

UNIVERSAL PRODUCT LINE: STEEL EXTERNALS — NON-JACKETED PUMPS

SERIES 123A, 4123A, 323A, 4323A

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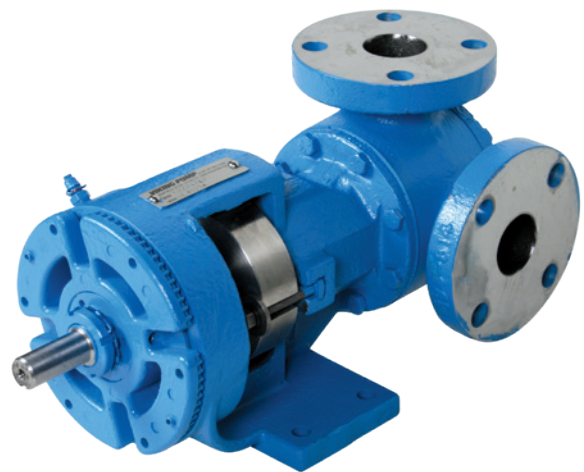
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SERIES DESCRIPTION

The Universal Product Line has the broadest range of sealing options of all pumps built by Viking. The stuffing box on all sizes accepts packing, numerous component single mechanical seals, or a wide variety of cartridge seals.

The Universal Product Line is Viking Pump's most versatile line of internal gear pumps due to the availability of many design and material options.



HL4123A

RELATED PRODUCTS

- Steel Externals, Jacketed Pumps: Catalog Section 1302
- Steel Externals, Mag Drive Pumps: Catalog Section 1303
- Cast Iron, Non-Jacketed Pumps: Catalog Section 1401
- Stainless Steel, Non-Jacketed Pumps: Catalog Section 1701

OPERATING RANGE:

| SERIES | NOMINAL FLOW | | MAXIMUM PRESSURE | | TEMPERATURE RANGE | | VISCOSITY RANGE | |
|--------------|--------------|------------------|------------------|-----|-------------------|-------------|-----------------|--------------|
| | GPM | m ³ h | PSI | Bar | °F | °C | SSU | cSt |
| 123A | 15 - 500 | 3 - 114 | 200 | 14 | -20 to +800 | -25 to +425 | 28 to 2,000,000 | 1 to 440,000 |
| 4123A | 15 - 500 | 3 - 114 | 200 | 14 | -20 to +800 | -25 to +425 | 28 to 2,000,000 | 1 to 440,000 |
| 323A | 600 - 1,600 | 136 - 364 | 200 | 14 | -20 to +800 | -25 to +425 | 28 to 2,000,000 | 1 to 440,000 |
| 4323A | 600 - 1,600 | 136 - 364 | 200 | 14 | -20 to +800 | -25 to +425 | 28 to 2,000,000 | 1 to 440,000 |

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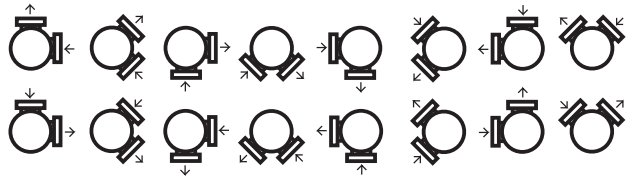
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FEATURES & BENEFITS

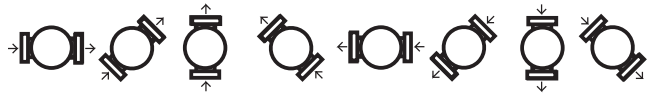
- Positive Displacement Internal Gear pumping principle handles a broad range of viscosities with constant flow rate
- Axial rotor thrust is controlled by double row ball bearing or tapered roller bearings; bushings provided a secondary point of radial shaft support
- Rotatable bearing housing provides easy rotor end clearance adjustment to compensate for viscosity or wear
- Numerous material options are available for bushings, idler pins, shafts, rotors, idlers and elastomers
- Gear and pump geometry has been optimized based on more than 100 years of experience
- Footed steel bracket provides rigid mounting to help maintain alignment, which extends seal and bearing life
- Can use direct drive, gear reducer or gearmotor drive, or belt-drive
- Pressure relief valve standard on non-jacketed pumps; less valve / plain head option available
- Series designed with an enlarged bearing housing; used in conjunction with a spacer coupling permits easy cartridge seal installation and removal in place without removing the head and rotor/shaft.
- Seal options include packing, single component seals, cartridge lip seals and cartridge single and double mechanical seals; various seal flush plans are available
- Steel externals for petroleum refineries, petrochemical plants and similar customers who require higher temperature and higher working pressures than cast iron pumps can provide

PORT LOCATION OPTIONS

90° port options:



Opposite port options:



NOTE: See page 1301.7 for a complete list of casing options by size.

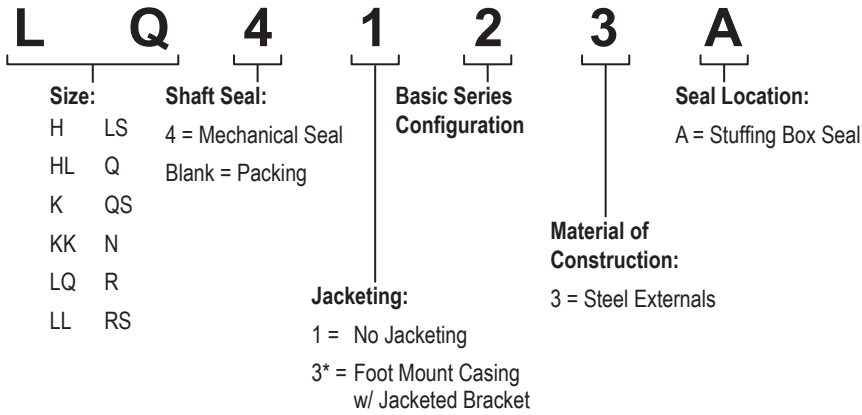


**Viking Universal Product Line pumps
carry a three year limited warranty.
See catalog section 000 for details.**

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MODEL NUMBER KEY



* Note: Only the N through RS sizes are foot mount casing with jacketed bracket.

