

## ZEND 031125 ... 125250

### TECHNICAL DATA

Output:	max. 600 m <sup>3</sup> /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 applications 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 systems 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.

### 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	volute casing* intermediate flange	EN-JS 1025	EN-GJS-400-18-LT	0.7043	GGG-40.3	A 395		X	
16.10 33.00	casing cover bearing bracket	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	040200	080200	3000	031250	100250	1800	125250
	031160	050160	100160		032250	125200		040315
	031200	050200	100200		040250	050315		
	032160	065160			050250	065315		
	032200	065200			065250	080315		
	040160	080160			080250	100315		

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:

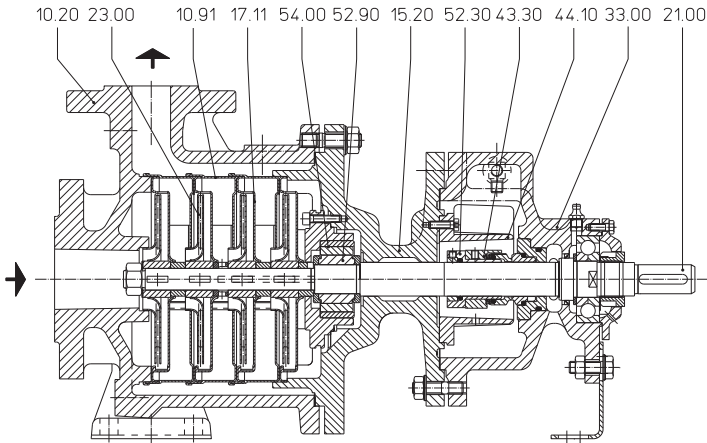
For equipping hot media systems a complete programme is available for a flow range between 1-600 m<sup>3</sup>/h consisting of the range:

- 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.

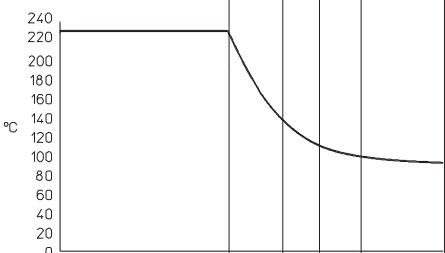
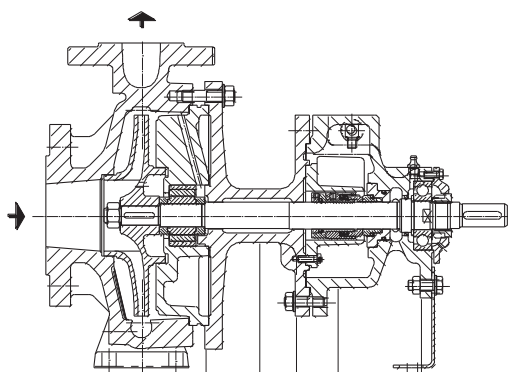
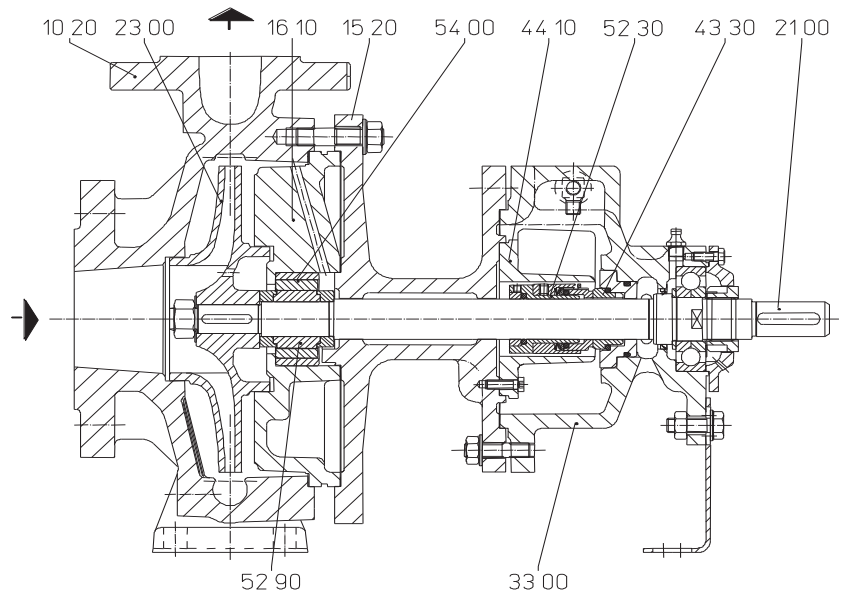
## Sectional drawing and nomenclature

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...



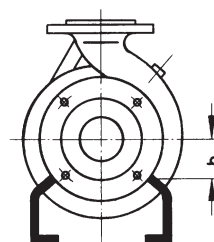
Curve of temperature decrease

### 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.

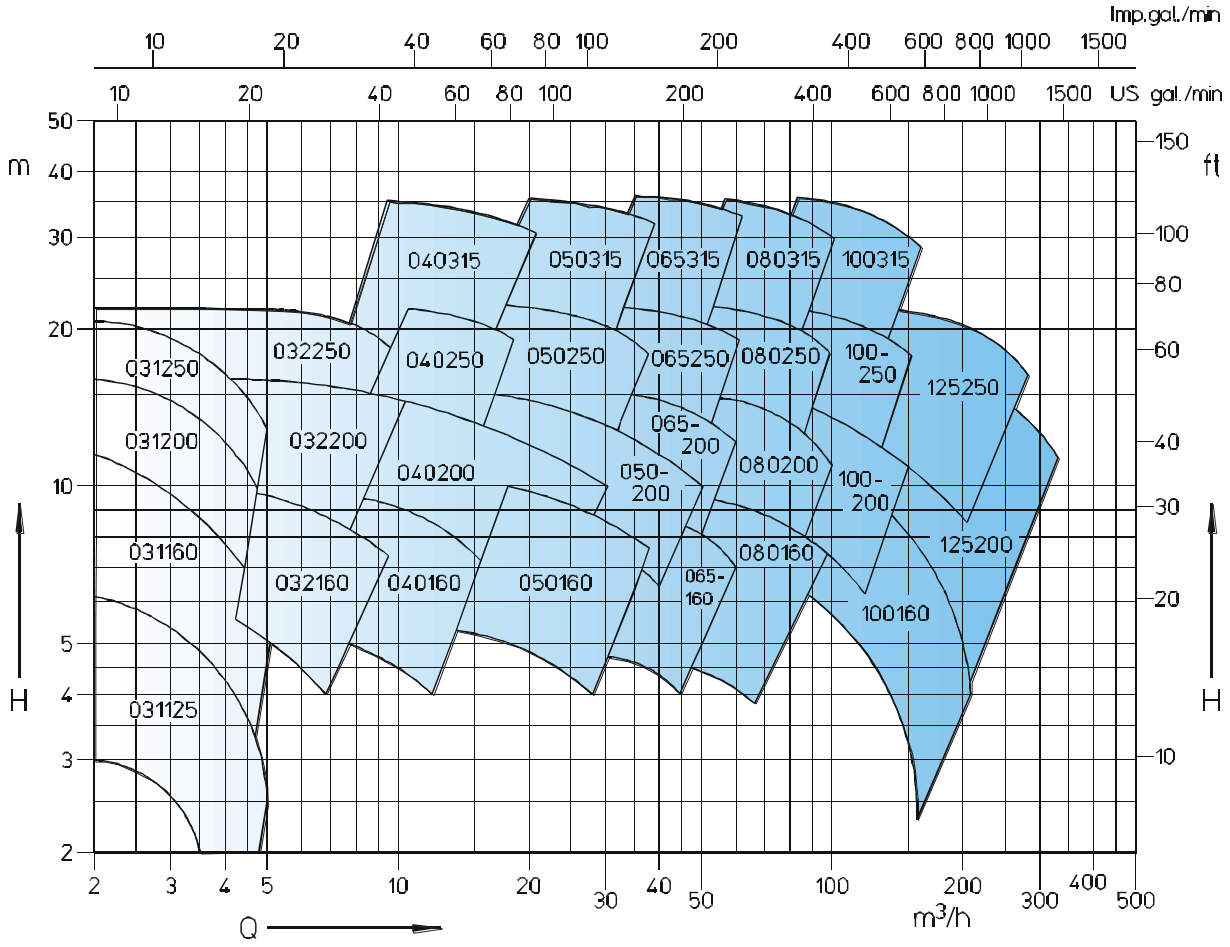
Product-side heat losses are effectively prevented (energy saving). The temperature reduction makes it possible to use safely an **uncooled** mechanical seal up to a pumping medium temperature of **230 °C**.



