

# LIQUID-SPECIFIC PRODUCT LINE: STAINLESS STEEL HYGIENIC PUMPS

157B SERIES™, 4157B SERIES™, 257B SERIES™, 4257B SERIES™

Section	1762
Page	1762.1
Issue	A

## TABLE OF CONTENTS

Operating Range.....	1
Series Description.....	1
Related Products .....	1
Features & Benefits .....	2
Model Number Key .....	3
Materials of Construction .....	3
Specifications .....	4
Dimensions – H, HL, KS, K, KK, LQ, LL, LS Sizes (157B Series™ & 4157B Series™).....	5
Dimensions – H, HL, KS, K, KK, LQ, LL, LS Sizes (257B Series™ / 4257B Series™).....	6
Dimensions – H, HL, KS, K, KK, LQ, LL, LS Sizes (257B Series™ / 4257B Series™).....	7
NPSH Required .....	8

## SERIES DESCRIPTION

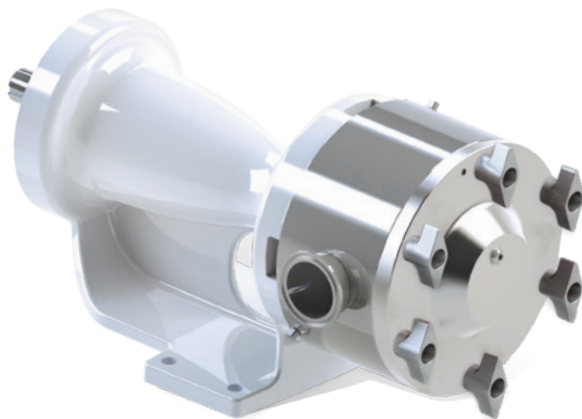
Viking's Hygienic Series positive displacement pumps are designed to conform to International standards for sanitary processing of foods, beverages, fine chemicals, pharmaceuticals and personal care products where the pump will be subject to frequent cleaning, using either Clean In Place (CIP) or Clean Out of Place (COP)/Strip Clean Methods.

These pumps are available with compliance to major hygienic standards including 3-A and EHEDG Type EL, Class 1. Wetted materials comply with FDA standards to limit leaching of substances.

## RELATED PRODUCTS

Stainless Steel, 724 Series™: Catalog Section 1706

Stainless Steel, 127A Series™: Catalog Section 1701



KK157B



KK4157B

## OPERATING RANGE

SERIES	NOMINAL FLOW		MAXIMUM PRESSURE		TEMPERATURE RANGE		VISCOSITY RANGE	
	GPM	m³h	PSI	Bar	°F	°C	SSU	cSt
157B Series™	6 - 150	1.5 - 35	150	35	-5 to +225	-20 to +105	28 to 100,000	0.1 to 21,500
4157B Series™	6 - 150	1.5 - 35	150	35	-5 to +225	-20 to +105	28 to 100,000	0.1 to 21,500
257B Series™	6 - 150	1.5 - 35	150	35	-5 to +225	-20 to +105	28 to 100,000	0.1 to 21,500
4257B Series™	6 - 150	1.5 - 35	150	35	-5 to +225	-20 to +105	28 to 100,000	0.1 to 21,500

