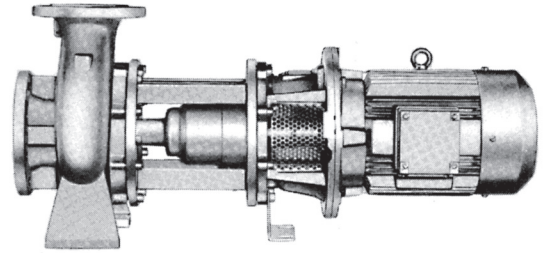


Volute Casing Centrifugal Pumps PN 16 of Block Design for Heat Transfer Oils up to 350°C

Series NBT



Usage

In heat transfer plants (DIN 4754) for the circulation of heat transfer oils with a saturation pressure of ≤ 1 bar. The oils to be pumped must not contain any abrasive particles nor chemically attack the pump materials.

Design / Construction / Mounting

Volute casing centrifugal pump, single entry, single or two stage, in block design. Hydraulics and casing dimensions as per standard series NT according to DIN 24 255.

Pump and plug-in shaft are coupled rigidly. Shaft bearing in the casing cover / bearing housing by media-lubricated, in the driving motor by grease-lubricated groove ball bearings.

The outer dimensions of the two-stage sizes 2/25-200/01, 2/32-200/01, 2/40-250/01, 2/50-250/01 correspond to the single-stage designs.

The pumps can be mounted horizontal or vertical, but the arrangement with "motor downwards" is not admissible.

Performance data

Q up to 280 m³/h DN_d from 25 to 100 mm
H up to 140 m P from 0,5 to 40 kW
t up to 350°C
p_d 16 bar ①

① Inlet pressure plus internal pressure at maximum delivery head must not exceed the stated value.

The stated performance data are to be understood only as an outline of performance of our products. For exact limits of application please refer to the quotation and acceptance of order.

Shaft sealing

By uncooled, unbalanced, maintenance-free mechanical seal. A safety stuffing box with following throttling / cooling area is superposed to the mechanical seal.

Materials

Denomination	Material design W 4	Denomination	Material design W 4
Volute casing	n.i. (GGG-40)	Casing cover	n.i. (GGG-40)
Impeller	c.i. (GG-20)	Plug-in shaft	1.7139
Diffuser ②	c.i. (GG-20)	Pump lantern	c.i. (GG-25)
Stage casing ②	c.i. (GG-25)	Motor stool	c.i. (GG-25)

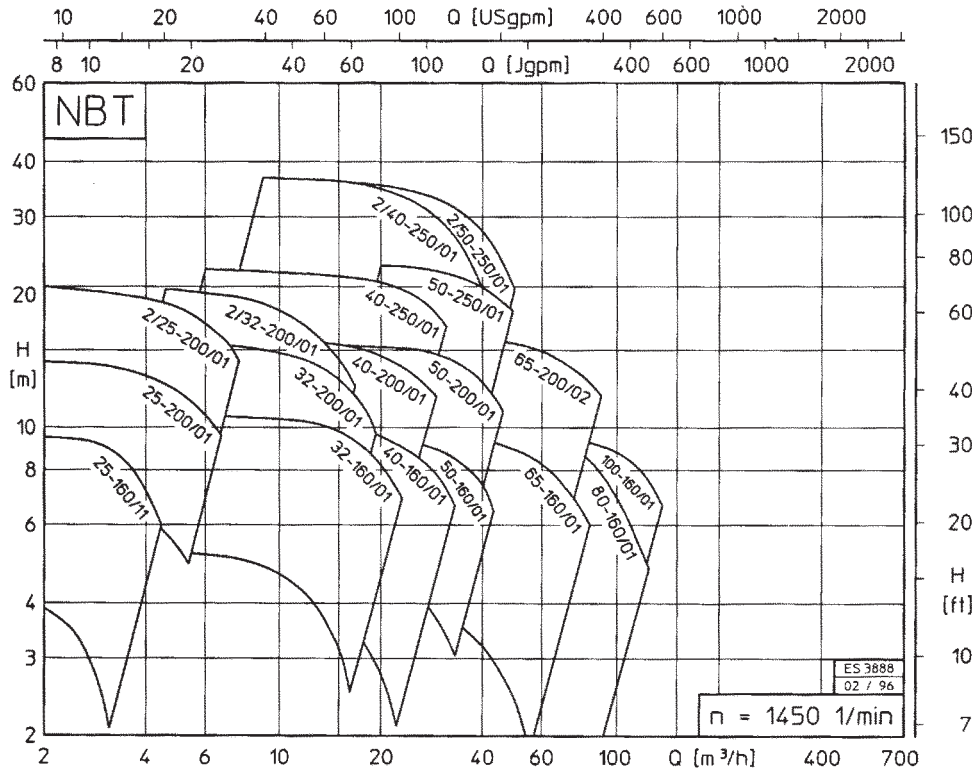
② only with two-stage sizes.

