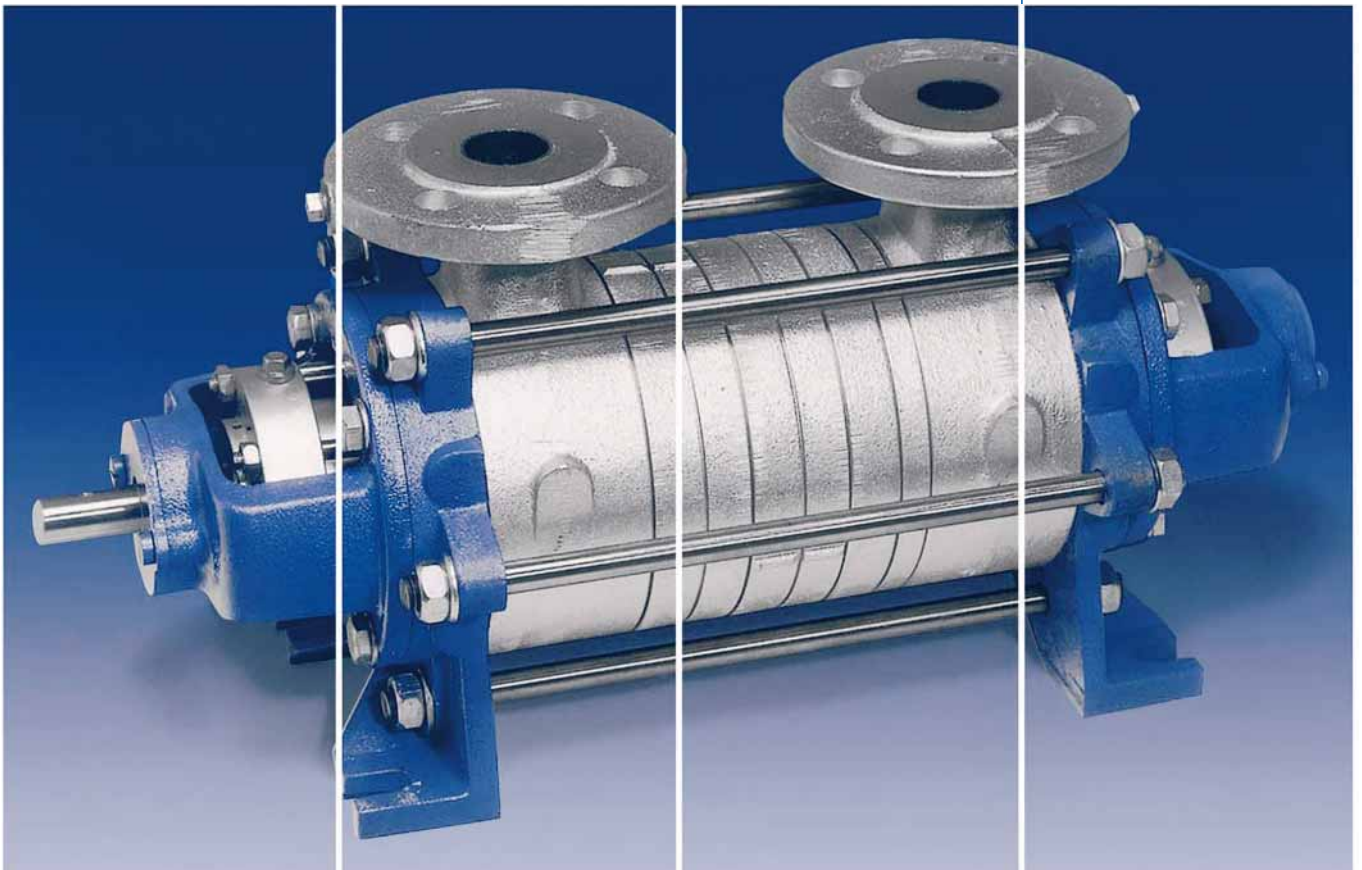


Side channel pump PN 40
self-priming, according to DIN EN 734

SRZ



Technical description

SRZ pumps are self-priming side channel pumps in multistage construction capable of handling aerated liquids. They have been developed especially for heavy duties in all industrial areas. Clean, slightly contaminated or aggressive liquids can be handled without problems under the most difficult operating conditions.

The most important characteristics of these pumps are:

- self-priming
- capable of handling aerated liquids
- low noise level
- easy to maintain
- applicable for temperatures up to 220°C
- possibility of constructive variants

The SRZ pump is very reliable and easy to maintain. Latter is of great importance for those application fields where high security and constant readiness for service is indispensable. You have for example the possibility to change shaft seals, antifriction-bearings, etc. without removing the pump of the piping system.

