

Volute pumps

for hot water up to 207°C

SIHI *SuperNova*



ZDND 032160 ... 125250

TECHNICAL DATA

Output:	max. 600 m³/h
Delivery head:	max. 90 m
Speed:	max. 3600 rpm
Temperature:	max. 207 °C
Casing pressure:	PN 25
Shaft sealing:	balanced standard mechanical seal, uncooled
Flange connections:	DIN EN 1092-2 PN 40
Sense of rotation:	clockwise, when looking at the Pump from the drive end



APPLICATION

The volute pumps of the series ZDHD 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 is high system pressure, over oil as heat carrier.

DESIGN

Horizontal, single-stage volute casing pumps with the dimensions and nominal ratings to **DIN EN 22858** in back pull out design, with uncooled balanced mechanical seal.

The series **ZDND** has especially been designed for the trouble free handling of hot water up to 207 °C and is distinguished by:

- A double heat barrier that causes an optimal energy consumption by the pump and reduces the temperature level in the mechanical seal chamber to less than 90 °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 side 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 25 bar from 0 °C up to 207 °C

Please note:

Technical rules and safety regulations.

Casing pressure = inlet pressure + zero head

max. test pressure = 33 bar

Flanges location:

Axial suction flange, discharge flange radially upwards.

Flanges:

The flanges comply with DIN EN 1092-2 resp. PN 40.

Flange design to ANSI 300 is possible.

Hydraulics:

Designation of this construction type: A

Bearing:

One grease lubricated antifriction ball 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 AF3: Balanced standard mechanical 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 15.20 16.10 33.00	Volute casing Intermediate flange 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	Shaft 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 the 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 max. speeds are to be observed:

Max. speed rpm	Size		Max. speed rpm	Size		Max. speed rpm	Size	
3600	032160	032200	3000	032250		1800	040315	
	040160	040200		040250			050315	
	050160	050200		050250				
	065160	065200		065250				
	080160	080200		080250				
	100160	100200		100250				
				125200			125250	

The max. speeds results from the admissible peripheral speed of impellers or from the shaft load admissible at higher temperatures, respectively.

Bearing bracket / pump size:

Bracket 25	032160 032200 040160 040200 050160 050200
Bracket 35	032250 040250 040315 050250 050315 065160 065200 065250 080160 080200 080250 100160 100200
Bracket 45	100250 125200 125250

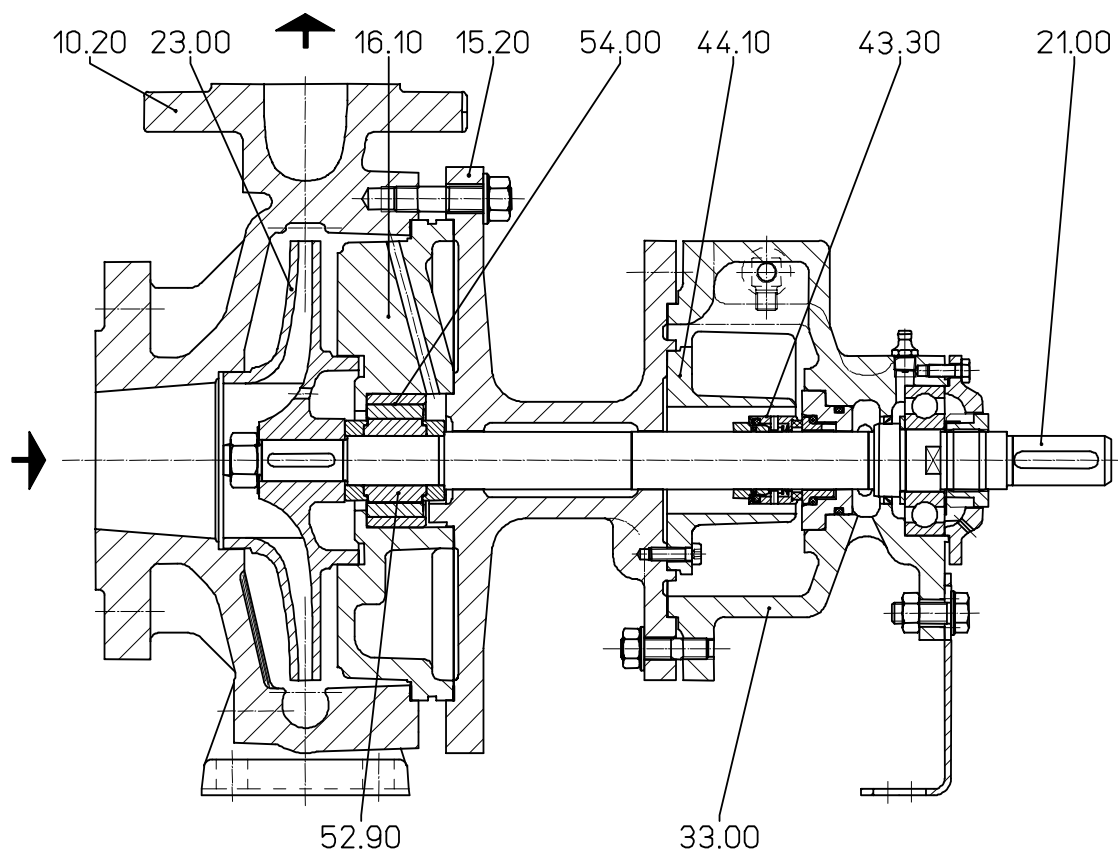
General remarks:

For equipping hot media systems a complete programme is available for a flow range between 1-1000 m³/h consisting of the range:

