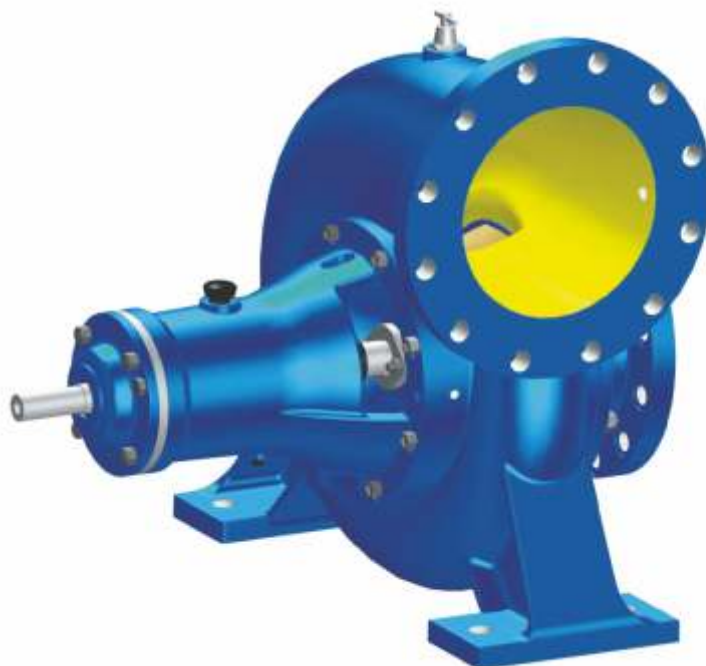




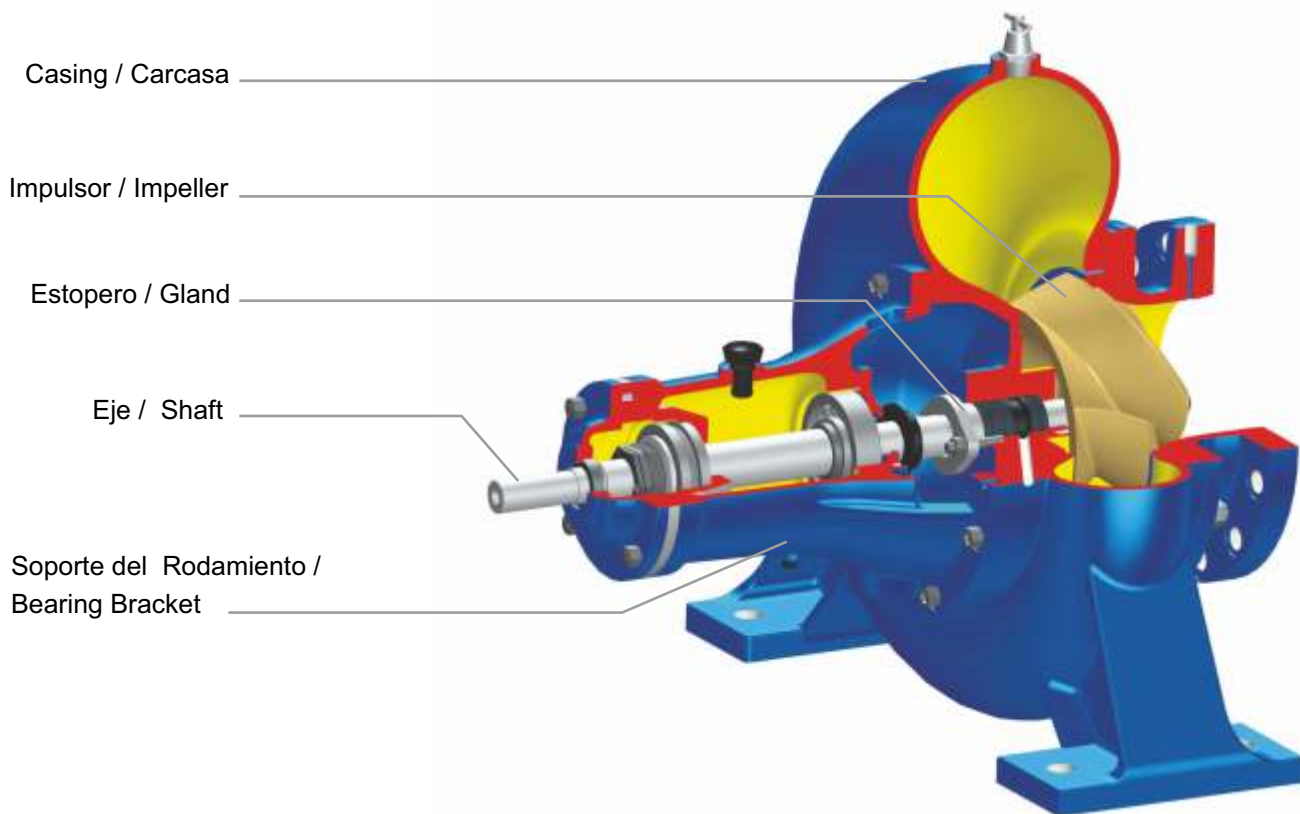
Enriching Lives

## MIXED FLOW NON-CLOG PUMPS BOMBAS ANTIATASCO DE FLUJO MIXTO

Type - MF / MF-E / MF-V



**KIRLOSKAR BROTHERS LIMITED**  
A Kirloskar Group Company



## RANGE / PARÁMETROS

Delivery size : up to 650 mm  
 Capacity : up to 7,000 m<sup>3</sup>/hr.  
 Head : up to 30 m

Tamaño de la descarga : hasta 650 mm  
 Caudal : hasta 7000 m<sup>3</sup>/hr  
 Carga : hasta 30 m

## APPLICATIONS / APLICACIONES

Pumping drainage water, Storm water, Supplying water from settling tanks in water works, Irrigation and agriculture for lift irrigation, Circulation of hot or cold water in industry, Air-conditioning plants, Power stations, Textile mills, Sewage handling, Flood control

Bombeo de Drenaje de Agua, Aguas Pluviales, Suministro de Agua de Tanques de Sedimentación a Plantas de Tratamiento; Irrigación y Agricultura con Elevación (por bombeo), Circulación de Agua Caliente o Fría en la Industria, Plantas de Aire Acondicionado, Centrales Eléctricas, Fábricas Textiles, Manejo de Aguas Residuales, Control de Inundaciones

## CONSTRUCTIONAL FEATURES

These are end suction single stage, horizontal shaft, volute type pumps. These pumps operate at 50 Hz.

### **Pump Casing :**

Horizontal/Vertical end suction high efficiency volute type with Top/side/45 degrees orientations. Delivery flange and supporting feet are cast integral with the casing.

### **Impeller :**

Non clog - Semi open / Enclosed type and balanced dynamically.

Hydraulically balanced by balancing holes / back vanes.

### **Shaft :**

Made of high tensile steel, accurately grounded. Supported by deep groove ball bearings and thrust bearing housed in the bearing housing.

### **Stuffing Box :**

Gland packed supply is standard for liquids having temperature upto 90°C  
