INTERNAL GEAR PUMPS:
BEHIND THE ROTOR SEAL & ABRASIVE LIQUID SERIES

- ***BEHIND THE ROTOR MECHANICAL SEAL***
- ***LONG-LIFE BRACKET BUSHING***
- ***BROAD VISCOSITY RANGE***
- ***HARD PARTS FOR ABRASIVE LIQUIDS***

Capacity
to 500 GPM (114 m^3/h)

Pressure
to 200 PSI (14 BAR)

Viscosity
28 to 250,000 SSU (55,000 cSt)

Temperature
-60°F to +650°F (-51°C to +343°C)

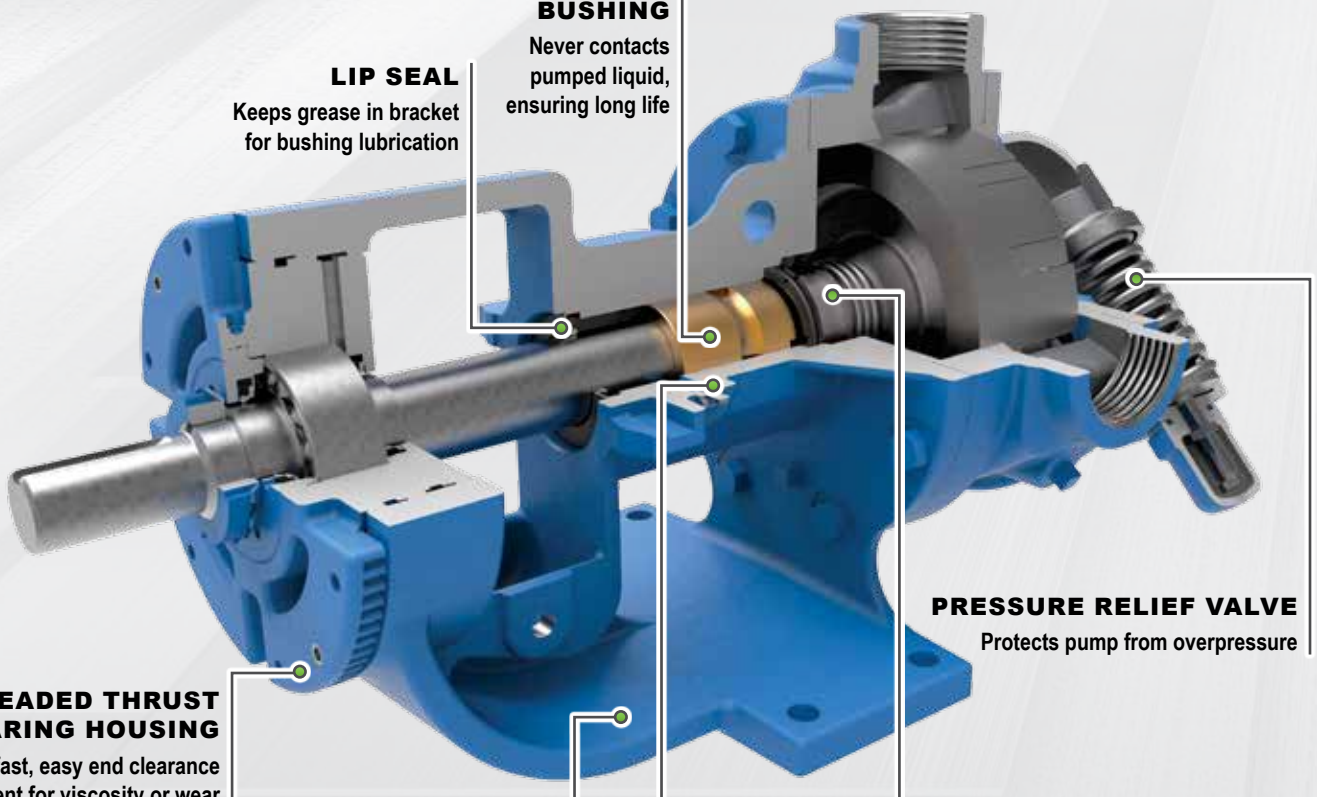
VIKING PUMP
A Unit of IDEX Corporation

BEHIND THE ROTOR SEAL SERIES
FEATURES & BENEFITS

Behind the Rotor Seal Series (B Series) Internal gear pumps provide a simple, low-maintenance, heavy-duty construction with some unique advantages compared to Viking's traditional Universal Seal Series pumps with stuffing-box seals.