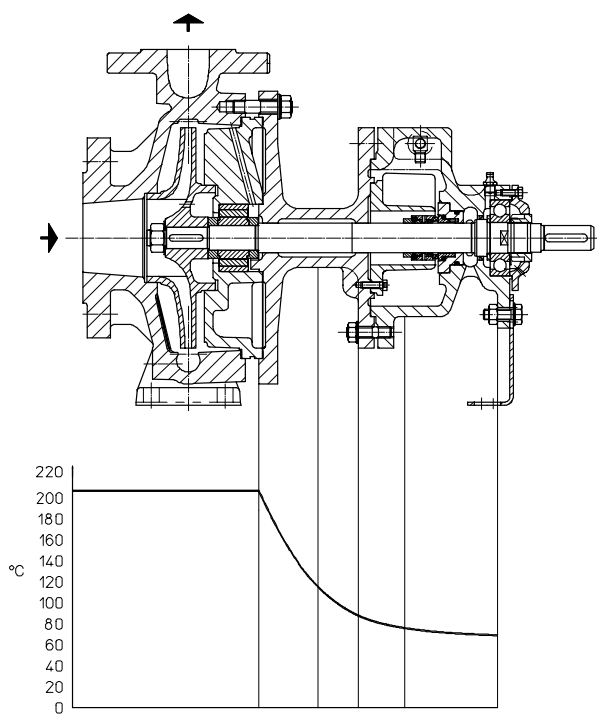
ZTN	volute pumps to EN 733 design with base plate, t _{max} 350 °C PN 16. Heat transfer oil.
ZTK	volute pumps to EN 733 close coupled design, t _{max} 350 °C PN 16. Heat transfer oil.
ZTI	volute pumps to EN 733 as INLINE construction, t _{max} 350 °C PN 16. Heat transfer oil.
ZEN	volute pumps to DIN EN 22858, t _{max} 230 °C PN 40. Hot water design.
ZHN	volute pumps to EN 733, t _{max} 180 °C PN 16. Hot water design.
ZLI	volute pumps to EN 733 as INLINE construction, t _{max} 150 °C PN 25. Hot water design.

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

Sectional drawing and nomenclature



- | | | |
|---------------------------|-----------------------|----------------------------------|
| 10.20 volute casing | 23.00 impeller | 44.10 casing for mechanical seal |
| 15.20 intermediate flange | 33.00 bearing bracket | 52.90, 54.00 sleeve bearing |
| 16.10 casing cover | 43.30 shaft seal | |
| 21.00 shaft | | |



Curve of temperature decrease

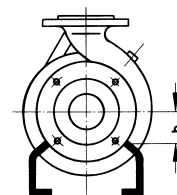
Heat barrier / shaft seal / bearing / feet arrangement

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 ZDND 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 double acting heat barrier between the casing cover and the shaft seal housing. See illustration.

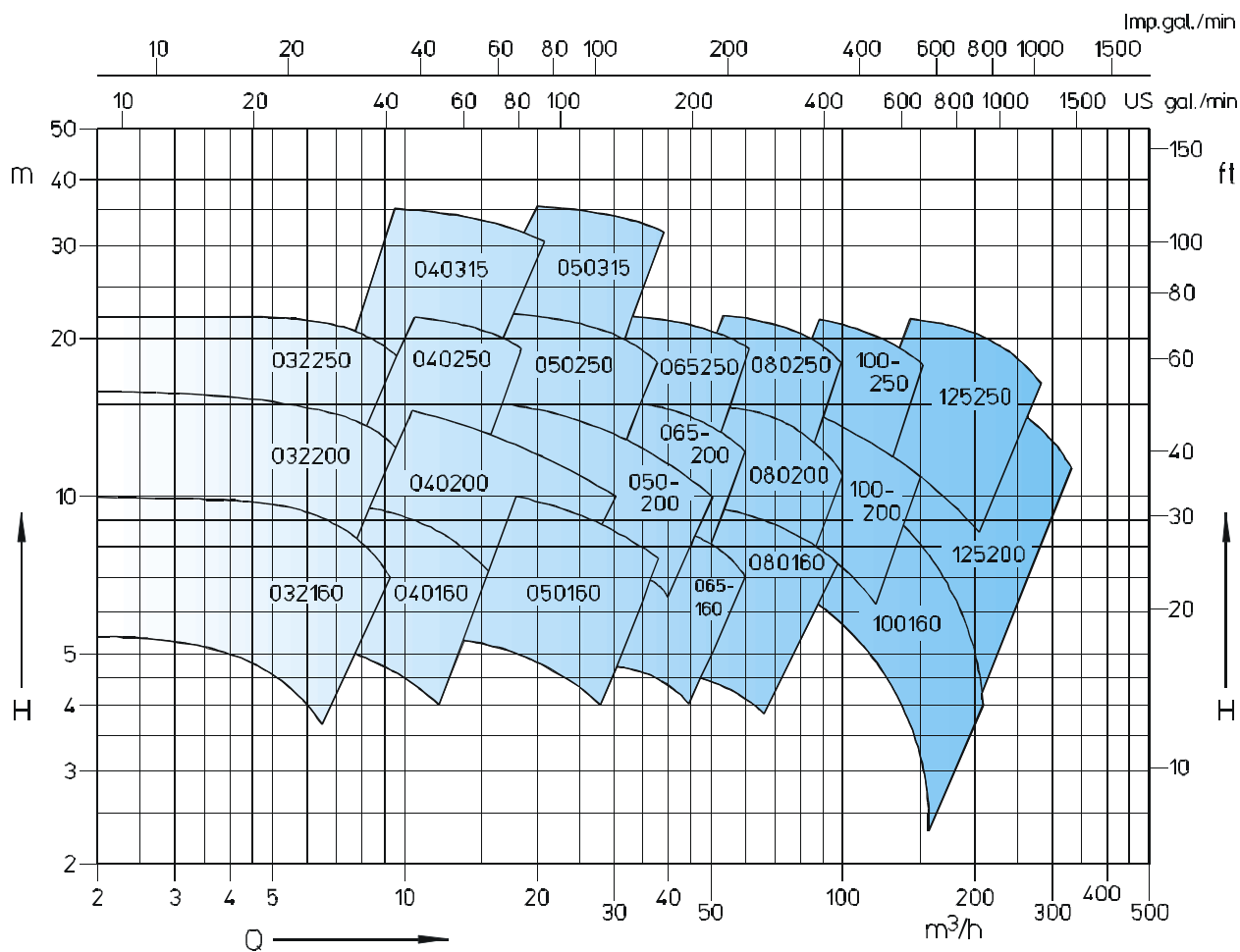
Product-side heat losses are effectively prevented (energy saving). The temperature reduction makes it possible to use safely an **uncooled** mechanical seal up to a pumping medium temperature of **207 °C**.

By special constructional shaping of the pump feed, displacements caused by thermal expansion are prevented to a great extent. For the vertical displacement only the measure h is decisive, since the rest of the foot remains cold. The horizontal expansion is taken up by the elastic foot bracings.