Mechanical seal, can be supplied against request.

### **Bearing :**

Deep groove ball bearing and thrust bearing.  
Standard lubrication - Oil (except MF 200 pump)  
MF 200 is with grease lubrication.

### **Direction of Rotation :**

Clockwise viewed from driving end.

### **Drive :**

Suitable for coupling with electric motors, I.C.  
Engines either directly or through belt drives/gear box.

### **Flanges :**

Flanges shall be drilled as per BSEN 1092, PN 16 flat face except MF 17 ½ - 20, MF 55-60, MF 60-65 pumps.  
For these models drilling will be BS 10 Table D

## CARACTERÍSTICAS DE FABRICACIÓN

Estas son bombas tipo voluta de una sola etapa, succión final, eje horizontal,. Estas bombas operan a 50 Hz.

### **Carcasa de la Bomba :**

Succión final Horizontal/Vertical, voluta de alta eficiencia con orientación superior/lateral/45 grados. La brida de descarga y los soportes están fundidos integralmente con la carcasa.

### **Impulsor :**

Antiatasco - del tipo semi-abierto / cerrado, balanceado dinámicamente.

Balanceado hidráulicamente mediante perforaciones de balance / aspas posteriores.

### **Eje :**

Fabricado en acero de alta tensión, con un anclaje preciso. Apoyado en rodamientos esféricos de ranuras profundas y rodamiento de empuje alojado en la caja de rodamientos.

### **Prensaestopas :**

El prensaestopas es estándar para líquidos con temperatura de hasta 90°C.  
Se puede suministrar con sello mecánico, a pedido.

### **Rodamientos :**

Rodamientos esféricos de ranuras profundas y rodamiento de empuje. Lubricación estándar - Aceite (excepto para la bomba MF-200) La MF-200 se lubrica con grasa.

### **Dirección de Rotación :**

En sentido de las manecillas del reloj vista desde el extremo del accionamiento.

