Alfa Laval MR

Centrifugal pumps

Introduction

The Alfa Laval MR is a well proven liquid-ring pump specifically developed for effective pumping of liquids with entrained air. The construction of the MR makes it perfectly suited for use as a return pump in CIP systems.

Applications

The Alfa Laval MR pump is specifically designed for pumping liquids that contain air or gas and is most commonly used for CIP return applications across the food, dairy, beverage and pharmaceutical industries.

The MR pump is available in three sizes to handle capacities up to 80 m^3/h and differential pressures up to 5 bar at 50Hz.

Benefits

- Ideal for CIP return applications: well-proven design suited to handle liquids with entrained air.
- Easy to operate: excellent suction capability ensures limited impact on performance from changing fluid characteristics.
- Long service life: heavy-duty design used in CIP systems for decades.

Standard design

The MR Liquid-Ring Pump consists of pump casing, casing cover and impeller made of acid-resistant, duplex-grade steel; EPDM, FPM or NBR elastomers; stainless steel cap nuts, legs, leg brackets, and adapter; and, stainless steel shroud with noise-absorbing interior lining protecting the motor. All models have an external mechanical single seal.

Working principle

The Alfa Laval MR Pump uses the principles of centrifugal force to operate. However, instead of directing fluid into a ring- or volute-type casing around the periphery, the MR Liquid-Ring Pumps transfer the fluid into channels on either side of the impeller, in the front plate and back plate of the pump.

These side channels increase in volume as the impeller passes the suction port, creating a vacuum and drawing in the liquid. This volume is then automatically reduced at the discharge port, creating pressure and forcing the liquid out, thereby providing the pumping action.



A proportion of the centrifuged liquid is retained around the periphery and re-circulates, forming a liquid ring that is used to maintain the prime.

Technical Data

Motor

Standard foot-flanged motor acc. to IEC metric standard 4 pol = 1500/1800 rpm. at 50/60 Hz. IP55 (with drain holes with labyrinth plug), insulation class F.

Motor sizes	50 Hz	60 Hz
MR-185S:	5.5, 7.5 kW	4.5, 7.5 kW
MR-200S:	5.5, 7.5, 11 kW	7.5, 11 kW

50Hz, 230VD/400-415VY; 60Hz, 440-460VY. For other voltages, please refer to Anytime Configurator.

Operating Data

Pressure

Max. inlet pressure:	400 kPa / 4 bar / 58 psi

Temperature

Temperature range:	-10 °C to +140 °C (EPDM)

Motor speed

Max. speed	1800 rpm

Dimensions (mm)

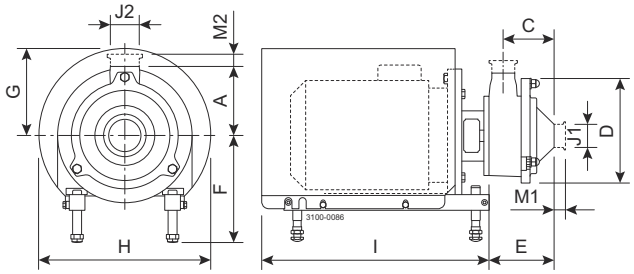


Figure 1. MR-185S/-200S

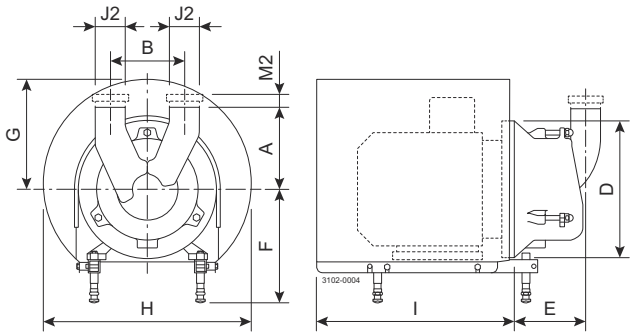


Figure 2. MR-300

Pump specific measures

Pump Model	MR-185S/200S	MR-300
A	154	205
B	-	190
C	140	-
D	260	350
E	173	198

Motor specific measures

Motor IEC	IEC132	IEC160	IEC180
Motor kW	**5.5/7.5**	**11/15**	**18.5/22**
F(max) [1]	304	332	352
G	196	262	286
H	383	485	533
I	533	749	674

[1] 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	MR-185S/200S	MR-300
Motor range (IEC)	IEC132 - IEC160	IEC160 - IEC180

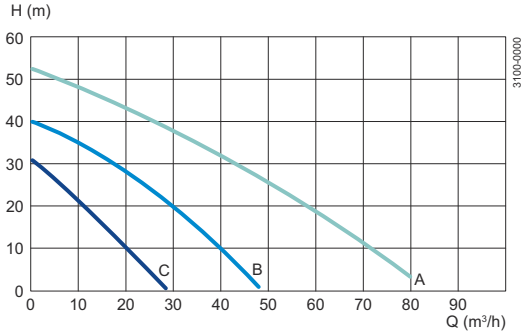
Note! Dimensional data are based on 4 pole, ABB motors.

Connections

Pump Model		MR-185S/200S	MR-300
Clamp ISO 2037	M1	21	-
	M2	12	21
Union ISO(IDF)	M1	21	-
	M2	21	21
Union DIN/ISO	M1	22	-
	M2	32	30
Union SMS	M1	24	-
	M2	24	24
Union (BS)RJT	M1	22	-
	M2	22	22
J1 [1]		76.1 / 3"	76.1 / 3"
J2 [1]		76.1 / 3"	76.1 / 3"

[1] Other dimensions available on request.

Volumetric flow MR-185S, -200S and -300



A = MR-300
B = MR-200S
C = MR-185S

Options

- Other voltage and frequency.
- Pump without shroud and legs.
- Pump without shroud.
- Noise reduction valve.
- Product wetted seals of NBR or FPM.
- Stationary seal ring with sealing surface of Silicon Carbide and rotating seal ring of Silicon Carbide (MR-185S and MR-200S only).

Ordering

Please state the following when ordering:

- Pump type.
- Voltage and frequency.
- Connections.

- Flow rate, pressure and temperature.
- Density and viscosity of product.
- Options.

Note! For further information, see also instruction ESE00675 and ESE02051.

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