VIKING PUMP
A Unit of IDEX Corporation

Viking® Industrial Lobe Pumps

Economical, Low Shear Pumping Action with In-Line Cleanability

classic+

- **Front-loading seals**
- **No bushings in liquid**
- **Protects shear sensitive liquids**
- **Vertical or horizontal porting**
- **In-line or strip clean capability**

Sizes in Series: 12
Capacity: to 2,730 LPM (650 GPM)
Pressure: to 12 Bar (175 PSI)
Viscosity: 1 to 110,000 cSt (31 to 500,000 SSU)
Temperature: -29°C to +180°C (-22°F to +350°F)

IDEX CORPORATION

Viking® Classic+ Advantages

The Classic+ rotary lobe pumps use timing gears to eliminate contact between the rotors, which makes them ideal for use on non-lubricating fluids. Various rotor forms are available, including the standard tri-wing and multi-lobe options. These pumps offer industrial and sanitary/ hygienic designs which are ATEX, 3A and EHEDG compliant, with bearings on both sides of the rotors for higher pressure capabilities.

The Viking Advantages

Reliability, Maximizing Your Uptime

- Robust, 316 stainless steel construction
- Double tapered roller bearings
- Helical timing gears
- Heavy duty cast iron gear case
- Full range of threaded and flanged connections, welded and polished internally
- Durable, powder coated or epoxy finish
- Bi-directional pumping capabilities

Shear Sensitive or Solids Handling

- Non-contacting rotors handle non-lubricating and lubricating liquids
- Large pumping cavities
- 316 Stainless steel eliminates corrosion
- Fully swept pump chamber
- Optional multi-lobe rotor available

Forgiving of Operator Error

- ATEX/OSHA compliant seal guard
- Infinite run-dry capability with seal flush
- Non-contacting rotors eliminate galling
- Optional pressure relief valve available

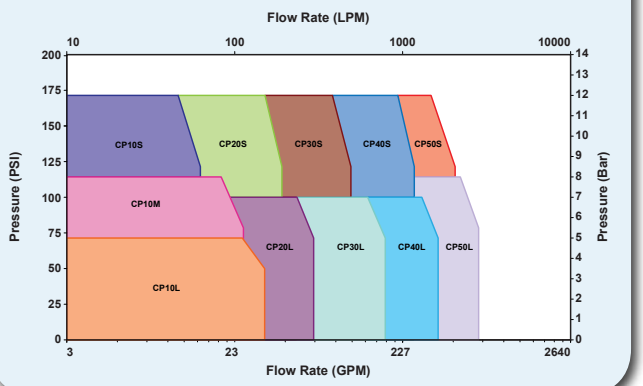
Easy To Maintain

- Front loading seals
- No bushings in liquid
- Modular pump design promotes easy disassembly for cleaning
- Leave in place eliminates alignment
- Clean and crevice free head
- Front and rear O-ring seals on rotor spline area
- Stainless steel bolt-on feet for vertical or horizontal mounting
- ATEX compliant oil filler/breather cap

Classic+ Pump Design Maximizes Drainability and Cleanability with:

- Front loading seal design minimizes dead areas
- Casing profile 'cusps' maximizes efficiency and draining capability
- No bushings in liquid eliminates contamination ensuring product integrity and simplifies maintenance
- Flush, front face rotor retainers eliminate recesses in head
- O-ring seals at shaft splines, rotor retainer, and the rotary seal seat mounted in the rear of the rotor using L-cup
- Straight-through, horizontal or vertical porting
- Universal mounting design allows pump mounting with ports in vertical or horizontal plane
- Protected front oil seals, prevents ingress of water from pressure washers

Performance Envelope



Classic+ Applications

Chemicals and Solvents

Viking's Classic+ series pumps are designed for use with a broad array of liquids that are compatible with 316L stainless steel. Combine that with a wide range of front-loading seal options and the Classic+ series of pumps are ideal for SIP, CIP or strip cleaning solvent, chemicals, and caustic soda applications. Chemical manufacturers and users that run many different liquids through their pumps, want the maximum practical corrosion protection, standard on the Classic+ series.

