

Axially split volute casing pumps

Applications

Waterworks, irrigation and drainage pumping stations, power stations, industrial water supply systems, air conditioning systems, dock plants, fire-fighting systems etc.

Operating data

Pump sizes	DN	80 to 350
Capacities	Q	up to 800 l/s
Total heads	H	up to 200 m
Operating pressure	P	up to 25 bar
Operating temperature	t	up to 105 °C

Design

Single stage, axially split volute casing pump with double flow radial impeller, for horizontal and vertical installation. Flanges to ISO, DIN, BS or ANSI.

Bearings

Omega

Grease-lubricated deep groove ball bearings, oil lubrication also available.

~~Omega V~~

~~Top: grease-lubricated deep groove ball bearing
Bottom: wear-free, medium lubricated plain bearing of silicon carbide (RESIDUR® bearing).~~

Materials:

Volute Casing (Top & Bottom) : A 48 CL 35B
 Double Entry Impeller: IS318 GR LTB2, A48 CL 35B, CF8M
 Bearing Housing: A 48 CL 35B
 Bearing Cover: A 48 CL 35B
 Pump Shaft & Sleeve: A276 TYPE 410 COND H, 45C8
 Shaft Seal Housing: A 48 CL 35B
 Casing Wear Rings: IS318 GR LTB4, A48 CL35B, CF8M
 Sealing: Gland Packing or Mechanical Seal

Any non-standard requirements could be reviewed against offer permit from TSS

Shaft Seal

Uncooled soft-packed stuffing box or uncooled mechanical seal.

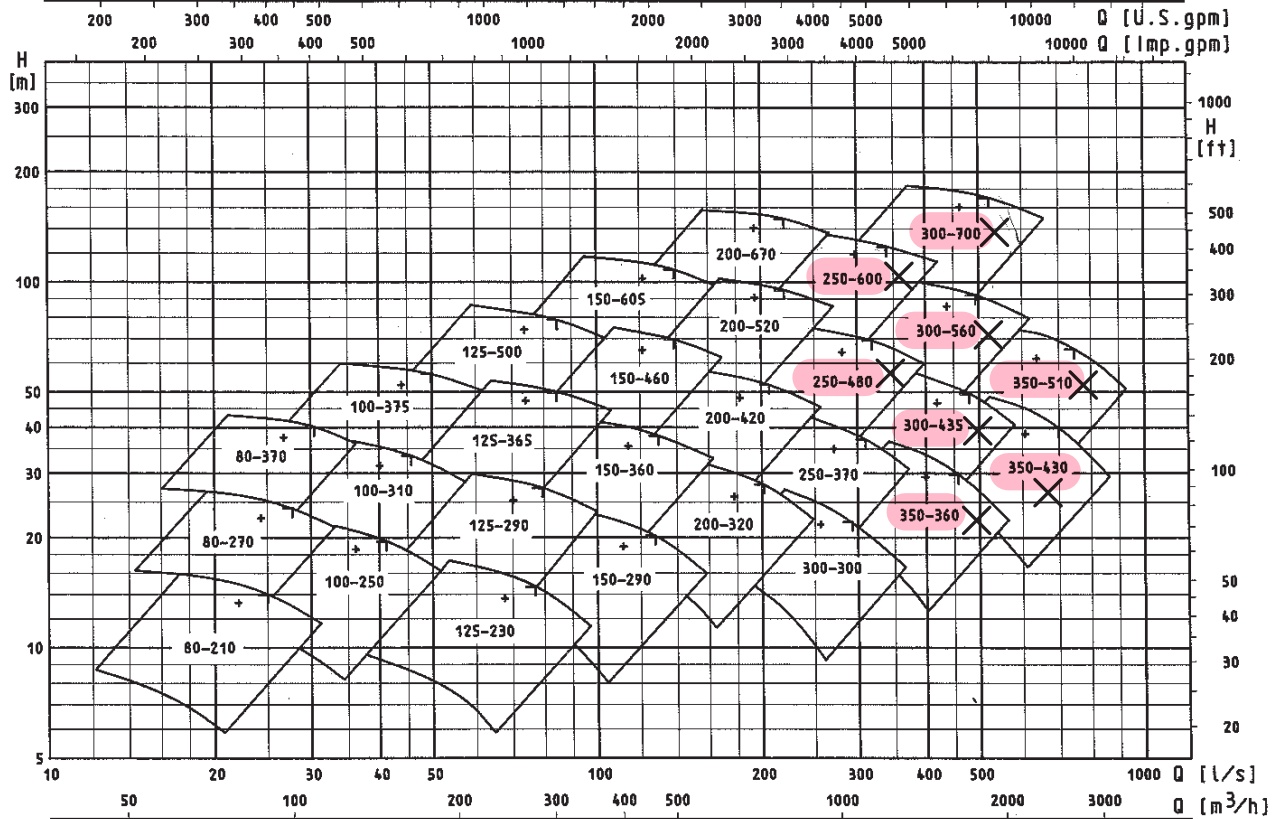
Materials

	BS	DIN
Volute casing		
Cast iron	1452:Gr. 260	GG-25
Ductile iron	2789:420/12	GG-25
Ni-Resist	3468 S-NiCr202	GG-NiCrNb 202
Cast steel	1504-161 GR 4 30	GG-C 25
Impeller		
Bronze	T 100	G-CuSn 10
Chrome-nickel molybdenum		
cast steel	NiCr202	9.4460
Shaft		
Chrome steel	970 Pt.4:416 S 37	1.4021
Stainless steel		1.4571
Casing wear rings		
Bronze	1400 LG 2	GZ-CuSn 7 ZnPb
Stainless steel	3146/2:ANC 4 Cr.C	1.4581