Features & Benefits

- **Behind the rotor mechanical seal:** contains liquid in casing for easy flushing
- **Grease-lubricated bracket bushing:** has no contact with pumped liquid, ensuring longest possible life – compared to anti-friction bearings, allows free axial shaft movement for easy end clearance adjustment
- **Bi-directional design:** Reversible direction of flow eliminates cost of second pump, piping and valving for loading/unloading or line stripping
- **Gentle fluid handling:** Low-shear, non-pulsating flow for shear-sensitive liquids
- **Materials of Construction:** Cast Iron, suitable for many hydrocarbon and chemical applications

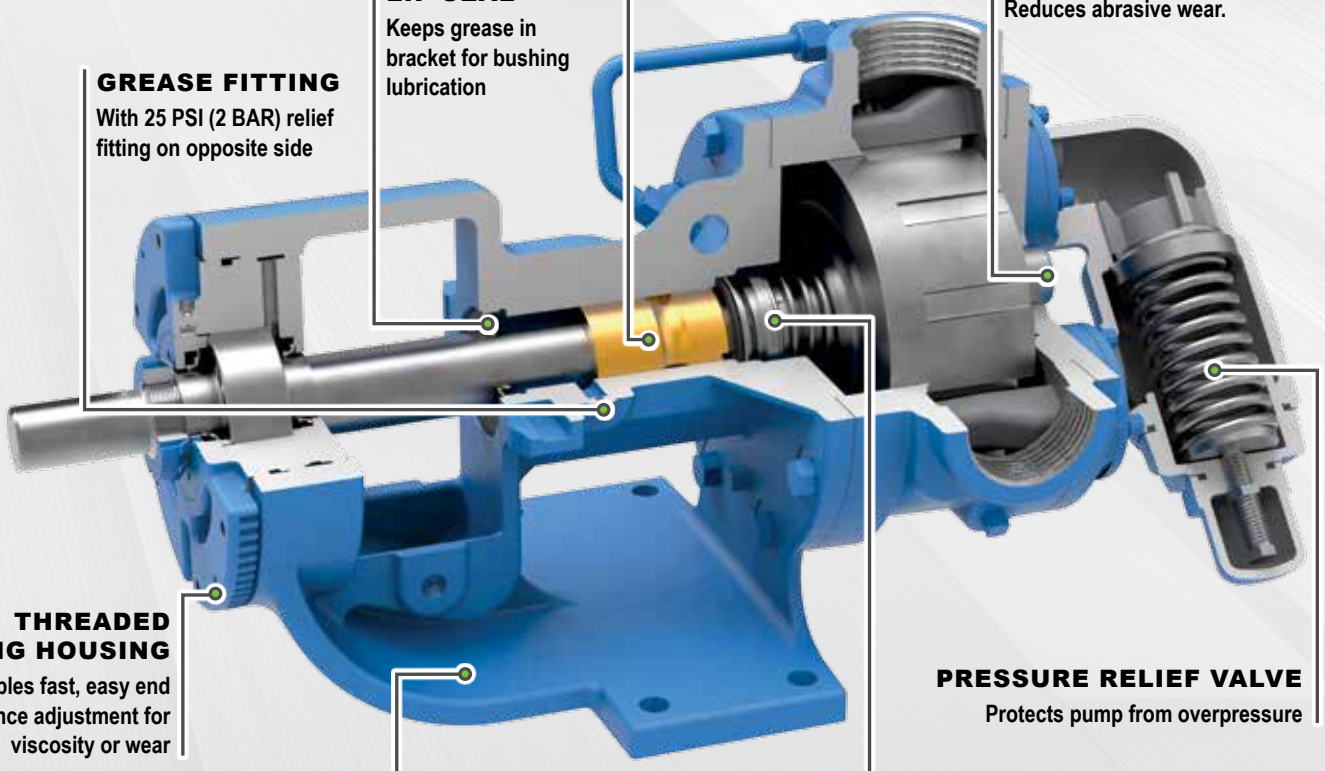


ABRASIVE LIQUID SERIES
FEATURES & BENEFITS

Abrasive Liquid Series internal gear pumps provide a cost-effective solution for handling abrasive liquids with minimal wear. They share key components with the B Series pumps, but include the pinned-seat abrasive liquid seal with flush line standard, along with hard parts in critical wear areas.

