

Bajaj Auto Limited Aurangabad

Unit Profile :

Bajaj auto limited, Waluj, Aurangabad, is a division of Bajaj Auto Limited, Pune, a flagship company of Bajaj Group. Bajaj Group was formed by Mr. Jamanalal Bajaj in 1929. Bajaj Auto Limited, Pune started scooter production in 1960. As an expansion plan, Bajaj Auto Limited, Waluj Plant is started in 1985. In 1999, a State of Art Plant was started at Chakan.

Objectives of Bajaj Auto Limited are to cater the market needs of transportation by providing 2 wheeler and 3 wheeler vehicles. BALW has been producing the catalogue products to cater to the changing market requirements. Based on the customer feedback, improvements are being made continuously in the existing products. In the process of introducing new products, emission requirements are being taken into consideration and products manufactured are meeting the regulatory requirements.

The site of BAL-W is located in MIDC Waluj area.

Bajaj Auto Limited, is an ISO-9001 company, having ISO-9001 (2000) Quality Management certification.

A constant watch is kept on the technological developments taking place in the areas of energy reduction, waste reduction and pollution prevention. Environment Management System is integral part of overall management systems at BALW. ISO 14001 certification was awarded to BAL-W in 1997.

Bajaj Auto has resolutely engaged in a process of fundamental change. This has involved changes in the organizational structure; in product and models; in the approach to markets and consumer preferences, in R&D engineering, product design and speed to market; in rationalizing of cost; and in a complete overhaul of the way in which Bajaj Auto do business. This change process is now optimized by Bajaj Auto's new corporate identity.

SHE Policy and TPM Policy are guidelines for our working. Photographs of the same are attached. (For readability, the said policies are reproduced as it is).

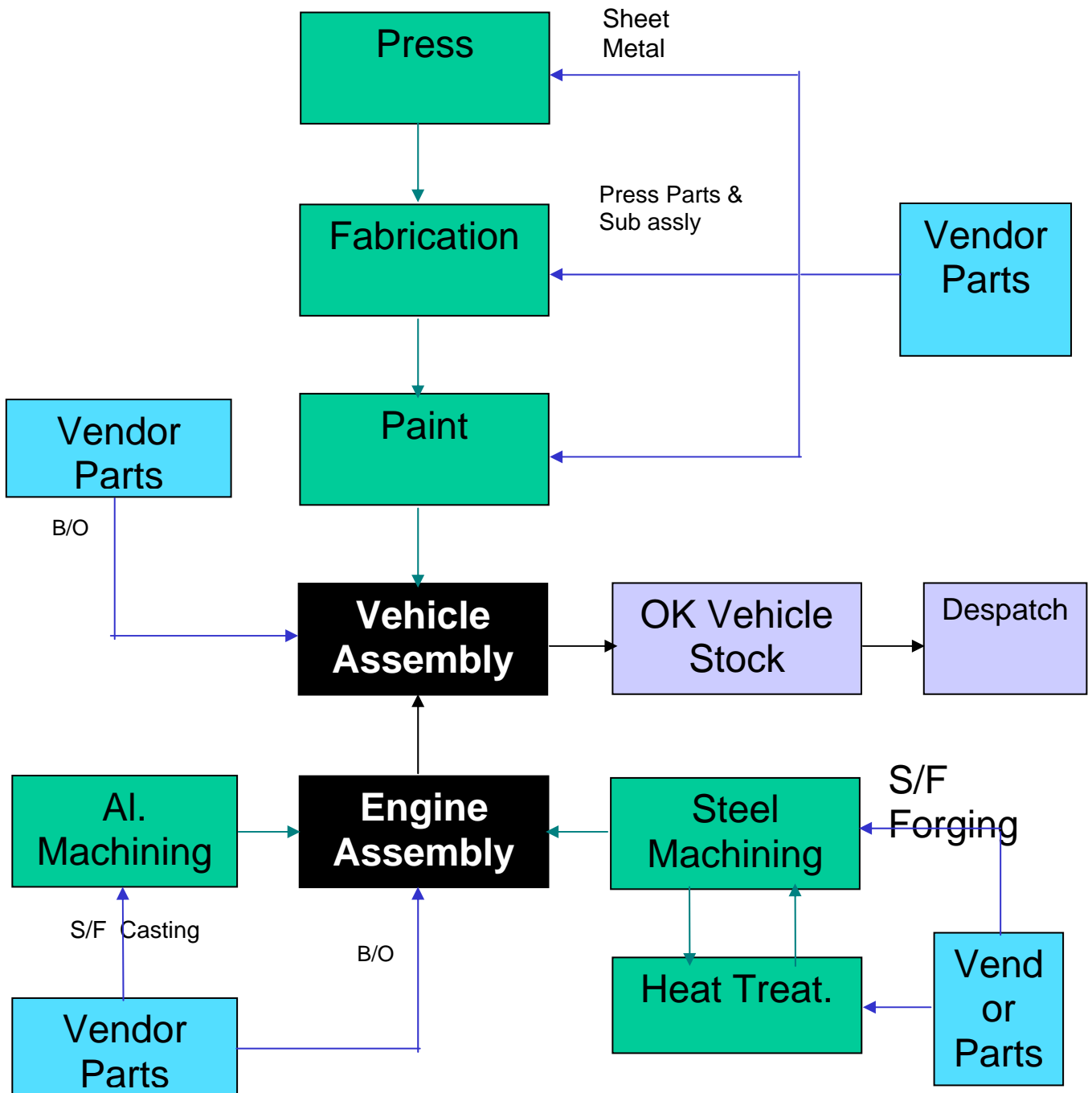
Manufacturing Process

The industrial complex of Bajaj Auto Limited-Waluj is spread over an area of 906 acres. The manufacturing activity consists of manufacturing motorized 2-wheelers, 3-wheelers & parts thereof and also machine tools required for captive consumption. The scooter plant was started in 1985 and other plants were started subsequently.

