

BILT- Shree Gopal, Yamunanagar

(i) Unit Profile

Ballarpur Industries Limited (BILT) is the flag ship company of the reputed Thapar Group of Industries and acknowledged as leaders in pulp & paper industry comprising of six Pulp / Paper mills and contributes 15% of country's overall paper production, with manufacturing 60% of country's value added and specialty paper. BILT- Unit Shree Gopal, Yamunanagar is producing paper at 129% of its capacity utilization.

BILT-SGU like any other paper industry is highly energy intensive. Company's commitment to manage its energy resources in an efficient manner, beginning at the highest level, is a prerequisite to its success and have been regular recipient of prestigious National Energy Conservation Award by Govt. of India for past many years. By and large all the thrust for energy efficiency in the industry comes from the top management with identification and implementation comes from the respective departments and supported by Energy Cell.

Since 1985 Energy Conservation Cell has been set up with full time dedicated Energy Manager working in coordination with other departments to study the impact and formulate the energy objectives with performance direction and time target.

(ii) Energy Consumption -

BILT-SGU like any other paper industry is highly energy intensive. The policy makers of the company have given high degree of priority for energy Conservation. As a result the implementation of various energy Conservation measures is an ongoing practice and there is steady decline of specific energy consumption.

Year	Unit Sp. Energy Consumption* (As worked out above)	
	*Kwh/tonne	*Million K Cal/ tonne
2001-2002	2061	11.42
2002-2003	1843	10.77
2003-2004	1780.7	10.96

(iii) Energy Conservation Commitment, Policy and Set up

Committed to conserve energy and understanding the benefits of energy management, energy management has been integrated into the overall management structure of the

organization.

Since 1985 Energy Conservation Core Team headed by full time Energy Manager, works independently. Dedicated two member strong team is working full time to study the impacts and formulate the energy objectives with performance direction and time target.

The core team structure is as follows:

- ✓ Manager – Electrical :Head – Energy Conservation,
B.E. (Electrical)
- ✓ Executive – Energy : M.Tech (Energy Management)

To support the core team, three sub teams at departmental level are also constituted. These sub teams periodically meet the core team for review, brainstorming for new ideas and implement identified energy saving ideas.

Energy performance meetings are held daily, weekly and on monthly basis by top management.

Energy policy has been declared as public expression of organization's commitment to energy management and also as working document to guide energy management practices and to provide continuity in the unit.

(iv) Energy Conservation Achievements –

During past three year more than 100 energy conservation projects have been undertaken. Two energy efficiency case studies implemented in the plant are presented here:

CASE STUDY I:

Shut down two KVM-900 Vacuum pump in PM-IV

On our paper machine no. IV, On Vac. Zone comprising of suction Press and Uhle boxes, 2 nos. KVM 900 Vac. Pumps with motor rated 110 KW each & 1 No. KVM 1800 Vac. Pump with motor rated 200 KW were being operated. In stage 1, after overhauling of KVM 1800 & KVM 900 Vac. Pump, Vac. Level has improved and now one no. KVM 900 Vac. Pump is shut resulting in saving of 99.00 KW.

In second stage, RPM of running KVM 1800 Vac. Pump was increased from 280 RPM to 320 RPM which has increased vac. Availability to the system which has enabled shutting of second KVM 900 Vac. Pump resulting in savings of 80.00 KWH.

The details of vac. Requirement on different zones of machines, vac. Pump capacity and connection diagram are given in next sheet.

CASE STUDY II

Installation of Disc Saveall in PM-4

New poly disc filter has been installed on PM-IV to recover fiber from backwater collected from wire / couch pit. Apart from fiber recovery, water to tune of 75 M3/hour is being recycled back into the dilution system of the machine. The filter was installed at a cost of Rs. 70.00 Lacs.

CASE STUDY III

Power consumption at PM-4 after installation of new drive with fan pump VFD is same as old drive with out Fan Pump.

On PM-IV, we had old obsolete sectional drive arrangement having single analogue converter generating common DC voltage. The section draw was created by weakening field of respective DC motors by resistance control method, which was inefficient way of speed control resulting in huge heat losses.

For fan pump, constant speed AC induction motor was used with delivery valve control-to-control lead box level, which again was resulting in power loss across delivery valve.

We have now installed new state of the art sectional digital DC drives with digital VFD for fan pump motor speed control at investment of 56.40 Lacs.

Now power consumption for DC drives system and VFD is same as that of old drive system but excluding fan pump power. The net power savings is 30.00 KW and with better speed regulation and less time for machine set up, production has gone up from 70 TPD to 80 TPD.

CASE STUDY IV

Shutting of reciprocating air compressor.

