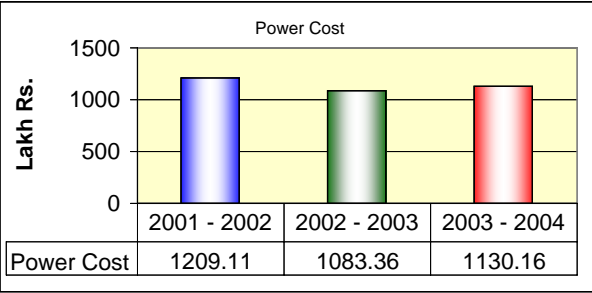
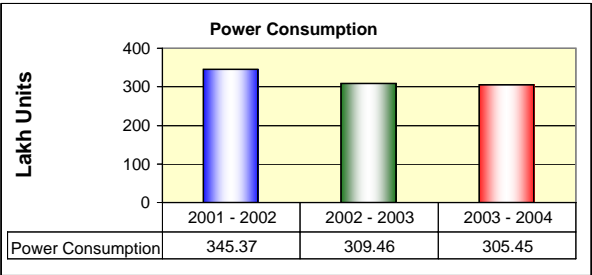
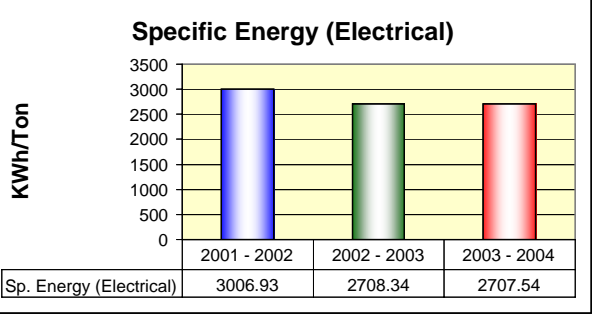
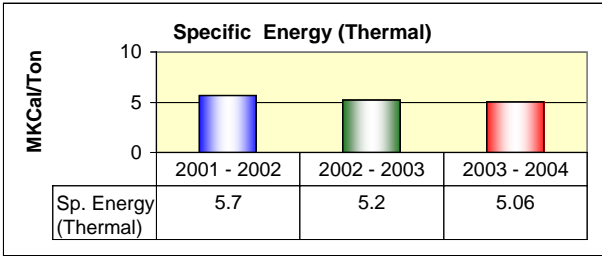


Power Consumption	2001 - 2002 345.37	2002 - 2003 309.46	2003 - 2004 305.45
Power Cost	2001 - 2002 1209.11	2002 - 2003 1083.36	2003 - 2004 1130.16



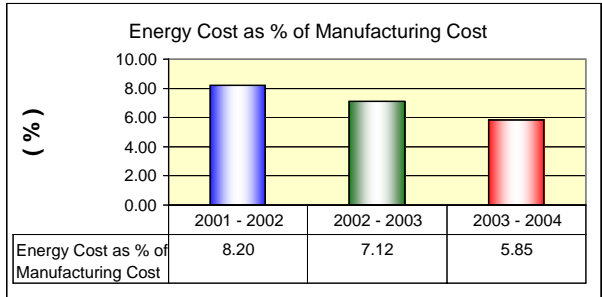
Sp. Energy Consumption	2001 - 2002 3006.93	2002 - 2003 2708.34	2003 - 2004 2707.54
Sp. Energy (Electrical)	2001 - 2002 5.7	2002 - 2003 5.2	2003 - 2004 5.06





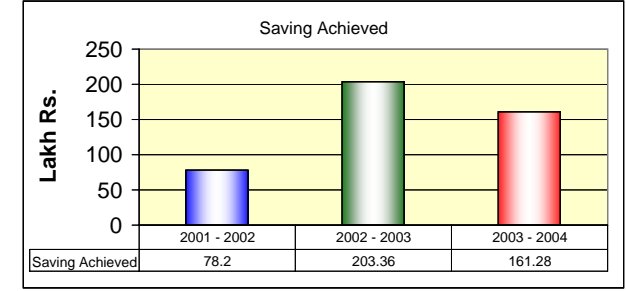
Energy Cost as % of Manufacturing Cost

	2001 - 2002	2002 - 2003	2003 - 2004
	8.20	7.12	5.85



Saving Achieved

	2001 - 2002	2002 - 2003	2003 - 2004
	78.2	203.36	161.28

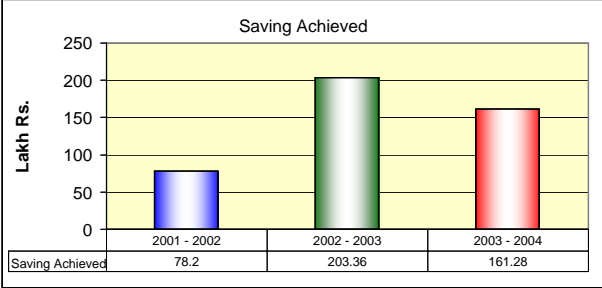


ENERGY CONSUMPTION :