The manufacturing process for 2-wheelers and 3-wheelers as well as machine building is basically metal cutting and metal forming. The basic raw materials are steel and aluminium. Surface treatment processes like heat treatment, painting and electroplating are carried out in the factory.

Flow Chart of Manufacturing Process is depicted on next page.

Manufacturing Process :



Energy Conservation : Method and working at BALW

Top Management Committee fixes Corporate Objective for Energy every year by comparing performance with National / International Benchmark and targeting for higher achievement. The main objective is to operate most Cost Effective, Energy Efficient and Environment friendly Plant. Continuous Improvement in Working and close monitoring through Energy Management System is carried out.

Energy audit and efficiency assessment is built-in Quality, Environment and TPM Policies.

Awareness of Energy Conservation of all levels is reflected in continuous reduction of conversion cost of the vehicles produced year to year.

Some of the activities are

- Technological upgradation - Usage of Flexible Machining Centers instead of Special Purpose Machines.
- Implementation of Streamline Manufacturing Systems. Re-organization of Machines/ Process as per Product Layout.
- Single Digit time in Minutes for Change of Dies/ Tool. Compactness in Working area
- Reduction in rejection less than 1000 PPM (Parts Per Million) and aiming for 'ZERO' PPM.
- Nurturing of 'Right First time Ok' culture.
- Increase in Productivity of the workmen.
- Improvement in Processes and working methods.
- Utilization of Idle time.
- Minimization of Losses by TPM.
- Introduction of Direct on Line of material and elimination of stores.

The Energy conservation team/cell holds posters competition on Energy & Water Conservation for all employees. This percolates the Energy saving aspects to workmen level. Awareness level of conservation of energy amongst employee is very high.

System Followed is :

- Through the systems of Kaizens, TPM Circle/Quality Circles & suggestions, Energy saving proposals are received.
- Economics & Technical Feasibility is studied by experts for above received proposals for implementation.
- Every department set objectives against environment management plan yearly to conserve Natural resources.
- Targets are set for Conservation of Natural resources.
- Posters are displayed at work places on awareness of conservation of Energy.
- Sharing of information through Intra-net among our other plants & horizontal deployment.

ENERGY CONSERVATION CELL

Sr. Officer of the company is identified as in charge / co-coordinator for energy conservation objectives set by the company for past years

We have designated Energy Manager for :

Carrying out activities for efficient use of Energy and its conservation

To comply with energy consumption norms and standards set by bureau of energy efficiency & national productivity council.

To take measures necessary to create awareness & disseminate information for efficient use of energy & its conservation.

Organize training of personnel & specialists in the techniques for efficient use of energy & its conservation

To take professional steps to use energy efficient equipments.

RESPONSIBILITIES OF ENERGY MANAGER

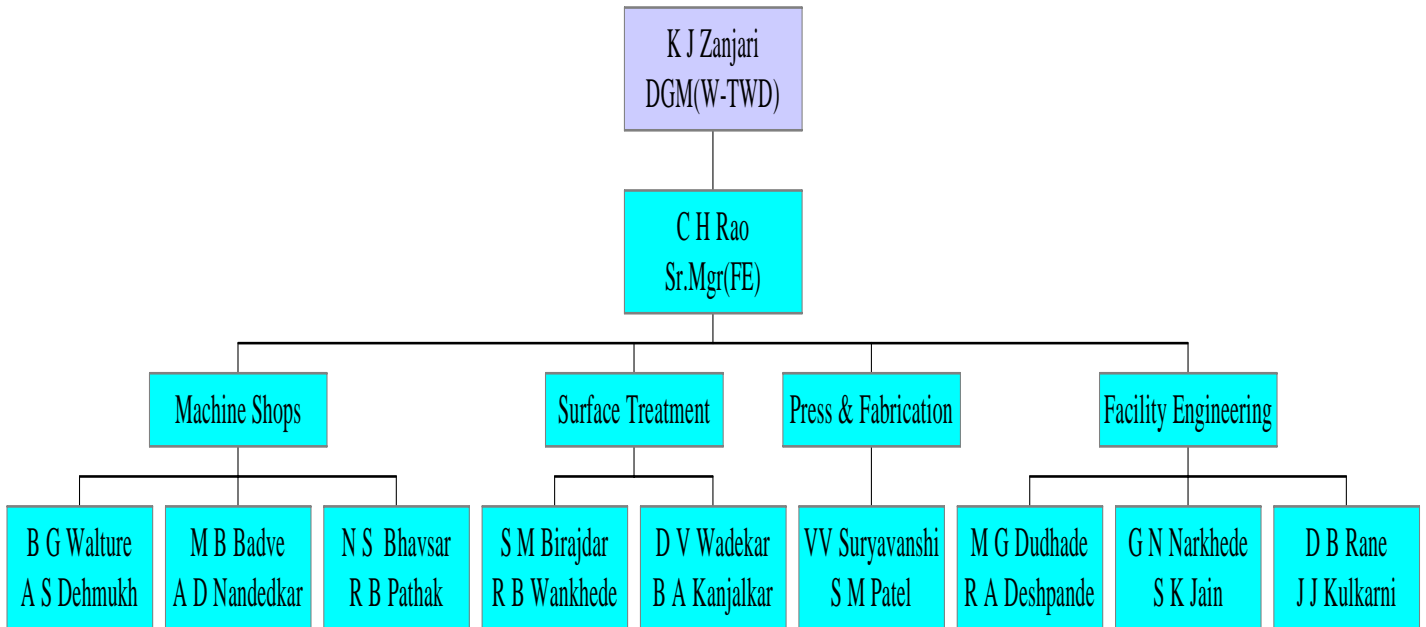
- 1 Prepare an annual activity plan & present to management concerning financially attractive investments to reduce energy costs.
- 2 Establish an energy conservation cell within the firm with management consent about the mandate & task of cell.
- 3 Initiate activities to improve monitoring & process control to reduce energy costs.
4. Analyze equipment performance with respect to energy efficiency.
5. Ensure proper functioning & calibration of instrumentation required assessing level of energy consumption directly or indirectly.
6. Prepare information material & conduct internal workshops about the topic for other staff.
7. Improve disaggregating of energy consumption data down to shop level or profit center of a firm.
8. Establish a methodology how to accurately calculate the specific energy consumption of various products/ services or activity of firm.
9. Develop & manage training programme for energy efficiency at operating level.
10. Co-ordinate nomination of management personnel for External programs
11. Create knowledge bank on sectional, national & international development on energy efficiency technology & management system & information denomination.
12. Develop integral system of energy efficiency & environmental up gradation.
13. Wide internal & external networking.
14. Co-ordinate implementation of energy audit / efficiency Improvement projects through external agencies.
15. Establish and/or participate in information exchange with other energy managers of the same sector through association.

