

SIHI SuperNova

ZEND 031125 ... 125250

Volute pumps for hot water up to 230°C



TECHNICAL DATA

Output:	max. 600 m ³ /h
Delivery head:	max. 90 m
Speed:	max. 3600 rpm
Temperature:	max. 230 °C
Casing pressure:	PN 40
Shaft sealing:	balanced standard mechanical seal uncooled
Flange connections:	material design 1B DIN EN 1092-2 PN 40 2B DIN EN 1092-1 PN 40
Direction of rotation:	clockwise, when looking at the pump from the drive end



APPLICATION

The volute pumps of the series ZEND 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
- 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 **DIN EN 22858** in back pull out design, with uncooled balanced mechanical seal.

The series **ZEND** has especially been designed for the trouble free handling of hot water up to 230°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 100 °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 29 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.

* Except for sizes 031125 to 031250

CONSTRUCTION

Casing pressure

max. 40 bar from	0 °C to 120 °C
max. 35 bar from	120 °C to 200 °C
max. 32 bar from	200 °C to 230 °C

Intermediate values can be obtained by interpolation.

Please note:

Technical rules and safety regulations.
Max. casing pressure = inlet pressure + zero head
max. test pressure = 52 bar

Flanges location:

Axial suction flange, discharge flange radially upwards.

Flanges:

The flanges comply with DIN EN 1092 part 1 and part 2 resp. PN 40.
Flange design to ANSI 300 is possible.

Hydraulic:

Designation of this construction type: A.

Bearing:

One grease-lubricated, reinforced antifriction bearing to DIN 625 and one internal liquid flushed sleeve bearing.
Designation of this construction type: S

Direction of rotation:

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

Shaft sealing:

Code BG3: 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	2B
						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	
		1.0619	GP 240 GH	1.0619	GS-C 25	A 216 Gr WCB			X
10.91 17.11 23.00	intermediate piece ** impeller**	1.4571	X6 Cr Ni Mo Ti 17 12 2	1.4571	X6 Cr Ni Mo Ti 17 12 2	A 276 Gr316Ti	316 Ti	X	
52.30	shaft sleeve	1.4571	X6 Cr Ni Mo Ti 17 12 2	1.4571	X6 Cr Ni Mo Ti 17 12 2	A 276 Gr316Ti	316 Ti	X	X
21.00	shaft	1.4021	X 20 Cr 13	1.4021	X 20 Cr 13	A 276 Type 420	420	X	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	X
43.30	mechanical seal	SIC / carbon						X	X
52.90 54.00	sleeve bearing	SIC / SIC						X	X

* for sizes 065315, 080315, 100315 material volute casing GP 240 GH.

** only for sizes 031125... 031250

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 speeds are to be observed:

max. speed rpm	size	max. speed rpm	size	max. speed rpm	size	
3600	031125	3000	031250	1800	125250	
	040200		100250		040315	
	080200		032250		125200	050315
	100160		040250		065315	065315
	031200		050200		065250	080315
	032160		065160		080250	100315
032200	065200					
040160	080160					

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	031125 031160 031200 031250 032160 032200 040160 040200 050160 050200
Bracket 35	032250 040250 050250 065160 065200 065250 080160 080200 080250 100160 100200 040315 050315
Bracket 45	100250 125200 125250 065315 080315 100315

General remarks:

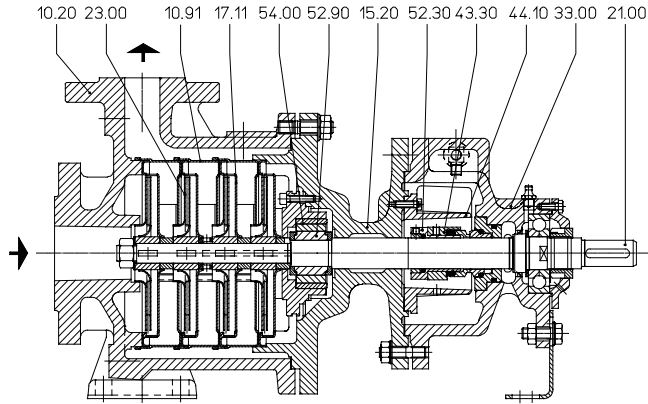
For equipping hot media systems a complete programme is available for a flow range between 1-600 m³/h consisting of the range:

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

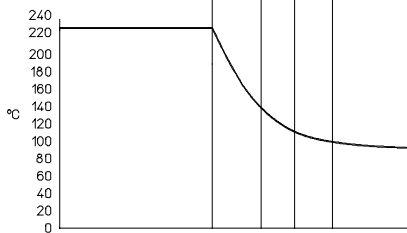
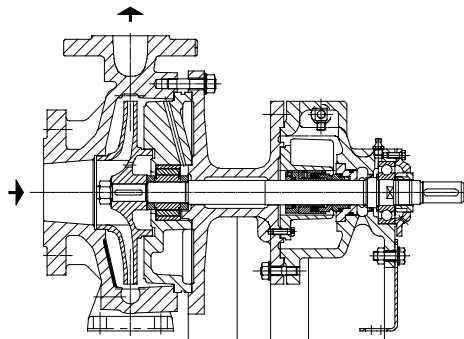
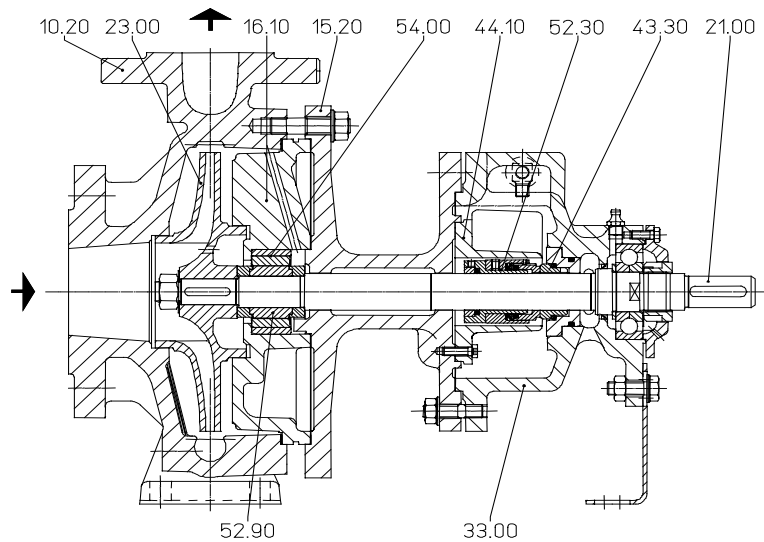
Sectional drawing and nomenclature

ZEND 031125... 031250 AS BG3...



- 10.20 volute casing
- 10.91, 17.11 intermediate piece
- 15.20 intermediate flange
- 16.10 casing cover
- 21.00 shaft
- 23.00 impeller
- 33.00 bearing bracket
- 43.30 mechanical seal
- 44.10 casing for mechanical seal
- 52.30 shaft sleeve
- 52.90, 54.00 sleeve bearing

ZEND 032160... 125250 AS BG3...



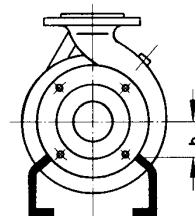
Curve of temperature decrease

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 ZEND 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.