Typical Applications:

- Acids and Alkalines
- Resins and coatings
- Herbicides and pesticides
- Surfactants, soaps, and detergents

Shear Sensitive Liquids

The Classic+ series pumps satisfy the low speed operation, low shear, and minimal pulsation requirements for protecting product integrity when pumping shear sensitive liquids. The Classic+ pumps' ability to handle thin or thick liquids allows the same pump to handle solvents less than 10 cSt or polymers more than 100,000 cSt. Jacketing options are available for applications requiring temperature control.

Typical Applications:

- Polymers and flocculants
- Emulsions, suspensions, and gels
- Waxes and greases
- Cosmetic creams, lotions and ointments

Resins and Coatings

With its non-contacting rotors, the Classic+ series delivers enhanced efficiency on lower viscosity products and minimal pulsation on discharge side. Its front-loading, universal seal design provides superior flexibility for selecting seal options such as O-ring seals, single- or double-mechanical seals for handling hard to seal liquids. The Classic+ series is CIP-able and flushes completely clean due to the fully swept pumping chamber, seals behind the rotors, and O-ring sealed rotor retainers.

Typical Applications:

- Paper Coatings
- Foams
- Plastics
- Rubber

Model Number Key

C P 1 0 L

Series	Model Size	Casing Size	Nominal Capacity
	10	S	3.18 M³/Hr (14 GPM) @ 1150 RPM
		M	5.90 M³/Hr (26 GPM) @ 1150 RPM
		L	7.72 M³/Hr (34 GPM) @ 1150 RPM
	20	S	10.90 M³/Hr (48 GPM) @ 950 RPM
		L	16.80 M³/Hr (74 GPM) @ 950 RPM
	30	S	30.87 M³/Hr (136 GPM) @ 780 RPM
		L	49.26 M³/Hr (217 GPM) @ 780 RPM
	40	S	64.70 M³/Hr (285 GPM) @ 640 RPM
		L	89.67 M³/Hr (395 GPM) @ 640 RPM
	50	S	121.45 M³/Hr (535 GPM) @ 640 RPM
		L	147.55 M³/Hr (650 GPM) @ 520 RPM

Viking® *Classic+ Benefits*

ADVANCED DURABILITY

■ Stainless Steel Design

Rugged stainless steel wetted parts and shafts, gearcase cover and universal mounting feet provide optimal corrosion resistance in harsh environments. **Extends pump life, lowering life-cycle costs.**

■ Timed, Non-Contacting Rotors

Tri-lobe (standard) rotors require no shimming to set timing, and offer ample cavities to gently handle soft solids. **Minimizes shear and ensures integrity of liquid pumped while providing indefinite run-dry capabilities.**

■ Tapered Roller Bearings

Double tapered roller bearings with improved positioning, eliminates shaft deflection. **Provides higher operating speeds and better discharge pressures and extends seal and bearing life.**

■ Helical Timing Gears

Precision helical gears synchronize rotors to maintain precise pumping chamber clearances and offer higher load carrying capabilities. **Eliminates metal-to-metal contact of rotors while providing high torque transmission and quieter, smoother operation for extended pump life.**

EASY INSTALLATION

■ Front-Loading Seal Design

Front-loading seal is accessible without removing pump from service. **Provides ease of seal replacement.**

■ Fully Swept Casing

Seals behind the rotors and chamfered port cusps allow self-draining in vertical orientation, minimizing product lost. **Provides for fast, efficient flush or steam in place between batch operations.**

■ Removable Casing

Casing easily removed from gear case for cleaning, without removing pump from service. **Eliminates the need for realignment, shortening time to clean and reassemble.**

■ Opposite Non-Conical Porting

External NPT, flange, or ANSI-compatible, opposite porting in various sizes allows easy-to-pipe connections to local-standard piping. **Reduces cost of installation and maintenance.**

