# Alfa Laval LKH

Centrifugal Pumps

## Introduction

The Alfa Laval LKH Centrifugal Pump is a premium pump for use in hygienic applications. To increase process productivity, it is distinguished by high efficiency, gentle product treatment, chemical resistance, and a wide range of flow rates, pressures and options.

Precision-engineered, the LKH pump delivers greater energy efficiency than similar pumps. Its optimized design, premium motor, tight tolerances and advanced impeller design minimize recirculation and reduce energy consumption.

## Application

Designed for Cleaning-in-Place (CIP), the Alfa Laval LKH is ideal for hygienic applications within the dairy, food, beverage and personal care industries that require gentle product treatment and reliable operation.

The LKH pump is available in 13 sizes to handle capacities up to 500 m3/hour and differential pressures up to 11 bar at 50 Hz.

## Benefits

- Energy efficient: superior efficiency resulting in reduced energy consumption and CO2 footprint.
- Hygienic: designed according to the most stringent hygienic design standards and with verified, effective CIP cleanability.
- Wide performance envelope: reduce need for parallel and serial pump installations and ensure pump operating with high efficiency.
- Maximized uptime and reduced maintenance costs: robust mechanical design and ease of maintenance with modular front-loading seals.

## Standard design

All media contacting steel components like pump casing, impeller, impeller nut and backplate are in W. 1.4404 (AISI 316L). A stainless steel shroud protects the motor and four adjustable stainless steel legs support the complete unit.

A compression coupling securely attaches the stub shaft to the motor shaft with precision alignment, and the semi-open impeller with a special vane design ensures efficient and gentle handling of the product as it moves through the pump.

As standard, the LKH pump is equipped with a single mechanical shaft seal but is also available with a single flushed or a double mechanical shaft seal. The front-loading shaft seal, with the spring and washers mounted on the atmospheric side, makes maintenance fast, easy and inexpensive. It takes just a few minutes to replace the shaft seal. In addition, the balanced design minimizes the risk of seal opening during unforeseen pressure shock.

## Technical Data

| Materials | |
|---|---|
| Product wetted steel parts: | W. 1.4404 / AISI 316L |
| Other steel parts: | Stainless steel |
| Inside surface finish: | Standard blasted |
| Product wetted elastomers: | EPDM |
| Rotary seal face: | Carbon |
| Stationary seal face: | Silicon Carbide |

**Motor**

**IEC**: Foot-flanged motor according to the IEC metric standard, 2 poles = 3000/3600 rpm at 50/60 Hz, 4 poles = 1500/1800 rpm at 50/60 Hz, IP 55 (with drain hole with labyrinth plug), insulation class F.

| Motor sizes | |
|---|---|
| 50 Hz: | 0.75-110 kW |
| 60 Hz: | 0.75-110 kW |

| Min./max. motor speed | |
|---|---|
| 2 poles: 0.75-45 kW: | 900-4000 rpm |
| 2 poles: 55-110 kW: | 900-3600 rpm |
| 4 poles: 0.75-75 kW: | 900-2200 rpm |

**Warranty**

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

## Operating Data

| Max. inlet pressure | |
|---|---|
| LKH-5: | 600 kPa / 6 bar / 87 psi |
| LKH-10 to -70: | 1000 kPa / 10 bar / 145 psi |
| LKH-70 (60Hz): | 500 kPa / 5 bar / 72.5 psi |
| LKH-85 to -90: | 500 kPa / 5 bar / 72.5 psi |

| Temperature | |
|---|---|
| Temperature range: | -10 °C to +140 °C / +14 °F to +284 °F (EPDM) |
| Flush media: | Max. 70 °C / 158 °F |
| Flush housing sterilization (pump not in operation): | Max. 125 °C / 257 °F |

| Flushed Shaft Seal | |
|---|---|
| Water pressure inlet: | Max. 100 kPa / 1 bar / 14.5 psi |
| Water consumption: | 0.25-0.5 l/min / 4-8 USGPH |

