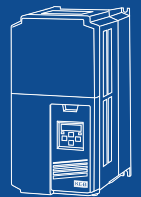
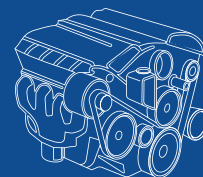
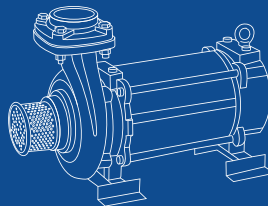
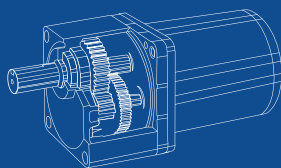
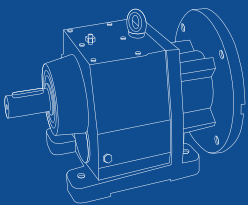
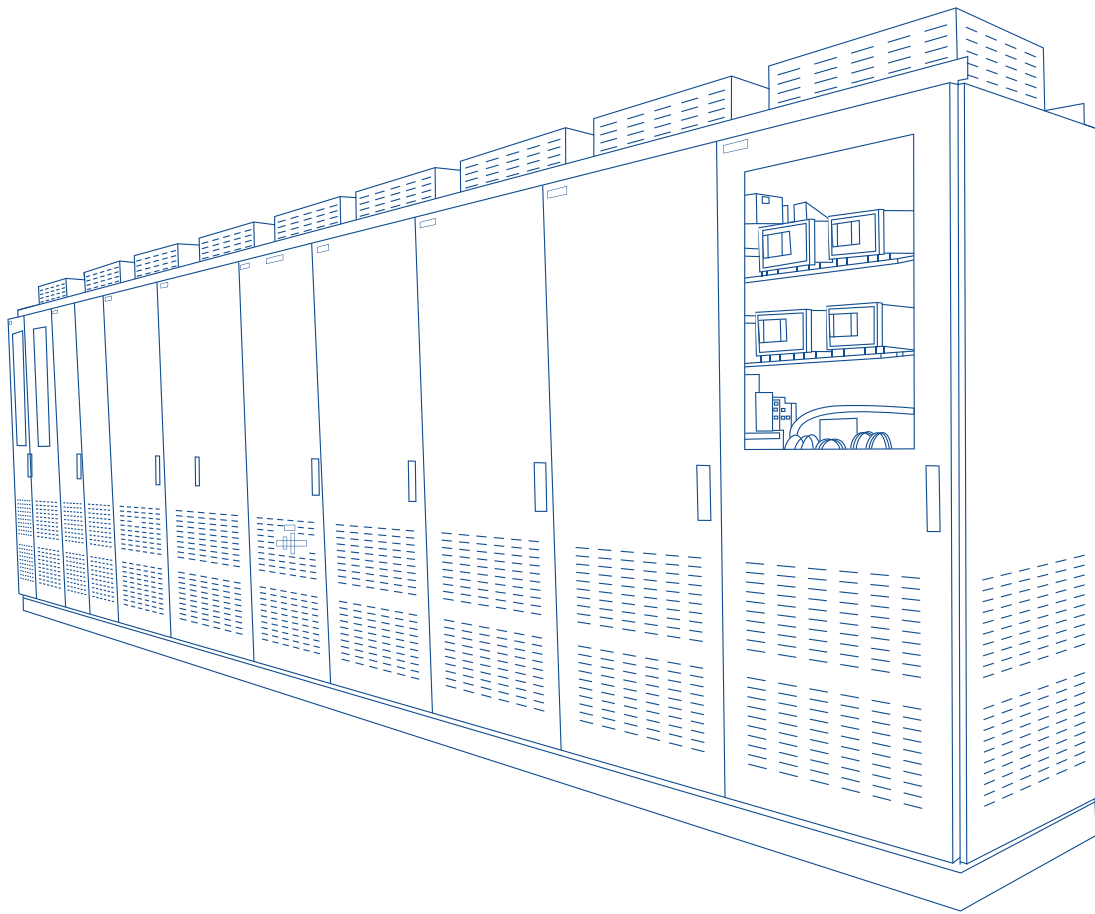


# AUTOMATED TEST BENCH SOLUTIONS

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.