DUTIES :

- 1 Report to bee & state level designated agency once a year. The information with regard to the energy consumed & action taken in the recommendation of the accredited energy auditor as per BEE format.
- 2 Establish an improved data recording, collection & analysis system to keep track of energy consumption.
- 3 Provide support to accredited energy audit firm retained by the company for the conduct of energy audit.
- 4 Provide information to BEE as demanded in the act, &and with respect to the tasks given by a mandate, and the job description.
- 5 Prepare a scheme for efficient use of energy & its conservation & implement such scheme keeping in view of the economic stability of the investment in such firm &manner as may be provided in the regulations of the energy conservation act.

MONITORING THE PROGRESS OF ACTIVITIES

ENERGY CONSERVATION CELL





SAFETY, OCCUPATIONAL HEALTH & ENVIRONMENTAL (SHE) POLICY

Bajaj Auto Ltd., manufacturer of automobiles is committed for continual improvement of safety, occupational health & environmental performance and compliance with applicable safety, occupational health & environmental legislations, regulations and other requirements.

Towards this, we shall strive to:

- Create a proactive SHE management system that addresses significant safety, occupational health & environmental aspects related to activities, products and services.
- Minimize the generation of waste and conserve resources through better technology and practices for prevention of pollution.
- Identify potential risks/hazards and follow safe work practices by using equipments, tools & personal protective equipments as applicable.
- Promote SHE awareness amongst all who work for and on behalf of Bajaj Auto Ltd. and motivate them to fulfill our commitments.

We, at Bajaj Auto, pledge ourselves towards creating and preserving a cleaner, healthier and safe work environment.

Date: 11th October, 2005

Rajiv Bajaj
Managing Director



TPM POLICY

We at Bajaj Auto adopt "TOTAL PRODUCTIVE MAINTENANCE" safe and participative work environment in which all employees target the elimination of losses in order to continuously enhance the capacity, flexibility, reliability and capability of its processes, leading to higher employee morale and greater organisational profitability.

Inspiring Confidence

Date : 11-03-2000

Rajiv Bajaj
Joint Managing Director

ENERGY SAVING PROJECTS

Year of Commissioning of the projects	Project description	Achievement of energy savings per year basis					Investment incurred on the project (Rs. Lakhs)	
		Electricity	Fuels*					Total savings in (Rs. Lakhs)
		(Lakhs kWh)	Coal (ton)	F.Oil (KL)	Gas (lakhs m ³)	Total (fuel) in Mkal)		
	Technology Innovation Undertaken							
2003-04	Replacement of air circulator from 30 inch to 24 inch resulted in reduction wattage from 300 watt to 180 watt (20 nos.)	0.16					0.58	0.94
2003-04	Use of frp in place of alluminium die cast bed 6 nos.	0.03					0.11	0.06
2003-04	Timer control ckt provided for 1.shot blasting exhaust blower 2.fans in mfg. Area 3. Dynamometer cooling blowers 4.assly conveyor 5. Shops	1.32					4.71	0.2
2003-04	Modification & planning of electrical heating in heat treatment & material change of fuel pipes	1.17					4.18	0
2003-04	Supply of overhead lights , voltage stabilize from 230 volts to 210 volts	0.14					0.52	0
2003-04	Reduction in wattages on lamps on m/c` s 64 nos.	0.08					0.30	0.13
2003-04	Installation of vfd for blowers / motors	0.29					1.04	2.35
2004-05	Installed 2 nos. soft starter for 180 kw motors / vfds for pumps / fans to reduce kva -md						1.27	5
2004-05	air shut off valves in air gauges installed	0.04					0.56	0
2004-05	abs line & fuel tank line arp unit vfd installeed	0.08					1.08	5
2004-05	20 nos. frp air curculators blades installed	0.00					0.07	0
2004-05	Replaced 40 nos. old 30 inch air circulator by 24 inch air circulators	0.01					0.27	1
2004-05	Replaced 30 nos. old 30 inch air circulator by 24 inch air circulators qty.	0.01					0.20	1
2004-05	350 watts 8 nos. fans replaced by 100 watt ac fans	0.00					0.12	0
2004-05	Bin washing m/c electrical heating replaced by ulternate lpg fired burners	0.04					0.38	2
2004-05	CFL lamps in tpm hall caridor	0.00					0.02	0

