

Inline-Propeller-Pump with reversible flow and integrated drive

ALLTRIMM®



Utilisation and main fields of application

For handling fresh and sea water in anti-heeling systems in marine engineering.

Other applications upon request.

Design and operating mode

Compact and space-saving propeller pump in inline design with reversible flow and integrated drive. Thereby the need for extensive installation of valve controls is eliminated. The electric motor is integrated in the pump hub. The pumped liquid flows through the motor casing ensuring automatically optimal cooling.

Optimal pump capacity because of single- and two-stage designs having the same installation dimensions.

Change of pumping direction is achieved through reverse rotation of motor. Low mass moment of inertia allow very short starting times. It is highly recommended to use a soft starter with a start phase of 5 – 10 seconds at a flap opening angle of 20% -30%.

High safety thanks to the shaft sealing with 3 shaft seal rings per stage.

Through use of an intelligent electronic leakage monitoring system, the motor is protected from moisture.

Delivery as a complete pump set with integrated drive.

Installation and mounting

The compact pump/motor assembly is mounted in the pipe among two flanges, eliminating the need for a foundation. ALLTRIMM is easy to install and requires minimal space. Feet optional.

Performance data and operation limits

Flow	Q	up to	1,400	m ³ /h
Delivery head	H	up to 10 ^①	up to	20 m ^②
Working pressure	p	up to	2.5	bar
Temperature of the liquid pumped	t	up to	40	°C
Pumping direction	reversible			
Drive power	P	37	up to	70 kW ^③
	P	37	up to	80.5 kW ^④
Speed	n		up to	1,780 1/min ^④
Pump weight	m	440	up to	570 kg ^⑤

① single-stage design

② two-stage design

③ grid frequency 50 Hz

④ grid frequency 60 Hz

⑤ depending on design

Flanges

Flanges acc. to DIN EN 1092-2 PN10

Shaft sealing UOA

Sealing with 3 radial shaft seal rings:

- 1 shaft seal ring NBR
- 2 shaft seal rings PTFE

Shaft sleeve coated with chromium oxide.

Leakage outlet with control sensor.

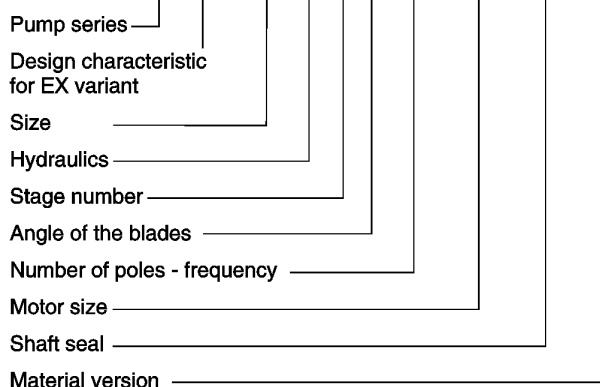
Bearing and lubrication

Permanently lubricated antifriction bearings:

- 1 groove ball bearing
- 1 4-point bearing

Model code

ALLTRIMM EICP ExIIC 300/512 1 8 4-60 225M UOA W160



Drive

Three-phase squirrel-cage motor integrated in the pump hub and cooled by the liquid to be pumped; class F insulation, degree of protection IP 56 and IP66 in ex-protected version, motor sizes 225 S/M/M-HO.

Materials

Denomination	Material design
	W160
Casing	CC 333G (2.0975)
Impeller	CC 333G (2.0975)
Shaft	1.7139

This model code is entered on the nameplate.

Nominal speed 1,450 1/min

	1-stage					2-stage				
	8	12	16	20	24	8	12	16	20	24
Blade angle [°]	8	12	16	20	24	8	12	16	20	24
Max. power absorbed [kW]	13	19	26	31	35	25	36	45	57	67
Motor	225 S	225 S	225 S	225 S	225 S	225 S	225 S	225 M	225 M HO	225 M HO
Rated power (50 Hz) [kW]	37	37	37	37	37	37	37	45	70	70

