\\ \title{
ROOER\\ \title{
ROOER PUMPS
} PUMPS
}

THE LEADING FORCE behind liquids ${ }^{\text {TM }}$ since 1857


## A Series General Purpose Pumps

General Purpose Pumps for Pressure Lubrication, Hydraulic Service, Fuel Supply and General Transfer

## The Roper Pump Family of Gear Pumps

|  |  | Typical Applications | Primary Features |
| :---: | :---: | :---: | :---: |
|  | $\begin{aligned} & \text { O} \\ & \hline \mathbf{0} \end{aligned}$ | - Mix, circulate, and transfer viscous liquids <br> - Gasoline, asphalt, molasses <br> ■ Ink, roofing compounds, oils | Precise tolerances for maximum efficiency <br> Direct drive or built-on gear reducers <br> Bi-directional rotation* <br> Configurations available for close coupled drive and close coupled hydraulic drive |
|  | N | Industrial applications requiring a special mechanical seal | - ANSI Flanges <br> - Many parts interchangeable with 3600 Series <br> - Direct drive or built-on gear reducers <br> - Bi-directional rotation* <br> - Configurations available for close coupled drive and close coupled hydraulic drive |
|  | $\begin{aligned} & 8 \\ & \stackrel{\circ}{\infty} \end{aligned}$ | ■ Oilfields including light \& heavy crude oil Kerosene mixtures, condensates and hot oils | Sealed ball bearings Quadruple grease purged lip seals Helical gears for quiet operation Bi-directional rotation* |
|  | $\stackrel{\text { 关 }}{\bar{\sim}}$ | - Fuels, solvents, petrochemicals <br> - Residual fuel oils, molasses, resins <br> - Tankers, barges, process plants, refineries | Large ports (6" and 8" available) allow more efficient transfer of fluids Thru port design allows for lower inlet and outlet losses |
|  | $\begin{aligned} & 8 \\ & \hline 0 \\ & \hline \end{aligned}$ | Hydroseeding Grouting, seal coating, oil and sand Wastewater, waste oil, sludge, slurries Brine, paper pulp, fertilizer feeds | Rubber covered gears Bi-directional rotation Abrasive applications; up to pea size particles |
|  | < | Pressure lubrication Hydraulic service General transfer applications | Operates at motor speeds Bi-directional rotation* Close coupled capability |
|  | $\stackrel{\stackrel{L}{\infty}}{\stackrel{\infty}{\sim}}$ | Roofing Compounds Molasses Feed Supplements | ■ Operates at standard motor speeds <br> - Large ports allow easier fluid entry <br> ■ Built-in relief valve |
|  | > | Hazardous liquid transfer "Zero leakage" applications due to environmental concerns Chemical and petroleum applications | - Mag-drive, sealless design eliminates seal repair costs and down time <br> - C-face mount eliminates misalignment <br> $\square \mathrm{Bi}$-directional rotation and self-priming |
|  | 4 | Hydraulic power for lifts, machine actuation, fuel burners, and blenders General transfer of oil and petroleum fluids | 2 inlet ports, 2 outlet ports allows multiple piping arrangements (except F150-F300) <br> - High Pressure Range <br> ■ Maintain pump without pipe removal |
| $F$ | $\begin{aligned} & \text { U } \\ & \text { O } \end{aligned}$ | $\begin{aligned} & \text { Chemical processing } \\ & \text { Pharmaceutical industry } \\ & \text { Injection or transfer of acids \& solvents } \end{aligned}$ | Stainless steel construction Bi-directional rotation* Mag-drive, sealless option (X5-03 only) |
|  | N | Chemical and transport applications | $\begin{aligned} & \text { 316SS Housing } \\ & \text { 17-4 PH SST Gears / Shafts } \\ & \text { Built-in Relief Valve } \end{aligned}$ |
|  | U | Viscous, abrasive and solids-containing liquids Transfer of wastewater sludge, polymers, grouts, paints and adhesives | - Pulsation free pumping <br> - High suction lift capabilities <br> - Ideal for shear sensitive liquids |

*Pump reconfiguration may be required.

# A Series <br> General Purpose Pumps 

General Purpose Pumps for Pressure Lubrication, Hydraulic Service, Fuel Supply and General Transfer

Up to 59 GPM • Up to 300 PSI

## MATERIALS OF CONSTRUCTION

Standard Fitted
Housing......................................... Cast Iron
Gears.............................................Ductile Iron* Hardened Steel**
Bearings........................................... Bronze
Idler Shafts ......................................Ductile Iron*
Steel**
Drive Shafts $\qquad$ Hardened Steel
Optional Materials
Housing
Ductile Iron***
Bearings
Iron, Carbon
*06 and larger sizes. **03 and smaller sizes.
*** $\ln 005,01$ and 02 sizes

## FEATURES

■ Designed to operate at
standard motor speeds
■ Bi-directional rotation

## Quiet-Running Helical Gears

Accurate machining insures:
$\square$ proper meshing
$\square$ reduced friction and vibration
■ quiet, efficient operation

- long life

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.

Precise, Rugged,
Maintenance-Friendly Design
$\square$ All castings are cast iron.
$\square$ Precise manufacturing tolerances provide minimum clearances for maximum pumping efficiency.

- Large, hardened steel dowel pins insure positive alignment between the faceplate, case, and backplate.


## Capacities \& Nomenclature

| A SERIES NOMENCLATURE |  |  |
| :---: | :---: | :---: |
| Model | 1 - Foot Mounted | 25 - Baseplate Mounted |
|  | 2 - Foot Mounted with Relief Valve | 26 - Baseplate Mounted with Relief Valve |
|  | 17 - Flange Mounted | 33 - Close Coupled |
|  | 18 - Flange Mounted with Relief Valve | 34 - Close Coupled with Relief Valve |
| Seal Option | AL - Lip Seal |  |
|  | AM - Mechanical Seal |  |
|  | AP - Packed Box |  |
|  | AE - Mechanical Seal (AE Series Only) |  |
| $\begin{gathered} \text { Size }^{*} \\ {[A L, A M,} \\ \text { AP] } \end{gathered}$ | 005-0.05 Gal /100 Rev [0.19 L/100 Rev] | 12-1.3 Gal/100 Rev [4.92 L/100 Rev] |
|  | 01-0.1 Gal/100 Rev [0.38 L/100 Rev] | 16-1.7 Gal/100 Rev [6.44 L/100 Rev] |
|  | 02 - 0.2 Gal/100 Rev [0.76L/100 Rev] | 21-2.2 Gal/100 Rev [8.33 L/100 Rev] |
|  | 03-0.3 Gal/100 Rev [1.14 L/100 Rev] | 27-2.7 Gal /100 Rev [10.22 L/100 Rev] |
|  | $06-0.6 \mathrm{Gal} / 100 \mathrm{Rev}$ [2.27 L/100 Rev] | 32-3.3 Gal/100 Rev [12.49 L/100 Rev] |
|  | 08-0.9 Gal/100 Rev [3.41 L/100 Rev] | 40-4.2 Gal /100 Rev [15.90 L/100 Rev] |
| Size <br> [AE Series] | 19-1.9 Gal /100 Rev [7.19 L/100 Rev] | 54 - 5.4 Gal /100 Rev [20.44 L/100 Rev] |
|  | 29-2.9 Gal/100 Rev [10.98 L/100 Rev] | 75-7.5 Gal /100 Rev [28.39 L/100 Rev] |

*Size: approximate theoretical flow rate [not including slip]

| EXAMPLE: 17AM32 | $\mathbf{1 7}$ | AM | $\mathbf{3 2}$ | Type 1 <br>  |
| :---: | :---: | :---: | :---: | :---: |
|  | Seal Option | Size | Internal Construction |  |
| EXAMPLE: 2AE54 | $\mathbf{2}$ | AE | $\mathbf{5 4}$ | Type 1 |
|  | Model | Seal Option | Size | Internal Construction |




MECHANICAL SEAL (STANDARD)
Mechanical seals are for those applications where product leakage is unacceptable. The mechanical seal uses less power than the packed box and, under proper conditions, has a longer service life. It does not require adjustment. Our standard mechanical seal is an elastomeric bellows type seal, with a temperature limit of $212^{\circ} \mathrm{F}\left(100^{\circ} \mathrm{C}\right)$. Special fitting is available for higher temperature applications.


## MECHANICAL SEAL (POSITIVE DRIVEN)

These are positive driven seals with a PTFE wedge, for use where corrosive and/or viscous liquids are being processed. Wedge construction of the secondary sealing element virtually eliminates leakage. These seals have a temperature limit of $450^{\circ} \mathrm{F}\left(232^{\circ} \mathrm{C}\right)$. Special fitting is available for higher temperature applications.

## Pump Seals



Foot Mounted

SIZE 06 THROUGH 40


Foot Mounted


Flange Mounted


Baseplate Mounted


Close Coupled to NEMA "C" Motor


## PACKED BOX

The packed box seal is suited for general purpose applications. The standard packing has a temperature limit of $250^{\circ} \mathrm{F}\left(121^{\circ} \mathrm{C}\right)$, with special fitting available for higher temperature applications. The gland should be adjusted to allow slight seepage.


The lip seal is suitable for low pressure sealing of lubricating fluids. The standard seal has a temperature limit of $212^{\circ} \mathrm{F}$ $\left(100^{\circ} \mathrm{C}\right)$. Special fitting is available for higher temperature applications. Available in CW rotation only and 100 psi maximum discharge.

