Volute pumps
for hot water up to 180°C

SIHI*SuperNova*

ZHND 032160 ... 150250

TECHNICAL DATA

Output:	max. 600 m³/h
Delivery head:	max. 95 m
Speed:	max. 3600 rpm
Medium temperature:	max. 180 °C
Casing pressure:	PN 16
Shaft sealing:	standard mechanical seal uncooled
Flange connections:	DIN EN 1092-2 PN 16
Sense of rotation:	clockwise, when looking at the pump from the drive end

APPLICATION

The volute pumps of the series ZHND are part of the overall programme heat transfer and circutation pumps. They are primarily used for circulation of **hot water** in closed pipe and vessel systems.

Therefore their fields of application are

the energy production,

the heat transport and

the industry

and here mainly in systems where hot water as heat carrier is given preference, despite its high system pressure, over oil as heat carrier.

DESIGN

Horizontal, single-stage volute pumps with dimensions and nominal ratings to **EN 733** in back pull out design.
The series **ZHND** has especially designed for the trouble free handling of hot water up to 180 °C and is distinguished by:

- A heat barrier that causes an optimal energy consumption by the pump and reduces the temperature level in the mechanical seal chamber to less than 80 °C without external cooling circuit (see temperature curve on page 3). The service life of the mechanical seal increases considerably.
- A special design that automatically leads accumulation of gas to exhaust. Consequently the dry operation of the mechanical seal can be excluded.
- A programme that comprehends 22 construction sizes and thus guarantees an optimal solution for every operating point.
- The back pull out design, which permits the removal of the complete, bearing unit towards 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.

CONSTRUCTION

Casing pressure

max 16 bar from 0 °C up to 180 °C
Please note:
Technical rules and safty regulations.
max. casing pressure = inlet pressure + zero head
max test pressure = 21 bar

Flange location:

Axial suction flange, discharge flange radially upwards.

Flanges:

The flanges comply with DIN EN 1092-2 resp. PN 16.
Flanges drilled according to ANSI (previous ASA) 150 can be supplied.

Hydraulic:

Designation of this construction type: A or B

Bearing:

One grease lubricated antifriction bearing to DIN 625 and one internal liquid flushed sleeve bearing.
Designation of this construction type: ·A

Direction of rotation:

Clockwise, when looking at the pumpfrom the drive end.

Shaft sealing:

Code BJ3:	Unbalanced standard mechnical seal Seal face materials SIC/carbon Elastomer EPDM

Material design:

Item	Components	Material						Execution
		EN material-number	EN material-denomination	DIN material-number	DIN material-denomination	US denomination		1B
						ASTM Standard	AISI	
10.20 16.10 33.00	volute casing casing cover bearing bracket	EN-JS 1025	EN-GJS-400-18-LT	0.7043	GGG 40.3	A 395		X
21.00	shaft	1.4021	X 20 Cr 13	1.4021	X 20 Cr 13	A 276 Type 420	420	X
23.00 44.10	impeller casing for mechanical seal	EN-JL 1040	EN-GJL 250	0.6025	GG 25	A 278 Class 30		X
43.30	mechanical seal	SIC / carbon						X
52.90 54.00	sleeve bearing	SIC / SIC						X

Casing gasket:

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

Motor power:

Using commercial electric motors, type of construction IM B3.

To determine drive power we recommend the following safety margin:

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

The following speeds are to be observed:

max. speed rpm	size	max. speed rpm	size	max. speed rpm	size
3600	032160 065160 032200 065200 040160 080160 040200 080200 050160 100160 050200 100200	3000	032250 125200 040250 050250 065250 080250 100250	1800	125250 150200 150250

The max. speeds result from the permissible peripheral speed of the jmpeller or from the shaft load admissible at higher temperatures, respectively.

Bearing bracket / pump size:

Bracket 25	032160 032200 032250 040160 040200 040250 050160 050200 050250 065160 065200 080160
Bracket 35	065250 080200 080250 100160 100200 100250 125200 125250 150200 150250

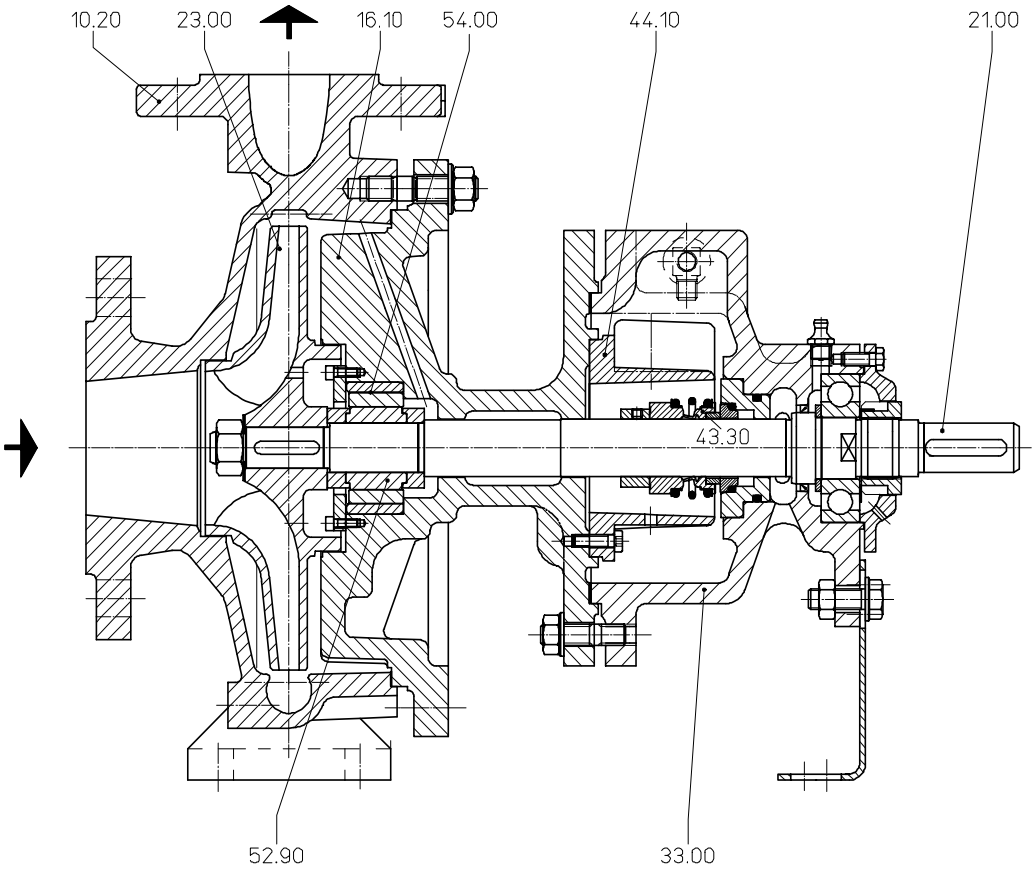
General remarks:

For equipping hot media systems a complete programme is available for a flow range between 1-600 m^3/h consisting of the range:

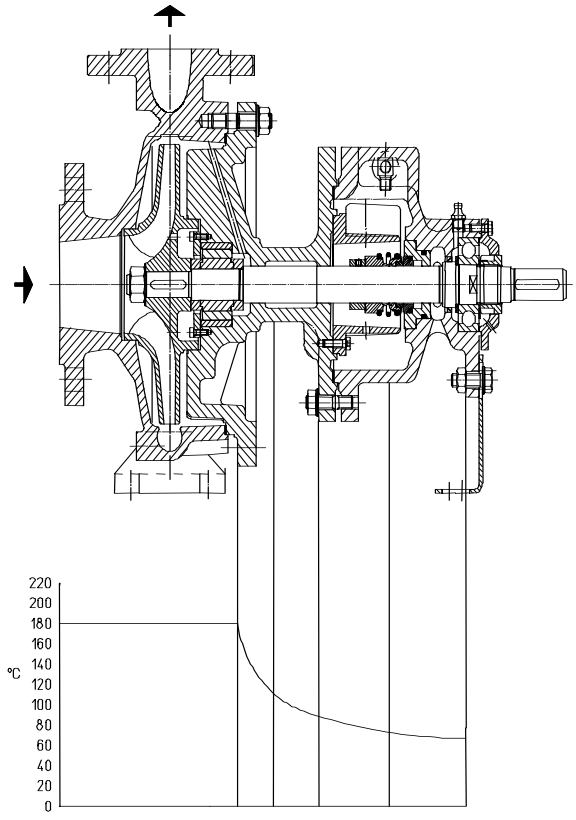
- **ZEN** volute pumps to DIN EN 22858, t_{max} 230 °C PN 40. Hot water design
- **ZDN** volute pumps to DIN EN 22858, t_{max} 207 °C PN 25. Hot water design
- **ZLI** volute pumps to EN 733 as INLINE construction, t_{max} 150 °C PN 25. Hot water design.
- **ZTN** volute pumps to EN 733, t_{max} 350 °C PN 16. Heat tranfer oil design.
- **ZTK** volute pumps to EN 733 close coupled design, t_{max} 350 °C PN 16. Heat transfer oil.
- **ZTI** volute pumps to EN 733 as INLINE construction, t_{max} 350 °C PN 16. Heat transfer oil.