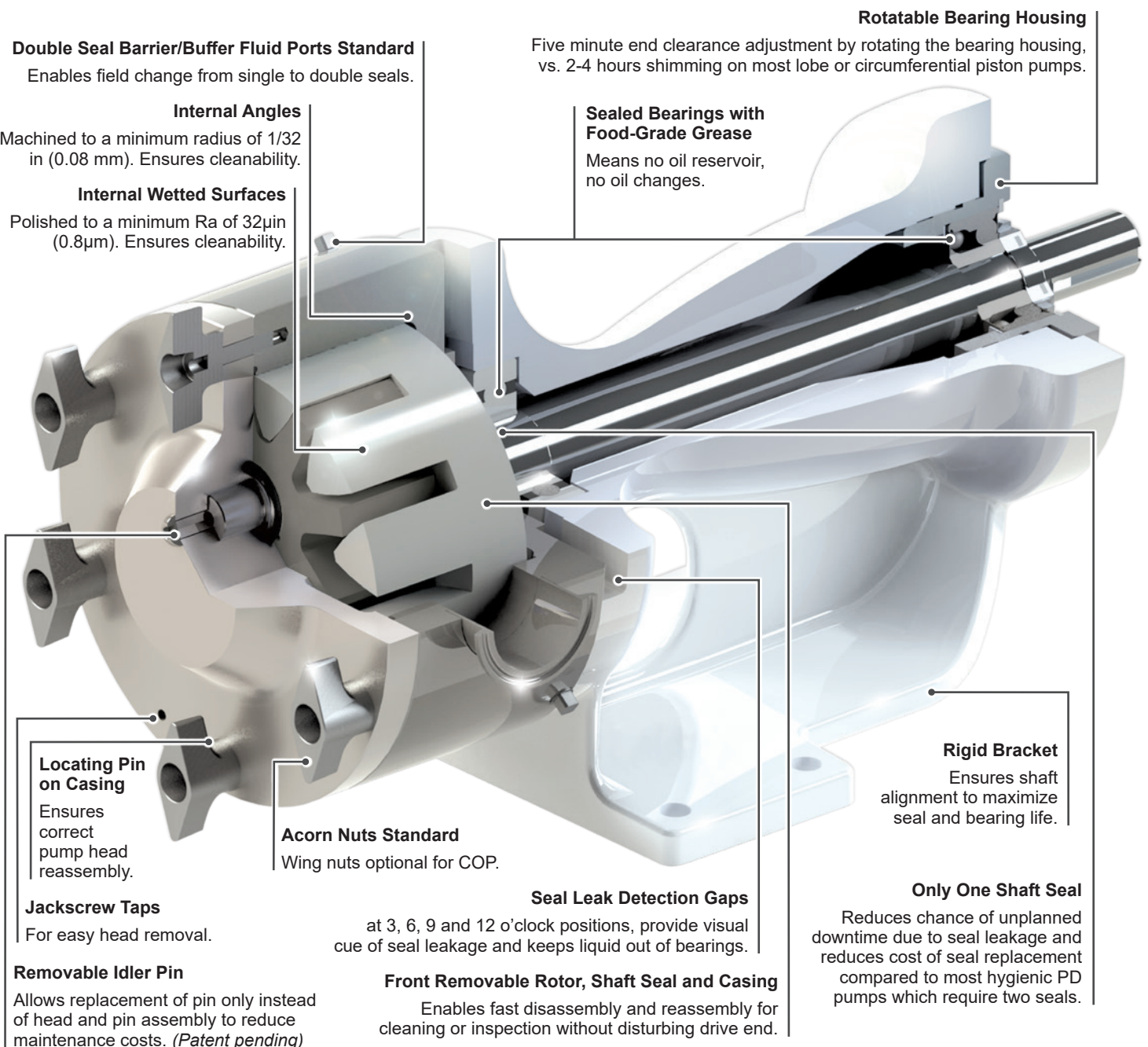
Section	1762
Page	1762.2
Issue	A

## LIQUID-SPECIFIC PRODUCT LINE: STAINLESS STEEL HYGIENIC PUMPS

157B SERIES™, 4157B SERIES™, 257B SERIES™, 4257B SERIES™

### FEATURES & BENEFITS

- Splined shaft with one front-removable rotor. Faster disassembly and reassembly vs. timed pumps with two rotors. *(Patent pending)*
- Front-loading seals. Eliminates entrapment areas in the stuffing box common to other gear pumps, simplifies maintenance. *(Patent pending)*
- Mechanical seal with Carbon/Silicon Carbide faces standard. Provides greater seal life than Carbon/Ceramic or Carbon/SS faces standard on most pumps. Many seal options available.
- FDA conforming wetted materials. Ensures product integrity.
- Wetted part material traceability available. Ensures the ability to trace the part back to original batch.
- Reversible direction of flow. Enables stripping product from the line to minimize product loss and improve cleaning efficiency.
- Flow proportional to speed regardless of system pressure. Enables more accurate batching or metering than centrifugal pumps which are highly sensitive to system pressure.