Important:

Pump types of this series consist of standard components. They show an uniform performance level and are standardized according to DIN EN 734 and therefore interchangeable with types of other German producers.

Application:

SRZ pumps are generally used in many areas, for example:

- chemical industry
- installation and apparatus engineering
- process engineering
- refrigerating installations
- boiler feed installations

The great number of material- and shaft seal variants guarantees a large application field. Special casings for shaft seal permit the mounting of any mechanical seal. These advantages put the big enterprises into position to keep their particular company standard. A special execution (K) for handling boiler feed water at a temperature higher than 120°C exists. This execution is applicable up to 220°C.

Please note:

casing pressure = positive suction pressure (steam pressure) + head at the minimum flow rate. SRZ pumps are also available with magnetic drive.

Technical data:

Capacity: 0,3 - 35 m³/h
 Head: 5 - 350 m
 Speed: 1450 (1750) 1/min.

Temperature: -40° C to +220° C
 (660 series: up to +180° C)

Working pressure: 40 bar

Viscosity: max. 230 cst

Suction head: max. 7.0 m

Proportion of gas: max. 50 %

Drive: three-phase motor
 0,55 - 55 kW

Characteristics of construction

- horizontal self-priming side channel pump in heavy execution PN 40
- modular construction
- pressure relieved vane impellers (ill. 1)
- suction and delivery branches are radially directed upwards
- sleeve bearing lubricated by the liquid pumped
- two grease-lubricated exterior antifriction-bearings in removable bearing-supports (ill.2)

- direction of rotation: clockwise seen from driven shaft end
- Flange according to DIN 2501, PN 40
- shaft seal: standard mechanical seal
- possibility of cooling or heating

Pumps for temperatures higher than 120° C (K-execution):

For the selection of pumps resp. of their execution you can proceed according to illustration no.3 in consideration of the chemical resistance.

On principle pumps in K-execution have the following constructive modifications:

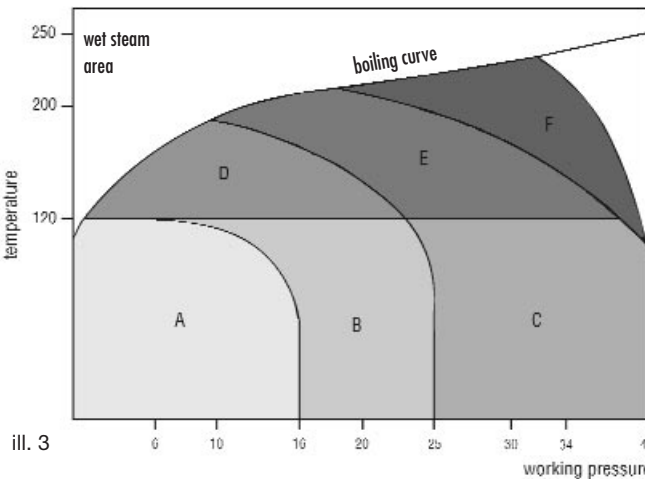
- increased clearance between impeller and stage
- high temperature bearing
- heat-resistant paint
- cooling connections at the foot (1-2 l/min, max. 10 bar)
- compensation of thermal expansion



ill. 1



ill. 2



ill. 3

zone	material 2*	shaft seal 1*	cooling
A	10	G11	-
B	10	G12	-
C	60	G12	-
D	10	G12	K
E	62	G12	K
F	32	G12/Q32	K