Nominal speed 1,750 1/min

	1-stage					2-stage				
	8	12	16	20	24	8	12	16	20	24
Blade angle [°]	8	12	16	20	24	8	12	16	20	24
Max. power absorbed [kW]	23	32	42	49	59	43	60	74	80	80
Motor	225 S	225 S	225 S	225 M	225 M	225 S	225 M HO	225 M HO	225 M HO	225 M HO
Rated power (60 Hz) [kW]	42,5	42,5	42,5	52	52	42,5	52	80,5	80,5	80,5

Motor data

size	poles	Type-No.	fre-	voltage	conn-	Speed	rated	efficiency	power	rated	starting
			quency					4/4 load	factor		
			Hz	Ⓛ V		1/min	kW	%	cos φ	A	A
225S	4	1PK8501-2BB03-3FZ0-Z	50	400	Δ	1470	37	92,7	0,88	69	455
			60	440		1770	42,5	93,6	0,88	68	449
225M	4	1PK8501-2BB23-3FZ0-Z	50	400	Δ	1475	45	93,1	0,87	85	587
			60	440		1775	52	94,1	0,87	84	571
225M-HO	4	1PK8501-2BB63-3FZ0-Z	50	400	Δ	1475	70	94,2	0,84	138	626
			60	440		1775	80,5	94,1	0,85	133	825

Ⓛ others available up on request

All Motors with Anticondensation heating (230 V) und Resistance thermometers (3xPT100).

Clever design

The motor shaft simultaneously serves as the pump shaft, reducing the number of rotating parts and eliminating the costly gear box and couplings

Optimal

Integrated driving concept built from standardised motor parts; cooling with the liquid to be pumped (no fan necessary)

Efficient

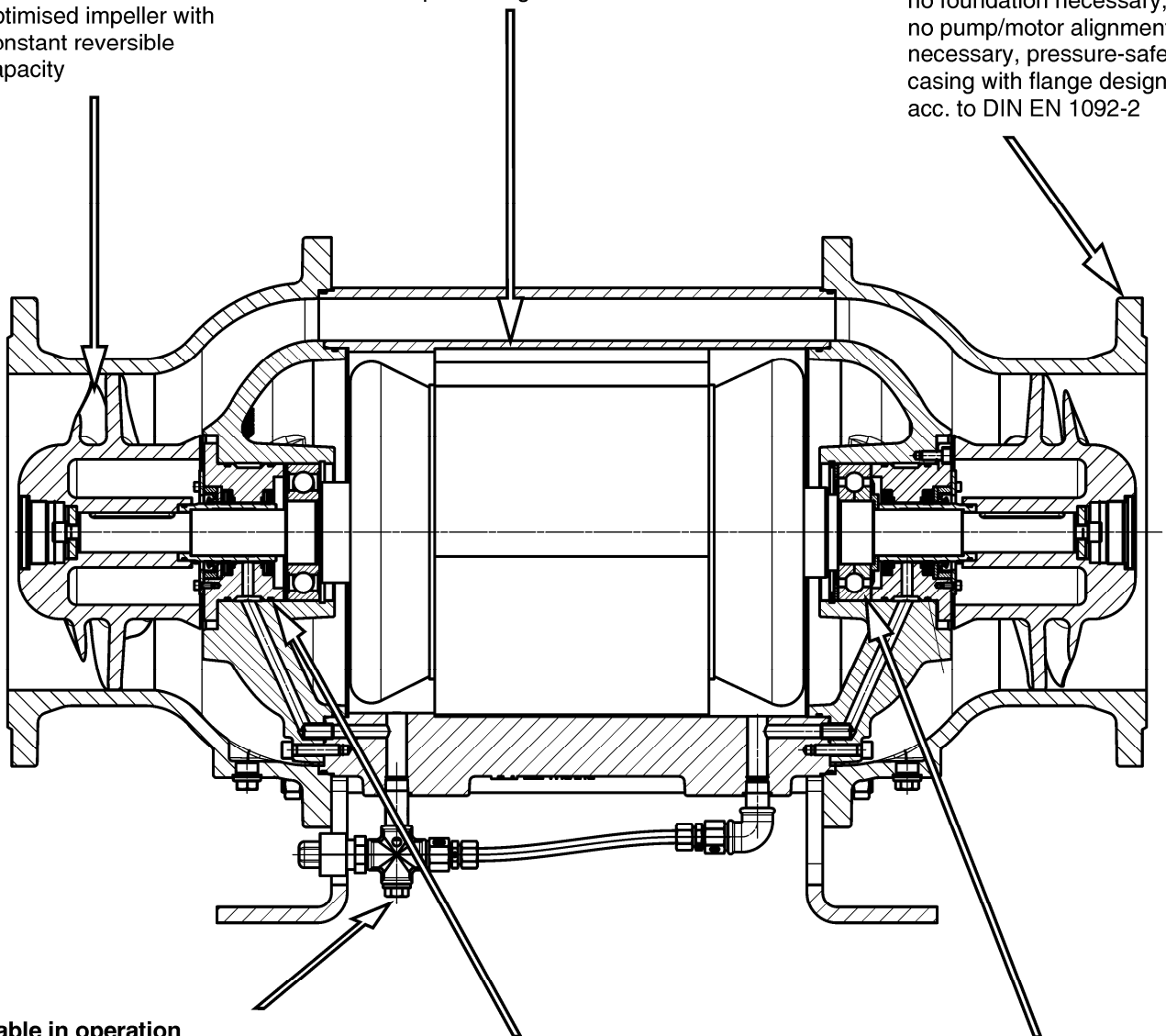
Pressure and NPSH optimised impeller with constant reversible capacity