### **Accionamiento :**

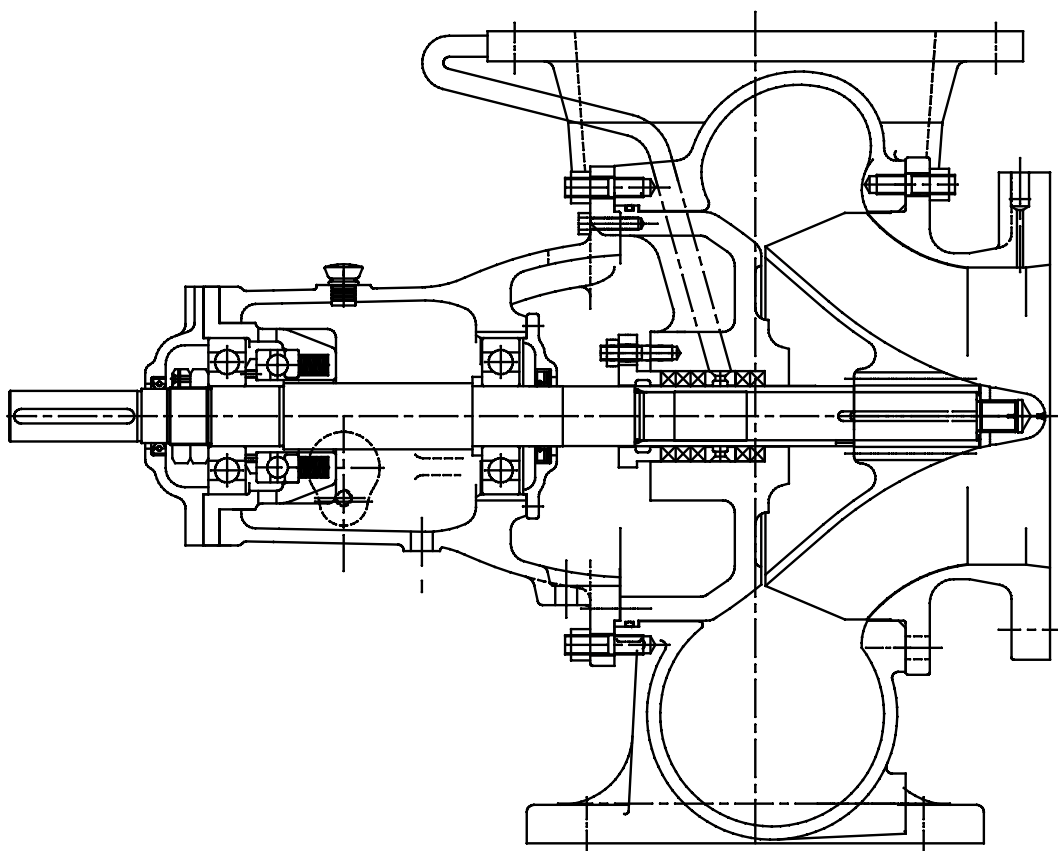
Adecuado para acoplarse a motores eléctricos, motores I.C. bien sea directamente o a través de correas de transmisión/caja de engranajes.

### **Bridas :**

Las bridas deben ser perforadas según BSEN 1092, PN 16 de cara plana, excepto para las bombas MF 17 ½ - 20, MF 55-60, MF 60-65.  
Para estos modelos la perforación será BS 10 Tabla D.

## CROSS - SECTION DRAWING / PLANO CORTE TRANSVERSAL

### MF Pump / Bomba MF



- A) MF pumps are also available in Back pull out construction (MF-B)
- B) MF pumps can be give with enclosed impeller (MF-E)