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

Sectional drawing and nomenclature



10.20 volute casing	23.00 impeller	44.10 casing for mechanical seal
16.10 casing cover	33.00 bearing bracket	52.90, 5400 sleeve bearing
21.00 shaft	43.30 shaft seal	



curve of temperature decrease

Heat barrier / shaft seal / bearing / feet arrangement

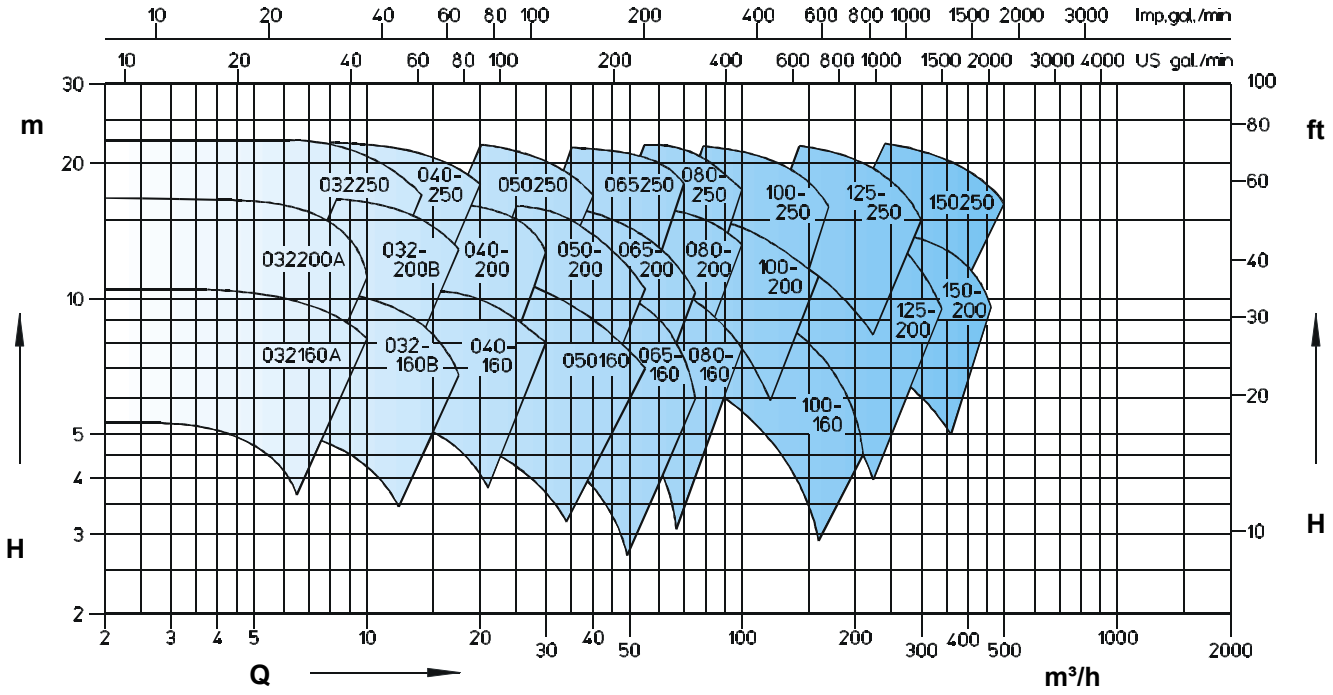
Heat transfer installations have achieved a high level of technical development. Consequently the requirements on the pumps handling heat carriers have increased regarding operating safety, environmental protection, maintenance and operating costs. On the basis of many years experience and latest technical know-how the ZHND fully complies with these requirements. Special attention was paid to the above technical details.

A favourable reduction in temperature is obtained towards the drive side by fitting a heat barrier between the casing cover and the shaft seal housing. See illustration.
Product-side heat losses are effectively prevented (energy saving). The temperature reduction makes it possible to use safely an **uncooled** mechanical seal up to a pumping medium temperature of **180 °C.**