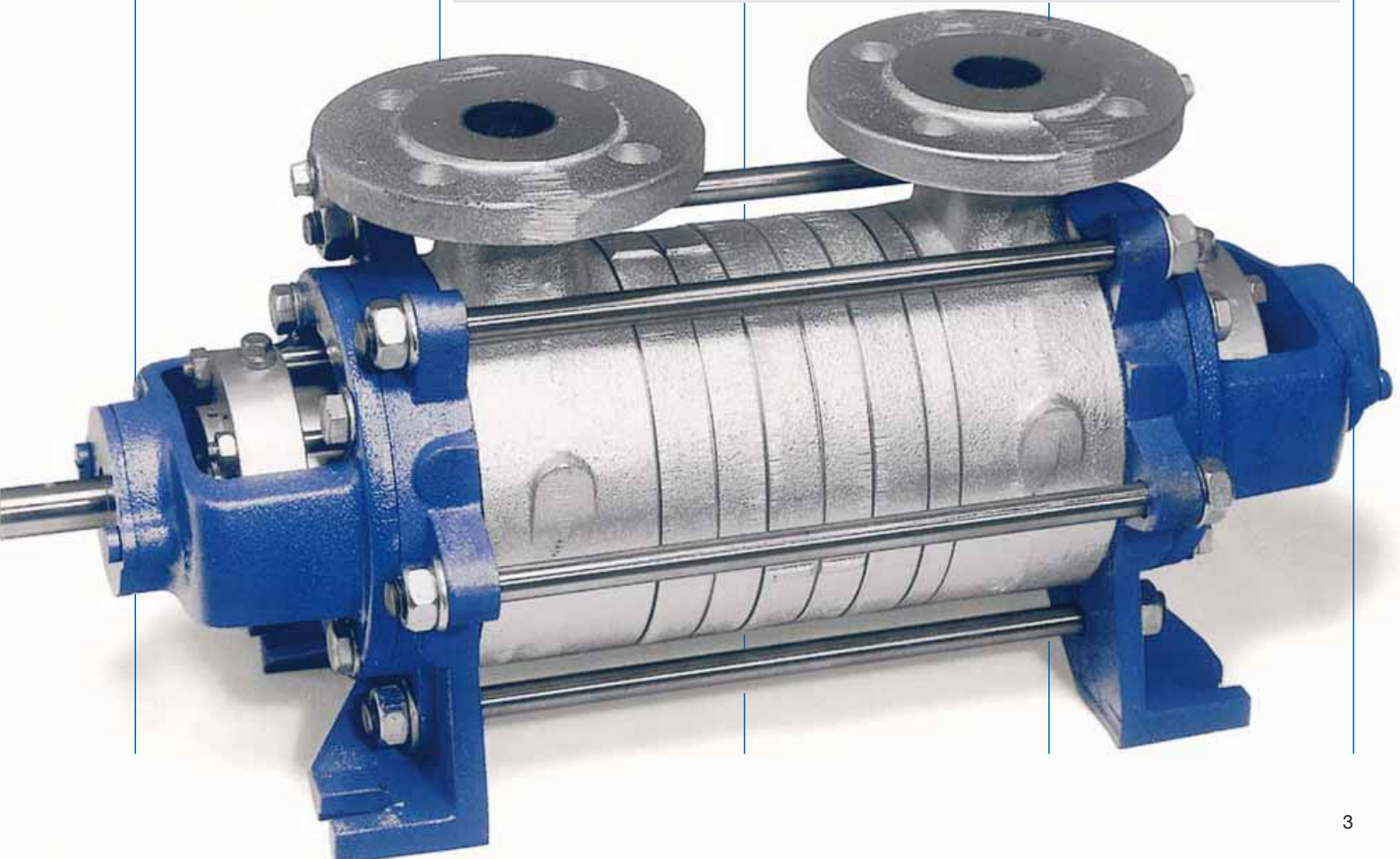
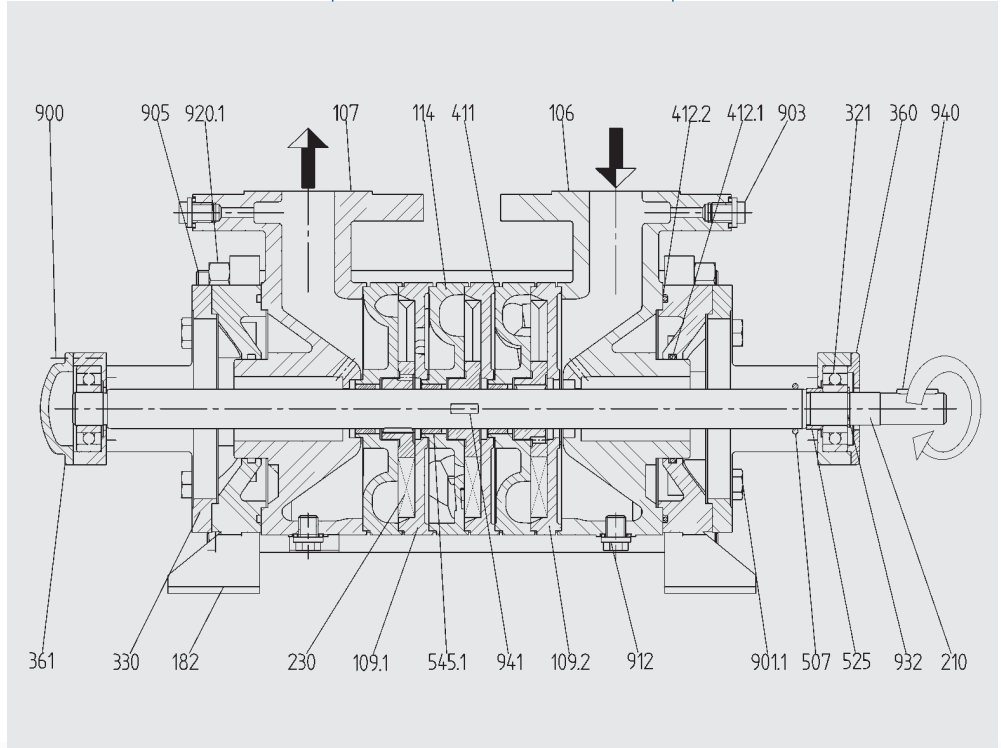
1*) Standard

