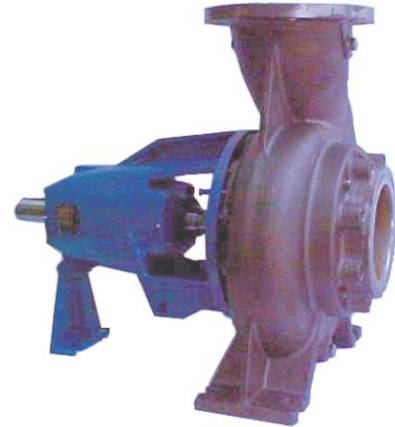


TECHNICAL DATA

Output:	up to 1200 m ³ /h
Delivery head:	up to 100 m
Speed:	up to 3600 rpm depending of the pump size and material execution
Medium temperature:	max. 110 °C
Casing pressure:	10 bar
Shaft sealing:	stuffing box or mechanical seal
Flange connections:	PN 10
Sense of rotation:	clockwise, looking at the pump from the drive end



APPLICATION

Series DBS volute-casing pumps can be used where the requirement is for pumping dirty liquids or liquids with solids.

Sewage plants:	Storm water, pre-filtered sewage, industrial effluents
Chemical plants:	Chemical effluents, brines and lies, milk of lime, crystal sludge, filter material, plastic suspensions
Rolling mills:	Scale-contaminated water from steel and copper rolling mills
Foundries and iron and steel works:	Effluents and sludges from dust and arrester plants
Construction industry:	Mixtures of water and cement and water from excavation ditches
Paper and cellulose pulp industry:	Paper, chemical pulp and mechanical suspensions up to 6% absolutely dry
Sugar mills:	Carbonation juice, concentrated juice, milk of lime
Food industry:	Thick mash, fruit and potato slices (parings)

DESIGN

Process type, single-stage, volute casing pumps with design features and nominal rating to ISO2858/EN22858 and enlarged sizes.

The process design permits dismantling of the complete bearing unit towards the drive end, without the pump casing having to be disconnected from the piping. If a spacer coupling is used it is also unnecessary to disconnect the motor.

CONSTRUCTION

Casing pressure: Max. 10 bar between -10 °C and +120 °C
Please note: Casing pressure = Inlet pressure + shut off head.
Max. test pressure 16 bar

Branch positions:

Suction branch axial, discharge branch radial upwards.

Flanges:

Connection dimensions of flanges DIN 2501 PN 10 .
Flanges can be supplied drilled to ANSI
Optional the pump can be supplied with a flange adapter piece on the suction side (see sectional drawing, pos. 72.20)

Bearings:

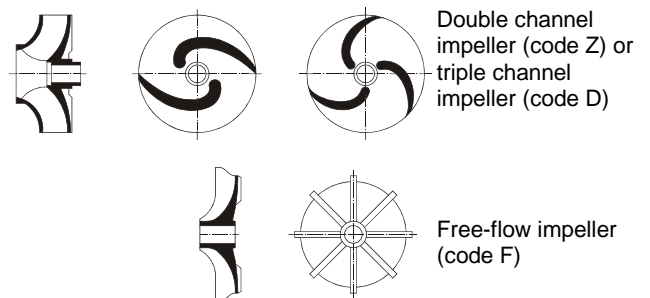
Execution B:
Pump end: one cylindrical roller bearing to DIN 5412
Drive end: one deep groove ball bearing to DIN 625
The bearings are grease lubricated

Execution C:
Pump end: one cylindrical roller bearing to DIN 5412
Drive end: one deep groove ball bearing to DIN 625
The bearings are oil lubricated

Execution S:
Pump end: one cylindrical roller bearing to DIN 5412
Drive end: two angular contact ball bearings in O-arrangement.
The bearings are grease lubricated

Execution T:
Pump end: one cylindrical roller bearing to DIN 5412
Drive end: two angular contact ball bearings in O-arrangement.
The bearings are oil lubricated

Shapes of impellers:



If required, the sealing clearance gap on the suction side of pumps fitted with double and triple channel and wear plates can be arranged for flushing.

Shaft sealing:

A stuffing box or a mechanical seal, as required, can affect the sealing of the shaft.

Variants with stuffing box:

Designation 052: Uncooled stuffing box with external sealing (inlet only).
Temperature range: -10 °C to 110°C.

Designation 051: Uncooled stuffing box with external sealing and flushing
Temperature range: -10°C to 110°C.

Other shaft seals on request.

Variants with mechanical seal:

According to DIN 24960, it is possible the installation of single mechanical seal (AF4, AFJ, AFS) or double mechanical seal mounted back-to-back or tandem arrangement, cartridge execution (X0C, X0M).

