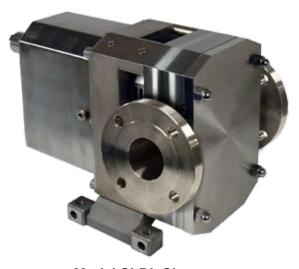


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# Viking SL Industrial Lobe Pump Series

This product brings gentle low shear pumping action with in-line cleaning capabilities to the industrial markets. Rugged enough for corrosive applications; timed rotors protect product integrity while it's modular design, and front end access to mechanical seals makes cleaning and maintenance easy. The SteriLobe®, its sanitary counterpart, continues to be available through the IDEX Sanitary distribution channel.

Viking SL (standard pump)							
<sup>①②</sup> Flow	GPM	To 1014 GPM					
Range	M³/Hr	To 230 M <sup>3</sup> /Hr					
<sup>①</sup> Pressure	PSI	To 215 PSI					
Range	BAR	To 15 BAR					
<sup>①</sup> Temperature	°F	-22 to +300					
Range	°C	-29 to +150					
① Viscosity	SSU	31 SSU to 500,000 SSU +					
Range	cPs	1 cPs to 110,000 cPs +					



**Model SLDL Shown** 

## ATEX Certification available.

## **Major Design Features**

- Eight frame sizes offer 15 displacements. Based on rotor length, 8 sizes offer 215 PSI (15 Bar);
   7 sizes offer 145 PSI (10 Bar) differential pressure capabilities.
- Positive displacement, rotary lobe pumping principle uses timed, non-contacting rotors.
- Front-loading seals are fully accessible without removing pump from service, simplifying maintenance. DIN 24960 L1K seal housings allow customer's preferred or proprietary seals to be used.
- Industrial design with NPT or flanged ports.
- Suitable for SIP, solvent-flush cleaning and self-draining applications.
- Removable casing for easy strip cleaning.
- Semi-enclosed casing geometry maintains volumetric efficiency, while enabling drainability by chamfering the cusps around the ports.
- Bi-Wing and Multi-Lobe rotors available.
- Shafts are supported by greased tapered roller bearings. Shaft slingers are standard and labyrinth seals optional to prevent gearbox contamination. Oil lubrication optional.
- Rotors are driven by grease-lubricated helical alloy steel timing gears. Oil lubrication optional
- Direction of flow is reversible. Porting may be vertical or horizontal.
- Bearing housing design allows for radial load capabilities.
- Captive guard design for ATEX and OSHA compliance.
- 316L Stainless Steel wetted parts ensure minimal carbon pull-out.
- ① Values shown represent minimums or maximums. Some special construction or consideration may be required before a cataloged pump can be applied to an application involving maximum pressure or minimum or maximum temperature and/or viscosity.
- ② Nominal capacities based on handling thin liquids at low pressures.

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#### **CONSTRUCTION - SPECIFICATIONS**

#### CONSTRUCTION - SERIES SLA, SLB, SLC, SLD, SLE, SLF, SLG AND SLH

	Casing and Head	Rotors	Gearbox Cover	Bearing Housing Assembly	⑤Mechanical Seals (2 Required)	⑦ Elastomers	Relief Valve	Mounting Feet
Standard	316L Stainless Steel ASTM A743, Grade CF3M	316L Stainless Steel Bi-wing ASTM A743, Grade CF3M	316L Stainless Steel ASTM A743, Grade CF3M	Coated Cast Iron	Carbon / Silicon Carbide	Viton®	None	304 Stainless Steel ASTM A743, Grade CF8

Dimensions for Unmounted Pumps - See Page 288.6.

