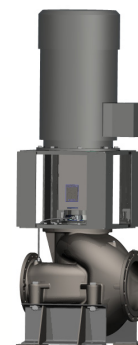


ALLMARINE

SERIES MI-D WITH RADIAL INLET

PN 10 vertical centrifugal pumps for ships - pedestal mounting



Use

For pumping freshwater, seawater, condensate, oils.

Main fields of application

In shipbuilding: as a general-service and fire-fighting pump, bilge, ballast, cooling-water, and seawater pump. Other applications on request.

Design

Single-stage, double-suction volute centrifugal pump with a short, compact design. Capacity and hydraulics are specifically adapted to the requirements in shipbuilding.

The volute casing and bearing unit are connected via a bracket to the drive motor. The use of a coupling with spacer piece enables removal of the bearing unit and sealing insert with common wearing parts without removal of the volute casing, pipes, and drive motor.

Since pump and drive motor are precisely centered in the bracket, no alignment work of any kind is required.

Performance data

Q	up to	3900	m ³ /h
H	up to	60	m
t	up to	40	°C (seawater)
	up to	100	°C (freshwater)
p _d	up to	10	bar

The specified performance limits are maximum limits that may be lower in individual cases depending on technical variations. Inlet pressure plus maximum delivery head may not exceed the permissible outlet pressure.

The provided performance data are meant only as a product-performance overview. Refer to the respective proposal and order confirmation for exact operation limits.

Branch positions/flanges

Suction and discharge branches oppose each other inline.

Nominal widths: Suction branch 350 to 500 mm
Discharge branch 300 to 450 mm
according to DIN EN 1092-2 (standard) or drilled according to JIS B 2239 (custom).

Safety guarding

The requirements of DIN EN 809 "Safety Guarding" are fulfilled.

Shaft seal

Shaft sealed with uncooled, unbalanced, maintenance-free mechanical seal. An external flushing line prevents dry running during operation.

Main dimensions according to DIN EN 12 756, design K, shape U.

Standard materials

Rotating ring	antimony-impregnated carbon
Counter ring	Silicon carbide/aluminum oxide
Bellow	HNBR/Viton
O-ring	HNBR/Viton

Optional materials

Rotating ring	Silicon carbide
Counter ring	Silicon carbide
Bellow	HNBR/Viton
O-ring	HNBR/Viton

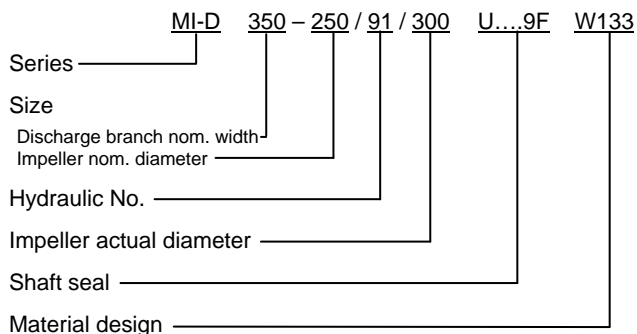
Bearing/lubrication

Lifetime grease-lubricated groove ball bearing according to DIN 625, in bearing bracket.

Drive

Surface-cooled three-phase squirrel-cage motors, design type IM B5 (V1), protection class IP55 according to IEC standard, insulator class F, output and main dimensions according to DIN EN 50 347.

Model code

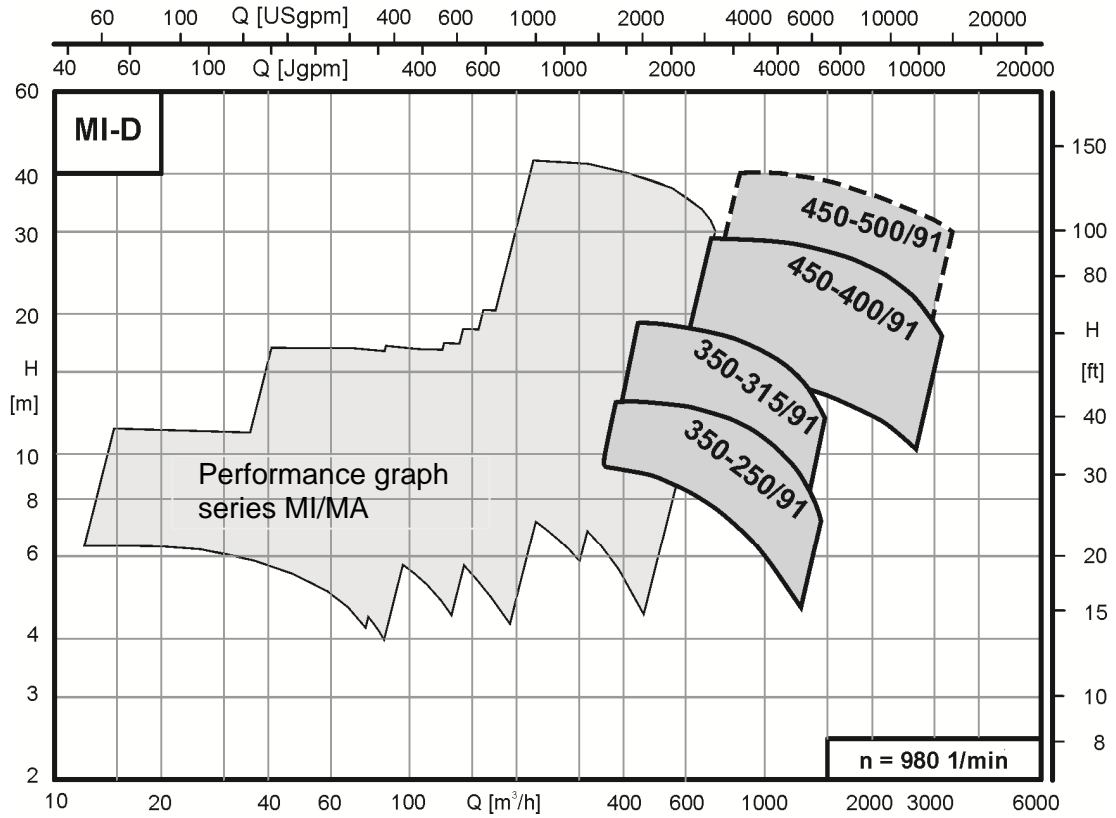


This model code is entered on the nameplate.