Designation AF4: Auto balanced mechanical seal
Materials: SiC-SiC- EPDM
Temperature range: -20...+ 120 °C

Designation AFJ: Auto balanced mechanical seal
Materials: SiC-Carbon- Viton®
Temperature range: -20...+ 120 °C

Designation AFS: Auto balanced mechanical seal
Materials: SiC-SiC-Viton®
Temperature range: -20...+ 120 °C

Designation X0C: Balanced mechanical seal. Materials: SiC-SiC-Viton®/Carbon-SiC-Viton®
Temperature range: -40...+ 220 °C

Designation X0M: Balanced mechanical seal. Materials: SiC-SiC-EPDM/Carbon-SiC-EPDM
Temperature range: -40...+ 220 °C

MATERIAL EXECUTION: (Other materials on request)

Item	Component	Material					Construction			
		Mat. N°	DIN denomination	ISO EN denomination	US Material		0B	0E	4B	
					ASTM Standard	AISI				
110.20	Volute casing	EN-JL 1040 1.4408	GG-25 GX6CrNiMo18-10	EN-GJL 250 GX5CrNiMo19-11-2	A 278 Cl. 30 A 351 CF8M	316	x	x	x	
13.50	Wear plate	EN-JL 1040 1.4408	GG-25 GX6CrNiMo18-10	EN-GJL 250 GX5CrNiMo19-11-2	A 278 Cl. 30 A 351 CF8M	316	x	x	x	
116.10	Casing cover	EN-JL 1040 1.4408	GG-25 GX6CrNiMo18-10	EN-GJL 250 GX5CrNiMo19-11-2	A 278 Cl. 30 A 351 CF8M	316	x	x	x	
221.00	Shaft	1.0503 1.4571	C 45 X6CrNiMoTi17-12-2	C 45 X6CrNiMoTi17-12-2	A 576 Gr1045 A 182 316Ti	1045 316Ti	x	x	x	
223.00	Impeller	EN-JL 1040 1.4408	GG-25 GX6CrNiMo18 10	EN-GJL 250 GX5CrNiMo19-11-2	A 278 Cl. 30 A 351 CF8M	316	x	x	x	
333.00	Bearing bracket	EN-JL 1040	GG-25	EN-GJL 250	A 278 Cl. 30		x	x	x	
552.30	Shaft sleeve / Mechanical seal	1.4571	X6CrNiMoTi17-12-2	X6CrNiMoTi17-12-2	A 182 316Ti	316Ti	x	x	x	
552.40	Shaft sleeve / Stuffing box	1.4122 1.4571	X35CrMo 17 X6CrNiMoTi17-12-2	X39CrMo17-1 X6CrNiMoTi17-12-2	A 182 316Ti	316Ti	x	x	x	
446.10	Stuffing box	Soft packing						x	x	x
443.30	Mechanical seal	Silicon Carbide / Carbon EPDM or Viton (See other options)						x	x	x

Casing seal:

The casing is sealed by flat gasket of synthetic fibre.

Drive / Speed:

By commercial electric motors, type of construction motor, IM B3.

For the determination of the drive power we recommend the following additions:

Up to 4 kW: 25%

4 up to 7,5 kW: 20%

from 7,5 kW: 15%

The following speeds limits are to be observed:

Max. Speed rpm	Size	Max. speed rpm	Size	Max. speed rpm	Size	Max. speed rpm	Size
3600	3216F 3220F 4016F/D 4020F/D 5016F/D 5020F/Z 6520F/Z	3000	5026F/D 8026F/Z 10026F/Z	1800	5032F/Z 8032F/Z 8040Z 10032F/D 12540F/D 15032Z 20032D 20040D	1500	12550D 20050D

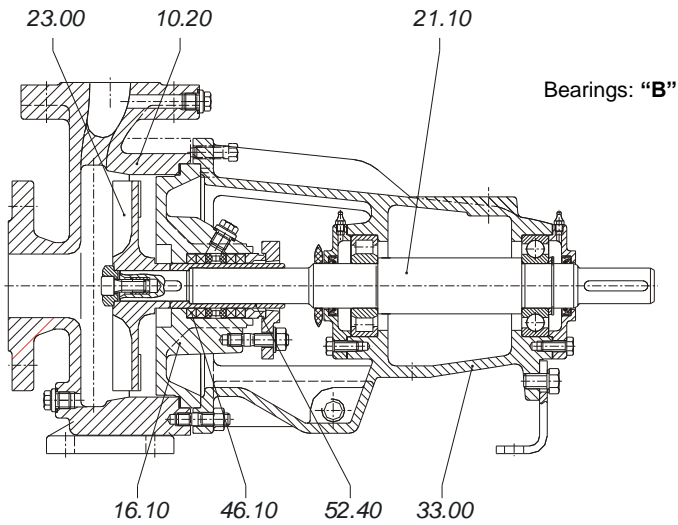
The max. speed result from the admissible shaft load and the admissible peripheral speed of the impellers

Bearing bracket / pump size:

Bracket 35	3216 3220 4016 4020 5016
Bracket 45	5020 5026 6520
Bracket 55	5032 8026 8032 10026 10032
Bracket 65	8040 12540 15032 20032
Bracket 75	12550 20040 20050

SECTIONAL DRAWINGS AND PARTS LIST

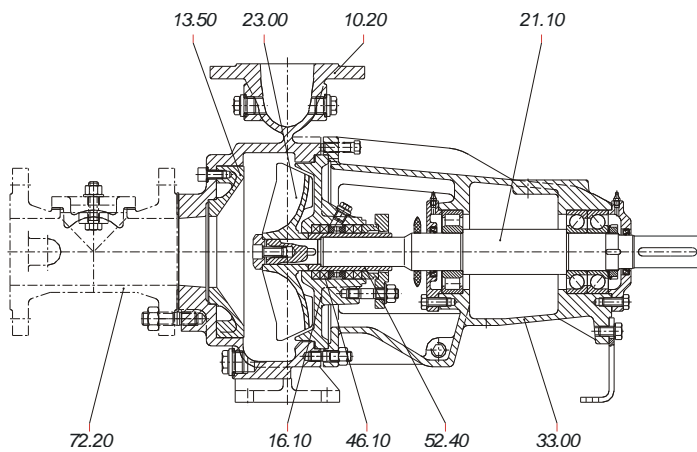
Only for DBSA 3216F and DBSA 3220F
(without wear plate)



