



AMCAL
INDUSTRIAL PUMP SOLUTIONS

VIKING PUMP

DATA BOOKLET

GLOBAL

LEADER
IN POSITIVE DISPLACEMENT
PUMPING
SOLUTIONS



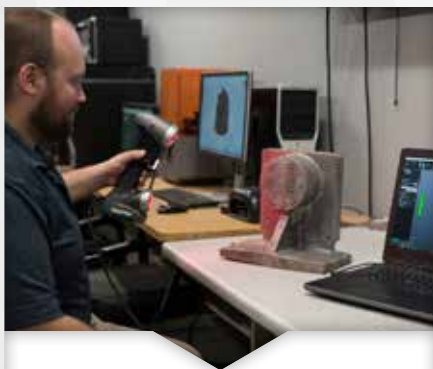
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IPEX

GLOBAL LEADER IN POSITIVE DISPLACEMENT PUMPING SOLUTIONS

WORLD HEADQUARTERS | Cedar Falls, Iowa, United States of America



SOLUTIONS PROVIDER

With over 100 years of expertise, each Viking pump is uniquely designed for the task at hand, from simple solutions to your most advanced and demanding needs.



QUALITY MANUFACTURING

Viking's vertically integrated production process, from raw materials to finished product, meet ISO 9001:2008 quality standards. Global manufacturing footprint in the Americas, Europe and Asia use Six-Sigma and Lean Kaizen tools.



RELIABILITY, QUALITY & PERFORMANCE

Offering one of the broadest selections of pumping principles, designs, materials and options available, Viking pumps are time and field tested to meet or exceed your expectations.

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PUMP PRINCIPLE
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INDUSTRY & APPLICATION SUPPORT

Channel support group of application, sales and design engineers develops unique pumping solutions for both OEM manufacturers and pump end users with unique requirements.



GLOBAL SALES & SERVICE

Viking pumps are in operation on all 7 continents. Our worldwide network of factory-trained distributors understand your application and service needs.



DID YOU KNOW?

Viking Pump founder, **Jens Nielsen**, invented the first ever internal gear pump; patented on February 4th, 1904.



QUALITY & LAB SERVICES

ANALYTICAL SERVICES FOR OPTIMUM PERFORMANCE



Enable best possible pump selection for your liquids and process conditions



Validate pump performance before installation with certified pump tests



Satisfy engineering specifications and governmental regulations



Test your pump only, or the complete unit (pump, reducer & drive)



Guarantee accuracy with NIST-traceable calibration



Test at your required viscosities



CERTIFIED PERFORMANCE TEST

- Factory testing to ensure your Viking pump meets your performance requirements
- Using state-of-the-art dynamometers and data gathering software, tests can be performed on a variety of liquids to best duplicate your unique conditions of service
- 9 dynamometers through 300 HP
- Oils, solvents, water and other test fluids
- Witnessed testing available



CERTIFIED HYDROSTATIC TEST

- Hydrostatic testing ensures that your pump will not leak at or beyond your application pressure, using petroleum-based or non-petroleum test fluid
- Test condition is at 1.5x the maximum operating pressure or 250 PSI (whichever is greater)
- Pressure and duration may be changed to meet customer specifications
- Pneumatic testing also available



LAB RESOURCES

- Dynamometers
- Data Acquisition Tools
- Viscometer
- Test Liquids from 28 to 75,000 SSU
- Machine Shop

TESTING SERVICES

- Pneumatic Testing
- NPSHr Testing
- Sound & Vibration
- Visual Inspection & Measurements
- Material Testing
- Liquid Sample Analysis
- Positive Material Identification
- Traceability
- Magnetic Particle Testing

MARKETS & APPLICATIONS



WE HAVE THE PRODUCTS FOR YOUR INDUSTRY

We have experience with thousands of liquids that allow us to deliver proven solutions for your application, whether it is thin / thick, hot / cold, edible / toxic, liquid / solid and much more.



CHEMICALS

- Acids & Bases
- Alcohols & Solvents
- Soaps & Detergents



POLYMERS

- Rubbers & Plastics
- Fibers & Resins
- Polyurethanes



OILS

- Crude Oils
- Lube Oil & Greases
- Asphalt & Bitumens



FUELS

- Refined Fuels
- Biofuels
- Liquefied Gases



MACHINERY

- Fuel & Lube
- Heat Transfer Liquids
- Filtration



FOODS

- Liquid Sugars
- Chocolate & Confectionery
- Edible Oils



PERSONAL CARE

- Lotions & Creams
- Toothpaste
- Hair & Skin Care



PULP & PAPER

- Coatings
- Starch
- Black Liquor Soap



WATER & WASTEWATER

- Methanol
- Polymers
- Additives



COATINGS & SEALANTS

- Paints, Dyes & Inks
- Adhesives
- Caulks

VIKING ROTARY PUMP BENEFITS



OPERATES AT ANY POINT ON THE CURVE

- High efficiency at full range of speeds
- Flow rate largely independent of changes in pressure



LONG SEAL & BEARING LIFE

- Generally operated at speeds from 17 to 1750 RPM, for increased seal and bearing life



LOW SHEAR

- Documented shear rates enable selection of proper pump and speed to protect shear-sensitive liquids



LOW NPSHR

- Enables suction lifts, handling fluids prone to flashing, and pulling from vacuum vessels



FLOW PROPORTIONAL TO SPEED

- Provides easy control of flow rate with a variable speed drive for excellent metering capabilities



HANDLES A WIDE RANGE OF VISCOSITIES

- Capable of handling 28 to 2,000,000 SSU (1 to 440,000 cSt)



SIMPLE MAINTENANCE

- Seal, head and gear replacement can usually be done in place without removing pump from piping



SELF-PRIMING

- Enables priming if pump is above liquid level
- Some Viking pumps are capable of suction lifts up to 20 ft (6 m)



REVERSIBLE DIRECTION OF FLOW

- Use same pump for loading and unloading or line stripping

PRODUCT QUICK VIEW GUIDE

PRODUCT LINES	UNIVERSAL			MOTOR SPEED			SPUR GEAR
EXTERNAL MATERIAL	Cast or Ductile Iron	Steel Externals	Stainless Steel	Cast Iron	Steel Externals	Stainless Steel	Cast or Ductile Iron
PERFORMANCE							
Maximum Flow Range - GPM	1,600	1,600	1,600	580	115	75	190
Maximum Flow Range - LPM	6,057	6,057	6,057	2,196	435	284	719
Maximum Flow Range - m ³ /h	363	363	363	132	27	17	43
Maximum Pressure - PSI	200	200	200	250	250	200	500
Maximum Pressure - BAR	14	14	14	17	17	14	34
Maximum Viscosity - SSU	2,000,000	2,000,000	2,000,000	25,000	25,000	25,000	1,000,000
Maximum Viscosity - cSt	440,000	440,000	440,000	5,500	5,500	5,500	250,000
Temperature Range - °F *	-60°F to +450°F	-20°F to +800°F	-120°F to +500°F	-40°F to +350°F	0°F to +350°F	0°F to +350°F	-40°F to +450°F
Temperature Range - °C *	-50°C to +230°C	-30°C to +430°C	-85°C to +260°C	-40°C to +180°C	-20°C to +180°C	-20°C to +180°C	-40°C to +230°C
SEALING							
Packing	✓	✓	✓				
Behind the Rotor Seal	✓		✓	✓	✓	✓	
Component Mechanical Seal	✓	✓	✓				✓
Cartridge Mechanical Seal	✓	✓	✓				
Cartridge Triple Lip Seal	✓	✓	✓				
Sealless Mag Drive	✓	✓	✓	✓	✓	✓	✓
API 682 Seal		✓	✓				
Lip Seal				✓			✓
Balanced Seal	✓	✓	✓	✓	✓	✓	
JACKETING OPTIONS							
Head / Bracket	✓	✓	✓				
Casing / Head / Bracket (Full)	✓	✓	✓				
PORTING							
Right Angle (90°)	✓	✓	✓				
Opposite (180°)	✓	✓	✓	✓	✓	✓	✓
NPT	✓		✓	✓			✓
Flanged	✓	✓	✓	✓	✓	✓	
SAE Flange							✓
SAE O-Ring							✓
MOUNTING							
Foot Mount	✓	✓	✓	✓	✓	✓	✓
Motor Mount (Close-Coupled)				✓	✓	✓	✓
Vertical Mount				✓	✓		✓
MARKETS							
Chemicals	✓	✓	✓	✓	✓	✓	✓
Coatings & Sealants	✓		✓				
Foods	✓		✓			✓	
Fuels	✓	✓		✓	✓		✓
Machinery	✓	✓		✓	✓	✓	✓
Oils	✓	✓		✓	✓		✓
Personal Care			✓			✓	
Polymers		✓	✓				
Pulp & Paper	✓			✓			
Water & Wastewater			✓			✓	
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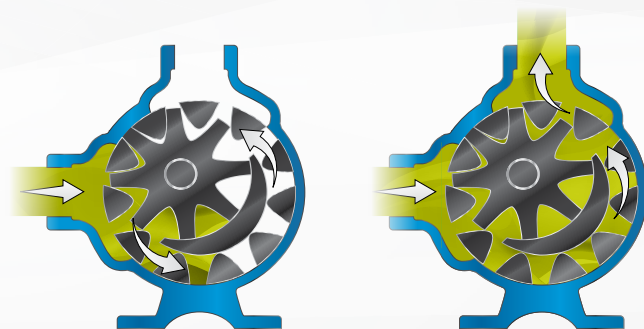
* Maximum temperature with special construction

INTERNAL GEAR PUMPS



WHY? The internal gear pump is the "workhorse" of countless manufacturing processes.

- Broadest selection of materials, designs, seals, ports and displacements
- Adjustable clearances enable handling viscosities from 28 to 2,000,000 SSU (1 to 440,000 cSt)
- Low shear



TYPICAL APPLICATIONS

Common internal gear pump applications include, but are not limited to:

- All varieties of refined fuels & lubricants
- Resins & polymers
- Alcohols & solvents
- Asphalt, bitumen & pitch
- Polyurethane foam (isocyanates, polyols & additives)
- Food products such as corn syrup, chocolate & peanut butter
- Paint, inks & pigments
- Soaps & surfactants
- Heat transfer fluids

MATERIALS OF CONSTRUCTION & CONFIGURATION OPTIONS

Externals (Head, Casing, Bracket)

Cast iron, ductile iron, steel, stainless steel, and other alloys

Internals (Rotor, Idler)

Cast iron, ductile iron, steel, hardened steel, stainless steel, and other alloys

Bushings (Sleeve Bearings)

Carbon graphite, bronze, hardened cast iron, silicon carbide, tungsten carbide, and other specials materials as needed

Shaft Seal

Lip seals, packing, component mechanical seals, industry-standard cartridge mechanical seals, API 682 seals and sealless magnetic couplings

KEY PUMPING ELEMENTS



The Internal Gear Pump was invented by Viking Pump's founder, Jens Nielsen, in 1904. It is used in manufacturing many of the products that we all touch every day.

