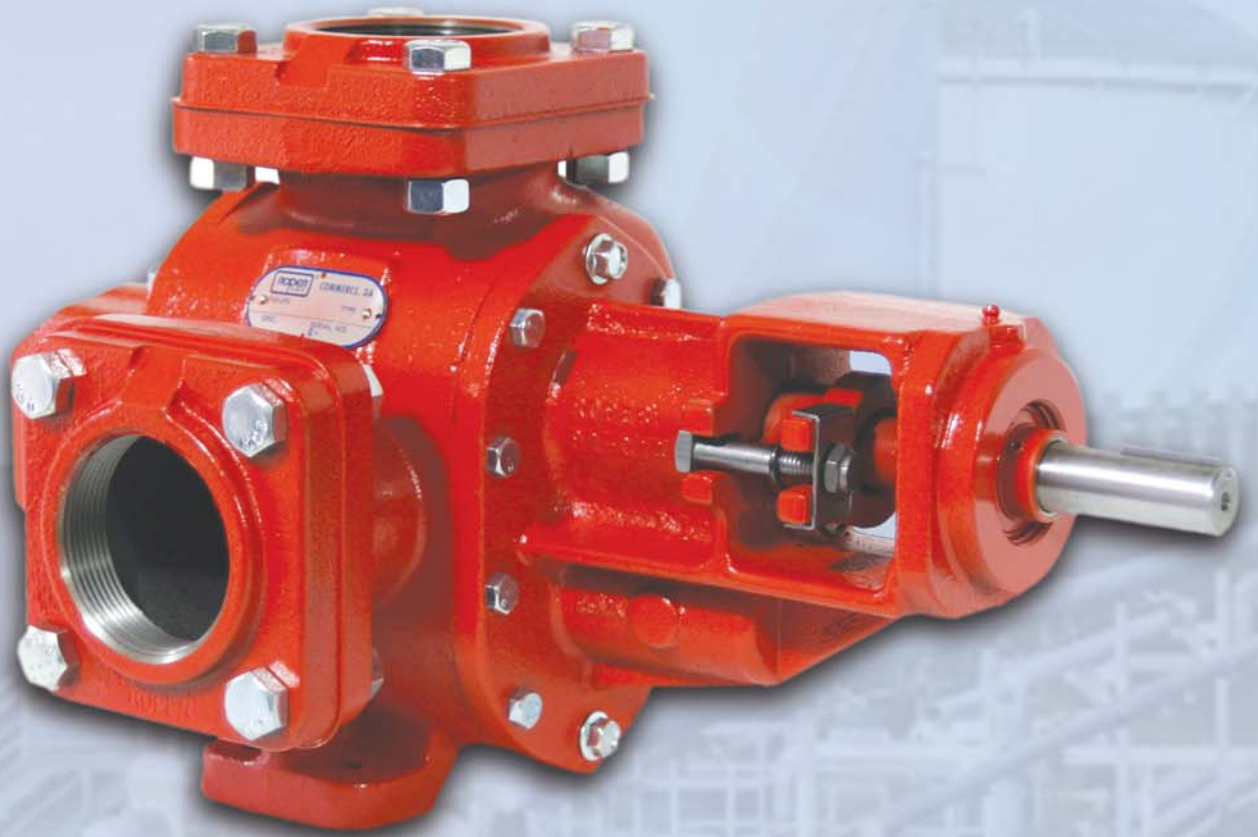
















THE LEADING FORCE behind liquids™ since 1857



3600 Series Heavy Duty Pumps

General Purpose Pumps for Mixing, Blending, Recirculating, Fixed and Mobile Transfer

The Roper Pump Family of Gear Pumps

| | | Typical Applications | Primary Features |
|---|------|--|---|
|  | 3600 | <ul style="list-style-type: none"> Mix, circulate, and transfer viscous liquids Gasoline, asphalt, molasses Ink, roofing compounds, oils | <ul style="list-style-type: none"> Precise tolerances for maximum efficiency Direct drive or built-on gear reducers Bi-directional rotation* Configurations available for close coupled drive and close coupled hydraulic drive |
|  | Z | <ul style="list-style-type: none"> Industrial applications requiring a special mechanical seal | <ul style="list-style-type: none"> ANSI Flanges Many parts interchangeable with 3600 Series Direct drive or built-on gear reducers Bi-directional rotation* Configurations available for close coupled drive and close coupled hydraulic drive |
|  | 3800 | <ul style="list-style-type: none"> Oilfields including light & heavy crude oil Kerosene mixtures, condensates and hot oils | <ul style="list-style-type: none"> Sealed ball bearings Quadruple grease purged lip seals Helical gears for quiet operation Bi-directional rotation* |
|  | Bulk | <ul style="list-style-type: none"> Fuels, solvents, petrochemicals Residual fuel oils, molasses, resins Tankers, barges, process plants, refineries | <ul style="list-style-type: none"> Large ports (6" and 8" available) allow more efficient transfer of fluids Thru port design allows for lower inlet and outlet losses |
|  | 5600 | <ul style="list-style-type: none"> Hydroseeding Grouting, seal coating, oil and sand Wastewater, waste oil, sludge, slurries Brine, paper pulp, fertilizer feeds | <ul style="list-style-type: none"> Rubber covered gears Bi-directional rotation Abrasive applications; up to pea size particles |
|  | A | <ul style="list-style-type: none"> Pressure lubrication Hydraulic service General transfer applications | <ul style="list-style-type: none"> Operates at motor speeds Bi-directional rotation* Close coupled capability |
|  | 2835 | <ul style="list-style-type: none"> Roofing Compounds Molasses Feed Supplements | <ul style="list-style-type: none"> Operates at standard motor speeds Large ports allow easier fluid entry Built-in relief valve |
|  | V | <ul style="list-style-type: none"> Hazardous liquid transfer "Zero leakage" applications due to environmental concerns Chemical and petroleum applications | <ul style="list-style-type: none"> Mag-drive, sealless design eliminates seal repair costs and down time C-face mount eliminates misalignment Bi-directional rotation and self-priming |
|  | F | <ul style="list-style-type: none"> Hydraulic power for lifts, machine actuation, fuel burners, and blenders General transfer of oil and petroleum fluids | <ul style="list-style-type: none"> 2 inlet ports, 2 outlet ports allows multiple piping arrangements (except F150 - F300) High Pressure Range Maintain pump without pipe removal |
|  | ROC | <ul style="list-style-type: none"> Chemical processing Pharmaceutical industry Injection or transfer of acids & solvents | <ul style="list-style-type: none"> Stainless steel construction Bi-directional rotation* Mag-drive, sealless option (X5-03 only) |
|  | 9622 | <ul style="list-style-type: none"> Chemical and transport applications Corrosive liquid transfer | <ul style="list-style-type: none"> 316SS Housing 17-4 PH SST Gears / Shafts Built-in Relief Valve |
|  | PC | <ul style="list-style-type: none"> Viscous, abrasive and solids-containing liquids Transfer of wastewater sludge, polymers, grouts, paints and adhesives | <ul style="list-style-type: none"> Pulsation free pumping High suction lift capabilities Ideal for shear sensitive liquids |

*Pump reconfiguration may be required.



3600 Series Heavy Duty Pumps

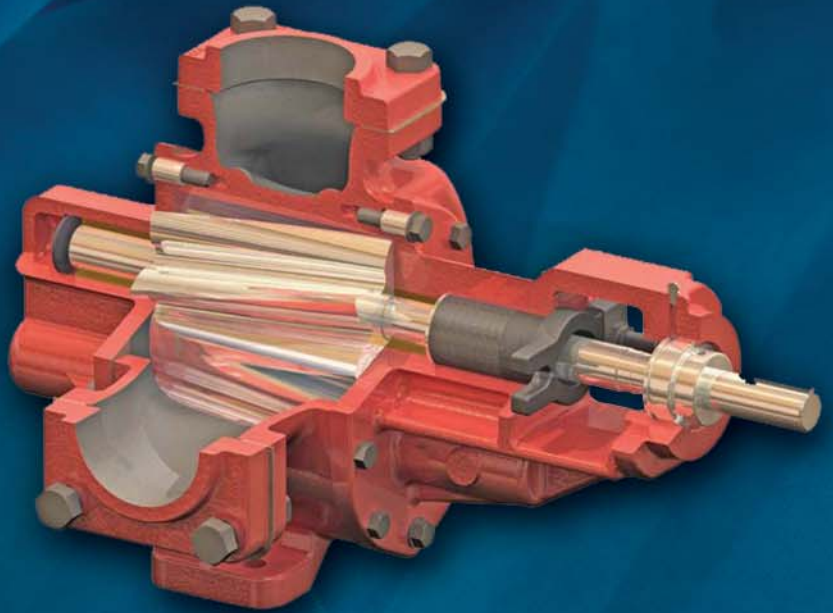
General Purpose Pumps for Mixing, Blending, Recirculating, Fixed and Mobile Transfer

Up to 468 GPM • Up to 125 PSI

These pumps operate smoothly and with equal efficiency in either direction of rotation. They effectively handle heavy, viscous materials such as asphalt, molasses, roofing compounds, and printing inks, as well as fuel oils, gasolines, and similar thin liquids.

Pumps can be supplied in several materials of construction, with or without built-in relief valves.

Pumps can be assembled either hi-drive or low-drive, and are available with conventional packed box or lapped-face mechanical shaft seal. They can be direct driven or driven through a built-in gear reduction with a wide range of ratios. These pumps operate equally well regardless of the mounting configuration or the direction of rotation.



MATERIALS OF CONSTRUCTION

Standard Fitted

| | |
|---------------|-----------|
| Housing..... | Cast Iron |
| Gears..... | Cast Iron |
| Bearings..... | Bronze |
| Shafts | Steel |

Optional Materials*

| | |
|---------------|----------------------|
| Gears..... | Bronze |
| | Stainless Steel |
| | Delrin® (Idler only) |
| Bearings..... | Iron |
| | Carbon |
| Shafts | Stainless Steel |

**Some of the optional materials may not be available for all sizes. Delrin® is a registered trademark of E. I. du Pont de Nemours and Company.*

FEATURES

Quiet-Running Helical Gears

- Heat treated cast-iron pumping gears are accurately machined for quiet, efficient operation and long life.
- The pumping gears are keyed to their shafts with a sliding fit and are easily replaced.
- Accurate machining insures proper meshing, and reduces friction and vibration.