- 10.20 Casing
- 16.10 Casing cover
- 33.00 Bearing bracket
- 21.10 Shaft
- 23.00 Impeller
- 46.10 Stuffing box
- 52.40 Shaft sleeve

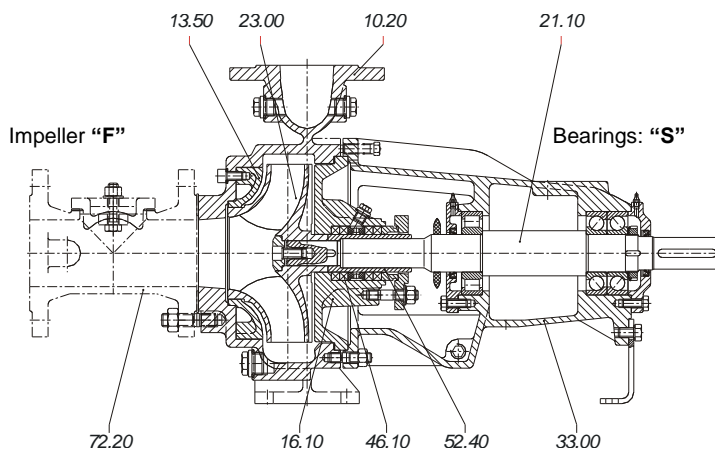
Shaft sealing design 052

Remaining pumps sizes

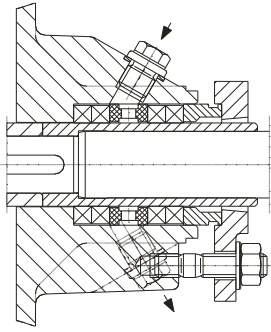


- 10.20 Casing
- 13.50 Wear plate
- 16.10 Casing cover
- 33.00 Bearing bracket
- 21.10 Shaft
- 23.00 Impeller
- 46.10 Stuffing box
- 52.40 Shaft sleeve
- 72.20 Adapter piece