ADVANTAGES

Reliable & Easy to Maintain

Only two moving parts

Adjustable End Clearances

For low or high viscosities, high temperatures, or to compensate for wear over time

Shaft Seal Options

Including packing, lip seal, component seal, cartridge seal and sealless mag drive

Porting Options

Viking's broadest selection of port locations, configurations and types

Smooth, Non-Pulsing Flow

For accurate flow measurement

One Shaft Seal

More reliable and lower cost than two or four seals used on timed lobe and screw pumps

Compact, Close-Coupled Options

For motor speed operation or with gearmotors

PERFORMANCE



Flow Range

to 1,600 GPM (363 m³/h)



Viscosity

28 to 2,000,000 SSU (1 to 440,000 cSt)
With special construction



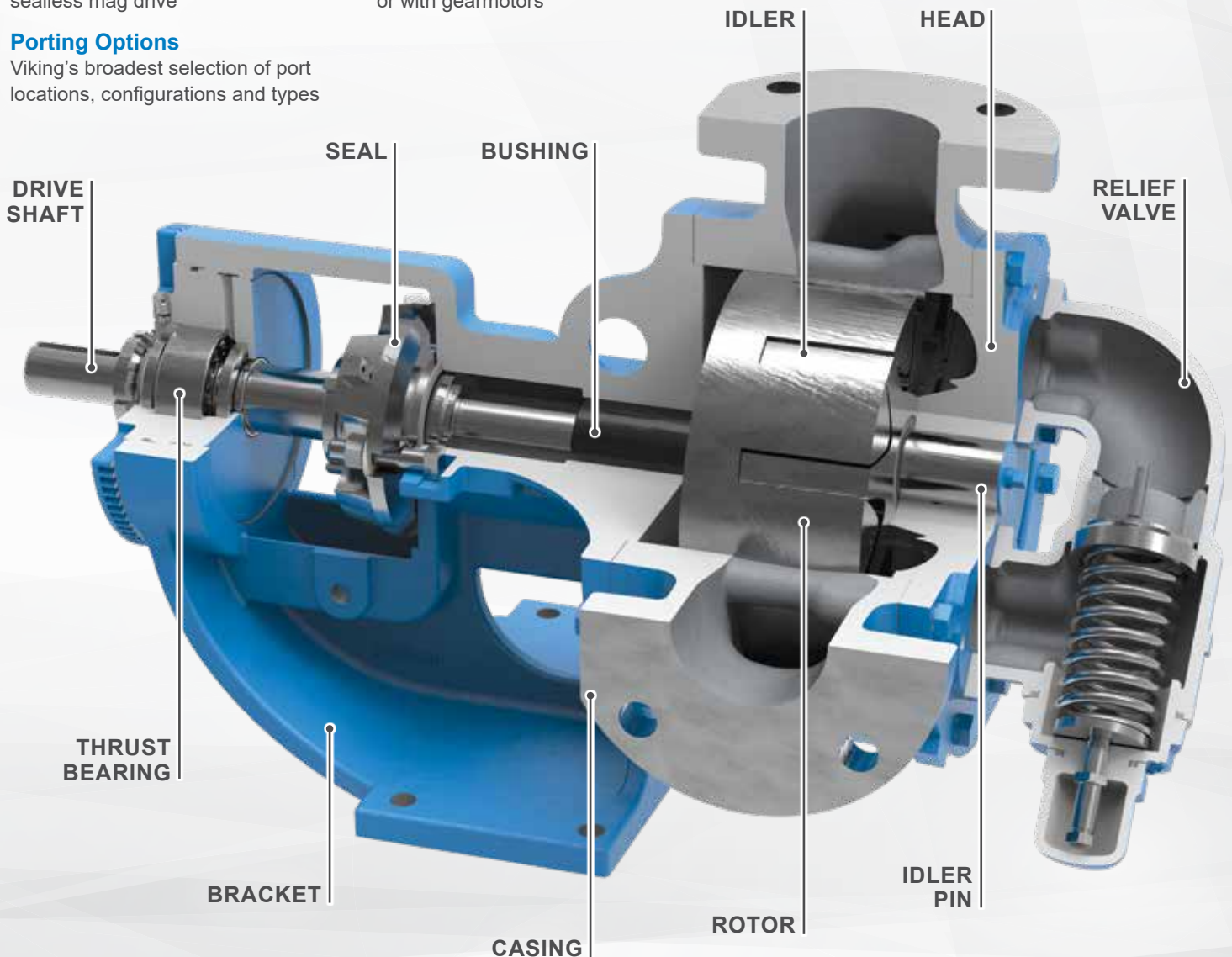
Pressure

to 250 PSI (17 BAR)



Temperature

-120°F to +800°F (-85°C to +430°C)
With special construction





FLOW RANGE
to 1,600 GPM
(363 m³/h)



PRESSURE
to 200 PSI
(14 BAR)



TEMPERATURE
-60°F to +450°F
(-50°C to +230°C)



VISCOSITY
28 to 2,000,000 SSU
(1 to 440,000 cSt)

UNIVERSAL PRODUCT LINE

CAST IRON CONSTRUCTION



FEATURES & BENEFITS

- Rugged and reliable, yet economical
- Widest range of sizes and options available to suit almost any non-corrosive application
- Tightest clearances for high efficiency and excellent priming capability

TYPICAL APPLICATIONS

- Adhesives
- Asphalt & Bitumens
- Paints & Inks
- Polymers
- Resins
- Chocolate
- Peanut Butter
- Molasses
- Refined Fuels
- Edible Oils
- Non-Corrosive Chemicals

PERFORMANCE

MODELS							SPECIFICATIONS				
Non-Jacketed				Jacketed			Performance			Standard Ports	
Packing	Mechanical Seal	Behind the Rotor Seal	Mag Drive	Packing	Mechanical Seal	Behind the Rotor Seal	Max Speed, RPM	GPM	m ³ /h	Size, Inches	Type
G124A	G4124A	G4124B	—	—	—	—	1750	8	1.8	1	NPT
H124A	H4124A	H4124B	H8124A	H224A	H4224A	H4224B	1750	15	3.4	1.5	NPT
HL124A	HL4124A	HL4124B	HL8124A	HL224A	HL4224A	HL4224B	1750	30	6.8	1.5	NPT
AK124A	AK4124A	AK4124B	—	—	—	—	1450	67	15	2	NPT
AL124A	AL4124A	—	—	—	—	—	1450	90	20	2	NPT
K124A	K4124A	K4124B	K8124A	K224A	K4224A	K4224B	780	80	18	2	NPT
KK124A	KK4124A	KK4124B	KK8124A	KK224A	KK4224A	KK4224B	780	100	23	2	NPT
L124A	L4124A	L4124B	L8124A	L224A	L4224A	L4224B	640	135	31	2	NPT
LQ124A	LQ4124A	LQ4124B	LQ8124A	LQ224A	LQ4224A	LQ4224B	640	135	31	2.5	Flange
LL124A	LL4124A	LL4124B	LL8124A	LL224A	LL4224A	LL4224B	520	140	32	3	Flange
LS124A	LS4124A	LS4124B	LS8124A	LS224A	LS4224A	LS4224B	640	200	45	3	Flange
Q124A	Q4124A	Q4124B	Q8124A	Q224A	Q4224A	Q4224B	520	300	68	4	Flange
QS124A	QS4124A	QS4124B	QS8124A	QS224A	QS4224A	QS4224B	520	500	114	6	Flange
M124A	M4124A	—	—	M224A	M4224A	—	420	420	95	4	Flange
—	—	—	—	N324A	N4324A	—	350	600	136	6	Flange
—	—	—	—	R324A	R4324A	—	280	1,100	250	8	Flange
—	—	—	—	RS324A	RS4324A	—	280	1,600	363	10	Flange

Refer to Appendix B on page 33 for more information on seals and porting.

PORTING

- Right Angle (90°) (Rotatable Casing)
- Opposite (180°) (Rotatable Casing)
- NPT
- Flanged (ANSI or DIN Compatible)

SEALING

- Packing
- Behind the Rotor Seal
- Component Mechanical Seal
- Cartridge Mechanical Seal
- Cartridge Triple Lip Seal
- Balanced Seal
- Sealless Mag Drive

OPTIONS

- Jacketing
- Ductile Iron (Series 126A, 4126A, 226A, 4226A)

DRIVES



Refer to Appendix A on page 32 for more information on drives.

MOUNTING

- Foot Mount



DID YOU KNOW?

This series offers Viking's widest range of sizes, including 17 different displacements. The "RS" size pump can deliver up to 1600 gallons per minute. The "G" size pump would take nearly 7 months to deliver the same volume of liquid that an "RS" size pump can deliver in 1 day.



124A (non-jacketed, packing)

224A (jacketed, packing)

- Handle the highest viscosity liquids, up to 2,000,000 SSU
- Packing requires some minimal leakage for cooling and lubrication



4124A (non-jacketed, mechanical seal)

4224A (jacketed, mechanical seal)

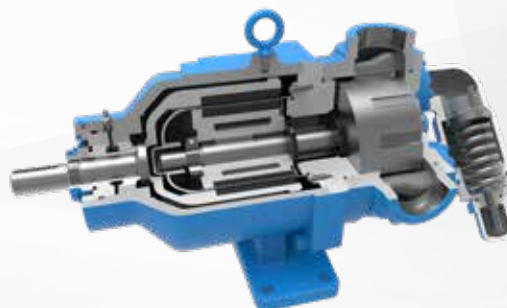
- Component mechanical seals handle lower viscosity liquids with minimal leakage
- Optional single or double mechanical cartridge seals enable seal plans to flush away contaminants and limit vapor emissions
- Cartridge triple lip seals enable the same high viscosities as pumps with packing, but without the necessary leakage
- Cartridge mechanical seals offer back-pull-out capability through the bearing housing opening to enable seal maintenance or replacement without removing the pump



4124B (non-jacketed, behind the rotor seal)

4224B (jacketed, behind the rotor seal)

- Value-oriented, low to medium viscosity pumps with a mechanical seal located directly behind the rotor and a greased bracket bushing that doesn't contact the process liquid, allowing for long life
- Grease barrier is retained by a lip seal in the bracket
- Optional hard-faced, pinned seat seals enable operation on abrasive liquids, and on viscosities up to 250,000 SSU (55,000 cSt)



8124A (sealless mag drive)

- Eliminates the shaft seal to provide the highest level of liquid and vapor containment
- All liquid and vapor is hermetically sealed in the pump
- Used especially for hazardous and difficult-to-seal liquids

Note: Product images may not reflect standard construction.





FLOW RANGE
to 1,600 GPM
(363 m³/h)



PRESSURE
to 200 PSI
(14 BAR)



TEMPERATURE
-20°F to +800°F
(-30°C to +430°C)



VISCOSITY
28 to 2,000,000 SSU
(1 to 440,000 cSt)

FEATURES & BENEFITS

- For refinery and petrochemical applications
- Recommended for extremely high temperatures
- Widest range of sealing options available

TYPICAL APPLICATIONS

- Crude Oil
- Fuels
- Lube Oil
- Basic Petrochemicals
- Asphalts & Bitumens
- Heat Transfer Fluids

UNIVERSAL PRODUCT LINE

STEEL EXTERNALS CONSTRUCTION



PERFORMANCE

MODELS								SPECIFICATIONS				
Non-Jacketed				Jacketed				Performance			Standard Ports	
Packing	Mechanical Seal	Mag Drive	API 682 Seal	Packing	Mechanical Seal	API 682 Seal		Max Speed, RPM	GPM	m³/h	Size, Inches	Type
H123A	H4123A	H8123A	H4123AA	H223A	H4223A	H4123AA	—	1750	15	3.4	1.5	Flange
HL123A	HL4123A	HL8123A	HL4123AA	HL223A	HL4223A	HL4123AA	HL4223AX	1750	30	6.8	1.5	Flange
K123A	K4123A	K8123A	K4123AA	K223A	K4223A	K4123AA	—	780	75	17	2	Flange
KK123A	KK4123A	KK8123A	KK4123AA	KK223A	KK4223A	KK4123AA	KK4223AX	780	100	23	2	Flange
LQ123A	LQ4123A	LQ8123A	LQ4123AA	LQ223A	LQ4223A	LQ4123AA	—	640	135	31	2.5	Flange
LL123A	LL4123A	LL8123A	LL4123AA	LL223A	LL4223A	LL4123AA	—	520	140	32	3	Flange
LS123A	LS4123A	LS8123A	LS4123AA	LS223A	LS4223A	LS4123AA	LS4223AX	640	200	45	3	Flange
Q123A	Q4123A	Q8123A	Q4123AA	Q223A	Q4223A	Q4123AA	Q4223AX	520	300	68	4	Flange
QS123A	QS4123A	QS8123A	QS4123AA	QS223A	QS4223A	QS4123AA	QS4223AX	520	500	114	6	Flange
—	—	—	N4323AA	N323A	N4323A	N4323AA	N4323AX	350	600	136	6	Flange
—	—	—	R4323AA	R323A	R4323A	R4323AA	R4323AX	280	1,100	250	8	Flange
—	—	—	—	RS323A	RS4323A	—	—	280	1,600	363	10	Flange

Refer to Appendix B on page 33 for more information on seals and porting.

