

# VIKING® HEAVY DUTY PUMPS

## SERIES 4193 AND 493

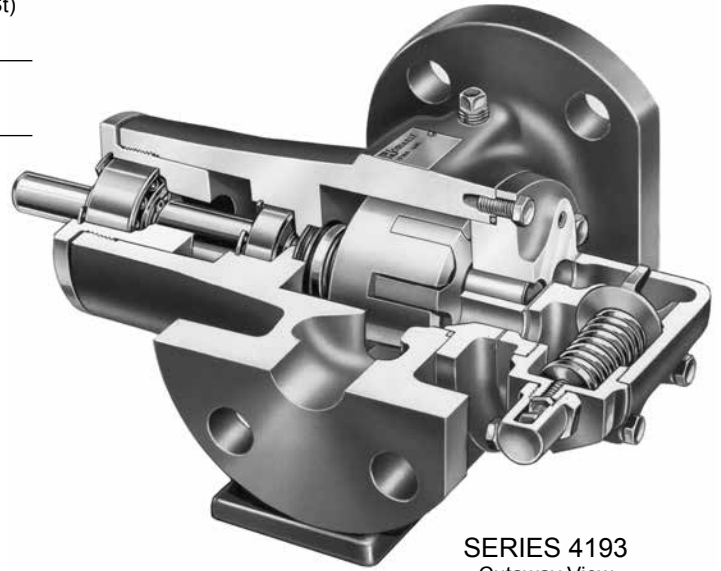
### STEEL EXTERNALS

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## FEATURES

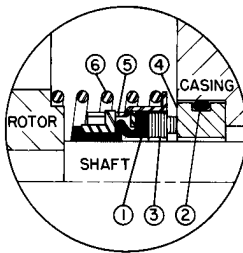
① Pressure Range	250 PSI (17 BAR) for 100 SSU (20 cSt) and above 150 PSI (10 BAR) for 38 to 100 SSU (3 cSt to 20 cSt) 100 PSI (7 BAR) for below 38 SSU (3 cSt)
① Temperature Range	0° F to + 350°F (- 18° C to + 177°C)
① Viscosity Range	28 SSU to 15,000 SSU (0.1 cP to 3,300 cSt)

**GPM up to 75**  
**(M<sup>3</sup>/Hr up to 17)**  
② (Nominal Rating)



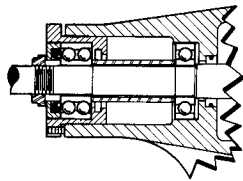
**SERIES 4193**  
Cutaway View  
10-20-30 GPM Sizes  
(2-4.5-7 M<sup>3</sup>/Hr)

## FEATURES



### MECHANICAL SEAT

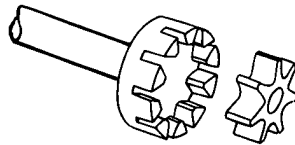
- ① Viton® Bellows
- ② Viton® O-ring
- ③ Carbon Rotating Face (Washer)
- ④ Silicon Carbide Stationary Seat
- ⑤ Steel Metal Parts
- ⑥ Stainless Steel Spring



### BALL BEARINGS

(Standard Equipment)

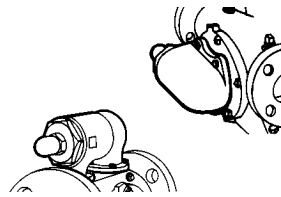
Pumps are equipped with inner casing ball bearing installed outside of mechanical seal and a radial thrust ball bearing permitting heavy-duty service up to 250 PSI (17 BAR). Bearings are "Sealed for Life".



### DUCTILE IRON PARTS

(Standard Equipment)  
("AS", "AK", "AL" Sizes)

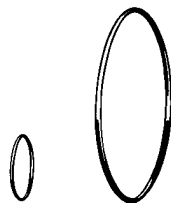
Internal pumping gears (rotor and idler) are constructed of ductile iron for added strength in handling all types of liquids up to 15,000 SSU (3,300 cSt). "HL" size rotor also furnished in ductile iron.



### INTEGRAL OVER-PRESSURE 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.



### O-RING GASKETS

(Standard Equipment)

O-Ring gaskets are used between casing and head plate and between casing and relief valve or valve plates. Flat valve gaskets furnished on "GG", "HJ" and "HL" size pumps. These gaskets provide a positive seal eliminating a chance for leakage at these points.

Viking's high-speed, heavy-duty Series 4193 and 493 steel external pumps are available in capacities up to 75 GPM. These pumps can be furnished directly connected to a 50HZ or 60 HZ motor. Series 493 is designed for vertical or horizontal flange mount installations where space is at a premium. (See pages 154.4-6) Series 4193 is 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.

They 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.

Viking's famous "gear-within-a-gear" principle has only two moving parts. It is the secret of dependable efficient operation of all positive displacement Viking rotary pumps. Positive displacement of liquid is accomplished by the meshing of rotor and idler gear teeth.

With every revolution of the pump shaft, a definite amount of liquid is drawn into the pump through the suction port.

① Values shown represent minimums or maximums. Some special construction or consideration may be required before a cataloged pump can be applied to an application involving maximum pressure or minimum or maximum temperature and/or viscosity. Certain models have restrictions in pressures and/or viscosities. See specifications, page 154.2, and performance curves, which can be electronically generated with the Viking Pump Selector Program, located on [www.vikingpump.com/pumpselector](http://www.vikingpump.com/pumpselector).

② Nominal capacities based on handling thin liquids.