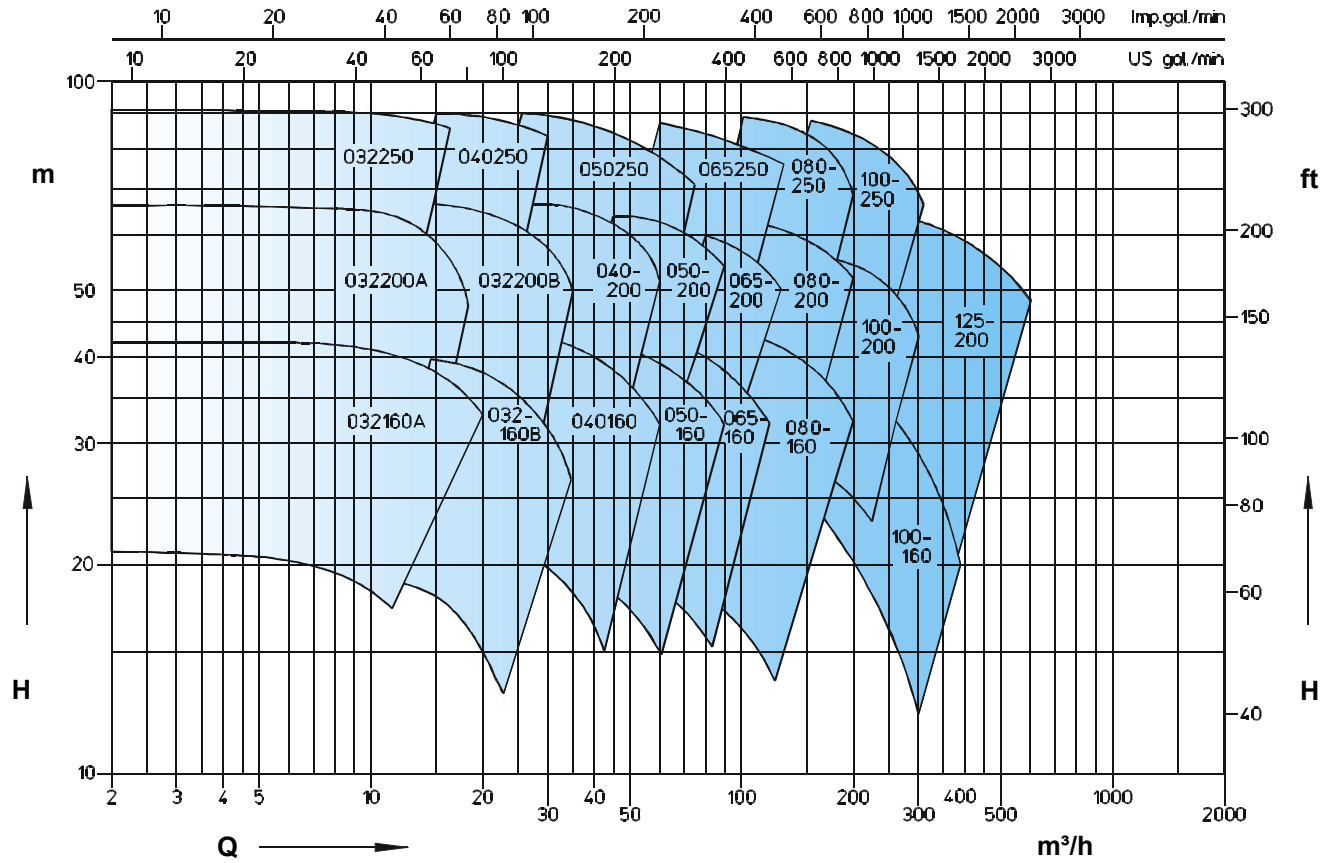
Performance graph

50 Hz

n = 1450 rpm



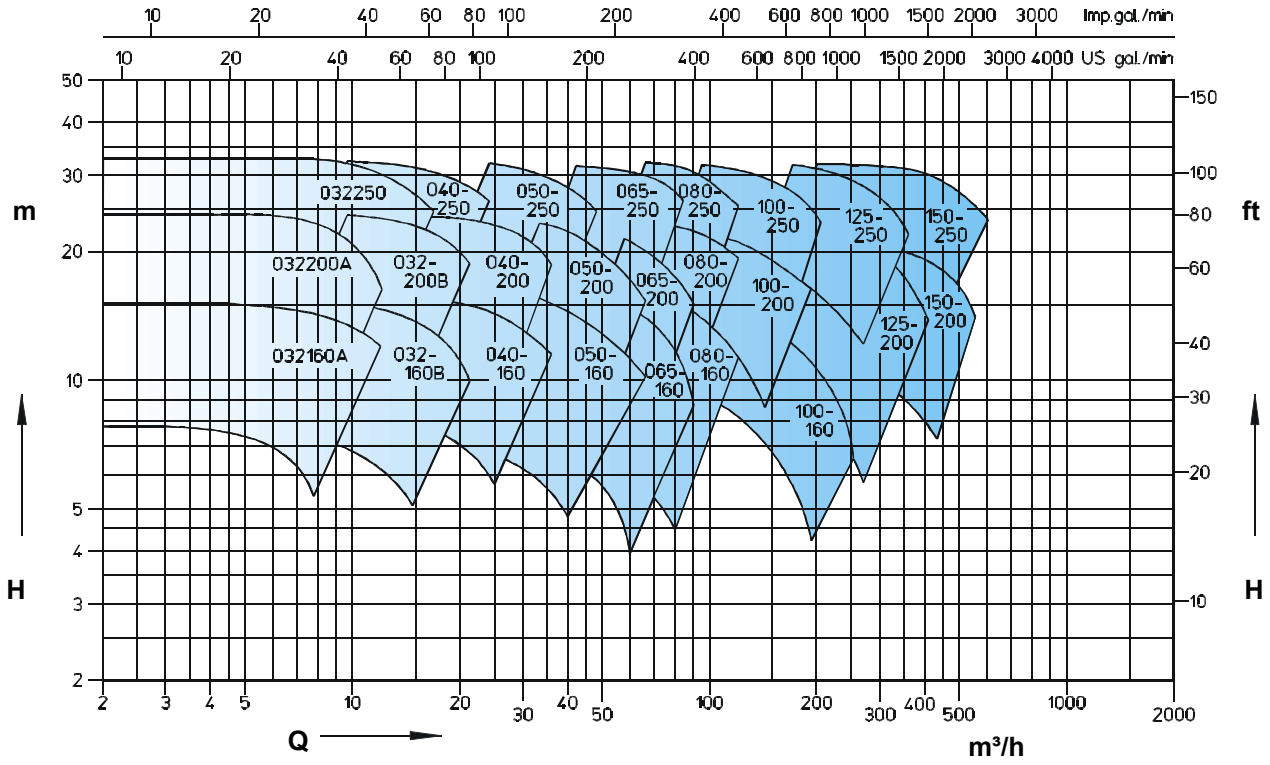
n = 2900 rpm



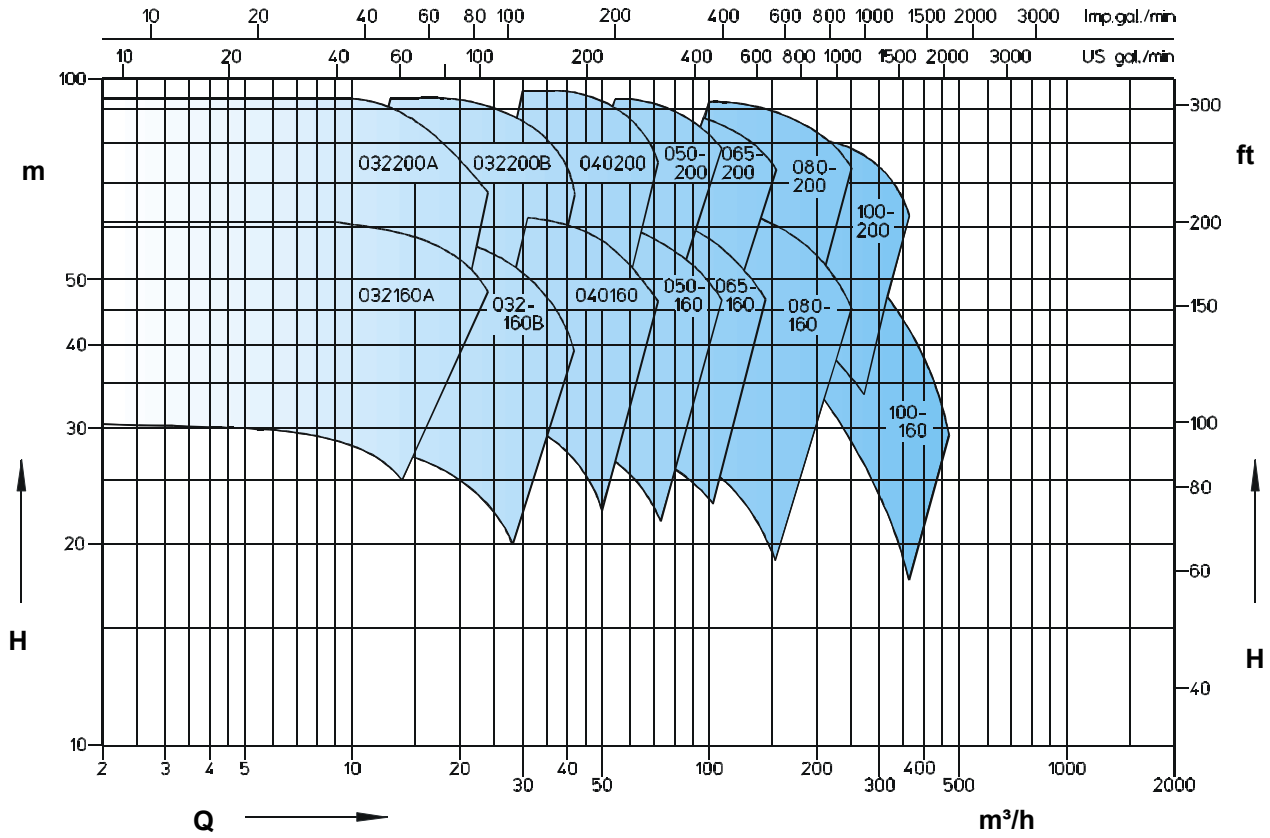
Performance graph

60 Hz

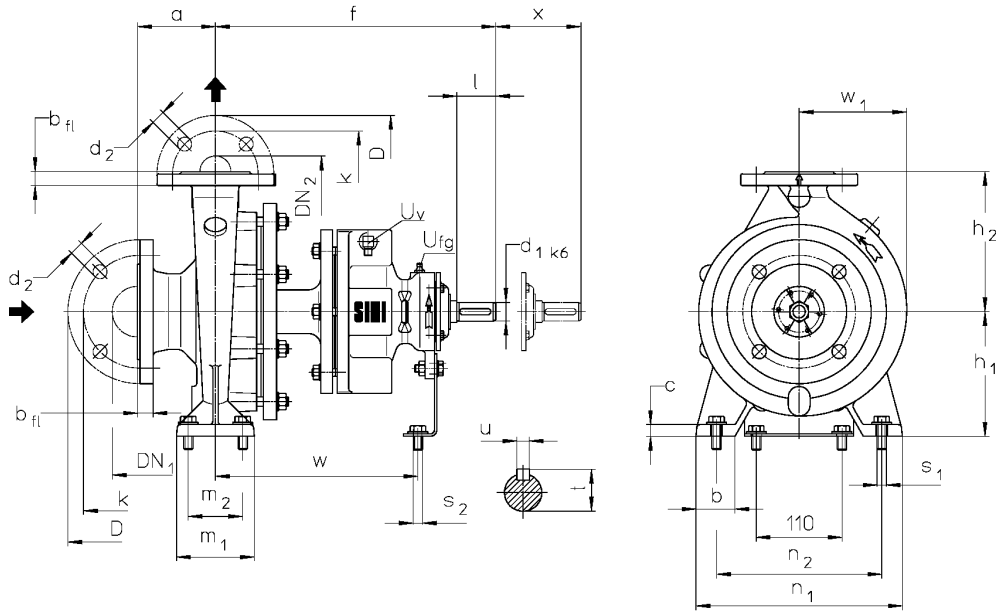
n = 1750 rpm



n = 3500 rpm



Dimension table



u_v = vent connection (G1/8) u_{fg} = grease filling connection (G1/8)