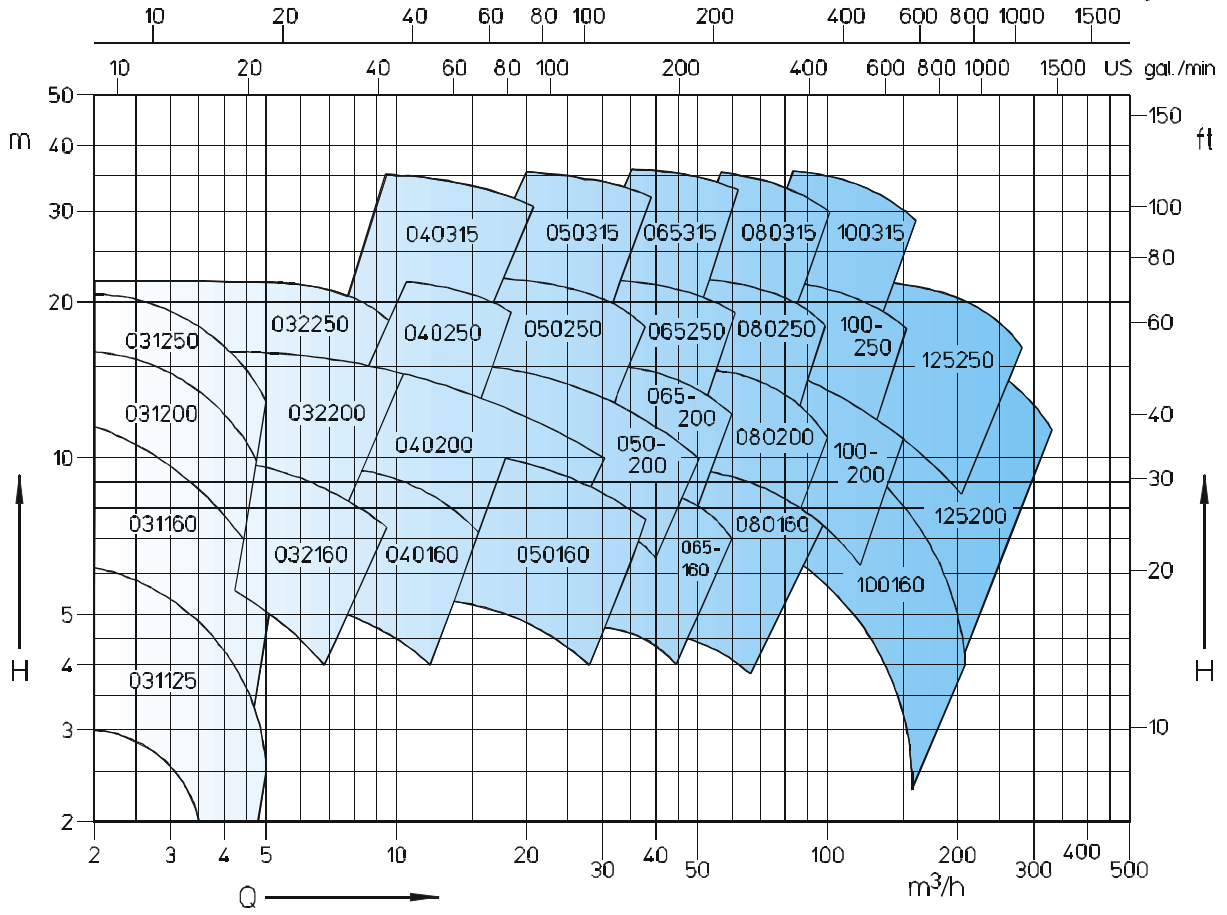
Product-side heat losses are effectively prevented (energy saving). The temperature reduction makes it possible to use safely an **uncooled** mechanical seal up to a pumping medium temperature of **230 °C**.



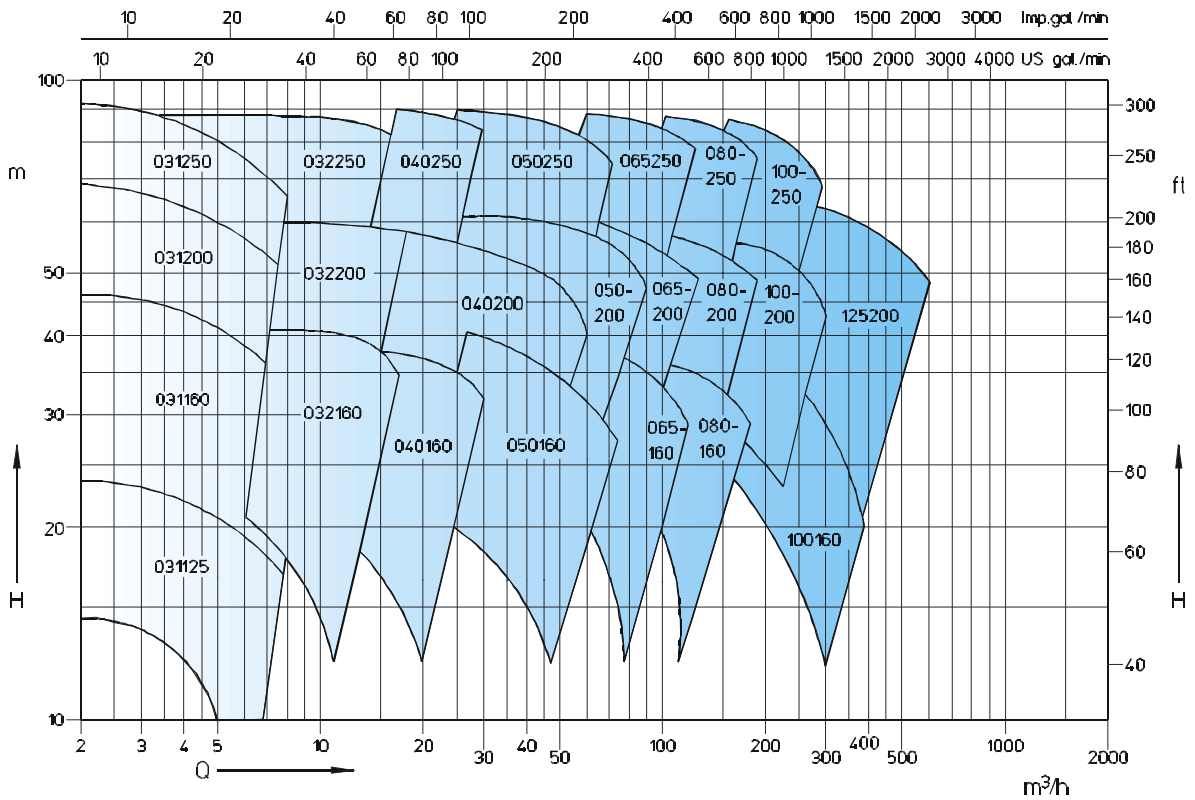
By special constructional shaping of the pump feed, displacements caused by thermal expansion are prevented to a great extent. For the vertical displacement only the measure *h* is decisive, since the rest of the foot remains cold. The horizontal expansion is taken up by the elastic foot bracings.