DESCRIPTION	2001 - 2002	2002 - 2003	2003 - 2004
Electrical Energy	345.38	309.46	305.45
Thermal Energy	43914.41	41105.79	38046.00
Total Energy Bill	1201.74	1077.05	**1208.19
Energy as % of Mfg. Cost	8.20%	7.12%	5.85%

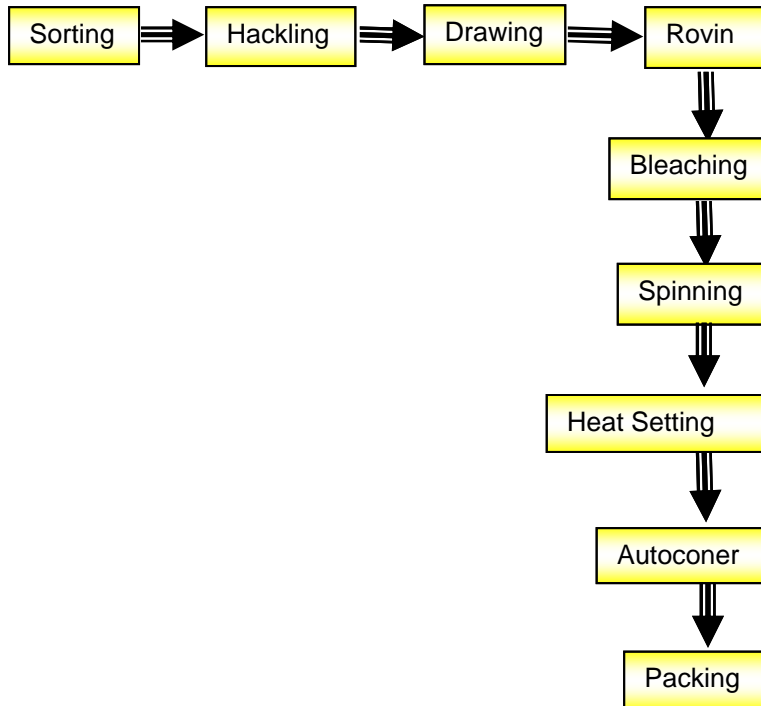
Thermal Cost (Coal + F.O)

