Company Name: **KIRLOSKAR BROTHERS LIMITED**

Plant Name: **KIRLOSKAR BROTHERS LIMITED - DEWAS**

1. Company Profile:

Welcome to Total Fluidity Management: Kirloskar Brothers Limited (KBL) is one of the top pump manufacturing company with expertise in the engineering and manufacturing of fluid management systems. Established in 1888 and incorporated in 1920, KBL is the mother company of the Kirloskar Group. KBL provides complete fluid management solutions for large infrastructure projects in the areas of water supply, thermal power plants, irrigation, building & construction, oil & gas industry. KBL manufactures industrial, agriculture and domestic pumps, valves and hydro-turbines.

Where You Can Find Us: The dream has always been to help create a world without boundaries. Over the past 135 years, we have grown to support the needs of the domestic as well as global economy. Today, our presence stretches across 80 countries and 6 continents.

Web site address: www.kirloskarpumps.com

Plant Profile:

Kirloskar Brothers Limited, Dewas (M.P), established in 1962, is the company's first manufacturing facility exclusively intended for the production of agricultural, domestic and industrial pumps up to 30 HP. KBL's Dewas plant houses excellent design, development, manufacturing and testing facilities. The plant is the pioneer in introducing advanced technologies like CED coating, computerized testing setup and semi-mechanized assembly setup for pump manufacturing.

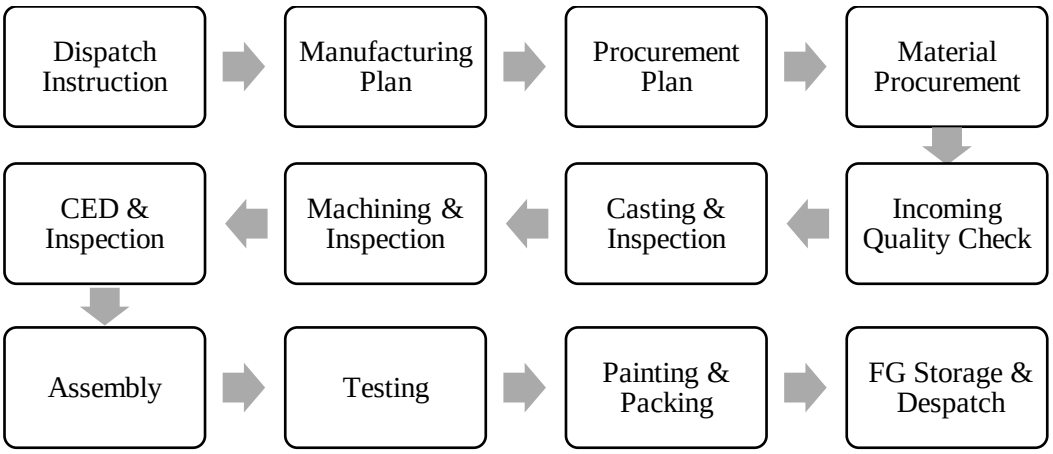
Technology : State of art manufacturing line, Embedded electronic motor for dual voltage, Solar Pumps, Mobile operated control panel, Dolphin package for pump selection, CED coating, Barcoding, web technology for supply chain, Wind-chill software, Electrostatic painting, latest version of CNC machines, automatic dynamic balancing, world class core making technology and multi stage molding technology, Spectromax & PMI for elemental testing, Tumb blast machine, Battery operated hand pallet trucks, Bio gas plant using waste of canteen etc.

Equipment: Powered semi-automatic assembly line, captive foundry, CNC machine shop, Dynamic balancing machines for impellers and rotors, hardware and software for design, DG set, ETP and STP, pump testing facility, material testing laboratory and standard room for calibration, multi cavity multi station cold box core shooter, Electro static painting booths for best in class product painting, air leak testing for mechanical seal, DNC software for electronic data storage, on line electrical testing, Shrink wrap packaging, 1 MW solar power generation power plant, Solar tubes in shop floor to improve lux level in working area.

Most of the KBL-Dewas products are ISI and BEE certified. The KBL-Dewas plant holds sustainability as a key business strategy. It abides by the Quality, Environment, Health & Safety, Energy and Social Accountability Management System certification. It is a zero-water discharge and water neutral organization. In fact, the Dewas plant is KBL's first Green Co. certified manufacturing facility.