**Double Seal Barrier/Buffer Fluid Ports Standard**  
Enables field change from single to double seals.

**Internal Angles**  
Machined to a minimum radius of 1/32 in (0.08 mm). Ensures cleanability.

**Internal Wetted Surfaces**  
Polished to a minimum Ra of 32µin (0.8µm). Ensures cleanability.

**Rotatable Bearing Housing**  
Five minute end clearance adjustment by rotating the bearing housing, vs. 2-4 hours shimming on most lobe or circumferential piston pumps.

**Sealed Bearings with Food-Grade Grease**  
Means no oil reservoir, no oil changes.

**Rigid Bracket**  
Ensures shaft alignment to maximize seal and bearing life.

**Only One Shaft Seal**  
Reduces chance of unplanned downtime due to seal leakage and reduces cost of seal replacement compared to most hygienic PD pumps which require two seals.

**Locating Pin on Casing**  
Ensures correct pump head reassembly.

**Acorn Nuts Standard**  
Wing nuts optional for COP.

**Seal Leak Detection Gaps**  
at 3, 6, 9 and 12 o'clock positions, provide visual cue of seal leakage and keeps liquid out of bearings.

**Jackscrew Taps**  
For easy head removal.

**Removable Idler Pin**  
Allows replacement of pin only instead of head and pin assembly to reduce maintenance costs. *(Patent pending)*

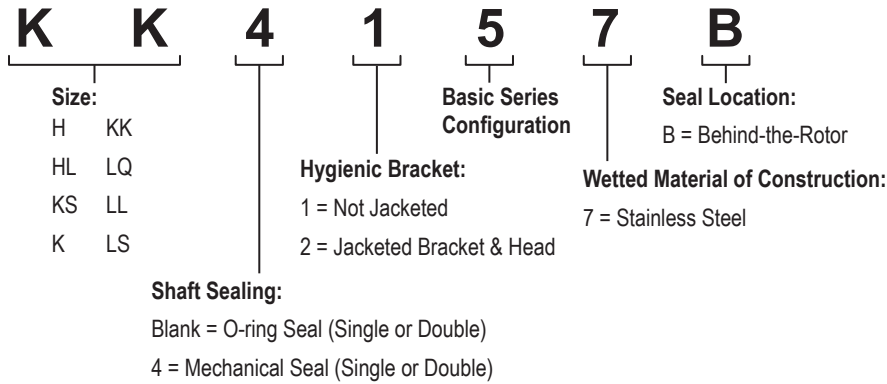
**Front Removable Rotor, Shaft Seal and Casing**  
Enables fast disassembly and reassembly for cleaning or inspection without disturbing drive end.

# LIQUID-SPECIFIC PRODUCT LINE: STAINLESS STEEL HYGIENIC PUMPS

157B SERIES™, 4157B SERIES™, 257B SERIES™, 4257B SERIES™

Section	1762
Page	1762.3
Issue	A

## MODEL NUMBER KEY



## MATERIALS OF CONSTRUCTION

Standard Component	Product Contact?	Standard Construction	Options
Casing, Head and Rotor	Yes	316 SS	—
Rotor Retainer Screw	Yes	316 SS	—
Rotor Retainer Washer	Yes	17-4 PH SS	—
Idler	Yes	770 non-galling alloy	FDA PEEK (200°F/93°C Max Temp) FDA Metal Detectable Acetal (125°F/52°C Max Temp)
Idler Bushing	Yes	FDA Carbon Graphite	Silicon Carbide <sup>②</sup> , Hardened Iron <sup>①</sup>
Idler Pin	Yes	316 Stainless Steel, Colmonoy #6 Coated	—
Single Mechanical Seal Faces	Yes	Carbon vs. Silicon Carbide	SiC vs. SiC
Double Mechanical Seal Faces	Yes	Carbon (Stationary 1) vs. Silicon Carbide (Rotary) vs. Carbon (Stationary 2)	SiC (Stationary 1) vs. SiC (Rotary) vs. Carbon (Stationary 2)
O-rings and Mechanical Seal Elastomers	Yes	FDA Buna	FDA EPDM, FDA FKM, Others Available
Seal Hardware, including O-Ring Seal Sleeve (for O-ring shaft seal option)	Yes	316 SS	—
Seal Springs	No	304 SS	—
Shaft	No	17-4 PH SS	—
Sealed Ball Bearing	No	Steel, Buna, H1 Food Grade Grease	—
Sealed Angular Contact Thrust Bearings	No	Steel, Buna, H1 Food Grade Grease	—
Bracket	No	Cast Iron, Powder-Coated	—
Bearing Housing	No	316 SS	—
Casing Studs	No	304 SS	—
Head Nuts	No	304 SS Head Acorn Nuts	304 SS Head Wing Nuts
Head Jacket (option)	No	316 SS	—
Bracket Jacket (option) <sup>③</sup>	No	316 SS Tubing	—
Head Jacket O-ring	No	TFE/P	—

① Material option not compatible with cleaning solutions, disqualifies pump from 3A and EHEDG certifications.