	2001 - 2002	2002 - 2003	2003 - 2004
	78.2	167.08	148.45

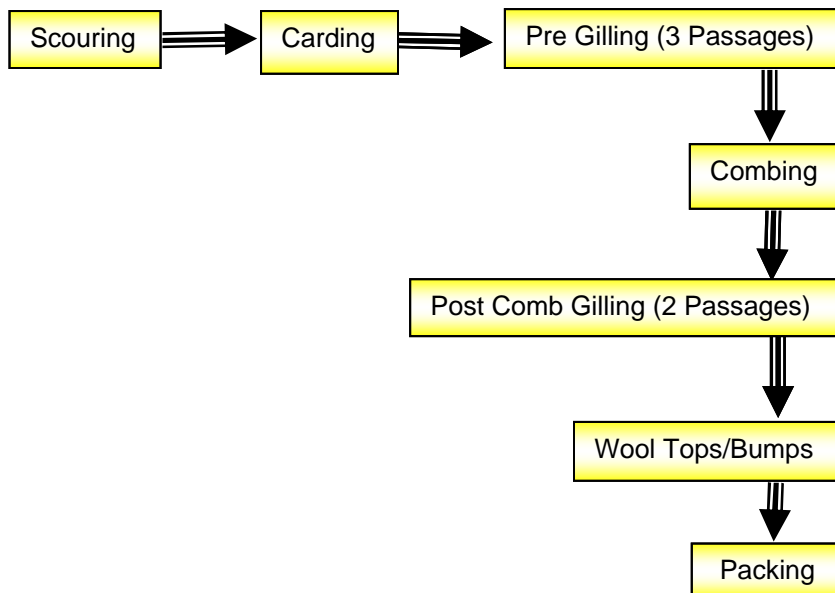


SIMPLE SCHEMATIC DIAGRAM OF PRODUCTION PROCESS

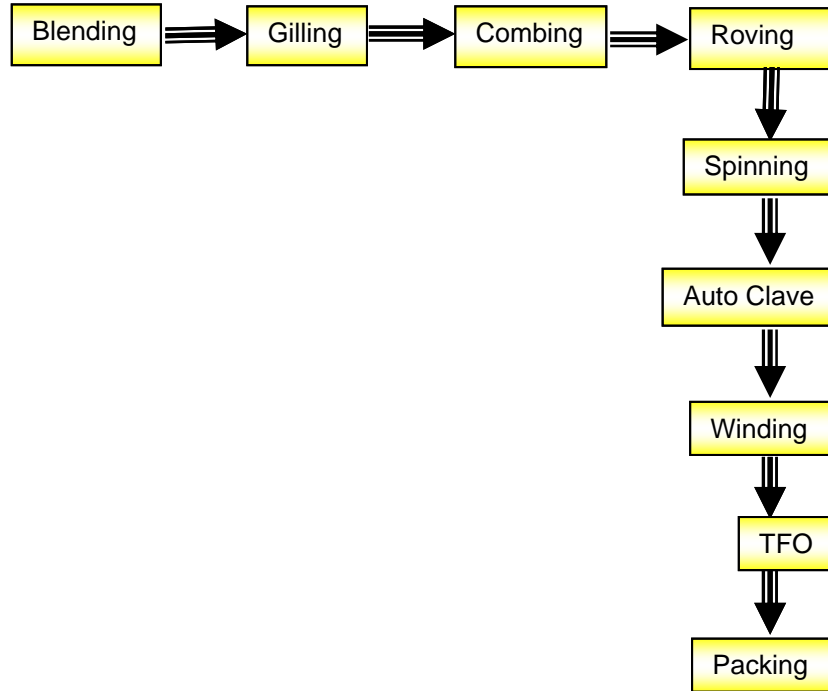
PRODUCT GROUP : FLAX SPINNING



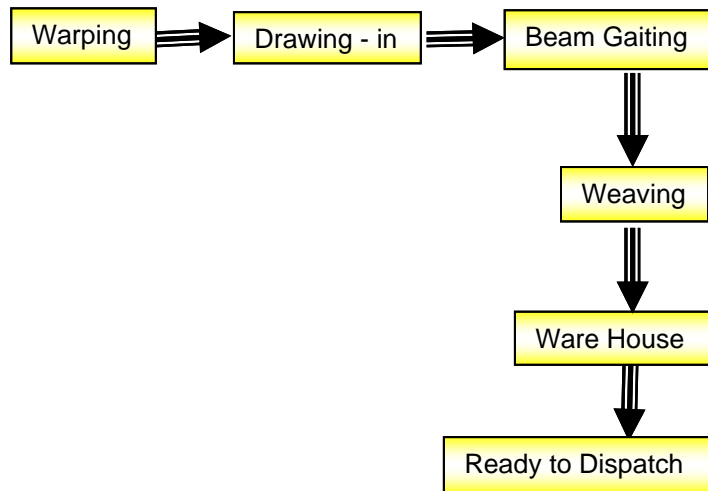
PRODUCT GROUP : WOOL COMBING



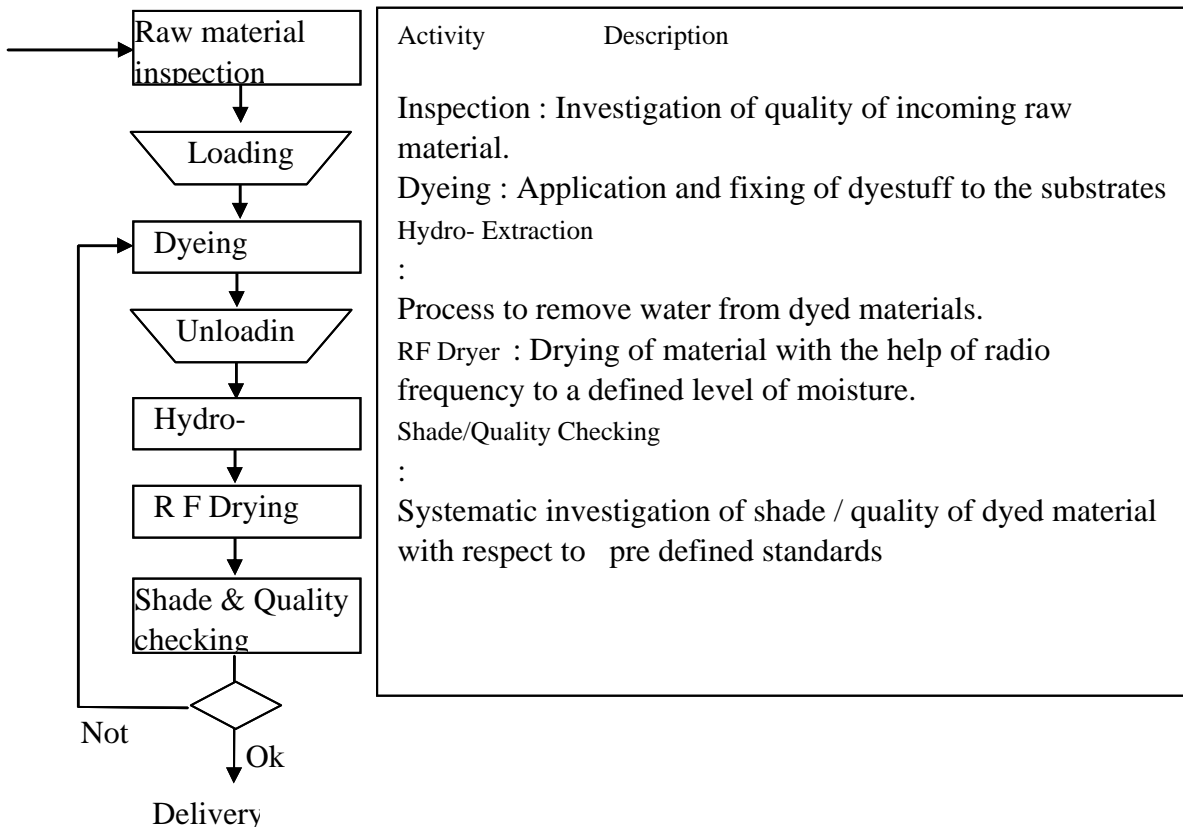
PRODUCT GROUP : WORSTED SPINNING



PRODUCT GROUP : Weaving



Process flow chart: Fiber/yarn dyeing



1. To reduce the compressed air consumption in Flax and Wool Combing division with line modification and stopped one compressor GA - 45 Model.

- a] **Back ground of the project:** As we were running Five numbers of air compressor for different application in the department for low and high pressure requirement.
- b] **Observation:** It is observed that compressor air as well as power consumption is more due to common line of low and high pressure.
- c] **Technical and Financial analysis:** Segregated the high pressure and low pressure air line. Proper setting of switches are done and variable speed drives are provided.
Power saving is 4.00lacs Units/year resulting saving of Rs. 14.81 Lacs per year with an investment of Rs. 4.50Lacs/year.
- d] **Implementation:** The project is completed in 48 days.

2. Installation of Inverters in return fan of LTG (France) humidification Tower LDM 100 & 50.

- a] **Back ground of the project:** All the supply and return fans were running continuously at 50HZ for maintaining the relative humidity and temperature of the Flax lines department.
- b] **Observation:** Due to continuous running of fans we were not able to take the benefit of seasonable variation and day - night temperature and Relative Humidity % variation.
- c] **Technical and Financial analysis:** Fitted variable speed drives and as per requirement R.H% and temperature maintaining the speed of the fans. Resulting saving of 3.43lacs Units and in term of Rs. 12.70lacs/year with an investment of Rs. 8.40lacs only.