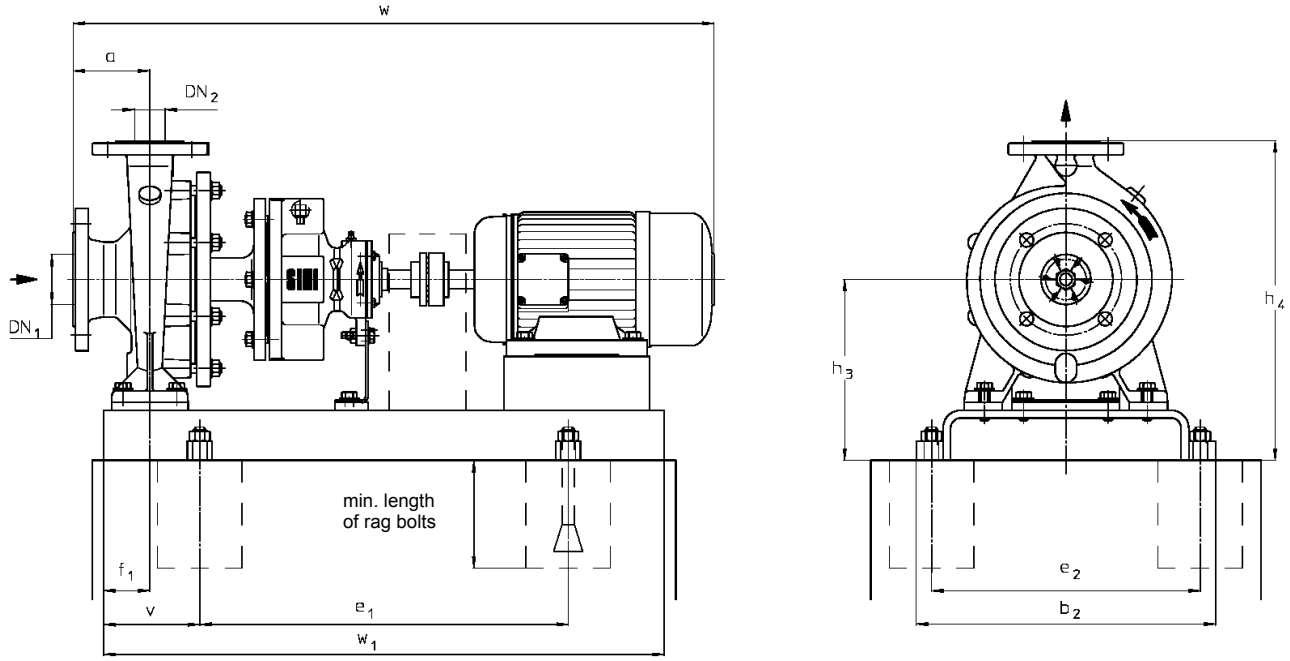
Dimensions in mm

size	DN2	DN1	a	b	c	f	h1	h2	m1	m2	n1	n2	s1*	s2*	w	w1	x	d1	l	t	u
032160	32	50	80	50	15	360	132	160	100	70	240	190	M12	M12	267	120	100	24	50	27	8
032200							160	180								127					
032250[1)]			100	65			180	225	125	95	320	250				160					
040160	40	65	80	50	15	360	132	160	100	70	240	190	M12	M12	267	128	100	24	50	27	8
040200			100				160	180			265	212				140					
040250				65			180	225	125	95	320	250				164					
050160	50	65	100	50	15	360	160	180	100	70	265	212	M12	M12	267	130	100	24	50	27	8
050200								200								150					
050250				65			180	225	125	95	320	250				169					
065160	65	80	100	65	15	360	160	200	125	95	280	212	M12	M12	267	147	100	24	50	27	8
065200							180	225			320	250				166					
065250				80		470	200	250	160	120	360	280	M16		340	183		32	80	35	10
080160	80	100	125	65	15	360	180	225	125	95	320	250	M12	M12	267	165	100	24	50	27	8
080200						470		250			345	280			340	180		32	80	35	10
080250				80	18		200	280	160	120	400	315	M16			200					
100160[1)]	100	125	125	80	18	470	200	280	160	120	360	280	M16	M12	340	202	140	32	80	35	10
100200																	120				
100250			140				225				400	315				212					
125200[1)]	125	150	140	80	18	470	250	315	160	120	400	315	M16	M12	340	242	140	32	80	35	10
125250								355								236	120				
150200[1)]	150	200	160	100	20	470	280	400	200	150	550	450	M20	M12	340	274	190	32	80	35	10
150250[1)]											500	400					170				

[1)]Transnorm pump sizes, not included in 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									
DN2/DN1	32	40	50	65	80	100	125	150	200
D	140	150	165	185	200	220	250	285	340
k	100	110	125	145	160	180	210	240	295
bfl	18	19	19	19	19	19	19	19	20
Tolerances	+4,0 -3,0								
d2 x number	19x4	19x4	19x4	19x4	19x8	19x8	19x8	23x8	23x12