2*) minimum requirements

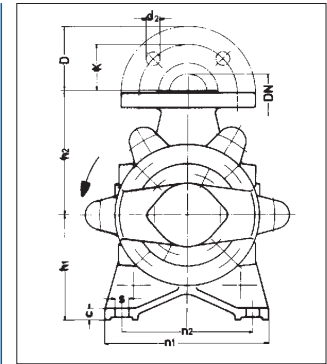
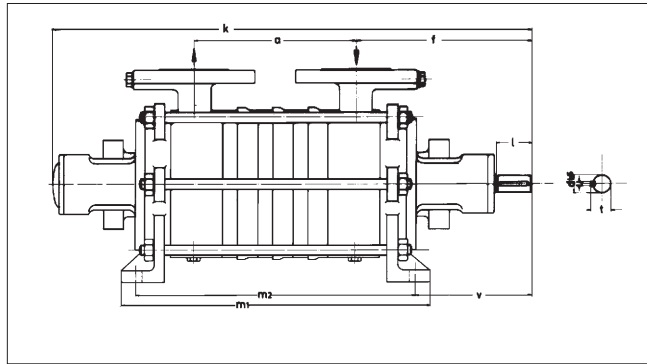
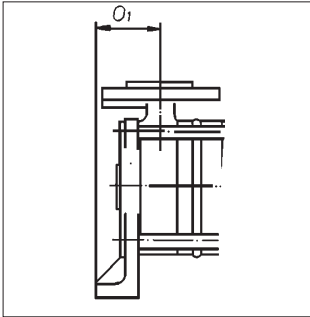
Pump materials *

part no.	item	material code				
		10	12	32	60	62
106	suction casing	GG 25	GG 25	1.4408	GGG 40.3	GGG 40.3
107	discharge casing	GG 25	GG 25	1.4408	GGG 40.3	GGG 40.3
109	stage casing	GG 25	GG 25	1.4470	GGG 40	GGG 40
114	side channel casing	GG 25	GG 25	1.4470	GGG 40	GGG 40
182	foot	GGG 40	GGG 40	GGG 40	GGG 40	GGG 40
210	shaft	1.4021	1.4021	1.4571	1.4021	1.4021
230	impeller	Cu Zn 40 Al 1	1.4059	1.4581	Cu Zn 40 Al 1	1.4059
330	bearing support	GG 20	GG 20	GG 20	GG 20	GG 20
360	bearing cover open	GG 20	GG 20	GG 20	GG 20	GG 20
361	bearing cover closed	GG 20	GG 20	GG 20	GG 20	GG 20
411	casing gaskets	teflon	teflon	teflon	teflon	teflon
545	bearing bush	spec. carbon	spec. carbon	spec. carbon	spec. carbon	spec. carbon

*GG = cast iron GGG 40 = ductile iron



Dimensions



series	DN	o ₁	c	f	h ₁	h ₂	n ₁	n ₂	v	d	l	t	u
110	20	75	10	171	100	100	140	105	113	14	25	16	5
220 / 330	32	84	12	201	112	132	170	135	134	19	40	21,4	6
440	40	71	15	195	132	140	195	155	140	24	45	26,8	8
550	50	97	18	237	160	165	215	170	159	28	50	30,8	8
660	65	—	20	262	180	180	245	195	172	32	65	35,3	10

