

Volute pumps for heat carrier oils up to 350 °C

SIHI *SuperNova*



ZTND 032-125 . . . 200-500

TECHNICAL DATA

Output:	max. 1000 m ³ /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 interchangeable.

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 series; uncooled

Code GBC: unbalanced bellows mechanical seal
seal face materials cast chromium steel/carbon elastomer FPM (Viton)



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Material design:

ITEM	COMPONENTS	MATERIAL						EXECUTION	
		EN	EN	DIN	DIN	US denomination		1B	2B (1)
		mat.-number	mat.- denomination	mat.-number	mat.- denomination	ASTM Standard	AISI		
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	Impeller	EN-JL 1040	EN-GJL 250	0.6025	GG-25	A 278 Class 30		X	X
33.00	Bearing bracket								
36.00	Bearing cover								
42.13	Radial seal rings	FPM (Viton)						X	X
43.30	Mechanical seal	chrome cast / carbon FPM (Viton)						X	X
44.10	Casing for mech. seal	1. 1191	C 45 E	1.1191	Ck 45 K + N	A 576 Gr 1045	1045	X	X
44.11	Seal of the shaft casing								
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%; From 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	t = 120 °C	032250	t = 120 °C	040315 150315	t = 120 °C	150500
	032160 065125		040250		050315 150400		200315
	032200 065160		050250		065315 200250		200400
	040125 065200		065250		080315		200500
	040160 080160		080250		100315		
	040200 080200		100250		125250		
	050125 100160		125200		150200		
	050160 100200		150250		150250		
t = 350 °C	032125 065125	t = 350 °C	032250	t = 350 °C	040315	t = 350 °C	150315
	032160 065160		040250		050315		150400
	032200 080200		050250		065315		150500
	040125 100160		065200		080315		200250
	040160		065250		100315		200315
	040200		080160		125200		200400
	050125		080250		125250		200500
	050160		100200		150200		
050200	100250	150250					

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 m³/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.

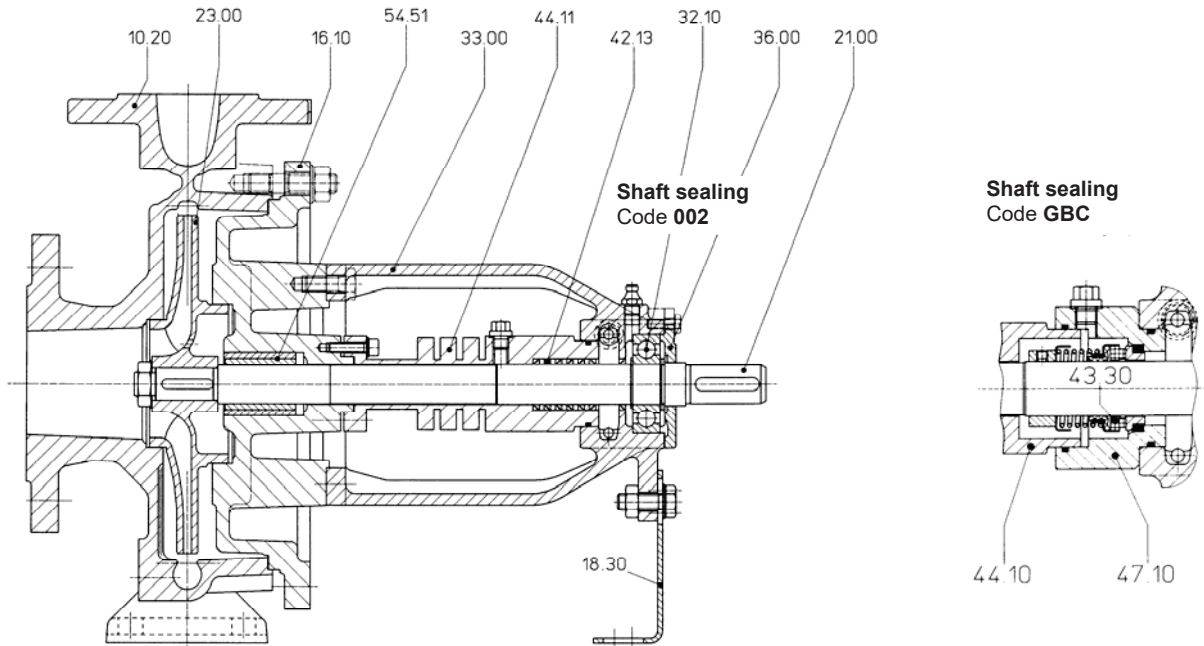


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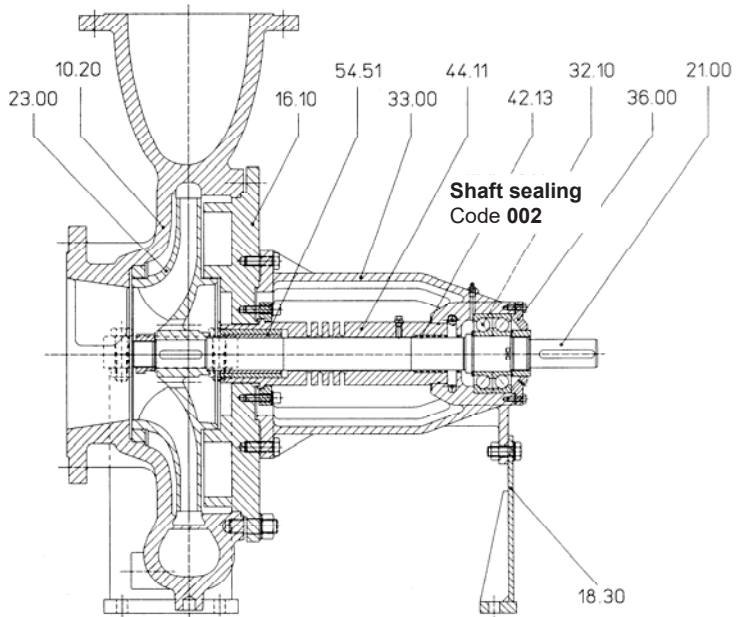
SECTIONAL DRAWING AND NOMENCLATURE

ZTN 032125 ... 150250

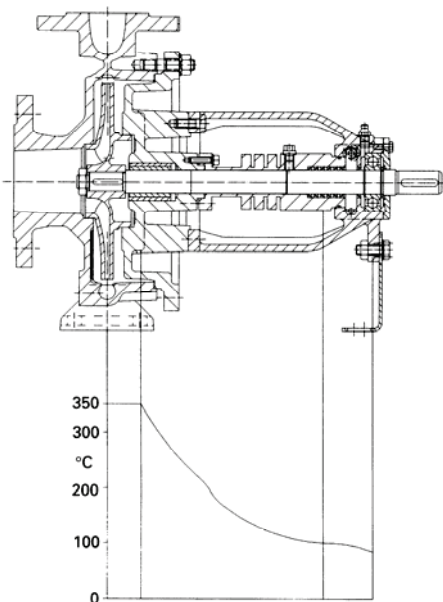


- 10.20 volute casing
- 16.10 casing cover
- 18.30 supporting foot
- 21.00 shaft
- 23.00 impeller
- 32.10 grooved ball bearing
- 33.00 bearing bracket
- 36.00 bearing cover
- 42.13 radial seal ring
- 43.30 mechanical seal
- 44.10 shaft seal casing
- 44.11 shaft seal casing
- 47.10 sealing cover
- 54.51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