- d] **Implementation:** The project is implemented and getting benefits.

3. Replace the existing fan blades with high efficiency energy saver solid F.R.P blades in Flax.

- a] **Back ground of the project:** In our humidification fans and cooling towers fans we were having old fan blades and hubs..
- b] **Observation:** It is observed that power consumption is more, so we have replaced with high efficiency FRP fans in 17 numbers.
- c] **Technical and Financial analysis:** Changed FRP fans which results in saving of 2950 Units/day and saving of Rs 10.63 lacs/year. The investment for the same is Rs. 5.10 lacs.
- d] **Implementation:** The project is completed after complete study of one month.

4. In place of 30H.P motor, use of 10H.P motor for water spray in LTG Tower in LDM -50 & 100 each.

- a] **Back ground of the project:** In LTG humidification Tower there was pump with motor for spraying the water 30H.P Capacity.
- b] **Observation:** It is observed that smaller size of pump with lower head and flow will suitable.
- c] **Technical and Financial analysis:** After proper selection of head and flow, replaced this pump with 10 H.P high efficiency pump. The cost involved is Rs. 0.35 lacs results in saving of Rs. 1.68 lacs/year against 0.45 lacs units.
- d] **Implementation:** Pump is running successfully..

5. Replaced the old low efficiency pump with motor by high efficiency pump motor.

- a] **Back ground of the project:** In our humidification system 12 nos. of pumps were of different over rating size of low efficiency old pump.
- b] **Observation:** Replaced all these pumps with high efficiency pump 80%.
- c] **Technical and Financial analysis:** Cost involved is Rs. 3.10 lacs where as saving of 0.95lacs units and in Rs. term of money is Rs.3.50 lacs/year.

d] Implementation: Pump is running successfully..