Drive

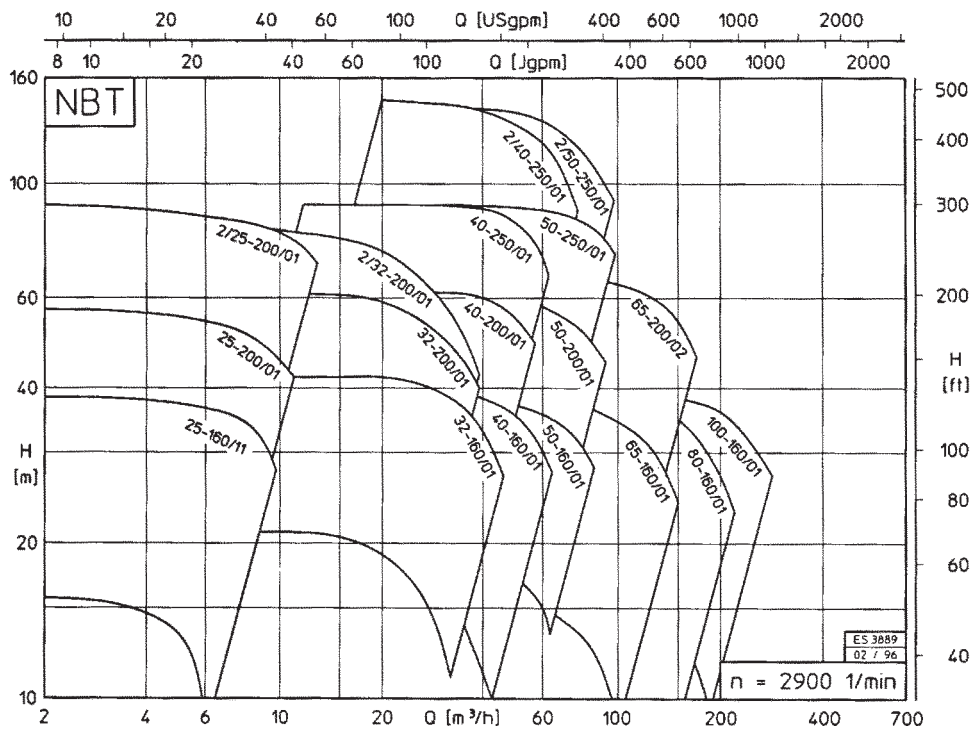
By standard three-phase squirrel-cage induction motor with locating-type bearing. Up to 2,2 kW 220/380 V, from 3 kW upwards 380/660 V, IP 44/IP 54.

Performance graphs

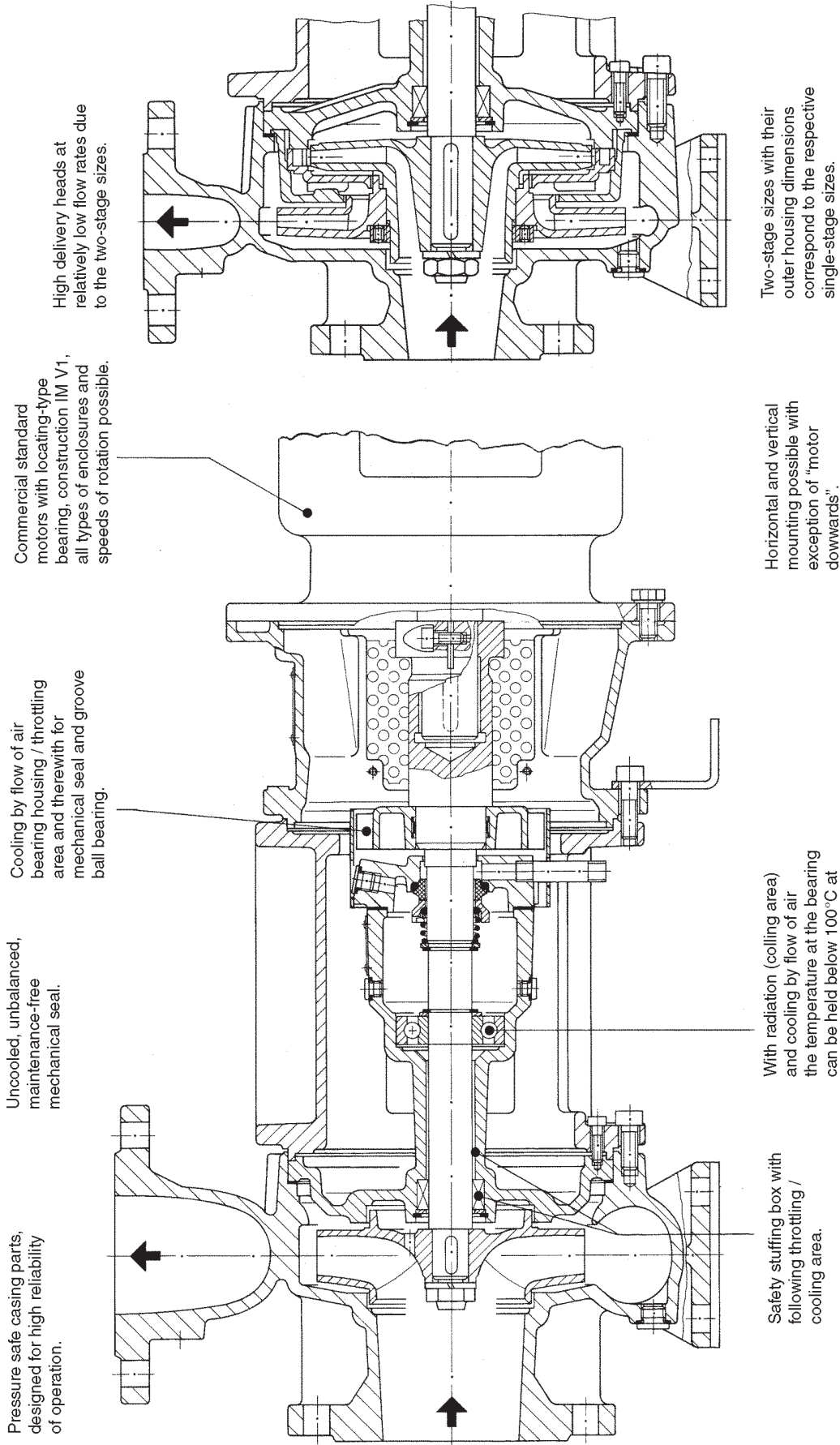
n = 1450 1/min (rpm)



