

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	-100 to +225	-73 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.		
			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 -100°F to +225°F (-73°C to +105°C)

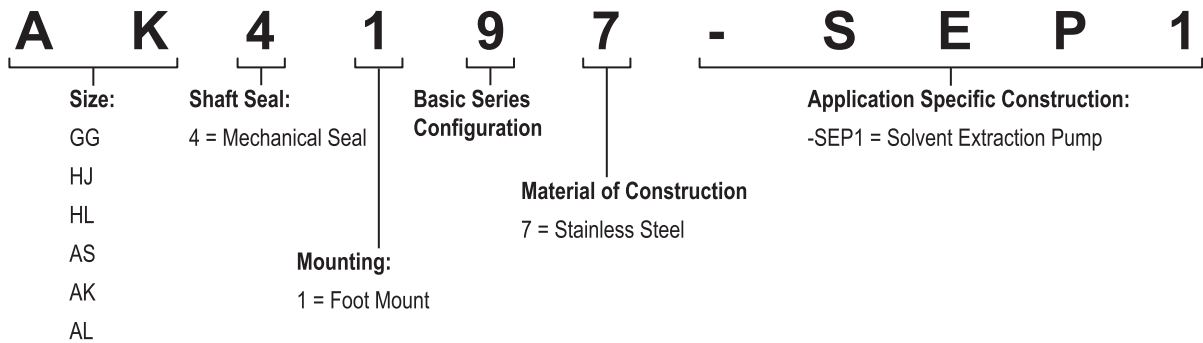
* 200 PSI (14 BAR) for above 750 SSU (162 cSt),
150 PSI (10 BAR) for 100 to 750 SSU (20 to 162 cSt),
100 PSI (7 BAR) for 38 to 100 SSU (3 to 20 cSt),
75 PSI (5 BAR) for below 38 SSU (3 cSt) (solvents, alcohols, aqueous solutions and similar liquids)

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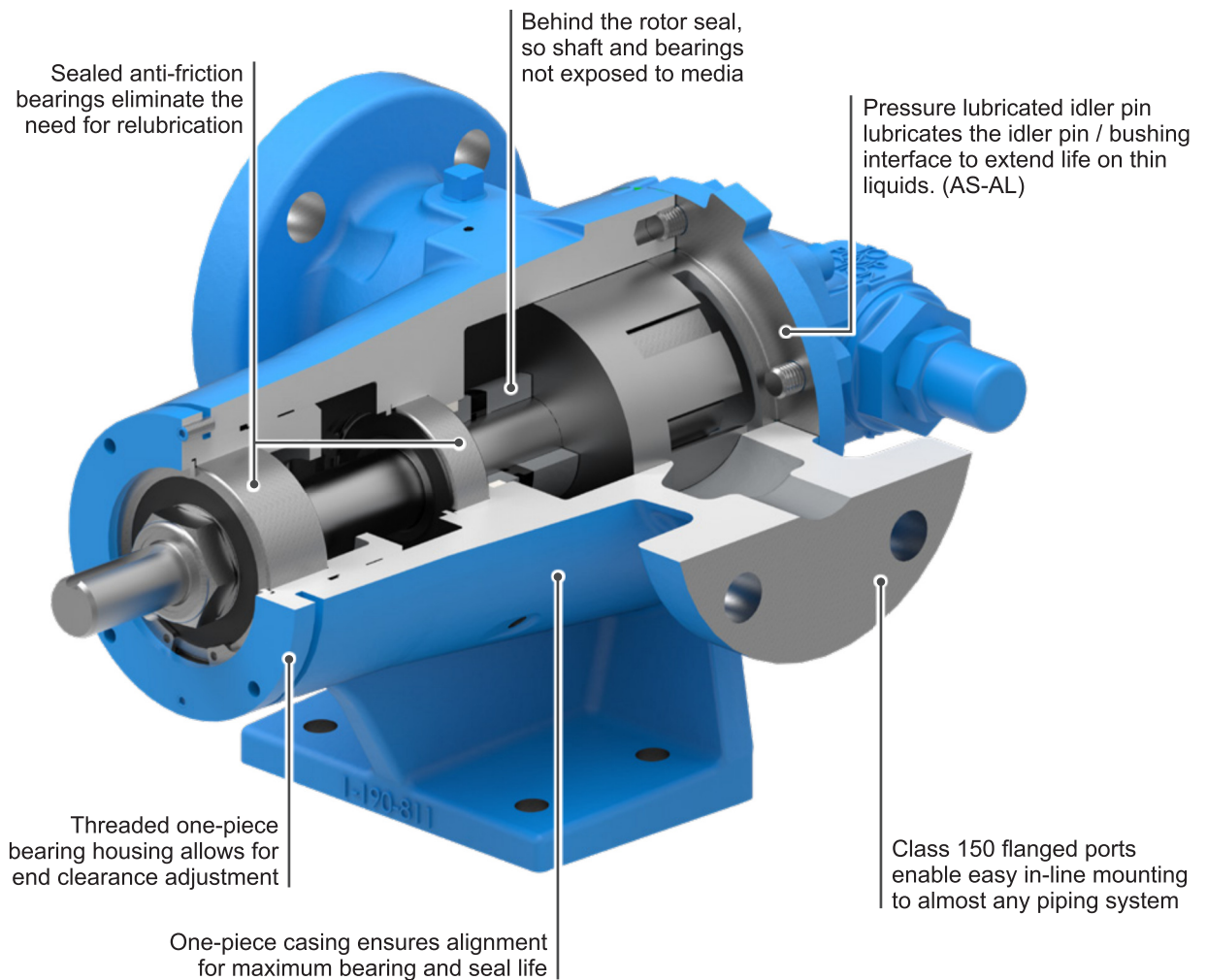
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MODEL NUMBER KEY