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

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# VIKING® HEAVY DUTY PUMPS

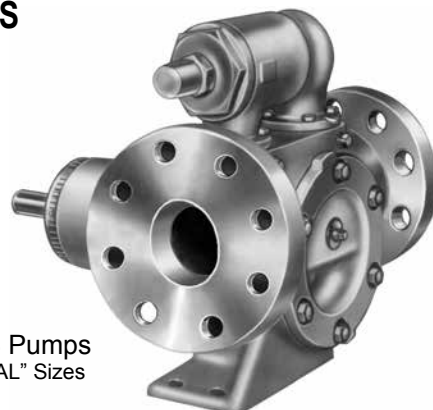
## SERIES 4193

### STEEL EXTERNALS

#### FOOT MOUNT WITH FLANGED PORTS



SERIES 4193 Pumps  
“GG”, “HJ” and “HL” Sizes



SERIES 4193 Pumps  
“AS”, “AK” and “AL” Sizes

Viking's positive displacement Series 4193 pump line with steel externals is ideal for refining, petrochemical and other applications requiring shock resistant construction. They are equipped with steel, internal type, over-pressure relief valve. The steel used meets ASTM designation A216 Grade WCB specifications. All pumps are equipped with horizontal 300 lb. ANSI flanged ports and conform to most requirements of API 676. A simple, efficient, unbalanced

single mechanical seal with Viton® gaskets, carbon and Silicon Carbide faces is standard. Other seal types and materials available on request. For handling viscosities above 15,000 SSU, refer to Series 123A pumps, Catalog Section 630.

*Dimensions for Unmounted Pumps—See Page 154.7.*

#### CONSTRUCTION—SERIES ⑤ 4193 (“GG” THROUGH “AL” SIZES)

Standard Construction Models	Casing	Head	Rotor	Idler	Rotor Shaft and Idler Pin	Idler Bushing	Internal Relief Valve
GG4193 HJ4193	Steel	Steel	⑥ Iron	⑦ ⑩ Iron	Steel	Carbon Graphite	Steel Externals
HL4193	Steel	Steel	Ductile Iron	⑩ Iron	Steel	Carbon Graphite	Steel Externals
AS4193 AK4193 AL4193	Steel	Steel	Ductile Iron	Ductile Iron	Steel	Carbon Graphite	Steel Externals

#### SPECIFICATION—UNMOUNTED PUMPS

Pump Model	Port Size (300 lb. ANSI Flanged)	Nominal Capacity at Maximum Rated Speed 22 cSt (100 SSU) Liquid ④				Maximum Pressure ①②	Maximum Hydrostatic Pressure		Steel Fitted Construction Recommended Above This Viscosity ③	Maximum Recommended Temperature ②		Approximate Shipping Weight		
		60 Hz Motor Speed		50 Hz Motor Speed			PSI	BAR		SSU (cSt)	Deg. F	Deg. C	Lb.	Kg.
		Inch	GPM	RPM	M <sup>3</sup> /hr									
GG4193	1	10 7	1800 1200	3 2	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU		400	28	7500 (1619)	350	177	25	11
HJ4193	1½	20 13	1800 1200	4.5 3	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU		400	28	7500 (1619)	350	177	50	23
HL4193	1½	30 20	1800 1200	7 4.5	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU		400	28	⑨	350	177	50	23
AS4193	3	35	1200	8	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU		400	28	⑨	350	177	100	45
AK4193	3	50	1200	11	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU		400	28	⑨	350	177	100	45
AL4193	3	75	1200	17	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU		400	28	⑨	350	177	102	46

① Consult factory for specific recommendations.

② Standard Viton® seal from 0°F to +350°F (-18°C to +177°C). Extra clearances are required above 225°F (107°C).

③ For viscosities above 15,000 SSU (3,300 cSt), provide details for recommendations, or see Series 123A, Catalog Section 630.

④ Nominal capacities based on handling thin liquids.

⑤ Viton® elastomer used in mechanical seal of Series 4193 pumps.

⑥ When steel fitted construction is required, “GG” will have steel rotor, “HJ” will have ductile iron rotor.

⑦ “GG” size has steel idler when steel fitted construction is required.

⑧ If suction pressure exceeds 100 PSIG (7 BAR), consult factory.

⑨ These models have ductile iron rotors; steel fitted rotors not necessary.

⑩ “GG”, “HJ” and “HL” sizes have powdered metal idler.

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

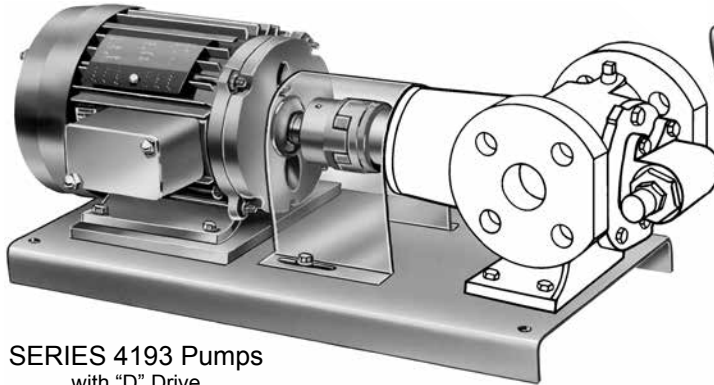
# VIKING® HEAVY DUTY PUMPS

## SERIES 4193

### STEEL EXTERNALS

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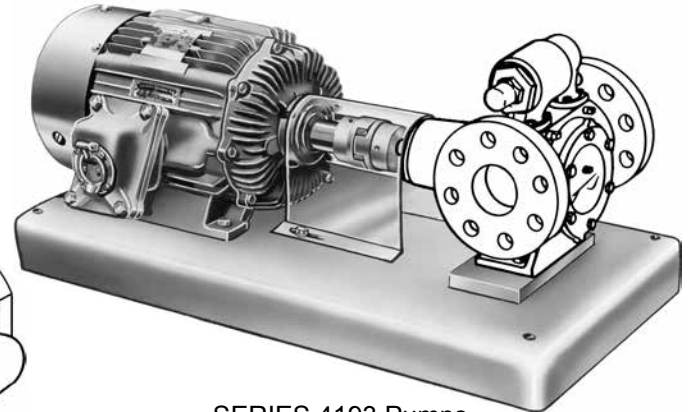
## DIRECT DRIVE UNITS (“D” DRIVE)



SERIES 4193 Pumps  
with “D” Drive  
“GG”, “HJ” and “HL” Sizes

Series 4193 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 50 HZ or 60 HZ motor. Both pump and motor mount on a sturdy formed steel base. This makes a very compact, rugged unit for heavy-duty service, handling many types of liquids up to 15,000 SSU (3,300 cSt).

