

TATA JOHNSON CONTROLS AUTOMOTIVE LIMITED Automotive Seating Plant, Pune (Maharashtra)

Unit Profile

TJC was established in January 1996 as a 50:50 joint venture between Tata Auto Comp Systems Limited (TACO) and Johnson Controls Inc (JCI) to provide **World class seating systems in India**.

- **TACO** is a holding company founded to create JVs with global Auto Component leaders to supply high quality Auto components in keeping with the Tata Groups vision of producing World class Passenger cars and Commercial vehicles.
- **JCI (US Fortune 71 Company)** is a leader in Automotive Seating and Interiors with a turnover of USD 26.6 Billion (FY-2004) and over 290 manufacturing locations worldwide.

“Energy Policy”

Tata Johnson Controls Automotive Limited believes that energy saved is energy generated.

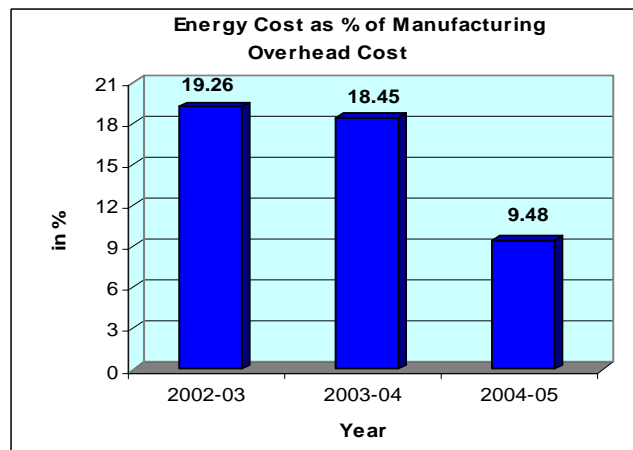
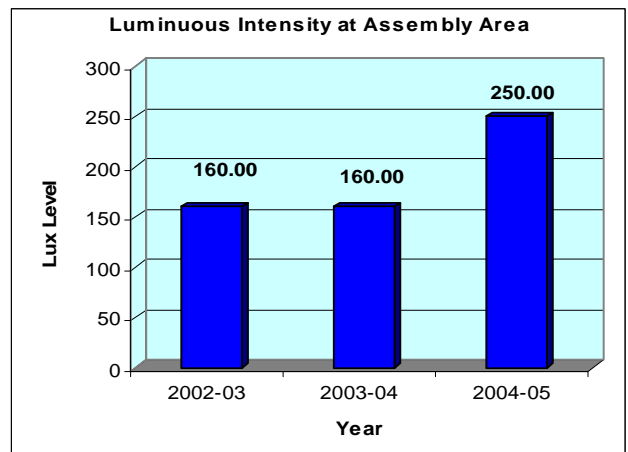
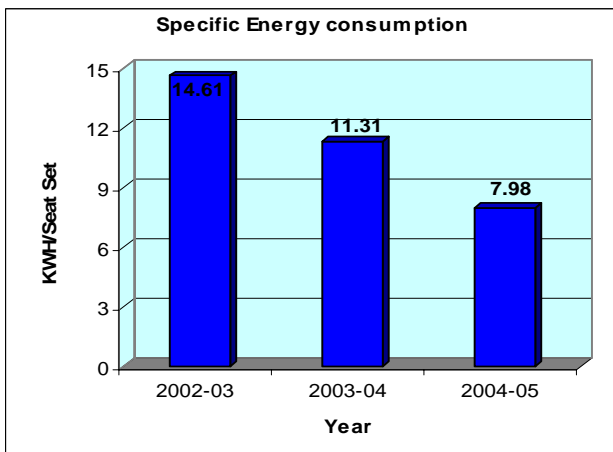
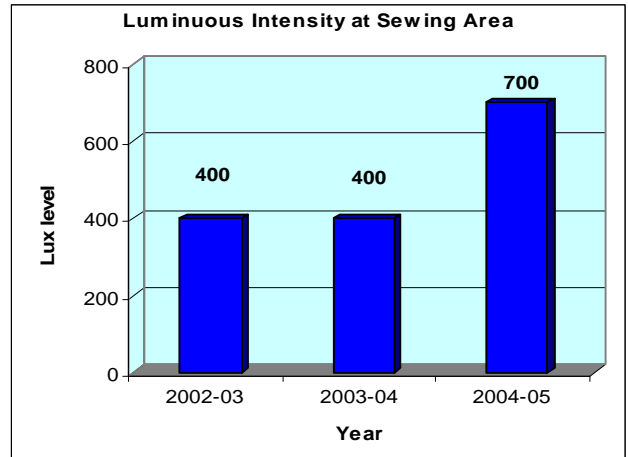
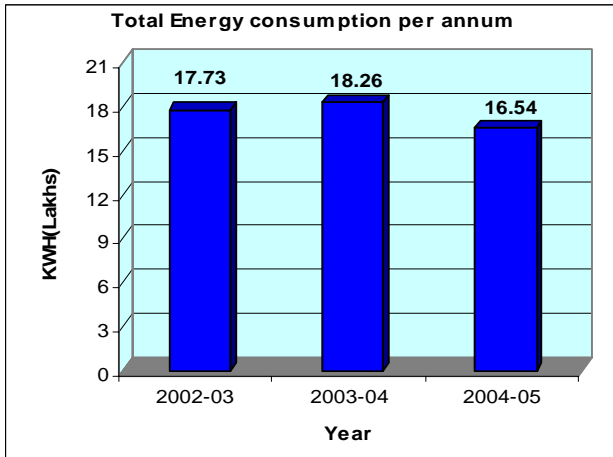
We are committed to conserve available energy resources in the organization by promoting:

- Optimum utilization of available energy.
- Use of safe, energy efficient & eco-friendly technology.
- Possible use of renewable energy resources.
- Continual improvement in energy conservation.
- Employee awareness and involvement in energy conservation initiatives.

Energy Consumption

SPECIFIC POWER CONSUMPTION DETAILS	UNIT	2002-03	2003-04	2004-05
Total Annual Dispatch	Seat Set	121304	161345	207373
Total Energy consumption per annum	Kwh (Lakhs)	17.72740	18.26089	16.54341
Total Manufacturing Overhead cost	Rs.Lakhs	407.05392	412.35712	721.23439
Total Energy cost	Rs. Lakhs	71.75847	76.84354	66.04097
Energy cost as % of Manufacturing Overhead cost	%	19.26	18.45	9.48
Electrical units consumption per Seat Set	Kwh	14.61	11.31	7.98

Graphical Representation of Energy Consumption



Energy Conservation Commitment policy and set up

Salient Features of Energy Conservation Cell

The unit has Energy Conservation Cell at Pune plant, headed by Energy Manager and supported by Cross Functional team of Senior Executives in various departments.

Energy Manager is one of the key members in Plant HSE&E Committee and Cross Functional Team. The Consumption of Energy and progress of Energy conservation projects are reported in these committees for review. This report becomes a part of Management Review by CEO.

Energy conservation cell adopts new energy efficient technology, processes and focuses on minimizing waste. Appropriate training and involvement of employees in energy conservation are creating employee awareness. Employee involvement for these initiatives can be seen through Employee suggestion scheme and other employee participation drives in the organization.

For effective implementation and results, cross-functional team discusses and brainstorms on various ideas.

Various Tools used by the Team for this purpose include:

- 1) Six Sigma
- 2) Kaizen
- 3) Suggestion scheme
- 4) Knowledge sharing with Johnson Controls world wide.
- 5) Benchmarking with Industry best.
- 6) Training & Awareness for employees.
- 7) Process analysis & monitoring.

All efforts are directed towards achieving companies' strategic objectives, which include reduction of costs and overhead expenses minimum by 5% over the previous year.

Energy Conservation Achievements

Tata Johnson Controls Automotive has implemented many energy conservation projects and ideas. Following are the energy conservation achievements.

- 1) Electrical heating in steamer application is substituted by solar water heating system.
- 2) Electrical heating in canteen application is substituted by solar water heating system.
- 3) Reduced 40% electrical units consumption in Illumination of Manufacturing block by reducing the height of tube light fixture from 6.6 mtrs to 3 mtrs.
- 4) Increased the lux level on the working area from 160 lux to 250 lux.

Major Energy Conservation Projects Implemented During The Year 2004 –05

1) Installation of Solar Energy Water Heating System

BEFORE



AFTER



BEFORE:

Electrical heating used for increase the water temperature for clean the plates, glass etc and keeping the food hot in hot case. No control for water temperature.

AFTER:

Installed Solar Energy Water Heating system for increase the water temperature for clean the plates, glass etc and keeping the food hot in hot case. From this system maintain the temperature between 55 Deg cel to 60 Deg cel.

Capacity of the system	: 2000 LPD.
No. of. Solar Collector	: 16 Nos.
Outlet Water Temperature	: 55 Deg cel – 60 Deg cel
Total Electrical Energy Units saved per annum	: 0.39650 Kwh (Lakhs) .
Total Electrical cost saved per annum in Rs.	: 1.586 lakhs.
Total Investment for project in Rs.	: 1.85 lakhs.
Pay Back Period	: 356 Days.

