Volute Casing Centrifugal Pumps of Block Design

Series NB

Application

For pumping pure water, industrial water, sea water, condensates, oils, brines, lyes and hot water.

The fluids to be pumped must not contain any abrassive particles nor chemically attack the pump materials.

Main fields of application

In cooling and heating systems, in circulating, water supply, water treatment, sea-water desalination, dedusting and spray painting plants as well as in air-conditioning, cooling, swimming pool and industrial engineering.

Design and series construction

Volute casing centrifugal pump, single entry, single or two-stage, of block design. Pump size according to DIN EN 733.

Stub and motor shaft are rigidly coupled together. Shaft bearing in the motor by means of grease-lubricated groove ball bearings. The mating dimensions of the two-stage sizes 2/25–200, 2/32–200, 2/40–250, 2/50–250, except for dimensions f and l depending upon the driving motors, correspond to the single-stage designs. Volute casing with feet cast on.

Horizontal or vertical installation, motor arrangement downwards is not admissible.

Performance data

Delivery	Q	up to	480 m^3/h
Delivery head	H	up to	145 m
Temperature of the fluid pumped	t	up to	140 °C
Inlet pressure	p_s	①	
Pump outlet pressure as a function of the shaft diameter and the shaft seal ②			
with diameter 16, 24, 30	p_d	up to	16 bar ③
with diameter 40	p_d	up to	10 bar
Drive power	P	0,25 up to	37 kW
Nominal diameter, delivery flange	DN_d	25 up to 150	

Branch position/flanges

Suction branch:	axial
Delivery branch:	radially upwards
Flanges:	up to DN 150 acc. to DIN EN 1092-2 PN 16 as from DN 200 acc. to DIN EN 1092-2 PN 10 / PN16

Contact protection

The requirements of DIN EN 809 “Contact protection”, are met.

Shaft seal

By maintenance-free mechanical seal in unbalanced design (main dimensions acc. to DIN EN 12 756, design K, shape U).

Combination of components

The table on page 3 shows the combination possibilities of components of all NB sizes. The unit assembly system allows reduced stock keeping of spare parts.

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 specific order 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 constant parameters (pressure, temperature, speed = const.), a pump performance controller can be supplied with the pump to detect any operational faults.

Drive

Surface-cooled three-phase squirrel-cage induction motors, with locating-type bearing, IM V1 type of construction, enclosure IP55 according to IEC Standard, class F insulation, performances and main dimensions according to DIN EN 50 347, up to 2.2 kW 230/400V, from 3.0 kW 400/690 V.

Attention: Motors provided by customers must also have a locating-type bearing!

Dismantling the driving unit

When dismantling the driving unit, the volute casing may remain in the piping.

Connections

The following auxiliary connections are always provided:

FD1 Draining
FV1 Venting

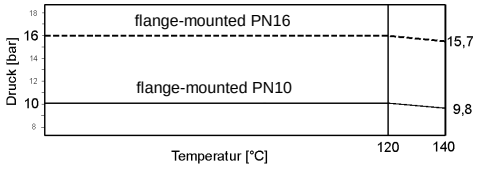
optional

FF1 ④ Filling
PM1 Pressure measurement pump
PM2 Pressure measurement pump

① inlet pressure plus maximum delivery head must not exceed the admissible pump outlet pressure

② allocation pump size / shaft diameter at the shaft seal, refer to pages 12 to 19

③ in case the temperature of fluids pumped exceeds 120°C, the admissible pump outlet pressure changes as follows:



④ connection FF1 at sizes 20-160; 25-200 und 2/25-200 not existent; failure at connection PM2 possible

Shaft seals with temperature and pressure limits

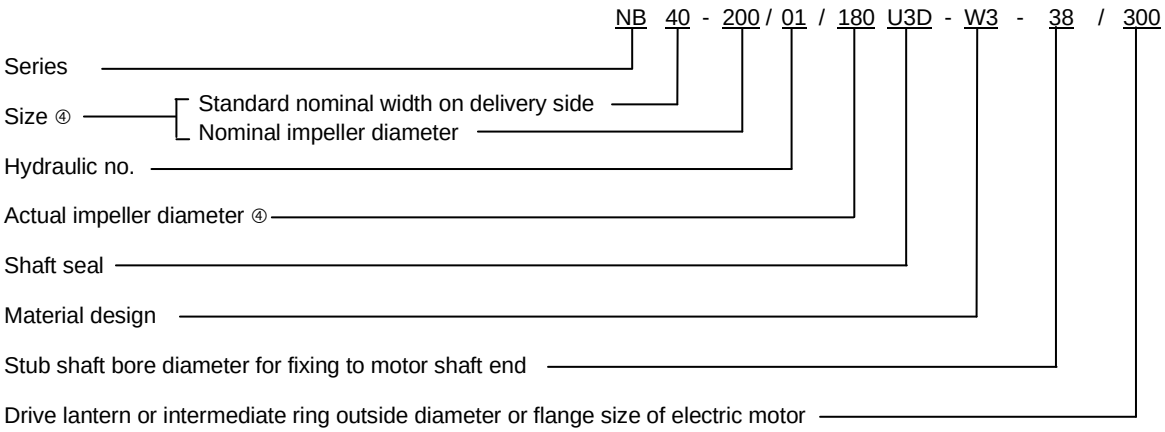
Available for all material designs

Mechanical seal, uncooled	Unbalanced				
Flushing	Internal flushing				
Abbreviation	U3D	U3.1D	U 3.9D	U3.12D	U3.20D
Rotating seal ring	Hard carbon, synthetic resin impregnated		Silicon carbide		Hard carbon, antimony impregnated
Stationary seal ring	Oxide ceramics		Silicon carbide		
Metal parts	CrNiMo steel		CrNiMo steel		
O-rings	EPDM	FPM	EPDM	FPM	EPDM
Bellows	-	-	EPDM	FPM	-
Material key, DIN EN 12 756	BVEGG	BVVGG	Q1Q1EGG	Q1Q1VGG	AQ1EGG
Volute casing centrifugal pumps at bearing bracket size	Admissible temperature of the fluid pumped (℃) and admissible pump outlet pressure p_d (bar))				
	℃ / bar	℃ / bar	℃ / bar	℃ / bar	℃ / bar
single-stage	100 / 10	100 / 10 ①	100 / 10	100 / 10 ①	140 / 10
two-stage	100 / 16 ③	100 / 16 ① ③	100 / 10	100 / 10 ①	140 / 16

① applies to water max. 90 ℃
② only possible for sizes with shaft diameters 16, 24, 30 (at the shaft seal)
③ in case of inlet pressure > 5 bar, shaft seal U3.20 D or U3.10 K must be provided

Other mechanical seal designs on inquiery.

Abbreviation system



④ The actual impeller diameter of two-stage sizes relates to the second stage. The number of stages is placed in front of the nominal width of the outlet branch, e.g. 2/40–200/...

Materials

Denomination	Part No.		Material designs				
	single-stage	two-stage	W 133	W 134	W 135	W 146	W 149
Volute casing	102...	102...	G-CuAl10Ni	EN-GJS-400-15	EN-GJS-400-15	G-CuAl10Ni	EN-GJS-400-18-LT
Impeller	230...	-	G-CuAl10Ni	G-CuAl10Ni	EN-GJL-200	GX3CrNiMoCuN25-6-3-3	G-CuAl10Ni
Impeller 1st stage	-	230...	G-CuAl10Ni	G-CuAl10Ni	EN-GJL-200	GX3CrNiMoCuN25-6-3-3	G-CuAl10Ni
Impeller 2nd stage	-	230...	G-CuAl10Ni	G-CuAl10Ni	EN-GJL-200	GX3CrNiMoCuN25-6-3-3	G-CuAl10Ni
Diffuser	-	171...	G-CuAl10Ni	G-CuAl10Ni	EN-GJL-200	GX3CrNiMoCuN25-6-3-3	G-CuAl10Ni
Stage casing	-	108...	G-CuAl10Ni	EN-GJS-400-15	EN-GJS-400-15	G-CuAl10Ni	EN-GJS-400-18-LT
Casing cover	161...	161...	G-CuAl10Ni	EN-GJS-400-15	EN-GJS-400-15	G-CuAl10Ni	EN-GJS-400-18-LT
Stub shaft	220...	220...	X2CrNiMoN225	X2CrNiMoN225	X2CrNiMoN225	X2CrNiMoN225	X2CrNiMoN225
Drive lantern	341...	341...	EN-GJL-250 oder St	EN-GJL-250 oder St	EN-GJL-250	EN-GJL-250 oder St	EN-GJL-250
Intermediate ring	509.01	-	G-CuAl10Ni	EN-GJS-400-15	EN-GJS-400-15	G-CuAl10Ni	EN-GJS-400-18-LT
Intermediate ring	509.02	-	G-CuAl10Ni	EN-GJS-400-15	EN-GJS-400-15	G-CuAl10Ni	EN-GJS-400-18-LT

Combination of components

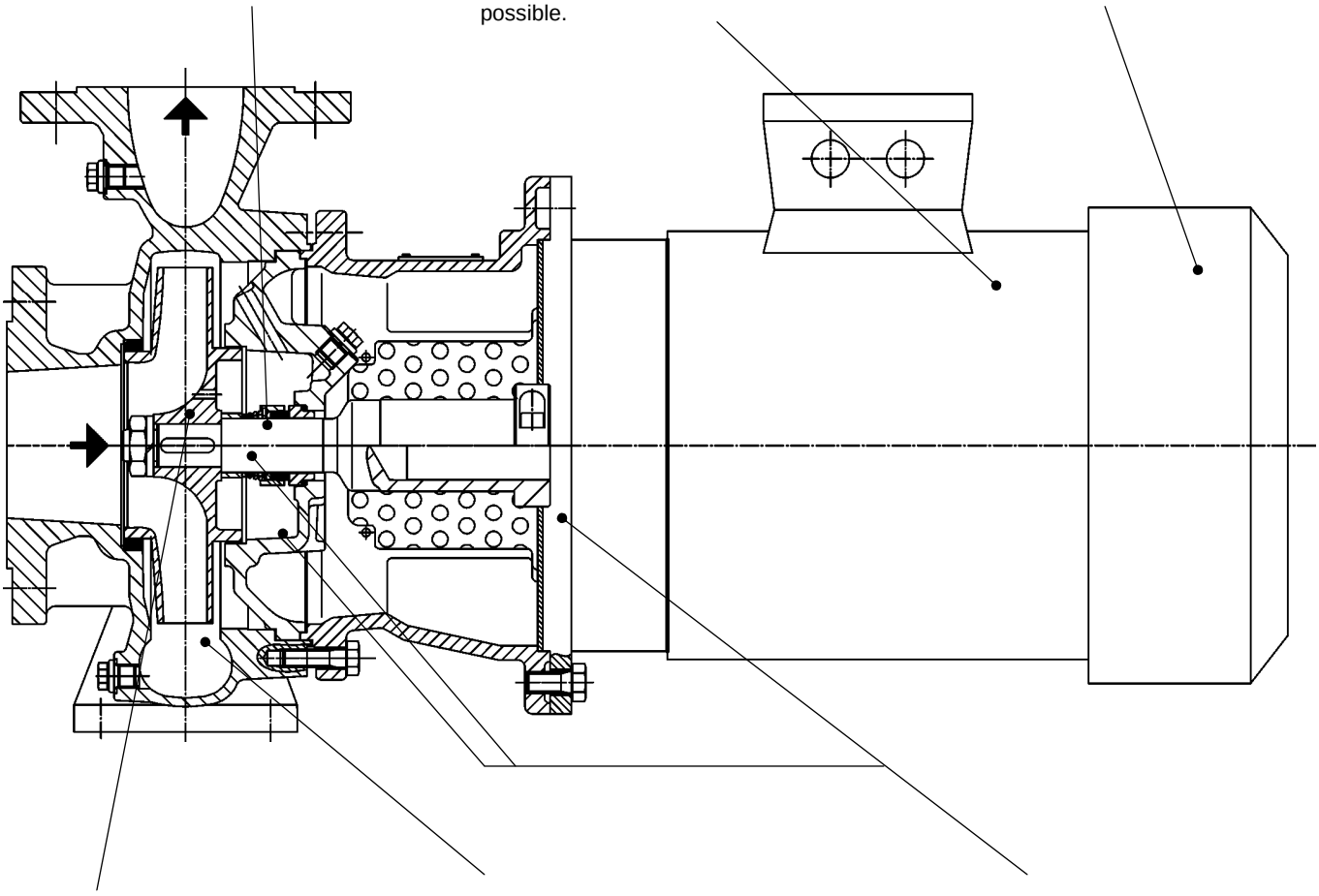
The following table shows the combination possibilities of components or spare parts of the NB sizes.
Within a vertical column, parts with identical numbers are interchangeable.