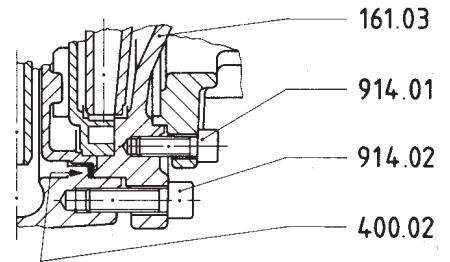
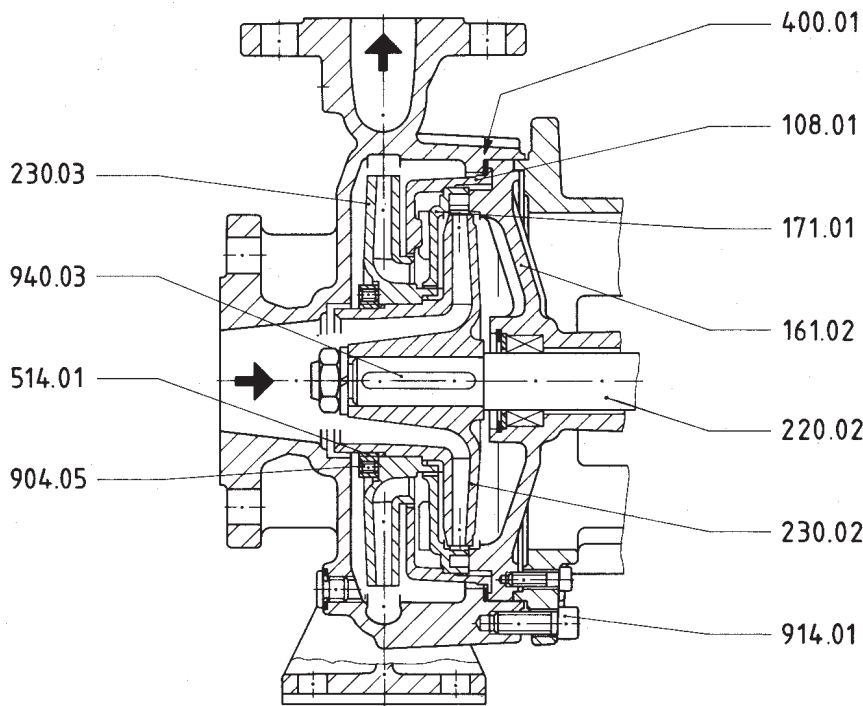
n = 2900 1/min (rpm)



For exact performance data please refer to the individual characteristics.



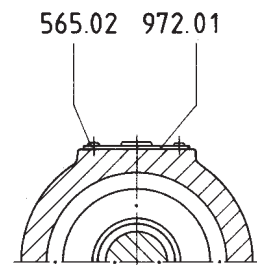
Sectional drawing for two-stage sizes



Design casing cover with bearing casing in case of sizes 2/40-250/01 and 2/50-250/01