6. Fitted V.F.D 04 nos. in wool combing Humidification Tower no. 02 & 03.

- a] Back ground of the project: All the supply and return fans were running continuously at 50HZ for maintaining the relative humidity and temperature of the Flax lines department.
- b] Observation: Due to continuous running of fans we were not able to take the benefit of seasonable variation
- c] Technical and Financial analysis: Fitted variable speed drives and as per requirement R.H% and temperature maintaining the speed of the fans. Results saving of Rs.0.71lacs units and in term of money Rs.2.65 lacs/year with an investment of Rs. 3.56lacs only.
- d] Implementation: The project is implemented and getting benefits.

7. Installation of solid blade Energy Saving fans in WSM (19 fans).

- a] Back ground of the project: In our humidification fans and cooling towers fans we were having old fan blades and hubs..
- b] Observation: It is observed that power consumption is more, so we have replaced with high efficiency FRP fans in 17 numbers.
- c] Technical and Financial analysis: Changed FRP fans which results in saving of 2950 Units/day and saving of Rs 8.75 lacs/year. The investment for the same is Rs. 5.70 lacs.
- d] Implementation: The project is completed after complete study of one month.

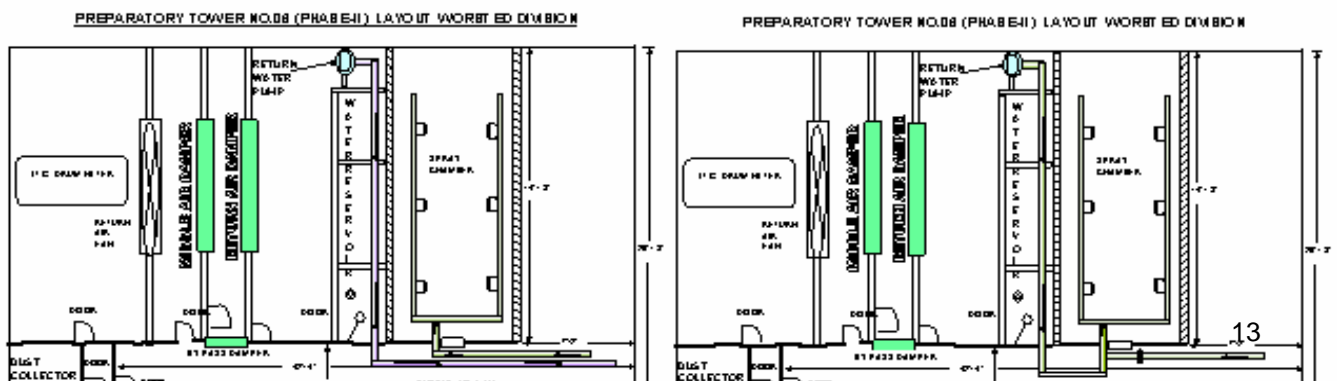
8. Stopped one rotary air filter of third phase Humidification tower & replace the motor from 30H.P to 15H.P.

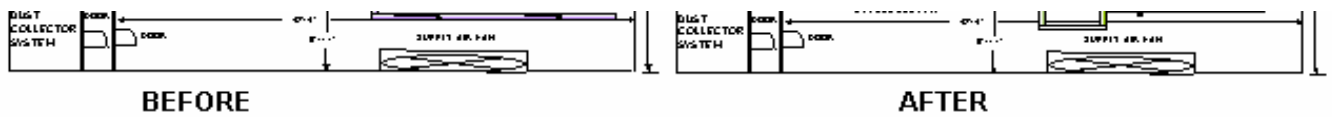
- a] Back ground of the project: Humidification Tower in worsted plant preparatory section was having two nos. of Rotary air filter.
- b] Observation: After installation of variable speed drive we found that capacity of the filter is over size and we can stop one rotary air filter.
- c] Technical and Financial analysis: We had stopped one rotary air filter and reduced the motor size of waste collector from 30H.P to 15H.P per day power saving is 151 units results in saving of Rs. 2.02 lacs/year with an investment of Rs. 0.25 lacs. Maintenance cost of filter is also reduced.

d] Implementation: The project was implemented within 20 days.

9. Stopped the water spray pump of 20H.P in preparatory Tower phase - II and use the return pump as pump also.

- a] Back ground of the project: Humidification system of preparatory section there was one spray pump of 20 H.P and one 10H.P pump for returning the spray water.
- b] Observation: We have started to use the return water pump as water spray pump with some pipe modification .
- c] Technical and Financial analysis: We have found saving of 131 units/day. It was found that by replacing the pump we have got annual saving of Rs. 1.71 lacs. The investment made was only Rs. 0.10 lacs. an investment of Rs. 0.25 lacs. Maintenance cost of filter is also reduced.





d] **Implementation:** The project was implemented within 3 days and after we have observed the condition.