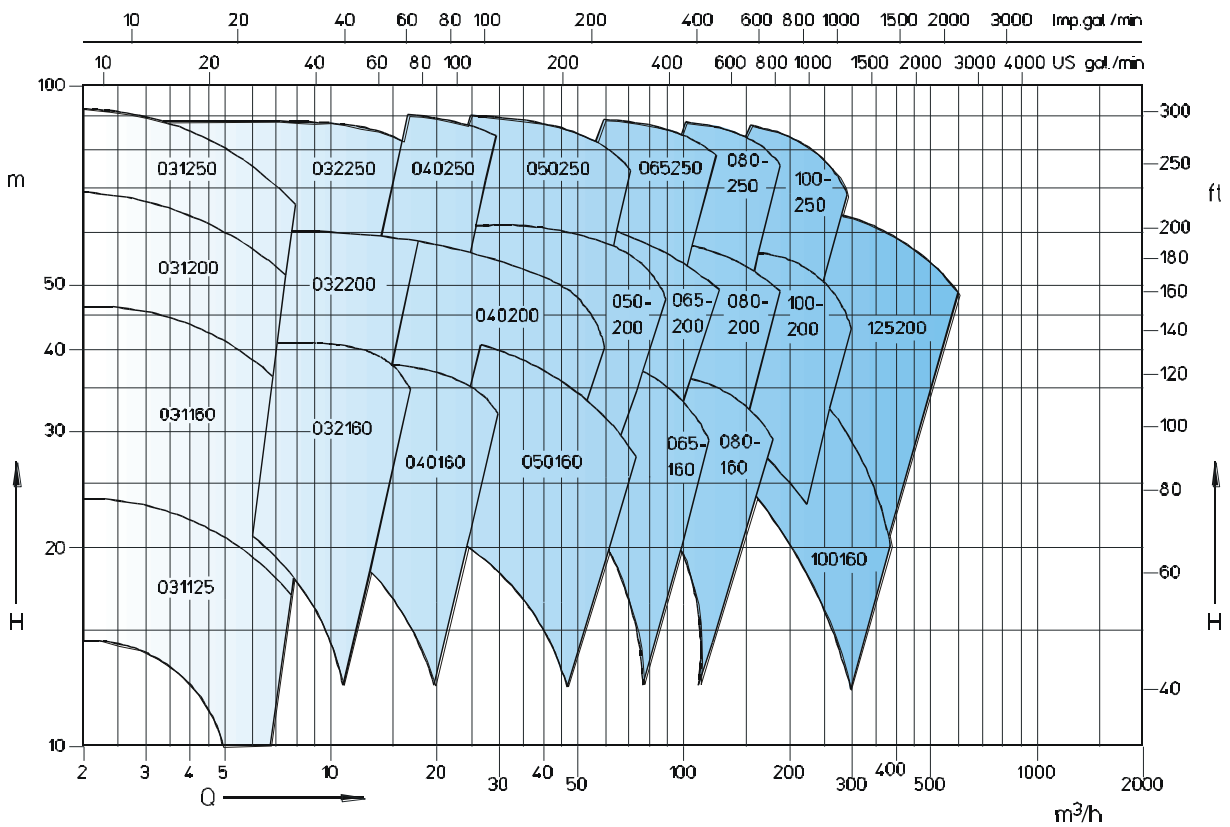
By special constructional shaping of the pump feed, displacements caused by thermal expansion are prevented to a great extent. For the vertical displacement only the measure  $h$  is decisive, since the rest of the foot remains cold. The horizontal expansion is taken up by the elastic foot bracings.