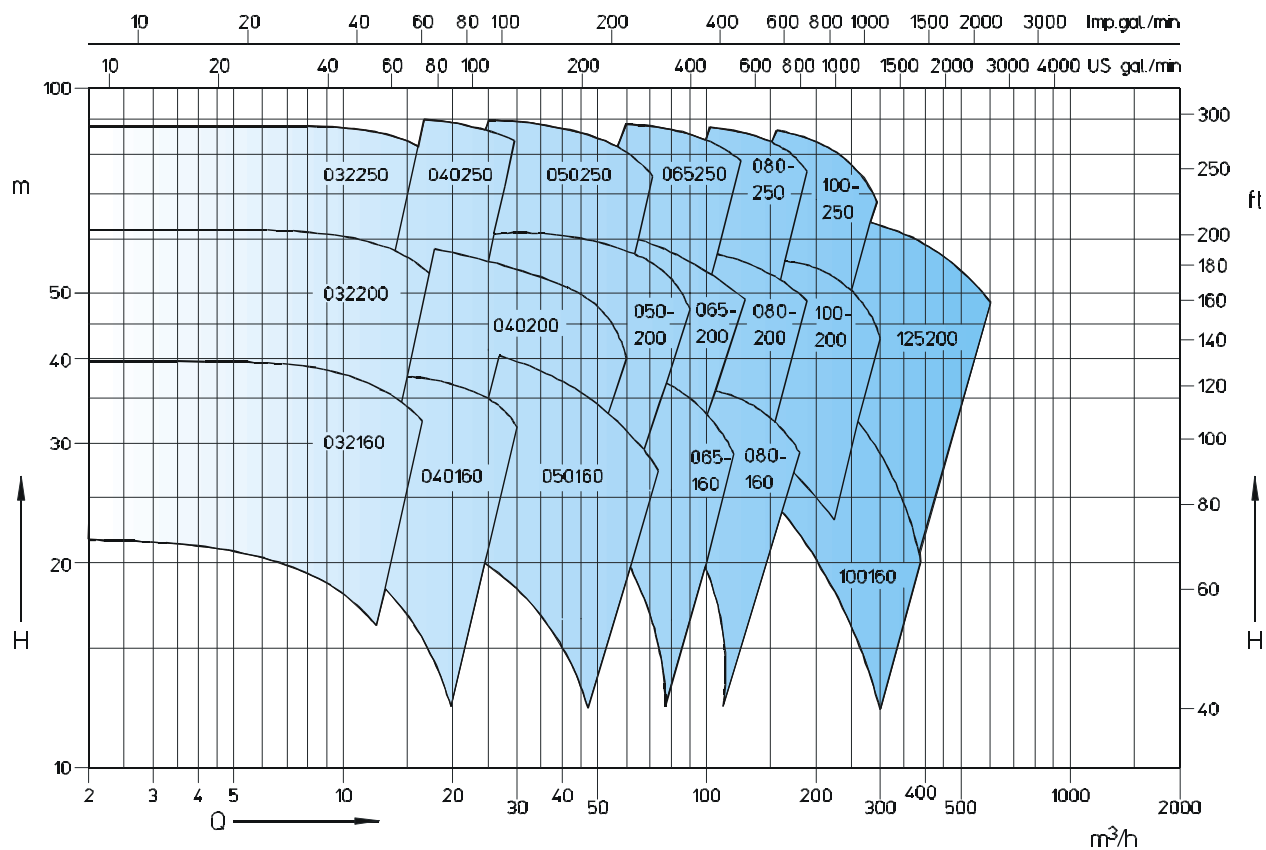


Performance graph

50 Hz
n = 1450 rpm

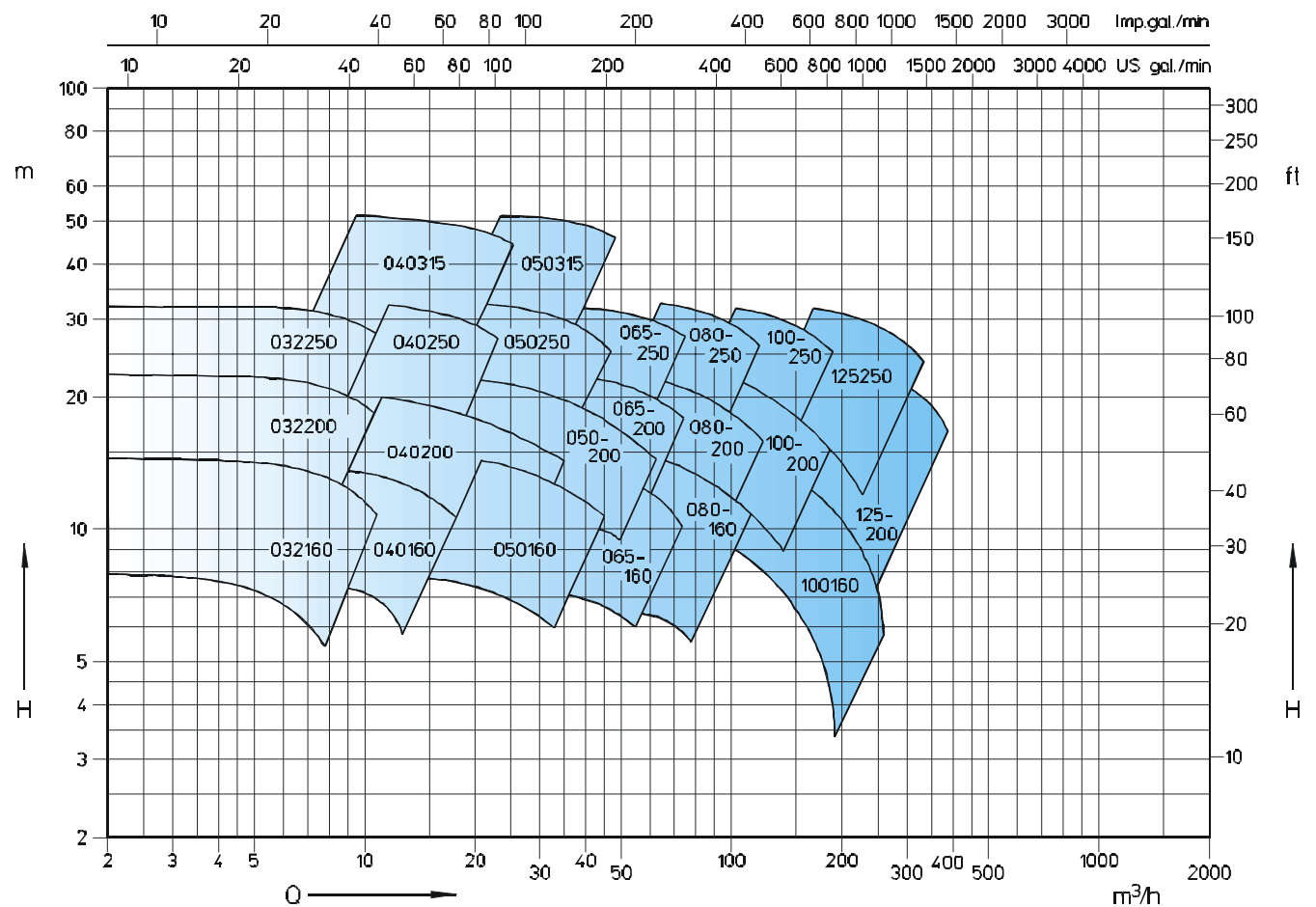


n = 2900 rpm

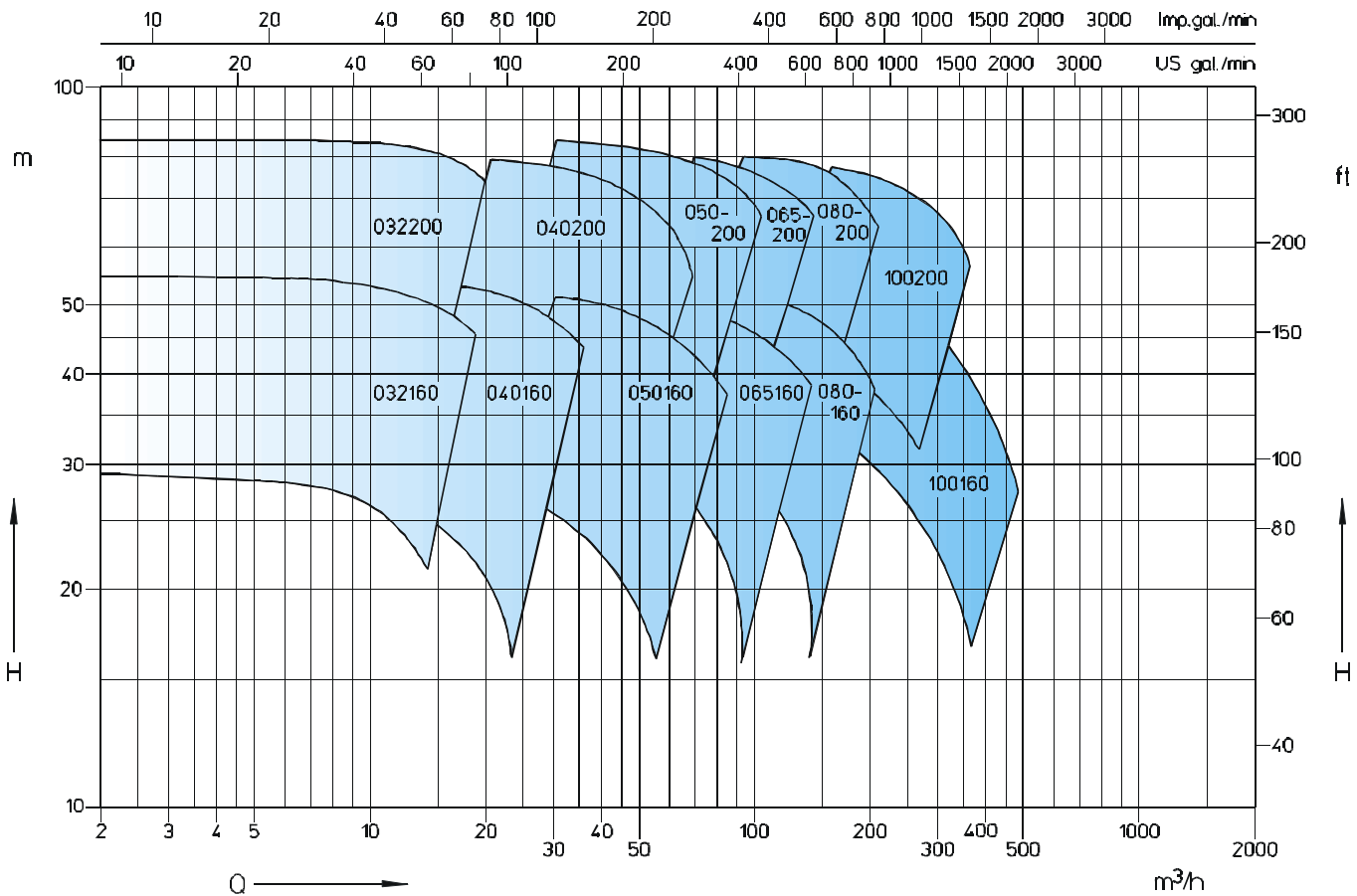