Long-Lasting Bearing Surfaces

- Bearings are special wear-resistant, high-lead bronze. Iron and carbon bearings are available.
- Four heavy duty sleeve bearings give positive support to pumping gears and insure long, efficient service.
- Bearing grooves allow circulation of the liquid being pumped for lubrication & control of bearing temperature.
- Outboard drive shaft bearing supports external radial loads and absorbs thrust loads.

Precision-Ground Shafts

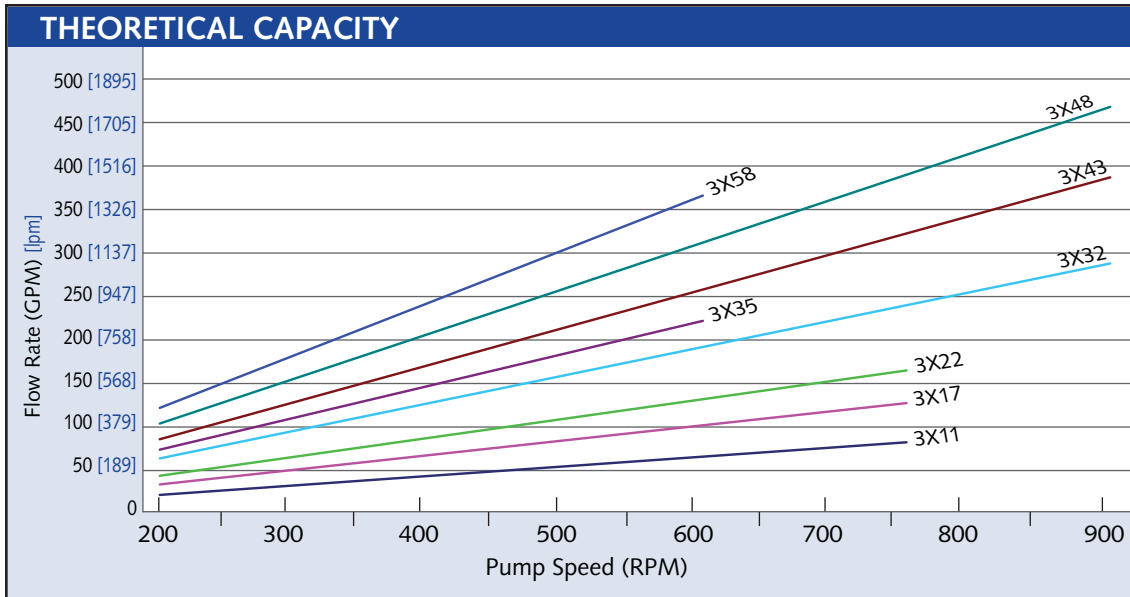
- The steel shafts are induction hardened in the bearing and sealing areas and are precision ground to exacting standards for maximum life.
- Hardened stainless steel shafts available.

Rugged Housing

- Standard castings are cast iron.
- Precise manufacturing tolerances provide minimum clearances for maximum pumping efficiency.
- Large, hardened steel dowel pins insure positive alignment between the faceplate, case, and backplate.

THE LEADING FORCE behind liquids™ since 1857

Capacities & Nomenclature



| NOMENCLATURE – 3611 GHBFRV | | | |
|----------------------------|---------------|--|---------------------------------------|
| 3 | Port Location | 3 – Right Angle Ports | |
| | | 4 – Straight Through Ports | |
| 6 | Seal Option | 5 – Triple Lip Seal | |
| | | 6 – Packing | |
| | | 7 – Mechanical Seal | |
| | | 8 – Lip Seal with Ball Bearings | |
| 11 | Size | 11 – 11 Gal/100 Rev [41.6 L/100 Rev] | 35 – 35 Gal/100 Rev [132.5 L/100 Rev] |
| | | 17 – 17 Gal/100 Rev [64.4 L/100 Rev] | 43 – 43 Gal/100 Rev [162.8 L/100 Rev] |
| | | 22 – 22 Gal/100 Rev [83.3 L/100 Rev] | 48 – 48 Gal/100 Rev [181.7 L/100 Rev] |
| | | 32 – 32 Gal/100 Rev [121.1 L/100 Rev] | 58 – 58 Gal/100 Rev [219.6 L/100 Rev] |
| | | | |
| Configuration* | H | Pump Head without Outboard Ball Bearing | |
| | HB | Tapped Port Case with Outboard Ball Bearing | |
| | HBF | Flanged Ports with Outboard Bearing | |
| | HBFRV | Flanged Ports with Outboard Bearing and Relief Valve | |
| | GHBFRV | Flanged Ports with Outboard Bearing, Relief Valve, and Gear Reducer | |
| | BH | Tapped Ports, No Outboard Bearing, Mounting for Hyd. Drive or CCD Bracket | |
| | BHF | Flanged Ports, No Outboard Bearing, Mounting for Hyd. Drive or CCD Bracket | |
| | BHFRV | Flanged Ports, No Outboard Bearing, Mounting for Hyd. Drive or CCD Bracket, Relief Valve | |

* There are over 40 basic configurations and several thousand custom designs.
Please consult your local Roper Pump distributor to decide which configuration best fits your needs.

Key Components



BEARINGS

Four heavy duty sleeve bearings give positive support to pumping gears and ensure long, efficient service. A special wear-resistant, high-lead bronze bearing is standard on 3600 Series Pumps. For thin non-abrasive liquids we offer optional carbon bearings, as well as iron bearings for abrasive liquids. The bearings are grooved to allow circulation of the liquid being pumped for lubrication & control of bearing temperature.



GEARS

The helical pumping gears are machined from heat treated cast iron because of its excellent wear resistance.

For chemical pumping applications, the standard gears can be replaced with stainless steel or bronze. An optional Delrin® idler gear can be used for quieter operation when running thin liquids.



SHAFTS

Standard steel shafts are induction hardened in the bearing and sealing areas, and are precision ground to exacting standards for maximum life. Hardened stainless steel shafts are also available upon request.



HOUSING

Our rugged cast-iron housings are manufactured to precise tolerances, providing minimum clearances for maximum pumping efficiency. Large, hardened steel dowel pins ensure positive alignment between the faceplate, case, and backplate.



GASKETS

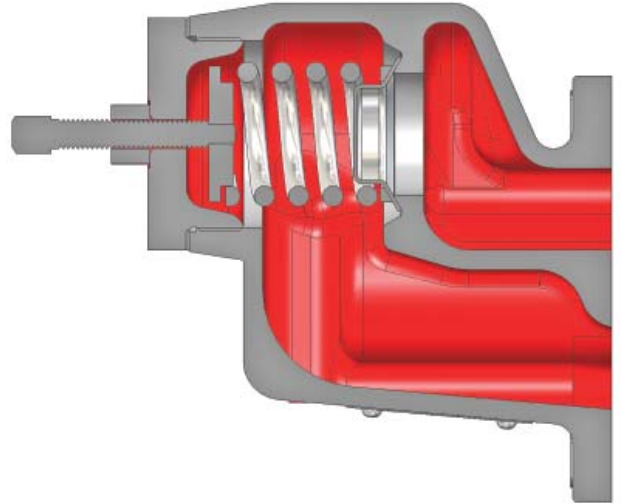
3600 Series Pumps come standard with fiber gaskets that are used up to 212°F/100°C. For higher temperature applications (up to 450°F/232°C) we offer other optional gasket materials.

Relief Valves & Jacketing

RELIEF VALVE

In the event of overpressure situations, our adjustable relief valve protects personnel and equipment by returning liquids to the suction side of the pump. Various spring sizes can be specified to handle a wide range of operating conditions.

Roper Pump's inverted poppet relief valve is designed without close fitting guides that can clog and cause excessive pressures when the valve does not open freely. The valve will provide protection in only one direction of rotation. However it can be positioned easily to either side of the pump to accommodate flow direction.

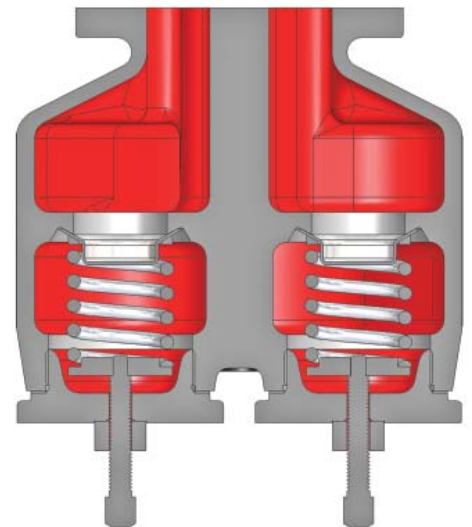


BI-DIRECTIONAL RELIEF VALVE*

Roper Pump's integral bi-directional pressure relief valve offers reliable protection of your personnel and equipment, regardless of which direction you are pumping. You can reverse flow without disabling pressure relief operability, or compromising operator safety. Based on our rugged and time proven standard relief valves, this offers you a lighter weight, lower cost alternative compared to externally plumbed systems.



**Available on 11, 17 and 22 sizes*



JACKETING**

Whether the fluid to be pumped must be heated, cooled, or maintained at a specific temperature, a jacketed Roper pump will handle difficult-to-pump materials such as Bunker C, molasses, asphalt mixes, refined sugars, creosote, printing ink, and other viscous fluids which require temperature control for satisfactory handling.

