

YOUR **PARTNER** *FOR*
INNOVATIVE PUMPING **SOLUTIONS**

FOCUS MARKET:
SUGAR PROCESSING



VIKING PUMP

A Unit of IDEX Corporation

VIKING PUMP

Viking Pump has been a trusted partner at sugar cane and beet plants around the world, as well as downstream terminals, feed mills and food processors, for more than a century.

Viking Pump invented the internal gear pump technology, and has developed unique sugar industry models to handle an array of processes, such as syrups, thick juices, massecuites, magmas, betaines and raffinates, with the same pump.

By changing speeds, internal clearances, and possibly the idler gear (for magma and massecuite only), most manufacturing

plants can cover all of their positive displacement pumping needs with one or two sizes of the same pump. This standardization simplifies plant operation and reduces maintenance costs, while increasing reliability and uptime.

Viking Pump is the world's leading positive displacement pump manufacturer. Viking is experienced at solving difficult liquid transfer applications and problems. Other manufacturers may produce entire systems, thus taking the focus off how critical a pump is to the customer's operation. Rely on the best, rely on Viking Pump.

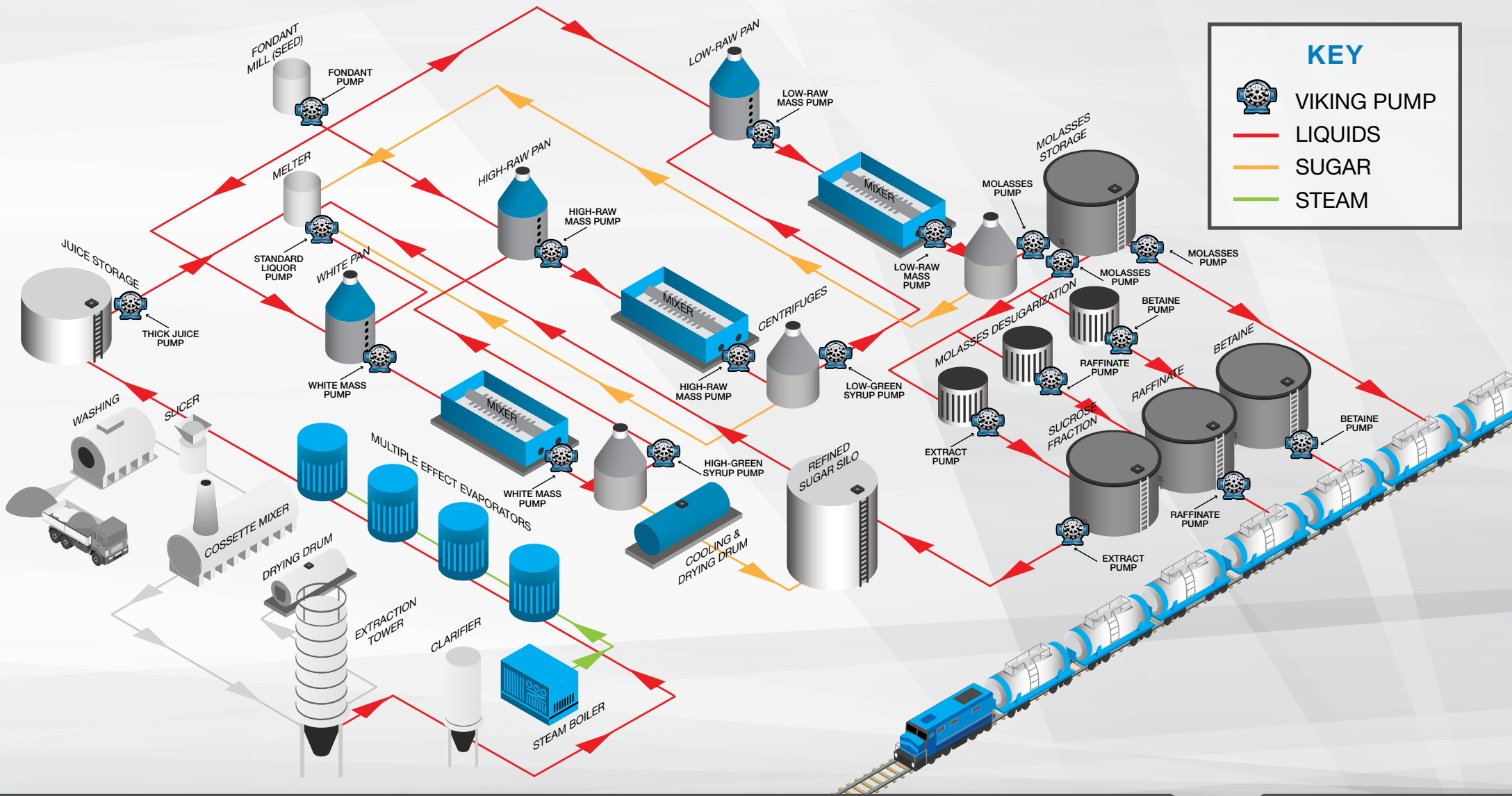