## SPECIFICATIONS - SERIES SLA, SLB, SLC, SLD, SLE, SLF, SLG AND SLH

	① Port Size	Theor Displac		_	ominal P Capacity	_	Hydro	mum ostatic ssure	Pressu	nended narge		mum erature	Appro Ship wei	
Model Number	ln.	Gal/Rev	Liters/ Rev	GPM	M³/Hr	RPM	PSI	<b>4BAR</b>	PSI	BAR	Deg. F.	Deg. C.	Lbs.	Kg.
SLAS	3/4	0.010	0.039	12	3	1200	300	20	215	15	300	150	26	12
SLAL	1	0.016	0.059	19	4	1200	300	20	145	10	300	150	33	15
SLBS	1	0.021	0.081	25	6	1200	300	20	215	15	300	150	44	20
SLBL	1 1/2	0.032	0.122	38	9	1200	300	20	145	10	300	150	49	22
SLCS	1 1/2	0.045	0.169	53	12	1200	300	20	215	15	300	150	77	35
SLCL	2	0.067	0.254	80	18	1200	300	20	145	10	300	150	84	38
SLDS	1 1/2	0.093	0.352	93	21	1000	300	20	215	15	300	150	143	65
SLDL	2	0.139	0.528	139	31	1000	300	20	145	10	300	150	154	70
SLES	2	0.193	0.732	155	35	800	300	20	215	15	300	150	273	124
SLEL	3	0.290	1.099	232	53	800	300	20	145	10	300	150	298	135
SLFS	3	0.403	1.524	241	55	600	300	20	215	15	300	150	399	181
SLFL	4	0.604	2.286	362	82	600	300	20	145	10	300	150	452	205
SLGS	4	0.837	3.17	502	114	600	300	20	215	15	300	150	772	350
SLGL	6	1.256	4.754	753	171	600	300	20	145	10	300	150	842	382
SLHS	6	1.691	6.4	1014	230	600	300	20	215	15	300	150	Contact	Factory

① External NPT ports standard on sizes SLAS - SLES. ANSI 150# raised face flange standard on sizes SLEL - SLHS. NPT, ANSI 150# or 300# raised face flange or DIN2633 ND16 available on all sizes.

② Nominal rating based on handling thin liquids. Capacities rounded to the nearest whole number.

③ For maximum recommended discharge pressures at rated speeds or when handling other viscosities and/or speeds, see performance curves. If suction pressure exceeds 50 PSI, consult factory.

 $<sup>\</sup>textcircled{4}$  1 BAR = 14.5 PSI = 0.1 MPa = 100 kPa = 10<sup>5</sup> Pa.

⑤ Optional mechanical seals available to meet the requirements of industrial or sanitary applications.

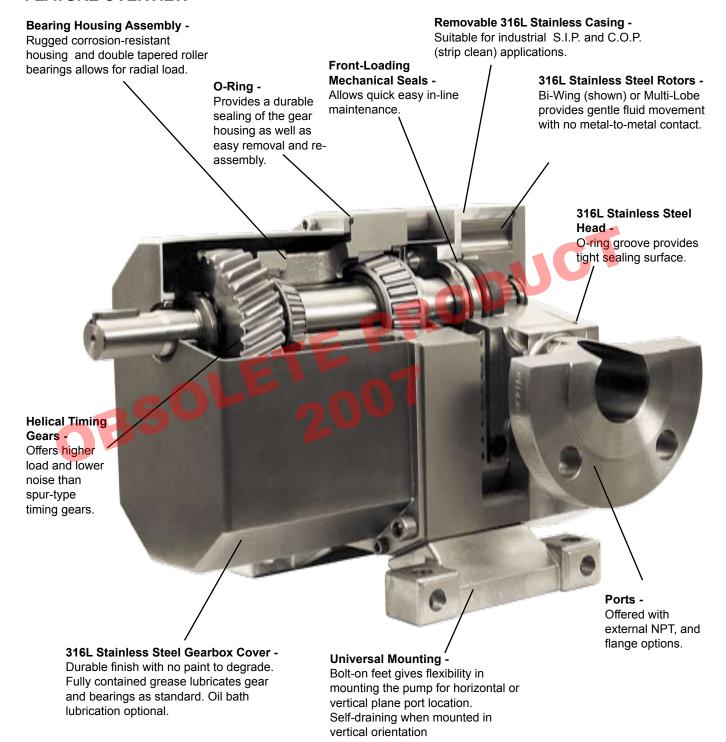
⑥ Optional relief valves are available see 288.4 for description.

Optional elastomers are EPDM, Buna, and Perfluoroelastomer. FDA conforming elastomers available, contact factory.



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#### **FEATURE OVERVIEW**



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#### **OPTIONS**

#### **ROTORS**

A choice of Bi-Wing or Multi-Lobe rotors are available in 316L Stainless Steel.

Standard operating clearances for the 316L Stainless rotors are set for 300°F (150° C) - suitable for CIP or SIP applications.