Performance graph

50 Hz  
n= 1450 rpm

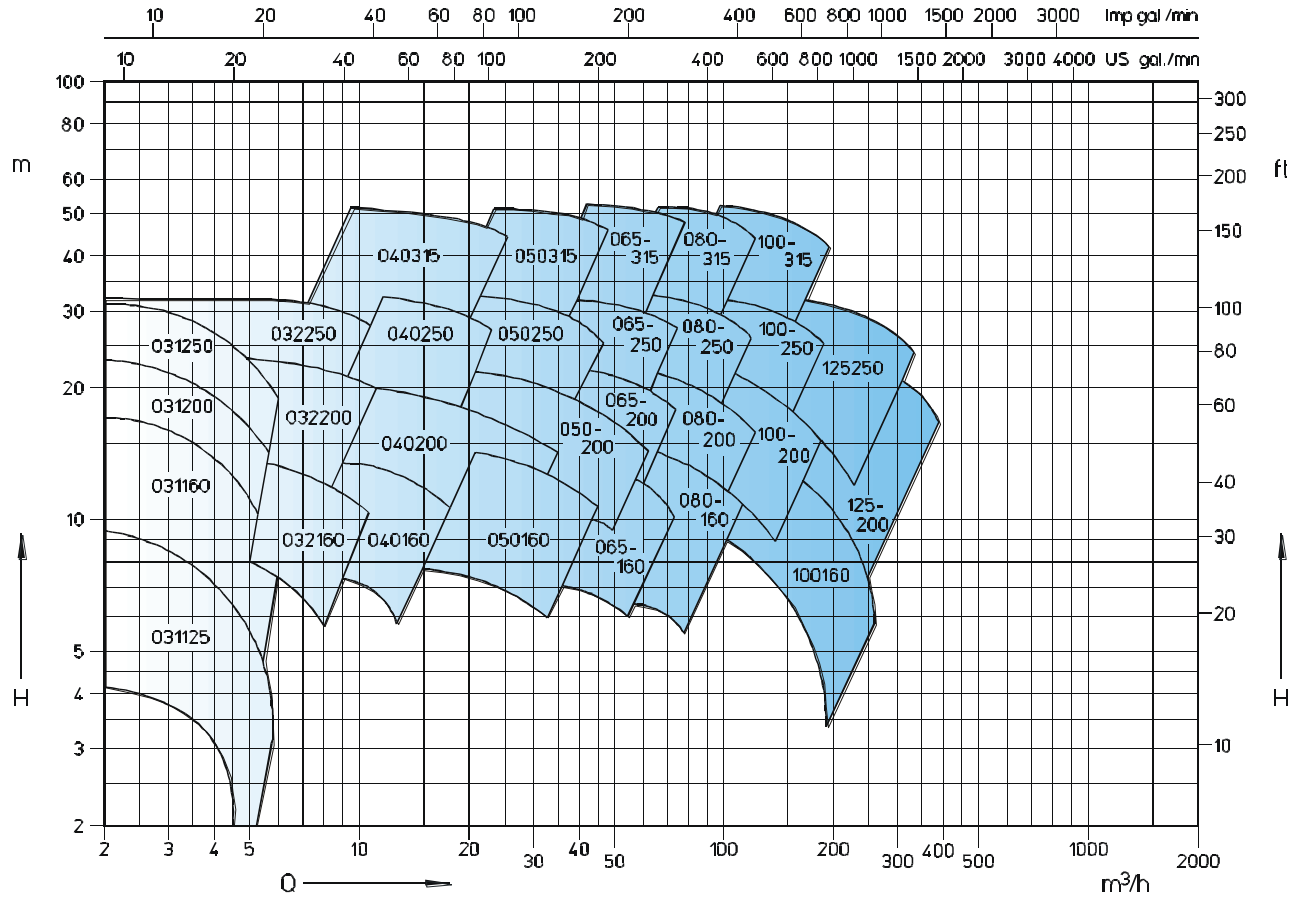


n= 2900 rpm

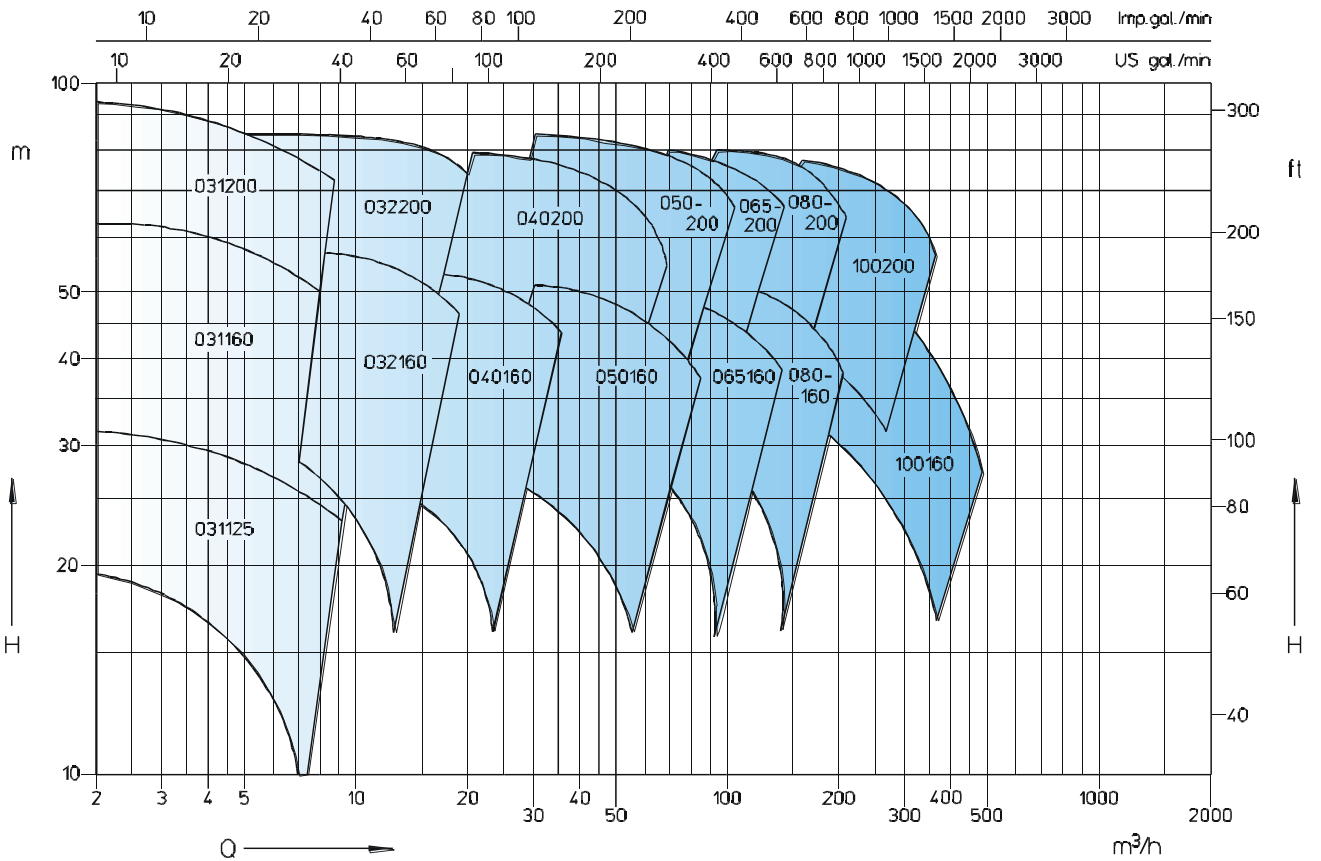


Performance graph

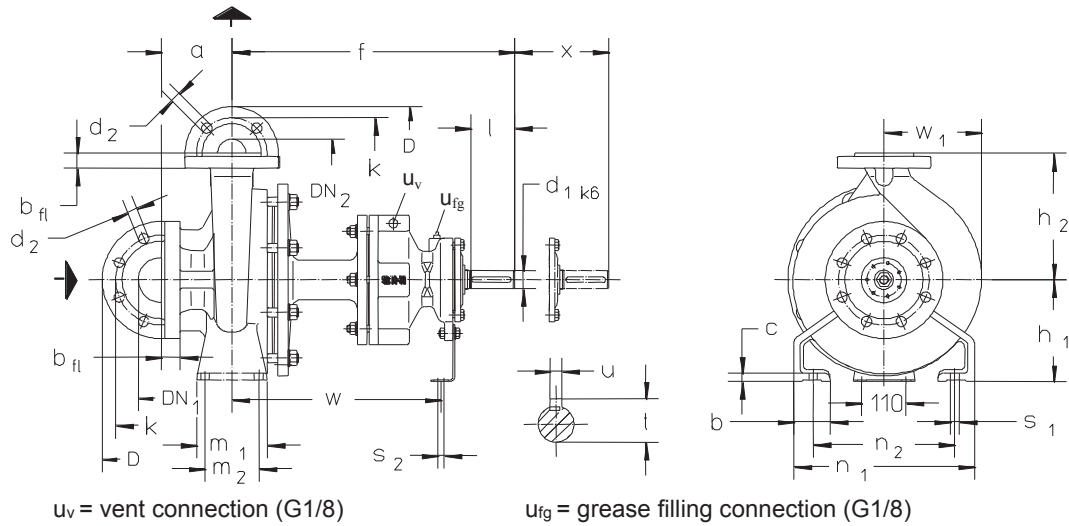
60 Hz  
n = 1750 rpm



n = 3500 rpm



## Dimension table



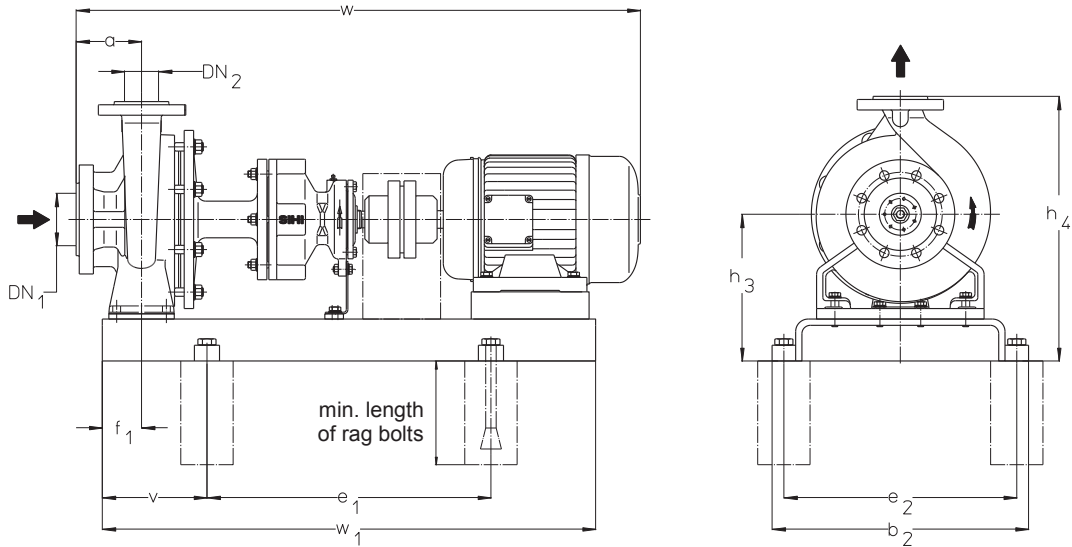
Dimensions in mm

Size	DN <sub>2</sub>	DN <sub>1</sub>	a	b	c	f	h <sub>1</sub>	h <sub>2</sub>	m <sub>1</sub>	m <sub>2</sub>	n <sub>1</sub>	n <sub>2</sub>	s <sub>1</sub> *	s <sub>2</sub> *	w	w <sub>1</sub>	x	d <sub>1</sub>	l	t	u		
031125 <sup>1)</sup>	32	50	80	50	17	450	132	160	100	70	240	190	M12	M12	350	128	140	24	50	27	8		
031160 <sup>1)</sup>																							
031200 <sup>1)</sup>																							
031250 <sup>1)</sup>																							
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															
032250							500	180								225						125	95
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								265						212	150
040250			180				225	320								250						170	
040315			125				65	20								500						200	250
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							180	225								320						250	175
050315							125	65								20						500	225
065160	65	100	100	65	17	500	160	200	125	95	280	212	M12	M12	370	155	100	32	80	35	10		
065200							180	225								320						250	175
065250							200	250								360						280	195
065315							125	80								20						530	225
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							225	280								400						315	205
080315							530	250								315						160	120
100160 <sup>1)</sup>	100	125	140	80	20	500	200	280	160	120	360	280	M16	M12	370	210	140	32	80	35	10		
100200			125				280																
100250			140				225	400								315						215	
100315			530				250	315								160						120	400
125200 <sup>1)</sup>	125	150	140	80	20	530	315	355	160	120	400		M16	M12	370	245	140	42	110	45	12		
125250							250	355								240							

- Transnom 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 according to DIN EN 1092-1 PN 40 execution material 2B							
DN <sub>2</sub> /DN <sub>1</sub>	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 <sub>fl</sub>	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 <sub>2</sub> x number	19x4	19x4	19x4	19x8	19x8	23x8	28x8	28x8	18x4	18x4	18x4	18x8	18x8	22x8	26x8	26x8

# Foundation plan

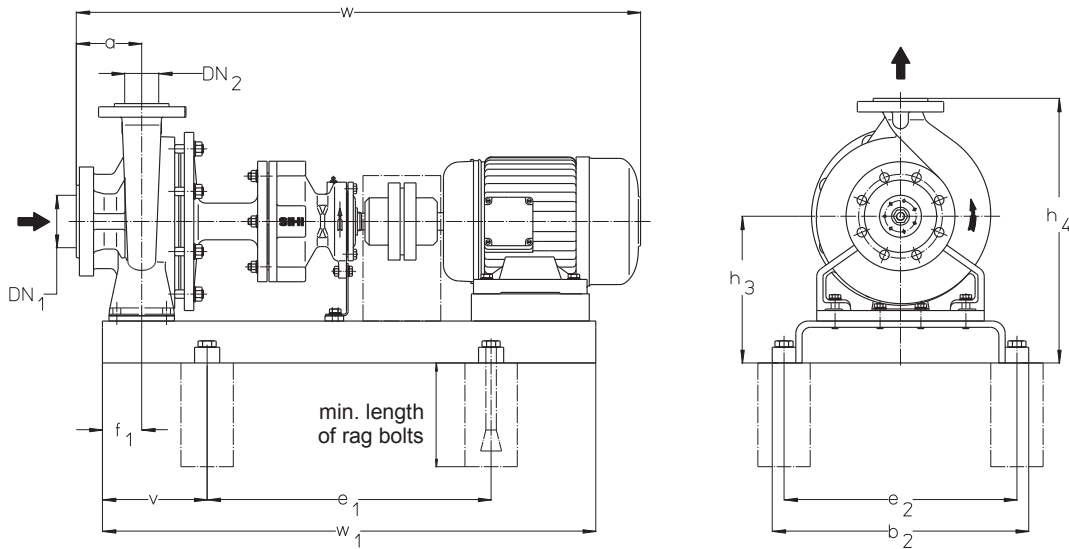


Dimensions in mm

ZEND Size	Motor Speed		Size	Base plate No.	Coupling	weight (kg)		DN <sub>2</sub>	DN <sub>1</sub>	a	b <sub>2</sub>	e <sub>1</sub>	e <sub>2</sub>	v	f <sub>1</sub>	h <sub>3</sub>	h <sub>4</sub>	w*	w <sub>1</sub>	Rag bolt size
	1450	2900				Pump	Unit													
031125	0,25	-	71a	S272	B68	57	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	94	32	50	80	360	540	320	140	60	197	357	766	820	M16x200
	-	3,00	100L															107		
031200	0,55	-	80a	S272	B68	57	95	32	50	80	360	540	320	140	60	197	357	802	820	M16x200
	-	4,00	112M															112		