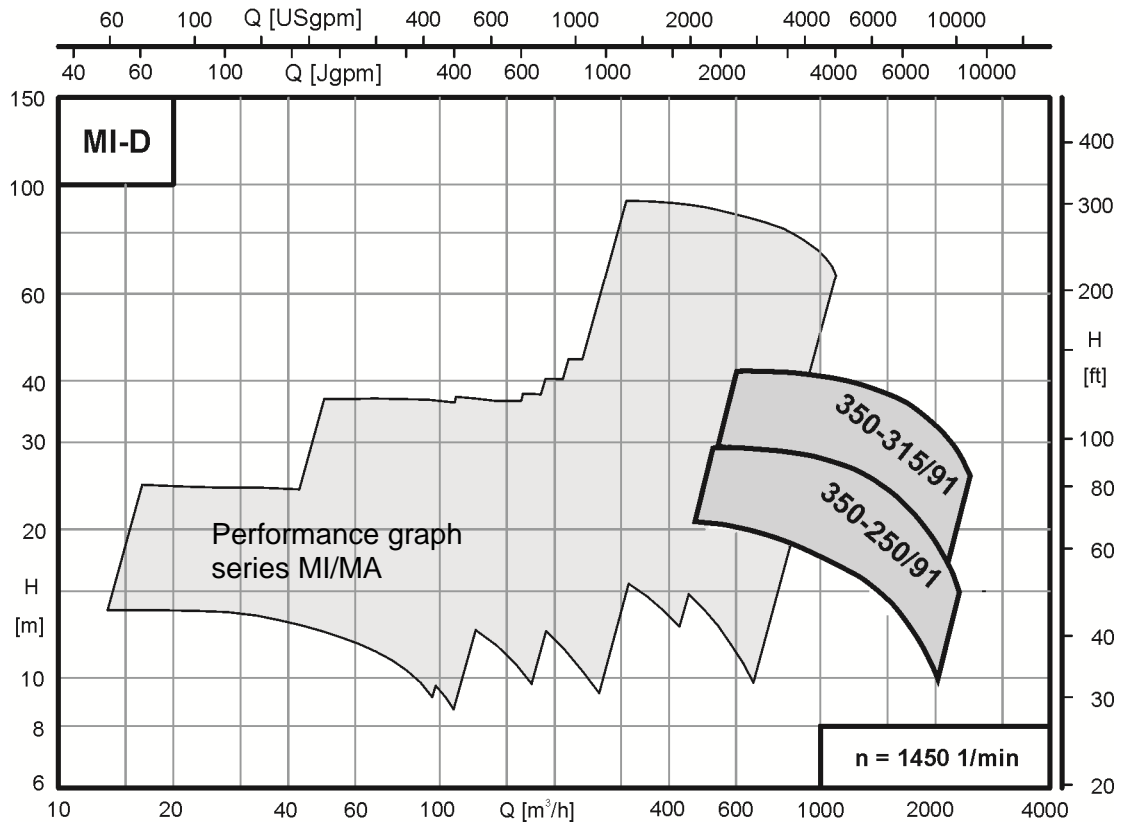
Part name	Part-No.	Material design	
		W 133	W146
Volute casing	102.01	CC333G	CC333G
Casing part	130.01	CC333G	CC333G
Shaft	210.01	1.4462	1.4462
Impeller	230.01	CC333G	1.4517
Bearing bracket	330.01	EN-JS 1030	EN-JS 1030
Bearing bracket	330.02	EN-JS 1030	EN-JS 1030
Motor bracket	341.01	Welded steel	Welded steel
Sealing cover	471.01	1.4571	1.4571
Wear ring	502.01	Bronze	Bronze
Screws and nuts contacting pumped liquid		Stainless steel	Stainless steel

