

Vikram Woollens
(A Unit of Grasim Industries Ltd.,)

i) **UNIT PROFILE**

PART OF THE BILLION DOLLAR BIRLA GROUP

VIKRAM WOOLLENS (A Unit of Grasim Industries Ltd.) is a Unit of the highly diversified industrial conglomerate, Grasim Industries Limited, having its Regd. Office at Nagda, is a part of Asia's major commercial & industrial empire - The Aditya Birla Group, whose global presence includes over 100 manufacturing units world wide, in countries ranging from Thailand, Indonesia, Philippines & Malaysia to Egypt & U.K. besides trading organizations in all major international market places. Group turnover today stands at US \$ 4 Billion. The Group truly global presence is reflected in its multi-national network of manufacturing muscle, marketing flexibility, creativity & financial strength spanning business that include textiles, oil, tea, chemicals, cement & petrochemical

INDUSTRY MATRIX

RAYON GRADE PULP	ACRYLIC / VISCOSE STAPLE FIBRE	COTTON & SYNTHETICS WORSTED SPUN YARN	POLYESTER / NYLON FILAMENT YARN	CHEMICALS	HYDROGEN PEROXIDE
PALM OIL & OLIO CHEMICALS	PETROCHEMICALS	PHOSPHATES	CARBON BLACK	EPOXY RESINS	MINING MINERALS
FERRO ALLOYS	REFRACTORS	FERTILIZERS	DECORATIVE	TIMBER & PLYWOOD	RUBBER
TEA / COFFEE	TEXTILES	TYRES	SHIPPING	CEMENT	STEEL
ALUMINUM	INDUSTRIAL GAS	ELECTRIC EQUIPMENT	POWER GENERATION	ENGINEERING	PACKAGING
INTERNATIONAL TRADING	FINANCE	COMPUTER SOFTWARE SERVICES	SUGAR	PAPER	COPPER

ii) Energy Consumption

The Unit is highly energy intensive. The primary energy inputs are in the form of Power, Coal & HSD. The Company has got 2 Nos. HSD DG Sets of Cummins Make 1250 & 1000 KVA respectively along with this 2 Nos. Coal Fired Boilers with 3 & 6 TPH capacities. The annual energy bill is around Rs.4.00 Crore, which is Apx.13% of the total turnover of the company.

iii) Energy Conservation Commitment Policy & Set up

Due to depleting fuel resources Energy Conservation has become the need of the hour. A high degree of priority has been accorded by the Co.'s Chairman for implementation of Energy Saving proposal as one of the major areas of Cost Reduction. To achieve the Goal an Energy Conservation Cell has been formed headed by Engineering Dept. who closely monitors & controls energy consumption parameters, which are prepared regularly & analysed daily & monthly basis by EC Cell, Parta Dept. & forward to Unit Head in case of Block Sanction.

iv) Energy Conservation Achievement

v) Energy Conservation Plans & Targets

PROCESS FLOW CHART

Dye House:

We have Dye House having installed one of the best machines available in Textiles. The production capacity of D/H is 5 Tons/day

<u>SEQUENCE</u>	<u>OBJECTIVES</u>
GREY TOPS	POLYESTER OR WOOL TOPS
LOADING & UNLOADING	TO LOAD GREY TOPS & THEN PRESS IN THE CARRIER
HT/HP DYEING	TO COLOUR THE FIBRES IN TOP FORM
CLEANING/ SOAPING	TO REMOVE SUPERFICIAL DYES & CHEMICALS
HYDRO EXTRACTION	TO REMOVE EXCESS WATER OF WET DYED TOPS
R.F. DRYER	TO DRY THE WET DYED TOPS
GO-DOWN	

Spinning:

We have installed about 8832 Spindles in our Plant. We produce Top Dyed Worsted Yarn in 100% Wool as well as Blends of Polyester & Wool.

<u>SEQUENCE</u>	<u>OBJECTIVES</u>
RAW MATERIAL (IN TOP FORM)	GREY OR DYED TOPS
DEFELTING	BLENDING OF POLY, WOOL OR VISCOSE IN REQUIRED PROPORTION
BLENDING	DOUBLING, DRAFTING & HOMOGENIZATION OF BLENDS OPENING OF FIBRES
BI-COILER GILLING	REMOVE UNEVENNESS BY DOUBLING & MAKE SLIVER READY FOR COMBING
COMBING	REMOVAL OF NEPS, SHORT FIBRES & OTHER IMPURITIES FROM SLIVER
POST-COMB 1 ST PASSAGE	STRAIGHTENING OF FIBRES BY DRAFTING & IMPROVEMENT OF SLIVER
POST-COMB 2 ND PASSAGE (1 ST A/L)	TO IMPROVE SLIVER EVENNESS
POST COMB 3 RD PASSAGE (2 ND A/L)	TO IMPROVE SLIVER EVENNESS

