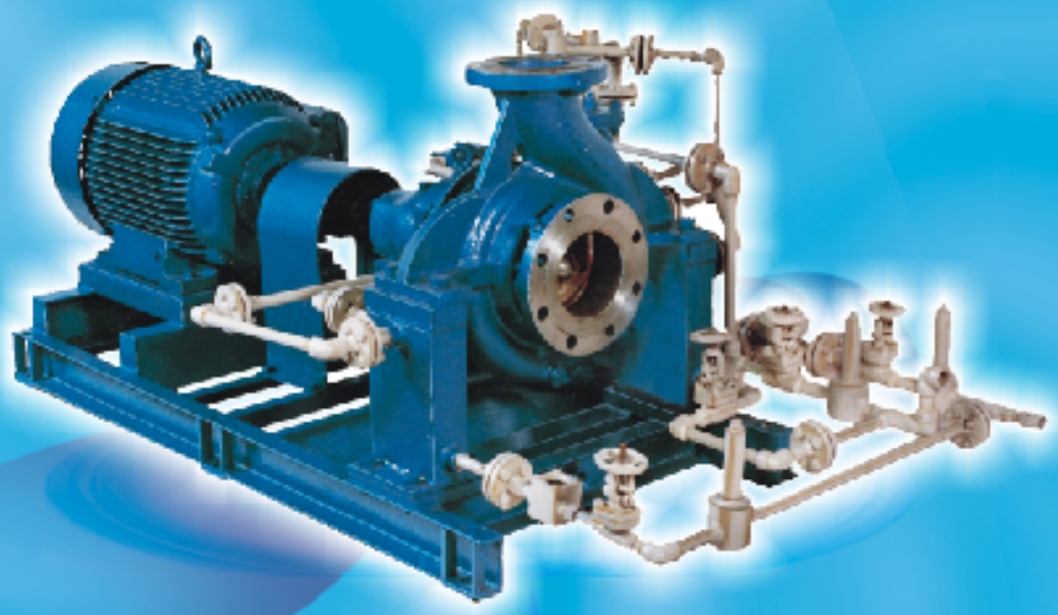
KIRLOSKAR
PROCESS PUMPS
TYPE KPD/KPD-QF



KIRLOSKAR BROTHERS LIMITED

KIRLOSKAR PROCESS PUMPS - TYPE KPD/KPD QF

Description

Range :

Delivery size up to 200 mm
Capacity up to 750 m^3/hr
Heads up to 150 metres
Working Pressures 16-25 kg/cm^2
Temperatures (–) 50^0C to + 350^0C

Applications :

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

Constructional features :

Pumps are as per DIN 24256 and ISO 2858 and generally conform to API 610 (7th Edition) The design is of back pull out type. Large variety of models are available to operate at 1450 rpm and 2900 rpm at 50Hz and 1750 rpm and 3500 rpm at 60 Hz.

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.

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 PTFE gaskets between impeller nut, impeller hub and shaft sleeve.

Stuffing box :

The stuffing box is sealed by gland packing or by 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 105^0C for gland packed and 140^0C for mechanical seal fitted pumps.

Bearings :

The bearings are oil lubricated. For high temperature (above 180^0) 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.

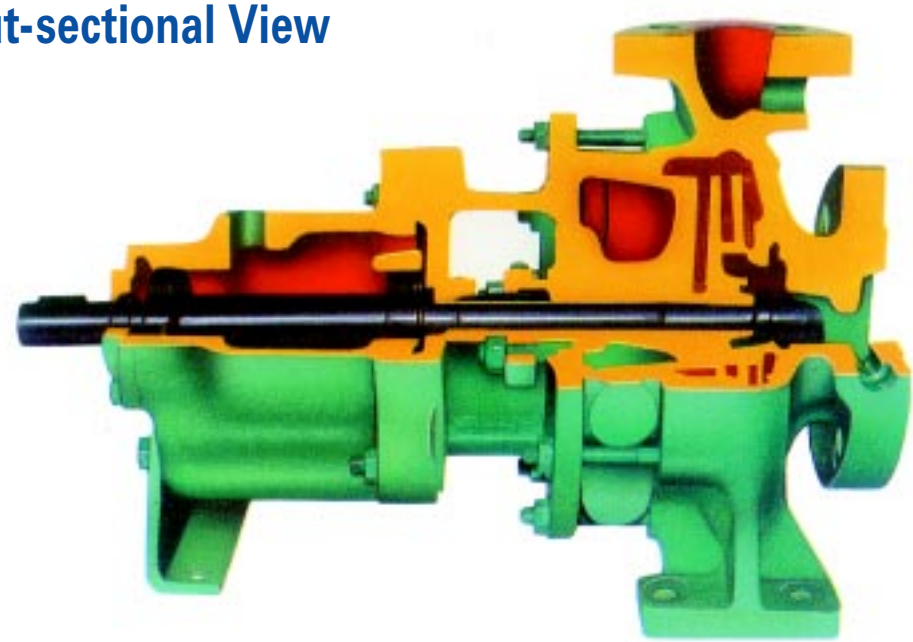
Drive :

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 ect. (Optional)

Cut-sectional View



General Dimensions / Mounting Details (CLM) Pump.