Performance graphs 50 Hz

n = 980 1/min



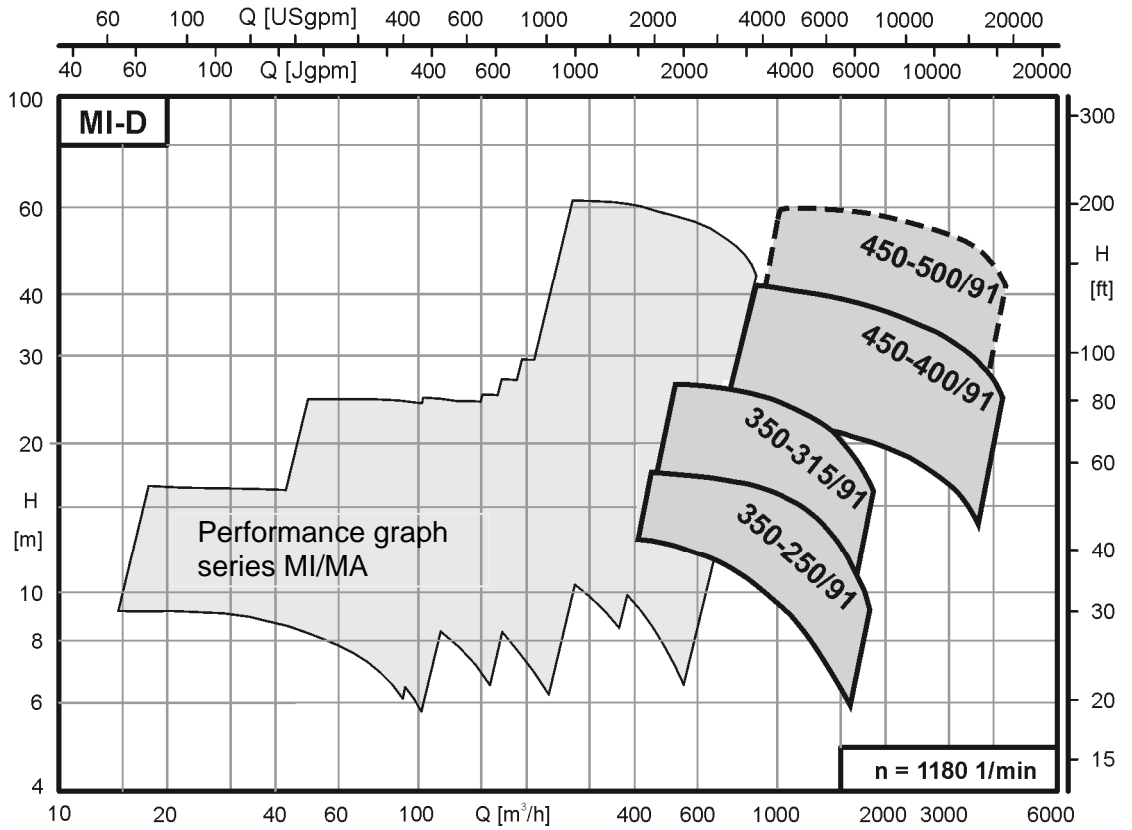
n = 1450 1/min



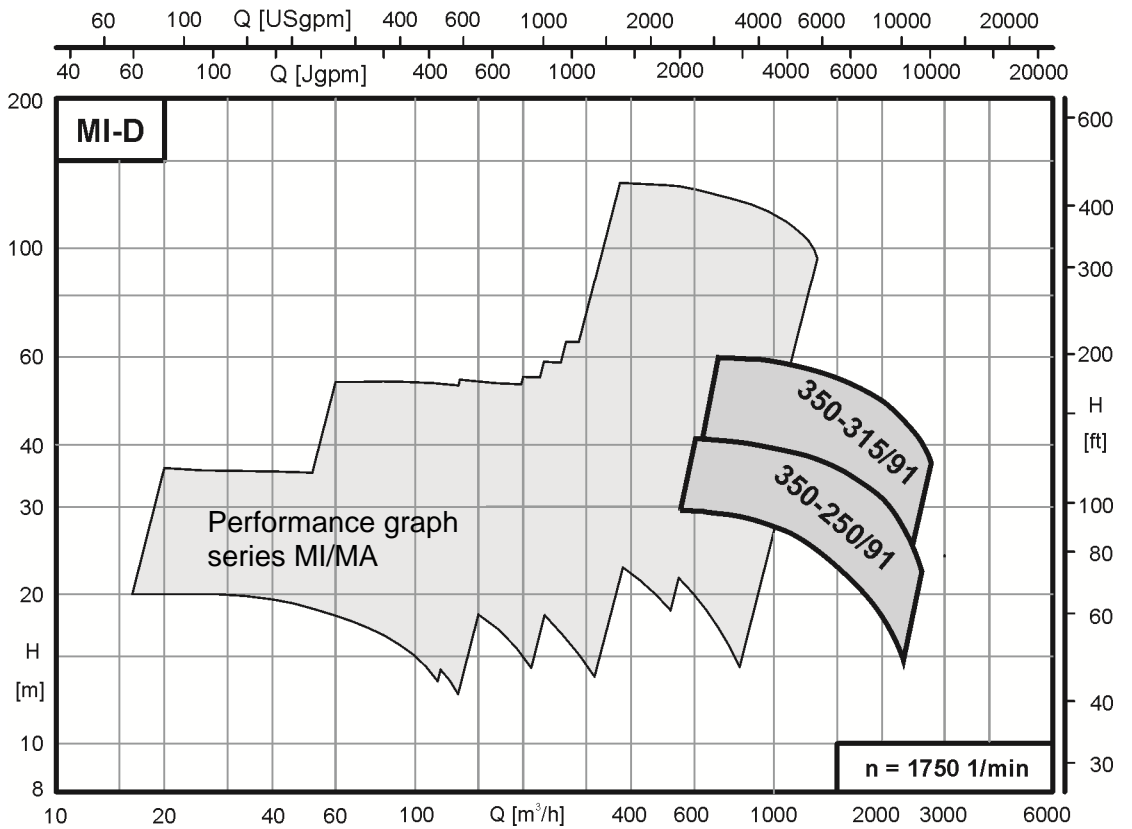
Refer to the individual curves for precise performance data.

Performance graphs 60 Hz

n = 1180 1/min



n = 1750 1/min



Refer to the individual curves for precise performance data.

Benefits

Low weight and small, compact dimensions
with operation up to 1750 1/min.

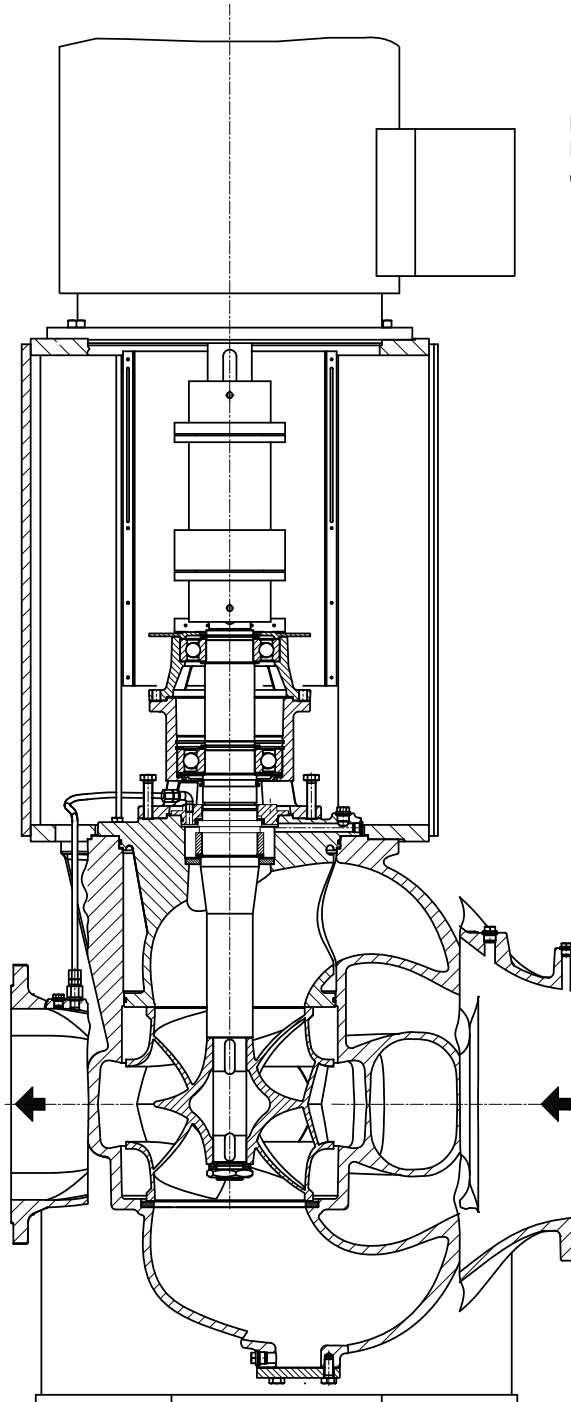
Durable
Corrosion- and cavitation-resistant materials extend service life.