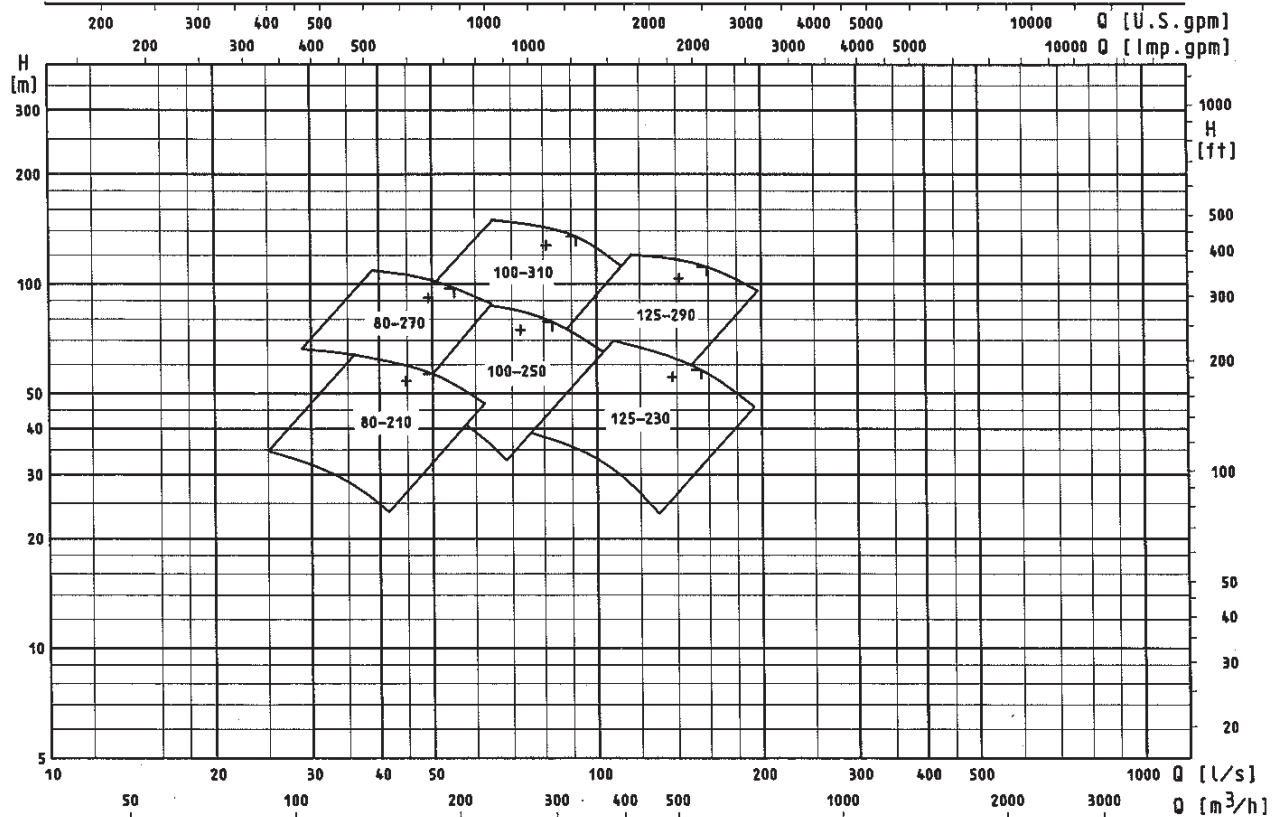


Selection Charts 50 Hz

n = 1450 rev/min f = 50 Hz



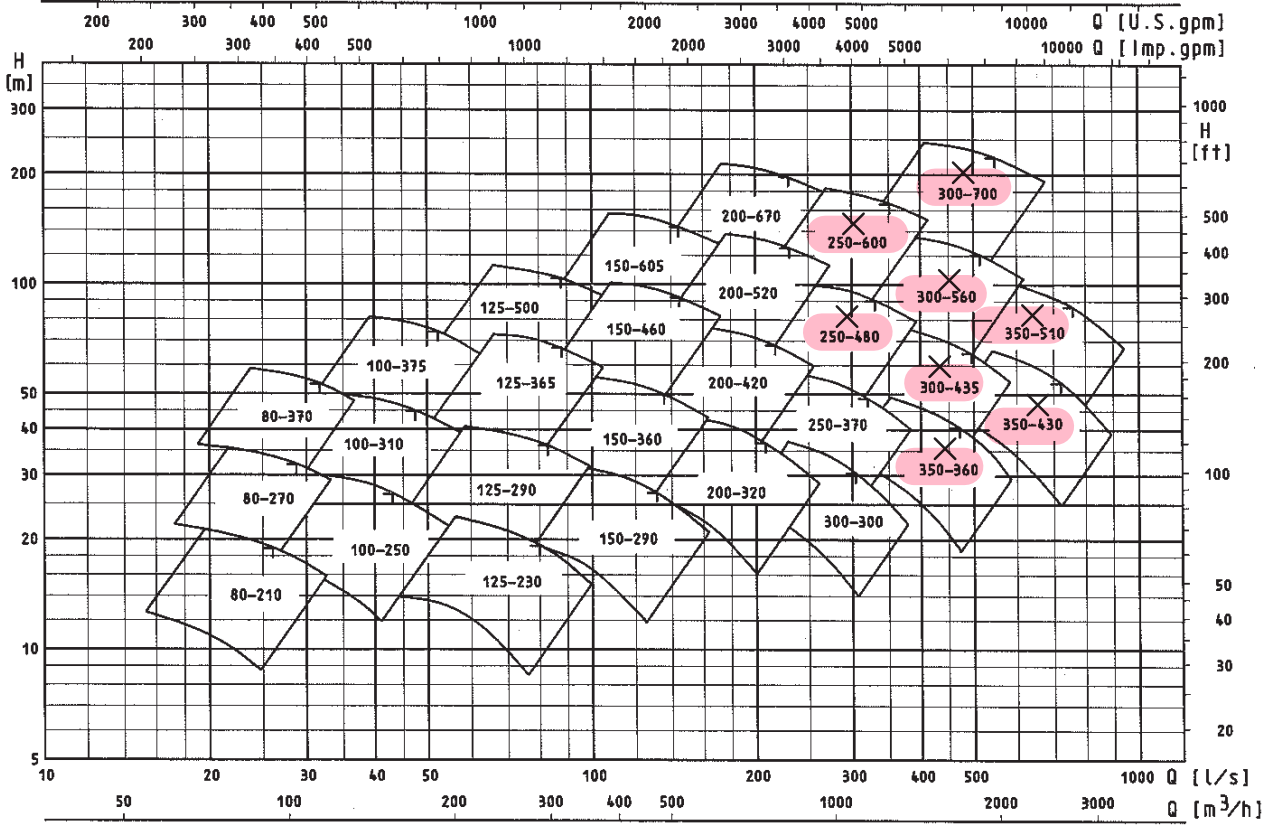
n = 2900 rev/min f = 50 Hz



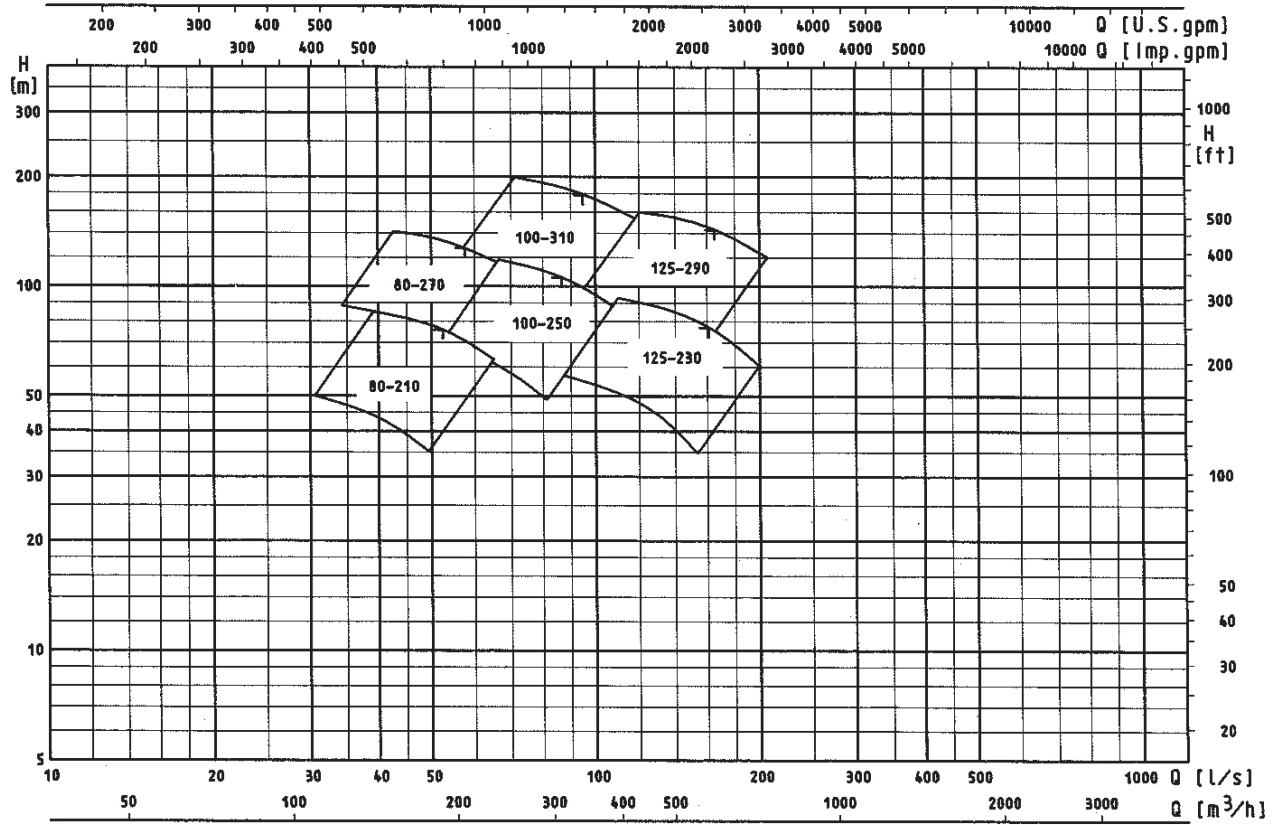
▽ ≙ ETA_{opt} A Impeller
 + ≙ ETA_{opt} B Impeller

Selection Charts 60 Hz

n = 1750 rev/min f = 60 Hz



n = 3500 rev/min f = 60 Hz



□ ≙ $\eta_{A,opt}$ B Impeller

× - Not developed sizes in KSB India

Your technical advantages

Innovative casing

- in-line design
- short distance between bearings and correspondingly short shaft
- leaktight thanks to compact joint flange with long, prestressed bolts
- counter-rotation possible with similar parts
- double-volute version for appropriate total heads
- easy mounting of self-aligning upper casing