■ Heavy Duty Cast Iron Bearing/Gearcase

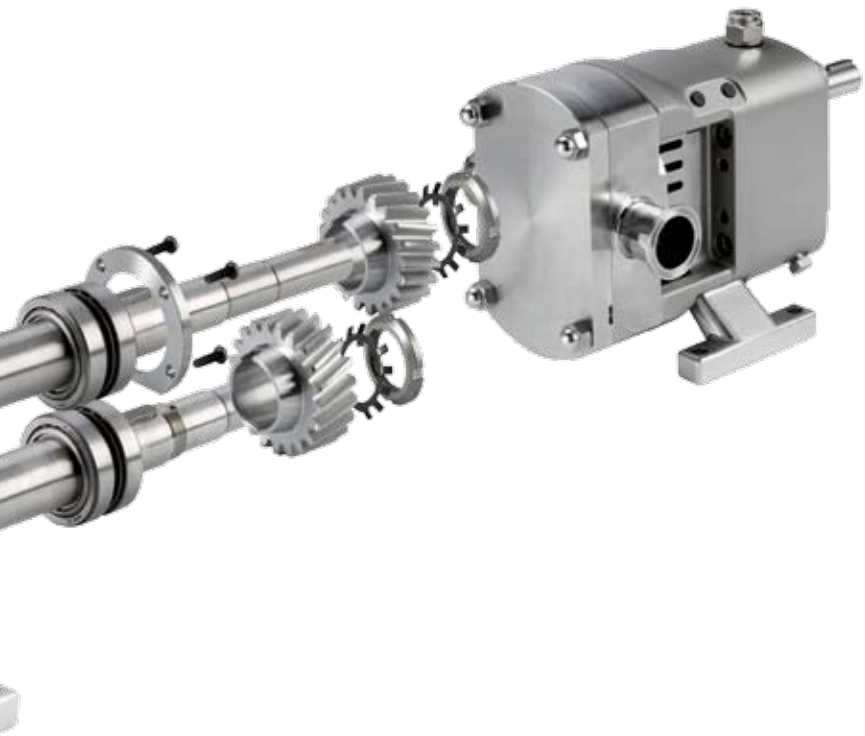
Gearcase housing has a durable finish with no paint to degrade. Cast iron gearcase with ATEX compliant oil filter/brether cap serves as oil reservoir for bearing and gear lubrication. **Provides accurate, rigid shaft alignment to help maintain precise pumping chamber clearances for excellent self-priming capabilities.**

■ Universal Mounting Brackets

316L stainless steel bolt on feet for universal mounting in 90° increments. **Provides pumps orientation to be easily changed to vertical or horizontal mounting for enhanced installation flexibility.**

■ Flush Fitting Rotor Retainers

O-ring seals on the head and rotor spine area eliminates opportunity for product build up in applications where multiple products are handled by the same pump. **Helps ensure product integrity through CIP and SIP cleaning process and facilitates easy rotor removal.**



■ ATEX Compliant Seal Guard

Fully ATEX compliant seal guard cannot be removed without the use of hand tools. **Provides increased safety while providing full visual access for quick, easy seal inspection.**

■ Broad Chemical Compatibility

316L construction, non-contacting rotors and fully swept casing allows broad chemical and temperature compatibility on lubricating and non-lubricating liquids. **Allows one pump to handle multiple liquids after flushing for batch operations.**

■ No Bushings In The Liquid

Bearing location and shaft strength eliminates the need for bushings. **Helps to ensure product integrity.**

■ Bi-Directional Pump Design

Bi-directional pumping design eliminates cost of second pump, piping, and valving needed for loading/unloading or line stripping. **Provides application flexibility and reduces system costs.**

■ Optional Jacketed Casing and Head

Head and casing offer jacket options to help maintain product temperature as it passes through the pump. **Provides enhanced application flexibility for liquids that solidify.**

■ Higher Pressure Capabilities

Pressure capabilities to 12 Bar (175 PSI), even on thin liquids. **Permits standardizing on single pump for multiple liquids and applications.**

■ Rotor Options

Tri-lobe rotor is standard. Optional multi-lobe rotor available. **Rotor selection provides better application match for optimal performance.**

■ Tailored Sealing Solutions

Wide range of sealing solutions are available for many liquids in chemical and sanitary applications that may need clean in place (CIP), sterilize in place (SIP) or strip cleaning capabilities. **Protects product and the environment while minimizing seal maintenance for a better bottom line.**

