



PROCESS PUMPS

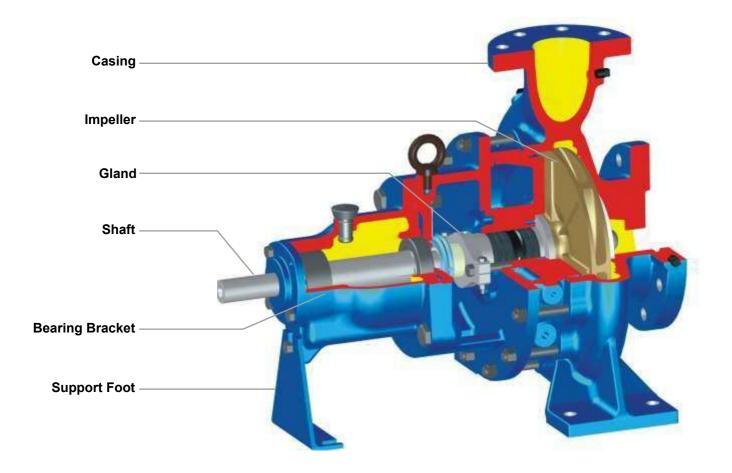
TYPE-PKD / PKD-QF / PKDJ

P.K.PUMPS PVT LTD





C E (Ex)



RANGE

Delivery size	:	up to 200 mm
Capacity	:	up to 900 m³/hr
Head	:	up to 225 metres
Working	:	16-30 kg/cm ²
Pressures		
Temperature	:	(-)50°C to $+350°C$

APPLICATIONS

Chemical Process Industries, Petro Chemical, Nuclear, Refinery, Paper, Power Plants and Sugar Plants etc. Pumps suitable for handling Corrosive Liquids, Alkalies, Salt Solutions, Caustics, Hydro Carbons, Oils, Thermic Fluids, Liquefied Gases, Condensates, Viscous Liquids and Congealing Liquid etc.



FEATURES

Pumps are as per EN 22858 (DIN 24256) and ISO 2858. The design is of back pull out type. Large variety of models are available to operate at 1450 rpm and 2900 rpm at 50Hz/60Hz.

Casing :

The casing has axial suction and top centre line delivery. Smooth hydraulic passages ensure high efficiency. Normal design is for foot mounted pumps. Centre line mounting for special applications are also available. Jacketed Casings are available for handling congealing liquid.

Impeller :

The impellers are of enclosed type and semi-open impellers can also be supplied. Hydraulic balancing of impellers is achieved either by back vanes or by balancing holes. The impellers are statically and dynamically balanced. Reliable fixing of the impeller on shaft is achieved by using helicoil insert under impeller nut. To improve NPSH performance, inducer can be supplied.

Shaft :

The shaft is supported by two antifriction bearings to take residual axial thrust and prevent axial float or radial run out. It is fully protected from the liquid handled by means of a shaft sleeve and gaskets between impeller nut, impeller hub and shaft sleeve.

Stuffing Box :

The stuffing box is sealed by gland packing or by cartridge type mechanical seal. Conversion from gland packing to mechanical seal is achieved by changing some standardised parts. Re-machining of stuffing box is not necessary. Stuffing box cooling is provided for operating temperature 105°C for gland packed and 140°C for mechanical seal fitted pumps.

Bearing :

The bearings are oil lubricated. For high temperature (above 180°C) application, bearing oil cooling arrangement is provided. All pumps are provided with reinforced bearing arrangement as standard supply.

Direction of Rotation :

Clockwise viewed from driving end.

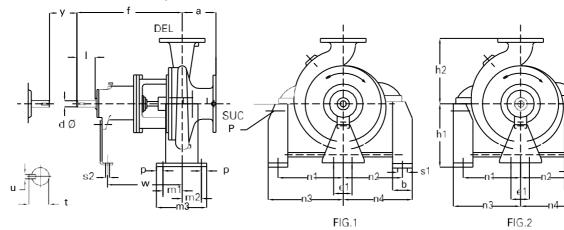
Drive :

Pumps can be driven by electric motor or engine.

