

VIKING® HEAVY DUTY PUMPS

SERIES 4197

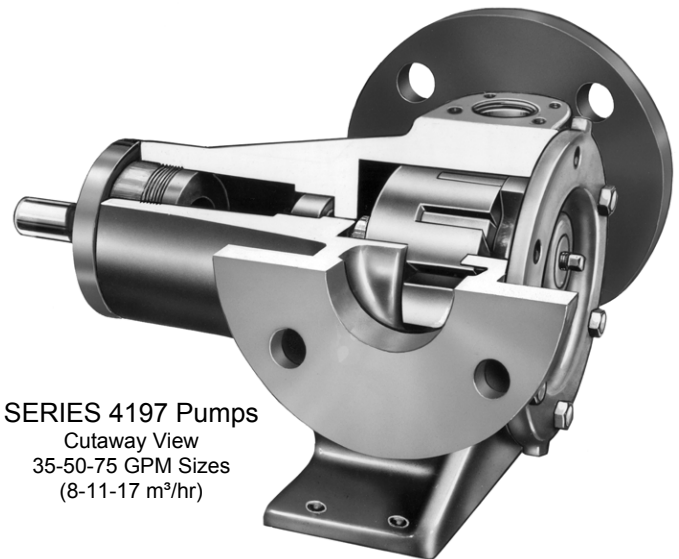
STAINLESS STEEL

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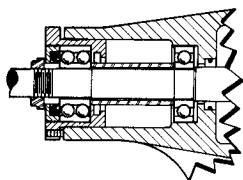
FEATURES



SERIES 4197 Pumps
Cutaway View
10-20-30 GPM Sizes
(2-4.5-7 m³/hr)

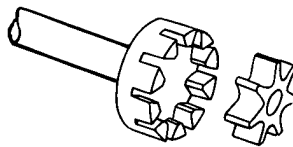


SERIES 4197 Pumps
Cutaway View
35-50-75 GPM Sizes
(8-11-17 m³/hr)



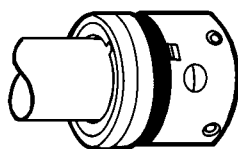
BALL BEARINGS
(Standard Equipment)

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".



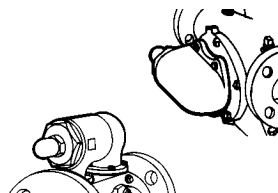
STAINLESS STEEL PUMPING ELEMENTS
(Standard Equipment)

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.



MECHANICAL SEAL
(Standard Equipment)

All Series 4197 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.



INTEGRAL RELIEF VALVE
(Standard Equipment)

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.

① Pressure Range	200 PSI (14 BAR) for 750 SSU (162 cSt) and above 150 PSI (10 BAR) for 100 to 750 SSU (20 cSt to 162 cSt) 100 PSI (7 BAR) for 38 SSU to 100 SSU (3 cSt to 20 cSt) ③ 75 PSI (5 BAR) for below 38 SSU (3 cSt)
① Temperature Range	0° F to + 350°F (- 18° C to + 177°C)
① Viscosity Range	28 SSU to 25,000 SSU (0.1 cSt to 5,500 cSt)

② GPM 10-20-30-35-50-75 (m³/hr 2-4.5-7-8-11-17) (Nominal Rating)

Viking's heavy-duty Series 4197 pumps are available in capacities of 10, 20, 30, 35, 50 and 75 GPM. All are built for high-speed handling of thin liquids requiring stainless steel construction. These pumps are ideal for such liquids as solvents, alcohols and similar liquids. The three smaller size pumps can be furnished directly connected to either 1800 or 1200 RPM motors. The three larger sizes are directly connected to 1200 RPM motors. (See Series 4197D units shown on page 164.3.) All six sizes of Viking Series 4197 pumps are furnished with single mechanical seals. This seal is a simple self-adjusting, non-leak method of shaft sealing located ahead of the casing ball bearing. The Series 4197 pumps are built for continuous or intermittent duty for such applications as filtering, circulating, transferring or booster service in chemical, general industrial, petroleum and petrochemical uses.

- ① See following pages or consult factory for specific recommendations.
- ② Nominal capacities based on handling thin liquids at 1800 RPM on three small sizes, 1200 RPM on three large sizes.
- ③ Solvents, alcohols, aqueous solutions and similar liquids.

Metric conversions are based on US measurements and rounded to the nearest whole number.