## A Series Performance Charts



| SIZE | RPM |  | 3600 RPM |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Pump | $\begin{gathered} \text { PSI } \\ \text { [bar] } \end{gathered}$ | SSU | 30 | 100 | 1000 | 5000 | 30 |
| $005$ | $\begin{gathered} 50 \\ {[3.5]} \end{gathered}$ | GPM [1/min] HP [kW] | $\begin{aligned} & 1.62[6.1] \\ & 0.41[0.3] \end{aligned}$ | $\begin{aligned} & 1.78[6.7] \\ & 0.32[0.2] \end{aligned}$ | $\begin{aligned} & 1.83[6.9] \\ & 0.53[0.4] \end{aligned}$ | $\begin{aligned} & 1.83[6.9] \\ & 0.84[0.6] \end{aligned}$ | $\begin{array}{r} 0.7[2.6] \\ 0.17[0.1] \\ \hline \end{array}$ |
|  | $\begin{array}{c\|} \hline 150 \\ {[10.3]} \end{array}$ | $\begin{gathered} \text { GPM [1/min] } \\ \text { HP [kW] } \\ \hline \end{gathered}$ | $\begin{aligned} & 1.3[4.9] \\ & 0.8[0.6] \\ & \hline \end{aligned}$ | $\begin{aligned} & 1.71[6.5] \\ & 0.47[0.4] \end{aligned}$ | $\begin{aligned} & 1.83[6.9] \\ & 0.64[0.5] \end{aligned}$ | $\begin{aligned} & 1.83[6.9] \\ & 0.95[0.7] \end{aligned}$ | $\begin{aligned} & 0.38[1.4] \\ & 0.33[0.2] \end{aligned}$ |
|  | $\begin{gathered} 300 \\ {[20.7]} \\ \hline \end{gathered}$ | $\begin{gathered} \text { GPM [1/min }] \\ \text { HP [kW] } \end{gathered}$ |  | $\begin{aligned} & 1.62[6.1] \\ & 0.69[0.5] \\ & \hline \end{aligned}$ | $\begin{array}{r} 1.82[6.9] \\ 0.8[0.6] \\ \hline \end{array}$ | $\begin{aligned} & 1.83[6.9] \\ & 1.11[0.8] \\ & \hline \end{aligned}$ |  |
| $01$ | $\begin{gathered} 50 \\ {[3.5]} \end{gathered}$ | GPM [1/min] HP [kW] | $\begin{gathered} \hline 3.4[12.9] \\ 0.36[0.3] \\ \hline \end{gathered}$ | $\begin{gathered} 3.55[13.4] \\ 0.4[0.3] \\ \hline \end{gathered}$ | $\begin{gathered} \hline 3.59[13.6] \\ 0.7[0.5] \\ \hline \end{gathered}$ | $\begin{gathered} \hline 3.59[13.6] \\ 1.1[0.8] \\ \hline \end{gathered}$ | $\begin{array}{r} 1.6[6.1] \\ 0.14[0.1] \end{array}$ |
|  | $\begin{gathered} \hline 150 \\ {[10.3]} \end{gathered}$ | $\begin{gathered} \text { GPM [1/min] } \\ \text { HP [kW] } \end{gathered}$ | $\begin{gathered} \hline 2.99[11.3] \\ 0.8[0.6] \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 3.44[13.0] \\ & 0.68[0.5] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 3.59[13.6] \\ & 0.91[0.7] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 3.59[13.6] \\ & 1.28[1.0] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 1.19[4.5] \\ & 0.32[0.2] \\ & \hline \end{aligned}$ |
|  | $\begin{gathered} 300 \\ {[20.7]} \\ \hline \end{gathered}$ | $\begin{gathered} \hline \text { GPM [1/min] } \\ \text { HP [kW] } \end{gathered}$ |  | $\begin{aligned} & 3.26[12.3] \\ & 1.03[0.8] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 3.58[13.6] \\ & 1.23[0.9] \\ & \hline \end{aligned}$ | $\begin{gathered} \hline 3.59[13.6] \\ 1.6[1.2] \\ \hline \end{gathered}$ |  |
| $02$ | $\begin{array}{r} 50 \\ {[3.5]} \\ \hline \end{array}$ | $\begin{gathered} \text { GPM }[1 / \mathrm{min}] \\ \text { HP }[\mathrm{kW}] \\ \hline \end{gathered}$ | $\begin{aligned} & 7.01[26.5] \\ & 0.48[0.4] \\ & \hline \end{aligned}$ | $\begin{aligned} & 7.35[27.8] \\ & 0.52[0.4] \\ & \hline \end{aligned}$ | $\begin{aligned} & 7.53[28.5] \\ & 0.82[0.6] \\ & \hline \end{aligned}$ | $\begin{aligned} & 7.55[28.6] \\ & 1.19[0.9] \\ & \hline \end{aligned}$ | $\begin{gathered} 3.23[12.2] \\ 0.2[0.1] \\ \hline \end{gathered}$ |
|  | $\begin{gathered} \hline 150 \\ {[10.3]} \end{gathered}$ | $\begin{gathered} \hline \text { GPM }[1 / \text { min }] \\ \text { HP }[\mathrm{kW}] \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 6.26[23.7] \\ & 1.15[0.9] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 7.09[26.8] \\ & 1.03[0.8] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 7.48[28.3] \\ & 1.26[0.9] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 7.54[28.5] \\ & 1.63[1.2] \\ & \hline \end{aligned}$ | $\begin{array}{r} \hline 2.48[9.4] \\ 0.5[0.4] \\ \hline \end{array}$ |
|  | $\begin{gathered} 300 \\ {[20.7]} \end{gathered}$ | $\begin{gathered} \text { GPM }[1 / \mathrm{min}] \\ \text { HP }[\mathrm{kW}] \\ \hline \end{gathered}$ |  | $\begin{aligned} & 5.8[22.0] \\ & 1.7[1.3] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline .42[28.1] \\ & 1.92[1.4] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 7.52[28.5] \\ & 2.29[1.7] \\ & \hline \end{aligned}$ |  |
| $03$ | $\begin{gathered} 50 \\ {[3.5]} \\ \hline \end{gathered}$ | $\begin{gathered} \text { GPM [1/min] } \\ \text { HP [kW] } \end{gathered}$ | $\begin{gathered} 10.42[39.4] \\ 0.7[0.5] \\ \hline \end{gathered}$ | $\begin{gathered} 11.05[41.8] \\ 0.68[0.5] \\ \hline \end{gathered}$ | $\begin{gathered} 11.41[43.2] \\ 0.94[0.7] \\ \hline \end{gathered}$ | $\begin{gathered} 11.49[43.5] \\ 1.29[1.0] \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 4.66[17.6] \\ & 0.34[0.3] \\ & \hline \end{aligned}$ |
|  | $\begin{gathered} 150 \\ {[10.3]} \end{gathered}$ | $\begin{gathered} \text { GPM }[1 / \mathrm{min}] \\ \text { HP }[\mathrm{kW}] \\ \hline \end{gathered}$ | $\begin{aligned} & 9.3[35.2] \\ & 1.6[1.2] \\ & \hline \end{aligned}$ | $\begin{gathered} \hline 10[37.9] \\ 1.6[1.2] \\ \hline \end{gathered}$ | $\begin{gathered} 11.32[42.9] \\ 1.61[1.2] \\ \hline \end{gathered}$ | $\begin{gathered} 11.45[43.3] \\ 1.96[1.5] \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 3.66[13.9] \\ & 0.85[0.6] \\ & \hline \end{aligned}$ |
|  | $\begin{gathered} 300 \\ {[20.7]} \end{gathered}$ | $\begin{gathered} \text { GPM }[1 / \text { min }] \\ \text { HP }[\mathrm{kW}] \\ \hline \end{gathered}$ |  | $\begin{aligned} & \hline 9.5[36.0] \\ & 2.6[1.9] \end{aligned}$ | $\begin{gathered} \hline 11.21[42.4] \\ 2.61[1.9] \\ \hline \end{gathered}$ | $\begin{gathered} 11.41[43.2] \\ 2.96[2.2] \end{gathered}$ |  |