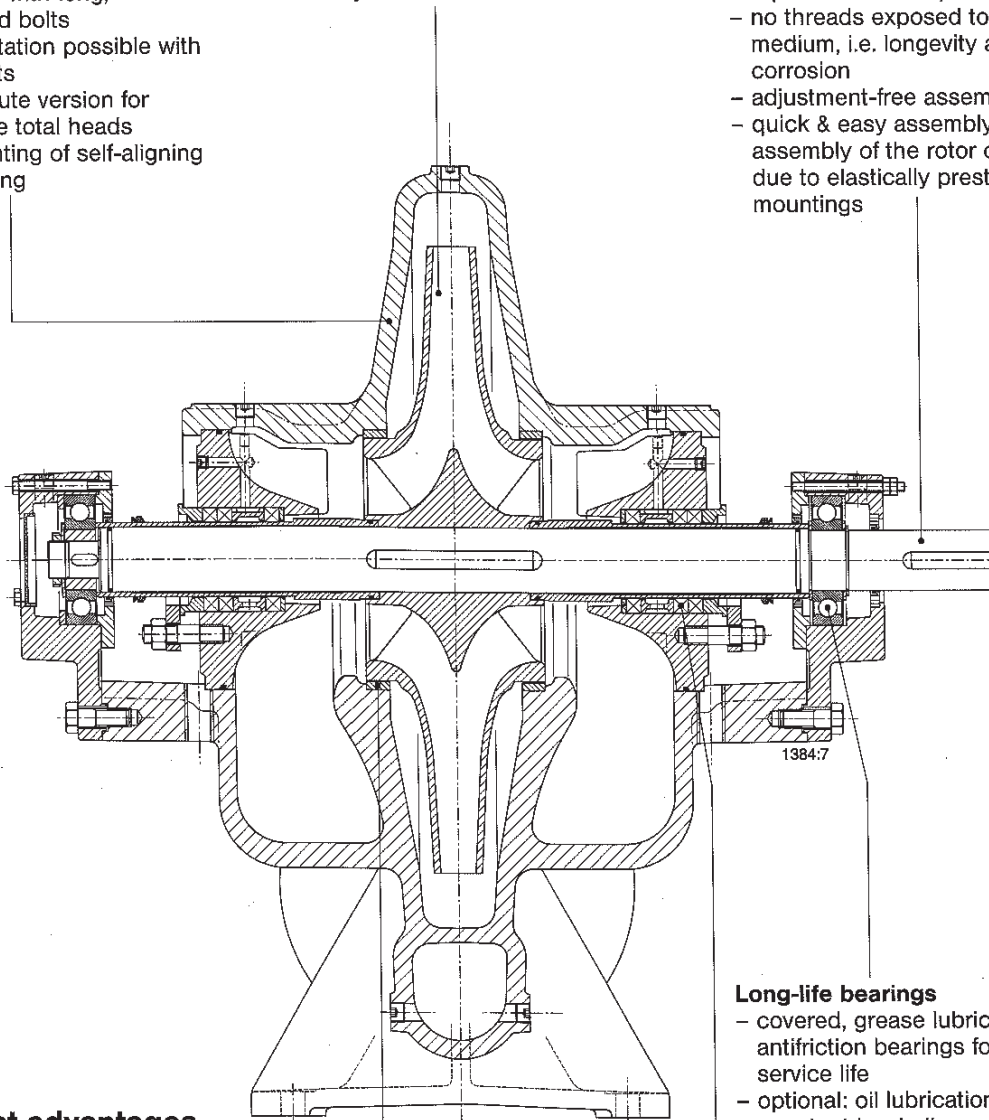
High-performance Impeller

- minimal axial thrust due to double-entry impeller
- optional impeller wear rings
- new vane passage with excellent hydraulic characteristics

Your service advantage

Service-friendly shaft

- completely sealed and dry for zero corrosion
- short and rigid with negligible vibrations
- replaceable shaft protecting sleeve
- no threads exposed to pumped medium, i.e. longevity and no corrosion
- adjustment-free assembly
- quick & easy assembly/dis-assembly of the rotor components due to elastically prestressed mountings



Your cost advantages

Outstanding NPSH

- computer-optimized double entry impellers
- smooth, low loss running due to a swirl-free inlet
- smooth, quiet running also guaranteed by a large impeller eye area

Excellent efficiencies

- the new OMEGA casing
- smooth surfaces inside the casing and on the impeller

Long-life bearings

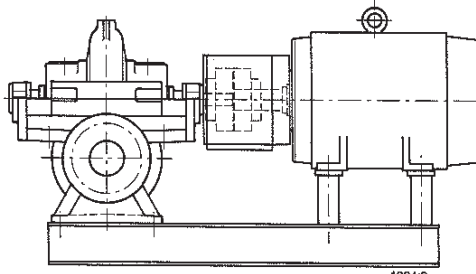
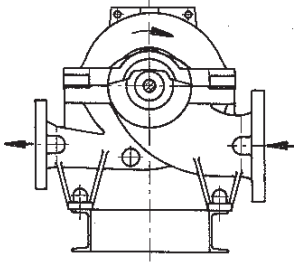
- covered, grease lubricated antifriction bearings for a long service life
- optional: oil lubrication with constant level oiler

Application-oriented seals

- asbestos-free, potable water-quality soft-packed stuffing boxes

Types of installation

Horizontal installation

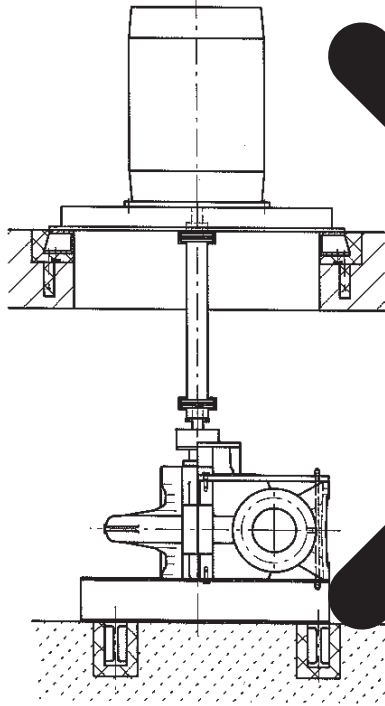


3E

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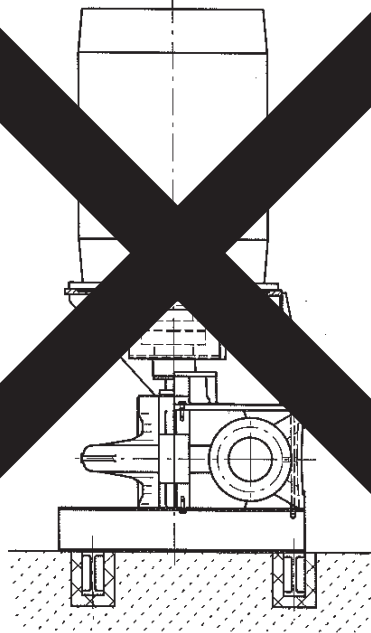
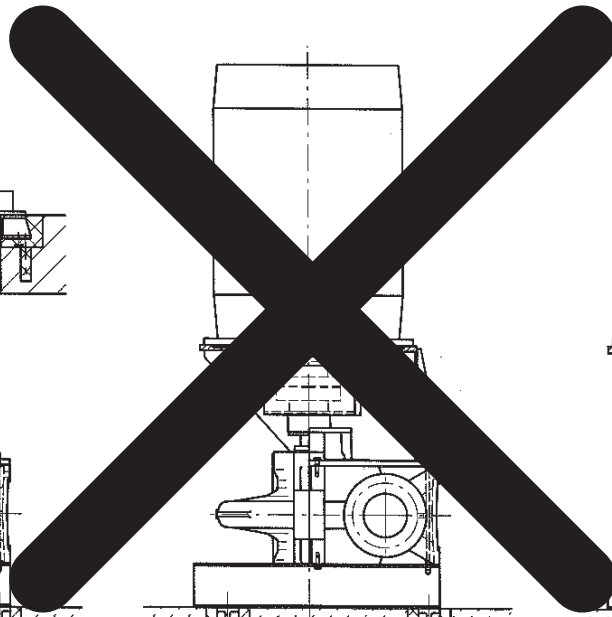
Vertical installation