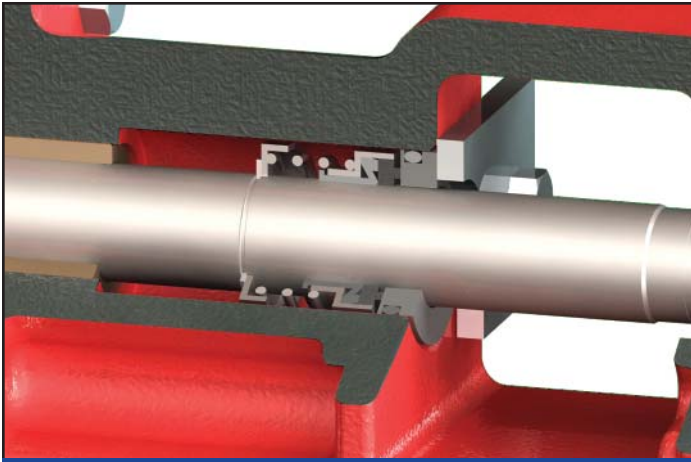
Roper Pump jacketed pumps provide efficient heat transfer to the packing, seal relief valve, bearing areas, and endplates of the pump. The jackets are suitable for use with steam, hot or cold water, heat transfer oil, etc., as heating or cooling mediums.

Jacketing is available on the faceplate only, backplate only, or on both.



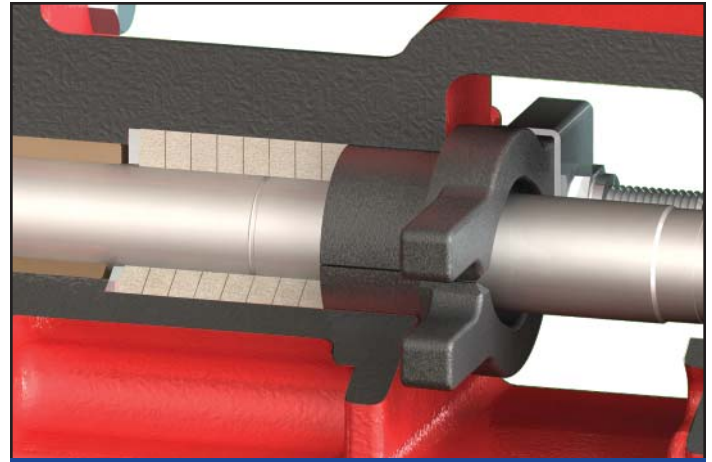
***Jacketing is not available on 32, 43 and 48 sizes*

Pump Seals



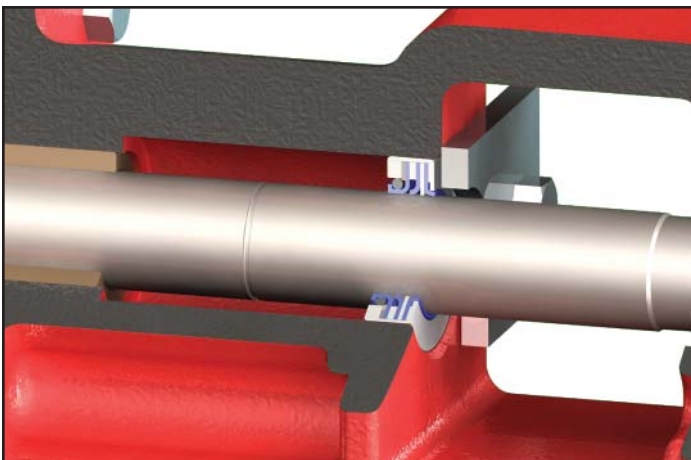
MECHANICAL SEAL

Mechanical seals are for those applications where product leakage is unacceptable. Under proper conditions the mechanical seal has a longer service life than the packed box and does not require adjustment. The standard mechanical seal is an elastomeric bellows type seal. A PTFE wedge seal is also available.



PACKED BOX

Our standard packing is suited for general purpose applications, and is easily replaced with split ring packing. For optimum performance, the gland should be adjusted to allow slight seepage. Standard packing is graphite, with several optional packing materials available for applications involving high temperatures or mildly corrosive liquids, or those requiring compatibility with food products.



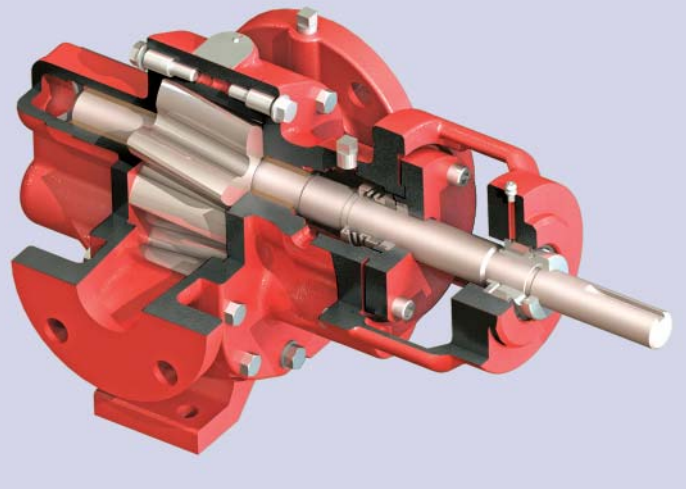
TRIPLE LIP SEAL

Offering the same high degree of sealing reliability as a mechanical seal, triple lip seals are better suited for viscous products that tend to set up while the pump is idle, such as resins, glues and paints. The lips create an effective barrier to product leakage, and will move freely upon resumption of pumping a thickening substance. In cases where extreme circumstances can cause catastrophic failure of mechanical seals, the resilient nature of the triple lip seal makes it relatively immune to sudden failure.

Need More Seal Options?

OUR Z SERIES...

Based on our 3600 Series, the Roper "Z" Series features a larger seal chamber in a two-piece backplate that allows for virtually unlimited options, and facilitates easy seal maintenance. Many parts are interchangeable with the 3600 Series.



Gear Reduction (GHB) Unit

Totally enclosed and running in oil, the reduction gears are made of steel to assure longer life. Antifriction bearings are used throughout. Three interchangeable gear ratios are available in each size. For additional ratios look at using a Roper Pump CCD bracket and an industrial standard gearmotor.

PERFORMANCE CHARTS

Performance figures show maximum horsepower requirements for minimum rated gallons per minute at the various speeds, viscosities and pressures. The charts are intended as a guide for conditions at the pump. In determining the proper conditions of operation for the pump, many factors must be considered including inlet conditions, liquid characteristics, and temperature.

If there is any question concerning these charts or the recommended operating conditions, please consult your Roper distributor, district representative, or the home office.

| SIZE | RPM | | 250 RPM | | | | 290 RPM | | | |
|------|-----------|----------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| | PSI [bar] | SSU | 30 | 100 | 1000 | 10,000 | 30 | 100 | 1000 | 10,000 |
| 11 | 25 [1.7] | GPM [lpm] HP [kw] | 25 [95] .7 [52] | 26 [98] .7 [52] | 27 [102] .9 [57] | 27 [102] 1.3 [97] | 29 [110] .9 [67] | 30 [114] .9 [67] | 31 [117] 1.2 [89] | 31 [117] 1.5 [112] |
| | 50 [3.4] | GPM [lpm] HP [kw] | 23 [87] 1.1 [82] | 25 [95] 1.1 [82] | 27 [102] 1.3 [97] | 27 [102] 1.7 [127] | 27 [102] 1.3 [97] | 29 [110] 1.3 [97] | 31 [117] 1.5 [117] | 31 [117] 1.9 [142] |
| | 100 [6.9] | GPM [lpm] HP [kw] | | 23 [87] 1.9 [1.42] | 26 [98] 2.1 [1.57] | 27 [102] 2.5 [1.86] | | 27 [102] 2.2 [1.64] | 30 [114] 2.4 [1.79] | 31 [117] 3.0 [2.24] |
| | 125 [8.6] | GPM [lpm] HP [kw] | | 22 [83] 2.2 [1.64] | 26 [98] 2.4 [1.79] | 27 [102] 2.8 [2.09] | | 26 [98] 2.7 [2.01] | 30 [114] 2.9 [2.16] | 31 [117] 3.5 [2.61] |
| 17 | 25 [1.7] | GPM [lpm] HP [kw] | 38 [144] .8 [6] | 40 [151] .8 [6] | 41 [155] 1.1 [82] | 42 [159] 1.8 [1.34] | 45 [170] 1.0 [75] | 47 [178] 1.0 [75] | 48 [182] 1.3 [97] | 49 [185] 2.2 [1.64] |
| | 50 [3.4] | GPM [lpm] HP [kw] | 33 [125] 1.4 [1.04] | 38 [144] 1.4 [1.04] | 41 [155] 1.7 [1.27] | 42 [159] 2.4 [1.79] | 40 [151] 1.6 [1.19] | 45 [170] 1.6 [1.19] | 48 [182] 1.9 [1.42] | 49 [185] 2.8 [2.09] |
| | 100 [6.9] | GPM [lpm] HP [kw] | | 34 [129] 2.5 [1.86] | 40 [151] 2.9 [2.16] | 41 [155] 3.6 [2.68] | | 41 [155] 3.0 [2.24] | 47 [178] 3.3 [2.46] | 48 [182] 4.2 [3.13] |
| | 125 [8.6] | GPM [lpm] HP [kw] | | | 39 [148] 3.4 [2.54] | 41 [155] 4.1 [3.06] | | | 46 [174] 4.0 [2.98] | 48 [182] 4.9 [3.65] |
| 22 | 25 [1.7] | GPM [lpm] HP [kw] | 52 [197] 1.1 [82] | 53 [201] 1.1 [82] | 55 [208] 1.4 [1.04] | 55 [208] 1.9 [1.42] | 60 [227] 1.3 [97] | 61 [231] 1.3 [97] | 63 [238] 1.7 [1.27] | 63 [238] 2.5 [1.86] |
| | 50 [3.4] | GPM [lpm] HP [kw] | 52 [197] 2.0 [1.49] | 52 [197] 2.0 [1.49] | 54 [204] 2.3 [1.72] | 55 [208] 2.8 [2.09] | 58 [220] 2.3 [1.72] | 60 [227] 2.3 [1.72] | 62 [235] 2.6 [1.94] | 63 [238] 3.4 [2.54] |
| | 100 [6.9] | GPM [lpm] HP [kw] | 44 [167] 3.5 [2.61] | 50 [189] 3.5 [2.61] | 53 [201] 3.8 [2.83] | 55 [208] 4.3 [3.21] | 52 [197] 4.2 [3.13] | 58 [220] 4.2 [3.13] | 61 [231] 4.5 [3.36] | 63 [238] 5.3 [3.95] |
| | 125 [8.6] | GPM [lpm] HP [kw] | | 49 [185] 4.2 [3.13] | 53 [201] 4.5 [3.36] | 55 [208] 5.0 [3.73] | 50 [189] 5.2 [3.88] | 57 [216] 5.2 [3.88] | 61 [231] 5.5 [4.1] | 63 [238] 6.3 [4.7] |