THE VIKING PUMP ADVANTAGE

- Slow speed operation to minimize shear
- Ribbed idler gear to prevent crystal damage
- Single sealing location, with multiple sealing options
- Seal between bearings limits radial and axial movement for longest seal life
- Adjustable end clearance for viscosity or to compensate for wear
- Hardened parts for longest life with abrasive crystals
- Thrust bearing positively maintains rotor position
- Constant flow without pulsation that can cause liquid/solid separation
- Reversible direction of flow to strip line after pumping to avoid solidification
- Robust design very forgiving of operator error
- Simple, in-house maintenance
- Stocking distributors worldwide provide local support

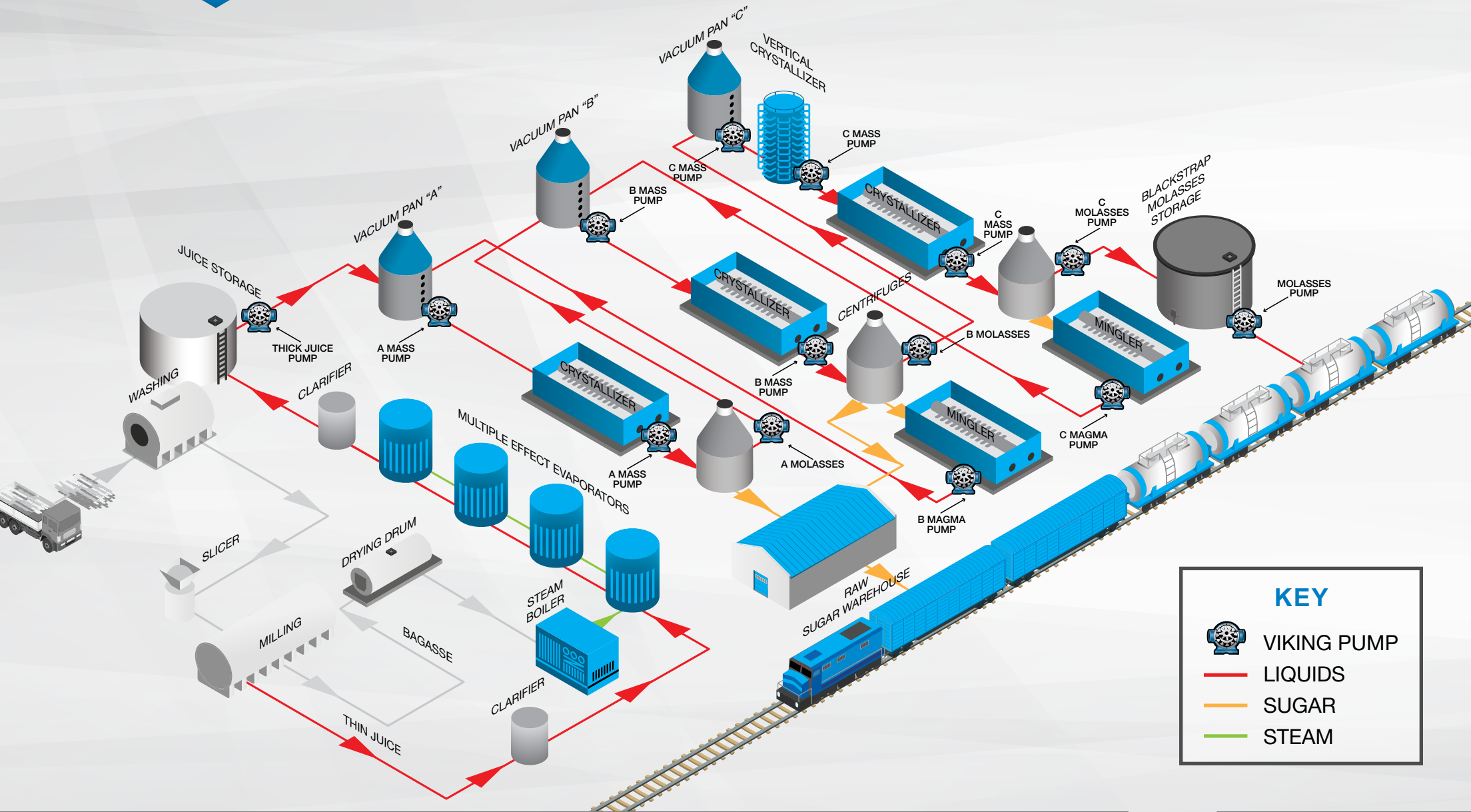


BEET SUGAR PROCESS: SIMPLIFIED FLOW



In beet plants, Viking pumps are typically found downstream of the evaporators – on thick juice, standard liquor, white pan massecuite, high-green syrup, high-raw massecuite, low-green syrup, low-raw massecuite, molasses, sucrose extract, betaine and raffinate, as well as metering fondant and processing liquid sugars and inverts. They are used in 24/7 process applications as well as loadout applications to packaging, trucks and railcars.