Low energy consumption
Hydraulics designed for efficiency.

Saves time
Bracket is easily accessible from 4 side.
Pump-maintenance-free between overhaul intervals.

Easy to maintain
Wearing parts may be exchanged separately.

Insensitive and stable
One-piece volute casing without split cannot leak or twist.



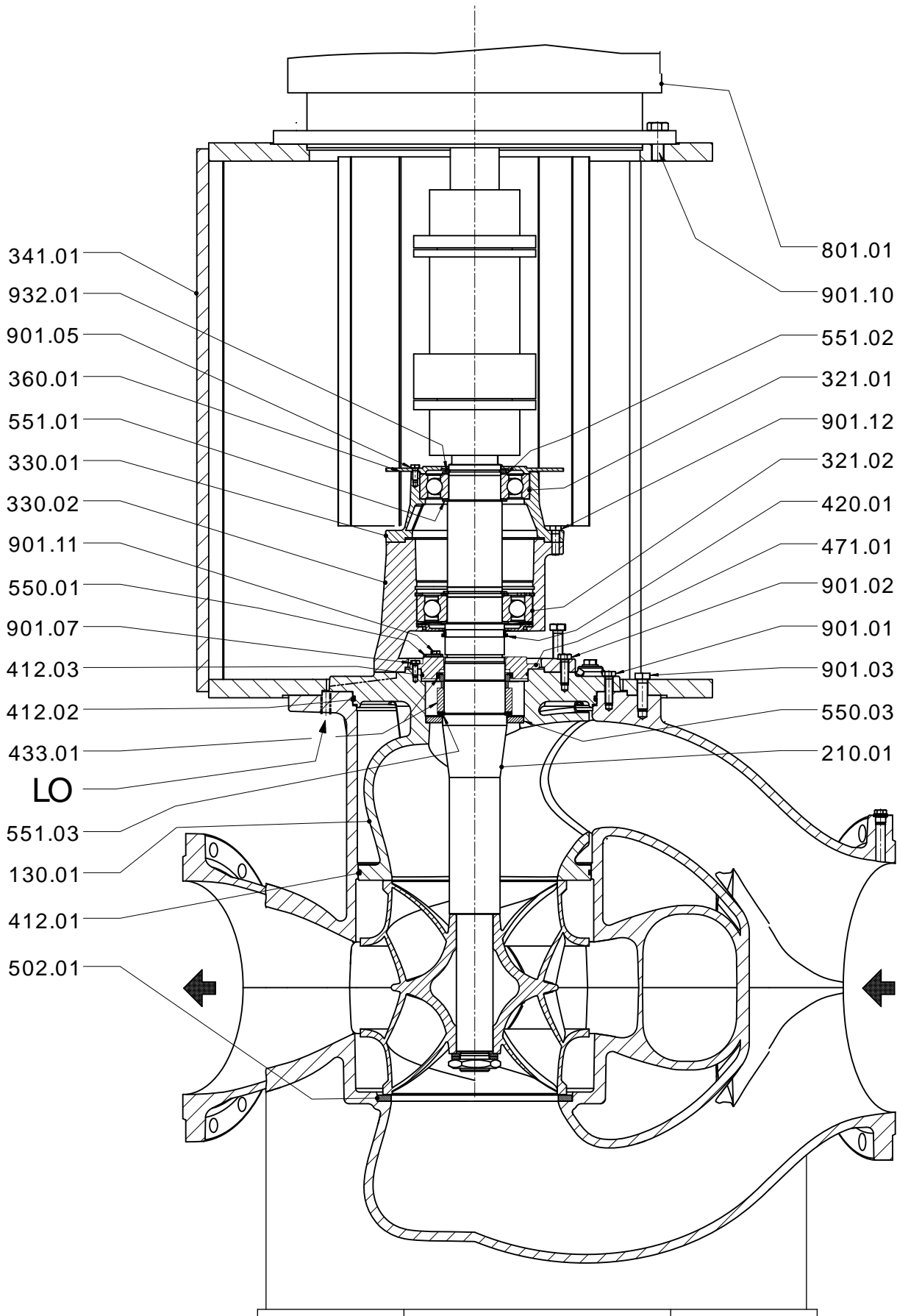
Minimized loads
Double-suction design distributes hydraulic forces symmetrically, reducing loads on bearing.

Versatile usage options
Double-suction design provides good suction performance in applications with large capacities.