GEAR RATIOS AND CAPACITIES FOR GHB UNITS

| | Motor RPM | Gear Ratio | Pump RPM | Max. Permissible HP |
|---------------|-----------|------------|----------|---------------------|
| 11 through 22 | 1150 | 4.60:1 | 250 | 5.5 |
| | | 3.94:1 | 290 | 6.5 |
| | | 3.20:1 | 360 | 8.0 |
| 32 through 58 | 1750 | 4.60:1 | 380 | 8.5 |
| | | 3.94:1 | 445 | 10.0 |
| | | 3.20:1 | 545 | 10.0 |
| | 3450* | 4.60:1 | 750 | 10.0 |
| 32 through 58 | 1150 | 5.66:1 | 203 | 8.5 |
| | | 4.88:1 | 235 | 10.0 |
| | | 4.26:1 | 270 | 11.0 |
| 32 through 58 | 1750 | 5.66:1 | 309 | 13.0 |
| | | 4.88:1 | 360 | 15.0 |
| | | 4.26:1 | 410 | 15.0 |
| | 3450* | 5.66:1 | 609 | 15.0 |

*3450 RPM motors are used in handling low viscosity lubricating liquids.

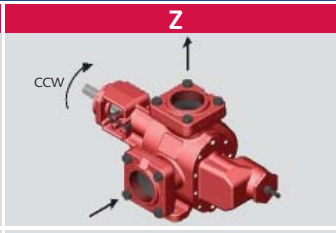



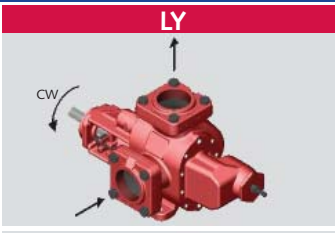
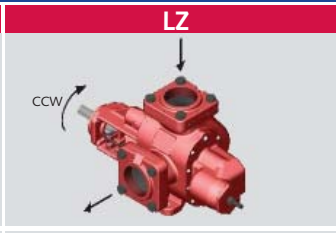
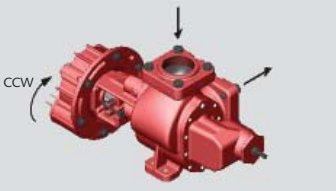
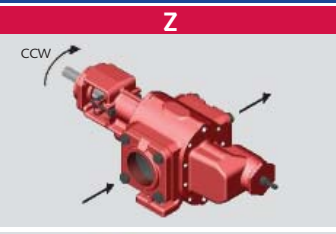

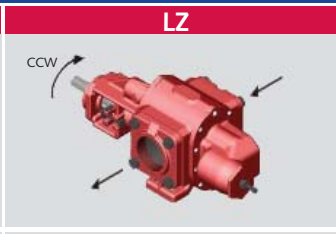

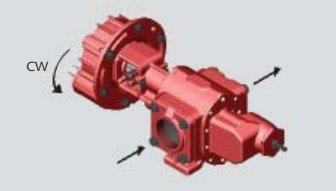
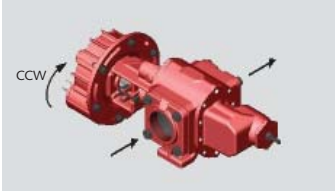


| SIZE | RPM | | 203 RPM | | | | 235 RPM | | | |
|------|-----------|----------------------|-------------------------|-------------------------|--------------------------|--------------------------|-------------------------|-------------------------|-------------------------|---------------------------|
| | PSI [bar] | SSU | 30 | 100 | 1000 | 10,000 | 30 | 100 | 1000 | 10,000 |
| 32 | 25 [1.7] | GPM [lpm] HP [kw] | 54 [204] 1 [75] | 57 [216] 1.2 [89] | 61 [231] 1.4 [1.04] | 65 [246] 1.8 [1.34] | 64 [242] 1.3 [97] | 67 [254] 1.5 [1.12] | 71 [269] 1.8 [1.34] | 75 [284] 2.3 [1.72] |
| | 50 [3.4] | GPM [lpm] HP [kw] | 41 [155] 2 [1.49] | 47 [178] 2.2 [1.64] | 55 [208] 2.4 [1.79] | 59 [223] 2.8 [2.09] | 51 [193] 2.3 [1.72] | 57 [216] 2.5 [1.86] | 66 [250] 3.0 [2.24] | 70 [265] 3.3 [2.46] |
| | 100 [6.9] | GPM [lpm] HP [kw] | | | 44 [167] 4.4 [3.26] | 52 [197] 4.8 [3.56] | | | 54 [204] 5.1 [3.8] | 62 [235] 5.6 [4.18] |
| | 125 [8.6] | GPM [lpm] HP [kw] | | | | 48 [185] 5.8 [4.33] | | | 46 [174] 6.6 [4.92] | 59 [223] 7.1 [5.29] |
| 35 | 25 [1.7] | GPM [lpm] HP [kw] | 71 [269] 2.6 [1.94] | 72 [273] 2.6 [1.94] | 73 [276] 2.8 [2.09] | 75 [284] 4.3 [3.21] | 83 [314] 3.1 [2.31] | 84 [318] 3.1 [2.31] | 85 [322] 3.3 [2.46] | 87 [329] 5.2 [3.88] |
| | 50 [3.4] | GPM [lpm] HP [kw] | 67 [254] 3.7 [2.76] | 69 [261] 3.7 [2.76] | 71 [269] 3.9 [2.91] | 73 [276] 5.4 [4.03] | 79 [299] 4.4 [3.28] | 81 [307] 4.4 [3.28] | 83 [314] 4.6 [3.43] | 85 [322] 6.5 [4.85] |
| | 100 [6.9] | GPM [lpm] HP [kw] | | 61 [231] 5.8 [4.33] | 68 [257] 6 [4.47] | 71 [269] 7.5 [5.59] | | 73 [276] 6.8 [5.07] | 80 [303] 7 [5.22] | 83 [314] 8.9 [6.64] |
| | 125 [8.6] | GPM [lpm] HP [kw] | | | 65 [246] 7.2 [5.37] | 70 [265] 8.7 [6.49] | | | 77 [291] 8.3 [6.19] | 82 [310] 10.2 [7.61] |
| 43 | 25 [1.7] | GPM [lpm] HP [kw] | 76 [288] 1.8 [1.34] | 79 [299] 2 [1.49] | 83 [314] 2.3 [1.72] | 85 [322] 3 [2.24] | 90 [341] 2 [1.49] | 93 [352] 2.3 [1.72] | 97 [367] 2.8 [2.09] | 99 [375] 3 [2.24] |
| | 50 [3.4] | GPM [lpm] HP [kw] | 62 [235] 2.5 [1.86] | 68 [257] 2.7 [2.01] | 77 [291] 3 [2.24] | 81 [307] 3.7 [2.76] | 76 [288] 3.2 [2.39] | 82 [310] 3.5 [2.61] | 91 [344] 4 [2.98] | 95 [360] 4.2 [3.13] |
| | 100 [6.9] | GPM [lpm] HP [kw] | | | 62 [235] 5.5 [4.1] | 72 [273] 6.2 [4.62] | | | 76 [288] 7 [5.22] | 86 [326] 7.2 [5.37] |
| | 125 [8.6] | GPM [lpm] HP [kw] | | | 56 [212] 6.6 [4.92] | 69 [261] 7.3 [5.44] | | | 70 [265] 8.5 [6.34] | 87 [6.49] |
| 48 | 25 [1.7] | GPM [lpm] HP [kw] | 94 [356] 2.5 [1.86] | 97 [367] 2.8 [2.09] | 101 [382] 3.2 [2.39] | 103 [390] 3.8 [2.83] | 111 [420] 3 [2.24] | 114 [432] 3.4 [2.54] | 118 [447] 3.9 [2.91] | 120 [454] 4.6 [3.43] |
| | 50 [3.4] | GPM [lpm] HP [kw] | | | 93 [352] 4.7 [3.5] | 99 [375] 5.3 [3.95] | | 103 [390] 5.1 [3.8] | 110 [416] 5.6 [4.18] | 116 [439] 6.3 [4.7] |
| | 100 [6.9] | GPM [lpm] HP [kw] | | | | 88 [333] 8.5 [6.34] | | | | 105 [397] 10 [7.46] |
| | 125 [8.6] | GPM [lpm] HP [kw] | | | | | | | | 101 [382] 11.7 [8.72] |
| 58 | 25 [1.7] | GPM [lpm] HP [kw] | 116 [439] 2.7 [2.01] | 119 [450] 2.7 [2.01] | 121 [458] 2.8 [2.09] | 123 [466] 4.8 [3.58] | 136 [515] 4.3 [3.21] | 139 [526] 4.3 [3.21] | 141 [534] 4.6 [3.43] | 143 [541] 5 [3.75] |
| | 50 [3.4] | GPM [lpm] HP [kw] | 106 [401] 5.6 [4.18] | 114 [432] 5.6 [4.18] | 120 [454] 5.7 [4.25] | 122 [462] 7.7 [5.74] | 126 [477] 6.3 [4.7] | 134 [507] 6.3 [4.7] | 140 [530] 6.6 [4.92] | 142 [538] 9 [6.71] |
| | 100 [6.9] | GPM [lpm] HP [kw] | | | 117 [443] 9.4 [7.01] | 121 [458] 11.4 [8.5] | | | 137 [519] 11 [8.2] | 141 [534] 13.4 [9.99] |
| | 125 [8.6] | GPM [lpm] HP [kw] | | | 115 [435] 11.1 [8.28] | 120 [454] 13.1 [9.77] | | | 135 [511] 13 [9.69] | 140 [530] 15.4 [11.48] |

Direction of Rotation

Rotation direction is determined when facing the drive shaft. The diagrams will serve as a helpful basis for you to determine the direction of rotation wanted according to your piping system. We can build the pump at the factory to meet your installation requirements. If the pump build is not specified, it will be shipped the standard "W" configuration. Once in the field, if you need to change the configuration, it can be done easily by disassembling the pump and rebuilding it to your desired arrangement. No new parts are needed.