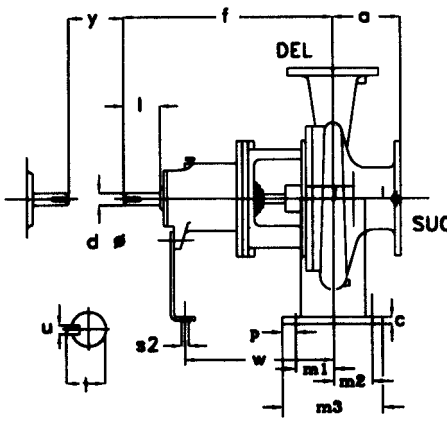


FIG.1

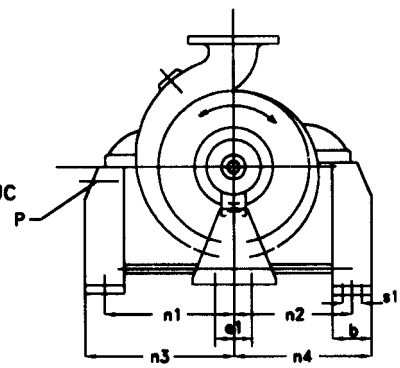
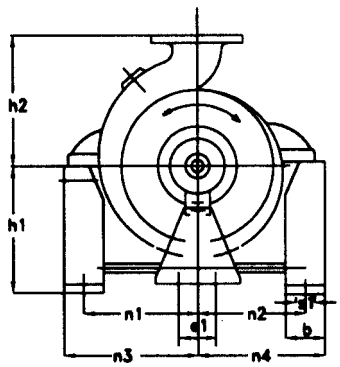
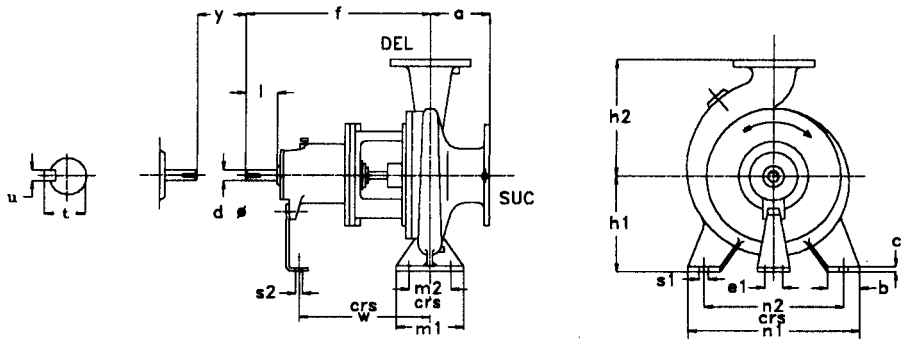