PORTING

- Right Angle (90°)
(Rotatable Casing)
- Opposite (180°)
(Rotatable Casing)
- Flanged
(ANSI or DIN Compatible)

SEALING

- Packing
- Component Mechanical Seal
- Cartridge Mechanical Seal
- Cartridge Triple Lip Seal
- API 682 Seal
- Balanced Seal
- Sealless Mag Drive

MOUNTING

- Foot Mount

OPTIONS

- Jacketing
- Low temperature carbon steel down to -50°F (-45°C)

DRIVES

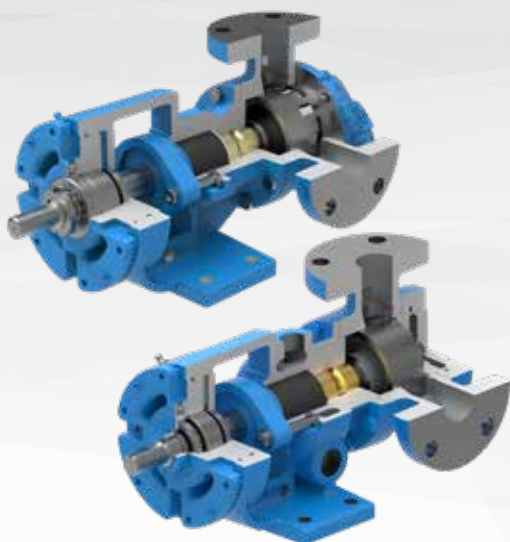


Refer to Appendix A on page 32 for more information on drives.



DID YOU KNOW?

Viking Pump is the only gear pump manufacturer to manufacture a pump to meet the rigorous design, production, testing, and documentation requirements of API 676 3rd Edition.



123A (non-jacketed, packing)

223A (jacketed, packing)

- Handle the highest viscosity liquids, up to 2,000,000 SSU
- Packing requires some minimal leakage for cooling and lubrication



4123A (non-jacketed, mechanical seal)

4223A (jacketed, cartridge seal)

- Component mechanical seals handle lower viscosity liquids with minimal leakage
- Optional single or double mechanical cartridge seals enable seal plans to flush away contaminants and limit vapor emissions
- Cartridge triple lip seals enable the same high viscosities as pumps with packing, but without the necessary leakage
- Cartridge mechanical seals offer back-pull-out capability through the bearing housing opening to enable seal maintenance or replacement without removing the pump



4123AA

4323AA

- Bracket features enlarged bearing housing to fit API 682 Cat. 1, 2 or 3 cartridge seals with seal plans
- Uses standard Universal Product Line casings and heads with many options for ports, jacketing and relief valves
- Conforms to API 676 3rd Edition, with exceptions



4223AX

4323AX

- Conforms fully to API 676 3rd Edition, no exceptions
- API 682 Cat. 1, 2 or 3 cartridge seals with seal plans
- Cast-in casing jacket with flanged casing drain
- 3mm corrosion allowance on pressure-containing parts
- Includes all NDE and performance testing required by API 676



8123A (sealless mag drive)

- Eliminates the shaft seal to provide the highest level of liquid and vapor containment
- All liquid and vapor is hermetically sealed in the pump
- Used especially for hazardous and difficult-to-seal liquids

Note: Product images may not reflect standard construction.





FLOW RANGE
to 1,600 GPM
(363 m³/h)



PRESSURE
to 200 PSI
(14 BAR)



TEMPERATURE
-120°F to +500°F
(-85°C to +260°C)



VISCOSITY
28 to 2,000,000 SSU
(1 to 440,000 cSt)

UNIVERSAL PRODUCT LINE

STAINLESS STEEL CONSTRUCTION



FEATURES & BENEFITS

- For corrosion resistance over a wider pH range
- Non-galling gear materials available for handling thin liquid applications
- All stainless steel construction or economical 724 & 4724 series

TYPICAL APPLICATIONS

- Soaps, Detergents & Surfactants
- Acids & Caustics
- Water-based Liquids
- Vegetable Oil
- General Chemicals

PERFORMANCE

MODELS							SPECIFICATIONS				
Non-Jacketed			Jacketed				Performance			Standard Ports	
Packing	Mechanical Seal	Mag Drive	Mechanical Seal	Packing	Behind the Rotor Seal		Max Speed, RPM	GPM	m ³ /h	Size, Inches	Type
—	—	—	—	—	F724*	F4724*	1750	1.5	0.3	0.5	NPT
—	—	—	—	—	FH724*	FH4724*	1750	3	0.7	0.75	NPT
—	—	—	—	—	G724*	G4724*	1150	5	1	1	NPT
H127A	H4127A	H8127A	H4227A	H227A	H724**	H4724**	1750	10	2.3	1.5	Flange
HL127A	HL4127A	HL8127A	HL4227A	HL227A	HL724**	HL4724**	1750	20	4.5	1.5	Flange
K127A	K4127A	K8127A	K4227A	K227A	K724**	K4724**	780	45	10	2	Flange
KK127A	KK4127A	KK8127A	KK4227A	KK227A	KK724**	KK4724**	780	65	15	2	Flange
—	—	—	—	—	L724	L4724	420	90	20	2	NPT
LQ127A	LQ4127A	LQ8127A	LQ4227A	LQ227A	LQ724	LQ4724	640	90	20	2.5	Flange
LL127A	LL4127A	LL8127A	LL4227A	LL227A	LL724	LL4724	520	110	25	3	Flange
LS127A	LS4127A	LS8127A	LS4227A	LS227A	—	—	640	160	36	3	Flange
Q127A	Q4127A	Q8127A	Q4227A	Q227A	—	—	520	200	45	4	Flange
QS127A	QS4127A	QS8127A	QS4227A	QS227A	—	—	520	320	73	6	Flange
—	—	—	N4327A	N327A	—	—	350	600	136	6	Flange
—	—	—	R4327A	R327A	—	—	280	1,100	250	8	Flange
—	—	—	RS4327A	RS327A	—	—	280	1,600	363	10	Flange

* Stuffing box seal, non-jacketed ** These 724 & 4724 models are standard with NPT ports.

Refer to Appendix B on page 33 for more information on seals and porting.

PORTING

- Right Angle (90°) (Rotatable Casing)
- Opposite (180°) (Rotatable Casing)
- NPT
- Flanged (ANSI or DIN Compatible)

SEALING

- Packing
- Behind the Rotor Seal
- Component Mechanical Seal
- Cartridge Mechanical Seal
- Cartridge Triple Lip Seal
- API 682 Seal
- Balanced Seal
- Sealless Mag Drive

MOUNTING

- Foot Mount

OPTIONS

- Jacketing

DRIVES

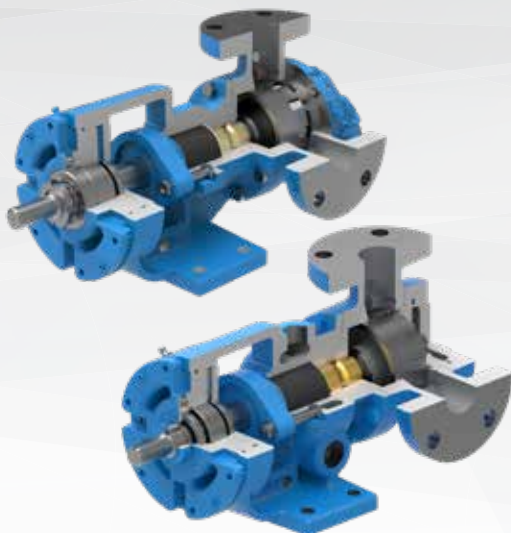


Refer to Appendix A on page 32 for more information on drives.



DID YOU KNOW?

Viking pumps are used in the world's largest chocolate fountain in the Bellagio Hotel & Casino in Las Vegas, Nevada.



127A (non-jacketed, packing)

227A (jacketed, packing)

- Handle the highest viscosity liquids, up to 2,000,000 SSU
- Packing require some minimal leakage for cooling and lubrication



4127A (non-jacketed, mechanical seal)

4227A (jacketed, cartridge seal)

- Component mechanical seals handle lower viscosity liquids with minimal leakage
- Optional single or double mechanical cartridge seals enable seal plans to flush away contaminants and limit vapor emissions
- Cartridge triple lip seals enable the same high viscosities as pumps with packing, but without the necessary leakage
- Cartridge mechanical seals offer back-pull-out capability through the bearing housing opening to enable seal maintenance or replacement without removing the pump



724 (jacketed, packing)

4724 (jacketed, mechanical seal)

- Non-wetted cast iron mounting bracket
- Behind the rotor mechanical seal
- Jacketed bracket standard
- Most economical stainless steel series



8127A (sealless mag drive)

- Eliminates the shaft seal to provide the highest level of liquid and vapor containment
- All liquid and vapor is hermetically sealed in the pump
- Used especially for hazardous, corrosive and difficult-to-seal liquids

Note: Product images may not reflect standard construction.