Features & Benefits

- **Behind the rotor pinned-seat silicon carbide vs. silicon carbide mechanical seal:** prevents liquid from entering the bracket, enabling use of low-cost bushing materials instead of expensive hard parts that would be required with a stuffing box seal pump
- **Flush line:** directs liquid from the discharge side of the pump directly at the seal faces to flush away solids that could shorten seal life
- **Tungsten carbide idler pin and idler bushing:** Use of super hard materials in these critical parts helps minimize wear for longest life
- **Slower Speed and Lower Pressure:** The Abrasive Liquid Series pumps are rated to slower speeds and lower pressures, tested over decades, to minimize abrasive wear



MARKETS & APPLICATIONS

Behind the Rotor:

CHEMICALS:

- Petrochemicals
- Adhesives & Sealants
- Soaps & Detergents
- Biodiesel & Ethanol
- Solvents

PETROLEUM:

- Crude Oil
- Asphalt (Bitumen) & Pitch
- Lube Oil & Grease
- Refined Fuels

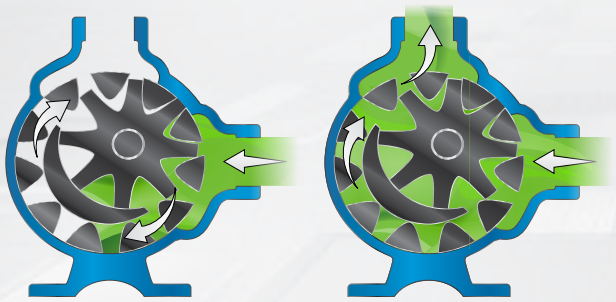
FOOD PROCESSING:

- Edible Oils
- Chocolate & Confectionery
- Sugars & Sweeteners

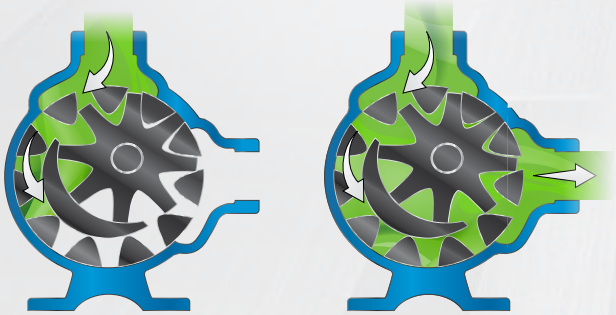
Abrasive Liquid:

- Filled polyols
- Filled asphalts
- Pigments
- Paints & Inks
- Waste Oils
- Heavy Fuel Oils

Internal Gear Pump Principle:



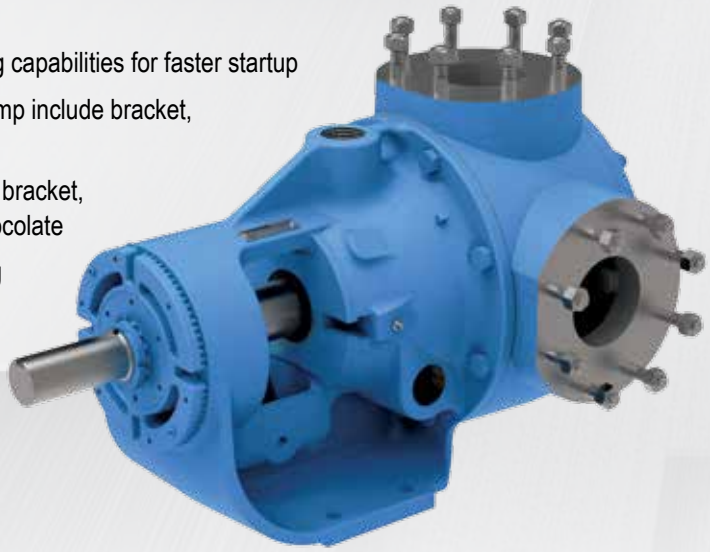
Clockwise Rotation
(viewed from shaft end)