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 |  | 1800 RPM |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Pump | $\begin{array}{\|c} \hline \text { PSI } \\ \text { [bar] } \end{array}$ | SSU | 30 |  | 100 |  | 1000 |  | 5000 |
| 06 | $\begin{array}{\|c} \hline 50 \\ {[3.5]} \\ \hline \end{array}$ | $\begin{array}{cc} \hline \text { GPM } & {[1 / \mathrm{min}]} \\ \text { HP } & {[\mathrm{kW}]} \\ \hline \end{array}$ | $\begin{array}{ll} 10.6 & {[40.1]} \\ 0.88 & {[0.7]} \\ \hline \end{array}$ | $\begin{array}{r} 10.9 \\ 0.88 \\ \hline \end{array}$ | $\begin{aligned} & {[41.3]} \\ & {[0.7]} \\ & \hline \end{aligned}$ | $\begin{aligned} & 11.2 \\ & 1.33 \\ & \hline \end{aligned}$ | $\begin{aligned} & {[42.4]} \\ & {[1.0]} \\ & \hline \end{aligned}$ | $\begin{array}{r} 11.2 \\ 2.08 \\ \hline \end{array}$ | $\begin{aligned} & {[42.4]} \\ & {[1.6]} \\ & \hline \end{aligned}$ |
|  | $\begin{array}{\|l\|} \hline 100 \\ {[6.9]} \end{array}$ | $\begin{gathered} \hline \text { GPM }[1 / \mathrm{min}] \\ \mathrm{HP}[\mathrm{~kW}] \\ \hline \end{gathered}$ | 9.8 $[37.1]$ <br> 1.21 $[0.9]$ | $\begin{aligned} & 10.4 \\ & 1.21 \end{aligned}$ | $\begin{aligned} & \hline[39.4] \\ & {[0.9]} \end{aligned}$ | 11 1.66 | $\begin{aligned} & \hline[41.6] \\ & {[1.2]} \\ & \hline \end{aligned}$ | $\begin{aligned} & 11.1 \\ & 2.41 \end{aligned}$ | $\begin{aligned} & \hline[42.0] \\ & {[1.8]} \end{aligned}$ |
|  | $\begin{array}{\|c\|} \hline 150 \\ {[10.3]} \\ \hline \end{array}$ | $\begin{gathered} \text { GPM } \left.\left.\begin{array}{c} {[1 / \mathrm{min}]} \\ \mathrm{HP}[\mathrm{~kW}] \end{array}\right] . \begin{array}{c}  \\ \hline \end{array}{ }^{2}\right] \end{gathered}$ | $\begin{aligned} & \hline 8.7 {[32.9] } \\ & 1.54[1.1] \\ & \hline \end{aligned}$ | $\begin{array}{r}9.8 \\ 1.54 \\ \hline\end{array}$ | $\begin{aligned} & {[37.1]} \\ & {[1.1]} \\ & \hline \end{aligned}$ | $\begin{array}{\|l\|} \hline 10.8 \\ 1.99 \\ \hline \end{array}$ | $\begin{aligned} & {[40.9]} \\ & {[1.5]} \\ & \hline \end{aligned}$ | 11 2.74 | $\begin{aligned} & {[41.6]} \\ & {[2.0]} \\ & \hline \end{aligned}$ |
| 08 | $\begin{array}{\|c} \hline 50 \\ {[3.5]} \\ \hline \end{array}$ | GPM [l/min] HP [kW] | $\begin{aligned} & \hline 15.5 {[58.7] } \\ & 1.7 {[1.3] } \\ & \hline \end{aligned}$ | $\begin{array}{r} 15.8 \\ 1.7 \\ \hline \end{array}$ | $\begin{aligned} & {[59.8]} \\ & {[1.3]} \\ & \hline \end{aligned}$ | 16.1 1.7 | $\begin{aligned} & {[60.9]} \\ & {[1.3]} \\ & \hline \end{aligned}$ | 16.1 2.1 | $\begin{aligned} & \hline[60.9] \\ & {[1.6]} \\ & \hline \end{aligned}$ |
|  | $\begin{array}{\|c\|} \hline 100 \\ {[6.9]} \\ \hline \end{array}$ | $\begin{array}{cl} \hline \text { GPM }[1 / \mathrm{min}] \\ \text { HP }[\mathrm{kW}] \end{array}$ | $\begin{aligned} & \hline 14.6 {[55.3] } \\ & 2.2 {[1.6] } \\ & \hline \end{aligned}$ | $\begin{array}{r} \hline 15.3 \\ 2.2 \\ \hline \end{array}$ | $\begin{aligned} & \hline[57.9] \\ & {[1.6]} \\ & \hline \end{aligned}$ | $\begin{array}{r} 15.9 \\ 2.2 \\ \hline \end{array}$ | $\begin{aligned} & \hline[60.2] \\ & {[1.6]} \\ & \hline \end{aligned}$ | $\begin{array}{r} 16 \\ 2.6 \\ \hline \end{array}$ | $\begin{aligned} & {[60.6]} \\ & {[1.9]} \\ & \hline \end{aligned}$ |
|  | $\begin{array}{\|c\|} \hline 150 \\ {[10.3]} \end{array}$ | $\begin{gathered} \left.\left.\hline \text { GPM } \begin{array}{c} {[1 / \mathrm{min}]} \\ \mathrm{HP}[\mathrm{~kW}] \end{array}\right] . \begin{array}{c}  \\ \hline \end{array}{ }^{2}\right] \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 13.6 {[51.5] } \\ & 2.6 {[1.9] } \\ & \hline \end{aligned}$ | 14.7 2.6 | $\begin{aligned} & \hline[55.6] \\ & {[1.9]} \\ & \hline \end{aligned}$ | $\begin{array}{r}15.7 \\ 2.6 \\ \hline\end{array}$ | $\begin{aligned} & \hline[59.4] \\ & {[1.9]} \\ & \hline \end{aligned}$ | 16 3.1 | $\begin{aligned} & {[60.6]} \\ & {[2.3]} \\ & \hline \end{aligned}$ |
| 12 | $\begin{array}{\|c} \hline 50 \\ {[3.5]} \\ \hline \end{array}$ | GPM [l/min] HP [kW] | $\begin{aligned} & 21.4 {[81.0] } \\ & 1.7 {[1.3] } \\ & \hline \end{aligned}$ | $\begin{array}{r} 22.2 \\ 1.8 \\ \hline \end{array}$ | $\begin{aligned} & {[84.0]} \\ & {[1.3]} \\ & \hline \end{aligned}$ | 23 2.3 | $\begin{aligned} & {[87.1]} \\ & {[1.7]} \\ & \hline \end{aligned}$ | 23.2 2.7 | $\begin{aligned} & {[87.8]} \\ & {[2.0]} \\ & \hline \end{aligned}$ |
|  | $\begin{array}{\|l\|} \hline 100 \\ {[6.9]} \\ \hline \end{array}$ | $\begin{array}{cc} \hline \text { GPM } & {[1 / \mathrm{min}]} \\ \text { HP } & {[\mathrm{kW}]} \\ \hline \end{array}$ | $\begin{array}{r} \hline 19.9[75.3] \\ 2.3[1.7] \\ \hline \end{array}$ | $\begin{array}{\|r\|} \hline 21.4 \\ 2.5 \end{array}$ | $\begin{aligned} & \hline[81.0] \\ & {[1.9]} \\ & \hline \end{aligned}$ | 22.7 3 | $\begin{aligned} & {[85.9]} \\ & {[2.2]} \end{aligned}$ | 23 3.4 | $\begin{aligned} & \hline[87.1] \\ & {[2.5]} \\ & \hline \end{aligned}$ |
|  | $\begin{array}{\|c\|} \hline 150 \\ {[10.3]} \\ \hline \end{array}$ | $\begin{array}{cc} \hline \text { GPM } & {[1 / \mathrm{min}]} \\ \text { HP } & {[\mathrm{kW}]} \end{array}$ | $\begin{aligned} & \hline 18.4 {[69.7] } \\ & 3 {[2.2] } \\ & \hline \end{aligned}$ | $\begin{array}{r} 20.5 \\ 3.2 \\ \hline \end{array}$ | $\begin{aligned} & {[77.6]} \\ & {[2.4]} \\ & \hline \end{aligned}$ | 22.4 3.7 | $\begin{aligned} & \hline[84.8] \\ & {[2.8]} \\ & \hline \end{aligned}$ | 22.9 4.1 | $\begin{aligned} & \hline[86.7] \\ & {[3.1]} \\ & \hline \end{aligned}$ |
| 16 | $\begin{array}{\|c} \hline 50 \\ {[3.5]} \\ \hline \end{array}$ | GPM [l/min] HP [kW] | $\begin{array}{cl} \hline 27.8 & {[105.2]} \\ 2.1 & {[1.6]} \\ \hline \end{array}$ | 29.2 2.3 | $\begin{aligned} & \hline[110.5] \\ & {[1.7]} \\ & \hline \end{aligned}$ | 30.4 2.6 | $\begin{aligned} & \hline[115.1] \\ & {[1.9]} \end{aligned}$ | $\begin{array}{r}30.8 \\ 3.4 \\ \hline\end{array}$ | $\begin{aligned} & \hline[116.6] \\ & {[2.5]} \end{aligned}$ |
|  | $\begin{array}{\|c\|} \hline 100 \\ {[6.9]} \\ \hline \end{array}$ | $\begin{gathered} \text { GPM } \begin{array}{c} {[1 / \mathrm{min}]} \\ \mathrm{HP}[\mathrm{~kW}] \\ \hline \end{array}{ }^{2} . \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 25.7 {[97.3] } \\ & 3 {[2.2] } \\ & \hline \end{aligned}$ | 28 3.2 | $\begin{aligned} & {[106.0]} \\ & {[2.4]} \\ & \hline \end{aligned}$ | 30 3.5 | $\begin{aligned} & {[113.6]} \\ & {[2.6]} \\ & \hline \end{aligned}$ | 30.6 4.3 | $\begin{aligned} & {[115.8]} \\ & {[3.2]} \\ & \hline \end{aligned}$ |