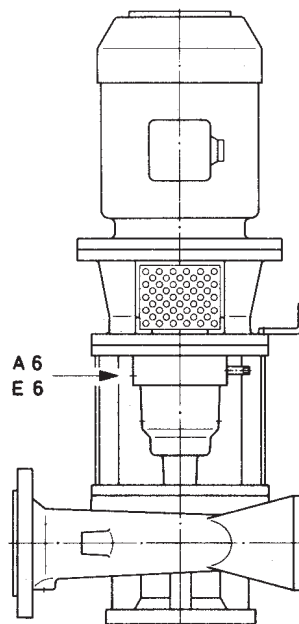
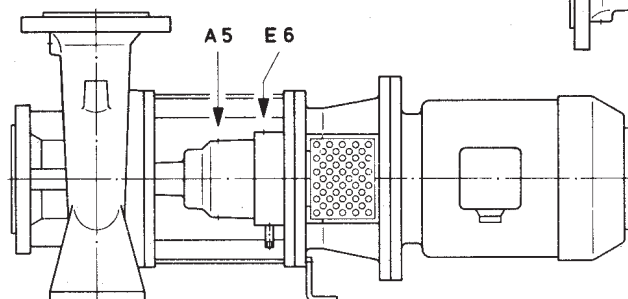
Part No.	Denomination
102.01	Volute casing
108.01	Stage casing
118.01	Fan casing
161.01	Casing cover (with bearing casing)
161.02	Casing cover (with bearing casing)
161.03	Casing cover (with bearing casing)
171.01	Diffuser
183.01	Support foot
220.01	Stub shaft
220.02	Stub shaft
230.01	Impeller
230.02	Impeller 1st stage
230.03	Impeller 2nd stage
321.01	Groove ball bearing
341.01	Drive lantern
346.01	Pump bracket
363.01	Bearing casing cover
400.01	Flat gasket
400.02	Flat gasket
400.03	Flat gasket
411.02	Joint ring
411.06	Joint ring
411.07	Joint ring
411.08	Joint ring
433.01	Mechanical seal
461.01	Packing ring
509.01	Intermediate ring
514.01	Threaded ring
517.01	Tolerance ring
551.01	Support disk
551.02	Support disk
551.03	Support disk
554.07	Washer
565.01	Rivet
565.02	Rivet
686.01	Guard plate
710.01	Pipe
801.01	Flange-mounted motor
831.01	Fan wheel
901.07	Hexagonal screw (Ribe-Triform)
901.10	Hexagonal screw
903.02	Screwed plug
903.06	Screwed plug
903.07	Screwed plug
903.08	Screwed plug
904.05	Grub screw
914.01	Socket-head cap screw
914.02	Socket-head cap screw
914.03	Socket-head cap screw
914.04	Socket-head cap screw
914.05	Socket-head cap screw
914.06	Socket-head cap screw
914.07	Socket-head cap screw
922.01	Impeller nut
932.01	Circlip
932.02	Circlip
932.03	Circlip
936.01	Spring lock washer
940.01	Key
940.03	Key
971.01	Rating plate
972.01	Reference plate

Shaft sealing: Uncooled, unbalanced mechanical seal with safety stuffing box arranged in front
 Abbreviation: **USA**



Reference plate (972.01)
 (Allocation of connections A5, A6 and E6 with vertical and horizontal installation) at casing cover with bearing bracket (161...)

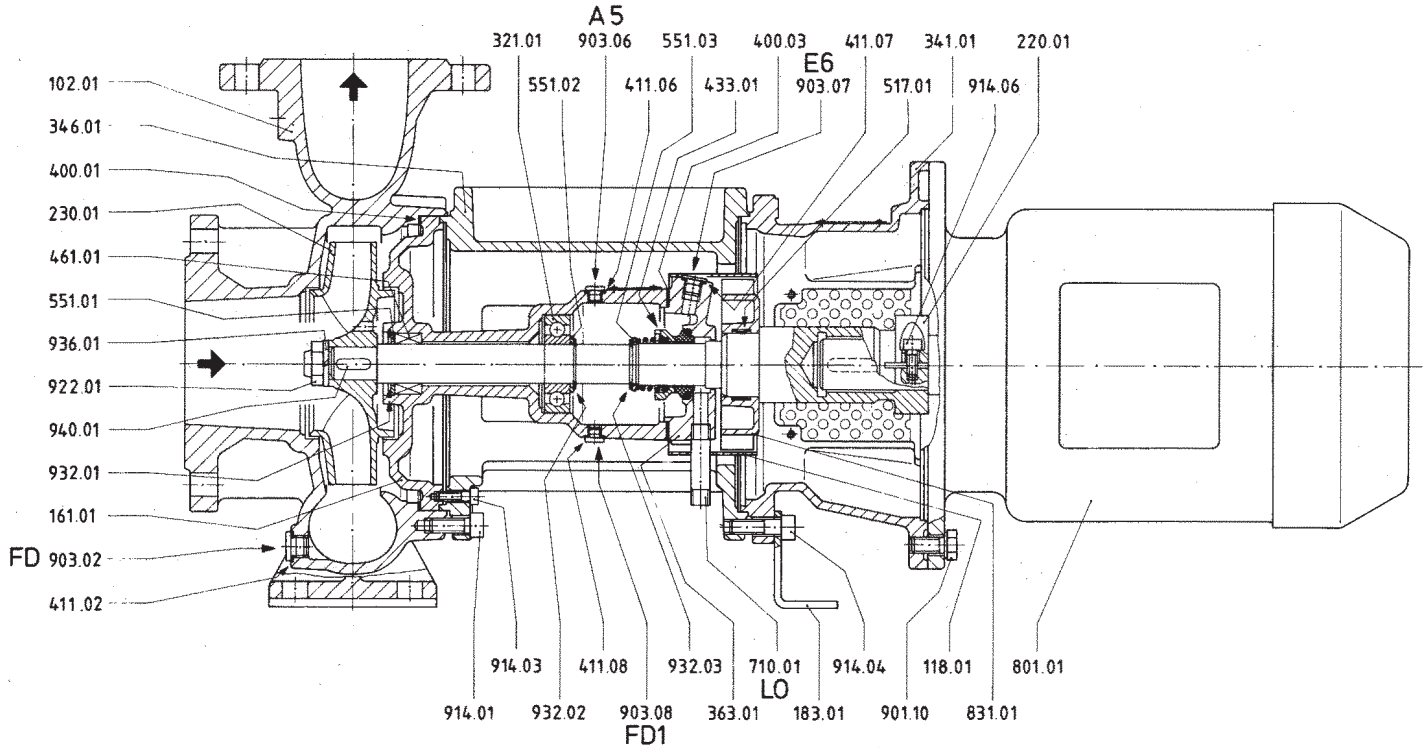
Location of connections A5, A6 Filling
E6 Venting
with horizontal and vertical installation



