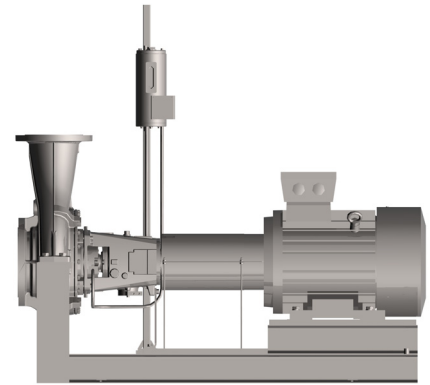


# Volute Casing Centrifugal Pumps

constitutive to DIN EN 22 858/ISO 2858  
according to ISO 5199



## ALLHEAT® Series CWH

in back pull-out design

### Application

For circulating heat transfer media such as thermal oil or hot water in heat transfer systems (DIN 4754 and 4752). The media to be pumped may not contain any abrasive constituents or chemically attack the pump material.

### Construction/Mounting

Horizontal, single-stage, single-flow volute casing centrifugal pump constitutive to DIN EN 22 858/ISO 2858 according to ISO 5199.

### Performance data at 50 Hz ①

Q	up to 1200 m <sup>3</sup> /h	p <sub>d</sub>	up to 25 bar ②
H	up to 97 m	DN <sub>d</sub>	250 mm
t	from -30 °C up to + 350°C	P	up to 250 kW

① The mentioned performance data are to be considered as a product and performance abstract only. The particular operating limits can be taken from the quotation or order acknowledgement.

② Please take notice of the pressure/temperature limits in dependence of the material (see diagram "Pressure and temperature limits as influenced by the casing material").

Requirement to hot water quality: water with low salt content or deionised water acc. to VdTÜV Directive 02.89 TCH 1466 solids content ≤ 5mg/l, without settling additives.

Toxic thermal oils are not hermetically sealed from the environment. In this case we recommend the use of our magnetically coupled pumps.

### Shaft sealing

By preassembled double-acting mechanical seal with stationary spring section (cartridge unit).

Abbreviation	Material design		Material code DIN EN 12 756
	Pump side		
G8.4E	Sliding ring	Carbon graphite, antimony impregnated	A2
	Counter ring	SiC. silicon carbide	Q1
	Secondary seal	Carbon graphite	G2
	Other metal components	CrNiMo steel	G
	Rotating seal carrier	Carpenter 42	T7
	Bellows	AM 350	T8
	Coupling side		
	Sliding ring	Carbon graphite, antimony impregnated	A2
Counter ring	SiC. silicon carbide	Q1	
Secondary seal	PTFE	T	
Seal ring	PTFE, glassfibre reinforced	Y1	
Springs	CrNiMo steel	G	
Other metal components	CrNiMo steel	G	

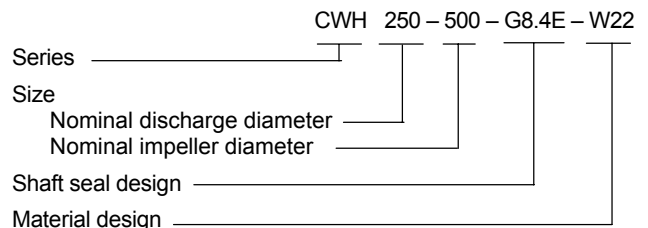
### Materials

Denomination	Material design	
	W22 ③	W29 ④
Volute casing	EN-GJS-400-18 LT (GGG-40.3)	1.0619 (GS-Ck 25)
Casing cover	EN-GJS-400-18 LT (GGG-40.3)	
Impeller	EN-GJL-200 (GG 20)	
Shaft	1.4021 (X20 Cr13)	
Bearing bracket	EN-GJL-250 (GG 25)	

③ Bottom feet

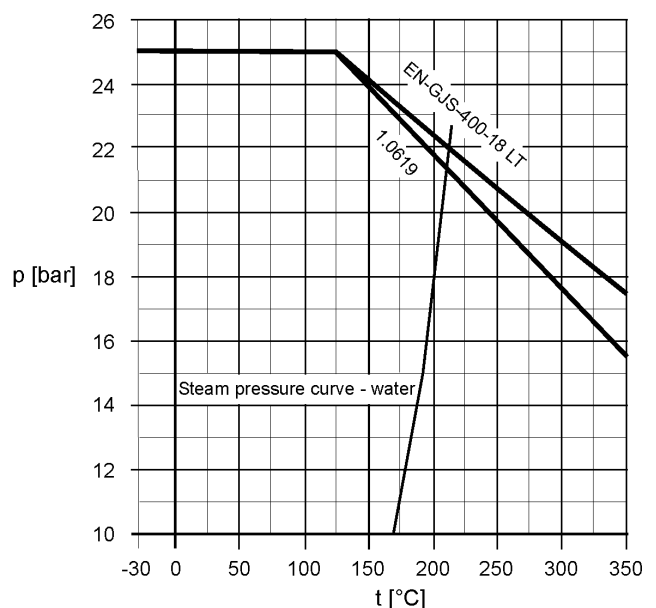
④ Center-line feet

### Abbreviation



The abbreviation is displayed on the nameplate.