FLOW RANGE
to 580 GPM
(132 m³/h)



PRESSURE
to 250 PSI
(17 BAR)



TEMPERATURE
-40°F to +350°F
(-40°C to +180°C)



VISCOSITY
28 to 25,000 SSU
(1 to 5,500 cSt)

FEATURES & BENEFITS

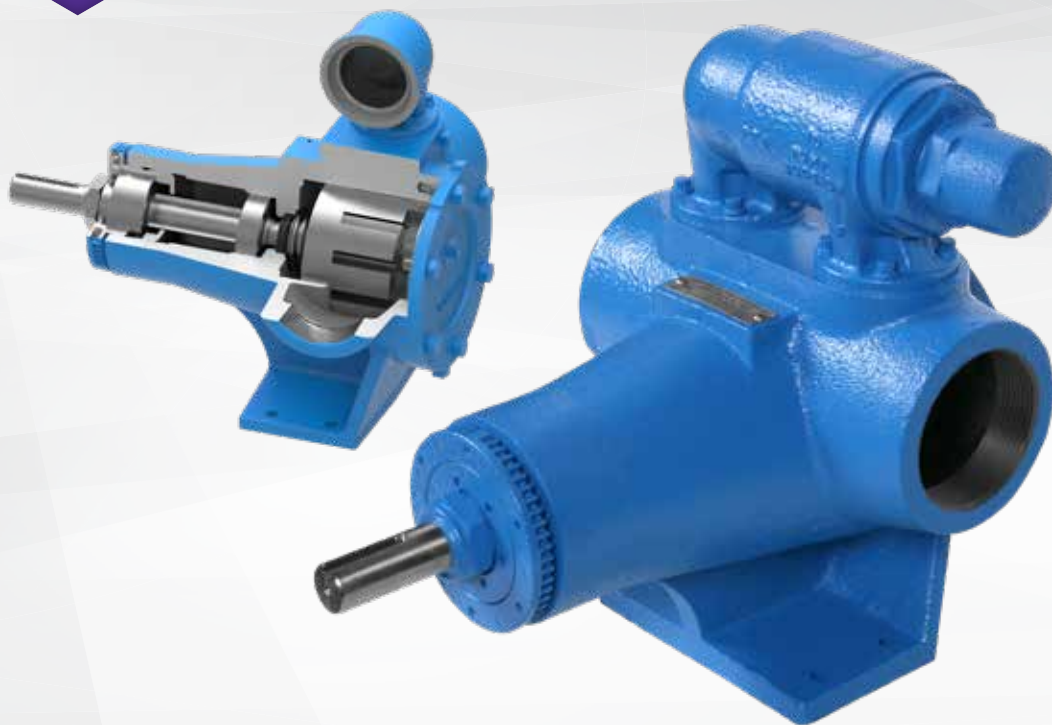
- The most compact gear pump series available to fit tight space constraints
- High speed operation for the most economical pump option for thin to moderate viscosity applications
- Vertical mounting options to further reduce the unit footprint

TYPICAL APPLICATIONS

- Refined Fuels
- Lube Oils
- Rotating Equipment Lubrication
- Mobile Pump Carts
- Glycols
- Pipeline Sampling
- Isocyanates

MOTOR SPEED PRODUCT LINE

CAST IRON CONSTRUCTION



PERFORMANCE

MODELS					SPECIFICATIONS				
Motor Mount		Foot Mount	Bracket Mount		Performance			Standard Ports	
Lip Seal	Mechanical Seal	Mechanical Seal	Mechanical Seal	Mag Drive	Max Speed, RPM	GPM	m ³ /h	Size, Inches	Type
G75	G475	G4195	G495	—	1750	8	1.8	1	NPT
GG75	GG475	GG4195	GG495	GG895	1750	10	2.3	1	NPT
H75	H475	H4195	H495	—	1750	15	3.4	1.5	NPT
HJ75	HJ475	HJ4195	HJ495	HJ895	1750	20	4.5	1.5	NPT
HL75	HL475	HL4195	HL495	HL895	1750	30	6.8	1.5	NPT
—	—	AS4195	AS495	AS895	1750	55	12	2.5	NPT
—	—	AK4195	AK495	AK895	1750	85	19	2.5	NPT
—	—	AL4195	AL495	AL895	1750	115	26	3	NPT
—	—	KE4195*	—	—	1750	150	34	4	Flange
—	—	KKE4195*	—	—	1750	205	47	4	Flange
—	—	LQE4195*	—	—	1150	235	53	4	Flange
—	—	LSE4195*	—	—	1150	350	80	4	Flange
—	—	Q4195	—	—	750	460	104	6	Flange
—	—	QS4195	—	—	640	580	132	6	Flange

Refer to Appendix B on page 33 for more information on seals and porting.

* KE, KKE, LQE and LSE sizes have a foot mount and flange for M-Drive Bracket.

PORTING

- Opposite (180°)
- NPT
- Flanged (ANSI or DIN Compatible)
- High Pressure Flanges

SEALING

- Lip Seal
- Behind the Rotor Seal
- Balanced Seal
- Sealless Mag Drive

MOUNTING

- Motor Mount
- Foot Mount
- Vertical Mount

DRIVES

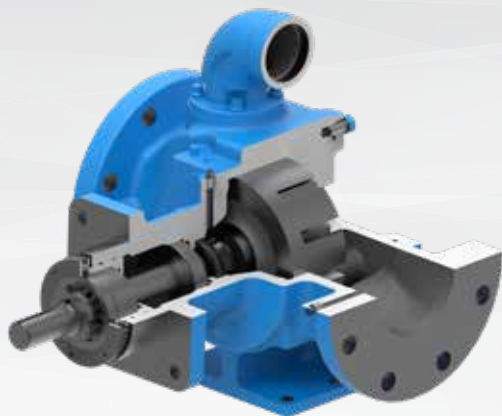


Refer to Appendix A on page 32 for more information on drives.



DID YOU KNOW?

Viking was the first to develop a commercially available mag drive internal gear pump over 30 years ago. Since then, Viking has built and installed thousands of mag drive pumps all over the world. Many of those original installations are still in operation today, which speaks to the durability of this design.



4195 (foot mount, behind the rotor seal)

- Behind the rotor mechanical seal with antifriction bracket bearing for motor speed operation
- Optional balanced seal for high inlet pressures
- NPT or Class 125 flange ports with optional Class 250 or DIN PN-25/40 flanges



(Pump shown mounted to a motor)

495 (bracket mount, behind the rotor seal)

- Flanged bracket for bell housing to close couple NEMA C or IEC B-14 motors
- Eliminates shaft alignment, easy mounting on equipment frames
- KE- LSE 4195 models have both foot for long-couple and bracket flange for close coupling

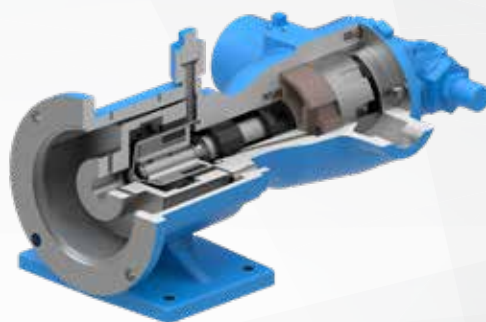


(Pump shown mounted to a motor)

475 (motor mount, behind the rotor seal)

75 (motor mount, lip seal)

- NEMA C-face mount for easy installation and a small footprint
- Simplified rotor retention system, economical for medium duty applications
- IEC mount option available



895 (sealless mag drive)

- Eliminates the shaft seal to provide the highest level of liquid and vapor containment
- All liquid and vapor is hermetically sealed in the pump
- Used especially for hazardous and difficult-to-seal liquids
- Optional high pressure canister for inlet pressures up to 2,250 PSI (155 BAR)



Note: Product images may not reflect standard construction.



FLOW RANGE
to 115 GPM
(27 m³/h)



PRESSURE
to 250 PSI
(17 BAR)



TEMPERATURE
0°F to +350°F
(-20°C to +180°C)



VISCOSITY
28 to 25,000 SSU
(1 to 5,500 cSt)

FEATURES & BENEFITS

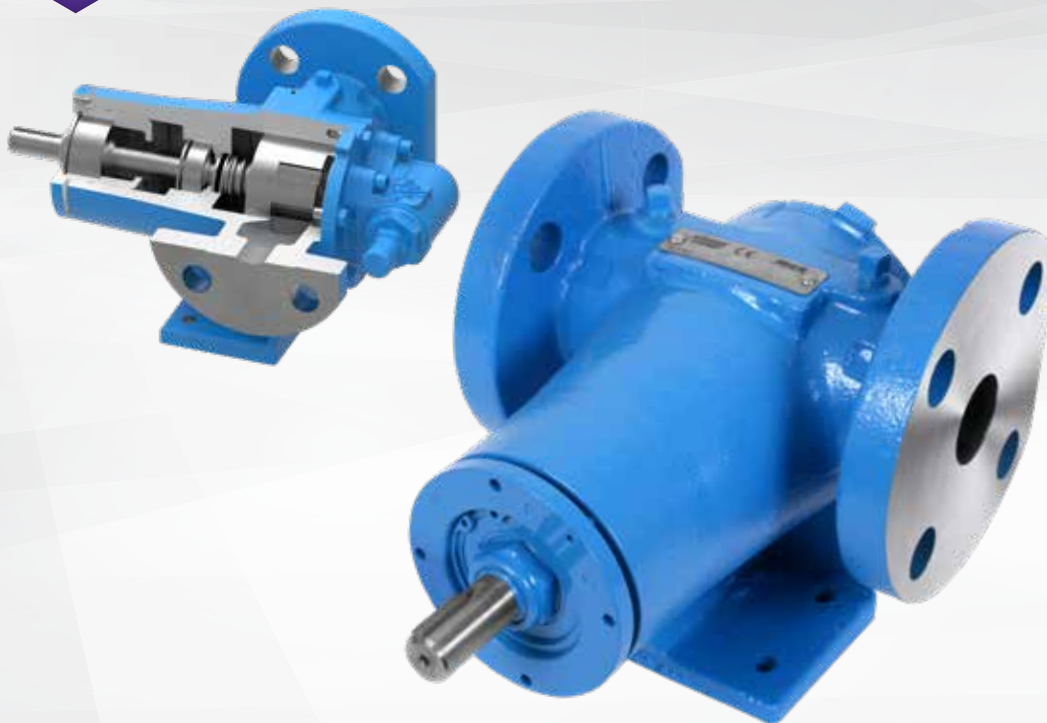
- Close coupled to fit tight space constraints with vertical mount options for reduced unit footprint
- High speed operation for economical steel pump offering
- High working pressures for compressor lubrication and pipeline sampling applications
- Class 300 flanges standard on all sizes and models

TYPICAL APPLICATIONS

- Pipeline Sampling
- Compressor Lubrication
- Fuels
- Lube Oils

MOTOR SPEED PRODUCT LINE

STEEL EXTERNALS CONSTRUCTION



PERFORMANCE

MODELS			SPECIFICATIONS			
Foot Mount	Bracket Mount		Performance			Standard Ports
Mechanical Seal	Mechanical Seal	Mag Drive	Max Speed, RPM	GPM	m³/h	Size, Inches Type
GG4193	GG493	GG893	1750	10	2.3	1 Flange
HJ4193	HJ493	HJ893	1750	20	4.5	1.5 Flange
HL4193	HL493	HL893	1750	30	6.8	1.5 Flange
AS4193	AS493	AS893	1750	55	12	3 Flange
AK4193	AK493	AK893	1750	85	19	3 Flange
AL4193	AL493	AL893	1750	115	26	3 Flange

Refer to Appendix B on page 33 for more information on seals and porting.

PORTING

- Opposite (180°)
- Flanged (ANSI or DIN Compatible)

SEALING

- Behind the Rotor Seal
- Balanced Seal
- Sealless Mag Drive

MOUNTING

- Motor Mount
- Foot Mount
- Vertical Mount

DRIVES



Refer to Appendix A on page 32 for more information on drives.



4193 (*foot mount, behind the rotor seal*)

- Behind the rotor mechanical seal with antifriction bracket bearing for motor speed operation
- Optional balanced seal for high inlet pressures
- Class 300 flange ports
- Conforms to API 676, with exceptions



493 (*bracket mount, behind the rotor seal*)

- Flanged bracket for bell housing to close couple NEMA C or IEC B-14 motors
- Eliminates shaft alignment, easy mounting on equipment frames



893 (*sealless mag drive*)

- Eliminates the shaft seal to provide the highest level of liquid and vapor containment
- All liquid and vapor is hermetically sealed in the pump
- Used especially for hazardous and difficult-to-seal liquids
- Optional high pressure canister for inlet pressures up to 2,250 PSI (155 BAR)

Note: Product images may not reflect standard construction.



DID YOU KNOW?

Viking's foundries convert over 3,000,000 pounds of raw materials each year into pump parts and other cast products. Steel parts, like those used in this series, are produced in the Viking Alloys Foundry along with stainless steel. Cast and Ductile Iron are produced at Viking's Iron Foundry.





