



Enriching Lives



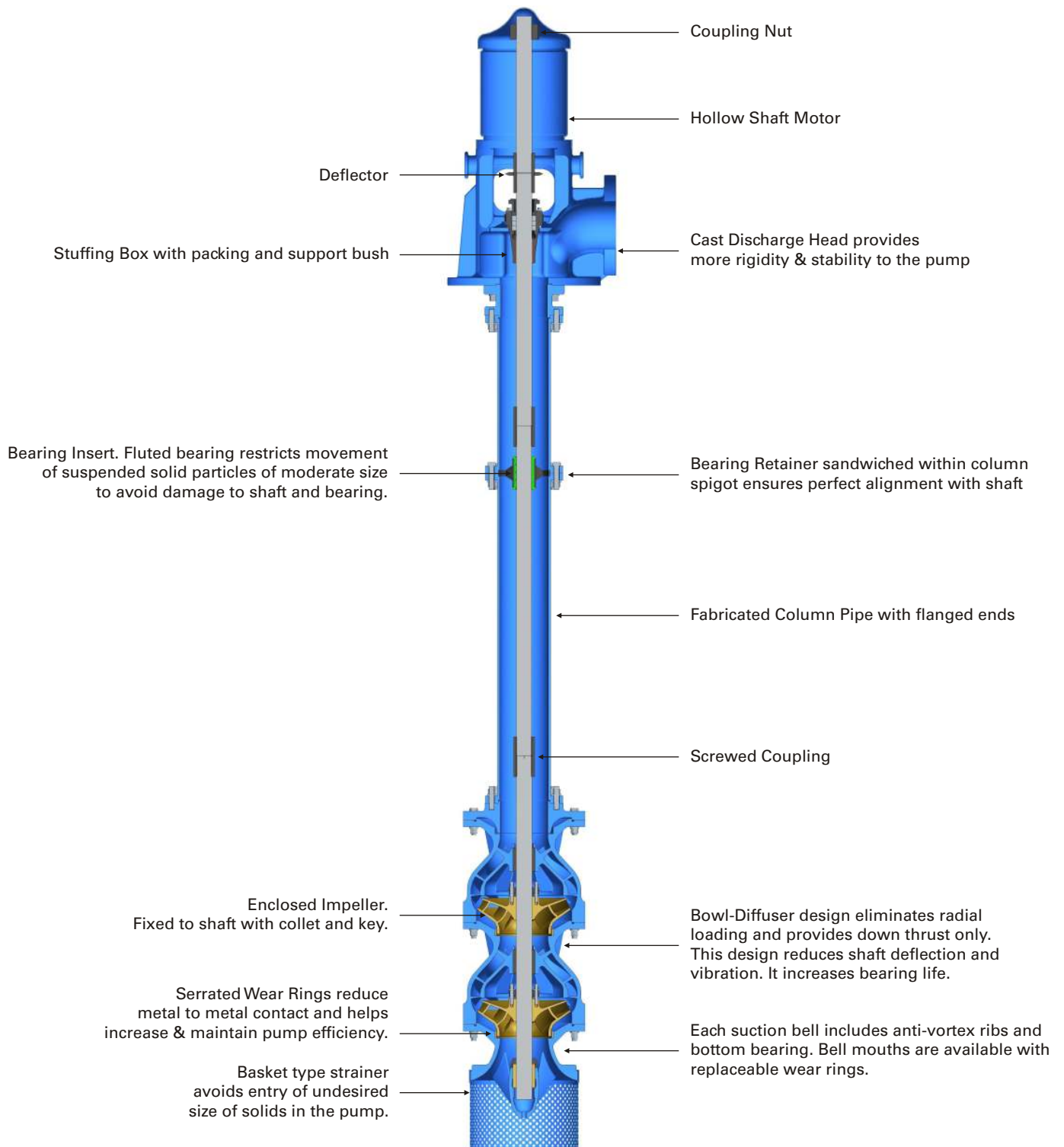
VERTICAL TURBINE PUMP

VEP Pump Series



KIRLOSKAR BROTHERS LIMITED

A Kirloskar Group Company



BASIC DETAILS

VEP Pump Series of Vertical Turbine Pumps (VT) consist of three different functional units similar to conventional VT pump. 'Pump Unit', 'Column Unit' and 'Head Unit'.

