Volute pumps
for heat carrier oils up to 350 °C

SIHI*SuperNova*

ZTN 032-125 . . . 200-500

TECHNICAL DATA

Output:	max. 1000 m³/h
Delivery head:	max. 95 m
Speed:	max. 3600 rpm
Temperature:	max. 350 °C
Casing pressure:	PN 16
Shaft sealing:	radial seal rings or mechanical seal
Flange connection:	DIN EN 1092-2 PN 16 / 25 [1)]
Direction of rotation:	clockwise, when looking at the pump from the drive end

APPLICATION

Volute pumps of the series ZTN have been specially developed for handling of mineral and synthetic heat transfer oils. The pumps may be used in installations with positive or negative suction pressure.
Especially to be emphasised is the application in plants of:

The chemical industry:
heating of agitators, reactors, drying plants, polymerisation plants, plants for conveying high-viscous products and producing plastic materials and synthetic fibres.

The rubber and plastic industry:
heating of calendars, melting pots, power presses for plastics, automatic injection moulding machines, production of PVC adhesive tape.

The food industry:
heating of baking and fish-frying ovens, distillation of fatty acids and glycerine, fat softening plants, production of potato chips and milk powder.

The paper industry and laundries:
calendar rolls, production of corrugated cardboard, heating of washing machines, mangles and dryers.

DESIGN

Horizontal, single-stage volute pumps with the dimensions and nominal ratings to 24255/EN 733 in back pull out design* which permits the removal of the complete bearing unit toward the drive end without removing the pump casing from the pipe work. If a spacer coupling is installed it is also unnecessary to disconnect the motor.
The programme comprises 38 pump sizes, but only three shaft assemblies are required owing to the unit construction system. Within each shaft assembly, shafts, shaft sealing, impeller fastenings, bearing bracket and bearing covers are inter-changeable.
The DIN 4754 regulations are complied with.
Should heat carrier seepage occur from the shaft seal, it is ensured that the leakage will be drained off and collected completely.

1) from size 150315 to 200500
* due to additional sizes the performance range is increased to higher output rates.

CONSTRUCTION

Casing pressure:

Maximal 16 bar from 0 °C to 120 °C
Maximal 13 bar from 120 °C to 300 °C
Maximal 10 bar from 300 °C to 350 °C
Intermediate values can be obtained by interpolation.
Please note:
Technical rules and safety regulations.
Max. Casing pressure = inlet pressure + zero head
Admissible inlet pressure (system pressure) = 5 bar when using shaft sealing 002.
Admissible inlet pressure = admissible casing pressure when using shaft sealing GBC.

Flanges location:

Axial suction flange, discharge flange radially upwards.

Flanges:

The flanges comply with DIN EN1092-2/PN 16, resp. PN 25. Flanges drilled to according to ANSI (previous ASA) 150 can be supplied.

Hydraulic:

Designation of this construction type: A, B, D

Bearing:

One grease-lubricated grooved ball bearing resp. 2 inclined ball bearings (the first grease filling is made in the factory) and one internal liquid flushed sleeve bearing.
Designation of this construction type: ·A

Direction of rotation:

Clockwise, when looking at the pump from the drive end.

Shaft sealing:

Code 002:	several radial shaft seal rings arranged in in series; uncooled
Code GBC:	unbalanced bellows mechanical seal seal face materials cast chromium steel/carbon elastomer FPM (Viton)

Material design:

TEM	COMPONENTS	MATERIAL						EXECUTION	
		EN mat.-number	EN mat.- denomination	DIN mat.-number	DIN mat.- denomination	US denomination ASTM Standard	US denomination AISI	1B	2B [1]
10.20	Volute casing	EN-JS 1025	EN-GJS-400-18-LT	0.7043	GGG-40.3	A 395		X	
		1.0619	GP 240 GH	1.0619	GS-C 25	A 216 Gr WCB			X
16.10	Casing cover	EN-JS 1025	EN-GJS-400-18-LT	0.7043	GGG-40.3	A 395		X	
		1.0619	GP 240 GH	1.0619	GS-C 25	A 216 Gr WCB			X
21.00	Shaft	1. 1191	C 45 E	1.1191	Ck 45 K + N	A 576 Gr 1045	1045	X	
		1.4021	X 20 Cr 13	1.4021	X 20 Cr 13	A 276 Type 420	420	X [2]	X
23.00 33.00 36.00	Impeller Bearing bracket Bearing cover	EN-JL 1040	EN-GJL 250	0.6025	GG-25	A 278 Class 30		X	X
412.13	Radial seal rings	FPM (Viton)						X	X
433.30	Mechanical seal	chrome cast / carbon FPM (Viton)						X	X
44.10 44.11	Casing for mech. seal of the shaft casing	1. 1191	C 45 E	1.1191	Ck 45 K + N	A 576 Gr 1045	1045	X	X
54.51	Sleeve bearing	carbon						X	X

1) For sizes 200400 and 200500.

2) For sizes 150315, 150400, 150500, 200250 and 200315.

Casing gasket:

The casing is sealed by flat gaskets of graphite. Designation of this construction type: 2

Motor power:

Using commercial electric motors, type of construction IM B3.
To determine the drive power we recommend the following safety margin:

up to 4 kW: 25% 4 to 7,5 kW: 20% above 7,5 kW: 15%

The following maximum speeds are to be observed:

max. speed n = 3600 rpm	size	max. speed n = 3000 rpm	size	max. speed n = 1800 rpm	size	max. speed n = 1500 rpm	size
t = 120 °C	032125 050200 032160 065125 032200 065160 040125 065200 040160 080160 040200 080200 050125 100160 050160 100200	t = 120 °C	032250 040250 050250 065250 080250 100250 125200	t = 120 °C	040315 150315 050315 150400 065315 200250 080315 100315 125250 150200 150250	t = 120 °C	150500 200315 200400
t = 350 °C	032125 050200 032160 065125 032200 065160 040125 080200 040160 100160 040200 050125 050160	t = 350 °C	040250 050250 065200 065250 080160 080250 100200 100250	t = 350 °C	040315 150250 050315 065315 080315 100315 125200 125250 150200	t = 350 °C	150315 150400 150500 200250 200315 200400 200500

The maximum speeds result from the permissible peripheral speeds of the impellers or from the shaft load admissible at higher temperatures, respectively.

Bearing bracket / pump size:

Bracket 25	032125 032160 032200 032250 040125 040160 040200 040250 050125 050160 050200 050250 065125 065160 065200 080160
Bracket 35	040315 050315 065250 065315 080200 080250 080315 100160 100200 100250 100315 125200 125250 150200 150250
Bracket 45	150315 150400 150500 200250 200315 200400 200500

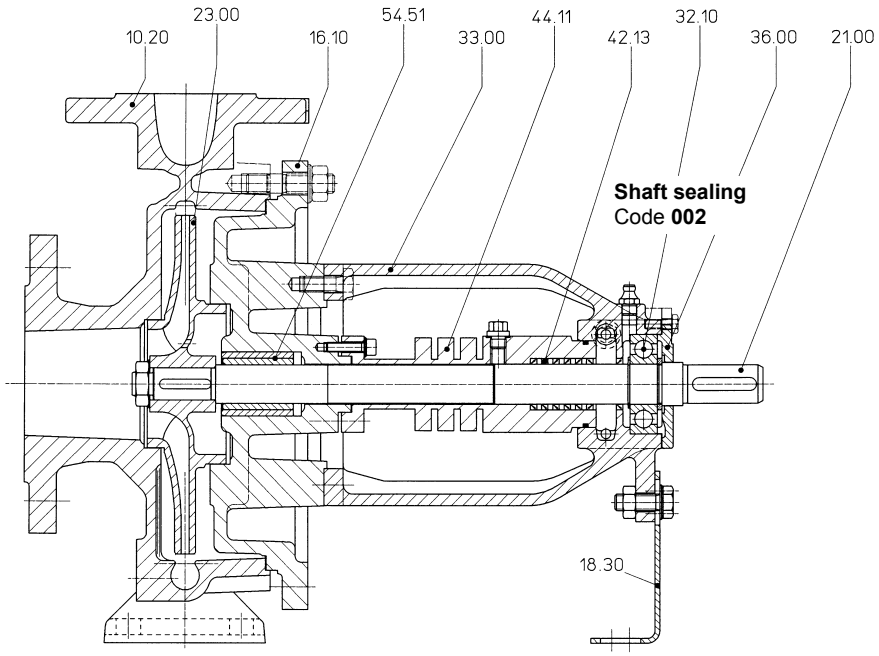
General remarks:

For horizontal volute pumps CLOSE COUPLED construction with STANDARD motor for nominal performances and flange connections as per EN 733 refer to our series **ZTK.**
For INLINE pumps with the same drive unit, consisting of bearing bracket with bearing, stub shaft and mechanical seal, casing cover, impeller and impeller nut, refer to our series **ZTI**.
For equipping hot media systems a complete programme is available for a flow range between 1-600 m^3/h consisting of the range:

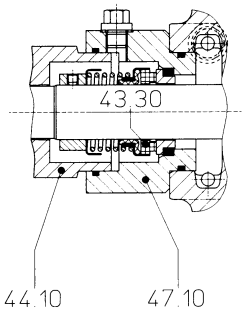
- **ZEN** volute pumps to EN 22858, t_{max} 230 °C PN 40. Hot water design.
- **ZDN** volute pumps to EN 22858, t_{max} 207 °C PN 25. Hot water design.
- **ZHN** volute pumps to EN 733, t_{max} 180 °C PN 16. Hot water design.
- **ZLI** volute pumps to EN 733 as INLINE construction, t_{max} 150 °C PN 25. Hot water design.

Technical documentation on these programmes will readily be supplied on request.