FIG.2



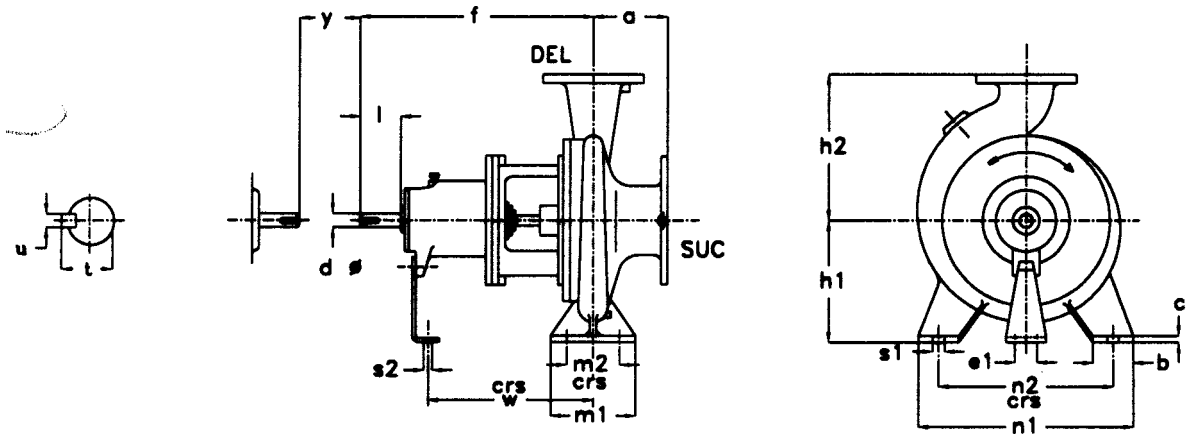
PUMP	DRG.	PUMP DIMENSIONS						FOOT DIMENSIONS													SHAFT END				SPR	FIG.	
TYPE	UNIT	SUC	DEL	a	f	h1	h2	b	c	m1	m2	m3	n1	n2	n3	n4	w	s1	s2	e1	p	d	l	t	u	y	No.
20/13QF							140						125	125	157	157											
20/16QF	4	25	20	80			150						130	130	162	162			14		23	18	40	20.5	6		1
20/20QF							170						155	155	187	187											1
25/16QF		40	25	100			165						155	145	187	177											1
32/13							140						125	125	157	157											2
32/16		50	32				160						155	145	187	177											1
32/20				80	385	200	180						170	165	202	197	285										2
40/13							140						135	125	167	157											2
40/16	5	65	40				160															24	50	27	8	100	1
40/20				100			180																				2
50/13							160	64	15	72	88	190	170	165	202	197		14			15						1
50/16		80	50				180																				2
50/20							200																				2
65/13		100	65				180																				1
25/26A		50	25													252											1
32/26			32				225									257											1
40/26		65	40										220	220	252	252											1
40/32				125			250																				2
50/26		80	50				225																				1
50/32					500	250	280	90		89.5	110.5	230	260	240	305	285	370		15	110		32	80	35	10	140	2
65/16	7						200	64		72	88	190	210	175	242	207											1
65/20		100	65	100			225																				2
65/26							250	90		89.5	110.5	230	260	230	305	275											1
80/16							225	64		72	88	190	210	175	242	207											1
80/20		125	80				250																				2
80/26						280				89.5	110.5	230	260	230	305	275		18									1
100/20		125	100	125		250	280											14									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	315	90										23									1
100/40	9			140		365																42	110	45	12		2
125/26					530	315	365			100		300	310	295	355	340											1
125/32		150	125						18												25						2
125/40							400						355	315	400	360											2
150/32		200	150	160																							1
150/40						365	450				150		385	345	430	390											1
125/26	11	150	125	140	670	315	365						310	295	355	340	500					48	110	51.5	14	180	1
200/38M		250	200	200		400	500	100			160		410	360	465	415	483.5										2
200/46	13					425	550		22	120		340	450	410	505	465		27	19	140	30	60	110	64.4	18		2
150/52		200	150	200	670	400	550						440	395	495	450											2

General Dimensions / Mounting Details (FM) Pump



PUMP SIZE	DRIVING UNIT	PUMP DIMENSIONS						FOOT DIMENSIONS										SHAFT END					WEIGHT KG
		SUC	DEL	a	f	h1	h2	b	c	m1	m2	n1	n2	w	s1	s2	e1	dϕ	l	t	u	y	
20/13 QF #	4	25	20	80	385	100	140	50	10	100	70	190	140	285	14	14	110	18	40	20.5	6	100	31
20/16 QF #						132	150					210	160										38
20/20 QF #						160	170					240	190										43
25/16 QF #	5	40	25	100	385	132	165	50	14	100	70	210	160	285	14	15	110	24	50	27	8	100	36
25/20 QF #							180		10	80	50	265	212		11.5								44
32/13		50	32	80		112	140		14	100	70	190	140		14								38
32/16						132	160					240	190										40
32/20						160	180																47
40/13		65	40			112	140					210	160										39
40/16						132	160					240	190										42
40/20				100		160	180					265	212										48
50/13		80	50			132	160					240	190										42
50/16						160	180					265	212										46
50/20							200																53
65/13		100	65			160	180	65		125	95	280	212										69
25/26	7	50	25	100	500	180	225	65	14	125	95	320	250	370	14	15	110	32	80	35	10	140	90
32/26		50	32																				90
40/26		65	40																				90
40/32				125		200	250					345	280										103
50/26		80	50	125		180	225					320	250										90
50/32						225	280					345	280										120
65/16				100		160	200					280	212										77
65/20		100	65			180	225					320	250										79
65/26				125		200	250	80	16	160	120	360	280		18								96
80/16		125	80			180	225	65	14	125	95	320	250		14								85
80/20							250					345	280										86
80/26						225	280	80	16	160	120	400	315		18								116
100/20		125	100			200	280					360	280										106
65/32	9	100	65	125	530	225	280	80	16	160	120	400	315	370	18	15	110	42	110	45	12	140	140
80/32		125	80			250	315																146
80/40						280	355					435	355										181
100/26		125	100	140		225	280					400	315										134
100/32						250	315																157
100/40						280	355	100	18	200	150	500	400		23								164
125/26		150	125			250	355	80	16	160	120	400	315		18								158
125/32						280	355	100	18	200	150	500	400		23								179
125/40						315	400																212
150/32		200	150	160		315	400		22														260
150/40 $		200	150	160		315	450	100	18	200	150	550	450		23								285
65/40		125	65	150		280	340	80	18	160	120	435	355		18						10		142

