

MOTOR SPEED PRODUCT LINE: STAINLESS STEEL PUMPS

4197 Series™, 4197-SEP Series™

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SERIES DESCRIPTION

Viking's Motor Speed Product Line internal gear pumps are available in capacities up to 75 GPM. These pumps can be furnished directly connected to a 50 Hz or 60 Hz motor.

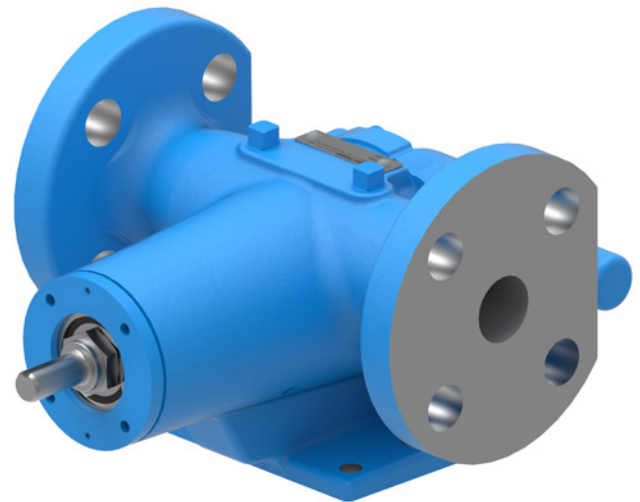
4197 Series™ and 4197-SEP Series™ pumps are designed for foot type horizontal mounting. These pumps are built for continuous or intermittent duty for such applications as filtering, circulating, transferring or booster service in general industrial, petrochemical, and other industries. The 4197-SEP Series™ pumps are specially fit with low temperature materials suitable for subzero solvent transfer or circulation applications. They are also assembled and tested using only food grade liquids.

Both pump series are furnished as standard with mechanical seal construction to minimize liquid loss and for shaft protection. The thrust control provides micrometer adjustments for accurate rotor and shaft positioning to help you keep operating with new-pump efficiency through years of heavy duty service.

RELATED PRODUCTS

Cast Iron, 495 Series™ / Series™ 4195 Series:
Catalog Section 1441

Steel Externals, 493 Series™ / Series™ 4193 Series:
Catalog Section 1341



GG4197

OPERATING RANGE

| SERIES | NOMINAL FLOW | | MAXIMUM PRESSURE* | | TEMPERATURE RANGE | | VISCOSITY RANGE* | |
|------------------|--------------|------------------|-------------------|-----|-------------------|-------------|------------------|------------|
| | GPM | m ³ h | PSI | Bar | °F | °C | SSU | cSt |
| 4197 Series™ | 7 - 75 | 1.8 - 17 | 200 | 14 | 0 to +350 | -20 to +175 | 28 to 25,000 | 1 to 5,500 |
| 4197-SEP Series™ | 2 - 75 | 0.5 - 17 | 200 | 14 | -95 to +225 | -70 to +105 | 28 to 5,000 | 1 to 1,100 |

* 200 PSI (14 BAR) for above 750 SSU (162 cSt), 150 PSI (10 BAR) for 100 to 750 SSU (20 to 162 cSt), 100 PSI (7 BAR) for 38 to 100 SSU (3 to 20 cSt), 75 PSI (5 BAR) for below 38 SSU (3 cSt)

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FEATURES & BENEFITS

- Ball Bearings Standard
 - » Pumps are equipped with inner casing ball bearing installed outside of mechanical seal and a radial thrust ball bearing permitting heavy-duty service up to 200 PSI (14 BAR). Bearings are “Sealed for Life”.
- Integral Over-Pressure Relief Valve Standard
 - » Permits bypassing of liquid from discharge to suction side of pump. Prevents build up of pressure in discharge line. GG, HJ and HL size valve mounts on pump head. AS, AK and AL size valve mounts on pump casing.
- Mechanical Seal Standard
 - » All 4197 Series™ and 4197-SEP Series™ pumps are furnished with a positive drive mechanical seal. The seal is a simple, self-adjusting, non-leak method of shaft sealing. It is especially suited for handling liquids such as alcohols, solvents, etc.
- Stainless Steel Pumping Elements Standard
 - » Internal pumping gears are constructed of Type 316 and Type 770 Stainless Steel Alloy. This allows high speed, non-galling operation, handling all types of liquids up to 25,000 SSU (5,500 cSt). PPS composite idlers are also available for thin liquid applications.