Shaft diameter at the shaft seal	Pump size NI	Volute casing	Impeller	Impeller		Diffuser	Stage casing	Inter-mediate ring	Casing cover	Stub shaft	Drive lantern	Intermediate ring
				1st stage	2nd stage							
mm										The allocation to the sizes depends on speed, motor performance and motor design.		
16	20-160	1	1	-	-	-	-	-	1	16-14 16-19 16-24 16-28	16-160 16-200 16-250	-
	25-160	2	1									
24	32-125	3	2	-	-	-	-	-	2	24-14 24-19 24-24 24-28 24-38 24-42	24-160 24-200 24-250 24-300 24-350	-
	40-125	4	3									
	50-125	5	4									
	65-125	6	5									
30	25-200	7	6	-	-	-	-	-	3	30-19 30-24 30-28 30-38 30-42 30-48 30-55	30-200 30-250 30-300 30-350 30-400	-
	32-160	8	7									
	32-200	9	8									
	40-160	10	9									
	40-200	11	10									
	40-250	12	11					1				
	50-160	13	12					-				
	50-200	14	13									
	50-250	15	14					1				
	65-160	16	15					-				
	65-200	17	16					1				
	80-160	18	17					-				
	100-160	19	18									
30 zweistufig	2/25-200	7	-	1	1	1	1	-	4	2/30-19 2/30-24 2/30-28 2/30-38 2/30-42 2/30-48 2/30-55	30-200 30-250 30-300 30-350 30-400	-
	2/32-200	9	-									
	2/40-250	12	-	2	2	2	2		5			
	2/50-250	15	-	3								
40	65-250	20	19	-	-	-	-	-	6	40-28 40-38 40-42 40-48 40-55	40-360	280.180.0 280.230.20 280.250.50 280.300.50
	65-315	21	20					2				
	65-400	22	21					3				
	80-200	23	22					-				
	80-250	24	23									
	80-315	25	24					2				
	100-200	26	25					-				
	100-250	27	26									
	100-315	28	27					2				
	125-200	29	28					-				
	125-250	30	29									
	150-200	31	30									

Uncooled, unbalanced mechanical seal for cavities according to DIN EN 12 756, design K, form U.

Commercial standard motors with locating-type bearing, construction IM V1, all types of enclosures and speeds of rotation possible.

Horizontal and vertical mounting possible with exception of motor downward.

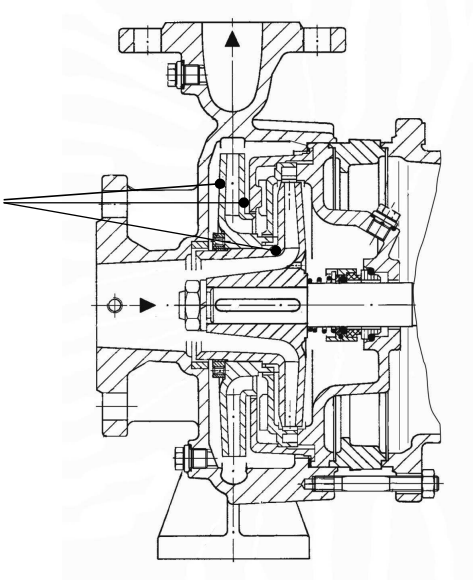


Negligible axial thrust by fine adaption of the balancing holes.

Optimized hydraulic with **very good efficiencies and NPSH-values** of the standard series NT acc. to DIN EN 733, **delivery rate partly considerable above the standard demands**

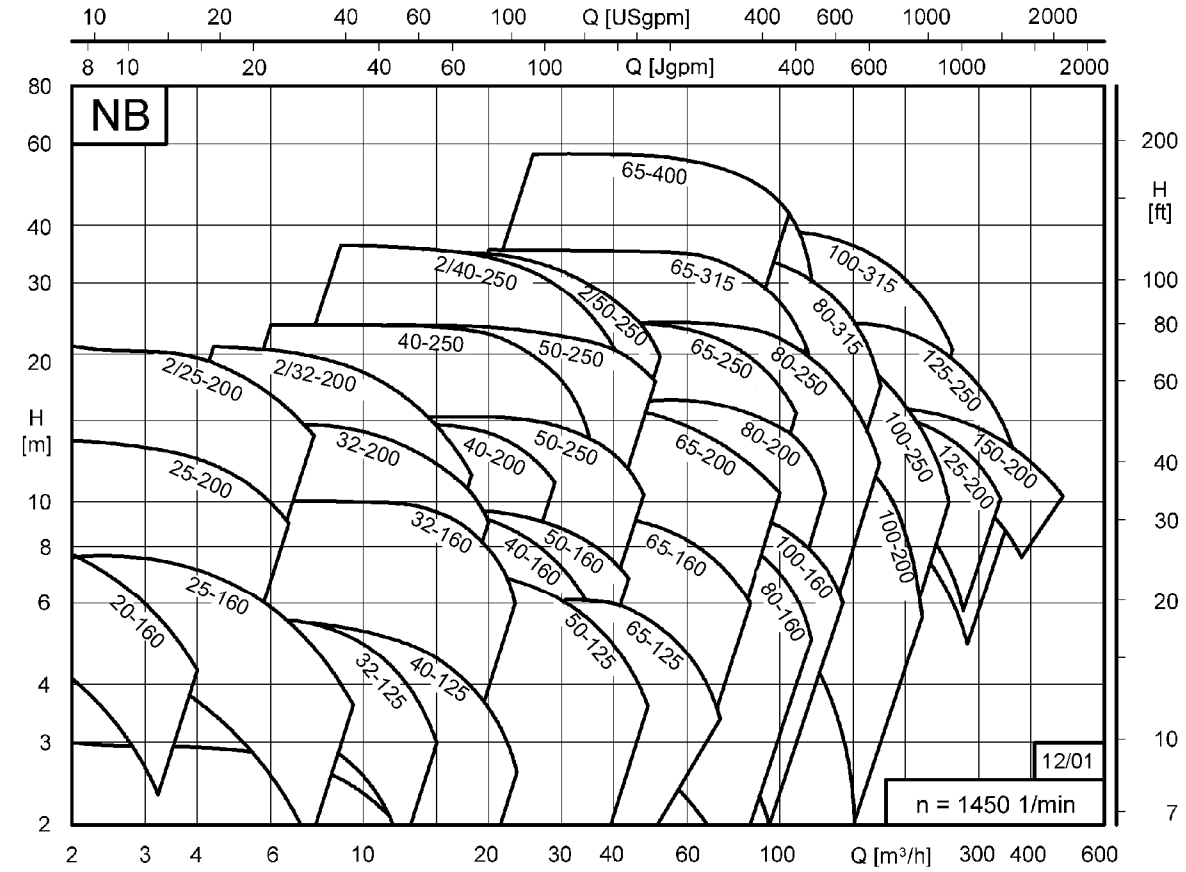
When dismantling the driving unit (including impeller) the **volute casing remains in the piping.**

Larger delivery heads with two-stage sizes (2/25-200, 2/32-200, 2/40-250, 2/50-250).
The outer dimensions correspond with the single stage design.