Note: Top picture in each section is a standard pump, and the bottom picture is the same pump with gear box added.

| 3600 SERIES (90°) WITH HIGH DRIVE | | | | |
|------------------------------------|---|---|--|---|
| | W | X | Y | Z |
| H, HB, BH |  |  |  |  |
| GHB |  |  |  |  |
| 3600 SERIES (90°) WITH LOW DRIVE | | | | |
| | LW | LX | LY | LZ |
| H, HB, BH |  |  |  |  |
| GHB |  |  |  |  |
| 4600 SERIES (180°) WITH HIGH DRIVE | | 4600 SERIES (180°) WITH LOW DRIVE | | |
| | W | Z | LW | LZ |
| H, HB, BH |  |  |  |  |
| GHB |  |  |  |  |

Base Mounted Units

CLOSE COUPLED DRIVES (CCD)

The close coupled drive configuration provides an enhanced level of safety in a compact package. Guards and alignment are not required because this complete drive package easily mounts to DIN flanged gear motors.

Since the CCD bracket creates a unified system from the motor to the pump, the baseplate becomes an optional component to the system. These units will attach to our standard 3600 BH pumps.

ROPER GHB GEARBOX

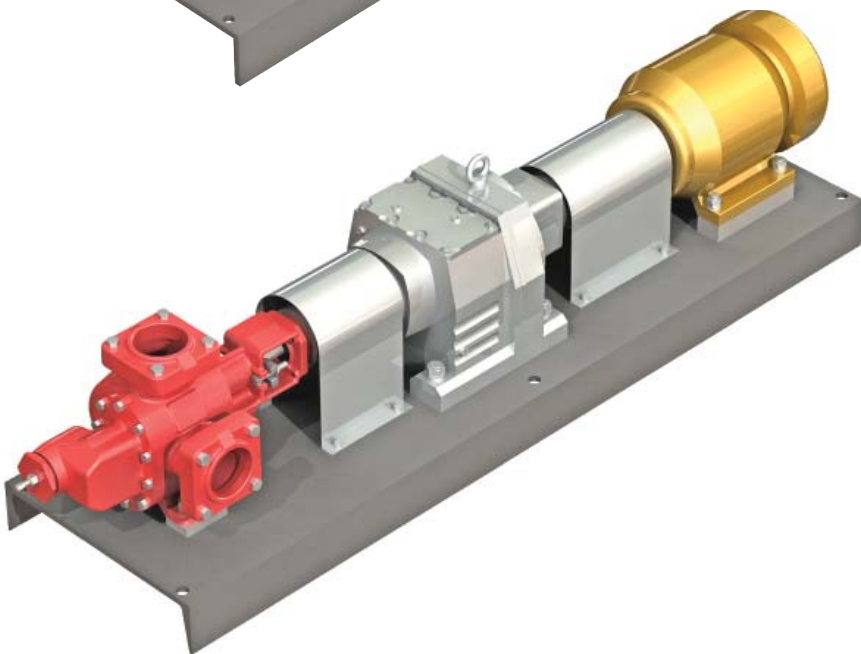
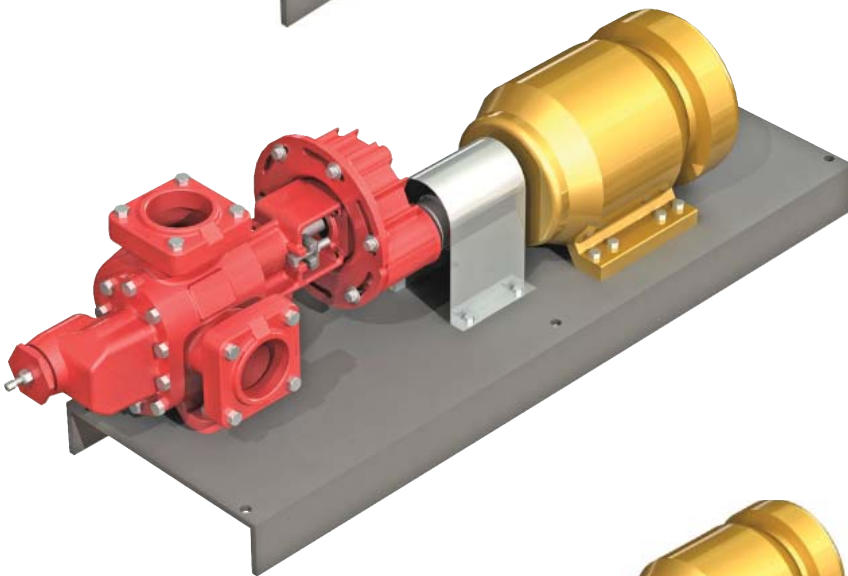
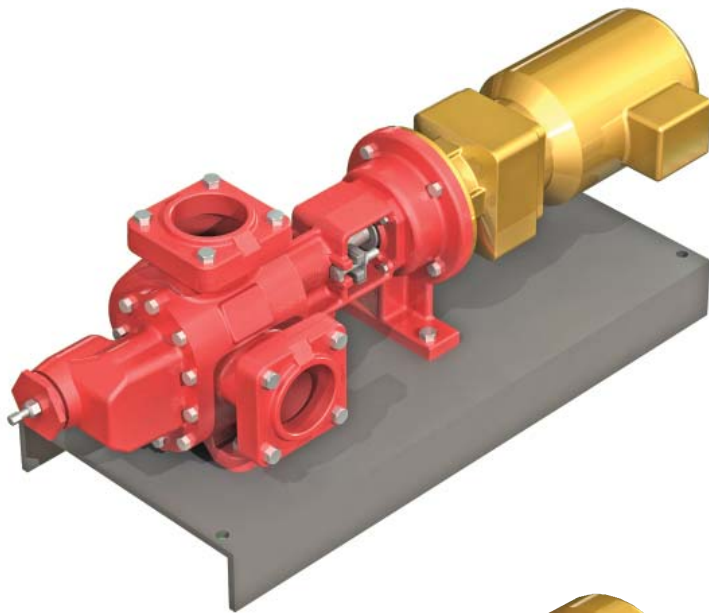
The versatile GHB gearbox configuration features a built-on gear reduction unit that allows minute adjustments for various driver shaft heights.

This feature makes alignment to the motor shaft very simple. The carefully selected ratios convert standard motor speeds to ranges suitable for most pumping applications. See page 8 for more information on available gear ratios.

INDUSTRIAL STANDARD

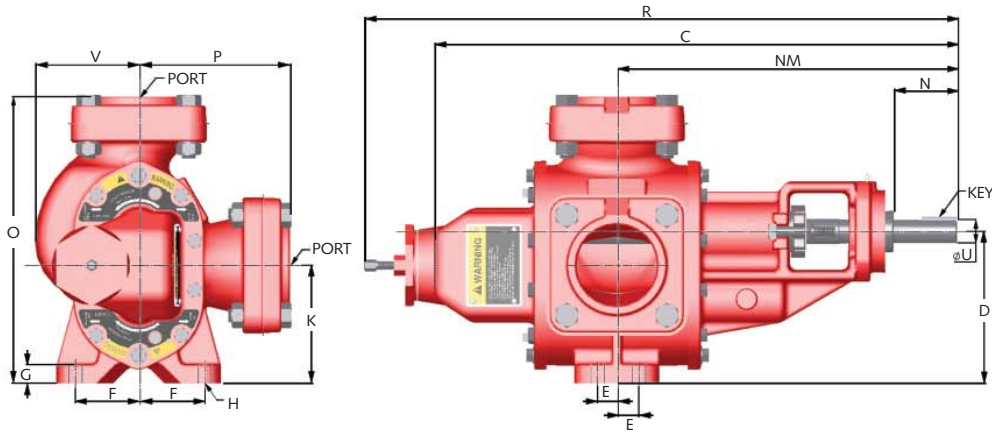
Using an industrial standard gearbox offers virtually unlimited gear ratio options, including the ability to easily change pump speeds by simply changing the gearbox.

Roper Pump offers extensive expertise in spacing, mounting and aligning the complete drive package of motor, gearbox and pump.

