | | | | | | | | 46.50 | 222.05 | 2.00 |
| PB50 | 260 | 317 | 10 | 398.5 | 520 | 455.5 | 577 | 67 | 57.00 | 262.15 | 2.29 |
| | | | | | | | | | 56.75 | 262.10 | 2.15 |
| | | | | | | | | | 56.50 | 262.05 | 2.00 |
| PB60 | 305 | 355 | 10 | 469.5 | 610 | 519.5 | 660 | 60 | 67.00 | 312.65 | 2.79 |
| | | | | | | | | | 66.75 | 312.60 | 2.65 |
| | | | | | | | | | 66.50 | 312.55 | 2.50 |
| PB70 | 355 | 418 | 11 | 538.5 | 710 | 601.5 | 773 | 74 | 86.50 | 351.15 | 3.33 |
| | | | | | | | | | 86.25 | 351.10 | 3.19 |
| | | | | | | | | | 86.00 | 351.05 | 3.05 |
| PB80 | 355 | 418 | 11 | 538.5 | 710 | 601.5 | 773 | 74 | 96.50 | 351.15 | 3.33 |
| | | | | | | | | | 96.25 | 351.10 | 3.19 |
| | | | | | | | | | 96.00 | 351.05 | 3.05 |

| UNIT REF | D2 | V2 | W2 | X2 | Y2 | Z2 | TH | D3 | Y3 | Z3 |
|----------|------|-------|------|-----|-----|----|--------|-------|-------|----|
| PB35 | 40k6 | 35.00 | 12P9 | 80 | 70 | 5 | M16x36 | 40h6 | 63 | 3 |
| PB40 | 50k6 | 44.50 | 14P9 | 100 | 90 | 5 | M16x36 | 50h6 | 80 | 3 |
| PB50 | 60m6 | 53.00 | 18P9 | 120 | 110 | 5 | M20x42 | 60h6 | 100 | 3 |
| PB60 | 70m6 | 62.50 | 20P9 | 140 | 125 | 5 | M20x42 | 70h6 | 125 | 3 |
| PB70 | 85m6 | 76.00 | 22P9 | 170 | 160 | 5 | M20x42 | 90h6 | 140 | 3 |
| PB80 | 95m6 | 86.00 | 25P9 | 170 | 160 | 5 | M24x50 | 100h6 | 125 * | 3 |

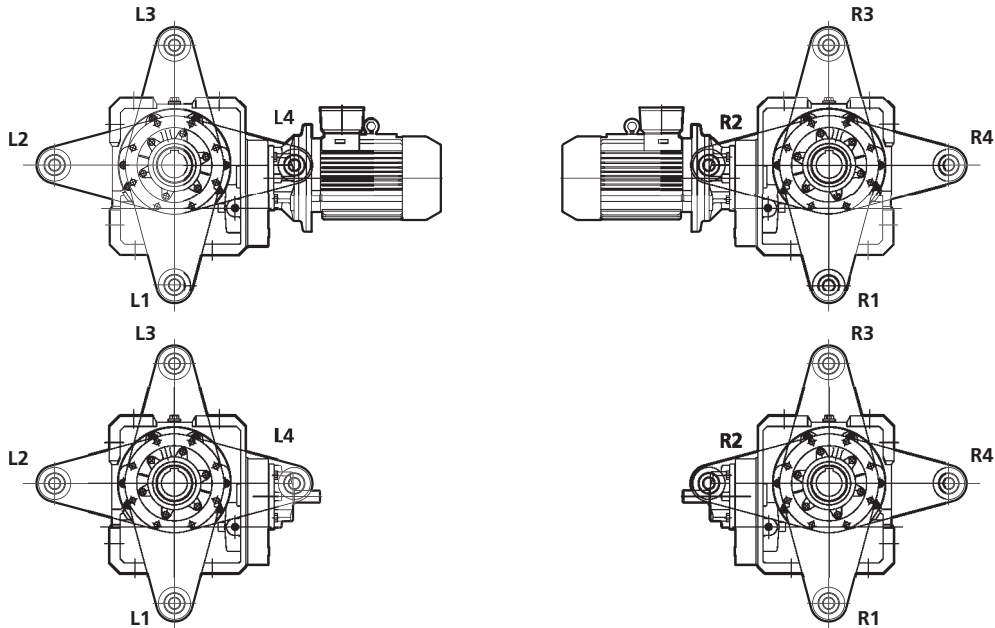
| UNIT REF | D4 | D5 | V5 | W5 | X5 | Y5 | Z5 | TH5 |
|----------|----|------|-------|------|-----|-----|----|--------|
| PB35 | 38 | 39k6 | 34.00 | 12P9 | 80 | 70 | 5 | M16x36 |
| PB40 | 48 | 49k6 | 43.50 | 14P9 | 100 | 90 | 5 | M16x36 |
| PB50 | 58 | 59m6 | 52.00 | 18P9 | 120 | 110 | 5 | M20x42 |
| PB60 | 68 | 69m6 | 61.50 | 20P9 | 140 | 125 | 5 | M20x42 |
| PB70 | 88 | 85m6 | 76.00 | 22P9 | 170 | 160 | 5 | M20x42 |
| PB80 | 96 | 95m6 | 86.00 | 25P9 | 170 | 160 | 5 | M24x50 |