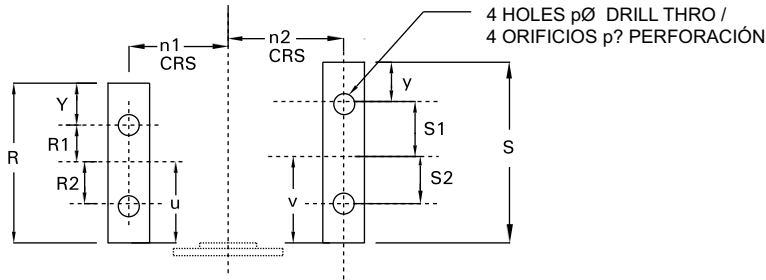
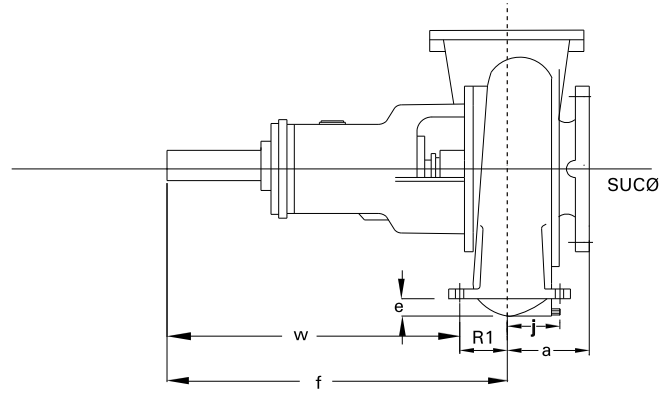
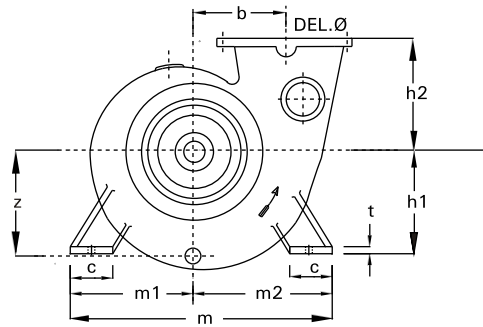
- A) Las bombas MF también están disponibles construídas para extracción trasera (MF-B)
- B) Las bombas MF pueden ser suministradas con impulsor cerrado (MF-E)

# GENERAL DIMENSIONS / MOUNTING DETAILS

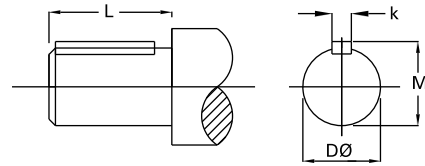
## DIMENSIONES GENERALES / DETALLES DEL MONTAJE

### Vertical Delivery End Position (Megha Execution)

### Posición Final Descarga vertical (Ejecución Megha)



SHAFT END DETAILS /  
DETALLES EXTREMO DEL EJE



SUCTION SIDE  
PLAN OF FEET ONLY      EXTREMO DE SUCCIÓN  
PLANO DE LOS SOPORTES ÚNICAMENTE

	Pump Type / Tipo de bomba	Pump Measurements / Medidas de la bomba									
		SUC.	DEL.	a	f	j	e	h1	h2	z	b
1	MF 17 1/2 - 20	175	200	200	564	102	32	250	230	255	208
2	MF 20-25	200	250	215	545	120	40	280	275	290	240
3	MF 250	250	250	248	545	120	40	280	275	290	240
4	MF 25-25	250	250	245	620	145	31	315	285	315	268
5	MF 25-30, A	250	300	245	620	145	50	355	320	370	300
6	MF 300	300	300	285	620	145	50	355	320	370	300
7	MF 30-35, M1	300	350	295	707	161	85	400	370	435	355
8	MF 30-35, M	350	350	350	707	161	85	400	370	435	355
9	MF 35-35, M	350	350	345	670	176	85	400	400	442	375
10	MF 35-40, M	350	400	345	670	195	10	500	440	520	415
11	MF 40-40	400	400	390	872	182	85	470	450	515	428
12	MF 40-45	400	450	400	862	185	85	600	500	590	475
13	MF 50-50	500	500	490	960	212	140	600	625	648	535
14	MF 55-60	550	600	540	920	260	135	800	680	825	650
15	MF 55-60 E	600	600	540	920	260	135	800	680	825	650
16	MF 60-65	600	650	590	1047	297	214	800	850	890	710