The three large-size Series 4193D direct connected units all feature the 4193 high-speed pump connected by



SERIES 4193 Pumps  
with “D” Drive  
“AS”, “AK” and “AL” Sizes

a flexible coupling with guard to a 50 HZ or 60 HZ motor. Both pump and motor are mounted on a heavy-duty formed steel base. The three larger sizes are equipped with ductile iron pump gears (rotor and idler). O-Ring head and valve gaskets, mechanical seals and automatic pressure lubrication systems are also standard construction.

*Dimensions for “D” Drive—See Page 154.8.*

## SPECIFICATIONS—“D” DRIVE UNITS

Pump Model	Port Size (300 lb. ANSI Flanged)	Nominal Capacity at Maximum Rated Speed 22 cSt (100 SSU) Liquid ①				Maximum Pressure ②	Maximum Hydrostatic Pressure		Steel Fitted Construction Recommended Above This Viscosity ④	Maximum Recommended Temperature ③		Approximate Shipping Weight		
		60 Hz Motor Speed		50 Hz Motor Speed			PSI	BAR		SSU (cSt)	Deg. F	Deg. C	Lb.	Kg.
		GPM	RPM	M <sup>3</sup> /hr	RPM									
GG4193D	1	10 7	1800 1200	3 2	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	7500 (1619)	350	177	51	23	
HJ4193D	1½	20 13	1800 1200	4.5 3	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	7500 (1619)	350	177	75	34	
HL4193D	1½	30 20	1800 1200	7 4.5	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	⑤	350	177	75	34	
AS4193D	3	35	1200	8	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	⑤	350	177	230	104	
AK4193D	3	50	1200	11	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	⑤	350	177	230	104	
AL4193D	3	75	1200	17	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	⑤	350	177	235	107	

① Nominal capacities based on handling thin liquids.

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

③ Standard Viton® seal from 0°F to +350°F (-18°C to +177°C).

Extra clearances are required above 225°F (107°C).

④ For viscosities above 15,000 SSU (3,300 cSt), provide details for recommendations, or see Series 123A, Catalog Section 630.

⑤ These models have ductile iron rotors; steel fitted rotors not necessary.

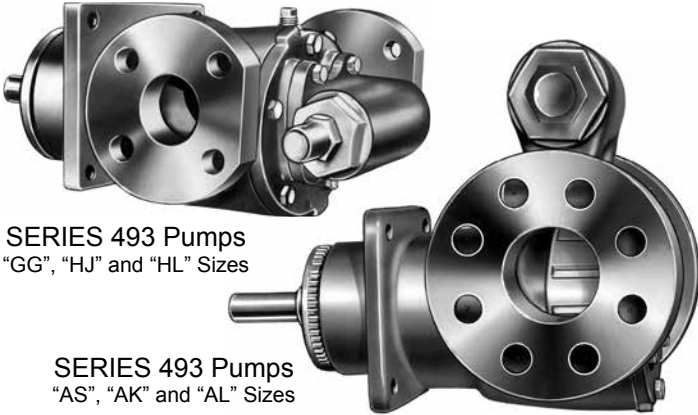
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# VIKING® HEAVY DUTY PUMPS

## SERIES 493

### STEEL EXTERNALS

#### VERTICAL OR HORIZONTAL FLANGE BRACKET MOUNT



SERIES 493 Pumps  
“GG”, “HJ” and “HL” Sizes

SERIES 493 Pumps  
“AS”, “AK” and “AL” Sizes

**GPM up to 75**  
**(M<sup>3</sup>/Hr up to 17)**

④ (Nominal Rating)

This Flange Bracket Mount Series 493 pump line with steel externals is ideal for refining, marine, petrochemical and other applications requiring shock resistant construction. They are equipped with steel flange-mount casing and are furnished with

① Pressure Range	250 PSI (17 BAR) for 100 SSU (20 cSt) and above 150 PSI (10 BAR) for 38 to 100 SSU (3 cSt to 20 cSt) 100 PSI (7 BAR) for below 38 SSU (3 cSt)
② Temperature Range	0° F to + 350°F (- 18° C to + 177°C)
③ Viscosity Range	28 SSU to 15,000 SSU (0.1 cP to 3,300 cSt)

steel, internal type, over-pressure relief valve. The steel used meets ASTM designation A216 Grade WCB specifications. All pumps are equipped with horizontal 300 lb. ANSI flanged ports and conform to most requirements of API 676. A simple, efficient, unbalanced single mechanical seal with Viton® gaskets, carbon and Silicon Carbide faces is standard. Other seal types and materials available on request. For handling viscosities above 15,000 SSU, refer to Series 123A pumps, Catalog Section 630. Consult factory or Viking representative.

*Dimensions for Unmounted Pumps—See Page 154.8 and 154.9.*

#### CONSTRUCTION—SERIES ⑤ 493 (“GG” THROUGH “AL” SIZES)

Standard Construction Models	(Units only) Mounting Bracket	Casing	Head	Rotor	Idler	Rotor Shaft and Idler Pin	Idler Bushing	Internal Relief Valve
GG493 HJ493	Iron	Steel	Steel	⑥ Iron	⑦ ⑧ Iron	Steel	Carbon Graphite	Steel Externals
HL493	Iron	Steel	Steel	Ductile Iron	⑨ Iron	Steel	Carbon Graphite	Steel Externals
AS493 AK493 AL493	Iron	Steel	Steel	Ductile Iron	Ductile Iron	Steel	Carbon Graphite	Steel Externals