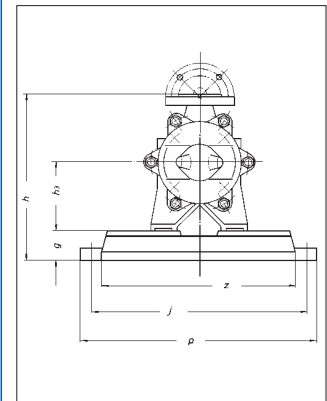
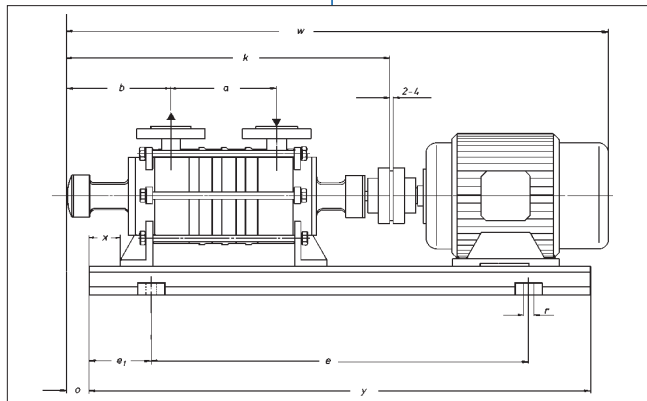
further stage

series	1			2			3			4			5			6			7			8		
	a	m ₁	m ₂	a	m ₁	m ₂	a	m ₁	m ₂	a	m ₁	m ₂	a	m ₁	m ₂	a	m ₁	m ₂	a	m ₁	m ₂	a	m ₁	m ₂
110	120	270	236	120	270	236	154	304	270	188	338	304	222	372	338	256	406	372	290	440	406	324	474	440
220 / 330	146	314	280	146	314	280	186	354	320	226	394	360	266	434	400	306	474	440	346	514	480	386	554	520
440	160	303	269	215	358	324	270	413	379	325	468	434	380	523	489	435	578	544	490	633	599	545	688	654
550	175	369	331	250	444	406	325	519	481	400	594	556	475	669	631	550	744	706	625	819	781	700	894	856
660	195	412	374	285	502	464	375	592	554	465	682	644	555	772	734	645	862	824	735	952	914	825	1042	1004

dimensions in mm
max. 8 stages

flange connection dimensions according to DIN 2501 PN 40					
DN _{S,D}	20	32	40	50	65
K	75	100	110	125	145
D	105	140	150	165	185
d2 x number of holes	14 x 4	18 x 4	18 x 4	18 x 4	18 x 8