### Pressure and temperature limits as influenced by the casing material



## Flanges

Flange connection dimensions according to EN 1092-1, PN 25 or EN 1092-2, PN 25.

## Bearing and lubrication

Ball bearing, oil lubricated

## Connections

The following connections are always provided:

BI1	Buffering system, inlet
BO1	Buffering system, outlet
D1	Draining mechanical seal
FD1	Pumped fluid - draining
FV1	Casing cover - venting
GD1	Lubrication - draining
GF1	Lubrication - filling
GF2	Lubrication - filling
GV1	Lubrication - venting
LO1	Leakage - discharge *
KI2	Cooling - inlet
KO2	Cooling - outlet

\* According to DIN 4754 for non-hazardous draining of heat transfer medium leaking from the shaft seal.

## Dismantling the insert unit

The insert unit can be taken out on the drive side without taking the volute casing and the motor off the base plate or the pipe lines off the volute casing.

## Shaft coupling and accidental contact protection

Double cardanic coupling with a spacer. A coupling guard as contact protection according to DIN EN 294 (DIN 31001) is included, if the delivery contains pump, base plate and shaft coupling.

## Base plates

Base plate made from steel, welded, with drip channel.

With our interactive system ALL2CAD, you will get the aggregate dimensions.

## Drive

Surface-cooled three phase squirrel-cage induction motors, IM B3 type of construction; according to IEC, protection type IP 55, performances and main dimensions according to EN 50347.

**Attention:** Motors provided by the client must be able to generate a cooling airflow in axial direction to the pump side that unimpededly contacts the pump surface. It must also be ensured that any heat can be freely dissipated into the atmosphere.

## Explosion protection



The pump fulfils the requirements according to EC Explosion Protection Directive 94/9EG (ATEX 100a) for equipment and equipment group II, category 2 G. Categorisation into temperature classes according to EN 13463-1 depends on the temperature of the pumped medium. The max. permissible temperature of the pumped medium for the respective temperature classes are shown in the order specific data sheet.

**Note:** In case of the operation of a category 2 pump, the unacceptable heating of the pump surfaces caused by a possible operational fault must be prevented by a control mechanism. In case of an operation with know parameters ( $Q$ ,  $H$ ,  $v$ ,  $\rho = \text{const.}$ ), a pump performance controller can be supplied with the pump to detect any operational faults.

## Series CWH

### Wear resistant

- Pressure safe casing parts with surcharge for corrosion
- + Minimized cavitation wear by low NPSH values