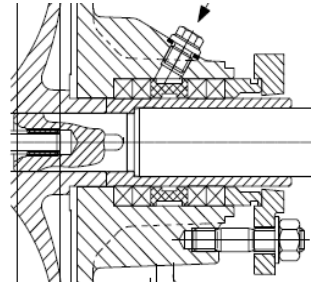
Shaft sealing design 052



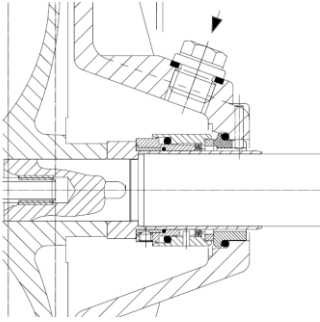
Types of shaft sealings



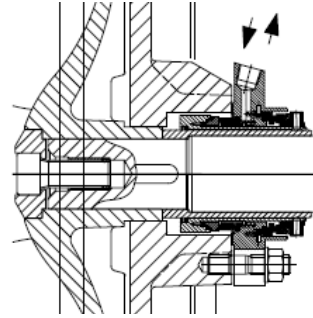
Designation 051



Designation 052



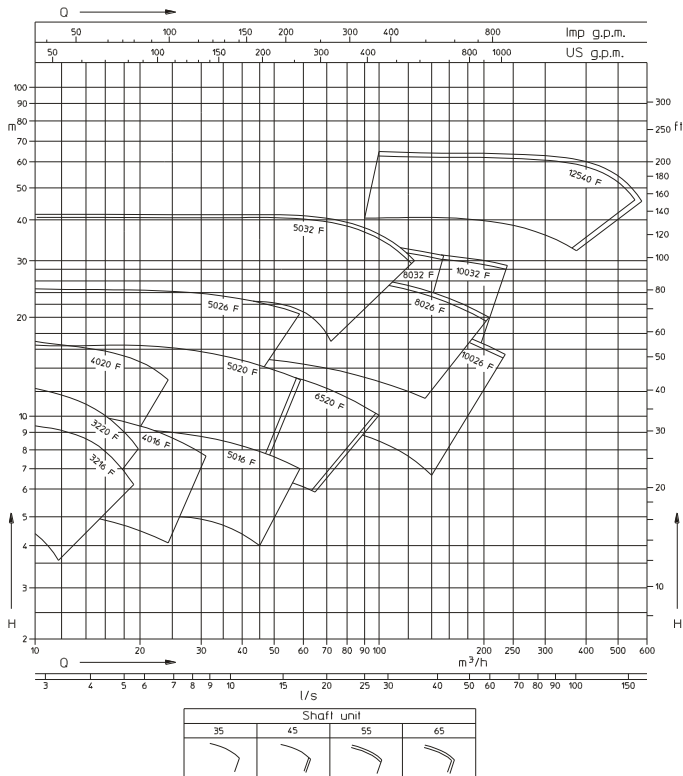
Designation AF4, AFJ, AFS



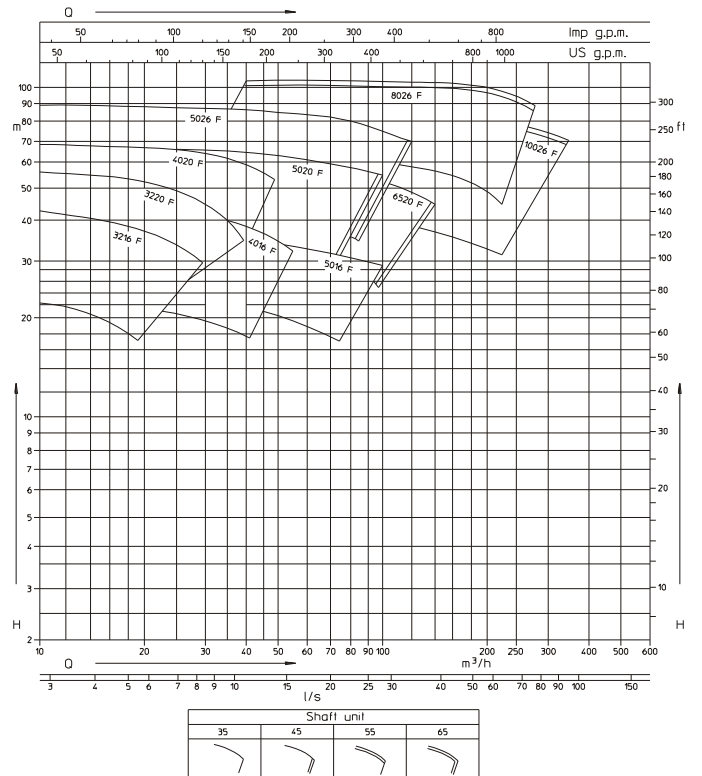
Designation X0C, X0M

PERFORMANCE GRAPHS

Pumps with free flow impeller "F"

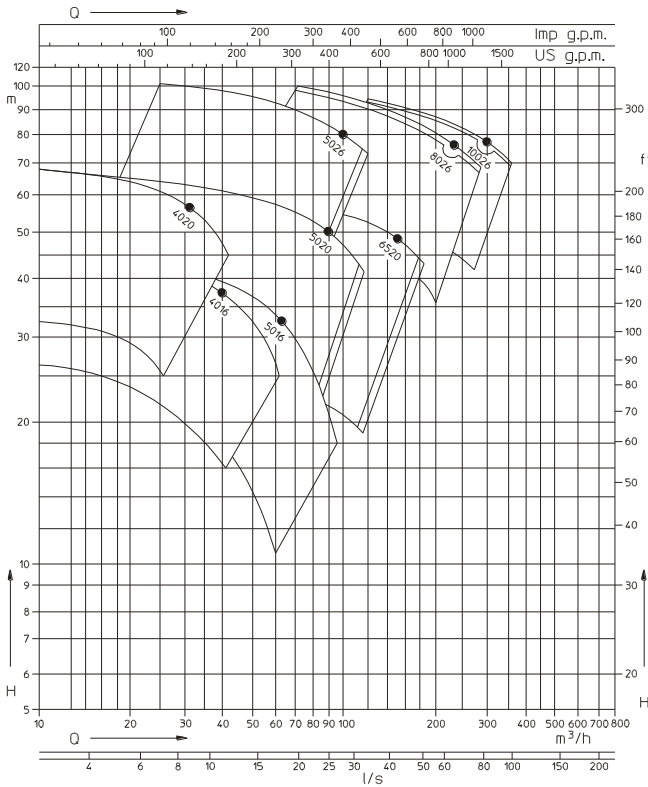


1450 rpm



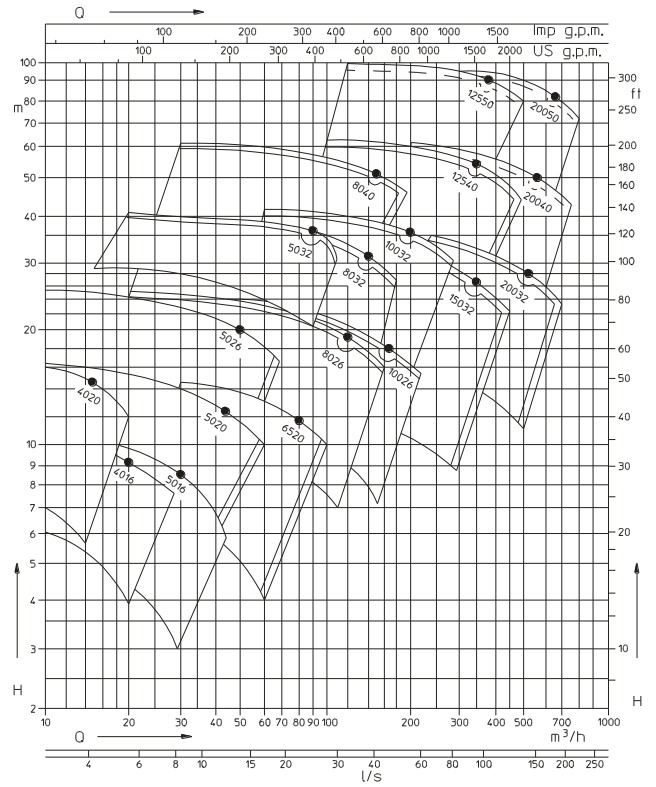
2900 rpm

Pumps with channel impeller, double (Z) respectively triple (D)



