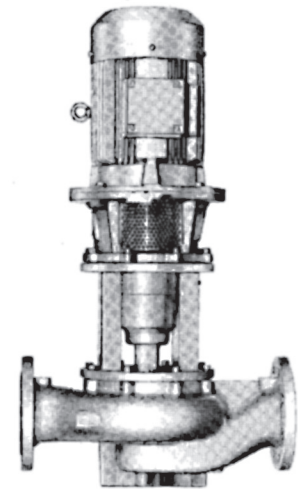


Volute Casing Centrifugal Pumps PN 16 of Inline Design for Heat Transfer Oils up to 350°C

Series NIT



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, of inline design. Pump size 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 32 to 100 mm
H up to 140 m P from 0,5 to 37 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.

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.

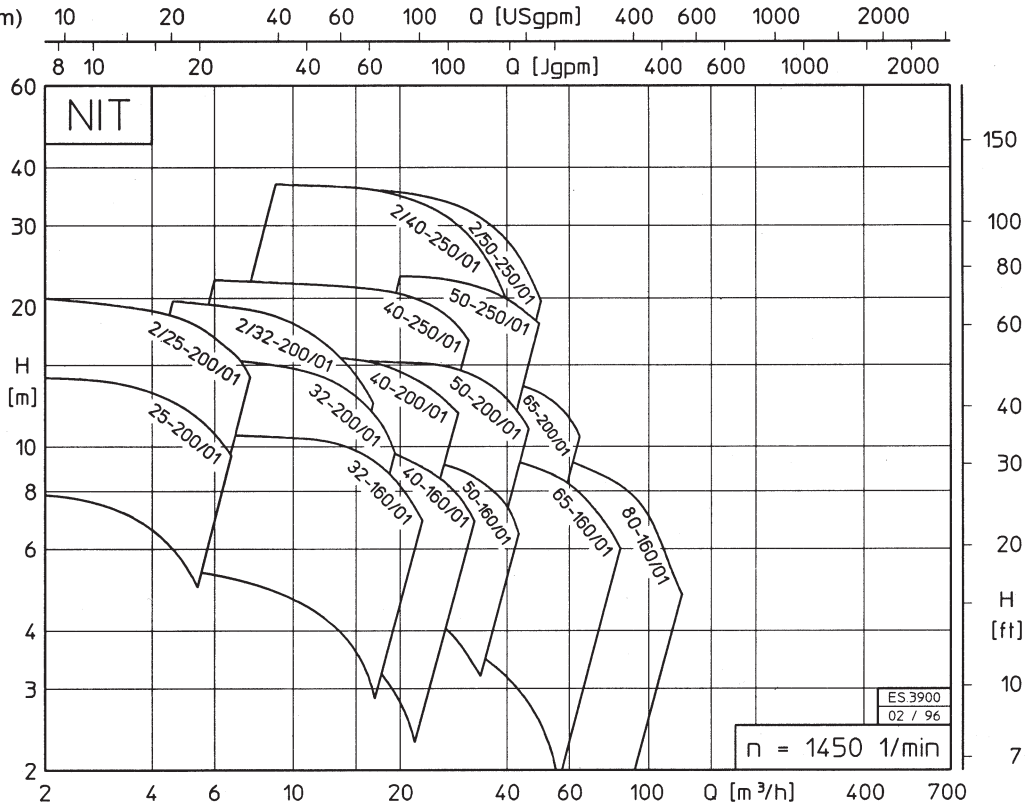
Drive

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.