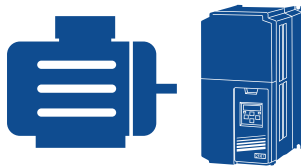
Dynamo motor driven by variable frequency drive is used for loading of products under test. Regenerative drive is used for utilizing the energy generated and feeding it back to the grid.

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.

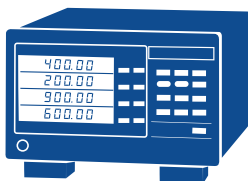
## TYPICAL COMPONENTS OF AUTOMATIC TEST SYSTEM



Dynamo Motors and Dynamo Motor Drives



PC based SCADA System with Test Report Generation



Power Analyzer



Temperature Scanner

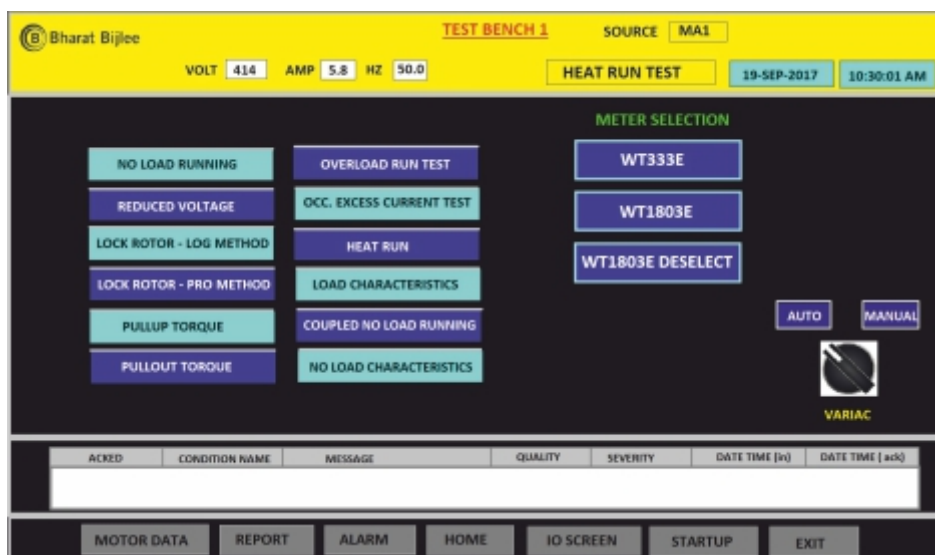
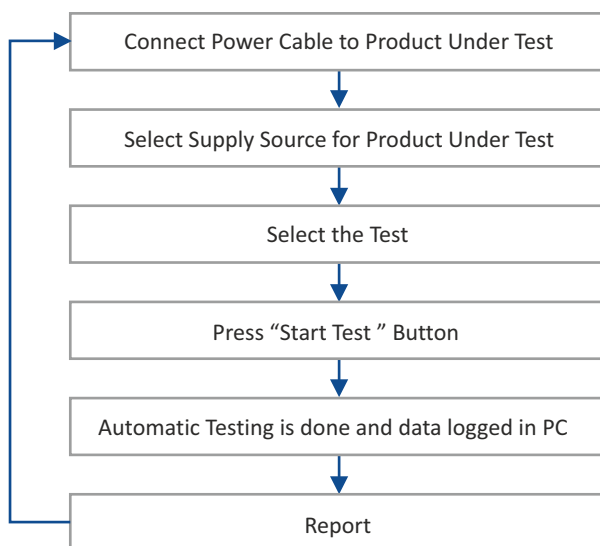