*Two Keys

RENOLD PM Series - PB Type - Torque Restraint Bracket



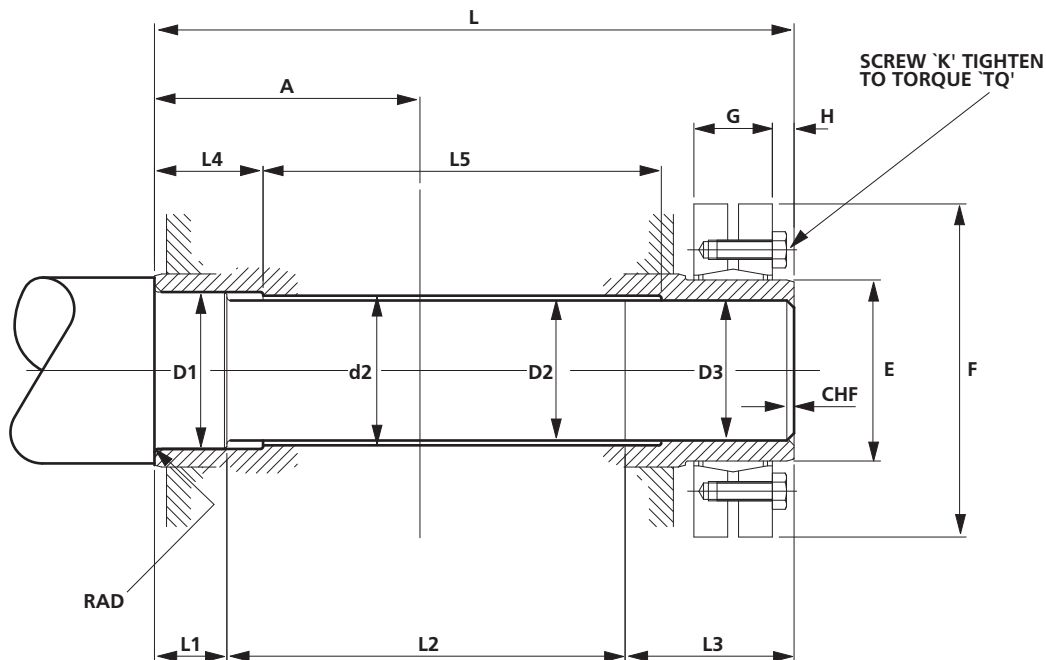
Note Positions L4 & R2
Check clearance with motor adaptor
or input housing/coupling



Torque Restraint Bracket

| UNIT SIZE | A | B | C | D | D1 | E | F | G | R |
|-----------|-----|-------|----|----|----|-----|-----|----|----|
| PB35 | 240 | 68.0 | 70 | 20 | 70 | 180 | 97 | 12 | 45 |
| PB40 | 270 | 102.0 | 70 | 20 | 70 | 210 | 131 | 12 | 45 |
| PB50 | 300 | 116.0 | 70 | 20 | 70 | 240 | 145 | 12 | 45 |
| PB60 | 360 | 134.5 | 66 | 30 | 80 | 280 | 160 | 15 | 52 |
| PB70 | 415 | 159.5 | 66 | 30 | 80 | 335 | 185 | 15 | 52 |
| PB80 | 450 | 159.5 | 66 | 30 | 80 | 370 | 185 | 15 | 52 |