SECTIONAL DRAWING AND NOMENCLATURE
ZTN 032125 ... 150250

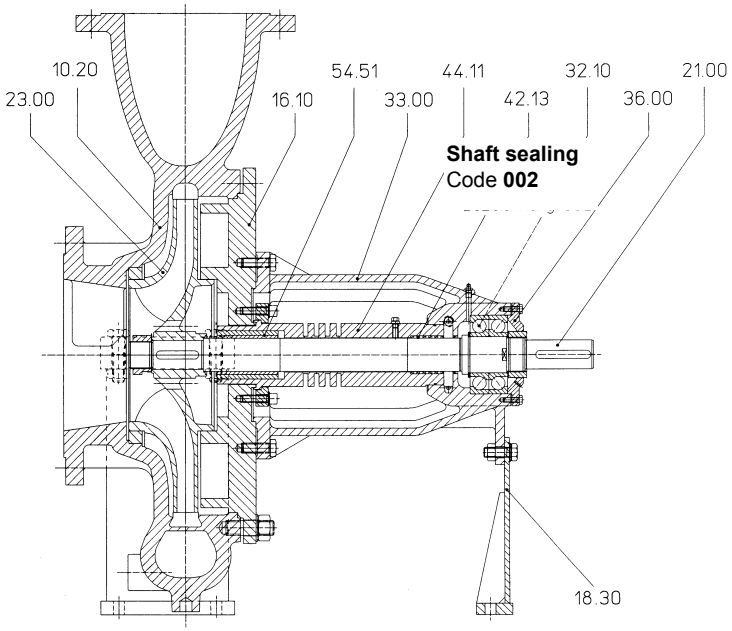


Shaft sealing
Code **GBC**

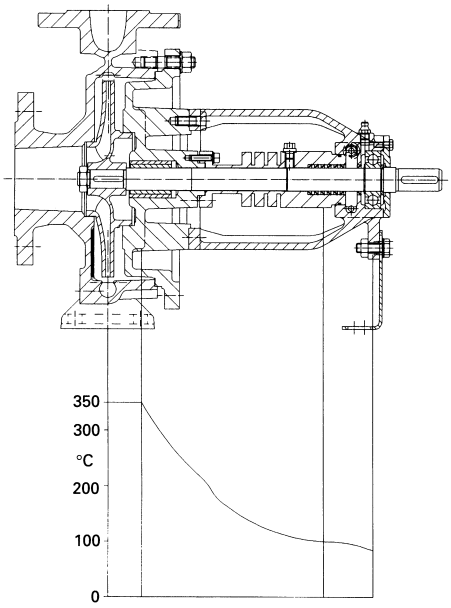


10.20	volute casing
16.10	casing cover
18.30	supporting foot
21.00	shaft
23.00	impeller
32.10	grooved ball bearing
33.00	bearing bracket
36.00	bearing cover
42.13	radial seal ring
43.30	mechanical seal
44.10	shaft seal casing
44.11	shaft seal casing
47.10	sealing cover
54.51	sleeve bearing

ZTN 150315 ... 200500



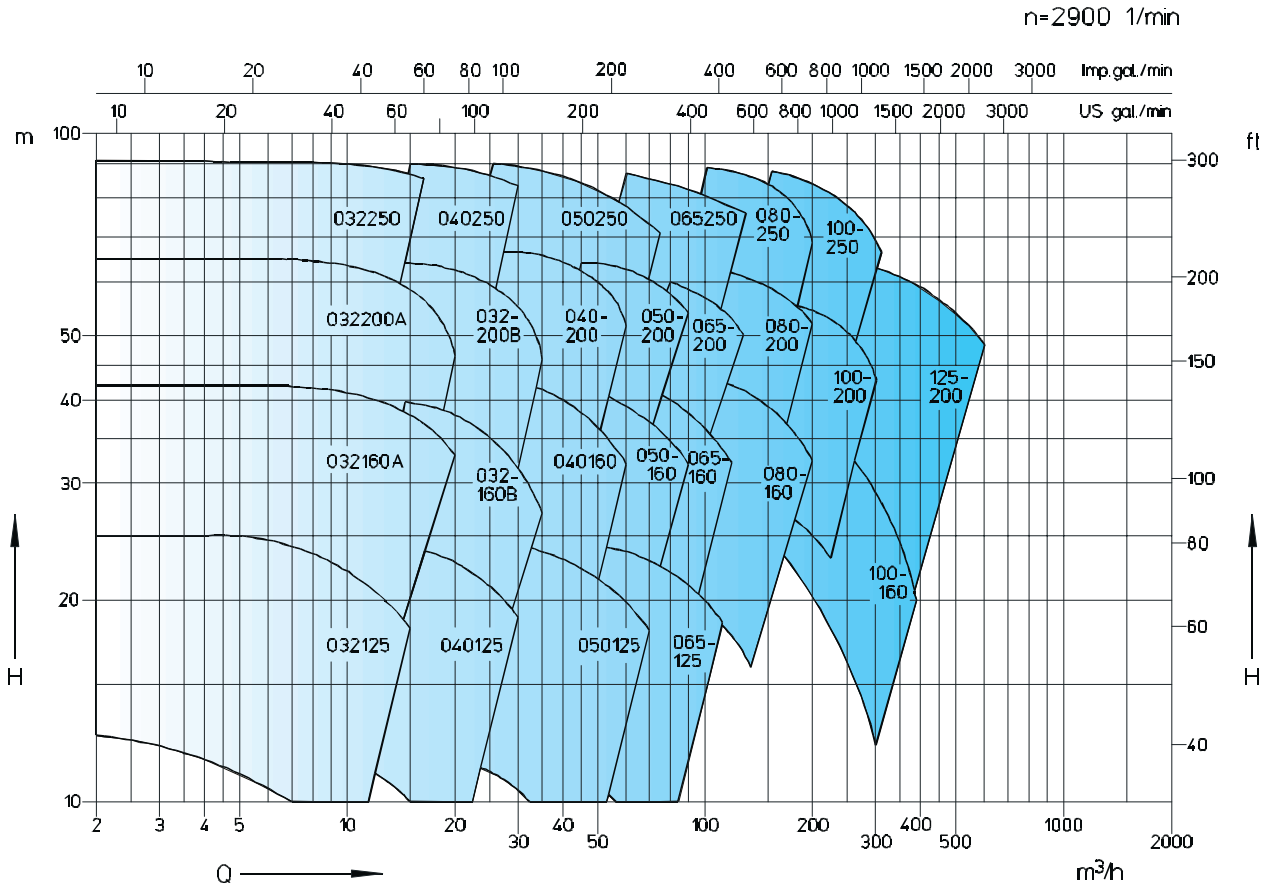
Heat barrier / shaft sealing / bearing

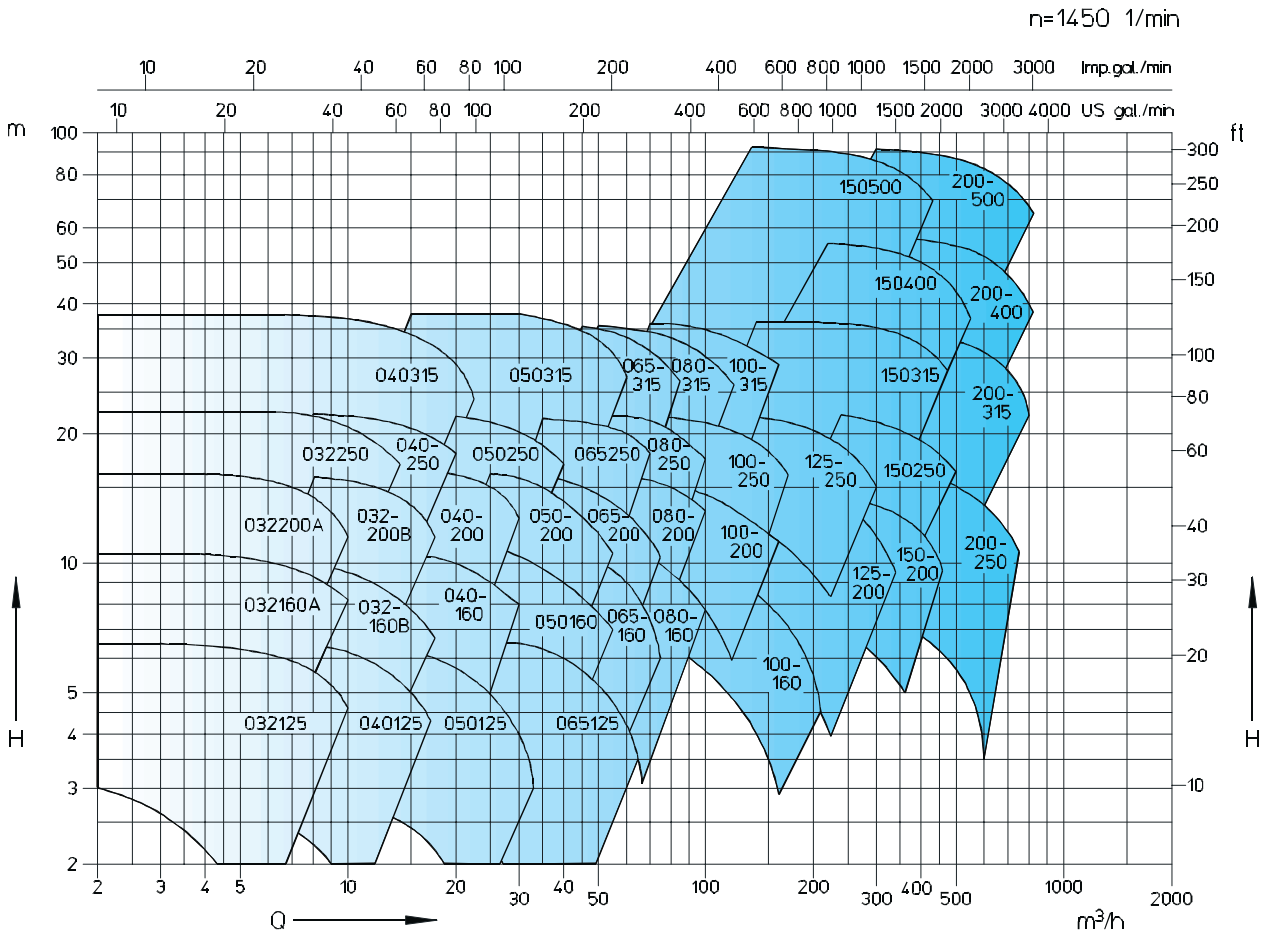


Heat transfer installations have achieved a high level of technical development. Consequently the requirements on pumps handling heat transfer oils have increased regarding operating safety, environmental protection, maintenance and operating costs. The Sterling SIHI ZTN pump, based on many years of experience and on the latest technical know-how, fully complies with these requirements.