ZTN 150315 ... 200500



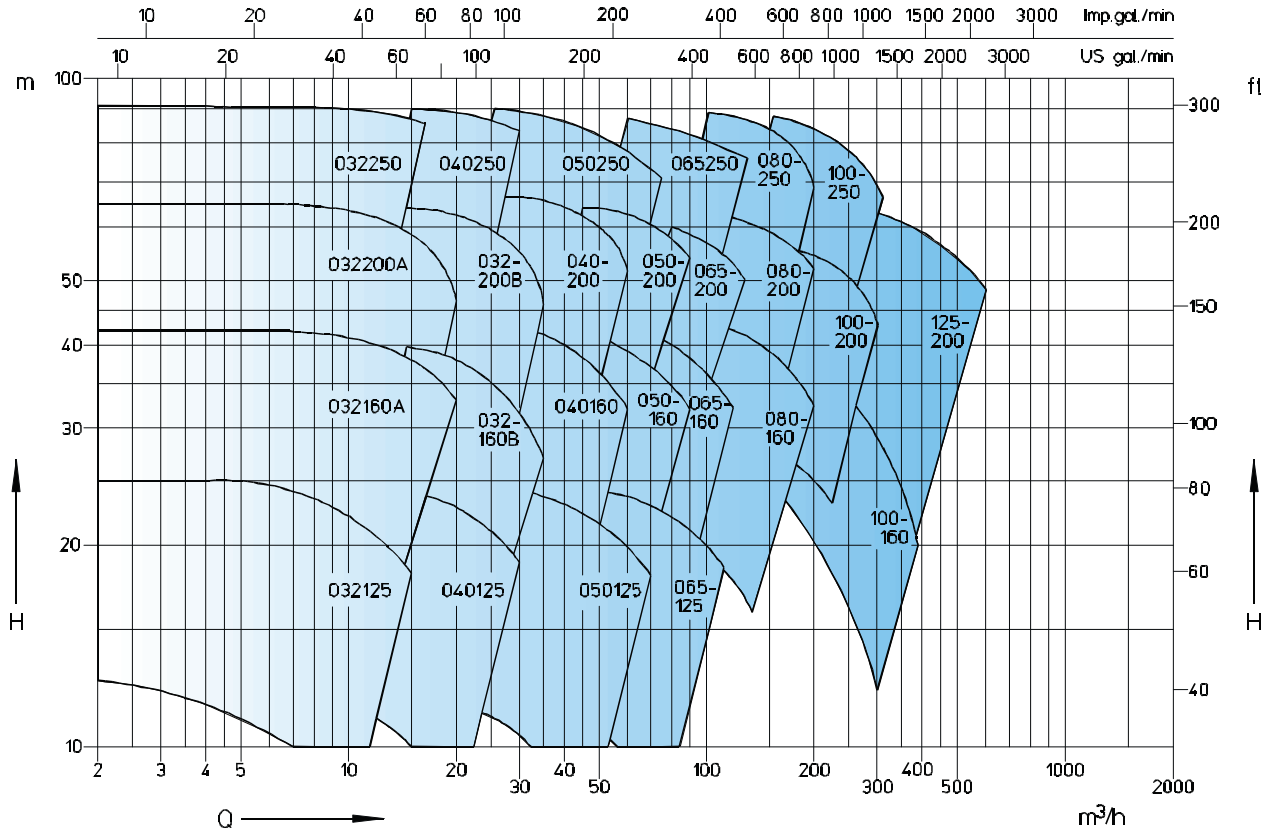
Heat barrier / shaft sealing / bearing



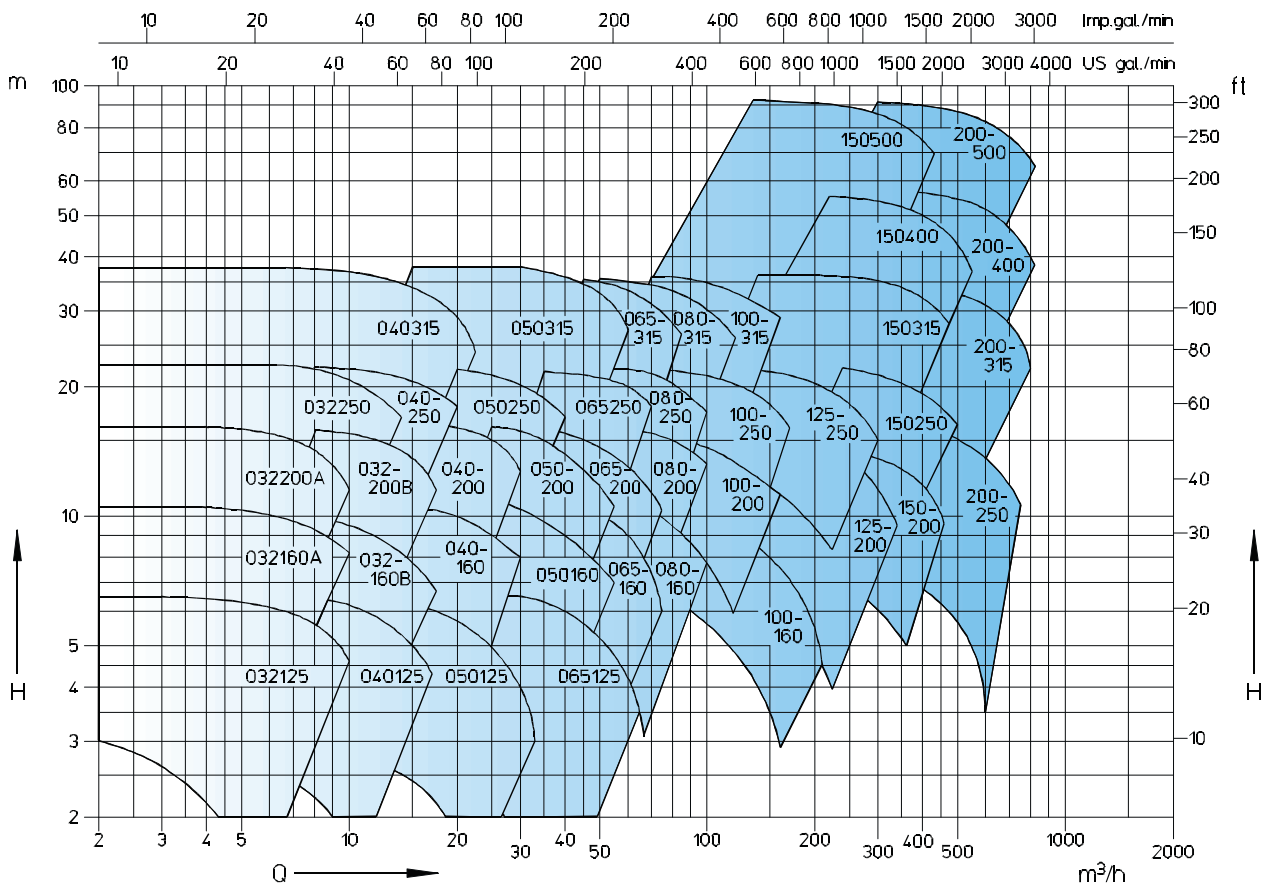
Heat transfer installations have achieved a high level of technical development. Consequently the requirements on pumps handling heat transfer oils have increased regarding operating safety, environmental protection, maintenance and operating costs. The Sterling SIHI ZTN pump, based on many years of 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 antifriction 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.