RENOLD PM Series - PB Type - Shrink Disc Dimensions



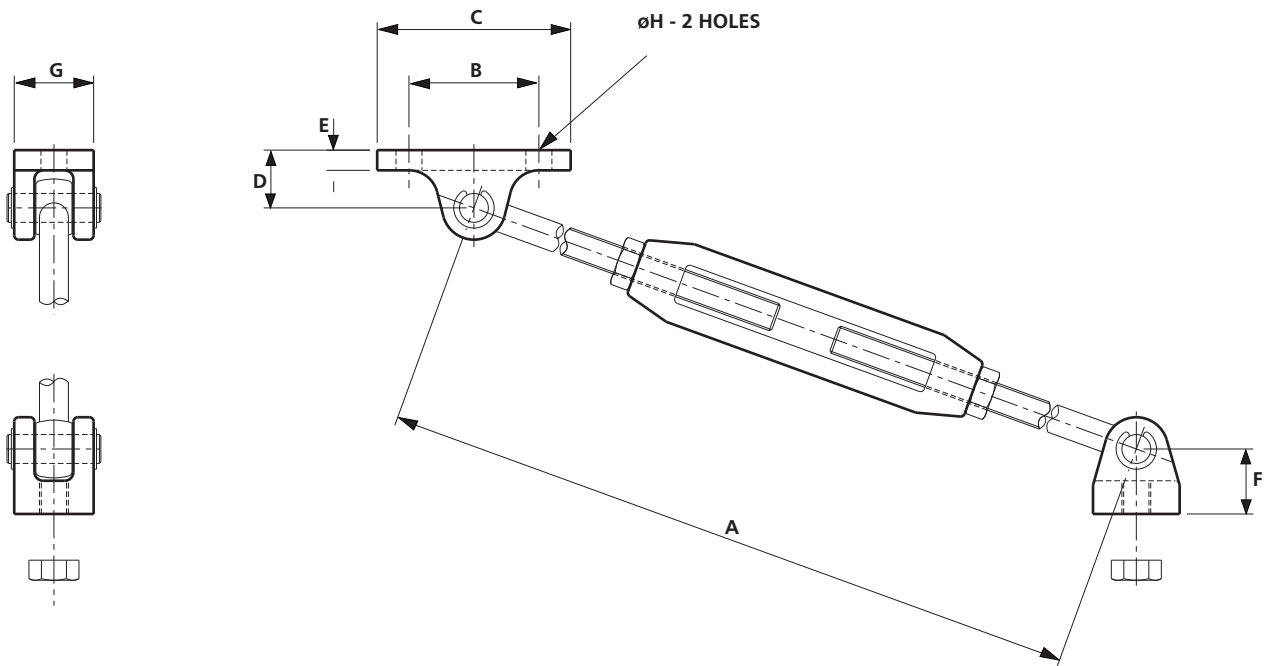
Shrink Disc

| UNIT SIZE | Driven Shaft Details | | | | | | | |
|-----------|----------------------|----|------|----|-----|-----|-----|-----|
| | D1 | D2 | D3 | L1 | L2 | L3 | RAD | CHF |
| PB35 | 44g6 | 42 | 42g6 | 25 | 137 | 80 | 1.5 | 2 |
| PB40 | 57g6 | 55 | 55g6 | 30 | 150 | 80 | 1.5 | 3 |
| PB50 | 62g6 | 60 | 60g6 | 35 | 174 | 95 | 1.5 | 3 |
| PB60 | 80g6 | 75 | 75g6 | 40 | 211 | 115 | 1.5 | 3 |
| PB70 | 90g6 | 85 | 85g6 | 45 | 250 | 135 | 2 | 3 |
| PB80 | 100g6 | 95 | 95g6 | 45 | 250 | 135 | 2 | 3 |

| UNIT SIZE | Hollow Shaft Details | | | | | | |
|-----------|----------------------|-------|----|------|-----|----|-----|
| | A | D1 | d2 | D3 | L | L4 | L5 |
| PB35 | 102.9 | 44H7 | 43 | 42H6 | 242 | 35 | 137 |
| PB40 | 110 | 57H7 | 56 | 55H6 | 260 | 40 | 150 |
| PB50 | 130 | 62H7 | 61 | 60H6 | 304 | 50 | 174 |
| PB60 | 155 | 80H7 | 78 | 75H7 | 366 | 55 | 211 |
| PB70 | 174 | 90H7 | 88 | 85H7 | 430 | 60 | 250 |
| PB80 | 174 | 100H7 | 98 | 95H7 | 430 | 60 | 259 |

| UNIT SIZE | Shrink Disc Details | | | | | | | Max. Torque Nm |
|-----------|---------------------|-----|-----|------|----|-----|-------|----------------|
| | REF | E | F | G | H | K | TQ Nm | |
| PB35 | 50-4071 | 50 | 90 | 27.5 | 6 | M6 | 12 | 690 |
| PB40 | 68-4071 | 68 | 115 | 30.5 | 6 | M6 | 12 | 1250 |
| PB50 | 75-4071 | 75 | 138 | 32.5 | 9 | M8 | 30 | 1600 |
| PB60 | 100-4071 | 100 | 170 | 44 | 9 | M8 | 30 | 3750 |
| PB70 | 125-4071 | 125 | 215 | 54 | 23 | M10 | 59 | 5500 |
| | 125-4091 | 125 | 215 | 65 | 12 | M12 | 100 | 7500 |
| PB80 | 125-4071 | 125 | 215 | 54 | 23 | M10 | 59 | 7500 |
| | 125-4091 | 125 | 215 | 65 | 12 | M12 | 100 | 10000 |

