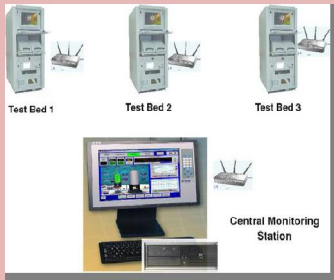




# Pumps Data Acquisition System



BHEL, Hyderabad is India's major supplier of power station pumps for various applications like boiler Feed Booster, Condensate Extraction and circulating water. These feed pumps are manufactured in collaboration with M/s Sigma Lutin, Czechoslovakia and weir pumps Limited, U.K.  
 DAS system is designed for testing different parameters of pumps under test like Electrical, Temperatures, Mechanical and hydraulic parameters. Acquiring the data is done by custom developed software and after completion of testing, data is stored in the database. The results, reports and graphs are generated from the stored data and are given to BHEL customer.

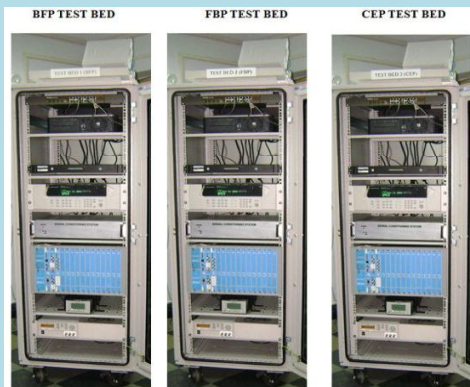
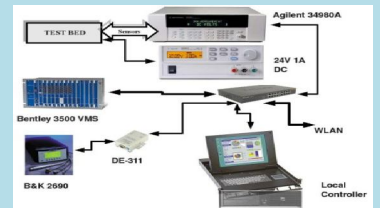


PumpsDAS provides optimal pump performance testing at BHEL, Hyderabad utilizing state-of-the-art monitoring and data collection software to test across the pump's operating region.

We used traditional design coupled with advanced simulation design to analyze the performance characteristics of a pump. Several design concepts were evaluated with the aid of the simulation tools. The iterative simulation process enabled the optimization of the final design, which was subsequently tested and shown to perform as predicted. The unit is now installed and being used to evaluate the system behavior.

The project is designed to provide performance and NPSH tests.

We utilized the custom designed DMM (Agilent 34980) based automated pump testing software (PumpsDAS) that allows all system parameters to be monitored and controlled from a central control station, thus achieving and maintaining specific operating conditions. This enables data from calibrated precision electronic sensors to be collected and recorded for use in determining pump performance and efficiency



The windows based software provides many powerful, easy to use features with a familiar, user friendly environment.

The software made test programming a simple point and click operation.

Measures analog, digital, thermocouples, frequency and RTD's etc.

User programmable channel configuration screen.

Display of acquired data online. (Provision for simulation also given).

Select alarm and danger set points, real time alarm display, print out, acknowledge / reset facility.

After testing, the data is retrieved and printed in a specific format.

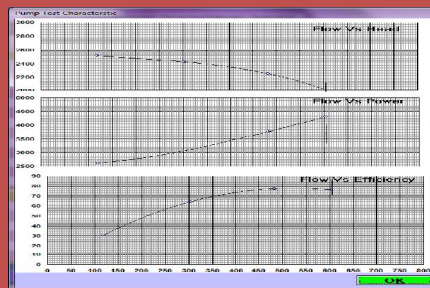
Provision for creating the test report sheet after the test.

Developing comprehensive reports and Real time graphical display and tables.

All data shall be stored in the network server and access is restricted using password control.

The Data Acquired is displayed on the Acquisition Screen.

The graphs are generated for  
 Flow Vs Head characteristic  
 Flow Vs Power characteristic  
 Flow Vs Efficiency characteristic



Parameter	Unit	Avg. Val.	Valuen
Percentage of Flow	%	61.62	98.02
Backflow Water Temperature	°C	66.83	66.41
Pump Test Speed	rpm	10751.6	10563.76
Discharge Flow	m <sup>3</sup> /hr	100.54	1036.46
Backflow Pressure	kg/cm <sup>2</sup>	7.1	5.43
Discharge Pressure	kg/cm <sup>2</sup>	99.9	1.26

NPSH test for 1% and 3% Head break down