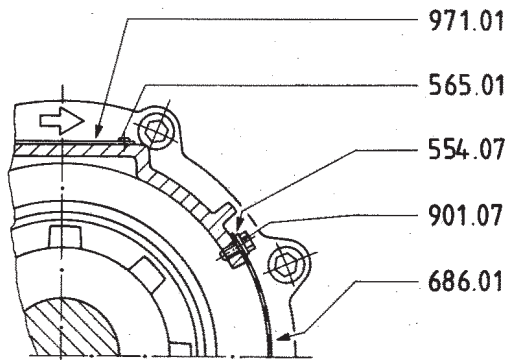
Connections

A5, A6	Filling
E6	Venting
FD	Draining
FD 1	Draining
LO	Leakage outlet

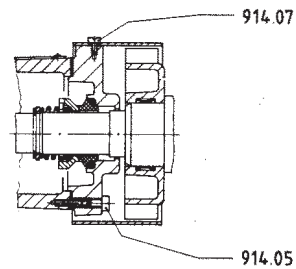
Sectional drawing for single-stage size



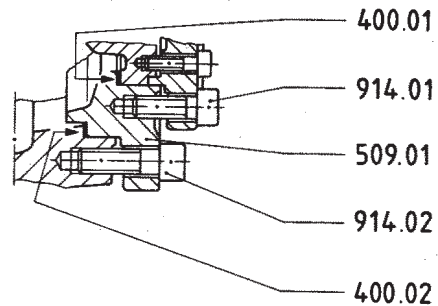
Shaft sealing: Uncooled, unbalanced mechanical seal with safety stuffing box arranged in front
 Abbreviation: **U5A**



Fixing of guard plate and the rating plate to the drive lantern (Protectional against accidental contact acc. to DIN 24 295/31001)

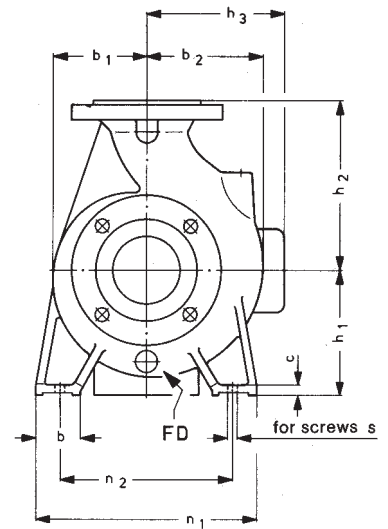
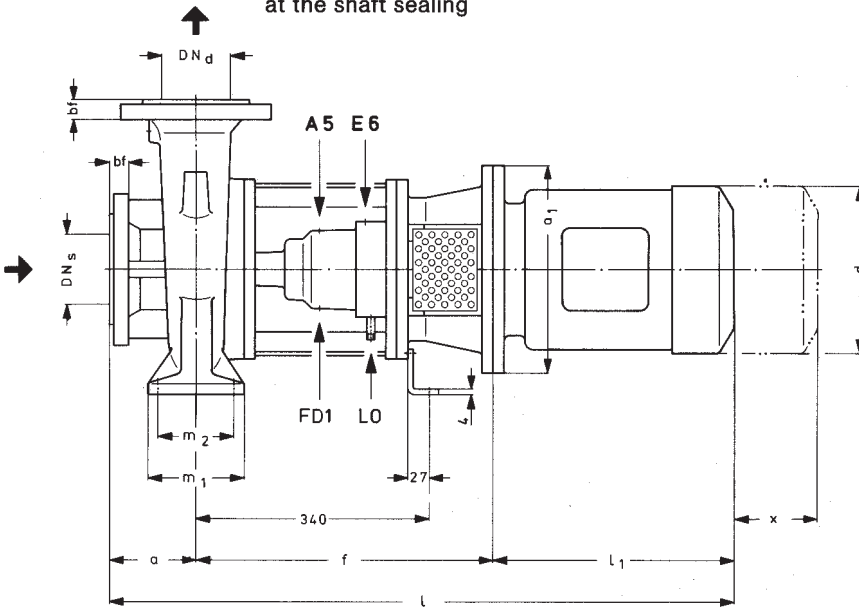