### Efficient

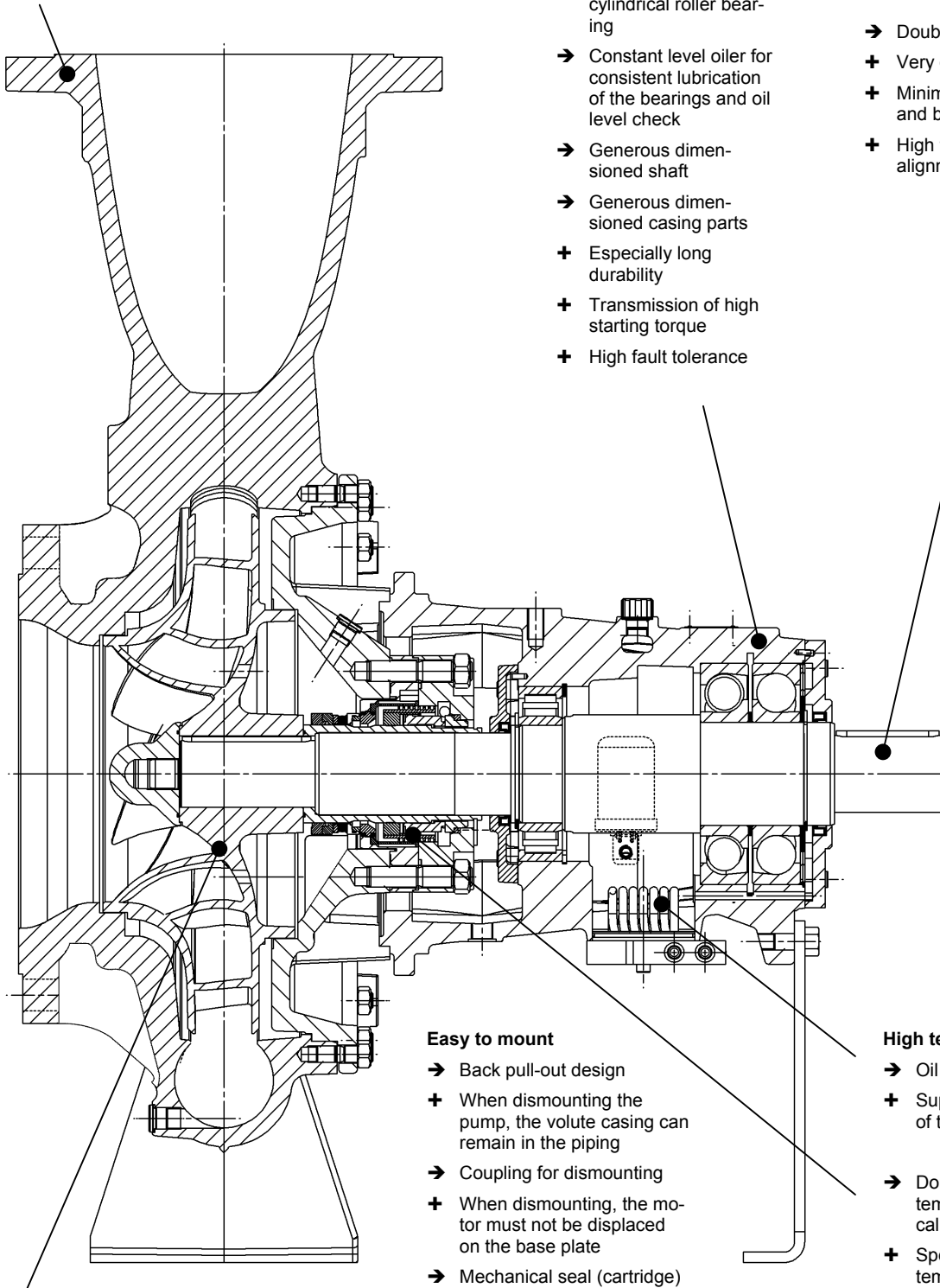
- Optimized hydraulic parts
- + Very good efficiencies
- + Low NPSH values
- + Large flow rate

### Robust

- Minimized axial thrust and oil lubricated angular contact ball bearing, double row, as thrust bearing.
- Robust oil lubricated cylindrical roller bearing
- Constant level oiler for consistent lubrication of the bearings and oil level check
- Generous dimensioned shaft
- Generous dimensioned casing parts
- + Especially long durability
- + Transmission of high starting torque
- + High fault tolerance

### Reliable

- Especially rigid shaft
- + Minimized shaft deflection at the total characteristic
- + Proper function of the mechanical seal
- Double cardanic coupling
- + Very good smoothness
- + Minimum forces on shaft and bearing
- + High tolerance against alignment errors



### Smooth running

- Impeller is balanced dynamically

### Easy to mount

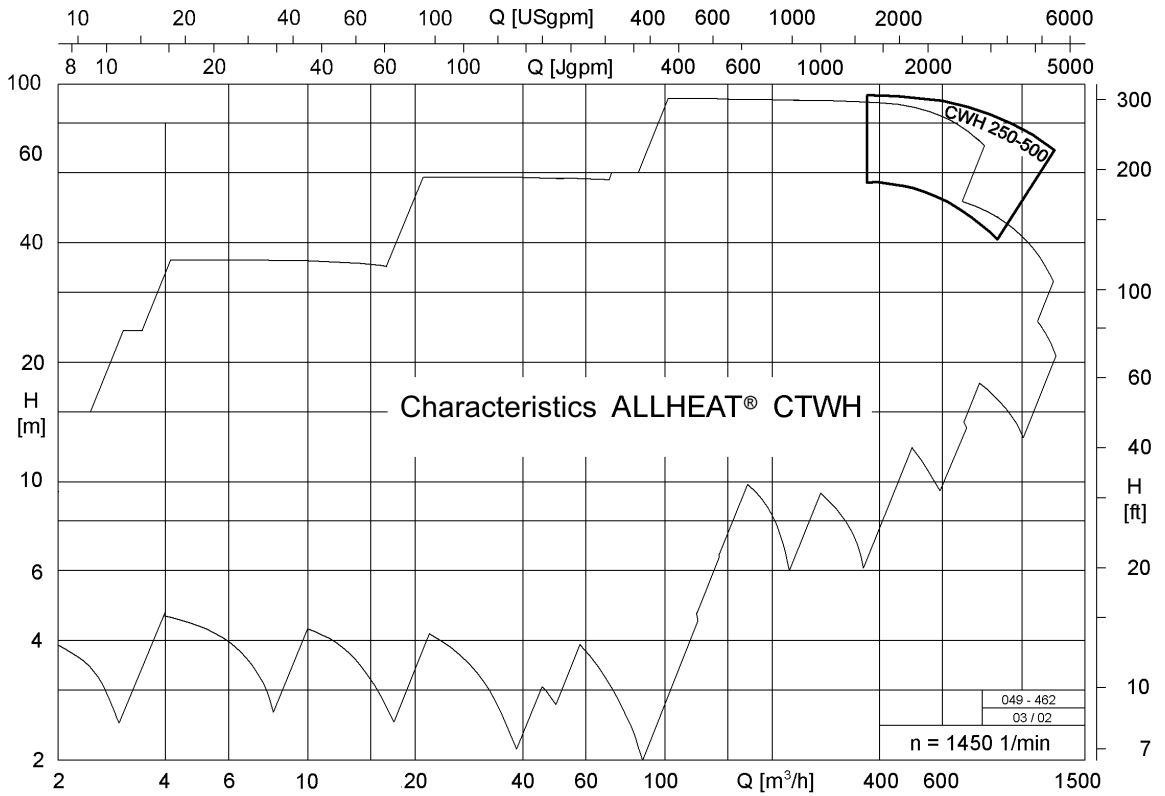
- Back pull-out design
- + When dismantling the pump, the volute casing can remain in the piping
- Coupling for dismantling
- + When dismantling, the motor must not be displaced on the base plate
- Mechanical seal (cartridge)
- + Rapid and accurate mounting and dismantling
- + Misalignment of the mechanical seal is eliminated