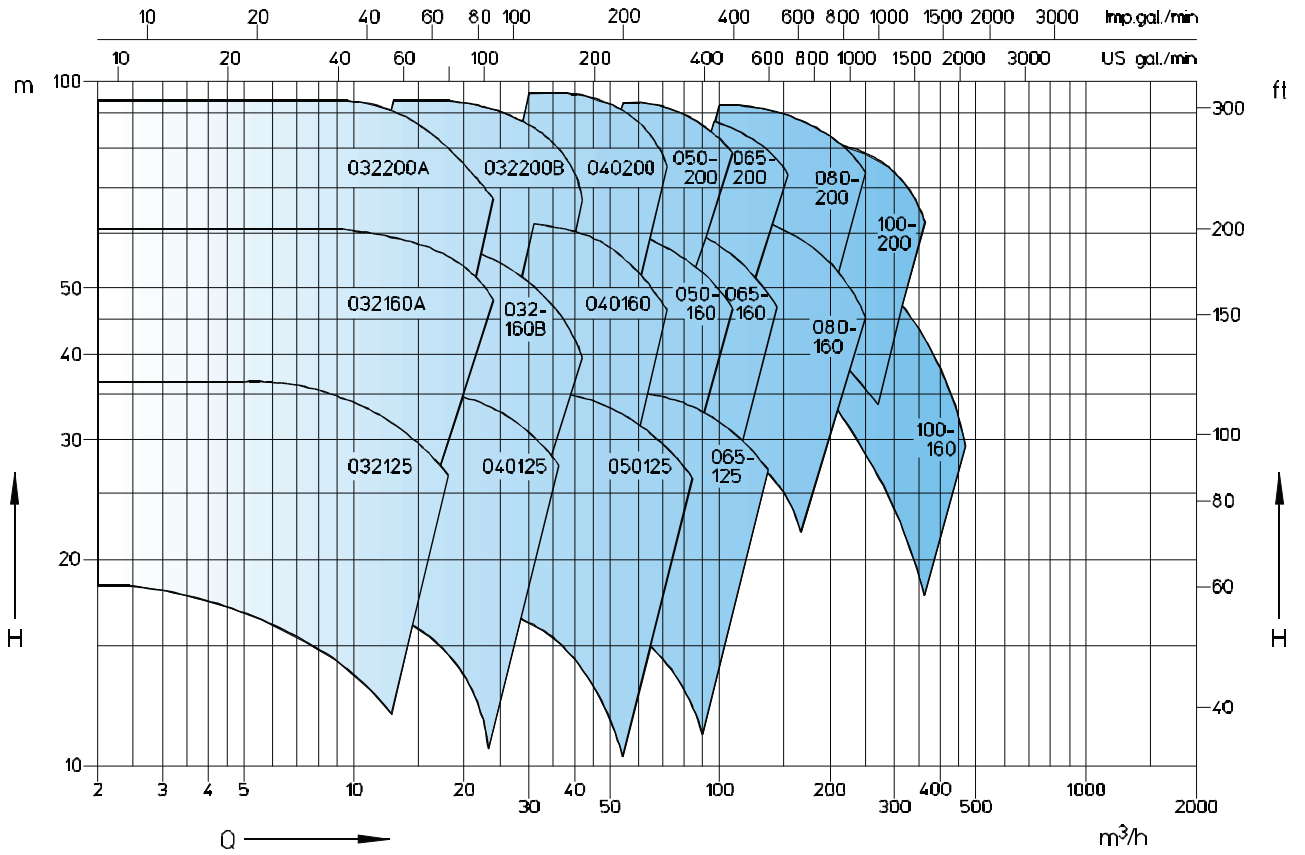
n=2900 1/min



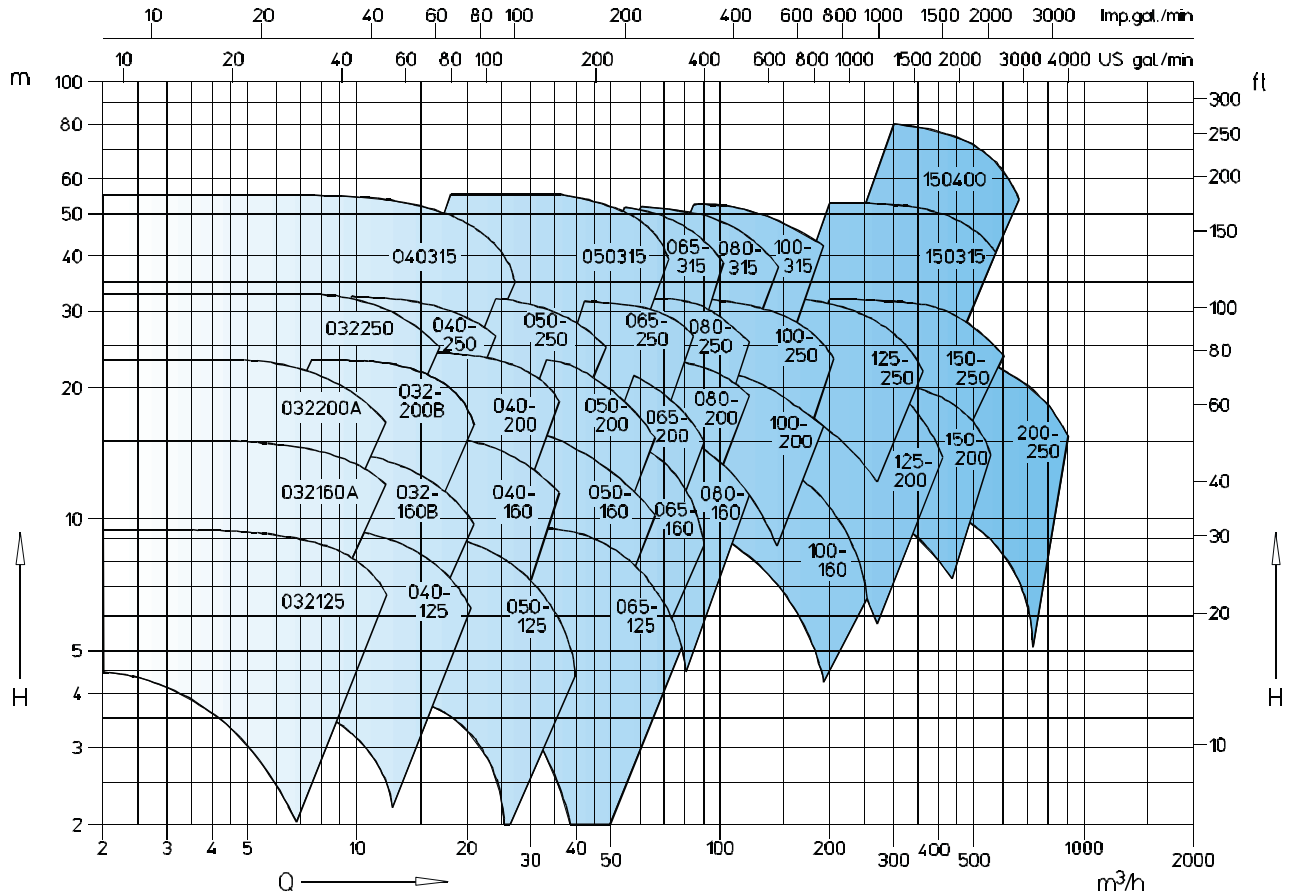
n=1450 1/min



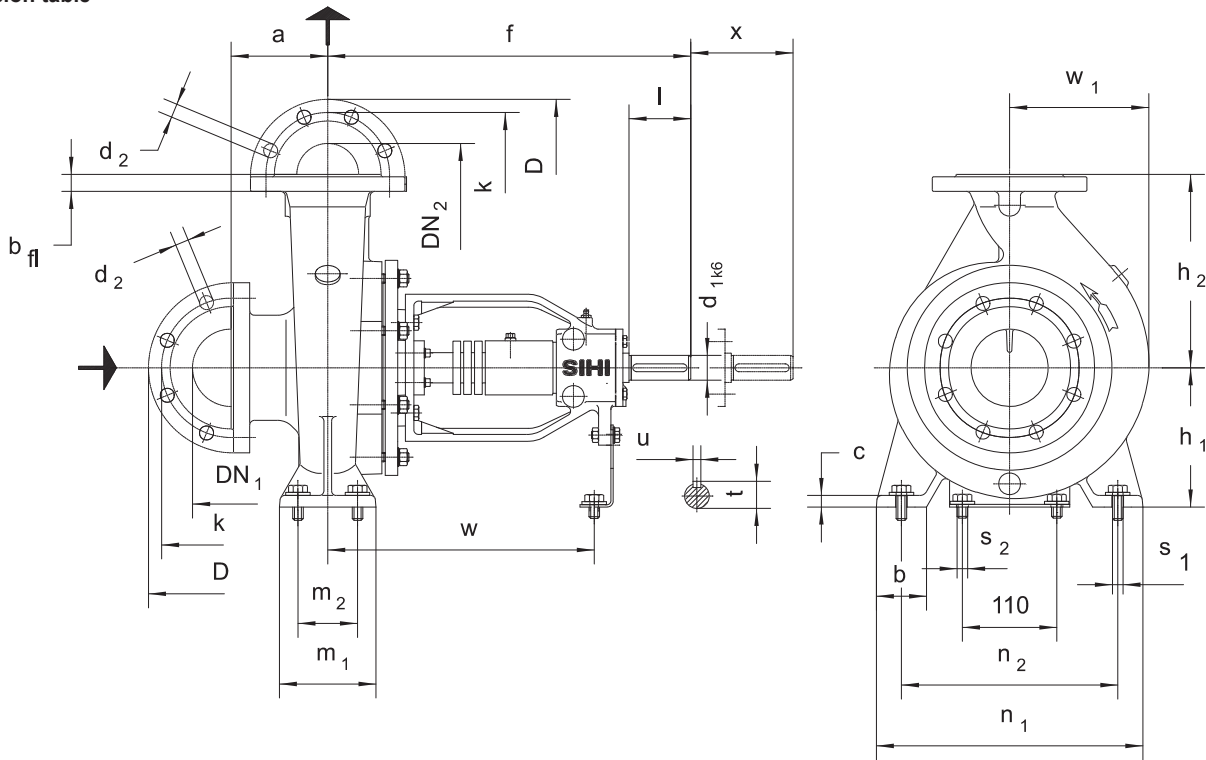
n=3500 1/min



n=1750 1/min



Dimension table



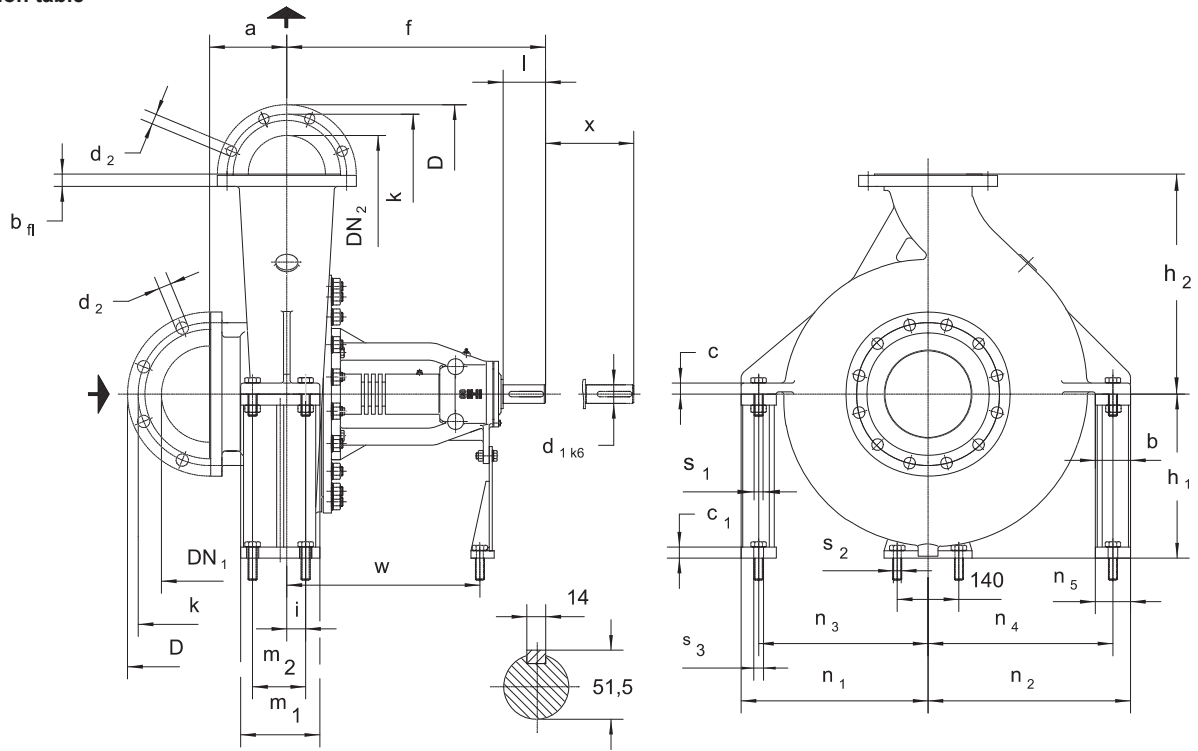
All dimensions in mm.