2) Provided Glass Windows on wall in passage area for Natural Light.

Before: Manufacturing block passages 4 x 36 watts type 20 nos. tube lights were **ON** in day time.

After: Provided Glass windows on wall for natural light in passage area in daytime. Reduced the electrical units consumption in daytime.

Total Investment in Rs.	: 0.45 lakhs
Total Electrical Units Saved per annum	: 0.08784 lakhs
Total Electrical cost saved per annum	: 0.35136 lakhs
Pay Back Period	: 391 Days.



3) Installation of Solar Energy Water Heating for Steamer.

Before



Electrical heating for generation of steam

After



Solar water heater for preheated water inlet to Steamer.

Before: In our plant electrical steamers are using for generation of steam from water at 120 deg Celsius. Initially by using of 3 x 7 watts electrical heaters increase the water temperature from atmosphere say 35 deg cel to 120deg cel . An electrical heater ON time was 18 minutes in one hour.

After: Installed Solar Energy Water Heating System for increase of the water temp from atmosphere temperature to 85 deg cel. It gives the preheated water inlet to steamer. From these electrical heaters ON time has reduced from 18 minutes to 6 minutes in one hour.

Capacity of the system	: 2000LPD.
No. of . Solar Collector	: 24 Nos.
Outlet Water Temperature	: 80 – 85 Deg cel.
Total Electrical Units saved per annum	: 0.71675 Kwh (lakhs).
Total Electrical Cost saved per annum in Rs.	: 2 .867 lakhs.
Total Investment for project in Rs.	: 2.65 lakhs.
Pay Back Period	: 282 Days.

4) Overhead structure for reduce the tube light fixture height.

Before



After



Before: Manufacturing block tube light fixtures were on 6.6-meter height. Details of the electrical load and lux level in the respective area are as follows.

Total electrical load in kilowatt = 21.024

Name of section	Type of Fixture	No. of. Fixtures	Load in kw	Lux level on working area
Sumo line	4 x 36	20	2.88	160
Safari line	4 x 36	36	5.184	160
Sewing Area	2 x 36	150	10.8	450
Cutting Area	4 x 36	15	216	160

After: Provided overhead structure for Manufacturing block tube light fixtures and reduced the height of fixtures from 6.6 meters to 3 meters. Details of the electrical load and lux level in the respective area are as follows.

Name of section	Type of Fixture	No. of. Fixtures	Load in kw	Lux level on working area
Sumo line	4 x 36	7	1.008	250
	2 x 36	3	0.216	
Safari line	4 x 36	9	1.296	250
Sewing Area	3 x 36	50	5.4	750
Cutting Area	4 x 36	6	0.804	250

Total electrical load in kW after modification = 8.784
Total investment for project in Rs. = 1.75 lakhs.
Total electrical units saved per annum = 0.59371
Total electrical cost saved per annum in Rs. = 2.37484
Pay Back Period = 223 Days.

Energy Conservation Future Plans and Targets.

Energy Conservation Measures (Planned)	Anticipated savings		Approx. investment (Rs.lakhs)	Project Commencement & Completion year
	in Energy Value (Specify units)	Rs. Lakhs		
Installation of High Efficient Energy Saver for Outdoor & office lighting	0.25193	1.00772	1.1	Installation of high efficient energy saver transformer for lighting load. From this Reduce incoming voltage from 230 volts to 205 volts. 20% saving in kwh consumption in lighting. Completion - oct-2005.
Installation of High Efficient Energy Saver for Manufacturing block lighting	0.366	1.464	1.75	Installation of high efficient energy saver transformer for lighting load. From this reduce incoming voltage from 230 volts to 205 volts. 20% saving in kwh consumption in lighting. Completion - Jan 2006.
Installation of Temperature sensor & controller for cooling tower pump.	0.08	0.32	0.05	In existing system cooling tower pump motor is continuous ON. By providing temperature sensor and controller cooling tower pump motor will be OFF when sump temp below 28 deg Celsius. Completion - Oct 2005
Installation of CFL lamp for sewing machine area	0.1952	0.7808	0.5	Replace the tube light fixture by CFL LAMP in Sewing Area. Completion - Dec - 2005.
Installation of Microprocessor based power factor relay.	NO	2.04	0.6	To improve the power factor from 0.99 to unity and reduction of MD KVA. Completion – sep - 2005
Improving efficiency of CNC Machine. Reduce a one shift.	0.8235	3.294	0.5	To Improve the efficiency of CNC machine by through six-sigma project. Completion - Jan 2006