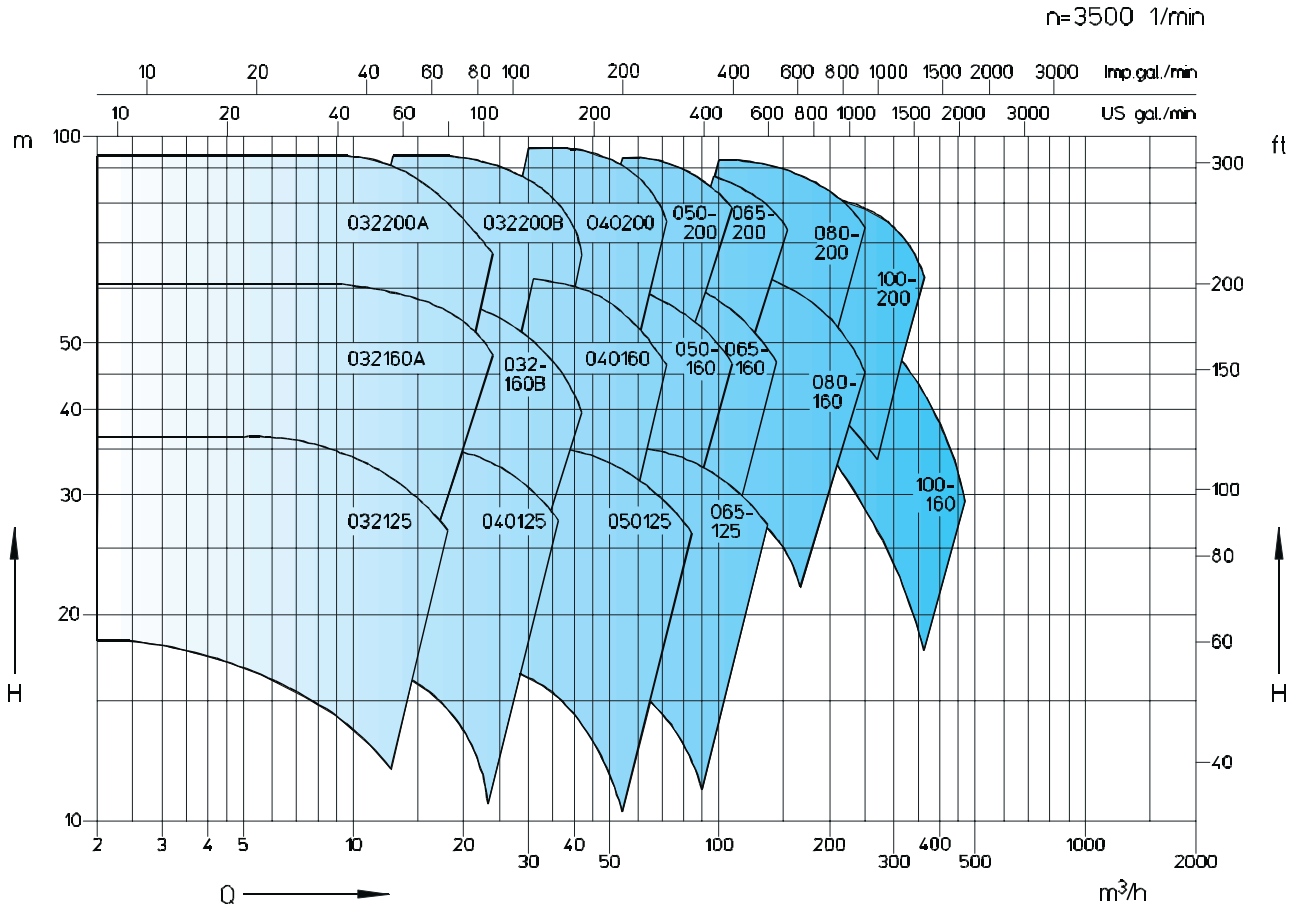
By the heat barrier with integrated throttle gab, located behind the cover, a favourable drop in temperature toward the drive side is achieved (see opposite drawing). Heat losses at the product side are effectively prevented (saving of energy). The reduced temperature allows the use of simple, uncooled type of shaft sealing. As the lubricating properties of heat transfer oils for antifriction bearings are not specially good, a liquid flushed sleeve bearing has been fitted at the impeller side and an antrifriction bearing, not in contact with the heat carrier, has been fitted behind the shaft sealing. By this arrangement noiseless operation and long working life have been achieved.