STANDARD MATERIALS OF CONSTRUCTION

| Component | Standard Material | |
|---|--|--|
| Casing | Steel, ASTM A216, Class WCB | |
| Head | Steel, ASTM A216, Class WCB | |
| Bracket | Steel, ASTM A216, Class WCB | |
| Idler | Standard | ① Cast Iron, ASTM A148, Class 35B |
| | Steel Fitted | ①② Cast Iron, ASTM A148, Class 35B |
| Rotor | Standard | ③ Cast Iron, ASTM A148, Class 35B |
| | Steel Fitted | ④ Steel, ASTM A148, Grade 80-40 |
| Shaft | ⑤ Steel, ASTM A108, Grade 1045 | |
| Idler Pin | Hardened Steel, ASTM A108, Grade 1045 | |
| Idler Bushing | (4123A, 4323A) | Carbon Graphite |
| | (123A, 323A) | Bronze, ASTM B584 (B505), Alloy C93700 |
| Bracket Bushing | (4123A, 4323A) | Carbon Graphite |
| | (123A, 323A) | Bronze, ASTM B584 (B505), Alloy C93700 |
| Pressure Relief Valve | ⑥ Steel, ASTM A216, Class WCB | |
| Standard Packing (123A, 323A) | Braided PTFE | |
| Standard Mechanical Seal (4123A, 4323A) | Carbon vs. Silicon Carbide Faces, FKM Elastomers | |

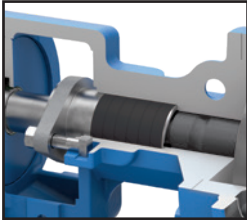
- ① H and HL sizes have a powdered metal idler: Powdered Metal MPIF 35, FC-0208-50 (G) , Powdered Metal MPIF 35, FC-0208-45 (H, HL)
- ② Q and QS sizes have a hardened steel idler when pump is steel fitted: ASTM A148 Grade 80-40.
- ③ KK, LS, QS, N and RS sizes have ductile iron rotor: ASTM A536 Grade 60-40-18.
- ④ Material specification for HL steel rotor is AISI 8620, LS steel rotor is ASTM A148 80-50.
- ⑤ K, KK, LQ, LL and LS sizes are high strength steel ASTM A434 Type 4140 Grade BC or equivalent.
- ⑥ LQ, LL and LS relief valve bodies are stainless steel.

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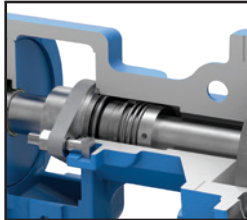
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CUTAWAY VIEW & PUMP FEATURES

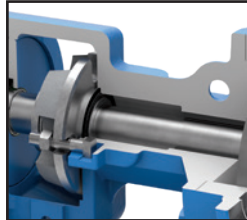
Packing



Component Seal

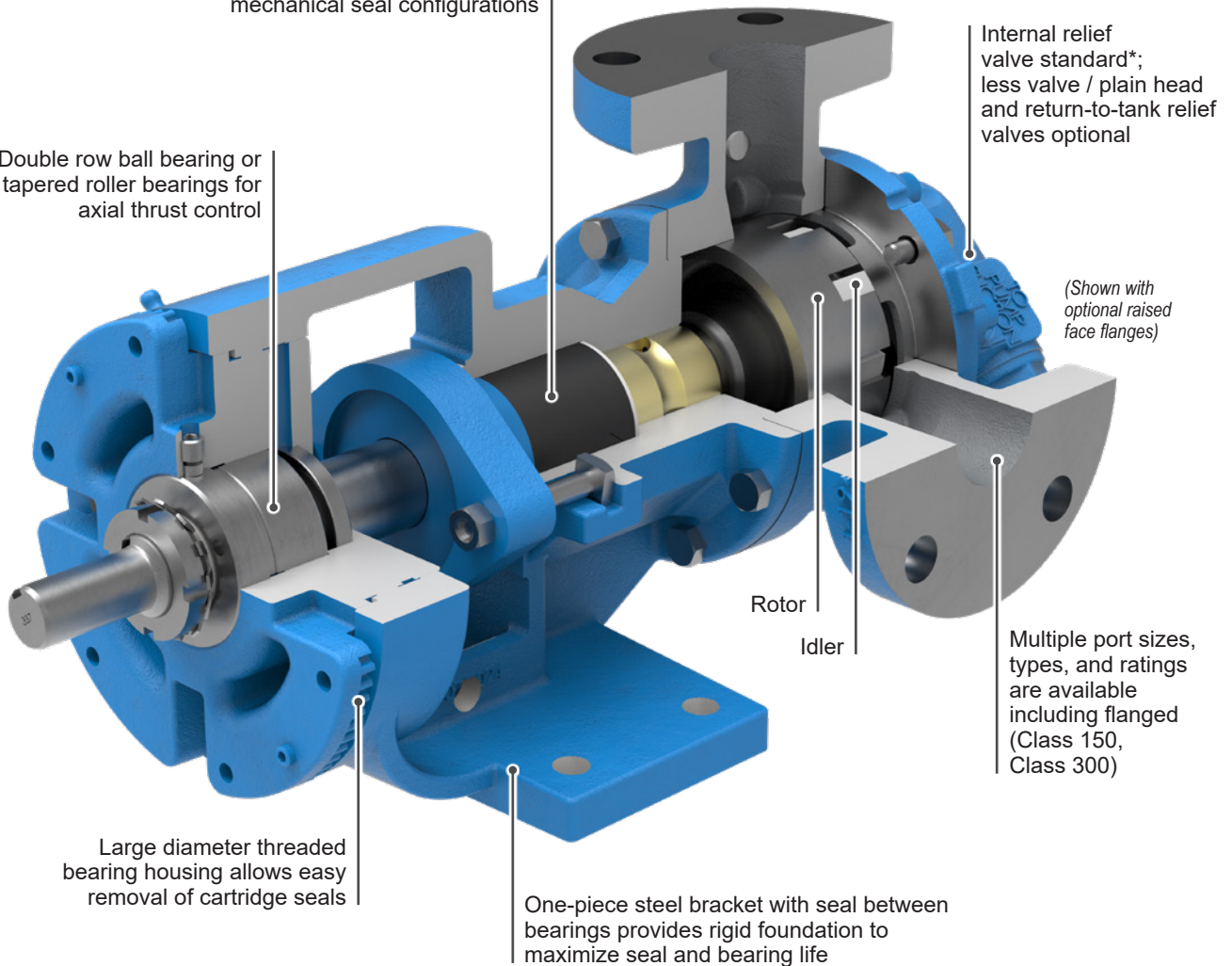


Cartridge Seal



Seal chamber accepts packing and a variety of component and cartridge style mechanical and lip seals, in both single and double mechanical seal configurations