② Drilled idler not possible.

③ Bracket jacket disqualifies pump from 3A certification.

Section	1762
Page	1762.4
Issue	A

## LIQUID-SPECIFIC PRODUCT LINE: STAINLESS STEEL HYGIENIC PUMPS

157B SERIES™, 4157B SERIES™, 257B SERIES™, 4257B SERIES™

### SPECIFICATIONS

Model Number		① Standard Port Size	Optional Port Sizes Available	Max. Nominal Flow Rate & Speed with Mechanical Seals (100 SSU)			Max. Nominal Flow Rate & Speed with O-Ring Seals (100 SSU)			Max. Differential Pressure		Max. Hydrostatic Pressure		② Max. Recommended Temp for Std. Pump		Approx. Shipping Weight	
				③ Mech Seal	④ O-ring Seal	Inches	Inches	GPM	m³/h	RPM	GPM	m³/h	RPM	PSIG	BarG	PSIG	BarG
H4157B	H157B	1	—	6	1.5	1150	3	0.6	500	150	10	400	28	225	107	40	18
HL4157B	HL157B	1½	—	12	3	1150	6	1.5	500	150	10	400	28	225	107	42	19
KS4157B	KS157B	1½	2	30	7	520	24	5	400	150	10	400	28	225	107	123	56
K4157B	K157B	2	2½	40	10	520	30	7	400	150	10	400	28	225	107	125	57
KK4157B	KK157B	2	2½, 3	55	13	520	40	10	400	150	10	400	28	225	107	130	59
LQ4157B	LQ157B	2½	3	75	17	420	50	12	320	150	10	400	28	225	107	233	106
LL4157B	LL157B	3	—	100	22	420	70	16	320	150	10	400	28	225	107	240	109
LS4157B	LS157B	3	4	150	35	520	85	20	320	125	8.5	400	28	225	107	255	116

① Standard ports are ISO 2852 sanitary clamp. Port options include most other hygienic port types and ANSI-compatible Class 150 flanges.

② Extra clearances are required above 225°F (107°C). Higher temperatures can be handled with special construction, consult factory.

③ Mechanical seal viscosity range: Carbon/SiC 1 to 5,000 cSt (28 to 1,000,000 SSU); SiC/SiC 1 to 150,000 cSt.

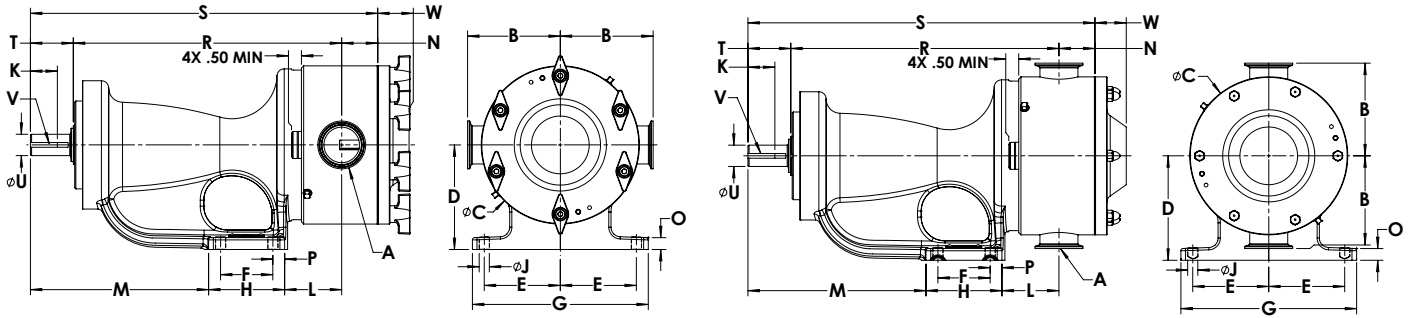
④ O-ring seal viscosity range: 1 to 1,000,000 cSt.