RENOLD PM Series - PB Type - Torque Arm Assembly



Torque Arm Assembly

| UNIT SIZE | A | B | C | D | E | F | G | H |
|-----------|------------|-----|-----|----|----|----|----|-----|
| PB35 | 600 750 | 75 | 108 | 35 | 13 | 40 | 41 | M12 |
| PB40 | 600 750 | 90 | 133 | 40 | 14 | 45 | 52 | M16 |
| PB50 | 600 750 | 90 | 133 | 40 | 14 | 45 | 52 | M16 |
| PB60 | 910 760 | 115 | 178 | 57 | 21 | 55 | 76 | M20 |
| PB70 | 910 760 | 115 | 178 | 57 | 21 | 55 | 76 | M20 |
| PB80 | 910 760 | 115 | 178 | 57 | 21 | 55 | 76 | M20 |

RENOLD PM Series - Installation, Maintenance & Storage**Initial Running**

All units are supplied without oil.

First Filling

When installed and before running, the unit should be filled with new lubricant to the correct level as follows.

With the gear stationary, remove the filler and breather plug and oil level plug. Fill until the lubricant level is visible at the indicator (if fitted) or until lubricant overflows from oil level aperture.

Replace and secure both plugs. Care should be taken to avoid overfilling, as this may cause subsequent leakage.

Starting Up

All units have been subjected to a short test before despatch to the customer but it takes many hours running under full load for the gear to attain its highest efficiency. The gear may if necessary be put to work immediately on full load, but if circumstances permit it is better for the ultimate life of the gear to run it in under gradually increasing load. Attaining the full load after about 20 to 40 hours. Reasonable precautions should however, be taken to avoid overloads in the early stage of running. Temperature rise on the initial run will be higher than that eventually attained after the gear is fully run in.

Routine Maintenance

The oil level in the unit should be regularly maintained, and should be checked at least once a month. To avoid false readings, examination of the oil level should be made with the gear stationary, and to maintain free ventilation of the unit under all conditions, the breather hole in the filler plug should be kept clear at all times.

Changing Oil

The oil should be changed completely at intervals depending upon the working conditions.

Grease Lubrication of Bearings

Where this feature is included, the bearing caps are fitted with a grease nipple or stauffer lubricator, which should be used to lubricate the bearings.

Couplings and Bedplates

All couplings should be carefully fitted and shafts accurately aligned. To prevent damage to the bearings, coupling half-bodies should not be hammered onto shafts.

Gear units and other drive components should be rigidly mounted on firm foundations to prevent movement and vibration which may affect the alignment of the shafts. Suitable bedplates can be supplied if required.

Abnormal Ambient Temperatures

If the gear unit is to be operated under extremes of temperature or humidity, special oils may be required and recommendations will be made on request.

Storage

All gear units stored or left inactive for long periods should be adequately protected, particularly those on exposed sites and those operating in corrosive atmospheres.

The following precautions will generally be adequate, but advice on the protection of particular units will be given, if required.

If empty of oil: spray the gear case interior with rust preventative oil; compatible with lubricant recommended for service conditions. If filled with oil: operate at full speed once per month for not less than 10 minutes to ensure liberal coating of all internal parts with oil.

For indefinite storage: completely fill unit with oil ensuring complete submersion of all internal components and shafts should be occasionally turned by hand. When unit is returned to service, drain and refill with new oil to correct level.

External shaft extensions and oil seals can be protected by the use of grease impregnated tape. Full long term storage specification details can be obtained from Renold on request.

Spare Parts

Information relating to spare parts is available on request.

RENOLD PM Series - PB Type - Lubrication Information

The correct fill of oil for the unit size and mounting position can be found in either the appropriate catalogue or the Installation and Maintenance Guide. Only good quality oils should be used, such as those listed below, as the use of inferior or unsuitable products may cause rapid wear and possible damage to the gearbox.

Oils with three viscosity ranges (Light, medium and heavy) are listed below, the correct choice depends on the application operating speed, load and temperature. Temperature and speed can often be the main factor as it effects the operating viscosity.