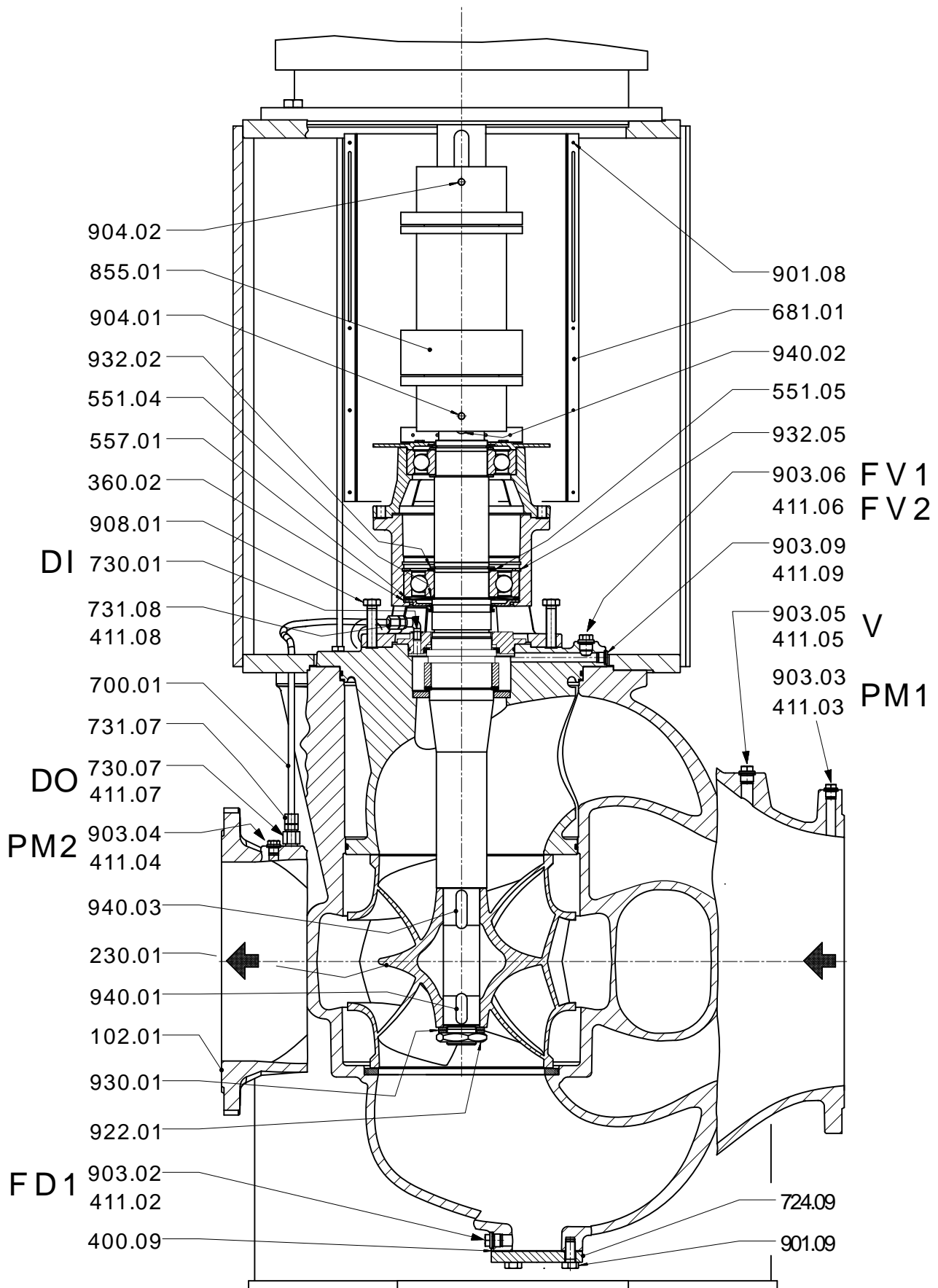
High MTBF, long service life
Horizontal gap between impeller and volute casing minimizes risk of touching faults.

Few wearing parts, no bottom bearing
Highly efficient hydraulics with double volute eliminate the need for double bearing.