Foundation plan

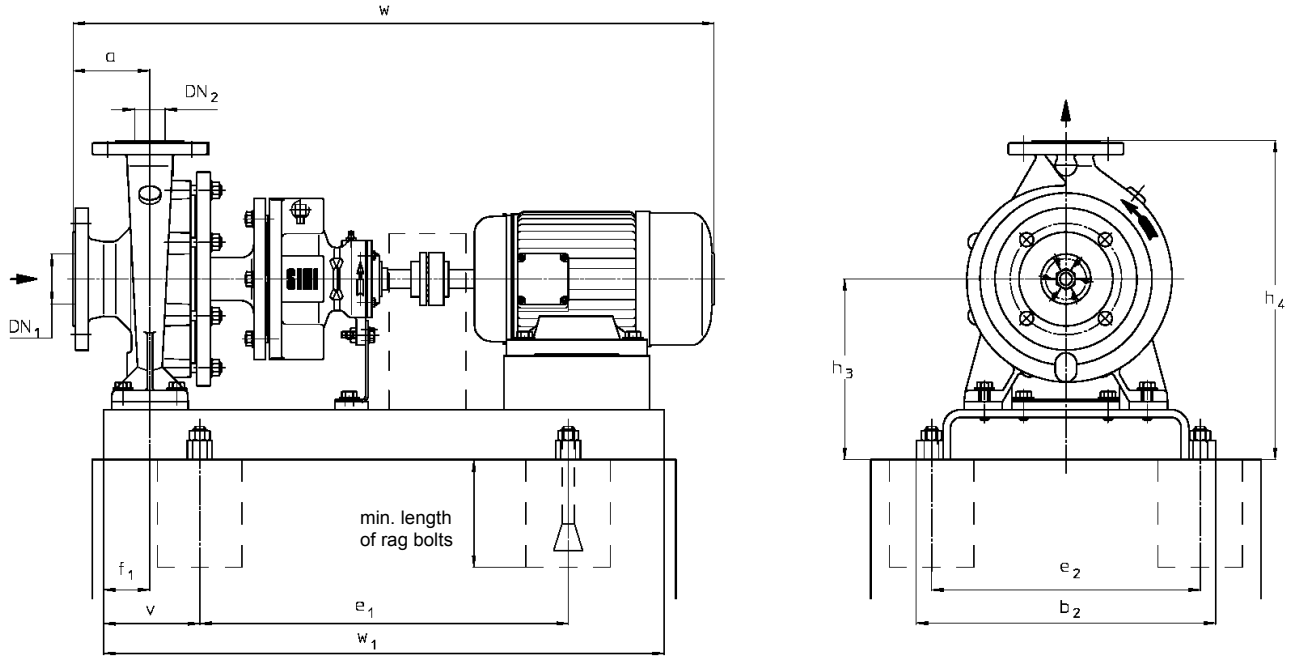


Dimensions in mm

ZHND Size	Motor Speed 1450 | 2900 kW		Size	Base-plate No.	Coup-ling	Weight (kg) Pump	Unit	DN_2	DN_1	a	b_2	e_1	e_2	v	f_1	h_3	h_4	w*	w_1	Rag bolt size
032160	0,37	-	71	S270	B68	50	78	32	50	80	360	420	320	115	60	197	357	682	650	M16x200
	0,55	1,10	80				81											716		
	-	1,50	90S	S301			89				390	480	350	125				774	730	
	-	2,20	90L				91													
	-	3,00	100L		B80		101											815		
	-	4,00	112M				102											836		
	-	5,50	132S	S342	B95		123				450	540	400	140		212	372	895	820	M20x400
	-	7,50																912		
032200	0,55	-	80	S270	B68	55	86			80	360	420	320	115	60	225	405	716	650	M16x200
	0,75	-																		
	1,10	1,50	90S	S301			93				390	480	350	125				774	730	
	1,50	2,20	90L				96													
	-	3,00	100L		B80		106											815		
	-	4,00	112M				107											836		
	-	5,50	132S	S342	B95		144				450	540	400	140		240	420	912	820	M20x400
	-	7,50																		
	-	11,00	160M	S383			163				490	600	440	160				1088	920	
	-	15,00																		
	-	18,50	160L	S344			191				450		400	180				1150	1020	
032250	0,75	-	80	S383	B68	56	107			100	490	600	440	160	75	260	485	736	920	M20x400
	1,10	-	90S				110											794		
	1,50	-	90L				112													
	2,20	-	100L		B80		123											835		
	-	7,50	132S		B95		152											932		
	-	11,00	160M				171											1050		
	-	15,00																		
040160	0,37	-	71	S270	B68	44	72	40	65	80	360	420	320	115	60	197	357	682	650	M16x200
	0,55	-	80				75											716		
	0,75	1,10																		
	1,10	1,50	90S	S301			83				390	480	350	125				774	730	
	-	2,20	90L				85											776		
	-	3,00	100L		B80		95											815		
	-	4,00	112M				97											836		
	-	5,50	132S	S342	B95		133				450	540	400	140		212	372	912	820	M20x400
	-	7,50					143											895		
	-	11,00	160M	S383			164				490	600	440	160		240	400	1030	920	
040200	0,55	-	80	S301	B68	46	81			100	390	480	350	125		225	405	736	730	M16x200
	0,75	-																		
	1,10	-	90S				84											794		
	1,50	-	90L				86													
	-	3,00	100L		B80		97											817		
	-	4,00	112M				98											856		
	-	5,50	132S	S342	B95		135				450	540	400	140		240	420	932	820	M20x400
	-	7,50																		
	-	11,00	160M	S383	B95	46	161	40	65	100	490	600	440	160	60	240	420	1050	920	M20x400
	-	15,00																		

* 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 60Hz on request.

Foundation plan



Dimensions in mm

ZHND Size	Motor Speed 1450 kW	Motor Speed 2900 kW	Size	Base-plate No.	Coup-ling	Weight (kg) Pump	Weight (kg) Unit	DN_2	DN_1	a	b_2	e_1	e_2	v	f_1	h_3	h_4	w*	w_1	Rag bolt size
040250	1,10	-	90S	S383	B68	58	112	40	65	100	490	600	440	160	75	260	485	794	920	M20x400
	1,50	-	90L				114													
	2,20	-	100L		B80		125											835		
	3,00	-																		
	-	7,50	132S		B95		154											932		
	-	11,00	160M				173											1050		
	-	15,00																		
	-	18,50	160L	S434			217				540	660	490	170				1112	1000	
050160	0,55	-	80	S301	B68	48	83	50	65	100	390	480	350	125	60	225	405	736	730	M16x200
	0,75	-																		
	1,10	-	90S				86											794		
	-	2,20	90L				89													
	-	3,00	100L		B80		99											835		
	-	4,00	112M				100											856		
	-	5,50	132S	S342	B95		137				450	540	400	140		240	420	932	820	M20x400
	-	7,50																		
	-	11,00	160M	S383			163				490	600	440	160				1050	920	
050200	0,75	-	80	S301	B68	46	82				390	480	350	125		225	425	736	730	M16X200
	1,10	-	90S				85											794		
	1,50	-	90L				87													
	2,20	3,00	100L		B80		98											835		
		4,00	112M															858		
		5,50	132S	S342	B95		135				450	540	400	140		240	440	932	820	M20x400
	-	7,50																		
	-	11,00	160M	S383			161				490	600	440	160				1050	920	
	-	15,00																		
	-	18,50	160L	S344			166				450	660	400	180					1020	
050250	1,50	-	90L	S383	B68	58	114	65	80	100	490	600	440	160	75	260	485	794	920	M20x400
	2,20	-	100L		B80		125											835		
	3,00	-																		
	4,00	-	112M				126											856		
	-	11,00	160M		B95		173											1050		
	-	15,00																		
	-	18,50	160L	S434			217				540	660	490	170				1112	1000	
	-	22,00	180M		B110		230											1174		
	-	30,00	200L	S435	B125		297					740		200		280	505	1232	1140	
065160	0,75	-	80	S342	B68	54	98	65	80	100	450	540	400	140	60	240	440	736	820	M20x400
	1,10	-	90S				101											794		
	1,50	-	90L				103													
	2,20	-	100L		B80		113											835		
	-	5,50	132S		B95		143											932		
	-	7,50																		
	-	11,00	160M	S383			169				490	600	440	160				1050	920	
	-	15,00																		

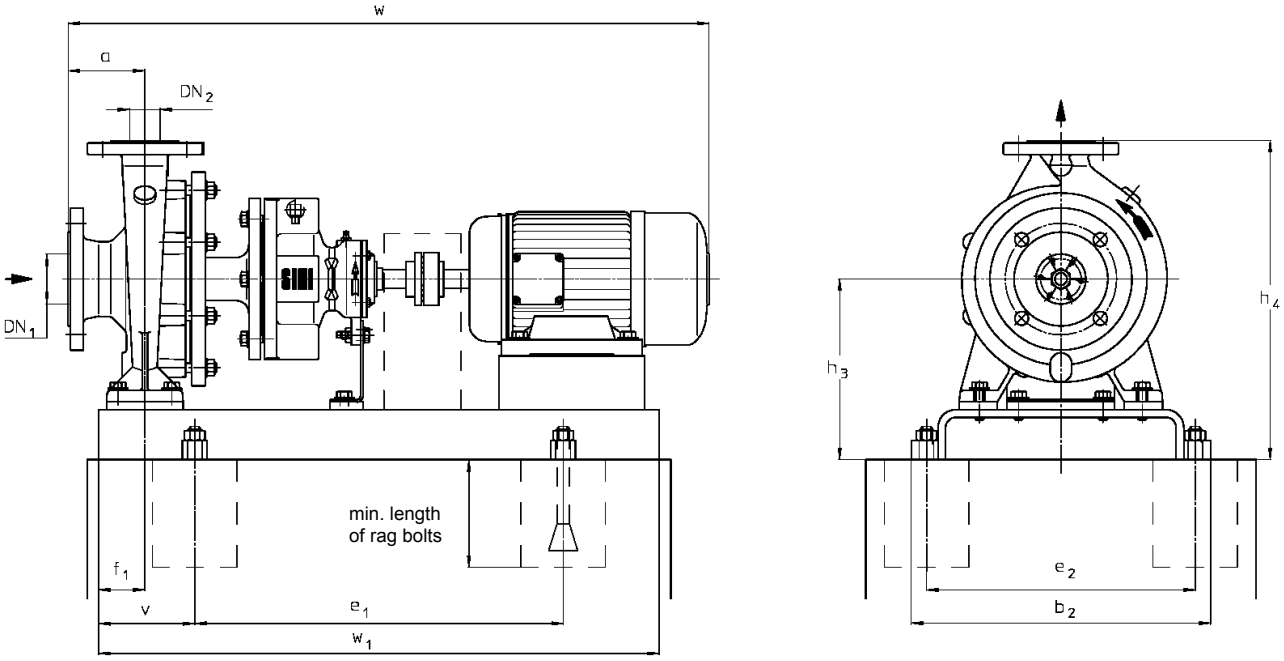
* Motor protection type IP 55, dimensions depend on the motor manufacturer.
Some sizes are not corresponding to the drawing in small details. Foundation plan for 60Hz on request.