FLOW RANGE
to 75 GPM
(17 m³/h)



PRESSURE
to 200 PSI
(14 BAR)



TEMPERATURE
0°F to +350°F
(-20°C to +180°C)



VISCOSITY
28 to 25,000 SSU
(1 to 5,500 cSt)

FEATURES & BENEFITS

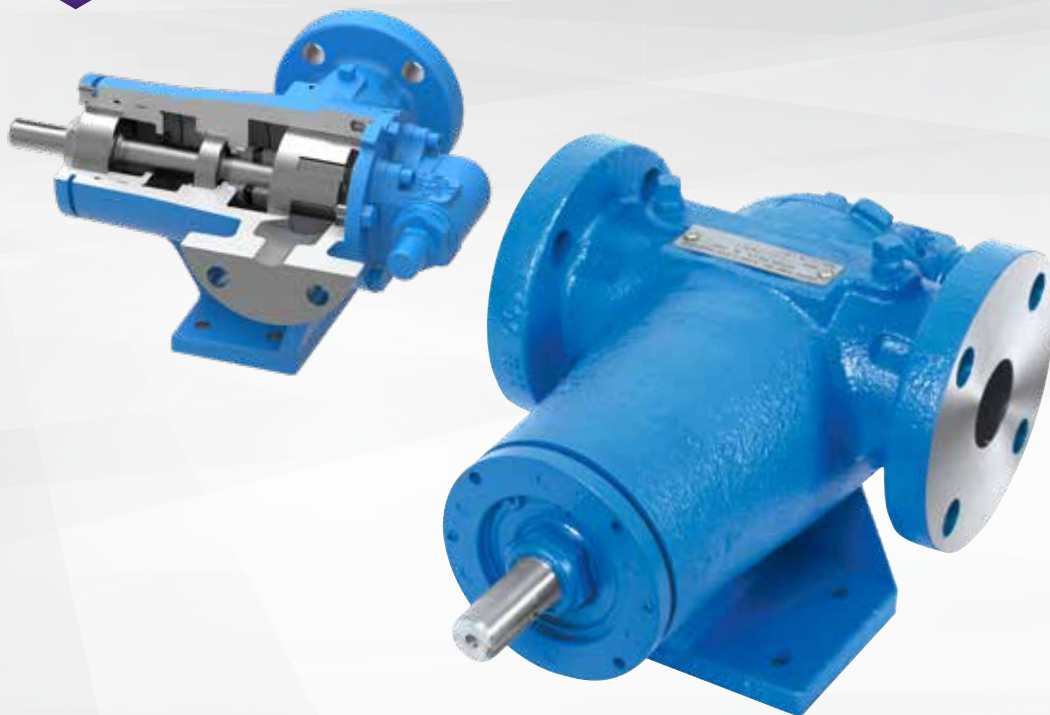
- For corrosion resistance over a wider pH range
- Non-galling gear materials standard for handling thin liquid applications
- Compact gear pump series to fit tight space constraints

TYPICAL APPLICATIONS

- Water-Based Liquids
- Acids & Caustics
- Additives
- General Chemical

MOTOR SPEED PRODUCT LINE

STAINLESS STEEL CONSTRUCTION



PERFORMANCE

MODELS		SPECIFICATIONS				
Foot Mount	Bracket Mount	Performance			Standard Ports	
Mechanical Seal	Mag Drive	Max Speed, RPM	GPM	m³/h	Size, Inches	Type
GG4197	GG897	1750	10	2.3	1	Flange
HJ4197	HJ897	1750	20	4.5	1.5	Flange
HL4197	HL897	1750	30	6.8	1.5	Flange
AS4197	AS897	1150	35	8	3	Flange
AK4197	AK897	1150	50	11	3	Flange
AL4197	AL897	1150	75	17	3	Flange

Refer to Appendix B on page 33 for more information on seals and porting.

PORTING

- Opposite (180°)
- Flanged (ANSI or DIN Compatible)

SEALING

- Behind the Rotor Seal
- Balanced Seal
- Sealless Mag Drive

MOUNTING

- Motor Mount
- Foot Mount

DRIVES



Refer to Appendix A on page 32 for more information on drives.



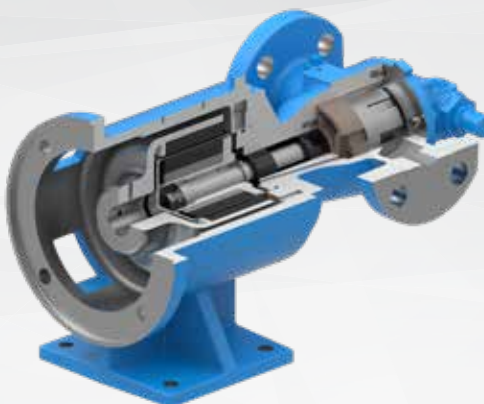
DID YOU KNOW?

Viking pumps have been installed on all 7 continents, including Antarctica.



4197 (foot mount, behind the rotor seal)

- Behind the rotor mechanical seal with antifriction bracket bearing for motor speed operation
- PTFE wedge-type mechanical seal standard for corrosive liquids
- Class 150 flange ports



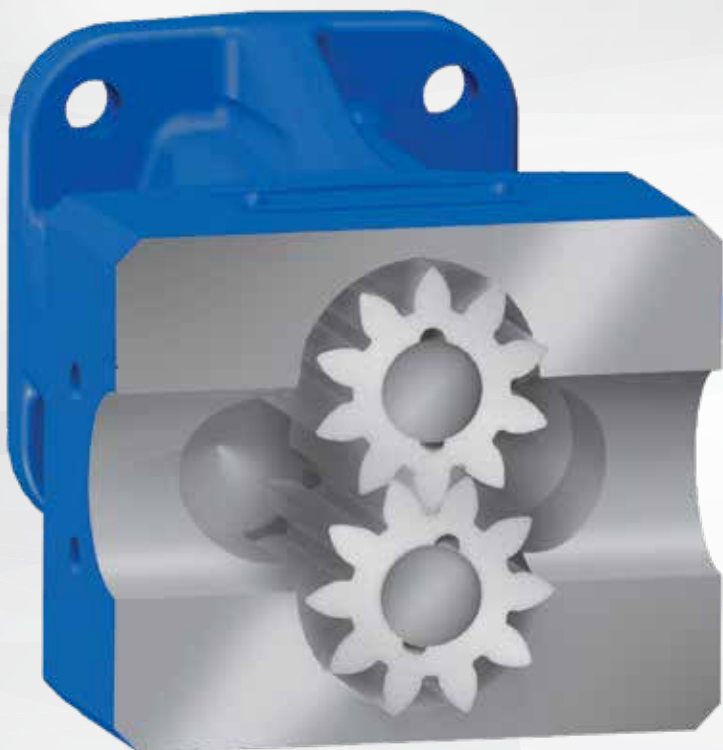
897 (sealless mag drive)

- Eliminates the shaft seal to provide the highest level of liquid and vapor containment
- All liquid and vapor is hermetically sealed in the pump
- Used especially for hazardous, corrosive and difficult-to-seal liquids
- Optional high pressure canister for inlet pressures up to 2,250 PSI (155 BAR)



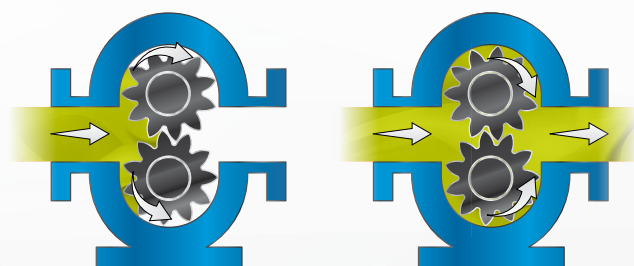
Note: Product images may not reflect standard construction.

EXTERNAL GEAR PUMPS



WHY? The external gear pump is the ultimate solution for high pressure pumping.

- Bearing support on both sides of the gears enables differential pressures to 500 PSI (34 BAR), or Intermittent to 2,500 PSI (170 BAR)
- Motor speed operation eliminates cost of speed reducer
- Eliminates lubrication – no external axial or radial bearing required in most applications



TYPICAL APPLICATIONS

Common external gear pump applications include, but are not limited to:

- Various fuel oils & lube oils
- Chemical additive & polymer metering
- Chemical mixing & blending (double pump)
- Industrial & mobile hydraulic applications
- Low volume transfer or application

MATERIALS OF CONSTRUCTION & CONFIGURATION OPTIONS

Externals (Head, Casing, Bracket)

Iron, ductile iron

Internals (Shafts)

Steel

Internals (Gears)

Steel

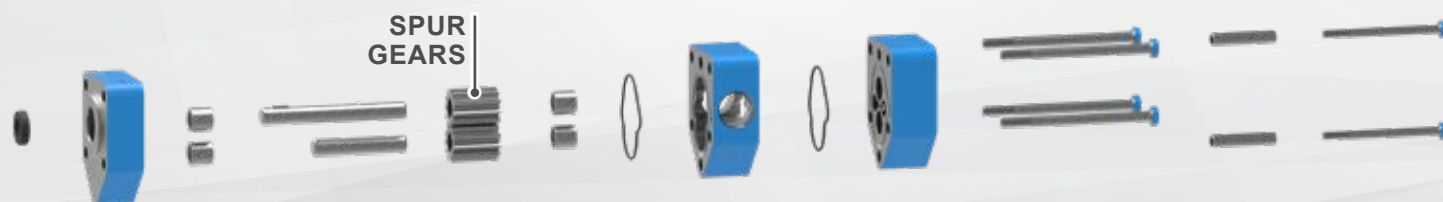
Bushings (Sleeve Bearings)

Carbon, silicon carbide, needle bearings

Shaft Seal

Lip seal, component mechanical seal, sealless magnetic couplings

KEY PUMPING ELEMENTS



The External Gear Pump with spur gears offers higher pressures and unique abilities to supply multi-section specialty pumps with one driver.

