



# Alfa Laval OptiLobe

## Rotary lobe pumps

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### 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<sup>3</sup>/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.

### Certificates



Authorized to carry the 3A symbol

## TECHNICAL DATA

### Standard specification

|                             |                           |
|-----------------------------|---------------------------|
| Product wetted steel parts: | W. 1.4404 (316L)          |
| Inside surface finish:      | Mech Ra ≤ 31              |
| 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: | 7 psi       |
| Water consumption, single flush:  | 8 gph       |
| Flush connections:                | BSPT or NPT |

### Temperature

|  |       |
|--|-------|
| Max process and CIP temperature (dependent on rotor selection) | 266°F |
|--|-------|

### Motors

Gear motor, 4 poles, to NEMA standard, premium efficiency, suitable for frequency conversion.

### 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/<br>rev | Imp gall/<br>100 rev | US gall/<br>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 (inch)

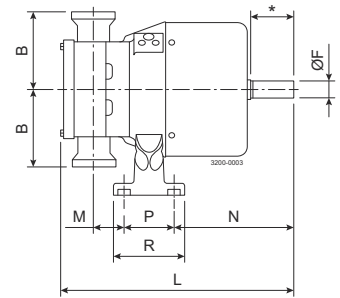
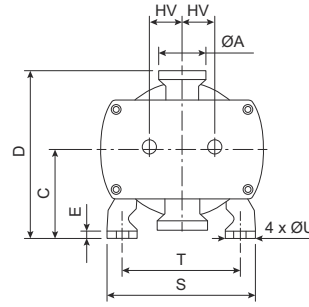
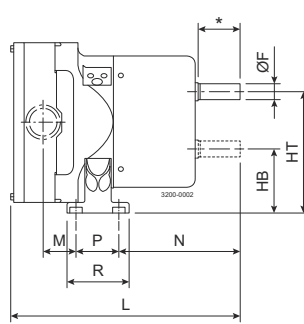
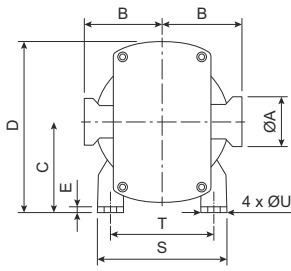


Figure 1. Horizontally Ported

Figure 2. 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             | 0.98               | 3.39                | 3.74               | 6.73               | 0.45          | 0.63             | 1.57                  | 2.68                  | 4.80              | 1.06 |
|            | 13             | 1.57               | 3.39                | 3.74               | 6.73               | 0.45          | 0.63             | 1.57                  | 2.68                  | 4.80              | 1.06 |
| 20         | 22             | 1.57               | 3.78                | 4.72               | 8.48               | 0.57          | 0.79             | 1.97                  | 3.31                  | 6.14              | 1.42 |
|            | 23             | 1.57               | 3.78                | 4.72               | 8.48               | 0.57          | 0.79             | 1.97                  | 3.31                  | 6.14              | 1.42 |
| 30         | 32             | 1.97               | 4.72                | 5.35               | 9.88               | 0.57          | 0.94             | 1.99                  | 3.62                  | 7.09              | 1.73 |
|            | 33             | 1.97               | 4.72                | 5.35               | 9.88               | 0.57          | 0.94             | 1.99                  | 3.62                  | 7.09              | 1.73 |
| 40         | 42             | 2.56               | 5.12                | 6.26               | 11.57              | 0.77          | 1.18             | 2.20                  | 4.17                  | 8.35              | 2.09 |
|            | 43             | 3.15               | 5.43                | 6.26               | 11.57              | 0.77          | 1.18             | 2.20                  | 4.17                  | 8.35              | 2.09 |
| 50         | 52             | 3.15               | 6.38                | 7.72               | 14.41              | 0.81          | 1.77             | 3.52                  | 5.20                  | 10.24             | 2.52 |
|            | 53             | 3.94               | 6.38                | 7.72               | 14.41              | 0.81          | 1.77             | 3.52                  | 5.20                  | 10.24             | 2.52 |

| 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             | 1.18          | 0.20               | 9.07                        | 1.08                               | 4.23                 | 2.36            | 3.31           | 4.96                | 3.70              | 0.39 |
|            | 13             | 1.18          | 0.20               | 9.59                        | 1.36                               | 4.23                 | 2.36            | 3.31           | 4.96                | 3.70              | 0.39 |
| 20         | 22             | 1.26          | 0.26               | 10.91                       | 1.38                               | 5.49                 | 2.36            | 3.54           | 6.38                | 4.88              | 0.47 |
|            | 23             | 1.26          | 0.26               | 11.26                       | 1.73                               | 5.49                 | 2.36            | 3.54           | 6.38                | 4.88              | 0.47 |
| 30         | 32             | 1.57          | 0.31               | 11.97                       | 1.38                               | 6.18                 | 2.52            | 3.74           | 7.56                | 5.91              | 0.47 |
|            | 33             | 1.57          | 0.31               | 12.44                       | 1.85                               | 6.18                 | 2.52            | 3.74           | 7.56                | 5.91              | 0.47 |
| 40         | 42             | 1.57          | 0.31               | 14.61                       | 2.02                               | 6.34                 | 3.94            | 5.71           | 9.25                | 7.09              | 0.55 |
|            | 43             | 1.57          | 0.31               | 15.24                       | 2.38                               | 6.34                 | 3.94            | 5.71           | 9.25                | 7.09              | 0.55 |
| 50         | 52             | 2.76          | 0.55               | 16.08                       | 2.44                               | 4.80                 | 4.72            | 6.69           | 11.22               | 8.27              | 0.55 |
|            | 53             | 2.76          | 0.55               | 20.02                       | 3.13                               | 4.80                 | 4.72            | 6.69           | 11.22               | 8.27              | 0.55 |

## Options

- Single mechanical shaft seal with flush.
- Silicon Carbide/Carbon seal faces.
- Silicon Carbide/Silicon Carbide seal faces.
- Product wetted elastomers in 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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