#### **JACKETS - TEMPERATURE & PRESSURE LIMITS**

Optional jackets can be located on the head and casing. The temperature and pressure ratings are 300°F (150°C) and 50 PSI (3.4 BAR).

#### NOTES:

- 1. Max. temperature for steam or heat transfer fluids.
- 2. Optional relief valves cannot be used with jacketed head.

#### SURFACE FINISH

The standard machine finish is 0.6  $\mu$ RA on the inside and 1.6  $\mu$ RA on the outside.

Some industries may require polished surfaces. Polished internals and/or mirror polish externals are available with special pricing.

#### RUN DRY OPERATION

SL industrial lobe pumps can operate in run dry conditions, but a low pressure seal quench or use of double seals with barrier fluid is required.

#### STEAM CLEANING

SL industrial lobe pumps have clearances to allow 300°F (150°C) steam cleaning\*. The pumps can be operated during cleaning cycle, but it is preferable to have the pump stopped. If pump is operated, wet steam is preferred to provide some liquid to the seal faces. Viton® is not satisfactory with steam, EPDM is satisfactory to 250°F (120°C), Some elastomers may have to be replaced after steam cleaning.

#### ALLOWABLE ELASTOMER TEMPERATURE - MIN/MAX

<b>VITON®</b>	-13/392°F	[-25/200°C]
EPDM	-49/248°F	[-45/120°C]
EPDM(FDA)	-58/284°F	[-50/140°C]

#### Notes:

- Some elastomers temperature limits are beyond the pump's catalog limits.
- 2. FDA conforming EPDM allows a higher temperature range option.

#### LUBRICATION

The recommended lubricant is a lithium based, extreme pressure grease suitable for operating temperatures between -22° F and 266° F (-30° C and 120° C) and has a base viscosity approximately 200 cSt at 104° F (40° C). Consult the factory for oil recommendations for optional oil bath lubrication.

#### **RELIEF VALVE OPTIONS**

- 1. SL industrial lobe pumps are positive displacement pumps and must be provided with some sort of over pressure protection. This may be an optional relief valve mounted directly on the pump, an in-line pressure relief valve, a torque limiting device or a rupture disk.
- Relief valves are not standard on SL industrial lobe pumps but available options are listed below. These optional pump mounted relief valves will operate in either pumping direction.
  - **Spring Loaded –** This is a conventional type relief valve where pressure is relieved from the discharge side of the pump back to the suction side. Relief valve setting may be adjusted.
- 3. Note that SL industrial pumps may operate in either direction. When using a line mounted pressure relief valve, if pump rotation is reversed during operation, over - pressure protection must be provided on both sides of pump.
- **4.** Pressure relief valves should not be used to control pump flow or regulate discharge pressure.

#### **DRIVE EQUIPMENT**

A variety of drive options including gear reducers, gear motors and V-belt drives can be accommodated because of the improved bearing housing design and two tapered roller bearings which will handle radial loads.

<sup>\*</sup> Contact factory for steam cleaning recommendations



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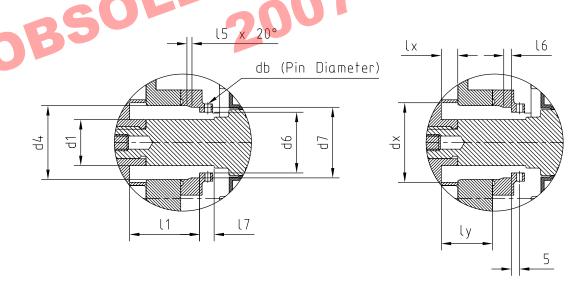
#### **SEALING OPTIONS**

The SL industrial lobe mechanical seals are fully front loading to improve maintenance downtime. For industrial applications, the optional DIN 24960 L1K seal envelope allows flexibility to use proprietary and contract specified seal vendors.

	Seal Style (2 Required)	Seal Faces	Elastomer	
Standard	Single mechanical	Carbon / Silicon Carbide	Viton®	
	Single mechanical	Silicon Carbide / Silicon Carbide		
	Single mechanical seal with quench/flush	Carbon / Silicon Carbide Silicon Carbide / Silicon Carbide	Buna	
Optional	Double balanced mechanical seals	Carbon / Silicon Carbide (inboard) Carbon / Silicon Carbide (outboard) Silicon Carbide / Silicon Carbide (inboard) Carbon / Silicon Carbide (outboard)	EPDM Viton® Perfluoroelastomer	
	① Single O-ring seals 10,000 SSU maximum	N/A N/A		

① Maximum recommended speed for sizes SLA - SLE is 640 RPM, for SLF is 470 RPM. Oring sealing not available on SLG or SLHS.