CANE SUGAR MILLING: SIMPLIFIED FLOW



In cane mills, Viking pumps are typically found downstream of the evaporators – on thick juice, “A, B & C” masecuite, “A, B & C” molasses, magma, and on imported cane juice molasses.

VIKING SUGAR PUMPS

STANDARD CONFIGURATION: SUG1

Standard construction includes hardened cast iron bushings and idler gear, steel rotor and shaft for durable operation in many sugar applications.

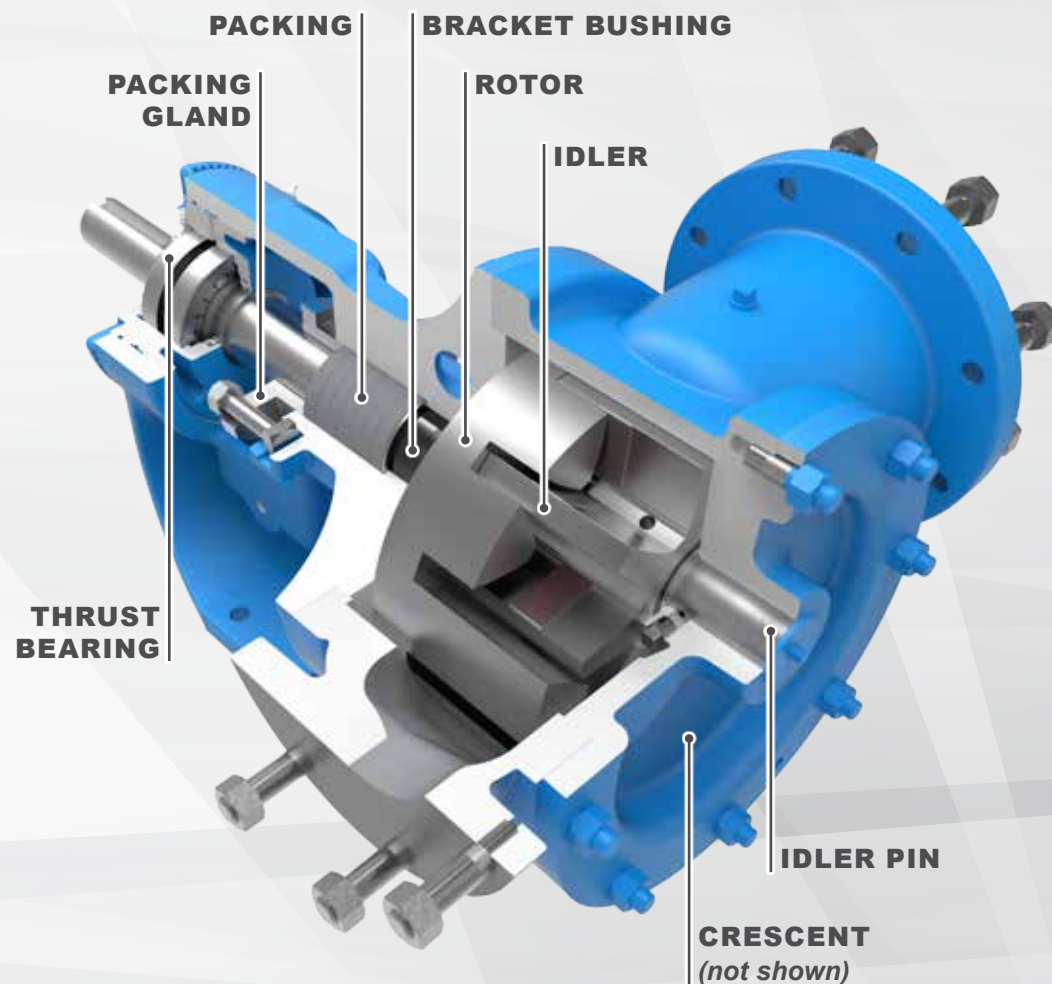
- Q224A-SUG1 • N324A-SUG1 • RS324A-SUG1
- QS224A-SUG1 • R324A-SUG1

ABRASIVE CONFIGURATION: SUG2

Abrasive construction includes tungsten carbide bushings, hardened steel idler gear, rotor, and shaft for extreme operating demands of the sugar industry.