STANDARD MATERIALS OF CONSTRUCTION

| Component | Standard Material |
|-----------------------|--|
| Casing | Stainless Steel, ASTM A743, Grade CF8M |
| Head | Stainless Steel, ASTM A743, Grade CF8M |
| Rotor | Stainless Steel, ASTM A743, Grade CF8M, Case Hardened |
| Idler | 770 Stainless Steel Alloy |
| Rotor Shaft | Stainless Steel, ASTM A276 Type XM-19 or 316 Condition B |
| Idler Pin | Hard coated Stainless Steel, ASTM A276 Type 316, Colmonoy #6 Coated |
| Idler Bushing | Carbon Graphite |
| Pressure Relief Valve | Stainless Steel, ASTM A723, Grade CF8M |
| Mechanical Seal | 4197 Series™: Stainless Steel, PTFE, Carbon Graphite & Silicon Carbide 4197-SEP Series™: Stainless Steel, Fluorosilicone, Carbon Graphite & Silicon Carbide |

SPECIFICATIONS

| Model Number | Standard Ports | | ③ Nominal Pump Rating (100 SSU & below) | | | | | | ① Maximum Differential Pressure* | | ④ Maximum Hydrostatic Pressure | | ②⑤ Maximum Temperature | | Approximate Shipping Weight with Valve | | | |
|-----------------------|----------------|-------------------|---|------|------|-------|------|------|----------------------------------|-----|--------------------------------|-----|------------------------|-----|--|-----|-----|----|
| | Port Size | Port Type | 60 Hz | | | 50 Hz | | | PSIG | BAR | PSIG | BAR | °F | °C | Lbs. | Kg. | | |
| | Inches | | GPM | m³/h | RPM | GPM | m³/h | RPM | | | | | | | | | | |
| GG4197 GG4197-SEP1 | 1 | Class 150 Flanged | 10 | 2.3 | 1750 | 8 | 1.9 | 1450 | 200 | 14 | 400 | 27 | 350 | 175 | 20 | 9 | | |
| HJ4197 HJ4197-SEP1 | 1½ | | 20 | 4.5 | | 17 | 3.8 | | | | | | | | 50 | 23 | | |
| HL4197 HL4197-SEP1 | | | 30 | 6.8 | | 25 | 5.6 | | | | | | | | 115 | 52 | | |
| AS4197 AS4197-SEP1 | 3 | | 35 | 8 | 1150 | 45 | 10 | | | | | | | | | | 120 | 55 |
| AK4197 AK4197-SEP1 | | | 50 | 11 | | 70 | 16 | | | | | | | | | | | |
| AL4197 AL4197-SEP1 | | | 75 | 17 | | 95 | 22 | | | | | | | | | | | |

① If suction pressure exceeds 100 PSI (7 BAR), consult factory.

② Standard PTFE seal from 0°F to +350°F (-20°C to +175°C). Extra clearances are required above 225°F (105°C).

③ Nominal capacities based on handling thin liquids at 1800 RPM on GG, HJ and HL sizes, 1200 RPM on AS, AK and AL sizes.

④ Maximum hydrostatic pressure for standard pump construction. Rating is dependent on seal, gaskets and ports.

⑤ 4197-SEP1 Fluorosilicone seal from -95°F to +225°F (-70°C to +105°C)

* 200 PSI (14 BAR) for above 750 SSU (162 cSt),

150 PSI (10 BAR) for 100 to 750 SSU (20 to 162 cSt),

100 PSI (7 BAR) for 38 to 100 SSU (3 to 20 cSt),

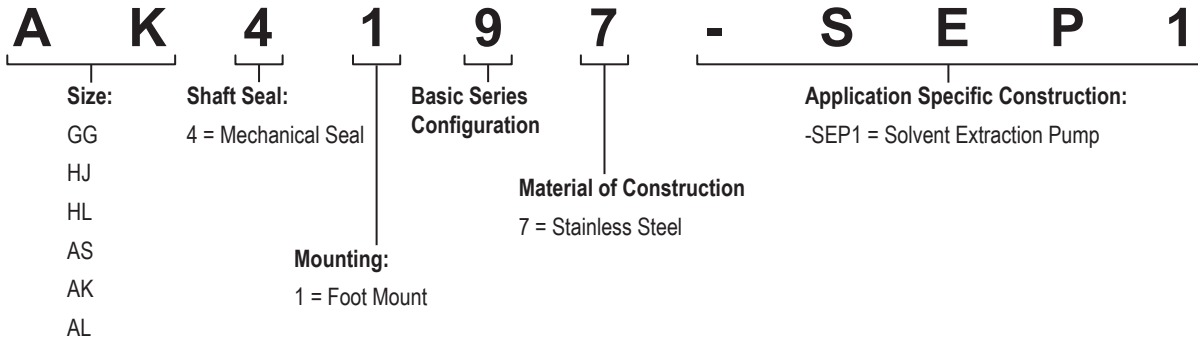
75 PSI (5 BAR) for below 38 SSU (3 cSt) (solvents, alcohols, aqueous solutions and similar liquids)