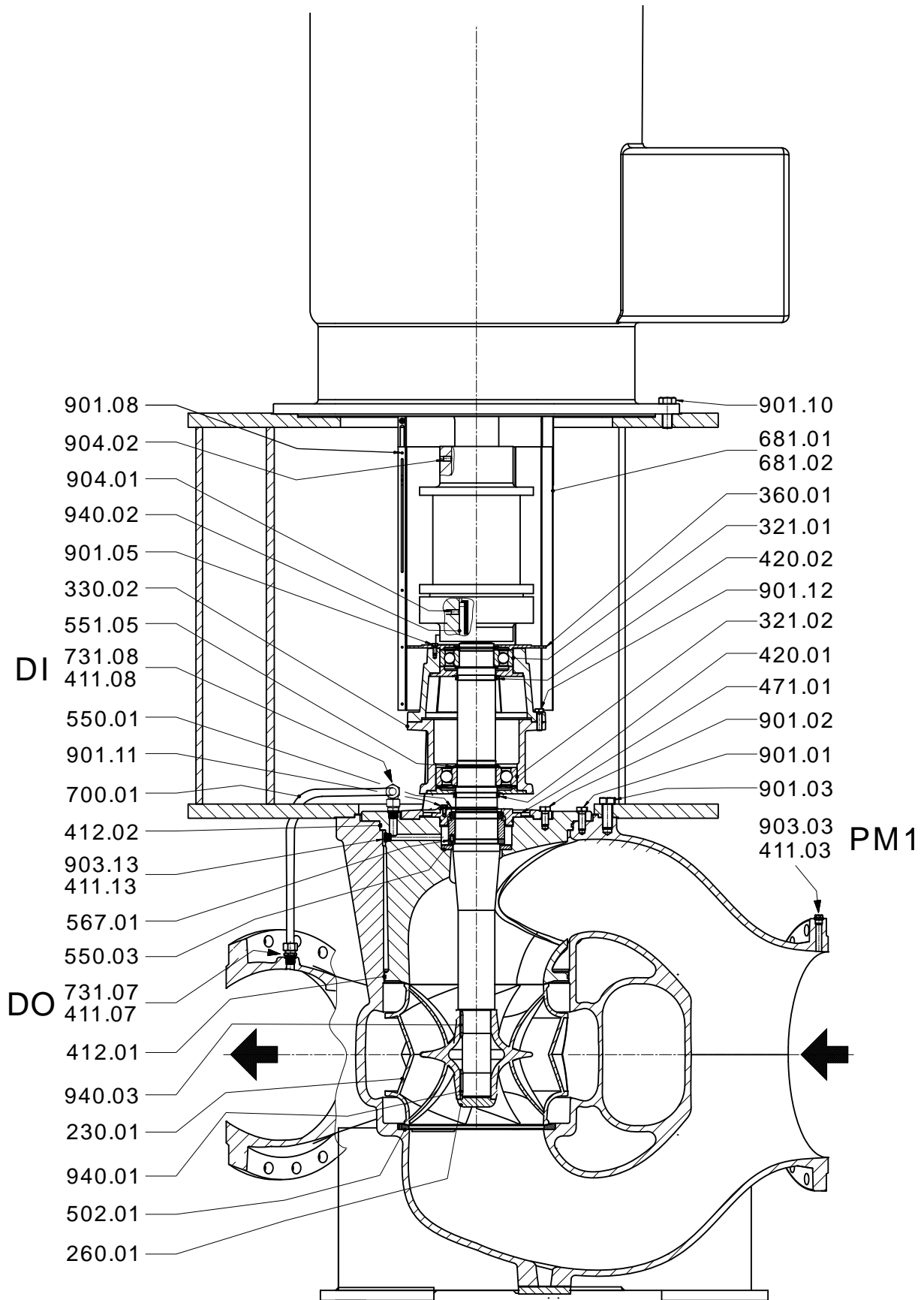
Sectional drawing 350-250/350-315



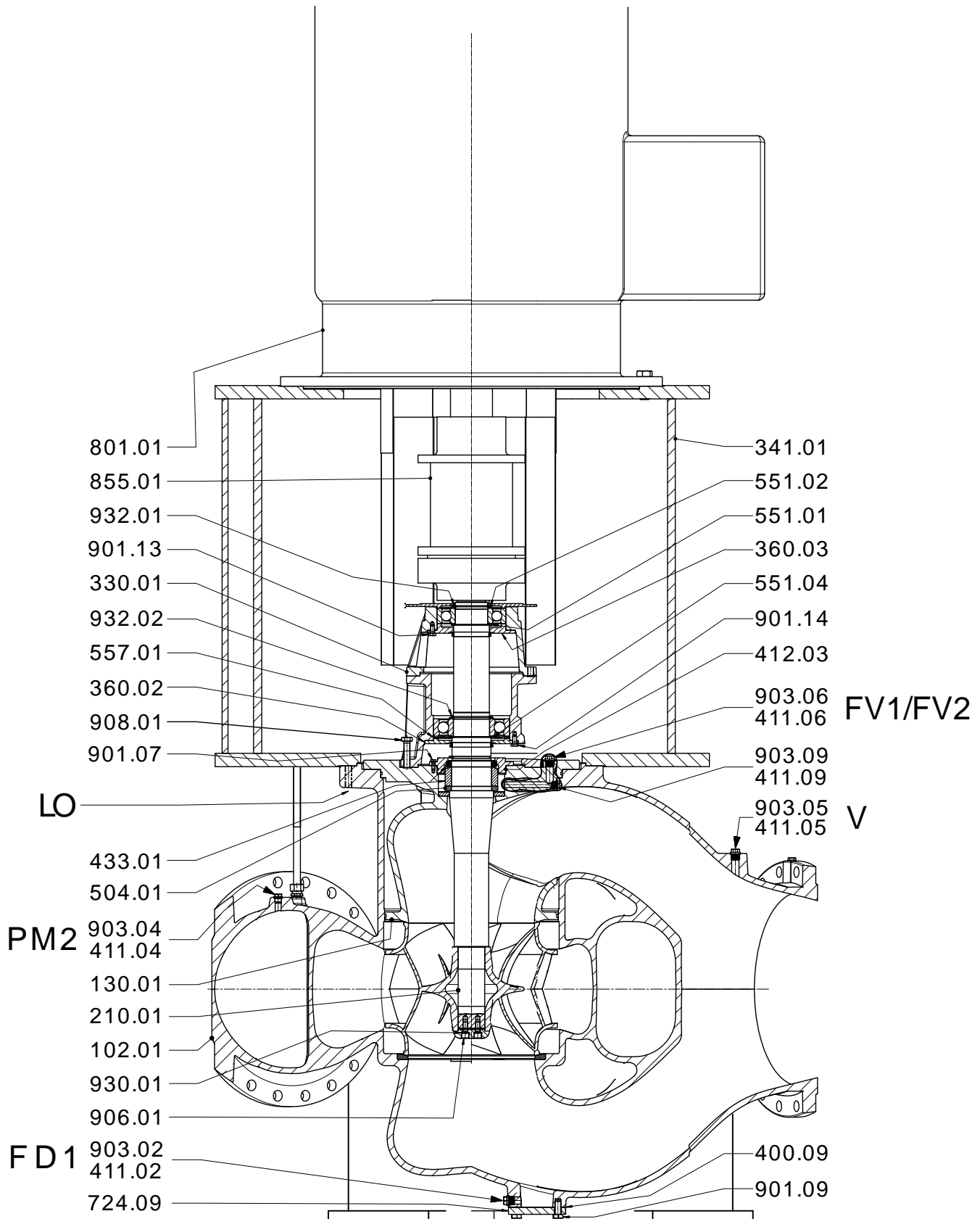
Sectional drawing 350-250/350-315



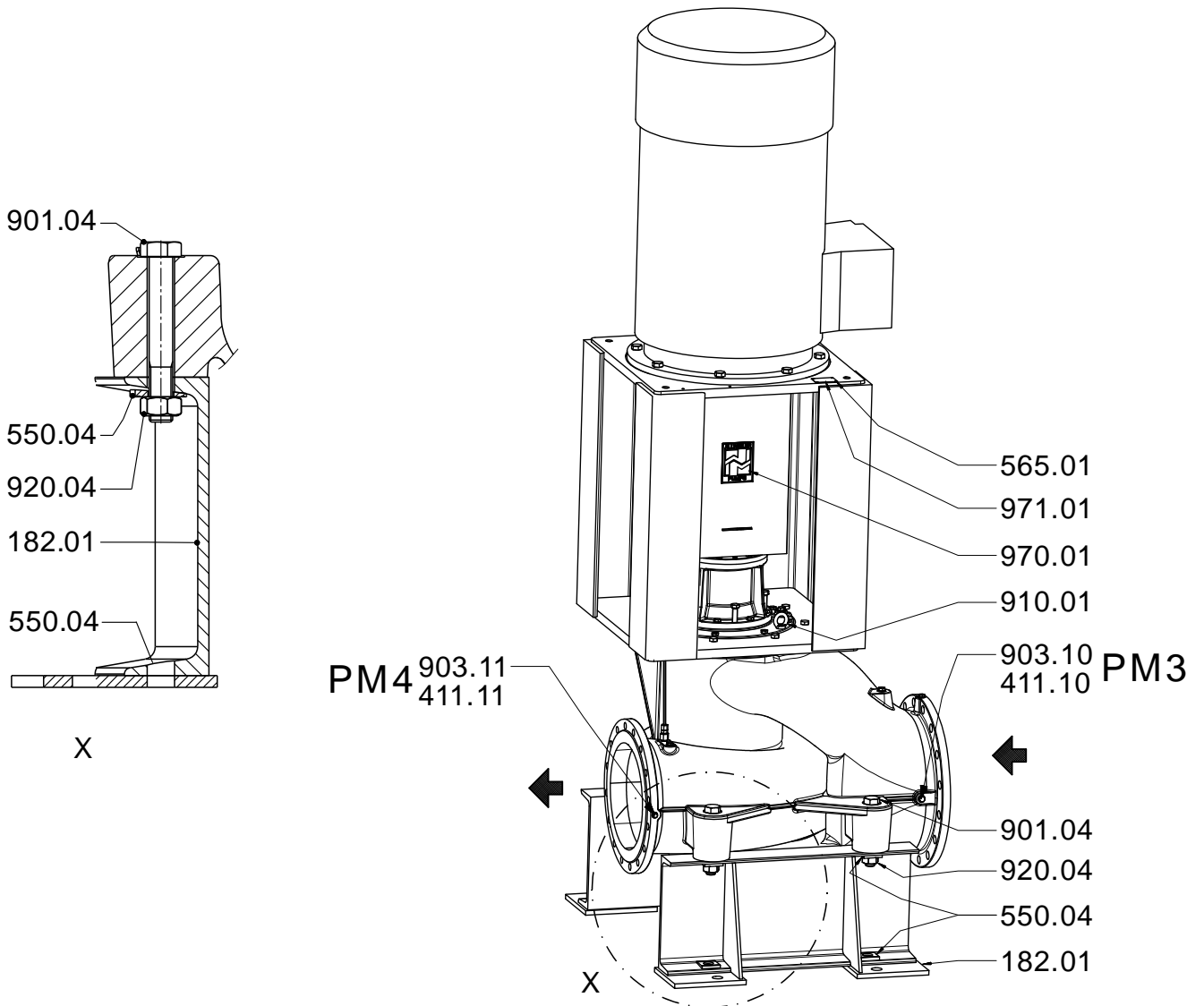
Sectional drawing 450-400/450-500



