Kirloskar

Enriching Lives

Enriching the Existence of

HYDEL POWER

KIRLOSKAR BROTHERS LIMITED
A Kirloskar Group Company
Established 1888

A CENTURY OF EXCELLENCE

Manufacturing facilities in India

Industrial and Engineered Pumps, Hydro Turbines

Kirloskarvadi - Western India

Agricultural and Domestic Pumps

Dewas - Central India

Domestic Pumps

Kaniyur - Southern India

Submersible Pumps

Sanand - Western India

Valves

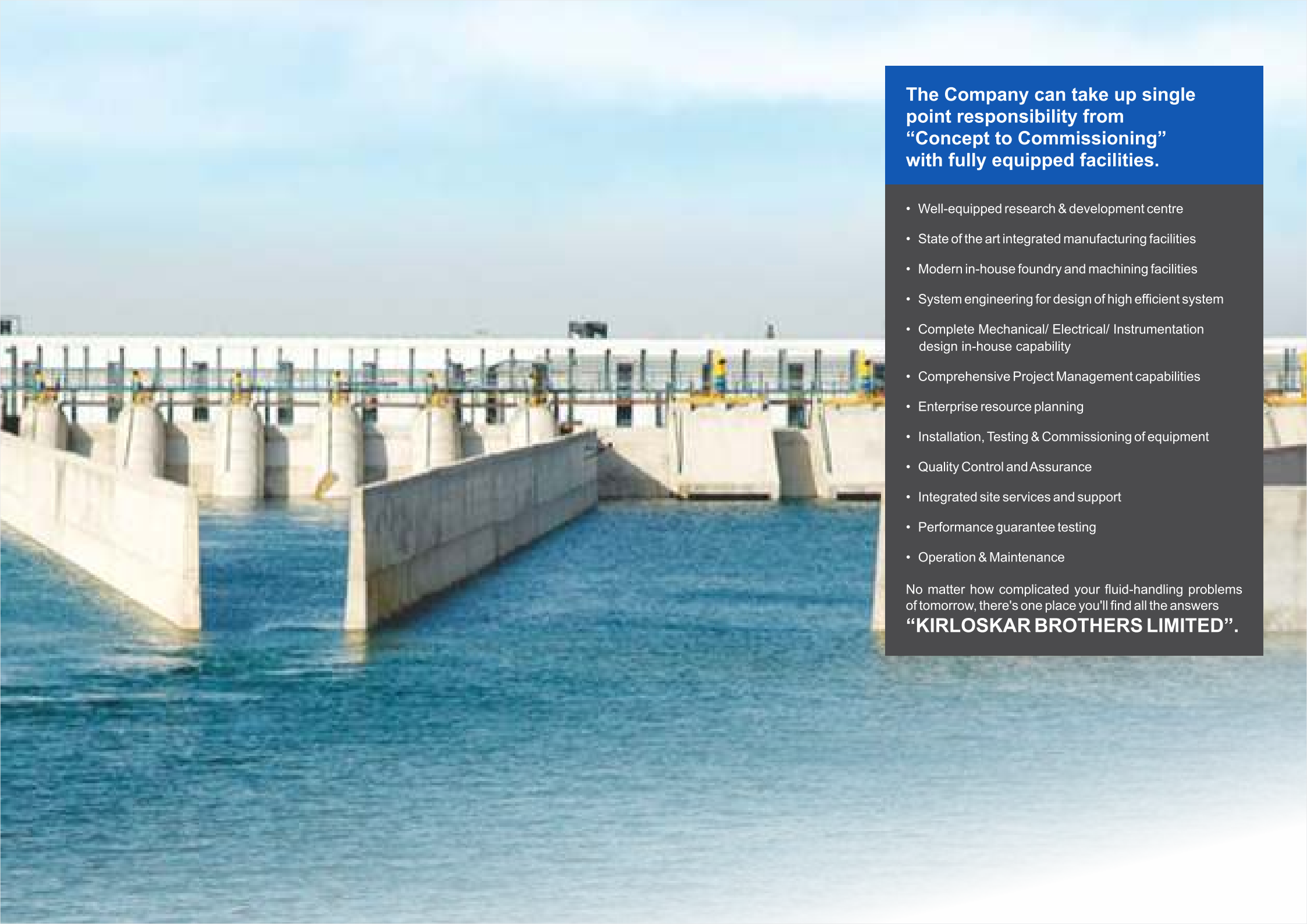
Kondhapuri - Western India

ADDING RELIABILITY AND EFFICIENCY TO HYDRO POWER

Optimized Pumping and Hydro Power solution – From concept to commissioning across market segments

For us practicing innovation is more important than being innovative.
We have always been an exponent in implementing innovation in every segment of our business and no less than in our products.
We understand our market and it is our long-practiced research methodology to study the market pain areas in order to give a direction to our innovative thought process.
Once the requirement is clearly studied, our engineering expertise is coupled with an innovation and products are designed accordingly.

- Being the largest manufacturer and exporter of Centrifugal Pumps from India, we export to over 80 countries across 6 continents. KBL Hydro turbines are also working well in India as well as abroad.
- We are the preferred choice in micro, small and medium hydro turbine business.
- We offer Hydro Power turnkey solutions on “Concept to Commissioning” and “Single Window concept” basis.
- We offer unique energy efficient solutions for variety of heads, discharge and power rating for different terrains.
- KBL is the only turbine manufacturer having one roof manufacturing solution for electromechanical equipment including its own foundry.
- We have one of Asia's largest Hydraulic Research Centre with state-of-the-art testing facilities.



The Company can take up single point responsibility from "Concept to Commissioning" with fully equipped facilities.

