



Enriching Lives

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

CF



KIRLOSKAR BROTHERS LIMITED
A Kirloskar Group Company

Technical description

CF 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 CF 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:

CF 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.

CF 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



ill.1



ill.2

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)

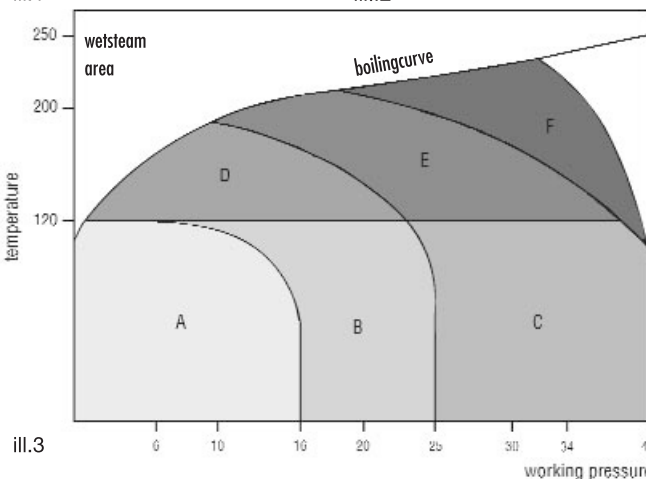
- Direction of rotation: clockwise seen from driven shaft end
- Flange according to DIN 2501, PN 40
- Shaft seal: standard mechanical seal
- Possibility of cooling or heating