|  | $\begin{array}{\|c\|} \hline 150 \\ {[10.3]} \end{array}$ | $\begin{gathered} \hline \text { GPM }\left[\begin{array}{c} {[1 / \mathrm{min}]} \\ \mathrm{HP} \\ {[\mathrm{~kW}]} \end{array}\right] \end{gathered}$ |  | $\begin{array}{r} 26.8 \\ 4.1 \\ \hline \end{array}$ | $\begin{aligned} & \hline[101.4] \\ & {[3.1]} \\ & \hline \end{aligned}$ | $\begin{array}{r} 29.6 \\ 4.4 \\ \hline \end{array}$ | $\begin{aligned} & \hline[112.0] \\ & {[3.3]} \\ & \hline \end{aligned}$ | 30.4 5.2 | $\begin{aligned} & \hline[115.1] \\ & {[3.9]} \\ & \hline \end{aligned}$ |
| 21 | $\begin{gathered} 50 \\ {[3.5]} \\ \hline \end{gathered}$ | GPM [l/min] HP [kW] | $\begin{array}{cl} \hline 34.5 & {[130.6]} \\ 2.7 & {[2.0]} \\ \hline \end{array}$ | $\begin{array}{r} 36.6 \\ 2.8 \\ \hline \end{array}$ | $\begin{aligned} & \hline[138.5] \\ & {[2.1]} \\ & \hline \end{aligned}$ | 38.5 3 | $\begin{aligned} & {[145.7]} \\ & {[2.2]} \end{aligned}$ | $\begin{array}{r} 39.1 \\ 4.1 \\ \hline \end{array}$ | $\begin{aligned} & {[148.0]} \\ & {[3.1]} \\ & \hline \end{aligned}$ |
|  | $\begin{array}{\|l\|} \hline 100 \\ {[6.9]} \end{array}$ | $\begin{array}{cc} \hline \text { GPM } & {[1 / \mathrm{min}]} \\ \text { HP } & {[\mathrm{kW}]} \\ \hline \end{array}$ | $\begin{array}{cl} \hline 31.7 & {[120.0]} \\ 3.8 & {[2.8]} \\ \hline \end{array}$ | 35 3.9 | $\begin{aligned} & \hline[132.5] \\ & {[2.9]} \end{aligned}$ | 37.9 4.1 | $\begin{aligned} & {[143.5]} \\ & {[3.1]} \\ & \hline \end{aligned}$ | 38.8 5.3 | $\begin{aligned} & \hline[146.9] \\ & {[4.0]} \end{aligned}$ |
|  | $\begin{array}{\|c\|} \hline 150 \\ {[10.3]} \\ \hline \end{array}$ | $\begin{gathered} \text { GPM }[1 / \mathrm{min}] \\ \mathrm{HP}[\mathrm{~kW}] \\ \hline \end{gathered}$ |  | $\begin{array}{r} \hline 33.4 \\ 5.1 \\ \hline \end{array}$ | $\begin{aligned} & {[126.4]} \\ & {[3.8]} \\ & \hline \end{aligned}$ | $\begin{array}{r} 37.4 \\ 5.3 \\ \hline \end{array}$ | $\begin{aligned} & {[141.6]} \\ & {[4.0]} \\ & \hline \end{aligned}$ | 38.5 6.4 | $\begin{aligned} & {[145.7]} \\ & {[4.8]} \\ & \hline \end{aligned}$ |
| 27 | $\begin{gathered} 50 \\ {[3.5]} \\ \hline \end{gathered}$ | GPM [l/min] HP [kW] | $\begin{aligned} & \hline 42.6 {[161.3] } \\ & 3.3 {[2.5] } \\ & \hline \end{aligned}$ | $\begin{array}{r} 45.5 \\ 3.3 \end{array}$ | $\begin{aligned} & \hline[172.2] \\ & {[2.5]} \\ & \hline \end{aligned}$ | 48.1 3.5 | $\begin{aligned} & {[182.1]} \\ & {[2.6]} \end{aligned}$ | 48.8 | $\begin{aligned} & \hline[184.7] \\ & {[3.7]} \end{aligned}$ |
|  | $\begin{array}{\|l\|} \hline 100 \\ {[6.9]} \\ \hline \end{array}$ |  |  | $\begin{array}{r} 43.4 \\ 4.7 \\ \hline \end{array}$ | $\begin{aligned} & {[164.3]} \\ & {[3.5]} \\ & \hline \end{aligned}$ | $\begin{array}{r} 47.3 \\ 4.9 \\ \hline \end{array}$ | $\begin{aligned} & \hline[179.0] \\ & {[3.7]} \\ & \hline \end{aligned}$ | 48.4 | $\begin{aligned} & \hline[183.2] \\ & \hline 4.7] \\ & \hline \end{aligned}$ |
|  | $\begin{array}{\|c\|} \hline 150 \\ {[10.3]} \end{array}$ | GPM [l/min] HP [kW] |  | $\begin{array}{r} \hline 41.4 \\ 6.2 \\ \hline \end{array}$ | $\begin{aligned} & \hline[156.7] \\ & {[4.6]} \\ & \hline \end{aligned}$ | 46.6 6.3 | $\begin{aligned} & \hline[176.4] \\ & {[4.7]} \\ & \hline \end{aligned}$ | 68.1 7.7 | $\begin{aligned} & \hline[182.1] \\ & {[5.7]} \\ & \hline \end{aligned}$ |
| 32 | $\begin{gathered} 50 \\ {[3.5]} \\ \hline \end{gathered}$ | GPM [l/min] HP $[\mathrm{kW}]$ | $\begin{aligned} & \hline 50.8 {[192.3] } \\ & 3.9 {[2.9] } \\ & \hline \end{aligned}$ | $\begin{array}{r} 54.3 \\ \hline 3.9 \end{array}$ | $\begin{aligned} & {[205.5]} \\ & {[2.9]} \\ & \hline \end{aligned}$ | $\begin{array}{r} 57.6 \\ \hline 4.1 \end{array}$ | $\begin{aligned} & {[218.0]} \\ & {[3.1]} \\ & \hline \end{aligned}$ | $\begin{array}{r} 58.5 \\ 5.7 \end{array}$ | $\begin{aligned} & {[221.4]} \\ & {[4.3]} \\ & \hline \end{aligned}$ |
|  | $\begin{array}{\|c\|} \hline 100 \\ {[6.9]} \\ \hline \end{array}$ | $\begin{array}{cc} \hline \text { GPM } & {[1 / \mathrm{min}]} \\ \text { HP } & {[\mathrm{kW}]} \end{array}$ |  | $\begin{array}{r} \hline 51.8 \\ 5.6 \end{array}$ | $\begin{aligned} & \hline[196.1] \\ & {[4.2]} \\ & \hline \end{aligned}$ | $\begin{array}{r} 56.7 \\ 5.8 \end{array}$ | $\begin{aligned} & \hline[214.6] \\ & {[4.3]} \\ & \hline \end{aligned}$ | 58.1 7.5 | $\begin{aligned} & {[219.9]} \\ & {[5.6]} \end{aligned}$ |
|  | $\begin{array}{\|c\|} \hline 150 \\ {[10.3]} \\ \hline \end{array}$ | $\begin{gathered} \text { GPM }\left[\begin{array}{c} {[1 / \mathrm{min}]} \\ \text { HP } \\ {[\mathrm{kW}]} \end{array}\right] \end{gathered}$ |  | $\begin{array}{r} 49.4 \\ 7.3 \\ \hline \end{array}$ | $\begin{aligned} & \hline[187.0] \\ & {[5.4]} \\ & \hline \end{aligned}$ | $\begin{array}{r} 55.8 \\ 7.5 \\ \hline \end{array}$ | $\begin{aligned} & \hline[211.2] \\ & {[5.6]} \\ & \hline \end{aligned}$ | 57.7 9.2 | $\begin{aligned} & \hline[218.4] \\ & {[6.9]} \\ & \hline \end{aligned}$ |
| 40 | $\begin{array}{\|c} \hline 50 \\ {[3.5]} \\ \hline \end{array}$ | GPM [l/min] HP [kW] | $\begin{aligned} \hline 66.5 & {[251.7] } \\ 4.6 & {[3.4] } \end{aligned}$ | 70.3 4.8 | $\begin{aligned} & {[266.1]} \\ & {[3.6]} \\ & \hline \end{aligned}$ | 73.7 5.8 | $\begin{aligned} & {[279.0]} \\ & {[4.3]} \\ & \hline \end{aligned}$ | 74.7 9.1 | $\begin{aligned} & {[282.8]} \\ & {[6.8]} \end{aligned}$ |
|  | $\begin{array}{\|c\|} \hline 100 \\ {[6.9]} \\ \hline \end{array}$ | $\begin{gathered} \text { GPM } \left.\left.\begin{array}{c} {[1 / \mathrm{min}]} \\ \mathrm{HP} \\ {[\mathrm{~kW}]} \end{array}\right] . \begin{array}{c}  \\ \hline \end{array}{ }^{2}\right] \\ \hline \end{gathered}$ |  | $\begin{array}{r} 67.3 \\ 6.9 \\ \hline \end{array}$ | $\begin{aligned} & {[254.8]} \\ & {[5.1]} \\ & \hline \end{aligned}$ | 72.7 7.9 | $\begin{aligned} & {[275.2]} \\ & {[5.9]} \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 74.1 \\ & 11.2 \end{aligned}$ | $\begin{aligned} & {[280.5]} \\ & {[8.4]} \end{aligned}$ |
|  | $\begin{array}{\|c\|} \hline 150 \\ {[10.3]} \\ \hline \end{array}$ | $\begin{gathered} \text { GPM } \left.\left.\begin{array}{c} {[1 / \mathrm{min}]} \\ \mathrm{HP} \\ {[\mathrm{~kW}]} \end{array}\right] . \begin{array}{c}  \\ \hline \end{array}{ }^{2}\right] \\ \hline \end{gathered}$ |  | 64.6 9.1 | $\begin{aligned} & {[244.5]} \\ & {[6.8]} \\ & \hline \end{aligned}$ | 71.9 10.1 | $\begin{aligned} & {[272.2]} \\ & {[7.5]} \\ & \hline \end{aligned}$ | 73.8 13.4 | $\begin{aligned} & {[279.4]} \\ & {[10.0]} \end{aligned}$ |