Counter-Clockwise Rotation
(viewed from shaft end)

Jacketing Options:

- Large jacketing areas allow rapid heating and cooling capabilities for faster startup
- Jacketing options available for all critical areas of pump include bracket, casing, flanges, head and relief valve
- Standard jacketed pumps feature jacketed head and bracket, making them ideal for applications like asphalt or chocolate
- Allows a variety of heating or cooling media including hot oil, steam and water



MATERIALS OF CONSTRUCTION & MODEL NUMBER KEY

Component		Standard Materials: Behind the Rotor Seal Pumps	Standard Materials: Abrasive Liquid Pumps
Casing		Cast Iron, ASTM A48, Class 35B	Cast Iron, ASTM A48, Class 35B
Head		Cast Iron, ASTM A48, Class 35B	Cast Iron, ASTM A48, Class 35B
Bracket		Cast Iron, ASTM A48, Class 35B	Cast Iron, ASTM A48, Class 35B
Idler	Standard	① Cast Iron, ASTM A48, Class 35B	① Cast Iron, ASTM A48, Class 35B
	Steel Fitted	② Cast Iron, ASTM A48, Class 35B	② Cast Iron, ASTM A48, Class 35B
Rotor	Standard	③ Cast Iron, ASTM A48, Class 35B	③ Cast Iron, ASTM A48, Class 35B
	Steel Fitted	Steel, ASTM A216, Grade WCB	Steel, ASTM A216, Grade WCB
Rotor Shaft		Steel, ASTM A108, Grade 1045	Steel, ASTM A108, Grade 1045
Idler Pin		Hardened Steel, ASTM A108, Grade 1045	④ Tungsten Carbide
Idler Bushing		Carbon Graphite	④ Tungsten Carbide
Bracket Bushing (no product contact)		Bronze, ASTM B584 (B505), Alloy C93700	Bronze, ASTM B584 (B505), Alloy C93700
Pressure Relief Valve		Cast Iron, ASTM A48, Class 35B	Cast Iron, ASTM A48, Class 35B
Standard Mechanical Seal		Carbon vs. Ni-Resist Faces	Silicon Carbide vs. Silicon Carbide Faces

① G, H and HL sizes have a powdered metal idler: Powdered Metal MPIF 35, FC-0208-50 (G), Powdered Metal MPIF 35, FC-0208-45 (H, HL)

② Q and QS sizes have a steel idler when steel rotor is used.

③ AK, KK, LS and QS sizes have ductile iron rotor.

④ Tungsten carbide idler pins for all sizes except Q and QS, which have a tungsten carbide sleeve over a steel pin.

Model Number Key:

L Q — **4** — **6** — **2** — **4** — **B**

Size:

F①	AK②	LL
FH①	K	LS
G②	KK	Q
H	L	QS
HL	LQ	

Shaft Seal:
4 = Mechanical Seal

Series*:
6 = Abrasive Liquid Series
1 = B Series with No Jacketing
2 = B Series with Jacketing

Basic Series Configuration

Material of Construction:
4 = Cast Iron

Seal Location:
B = Behind the Rotor

① Abrasive Liquid Series Only

② Behind the Rotor Series Only

4624B and 4124B pumps are standard with a relief valve. 4224B pumps are standard with a jacketed bracket and jacketed head, less valve. Optional jacketed relief valves are available with non-jacketed head.

* **NOTE:** The 4624B Abrasive Liquid Series is only available without jacketing. You can, however, order a B Series pump (e.g. LQ4224B), including jacketing, with all of the features of an Abrasive Liquid Series pump (abrasive liquid seal, flush line, TC idler pin and bushing).