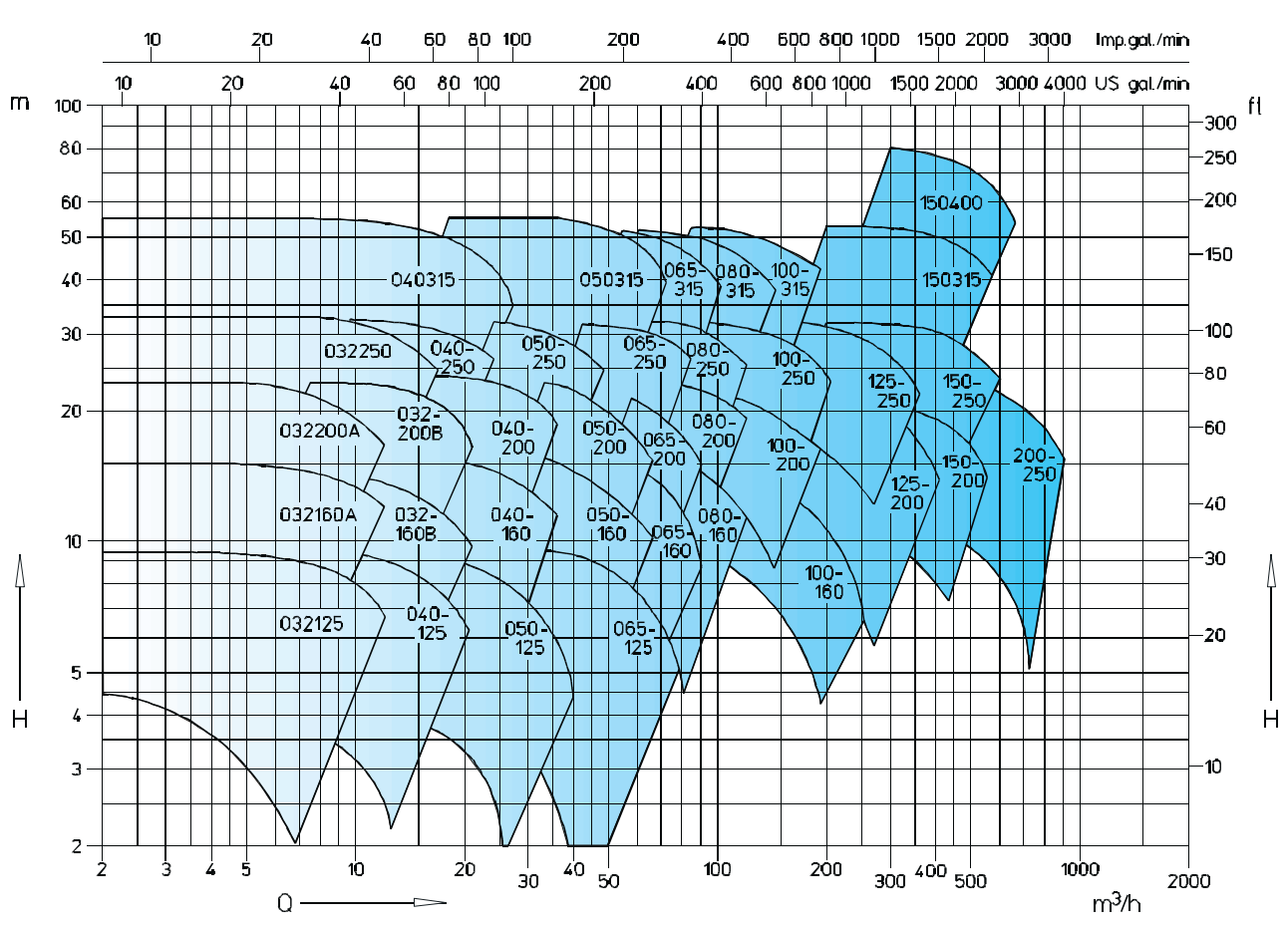
Performance graph **50 Hz**



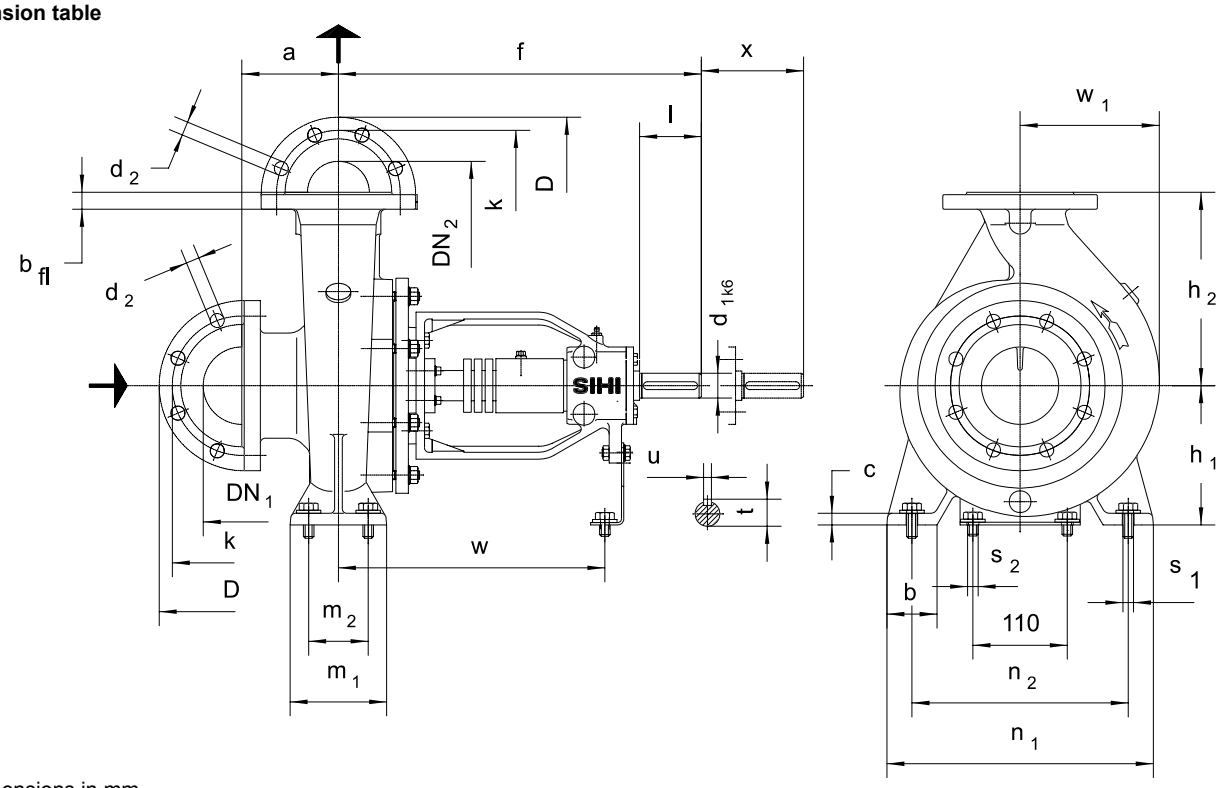


Performance graph **60 Hz**





Dimension table

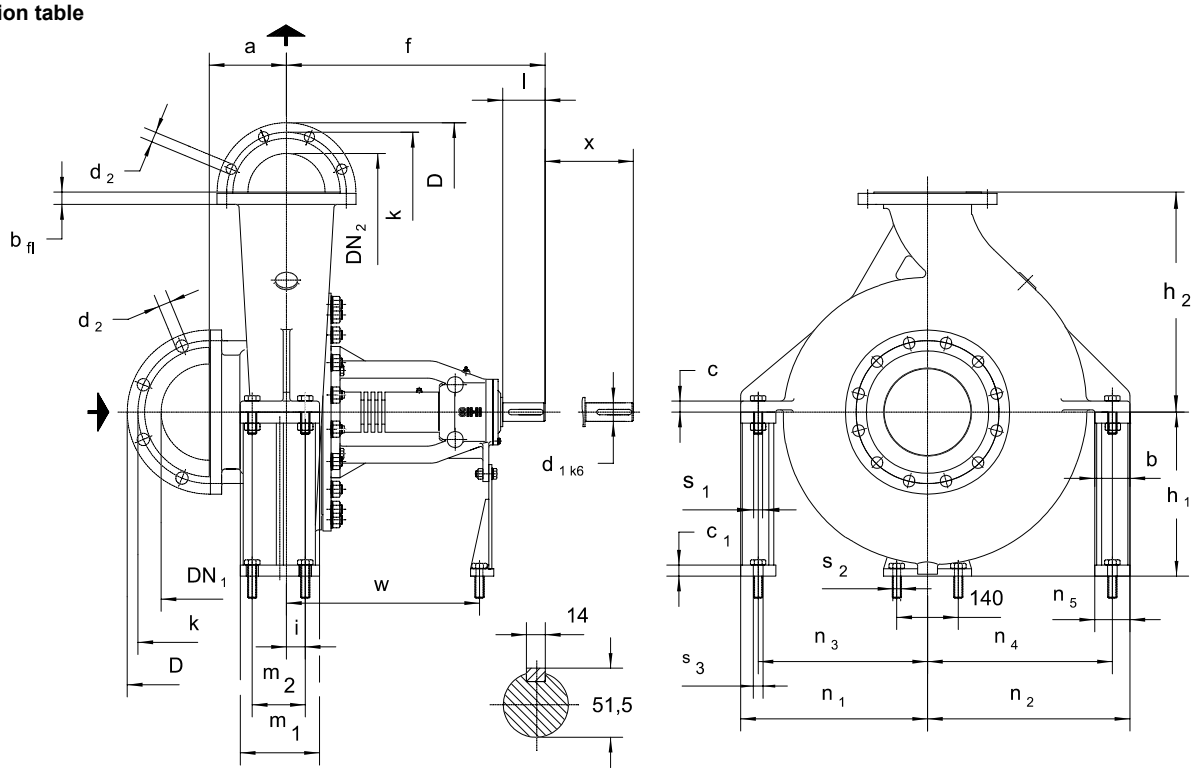


All dimensions in mm.

size	DN_2	DN_1	a	b	c	f	h_1	h_2	m_1	m_2	n_1	n_2	s_{1*}	s_{2*}	w	w_1	x	d_1	l	t	u
032125	32	50	80	50	15	360	112	140	100	70	190	140	M12	M12	267	105	100	24	50	27	8
032160							132	160			240	190				120					
032200							160	180								127					
032250[1)]			100	65			180	225	125	95	320	250				160					
040125	40	65	80	50			112	140	100	70	210	160				108					
040160							132	160			240	190				128					
040200			100				160	180			265	212				140					
040250				65			180	225	125	95	320	250				164					
040315[1)]			125		18	470	225	250			345	280			340	204		32	80	35	10
050125	50		100	50	15	360	132	160	100	70	240	190			267	120		24	50	27	8
050160							160	180			265	212				130					
050200								200								150					
050250				65			180	225	125	95	320	250				169					
050315[1)]			125		17	470	225	280			345	280			340	210		32	80	35	10
065125	65	80	100	65	15	360	160	180	125	95	280	212			267	140		24	50	27	8
065160								200								147					
065200							180	225			320	250				166					
065250				80		470	200	250	160	120	360	280	M16		340	183		32	80	35	10
065315			125		18		225	280			400	315				220					
080160	80	100		65	15	360	180	225	125	95	320	250	M12		267	165		24	50	27	8
080200								250			345	280			340	180		32	80	35	10
080250				80	18	470	200	280	160	120	400	315	M16			200					
080315							250	315								235					
100160[1)]	100	125					200	280			360	280				202	140				
100200																	120				
100250							225				400	315				212					
100315			140				250	315								242					
125200[1)]	125	150															140				
125250								355								236	120				
150200[1)]	150	200	160	100	20		280	400	200	150	550	450	M20			274	190				
150250[1)]											500	400					170				

[1)]Transnorm pump sizes, not included in DIN 24255/ EN 733. Flanges drilled according to ANSI 150 can be suplied.
*Slots suitable for bolts with dimensions indicated. Bolts are not included in the bare shaft pump standard scope of supply.

Dimension table



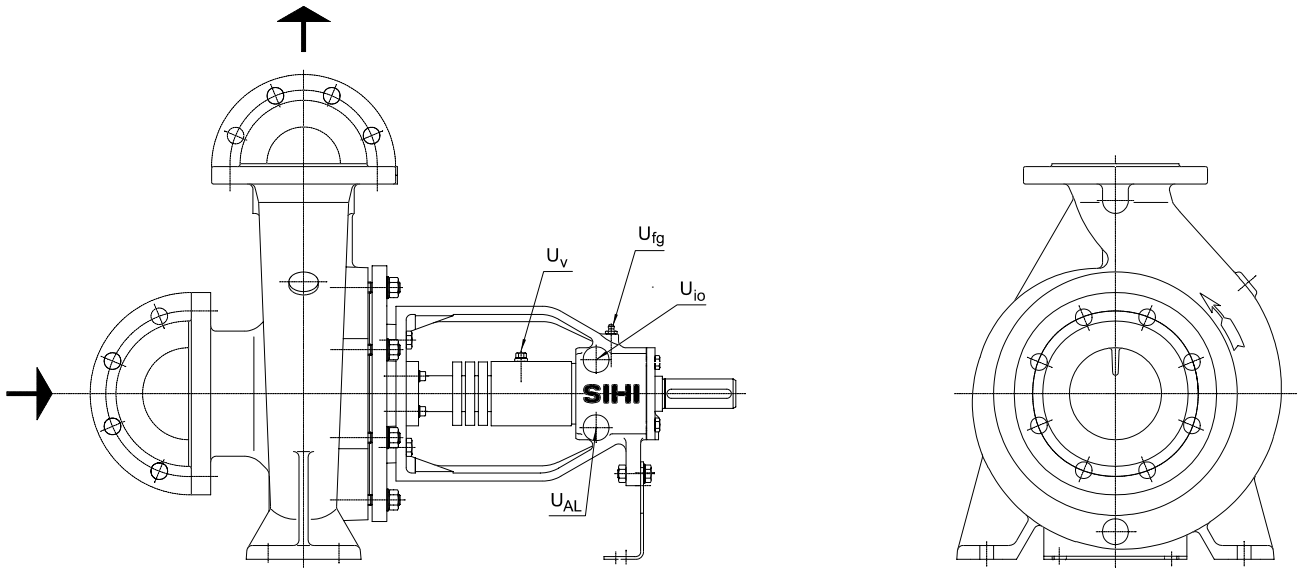
All dimensions in mm.

size	DN_2	DN_1	a	f	h_1	h_2	m_1	m_2	i	l	x	d_1	w	c	c_1	s_1	s_{2*}	s_{3*}	n_1	n_2	n_3	n_4	b,n_5
150315[1)]	150	200	180	670	315	400	180	120	35	110	180	48	500	25	23	M20	M12	M20	320	360	290	330	60
150400[1)]					355	450													380	420	340	380	
150500[1)]					400	500			45								M16		425	460	385	420	
200250[1)]	200	250	250		335	425											M12		340	410	300	370	80
200315[1)]					355	450											M16		360	420	320	380	
200400[1)]			200		375	500			35										400	480	360	440	
200500[1)]					425	560	220	160	50					30					475	575	425	525	100

[1)]Transnorm pump sizes, not included in DIN 24255/ EN 733. Flanges drilled according to ANSI 150 can be suplied.
*Slots suitable for bolts with dimensions indicated. Bolts are not included in the bare shaft pump standard scope of supply.

Flange connection according to DIN EN 1092-2 PN 16 Execution material 1B										DIN EN 1092-2 PN 25				
										Execution material 1B			Execution material 2B	
DN_2/DN_1	32	40	50	65	80	100	125	150	200	150	200	250	200	250
D	140	150	165	185	200	220	250	285	340	300	360	425	360	425
k	100	110	125	145	160	180	210	240	295	250	310	370	310	370
b_{fl}	18	19	19	19	19	19	19	19	20	20	22	24,5	30	32
Tolerances	+4,0 -3,0									+4,5 -4,0			+1,5 -1,5	
d_2 x number	19x4	19x4	19x4	19x4	19x8	19x8	19x8	23x8	23x12	28x8	28x12	31x12	26x12	30x12

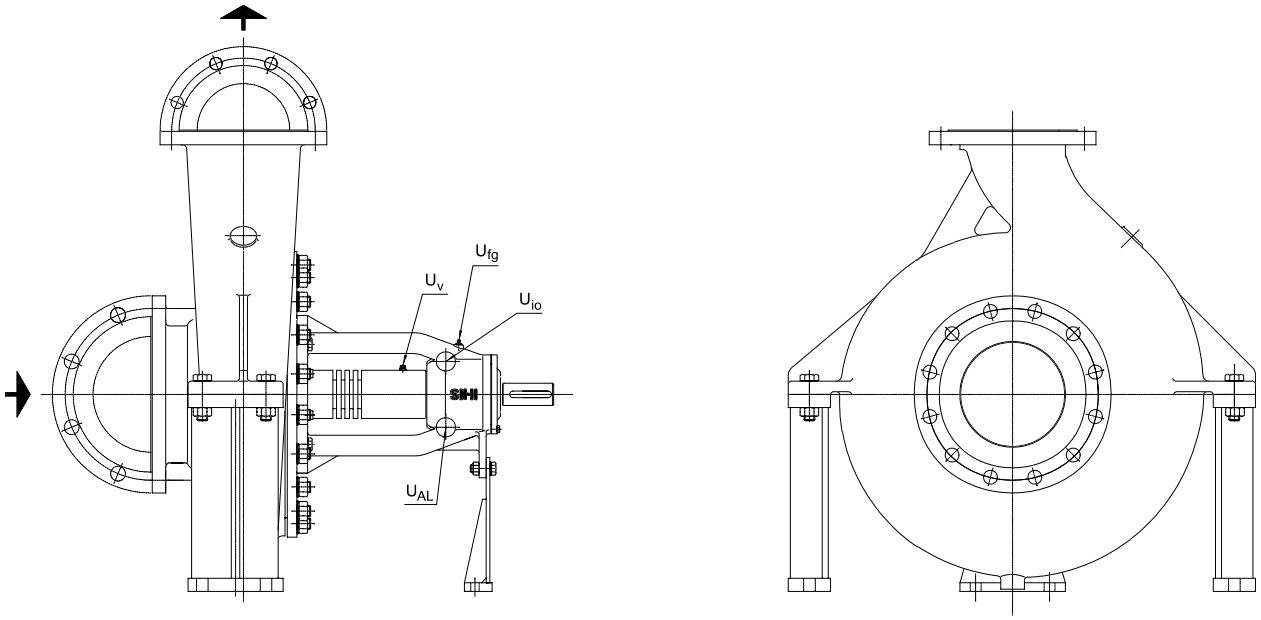
Connections for bearing brackets 25 and 35



u_{fg} : Grease filling connection.
u_{io} : Sealing liquid connection.
u_{AL} : Drainage for leakage.
u_v : Vent connection

