

**UNIVERSAL PRODUCT LINE:
DUCTILE IRON — NON-JACKETED PUMPS**
SERIES 126A, 4126A

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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.



HL4126A

RELATED PRODUCTS

Steel Externals, Non-Jacketed Pumps: Catalog Section 1301
 Cast Iron, Non-Jacketed Pumps: Catalog Section 1401

OPERATING RANGE

SERIES	NOMINAL FLOW		MAXIMUM PRESSURE		TEMPERATURE RANGE		VISCOSITY RANGE	
	GPM	m ³ h	PSI	Bar	°F	°C	SSU	cSt
126A	30 - 500	7 - 114	200	14	-60 to +650	-50 to +345	28 to 2,000,000	0.1 to 440,000
4126A	30 - 500	7 - 114	200	14	-60 to +650	-50 to +345	28 to 2,000,000	0.1 to 440,000

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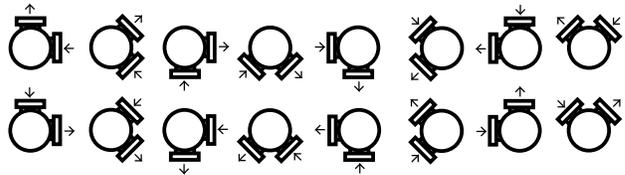
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FEATURES & BENEFITS

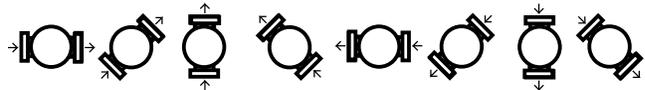
- Positive Displacement Internal Gear pumping principle handles a broad range of viscosities with constant flow rate
- Axial rotor thrust is controlled by double row ball bearing or tapered roller bearings; a bushing provides a secondary point of radial shaft support
- Rotatable bearing housing provides easy rotor end clearance adjustment for viscosity or to compensate 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 ductile iron 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; 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.

PORT LOCATION OPTIONS

90° port options:



Opposite port options:



NOTE: See page 1601.7 for a complete list of casing options by size.

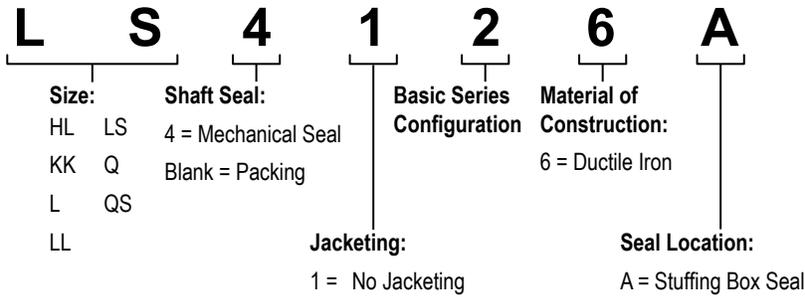


Viking Universal Product Line pumps carry a three year limited warranty. See catalog section 000 for details.

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MODEL NUMBER KEY



STANDARD MATERIALS OF CONSTRUCTION

Component	Standard Material	
Casing	Ductile Iron, ASTM A536 Grade 60-40-18	
Head	Ductile Iron, ASTM A536 Grade 60-40-18	
Bracket	Ductile Iron, ASTM A536 Grade 60-40-18	
Idler	① ② Cast Iron, ASTM A48, Class 35B	
Rotor	Standard	③ Cast Iron, ASTM A48, 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	(4126A)	Carbon Graphite
	(126A)	Bronze, ASTM B584 (B505), Alloy C93700
Bracket Bushing	(4126A)	Carbon Graphite
	(126A)	Bronze, ASTM B584 (B505), Alloy C93700
Pressure Relief Valve	⑥ Ductile Iron, ASTM A536 Grade 60-40-18	
Standard Packing (126A)	Braided PTFE	
Standard Mechanical Seal (4126A)	Carbon vs. Silicon Ni-Resist Faces, FKM Elastomers	