Performance graph

50 Hz
n = 1450 rpm
Imp.gal./min



n = 2900 rpm

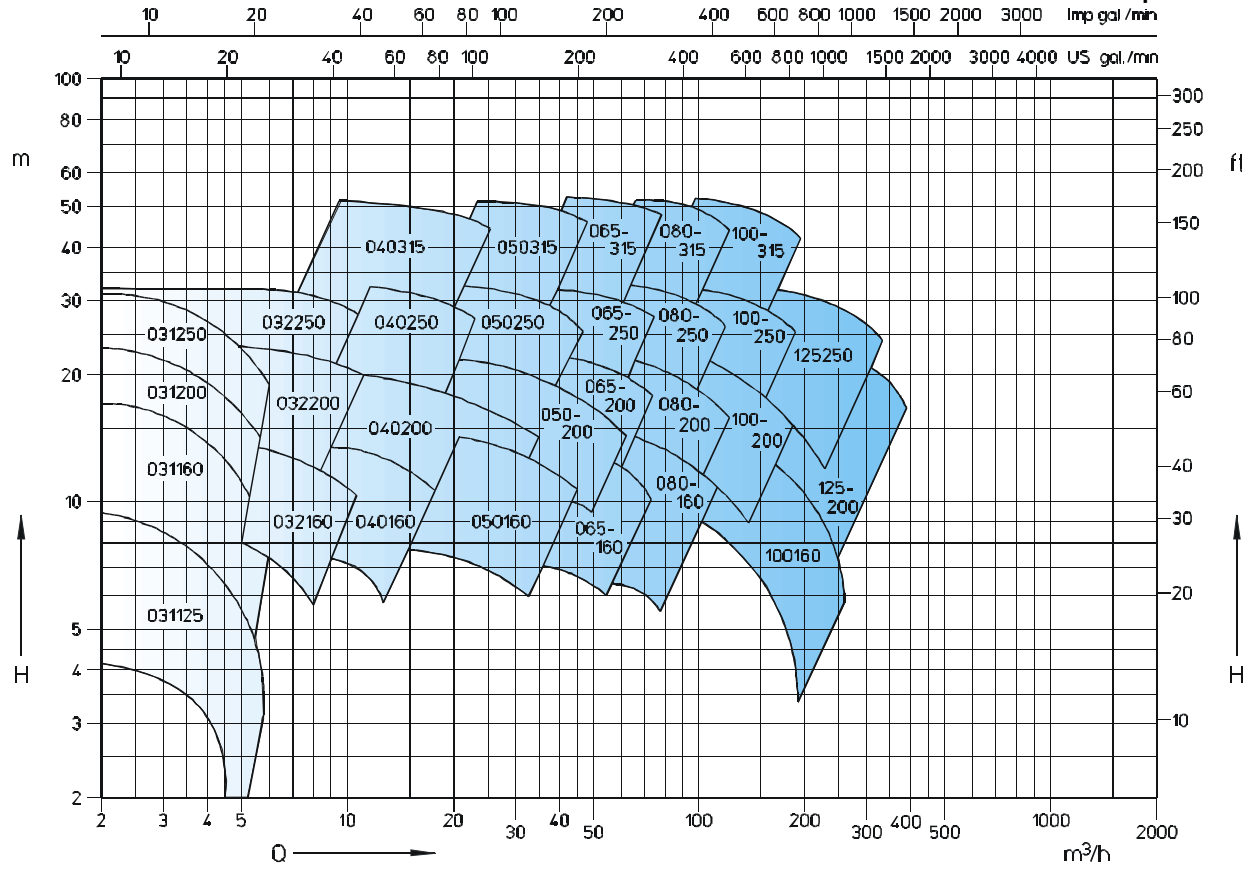


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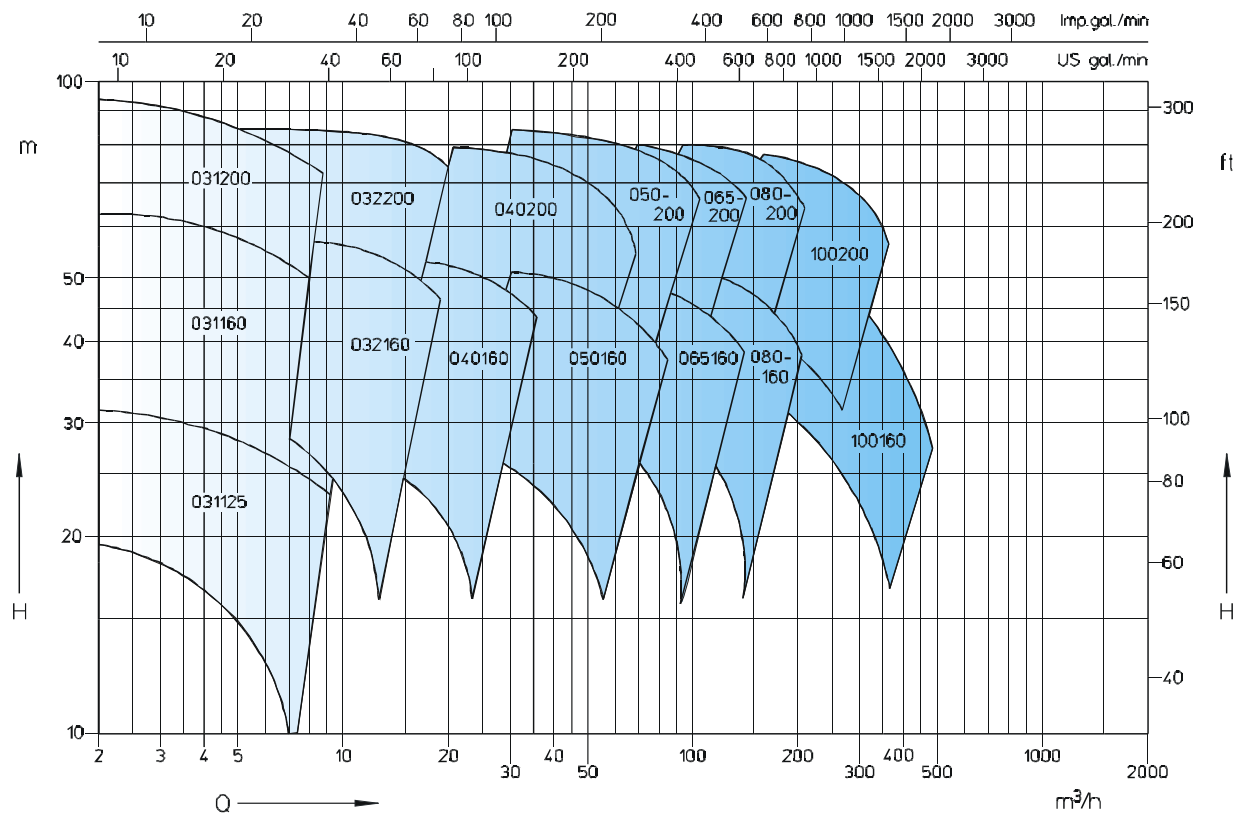
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Performance graph