General Outline Dimensions of KPD/KPDQF (FM) Pump



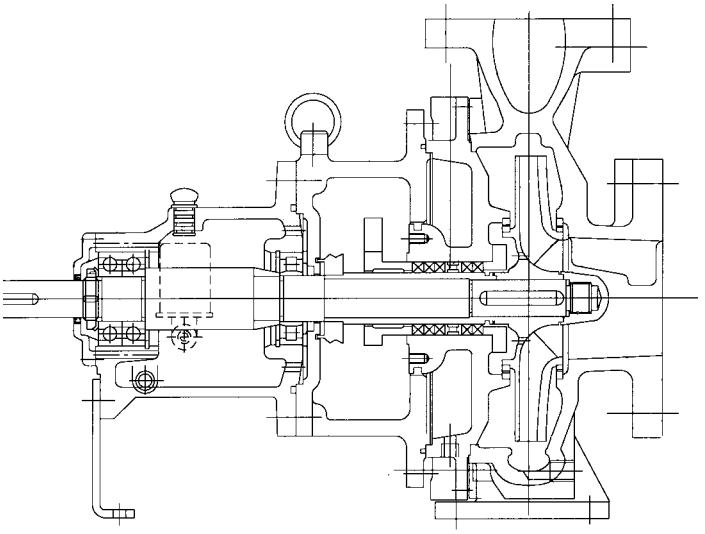
PUMP SIZE	DRIVING UNIT	PUMP DIMENSIONS						FOOT DIMENSIONS											SHAFT END					WEIGHT KG
		SUC	DEL	a	f	h1	h2	b	c	m1	m2	m3	n1	n2	w	s1	s2	e1	d*	l	t	u	y	
125/45 $	11A	125	150	160	670	350	450	100	20	180	120	70	550	450	500	23	19	140	48	110	51.4	14	180	290
150/43 $	11B	150	200	160	685	350	475	100	20	180	120	90	550	450	514	23	19	140	48	110	51.4	14	180	300
65/43 $	9	65	100	160	530	280	365	80	18	160	120	60	435	355	370	18	15	110	42	110	45	12	140	195

PUMP SIZE	DRIVING UNIT	PUMP DIMENSIONS						FOOT DIMENSIONS										SHAFT END					WEIGHT KG
		DEL	SUC	a	f	h1	h2	b	c	m1	m2	n1	n2	w	s1	s2	e1	dϕ	l	t	u	y	
100/40 *	11	100	125	140	670	280	355	100	18	200	150	500	400	500	23	19	140	48	110	51.5	14	180	198
125/26 *		125	150			250	355	80	16	160	120	400	315		18								190
125/32 *						280	355	100	18	200	150	500	400		23							140	214
125/40 *						315	400																254
150/32 *		150	200	160		315	400		22			550	450										312
150/26A $	13	150	200	175	670	280	375	100	20	200	150	500	400	483.5	23	15	140	60	110	64.4	18	180	230
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 $		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

Note :

\# These pumps can be provided with semi open impeller only.
$ These pumps cannot be supplied with semi open impeller.
* These pumps can be supplied in Unit-II under special requirment.

Cross Sectional View (KPD)

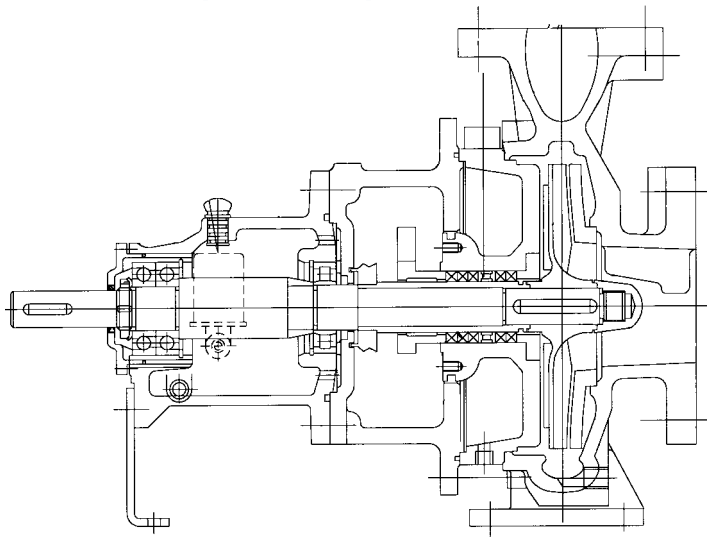


Typical Drawing

Interchangeability of Components

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

Cross Sectional View (KPD QF)