- ① HL sizes have a powdered metal idler: Powdered Metal MPIF 35, FC-0208-50
- ② Q and QS sizes have a hardened steel idler when pump is steel fitted: ASTM A148 Grade 80-40.
- ③ KK, LS and QS sizes have ductile iron rotor: ASTM A536 Grade 60-40-18.
- ④ Material specification for HL size steel rotor is AISI 8620, LS size steel rotor is ASTM A148 80-50.
- ⑤ KK, L, LL and LS sizes are high strength steel ASTM A434 Type 4140 Grade BC or equivalent.
- ⑥ HL size relief valves are steel ASTM A216, Grade WCB.

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CUTAWAY VIEW & PUMP FEATURES

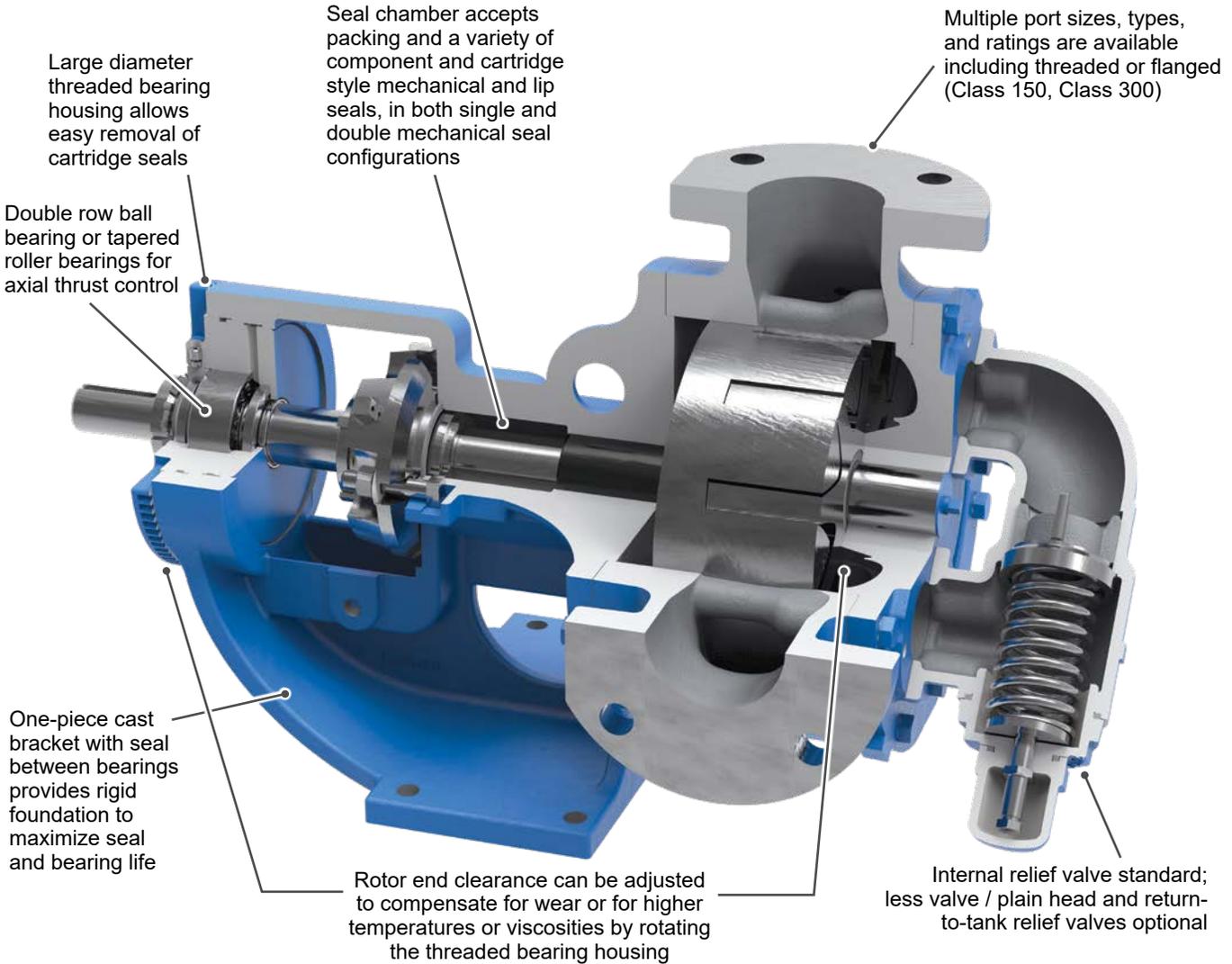
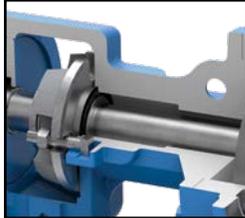
Packing