| 1800 RPM |  |  | 1200 RPM |  |  |  | 900 RPM |  |  |  | 720 RPM |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 100 | 1000 | 5000 | 30 | 100 | 1000 | 5000 | 30 | 100 | 1000 | 5000 | 30 | 100 | 1000 | 5000 |
| $\begin{aligned} & \hline 0.87[3.3] \\ & 0.14[0.1] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.91[3.4] \\ & 0.21[0.2] \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.91[3.4] \\ & 0.34[0.3] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.39[1.5] \\ & 0.06[0.0] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.56[2.1] \\ & 0.06[0.0] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.61[2.3] \\ & 0.13[0.1] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.61[2.3] \\ & 0.21[0.2] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.24[0.9] \\ & 0.05[0.0] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.41[1.6] \\ & 0.05[0.0] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.45[1.7] \\ & 0.09[0.1] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.45[1.7] \\ & 0.15[0.1] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.15[0.6] \\ & 0.04[0.0] \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.32[1.2] \\ & 0.04[0.0] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.36[1.4] \\ & 0.06[0.0] \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.36[1.4] \\ & 0.12[0.1] \\ & \hline \end{aligned}$ |
| $\begin{aligned} & 0.79[3.0] \\ & 0.21[0.2] \end{aligned}$ | $\begin{aligned} & 0.91[3.4] \\ & 0.26[0.2] \end{aligned}$ | $\begin{aligned} & 0.91[3.4] \\ & 0.39[0.3] \end{aligned}$ |  | $\begin{gathered} 0.48[1.8] \\ 0.1[0.1] \end{gathered}$ | $\begin{aligned} & 0.61[2.3] \\ & 0.15[0.1] \end{aligned}$ | $\begin{aligned} & 0.61[2.3] \\ & 0.24[0.2] \end{aligned}$ |  | $\begin{aligned} & 0.33[1.2] \\ & 0.08[0.1] \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.45[1.7] \\ & 0.11[0.1] \end{aligned}$ | $\begin{aligned} & 0.45[1.7] \\ & 0.18[0.1] \end{aligned}$ |  | $0.24[0.9]$ $0.06[0.0]$ | $\begin{aligned} & 0.36[1.4] \\ & 0.09[0.1] \end{aligned}$ | $0.36[1.4]$ 0.14 |
|  | $\begin{array}{r} 0.9[3.4] \\ 0.34[0.3] \\ \hline \end{array}$ | $\begin{aligned} & \hline 0.91[3.4] \\ & 0.47[0.4] \\ & \hline \end{aligned}$ |  | $\begin{aligned} & \hline 0.39[1.5] \\ & 0.15[0.1] \\ & \hline \end{aligned}$ | $\begin{array}{r} \hline 0.61[2.3] \\ 0.2[0.1] \\ \hline \end{array}$ | $\begin{array}{r} 0.61[2.3] \\ 0.3[0.2] \\ \hline \end{array}$ |  | $\begin{aligned} & \hline 0.24[0.9] \\ & 0.12[0.1] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.44[1.7] \\ & 0.15[0.1] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.45[1.7] \\ & 0.22[0.2] \\ & \hline \end{aligned}$ |  |  | $\begin{aligned} & \hline 0.35[1.3] \\ & 0.12[0.1] \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.36[1.4] \\ & 0.17[0.1] \\ & \hline \end{aligned}$ |
| $\begin{aligned} & \hline 1.75[6.6] \\ & 0.16[0.1] \\ & \hline \end{aligned}$ | $\begin{aligned} & 1.79[6.8] \\ & 0.26[0.2] \\ & \hline \end{aligned}$ | $\begin{aligned} & 1.79[6.8] \\ & 0.39[0.3] \\ & \hline \end{aligned}$ | $\begin{array}{r} 1[3.8] \\ 0.09[0.1] \end{array}$ | $\begin{aligned} & 1.15[4.4] \\ & 0.09[0.1] \end{aligned}$ | $\begin{aligned} & 1.19[4.5] \\ & 0.15[0.1] \\ & \hline \end{aligned}$ | $\begin{aligned} & 1.19[4.5] \\ & 0.26[0.2] \\ & \hline \end{aligned}$ | $\begin{array}{r} 0.7[2.6] \\ 0.06[0.0] \\ \hline \end{array}$ | $\begin{aligned} & 0.85[3.2] \\ & 0.06[0.0] \end{aligned}$ | $\begin{gathered} 0.89[3.4] \\ 0.1[0.1] \\ \hline \end{gathered}$ | $\begin{aligned} & 0.89[3.4] \\ & 0.18[0.1] \end{aligned}$ | $\begin{aligned} & 0.52[2.0] \\ & 0.05[0.0] \end{aligned}$ | $\begin{aligned} & \hline 0.67[2.5] \\ & 0.05[0.0] \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.71[2.7] \\ & 0.07[0.1] \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.71[2.7] \\ & 0.13[0.1] \\ & \hline \end{aligned}$ |
| $\begin{aligned} & 1.64[6.2] \\ & 0.29[0.2] \\ & \hline \end{aligned}$ | $\begin{aligned} & 1.79[6.8] \\ & 0.37[0.3] \\ & \hline \end{aligned}$ | $\begin{array}{r} 1.79[6.8] \\ 0.5[0.4] \\ \hline \end{array}$ |  | $\begin{aligned} & 1.04[3.9] \\ & 0.16[0.1] \end{aligned}$ | $\begin{aligned} & 1.19[4.5] \\ & 0.22[0.2] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 1.19[4.5] \\ & 0.33[0.2] \\ & \hline \end{aligned}$ |  | $\begin{aligned} & \hline 0.74[2.8] \\ & 0.11[0.1] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.89[3.4] \\ & 0.15[0.1] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.89[3.4] \\ & 0.23[0.2] \\ & \hline \end{aligned}$ |  | $\begin{aligned} & \hline 0.56[2.1] \\ & 0.09[0.1] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 0.71[2.7] \\ & 0.12[0.1] \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.71[2.7] \\ & 0.17[0.1] \\ & \hline \end{aligned}$ |
| $\begin{aligned} & 1.46[5.5] \\ & 0.45[0.3] \\ & \hline \end{aligned}$ | $\begin{aligned} & 1.78[6.7] \\ & 0.52[0.4] \\ & \hline \end{aligned}$ | $\begin{aligned} & 1.79[6.8] \\ & 0.65[0.5] \\ & \hline \end{aligned}$ |  | $\begin{aligned} & 0.86[3.3] \\ & 0.27[0.2] \end{aligned}$ | $\begin{aligned} & 1.18[4.5] \\ & 0.33[0.2] \\ & \hline \end{aligned}$ | $\begin{aligned} & 1.19[4.5] \\ & 0.44[0.3] \end{aligned}$ |  | $\begin{aligned} & 0.56[2.1] \\ & 0.19[0.1] \end{aligned}$ | $\begin{aligned} & 0.88[3.3] \\ & 0.23[0.2] \end{aligned}$ | $\begin{aligned} & 0.89[3.4] \\ & 0.31[0.2] \end{aligned}$ |  | $0.38[1.4]$ $0.15[0.1]$ | $\begin{array}{r} 0.7[2.6] \\ 0.18[0.1] \\ \hline \end{array}$ | $\begin{aligned} & 0.71[2.7] \\ & 0.24[0.2] \end{aligned}$ |
| $\begin{aligned} & 3.57[13.5] \\ & 0.22[0.2] \\ & \hline \end{aligned}$ | $\begin{aligned} & 3.75[14.2] \\ & 0.32[0.2] \\ & \hline \end{aligned}$ | $\begin{aligned} & 3.77[14.3] \\ & 0.45[0.3] \\ & \hline \end{aligned}$ | $\begin{aligned} & 1.97[7.5] \\ & 0.13[0.1] \end{aligned}$ | $\begin{aligned} & 2.31[8.7] \\ & 0.13[0.1] \\ & \hline \end{aligned}$ | $\begin{aligned} & 2.49[9.4] \\ & 0.19[0.1] \\ & \hline \end{aligned}$ | $\begin{array}{r} 2.51[9.5] \\ 0.3[0.2] \end{array}$ | $\begin{aligned} & 1.34[5.1] \\ & 0.09[0.1] \end{aligned}$ | $\begin{aligned} & 1.68[6.4] \\ & 0.09[0.1] \end{aligned}$ | $\begin{aligned} & 1.86[7.0] \\ & 0.13[0.1] \end{aligned}$ | $\begin{aligned} & 1.88[7.1] \\ & 0.21[0.2] \end{aligned}$ | $\begin{aligned} & \hline 0.96[3.6] \\ & 0.07[0.1] \\ & \hline \end{aligned}$ | $\begin{array}{r} 1.3[4.9] \\ 0.07[0.1] \\ \hline \end{array}$ | $\begin{array}{r} \hline 1.48[5.6] \\ 0.1[0.1] \end{array}$ | $\begin{array}{r} 1.5[5.7] \\ 0.15[0.1] \end{array}$ |
| $\begin{aligned} & \hline 3.31[12.5] \\ & 0.46[0.3] \\ & \hline \end{aligned}$ | $\begin{gathered} 3.7[14.0] \\ 0.54[0.4] \end{gathered}$ | $\begin{aligned} & \hline 3.76 \text { [14.2] } \\ & 0.67[0.5] \\ & \hline \end{aligned}$ |  | $\begin{aligned} & 2.05[7.8] \\ & 0.28[0.2] \\ & \hline \end{aligned}$ | $\begin{aligned} & 2.44[9.2] \\ & 0.34[0.3] \\ & \hline \end{aligned}$ | $\begin{aligned} & 2.51[9.5] \\ & 0.45[0.3] \\ & \hline \end{aligned}$ |  | $\begin{array}{r} 1.42[5.4] \\ 0.2[0.1] \\ \hline \end{array}$ | $\begin{aligned} & 1.81[6.9] \\ & 0.24[0.2] \\ & \hline \end{aligned}$ | $\begin{aligned} & 1.88[7.1] \\ & 0.32[0.2] \\ & \hline \end{aligned}$ |  | $\begin{aligned} & 1.04[3.9] \\ & 0.16[0.1] \\ & \hline \end{aligned}$ | $\begin{aligned} & 1.44[5.5] \\ & 0.19[0.1] \\ & \hline \end{aligned}$ | $\begin{array}{r} 1.5[5.7] \\ 0.24[0.2] \\ \hline \end{array}$ |
| $\begin{gathered} 2.96[11.2] \\ 0.8[0.6] \\ \hline \end{gathered}$ | $\begin{aligned} & 3.64[13.8] \\ & 0.87[0.6] \\ & \hline \end{aligned}$ | $\begin{gathered} \hline 3.74[14.2] \\ 1[0.7] \\ \hline \end{gathered}$ |  | $\begin{aligned} & 1.7[6.4] \\ & 0.5[0.4] \\ & \hline \end{aligned}$ | $\begin{aligned} & 2.38[9.0] \\ & 0.56[0.4] \\ & \hline \end{aligned}$ | $\begin{array}{r} 2.5[9.5] \\ 0.67[0.5] \\ \hline \end{array}$ |  | $\begin{aligned} & 1.07[4.1] \\ & 0.37[0.3] \end{aligned}$ | $\begin{array}{r} 1.75[6.6] \\ 0.4[0.3] \\ \hline \end{array}$ | $\begin{aligned} & 1.87[7.1] \\ & 0.48[0.4] \end{aligned}$ |  |  | $\begin{aligned} & 1.37[5.2] \\ & 0.32[0.2] \\ & \hline \end{aligned}$ | $\begin{aligned} & 1.49[5.6] \\ & 0.37[0.3] \end{aligned}$ |
| $\begin{aligned} & 5.29[20.0] \\ & 0.33[0.2] \end{aligned}$ | $\begin{aligned} & 5.65[21.4] \\ & 0.45[0.3] \end{aligned}$ | $\begin{aligned} & 5.73[21.7] \\ & 0.62[0.5] \end{aligned}$ | $\begin{gathered} 2.74[10.4] \\ 0.2[0.1] \end{gathered}$ | $\begin{gathered} \hline 3.37[12.8] \\ 0.2[0.1] \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 3.73[14.1] \\ & 0.29[0.2] \\ & \hline \end{aligned}$ | $\begin{aligned} & 3.82[14.5] \\ & 0.46[0.3] \\ & \hline \end{aligned}$ | $\begin{aligned} & 1.78[6.7] \\ & 0.15[0.1] \\ & \hline \end{aligned}$ | $\begin{aligned} & 2.41[9.1] \\ & 0.15[0.1] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline .77[10.5] \\ & 0.21[0.2] \\ & \hline \end{aligned}$ | $\begin{aligned} & 2.86[10.8] \\ & 0.34[0.3] \\ & \hline \end{aligned}$ | $\begin{array}{r} 1.2[4.5] \\ 0.12[0.1] \\ \hline \end{array}$ | $\begin{aligned} & 1.83[6.9] \\ & 0.12[0.1] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 2.19[8.3] \\ & 0.17[0.1] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 2.28[8.6] \\ & 0.27[0.2] \\ & \hline \end{aligned}$ |
| $\begin{aligned} & 4.83 \text { [18.3] } \\ & 0.68[0.5] \end{aligned}$ | $5.56[21.0]$ <br> 0.77 [0.6] | 5.69 [21.5] $0.94[0.7]$ |  | $\begin{aligned} & 2.91[11.0] \\ & 0.41[0.3] \end{aligned}$ | $\begin{gathered} 3.64[13.8] \\ 0.5[0.4] \end{gathered}$ | $3.8[14.4]$ <br> 0.67 [0.5] |  | $\begin{aligned} & 1.95[7.4] \\ & 0.31[0.2] \end{aligned}$ | $\begin{aligned} & 2.68[10.1] \\ & 0.37[0.3] \end{aligned}$ | $\begin{gathered} 2.84[10.8] \\ 0.5[0.4] \end{gathered}$ |  | $\begin{aligned} & 1.37[5.2] \\ & 0.25[0.2] \end{aligned}$ | $\begin{aligned} & 2.1[7.9] \\ & 0.3[0.2] \end{aligned}$ | $\begin{gathered} 2.26[8.6] \\ 0.4[0.3] \\ \hline \end{gathered}$ |
| $\begin{aligned} & 3.8[14.4] \\ & 1.3[1.0] \end{aligned}$ | $\begin{aligned} & 5.45[20.6] \\ & 1.25[0.9] \end{aligned}$ | $\begin{aligned} & 5.65[21.4] \\ & 1.42[1.1] \end{aligned}$ |  | $\begin{aligned} & 2.44[9.2] \\ & 0.74[0.6] \end{aligned}$ | $\begin{aligned} & 3.53[13.4] \\ & 0.83[0.6] \end{aligned}$ | $\begin{gathered} 3.78[14.3] \\ 1[0.7] \end{gathered}$ |  | $\begin{aligned} & 1.48[5.6] \\ & 0.55[0.4] \end{aligned}$ | $\begin{array}{r} 2.57[9.7] \\ 0.6[0.4] \end{array}$ | $\begin{gathered} \hline 2.82[10.7] \\ 0.7[0.5] \end{gathered}$ |  |  | $\begin{array}{r} 1.99[7.5] \\ 0.5[0.4] \end{array}$ | $\begin{gathered} 2.24[8.5] \\ 0.6[0.4] \\ \hline \end{gathered}$ |