10. Fitted inverters in pumps of Humidification Tower no. 1 & 2 (Dyed Ring Frame area) & Tower no. 07 Ring Frame.

- a] **Back ground of the project:** Pumps of spinning area in worsted plant was running directly and it was difficult to control the relative humidity.
- b] **Observation:** It was found that for controlling relative humidity we use to throttle the valve.
- c] **Technical and Financial analysis:** In place of throttling the valve we have installed the variable speed drive and reduced the speed of pump. We have got the saving of 0.35lacs units and in term of money is Rs. 1.29 lacs/year against the investment of Rs. 3.3 lacs/year.
- d] **Implementation:** The project was implemented within two months..

11. Stopped one Transformer of 2500kVA in Worsted Spinning Mill.

- a] **Back ground of the project:** As we are having 2500kVA two numbers & 2000kVA one number Transformer all the three transformers were running at 50% loading.
- b] **Observation:** In winter we have found that due to stoppage of chiller plant and running the fans at lower speed loading used to come down further.
- c] **Technical and Financial analysis:** We stopped one 2500kVA Transformer results in saving of Rs. 2.15 lacs /year.
- d] **Implementation:** Stopping it 8 months.

12. Replaced the old pump 03 nos. of air compressor from 7.5kW to 3.7kW and selected with proper head, flow and better efficiency.

- a] **Back ground of the project:** Our air compressor in worsted plant is water cooled, for this we were running the pumps.
- b] **Observation:** We have found that these pumps are very old and of lower efficiency.
- c] **Technical and Financial analysis:** We have replaced the pumps from 7.5kW to 3.7kW and selected the pumps with proper flow and head. Results is saving of Rs. 2.08 lacs/year with an investment of Rs. 0.78 lacs only. The unit saved is 0.56lacs units.

BEFORE (25.01.04)

COMPRESSOR NO.1 (OLD PUMP)				
	VOLT	AMP.	KW	P.F
R	407	13.1	7.04	0.79
Y	405	13.6	7.34	0.83
B	407	12.5	7.23	0.83
			7.20	

COMPRESSOR NO.3 (OLD PUMP)				
	VOLT	AMP.	KW	P.F
R	408	12.1	7.07	0.83
Y	403	11.9	7.11	0.86
B	402	12.9	7.18	0.86
			7.12	

AFTER (16.02.04)

COMPRESSOR NO.1 (NEW PUMP)				
	VOLT	AMP.	KW	P.F
R	410	4.49	1.97	0.62
Y	414	4.75	2.27	0.67
B	413	4.29	2.00	0.65
			2.08	

COMPRESSOR NO.3 (NEW PUMP)				
	VOLT	AMP.	KW	P.F
R	410	5.04	1.95	0.54
Y	414	4.97	1.93	0.54
B	411	5.01	1.92	0.55
			1.93	

Difference of KW = 5.12KW

Difference of KW = 5.19KW

SAVING OF UNITS/DAY = 156 UNITS/DAY
SAVING IN RS. = 2.08LACS/YR.

d] **Implementation:** Completed the project in two months and found better working of the compressor.

13. Connected variable speed drives in humidification Tower no. 8 of phase II, winding section.

- a] **Back ground of the project:** These fans of 30kW X04 no. were running continuously although we were using chilled water and our system in Humidification tower was damper operated.
- b] **Observation:** We observed that in this case we are wasting the power as when Relative Humidity % is as per our requirement, dampers used to open and close.
- c] **Technical and Financial analysis:** We have changed the system in place of controlling the damper, we have started to reduce the speed of the fan. Results in saving of 803 Units/day yearly and in term of money is Rs. 10.66 lacs/year against investment of Rs. 6.2lacs only.
- d] **Implementation:** Completed the project within three months.

14. Stopped 1000kVA Transformer in Flax division.

- a] **Back ground of the project:** As we are having 2500kVA two numbers & 2000kVA one number Transformer all the three transformers were running at 50% loading.
- b] **Observation:** In winter we have found that due to stoppage of chiller plant and running the fans at lower speed loading used to come down further.
- c] **Technical and Financial analysis:** We stopped one 2500kVA Transformer results in saving of Rs. 4.32 lacs /year.
- d] **Implementation:** Stopping it 8 months.