If the unit runs below the catalogue rating and operates at a temperature below 60°C then a light grade oil should be used. Operating at catalogue rating with temperatures up to 100°C require medium grade.

Using too a heavy a grade than required will result in reduced efficiency, too light a grade will result in premature wear, if in doubt ask Renold Gears Technical Department. Heavy grade oils are shown for reference only.

Which Oil to Select

There are three main oils Mineral, Synthetic (Polyalphaolefin) and Synthetic (Polyglycol). Mineral oils tend to be cheaper, have a lower life and are less efficient. Synthetic (Polyalphaolefin) can operate over a higher temperature range, are more efficient and have a longer life.

The use of Synthetic (Polyglycol) are not recommended without prior discussion with Renold as special paints and seals are required.

If necessary a list of recommended food grade oils is available on request.

| Mineral Oil | Light | | Medium | | Heavy | |
|--------------------|-------|------------|--------|------------|-------|------------|
| | | Temp°C | | Temp°C | | Temp°C |
| Mobil Gear * | 630 | -13 to 90 | 632 | -13 to 90 | 634 | -1 to 90 |
| Mobil Gear XMP | 220 | -13 to 100 | 320 | -13 to 100 | 460 | -1 to 100 |
| Castrol Alpha SP * | 220 | -21 to 120 | 320 | -21 to 120 | 460 | -6 to 120 |
| Castrol AlphaMax | 220 | -24 to 120 | 320 | -18 to 120 | 460 | -15 to 120 |
| Shell Omala F | 220 | -9 to 120 | 320 | -9 to 120 | 460 | -9 to 120 |
| Shell Omala | 220 | -9 to 120 | 320 | -9 to 120 | 460 | -9 to 120 |
| Esso Spartan EP | 220 | -30 to 120 | 320 | -27 to 120 | 460 | -18 to 120 |
| Kluberoil GEM 1 | 220 | -18 to 100 | 320 | 0 to 100 | 460 | 0 to 100 |

| Synthetic (Polyalphaolefin) | Light | | Medium | | Heavy | |
|-----------------------------|-------|------------|--------|------------|-------|------------|
| | | Temp°C | | Temp°C | | Temp°C |
| Mobil Gear SHC * | 630 | -42 to 160 | 632 | -42 to 160 | 634 | -39 to 160 |
| Mobil Gear SHC XMP | 220 | -42 to 160 | 320 | -42 to 160 | 460 | -39 to 160 |
| Castrol Alpha EP | 220 | -42 to 150 | 320 | -36 to 150 | 460 | -20 to 150 |
| Castrol Alpha T | 220 | -36 to 150 | 320 | -33 to 150 | 460 | -33 to 150 |
| Shell Omala HD | 220 | -40 to 150 | 320 | -40 to 150 | 460 | -40 to 150 |
| Esso Spartan Synthetic EP | 220 | -27 to 120 | 320 | -27 to 120 | 460 | -18 to 120 |
| Klubersynth EG 4 | 220 | -30 to 160 | 320 | -30 to 160 | 460 | -25 to 160 |

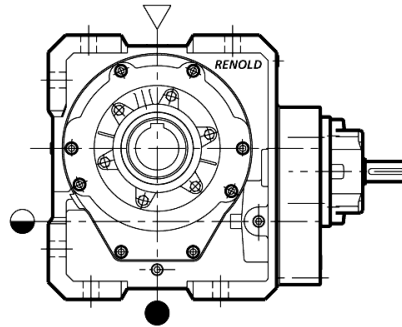
If a Sprag Clutch backstop is fitted internally to the gear unit, oils with EP type additives must not be used. The oils shown below are all suitable for use with Sprag Clutch backstops

| Mineral Oil | Light | | Medium | | Heavy | |
|------------------|-------|------------|--------|------------|-------|------------|
| | | Temp°C | | Temp°C | | Temp°C |
| Mobil DTE | BB | -7 to 90 | AA | 2 to 90 | HH | 2 to 90 |
| Castrol Alpha ZN | 220 | -9 to 120 | 320 | -9 to 120 | 460 | -9 to 120 |
| Shell Vitrea | 220 | -24 to 120 | 320 | -18 to 120 | 460 | -15 to 120 |
| Esso Teresso | 220 | -18 to 120 | 320 | -12 to 120 | 460 | -9 to 120 |
| Kluberoil GEM 1 | 220 | -18 to 100 | 320 | 0 to 100 | 460 | 0 to 100 |