Double row ball bearing or tapered roller bearings for axial thrust control



Internal relief valve standard*; less valve / plain head and return-to-tank relief valves optional

(Shown with optional raised face flanges)

Rotor

Idler

Multiple port sizes, types, and ratings are available including flanged (Class 150, Class 300)

Large diameter threaded bearing housing allows easy removal of cartridge seals

One-piece steel bracket with seal between bearings provides rigid foundation to maximize seal and bearing life

* All except RS size

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SPECIAL MATERIALS & OPTIONS SELECTION GUIDELINES

For High Viscosities – Above 2,500 SSU (550 cSt)

- Steel fitted construction recommended above the following viscosities, according to pump size:

| Viscosity | Pump Size | | | | | | | | | | | |
|-----------|-----------|-------|--------|--------|--------|-------|--------|-------|--------|--------|--------|--------|
| | H | HL | K | KK | LQ | LL | LS | Q | QS | N | R | RS |
| SSU | 25,000 | 7,500 | 25,000 | 75,000 | 25,000 | 2,500 | 75,000 | 7,500 | 75,000 | 75,000 | 25,000 | 75,000 |
| cSt | 5,500 | 1,700 | 5,500 | 17,000 | 5,500 | 550 | 17,000 | 1,700 | 17,000 | 17,000 | 5,500 | 17,000 |

- Extra clearances, depending on viscosity. See ES-2 for recommendations.
- Special Sealing:
FKM or Buna N Type 1 component seals good up to 15,000 SSU (3,300 cSt).
PTFE Type 9 seals good up to 25,000 SSU (5,500 cSt).
Packed gland good up to 2,000,000 SSU (440,000 cSt).
Cartridge triple lip seals available to 2,000,000 SSU (440,000 cSt).
- Larger ports may be required depending on suction conditions.
- Pump should be operated at slower than normal speeds, which may require a larger pump.
- For viscosities over 250,000 SSU (55,000 cSt), contact factory for additional pump construction and operation recommendations.

For low viscosities or non-lubricating liquids – Below 100 SSU (20 cSt)

- Carbon graphite bushings.
- Pump should be operated at slower than normal speeds, which may require a larger pump.

For high temperatures – Above 225°F (105°C)

- High temperature elastomers – FKM up to 350°F (175°C); Buna up to 225°F (105°C); PTFE up to 450°F (230°C);
- High temperature bushings recommended depending on temperature, size and specific material. See ESB-3 for recommendations.
- Additional operating clearances may be required depending on temperature, size and specific material. See ES-2 for recommendations.
- For temperatures above 450°F (230°C), special materials and sealing requirements may be needed. Contact factory for recommendations.
- Pump should be operated at slower than normal speeds, which may require a larger pump.

For abrasive or dirty liquids

- If possible, filter or strain out the abrasives present.
- Wear resistant bushings - hardened cast iron, tungsten carbide or Colmonoy coated.
- Abrasive-resistant idler pin - tungsten carbide or Colmonoy plus TC filler coated pins.
- Hardened or hard-coated shaft.
- Abrasive-resistant seals.
- For high concentrations of abrasives or particle sizes greater than 250 microns (0.010 in), contact factory for recommendations.
- Pump should be operated at slower than normal speeds, which may require a larger pump.
- Consult factory for specific recommendations.

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SPECIFICATIONS

| Model Number | ③ Standard Port Size | Nominal Pump Rating (100 SSU & below) | | | ④ Maximum Hydrostatic Pressure | | ① Maximum Discharge Pressure for 100 SSU liquid at rated speed | | ② Maximum Recommended Temperature for Standard Pump | | Approx. Shipping Weight with Valve | |
|--------------|----------------------|---------------------------------------|-------------------|------|--------------------------------|-----|--|-----|---|-----|------------------------------------|-------|
| | Inches | GPM | m ³ /h | RPM | PSIG | BAR | PSIG | BAR | °F | °C | Lbs. | Kg. |
| H123A | 1 ½ | 15 | 3 | 1750 | 400 | 28 | 200 | 14 | 450 | 230 | 43 | 20 |
| H4123A | 1 ½ | 15 | 3 | 1750 | 400 | 28 | 200 | 14 | 350 | 175 | 43 | 20 |
| HL123A | 1 ½ | 30 | 7 | 1750 | 400 | 28 | 200 | 14 | 450 | 230 | 45 | 20 |
| HL4123A | 1 ½ | 30 | 7 | 1750 | 400 | 28 | 200 | 14 | 350 | 175 | 45 | 20 |
| K123A | 2 | 80 | 18 | 780 | 400 | 28 | 200 | 14 | 450 | 230 | 120 | 54 |
| K4123A | 2 | 80 | 18 | 780 | 400 | 28 | 200 | 14 | 350 | 175 | 120 | 54 |
| KK123A | 2 | 100 | 23 | 780 | 400 | 28 | 200 | 14 | 450 | 230 | 125 | 57 |
| KK4123A | 2 | 100 | 23 | 780 | 400 | 28 | 200 | 14 | 350 | 175 | 125 | 57 |
| LQ123A | 2 ½ | 135 | 31 | 640 | 400 | 28 | 200 | 14 | 450 | 230 | 185 | 64 |
| LQ4123A | 2 ½ | 135 | 31 | 640 | 400 | 28 | 200 | 14 | 350 | 175 | 185 | 64 |
| LL123A | 3 | 140 | 32 | 520 | 400 | 28 | 200 | 14 | 450 | 230 | 195 | 89 |
| LL4123A | 3 | 140 | 32 | 520 | 400 | 28 | 200 | 14 | 350 | 175 | 195 | 89 |
| LS123A | 3 | 200 | 45 | 640 | 400 | 28 | 200 | 14 | 450 | 230 | 200 | 91 |
| LS4123A | 3 | 200 | 45 | 640 | 400 | 28 | 200 | 14 | 350 | 175 | 200 | 91 |
| Q123A | 4 | 300 | 68 | 520 | 250 | 17 | 200 | 14 | 450 | 230 | 450 | 204 |
| Q4123A | 4 | 300 | 68 | 520 | 250 | 17 | 200 | 14 | 350 | 175 | 450 | 204 |
| QS123A | 6 | 500 | 114 | 520 | 250 | 17 | 200 | 14 | 450 | 230 | 550 | 250 |
| QS4123A | 6 | 500 | 114 | 520 | 250 | 17 | 200 | 14 | 350 | 175 | 550 | 250 |
| N323A | 6 | 600 | 136 | 350 | 250 | 17 | 200 | 14 | 450 | 230 | 810 | 367 |
| N4323A | 6 | 600 | 136 | 350 | 250 | 17 | 200 | 14 | 350 | 175 | 810 | 367 |
| R323A | 8 | 1,100 | 250 | 280 | 250 | 17 | 200 | 14 | 450 | 230 | 1,435 | 651 |
| R4323A | 8 | 1,100 | 250 | 280 | 250 | 17 | 200 | 14 | 350 | 175 | 1,435 | 651 |
| RS323A | 10 | 1,600 | 364 | 280 | 250 | 17 | 125 | 9 | 450 | 230 | 2,500 | 1,140 |
| RS4323A | 10 | 1,600 | 364 | 280 | 250 | 17 | 125 | 9 | 350 | 175 | 2,500 | 1,140 |