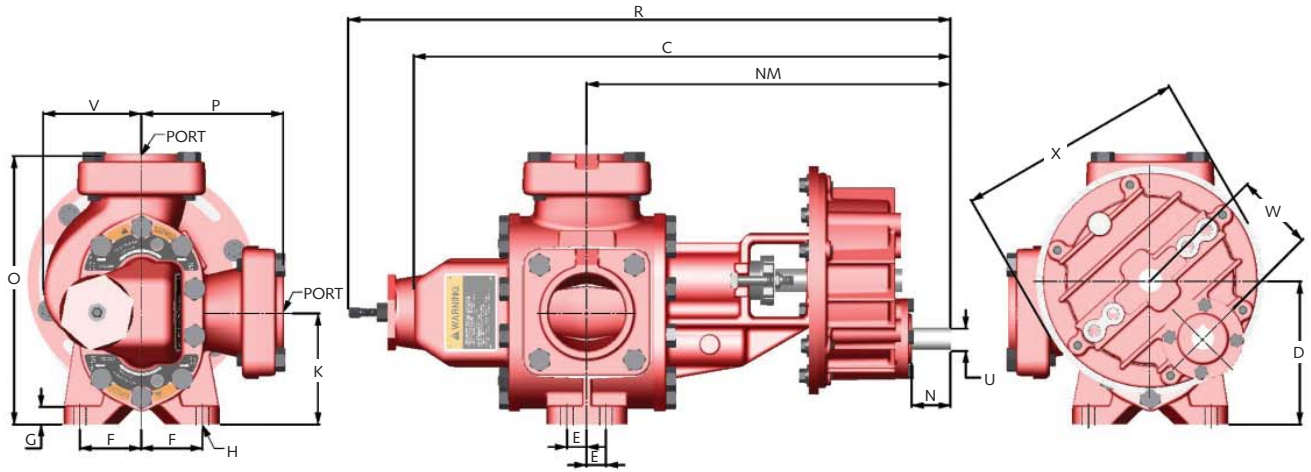


3600 SERIES - 90° Ports

H & HB

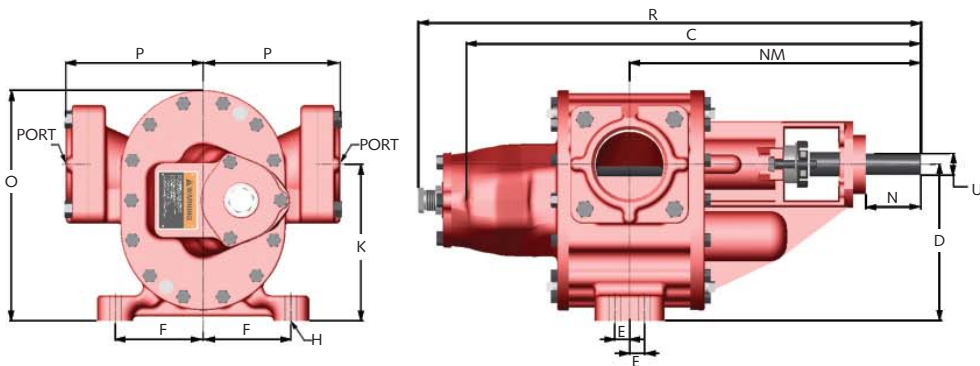


GHB

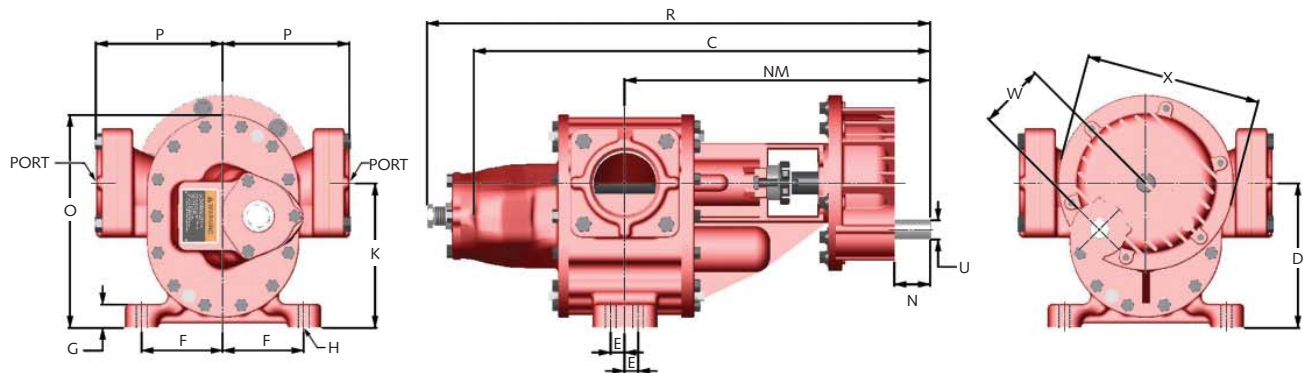


4600 SERIES - Thru Ports 180°

H & HB



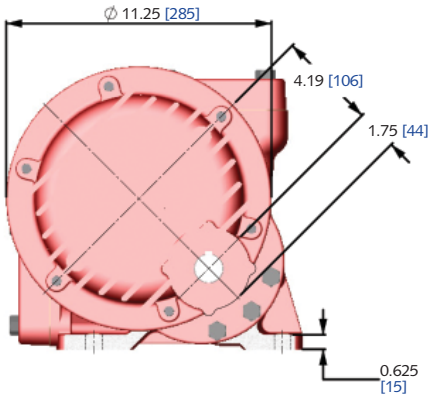
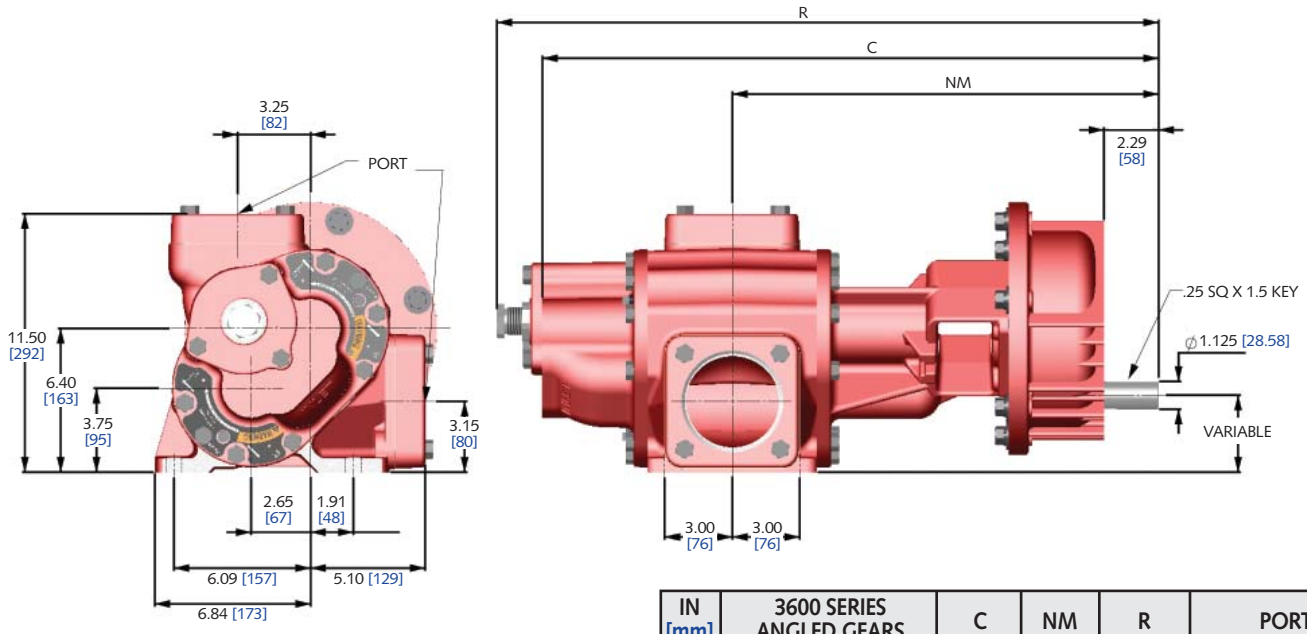
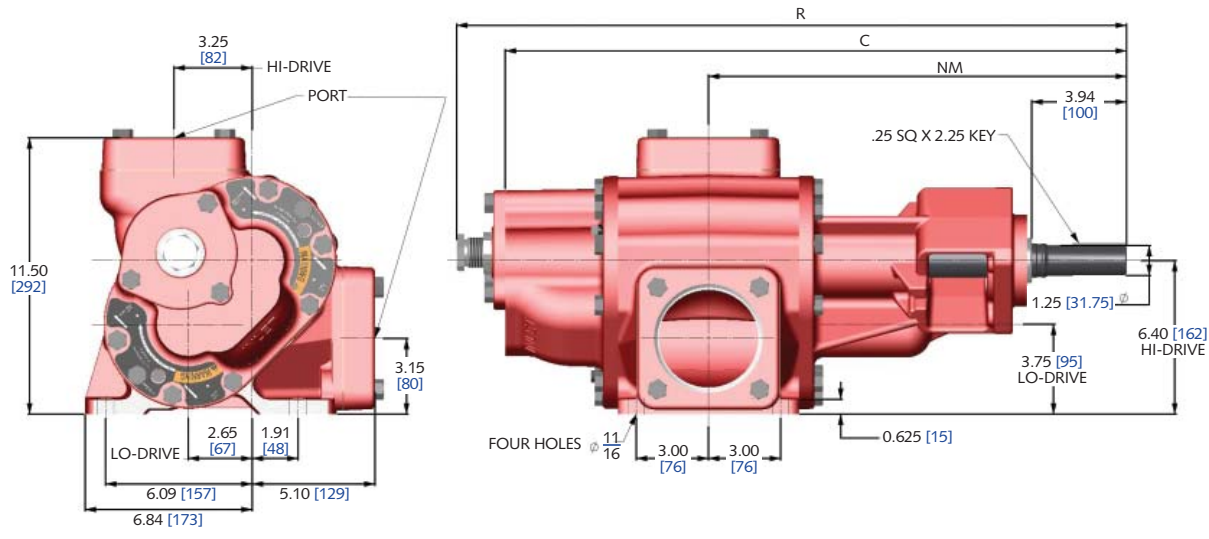
GHB