- Q224A-SUG2 • N324A-SUG2 • RS324A-SUG2
- QS224A-SUG2 • R324A-SUG2

Pump Size	FINAL MOLASSES, MASSECUITE & MAGMA			THICK JUICE, A & B MOLASSES, HIGH GREEN & LOW GREEN SYRUP		
	Max RPM	Nominal Flow Rate		Max RPM	Nominal Flow Rate	
		GPM	m ³ /h		GPM	m ³ /h
Q	104	63	14	278	176	40
QS	104	92	21	278	258	58
M	83	84	19	222	228	51
N	83	134	30	222	380	86
R	57	219	50	153	600	136
RS	57	327	74	153	890	202

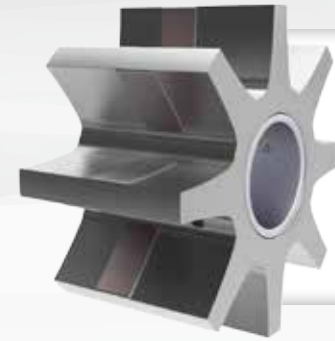


THE VIKING PUMP SOLUTION

INTERNAL GEAR PUMPING PRINCIPLE - HOW IT WORKS

The pump rotor turns at slow speeds within the casing. The idler gear rotates on an idler pin, mounted on the pump head. As the rotor turns, it turns the idler gear. The crescent, also part of the pump head, separates the liquid into two streams. As the gears re-mesh, the liquid is forced out the discharge port. The rotor is positioned radially by a fluid-lubricated bracket bushing just behind the rotor, and a pair of anti-friction bearings in the bearing housing. By locating the seal between bearings, it greatly extends seal life. The anti-friction (thrust) bearings also position the rotor axially, and are located in a rotatable housing to enable adjustment of rotor end clearances without removing the pump.

Pumps are long coupled to a gear reducer or gearmotor, or may be belt- or chain-driven for speed reduction. Flow rate is directly proportional to speed, so variable speed drives may be used for precise process control.



A special ribbed idler gear was developed for masecuite and magma. This idler ensures that 80% of the gear flank does not contact the rotor gear, to ensure that crystals are not damaged by gear contact.

MATERIALS OF CONSTRUCTION:

Iron, steel or stainless steel

BUSHINGS (BRACKET & IDLER):

Hardened iron or tungsten carbide

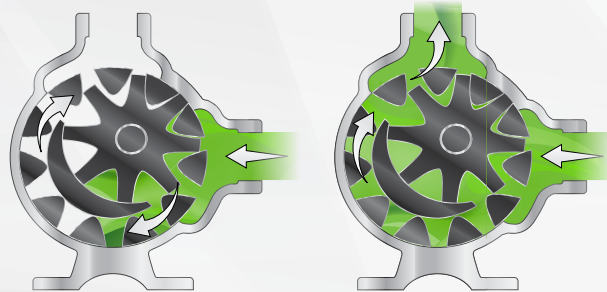
SEALS:

Packed gland or hard-faced cartridge mechanical seal with flush or quench (single or double seal)

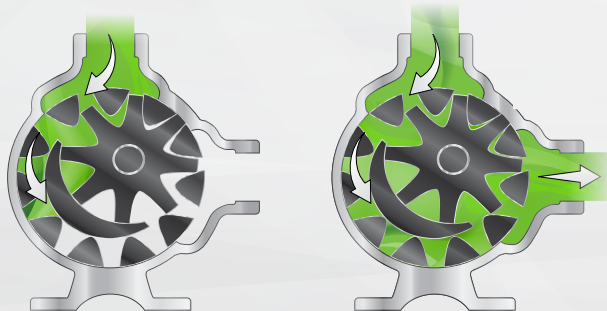
OTHER OPTIONS:

Jacketing, internal pressure relief valves, special porting

**Clockwise Rotation
(viewed from shaft end)**



**Counter-Clockwise Rotation
(viewed from shaft end)**



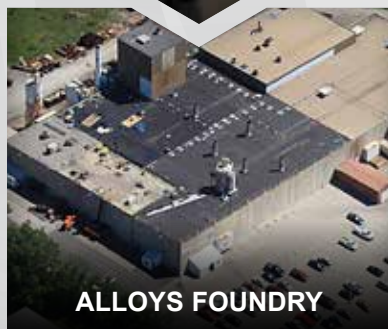
GLOBAL **LEADER** *IN POSITIVE DISPLACEMENT* **PUMPING** SOLUTIONS



VIKINGPUMP.COM

VERTICALLY INTEGRATED PRODUCTION PROCESS:

Viking Pump operates two foundries, a 200,000+ 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.



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VIKING PUMP, INC.
A Unit of IDEX Corporation
406 State Street
Cedar Falls, Iowa 50613 U.S.A.
Telephone: (319) 266-1741
Fax: (319) 273-8157
vikingpump.com

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