Fixing of casing cover with bearing casing (363.01) and fan casing (118.01)



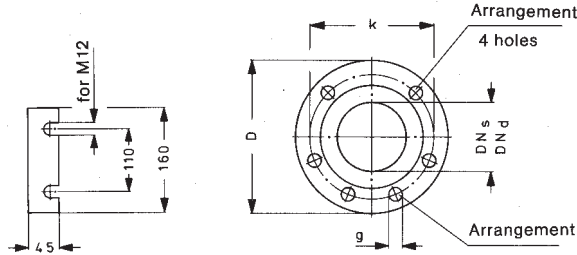
Design with intermediate ring, size 40-250/01, 50-250/01 and 65-200/02

Assembly dimensions Sizes with shaft diameters 30 at the shaft sealing



Connections				
Filling	Vent	Draining	See-page drain	
A 5	E 6	FD ①	FD1	L 0
G 1/4	G 1/4	G 1/4	G 1/4	G 1/4

① Connection FD with pump size 25-160/11, 25-200/01 and 2/25-200/01 = G 1/2



Flanges according to DIN 2533					
DN _d DN _s	D	bf	k	g	No. of holes
25	115	16	85	14	4
32	140	18	100	18	4
40	150	18	110	18	4
50	165	20	125	18	4
65	185	20	145	18	4
80	200	22	160	18	8
100	220	24	180	18	8
125	250	26	210	18	8

Tolerances of companion dimensions according to DIN EN 735

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

Dimensions in mm.

Shaft diameter at shaft sealing mm	Pump size	Motor size	Per- formance kW	Assembly dimensions																				Allocation stub shaft/ drive lantern/ intermediate ring	
				Pump																Motor dimensions approx. dimensions varying depending upon manufacturer					Ex. dimen. l
				Flanges		Feet														a ₁	d	h ₃	l ₁		
DN _s	DN _d	a	f	b ₁	b ₂	h ₁	h ₂	b	c	m ₁	m ₂	n ₁	n ₂	s	a ₁	d	h ₃	l ₁	l	x					
30	25-160/11	80	0,55 0,75	40	25	80	371	125	125	132	160	50	15	100	70	240	190	M12	200	162	124	234	685	102	19/200
	25-200/01	80	0,55 0,75	40	25	80	371	132	132	160	180	50	15	100	70	240	190	M12	200	162	124	234	685	102	19/200
		90 S	1,1	40	25	80	371	132	132	160	180	50	15	100	70	240	190	M12	200	181	130	282	733	102	24/200
	2/25-200/01	80	0,55 0,75	40	25	80	371	132	132	160	180	50	15	100	70	240	190	M12	200	162	124	234	685	102	19/200
		90 S	1,1	40	25	80	371	132	132	160	180	50	15	100	70	240	190	M12	200	181	130	282	733	102	24/200
		90 L	1,5	40	25	80	371	132	132	160	180	50	15	100	70	240	190	M12	200	181	130	282	733	102	24/200
		100 L	2,2 3	40	25	80	371	132	132	160	180	50	15	100	70	240	190	M12	250	203	158	312	763	102	28/250
	32-160/01	80	0,55 0,75	50	32	80	371	123	123	132	160	50	15	100	70	240	190	M12	200	162	124	234	685	102	19/200
		90 S	1,1	50	32	80	371	123	123	132	160	50	15	100	70	240	190	M12	200	181	130	282	733	102	24/200
		90 L	1,5	50	32	80	371	123	123	132	160	50	15	100	70	240	190	M12	200	181	130	282	733	102	24/200
	32-200/01	80	0,55 0,75	50	32	80	371	124	130	160	180	50	15	100	70	240	190	M12	200	162	124	234	685	102	19/200
		90 S	1,1	50	32	80	371	124	130	160	180	50	15	100	70	240	190	M12	200	181	130	282	733	102	24/200
		90 L	1,5	50	32	80	371	124	130	160	180	50	15	100	70	240	190	M12	200	181	130	282	733	102	24/200
		100 L	2,2 3	50	32	80	371	124	130	160	180	50	15	100	70	240	190	M12	250	203	158	312	763	102	28/250
	2/32-200/01	80	0,55 0,75	50	32	80	371	124	130	160	180	50	15	100	70	240	190	M12	200	162	124	234	685	102	19/200
		90 S	1,1	50	32	80	371	124	130	160	180	50	15	100	70	240	190	M12	200	181	130	282	733	102	24/200
		90 L	1,5	50	32	80	371	124	130	160	180	50	15	100	70	240	190	M12	200	181	130	282	733	102	24/200
		100 L	2,2 3	50	32	80	371	124	130	160	180	50	15	100	70	240	190	M12	250	203	158	312	763	102	28/250
	40-160/01	80	0,55 0,75	65	40	80	371	123	123	132	160	50	15	100	70	240	190	M12	200	162	124	234	685	102	19/200
		90 S	1,1	65	40	80	371	123	123	132	160	50	15	100	70	240	190	M12	200	181	130	282	733	102	24/200
		90 L	1,5	65	40	80	371	123	123	132	160	50	15	100	70	240	190	M12	200	181	130	282	733	102	24/200
		100 L	2,2 3	65	40	80	371	123	123	132	160	50	15	100	70	240	190	M12	250	203	158	312	763	102	28/250