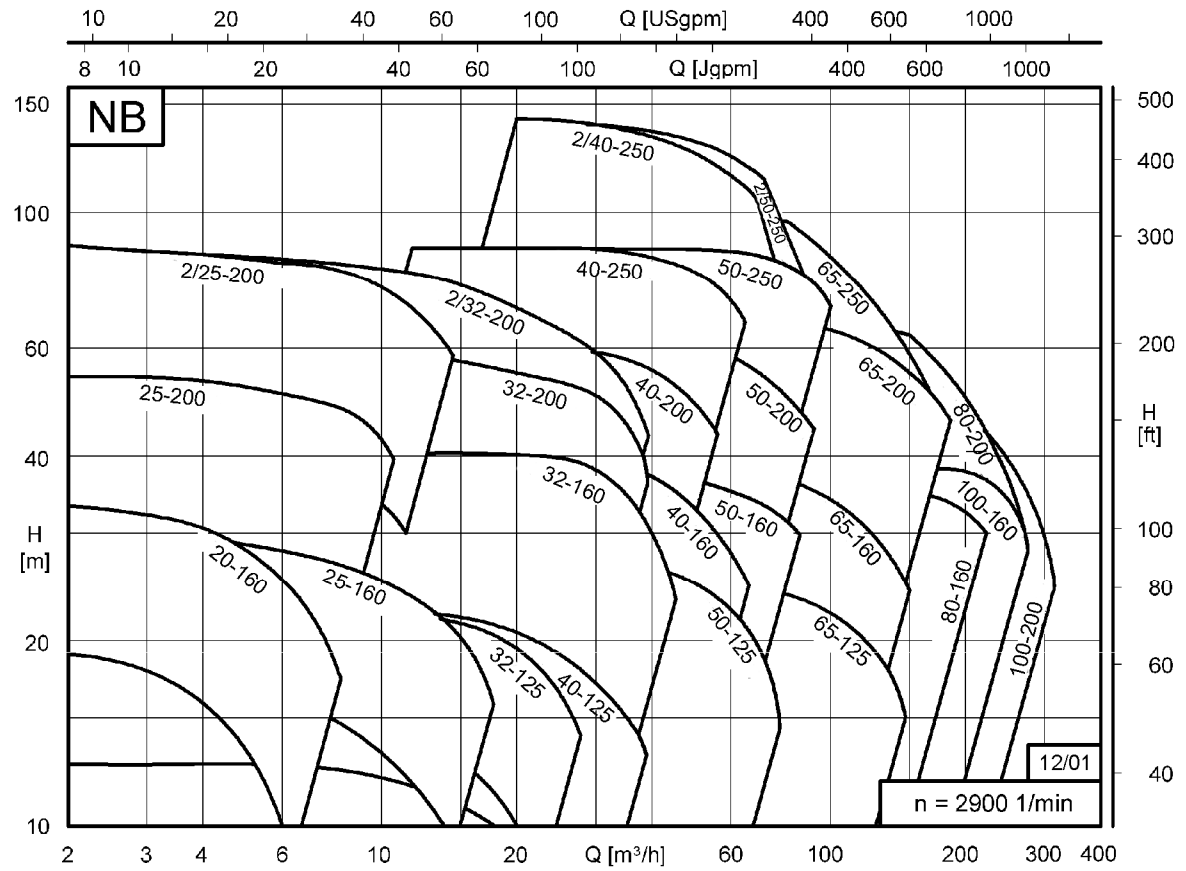


Performance graphs

n = 1450 1/min

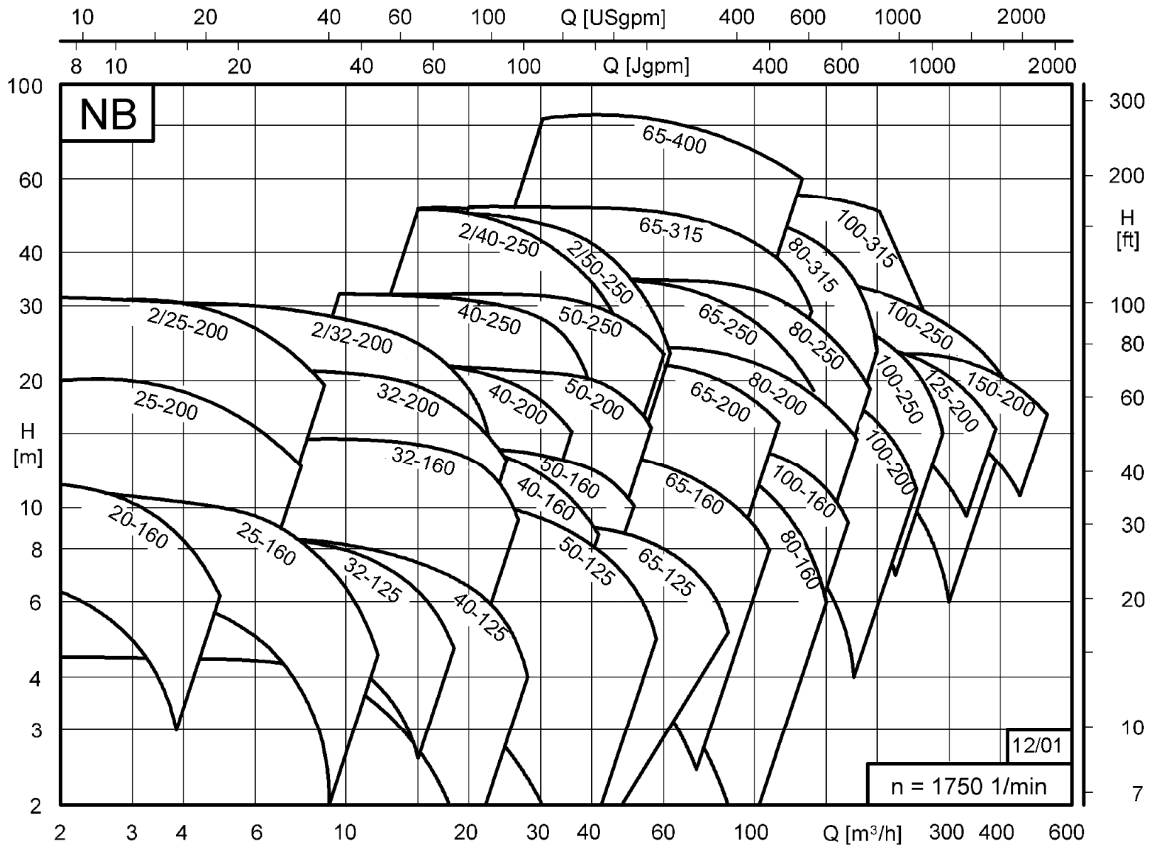


n = 2900 1/min

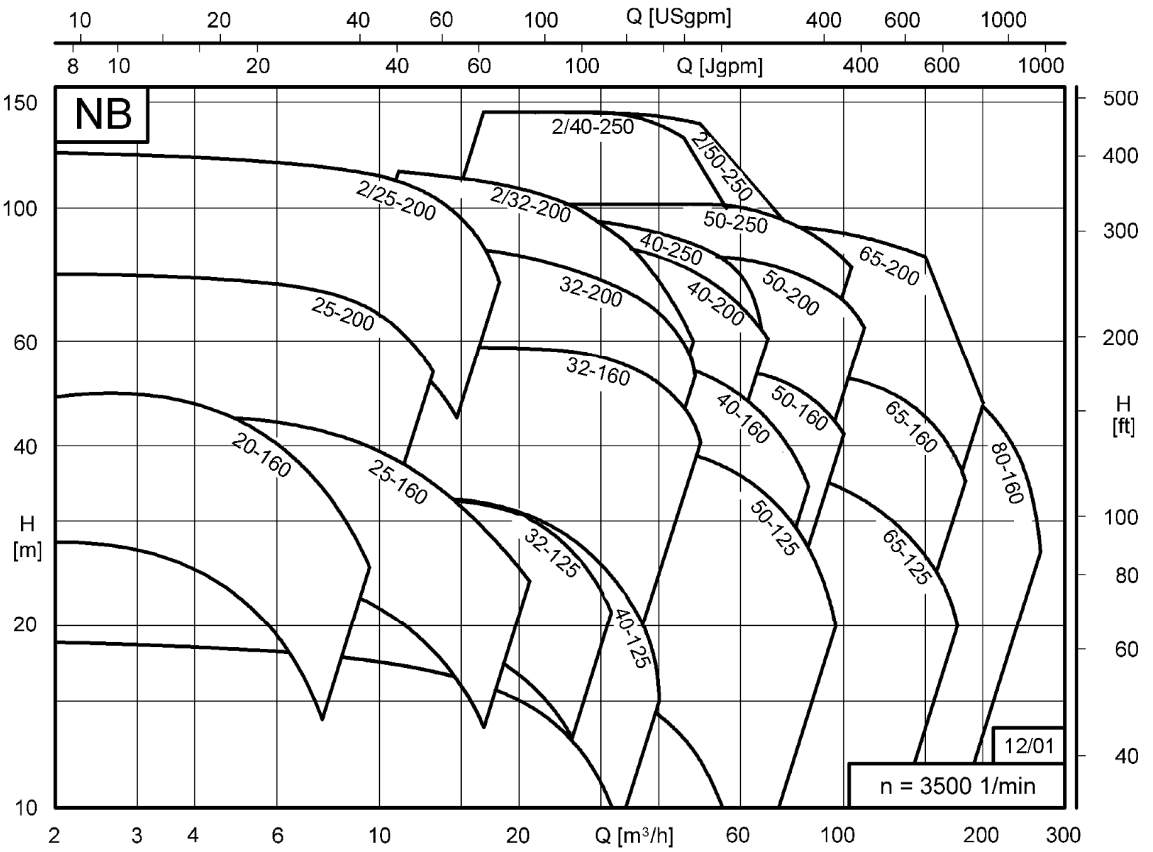


For exact performance data, please refer to the individual characteristics.
Valid for ρ = 1 kg/dm³ and v = 1 mm²/s

n = 1750 1/min

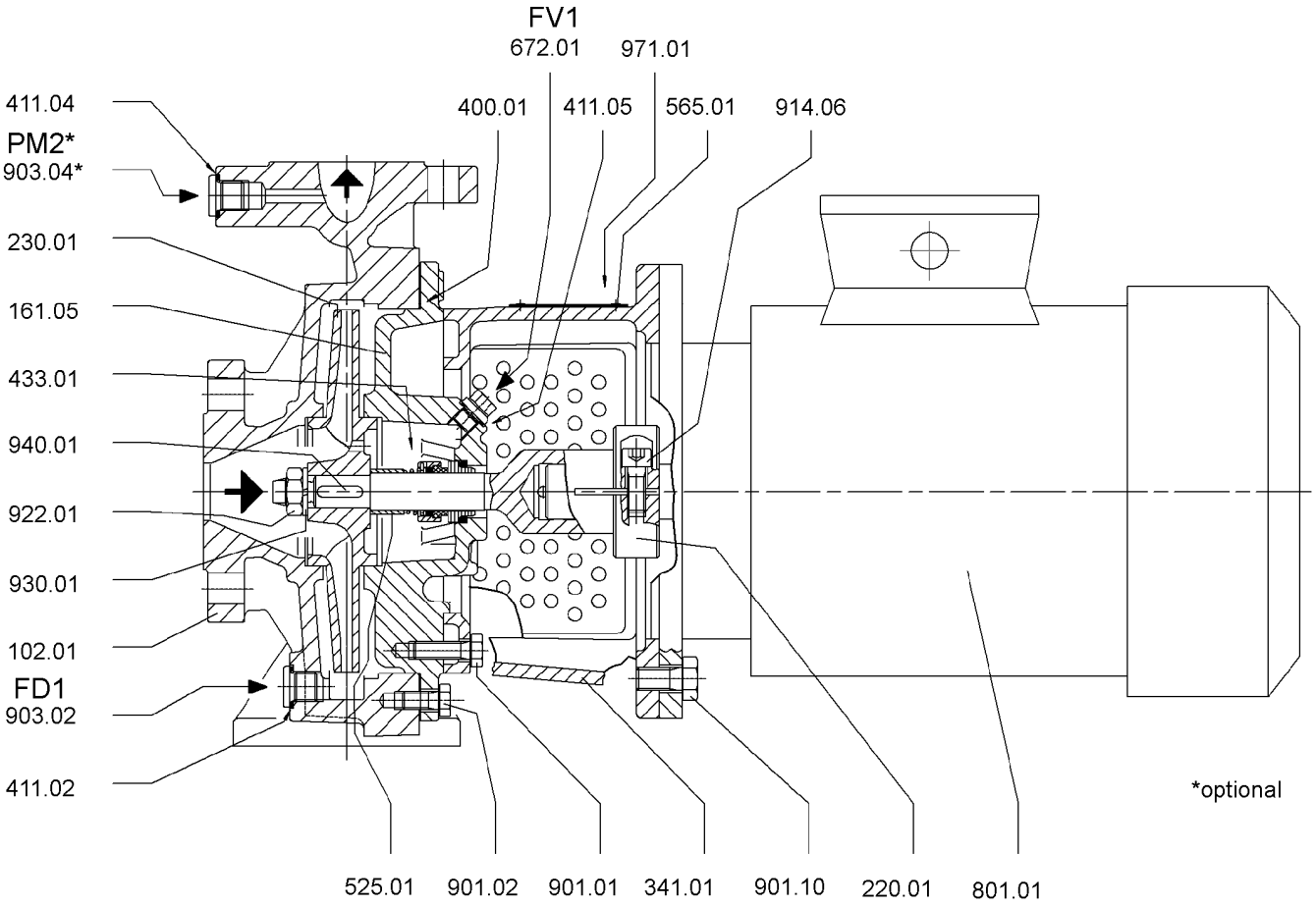


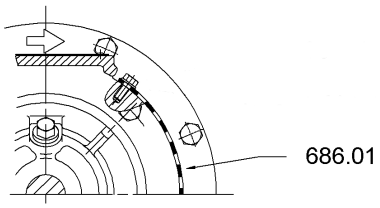
n = 3500 1/min



For exact performance data, please refer to the individual characteristics.
Valid for ρ = 1 kg/dm³ and v = 1 mm²/s

