

ZHND 032160 ... 150250

TECHNICAL DATA

Output:	max. 600 m ³ /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 circulation 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

Please note:

Technical rules and safety 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 pump from the drive end.

Shaft sealing:

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

Material design:

Item	Components	Material						Execution 1B							
		EN material- number	EN material- denomination	DIN material- number	DIN material- denomination	US denomination									
						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	3000	032250	125200	1800	125250
	032200	065200		040250	150200		
	040160	080160		050250	150250		
	040200	080200		065250			
	050160	100160		080250			
	050200	100200		100250			

The max. speeds result from the permissible peripheral speed of the impeller 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

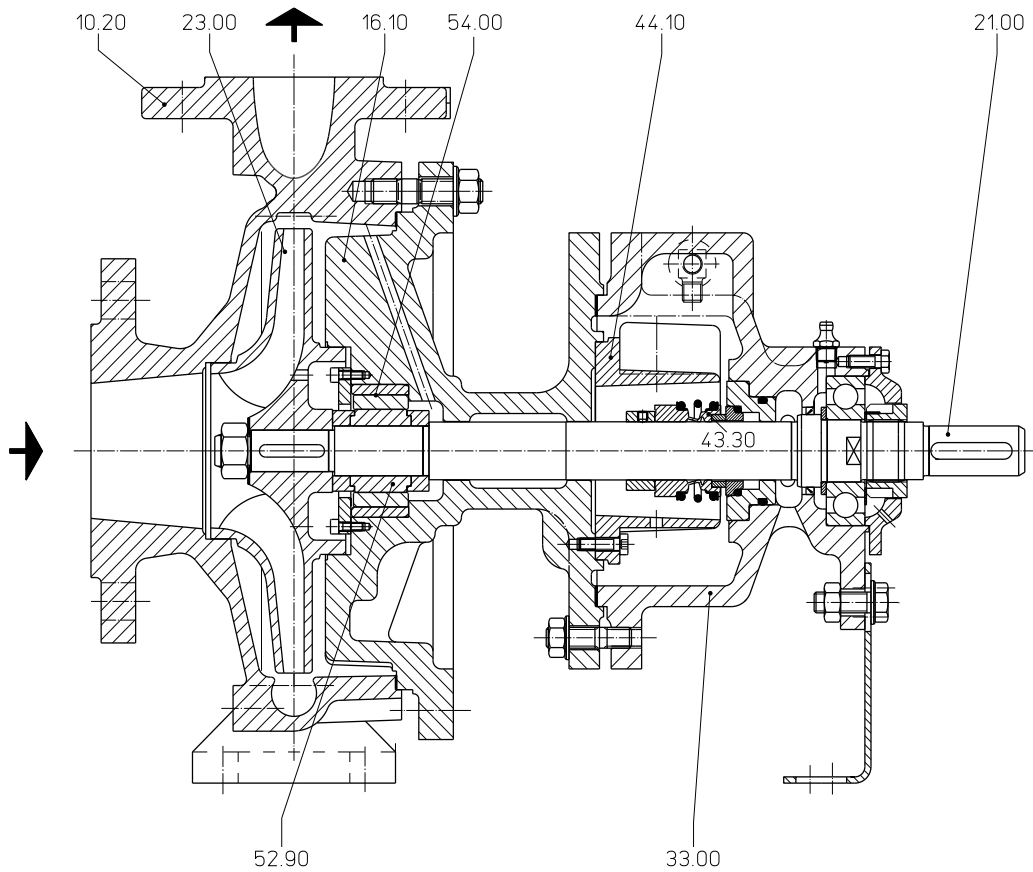
General remarks:

For equipping hot media systems a complete programme is available for a flow range between 1-600 m³/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 transfer 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.