# LIQUID-SPECIFIC PRODUCT LINE: STAINLESS STEEL HYGIENIC PUMPS

157B SERIES™, 4157B SERIES™, 257B SERIES™, 4257B SERIES™

Section	1762
Page	1762.5
Issue	A

## DIMENSIONS – H, HL, KS, K, KK, LQ, LL, LS SIZES (157B SERIES™ & 4157B SERIES™)



Optional Wing Nuts

Standard Acorn Nuts

Model Number		① A (in)	③ (clamp) B	(flange) B	C	D	E	F	G	H	J	K	
Mech. Seal	O-Ring Seal												
H4157B	H157B	1	in	3.51	4.00	4.88	3.50	2.75	2.25	6.75	3.50	0.47	0.99
			mm	88.9	101.6	124.0	88.9	57.2	57.2	171.5	88.9	11.9	25.1
HL4157B	HL157B	1.5	in	3.38	4.00	4.88	3.50	2.75	2.25	6.75	3.50	0.47	0.99
			mm	85.9	101.6	124.0	88.9	57.2	57.2	171.5	88.9	11.9	25.1
KS4157B	KS157B	1.5	in	4.88	5.50	8.32	5.50	4.00	2.75	9.25	4.00	0.53	1.42
			mm	124.0	139.7	211.3	139.7	101.6	69.9	235.0	101.6	13.5	36.1
K4157B	K157B	2	in	4.88	5.25	8.32	5.50	4.00	2.75	9.25	4.00	0.53	1.42
			mm	124.0	133.4	211.3	139.7	101.6	69.9	235.0	101.6	13.5	36.1
KK4157B	KK157B	2	in	4.88	5.25	8.32	5.50	4.00	2.75	9.25	4.00	0.53	1.42
			mm	124.0	133.4	211.3	139.7	101.6	69.9	235.0	101.6	13.5	36.1
LQ4157B	LQ157B	2.5	in	6.32	7.19	10.88	7.00	4.38	4.00	10.00	5.38	0.53	1.42
			mm	160.5	182.6	276.4	177.8	111.3	101.6	254.0	136.7	13.5	36.1
LL4157B	LL157B	3	in	6.07	7.19	10.88	7.00	4.38	4.00	10.00	5.38	0.53	1.42
			mm	154.2	182.6	276.4	177.8	111.3	101.6	254.0	136.7	13.5	36.1
LS4157B	LS157B	3	in	6.07	7.19	10.88	7.00	4.38	4.00	10.00	5.38	0.53	2.55
			mm	154.2	182.6	276.4	177.8	111.3	101.6	254.0	136.7	13.5	64.8

Model Number		② L	M	N	O	P	R	S	T	② U	V	W	
Mech. Seal	O-Ring Seal												
H4157B	H157B	in	3.38	5.18	0.79	0.56	0.65	10.45	12.85	1.60	0.75	.19 x .09	1.56
		mm	85.7	131.8	20.1	14.2	15.7	265.2	326.4	41.1	19.1	4.83 x 2.29	39.6
HL4157B	HL157B	in	3.38	5.18	1.41	0.56	0.65	10.45	13.47	1.60	0.75	.19 x .09	1.56
		mm	85.7	131.8	35.8	14.2	15.7	265.2	342.1	41.1	19.1	4.83 x 2.29	39.6
KS4157B	KS157B	in	3.00	9.37	1.15	0.62	0.62	14.24	17.52	2.13	1.12	0.25x0.12	1.65
		mm	76.2	238.3	29.2	14.2	15.7	362.0	445.0	54.1	28.4	6.35x3.05	41.9
K4157B	K157B	in	3.00	9.37	1.40	0.62	0.62	14.24	17.77	2.13	1.12	0.25x0.12	1.65
		mm	76.2	238.3	35.6	14.2	15.7	362.0	451.4	54.1	28.4	6.35x3.05	41.9
KK4157B	KK157B	in	3.00	9.37	1.90	0.62	0.62	14.24	18.27	2.13	1.12	0.25x0.12	1.65
		mm	76.2	238.3	48.3	14.2	15.7	362.0	464.1	54.1	28.4	6.35x3.05	41.9
LQ4157B	LQ157B	in	3.38	9.12	2.25	0.62	0.62	15.62	20.13	2.25	1.12	0.25x0.12	2.57
		mm	85.9	231.6	57.2	15.7	15.7	400.1	511.0	54.1	28.4	6.35x3.05	65.3
LL4157B	LL157B	in	3.38	9.12	2.75	0.62	0.62	15.62	20.63	2.25	1.12	0.25x0.12	2.57
		mm	85.9	231.6	69.9	15.7	15.7	400.1	523.7	54.1	28.4	6.35x3.05	65.3
LS4157B	LS157B	in	4.75	9.11	2.41	0.62	0.63	15.73	21.64	3.50	1.44	0.38x0.19	2.57
		mm	120.7	231.6	61.2	15.7	15.7	403.9	550.2	88.9	36.6	9.65x4.83	65.3