2004-05	30 nos.150 watt HPSV lamps in 3wh. Final assly annex area instead of 250 watt hpsv lamps	0.01					0.03	0
2004-05	70 Watt 10 lamps installed for new Dhakka.	0.00					0.01	0
2004-05	All spot & seam welding m/c lamps of 40 watt replaced by cfl of 9w - 16 nos.	0.00					0.06	0
2004-05	On petrol tank line the neck cutting operation is now done on combination die hence 250 ton press removed from line	0.03					0.11	0
2004-05	Timer provided for 70 w lamp on cooling tower area	0.00					0.00	0
2004-05	Softstarter for srp motors 30 hp - 2nos. Installed	0.01					0.25	1
2004-05	Soft starter for washing m/c pumps 15 hp -4 nos. installed	0.01					0.30	1
2004-05	7 nos. pumps replaced with less hp	0.15					2.10	5
2004-05	Central coolant system vfd installed for 100 hp pumps	0.18					3.15	5
2004-05	Central coolant system vfd installed for 75 hp pumps	0.14					3.86	4
2004-05	4 pumps controlled by vfd	0.08					2.03	2
2004-05	Indirect heating for thremic fluid heat exchanger replaced by direct fired lpg maxon burner. Thermic fluid handling pump elemination	0.08					0.84	13
2005-06	Installed VFD for ARP1 motor of 170 HP of Fuel tank colour line	1.45					5.08	5.90
2005-06	Installed VFD for ARP2 motor of 100 HP of Fuel tank colour line	0.78					2.72	3.56
2005-06	Installation of Electronic chokes in place of Cu chokes. (900 nos.)	0.57					2.00	2.34
2005-06	Installed VFD for 5 HP paint transfer pump	0.01					0.02	0.00
2005-06	Installed Natural draft air exhaust Ventilaters (40 nos.) & removed exhaust fans (5 HP - 10 nos.)	2.44					8.54	3.60
2005-06	Installed Natural draft air exhaust Ventilaters (20 nos.) & removed exhaust fans (5 HP - 8 nos.)	1.95					6.83	1.80
2005-06	Installation of Soft starter (2 nos.) for Air Compressor motor (MD Reduction by 12.8 KVA)	0.00					0.00	6.21
2005-06	Installed VFD for 100 HP centraalised coolent system pump	1.35					4.74	2.00
2005-06	Applied Emissivity paint coating on internal surface of Seal Quench Furnace (2 nos.)	0.49					1.71	2.00
	Inhouse R & D Efforts Undertaken in the plant							

2004-05	Timer control for fan & tubelights to switch off during lunch / tea time	0.01					0.07	0
2004-05	Awarness boards for water / electricity / compressed air / conservation displayed at various location	0.04					0.42	0
2004-05	From frame area 13 overhead lamps removed	0.01					0.07	0
2004-05	12 nos. 250 watt overhead lamps switched off	0.01					0.07	0
2004-05	Energy meter installed to track unrecored & cell wise consumption.	0.00					0.00	1
2004-05	160 tone mech. Press energy saver tomer used - 3 nos.	0.01					0.28	0
2004-05	Lathe in tool maint. Energy saver timer fitted	0.01					0.30	0
2004-05	Auto off timer provided for 18 watt cooling tower motors	0.00					0.06	0
2004-05	coolant & hyd. Pumps off during lunch . Dinner'	0.02					0.63	0
2004-05	ams m/c plc logic changed to switch off coolant & hyd. Pumps during ideal time.	0.00					0.01	0
2004-05	22 kw pluger pump replaced by multistage high pressure Grandfoss pumps	0.04					0.15	0
2004-05	On w6239 -ams 2 nos, pumps of 0.37 kw removed	0.00					0.09	0
2004-05	On w6020 -ams 1 no, pumps of 0.0.37 kw removed	0.00					0.05	0
2004-05	On w6074 TOYODA 1no. Of pump of 1 kw removed	0.01					0.13	0
2004-05	on w5911 ams 2 nos,. Of pumps of .37 kw removed	0.00					0.09	0
2004-05	On w6243 key way multistage pump of 3 kw replaced by 0.5 kw	0.02					0.11	0
2004-05	Main water pump operation hrs. reduced	0.01					0.08	0
2004-05	Due to outer joining spm 2 nos. spot welding m/c removed & connected load reduced from 150 kva to 50 kva for single line - total 4 lines	0.00					0.00	0
2004-05	Due to installation of inner oputer joining spm connected load reduced from 300 kva to 200 kva by removed 4 spot welding m/c	0.00					0.00	0
2004-05	Neck cutting operation taken in combination die due to that 2 nos. 25 tonme press removed (20 hp)	0.07					0.75	0

2003-04	Removal of Hydraulic /Coolant oil chiller by modifying hydraulic circuit (for nine machines)	1.26					4.50	0
2003-04	Modified a/c panels of m/c`s (4 nos.). Wattage reduced from 1500 watt to 1000 watt.	0.50					1.78	0
2003-04	Electrical motors 1.removed 2.reduced hp 3.converted to star 4.timer control (15 nos.)	1.12					4.02	0.03
2003-04	Pumps 1.impeller size reduction 2.combining activities of pumps 3.removal of not required pumps 4.modification in coolant tanks & circuits 5.modification in hyd.ckts.6.usage of timer / control ckt.7.reduced hp (95 nos.)	4.37					15.52	0.13
2003-04	Productivity improvement in 3wh.div.1.paint shop & modification of robo line dolly 2.process combination in m/c shops 3.operation elimination	3.05					10.92	0.13
2003-04	Productivity improvement in mcd 1.combination of operation 2.modification of jigs in plating shops	5.57					19.95	0
2003-04	Productivity improvement in loading time in HT. Studied & optimised temp. of furnaces & oven	0.00			0.2	581.2	7.40	0
2003-04	Water cooler kept off (120 nos.) during winter season (3 Months)	0.10					0.35	0
2003-04	On weekly off days / Holidays utilization compressor improved by 1. 3wh. Paint line modification & stoppage of use of 1 compressor 2. Started use of localise compressor.	0.15					0.53	0
2003-04	Motor replacement with lower hp based on optimum requirements (2 nos.)	0.30					1.07	0
2003-04	Lamps & lights wherever not required are removed from the plant	0.88					3.13	0
2003-04	Agietroan edm m/c cooling chiller ckt. Modified by cooling tower water ckt.	0.01					0.03	0
2003-04	Switching of water cooler during winter	0.10					1.01	0
2003-04	compressed air leakage audit & leakage arrested	0.45					9.45	0
2003-04	Localise use of compressor on weekly off days	0.00					0.00	0