Flanges : ANSI B 16.1, CL 125 Flat Face : for CI/BR ANSI B 16.5, CL 150 Raised Face - for sp.metals viz. st.steel, cast steel etc. Drilling as per DIN, ASA, BS etc. (Optional)



Centreline Mounted CLM Pump (PKD/PKD-QF)

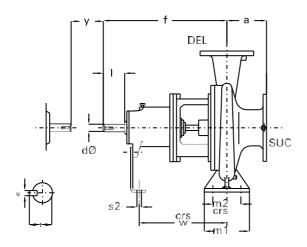


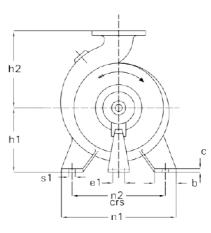
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PUMP TYPE	DRV. UNIT		PUN	AP DIN	IENSI	ONS							FO	ot di	MENS	IONS							SHAF	TEND		SPR.	FIG. NO.
		DEL	SUC	а	f	h1	h2	b	С	m1	m2	m3	n1	n2	n3	n4	w	s1	s2	e1	р	dØ	1	t	u	У	
20/13 QF							140						125	125	157	157											1
20/16 QF	4	20	25	80			150						130	130	162	162			14		23	18	40	20.5	6		1
20/20 QF							170						155	155	187	187											1
25/16 QF		25	40	100			165							145		177											1
32/13							140						125	125													2
32/16		32	50				160						155	145	187	177											1
32/20				80	385	200	180						170	165			285									100	2
40/13	_						140						135	125	167	157									-		2
40/16	5	40	65				160	~ .		70	~~	100										24	50	27	8		1
40/20							180	64		72	88	190															2
50/13		E 0	00				160						170	165	202	197											1
50/16		50	80				180											14									2
50/20		0F	100	100			200											14									2
65/13 25/26A		65 25	100				180		15							252											1
32/26		32	50				225									257					15						1
40/26		02											220	220	252	207					10						1
40/32		40	65				250								202	252											2
50/26				125			225																				1
50/32	1	50	80			250	280	90		89.5	110.5	230	260	240	305	285				110							2
65/16	7				500		200	~ •											15			32	80	35	10		1
65/20	1	65	100	100			225	64		72	88	190	210	175	242	207											2
65/26							250	90		89.5	1 10 .5	230	260	230	305	275											1
80/16]						225	64		72	88	100	210	175	242	207											1
80/20		80	125				250	04		12	00	130	210	175	242	207											2
80/26			120			280				89.5	110.5			230		275	370	18								140	1
100/20		100		125		250	280			00.0	110.0	230	260	200	305	270	0,0	14								140	1
65/32		65	100			280				92.5	107.5			240		285		18									2
80/32						315	315		18	100	150	300	310	295	355	340		23			25						1
80/40		80				365	355																				2
100/26			125			280	280		15	92.5	107.5	230	260	230	305	275		18			15						2
100/32		100					315	90																45			1
100/40	9			140	530	365							310	295	355	340						42	110	45	12		2
125/26						315	355																				1
125/32		125	150						18	100	150	300						23			25						2
125/40						0.05	400						355	315	400	360											2
150/32		150	200	160		365							205	245	420	200											1
150/40 125/26	11	105	150	140		215	450 355							345 205			500					10	110	51.5	14		1 1
200/38M	11						355 500									415						4Ö	110	51.5	14		2
200/381	13	200	250	200	670		550	100	22	120	160	340					483.5	27	19	140	30	60	110	64.4	18	180	2
150/52		150	200	200			550	100	~~	120	100	340		395			400.0	~ ~ /				00	110	04.4	10		2
100/02		100	200	200		400	550						440	290	490	400											4

Foot Mounted (FM) Pump (PKD/PKD-QF)