ADVANTAGES

Higher Pressure Capabilities

With shaft support on both sides of the gears

Multi-Section Pumps

Use one motor for multiple pumping applications, blending liquids, or splitting flows to different uses

Shaft Seal Options

Including lip seal, component mechanical seal and sealless mag drive options

Compact, Close-Coupled Options

For motor speed operation or with gearmotors

Smooth, Non-Pulsing Flow

For accurate flow measurement

Reliable & Easy to Maintain

With only two moving parts

One Shaft Seal

More reliable and lower cost than two used on timed lobe and screw pumps

PERFORMANCE



Flow Range

to 190 GPM (719 LPM)



Viscosity

28 to 1,000,000 SSU (1 to 250,000 cSt)
With special construction



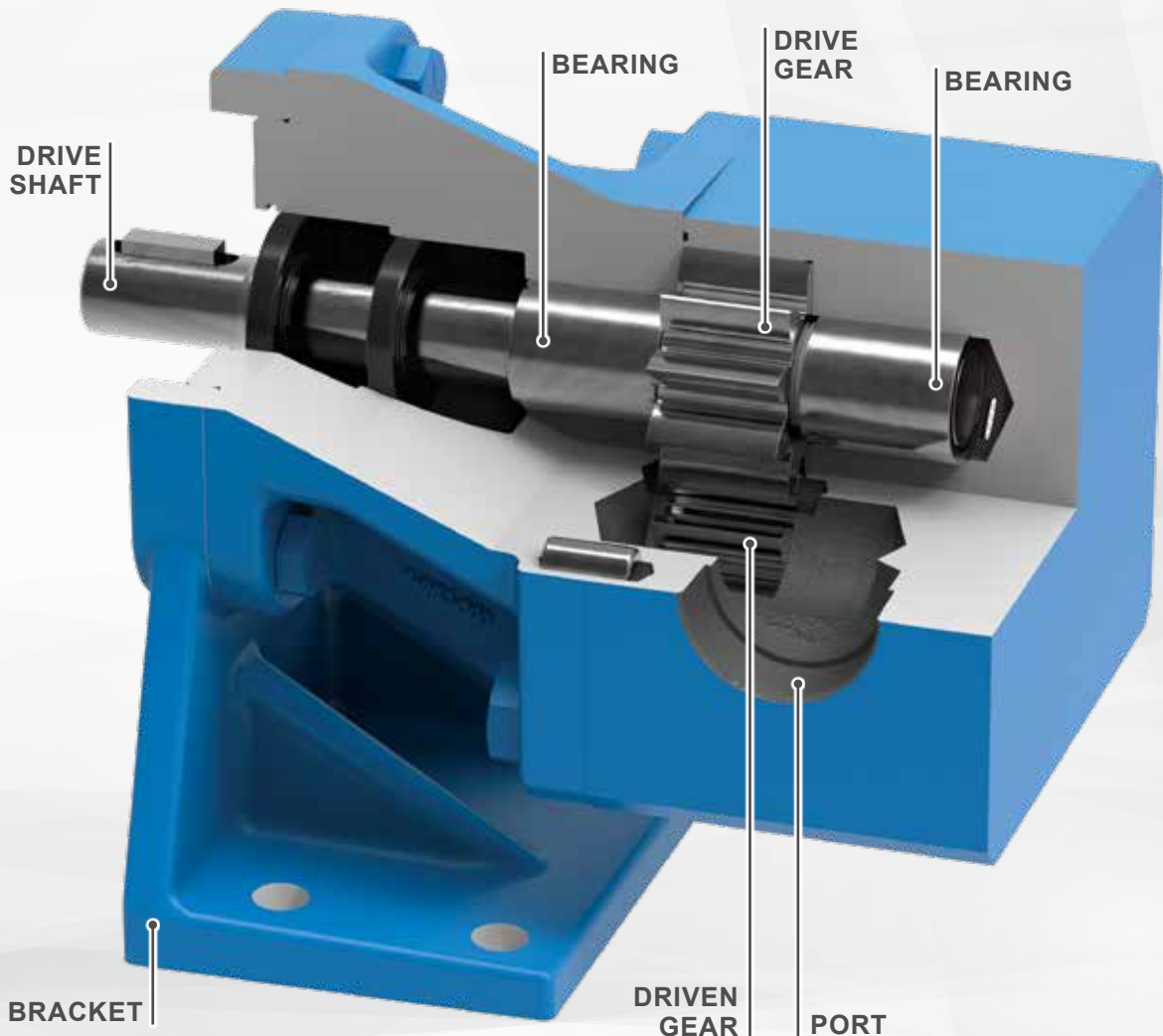
Pressure

to 500 PSI (34 BAR)
Intermittent to 2,500 PSI (170 BAR)



Temperature

-40°F to +450°F (-40°C to +230°C)
With special construction





FLOW RANGE
to 190 GPM
(719 LPM)



PRESSURE
to 500 PSI
(34 BAR)



TEMPERATURE
-40°F to +450°F
(-40°C to +230°C)



VISCOSITY
28 to 1,000,000 SSU
(1 to 250,000 cSt)

FEATURES & BENEFITS

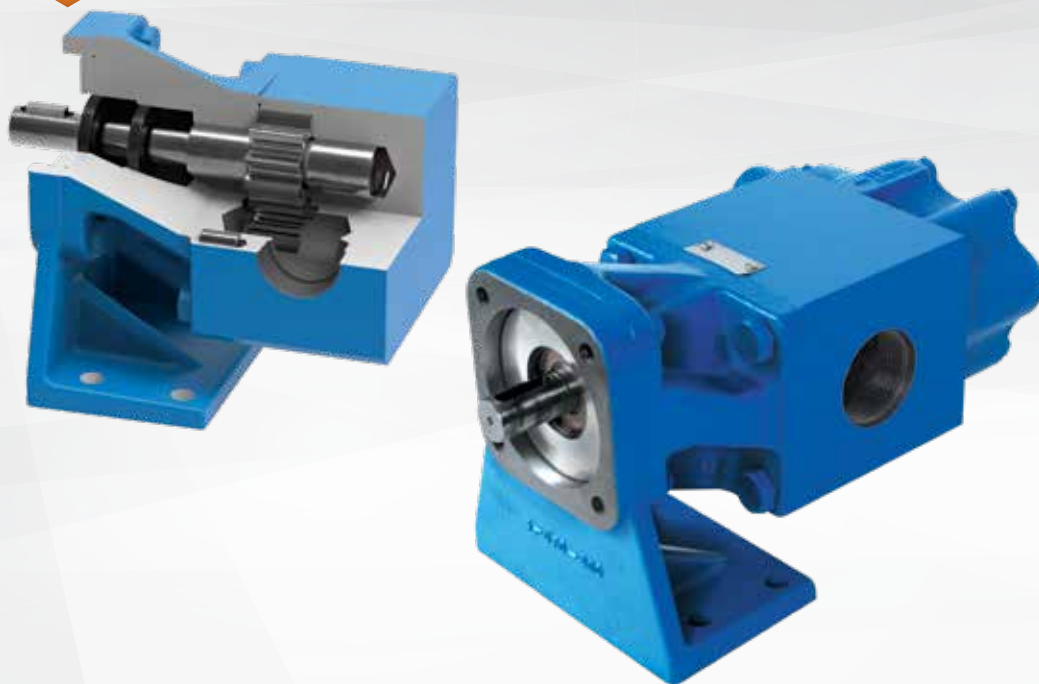
- Needle bearings provide high pressure capabilities, sleeve bearing options available
- Close-coupled motor mount or foot bracket options to match space or motor requirements
- Double pump configurations offer two flow rates operating from a single power source, reducing equipment costs

TYPICAL APPLICATIONS

- Pipeline Injection
- Pipeline Sampling
- Oil Polishing
- High Pressure Lubrication
- Hydraulics

SPUR GEAR PRODUCT LINE

CAST OR DUCTILE IRON CONSTRUCTION*



PERFORMANCE

MODELS			SPECIFICATIONS						
Lip Seal	Mechanical Seal	Mag Drive	Nominal Flow Range At 1750 RPM		Continuous Pressure		Intermittent Pressure		Standard Ports
			GPM	LPM	PSI	BAR	PSI	BAR	Size, Inches
SG-0417	SG-40417	—	0.06	0.23	500	34	750	52	0.375
SG-0418	SG-40418	—	0.14	0.53	500	34	1,250	86	0.375
SG-0425	SG-40425	—	0.18	0.68	500	34	1,500	103	0.375
SG-0470	SG-40470	—	0.5	1.89	500	34	1,500	103	0.375
SG-0518 ①	SG-40518	SG-80518	0.7	2.6	500	34	1,500	103	0.5
SG-0525 ①	SG-40525	SG-80525	1	3.8	500	34	2,500	172	0.5
SG-0535 ①	SG-40535	SG-80535	1.4	5.3	500	34	2,500	172	0.5
SG-0550 ①	SG-40550	SG-80550	2	7.6	500	34	2,500	172	0.5
SG-0570 ①	SG-40570	SG-80570	2.8	10.6	500	34	1,800	124	0.5
SG-0510 ①	SG-40510	SG-80510	4	15.1	500	34	1,250	86	0.5
SG-0514 ①	SG-40514	SG-80514	5.6	21.2	500	34	900	62	0.75
SG-0519 ①	SG-40519	SG-80519	7.6	28.8	200	14	400	28	0.75
SG-0528 ①	SG-40528	SG-80528	11.2	42.4	100	7	200	14	0.75
SG-0729	SG-40729	—	2.8	10.6	500	34	2,500	172	1
SG-0741	SG-40741	SG-80741	4	15.1	500	34	2,500	172	1
SG-0758	SG-40758	SG-80758	5.6	21.2	500	34	2,500	172	1
SG-0782	SG-40782	SG-80782	8	30.3	500	34	2,250	155	1
SG-0711	SG-40711	SG-80711	11.2	42.4	500	34	1,600	110	1
SG-0716	SG-40716	SG-80716	16	61	500	34	1,100	75	1
SG-0722	SG-40722	SG-80722	22	83	500	34	1,600	110	1.50 X 1.25
SG-0732	SG-40732	SG-80732	32	121	500	34	1,100	75	1.50 X 1.25
SG-1009 ②	SG-41009 ②	—	16	61	500	34	2,500	172	1
SG-1013 ②	SG-41013 ②	SG-81013 ②	25	95	500	34	1,900	131	1.5
SG-1026 ②	SG-41026 ②	SG-81026 ②	50	189	500	34	1,000	69	2
SG-1420 ②	SG-41420 ②	SG-81420 ②	70	265	500	34	1,100	76	2
SG-1436 ②	SG-41436 ②	SG-81436 ②	125	473	290	20	580	40	3
SG-1456 ②	SG-41456 ②	SG-81456 ②	190	719	190	13	380	26	4

Integral pressure relief valve standard (single pump).

① SG-05 models available with UL 343 listing for fuel oil.

② SG-10 & SG-14 models are standard with Ductile Iron construction only.

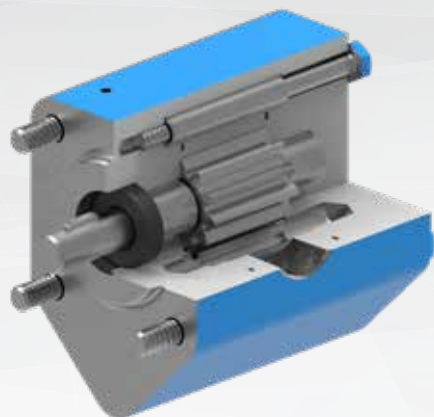
* SG-05 & SG-07 models also available in Ductile Iron construction (SGN)

Refer to Appendix B on page 33 for more information on seals and porting.



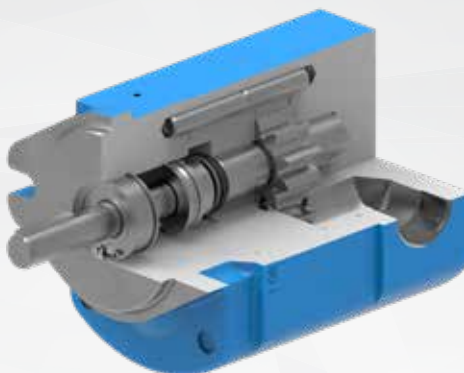
DID YOU KNOW?

With small displacements and fine gear teeth, these pumps are not only good at high pressures, but also make excellent metering pumps. In fact, the 0417 size dispenses only 0.13 mL with each shaft revolution.