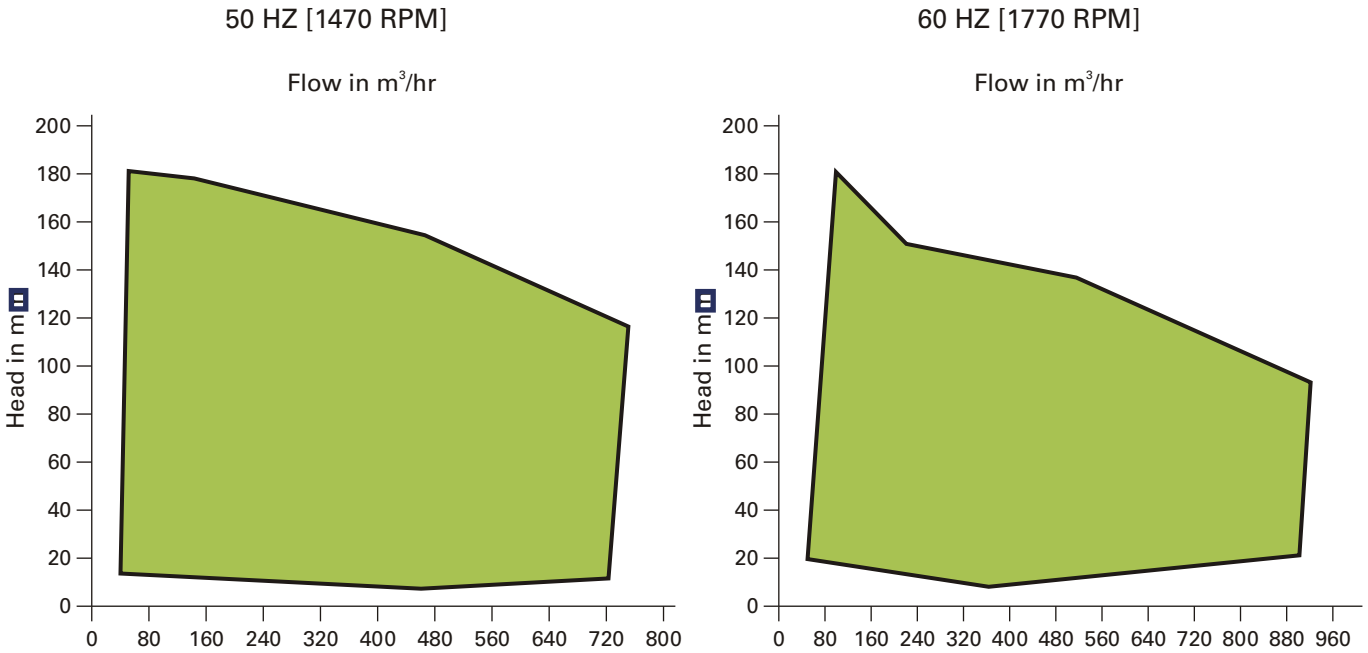
VEP Pumps are designed for maximum operating speed of 1800 RPM. Thus pumps are well suitable to operate at 60 Hz supply frequency. All Pump models are designed suitable for 'Anti-clockwise' direction only, when viewed from top end.

APPLICATIONS

- Irrigation
- Water Supply
- Fire Fighting
- River Water Intake
- General Industry
- Cooling Water
- Sea Water Application

RANGE CHART

General operating range of pumps is indicated below:



Pump Models

Six pump models developed to suite wide range of applications as per customer requirements:

1. VEP21C
2. VEP24A
3. VEP24C
4. VEP26C
5. VEP32C
6. VEP34C

Pump Construction

Pump End Assembly consists of the following parts:

Pump Bowl Assembly:

The pump bowl assembly with diffuser design eliminates radial loading and provides down thrust to maintain shaft in tension. This design reduces shaft deflection and vibration. It increases bearing life.

Impellers:

Impellers are of enclosed type. Impellers are fixed with shaft using collets & key to ensure positive drive.

Bowl Wear Rings:

Renewable wear rings are fitted in the bowls, which seal against the front shrouds of the impellers. The serrated wear rings ensure less metal to metal contact and enhance total volumetric efficiency, pump efficiency and provides sustainable efficiency for longer duration.

Collets:

Collets are provided to centralise and secure the impellers to the pump shaft. It's easy to fit and dismantle.

Pump Shaft:

The pump shaft is of stainless steel with a fine ground finish throughout the length ensuring total run out of shaft well within acceptable limit.

Pump Unit Bearings:

Pump unit bearings are manufactured in various material of construction. They support the shaft at each bowl and at suction bell mouth. As a standard scope of supply, fluted rubber bearings with metallic shell are offered.

VEP PUMP MODELS AND CONSTRUCTION

Suction Bell Mouth:

Each suction bell includes anti-vortex ribs and bottom bearing. The suction bells are available with replaceable wear rings.

Suction Strainer:

Basket type strainer is supplied with the pump. The strainer prevents solids of larger size from entering the pump.