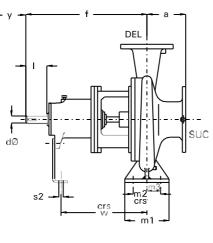


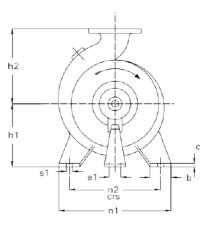
Pump Type	Drg. Unit		F	Pump Di	imensior	15					Fo	ot Dime	nsions						1	Shaft En	d		Wt. Kg.
		SUC	DEL	а	f	h1	h2	b	с	m1	m2	n1	n2	w	s1	s2	e1	dØ	1	t	u	y	
20/13QF#						100	140			80	50	190	140									L.	1
20/16QF #	4	25	20	80	385	132	150	50	10			210	160	285	14	14	110	18	40	20.5	6	100	38
20/20QF #						160	170			100	70	240	190										43
25/16QF #		40	25	100		132	165		14			210	160										36
25/20QF #							180		10	80	50	265	212		11.5								44
32/13	1	50	32		1	112	140					190	140										38
32/16	1_			80		132	160					240	190										40
32/20	5					160	180																47
40/13	1					112	140					210	160										39
40/16	1	65	40		385	132	160	50	14	100	70	240	190	285	14	15	110	24	50	27	8	100	42
40/20	1				1	160	180					265	212										48
50/13]					132	160					240	190										42
50/16		80	50	100		160	180					265	212										46
50/20]						200																53
65/13		100	65			160	180	65		125	95	280	212										69
25/26		50	25			180	225	65		125	95	320	250										90
32/26		50	32	100		180	225					320	250										90
40/26		65	40	125																			90
40/32	7					200	250					345	280										103
50/26		80	50	125		180	225	65	14	125	95	320	250		14								90
50/32					500	225	280					345	280										120
65/16				100		160	200					280	212										77
65/20		100	65			180	225					320	250	370		15	110	32	80	35	10	140	79
65/26						200	250	80	16	160	120	360	280		18								96
80/16						180	225	65	14	125	95	320	250		14								85
80/20		125	80	125			250					345	280										86
80/26						225	280					400	315		18								1 16
100/20		125	100			200	280	80	16	160	120	360	280										106
65/32		100	65			225	280					400	315										140
80/32						250	315																146
80/40	9	125	80	125		280	355	80	16	160	120	435	355	370	18								181
100/26	1				530	225	280					400	315										134
100/32		125	100			250	315									15	110	42	110	45	12	140	157
100/40				140		280	355	100	18	200	150	500	400		23								164
125/26						250	355	80	16	160	120	400	315		18								158
125/32		150	125			280	355		18					370									179
125/40						315	400	100		200	150	500	400		23								212
150/32	4	200	150	160		315	400		22														260
150/40 \$		200	150	160		315	450	100	18	200	150	550	450		23								285

All dimensions are in mm

Foot Mounted (PKD/PKD QF) Pump

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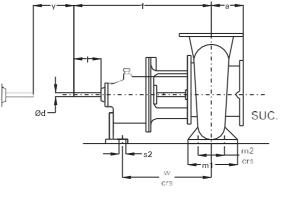


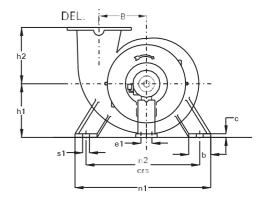
Pump Size	Driving Unit		125 160 670 350 450						_	Fo	ot Din	nensio	ns						SI	naft Er	nd		Wt. Kg.	
		SUC	Del	а	f	h1	h2	b	С	m1	m2	m3	n1	n2	w	s1	s2	e1	d*	Т	t	u	у	
125/45 \$	11A	150	125	160	670	350	450	100	20	180	120	70	550	45 <i>0</i>	500	23	19	140	48	110	51.4	14	180	290
150/43 \$	11 B	200	150	160	685	350	475	100	20	180	120	90	550	45 <i>0</i>	514	23	19	140	48	110	51.4	14	180	300
65/43 \$	9	100	65	160	530	280	365	80	18	160	120	6J	435	355	370	18	15	110	42	110	45	12	140	195

Pump Size	Driving Unit		Pu	mp Di	mensi	ons					F	oot D	imens	sions					S	haft Ei	nd		Wt. Kg.
		DEL	SUC	а	f	h1	h2	b	С	m1	m2	n1	n2	w	s1	s2	e1	dØ	Ι	t	u	y	
100/16	7	100	125	150	500	225	280	65	14	125	95	320	250	370	14	15	110	32	80	35	10	140	97
125/20	9	125	125	140	530	250	315	80	16	160	120	400	315	370	18	15	110	42	110	45	12	140	138
125/26	11	125	150	140	670	280	355	80	16	160	120	400	315	500	18	19	140	48	110	51.5	14	140	190
150/26	9	150	200	160	530	280	375	100	20	200	150	500	400	370	23	15	110	42	110	45	12	140	175
150/52 \$		150	200	200	670	400	550	150	30	240	180	650	530	483	27	19	140	60	110	64.4	18	180	435
200/38M \$	13	200	250	200	670	400	500	120	30	240	180	550	430	483.5	27	19	140	60	110	64.4	18	180	550
200/46 \$		200	250	200	670	425	550	120	30	240	180	640	540	483.5	27	19	140	60	110	64.4	18	180	560
80/40DV	11	80	125	125	670	280	355	80	16	160	120	435	355	500	18	19	140	48	110	51.5	14	180	177
100/40DV	11	100	150	140	670	280	355	100	18	200	150	500	400	500	23	19	140	48	110	51.5	14	180	200

Note : # These pumps provided with semi open impeller only. \$ These pumps cannot be supplied with semi open impeller.