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.3

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

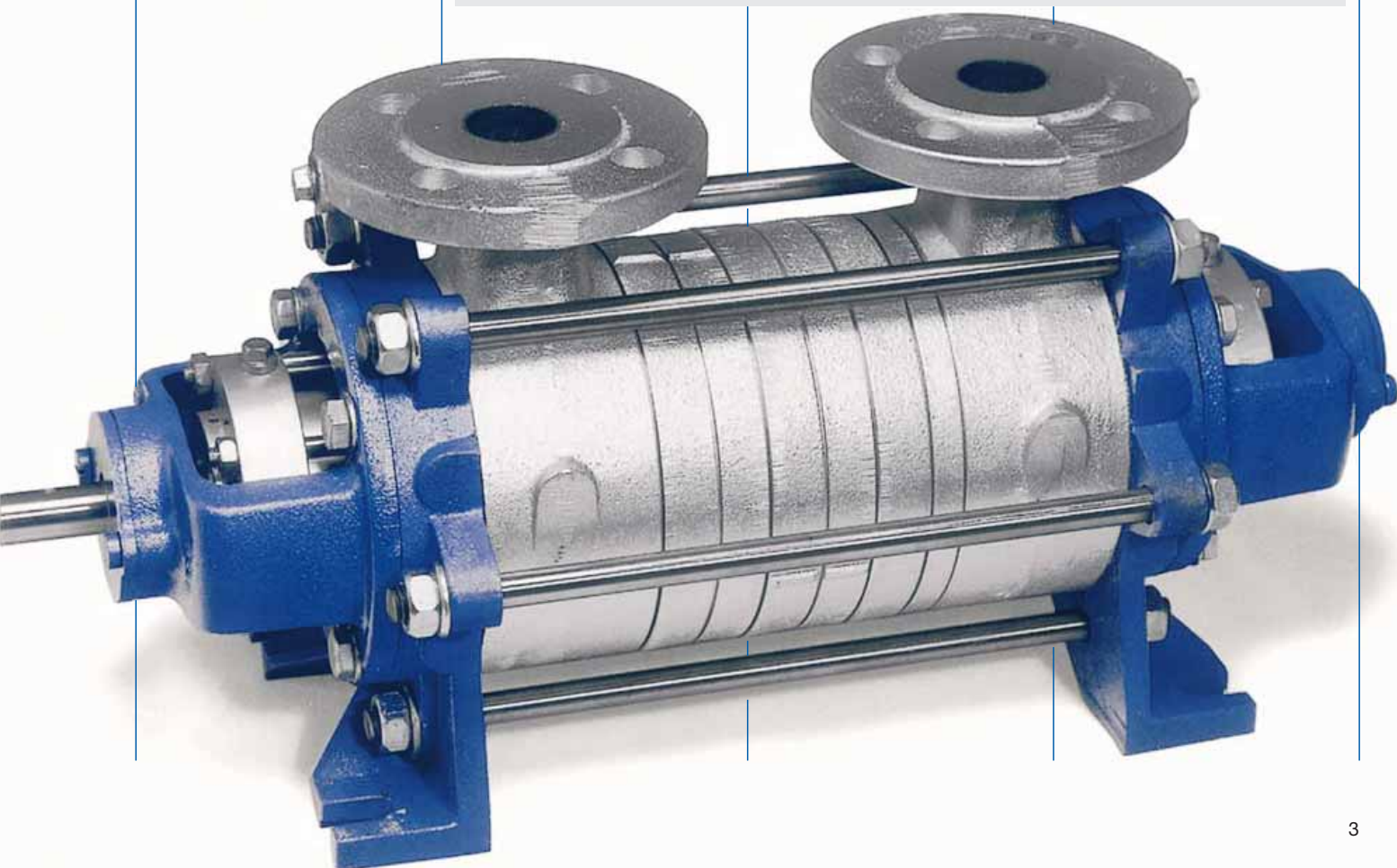
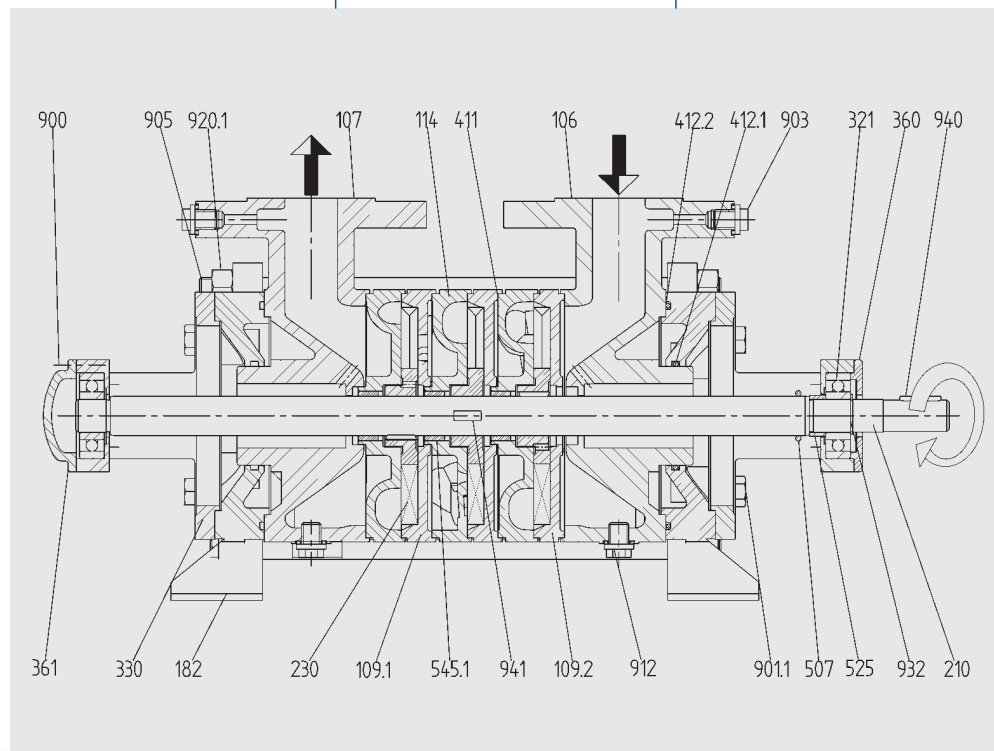
1*) Standard