- Well-equipped research & development centre
- State of the art integrated manufacturing facilities
- Modern in-house foundry and machining facilities
- System engineering for design of high efficient system
- Complete Mechanical/ Electrical/ Instrumentation design in-house capability
- Comprehensive Project Management capabilities
- Enterprise resource planning
- Installation, Testing & Commissioning of equipment
- Quality Control and Assurance
- Integrated site services and support
- Performance guarantee testing
- Operation & Maintenance

No matter how complicated your fluid-handling problems of tomorrow, there's one place you'll find all the answers

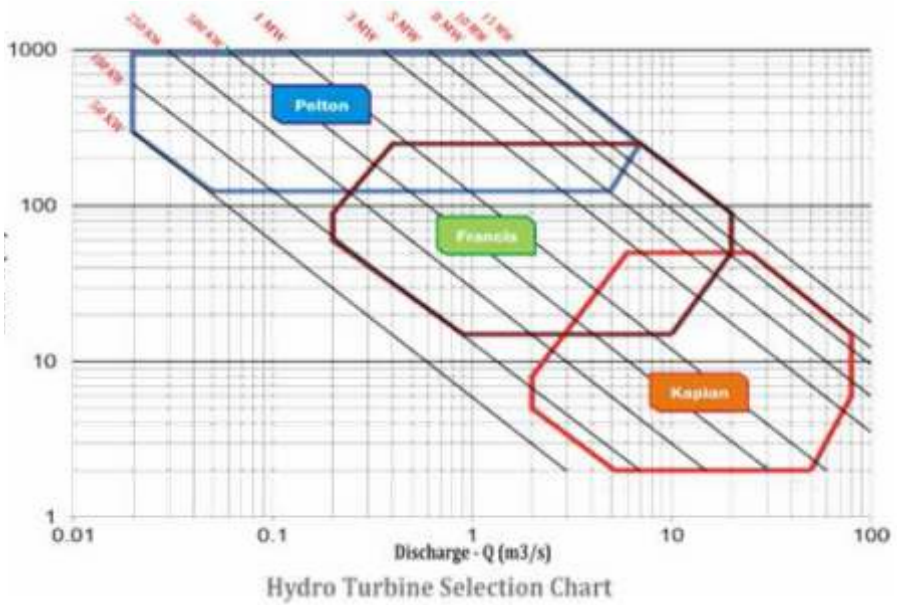
"KIRLOSKAR BROTHERS LIMITED".

PRODUCT RANGE

Francis / Kaplan / Pelton Hydraulic Turbine

- Horizontal & Vertical Configuration
- Single Unit Capacity up to 20 MW

Pump as Turbine (PAT) up to 100 kW



Hydro Turbine Selection Chart


Pump As Turbine


Butterfly Valve


Horizontal Francis Turbine


Horizontal Pelton Turbine


Horizontal Kaplan Turbine


Vertical Kaplan Turbine


Vertical Francis Runner With Shaft

Computational Facilities in KBL

- Pro Engineer (wildfire) Solid Modeling Software
- Ansys CFX Suite Computational Fluid Dynamics Studies
- Turbodesign-1 Inverse Design for Turbo Machines
- FEMAP/MSC-Nastran Structural Analysis
- ANSYS Mechanical Mechanical Behavior of the System
- Surge Analysis Package (SAP2) Surge Analysis/Transient Studies
- Pro Mechanics For Preliminary

- One of Asia's largest Hydraulic Research Centres with state of the art testing facilities at duty conditions upto 5000kW (3.3/6.6/11kV) and discharge upto 50,000 m^3/hr
- Conceptualized and Built under the guidance and supervision of British Research Association
- Computerized data acquisition system

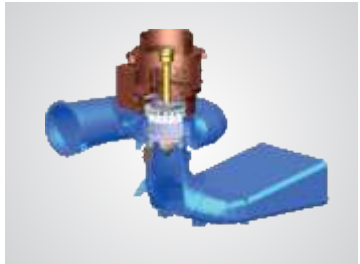
WELL-EQUIPPED CORPORATE RESEARCH & ENGINEERING DIVISION

KBL conducts research in order to provide fluid handling solutions, achieve technological break-through using advanced computational and experimental techniques and develop reliable and state of the art products that suit current needs. The Corporate Research & Engineering Division (CRED) of KBL is equipped with the latest computational facilities to incorporate the latest technologies for high performance product development. The applied research work conducted in KBL has resulted in the launch of appropriate technology for development of pumps, hydro turbines, valves and motors among others. The experimental facilities are available at its manufacturing plants at Dewas and Kondhapuri in addition to Kirloskarvadi.

KBL PROVIDES THE FOLLOWING SERVICES IN THE FIELD OF FLUID HANDLING:

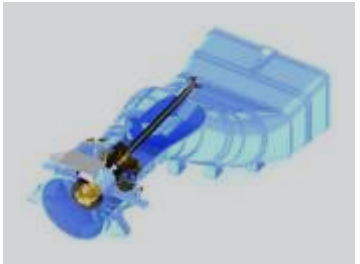
- High Performance and New Product Development
- Experimental Sump Model Studies
- Sump Model Studies using CFD Techniques
- Cavitation's Test Analysis
- Fluid Structure Interaction
- Structural Analysis
- Seismic Analysis
- Thermal Analysis
- Vibration Analysis
- Transient Analysis
- Shock/Impact Analysis
- Surge Analysis
- Piping Fluid Flow analysis
- Heat Transfer

