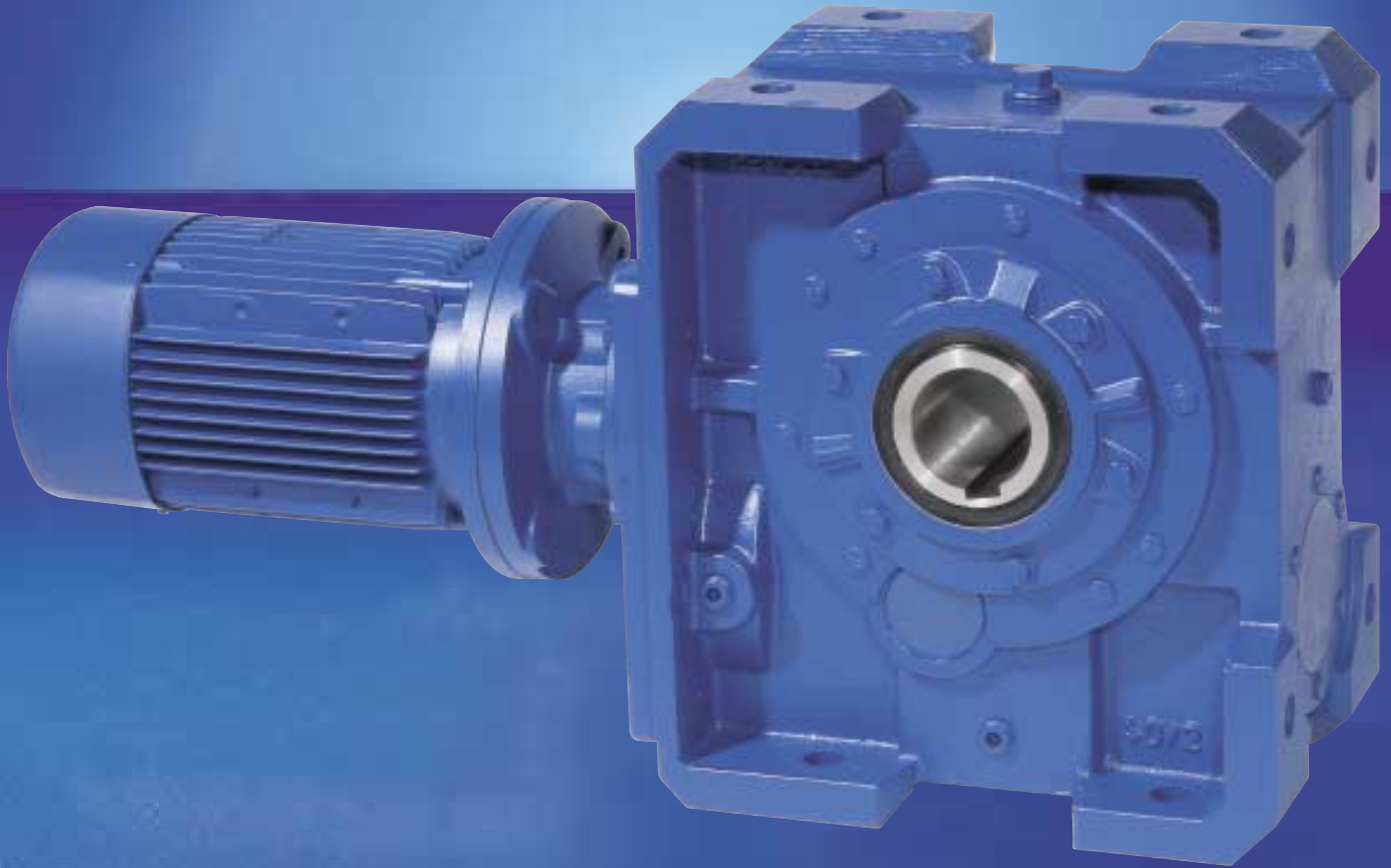
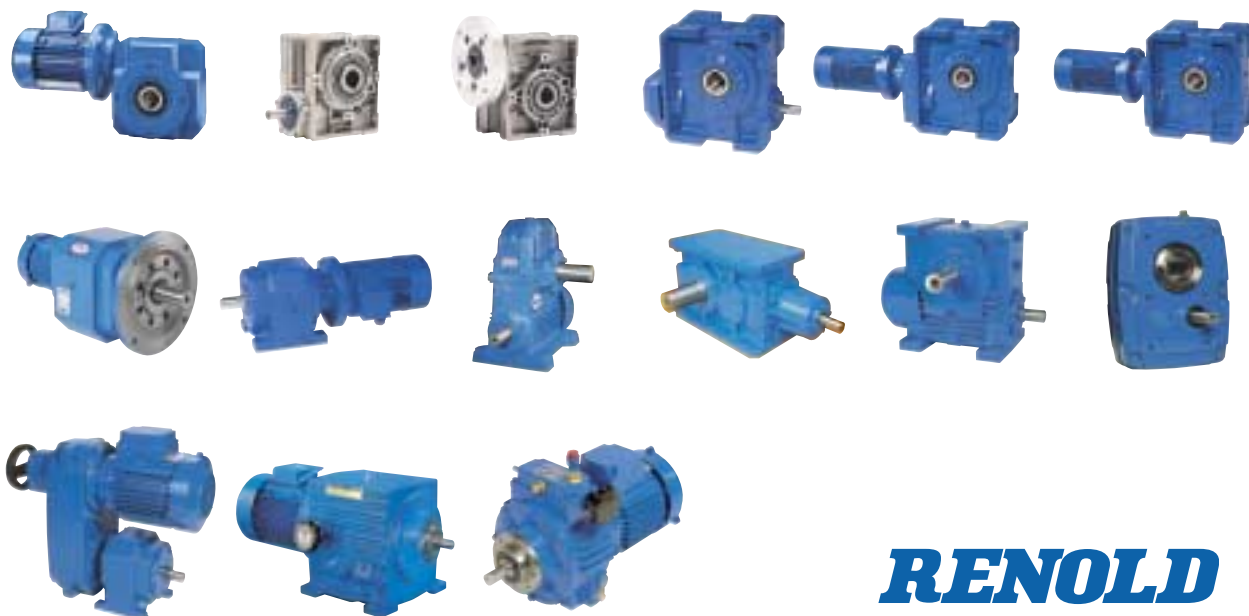


RENOLD

e.PM Series - PH Type



Helical-Worm Gear Unit



RENOLD

CANADA

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Western District

Toll Free Tel: 800 265 9970
Fax: 800 661 6118

Atlantic and Manitoba District

Toll Free Tel: 800 265 9970
Fax: 800 661 6118

USA

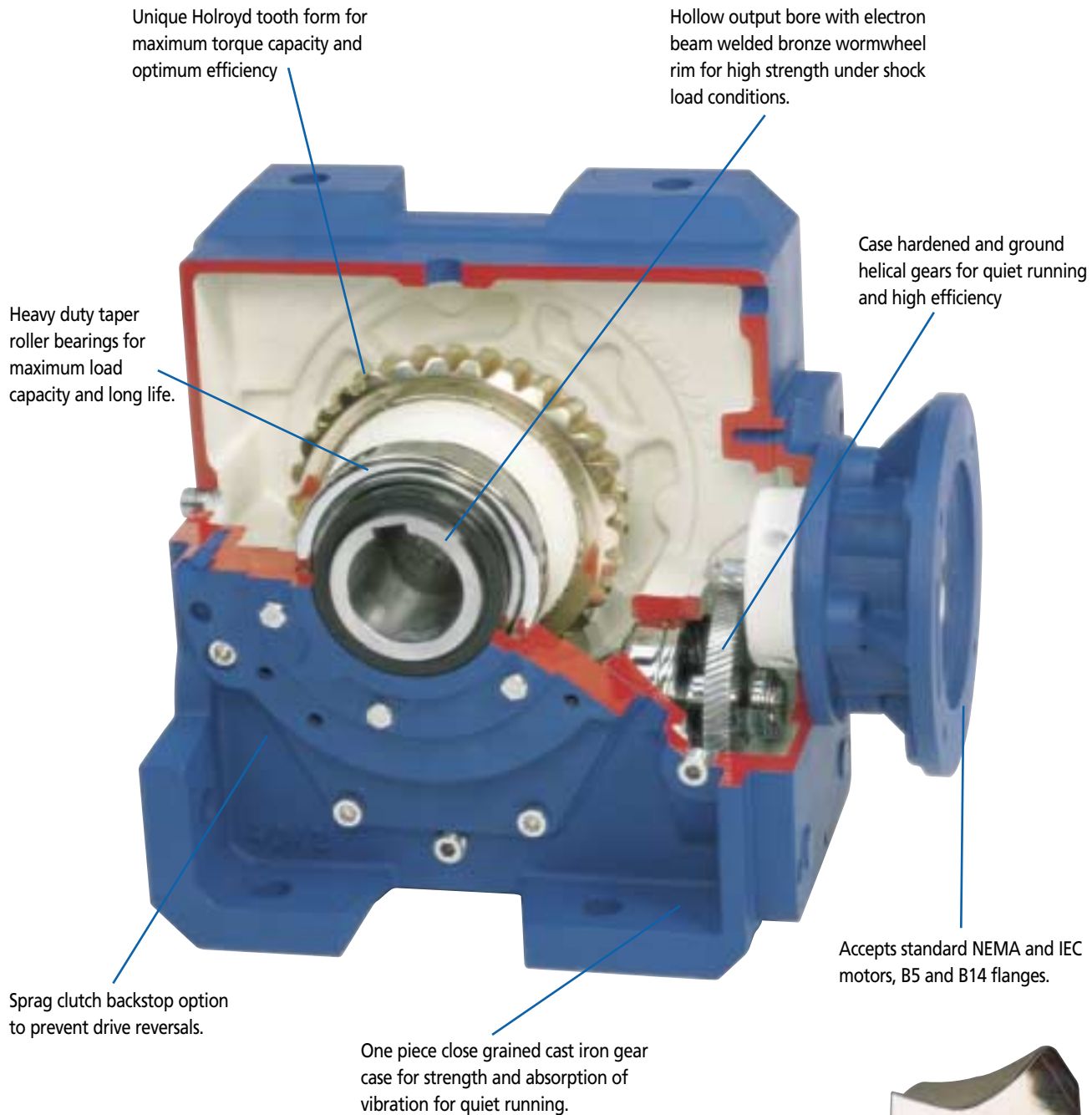
Renold Power Transmission Corporation

8750 Global Way, West Chester,
Ohio 45069
Tel: (513) 942 1000 Fax: (513) 942 8500
E-mail: rptc@fuse.net

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RENOLD e.PM Series - PH Type Product Features



Applications:

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



RENOLD e.PM Series - PH 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.

Gears

The first reduction stage helical gears are made from case hardened alloy steel with ground profiles to ensure smooth, quiet running with maximum life and efficiency.

The worm is integral with its shaft and manufactured from alloy steel, casehardened on the threads and ground and polished on the thread profiles.

The wormwheel rim is made from bronze complying with BS 1400 PB2-C (centrifugally cast) and secured to the cast iron center by the electron beam welding process.

The Holroyd gear form used in the **RENOLD** e.PM Series gear units corresponds to British Standard recommendations but, in addition, has an exclusive feature which consists principally of an important modification to the worm threads and wheel teeth which confer additional valuable properties to gear performance. This ensures that our gears will run correctly and transmit true uniform angular velocity when running under all load conditions. The modification also gives a tapered oil entry gap between the teeth, which drags the lubricant between the surfaces and results in more efficient lubrication. Standard worm gears have right-hand threads but left-hand threads can be made to order.

Shafts

Standard shaft extensions are to inch dimensions, to suit the requirements of the North American market. 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. Output bores are supplied in metric dimensions.

Bearings

Standard metric taper/roller bearings are fitted throughout the **RENOLD** e.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.

Dry Well Feature

The **RENOLD** e.PM Series unit can be factory fitted with a 'dry-well' adaption at the output shaft to create a non oil leak unit. The output shaft bearing within the dry well is grease lubricated.

The non leak feature is particularly important on mixer drive applications in food and chemical plants where the unit shaft is vertically down.

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.

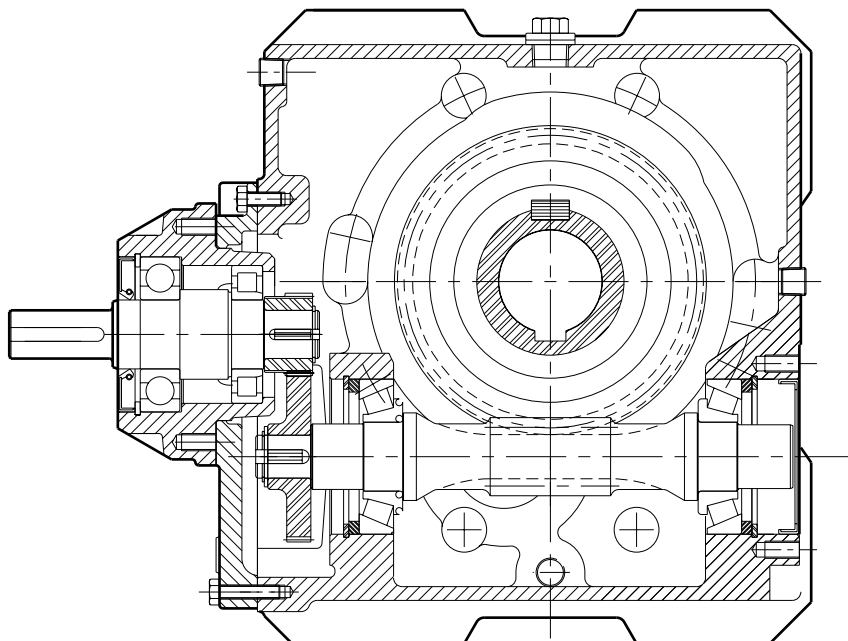
For lower speeds it may be necessary to consider grease lubrication of certain bearings and in this instance it is advisable to consult with Renolds Engineers. Full lubrication details can be found under the "Installation & Maintenance" section.

Backstop

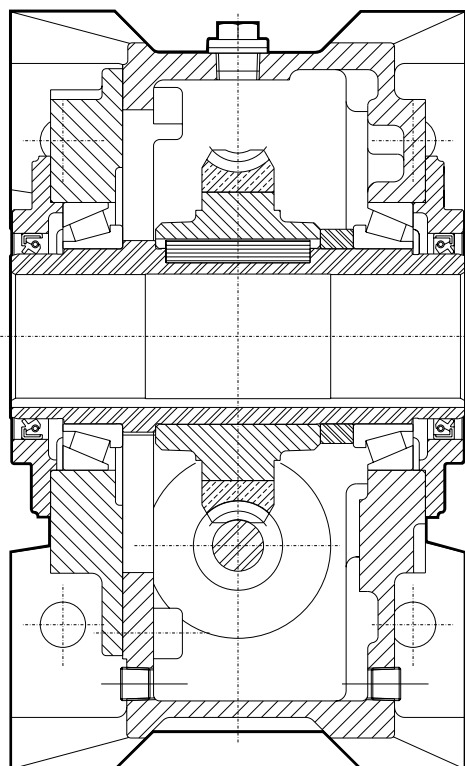
Sprag clutch backstops can be fitted to all units to prevent unit run back when required.

Input Housing

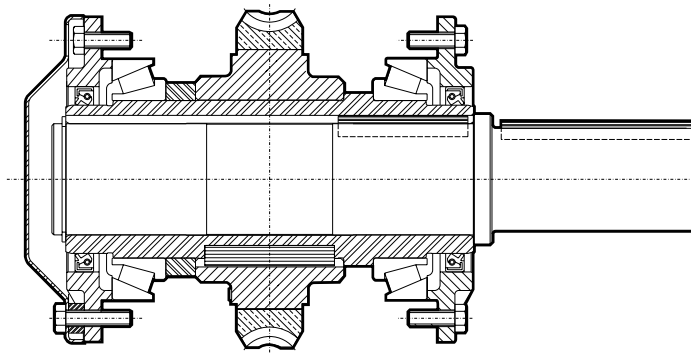
When the **RENOLD** e.PM Series unit is supplied as a non-motorized unit i.e. for direct coupling or driven via a V-belt or chain drive, a high speed input shaft housing is fitted. This consists of a robust housing containing the input shaft which is supported in maintenance-free bearings.

RENOLD e.PM Series PH Type - Product Design Variations

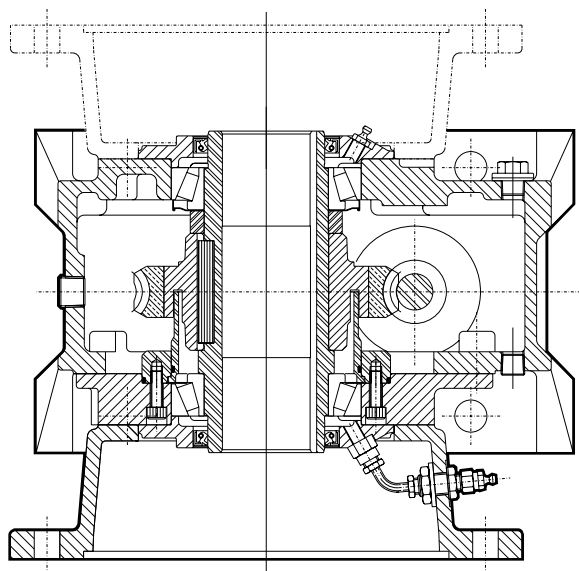
Hollow output shaft unit showing standard metric extension on input shaft adaptor



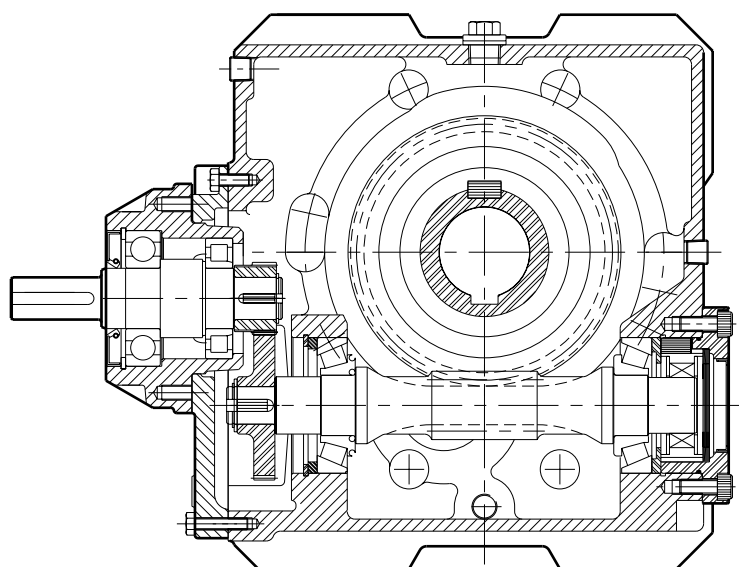
Standard hollow output shaft with semi dual lip oil seal for added oil retention



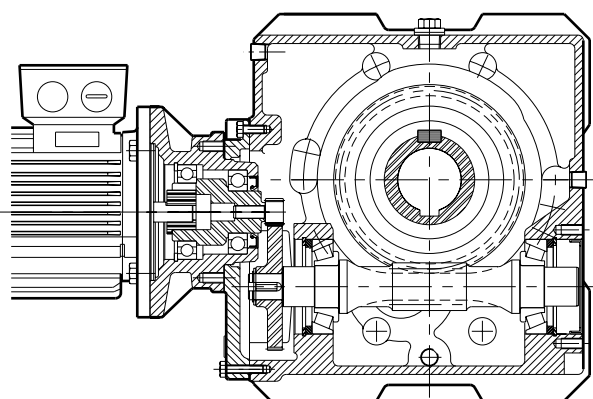
Standard plug-in output shaft. Single and double extension shafts are available with metric and American dimensions.

RENOLD e.PM Series PH Type - Product Design Variations

Unit fitted with output location flange and dry well adaption at the output of the e.PM Series unit. The non leak feature is particularly important on mixer applications in the food and chemical Industry.



Sprag Clutch, anti run-back assembly fitted to the worm shaft, to prevent unit run back. The Sprag Clutch can be supplied as a kit for retro fitting at any time.

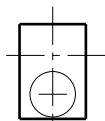


Motorized unit made to suit standard NEMA and IEC motors.

RENOLD e.PM Series - Single Reduction - Mounting & Handing

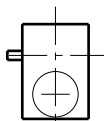
Underdriven

No Sprag backstop fitted.
Sprag backstop fitted.



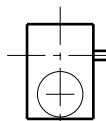
UA

UB



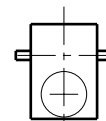
UC

UD



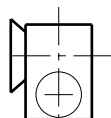
UE

UF



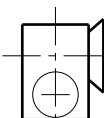
UG

UH



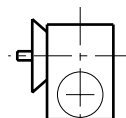
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UK



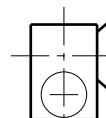
UL

UM



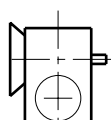
UN

UP



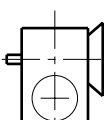
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UR



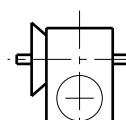
US

UT



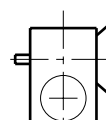
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UV



UW

UX



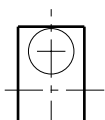
UY

UZ

No Sprag backstop fitted.
Sprag backstop fitted.

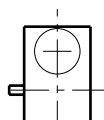
Overdriven

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Sprag backstop fitted.



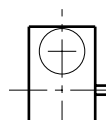
OA

OB



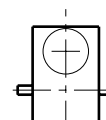
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OD



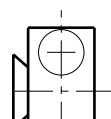
OE

OF



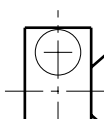
OG

OH



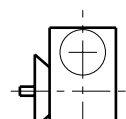
OJ

OK



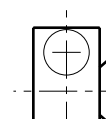
OL

OM



ON

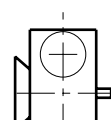
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OQ

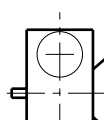
OR

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Sprag backstop fitted.