1) depending on motor sizes, see dimension tables

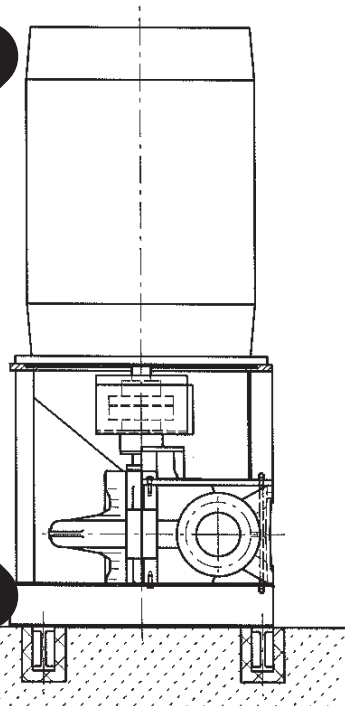


DJ

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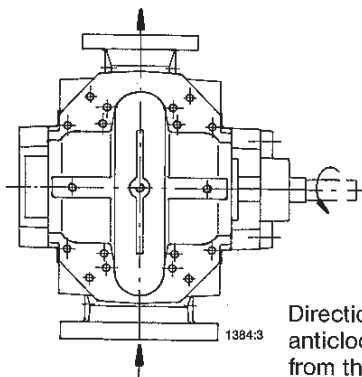


DB 1)



DK 1)

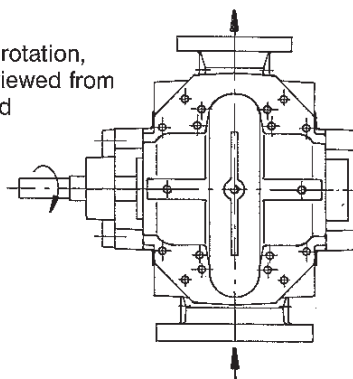
Directions of rotation



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Direction of rotation, anticlockwise, viewed from the drive end

Direction of rotation, clockwise, viewed from the drive end



Application Limits/Materials

Temperatures		Stuffing box/Mechanical seal: max. 105 °C											
Pumped liquid		Raw water/Clean water Solids content max. 80 mg/l ²⁾								Seawater			
Part No.	Description	Material combinations											
		01 ¹⁾	011 ¹⁾	02 ¹⁾	021 ¹⁾	03	031	04	041	05	06	07	
102	Volute casing	GG-25	GGG-40	GG-25	GGG-40	GG-25	GGG-40	GG-25	GGG-40	GGG-40	GGG-NiCrNb 202		
211	Shaft	1.4021											
234	Impeller	G-CuSn 10 ¹⁾					9.4460						
350	Bearing housing	GG-20											
360	Bearing cover	GG-20											
441	Seal casing	GG-25								GGG-NiCrNb 202		GS-C 25	
452	Soft-packed stuffing box	GG-25								1.4571			
502	Casing wear ring	GZ-CuSn 7 ZnPb								1.4581			
503	Impeller wear ring						GZ-CuSn 7 ZnPb					1.4462	1.4462
524	Shaft sleeve	1.4138											
433	Mechanical seal	Si-SiC/Si-SiC (U41 U41 V G G to DIN 24 960)											

¹⁾ Not for pump sizes 100-310, n = 3500 rev/min; 200-670 and 300-700, n = 1750 rev/min
²⁾ For other liquids and solids contents consult KSB

Pressure Limits

Pump sizes	Permissible operating pressures in bar											Permissible test pressures in bar										
	Material combinations																					
	01	011	02	021	03	031	04	041	05	06	07	01	011	02	021	03	031	04	041	05	06	07
80-210	16	25	16	25	16	25	16	25	16	16	25	37,5	37,5	37,5	37,5	37,5	37,5	37,5	37,5	37,5	37,5	37,5
80-270																						
80-370																						
100-250																						
100-310																						
100-375																						
125-230																						
125-290																						
125-365																						
125-500																						
150-290																						
150-360																						
150-460																						
150-605	24		24		24		24		24	24												
200-320	16		16		16		16		16	16		30		30		30		30		30	30	
200-420																						
200-520																						
200-670	24		24		24		24		24	24											24	24
250-370	10		10		10		10		10	10		24		24		24		24		24	24	
250-480	16		16		16		16		16	16		30		30		30		30		30	30	
250-600	24		24		24		24		24	24											24	24
300-300	10		10		10		10		10	10		24		24		24		24		24	24	
300-435																						
300-560	16		16		16		16		16	16		30		30		30		30		30	30	
300-700	24		24		24		24		24	24											24	24
350-360	10		10		10		10		10	10		24		24		24		24		24	24	
350-430																						
350-510																						

Coatings

for material combinations 01 to 041 and 07

- Parts in contact with the product handled:
- Clean water: two-component epoxy resin based zinc paint, zinc-grey, 0.04 mm thick
 - Potable water: two-component epoxy resin based zinc paint, zinc-grey, 0.04 mm thick and
 - two-component epoxy coat on epoxy resin, RAL 7035, 0.05 mm thick

Material combinations 05 and 06 are without internal coating

Parts not in contact with the product handled:
 two-component epoxy resin based zinc paint, zinc-grey, 0.04 mm thick

¹⁾ This primer coat is suitable for various types of top coats.