2*) minimum requirements

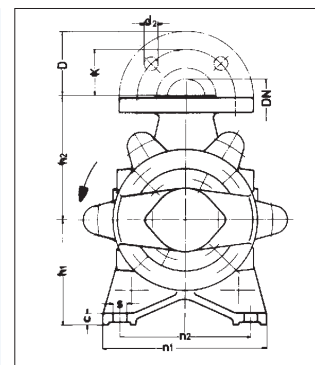
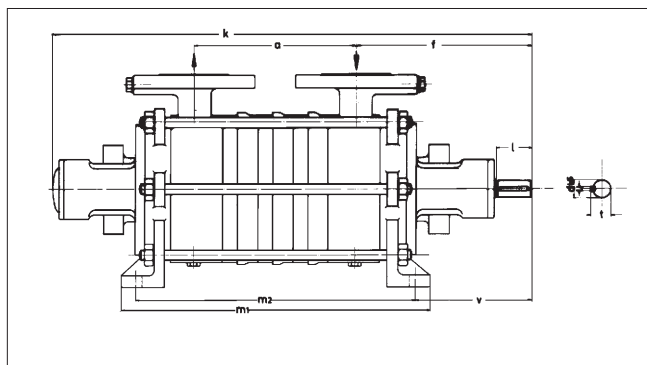
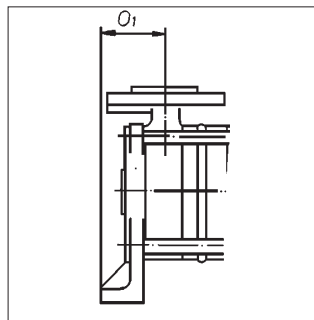
Pump materials*

part no.	item	10	12	32	60	62
106	suctioncasing	GGI25	GGI25	1.4408	GGGI40.3	GGGI40.3
107	dischargelcasing	GGI25	GGI25	1.4408	GGGI40.3	GGGI40.3
109	stagelcasing	GG25	GGI25	1.4470	GGGI40	GGGI40
114	sidelchannellcasing	GGI25	GGI25	1.4470	GGGI40	GGGI40
182	foot	GGGI40	GGGI40	GGGI40I	GGGI40	GGGI40
210	shaft	1.4021	1.4021	1.4571	1.4021	1.4021
230	impeller	CuZnI40IAlI1	1.4059	1.4581	CuZnI40IAlI1	1.4059
330	bearinglsupport	GGI20	GGI20	GGI20	GGI20	GGI20
360	bearinglcoverlopen	GGI20	GGI20	GGI20	GGI20	GGI20
361	bearinglcoverclosed	GGI20	GGI20	GGI20	GGI20	GGI20
411	casinglgaskets	teflon	teflon	teflon	teflon	teflon
545	bearinglbush	spec.lcarbon	spec.lcarbon	spec.lcarbon	spec.lcarbon	spec.lcarbon

*GGI=castliron GGGI40 = ductile iron



Dimensions



series	DN	α_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

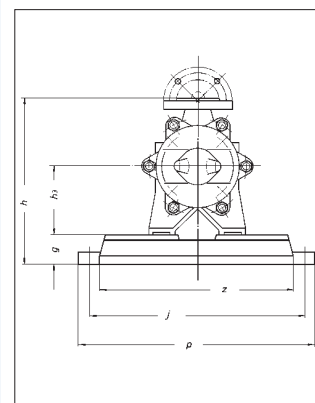
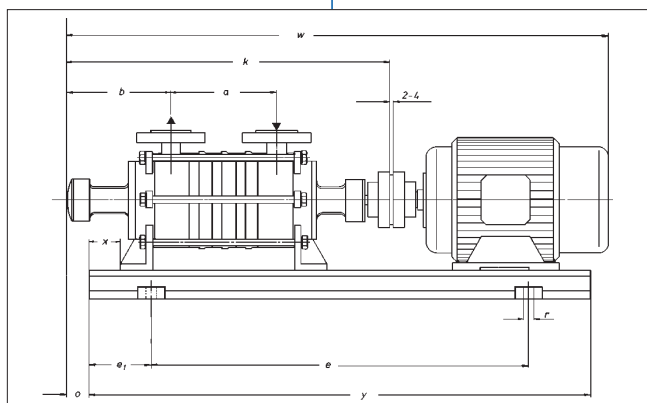
series	1			2			3			4			5			6			7			8		
	α	m_1	m_2	α	m_1	m_2	α	m_1	m_2	α	m_1	m_2	α	m_1	m_2	α	m_1	m_2	α	m_1	m_2	α	m_1	m_2
110	120	270	236	120	270	236	154	304	270	188	338	304	222	372	338	256	406	372	290	440	406	324	474	440
220 / 330	146	314	280	146	314	280	186	354	320	226	394	360	266	434	400	306	474	440	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