2003-04	Switched off exhaust fume collector on weekly off days	0.01					0.37	0
2003-04	Due to robot finishing 6 air circulator removed	0.01					0.03	0
2003-04	Tea table air circulator fans operated on timer in only tea time 5 nos.	0.01					0.05	0
2003-04	350 watt 12 nos. air circulator fans removed from shops.	0.01					0.13	0
2003-04	16 nos. shop outside lamps separate switched provided to eliminate day time switching on of lamps.	0.00					0.04	0
2003-04	In mrs building outside lamps provided with light sensor switch	0.00					0.00	0
2003-04	Street lighting timers are set according to almanac fortnightly as per sun rise / sun set timings.	0.01					0.24	0
2003-04	16 nos. tube rods removed from 3 wh. Ppc office	0.00					0.03	0
2003-04	jig boring room lighting ckt. Modified to switch off tube lights during lunch / tea timing	0.00					0.01	0
2003-04	5 nos, 250 watt overhead lamps high bay fitting reduced from shop floor	0.00					0.01	0
2005-06	Replaced 250 W HPSV fittings by 150 W HPSV Fittings (200 nos.) at various locations	0.49					1.71	4.35
2005-06	Switched OFF unnecessary shoplights/air Circulators in lind / Illrd shift	0.31					1.07	0.00
2005-06	Removed 25 nos. Overhead lamps	0.14					0.50	0.00
2005-06	Removed Overhead lamps from shops (56 nos.)	0.37					1.29	0.00
2005-06	Removed 151 nos. streetlights from different locations.	1.49					5.22	0.00
2005-06	Removed 07 nos. ceiling fans	0.00					0.00	0.00
2005-06	Transperent Roofs fitted , due to which tubelights kept OFF during daytime (350 nos.)	0.43					1.49	0.40
2005-06	Switched OFF Exhaust blowers (3 nos.)	0.34					1.18	0.00
2005-06	Installation of 180 W Air Circulators in place of 350W Air Circulators (125 nos.)	1.04					3.63	4.72
2005-06	Replaced 75 HP polishing motor blower by 5 HP motor	1.58					5.53	0.00
2005-06	Stopping of AHU for one hour in both shifts	0.18					0.64	0.00
2005-06	Stopped Spot Cooling Unit	0.37					1.28	0.00
2005-06	Stopped AHU for one hour in both shifts by precise monitoring	0.37					1.28	0.00
2005-06	Removed 13 nos. Air Circulators	0.22					0.78	0.00
2005-06	Removed 11 nos. Air circulators	0.19					0.66	0.00

2005-06	Removed tubelights from shops (298 nos.)	0.58					2.04	0.00
2005-06	Removed 15 nos. Air Circulators after commissioning of Spot cooling	0.02					0.05	0.00
2005-06	Shifted 40 HP Water pump timing to operate during lean load period (MD Reduction by 30 KVA)	0.00					0.00	0.00
2005-06	Shifted DG set Daily trial timing to lean load period (MD reduction by 6.2 KVA)	0.00					0.00	0.00
2005-06	By precise monitoring & control, reduced one pumping hour of 40 HP pump & run 10 HP pump instead	0.06					0.21	0.00
2005-06	Replaced 0.37 KW coolant motor by 0.11 KW motor on machine W-6315	0.01					0.04	0.00
2005-06	Replaced coolant pumps of 40 HP (2 nos.) on EMAS Central Coolant system by 25 HP (1 no.) & 12.5 HP (1 No.) pump	2.07					7.25	0.60
2005-06	Installed timer to reduce the ON timing of 75 HP pump by 2 hour/day ,installed on centralised coolant system	0.31					1.07	0.00
2005-06	Removed 6 nos. (1.5 KW each) coolant pumps from Mazak Machines (2 nos.) by connecting to centralised coolant system	0.53					1.84	0.00
2005-06	Removed 2 nos. (2.5 KW each) coolant pumps from hole milling Machine (1 no.) by connecting to centralised coolant system	0.29					1.02	0.00
2005-06	Stopped one cooling tower fan & pump (10 HP). Also, stopped running of CT on Sundays	0.43					1.52	0.00
2005-06	Used Single PMT Fige machine to replace two machines (MKL grinder & ACE CNC lathe)	0.73					2.54	0.00
2005-06	Used special chemical in Washing Machine to switch off heaters	0.75					2.62	0.00
2005-06	Stoppage of CPTED line & ABS line by streamlining the loading.	2.75					9.61	0.00
2005-06	By modifying cycle time of line,stopped one plant for 4 hour/day	6.10					21.35	0.00
2005-06	Stopped one pump of centralised system by precise monitoring	1.47					5.15	0.00
2005-06	Stoppage of CPTED line by streamlining the loading.	1.53					5.34	0.00
2005-06	Stopped AHU for one hour in both shifts by precise monitoring	0.37					1.28	0.00
2005-06	Designed & prepared combined die for governer lever to eliminate two mech. Presses.	0.18					0.63	0.00

2005-06	Eliminated use of tempering oven by carrying out tempering operation on induction hardening machine by modifying cycle.	0.73					2.56	0.00
2005-06	Combined operations of two machines (fortuna & HMT K-130) on single micromatic plunge grinding machine by modifying tools & fixure for output shaft OD grinding	0.46					1.62	0.00
2005-06	Combined two operations of four machines (Washing Machine - 20 KW & press 3 KW) on two machines	1.35					4.71	0.00
2005-06	Removed four rough boring M/C by carrying out this operation on finish boring machines	3.40					11.89	0.00
2005-06	Combined operations of two machines (Boring M/C & Grinding M/C) on single ACE machine	0.63					2.21	0.00
2005-06	Changed thickness of DD gear link on CGC furnace due to which productivity increased by 50 %.Energy cost reduced by 35 % per component	1.57					5.49	0.00
2005-06	Modified fixure for RC gear of Rikshaw due to which productivity doubled & enrgy cost reduced by 40 %	2.18					7.62	0.00
2005-06	Used fluidized bed furnace for HT operations of Tool room & MTD parts instead of Wesman Seal quench furnace	0.17					0.59	0.50
2005-06	Installation of timer based ON/OFF control panels for fixed capacitors (30 nos.)	0.13					0.44	6.00
2005-06	Switched OFF window Air Conditioners (40 nos.)	0.98					3.42	0.00
2005-06	Switched OFF 1 no. Air Compressor (60 HP) in Tool Room	0.43					1.52	0.00
2005-06	Optimisation of Running of compressors by precise monitoring & setting outgoing pressure,Shutting of Compressors in tea,lunch/dinner breaks& IIIrd shifts	1.53					5.34	0.00
	Measures Undertaken in Energy Substitution							
2003-04	Window a/c removed from unnecessary m/c's (3 nos.)	0.06					0.21	0