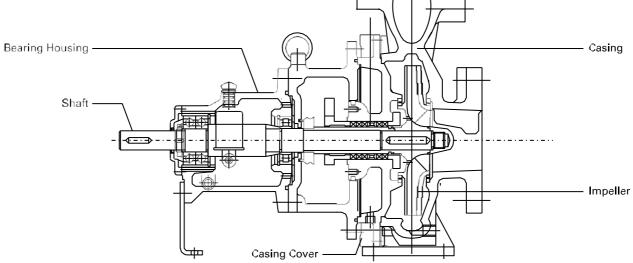




Pump Size	Driving Unit		Pu	ımp D	Dimen	sions	5					Fo	ot Din	nensio	ns					S	haft En	nd		Wt. Kg.
		SUC	Del	а	F	H1	h2	В	b	с	m1	m 2	n1	n2	w	s1	s2	e1	Ød4	I	t	u	y	
200 / 33	11C	200	200	200	720	370	315	265	100	25	335	265	630	560	650	27	19	140	48	110	51.4	14	180	280

All dimensions are in mm

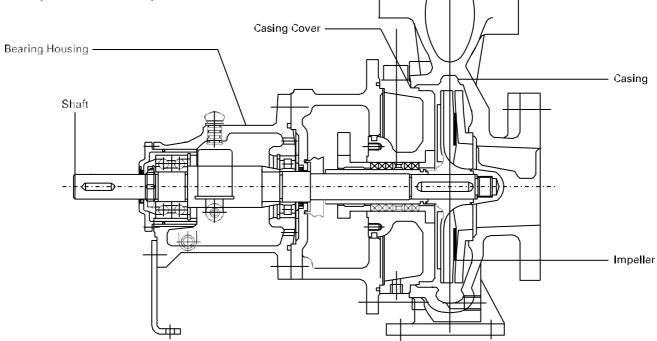
PKD (Foot Mounted)



INTERCHANGEABILITY OF COMPONENTS

Pump Unit	Size	Casing	Impeller	Casing Cover	Bearing Housing & Shaft
	32/13	1	1		
	40/13	2	2	-	
	50/13	3	3	1	
	65/13	4	4	- '	
	32/16	5	5	2	
	32/16A	6	6	3	
5	40/16	7	7	2	
5	50/16	8	8	2	
	50/16A	9	9	3	
	32/20		10	4	
	32/20A	10	10	5	
	40/20	11	12	4	
	40/20A	12	13	5	
	50/20	13	13	4	
	65/16	13	14		
	80/16	15	16	6	
	65/20	16	17		
	80/20	17	18	7	
	100/20	18	19	-	
	25/26	19	20	8	
7	32/26	20	20	0	
'	40/26	20	21	-	
	50/26	21	22	-	
	65/26		23	9	
	65/26N	23	24		
		24	25	-	
	80/26 40/32	24	20	10	
	50/32	25	27	10	
	100/16	20	28	12	
	100/18	27	30		
		28	31	- 13	
	125/26 65/32 (1450 rpm)	29	32		
	65/32 (2900 rpm)	30	33	-	
	80/32	31	33	- 14	
	100/32	32	34		
9	125/32	33	35	- 15	
9	150/32		36		
	150/32 150/32N	- 34	38	- 16	
	80/40				
	80/40N	- 35	<u>39</u> 40	-	
	100/40	36	40	17	
	125/40		41	- ''	
	125/40N	- 37	42	-	
	125/20	40	43	20	
		41		20	
	150/26	38	47	18	
	150/40	39	44	19	
11	65/43	42	45	19	
11	80/40DV	29	48	20	
11	125/26 (2900 rpm)	43	31	17	
11/A	100/40DV	43	41	21	
	125/45	44 45	50	21	
11/B 11/C	150/43	45	51	22	
11/0	200/33	46	49	23	
10	150/52	47	52	24	
13	200/38M	48	53	25	
	200/46	49	54	20	

PKD-QF (Foot Mounted)