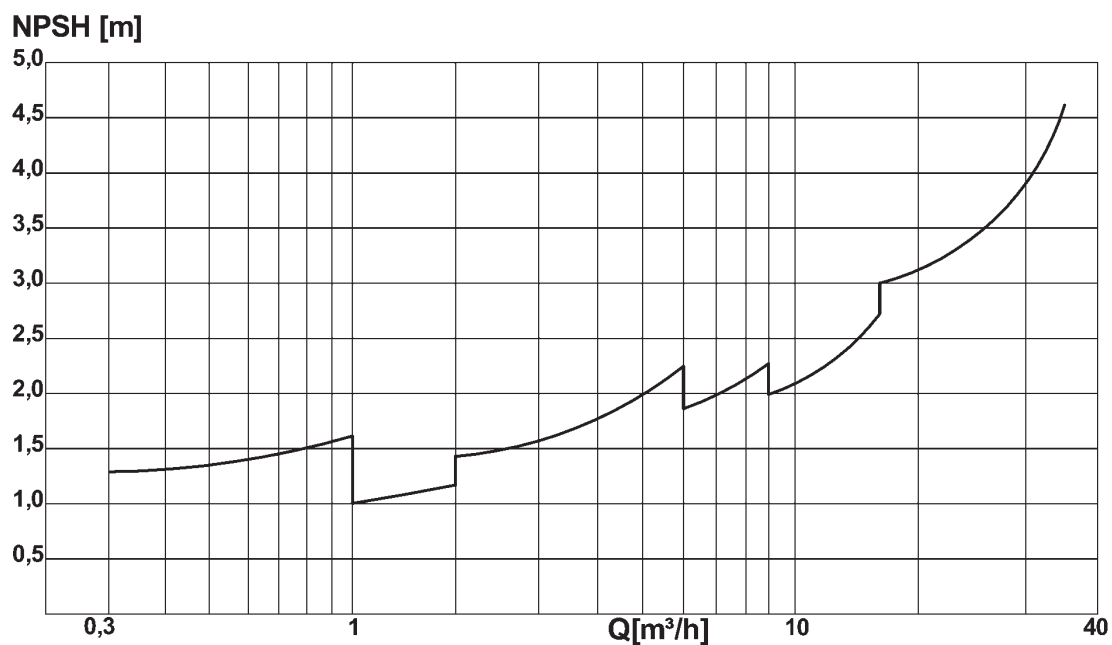
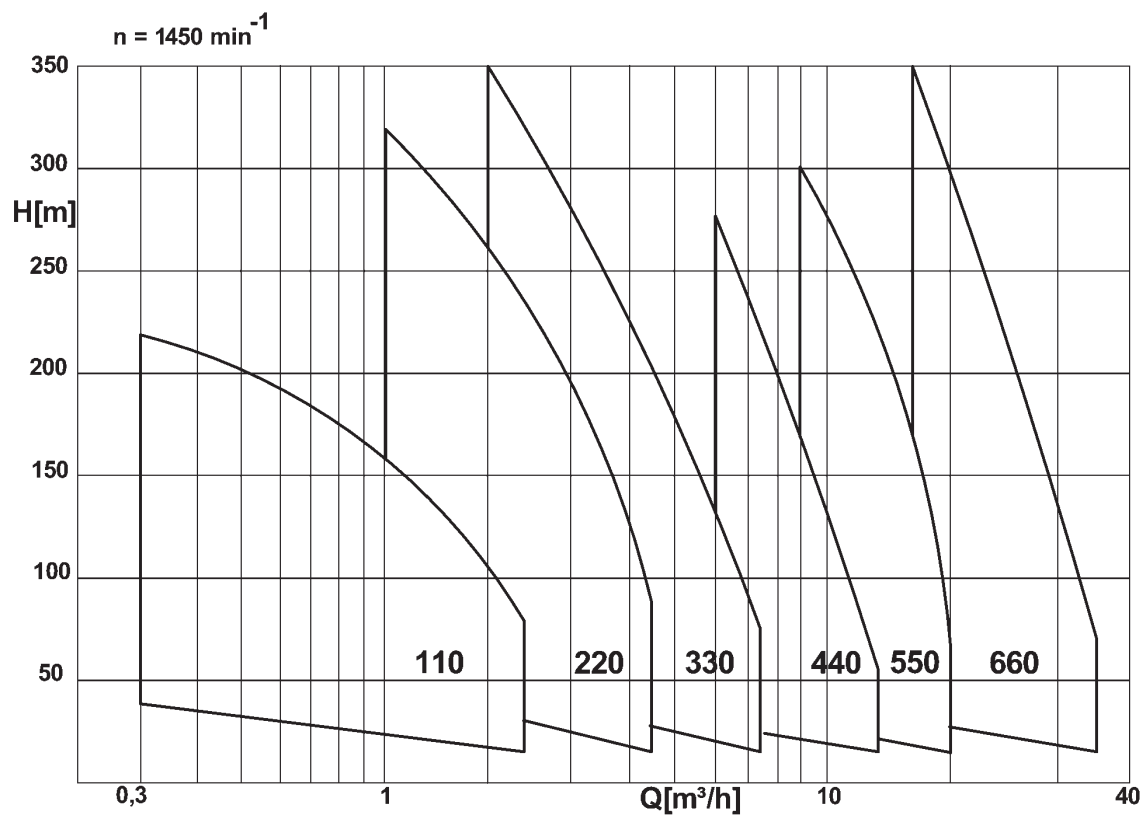
Installation plan