Rapid reactions

Low mass moment of inertia keeps starting times short

Rapid

Simple installation, no foundation necessary, no pump/motor alignment necessary, pressure-safe casing with flange design acc. to DIN EN 1092-2



Reliable in operation

Electronic leakage monitoring system protects against unplanned downtime, extending Mean Time Between Failure (MTBF) and enabling the operator to plan ahead for maintenance

Reliable

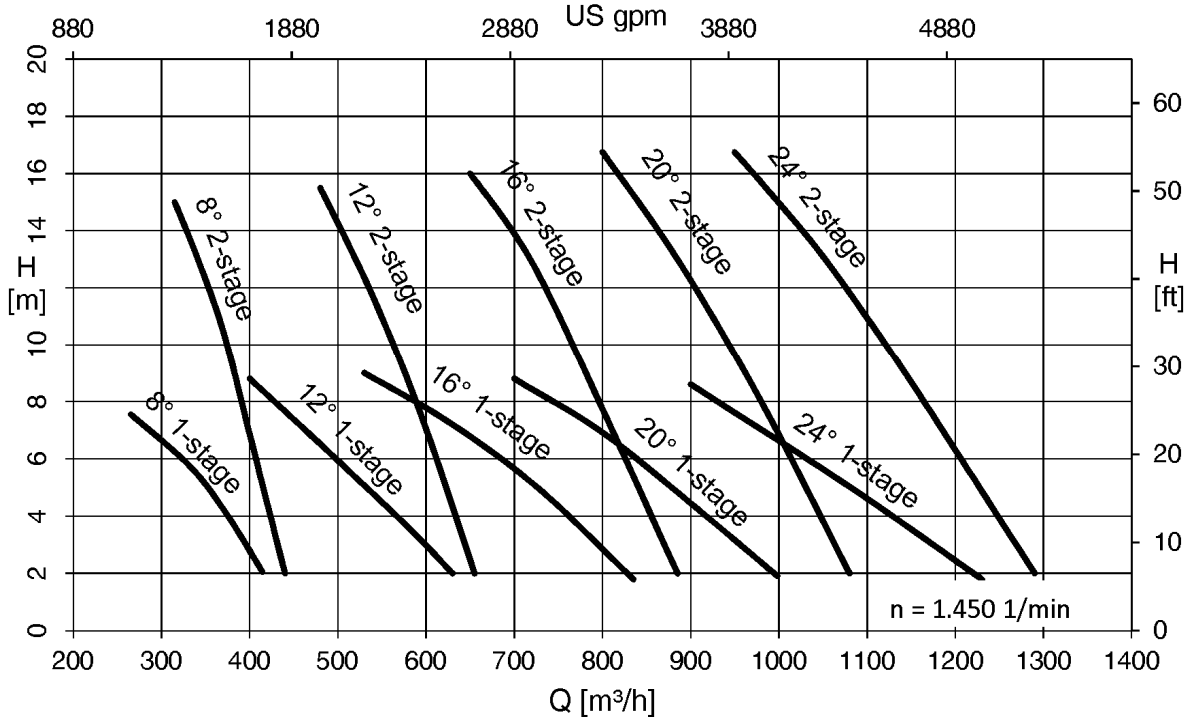
Robust sealing concept due to combination of NBR- and PTFE-shaft seal rings and coated shaft sleeves for long service life