① Standard ports are sanitary clamp. Sanitary clamp port dimension is O.D. of pipe, not O.D. of ferrule, which is about 1/2" greater diameter. Optional flange ports suitable for use with Class 150 steel or stainless steel companion flanges or flanged fittings.

② "U" dimension on L, LL & LS equivalent to Viking Universal Seal 127A series of same size, not 127AE or B, which have 1.44" (36.6mm) diameter.

③ Clamp ports to ISO 2852 standard. Requires EHEDG - approved gaskets for EHEDG certification.

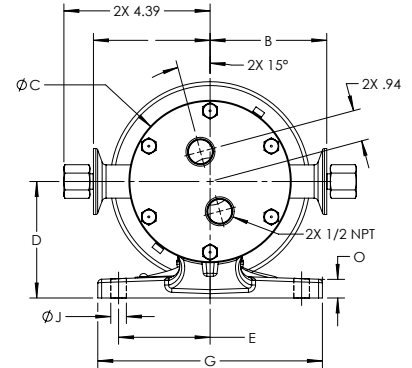
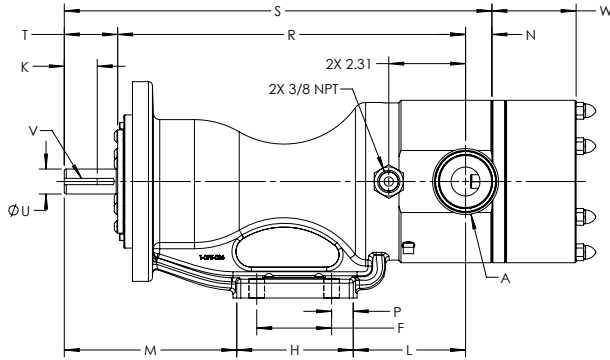
Section	1762
Page	1762.6
Issue	A

**LIQUID-SPECIFIC PRODUCT LINE:  
STAINLESS STEEL HYGIENIC PUMPS**

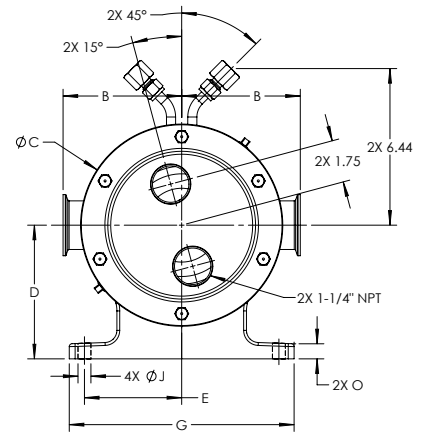
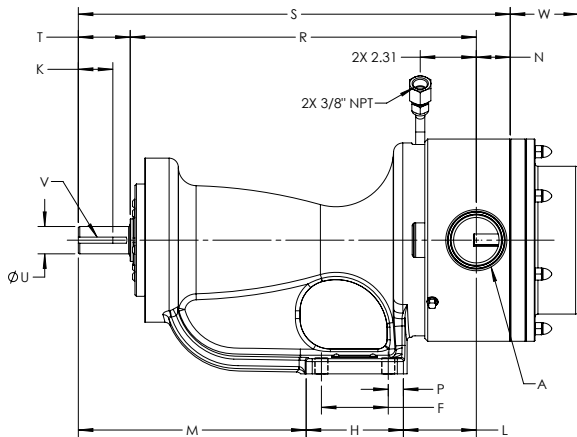
157B SERIES™, 4157B SERIES™, 257B SERIES™, 4257B SERIES™