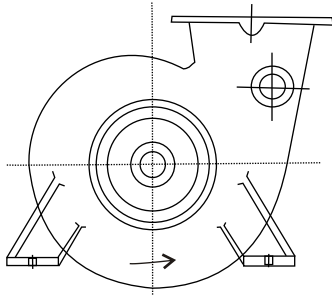
	Pump Type / Tipo de bomba	Feet Measurements / Medidas de los soportes														Shaft End Measurements / Medidas del extremo del eje						Net weight In Kg (Approx.) Peso neto en Kg (Aprox.)		
		t	c	m1	m2	m	u	v	n1	n2	R1	R2	R	Y	S1	S2	S	PØ	W	DØM6	M		K	L
1	MF 17 1/2 - 20	24	110	270	320	590	140	140	215	265	90	110	260	30	110	110	280	7/8"	474	32	35.5	10	80	175
2	MF 20-25	26	120	310	360	670	155	155	250	300	100	120	290	35	120	120	310	1"	445	32	35.5	10	80	235
3	MF 250	26	120	310	360	670	155	155	250	300	100	120	290	35	120	120	310	1"	445	32	35.5	10	80	235
4	MF 25-25	28	130	330	390	720	175	175	265	325	95	125	320	50	1250	1250	350	11/8"	525	42	45.5	12	110	325
5	MF 25-30, A	32	140	385	450	835	190	190	315	380	120	140	360	50	140	140	380	11/8"	500	42	45.5	12	110	405
6	MF 300	32	140	385	450	835	190	190	315	380	120	140	360	50	140	140	380	11/8"	500	42	45.5	12	110	405
7	MF 30-35 M1	36	170	470	550	1020	225	225	385	465	150	170	430	55	170	170	450	11/4"	557	50	54	14	120	535
8	MF 35-35, M	36	170	470	550	1020	225	225	385	465	140	170	420	55	170	170	450	11/4"	30	50	54	14	120	550
9	MF 35-40, M	40	200	530	620	1150	265	265	430	520	170	200	500	65	200	200	560	13/8"	500	50	54	14	120	720
10	MF 40-40	56	196	663	733	1396	280	280	565	635	170	210	520	70	210	210	560	13/8"	702	70	76	20	170	1150
11	MF 40-45	60	200	625	700	1325	315	300	525	600	225	255	600	60	240	240	600	13/8"	637	70	76	20	170	1375
12	MF 50-50	60	200	660	790	1450	310	310	560	690	195	245	570	65	245	245	600	13/8"	765	80	87	25	170	1700
13	MF 55-60	75	250	800	950	1750	380	380	675	825	265	305	720	75	305	305	765	15/8"	655	80	87	25	170	2450
14	MF 60-65	75	270	925	1075	2000	400	400	790	940	265	325	740	75	325	325	765	15/8"	782	100	108	28	210	2600

Note:  
 1) Flanges drilled as per BSEN 1092 PN 16. For MF 17 1/2-20, MF 55-60 and MF 60-65, flange driving will be as per BS 10 table D      2) All dimensions are in mm  
 3) For MF 250 center line of suction flange is 24 mm below the pump center line      4) For MF 300 center line of suction flange is 24.5 mm below the pump center line

Notas:  
 1) Bridas perforadas según BSEN 1092 PN 16. Para MF-17 1/2-20, MF 55-60 y MF 60-65, el manejo de las bridas será según BS 10 tabla D.      2. Todas las dimensiones están en mm.  
 3) Para la MF 250 la línea central de la brida de succión es 24 mm por debajo de la línea central de la bomba. 4) Para la MF 300 la línea central de la brida de succión es 24.5 mm

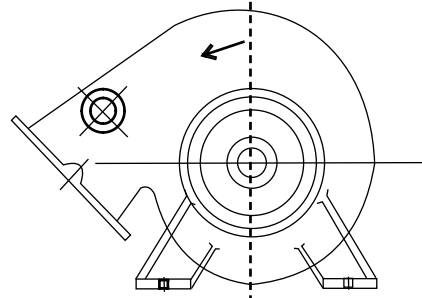
# ALTERNATIVE AVAILABLE / ALTERNATIVAS DISPONIBLES

Different Orientation on Delivery Nozzle / Orientación Diferente en la Tobera de Descarga

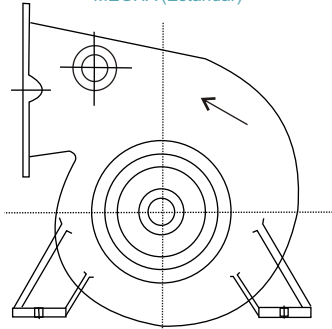


MEGHA (Standard)

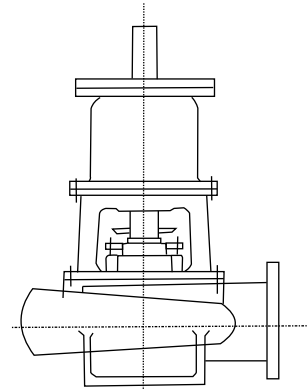
MEGHA (Estándar)