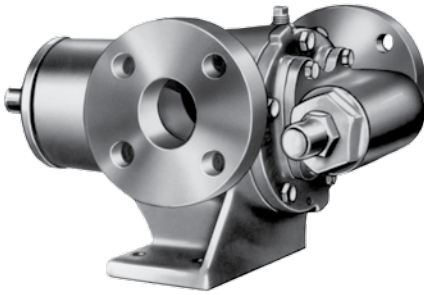
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VIKING® HEAVY DUTY PUMPS

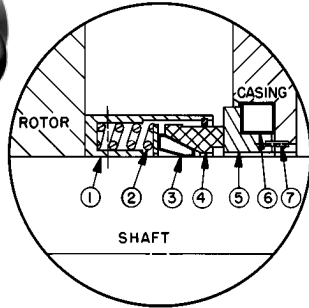
SERIES 4197

STAINLESS STEEL

UNMOUNTED PUMPS

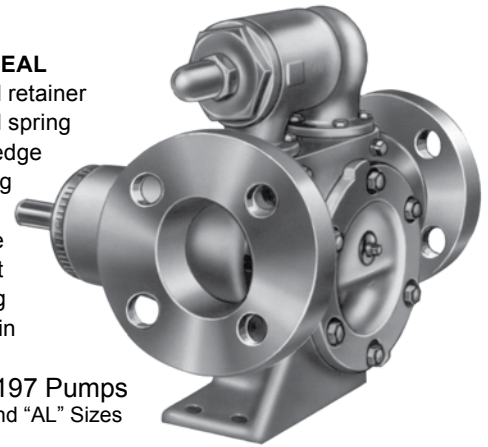


SERIES 4197 Pumps
“GG”, “HJ” and “HL” Sizes



MECHANICAL SEAL

- ① Stainless steel retainer
- ② Stainless steel spring
- ③ PTFE shaft wedge
- ④ Carbon rotating face (washer)
- ⑤ Silicon carbide stationary seat
- ⑥ PTFE seat ring
- ⑦ Anti-rotation pin



SERIES 4197 Pumps
“AS”, “AK” and “AL” Sizes

Viking’s Series 4197 heavy-duty pumps are furnished with an integral relief valve as shown in the pump photos above. Note: On the “GG”, “HJ” and “HL” sizes, the valve mounts on the pump head. The “AS”, “AK” and “AL” size valve mounts on top of the pump casing. All sizes equipped with PTFE mechanical seal with carbon rotating and silicon carbide stationary faces. An optional Viton or Kalrez / carbon versus silicon carbide

mechanical seal which is well suited for thin liquid applications is available on request. Dimensions for Unmounted Pumps—See Page 164.4.

CONSTRUCTION — SERIES 4197 (“GG” THROUGH “AL” SIZES)

Pump Construction	Casing	Head	Rotor	Idler	Rotor Shaft	Idler Pin	Idler Bushing	Shaft Sealing	Internal Relief Valve
								Mechanical Seal	
316 Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	770 Stainless Steel Alloy	Stainless Steel	Stainless Steel with Corrosion-resistant coating	Carbon Graphite	Stainless Steel, PTFE, Carbon Graphite And Silicon Carbide	Stainless Steel

SPECIFICATIONS — UNMOUNTED PUMPS

Model Numbers	150 lb. ANSI Flanged Port Size	① Nominal Pump Rating		Maximum Hydrostatic Pressure	② Maximum Pump Discharge Pressure	③ Maximum Temperature	Approximate Shipping Weight With Valve
	Inches	GPM (m ³ /hr)	RPM				
GG4197	1	10 (3) 7 (2)	1800 1200	400 (28)	④ 75 (5)—below 38 SSU 100 (7)—38 to 100 SSU 150 (10)—100 to 750 SSU 200 (14)—above 750 SSU	350°F (177°C)	20 (9)
HJ4197	1½	20 (4.5) 13 (3)	1800 1200	400 (28)	④ 75 (5)—below 38 SSU 100 (7)—38 to 100 SSU 150 (10)—100 to 750 SSU 200 (14)—above 750 SSU	350°F (177°C)	50 (23)
HL4197	1½	30 (7) 20 (4.5)	1800 1200	400 (28)	④ 75 (5)—below 38 SSU 100 (7)—38 to 100 SSU 150 (10)—100 to 750 SSU 200 (14)—above 750 SSU	350°F (177°C)	50 (23)
AS4197	3	35 (8)	1200	400 (28)	④ 75 (5)—below 38 SSU 100 (7)—38 to 100 SSU 150 (10)—100 to 750 SSU 200 (14)—above 750 SSU	350°F (177°C)	115 (52)
AK4197	3	50 (11)	1200	400 (28)	④ 75 (5)—below 38 SSU 100 (7)—38 to 100 SSU 150 (10)—100 to 750 SSU 200 (14)—above 750 SSU	350°F (177°C)	115 (52)
AL4197	3	75 (17)	1200	400 (28)	④ 75 (5)—below 38 SSU 100 (7)—38 to 100 SSU 150 (10)—100 to 750 SSU 200 (14)—above 750 SSU	350°F (177°C)	120 (55)