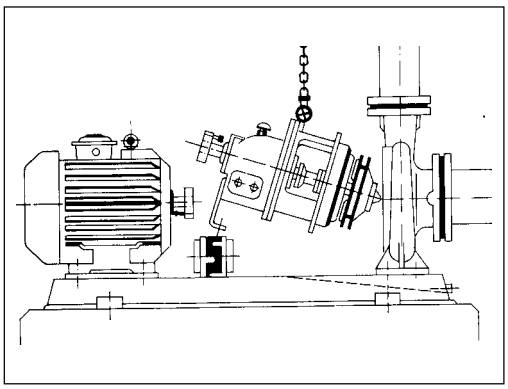


Typical Drawing

Interchangeability of Components

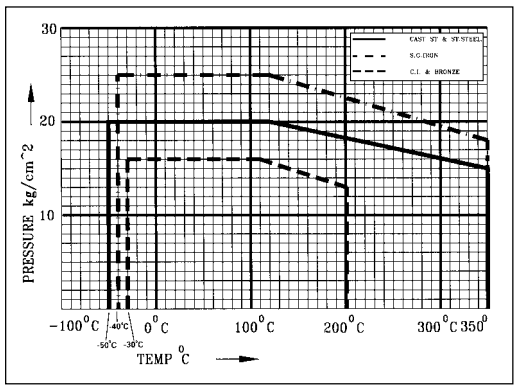
Pump Unit	Size	Casing	Impeller	Casing Cover	Bearing Housing & Shaft
4	20/13	1	1	1	1
	20/16	2	2	2	
	20/20	3	3	3	
5	32/13	4	4	4	2
	40/13	5	5		
	50/13	6	6		
	65/13	7	7		
	25/16	8	8	5	
	32/16	9	9	6	
	40/16	10	10	7	
	50/16	11	11		
	32/20	12	12	8	
	40/20	13	13		
	50/20	14	14	9	
7	65/16	15	15	10	3
	80/16	16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

Back Pull Out Arrangement



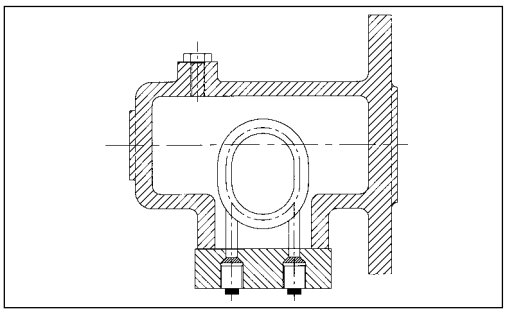
Using spacer type coupling, back-pullout design enables the pump rotating unit to be removed without disturbing the pipe connections. The prime mover is also undisturbed. This reduces servicing time, resulting in lower maintenance costs and reduction in production losses.

Working Temperature and Pressure

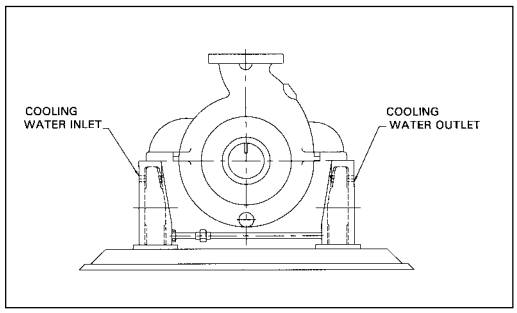


NOTE :
The pressure and temperature data holds good only if flanges are suitable to a particular operating pressure and temperature.

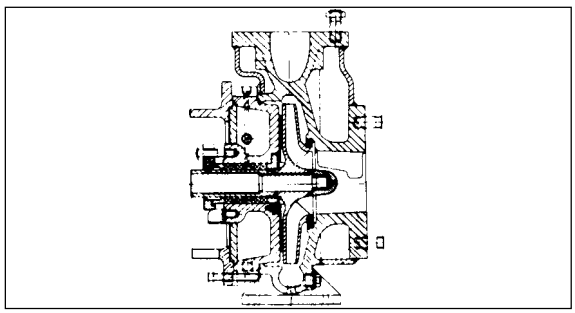
Alternatives Available



Bearing Oil Cooling Arrangement
For high temperature applications above 180°C bearing oil cooling arrangement is provided.



Centre line Mounting
For high temperature applications between 180°C to 350°C, pumps are offered with centreline mounting.



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.

Material of Construction

MOC CODE / COMPONENT	ALL CI (01)	Br. FITTED (02)	ALL CAST STEEL (10)	CF8M (11)	ALL CF8M (13)	ALL C AST STEEL WITH Br. IMP. (12)	ALL ALLOY 20 (CN7M) (30)
PUMP CASING	CI	CI	Cast Steel	CI	CF8M	Cast Steel	CN7M
IMPELLER	CI	BR.	Cast Steel	CF8M	CF8M	BR.	CN7M
CASING RING	CI	CI	CA15H	CI	CF8M	BR.	CN7M
IMPELLER RING	CI	BR.	CA15H	CF8M	CF8M	BR.	CN7M
SHAFT	AISI 4140	AISI 4140	AISI 4140	AISI 4140	AISI 410	AISI 4140	SS410
SHAFT SLEEVE	SS410H	SS410H	SS410H	SS316	SS316	SS316	ALLOY 20
LANTERN RING	CI	CI	SS410	CI	SS316	SS410	CN7M
GLAND	CI	CI	Cast Steel	CI	CF8M	Cast Steel	CN7M