■ In-line Serviceability

In-line servicing requires no special tools for disassembly, reducing the need to remove casing during scheduled maintenance. **Reduces scheduled downtime for a lower cost of ownership.**

APPLICATION FLEXIBILITY

LOWER COST OF OWNERSHIP

Classic+ Materials of Construction & Specifications

Classic+ Series Rotary Lobe Pump Construction

Model	Casing & Head	Rotors	Bearing Housing	Gearbox	Gearbox Cover	Mechanical Seals	Elastomers	Shaft Sleeves	Mounting Feet
CP10	316 Stainless Steel, ASTM A 743, Grade CF8M	316 Stainless Steel, ASTM A 743, Grade CF8M	Cast Iron	Cast Iron	N/A	Carbon Graphite / Stainless Steel	Viton®	N/A	304 Stainless Steel, ASTM A Grade CF8
CP20	316 Stainless Steel, ASTM A 743, Grade CF8M	316 Stainless Steel, ASTM A 743, Grade CF8M	Cast Iron	Cast Iron	N/A	Carbon Graphite / Stainless Steel	Viton®	N/A	304 Stainless Steel, ASTM A Grade CF8
CP30	316 Stainless Steel, ASTM A 743, Grade CF8M	316 Stainless Steel, ASTM A 743, Grade CF8M	Cast Iron	Cast Iron	N/A	Carbon Graphite / Stainless Steel	Viton®	N/A	304 Stainless Steel, ASTM A Grade CF8
CP40	316 Stainless Steel, ASTM A 743, Grade CF8M	316 Stainless Steel, ASTM A 743, Grade CF8M	N/A	Cast Iron	Mild Steel	Carbon Graphite / Stainless Steel	Viton®	N/A	Cast Iron
CP50	316 Stainless Steel, ASTM A 743, Grade CF8M	316 Stainless Steel, ASTM A 743, Grade CF8M	N/A	Cast Iron	Mild Steel	Carbon Graphite / Stainless Steel	Viton®	316 Stainless Steel	Cast Iron

Classic+ Series Rotary Lobe Pump Specifications

Pump Range	Port Size	Theoretical Displacement Per 100 Rev		① Nominal Pump Rating			Maximum Hydrostatic Pressure		② Maximum Recommended Discharge Pressure When Handling 100 SSU Liquid		⑤ Maximum Temperature		Approximate Shipping Weight Less Valve (Less Power)	
	Inches	Liters	GAL	L/MIN	GPM	RPM	⑥ BAR	PSIG	⑥ BAR	PSIG	Degrees C.	Degrees F.	KG	LB
CP10S	③ 1	4.61	1.22	53	14	1150	20	300	12	175	150	300	13	29
CP10M	③ 1.5	8.29	2.19	95	26				8	115			14	31
CP10L	③ 1.5	10.71	2.93	128	34				5	70			15	33
CP20S	③ 1.5	20.21	5.34	190	48	950	20	300	12	175	150	300	28	62
CP20L	③ 2	31.30	8.27	297	74				7	100			31	68
CP30S	③ 2	69.42	18.34	541	136	780	20	300	12	175	150	300	71	157
CP30L	④ 3	112.72	29.72	877	217				7	100			77	170
CP40S	④ 3	180.03	47.56	1079	285	640	20	300	12	175	150	300	150	331
CP40L	④ 4	250.02	66.05	1495	395				7	100			162	357
CP50S	④ 4	351.43	92.84	2249	535	640	20	300	12	175	180	350	252	555
CP50L	④ 6	525.07	138.71	2730	650	520			8	115			272	599

① Nominal rating based on handling thick liquids.

② For maximum recommended discharge pressures when handling other viscosities and/or other speeds, see performance curves.

③ Pumps standard with external NPT ports. For optional ports, refer to Catalog section 285.

④ Pumps standard with 150# Raised Face Flange port. Ports are suitable for use with ANSI 150# stainless steel companion flanges or flanged fittings.

