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.

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.

TECHNICAL DATA

Standard specification	
Product wetted steel parts:	W. 1.4404 (316L)
Inside surface finish:	Mech Ra ≤ 0.8
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	
EasyFit single and single flush available. All options are fully front loading and interchangeable.	
Max flush pressure, single flush:	0.5 bar
Water consumption, single flush:	0.5 l/min
Flush connections:	BSPT or NPT

Temperature	
Max process and CIP temperature (dependent on rotor selection)	130°C

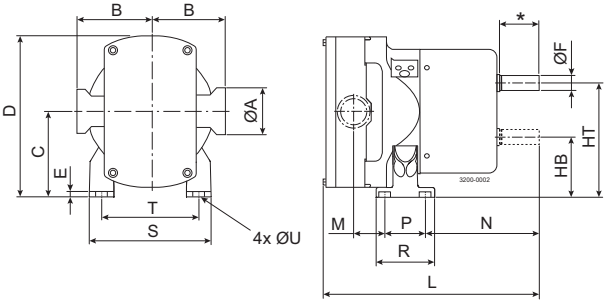
Motor
Gear motor, 4 poles, to IEC metric standard, 50/60 Hz, suitable for frequency conversion, IP55, insulation class F.

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

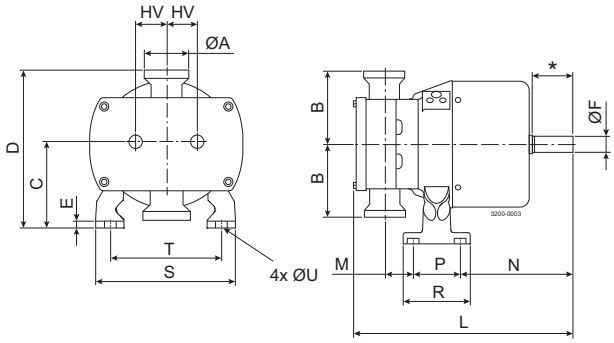
Process data

	Displacement			Inlet/Outlet		Diff. Pressure		Max Speed
	Litres/ rev	Imp gall/ 100 rev	US gall/ 100 rev	mm	inch	bar	psi	rpm
OptiLobe 12	0.06	1.23	1.48	25	1	8	115	1000
OptiLobe 13	0.10	2.18	2.61	40	1.5	8	115	1000
OptiLobe 22	0.17	3.74	4.49	40	1.5	8	115	1000
OptiLobe 23	0.21	4.62	5.55	40	1.5	8	115	1000
OptiLobe 32	0.32	7.04	8.45	50	2	8	115	1000
OptiLobe 33	0.40	8.80	10.57	50	2	8	115	1000
OptiLobe 42	0.64	14.08	16.91	65	2.5	8	115	1000
OptiLobe 43	0.82	18.04	21.66	80	3	8	115	1000
OptiLobe 52	1.17	25.74	30.89	80	3	8	115	750
OptiLobe 53	1.72	37.84	45.41	100	4	8	115	750

Dimensions (mm)



Horizontally Ported



Vertically Ported

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

	Pump Model	A (FLANGE <O>)	B (Port Width Dim)	C (Port Height Dim)	D (Overall Height))	E (Foot Thickness)	F(Shaft <O>)	G (Shaft Length)	HB (Btm Shaft Height)	HT (Top Shaft Height)	HV (SHAFT OFFSET)
10	12	25	86	95	171	11.5	16	40	68	122	27
	13	40	86	95	171	11.5	16	40	68	122	27
20	22	40	96	120	215.5	14.5	20	50	84	156	36
	23	40	96	120	215.5	14.5	20	50	84	156	36
30	32	50	120	136	251	14.5	24	50.5	92	180	44
	33	50	120	136	251	14.5	24	50.5	92	180	44
40	42	65	130	159	294	19.5	30	56	106	212	53
	43	80	138	159	294	19.5	30	56	106	212	53
50	52	80	162	196	366	20.5	45	89.5	132	260	64
	53	100	162	196	366	20.5	45	89.5	132	260	64

	Pump Model	J (Key Length)	K (Key Width)	L (Overall Length)	M (Front Bolt Hole to Port)	N (Back Bolt Hole to End of Shaft)	P (Bolt Hole Length)	R (Foot Length)	S (Foot Width)	T (Bolt Hole Width)	U (Bolt Hole <O>)
10	12	30	5	230.5	27.5	107.5	60	84	126	94	10
	13	30	5	243.5	34.5	107.5	60	84	126	94	10
20	22	32	6	277	35	139.5	60	90	162	124	12
	23	32	6	286	44	139.5	60	90	162	124	12
30	32	40	8	304	35	157	64	95	192	150	12
	33	40	8	316	47	157	64	95	192	150	12
40	42	40	8	371	51.3	161	100	145	235	180	14
	43	40	8	387	60.5	161	100	145	235	180	14
50	52	70	14	408.5	62	221	120	170	285	210	14
	53	70	14	508.5	79.5	221	120	170	285	210	14

Options

A. Single mechanical shaft seal with flush.
B. Silicon Carbide/Carbon seal faces.
C. Silicon Carbide/Silicon Carbide seal faces.
D. Product wetted elastomers in FPM.
E. Heating and cooling front cover.
F. Horizontal or vertical porting.
G. Stainless steel shroud covering coupling and motor.
H. 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
Contact details for all countries
are continually updated on our website.
Please visit www.alfalaval.com to
access the information direct.