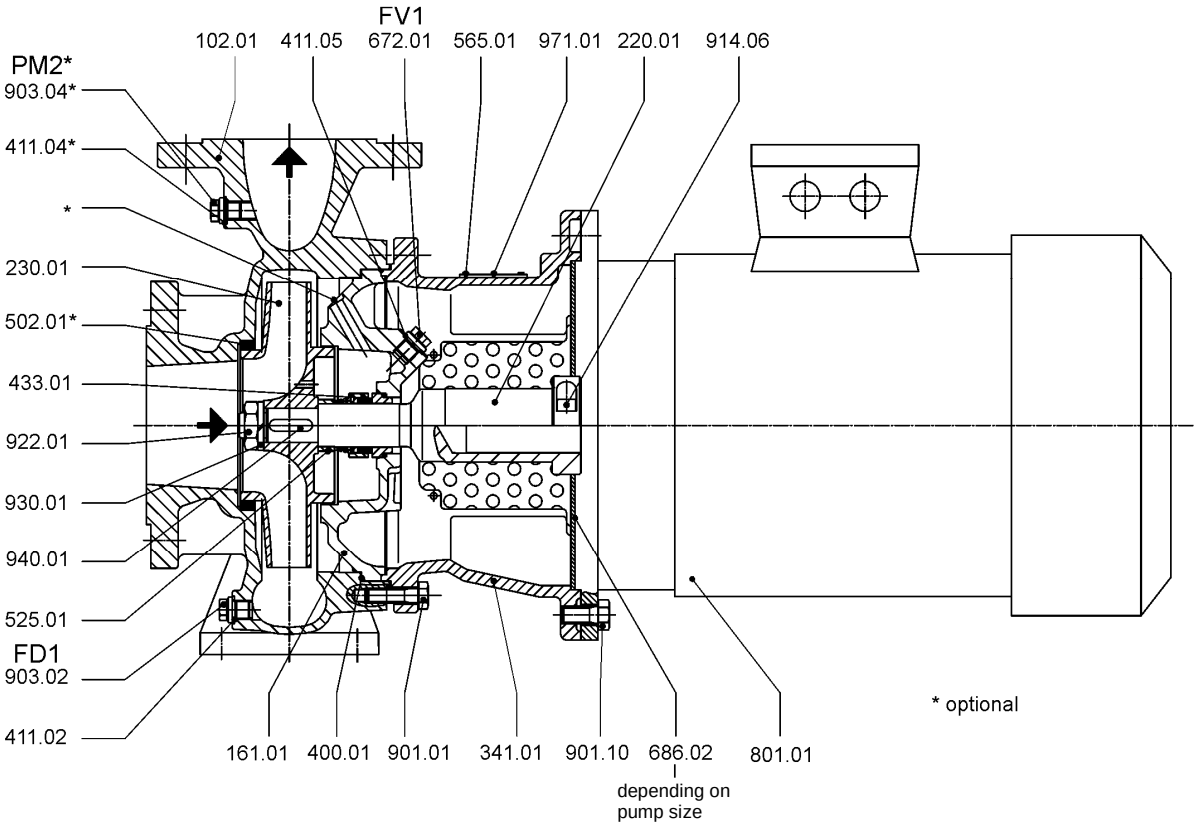
Sectional drawing
Single-stage sizes with **shaft diameter 16** at the shaft seal



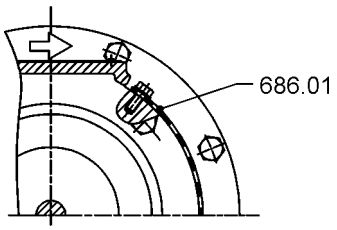


Fixing of guard plate to the drive lantern.
Protection against accidental contact acc. to DIN EN 809

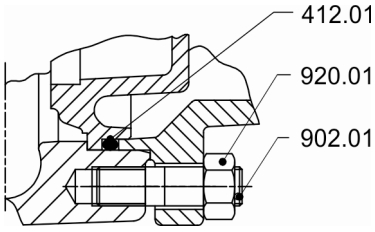
Sectional drawing
Single-stage sizes with **shaft diameters 24** at the shaft seal



Uncooled, unbalanced mechanical seal
Abbreviation: **U 3 D**



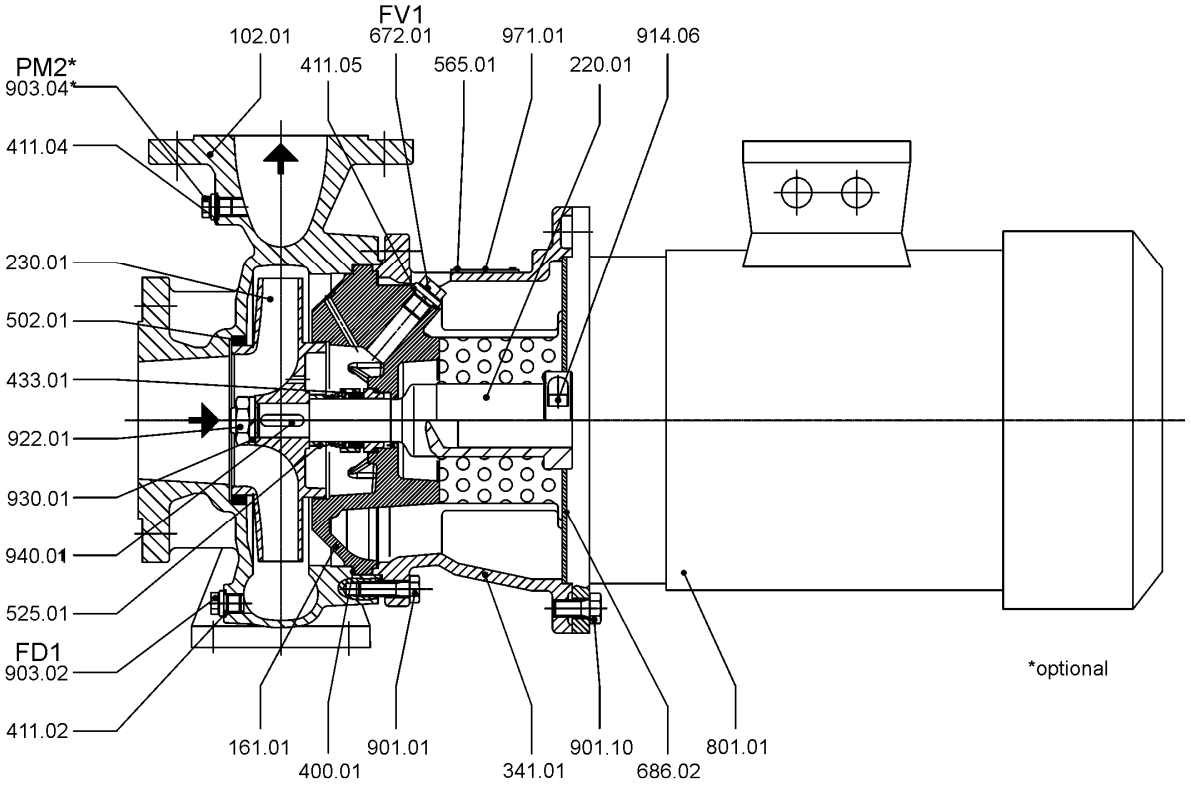
Fixing of guard plate to the drive lantern.
Protection against accidental contact acc. to DIN EN 809



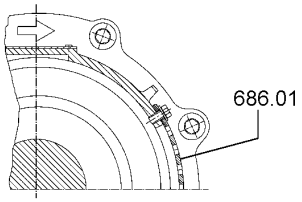
Sizes with **shaft diameters 24** at the shaft seal

VM 528 GB/2012.06 – Ident No. 795 261

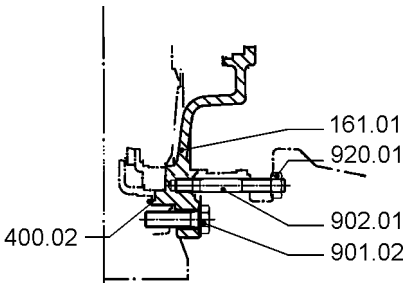
Sectional drawing
Single-stage sizes with **shaft diameters 30** at the shaft seal



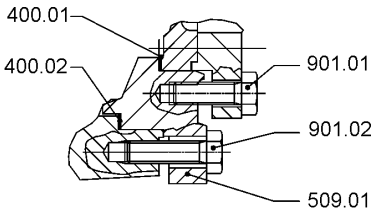
Uncooled, unbalanced mechanical seal
Abbreviation: U 3 D



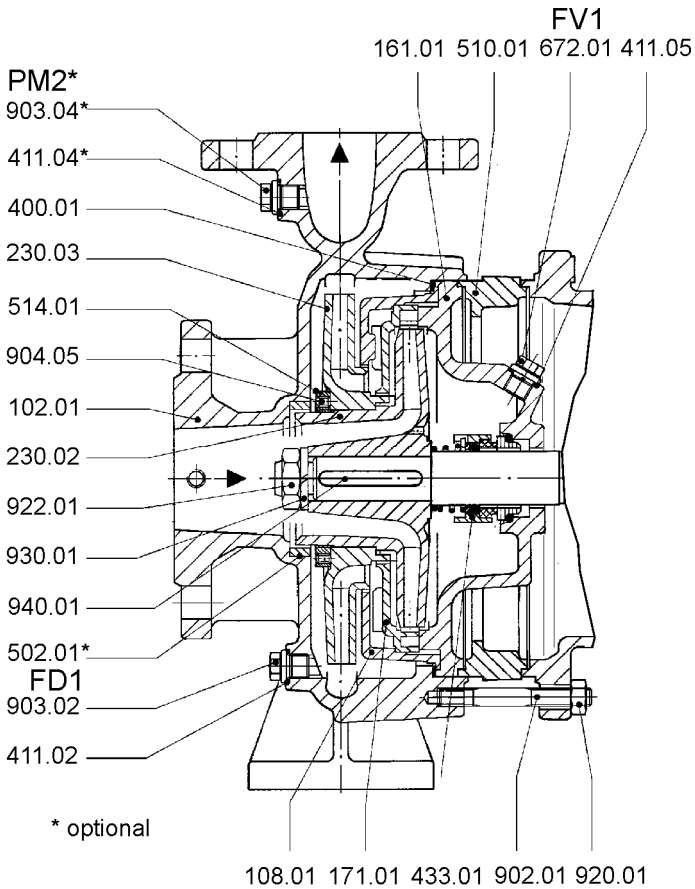
Fixing of guard plate to the drive lantern.
Protection against accidental contact acc. to DIN EN 809