### High temperature proof

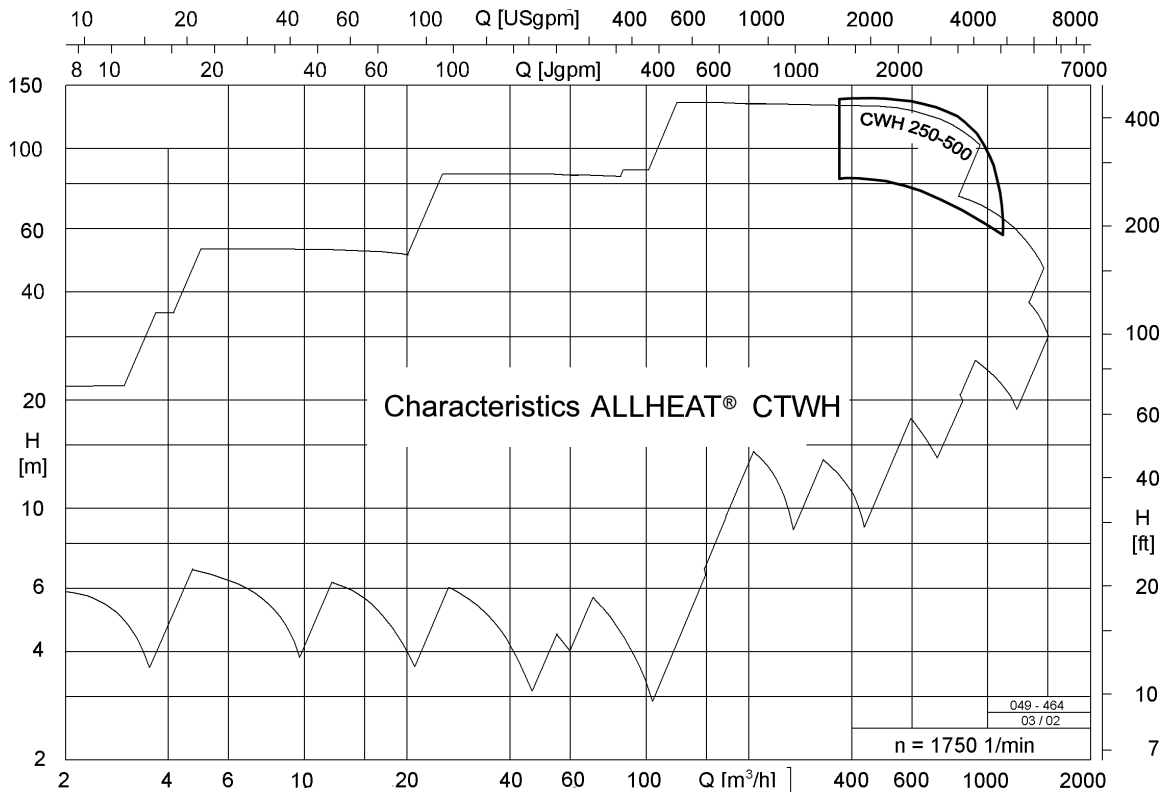
- Oil cooler
- + Supplementary cooling of the bearings
- Double-acting high-temperature mechanical seal (Cartridge)
- + Special high-temperature materials
- Thermosyphon buffer system