031250	0,75	-	80b	S303	B95	57	97	32	50	80	360	540	320	140	60	197	357	802	820	M16x200
	-	5,50	132S															143		
032160	0,37	-	71b	S270	B68	55	87	32	50	80	360	540	320	140	60	197	357	701	650	M16x200
	-	1,10	80b															94		
032160	0,55	-	80a	S272	B68	55	93	32	50	80	360	540	320	140	60	197	357	737	820	M16x200
	-	2,20	90L															100		
032160	-	1,50	90S	S272	B80	55	97	32	50	80	360	540	320	140	60	197	357	764	820	M16x200
	-	3,00	100L															106		
032160	-	4,00	112M	S272	B80	55	110	32	50	80	360	540	320	140	60	197	357	833	820	M16x200
	-	7,50	132M															149		
032200	0,55	-	80a	S272	B68	57	95	32	50	80	360	540	320	140	60	225	405	737	820	M16x200
	0,75	-	80b															97		
032200	1,10	-	90S	S272	B80	57	99	32	50	80	360	540	320	140	60	225	405	737	820	M16x200
	-	3,00	100L															108		
032200	-	4,00	112M	S303	B95	57	112	32	50	80	360	540	320	140	60	225	405	833	820	M16x200
	-	5,50	132S															143		
032200	-	7,50	132S	S303	B95	57	149	32	50	80	360	540	320	140	60	225	405	912	920	M16x200
	-	15,00	160M															149		
032250	0,75	-	80b	S383	B80	96	149	32	50	100	490	600	440	160	75	260	485	872	920	M20x400
	1,10	-	90S															151		
032250	1,50	-	90L	S383	B80	96	153	32	50	100	490	600	440	160	75	260	485	924	920	M20x400
	2,20	-	100L															159		
032250	-	7,50	132S	S385	B95	96	217	32	50	100	490	600	440	160	75	260	485	1047	920	M20x400
	-	11,00	160M															261		
032250	-	15,00	160M	S385	B95	96	275	32	50	100	490	600	440	160	75	260	485	1188	920	M20x400
	-	15,00	160M															275		
040160	0,37	-	71b	S270	B68	55	85	32	50	80	360	540	320	140	60	197	357	700	650	M16x200
	0,55	-	80a															94		
040160	0,75	-	80b	S272	B68	55	96	32	50	80	360	540	320	140	60	197	357	737	820	M16x200
	1,10	1,50	90S															99		
040160	-	2,20	90L	S272	B68	55	102	32	50	80	360	540	320	140	60	197	357	767	820	M16x200
	-	3,00	100L															107		
040160	-	4,00	112M	S303	B95	55	125	32	50	80	360	540	320	140	60	197	357	833	820	M16x200
	-	5,50	132S															143		
040160	-	7,50	132S	S303	B95	55	143	32	50	80	360	540	320	140	60	197	357	857	820	M16x200
	-	15,00	160M															143		
040200	0,75	-	80b	S301	B68	63	102	40	65	100	390	480	350	125	60	225	405	757	730	M16x200
	1,10	-	90S															105		
040200	1,50	-	90L	S301	B68	63	108	40	65	100	390	480	350	125	60	225	405	809	730	M16x200
	2,20	-	100L															120		
040200	-	4,00	112M	S303	B80	63	138	40	65	100	390	600	350	160	60	225	405	877	920	M16x200
	-	5,50	132S															151		
040200	-	7,50	132S	S303	B80	63	130	40	65	100	390	600	350	160	60	225	405	932	920	M16x200
	-	11,00	160M															213		
040200	-	15,00	160M	S344	B95	63	215	40	65	100	450	660	400	180	60	240	420	1073	1020	M20x400
	-	15,00	160M															215		

\* Motor protection type IP 55, dimensions depend on the motor manufacturer. \*\* Weight higher by 20 % in case of cast steel  
Some sizes are not corresponding to the drawing in small details. Foundation plan for 60Hz on request.