Performance graph

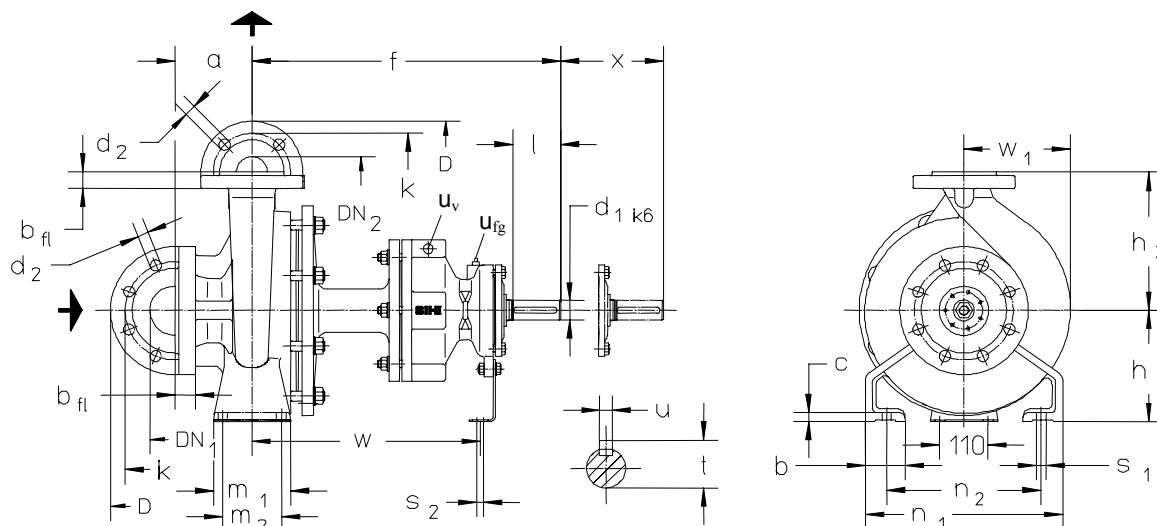
60 Hz
n = 1750 rpm



n = 3500 rpm



Dimension table



u_v = vent connection (G1/8)