3-D Model of Horizontal Francis Turbine

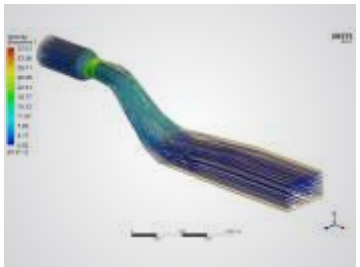


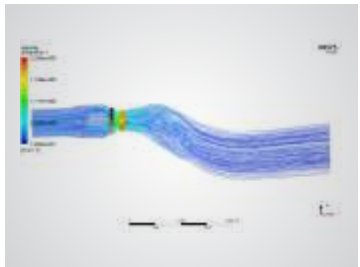
3-D Model of Vertical Kaplan Turbine

3-D Model of Twin Jet Pelton Turbine

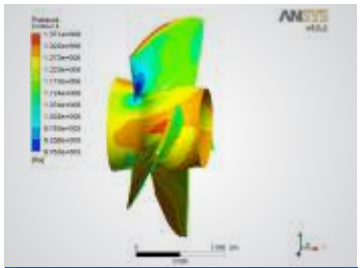


3-D Model of Horizontal Kaplan Turbine

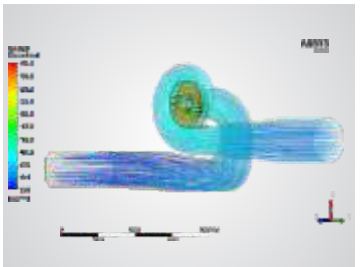




Velocity Streamline of Kaplan Runner



Pressure Contour of Kaplan Runner



CFD Analysis of Francis Turbine

MANUFACTURING EXCELLENCE & INFRASTRUCTURE

Foundry & Machining Facility

It is our constant endeavor to upgrade and implement the latest and most advanced technology for smooth functioning of our facilities for ensuring uninterrupted production and seamless services. At Kirloskarvadi foundry, the set-up is equipped with centralised pattern shop, mechanised sand processing system, automatic moulding machines and metal pouring system. There are independent units for cast iron, alloy steel, and non-ferrous metals. The cast iron foundry is capable of producing a single casting weighing up to 16000 kg and the Steel foundry unit can produce casting of special alloy Steels of international standards.

Facilities Include:

- Captive Foundry
- Heat Treatment Shop
- Cast Iron Foundry
- Material Testing Laboratory
- Alloy Cast Steel Foundry
- Non- destructive Testing Laboratory
- Non Ferrous Foundry
- Machine Shop with CNC Machines
- Replicast Foundry
- Full-equipped Assembly Shop

Stress Relieving Furnace

Metal Pouring at Foundry

Kaplan Runner Hub Machining on CNC VBM

Tubular Kaplan Casing Machining on Woton CNC HBM

Francis Spiral Casing Machining on SK40 VTL

Automated Foundry

Francis Runner Machining on CNC VBM

PROJECT MANAGEMENT
Complete Project Management from Concept to Commissioning

Basic & Detailed Engineering

Research & Development

Monitoring Through Msp

Manufacturing (turbine & Main Inlet Valve)

Procurement (material & Balance Of Plant)

Quality Assurance

Supply Of Electro-mechanical Equipment

Erection, Testing & Commissioning

Integrated Site Service & Support

Operation & Maintenance

Handing Over Of Plant

PROJECT MANAGEMENT EXPERTISE

The strength of KBL lies in its long experience in designing, manufacturing, installation and commissioning of Hydro Electric Generating System with commitment to innovation, quality and continuous technological advancement, making KBL a one-stop-solution for complete electro-mechanical package.

KBL's focus on developing unique, well designed, precisely engineered solutions to solve complex fluid handling problems has earned reputation worldwide. KBL's dedicated teams of resourceful engineers using the latest tools and techniques have consolidated KBL's standing as a company which enables timely execution of each project.

PROJECT MANAGEMENT OFFICE

Project Management Office (PMO) at KBL, is an apex organisational body or entity assigned with various responsibilities related to the centralised and coordinated management of various projects under its domain. PMO is more like an umbrella entity within organisation that overlooks such project management activities. This division strives to standardise and introduce economies of repetition in the execution of projects. The PMO is the source of documentation, guidance and metrics on the practice of project management, such as,

- Providing policies, methodologies and templates
- Providing support and guidance on how to manage projects
- Providing training in the project management practices and project management software tools
- Compiling MIS and raising red flags

WHY PMO?

- To reduce the risk of projects not been able to deliver on time, cost and quality targets
- To increase the success of projects in delivering the business values expected by customers
- To get visibility and predictability in the projects.
- To keep constant control on various deliverables in the project lifecycle and provide necessary directions to various stakeholders

WATER TO WIRE SOLUTIONS

The company offers complete turnkey hydro turbine solutions, from concept to commissioning with a special emphasis on planning, engineering, design, manufacturing, supply, transportation, insurance, erection, testing & commissioning of the complete electro-mechanical equipment for complete “Water to Wire” solutions for hydro projects. KBL’s scope of supply includes:

- Turbine & Accessories
- Generator & Accessories
- Main Inlet Valve
- Gearbox
- Oil Pressure Unit
- Governor
- Cooling water system
- Transformer
- Drainage & Dewatering
- Control & Protection System
- Illumination System
- Control & Monitoring System
- Ventilation System
- DC System
- EOT Crane
- Cable & Cable Trays
- Earthing & Lightning Protection
- PG Testing Support
- Operation & Maintenance
- Switchyard equipment
- Supervision, Installation and Commissioning

System Engineering

The company is engaged in conceptualising solutions and providing system engineering for turnkey projects. We excel in providing reliable, innovative and energy efficient water handling solutions. Our system engineering team has the expertise in adding exceptional value across a variety of verticals like power plants, water supply, irrigation; pumping solutions for industries, defence & marine and commercial building services and hydropower. We have decades of experience and expertise in complete hydro power system engineering. We have gained a wide recognition for our highly efficient and cost effective system design and customer support in India as well as abroad.