# Foundation plan



Dimensions in mm

ZEND Size	Motor Speed		Size	Base plate No.	Coup-ling	weight (kg)		DN <sub>2</sub>	DN <sub>1</sub>	a	b <sub>2</sub>	e <sub>1</sub>	e <sub>2</sub>	v	f <sub>1</sub>	h <sub>3</sub>	h <sub>4</sub>	w*	w <sub>1</sub>	Rag bolt size						
	1450	2900				kW	Pump														Unit					
040250	1,10	-	90S	S383	B80	98	40	65	100	490	440	160	75	260	485	900	1140	M20x400								
	1,50	-	90L													924										
	2,20	-	100L													968										
	3,00	-														1047										
	-	5,50	132S	S385	B95											215			740	200	1188					
	-	7,50														218					1232					
	-	11,00	160M													267										
	-	15,00														269										
-	18,50	160L		293																						
040315	2,20	-	100L	S383	B80	136	40	65	125	490	600	440	160	75	280	530	993	1140	M20X400							
	3,00	-			201												160									
	4,00	-	112M		207												160									
	5,50	-	132S	S435	B95												262			200	1072					
050160	0,55	-	80a	S301	B68	61	50	80	100	390	350	125	60	225	405	757	1020	M16x200								
	0,75	-	80b													100										
	1,10	-	90S													103										
	1,50	2,20	90L													105										
	-	3,00	100L	S303	B80											118			600	160	853					
	-	4,00	112M													136					877					
	-	5,50	132S	S344	B95											149			450	660	400	180	152	240	420	1073
	-	7,50														211							932			
	-	11,00	160M		217											932										
	050200	0,75	-	80b	S301											B68			65	50	80	100	390	350	125	60
1,10		-	90S	107																						
1,50		-	90L	110																						
2,20		-	100L	122																						
-		4,00	112M	S303	B80	140	600	160	870																	
-		5,50				157			932																	
-		7,50	132S	S344	B95	160	450	660	400	180	215	240	440	1073												
-		11,00	160M			217					1113															
-		15,00		232	949																					
050250		1,50	-	90L	S383	B80	101	125	160	75	490	440	200	75	260	485	949	1140								
	2,20	-	100L	164																						
	3,00	-		168																						
	4,00	-	112M	184																						
	-	7,50	132S	S385	B95	221											740		200	1072						
	-	11,00				264														1213						
	-	15,00	160M	S385	B95	272											490		215	1257						
	-	18,50	160L			297														1280						
	-	22,00	180M	S436	B125	324											540		490	215	1368					
	-	30,00	200L			433															1010					
050315	4,00	-	112M	S486	B80	140	610	840	550	205	325	605	1072	1250	M24X400											
	5,50	-	132S		B95								283			1110										
	7,50	-	132M		B95								295			1110										
065160	0,75	-	80b	S342	B80	86	65	100	100	450	660	400	180	75	240	440	872	1140	M20x400							
	1,10	-	90S														146									
	1,50	-	90L														149									
	2,20	-	100L														152									
	-	4,00	112M	S344	B80												159			490	740	440	200	184	1188	
	-	5,50															187									
	-	7,50	132S	S385	B95												187			490	740	440	200	255		
	-	11,00	160M														257							1188		
	-	15,00			257																					

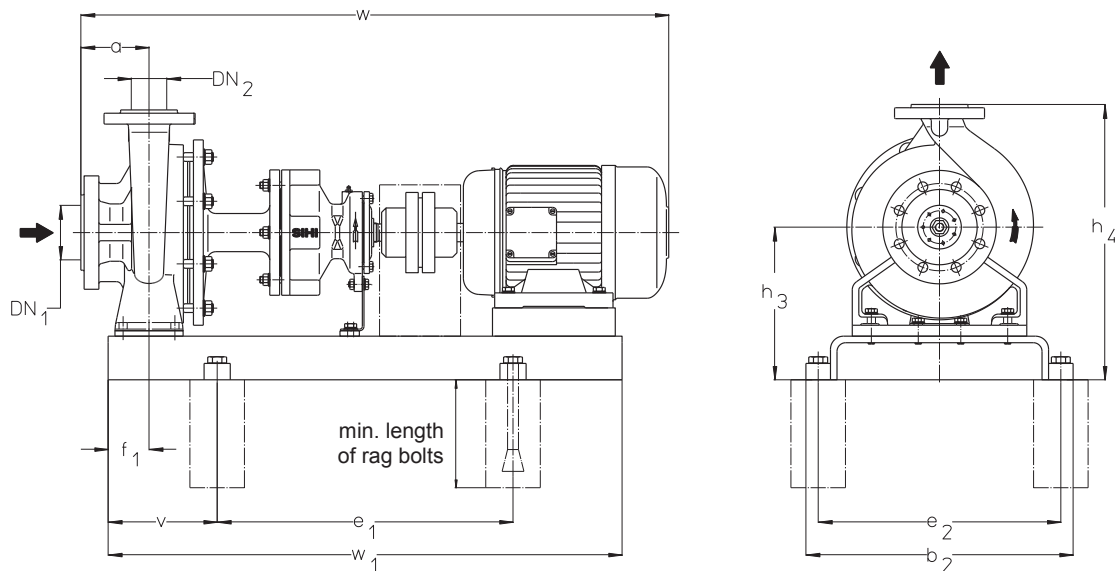
\* Motor protection type IP 55, dimensions depend on the motor manufacturer. \*\* Weight higher by 20 % in case of cast steel  
Some sizes are not corresponding to the drawing in small details. Foundation plan for 60Hz on request.