60 Hz
n = 1750 rpm



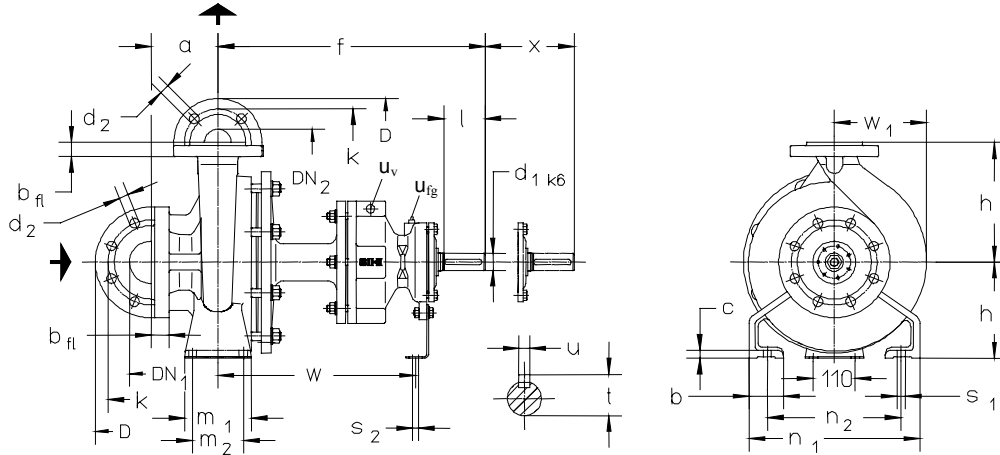
n = 3500 rpm



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Dimension table



u_v = vent connection (G1/8)
All dimensions in mm.

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

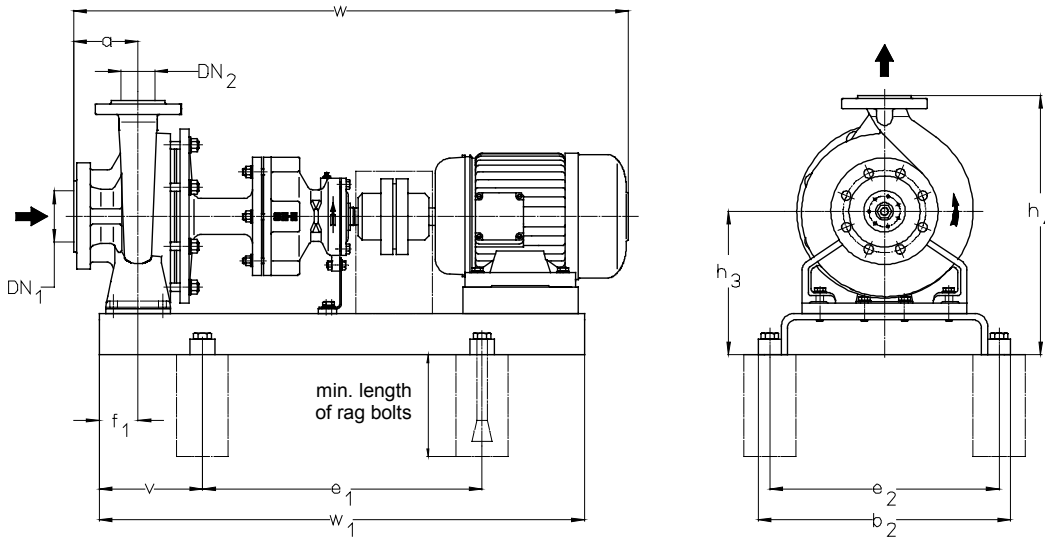
size	DN ₂	DN ₁	a	b	c	f	h ₁	h ₂	m ₁	m ₂	n ₁	n ₂	s ₁ *	s ₂ *	w	w ₁	x	d ₁	l	t	u
031125 ¹⁾	32	50	80	50	17	450	132	160	100	70	240	190	M12		350	128	140	24	50	27	8
031160 ¹⁾																					
031200 ¹⁾																					
031250 ¹⁾																					
032160																					
032200																					
032250	100	65	500	180	225	125	95	320	250	370	170	32	80	35	10						
040160	40	65	80	50	17	385	132	160	100	70	240	190	M12		285	125	150	24	50	27	8
040200																					
040250																					
040315																					
040315	125	65	20	500	200	250	125	95	345	280	370	205	100	32	80	35	10				
050160	50	80	100	50	17	385	160	180	100	70	265	212	M12		285	135	160	24	50	27	8
050200																					
050250																					
050315																					
065160	65	100	100	65	17	500	160	200	125	95	280	212	M12		285	155	175	32	80	35	10
065200																					
065250																					
065315																					
080160	80	125	125	65	17	500	180	225	125	95	320	250	M12		370	170	185	32	80	35	10
080200																					
080250																					
080315																					
100160 ¹⁾	100	125	140	80	20	500	200	280	160	120	360	280	M16		370	210	215	32	80	35	10
100200																					
100250																					
100315																					
125200 ¹⁾	125	150	140	80	20	530	250	315			400	315	M16		240	240		42	110	45	12
125250																					

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 connection according to DIN EN 1092-2 PN 40 execution material 1B									Flange connection acc. to DIN EN 1092-1 PN 40 execution material 2B								
DN ₂ /DN ₁	32	40	50	65	80	100	125	150	32	40	50	65	80	100	125	150	
D	140	150	165	185	200	235	270	300	140	150	165	185	200	235	270	300	
k	100	110	125	145	160	190	220	250	100	110	125	145	160	190	220	250	
b _{fl}	18	19	19	19	19	19	23,5	26	18	18	20	22	24	24	26	28	
Tolerances	+4,0 -3,0								+4,5 -1,5								
d ₂ x number	19x4	19x4	19x4	19x8	19x8	23x8	28x8	28x8	18x4	18x4	18x4	18x8	18x8	22x8	26x8	26x8	

Foundation plan



Dimensions in mm

ZEND Size	Motor		Base plate No.	Cplg.	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 rpm kW	2900 rpm kW			Size	Pump													
031125	0,25	-	71a	S272	B68	93	32	50	80	360	540	320	140	60	197	357	766	820	M16X200
	-	2,20	90L														101		
031160	0,37	-	71b	S272	B80	57	32	50	80	360	540	320	140	60	197	357	766	820	M16X200
	-	3,00	100L														107		
031200	0,55	-	80a	S272	B80	95	32	50	80	360	540	320	140	60	197	357	802	820	M16X200
	-	4,00	112M														112		
031250	0,75	-	80b	S303	B95	143	32	50	80	390	600	350	160	60	197	357	977	920	M16X200
	-	5,50	132S														97		
032160	0,37	-	71b	S272	B68	55	32	50	80	360	540	320	140	60	197	357	87	820	M16X200
	-	1,10	80a														93		
	-	1,50	90S														94		
	-	2,20	90L														97		
	-	3,00	100L														100		
	-	4,00	112M														106		
032200	0,55	-	80a	S272	B80	57	32	50	80	360	540	320	140	60	197	357	110	820	M16X200
	-	1,10	90S														108		
	-	3,00	100L														108		
	-	4,00	112M														112		
	-	5,50	132S														143		
	-	7,50	132S														149		
032250	0,75	-	80b	S383	B80	96	32	50	100	490	600	440	160	75	260	485	149	1140	M20x400
	-	1,10	90S														151		
	-	1,50	90L														153		
	-	2,20	100L														159		
	-	7,50	132S														217		
	-	11,00	160M														261		
040160	0,37	-	71b	S272	B68	55	32	50	80	360	540	320	140	60	197	357	143	820	M16x200
	-	1,10	80a														143		
	-	1,50	90S														143		
	-	2,20	90L														143		
	-	3,00	100L														143		
	-	4,00	112M														143		
040200	0,75	-	80b	S303	B95	63	32	50	100	390	600	350	160	60	225	405	85	920	M16x200
	-	1,10	90S														94		
	-	1,50	90L														96		
	-	2,20	100L														99		
	-	4,00	112M														102		
	-	5,50	132S														107		
040250	1,10	-	90S	S383	B80	98	32	50	100	490	600	440	160	75	260	485	125	1140	M20x400
	-	1,50	90L														108		
	-	2,20	100L														120		
	-	3,00	100L														138		
	-	5,50	132S														151		
	-	7,50	132S														151		
040250	1,10	-	90S	S344	B95	98	32	50	100	450	660	400	180	60	240	420	102	1140	M20x400
	-	1,50	90L														102		
	-	2,20	100L														102		
	-	3,00	100L														102		
	-	5,50	132S														102		
	-	7,50	132S														102		