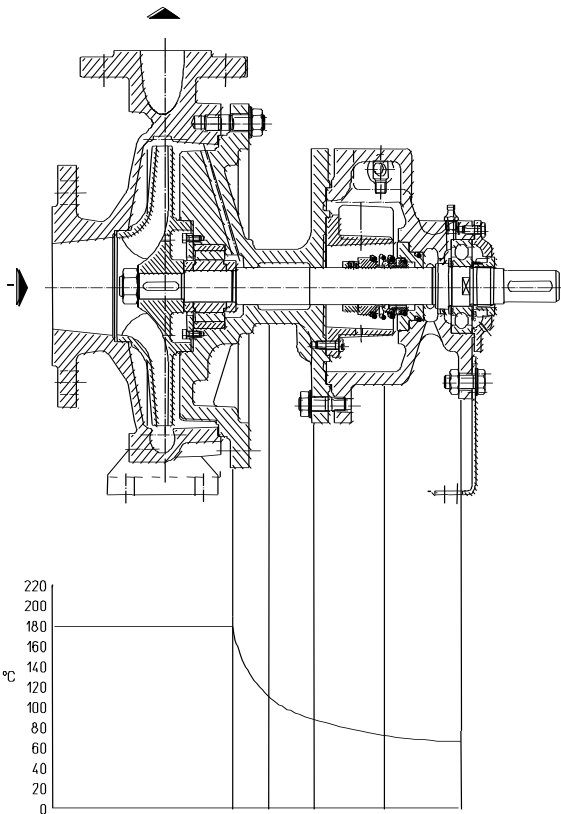
Sectional drawing and nomenclature



10.20 volute casing
16.10 casing cover
21.00 shaft

23.00 impeller
33.00 bearing bracket
43.30 shaft seal

44.10 casing for mechanical seal
52.90, 5400 sleeve bearing



curve of temperature decrease

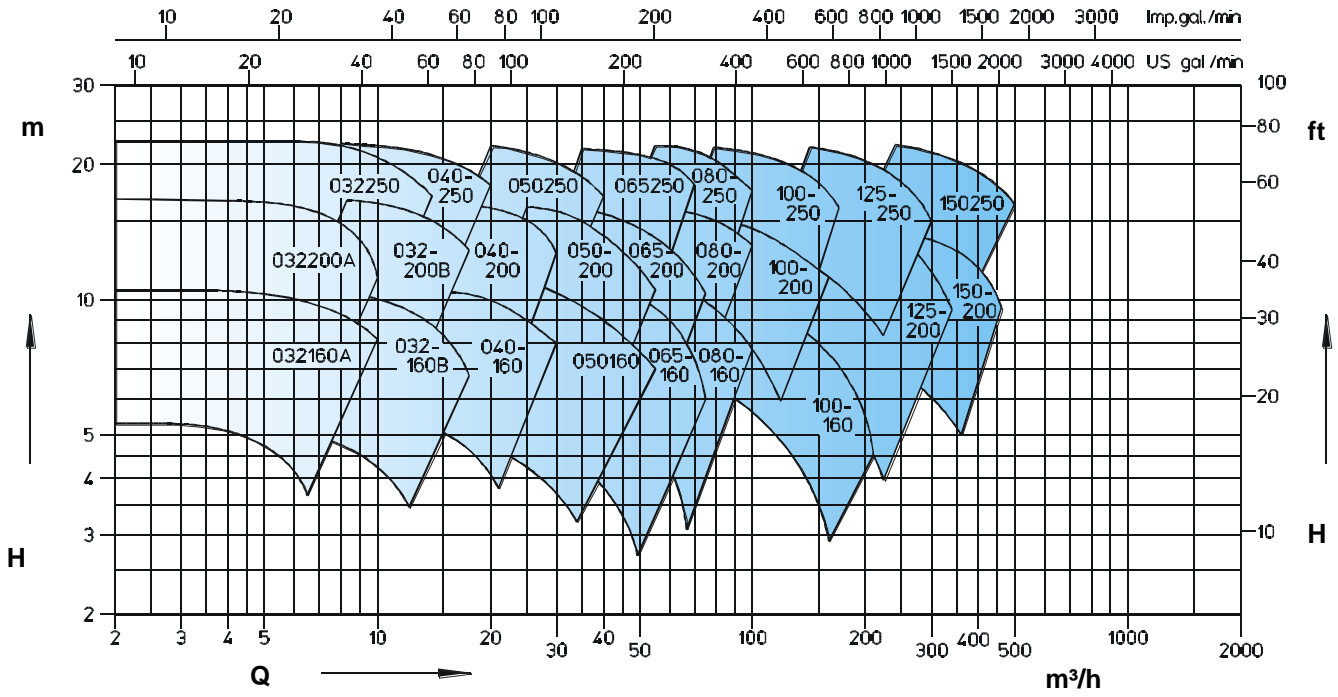
Heat barrier / shaft seal / bearing / feet arrangement

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.

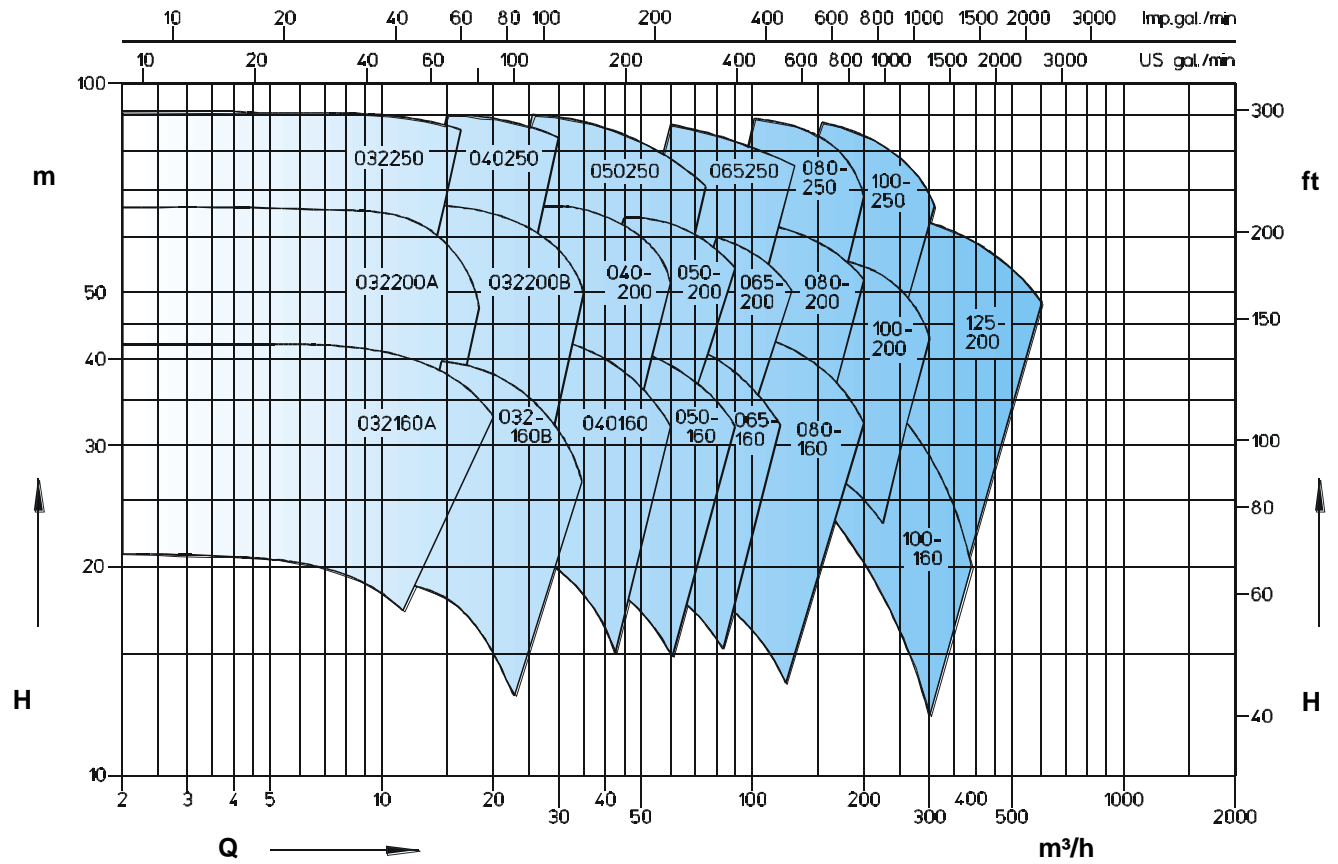
A favourable reduction in temperature is obtained towards the drive side by fitting a heat barrier between the casing cover and the shaft seal housing. See illustration. Product-side heat losses are effectively prevented (energy saving). The temperature reduction makes it possible to use safely an **uncooled**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