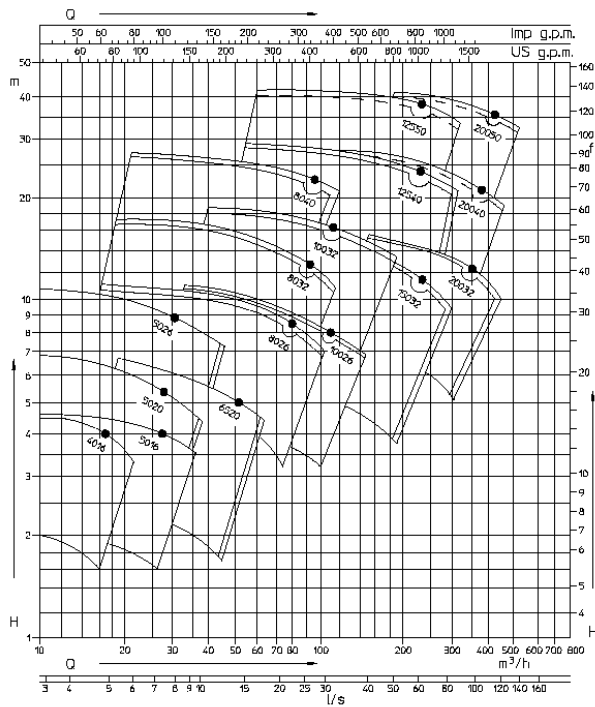
Shaft unit		
35	45	55

2900 rpm



Shaft unit				
35	45	55	65	75

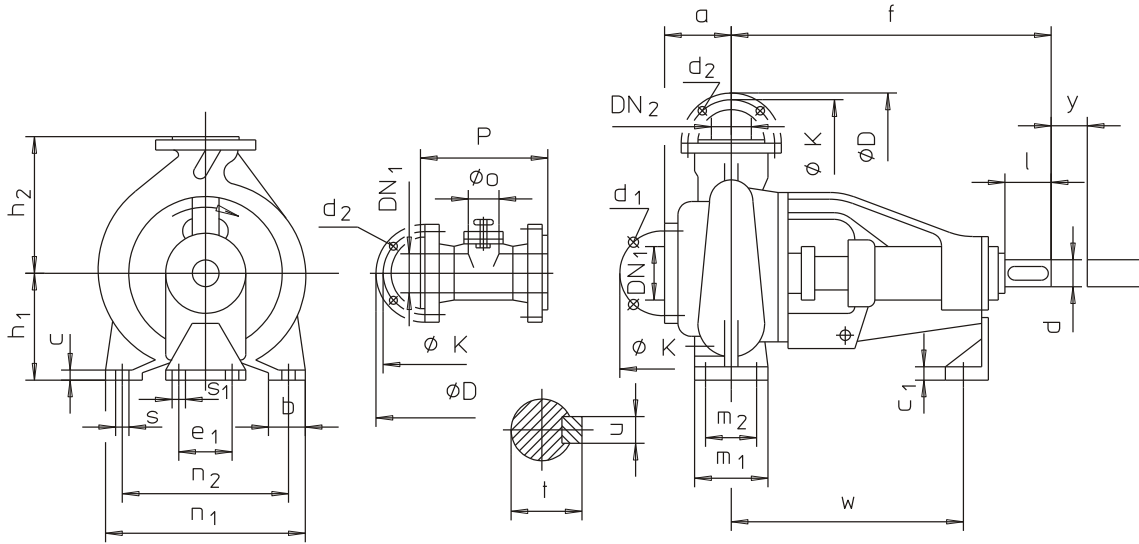
1450 rpm



Shaft unit/Welleninhalt/Spalte					
35	45	55	65	75	90

960 rpm

DIMENSIONS



Dimensions in mm

Size	Bearing	Pumps dimensions						Foot dimensions										Shaft end				Spa	1)	
		DN2	DN1	a	f	h1	h2	b	c	c1	e1	m1	m2	n1	n2	s	s1	w	d	l	t		u	y
3216	35	32	50	80	425	132	160	50	14	6	100	70	240	190	14	15	315	28	60	31	8	140	80	200
3220					420	160	180									310								
4016	35	40	50	90	405	160	180	50	14	6	100	70	240	190	14	13	300	28	60	31	8	140	80	200
4020					410		200									295								
5016	35	50	65	100	405	160	50	14	6	100	70	240	190	14	15	315	28	60	31	8	140	80	200	
5020	112			180	200	250																		320
5026	45	50	65	125	500	200	50	14	6	100	70	240	190	14	15	315	28	60	31	8	140	80	200	
5032	125			200	250	320																		250
5032	55	50	65	140	550	225	50	14	6	100	70	240	190	14	14	300	28	60	31	8	140	80	200	
6520	125			500	180	225																		320
8026	55	80	100	130	550	225	50	14	6	100	70	240	190	14	14	300	28	60	31	8	140	80	200	
8032				125		250																		315
8040	65	100	125	140	670	280	355	50	14	6	100	70	240	190	14	18	500	55	110	59	16	180	150	300
10026	55				550	225	280																	
10032	55	100	125	140	550	250	315	50	14	6	100	70	240	190	14	14	300	28	60	31	8	140	80	200
12540	65				250	315	400																	
12550	75	100	125	140	670	315	400	50	14	6	100	70	240	190	14	18	500	55	110	59	16	180	150	300
15032	65				250	315	450																	
20032	65	150	170	670	280	400	50	14	6	100	70	240	190	14	22	18	500	55	110	59	16	180	150	300
20040					315	450																		
20040	75	200	200	200	355	500	50	14	6	100	70	240	190	14	22	18	500	55	110	59	16	180	150	300
20050					400	530																		