INTERCHANGEABILITY OF COMPONENTS

Pump Unit	Size	Casing	Impeller	Casing Cover	Bearing Housing & Shaft
	20/13	1	1	1	
	20/16	2	2	2	
	20/20	3	3	3	
	32/13	4	4		
	40/13	5	5	4	
	50/13	6	6	4	
	65/13	7	7		
	25/16	8	8	5	
	32/16	9	9	6	
	40/16	10	10	7	
	50/16	11	11	. 7	
	32/20	12	12	8	
	40/20	13	13	U	
	50/20	14	14	9	
	65/16	15	15	10	
	80/16	16	16		
	65/20	17	17	11	
	80/20	18	18	• '	
	100/20	19	19	12	
	32/26	20	20	13	
	40/26	21	21	10	
	50/26	22	22	14	
	65/26	23	23	14	
	80/26	24	24	15	
	40/32	25	25	16	
	50/32	26	26		
	100/26	27	27	. 17	
	125/26	28	28	.,,	
	65/32	29	29		
	80/32	30	30	18	
	100/32	31	31		
	125/32	32	32		
	150/32	33	33	19	
	80/40	34	34	20	
	100/40	35	35	21	
	125/40	36	36	22	

FEATURES (PKDT)

Applications

PKD-T pumps are designed for handling Thermic fluids, Synthetic Oil, Hot Oil etc. The working temperature range is normally 200°C and above.

Constructional Features

Pump with centerline mounted delivery casing Pump with stuffing box cooling and bearing cooling arrangement

Pump in all Cast Steel construction i.e. MOC code 10. (All CF8M MOC very rarely offered.)

Pump with Grafoil packing rings for gland packed execution

Pump in solid gland in cast steel material. Instead of spilt gland.

Pump with special close clearance stuffing box bush

Gaskets:

Spiral wound gasket in between casing and casing cover

Other gaskets coming in liquid contact are in Grafoil

Mechanical seals are metal bellow type as per seal manufacturer's recommendations

Stuffing box jacket is formed using vition 'O'ring or welding sheet metal to casing cover depending upon considering temperature of fluid

Metallic oil breather

Flange Drilling

Flange drilling will be as per ANSI B16.5 CL 150 RF or ANSI B16.5 CL 300 RF. Drilling standard will depend on the temperature of fluid and working pressure.

Care Taken For Accessories Selection

Due to high temperature applications pumps to be offered with suitable API cooling plans or cooling plan provisions. Plan G and H are popular.

Pumps are offered with flexible metallic coupling. Use of rubber spider is avoided.

Unique Feature

Pump can be offered with CE marking

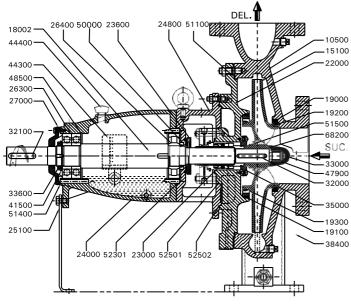
Depending upon the application, area classification ATEX marking can be done

Heat barrier is created by way of cooling the stuffing box region & sufficient space is kept between stuffing box and bearing, so that heat is not conducted to bearings

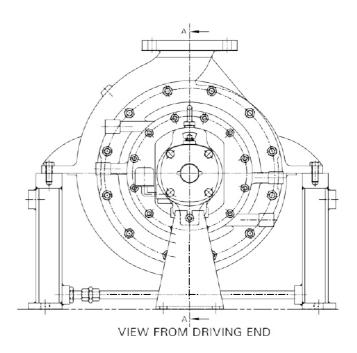
Special heat resistant painting



CROSS SECTIONAL DRAWING (PKDT)



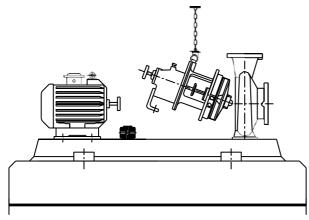
SECTION A-A



PART NO.	QTY	PART DESCRIPTION	PART NO.	QTY	PART DESCRIPTION
10500	01	Pump Casing	32100	01	Key For Coupling
15100	01	Enclosed Impeller	33000	01	Impeller Nut
18002	01	Pump Shaft	33600	01	Impeller Lock Nut
19000	01	Casing Ring Suc.	35000	01	Stuffing Box Bush
1 9100	01	Casing Ring Del.	38400	01	Pad For Clm Pump
19200	01	Impeller Ring Suc.	41500	01	Lock Washer For Bearing Lock Nut
19300	01	Impeller Ring Del.	43000	01	Gland Packing
22000	01	Casing Cover	44300	01	Constant Level Oiler
22900	01	Split Gland	44400	01	Oil Feeding Plug
23600	01	Liquid Deflector	47900	01	Helicoil Insert
24000	01	Bearing Housing	48500	01	Internal Circlip
24800	01	Lantern Bracket	50001	01	Oil Seal Ds
25100	01	Support Foot	51100	01	Gasket for Csg & Csg Cover
26300	01	Angular Contact Bearing De	51400	01	Gasket for De Bearing Cover
26400	01	Cylindrical Roller Bearing Nde	51500	01	Gasket for Sleeve & Imp
27000	01	Bearing Cover (de)	52300	01	O-ring
31100	01	Shaft Sleeve	52501	01	O-ring for C.cover & Lant. Bracket
32000	01	Key For Impeller	52502	01	O-ring for Lan. Bkt. & Csg.cover
			68200	01	Gasket Betw. Impeller Nut & Impeller Lock Nut