Performance graph

50 Hz
n = 1450 rpm



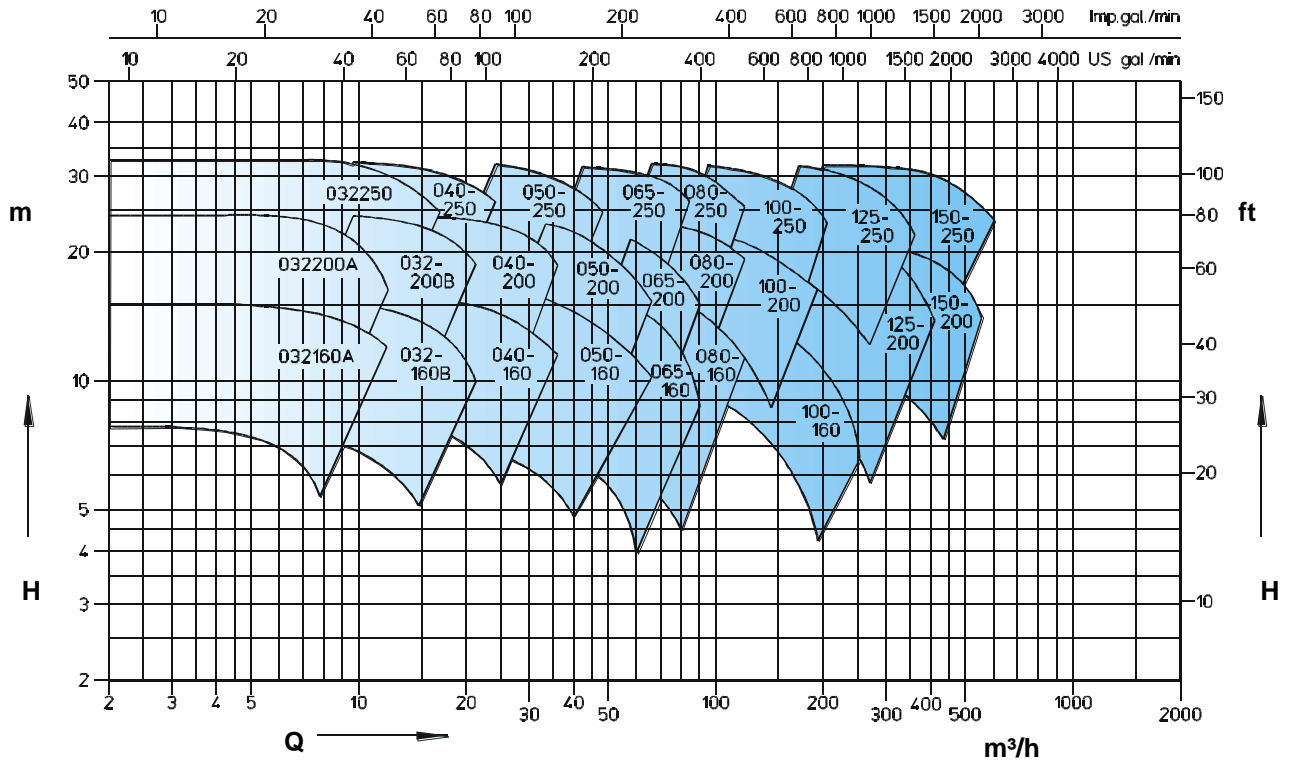
n = 2900 rpm



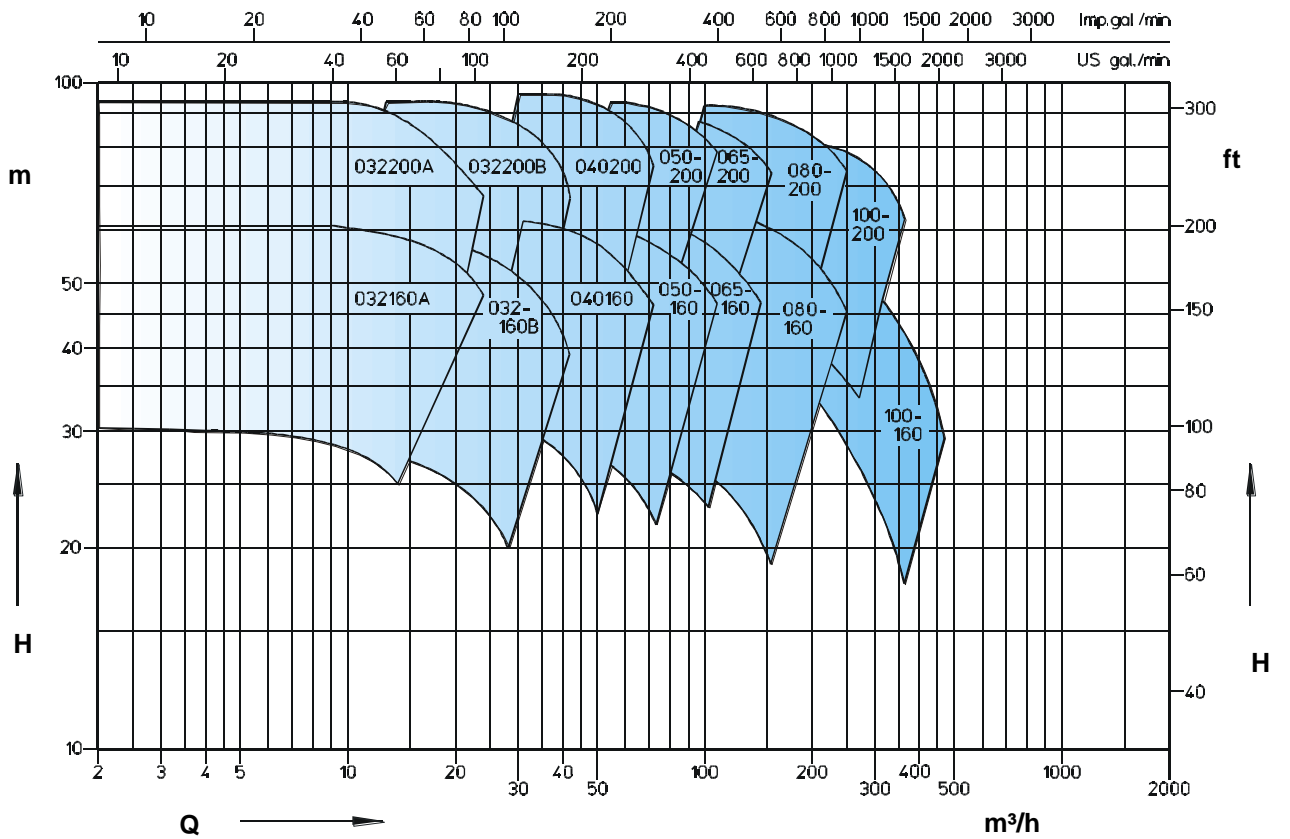
Performance graph

60 Hz

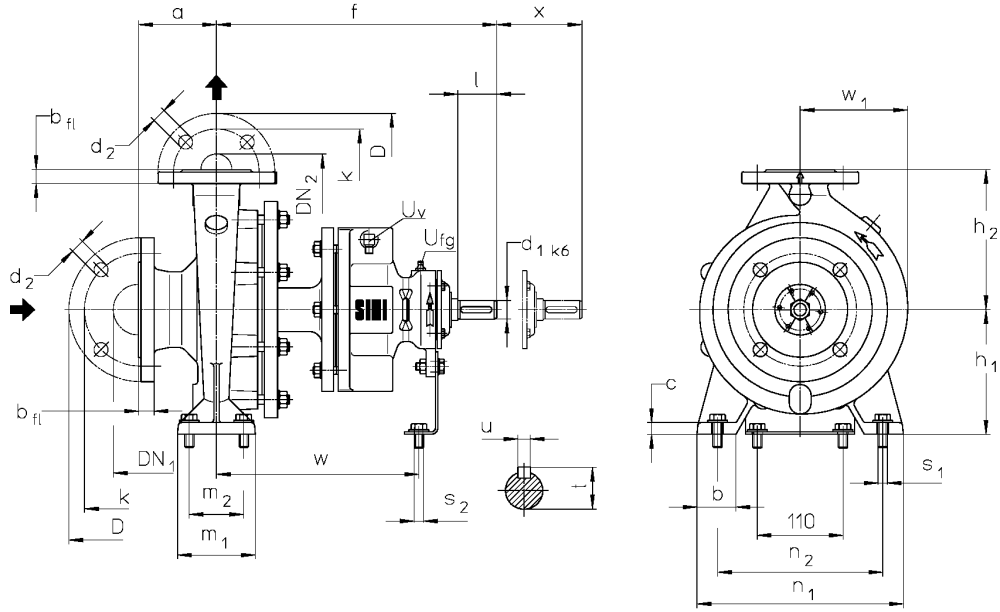
n = 1750 rpm



n = 3500 rpm



Dimension table



u_v = vent connection (G1/8)

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

Dimensions in mm

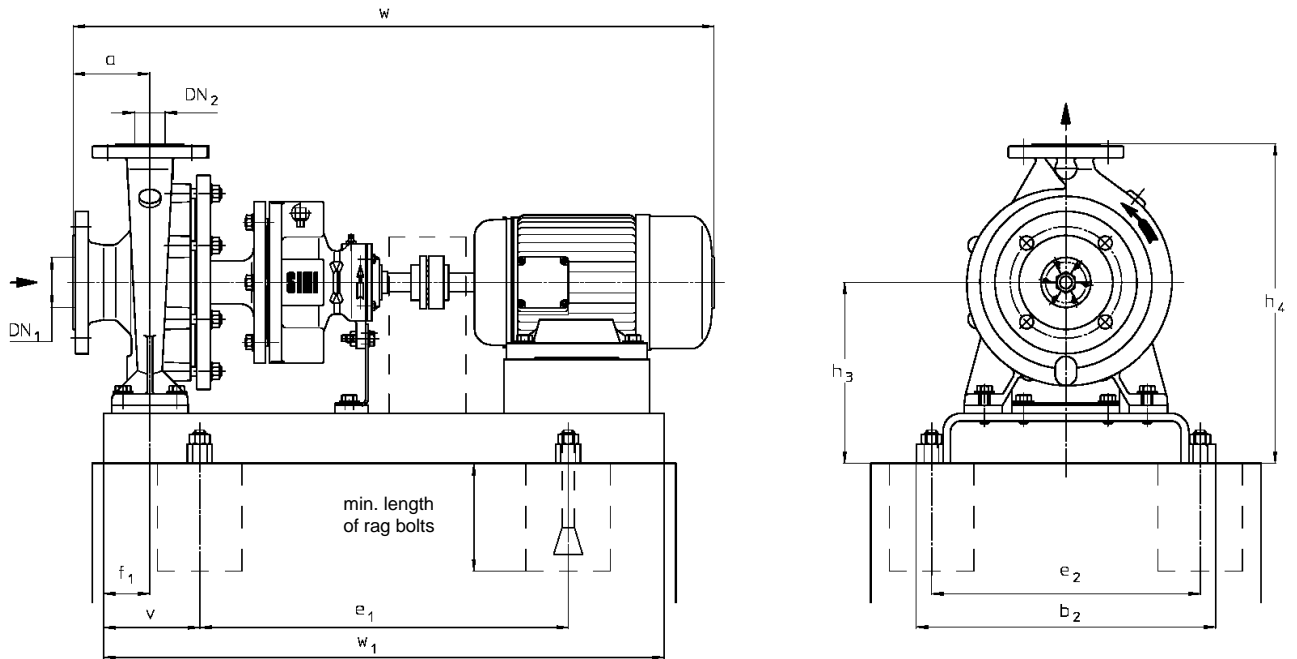
size	DN ₂	DN ₁	a	b	c	f	h ₁	h ₂	m ₁	m ₂	n ₁	n ₂	s ₁ *	s ₂ *	w	w ₁	x	d ₁	l	t	u			
032160	32	50	80	50	15	360	132	160	100	70	240	190	M12	M12	267	120	100	24	50	27	8			
032200			160	180			125	95														320	250	128
032250 ¹⁾			180	225			125	95														320	250	160
040160	40	65	80	50	15	360	132	160	100	70	240	190	M12	M12	267	128	100	24	50	27	8			
040200			160	180			125	95														320	250	140
040250			180	225			125	95														320	250	164
050160	50	100	50	50	15	360	160	180	100	70	265	212	M12	M12	267	130	100	24	50	27	8			
050200			180	225			125	95														320	250	150
050250			180	225			125	95														320	250	169
065160	65	80	65	65	15	360	160	200	125	95	280	212	M12	M12	267	147	100	24	50	27	8			
065200			180	225			125	95														320	250	166
065250			180	225			125	95														320	250	166
080160	80	100	65	65	15	360	180	225	125	95	320	250	M12	M12	267	165	100	24	50	27	8			
080200			250	125		95	345	280														180		
080250			250	125		95	400	315														200		
100160 ¹⁾	100	125	80	80	18	470	200	280	160	120	360	280	M16	M16	340	202	100	32	80	35	10			
100200			225	160			120	400														315	212	120
100250			225	160			120	400														315	242	140
125200 ¹⁾	125	150	140	140	18	470	250	315	160	120	400	315	M16	M16	340	236	100	32	80	35	10			
125250			250	355			160	120														400	315	236
150200 ¹⁾	150	200	160	100	20	470	280	400	200	150	550	450	M20	M20	274	190	100	32	80	35	10			
150250 ¹⁾			280	400			200	150			500	400										274	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									
DN ₂ /DN ₁	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
b _{fl}	18	19	19	19	19	19	19	19	20
Tolerances	+4,0 -3,0								
d ₂ x number	19x4	19x4	19x4	19x4	19x8	19x8	19x8	23x8	23x12