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		267		105		24	50	27	8
032160							132	160			240	190										
032200			160	180			265	212	127													
032250 ¹⁾			180	225			320	250	160													
040125	40	65	80	50	18	470	112	140	100	70	210	160	M12		340	204		32	80	35	10	
040160							132	160			240	190										108
040200			160	180			265	212	128													
040250			180	225			320	250	140													
040315 ¹⁾	125	65	18	470	225	250	125	95	345	280	345	280										
050125	50	65	100	50	15	360	132	160	100	70	240	190	M12		267		120		24	50	27	8
050160							160	180			265	212										
050200			180	225			320	250	150													
050250			200	250			345	280	169													
050315 ¹⁾	125	65	17	470	225	280	125	95	345	280	345	280										
065125	65	80	100	65	15	360	160	180	125	95	280	212	M12		267		140		24	50	27	8
065160							180	200			280	212										
065200			180	225			320	250	166													
065250			200	250			360	280	183													
065315	80	18	470	225	280	160	120	400	315	400	315	M16		340	220		32	80	35	10		
080160	80	100	65	15	360		180	225	125	95	320	250	M12		267	165		24	50	27	8	
080200							200	280			345	280										180
080250			250	315			400	315	200													
080315			250	315			400	315	235													
100160 ¹⁾	100	125	80	18	470		200	280	160	120	360	280	M16		340		202	140	32	80	35	10
100200							225	315			400	315										
100250			250	315			400	315	242													
100315			250	315			400	315	140													
125200 ¹⁾	125	150	140				250	355			400	315	M20		274	120	190					
125250							250	355			500	400										236
150200 ¹⁾	150	200	160	100	20		280	400	200	150	550	450	M20		274	120	170					
150250 ¹⁾											500	400										500

¹⁾Transnorm pump sizes, not included in DIN 24255/ EN 733. Flanges drilled according to ANSI 150 can be supplied.

*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.

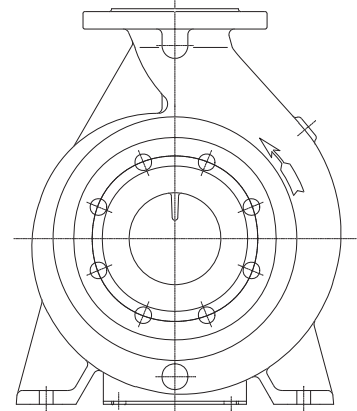
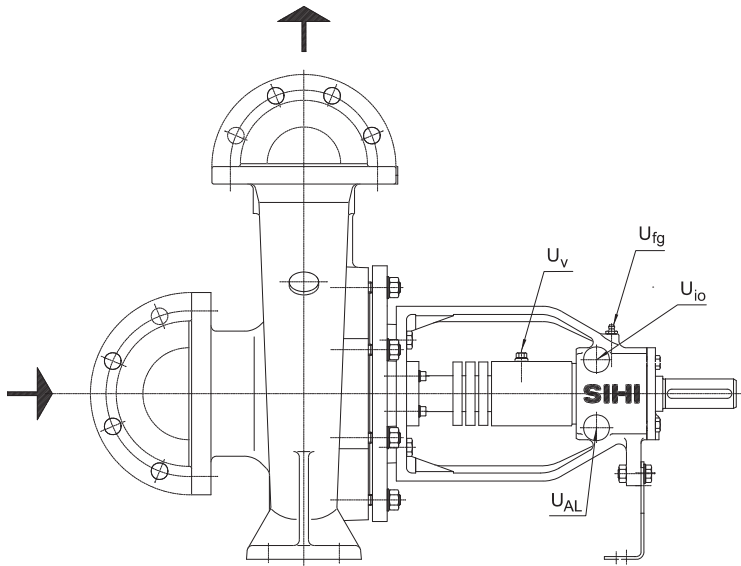
size	DN ₂	DN ₁	a	f	h ₁	h ₂	m ₁	m ₂	i	l	x	d ₁	w	c	c ₁	s ₁	s ₂ *	s ₃ *	n ₁	n ₂	n ₃	n ₄	b, n ₅
150315 ¹⁾	150	200	180	670	315	400	160	100	35	110	180	48	500	25	23	M20	M12	M20	320	360	290	330	60
150400 ¹⁾					355	450	380	420									340		380				
150500 ¹⁾					400	500	425	460									385		420				
200250 ¹⁾	200	250	250	670	335	425	180	120	45	110	180	48	500	25	23	M20	M12	M20	340	410	300	370	80
200315 ¹⁾			355		450	360	420	320									380						
200400 ¹⁾			375		500	400	480	360									440						
200500 ¹⁾			425		560	220	160	50									475		575	425	525	100	

¹⁾ Transnorm pump sizes, not included in DIN 24255/ EN 733. Flanges drilled according to ANSI 150 can be supplied.

*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											+4,5			+1,5
											-4,0			-1,5
d ₂ x number	19x4	19x4	19x4	19x4	19x8	19x8	19x8	23x8	23x12	28x8	28x12	31x12	26x12	30x12

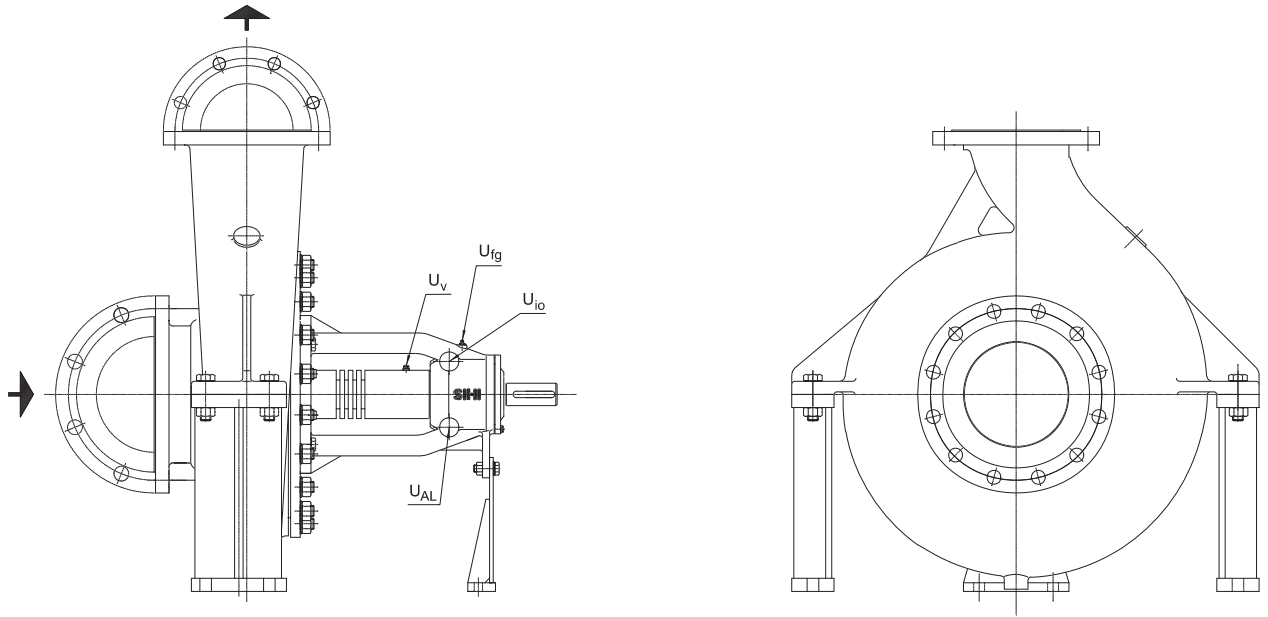
Connections for bearing brackets 25 and 35



- 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				
032160				
032200				
032250				
040125				
040160				
040200				
040250				
040315				
050125				
050160				
050200				
050250				
050315				
065125				
065160	G 1/8	G 1/8	G 1/4	G 1/4
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				
150400				
150500				
200250	G 1/8	G 1/8	G 1/4	G 1/4
200315				
200400				
200500				

Designs are subject to amendment without prior notice.