Alternator Control for 50 Hz or 60 Hz Testing

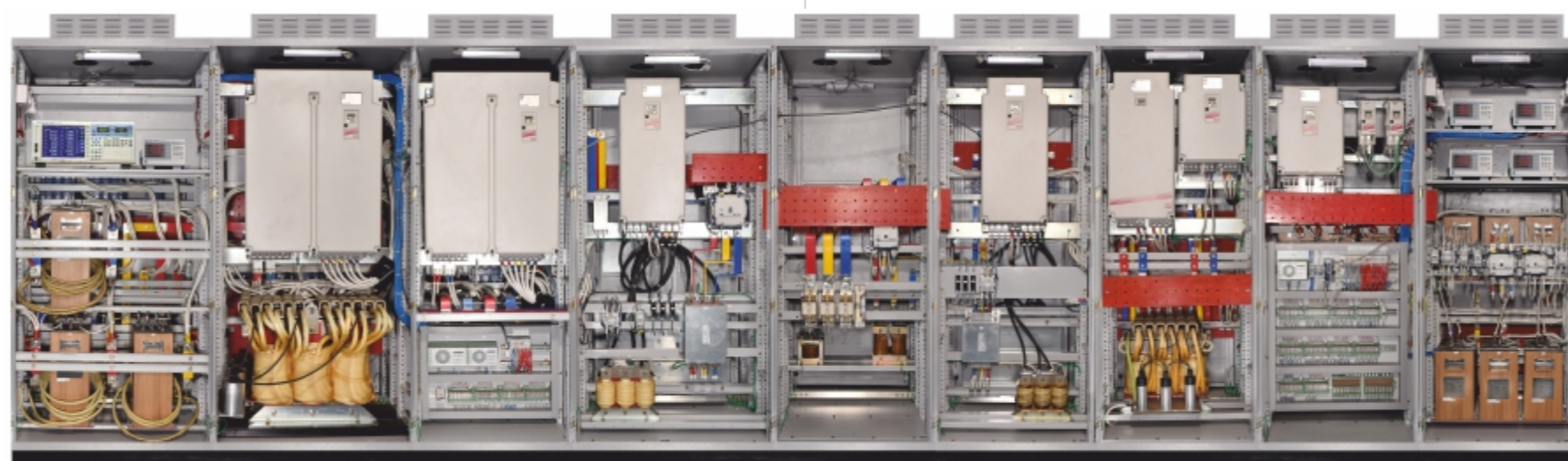
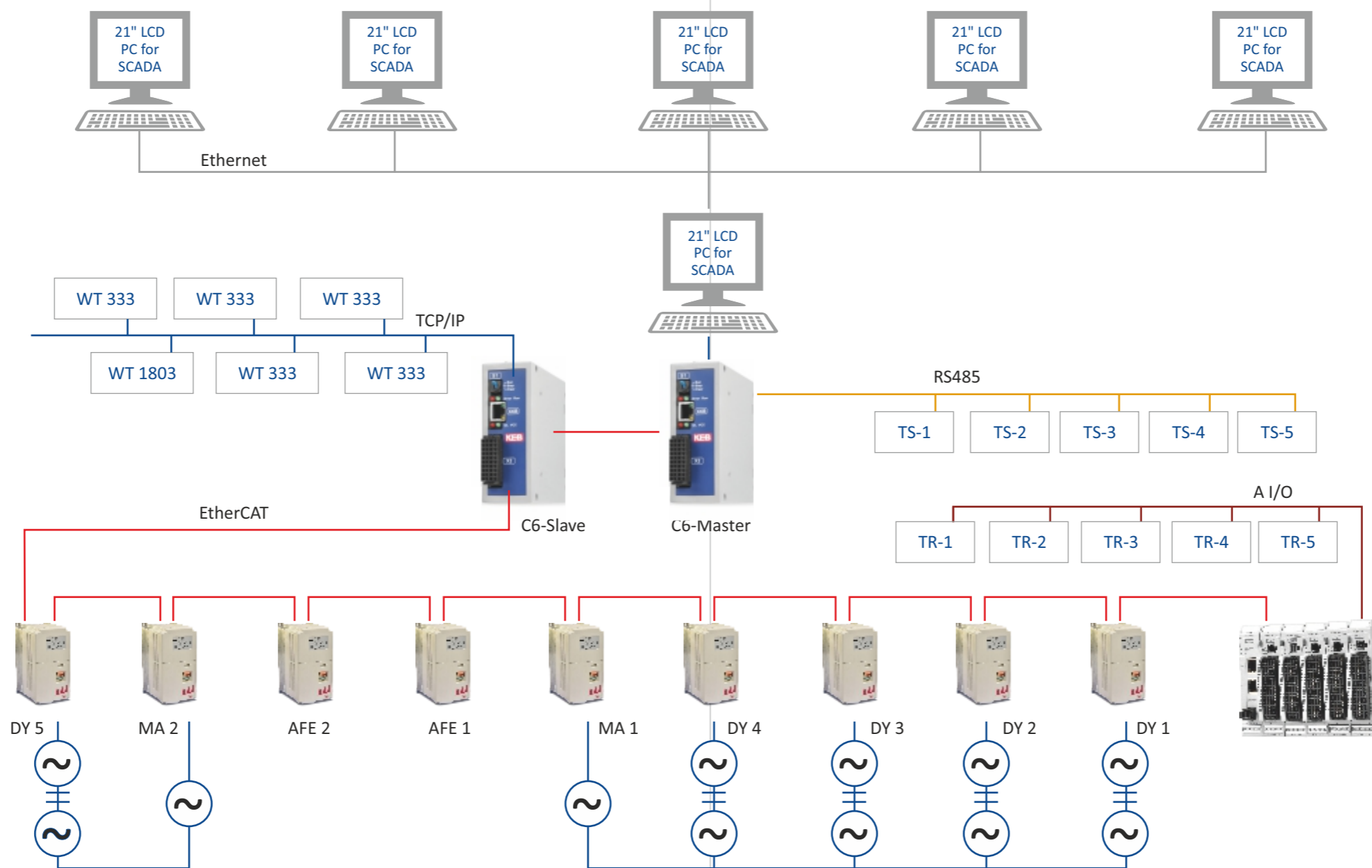