#### SPECIFICATIONS—UNMOUNTED PUMPS

Pump Model	Port Size (300 lb. ANSI Flanged)	Nominal Capacity at Maximum Rated Speed 22 cSt (100 SSU) Liquid ④				Maximum Pressure ⑥		Maximum Hydrostatic Pressure	Steel Fitted Construction Recommended Above This Viscosity ③	Maximum Recommended Temperature ②		Approximate Shipping Weight			
		60 Hz Motor Speed		50 Hz Motor Speed		PSI (BAR)	PSI			BAR	SSU (cSt)	Deg. F	Deg. C	Lb.	Kg.
		GPM	RPM	M <sup>3</sup> /hr	RPM										
GG493	1	10 7	1800 1200	3 2	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	7500 (1619)	350	177	18	8		
HJ493	1½	20 13	1800 1200	4.5 3	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	7500 (1619)	350	177	40	18		
HL493	1½	30 20	1800 1200	7 4.5	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	⑨	350	177	40	18		
AS493	3	35	1200	8	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	⑨	350	177	80	36		
AK493	3	50	1200	11	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	⑨	350	177	80	36		
AL493	3	75	1200	17	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	⑨	350	177	81	37		

① Consult factory for specific recommendations.

② Standard Viton® seal from 0°F to +350°F (-18°C to +177°C).

Extra clearances are required above 225°F (107°C).

③ For viscosities above 15,000 SSU (3,300 cSt), provide details for recommendations, or see Series 123A, Catalog Section 630.

④ Nominal capacities based on handling thin liquids.

⑤ Viton® elastomer used in mechanical seal of Series 4193 pumps.

⑥ When steel fitted construction is required, “GG” will have steel rotor, “HJ” will have ductile iron rotor.

⑦ “GG” size has steel idler when steel fitted construction is required.

⑧ If suction pressure exceeds 100 PSIG (7 BAR), consult factory.

⑨ These models have ductile iron rotors; steel fitted rotors not necessary.

⑩ “GG”, “HJ” and “HL” sizes have powdered metal idler.

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

# VIKING® HEAVY DUTY PUMPS

## SERIES 493

### STEEL EXTERNALS

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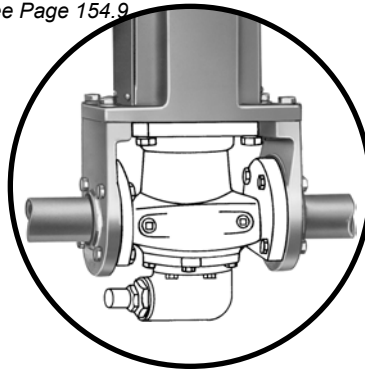
## FLANGE BRACKET VERTICAL INLINE MOUNTED PUMPS (“IM” DRIVE)

Viking’s Series 493 pump line can be mounted either vertically or horizontally to electric motors. Vertical inline mounted unit described on this page comes complete with “C” flange mounting bracket and coupling between motor and pump.

Ideal for refining, petrochemical, marine and other applications requiring shock resistant construction, these units save space and weight. They are equipped with steel casing and head and are furnished with steel, internal type, over-pressure relief valve. The steel used meets ASTM designation A216 Grade WCB specifications. All pumps are equipped with opposite 300 lb. ANSI flanged ports. They also conform to most requirements of API 676. A simple, efficient, unbalanced single mechanical seal with Viton® gaskets, carbon and Silicon Carbide faces is standard.

Dimensions for Mounted Units—See Page 154.9

Optional Pump mounting arrangement allows easy pump removal without disturbing piping or motor. Consult factory. (“IOM” Drive)



SERIES 493 Pumps  
“VIKING VERTICAL”  
Inline mounted unit  
with “IM” Drive



### SPECIFICATIONS—“IM” DRIVE UNITS

Pump Model	Port Size (300 lb. ANSI Flanged) Inch	Nominal Capacity at Maximum Rated Speed 22 cSt (100 SSU) Liquid ①				Maximum Pressure ② PSI (BAR)	Maximum Hydrostatic Pressure		Steel Fitted Construction Recommended Above This Viscosity ④ SSU (cSt)	Maximum Recommended Temperature ③		Approximate Shipping Weight		
		60 Hz Motor Speed		50 Hz Motor Speed			PSI	BAR		Deg. F	Deg. C	Lb.	Kg.	
		GPM	RPM	M <sup>3</sup> /hr	RPM									
GG493IM	1	10 7	1800 1200	3 2	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU		400	28	7500 (1619)	350	177	28	13
HJ493IM	1½	20 13	1800 1200	4.5 3	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU		400	28	7500 (1619)	350	177	50	22
HL493IM	1½	30 20	1800 1200	7 4.5	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU		400	28	⑤	350	177	50	22
AS493IM	3	35	1200	8	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU		400	28	⑤	350	177	110	50
AK493IM	3	50	1200	11	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU		400	28	⑤	350	177	110	50
AL493IM	3	75	1200	17	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU		400	28	⑤	350	177	112	51

① Nominal capacities based on handling thin liquids.

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

③ Standard Viton® seal from 0°F to +350°F (-18°C to +177°C).  
Extra clearances are required above 225°F (107°C).

④ For viscosities above 15,000 SSU (3,300 cSt), provide details for recommendations, or see Series 123A, Catalog Section 630.

⑤ These models have ductile iron rotors; steel fitted rotors not necessary.

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

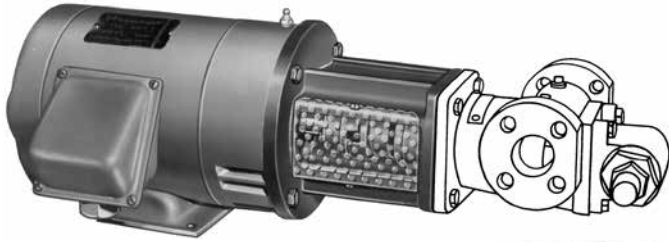
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# VIKING® HEAVY DUTY PUMPS

## SERIES 493

### STEEL EXTERNALS

#### FLANGE BRACKET HORIZONTAL MOUNTED PUMPS (“M” DRIVE)



SERIES 493 Pumps  
with “M” Drive  
“GG”, “HJ” and “HL” Sizes

SERIES 493 Pumps  
with “M” Drive “AS”, “AK” and “AL”



For more compact horizontal mounting, the “C” face mounted Series 493 Heavy-Duty pump units in all six sizes include a combination motor “C” flange and square pump flange bracket with coupling connecting motor and pump. The three smaller units connect to a foot mounted motor, while the three larger units include a foot type bracket to mount a flange type motor.