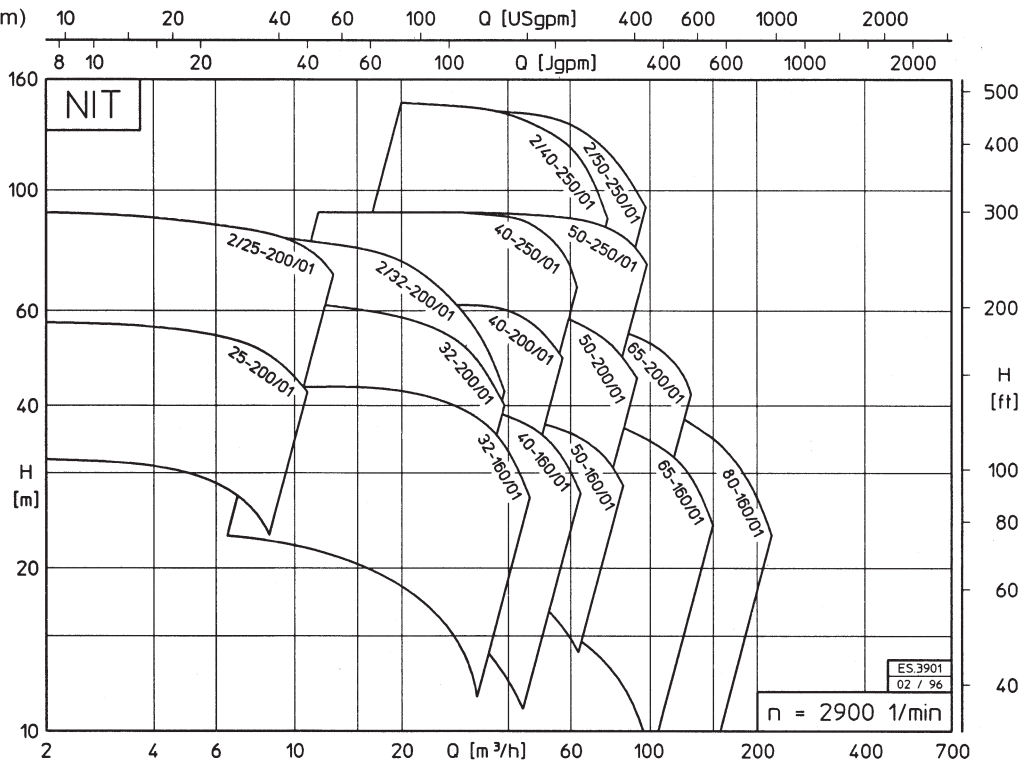
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Performance graphs

n = 1450 1/min (rpm)



n = 2900 1/min (rpm)



For exact performance data, please refer to the individual characteristics.

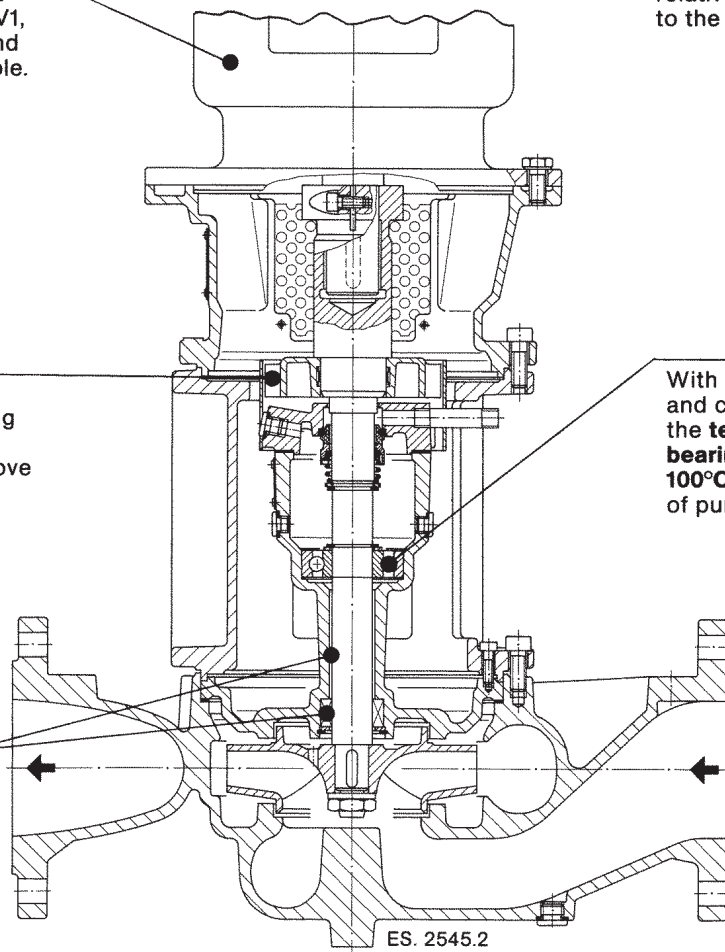
Commercial standard motors with locating-type bearing, construction IM V1, all types of enclosures and speeds of rotation possible.

High delivery heads at relatively low flow rates due to the **two-stage sizes**.

Cooling by flow of air for bearing housing / throttling area and therewith for mechanical seal and groove ball bearing.

With radiation (cooling area) and cooling by flow of air the **temperature at the bearing** can be held below **100°C** at max. temperature of pumped liquid.

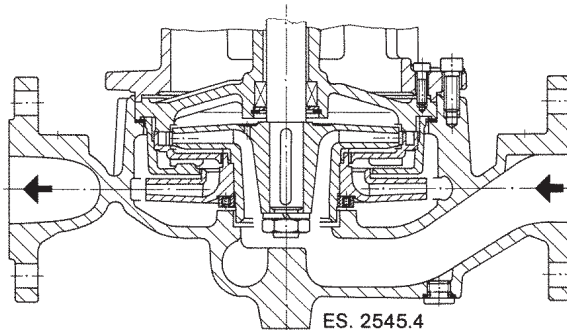
Safety stuffing box with following throttling / cooling area.