Foundation plan



Dimensions in mm

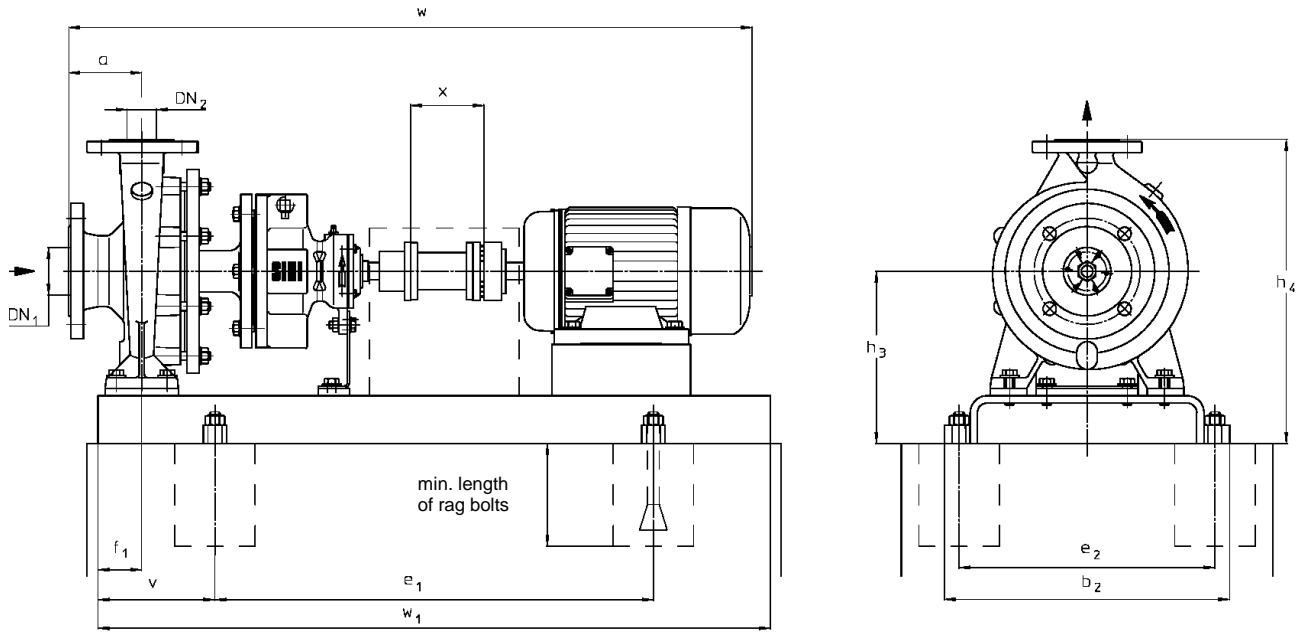
ZHND Size	Motor		Base-plate No.	Coupling	Weight (kg)		DN ₂	DN ₁	a	b ₂	e ₁	e ₂	v	f ₁	h ₃	h ₄	w*	w ₁	Rag bolt size		
	Speed 1450 2900 kW	Size			Pump	Unit															
032160	0,37	-	71	S270	B68	50	78	32	50	80	360	420	320	115	60	197	357	682	650	M16x200	
	0,55	1,10	80															81			716
	-	1,50	90S															89			774
	-	2,20	90L	S301	B80	91	101	390	480	350	125	730	774								
	-	3,00	100L										815								
	-	4,00	112M	102	836																
	-	5,50	132S	S342	B95	139	139	450	540	400	140	820	912	820	M20x400						
-	7,50	132S	912																		
032200	0,55	-	80	S270	B68	55	86	32	50	80	360	420	320	115	60	225	405	716	650	M16x200	
	0,75	-	80															86			716
	1,10	1,50	90S	S301	B80	96	106	390	480	350	125	730	774								
	1,50	2,20	90L										774								
	-	3,00	100L	107	836																
	-	4,00	112M	S342	B95	144	144	450	540	400	140	820	912	820	M20x400						
	-	5,50	132S										1030								
	-	7,50	132S	163	1030																
	-	11,00	160M	S383	B95	163	163	490	600	440	160	920	1030								
	-	15,00	160M										1150								
-	18,50	160L	S344	B95	191	191	450	660	400	180	1020	1150	1020	M20x400							
032250	0,75	-	80	S383	B68	56	107	40	65	100	490	600	440	160	75	260	485	736	920	M20x400	
	1,10	-	90S															110			794
	1,50	-	90L															112			794
	2,20	-	100L	B80	123	152	171	490	600	440	160	920	835								
	-	7,50	132S										932								
	-	11,00	160M	B95	171	171	1050	490	600	440	160	920	1050								
	-	15,00	160M										1050								
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	80															75			716
	1,10	1,50	90S	S301	B80	83	85	390	480	350	125	730	774								
	-	2,20	90L										774								
	-	3,00	100L	95	836																
	-	4,00	112M	S342	B95	97	133	450	540	400	140	820	912	820	M20x400						
	-	5,50	132S										912								
-	7,50	132S	143	1030																	
-	11,00	160M	S383	B95	164	164	490	600	440	160	920	1030									
-	15,00	160M										1030									
040200	0,55	-	80	S301	B68	46	81	40	65	100	390	480	350	125	60	225	405	736	730	M16x200	
	0,75	-	80															81			736
	1,10	-	90S															84			794
	1,50	-	90L	B80	86	97	98	390	480	350	125	730	794								
	-	3,00	100L										835								
	-	4,00	112M	S342	B95	98	135	450	540	400	140	820	856								
	-	5,50	132S										932								
	-	7,50	132S	135	1030																
	-	11,00	160M	S383	B95	161	161	490	600	440	160	920	1050								
	-	15,00	160M										1050								