Component Seal



Cartridge Seal



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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						
	HL	KK	L	LL	LS	Q	QS
SSU	7,500	75,000	25,000	2,500	75,000	7,500	75,000
cSt	1,700	17,000	5,500	550	17,000	1,700	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 NPT Port Size	Nominal Pump Rating (100 SSU & below)			④ Maximum Hydrostatic Pressure		① Maximum Discharge Pressure		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.
HL126A	1 ½	30	7	1750	400	28	200	14	450	230	40	18
HL4126A	1 ½	30	7	1750	400	28	200	14	350	175	40	18
KK126A	2	100	23	780	400	28	200	14	450	230	110	50
KK4126A	2	100	23	780	400	28	200	14	350	175	110	50
L126A	2	135	31	640	400	28	200	14	450	230	155	70
L4126A	2	135	31	640	400	28	200	14	350	175	155	70
LQ126A	2 ½	135	31	640	400	28	200	14	450	232	175	80
LL126A	3	140	32	520	400	28	200	14	450	232	185	84
LL4126A	3	140	32	520	400	28	200	14	350	175	185	84
LS126A	3	200	45	640	400	28	200	14	450	232	190	86
LS4126A	3	200	45	640	400	28	200	14	350	175	190	86
Q126A	4	300	68	520	250	17	200	14	450	232	440	200
Q4126A	4	300	68	520	250	17	200	14	350	175	440	200
QS126A	6	500	114	520	250	17	200	14	450	232	540	245
QS4126A	6	500	114	520	250	17	200	14	350	175	540	245

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.

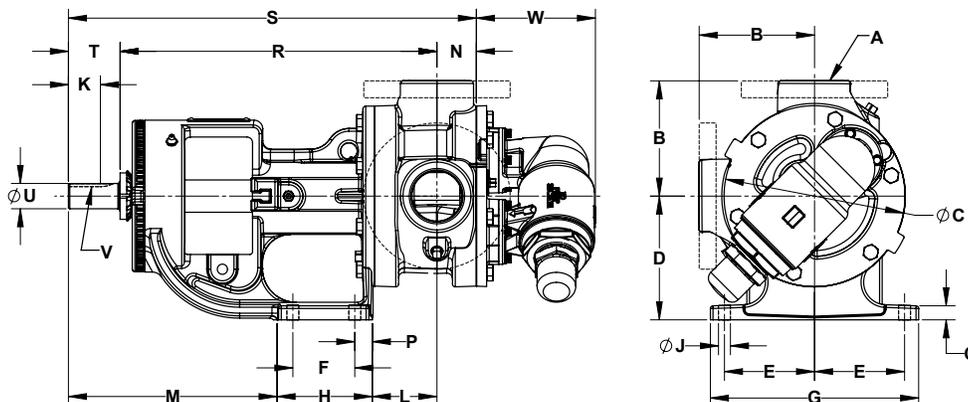
③ HL through L size ports are tapped for standard (NPT) pipe. Other thread standards available. HL through L ports are at 90°. LL through QS size ports are flanged, suitable for use with Class 150 ANSI steel companion flanges or flanged fittings. LL, LS, Q & M ports are at 90°. QS, N, R and RS ports are at 180° (opposite)