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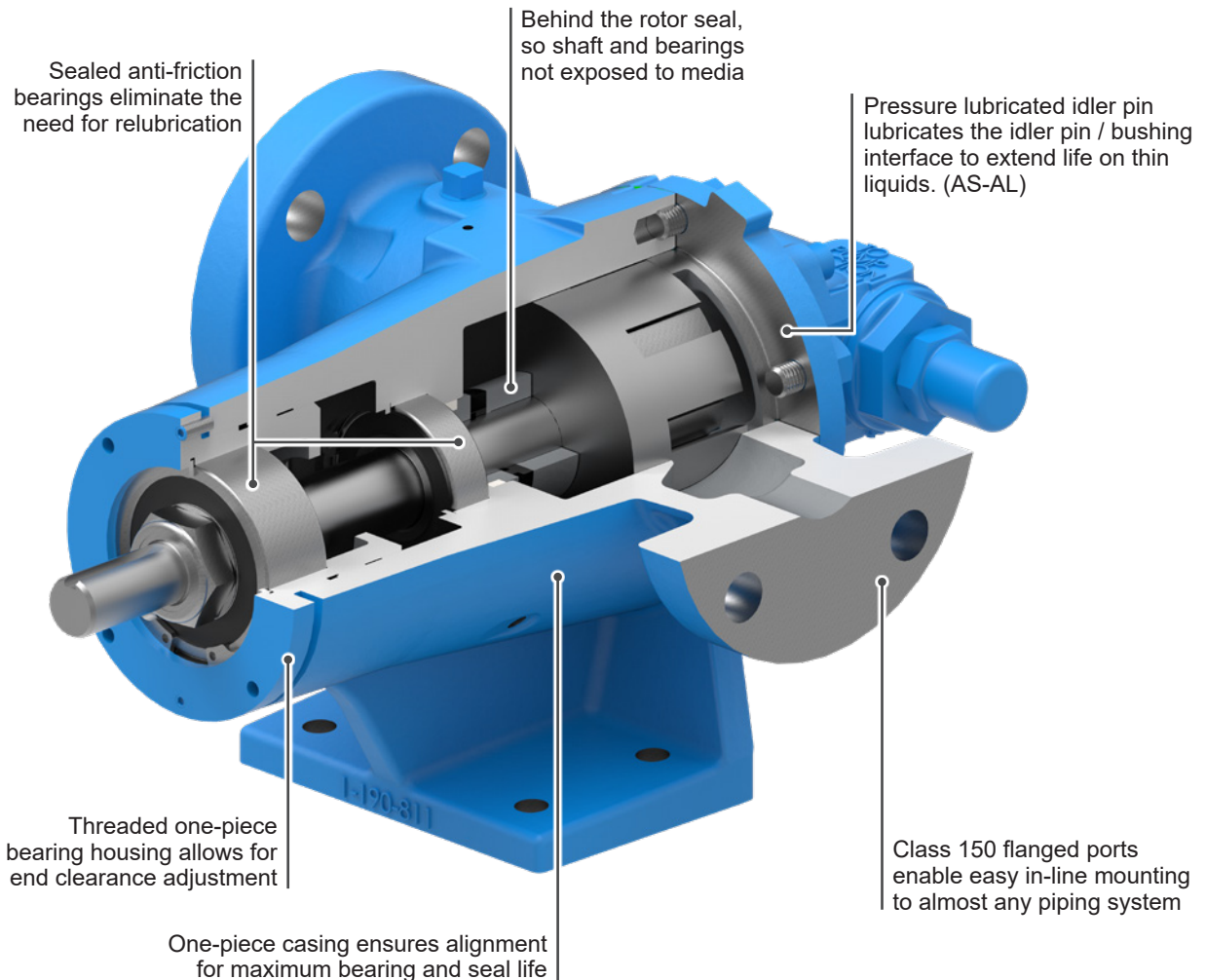
4197 Series™, 4197-SEP Series™

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MODEL NUMBER KEY



CUTAWAY VIEW & PUMP FEATURES



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MOUNTING OPTIONS

Direct Drive (D Drive)

Pump and motor mounted on a base with coupling and coupling guard.