Size	u_{fg}	u_v	u_{io}	u_{AL}
032125	G 1/8	G 1/8	G 1/4	G 1/4
032160				
032200				
032250				
040125				
040160				
040200				
040250				
040315				
050125				
050160				
050200				
050250				
050315				
065125				
065160				
065200				
065250				
065315				
080160				
080200				
080250				
080315				
100160				
100200				
100250				
100315				
125200				
125250				
150200				
150250				

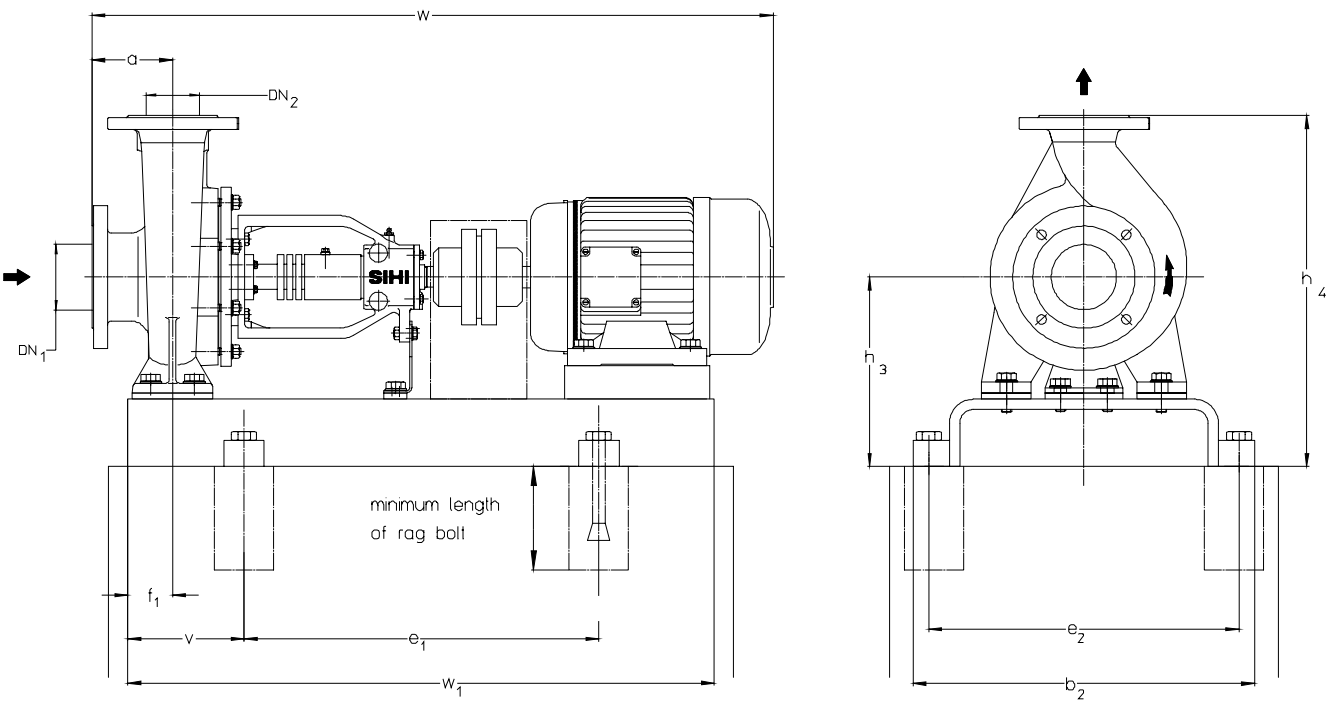
Connections for bearing bracket 45



u_{fg} : Grease filling connection.
u_{io} : Sealing liquid connection.
u_{AL} : Drainage for leakage.
u_v : Vent connection.

Size	u_{fg}	u_v	u_{io}	u_{AL}
150315	G 1/8	G 1/8	G 1/4	G 1/4
150400				
150500				
200250				
200315				
200400				
200500				

Foundation plan **n = 1450 rpm**



Dimensions in mm.
Dimensional tolerances admissible (base plates) for welded parts according to DIN 8570 B

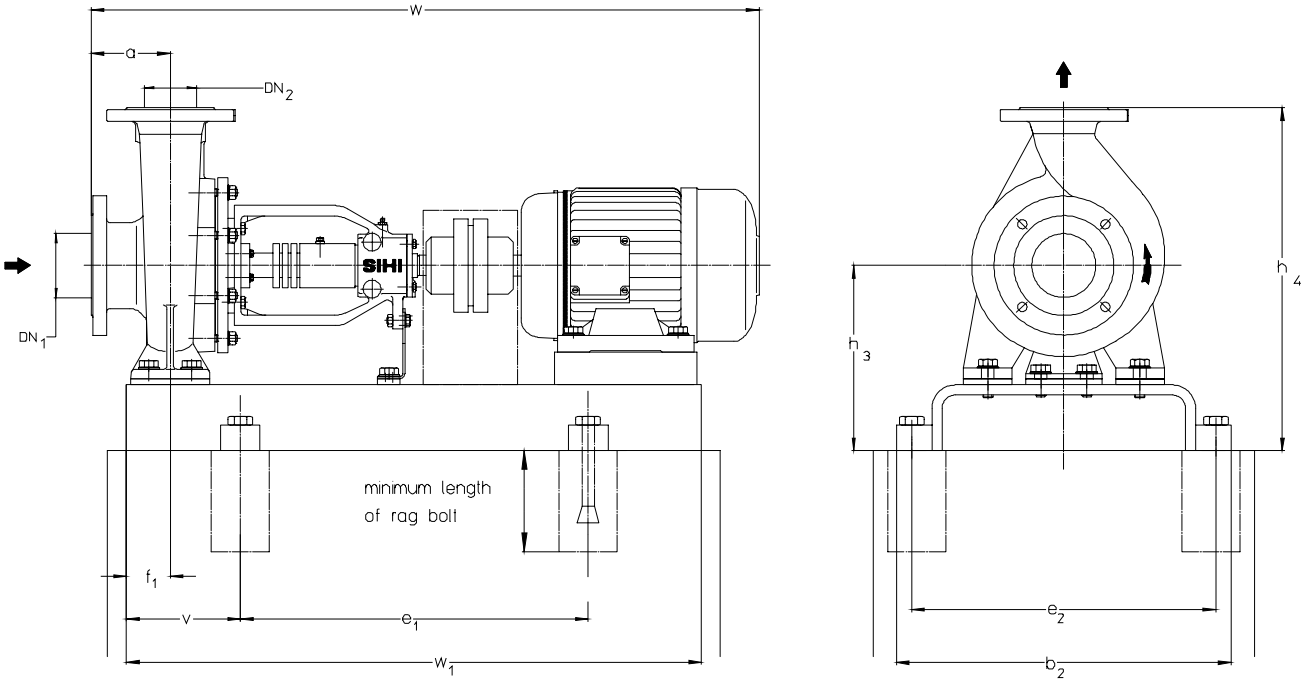
size	motor size	motor kW	base plate No.	coup-ling **	weight pump kg	weight Unit kg	DN_2	DN_1	a	b_2	e_1	e_2	v	f_1	h_3	h_4	w*	w_1	rag bolt DIN 529
032125	71	0.25	S008	B68	32	51	32	50	80	297	400	265	120	60	152	292	682	640	M12x100
	71	0.37				52													
032160	71	0.37	S270		41	69				360	420	320	115		197	357			M16x200
	80	0.55				72											716	650	
032200	80	0.55				70									225	405			
	80	0.75																	
	90S	1.10	S301		39	78				390	480	350	125				774	730	
	90L	1.50				80													
032250	80	0.75	S383		52	103			100	490	600	440	160	75	260	485	736	920	M20x400
	90S	1.10				106											794		
	90L	1.50				108													
	100L	2.20		B80		118											835		
040125	71	0.25	S270	B68	34	61	40	65	80	360	420	320	115	60	177	317	682	650	M16x200
	71	0.37				62											716		
	80	0.55				65													
040160	71	0.37			39	69									197	357	682		
	80	0.55				70											716		
	80	0.75																	
	90S	1.10	S301			78											774		
040200	80	0.55			43	79			100	390	480	350	125		225	405	736	730	
	80	0.75																	
	90S	1.10				82											794		
	90L	1.50				84													
040250	90S	1.10	S383		57	111				490	600	440	160	75	260	485		920	M20x400
	90L	1.50				113													
	100L	2.20				123											835		
	100L	3.00		B80															
040315	100L	2.20			87	153			125						305	555	970		
	100L	3.00																	
	112M	4.00				154											991		
	132S	5.50	S434	B95		199				540	660	490	170				1067	1000	
050125	71	0.37	S270	B68	35	63	50	65	100	360	420	320	115	60	197	357	702	650	M16x200
	80	0.55				67											736		
	80	0.75																	
050160	80	0.55	S301		44	80				390	480	350	125		225	405	736	730	
	80	0.75																	
	90S	1.10				83											794		
050200	80	0.75			43	79										425	736		
	90S	1.10				82											794		
	90L	1.50				84													
	100L	2.20		B80		94											835		
050250	90L	1.50	S383	B68	57	113				490	600	440	160	75	260	485	794	920	M20x400
	100L	2.20		B80		123											835		
	100L	3.00																	
	112M	4.00				124											856		
050315	112M	4.00	S434	B95	90	157			125	540	660	490	170		305	585	991	1000	
	132S	5.50				202											1067		
	132M	7.50				205											1093		