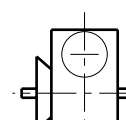
OS

OT



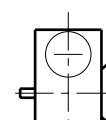
OU

OV



OW

OX



OY

OZ

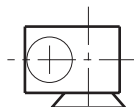
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RENOLD e.PM Series - Single Reduction - Mounting & Handling

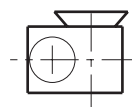
Vertical

PH Type with dry well sump
(Factory Built)

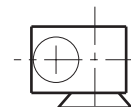
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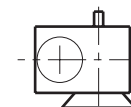
VS



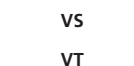
VU



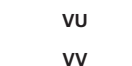
VW



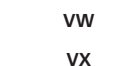
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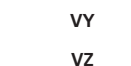
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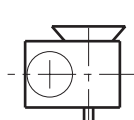
VV



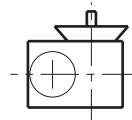
VX



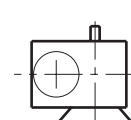
VZ



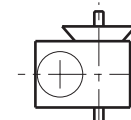
V1



V3

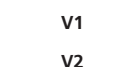


V5

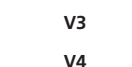


V7

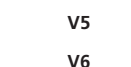
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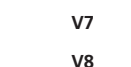
V2



V4



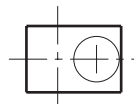
V6



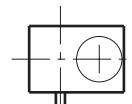
V8

Wall Mounting

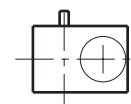
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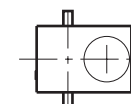
WA



WC



WE



WG



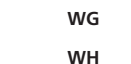
WB



WD



WF

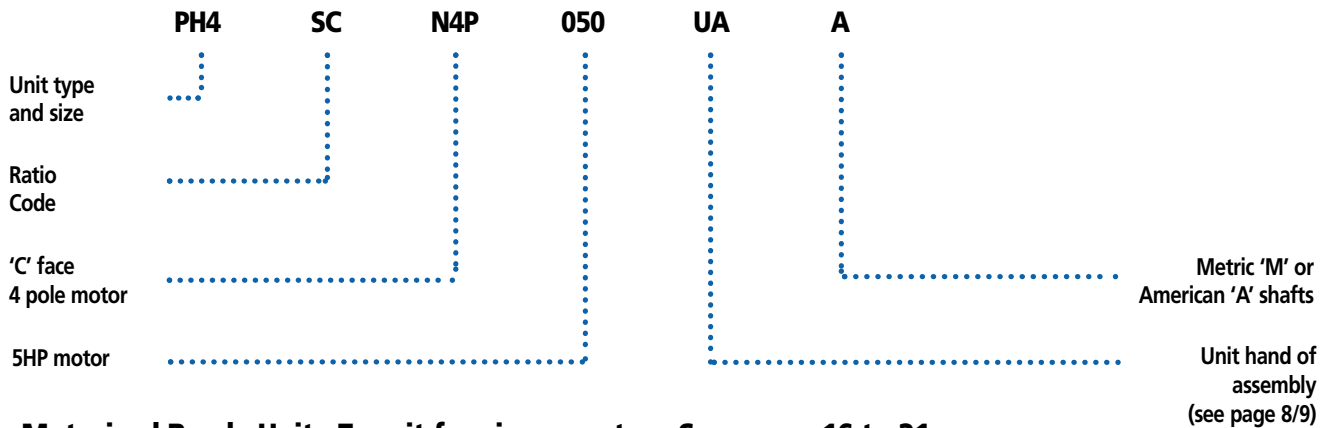


WH

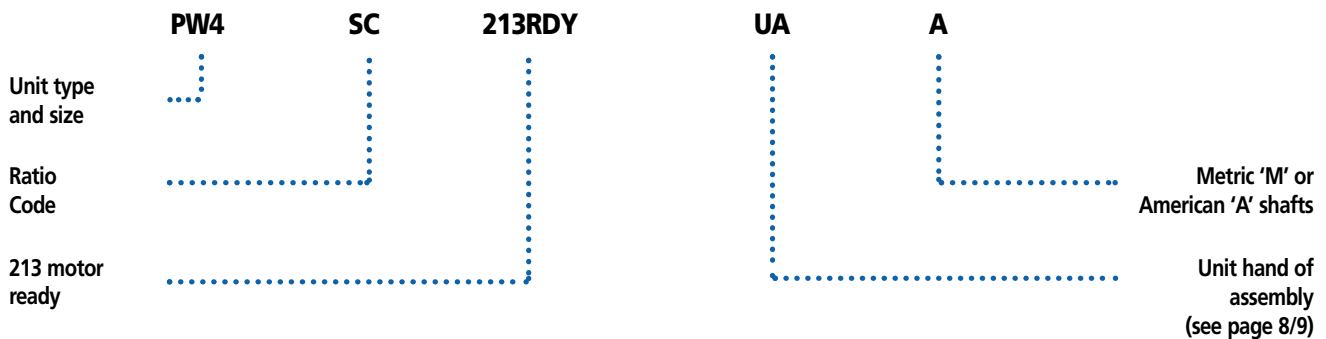
Ordering Procedure - Unit Product Code

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

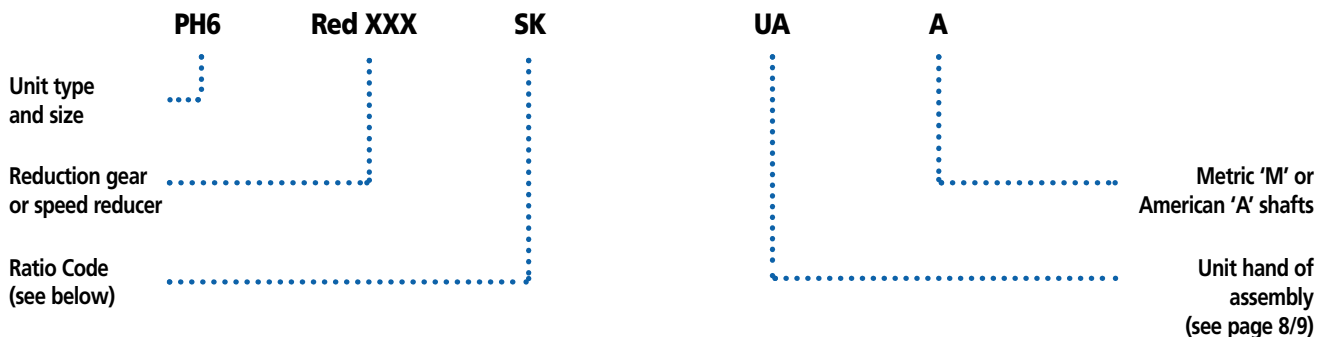
Motorized Unit - See pages 16 to 21



Motorized Ready Unit - To suit free issue motor - See pages 16 to 21



Speed Reducer Unit - See pages 29 to 42



Ratio Codes for PH Type Gear Units

RATIO	CODE	RATIO	CODE	RATIO	CODE	RATIO	CODE	RATIO	CODE
016	SA	032	SD	063	SG	125	SK	250	SN
020	SB	040	SE	080	SH	160	SL	320	SP
025	SC	050	SF	100	SJ	200	SM		

RENOLD e.PM Series - Selection Information

To select a motorized or non-motorized 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 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 e.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 x application service factor f_D (table 1 and table 2) x 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.

Thermal Rating

The thermal ratings given are those which the gear units will transmit at an ambient temperature of 68°F, when the heat generated within the gearbox is being dissipated at the same rate. Whilst these ratings can be exceeded under start up conditions, this situation could lead to overheating and subsequent damage if continuously applied.

Thermal torque ratings do not relate to mechanical gear life and are not affected by running time or momentary shock loads. If the ambient temperature is likely to exceed 68°F, this situation will have to be taken into account in the selection procedure. This is done by applying the thermal service factor given in table 4 when calculating the selection output torque.

E.g. Thermal selection torque = continuous torque requirement X thermal service factor f_T . Where intermittent running is involved it is possible the thermal limitation can be ignored, such as on a crane or which application, and when this type of operation is being considered full applicational details should be given to Renold for assessment.

Selection Procedure

MOTORIZED UNIT SELECTION PROCEDURE e.PM SERIES MOTORIZED

To select an e.PM series motorized 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 Service Factor = $f_D \times f_S$
- Determine the power absorbed by the machine.
Absorbed Power (HP) = $\frac{\text{Absorbed torque} \times \text{Speed (RPM)}}{63000}$
- 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 16 to 21 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.

SPEED REDUCER UNIT SELECTION PROCEDURE

When a speed reducer 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 a) 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 29 to 42.
- Determine the Thermal Service factor from table 4 and multiply the input power or output torque in a) by this figure. The Thermal Rating appropriate to the unit tentatively selected in a) must be equal to or greater than this value.
- Where an output shaft is fitted, check that any Overhung and/or Axial loads applied are within the capabilities of the unit - see page 27.

RENOLD e.PM Series - Selection Examples

Mechanical Selection Torque	lbf. ins =	Actual Torque (lbf. ins) Requirement	X	Mechanical Service Factor (fd)	X	Starts Factor (fs)
Thermal Selection Torque	lbf. ins =	Actual Torque (lbf. ins) Requirement	X	Thermal Service Factor (ft)		
Mechanical Selection Power	(HP) =	Actual Power (HP) Requirement	X	Mechanical Service Factor (fd)	X	Starts Factor (fs)
Thermal Selection Power	(HP) =	Actual Power (HP) Requirement	X	Thermal Service Factor (ft)		

Example 1 Motorized Unit

A motorized gear unit is required to drive an inclined chain conveyor having a headshaft torque of 23000lb.in, operating for 24 hours per day continuously at 45 RPM.

The duty is is considered a steady load.

$$\begin{aligned} \text{a) Approximate motor power (HP)} &= \frac{230000 \times 45}{63000 \times 0.90} \\ \text{assuming unit efficiency is 90\%} &= 18.2\text{HP} \end{aligned}$$

Nearest motor power is 20HP.

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 16 to 21 a 20HP drive can be found on page 20.
43 RPM is the closest speed to the one required offering a mechanical service factor SF of 1.34 which satisfies the selection factor in d) above.

The selected unit product code is **PH7SEN4P200*****

Example 2 Speed Reducer

A right angle gear unit is required to drive a machine using an electric motor as the prime mover @ 1800 RPM. The output torque required is 13000 lb.in 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 86°F.

$$\begin{aligned} \text{a) } \begin{array}{l} \text{mechanical selection torque} \\ \text{Actual torque} \\ \text{mechanical service factor } f_D \text{ [table 1]} \\ \text{starts factor } f_S \text{ [table 2]} \end{array} &= \begin{array}{l} 13000 \\ 1.75 \\ 1.2 \end{array} \\ &= 27300 \text{ lb.in} \\ \text{b) } \begin{array}{l} \text{Thermal Selection Torque} \\ \text{Actual torque} \\ \text{Thermal service factor } f_T \text{ [table 4]} \end{array} &= \begin{array}{l} 13000 \\ 1.16 \end{array} \\ &= 15080 \text{ lb.in} \end{aligned}$$

The selection tables on page 29 to 42 show that for a gear ratio of 100:1 page 37 @ 1800 RPM the PH 6 unit is the size that fulfills both the selection criteria in a) and b)

The selected unit product code is **PH6REDXXXSJ*****

RENOLD e.PM Series - Load Classification by Application

Table 1

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

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
Multi-cylinder I.C. engine (Medium impulsive input)	over 10	1.25	1.50	2.00
	Intermittent -			
	3hrs/day max	1.00	1.25	1.75
Single-cylinder I.C. engine (Highly impulsive input)	3 - 10	1.25	1.50	2.00
	over 10	1.50	1.75	2.25
	Intermittent -			
Single-cylinder I.C. engine (Highly impulsive input)	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_c)

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.

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 e.PM Series - Overhung and Axial Loads

Output shafts of worm 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 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 overhung 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 on pages 16-28 and page 32.

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:

resultant overhung load = (lbf)

$$P \times 126,000 \times F$$

$$D \times S$$

Where P = Power absorbed at output shaft (HP)

S = Speed of output shaft in rev/min

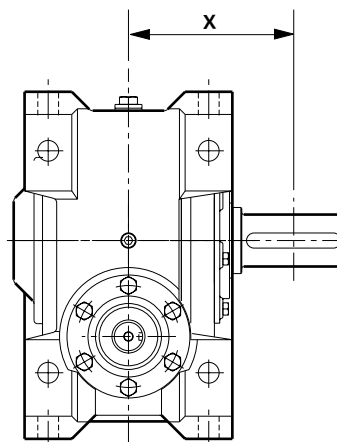
D = Pitch circle diameter of chain sprocket, spur or helical gear, or belt sheave in ins.

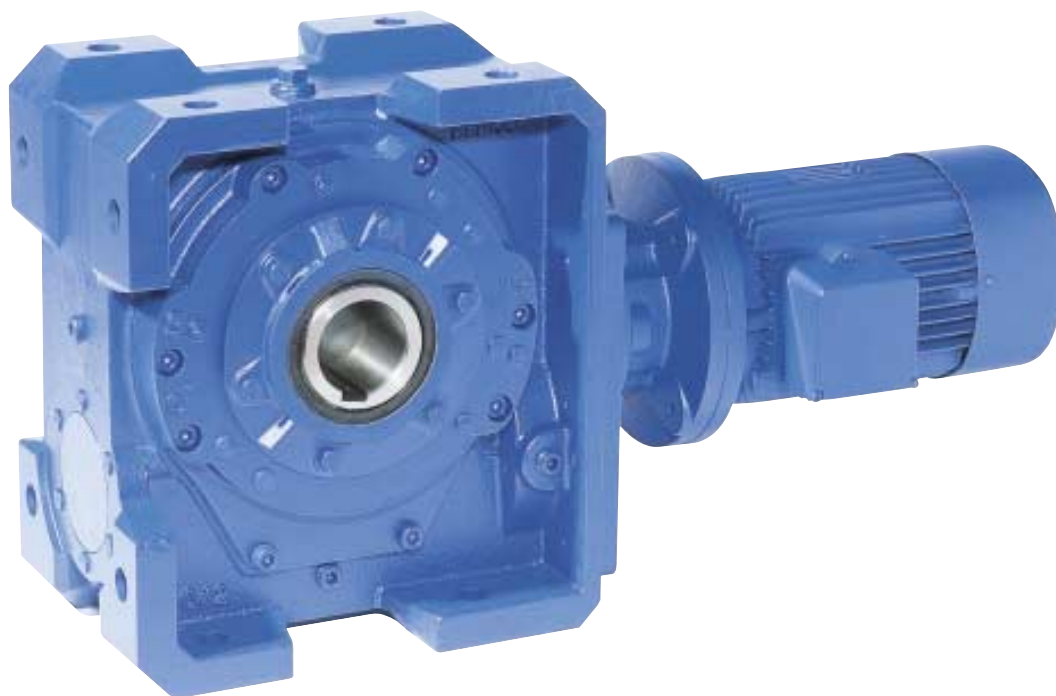
F = Overhung drive application factor as follows:

Chain sprocket	1,00
Spur or helical gear	1,25
Vee sheave	1,50
Flat belt sheave	2,00

The overhung load capacities of motorized units are on pages 16 to 21 and speed reducer units on page 27 and assume the load is applied mid-way along the output shaft extension, the relevant dimension from the center line of the unit being as given below.

Unit Size	X (ins)
PH35	6.50
PH40	6.89
PH50	8.27
PH60	9.25
PH70	10.63
PH80	10.63



RENOLD e.PM Series - PH Type Motorized Wormgear Unit**Features**

- Motorized unit up to 50HP
- Ratio range up to 320:1
- Accepts standard NEMA and IEC motors
- Hollow output shaft for direct shaft mounting
- Plug-in single and double extension output shaft
- Mounting feet on at unit sides
- Cast iron case construction for heavy duty applications
- Dry-well feature for agitator drives
- Output flange available on both sides of the unit

Applications

- ▲ Conveyors
- ▲ Food process machinery
- ▲ Steelworks
- ▲ Mining
- ▲ Mixers
- ▲ Lumber machinery
- ▲ Water treatment
- ▲ Crane drives
- ▲ General industrial applications

RENOLD e.PM Series - PH Type - Motorized - Selection Data

P ₁ 1.0HP							4P - 143TC 1710 RPM 6P - 145TC 1140 RPM	
n ₂ rpm	Actual Ratio i	M ₂ lb.in	S _F	Overhung Load (max.) lb	Axial Load (max.) lb	Product Code		
110	15.50	491	8.75	2000	3600	PH3SAN4P010***		
84	20.43	646	7.50	2000	3600	PH3SBN4P010***		
66	26.11	822	6.34	2000	3600	PH3SCN4P010***		
50	33.91	1061	5.44	2000	3600	PH3SDN4P010***		
44	39.02	1215	4.98	2000	3600	PH3SEN4P010***		
34	50.38	1556	4.21	2000	3600	PH3SFN4P010***		
27	63.55	1945	3.62	2000	3600	PH3SGN4P010***		
21	83.31	2522	2.99	2000	3600	PH3SHN4P010***		
18	97.50	2802	4.09	4000	4500	PH4SJN4P010***		
16	106.12	3181	2.51	2000	3600	PH3SBN4P010***		
14	123.00	3495	3.49	4000	4500	PH4SKN4P010***		
13	128.23	3816	2.21	2000	3600	PH3SKN4P010***		
11	161.25	4517	2.76	4000	4500	PH4SLN4P010***		
11	161.25	4252	1.84	2000	3600	PH3SLN4P010***		
8.3	205.38	5723	4.15	5600	7850	PH5SMN4P010***		
8.3	205.38	5678	2.19	4000	4500	PH4SMN4P010***		
8.3	205.38	5326	1.55	2000	3600	PH3SMN4P010***		
6.9	248.18	6843	3.64	5600	7850	PH5SNN4P010***		
6.9	248.18	6789	1.83	4000	4500	PH4SNN4P010***		
6.9	248.18	6346	1.36	2000	3600	PH3SNN4P010***		
5.6	205.38	8405	3.12	5600	7850	PH5SMN6P010***		
5.6	205.38	8326	1.49	4000	4500	PH4SMN6P010***		
5.6	205.38	7765	1.17	1600	3600	PH3SMN6P010***		
4.6	248.18	10061	2.60	5600	7850	PH5SNN6P010***		
4.6	248.18	9953	1.24	4000	4500	PH4SNN6P010***		
4.6	248.18	9260	1.02	700	3600	PH3SNN6P010***		

P ₁ 1.5HP							4P - 145TC 1710 RPM 6P - 182TC 1150 RPM	
n ₂ rpm	Actual Ratio i	M ₂ lb.in	S _F	Overhung Load (max.) lb	Axial Load (max.) lb	Product Code		
110	15.50	747	5.76	2000	3600	PH3SAN4P015***		
84	20.43	979	4.95	2000	3600	PH3SBN4P015***		
66	26.11	1244	4.19	2000	3600	PH3SCN4P015***		
50	33.91	1601	3.60	2000	3600	PH3SDN4P015***		
44	39.02	1834	3.30	2000	3600	PH3SEN4P015***		
34	50.38	2343	2.79	2000	3600	PH3SFN4P015***		
27	63.55	2928	2.41	2000	3600	PH3SGN4P015***		
26	65.63	2905	3.51	4000	4500	PH4SGN4P015***		
23	75.52	3318	3.20	4000	4500	PH4SHN4P015***		
21	83.31	3797	1.99	2000	3600	PH3SHN4P015***		
18	97.50	4230	2.71	4000	4500	PH4SJN4P015***		
16	106.12	4784	1.67	2000	3600	PH3SJN4P015***		
14	123.00	5309	3.97	5600	7850	PH5SKN4P015***		
14	123.00	5262	2.32	4000	4500	PH4SKN4P015***		
13	128.23	5732	1.47	2000	3600	PH3SKN4P015***		
10.6	161.25	6864	3.29	5600	7850	PH5SLN4P015***		
10.6	161.25	6793	1.84	4000	4500	PH4SLN4P015***		
10.6	161.25	6396	1.22	2000	3600	PH3SLN4P015***		
8.3	205.38	8619	2.76	5600	7850	PH5SMN4P015***		
8.3	205.38	8540	1.46	4000	4500	PH4SMN4P015***		
8.3	205.38	8001	1.03	1500	3600	PH3SMN4P015***		
6.9	248.18	10306	2.42	5600	7850	PH5SNN4P015***		
6.9	248.18	10211	1.22	4000	4500	PH4SNN4P015***		
6.9	248.18	9532*	0.91	450	3600	PH3SNN4P015***		
6.8	170.00	10594	3.44	5600	11200	PH6SLN6P015***		
5.7	203.33	12555	3.03	7600	11200	PH6SMN6P015***		
5.6	205.38	12548	2.09	5600	7850	PH5SMN6P015***		
5.6	205.38	12414	1.00	3600	4500	PH4SMN6P015***		
5.6	205.38	11562*	0.78	#	3600	PH3SMN6P015***		
4.6	248.18	15001	1.75	5600	7850	PH5SNN6P015***		
4.6	248.18	14840	0.83	2600	4500	PH4SNN6P015***		
4.6	250.00	15254	2.62	7600	11200	PH6SNN6P015***		
3.5	333.33	19443	2.94	9400	12300	PH7SPN6P015***		

The overhung load shown is based on the maximum motor power being transmitted.

For greater overhung loads consult Renold.

*Max. Standard Plug-in Shaft torque lb.in

PH35	PH40	PH50	PH60	PH70	PH80
9250	15100	26900	34900	55300	71000

Key

- n₂ Output Speed, rpm
- i Overall Ratio
- M₂ Output Torque lb.in, Mechanical
- S_F Safety Factor, Mechanical
- # Consult Renold Gears Technical Dept

RENOLD e.PM Series - PH Type - Motorized - Selection Data

P ₁ 2.0HP					4P - 145TC 1710 RPM 6P - 184TC 1150 RPM	
n ₂ rpm	Actual Ratio i	M ₂ lb.in	S _F	Overhung Load (max.) lb	Axial Load (max.) lb	Product Code
110	15.50	1003	4.29	2000	3600	PH3SAN4P020***
84	20.43	1313	3.69	2000	3600	PH3SBN4P020***
66	26.11	1664	3.13	2000	3600	PH3SCN4P020***
50	33.91	2142	2.69	2000	3600	PH3SDN4P020***
44	39.02	2493	3.54	4000	4500	PH4SEN4P020***
44	39.02	2451	2.47	2000	3600	PH3SEN4P020***
34	50.38	3193	2.99	4000	4500	PH4SFN4P020***
34	50.38	3131	2.09	2000	3600	PH3SFN4P020***
27	63.55	3913	1.80	2000	3600	PH3SGN4P020***
26	65.63	3892	2.62	4000	4500	PH4SGN4P020***
23	75.52	4473	4.11	5600	7850	PH5SHN4P020***
23	75.52	4440	2.39	4000	4500	PH4SHN4P020***
21	83.31	5069	1.49	2000	3600	PH3SHN4P020***
18	97.50	5704	3.48	5600	7850	PH5SJN4P020***
18	97.50	5654	2.02	4000	4500	PH4SJN4P020***
16	106.12	6386	1.25	2000	3600	PH3SJN4P020***
14	123.00	7106	2.97	5600	7850	PH5SKN4P020***
14	123.00	7034	1.74	4000	4500	PH4SKN4P020***
13	128.23	7651	1.10	1650	3600	PH3SKN4P020***
11	161.25	9175	2.46	5600	7850	PH5SLN4P020***
11	161.25	9081	1.37	4000	4500	PH4SLN4P020***
11	161.25	8540	0.92	1200	3600	PH3SLN4P020***
9.6	120.00	10166	3.30	7600	11200	PH6SKN6P020***
8.3	205.38	11521	2.06	5600	7850	PH5SMN4P020***
8.3	205.38	11402	1.09	3950	4500	PH4SMN4P020***
8.3	205.38	10682*	0.77	#	3600	PH3SMN4P020***
7.2	160.00	12999	3.72	9400	12300	PH7SLN6P020***
6.9	248.18	13777	1.81	5600	7850	PH5SNN4P020***
6.9	248.18	13614	0.91	3150	4500	PH4SNN4P020***
6.8	170.00	14125	2.58	7600	11200	PH6SLN6P020***
5.9	193.33	15539	3.28	9400	12300	PH7SMN6P020***
5.7	203.33	16740	2.28	7600	11200	PH6SMN6P020***
5.6	205.38	16753	1.56	5300	7850	PH5SMN6P020***
4.6	248.18	20029	1.31	4450	7850	PH5SNN6P020***
4.6	250.00	20338	1.97	7350	11200	PH6SNN6P020***
4.2	271.11	21350	2.56	9400	12300	PH7SNN6P020***
3.5	333.33	26141	2.99	12350	12300	PH8SPN6P020***
3.5	333.33	25924	2.21	9100	12300	PH7SPN6P020***

P ₁ 3.0HP					4P - 182TC 1740 RPM 6P - 213TC 1160 RPM	
n ₂ rpm	Actual Ratio i	M ₂ lb.in	S _F	Overhung Load (max.) lb	Axial Load (max.) lb	Product Code
112	15.50	1488	2.87	2000	3600	PH3SAN4P030***
85	20.43	1971	3.56	4000	4500	PH4SBN4P030***
85	20.43	1947	2.47	2000	3600	PH3SBN4P030***
67	26.11	2501	3.02	4000	4500	PH4SCN4P030***
67	26.11	2465	2.10	2000	3600	PH3SCN4P030***
51	33.91	3223	2.60	4000	4500	PH4SDN4P030***
51	33.91	3168	1.81	2000	3600	PH3SDN4P030***
45	39.02	3692	2.38	4000	4500	PH4SEN4P030***
45	39.02	3625	1.66	2000	3600	PH3SEN4P030***
44	39.55	3581	4.10	5600	7850	PH5SEN4P030***
35	50.38	4724	2.01	4000	4500	PH4SFN4P030***
35	50.38	4632	1.41	2000	3600	PH3SFN4P030***
34	50.53	4531	3.55	5600	7850	PH5SFN4P030***
27	63.55	5781	1.21	2000	3600	PH3SGN4P030***
27	65.63	5815	2.99	5600	7850	PH5SGN4P030***
27	65.63	5766	1.76	4000	4500	PH4SGN4P030***
23	75.52	6643	2.75	5600	7850	PH5SHN4P030***
23	75.52	6578	1.61	4000	4500	PH4SHN4P030***
21	83.31	7490	1.00	1700	3600	PH3SHN4P030***
18	97.50	8451	2.34	5600	7850	PH5SJN4P030***
18	97.50	8367	1.36	4000	4500	PH4SJN4P030***
18	99.41	9321	3.25	7600	11200	PH6SJN4P030***
16	106.12	9426*	0.84	550	3600	PH3SJN4P030***
15	120.00	10362	2.93	7600	11200	PH6SKN4P030***
14	122.22	11421	4.28	9400	12300	PH7SKN4P030***
14	123.00	10528	1.99	5600	7850	PH5SKN4P030***
14	123.00	10409	1.17	4000	4500	PH4SKN4P030***
11	160.00	13300	3.28	9400	12300	PH7SLN4P030***
11	161.25	13577	1.66	5600	7850	PH5SLN4P030***
11	161.25	13421	0.93	3200	4500	PH4SLN4P030***
10	170.00	14387	2.30	7600	11200	PH6SLN4P030***
9.0	193.33	15904	2.85	9400	12300	PH7SMN4P030***
8.6	203.33	17033	2.02	7600	11200	PH6SMN4P030***
8.5	205.38	17050	1.39	5300	7850	PH5SMN4P030***
7.0	248.18	20363	1.22	4350	7850	PH5SNN4P030***
7.0	250.00	20700	1.75	7250	11200	PH6SNN4P030***
6.4	271.11	22011	3.09	12300	12300	PH8SNN4P030***
6.4	271.11	21836	2.29	9400	12300	PH7SNN4P030***
5.7	203.33	24959	1.52	6150	11200	PH6SMN6P022***
5.6	205.38	24979	1.05	2750	7850	PH5SMN6P030***
5.2	333.33	26740	2.68	12350	12300	PH8SPN4P030***
5.2	333.33	26489	1.98	9000	12300	PH7SPN4P030***
4.7	248.18	29824*	0.88	#	7850	PH5SNN6P030***
4.6	250.00	30325	1.32	4400	11200	PH6SNN6P022***
4.3	271.11	32186	2.32	12350	12300	PH8SNN6P030***
4.3	271.11	31880	1.71	8050	12300	PH7SNN6P030***
3.5	333.33	39089	2.00	12350	12300	PH8SPN6P030***
3.5	333.33	38712	1.48	6450	12300	PH7SPN6P030***

The overhung load shown is based on the maximum motor power being transmitted.