Uncooled, unbalanced, maintenance-free mechanical seal.

Optimized wet parts with **very good efficiencies** and **NPSH-values** of the standard series NT acc. to DIN 24 255, **capacities** partly considerable above the standard demands.

Pressure safe casing parts, designed for high reliability of operation.



Horizontal and vertical mounting possible with exception of "motor downwards".

Two-stage sizes with their outer housing dimensions **correspond to the respective single-stage sizes**.

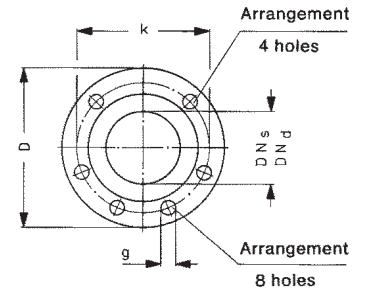
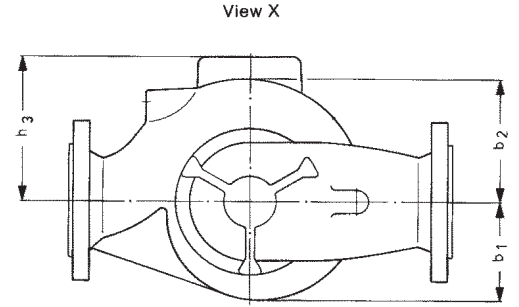
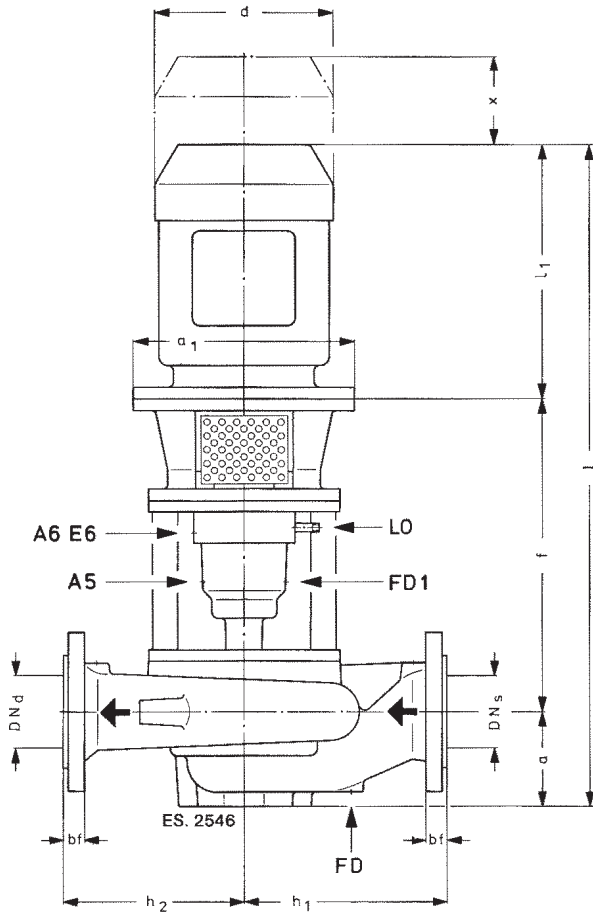
n = 2900/3500