Technical Data

Dimensions in mm

Pump sizes	Shaft units	Shaft diameters		Stuffing box data		
		in the stuffing box	at the coupling	Diameter	Length	Number of packing rings
80-210	40	50	35	75	55	3
80-270						
80-370						
100-250						
100-310						
100-375						
125-230	50	60	45	85	67	
125-290						
125-365						
125-500						
150-290						
150-360	60	70	55	95	67	
150-460						
150-605						
200-320						
200-420						
200-520	70	80	65	112	85	
200-670						
250-370						
250-460	80	90	75	122	85	
250-600						
300-300	70	80	65	112	85	
300-425	80	90	75	122	85	
300-560	90	100	85	150	100	
300-700	90	110	85	150	100	
350-360	80	90	75	122	85	
350-430	90	100	85	150	100	
350-640	90	110	85	150	100	

Dimensions in mm

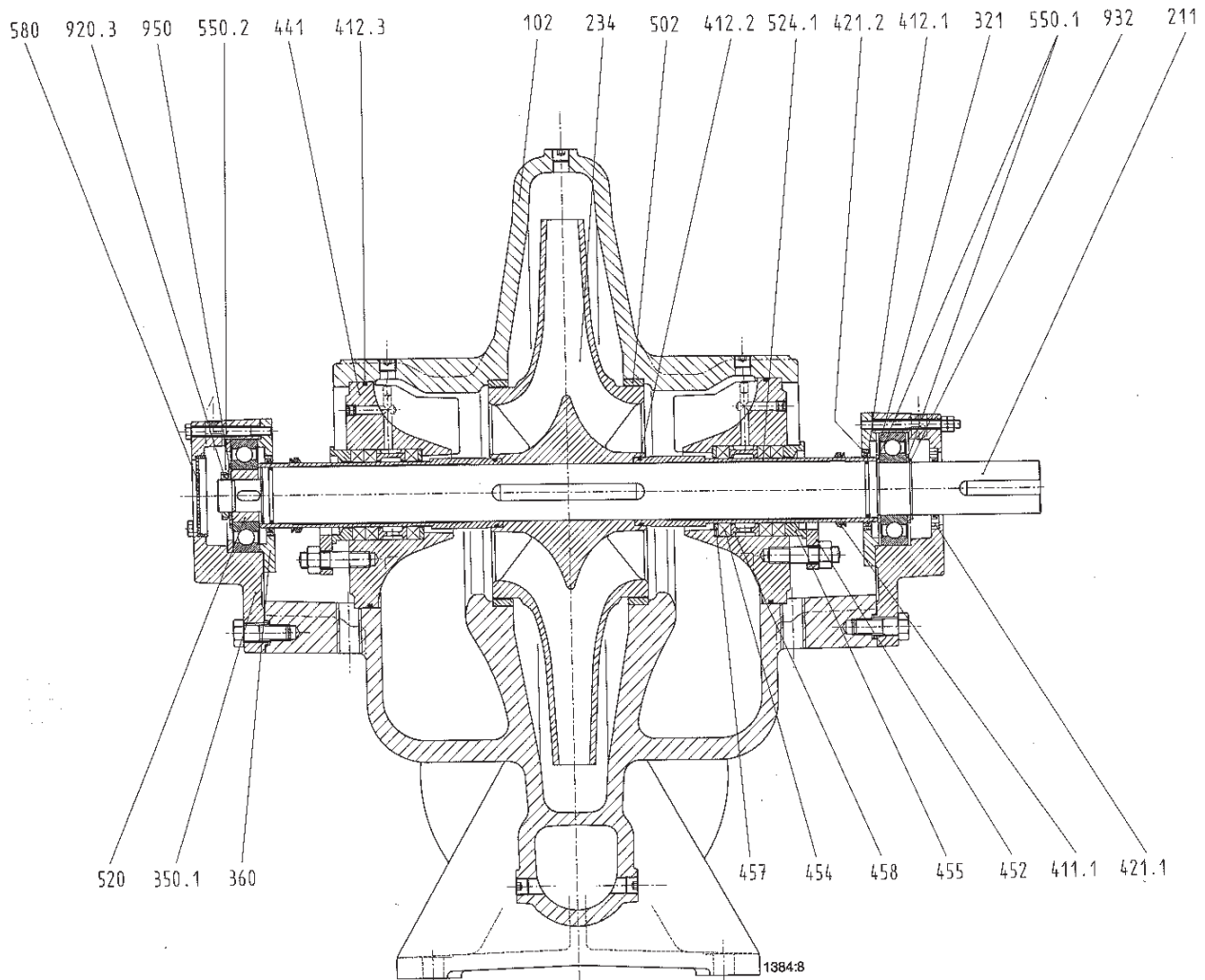
Pump sizes	Impeller dimensions in mm						Permissible nozzle forces in N	Permissible nozzle moments in Nm	Mass moments of inertia J (without coupling) in kgm ²			
	Free passage ± 10%		Max. diameters		Clearance dimensions				F _x , F _y , F _z	M _x , M _y , M _z	without water	with water
	A	B	A	B	A	B						
80-210	15	11	215	215	0,30	0,30	800	500	0,023	0,028		
80-270	13	9	275	275	0,30	0,30	800	500	0,037	0,044		
80-370	11	8	345	345	0,30	0,30	800	500	0,027	0,032		
100-250	19	14	254	254	0,30	0,30	1000	700	0,048	0,058		
100-310	15	11	325	325	0,30	0,30	1000	700	0,092	0,110		
100-375	13	10	408	408	0,30	0,30	1000	700	0,229	0,275		
125-230	23	17	245	245	0,30	0,30	1500	1000	0,161	0,193		
125-290	19	12	301	301	0,30	0,30	1500	1000	0,125	0,150		
125-365	14	10	392	392	0,30	0,30	2000	1500	0,261	0,313		
125-500	14	10	482	482	0,30	0,30	2000	1500	0,688	0,825		
150-290	27	20	289	289	0,45	0,45	2500	1500	0,169	0,288		
150-360	22	15	355	355	0,45	0,45	2500	2000	0,199	0,338		
150-460	17	12	462	462	0,45	0,45	2500	2000	0,456	0,775		
150-605	16	11	569	569	0,45	0,45	3000	2000	1,074	1,825		
200-320	30	22	338	338	0,40	0,40	4000	2750	0,442	0,575		
200-420	26	18	415	415	0,45	0,45	4000	2750	0,588	0,725		
200-520	20	14	540	540	0,45	0,45	4000	2750	1,288	1,675		
200-670	18	12	665	665	0,45	0,45	4000	2750	3,654	4,750		
250-370	39	27	390	390	0,45	0,45	4000	2750	0,721	1,225		
250-460	30	20	470	470	0,45	0,45	4000	2750	0,330	1,020		
250-600	30	20	580	580	0,45	0,45	4000	2750	2,200	3,750		
300-300	39	27	323	323	0,45	0,45	4000	3000	0,571	0,800		
300-425	45	30	450	450	0,50	0,50	4000	3000	1,780	2,300		
300-560	35	25	552	552	0,50	0,50	5000	3000	3,111	3,970		
300-700	26	18	710	710	0,50	0,50	5000	3000	0,340	0,200		
350-360	30	20	670	670	0,50	0,50	5000	3000	1,110	1,300		
350-430	57	40	480	480	0,50	0,50	5000	3000	2,232	3,120		
350-640	50	30	540	540	0,55	0,55	5000	3000	0,330	0,750		