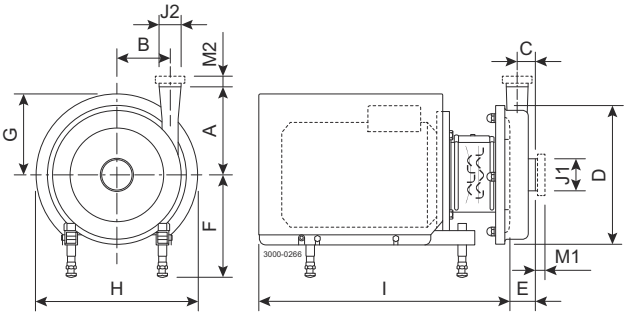
| Double Mechanical Shaft Seal | |
|---|---|
| Water pressure inlet, LKH-5 to -60: | Max. 500 kPa / 5 bar / 72.5 psi |
| Water pressure inlet, LKH-70 to -90: | Max. 300 kPa / 3 bar / 43.5 psi |
| Water consumption: | 0.25-0.5 l/min / 4-8 USGPH |

| Connections for Flushed and Double Mechanical Shaft Seal | |
|---|---|
| LKH-5 to -90: | ⅛" |
| LKH-85: | Ø6 mm / Ø¼" |

## Dimensions

| Denomination | 0.75 kW | 1.1 kW | 1.5 kW | 2.2 kW | 3 kW | 4 kW | 5.5 kW | 7.5 kW | 11 kW | 15 kW | 18.5 kW | 22 kW | 30 kW | 37 kW | 45 kW | 55 kW | 75 kW | 90 kW | 110 kW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Frame IEC, WEG 2 pol** | 80 | 90 | 90 | 100 | 100 | 112 | 132 | 132 | 160 | 160 | 160 | 180 | 200 | 200 | 200/225[1] | 250 | 280 | | |
| **Frame IEC, WEG 4 pol** | | | 100 | 112 | NA | 132 | 132 | 132 | 160 | 180 | 180 | 180 | 200 | 200/225[1] | 250 | 250 | 280 | | |
| **Frame IEC, ABB 2 pol** | | | | | | | | | | | | | 200 | 200 | 200 | 250 | 250 | 280 | 280 |

[1] IEC200/225:Motor frame225,motor flange/shaft frame200




Pump specific measures(mm)

| Pump Model | LKH-5 | LKH-10 | LKH-15 | LKH-20 | LKH-25 | LKH-35 | LKH-40 | LKH-45 | LKH-50 | LKH-60 | LKH-70 | LKH-85 | LKH-90 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **A** | 158 | 142 | 166 | 180 | 193 | 193 | 212 | 193 | 205 | 261 | 254 | 229 | 310 |
| **B** | 70 | 87 | 66 | 88 | 106 | 119 | 126 | 97 | 118 | 102 | 147 | 220 | 250 |
| **C** | 22 | 23 | 43 | 27 | 32 | 23 | 28 | 41 | 35 | 62 | 25 | 65 | 65 |
| **D** | 189 | 247 | 247 | 253 | 303 | 303 | 329 | 303 | 329 | 329 | 408 | 438 | 504 |
| **E** | 42 | 51 | 87 | 63 | 69 | 54 | 64 | 83 | 77 | 106 | 76 | 97 | 95 |

Motor specific measures(mm)

| Motor IEC | IEC80 | IEC90 | IEC100 | IEC112 | IEC132 | IEC160 | IEC180 | IEC200 | IEC200/225[1] | IEC250 | IEC280 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **F(max)** [2] | 262 | 262 | 282 | 285 | 304 | 332 | 352 | 372 | 421 | 446 | 496 |
| **G** | 125 | 177 | 185 | 208 | 248 | 304 | 321 | 429 | 444 | 480 | 585 |
| **H** | 250 | 290 | 325 | 360 | 425 | 510 | 553 | 670 | 720 | 800 | 960 |
| **I (LKH-5)** | 459 | 479 | 562 | - | - | - | - | - | - | - | - |
| **I (LKH-10 to -60)** | - | 470 | 556 | 540 | 652 | 792 | 855 | 979 | 989 | - | - |
| **I (LKH-70 to -90)** | - | - | - | - | - | 804 | 868 | 992 | 1002 | 1130 | 1270 |

[1] IEC200/225:Motorframe225,motorflange/shaftframe200

[2] Possible to reduce dimension F by min. 59 mm for all pump models. For smaller models it will be possible to reduce dimension F even further.