For greater overhung loads consult Renold.

*Max. Standard Plug-in Shaft torque lb.in

PH35	PH40	PH50	PH60	PH70	PH80
9250	15100	26900	34900	55300	71000

Key

- n₂ Output Speed, rpm
- i Overall Ratio
- M₂ Output Torque lb.in, Mechanical
- S_F Safety Factor, Mechanical
- # Consult Renold Gears Technical Dept

RENOLD e.PM Series - PH Type - Motorized - Selection Data

P ₁ 5.0HP				4P - 184TC 1740 RPM 6P - 215TC 1150 RPM		
n ₂ rpm	Actual Ratio i	M ₂ lb.in	S _F	Overhung Load (max.) lb	Axial Load (max.) lb	Product Code
112	15.50	2528	4.44	5600	7850	PH5SAN4P050***
112	15.50	2525	2.47	4000	4500	PH4SAN4P050***
112	15.50	2495	1.71	2000	3600	PH3SAN4P050***
85	20.43	3321	3.77	5600	7850	PH5SBN4P050***
85	20.43	3303	2.13	4000	4500	PH4SBN4P050***
85	20.43	3259	1.48	2000	3600	PH3SBN4P050***
67	26.11	4220	3.23	5600	7850	PH5SCN4P050***
67	26.11	4187	1.81	4000	4500	PH4SCN4P050***
67	26.11	4122	1.26	2000	3600	PH3SCN4P050***
51	33.91	5445	2.76	5600	7850	PH5SDN4P050***
51	33.91	5390	1.55	4000	4500	PH4SDN4P050***
51	33.91	5299	1.08	2000	3600	PH3SDN4P050***
45	39.02	6175	1.42	4000	4500	PH4SEN4P050***
45	39.02	6056	0.99	2000	3600	PH3SEN4P050***
44	39.55	6024	2.43	5600	7850	PH5SEN4P050***
43	40.83	6571	3.61	7600	11200	PH6SEN4P050***
35	49.50	7931	3.18	7600	11200	PH6SFN4P050***
35	50.38	7900	1.20	4000	4500	PH4SFN4P050***
35	50.38	7728	0.84	1600	3600	PH3SFN4P050***
34	50.53	7607	2.12	5600	7850	PH5SFN4P050***
30	58.67	9347	2.84	7600	11200	PH6SGN4P050***
27	65.63	9739	1.78	5600	7850	PH5SGN4P050***
27	65.63	9644	1.05	4000	4500	PH4SGN4P050***
23	75.52	11125	1.64	5600	7850	PH5SHN4P050***
23	75.52	11004	0.96	4000	4500	PH4SHN4P050***
21	83.11	13153	3.35	9400	12300	PH7SHN4P050***
21	83.11	13108	2.23	7600	11200	PH6SHN4P050***
18	97.50	14154	1.40	5600	7850	PH5SJN4P050***
18	97.50	13979	0.81	3000	4500	PH4SJN4P050***
18	99.41	15643	2.96	9400	12300	PH7SJM4P050***
18	99.41	15589	1.94	7600	11200	PH6SJM4P050***
15	120.00	17356	1.75	7600	11200	PH6SKN4P050***
14	122.22	19167	3.59	12350	12300	PH8SKN4P050***
14	122.22	19123	2.56	9400	12300	PH7SKN4P050***
14	123.00	17592	1.19	5100	7850	PH5SKN4P050***
11	160.00	22511	2.65	12350	12300	PH8SLN4P050***
11	160.00	22338	1.96	9400	12300	PH7SLN4P050***
11	161.25	22686	0.99	3650	7850	PH5SLN4P050***
10	170.00	24070	1.37	6400	11200	PH6SLN4P050***
9.0	193.33	26888	2.31	12350	12300	PH8SMN4P050***
9.0	193.33	26681	1.70	9000	12300	PH7SMN4P050***
8.6	203.33	28498	1.21	5050	11200	PH6SMN4P050***
8.5	205.38	28491*	0.83	#	7850	PH5SMN4P050***
7.0	250.00	34590	1.05	2500	11200	PH6SNN4P050***
6.4	271.11	36928	1.84	12350	12300	PH8SNN4P050***
6.4	271.11	36539	1.37	7000	12300	PH7SNN4P050***
5.7	203.33	42071*	0.91	#	11200	PH6SMN6P050***
5.2	333.33	44806	1.60	11900	112300	PH8SPN4P050***
5.2	333.33	44328	1.18	4800	12300	PH7SPN4P050***
4.6	250.00	51049*	0.78	#	11200	PH6SNN6P050***
4.2	271.11	54330	1.38	9950	12300	PH8SNN6P050***
4.2	271.11	53742	1.02	#	12300	PH7SNN6P050***
3.5	333.33	65895	1.19	6850	12300	PH8SPN6P050***
3.5	333.33	65172*	0.88	#	12300	PH7SPN6P050***

The overhung load shown is based on the maximum motor power being transmitted.

For greater overhung loads consult Renold.

*Max. Standard Plug-in Shaft torque lb.in

PH35	PH40	PH50	PH60	PH70	PH80
9250	15100	26900	34900	55300	71000

Key

- n₂ Output Speed, rpm
- i Overall Ratio
- M₂ Output Torque lb.in, Mechanical
- S_F Safety Factor, Mechanical
- # Consult Renold Gears Technical Dept

For more information telephone us - Canada: Toll Free 800.265.9970. USA: Toll Free 800.850.8141

RENOLD e.PM Series - PH Type - Motorized - Selection Data

P ₁ 7.5HP					4P - 213TC 1720 RPM 6P - 254TC 1170 RPM	
n ₂ rpm	Actual Ratio i	M ₂ lb.in	S _F	Overhung Load (max.) lb	Axial Load (max.) lb	Product Code
111	15.50	3861	2.91	5600	7850	PH5SAN4P075***
111	15.50	3844	1.63	4000	4500	PH4SAN4P075***
111	15.50	3794	1.13	2000	3600	PH3SAN4P075***
84	20.43	5062	2.49	5600	7850	PH5SBN4P075***
84	20.43	5023	1.40	4000	4500	PH4SBN4P075***
84	20.43	4951	0.98	2000	3600	PH3SBN4P075***
83	20.74	5160	3.62	7600	11200	PH6SBN4P075***
66	26.11	6425	2.13	5600	7850	PH5SCN4P075***
66	26.11	6368	1.19	4000	4500	PH4SCN4P075***
66	26.11	6262	0.83	2000	3600	PH3SCN4P075***
63	27.24	6741	3.05	7600	11200	PH6SCN4P075***
51	33.91	8281	1.82	5600	7850	PH5SDN4P075***
51	33.91	8198	1.02	4000	4500	PH4SDN4P075***
50	34.22	8423	2.65	7600	11200	PH6SDN4P075***
44	39.02	9380	0.94	4000	4500	PH4SEN4P075***
43	39.55	9174	1.61	5600	7850	PH5SEN4P075***
42	40.83	10027	3.56	9400	12300	PH7SEN4P075***
42	40.83	10005	2.38	7600	11200	PH6SEN4P075***
35	49.50	12089	3.15	9400	12300	PH7SFN4P075***
35	49.50	12062	2.10	7600	11200	PH6SFN4P075***
34	50.38	11988	0.79	3750	4500	PH4SFN4P075***
34	50.53	11584	1.39	5600	7850	PH5SFN4P075***
29	58.67	14264	2.81	9400	12300	PH7SGN4P075***
29	58.67	14216	1.87	7600	11200	PH6SGN4P075***
26	65.63	14813	1.18	5600	7850	PH5SGN4P075***
23	75.52	16903	1.08	5250	7850	PH5SHN4P075***
21	83.11	20049	3.09	12350	12300	PH8SHN4P075***
21	83.11	20004	2.21	9400	12300	PH7SHN4P075***
21	83.11	19936	1.47	7400	11200	PH6SHN4P075***
18	97.50	21505	0.92	4000	7850	PH5SJN4P075***
17	99.41	23872	2.73	12350	12300	PH8SJN4P075***
17	99.41	23791	1.95	9400	12300	PH7SJN4P075***
17	99.41	23683	1.28	6500	11200	PH6SJN4P075***
14	120.00	26369	1.15	5750	11200	PH6SKN4P075***
14	122.22	29151	2.37	12350	12300	PH8SKN4P075***
14	122.22	29052	1.69	8600	12300	PH7SKN4P075***
14	123.00	26728	0.79	1850	7850	PH5SKN4P075***
10.8	160.00	34333	1.74	12350	12300	PH8SLN4P075***
11	160.00	34028	1.29	7600	12300	PH7SLN4P075***
10	170.00	36571*	0.91	1250	11200	PH6SLN4P075***
8.9	193.33	40959	1.52	12350	12300	PH8SMN4P075***
8.9	193.33	40591	1.12	5950	12300	PH7SMN4P075***
8.5	203.33	43299*	0.80	#	11200	PH6SMN4P075***
6.3	271.11	56184	1.21	9500	12300	PH8SNN4P075***
6.3	271.11	55520*	0.90	#	12300	PH7SNN4P075***
5.2	333.33	68081	1.06	6150	12300	PH8SPN4P075***
5.2	333.33	67265*	0.78	#	12300	PH7SPN4P075***
4.3	271.11	80427*	0.93	#	12300	PH8SNN6P075***
3.5	333.33	97420*	0.80	#	12300	PH8SPN6P075***

P ₁ 10HP				4P - 215TC 1720 RPM		
n ₂ rpm	Actual Ratio i	M ₂ lb.in	S _F	Overhung Load (max.) lb	Axial Load (max.) lb	Product Code
111	15.50	5165	2.18	5600	7850	PH5SAN4P100***
111	15.50	5132	1.22	4000	4500	PH4SAN4P100***
111	15.50	5070	0.85	2000	3600	PH3SAN4P100***
105	16.44	5498	3.09	7600	11200	PH6SAN4P100***
84	20.43	6764	1.86	5600	7850	PH5SBN4P100***
84	20.43	6712	1.05	4000	4500	PH4SBN4P100***
83	20.74	6903	2.71	7600	11200	PH6SBN4P100***
66	26.11	8586	1.59	5600	7850	PH5SCN4P100***
66	26.11	8501	0.89	4000	4500	PH4SCN4P100***
63	27.24	9028	3.43	9400	12300	PH7SCN4P100***
63	27.24	9018	2.28	7600	11200	PH6SCN4P100***
51	33.91	11053	1.36	5600	7850	PH5SDN4P100***
51	33.91	10930	0.77	4000	4500	PH4SDN4P100***
50	34.22	11280	2.97	9400	12300	PH7SDN4P100***
50	34.22	11255	1.98	7600	11200	PH6SDN4P100***
43	39.55	12261	1.20	5600	7850	PH5SEN4P100***
42	40.83	13414	3.71	12350	12300	PH8SEN4P100***
42	40.83	13369	1.78	7600	11200	PH6SEN4P100***
42	40.83	13399	2.66	9400	12300	PH7SEN4P100***
35	49.50	16190	3.28	12350	12300	PH8SFN4P100***
35	49.50	16155	2.21	9400	12300	PH7SFN4P100***
35	49.50	16119	1.57	7600	11200	PH6SFN4P100***
34	50.53	15463	1.04	5600	7850	PH5SFN4P100***
29	58.67	19104	2.94	12350	12300	PH8SGN4P100***
29	58.67	19061	2.10	9400	12300	PH7SGN4P100***
29	58.67	18997	1.40	7600	11200	PH6SGN4P100***
26	65.63	19775	0.88	4550	7850	PH5SGN4P100***
23	75.52	22564	0.81	3650	7850	PH5SHN4P100***
21	83.11	26792	2.31	12350	12300	PH8SHN4P100***
21	83.11	26702	1.65	9000	12300	PH7SHN4P100***
21	83.11	26581	1.10	5700	11200	PH6SHN4P100***
17	99.41	31865	2.05	12350	12300	PH8SJN4P100***
17	99.41	31757	1.46	8050	12300	PH7SJN4P100***
17	99.41	31613	0.96	3900	11200	PH6SJN4P100***
14	120.00	35202*	0.86	2150	11200	PH6SKN4P100***
14	122.22	38913	1.78	12350	12300	PH8SKN4P100***
14	122.22	38780	1.27	6450	12300	PH7SKN4P100***
11	160.00	45893	1.30	11700	12300	PH8SLN4P100***
11	160.00	45429	0.96	4400	12300	PH7SLN4P100***
8.9	193.33	54753	1.14	9850	12300	PH8SMN4P100***
8.9	193.33	54192	0.84	#	12300	PH7SMN4P100***
6.3	271.11	75010*	0.91	3450	12300	PH8SNN4P100***
5.2	333.33	90896*	0.79	#	12300	PH8SPN4P100***

RENOLD e.PM Series - PH Type - Motorized - Selection Data

P ₁ 15HP 4P - 254TC 1750 RPM						
n ₂ rpm	Actual Ratio i	M ₂ lb.in	S _F	Overhung Load (max.) lb	Axial Load (max.) lb	Product Code
113	15.50	7640	1.47	5600	7850	PH5SAN4P150***
113	15.50	7590	0.82	4000	4500	PH4SAN4P150***
106	16.44	8141	3.13	9400	12300	PH7SAN4P150***
106	16.44	8141	2.07	7600	11200	PH6SAN4P150***
86	20.43	10005	1.25	5600	7850	PH5SBN4P150***
84	20.74	10232	2.69	9400	12300	PH7SBN4P150***
84	20.74	10221	1.81	7600	11200	PH6SBN4P150***
67	26.11	12686	1.07	5600	7850	PH5SCN4P150***
64	27.24	13382	3.22	12350	12300	PH8SCN4P150***
64	27.24	13367	2.30	9400	12300	PH7SCN4P150***
64	27.24	13338	1.53	7600	11200	PH6SCN4P150***
52	33.91	16332	0.92	5400	7850	PH5SDN4P150***
51	34.22	16722	2.78	12350	12300	PH8SDN4P150***
51	34.22	16704	1.99	9400	12300	PH7SDN4P150***
51	34.22	16649	1.33	7600	11200	PH6SDN4P150***
44	39.55	18139	0.81	4950	7850	PH5SEN4P150***
43	40.83	19863	2.49	12350	12300	PH8SEN4P150***
43	40.83	19819	1.79	9400	12300	PH7SEN4P150***
43	40.83	19754	1.20	7450	11200	PH6SEN4P150***
35	49.50	23975	2.20	12350	12300	PH8SFN4P150***
35	49.50	23896	1.58	9400	12300	PH7SFN4P150***
35	49.50	23790	1.06	6500	11200	PH6SFN4P150***
30	58.67	28258	1.97	12350	12300	PH8SGN4P150***
30	58.67	28164	1.42	8750	12300	PH7SGN4P150***
30	58.67	28039	0.94	5250	11200	PH6SGN4P150***
21	83.11	39588	1.56	12350	12300	PH8SHN4P150***
21	83.11	39455	1.11	6250	12300	PH7SHN4P150***
18	99.41	47085	1.38	11400	12300	PH8SJN4P150***
18	99.41	46872	0.99	3900	12300	PH7SJN4P150***
14	122.22	57499	1.20	9200	12300	PH8SKN4P150***
14	122.22	57237*	0.85	#	12300	PH7SKN4P150***
11	160.00	67916	0.88	6200	12300	PH8SLN4P150***
9.1	193.33	81031*	0.77	#	12300	PH8SMN4P150***

P ₁ 20HP 4P - 256TC 1750 RPM						
n ₂ rpm	Actual Ratio i	M ₂ lb.in	S _F	Overhung Load (max.) lb	Axial Load (max.) lb	Product Code
113	15.50	10209	1.10	5600	7850	PH5SAN4P200***
106	16.44	10878	3.27	12350	12300	PH8SAN4P200***
106	16.44	10889	2.34	9400	12300	PH7SAN4P200***
106	16.44	10889	1.55	7600	11200	PH6SAN4P200***
86	20.43	13355	0.94	5600	7850	PH5SBN4P200***
84	20.74	13687	2.79	12350	12300	PH8SBN4P200***
84	20.74	13672	2.01	9400	12300	PH7SBN4P200***
84	20.74	13657	1.36	7600	11200	PH6SBN4P200***
67	26.11	16933	0.80	5250	7850	PH5SCN4P200***
64	27.24	17882	2.41	12350	12300	PH8SCN4P200***
64	27.24	17862	1.72	9400	12300	PH7SCN4P200***
64	27.24	17804	1.15	7600	11200	PH6SCN4P200***
51	34.22	22345	2.08	12350	12300	PH8SDN4P200***
51	34.22	22296	1.49	9400	12300	PH7SDN4P200***
51	34.22	22223	1.00	6900	11200	PH6SDN4P200***
43	40.83	26542	1.86	12350	12300	PH8SEN4P200***
43	40.83	26454	1.34	7000	12300	PH7SEN4P200***
43	40.83	26367	0.90	5750	11200	PH6SEN4P200***
35	49.50	32002	1.65	12350	12300	PH8SFN4P200***
35	49.50	31896	1.19	8050	12300	PH7SFN4P200***
35	49.50	31755	0.79	3850	11200	PH6SFN4P200***
30	58.67	37719	1.48	12350	12300	PH8SGN4P200***
30	58.67	37594	1.06	6750	12300	PH7SGN4P200***
21	83.11	52844	1.17	10300	12300	PH8SHN4P200***
21	83.11	52903	0.79	#	12300	PH7SHN4P200***
18	99.41	62851	1.03	7800	12300	PH8SJN4P200***
14	122.22	76666*	0.90	2650	12300	PH8SKN4P200***

The overhung load shown is based on the maximum motor power being transmitted.

For greater overhung loads consult Renold.

*Max. Standard Plug-in Shaft torque lb.in

PH35	PH40	PH50	PH60	PH70	PH80
9250	15100	26900	34900	55300	71000

Key

- n₂ Output Speed, rpm
- i Overall Ratio
- M₂ Output Torque lb.in, Mechanical
- S_F Safety Factor, Mechanical
- # Consult Renold Gears Technical Dept

RENOLD e.PM Series - PH Type - Motorized - Selection Data

P₁ 25HP 4P - 284TC 1760 RPM

n ₂ rpm	Actual Ratio i	M ₂ lb.in	S _F	Overhung Load (max.) lb	Axial Load (max.) lb	Product Code
107	16.44	13564	2.62	12350	12300	PH8SAN4P250***
107	16.44	13564	1.87	9400	12300	PH7SAN4P250***
107	16.44	13549	1.24	7600	11200	PH6SAN4P250***
85	20.74	17048	2.24	12350	12300	PH8SBN4P250***
85	20.74	17029	1.61	9400	12300	PH7SBN4P250***
85	20.74	16993	1.09	7600	11200	PH6SBN4P250***
65	27.24	22273	1.93	12350	12300	PH8SCN4P250***
65	27.24	22225	1.38	9400	12300	PH7SCN4P250***
65	27.24	22152	0.92	6900	11200	PH6SCN4P250***
51	34.22	27833	1.67	12350	12300	PH8SDN4P250***
51	34.22	27742	1.20	8800	12300	PH7SDN4P250***
51	34.22	27651	0.80	5350	11200	PH6SDN4P250***
43	40.83	33025	1.50	12350	12300	PH8SEN4P250***
43	40.83	32916	1.07	7800	12300	PH7SEN4P250***
36	49.50	39819	1.32	12350	12300	PH8SFN4P250***
36	49.50	39688	0.95	6200	12300	PH7SFN4P250***
30	58.67	46933	1.19	11500	12300	PH8SGN4P250***
30	58.67	46778	0.85	3900	12300	PH7SGN4P250***
21	83.11	65753	0.94	6900	12300	PH8SHN4P250***
18	99.41	78117*	0.83	1850	12300	PH8SUN4P250***

P₁ 40HP 4P - 324TC 1765RPM

n ₂ rpm	Actual Ratio i	M ₂ lb.in	S _F	Overhung Load (max.) lb	Axial Load (max.) lb	Product Code
107	16.44	21733	1.63	12350	12300	PH8SAN4P400***
107	16.44	21710	1.17	9400	12300	PH7SAN4P400***
107	16.44	21663	0.78	7000	11200	PH6SAN4P400***
85	20.74	27287	1.40	12350	12300	PH8SBN4P400***
85	20.74	27229	1.00	8900	12300	PH7SBN4P400***
65	27.24	35613	1.20	12350	12300	PH8SCN4P400***
65	27.24	35536	0.86	7250	12300	PH7SCN4P400***
52	34.22	44503	1.04	11900	12300	PH8SDN4P400***
43	40.83	52805	0.93	10200	12300	PH8SEN4P400***
36	49.50	63670	0.83	7550	12300	PH8SFN4P400***

P₁ 30HP 4P - 286TC 1760 RPM

n ₂ rpm	Actual Ratio i	M ₂ lb.in	S _F	Overhung Load (max.) lb	Axial Load (max.) lb	Product Code
107	16.44	16311	2.18	12350	12300	PH8SAN4P300***
107	16.44	16294	1.56	9400	12300	PH7SAN4P300***
107	16.44	16276	1.04	7600	11200	PH6SAN4P300***
85	20.74	20479	1.86	12350	12300	PH8SBN4P300***
85	20.74	20457	1.34	9400	12300	PH7SBN4P300***
85	20.74	20413	0.91	7300	11200	PH6SBN4P300***
65	27.24	26757	1.60	12350	12300	PH8SCN4P300***
65	27.24	26699	1.15	9000	12300	PH7SCN4P300***
65	27.24	26612	0.77	5700	11200	PH6SCN4P300***
51	34.22	33436	1.39	12350	12300	PH8SDN4P300***
51	34.22	33326	1.00	7750	12300	PH7SDN4P300***
43	40.83	39673	1.24	12350	12300	PH8SEN4P300***
43	40.83	39543	0.89	6250	12300	PH7SEN4P300***
36	49.50	47836	1.10	11300	12300	PH8SFN4P300***
36	49.50	47625	0.79	3600	12300	PH7SFN4P300***
30	58.67	56382	0.99	9450	12300	PH8SGN4P300***
21	83.11	78903*	0.78	1350	12300	PH8SHN4P300***

P₁ 50HP 4P - 326TC 1765 RPM

n ₂ rpm	Actual Ratio i	M ₂ lb.in	S _F	Overhung Load (max.) lb	Axial Load (max.) lb	Product Code
107	16.44	27224	1.30	12350	12300	PH8SAN4P500***
107	16.44	27166	0.93	8900	12300	PH7SAN4P500***
85	20.74	34146	1.12	12350	12300	PH8SBN4P500***
85	20.74	34072	0.80	7550	12300	PH7SBN4P500***
65	27.24	44564	0.96	11900	12300	PH8SCN4P500***
52	34.22	55628	0.83	9650	12300	PH8SDN4P500***

The overhung load shown is based on the maximum motor power being transmitted.

For greater overhung loads consult Renold.