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ZEND Size	Motor			Base plate No.	Cplg.	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	Size			Pump	Unit													
040315	2,20	-	100L	S383	B80	136	40	65	125	490	600	440	160	75	280	530	993	920	M20x400	
	3,00	-	100L																	197
	4,00	-	112M	201																
	5,50	-	132S	207																
050160	0,55	-	80a	S301	B68	61	50	80	100	390	480	350	125	60	225	405	757	730	M16x200	
	0,75	-	80b																	100
	1,10	-	90S																	103
	1,50	2,20	90L	105																
	-	3,00	100L	118																
	-	4,00	112M	136																
	-	5,50	132S	149																
	-	7,50	132S	152																
	-	11,00	160M	211																
	4,50	6,60	400	180	240															420
050200	0,75	-	80b	S301	B68	65	50	80	100	390	480	350	125	60	225	425	757	730	M16x200	
	1,10	-	90S																	107
	1,50	-	90L																	110
	2,20	-	100L	122																
	4,00	4,00	112M	140																
	-	5,50	132S	157																
	-	7,50	132S	160																
	-	11,00	160M	215																
	-	15,00	160M	217																
	-	18,50	160L	232																
4,50	6,60	400	180	240	440	1073	1020	M20x400												
050250	1,50	-	90L	S383	B80	101	50	80	125	490	600	440	160	60	260	485	949	920	M20x400	
	2,20	-	100L																	164
	3,00	-	100L																	168
	4,00	-	112M	184																
	-	7,50	132S	221																
	-	11,00	160M	264																
	-	15,00	160M	272																
	-	18,50	160L	297																
	-	22,00	180M	324																
	-	30,00	200L	433																
5,40	8,40	490	215	325	605	1010	1140	M20x400												
050315	4,00	-	112M	S486	B80	140	50	80	125	610	840	550	205	60	325	605	1072	1250	M24x400	
	5,50	-	132S																	283
	7,50	-	132M	295																
	11,00	-	160L	311																
065160	0,75	-	80b	S342	B80	86	65	100	100	450	660	400	180	75	240	440	872	820	M20x400	
	1,10	-	90S																	146
	1,50	-	90L	149																
	2,20	-	100L	152																
	-	4,00	112M	159																
	-	5,50	132S	184																
	-	7,50	132S	187																
	-	11,00	160M	255																
-	15,00	160M	257																	
4,90	7,40	440	200	260	440	1188	1188	M20x400												
065200	1,10	-	90S	S344	B80	94	65	100	100	450	660	400	180	75	260	485	900	1020	M20x400	
	1,50	-	90L																	157
	2,20	-	100L																	160
	3,00	-	100L	163																
	4,00	-	112M	179																
	-	7,50	132S	214																
	-	11,00	160M	263																
	-	15,00	160M	265																
	-	18,50	160L	289																
	-	22,00	180M	317																
-	30,00	200L	426																	
4,90	7,40	440	200	260	485	1213	1140	M20x400												
065250	2,20	-	100L	S434	B80	113	65	100	125	540	660	490	170	90	280	530	993	1000	M24x400	
	3,00	-	100L																	193
	4,00	-	112M																	208
	5,50	-	132S	228																
	-	15,00	160M	298																
	-	18,50	160L	313																
	-	22,00	180M	341																
	-	30,00	200L	445																
	-	37,00	200L	461																
	-	45,00	225M	504																
5,40	8,40	490	215	300	550	1425	1270	M24x400												
065315	5,50	-	132S	S486	B95	146	65	100	125	610	840	550	205	60	325	605	1102	1250	M24x400	
	7,50	-	132M																	292
	11,00	-	160M	325																
	15,00	-	160L	341																
080160	0,75	-	80b	S383	B80	95	80	125	125	490	600	440	160	75	260	485	897	920	M20x400	
	1,10	-	90S																	153
	1,50	-	90L																	156
	2,20	-	100L	159																
	3,00	-	100L	162																
	-	7,50	132S	215																
	-	11,00	160M	264																
	-	15,00	160M	266																
	-	18,50	160L	290																
	-	22,00	180M	318																
4,90	7,40	440	200	260	485	1213	1140	M20x400												
080200	1,50	-	90L	S383	B80	102	80	125	125	600	600	440	160	75	260	510	949	920	M20x400	
	2,20	-	100L																	166
	3,00	-	100L																	169