Foundation plan **n = 1450 rpm**

size	motor size	motor kW	base plate No.	coup-ling **	weight pump kg	weight Unit kg	DN_2	DN_1	a	b_2	e_1	e_2	v	f_1	h_3	h_4	w*	w_1	rag bolt DIN 529
065125	80	0.55	S342	B68	39	83	65	80	100	450	540	400	140	60	240	420	736	820	M20x400
	80	0.75																	
	90S	1.10				86											794		
065160	80	0.75			45	89										440	736		
	90S	1.10				92											794		
	90L	1.50				94													
	100L	2.20		B80		105											835		
065200	90S	1.10	S383	B68	48	102				490	600	440	160	75	260	485	794	920	
	90L	1.50				104													
	100L	2.20		B80		114											835		
	100L	3.00																	
	112M	4.00				115											856		
065250	100L	2.20	S434		78	161				540	660	490	170		280	530	945	1000	
	100L	3.00																	
	112M	4.00				162											966		
	132M	5.50		B95		190								90	300	550	1042		
065315	132S	5.50	S486		94	231			125	610	840	550	205		325	605	1067	1250	M24x400
	132M	7.50				234											1093		
	160M	11.00				250											1185		
	160L	15.00		B110		280											1247		
080160	80	0.75	S383	B68	51	102	80	100	125	490	600	440	160	75	260	485	761	920	M20x400
	90S	1.10				105											819		
	90L	1.50				107													
	100L	2.20		B80		118											860		
	100L	3.00																	
080200	90L	1.50			71	127										510	929		
	100L	2.20				137											970		
	100L	3.00																	
	112M	4.00				138											991		
	132S	5.50	S434	B95		183				540	660	490	170				1067	1000	
080250	100L	3.00	S486	B80	84	192			125	610	840	550	205	90	300	580	970	1250	M24x400
	112M	4.00				193											991		
	132S	5.50		B95		221											1067		
	132M	7.50				224											1093		
080315	132S	5.50			104	241									350	665	1067		
	132M	7.50				244											1093		
	160M	11.00				260											1185		
	160L	15.00		B110		290											1247		
100160	100L	2.20	S434	B80	80	163	100	125		540	660	490	170		280	560	971	1000	M20x400
	100L	3.00																	
	112M	4.00				164											992		
	132S	5.50		B95		192											1068		
100200	100L	2.20		B80	79	162									280	560	971		
	100L	3.00																	
	112M	4.00				163											992		
	132S	5.50		B95		191											1068		
	132M	7.50				194											1094		
100250	112M	4.00	S486	B80	89	198			140	610	840	550	205		325	605	1006	1250	
	132S	5.50				226											1082		
	132M	7.50		B95		229											1108		
	160M	11.00				245													
100315	160M	11.00			106	262									350	665	1200		
	160L	15.00		B110		292											1262		
	180M	18.50				304											1324		
	180L	22.00		B125		320													
125200	132M	7.50		B95	102	242	125	150									1108		
	160M	11.00				258											1200		
	160L	15.00		B110		288											1262		
125250	132M	7.50		B95	109	249										705	1108		
	160M	11.00				265											1200		
	160L	15.00		B110		295											1262		
150200	132M	7.50	S605	B95	120	278	150	200	160	730	740	670	190	110	380	780	1128	1120	
	160M	11.00				294											1220		
	160L	15.00		B110		323											1282		
	180M	18.50				335											1344		
	180L	22.00	S606	B125		351					840		205				1346	1250	
	200L	30.00				395											1404		
150250	160L	15.00	S605	B110	134	337					740		190				1282	1120	
	180M	18.50				339											1344		
	180L	22.00	S606	B125		377					840		205				1402	1250	
	200L	30.00				421													
	225S	37.00		B140		467											1469		
	225M	45.00				487													
150315	Foundation plans with base plates and fittings on request																		
150400																			
150500																			
200250																			
200315																			
200400																			
200500																			

* Motor protection type IP 55, dimensions depend on the motor manufacturer.
Some sizes are not corresponding to the drawing in small details.
Foundation plan for 60 Hz on request.

Foundation plan **n = 2900 rpm**



Dimensions in mm.
Dimensional tolerances admissible (base plates) for welded parts according to DIN 8570 B

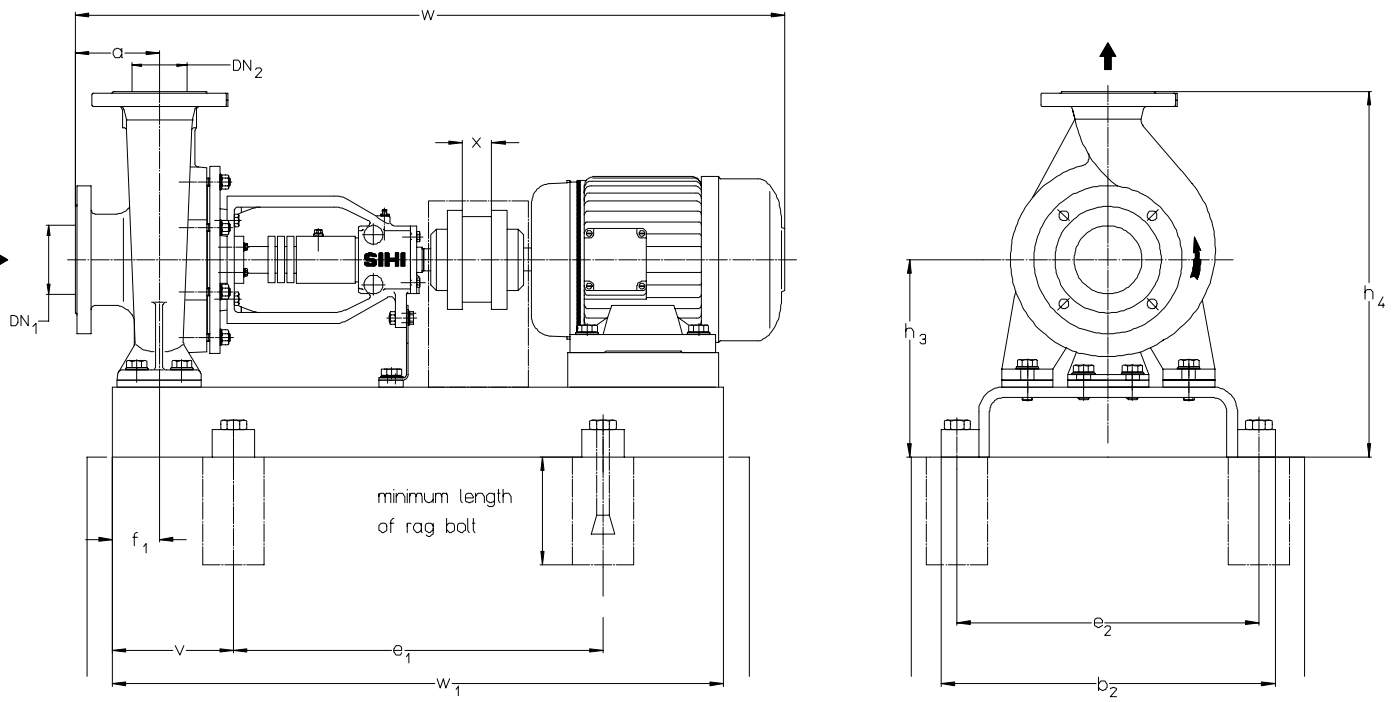
size	motor size	motor kW	base plate No.	coup-ling **	weight pump kg	weight Unit kg	DN_2	DN_1	a	b_2	e_1	e_2	v	f_1	h_3	h_4	w*	w_1	rag bolt DIN 529
032125	71	0.55	S008	B68	32	52	32	50	80	297	400	265	120	60	152	292	682	640	M12x100
	80	0.75				55											716		
	80	1.10																	
	90S	1.50	S241			67				330	480	290	125		177	317	774	730	M16x200
	90L	2.20				69													
032160	80	1.10	S270		41	72				360	420	320	115		197	357	716		
	90S	1.50	S301			80				390	480	350	125				774		
	90L	2.20				82													
	100L	3.00		B80		92											815		
	112M	4.00				93											836		
	132S	5.50	S342	B95		130				450	540	400	140		212	372	895	820	M20x400
	132S	7.50															912		
032200	90L	2.20	S301	B68	39	80				390	480	350	125		225	405	774	730	M16x200
	100L	3.00		B80		90											815		
	112M	4.00				91											836		
	132S	5.50	S342	B95		128				450	540	400	140		240	420	912	820	M20x400
	132S	7.50																	
	160M	11.00	S383			147				490	600	440	160				1088	920	
	160M	15.00																	
	160L	18.50	S344			175				450	660	400	180				1150	1020	
032250	132S	7.50	S383		52	148			100	490	600	440	160	75	260	485	932	920	
	160M	11.00				167											1050		
	160M	15.00																	
040125	80	1.10	S270	B68	34	65	40	65	80	360	420	320	115	60	177	317	716	650	M16x200
	90S	1.50	S241			70				330	480	290	125				774	730	
	90L	2.20				71													
	100L	3.00		B80		82											815		
040160	90S	1.50	S301	B80	39	78				390		350			197	357	776		
	90L	2.20				80													
	100L	3.00				90											815		
	112M	4.00				91											836		
	132S	5.50	S342	B95		128				450	540	400	140		212	372	912	820	M20x400
	132S	7.50				138											895		
	160M	11.00	S383			159				490	600	440	160				1030	920	
040200	100L	3,00	S301	B80	43	94			100	390	480	350	125		225	405	817	730	M16x200
	112M	4.00				95											856		
	132S	5.50	S342	B95		132				450	540	400	140		240	420	932	820	M20x400
	132S	7.50																	
	160M	11.00	S383			158				490	600	440	160				1050	920	
	160M	15.00																	
040250	132S	7.50			57	153								75	260	485	932		
	160M	11.00				172											1050		
	160M	15.00																	
	160L	18.50	S434			216				540	660	490	170				1112	1000	