Column/Shaft Assembly consists of the following parts:

Column Pipes:

Column pipes are fabricated with flanged ends and are available in standard lengths from 1500mm to 3000mm. All the column pipes are normally offered with equal lengths, but in certain cases, to adjust the total pump length, the top column pipe can be offered in non-standard length to suit the dimensions of particular sump.

Bearing Retainers:

The bearing retainers support the line shaft bearings. These are sandwiched within female spigot of column pipes which enables proper bearing alignment and more support & stability to shafts.

Bearings Inserts:

All the bearings will be generally self water lubricated bearings. As a standard scope of supply spirally fluted rubber bearings are offered.

Column Shaft Assemblies:

Column shaft assemblies consist of the column shaft and threaded couplings. Fine ground finish throughout the length ensuring total run out of shaft well within acceptable limit; thus eliminating the need of shaft sleeves.

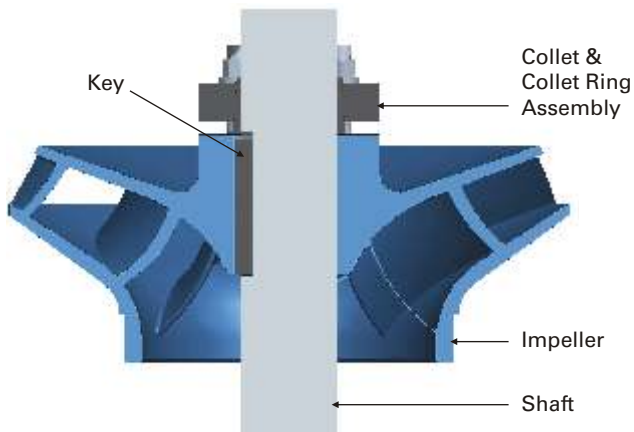
Head Piece/Drive Assembly

Head Piece Assembly consists of the following parts:

- The cast construction discharge head with stuffing box, gland and an integral 90° bend to give horizontal delivery. Flange drilled to ANSI-250
- The top of the discharge head is machined to accommodate a listed hollow shaft motors or right angle gear heads which are fitted directly on to the discharge head
- Head shaft 1 (Stuffing box shaft) is connected with Head shaft 2 (motor shaft) with threaded coupling. Motor shaft top end is made suitable to the size of coupling bore of motor ratchet and is fitted with help of key and coupling nut (top shaft nut)
- Refer section DRAWINGS & CROSS SECTION DRAWINGS for typical pump assembly and constituent parts

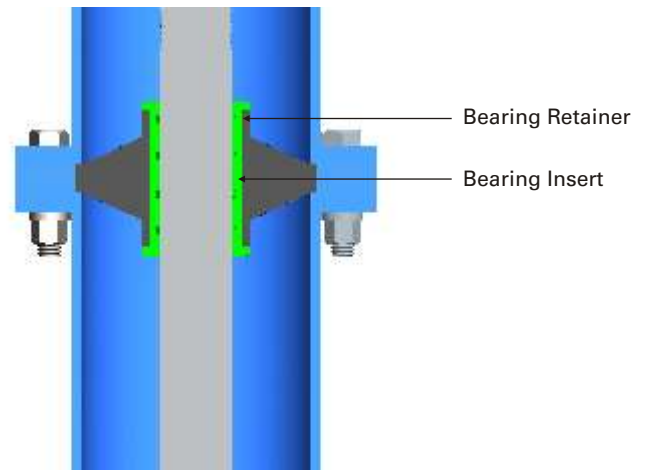
DETAILS OF SECTION DRAWINGS

Impeller-Collet Assembly



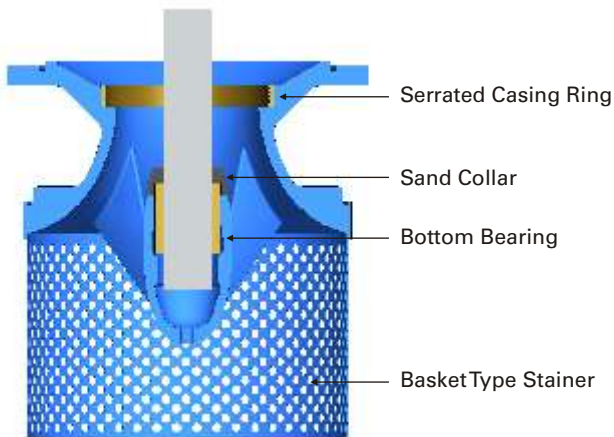
Impellers are fixed to impeller shaft with collet ring and collet along with key.