15. Duct modification in the LTG Tower LDM - 100 (six nos.) and control the speed with V.F drives of fans.

- a] **Back ground of the project:** LTG Tower LDM - 100 six nos. of duct was for sucking the air from Floor of Return Air Trench.
- b] **Observation:** It is observed that there more bends in the ducting due to which air flow was getting restricted and for this we used to run the fans of Humidification Towers at higher speed.
- c] **Technical and Financial analysis:** Modified the ducting which results increases in air flow and saving of power consumption by 1.08lacs units. Per year saving is Rs. 4.03 lacs with an investment of Rs. 0.40 . lacs only.

BEFORE



Bends in the Ducting of Tower

AFTER



Modification in the Ducting of Tower

- d] **Implementation:** Time taken for completing this project is 2 to 5 months.

16. Modification in the pneumafil suction box with duct and impeller of motor of Textool Ring Frame in 08 no. of machines.

- a] **Back ground of the project:** In our Textool spinning machines we were having two separate pneumafil box for each side of the machine with two separate attachment of motor and fan.
- b] **Observation:** We thought that in place of two separate more bends pneumafil duct, if we will have one pneumafil attachment with changed impeller, suction will be more and power consumption will be less.
- c] **Technical and Financial analysis:** Modified the ducting and now we have got increase in suction and getting per day saving of 396 units/day. Yearly saving is Rs. 5.30 lacs with an investment of Rs. 2.80lacs.

BEFORE



Double duct in Ring Frame Machine

AFTER



Single duct in Ring Frame Machine



d] **Implementation:** Modification done and found increase in suction & saving of Electrical Energy. This project completed in 3 months.

17. Replacement of Two numbers of 100TR inefficient Air Conditioning machine(Trane Make) with new 175TR Blue Star York Screw make.

a] **Back ground of the project:** In our Flax division, there was two numbers of 100TR A.C Plant of old Model 1981 - 1982 and it was consuming more power.

b] **Observation:** Replaced old 100TR Air Conditioning plant with two separate compressor 175TR Air Condition machine and we found that in place of running two 100TR. Only one compressor of 90TR is sufficient.

c] **Technical and Financial analysis:** In old machines Kw/TR was 1.20 where as in new machine screw chiller it is 0.72kW/TR. We are saving of Rs. 7.99 lacs/year with an investment of Rs. 24.5lacs.

d] **Implementation:** Completed in 04 months of time and reduce the power consumption.

18. Autoclave area exhaust fan interconnected with machine as when door will open then exhaust fan will start.

a] **Back ground of the project:** For material conditioning, there are three autoclaves which are steam operating and there were three exhaust fans.

b] **Observation:** We observe that exhaust fans are running continuously, due to which conditioning of the packing area was deteriorating and also there was wastage of power.

c] **Technical and Financial analysis:** We have interconnected the exhaust fan with the machine as when gate of the conditioning machine will open then exhaust fan will run other wise all the time exhaust fan will be stopped. Saving per year is Rs. 0.63lacs/year with an investment of Rs. 0.03lacs only. The unit saved is 0.17lacs units.

d] **Implementation:** Completed within three days of time.

19. Stopped one 20H.P Air Blower in Flax Auto winding area and three pedestral fan has been provided.

a] **Back ground of the project:** Flax division auto winding area for cooling purpose 20H.P fan was running continuously.

b] **Observation:** We have stopped the fan and provided three nos. pedestral fan.

c] **Technical and Financial analysis:** Got the annual saving of Rs. 1.73 lacs with an investment of Rs. 0.04 lacs only. The unit saved is 0.47lacs units per year.

d] **Implementation:** After observation completed the work within three days.

20. Removed Tubelights from worsted department 82 nos. after proper lighting arrangement.

a] **Back ground of the project:** There was extra Tube lights in the preparatory section of worsted plant and wool combing department.

b] **Observation:** We re adjusted the tubelights, so that on the creel we require less lights and on the delivery zone more lights accordingly we have adjusted.

c] **Technical and Financial analysis:** After re-adjustment we have removed 82 nos. of Tubelights and found annual saving of Rs. 1.05 lacs. Investment was only Rs. 0.05 lacs. The units saved is 0.28lacs units/year.

d] **Implementation:** Completed the project within 15 days.

21. Street light automation factory and staff quarter side.

a] **Back ground of the project:** There was manual operation of street light of factory and staff quarter.

b] **Observation:** We did in automation in place of manual operation.

c] **Technical and Financial analysis:** Provided the photo cell which results in annual saving of Rs. 0.15lacs with an investment of Rs. 0.20lacs. The units saved is 0.04lacs units per year.

d] **Implementation:** Completed the project within three months.