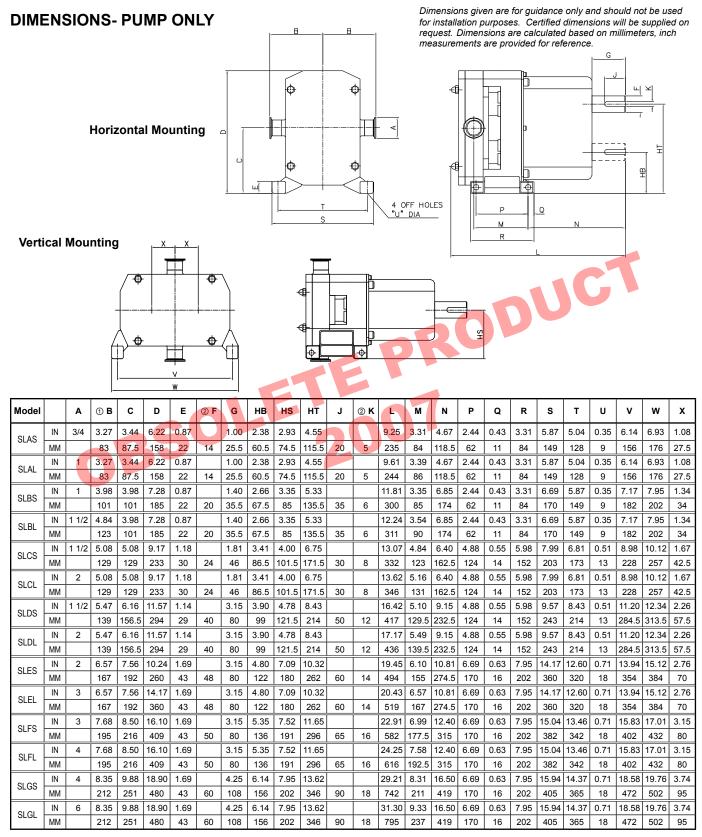
## DIMENSIONS - OPTIONAL DIN 24960 L1K MECHANICAL SEAL BOX



	SL Industrial Lobe DIN Seal Dimensions - mm											
Pump Model	d1	d4	d6	d7	dx	db	I1	15	16	17	lx	ly
SLA	22	38	31	37	39	3	38	1.3	5	9	7	25.4
SLB	28	45	37	43	48.5	3	42.5	2.7	5	9	10	31.1
SLC	38	58	49	56	60.5	4	45	2.7	6	9	12.8	34
SLD	55	80	67	75	83	4	47.5	3.5	6	9	13	38.3
SLE	65	90	77	85	96	4	52.5	5.7	6	10	15.5	40.8
SLF	75	104	88	97	110	4	60	7.6	7	9	19	45.3
SLG	90	119	105	115	125	4	65	5.5	7	9	17	45.4

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① External NPT ports standard on sizes SALS - SLES, 150# flange standard on sizes SLEL - SLGS. "B" Port dimensions shown for standard port arrangement. For "B" dimension for other port options, see page 288.8.

② Metric shaft coupling and key required. Related dimensions (F, J, and K) are shown in metric only. The SLHS is not shown in these drawings. Refer to 288.7 for dimensions.