ZHND Size	Motor			Base-plate No.	Coupling	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 size									
	Speed 1450 2900 kW	Size	Pump			Unit																							
040250	1,10	-	90S	S383	B68	58	40				490	600	440	160	75	260	485	794	920	M20x400									
	1,50	-	90L															794											
	2,20	-	100L		835																								
	3,00	-	100L		835																								
	-	7,50	132S		932																								
	-	11,00	160M		1050																								
	-	15,00	160M		1050																								
-	18,50	160L	S434	B95	173	173	217	540	660	490	170	1112	1000																
0,55	-	80	S301		B68	48	65				390	480	350	125	60	225	405	736	730	M16x200									
0,75	-	80		736																									
1,10	-	90S		794																									
-	2,20	90L		794																									
-	3,00	100L		835																									
-	4,00	112M		856																									
-	5,50	132S		S342	B95													137			137	137	450	540	400	140	932	820	M20x400
-	7,50	132S	S383	163		163	163	490	600	440	160	160	1050	920															
0,75	-	80	S301	B68	46	50				390	480	350	125	60	225	425	736	730	M16x200										
1,10	-	90S															794												
1,50	-	90L		794																									
2,20	3,00	100L		835																									
-	4,00	112M		856																									
-	5,50	132S		S342													B95			135	135	135	450	540	400	140	932	820	M20x400
-	7,50	132S		S383																161	161	161	490	600	440	160	160	1050	
-	11,00	160M	S344	161	161	166	450	660	400	180	180	1112	1020																
1,50	-	90L	S383	B68	58	100				490	600	440	160	75	260	485	794	920	M20x400										
2,20	-	100L															835												
3,00	-	100L		835																									
4,00	-	112M		856																									
-	11,00	160M		1050																									
-	15,00	160M		1050																									
-	18,50	160L		S434													B110			217	217	230	540	660	490	170	1174	1000	
-	22,00	180M	S435	B125	297	297	297	740	740	490	200	1112	1140																
-	30,00	200L			297	297	297																						
0,75	-	80	S342	B68	54	65				450	540	400	140	60	240	440	736	820	M20x400										
1,10	-	90S															794												
1,50	-	90L		794																									
2,20	-	100L		835																									
-	5,50	132S		932																									
-	7,50	132S		932																									
-	11,00	160M		1050																									
-	15,00	160M	1050																										
1,10	-	90S	S383	B68	63	80				490	600	440	160	75	260	485	794	920	M20x400										
1,50	-	90L															794												
2,20	-	100L		835																									
3,00	-	100L		835																									
4,00	-	112M		856																									
-	11,00	160M		1050																									
-	15,00	160M		1050																									
-	18,50	160L	S434	B110	222	222	235	1112	1112	170	200	1174	1000																
-	22,00	180M	S435		B125	302	302	302	740	740	200	200	1174	1140															
-	30,00	200L			302	302	302																						
2,20	-	100L	S434	B80	90	90				540	660	490	170	90	280	530	945	1000	M24x400										
3,00	-	100L															945												
4,00	-	112M		966																									
5,50	-	132S		1042																									
-	18,50	160L		S435													B95			256	256	269	740	740	170	200	1222	1140	
-	22,00	180M		S436																B110	269	269	269	840	840	215	215	1284	1270
-	30,00	200L		S436													B125			336	336	336					1342	1342	
-	37,00	200L	S486	413	413	413	610			550	205	1342	1250																
-	45,00	225M			413	413	413																						
0,75	-	80	S383	B68	55	80				490	600	440	160	75	260	485	761	920	M20x400										
1,10	-	90S															819												
1,50	-	90L		819																									
2,20	-	100L		860																									
3,00	-	100L		860																									
-	7,50	132S		957																									
-	11,00	160M		1075																									
-	15,00	160M	1075																										
-	18,50	160L	S434	B110	214	214	227	540	660	490	170	1137	1000																
-	22,00	180M	S383		B80	227	227	227					1199	1199															
1,50	-	90L	S383	B80	91	91				490	600	440	160	75	260	510	929	920	M20x400										
2,20	-	100L															970												
3,00	-	100L		970																									
4,00	-	112M		991																									
5,50	-	132S		S434													B95			203	203	222	540	660	490	170	1067	1000	
-	15,00	160M		S435																B110	222	222	222	740	740	200	200	1185	1140
-	18,50	160L		S435													B125			257	257	270					1247	1247	
-	22,00	180M	S436	337	337	337	840			215	215	1309	1140																
-	30,00	200L			337	337	337					1367	1270																
-	37,00	200L			337	337	337					1367	1270																

ZHND Size	Motor Speed			Base-plate No.	Coupling	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 size	
	1450	1900	2900			Pump	Unit														
080250	3,00	-	100L	S486	B80	97	205	80	100	610	840	550	205	300	580	970	1250	M24x400			
	4,00	-	112M																206		
	5,50	-	132S		235																
	7,50	-	132M		238																
	-	22,00	180M	B110	295																
	-	30,00	200L		355																
	-	37,00	200L	B125	355																
	-	45,00	225M		420																
-	55,00	250M	S607	B140	642																
100160	2,20	-	100L	S434	B80	94	177	100	125	540	660	490	170	280	560	970	1000	M20x400			
	3,00	-	100L																177		
	4,00	-	112M		178																
	5,50	-	132S		206																
	-	18,50	160L	S435	260																
	-	22,00	180M		273																
	-	30,00	200L	S436	340																
	-	37,00	200L		B125														340		
100200	2,20	-	100L	S434	B80	92	175	100	125	540	660	490	170	280	560	970	1000	M20x400			
	3,00	-	100L																175		
	4,00	-	112M		176																
	5,50	-	132S		204																
	7,50	-	132M	S435	207																
	-	18,50	160L		258																
	-	22,00	180M	S436	271																
	-	30,00	200L		B110														338		
-	37,00	200L	S486	338																	
-	45,00	225M		B125	415																
100250	4,00	-	112M	S486	B80	103	212	100	140	610	840	550	205	325	605	1108	1250	M24x400			
	5,50	-	132S																241		
	7,50	-	132M		244																
	11,00	-	160M		259																
	-	30,00	200L	B125	361																
	-	37,00	200L		361																
	-	45,00	225M	S607	426																
	-	55,00	250M		B140														648		
-	75,00	280S	S609A	B160	917																
125200	7,50	-	132M	S486	B95	117	258	125	150	140	610	840	550	205	350	665	1108	1250	M24x400		
	11,00	-	160M																	274	
	15,00	-	160L	B110	303																
	-	55,00	250M		662																
	-	75,00	280S	S607	B140															931	
125250	7,50	-	132M	S486	B95	124	265	125	150	140	610	840	550	205	350	705	1108	1250	M24x400		
	11,00	-	160M																	281	
	15,00	-	160L																	B110	310
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
	15,00	-	160L		B110																332
	18,50	-	180M																		344
150250	15,00	-	160L	S606	B125	147	351	150	200	160	730	840	205	110	380	780	1282	1120	M24x400		
	18,50	-	180M																	353	
	22,00	-	180L																	390	
	30,00	-	200L																	434	

* 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 for units with spacer coupling



Dimensions in mm

ZHND Size	Motor Speed		Size	Base plate No.	Coupling	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						
	1450 KW	2900 KW																								
032160	0,37	-	71	S301	H80	50	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						872		
	-	3,00	100L	S303	H95	104				390	600	350	160		1010	920		1010								
	-	4,00	112M			105									1010											
	-	5,50	132S			107									814			820								
	-	7,50	132S			107									814											
032200	0,55	-	80	S272	H80	55	32	50	80	360	540	320	140	60	225	405	100	814	820	M20x400						
	0,75	-	80															94			390	600	350	160	814	
	1,10	1,50	90S															97							872	
	1,50	2,20	90L															99							872	
	-	3,00	100L	S303	H95				109	450	660	400	180	1010	920	1010										
	-	4,00	112M						110					1128												
	-	5,50	132S						143					1128		1020										
	-	7,50	132S						143					1190												
	-	11,00	160M	S344	H95				174	540	660	490	170	1128	1020	1148										
	-	15,00	160M						174					1190												
-	18,50	160L	S385		219	740			200	1190	1140															
032250	0,75	-	80	S383	H80	56	40	65	100	490	600	440	160	75	260	485	100	834	920	M20x400						
	1,10	-	90S															112			540	660	490	170	892	
	1,50	-	90L															114							892	
	2,20	-	100L															124							933	
	-	7,50	132S	S434	H95				153	540	660	490	170		1030	1000		1148								
	-	11,00	160M						188						1148											
	-	15,00	160M						188						1148											
040160	0,37	-	71	S301	H80	44	40	65	80	390	480	350	125	60	197	357	100	780	730	M16x200						
	0,55	-	80	S272														83	360		540	320	140	814		
	0,75	1,10	90S																						80	814
	1,10	1,50	90L																						86	872
	-	2,20	90L	S303	H95				88	390	600	350	160		1010	920		1010								
	-	3,00	100L						98						1010											
	-	4,00	112M						99						1128											
	-	5,50	132S						132						1128											
-	7,50	132S	S344	H95	132	660	490	180	180	1128	1020	1128														
-	11,00	160M			167					1128																
040200	0,55	-	80	S342	H80	46	40	65	100	450	540	400	140	60	240	420	100	834	820	M20x400						
	0,75	-	80															92			834					
	1,10	-	90S																			95	834			
	1,50	-	90L																			97	892			
	-	3,00	100L	S303	H95				107	390	600	350	160		1030	920		1030								
	-	4,00	112M						108						1030											
	-	5,50	132S						134						1148											
	-	7,50	132S						134						1148											
	-	11,00	160M	S344	H95				163	450	660	400	180		1148	1020		1148								
	-	15,00	160M						163						1148											