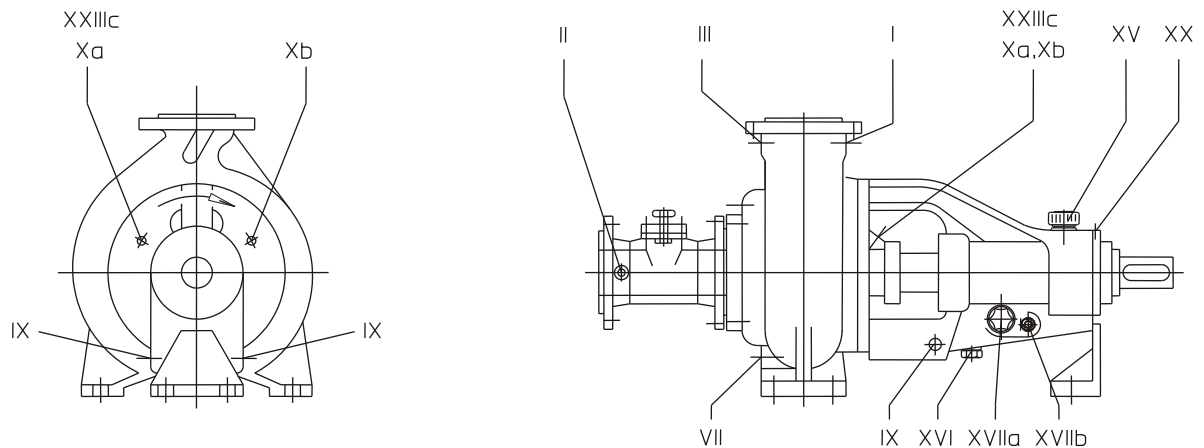
Dimensions connections flanges according to DIN 2501 PN - 10

DN1/DN2	32	40	50	65	80	100	125	150	200
Ø D	140	150	165	185	200	220	250	285	340
Ø k	100	110	125	145	160	180	210	240	295
d1 x number	-	- *) 18 x 4	M 16 x 4 *) 18 x 4	M 16 x 4	M 16 x 8	M 16 x 8	M 16 x 8	M 20 x 8	M 20 x 8
d2 x number	18 x 4	18 x 4	18 x 4	18 x 4	18 x 8	18 x 8	18 x 8	22 x 8	22 x 8

1) Intermediate piece optional

*) Only for sizes 32...

TABLE OF CONNECTIONS



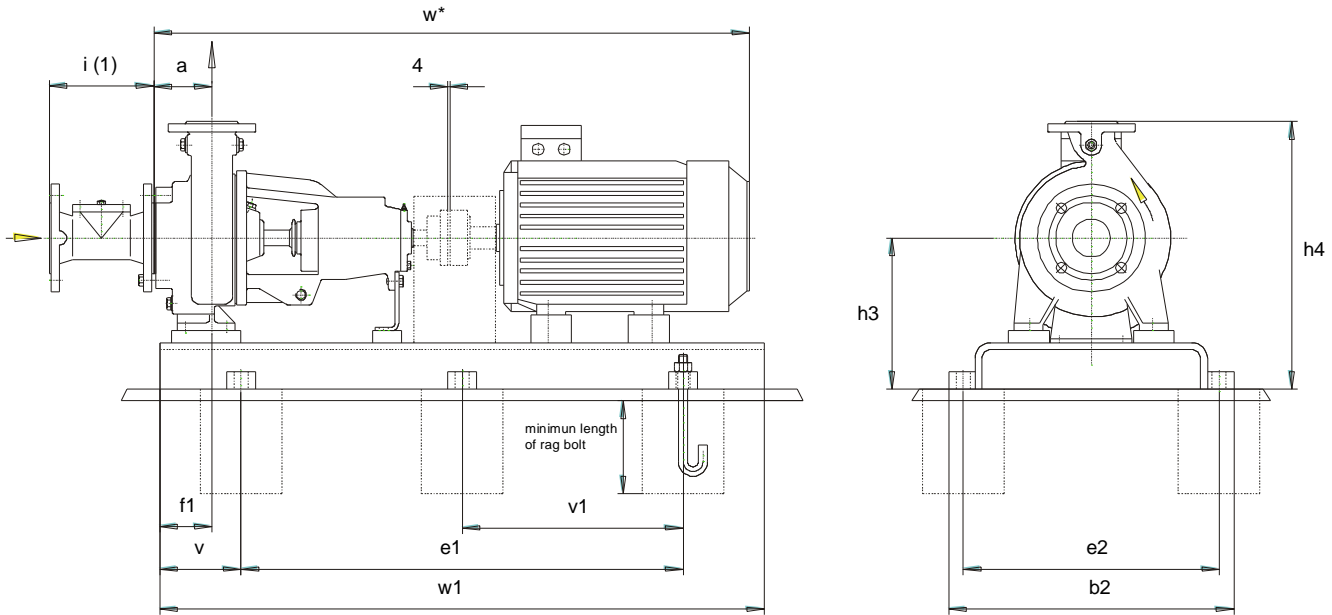
Code	Connections	For version with	
		Grease	Oil
I	Pressure gauge connection		
II	Pressure/vacuum gauge connection		
III	Vent		
VII	Drain		
IX	Drip and leakage connection		
Xa	Inlet connection for sealing liquid	External sealing	
Xb	Outlet connection for sealing liquid	External sealing	
XV	Oil filling		X
XVI	Oil drain		X
XVIIa	Oil level sight glass		X
XVIIb	Constant level oiler connection		X
XX	Grease nipple	X	
XXIIIc	Seal flushing	External sealing	