① Nominal capacities based on handling thin liquids at 1800 RPM on three smaller sizes, 1200 RPM on three larger sizes.

② If suction pressure exceeds 100 PSIG (7 BAR), consult factory.

③ Standard PTFE seal from 0°F to +350°F. Extra clearances are required above 225°F (107°C).

Metric conversions are based on US measurements and rounded to the nearest whole number.

④ Solvents, alcohols, aqueous solutions and similar liquids.

⑤ All valves set at 100 lbs. unless otherwise ordered.

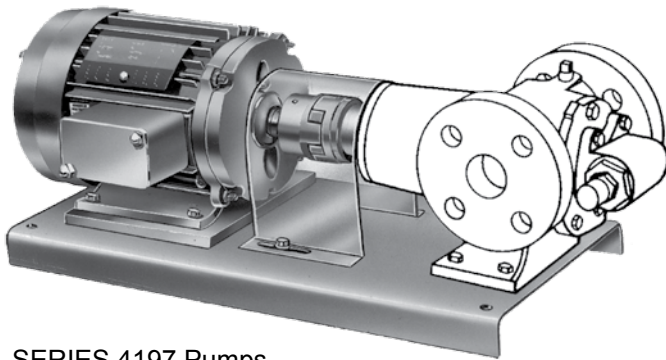
VIKING® HEAVY DUTY PUMPS

SERIES 4197

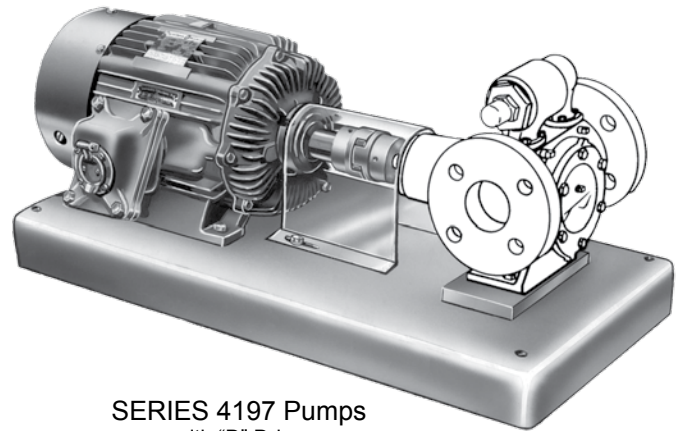
STAINLESS STEEL

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DIRECT DRIVE UNITS (“D” DRIVE)



SERIES 4197 Pumps
with “D” Drive
“GG”, “HJ” and “HL” Sizes



SERIES 4197 Pumps
with “D” Drive
“AS”, “AK” and “AL” Sizes

Viking’s Series 4197D 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.

Viking’s three large size Series 4197D direct-connected units all feature the Series 4197 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).

Dimensions for “D” Drive—See Page 164.5.

SPECIFICATIONS — “D” DRIVE UNITS

Model Numbers	150 lb. ANSI Flanged Port Size	① Nominal Pump Rating		Maximum Hydrostatic Pressure	② Maximum Pump Discharge Pressure	③ Maximum Temperature	Approximate Shipping Weight With Valve (Less Power)
		GPM (m ³ /hr)	RPM				
GG4197D	1	10 (3) 7 (2)	1800 1200	400 (28)	④ 75—below 38 SSU 100—38 to 100 SSU 150—100 to 750 SSU 200—above 750 SSU	350°F (177°C)	50 (23)
HJ4197D	1½	20 (4.5) 13 (3)	1800 1200	400 (28)	④ 75—below 38 SSU 100—38 to 100 SSU 150—100 to 750 SSU 200—above 750 SSU	350°F (177°C)	80 (36)
HL4197D	1½	30 (7) 20 (4.5)	1800 1200	400 (28)	④ 75—below 38 SSU 100—38 to 100 SSU 150—100 to 750 SSU 200—above 750 SSU	350°F (177°C)	80 (36)
AS4197D	3	35 (8)	1200	400 (28)	④ 75—below 38 SSU 100—38 to 100 SSU 150—100 to 750 SSU 200—above 750 SSU	350°F (177°C)	250 (114)
AK4197D	3	50 (11)	1200	400 (28)	④ 75—below 38 SSU 100—38 to 100 SSU 150—100 to 750 SSU 200—above 750 SSU	350°F (177°C)	250 (114)
AL4197D	3	75 (17)	1200	400 (28)	④ 75—below 38 SSU 100—38 to 100 SSU 150—100 to 750 SSU 200—above 750 SSU	350°F (177°C)	270 (123)