Casing cover-design
sizes 2/40-250 and 2/50-250



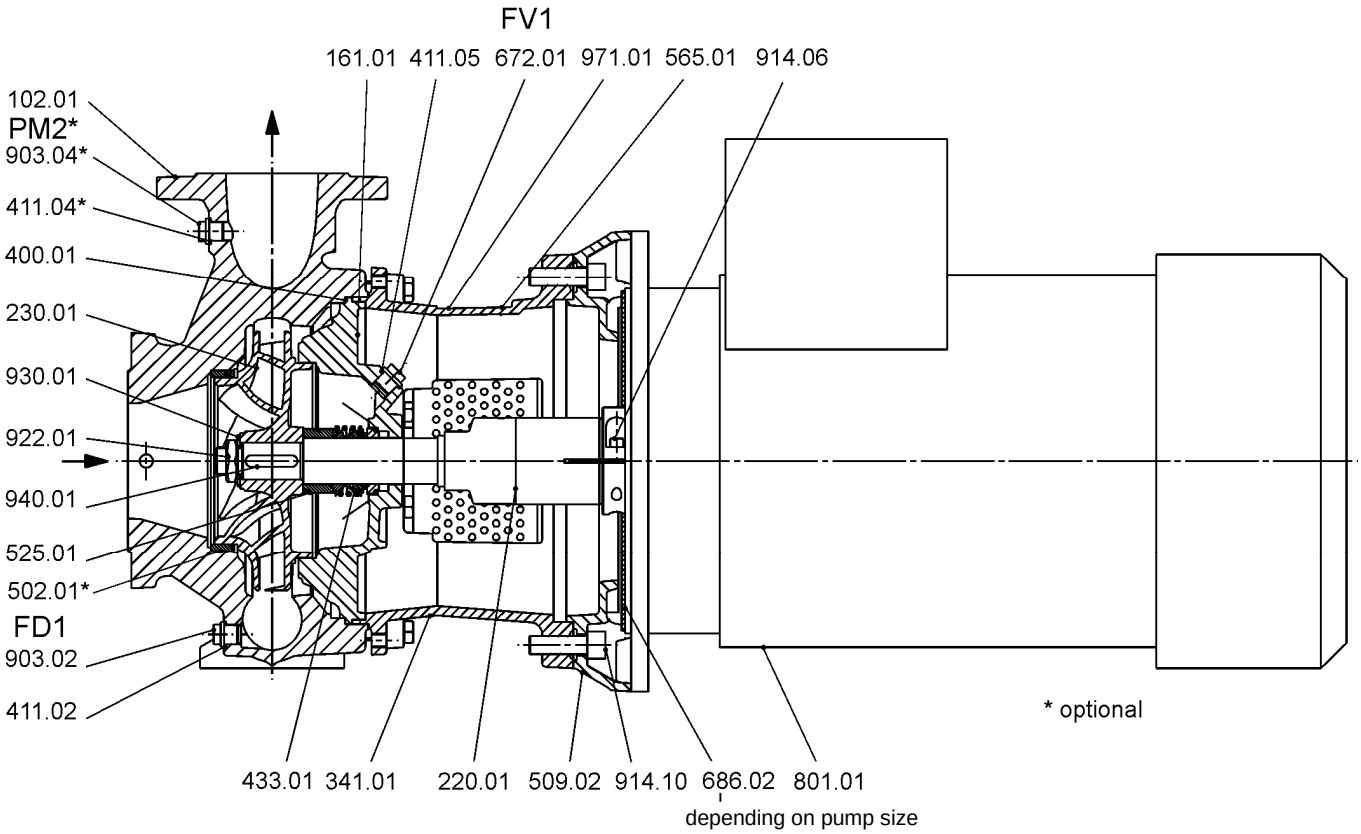
Design with intermediate ring,
sizes 40-250 and 50-250



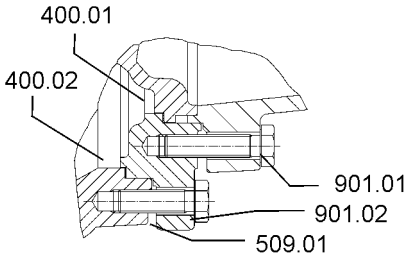
Two-stage sizes with shaft diameter 30 at the shaft seal, uncooled, unbalanced mechanical seals U 3 D and U 3.20 D

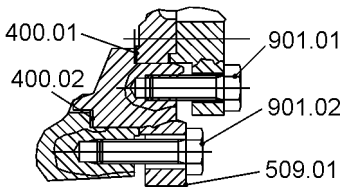
Sectional drawing

Sizes with **shaft diameter 40** at the shaft seal

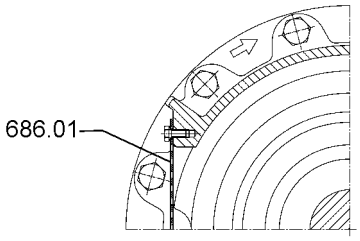


Uncooled, unbalanced mechanical seal
Abbreviation: **U 3 D**





Design with intermediate ring
Sizes 65-315, 80-315, 100-315, 65-400



Fixing of guard plate to the drive lantern.
Protection against accidental contact acc. to DIN EN 809

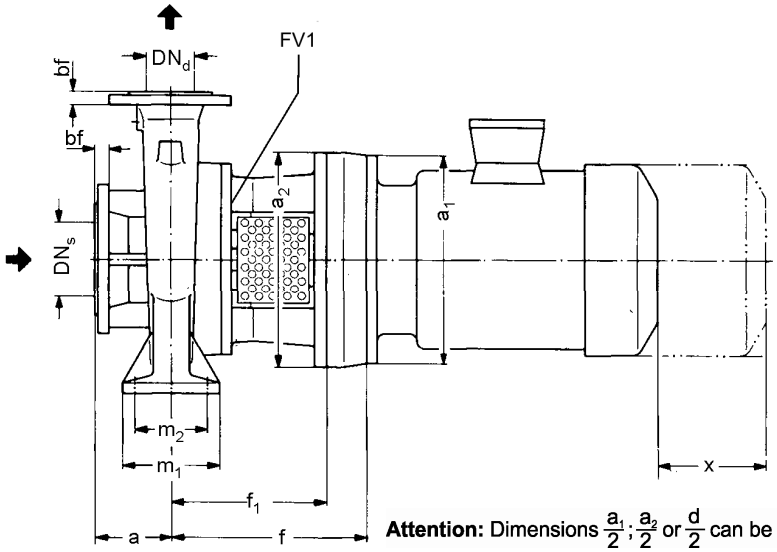
List of components

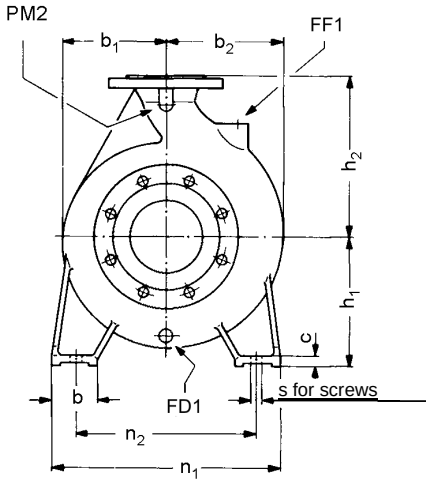
Denomination	Part-No
Volute casing	102.01
Stage casing	108.01
Casing cover	161.01
Casing cover	161.05
Diffuser	171.01
Stub shaft	220.01
Impeller	230.01
Impeller 1st stage	230.02
Impeller 2nd stage	230.03
Drive lantern	341.01
Gasket	400.01
Gasket	400.02
Joint ring	411.01
Joint ring	411.02
Joint ring	411.04
Joint ring	411.05
O-ring	412.01
Mechanical seal	433.01
Intermediate ring	502.01
Intermediate ring	509.01
Intermediate ring	509.02
Spacer ring	510.01
Threaded ring	514.01
Spacer sleeve	525.01
Rivet	565.01
Bleeder screw	672.01
Guard plate	686.01
Guard plate	686.02
Flange-mounted motor	801.01
Hexagonal screw	901.01

Denomination	Part-No
Hexagonal screw	901.02
Hexagonal screw	901.10
Stud bolt	902.01
Stud bolt	902.08
Screwed plug	903.01
Screwed plug	903.02
Screwed plug	903.03
Screwed plug	903.04
Grub screw	904.05
Socket head cap screw	914.06
Socket head cap screw	914.10
Hexagonal nut	920.01
Hexagonal nut	920.03
Impeller nut	922.01
Spring washer	930.01
Key	940.01
Rating plate	971.01

Connections	
FD1	Drainage
FF1	Filling
FV1	Venting
PM1	Pressure measurement
PM2	Pressure measurement

Aggregate dimensions: Sizes with **shaft diameters 16, 24 and 30** at the shaft seal



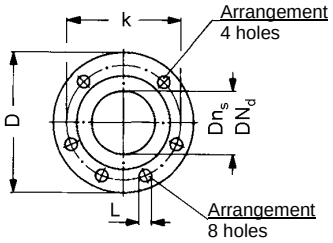


Attention: Dimensions $\frac{a_1}{2}$; $\frac{a_2}{2}$ or $\frac{d}{2}$ can be larger than h_1

Shaft diameter at the shaft seal	Connections			
	Drain-ing	Fill-ing	Vent-ing	Pressure measurement
mm	FD1	FF1	FV1	PM2
16	G 1/4	G 1/4	G 1/8	G 1/4
24	G 1/4	G 1/4	G 1/4	G 1/4
30	G 1/4	G 1/4	G 3/8	G 1/4

Connections at sizes 25-200 and 2/25-200: FD1 = G 1/2; FF1 at sizes 20-160, 25-200 and 2/25-200 not existent.