TRISHA

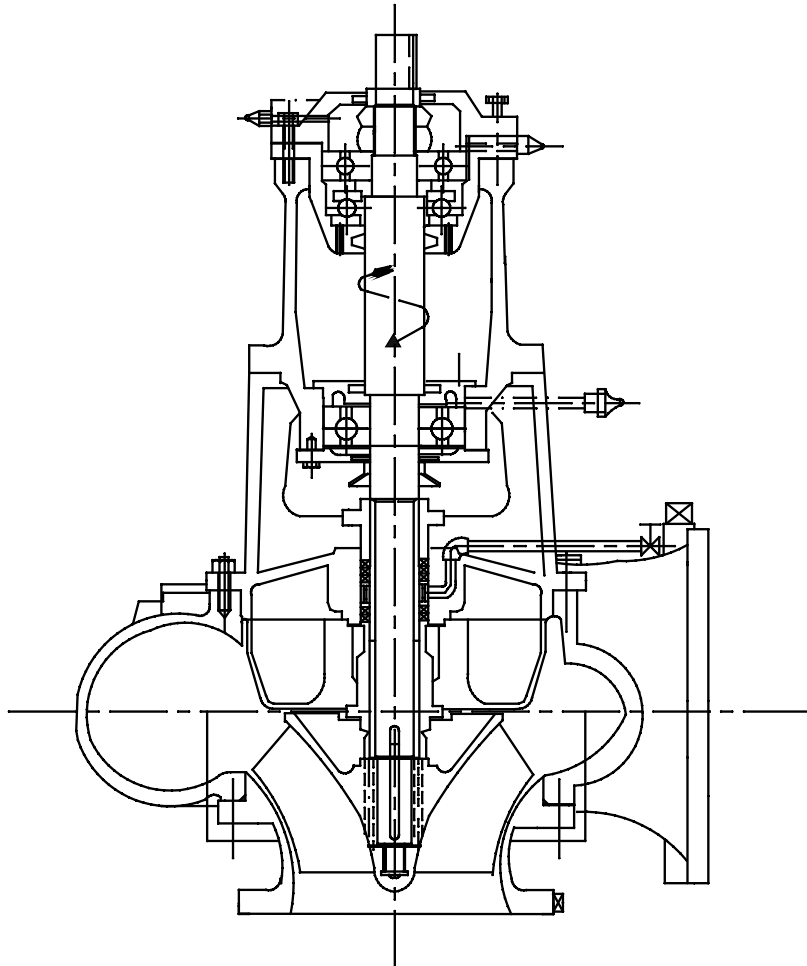


MRUGA



VARSHA

**MF - Vertical Execution**  
**MF - Funcionamiento Vertical**



MATERIAL OF CONSTRUCTION

MATERIALES DE FABRICACIÓN

Casing / Carcasa	Cast Iron / Cast Steel / Stainless Steel / Duplex Steel	Carcasa	Hierro Fundido/Bronce/Bronce Fósforo
Casing Cover, Suction Cover	Cast Iron / Cast Steel / Stainless Steel / Duplex Steel	Cubierta Carcasa	Hierro Fundido/Bronce/Bronce Fósforo
Impeller	Cast Iron / Bronze / Phosphor Bronze / Cast Steel / Stainless Steel / Chrome Steel / Duplex Steel	Impulsor	Hierro Fundido/Bronce/Bronce Fósforo
*Wear Ring	Cast Iron / Bronze/ Steel	Anillo de Desgaste	Hierro Fundido/Bronce/Acero Inoxidable
Shaft	Carbon Steel / Stainless Steel / Duplex Steel	Eje	Acero al Carbono /Acero Inoxidable
Shaft Sleeve	Stainless Steel / Bronze	Camisa del Eje	Acero Inoxidable/ Bronce
Lantern Ring	Cast Iron / Bronze	Anillo de Cierre Hidráulico	Hierro Fundido/Bronce
Gland	Cast Iron / Bronze	Estopero	Hierro Fundido/Bronce