| IN [mm] | 3600 SERIES | | C | D | | E | F | G | H HOLE DIAMETER | K | N | NM | O | P | R | U | V | W | X | KEY | PORTS | | | | | | | |
|--------------------------|---------------|--------------------|----------------|---------------|---------------|--------------|---------------|---------------|-----------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------------------|-----------------|----------------|----------------|
| | HIGH | LOW | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NO OUTBOARD BEARING | 11 | H & HRV (SPEC G) | 15.97 [405] | 6.44 [163] | 0.88 [22] | 2.75 [69] | 0.75 [19] | 0.56 [14] | 5 [127] | 2.58 [65] | 10.34 [262] | 10.75 [273] | 3.62 [91] | 19.57 [497] | 1.06 [26.9] | 4 [101] | N/A | N/A | .25 SQ. x 1.50 | 2 NPT TAPPED | | | | | | | | |
| | | HF & HFRV (SPEC G) | | | | | | | | | | 11.54 [293] | 4.3 [109] | | | | | | | 2 NPT FLANGE | | | | | | | | |
| | 17 | H & HRV (SPEC G) | 16.72 [424] | | | | | | | 0.75 [19] | | 1.83 [46] | 10.75 [273] | 3.62 [91] | | | | | | 20.33 [516] | 2.2 [55] | 11.46 [291] | 12.16 [308] | 6.41 [162] | 22.19 [563] | 3 NPT TAPPED | | |
| | | HF & HFRV (SPEC G) | | | | | | | | | | | | | | | | | | | | | | | | | 11.54 [293] | 4.3 [109] |
| | 22 | HF & HFRV (SPEC G) | 18.59 [472] | | | | | | | 9.25 [234] | | 5.19 [131] | 1.5 [38] | 0.69 [17] | | | | | | 9.25 [234] | 2.15 [54] | 11.96 [303] | 15.63 [397] | 6.88 [175] | 23.04 [585] | 1.437 [36.5] | 6 [152] | 3 NPT TAPPED |
| | 35 | H & HRV | 19.53 [496] | | | | | | | | | | | | | | | | | | | | | | | | | |
| HF & HFRV | | 22.51 [571] | 6.28 [159] | 4 NPT FLANGE | | | | | | | | | | | | | | | | | | | | | | | | |
| WITH OUTBOARD BEARING | 11 | HB & HBRV | 19.32 [490] | 6.44 [163] | 0.88 [22] | 2.75 [69] | 0.75 [19] | 0.56 [14] | 5 [127] | 3.45 [87] | 13.69 [347] | 10.75 [273] | 3.62 [91] | 22.92 [582] | 1 [25.4] | 4 [101] | N/A | N/A | .25 SQ. x 1.50 | 2 NPT TAPPED | | | | | | | | |
| | | HBV & HBFRV | | | | | 0.62 [15] | | | | | 11.54 [293] | 4.3 [109] | | | | | | | 2 NPT FLANGE | | | | | | | | |
| | 17 | HB & HBRV | 20.07 [509] | | | | 0.75 [19] | | | 2.7 [68] | | 10.75 [273] | 3.62 [91] | 23.67 [601] | | | | | | 14.4 [366] | 12.16 [308] | 6.41 [162] | 25.17 [639] | 3 NPT TAPPED | | | | |
| | | HBV & HBFRV | | | | | | | | | | | | | | | | | | | | | | | 11.54 [293] | 4.3 [109] | 2 NPT FLANGE | |
| | 22 | HBV & HBFRV | 21.57 [547] | | | | 9.25 [234] | | | 5.19 [131] | | 1.5 [38] | 0.69 [17] | 9.25 [234] | | | | | | 3.25 [82] | 16.12 [409] | 16.66 [423] | 7.91 [200] | 27.2 [690] | 1.25 [31.75] | 6 [152] | 3 NPT TAPPED | |
| | 35 | HB & HBRV | 23.69 [601] | | | | | | | | | | | | | | | | | | | | | | | | | 3.8 SQ. x 1.50 |
| HBV & HBFRV | | 26.53 [673] | 6.28 [159] | 4 NPT FLANGE | | | | | | | | | | | | | | | | | | | | | | | | |
| WITH GEAR REDUCTION UNIT | 11 | GHB & GHBRV | 20.47 [519] | 6.44 [163] | 0.88 [22] | 2.75 [69] | 0.75 [19] | 0.56 [14] | 5 [127] | 1.74 [44] | 14.83 [376] | 10.75 [273] | 3.62 [91] | 24.07 [611] | 1 [25.4] | 4 [101] | 3.523 [89] | 10.24 [260] | .25 SQ. x 1.50 | 2 NPT TAPPED | | | | | | | | |
| | | GHBF & GHBFRV | | | | | 0.62 [15] | | | | | 11.54 [293] | 4.3 [109] | | | | | | | 2 NPT FLANGE | | | | | | | | |
| | 17 | GHB & GHBRV | 21.97 [558] | | | | 0.75 [19] | | | 3.05 [77] | | 10.75 [273] | 3.62 [91] | 25.57 [649] | | | | | | 15.58 [395] | 11.54 [293] | 6.41 [162] | 27.07 [687] | 3 NPT TAPPED | | | | |
| | | GHBF & GHBFRV | | | | | | | | | | | | | | | | | | | | | | | 11.54 [293] | 4.3 [109] | 2 NPT FLANGE | |
| | 22 | GHBF & GHBFRV | 23.47 [596] | | | | 9.25 [234] | | | 5.19 [131] | | 1.5 [38] | 0.69 [17] | 9.25 [234] | | | | | | 2.29 [58] | 18.31 [465] | 16.66 [423] | 7.91 [200] | 29.39 [746] | 1.125 [28.58] | 6 [152] | 3 NPT TAPPED | |
| | 35 | GHB & GHBRV | 25.88 [657] | | | | | | | | | | | | | | | | | | | | | | | | | 3.8 SQ. x 1.50 |
| GHBF & GHBFRV | | 28.72 [729] | 6.28 [159] | 4 NPT FLANGE | | | | | | | | | | | | | | | | | | | | | | | | |
| 58 | GHBF & GHBFRV | 28.72 [729] | 9.25 [234] | 5 [127] | 5.19 [131] | 1.5 [38] | 0.69 [17] | 9.25 [234] | 2.29 [58] | 19.73 [501] | 9.25 [234] | 8.1 [205] | 32.23 [818] | 1.25 [32] | 6.28 [159] | 4.189 [106] | 11.25 [285] | .25 SQ. x 1.50 | 4 NPT FLANGE | | | | | | | | | |

| IN [mm] | 4600 SERIES | | C | D | | E | F | G | H HOLE DIAMETER | K | N | NM | O | P | R | U | V | W | X | KEY | PORTS |
|-----------------------|---------------|--------------------|----------------|---------------|---------------|--------------|--------------|----------------|-----------------------|----------------|----------------|----------------|----------------|----------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | HIGH | LOW | | | | | | | | | | | | | | | | | | | |
| NO OUTBOARD BEARING | 11 | HF & HFRV (SPEC G) | 15.97 [405] | 6.44 [163] | 3.56 [90] | 0.88 [22] | 2.75 [69] | 0.62 [15] | 0.56 [14] | 5 [127] | 2.58 [65] | 10.34 [262] | 4.17 [105] | 19.57 [497] | 1.06 [26] | N/A | N/A | N/A | .25 SQ. x 1.50 | 2 NPT TAPPED | |
| | | HF & HFRV (SPEC G) | | | | | | 0.75 [19] | | | | | | | | | | | | 1.83 [46] | 4.41 [112] |
| | 22 | HF & HFRV (SPEC G) | 18.59 [472] | | | | | 2.2 [55] | | | 11.46 [291] | | 4.85 [123] | 22.19 [563] | | | | | | 4 NPT FLANGE | |
| | | HF & HFRV (SPEC G) | | | | | | | | | | | | | | | | | | | 22.51 [571] |
| WITH OUTBOARD BEARING | 11 | HBV & HBFRV | 19.32 [490] | 6.44 [163] | 3.56 [90] | 0.88 [22] | 2.75 [69] | 0.62 [15] | 0.56 [14] | 5 [127] | 3.8 [96] | 13.69 [347] | 4.17 [105] | 22.92 [582] | 1 [25] | N/A | N/A | N/A | .25 SQ. x 1.50 | 2 NPT TAPPED | |
| | | HBV & HBFRV | | | | | | 0.75 [19] | | | | | | | | | | | | 3.05 [77] | 4.41 [112] |
| | 22 | HBV & HBFRV | 21.57 [547] | | | | | 4.85 [123] | | | 25.17 [639] | | 4 NPT FLANGE | | | | | | | | |
| | | HBV & HBFRV | | | | | | | | | | | | 26.53 [673] | | | | | | 9.25 [234] | 5 [127] |
| WITH REDUCTION UNIT | 11 | GHBF & GHBFRV | 20.47 [519] | 6.44 [163] | 3.56 [90] | 0.88 [22] | 2.75 [69] | 0.62 [15] | 0.56 [14] | 5 [127] | 1.74 [44] | 14.83 [376] | 4.3 [109] | 25.57 [649] | 1 [25] | N/A | 3.523 [89] | 10.24 [260] | .25 SQ. x 1.50 | 2 NPT TAPPED | |
| | | GHBF & GHBFRV | | | | | | 0.75 [19] | | | | | | | | | | | | 15.58 [395] | 5 [127] |
| | 22 | GHBF & GHBFRV | 23.47 [596] | | | | | 4.189 [106] | | | 11.25 [285] | | 4 NPT FLANGE | | | | | | | | |
| | | GHBF & GHBFRV | | | | | | | | | | | | 28.72 [729] | | | | | | 9.25 [234] | 5 [127] |
| 58 | GHBF & GHBFRV | 28.72 [729] | 9.25 [234] | 5 [127] | 5.19 [131] | 1.5 [38] | 0.69 [17] | 9.25 [234] | 2.29 [58] | 19.73 [501] | 9.25 [234] | 8.1 [205] | 32.23 [818] | 1.25 [32] | 6.28 [159] | 4.189 [106] | 11.25 [285] | .25 SQ. x 2.25 | 4 NPT FLANGE | | |