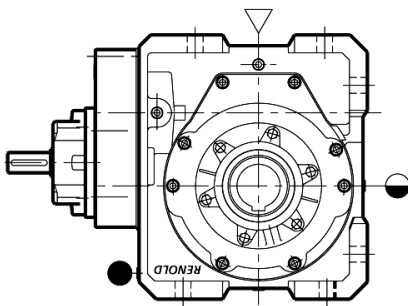
| Synthetic (Polyalphaolefin) | Light | | Medium | | Heavy | |
|-----------------------------|-------|------------|--------|------------|-------|------------|
| | | Temp°C | | Temp°C | | Temp°C |
| Mobil Gear SHC | 630 | -42 to 160 | 632 | -42 to 160 | 634 | -39 to 160 |
| Castrol Alpha T | 220 | -36 to 80 | 320 | -33 to 80 | 460 | -33 to 80 |
| Shell Omala RL | 220 | -40 to 80 | 320 | -40 to 80 | 460 | -40 to 80 |
| Esso Teresso SHP | 220 | -42 to 150 | 320 | -36 to 150 | 460 | -30 to 150 |

Oils specifications can vary world wide therefore it may be necessary to check locally with your oil supplier.

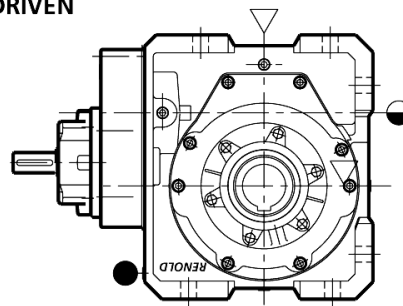
RENOLD PM Series - PB Type - Oil Capacities



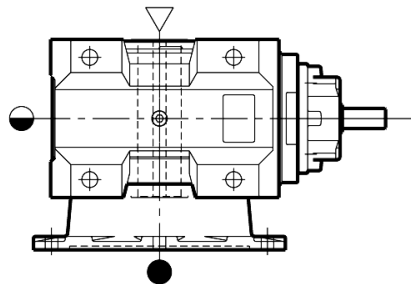
UNDERDRIVEN



OVERDRIVEN



OVERDRIVEN
(SLOW SPEED)



VERTICAL OUTPUT

▽ FILLER/BREATHER PLUG ◐ OIL LEVEL PLUG ● DRAIN PLUG

PM Series PB Helical/Bevel/Helical Oil Quantities (Litres)

| UNIT REF | Underdriven | Over driven | | Vertical Output VA - VQ WA - WG | Mounting pos'n VS - VY & V1 - V7 WJ - WQ |
|-------------|-------------|--------------|------------|---------------------------------------|--|
| | | Normal Speed | Slow Speed | | |
| PB35 | 1.2 | 2.6 | 4.3 | 1.5 | 3.0 |
| PB40 | 1.7 | 3.6 | 5.6 | 2.5 | 4.2 |
| PB50 | 2.8 | 6.6 | 11.0 | 5.2 | 7.7 |
| PB60 | 5.1 | 10.2 | 18.0 | 6.6 | 12.8 |
| PB70 | 7.5 | 14.9 | 26.0 | 12.0 | 17.7 |
| PB80 | 9.1 | 17.6 | 30.0 | 14.0 | 22.5 |

Nominal oil quantity - May vary with ratio

* FOR ANY OTHER MOUNTING PLEASE REFER TO RENOLD GEARS

RENOLD PM Series - PB Type - Unit Weights

PM Series PB Bevel/Helical Weights (kg)

| PB35 | Foot Mounting | | | Flange Mounting | | | Vertical Output | | |
|-----------------|---------------|------------------|------------------|-----------------|------------------|------------------|-----------------|------------------|------------------|
| | Hollow Shaft | Single Extension | Double Extension | Hollow Shaft | Single Extension | Double Extension | Hollow Shaft | Single Extension | Double Extension |
| PB35-Red'n gear | 65 | 68 | 69 | 70 | 74 | 75 | 70 | 74 | 75 |
| PB35 + MD80K | 76 | 79 | 79 | 81 | 85 | 85 | 81 | 84 | 85 |
| PB35 + MD80G | 76 | 79 | 80 | 82 | 85 | 86 | 81 | 85 | 86 |
| PB35 + MD90S | 79 | 82 | 83 | 85 | 88 | 89 | 84 | 88 | 89 |
| PB35 + MD90L | 82 | 85 | 85 | 87 | 91 | 91 | 87 | 90 | 91 |
| PB35 + MD100L | 89 | 92 | 92 | 94 | 98 | 98 | 94 | 97 | 98 |
| PB35 + MD100LX | 92 | 95 | 96 | 98 | 101 | 102 | 98 | 101 | 102 |
| PB35 + MD112M | 98 | 101 | 102 | 104 | 107 | 108 | 104 | 107 | 108 |
| PB35 + MD132S | 115 | 118 | 119 | 121 | 124 | 125 | 120 | 124 | 125 |
| PB35 + MD132M | 133 | 136 | 136 | 138 | 142 | 142 | 138 | 141 | 142 |

