Alfa Laval OptiLobe

Rotary lobe pumps

Introduction

The Alfa Laval OptiLobe Rotary Lobe Pump is a cost-effective alternative for general applications that require gentle product treatment and easy serviceability. Versatile, dependable and energy efficient, this hygienic positive displacement pump enhances both process flexibility and operational reliability.

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

Applications

The OptiLobe Rotary Lobe Pump is designed for gentle product treatment in general applications across the dairy, food, beverage, home and personal care industries.

The OptiLobe pump is available with 10 different pump head displacements based on five different gearbox modules to handle flow rates up to 77 m^3/h and differential pressures up to 8 bar.

Benefits

- Cost-effective, hygienic pump.
- Optimal product quality due to gentle, low-shear operation.
- Robust design for long service life.
- Easy maintenance due to self-setting, front-loading seals.
- Low total cost of ownership.

Standard design

All media contacting steel components, like the rotor case, front cover, rotors and rotor nuts, are in W. 1.4404 (AISI 316L). With stainless steel bearing housing, canister and feet, the OptiLobe pump has an all stainless steel exterior, making it corrosion resistant.

The pump features the Alfa Laval EasyFit front-loading seal, which allows quick and easy inspection or replacement without the need to disassemble pipework. Single and single-flushed shaft seals are available as options.

Single, single-flushed and the new Knife-edge shaft seals are available as options as standard.

The Alfa Laval OptiLobe 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.

Certificates

Authorized to carry the 3A symbol

EHEDG

FDA

Technical Data

Standard specification	
Product wetted steel parts:	W. 1.4404 (316L)
Inside surface finish:	Mech Ra ≤ 0.8 µm / 32 µin
Gear canister:	Stainless steel
Base plate:	Stainless steel
Coupling guard:	Stainless steel
Rotor:	Tri-lobe
Product wetted elastomers:	EPDM
Other elastomers:	NBR
Shaft seal:	Single mechanical EasyFit
Rotary seal face:	Carbon
Stationary seal face:	Stainless steel

Shaft seals	
EastFit single, single flush and knife-edge available. All options are fully front loading and interchangeable.	
Max. flush pressure, single flush:	0.5 bar / 7.25 psi
Water consumption, single flush:	0.5 l/min / 8 USGPH
Flush connections:	BSPT or NPT

Temperature	
Max. process and CIP temperature (dependent on rotor selection):	130 °C / 266 °F

Motor

IEC: 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 OptiLobe pumps. The warranty covers all non wear parts on the condition that genuine Alfa Laval Spare Parts are used.

Process Data

	Displacement			Inlet/Outlet		Diff. Pressure		Max Speed[1]
Pump Model	Litres/ rev	Imp gall/100 rev	US gall/ 100 rev	mm	inch	bar	psi	rpm
12	0.06	1.23	1.48	25	1	8	115	1000
13	0.10	2.18	2.61	40	1½	8	115	1000
22	0.17	3.74	4.49	40	1½	8	115	1000
23	0.21	4.62	5.55	40	1½	8	115	1000
32	0.32	7.04	8.45	50	2	8	115	1000
33	0.40	8.80	10.57	50	2	8	115	1000
42	0.64	14.08	16.91	65	2½	8	115	1000
43	0.82	18.04	21.66	80	3	8	115	1000
52	1.17	25.74	30.89	80	3	8	115	750
53	1.72	37.84	45.41	100	4	8	115	750

[1] Maximum pump speed is limited to 250 rpm when fitted with Knife-edge seal option

Dimensions (mm)

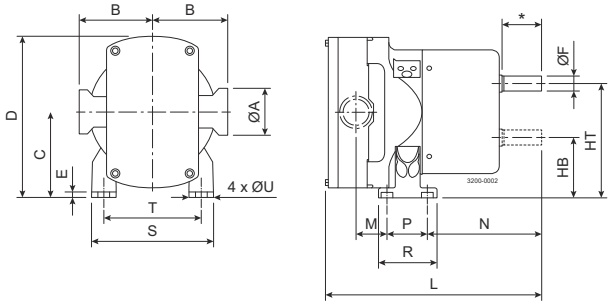

Figure 1. Horizontally Ported

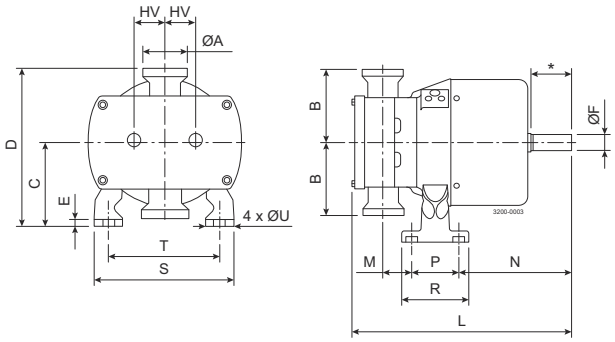

Figure 2. Vertically Ported

* Shaft length G; Key width K; Key length J.