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

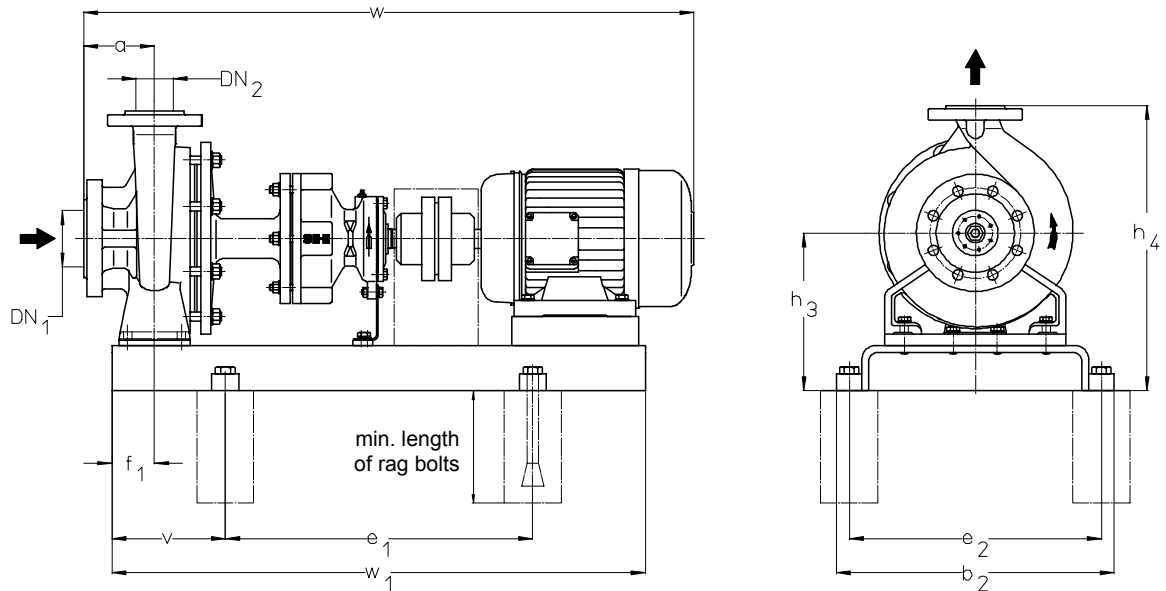
size	DN ₂	DN ₁	a	b	c	f	h ₁	h ₂	m ₁	m ₂	n ₁	n ₂	s ₁ *	s ₂	w	w ₁	x	d ₁	l	t	u
032160	32	50	80	50	17	385	132	160	100	70	240	190	M12	M12	285	120	100	24	50	27	8
032200							160	180								140					
032250			100	65		500	180	225								370					
040160	40	65	80	50	17	385	132	160	100	70	240	190	M12	M12	285	125	100	24	50	27	8
040200			100				160	180								150					
040250							180	225								170					
040315			125	65	20	500	200	250			345	280				205					
050160	50	80	100	50	17	385	160	180	100	70	265	212	M12	M12	285	135	100	24	50	27	8
050200								200								160					
050250			125	65			180	225			320	250				175					
050315					20	500	225	280			345	280				215					
065160	65	100	100	65	17	500	160	200	125	95	280	212	M12	M12	370	155	140	32	80	35	10
065200							180	225								175					
065250			125	80	20		200	250			160	120				195					
080160	80	125	125	65	17	500	180	225	125	95	320	250	M12	M12	370	170	140	32	80	35	10
080200								250			345	280				185					
080250				80	20		225	280			160	120				205					
100160 ¹⁾	100	125	140		20	500			160	120	360	280	M16	M12	370	210	140	32	80	35	10
100200			125	80			200														
100250			140					530			400	315				215					
125200 ¹⁾	125	150	140	80	20	530	250	315	160	120	400	315	M16	M12	370	245	140	42	110	45	12
125250								355								240					

¹⁾Transnorm pump sizes, not included in DIN EN 22858.

*Slots suitable for bolts with dimensions indicated. Bolts are not included in the bare shaft pump standard scope of supply.

Flange connections to DIN EN 1092-2 PN 40								
DN ₂ /DN ₁	32	40	50	65	80	100	125	150
D	140	150	165	185	200	235	270	300
k	100	110	125	145	160	190	220	250
b _{fl}	18	19	19	19	19	19	23,5	26
Tolerance	+4,0 -3,0							
d2 x number	19x4	19x4	19x4	19x8	19x8	23x8	28x8	28x8