2004-05	Thermo pack conversion from ldo to lpg to eliminate so2 gas emission as well as ldo.fuel system pumps elimination. Conversion of 5 nos. thermopack from ldo to lpg. LDO consumption = 60,000 ltrs. Per month (rs.19 per ltrs.). LPG consumption increased by 30,000 kg per month (Rs.25 / per Kg)	0.05				2304	19.50	15
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ENERGY CONSERVATION



**INNOVATIVE
PROJECTS
BAJAJ**

Inspiring Confidence

Innovative Project No.1



**Productivity
improvement in Paint
shop**

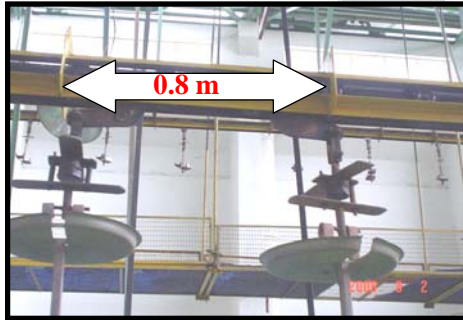
BAJAJ

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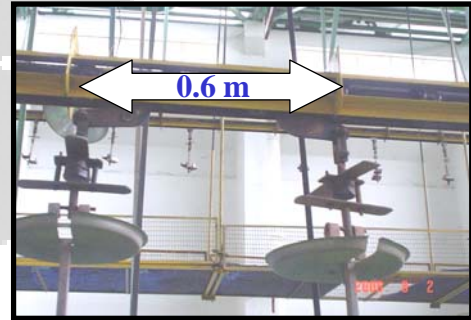
Paint Shop ABS Line

Step 1 - Reduction in conveyor pitch

Before



After



Pitch distance – 0.8 m
Productivity – 224 sets/hr

Pitch distance – 0.6 m
Productivity – 237 sets /hr

Investment - Nil

Energy Cost : Before – Rs.7.8 per Veh.

After – Rs.5.9 per Veh.

Paint Shop ABS Line

Step 2 –Reduction in Jig/Vehicle By Increasing comp./ Jig



Before – 4 Fender / Jig
After – 8 fender / Jig
Productivity
Improved – 2 times



Before – 4 Fairing / Jig
After – 8 fairing / Jig
Productivity
Improved - 2 times



Before – 10 Side Cover / jig
After – 12 Side cover / Jig
Productivity
Improved – 1.2 times

Investment - Nil

Energy Cost : Before – Rs.5.9 per Veh.

After – Rs.4.5 per Veh.

Innovative Project No.2

**Process & Productivity
improvement on CPTED line
in Paint shop**

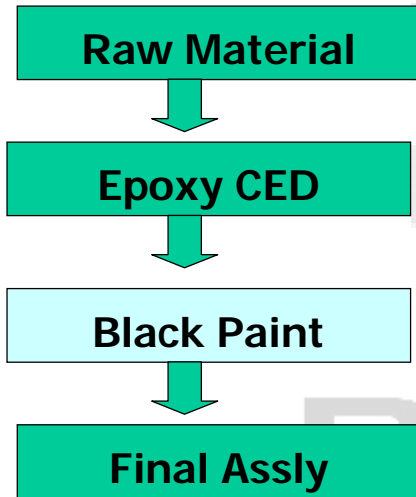
BAJAJ

Inspiring Confidence

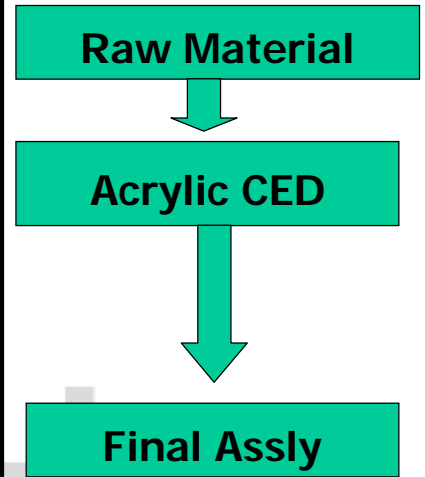
PAINT SHOP CPTED LINE

Step 1 – Changeover from Epoxy CED to Acrylic CED (*)

Before



After



Investment – Nil

Energy Cost

Before – Rs.16.67 per Veh.

After – Rs.10.23 per Veh.

(*) Cathodic Electro Deposition

Inspiring Confidence

Water Saving – 1500 M³/Annum⁶

PAINT SHOP CPTED LINE

Step 2 – Increase in conveyor speed

Before

PTCED line conveyor
speed- 2.20 M / Min

Productivity – 260 sets /hr

After

PTCED line conveyor
speed– 2.45 M / Min

Productivity – 290 sets/ hr

Investment – Nil

Energy Cost

Before – Rs.10.23 per Veh.

After – Rs. 8.09 per Veh.