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		a	f	b ₁	b ₂	h ₁	h ₂	a ₁	d	h ₃	l ₁	l			x
DN _s	DN _d	DN _s	DN _d	DN _s	DN _d	DN _s	DN _d	DN _s	DN _d	DN _s	DN _d	DN _s	DN _d	DN _s	DN _d	DN _s	DN _d		
30	40-160/01	90 L	2,2	50	50	103	371	123	123	210	200	200	181	130	282	756	102	24/200	
		100 L	3									250	203	158	312	786		28/250	
		112 M	4										228	171	335	809		28/250	
		132 S	5,5 7,5										300	266	196	375		904	38/300
		160 M	11 15										350	320	234	481		1025	42/350
	40-200/01	112 M	4	50	50	103	371	125	135	220	205	250	228	171	335	809	102	28/250	
		132 S	5,5 7,5				300					266	196	375	904	38/300			
		160 M	11 15				350					320	234	481	1025	42/350			
	40-250/01	132 S	5,5 7,5	50	50	103	426	148	156	240	225	300	266	196	375	904	85	38/300	
		160 M	11 15				350					320	234	481	1025	42/350			
		160 L	18,5									320	234	481	1025	42/350			
		180 M	22									375	275	610	1154	48/350			
	200 L	30 37	400	415	310	665	1209	55/400											
	2/40-250/01	160 M	11 15	50	50	103	441	148	156	240	225	350	320	234	481	1025	85	42/350	
		160 L	18,5										320	234	481	1025		42/350	
		180 M	22										375	275	610	1154		48/350	
		200 L	30 37										400	415	310	665		1209	55/400
	50-160/01	100 L	3	65	65	112	371	125	130	230	220	250	203	158	312	795	102	28/250	
		112 M	4				300					228	171	335	818	28/250			
		132 S	5,5 7,5									350	320	234	481	1034		38/300	
		160 M	11 15									441	441	441	441	441		441	441
	50-200/01	132 S	5,5 7,5	65	65	112	426	132	146	240	225	300	266	196	375	913	102	38/300	
		160 M	11 15				350					320	234	481	1034	42/350			
		160 L	18,5									320	234	481	1034	42/350			
		180 M	22									375	275	610	1163	48/350			
	50-250/01	160 M	11 15	65	65	114	441	156	165	265	245	350	320	234	481	1036	85	42/350	
		160 L	18,5										320	234	481	1036		42/350	
		180 M	22										375	275	610	1165		48/350	
		200 L	30 37										400	415	310	665		1220	55/400
	2/50-250/01	160 L	18,5	65	65	114	441	156	165	265	245	350	320	234	481	1036	85	42/350	
180 M		22	375										275	610	1165	48/350			
200 L		30 37	400										415	310	665	1220		55/400	
65-160/01	112 M	4	80	80	120	371	133	162	270	230	250	228	171	335	826	102	28/250		
	132 S	5,5 7,5				300					266	196	375	921	38/300				
	160 M	11 15									350	320	234	481	1042		42/350		
	160 L	18,5									320	234	481	1042	42/350				
65-200/01	132 S	5,5 7,5	80	80	120	426	147	170	275	235	300	266	196	375	921	102	38/300		
	160 M	11 15				350					320	234	481	1042	42/350				
	160 L	18,5									320	234	481	1042	42/350				
	180 M	22									375	275	610	1171	40/350				
200 L	30 37	400	415	310	665	1226	55/400												
80-160/01	132 S	5,5 7,5	100	100	130	426	136	170	275	245	300	266	196	375	931	102	38/300		
	160 M	11 15				350					320	234	481	1052	42/350				
	160 L	18,5									320	234	481	1052	42/350				
	180 M	22									375	275	610	1181	48/350				
	200 L	30 37									400	415	310	665	1236		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.

Assembly dimensions Sizes with shaft diameters 30 at the shaft sealing



Connections					
Filling		Vent	Draining		Leckage out-let
A 5	A 6	E 6	FD	FD1	L O
G 1/4	G 1/4	G 1/4	G 3/8	G 1/4	G 1/4

Flanges according to DIN 2533					
DN _d DN _s	D	bf	k	g	No. of holes
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

Tolerances of companion dimensions according to VDMA 24 275

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. x
				Flanges		a	f	b ₁	b ₂	h ₁	h ₂	a ₁	d	h ₃	l ₁	l			
DN _s	DN _d																		
30	25-200/01	80	0,55	0,75	32	32	89	371	132	132	190	180	200	162	124	234	694	102	19/200
		90 S	1,1	181										130	282	742	24/200		
	2/25-200/01	80	0,55	0,75	32	32	89	371	132	132	190	180	200	162	124	234	694	102	19/200
		90 S	1,1	181										130	282	742	24/200		
		90 L	1,5	181										130	282	742	24/200		
		100 L	2,2	3										250	203	158	312		772
	32-160/01	80	0,55	0,75	40	40	97	371	123	123	200	190	200	162	124	234	702	102	19/200
		90 S	1,1	181										130	282	750	24/200		
		90 L	1,5	181										130	282	750	24/200		
	32-200/01	80	0,55	0,75	40	40	93	371	124	130	200	190	200	162	124	234	698	102	19/200
		90 S	1,1	181										130	282	746	24/200		
		90 L	1,5	181										130	282	746	24/200		
		100 L	2,2	3										250	203	158	312		776
	2/32-200/01	80	0,55	0,75	40	40	93	371	124	130	200	190	200	162	124	234	698	102	19/200
		90 S	1,1	181										130	282	746	24/200		
		90 L	1,5	181										130	282	746	24/200		
		100 L	2,2	3										250	203	158	312		776
	40-160/01	80	0,55	0,75	50	50	103	371	123	123	210	200	200	162	124	234	708	102	19/200
		90 S	1,1	181										130	282	756	24/200		
		90 L	1,5	181										130	282	756	24/200		
100 L		2,2	3	250										203	158	312	786		28/250