Low maintenance

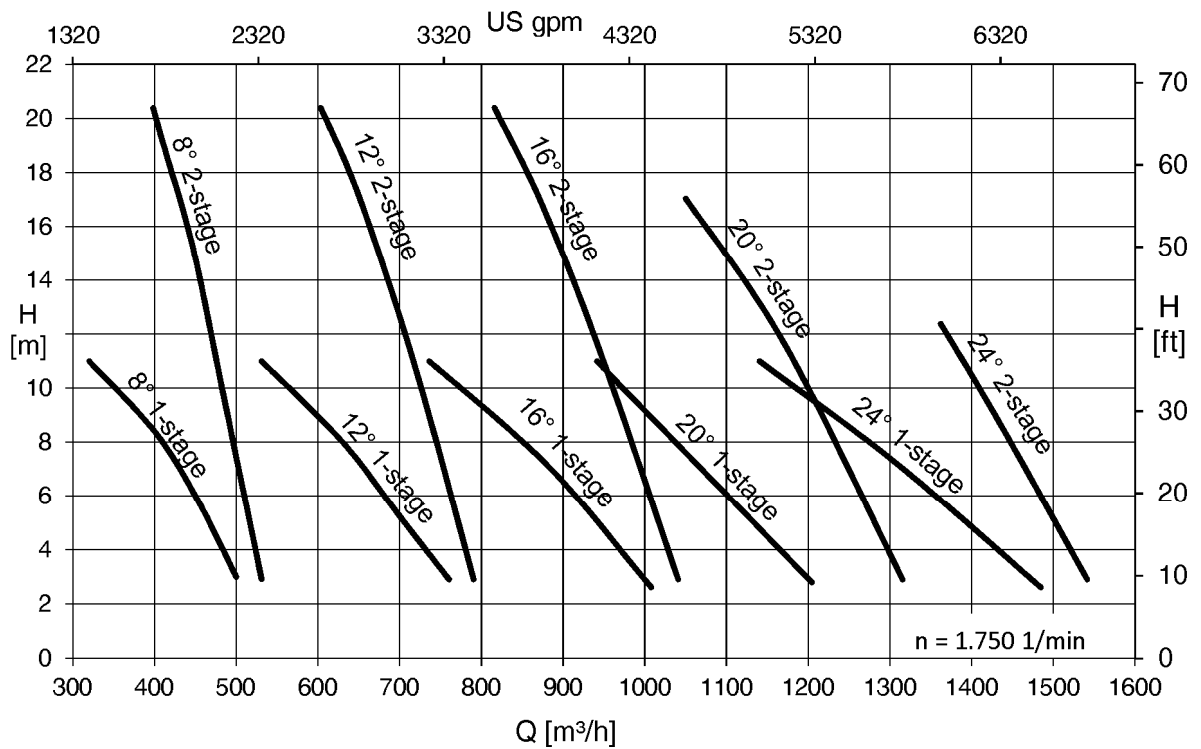
Robust bearing arrangement with lifetime lubrication