① Nominal capacities based on handling thin liquids at 1800 RPM on three smaller sizes, 1200 RPM on three larger sizes.

② If suction pressure exceeds 100 PSIG (7 BAR), consult factory.

Metric conversions are based on US measurements and rounded to the nearest whole number.

③ Standard PTFE seal from 0°F to +350°F. Extra clearances are required above 225°F (107°C).

④ Solvents, alcohols, aqueous solutions and similar liquids.

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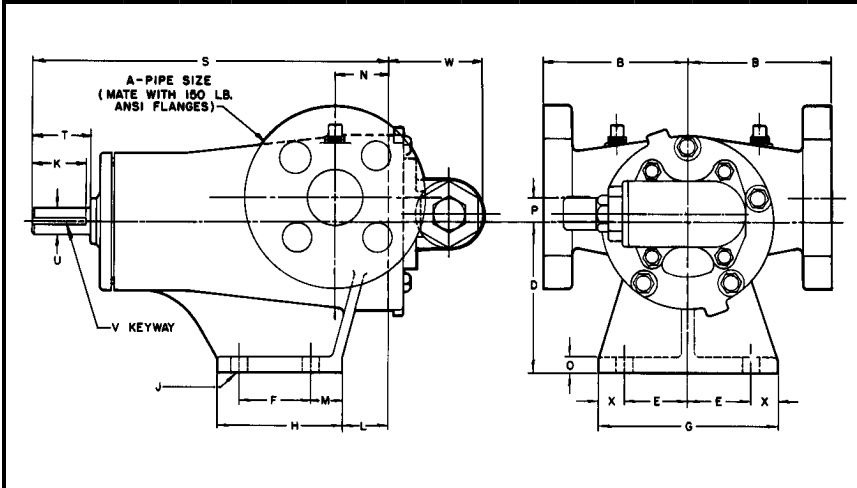
VIKING® HEAVY DUTY PUMPS

SERIES 4197

STAINLESS STEEL

DIMENSIONS

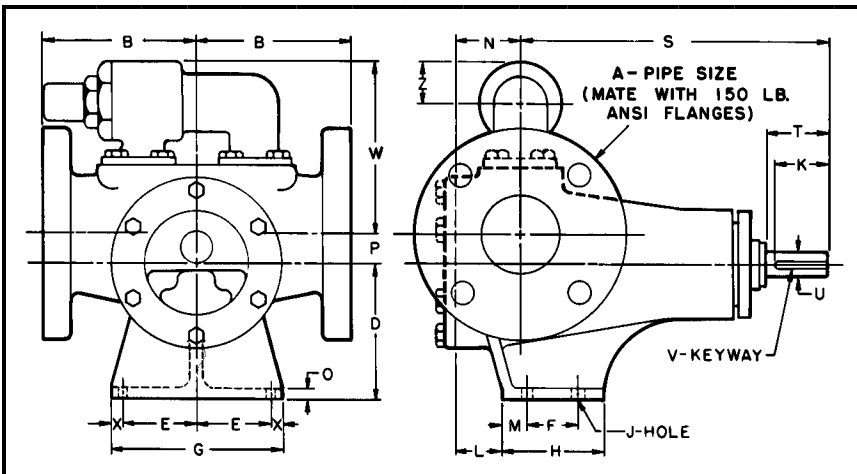
These dimensions are average and not for construction purposes. Certified prints on request.



For specifications, see page 164.2.