| PB40 | Foot Mounting | | | Flange Mounting | | | Vertical Output | | |
|-----------------|---------------|------------------|------------------|-----------------|------------------|------------------|-----------------|------------------|------------------|
| | Hollow Shaft | Single Extension | Double Extension | Hollow Shaft | Single Extension | Double Extension | Hollow Shaft | Single Extension | Double Extension |
| PB40-Red'n gear | 86 | 91 | 93 | 97 | 104 | 105 | 97 | 103 | 105 |
| PB40 + MD80K | 97 | 102 | 108 | 108 | 114 | 116 | 107 | 114 | 115 |
| PB40 + MD80G | 97 | 103 | 109 | 108 | 115 | 117 | 108 | 115 | 116 |
| PB40 + MD90S | 100 | 105 | 112 | 111 | 118 | 119 | 111 | 118 | 119 |
| PB40 + MD90L | 103 | 108 | 115 | 114 | 120 | 122 | 113 | 120 | 122 |
| PB40 + MD100L | 110 | 115 | 122 | 121 | 127 | 129 | 120 | 127 | 128 |
| PB40 + MD100LX | 114 | 119 | 125 | 125 | 131 | 133 | 124 | 131 | 132 |
| PB40 + MD112M | 120 | 125 | 131 | 131 | 137 | 139 | 130 | 137 | 138 |
| PB40 + MD132S | 136 | 141 | 148 | 147 | 154 | 155 | 147 | 154 | 155 |
| PB40 + MD132M | 154 | 159 | 166 | 165 | 172 | 173 | 165 | 171 | 173 |

| PB50 | Foot Mounting | | | Flange Mounting | | | Vertical Output | | |
|-----------------|---------------|------------------|------------------|-----------------|------------------|------------------|-----------------|------------------|------------------|
| | Hollow Shaft | Single Extension | Double Extension | Hollow Shaft | Single Extension | Double Extension | Hollow Shaft | Single Extension | Double Extension |
| PB50-Red'n gear | 127 | 135 | 138 | 140 | 151 | 153 | 139 | 150 | 152 |
| PB50 + MD80K | 137 | 146 | 148 | 151 | 161 | 163 | 150 | 160 | 163 |
| PB50 + MD80G | 138 | 146 | 149 | 151 | 162 | 164 | 151 | 161 | 163 |
| PB50 + MD90S | 141 | 149 | 152 | 154 | 165 | 167 | 154 | 164 | 166 |
| PB50 + MD90L | 143 | 152 | 154 | 157 | 167 | 169 | 156 | 167 | 169 |
| PB50 + MD100L | 150 | 159 | 161 | 164 | 174 | 176 | 163 | 174 | 176 |
| PB50 + MD100LX | 154 | 163 | 165 | 168 | 178 | 180 | 167 | 177 | 180 |
| PB50 + MD112M | 160 | 169 | 171 | 174 | 184 | 186 | 173 | 183 | 186 |
| PB50 + MD132S | 177 | 185 | 188 | 190 | 201 | 203 | 190 | 200 | 202 |
| PB50 + MD132M | 194 | 203 | 205 | 208 | 218 | 221 | 207 | 218 | 220 |
| PB50 + MD160M | 255 | 264 | 266 | 269 | 280 | 282 | 268 | 279 | 281 |
| PB50 + MD160L | 275 | 284 | 286 | 289 | 300 | 302 | 288 | 299 | 301 |