⑤ Standard clearance rated to 150°F (210°F on CP50). Additional clearances required for temperatures up to 350°F. Pump capacity will be reduced when operating with extra clearances, especially on lower viscosities.

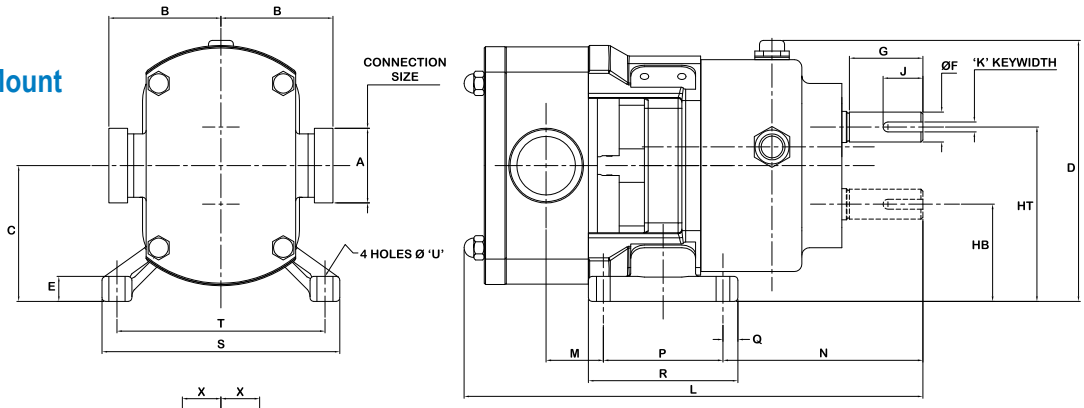
⑥ 1 BAR = 0.1 MPa = 100 kPa = 10^5 Pa.

Viton® is a registered trademark of DuPont Performance Elastomers.