Foundation plan



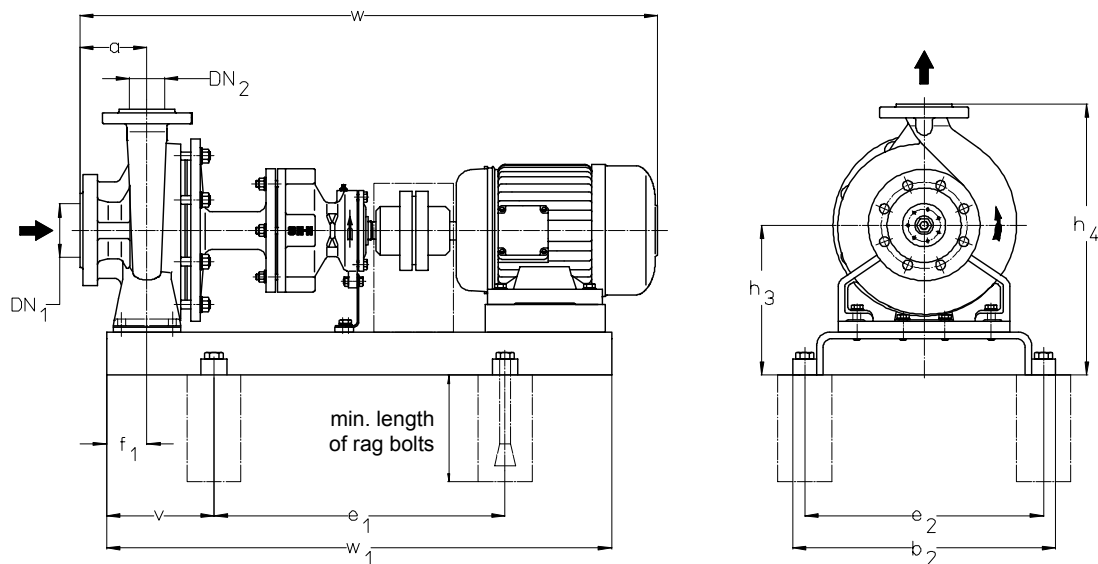
Dimensions in mm

ZDND Size	Motor Speed 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	S272	B80	54	86	32	50	80	360	420	320	115	60	197	357	701	650	M16x200
	0,55	-	80				93					737								
	-	1,10	-				94					737								
	-	1,50	90S				96					764								
	-	2,20	90L				99					764								
	-	3,00	100L				105					833								
	-	4,00	112M				109					850								
032200	0,55	-	80		B68	56	94					737		820				M16x200		
	0,75	-	-				96					737								
	1,10	-	90S				98					764								
	-	3,00	100L		B80		107					833								
	-	4,00	112M				111					850								
	-	5,50	132S				142					912								
	-	7,50	132S				148					912								
032250	0,75	-	80	S383	89	142	100			490	600	440	160	75	260	485	872	920	M20x400	
	1,10	-	90S			144							893							
	1,50	-	90L			146							924							
	2,20	-	100L			152							968							
	-	7,50	132S	S385		B95							210				1047			
	-	11,00	160M										254				1188			
	-	15,00	267										1188							
040160	0,37	-	71	S270	B68	55	85	40	65	80	360	420	320	115	60	197	357	700	650	M16x200
	0,55	-	80	94			737													
	0,75	-	-	96			765													
	1,10	1,50	90S	99			792													
	-	2,20	90L	102			833													
	-	3,00	100L	107			857													
	-	4,00	112M	125			912													
040200	0,75	-	80	S303	56	95	390			600	350	160	125	60	225	405	757	920	M16x200	
	1,10	-	90S			98						784								
	1,50	-	90L			101						809								
	2,20	-	100L	S303		B80						106					870			
	-	4,00	112M									131					877			
	-	5,50	132S									144					932			
	-	7,50	-									123					1073			
040250	1,10	-	90S	S383	92	150	100			490	740	440	180	75	260	485	1073	1020	M20x400	
	1,50	-	90L			153							924							
	2,20	-	100L			156							968							
	3,00	-	-			159							1047							
	-	5,50	132S			209							1188							
	-	7,50	-			212							1232							
	-	11,00	160M			261							993							
040315	2,20	-	100L	S383	B80	131	192			125	600	490	200	280	530	920	1010	1140		
	3,00	-	-				196						1072							
	4,00	-	112M				202						1072							
	5,50	-	132S				257						1072							

* 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



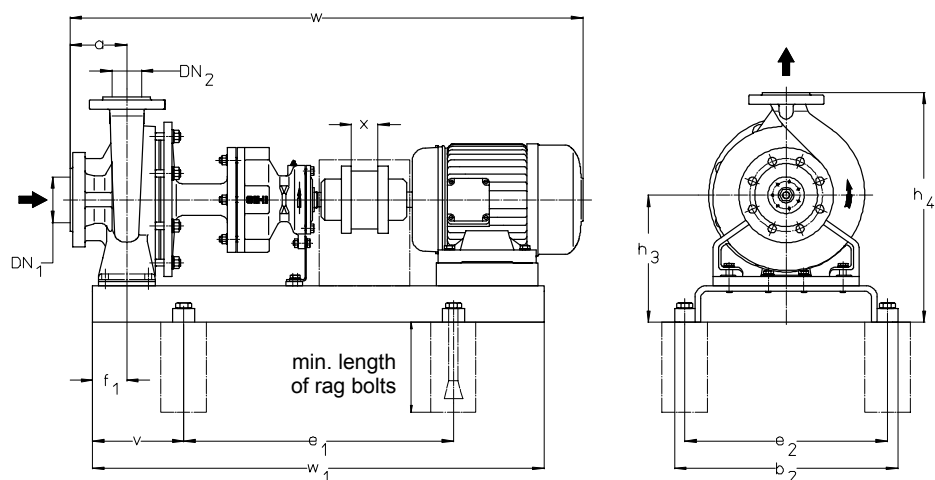
Dimensions in mm

ZDND Size	Motor Speed		Size	Base plate No.	Coup- ling	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 kW	2900 kW				Pump	Unit															
050160	0,55	-	80	S301	B68	61	50	80	100	390	480	350	125	60	225	405	757	730	M16x200			
	0,75	-															100					
	1,10	-															103					
	1,50	2,20															105					
	-	3,00	100L	S303	B80						118	160	853		920							
	-	4,00	112M								136		877									
	-	5,50	132S								149		932									
	-	7,50	160M								151		932									
	-	11,00	160M	S344	B95						211	450	660		400	180	240	420		1073	1020	M20x400
	050200	0,75	-	80							S301	B68	65		50	80	390	480		350	125	60
1,10	-	90S	107																			
1,50	-	90L	110																			
2,20	-	100L	115																			
-	4,00	112M	S303	B80	140	160	809	920														
-	5,50	132S			155		932															
-	7,50	160M			S344		B95		160	1073	1020											
-	11,00	160L							215	1113												
-	15,00	160L	217	1073		1020																
-	18,50	160L	232	1113		1073		1020														
050250	1,50	-	90L	S383	B80	95	125	125	490	600	440	160	75	260	485	949	920	M20x400				
	2,20	-	100L													158						
	3,00	-	112M													162						
	4,00	-	112M													178						
	-	7,50	132S	S385	B95					215	740	200		1072	1140							
	-	11,00	160M							265				1213								
	-	15,00	160L							267				1257								
	-	18,50	160L							291				1280								
	-	22,00	180M	S436	B110					318	490	215		1368	1270							
	-	30,00	200L							427	540	840		550	205	1010	1072		1250			
050315	4,00	-	112M	S486	B80	135	135	135	610	840	550	205	75	325	605	1010	1250	M24x400				
	5,50	-	132S													249			278	1110		
	7,50	-	132M													290			290	1110		
065160	0,75	-	80	S342	B80	81	65	100	450	540	400	180	75	240	440	872	820	M20x400				
	1,10	-	90S													141						
	1,50	-	90L													144						
	2,20	-	100L													147						
	-	4,00	112M	S344	B95					154	160	968		1020								
	-	5,50	132S							179		985										
	-	7,50	160M							182		1047										
	-	11,00	160M							250		1188			1140							
	-	15,00	160L	S385	B95					252	490	740		440	200	1188	1140					
	065200	1,10	-	90S						S344	B80	88		65	100	450	660		400	180	75	260
1,50	-	90L	151																			
2,20	-	100L	154																			
3,00	-	112M	157																			
4,00	-	112M	S385	B95	173	740	440	200	985	1140												
-	7,50	132S			208				1047													
-	11,00	160M			257				1213													
-	15,00	160L			259				1257													
-	18,50	160L	S436	B110	283	540	840	490	215	1280	1368		1270									
-	22,00	180M			311																	
-	30,00	200L			420																	