ZEND Size	Motor Speed		Size	Base plate No.	Coupling	weight (kg)		DN <sub>2</sub>	DN <sub>1</sub>	a	b <sub>2</sub>	e <sub>1</sub>	e <sub>2</sub>	v	f <sub>1</sub>	h <sub>3</sub>	h <sub>4</sub>	w*	w <sub>1</sub>	Rag bolt size						
	1450	2900				Pump	Unit																			
065200	1,10	-	90S	S344	B80	94	154	65	100						75	260	485	900	1020	M20x400						
	1,50	-	90L															924								
	2,20	-	100L															968								
	3,00	-	100L															968								
	4,00	-	112M															985								
	-	7,50	132S	S385	B95													214			490	740	440	200	1047	1140
	-	11,00	160M															263							1213	
	-	15,00	160L															265							1213	
	-	18,50	160L															289							1257	
	-	22,00	180M															317							1280	
-	30,00	200L	S436	B125	426	840	215	1368	1270																	
065250	2,20	-	100L	S434	B80	113	190	65	125						90	280	530	993	1000	M20x400						
	3,00	-	112M															193			660	170	1010			
	4,00	-	132S															208					1072			
	5,50	-	132S	228	740													200	1213				1140			
	-	15,00	160M	298															1257							
	-	18,50	160L	313															1280							
	-	22,00	180M	341															1368		1270					
	-	30,00	200L	S436															B125		504	840		215	1425	1270
	-	37,00	225M	S486	B95													540	490		215	300	550	1425	M24x400	
	-	45,00	225M															504	300		550	1425	M24x400			
065315	5,50	-	132S	S486	B95	146	280											1102	1250	M20x400						
	7,50	-	132M															292			1140					
	11,00	-	160M															325			1243					
	15,00	-	160L															341			1287					
080160	0,75	-	80b	S383	B80	95	150											897	920	M20x400						
	1,10	-	90S															153			600	160	924			
	1,50	-	90L															156					949			
	2,20	-	100L															159					993			
	3,00	-	100L															162					1072			
	-	7,50	132S	215	740													200	1213				1140			
	-	11,00	160M	264															1257							
	-	15,00	160L	266															1280							
	-	18,50	160L	290															1368		1270					
	-	22,00	180M	318															1425		1270					
080200	1,50	-	90L	S383	B80	102	162	80	125	125								949	920	M20x400						
	2,20	-	100L															166			600	160	993			
	3,00	-	100L															169					1010			
	4,00	-	112M															185					740	200	1072	1140
	5,50	-	132S															226							1213	
	-	11,00	160M	266	1257																					
	-	15,00	160M	273	1280																					
	-	18,50	160L	297	1368													1270								
	-	22,00	180M	B110	325													280	0		1368	1270				
	-	30,00	200L	S436	B125													434	490		215	1368	1270			
-	37,00	200L	S436	B125	450	540	490	215	280	0	1368	1270														
080250	3,00	-	100L	S486	B80	125	234											993	1250	M24x400						
	4,00	-	112M															251			840	205	1010			
	5,50	-	132S															270					1072			
	7,50	-	132M															283					610	550	1110	1420
	-	18,50	160L															347							1225	
	-	22,00	180M	370	1280																					
	-	30,00	200L	466	1368																					
	-	37,00	200L	B125	482													1368								
	-	45,00	225M	S487	B140													542	940		240	1425	1493			
	-	55,00	250M															642	1493							
080315	5,50	-	132S	S486	B95	150	293											1102	1250	M24x400						
	7,50	-	132M															305			1140					
	11,00	-	160M															338			1243					
	15,00	-	160L															354			1287					
100160	2,20	-	100L	S434	B80	126	203	100	125	140	540							1008	1000	M20x400						
	3,00	-	100L															206			660	170	1025			
	4,00	-	112M															222					490	200	1087	
	5,50	-	132S															241							1272	
	-	18,50	160L	326	1295																					
	-	22,00	180M	B110	354													1383	1270							
	-	30,00	200L	S436	B125													458	840		215	1383	1270			
	-	37,00	200L															474	840		215	1383	1270			

\* Motor protection type IP 55, dimensions depend on the motor manufacturer. \*\* Weight higher by 20 % in case of cast steel  
Some sizes are not corresponding to the drawing in small details. Foundation plan for 60Hz on request.

## Foundation plan

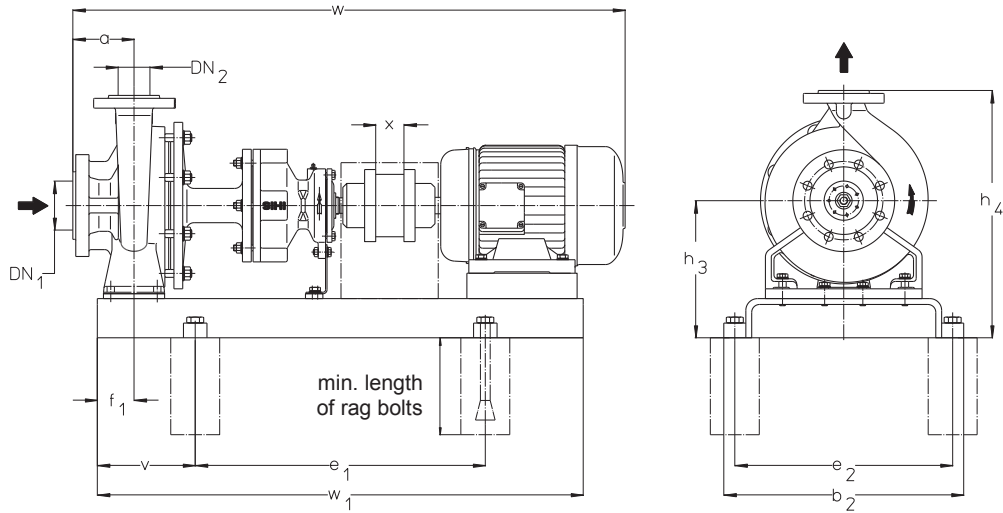


Dimensions in mm

ZEND Size	Motor Speed		Size	Base plate No.	Coupling	weight (kg)		DN <sub>2</sub>	DN <sub>1</sub>	a	b <sub>2</sub>	e <sub>1</sub>	e <sub>2</sub>	v	f <sub>1</sub>	h <sub>3</sub>	h <sub>4</sub>	w*	w <sub>1</sub>	Rag bolt size
	1450	2900				kW	Pump													
100200	2,20	-	100L	S434	B80	118	195	100	125	125	540	660	490	170	200	280	560	993	1000	M20x400
	3,00	-	112M				213											1010		
	4,00	-	132S				233											1072		
	7,50	-	132M	S435	B95		246											1110		
	-	18,50	160L				318											1257		
	-	22,00	180M	S436	B110		346											1280		
	-	30,00	200L				450											1368		
	-	37,00	200L				466											1425		
	-	45,00	225M	S436	B125		500											1425		
100250	4,00	-	112M	S486	B95	132	259	100	125	140	610	840	550	205	90	325	605	1055	1250	M24X400
	5,50	-	132S				277											1117		
	7,50	-	132M				290											1155		
	11,00	-	160M	S487	B125		328											1258		
	-	30,00	200L				473											1413		
	-	37,00	225M	S487	B140		499											1470		
	-	45,00	250M				543											1538		
	-	55,00	280S				658											1660		
	-	75,00	280S	S487	B160		858											1660		
100315	11,00	-	160M	S486	B110	153	311	125	150	140	610	940	550	240	90	350	665	1258	1250	M24x400
	15,00	-	160L				368											1302		
	18,50	-	180M				397											1325		
	22,00	-	180L				414											1363		
125200	7,50	-	132M	S486	B95	142	300	125	150	140	610	940	550	240	90	350	665	1155	1250	M24x400
	11,00	-	160M				338											1258		
	15,00	-	160L				361											1302		
	-	45,00	225M	S487	B125		575											1470		
	-	55,00	250M				668											1538		
-	75,00	280S	S487	B160	868	1660														
125250	7,50	-	132M	S486	B95	147	305	125	150	140	610	940	550	240	90	350	705	1155	1250	M24x400
	11,00	-	160M				343											1258		
	15,00	-	160L				366											1302		
	18,50	-	180M				391											1325		

\* Motor protection type IP 55, dimensions depend on the motor manufacturer. \*\* Weight higher by 20 % in case of cast steel  
Some sizes are not corresponding to the drawing in small details. Foundation plan for 60Hz on request.