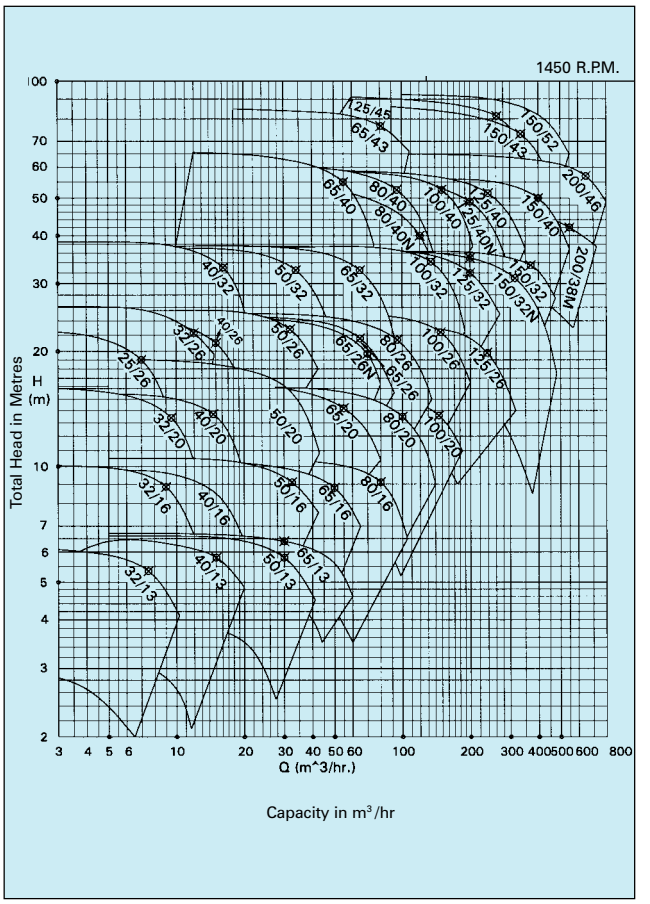
Note : Other material of construction also available
H denotes hardened.

Material Standards

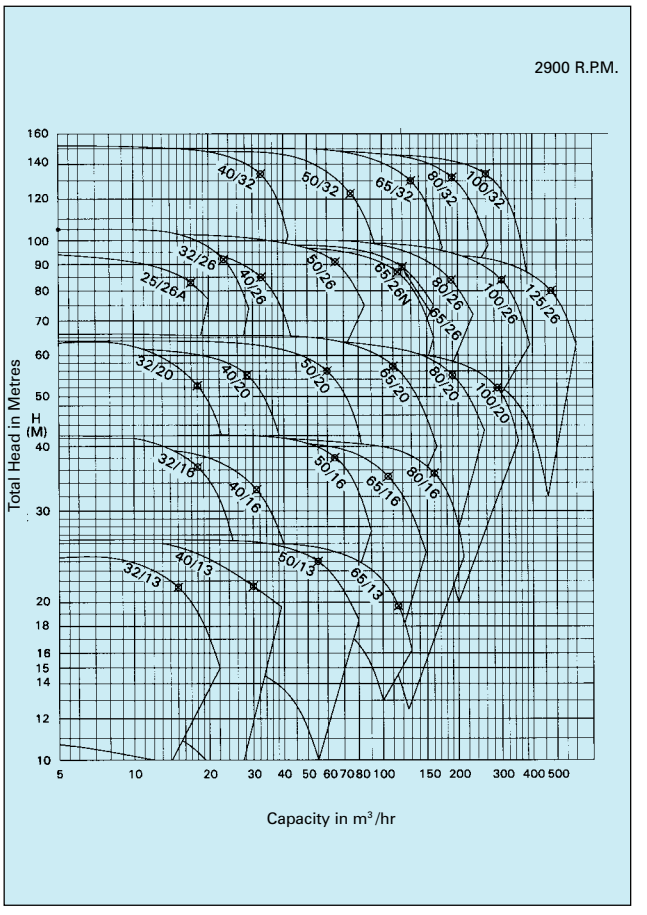
Material	IS	BS	ASTM
Cast Iron (CI)	IS 210 (1978) Gr. FG 260	B.S. 2789 SNG 500/7	ASTM-A 536 60-40-18 & 65-45-12
Austenitic Iron (ACI)	IS 2749 Gr. AFG Ni 15 Cu 6 Cr 3	B.S. 3468 AUS 101 Gr.B	ASTM-A 436 Type 1
Carbon Steel (CS)	IS 1570 Gr. 40 C-8	B.S. 970 080 M 40	ASTM-A 107 Gr. 1040
CF8M	IS 3444 Gr. 9	B.S. 1632 Gr. B	ASTM-A 351 Gr. CF8M
SS 316	IS 1570 Gr. 05 Cr 18 Ni 11 Mo3	B.S. 970 316 S16	ASTM-A 276 Type 316
		B.S. 970 304 S 15	ASTM-A 276 Type 304
SS 410		B.S. 3100 410 S 21	ASTM-A 276 Type 410
Bronze (BR)	IS 318 Gr. LTB2	B.S. 1400 LG2C	ASTM-B 62, B 145 Alloy 4A
Cast Steel		B.S. 1504-101A	ASTM-A 216 74 d Gr. WCB
CA 15	—	—	ST.ST. ASTM A 217 GR CA 15
AISI 4140	IS 1570	BS 97 ENIG	AISI 4140

