

Alfa Laval SRU

Rotary lobe pump

Introduction

The Alfa Laval SRU Rotary Lobe Pump is a reliable positive displacement pump for the gentle handling of sensitive process fluids. The pump is carefully engineered to provide reliable performance, trouble-free operation and superior energy efficiency for demanding applications. It is an excellent choice for duties that require contamination-proof pumps to meet high standards of hygiene, low-shear and low-pulsation operation.

The pump is designed according to the most stringent hygienic design standards and with verified, effective Cleaning-in-Place.

Applications

The SRU Rotary Lobe Pump is designed for gentle handling of sensitive process fluids across the dairy, food, beverage, brewing, chemical, pharmaceutical, and home and personal care industries.

Its smooth, low-shear pumping action makes the pump suitable for handling media of varying viscosities, whether low or high—from creams, gels, emulsions, and aerated mixtures to delicate cells and organic solids in suspension.

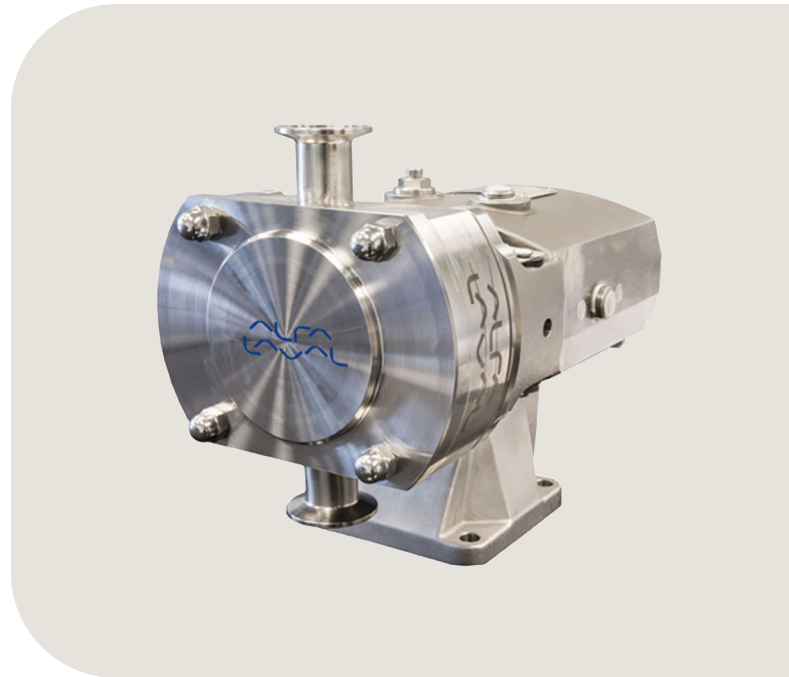
The SRU Rotary Lobe Pump is available with 12 different pump head displacements based on six different gearbox modules to handle flow rates up to 106 m³/h and differential pressures up to 20 bar.

Benefits

- Consistent performance.
- Minimal risk of contamination.
- Low maintenance, increased process uptime.
- Modular design for greater flexibility to configure exactly the right solution for specific process requirements.

Standard design

All media contacting steel components, like the rotor case, front cover, rotors and rotor nuts, are in W. 1.4404 (AISI 316L). The robust cast iron gearbox provides maximum shaft rigidity and easy oil seal replacement. The gearbox design is universal, which enables the flexibility of mounting pumps with the inlet and outlet ports in either a vertical or horizontal plane by changing the foot and its position.



The standard Alfa Laval SRU Rotary Lobe Pump has tri-lobe rotors. Optional bi-lobe rotors for handling fluids containing large delicate solids are available. All rotors are available in three temperature ratings enabling the pump to be operated at maximum process temperatures of 158°F, 266°F and 392°F for both fluid pumped and CIP.

Single, single flushed, and double mechanical shaft seals as well as packed gland, unflushed or flushed, are available.