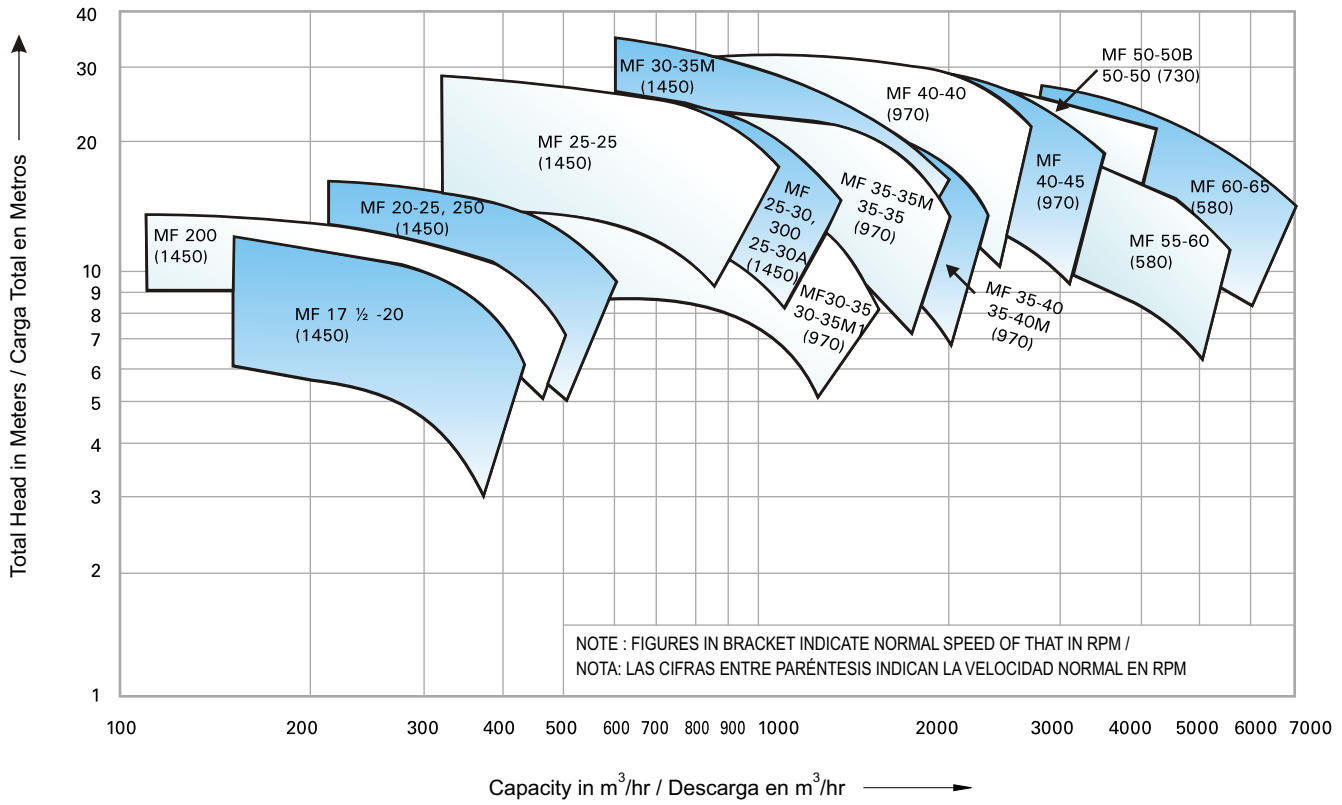
\*for 'E' type Impeller only

\* Únicamente para el impulsor tipo "E"