Flanges acc. to DIN EN 1092-2 PN 16 (10)					
DN_d DN_s	D	bf	k	L	No. of holes
25	115	16	85	14	4
32	140	18	100	19	4
40	150	18	110	19	4
50	165	20	125	19	4
65	185	20	145	19	4
80	200	22	160	19	8



Tolerances of companion dimensions acc. to DIN EN 735

Sense of rotation: clockwise as seen from the driving side

Dimensions in mm without commitment

Shaft diameter at shaft seal	Pump size	Motor size	Perfor-mance	Aggregate dimensions																			Allocation stub shaft/ motor bracket/ intermediate ring Contained in abbreviation, v. page 2
				Pump dimensions																		Motor and flange dimensions approx. dimensions varying depending upon manufacturer	Extension dim.	
				Flanges		Feet																		
mm			kW	DN_s	DN_d	a	f	a_2	b_1	b_2	f_1	h_1	h_2	b	c	m_1	m_2	n_1	n_2	s	a_1	x	v. page 2
16	20-160	71	0,25 0,37	25	25	63	118	-	108	108	-	112	145	50	14	100	70	220	180	M10	160	62	14/160
		80	0,55 0,75				138														200		19/200
	25-160	71	0,25 0,37	25	25	63	118	-	100	108	-	112	160	50	12	100	70	220	180	M10	160	62	14/160
		80	0,55 0,75				138														200		19/200
24	32-125	71	0,25 0,37	50	32	80	148	-	96	96	-	112	140	50	15	100	70	190	140	M12	160	89	14/160
		80	0,55 0,75																		200		19/200
		90 S	1,1																				24/200
	40-125	71	0,25 0,37	65	40	80	148	-	96	110	-	112	140	50	15	100	70	210	160	M12	160	89	14/160
		80	0,55 0,75																		200		19/200
		90 S	1,1																				24/200
	50-125	71	0,25 0,37	65	50	100	148	-	110	130	-	132	160	50	15	100	70	240	190	M12	160	89	14/160
		80	0,55 0,75																		200		19/200
		90 S	1,1																				24/200
		90 L	1,5																				24/200
		100 L	2,2 3																		250		28/250
	65-125	71	0,25 0,37	80	65	100	148	-	120	148	-	160	180	65	15	125	95	280	212	M12	160	95	14/160
		80	0,55 0,75																		200		19/200
		90 S	1,1																				24/200
		90 L	1,5																				24/200
		100 L	2,2 3																		250		28/250
30	25-200	80	0,55 0,75	40	25	80	149	-	132	132	-	160	180	50	15	100	70	240	190	M12	200	102	19/200
		90 S	1,1																				24/200
		90 L	1,5																				24/200
	2/25-200	80	0,55 0,75	40	25	80	183	-	132	132	-	160	180	50	15	100	70	240	190	M12	200	102	19/200
		90 S	1,1																				24/200
		90 L	1,5																				24/200
		100 L	2,2 3				193														250		28/250

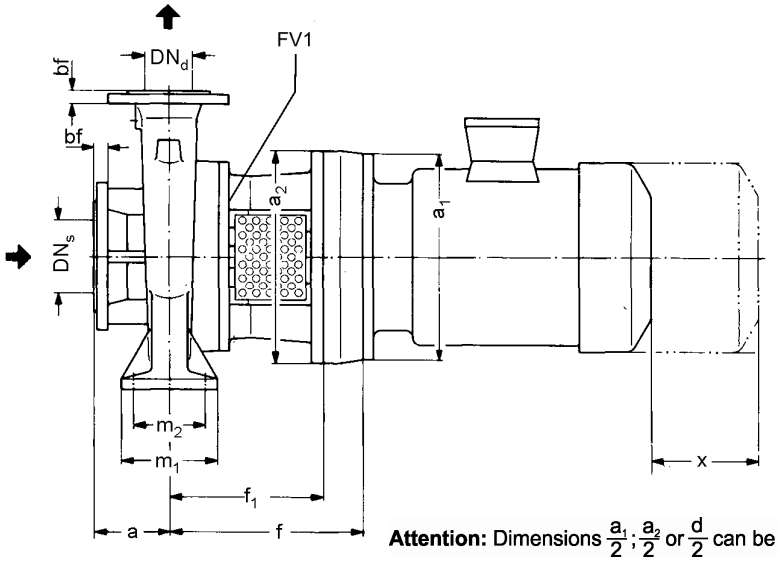
Shaft diameter at shaft seal	Pump size	Motor size	Performance	Aggregate dimensions																		Allocation stub shaft/ motor bracket/ intermediate ring
				Pump dimensions																	Motor and flange dimensions approx. dimensions varying depending upon manufacturer	Extension dim.	
				Flanges				Feet														
mm			kW	DN_s	DN_d	a	f	a_2	b_1	b_2	f_1	h_1	h_2	b	c	m_1	m_2	n_1	n_2	s	a_1	x	Contained in abbreviation,
30	32-160	80	0,55 | 0,75	50	32	80	149	-	130	130	-	132	160	50	15	100	70	240	190	M12	200	102	19/200
		90 S	1,1																			24/200
		90 L	1,5																			24/200
		100 L	2,2 | 3																		250	28/250
	32-200	80	0,55 | 0,75	50	32	80	149	-	124	130	-	160	180	50	15	100	70	240	190	M12	200	102	19/200
		90 S	1,1																			24/200
		90 L	1,5																			24/200
		100 L	2,2 | 3																		250	28/250
	2/32-200	80	0,55 | 0,75	50	32	80	183	-	124	130	-	160	180	50	15	100	70	240	190	M12	200	102	19/200
		90 S	1,1																			24/200
		90 L	1,5																			24/200
		100 L	2,2 | 3				193														250	28/250
	40-160	80	0,55 | 0,75	65	40	80	149	-	130	130	-	132	160	50	15	100	70	240	190	M12	200	102	19/200
		90 S	1,1																			24/200
		90 L	1,5																			24/200
		100 L	2,2 | 3																		250	28/250
	40-200	80	0,55 | 0,75	65	40	100	149	-	125	135	-	160	180	50	15	100	70	265	212	M12	200	102	19/200
		90 S	1,1																			24/200
		90 L	1,5																			24/200
		100 L	2,2 | 3																		250	28/250
		112 M	4																			28/250
	40-250	90 S	1,1	65	40	100	149	-	150	156	-	180	225	65	15	125	95	320	250	M12	200	85	24/200
		90 L	1,5																			24/200
		100 L	2,2 | 3																		250	28/250
		112 M	4																			28/250
	2/40-250	110 L	2,2 | 3	65	40	100	193	-	150	156	-	180	225	65	15	125	95	320	250	M12	250	85	28/250
		112 M	4																			28/250
		132 S	5,5				238														300		38/300
		132 M	7,5																			38/300
		160 M	11				274														350		42/350
	50-160	80	0,55 | 0,75	65	50	100	149	-	123	130	-	160	180	50	15	100	70	265	212	M12	200	102	19/200
		90 S	1,1																			24/200
		90 L	1,5																			24/200
		100 L	2,2 | 3																		250	28/250
	50-200	80	0,55 | 0,75	65	50	100	149	-	133	145	-	160	200	50	15	100	70	265	212	M12	200	102	19/200
		90 S	1,1																			24/200
		90 L	1,5																			24/200
		100 L	2,2 | 3																		250	28/250
		112 M	4																			28/250
		132 S	5,5				204														300		38/300
	50-250	90 L	1,5	65	50	100	149	-	156	169	-	180	225	65	15	125	95	320	250	M 12	200	85	24/200
		100 L	2,2 | 3																		250		28/250
		112 M	4																			28/250
		132 S	5,5				204														300		38/300
		132 M	7,5																			38/300
		160 M	11				219														350		42/350
	2/50-250	100 L	2,2 | 3	65	50	100	193	-	156	169	-	180	225	65	15	125	95	320	250	M12	250	85	28/250
		112 M	4																			28/250
		132 S	5,5				238														300		38/300
		132 M	7,5																			38/300
		160 M	11				274														350		42/350
		160 L	15																			42/350
	65-160	80	0,55 | 0,75	80	65	100	149	-	133	162	-	160	200	65	15	125	95	280	212	M12	200	102	19/200
		90 S	1,1																			24/200
		90 L	1,5																			24/200
		100 L	2,2 | 3																		250	28/250
		112 M	4																			28/250

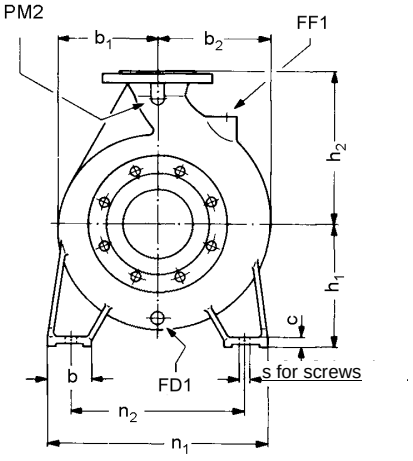
The motor dimensions as indicated are approximate dimensions. Exact data depend on the motor make.

When using special motors, make sure that other performances are allocated to the individual sizes, depending upon the enclosure. The main dimensions change accordingly. In case of order, binding tables of motor dimensions must be supplied to us.

Flanges processed according to DIN 1092-2 PN 10/16. (Flange outer diameter D and thickness b_f can exceed the standard dimensions.)

Aggregate dimensions: Sizes **with shaft diameter 30 and 40** at the shaft seal





Attention: Dimensions $\frac{a_1}{2}$; $\frac{a_2}{2}$ or $\frac{d}{2}$ can be larger than h_1

Shaft diameter at the shaft seal	Connections			
	Drain-ing	Fill-ing	Vent-ing	Pressure measurement
mm	FD1	FF1	FV1	PM2
30	G 1/4	G 1/4	G 1/4	G 1/4
40	G 3/8	G 3/8	G 3/8	G 3/8

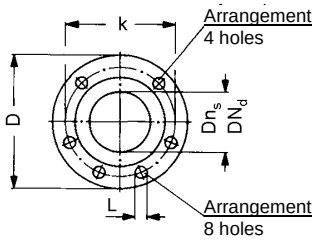
Connections at sizes 25-200 and 2/25-200: FD1= G 1/2; FF1 at sizes 20-160, 25-200 and 2/25-200 not existent.

Tolerances of companion dimensions acc. to DIN EN 735

Flanges:
DN 150 acc. to DIN EN 1092-2 PN 16
DN 200 acc. to DIN EN 1092-2 PN 10

DN_d DN_s	D	bf	k	L	No. of holes
65	185	20	145	19	4
80	200	22	160	19	8
100	220	24	180	19	8
125	250	26	210	19	8
150	285	26	240	23	8
200	340	26	240	23	8
200	340	30	295	23	12

Sense of rotation:
clockwise as seen from the driving side



Dimensions in mm without commitment

Shaft diameter at shaft seal	Pump size	Motor size	Perfor-mance	Aggregate dimensions																			Allocation stub shaft/ motor bracket/ intermediate ring
				Pump dimensions																		Motor and flange dimensions approx. dimensions varying depending upon manufacturer	Extension dim.	Contained in abbreviation, v. page 2
				Flanges		Feet																		
mm			kW	DN_s	DN_d	a	f	a_2	b_1	b_2	f_1	h_1	h_2	b	c	m_1	m_2	n_1	n_2	s	a_1	x	
30	65-200	90 S	1,1	80	65	100	149	-	148	170	-	180	225	65	15	125	95	320	250	M 12	250	85	24/200
		90 L	1,5																				24/200
		100 L	2,2 | 3																		250		28/250
		112 M	4																				28/250
		132 S	5,5				204														300		38/300
		132 M	7,5																				38/300
	80-160	80	0,55 | 0,75	100	80	125	149	-	136	170	-	180	225	65	15	125	95	320	250	M12	200	102	19/200
		90 S	1,1																				24/200
		90 L	1,5																				24/200
		100 L	2,2 | 3																		250		28/250
		112 M	4																				28/250
		132 S	5,5				204														300		38/300
		132 M	7,5																				38/300
	100-160	90 S	1,1	125	100	125	149	-	165	200	-	200	280	65	15	125	95	320	250	M 12	200	102	24/200
		90 L	1,5																				24/200
		100 L	2,2 | 3																		250		28/250
		112 M	4																				28/250
		132 S	5,5				204														300		38/300
		132 M	7,5																				38/300
40	65-250	100 L	2,2 | 3	80	65	100	261	360	164	184	261	200	250	80	18	160	120	360	280	M16	250	123	28/250
		112 M	4																				28/250
		132 S	5,5				281														300		38/300
		132 M	7,5																				38/300
		160 M	11				311														350		42/350
		160 L	15																				42/350
		180 M	22																				48/350
	65-315	112 M	4	80	65	125	261	360	202	219	261	225	280	80	25	160	120	400	315	M16	250	105	28/250
		132 S	5,5				281														300		38/300
		132 M	7,5																				38/300
		160 M	11				311														350		42/350
		160 L	15																				42/350
		180 M	18,5																				48/350
		180 L	22																				48/350
		200 L	30																		400		55/400