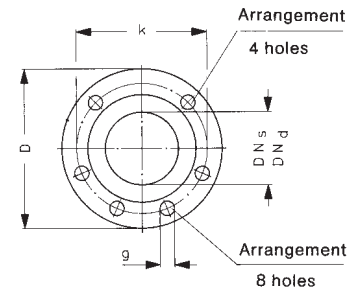
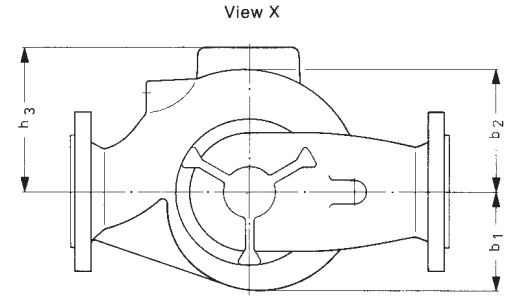
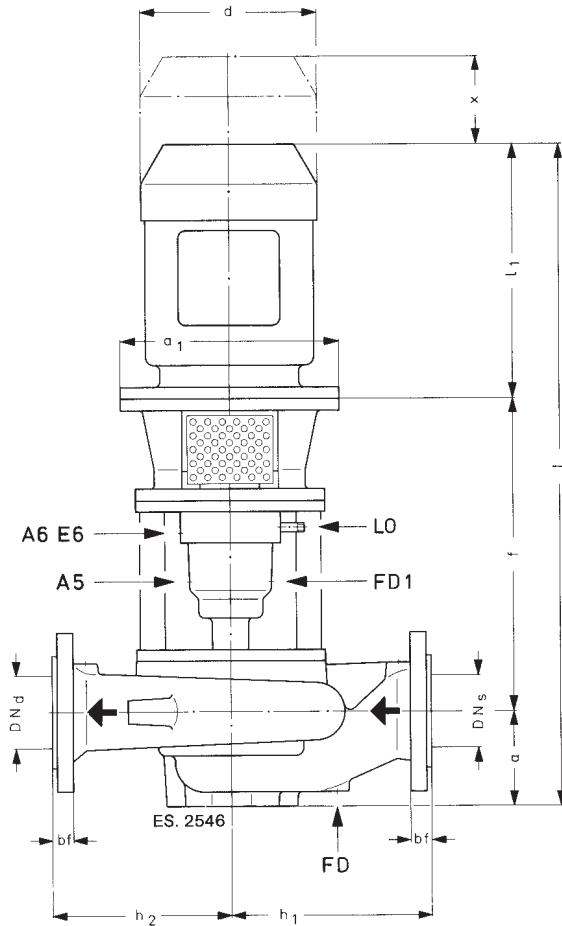
n = 1450/1750 1/min

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		a	f	b ₁	b ₂	h ₁	h ₂	a ₁	d	h ₃	l ₁		l		x	
mm		kW	DN _s	DN _d																
30	40-200/01	80	0,55	0,75	50	50	103	371	125	135	220	205	200	162	124	234	708	102	19/200	
		90 S	1,1	181										130	282	756	24/200			
		90 L	1,5	181										130	282	756	24/200			
		100 L	2,2	3										250	203	158	312		786	28/250
	40-250/01	90 S	1,1	50	50	103	371	148	156	240	225	200	181	130	282	756	85	24/200		
		90 L	1,5										181	130	282	756		24/200		
		100 L	2,2										3	250	203	158		312	786	28/250
		112 M	4										228	171	335	809		28/250		
	2/40-250/01	90 L	1,5	50	50	103	371	148	156	240	225	200	181	130	282	756	85	24/200		
		100 L	2,2										3	250	203	158		312	786	28/250
		112 M	4				228					171	335	809	28/250					
		132 S	5,5				300					266	196	375	904	38/300				
	132 M	7,5	266	196	375	904		38/300												
	50-160/01	80	0,55	0,75	65	65	112	371	125	130	230	220	200	162	124	234	717	102	19/200	
		90 S	1,1	181										130	282	765	24/200			
		90 L	1,5	181										130	282	765	24/200			
		100 L	2,2	3										250	203	158	312		795	28/250
	50-200/01	80	0,55	0,75	65	65	112	371	132	146	240	225	200	162	124	234	717	102	19/200	
		90 S	1,1	181										130	282	765	24/200			
		90 L	1,5	181										130	282	765	24/200			
		100 L	2,2	3										250	203	158	312		795	28/250
	50-250/01	90 L	1,5	65	65	114	371	156	165	265	245	200	181	130	282	767	85	24/200		
		100 L	2,2										3	250	203	158		312	797	28/250
		112 M	4				228					171	335	820	28/250					
		132 S	5,5				300					266	196	375	915	38/300				
		132 M	7,5									266	196	375	915	38/300				
	2/50-250/01	90 L	1,5	65	65	114	371	156	165	265	245	200	181	130	282	767	85	24/200		
		100 L	2,2										3	250	203	158		312	797	28/250
		112 M	4				228					171	335	820	28/250					
		132 S	5,5				300					266	196	375	915	38/300				
132 M		7,5	266									196	375	915	38/300					
65-160/01	80	0,55	0,75	80	80	120	371	133	162	270	230	200	162	124	234	725	102	19/200		
	90 S	1,1	181										130	282	773	24/200				
	90 L	1,5	181										130	282	773	24/200				
	100 L	2,2	3										250	203	158	312		803	28/250	
65-200/01	90 S	1,1	80	80	120	371	147	170	275	235	200	181	130	282	773	102	24/200			
	90 L	1,5										181	130	282	773		24/200			
	100 L	2,2									3	250	203	158	312		803	28/250		
	112 M	4									228		171	335	826		28/250			
80-160/01	90 S	1,1	100	100	130	371	136	170	275	245	200	181	130	282	783	102	24/200			
	90 L	1,5										181	130	282	783		24/200			
	100 L	2,2									3	250	203	158	312		813	28/250		
	112 M	4									228		171	335	836		28/250			