For Powerhouse, three nos. of lubricated, reciprocating air compressors rated 500 CFM with 75 KW motors and another two nos. lubricated reciprocating air compressors rated 100 CFM are with 22 KW motor installed. Out of this two 500 CFM & two 100 CFM compressors are running continuously. By optimizing RPM of compressors and overhauling of each compressors where all the suction / delivery valves / air filter were changed, plugging air leakages, one 500 CFM & one 100 CFM Air Compressors are totally shut Resulting in saving of Rs. 7.12 Lacs / Annum.

(v) Energy Conservation Plans and Targets

The mill is committed to further improve its energy performance by finding out new avenues on continuous basis. The mill is working on following major proposals as a part of its future plans for energy conservation:

1. Replacement of energy inefficient pumps with energy efficient pump in phased manner.
2. Replacement of energy inefficient motor with energy efficient motor in phased manner.
3. Improvement of boiler efficiency with procurement of online oxygen analyzer.
4. Installation of Variable frequency drive on identified pumps in the mill.
5. Installation of energy efficient lighting to replace conventional lighting.
6. Measures for fibre recovery and back water usage.

(vi) Environment and Safety

The Unit is committed to preserve its environment and safety of its employees. As company is very conscious about the environment and safety in the factory, the latest environmental protection system with respect to air, water, noise and solid waste pollutants have been provided and these aspects are given top priority by the management.

The company has installed full fledged Effluent Treatment Plant and norms achieved are well below those specified by State Pollution Board.

We also have installed Electrostatic Precipitator on our 3 no. High Pressure Coal Fired Boilers, One no. Medium Pressure Boiler and 2 no. Chemical Recovery Boiler.

During the year 2003-04 we have successfully commissioned Lime Sludge burning Kiln along with ESP at an investment of Rs. 300.00 Lacs, which will reduce quantity of solid waste to be disposed from 100 TPD to 10 TPD only.

During the year 2004-05, following are lined up for commissioning.

- a. **New Electrostatic Precipitator from Thermax at a cost of Rs. 150.00 Lacs for ABL Recovery Boiler to bring down air emission from 150 mg/NM³ to 100 mg/NM³.**
- b. **Up gradation of JMW Recovery Boiler ESP to bring down air emission to 150 mg/ NM³ in first phase and to 100 mg/NM³ in second phase.**

Above three amply illustrates commitment towards environment by minimizing solid , liquid and gaseous wastages.

SGU has separate environmental cell of qualified engineers and scientists. Environmental Management System under ISO 14001 has been initiated and process of ISO14001 certification is under implementation stage.

Company has also full-fledged safety department to look after the safety of plants and the employees. To ensure participation from all quarters regular training programmes, slogan and sketches competition are conducted, safety day is celebrated with great enthusiasm. Safety committee meeting conducted every month.

For ensuring safety company has a committee which takes following measures on regular basis:

- ❑ Safety Audit.
- ❑ Health checks of employees.
- ❑ Monitoring of Work Permit System
- ❑ On site emergency plans.
- ❑ Drill and demonstrations.
- ❑ House keeping and safety.

Safety meetings are held once a fortnight with members covering all process & engineering functions taking active parts. Safety concerns are discussed and all efforts made to take corrective action before next meeting.

Shutting of 2nos.KVM900 vac. Pumps at PM4

Installed capacity of vacuum pumps

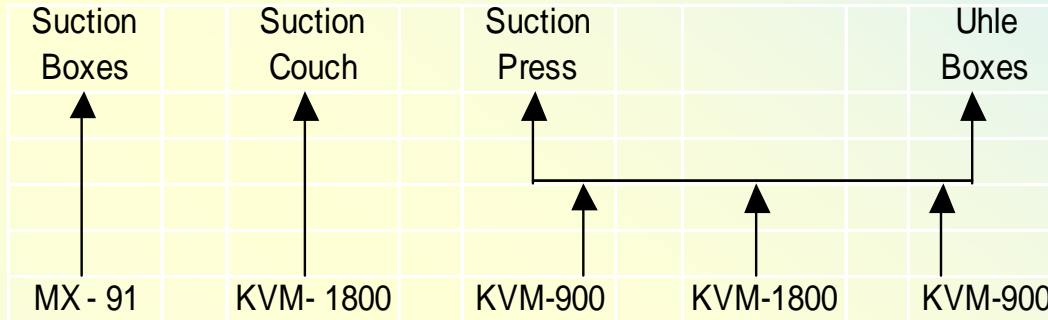
Pump Model	Design Pump Capacity			Pump Running		Available Vac.	Motor	RPM	Motor
	Volume	Head	RPM	RPM	KW		AMP.		
	cu.mtr / hr. mm								
KVM - 1800	10260	400	330	320	8800	250	1000	305	
KVM - 1800	10260	400	330	280	8460	200	750	280	
KVM - 900	4800	400	450	436	4600	132	1500	170	
KVM - 900	4800	400	450	428	4550	93	750	164	