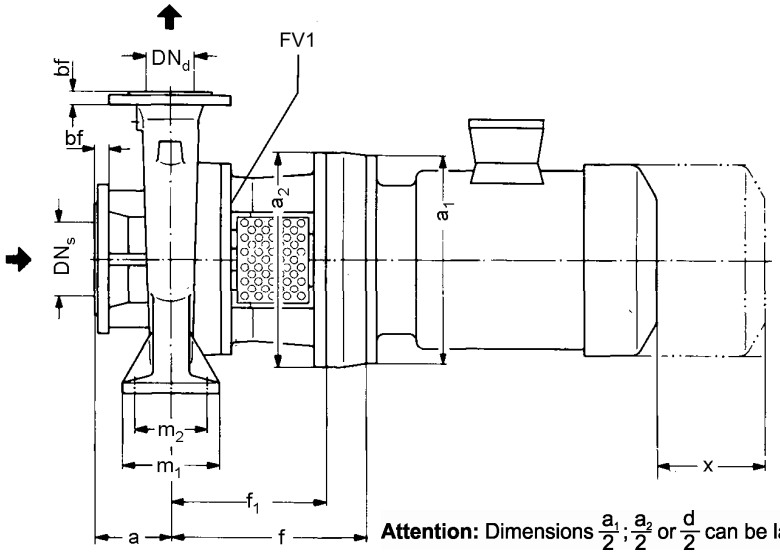
Shaft diameter at shaft seal	Pump size	Motor size	Performance	Aggregate dimensions																			Allocation stub shaft/ motor bracket/ intermediate ring
				Pump dimensions																	Motor and flange dimensions approx. dimensions varying depending upon manufacturer	Extension dim.	Contained in abbreviation, v. page 2
				Flanges				Feet															
mm			kW	DN_s	DN_d	a	f	a_2	b_1	b_2	f_1	h_1	h_2	b	c	m_1	m_2	n_1	n_2	s	a_1	x	
40	65-400	132 M	7,5	80	65	125	281	360	239	255	261	250	355	80	25	160	120	420	335	M16	300	105	38/300
		160 M	11																		350		42/350
		160 L	15				311																42/350
		180 M	18,5																				48/350
		180 L	22																				48/350
		200 L	30																		400		55/400
	80-200	100 L	2,2 | 3	100	80	125	261	360	163	188	261	180	250	65	18	125	95	345	280	M12	250	123	28/250
		112 M	4																				28/250
		132 S	5,5				281														300		38/300
		132 M	7,5																				38/300
		160 M	11				311														350		42/350
	80-250	112 M	4	100	80	125	261	360	182	208	261	200	280	80	18	160	120	400	315	M16	250	123	28/250
		132 S	5,5				281														300		38/300
		132 M	7,5																				38/300
		160 M	11				311														350		42/350
		160 L	15																				42/350
		180 M	18,5																				48/350
		180 L	22																				48/350
		200 L	30																		400		55/400
	80-315	132 S	5,5	100	80	125	281	360	210	231	261	250	315	80	25	160	120	400	315	M16	300	105	38/300
		132 M	7,5																				38/300
		160 M	11				311														350		42/350
		160 L	15																				42/350
		180 M	18,5																				48/350
		180 L	22																				48/350
		200 L	30																		400		55/400
	100-200	100 L	2,2 | 3	125	100	125	261	360	165	203	261	200	280	80	18	160	120	360	280	M16	250	133	28/250
		112 M	4																				28/250
		132 S	5,5				281														300		38/300
		132 M	7,5																				38/300
		160 M	11				311														350		42/350
		160 L	15																				42/350
	100-250	112 M	4	125	100	140	261	360	189	224	261	225	280	80	18	160	120	400	315	M16	250	133	28/250
		132 S	5,5				281														300		38/300
		132 M	7,5																				38/300
		160 M	11				311														350		42/350
		160 L	15																				42/350
		180 M	18,5																				48/350
		180 L	22																				48/350
		200 L	30																		400		55/400
	100-315	132 M	7,5	125	100	140	281	360	220	250	261	250	315	80	25	160	120	400	315	M16	300	112	38/300
		160 M	11				311														350		42/350
		160 L	15																				42/350
		180 M	18,5																				48/350
		180 L	22																				48/350
		200 L	30																		400		55/400
	125-200	132 M	7,5	150	125	140	281	360	196	236	261	250	315	80	18	160	120	400	315	M16	300	143	38/300
		160 M	11																				42/350
		160 L	15				311														350		42/350
		180 M	18,5																				48/350
		180 L	22																				48/350
		200 L	30																		400		55/400
	125-250	132 M	7,5	150	125	140	281	360	212	255	261	250	355	80	18	160	120	400	315	M16	300	143	38/300
		160 M	11																				42/350
		160 L	15				311														350		42/350
		180 M	18,5																				48/350
		180 L	22																				48/350
		200 L	30																		400		55/400
	150-200	132 M	7,5	200	150	160	281	360	214	268	261	280	370	100	27	200	150	550	450	M20	300	143	38/300
		160 M	11																				42/350
		160 L	15				311														350		42/350
		180 M	18,5																				48/350
		180 L	22																				48/350
		200 L	30																		400		55/400

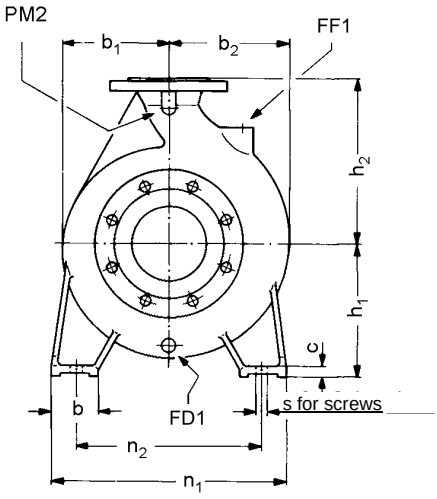
The motor dimensions as indicated are approximate dimensions. Exact data depend on the motor make.

When using special motors, make sure that other performances are allocated to the individual sizes, depending upon the enclosure. The main dimensions change accordingly. In case of order, binding tables of motor dimensions must be supplied to us.

Flanges processed according to DIN 1092-2 PN 10/16. (Flange outer diameter D and thickness b_f can exceed the standard dimensions.)

Aggregate dimensions: Sizes **with shaft diameter 16, 24 and 30** at the shaft seal





Attention: Dimensions $\frac{a_1}{2}$; $\frac{a_2}{2}$ or $\frac{d}{2}$ can be larger than h_1

Shaft diameter at the shaft seal	Connections			
	Drain-ing	Fill-ing	Vent-ing	Pressure measurement
mm	FD1	FF1	FV1	PM2
16	G 1/4	G 1/4	G 1/8	G 1/4
24	G 1/4	G 1/4	G 1/4	G 1/4
30	G 1/4	G 1/4	G 3/8	G 1/4

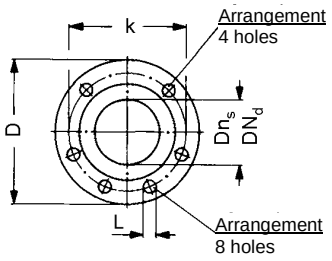
Connections at sizes 25-200 and 2/25-200: FD1= G 1/2; FF1 at sizes 20-160, 25-200 and 2/25-200 not existent.

Tolerances of companion dimensions acc. to DIN EN 735

Flanges acc. to DIN EN 1092-2 PN 16 (10)

DN_d DN_s	D	bf	k	L	No. of holes
25	115	16	85	14	4
32	140	18	100	19	4
40	150	18	110	19	4
50	165	20	125	19	4
65	185	20	145	19	4

Sense of rotation: clockwise as seen from the driving side



Dimensions in mm without commitment

Shaft diameter at shaft seal	Pump size	Motor size	Perfor-mance	Aggregate dimensions																		Allocation stub shaft/ motor bracket/ intermediate ring Contained in abbreviation, v. page 2
				Pump dimensions																	Motor and flange dimensions approx. dimensions varying depending upon manufacturer	Extension dim.	
				Flanges		Feet																	
mm			kW	DN_s	DN_d	a	f	a_2	b_1	b_2	f_1	h_1	h_2	b	c	m_1	m_2	n_1	n_2	s	a_1	x	
16	20-160	80	0,75 | 1,1	25	25	63	138	-	108	108	-	112	145	50	14	100	70	220	180	M10	200	62	19/200
		90 S	1,5																				24/200
		90 L	2,2																				24/200
		100 L	3				148														250		28/250
		112 M	4																				28/250
	25-160	80	0,75 | 1,1	25	25	63	138	-	100	108	-	112	160	50	12	100	70	220	180	M10	200	62	19/200
		90 S	1,5																				24/200
		90 L	2,2																				24/200
		100 L	3				148														250		28/250
		112 M	4																				28/250
24	32-125	80	0,75 | 1,1	50	32	80	148	-	96	96	-	112	140	50	15	100	70	190	140	M12	200	89	19/200
		90 S	1,5																				24/200
		90 L	2,2																				24/200
		100 L	3																		250		28/250
		112 M	4																				28/250
		132 S	5,5 | 7,5				188														300		38/300
	40-125	80	0,75 | 1,1	65	40	80	148	-	96	110	-	112	140	50	15	100	70	210	160	M12	200	89	19/200
		90 S	1,5																				24/200
		90 L	2,2																				24/200
		100 L	3																		250		28/250
		112 M	4																				28/250
		132 S	5,5 | 7,5				188														300		38/300
	50-125	90 S	1,5	65	50	100	148	-	110	130	-	132	160	50	15	100	70	240	190	M12	200	89	24/200
		90 L	2,2																				24/200
		100 L	3																		250		28/250
		112 M	4																				28/250
		132 S	5,5 | 7,5				188														300		38/300
		160 M	11 | 15				223														350		42/350