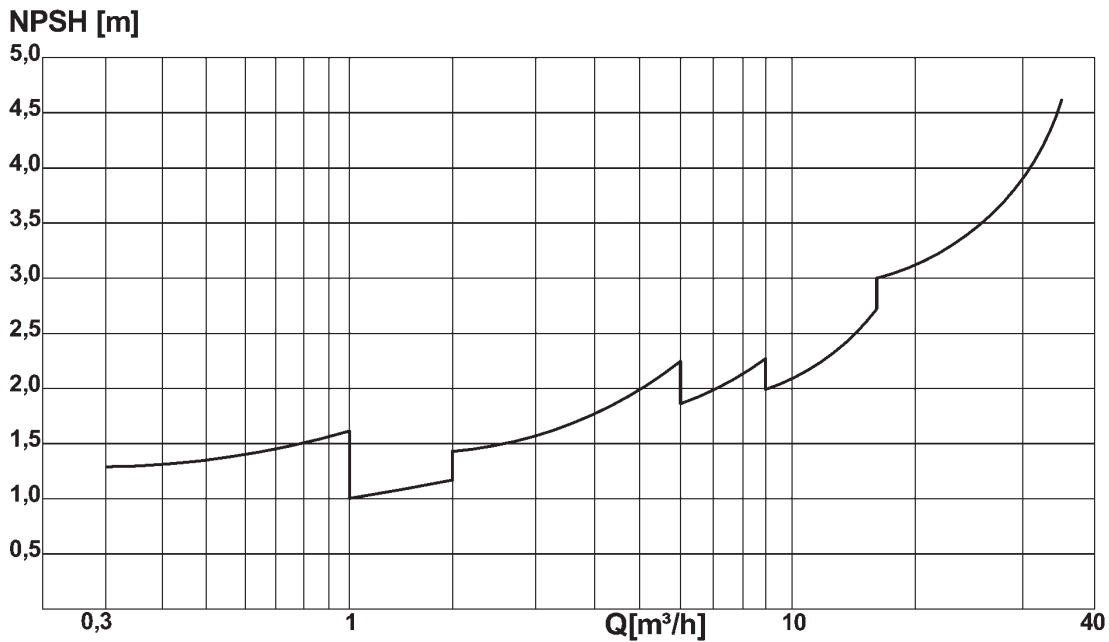
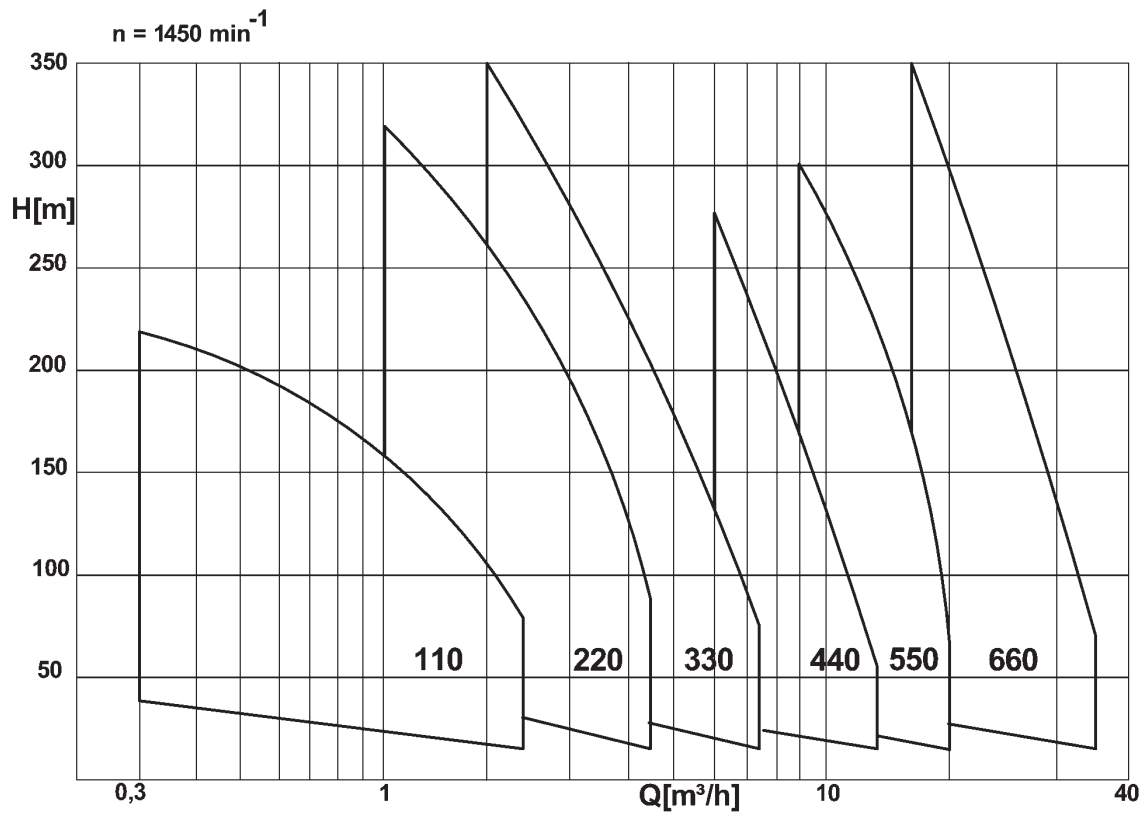
Installation plan



series	motor		coup- ling	base plate	weight (kg)		a	k	h	h3	o	v	w	x	e	e1	g	i	p	r	y	z	
	size	kW			pump	aggreg.																	
111	71	0,37	58	180 a	23	42	120	435	240	100	54	144	668	15	485	77,5	40	255	290	15	640	235	
	80	0,55				44																	704
112	80	0,55	58	180 a	23	44	120	435	240	100	54	144	704	15	485	77,5	40	255	290	15	640	235	
	80	0,75				45																	704
	90 S	1,1				47																	731
113	80	0,75	58	181	25	53	154	469	245	100	54	144	738	15	550	90	45	305	340	15	730	270	
	90 S	1,1				55																	765
	90 L	1,5				58																	790
114	90 S	1,1	68	181	26	56	188	503	245	100	54	144	799	15	550	90	45	305	340	15	730	270	
	90 L	1,5				59																	824
	100 L	2,2				69																	873
115	90 S	1,1	68	181	28	58	222	537	245	100	54	144	833	15	550	90	45	305	340	15	730	270	
	90 L	1,5				65																	858
	100 L	2,2				71																	907
116	90 L	1,5	68	182	30	67	256	571	245	100	54	144	892	15	650	100	45	308	340	15	850	280	
	100 L	2,2				73																	941
	100 L	3				77																	941
117	90 L	1,5	68	182	31	68	290	605	245	100	54	144	926	15	650	100	45	308	340	15	850	280	
	100 L	2,2				74																	975
	100 L	3				78																	975
	112 M	4				97																	992
118	100 L	2,2	80	183	33	81	324	644	250	100	54	144	1009	15	730	150	50	385	420	18	1030	320	
	100 L	3				85																	1009
	112 M	4				99																	1026