Vacuum requirement at m/c

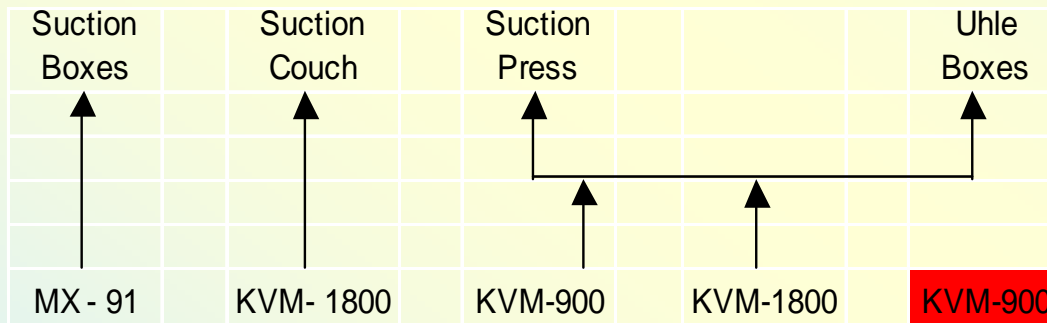
Formula for				
Volume required = 900 cu. Mtr / hr X length of box (mtrs) per 4" box width.				
	Vacuum Box		Vacuum required	
	Width	Length	Volume	Head
	inch.	mtr.	. Mtr / hr.	mm
Suction Couch	7	3.4	5355	400
Suction Press	3.5	3.4	2677	400
Uhle Box (Two Nos)	1	3.5	788	250

Shutting of 2nos.KVM900 vac. Pumps at PM4

Vacuum Pump Setup April – 04 (Before action)



Vacuum Pump Setup May – 04 after shutdown of KVM-900 Pump - I

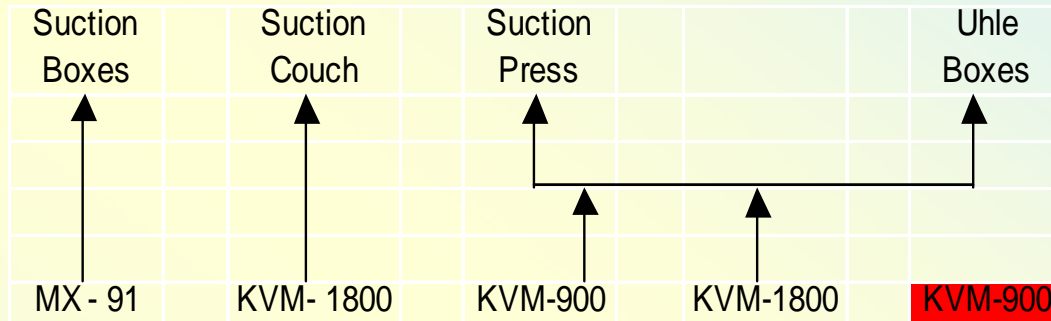


Savings After Action I :- 99 KWH

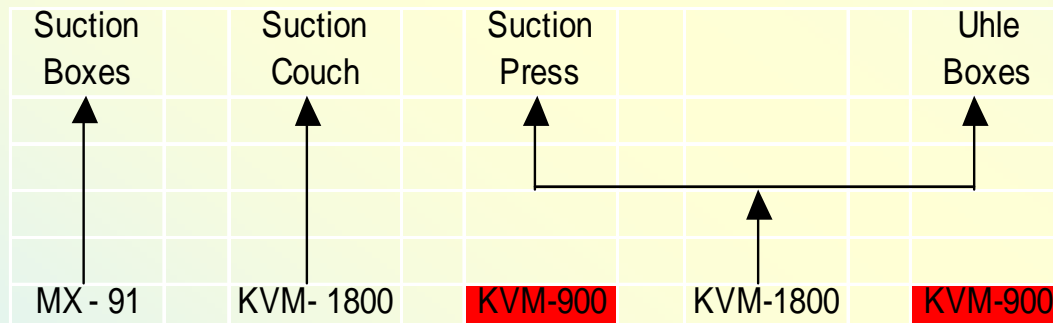
Net saving :- 33 KWH / Ton of Paper

Shutting of 2nos.KVM900 vac. Pumps at PM4

Vacuum Pump Setup May – 04 after shutdown of KVM-900 Pump - I



Vacuum Pump Setup June – 04 after shutdown of KVM-900 Pump - II



Savings after Action II :- 98 KWH

Load increase in KVM-1800 :- 18 KWH

Net saving :- 26.66 KWH / Ton of Paper