NOTE: Consult your Roper Area Sales Manager for operation in the ranges indicated by the yellow colored areas.


NOTE: An outboard ball bearing is recommended for viscosities below 40 ssu.

## A Series Dimensions

SIZE 005 THROUGH 02 (flange mounted)

| PUMP | C | R | PUMP | C | $R$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $17 A-005$ | $5-9 / 16$ <br> $[141]$ |  | $18 \mathrm{~A}-01$ |  | $6-15 / 16$ <br> $[176]$ |
| $18 \mathrm{~A}-005$ |  | $6-3 / 4$ <br> $[171]$ | $17 \mathrm{~A}-02$ | $6-3 / 16$ <br> $[157]$ |  |
| $17 \mathrm{~A}-01$ | $5-13 / 16$ <br> $[148]$ |  | $18 \mathrm{~A}-02$ |  | $7-3 / 8$ <br> $[187]$ |



SIZE 06 THROUGH 16 (foot mounted)

| PUMP | C | R | PUMP | $C$ | $R$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $1 A-06$ | $10-15 / 32$ <br> $[266]$ |  | $1 A-12$ | $11-5 / 16$ <br> $[287]$ |  |
| $2 A-06$ |  | $12-5 / 32$ <br> $[309]$ | $2 A-12$ |  | 13 <br> $[330]$ |
| $1 A-08$ | $10-3 / 4$ <br> $[273]$ |  | $1 A-16$ | $11-7 / 8$ <br> $[301]$ |  |
| $2 A-08$ |  | $12-7 / 16$ <br> $[316]$ | $2 A-16$ |  | $13-9 / 16$ <br> $[344]$ |



SIZE 21 THROUGH 40 (foot mounted)
$\left.\begin{array}{|c|c|c|c|c|c|c|}\hline \text { PUMP } & \text { B } & \text { C } & \text { F } & \mathrm{N}-\mathrm{M} & \mathrm{R} & \mathrm{S} \\ \hline 1 \mathrm{~A}-21 & \begin{array}{c}3 \\ {[76]}\end{array} & \begin{array}{c}12-5 / 8 \\ {[321]}\end{array} & \begin{array}{c}1 \\ {[25]}\end{array} & \begin{array}{c}9 \\ {[229]}\end{array} & & \begin{array}{c}1-1 / 2 \\ {[38]}\end{array} \\ \hline 2 \mathrm{~A}-21 & \begin{array}{c}3 \\ {[76]}\end{array} & & \begin{array}{c}1 \\ {[25]}\end{array} & \begin{array}{c}9 \\ {[229]}\end{array} & \begin{array}{c}14-5 / 16 \\ {[364]}\end{array} & \begin{array}{c}1-1 / 2 \\ {[38]}\end{array} \\ \hline 1 \mathrm{~A}-27 & \begin{array}{c}3-3 / 4 \\ {[95]}\end{array} & \begin{array}{c}13-3 / 8 \\ {[340]}\end{array} & \begin{array}{c}1-3 / 8 \\ {[35]}\end{array} & \begin{array}{c}9-3 / 8 \\ {[238]}\end{array} & & \begin{array}{c}2 \\ {[51]}\end{array} \\ \hline 2 \mathrm{~A}-27 & \begin{array}{c}3-3 / 4 \\ {[95]}\end{array} & \begin{array}{c}1-3 / 8 \\ {[35]}\end{array} & \begin{array}{c}9-3 / 8 \\ {[238]}\end{array} & \begin{array}{c}15-1 / 16 \\ {[382]}\end{array} & \begin{array}{c}2 \\ {[51]}\end{array} \\ \hline 1 \text { A-32 } & \begin{array}{c}4-1 / 2 \\ {[114]}\end{array} & \begin{array}{c}14-1 / 8 \\ {[359]}\end{array} & \begin{array}{c}1-3 / 4 \\ {[44]}\end{array} & \begin{array}{c}9-3 / 4 \\ {[248]}\end{array} & & \begin{array}{c}2 \\ {[51]}\end{array} \\ \hline 2 \mathrm{~A}-32 & \begin{array}{c}4-1 / 2 \\ {[114]}\end{array} & & \begin{array}{c}1-3 / 4 \\ {[44]}\end{array} & \begin{array}{c}9-3 / 4 \\ {[248]}\end{array} & 15-13 / 16 \\ {[402]}\end{array} \begin{array}{c}2 \\ {[51]}\end{array}\right]$


## SIZE 003 (flange mounted)



SIZE 003 (foot mounted)


## SIZE 06 THROUGH 16 (flange mounted)

| PUMP | $C$ | $R$ | PUMP | $C$ | $R$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $17 A-06$ | $6-25 / 32$ <br> $[172]$ |  | $17 A-12$ | $7-5 / 8$ <br> $[194]$ |  |
| $18 A-06$ |  | $8-15 / 32$ <br> $[215]$ | $18 \mathrm{~A}-12$ |  | $9-5 / 16$ <br> $[237]$ |
| $17 \mathrm{~A}-08$ | $7-1 / 16$ <br> $[179]$ |  | $17 \mathrm{~A}-16$ | $8-3 / 16$ <br> $[208]$ |  |
| $18 \mathrm{~A}-08$ |  | $8-3 / 4$ <br> $[222]$ | $18 \mathrm{~A}-18$ |  | $9-3 / 4$ <br> $[248]$ |



SIZE 21 THROUGH 40 (flange mounted)

| PUMP | C | B-G | R | S |
| :---: | :---: | :---: | :---: | :---: |
| 17A-21 | $8-15 / 16$ <br> $[227]$ | $5-5 / 16$ <br> $[135]$ |  | $1-1 / 2$ <br> $[38]$ |
| $18 A-21$ |  | $5-5 / 16$ <br> $[135]$ | $10-5 / 8$ <br> $[270]$ | $1-1 / 2$ <br> $[38]$ |
| $17 A-27$ | $9-11 / 16$ <br> $[246]$ | $5-11 / 16$ <br> $[144]$ |  | 2 <br> $[51]$ |
| $18 A-27$ |  | $5-11 / 16$ <br> $[144]$ | $11-3 / 8$ <br> $[289]$ | 2 <br> $[51]$ |
| $17 A-32$ | $10-7 / 16$ <br> $[265]$ | $6-1 / 16$ <br> $[154]$ |  | 2 <br> $[51]$ |
| $18 A-32$ |  | $6-1 / 16$ <br> $[154]$ | $12-1 / 8$ <br> $[308]$ | 2 <br> $[51]$ |
| $17 A-40$ | $10-7 / 16$ <br> $[265]$ | $6-1 / 16$ <br> $[154]$ |  | 2 <br> $[51]$ |
| $18 A-40$ |  | $6-1 / 16$ <br> $[154]$ | $12-1 / 8$ <br> $[308]$ | 2 <br> $[51]$ |



# AE Series Pumps <br> <br> ROOER <br> <br> ROOER <br> <br> PUMPS 

 <br> <br> PUMPS}

Low Pressure • Capacities to 130 GPM Pressures to 300 PSI

Roper AE Series pumps are well suited to applications where a compact and quiet unit is required, such as hydraulic lift applications. Bearings and wear-plates are special wear-resistant, high lead bronze. The pumping gears are accurately machined to run quietly and smoothly.

They can be operated at various speeds, depending on the conditions of installation.

## MATERIALS OF CONSTRUCTION

## Standard Fitted

Housing............................................ Cast Iron
Gears................................................ Hardened Steel
Bearings............................................ Bronze
Shafts $\qquad$ Hardened Steel

## SIZES AVAILABLE

| 19 | 019 Gallons Per Revolution |
| :---: | :---: |
| 29 | . 029 Gallons Per Revolution |
| 54 | . 054 Gallons Per Revolution |
| 75 | . 075 Gallons Per Revolution |