series	motor		coup- ling	base plate	weight (kg)		α	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 S	0,75				45							704									
113	90 S	1,1	58	181	25	47	154	469	245	100	54	144	731	15	550	90	45	305	340	15	730	270
	90 S	0,75				53							738									
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									
115	100 L	2,2	80	182	28	69	222	537	245	100	54	144	873	15	650	100	45	308	340	15	850	280
	90 S	1,1				58							833									
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									
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									
118	100 L	2,2	80	183	33	78	324	610	250	100	54	144	975	15	730	150	50	385	420	18	1030	320
	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
	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																
	90 L	1,1				63							798									
	90 L	1,5				66							823									
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				68							61									
	100 L	2,2	80	182	39	78							867		650	100	45	308	340	15	850	280
	100 L	2,2												863								
223	90 L	1,5	68	182	39	76	186	542	289	112	56	155	907	15	650	100	45	308	340	15	850	280
	100 L	2,2				82							86									
	100 L	2,2	80			100							924									
	112 M	4											947									
224	100 L	2,2		182	43	86	226	582	289	112	56	155	947	15	650	100	45	308	340	15	850	280
	100 L	3	80			90							104									
	112 M	4				104							964									
	132 S	5,5	95	183		130			314	132			1031		730	150	50	385	420	18	1030	320
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				113							134									
	132 S	5,5	95			134							1071									
	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		138			152							314									
	132 M	7,5	95			152							1149									
	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		142			156							314									
	132 M	7,5	95			156							1189									
	160 M	11				198			347	160			1287		930	150	55	400	445	20	1230	340
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							66									
	90 L	1,5				66							823									
	90 L	2,2	68	181	35	68	146	502	289	112	56	155	867	15	550	90	45	305	340	15	730	270
100 L	2,2		78			82							867									
333	100 L	2,2		182	39	82	186	542	289	112	56	155	907	15	650	100	45	308	340	15	850	280
	100 L	3	80			86							100									
	112 M	4				100							924									
	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		104			130							314									
	132 S	5,5	95	183		130							1031		730	150	50	385	420	18	1030	320
	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		134			148							314									
	132 M	7,5	95			148							1109									
	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		138			152							314									
	132 M	7,5	95			152							1149									
	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		142			156							314									
	132 M	7,5	95			156			347	160			1189									
	160 M	11				198							1287		930	150	55	400	445	20	1230	340
338	132 S	5,5		183	59	146	386	742	314	132	56	155	1191	15	730	150	50	385	420	18	1030	320
	132 M	7,5				165							202									
	160 M	11	95	184		202			347	160			1327		930	150	55	400	445	20	1230	340
	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		90			867																
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				112							939									
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				144							158									
	132 M	7,5	95	183		158							1099		730	150	50	385	420	18	1030	320
	132 S	5				150			322	132	61	147	1116	15	730	150	50	385	420	18	1030	320
160 M	11	95	184	63	164	206	325	667	355	160		1154										
445	132 M	7,5				206							1252		930	150	55	400	445	20	1230	340
	160 M	11	95	184	69	175	380	722	327	132	61	147	1209	15	930	150	55	400	445	20	1230	340
160 M	11			212				355	160			1307										
446	132 M	7,5				181			327	132	61	147	1264	15	930	150	55	400	445	20	1230	340
	160 M	11	95	184	75	218	435	777	355	160		1362										
	160 L	15				244							1406									
	160 L	15				244			355	160	61	147	1406									
447	160 M	11	95	7	81	247	490	832	400	160	61	147	1417	15	940	230	100	550	590	28	1400	490
448	160 M	11				273							1461	15	940	230	100	550	590	28	1400	490
	160 L	15	95	7	87	253	545	887	400	160	61	147	1516									
	180 M	18,5	110			311			420	180			1539									
	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		128																			
552	132 S	5,5		183	75	162																