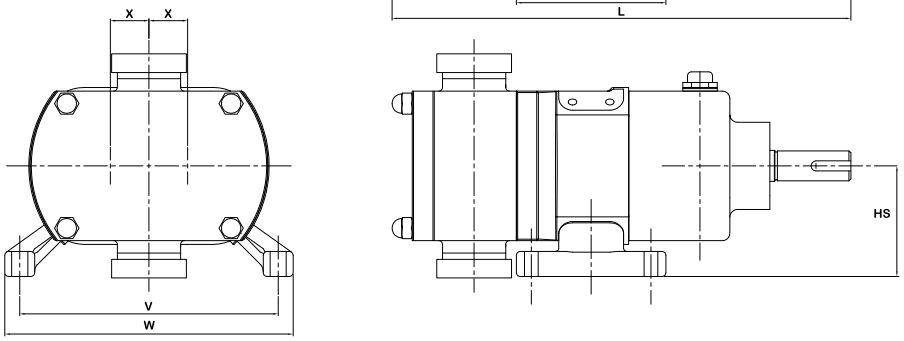
Classic+ Dimensions

Dimensions for Classic+ - Series 10, 20, 30, 40 and 50

Horizontal Mount



Vertical Mount



MODEL	①		② A	⑤ B1	⑤ B2	⑤ B3	⑤ B4	⑤ B5	C	D	E	④ F mm	G	HB	HS	HT	J	④ K mm	L	M	N	P	Q	R	S	T	U	V	W	X
CP10S	H	in	1	3.5	3.5	4.06	4.06	4.06	2.91	6.18	0.39	18	1.10	1.89	2.48	3.94	0.98	6	9.80	1.87	4.58	1.77	0.39	2.56	5.75	4.96	0.33	6.40	7.20	1.02
	V	mm	25	89	89	103	103	103	74	157	10		28	48	63	100	25		249	47.5	116.40	45	10	65	146	126	8.50	162.5	183	26
CP10M	H	in	1.5	3.5	4.37	4.06	4.06	4.06	2.91	6.18	0.39		1.10	1.89	2.48	3.94	0.98		10.39	2.15	4.58	1.77	0.39	2.56	5.75	4.96	0.33	6.40	7.20	1.02
	V	mm	40	89	111	103	103	103	74	157	10		28	48	63	100	25		264	54.5	116.40	45	10	65	146	126	8.50	162.5	183	26
CP10L	H	in	1.5	3.5	4.37	4.06	4.06	4.06	2.91	6.18	0.39		1.10	1.89	2.48	3.94	0.98		10.87	2.58	4.58	1.77	0.39	2.56	5.75	4.96	0.33	6.40	7.20	1.02
	V	mm	40	89	111	103	103	103	74	157	10		28	48	63	100	25		276	65.5	116.40	45	10	65	146	126	8.50	162.5	183	26
CP20S	H	in	1.5	3.86	4.72	4.41	4.41	4.41	4.29	8.62	0.79	24	2.32	3.07	3.49	5.51	1.26	8	13.74	1.38	6.32	3.78	0.47	4.72	7.68	6.57	0.43	8.17	9.27	1.22
	V	mm	40	98	120	112	112	112	109	219	20		59	78	88.75	140	32		349	35	160.50	96	12	120	195	167	11	207.5	235.5	31
CP20L	H	in	2	3.86	4.72	4.41	4.41	4.72	4.29	8.62	0.79		2.32	3.07	3.49	5.51	1.26		14.53	1.81	6.32	3.78	0.47	4.72	7.68	6.57	0.43	8.17	9.27	1.22
	V	mm	50	98	120	112	112	120	109	219	20		59	78	88.75	140	32		369	46	160.50	96	12	120	195	167	11	207.5	235.5	31
CP30S	H	in	2	4.88	5.75	5.43	5.43	5.75	5.26	10.71	0.98	38	2.74	3.43	4.38	7.09	1.57	10	17.44	2.39	7.74	4.53	0.59	5.71	10.16	8.98	0.51	10.72	11.90	1.83
	V	mm	50	124	146	138	138	146	133.5	272	25		69.5	87	111.3	180	40		443	60.6	196.50	115	15	145	258	228	13	272.3	302.3	46.5
CP30L	H	in	3	4.88	6.14	5.43	5.75	5.95	5.26	10.71	0.98		2.74	3.43	4.38	7.09	1.57		18.82	3.17	7.74	4.53	0.59	5.71	10.16	8.98	0.51	10.72	11.90	1.83
	V	mm	80	124	156	138	146	151	133.5	272	25		69.5	87	111.3	180	40		478	80.6	196.50	115	15	145	258	228	13	272.3	302.3	46.5
CP40S	H	in	3	6.26	7.52	6.81	7.13	7.32	6.97	13.50	0.91	48	4.33	4.49	6.89	9.45	3.54	14	25.47	6.42	10.35	4.72	0.89	6.50	8.66	7.24	0.71	---	---	2.48
	V																			5.16	9.08	7.24	0.71	8.66	---	---		8.98	10.75	
	H	mm	80	159	191	173	181	186	177	343	23		110	114	175	240	90		647	163	262.80	120	22.5	165	220	184	18	---	---	63
	V																			131	230.75	184	18	220	---	---		228	273	
CP40L	H	in	4	6.42	8.11	6.81	7.13	7.32	6.97	13.50	0.91		4.33	4.49	6.89	9.45	3.54		26.73	7.14	10.35	4.72	0.89	6.50	8.66	7.24	0.71	---	---	2.48
	V																			5.89	9.08	7.24	0.71	8.66	---	---		8.98	10.75	
	H	mm	100	163	206	173	181	186	177	343	23		110	114	175	240	90		679	181.3	262.80	120	22.5	165	220	184	18	---	---	63
	V																			149.5	230.75	184	18	220	---	---		228	273	
CP50S	H	in	4	7.4	9.25	7.95	8.27	8.47	8.46	16.61	1.18	60	4.09	5.32	8.07	11.61	2.32	18	29.72	8.35	11.22	5.91	0.98	7.87	10.24	8.66	0.79	---	---	3.15
	V																			6.61	9.49	9.37	0.79	10.94	---	---		9.84	11.81	
	H	mm	100	188	235	202	210	215	215	422	30		104	135	205	295	59		755	212	285	150	25	200	260	220	20	---	---	80
	V																			168	241	238	20	278	---	---		250	300	
CP50L	H	in	③ 6	N/A	N/A	7.17	7.17	N/A	8.46	16.61	1.18		4.09	5.32	8.07	11.61	2.32		32.09	9.45	11.22	5.91	0.98	7.87	10.24	8.66	0.79	---	---	3.15
	V																			7.72	9.49	9.37	0.79	10.94	---	---		9.84	11.81	
	H	mm	③ 150	N/A	N/A	182	182	N/A	215	422	30		104	135	205	295	59		815	240	285	150	25	200	260	220	20	---	---	80
	V																			196	241	238	20	278	---	---		250	300	