RENOLD PM Series - PB Type - Unit Weights

PM Series PB Bevel/Helical Weights (kg)

| PB60 | Foot Mounting | | | Flange Mounting | | | Vertical Output | | |
|-----------------|---------------|------------------|------------------|-----------------|------------------|------------------|-----------------|------------------|------------------|
| | Hollow Shaft | Single Extension | Double Extension | Hollow Shaft | Single Extension | Double Extension | Hollow Shaft | Single Extension | Double Extension |
| PB60-Red'n gear | 211 | 225 | 229 | 228 | 244 | 247 | 227 | 243 | 247 |
| PB60 + MD100L | 232 | 246 | 250 | 249 | 265 | 269 | 248 | 264 | 268 |
| PB60 + MD100LX | 236 | 250 | 254 | 253 | 269 | 273 | 252 | 268 | 272 |
| PB60 + MD112M | 242 | 256 | 260 | 259 | 275 | 279 | 258 | 274 | 278 |
| PB60 + MD132S | 261 | 275 | 279 | 278 | 294 | 298 | 277 | 293 | 297 |
| PB60 + MD132M | 279 | 293 | 296 | 295 | 311 | 315 | 295 | 311 | 314 |
| PB60 + MD160M | 333 | 347 | 351 | 350 | 366 | 370 | 349 | 365 | 369 |
| PB60 + MD160L | 353 | 367 | 371 | 370 | 386 | 390 | 369 | 385 | 389 |
| PB60 + MD180M | 387 | 401 | 405 | 404 | 420 | 424 | 403 | 419 | 423 |
| PB60 + MD180L | 401 | 415 | 419 | 418 | 434 | 438 | 417 | 433 | 437 |
| PB60 + MD200L | 452 | 466 | 470 | 469 | 485 | 489 | 468 | 484 | 488 |

| PB70 | Foot Mounting | | | Flange Mounting | | | Vertical Output | | |
|-----------------|---------------|------------------|------------------|-----------------|------------------|------------------|-----------------|------------------|------------------|
| | Hollow Shaft | Single Extension | Double Extension | Hollow Shaft | Single Extension | Double Extension | Hollow Shaft | Single Extension | Double Extension |
| PB70-Red'n gear | 297 | 323 | 331 | 323 | 354 | 361 | 322 | 352 | 360 |
| PB70 + MD100L | 319 | 345 | 352 | 345 | 375 | 383 | 344 | 374 | 381 |
| PB70 + MD100LX | 323 | 348 | 356 | 349 | 379 | 386 | 347 | 378 | 385 |
| PB70 + MD112M | 329 | 354 | 362 | 355 | 385 | 392 | 353 | 384 | 391 |
| PB70 + MD132S | 348 | 374 | 381 | 374 | 404 | 411 | 373 | 403 | 410 |
| PB70 + MD132M | 365 | 391 | 399 | 391 | 421 | 429 | 390 | 420 | 428 |
| PB70 + MD160M | 420 | 445 | 453 | 446 | 476 | 483 | 444 | 475 | 482 |
| PB70 + MD160L | 440 | 465 | 473 | 466 | 496 | 503 | 464 | 495 | 502 |
| PB70 + MD180M | 474 | 499 | 507 | 500 | 530 | 537 | 498 | 529 | 536 |
| PB70 + MD180L | 488 | 513 | 521 | 514 | 544 | 551 | 512 | 543 | 550 |
| PB70 + MD200L | 540 | 566 | 573 | 566 | 596 | 604 | 565 | 595 | 602 |

| PB80 | Foot Mounting | | | Flange Mounting | | | Vertical Output | | |
|-----------------|---------------|------------------|------------------|-----------------|------------------|------------------|-----------------|------------------|------------------|
| | Hollow Shaft | Single Extension | Double Extension | Hollow Shaft | Single Extension | Double Extension | Hollow Shaft | Single Extension | Double Extension |
| PB80-Red'n gear | 365 | 390 | 398 | 395 | 432 | 441 | 394 | 430 | 440 |
| PB80 + MD100L | 386 | 412 | 420 | 416 | 453 | 463 | 415 | 452 | 461 |
| PB80 + MD100LX | 390 | 416 | 423 | 420 | 457 | 466 | 419 | 456 | 465 |
| PB80 + MD112M | 396 | 422 | 429 | 426 | 463 | 472 | 425 | 462 | 471 |
| PB80 + MD132S | 415 | 441 | 448 | 445 | 482 | 491 | 444 | 481 | 490 |
| PB80 + MD132M | 432 | 458 | 466 | 463 | 499 | 509 | 461 | 498 | 508 |
| PB80 + MD160M | 487 | 513 | 520 | 517 | 554 | 563 | 516 | 553 | 562 |
| PB80 + MD160L | 507 | 533 | 540 | 537 | 574 | 583 | 536 | 573 | 582 |
| PB80 + MD180M | 541 | 567 | 574 | 571 | 608 | 617 | 570 | 607 | 616 |
| PB80 + MD180L | 555 | 581 | 588 | 585 | 622 | 631 | 584 | 621 | 630 |
| PB80 + MD200L | 607 | 633 | 640 | 637 | 674 | 683 | 636 | 673 | 682 |

Notes

Notes

Notes

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