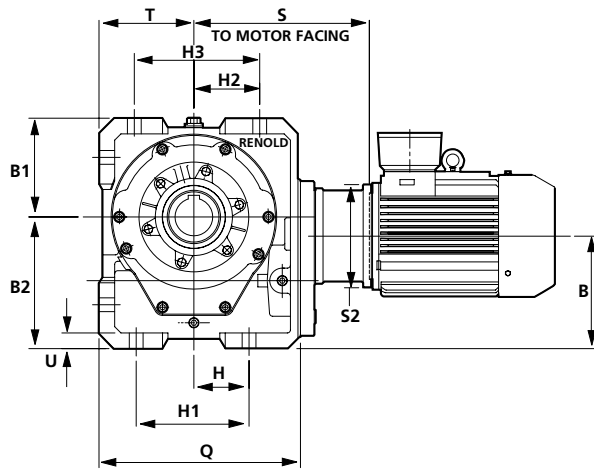
*Max. Standard Plug-in Shaft torque lb.in

PH35	PH40	PH50	PH60	PH70	PH80
9250	15100	26900	34900	55300	71000

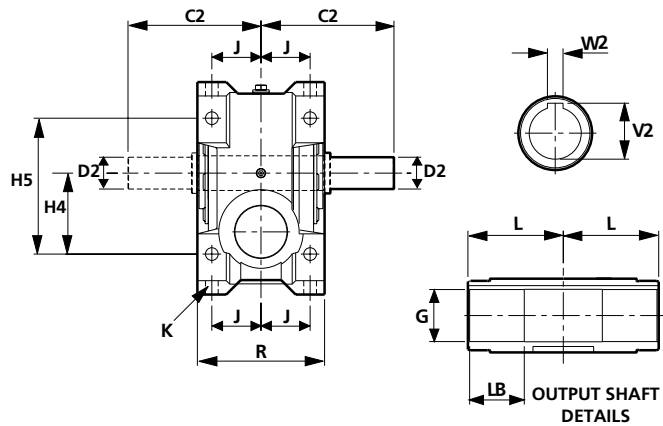
Key

- n₂ Output Speed, rpm
- i Overall Ratio
- M₂ Output Torque lb.in, Mechanical
- S_F Safety Factor, Mechanical
- # Consult Renold Gears Technical Dept

RENOLD e.PM Series - PH Type - Motorized Unit - Dimensions



Unit shown with single extension plug-in output shaft



Shafts can be plugged-in from either side of the unit.

e.PM Series - PH Motorized

UNIT REF	B	B1	B2	H	H1	H2	H3	H4	H5
PH35	6.38	5.51	7.09	2.36	5.31	3.35	6.30	4.72	8.07
PH40	7.06	6.20	8.27	3.46	7.09	4.13	7.87	5.51	9.25
PH50	7.24	7.68	9.45	3.46	7.09	4.92	9.06	6.30	11.02
PH60	9.43	8.86	11.02	4.72	9.25	5.71	10.63	7.48	13.39
PH70	10.60	10.06	13.19	5.51	11.42	6.30	12.20	9.45	16.22
PH80	10.98	11.02	14.57	5.51	12.20	6.69	13.39	10.08	18.11

UNIT REF	J	K	Q	R	T	U
PH35	2.95	0.67	10.79	7.32	5.12	0.98
PH40	3.35	0.85	12.64	8.66	5.94	0.98
PH50	3.94	0.85	14.37	9.84	6.89	1.18
PH60	4.92	1.00	16.46	12.01	7.87	1.38
PH70	5.91	1.00	19.80	14.17	9.69	1.38
PH80	5.91	1.00	19.80	14.17	9.69	1.38

UNIT REF	S			
	143/145	182/256	284/286	324/326
PH35	10.12	10.63	-	-
PH40	11.14	11.65	-	-
PH50	11.93	12.44	-	-
PH60	-	13.78	14.80	15.51
PH70	-	14.37	15.39	16.10
PH80	-	15.31	16.34	17.05

UNIT REF	S2			
	143/145	182/256	284/286	324/326
PH35	6.48	9.02	-	-
PH40	6.48	9.02	-	-
PH50	6.48	9.02	-	-
PH60	-	9.06	11.26	12.99
PH70	-	9.06	11.26	12.99
PH80	-	9.06	11.26	12.99

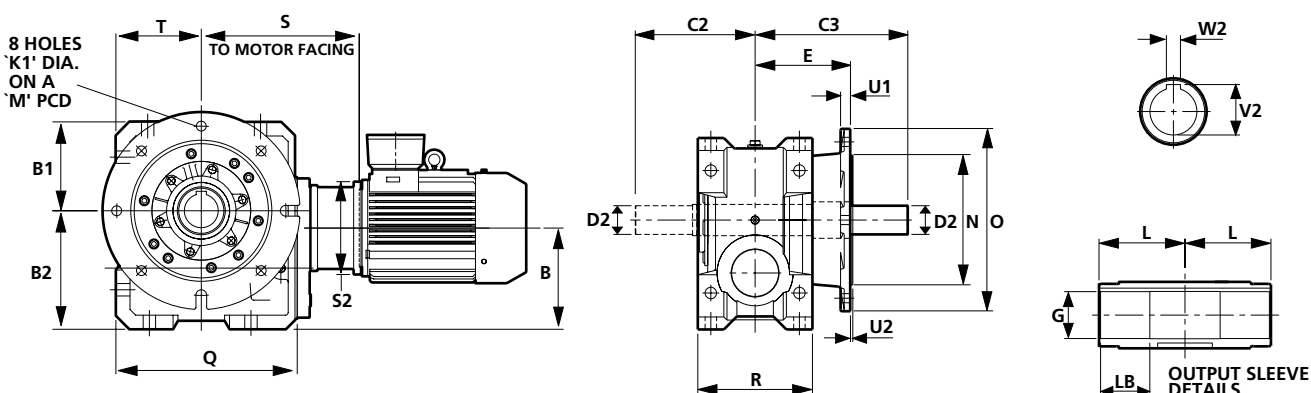
Output Sleeve

UNIT REF	G		L	LB	V2 min.	W2	
	max.	min.				max.	min.
PH35	1.9705	1.9695	4.06	2.17	2.12	0.5520	0.5504
PH40	2.3646	2.3634	4.33	2.56	2.54	0.7095	0.7078
PH50	2.7583	2.7571	5.12	2.76	2.95	0.7884	0.7864
PH60	3.5461	3.5447	6.10	3.54	3.76	0.9853	0.9832
PH70	3.9398	3.9384	6.85	4.53	4.19	1.1034	1.1013
PH80	3.9398	3.9384	6.85	4.53	4.19	1.1034	1.1013

Plug-in Output Shaft

UNIT REF	C2	D2
PH35	7.63	1.7500
PH40	9.00	2.0000
PH50	10.00	2.3750
PH60	11.63	2.8750
PH70	14.00	3.3750
PH80	14.50	3.6250

RENOLD e.PM Series - PH Type - Motorized Unit - Dimensions



Unit shown with single extension plug-in output shaft

Shafts can be plugged-in from either side of the unit.

e.PM Series - PH Motorized - Horizontal Flange Mounted

UNIT REF	B	B1	B2	E	K1	M
PH35	6.38	5.51	7.09	6.06	0.53	10.43
PH40	7.06	6.20	8.27	7.20	0.69	11.81
PH50	7.24	7.68	9.45	7.76	0.69	13.78
PH60	9.43	8.86	11.02	8.46	0.69	15.75
PH70	10.60	10.06	13.19	9.76	0.69	19.69
PH80	10.98	11.02	14.57	9.76	0.69	19.69

UNIT REF	N		O	Q	R	T	U1	U2
	max	min						
PH35	9.055	9.052	11.81	10.79	7.32	5.12	0.51	0.16
PH40	9.843	9.840	13.78	12.64	8.66	5.94	0.75	0.20
PH50	11.811	11.808	15.75	14.37	9.84	6.89	0.75	0.20
PH60	13.780	13.776	17.72	16.46	12.01	7.87	0.75	0.20
PH70	17.717	17.713	21.65	18.03	14.17	8.86	0.94	0.20
PH80	17.717	17.713	21.65	19.80	14.17	9.69	0.94	0.20

UNIT REF	S			
	143/145	182/256	284/286	324/326
PH35	10.12	10.63	-	-
PH40	11.14	11.65	-	-
PH50	11.93	12.44	-	-
PH60	-	13.78	14.80	15.51
PH70	-	14.37	15.39	16.10
PH80	-	15.31	16.34	17.05

143/145	S2		
	182/256	284/286	324/326
6.48	9.02	-	-
6.48	9.02	-	-
6.48	9.02	-	-
-	9.06	11.26	12.99
-	9.06	11.26	12.99
-	9.06	11.26	12.99

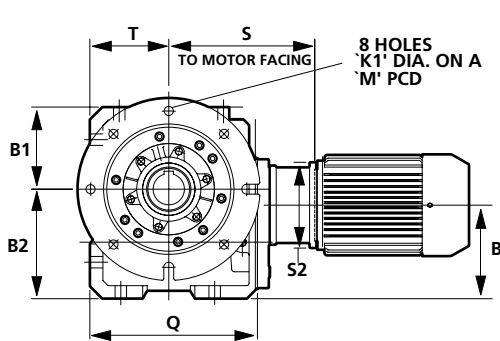
Output Sleeve

UNIT REF	G		L	LB	V2 min.	W2	
	max.	min.				max.	min
PH35	1.9705	1.9695	4.06	2.17	2.12	0.5520	0.5504
PH40	2.3646	2.3634	4.33	2.56	2.54	0.7095	0.7078
PH50	2.7583	2.7571	5.12	2.76	2.95	0.7884	0.7864
PH60	3.5461	3.5447	6.10	3.54	3.76	0.9853	0.9832
PH70	3.9398	3.9384	6.85	4.53	4.19	1.1034	1.1013
PH80	3.9398	3.9384	6.85	4.53	4.19	1.1034	1.1013

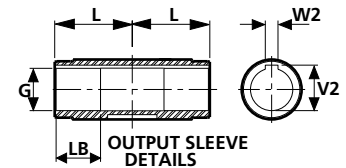
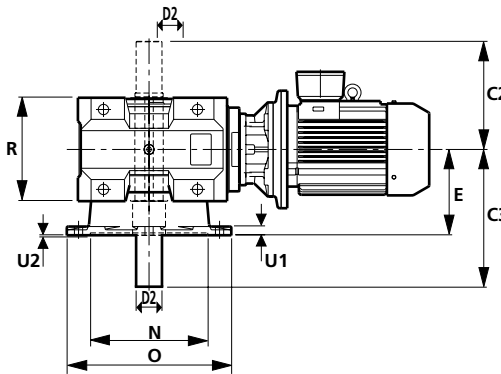
Plug-in Output Shaft

UNIT REF	C2	C3	D2
PH35	7.63	9.31	1.7500
PH40	9.00	11.50	2.0000
PH50	10.00	12.25	2.3750
PH60	11.63	13.63	2.8750
PH70	14.00	16.50	3.3750
PH80	14.50	17.00	3.6250

RENOLD e.PM Series - PH Type - Motorized Unit - Dimensions



Unit shown with single extension plug-in output shaft



Shafts can be plugged-in from either side of the unit.

e.PM Series - PH Motorized - Vertical Skirt

UNIT REF	B	B1	B2	E	K1	M
PH35	6.38	5.51	7.09	6.06	0.53	10.43
PH40	7.06	6.20	8.27	7.20	0.69	11.81
PH50	7.24	7.68	9.45	7.76	0.69	13.78
PH60	9.43	8.86	11.02	8.46	0.69	15.75
PH70	10.60	10.06	13.19	9.76	0.69	19.69
PH80	10.98	11.02	14.57	9.76	0.69	19.69

UNIT REF	N		O	Q	R	T	U1	U3
	max	min						
PH35	9.058	9.055	11.81	10.79	7.32	5.12	0.51	0.20
PH40	9.845	9.843	13.78	12.64	8.66	5.94	0.75	0.24
PH50	11.814	11.811	15.75	14.37	9.84	6.89	0.75	0.24
PH60	13.783	13.780	17.72	16.46	12.01	7.87	0.75	0.24
PH70	17.720	17.717	21.65	18.03	14.17	8.86	0.94	0.24
PH80	17.720	17.717	21.65	19.80	14.17	9.69	0.94	0.24

UNIT REF	S			
	143/145	182/256	284/286	324/326
PH35	10.12	10.63	-	-
PH40	11.14	11.65	-	-
PH50	11.93	12.44	-	-
PH60	-	13.78	14.80	15.51
PH70	-	14.37	15.39	16.10
PH80	-	15.31	16.34	17.05

UNIT REF	S2			
	143/145	182/256	284/286	324/326
PH35	6.48	9.02	-	-
PH40	6.48	9.02	-	-
PH50	6.48	9.02	-	-
PH60	-	9.06	11.26	12.99
PH70	-	9.06	11.26	12.99
PH80	-	9.06	11.26	12.99

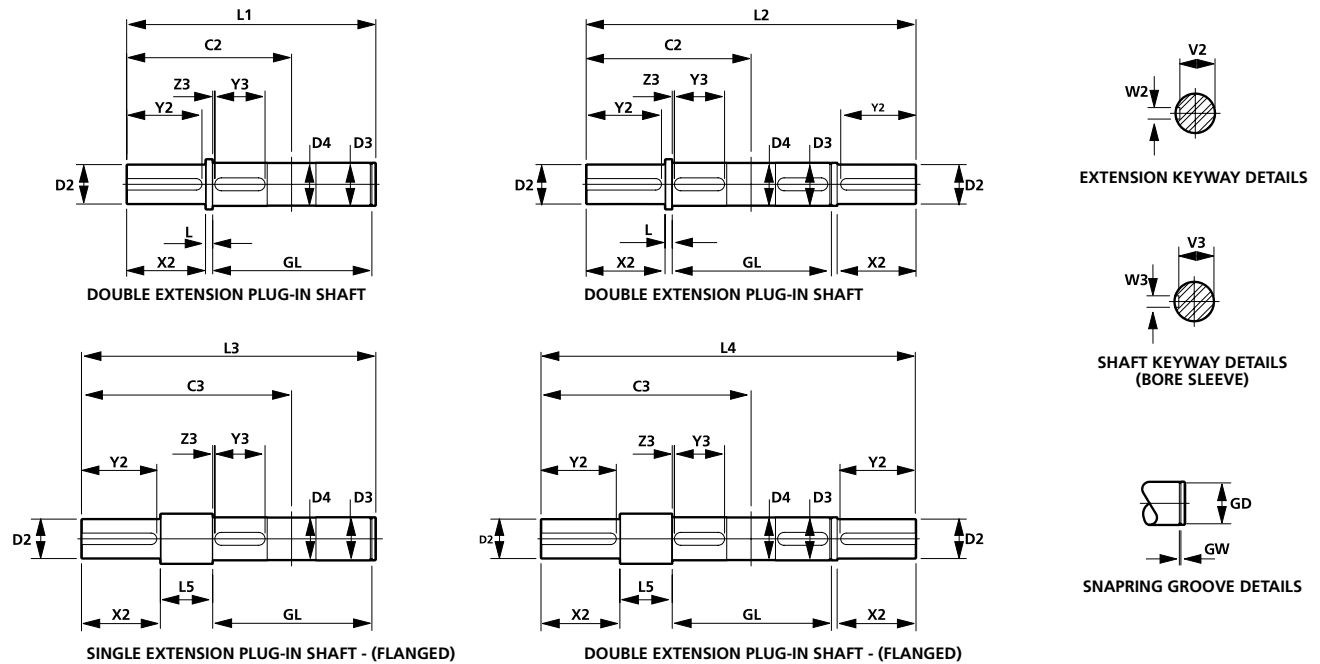
Output Sleeve

UNIT REF	G		L	LB	V2	W2	
	max.	min.				max.	min.
PH35	1.9705	1.9695	4.06	2.17	2.12	0.5520	0.5504
PH40	2.3646	2.3634	4.33	2.56	2.54	0.7095	0.7078
PH50	2.7583	2.7571	5.12	2.76	2.95	0.7884	0.7864
PH60	3.5461	3.5447	6.10	3.54	3.76	0.9853	0.9832
PH70	3.9398	3.9384	6.85	4.53	4.19	1.1034	1.1013
PH80	3.9398	3.9384	6.85	4.53	4.19	1.1034	1.1013

Plug-in Output Shaft

UNIT REF	C2	C3	D2
PH35	7.63	9.31	1.7500
PH40	9.00	11.50	2.0000
PH50	10.00	12.25	2.3750
PH60	11.63	13.63	2.8750
PH70	14.00	16.50	3.3750
PH80	14.50	17.00	3.6250

RENOLD e.PM Series - PH Type - Output Shaft Dimensions



Plug-in Shafts

UNIT REF	C2	C3	L	L1	L2	L3	L4	L5	GD	GL	GW
PH35	7.63	9.31	0.32	11.97	15.25	13.66	16.94	2.01	1.850 1.841	8.185 8.183	0.090 0.085
PH40	9.00	11.50	0.42	13.63	18.00	16.13	20.50	2.92	2.244 2.232	8.746 8.744	0.090 0.085
PH50	10.00	12.25	0.38	15.45	20.00	17.70	22.25	2.63	2.638 2.626	10.341 10.339	0.110 0.104
PH60	11.63	13.63	0.40	18.10	23.25	20.10	25.25	2.40	3.406 3.392	12.329 12.327	0.131 0.124
PH70	14.00	16.50	0.40	21.22	28.00	23.72	30.50	2.90	3.799 3.785	13.825 13.823	0.131 0.124
PH80	14.50	17.00	0.40	21.72	29.00	24.22	31.50	2.90	3.799 3.785	13.825 13.823	0.131 0.124

UNIT REF	D2		V2	W2		X2	Y2
	max	min	min	max	min		
PH35	1.7500	1.7490	1.536	0.377	0.375	3.25	3.13
PH40	2.0000	1.9990	1.712	0.502	0.500	4.25	4.13
PH50	2.3750	2.3740	2.015	0.627	0.625	4.50	4.25
PH60	2.8750	2.8740	2.444	0.752	0.750	5.13	5.00
PH70	3.3750	3.3740	2.874	0.877	0.875	6.75	6.50
PH80	3.6250	3.6240	3.128	0.877	0.875	7.25	6.88

UNIT REF	D3		V3	W3		Y3	Z3	D4
	max	min	min	max	min			
PH35	1.9685	1.9675	1.744	0.550	0.549	2.48	0.12	1.81
PH40	2.3622	2.3615	2.079	0.706	0.708	2.76	0.12	2.20
PH50	2.7559	2.7552	2.453	0.787	0.784	3.54	0.08	2.60
PH60	3.5433	3.5424	3.181	0.983	0.981	4.33	0.12	3.39
PH70	3.9370	3.9361	3.535	1.101	1.099	4.92	0.12	3.78
PH80	3.9370	3.9361	3.535	1.101	1.099	4.92	0.12	3.78

RENOLD e.PM Series - PH Type - Speed Reducer Wormgear Unit



Features

- Helical/Wormgear speed reducer unit
- Ratio range up to 320:1
- Torque capacity up to 412000 lb.in
- Hollow output shaft for direct shaft mounting
- Plug-in single and double extension output shaft
- Mounting feet on all unit sides
- Cast iron case construction for heavy duty applications
- Dry-well feature for agitator drives
- Output flange available on both sides of unit
- Sprag clutch backstop option to prevent drive reversals

Applications

- ▲ Conveyors
- ▲ Food process machinery
- ▲ Steelworks
- ▲ Mining
- ▲ Mixers
- ▲ Lumber machinery
- ▲ Water treatment
- ▲ Crane drives
- ▲ General industrial applications

RENOLD e.PM Series - PH Type - Overhung/Axial Load Capacities

e.PM Series PH - SINGLE REDUCTION -

Overhung Load (lb) Capacities @ 1800 RPM Input Speed

Ratio	Output Speed	Gear Unit Size					
		PH35	PH40	PH50	PH60	PH70	PH80
16	113	2000	4000	5600	7600	9250	12350
20	90	2000	4000	5600	7600	8950	12350
25	72	2000	4000	5600	7350	8300	12200
32	56	2000	4000	5600	6950	7800	11600
40	45	2000	4000	5600	6550	7350	11000
50	36	2000	4000	5300	6150	6750	10400
63	29	1900	4000	5200	5650	6200	9700
80	23	1700	4000	5000	4900	5050	8250
100	18	1550	4000	4600	4700	4250	7350
125	14	1300	3750	4250	4500	3200	6100
160	11	1600	3600	3750	3400	5100	8750
200	9	1400	3600	3300	2700	4550	8100
250	7	1200	3600	2900	1700	2800	6400
320	6	-	-	-	-	1350	5050

- based on Gear Unit transmitting Mechanical Rating

e.PM SERIES PH - SINGLE REDUCTION -

Axial Load (lb) Capacities @ 1800 RPM Input Speed

Ratio	Output Speed	Gear Unit Size					
		PH35	PH40	PH50	PH60	PH70	PH80
16	113	3600	4500	7850	11200	12300	12300
20	90	3600	4500	7850	11200	12300	12300
25	72	3600	4500	7850	11200	12300	12300
32	56	3600	4500	7850	11200	12300	12300
40	45	3600	4500	7850	11200	12300	12300
50	36	3600	4500	7850	11200	12300	12300
63	29	3600	4500	7850	11200	12300	12300
80	23	3600	4500	7850	11200	12300	12300
100	18	3600	4500	7850	11200	12300	12300
125	14	3600	4500	7850	11200	12300	12300
160	11	3600	4500	7850	11200	12300	12300
200	9	3600	4500	7850	11200	12300	12300
250	7	3600	4500	7850	11200	12300	12300
320	6	3600	4500	7850	11200	12300	12300

based on Gear Unit transmitting Mechanical Rating

RENOLD e.PM Series - PH Type - Exact Ratio

e.PM SERIES PH - HELICAL/WORM Actual Ratios

PH35					
Nominal Ratio	Pinion	Wheel	Worm	Wheel	Overall Ratio
16	51	51	2	31	15.50
20	44	58	2	31	20.43
25	38	64	2	31	26.11
32	32	70	2	31	33.91
40	29	73	2	31	39.02
50	24	78	2	31	50.38
63	20	82	2	31	63.55
80	16	86	2	31	83.31
100	13	89	2	31	106.12
125	11	91	2	31	128.23
160	16	86	1	30	161.25
200	13	89	1	30	205.38
250	11	91	1	30	248.18

PH40					
Nominal Ratio	Pinion	Wheel	Worm	Wheel	Overall Ratio
16	51	51	2	31	15.50
20	44	58	2	31	20.43
25	38	64	2	31	26.11
32	32	70	2	31	33.91
40	29	73	2	31	39.02
50	24	78	2	31	50.38
63	32	70	1	30	65.63
80	29	73	1	30	75.52
100	24	78	1	30	97.50
125	20	82	1	30	123.00
160	16	86	1	30	161.25
200	13	89	1	30	205.38
250	11	91	1	30	248.18

PH50					
Nominal Ratio	Pinion	Wheel	Worm	Wheel	Overall Ratio
16	51	51	2	31	15.50
20	44	58	2	31	20.43
25	38	64	2	31	26.11
32	32	70	2	31	33.91
40	44	58	1	30	39.55
50	38	64	1	30	50.53
63	32	70	1	30	65.63
80	29	73	1	30	75.52
100	24	78	1	30	97.50
125	20	82	1	30	123.00
160	16	86	1	30	161.25
200	13	89	1	30	205.38
250	11	91	1	30	248.18

PH60					
Nominal Ratio	Pinion	Wheel	Worm	Wheel	Overall Ratio
16	66	74	3	44	16.44
20	58	82	3	44	20.74
25	49	91	3	44	27.24
32	42	98	3	44	34.22
40	37	103	3	44	40.83
50	32	108	3	44	49.50
63	28	112	3	44	58.67
80	21	119	3	44	83.11
100	18	122	3	44	99.41
125	28	112	1	30	120.00
160	21	119	1	30	170.00
200	18	122	1	30	203.33
250	15	125	1	30	250.00

PH70					
Nominal Ratio	Pinion	Wheel	Worm	Wheel	Overall Ratio
16	66	74	3	44	16.44
20	58	82	3	44	20.74
25	49	91	3	44	27.24
32	42	98	3	44	34.22
40	37	103	3	44	40.83
50	32	108	3	44	49.50
63	28	112	3	44	58.67
80	21	119	3	44	83.11
100	18	122	3	44	99.41
125	15	125	3	44	122.22
160	28	112	1	40	160.00
200	24	116	1	40	193.33
250	18	122	1	40	271.11
320	15	125	1	40	333.33

PH80					
Nominal Ratio	Pinion	Wheel	Worm	Wheel	Overall Ratio
16	66	74	3	44	16.44
20	58	82	3	44	20.74
25	49	91	3	44	27.24
32	42	98	3	44	34.22
40	37	103	3	44	40.83
50	32	108	3	44	49.50
63	28	112	3	44	58.67
80	21	119	3	44	83.11
100	18	122	3	44	99.41
125	15	125	3	44	122.22
160	28	112	1	40	160.00
200	24	116	1	40	193.33
250	18	122	1	40	271.11
320	15	125	1	40	333.33