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

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DIMENSIONS – HL THROUGH Q SIZES



Model Number		A (in)		B	C	D	E	F	G	H	J	K	L	M
Packed	Mechanical Seal													
HL126A	HL4126A	① 1½	in	3.00	4.75	3.50	2.75	2.25	6.75	3.50	0.47	0.99	3.38	5.19
			mm	76	121	89	70	57	171	89	12	25	86	132
KK126A	KK4126A	① 2	in	5.12	8.00	5.50	4.00	2.75	9.25	4.00	0.53	1.42	3.00	9.38
			mm	130	203	140	102	70	235	102	13	36	76	238
L126A	L4126A	① 2	in	6.50	10.25	7.00	4.38	4.00	10.00	5.38	0.53	1.42	3.38	9.12
			mm	165	260	178	111	102	254	137	13	36	86	232
LL126A	LL4126A	② 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	13	36	86	232
LS126A	LS4126A	② 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	13	65	121	232
Q126A	Q4126A	② 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										
HL126A	HL4126A	in	1.19	0.56	0.62	10.44	13.25	1.62	0.75	.19 x .09	2.85
		mm	30	14	16	265	337	41			72
KK126A	KK4126A	in	1.75	0.62	0.62	14.12	18.12	2.25	1.12	.25 x .12	5.25
		mm	44	16	16	359	460	57			133
L126A	L4126A	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
LL126A	LL4126A	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
LS126A	LS4126A	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
Q126A	Q4126A	in	3.00	0.8	1.00	19.25	26.75	4.50	1.94	.50 x .25	8.25
		mm	76	20	25	489	679	114			210

① Ports are tapped for standard (NPT) pipe. Other thread standards available.

② Ports are suitable for Class 150 ANSI steel or stainless steel companion flanges or flanged fittings.

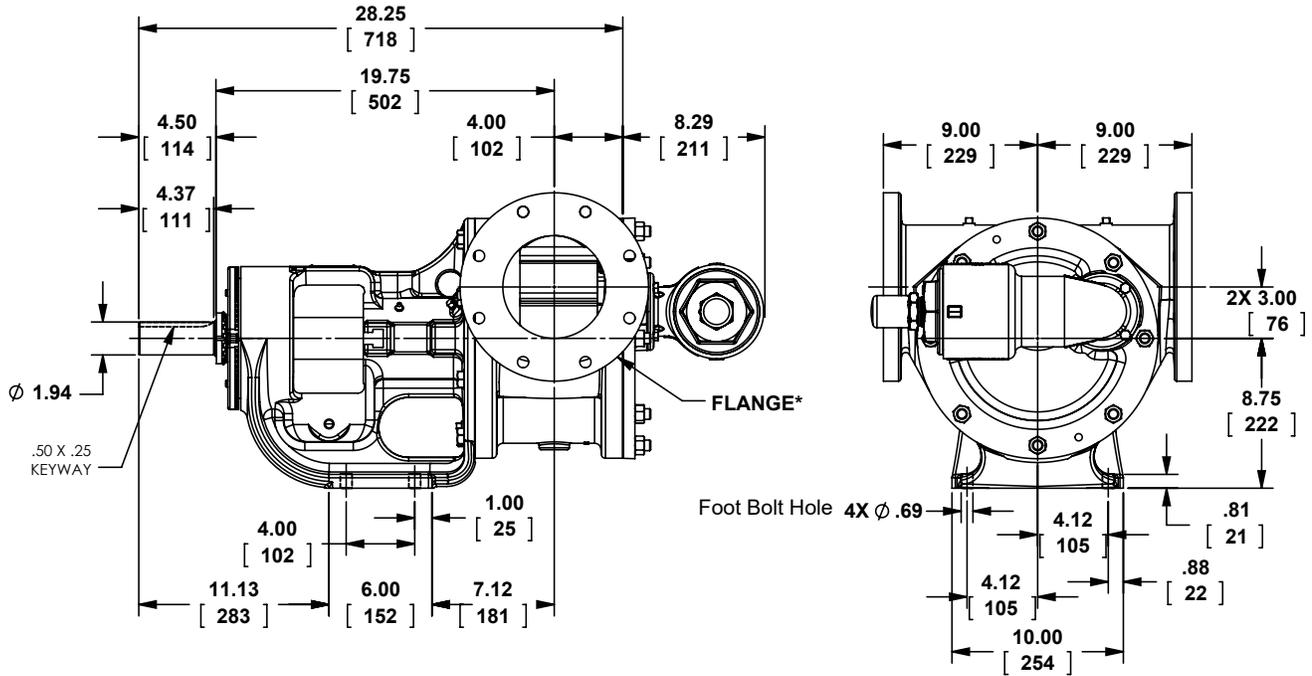
These dimensions are average and not for construction purposes. Certified prints on request.