Torque, Flow, Pressure Measurement

## SAMPLE TEST SCREENS








**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  $V_{rated}/\sqrt{3}$
-  No Load Test at Rated Voltage

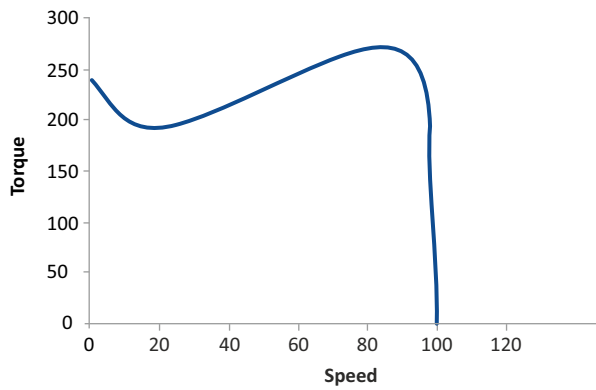
### Type Test

-  Measurement of Winding Resistance
-  Temperature Rise Test
-  Measurement of Pull - up, Pull - out, Starting Torque and Running Torque
-  Load Test Characteristics
-  No Load Characteristics (To measure No Load Losses)
-  Momentary Overload Test
-  Over Speed Test
-  Reduced Voltage Test
-  No Load Test
-  Coupled No Load

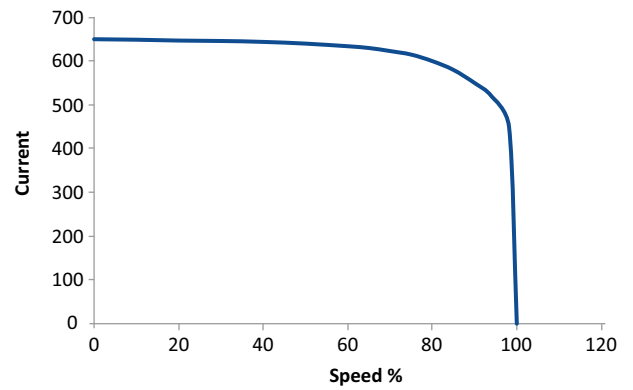
**Customise test:** As per customer requirement