Sectional drawing 450-400/450-500



Sectional drawing



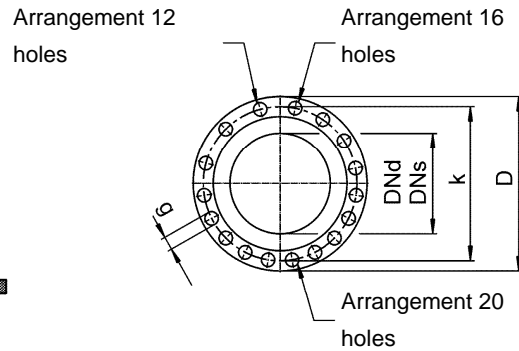
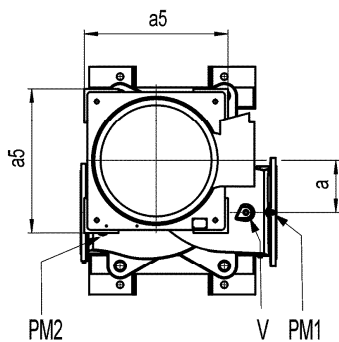
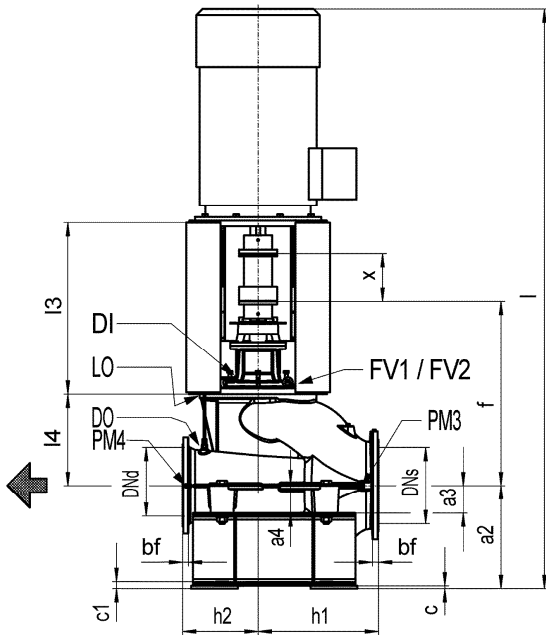
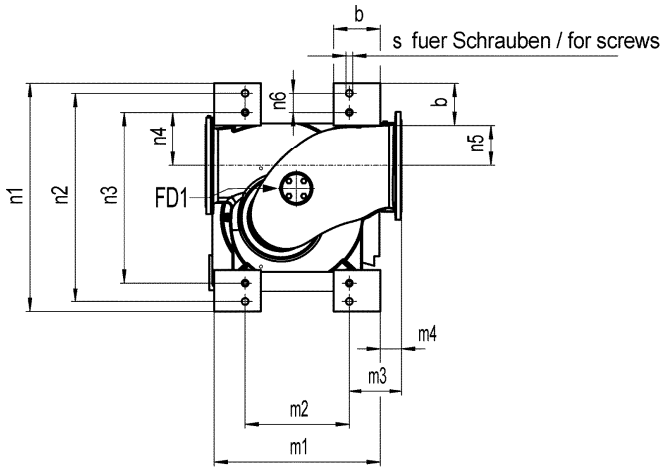
List of components