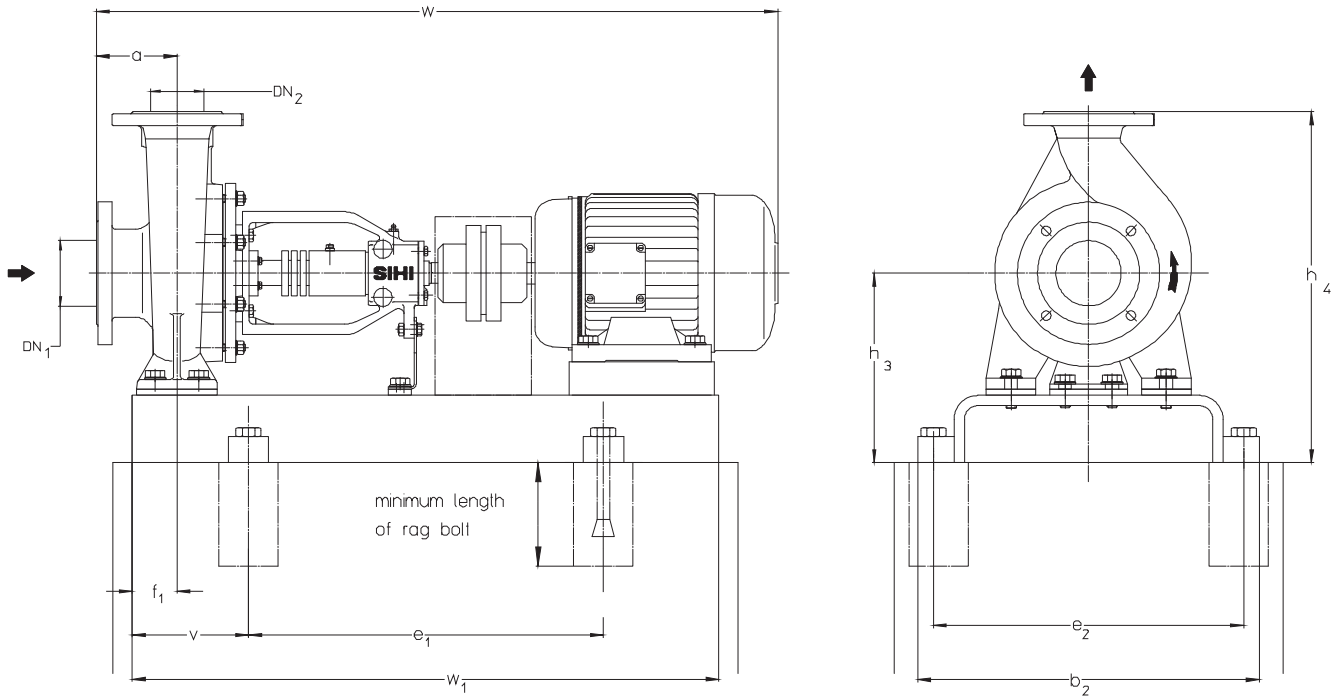
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Foundation plan

n = 1450 rpm



Dimensions in mm.

Dimensional tolerances admissible (base plates) for welded parts according to DIN 8570 B

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

Foundation plan

n = 1450 rpm

Designs are subject to amendment without prior notice.

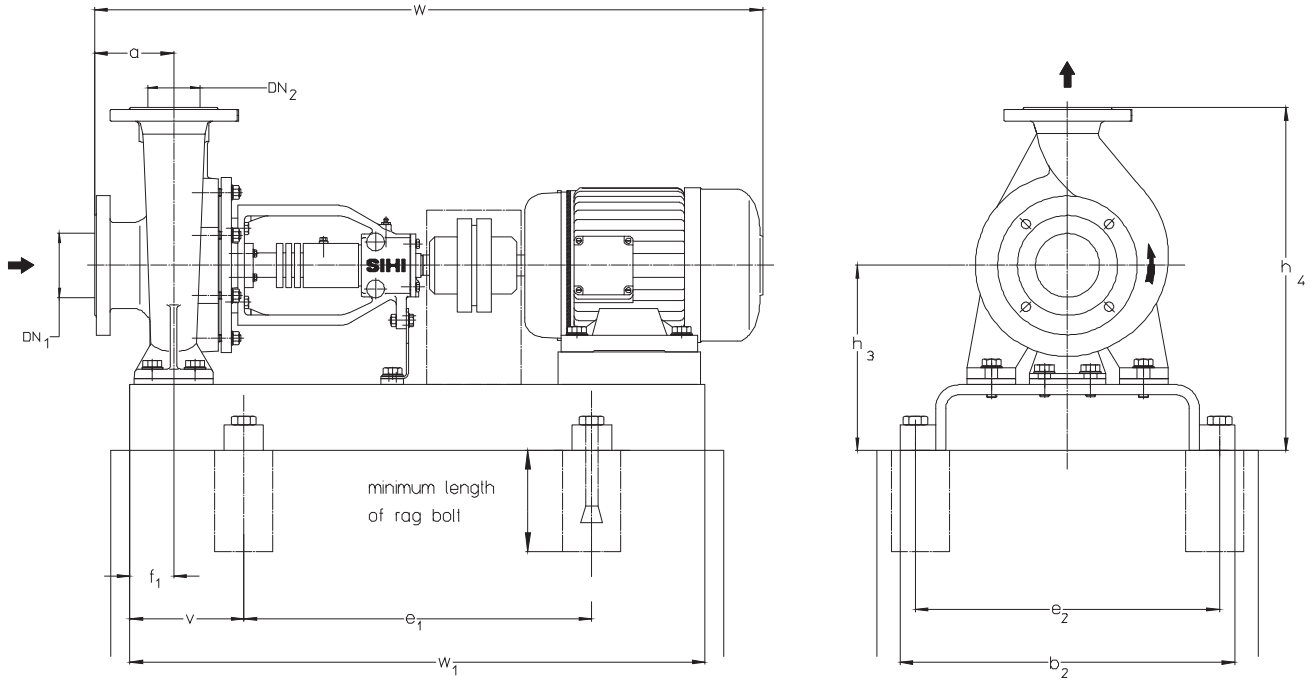
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size	motor		base plate No.	coup-ling **	weight		DN ₂	DN ₁	a	b ₂	e ₁	e ₂	v	f ₁	h ₃	h ₄	w*	w ₁	rag bolt DIN 529						
	size	kW			pump kg	Unit kg																			
065125	80	0.55	S342	B68	39	83	65	80	100	450	540	400	140	60	240	420	736	820	M20x400						
	80	0.75				86											794								
	90S	1.10				89											736								
80	0.75	45			92	440											794								
90S	1.10				94																				
90L	1.50				105																				
065160	100L	2.20	S383	B80	48	102			80	100	100	490	600	440	160	75	260	485		794	920	M24x400			
	90L	1.50				104														835					
	100L	2.20				114														856					
	100L	3.00				115																			
065200	112M	4.00	S434	B80	78	161					100	125	90	540	660	490	170	90		280	530		945	1000	M24x400
	100L	2.20				162																	966		
	100L	3.00				190	1042																		
	112M	4.00				231																			
065250	132S	5.50	S486	B95	94	234	125	150					90	610	840	550	205	90	325	605	1067		1250	M24x400	
	132M	7.50				250															1093				
	160M	11.00				280															1185				
	160L	15.00				280															1247				
080160	80	0.75	S383	B68	51	102			80	100			100	490	600	440	160	75	260	485	761	920	M20x400		
	90S	1.10				105															819				
	90L	1.50				107															860				
	100L	2.20				118															929				
	100L	3.00				127					970														
90L	1.50	71			137	510					991														
100L	2.20		138	1067																					
100L	3.00		183	1000																					
080200	112M	4.00	S434	B95	84	192	100	125			90	540	660	490	170	90	300	580	970	1250	M24x400				
	132S	5.50				193													991						
	100L	3.00				221													1067						
	112M	4.00				224													1093						
080250	132M	7.50	S486	B95	104	241			125	150	90	610	840	550	205	90	350	665	1067	1250		M24x400			
	132S	5.50				244													1093						
	132M	7.50				260													1185						
	160M	11.00				290													1247						
080315	160L	15.00	S486	B110	106	320					125	150	90	610	840	550	205	90	350	665			1247	1250	M24x400
	100L	2.20				242																	1108		
	100L	3.00				258																	1200		
	112M	4.00				288																	1262		
100160	132M	7.50	S434	B95	102	292	100	125					90	540	660	490	170	90	280	560	1324		1250	M20x400	
	100L	2.20				304															1108				
	100L	3.00				320															1200				
	112M	4.00				337															1262				
100200	132S	5.50	S486	B80	89	226			125	150			90	610	840	550	205	90	325	605	1082	1250	M24x400		
	132M	7.50				229															1108				
	132M	7.50				245															1200				
	160M	11.00				262															1262				
100250	160M	11.00	S486	B95	106	292					150	200	90	610	840	550	205	90	350	665	1262	1250			M24x400
	160L	15.00				292															1262				
	180M	18.50				304															1324				
	180L	22.00				320															1404				
100315	132M	7.50	S486	B95	102	242	150	200					90	610	840	550	205	90	350	665	1108	1250		M24x400	
	160M	11.00				258															1200				
	160L	15.00				288															1262				
	132M	7.50				249															1108				
125200	160M	11.00	S486	B95	109	265			150	200			90	610	840	550	205	90	705	1200	1200	1250	M24x400		
	160L	15.00				295															1262				
	132M	7.50				278															1128				
	160M	11.00				294															1220				
125250	160L	15.00	S605	B110	120	323					150	200	90	730	840	670	190	110	380	780	1344	1250			M24x400
	180M	18.50				335															1344				
	180L	22.00				351															1346				
	200L	30.00				395															1404				
150200	160L	15.00	S605	B110	134	337	150	200					90	730	840	670	190	110	380	780	1282	1250		M24x400	
	180M	18.50				339															1344				
	180L	22.00				377															1346				
	200L	30.00				421															1404				
150250	225S	37.00	S606	B125	134	467			150	200			90	730	840	670	190	110	380	780	1402	1250	M24x400		
	225M	45.00				487															1469				
	160L	15.00				337															1282				
	180M	18.50				339															1344				
150315	180L	22.00	S606	B125	134	377					150	200	90	730	840	670	190	110	380	780	1346	1250			M24x400
	200L	30.00				421															1404				
	225S	37.00				467															1469				
	225M	45.00				487																			
150400	Foundation plans with base plates and fittings on request																								
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		base plate No.	coup-ling **	weight		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					
	size	kW			pump kg	Unit kg																		
032125	71	0.55	S008	B68	32	52	32	50	297	400	265	120	60	152	292	682	640	M12x100						
	80	0.75				716																		
	80	1.10	67																					
	90S	1.50	69																					
032160	90L	2.20	S241		B80	41			72	80	390	480		350	125	197	357		177	317	774	730	M16x200	
	80	1.10							72															
	90S	1.50	80																					
	90L	2.20	82																					
	100L	3.00	92																					
	112M	4.00	93																					
032200	132S	5.50	S270	B95	39	130	40	65	450	540	400	140	60	212	372	895	820	M20x400						
	132S	7.50				912																		
	90L	2.20	80																					
	100L	3.00	90																					
	032250	112M	4.00			S301			B80	52	148	100		490	600	440	160		75	260	485	1050	920	M20x400
		132S	5.50								128													
		132S	7.50			148																		
		160M	11.00			147																		
160M		15.00	175																					
160L		18.50	175																					
040125	132S	7.50	S342	B95	52	167	40	65	490	600	440	160	75	260	485	1050	920	M20x400						
	160M	15.00				1088																		
	160L	18.50	1150																					
	160M	15.00	1050																					
040160	80	1.10	S270	B68	34	65	40	65	360	420	320	115	60	177	317	716	650	M16x200						
	90S	1.50				70																		
	90L	2.20	71																					
	100L	3.00	82																					
040200	100L	3.00	S241	B80	39	78	100	490	600	440	160	75	240	420	225	405	817	730	M16x200					
	90S	1.50				80																		
	90L	2.20	80																					
	100L	3.00	90																					
	112M	4.00	91																					
	132S	5.50	128																					
040250	132S	7.50	S301	B95	43	132	100	490	600	440	160	75	260	485	240	420	932	820	M20x400					
	132S	7.50				158																		
	160M	11.00	153																					
	160M	15.00	172																					
040250	160L	18.50	S342	B95	57	216	100	540	660	490	170	75	260	485	240	420	1050	920	M20x400					
	160M	15.00				1050																		
	160M	15.00	932																					
	160L	18.50	1112																					