Innovative Project No.3

**Process & Productivity
improvement in Machine
Shops**

BAJAJ

Inspiring Confidence

Elimination of one work station- Output shaft cell

Before



HMT k 130

Fortuna

After



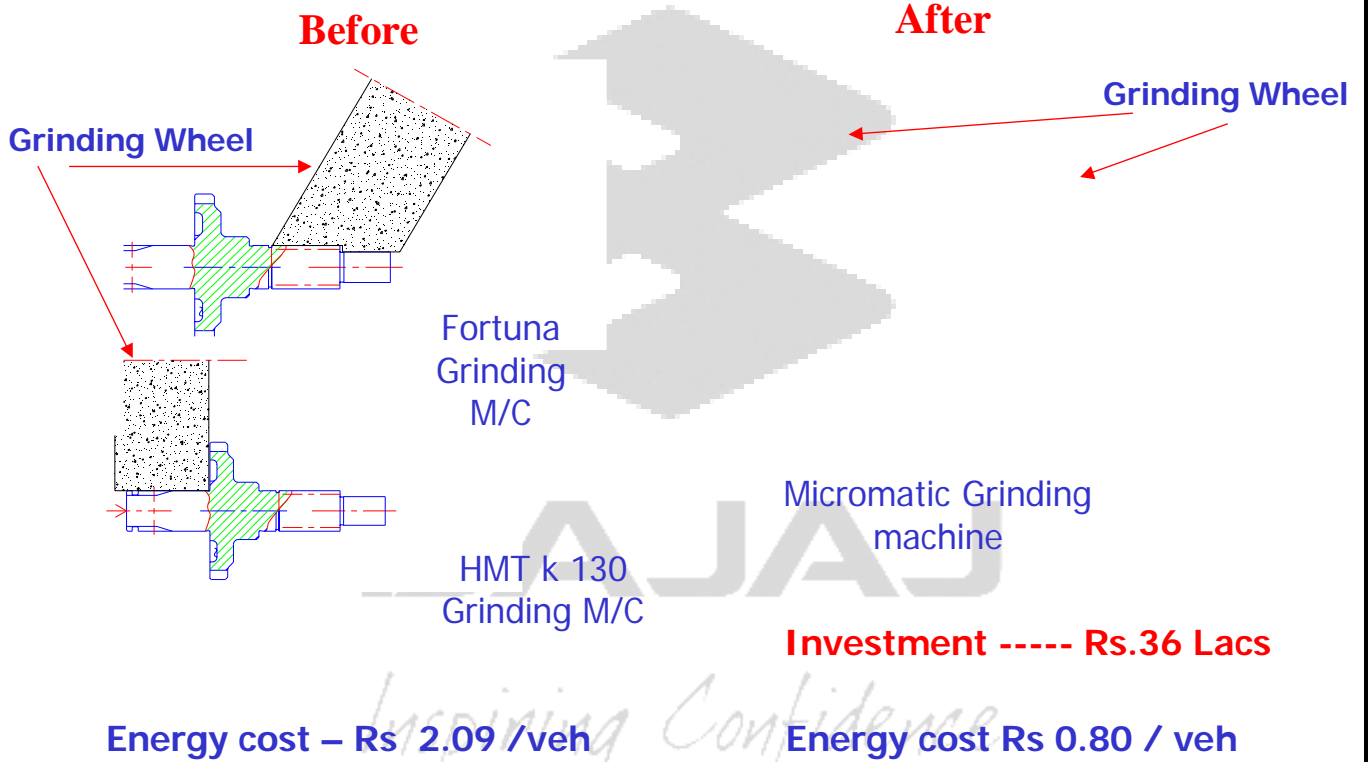
New Micromatic machine

**3 Diameters ground
on two machines**

**3 Diameters ground
on single machine**



Elimination of one work station - output shaft cell



Innovative Project No.4

**Process & Productivity
improvement in Machine
Shops**

BAJAJ

Inspiring Confidence

Elimination of work station – Cam shaft cell

Before



After



BAJAJ

Hardening

Tempering

Tempering combined with
hardening

Energy cost – Rs 0.80 /veh

Investment – Rs 32.0 Lacs

Energy cost – Rs 0.20 /veh

Inspiring Confidence

Innovative Project No.5

**Use of Renewable
Energy Source**

BAJAJ

Inspiring Confidence

Natural Air Draft Ventilators

Before

Electrical exhaust fans for Fumes removal in Machine shop

Qty -40 Nos
(0.5 HP each)