Foundation plan **n = 2900 rpm**

size	motor Size	motor kW	base plate No.	coup-ling **	weight pump kg	weight unit kg	DN_2	DN_1	a	b_2	e_1	e_2	v	f_1	h_3	h_4	w*	w_1	rag bolt DIN 5298
050125	90S	1.50	S301	B68	35	74	50	65	100	390	480	350	125	60	197	357	794	730	M16x200
	90L	2.20				76													
	100L	3.00	S272	B80		86				360	540	320	140				835	820	
	112M	4.00				87											856		
	132S	5.50	S342	B95		124				450		400			212	372	932		M20x400
050160	90L	2.20	S301	B68	44	85				390	480	350	125		225	405	794	730	M16x200
	100L	3.00		B80		95											835		
	112M	4.00				96											856		
	132S	5.50	S342	B95		133				450	540	400	140		240	420	932	820	M20x400
	132S	7.50																	
	160M	11.00	S383			159				490	600	440	160				1050	920	
050200	100L	3.00	S301	B80	43	94				390	480	350	125		225	425	817	730	M16x200
	112M	4.00				95											858		
	132S	5.50	S342	B95		132				450	540	400	140		240	440	932	820	M20x400
	132S	7.50																	
	160M	11.00	S383			158				490	600	440	160				1050	920	
	160M	15.00																	
	160L	18.50	S344			163				450	660	400	180					1020	
050250	160M	11.00	S383		57	172				490	600	440	160	75	260	485		920	
	160M	15.00																	
	160L	18.50	S434			216				540	660	490	170				1112	1000	
	180M	22.00		B110		229											1174		
	200L	30.00	S435	B125		296					740		200		280	505	1232	1140	
065125	100L	3.00	S342	B80	39	99	65	80		450	540	400	140	60	240	420	835	820	M20x400
	112M	4.00				100											856		
	132S	5.50		B95		128											932		
	132S	7.50																	
065160	132S	5.50			45	134										440			
	132S	7.50																	
	160M	11.00	S383			160				490	600	440	160				1050	920	
	160M	15.00																	
065200	160M	11.00			48	163								75	260	485			
	160M	15.00																	
	160L	18.50	S434			207				540	660	490	170				1112	1000	
	180M	22.00		B110		220											1174		
	200L	30.00	S435	B125		287					740		200				1232		
065250	160L	18.50		B95	78	244								90	280	530	1222	1140	
	180M	22.00		B110		257											1284		
	200L	30.00	S436	B125		324					840		215				1342	1270	
	200L	37.00																	
	225M	45.00	S486			401				610		550	205		325	575	1372	1250	M24x400
080160	132S	7.50	S383	B95	51	147	80	100	125	490	600	440	160	75	260	485	957	920	M20x400
	160M	11.00				166											1075		
	160M	15.00																	
	160L	18.50	S434			210				540	660	490	170				1137	1000	
	180M	22.00		B110		223											1199		
080200	160M	15.00		B95	71	202										510	1185		
	160L	18.50	S435			237					740		200				1247	1140	
	180M	22.00		B110		250											1309		
	200L	30.00	S436	B125		317					840		215		280	530	1367	1270	
	200L	37.00																	
080250	180M	22.00	S486	B110	84	282				610		550	205	90	300	580	1309	1250	M24x400
	200L	30.00															1367		
	200L	37.00		B125		342													
	225M	45.00				407									325	605	1397		
	250M	55.00	S607	B140		629				730	940	670	230		350	630	1527	1400	
100160	160L	18.50	S435	B95	80	246	100	125	125	540	740	490	200	90	280	560	1247	1140	M20x400
	180M	22.00		B110		259											1309		
	200L	30.00	S436	B125		326					840		215				1367	1270	
	200L	37.00																	
100200	160L	18.50	S435	B95	79	245					740		200				1247	1140	
	180M	22.00		B110		258											1309		
	200L	30.00	S436	B125		325					840		215				1367	1270	
	200L	37.00																	
	225M	45.00				402											1397		
100250	200L	30.00	S486		89	347			140	610		550	205		325	605	1382	1250	
	200L	37.00																	
	225M	45.00				412											1412		
	250M	55.00	S607	B140		634				730	940	670	230		350	630	1542	1400	M24x400
	280S	75.00	S609A	B160		903				744	1200	696	300		380	660	1642	1800	
	280M	90.00				953													
125200	250M	55.00	S607	B140	102	647	125	150		730	940	670	230		350	665	1542	1400	
	280S	75.00	S609A	B160		916				744	1200	696	300		380	695	1642	1800	
	280M	90.00				966													

* Motor protection type IP 55, dimensions depend on the motor manufacturer.
Some sizes are not corresponding to the drawing in small details.
Foundation plan for 60 Hz on request

Foundation plan for units with spacer type coupling **n = 1450 rpm**



Dimensions in mm.
Dimensional tolerances admissible (base plates) for welded parts according to DIN 8570 B

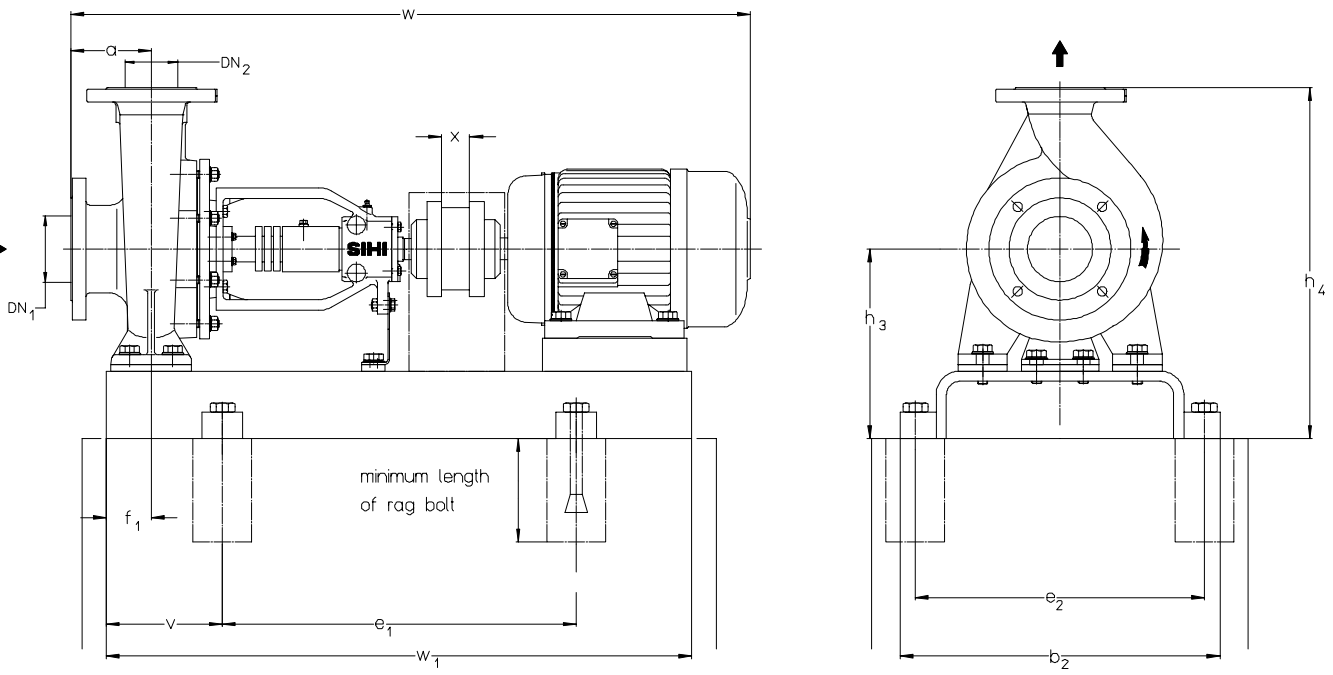
size	motor size	motor kW	base-plate No.	coup-ling **	weight pump kg	weight unit kg	DN_2	DN_1	a	b_2	e_1	e_2	v	f_1	h_3	h_4	x	w*	w_1	rag bolt DIN 529
032125	71	0.25	S241	H80	32	63	32	50	80	330	480	290	125	60	177	317	100	780	730	M16x200
	71	0.37																		
032160	71	0.37	S301		41	76				390		350			197	357				
	80	0.55	S272			80				360	540	320	140		225	405		814	820	
032200	80	0.55			39	78														
	80	0.75																872		
	90S	1.10				81														
	90L	1.50				83														
032250	80	0.75	S383		52	105			100	490	600	440	160	75	260	485		834	920	M20x400
	90S	1.10				108												892		
	90L	1.50				110														
	100L	2.20				120												933		
040125	71	0.25	S241		34	65	40	65	80	330	480	290	125	60	177	317		780	730	M16x200
	71	0.37																		
	80	0.55	S272			73				360	540	320	140					814	820	
040160	71	0.37	S301		39	74				390	480	350	125		197	357		780	730	
	80	0.55	S272			78				360	540	320	140					814	820	
	80	0.75																872		
	90S	1.10				81														
040200	80	0.55	S342	H80	43	89			100	450	540	400	140		240	420		834	820	M20x400
	80	0.75																		
	90S	1.10				92												892		
	90L	1.50				94														
040250	90S	1.10	S383		57	113				490	600	440	160	75	260	485		920		M20x400
	90L	1.50				115														
	100L	2.20				125												933		
	100L	3.00																		
040315	100L	2.20	S434		87	171			125	540	660	490	170		305	555		1068	1000	
	100L	3.00																		
	112M	4.00				172												1089		
	132S	5.50	S435	H95		207					740		200					1165	1140	
050125	71	0.37	S301	H80	35	70	50	65	100	390	480	350	125	60	197	357		800	730	M16x200
	80	0.55	S272			74				360	540	320	140					834	820	
	80	0.75																		
050160	80	0.55	S342		44	90				450		400			240	420				M20x400
	80	0.75																		
	90S	1.10				93												892		
050200	80	0.75			43	89										440		834		
	90S	1.10				92												892		
	90L	1.50				94														
	100L	2.20				104												933		
050250	90L	1.50	S383		57	115				490	600	440	160	75	260	485		892		
	100L	2.20				125												933	920	
	100L	3.00																		
	112M	4.00				126												954		
050315	112M	4.00	S434		90	175			125	540	660	490	170		305	585		1089	1000	
	132S	5.50	S435	H95		210					740		200					1165	1140	
	132M	7.50				213												1191		

Foundation plan for units with spacer type coupling **n = 1450 rpm**

size	motor size	motor kW	base plate No.	coup-ling **	weight pump kg	weight unit kg	DN_2	DN_1	a	b_2	e_1	e_2	v	f_1	h_3	h_4	x	w*	w_1	rag bolt DIN 529
065125	80	0.55	S342	H80	39	85	65	80	100	450	540	400	140	60	240	420	100	834	820	M20x400
	80	0.75				85												834		
	90S	1.10				88												892		
065160	80	0.75			45	91										440		834		
	90S	1.10				94												892		
	90L	1.50				96												892		
	100L	2.20				106												933		
065200	90S	1.10	S383		48	104				490	600	440	160	75	260	485		932	920	
	90L	1.50				106												932		
	100L	2.20				116												973		
	100L	3.00																973		
	112M	4.00				117												994		
065250	100L	2.20	S434		78	162				540	660	490	170	90	280	530		1083	1000	
	100L	3.00																1083		
	112M	4.00				163												1104		
	132S	5.50	S435			198					740		200					1180	1140	
065315	132S	5.50	S486	H95	94	233			125	610	840	550	205		325	605		1205	1250	M24x400
	132M	7.50				236												1231		
	160M	11.00				252												1323		
	160L	15.00		H110		282												1385		
080160	80	0.75	S383	H80	51	104	80	100		490	600	440	160	75	260	485		899	920	M20x400
	90S	1.10				107												957		
	90L	1.50				109												957		
	100L	2.20				119												998		
	100L	3.00																998		
080200	90L	1.50	S434		71	144				540	660	490	170			510		1067	1000	
	100L	2.20				155												1108		
	100L	3.00																1108		
	112M	4.00				156												1129		
	132S	5.50	S435	H95		191					740		200					1205	1140	
080250	100L	3.00	S486	H80	84	194			125	610	840	550	205		300	580		1108	1250	M24x400
	112M	4.00				195												1129		
	132S	5.50		H95		223												1205		
	132M	7.50				226												1231		
080315	132S	5.50			104	243									350	665		1205		
	132M	7.50				246												1231		
	160M	11.00				262												1323		
	160L	15.00		H110		292											140	1385		
100160	100L	2.20	S434	H80	80	164	100	125		540	660	490	170		280	560		1108	1000	M20x400
	100L	3.00																1108		
	112M	4.00				165												1129		
	132S	5.50	S435	H95		200					740		200					1205	1140	
100200	100L	2.20	S434	H80	79	163					660		170					1108	1000	
	100L	3.00																1108		
	112M	4.00				164												1129		
	132S	5.50	S435	H95		199					740		200	90				1205	1140	
	132M	7.50				202												1231		
100250	112M	4.00	S486	H80	89	200			140	610	840	550	205		325	605		1144	1250	M24x400
	132S	5.50		H95		228												1220		
	132M	7.50				231												1246		
	160M	11.00				247												1338		
100315	160M	11.00			106	264									350	665		1338		
	160L	15.00		H110		294												1400		
	180M	18.50				306												1462		
	180L	22.00		H125		323												1462		
125200	132M	7.50	S486	H95	102	244	125	150										1246		
	160M	11.00				260												1338		
	160L	15.00		H110		290												1400		
125250	132M	7.50		H95	109	251										705		1246		
	160M	11.00				267												1338		
	160L	15.00		H110		297												1400		
150200	132M	7.50	S605	H95	120	279	150	200	160	730	740	670	190	110	380	780		1266	1400	
	160M	11.00	S606			306					840		205					1358		
	160L	15.00		H110		337												1423		
	180M	18.50				349												1482		
150250	160L	15.00			134	351					940		230					1420	1250	
	180M	18.50				363												1482		
	180L	22.00	S607	H125		392												1482	1400	
	200L	30.00				436												1540		
150315 150400 150500 200250 200315 200400 200500	Foundation plans with base plates and fittings on request																			