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.

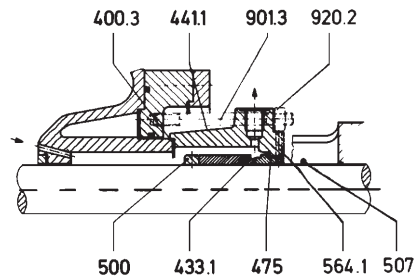
Shaft seal

Standard:

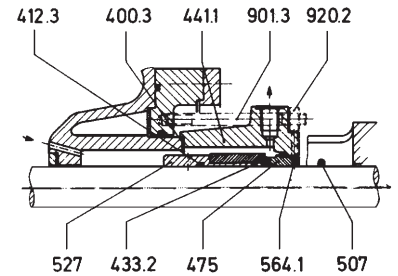
Single mechanical seal:

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

G 12: balanced single mechanical seal (up to 40 bar)
Mat. B₁V₁ (E or M₁) GG



Seal G 11



Seal G 12

On request:

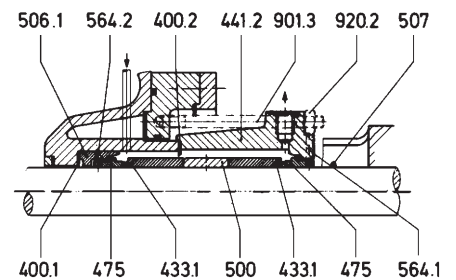
Double mechanical seal:

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

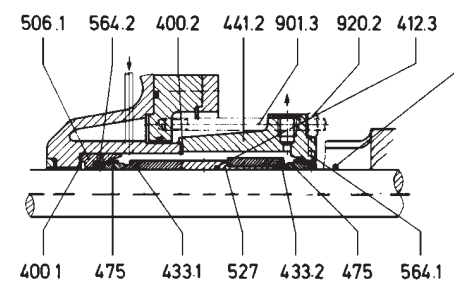
Mat. product side:
B₁V₁ (E or M₁) GG
Mat. atmosph. side:
B₁V₁ (E or M₁) GG

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 G 15

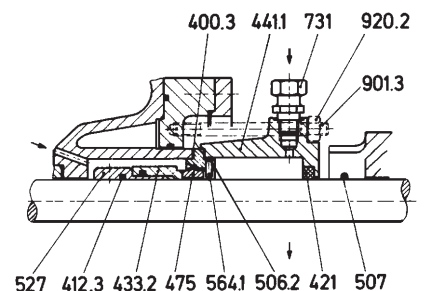


Seal G 16

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.

ABOUT KBL

Kirloskar Brothers Limited (KBL) is a world class pump manufacturing company with expertise in engineering and manufacture of systems for fluid management. Established in 1888 and incorporated in 1920, KBL is the flagship company of the \$ 2.1 billion Kirloskar Group. KBL, a market leader, provides complete fluid management solutions for large infrastructure projects in the areas of water supply, power plants, irrigation, oil & gas and marine & defence. We engineer and manufacture industrial, agriculture and domestic pumps, valves and hydro turbines.

In 2003, KBL acquired SPP Pumps, United Kingdom and established SPP INC, Atlanta, USA, as a wholly owned subsidiary of SPP, UK to expand its international presence. In 2007, Kirloskar Brothers International B.V., The Netherlands and Kirloskar Brothers (Thailand) Ltd., a wholly owned subsidiary in Thailand, were incorporated. In 2008, KBL incorporated Kirloskar Brothers Europe B.V. (Kirloskar Pompen B.V. since June 2014), a joint venture between Kirloskar International B.V. and Industrial Pump Group, The Netherlands. In 2010, KBL further consolidated its global position by acquiring Braybar Pumps, South Africa. SPP MENA was established in Egypt in 2012. In 2014, KBL acquired SyncroFlo Inc., the largest independent fabricator of commercial and municipal domestic water booster pumps.

To further strengthen its global position, in 2015, Kirloskar Pompen B.V. acquired Rodelta Pumps International, The Netherlands.

KBL has joint venture cooperation with Ebara, Japan since 1988 for the manufacture of API 610 standard pumps. Kirloskar Corrocoat Private Limited is a joint venture cooperation with Corrocoat, UK since 2006. KBL acquired The Kolhapur Steel Limited in 2007 and Hematic Motors in 2010.

KBL has eight manufacturing facilities in India at Kirloskarvadi, Dewas, Kondhapuri, Shirwal, Sanand, Kaniyur, Kolhapur and Karad. In addition, KBL has global manufacturing and packaging facilities in Egypt, South Africa, Thailand, The Netherlands, United Arab Emirates, United Kingdom and United States of America. KBL has 12,700 channel partners in India and 80 overseas and is supported by best-in-class network of Authorised Centres and Authorised Refurbishment Centres across the country.

All the manufacturing facilities at KBL are certified for ISO 9001, ISO 14001, ISO 50001, BS OHSAS 18001 and SA8000. In addition, the Kirloskarvadi plant is also certified for N & NPT Stamp. KBL's corporate office in Pune is certified for ISO 9001 & Sa8000.

The factories deploy Total Quality Management tools using European Foundation for Quality Management (EFQM) model. The Kirloskarvadi plant of KBL is a state-of-the-art integrated manufacturing facility having Asia's largest hydraulic research centre with testing facility upto 5000 kW and 50,000 m³/hr.

KBL is the ninth pump manufacturing company in the world to be accredited with the N and NPT certification by American Society of Mechanical Engineers (ASME).

Pumps | Valves | Hydro Turbines | Turnkey Projects

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KIRLOSKAR BROTHERS LIMITED

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OUR COMPANIES

