

Alfa Laval LKH Evap

Centrifugal pumps

Introduction

The Alfa Laval LKH Evap Centrifugal Pump is a premium pump for use in hygienic applications. As a low-NPSHr, high-efficiency centrifugal pump, the LKH Evap is a tailored evaporator pump supported by strong and extensive documentation, including a comprehensive vacuum curve package. It features a special scraper impeller, ClearFlow, that solves the product buildup problem in high solids applications, which can prolong production time between cleaning.

Precision-engineered, the LKH Evap 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.

Applications

The LKH Evap Centrifugal Pump is designed for hygienic applications across the dairy, food, beverage, brewery, alcohol, ethanol, starch and chemical industries. It is ideal for use in evaporation duties for applications, such as liquid concentration and powder processing as well as plant and equipment dewatering.

The LKH Evap pump is available in 10 sizes to handle capacities up to 280 m³/h 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 and effective Cleaning-in-Place.
- Low NPSHr: reduced NPSHr enables optimized system designs.
- 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 Evap 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.

LKH Evap is available with the Clear Flow Impeller which is to be used in applications where there is a risk of building up a hard layer of product between impeller and backplate.

TECHNICAL DATA

Materials

Product wetted steel parts:	Acid-resistant steel AISI 316L and AISI 329
Other steel parts:	Stainless steel AISI 304.
Finish:	Polished $\leq 32Ra.$ and 3A approved.
Product wetted seals:	EPDM.
Optional:	NBR, FPM, FEP.
Single seal SSS/Flushed shaft seal FSS:	SiC/C or SiC/SiC.
Double seal DMSS:	SiC/C or SiC/SiC.

Motor

Standard C-faced, foot mounted motor according to NEMA standard. 3500 RPM or 1750 RPM. efficiency, Class F. Note different frame sizes.
LKH Evap-75 only low speed (1750 RPM).

Voltage and frequency

3 phase, 60 HZ, 230/460V standard. Other voltages and frequencies available upon request.

Connections for FSS and DMSS:

1/4 tube/Rp 1/8

OPERATING DATA

Max. inlet pressure

LKH Evap-10 to -60	145 PSI
LKH Evap-70 to -75	72.5 PSI

Temperature

Temperature range	14°F to +284°F (EPDM)
-------------------	-----------------------

Flushed shaft seal:

Water pressure inlet:	Max. 14.5 PSI
Water consumption:	4-8 usgph

Double mechanical shaft seal:

LKH Evap-5 to -60:	Max. 72.5 PSI
LKH Evap-70 to -75:	Max. 43.5 PSI

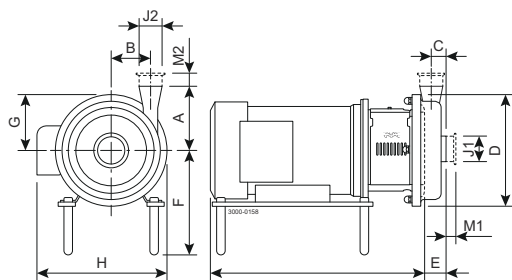
Noise level

Noise level (at 3.3 ft.):	60 - 85 dB (A)
---------------------------	----------------

Water consumption:

Water consumption:	4 - 8 usgph
--------------------	-------------

Dimensions



Pump specific measures (inch)

Pump Model	LKHevap-1 0	LKHevap-1 5	LKHevap-2 0	LKHevap-25	LKHevap-35	LKHevap-40	LKHevap-45	LKHevap-50	LKHevap-60	LKHevap-70	LKHevap-75
A	5.591	6.535	7.087	7.598	7.598	8.346	8.346	8.071	10.276	10.000	10.197
B	3.425	2.598	3.465	4.173	4.685	4.961	4.961	4.646	4.016	5.787	6.929
C	0.906	1.693	1.063	1.260	0.906	1.102	1.102	1.378	2.441	0.984	1.890
D	9.724	9.724	9.961	11.929	11.929	12.953	12.953	12.953	12.953	16.063	18.425
E	2.008	3.425	2.480	2.717	2.126	2.520	2.520	3.031	4.173	2.992	3.622