Denomination	Part-No.	Denomination	Part-No.	Denomination	Part-No.
Volute casing	102.01	Sealing cover	471.01	Hexagon screw	901.10
Casing part	130.01	Wear ring	502.01	Hexagon screw	901.11
Foot	182.01	Spacer ring	504.01	Hexagon screw	901.12
Shaft	210.01	Disc	550.01	Hexagon screw	901.13
Impeller	230.01	Disc	550.03	Hexagon screw	901.14
Impeller hub cap	260.01	Disc	550.04	Screw plug	903.02
Radial ball bearing	321.01	Spacer disc	551.01	Screw plug	903.03
Radial ball bearing	321.02	Spacer disc	551.02	Screw plug	903.04
Bearing bracket	330.01	Spacer disc	551.03	Screw plug	903.05
Bearing bracket	330.02	Spacer disc	551.04	Screw plug	903.06
Motor bracket	341.01	Spacer disc	551.05	Screw plug	903.09
Bearing cover	360.01	Compensating disc	557.01	Screw plug	903.10
Bearing cover	360.02	Rivet	565.01	Screw plug	903.11
Bearing cover	360.03	Spring dowel	567.01	Screw plug	903.13
Gasket	400.09	Coupling guard	681.01	Setscrew	904.01
Seal ring	411.02	Coupling guard extension	681.02	Setscrew	904.02
Seal ring	411.03	Pipe	700.01	Impeller screw	906.01
Seal ring	411.04	Blank flange	724.09	Jacking screw	908.01
Seal ring	411.05	Pipe connection	730.01	Eye bolt	910.01
Seal ring	411.06	Pipe connection	730.07	Hexagon nut	920.04
Seal ring	411.07	Pipe fitting	731.07	Impeller nut	922.01
Seal ring	411.08	Pipe fitting	731.08	Safety device	930.01
Seal ring	411.09	Flanged motor	801.01	Circlip	932.01
Seal ring	411.10	Coupling with spacer piece	855.01	Circlip	932.02
Seal ring	411.11	Hexagon screw	901.01	Circlip	932.05
Sael ring	411.13	Hexagon screw	901.02	Key	940.01
O-ring	412.01	Hexagon screw	901.03	Key	940.02
O-ring	412.02	Hexagon screw	901.04	Key	940.03
O-ring	412.03	Hexagon screw	901.05	Plate	970.01
V-ring	420.01	Hexagon screw	901.07	Nameplate	971.01
V-ring	420.02	Hexagon screw	901.08		
Mechanical seal	433.01	Hexagon screw	901.09		

Connections

Flushing		Draining	Venting			Leakage	Pressure gauging				Venting
Inlet	Outlet			Automatic aspirator	Outlet						Casing with automatic aspirator
DI	DO	FD1	FV1	FV2	LO	PM1	PM2	PM3	PM4		V

Unit dimensions



Flanges acc. to DIN EN 1092-2 PN10

DNs/DNd	D	bf	k	g	No. of holes
300	445	28	400	23	12
350	505	30	460	23	16
400	565	32	515	28	16
450	615	32	565	28	20
500	670	34	620	28	20

Flanges acc. to JIS B 2239 PN10 ①

DNs/DNd	k	g	No. of holes
300	400	25	16
350	445	25	16
400	510	27	16
450	565	27	20
500	620	27	20

① Remaining Flanges acc. to DIN EN 1092-2 PN10

Connections

Connections												
Sizes	Flushing		Draining	Venting			Leakage	Pressure gauging				Venting
	Inlet	Outlet			Automatic aspirator						Casing with automatic aspirator	
	DI	DO	FD1	FV1	FV2	LO	PM1	PM2	PM3	PM4	V	
350-250/91	G1/4	G3/8	G1/2	G1/2	G1/2	G3/8	G3/8	G3/8	G3/8	G1/4	G1/2	
350-315/91												
450-400/91	G1/2	G1/2										

Unit dimensions

Shaft diameter at shaft seal	Sizes		Unit dimensions												
	Pump	Motor	Pump dimensions												Dismantling dimension x
			DNs	DNd	a	a2	a3	a4	a5	f	h1	h2	l2	l3	
90	350-250/91	225S/M	400	350	250	480	145	153	752	935	590	300	140	873	250
		250M													
		280S/M											170	903	
		315S/M													
100	350-315/91	280S/M	270	540	962	630	395	140	873						
		315S/M								170	903				
105	450-400/91	315S/M	500	450	325	605	180	188	1100			1117	800	390	

Sizes		Unit dimensions														
Pump	Motor	Foot dimensions													Total length app. value l	
		b	c	c1	m1	m2	m3	m4	n1	n2	n3	n4	n5	n6		s
350-250/91	225S/M	200	15	ca. 40	700	485	263	156	1059	975	795	275	207	90	M30	2605
	250M															2670
	280S/M															2795
	315S/M															3008
350-315/91	280S/M	870	1194	1090	890	280	2882									
	315S/M							3095								
450-400/91	315S/M	25	ca. 50	870	550	440	280	1320	1220	1020	335	100	3315			

Exact data depend on the motor make.

Consultation required for any motor sizes outside the standard (>315 S/M) because the motor connection dimensions are not standardized.

When using special motors, it must be noted that depending upon the enclosure, different performances are allocated to the individual sizes. The main dimensions are changed accordingly.

Sense of Rotation: clockwise as seen from the driving side.

Dimensions in mm. Subject to alteration.

Subject to technical alterations.



Only those who perform research can create sustainable, innovation-based benefits. The German Stifterverband für die Deutsche Wissenschaft has awarded Allweiler GmbH its "Innovation Through Research" certificate for its commitment to research.