Product (Pumps)	Application
Single Phase Monobloc	Used in domestic water supply, Gardening and small farm irrigation, Lawn sprinklers, Construction Sites.
Three Phase Monobloc	Air conditioning and refrigeration system, Cooling Towers, Irrigation in horticulture & agriculture, Water supplies for high rise buildings
Open Well Submersible	Submerged pump for clear water handling in fountains, well, sump & tank in domestic and industry.
Self-Priming (Coupled set)	De-watering, Swage pumping, Cooling water for marine engines and shovels,
Vacuum	Priming of large pump, Air & gas evacuation, Drying, Evaporation, Distillation, Filtration, Sterilization,

Production System:



Staff:

Manpower	Total	Male	Female	Ratio
Staff (A to H Band)	117	106	11	18:1
Associates	290	290	0	
GA/DA/DET/PGT/FTC	22	20	2	
Retainer	4	4	0	
Trade apprentice	5	5	0	
Floating manpower	206	201	5	
NAPS Trainee	200	174	26	
Stores Floating Manpower	49	46	3	
Total Manpower	893	846	47	

KBL Plant Operates in A Shift (07:00am – 03:30pm), B Shift (03:30pm – 12:00am), C Shift (12:00am – 07:00pm) and G Shift (08:30am – 05:15pm)

2. MILESTONES ON THE JOURNEY OF MANUFACTURING EXCELLENCE:

Kirloskar Brothers Limited management decided to adopt TPM as a strategic initiative. Considering business challenges like sustainable growth of revenue, market share, Cost competition with local players, Competition with new entrants (from overseas) in pumps business. Operational strategic challenges like capacity utilization and enhancement, developing flexible supply chain to compensate market fluctuations, Faster product development, Managing high product mix (variety) etc. Key Human resources strategic challenges like Employee Engagement, Multi skilled and technical competent workforce, Talent Retention, Aging workforce, changing needs of products and its quality and losses incurred in value chain, etc… KBL decided to adopt TPM as a strategic and plant wide initiative to come up with better competence and capabilities to overcome these challenges.

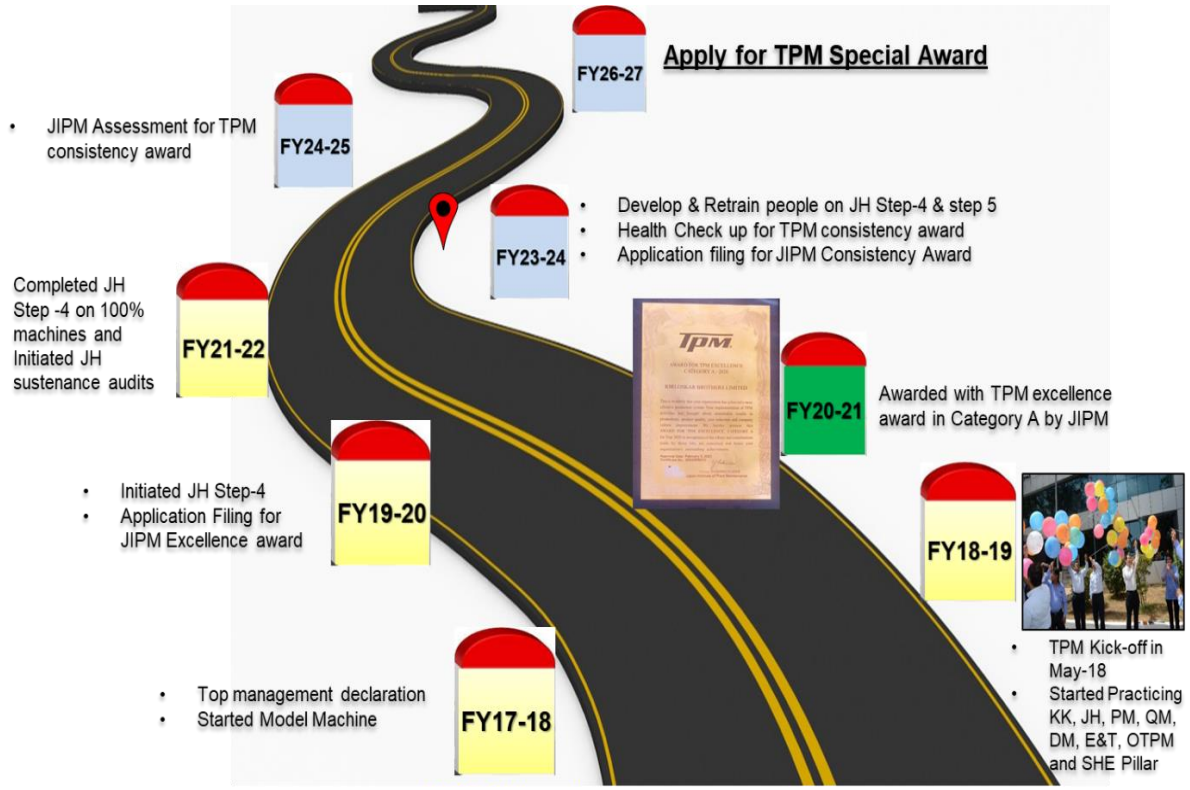
In FY2017-18 TPM implementation declaration was done by the Management. The success story of the Manager Model Machines developed enthusiasm among the employees and management decided to roll out the TPM initiative to the entire plant on 18th May 2018.