mm/inch

	12	13	22	23	32	33	42	43	52	53
A	25 / 0.98	40 / 1.57	40 / 1.57	40 / 1.57	50 / 1.97	50 / 1.97	65 / 2.56	80 / 3.15	80 / 3.15	100 / 3.94
B	86 / 3.39	86 / 3.39	96 / 3.78	96 / 3.78	120 / 4.72	120 / 4.72	130 / 5.12	138 / 5.43	162 / 6.38	162 / 6.38
C	95 / 3.74	95 / 3.74	120 / 4.72	120 / 4.72	136 / 5.35	136 / 5.35	159 / 6.26	159 / 6.26	196 / 7.72	196 / 7.72
D	171 / 6.73	171 / 6.73	215.5 / 8.48	215.5 / 8.48	251 / 9.88	251 / 9.88	294 / 11.57	294 / 11.57	366 / 14.41	366 / 14.41
E	11.5 / 0.45	11.5 / 0.45	14.5 / 0.57	14.5 / 0.57	14.5 / 0.57	14.5 / 0.57	19.5 / 0.77	19.5 / 0.77	20.5 / 0.81	20.5 / 0.81
F	16 / 0.63	16 / 0.63	20 / 0.79	20 / 0.79	24 / 0.94	24 / 0.94	30 / 1.18	30 / 1.18	45 / 1.77	45 / 1.77
G	40 / 1.57	40 / 1.57	50 / 1.97	50 / 1.97	50.5 / 1.99	50.5 / 1.99	56 / 2.20	56 / 2.20	89.5 / 3.52	89.5 / 3.52
HB	68 / 2.68	68 / 2.68	84 / 3.31	84 / 3.31	92 / 3.62	92 / 3.62	106 / 4.17	106 / 4.17	132 / 5.20	132 / 5.20
HT	122 / 4.80	122 / 4.80	156 / 6.14	156 / 6.14	180 / 7.09	180 / 7.09	212 / 8.35	212 / 8.35	260 / 10.24	260 / 10.24
HV	27 / 1.06	27 / 1.06	36 / 1.42	36 / 1.42	44 / 1.73	44 / 1.73	53 / 2.09	53 / 2.09	64 / 2.52	64 / 2.52
J	30 / 1.18	30 / 1.18	32 / 1.26	32 / 1.26	40 / 1.57	40 / 1.57	40 / 1.57	40 / 1.57	70 / 2.76	70 / 2.76
K	5 / 0.20	5 / 0.20	6 / 0.26	6 / 0.26	8 / 0.31	8 / 0.31	8 / 0.31	8 / 0.31	14 / 0.55	14 / 0.55
L	**230.5 / 9.07**	**243.5 / 9.59**	**277 / 10.91**	**286 / 11.26**	**304 / 11.97**	**316 / 12.44**	**371 / 14.61**	**387 / 15.24**	**408.5 / 16.08**	**508.5 / 20.02**
M	27.5 / 1.08	34.5 / 1.36	35 / 1.38	44 / 1.73	35 / 1.38	47 / 1.85	51.3 / 2.02	60.5 / 2.38	62 / 2.44	79.5 / 3.13
N	107.5 / 4.23	107.5 / 4.23	139.5 / 5.49	139.5 / 5.49	157 / 6.18	157 / 6.18	161 / 6.34	161 / 6.34	221 / 4.80	221 / 4.80
P	60 / 2.36	60 / 2.36	60 / 2.36	60 / 2.36	64 / 2.52	64 / 2.52	100 / 3.94	100 / 3.94	120 / 4.72	120 / 4.72
R	84 / 3.31	84 / 3.31	90 / 3.54	90 / 3.54	95 / 3.74	95 / 3.74	145 / 5.71	145 / 5.71	170 / 6.69	170 / 6.69
S	126 / 4.96	126 / 4.96	162 / 6.38	162 / 6.38	192 / 7.56	192 / 7.56	235 / 9.25	235 / 9.25	285 / 11.22	285 / 11.22
T	94 / 3.70	94 / 3.70	124 / 4.88	124 / 4.88	150 / 5.91	150 / 5.91	180 / 7.09	180 / 7.09	210 / 8.27	210 / 8.27
U	10 / 0.39	10 / 0.39	12 / 0.47	12 / 0.47	12 / 0.47	12 / 0.47	14 / 0.55	14 / 0.55	14 / 0.55	14 / 0.55

Options

- Single mechanical shaft seal
- Single mechanical shaft seal with flush
- Knife Edge mechanical seal
- Silicon Carbide/Carbon seal faces
- Silicon Carbide/Silicon Carbide seal faces
- Tungsten Carbide/Tungsten Carbide seal faces – Knife-Edge only
- Product wetted elastomers in EPDM or FPM
- Heating and cooling front cover
- Horizontal or vertical porting
- Stainless steel shroud covering coupling and motor
- Baseplate fitted with adjustable stainless steel ball feet

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
- 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

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How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com