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ZEND Size	Motor			Base plate No.	Cplg.	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 rpm	Size			Pump	Unit																										
080200	4,00	-	112M	S383	B80	102	80	125	140	490	600	440	200	75	260	510	1010	920	M20x400														
	5,50	-	132S																	S385	B95	185	226	266	273	297	325	434	450	1280	1368	1368	
	-	11,00	160M	234	251																	270	283	347	370	466	482	542	642	993	1010	1072	
	-	15,00	160M	222	241																	326	354	458	474	549	565	642	742	1087	1272	1295	
	-	18,50	160L	203	206																	222	241	326	354	458	474	549	642	742	1087	1272	1295
	-	22,00	180M	206	222																	241	326	354	458	474	549	642	742	1087	1272	1295	
	-	30,00	200L	222	241															326	354	458	474	549	642	742	742	1087	1272	1295			
-	37,00	200L	241	326	354	458	474	549	642	742	742	742	1087	1272	1295																		
080250	3,00	-	100L	S486	B80	125	100	125	140	610	840	550	205	240	325	605	1110	1250	M24x400														
	4,00	-	112M																	S487	B95	234	251	270	283	347	370	466	482	542	642	993	1010
	5,50	-	132S	203	206																	222	241	326	354	458	474	549	642	742	1087	1272	1295
	7,50	-	132M	206	222																	241	326	354	458	474	549	642	742	1087	1272	1295	
	-	18,50	160L	222	241																	326	354	458	474	549	642	742	742	1087	1272	1295	
	-	22,00	180M	241	326																	354	458	474	549	642	742	742	742	1087	1272	1295	
	-	30,00	200L	326	354															458	474	549	642	742	742	742	742	1087	1272	1295			
-	37,00	200L	458	474	549	642	742	742	742	742	742	742	1087	1272	1295																		
080315	5,50	-	132S	S486	B95	150	100	125	140	840	550	205	205	350	665	1102	1250	M24x400															
	7,50	-	132M																1102	1140	1250	1287											
	11,00	-	160M																1140	1250	1287	1420											
	15,00	-	160L																1250	1287	1420	1493											
100160	2,20	-	100L	S434	B80	126	100	125	140	540	660	490	170	200	280	560	993	1000	M20x400														
	3,00	-	100L																	S435	B95	203	206	222	241	326	354	458	474	549	642	742	1087
	4,00	-	112M	206	222																	241	326	354	458	474	549	642	742	1087	1272	1295	
	5,50	-	132S	222	241																	326	354	458	474	549	642	742	742	1087	1272	1295	
	-	18,50	160L	241	326																	354	458	474	549	642	742	742	742	1087	1272	1295	
	-	22,00	180M	326	354																	458	474	549	642	742	742	742	742	1087	1272	1295	
	-	30,00	200L	458	474															549	642	742	742	742	742	742	742	1087	1272	1295			
-	37,00	200L	549	642	742	742	742	742	742	742	742	742	1087	1272	1295																		
100200	2,20	-	100L	S434	B80	118	100	125	140	540	660	490	170	200	280	560	993	1000	M20x400														
	3,00	-	100L																	S435	B95	203	206	222	241	326	354	458	474	549	642	742	1087
	4,00	-	112M	206	222																	241	326	354	458	474	549	642	742	1087	1272	1295	
	5,50	-	132S	222	241																	326	354	458	474	549	642	742	742	1087	1272	1295	
	7,50	-	132M	241	326																	354	458	474	549	642	742	742	742	1087	1272	1295	
	-	18,50	160L	326	354																	458	474	549	642	742	742	742	742	1087	1272	1295	
	-	22,00	180M	458	474															549	642	742	742	742	742	742	742	1087	1272	1295			
-	30,00	200L	549	642	742	742	742	742	742	742	742	742	1087	1272	1295																		
100250	4,00	-	112M	S486	B95	132	100	125	140	610	840	550	205	240	325	605	1155	1250	M24X400														
	5,50	-	132S																	S487	B125	259	277	290	328	473	543	658	858	1055	1117	1155	1258
	7,50	-	132M	277	290																	328	473	543	658	858	1055	1117	1155	1258	1413	1413	
	11,00	-	160M	290	328																	473	543	658	858	1055	1117	1155	1258	1413	1413		
	-	30,00	200L	328	473																	543	658	858	1055	1117	1155	1258	1413	1413			
	-	37,00	200L	473	543																	658	858	1055	1117	1155	1258	1413	1413				
	-	45,00	225M	543	658															858	1055	1117	1155	1258	1413	1413							
-	55,00	250M	658	858	1055	1117	1155	1258	1413	1413																							
100315	11,00	-	160M	S486	B95	153	100	125	140	610	840	550	205	205	350	630	1258	1250	M24X400														
	15,00	-	160L																	1258	1302	1325	1363										
	18,50	-	180M																	1302	1325	1363	1660										
	22,00	-	180L																	1325	1363	1660	1660										
125200	7,50	-	132M	S486	B95	142	100	125	150	940	940	240	240	350	665	1155	1258	M24X400															
	11,00	-	160M																S487	B110	300	338	361	575	668	868	1055	1117	1155	1258			
	15,00	-	160L	338	361																575	668	868	1055	1117	1155	1258	1470					
	-	45,00	225M	361	575																668	868	1055	1117	1155	1258	1470						
	-	55,00	250M	575	668														868	1055	1117	1155	1258	1470									
-	75,00	280S	668	868	1055	1117	1155	1258	1470																								
125250	7,50	-	132M	S486	B95	147	100	125	150	940	840	550	205	205	350	665	1155	1250	M24X400														
	11,00	-	160M																	1155	1258	1302	1325										
	15,00	-	160L																	1258	1302	1325	1363										
	18,50	-	180M																	1302	1325	1363	1660										

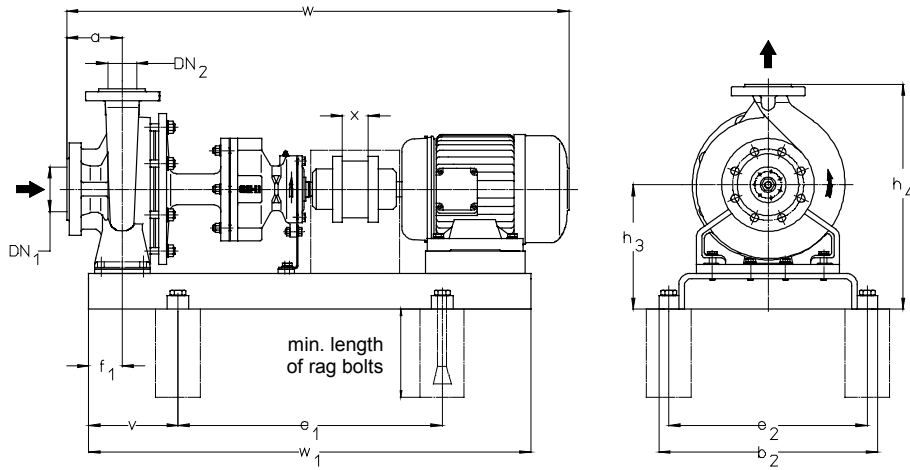
* Motor protection type IP 55, dimensions depend on the motor manufacturer.

Some sizes are not corresponding to the drawing in small details.

Foundation plan for 60Hz on request.

** Weight higher by 20 % in case of cast steel

Foundation plan for units with spacer coupling



Dimensions in mm.