## Foundation plan for units with spacer coupling

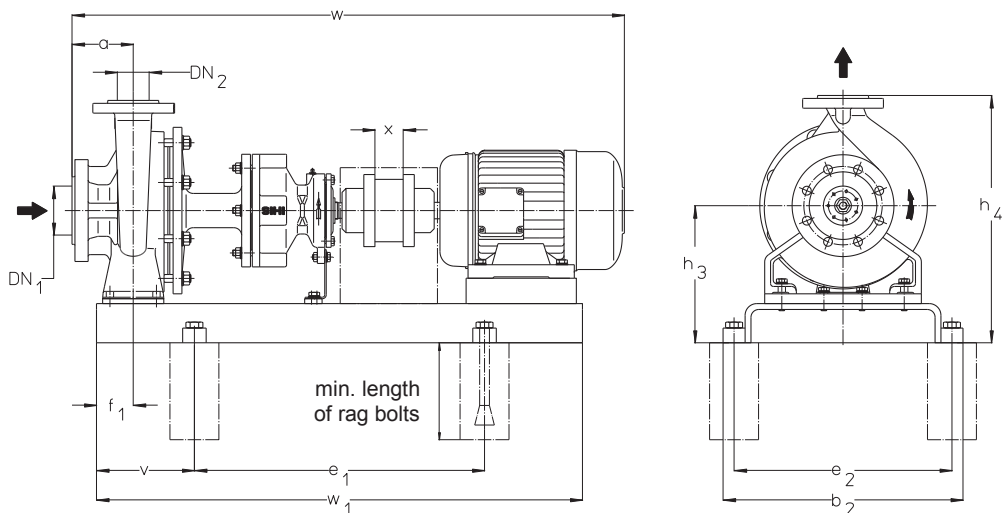


Dimensions in mm

ZEND Size	Motor Speed		Size	Base plate No.	Coupling	weight (kg)		DN <sub>2</sub>	DN <sub>1</sub>	a	b <sub>2</sub>	e <sub>1</sub>	e <sub>2</sub>	v	f <sub>1</sub>	h <sub>3</sub>	h <sub>4</sub>	x	w*	w <sub>1</sub>	Rag bolt size																															
	1450	2900				kW	Pump															Unit																														
031125	0,25	-	71a	S303	H80	57	101	32	50	80	390	600	350	160	60	197	357	140	906	920	M16X200																															
	-	2,20	90L	S344															120	450	660	400	180	212	372	994	1020	M20X400																								
031160	0,37	-	71b	S303															102	390	600	350	160	197	357	906	920	M16X200																								
	-	3,00	100L	S344															127	450	660	400	180	212	372	1038	1020	M20X400																								
031200	0,55	-	80a	S303															103	390	600	350	160	197	357	542	920	M16X200																								
	-	4,00	112M	S344															130	450	660	400	180	212	372	1055	1020	M20X400																								
031250	0,75	-	80b	S303															105	390	600	350	160	197	357	542	920	M16X200																								
	-	5,50	132S	S344															155	450	660	400	180	212	372	1117	1020	M20X400																								
032160	0,37	-	71b	S272															H80	55	95	32	50	80	360	540	320	140	60	197	357	100	801	820	M16x200																	
	-	1,10	80b																														97			837																
	-	1,50	90S																														100			864																
	-	2,20	90L																														103			889																
	-	3,00	100L		113	933																																														
	-	4,00	112M		118	950																																														
	032200	0,55	-	80a	S272	H80	57	98	32	50	80	360	540	320	140	60	225	405															100	837		820	M16x200															
0,75		-	80b	100																														864																		
1,10		-	90S	102																														933																		
-		3,00	100L	115																														950																		
032250	-	4,00	112M	S303	H95																													146		120		32	50	100	390	600	350	160	75	260	485	100	1012	920	M20x400	
	-	5,50	132S																																														153			1068
	0,75	-	80b																S383	155	1024																															
	1,10	-	90S																175	1147																																
040160	0,37	-	71b	S272															H80	55	94	32	50	80	360	540	320	140	60	197	357	100			800														820	M16x200		
	0,55	-	80a																																97																	837
	0,75	-	80b																																99																	864
	1,10	1,50	90S																																102																	889
	-	2,20	90L			105	933																																													
	-	3,00	100L			114	950																																													
040200	-	4,00	112M	S303		H80	63	133	32	50	100	390	600	350	160	60	225	405															100		1012		920												M16x200			
	-	5,50	132S																																146																	1057
	0,75	-	80b		111																													857																		
	1,10	-	90S		114																													884																		
	1,50	-	90L		117																													909																		
	2,20	-	100L		122																													970																		
040250	-	4,00	112M	S303	H95														63	142	32	50	100	390	600	350	160	60	225	405	100	970		920	M16x200																	
	-	5,50	132S																													154				1032																
	-	7,50	160M																													157				1173																
	-	11,00	160M																													216				1020																
	-	15,00	160M																													218				M20x400																
	-	15,00	160M																													218				M20x400																

\* Motor protection type IP 55, dimensions depend on the motor manufacturer. \*\* Weight higher by 20 % in case of cast steel  
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

ZEND Size	Motor Speed		Base plate No.	Coupling	weight (kg)	DN <sub>2</sub>	DN <sub>1</sub>	a	b <sub>2</sub>	e <sub>1</sub>	e <sub>2</sub>	v	f <sub>1</sub>	h <sub>3</sub>	h <sub>4</sub>	x	w*	w <sub>1</sub>	Rag bolt size	
	1450	2900																		Size
040250	1,10	-	90S	S385	H80	98	40	65	100	490	740	440	200	75	260	485	100	1000	1140	M20x400
	1,50	-	90L															1024		
	2,20	-	100L															1068		
	3,00	-	132S															1147		
	-	5,50	160M															1288		
	-	7,50	160L															1332		
	-	11,00	160L															1270		
	-	15,00	160L															1110		
040315	2,20	-	100L	S385	H80	136	40	65	125	490	740	440	200	280	530	100	1106	1140	M20x400	
	3,00	-	112M														1125			
	4,00	-	132S														1185			
	5,50	-	132S														1185			
050160	0,55	-	80a	S303	H80	61	50	80	100	390	600	350	160	60	225	405	100	857	920	M16x200
	0,75	-	80b															884		
	1,10	-	90S															909		
	1,50	2,20	90L															953		
	-	3,00	100L															970		
	-	4,00	112M															1032		
	-	5,50	132S															1173		
	-	7,50	132S															1020		
050200	0,75	-	80b	S303	H80	65	50	80	100	390	600	350	160	60	225	425	100	857	920	M16x200
	1,10	-	90S															884		
	1,50	-	90L															909		
	2,20	3,00	100L															953		
	-	4,00	112M															970		
	-	5,50	132S															1032		
	-	7,50	132S															1173		
	-	11,00	160M															1020		
050250	1,50	-	90L	S385	H80	101	65	100	125	490	740	440	200	75	260	485	100	1049	1140	M20x400
	2,20	-	100L															1093		
	3,00	-	112M															1093		
	4,00	-	132S															1110		
	-	7,50	160M															1240		
	-	11,00	160M															1313		
	-	15,00	180M															1313		
	-	18,50	180M															1357		
-	22,00	200L	1380																	
050315	4,00	-	112M	S486	H80	140	65	100	125	610	550	205	75	280	505	100	1468	1250	M24x400	
	5,50	-	132S														1125			
	7,50	-	132M														1185			
065160	0,75	-	80b	S344	H80	86	65	100	100	450	660	400	180	75	240	440	100	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															1288		
	-	11,00	160M															1270		
-	15,00	160M	1270																	