Performance Characteristics

Family Curve of KPD process pump at 1450 rpm-50Hz

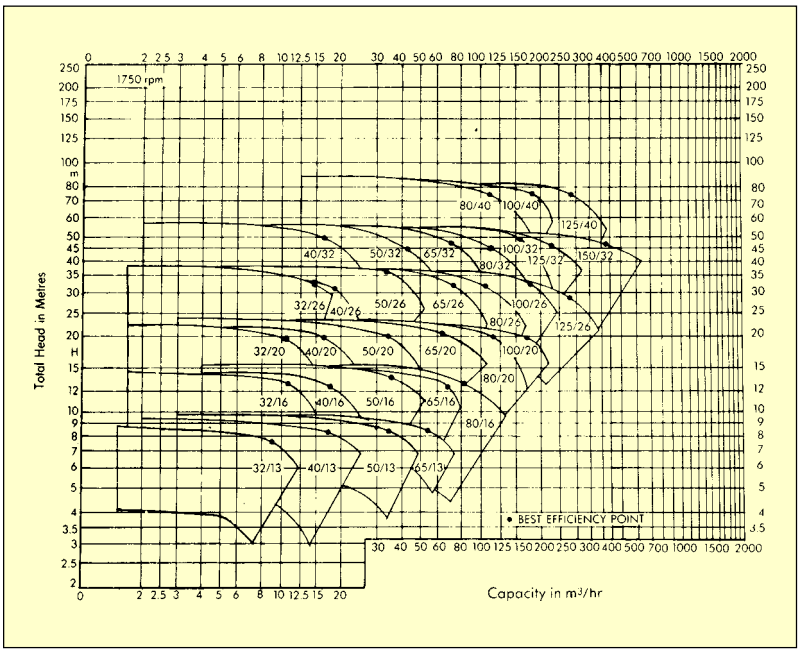


Family Curve of KPD process pump at 2900 rpm - 50Hz

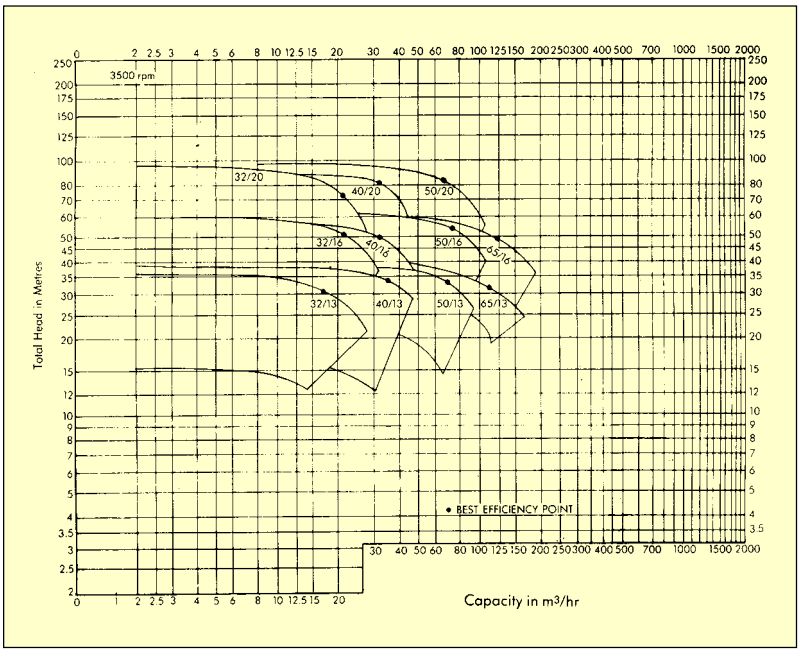


Performance Characteristics

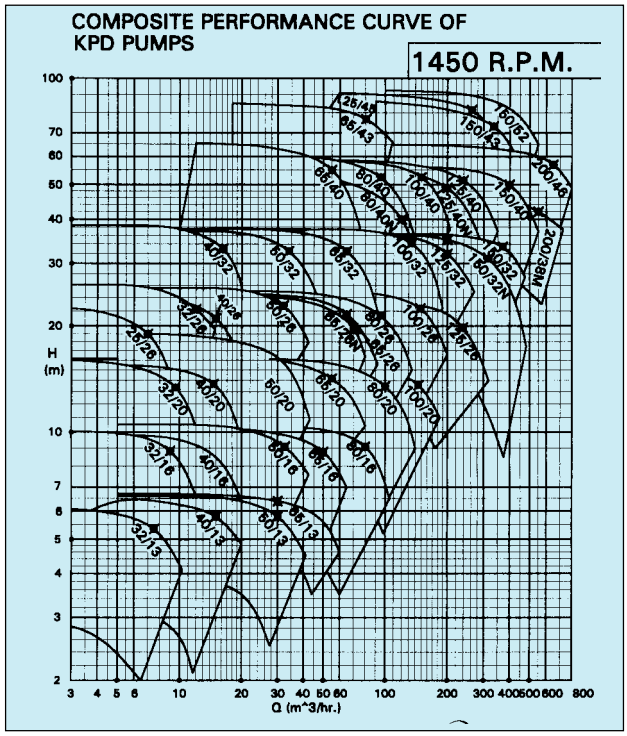
Family Curve of KPD process pump at 1750 rpm-60Hz