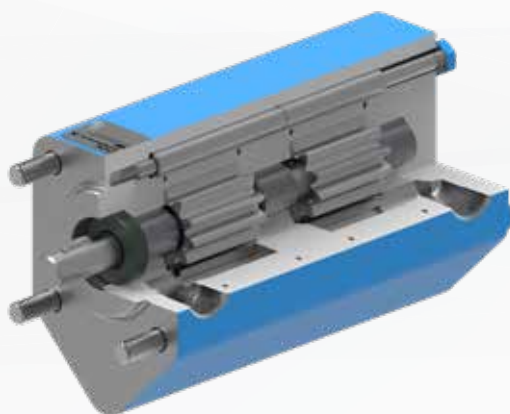
Lip Seal (SG-0514)

- Wide range of viscosities
- Economical option for clean lubricating liquids
- Needle bearings as standard



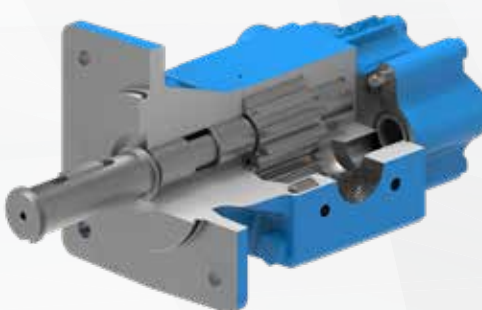
Mechanical Seal (SG-40782)

- Used for thin liquids
- Carbon graphite bearings as standard



Double Pump (SG-051414)

- Configurations offer two flow rates operating from a single power source, reducing equipment costs



Sealless Mag Drive (SG-81026)

- Sealless technology to eliminate seal leakage at pressures to 500 PSI (34 Bar)

PORTING

- Opposite (180°)
- NPT
- SAE O-Ring
- SAE Flange

SEALING

- Lip Seal
- Component Mechanical Seal
- Sealless Mag Drive

MOUNTING

- Foot Mount (with Footed Bracket)
- Motor Mount Bracket to IEC & NEMA Motors (Close-Coupled)
- Vertical Mount

OPTIONS

- Double Pump

DRIVES



Refer to Appendix A on page 32 for more information on drives.

Note: Product images may not reflect standard construction.

LIQUID-SPECIFIC PRODUCT LINE



ABOUT LIQUID-SPECIFIC PRODUCT LINE

Through 100+ years of pumping experience, our engineers have developed uniquely designed products with a specific application in mind. These products focus on solving targeted challenges that exist within that liquid application.

From speed to viscosity, sealing or shear, these products provide additional security that the product is right for the applications they are built for.

PRODUCTS INCLUDE:

- 26** ABRASIVE LIQUID PUMPS
- 27** ASPHALT PUMPS
- 28** THIN LIQUID VANE PUMPS
- 28** REFRIGERATION AMMONIA PUMPS
- 29** FUEL OIL PUMPS
- 29** SENSITIVE SOLIDS IDLER

ABRASIVE LIQUID

FEATURES & BENEFITS

- Extended service life provided by:
 - Tungsten carbide components in critical wear areas of pump
 - Other hardened component options available
 - Silicon carbide mechanical seal faces
 - Positive seal flush to keep fresh supply of liquid at seal faces
 - Behind the rotor seal placement eliminates abrasive wear on shaft bushing
 - Pin drive mechanical seal increases viscosity range
- For abrasive liquids such as paints, inks and waste oil

SERIES

4624B



MODELS		SPECIFICATIONS				
Non-Jacketed	Behind the Rotor Seal	Performance			Standard Ports	
		Max Speed, RPM	GPM	m ³ /h	Size, Inches	Type
	F4624B	870	0.75	0.2	0.5	NPT
	FH4624B	870	1.5	0.3	0.5	NPT
	H4624B	640	5	1.1	1.5	NPT
	HL4624B	640	10	2.3	1.5	NPT
	K4624B	280	25	5.7	2	NPT
	KK4624B	280	35	8	2	NPT
	L4624B	230	50	11	2	NPT
	LQ4624B	230	50	11	2.5	Flange
	LL4624B	230	65	15	3	Flange
	LS4624B	230	72	16	3	Flange
	Q4624B	190	110	25	3	Flange
	QS4624B	190	182	41	6	Flange

Integral pressure relief valve is standard.

Abrasion resistant components also available in other series and sizes.

Refer to Appendix B on page 33 for more information on seals and porting.

ASPHALT

FEATURES & BENEFITS: JACKETED

- Jacketing suitable for hot oil or steam for enhanced application flexibility
- Belt drive or reducer drive options available
- 34 series is an economical option for clean asphalt at low to moderate pressure

SERIES

34, 224A, 4224A, 324A, 4324A



MODELS		SPECIFICATIONS				
Jacketed		Performance			Standard Ports	
Packing	Mechanical Seal	Max Speed, RPM	GPM	m³/h	Size, Inches	Type
LQ34	—	420	90	20	2.5	Flange
Q34	—	350	200	45	3	Flange
M34	—	280	280	64	4	Flange
N34	—	280	450	102	5	Flange
H224A	H4224A	1750	15	3.4	1.5	NPT
HL224A*	HL4224A*	1750	30	6.8	1.5	NPT
K224A*	K4224A*	780	75	17	2	NPT
KK224A*	KK4224A*	780	100	23	2	NPT
L224A*	L4224A*	640	135	31	2	NPT
LQ224A*	LQ4224A*	640	135	31	2.5	Flange
LL224A	LL4224A	520	140	32	3	Flange
LS224A*	LS4224A*	640	200	45	3	Flange
Q224A	Q4224A	520	300	68	4	Flange
QS224A	QS4224A	520	500	114	6	Flange
M224A	M4224A	420	420	95	4	Flange
N324A*	N4324A*	350	600	136	6	Flange
R324A	R4324A	280	1,100	250	8	Flange
RS324A	RS4324A	280	1,600	363	10	Flange

Refer to Appendix B on page 33 for more information on seals and porting.

FEATURES & BENEFITS: ELECTRICALLY HEATED

- Lower installation costs in remote locations when steam or hot oil is not available or long piping runs are required
- Reduced environmental costs by eliminating hot oil leaks
- Reduced energy costs with heat source in pump vs. external heat tracing
- Simplified service by eliminating hot oil or steam pipe connections
- Optional closed loop PID control system maintains tight control

SERIES

32E, 124E, 324E



MODELS		SPECIFICATIONS					
Non-Jacketed		Performance				Standard Ports	
Packing		Max Speed, RPM	GPM	m³/h	Total Watts	Size, Inches	Type
LQ32E		420	90	20	1,200	2.5	Flange
Q32E		350	200	45	1,500	3	Flange
M32E		280	280	64	2,250	4	Flange
N32E		280	450	102	2,500	5	Flange
H124E		1750	15	3.4	275	1.5	NPT
HL124E		2900	50	11	275	1.5	NPT
K124E		950	90	20	690	2	NPT
KK124E		950	120	27	690	2	NPT
L124E		950	210	48	1,200	2	NPT
LQ124E		950	210	48	1,200	2.5	Flange
LL124E		520	140	32	1,200	3	Flange
LS124E		720	230	52	1,200	3	Flange
Q124E		520	300	68	2,200	4	Flange
QS124E		520	500	114	2,200	6	Flange
N324E		420	685	156	2,500	6	Flange

Refer to Appendix B on page 33 for more information on seals and porting.

LIQUID-SPECIFIC PRODUCT LINE

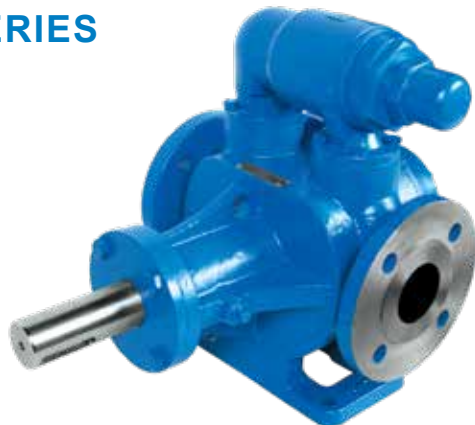
THIN LIQUID

FEATURES & BENEFITS

- Vane pump design offers ANSI or DIN flanges, and IEC or NEMA motor mounts to conform to international standards for enhanced application flexibility
- High pressure and high efficiency with thin liquids
- 20 minute inline vane replacement reduces scheduled downtime
- Harder components than other vane pumps extend pump life
 - 60 Rockwell C surface-hardened one-piece, 316 stainless steel casing
 - Silicon carbide sleeve bearings
 - Chrome oxide shaft coating

SERIES

LVP



MODELS	SPECIFICATIONS				
	Performance			Standard Ports	
Mechanical Seal	Max Speed, RPM	GPM	m ³ /h	Size, Inches	Type
LVP40017	1750	20	4.5	1.5	Flange
LVP41017	1750	20	4.5	1.5	Flange
LVP40027	1750	40	9	1.5	Flange
LVP41027	1750	40	9	1.5	Flange
LVP41057	1150	80	18	2	Flange
LVP41087	950	100	23	2	Flange
LVP41197	520	125	28	3	Flange
LVP41237	520	160	36	3	Flange

Integral pressure relief valve is standard.

Refer to Appendix B on page 33 for more information on seals and porting.

REFRIGERATION AMMONIA

FEATURES & BENEFITS

- Double mechanical seal with pressurized seal chamber and oil reservoir pressurized by ammonia, no external flush system required
- Adjustable return-to-tank pressure relief valve
- Pressure-lubricated idler bushing maximizes bushing life
- Designed for liquid overfeed ammonia refrigeration systems
- New bearing housing design simplifies end clearance adjustment and maintenance

SERIES

4924A



MODELS	SPECIFICATIONS				
	Performance			Standard Ports	
Mechanical Seal	Max Speed, RPM	GPM	m ³ /h	Size, Inches	Type
HL4924A	780	10	2.3	1.5	NPT
K4924A	280	20	4.5	2	NPT
KK4924A	280	30	6.8	2	NPT
LQ4924A	280	45	10	2.5	Flange
LL4924A	280	60	14	3	Flange

Return-to-tank relief valve standard.

Refer to Appendix B on page 33 for more information on seals and porting.

FUEL OIL

FEATURES & BENEFITS

- UL343 listed for the handling of various fuel oils
- Intended for use in the assembly of power-operated, oil-burning appliances in accordance with ANSI/NFPA 31
- Products achieved UL certification through testing at the UL laboratory
- Capacities range from 0.5 to 20 GPM, with lip seal or mechanical seal options

SERIES

456-X, 432-X, SG-05__-X

FH456-X



HL432-X



SG-0514-X



SENSITIVE SOLIDS

FEATURES & BENEFITS

- Unique option for gently handling sensitive solids
- Ribs reduce gear flank contact by 80%
- Alternating rib location minimizes wear on rotor teeth
- Allows small solids to pass between gear teeth
- Patent pending

TYPICAL APPLICATIONS

- Soft crystals in sugar massecuite and magma
- Microencapsulation with microspheres or cenospheres

MARKETS

- Personal Care Products
- 2-Component Adhesives & Sealants
- Polyurethane Foams
- Agricultural Chemicals
- Pharma & Biotech
- Foods & Feeds



PARTS & ACCESSORIES



There are millions of Viking pumps installed throughout the world. Our parts and accessories are built to keep them running efficiently and make repairs easy.

Not all parts are created equal. Viking Genuine Parts come with a guarantee to dimensionally fit Viking products, as well as having consistent construction, including material grade and quality.

Whether purchasing an individual part, ordering a full repair kit, or choosing an accessory to make your systems work smoothly, ensure that you are maintaining your Viking pumps with the same quality of parts that it left the factory with. Choose Viking Genuine Parts when servicing your pumps. Reach out to your local stocking distributor to get parts on your shelves for proactive operational management.

PARTS & KITS



Viking Pump parts kits provide customers with the ability to do a complete repair at once vs. each time a part wears. Everything needed is included in the kit, ready before you open the pump. Both seal kits and repair kits are available. Reduce your downtime by contacting your local stocking distributor to have a kit on your shelf ready to go when it is needed.