**DIMENSIONS – H, HL, KS, K, KK, LQ, LL, LS SIZES  
(257B SERIES™ / 4257B SERIES™)**

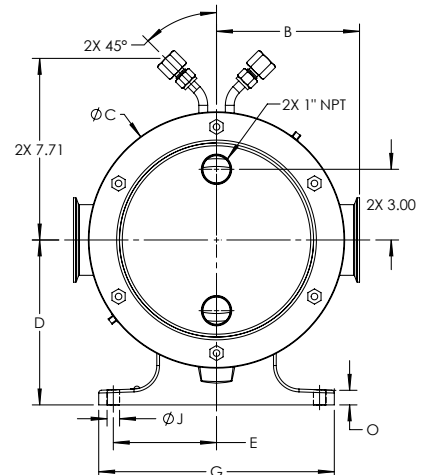
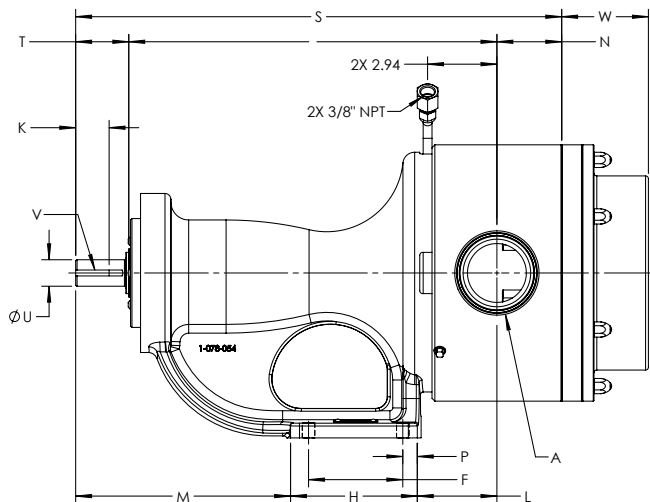
**H, HL Sizes**



**KS, K, KK Sizes**



**LQ, LL, LS Sizes**



# LIQUID-SPECIFIC PRODUCT LINE: STAINLESS STEEL HYGIENIC PUMPS

157B SERIES™, 4157B SERIES™, 257B SERIES™, 4257B SERIES™

Section	1762
Page	1762.7
Issue	A

## DIMENSIONS – H, HL, KS, K, KK, LQ, LL, LS SIZES (257B SERIES™ / 4257B SERIES™)

Model No.		① A (in)		③ (clamp) B	(flange) B	C	D	E	F	G	H	J	K
Mech. Seal	O-Ring Seal												
H4157B	H157B	1	in	3.51	4.00	4.88	3.50	2.75	2.25	6.75	3.50	0.47	0.99
			mm	88.9	101.6	124.0	88.9	57.2	57.2	171.5	88.9	11.9	25.1
HL4157B	HL157B	1.5	in	3.38	4.00	4.88	3.50	2.75	2.25	6.75	3.50	0.47	0.99
			mm	85.9	101.6	124.0	88.9	57.2	57.2	171.5	88.9	11.9	25.1
KS4157B	KS157B	1.5	in	4.88	5.50	8.32	5.50	4.00	2.75	9.25	4.00	0.53	1.42
			mm	124.0	139.7	211.3	139.7	101.6	69.9	235.0	101.6	13.5	36.1
K4157B	K157B	2	in	4.88	5.25	8.32	5.50	4.00	2.75	9.25	4.00	0.53	1.42
			mm	124.0	133.4	211.3	139.7	101.6	69.9	235.0	101.6	13.5	36.1
KK4157B	KK157B	2	in	4.88	5.25	8.32	5.50	4.00	2.75	9.25	4.00	0.53	1.42
			mm	124.0	133.4	211.3	139.7	101.6	69.9	235.0	101.6	13.5	36.1
LQ4157B	LQ157B	2.5	in	6.32	7.19	10.88	7.00	4.38	4.00	10.00	5.38	0.53	1.42
			mm	160.5	182.6	276.4	177.8	111.3	101.6	254.0	136.7	13.5	36.1
LL4157B	LL157B	3	in	6.07	7.19	10.88	7.00	4.38	4.00	10.00	5.38	0.53	1.42
			mm	154.2	182.6	276.4	177.8	111.3	101.6	254.0	136.7	13.5	36.1
LS4157B	LS157B	3	in	6.07	7.19	10.88	7.00	4.38	4.00	10.00	5.38	0.53	2.55
			mm	154.2	182.6	276.4	177.8	111.3	101.6	254.0	136.7	13.5	64.8