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DIMENSIONS – QS SIZE

Dimensions shown in inches with millimeter equivalent shown in parentheses

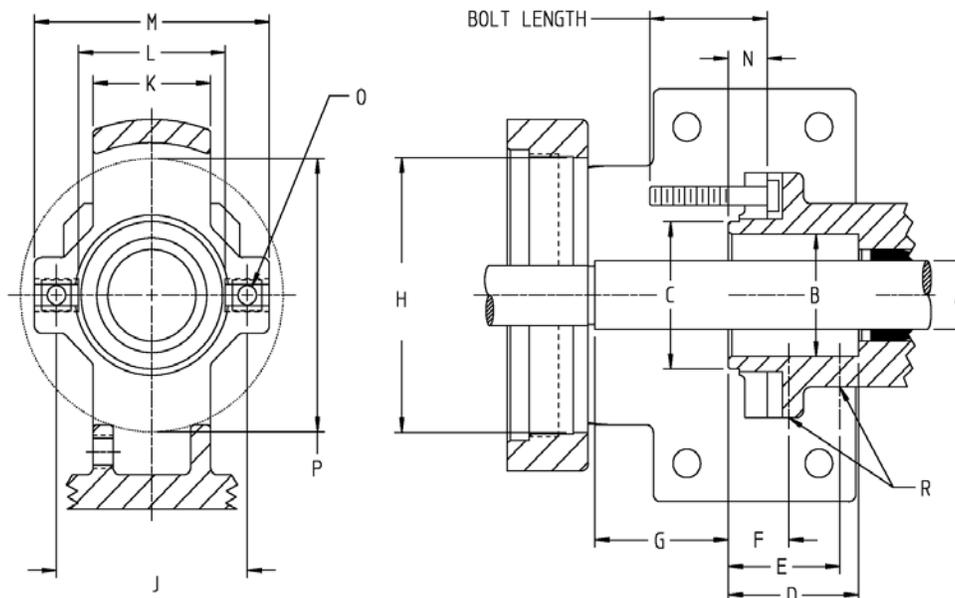


***NOTE:** Flanges are 6", suitable for use with Class 150 ANSI steel or stainless steel companion flanges or flanged fittings. They are studded, not through-bolt.

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DIMENSIONS – STUFFING BOX SEAL CHAMBER



Pump Size		A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R
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
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
L & 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

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.

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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
HL	—	—	—	—	1.7	1.8	1.9	2.1	2.4	2.8	3.4	4.5	6.2	9.5	13.5
KK	—	1.7	1.8	1.9	2.1	2.3	2.8	3.3	4.4	6.3	9.1	—	—	—	—
L	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	—	—	—	—	—	—