Hydropower system engineering covers the hydro-mechanical, electro-mechanical, mechanical and electrical components along with instrumentation, PLC, SCADA, etc.

Power House Indoor Equipment

Control & Protection Panels

Switchyard Equipment

Engineering Highlights

- Basic and Detailed Engineering
- Pro-E Modeling, AutoCAD
- Complete Mechanical System Design
- Complete Electrical System Design
- Complete Instrumentation, PLC, SCADA
- Highly Efficient System Design
- Project Commissioning Support

SITE INSTALLATION CAPABILITY

KBL has a team of highly dedicated engineers who are specially trained to take care of field services viz. installation, testing and commissioning of hydro power plants in a time bound manner. KBL site team ensures that all site activities are meticulously planned and performed so as to meet the completion & commissioning schedule, committed to the customer. While working on various challenging projects in different geographies in India & abroad, KBL engineers keep themselves updated with modern practices in construction management. Compliance to safety & quality standards, local and global government regulations, environmental regulations etc. is stringently followed by the team while demonstrating expertise in water-to-wire hydro plant installation, logistics and other peripheral site activities. Site team possesses all necessary tools, tackles, material handling equipment, precision instruments, electrical instruments apart from necessary infrastructure, to carry out field services meeting the contractual requirement. Apart from this, KBL's field service team also undertakes long term & short term operation and maintenance assignments of hydro power plants, post warranty inspection and repair services, based on customer's needs.

Erection of Stay Ring

Erection of Vertical Generator

Erection of Spiral Casing

Guide Vane Assembly at Site

Erection of Casing
& Pit Liner

Erection of Vertical Kaplan Runner

KAPLAN TURBINE

Kaplan turbines are generally designed for projects having low head and high discharge. These give a good performance over a wide range of varying heads. KBL offers full range of Kaplan turbines for

- Low Head and High Flow
- Horizontal or Vertical Orientation
- Up to 20MW Single Unit Capacity
- Head up to 60 m

Supplied in following configurations

- Full Kaplan
- Semi Kaplan
- Propeller
- S Type Tubular Kaplan (horizontal shaft)

Zho Suwei Hydro Power Plant, Taiwan,
1 X 3.607 MW, Vertical Kaplan Turbine

Konal HEP, 2 X 5.5 MW
Vertical Kaplan Turbine

Ankhe Kanak HEP, Vietnam 2 X 6.5 MW,
Vertical Kaplan Turbine

Darna HEP 2 X 2.45 MW,
Horizontal 's' Type Tubular Kaplan Turbine

Ranni Perunad HEP, 2 X 2 MW,
Horizontal 's' Type Tubular Kaplan Turbine

FRANCIS TURBINE

Francis turbines have the widest range of applications and are generally designed for projects having medium head and medium discharge.

KBL Francis turbines are delivered with high quality bearing as standard and are environment-friendly

KBL offers full range of Francis turbines for

- Optimized Selection and Sizing for High Efficiency
- Horizontal & Vertical Orientation
- Up to 20MW Single Unit Capacity
- Head up to 300 m

Supplied in two configurations

- Turbine runner and flywheel are directly mounted on generator shaft
- Turbine and generator have their own separate shafts and bearings

Francis Turbine at Works

Sechi HEP 2 X 2.25 MW

Adyanpara HEP 3.5 MW (2 x 1.5 MW + 1 x 0.5 MW)

Barapole HEP 3 X 5 MW

Chikotra HEP 1x1.8 MW

PELTON TURBINE

Pelton turbines are impulse turbines. These are designed for projects having high head and relatively low discharge.

KBL offers full range of Pelton turbines for

- High Head and Low Discharge
- Horizontal & Vertical Orientation
- Up to 10 MW Single Unit Capacity
- Head up to 350 m

Supplied in following configurations

- Single Jet Horizontal
- Double Jet Horizontal

Pelton Runner at Works

Panwi HEP 2 X 2 MW, Twin Jet Pelton Turbine

ENERGY & ECONOMIC GROWTH… THE WAY AHEAD

Electricity plays vital role in the socio-economic development of the nation. Providing access to clean sustainable energy services in rural areas is a daunting challenge.

As energy is an engine to economic development and poverty reduction, access to energy facilitates localised economic development, enabling local income generation through non-farm employment, catalysing the creation of micro enterprises and livelihood apportunities beyond daylight hours, in addition to better health and education. Thus rural development should have an overall priority in meeting the access challenge through decentralised energy systems in isolated situation using conventional and renewable sources.

KEY ADVANTAGES OF PICO HYDRO UNIT

The main advantages include:

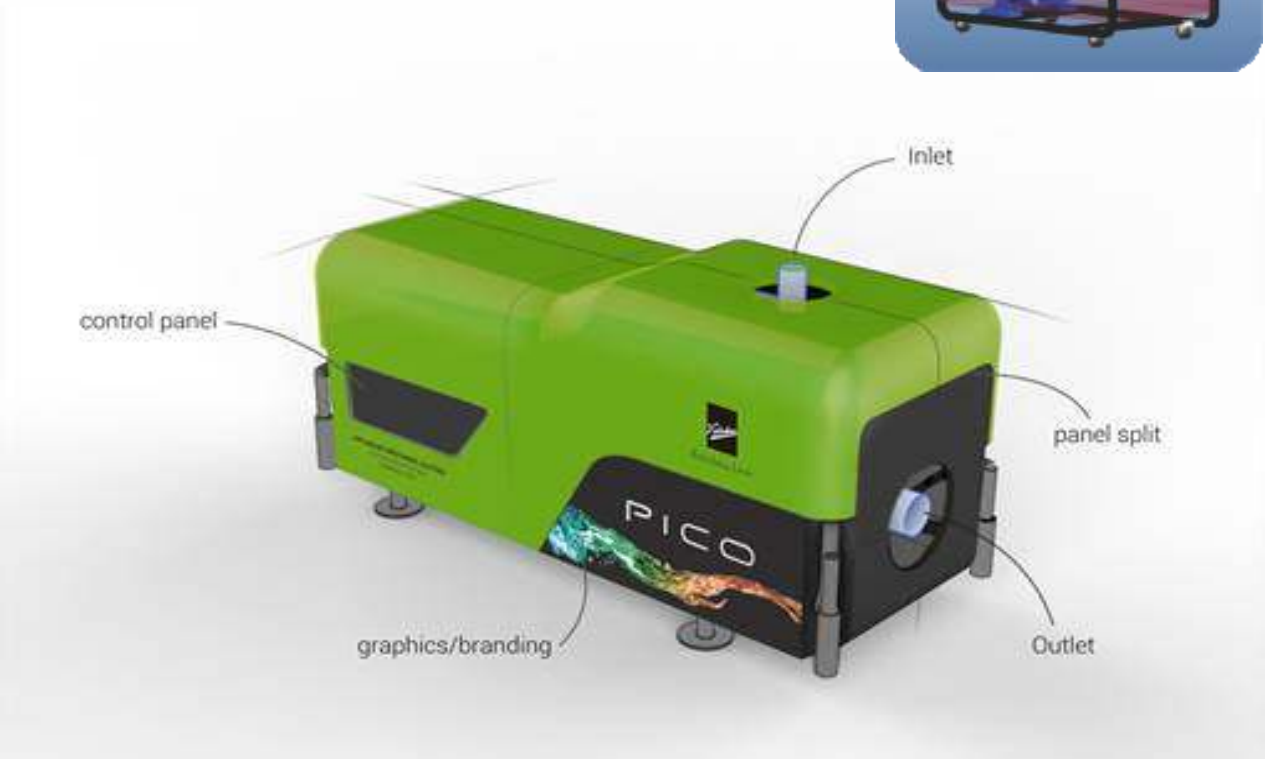
- Availability for a wide range of heads and flows
- Availability in large number of standard sizes
- Low cost
- Easy availability of spare parts
- Easy installation, plug and play type unit
- Short delivery time

SOLUTION FOR DECENTRALISED POWER GENERATION PICO HYDRO UNIT (UP TO 10 KW)

Pico hydro is a type of hydro electric power that typically produces up to 10 kW using the natural flow of water. These installations can provide power to an isolated home or small community, or are sometimes connected to electric power networks.

APPLICATION OF PICO HYDRO UNIT

- Village scheme, mainly for household lighting
- Electricity for remote farms
- Use in high rise building



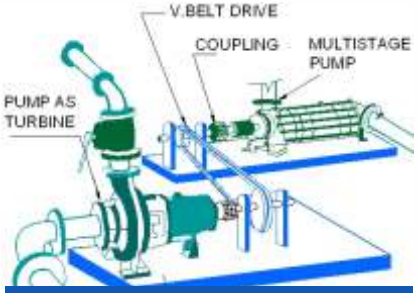
PICO

PUMP AS TURBINE (PAT) UPTO 100KW PER UNIT
AN INNOVATIVE SOLUTION

KBL offers a unique solution in the form of Pump As Turbine (PAT) for micro hydro power (up to 100 kW/Unit). Pump as turbine offers a distinct economical advantage combined with balance of ecology and protection of environment.

PAT is a centrifugal pump that operates in reverse mode as a turbine and works on the same principle as a Francis turbine. The energy is recovered from pressure differences (head); while flow is fed back into the existing system. Both, direct drives of machinery (e.g. a pump) and electricity generation (grid connected or isolated) or combination of both of these are possible using PAT just as with a conventional turbine.

To improve the accuracy of prediction, Kirloskar Brothers Limited have invested in testing and verifying results, using computational techniques for a large number of pumps of various capacities and specific speeds in turbine modes and have acquired the capabilities to offer PAT specific to needs of customers.



A Pump Driven by a PAT

Applications of Pump as Turbine (PAT)

The relative low cost PAT scheme allows to recover hydro potential in small streams/creaks, etc. to be recovered in distant mountainous areas effectively for:

- Small hamlet electrification
- Electrification of isolated tourist cottages, trekking camps etc.
- Driving agro-processing systems like rice husker, oil extraction units, grain pounding machine, floor mills etc.

In urban setting, applications of PAT are manifold, which include:

Domestic water supply systems:

- Damping excess pressure on the system
- Balancing of pressure in supply lines/ tanks at different elevation
- Pressure control /throttling in closed-loop systems
- Extraction of excess pressure at the outlet of a water supply line

Extraction of hydro energy from natural resources:

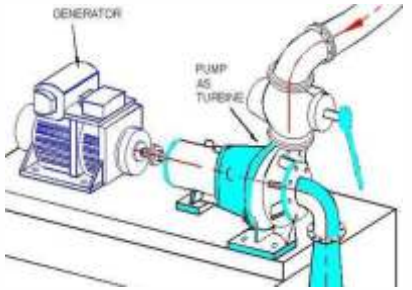
- Micro hydropower plants in natural streams in hilly areas
- Irrigation barrages/dams
- Drinking water supply schemes in hilly remote areas

Industrial Application:

- Pressure damping in cooling water circulation systems
- Reduction of process water pressure

Key Benefits – PAT

- Lower initial cost as it is a standard pump (almost half the cost of conventional hydro-turbine of equivalent size).
- Direct drive of machinery, electricity generation (in parallel to a large grid or isolated) or combinations of these is possible just as with a conventional turbine
- Off the Shell product, hence economic
- Simple and sturdy construction
- Easy maintenance as pumps has fewer parts than turbine
- No special equipment or skill is required for maintenance
- Spares are easily available



A Generator Driven by a PAT


Internal working of PAT


Actual Site Photo Of 40 kW Tansa Dam PAT Of MCGM Mumbai


Factory Test Set-Up For 1 x 65 kW PAT for Shatin WTP Hongkong

KBL - VALVES

KBL is one of the pioneers in manufacturing various types of valves in India for fluid handling. The KBL valve design is rigid & sturdy with lowest life cycle cost and low maintenance. Over the last six decades, performance of KBL valves is well known and established. KBL valves are suitable for various applications like water, waste water, raw water, steam, oil & gas, processed liquids and slurries. Our valve size range is from 25 mm to 5000 mm in various design standards and material constructions as per customer need/specifications.