### Graphs generated by ATS

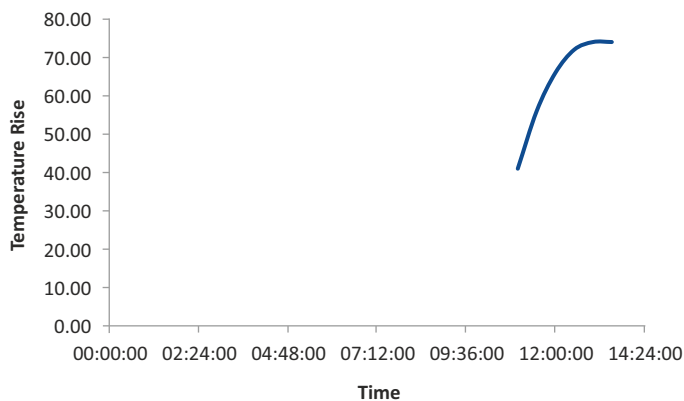
**Speed Vs Torque**



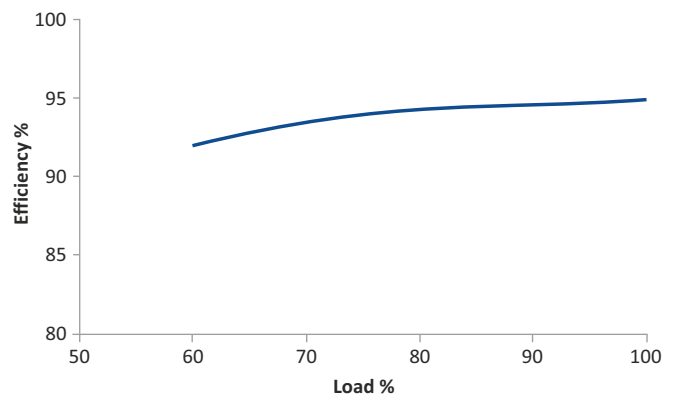
**Current Vs Speed**



**Temperature Rise**



**Load Vs Efficiency**



## SUBMERSIBLE PUMP & CENTRIFUGE PUMP TESTS

### Test



Pump Performance Test



Lock Rotor Test



Temperature Rise Test



Hydrostatic Pressure Test



No Load Test  
(Decoupled, Reduced Voltage)



Coupled No Load



Self Priming Test



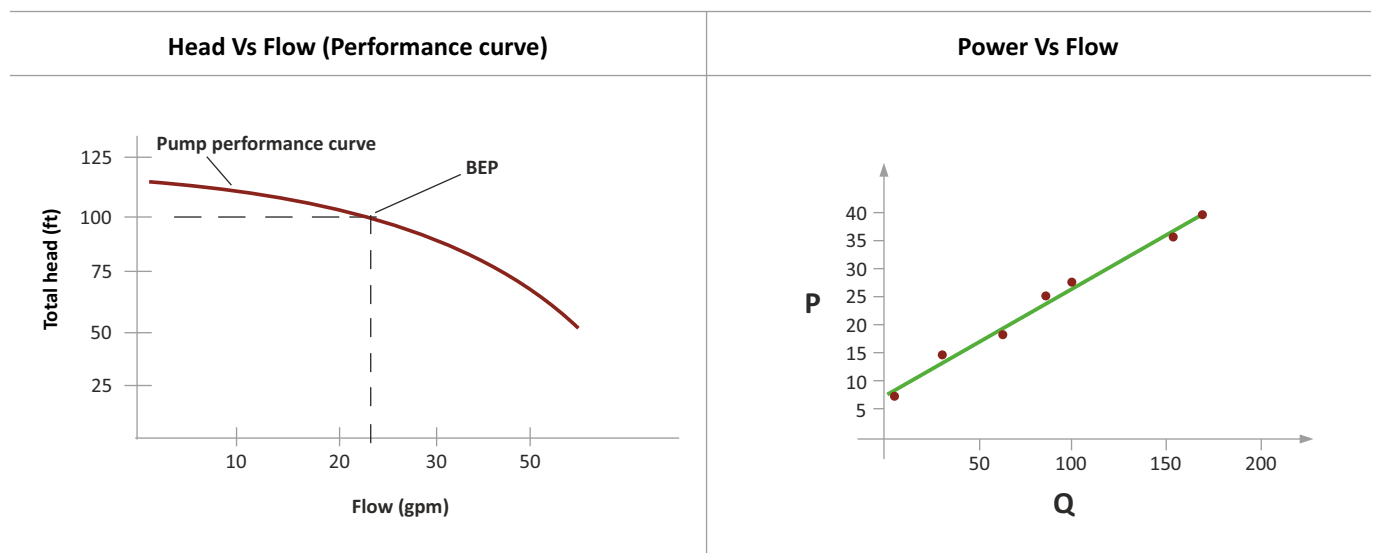
Leakage Current Test



Impeller Balancing Test,  
Surface Roughness Test (Manual)