Foundation plan

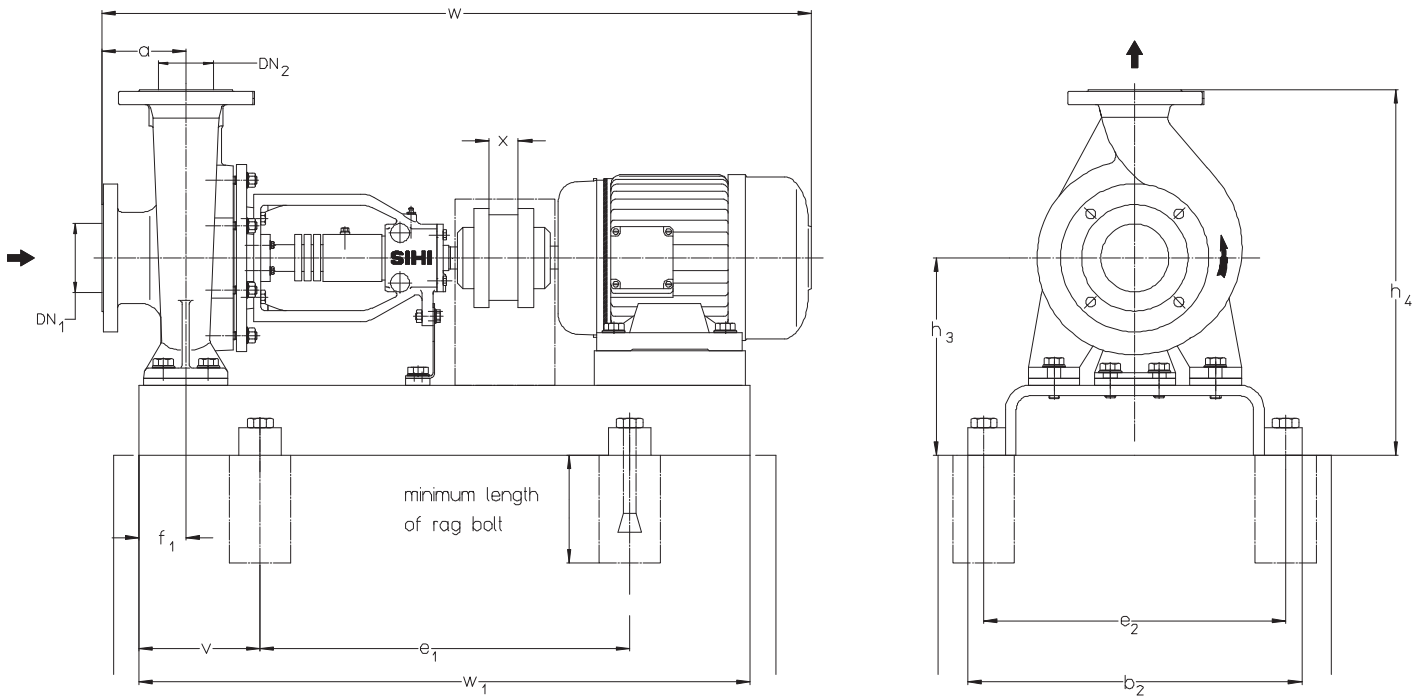
n = 2900 rpm

size	motor size	motor kW	base plate No.	coupling **	pump weight kg	unit weight 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											835													
	100L	3,00	86	856																										
	112M	4,00	87			820																								
	132S	5,50	S272	B80													124	450		400	212	372	932	M20x400						
050160	90L	2,20	S301	B68	44	85				65	80	100	390		480	350	125	60	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				159													490	600	440	160		1050	920					
	160M	11,00				S383	172	450	660					400					180	1050	1020									
050200	100L	3,00	S301	B95	43	94	80	100	100				390	480	350	125	75	225	425	817	730	M16x200								
	112M	4,00				95														858										
	132S	5,50	S342			132															932		820							
	132S	7,50	158			450												540	400	140				240	440	920				
	160M	11,00	S383			163				490	600	440						160	1050	1020										
	160L	15,00	S383			172				450	660	400						180	1050	1020										
050250	160M	11,00	S383	B95	57	216				100	125	140	490	600	440	160	75	260	485	1112	920	M16x200								
	160L	18,50				S434														229			1174							
	180M	22,00				B110												296	1000											
	200L	30,00				S435												B125		296	540		660	490	170	280	505	1232	1140	
065125	100L	3,00	S342	B80	39	99	65	80	100				450	540	400	140	60	240	420	835	820	M20x400								
	112M	4,00				100														856										
	132S	5,50				128															932									
	132S	7,50				134														1050										
	132S	5,50				S383															B95		45	160	490	600	440	160	260	485
132S	7,50	163	1112																											
160M	11,00	207		1174																										
160M	15,00	S434	B110		220	540				660	490	170	260	485	1112	1000														
065160	160M	11,00	S383	B95	48	220				80	100	125	490	600	440	160		75	260	485	1174	920	M20x400							
	160M	15,00				227															1232									
	160M	11,00				287	1284																							
	160L	18,50				S434		B110	244								540				740	490		200	260	485	1112	1000		
	180M	22,00				B125	257	1284																						
200L	30,00	S435	B95	244	540	740	490		200				260	485	1174	1000														
065250	160L	18,50	S435	B110	78	244	100	125	140				540	740	490	200	90	280	530	1222	1140	M24x400								
	180M	22,00				B110														257			1284							
	200L	30,00				S436														B125	324			610	840	550	205	280	530	1342
	200L	37,00				401														1397										
	225M	45,00				S486				B125	401	610									840		550	205	325	575	1372	1250		
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				210															1137									
	160L	18,50				S434														B110			223	1199						
	180M	22,00				B95														202	1185									
	160M	15,00				S435	B110	71	237											540			660	490	170	260	485	1000		
160L	18,50	250	1247																											
180M	22,00	B125		317	1309																									
200L	30,00	S436	B125	317		540	740	490	200				260	485	1112	1000														
200L	37,00	407	1284																											
225M	45,00	S486		B125	407	610	840	550	205	280	530	1367	1270																	
080250	180M	22,00	S486	B125	84	282	100	125	140	610	840	550	205	90	300	580	1309	1250	M24x400											
	200L	30,00				342											1367													
	200L	37,00				407												1397												
	225M	45,00				629											1412													
	250M	55,00				S607												B140		629	730	940	670	230	325	605	1397	1250		
100160	160L	18,50	S435	B95	80	246				100	125	140	540	740	490	200	90	280	560	1247	1140	M20x400								
	180M	22,00				B110														259			1309							
	200L	30,00				S436														B125	326			1367						
	200L	37,00				407														1412										
100200	160L	18,50	S435	B95	79	245							100	125	140	540		740	490		200	90	280	560	1247	1140	M20x400			
	180M	22,00				B110	258	1309																						
	200L	30,00				S436	B125		325											1367										
	200L	37,00				402	1412																							
	225M	45,00				S486		B125	402											610					840	550		205	325	605
100250	200L	30,00	S486	B125	89	347	100	125	140							610		840	550	205	90	325	605	1397	1250	M24x400				
	200L	37,00				412				1412																				
	225M	45,00				634					1454																			
	250M	55,00				S607				B140		903					1472													
	280S	75,00				S609A				B160	953	730												940	670		230	350	630	1542
	280M	90,00				744				1472																				
250M	55,00	S607	B140	647	730	940					670	230	350	665	1542	1400														
125200	280S	75,00	S609A	B160	102	916				100	125	150	744	1200	696	300	90	380	660	1642	1800	M24x400								
	280M	90,00				966														1472										
	280M	90,00				966															744		1200	696	300	380	695	1642	1800	