Code	Pumps with shaft unit										90
	35		45		55		65		75		
	Standard type	Special type	Standard type	Special type	Standard type	Special type	Standard type	Special type	Standard type	Special type	
I	G 1/2" (4)		G 1/2"		G 1/2"		G 1/2"		G 1/2"		
II	Without hole	G 1/2"	Without hole	G 1/2"	Without hole	G 1/2"	Without hole	G 1/2"	Without hole	G 1/2"	
III	G 1/2" (5)		G 1/2"		G 3/4"		G 1" (3)		G 1"		
VII	G 1/2" (6)		G 1/2" (1)		G 1" (2)		G 1" (3)		G 1"		
IX	G 1/2"		G 1/2"		G 1/2"		G 3/4"		G 3/4"		
Xa	G 1/4"		G 1/4"		G 1/4"		G 3/8"		G 3/8"		
Xb	G 1/4"		G 1/4"		G 1/4"		G 3/8"		G 3/8"		
XV	Ø 20		Ø 20		Ø 20		Ø 20		Ø 20		
XVI	G 1/4"		G 1/4"		G 1/4"		G 1/4"		G 1/4"		
XVIIa	G 3/4"		G 3/4"		G 3/4"		G 3/4"		G 1"		
XVIIb	G 1/4"		G 1/4"		G 1/4"		G 1/4"		G 1/4"		
XX	M6		M6		M6		M6		M6		
XXIIIc	G 3/8"		G 1/2"		G 1/2"		G 1/2"		G 1/2"		

On request

- 1) G 3/4" in 6520
- 2) G 3/4" in 5032, 8026 and 8032
- 3) G 3/4" in 8040
- 4) G 1/4" in 3216 and 3220
- 5) Pumps 3216, 3220 not drilled
- 6) G 1/4" in 3216 and 3220

Foundation plan.