Bearing Insert Assembly



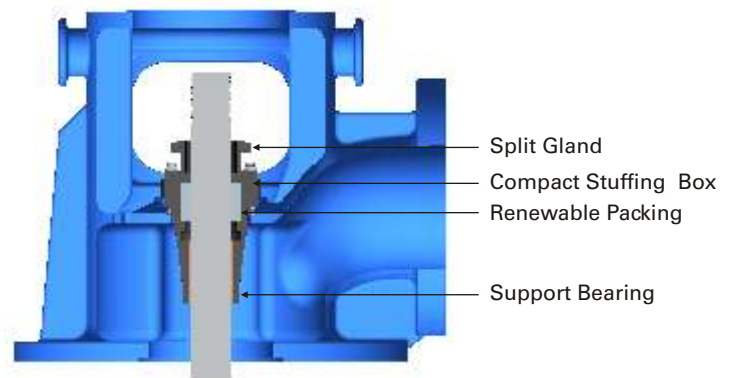
Bearing retainer is sandwiched within spigot of column flanges. Fluted bearing insert supports line shaft and is lubricated with pumped water.

Bell Mouth Assembly



Provision of bottom bearing helps to provide support to the impeller shaft, enabling the impeller to run between bearings. Serrated wear rings ensure less metal contact and sustained efficiency. Basket type strainer avoids entry of undesired size of solids in the pump.

Stuffing Box Assembly



Stuffing box packing is provided as a standard supply, stuffing box is provided with inbuilt bush which support head shaft. Cast discharge head provide more rigidity and stability to the pump.

IMPORTANT FEATURES & GUIDELINES

Important Features

- Reliable, efficient and cost effective
- Compact design enables to fit in lesser openings at pump floor
- Cast discharge head enables more stability
- Serrated wear rings ensure less wear, high efficiency and its sustainability
- Hollow shaft motor combination eliminates separate thrust bearing from top of discharge head
- Cooling coils from thrust bearings are eliminated; hence no risk of piping leakage
- Compact design, sandwiched bearing spiders enable correct alignment of bearings with shaft
- Compact stuffing box assembly is easy to fit and maintain

Guidelines

- All pumps are supplied with above ground discharge and with self water lubrication
- The pumps are designed for anti-clockwise rotation as viewed from the top (i.e. NDE of the motor) with 20m maximum suspension length
- Pumps are offered only with hollow shaft motor or right angle gear drive for engine driven pumps
- The material of construction of various components are offered as per the 4 different options (as shown in the table)
- An intermediate shaft coupling arrangement is screwed type

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	DIN 1700 GR ST4-2 FABRICATED STEEL44
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 Steel			
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 Round 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 Ferious Materials			
Bronze	IS 318 Gr. LTB2 (CuSn5Zn5Pb5C)	ASTMB 584 - C90500	DIN 1705 Rg 5
Phosphor Bronze	IS 28 Gr. 1 (CuSn11PC)		
Zinc Free Bronze	IS 28 Gr. 1 (CuSn10C)		

MATERIAL OF CONSTRUCTION

Construction	Iron & Bronze	Iron + Stainless Steel	Ni-Resist	All Duplex Steel
Components	Standard Option			
Bowls & Bell mouth	Cast Iron	Cast Iron	Ni-Resist	Duplex steel
Impeller	Bronze	Stainless Steel	Ni-Resist	Duplex steel
Pump Shaft	Stainless Steel	Stainless Steel	Stainless Steel	Duplex steel
Wear Rings	Bronze	Stainless Steel	Ni-Resist	Duplex steel
Suction Strainer	Galvanized Steel	Stainless Steel	Stainless Steel	Duplex steel
Collets	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
Columns	Fabricated Steel	Fabricated Steel	Stainless Steel	Duplex steel
Shafts	Stainless Steel	Stainless Steel	Stainless Steel	Duplex steel
Shaft Sleeves	Stainless Steel	Stainless Steel	Stainless Steel	Duplex steel
Bearings	Neoprene Rubber	Neoprene Rubber	Composite bearings	Composite bearings
Bearing Retainer	Cast Iron	Bronze	Stainless Steel	Duplex steel
Discharge Head	Cast Iron	Cast Iron	Ni-resist	Duplex steel
Head Shaft	Stainless Steel	Stainless Steel	Stainless Steel	Duplex steel
Stuffing Box Sleeve	Stainless Steel	Stainless Steel	Stainless Steel	Duplex steel
Packing	Non-Asbestos	Non-Asbestos	Non-Asbestos	Non-Asbestos

Note: The material will be supplied as per the latest ASTM specifications.

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

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

KIRLOSKAR BROTHERS LIMITED

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OUR COMPANIES



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