① For maximum recommended discharge pressures at different viscosities, see performance curves, which can be electronically generated with the Viking Pump Curve Generator, located on www.vikingpump.com. If suction pressure exceeds 50 PSIG, consult factory. Higher pressures possible with factory approval based on application details.

② Extra clearances are required above 225°F / 105°C. Higher temperatures can be handled with special construction, consult factory.

③ Ports are suitable for Class 150 ANSI steel or stainless steel companion flanges or flanged fittings.

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

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OPTIONAL CASINGS

| Size | Standard Casings | | Optional Casings | | | | | | |
|------|------------------|-------------------------------|------------------|---------|---------|--------|--------|-------|-------|
| | Ports (Inches) | Rotatable Data | | | | | | | |
| H | 1.5" ①® | Fully Rotatable | 1.5" ②® | 2" ①® | 2" ②® | | | | |
| HL | 1.5" ①® | Fully Rotatable | 1.5" ②® | 2" ①® | 2" ②® | | | | |
| K | 2" ①® | Ports cannot face down | 2" ②® | 2.5" ①® | 2.5" ②® | 3" ①® | 3" ②® | 4" ①® | 4" ②® |
| KK | 2" ①® | Ports cannot face down | 2" ②® | 2.5" ①® | 2.5" ②® | 3" ①® | 3" ②® | 4" ①® | 4" ②® |
| LQ | 2.5" ①® | Ports cannot face down | 2.5" ②® | 3" ②® | 4" ①® | 4" ②® | 6" ①® | | |
| LL | 3" ①® | Ports cannot face down | 3" ②® | 4" ①® | 4" ②® | | | | |
| LS | 3" ①® | Fully Rotatable | 3" ②® | 4" ①® | 4" ②® | | | | |
| Q | 4" ①® | Fully Rotatable | 4" ②® | 5" ①® | 5" ②® | 6" ①®* | 6" ②®* | 6" ①⊙ | 6" ②⊙ |
| QS | 6" ①⊙ | Rotatable with special casing | 6" ①® | 6" ②⊙ | | | | | |
| N | 6" ①⊙ | Not Rotatable | | | | | | | |
| R | 8" ①⊙ | Not Rotatable | | | | | | | |
| RS | 10" ①⊙ | Not Rotatable | | | | | | | |

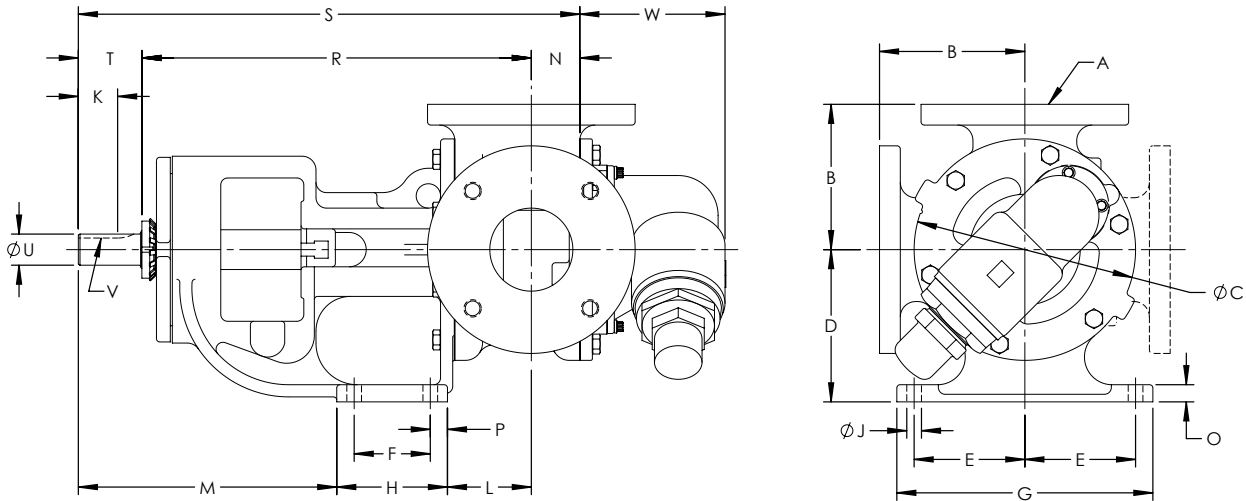
- ① Ports suitable for Class 150 ANSI steel or stainless steel companion flanges or flanged fittings.
- ② Ports suitable for Class 300 ANSI steel or stainless steel companion flanges or flanged fittings.