ZHND Size	Motor			Base plate No.	Coupling	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 size	
	Speed 1450 2900 KW	Size	Pump			unit																
040250	1,10	-	90S	S383	H80	58	40	40			490	600	440	160	75	260	485		892	920	M20x400	
	1,50	-	90L																114			892
	2,20	-	100L																116			892
	3,00	-	100L	126	933																	
	-	7,50	132S	126	933																	
	-	11,00	160M	155	1030																	
	-	15,00	160M	190	1148																	
-	18,50	160L	220	1148																		
-			220	1210																		
-				1140																		
050160	0,55	-	80	S342	H80	48	48	65			450	540	400	140		240	420		834	820	M16x200	
	0,75	-	80																94			834
	1,10	-	90S																94			892
	-	2,20	90L	97	892																	
	-	3,00	100L	99	933																	
	-	4,00	112M	109	954																	
	-	5,50	132S	110	1030																	
-	7,50	132S	136	1030																		
-	11,00	160M	136	1148																		
-			165	1020																		
-			165	1148																		
-			165	1020																		
050200	0,75	-	80	S342	H80	46	46	50			450	540	400	140	60	240	440		834	820	M20x400	
	1,10	-	90S																92			892
	1,50	-	90L																95			892
	2,20	3,00	100L	97	933																	
	-	4,00	112M	107	954																	
	-	5,50	132S	108	1030																	
	-	7,50	132S	134	1030																	
-	11,00	160M	134	1148																		
-	15,00	160M	163	1020																		
-	18,50	160L	163	1148																		
-			198	1210																		
-			198	1140																		
050250	1,50	-	90L	S383	H80	58	58	100			490	600	440	160	75	260	485		892	920	M16x200	
	2,20	-	100L																116			933
	3,00	-	100L																126			933
	4,00	-	112M	127	954																	
	-	11,00	160M	190	1148																	
	-	15,00	160M	190	1148																	
	-	18,50	160L	220	1210																	
-	22,00	180M	239	1272																		
-	30,00	200L	300	1330																		
065160	0,75	-	80	S342	H80	54	54	80			450	540	400	140	60	240	440		834	820	M20x400	
	1,10	-	90S																100			892
	1,50	-	90L																103			892
	2,20	-	100L	105	933																	
	-	5,50	132S	115	1030																	
	-	7,50	132S	151	1030																	
	-	11,00	160M	151	1148																	
-	15,00	160M	171	1148																		
-			171	1148																		
065200	1,10	-	90S	S383	H80	63	63	65	80		490	600	440	160	75	260	485		932	920	M20x400	
	1,50	-	90L																119			932
	2,20	-	100L																121			973
	3,00	-	100L	131	973																	
	4,00	-	112M	131	994																	
	-	11,00	160M	132	1188																	
	-	15,00	160M	197	1188																	
-	18,50	160L	197	1250																		
-	22,00	180M	225	1312																		
-	30,00	200L	244	1370																		
-			312	1270																		
065250	2,20	-	100L	S434	H80	90	90				540	660	490	170	90	280	530		1083	1000	M24x400	
	3,00	-	100L																174			1083
	4,00	-	112M																174			1104
	5,50	-	132S	175	1180																	
	-	18,50	160L	210	1360																	
	-	22,00	180M	264	1422																	
	-	30,00	200L	278	1480																	
-	37,00	200L	374	1480																		
-	45,00	225M	374	1510																		
-			457	1400																		
080160	0,75	-	80	S383	H80	55	55	80	100	125	490	600	440	160		260	485		899	920	M20x400	
	1,10	-	90S																108			957
	1,50	-	90L																111			957
	2,20	-	100L	113	998																	
	3,00	-	100L	123	998																	
	-	7,50	132S	123	1095																	
	-	11,00	160M	168	1213																	
-	15,00	160M	189	1213																		
-	18,50	160L	189	1275																		
-	22,00	180M	217	1337																		
-			236	1067																		
080200	1,50	-	90L	S434	H80	91	91				540	660	490	170	75	260	510		1108	1000	M20x400	
	2,20	-	100L																165			1108
	3,00	-	100L																175			1108
	4,00	-	112M	175	1129																	
	5,50	-	132S	176	1205																	
	-	15,00	160M	211	1323																	
	-	18,50	160L	230	1385																	
-	22,00	180M	264	1447																		
-	30,00	200L	278	1505																		
-	37,00	200L	374	1505																		