Wide Range of Valves offered by KBL

- Butterfly Valves
- Sluice Valves
- Reflux Valves (Non Return Valves)
- Kinetic Air Valves
- Foot Valves
- Globe Valves
- Check Valves
- Dual Plate Check Valves
- Ball Valves
- Steam Trap Device

Typical Turbine Inlet Butterfly Valve

Double Flanged Short & Long Body Type

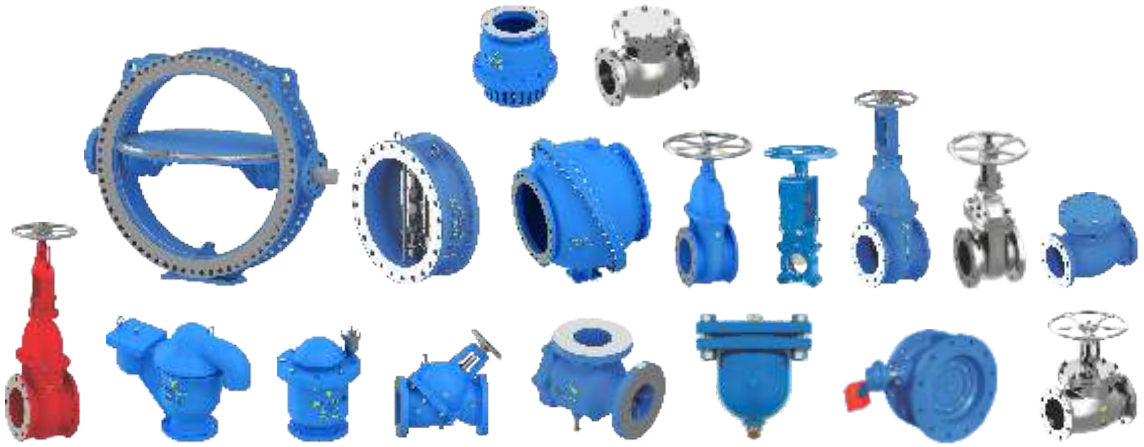
Widely used in hydro power plants, municipal corporations, water supply authorities, thermal power corporation, nuclear power corporation and other government and industrial users, these valves are designed as per latest editions of IS/BSEN/AWWA specifications.

Applications:

- Suitable for variety of liquids and gaseous media in water works, power plants, sewage plants, process industries, chemical and petrochemical plants for tight shut-off and control
- Ideally suited for isolating as well as throttling services

Special Features:

- Rigid and sturdy design with minimum loss of head across the valve
- Low operating torques
- Eccentric seat geometry results in less wear and tear and longer life
- Self-cleaning and non-jamming seat design
- Lattice (flow through) disc design in large size valves for low head loss



3800 mm Butterfly Valve,
Customer: JP Nigree

2100 mm Turbine Inlet Valve,
Customer: DLI Power India Ltd.

3000 mm Turbine Inlet Valve,
Customer: TNEB. India

200 mm Butterfly Valve,
Customer: Mazagon Dock, India

KBL - SUSTAINABILITY AND GROWTH INITIATIVE

Kirloskar Brothers Limited has established a sustainability management framework which focuses on key aspects of economic, environmental and social sustainability.

A sustainable organisation creates sustainable value for the six forms of capital (financial, human, manufactured, intellectual, natural and social). KBL is a part of integral reporting movement at a global level. Our company released its first integrated report in 2014 based on its integrated reporting frame work.

KBL acknowledges the global concern on climate change and recognises energy as one of the most important resources used in manufacturing and distribution. We monitor our environmental impact through measurement of important parameters related to use of resources such as energy, water and materials. KBL's manufacturing plants utilise renewable energy and 30% of the total electrical energy requirement is met through wind power. Our business sustainability is managed on the principles of triple bottom line.

Profit

Views of our stakeholders are gathered to identify and develop our business opportunities. Customer perception survey is being conducted at defined frequency to understand the needs and expectations of customers. As a responsible organization, KBL adheres to the highest compliance and anti-corruption policies and promotes integrity via training to all employees.