* 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

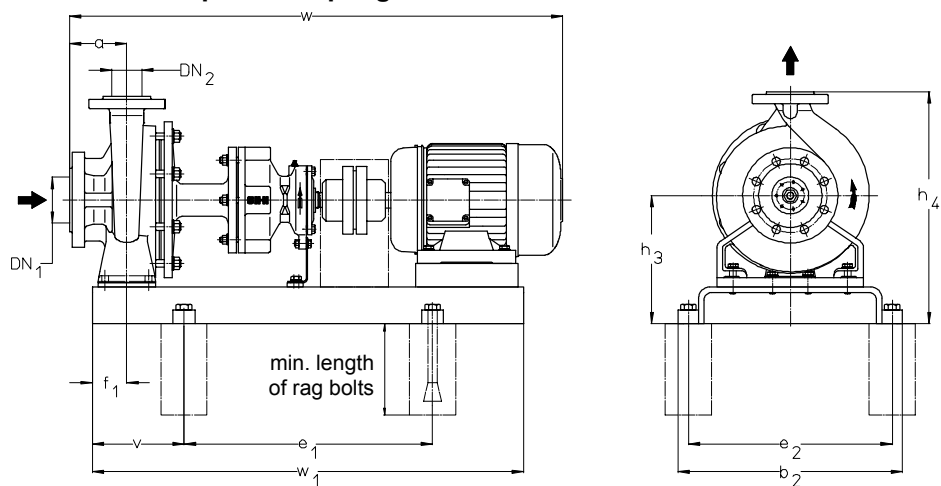
Dimensions in mm																															
ZDND Size	Motor Speed		Size	Base- plate No.	Coup- ling	Weight (kg)		DN ₂	DN ₁	a	b ₂	e ₁	e ₂	v	f ₁	h ₃	h ₄	x	w*	w ₁	Rag bolt size										
	1450 KW	2900 KW				Pump	Unit																								
032160	0,37	-	71	S272	H80	54	94	32	50	80	360	540	320	140	60	197	357	100	801	820	M16x200										
	0,55	-	80				95																								
	-	1,10	-				96																								
	-	1,50	90S				99																								
	-	2,20	90L				102																								
	-	3,00	100L				112																								
	-	4,00	112M				117																								
032200	0,55	-	80	S272	H80	56	97				80	360	540	320		140	60		225	405		100	837	820	M16x200						
	0,75	-	-				99																								
	1,10	-	90S				101																								
	-	3,00	100L				114																								
	-	4,00	112M				119																								
	-	5,50	132S				145																								
	-	7,50	-				152																								
032250	0,75	-	80	S383	H80	89	147			100		490	740	440	200	75			260	485	100		972	1140		M20x400					
	1,10	-	90S				168																								
	1,50	-	90L				170																								
	2,20	-	100L				174																								
	-	7,50	132S				213																								
	-	11,00	-				270																								
	-	15,00	160M				282																								
040160	0,37	-	71	S272	H80	55	94				40	65	80	360	540		320		140	60			197	357	100		800	820	M16x200		
	0,55	-	80				97																								
	0,75	-	-				99																								
	1,10	1,50	90S				102																								
	-	2,20	90L				105																								
	-	3,00	100L				114																								
	-	4,00	112M				133																								
-	5,50	132S	146																												
040200	0,75	-	80	S303	H80	56	104			100				390	600	350	160		60				225	405		100	857	920		M16x200	
	1,10	-	90S				107																								
	1,50	-	90L				110																								
	2,20	-	100L				115																								
	-	4,00	112M				135																								
	-	5,50	132S				147																								
	-	7,50	-				150																								
040250	1,10	-	90S	S385	H80	92	172						100	490	740	440	200			75			260	485			100	1000	1140		M20x400
	1,50	-	90L				175																								
	2,20	-	100L				180																								
	3,00	-	-				183																								
	-	5,50	132S				214																								
	-	7,50	-				217																								
	-	11,00	160M				264																								
-	15,00	-	266																												
040315	2,20	-	100L	S385	H80	131	209			125				490	740	440	200		280				530	100				1173	1020	M20x400	
	3,00	-	-				209																								
	4,00	-	112M				216																								
	5,50	-	132S				220																								
	-	7,50	-				227																								
	-	11,00	160M				255																								
	-	15,00	-				255																								

* 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.