The three larger size pumps are equipped with ductile iron pump gears (rotor and idler) and automatic lubrication system. O-Ring head gaskets and mechanical seals are standard construction. The steel used meets ASTM designation A216 Grade WCB specifications. All pumps are equipped with horizontal 300 lb. ANSI flanged ports and conform to most requirements of API 676.

*Dimensions for “D” Drive—See Page 154.10 and 154.11.*

#### SPECIFICATIONS—“M” DRIVE UNITS

Pump Model	Port Size (300 lb. ANSI Flanged)	Nominal Capacity at Maximum Rated Speed 22 cSt (100 SSU) Liquid ①				Maximum Pressure ②	Maximum Hydrostatic Pressure		Steel Fitted Construction Recommended Above This Viscosity ④	Maximum Recommended Temperature ③		Approximate Shipping Weight	
		60 Hz Motor Speed		50 Hz Motor Speed			PSI	BAR		Deg. F	Deg. C	Lb.	Kg.
		Inch	GPM	RPM	M <sup>3</sup> /hr								
GG493M	1	10 7	1800 1200	3 2	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	7500 (1619)	350	177	28	13
HJ493M	1½	20 13	1800 1200	4.5 3	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	7500 (1619)	350	177	50	22
HL493M	1½	30 20	1800 1200	7 4.5	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	⑤	350	177	50	22
AS493M	3	35	1200	8	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	⑤	350	177	110	50
AK493M	3	50	1200	11	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	⑤	350	177	110	50
AL493M	3	75	1200	17	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	⑤	350	177	112	51

① Nominal capacities based on handling thin liquids.

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

③ Standard Viton® seal from 0°F to +350°F (-18°C to +177°C). Extra clearances are required above 225°F (107°C).

④ For viscosities above 15,000 SSU (3,300 cSt), provide details for recommendations, or see Series 123A, Catalog Section 630.

⑤ These models have ductile iron rotors; steel fitted rotors not necessary.

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

# VIKING® HEAVY DUTY PUMPS

## SERIES 4193

### STEEL EXTERNALS

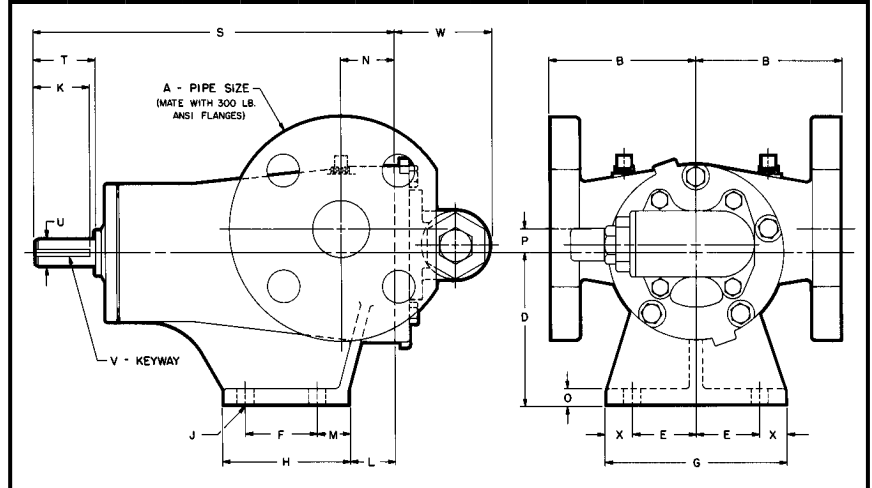
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### DIMENSIONS

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

For specifications, see page 154.2.

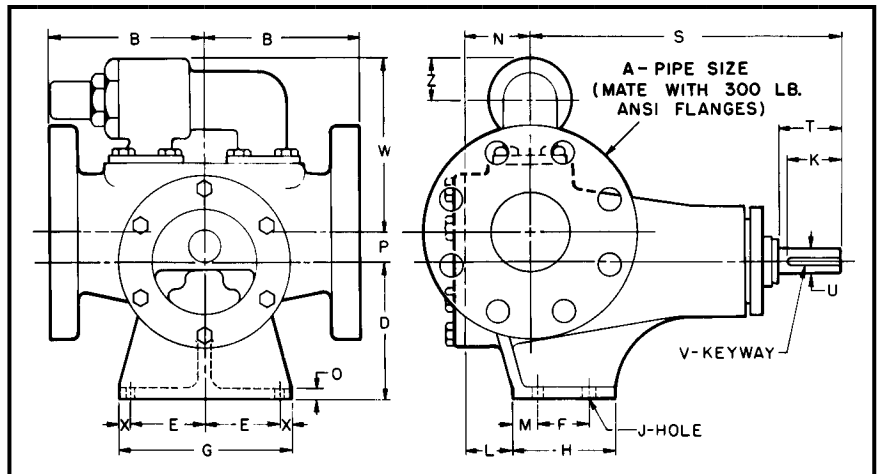
### DIMENSIONS— SERIES 4193 UNMOUNTED PUMPS “GG” — “HJ” — “HL” SIZES



MODEL NO.		A	B	D	E	F	G	H	J	K	L	M	N	O	P	S	T	U	V	W	X
GG4193	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	.500	.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
HJ4193	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	.750	.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
HL4193	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	.750	.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 154.2.

### DIMENSIONS— SERIES 4193 UNMOUNTED PUMPS “AS” — “AK” — “AL” SIZES



NOTE: Models “AS” and “AK” have 2½” cored opening.