Planet

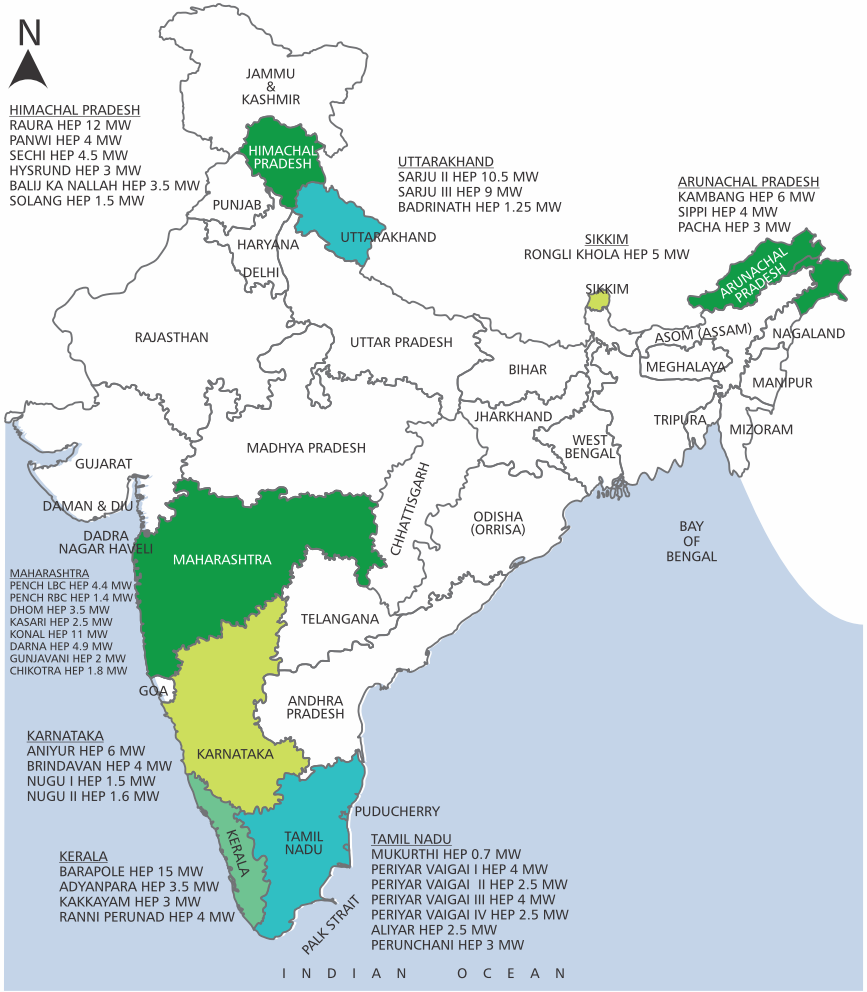
Initiatives were taken to minimise the environmental impacts of our own operations by applying environmental management programs. Our Energy Conservation Cell consisting team of Certified Energy Managers and Auditors carries out performance measurement of pumps & motors. This helps customers to reduce electricity consumption and improve over all energy performance.

People

The sustainable development of societies is encouraged and supported by conducting awareness programmes and creating employment opportunities. Our Corporate Social Responsibility (CSR) initiatives foster long-term relationships with local societies.

Safety is of prime importance to KBL. In addition to certifications like Occupational Health and Safety Assessment Series (OHSAS 18001), training programs are organized regularly for employees at our manufacturing plants, project sites and our offices.Kirloskar Brothers has adopted practices according to the SA 8000 guidelines and abides by the international standards and applicable labour laws as part of our commitment to provide a fair and humane environment to our stakeholders. Our corporate office and Kirloskarvadi, Dewas, Sanand and Kaniyur manufacturing plants have implemented these practices and our certified for SA 8000.