ZDND Size	Motor Speed		Size	Base- plate No.	Coup- ling	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											
	1450 KW	2900 KW				Pump	Unit																									
050160	0,55	-	80	S303	H80	61	107	50	80	100	390	600	350	160	60	225	405	100	857	920	M16x200											
	0,75	-																	109													
	1,10	-	90S																112													
	1,50	2,20	90L																116													
	-	3,00	100L																120													
	-	4,00	112M																139													
	-	5,50																	153													
	-	7,50	132S																155													
	-	11,00	160M	S344							450	660	400	180		240	420		1173	1020	M20x400											
050200	0,75	-	80	S303	H80	65	110	50	80	100	390	600	350	160	60	225	425		857	920	M16x200											
	1,10	-	90S																113													
	1,50	-	90L																114													
	2,20	-	100L																124													
	-	4,00	112M																143													
	-	5,50																	156													
	-	7,50	132S																159													
	-	11,00																	218													
	-	15,00	160M	220																												
	-	18,50	160L	235														1173	1020													
	050250	1,50	-	90L	S385	H80	95			178	50	80	125	490	740	440	200	75	260	485	100	1049	1140	M20x400								
		2,20	-	100L																		183										
3,00		-		186																												
4,00		-	112M	202																												
-		7,50	132S	239																												
-		11,00		280																												
-		15,00	160M	282																1313		1270										
-		18,50	160L	306																												
-		22,00	180M	335																												
-		30,00	200L	432																1357												
050315		4,00	-	112M	S486	H80		135	252	50			80	125	540	840	490		215	75			280	505	100	1380	1250	M24x400				
		5,50	-	132S																						281						
	7,50	-	132M	292																												
065160	0,75	-	80	S344	H80	81	139	65	100	100	450	660	400	180	75	240	440	100	857	1020	M20x400											
	1,10	-	90S																142													
	1,50	-	90L																145													
	2,20	-	100L																145													
	-	4,00	112M																150													
	-	5,50	132S																176													
	-	7,50	132S	201																	884	1140										
	-	11,00	160M	204																												
	-	15,00	160M	266																												
				268																	909											
	065200	1,10	-	90S	S344		H80			88	149	65	100	100		450	660		400	180	75		260	485	140	1094	1020	M20x400				
		1,50	-	90L																						152						
2,20		-	100L	157																												
3,00		-		160																												
4,00		-	112M	176																												
-		7,50	132S	176																												
-		11,00		224															1039	1270												
-		15,00	160M	273																												
-		18,50	160L	279																												
-		22,00	180M	299																												
-		30,00	200L	328																												
-		45,00	225M	455															1328													
065250	2,20	-	100L	S435	H80	113	206	65	100	125	540	740	490	200	90	280	530	140	1255	1140	M20x400											
	3,00	-																	209													
	4,00	-	112M																225													
	5,50	-	132S																238													
	-	15,00	160M	309																										1064	1270	
	-	18,50	160L	324																												
	-	22,00	180M	353																												
	-	30,00	200L	480																												
	-	37,00		495																	1108											
	-	45,00	225M	531																	1212											
	080160	0,75	-	80	S344		H80			89	147	80	125	125		450	660		400	180	75	260	485	140	1425	1420	M24x400					
		1,10	-	90S																					150							
1,50		-	90L	153																												
2,20		-	100L	158																												
3,00		-		161																												
-		7,50	132S	212																												
-		11,00		274															1037	1020												
-		15,00	160M	276																												
-		18,50	160L	300																												
-		22,00	180M	329															1064			1270										
																			1089													
																			1133													

Foundation plan for units with spacer coupling



Dimensions in mm

ZDND Size	Motor Speed		Size	Base- plate No.	Coup- ling	Weight (kg) Pump Unit	Dimensions in mm											Rag bolt size												
	1450 KW	1900 KW					DN ₂	DN ₁	a	b ₂	e ₁	e ₂	v	f ₁	h ₃	h ₄	x		w*	w ₁										
080200	1,50	-	90L	S385	H80	96	180	80	125	125	490	740	440	200	75	260	510	140	1089	1140	M20x400									
	2,20	-	100L				184												1133											
	3,00	-					187												1150											
	4,00	-					112M												203			1212								
	5,50	-					132S												215			1420								
	-	11,00	160M	S436	H95		276				540	840	490	215		300	550		1425	1420										
	-	15,00	160M				283																							
	-	18,50	160L				307																							
	-	22,00	180M				336																							
	-	30,00	200L				S487												H125			463								
-	37,00			472									1508	1420																
080250	3,00	-	100L	S486	H80	120	230	100	125	140	610	840	550	205	90	325	605	140	1133	1250	M24x400									
	4,00	-	112M				249												1150											
	5,50	-	132S				262												1212											
	7,50	-	132M				264												1250											
	-	18,50	160L				367												1420											
	-	22,00	180M	S487	H110		390				940	240	350	630		1508	1420													
	-	30,00	200L				487																							
	-	37,00	225M				496																							
	-	45,00	225M				535																							
	-	55,00	250M				S538									H140			666	660		1060	600	280	1633	1620				
100160	2,20	-	100L	S435	H80	120	213	100	125	140	540	740	490	200	90	280	560	140	1148	1140	M24x400									
	3,00	-					216												1165											
4,00	-	112M					232												1227											
	5,50	-	132S				S436												H95			245	610	840	550	215	300	580	1412	1270
	-	18,50	160L																			332							1435	
	-	22,00	180M	358	1523																									
	-	30,00	200L	487	1420																									
	-	37,00		497	610						940	550	240																	
100200	2,20	-	100L	S435	H80		112				205	100	125	125		540	740		490	200		90	280	560	140	1133	1140	M20x400		
	3,00	-	100L								208															1150				
	4,00	-	112M			224		1212																						
	5,50	-	132S			237		1250																						
	7,50	-	132M			239		1397																						
	-	18,50	160L	S436	H95	324		840	215	300	580				1420	1270														
	-	22,00	180M			352									1508															
	-	30,00	200L			489									1420															
	-	37,00	200L			489									1508															
	-	45,00	225M			528									1540															
100250	4,00	-	112M	S486	H95	132	262	140	140	610	840	550	205	90	325	605	140	1195	1250	M24x400										
	5,50	-	132S				274											1257												
	7,50	-	132M				276											1295												
	11,00	-	160M				329											1398												
	-	30,00	200L				515											1553												
	-	37,00	200L	S487	H125		509			940	240	350	630		1678	1620														
	-	45,00	225M				553								1585															
	-	55,00	250M				679								1800															
	-	75,00	280S				880								380			660	1800											
	125200	7,50	-				132M								S486			H95	142		286	125	150	140	610	840	550	205	90	350
11,00		-	160M	339	1398	1442	1420																							
15,00		-	160L	362	1442	1420																								
-		45,00	225M	S538	H125	613	660	1060	600	280	1678	1800	1620																	
-		55,00	250M			706								1678	1800															
-		75,00	280S			H160								890	1800															
125250	7,50	-	132M	S486	H95	147	291	125	150	140	610	840	550	205	90	350	705	140	1295	1250										
	11,00	-	160M				344												1398											
	15,00	-	160L	S487	H110		367				610	940	550	240		1442			1420											
	18,50	-	180M				392									1520														

* 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	Casing gasket
		A= Hydraulic 1 A= One grease lubricated antifriction ball bearing and one internal liquid flushed sleeve bearing	AF3= Balanced standard mechanical seal SiC/Carbon/EPDM	1B= Pressure loaded parts in ductile iron GGG-40.3	2= Confined flat gasket gasket of graphite with A4 insertion
ZDND	032160	AA	AF3	1B	2
	032200				
	032250				
	040160				
	040200				
	040250				
	040315				
	050160				
	050200				
	050250				
	050315				
	065160				
	065200				
	065250				
	080160				
	080200				
	080250				
	100160				
	100200				
	100250				
	125200				
	125250				

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

