

# Alfa Laval LKH Multistage

## Centrifugal pumps

### Introduction

The Alfa Laval LKH-110, LKH-110P and LKH-120P pumps are highly efficient multistage centrifugal pumps for use in hygienic applications. Precision-engineered and available with up to four stages, these LKH Multistage Pumps deliver high energy efficiency. Their optimized design, premium motor, tight tolerances and advanced impeller design minimize recirculation and reduce energy consumption.

### Applications

Available in two-, three or four-stage models, the LKH Multistage Pumps save space and energy by replacing up to three booster pumps in a line. Used primarily in high-pressure applications with low capacity, they withstand system pressures up to 40 bar and deliver differential pressures up to 19 bar at 50 Hz. Designed for Cleaning-in-Place (CIP), the pumps are suitable for, but not limited to, many types of filtration applications across the food, beverage, home-personal care, biotechnology and pharmaceutical industries.

### 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.
- High inlet pressure: designed for inlet pressures up to 40 bar and can therefore be used in the most demanding applications within filtration.
- High differential pressure: reduced need for serial pump installations saves space and energy.

### Standard design

All media contacting steel components like pump casing parts, impellers, 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.

As standard, the LKH multistage pump is equipped with an internal single mechanical shaft seal but is also available with a flushed shaft seal. The secondary seal of the flushed seal is a long-lasting lip seal. The front-loading shaft seal 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) and duplex steel
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, IP 55 (with drain hole with labyrinth plug), insulation class F. Standard motors with a fixed ball bearing on drive side are fitted to LKH-110 pumps whereas special motors with special bearings are required for LKH-110P and LKH-120P pumps.

### Motor sizes

50 Hz:	2.2-75 kW
60 Hz:	2.2-75 kW
60 Hz:	3-100 Hp

### Min./max. motor speed

2 poles: 2.2-75 kW:	900-3600 rpm
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### Warranty

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

## Operating Data

### Max. inlet pressure

(Temperature < 40 °C)

Pump size	Speed and shaft seal material								Motor	Backplate
	Max. 50 Hz				Max. 60 Hz					
	C/SiC		SiC/SiC		C/SiC		SiC/SiC			
	Max. inlet pressure									
	bar	psi	bar	psi	bar	psi	bar	psi		
LKH-112	10	145	10	145	10	145	10	145	Std.	Std.
LKH-113	10	145	10	145	10	145	10	145	Std.	Std.
LKH-114	10	145	10	145	10	145	10	145	Std.	Std.
LKH-112P	N/A	N/A	30	435	N/A	N/A	30	435	Special	Reinforced
LKH-113P	N/A	N/A	30	435	N/A	N/A	30	435	Special	Reinforced
LKH-114P	N/A	N/A	25	363	N/A	N/A	25	363	Special	Reinforced
LKH-122P	10	145	30	435	N/A	N/A	30	435	Special	Std.
LKH-123P	10	145	30	435	N/A	N/A	30	435	Special	Std.
LKH-124P	N/A	N/A	25	363	N/A	N/A	20	290	Special	Std.

(Temperature > 40 °C)

Pump size	Speed and shaft seal material								Motor	Backplate
	Max. 50 Hz				Max. 60 Hz					
	C/SiC		SiC/SiC		C/SiC		SiC/SiC			
	Max. inlet pressure									
	bar	psi	bar	psi	bar	psi	bar	psi		
LKH-112	10	145	10	145	10	145	10	145	Std.	Std.
LKH-113	10	145	10	145	10	145	10	145	Std.	Std.
LKH-114	10	145	10	145	10	145	10	145	Std.	Std.
LKH-112P	N/A	N/A	20	290	N/A	N/A	15	218	Special	Reinforced
LKH-113P	N/A	N/A	20	290	N/A	N/A	20	290	Special	Reinforced
LKH-114P	N/A	N/A	20	290	N/A	N/A	20	290	Special	Reinforced
LKH-122P	10	145	30	435	N/A	N/A	30	435	Special	Std.
LKH-123P	10	145	30	435	N/A	N/A	30	435	Special	Std.
LKH-124P	N/A	N/A	25	363	N/A	N/A	20	290	Special	Std.