Model No.			② L	M	N	O	P	R	S	T	② U	V	W
Mech. Seal	O-Ring Seal												
H4157B	H157B	in	3.38	5.18	0.79	0.56	0.65	10.45	12.85	1.60	0.75	.19 x .09	2.53
		mm	85.7	131.8	20.1	14.2	15.7	265.2	326.4	41.1	19.1	4.83 x 2.29	39.6
HL4157B	HL157B	in	3.38	5.18	1.41	0.56	0.65	10.45	13.47	1.60	0.75	.19 x .09	2.53
		mm	85.7	131.8	35.8	14.2	15.7	265.2	342.1	41.1	19.1	4.83 x 2.29	39.6
KS4157B	KS157B	in	3.00	9.37	1.15	0.62	0.62	14.24	17.52	2.13	1.12	0.25x0.12	2.81
		mm	76.2	238.3	29.2	14.2	15.7	362.0	445.0	54.1	28.4	6.35x3.05	41.9
K4157B	K157B	in	3.00	9.37	1.40	0.62	0.62	14.24	17.77	2.13	1.12	0.25x0.12	2.81
		mm	76.2	238.3	35.6	14.2	15.7	362.0	451.4	54.1	28.4	6.35x3.05	41.9
KK4157B	KK157B	in	3.00	9.37	1.90	0.62	0.62	14.24	18.27	2.13	1.12	0.25x0.12	2.81
		mm	76.2	238.3	48.3	14.2	15.7	362.0	464.1	54.1	28.4	6.35x3.05	41.9
LQ4157B	LQ157B	in	3.38	9.12	2.25	0.62	0.62	15.75	20.12	2.13	1.12	0.25x0.12	3.68
		mm	85.9	231.6	57.2	15.7	15.7	400.1	511.0	54.1	28.4	6.35x3.05	65.3
LL4157B	LL157B	in	3.38	9.12	2.75	0.62	0.62	15.75	20.62	2.13	1.12	0.25x0.12	3.68
		mm	85.9	231.6	69.9	15.7	15.7	400.1	523.7	54.1	28.4	6.35x3.05	65.3
LS4157B	LS157B	in	4.75	9.13	2.41	0.62	0.63	15.90	21.66	3.50	1.44	0.38x0.19	3.68
		mm	120.7	231.6	61.2	15.7	15.7	403.9	550.2	88.9	36.6	9.65x4.83	65.3

① Standard ports are sanitary clamp. Sanitary clamp port dimension is O.D. of pipe, not O.D. of ferrule, which is about 1/2" greater diameter. Optional flange ports suitable for use with Class 150 steel or stainless steel companion flanges or flanged fittings.

② "U" dimension on L, LL & LS equivalent to Viking Universal Seal 127A series of same size, not 127AE or B, which have 1.44" (36.6mm) diameter.

③ Clamp ports to ISO 2852 standard. Requires EHEDG - approved gaskets for EHEDG certification.

Section	1762
Page	1762.8
Issue	A

## **LIQUID-SPECIFIC PRODUCT LINE: STAINLESS STEEL HYGIENIC PUMPS**

**157B SERIES™, 4157B SERIES™, 257B SERIES™, 4257B SERIES™**

### **NPSH REQUIRED**

Printed performance curves are not available.

Performance curves can be electronically generated with the Viking Pump Curve Generator on [vikingpump.com](http://vikingpump.com).

NPSH<sub>R</sub> data is not available on the Curve Generator

NPSH<sup>R</sup> data is not available on the pump selector.

NPSH<sup>R</sup> tables for the Hygienic Series can be found in TR-126.

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