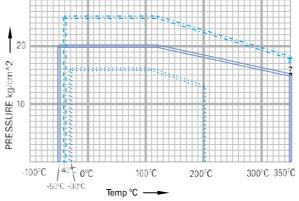


BACK PULL OUT ARRANGEMENT



Using spacer type coupling, back-pullout design enables the pump rotating unit to be removed without disturbing the pipe connections. The prime mover is also undisturbed. This reduces servicing time, resulting in lower maintenance costs and reduction in production losses.

WORKING TEMPERATURE AND PRESSURE



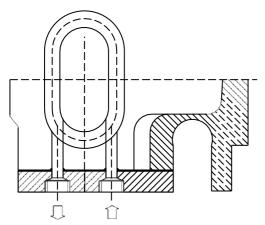
Note :

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The pressure and temperature data holds good only if flanges are suitable to a particular operating pressure and temperature.



ALTERNATIVES AVAILABLE



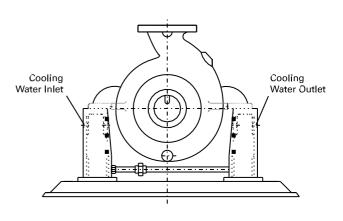
Bearing Oil Cooling Arrangement

For high temperature applications above 180°C bearing oil cooling arrangement is provided.

Steam Jacket Arrangement

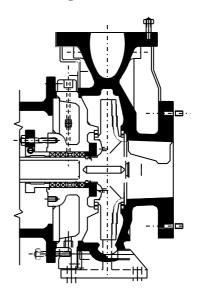
This special design can be offered for handling liquids that cannot be pumped when cold. Except for pump casing, casing cover and gland, all parts are of standard design.

Steam Jacket Arrangement



Centre line Mounting

For high temperature applications between 180°C and 350°C, pumps are offered with centreline mounting.



MATERIAL OF CONSTRUCTION

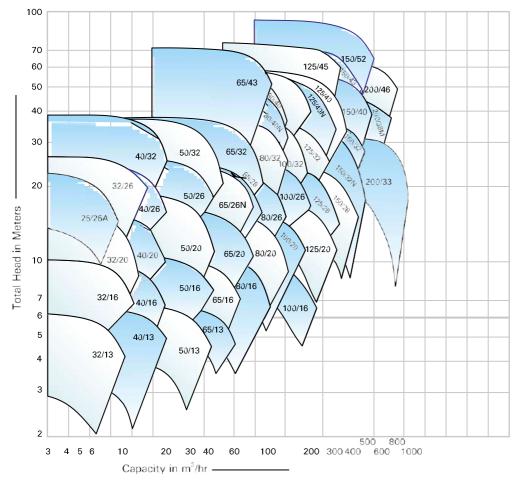
Casing / Casing Cover	Cast Iron / Cast Steel / Stainless Steel / Duplex Steel
Impeller	Cast Iron / Bronze / Cast Steel / Stainless Steel / Chrome Steel / Duplex Steel
Wear Ring / Wear Plate	Cast Iron / Bronze / Steel
Shaft	Carbon Steel / Stainless Steel / Duplex Steel
Shaft Sleeve	Stainless Steel / Bronze

* Bronze material will be suitable for temperature upto 105°C
** Material of construction shall be on the basis of application & liquid characteristics