- ⊙ Opposite Ports
- ® 90° port arranged for Right Hand inlet (viewed from shaft end)
- * Core smaller than port size

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DIMENSIONS – H THROUGH Q SIZES



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

| Model Number | | ① A (in) | | B | C | D | E | F | G | H | J | K | L | M |
|--------------|-----------------|----------------|----|------|-------|------|------|------|-------|------|------|------|------|-------|
| Packed | Mechanical Seal | | | | | | | | | | | | | |
| H123A | H4123A | 1.5 | in | 4.00 | 4.75 | 3.50 | 2.75 | 2.25 | 6.75 | 3.50 | 0.47 | 0.99 | 3.38 | 5.19 |
| HL123A | HL4123A | | mm | 102 | 121 | 89 | 70 | 57 | 171 | 89 | 12 | 25 | 86 | 132 |
| K123A | K4123A | 2 | in | 5.25 | 8.00 | 5.50 | 4.00 | 2.75 | 9.25 | 4.00 | 0.53 | 1.42 | 3.00 | 9.38 |
| KK123A | KK4123A | | mm | 133 | 203 | 140 | 102 | 70 | 235 | 102 | 14 | 36 | 76 | 238 |
| LQ123A | LQ4123A | 2.5 | in | 7.19 | 10.25 | 7.00 | 4.38 | 4.00 | 10.00 | 5.38 | 0.53 | 1.42 | 3.38 | 9.12 |
| | | | mm | 183 | 260 | 178 | 111 | 102 | 254 | 137 | 14 | 36 | 86 | 232 |
| LL123A | LL4123A | 3 | in | 7.19 | 10.25 | 7.00 | 4.38 | 4.00 | 10.00 | 5.38 | 0.53 | 1.42 | 3.38 | 9.12 |
| | | | mm | 183 | 260 | 178 | 111 | 102 | 254 | 137 | 14 | 36 | 86 | 232 |
| LS123A | LS4123A | 3 | in | 7.19 | 10.25 | 7.00 | 4.38 | 4.00 | 10.00 | 5.38 | 0.53 | 2.55 | 4.75 | 9.12 |
| | | | mm | 183 | 260 | 178 | 111 | 102 | 254 | 137 | 14 | 65 | 121 | 232 |
| Q123A | Q4123A | 4 | in | 8.25 | 14.00 | 8.75 | 4.12 | 4.00 | 10.00 | 6.00 | 0.69 | 3.58 | 6.62 | 11.12 |
| | | | mm | 210 | 356 | 222 | 105 | 102 | 254 | 152 | 18 | 91 | 168 | 282 |

| Model Number | | | N | O | P | R | S | T | U (in) | V (in) | W |
|--------------|-----------------|----|------|------|------|-------|-------|------|-----------|-----------|------|
| Packed | Mechanical Seal | | | | | | | | | | |
| H123A | H4123A | in | 1.19 | 0.56 | 0.62 | 10.44 | 13.25 | 1.62 | 0.75 | .19 x .09 | 2.85 |
| HL123A | HL4123A | mm | 30 | 14 | 16 | 265 | 337 | 41 | | | 72 |
| K123A | K4123A | in | 1.75 | 0.62 | 0.62 | 14.12 | 18.12 | 2.25 | 1.12 | .25 x .12 | 5.25 |
| KK123A | KK4123A | mm | 44 | 16 | 16 | 359 | 460 | 57 | | | 133 |
| LQ123A | LQ4123A | in | 1.75 | 0.62 | 0.62 | 15.62 | 19.62 | 2.25 | 1.12 | .25 x .12 | 5.43 |
| | | mm | 44 | 16 | 16 | 397 | 498 | 57 | | | 138 |
| LL123A | LL4123A | in | 2.25 | 0.62 | 0.62 | 15.62 | 20.12 | 2.25 | 1.12 | .25 x .12 | 5.43 |
| | | mm | 57 | 16 | 16 | 397 | 511 | 57 | | | 138 |
| LS123A | LS4123A | in | 2.44 | 0.62 | 0.62 | 15.75 | 21.69 | 3.50 | 1.44 | .38 x .19 | 5.43 |
| | | mm | 62 | 16 | 16 | 400 | 551 | 89 | | | 138 |
| Q123A | Q4123A | in | 3.00 | 0.75 | 1.00 | 19.25 | 26.75 | 4.50 | 1.94 | .50 x .25 | 8.25 |
| | | mm | 76 | 19 | 25 | 489 | 679 | 114 | | | 210 |

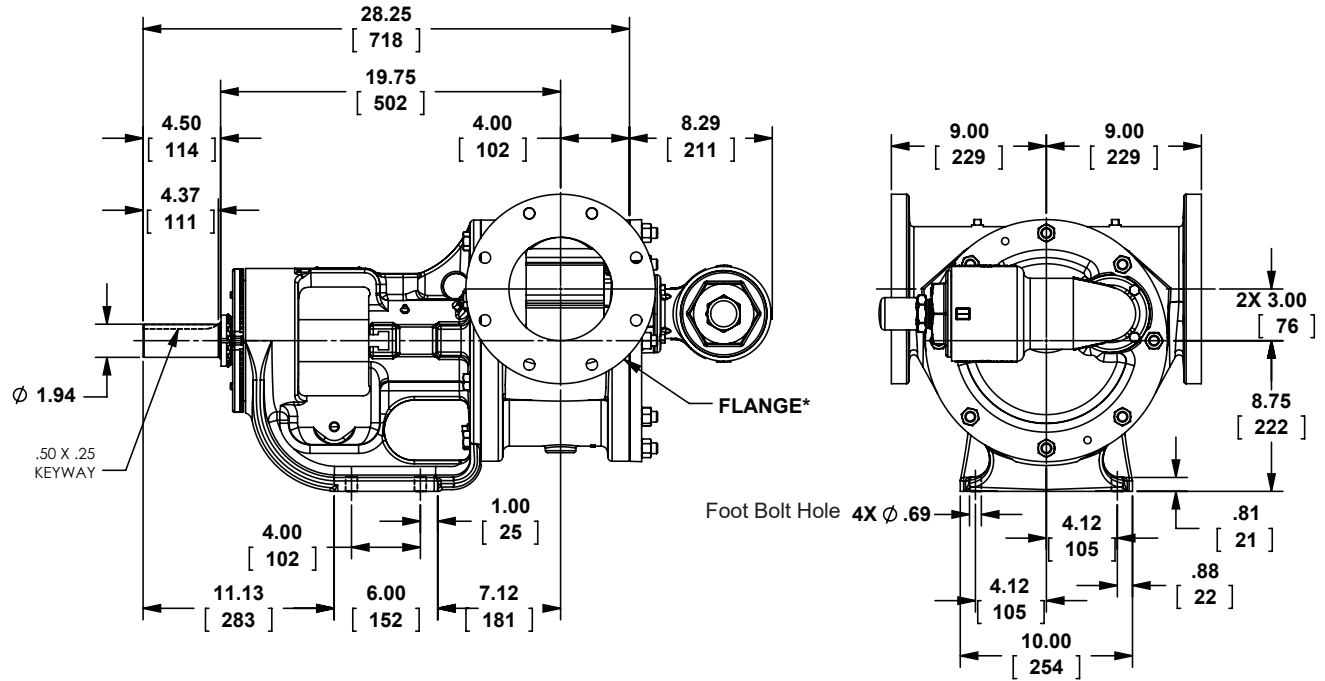
① Ports are suitable for Class 150 ANSI steel or stainless steel companion flanges or flanged fittings.