A steering team was made consisting of senior management from the Plant under the direction of Plant Head. Cross functional Project teams were made for each Pillar with Pillar heads. All Pillar team members, steering team and all senior managers were trained in TPM concepts and methodologies. We also developed key management indicators (KMI), Key performance indicators (KPI) and Key activity indicators (KAI) to monitor and measure the result of initiatives.

Systematic training is being conducted to enhance knowledge and practical skills, though a 10 days' TPM Instructors course and other training. Through the trained and certified instructors, all employees in the Plant and majority of employees in office were trained in TPM philosophy and techniques.

All 8 pillar i.e. Autonomous Maintenance, Focussed improvement, Plant Maintenance, Quality Maintenance, Training and Education, Early Product/Equipment Management, OTPM (SCM) and SHE Pillar have been deployed at Dewas plant and In the year 2020 plant challenge for TPM Excellence award and on 21st January 2021 received the award from JIPM.

Kirloskar Brothers Limited Dewas Plant – TPM Journey toward TPM Special Award



TPM – Only methodology believes *in 0/100 Philosophy*

3. BENEFITS ACHIEVED:

Through TPM implementation we achieved Tangible and intangible benefits. Some of the benefits are as below:

Tangible benefits: The improvements achieved were translated into clear business growth. Significant results could be achieved in the form of cell member productivity improvement, conversion cost reduction, OEE of Assembly lines, machine shop and foundry improved, Customer complaints reduction, assembly rejection reduction, supplier rejection reduction, machining rejection reduction, foundry breakdown reduction, Foundry MTTR reduction, Employee suggestions improved.

Intangible benefits: With the progress of TPM initiative, the machine operators started taking ownership of the machines and got deeply involved in day-to-day cleaning and maintenance activities. They actively got involved in analysis of machine breakdowns and implementing corrective actions. Keeping the machines tidy, improving unsafe conditions etc. Increase in confidence and competence of operators, Increasing the thinking capability of operators through small Kaizens and suggestions, better work environment and 5S leading to less chaos and improves engagement. Developing the culture of continuous improvement, we are marching towards achieving manufacturing excellence.

To improve the total employee involvement & promote TPM activities, management recognize & motivate the people who are actively contributing into the TPM implementation.

4. KEY OF OUR MANUFACTURING EXCELLENCE:

Aim of manufacturing excellence is to implement the best practices for improving key results in terms of PQCDSME. Kirloskar Brothers Limited involved all employees to work for manufacturing excellence. Continual improvement activities and periodic review of the results are enablers to meet the key strategies and Business parameters. Following are few highlights noted herewith:

- To become Agile for catering fluctuating customer demand at optimal cost.
- Developing manufacturing flexibility to further bring down manufacturing cost.
- Develop and maintain "I operate; I maintain" culture to achieve zero downtime of machines.
- Development of proactive approach to address break down and enhancing equipment life by working on natural detoriation.
- Developing behaviour based safety and other proactive measures to prevent accident, environmental incidences and improve hygiene.
- Strong condition base maintenance approach for enhancing equipment's reliability.
- Focus on improving knowledge and skill of people through competency development.
- Developing equipment competent operators and process competent operators.
- Emphasis on 5'S principal.
- Developing Suppliers – Delay and quality issues in bought out items are major challenges in our growth. Various actions are ongoing through Office and Quality Pillars.
- Low cost automation to eliminate losses in product realisation process
- Green energy focus through uses of renewal energy and improving Green Belt area.