Dimensions in mm

ZHND Size	Motor Speed 1450 kW	Motor Speed 2900 kW	Size	Base-plate No.	Coup-ling	Weight (kg) Pump	Weight (kg) Unit	DN_2	DN_1	a	b_2	e_1	e_2	v	f_1	h_3	h_4	w*	w_1	Rag bolt size
065200	1,10	-	90S		B68		117											794		
	1,50	-	90L				119													
	2,20	-	100L		B80		130											835		
	3,00	-									490	600	440	160					920	
	4,00	-	112M			63	131								75	260	485	856		
	-	11,00	160M		B95		178											1050		
	-	15,00																		
	-	18,50	160L	S434			222					660		170				1112	1000	
	-	22,00	180M		B110		235											1174		M20x400
	-	30,00	200L	S435	B125		302	65	80	100		740		200		280	505	1232	1140	
065250	2,20	-	100L	S434	B80		173											945		
	3,00	-										660		170					1000	
	4,00	-	112M				174				540		490					966		
	5,50	-	132S		B95		202											1042		
	-	18,50	160L	S435		90	256					740		200	90	280	530	1222	1140	
	-	22,00	180M		B110		269											1284		
	-	30,00	200L	S436	B125		336					840		215				1342	1270	
	-	37,00																		
	-	45,00	225M	S486			413				610		550	205		325	575	1372	1250	M24x400
080160	0,75	-	80		B68		106											761		
	1,10	-	90S				109											819		
	1,50	-	90L				111													
	2,20	-	100L	S383	B80		122				490	600	440	160				860	920	
	3,00	-				55														
	-	7,50	132S		B95		151										485	957		
	-	11,00	160M				170											1075		
	-	15,00																		
	-	18,50	160L	S434			214	80	100	125					75	260		1137		M20x400
	-	22,00	180M		B110		227				540	660	490	170				1199	1000	
080200	1,50	-	90L				148											929		
	2,20	-	100L	S383	B80		158				490	600	440	160				970	920	
	3,00	-				91														
	4,00	-	112M				159										510	991		
	5,50	-	132S	S434	B95		203				540	660	490	170				1067	1000	
	-	15,00	160M				222											1185		
	-	18,50	160L	S435	B95		257					740		200		260	510	1247	1140	
	-	22,00	180M		B110	91	270				540		490		75			1309	1140	M20x400
	-	30,00	200L	S436	B125		337					840		215		280	530	1367	1270	
	-	37,00																		
080250	3,00	-	100L		B80		205											970		
	4,00	-	112M				206											991		
	5,50	-	132S		B95		235	80	100	125								1067		
	7,50	-	132M	S486			238				610		550	205	90	300	580	1093	1250	M24x400
	-	22,00	180M		B110	97	295											1309		
	-	30,00	200L		B125		355											1367		
	-	37,00																		
	-	45,00	225M				420									325	605	1397		
	-	55,00	250M	S607	B140		642				730	940	670	230		350	630	1527	1400	
100160	2,20	-	100L		B80		177											971		
	3,00	-		S434								660		170					1000	
	4,00	-	112M				178											992		
	5,50	-	132S		B95	94	206											1068		
	-	18,50	160L	S435			260					740		200				1247	1140	
	-	22,00	180M		B110		273											1309		
	-	30,00	200L	S436	B125		340					840		215				1367	1270	
	-	37,00																		
100200	2,20	-	100L		B80		175			125	540		490			280	560	971		M20x400
	3,00	-										660		170					1000	
	4,00	-	112M	S434			176											992		
	5,50	-	132S		B95		204											1068		
	7,50	-	132M			92	207											1094		
	-	18,50	160L	S435			258	100	125			740		200	90			1247	1140	
	-	22,00	180M		B110		271											1309		
	-	30,00	200L	S436	B125		338					840		215				1367	1270	
	-	37,00																		
	-	45,00	225M				415				610		550	205		325	605	1397	1250	
100250	4,00	-	112M		B80		212											1006		
	5,50	-	132S				241											1082		
	7,50	-	132M	S486	B95		244					840						1108		
	11,00	-	160M				259											1200		M24x400
	-	30,00	200L			103	361			140								1382		
	-	37,00			B125															
	-	45,00	225M				426											1412		
	-	55,00	250M	S607	B140		648				730	940	670	230		350	630	1542	1400	
	-	75,00	280S	S609A	B160		917				744	1200	696	300		380	660	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 60Hz on request.

Foundation plan



Dimensions in mm

ZHND Size	Motor Speed 1450 kW	Motor Speed 2900 kW	Size	Base-plate No.	Coup-ling	Weight (kg) Pump	Weight (kg) Unit	DN_2	DN_1	a	b_2	e_1	e_2	v	f_1	h_3	h_4	w*	w_1	Rag bolt size
125200	7,50	-	132M	S486	B95	117	258	125	150	140	610	840	550	205	90	350	665	1108	1250	M24x400
	11,00	-	160M				274											1200		
	15,00	-	160L		B110		303											1262		
	-	55,00	250M	S607	B140		662				730	940	670	230				1542	1400	
	-	75,00	280S	S609A	B160		931				744	1200	696	300		380	695	1642	1800	
125250	7,50	-	132M	S486	B95	124	265				610	840	550	205		350	705	1108	1250	
	11,00	-	160M				281											1200		
	15,00	-	160L		B110		310											1262		
150200	7,50	-	132M	S605	B95	128	286	150	200	160	730	740	670	190	110	380	780	1128	1120	M24x400
	11,00	-	160M				302											1220		
	15,00	-	160L				332											1282		
	18,50	-	180M		B110		344											1344		
150250	15,00	-	160L			147	351											1282		
	18,50	-	180M				353											1344		
	22,00	-	180L	S606	B125		390					840		205					1250	
	30,00	-	200L				434											1402		

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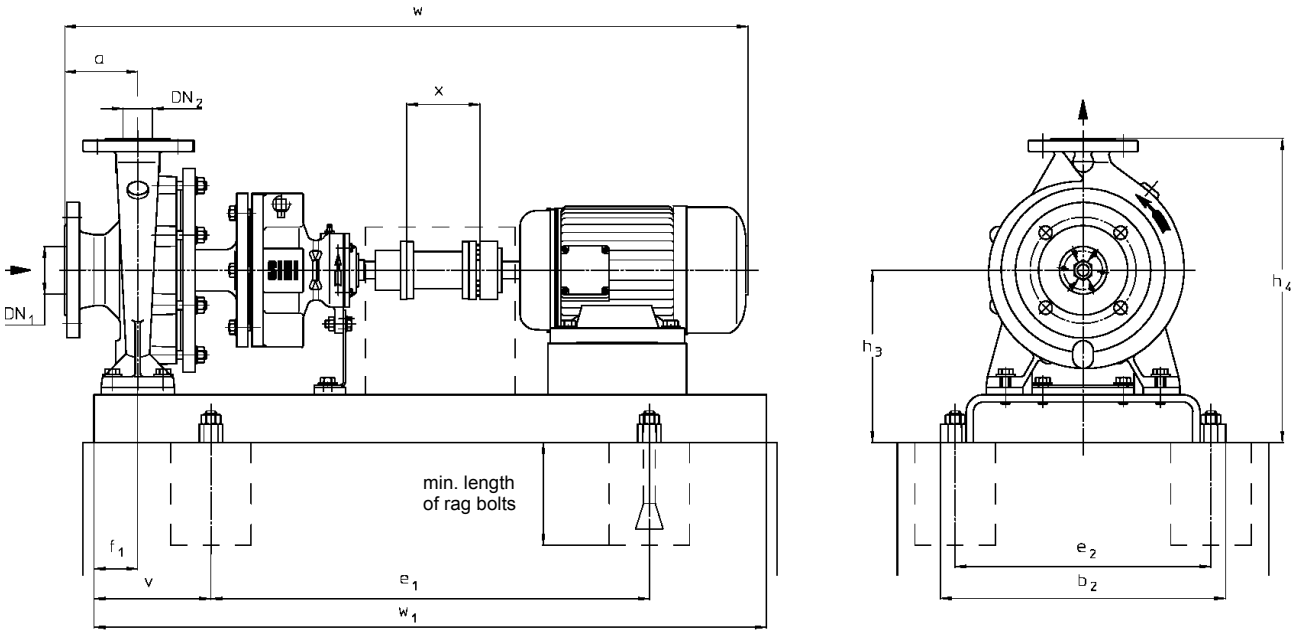
Foundation plan for units with spacer coupling



