AUTOMATED TEST BENCH SOLUTIONS

Improved Productivity, Precision and Energy Efficiency
BB’s AUTOMATED TEST SYSTEM (ATS)

Bharat Bijlee’s customised Automated Test System (ATS), based on German technology, meets specific testing requirements of customers. The regenerative solution is a fully integrated test system for testing single/three-phase motor, pump, automotive engine, gear box and VFD of all ratings.

The modern method of testing products is based on dynamo motor for loading. The system works on closed-loop principle and circulates the energy between load and products under test, hence the energy drawn from the main supply is only to compensate for the losses of the system. This makes the complete test system energy efficient.

Dynamo motor driven by variable frequency drive is used for loading of products under test. Regenerative drive is used for utilizing the energy generated and feeding it back to the grid.

The ATS comprises Electrical Panel, Variable Frequency Drive, Regenerative Drive AFE (Active Front End), Report Generation, Controller, SCADA system and Sinus Filter.

It also integrates various instruments like Power Analyzer, Temperature Scanner, Resistance Meter, Torque Transducer and other.

All the tests conducted on ATS are on the basis of IS, IEC and IEEE standards.

TYPICAL COMPONENTS OF AUTOMATIC TEST SYSTEM

- Dynamo Motors and Dynamo Motor Drives
- PC based SCADA System with Test Report Generation
- Power Analyzer
- Temperature Scanner
- Alternator Control for 50 Hz or 60 Hz Testing
- Torque, Flow, Pressure Measurement
Connect Power Cable to Product Under Test

Select Supply Source for Product Under Test

Select the Test

Press “Start Test” Button

Automatic Testing is done and data logged in PC

Report
CONFIGURATION SCHEME FOR MOTORS TEST BENCH (0.9 kW TO 250 kW)
MOTOR TESTS

Routine test
- Measurement of Winding Resistance
- Insulation Test
- Lock Rotor Test
- Reduced Voltage Test at V rated/√3
- No Load Test at Rated Voltage

Type Test
- Measurement of Winding Resistance
- Temperature Rise Test
- Momentary Overload Test
- Over Speed Test
- Reduced Voltage Test
- No Load Test
- Coupled No Load

Customise test: As per customer requirement

Graphs generated by ATS

<table>
<thead>
<tr>
<th>Speed Vs Torque</th>
<th>Current Vs Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Speed Vs Torque Graph" /></td>
<td><img src="image2.png" alt="Current Vs Speed Graph" /></td>
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</table>

<table>
<thead>
<tr>
<th>Temperature Rise</th>
<th>Load Vs Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.png" alt="Temperature Rise Graph" /></td>
<td><img src="image4.png" alt="Load Vs Efficiency Graph" /></td>
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</tbody>
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**SUBMERSIBLE PUMP & CENTRIFUGE PUMP TESTS**

**Tests**
- Pump Performance Test
- Lock Rotor Test
- Temperature Rise Test
- Hydrostatic Pressure Test
- No Load Test (Decoupled, Reduced Voltage)
- Coupled No Load
- Self Priming Test
- Leakage Current Test
- Impeller Balancing Test, Surface Roughness Test (Manual)

**Customise test:** As per customer requirement

**Graphs generated by ATS**

<table>
<thead>
<tr>
<th>Head Vs Flow (Performance curve)</th>
<th>Power Vs Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Head Vs Flow Graph" /></td>
<td><img src="image2.png" alt="Power Vs Flow Graph" /></td>
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**Benefits of ATS**

- Testing can be done on different supply source conditions.
- Increased productivity as preparation time, test process time and report generation time is reduced.
- Significant increase in test accuracy and consistency.
- The regenerative test system offers significant energy savings compared to eddy current methods.
- Automatic data acquisition and recording of test result.
Bharat Bijlee Drives & Automation

Mobile App for Troubleshooting and Maintenance of Drives & Servo Motors
Download for free from Google Play Store

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Product improvement is a continuous process and technical information herein is subject to change.