Connections(mm)

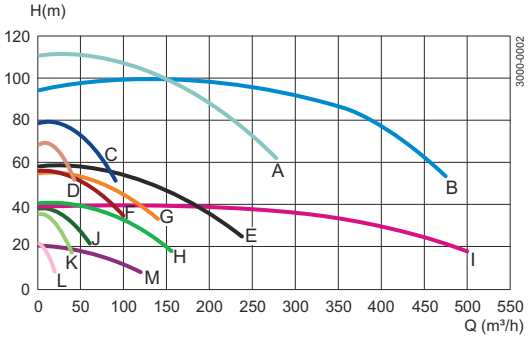
| Pump Model | | LKH-5 | LKH-10<br>LKH-20<br>LKH-35 | LKH-15<br>LKH-45<br>LKH-50<br>LKH-70 | LKH-25 | LKH-40 | LKH-60 | LKH-85<br>LKH-90 |
|---|---|---|---|---|---|---|---|---|
| **Clamp ISO2037** | M1 | 21 | 21 | 21 | 21 | 21 | 21 | - |
| | M2 | 21 | 21 | 21 | 21 | 12 | 21 | - |
| **Union ISO(IDF)** | M1 | 21 | 21 | 21 | 21 | 21 | 21 | - |
| | M2 | 21 | 21 | 21 | 21 | 21 | 21 | - |
| **Union DIN/ISO** | M1 | 22 | 25 | 30 | 30 | 30 | 30 | - |
| | M2 | 22 | 22 | 30 | 25 | 27 | 30 | - |
| **Union SMS** | M1 | 20 | 24 | 35 | 24 | 24 | 35 | - |
| | M2 | 20 | 20 | 24 | 24 | 24 | 35 | - |
| **Union (BS)RJT** | M1 | 27 | 27 | 32 | 27 | 27 | 32 | - |
| | M2 | 27 | 27 | 27 | 27 | 22 | 32 | - |
| **Union DS** | M1 | 20 | 24 | 24 | 24 | 24 | 24 | - |
| | M2 | 20 | 20 | 24 | 24 | 21 | 24 | - |
| **Union DIN/DIN** | M1 | 22 | 25 | 30 | 30 | 30 | 30 | 50 |
| | M2 | 22 | 22 | 30 | 25 | 27 | 30 | 50 |

[1] Other dimensions available on request.

| Pump Model | | LKH-5 | LKH-10<br>LKH-20<br>LKH-35 | LKH-15<br>LKH-45<br>LKH-50<br>LKH-70 | LKH-25 | LKH-40 | LKH-60 | LKH-85<br>LKH-90 |
|---|---|---|---|---|---|---|---|---|
| Clamp ASME BPE | M1 | - | - | - | - | - | - | 38 |
| | M2 | - | - | - | - | - | - | 38 |
| J1[1] | | 51 / 2" | 63.5 / 2.5" | 101.6 / 4" | 76.1 / 3" | 76.1 / 3" | 101.6 / 4" | 152.5 / 6" |
| J2[1] | | 38 / 1.5" | 51 / 2" | 76.1 / 3" | 63.5 / 2.5" | 63.5 / 2.5" | 101.6 / 4" | 152.5 / 6" |

[1] Other dimensions available on request.

## Flow chart




A = LKH-70 D = LKH-35 G = LKH-50 J = LKH-20 M = LKH-15
B = LKH-85 E = LKH-60 H = LKH-45 K = LKH-10
C = LKH-40 F = LKH-25 I = LKH-90 L = LKH-5

Frequency: 50 Hz Speed (synchr): 3000 rpm

## Options

- Impeller with reduced diameter.
- Flushed shaft seal.
- Double mechanical shaft seal.
- Rotating seal face of Silicon Carbide.
- Product wetted elastomers NBR, FPM or FEP.
- ½" vertical drain connection.
- Product wetted surface finish mechanically polished to Ra ≤ 0.8 µm.
- Surface finish measurement with certificate (Ra ≤ 0.8 µm).
- Inducer (LKH-10 to -50).
- Adjustable pads.
- Motor for other voltage and/or frequency.
- Half speed motor.
- Motor with increased safety/flame proof motor.
- ATEX approved execution (LKHex).

## Ordering

Please state the following when ordering:

- Pump size.
- Connections.
- Impeller diameter.
- Motor size.
- Voltage and frequency.
- Flow, pressure and temperature.
- Density and viscosity of the product.
- Options.

**Note!** For further details, see Instruction Manual.

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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