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.

Assembly dimensions Sizes with shaft diameters 30 at the shaft sealing



Connections					
Filling		Vent	Draining		Leakage outlet
A 5	A 6	E 6	FD	FD1	L O
G 1/4	G 1/4	G 1/4	G 3/8	G 1/4	G 1/4

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

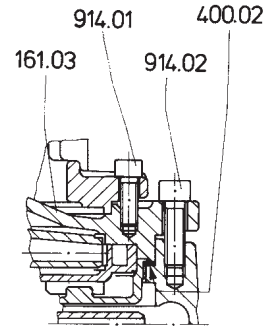
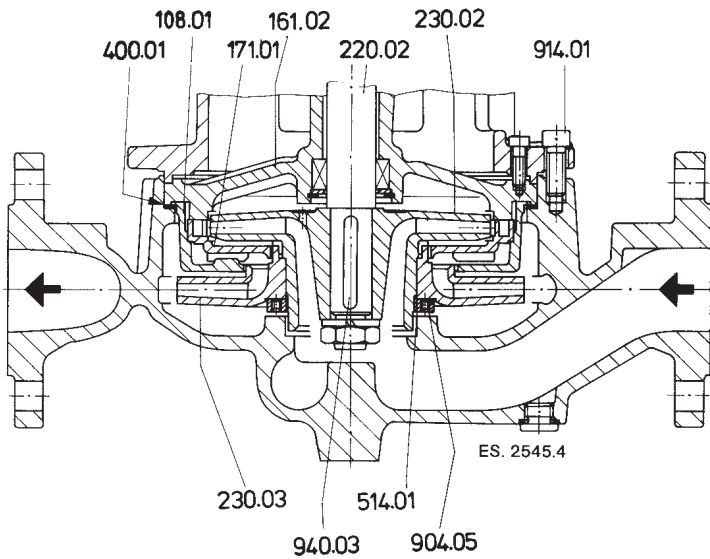
Flanges according to DIN 2533					
DN _d DN _s	D	bf	k	g	No. of holes
32	140	18	100	18	4
40	150	18	110	18	4
50	165	20	125	18	4
65	185	20	145	18	4
80	200	22	160	18	8
100	220	24	180	18	8

Tolerances of companion dimensions according to VDMA 24275

Dimensions in mm

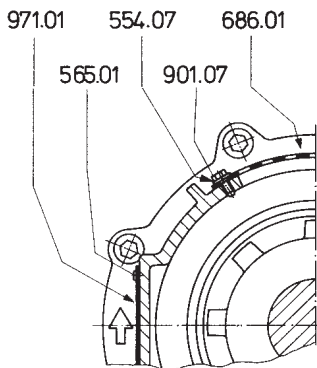
Shaft diameter at shaft sealing mm	Pump size	Motor size	Per- formance kW	Assembly dimensions														Allocation stub shaft / drive lantern intermediate ring		
				Pump								Motor dimensions approx. dimensions varying depending upon manufacturer							Ex. dimen.	
				Flanges		a	f	b ₁	b ₂	h ₁	h ₂	a ₁	d	h ₃	l ₁	l	x			
DN _s	DN _d																			
30	25-200/01	90 S	1,5	32	32	89	371	132	132	190	180	200	181	130	282	742	102	24/200		
		90 L	2,2										181	130	282	742		24/200		
		100 L	3										203	158	312	772		28/250		
		112 M	4										228	171	335	795		28/250		
		132 S	5,5 7,5										426	300	266	196		375	890	38/300
	2/25-200/01	112 M	4	32	32	89	371	132	132	190	180	250	250	228	171	335	795	102	28/250	
		132 S	5,5 7,5										300	266	196	375	890		38/300	
		160 M	11 15										441	350	320	234	481		1011	42/350
	32-16/01	90 L	2,2	40	40	97	371	123	123	200	190	200	200	181	130	282	750	102	24/200	
		100 L	3										203	158	312	780	28/250			
		112 M	4										228	171	335	803	28/250			
		132 S	5,5 7,5										426	300	266	196	375		898	38/300
		160 M	11 15										441	350	320	234	481		1019	42/350
	32-200/01	112 M	4	40	40	93	371	124	130	200	190	250	228	171	335	799	102	28/250		
		132 S	5,5 7,5										300	266	196	375		894	38/300	
		160 M	11 15										441	350	320	234		481	1015	42/350
	2/32-200/01	132 S	5,5 7,5	40	40	93	426	124	130	200	190	300	266	196	375	894	102	38/300		
		160 M	11 15										441	350	320	234		481	1015	42/350