RENOLD e.PM Series - PH Type - Speed Reducer - Selection Data

Nominal ratio: 16/1

Input rpm	Nominal Output rpm	Product Code Actual Ratio Overall Ratio	PH3REDXXXSA***	PH4REDXXXSA***	PH5REDXXXSA***	PH6REDXXXSA***	PH7REDXXXSA***	PH8REDXXXSA***
			Helical 51/51 Worm 2/31	Helical 51/51 Worm 2/31	Helical 51/51 Worm 2/31	Helical 66/74 Worm 3/44	Helical 66/74 Worm 3/44	Helical 66/74 Worm 3/44
			15.50	15.50	15.50	16.44	16.44	16.44
1800	113	Actual Output Speed, rpm	116.1	116.1	116.1	109.5	109.5	109.5
		Input HP, Thermal	9.21	14.08	25.08	39.96	57.93	79.66
		Output Torque lb.in, Thermal	4469	6957	12504	21284	30888	42621
		Input HP, Mechanical	8.72	12.54	22.35	31.56	47.27	65.96
		Output Torque lb.in, Mechanical	4231	6169	11099	16755	25225	35262
		Efficiency %	89.4	90.7	91.6	92.3	92.6	92.9
1500	93.8	Actual Output Speed, rpm	96.8	96.8	96.8	91.2	91.2	91.2
		Input HP, Thermal	8.56	13.13	23.33	37.15	53.77	74.16
		Output Torque lb.in, Thermal	4951	7711	13853	23589	34305	47466
		Input HP, Mechanical	7.88	11.34	19.91	28.17	41.58	58.38
		Output Torque lb.in, Mechanical	4558	6656	11851	17888	26518	37325
		Efficiency %	88.8	90.2	91.1	91.8	92.2	92.6
1200	75.0	Actual Output Speed, rpm	77.4	77.4	77.4	73.0	73.0	73.0
		Input HP, Thermal	7.83	12.00	21.32	33.93	49.08	67.72
		Output Torque lb.in, Thermal	5608	8745	15711	26752	38914	53924
		Input HP, Mechanical	6.95	9.95	17.61	24.92	37.11	51.47
		Output Torque lb.in, Mechanical	4974	7249	13002	19640	29421	40892
		Efficiency %	87.9	89.4	90.5	91.2	91.7	92.0
1000	62.5	Actual Output Speed, rpm	64.5	64.5	64.5	60.8	60.8	60.8
		Input HP, Thermal	7.30	11.18	19.85	31.51	45.59	62.89
		Output Torque lb.in, Thermal	6221	9709	17420	29661	43111	59743
		Input HP, Mechanical	6.15	8.83	15.58	22.21	33.18	46.19
		Output Torque lb.in, Mechanical	5240	7665	13737	20835	31341	43804
		Efficiency %	87.2	88.8	89.9	90.7	91.2	91.6
750	46.9	Actual Output Speed, rpm	48.4	48.4	48.4	45.6	45.6	45.6
		Input HP, Thermal	6.56	10.04	17.70	28.16	40.63	56.05
		Output Torque lb.in, Thermal	7360	11505	20583	35041	50814	70301
		Input HP, Mechanical	5.21	7.45	13.21	18.69	27.77	38.60
		Output Torque lb.in, Mechanical	5842	8524	15312	23145	34643	48380
		Efficiency %	86.1	87.8	89.0	89.9	90.4	90.8
500	31.3	Actual Output Speed, rpm	32.3	32.3	32.3	30.4	30.4	30.4
		Input HP, Thermal	5.71	8.76	15.42	24.41	35.00	48.01
		Output Torque lb.in, Thermal	9437	14800	26323	44794	64641	89079
		Input HP, Mechanical	4.04	5.73	9.72	14.36	21.54	29.93
		Output Torque lb.in, Mechanical	6656	9674	16649	26341	39670	55452
		Efficiency %	84.4	86.4	87.6	88.6	89.1	89.5
250	15.6	Actual Output Speed, rpm	16.1	16.1	16.1	15.2	15.2	15.2
		Input HP, Thermal	4.68	7.16	12.42	19.58	27.89	37.95
		Output Torque lb.in, Thermal	14949	23519	41455	70468	100734	137676
		Input HP, Mechanical	2.51	2.93	4.94	8.44	13.35	18.69
		Output Torque lb.in, Mechanical	7992	9586	16498	30226	48132	67666
		Efficiency %	81.8	84.0	85.3	86.4	86.9	87.3

Max. Standard Plug-in Shaft torque lb.in

PH35	PH40	PH50	PH60	PH70	PH80
9250	15100	26900	34900	55300	71000

For applications with combinations of high torques, overhung loads, or number of starts, consult Renold

For more information telephone us - Canada: Toll Free 800.265.9970. USA: Toll Free 800.850.8141

RENOLD e.PM Series - PH Type - Speed Reducer - Selection Data

Nominal ratio: 20/1

Input rpm	Nominal Output rpm	Product Code Actual Ratio Overall Ratio	PH3REDXXSB***	PH4REDXXSB***	PH5REDXXSB***	PH6REDXXSB***	PH7REDXXSB***	PH8REDXXSB***
			Helical 44/58	Helical 44/58	Helical 44/58	Helical 58/82	Helical 58/82	Helical 58/82
			Worm 2/31	Worm 2/31	Worm 2/31	Worm 3/44	Worm 3/44	Worm 3/44
			20.43	20.43	20.43	20.74	20.74	20.74
1800	90.0	Actual Output Speed, rpm	88.1	88.1	88.1	86.8	86.8	86.8
		Input HP, Thermal	8.25	12.63	22.39	36.34	52.70	72.68
		Output Torque lb.in, Thermal	5214	8123	14607	24255	35287	48851
		Input HP, Mechanical	7.50	10.79	18.96	27.49	40.50	56.34
		Output Torque lb.in, Mechanical	4753	6930	12338	18286	27049	37794
		Efficiency %	88.4	89.9	90.9	91.7	92.1	92.4
1500	75.0	Actual Output Speed, rpm	73.4	73.4	73.4	72.3	72.3	72.3
		Input HP, Thermal	7.67	11.75	20.92	33.79	48.95	67.59
		Output Torque lb.in, Thermal	5774	9017	16184	26875	39098	54187
		Input HP, Mechanical	6.70	9.60	17.07	24.79	36.98	51.20
		Output Torque lb.in, Mechanical	5054	7364	13241	19693	29518	41051
		Efficiency %	87.7	89.3	90.3	91.2	91.7	92.0
1200	60.0	Actual Output Speed, rpm	58.7	58.7	58.7	57.9	57.9	57.9
		Input HP, Thermal	7.04	10.80	19.04	30.84	44.66	61.69
		Output Torque lb.in, Thermal	6572	10261	18392	30511	44338	61425
		Input HP, Mechanical	5.86	8.41	14.76	21.54	32.23	44.70
		Output Torque lb.in, Mechanical	5470	7992	14224	21207	31890	44512
		Efficiency %	86.9	88.5	89.6	90.6	91.0	91.4
1000	50.0	Actual Output Speed, rpm	48.9	48.9	48.9	48.2	48.2	48.2
		Input HP, Thermal	6.58	10.10	17.84	28.83	41.57	57.26
		Output Torque lb.in, Thermal	7308	11426	20443	33920	49219	68120
		Input HP, Mechanical	5.24	7.50	13.30	19.23	28.71	39.96
		Output Torque lb.in, Mechanical	5815	8488	15241	22676	33997	47459
		Efficiency %	86.1	87.9	89.1	90.0	90.5	90.9
750	37.5	Actual Output Speed, rpm	36.7	36.7	36.7	36.2	36.2	36.2
		Input HP, Thermal	5.97	9.13	16.09	25.88	37.28	51.09
		Output Torque lb.in, Thermal	8710	13634	24298	40281	58253	80431
		Input HP, Mechanical	4.39	6.26	11.02	16.12	24.11	33.32
		Output Torque lb.in, Mechanical	6399	9329	16675	25048	37608	52407
		Efficiency %	85.0	86.9	88.1	89.2	89.6	90.1
500	25.0	Actual Output Speed, rpm	24.5	24.5	24.5	24.1	24.1	24.1
		Input HP, Thermal	5.24	8.03	14.08	22.53	32.32	44.12
		Output Torque lb.in, Thermal	11286	17718	31405	51848	74586	102512
		Input HP, Mechanical	3.36	4.37	7.42	12.23	18.28	25.60
		Output Torque lb.in, Mechanical	7222	9639	16587	28067	42175	59275
		Efficiency %	83.4	85.4	86.7	87.9	88.4	88.8
250	12.5	Actual Output Speed, rpm	12.2	12.2	12.2	12.1	12.1	12.1
		Input HP, Thermal	4.37	6.68	11.55	18.51	26.15	35.54
		Output Torque lb.in, Thermal	18138	28574	50200	82727	117908	160695
		Input HP, Mechanical	2.07	2.23	3.79	6.73	10.93	15.85
		Output Torque lb.in, Mechanical	8621	9550	16436	30129	49194	71658
		Efficiency %	80.7	83.1	84.3	85.7	86.2	86.6

Max. Standard Plug-in Shaft torque lb.in

PH35	PH40	PH50	PH60	PH70	PH80
9250	15100	26900	34900	55300	71000

For applications with combinations of high torques, overhung loads, or number of starts, consult Renold

For more information telephone us - Canada: Toll Free 800.265.9970. USA: Toll Free 800.850.8141

RENOLD e.PM Series - PH Type - Speed Reducer - Selection Data

Nominal ratio: 25/1

Input rpm	Nominal Output rpm	Product Code Actual Ratio Overall Ratio	PH3REDXXXSC***	PH4REDXXXSC***	PH5REDXXXSC***	PH6REDXXXSC***	PH7REDXXXSC***	PH8REDXXXSC***
			Helical 38/64 Worm 2/31	Helical 38/64 Worm 2/31	Helical 38/64 Worm 2/31	Helical 49/91 Worm 3/44	Helical 49/91 Worm 3/44	Helical 49/91 Worm 3/44
			26.11	26.11	26.11	27.24	27.24	27.24
1800	72.0	Actual Output Speed, rpm	68.9	68.9	68.9	66.1	66.1	66.1
		Input HP, Thermal	7.48	11.47	20.38	32.59	47.20	65.04
		Output Torque lb.in, Thermal	5985	9341	16771	28294	41149	57026
		Input HP, Mechanical	6.42	9.20	16.39	23.30	34.94	48.62
		Output Torque lb.in, Mechanical	5134	7479	13489	20251	30483	42591
		Efficiency %	87.5	89.1	90.1	91.0	91.4	91.8
1500	60.0	Actual Output Speed, rpm	57.4	57.4	57.4	55.1	55.1	55.1
		Input HP, Thermal	6.99	10.70	18.91	30.31	43.85	60.48
		Output Torque lb.in, Thermal	6651	10384	18612	31387	45600	63160
		Input HP, Mechanical	5.80	8.30	14.63	20.86	31.15	43.34
		Output Torque lb.in, Mechanical	5514	8054	14339	21579	32448	45282
		Efficiency %	86.8	88.4	89.6	90.4	90.9	91.3
1200	48.0	Actual Output Speed, rpm	46.0	46.0	46.0	44.1	44.1	44.1
		Input HP, Thermal	6.44	9.87	17.43	27.76	40.10	55.25
		Output Torque lb.in, Thermal	7588	11864	21214	35768	51856	71721
		Input HP, Mechanical	5.05	7.22	12.81	18.28	27.22	37.79
		Output Torque lb.in, Mechanical	5948	8683	15595	23437	35085	48999
		Efficiency %	85.9	87.7	88.8	89.8	90.2	90.7
1000	40.0	Actual Output Speed, rpm	38.3	38.3	38.3	36.7	36.7	36.7
		Input HP, Thermal	6.05	9.27	16.36	26.02	37.41	51.49
		Output Torque lb.in, Thermal	8482	13275	23676	39913	57736	79730
		Input HP, Mechanical	4.51	6.43	11.43	16.25	24.24	33.72
		Output Torque lb.in, Mechanical	6320	9214	16587	24924	37422	52141
		Efficiency %	85.1	87.0	88.2	89.2	89.7	90.1
750	30.0	Actual Output Speed, rpm	28.7	28.7	28.7	27.5	27.5	27.5
		Input HP, Thermal	5.51	8.43	14.75	23.60	33.79	46.26
		Output Torque lb.in, Thermal	10164	15948	28329	47659	68680	94547
		Input HP, Mechanical	3.74	5.12	8.68	13.38	20.05	27.90
		Output Torque lb.in, Mechanical	6904	9656	16622	27031	40768	57098
		Efficiency %	84.1	86.0	87.2	88.3	88.8	89.2
500	20.0	Actual Output Speed, rpm	19.1	19.1	19.1	18.4	18.4	18.4
		Input HP, Thermal	4.89	7.50	13.03	20.79	29.50	40.23
		Output Torque lb.in, Thermal	13284	20872	36881	62073	88966	121860
		Input HP, Mechanical	2.82	3.45	5.85	10.12	15.17	21.26
		Output Torque lb.in, Mechanical	7656	9612	16534	30270	45733	64152
		Efficiency %	82.5	84.5	85.8	87.0	87.5	87.9
250	10.0	Actual Output Speed, rpm	9.6	9.6	9.6	9.2	9.2	9.2
		Input HP, Thermal	4.12	6.32	10.88	17.30	24.41	32.99
		Output Torque lb.in, Thermal	21749	34305	60084	100418	142627	193791
		Input HP, Mechanical	1.73	1.76	2.97	5.16	8.38	12.92
		Output Torque lb.in, Mechanical	9152	9524	16383	30014	49008	75888
		Efficiency %	79.8	82.3	83.6	84.8	85.3	85.8

Max. Standard Plug-in Shaft torque lb.in

PH35	PH40	PH50	PH60	PH70	PH80
9250	15100	26900	34900	55300	71000

For applications with combinations of high torques, overhung loads, or number of starts, consult Renold

For more information telephone us - Canada: Toll Free 800.265.9970. USA: Toll Free 800.850.8141

RENOLD e.PM Series - PH Type - Speed Reducer - Selection Data

Nominal ratio: 32/1

Input rpm	Nominal Output rpm	Product Code Actual Ratio Overall Ratio	PH3REDXXXSD***	PH4REDXXXSD***	PH5REDXXXSD***	PH6REDXXXSD***	PH7REDXXXSD***	PH8REDXXXSD***
			Helical 32/70 Worm 2/31	Helical 32/70 Worm 2/31	Helical 32/70 Worm 2/31	Helical 42/98 Worm 3/44	Helical 42/98 Worm 3/44	Helical 42/98 Worm 3/44
			33.91	33.91	33.91	34.22	34.22	34.22
1800	56.3	Actual Output Speed, rpm	53.1	53.1	53.1	52.6	52.6	52.6
		Input HP, Thermal	5.04	8.34	12.4	18.0	25.7	31.0
		Output Torque lb.in, Thermal	5179	8727	13152	19514	28014	33849
		Input HP, Mechanical	5.53	7.91	14.0	20.3	30.3	42.1
		Output Torque lb.in, Mechanical	5673	8285	14817	21950	32988	46034
		Efficiency %	86.4	88.2	89.3	90.3	90.7	91.1
1500	46.9	Actual Output Speed, rpm	44.2	44.2	44.2	43.8	43.8	43.8
		Input HP, Thermal	4.77	7.89	11.7	17.0	24.3	29.2
		Output Torque lb.in, Thermal	5827	9832	14800	21950	31457	38020
		Input HP, Mechanical	4.94	7.06	12.5	18.1	27.1	37.7
		Output Torque lb.in, Mechanical	6028	8798	15808	23482	35147	49079
		Efficiency %	85.7	87.5	88.7	89.7	90.2	90.6
1200	37.5	Actual Output Speed, rpm	35.4	35.4	35.4	35.1	35.1	35.1
		Input HP, Thermal	4.48	7.39	11.0	15.8	22.5	27.2
		Output Torque lb.in, Thermal	6765	11400	17139	25420	36356	43918
		Input HP, Mechanical	4.28	6.11	10.6	15.8	23.6	32.8
		Output Torque lb.in, Mechanical	6470	9426	16666	25278	37980	52964
		Efficiency %	84.8	86.7	88.0	89.1	89.5	89.9
1000	31.3	Actual Output Speed, rpm	29.5	29.5	29.5	29.2	29.2	29.2
		Input HP, Thermal	4.26	7.01	10.4	15.0	21.3	25.6
		Output Torque lb.in, Thermal	7658	12925	19391	28671	40930	49394
		Input HP, Mechanical	3.81	5.26	8.91	14.0	20.9	29.1
		Output Torque lb.in, Mechanical	6851	9665	16631	26615	40104	56115
		Efficiency %	84.2	86.1	87.3	88.5	89.0	89.4
750	23.4	Actual Output Speed, rpm	22.1	22.1	22.1	21.9	21.9	21.9
		Input HP, Thermal	3.96	6.52	9.60	13.8	19.6	23.5
		Output Torque lb.in, Thermal	9358	15790	23624	34954	49727	59883
		Input HP, Mechanical	3.14	3.97	6.73	11.5	17.1	23.8
		Output Torque lb.in, Mechanical	7408	9630	16569	28907	43370	60921
		Efficiency %	83.0	85.0	86.3	87.6	88.1	88.5
500	15.6	Actual Output Speed, rpm	14.7	14.7	14.7	14.6	14.6	14.6
		Input HP, Thermal	3.61	5.93	8.68	12.5	17.6	21.1
		Output Torque lb.in, Thermal	12548	21170	31519	46581	65929	79117
		Input HP, Mechanical	2.37	2.68	4.55	8.10	13.0	18.1
		Output Torque lb.in, Mechanical	8214	9577	16481	30208	48636	68409
		Efficiency %	81.4	83.7	85.0	86.3	86.8	87.2
250	7.8	Actual Output Speed, rpm	7.4	7.4	7.4	7.3	7.3	7.3
		Input HP, Thermal	3.16	5.16	7.51	10.7	15.0	17.8
		Output Torque lb.in, Thermal	21380	36110	53346	78258	109882	130982
		Input HP, Mechanical	1.42	1.35	2.30	4.12	6.68	10.3
		Output Torque lb.in, Mechanical	9630	9497	16330	29916	48858	75649
		Efficiency %	78.9	81.4	82.8	84.2	84.6	85.0

Max. Standard Plug-in Shaft torque lb.in

PH35	PH40	PH50	PH60	PH70	PH80
9250	15100	26900	34900	55300	71000

For applications with combinations of high torques, overhung loads, or number of starts, consult Renold

For more information telephone us - Canada: Toll Free 800.265.9970. USA: Toll Free 800.850.8141

RENOLD e.PM Series - PH Type - Speed Reducer - Selection Data

Nominal ratio: 40/1

Input rpm	Nominal Output rpm	Product Code Actual Ratio Overall Ratio	PH3REDXXXSE***	PH4REDXXXSE***	PH5REDXXXSE***	PH6REDXXXSE***	PH7REDXXXSE***	PH8REDXXXSE***
			Helical 29/73 Worm 2/31	Helical 29/73 Worm 2/31	Helical 44/58 Worm 1/30	Helical 37/103 Worm 3/44	Helical 37/103 Worm 3/44	Helical 37/103 Worm 3/44
			39.55	39.55	39.55	40.83	40.83	40.83
1800	45.0	Actual Output Speed, rpm	46.1	46.1	45.5	44.1	44.1	44.1
		Input HP, Thermal	6.45	9.88	12.43	27.89	40.10	55.25
		Output Torque lb.in, Thermal	7571	11847	14642	35742	51804	71660
		Input HP, Mechanical	5.07	7.23	12.27	18.28	27.22	37.79
		Output Torque lb.in, Mechanical	5948	8674	14454	23429	35068	48964
		Efficiency %	85.9	87.7	85.0	89.8	90.3	90.7
1500	37.5	Actual Output Speed, rpm	38.4	38.4	37.9	36.7	36.7	36.7
		Input HP, Thermal	6.05	9.28	11.57	26.02	37.41	51.49
		Output Torque lb.in, Thermal	8465	13249	16184	39869	57675	79642
		Input HP, Mechanical	4.52	6.45	11.16	16.25	24.24	33.72
		Output Torque lb.in, Mechanical	6311	9205	15604	24916	37395	52106
		Efficiency %	85.2	87.0	84.2	89.2	89.7	90.1
1200	30.0	Actual Output Speed, rpm	30.8	30.8	30.3	29.4	29.4	29.4
		Input HP, Thermal	5.63	8.62	10.62	24.14	34.60	47.34
		Output Torque lb.in, Thermal	9726	15247	18331	45758	66008	90920
		Input HP, Mechanical	3.91	5.47	9.63	13.95	20.99	29.26
		Output Torque lb.in, Mechanical	6762	9665	16613	26580	40051	56036
		Efficiency %	84.3	86.2	83.1	88.5	89.0	89.4
1000	25.0	Actual Output Speed, rpm	25.6	25.6	25.3	24.5	24.5	24.5
		Input HP, Thermal	5.32	8.15	9.92	22.66	32.45	44.39
		Output Torque lb.in, Thermal	10944	17183	20320	51383	73929	101627
		Input HP, Mechanical	3.47	4.58	8.63	12.34	18.42	25.87
		Output Torque lb.in, Mechanical	7134	9648	17667	27951	42033	59045
		Efficiency %	83.6	85.6	82.2	87.9	88.4	88.9
750	18.8	Actual Output Speed, rpm	19.2	19.2	19.0	18.4	18.4	18.4
		Input HP, Thermal	4.89	7.50	8.97	20.79	29.50	40.23
		Output Torque lb.in, Thermal	13249	20828	24062	62073	88966	121860
		Input HP, Mechanical	2.83	3.47	7.25	10.12	15.17	21.26
		Output Torque lb.in, Mechanical	7647	9612	19437	30270	45733	64152
		Efficiency %	82.5	84.5	80.7	87.0	87.5	87.9
500	12.5	Actual Output Speed, rpm	12.8	12.8	12.6	12.2	12.2	12.2
		Input HP, Thermal	4.41	6.76	7.87	18.51	26.28	35.67
		Output Torque lb.in, Thermal	17551	27646	30914	81754	116541	158873
		Input HP, Mechanical	2.14	2.34	5.51	6.84	11.11	15.98
		Output Torque lb.in, Mechanical	8515	9559	21632	30138	49203	71383
		Efficiency %	80.9	83.2	78.6	85.7	86.2	86.7
250	6.3	Actual Output Speed, rpm	6.4	6.4	6.3	6.1	6.1	6.1
		Input HP, Thermal	3.80	5.81	6.53	15.69	22.13	29.77
		Output Torque lb.in, Thermal	29416	46503	48965	135678	191785	259440
		Input HP, Mechanical	1.28	1.19	3.40	3.47	5.63	8.68
		Output Torque lb.in, Mechanical	9913	9479	25482	29854	48742	75481
		Efficiency %	78.4	81.0	75.2	83.8	84.2	84.5

Max. Standard Plug-in Shaft torque lb.in

PH35	PH40	PH50	PH60	PH70	PH80
9250	15100	26900	34900	55300	71000

For applications with combinations of high torques, overhung loads, or number of starts, consult Renold

For more information telephone us - Canada: Toll Free 800.265.9970. USA: Toll Free 800.850.8141