DIMENSIONS— SERIES 4197 UNMOUNTED PUMPS “GG”—“HJ”—“HL” SIZES

MODEL NO.		A	B	D	E	F	G	H	J	K	L	M	N	O	P	S	T	U	V	W	X
GG4197	in	1	4.00	2.75	1.62	1.31	4.00	2.44	.34	.94	.03	.66	1.12	.31	.62	7.31	1.12	.50	.12 x .06	2.66	.38
	mm		102	70	41	33	102	62	9	24	1	17	29	8	16	186	29	12.70	3.05 x 1.52	67	10
HJ4197	in	1½	4.00	4.12	1.75	2.00	5.00	3.50	.41	1.50	1.25	.88	1.50	.44	.62	10.00	1.62	.75	.19 x .09	2.84	.75
	mm		102	105	44	51	127	89	10	38	32	22	38	11	16	254	41	19.05	4.76 x 2.38	72	19
HL4197	in	1½	4.00	4.12	1.75	2.00	5.00	3.50	.41	1.50	1.25	.88	1.50	.44	.62	10.00	1.62	.75	.19 x .09	2.84	.75
	mm		102	105	44	51	127	89	10	38	32	22	38	11	16	254	41	19.05	4.76 x 2.38	72	19



For specifications, see page 164.2.

DIMENSIONS— SERIES 4197 UNMOUNTED PUMPS “AS”—“AK”—“AL” SIZES

⊙ Models “AS” and “AK” have 2½” cored openings.

MODEL NO.		A	B	D	E	F	G	H	J	K	L	M	N	O	P	S	T	U	V	W	X	Z
AS4197	in	⊙ 3	6.00	5.25	2.88	2.00	6.75	4.00	.41	2.25	1.25	1.00	2.00	.44	1.12	12.12	2.38	1.00	.25 x .12	7.00	.50	1.56
	mm		152	133	73	51	171	102	10	57	32	25	51	11	29	308	60	25.40	6.35 x 3.18	178	13	40
AK4197	in	⊙ 3	6.00	5.25	2.88	2.00	6.75	4.00	.41	2.25	1.25	1.00	2.00	.44	1.12	12.12	2.38	1.00	.25 x .12	7.00	.50	1.56
	mm		152	133	73	51	171	102	10	57	32	25	51	11	29	308	60	25.40	6.35 x 3.18	178	13	40
AL4197	in	3	6.00	5.25	2.88	2.00	6.75	4.00	.41	2.25	1.75	1.00	2.50	.44	1.12	12.12	2.38	1.00	.25 x .12	7.00	.50	1.56
	mm		152	133	73	51	171	102	10	57	44	25	64	11	29	308	60	25.40	6.35 x 3.18	178	13	40

VIKING® HEAVY DUTY PUMPS

SERIES 4197

STAINLESS STEEL

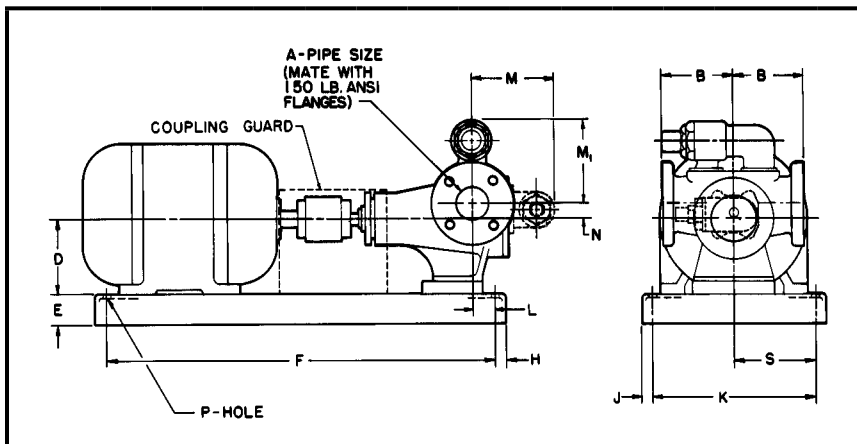
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DIMENSIONS

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

For specifications, see page 164.3.