Motor specific measures (inch)

Motor TC/TSC	143TC	145TC	182TC	184TC	213TC	215TC	254TC	256TC	284TSC	286TSC	324TSC	326TSC	364TSC	365TSC
Motor HP	1.0-1.5	2.0	3.0	5.0	7.5	10.0	15.0	20.0	25.0	30.0	40.0	50.0	60.0	75.0
F(max) ¹	8.110	8.110	9.094	9.094	9.843	9.843	10.866	10.866	11.614	11.614	12.598	12.598	13.622	13.622
G	3.504	3.543	4.488	4.488	5.394	5.394	6.772	6.772	7.677	7.677	8.425	8.504	9.331	9.331
H	9.094	9.094	11.102	11.102	13.071	13.071	17.795	17.795	20.945	20.945	23.346	23.346	26.811	26.811
I (LKHevap-10 to LKHevap-60)	14.843	15.118	17.992	18.150	21.024	21.024	26.063	27.835	28.583	30.039	33.071	34.646	34.449	-
I (LKHevap-70 to LKHevap-75)	-	-	-	-	21.811	21.811	26.575	28.346	29.094	30.551	33.583	35.157	34.961	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	LKHevap-10	LKHevap-1 5	LKHevap-2 0	LKHevap-2 5	LKHevap-3 5	LKHevap-40	LKHevap-4 5	LKHevap-50	LKHevap-6 0	LKHevap-70	LKHevap-75
Motor range (TC/TSC)	143TC-254TC	145TC-254TC	145TC-256TC	145TC-286TC	182TC-286TC	182TC-286TC	182TC-286TC	182TC-324TC	213TC-326TC	254TC-326TC	254TC-326TC



Note! Dimensional data are based on 2 pole. Sterling motors.

Connections (inch)

Pump Model	LKHevap-10 LKHevap-20 LKHevap-35	LKHevap-15 LKHevap-45 LKHevap-50 LKHevap-70	LKHevap-15 LKHevap-45 LKHevap-50	LKHevap-25	LKHevap-40	LKHevap-60	LKHevap-60 LKHevap-75
Tri-Clamp	M1	1.13	1.13	1.13	1.13	1.13	1.13
	M2	1.13	1.13	1.13	1.13	1.13	1.13
J1 ¹		2.5"	4.00"	3.00"	3.00"	3.00"	3.00"
J2 ¹		2.00"	3.00"	3.00"	2.00"	2.00"	4.00"

¹ Other dimensions available on request.

Options

- Impeller with reduced diameter.
- Motor for other voltage and/or frequency.
- Motor enclosures: washdown, TEFC, explosion proof, inverter duty and others upon request.
- Inducer (only LKH Evap 10 to -50).

- Flushed shaft seal.
- Double mechanical shaft seal.
- Counter connections.
- Clear Flow Impeller. Special designed impeller for applications where there is a risk of building up a hard layer of product between impeller and backplate.
- Surface roughness, product wetted parts: $R_a \leq 32 \mu\text{m}$.
- Product wetted seals of Nitrile (NBR), Fluorinated rubber (FPM) or FEP.
- Rotating seal ring of Silicon Carbide.

Ordering

Please state the following when ordering:

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



Note! For further details, see also instruction manual.

This document and its contents are subject to copyrights and other intellectual property rights owned by Alfa Laval Corporate AB. No part of this document may be copied, re-produced or transmitted in any form or by any means, or for any purpose, without Alfa Laval Corporate AB's prior express written permission. Information and services provided in this document are made as a benefit and service to the user, and no representations or warranties are made about the accuracy or suitability of this information and these services for any purpose. All rights are reserved.

200006078-1-EN-US

© Alfa Laval Corporate AB

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