RENOLD e.PM Series - PH Type - Speed Reducer - Selection Data

Nominal ratio: 50/1

Input rpm	Nominal Output rpm	Product Code Actual Ratio Overall Ratio	PH3REDXXSF***	PH4REDXXSF***	PH5REDXXSF***	PH6REDXXSF***	PH7REDXXSF***	PH8REDXXSF***
			Helical 24/78 Worm 2/31	Helical 24/78 Worm 2/31	Helical 38/64 Worm 1/30	Helical 32/108 Worm 3/44	Helical 32/108 Worm 3/44	Helical 32/108 Worm 3/44
			50.38	50.38	50.38	49.50	49.50	49.50
1800	36.0	Actual Output Speed, rpm	35.7	35.7	35.6	36.4	36.4	36.4
		Input HP, Thermal	5.91	9.05	11.29	25.88	37.28	51.23
		Output Torque lb.in, Thermal	8850	13862	16754	40141	58060	80159
		Input HP, Mechanical	4.31	6.15	10.74	16.12	24.11	33.45
		Output Torque lb.in, Mechanical	6452	9409	15932	25004	37537	52309
		Efficiency %	84.9	86.8	83.9	89.2	89.7	90.1
1500	30.0	Actual Output Speed, rpm	29.8	29.8	29.7	30.3	30.3	30.3
		Input HP, Thermal	5.58	8.54	10.53	24.27	34.87	47.87
		Output Torque lb.in, Thermal	9928	15562	18550	44917	64816	89316
		Input HP, Mechanical	3.83	5.31	9.49	14.36	21.40	29.80
		Output Torque lb.in, Mechanical	6824	9665	16720	26367	39714	55531
		Efficiency %	84.2	86.1	83.0	88.6	89.1	89.5
1200	24.0	Actual Output Speed, rpm	23.8	23.8	23.7	24.2	24.2	24.2
		Input HP, Thermal	5.20	7.98	9.71	22.66	32.32	44.25
		Output Torque lb.in, Thermal	11488	18033	21074	51655	74323	102153
		Input HP, Mechanical	3.30	4.27	8.33	12.27	18.28	25.60
		Output Torque lb.in, Mechanical	7276	9639	18074	28022	42113	59178
		Efficiency %	83.3	85.3	81.9	87.9	88.4	88.8
1000	20.0	Actual Output Speed, rpm	19.8	19.8	19.8	20.2	20.2	20.2
		Input HP, Thermal	4.95	7.58	9.11	21.32	30.44	41.57
		Output Torque lb.in, Thermal	12960	20364	23457	58253	83603	114648
		Input HP, Mechanical	2.90	3.58	7.45	10.85	16.25	22.62
		Output Torque lb.in, Mechanical	7594	9612	19189	29580	44538	62338
		Efficiency %	82.6	84.6	80.9	87.3	87.8	88.2
750	15.0	Actual Output Speed, rpm	14.9	14.9	14.8	15.2	15.2	15.2
		Input HP, Thermal	4.59	7.01	8.27	19.58	27.89	37.95
		Output Torque lb.in, Thermal	15790	24859	27952	70687	101040	138088
		Input HP, Mechanical	2.38	2.71	6.14	8.40	13.31	18.69
		Output Torque lb.in, Mechanical	8187	9577	20685	30226	48185	67746
		Efficiency %	81.5	83.7	79.4	86.4	86.9	87.3
500	10.0	Actual Output Speed, rpm	9.9	9.9	9.9	10.1	10.1	10.1
		Input HP, Thermal	4.16	6.37	7.34	17.70	24.94	33.79
		Output Torque lb.in, Thermal	21118	33315	36189	93960	133610	181725
		Input HP, Mechanical	1.79	1.83	4.66	5.65	9.17	13.81
		Output Torque lb.in, Mechanical	9072	9533	22942	30058	49070	74419
		Efficiency %	80.0	82.4	77.3	85.1	85.6	86.0
250	5.0	Actual Output Speed, rpm	5.0	5.0	4.9	5.1	5.1	5.1
		Input HP, Thermal	3.62	5.54	6.17	15.15	21.19	28.56
		Output Torque lb.in, Thermal	35742	56562	58420	157576	222261	300071
		Input HP, Mechanical	1.06	0.93	2.76	2.87	4.66	7.18
		Output Torque lb.in, Mechanical	10462	9453	26208	29775	48619	75278
		Efficiency %	77.6	80.3	74.1	83.2	83.7	84.1

Max. Standard Plug-in Shaft torque lb.in

PH35	PH40	PH50	PH60	PH70	PH80
9250	15100	26900	34900	55300	71000

For applications with combinations of high torques, overhung loads, or number of starts, consult Renold

For more information telephone us - Canada: Toll Free 800.265.9970. USA: Toll Free 800.850.8141

RENOLD e.PM Series - PH Type - Speed Reducer - Selection Data

Nominal ratio: 63/1

Input rpm	Nominal Output rpm	Product Code Actual Ratio Overall Ratio	PH3REDXXXSG***	PH4REDXXXSG***	PH5REDXXXSG***	PH6REDXXXSG***	PH7REDXXXSG***	PH8REDXXXSG***
			Helical 20/82 Worm 2/31	Helical 32/70 Worm 1/30	Helical 32/70 Worm 1/30	Helical 28/112 Worm 3/44	Helical 28/112 Worm 3/44	Helical 28/112 Worm 3/44
			63.55	65.63	65.63	58.67	58.67	58.67
1800	28.6	Actual Output Speed, rpm	28.3	27.4	27.4	30.7	30.7	30.7
		Input HP, Thermal	5.48	6.03	10.22	24.41	35.13	48.14
		Output Torque lb.in, Thermal	10261	11295	19400	44548	64290	88598
		Input HP, Mechanical	3.71	5.38	9.06	14.49	21.67	30.07
		Output Torque lb.in, Mechanical	6939	10055	17180	26270	39564	55301
		Efficiency %	84.0	81.4	82.6	88.6	89.1	89.6
1500	23.8	Actual Output Speed, rpm	23.6	22.9	22.9	25.6	25.6	25.6
		Input HP, Thermal	5.19	5.67	9.57	22.93	32.85	45.06
		Output Torque lb.in, Thermal	11549	12583	21547	49964	71940	98937
		Input HP, Mechanical	3.28	4.78	8.14	12.70	19.10	26.55
		Output Torque lb.in, Mechanical	7293	10595	18304	27589	41573	58319
		Efficiency %	83.3	80.5	81.7	88.1	88.6	89.0
1200	19.0	Actual Output Speed, rpm	18.9	18.3	18.3	20.5	20.5	20.5
		Input HP, Thermal	4.88	5.27	8.86	21.46	30.57	41.71
		Output Torque lb.in, Thermal	13407	14414	24588	57745	82876	113685
		Input HP, Mechanical	2.79	4.13	7.08	10.94	16.39	22.89
		Output Torque lb.in, Mechanical	7674	11303	19632	29474	44352	62107
		Efficiency %	82.4	79.3	80.5	87.3	87.8	88.3
1000	15.9	Actual Output Speed, rpm	15.7	15.2	15.2	17.0	17.0	17.0
		Input HP, Thermal	4.64	4.99	8.35	20.25	28.83	39.29
		Output Torque lb.in, Thermal	15203	16184	27497	65202	93356	127766
		Input HP, Mechanical	2.47	3.67	6.24	9.43	14.49	20.18
		Output Torque lb.in, Mechanical	8054	11913	20543	30270	46662	65533
		Efficiency %	81.7	78.4	79.5	86.8	87.3	87.7
750	11.9	Actual Output Speed, rpm	11.8	11.4	11.4	12.8	12.8	12.8
		Input HP, Thermal	4.33	4.60	7.64	18.77	26.55	36.07
		Output Torque lb.in, Thermal	18629	19514	32947	79301	113106	154272
		Input HP, Mechanical	2.02	2.94	5.16	7.14	11.59	16.52
		Output Torque lb.in, Mechanical	8701	12489	22189	30155	49238	70658
		Efficiency %	80.6	76.9	78.1	85.9	86.4	86.8
500	7.9	Actual Output Speed, rpm	7.9	7.6	7.6	8.5	8.5	8.5
		Input HP, Thermal	3.96	4.14	6.84	16.90	23.87	32.32
		Output Torque lb.in, Thermal	25105	25700	43059	106219	150724	204613
		Input HP, Mechanical	1.50	2.00	3.85	4.79	7.77	11.99
		Output Torque lb.in, Mechanical	9497	12445	24181	29987	48955	75809
		Efficiency %	79.1	75.0	76.1	84.6	85.1	85.5
250	4.0	Actual Output Speed, rpm	3.9	3.8	3.8	4.3	4.3	4.3
		Input HP, Thermal	3.49	3.57	5.83	14.62	20.52	27.62
		Output Torque lb.in, Thermal	42971	42708	70643	178562	251431	338924
		Input HP, Mechanical	0.89	1.04	2.17	2.45	3.97	6.12
		Output Torque lb.in, Mechanical	10904	12365	26146	29713	48512	75127
		Efficiency %	76.9	72.0	73.0	82.8	83.2	83.6

Max. Standard Plug-in Shaft torque lb.in

PH35	PH40	PH50	PH60	PH70	PH80
9250	15100	26900	34900	55300	71000

For applications with combinations of high torques, overhung loads, or number of starts, consult Renold

For more information telephone us - Canada: Toll Free 800.265.9970. USA: Toll Free 800.850.8141

RENOLD e.PM Series - PH Type - Speed Reducer - Selection Data

Nominal ratio: 80/1

Input rpm	Nominal Output rpm	Product Code Actual Ratio	PH3REDXXSH***	PH4REDXXSH***	PH5REDXXSH***	PH6REDXXSH***	PH7REDXXSH***	PH8REDXXSH***
			Helical 16/86 Worm 2/31	Helical 29/73 Worm 1/30	Helical 29/73 Worm 1/30	Helical 21/119 Worm 3/44	Helical 21/119 Worm 3/44	Helical 21/119 Worm 3/44
		Overall Ratio	83.31	75.52	75.52	83.11	83.11	83.11
1800	22.5	Actual Output Speed, rpm	21.6	23.8	23.8	21.7	21.7	21.7
		Input HP, Thermal	5.06	5.75	9.71	21.86	31.11	42.51
		Output Torque lb.in, Thermal	12250	12276	21039	55580	79835	109584
		Input HP, Mechanical	3.09	4.92	8.34	11.39	17.07	23.70
		Output Torque lb.in, Mechanical	7453	10480	18056	28996	43512	61090
		Efficiency %	82.9	80.7	81.9	87.5	88.0	88.5
1500	18.8	Actual Output Speed, rpm	18.0	19.9	19.9	18.0	18.0	18.0
		Input HP, Thermal	4.81	5.42	9.12	20.65	29.37	40.10
		Output Torque lb.in, Thermal	13862	13705	23405	62696	89842	123043
		Input HP, Mechanical	2.70	4.36	7.46	9.98	15.03	20.99
		Output Torque lb.in, Mechanical	7745	11046	19171	30297	45901	64426
		Efficiency %	82.2	79.7	80.9	87.0	87.5	87.9
1200	15.0	Actual Output Speed, rpm	14.4	15.9	15.9	14.4	14.4	14.4
		Input HP, Thermal	4.55	5.06	8.46	19.31	27.49	37.41
		Output Torque lb.in, Thermal	16193	15746	26778	72956	104221	142364
		Input HP, Mechanical	2.32	3.78	6.43	8.03	12.88	18.01
		Output Torque lb.in, Mechanical	8267	11781	20340	30208	48751	68578
		Efficiency %	81.3	78.6	79.8	86.2	86.7	87.2
1000	12.5	Actual Output Speed, rpm	12.0	13.2	13.2	12.0	12.0	12.0
		Input HP, Thermal	4.34	4.79	7.99	18.37	26.15	35.40
		Output Torque lb.in, Thermal	18419	17718	30020	83060	118364	161317
		Input HP, Mechanical	2.05	3.35	5.69	6.69	10.86	15.71
		Output Torque lb.in, Mechanical	8665	12365	21366	30129	49185	71755
		Efficiency %	80.7	77.7	78.8	85.7	86.2	86.6
750	9.4	Actual Output Speed, rpm	9.0	9.9	9.9	9.0	9.0	9.0
		Input HP, Thermal	4.08	4.43	7.35	17.16	24.27	32.72
		Output Torque lb.in, Thermal	22660	21442	36110	102074	144940	196876
		Input HP, Mechanical	1.67	2.57	4.67	5.05	8.21	12.64
		Output Torque lb.in, Mechanical	9258	12471	22924	30005	48999	75871
		Efficiency %	79.6	76.2	77.4	84.8	85.3	85.7
500	6.3	Actual Output Speed, rpm	6.0	6.6	6.6	6.0	6.0	6.0
		Input HP, Thermal	3.75	4.01	6.61	15.69	21.99	29.64
		Output Torque lb.in, Thermal	30861	28382	47414	138009	195036	263768
		Input HP, Mechanical	1.22	1.76	3.51	3.40	5.51	8.51
		Output Torque lb.in, Mechanical	10055	12427	25190	29846	48725	75455
		Efficiency %	78.2	74.3	75.4	83.7	84.1	84.5
250	3.1	Actual Output Speed, rpm	3.0	3.3	3.3	3.0	3.0	3.0
		Input HP, Thermal	3.34	3.47	5.67	13.81	19.31	25.75
		Output Torque lb.in, Thermal	53013	47537	78451	237420	333132	447588
		Input HP, Mechanical	0.72	0.91	1.90	1.72	2.79	4.31
		Output Torque lb.in, Mechanical	11382	12356	26119	29580	48291	74782
		Efficiency %	76.1	71.4	72.4	81.9	82.3	82.6

Max. Standard Plug-in Shaft torque lb.in

PH35	PH40	PH50	PH60	PH70	PH80
9250	15100	26900	34900	55300	71000

For applications with combinations of high torques, overhung loads, or number of starts, consult Renold

For more information telephone us - Canada: Toll Free 800.265.9970. USA: Toll Free 800.850.8141

RENOLD e.PM Series - PH Type - Speed Reducer - Selection Data

Nominal ratio: 100/1

Input rpm	Nominal Output rpm	Product Code Actual Ratio Overall Ratio	PH3REDXXSJ***	PH4REDXXSJ***	PH5REDXXSJ***	PH6REDXXSJ***	PH7REDXXSJ***	PH8REDXXSJ***
			Helical 13/89 Worm 2/31	Helical 24/78 Worm 1/30	Helical 24/78 Worm 1/30	Helical 18/122 Worm 3/44	Helical 18/122 Worm 3/44	Helical 18/112 Worm 3/44
			106.12	97.50	97.50	99.41	99.41	99.41
1800	18.0	Actual Output Speed, rpm	17.0	18.5	18.5	18.1	18.1	18.1
		Input HP, Thermal	4.73	5.28	8.89	20.65	29.50	40.10
		Output Torque lb.in, Thermal	14432	14335	24456	62538	89614	122745
		Input HP, Mechanical	2.59	4.16	7.12	10.02	15.03	21.13
		Output Torque lb.in, Mechanical	7869	11276	19578	30297	45866	64356
		Efficiency %	82.0	79.4	80.5	87.0	87.5	87.9
1500	15.0	Actual Output Speed, rpm	14.1	15.4	15.4	15.1	15.1	15.1
		Input HP, Thermal	4.52	5.00	8.38	19.58	27.89	37.82
		Output Torque lb.in, Thermal	16395	16070	27313	70897	101347	138500
		Input HP, Mechanical	2.29	3.70	6.28	8.36	13.27	18.56
		Output Torque lb.in, Mechanical	8311	11878	20490	30226	48238	67825
		Efficiency %	81.3	78.4	79.6	86.4	86.9	87.3
1200	12.0	Actual Output Speed, rpm	11.3	12.3	12.3	12.1	12.1	12.1
		Input HP, Thermal	4.28	4.69	7.82	18.51	26.15	35.54
		Output Torque lb.in, Thermal	19242	18594	31449	82727	117908	160695
		Input HP, Mechanical	1.96	3.16	5.42	6.73	10.93	15.85
		Output Torque lb.in, Mechanical	8807	12498	21782	30129	49194	71658
		Efficiency %	80.4	77.3	78.4	85.7	86.2	86.6
1000	10.0	Actual Output Speed, rpm	9.4	10.3	10.3	10.1	10.1	10.1
		Input HP, Thermal	4.12	4.47	7.42	17.70	24.94	33.79
		Output Torque lb.in, Thermal	21968	20969	35330	93960	133610	181725
		Input HP, Mechanical	1.72	2.65	4.78	5.65	9.17	13.81
		Output Torque lb.in, Mechanical	9178	12480	22756	30058	49070	74419
		Efficiency %	79.8	76.4	77.5	85.1	85.6	86.0
750	7.5	Actual Output Speed, rpm	7.1	7.7	7.7	7.5	7.5	7.5
		Input HP, Thermal	3.88	4.16	6.87	16.49	23.20	31.38
		Output Torque lb.in, Thermal	27146	25543	42805	115937	164288	222725
		Input HP, Mechanical	1.38	2.03	3.87	4.27	6.92	10.67
		Output Torque lb.in, Mechanical	9692	12445	24137	29934	48875	75694
		Efficiency %	78.8	75.0	76.1	84.3	84.7	85.2
500	5.0	Actual Output Speed, rpm	4.7	5.1	5.1	5.0	5.0	5.0
		Input HP, Thermal	3.59	3.80	6.22	15.15	21.19	28.56
		Output Torque lb.in, Thermal	37267	34147	56781	157576	222261	300071
		Input HP, Mechanical	1.02	1.38	2.87	2.87	4.66	7.18
		Output Torque lb.in, Mechanical	10568	12400	26217	29775	48619	75278
		Efficiency %	77.5	73.3	74.3	83.2	83.7	84.1
250	2.5	Actual Output Speed, rpm	2.4	2.6	2.6	2.5	2.5	2.5
		Input HP, Thermal	3.23	3.33	5.40	13.41	18.64	24.94
		Output Torque lb.in, Thermal	64509	57736	94907	273197	382728	513464
		Input HP, Mechanical	0.58	0.71	1.49	1.45	2.36	3.63
		Output Torque lb.in, Mechanical	11497	12329	26066	29518	48185	74623
		Efficiency %	75.5	70.5	71.4	81.4	81.8	82.2

Max. Standard Plug-in Shaft torque lb.in

PH35	PH40	PH50	PH60	PH70	PH80
9250	15100	26900	34900	55300	71000

For applications with combinations of high torques, overhung loads, or number of starts, consult Renold

For more information telephone us - Canada: Toll Free 800.265.9970. USA: Toll Free 800.850.8141

RENOLD e.PM Series - PH Type - Speed Reducer - Selection Data

Nominal ratio: 125/1

Input rpm	Nominal Output rpm	Product Code Actual Ratio Overall Ratio	PH3REDXXSK***	PH4REDXXSK***	PH5REDXXSK***	PH6REDXXSK***	PH7REDXXSK***	PH8REDXXSK***
			Helical 11/91 Worm 2/31	Helical 20/82 Worm 1/30	Helical 20/82 Worm 1/30	Helical 20/112 Worm 1/30	Helical 15/125 Worm 3/44	Helical 15/125 Worm 3/44
			128.23	123.00	123.00	120.00	122.22	122.22
1800	14.4	Actual Output Speed, rpm	14.0	14.6	14.6	15.0	14.7	14.7
		Input HP, Thermal	4.52	4.92	8.25	12.69	27.62	37.55
		Output Torque lb.in, Thermal	16447	16605	28189	42884	102915	140612
		Input HP, Mechanical	2.29	3.58	6.08	8.91	13.06	18.28
		Output Torque lb.in, Mechanical	8320	12046	20773	30111	48521	68241
		Efficiency %	81.3	78.2	79.3	80.4	86.8	87.2
1500	12.0	Actual Output Speed, rpm	11.7	12.2	12.2	12.5	12.3	12.3
		Input HP, Thermal	4.32	4.68	7.79	11.95	26.28	35.67
		Output Torque lb.in, Thermal	18778	18690	31606	47931	116541	158873
		Input HP, Mechanical	2.00	3.13	5.39	7.83	11.11	15.98
		Output Torque lb.in, Mechanical	8727	12498	21835	31359	49203	71383
		Efficiency %	80.6	77.2	78.4	79.4	86.2	86.7
1200	9.6	Actual Output Speed, rpm	9.4	9.8	9.8	10.0	9.8	9.8
		Input HP, Thermal	4.10	4.41	7.31	11.16	24.81	33.53
		Output Torque lb.in, Thermal	22081	21687	36513	55160	136230	185230
		Input HP, Mechanical	1.71	2.53	4.62	6.74	8.93	13.54
		Output Torque lb.in, Mechanical	9196	12471	23013	33271	49052	74862
		Efficiency %	79.8	76.1	77.3	78.3	85.5	86.0
1000	8.0	Actual Output Speed, rpm	7.8	8.1	8.1	8.3	8.2	8.2
		Input HP, Thermal	3.96	4.21	6.96	10.59	23.74	31.92
		Output Torque lb.in, Thermal	25262	24588	41245	62082	155236	210641
		Input HP, Mechanical	1.49	2.14	4.04	5.92	7.48	11.51
		Output Torque lb.in, Mechanical	9515	12453	23871	34669	48928	75773
		Efficiency %	79.1	75.3	76.4	77.4	85.0	85.4
750	6.0	Actual Output Speed, rpm	5.8	6.1	6.1	6.3	6.1	6.1
		Input HP, Thermal	3.74	3.93	6.48	9.82	22.13	29.77
		Output Torque lb.in, Thermal	31387	30134	50262	75121	191785	259440
		Input HP, Mechanical	1.20	1.63	3.32	4.85	5.63	8.68
		Output Torque lb.in, Mechanical	10108	12418	25694	37103	48742	75481
		Efficiency %	78.2	74.0	75.0	76.0	84.2	84.5
500	4.0	Actual Output Speed, rpm	3.9	4.1	4.1	4.2	4.1	4.1
		Input HP, Thermal	3.47	3.62	5.91	8.90	20.38	27.36
		Output Torque lb.in, Thermal	43541	40579	67208	99936	261105	351796
		Input HP, Mechanical	0.87	1.11	2.30	3.64	3.79	5.84
		Output Torque lb.in, Mechanical	10940	12374	26164	40785	48477	75074
		Efficiency %	76.8	72.3	73.3	74.2	83.1	83.5
250	2.0	Actual Output Speed, rpm	1.9	2.0	2.0	2.1	2.0	2.0
		Input HP, Thermal	3.14	3.20	5.20	7.76	18.10	24.14
		Output Torque lb.in, Thermal	76821	69399	113685	166259	453809	607810
		Input HP, Mechanical	0.47	0.57	1.19	2.14	1.92	2.95
		Output Torque lb.in, Mechanical	11480	12303	26013	45733	48070	74428
		Efficiency %	74.9	69.6	70.5	71.3	81.3	81.6

Max. Standard Plug-in Shaft torque lb.in

PH35	PH40	PH50	PH60	PH70	PH80
9250	15100	26900	34900	55300	71000

For applications with combinations of high torques, overhung loads, or number of starts, consult Renold

For more information telephone us - Canada: Toll Free 800.265.9970. USA: Toll Free 800.850.8141

RENOLD e.PM Series - PH Type - Speed Reducer - Selection Data

Nominal ratio: 160/1

Input rpm	Nominal Output rpm	Product Code Actual Ratio Overall Ratio	PH3REDXXXSL***	PH4REDXXXSL***	PH5REDXXXSL***	PH6REDXXXSL***	PH7REDXXXSL***	PH8REDXXXSL***
			Helical 16/86 Worm 1/30	Helical 16/86 Worm 1/30	Helical 16/86 Worm 1/30	Helical 21/119 Worm 1/30	Helical 22/112 Worm 1/40	Helical 22/112 Worm 1/40
			161.25	161.25	161.25	170.00	160.00	160.00
1800	11.3	Actual Output Speed, rpm	11.2	11.2	11.2	10.6	11.3	11.3
		Input HP, Thermal	2.78	4.56	7.59	11.36	14.89	20.65
		Output Torque lb.in, Thermal	11312	19821	33455	53153	65263	91139
		Input HP, Mechanical	1.90	2.88	5.07	7.02	9.94	13.40
		Output Torque lb.in, Mechanical	7736	12489	22322	32793	43361	59151
		Efficiency %	72.2	76.8	77.9	78.6	77.9	78.8
1500	9.4	Actual Output Speed, rpm	9.3	9.3	9.3	8.8	9.4	9.4
		Input HP, Thermal	2.64	4.34	7.21	10.77	14.08	19.31
		Output Torque lb.in, Thermal	12767	22423	37714	59760	72790	101478
		Input HP, Mechanical	1.67	2.42	4.46	6.18	8.71	11.77
		Output Torque lb.in, Mechanical	8037	12462	23252	34236	44972	61550
		Efficiency %	71.2	75.9	77.0	77.7	76.8	77.7
1200	7.5	Actual Output Speed, rpm	7.4	7.4	7.4	7.1	7.5	7.5
		Input HP, Thermal	2.49	4.12	6.80	10.12	13.13	18.10
		Output Torque lb.in, Thermal	14852	26182	43847	69259	83542	116191
		Input HP, Mechanical	1.44	1.96	3.78	5.28	7.50	10.06
		Output Torque lb.in, Mechanical	8497	12445	24367	36086	47698	64736
		Efficiency %	70.0	74.8	75.9	76.6	75.5	76.5
1000	6.3	Actual Output Speed, rpm	6.2	6.2	6.2	5.9	6.3	6.3
		Input HP, Thermal	2.40	3.96	6.50	9.66	12.46	17.03
		Output Torque lb.in, Thermal	16850	29784	49692	78591	93811	130228
		Input HP, Mechanical	1.26	1.65	3.36	4.65	6.69	9.01
		Output Torque lb.in, Mechanical	8860	12418	25606	37767	50291	68560
		Efficiency %	69.0	74.1	75.1	75.7	74.5	75.5
750	4.7	Actual Output Speed, rpm	4.7	4.7	4.7	4.4	4.7	4.7
		Input HP, Thermal	2.25	3.71	6.09	9.01	11.53	15.82
		Output Torque lb.in, Thermal	20644	36627	60803	96116	113141	156586
		Input HP, Mechanical	1.03	1.26	2.63	3.79	5.47	7.41
		Output Torque lb.in, Mechanical	9400	12391	26190	40352	53584	73410
		Efficiency %	67.6	72.8	73.9	74.3	73.1	74.0
500	3.1	Actual Output Speed, rpm	3.1	3.1	3.1	2.9	3.1	3.1
		Input HP, Thermal	2.09	3.45	5.61	8.26	10.45	14.21
		Output Torque lb.in, Thermal	27970	49876	82218	129133	149812	206506
		Input HP, Mechanical	0.75	0.85	1.77	2.76	4.08	5.50
		Output Torque lb.in, Mechanical	10064	12347	26102	43166	58346	79748
		Efficiency %	65.7	71.2	72.1	72.6	71.0	71.9
250	1.6	Actual Output Speed, rpm	1.6	1.6	1.6	1.5	1.6	1.6
		Input HP, Thermal	1.88	3.08	4.99	7.31	9.11	12.32
		Output Torque lb.in, Thermal	47650	85610	139727	220009	247549	339108
		Input HP, Mechanical	0.45	0.44	0.93	1.52	2.25	3.26
		Output Torque lb.in, Mechanical	11409	12276	25960	45609	61125	89696
		Efficiency %	63.1	68.7	69.5	69.9	67.8	68.7