### Temperature

Temperature range:	-10 °C to +140 °C / +14 °F to +284 °F (EPDM)
Flush media:	Max. 70 °C / 158 °F

**Flushed Shaft Seal**

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Water pressure inlet:	Max. 1 bar / 14.5 psi
Water consumption:	0.25-0.5 l/min / 4-8 USGPH

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**Connections for Flushed Shaft Seal**

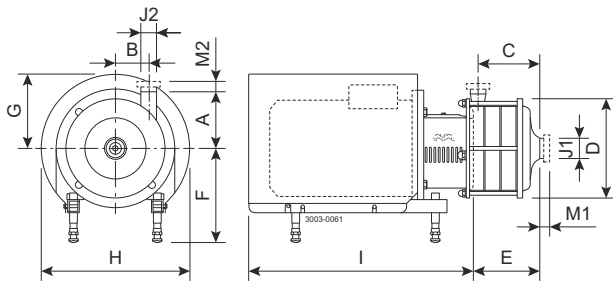
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LKH110/LKH120P:	1/8"
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## Dimensions

(mm)



### Pump specific measures

Pump Model	LKH-112	LKH-113	LKH-114	LKH-122	LKH-123	LKH-124
A	140	140	140	265	265	265
B	86	86	86	112	112	112
C	76	115	155	85	142	200
D	256	256	256	335	335	335
E	98	138	178	112	169	226

### Motor specific measures

Motor IEC	IEC90	IEC100	IEC112	IEC132	IEC160	IEC180	IEC200	IEC250
Motor kW	2.2	3.0	4.0	5.5/7.5	11/15/18.5	22	30/37/45	55/75
F(max) <sup>1</sup>	262	282	285	304	332	352	372	446
G	157	185	198	196	262	286	399	394
H	288	325	359	383	485	533	670	738
I	434	556	497	607	789	842	980	1051

<sup>1</sup> 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.

### Motor overview

Pump Model	LKH-112	LKH-113	LKH-114	LKH-122	LKH-123	LKH-124
Motor range (IEC)	IEC90-IEC132	IEC112-IEC160	IEC132-IEC180	IEC180-IEC200	IEC180-IEC250	IEC200-IEC250

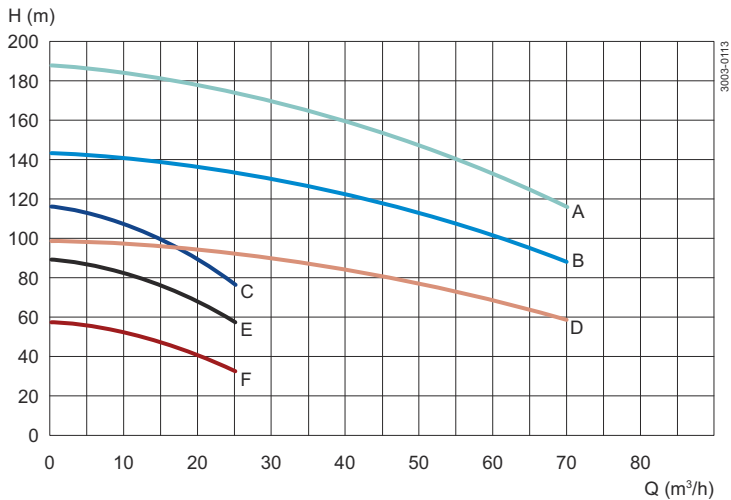
Dimensional data are based on 2 pole, ABB motors.

### Connections

Pump Model	LKH-112		LKH-113		LKH-114		LKH-122		LKH-123		LKH-124	
	M1	M2	M1	M2	M1	M2	M1	M2	M1	M2	M1	M2
Clamp ISO 2037			M1	21	M2	21						
Union ISO (IDF)			M1	21	M2	21						
Union DIN/ISO			M1	22	M2	22						
Union SMS			M1	20	M2	20						
Union (BS)RJT			M1	27	M2	27						
Union DS			M1	20	M2	20						
Union DIN/DIN			M1	22	M2	22						
Clamp ASME BPE			M1	-	M2	-						
Heavy duty clamp			M1		M2		29		29			
Flange acc. to EN1092			M1		M2		-		56			
J1 <sup>1</sup>				51 / 2"			51 / 2"		76.5 / 3"			
J2 <sup>1</sup>				38 / 1.5"			38 / 1.5"		63.8 / 2.5"			

<sup>1</sup> Other dimensions available on request.

## Flow chart



A = LKH-124P      D = LKH-122P  
 B = LKH-123P      E = LKH-113 -113P  
 C = LKH-114 -114P      F = LKH-112 -112P

Frequency: 50Hz - Speed (synchr): 3000 rpm

## Options

- Impeller with reduced diameter.
- Flushed shaft seal.
- Rotating seal face of Silicon Carbide.
- Product wetted elastomers NBR or FPM (FPM only with LKH-110).
- Adjustable pads.

## Ordering

Please state the following when ordering:

If the inlet pressure is higher than 10 bar it is necessary to order a special version with a modified motor and a stronger backplate:

For exact specification, please use the Anytime Configurator.

Use the following designation:

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

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