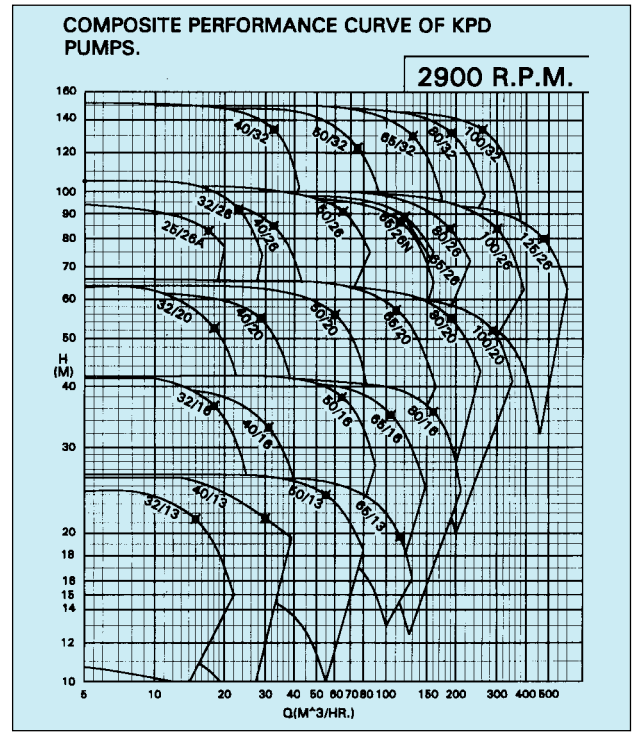
Family Curve of KPD process pump at 3500 rpm-60Hz



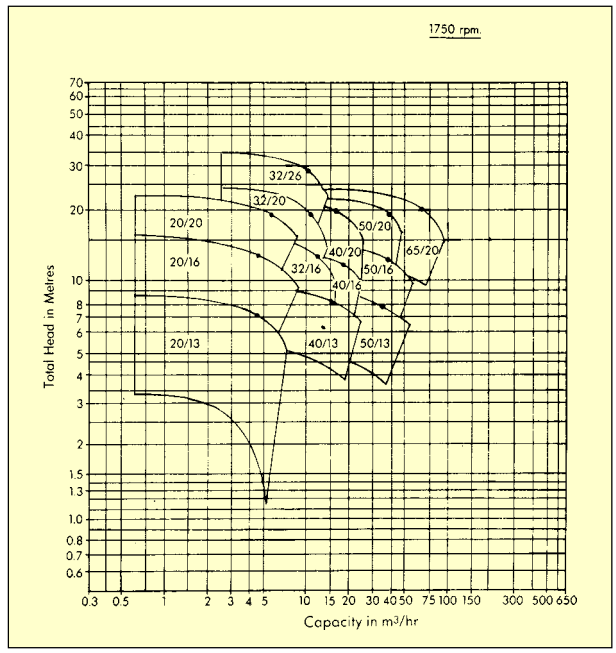
Family Curve of KPD-QF process pump at 1450 rpm-50Hz



Family Curve of KPD-QF process pump at 2900 rpm - 50 Hz



Family Curve of KPD-QF process pump at 1750 rpm - 60 Hz



As we are constantly endeavouring to improve the performance of our products/equipment, we reserve the right to make alterations from time to time and as such our products/equipment may differ from that detailed in this publication. For latest information you may get in touch with our Regional Sales Offices.

KIRLOSKAR BROTHERS LIMITED

CORPORATE OFFICE :
UDYOG BHAVAN, TILAK ROAD,
PUNE - 411 002 (INDIA)
PHONE : (020) 444 4444
FAX : (020) 4444198, 4440156
Email : kblin@kbl.co.in
Web Site : http://www.kirloskars.com
WORKS : KIRLOSKARVADI 416 308.
DIST. SANGLI
PHONE : (02346) 22301-5 FAX : (02346) 22311

ISO 9001

Enquiries may be directed to the nearest Regional Sales Office.

Regional Sales Offices : Ahmedabad, Bangalore, Baroda, Bhubaneswar, Calcutta, Chennai, Jaipur, Kochi, Lucknow, Mumbai, Nagpur, New Delhi, Pune, Ranchi, Secunderabad.

KIRLOSKAR BROTHERS LIMITED.
PRINTING DIVISION, PUNE 411 038.