MATERIAL STANDARDS - GENERAL INFORMATION

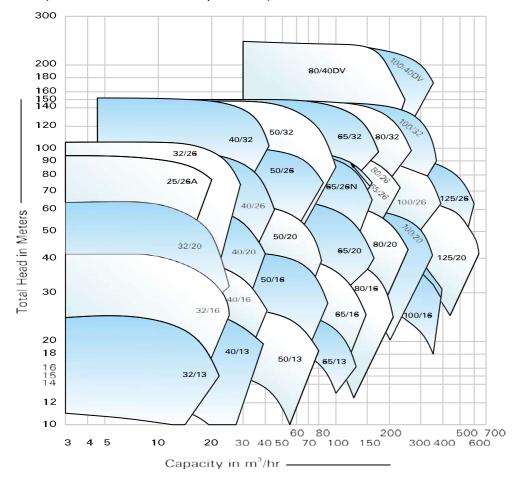
Material Type	Indian Standard (IS)	American Standard (ASTM)	DIN
Cast Iron			
Cast Iron	IS 210 Gr. FG 260	ASTM A48 Class 40	(0.6025)DIN 1691 GG25
Spheroidal Graphite Cast Iron			
SG Iron (Ductile Iron)	IS 1865 Gr 400/15	A536, 60-40-18	(0.7040)DIN1693 GGG40
SG Iron (Ductile Iron)	IS 1865 Gr 500/7	A536, 65-45-12	(0.7050)DIN1693 GGG50
Carbon Steel			
Carbon steel (Wrought)	IS 1570 (part II) Gr. 40C8	ASTM A107 Gr. 1040	(1.1186)C40E/CK40
Carbon steel (Wrought)	IS 1570 (part II) Gr. 20C8	ASTM A107 Gr. 1020	(1.0402)C22
MS Steel	MS IS 2062 - Fe 410 W A	ASTM-A283 GR.D FABRICATED STEEL44	DIN 1700 GR ST4-2
Cast Steel Grades			
Cast Steel		ASTMA 216 Gr. WCB	1.0619(GS-C25)
Cast Stainless Steel			
Stainless Steel CF8M	IS 3444 Gr. 4	ASTMA 351 Gr. CF8M	1.4408(GX5CrNiMo19-11-2)
Stainless Steel CF8M	IS 3444 Gr. 4	ASTMA 743 Gr. CF8M	1.4408(GX5CrNiMo19-11-2)
Stainless Steel CF3M	IS 3444 Gr. 16	ASTMA 351 Gr. CF3M	1.4409(GX2CrNiMo19-11-2)
Stainless Steel CF3M	IS 3444 Gr. 16	ASTMA 743 Gr. CF3M	1.4409(GX2CrNiMo19-11-2)
Stainless Steel CF8	IS 3444 Gr. 1	ASTMA 351 Gr. CF8	1.4301(X5CrNi18-10)
Stainless Steel CF3	IS 3444 Gr. 15	ASTMA 351 Gr. CF3	1.4306(X2CrNi19 11)
Cast Chromium Stainless Stee	91		
Stainless Steel CA15	IS 3444 Gr. 10	ASTMA 217 Gr. CA15	1.4106&1.448(DIN17445 GX12Cr14)
Stainless Steel CA15	IS 3444 Gr. 10	ASTMA 743 Gr. CA15	1.4106&1.448(DIN17445 GX12Cr14)
Stainless Steel CA6NM	IS 3444 Gr. 24	ASTMA 487 Gr. CA6NM	1.4313&1.4317(GX5CrNiMo13-4)
Stainless Steel CA6NM	IS 3444 Gr. 24	ASTMA 743 Gr. CA6NM	1.4313&1.4317(GX5CrNiMo13-4)
Chromium Stainless Steel Rou	und Bar Material		
Stainless Steel 410	IS 1570 (part V) Gr. X12Cr12	ASTMA 276 type 410	1.4006(X10Cr13)
Stainless Steel 420	IS 1570 (part V) Gr. X20Cr13	ASTMA 276 type 420	1.4021(X20Cr13)
Stainless Steel 431	IS 1570 (part V) Gr. X15Cr16Ni2	ASTMA 276 type 431	1.4057(X20CrNi17)
Stainless Steel 316	IS 1570 (part V) Gr. X04Cr17Ni12Mo2	ASTMA 276 type 316	1.4401(X5CrNiMo17122)
Stainless Steel 316L	IS 1570 (part V) Gr. X02Cr17Ni12Mo2	ASTMA 276 type316L	1.4404(X2CrNiMo1810)
Cast Duplex Steel			
Duplex Steel 1A		ASTMA 890 Gr. CD4MCu	25Cr-5Ni-Mo-Cu
Duplex Steel 2A		ASTMA 890 Gr. CE8MN	24Cr-10Ni-Mo-N
Duplex Steel 3A		ASTMA 890 Gr. CD6MN	25Cr-5Ni-Mo-N
Super Duplex steel 4A		ASTMA 890 Gr. CD3MN	25Cr-7Ni-Mo-N
Super Duplex steel 5A		ASTMA 890 Gr. CE3MN	24Cr-10Ni-Mo-N
Non Ferrous Materials			
Bronze	IS 318 Gr. LTB2 (CuSn5Zn5Pb5C)	ASTMB 584 - C90500	DIN 1705 Rg 5
Phosphor Bronze	IS 28 Gr. 1 (CuSn11PC)		
Zinc Free Bornze	IS 28 Gr. 1 (CuSn10C)		