* Motor protection type IP 55, dimensions depend on the motor manufacturer.
Some sizes are not corresponding to the drawing in small details.
Foundation plan for 60 Hz on request

Foundation plan for units with spacer type coupling **n = 2900 rpm**



Dimensions in mm.
Dimensional tolerances admissible (base plates) for welded parts according to DIN 8570 B

size	motor size	motor kW	base plate No.	coup-ling **	weight pump kg	weight unit kg	DN_2	DN_1	a	b_2	e_1	e_2	v	f_1	h_3	h_4	x	w*	w_1	rag bolt Din 529
032125	71	0.55	S241	H80	32	64	32	50	80	330	480	290	125	60	177	317	100	780	730	M16x200
	80	0.75	S272			72				360	540	320	140					814	820	
	80	1.10																		
	90S	1.50				75												872		
	90L	2.20				77														
032160	80	1.10			41	80									197	357		814		
	90S	1.50				83												872		
	90L	2.20				85														
	100L	3.00				95												913		
	112M	4.00				96												934		
	132S	5.50	S303	H95		98				390	600	350	160					993	920	
	132S	7.50																1012		
032200	90L	2.20	S272	H80	39	83				360	540	320	140		225	405		872	820	
	100L	3.00				93												913		
	112M	4.00				94												934		
	132S	5.50	S303	H95		127				390	600	350	160					1010	920	
	132S	7.50																		
	160M	11.00	S344			158				450	660	400	180		240	420		1128	1020	M20x400
	160M	15.00																		
	160L	18.50	S385			203				490	740	440	200					1190	1140	
032250	132S	7.50	S383	H95	52	149			100		600		160	75	260	485		1030	920	
	160M	11.0	S434			184				540	660	490	170					1148	1000	
	160M	15.0																		
040125	80	1.10	S272	H80	34	73	40	65	80	360	540	320	140	60	177	317		814	820	M16x200
	90S	1.50				76												872		
	90L	2.20				78														
	100L	3.00				88												913		
040160	90S	1.50			39	81									197	357		872		
	90L	2.20				83														
	100L	3.00				93												913		
	112M	4.00				94												934		
	132S	5.50	S303	H95		127				390	600	350	160					1010	920	
	132S	7.50																993		
	160M	11.00	S344			162				450	660	400	180		240	400		1128	1020	M20x400
040200	100L	3.00	S342	H80	43	104			100		540		140			420		933	820	
	112M	4.00				105												954		
	132S	5.50	S303	H95		131				390	600	350	160		225	405		1030	920	M16x200
	132S	7.50																		
	160M	11.00	S344			160				450	660	400	180		240	420		1148	1020	M20x400
	160M	15.00																		
040250	132S	7.50	S383		57	154				490	600	440	160	75	260	485		1030	920	
	160M	11.00	S434			189				540	660	490	170					1148	1000	
	160M	15.00																		
	160L	18.50	S385			219				490	740	440	200					1210	1140	

Foundation plan for units with spacer type coupling **n = 2900 rpm**

size	motor size	motor kW	base plate No.	coup-ling **	weight pump kg	weight unit kg	DN_2	DN_1	a	b_2	e_1	e_2	v	f_1	h_3	h_4	x	w*	w_1	rag bolt DIN 529
050125	90S	1.50	S272	H80	35	77	50	65	100	360	540	320	140	60	197	357	100	892	820	M16x200
	90L	2.20				79														
	100L	3.00	S015			89				361	600	325	160		182	342		933	920	M12x100
	112M	4.00				90												954		
	132S	5.50	S303	H95		123				390		350			197	357		1030		M16x200
050160	90L	2.20			44	95												892		
	100L	3.00	S342	H80		105				450	540	400	140		240	420		933	820	M20x400
	112M	4.00				106												954		
	132S	5.50	S303	H95		132				390	600	350	160		225	405		1030	920	M16x200
	132S	7.50																		
	160M	11.00	S344			161				450	660	400	180		240	420		1148	1020	M20x400
050200	100L	3.00	S342	H80	43	104					540		140			440		933	820	
	112M	4.00				105												954		
	132S	5.50	S303	H95		131				390	600	350	160		225	425		1030	920	M16x200
	132S	7.50																		
	160M	11.00	S344			160				450	660	400	180		240	440		1148	1020	M20x400
	160M	15.00																		
	160L	18.50	S385			195				490	740	440	200					1210	1140	
050250	160M	11.00	S434		57	189				540	660	490	170	75	260	485		1148	1000	
	160M	15.00																		
	160L	18.50	S385			219				490	740	440	200					1210	1140	
	180M	22.00	S435	H110		238				540		490						1272		
	200L	30.00		H25		299									280	505		1330		
065125	100L	3.00	S342	H80	39	100	65	80		450	540	400	140	60	240	420		933	820	
	112M	4.00				101												954		
	132S	5.50	S383	H95		136				490	600	440	160					1030	920	M20x400
	132S	7.50																		
065160	132S	5.50			45	142										440				
	132S	7.50																		
	160M	11.00	S344			162				450	660	400	180					1148	1020	
	160M	15.00																		
065200	160M	11.00	S385		48	182				490	740	440	200	75	260	485	140	1188	1140	
	160M	15.00																		
	160L	18.50				210												1250		
	180M	22.00	S435	H110		229				540	840	490	215					1312		
	200L	30.00	S436	H125		297									280	505		1370	1270	
065250	160L	18.50		H95	78	252								90		530		1360		
	180M	22.00		H110		266												1422		
	200L	30.00	S487	H125		362				610	940	550	240		300	550		1480	1420	M24x400
	200L	37.00																		
	225M	45.00	S607			445				730		670	230		325	575		1510	1400	
080160	132S	7.50	S434	H95	51	164	80	100	125	540	660	490	170	75	260	485		1095	1000	
	160M	11.00	S385			165				490	740	440	200					1213	1140	M20x400
	160M	15.00																		
	160L	18.50				213												1275		
	180M	22.00	S435	H110		232				540	840	490	215			510		1337	1270	
080200	160M	15.00		H95	71	210												1323		
	160L	18.50	S436			244												1385		
	180M	22.00		H110		258												1447		
	200L	30.00	S487	H125		354				610	940	550	240		300	550		1505	1420	M24x400
	200L	37.00																		
080250	180M	22.00	S486	H110	84	284					840		205	90		580		1447	1250	
	200L	30.00	S487	H125		368					940		240					1505	1420	
	200L	37.00																		
	225M	45.00	S607	H125		451				730		670	230		325	605		1535	1400	
	250M	55.00	S608	H140		651					1060		270		350	630		1665	1600	
100160	160L	18.50	S436	H95	80	254	100	125		540	840	490	215		280	560		1385	1270	M20x400
	180M	22.00		H110		268												1447		
	200L	30.00	S487	H125		364				610	940	550	240		300	580		1505	1420	M24x400
	200L	37.00																		
100200	160L	18.50	S436	H95	79	253				540	840	490	215		280	560		1385	1270	M20x400
	180M	22.00		H110		267												1447		
	200L	30.00	S487	H125		363				610	940	550	240	90	300	580		1505	1420	M24x400
	200L	37.00																		
	225M	45.00	S607			446				730		670	230		325	605		1535	1400	
100250	200L	30.00	S487		89	373			140	610		550	240					1520	1420	
	200L	37.00																		
	225M	45.00	S607			456				730		670	230					1550	1400	
	250M	55.00	S608	H140		656					1060		270		350	630		1680	1600	
	280S	75.00	S609A	H160		909				744	1200	696	300		380	660		1780	1800	
	280M	90.00				959														
125200	250M	55.00	S608	H140	102	669	125	150		730	1060	670	270		350	665		1680	1600	
	280S	75.00	S609A	H160		922				744	1200	696	300		380	695		1780	1800	
	280M	90.00				972														

* Motor protection type IP 55, dimensions depend on the motor manufacturer.
Some sizes are not corresponding to the drawing in small details.
Foundation plan for 60 Hz on request

Data regarding pump size

Type + Pump size		Hydraulics + Bearing	Shaft sealing	Material	Casing gasket
		A◆ hydraulic A B◆ hydraulic B D◆ transnorm size with double volute ◆A one ball bearing respectively two inclined ball bearing grease lubricated and one liquid flushed sleeve bearing	002 radial shaft seal rings GBC unbalanced standard mechanical seal	1B main parts of sperodial cast 2B main parts of cast steel	2 confined flat gasket of graphite with A4 insertion
ZTND	032125	AA	alternatively 002 GBC	1B	2
	032160				
	032160	BA			
	032200	AA			
	032200	BA			
	032250	AA			
	040125				
	040160				
	040200				
	040250				
	040315				
	050125				
	050160				
	050200				
	050250				
	050315				
	065125				
	065160				
	065200				
	065250				
	065315				
	080160				
	080200				
	080250				
	080315				
	100160				
	100200				
	100250				
	100315				
	125200				
	125250				
	150200				
	150250				
	150315				
	150400				
	150500				
	200250				
	200315				
	200400	DA		2B	
	200500				

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