Sectional drawing for two-stage sizes

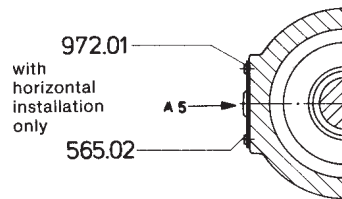


Design casing cover with bearing casing in case of sizes 2/40-250/01 and 2/50-250/01

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

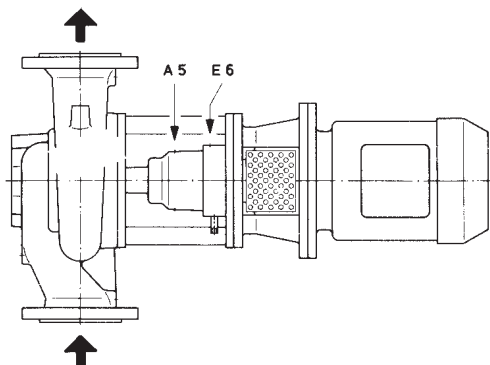


Fixing of guard plate and the rating plate to the drive lantern (Protection against accidental contact acc. to DIN 24 295/31001)

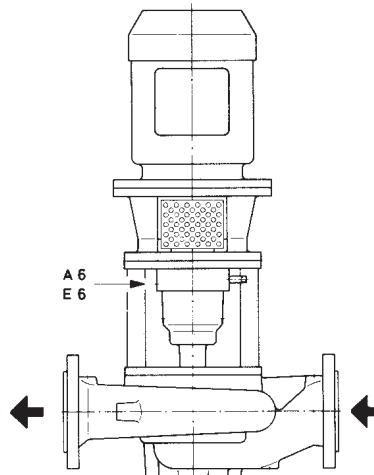


Reference plate (972.01) (Allocation of connections A5, A6 and E6 with vertical and horizontal installation) at casing cover with bearing bracket (161. ...)

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



With horizontal installation, ensure that connections A5 and A6 are always "on top".