BEHIND THE ROTOR SEAL SERIES
SPECIFICATIONS

Specifications (U.S. Units)

Model Number		Port Size	① Port Type	Nominal Pump Rating (100 SSU & below)		Maximum Hydrostatic Pressure	② Maximum Discharge Pressure for 100 SSU liquid at rated speed	③ Maximum Recommended Temperature for Standard Pump	Steel Fitted Recommended Above	Approximate Shipping Weight, 4124B w/valve	Approximate Shipping Weight, 4224B
Standard	Jacketed	Inches		GPM	RPM	PSIG	PSIG	°F	SSU	Pounds	Pounds
G4124B	N/A	1	NPT	8	1750	400	200	350	7,500	22	N/A
H4124B	H4224B	1-1/2	NPT	15	1750	400	200	350	25,000	38	42
HL4124B	HL4224B	1-1/2	NPT	30	1750	400	200	350	7,500	40	45
AK4124B	N/A	2	NPT	67	1450	400	200	350	25,000	78	N/A
K4124B	K4224B	2	NPT	75	780	400	200	350	25,000	105	120
KK4124B	KK4224B	2	NPT	100	780	400	200	350	75,000	110	125
L4124B	L4224B	2	NPT	135	640	400	200	350	25,000	155	175
LQ4124B	LQ4224B	2-1/2	Flange	135	640	400	200	350	25,000	175	190
LL4124B	LL4224B	3	Flange	140	520	400	200	350	2,500	185	200
LS4124B	LS4224B	3	Flange	200	640	400	200	350	75,000	190	210
Q4124B	Q4224B	4	Flange	300	520	400	200	350	7,500	440	480
QS4124B	QS4224B	6	Flange	500	520	400	200	350	75,000	540	580

Specifications (Metric Units)

Model Number		Port Size	① Port Type	Nominal Pump Rating (100 SSU & below)		Maximum Hydrostatic Pressure	② Maximum Discharge Pressure for 100 SSU liquid at rated speed	③ Maximum Recommended Temperature for Standard Pump	Steel Fitted Recommended Above	Approximate Shipping Weight, 4124B w/valve	Approximate Shipping Weight, 4224B
Standard	Jacketed	Inches		m^3/h	RPM	PSIG	PSIG	°C	cSt	KG	KG
G4124B	N/A	1	NPT	1.8	1750	28	14	177	1,650	10	N/A
H4124B	H4224B	1-1/2	NPT	3.4	1750	28	14	177	5,500	17	19
HL4124B	HL4224B	1-1/2	NPT	7	1750	28	14	177	1,650	18	20
AK4124B	N/A	2	NPT	15	1450	28	14	177	5,500	35	N/A
K4124B	K4224B	2	NPT	18	780	28	14	177	5,500	48	54
KK4124B	KK4224B	2	NPT	23	780	28	14	177	16,500	50	57
L4124B	L4224B	2	NPT	31	640	28	14	177	5,500	70	79
LQ4124B	LQ4224B	2-1/2	Flange	31	640	28	14	177	5,500	80	86
LL4124B	LL4224B	3	Flange	32	520	28	14	177	550	84	91
LS4124B	LS4224B	3	Flange	45	640	28	14	177	16,500	86	95
Q4124B	Q4224B	4	Flange	68	520	28	14	177	1,650	200	218
QS4124B	QS4224B	6	Flange	114	520	28	14	177	16,500	245	265

① Flange ports are suitable for use with Class 125 ANSI cast iron companion flanges or flanged fittings. G through Q ports are at 90°, QS ports are at 180° (opposite).

② For maximum recommended discharge pressures at different viscosities, see performance curves, which can be generated with the Viking Pump Selector Program, located on www.vikingpump.com. If suction pressure exceeds 50 PSIG, consult factory. Higher pressures possible with factory approval based on application details.

③ Extra clearances are required above 225°F / 107°C, based on standard Viton seal. Higher temperatures can be handled with special construction (consult factory).