**Performance graphs**

n = 1450 1/min

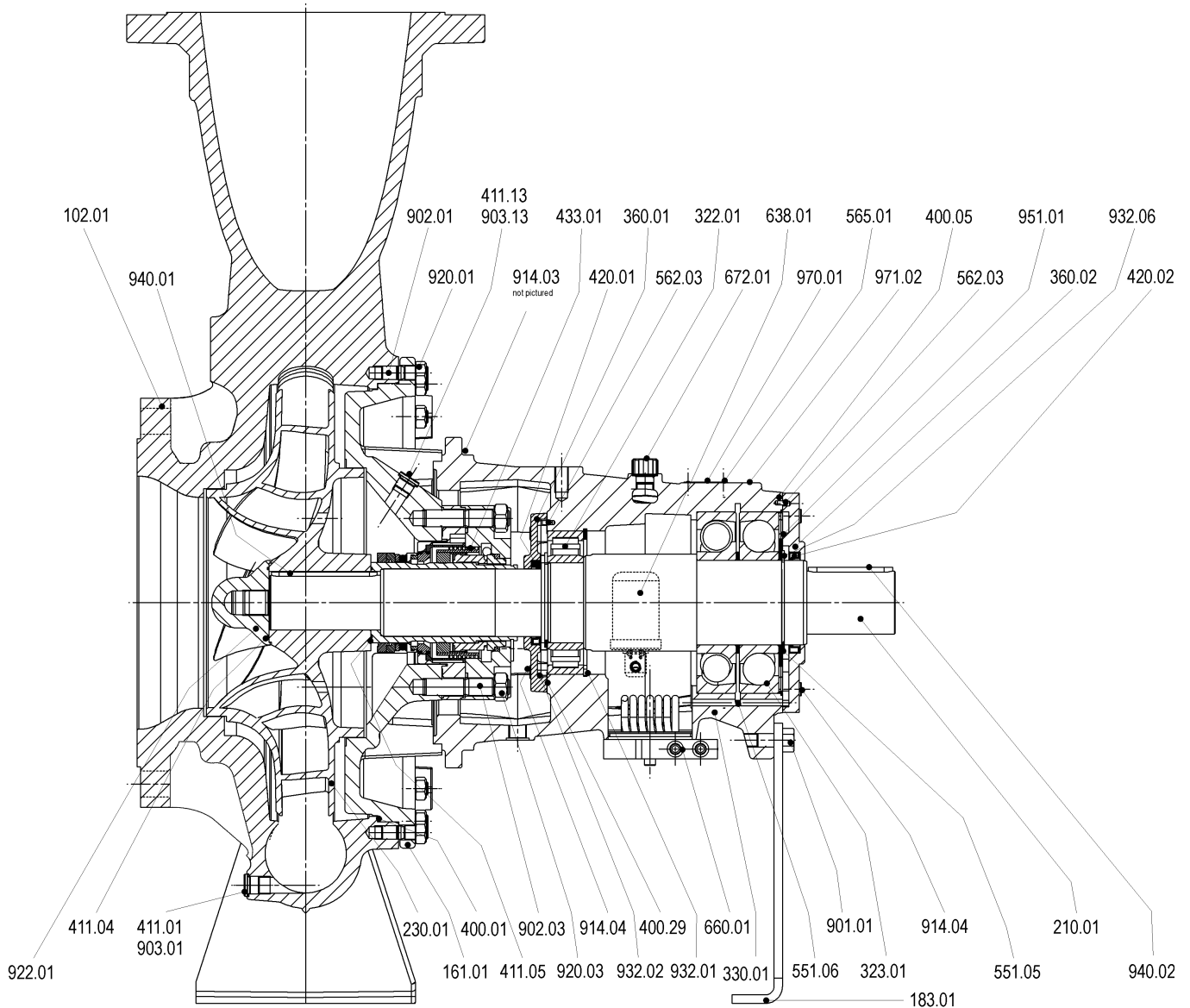


n = 1750 1/min



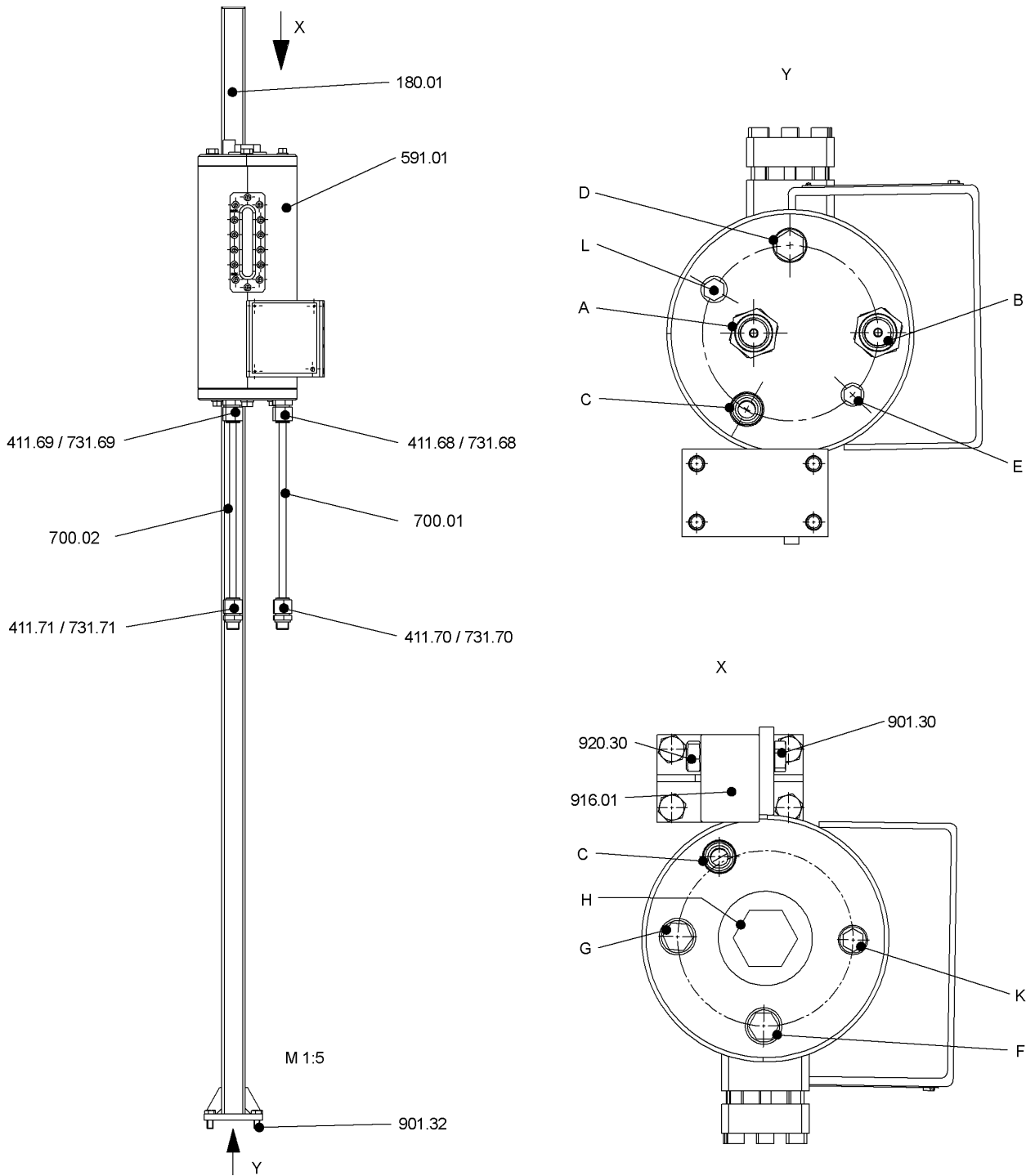
For exact performance data please refer to the individual characteristics.

## Sectional drawing and part list



Denomination	Part No.	Denomination	Part No.	Denomination	Part No.
Volute casing	102.01	Seal ring	411.05	Screw plug	903.01
Casing cover	161.01	Seal ring	411.13	Screw plug	903.13
Support foot	183.01	Shaft seal ring	420.01	Socket-head cap screw	914.03
Shaft	210.01	Shaft seal ring	420.02	Socket-head cap screw	914.04
Impeller	230.01	Mechanical seal	433.01	Nut	920.01
Cylindrical roller bearing	322.01	Disc spacer	551.05	Nut	920.03
Angular contact ball bearing	323.01	Disc spacer	551.06	Impeller nut	922.01
Bearing bracket	330.01	Cylindrical pin	562.03	Circlip	932.01
Bearing cover	360.01	Rivet	565.01	Circlip	932.02
Bearing cover	360.02	Constant level oiler	638.01	Circlip	932.06
Gasket	400.01	Cooling device	660.01	Key	940.01
Gasket	400.05	Venting	672.01	Key	940.02
Gasket	400.29	Hexagon head bolt	901.01	Cup spring	951.01
Seal ring	411.01	Stud bolt	902.01	Plate	970.01
Seal ring	411.04	Stud bolt	902.03	Name plate	971.02