The Alfa Laval SRU can be supplied either as a bare shaft pump or mounted on a base plate complete with coupling, guard, gear motor and shroud for easy, plug-and-play installation.

Working principle

A gear train in the pump gearbox drives the rotors and provides accurate synchronization of the tri-lobe rotors. The movement of the counter-rotating rotors creates a partial vacuum that allows atmospheric pressure or other external pressures to force fluid into the pump chamber. As the rotors revolve, an expanding

cavity forms, filling with fluid. As the blades disengage, each dwell forms a cavity. As the rotor blades engage, the cavity diminishes and fluid is displaced into the outlet port.

TECHNICAL DATA

Standard specification	
Product wetted steel parts:	W. 1.4404 (316L)
Inside surface finish:	Mech Ra ≤ 31
Gearbox:	Cast iron
Base plate:	Stainless steel
Coupling guard:	Stainless steel
Rotor:	Tri-lobe, 158°F
Product wetted elastomers:	EPDM
Other elastomers:	NBR
Shaft seal:	Single mechanical (R90)
Rotary seal face:	Carbon
Stationary seal face:	Stainless steel

Shaft seals

Single, single flush, double mechanical and packed gland, flushed and unflushed, available. For EHEDG compliance Hyclean type must be used.

Max flush pressure, single flush:	7 psi
Max flush pressure, double mechanical:	1 bar over product pressure
Max flush pressure, packed gland, flushed:	1 bar over product pressure
Water consumption, flushed or double mechanical:	0.13 gallon/min
Flush connections:	BSPT or NPT

Temperature

Max process and CIP temperature (dependent on rotor selection)	158°F , 266°F or 392°F
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Motor

Gear motor, 4 poles, to IEC metric standard, 50/60 Hz, suitable for frequency conversion, IP55, insulation class F.

Warranty

Extended 3-years warranty on SRU pumps. The warranty covers all non wear parts on the condition that genuine Alfa Laval Spare Parts are used.

Flows/Pressures/Connections

SRU Series	Build Selection				Displacement			Inlet and Outlet Connection Size				Differential Pressure (see note 1)		Maximum Speed
	Pump Head Code	Gear-box	Shaft	SRU Model	Litres/rev	Imp gall/ 100 rev	US gall/ 100 rev	Hygienic		Enlarged		bar	psi	rev/min
								mm	in	mm	in			
1	005	L or H	D	SRU1NLD	0.053	1.17	1.4	25	1	-	-	8	115	1000
	008	L or H	D	SRU1WLD	0.085	1.87	2.25	25	1	40	1.5	5	75	1000
2	013	L or H	S	SRU2NLS	0.128	2.82	3.38	25	1	40	1.5	10	145	1000
	013	L or H	D	SRU2NLD	0.128	2.82	3.38	25	1	40	1.5	15	215	1000
	018	L or H	S	SRU2WLS	0.181	3.98	4.78	40	1.5	50	2	7	100	1000
	018	L or H	D	SRU2WLD	0.181	3.98	4.78	40	1.5	50	2	10	145	1000
	027	L or H	S	SRU3NLS	0.266	5.85	7.03	40	1.5	50	2	10	145	1000
	027	L or H	D	SRU3NLD	0.266	5.85	7.03	40	1.5	50	2	15	215	1000
3	038	L or H	S	SRU3WLS	0.384	8.45	10.15	50	2	65	2.5	7	100	1000
	038	L or H	D	SRU3WLD	0.384	8.45	10.15	50	2	65	2.5	10	145	1000
	055	L or H	S	SRU4NLS	0.554	12.19	14.64	50	2	65	2.5	10	145	1000
4	055	L or H	D	SRU4NLD	0.554	12.19	14.64	50	2	65	2.5	20	290	1000
	079	L or H	S	SRU4WLS	0.79	17.38	20.87	65	2.5	80	3	7	100	1000
	079	L or H	D	SRU4WLD	0.79	17.38	20.87	65	2.5	80	3	15	215	1000
	116	L or H	S	SRU5NLS	1.16	25.52	30.65	65	2.5	80	3	10	145	600
5	116	L or H	D	SRU5NLD	1.16	25.52	30.65	65	2.5	80	3	20	290	600
	168	L or H	S	SRU5WLS	1.68	36.95	44.39	80	3	100	4	7	100	600
	168	L or H	D	SRU5WLD	1.68	36.95	44.39	80	3	100	4	15	215	600