After



Installed Natural Air draft Ventilators

Qty - 200 Nos

Investment - Rs.20 Lacs

Saving- Rs 2.9 Lacs / Annum

ENERGY CONSERVATION



RESULTS

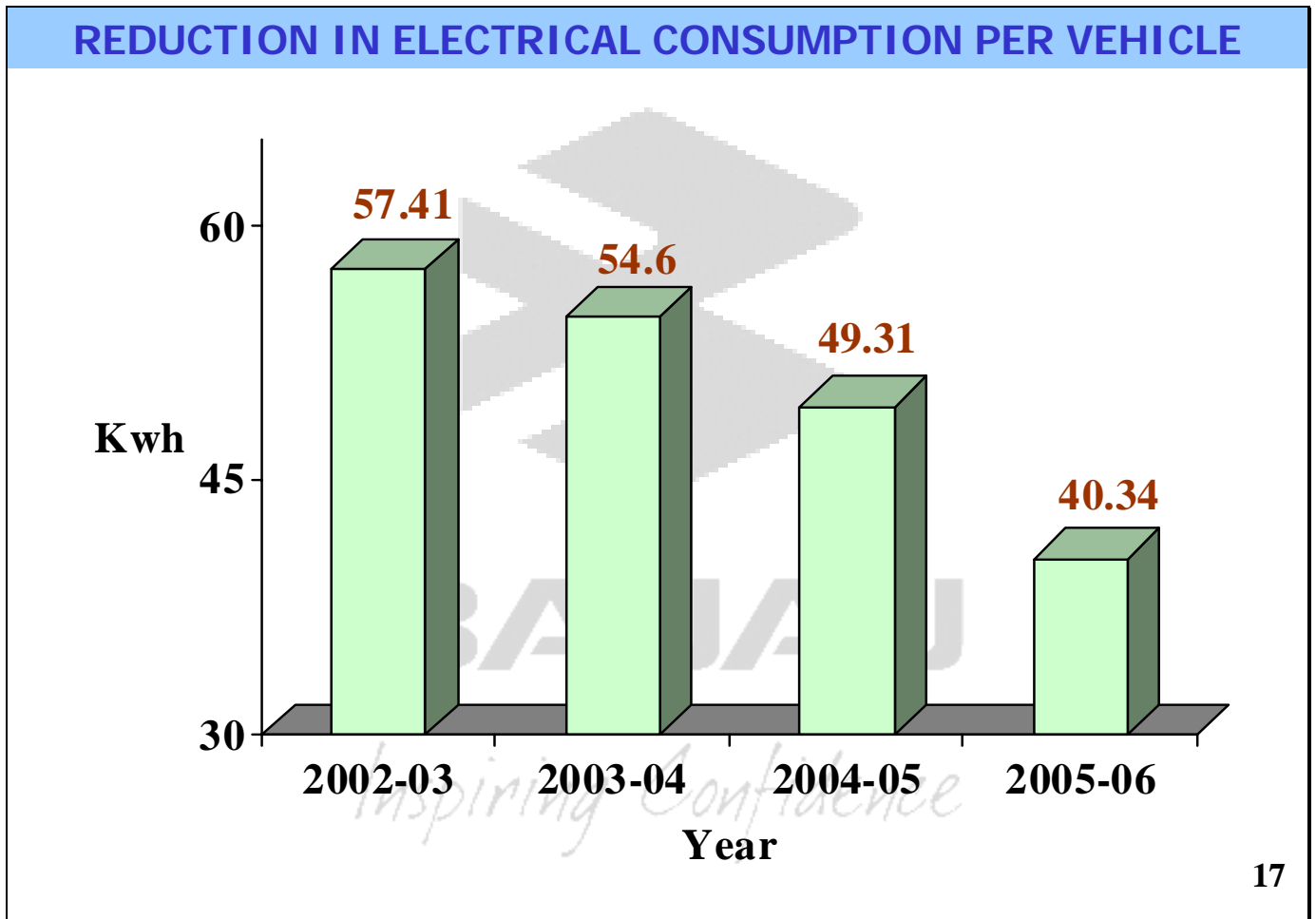
BAJAJ

Inspiring Confidence

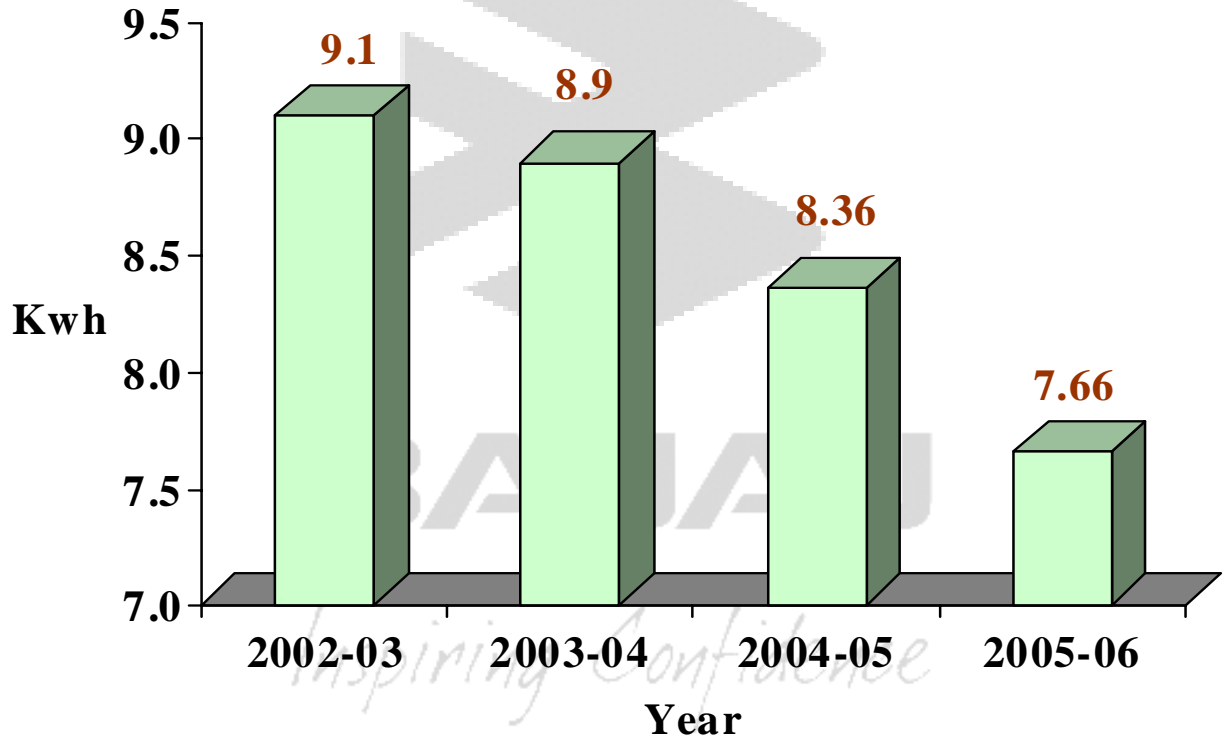
Summary- Year wise projects implemented (2003 – 06)

Year of Implementation	No. of Projects	Savings Rs. Million	Investment Rs. Million
2003-2004	20	9.33	0.38
2004-2005	52	5.1	6.3
2005-2006	55	4.2	4.4
Total	127	18.63	11.08

Inspiring Confidence



REDUCTION IN COMPRESSOR ELECTRICAL CONSUMPTION PER VEHICLE



REDUCTION IN KVA MAXIMUM DEMAND