**POST COMB 4TH
PASSAGE (REDUCER)**

SLIVER ATTENUATION

FINISHER

FINAL SLIVER OF REQUIRED LINER DENSITY

RUBBING

SLIVER TO RUBBING ROVE BY IMPOSING FALSE TWIST

RING SPINNING

ROVING TO YARN BY DRAFTING, TWISTING AND WINDING

YARN STEAMING

TO SET THE LIVELINESS OF TWIST

MACHCONER

TO REMOVE OBJECTIONABLE YARN FAULTS

CHEESE WINDING

DOUBLING & WINDING OF YARN

TFO TWISTING

TWISTING & WINDING TO MAKE FINAL YARN PACKAGES

FINAL YARN STEAMING

TWIST SETTING OF DOUBLE TWISTED YARN

PACKING

TO CHECK THE PACKAGES PACKED INTO CARTON

BRIEF WRITE UP OF UNIT:

VIKRAM WOOLLENS, A Worsted Spinning Plant, set up with a State-of-the-Art Technology in the year 1995 with an installed capacity of 8832 Spindles specifically for captive consumption of Weaving Division at Gwalior. The Unit commenced production in Nov.'95. Unit is fully equipped to produce "Quality Worsted Yarn" in different Counts & Blends of Wool, Polyester & Viscose.

PHOTOGRAPHS DEPICTING EQUIPMENT/LOCATIONS WHERE ENERGY EFFICIENCY ACTIVITIES HAVE BEEN UNDERTAKEN:

- 1) To use "Aerofoil Design Blades" for supply and return fan in "Humidification" plant:
- a) **Background of the Project:** In our L.T.G. Humidification Plant we had aluminum blades
 - b) **Observation:** It was observed that the power consumption was more (even at minimum angle) with these blades as compared to FRP blades
 - c) **Technical and Financial Analysis:** Changed aluminum blades with new FRP blades with investment of Rs.5.00 Lac resulting in saving of Rs. 20.00 Lac/yr.
 - d) **Implementation:** The project was completed within a week's time with a study of 15 days & taking 18% power gain.

BEFORE



AFTER



2) Rationalize the capacity of soft water pump by providing high efficiency pump which transfers water from underground tank to overhead tank via softener also optimized 3" pipe line size for transferring water from underground tank to softener:

- a) **Background of the Project:** We were using 15 H.P pump-motor & efficiency was not good enough
- b) **Observation:** It was observed that the power consumption was more compared to its output. Hence changed the pump with new high efficiency and increased the capacity and lowered the power consumption (7.5 H.P) with same output
- c) **Technical and Financial Analysis:** Changed the old pump with high efficiency pump by investing Rs.2.50 Lac and saving of about Rs.2.15 Lac/yr.
- d) **Implementation:** Implemented the project in 2 days time with slight modification in pipeline



3. Optimize the power of pump for transferring water from equalization tank to biological reactor by trimming two impellers by 15% & 10% respectively
- a) **Background of the Project:** We were having pumps, which were not transferring water as per the requirement due to which more working hours were required to meet the needs
 - b) **Observation:** After observing the impeller it was found that the impellers needs trimming by 15% & 10% so that its capacity can be increased
 - c) **Technical and Financial Analysis:** Did the modification in the existing impeller with zero investment and achieving saving of about Rs. 0.80 Lac/ yr.
 - d) **Implementation:** After study of 5 days the project was implemented in 2 days.

BEFORE



AFTER



4. Rationalize the capacity and power of boiler feed water pump for 3 TPH Boiler by using Grundfos pump:
- a) **Background of the Project:** Earlier we had the pump of 10 H.P capacity as a feed water pump to boiler
 - b) **Observation:** After careful observation of the process it was found beneficial to change this high power pump with more efficient and less power consuming Grundfos pump

- c) **Technical and Financial Analysis:** The old pump was replaced by investing Rs.0.40 Lac and gain saving of Rs.0.61 Lac/yr.
- d) **Implementation:** After careful study for 4 days the project was completed in a day's time.



6) To provide Variable Frequency Drive for cheese winding main motor:

- a) **Background of the Project:** Earlier the motor was coupled to the shaft through pulley and belt and also there was no precise way of changing the speed it required
- b) **Observation:** It was continuously observed that there was a wear and tear of belts and switch-gear and was very time consuming to change the speed of the motor. Hence modification was done by directly coupling the shaft to the motor and providing the VFD for precise speed control
- c) **Technical and Financial Analysis:** The saving has been achieved in energy as well as raw material and maintenance cost. The investment of Rs 0.50 Lac/ yr has been made with an overall saving of Rs.0.72 Lac/yr

d) **Implementation:** The project had been implemented in 2 days.

BEFORE



AFTER



d) **Implementation:** After careful study project have been completed successfully in Week's time.



9) MDI control through preset limit control:

- a) **Background of the Project:** Sometimes the demand of power raised above expectation which was necessary to control by providing some controlling parameter
- b) **Observation:** One demand controller was placed on line to trip some non-critical load of the plant as the level is raised above the preset value limiting the demand as well as power consumption.
- c) **Technical and Financial Analysis:** The “Enercon” made demand meter was placed online limiting the demand & power consumption to only a specified limit.
- d) **Implementation:** After careful study the meter was placed and the non-critical area of the plant to be tripped was decided.



10) Placing Pressure reducing valve in airline:

- a) **Background of the Project:** Compressed air was used to clean the machine at different places.
- b) **Observation:** Compressed air at 6 kg pressure was not recommended for the cleaning of any machine.
- c) **Technical and Financial Analysis:** We have provided Pressure regulating Valves at all the places where we have given the outlet of air for the cleaning of machines
- d) **Implementation:** After procurement of PRV,s we have provided with in a day