Shaft diameter at shaft seal	Pump size	Motor size	Performance	Aggregate dimensions																		Allocation stub shaft/ motor bracket/ intermediate ring
				Pump dimensions																	Motor and flange dimensions approx. dimensions varying depending upon manufacturer	Extension dim.	
				Flanges									Feet									Contained in abbreviation, v. page 2
mm			kW	DN_s	DN_d	a	f	a_2	b_1	b_2	f_1	h_1	h_2	b	c	m_1	m_2	n_1	n_2	s	a_1	x	
24	65-125	90 L	2,2	80	65	100	148	-	120	148	-	160	180	65	15	125	95	280	212	M12	200	95	24/200
		100 L	3																		250		28/250
		112 M	4																				28/250
		132 S	5,5 7,5				188														300		38/300
		160 M	11 15				223														350		42/350
		160 L	18,5																				42/350
30	25-200	100 L	3	40	25	80	149	-	132	132	-	160	180	50	15	100	70	240	190	M12	250	102	28/250
		112 M	4																				28/250
		132 S	5,5 7,5				204														300		38/300
		160 M	11 15				219														350		42/350
	2/25-200	112 M	4	40	25	80	193	-	132	132	-	160	180	50	15	100	70	240	190	M12	250	102	28/250
		132 S	5,5 7,5				238														300		38/300
		160 M	11 15				274														350		42/350
		160 L	18,5																				42/350
	32-160	100 L	3	50	32	80	149	-	130	130	-	132	160	50	15	100	70	240	190	M12	250	102	28/250
		112 M	4																				28/250
		132 S	5,5 7,5				204														300		38/300
		160 M	11 15				219														350		42/350
	32-200	100 L	3	50	32	80	149	-	124	130	-	160	180	50	15	100	70	240	190	M12	250	102	28/250
		112 M	4																				28/250
		132 S	5,5 7,5				204														300		38/300
		160 M	11 15				219														350		42/350
		160 L	18,5																				42/350
		180 M	22																				48/350
	2/32-200	112 M	4	50	32	80	193	-	124	130	-	160	180	50	15	100	70	240	190	M12	250	102	28/250
		132 S	5,5 7,5				238														300		38/300
		160 M	11 15				274														350		42/350
		160 L	18,5																				42/350
		180 M	22																				48/350
		200 L	30 37																		400		55/400
	40-160	100 L	3	65	40	80	149	-	130	130	-	132	160	50	15	100	70	240	190	M12	250	102	28/250
		112 M	4																				28/250
		132 S	5,5 7,5				204														300		38/300
		160 M	11 15				219														350		42/350
		160 L	18,5																				42/350
	40-200	100 L	3	65	40	100	149	-	125	135	-	160	180	50	15	100	70	265	212	M12	250	102	28/250
		112 M	4																				28/250
		132 S	5,5 7,5				204														300		38/300
		160 M	11 15				219														350		42/350
		160 L	18,5																				42/350
		180 M	22																				48/350
		200 L	30 37																		400		55/400
	40-250	132 S	5,5 7,5	65	40	100	204	-	150	156	-	180	225	65	15	125	95	320	250	M12	300	85	38/300
		160 M	11 15																		350		42/350
		160 L	18,5				219																42/350
		180 M	22																				48/350
		200 L	30 37																		400		55/400
	2/40-250	160 M	11 15	65	40	100	274	-	150	156	-	180	225	65	15	125	95	320	250	M12	350	85	42/350
		160 L	18,5																				42/350
		180 M	22																				48/350
		200 L	30 37																		400		55/400
	50-160	100 L	3	65	50	100	149	-	123	130	-	160	180	50	15	100	70	265	212	M12	250	102	28/250
		112 M	4																				28/250
		132 S	5,5 7,5				204														300		38/300
		160 M	11 15				219														350		42/350
		160 L	18,5																				42/350
		180 M	22																				48/350

The motor dimensions as indicated are approximate dimensions. Exact data depend on the motor make.

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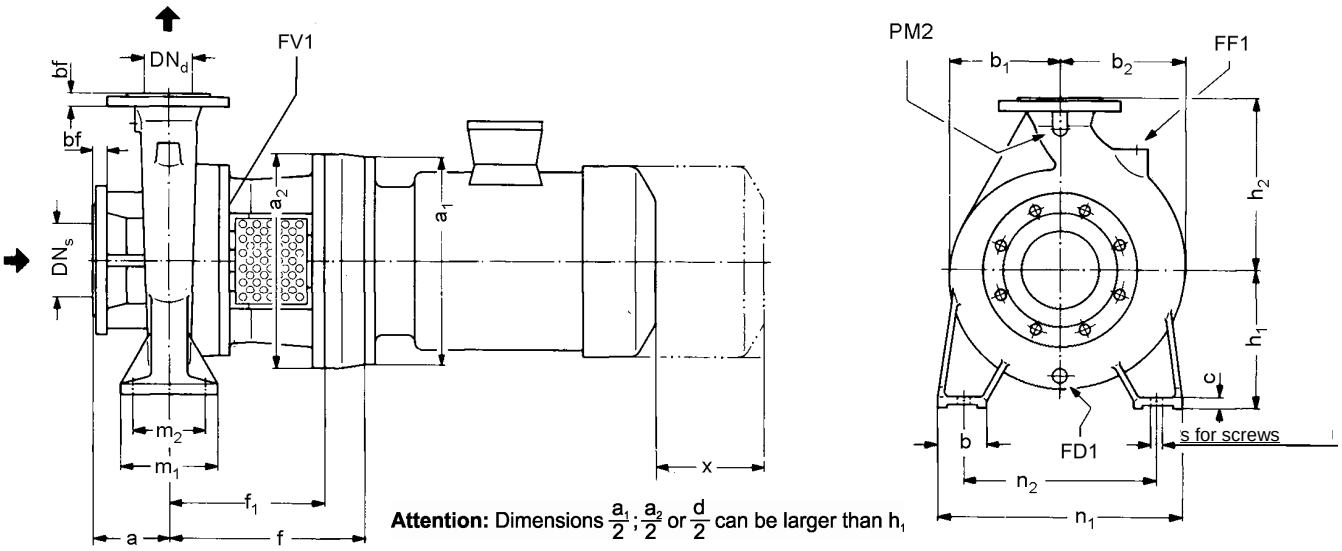
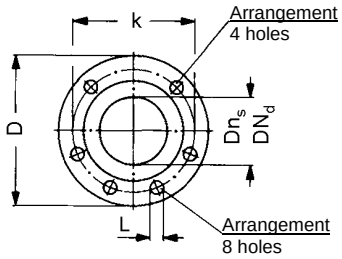
Flanges processed according to DIN 1092-2 PN 10/16. (Flange outer diameter D and thickness b_f can exceed the standard dimensions.)

Aggregate dimensions Sizes with **shaft diameters 30 and 40** at the shaft seal



Shaft diameter at the shaft seal	Connections			
	Drain-ing	Fill-ing	Vent-ing	Pressure measurement
mm	FD1	FF1	FV1	PM2
30	G 1/4	G 1/4	G 1/4	G 1/4
40	G 3/8	G 3/8	G 3/8	G 3/8

Flanges acc. to DIN EN 1092-2 PN 16 (10)					
DNd DNs	D	bf	k	g	No. of holes
50	165	20	125	19	4
65	185	20	145	19	4
80	200	22	160	19	8
100	220	24	180	19	8
125	250	26	210	19	8



Tolerances of companion dimensions acc. to DIN EN 735 — Sense of rotation: clockwise as seen from the driving side — Dimensions in mm without commitment

Shaft diameter at shaft seal	Pump size	Motor size	Perfor-mance	Aggregate dimensions																		Allocation stub shaft/ motor bracket/ intermediate ring Contained in abbreviation, v. page 2
				Pump dimensions																	Motor and flange dimensions approx. dimensions varying depending upon manufacturer	Extension dim.	
				Flanges		Feet																	
mm			kW	DN_s	DN_d	a	f	a_2	b_1	b_2	f_1	h_1	h_2	b	c	m_1	m_2	n_1	n_2	s	a_1	x	
30	50-200	112 M	4	65	50	100	149	-	133	145	-	160	200	50	15	100	70	265	212	M12	250	102	28/250
		132 S	5,5 7,5				204														300		38/300
		160 M	11 15				219														350		42/350
		160 L	18,5																				42/350
		180 M	22																				48/350
		200 L	30 37																		400		55/400
	50-250	132 S	5,5 7,5	65	50	100	204	-	156	169	-	180	225	65	15	125	95	320	250	M12	300	85	38/300
		160 M	11 15				219														350		42/350
		160 L	18,5																				42/350
		180 M	22																				48/350
		200 L	30 37																		400		55/400
	2/50-250	160 M	11 15	65	50	100	274	-	156	169	-	180	225	65	15	125	95	320	250	M12	350	85	42/350
		160 L	18,5																				42/350
		180 M	22																				48/350
		200 L	30 37																		400		55/400
	65-160	112 M	4	80	65	100	149	-	133	162	-	160	200	65	15	125	95	280	212	M12	250	102	28/250
		132 S	5,5 7,5				204														300		38/300
		160 M	11 15				219														350		42/350
		160 L	18,5																				42/350
		180 M	22																				48/350
		200 L	30 37																		400		55/400
	65-200	132 S	5,5 7,5	80	65	100	204	-	148	170	-	180	225	65	15	125	95	320	250	M12	300	85	38/300
		160 M	11 15				219														350		42/350
		160 L	18,5																				42/350
		180 M	22																				48/350
		200 L	30 37																		400		55/400

Shaft diameter at shaft seal	Pump size	Motor size	Performance	Aggregate dimensions																			Allocation stub shaft/ motor bracket/ intermediate ring Contained in abbreviation, v. page 2
				Pump dimensions																		Motor and flange dimensions approx. dimensions varying depending upon manufacturer	Extension dim.	
				Flanges				Feet																
mm			kW	DN_s	DN_d	a	f	a_2	b_1	b_2	f_1	h_1	h_2	b	c	m_1	m_2	n_1	n_2	s		a_1	x	
30	80-160	112 M	4	100	80	125	149	-	136	170	-	180	225	65	15	125	95	320	250	M12		250	102	28/250
		132 S	5,5 7,5				204															300		38/300
		160 M	11 15				219															350		42/350
		160 L	18,5																					42/350
		180 M	22																					48/350
		200 L	30 37																			400		55/400
	100-160	132 S	5,5 7,5	125	100	125	204	-	165	200	-	200	280	65	15	125	95	320	250	M12		300	102	38/300
		160 M	11 15				219															350		42/350
		160 L	18,5																					42/350
		180 M	22																					48/350
		200 L	30 37																			400		55/400
40	65-250	160 L	18,5	80	65	100	311	360	164	184	261	200	250	80	18	160	120	360	280	M16		350	123	42/350
		180 M	22																					48/350
		200 L	30 37																			400		55/400
	80-200	160 M	11 15	100	80	125	311	360	163	188	261	180	250	65	18	125	95	345	280	M12		350	123	42/350
		160 L	18,5																					42/350
		180 M	22																					48/350
		200 L	30 37																			400		55/400
	100-200	160 M	11 15	125	100	125	311	360	165	203	261	200	280	80	18	160	120	360	280	M16		350	133	42/350
		160 L	18,5																					42/350
		180 M	22																					48/350
		200 L	30 37																			400		55/400

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Subject to technical alterations.

ALLWEILER
ALL FLUIDS. NO LIMITS.

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