ABRASIVE LIQUID SERIES
SPECIFICATIONS

Specifications (U.S. Units)

Model Number	Port Size	① Port Type	Nominal Pump Rating (100 SSU & below)		Maximum Hydrostatic Pressure	② Maximum Discharge Pressure at Nominal Rated Speeds (PSIG)			③ Maximum Recommended Temperature for Standard Pump	Steel Fitted Recommended Above	Approximate Shipping Weight, 4624B w/valve
Standard	Inches		GPM	RPM	PSIG	38-100 SSU	100-750 SSU	>750 SSU	°F	SSU	Pounds
F4624B	0.5	NPT	0.75	870	400	50	100	100	250	-	6
FH4624B	0.5	NPT	1.5	870	400	50	100	100	250	-	7
H4624B	1.5	NPT	5	640	400	50	100	150	300	25,000	38
HL4624B	1.5	NPT	10	640	400	50	100	150	300	7,500	40
K4624B	2	NPT	25	280	400	50	100	150	300	25,000	105
KK4624B	2	NPT	35	280	400	50	100	150	300	75,000	110
L4624B	2	NPT	50	230	400	50	100	150	300	25,000	155
LQ4624B	2.5	Flange	50	230	400	50	100	150	300	25,000	175
LL4624B	3	Flange	65	230	400	50	100	150	300	2,500	185
LS4624B	3	Flange	72	230	400	50	100	150	300	75,000	190
Q4624B	3	Flange	110	190	400	50	100	125	300	7,500	440
QS4624B	6	Flange	182	190	400	50	100	125	300	75,000	540

Specifications (Metric Units)

Model Number	Port Size	① Port Type	Nominal Pump Rating (100 SSU & below)		Maximum Hydrostatic Pressure	② Maximum Discharge Pressure at Nominal Rated Speeds (PSIG)			③ Maximum Recommended Temperature for Standard Pump	Steel Fitted Recommended Above	Approximate Shipping Weight, 4624B w/valve
Standard	Inches		m^3/h	RPM	BAR	1-20 cSt	20-180 cSt	>180 cSt	°C	cSt	KG
F4624B	0.5	NPT	0.17	870	28	3.5	7	7	120	-	2.7
FH4624B	0.5	NPT	0.34	870	28	3.5	7	7	120	-	3.2
H4624B	1.5	NPT	1.1	640	28	3.5	7	10	150	5,500	17
HL4624B	1.5	NPT	2.2	640	28	3.5	7	10	150	1,650	18
K4624B	2	NPT	5.6	280	28	3.5	7	10	150	5,500	48
KK4624B	2	NPT	8	280	28	3.5	7	10	150	16,500	50
L4624B	2	NPT	11	230	28	3.5	7	10	150	5,500	70
LQ4624B	2.5	Flange	11	230	28	3.5	7	10	150	5,500	80
LL4624B	3	Flange	15	230	28	3.5	7	10	150	550	84
LS4624B	3	Flange	16	230	28	3.5	7	10	150	16,500	86
Q4624B	3	Flange	25	190	28	3.5	7	8.5	150	1,650	200
QS4624B	6	Flange	41	190	28	3.5	7	8.5	150	16,500	245

① Flange ports are suitable for use with Class 125 ANSI cast iron companion flanges or flanged fittings. F & FH ports are upright (both on top), G through Q ports are at 90°, QS ports are at 180° (opposite).

② If suction pressure exceeds 50 PSIG, consult factory. Higher pressures possible with factory approval based on application details.

③ Extra clearances are required above 225°F / 107°C. Higher temperatures can be handled with special construction (consult factory).

VIKING PUMP

Industry & Application Experts

- Application experience spanning more than 100 years
- Original inventors of the internal gear pumping principle
- Reliability, quality and performance
- Global service and support

GLOBAL
LEADER
IN POSITIVE DISPLACEMENT
PUMPING
SOLUTIONS

VERTICALLY INTEGRATED PRODUCTION PROCESS:

Viking Pump has been a global leader in positive displacement pumping solutions since 1911. With a vertically integrated manufacturing process, we have the tools, processes and systems to produce our products in-house; from the initial engineering analysis, through design layout, foundry casting, machining, final assembly, testing and shipping. Viking pumps are uniquely designed for the task at hand, from simple solutions to your most advanced and demanding needs.

VIKING PUMP

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