MODEL NO.		A	B	D	E	F	G	H	J	K	L	M	N	O	P	S	T	U	V	W	X	Z
AS4193	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	1.000	.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
AK4193	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	1.000	.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
AL4193	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	1.000	.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

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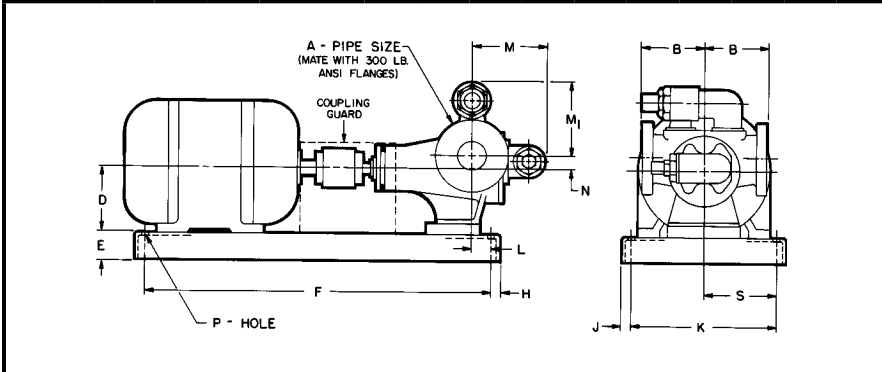
# VIKING® HEAVY DUTY PUMPS

## SERIES 4193 AND 493

### STEEL EXTERNALS

### DIMENSIONS

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

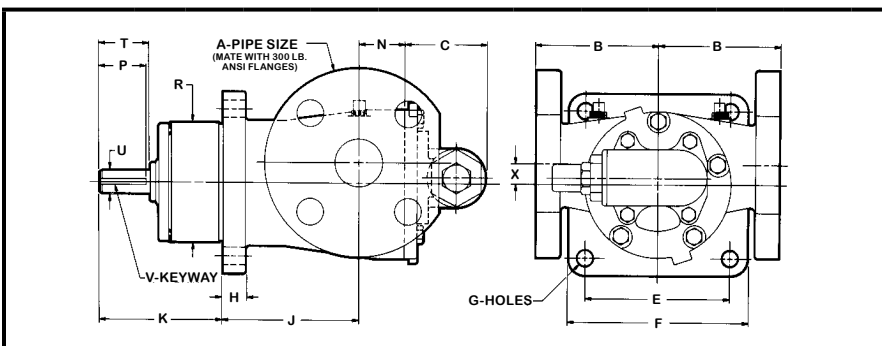


For specifications, see page 154.3.

### DIMENSIONS— SERIES 4193 ("D" DRIVE) "GG"—"HJ"—"HL" "AS"—"AK"—"AL" SIZES

MODEL NO.		A	B	D	E	F	H	J	K	L	M	M <sub>1</sub>	N	P	S
GG4193D	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
HJ4193D	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
HL4193D	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
AS4193D	in	3	6.00	⑤ 4.50	⑥ 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
AK4193D	in	3	6.00	⑦ 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
AL4193D	in	3	6.00	⑧ 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" thru "AL" size pumps.)
  - ④ 213, 213T, 215, 215T frame motors. (Available with "HJ" thru "AL" size pumps.)
  - ⑤ 254U, 254T, 256U, 256T frame motors. (Available with "AK" thru "AL" size pumps.)
  - ⑥ Dimension includes motor block, base height is 1½".
  - ⑦ Dimension includes motor block, base height is 2 15/16".
- NOTE:** Models "AS" and "AK" have 2½" cored opening.  
**NOTE:** All "AS", "AK", "AL" pump sizes available with any of the three motors shown in columns.



For specifications, see page 154.4.

### DIMENSIONS— SERIES 493 UNMOUNTED PUMPS "GG"—"HJ"—"HL" SIZES

MODEL NO.		A	B	C	E	F	G	H	J	K	N	P	R	T	U	V	X
GG493	in	1	4.00	2.66	3.00	4.00	.41	.62	3.44	2.81	1.12	.94	2.875 2.873	1.12	.500	.12 x .06	.62
	mm		102	67	76	102	10	16	87	71	29	24	73	29	12.70	3.05 x 1.52	16
HJ493	in	1½	4.00	2.84	4.75	5.88	.56	.75	4.50	4.00	1.50	1.50	3.875 3.873	1.62	.750	.19 x .09	.62
	mm		102	72	121	149	14	19	114	102	38	38	98	41	19.05	4.76 x 2.38	16
HL493	in	1½	4.00	2.84	4.75	5.88	.56	.75	4.50	4.00	1.50	1.50	3.875 3.873	1.62	.750	.19 x .09	.62
	mm		102	72	121	149	14	19	114	102	38	38	98	41	19.05	4.76 x 2.38	16



# VIKING® HEAVY DUTY PUMPS

## SERIES 493

### STEEL EXTERNALS

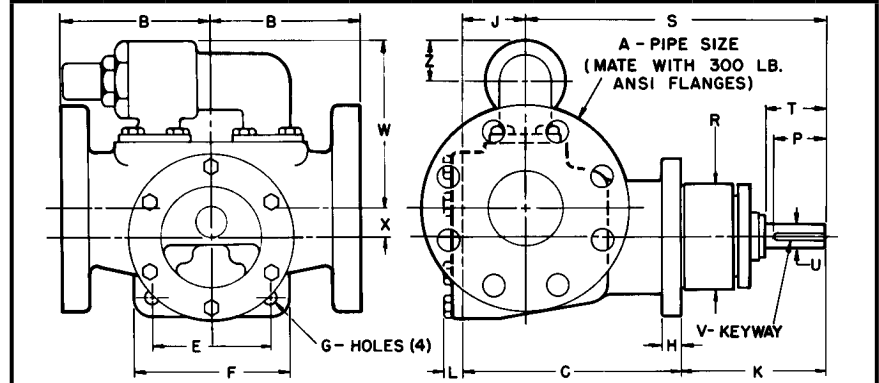
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## DIMENSIONS

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

For specifications, see page 154.4.