ZEND Size	Motor		Base plate No.	Cplg.	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 rpm	2900 rpm			Size	Size															pump	unit
031125	0.25	-	71a	S303	57	101	32	50	80	390	600	350	160	197	357	140	906	920	M16X200			
	-	2.20	90L	S344		120													994	1020	M20X400	
031160	0.37	-	71b	S303	57	102	32	50	80	390	600	350	160	197	357	140	906	920	M16X200			
	-	3.00	100L	S344		127													1038	1020	M20X400	
031200	0.55	-	80a	S303	57	103	32	50	80	390	600	350	160	197	357	140	1038	920	M16X200			
	-	4.00	112M	S344		130													1055	1020	M20X400	
031250	0.75	-	80b	S303	57	105	32	50	80	390	600	350	160	197	357	140	1038	920	M16X200			
	-	5.50	132S	S344		155													1117	1020	M20X400	
032160	0.37	-	71b	S272	H80	55	32	50	80	360	540	320	140	60	197	357	100	801	820	M16x200		
	-	1.10	80b																		96	837
	-	1.50	90S																		97	837
	-	2.20	90L																		100	864
	-	3.00	100L																		103	864
	-	4.00	112M																		113	933
032200	0.55	-	80a	S272	H80	57	32	50	80	360	540	320	140	60	225	405	100	837	820	M16x200		
	-	1.10	80b																		100	837
	-	1.50	90S																		102	864
	-	3.00	100L																		115	933
	-	4.00	112M																		120	950
	-	5.50	132S																		146	1012
032250	0.75	-	80b	S383	H80	96	32	50	100	490	740	440	200	75	260	485	100	972	1140	M20X400		
	-	1.10	90S																		175	993
	-	1.50	90L																		177	1024
	-	2.20	100L																		181	1068
	-	7.50	132S																		220	1147
	-	11.00	160M																		277	1288
040160	0.37	-	71b	S272	H80	55	32	50	80	360	540	320	140	60	197	357	100	800	820	M16x200		
	-	1.10	80a																		94	837
	-	1.50	80b																		97	837
	-	2.20	90S																		99	864
	-	3.00	90L																		102	889
	-	4.00	100L																		105	933
040200	0.75	-	80b	S303	H80	63	32	50	100	390	600	350	160	60	225	405	100	857	920	M16x200		
	-	1.10	90S																		111	884
	-	1.50	90L																		114	909
	-	2.20	100L																		117	970
	-	4.00	112M																		122	977
	-	5.50	132S																		142	1032
040250	1.10	-	90S	S385	H80	98	32	50	100	450	660	400	180	75	260	485	100	1000	1140	M20x400		
	-	1.50	90L																		178	1024
	-	2.20	100L																		181	1068
	-	3.00	100L																		186	1068
	-	5.50	132S																		189	1068
	-	7.50	132S																		220	1147
040250	1.10	-	90S	S346	H95	98	32	50	100	450	660	400	180	75	260	485	100	1000	1140	M20x400		
	-	1.50	90L																		178	1024
	-	2.20	100L																		181	1068
	-	3.00	100L																		186	1068
	-	5.50	132S																		189	1068
	-	7.50	132S																		220	1147
040250	1.10	-	90S	S436	H95	98	32	50	100	450	660	400	180	75	260	485	100	1000	1140	M20x400		
	-	1.50	90L																		178	1024
	-	2.20	100L																		181	1068
	-	3.00	100L																		186	1068
	-	5.50	132S																		189	1068
	-	7.50	132S																		220	1147
040250	1.10	-	90S	S436	H95	98	32	50	100	450	660	400	180	75	260	485	100	1000	1140	M20x400		
	-	1.50	90L																		178	1024
	-	2.20	100L																		181	1068
	-	3.00	100L																		186	1068
	-	5.50	132S																		189	1068
	-	7.50	132S																		220	1147
040250	1.10	-	90S	S436	H95	98	32	50	100	450	660	400	180	75	260	485	100	1000	1140	M20x400		
	-	1.50	90L																		178	1024
	-	2.20	100L																		181	1068
	-	3.00	100L																		186	1068
	-	5.50	132S																		189	1068
	-	7.50	132S																		220	1147
040250	1.10	-	90S	S436	H95	98	32	50	100	450	660	400	180	75	260	485	100	1000	1140	M20x400		
	-	1.50	90L																		178	1024
	-	2.20	100L																		181	1068
	-	3.00	100L																		186	1068
	-	5.50	132S																		189	1068
	-	7.50	132S																		220	1147
040250	1.10	-	90S	S436	H95	98	32	50	100	450	660	400	180	75	260	485	100	1000	1140	M20x400		
	-	1.50	90L																		178	1024
	-	2.20	100L																		181	1068
	-	3.00	100L																		186	1068
	-	5.50	132S																		189	1068
	-	7.50	132S																		220	1147
040250	1.10	-	90S	S436	H95	98	32	50	100	450	660	400	180	75	260	485	100	1000	1140	M20x400		
	-	1.50	90L																		178	1024
	-	2.20	100L																		181	1068
	-	3.00	100L																		186	1068
	-	5.50	132S																		189	1068
	-	7.50	132S																		220	1147
040250	1.10	-	90S	S436	H95	98	32	50	100	450	660	400	180	75	260	485	100	1000	1140	M20x400		
	-	1.50	90L																		178	1024
	-	2.20	100L																		181	1068
	-	3.00	100L																		186	1068
	-	5.50	132S																		189	1068
	-	7.50	132S																		220	1147
040250	1.10	-	90S	S436	H95	98	32	50	100	450	660	400	180	75	260	485	100	1000	1140	M20x400		
	-	1.50	90L																		178	1024
	-	2.20	100L																		181	1068
	-	3.00	100L																		186	1068
	-	5.50	132S																		189	1068
	-	7.50	132S																		220	1147
040250	1.10	-	90S	S436	H95	98	32	50	100	450	660	400	180	75	260	485	100	1000	1140	M20x400		
	-	1.50	90L																		178	1024
	-	2.20	100L																		181	1068
	-	3.00	100L																		186	1068
	-	5.50	132S																		189	1068
	-	7.50	132S																		220	1147
040250	1.10	-	90S	S436	H95	98	32	50	100	450	660	400	180	75	260	485	100	1000	1140	M20x400		
	-	1.50	90L																		178	1024
	-	2.20	100L																		181	1068
	-	3.00	100L																		186	1068
	-	5.50	132S																		189	1068
	-	7.50	132S																		220	1147
040250	1.10	-	90S	S436	H95	98	32	50	100	450	660	400	180	75	260	485	100	1000	1140	M20x400		
	-	1.50	90L																		178	1024
	-	2.20	100L																		181	1068
	-	3.00	100L																		186	1068
	-	5.50	132S																		189	1068
	-	7.50	132S																		220	1147
040250	1.10	-	90S	S436	H95	98	32	50	100	450	660	400	180	75	260	485	100	1000	1140	M20x400		
	-	1.50	90L																		178	1024
	-	2.20	100L																		181	1068
	-	3.00	100L																		186	1068
	-	5.50	132S																		189	1068
	-	7.50	132S																		220	1147
040250	1.10	-	90S	S436	H95	98	32	50	100	450	660	400	180	75	260	485	100	1000	1140	M20x400		
	-	1.50	90L																		178	1024
	-	2.20	100L																		181	1068
	-	3.00	100L																		186	1068
	-	5.50	132S																		189	1068
	-	7.50	132S																		220	1147
040250	1.10	-	90S	S436	H95	98	32	50	100	450	660	400	180	75	260	485	100	1000	1140	M20x400		
	-	1.50	90L																		178	1024
	-	2.20	100L																		181	1