Speeds

For higher speeds consult KSB also stipulating the pump operating range as per selection chart.

Sectional drawing

Horizontal installation



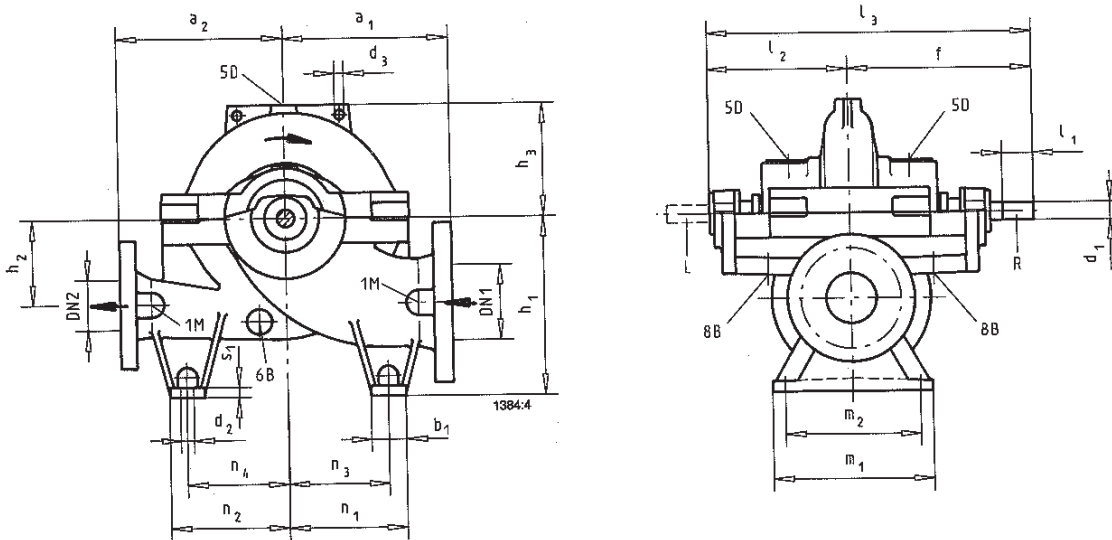
Part No.	Description
102	Volute casing
211	Shaft
234	Impeller
321	Deep groove ball bearing
350....	Bearing housing
360	Bearing cover
411....	V-Ring
412....	O-Ring

Part No.	Description
421....	Radial gasket
441	Seal casing
452	Gland cover
454	Stuffing box ring
455	Stuffing box insert
457	Neck ring
458	Lantern ring
502	Casing wear ring

Part No.	Description
520	Sleeve
524	Shaft sleeve
550....	Disk
580	Cover
920	Nut
932	Circlip
950	Spring

Dimension table

Horizontal Installation



R = Drive for clockwise direction of rotation
 L = Drive for anticlockwise direction of rotation
 Keyway and key to DIN 6885, Sheet 1
 Shaft diameter: Tolerance h_6 to DIN 7155

Flanges:
 - Drilled to ISO, DIN, BS or ANSI
 - Flange thickness to ANSI
 - Flat surface flanges

Connections

1M	Pressure gauge	G 1/2
5D	Vent	G 1/2
6B	Drainage	G 1/2
8B	Leakage liquid drain	G 3/4

Permissible deviations for:
 Centre-line heights
 Dimensions without indication
 of tolerances
 Cast iron parts

DIN 747

DIN 7168, mittel
 DIN 1686 GTB 18

		Pressure rating		
		PN 10	PN 16	PN 25
Drilled to	ISO 7005/2	PN 10	PN 16	PN 25
	DIN 2501	Table 10/11	Table 16/11	Table 25/11
	BS 4504	Class 125 (= 8,6 bar)	Class 250 (= 17,2 bar)	
	ANSI B 16.1			

- Change in dimensions.