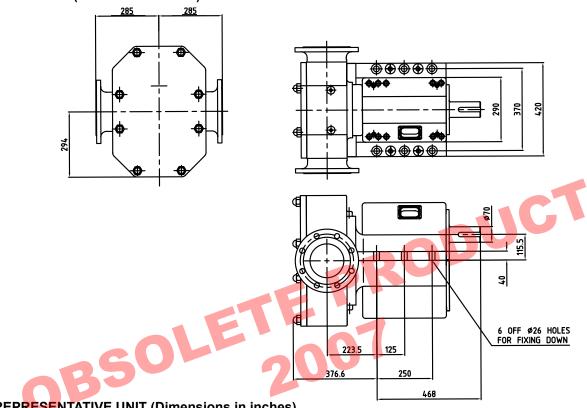


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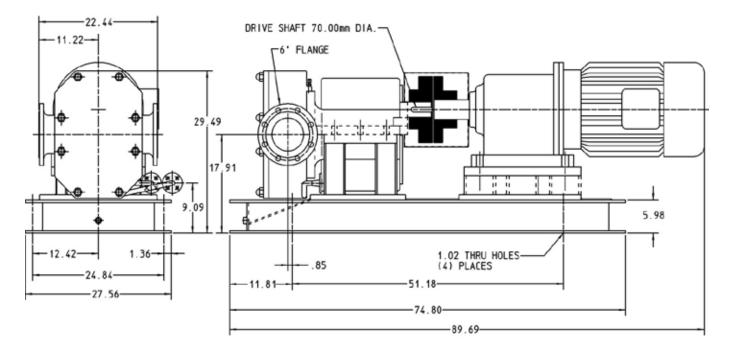
#### **DIMENSIONS FOR SLHS**

Dimensions given are for guidance only and should not be used for installation purposes. Certified dimensions will be supplied on request. Dimensions are calculated based on millimeters, inch measurements are provided for reference.





REPRESENTATIVE UNIT (Dimensions in inches)

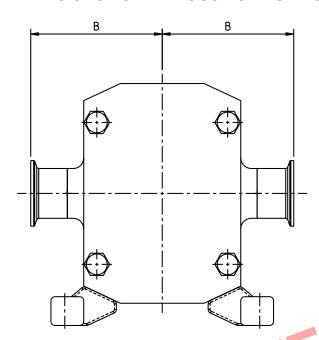


Metric shaft coupling and key required.

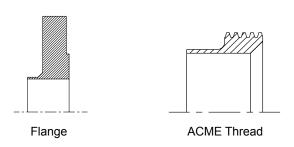
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#### "B" DIMENSIONS FOR VARIOUS PORT OPTIONS



Dimensions given are for guidance only and should not be used for installation purposes. Certified dimensions will be supplied on request. Dimensions are calculated based on millimeters, inch measurements are provided for reference.





	PORT	60		"B" Din	"B" Dimension					
SteriLobe Model	SIZE			© 150# (Raised		③ Quic	k Clamp	③ ACME		
	IN	IN	ММ	IN	ММ	IN	ММ	IN	ММ	
SLAS	3/4	①3.27	83	3.82	97	2.72	69	N/A	N/A	
SLAL	1	①3.27	83	3.82	97	3.27	83	3.27	83	
SLBS	1	①3.98	101	4.53	115	3.98	101	3.98	101	
SLBL	1 1/2	①4.84	123	4.53	115	3.98	101	3.98	101	
SLCS	1 1/2	①5.08	129	4.76	121	4.21	107	4.21	107	
SLCL	2	①5.08	129	4.76	121	4.21	107	4.21	107	
SLDS	1 1/2	①5.47	139	5.16	131	5.00	127	5.00	127	
SLDL	2	①5.47	139	5.16	131	5.00	127	5.00	127	
SLES	2	①6.57	167	6.26	159	6.22	158	6.22	158	
SLEL	3	6.57	167	①6.57	167	6.22	158	6.22	158	
SLFS	3	8.07	205	①7.68	195	6.81	173	6.81	173	
SLFL	4	8.66	220	①7.68	195	6.97	177	6.97	177	
SLGS	4	9.33	237	①8.35	212	7.64	194	7.64	194	
SLGL	6	9.33	237	①8.35	212	7.64	194	N/A	N/A	

① Standard port configuration.

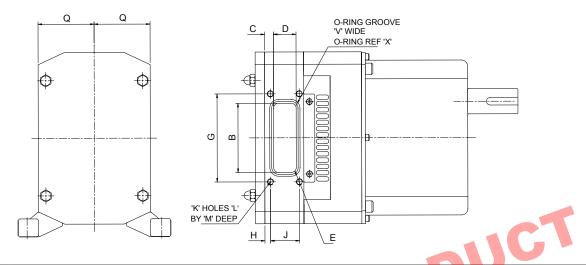
② Flanges are standard with raised faces, suitable for use with 150# ANSI stainless steel companion flanges or flanged fittings.



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#### **RECTANGULAR PORT DIMENSIONS**

Dimensions given are for guidance only and should not be used for installation purposes. Certified dimensions will be supplied on request.