### DIMENSIONS— SERIES 493 UNMOUNTED PUMPS “AS”—“AK”—“AL” SIZES

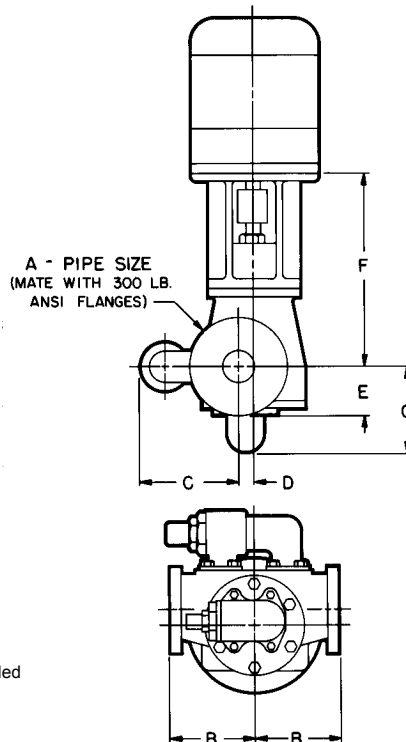


NOTE: Models “AS” and “AK” have 2½” cored opening.

MODEL NO.		A	B	C	E	F	G	H	J	K	L	P	R	S	T	U	V	W	X	Z
AS493	in	3	6.00	8.38	4.75	6.25	.56	.75	2.00	5.75	.88	2.25	4.250 4.248	12.12	2.50	1.000	.25 x .12	7.00	1.12	1.56
	mm			213					51											
AK493	in			8.38					2.00											
	mm			213					51											
AL493	in			8.88					2.50											
	mm			152					225											

For specifications, see page 154.5.

### DIMENSIONS— SERIES 493 VERTICAL FLANGE MOUNT INLINE UNITS (“IM” DRIVE) UNMOUNTED PUMPS “GG”—“HJ”—“HL”— “AS”—“AK”—“AL” SIZES



MODEL NO.		A	B	C	C <sub>1</sub>	D	E	MOTOR FRAME	F
GG493IM	in	1	4.00	3.78	.62	2.44	56C	8.88	
	mm						143TC	225	
	in						182TC	9.56	
	mm						184TC	243	
HL493IM	in	1½	4.00	4.34	.62	3.06	56C	11.12	
	mm						143TC	283	
	in						182TC	11.81	
	mm						184TC	300	
	in						213TC	12.56	
mm	215TC	319							
AS493IM AK493IM AL493IM	in	3	6.00	7.00	1.12	4.12	182TC	16.19	
	mm						184TC		
	in						213TC		
	mm						215TC		
	in						254TC		
mm	256TC	411							

① Dimensions are correct for 182TC through 215TC motors. For 254TC/256TC motors, add .88” to the dimensions shown.

NOTE: Models “AS” and “AK” have 2½” cored opening.  
NOTE: Jaw type coupling with straight jaws recommended to facilitate assembly of motor and pump to bracket.  
COUPLING IS GUARDED WITH PLATES OVER SIDE OPENINGS ON MOUNTING BRACKET.

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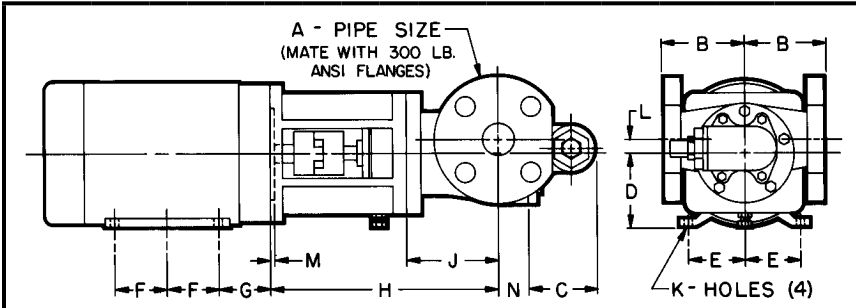
# VIKING® HEAVY DUTY PUMPS

## SERIES 493

### STEEL EXTERNALS

### DIMENSIONS

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

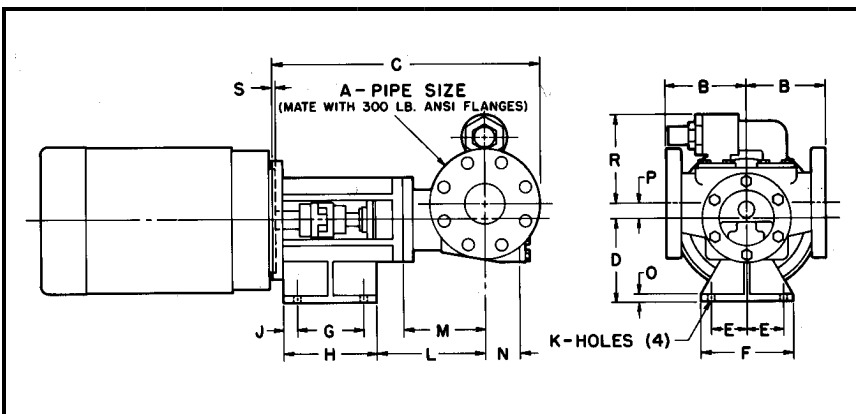


For specifications, see page 154.6.