series	motor		coup- ling	base plate	weight (kg)		a	k	h	h3	o	v	w	x	e	el	g	i	p	r	y	z
	size	kW			pump	agg.																
221	80	0,55	58	181	33	60	146	502	289	112	56	155	771	15	550	90	45	305	340	15	730	270
	80 S	0,75	68			61																
222	90 S	1,1	68	181	35	65	146	502	289	112	56	155	798	15	550	90	45	305	340	15	730	270
	90 L	1,5	80			68																
223	90 L	1,5	68	182	39	76	186	542	289	112	56	155	863	15	650	100	45	308	340	15	850	280
	100 L	2,2	80			82																
224	100 L	2,2	80	182	43	86	226	582	289	112	56	155	947	15	650	100	45	308	340	15	850	280
	100 L	3	95			90																
225	100 L	3	80	183	47	99	266	622	294	112	56	155	987	15	730	150	50	385	420	18	1030	320
	112 M	4	95			113																
226	112 M	4	80	183	51	117	306	662	294	112	56	155	1044	15	730	150	50	385	420	18	1030	320
	132 S	5,5	95			138																
227	112 M	4	80	183	55	121	346	702	294	112	56	155	1084	15	730	150	50	385	420	18	1030	320
	132 S	5,5	95			142																
228	132 S	5,5	80	183	59	146	386	742	314	132	56	155	1191	15	730	150	50	385	420	18	1030	320
	132 M	7,5	95			165																
331	80	0,75	58	181	33	61	146	502	289	112	56	155	771	15	550	90	45	305	340	15	730	270
	90 S	1,1	68			63																
332	90 L	1,5	68	181	35	68	146	502	289	112	56	155	823	15	550	90	45	305	340	15	730	270
	100 L	2,2	80			78																
333	100 L	2,2	80	182	39	82	186	542	289	112	56	155	907	15	650	100	45	308	340	15	850	280
	100 L	3	95			86																
334	100 L	3	80	182	43	90	226	582	289	112	56	155	947	15	650	100	45	308	340	15	850	280
	112 M	4	95			104																
335	112 M	4	80	183	47	113	266	622	294	112	56	155	1004	15	730	150	50	385	420	18	1030	320
	132 S	5,5	95			134																
336	112 M	4	80	183	51	117	306	662	294	112	56	155	1044	15	730	150	50	385	420	18	1030	320
	132 S	5,5	95			138																
337	112 M	4	80	183	55	121	346	702	294	112	56	155	1084	15	730	150	50	385	420	18	1030	320
	132 S	5,5	95			142																
338	132 S	5,5	80	183	59	146	386	742	314	132	56	155	1191	15	730	150	50	385	420	18	1030	320
	132 M	7,5	95			165																
441	90 L	1,5	68	181	47	80	160	502	317	132	61	147	823	15	550	90	45	305	340	15	730	270
	100 L	2,2	80			90																
442	100 L	3	80	182	51	98	215	557	317	132	61	147	922	15	650	100	45	308	340	15	850	280
	112 M	4	95			112																
443	112 M	4	80	182	57	118	270	612	317	132	61	147	994	15	650	100	45	308	340	15	850	280
	132 S	5,5	95			144																
444	132 S	5,5	80	183	63	150	325	667	322	132	61	147	1116	15	730	150	50	385	420	18	1030	320
	132 M	7,5	95			164																
445	132 M	7,5	80	184	69	175	380	722	327	132	61	147	1209	15	930	150	55	400	445	20	1230	340
	160 M	11	95			212																
446	132 M	7,5	80	184	75	181	435	777	327	132	61	147	1264	15	930	150	55	400	445	20	1230	340
	160 M	11	95			218																
447	160 M	11	95	7	81	247	490	832	400	160	61	147	1417	15	940	230	100	550	590	28	1400	490
	160 L	15	110			273																
448	160 M	11	95	7	87	253	545	887	400	160	61	147	1472	15	940	230	100	550	590	28	1400	490
	160 L	15	110			279																
551	100 L	3	80	182	67	114	175	595	370	160	71	183	960	15	650	100	45	308	340	15	850	280
	112 M	4	95			128																
552	132 S	5,5	80	183	75	162	250	670	375	160	71	183	1119	15	730	150	50	385	420	18	1030	320
	132 M	7,5	95			176																
553	132 M	7,5	80	184	86	192	325	745	380	160	71	183	1232	15	930	150	55	400	445	20	1230	340
	160 M	11	95			229																
554	160 M	11	95	184	97	240	400	820	380	160	71	183	1405	15	930	150	55	400	445	20	1230	340
	160 L	15	110			289																
555	160 L	15	95	7	108	300	475	895	425	160	71	183	1524	15	940	230	100	550	590	28	1400	490
	180 M	18,5	110			332																
556	160 L	15	95	8	119	320	550	970	425	160	71	183	1599	15	1060	270	100	600	640	28	1600	540
	180 M	18,5	110			352																
557	180 M	18,5	110	8	130	363	625	1045	445	180	71	183	1697	15	1060	270	100	600	640	28	1600	540
	180 L	22	125			382																
558	180 M	18,5	110	8	141	374	700	1120	445	180	71	183	1772	15	1060	270	100	600	640	28	1600	540
	180 L	22	125			393																
661	132 S	5,5	95	183	84	171	195	649	410	180	69	192	1096	15	730	150	50	385	420	18	1030	320
	132 M	7,5	95			185																
662	160 M	11	95	184	97	240	285	739	415	180	69	192	1322	15	930	150	55	400	445	20	1230	340
	160 L	15	95			267																
663	180 M	18,5	110	7	109	333	375	829	460	180	69	192	1479	15	940	230	100	550	590	28	1400	490
	180 L	22	125			354																
664	180 L	22	125	7	122	367	465	919	460	180	69											