ZHND Size	Motor Speed		Size	Base plate No.	Coupling	Weight (kg) Pump	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																									
	1450 KW	2900 KW																																											
080250	3,00	-	100L	S486	H80	97	80	100		610	840	550	205		300	580		1108	1250	M24x400																									
	4,00	-	112M		H95													207			208	236	239	297	1231	1447	1505	1505	1420																
	5,50	-	132S		H110													297			381	381	467	664	1535	1505	1400	1600																	
	7,50	-	132M		H125													240			240	230	270	1665	1600	1600	1600	1600																	
	-	22,00	180M	S487	H140													94			100	125		540	660	490	170		280	560		1108	1000	M20x400											
	-	30,00	200L																													H80			178	178	179	214	268	1108	1108	1129	1205	1140	
	-	37,00	200L																													H95			214	268	282	378	378	1385	1447	1505	1420	1600	
	-	45,00	225M																													H110			282	378	378	459	610	940	550	240	300	580	1108
-	55,00	250M	S608	H125	215	215	266	280	1205	1231	1385	1447	1505	1420	1600	1600																													
-	55,00	250M	S608	H125	266	280	376	376	1447	1505	1420	1600	1600	1600	1600	1600																													
-	55,00	250M	S608	H125	376	376	459	610	940	550	240	300	580	1108	1000	M20x400																													
-	55,00	250M	S608	H125	459	610	940	550	240	300	580	1108	1000	M20x400																															
100160	2,20	-	100L	S434	H80	92	100	125		540	660	490	170		280	560		1108	1000	M20x400																									
	3,00	-	100L															H95			176	176	177	212	266	1108	1129	1205	1140																
	4,00	-	112M															H110			212	215	266	280	376	1231	1385	1447	1505	1420															
	5,50	-	132S															H125			266	280	376	459	610	940	550	240	300	580	1108	1000	M20x400												
	-	18,50	160L	S436	H110													92			100	125		540	740	490	200		280	560		1108	1000	M20x400											
	-	22,00	180M																													H80			176	176	177	212	266	1108	1129	1205	1140		
	-	30,00	200L																													H95			212	215	266	280	376	1231	1385	1447	1505	1420	
	-	37,00	200L																													H110			266	280	376	459	610	940	550	240	300	580	1108
-	45,00	225M	S607	H125	215	215	266	280	1231	1385	1447	1505	1420																																
-	45,00	225M	S607	H125	266	280	376	459	1385	1447	1505	1420	1600																																
-	45,00	225M	S607	H125	376	376	459	610	940	550	240	300	580	1108	1000	M20x400																													
-	45,00	225M	S607	H125	459	610	940	550	240	300	580	1108	1000	M20x400																															
100200	2,20	-	100L	S434	H80	92	100	125		540	660	490	170		280	560		1108	1000	M20x400																									
	3,00	-	100L															H95			176	176	177	212	266	1108	1129	1205	1140																
	4,00	-	112M															H110			212	215	266	280	376	1231	1385	1447	1505	1420															
	5,50	-	132S															H125			266	280	376	459	610	940	550	240	300	580	1108	1000	M20x400												
	7,50	-	132M	S436	H110													92			100	125		540	740	490	200		280	560		1108	1000	M20x400											
	-	18,50	160L																													H80			176	176	177	212	266	1108	1129	1205	1140		
	-	22,00	180M																													H95			212	215	266	280	376	1231	1385	1447	1505	1420	
	-	30,00	200L																													H110			266	280	376	459	610	940	550	240	300	580	1108
-	37,00	200L	S487	H125	215	215	266	280	1231	1385	1447	1505	1420																																
-	37,00	200L	S487	H125	266	280	376	459	1385	1447	1505	1420	1600																																
-	45,00	225M	S607	H125	376	376	459	610	940	550	240	300	580	1108	1000	M20x400																													
-	45,00	225M	S607	H125	459	610	940	550	240	300	580	1108	1000	M20x400																															
100250	4,00	-	112M	S486	H80	103	100	125		610	840	550	205		325	605		1144	1250	M24x400																									
	5,50	-	132S															H95			214	242	245	261	387	1220	1246	1338	1520	1520	1420														
	7,50	-	132M															H125			245	261	387	470	670	1338	1338	1520	1520	1400															
	11,00	-	160M															H140			387	470	670	923	744	1200	696	300	380	660	1780	1800													
	-	30,00	200L	S487	H125													103			100	125		610	840	550	205		325	605		1144	1250	M24x400											
	-	37,00	200L																													H80			214	242	245	261	387	1220	1246	1338	1520	1520	1420
	-	45,00	225M																													H95			245	261	387	470	670	1338	1338	1520	1520	1400	
	-	55,00	250M																													H110			387	470	670	923	744	1200	696	300	380	660	1780
-	55,00	250M	S608	H140	470	670	923	744	1200	696	300	380	660	1780	1800																														
-	55,00	250M	S608	H140	670	923	923	744	1200	696	300	380	660	1780	1800																														
-	75,00	280S	S609A	H160	923	923	923	744	1200	696	300	380	660	1780	1800																														
-	75,00	280S	S609A	H160	923	923	923	744	1200	696	300	380	660	1780	1800																														
125200	7,50	-	132M	S486	H95	117	125	150		610	840	550	205		350	665		1246	1250	M24x400																									
	11,00	-	160M															H110			259	275	305	684	937	1246	1338	1400	1680	1600															
	15,00	-	160L															H140			275	305	684	937	937	1338	1400	1680	1600																
	-	55,00	250M															S608			H160	684	937	937	937	1338	1400	1680	1600																
-	75,00	280S	S609A	H160	937													937			937	937	1338	1400	1680	1600																			
-	75,00	280S	S609A	H160	937													937			937	937	1338	1400	1680	1600																			
-	75,00	280S	S609A	H160	937													937			937	937	1338	1400	1680	1600																			
-	75,00	280S	S609A	H160	937													937			937	937	1338	1400	1680	1600																			
125250	7,50	-	132M	S486	H95	124	125	150		610	840	550	205		350	705		1246	1250	M24x400																									
	11,00	-	160M															H110			259	275	305	684	937	1246	1338	1400	1680	1600															
	15,00	-	160L															H140			275	305	684	937	937	1338	1400	1680	1600																
	-	55,00	250M															S608			H160	684	937	937	937	1338	1400	1680	1600																
-	75,00	280S	S609A	H160	937													937			937	937	1338	1400	1680	1600																			
-	75,00	280S	S609A	H160	937													937			937	937	1338	1400	1680	1600																			
-	75,00	280S	S609A	H160	937													937			937	937	1338	1400	1680	1600																			
-	75,00	280S	S609A	H160	937													937			937	937	1338	1400	1680	1600																			
150200	7,50	-	132M	S605	H95	128	150	200	160		740		190		380	780		1266	1120	M24x400																									
	11,00	-	160M															H110			287	314	345	357	411	1266	1358	1423	1482	1250															
	15,00	-	160L															H125			314	345	357	411	436	1358	1423	1482	1482	1400															
	18,50	-	180M															H140			345	357	411	436	462	1423	1482	1482	1482	1400															
-	18,50	180M	S606	H110	128													150			200	160		740		190		380	780		1266	1120	M24x400												
-	30,00	200L																													H80			287	314	345	357	411	1266	1358	1423	1482	1250		
-	37,00	200L																													H95			314	345	357	411	436	1358	1423	1482	1482	1400		
-	45,00	225M																													H110			345	357	411	436	462	1423	1482	1482	1482	1400		
-	45,00	225M	S607	H125		411	436	462	564	1482	1482	1482	1482	1400																															
-	45,00	225M	S607	H125		436	462	564	564	1482	1482	1482	1482	1400																															
-	45,00	225M	S607	H125		462	564	564	564	1482	1482	1482	1482	1400																															
-	45,00	225M	S607	H125		564	564	564	564	1482	1482	1482	1482	1400																															

* 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.

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	BJ3	1B	2	
	032160				
	032200				
	032200				
	032250				
	040160				
	040200				
	040250				
	050160				
	050200				
	050250				
	065160				
	065200				
	065250				
	080160				AA
	080200				
	080250				
	100160				
	100200				
	100250				
125200					
125250					
150200					
150250					

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

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