| SIZE | RPM |  | 3600 RPM |  |  | 1800 RPM |  |  | 1200 RPM |  |  |  | 900 RPM |  |  |  | 720 RPM |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Pump | $\begin{array}{\|l\|} \hline \text { PSI } \\ \text { [bar] } \end{array}$ | SSU | 30 | 100 | 1000 | 30 | 100 | 1000 | 30 | 100 | 1000 | 10,000 | 30 | 100 | 100 | 10,000 | 30 | 100 | 1000 | 10,000 |
| 19 | $\begin{array}{\|c\|} \hline 50 \\ {[3.5]} \\ \hline \end{array}$ | GPM [//min] HP [KW] | $\begin{aligned} & 60[227] \\ & 3.9[2.9] \\ & \hline \end{aligned}$ | $\begin{aligned} & 63[238] \\ & 3.9[2.9] \\ & \hline \end{aligned}$ | $\begin{array}{r} \hline 64[242] \\ 3.9[5.1] \\ \hline \end{array}$ | $\begin{array}{\|c\|c\|} \hline 28[106] \\ 1.5[1.1] \\ \hline \end{array}$ | $\begin{array}{r} \hline 31[117] \\ 1.5[1.1] \\ \hline \end{array}$ | $\begin{aligned} & 32[121] \\ & 2.2[1.6] \\ & \hline \end{aligned}$ | $\begin{aligned} & 17[64] \\ & 1.1[0.8] \\ & \hline \end{aligned}$ | $\begin{gathered} 20[76] \\ 1.1[0.8] \\ \hline \end{gathered}$ | $\begin{gathered} 21[79] \\ 1.3[1.0] \\ \hline \end{gathered}$ | $\begin{aligned} & 22[83] \\ & 2.2 \text { [1.6] } \\ & \hline \end{aligned}$ | $\begin{aligned} & 11[42] \\ & 0.8[0.6] \\ & \hline \end{aligned}$ | $\begin{aligned} & 14[53] \\ & 0.8[0.6] \\ & \hline \end{aligned}$ | $\begin{gathered} 15[57] \\ 1.0[0.7] \\ \hline \end{gathered}$ | $\begin{gathered} 16[61] \\ 1.5[1.1] \\ \hline \end{gathered}$ | $\begin{array}{r} 7[26] \\ 0.6[0.4] \\ \hline \end{array}$ | $\begin{gathered} 10[38] \\ 0.6[0.4] \\ \hline \end{gathered}$ | $\begin{array}{l\|} \hline 11[42] \\ 0.8[0.6] \\ \hline \end{array}$ | $\begin{array}{lll} \hline 12 & {[45]} \\ 1.2 & 0.9] \\ \hline \end{array}$ |
|  | $\begin{array}{\|l\|} \hline 100 \\ \text { [6.9] } \\ \hline \end{array}$ | $\begin{gathered} \text { GPM [//min] } \\ \mathrm{HP}[\mathrm{KW}] \end{gathered}$ | $\begin{gathered} \hline 58[220] \\ 5.8[4.3] \\ \hline \end{gathered}$ | $\begin{gathered} \hline 62[235] \\ 5.8[4.3] \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 63[238] \\ & 8.8[6.6] \\ & \hline \end{aligned}$ | $\begin{array}{ll\|} \hline 26[98] \\ 2.4 & {[1.8]} \\ \hline \end{array}$ | $\begin{array}{r} 30[114] \\ 2.4[1.8] \\ \hline \end{array}$ | $\begin{aligned} & 31[117] \\ & 3.1[2.3] \\ & \hline \end{aligned}$ | $\begin{array}{r} 15[57] \\ 1.8[1.3] \\ \hline \end{array}$ | $\begin{gathered} 19[72] \\ 1.8[1.3] \\ \hline \end{gathered}$ | $\begin{gathered} 20[76] \\ 2.0[1.5] \\ \hline \end{gathered}$ | $\begin{array}{r} 21[79] \\ 2.9[2.2] \\ \hline \end{array}$ | $\begin{array}{r} 9[34] \\ 1.3[1.0] \end{array}$ | $\begin{array}{r} 13[49] \\ 1.3[1.0] \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 14[53] \\ 1.5[1.1] \\ \hline \end{array}$ | $\begin{array}{r} 15[57] \\ 2.0[1.5] \\ \hline \end{array}$ | $\begin{array}{r} 5[19] \\ 1.0[0.7] \\ \hline \end{array}$ | $\begin{array}{r} 9[34] \\ 1.0[0.7] \\ \hline \end{array}$ | $\begin{gathered} 10[38] \\ 1.2[0.9] \\ \hline \end{gathered}$ | $\begin{gathered} \hline 11[42] \\ 1.6[1.2] \\ \hline \end{gathered}$ |
|  | $\begin{array}{\|c} \hline 200 \\ {[13.8]} \\ \hline \end{array}$ | GPM [1/min] HP [KW] |  | $\begin{aligned} & \hline 59[223] \\ & 9.6[7.2] \\ & \hline \end{aligned}$ | $\begin{array}{\|r\|} \hline 62[235] \\ 12.6[9.4] \\ \hline \end{array}$ |  | $\begin{array}{r} 27[102] \\ 4.3[3.2] \\ \hline \end{array}$ | $\begin{gathered} 30[114] \\ 5.0[3.7] \\ \hline \end{gathered}$ |  | $\begin{aligned} & \hline 16[61] \\ & 3.1[2.3] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 19[72] \\ & 3.3[2.5] \\ & \hline \end{aligned}$ | $\begin{array}{r} 20[76] \\ 4.2[3.1] \\ \hline \end{array}$ |  | $\begin{array}{r} \hline 10[38] \\ 2.3[1.7] \\ \hline \end{array}$ | $\begin{gathered} 13[49] \\ 2.5[1.9] \end{gathered}$ | $\begin{aligned} & 14[53] \\ & 3.0[2.2] \\ & \hline \end{aligned}$ |  | $\begin{array}{r} 6[23] \\ 1.7[1.3] \\ \hline \end{array}$ | $\begin{array}{r} \hline 9[34] \\ 1.9[1.4] \\ \hline \end{array}$ | $\begin{aligned} & 10[38] \\ & 2.3[1.7] \\ & \hline \end{aligned}$ |
|  | $\begin{array}{\|c} 300 \\ {[20.7]} \end{array}$ | GPM [//min] HP [KW] |  |  | $\begin{array}{\|r\|} \hline 61[231] \\ 16.5[12.3] \\ \hline \end{array}$ |  |  | $\begin{gathered} 29[10] \\ 7.0[5.2] \end{gathered}$ |  |  | $\begin{gathered} \hline 18[68] \\ 4.6[3.4] \end{gathered}$ | $\begin{gathered} 19[72] \\ 5.5[4.1] \end{gathered}$ |  |  | $\begin{aligned} & \hline 12[45] \\ & 3.5[2.6] \end{aligned}$ | $\begin{aligned} & 13[49] \\ & 4.0[3.0] \end{aligned}$ |  |  | $\begin{array}{\|r\|} \hline 8[30] \\ 2.7[2.0] \end{array}$ | $\begin{array}{r} 9[34] \\ 3.1[2.3] \end{array}$ |
| $29$ | $\begin{gathered} 50 \\ {[3.5]} \\ \hline \end{gathered}$ | GPM [//min] HP [KW] | $\begin{gathered} 98[371] \\ 7.8[5.8] \\ \hline \end{gathered}$ | $\begin{aligned} & 102[386] \\ & 7.8[5.8] \end{aligned}$ | $\begin{array}{\|l\|} \hline 105[397] \\ 12.0[8.9] \\ \hline \end{array}$ | $\begin{array}{r} \hline 45[170] \\ 2.7[2.0] \\ \hline \end{array}$ | $\begin{array}{r} 49[185] \\ 2.7[2.0] \\ \hline \end{array}$ | $\begin{aligned} & \hline 52[197] \\ & 3.7[2.8] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 28[106] \\ & 1.6[1.2] \\ & \hline \end{aligned}$ | $\begin{gathered} \hline 31[117] \\ 1.6[1.2] \\ \hline \end{gathered}$ | $\begin{gathered} \hline 34[129] \\ 2.1[1.6] \\ \hline \end{gathered}$ | $\begin{array}{\|r\|} \hline 34.5[131] \\ 3.3[2.5] \\ \hline \end{array}$ | $\begin{gathered} 19[72] \\ 1.0[0.7] \\ \hline \end{gathered}$ | $\begin{gathered} 22[83] \\ 1.0[0.7] \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline 25[95] \\ 1.3[1.0] \\ \hline \end{array}$ | $\begin{array}{\|r\|} \hline 25.5[97] \\ 2.1[1.6] \\ \hline \end{array}$ | $\begin{array}{\|r\|} \hline 14[5.3] \\ 0.75[0.6] \\ \hline \end{array}$ | $\begin{array}{\|r\|} \hline 17[64] \\ 0.75[0.6] \\ \hline \end{array}$ | $\begin{array}{\|r\|} \hline 20[76] \\ 0.95[0.7] \\ \hline \end{array}$ | $\begin{array}{\|r\|} \hline 20.5[78] \\ 1.4[1.0] \\ \hline \end{array}$ |
|  | $\begin{array}{c\|} \hline 100 \\ {[6.9]} \\ \hline \end{array}$ | $\begin{gathered} \hline \text { GPM }[/ / \mathrm{min}] \\ \mathrm{HP}[\mathrm{KW}] \\ \hline \end{gathered}$ | $\begin{array}{\|r} \hline 95[360] \\ 17.0[12.7] \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 100[379] \\ 12.0[8.9] \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline 104[394] \\ 15.0[11.4] \\ \hline \end{array}$ | $\begin{aligned} & \hline 42[159] \\ & 6.5[4.8] \\ & \hline \end{aligned}$ | $\begin{array}{r} \hline 47[178] \\ 5.0[3.7] \\ \hline \end{array}$ | $\begin{array}{r} 51[193] \\ 5.5[4.1] \\ \hline \end{array}$ | $\begin{array}{r} 24[91] \\ 2.8[2.1] \\ \hline \end{array}$ | $\begin{gathered} 29[110] \\ 2.6[1.9] \end{gathered}$ | $\begin{aligned} & 33[125] \\ & 3.1[2.3] \\ & \hline \end{aligned}$ | $\begin{array}{\|r\|} \hline 34.3[130] \\ 4.3[3.2] \\ \hline \end{array}$ | $\begin{array}{r} 15[57] \\ 2.2[1.6] \\ \hline \end{array}$ | $\begin{gathered} 20[76] \\ 2.0[1.5] \\ \hline \end{gathered}$ | $\begin{gathered} \hline 24[91] \\ 2.3[1.7] \\ \hline \end{gathered}$ | $\begin{array}{\|r\|} \hline 25.3[96] \\ 3.1[2.3] \\ \hline \end{array}$ |  | $\begin{array}{\|c\|c\|} \hline 15[57] \\ 1.5[1.1]] \\ \hline \end{array}$ | $\begin{array}{\|c\|c\|} \hline 19[72] \\ 1.7[1.3] \\ \hline \end{array}$ | $\begin{array}{\|r\|} \hline 20.3[77] \\ 2.2[1.6] \\ \hline \end{array}$ |
|  | $\begin{gathered} 200 \\ {[13.8]} \\ \hline \end{gathered}$ | GPM [1/min] HP [KW] |  | $\begin{array}{\|r\|} \hline 96[363] \\ 18.0[13.4] \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline 103[390] \\ 22.0[16.4] \\ \hline \end{array}$ |  | $\begin{aligned} & \hline 43[163] \\ & 9.0[6.7] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 50[189] \\ & 9.5[7.1] \\ & \hline \end{aligned}$ |  | $\begin{gathered} \hline 25[95] \\ 5.0[3.7] \\ \hline \end{gathered}$ | $\begin{aligned} & 32[121] \\ & 5.5[4.1] \\ & \hline \end{aligned}$ | $\begin{array}{\|r\|} \hline 34.1[129] \\ 6.6[4.9] \\ \hline \end{array}$ |  | $\begin{aligned} & \hline 16[61] \\ & 3.9[2.9] \\ & \hline \end{aligned}$ | $\begin{aligned} & 23[87] \\ & 4.2[3.1] \\ & \hline \end{aligned}$ | $\begin{array}{\|r\|} \hline 25.1[95] \\ 4.9[3.7] \\ \hline \end{array}$ |  |  | $\begin{aligned} & 18[68] \\ & 3.1[2.3] \\ & \hline \end{aligned}$ | $\begin{array}{\|c\|} \hline 20.1[76] \\ 3.7 \\ \hline \end{array}$ |