Performance curve



The technical documentation includes detailed curves.

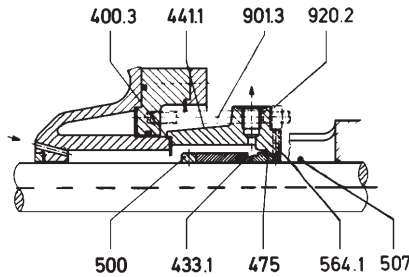
Attention: The limit on the left side of the curve represents Q_{\min} .
 The capacity has not to be continually inferior to this value. Otherwise pump could be damaged.
 For start-up and during the operation the suction and the discharge valve must always be open.
 In case of capacity fluctuations we advise to use a by-pass.

Shaft seal

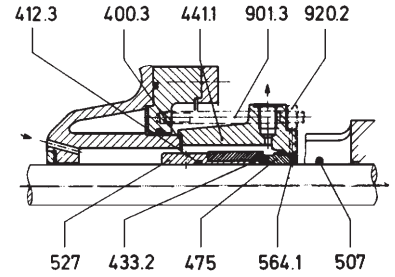
Standard:

Single mechanical seal:

G 11: unbalanced single mechanical seal (up to 16 bar)
Mat. B₁V₁ (E or M₁) GG



Seal G 11



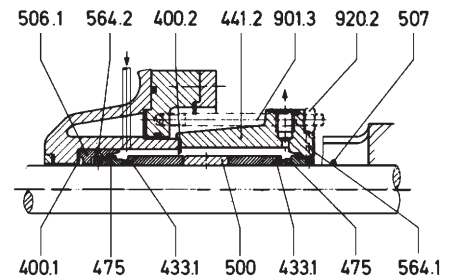
Seal G 12

On request:

Double mechanical seal:

G 15: unbalanced double mechanical seal (back to back) (up to 16 bar)

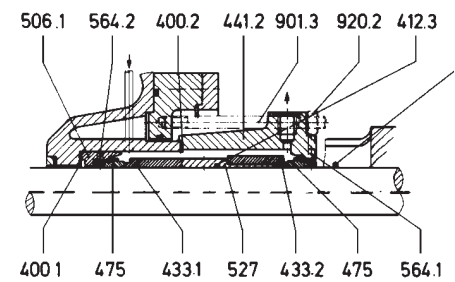
Mat. product side:
B₁V₁ (E or M₁) GG
Mat. atmosph. side:
B₁V₁ (E or M₁) GG



Seal G 15

G 16: balanced double mechanical seal (back to back) (up to 40 bar)

Mat. product side:
B₁V₁ (E or M₁) GG
Mat. atmosph. side:
B₁V₁ (E or M₁) GG

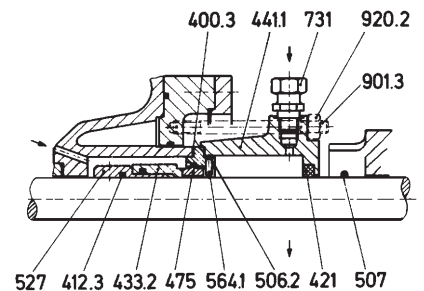


Seal 16

Quench:

Q 31: unbalanced single mechanical seal with quench connection up to 16 bar (without ill.)

Q 32: balanced single mechanical seal with quench connection up to 40 bar.



Seal Q 32

For all variants there is the possibility of cooling or heating of the seal chamber.



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