Shaft diameter at shaft sealing	Pump size	Motor size	Per- formance	Assembly dimensions																				Allocation stub shaft/ drive lantern/ intermediate ring			
				Pump																Motor dimensions approx. dimensions varying depending upon manufacturer					Ex. dimen.		
				Flanges		Feet														a ₁	d	h ₃	l ₁			l	x
mm		kW	DN _s	DN _d	a	f	b ₁	b ₂	h ₁	h ₂	b	c	m ₁	m ₂	n ₁	n ₂	s										
30	40-200/01	80	0,55	0,75	65	40	100	371	125	135	160	180	50	15	100	70	265	212	M12	200	162	124	234	705	102	19/200	
		90 S	1,1	181																	130	282	753	24/200			
		90 L	1,5	181																	130	282	753	24/200			
		100 L	2,2	3																	250	203	158	312		783	28/250
	40-250/01	90 S	1,1	65	40	100	371	150	156	180	225	65	15	125	95	320	250	M12	200	181	130	282	753	85	24/200		
		90 L	1,5																	181	130	282	753		24/200		
		100 L	2,2																	3	250	203	158		312	783	28/250
		112 M	4																	228	171	335	806		28/250		
	2/40-250/01	90 L	1,5	65	40	100	371	150	156	180	225	65	15	125	95	320	250	M12	200	181	130	282	753	85	24/200		
		100 L	2,2																	3	250	203	158		312	783	28/250
		112 M	4																	228	171	335	806		28/250		
		132 S	5,5																	300	266	196	375		901	38/300	
		132 M	7,5																		266	196	375		901	38/300	
	50-160/01	80	0,55	0,75	65	50	100	371	125	130	160	180	50	15	100	70	265	212	M12	200	162	124	234	705	102	19/200	
		90 S	1,1	181																	130	282	753	24/200			
		90 L	1,5	181																	130	282	753	24/200			
		100 L	2,2	3																	250	203	158	312		783	28/250
	50-200/01	80	0,55	0,75	65	50	100	371	133	145	160	200	50	15	100	70	265	212	M12	200	162	124	234	705	102	19/200	
		90 S	1,1	181																	130	282	753	24/200			
		90 L	1,5	181																	130	282	753	24/200			
		100 L	2,2	3																	250	203	158	312		783	28/250
	50-250/01	90 L	1,5	65	50	100	371	156	169	180	225	65	15	125	95	320	250	M12	200	181	130	282	753	85	24/200		
		100 L	2,2																	3	250	203	158		312	783	28/250
		112 M	4																	228	171	335	806		28/250		
132 S		5,5	300																	266	196	375	901		38/300		
132 M		7,5																		266	196	375	901		38/300		
2/50-250/01	90 L	1,5	65	50	100	371	156	169	180	225	65	15	125	95	320	250	M12	200	181	130	282	753	85	24/200			
	100 L	2,2																	3	250	203	158		312	783	28/250	
	112 M	4																	228	171	335	806		28/250			
	132 S	5,5																	300	266	196	375		901	38/300		
	132 M	7,5																		266	196	375		901	38/300		
65-160/01	80	0,55	0,75	80	65	100	371	133	162	160	200	65	15	125	95	280	212	M12	200	162	124	234	705	102	19/200		
	90 S	1,1	181																	130	282	753	24/200				
	90 L	1,5	181																	130	282	753	24/200				
	100 L	2,2	3																	250	203	158	312		783	28/250	
65-200/02	90 S	1,1	80	65	100	371	150	170	180	225	65	15	125	95	320	250	M12	200	181	130	282	753	102	24/200			
	90 L	1,5																	181	130	282	753		24/200			
	100 L	2,2																	3	250	203	158		312	783	28/250	
	112 M	4																	228	171	335	806		28/250			
80-160/01	90 S	1,1	100	80	125	371	136	170	180	225	65	15	125	95	320	250	M12	200	181	130	282	778	102	24/200			
	90 L	1,5																	181	130	282	778		24/200			
	100 L	2,2																	3	250	203	158		312	808	28/250	
	112 M	4																	228	171	335	831		28/250			
100-160/01	90 L	1,5	125	100	125	371	165	200	280	65	15	125	95	320	250	M12	200	181	130	282	778	102	24/200				
	100 L	2,2																3	250	203	158		312	808	28/250		
	112 M	4																228	171	335	831		28/250				
	132 S	5,5																300	266	196	375		926	38/300			

The given motor dimensions 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.