Dimensions in mm

ZHND Size	Motor Speed 1450 / 2900 KW		Size	Base plate No.	Coup-ling	Weight (kg) Pump	unit	DN_2	DN_1	a	b_2	e_1	e_2	v	f_1	h_3	h_4	x	w*	w_1	Rag bolt size
032160	0,37	-	71	S301	H80	50	85	32	50	80	390	480	350	125	60	197	357	100	780	730	M16x200
	0,55	1,10	80	S272			89				360	540	320	140					814	820	
	-	1,50	90S				92												872		
	-	2,20	90L				94														
	-	3,00	100L				104												913		
	-	4,00	112M				105												934		
	-	5,50	132S	S303	H95		107				390	600	350	160					993	920	
	-	7,50																	1012		
032200	0,55	-	80	S272	H80	55	94			80	360	540	320	140	60	225	405		814	820	
	0,75	-																			
	1,10	1,50	90S				97												872		
	1,50	2,20	90L				99														
	-	3,00	100L				109												913		
	-	4,00	112M				110												934		
	-	5,50	132S	S303	H95		143				390	600	350	160					1010	920	
	-	7,50	132S																		
	-	11,00	160M	S344	H110		174				450	660	400	180		240	420		1128	1020	M20x400
	-	15,00																			
	-	18,50	160L	S385			219					740		200					1190	1140	
032250	0,75	-	80	S383	H80	56	109			100	490	600	440	160	75	260	485		834	920	
	1,10	-	90S				112												892		
	1,50	-	90L				114														
	2,20	-	100L				124												933		
	-	7,50	132S		H95		153												1030		
	-	11,00	160M	S434			188				540	660	490	170					1148	1000	
	-	15,00																			
040160	0,37	-	71	S301	H80	44	79	40	65	80	390	480	350	125	60	197	357	100	780	730	M16x200
	0,55	-	80	S272			83				360	540	320	140					814	820	
	0,75	1,10					83														
	1,10	1,50	90S				86												872		
	-	2,20	90L				88														
	-	3,00	100L				98												913		
	-	4,00	112M				99												934		
	-	5,50	132S	S303	H95		132				390	600	350	160					1010	920	
	-	7,50																	993		
	-	11,00	160M	S344			167				450	660	400	180		240	420		1128	1020	M20x400
040200	0,55	-	80	S342	H80	46	92			100		540		140					834	820	
	0,75	-																			
	1,10	-	90S				95												892		
	1,50	-	90L				97														
	-	3,00	100L				107												933		
	-	4,00	112M				108												954		
	-	5,50	132S	S303	H95		134				390	600	350	160		225	405		1030	920	M16x200
	-	7,50																			
	-	11,00	160M	S344			163				450	660	400	180		240	420		1148	1020	M20x400
	-	15,00																			

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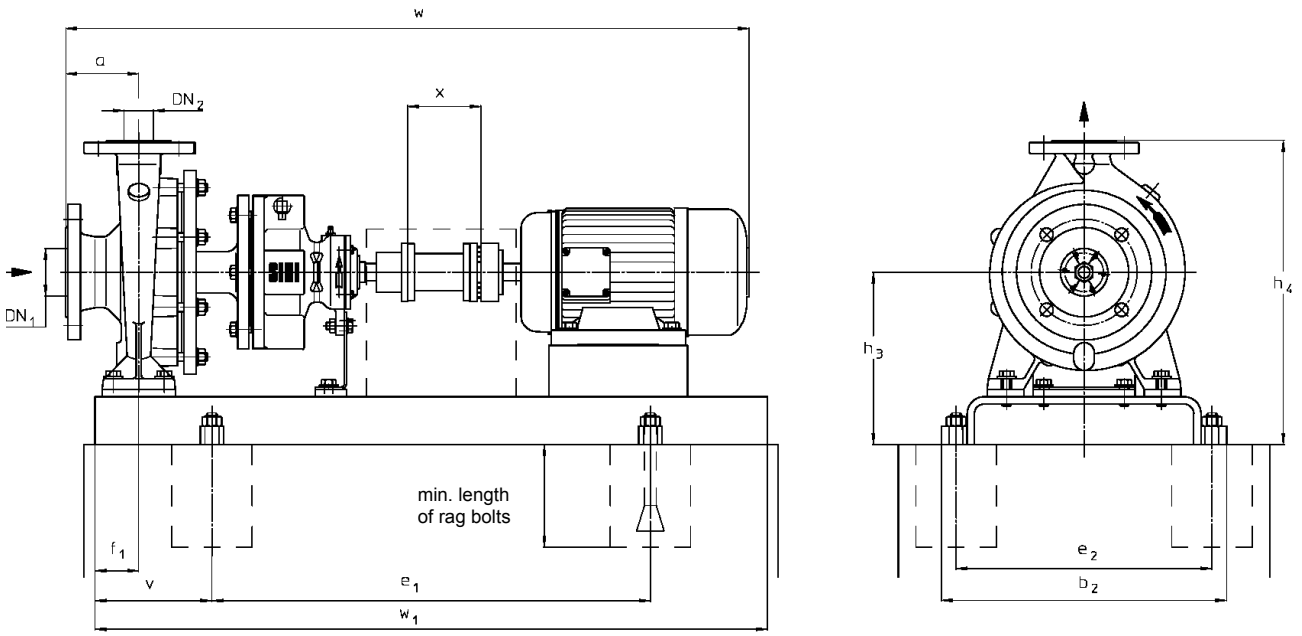
Foundation plan for units with spacer coupling



Dimensions in mm

ZHND Size	Motor Speed 1450 KW	Motor Speed 2900 KW	Size	Base plate No.	Coup-ling	Weight (kg) Pump	Weight (kg) unit	DN_2	DN_1	a	b_2	e_1	e_2	v	f_1	h_3	h_4	x	w*	w_1	Rag bolt size
040250	1,10	-	90S	S383	H80		114												892	920	
	1,50	-	90L				116												892		
	2,20	-	100L	S383	H80		126				490	600	440	160					933	920	
	3,00	-				58		40	65	100					75	260	485	100			M20x400
	-	7,50	132S		H95		155												1030		
	-	11,00	160M	S434			190														
	-	15,00					220				540	660	490	170					1148	1000	
	-	18,50	160L	S385							490	740	440	200					1210	1140	
050160	0,55	-	80				94												834		
	0,75	-																			
	1,10	-	90S	S342	H80		97				450	540	400	140		240	420		892	820	M20x400
	-	2,20	90L				99														
	-	3,00	100L			48	109												933		
	-	4,00	112M				110												954		
	-	5,50	132S	S303	H95		136				390	600	350	160		225	405		1030	920	M16x200
	-	7,50																			
	-	11,00	160M	S344			165					660		180			420		1148	1020	
050200	0,75	-	80				92												834		
	1,10	-	90S				95														
	1,50	-	90L	S342	H80		97				450	540	400	140		240	440		892	820	M20X400
	2,20	3,00	100L				107												933		
	-	4,00	112M			46	108												954		
	-	5,50	132S	S303			134	50	65	100	390	600	350	160	60	225	425	100	1030	920	M16x200
	-	7,50			H95																
	-	11,00	160M	S344			163				450	660	400	180		240	440		1148	1020	
	-	15,00																			
	-	18,50	160L	S385			198					740		200					1210	1140	
050250	1,50	-	90L				116												892		
	2,20	-	100L	S383	H80		126				490	600	440	160					933	920	
	3,00	-																			M20x400
	4,00	-	112M				127									260	485		954		
	-	11,00	160M	S434	H95	58	190				540	660	490	170	75				1148	1000	
	-	15,00																			
	-	18,50	160L	S385			220				490	740	440	200					1210	1140	
	-	22,00	180M	S435	H110		239				540		490						1272		
	-	30,00	200L		H125		300									280	505		1330		
065160	0,75	-	80				100												834		
	1,10	-	90S	S342	H80		103				450	540	400	140					892	820	
	1,50	-	90L				105														
	2,20	-	100L			54	115	65	80	100					60	240	440	100	933		M20x400
	-	5,50	132S	S383	H95		151				490	600	440	160					1030	920	
	-	7,50																			
	-	11,00	160M	S344			171				450	660	400	180					1148	1020	
	-	15,00																	1188		

* 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 60Hz on request.