SRU Series	Build Selection				Displacement			Inlet and Outlet Connection Size				Differential Pressure (see note 1)		Maximum Speed
	Pump Head Code	Gear-box	Shaft	SRU Model	Litres/rev	Imp gal/100 rev	US gal/100 rev	Hygienic		Enlarged		bar	psi	rev/min
								mm	in	mm	in			
6	260	L or H	S	SRU6NLS	2.60	57.20	68.70	100	4	100	4	10	145	600
	260	L or H	D	SRU6NLD	2.60	57.20	68.70	100	4	100	4	20	290	600
	353	L or H	S	SRU6WLS	3.53	77.65	93.26	100	4	150	6	7	100	600
	353	L or H	D	SRU6WLD	3.53	77.65	93.26	100	4	150	6	15	215	600

L - Horizontal Porting

H - Vertical Porting

S - Stainless Steel

D - Duplex Stainless Steel

Note 1. These pressure ratings may vary for pumps with certain threaded connections.

Maximum Solid Size Capability

	Max. size of spherical solids			
	Bi-lobe rotors		Tri-lobe rotors	
	mm	in	mm	in
SRU1/005	8	0.31	6	0.24
SRU1/008	8	0.31	6	0.24
SRU2/013	8	0.31	6	0.24
SRU2/018	13	0.51	9	0.35
SRU3/027	13	0.51	9	0.35
SRU3/038	16	0.63	11	0.43
SRU4/055	16	0.63	11	0.43
SRU4/079	22	0.87	15	0.59
SRU5/116	22	0.87	15	0.59
SRU5/168	27	1.06	18	0.71
SRU6/260	27	1.06	18	0.71
SRU6/353	37	1.46	24	0.94

Weight

	Bare Shaft Pump (lbs)	
	Horizontal porting	Vertical porting
SRU1N	37	39
SRU1W	41	44
SRU2N	66	70
SRU2W	68	72
SRU3N	121	127
SRU3W	127	134
SRU4N	242	256
SRU4W	254	267
SRU5N	326	408
SRU5W	344	425
SRU6N	503	573
SRU6W	514	584

Shaft Seal Options

- Single or single flush/quench. R90 or Hyclean type mechanical seals.
- Double R90 type mechanical seal for flush (steam barrier for aseptic application).
- Packed gland (unflushed or flushed versions).



Note! EHEDG compliance only for Hyclean type mechanical seals.

Materials for Mechanical Seals

Carbon/Stainless steel, Tungsten Carbide/Tungsten Carbide, Silicon Carbide/Silicon Carbide or variations of these materials to suit fluid being pumped and/or application requirements. (N.B. Material variants are not available on all R90/Hyclean seal types).

Pump Sizing

In order to correctly size a rotary lobe pump some essential information is required. Provision of this information listed below enables our Technical Support personnel to obtain the optimum pump selection.

Product/Fluid Data

- Fluid to be pumped
- Viscosity
- SG/Density
- Pumping temperature, minimum, normal and maximum
- Cleaning in Place temperature(s), minimum, normal and maximum

Performance Data

- Flow rate, minimum, normal and maximum
- Discharge head/pressure (closest to pump outlet)
- Suction condition

Standard Specification Options

- Tri-clamp inlet and outlet ports standard
- Specification of inlet and outlet ports (Screwed male to BSP, DIN11851, SMS, ISS/IDF, RJT, or Flanged to EN1092-1 B1 PN16, ASA/ANSI 150, BS10E and other standards).
- Rotorcase Cover with integral Pressure Relief Valve.
- Heating/Cooling Saddle Jackets for Rotorcase and Jacket for Rotorcase Cover (not available when relief valve fitted).
- Bi-lobe Rotors in stainless steel and non-galling alloy.
- Complete pump unit comprising: Pump + Baseplate (mild or stainless steel) + coupling with guard + Geared electric motor suitable for (or supplied with) frequency speed control or manual variable speed drive (advise motor enclosure and electrical supply).