CUTAWAY VIEW & PUMP FEATURES



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MOUNTING OPTIONS

Direct Drive (D Drive)

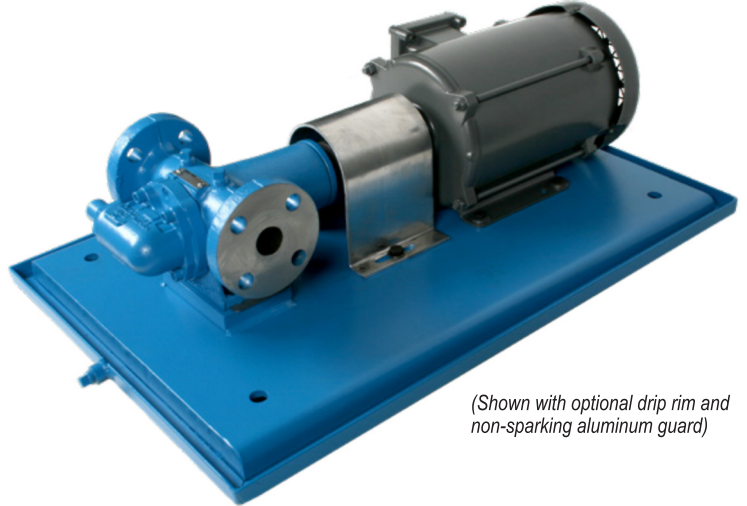
Pump and motor mounted on a base with coupling and coupling guard.

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).



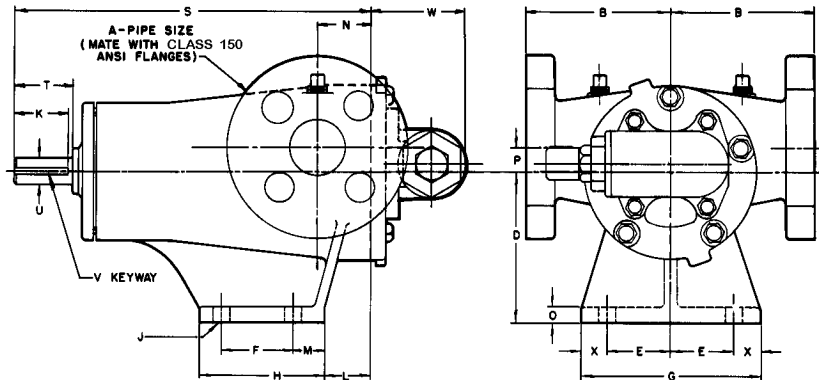
(Shown with optional drip rim and non-sparking aluminum guard)

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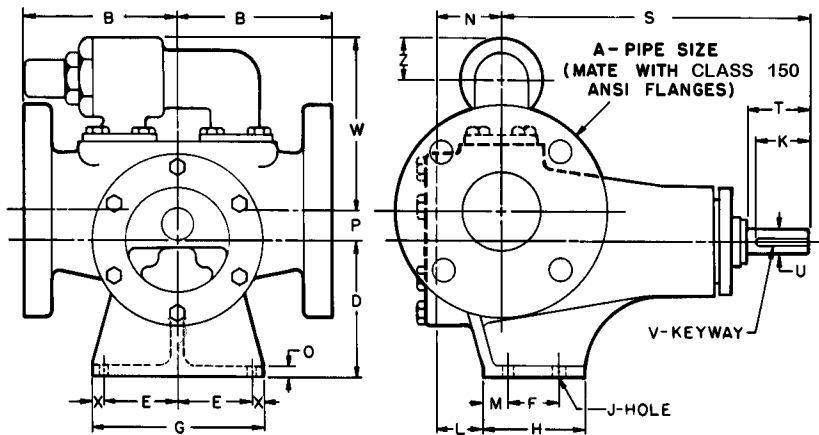
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DIMENSIONS – GG, HJ, HL SIZES



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.

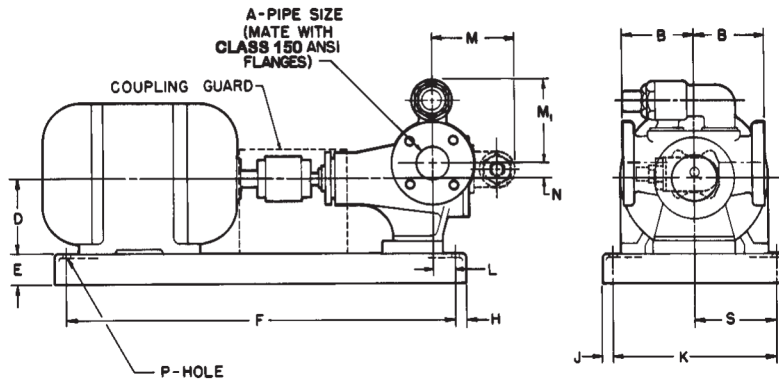
These dimensions are average and not for construction purposes. Certified prints on request.

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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	① 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	② 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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PSH REQUIRED

Printed performance curves are not available.

Performance curves can be electronically generated with the Viking Pump Curve Generator on [vikingpump.com](http://www.vikingpump.com).

NPSHR data is not available on the curve generator.

PSH (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 the design 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



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