22. To reduce the compressed air consumption in WSM, installed Humidifier for packing and Conditioning area.

a] **Back ground of the project:** We require to maintain the relative humidity in packing of material area.

b] **Observation:** For maintaining the relative humidity we were spraying the compressed air with water due to compressed air consumption was more.

c] **Technical and Financial analysis:** We have provided humidifier 3 sets which results in our compressor

started loading and unloading. We did the investment of Rs. 1.61 lacs where as saving is Rs. 2.18lacs/yr. The unit saved is 0.59 lac units per year.

d] **Implementation:** Completed in 2 - 3 months.

23. Solar water heating system in canteen in place of oil fired heater for boiling water.

a] **Back ground of the project:** Actually the consumption of boiled water in the canteen is 300litre per day.

b] **Observation:** It is observed that to boil the 300litre water there is require of 5 litre of H.S.D.

c] **Technical and Financial analysis:** So, we have installed the solar heating system in place of oil fired oven and there is saving of 05 litre of oil daily and thus it results to saving of Rs.0.31 lacs/year with an investment of Rs. 0.24lacs/year.



Solar System installed above Canteen.



MAJOR PROJECTS OF 2003 - 2004

1. To reduce the compressed air consumption in Flax and Wool Combing division with line modification and stopped one compressor GA - 45 Model.

- a] **Back ground of the project:** As we were running Five numbers of air compressor for different application in the department for low and high pressure requirement.
- b] **Observation:** It is observed that compressor air as well as power consumption is more due to common line of low and high pressure.
- c] **Technical and Financial analysis:** Segregated the high pressure and low pressure air line. Proper setting of switches are done and variable speed drives are provided.
Power saving is 4.00lacs Units/year resulting saving of Rs. 14.81 Lacs per year with an investment of Rs. 4.50Lacs/year.
- d] **Implementation:** The project is completed in 48 days.

2. Installation of Inverters in return fan of LTG (France) humidification Tower LDM 100 & 50.

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- b] **Observation:** Due to continuous running of fans we were not able to take the benefit of seasonable variation and day - night temperature and Relative Humidity % variation.
- c] **Technical and Financial analysis:** Fitted variable speed drives and as per requirement R.H% and temperature maintaining the speed of the fans. Resulting saving of 3.43lacs Units and in term of Rs. 12.70lacs/year with an investment of Rs. 8.40lacs only.
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3. Replace the existing fan blades with high efficiency energy saver solid F.R.P blades in Flax.

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- c] **Technical and Financial analysis:** Changed FRP fans which results in saving of 2950 Units/day and saving of Rs 10.63 lacs/year. The investment for the same is Rs. 5.10 lacs.
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- b] **Observation:** It is observed that power consumption is more, so we have replaced with high efficiency FRP fans in 17 numbers.
- c] **Technical and Financial analysis:** Changed FRP fans which results in saving of 2950 Units/day and saving of Rs 8.75 lacs/year. The investment for the same is Rs. 5.70 lacs.
- d] **Implementation:** The project is completed after complete study of one month.

5. Fitted V.F.D 04 nos. in wool combing Humidification Tower no. 02 & 03.

- a] **Back ground of the project:** All the supply and return fans were running continuously at 50HZ for maintaining the relative humidity and temperature of the Flax lines department.
- b] **Observation:** Due to continuous running of fans we were not able to take the benefit of seasonable variation
- c] **Technical and Financial analysis:** Fitted variable speed drives and as per requirement R.H% and temperature maintaining the speed of the fans. Results saving of Rs.0.71lacs units and in term of money Rs.2.65 lacs/ year with an investment of Rs. 3.56lacs only.
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9. Modification in the pneumafil suction box with duct and impeller of motor of Textool Ring Frame in 08 no. of machines.

- a] **Back ground of the project:** In our Textool spinning machines we were having two separate pneumafil box for each side of the machine with two separate attachment of motor and fan.
- b] **Observation:** We thought that in place of two separate more bends pneumafil duct, if we will have one pneumafil attachment with changed impeller, suction will be more and power consumption will be less.
- c] **Technical and Financial analysis:** Modified the ducting and now we have got increase in suction and getting per day saving of 396 units/day. Yearly saving is Rs. 5.30 lacs with an investment of Rs. 2.80lacs.
- d] **Implementation:** Modification done and found increase in suction & saving of Electrical Energy. This project completed in 3 months.

10. Replacement of Two numbers of 100TR inefficient Air Conditioning machine(Trane Make) with new 175TR Blue Star York Screw make.

- a] **Back ground of the project:** In our Flax division, there was two numbers of 100TR A.C Plant of old Model 1981 - 1982 and it was consuming more power.
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- c] **Technical and Financial analysis:** In old machines Kw/TR was 1.20 where as in new machine screw chiller it is 0.72kW/TR. We are saving of Rs. 7.99 lacs/year with an investment of Rs. 24.5lacs.
- d] **Implementation:** Completed in 04 months of time and reduce the power consumption.