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DIMENSIONS — QS SIZE

Dimensions shown in inches with millimeter equivalent shown in parentheses

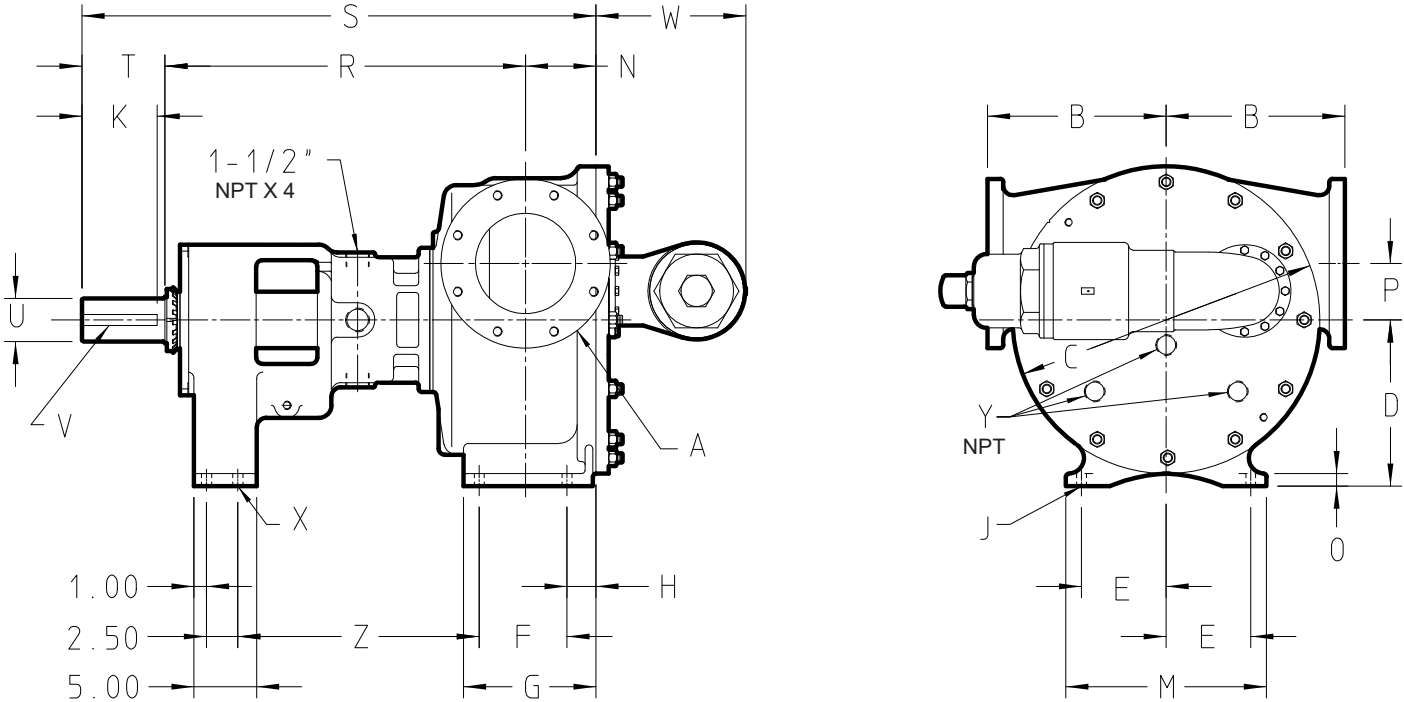


* 123A/4123A ports suitable for use with Class 150 ANSI steel or stainless steel companion flanges or flanged fittings. They are studded, not through-bolt.

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DIMENSIONS – N & R SIZES – JACKETED BRACKET (323A, 4323A)



| Model Number | | A | B | C | D | E | F | G | H | J | K | M | N | O | P | R | S | T | U | V | W | X | Y | Z | |
|--------------|-------------------|------|----|-------|-------|-------|------|------|-------|------|------|------|-------|------|------|------|-------|-------|------|------|-------------|-------|------|------|-------|
| Packed | Stuffing Box Seal | (in) | | | | | | | | | | | | | | | | | (in) | (in) | | | (in) | | |
| N323A | N4323A | ① | in | 9.75 | 17.25 | 9.50 | 5.00 | 6.25 | 8.69 | 1.62 | 0.69 | 4.50 | 12.00 | 4.50 | 1.00 | 3.00 | 26.00 | 36.50 | 6.00 | 2.44 | .62 x.31 | 8.63 | 0.69 | — | 18.94 |
| | | 6 | mm | 248 | 438 | 241 | 127 | 159 | 221 | 41 | 18 | 114 | 305 | 114 | 25 | 76 | 660 | 927 | 152 | | | | | | |
| R323A | R4323A | ① | in | 14.25 | 24.50 | 13.25 | 6.75 | 7.00 | 10.56 | 2.31 | 0.78 | 6.00 | 16.00 | 5.62 | 1.00 | 4.50 | 28.75 | 41.00 | 6.62 | 3.44 | .88 x.44 | 12.00 | 0.69 | 1.25 | 19.25 |
| | | 8 | mm | 362 | 622 | 337 | 171 | 178 | 268 | 59 | 20 | 152 | 406 | 143 | 25 | 114 | 730 | 1041 | 168 | | | | | | |