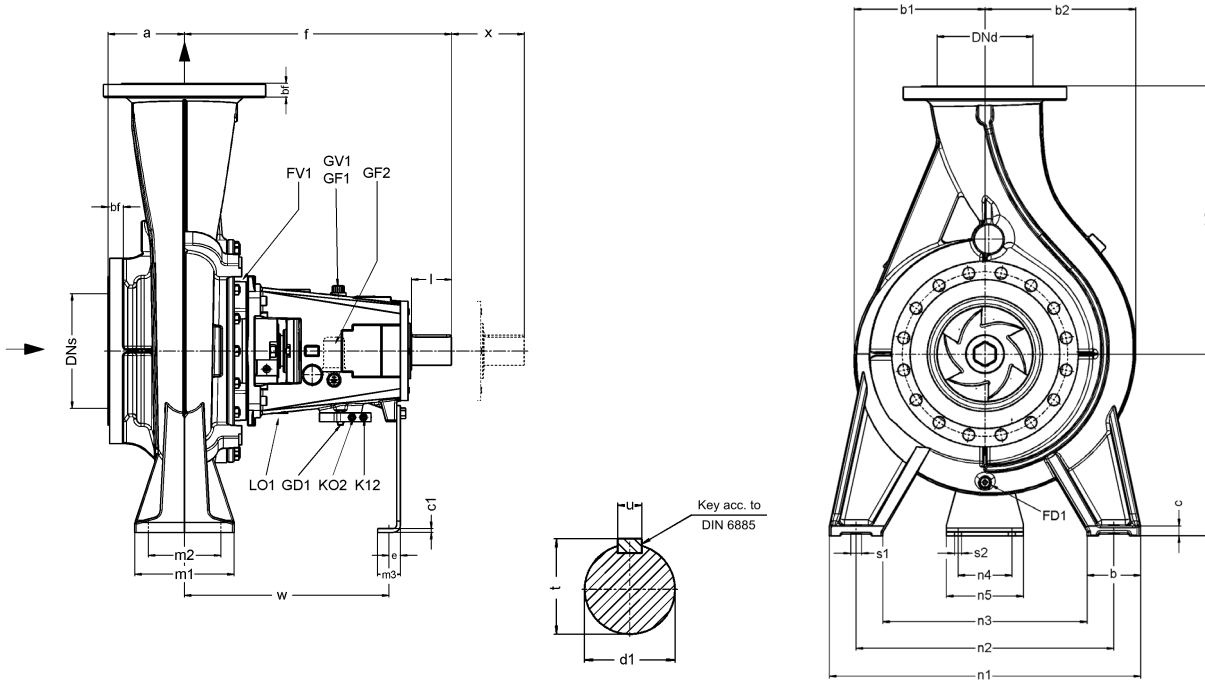
## Thermosiphon system



Connections		Denomination	Part No.	Denomination	Part No.
A	Buffer fluid inlet	G ½	Stool	Screwed connection	731.68
B	Buffer fluid outlet	G ½	Seal ring	Screwed connection	731.69
C	Cooling water connection	G ¾	Seal ring	Screwed connection	731.70
D	Connection for thermometer	G ½	Seal ring	Screwed connection	731.71
E	Refilling	G ¼	Seal ring	Hexagon screw	901.30
F	Connection for pressure gauge	G ½	Seal ring	Hexagon screw	901.32
G	Filling	G ½	Container	Plug	916.01
H	Level switch	G 2	Pipe	Hexagon nut	920.30
K	Venting	G ¼	Pipe		
L	Draining	G ¼			