① H= Horizontal Mounting V=Vertical mounting
② Pumps standard with external NPT ports, except where noted otherwise.
③ Ports are suitable for use with 150# ANSI stainless steel companion flanges or flanged fittings.
④ Metric shaft coupling and key required.

⑤ B1 applies for all threaded connections except BSPT or NPT
B2 applies for BSPT and NPT threaded connections
B3 applies for all flange connections except ASA150, BS4504 & ASA300
B4 applies for ASA150 and BS4504 flange connections
B5 applies for ASA300 flange connections

VIKING PUMP
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Worldwide Leader Since 1911 for Positive Displacement Pumping Solutions for Industrial, OEM, and Sanitary Applications.

Innovation and Experience

Viking Pump has been a pump industry leader and innovator since its founding in 1911. We continue to build on our ever growing experience delivering innovative new pumping solutions, including custom designs, to many thousands of customers who use millions of Viking® pumps in some of the world's toughest applications.

Broad Performance Range

Capacity:
0.5 to 360 M³/Hr (0.1 to 1600 GPM)
Pressure:
0 to 172 Bar (0 to 2500 PSI)
Temperature:
-40°C to 370°C (-40°F to 700°F)
Viscosity:
0.5 to 1,000,000 cSt (28 to 4,500,000 SSU)

Ultimate in Sealing Solutions

Viking's offering of packing, component mechanical seals, cartridge seals, and sealless Mag Drive technology provides the best choices for sealing flexibility needed to provide your application a customized sealing solution every time - saving you money, time, and unplanned downtime.

Material Options Matched to Application

Viking's dedicated iron and alloys foundries provide pump construction materials from cast iron to Hastelloy®. Application-specific materials of construction extend pump life significantly, while reducing maintenance and unplanned downtime, which enables increased production and a better bottom line.

Liquid Integrity Protection

Viking has developed multiple positive displacement pump principles to protect shear-sensitive liquids, and low-shear options to prevent damage to fibers, polymers, and solids. Full-jacketing options provide precise temperature control throughout the pump. The Viking Mag Drive® and other seal options prevent fluid contact with air, assuring liquid integrity.

Local Applications and Engineering Support

Over 245 Authorized Viking Pump Distributors in 68 countries provide local application support and service, backed by Viking Application Engineers and Viking Region Managers strategically located around the world.

Quality Manufacturing

Viking uses ISO9001-2000, ISO14001, Six-Sigma, and Lean/Kaizen in its worldwide manufacturing and assembly processes to remove waste, reduce development costs, and deliver superior products on schedule. Dedicated Viking foundries and manufacturing facilities utilize state-of-the-art CNC equipment to assure unmatched quality is built into every pump. Viking products also meet the applicable standards or certification requirements for ATEX, CE, DIN, EHEDG, BSP, JIS, ANSI, UL, 3-A and others.

Custom Designed Solutions

Viking has provided custom designed pumps to end-users and OEMs since its first pump in 1911, when Viking invented the gear-within-a-gear pumping principle to remove water from a rock quarry. Today, enabled by Viking's engineering staff, extensive applications experience, and in-house foundries, more than 20% of Viking's sales are new Viking designs, or pumps designs derived from more than 1000 Viking catalog pumps with more than 40,000 active configurations. So, whether you are an end-user or an OEM, Viking can provide custom designed pumping solutions to meet your specific needs.

IDEX CORPORATION