Dimension table

Horizontal installation

Dimensions in mm, weights in kg

Pump sizes	Flange dimensions to ISO 7005/2 / DIN 2501				Pump dimensions										Foot dimensions								Shaft ends		Weights
	PN1	PN2	DN1	DN2	a1	a2	d3	f	h1	h2	h3	l2	l3	b	d2	m1	m2	n1	n2	n3	n4	s	d1	l1	
80-210	16	16	125	80	300	300	19	415	315	140	168	300	713	70	17,5	320	270	205	205	170	170	20	35	80	181
80-270	16	16	125	80	300	300	19	415	315	140	190	300	713	70	17,5	320	270	205	205	170	170	20	35	80	194
80-370	16	16	125	80	330	330	19	415	315	140	225	300	713	70	17,5	320	270	205	205	170	170	20	35	80	204
100-250	16	16	150	100	330	330	19	415	355	170	195	300	713	70	17,5	320	270	235	235	200	200	20	35	80	207
100-310	16	16	150	100	330	330	19	415	355	170	225	300	713	70	17,5	320	270	235	235	200	200	20	35	80	223
100-375	16	16	150	100	370	370	19	415	355	170	260	300	713	70	17,5	320	270	235	235	200	200	20	35	80	241
125-230	16	16	200	125	370	370	19	515	400	200	210	366	880	70	17,5	390	340	260	260	225	225	20	45	100	249
125-290	16	16	200	125	370	370	19	515	400	200	230	366	880	70	17,5	390	340	260	260	225	225	20	45	100	274
125-365	16	16	200	125	370	370	19	515	400	200	260	366	880	70	17,5	390	340	260	260	225	225	20	45	100	298
125-500	16	16	200	125	450	450	19	515	400	200	305	366	880	70	17,5	390	340	315	315	280	280	20	45	100	331
150-290	16	16	200	150	400	400	19	515	400	200	245	366	880	70	17,5	390	340	260	260	225	225	20	45	100	347
150-360	16	16	200	150	400	400	19	515	400	200	265	366	880	70	17,5	390	340	260	260	225	225	20	45	100	359
150-460	16	16	200	150	450	450	19	590	400	200	305	399	985	70	17,5	480	430	315	315	280	280	20	55	125	436
150-605	25	25	200	150	600	500	19	590	500	300	370	399	985	70	17,5	480	430	385	385	350	350	20	55	125	646
200-320	16	16	250	200	450	450	24,5	590	500	240	285	399	985	70	17,5	480	430	315	315	280	280	20	55	125	450
200-420	16	16	250	200	500	500	24,5	590	500	240	310	399	985	70	17,5	480	430	315	315	280	280	20	55	125	517
200-520	16	16	250	200	600	500	24,5	655	560	300	370	464	1117	70	17,5	480	430	385	385	350	350	26	65	140	840
200-670	25	25	250	200	650	550	24,5	655	600	350	430	464	1117	100	22	480	400	400	400	350	350	26	65	140	990
250-370	10	10	300	250	500	500	24,5	655	600	300	320	464	1117	100	22	480	400	400	400	350	350	26	65	140	665
250-480	10	10	300	250	550	550	24,5	720	620	350	330	515	1242	100	22	600	520	525	525	475	475	26	85	130	820
250-600	25	25	300	250	650	550	24,5	720	620	350	415	515	1242	100	22	600	520	400	400	350	350	26	75	120	1010
300-300	10	10	350	300	550	500	24,5	655	630	300	360	464	1117	100	22	480	400	400	400	350	350	26	65	140	626
300-425	10	10	400	300	650	550	24,5	720	620	350	395	515	1242	100	22	600	520	400	400	350	350	26	75	130	801
300-560	16	16	400	300	700	650	24,5	810	710	350	420	585	1395	100	22	600	520	525	525	475	475	26	85	130	1120
300-700	25	25	400	300	750	650	24,5	810	750	400	480	585	1395	100	22	600	520	525	525	475	475	26	85	130	1600
350-360	10	10	400	350	650	550	24,5	720	620	350	410	515	1242	100	22	600	520	400	400	350	350	26	75	120	861
350-420	10	10	450	350	750	650	24,5	810	750	400	465	585	1395	100	22	600	520	525	525	475	475	26	85	130	1005
350-510	10	10	400	350	700	650	24,5	810	750	400	420	585	1395	100	22	600	520	525	525	475	475	26	85	130	1001



Guarantee, Testing and Quality Control

Every pump undergoes a functional test and the operating data is guaranteed **without** acceptance test.

Acceptance tests can be performed in accordance with ISO 2548 C, DIN 1944/III or other comparable international testing standards.

Continuous inspection procedures both in-house and at our subsuppliers ensure the quality of the pump.

The pumps are approved by GL "Germanischer Lloyd" and LRS "Lloyds Register of Shipping".

Interchangeability of pump parts, horizontal pump

Omega	Description	Part No.																
		Shaft	Deep groove ball bearing	Bearing housing	Bearing cover	Seal casing	Gland cover	Stuffing box ring	Stuffing box insert	Neck ring	Lantern ring	Sleeve	Shaft sleeve	Disk	Nut	Spring	Casing wear ring	Impeller wear ring
		211	321	350.1	360	441	452	454	455	457	458	520	524.1	550.1-2	920	950	502	503
Pump sizes	80-210	40	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	80-270	40	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	80-370	40	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	100-250	40	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
	100-310	40	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
	100-375	40	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
	125-230	50	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3
	125-290	50	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3
	125-365	50	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3
	125-500	50	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3
	150-290	50	2	2	2	2	2	2	2	2	2	2	2	2	2	2	4	4
	150-360	50	2	2	2	2	2	2	2	2	2	2	2	2	2	2	4	4
	150-460	60	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4
	150-605	60	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4
	200-320	60	3	3	3	3	3	3	3	3	3	3	3	3	3	3	5	5
	200-420	60	3	3	3	3	3	3	3	3	3	3	3	3	3	3	5	5
	200-520	70	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5
	200-670	70	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5
	250-370	70	4	4	4	4	4	4	4	4	4	4	4	4	4	4	6	6
	250-420	80	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6
250-600	80	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	
300-300	70	4	4	4	4	4	4	4	4	4	4	4	4	4	4	7	7	
300-435	80	5	5	5	5	5	5	5	5	5	5	5	5	5	5	8	8	
300-560	90	6	6	6	6	6	6	6	6	6	6	6	6	6	6	8	8	
300-700	90	6	6	6	6	6	6	6	6	6	6	6	6	6	6	8	8	
350-360	80	5	5	5	5	5	5	5	5	5	5	5	5	5	5	9	9	
350-430	90	6	6	6	6	6	6	6	6	6	6	6	6	6	6	10	10	
350-510	90	6	6	6	6	6	6	6	6	6	6	6	6	6	6	20	20	

Same number means same pump part for both horizontal and vertical pumps.



Subject to technical modifications.

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