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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:	Acid-resistant steel, AISI 316L and AISI 329L
Other steel parts:	Stainless steel, AISI 304
Product wetted seals:	EPDM
Other O-rings:	EPDM.
Finish:	Polished $\leq 32Ra$ and 3A approved.

Motor

Standard C-Face, foot mounted motor according to NEMA standard at 3500. Premium efficiency, insulation Class F. High Thrust Bearings Required.	
Hp	Horsepower requirements based on flow curves.
Voltage and frequency	3 phase, 60 Hz, 230-460v standard. Other voltages and frequencies available upon request.

Connections for FSS:

6mm tube/Rp 1/8"

OPERATING DATA

Max. outlet pressure, LKHM-110/P, LKHM-120/P:

Limited by the strength of the pump casing:	580 PSI (40 bar) temperature < 104° F.
Limited by the strength of the pump casing:	290 PSI (20 bar) temperature > 104° F.

Temperature range:	14°F to +284 °F (EPDM).
Water pressure:	Normally atmospheric, max. 15 PSI (flushed seal).
Water consumption:	0.066 -0.13 US GPM (flushed seal).
Noise level (at 3.3 ft):	60-80 dB (A).

Max inlet pressure

(Temperature < 40°C)

Pump size	Speed and shaft seal material								Motor	Backplate
	Max 50Hz				Max 60Hz					
	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.

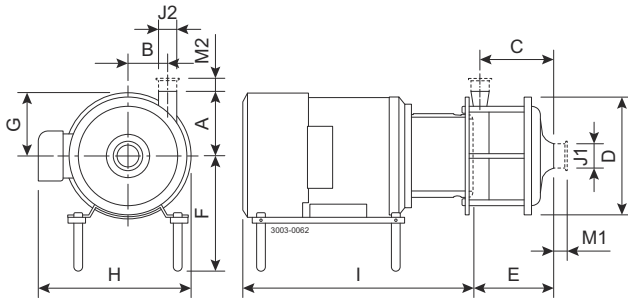
(Temperature > 40°C)

Pump size	Speed and shaft seal material								Motor	Backplate
	Max 50Hz				Max 60Hz					
	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

Pump size	Speed and shaft seal material								Motor	Backplate
	Max 50Hz				Max 60Hz					
	C/SiC		SiC/SiC		C/SiC		SiC/SiC			
	Max inlet pressure									
bar	psi	bar	psi	bar	psi	bar	psi			
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.

Dimensions

(inches)



Pump specific measures

Pump Model	LKH-112/LKH-112P	LKH-113/LKH113P	LKH-114/LKH-114P	LKH-122	LKH-123	LKH-124
A	5.512	5.512	5.512	10.433	10.433	10.433
B	3.386	3.386	3.386	4.409	4.409	4.409
C	2.992	4.528	6.102	3.346	5.591	7.874
D	10.079	10.079	10.079	13.189	13.189	13.189
E	3.898	5.433	7.008	4.409	6.654	8.898

Motor specific measures

Motor TC/TSC	213TC	215TC	254TC	256TC	284TSC	286TSC	324TSC	326TSC	364TSC	365TSC	405TSC
Motor HP	7.5	10.0	15.0	20.0	25.0	30.0	40.0	50.0	60.0	75.0	100.0
F(max) ¹	9.843	9.843	10.866	10.866	11.614	11.614	12.598	12.598	13.622	13.622	13.622
G	5.394	5.394	6.772	6.772	7.677	7.677	8.425	8.504	9.331	9.331	9.331
H	13.071	13.071	17.795	17.795	20.945	20.945	23.346	23.346	26.811	26.811	26.811
I	21.024	21.024	26.063	27.835	28.583	30.039	33.071	34.646	34.449	38.346	38.346

¹ Possible to reduce dimension F by min. 2.32 inch 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)	213TC-284TSC	213TC-284TSC	213TC-284TSC	324TSC-364TSC	324TSC-405TSC	324TSC-405TSC

Dimensional data are based on 2 pole, Sterling motors.

Connections

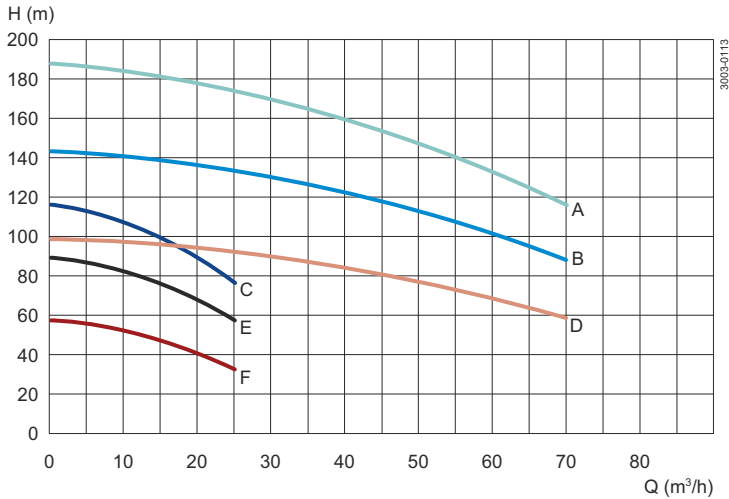
Pump Model	LKH-112	LKH-113	LKH-114	LKH-122	LKH-123	LKH-124
Tri-Clamp	M1	0.827	-	-	-	-
	M2	0.827	-	-	-	-
Heavy duty clamp	M1	-	-	1.14	-	-
	M2	-	-	1.14	-	-
Flange acc. To EN1092	M1	-	-	2.21	-	-

¹ Other dimensions available on request.

Pump Model	LKH-112		LKH-122	
	LKH-113	LKH-114	LKH-123	LKH-124
	M2		-	2.21
J1 ¹			2"	3"
J2 ¹			1.5"	2.5"

¹ 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

- Motor with increased safety/flame proof motor. (only LKH-110)
- Flushed shaft seal.
- Impeller with reduced diameter.
- Product wetted seals of Buna (NBR), or Fluorinated rubber (FPM).
- Rotating seal ring of Silicon Carbide.
- Surface roughness, product wetted parts: unpolished, 32Ra, micro inches (0.8 mm), or higher finishes.

Ordering

Please state the following when ordering:

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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