* 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.	coupling **	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				390				350	197	357													
032160	80	0.55	S301		41	76			80	80	360	540	320	140	75	260		485	814		820	834	892	920	M20x400
	80	0.55				81																			
032200	80	0.75	S272		39	78			81	100	490	600	440	160	75	260		485	225		405	834	892	920	M20x400
	90S	1.10				83																			
	90L	1.50				105																			
	80	0.75				108																			
032250	90S	1.10	S383		52	110			108	100	490	600	440	160	75	260		485	892		920	933	920	M20x400	
	90L	1.50				110																			
	100L	2.20		120																					
	71	0.25		65		80	330	480									290			125					60
71	0.37	360	540	320	140		197	357	814	820															
040160	80	0.55	S272	39	78	81	100	450	540	400	140	75	260	485	240	420	100	814	820	M20x400					
	80	0.75			390													480			350	125	872		
	90S	1.10			360													540			320	140	834		
	80	0.55			450													540			400	140	892		
040200	80	0.75	S342	43	89	92	100	490	600	440	160	75	260	485	240	420	100	834	820	M20x400					
	90S	1.10			92																				
	90L	1.50			94																				
	80	0.75			113																				
040250	90S	1.10	S383	57	115	113	100	490	600	440	160	75	260	485	260	485	100	892	920	M20x400					
	90L	1.50			115																				
	100L	2.20			125																				
	100L	3.00			125																				
040315	100L	2.20	S434	87	171	172	125	540	660	490	170	75	305	555	305	555	100	1068	1000	M20x400					
	100L	3.00			172																				
	112M	4.00			207																				
	132S	5.50			207																				
050125	71	0.37	S301	H80	35	70	50	65	100	390	480	350	125	60	197	357	100	800	730	M16x200					
	80	0.55	74			360				320	834														
050160	80	0.75	S272		44	90			93	100	450	540	400	140	75	260		485	240		440	100	892	820	M20x400
	80	0.55				93																			
	90S	1.10				89																			
	80	0.75				92																			
050200	90S	1.10	S342		43	89			92	100	490	600	440	160	75	260		485	240		440	100	834	820	M20x400
	90L	1.50				92																			
	100L	2.20				94																			
	80	0.75				104																			
050250	90L	1.50	S383	57	115	115	100	490	600	440	160	75	260	485	260	485	100	892	920	M20x400					
	100L	2.20			125																				
	100L	3.00			126																				
	112M	4.00			126																				
050315	112M	4.00	S434	90	175	175	125	540	660	490	170	75	305	585	305	585	100	1089	1000	M20x400					
	132S	5.50			210																				
	132M	7.50			213																				
	132S	5.50			213																				

Foundation plan for units with spacer type coupling

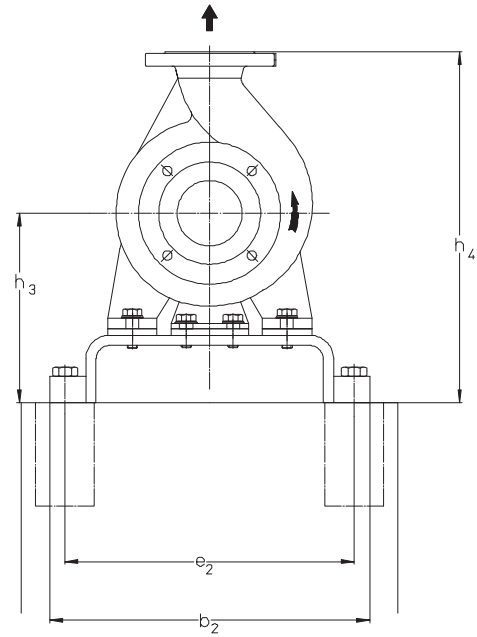
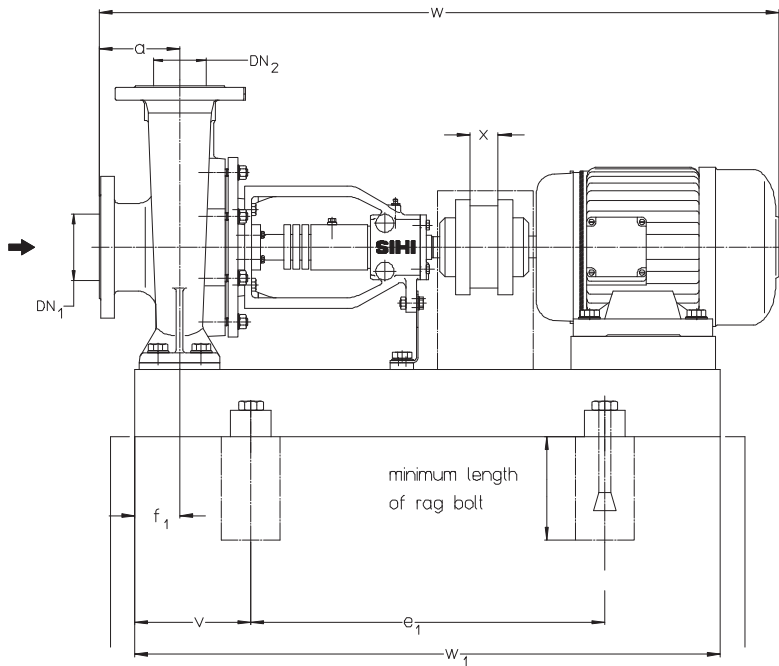
n = 1450 rpm

size	motor size	motor kW	base plate No.	coupling **	pump weight kg	unit weight 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				88												892		
	90S	1,10				91												834		
065160	80	0,75	S342	H80	45	94	65	80	100	450	540	400	140	60	240	440	100	834	820	M20x400
	90S	1,10				96												892		
	90L	1,50				106												933		
	100L	2,20				104												932		
	100L	3,00				116												973		
065200	100L	2,20	S383	H80	48	117	65	80	100	490	600	440	160	75	260	485	100	920	920	M20x400
	100L	3,00				110												994		
	112M	4,00				106												932		
	112M	4,00				117												973		
065250	100L	2,20	S434	H80	78	162	65	80	100	540	660	490	170	90	280	530	100	1083	1000	M20x400
	100L	3,00				198												1104		
	112M	4,00				163												1140		
	132S	5,50				198												1180		
065315	132S	5,50	S486	H95	94	233	65	80	100	610	840	550	205	90	325	605	140	1205	1250	M24x400
	132M	7,50				236												1231		
	160M	11,00				252												1323		
	160L	15,00				282												1385		
	160L	15,00				282												1385		
080160	80	0,75	S383	H80	51	104	80	100	125	490	600	440	160	75	260	485	140	899	920	M20x400
	90S	1,10				107												957		
	90L	1,50				109												998		
	100L	2,20				119												1067		
	100L	3,00				119												1108		
080200	90L	1,50	S434	H80	71	144	80	100	125	540	660	490	170	75	260	510	140	1129	1000	M20x400
	100L	2,20				155												1108		
	100L	3,00				156												1129		
	112M	4,00				191												1205		
080250	132S	5,50	S435	H95	71	191	80	100	125	540	660	490	170	75	260	510	140	1108	1000	M20x400
	100L	3,00				194												1108		
	112M	4,00				195												1129		
	132S	5,50				223												1205		
	132M	7,50				226												1231		
080315	132S	5,50	S486	H95	84	243	80	100	125	610	840	550	205	90	300	580	140	1205	1250	M24x400
	132M	7,50				246												1231		
	160M	11,00				262												1323		
	160L	15,00				292												1385		
	160L	15,00				292												1385		
100160	100L	2,20	S434	H80	80	164	100	125	140	540	660	490	170	90	280	560	140	1108	1000	M20x400
	100L	3,00				165												1129		
	112M	4,00				200												1205		
	132S	5,50				200												1205		
100200	100L	2,20	S434	H80	79	163	100	125	140	540	660	490	170	90	280	560	140	1108	1000	M20x400
	100L	3,00				163												1108		
	112M	4,00				164												1129		
	132S	5,50				199												1205		
	132M	7,50				202												1231		
100250	112M	4,00	S435	H95	79	202	100	125	140	540	660	490	170	90	280	560	140	1129	1000	M20x400
	132S	5,50				228												1205		
	132M	7,50				231												1231		
	160M	11,00				247												1323		
	160M	11,00				264												1385		
100315	160M	11,00	S486	H95	89	264	100	125	140	610	840	550	205	90	325	605	140	1220	1250	M24x400
	160L	15,00				294												1338		
	180M	18,50				306												1400		
	180L	22,00				323												1462		
	180L	22,00				323												1462		
125200	132M	7,50	S486	H95	102	244	125	150	140	610	840	550	205	90	350	665	140	1246	1250	M24x400
	160M	11,00				260												1338		
	160L	15,00				290												1400		
	160L	15,00				290												1400		
125250	132M	7,50	S486	H95	109	251	125	150	140	610	840	550	205	90	350	665	140	1246	1250	M24x400
	160M	11,00				267												1338		
	160L	15,00				297												1400		
	160L	15,00				297												1400		
150200	132M	7,50	S605	H95	120	279	150	200	160	730	840	670	205	110	380	780	140	1266	1400	M24x400
	160M	11,00				306												1358		
	160L	15,00				337												1423		
	180M	18,50				349												1482		
150250	160L	15,00	S606	H110	134	351	150	200	160	730	840	670	205	110	380	780	140	1420	1250	M24x400
	180M	18,50				363												1482		
	180L	22,00				392												1540		
	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