Max. Standard Plug-in Shaft torque lb.in

PH35	PH40	PH50	PH60	PH70	PH80
9250	15100	26900	34900	55300	71000

For applications with combinations of high torques, overhung loads, or number of starts, consult Renold

For more information telephone us - Canada: Toll Free 800.265.9970. USA: Toll Free 800.850.8141

RENOLD e.PM Series - PH Type - Speed Reducer - Selection Data

Nominal ratio: 200/1

Input rpm	Nominal Output rpm	Product Code Actual Ratio Overall Ratio	PH3REDXXXSM***	PH4REDXXXSM***	PH5REDXXXSM***	PH6REDXXXSM***	PH7REDXXXSM***	PH8REDXXXSM***
			Helical 13/89 Worm 1/30	Helical 13/89 Worm 1/30	Helical 13/89 Worm 1/30	Helical 18/122 Worm 1/30	Helical 24/116 Worm 1/40	Helical 24/116 Worm 1/40
			205.38	205.38	205.38	203.33	193.33	193.33
1800	9.0	Actual Output Speed, rpm	8.8	8.8	8.8	8.9	9.3	9.3
		Input HP, Thermal	2.60	4.29	7.09	10.78	14.08	19.31
		Output Torque lb.in, Thermal	13275	23352	39221	59611	73149	101960
		Input HP, Mechanical	1.60	2.29	4.27	6.19	8.65	11.70
		Output Torque lb.in, Mechanical	8125	12462	23535	34209	45034	61656
		Efficiency %	70.9	75.6	76.7	77.7	76.8	77.7
1500	7.5	Actual Output Speed, rpm	7.3	7.3	7.3	7.4	7.8	7.8
		Input HP, Thermal	2.49	4.10	6.77	10.25	13.26	18.24
		Output Torque lb.in, Thermal	15045	26515	44391	67357	81850	113869
		Input HP, Mechanical	1.41	1.92	3.74	5.43	7.65	10.25
		Output Torque lb.in, Mechanical	8532	12436	24508	35705	47185	63984
		Efficiency %	69.9	74.7	75.8	76.8	75.7	76.7
1200	6.0	Actual Output Speed, rpm	5.8	5.8	5.8	5.9	6.2	6.2
		Input HP, Thermal	2.36	3.90	6.41	9.67	12.43	17.03
		Output Torque lb.in, Thermal	17595	31116	51865	78284	94302	130885
		Input HP, Mechanical	1.21	1.56	3.21	4.66	6.65	8.95
		Output Torque lb.in, Mechanical	8975	12418	25969	37705	50398	68710
		Efficiency %	68.7	73.8	74.8	75.7	74.5	75.4
1000	5.0	Actual Output Speed, rpm	4.9	4.9	4.9	4.9	5.2	5.2
		Input HP, Thermal	2.28	3.75	6.14	9.25	11.83	16.23
		Output Torque lb.in, Thermal	20031	35514	58998	88650	106114	147008
		Input HP, Mechanical	1.06	1.31	2.74	4.12	5.86	7.92
		Output Torque lb.in, Mechanical	9329	12391	26208	39378	52566	71906
		Efficiency %	67.8	73.0	74.1	74.8	73.6	74.4
750	3.8	Actual Output Speed, rpm	3.7	3.7	3.7	3.7	3.9	3.9
		Input HP, Thermal	2.16	3.54	5.79	8.68	10.98	15.02
		Output Torque lb.in, Thermal	24658	43874	72527	108874	128975	178150
		Input HP, Mechanical	0.85	1.00	2.09	3.32	4.77	6.42
		Output Torque lb.in, Mechanical	9745	12365	26137	41671	55876	76101
		Efficiency %	66.5	71.8	72.8	73.6	72.1	73.0
500	2.5	Actual Output Speed, rpm	2.4	2.4	2.4	2.5	2.6	2.6
		Input HP, Thermal	2.00	3.30	5.36	7.99	10.02	13.54
		Output Torque lb.in, Thermal	33665	60207	98885	147061	172008	236657
		Input HP, Mechanical	0.63	0.68	1.41	2.42	3.52	4.77
		Output Torque lb.in, Mechanical	10595	12321	26048	44512	60266	82624
		Efficiency %	64.7	70.3	71.1	71.9	70.0	70.9
250	1.3	Actual Output Speed, rpm	1.2	1.2	1.2	1.2	1.3	1.3
		Input HP, Thermal	1.81	2.99	4.81	7.12	8.81	11.89
		Output Torque lb.in, Thermal	57832	104151	169458	252614	286744	392174
		Input HP, Mechanical	0.37	0.35	0.74	1.29	1.88	2.75
		Output Torque lb.in, Mechanical	11851	12250	25916	45547	61036	90333
		Efficiency %	62.3	68.0	68.7	69.3	67.0	67.8

Max. Standard Plug-in Shaft torque lb.in

PH35	PH40	PH50	PH60	PH70	PH80
9250	15100	26900	34900	55300	71000

For applications with combinations of high torques, overhung loads, or number of starts, consult Renold

For more information telephone us - Canada: Toll Free 800.265.9970. USA: Toll Free 800.850.8141

RENOLD e.PM Series - PH Type - Speed Reducer - Selection Data

Nominal ratio: 250/1

Input rpm	Nominal Output rpm	Product Code Actual Ratio Overall Ratio	PH3REDXXXSN***	PH4REDXXXSN***	PH5REDXXXSN***	PH6REDXXXSN***	PH7REDXXXSN***	PH8REDXXXSN***
			Helical 11/91 Worm 1/30	Helical 11/91 Worm 1/30	Helical 11/91 Worm 1/30	Helical 15/125 Worm 1/30	Helical 18/122 Worm 1/40	Helical 18/112 Worm 1/40
			248.18	248.18	248.18	250.00	271.11	271.11
1800	7.2	Actual Output Speed, rpm	7.3	7.3	7.3	7.2	6.6	6.6
		Input HP, Thermal	2.48	4.09	6.76	10.18	12.67	17.43
		Output Torque lb.in, Thermal	15089	26603	44531	68400	90148	125225
		Input HP, Mechanical	1.41	1.92	3.72	5.35	6.96	9.37
		Output Torque lb.in, Mechanical	8550	12436	24544	35917	49451	67330
		Efficiency %	69.9	74.7	75.8	76.6	74.9	75.8
1500	6.0	Actual Output Speed, rpm	6.0	6.0	6.0	6.0	5.5	5.5
		Input HP, Thermal	2.39	3.93	6.46	9.71	12.04	16.49
		Output Torque lb.in, Thermal	17183	30371	50647	77390	101636	140910
		Input HP, Mechanical	1.24	1.61	3.29	4.71	6.15	8.30
		Output Torque lb.in, Mechanical	8904	12418	25756	37546	51823	70808
		Efficiency %	68.9	74.0	74.9	75.8	73.9	74.8
1200	4.8	Actual Output Speed, rpm	4.8	4.8	4.8	4.8	4.4	4.4
		Input HP, Thermal	2.28	3.74	6.14	9.20	11.36	15.56
		Output Torque lb.in, Thermal	20127	35690	59287	90376	117820	162965
		Input HP, Mechanical	1.06	1.30	2.72	4.04	5.23	7.08
		Output Torque lb.in, Mechanical	9338	12391	26199	39617	54177	74286
		Efficiency %	67.8	73.0	74.0	74.7	72.7	73.7
1000	4.0	Actual Output Speed, rpm	4.0	4.0	4.0	4.0	3.7	3.7
		Input HP, Thermal	2.20	3.61	5.90	8.82	10.86	14.75
		Output Torque lb.in, Thermal	22975	40833	67611	102907	133146	183828
		Input HP, Mechanical	0.92	1.10	2.29	3.52	4.62	6.22
		Output Torque lb.in, Mechanical	9621	12374	26164	41104	56443	76933
		Efficiency %	66.9	72.2	73.2	74.0	71.8	72.7
750	3.0	Actual Output Speed, rpm	3.0	3.0	3.0	3.0	2.8	2.8
		Input HP, Thermal	2.08	3.43	5.58	8.30	10.18	13.81
		Output Torque lb.in, Thermal	28434	50717	83585	126995	163009	224434
		Input HP, Mechanical	0.74	0.84	1.75	2.82	3.72	5.04
		Output Torque lb.in, Mechanical	10108	12347	26102	43007	59550	81544
		Efficiency %	65.6	71.1	72.0	72.7	70.4	71.3
500	2.0	Actual Output Speed, rpm	2.0	2.0	2.0	2.0	1.8	1.8
		Input HP, Thermal	1.94	3.20	5.18	7.70	9.37	12.70
		Output Torque lb.in, Thermal	39238	70319	115165	172630	219290	300808
		Input HP, Mechanical	0.54	0.56	1.17	2.05	2.63	3.70
		Output Torque lb.in, Mechanical	10958	12303	26013	45715	61196	87368
		Efficiency %	64.0	69.6	70.4	71.1	68.5	69.4
250	1.0	Actual Output Speed, rpm	1.0	1.0	1.0	1.0	0.9	0.9
		Input HP, Thermal	1.77	2.91	4.68	6.91	8.34	11.25
		Output Torque lb.in, Thermal	68724	123998	201239	299335	374412	510748
		Input HP, Mechanical	0.31	0.29	0.60	1.05	1.35	1.99
		Output Torque lb.in, Mechanical	12188	12232	25871	45476	60886	90112
		Efficiency %	61.6	67.3	68.0	68.6	65.7	66.5

Max. Standard Plug-in Shaft torque lb.in

PH35	PH40	PH50	PH60	PH70	PH80
9250	15100	26900	34900	55300	71000

For applications with combinations of high torques, overhung loads, or number of starts, consult Renold

For more information telephone us - Canada: Toll Free 800.265.9970. USA: Toll Free 800.850.8141

RENOLD e.PM Series - PH Type - Speed Reducer - Selection Data

Nominal ratio: 320/1

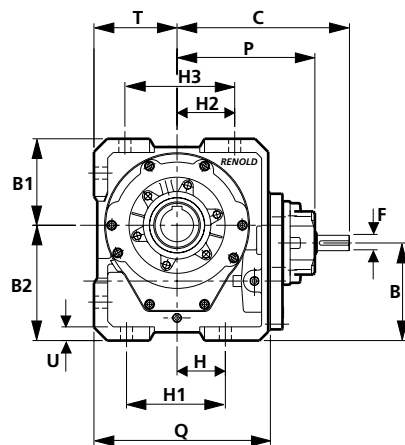
Input rpm	Nominal Output rpm	Product Code Actual Ratio Overall Ratio	PH7REDXXXSP***	PH8REDXXXSP***
			Helical 15/125 Worm 1/40 333.33	Helical 15/125 Worm 1/40 333.33
1800	5.6	Actual Output Speed, rpm	5.4	5.4
		Input HP, Thermal	11.96	16.36
		Output Torque lb.in, Thermal	103178	143004
		Input HP, Mechanical	6.05	8.17
		Output Torque lb.in, Mechanical	52088	71206
		Efficiency %	73.8	74.6
1500	4.7	Actual Output Speed, rpm	4.5	4.5
		Input HP, Thermal	11.40	15.56
		Output Torque lb.in, Thermal	116497	161160
		Input HP, Mechanical	5.30	7.16
		Output Torque lb.in, Mechanical	54018	74047
		Efficiency %	72.8	73.8
1200	3.8	Actual Output Speed, rpm	3.6	3.6
		Input HP, Thermal	10.80	14.75
		Output Torque lb.in, Thermal	135696	187298
		Input HP, Mechanical	4.52	6.09
		Output Torque lb.in, Mechanical	56770	77411
		Efficiency %	71.7	72.6
1000	3.1	Actual Output Speed, rpm	3.0	3.0
		Input HP, Thermal	10.35	14.08
		Output Torque lb.in, Thermal	154202	212464
		Input HP, Mechanical	3.95	5.34
		Output Torque lb.in, Mechanical	58771	80376
		Efficiency %	70.8	71.7
750	2.3	Actual Output Speed, rpm	2.3	2.3
		Input HP, Thermal	9.74	13.22
		Output Torque lb.in, Thermal	189734	260710
		Input HP, Mechanical	3.16	4.29
		Output Torque lb.in, Mechanical	61284	84385
		Efficiency %	69.4	70.3
500	1.6	Actual Output Speed, rpm	1.5	1.5
		Input HP, Thermal	9.02	12.20
		Output Torque lb.in, Thermal	256916	351788
		Input HP, Mechanical	2.15	3.14
		Output Torque lb.in, Mechanical	61098	90431
		Efficiency %	67.6	68.4
250	0.78	Actual Output Speed, rpm	0.8	0.8
		Input HP, Thermal	8.10	10.90
		Output Torque lb.in, Thermal	442935	603315
		Input HP, Mechanical	1.11	1.63
		Output Torque lb.in, Mechanical	60798	89979
		Efficiency %	64.9	65.7

Max. Standard Plug-in Shaft torque lb.in

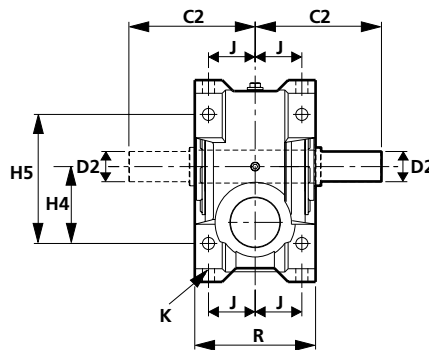
PH70	PH80
55300	71000

For applications with combinations of high torques, overhung loads, or number of starts, consult Renold

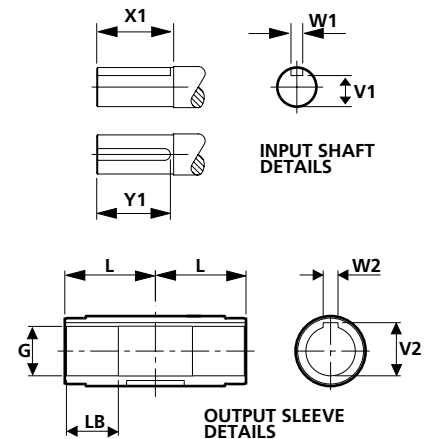
RENOLD e.PM Series - PH Type - Speed Reducer Dimensions



Unit shown with single extension plug-in output shaft



Shafts can be plugged-in from either side of the unit.



e.PM Series - PH Type - Speed Reducer

UNIT REF	B	B1	B2	C	H	H1	H2	H3	H4	H5
PH35	6.38	5.51	7.09	11.34	2.36	5.31	3.35	6.30	4.72	8.07
PH40	7.06	6.20	8.27	12.36	3.46	7.09	4.13	7.87	5.51	9.25
PH50	7.24	7.68	9.45	13.15	3.46	7.09	4.92	9.06	6.30	11.02
PH60	9.43	8.86	11.02	17.07	4.72	9.25	5.71	10.63	7.48	13.39
PH70	10.60	10.06	13.19	17.66	5.51	11.42	6.30	12.20	9.45	16.22
PH80	10.98	11.02	14.57	18.60	5.51	12.20	6.69	13.39	10.08	18.11

UNIT REF	J	K	P	Q	R	T	U
PH35	2.95	0.67	8.86	10.79	7.32	5.12	0.98
PH40	3.35	0.85	9.88	12.64	8.66	5.94	0.98
PH50	3.94	0.85	10.67	14.37	9.84	6.89	1.18
PH60	4.92	1.00	12.95	16.46	12.01	7.87	1.38
PH70	5.91	1.00	14.49	19.80	14.17	9.69	1.38
PH80	5.91	1.00	14.49	19.80	14.17	9.69	1.38

Input Shaft

UNIT REF	F		V1 min	W1	X1	Y1
	max	min				
PH35	1.1250	1.1245	0.980	0.250	2.38	2.25
PH40	1.1250	1.1245	0.980	0.250	2.38	2.25
PH50	1.1250	1.1245	0.980	0.250	2.38	2.25
PH60	1.7500	1.7490	1.536	0.375	4.00	3.75
PH70	1.7500	1.7490	1.536	0.375	4.00	3.75
PH80	1.7500	1.7490	1.536	0.375	4.00	3.75

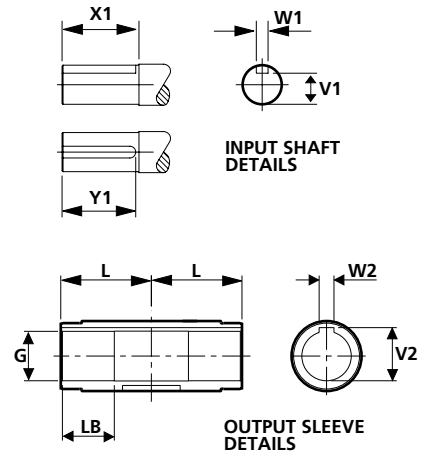
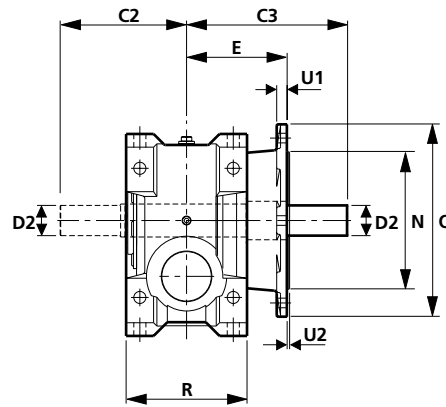
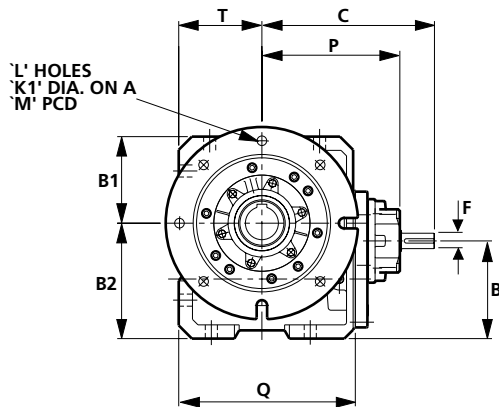
Plug-in Output Shaft

UNIT REF	C2	D2
PH35	7.63	1.7500
PH40	9.00	2.0000
PH50	10.00	2.3750
PH60	11.63	2.8750
PH70	14.00	3.3750
PH80	14.50	3.6250

Output Sleeve

UNIT REF	G		L	LB	V2 min	W2	
	max	min				max.	min
PH35	1.9705	1.9695	4.06	2.17	2.12	0.5520	0.5504
PH40	2.3646	2.3634	4.33	2.56	2.54	0.7095	0.7078
PH50	2.7583	2.7571	5.12	2.76	2.95	0.7884	0.7864
PH60	3.5461	3.5447	6.10	3.54	3.76	0.9853	0.9832
PH70	3.9398	3.9384	6.85	4.53	4.19	1.1034	1.1013
PH80	3.9398	3.9384	6.85	4.53	4.19	1.1034	1.1013

RENOLD e.PM Series - PH Type - Speed Reducer Dimensions



Unit shown with single extension plug-in output shaft

Shafts can be plugged-in from either side of the unit.

e.PM Series - PH Type - Speed Reducer - Horizontal Flange Mounted

UNIT REF	B	B1	B2	C	E	K1	M
PH35	6.38	5.51	7.09	11.34	6.06	0.53	10.43
PH40	7.06	6.20	8.27	12.36	7.20	0.69	11.81
PH50	7.24	7.68	9.45	13.15	7.76	0.69	13.78
PH60	9.43	8.86	11.02	17.07	8.46	0.69	15.75
PH70	10.60	10.06	13.19	17.66	9.76	0.69	19.69
PH80	10.98	11.02	14.57	18.60	9.76	0.69	19.69

UNIT REF	N		O min	P	Q	R	T	U1	U2
	max	min							
PH35	9.055	9.052	11.81	8.86	10.79	7.32	5.12	0.51	0.16
PH40	9.843	9.840	13.78	9.88	12.64	8.66	5.94	0.75	0.20
PH50	11.811	11.808	15.75	10.67	14.37	9.84	6.89	0.75	0.20
PH60	13.780	13.776	17.72	12.95	16.46	12.01	7.87	0.75	0.20
PH70	17.717	17.713	21.65	13.54	18.03	14.17	8.86	0.94	0.20
PH80	17.717	17.713	21.65	14.49	19.80	14.17	9.69	0.94	0.20

Input Shaft

UNIT REF	F		V1 min	W1	X1	Y1
	max	min				
PH35	1.1250	1.1245	0.980	0.250	2.38	2.25
PH40	1.1250	1.1245	0.980	0.250	2.38	2.25
PH50	1.1250	1.1245	0.980	0.250	2.38	2.25
PH60	1.7500	1.7490	1.536	0.375	4.00	3.75
PH70	1.7500	1.7490	1.536	0.375	4.00	3.75
PH80	1.7500	1.7490	1.536	0.375	4.00	3.75

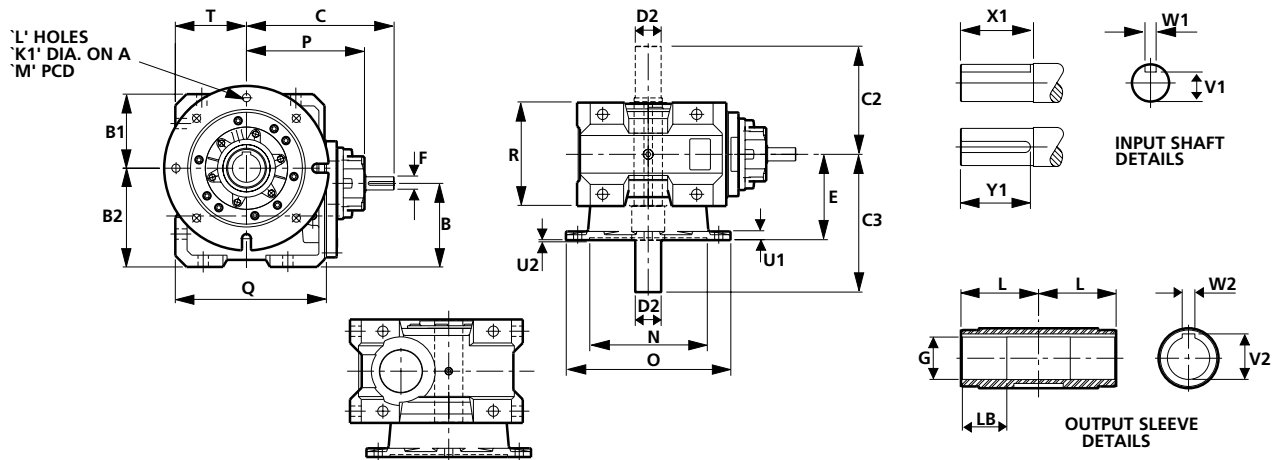
Plug-in Output Shaft

UNIT REF	C2	C3	D2
PH35	7.63	9.31	1.7500
PH40	9.00	11.50	2.0000
PH50	10.00	12.25	2.3750
PH60	11.63	13.63	2.8750
PH70	14.00	16.50	3.3750
PH80	14.50	17.00	3.6250

Output Sleeve

UNIT REF	G		L	LB	V2 min	W2	
	max	min				max.	min
PH35	1.9705	1.9695	4.06	2.17	2.12	0.5520	0.5504
PH40	2.3646	2.3634	4.33	2.56	2.54	0.7095	0.7078
PH50	2.7583	2.7571	5.12	2.76	2.95	0.7884	0.7864
PH60	3.5461	3.5447	6.10	3.54	3.76	0.9853	0.9832
PH70	3.9398	3.9384	6.85	4.53	4.19	1.1034	1.1013
PH80	3.9398	3.9384	6.85	4.53	4.19	1.1034	1.1013

RENOLD e.PM Series - PH Type - Speed Reducer Dimensions



Unit shown with single extension plug-in output shaft

e.PM Series - PH Type - Speed Reducer - Vertical Skirt

Shafts can be plugged-in from either side of the unit.