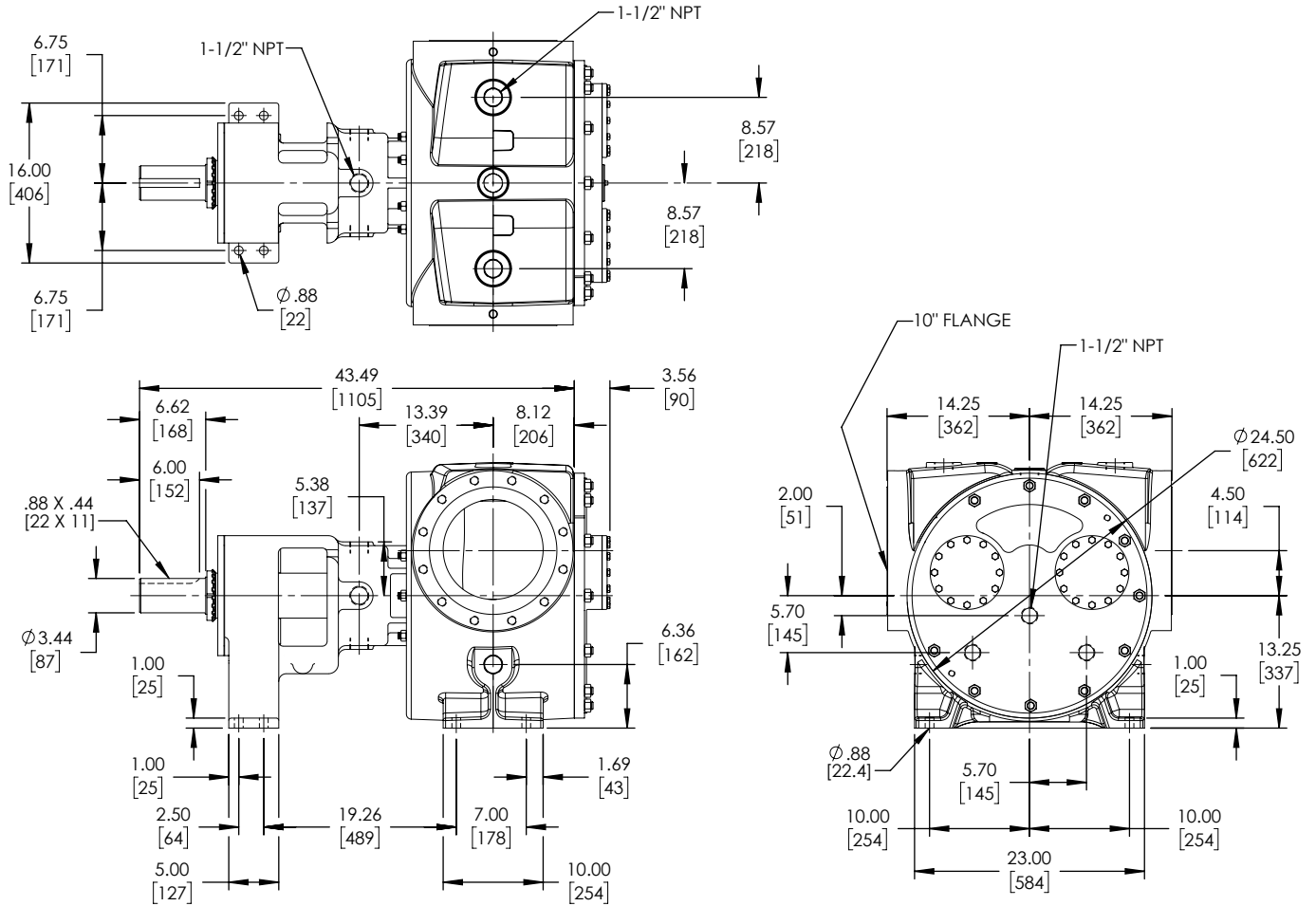
① Ports are suitable for use with Class 150 ANSI steel or stainless steel companion flanges or flanged fittings.

NOTE: The N size is standard with a jacketed bracket and non-jacketed head and non-jacketed relief valve, while the "R" size is standard with a jacketed bracket, a jacketed head, and a non-jacketed relief valve. "RS" contact factory for jacketing options.

**UNIVERSAL PRODUCT LINE:
STEEL EXTERNALS — NON-JACKETED PUMPS**
SERIES 123A, 4123A, 323A, 4323A

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DIMENSIONS – RS SIZE – JACKETED BRACKET (323A, 4323A)

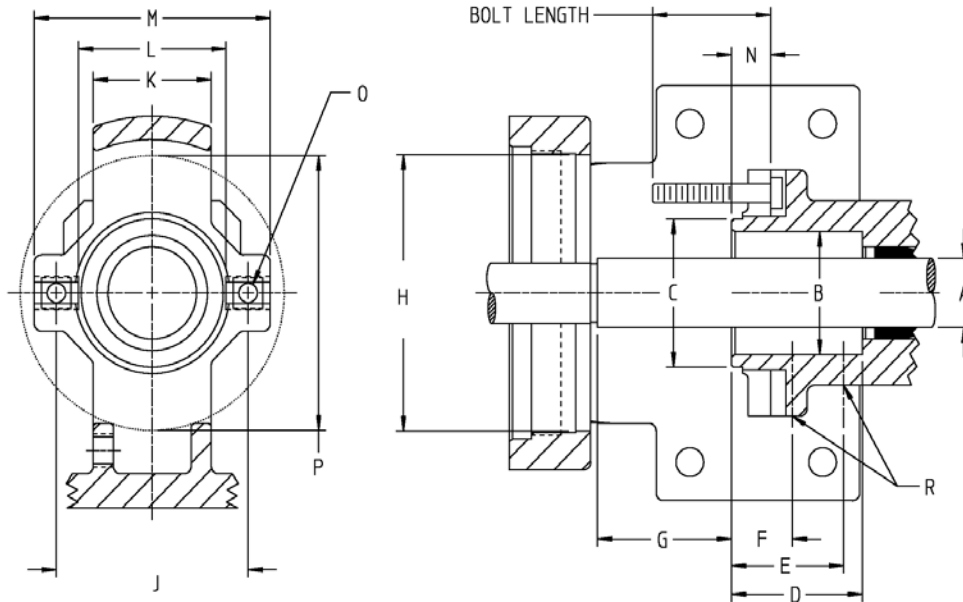


NOTE: RS size pumps are only available with a jacketed casing, as shown.