Dimensions (inch)

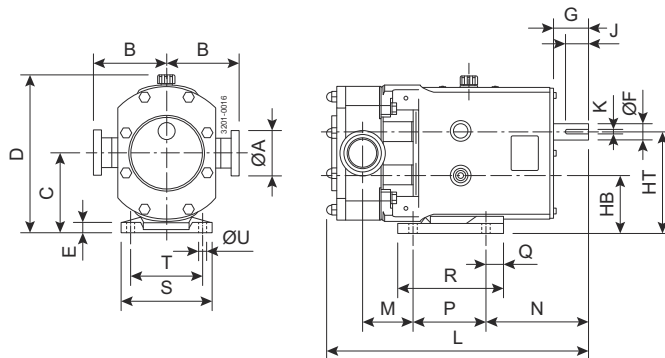


Figure 1. Horizontally ported

A1 — denotes hygienic port dimension

A2 — denotes enlarged port dimension

PUMP	A1	A2	B	C	D	E	F	G	HB	HT	J	K	L	M	N	P	Q	R	S	T	U
SRU1N	1.00	-	3.74	3.56	7.44	0.39	0.63	1.57	2.68	4.45	1.18	0.2	11.18	1.65	4.88	3.15	0.39	3.94	3.94	3.15	0.39
SRU1W	1.00	1.50	3.74	3.56	7.44	0.39	0.63	1.57	2.68	4.45	1.18	0.2	11.57	1.89	4.88	3.15	0.39	3.94	3.94	3.15	0.39
SRU2N	1.00	1.50	4.13	4.53	9.17	0.63	0.87	1.97	3.35	5.71	1.26	0.24	13.35	2.36	5.16	3.94	0.75	5.20	4.88	3.94	0.47
SRU2W	1.50	2.00	4.13	4.53	9.17	0.63	0.87	1.97	3.35	5.71	1.26	0.24	13.74	2.50	5.16	3.94	0.75	5.20	4.88	3.94	0.47
SRU3N	1.50	2.00	4.92	5.41	10.71	0.71	1.10	2.36	3.94	6.89	1.57	0.31	17.28	3.25	6.93	4.92	1.18	7.13	6.06	4.92	0.55
SRU3W	2.00	2.50	4.92	5.41	10.71	0.71	1.10	2.36	3.94	6.89	1.57	0.31	17.80	3.43	6.93	4.92	1.18	7.13	6.06	4.92	0.55
SRU4N	2.00	2.50	5.91	6.42	12.80	0.79	1.49	3.15	4.53	8.31	2.48	0.39	21.30	3.98	8.82	5.91	1.38	7.95	7.24	5.91	0.55
SRU4W	2.50	3.00	5.91	6.42	12.80	0.79	1.49	3.15	4.53	8.31	2.48	0.39	21.97	4.33	8.82	5.91	1.38	7.95	7.24	5.91	0.55
SRU5N	2.50	3.00	6.89	7.68	15.04	0.87	1.77	4.33	5.31	10.04	2.76	0.55	24.76	3.80	10.98	7.09	1.38	9.45	8.27	7.09	0.55
SRU5W	3.00	4.00	6.89	7.68	15.04	0.87	1.77	4.33	5.31	10.04	2.76	0.55	25.67	4.25	10.98	7.09	1.38	9.45	8.27	7.09	0.55
SRU6N	4.00	-	7.48	8.86	17.17	0.87	1.89	4.33	6.10	11.61	2.76	0.55	29.45	4.88	10.51	10.24	0.79	11.81	8.66	7.48	0.55
SRU6W	4.00	6.00	7.48	8.86	17.17	0.87	1.89	4.33	6.10	11.61	2.76	0.55	30.63	5.49	10.51	10.24	0.79	11.81	8.66	7.48	0.55