Shaft diameter at shaft sealing mm	Pump size	Motor size	Per- formance kW	Assembly dimensions																							Allocation stub shaft/ drive lantern/ intermediate ring
				Pump															Motor dimensions approx. dimensions varying depending upon manufacturer					Ex. dimen. x			
				Flanges		Feet													a ₁	d	h ₃	l ₁	l				
DN _s	DN _d	a	f	b ₁	b ₂	h ₁	h ₂	b	c	m ₁	m ₂	n ₁	n ₂	s	a ₁	d	h ₃	l ₁	l	x							
30	40-160/01	90 L	2,2	65	40	80	371	123	123	132	160	50	15	100	70	240	190	M12	200	181	130	282	733	102	24/200		
		100 L	3				250												203	158	312	763	28/250				
		112 M	4				300												228	171	335	786	28/250				
		132 S	5,5				7,5												350	266	196	375	881		38/300		
		160 M	11				15												350	320	234	481	1002		42/350		
	40-200/01	112 M	4	65	40	100	371	125	135	160	180	50	15	100	70	265	212	M12	250	228	171	335	806	102	28/250		
		132 S	5,5				7,5												300	266	196	375	901		38/300		
		160 M	11				15												350	320	234	481	1022		42/350		
	40-250/01	132 S	5,5	7,5	65	40	100	426	150	156	180	225	65	15	125	95	320	250	M12	300	266	196	375	901	85	38/300	
		160 M	11	15				320												234	481	1022	42/350				
		160 L	18,5	350				320												234	481	1022	42/350				
		180 M	22	375				275												610	1151	48/350					
	2/40-250/01	160 M	11	15	65	40	100	441	150	156	180	225	65	15	125	95	320	250	M12	320	234	481	1022	85	42/350		
		160 L	18,5	350																320	234	481	1022		42/350		
		180 M	22	375																275	610	1151	48/350				
	50-160/01	100 L	3	65	50	100	371	125	130	160	180	50	15	100	70	265	212	M12	250	203	158	312	783	102	28/250		
		112 M	4				300												266	196	375	901	38/300				
		132 S	5,5				7,5												350	320	234	481	1022		42/350		
		160 M	11				15												441	320	234	481	1022		42/350		
	50-200/01	132 S	5,5	7,5	65	50	100	426	133	145	160	200	50	15	100	70	265	212	M12	300	266	196	375	901	102	38/300	
		160 M	11	15				350												320	234	481	1022	42/350			
		160 L	18,5	375				275												610	1151	48/350					
		180 M	22	400				415												310	665	1206	55/400				
	50-250/01	160 M	11	15	65	50	100	441	156	169	180	225	65	15	125	95	320	250	M12	320	234	481	1022	85	42/350		
		160 L	18,5	350																320	234	481	1022		42/350		
		180 M	22	375																275	610	1151	48/350				
		200 L	30	37																400	415	310	665		1206	55/400	
	2/50-250/01	160 L	18,5	65	50	100	441	156	169	180	225	65	15	125	95	320	250	M12	350	320	234	481	1022	85	42/350		
180 M		22	375																275	610	1151	48/350					
200 L		30	37																400	415	310	665	1206		55/400		
65-160/01	112 M	4	80	65	100	371	133	162	160	200	65	15	125	95	280	212	M12	250	228	171	335	806	102	28/250			
	132 S	5,5				7,5												300	266	196	375	901		38/300			
	160 M	11				15												350	320	234	481	1022		42/350			
	160 L	18,5				441												320	234	481	1022	42/350					
65-200/02	132 S	5,5	7,5	80	65	100	426	150	170	180	225	65	15	125	95	320	250	M12	300	266	196	375	901	102	38/300		
	160 M	11	15				320												234	481	1022	42/350					
	160 L	18,5	350				320												234	481	1022	42/350					
	180 M	22	375				275												610	1151	40/350						
	200 L	30	37				400												415	310	665	1206	55/400				
80-160/01	132 S	5,5	7,5	100	80	125	426	136	170	180	225	65	15	125	95	320	250	M12	300	266	196	375	926	102	38/300		
	160 M	11	15				350												320	234	481	1047	42/350				
	160 L	18,5	441				320												234	481	1047	42/350					
	180 M	22	375				275												610	1176	48/350						
	200 L	30	37				400												415	310	665	1231	55/400				
100-160/01	132 S	5,5	7,5	125	100	125	426	165	200	200	280	65	15	125	95	320	250	M12	300	266	196	375	926	102	30/300		
	160 M	11	15				350												320	234	481	1047	42/350				
	160 L	18,5	441				320												234	481	1047	42/350					
	180 M	22	375				275												610	1176	48/350						
	200 L	30	37				400												415	310	665	1231	55/400				

The given motor dimensions 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.

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ALLWEILER



HOUTTUIN



IMO PUMP



WARREN



Quality Management System

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