Sizes: GG, HJ, HL, AS, AK, AL

4197 Series™ and 4197-SEP Series™ D Drive units in the GG, HJ and HL size (nominal rating 10, 20, 30 GPM) are designed for high-speed, heavy-duty service. The pump is connected by a flexible coupling with guard directly to a 1200 or 1800 RPM motor. Both pump and motor mount on a sturdy formed steel base.

Sizes AS, AK and AL D Drive direct-connected units all feature the 4197 Series™ or 4197-SEP Series™ high-speed pump connected by a flexible coupling with guard to 1200 RPM motor. Both pump and motor are mounted on a formed steel base.

These make very compact, rugged units for heavy duty service, handling many types of liquids up to 25,000 SSU (5,500 cSt).



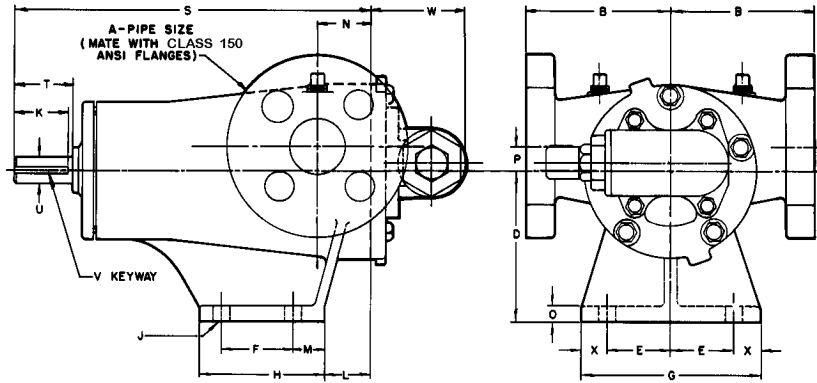
(Shown with optional drip rim and non-sparking aluminum guard)

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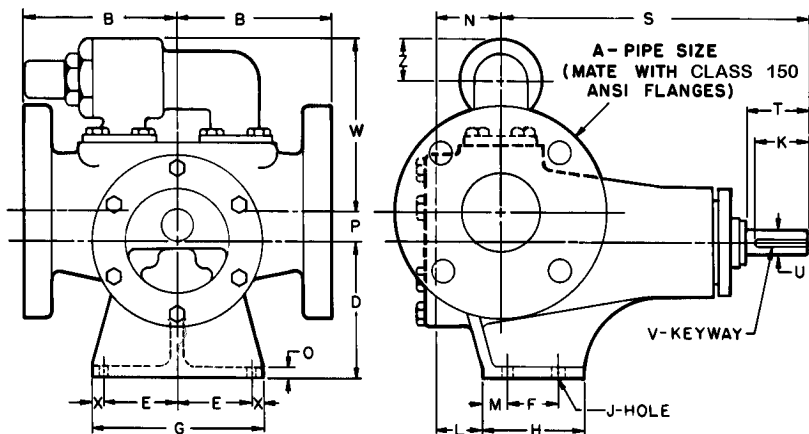
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DIMENSIONS – GG, HJ, HL SIZES



| Model Number | A (in) | B | D | E | F | G | H | J | K | L | M | N | O | P | S | T | U (in) | V (in) | W | X | |
|-----------------------|--------|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|--------|--------|--------------|------|------|
| GG4197 GG4197-SEP1 | 1 | in | 4.00 | 2.75 | 1.62 | 1.31 | 4.00 | 2.44 | 0.34 | 0.94 | 0.03 | 0.66 | 1.12 | 0.31 | 0.62 | 7.31 | 1.12 | 0.50 | .12 x .06 | 2.66 | 0.38 |
| | mm | 102 | 70 | 41 | 33 | 102 | 62 | 9 | 24 | 1 | 17 | 29 | 8 | 16 | 186 | 29 | 67 | | | 10 | |
| HJ4197 HJ4197-SEP1 | 1½ | in | 4.00 | 4.12 | 1.75 | 2.00 | 5.00 | 3.50 | 0.41 | 1.50 | 1.25 | 0.88 | 1.50 | 0.44 | 0.62 | 10.00 | 1.62 | 0.75 | .19 x .09 | 2.84 | 0.75 |
| | | mm | 102 | 105 | 44 | 51 | 127 | 89 | 10 | 38 | 32 | 22 | 38 | 11 | 16 | 254 | 41 | | | 72 | 19 |
| HL4197 HL4197-SEP1 | 1½ | in | 4.00 | 4.12 | 1.75 | 2.00 | 5.00 | 3.50 | 0.41 | 1.50 | 1.25 | 0.88 | 1.50 | 0.44 | 0.62 | 10.00 | 1.62 | 0.75 | .19 x .09 | 2.84 | 0.75 |
| | | mm | 102 | 105 | 44 | 51 | 127 | 89 | 10 | 38 | 32 | 22 | 38 | 11 | 16 | 254 | 41 | | | 72 | 19 |