ZEND Size	Motor			Base plate No.	Cplg.	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	Size																	
040315	2,20	-	100L	S385	H80	136	40	65	125	490	740	440	200	75	280	530		1106	1140	M20x400
	3,00	-	100L															1106		
	4,00	-	112M															1125		
	5,50	-	132S															1185		
																		1185		
050160	0,55	-	80a	S303	H80	61	50	80	100	390	600	350	160		225	405		857	920	M16x200
	0,75	-	80b															857		
	1,10	-	90S															884		
	1,50	2,20	90L															912		
	-	3,00	100L															953		
	-	4,00	112M															977		
	-	5,50	132S															1032		
	-	7,50	132S															1032		
	-	11,00	160M															1032		
																		1032		
050200	0,75	-	80b	S303	H80	65	50	80	100	390	600	350	160	60	225	425		857	920	M16x200
	1,10	-	90S															884		
	1,50	-	90L															909		
	2,20	-	100L															970		
	-	4,00	112M															970		
	-	5,50	132S															1032		
	-	7,50	132S															1032		
	-	11,00	160M															1032		
	-	15,00	160M															1032		
	-	18,50	160L															1032		
050250	1,50	-	90L	S385	H80	101	65	80	100	490	740	440	200		260	485		1049	1140	M20x400
	2,20	-	100L															1093		
	3,00	-	100L															1093		
	4,00	-	112M															1110		
	-	7,50	132S															1172		
	-	11,00	160M															1313		
	-	15,00	160M															1313		
	-	18,50	160L															1357		
	-	22,00	180M															1380		
	-	30,00	200L															1468		
050315	4,00	-	112M	S486	H80	140	65	80	100	610	840	490	215		325	605		1125	1250	M24x400
	5,50	-	132S															1185		
	7,50	-	132M															1223		
065160	0,75	-	80b	S344	H80	86	65	100	100	450	660	400	180	75	240	440		857	1020	M20x400
	1,10	-	90S															884		
	1,50	-	90L															909		
	2,20	-	100L															953		
	-	4,00	112M															1094		
	-	5,50	132S															1147		
	-	7,50	132S															1147		
	-	11,00	160M															1288		
-	15,00	160M	1288																	
065200	1,10	-	90S	S344	H80	94	65	100	100	450	660	400	180		260	485		1039	1020	M20x400
	1,50	-	90L															1064		
	2,20	-	100L															1108		
	3,00	-	100L															1108		
	4,00	-	112M															1125		
	-	7,50	132S															1255		
	-	11,00	160M															1328		
	-	15,00	160M															1328		
	-	18,50	160L															1372		
	-	22,00	180M															1425		
065250	2,20	-	100L	S435	H80	113	65	100	125	540	740	490	200		280	530		1133	1140	M20x400
	3,00	-	100L															1133		
	4,00	-	112M															1150		
	5,50	-	132S															1212		
	-	15,00	160M															1420		
	-	18,50	160L															1420		
	-	22,00	180M															1425		
	-	30,00	200L															1483		
	-	37,00	200L															1483		
	-	45,00	225M															1483		
065315	5,50	-	132S	S486	H95	146	65	100	125	610	840	550	205		325	605		1508	1250	M24x400
	7,50	-	132M															1555		
	11,00	-	160M															1565		
	15,00	-	160L															1565		
080160	0,75	-	80b	S344	H80	95	80	125	125	450	660	400	180	75	260	485		1037	1020	M20x400
	1,10	-	90S															1064		
	1,50	-	90L															1089		
	2,20	-	100L															1133		
	3,00	-	100L															1133		
	-	7,50	132S															1212		
	-	11,00	160M															1212		
	-	15,00	160M															1353		
	-	18,50	160L															1353		
	-	22,00	180M															1397		
080200	1,50	-	90L	S385	H80	102	80	125	125	490	740	440	200		510			1089	1140	M20x400
	2,20	-	100L															1133		
	3,00	-	100L															1133		

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ZEND Size	Motor			Base plate No.	Cplg.	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															
	rpm	1450	2900			Size	pump															unit														
080200	4,00	-	112M	S385	H80	102	80	125	125	125	610	940	550	205	75	260	510	300	550	1150	1140	M20x400														
	5,50	-	132S																	1212																
	-	11,00	160M																	1420																
	-	15,00	160M																	1420																
	-	18,50	160L	1420																																
	-	22,00	180M	1425																																
	-	30,00	200L	1508																																
	-	37,00	200L	1508																																
080250	3,00	-	100L	S486	H80	125	80	125	125	610	940	550	240	205	75	325	605	300	605	1133	1250	M24x400														
	4,00	-	112M																	1150																
	5,50	-	132S																	1212																
	7,50	-	132M																	1250																
	-	18,50	160L	1420																																
	-	22,00	180M	1420																																
	-	30,00	200L	1508																																
	-	37,00	200L	1508																																
	-	45,00	225M	1565																																
	-	55,00	250M	1633																																
080315	5,50	-	132S	S486	H95	150	100	125	140	610	840	550	205	90	350	665	350	665	1252	1250	M24x400															
	7,50	-	132M																1290																	
	11,00	-	160M	1393																																
	15,00	-	160L	1457																																
100160	2,20	-	100L	S435	H80	126	100	125	140	540	740	490	200	75	280	560	300	580	1148	1140	M20x400															
	3,00	-	100L																1148																	
	4,00	-	112M																1165																	
	5,50	-	132S	1227																																
	-	18,50	160L	1412																																
	-	22,00	180M	1435																																
100200	-	30,00	200L	S487	H125	118	100	125	125	540	740	490	200	90	280	560	300	580	1523	1420	M24x400															
	-	30,00	200L																1523																	
	-	37,00	200L																1523																	
	-	45,00	225M																1534																	
	2,20	-	100L	S435	H80														118			100	125	125	540	740	490	200	90	280	560	300	580	1133	1140	M20x400
	3,00	-	100L																															1133		
	4,00	-	112M																															1230		
	5,50	-	132S																															1243		
7,50	-	132M	1245																																	
-	18,50	160L	1330																																	
-	22,00	180M	1358																																	
-	30,00	200L	1495																																	
-	37,00	200L	1495																																	
-	45,00	225M	1534																																	
100250	4,00	-	112M	S486	H95	132	100	125	140	610	840	550	205	90	325	605	350	630	1195	1250	M24x400															
	5,50	-	132S																1274																	
	7,50	-	132M																1276																	
	11,00	-	160M																1329																	
	-	30,00	200L	1515																																
	-	37,00	200L	1509																																
	-	45,00	225M	1553																																
	-	55,00	250M	1553																																
-	75,00	280S	1880																																	
100315	11,00	-	160M	S486	H95	153	100	125	140	610	940	550	240	90	350	665	350	665	1408	1250	M24x400															
	15,00	-	160L																1452																	
	18,50	-	180M	1475																																
	22,00	-	180L	1513																																
125200	7,50	-	132M	S486	H95	142	125	150	150	660	1060	600	280	90	380	695	380	695	1295	1250	M24x400															
	11,00	-	160M																1339																	
	15,00	-	160L	1362																																
	-	45,00	225M	1613																																
	-	55,00	250M	1706																																
	-	75,00	280S	1890																																
125250	7,50	-	132M	S486	H95	147	125	150	150	610	840	550	205	90	350	705	350	705	1295	1250	M24x400															
	11,00	-	160M																1344																	
	15,00	-	160L	1367																																
	18,50	-	180M	1392																																

* 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.

** Weight higher by 20 % in case of cast steel.

Data regarding pump size

Type + Pump size	Hydraulic + Bearing	Shaft sealing	Material desing	Casing gasket
	A hydraulic 1 S grease lubricated reinforced antifriction bearing and one internal liquid flushed sleeve bearing	BG3 balanced standard mechanical seal	1B main parts of spheroidal cast iron 2B main parts of cast steel	2 confined flat gasket of graphite with A4 insertion
ZEND	AS	BG3	1B alternative 1B 2B	2
031125				
031160				
031200				
031250				
032160				
032200				
032250				
040160				
040200				
040250				
040315				
050160				
050200				
050250				
050315				
065160				
065200				
065250				
065315				
080160				
080200				
080250				
080315				
100160				
100200				
100250				
100315				
125200				
125250				

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