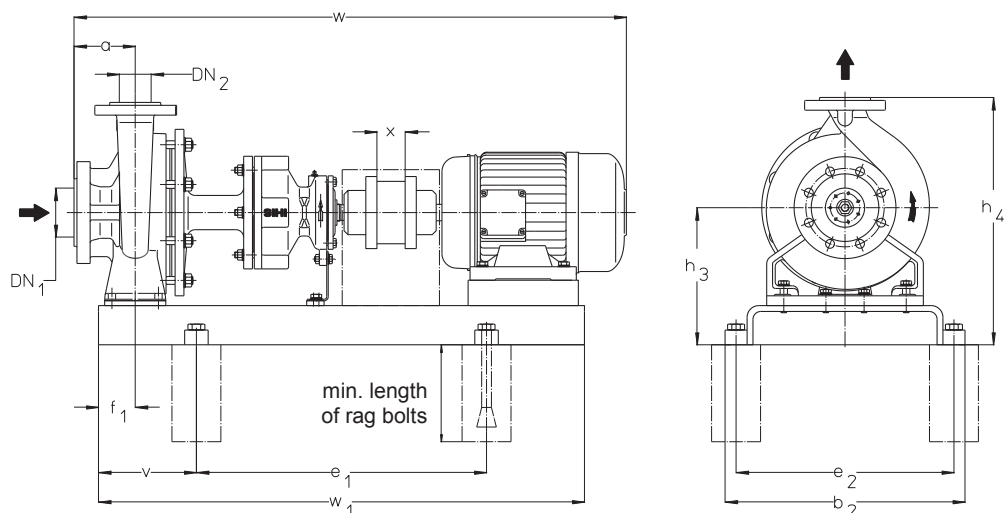
\* Motor protection type IP 55, dimensions depend on the motor manufacturer. \*\* Weight higher by 20 % in case of cast steel  
Some sizes are not corresponding to the drawing in small details. Foundation plan for 60Hz on request.

Dimensions in mm

ZEND Size	Motor Speed		Size	Base plate No.	Coupling	weight (kg)		DN <sub>2</sub>	DN <sub>1</sub>	a	b <sub>2</sub>	e <sub>1</sub>	e <sub>2</sub>	v	f <sub>1</sub>	h <sub>3</sub>	h <sub>4</sub>	x	w*	w <sub>1</sub>	Rag bolt size													
	1450 kW	2900 kW				Pump	Unit																											
065200	1,10	-	90S	S344	H80	94	155	65	100	100	450	660	400	180	75	260	485	1039	1020	M20x400														
	1,50	-	90L																		158													
	2,20	-	100L																		163													
	3,00	-	100L																		166													
	4,00	-	112M	182																														
	-	7,50	132S	230																														
	-	11,00	160M	279																														
	-	15,00	160M	281																														
	-	18,50	160L	305																														
	-	22,00	180M	334																														
	-	30,00	200L	461																														
	065250	2,20	-	100L	S435						H80	113	206	80							125	125	540	740	490	200	90	280	530	140	1133	1140	M20x400	
3,00		-	100L	209																														
4,00		-	112M	225																														
5,50		-	132S	238																														
-		15,00	160M	309																														
-		18,50	160L	324																														
-		22,00	180M	353																														
-		30,00	200L	480																														
-		37,00	225M	495																														
-		45,00	225M	531																														
065315		5,50	-	132S	S486	H95	146	298	80	125	125				610	840	550	205	90	300			550	140	1508	1420								M24x400
		7,50	-	132M																														
	11,00	-	160M	366																														
	15,00	-	160L	391																														
080160	0,75	-	80b	S344	H80	95	153	80	125	125	450	660	400	180	75	260	485	1037	1020	M20x400														
	1,10	-	90S																		156													
	1,50	-	90L																		159													
	2,20	-	100L																		164													
	3,00	-	100L	167																														
	-	7,50	132S	218																														
	-	11,00	160M	280																														
	-	15,00	160M	282																														
	-	18,50	160L	306																														
	-	22,00	180M	335																														
	1,50	-	90L	S385	H80						102	186	80	125							125	490	740	440	200	90	300	550	140	1089	1140	M20x400		
	2,20	-	100L																														190	
3,00	-	100L	193																															
4,00	-	112M	209																															
5,50	-	132S	221																															
-	11,00	160M	282																															
-	15,00	160M	289																															
-	18,50	160L	313																															
-	22,00	180M	342																															
-	30,00	200L	469																															
-	37,00	200L	478																															
080200	1,50	-	90L	S385	H80	125	235	80	125	125					610	840	550	205	90	325		605	140	1420	1250								M24x400	
	2,20	-	100L								254																							
	3,00	-	100L								267																							
	4,00	-	112M								269																							
	5,50	-	132S	372																														
	-	11,00	160M	395																														
	-	15,00	160M	492																														
	-	18,50	160L	501																														
	-	22,00	180M	540																														
	-	30,00	200L	671																														
080250	3,00	-	100L	S486	H80	150	296	80	125	125	610	840	550	205	90	350	665	140	1585	1620	M24x400													
	4,00	-	112M																			254												
	5,50	-	132S	267																														
	7,50	-	132M	269																														
	-	18,50	160L	372																														
	-	22,00	180M	395																														
	-	30,00	200L	492																														
	-	37,00	200L	501																														
	-	45,00	225M	540																														
	-	55,00	250M	671																														
080315	5,50	-	132S	S486	H95	150	307	80	125	125	610	940	550	205	90	350	665	140	1457	1420	M24x400													
	7,50	-	132M																			342												
	11,00	-	160M	342																														
	15,00	-	160L	389																														
100160	2,20	-	100L	S435	H80	126	219	100	125	140	540	740	490	200	90	280	560	140	1148	1140	M20x400													
	3,00	-	100L																			222												
	4,00	-	112M																			238												
	5,50	-	132S																			251												
	-	18,50	160L	338																														
	-	22,00	180M	364																														
	-	30,00	200L	493																														
	-	37,00	200L	503																														
100200	2,20	-	100L	S435	H80	118	211	100	125	125	540	740	490	200	90	280	560	140	1133	1140	M20x400													
	3,00	-	100L																			214												
	4,00	-	112M																			230												
	5,50	-	132S																			243												
	7,50	-	132M	245																														
	-	18,50	160L	330																														
	-	22,00	180M	358																														
	-	30,00	200L	495																														
	-	37,00	200L	495																														
	-	45,00	225M	534																														

\* Motor protection type IP 55, dimensions depend on the motor manufacturer. \*\* Weight higher by 20 % in case of cast steel  
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

ZEND Size	Motor Speed		Base plate Size	Coupling	weight (kg)		DN <sub>2</sub>	DN <sub>1</sub>	a	b <sub>2</sub>	e <sub>1</sub>	e <sub>2</sub>	v	f <sub>1</sub>	h <sub>3</sub>	h <sub>4</sub>	x	w*	w <sub>1</sub>	Rag bolt size	
	1450	2900			Pump	Unit															
100250	4,00	-	112M	S486	H95	132	100	125	140	610	840	550	205	90	325	605	140	1195	1250	M24x400	
	5,50	-	132S															1257			
	7,50	-	132M															1295			
	11,00	-	160M															1398			
	-	30,00	200L	S487	H125	132												1553	240		1420
	-	37,00	225M															509			
	-	45,00	250M															553			
	-	55,00	280S	S538	H140	132												679	280		1620
	-	75,00	280S															880			
	100315	11,00	-	160M	S486	H95												153	125		140
15,00		-	160L	S487	H110	346	205	1420													
18,50		-	180M			392															
22,00		-	180L	S487	H140	424	240	1420													
-		-	-			443															
125200		7,50	-	132M	S486	H95	142	125	140	610	840	550	205	90	350	665	140			1295	
	11,00	-	160M	1398																	
	15,00	-	160L	S487	H110	362				240	1420										
	-	45,00	225M			613															
	-	55,00	250M	S538	H140	706				280	1620										
	-	75,00	280S			890															
125250	7,50	-	132M	S486	H95	147	125	140	610	840	550	205	90	350	705	140	1295	1250	M24x400		
	11,00	-	160M														1344				
	15,00	-	160L	S487	H110				367	240	1420										
	18,50	-	180M						392												

\* Motor protection type IP 55, dimensions depend on the motor manufacturer. \*\* Weight higher by 20 % in case of cast steel  
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 design	Casing gasket
	A = hydraulic 1 S = grease lubricated 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				

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

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