**Pump dimensions and auxiliary connections**

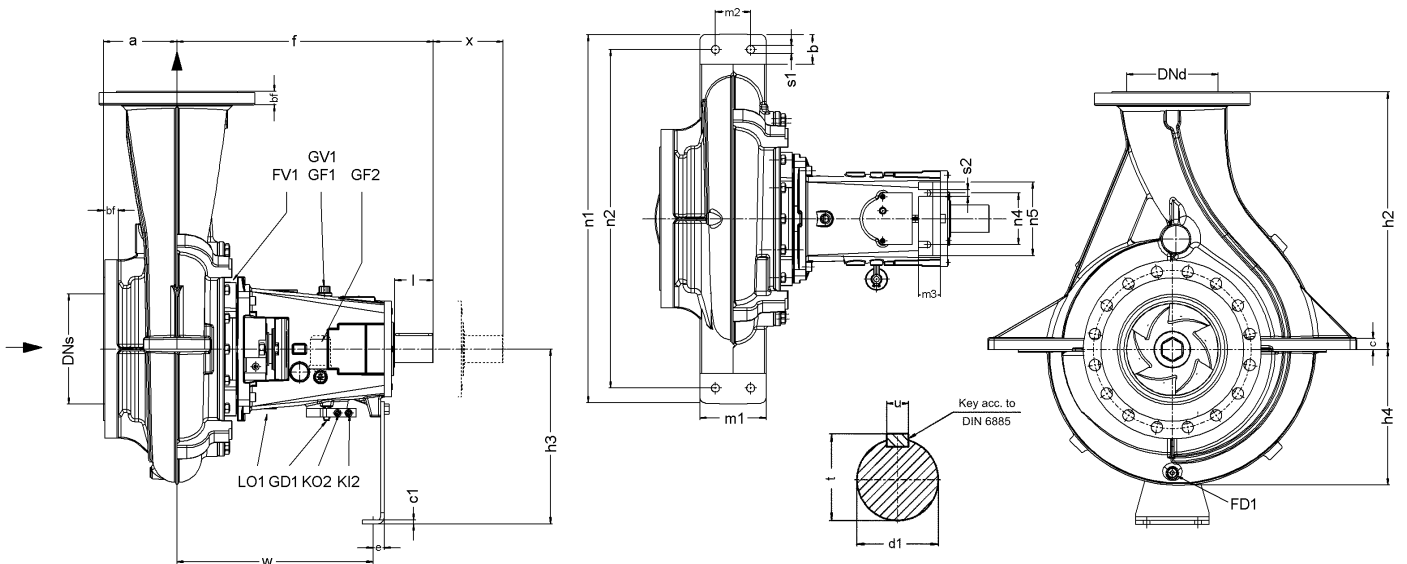
**Bottom feet**



Dimensions in mm.  
Subject to alterations.

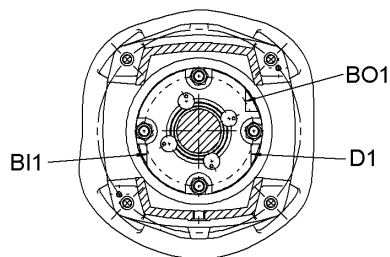
Size	Suction flange DN <sub>s</sub>	Discharge flange DN <sub>d</sub>	Pump dimensions							Foot dimensions										Extension dim. x	Shaft end							
			a	f	b1	b2	h1	h2	b	c	e	m1	m2	m3	n1	n2	n3	n4	n5		w	s1	s2	d1	l	t	u	
250-500/01	300	250	200	699	339	391	475	700	130	26	10	35	260	190	60	800	670	540	140	200	530	28	18	250	75	105	79,5	20

**Center-line feet**



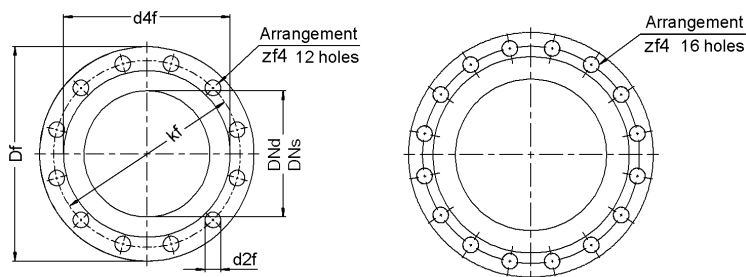
Dimensions in mm.  
Subject to alterations.

Size	Suction flange DN <sub>s</sub>	Discharge flange DN <sub>d</sub>	Pump dimensions				Foot dimensions										Extension dim. x	Shaft end								
			a	f	h2	h4	b	c	c1	e	h3	m1	m2	m3	n1	n2		n4	n5	w	s1	s2	d1	l	t	u
250-500/01	300	250	200	699	700	368	80	30	10	35	475	180	96	60	1000	920	140	200	530	22	18	250	75	105	79,5	20



Mechanical seal

Connections	Size	Denomination
B11	G ½	Buffering system, inlet
BO1	G ½	Buffering system, outlet
D1	G ½	Draining mechanical seal
FD1	G ½	Pumped fluid - draining
FV1	R ½	Venting – casing cover
GD1	G ¼	Lubrication - draining
GF1	G ½	Lubrication - filling
GF2	G ¼	Lubrication - filling
GV1	R ¼	Lubrication - venting
LO1	G ½	Leakage - discharge
KI2	G ¼	Cooling - inlet
KO2	G ¼	Cooling - outlet



Tolerances of companion dimensions according to DIN EN 735.

Sense of rotation: clockwise, as seen from the driving side.

Dimensions in mm. Subject to alteration.

Flanges PN 25, DIN 1092-1

DN <sub>s</sub> / DN <sub>d</sub>	Df	bf	kf	d4f	zf	d2f
250	425	32	370	335	12	30
300	485	34	430	395	16	30

Flanges PN 25, DIN 1092-2

DN <sub>s</sub> / DN <sub>d</sub>	Df	bf	kf	d4f	zf	d2f
250	425	36	370	330	12	31
300	485	40	430	389	16	31

Subject to technical alterations.



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