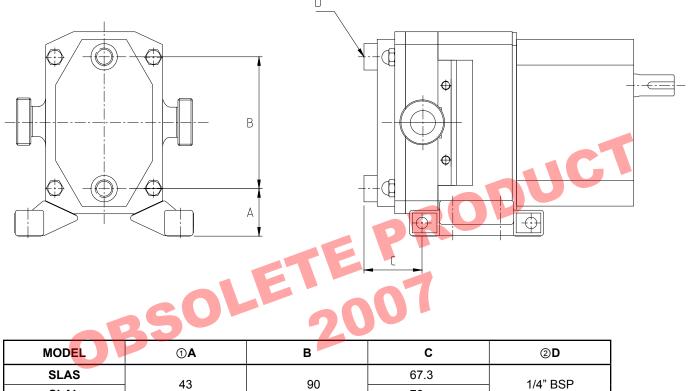
		SLAS	SLAL	SLBS	SLBL	SLCS	SLCL	SLDS	SLDL	SLES	SLEL	SLFS	SLFL	SLGS	SLGL
В	IN	2.52	2.52	2.52	2.52	3.15	3.15	4.33	4.33	5.44	5.44	6.15	6.15	7.41	7.41
	MM	64	64	64	64	80	80	110	110	138	138	156	156	188	188
c	IN	.24	.24	.24	.24	.35	.35	.43	.43	.43	.43	.43	.43	.43	.43
	MM	6	6	8	8	9	9	11	11	11	11	11	11	11	11
D	IN	.45	.45	.59	1.06	.83	1.38	.91	1.65	1.34	2.29	2.21	3.55	3.78	5.87
	MM	11.5	20	15	27	21	35	23	42	34	58	56	90	96	149
E	IN	.2	.2	.2	.2	.32	.32	.32	.32	.32	.32	.32	.32	.32	.32
_	MM	5	5	5	5	8	8	8	8	8	8	8	8	8	8
F	IN	1.58	1.58	1.69	1.69	2.01	2.01	2.76	2.76	3.7	3.7	4.26	4.26	4.89	4.89
	MM	40	40	43	43	51	51	70	70	94	94	108	108	124	124
	l IN	3.16	3.16	3.4	3.4	4.03	4.03	5.53	5.53	7.42	7.42	8.52	8.52	9.78	9.78
G		3.14	3.14	3.38	3.38	4.01	4.01	5.5	5.5	7.42	7.42	8.52	8.52	9.76	9.76
	MM	80.2	80.2	86.2	86.2	102.2	102.2	140.3	140.3	188.3	188.3	216.3	216.3	248.3	248.3
		79.8	79.8	85.8	85.8	101.8	101.8	139.7	139.7	187.7	187.7	215.7	215.7	247.7	247.7
Н	IN	.46	.24	.28	.28	.35	.35	.39	.47	.39	.39	.59	.59	79	.79
	MM	11.75	6	7	7	9	9	10	12	10	10	15	15	20	20
	l IN		.8	.68	1.18	.84	1.39	1	1.59	1.43	2.38	1.9	3.24	3.09	5.17
١.	""	N/A	.78	.66	1.13	.82	1.37	.97	1.56	1.41	2.35	1.88	3.22	3.06	5.15
J	N 4 N 4	IN/A	20.2	17.2	29.2	21.2	35.2	25.3	40.3	36.3	60.3	48.3	82.3	78.3	131.3
	MM		19.8	16.8	28.8	20.8	34.8	24.7	39.7	35.7	59.7	47.7	81.7	77.7	130.7
K		2	4	4	4	4	4	4	4	4	4	4	4	4	4
L		M6	M6	M8	M8	M8	M8	M10	M10	M12	M12	M16	M16	M16	M16
м	IN	.59	.59	.39	.39	.39	.39	.47	.47	.55	.55	.71	.71	.71	.71
IVI	MM	8	8	10	10	10	10	12	12	14	14	18	18	18	18
Q	IN	1.77	1.77	2.36	2.36	2.62	2.62	3.51	3.51	4.61	4.61	5.2	5.2	5.87	5.87
u u	MM	45	45	60	60	66.5	66.5	89	89	117	117	132	132	149	149
v	IN	.12	.12	.12	.12	.12	.12	.12	.12	.12	.12	.12	.12	.12	.12
	MM	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Х		134	137	137	141	144	150	152	154	156	158	160	160	167	173

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### **DIMENSIONS FOR JACKETED HEAD**

Dimensions given are for guidance only and should not be used for installation purposes. Certified dimensions will be supplied on request.