### DIMENSIONS— SERIES 493 ("M" DRIVE) — NEMA C "GG"—"HJ"—"HL" SIZES

MODEL NO.		A	B	C	J	L	M	N	MOTOR FRAME	D	E	F	G	H	K																		
GG493M	in	1	4.00	2.66	3.44	.62	.19	1.12	56C	3.50	2.44	1.50	2.56	8.88	.34 SLOT																		
	mm								62		38	65	9																				
	in								102	67	87	16	5	29	143TC	4.50	2.75	2.00	2.88	9.56	.34												
	mm														51		2.50	2.25	9														
	in														102	72	114	16	5	38	145TC	4.50	3.75	2.50	3.44	11.81	.41						
	mm																				57			2.75				2.75	10				
	in																				102	72	114	16	5	38	182TC	5.25	4.25	2.75	4.50	12.56	.41
	mm																										70			3.50			
in	102	72	114	16	5	38	184TC	5.25	4.25	2.75	4.50	12.56	.41																				
mm							70			3.50				3.50	10																		
in	102	72	114	16	5	38	213TC	5.25	4.25	2.75	4.50	12.56	.41																				
mm							70			3.50				3.50	10																		
in	102	72	114	16	5	38	215TC	5.25	4.25	2.75	4.50	12.56	.41																				
mm							70			3.50				3.50	10																		

**NOTE:** Jaw type coupling with straight jaws recommended to facilitate assembly of motor and pump to bracket. COUPLING IS GUARDED WITH PLATES OVER SIDE OPENINGS ON MOUNTING BRACKET.



For specifications, see page 154.6.

### DIMENSIONS— SERIES 493 ("M" DRIVE) — NEMA C "AS"—"AK"—"AL" SIZES

① Dimensions are correct for 182TC through 215TC motors. For 254TC/256TC motors, add .88" to the dimensions shown.

**NOTE:** Models "AS" and "AK" have 2½" cored opening. **NOTE:** Jaw type coupling with straight jaws recommended to facilitate assembly of motor and pump to bracket. COUPLING IS GUARDED WITH PLATES OVER SIDE OPENINGS ON MOUNTING BRACKET.

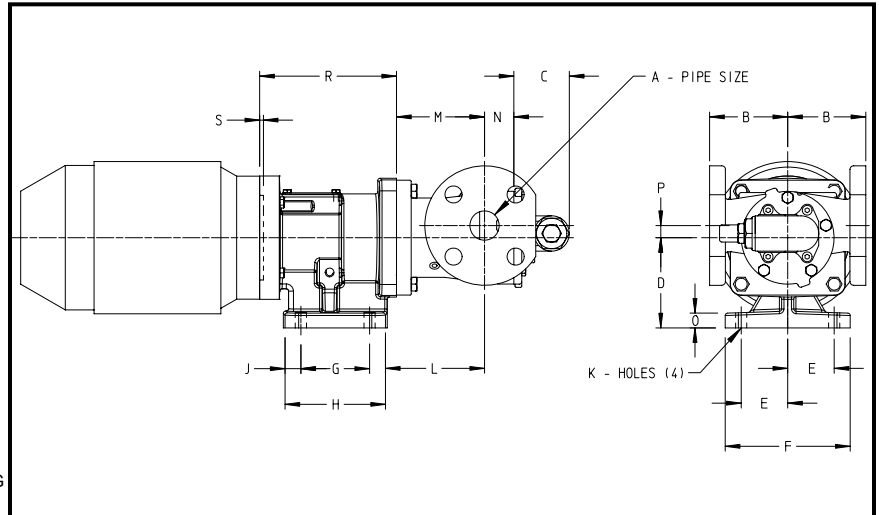
MODEL NO.		A	B	① C	D	E	F	G	H	J	K	① L	M	N	O	P	R	S
AS493M	in	3	6.00	20.31	6.25	2.75	7.00	5.00	7.00	1.00	.56	8.44	6.38	2.00	.50	1.12	7.00	.19
	mm													51				
AK493M	in	3	6.00	20.31	6.25	2.75	7.00	5.00	7.00	1.00	.56	8.44	6.38	2.00	.50	1.12	7.00	.19
	mm													51				
AL493M	in	3	6.00	20.31	6.25	2.75	7.00	5.00	7.00	1.00	.56	8.44	6.38	2.50	.50	1.12	7.00	.19
	mm													64				
			152	516	159	70	178	127	178	25	14	214	162	64	13	29	178	5

# VIKING® HEAVY DUTY PUMPS

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For specifications, see page 154.6.

## DIMENSIONS— SERIES 493 ("M" DRIVE) — IEC Frame "H"—"HL" SIZES



Brackets are designed for IEC motors with a B14 mounting face.

**NOTE:** Jaw type coupling with straight jaws recommended to facilitate assembly of motor and pump to brackets.  
**NOTE:** Flanges are suitable for use with 300# ANSI flanges.  
 COUPLING IS GUARDED WITH A PLATE OVER THE OPENING IN THE TOP OF THE BRACKET.

MODEL NO.		A	B	C	M	N	P	MOTOR FRAME	D	E	F	G	H	J	K	L	O	R	S								
HJ493M HL493M	in	1.5	4.00	2.84	4.50	1.50	0.62	IEC 90	4.62	2.38	6.40	3.52	5.14	0.81	0.57	4.95	0.75	6.61	0.19								
	mm							125.0												167.9							
	in							IEC 100/112												4.98	7.01						
	mm							117.3												60.5	162.6	89.4	130.6	20.6	128.8	178.1	4.8
	in							IEC 132												5.32	2.95	7.48	4.50	6.09	0.80	5.11	8.16
mm	101.6	72.1	114.3	38.1	15.7	135.1	74.9	190.0	114.3	154.7	20.3	14.5	129.8	19.1	207.3	6.4											

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# VIKING® HEAVY DUTY PUMPS

## 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](http://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<sub>R</sub> (Net Positive Suction Head – Required by the pump) is given in the table below and applies for viscosities through 750 SSU. NPSH<sub>A</sub> (Net Positive Suction Head – Available in the system) must be greater than the NPSH<sub>R</sub>.

NPSH<sub>R</sub> – 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. <sup>2</sup> )	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<sub>R</sub> 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 4195 and 495 pumps to such liquids as alcohols, solvents, etc.

**VISCOUS LIQUIDS:** Pump should not operate longer than 15 minutes of each operating cycle at 25,000 SSU and above. If continuous duty is desired, the mechanical seal should be changed to a positive-drive type seal. This recommendation applies to the “GG”, “HJ” and “HL” sizes only.

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

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