Dimensions in mm

ZHND Size	Motor Speed 1450 KW	Motor Speed 2900 KW	Size	Base plate No.	Coup-ling	Weight (kg) Pump	Weight (kg) unit	DN_2	DN_1	a	b_2	e_1	e_2	v	f_1	h_3	h_4	x	w*	w_1	Rag bolt size
065200	1,10	-	90S	S383	H80	63	119	65	80	100	490	600	440	160	75	260	485	140	932	920	M20x400
	1,50	-	90L				121														
	2,20	-	100L				131												973		
	3,00	-																			
	4,00	-	112M				132												994		
	-	11,00	160M	S385	H95		197					740		200					1188	1140	
	-	15,00																			
	-	18,50	160L				225												1250		
	-	22,00	180M	S435	H110		244												1312		
	-	30,00	200L	S436	H125		312				540	840	490	215		280	505		1370	1270	
065250	2,20	-	100L	S434	H80	90	174					660		170	90		530		1083	1000	
	3,00	-																			
	4,00	-	112M				175												1104		
	5,50	-	132S	S435	H95		210					740		200					1180	1140	
	-	18,50	160L	S436			264					840		215					1360	1270	
	-	22,00	180M		H110		278												1422		
	-	30,00	200L	S487	H125		374				610	940	550	240		300	550		1480	1420	M24x400
	-	37,00																			
	-	45,00	225M	S607			457				730		670	230		325	575		1510	1400	
080160	0,75	-	80	S383	H80	55	108	80	100	125	490	600	440	160	75	260	485	140	899	920	M20x400
	1,10	-	90S				111												957		
	1,50	-	90L				113														
	2,20	-	100L				123												998		
	3,00	-																			
	-	7,50	132S	S434	H95		168				540	660	490	170					1095	1000	
	-	11,00	160M	S385			169				490	740	440	200					1213	1140	
	-	15,00																			
	-	18,50	160L				217												1275		
	-	22,00	180M	S435	H110		236												1337		
080200	1,50	-	90L	S434	H80	91	165				540	660	490	170			510		1067	1000	
	2,20	-	100L				175												1108		
	3,00	-																			
	4,00	-	112M				176												1129		
	5,50	-	132S	S435	H95		211					740		200					1205	1140	
	-	15,00	160M				230												1323		
	-	18,50	160L	S436			264					840		215					1385	1270	
	-	22,00	180M		H110		278												1447		
	-	30,00	200L	S487	H125		374				610	940	550	240		300	550		1505	1420	M24x400
	-	37,00																			
080250	3,00	-	100L	S486	H80	97	207	80	100	125	610	840	550	205	90	300	580	140	1108	1250	M24x400
	4,00	-	112M				208												1129		
	5,50	-	132S		H95		236												1205		
	7,50	-	132M				239												1231		
	-	22,00	180M		H110		297												1447		
	-	30,00	200L	S487	H125		381					940		240					1505	1420	
	-	37,00																			
	-	45,00	225M	S607			467				730		670	230		325	605		1535	1400	
	-	55,00	250M	S608	H140		664					1060		270		350	630		1665	1600	
100160	2,20	-	100L	S434	H80	94	178	100	125	125	540	660	490	170	90	280	560	140	1108	1000	M20x400
	3,00	-																			
	4,00	-	112M				179												1129		
	5,50	-	132S	S435	H95		214					740		200					1205	1140	
	-	18,50	160L	S436			268					840		215					1385	1270	
	-	22,00	180M		H110		282												1447		
	-	30,00	200L	S487	H125		378				610	940	550	240		300	580		1505	1420	M24x400
	-	37,00																			
100200	2,20	-	100L	S434	H80	92	176				540	660	490	170		280	560		1108	1000	M20x400
	3,00	-																			
	4,00	-	112M				177												1129		
	5,50	-	132S	S435	H95		212					740		200					1205	1140	
	7,50	-	132M				215												1231		
	-	18,50	160L	S436			266	100	125			840		215	90			140	1385	1270	
	-	22,00	180M		H110		280												1447		
	-	30,00	200L	S487	H125		376				610	940	550	240		300	580		1505	1420	M24x400
	-	37,00																			
	-	45,00	225M	S607			459				730		670	230		325	605		1535	1400	
100250	4,00	-	112M	S486	H80	103	214			140	610	840	550	205					1144	1250	
	5,50	-	132S		H95		242												1220		
	7,50	-	132M				245												1246		
	11,00	-	160M				261												1338		
	-	30,00	200L	S487	H125		387					940		240					1520	1420	
	-	37,00																			
	-	45,00	225M	S607			470				730		670	230					1550	1400	
	-	55,00	250M	S608	H140		670					1060		270		350	630		1680	1600	
	-	75,00	280S	S609A	H160		923				744	1200	696	300		380	660		1780	1800	

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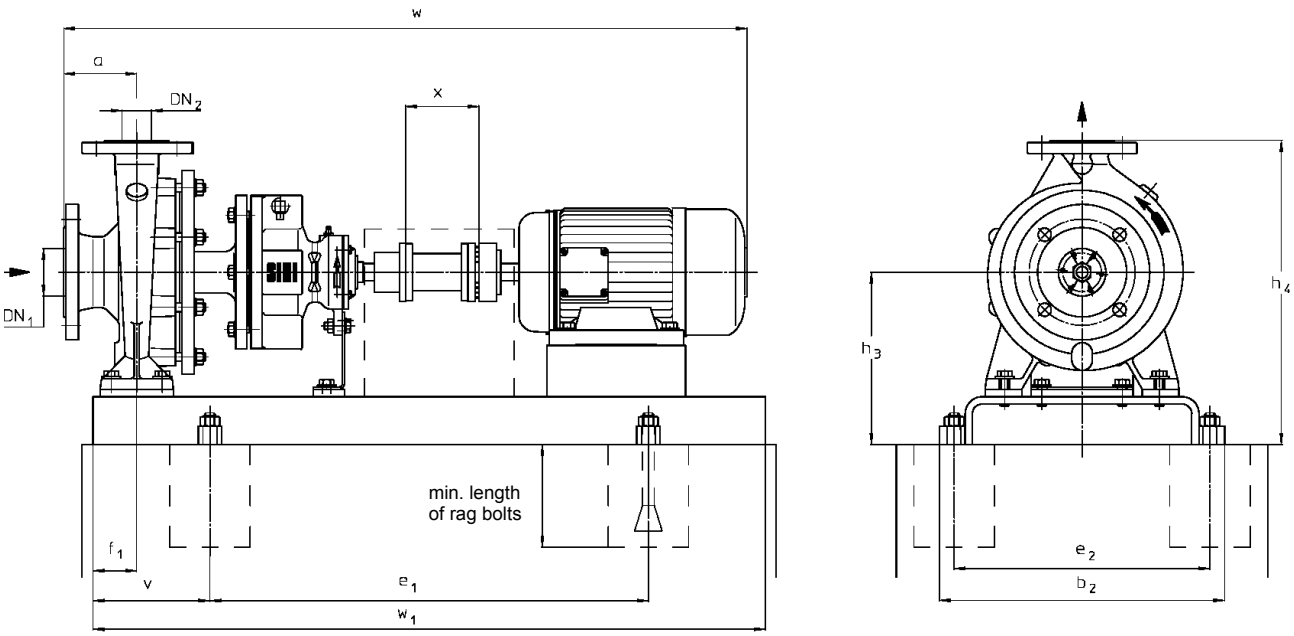
Some sizes are not corresponding to the drawing in small details. Foundation plan for 60Hz on request.

Foundation plan for units with spacer coupling



Dimensions in mm

ZHND Size	Motor Speed 1450 KW	Motor Speed 2900 KW	Size	Base plate No.	Coup-ling	Weight (kg) Pump	Weight (kg) unit	DN_2	DN_1	a	b_2	e_1	e_2	v	f_1	h_3	h_4	x	w*	w_1	Rag bolt size
125200	7,50	-	132M	S486	H95	117	259	125	150	140	610	840	550	205	90	350	695	140	1246	1250	M24x400
	11,00	-	160M				275												1338		
	15,00	-	160L		H110		305												1400		
	-	55,00	250M	S608	H140		684				730	1060	670	270					1680	1600	
	-	75,00	280S	S609A	H160		937				744	1200	696	300		380			1780	1800	
125250	7,50	-	132M	S486	H95	124	266				610	840	550	205		350	705		1246	1250	
	11,00	-	160M				282												1338		
	15,00	-	160L		H110		312												1400		
150200	7,50	-	132M	S605	H95	128	290	150	200	160	730	840	670	205	110	380	780	140	1266	1250	M24x400
	11,00	-	160M	S606			367												1358		
	15,00	-	160L		H110		392												1423		
	18,50	-	180M				417												1482		
150250	15,00	-	160L			147	411												1420		
	18,50	-	180M				436												1482		
	22,00	-	180L	S607	H125		462					940		230					1484	1400	
	30,00	-	200L	S607			564												1540		

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Data regarding pump size

Type + Pump size		Hydraulic + Bearing	Shaft sealing	Material desing	Casing gasket
		A= hydraulic 1 B= hydraulic 2 A= grease lubricated reinforced antifriction bearing and one internal liquid flushed sleeve bearing	BJ3= unbalanced standard mechanical seal	1B= main parts of spheroidal cast iron	2= confined flat gasket of graphite with A4 insertion
ZHND	032160	AA	BJ3	1B	2
	032160	BA			
	032200	AA			
	032200	BA			
	032250	AA			
	040160				
	040200				
	040250				
	050160				
	050200				
	050250				
	065160				
	065200				
	065250				
	080160				
	080200				
	080250				
	100160				
	100200				
	100250				
	125200				
	125250				
	150200				
	150250				

Any changes in the interest of the technical development are reserved.

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