Performance graphs

n = 1,450 1/min
50 Hz



n = 1,750 1/min
60 Hz



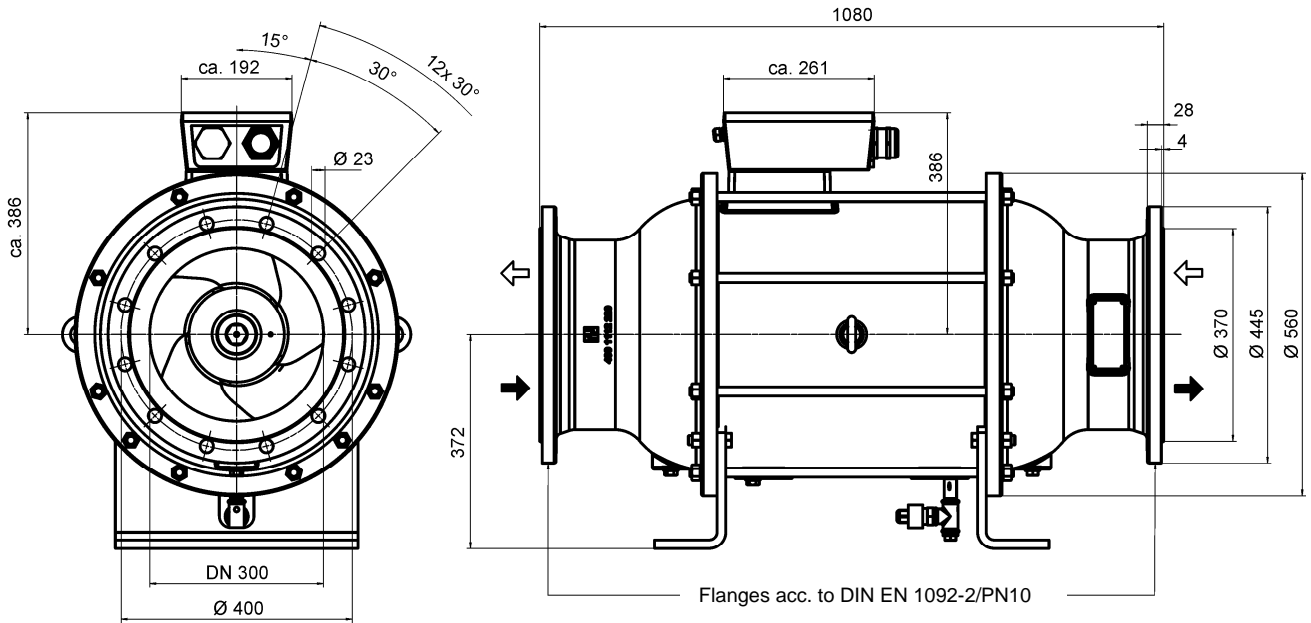
Valid for $\rho = 1 \text{ kg/dm}^3$ and $\nu = 1 \text{ mm}^2/\text{s}$.

Exact performance data to be taken from the individual curves and the selection programme SPAIX.

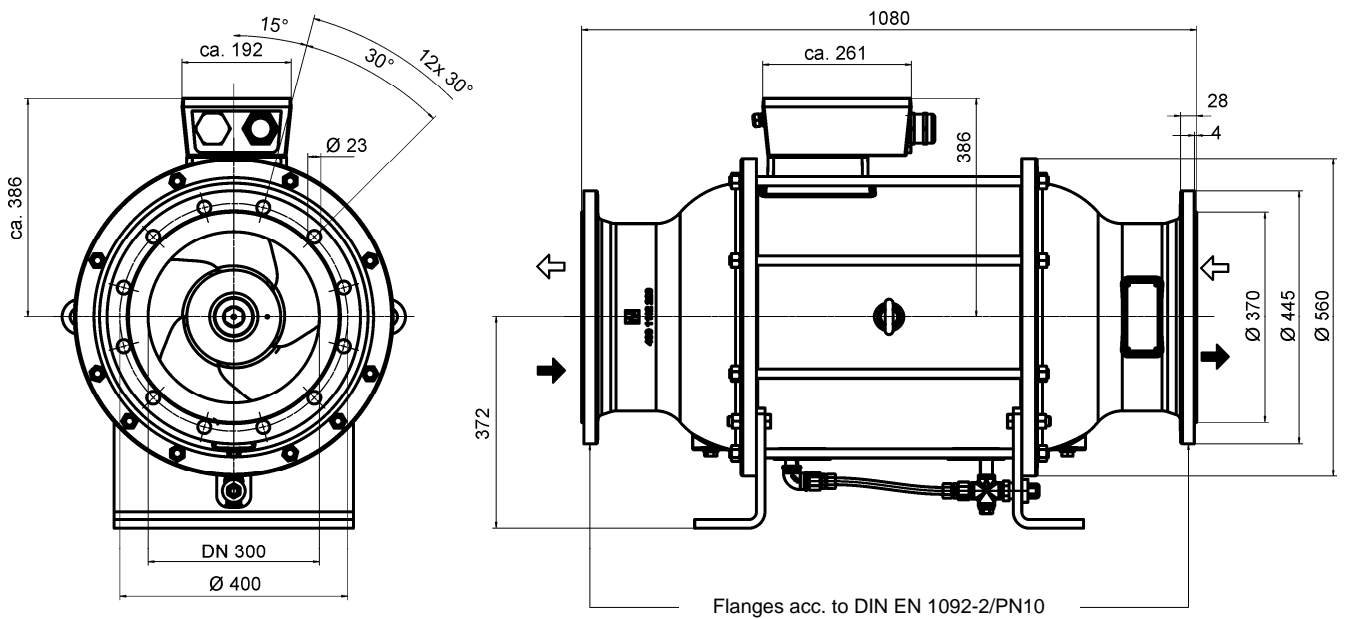
In single-stage design with FU operation up to 1950 1/min admissible.