DIMENSIONS – AS, AK, AL SIZES



| Model Number | A (in) | B | D | E | F | G | H | J | K | L | M | N | O | P | S | T | U (in) | V (in) | W | X | Z | |
|-----------------------|--------|----|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|--------|--------|--------------|------|------|------|
| AS4197 AS4197-SEP1 | 3 | in | 6.00 | 5.25 | 2.88 | 2.00 | 6.75 | 4.00 | 0.41 | 2.25 | 1.25 | 1.00 | 2.00 | 0.44 | 1.12 | 12.12 | 2.38 | 1.00 | .25 x .12 | 7.00 | 0.50 | 1.56 |
| | | mm | 152 | 133 | 73 | 51 | 171 | 102 | 10 | 57 | 32 | 25 | 51 | 11 | 29 | 308 | 60 | | | 178 | 13 | 40 |
| AK4197 AK4197-SEP1 | 3 | in | 6.00 | 5.25 | 2.88 | 2.00 | 6.75 | 4.00 | 0.41 | 2.25 | 1.25 | 1.00 | 2.00 | 0.44 | 1.12 | 12.12 | 2.38 | 1.00 | .25 x .12 | 7.00 | 0.50 | 1.56 |
| | | mm | 152 | 133 | 73 | 51 | 171 | 102 | 10 | 57 | 32 | 25 | 51 | 11 | 29 | 308 | 60 | | | 178 | 13 | 40 |
| AL4197 AL4197-SEP1 | 3 | in | 6.00 | 5.25 | 2.88 | 2.00 | 6.75 | 4.00 | 0.41 | 2.25 | 1.75 | 1.00 | 2.50 | 0.44 | 1.12 | 12.12 | 2.38 | 1.00 | .25 x .12 | 7.00 | 0.50 | 1.56 |
| | | mm | 152 | 133 | 73 | 51 | 171 | 102 | 10 | 57 | 44 | 25 | 64 | 11 | 29 | 308 | 60 | | | 178 | 13 | 40 |

NOTE: Models AS and AK have 2½" cored opening.

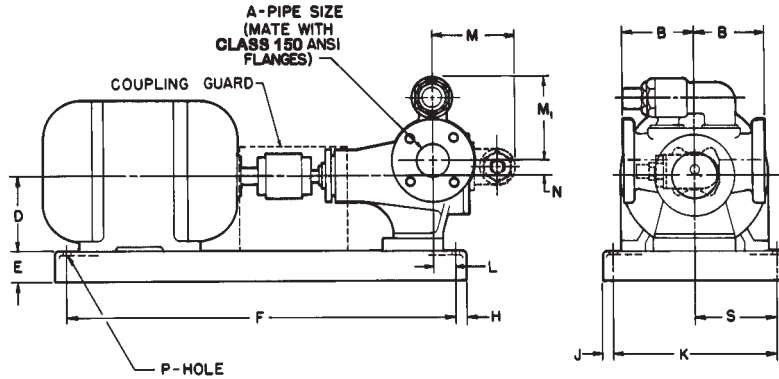
These dimensions are average and not for construction purposes. Certified prints on request.

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DIMENSIONS – GG, HJ, HL, AS, AK, AL SIZES (D DRIVE)