MODEL	<b>①A</b>	В	С	②D
SLAS	43	90	67.3	1/4" BSP
SLAL		90	76	1/4 65F
SLBS	46.5	110	83.5	
SLBL		110	95.5	
SLCS	- 54	150	65.9	
SLCL		150	79	
SLDS	- 52	210	77	
SLDL			96	1/2" BSP
SLES	62	260	67.2	1/2 DSF
SLEL	02	200	91.2	
SLFS	- 66	300	102.5	
SLFL		300	136.5	
SLGS	00	370	154	
SLGL	66	370	207	

① Dimensions shown in brackets are millimeters.

For all other pump dimensions see pages 283.6

Maximum temperature for steam or heat transfer liquid: 300°F (150°C). Contact factory for steam cleaning recommendations. Maximum pressure: 50 PSI (3.5 BAR).

Relief valve cannot be used in combination with jacketed head.

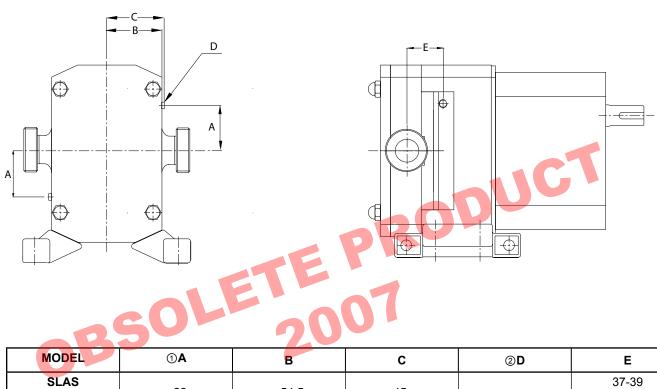
② British Standard Pipe internal threads.



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#### **DIMENSIONS FOR CASING - HEATING/COOLING PORTS**

Dimensions given are for guidance only and should not be used for installation purposes. Certified dimensions will be supplied on request.



MODEL	<b>①A</b>	В	С	② <b>D</b>	E					
SLAS	- 28	F 4 F	45		37-39					
SLAL		54.5	45		41-43					
SLBS	42.4	62	60		41-43					
SLBL	42.4	02	00		46-48					
SLCS	54.5	70	66.5		44-46					
SLCL		70	00.5	1/8" BSP	52-54					
SLDS	65.5	93	89		51-53					
SLDL					61-63					
SLES	86 95	117		53-55						
SLEL	00	95	117		65-67					
SLFS	67	102	132		65-67					
SLFL	07	102	132		80-82					
SLGS			NΛ							
SLGL		NA								

① Based upon standard port configuration.

For all other pump dimensions see pages 283.6.

Maximum temperature for steam or heat transfer liquid: 300°F (150°C). Contact factory for steam cleaning recommendations.

Maximum pressure: 50 PSI (3.5 BAR).

Relief valve cannot be used in combination with jacketed head.

② British Standard Pipe internal threads.

Dimensions shown in millimeters.

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#### **DIMENSIONAL INTERCHANGE REFERENCE CHART**

This chart gives a quick reference to center height and port to port dimensions. The SL Industrial Lobe and DuraLobe® models which have similar mounting dimensions are listed. For complete dimension comparison please refer to the dimensions tables provided in the pump Installation, Operation and Maintenance Manual.

				Port to Port " B " Dimension					
Model	"HT" Dimension Top Shaft Center Height	"HB" Dimension Bottom Shaft Center Height	"C" Dimension Port Height	Flange Connection	Optional 150# Raised Face Flange (ASA 150)	NPT, BSPT Threaded Ports	All Other Threaded Connections		
SL Series SLA	214				97	83			
DuraLobe S1	214				121	85			
SL Series SLC				121	99	129	107		
DuraLobe S2				121	121	129	107		
SL Series SLD		99	156.6	-					
DuraLobe S3		100	157						
SL Series SLF	296	136	216	ر ب			177		
DuraLobe S4	296	136	216				178		

All Dimensions are calculated in millimeters.

<sup>1</sup> All flange connections except ASA150, BS4504, ASA300