Main dimensions standard

One-stage design

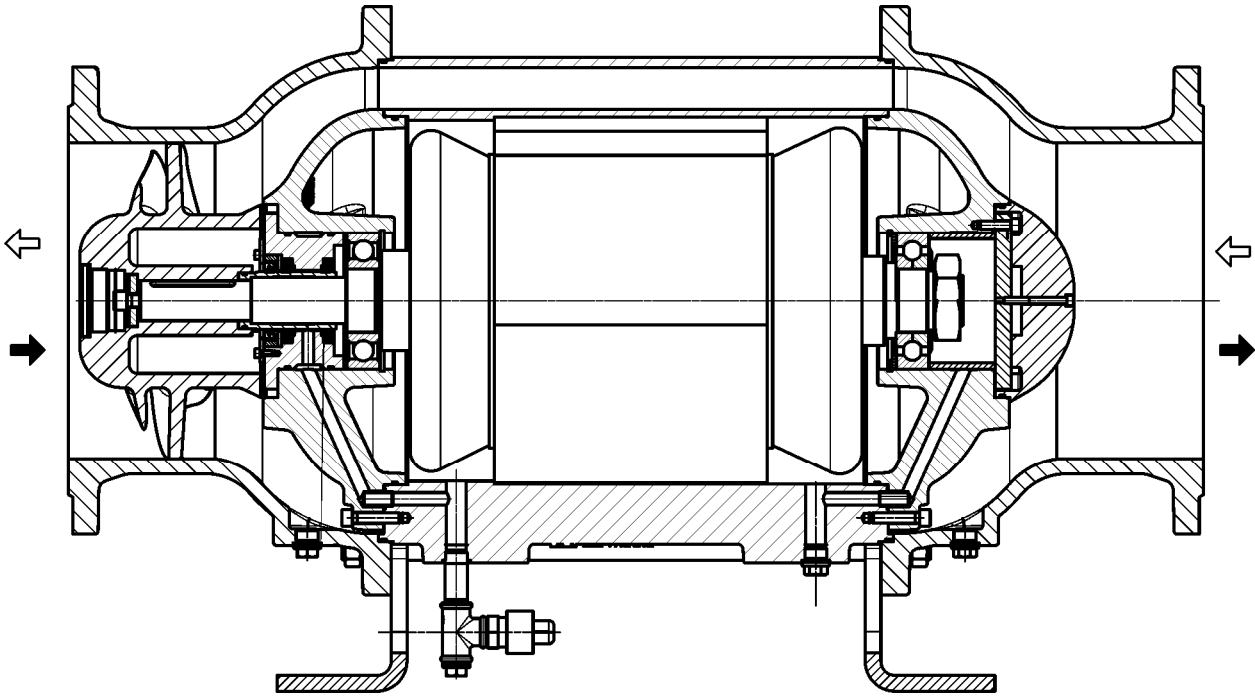


Two-stage design

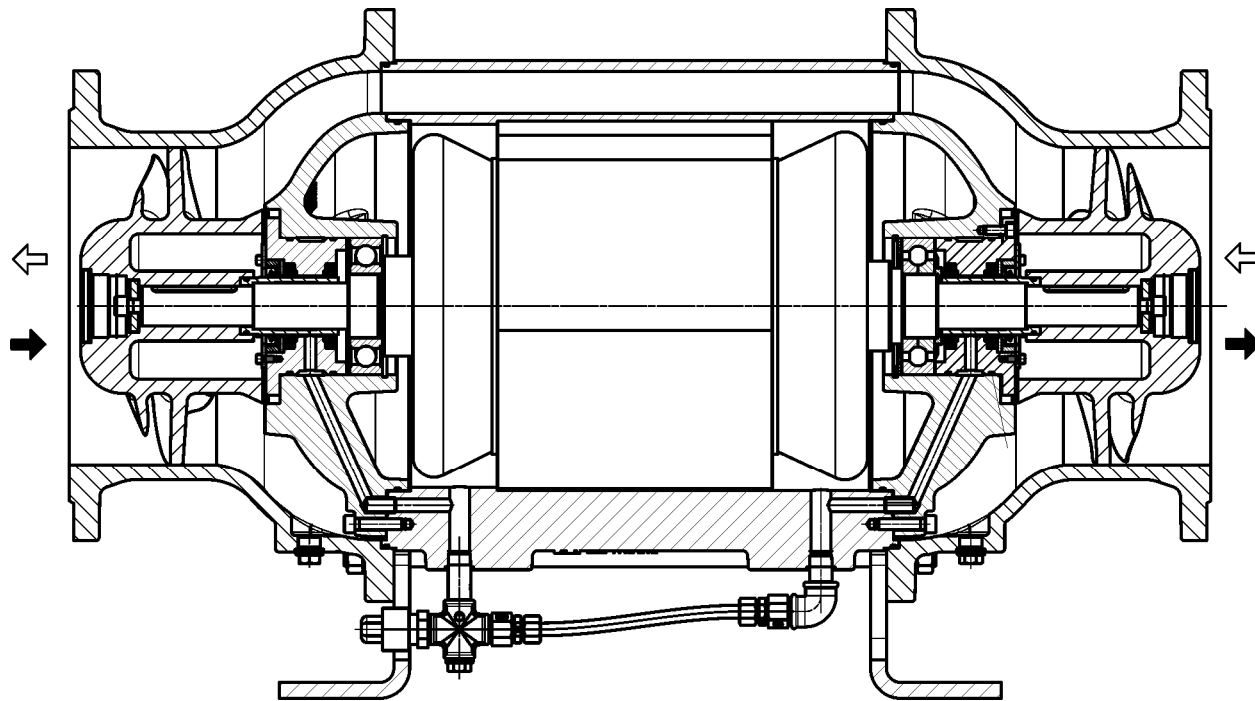


Exact Installation dimensions are available in ALLWEILER drawing archive ALL2CAD.

Sectional drawing
One-stage design



Two-stage design



Successful in important branches

Decades of experience and branch-specific know-how ensure solutions that are practical and dependable. In addition to individual units with a motor or with a free shaft end, you can get complete systems and customer-specific cast parts from ALLWEILER GmbH. You are not just investing in machines with ALLWEILER GmbH. You are also profiting from decades of know-how about applications and processes in your branch.

You will find pumps and systems by ALLWEILER GmbH in the following sectors:

- ▶ **Marine and Offshore**
Made of particularly corrosion-resistant, saltwater-proof materials and in accordance with specific standards (shock testing, national marine, international classifications etc.).
- ▶ **Power Generation**
Block and twin units for fuel and water injection in gas and steam turbines.
For fuel supply, injection and lubricating oil supply in power plants.
- ▶ **Water and Wastewater**
Pumps for water treatment (dry substance up to 45 %), macerators, which make it possible to pump liquids that are high in fibre and solids.
- ▶ **Bioenergy**
Materials resistant to aggressive intermediate and final products. Pumps for every step in the process.
- ▶ **Process Engineering and Chemical Industry (ATEX-conformity)**
Shaft bearing, shaft seal and material designs in accordance with the chemical characteristics of the pumped liquid. Magnetic coupling for hermetically sealed pumps.
- ▶ **Oil and Gas**
Pumps with a wide viscosity range, high pressure and large capacity.
- ▶ **Building Industry**
Special units for oil furnace and lift systems. Oil submersible pumps for all types of hydraulic machines.
- ▶ **Food and Pharmaceutical**
Stainless steel pumps with CIP and SIP design, EHEDG and FDA certified. Especially for the careful pumping and dosing of even sticky, pasty and solids-rich liquids.
- ▶ **Machine Tool**
Designed for large capacity or a high discharge pressure; resistant to contaminants and foreign matters. Especially for cooling lubricant supply.
- ▶ **Pulp and Paper**
Pumps with extremely high availability (24 hours; 365 days) and many sizes, starting with small dosing pumps and ranging to large kaolin feeding pumps.
- ▶ **Heat Transfer**
In supply circuits, circulating systems and heating circuits for pumping of hot water and heat transfer oil up to 207 °C and 400 °C.