MARKET HIGHLIGHTS - INDIA AND ABROAD



MAJOR PROJECTS

Ankhe Kanak HEP, 2 X 6.5 MW, Vietnam

Konal HEP 2x5.5 MW, Maharashtra

Zho-suwei HEP, 1 X 3.607 MW, Taiwan

Periyar Vaigai - II HEP, 2 X 1.25 MW, Tamil Nadu

Ranni-Perunad HEP, 2 X 2 MW, Kerala

Pench RBC HEP, 2 X 0.7 MW, Maharashtra

Barapole HEP, 3 X 5 MW, Kerala

Adyanpara HEP, 2 X 1.5 MW + 1 X 0.5 MW, Kerala

Chikotra HEP, 1 X 1.8 MW, Maharashtra

Kasari HEP, 1 X 2.5 MW, Maharashtra

Dhom-Balkewadi HEP, 1 X 3.5 MW, Maharashtra

Periyar Vaigai - III HEP, 2 X 2 MW, Tamil Nadu

Darna HEP, 2 X 2 .45 MW, Maharashtra

Panwi HEP, 2 X 2 MW, Himachal Pradesh

Reference List of Hydroelectric Projects

Sr. No.	Name/Capacity of Project	Location (State)	Customer/Client	Type of Turbine	Commissioning Year
1	Mukurthy 2 x 350 kW) HEP	Tamil Nadu	Tamil Nadu State Electricity Board, Tamil Nadu, Chennai	Horizontal Francis	2000
2	Nugu-II (2 x750 kW) HEP	Karnataka	Kalson Power Tech Pvt. Ltd., Mumbai	Horizontal Francis	2002
3	Aliyar (2 x 1250 kW) HEP	Tamil Nadu	Tamil Nadu State Electricity Board, Tamil Nadu, Chennai	Horizontal Francis	2003
4	Solang (3 x 500 kW) HEP	Himachal Pradesh	A Power Himalayas Pvt. Ltd., Paonta Sahib	Horizontal Francis	2003
5	Badrinath (2 x 625 kW) HEP	Uttarakhand	Uttaranchal Jal Vidyut Nigam Ltd. Dehradun	Horizontal Francis	2004
6	Nugu-I (2 x 750 kW) HEP	Karnataka	Kalson Power Tech Pvt. Ltd., Mumbai	Horizontal Kaplan 'S' type	2004
7	Perunchani (2 x 650 kW) HEP	Tamil Nadu	Tamil Nadu State Electricity Board, Tamil Nadu, Chennai	Horizontal Kaplan 'S' type	2006
8	Kambang (2 x 2000 kW) HEP	Arunachal Pradesh	NHPC, Faridabad	Horizontal Francis	2008
9	Sippi (3 x 2000 kW) HEP	Arunachal Pradesh	NHPC, Faridabad	Horizontal Francis	2008
10	Aniyur (2 x 3000 kW) HEP	Karnataka	Prasanna Power Ltd., Bangalore	Horizontal Francis	2009
11	Pacha (2 x 1500 kW) HEP	Arunachal Pradesh	Nortech Power Projects, Kolkata.	Horizontal Francis	2009
12	Periyar Vaigai-I (2 x 2000 kW) HEP	Tamil Nadu	Tamil Nadu State Electricity Board, Tamil Nadu, Chennai	Horizontal Kaplan 'S' type	2010
13	Darna (2 x 2450 kW) HEP	Maharashtra	DLI Power India Pvt Ltd. Mumbai	Horizontal Kaplan 'S' type	2010
14	Konal (2 x 5500 kW) HEP	Maharashtra	Mahalaxmi Vidyut Pvt. Limite , Pune	Vertical Kaplan	2010
15	Rongli Khola (2 x 2500 kW) HEP	Sikkim	Nortech Power Projects, Kolkata	Horizontal Francis	2010
16	Brindavan (2 x 2000 kW) HEP	Karnataka	Atria Brindavan Power Limited Bangalore	Horizontal Kaplan 'S' type	2010
17	Zho Suwei (1 x 3607 kW) HEP	Taiwan	CHEM Taiwan	Vertical full Kaplan	2010
18	Periyar Vaigai-II (2 x 1250 kW) HEP	Tamil Nadu	Tamil Nadu State Electricity Board, Tamil Nadu, Chennai	Horizontal Kaplan 'S' type	2011
19	Dhom Balkewadi (1x 3500 kW) HEP	Maharashtra	Vishwaj Energy Pvt. Ltd, Pune	Vertical Francis	2011
20	Kasari (1 x 2500 kW) HEP	Maharashtra	Vishwaj Energy Pvt. Ltd Pune	Vertical Kaplan	2011

Sr. No.	Name/Capacity of Project	Location (State)	Customer/Client	Type of Turbine	Commissioning Year
21	Ranni Perunad (2 x 2000 kW) HEP	Kerala	Kerala State Electricity Board, Thiruvananthapuram	Horizontal Kaplan S' type	2012
22	Pench-RBC (2 x 700 kW) HEP	Maharashtra	SMS Vidyut Pvt. Ltd. Nagpur	Horizontal Kaplan 'S' type	2012
23	Balij-ka-Nala (2 x 1750 kW) HEP	Himachal Pradesh	Batot Hydro Pvt. Ltd. Mumbai	Horizontal Francis	2012
24	Sechi (2 x 2250 kW) HEP	Himachal Pradesh	Ascent Hydro Projects Ltd. Mumbai	Horizontal Francis	2012
25	Ankhe Kanak (2 x 6500 kW) HEP	Vietnam	Hydro Power Project Management Board, Vietnam	Vertical Kaplan	2012
26	Panwi (2 x 2000 kW) HEP	Himachal Pradesh	Ascent Hydro Projects Ltd. Mumbai	Horizontal Pelton	2013
27	Sarju-III (3 x 3000 kW) HEP	Uttarakhand	Uttar Bharat Hydro Power Limited Delhi	Horizontal Francis	2014
28	Periyar Vaigai-III (2 x 2000 kW) HEP	Tamil Nadu	Tamil Nadu Electricity Board, Chennai	Horizontal Kaplan 'S' type	2014
29	Pench-LBC (2 x 2000 kW) HEP	Maharashtra	SMS Vidhyut Pvt. Ltd., Maharashtra	Horizontal Kaplan 'S' type	2015
30	Adyanpara (2 x1500 kW+1x 500 kW) HEP	Kerala	Kerala State Electricity Board, Thiruvananthapuram	Horizontal Francis	2015
31	Periyar Vaigai-IV (2 x 1250 kW) HEP	Tamil Nadu	Tamil Nadu State Electricity Board, Tamil Nadu, Chennai	Horizontal Kaplan 'S' type	2016
32	Sarju-II (3 x 3500 kW) HEP	Uttarakhand	Uttar Bharat Hydro Power Limited, Delhi	Horizontal Francis	2016
33	Barapole (3 X 5000 kW) HEP	Kerala	Kerala State Electricity Board, Thiruvananthapuram	Horizontal Francis	2016
34	Kakkayam (2 x 1500 kW) HEP	Kerala	Kerala State Electricity Board, Thiruvananthapuram	Horizontal Kaplan 'S' type	2018
35	Chikotra (1 x 1800 kW) HEP	Maharashtra	Rohan Rajdeep Hydro Power Projects, Pune	Horizontal Francis	2017
36	Raura (3 X 4000 kW) HEP	Himachal Pradesh	DLI Power (India) Private Ltd. Pune	Horizontal Pelton	Under Execution
37	Hysrund (2 X 1500 kW) HEP	Himachal Pradesh	Nanal Hydro Power Consultancy Pvt. Ltd. Shimla	Horizontal Francis	Under Execution
38	Gunjavani (1 x 2000 kW) HEP	Maharashtra	Ashoka Sthapatya Pvt Ltd	Horizontal Francis	2018

Notes

Notes

Enriching Lives

KIRLOSKAR BROTHERS LIMITED

A Kirloskar Group Company

Established 1888

OUR COMPANIES

United Kingdom | U.S.A. | South Africa | India | The Netherlands

Global Headquarters: 'Yamuna', S.No. 98/3-7, Baner, Pune - 411045, India. Phone: +91-20-27214444 Email: marketing@kbl.co.in

Registered Office: Udyog Bhavan, Tilak Road, Pune - 411 002, India. Phone: +91-20-24440156 Fax: +91-24440156

SERVICE TOLL-FREE NO.: 1800 103 4443