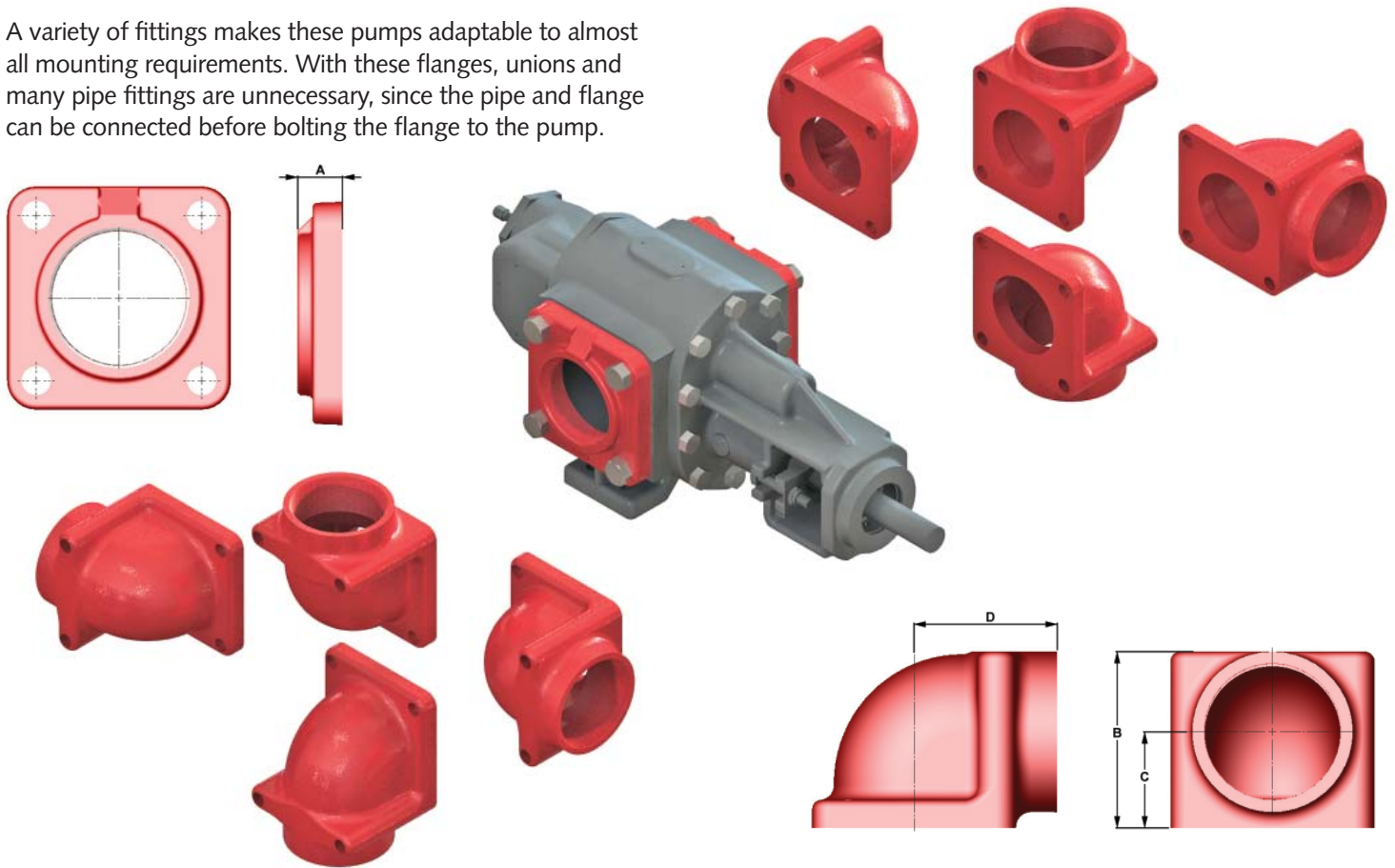
3600 SERIES - Angled Gears



| IN [mm] | 3600 SERIES ANGLED GEARS | | C | NM | R | PORT |
|--------------------------|--------------------------|---------------|-------------|-------------|-------------|--------------|
| NO OUTBOARD BEARING | 32 | HF & HFRV | 20.48 [520] | 12.25 [311] | 21.40 [544] | 3 NPT FLANGE |
| | 43 | | 22.10 [561] | 13.07 [332] | 23.02 [585] | 3 NPT FLANGE |
| | 48 | | 23.19 [589] | 13.66 [347] | 24.21 [615] | 4 NPT FLANGE |
| WITH OUTBOARD BEARING | 32 | HBF & HBFRV | 23.67 [601] | 15.44 [392] | 24.58 [624] | 3 NPT FLANGE |
| | 43 | | 25.32 [643] | 16.29 [414] | 26.24 [666] | 3 NPT FLANGE |
| | 48 | | 27.02 [686] | 17.38 [441] | 27.93 [709] | 4 NPT FLANGE |
| WITH GEAR REDUCTION UNIT | 32 | GHBF & GHBFRV | 25.82 [656] | 17.59 [447] | 26.74 [679] | 3 NPT FLANGE |
| | 43 | | 27.43 [697] | 18.40 [467] | 28.35 [720] | 3 NPT FLANGE |
| | 48 | | 28.63 [727] | 19.00 [482] | 29.55 [751] | 4 NPT FLANGE |

Flanges

A variety of fittings makes these pumps adaptable to almost all mounting requirements. With these flanges, unions and many pipe fittings are unnecessary, since the pipe and flange can be connected before bolting the flange to the pump.



| PUMP SIZE | FITTING TYPE | PORT SIZE | ASSEMBLY NUMBER | FLANGE PART NO. | A | B | C | D |
|----------------------|----------------------------|------------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|
| 3611 4611 | Straight Flange (Std.) | 2" | N14-14 | P23-30 | $\frac{7}{8}$ | - | - | - |
| | Flanged Elbow (vertical) | 2" | N14-15 | P23-32 | - | $3\frac{3}{16}$ | $1\frac{1}{16}$ | $3\frac{13}{16}$ |
| | Flanged Elbow (horizontal) | 2" | N14-16 | P23-31 | - | $3\frac{7}{16}$ | $1\frac{15}{16}$ | $2\frac{1}{2}$ |
| 3617 | Straight Flange (Std.) | 2" | N14-17 | P23-12 | $\frac{7}{8}$ | - | - | - |
| | Flanged Elbow | 2" | N14-19 | P23-60 | - | $3\frac{7}{16}$ | $1\frac{15}{16}$ | $2\frac{7}{16}$ |
| | Flanged Elbow | 3" | N14-20 | P23-36 | - | $4\frac{7}{16}$ | $2\frac{3}{8}$ | $4\frac{3}{16}$ |
| | Straight Flange | $2\frac{1}{2}$ " | N14-62 | P23-72 | - | - | - | - |
| 4617 | Straight Flange (Std.) | 3" | N14-18 | P23-35 | $1\frac{1}{8}$ | - | - | - |
| | Flanged Elbow | 2" | N14-19 | P23-60 | - | $3\frac{7}{16}$ | $1\frac{15}{16}$ | $2\frac{7}{16}$ |
| | Flanged Elbow | 3" | N14-20 | P23-36 | - | $4\frac{7}{16}$ | $2\frac{3}{8}$ | $4\frac{3}{16}$ |
| | Straight Flange | $2\frac{1}{2}$ " | N14-62 | P23-72 | $1\frac{1}{8}$ | - | - | - |
| 3622 | Straight Flange | 2" | N14-28 | P23-18 | $1\frac{1}{8}$ | - | - | - |
| | Straight Flange | $2\frac{1}{2}$ " | N14-29 | P23-22 | $1\frac{1}{8}$ | - | - | - |
| | Straight Flange (Std.) | 3" | N14-30 | P23-10 | $1\frac{1}{8}$ | - | - | - |
| | Flanged Elbow | 3" | N14-31 | P23-59 | - | $4\frac{1}{4}$ | $2\frac{1}{8}$ | $4\frac{5}{8}$ |
| | Straight Flange | 4" | N14-59 | P23-19 | $1\frac{5}{16}$ | - | - | - |
| 3632 | Straight Flange (Std.) | 3" | N14-121 | P23-150 | $1\frac{1}{8}$ | $4\frac{7}{16}$ | $2\frac{3}{8}$ | $4\frac{3}{16}$ |
| 3635 | Straight Flange (Std.) | 3" | N14-76 | P23-35 | $1\frac{1}{8}$ | $4\frac{7}{16}$ | $2\frac{3}{8}$ | $4\frac{3}{16}$ |
| | Flanged Elbow | 3" | N14-77 | P23-36 | $1\frac{1}{8}$ | $4\frac{7}{16}$ | $2\frac{3}{8}$ | $4\frac{3}{16}$ |
| 4622 3643 3648 | Straight Flange | 2" | N14-57 | P23-18 | $1\frac{1}{8}$ | - | - | - |
| | Straight Flange | 3" | N14-21 | P23-10 | $1\frac{1}{8}$ | - | - | - |
| | Straight Flange (Std.) | 4" | N14-22 | P23-19 | $1\frac{5}{16}$ | - | - | - |
| | Flanged Elbow | 3" | N14-23 | P23-59 | - | $4\frac{1}{4}$ | $2\frac{1}{8}$ | $4\frac{5}{8}$ |
| | Flanged Elbow | 4" | N14-24 | P23-37 | - | $5\frac{1}{2}$ | $2\frac{3}{4}$ | $5\frac{3}{8}$ |
| 3658, 4658 | Straight Flange (Std.) | 4" | N14-26 | P23-52 | $1\frac{5}{16}$ | - | - | - |

Each assembly includes: flange, gasket, and hardware.

For simplicity, the pump sizes above are only shown with PACKING ("6" in the model number).

Flanges are interchangeable with 3500 (triple lip seal), 3600 (packing) and 3700 (mechanical seal) variations.



THE LEADING FORCE behind liquids™ since 1857



Roper Pump Company is a global supplier of high quality positive displacement pumps, designed to handle a broad range of industrial applications. In addition to helical gear pumps and progressing cavity pumps, we design and develop numerous custom pumps for customers with unique and demanding applications.

From a small pump company founded in 1857, Roper Pump Company has grown into a technological leader. With a large installed base, we have both the knowledge and experience to help you solve your most challenging pumping problems...and our strong global distribution network ensures that your needs are met on time, every time.

Our Markets



INDUSTRIAL

Roper Pump Company's rugged and dependable range of positive displacement pumps provides versatile pumping solutions for even the most challenging industrial applications.



TRANSPORT

With over a century of experience in liquid cargo transfer, Roper Pump Company has always been trusted to load and unload your tankers quickly and safely.



POWER GENERATION

For reliable operation of engines, compressors and turbines, thousands of customers depend on Roper Pump Company fuel pumps, lube pumps and liquid fuel flow dividers.



OIL & GAS

Roper Pump Company has numerous pumping solutions from the well to the refinery. Our industry leading DragonSlayer® Power Sections allow mud motors to run longer at unprecedented temperatures and depths.

Roper Pump Company

PO Box 269
Commerce, GA 30529 USA

Customer Service: (706) 336-3359
Technical Support: (706) 336-3334
Fax: (706) 335-5490

sales@roperpumps.com
www.roperpumps.com

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