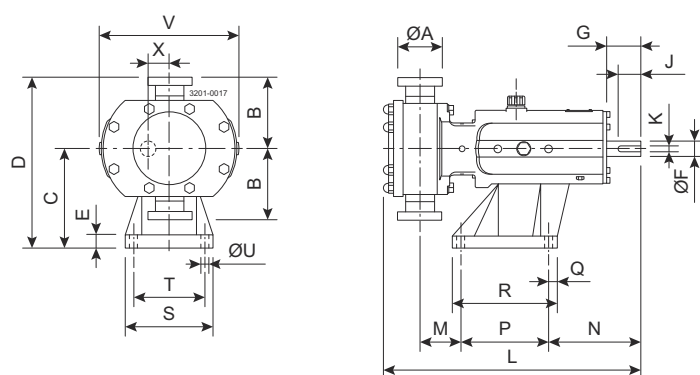


Figure 2. Vertically ported

A1 — denotes hygienic port dimension

A2 — denotes enlarged port dimension

PUMP	A1	A2	B	C	D	E	F	G	J	K	L	M	N	P	Q	R	S	T	U	V	X
SRU1N	1.00	-	3.74	4.45	8.19	0.59	16	1.57	1.18	5	11.18	1.93	4.61	3.15	0.87	4.49	4.09	3.15	0.39	6.85	0.89
SRU1W	1.00	1.50	3.74	4.45	8.19	0.59	16	1.57	1.18	5	11.57	2.17	4.61	3.15	0.87	4.49	4.09	3.15	0.39	6.85	0.89
SRU2N	1.00	1.50	4.13	5.79	9.92	0.63	22	1.97	1.26	6	13.35	2.64	4.88	3.94	0.47	4.88	4.88	3.94	0.47	8.39	1.18
SRU2W	1.50	2.00	4.13	5.79	9.92	0.63	22	1.97	1.26	6	13.74	2.78	4.88	3.94	0.47	4.88	4.88	3.94	0.47	8.39	1.18
SRU3N	1.50	2.00	4.92	6.89	11.81	0.87	28	2.36	1.57	8	17.28	2.66	6.34	6.10	0.59	7.28	6.10	4.92	0.55	9.69	1.48
SRU3W	2.00	2.50	4.92	6.89	11.81	0.87	28	2.36	1.57	8	17.80	2.83	6.34	6.10	0.59	7.28	6.10	4.92	0.55	9.69	1.48
SRU4N	2.00	2.50	5.91	8.39	14.29	0.98	38	3.15	2.48	10	12.30	3.07	7.76	7.87	0.67	9.21	7.24	5.91	0.55	11.85	1.89
SRU4W	2.50	3.00	5.91	8.39	14.29	0.98	38	3.15	2.48	10	21.97	3.43	7.76	7.87	0.67	9.21	7.24	5.91	0.55	11.85	1.89
SRU5N	2.50	3.00	6.89	10.12	17.01	1.06	45	4.33	2.76	14	24.76	3.60	10.39	7.87	0.79	9.45	8.66	7.09	0.55	13.82	2.36
SRU5W	3.00	4.00	6.89	10.12	17.01	1.06	45	4.33	2.76	14	25.67	4.05	10.39	7.87	0.79	9.45	8.66	7.09	0.55	13.82	2.36
SRU6N	4.00	-	7.48	11.61	19.09	1.06	48	4.33	2.76	14	29.45	4.88	10.51	10.24	0.79	11.81	9.84	8.27	0.55	15.75	2.76
SRU6W	4.00	6.00	7.48	11.61	19.09	1.06	48	4.33	2.76	14	30.63	5.49	10.51	10.24	0.79	11.81	9.84	8.27	0.55	15.75	2.76

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