Dimensions in mm.

Dimensional tolerances admissible (base plates) for welded parts according to DIN 8570 B

size	motor		base plate No.	coupling **	weight		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	
	size	kW			pump kg	unit kg															
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				72												814			
	80	1.10				75												872			
	90S	1.50				77												814			
	90L	2.20				80												872			
032160	80	1.10	S272	H80	41	83	32	50	80	360	540	320	140	60	197	357	100	814	820	M16x200	
	90S	1.50				85												872			
	90L	2.20				88												913			
	100L	3.00				93												934			
	112M	4.00	94	993																	
	132S	5.50	98	1012																	
	132S	7.50	99	920																	
032200	90L	2.20	S272	H80	39	83	32	50	80	360	540	320	140	60	225	405	100	872	820	M20x400	
	100L	3.00				93												913			
	112M	4.00				94												934			
	132S	5.50	98	1010																	
	132S	7.50	99	920																	
	160M	11.00	S344	H95	39	158	32	50	80	450	660	400	180	60	240	420	100	1128	1020		
	160M	15.00				203												1190			
	160L	18.50				203												1140			
032250	132S	7.50	S385	H95	52	149	32	50	100	490	740	440	200	75	260	485	100	1030	920		
	160M	11.0	S383			184												160	1148	1000	
	160M	15.0	S434			184												160	1148	1000	
040125	80	1.10	S272	H80	34	73	32	50	80	360	540	320	140	60	177	317	100	814	820	M16x200	
	90S	1.50				76												872			
	90L	2.20				78												913			
	100L	3.00				88												934			
040160	90S	1.50	S272	H80	39	81	32	50	80	360	540	320	140	60	197	357	100	872	820	M16x200	
	90L	2.20				83												913			
	100L	3.00				93												934			
	112M	4.00	94	993																	
	132S	5.50	S303	H95	39	127	32	50	80	390	600	350	160	60	240	420	100	1010			920
	132S	7.50				162												1128			
	160M	11.00				162												1020			
160M	15.00	104				933															
040200	100L	3.00	S342	H80	43	105	32	50	100	450	540	400	140	60	240	420	100	954	820		
	112M	4.00				105												954			
	132S	5.50	S303	H95	43	131	32	50	100	390	600	350	160	60	225	405	100	1030	920		
	132S	7.50				160												1148			
	160M	11.00				160												1020			
040250	160M	15.00	S344	H95	57	154	32	50	100	450	660	400	180	60	240	420	100	1030	920		
	132S	7.50				154												1030			
	160M	11.00	S383	H95	57	189	32	50	100	490	600	440	160	75	260	485	100	1148	1000		
	160M	15.00				219												1210			
	160L	18.50				219												1140			

size	motor		base plate No.	coup-ling **	weight		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		
	size	kW			pump kg	unit kg																
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												933	920	M12x100		
	100L	3,00	89			954																
	112M	4,00	90			1030												M16x200				
	132S	5,50	S303			H95												123	197	357		
050160	90L	2,20	S342	H80	44	95	65	100	100	450	540	400	140	60	240	420	100	892	820	M20x400		
	100L	3,00				105												933	920	M20x400		
	112M	4,00				106												954				
	132S	5,50	S303			H95												132	1030	920	M16x200	
	132S	7,50																	161	1030	920	M16x200
	160M	11,00	S344			161												1148	1020	M20x400		
	100L	3,00	S342			H80												43	104		65	100
112M	4,00	105		954	820		M20x400															
132S	5,50	S303		H95				131	1030	920	M16x200											
132S	7,50	S344	H95	160	1148		1020	M20x400														
160M	11,00				195		1210		1140													
160M	15,00				189		1148	1000														
050250	160L	18,50		S385	H95		57	219	65	80	100	540	660	490	170	75	260		485	100		
	180M	22,00		S434		H110		238										1270			1140	
	200L	30,00		S435		H25		299										1330				
	160M	11,00		S342		H80		39										100			65	80
112M	4,00	101	954																			
132S	5,50	S383	H95	136	1030		920		M20x400													
132S	7,50				142																	
132S	5,50	S344		H95	162	1148	1020	M24x400														
160M	11,00					182																
160M	15,00	S385	H95		182	210	1140	M24x400														
160L	18,50					229																
180M	22,00	S435		H110	229	1250																
200L	30,00	S435		H125	297	1370																
065250	160L	18,50	S436	H95	78	252	65	80	100	540	840	490	215	90	280	530	100	1360	1270	M24x400		
	180M	22,00	H110			266												1422				
	200L	30,00	S487			H125												362	1480		1420	M24x400
	200L	37,00																	325		575	
	225M	45,00	S607															H125	445		1510	1400
132S	7,50	S434	H95	51	164		80	100	125	540	660	490	170	75	260	485	100	1095	1000	M20x400		
160M	11,00	S385			H95													165	1213		1140	M20x400
160M	15,00					213																
160L	18,50	S435				H110												210	1275		1270	M24x400
180M	22,00																		232			
160M	15,00	S436	H95	210			1323	1270	M24x400													
160L	18,50				244																	
180M	22,00	S487		H110	258		1385	1270	M24x400													
200L	30,00					354																
200L	37,00	S487			H125	284	1447	1270	M24x400													
180M	22,00		284																			
200L	30,00	S487	H125			368	1447	1250	M24x400													
200L	37,00			368																		
225M	45,00	S607		H125		451	1505	1420	M24x400													
250M	55,00	S608		H140	651	1535	1400															
100160	160L	18,50		S436	H95	80	254	65	100	125	540	840	490	215	90	300	580	100	1385	1270	M20x400	
	180M	22,00	H110	268			1447															
	200L	30,00	S487	H125			364												1505	1420		M24x400
	200L	37,00																	364			
160L	18,50	S436	H95		253	1385	1270	M20x400														
180M	22,00					267																
200L	30,00	S487		H110	363	1447	1270	M20x400														
200L	37,00					446																
225M	45,00	S607	H125		446	1505	1420	M24x400														
200L	30,00	S487	H125		373	1535	1400															
200L	37,00			373																		
225M	45,00	S607		H125	456	1550	1400	M24x400														
250M	55,00	S608		H140	656	1680	1600															
100250	280S	75,00	S609A	H160	89	909	65	100	140	730	1060	670	230	90	325	605	100	1520	1420	M24x400		
	280M	90,00				959												1550	1400			
	250M	55,00	S608			H140												669	1680		1600	
	280S	75,00	S609A			H160												922	1780		1800	
125200	280M	90,00	S609A	H160	102	972	65	100	125	730	1060	670	270	90	350	665	100	1680	1600	M24x400		
	280M	90,00				972												1780	1800			

* 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	alternatively 002 GBC	1B	2	
	032160				AA
	032160				BA
	032200				AA
	032200				BA
	032250				
	040125				
	040160				
	040200				
	040250				
	040315				
	050125				
	050160				
	050200				
	050250				
	050315				
	065125				
	065160				
	065200				
	065250				AA
	065315				
	080160				
	080200				
	080250				
	080315				
	100160				
	100200				
	100250				
	100315				
	125200				
	125250				
	150200				
150250					
150315					
150400					
150500					
200250					
200315					
200400					
200500	DA	2B			

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