

**Energy efficient distribution transformer tested in 100 MVA on line testing station, CPRI, Bhopal**

As per Energy Conservation Act 2001, the Bureau of Energy Efficiency (BEE), New Delhi has launched mandatory Standards & Labeling programme, under which the manufacturers of distribution transformer throughout the country responded very effectively. They have started mandatory loss measurement for distribution transformers of star rating.

**Test Procedure**

The test procedure for distribution transformer would be as per IS: 1180 (part1), 1989 including all amendments. The exception is in condition on limits of temperature rise. The temperature rise limits of top oil and transformer winding from the existing IS: 1180 (part-1), 1989, level of 45°C & 55°C are reduced to 35°C & 40°C respectively.

A typical data of some tested distribution transformers in 100MVA on line testing station, Bhopal, is given in the Table below.

**Conclusion**

In CPRI, Bhopal, so far about 50 distribution transformers in the range of 16kVA to 200kVA have been tested within the specified total losses at 50%

loading and 100% loading as per BEE S&L programme. Most of them have achieved the Star rating like 4 Star and 3 Star. The Star 3 level is considered as minimum efficiency performance (MEP) standard to improve the overall efficiency level of distribution network.

**Insulation Survey on Boilers**

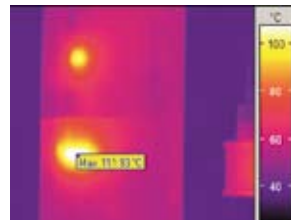
The Boiler and piping are the vital components in energy conversion and energy transportation in the Thermal Power Stations. The boilers and pipes used in big industries and power projects are insulated to prevent energy loss during the process of energy conversion and energy transportation.

Due to ageing or poor quality of insulation there will be some patches of insulation deterioration on these systems.

By carrying out the insulation survey, the condition of the insulation of boiler and piping can be monitored and an estimation of energy loss from the system can be calculated. Equipment like Infrared camera, anemometer are used for the purpose.



Typical photographs of weak insulation are shown in adjoining figures.



*For details contact:  
Mr Suhas S B, Joint Director, CPRI,  
Prof Sir C V Raman Road, Sadashivnagar PB No. 8066,  
Bangalore 560 080. E-mail: suhas@cpri.in  
Ph: 080 2360 2329, Fax: 080 2360 1213*

Customer	Rating	Test Results		Star
		Measured Losses (Before SCWT)		
		Max. losses at 50% loading (Watts)	Max. losses at 100% loading (Watts)	
A	16kVA/3phase/Amorphous 11000/433-250V	No Load-20.70W, Load Loss- 97.46W Total - 118.16W	No Load-20.70W, Load Loss- 387.53W Total - 408.23W	4 Star
B	16kVA/3phase/CRGO 11000/433-250V	No Load-51.70W, Load Loss- 82.42W Total - 134.12W	No Load-51.70W, Load Loss- 327.61W Total - 379.31W	4 Star
C	25kVA/3phase/CRGO 11000/433-250V	No Load-66.80W, Load Loss- 115.90W Total - 182.70W	No Load-66.80W, Load Loss- 463.91W Total - 530.71W	4 Star
D	63kVA/3phase/CRGO 11000/433-250V	No Load-99.0W, Load Loss- 220.0W Total - 319.0W	No Load-99.0W, Load Loss- 878.49W Total - 977.49W	4 Star
E	100kVA/3phase/CRGO 11000/433-250V	No Load-168.0W, Load Loss- 348.8W Total - 516.8W	No Load-168.0W, Load Loss- 1404.90W Total - 1572.90W	3 Star