DESIGN

- Only Viking Genuine Parts are specifically designed to meet performance requirements for Viking pumps



QUALITY

- Viking Genuine Parts are tested to ensure optimum reliability



SUPPORT

- Viking backs all Genuine Parts with its own warranty and stocking distributor network

PARTS KITS VS. PARTIAL REPAIR



Everything you need in one place



Save time & money



Increase uptime



Increase service life



Reduce frequency of repairs



REDUCERS

OFFSET

- Fully interchangeable ratios in each gearbox
- Gearbox is rotatable on mounting bracket to enable multiple mounting brackets enable output shaft to match Viking shaft heights



IN-LINE

- Available in multiple sizes and a variety of ratios to 200 HP / 160 kW
- Universal mounting - solid input shaft or motor mount option (IEC or NEMA)



GEAR MOTORS

- Integrated motor and reducer
- Compact footprint



MOTORS

DRIVE MOTORS

- Ease of ordering to get pump and motor from one supplier
- Competitive pricing direct through Viking Pump
- All major brands and types available
- Energy efficient, compliant with EISA and EC640/2009 standards



STRAINERS

LID-EASE STRAINERS

- Quarter-turn, easy opening breech-lock lid simplifies routine cleaning
- Inclined basket design provides low pressure drop for high system efficiency
- Top basket removal eliminates the need to drain the strainer and minimizes product loss



BOLTED-LID STRAINERS

- High quality, easy to clean simplex strainers
- Low pressure drop
- Gauge ports standard (plugged)
- Lid vent standard (plugged)
- Bottom drain (plugged)



APPENDIX A

MATERIALS

CAST IRON

For most non-corrosive applications. Least cost, best resistance to galling. *(Various coating options for hardness)*

DUCTILE IRON

Alternative to steel for refinery and petrochem applications, used on some rotors for higher viscosity. *(Grades range from pearlitic to ferritic)*

STEEL

For refinery and petrochem applications or extremely high temperatures. Optional rotor material for highest viscosities. *(Grades range from cast low alloy to various types of carbon steel)*

STAINLESS STEEL

For corrosion resistance over a wider pH range. *(Grades range from 316L, 317, 347 and 770, to duplex and martensitic)*

ALLOY 20

Austenitic stainless steel for sulfuric acid.

DRIVES



“B” DRIVE

Pump is mounted to a bracket (32 Series) or foot (SG Series).



“D” DRIVE

Pump is direct connected to a motor or gear motor.



“IM” DRIVE

Vertically inline mounted motor speed product line steel pumps.



“M” DRIVE

Pump is mounted to a bell housing which accepts a C-face NEMA or IEC motor. A flexible coupling connects pump shaft to drive shaft.



“M4” DRIVE

Tang shaft spur gear product line pumps mounted directly to tang drive motors.



“P” DRIVE

Pump unit (pump, gear reducer, motor, base, couplings and guards) using a non-standard "purchased" gear reducer.



“R” DRIVE

Pump unit (pump, gear reducer, motor, base, couplings and guards) using a Viking offset gear reducer.



“V” DRIVE

Pump unit (pump, motor, base, sheaves, belts and guard) using v-belts for speed reduction.

APPENDIX B

SEALS



PACKING

For highest temperatures and a wide range of viscosities.



LIP SEAL

Dynamic elastomeric seals energized with a spring, for very high viscosity capabilities.



COMPONENT MECHANICAL SEAL

Located in stuffing box or behind the rotor, component seals are an economical means of limiting leakage.



CARTRIDGE SEAL

Single or double mechanical, or triple lip seals; back pull-out design simplifies replacement.



API 682 SEAL

Category 1, 2 or 3, with API seal plans for petroleum and petrochemicals.



SEALLESS MAG DRIVE

Eliminates shaft seals altogether, the ultimate solution to preventing seal leakage.

PORTING



RIGHT ANGLE (90°)

FLANGED



OPPOSITE (180°)



TOP PORT



NPT

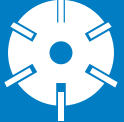


SAE FLANGE



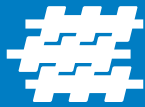
SAE O-RING

PUMP PRINCIPLE COMPARISON

					
CHARACTERISTICS	INTERNAL GEAR	EXTERNAL GEAR	SLIDING VANE	ROTARY LOBE	PROGRESSIVE CAVITY
Self-Priming / Pulls Suction Lift	Yes	Yes	Yes	Yes	Yes, if fluid film in pump
Reversible Flow	Yes	Yes	Yes	Yes	Yes
Run-Dry Capability	Yes, for a short time, if fluid film in pump	Yes, for a short time, if fluid film in pump	Yes, for a short time, if fluid film in pump	Yes, indefinitely with seal flush	No
Pulsation	Low	Low	Moderate	Moderate	None
Flow Independent of Pressure	Yes	Yes	Yes	Yes	Yes
Soft Solids Handling	Small	No	Small	Yes	Yes
Abrasives Handling	Yes (with hardened parts)	No	No	No	Yes (with hardened parts)
Non-Lubricating Fluid Capabilities	Good	Good	Good	Excellent	Poor
Max. Viscosity Limits (cPs)	1,000,000	1,000,000	25,000	1,000,000	1,000,000
Multi-Phase Flow Capability	Yes	Yes	No	No	Yes
Min Flow Range (GPM)	0.5	0.001	5	0.1	0.1
Max Flow Range (GPM)	1,500	1,500	2,000	3,000	2,400
Max Pressure (PSI)	250	3,000	150	500	100 (to 1,500 with multistage option)
Max Temperature (°F)	800	500	225	400	350
Efficiency	High	High	High	High	High
Shear Rate	Low (at low RPMs)	Medium	High	Low	Low
Metering Accuracy	High	High	Medium	High	High
Noise level	Medium	Medium	Medium	Medium	Low
Sealless	Yes (with optional mag drive)	Yes (with optional mag drive)	No	No	No
Number of Shaft Seals	1	1	1	2 or 4	1
Sanitary Designs	Yes	No	No	Yes	Yes
Other Advantages	Simple, two-moving part design, easy to repair Only one or two bearings run in pumpage	Runs at motor speeds Low flow, high pressure	Vanes compensate for wear to maintain efficiency	Clean-in-place and sterilize-in-place capabilities	Can handle dry materials (e.g. dewatered sludge)
Other Disadvantages	May require reduced speeds Overhung load on rotor shaft	Four bearings run in pumpage	Vane wear	Requires timing gears Overhung load on shafts	Large footprint Requires sealed universal joint Replacing stator requires pulling pump
Relative Initial Cost	Moderate	Moderate	Moderate	High	Moderate



TWO SCREW



THREE SCREW



PERISTALTIC



AIR-OPERATED DIAPHRAGM



HYDRAULIC DIAPHRAGM (SINGLE OR DOUBLE ACTING)

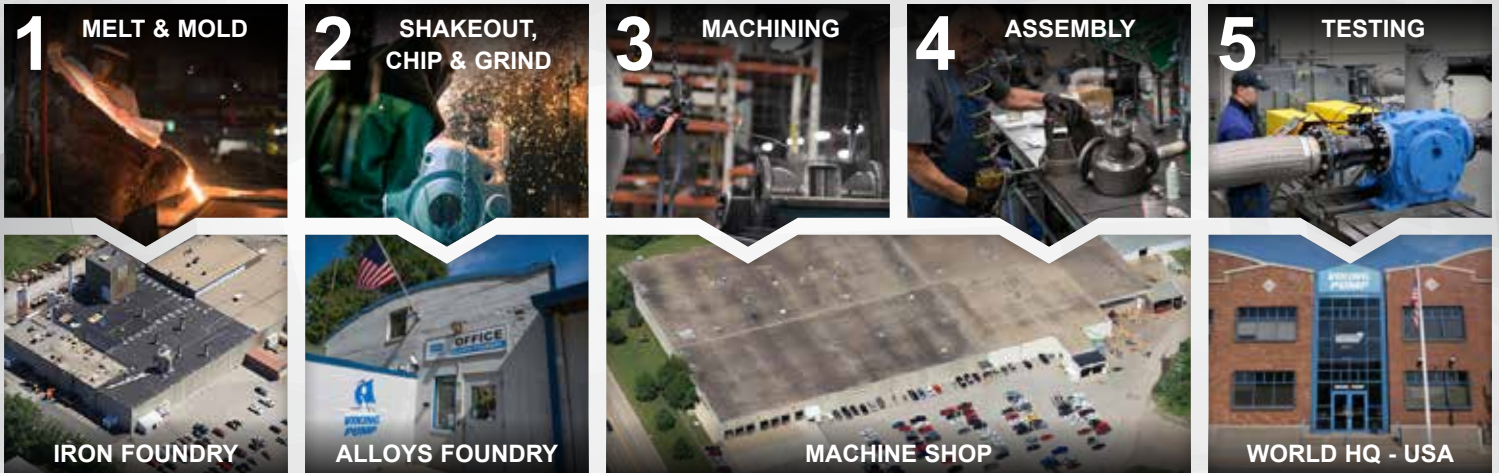


CENTRIFUGAL

	Yes	Yes	Yes	Yes	Yes	Yes (with optional self-priming reservoir)
	Yes	Yes	Yes	No	No	No
	Yes, indefinitely with seal flush	Yes, for a short time, if fluid film in pump	Yes, indefinitely	Yes, indefinitely	Yes, indefinitely	No
	None	None	Moderate	High (Low with optional pulsation dampener)	High (Low with optional pulsation dampener)	None
	Yes	Yes	Yes	No	Yes	No
	No	No	Small	Yes	Yes (with optional tubular diaphragm)	Yes (with open impeller)
	Yes (with hardened parts)	No	Yes	Yes	Yes (with optional tubular diaphragm)	Yes (with optional hardened parts)
	Excellent	Poor	Excellent	Excellent	Excellent	Excellent
	250,000	100,000	500,000	20,000	10,000	5,000
	Yes	No	Yes	Yes	Yes	No
	20	1	0.001	0.1	0.001	0.1
	10,000	3,400	350	300	550	50,000
	1500	4500	100	125	100 to 6,000	150 (to 1,500 with multistage option)
	650	500	300	250	800	800
	High	High	Medium	Low	High	High
	Low	Medium	Low	Medium	Medium	High
	High	High	High	Low	High	Low
	Medium	Low	Medium	High	Low	Low
	No	Yes (with optional mag drive)	Yes	Yes	Yes	Yes (with optional mag drive or canned motor)
	2 to 4	1	0	0	0	1
	Yes	No	Yes	Yes	Yes	Yes
	Runs at motor speeds	Runs at motor speeds	Simple design	May be deadheaded to stop (without energy usage) and automatically restarts	High pressure capabilities	Ease of flow control with downstream valve
	Requires timing gears	Not well suited for thin liquids	Regular replacement of hose and coolant Cross contamination on hose failure	Operating cost extremely high Limited diaphragm life Discharge pressure limited to air pressure	Complex internal hydraulic system Cross contamination on diaphragm failure	Requires downstream control valve in addition to pump
	High	Moderate	Moderate	Low	Moderate	Moderate

VERTICALLY INTEGRATED PRODUCTION PROCESS

Viking Pump operates two foundries, a 250,000+ sq. ft. machining, assembly and testing center, and an extensive product engineering and testing lab in its world headquarters in Cedar Falls, Iowa, USA. This level of vertical integration ensures maximum quality, ability to satisfy special needs, and to meet project schedules.



SALES TOOLS

LITERATURE

VIKINGPUMP.COM/DOWNLOADS

WEBSITE

VIKINGPUMP.COM

VIDEOS

VIKINGPUMP.COM/VIKINGTV



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