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**UNIVERSAL PRODUCT LINE:
STEEL EXTERNALS — NON-JACKETED PUMPS
SERIES 123A, 4123A, 323A, 4323A**

DIMENSIONS – STUFFING BOX SEAL CHAMBER



| Pump Size | | A | B | C | D | E | F | G | H | J | K | L | M | N | O | P | R |
|-----------|----|------|-------|------|------|------|------|------|------|--------------|------|------|------|------|------|------|-----|
| H & HL | In | 1.12 | 2.00 | 2.41 | 2.22 | 1.90 | 1.03 | 2.27 | 4.50 | 3.00 to 3.50 | 2.00 | 2.50 | 4.00 | 0.66 | 5/16 | 4.47 | 1/8 |
| | mm | | 51 | 61 | 56 | 48 | 26 | 58 | 114 | 76 to 89 | 51 | 64 | 102 | 17 | | 114 | 3 |
| K & KK | In | 1.44 | ①2.31 | 3.00 | 3.13 | 2.25 | 1.25 | 3.00 | 5.25 | 3.50 to 4.50 | 2.50 | 3.00 | 5.00 | 0.38 | 7/16 | 5.25 | 1/4 |
| | mm | | ①58.7 | 76 | 80 | 57 | 32 | 76 | 133 | 89 to 114 | 64 | 76 | 127 | 10 | | 133 | 6 |
| LQ, & LL | In | 1.44 | ①2.31 | 3.00 | 3.13 | 2.25 | 1.25 | 4.00 | 5.25 | 3.50 to 4.50 | 2.50 | 3.00 | 5.00 | 0.44 | 7/16 | 5.25 | 1/4 |
| | mm | | ①58.7 | 76 | 80 | 57 | 32 | 102 | 133 | 89 to 114 | 64 | 76 | 127 | 11 | | 133 | 6 |
| LS | In | 1.62 | 2.38 | 2.80 | 2.70 | 2.25 | 1.16 | 3.52 | 5.25 | 3.25 to 4.50 | 3.00 | 2.80 | 5.00 | 0.46 | 7/16 | 5.25 | 1/4 |
| | mm | | 60 | 71 | 69 | 57 | 30 | 89 | 133 | 83 to 114 | 76 | 71 | 127 | 12 | | 133 | 6 |
| Q & QS | In | 2.44 | 3.42 | 4.50 | 4.00 | 2.50 | 1.53 | 4.10 | 6.75 | 5.50 to 6.25 | 3.20 | 4.50 | 7.20 | 0.56 | 5/8 | 6.75 | 1/4 |
| | mm | | 87 | 114 | 102 | 64 | 39 | 104 | 171 | 140 to 159 | 81 | 114 | 183 | 14 | | 171 | 6 |
| N | In | 3.44 | 4.69 | — | 5.56 | 1.65 | — | 4.91 | 8.81 | 6.75 | — | — | — | — | ②3/4 | 9.00 | 1/4 |
| | mm | | 119 | — | 141 | 42 | — | 125 | 224 | 171 | — | — | — | — | | 229 | 6 |
| R & RS | In | 4.50 | 5.75 | — | 5.56 | 1.53 | — | 4.79 | 9.81 | 7.75 | — | — | — | — | ②3/4 | 9.81 | 1/4 |
| | mm | | 146 | — | 141 | 39 | — | 122 | 249 | 197 | — | — | — | — | | 249 | 6 |

① Bracket is counter bored to a diameter of 2.687 inches (68 mm), 0.12 inches (3 mm) deep from stuffing box face.

② Studs are used in place of cap screws.

**UNIVERSAL PRODUCT LINE:
STEEL EXTERNALS — NON-JACKETED PUMPS**
SERIES 123A, 4123A, 323A, 4323A

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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 pump selector.

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.

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

| PUMP SIZE | PUMPS SPEED, RPM | | | | | | | | | | | | | | |
|-----------|------------------|-----|------|------|------|------|------|-----|------|------|-----|-----|------|------|------|
| | 100 | 125 | 155 | 190 | 230 | 280 | 350 | 420 | 520 | 640 | 780 | 950 | 1150 | 1450 | 1750 |
| H, HL | — | — | — | — | 1.7 | 1.8 | 1.9 | 2.1 | 2.4 | 2.8 | 3.4 | 4.5 | 6.2 | 9.5 | 13.5 |
| K, KK | — | 1.7 | 1.8 | 1.9 | 2.1 | 2.3 | 2.8 | 3.3 | 4.4 | 6.3 | 9.1 | — | — | — | — |
| LQ | 1.6 | 1.8 | 2.0 | 2.2 | 2.5 | 3.0 | 3.8 | 5.0 | 7.3 | 10.8 | — | — | — | — | — |
| LL | 1.6 | 1.8 | 2.0 | 2.2 | 2.5 | 3.0 | 3.8 | 5.0 | 7.3 | — | — | — | — | — | — |
| LS | 1.6 | 1.8 | 2.0 | 2.2 | 2.5 | 3.0 | 3.8 | 5.0 | 7.3 | 10.8 | — | — | — | — | — |
| Q, QS | 1.9 | 2.1 | 2.3 | 2.7 | 3.3 | 4.2 | 6.1 | 8.4 | 12.7 | — | — | — | — | — | — |
| N | 2.1 | 2.3 | 3.5 | 4.5 | 6.3 | 9.5 | 15.0 | — | — | — | — | — | — | — | — |
| R | 6.1 | 7.1 | 8.3 | 10.1 | 12.1 | 15.2 | — | — | — | — | — | — | — | — | — |
| RS | 7.0 | 8.5 | 10.4 | 13.1 | 17.2 | 22.4 | — | — | — | — | — | — | — | — | — |