|  | $\begin{gathered} 300 \\ {[20.7]} \\ \hline \end{gathered}$ | GPM [1/min] HP [KW] |  |  | $\begin{array}{\|l\|} \hline 102[386] \\ 29.0[21.6] \\ \hline \end{array}$ |  |  | $\begin{array}{r} 49[185] \\ 13.5[10.1] \end{array}$ |  |  | $\begin{aligned} & 31[117] \\ & 8.5[6.3] \end{aligned}$ | $\begin{aligned} & 34[129] \\ & 9.6[7.2] \end{aligned}$ |  |  | $\begin{gathered} 22[83] \\ 5.9[4.4] \\ \hline \end{gathered}$ | $\begin{aligned} & 25[95] \\ & 6.6[4.9] \end{aligned}$ |  |  |  | $\begin{array}{cc} \hline 20 & {[76]} \\ 5.1 & {[3.8]} \\ \hline \end{array}$ |
| 54 | $\begin{gathered} 50 \\ {[3.5]} \\ \hline \end{gathered}$ | GPM [//min] HP [KW] |  |  |  | $\begin{aligned} & 83[314] \\ & 4.5[3.4] \\ & \hline \end{aligned}$ | $\begin{aligned} & 93[352] \\ & 4.5[3.4] \end{aligned}$ | $\begin{gathered} 100[379] \\ 6.2[4.6] \end{gathered}$ | $\begin{aligned} & 50[189] \\ & 3.1[2.3] \\ & \hline \end{aligned}$ | $\begin{gathered} \hline 60[227] \\ 3.1[2.3] \\ \hline \end{gathered}$ | $\begin{aligned} & \hline 67[254] \\ & 3.7[2.8] \\ & \hline \end{aligned}$ | $\begin{gathered} 68[257] \\ 5.3[4.0] \\ \hline \end{gathered}$ | $\begin{gathered} 31[117]] \\ 2.4[1.8] \end{gathered}$ | $\begin{aligned} & 41[155] \\ & 2.4[1.8] \end{aligned}$ | $\begin{aligned} & 48[182] \\ & 2.8[2.1] \end{aligned}$ | $\begin{aligned} & 49 \quad[1 \\ & 3.8[2.8] \end{aligned}$ | $\begin{gathered} 22[83] \\ 1.5[1.1] \end{gathered}$ | $\begin{gathered} \hline 32[121] \\ 1.5[1.1] \end{gathered}$ | $\begin{gathered} \hline 39[148] \\ 1.9[1.4] \end{gathered}$ | $\begin{aligned} & \hline 40[151] \\ & 2.8[2.1] \end{aligned}$ |
|  | $\begin{array}{\|l\|} \hline 100 \\ \text { [6.9] } \\ \hline \end{array}$ | $\begin{gathered} \text { GPM [//min] } \\ \mathrm{HP}[\mathrm{KW}] \end{gathered}$ |  |  |  | $\begin{array}{\|r\|} \hline 71[269] \\ 12.0[8.9] \\ \hline \end{array}$ |  |  | $\begin{aligned} & 40[151] \\ & 5.1[3.8] \end{aligned}$ | $\begin{gathered} 54[204] \\ 4.9[3.7] \\ \hline \end{gathered}$ | $\begin{gathered} 65[246] \\ 5.6[4.2] \\ \hline \end{gathered}$ | $\begin{aligned} & 67[254] \\ & 7.3[5.4] \end{aligned}$ | $\begin{aligned} & 20[76] \\ & 3.8[2.8] \end{aligned}$ | $\begin{aligned} & 35[132] \\ & 3.6[2.7] \\ & \hline \end{aligned}$ | $\begin{aligned} & 46[174] \\ & 4.0[3.0] \end{aligned}$ | $\begin{gathered} 48[182] \\ 5.0[3.7] \\ \hline \end{gathered}$ |  | $\begin{array}{ll} \hline 26[98] \\ 2.8[2.1] \end{array}$ | $\begin{aligned} & 37[140] \\ & 3.1[2.3] \end{aligned}$ | $\begin{aligned} & 39[148] \\ & 4.0[3.0] \\ & \hline \end{aligned}$ |
|  | $\begin{array}{\|c} \hline 200 \\ {[13.8]} \\ \hline \end{array}$ | $\begin{gathered} \text { GPM [1/min] } \\ \text { HP [KW] } \\ \hline \end{gathered}$ |  |  |  |  |  |  |  | $\begin{aligned} & \hline 44[167] \\ & 9.6[7.2] \\ & \hline \end{aligned}$ | $\begin{array}{\|r} \hline 62[235] \\ 11.0[8.2] \end{array}$ | $\begin{array}{\|r\|} \hline 66[250] \\ 12.0[8.9] \\ \hline \end{array}$ |  | $\begin{array}{r} 25[95] \\ 7.5[5.6] \\ \hline \end{array}$ | $\begin{aligned} & 43[163] \\ & 8.0[6.0] \end{aligned}$ | $\begin{aligned} & \hline 47[178] \\ & 9.0[6.7] \\ & \hline \end{aligned}$ |  |  | $\begin{aligned} & 35[132] \\ & 5.8[4.3] \\ & \hline \end{aligned}$ | $\begin{gathered} 38[144] \\ 6.2[4.6] \\ \hline \end{gathered}$ |
|  | $\begin{array}{\|c} \hline 300 \\ {[20.7]} \\ \hline \end{array}$ | $\begin{gathered} \text { GPM [//min] } \\ \mathrm{HP}[\mathrm{KW}] \end{gathered}$ |  |  |  |  |  |  |  |  | $\begin{array}{\|r} \hline 60[227] \\ 16.0[11.9] \end{array}$ | $\begin{array}{\|r\|} \hline 65[246] \\ 17.0[12.7] \\ \hline \end{array}$ |  |  | $\begin{array}{\|r\|} \hline 40[151] \\ 11.0[8.2] \\ \hline \end{array}$ | $\begin{array}{\|r\|} \hline 46[174] \\ 12.0[8.9] \\ \hline \end{array}$ |  |  |  | $\begin{aligned} & \hline 37[140] \\ & 9.0[6.7] \\ & \hline \end{aligned}$ |
| $75$ | $\begin{array}{\|c\|} \hline 50 \\ {[3.5]} \\ \hline \end{array}$ | GPM [//min] HP [KW] |  |  |  |  |  |  | $\begin{aligned} & \hline 65[246] \\ & 3.8[2.8] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 77[291] \\ & 3.8[2.8] \\ & \hline \end{aligned}$ | $\begin{gathered} \hline 86[326 \\ 4.5[3.4] \\ \hline \end{gathered}$ | $\begin{aligned} & 88[333] \\ & 7.0[5.2] \end{aligned}$ | $\begin{aligned} & \hline 43[163] \\ & 3.0[2.2] \end{aligned}$ | $\begin{aligned} & 54[204] \\ & 3.0[2.2] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 64[242] \\ & 3.6[2.7] \\ & \hline \end{aligned}$ | $\begin{gathered} 67[254] \\ 5.1[3.8] \\ \hline \end{gathered}$ |  | $\begin{aligned} & \hline 40[151] \\ & 2.2[1.6] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 49[185] \\ & 2.7[2.0] \end{aligned}$ | $\begin{aligned} & \hline 52[197] \\ & 3.6[2.7] \\ & \hline \end{aligned}$ |
|  | $\begin{gathered} \hline 100 \\ {[6.9]} \\ \hline \end{gathered}$ | GPM [//min] HP [KW] |  |  |  |  |  |  | $\begin{aligned} & \hline 49[185] \\ & 7.5[5.6 \\ & \hline \end{aligned}$ | $\begin{gathered} 68[257] \\ 7.0[5.2] \\ \hline \end{gathered}$ | $\begin{aligned} & 83[314] \\ & 8.5[6.3] \\ & \hline \end{aligned}$ | $\begin{array}{\|r\|} \hline 87[329] \\ 10.0[7.5] \\ \hline \end{array}$ | $\begin{aligned} & 27[102] \\ & 5.8[4.3] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 46[174] \\ & 5.6[4.2] \\ & \hline \end{aligned}$ | $\begin{gathered} 61[231] \\ 6.0[4.5] \\ \hline \end{gathered}$ | $\begin{gathered} 66[250] \\ 8.0[6.0] \\ \hline \end{gathered}$ |  | $\begin{aligned} & 31[117] \\ & 4.2[3.1] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 47[178] \\ & 4.7[3.5] \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 51[193] \\ & 5.6[4.2] \\ & \hline \end{aligned}$ |
|  | $\begin{array}{\|c} \hline 200 \\ {[13.8]} \\ \hline \end{array}$ | $\begin{gathered} \text { GPM [1/min] } \\ \text { HP [KW] } \\ \hline \end{gathered}$ |  |  |  |  |  |  |  | $\begin{array}{r} 52[197] \\ 13.0[9.7] \\ \hline \end{array}$ | $\begin{array}{\|r\|} \hline 79[299] \\ 14.0[10.4] \\ \hline \end{array}$ | $\begin{array}{\|r\|} \hline 86[326] \\ 16.0[11.9] \\ \hline \end{array}$ |  | $\begin{aligned} & \hline 30[114] \\ & 9.5[7.1] \\ & \hline \end{aligned}$ | $\begin{array}{r} 57[216] \\ 10.0[7.5] \\ \hline \end{array}$ | $\begin{array}{\|r\|} \hline 65[246] \\ 11.0[8.2] \\ \hline \end{array}$ |  |  | $\begin{aligned} & \hline 42[159] \\ & 7.6[5.7] \end{aligned}$ | $\begin{aligned} & 50[189] \\ & 8.6[6.4] \\ & \hline \end{aligned}$ |
|  | $\begin{array}{\|c} \hline 300 \\ {[20.7]} \\ \hline \end{array}$ | GPM [1/min] HP [KW] |  |  |  |  |  |  |  |  | $\begin{array}{\|r\|} \hline 76[288] \\ 20.0[14.9] \end{array}$ | $\begin{array}{\|r\|} \hline 85[322] \\ 22.0[16.4] \\ \hline \end{array}$ |  |  | $\begin{array}{r} 54[204] \\ 15.0[11.2] \\ \hline \end{array}$ | $\begin{array}{\|r\|} \hline 64[242] \\ 16.0[11.9] \\ \hline \end{array}$ |  |  |  | $\begin{array}{\|r\|} \hline 49[185] \\ 13.0[9.7] \\ \hline \end{array}$ |

NOTE: Consult your local Roper Pump Company representative for operation in the range indicated by the yellow colored areas.

## AE Series Dimensions

SIZE 19 THROUGH 29 (foot mounted)


SIZE 54 (foot mounted)


SIZE 75 (foot mounted)


## THE LEADING FORCE behind liquids ${ }^{T M}$ 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.


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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.


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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.


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

## Roper Pump Company

PO Box 269, 3475 Old Maysville Road 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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