Dimensions in mm
Tolerances for welded parts acc. to DIN 8570 B

DBSA Size	Motor		Size	Base plate No.	Cplg.	Weight (kg)														Rag bolt size
	1450 rpm kW	2900 rpm kW				Pump	Unit	a	b ₂	e ₁	e ₂	f ₁	h ₃	h ₄	i	v	v ₁	w	w ₁	
3216	0,25	-	71	S272	B68	42	79	80	360	540	320	60	197	357	-	140	-	749	820	M16x250
	0,37	-	71	S272	B68	42	80	80	360	540	320	60	197	357	-	140	-	749	820	M16x250
	0,55	-	80	S272	B68	42	83	80	360	540	320	60	197	357	-	140	-	783	820	M16x250
	0,75	-	80	S272	B68	42	84	80	360	540	320	60	197	357	-	140	-	783	820	M16x250
	1,10	1,50	90S	S272	B68	42	87	80	360	540	320	60	197	357	-	140	-	840	820	M16x250
	1,50	2,20	90L	S272	B68	42	90	80	360	540	320	60	197	357	-	140	-	840	820	M16x250
	-	3,00	100L	S017	B80	42	115	80	361	700	325	60	192	352	-	200	-	881	1100	M12x150
	-	4,00	112M	S017	B80	42	124	80	361	700	325	60	192	352	-	200	-	902	1100	M12x150
	-	5,50	132S	S303	B95	42	135	80	390	600	350	60	197	357	-	160	-	962	920	M16x250
	-	7,50	132S	S303	B95	42	140	80	390	600	350	60	197	357	-	160	-	962	920	M16x250
3220	0,55	-	80	S272	B68	44	85	80	360	540	320	60	225	405	-	140	-	778	820	M16x250
	0,75	-	80	S272	B68	44	86	80	360	540	320	60	225	405	-	140	-	778	820	M16x250
	1,10	-	90S	S272	B68	44	89	80	360	540	320	60	225	405	-	140	-	835	820	M16x250
	1,50	-	90L	S272	B68	44	92	80	360	540	320	60	225	405	-	140	-	835	820	M16x250
	2,20	3,00	100L	S017	B80	44	117	80	361	700	325	60	220	400	-	200	-	876	1100	M12x150
	3,00	-	100L	S017	B80	44	120	80	361	700	325	60	220	400	-	200	-	876	1100	M12x150
	-	4,00	112M	S017	B80	44	126	80	361	700	325	60	220	400	-	200	-	897	1100	M12x150
	-	5,50	132S	S303	B95	44	137	80	390	600	350	60	225	405	-	160	-	957	920	M16x250
	-	7,50	132S	S303	B95	44	142	80	390	600	350	60	225	405	-	160	-	957	920	M16x250
	-	11,00	160M	S344	B95	44	190	80	450	660	400	60	240	420	-	180	-	1092	1020	M20x400
4016	0,55	-	80	S272	B68	47	88	90	360	540	320	60	225	405	-	140	-	773	820	M16x250
	0,75	-	80	S272	B68	47	89	90	360	540	320	60	225	405	-	140	-	773	820	M16x250
	1,10	-	90S	S272	B68	47	92	90	360	540	320	60	225	405	-	140	-	830	820	M16x250
	1,50	-	90L	S272	B68	47	95	90	360	540	320	60	225	405	-	140	-	830	820	M16x250
	2,20	3,00	100L	S272	B80	47	120	90	360	540	320	60	225	405	-	140	-	871	820	M16x250
	-	4,00	112M	S272	B80	47	130	90	360	540	320	60	225	405	-	140	-	892	820	M16x250
	-	5,50	132S	S303	B95	47	140	90	390	600	350	60	225	405	-	160	-	952	920	M16x250
	-	7,50	132S	S303	B95	47	145	90	390	600	350	60	225	405	-	160	-	952	920	M16x250
	-	11,00	160M	S344	B95	47	193	90	450	660	400	60	240	420	-	180	-	1087	1020	M20x400
	-	15,00	160M	S344	B95	47	200	90	450	660	400	60	240	420	-	180	-	1087	1020	M20x400
4020	0,37	-	71	S272	B68	48	86	90	360	540	320	60	225	425	-	140	-	744	820	M16x250
	0,55	-	80	S272	B68	48	89	90	360	540	320	60	225	425	-	140	-	778	820	M16x250
	0,75	-	80	S272	B68	48	90	90	360	540	320	60	225	425	-	140	-	778	820	M16x250
	1,10	-	90S	S272	B68	48	93	90	360	540	320	60	225	425	-	140	-	835	820	M16x250
	1,50	2,20	90L	S272	B68	48	96	90	360	540	320	60	225	425	-	140	-	835	820	M16x250
	2,20	3,00	100L	S272	B80	48	121	90	360	540	320	60	225	425	-	140	-	876	820	M16x250
	3,00	-	100L	S272	B80	48	124	90	360	540	320	60	225	425	-	140	-	876	820	M16x250
	-	4,00	112M	S272	B80	48	131	90	360	540	320	60	225	425	-	140	-	897	820	M16x250
	-	5,50	132S	S303	B95	48	141	90	390	600	350	60	225	425	-	160	-	957	920	M16x250
	-	7,50	132S	S303	B95	48	146	90	390	600	350	60	225	425	-	160	-	957	920	M16x250
	-	11,00	160M	S344	B95	48	194	90	450	660	400	60	240	440	-	180	-	1092	1020	M20x400
	-	15,00	160M	S344	B95	48	201	90	450	660	400	60	240	440	-	180	-	1092	1020	M20x400
	-	18,50	160L	S344	B95	48	211	90	450	660	400	60	240	440	-	180	-	1092	1020	M20x400
5016	0,55	-	80	S301	B68	52	92	100	390	480	350	60	225	425	200	125	-	783	730	M16x250
	0,75	-	80	S301	B68	52	93	100	390	480	350	60	225	425	200	125	-	783	730	M16x250
	1,10	-	90S	S303	B68	52	102	100	390	600	350	60	225	425	200	160	-	840	920	M16x250

Product identification

Series + sizes	Impeller type	Hydraulic	Bearing	Shaft sealing	Material	Casing design
	D triple channel impeller Z double channel impeller F free-flow impeller	A	B: Pump end: one cylindrical roller bearing to DIN 5412 Drive end: one deep groove ball bearing to DIN 625 grease lubrication C: Pump end: one cylindrical roller bearing to DIN 5412 Drive end: one deep groove ball bearing to DIN 625 oil lubrication S: Pump end: one cylindrical roller bearing to DIN 5412 Drive end: two angular contact ball bearings in O-arrangement. grease lubrication T: Pump end: one cylindrical roller bearing to DIN 5412 Drive end: two angular contact ball bearings in O-arrangement. oil lubrication	051 052 AF4 AFJ AFS X0C X0M	0B main parts of cast iron 0E main part of cast iron, but impeller, wear plate of stainless steel 4B main parts of stainless steel	B with wear plate C without wear plate
DBSA	03216 03220 04016 04020 05016 05020 05026 05032 06520 08026 08032 08040 10026 10032 12540 12550 15032 20032 20040 20050	F D/F Z/F D/F Z/F Z Z/F D/F D Z D	B, C S, T	Alternativ 051 052 AF4 AFJ AFS X0C X0M	Alternativ 0B 0E 4B	C B

* see page 2 under shaft sealing

If we are informed of the motor type being selected, the coupling can be supplied already drilled on motor side and we can supply the coupling guard and the shims for equalizing out the centre height.

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

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