UNIT REF	B	B1	B2	C	E	K1	M
PH35	6.38	5.51	7.09	11.34	6.06	0.53	10.43
PH40	7.06	6.20	8.27	12.36	7.20	0.69	11.81
PH50	7.24	7.68	9.45	13.15	7.76	0.69	13.78
PH60	9.43	8.86	11.02	17.07	8.46	0.69	15.75
PH70	10.60	10.06	13.19	17.66	9.76	0.69	19.69
PH80	10.98	11.02	14.57	18.60	9.76	0.69	19.69

UNIT REF	N	O	P	Q	R	T	U1	U2
	max	min	min					
PH35	9.058	9.055	11.81	8.86	10.79	7.32	5.12	0.51
PH40	9.845	9.843	13.78	9.88	12.64	8.66	5.94	0.75
PH50	11.814	11.811	15.75	10.67	14.37	9.84	6.89	0.75
PH60	13.783	13.780	17.72	12.95	16.46	12.01	7.87	0.75
PH70	17.720	17.717	21.65	13.54	18.03	14.17	8.86	0.94
PH80	17.720	17.717	21.65	14.49	19.80	14.17	9.69	0.94

Input Shaft

UNIT REF	F	V1	W1	X1	Y1
	max	min	min		
PH35	1.1250	1.1245	0.980	0.250	2.38
PH40	1.1250	1.1245	0.980	0.250	2.38
PH50	1.1250	1.1245	0.980	0.250	2.38
PH60	1.7500	1.7490	1.536	0.375	4.00
PH70	1.7500	1.7490	1.536	0.375	4.00
PH80	1.7500	1.7490	1.536	0.375	4.00

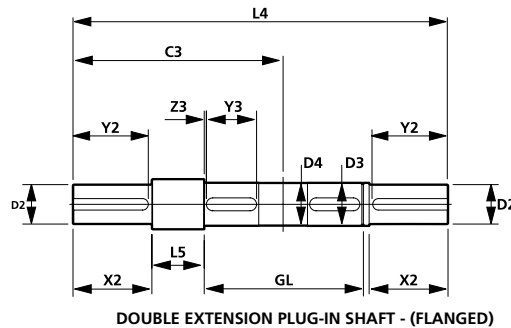
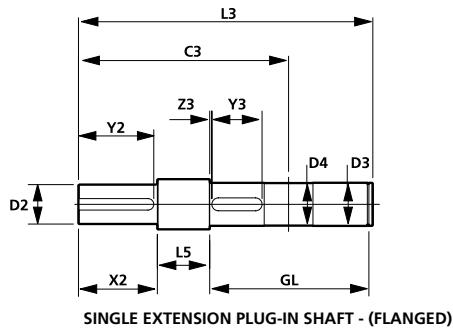
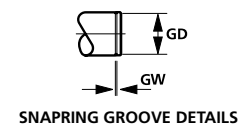
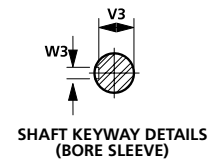
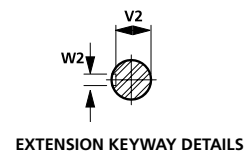
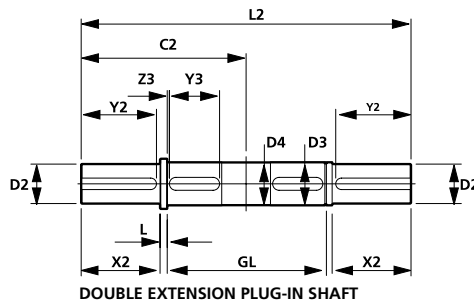
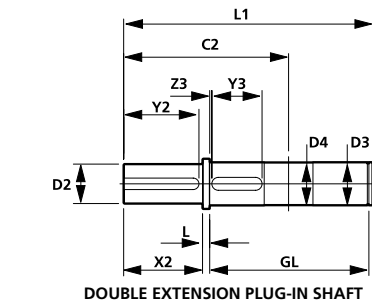
Plug-in Output Shaft

UNIT REF	C2	C3	D2
PH35	7.63	9.31	1.7500
PH40	9.00	11.50	2.0000
PH50	10.00	12.25	2.3750
PH60	11.63	13.63	2.8750
PH70	14.00	16.50	3.3750
PH80	14.50	17.00	3.6250

Output Sleeve

UNIT REF	G	L	LB	V2	W2
	max	min	min	min	max. min
PH35	1.9705	1.9695	4.06	2.17	2.12
PH40	2.3646	2.3634	4.33	2.56	2.54
PH50	2.7583	2.7571	5.12	2.76	2.95
PH60	3.5461	3.5447	6.10	3.54	3.76
PH70	3.9398	3.9384	6.85	4.53	4.19
PH80	3.9398	3.9384	6.85	4.53	4.19

RENOLD e.PM Series - PH Type - Output Shaft Dimensions



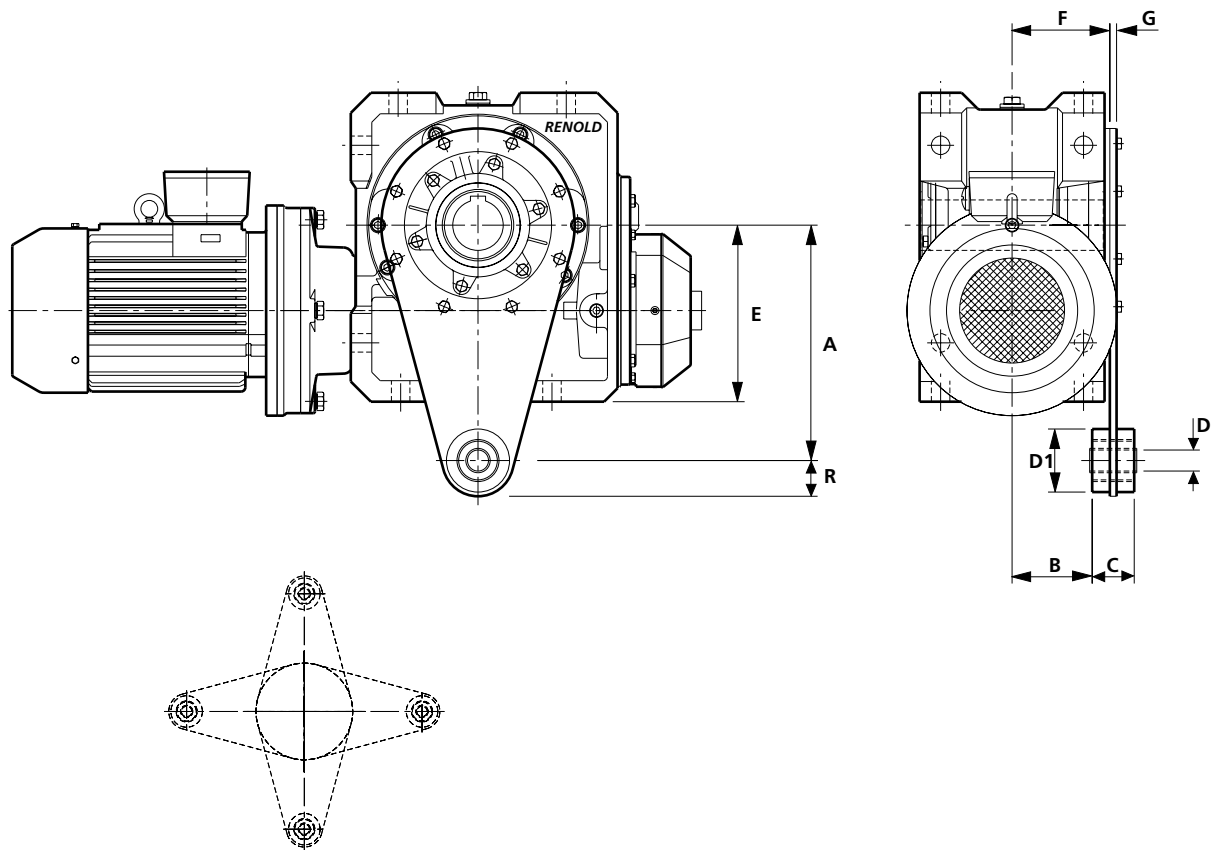
Plug-in Shafts

UNIT REF	C2	C3	L	L1	L2	L3	L4	L5	GD	GL	GW
PH35	7.63	9.31	0.32	11.97	15.25	13.66	16.94	2.01	1.850 1.841	8.185 8.183	0.090 0.085
PH40	9.00	11.50	0.42	13.63	18.00	16.13	20.50	2.92	2.244 2.232	8.746 8.744	0.090 0.085
PH50	10.00	12.25	0.38	15.45	20.00	17.70	22.25	2.63	2.638 2.626	10.341 10.339	0.110 0.104
PH60	11.63	13.63	0.40	18.10	23.25	20.10	25.25	2.40	3.406 3.392	12.329 12.327	0.131 0.124
PH70	14.00	16.50	0.40	21.22	28.00	23.72	30.50	2.90	3.799 3.785	13.825 13.823	0.131 0.124
PH80	14.50	17.00	0.40	21.72	29.00	24.22	31.50	2.90	3.799 3.785	13.825 13.823	0.131 0.124

UNIT REF	D2		V2	W2		X2	Y2
	max	min	min	max	min		
PH35	1.7500	1.7490	1.536	0.377	0.375	3.25	3.13
PH40	2.0000	1.9990	1.712	0.502	0.500	4.25	4.13
PH50	2.3750	2.3740	2.015	0.627	0.625	4.50	4.25
PH60	2.8750	2.8740	2.444	0.752	0.750	5.13	5.00
PH70	3.3750	3.3740	2.874	0.877	0.875	6.75	6.50
PH80	3.6250	3.6240	3.128	0.877	0.875	7.25	6.88

UNIT REF	D3		V3	W3		Y3	Z3	D4
	max	min	min	max	min			
PH35	1.9685	1.9675	1.744	0.550	0.549	2.48	0.12	1.81
PH40	2.3622	2.3615	2.079	0.706	0.708	2.76	0.12	2.20
PH50	2.7559	2.7552	2.453	0.787	0.784	3.54	0.08	2.60
PH60	3.5433	3.5424	3.181	0.983	0.981	4.33	0.12	3.39
PH70	3.9370	3.9361	3.535	1.101	1.099	4.92	0.12	3.78
PH80	3.9370	3.9361	3.535	1.101	1.099	4.92	0.12	3.78

RENOLD e.PM Series - PH Type - Torque Restraint Bracket

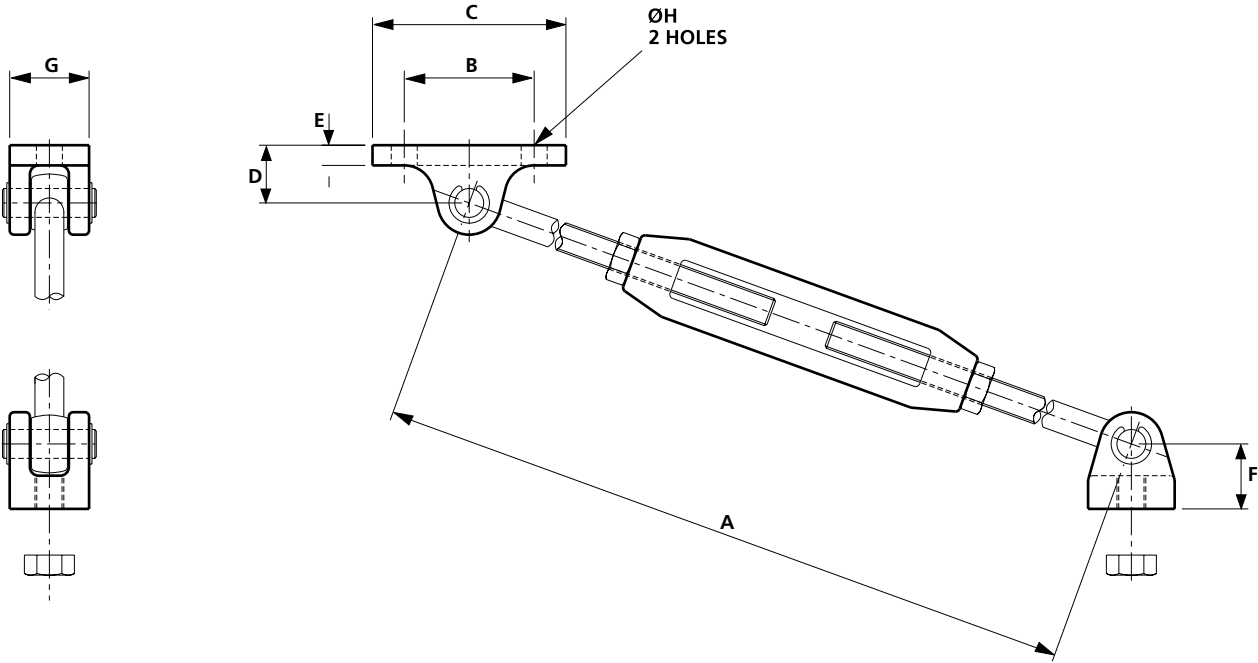


BRACKET CAN BE MOUNTED IN ANY OF 4 POSITIONS SHOWN
- ON EITHER SIDE OF GEAR UNIT

Torque Restraint Bracket

UNIT SIZE	A	B	C	D	D1	E	F	G	R
PH35	9.45	2.67	2.75	0.79	2.76	7.09	3.82	0.47	1.77
PH40	10.63	4.02	2.76	0.79	2.76	8.25	5.63	0.47	1.77
PH50	11.81	4.57	2.76	0.79	2.76	9.50	6.18	0.47	1.77
PH60	14.17	5.30	2.60	1.18	3.15	11.00	6.89	0.60	2.05
PH70	16.34	6.28	2.60	1.18	3.15	12.75	7.87	0.60	2.05
PH80	17.72	6.28	2.60	1.18	3.15	13.75	7.87	0.60	2.05

RENOLD e.PM Series - PH Type - Torque Arm Assembly



Torque Arm Assembly

UNIT SIZE	A	B	C	D	E	F	G	H
PH35	23.5 23.5	2.95	4.3	1.38	0.5	1.57	1.6	0.55
PH40	23.5 29.5	3.54	5.2	1.57	0.6	1.77	2.0	0.709
PH50	23.5 29.5	3.54	5.2	1.57	0.6	1.77	2.0	0.709
PH60	29.5 35.5	4.53	7.0	2.24	0.8	2.17	3.0	0.866
PH70	29.5 35.5	4.53	7.0	2.24	0.8	2.17	3.0	0.866
PH80	29.5 35.5	4.53	7.0	2.24	0.8	2.17	3.0	0.866

RENOLD e.PM Series - Installation, Maintenance & Storage

Initial running

All units are supplied without oil.

First filling

Single Reduction Units

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. In the case of double reduction units, ensure that maintenance requirements given above are applied to both 1st and 2nd stage reduction gears.

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.

When mounted with wormshafts vertical, the top bearing requires grease lubrication. Standard units, therefore, need to be modified by the inclusion of a grease nipple and nylos ring adjacent to the top bearing. Customers must advise us of this requirement when placing enquiries and orders.

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 on to shafts.

Worm 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 worm 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.

Spare parts

Information relating to spare parts is available on request.

RENOLD e.PM Series - Lubrication Information**Oil Lubrication Worm Helical Gears**

The correct fill of oil for the unit size and mounting position can be found. 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. Some EP additives such as Sulphur can attack Bronze especially at operating temperatures above 80°C and therefore should be avoided.

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 affects 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 a medium grade, with higher temperatures and loading heavy grade oils should be used.

If the unit is operating with gear speeds below 2.5 m/s (500ft/min) then the next higher grade should be used. Using too 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.

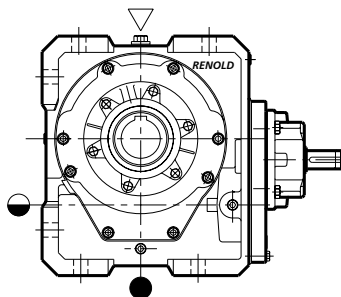
Which Oil to Select

There are three main oils Mineral, Synthetic - Polyalphaolefin and Synthetic - Polyglycol. Mineral oils tend to be lower cost, have a shorter life and are less efficient. Synthetic - Polyalphaolefin can operate over a higher temperature range, are more efficient, give higher ratings and have a longer life and as such are preferred. 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.

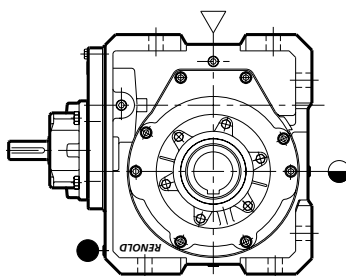
Mineral Oil	Light		Medium		Heavy	
		Temp°C		Temp°C		Temp°C
Mobil Gear	630	-13 to 90	632	-13 to 90	634	-1 to 90
Mobil DTE	BB	-7 to 90	AA	2 to 90	HH	2 to 90
Castrol Optimol BM	220	-9 to 120	320	-9 to 120	460	-9 to 120
Castrol MoLub - Alloy EP	220	-24 to 80	320	-18 to 80	460	-15 to 80
Shell Vitrea	220	-24 to 120	320	-18 to 120	460	-15 to 120
Shell Omala	220	-9 to 80	320	-9 to 80	460	-9 to 80
Esso Teresso	220	-18 to 120	320	-12 to 120	460	-9 to 120
Esso Spartan EP	220	-30 to 80	320	-27 to 80	460	-18 to 80
Petro - Canada Harmony	220	-18 to 120	320	-12 to 120	460	-9 to 120
Petro - Canada Ultima EP	220	-30 to 80	320	-27 to 80	460	-18 to 80

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
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
Petro - Canada Ultima Synthetic	220	-42 to 160	220	-42 to 160	460	-39 to 160

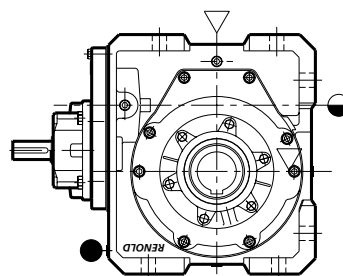
RENOLD e.PM Series - PH Type - Oil Capacities



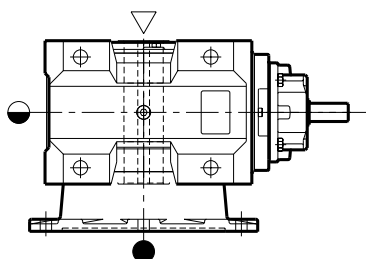
UNDERDRIVEN



OVERDRIVEN



OVERDRIVEN
(SLOW SPEED)



VERTICAL OUTPUT



FILLER/BREATHING PLUG



OIL LEVEL PLUG



DRAIN PLUG

e.PM Series PH Helical/Worm Oil Quantities

UNIT REF	Underdriven		Over driven				Vertical Output -with dry well	
	Litres	U.S. Pints	Normal Speed		Slow Speed		Litres	U.S. Pints
PH35	1.2	2.5	2.6	5.5	4.0	8.5	1.6	3.4
PH40	1.8	3.8	3.6	7.6	7.0	15	2.9	6.1
PH50	3.0	6.3	6.6	14	11.0	23	5.7	12
PH60	5.3	11	10.3	22	18.0	38	8.7	18
PH70	8.1	17	15.5	33	27.0	57	14.5	31
PH80	10.0	21	19.0	40	34.0	72	18.1	38

Nominal oil quantity - May vary with ratio

RENOLD e.PM Series - PH Type - Unit Weights

e.PM Series PH Single Reduction Weights (lb)

PH35	Foot Mounting			Flange Mounting			Vertical Output (Dry Well)		
	Hollow Shaft	Single Extension	Double Extension	Hollow Shaft	Single Extension	Double Extension	Hollow Shaft	Single Extension	Double Extension
PH35-Speed Reducer	131	141	144	143	155	158	147	160	163
Motor Ready Units - weights do not include motor									
PH35 + 143/145TC	137	148	151	149	162	165	154	166	169
PH35 + 182/184TC	145	155	158	157	169	172	161	173	176
PH35 + 213/215TC	144	155	158	156	169	172	161	173	176

PH40	Foot Mounting			Flange Mounting			Vertical Output (Dry Well)		
	Hollow Shaft	Single Extension	Double Extension	Hollow Shaft	Single Extension	Double Extension	Hollow Shaft	Single Extension	Double Extension
PH40-Speed Reducer	182	198	202	206	226	231	210	230	234
Motor Ready Units - weights do not include motor									
PH40 + 143/145TC	188	204	224	213	232	237	216	236	240
PH40 + 182/184TC	195	211	232	220	240	245	223	243	248
PH40 + 213/215TC	195	211	231	220	240	244	223	243	248
PH40 + 254/256TC	195	211	231	219	239	244	223	243	247

PH50	Foot Mounting			Flange Mounting			Vertical Output (Dry Well)		
	Hollow Shaft	Single Extension	Double Extension	Hollow Shaft	Single Extension	Double Extension	Hollow Shaft	Single Extension	Double Extension
PH50-Speed Reducer	259	285	294	289	320	329	293	324	333
Motor Ready Units - weights do not include motor									
PH50 + 143/145TC	265	292	300	296	327	335	300	331	339
PH50 + 182/184TC	273	299	307	303	334	342	307	338	346
PH50 + 213/215TC	273	299	307	303	334	342	307	338	346
PH50 + 254/256TC	273	299	307	303	334	342	307	338	346

RENOLD e.PM Series - PH Type - Unit Weights

e.PM Series PH Single Reduction Weights (lb)

PH60	Foot Mounting			Flange Mounting			Vertical Output (Dry Well)		
	Hollow Shaft	Single Extension	Double Extension	Hollow Shaft	Single Extension	Double Extension	Hollow Shaft	Single Extension	Double Extension
PH60-Speed Reducer	411	457	468	448	502	512	456	510	520
Motor Ready Units - weights do not include motor									
PH60 + 182/184TC	437	463	471	467	498	506	467	498	506
PH60 + 213/215TC	436	462	470	436	467	475	436	467	475
PH60 + 254/256TC	436	462	470	436	467	475	436	467	475
PH60 + 284/286TC	452	478	486	452	483	491	452	483	491
PH60 + 324/326TC	477	523	534	477	531	541	477	531	541

PH70	Foot Mounting			Flange Mounting			Vertical Output (Dry Well)		
	Hollow Shaft	Single Extension	Double Extension	Hollow Shaft	Single Extension	Double Extension	Hollow Shaft	Single Extension	Double Extension
PH70-Speed Reducer	578	644	661	635	713	729	648	725	742
Motor Ready Units - weights do not include motor									
PH70 + 182/184TC	604	670	687	661	739	755	674	751	768
PH70 + 213/215TC	604	669	686	661	738	755	673	751	767
PH70 + 254/256TC	603	669	686	660	738	754	673	750	767
PH70 + 284/286TC	619	685	702	677	754	771	689	766	783
PH70 + 324/326TC	644	710	727	702	779	795	714	791	808

PH80	Foot Mounting			Flange Mounting			Vertical Output (Dry Well)		
	Hollow Shaft	Single Extension	Double Extension	Hollow Shaft	Single Extension	Double Extension	Hollow Shaft	Single Extension	Double Extension
PH80-Speed Reducer	671	737	754	738	819	840	750	832	852
Motor Ready Units - weights do not include motor									
PH70 + 182/184TC	697	763	780	764	845	866	776	857	878
PH80 + 213/215TC	697	763	779	763	844	865	776	857	878
PH80 + 254/256TC	696	762	779	763	844	865	775	856	877
PH80 + 284/286TC	712	778	795	779	860	881	791	873	894
PH80 + 324/326TC	737	803	820	804	885	906	816	898	918

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