ALLWEILER delivery range

Centrifugal Pumps

- ▶ **Features**
Pump capacities acc. to DIN EN 733 or DIN EN ISO 2 858. Additional sizes enlarge the EN-performance range. Series construction acc. to the modular system. Single-stage or multistage pumps in block- or inline-design; pumps with magnetic coupling, pumps for heat transfer oil and hot water.
- ▶ **Pumped liquids**
Neutral or aggressive, pure, with solids content or contaminated, cold or hot, toxic or harmful to the environment.
- ▶ **Performance data**
Q up to 2,400 m³/h, H up to 250 m

Progressing Cavity Pumps

- ▶ **Features**
Single-stage or multistage, self-priming. The pumping is continuous, nearly without pulsation and without turbulences, crushing or demixing.
- ▶ **Pumped liquids**
For pumping and dosing liquids of low to high viscosity; pasty, neutral or aggressive, pure or abrasive, gaseous or tending to froth, also with fibrous and solids content.
- ▶ **Performance data**
Q up to 7,500 l/min, p_d up to 36 bar

ALLWEILER delivery range

Propeller Pumps

►Features

For large flows at relatively small delivery heads. Horizontal, vertical, submerged and elbow casing pumps.

►Pumped liquids

Neutral or aggressive, pure or contaminated, cold or hot.

►Performance data

Q up to 35,000 m³/h, H up to 20 m

Self-Priming Side Channel Pumps

►Features

Self-priming side channel segmental-type pumps.

►Pumped liquids

Neutral or aggressive, pure or contaminated, cold or hot, toxic, harmful to the environment.

►Performance data

Q up to 20 m³/h, H up to 350 m

Three-Screw Pumps

►Features

Three-screw, self-priming, very good efficiencies, very low noise level. The pumping process is continuous, nearly without pulsation and without turbulences. Self-priming, for horizontal and vertical installation, submerged pumps and pumps with magnetic drive.

►Pumped liquids

Oils or other lubricating, not lubricating or sparsely lubricating liquids.

►Performance data

Q up to 7,500 l/min, p_d up to 280 bar

Two-Screw Pumps

►Features

Two-screw, double-entry, self-priming, high suction power due to low NPSH-values, adapted for dry running.

►Pumped liquids

Oils or other lubricating, not lubricating or sparsely lubricating liquids.

►Performance data

Q up to 1,300 m³/h, p_d up to 40 bar

Rotary Lobe Pumps

►Features

Hermetically sealed pumps with no welded parts, sealing systems adapted to the liquid, sterile cleaning possible.

►Pumped liquids

For pumping and dosing liquids of low to high viscosity; pasty, neutral or aggressive, pure or abrasive, especially in the food and pharma industry.

►Performance data

Q up to 1,666 l/min, p_d up to 20 bar

Peristaltic Pumps

►Features

Dry self-priming, without seals and valves.

►Pumped liquids

For pumping and dosing liquids of low to high viscosity; pasty, neutral or aggressive, pure or abrasive, gaseous or tending to froth, also with fibrous and solids content.

►Performance data

Q up to 60 m³/h, p_d up to 16 bar

Macerators

►Features

Impeller with exchangeable, highly wear resistant milling cutters.

►Pumped liquids

For milling of fibres and solids (wood, textiles, glass etc.) that are contained in the liquids to be pumped and making them pumpable.

►Performance data

Q up to 160 m³/h, p_d up to 10 bar

Subject to technical alterations.