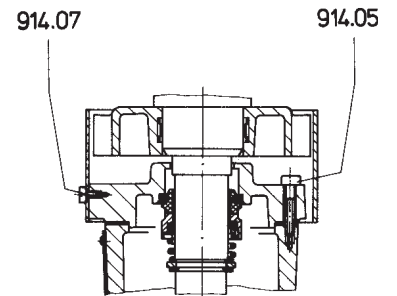
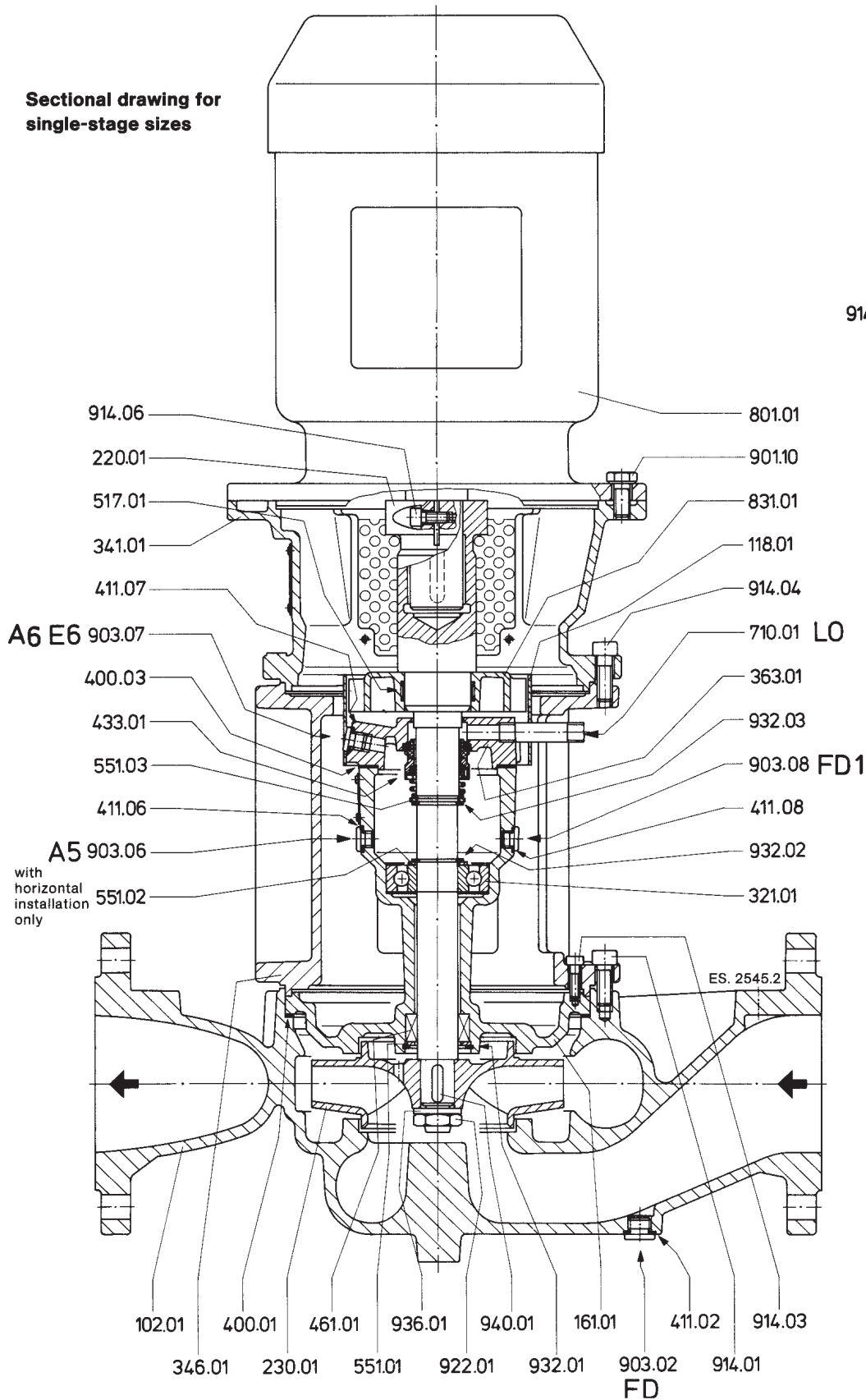


Description	Part No.
Volute casing	102.01
Stage casing	108.01
Fan casing	118.01
Casing cover	161.01
Casing cover	161.02
Casing cover	161.03
Diffuser	171.01
Stub shaft	220.01
Stub shaft	220.02
Impeller	230.01
Impeller 1st stage	230.02
Impeller 2nd stage	230.03
Grooved ball bearing	321.01
Motor bracket	341.01
Pump bracket	346.01
Bearing casing cover	363.01
Gasket	400.01
Gasket	400.02
Gasket	400.03
Joint ring	411.02
Joint ring	411.06
Joint ring	411.07
Joint ring	411.08
Mechanical seal complete	433.01
Packing ring	461.01
Intermediate ring	509.01
Threaded ring	514.01
Tolerance ring	517.01
Support disk	551.01
Support disk	551.02
Support disk	551.03
Washer	554.07
Blind rivet	565.01
Blind rivet	565.02
Guard plate	686.01
Pipe	710.01
Flanged motor	801.01
Fan wheel	831.01
Hexagonal screw (Ribe-Triform)	901.07
Hexagonal screw	901.10
Screwed plug	903.02
Screwed plug	903.06
Screwed plug	903.07
Screwed plug	903.08
Threaded pin	904.05
Screwed plug	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
Impeller nut	922.01
Circlip	932.01
Circlip	932.02
Circlip	932.03
Spring washer	936.01
Key	940.01
Key	940.03
Name plate	971.01
Information plate	972.01

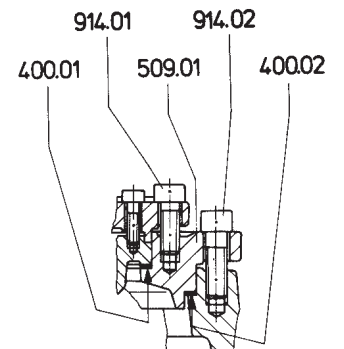
Connection

A5, A6	Filling
E6	Venting
FD	Draining
FD1	Draining
L0	Leakage outlet

Sectional drawing for single-stage sizes



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



Design with intermediate ring in case of sizes 40-250/01 and 50-250/01

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

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Quality Management System

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