DIMENSIONS— SERIES 4197 ("D" DRIVE) "GG"—"HJ"—"HL" "AS"—"AK"—"AL" SIZES



MODEL NO.		A	B	D	E	F	H	J	K	L	M	M ₁	N	P	S
GG4197D	in	1	4.00	① 3.50	1.50	20.50	.75	.75	8.50	.38	3.78		.62	.62	4.25
	mm		102	89	38	521	19	19	216	10	96		16	16	108
HJ4197D	in	1½	4.00	② 3.50	③ 2.12	20.50	.75	.75	8.50	0	4.34		.62	.62	4.25
	mm		102	89	54	521	19	19	216	0	110		16	16	108
HL4197D	in	1½	4.00	④ 4.50	2.94	29.00	1.00	1.50	9.00	.25	4.34		.62	.62	4.50
	mm		102	114	75	737	25	38	229	6	110		16	16	114
AS4197D	in	⑤ 3	6.00	⑥ 4.50	⑦ 3.69	29.00	1.00	1.50	9.00	0		7.00	1.12	.62	4.50
	mm		152	114	94	737	25	38	229	0		178	29	16	114
AK4197D	in	⑤ 3	6.00	⑥ 5.25	2.94	34.00	1.00	1.50	9.00	0		7.00	1.12	.62	4.50
	mm		152	133	75	864	25	38	229	0		178	29	16	114
AL4197D	in	3	6.00	⑥ 6.25	4.00	39.00	1.38	1.38	16.00	3.75		7.00	1.12	.62	8.00
	mm		152	159	102	991	35	35	406	95		178	29	16	203

- ① 56, 143T and 145T frame motors. (Available with "GG" size pump.)
 - ② 56, 143T and 145T frame motors. (Available with "HJ" or "HL" size pumps.)
 - ③ 182, 182T, 184, 184T frame motors. (Available with "HJ" through "AL" size pumps.)
 - ④ 213, 213T, 215, 215T frame motors. (Available with "HJ" through "AL" size pumps.)
 - ⑤ 254U, 254T, 256U, 256T frame motors. (Available with "AK" through "AL" size pumps.)
 - ⑥ Dimension includes motor block, base height is 1½".
 - ⑦ Dimension includes motor block, base height is 2⅝".
 - ⑧ Models "AS" and "AK" have 2½" cored openings.
- NOTE: All "AS", "AK", "AL" pump sizes available with any of the three motors shown.

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VIKING® HEAVY DUTY PUMPS

SERIES 4197

STAINLESS STEEL

Performance Curve Notes

Printed performance curves are not available.

Performance curves can be electronically generated with the Viking Pump Selector Program. This program can be located on www.vikingpump.com.

INLET CONDITIONS: The performance curves show “Based on 10 (or 15) In.-Hg.” which is Viking’s standard test condition. This is not the maximum vacuum capability of the pump.

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.

NPSH_R – FEET OF LIQUID (SP. GR. 1.0),
Viscosities to 750 SSU

Pump Size	Pump Speed, RPM					
	640	780	950	1150	1450	1750
GG	2.2	2.6	3.1	3.9	5.6	7.6
HJ, HL	2.8	3.4	4.5	6.2	9.5	13.5
AS, AK, AL	3.9	5.5	7.7	11.2	—	—

For a complete explanation of NPSH, see Application Data Sheet AD-19.

METRIC CONVERSION: The following table has been compiled for conversion to metric values.

Vacuum		Pressure		Capacity	
In.-Hg. (Inches Mercury)	kPa* (Kilopascal)	PSI (lbf / in. ²)	kPa* (Kilopascal)	GPM (Gallons / Minute)	LPM (Litre / Minute)
1	3.4	1	6.9	1	3.8
5	17	25	172	0.26	1
10	34	50	345	—	—
15	51	100	690	—	—
20	68	150	1034	—	—
25	85	200	1379	—	—
—	—	250	1724	—	—

* 100 kPa = 1 bar

FOR VISCOSITIES ABOVE 750 SSU (NPSH_R data not available): The performance curves are based on 15 In.-Hg.” While vacuums up to 20 In.-Hg. will not generally result in any loss of capacity, it is recommended that the suction line size and possibly the pump port size be increased to hold the expected vacuum to 15 In.-Hg. or less. Vacuum above 20 In.-Hg. should be avoided. (Refer to Viking’s General Catalog, Engineering Section 510, and Engineering Service Bulletin ESB-56 for information helpful in determining suction line size).

THIN LIQUIDS: The 28 SSU curves should be used when applying the Series 4197 pumps to such liquids as water, aqueous solutions, alcohols, solvents, etc.

MECHANICAL EFFICIENCY: The Mechanical Efficiency (expressed in percent) can be calculated using the following formula:

$$\text{Mechanical Efficiency} = \frac{(\text{Differential Pressure, PSI}) (\text{Capacity, GPM}) (100)}{(\text{Horsepower, BHP}) (1715)}$$

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