**Customise test:** As per customer requirement

### Graphs generated by ATS



### 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.



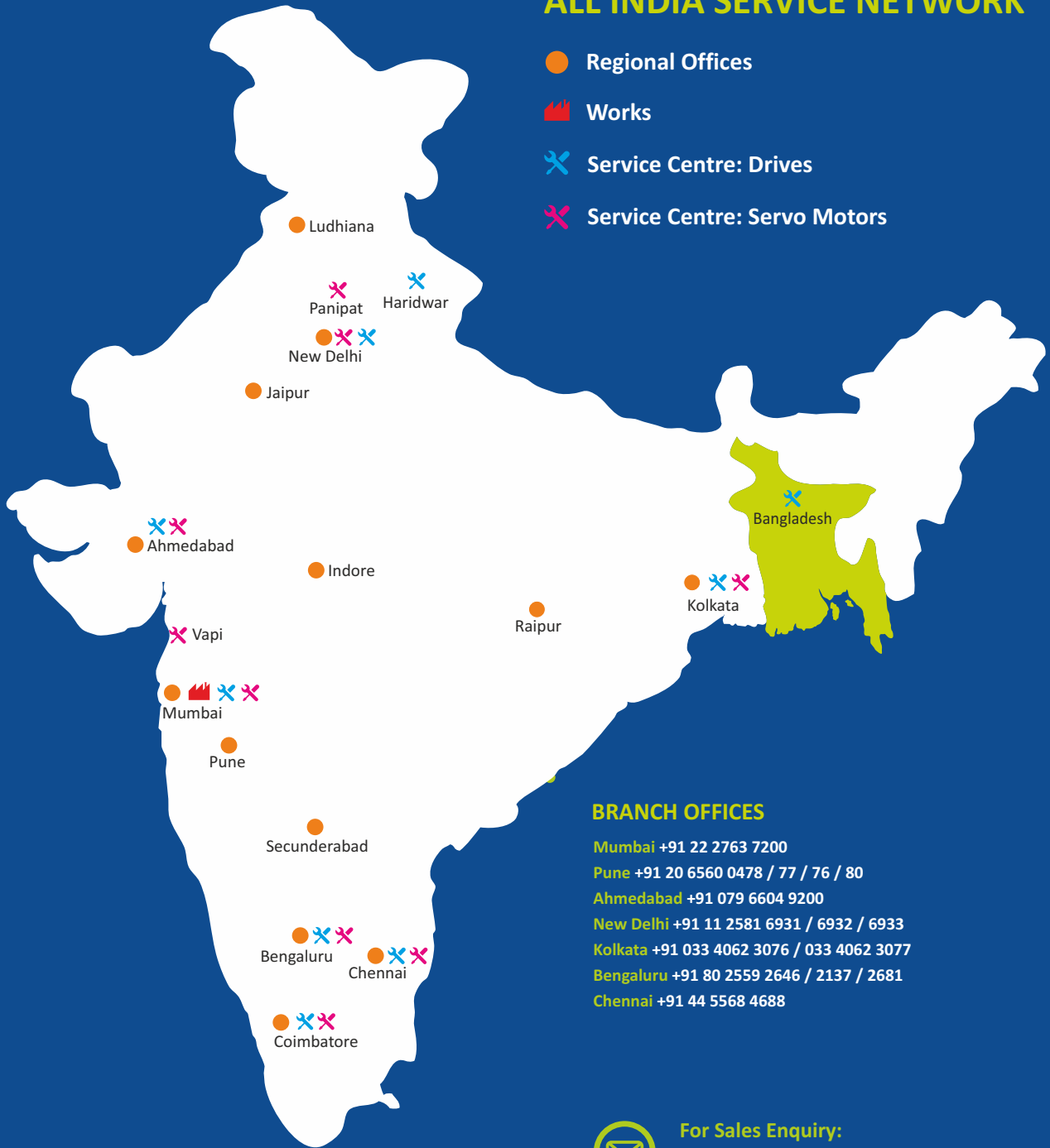
The regenerative test system offers significant energy savings compared to eddy current methods.



Automatic data acquisition and recording of test result.

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### Bharat Bijlee Drives & Automation

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