MATERIAL STANDARDS / ESTÁNDARES DE LOS MATERIALES

Material Type / Tipo de material	Indian Standard (IS) / Estándar Indio (IS)	American Standard (ASTM) / Estándar Americano (ASTM)	DIN
<b>Cast Iron / Hierro Fundido</b>			
Cast Iron / Hierro Fundido	IS 210 Gr. FG 260	ASTM A48 Class 40	(0.6025)DIN 1691 GG25
<b>Spheroidal Graphite Cast Iron / Hierro Fundido de Grafito Esferoidal</b>			
SG Iron (Ductile Iron)/Hierro GE (Hierro Dúctil)	IS 1865 Gr 400/15	A536, 60-40-18	(0.7040)DIN1693 GGG40
SG Iron (Ductile Iron)/Hierro GE (Hierro Dúctil)	IS 1865 Gr 500/7	A536, 65-45-12	(0.7050)DIN1693 GGG50
<b>Carbon Steel / Acero al Carbono</b>			
Carbon steel (Wrought) / Acero al carbono (Forjado)	IS 1570 (part II) Gr. 40C8	ASTM A107 Gr. 1040	(1.1186)C40E/CK40
Carbon steel (Wrought) / Acero al carbono (Forjado)	IS 1570 (part II) Gr. 20C8	ASTM A107 Gr. 1020	(1.0402)C22
MS Steel / Acero MS	MS IS 2062 - Fe 410 W A	ASTM-A283 GR.D	DIN 1700 GR ST4-2 FABRICATED STEEL44
<b>Cast Steel Grades / Grados de Acero Fundido</b>			
Cast steel / Acero Fundido		ASTMA 216 Gr. WCB	1.0619(GS-C25)
<b>Cast Stainless Steel / Acero Inoxidable Fundido</b>			
Stainless Steel CF8M / Acero Inoxidable CF8M	IS 3444 Gr. 4	ASTMA 351 Gr. CF8M	1.4408(GX5CrNiMo19-11-2)
Stainless Steel CF8M / Acero Inoxidable CF8M	IS 3444 Gr. 4	ASTMA 743 Gr. CF8M	1.4408(GX5CrNiMo19-11-2)
Stainless Steel CF3M / Acero Inoxidable CF3M	IS 3444 Gr. 16	ASTMA 351 Gr. CF3M	1.4409(GX2CrNiMo19-11-2)
Stainless Steel CF3M / Acero Inoxidable CF3M	IS 3444 Gr. 16	ASTMA 743 Gr. CF3M	1.4409(GX2CrNiMo19-11-2)
Stainless Steel CF8 / Acero Inoxidable CF8	IS 3444 Gr. 1	ASTMA 351 Gr. CF8	1.4301(X5CrNi18-10)
Stainless Steel CF3 / Acero Inoxidable CF3	IS 3444 Gr. 15	ASTMA 351 Gr. CF3	1.4306(X2CrNi19 11)
<b>Cast Chromium Stainless Steel / Acero Inoxidable al Cromo</b>			
Stainless Steel CA15 / Acero Inoxidable CA15	IS 3444 Gr. 10	ASTMA 217 Gr. CA15	1.4106&1.448(DIN17445 GX12Cr14)
Stainless Steel CA15 / Acero Inoxidable CA15	IS 3444 Gr. 10	ASTMA 743 Gr. CA15	1.4106&1.448(DIN17445 GX12Cr14)
Stainless Steel CA6NM / Acero Inoxidable CA6NM	IS 3444 Gr. 24	ASTMA 487 Gr. CA6NM	1.4313&1.4317(GX5CrNiMo13-4)
Stainless Steel CA6NM / Acero Inoxidable CA6NM	IS 3444 Gr. 24	ASTMA 743 Gr. CA6NM	1.4313&1.4317(GX5CrNiMo13-4)
<b>Chromium Stainless Steel Round Bar Material / Acero Inoxidable al Cromo, Material de Barras Redondas</b>			
Stainless steel 410 / Acero Inoxidable 410	IS 1570 (part V) Gr. X12Cr12	ASTMA 276 type 410	1.4006(X10Cr13)
Stainless steel 420 / Acero Inoxidable 420	IS 1570 (part V) Gr. X20Cr13	ASTMA 276 type 420	1.4021(X20Cr13)
Stainless steel 431 / Acero Inoxidable 431	IS 1570 (part V) Gr. X15Cr16Ni2	ASTMA 276 type 431	1.4057(X20CrNi17)
Stainless steel 316 / Acero Inoxidable 316	IS 1570 (part V) Gr. X04Cr17Ni12Mo2	ASTMA 276 type 316	1.4401(X5CrNiMo17122)
Stainless steel 316L / Acero Inoxidable 316L	IS 1570 (part V) Gr. X02Cr17Ni12Mo2	ASTMA 276 type316L	1.4404(X2CrNiMo1810)
<b>Cast Duplex Steel / Acero Fundido Doble</b>			
Duplex Steel 1A / Acero Doble 1A		ASTMA 890 Gr. CD4MCu	25Cr-5Ni-Mo-Cu
Duplex Steel 2A / Acero Doble 2A		ASTMA 890 Gr. CE8MN	24Cr-10Ni-Mo-N
Duplex Steel 3A / Acero Doble 3A		ASTMA 890 Gr. CD6MN	25Cr-5Ni-Mo-N
Super Duplex steel 4A / Acero Doble Super 4A		ASTMA 890 Gr. CD3MN	25Cr-7Ni-Mo-N
Super Duplex steel 5A / Acero Doble Super 5A		ASTMA 890 Gr. CE3MN	24Cr-10Ni-Mo-N
<b>Non Ferrous Materials / Materiales no ferrosos</b>			
Bronze / Bronce	IS 318 Gr. LTB2 (CuSn5Zn5Pb5C)	ASTMB 584 - C90500	DIN 1705 Rg 5
Phosphor Bronze / Bronce Fósforo	IS 28 Gr. 1 (CuSn11PC)		
Zinc Free Bronze / Bronce libre de Zinc	IS 28 Gr. 1 (CuSn10C)		

Family Curve of MF Pump at 50 Hz rpm / Familia de curvas de Bomba MF - 50 Hz











# 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 m<sup>3</sup>/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).

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Pumps | Valves | Hydro Turbines | Turnkey Projects

Water Resource Management | Irrigation | Power | Industry | Oil & Gas | Marine & Defence | Building & Construction | |  
Distribution (Small Pumps) | Valves | Customer Service & Spares

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## KIRLOSKAR BROTHERS LIMITED

### A Kirloskar Group Company

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#### OUR COMPANIES