| Model | | Motor Frame Size | A (in) | B | D | E | F | H | J | K | L | M | M ₁ | N | P | S |
|---|----|------------------------|--------|------|------|--------|-------|------|------|-------|------|------|----------------|------|------|------|
| GG4197 GG4197-SEP1 | in | 56, 143T, 145T | 1 | 4.00 | 3.50 | 1.50 | 20.50 | 0.75 | 0.75 | 8.50 | 0.38 | 3.78 | — | 0.62 | 0.62 | 4.25 |
| | mm | | | 102 | 89 | 38 | 521 | 19 | 19 | 216 | 10 | 96 | | 16 | 16 | 108 |
| HJ4197 HJ4197-SEP1 HL4197 HL4197-SEP1 | in | 56, 143T, 145T | 1½ | 4.00 | 3.50 | Ⓢ 2.12 | 20.50 | 0.75 | 0.75 | 8.50 | — | 4.34 | — | 0.62 | 0.62 | 4.25 |
| | mm | | | 102 | 89 | 54 | 521 | 19 | 19 | 216 | — | 110 | | 16 | 16 | 108 |
| | in | 182, 182T, 184, 184T | 1½ | 4.00 | 4.50 | 2.94 | 29.00 | 1.00 | 1.50 | 9.00 | 0.25 | 4.34 | | 0.62 | 0.62 | 4.50 |
| | mm | | | 102 | 114 | 75 | 737 | 25 | 38 | 229 | 6 | 110 | | 16 | 16 | 114 |
| | in | 213, 213T, 215, 215T | 1½ | 4.00 | 5.25 | 2.94 | 29.00 | 1.00 | 1.50 | 9.00 | 0.25 | 4.34 | | 0.62 | 0.62 | 4.50 |
| | mm | | | 102 | 133 | 75 | 737 | 25 | 38 | 229 | 6 | 110 | | 16 | 16 | 114 |
| AS4197 AS4197-SEP1 AK4197 AK4197-SEP1 AL4197 AL4197-SEP1 | in | 182, 182T, 184, 184T | 3 | 6.00 | 4.50 | Ⓢ 3.69 | 29.00 | 1.00 | 1.50 | 9.00 | — | — | 7.00 | 1.12 | 0.62 | 4.50 |
| | mm | | | 152 | 114 | 94 | 737 | 25 | 38 | 229 | — | | 178 | 29 | 16 | 114 |
| | in | 213, 213T, 215, 215T | 3 | 6.00 | 5.25 | 2.94 | 34.00 | 1.00 | 1.50 | 9.00 | — | | 7.00 | 1.12 | 0.62 | 4.50 |
| | mm | | | 152 | 133 | 75 | 864 | 25 | 38 | 229 | — | | 178 | 29 | 16 | 114 |
| | in | 254U, 254T, 256U, 256T | 3 | 6.00 | 6.25 | 4.00 | 39.00 | 1.38 | 1.38 | 16.00 | 3.75 | | 7.00 | 1.12 | 0.62 | 8.00 |
| | mm | | | 152 | 159 | 102 | 991 | 35 | 35 | 406 | 95 | | 178 | 29 | 16 | 203 |

① Dimension includes motor block, base height is 1½”.

② Dimension includes motor block, base height is 2 15/16”.

NOTE: AS and AK sizes have 2½” cored opening.

NOTE: All AS, AK, AL sizes are available with any of the three motors shown in columns.

These dimensions are average and not for construction purposes. Certified prints on request.

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NPSH REQUIRED

Printed performance curves are not available.

Performance curves can be electronically generated with the Viking Pump Curve Generator on vikingpump.com.

NPSHR data is not available on the curve generator.

NPSH (Net Positive Suction Head): The $NPSH_R$ (Net Positive Suction Head Required by the pump) is given in the table below and applies for viscosities through 750 SSU. $NPSH_A$ (Net Positive Suction Head – Available in the system) must be greater than the $NPSH_R$. For a complete explanation of NPSH, see Application Data Sheet AD-19.

FOR VISCOSITIES UP TO 750 SSU – See $NPSH_R$ table below.

$NPSH_R$ for high viscosities can be estimated using the following method:

1. Calculate line loss for a 1 foot long pipe of a diameter matching the pump inlet port size. Use your flow rate and max viscosity.
2. Convert this value into Feet of Liquid (S.G. 1.0)
3. Add this value to the $NPSH_R$ value in the chart below.

| PUMP SIZE | PUMPS SPEED, RPM | | | | | | |
|------------|------------------|-----|-----|-----|------|------|------|
| | 520 | 640 | 780 | 950 | 1150 | 1450 | 1750 |
| GG | 1.6 | 2.2 | 2.6 | 3.1 | 3.9 | 5.6 | 7.6 |
| HJ, HL | 2 | 2.8 | 3.4 | 4.5 | 6.2 | 9.5 | 13.5 |
| AS, AK, AL | 2.8 | 3.9 | 5.5 | 7.7 | 11.2 | 16.8 | 23.3 |

Note: $NPSH_R$ – FEET OF LIQUID (Specific Gravity 1.0), Viscosities up to 750 SSU