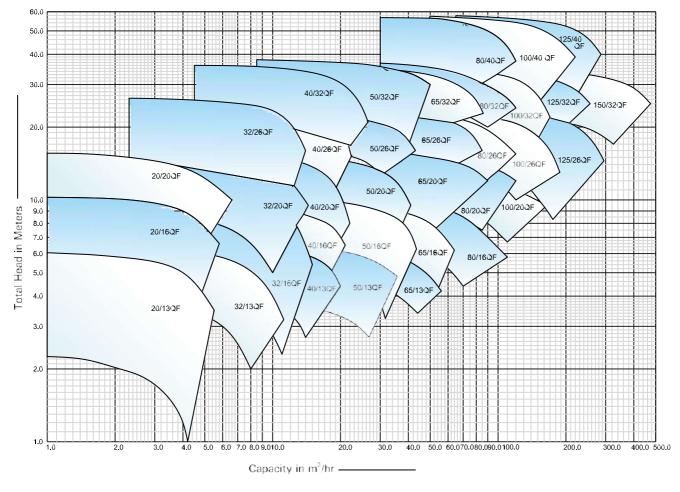


Family Curve of KPD Process Pump at 1450 rpm- 50Hz

Family Curve of KPD Process Pump at 2900 rpm- 50Hz

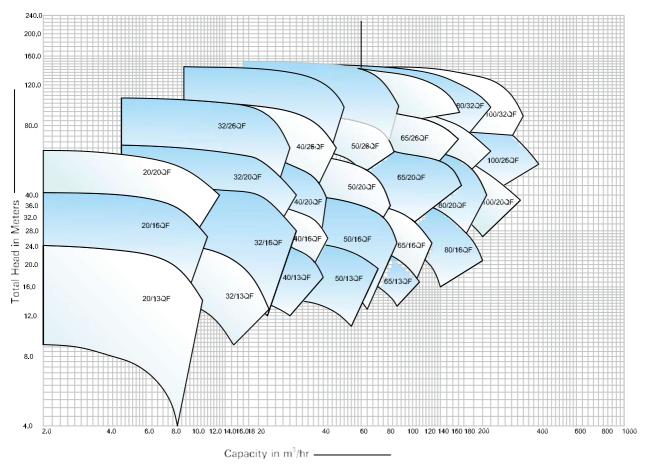


FAMILY CURVES



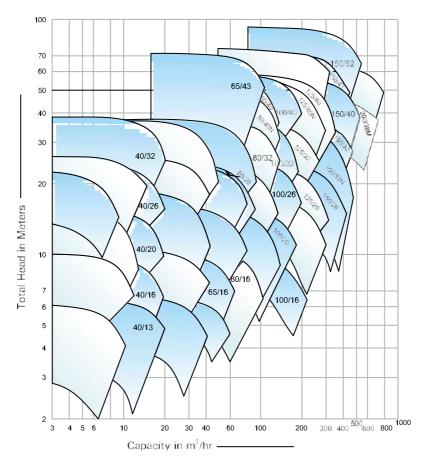
Family Curve of KPD-QF Process Pump at 1450 rpm 50 Hz

Family Curve of KPD-QF Process Pump at 2900 rpm 50 Hz

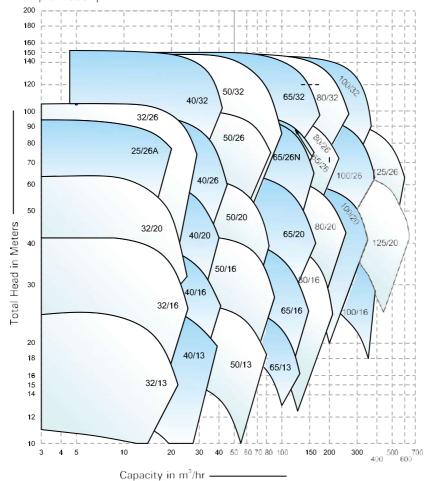


FAMILY CURVES

Family Curve of KPDT Pump at 1450 rpm



Family Curve of KPDT Pump at 2900 rpm





P.K.PUMPS designs, develops, manufactures, and furnishes complete industrial pumping systems for the mining, agriculture, process, and power industries. We have been in charge of significant advancements in sealing systems and centrifugal pump designs for more than 30 years.



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