



**TURBO COMPUTER  
PROFESSIONALS PVT. LTD.**



**Perfect Motor Type Test System**

# PERFECT MOTOR TYPE TEST SYSTEM



Motor Type Test System has been designed to fulfill the typical need of electric motor manufacturers. The equipment has been developed in conjunction with several manufactures to maximize benefits of automatic testing. Initially involved in pure CAD/CAM projects the company diversification programme took us into the world of specialized automatic test equipment. We offer complete quality assurance testing using the most modern technology. We not only manufacture superior products but also provide excellent technical support. We take pride in declaring ourselves as one of the upcoming industrial icons. We have strong customer base in India as well as aboard. Best of all our user friendly software tool, provide the optimal automation solution for all customers. Software maintain the essence of automation i.e. simplicity.

The test system consists of mainly following components

**Loading Mechanism**

**Test Bed**

**Electric Panel**

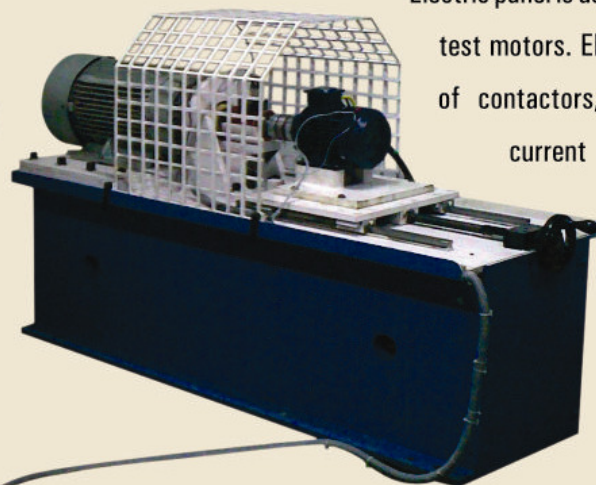
**Measuring Equipment**

**Control Box**

**Software**

In order to simulate the field loading conditions on test motors, different type of loading mechanism can be used. Dynamometers and load motors are most commonly used loading machines. Test bed provides complete environment for mounting of loading mechanism, test motor, brake, torque transducer. Every possible care is taken so that installation of test motor is done in minimum possible time. Our best engineering practices ensure the operator's safety.

Electric panel is used to supply power to load and test motors. Electrical Panel mainly consists of contactors, miniature circuit breakers, current transformers, indicators, bus bar, shunt trip coil and enclosure. Enclosure has provision for fitting computer and printer.





**MOTOR TYPE TEST PERFORMER**

MOTOR MODEL DATA  
Model Name: M112M

Motor Rating	3.7 kW	Efficiency	86.55 %	No. of Leads	3
Rated Current	6.84 amp	Rated Speed	1431 rpm	Frequency	50 Hz
Rated Voltage	415 V	No. of Phases	3	Winding Connect	DELTA
No Load Current	2.45 amp	L Rotor Current	20 amp	Coil Resistance	2.15 ohm
No Load Power	208 W	L Rotor	520 W	No. of Pole	4

Test Serial: 230  
Motor Serial: 12345

Select Test(s):  
 Coil Res (Cold)  
 No Load Test  
 Locked Rotor Test  
 Speed Torque Test  
 Heat Run Test  
 Coil Res (Hot)  
 Part Load Test  
 No Load Test (Hot)

**START TEST**

Select Report(s):  
 No Load Test  
 Load Test  
 Heat Run Test  
 Type Test  
 Speed Torque

**SHOW REPORT**

SAVE  
SAVE & CLOSE  
CLOSE

STATUS:  

Check Direction of Rotation | Draw ST curve

Motorized dimmer and frequency drives are also used to feed power to test and load motor. Power saving is achieved by using regenerative drives. The panels are designed in attractive shapes with high finish. The array of contactors are interlocked to provide ultimate safety.

Measuring equipment consists of meters, transducers, rpm sensors, torque transducer. Ultra modern and proven measuring equipments ensure accurate data capturing. Torque measurement is done by inline torque transducer.

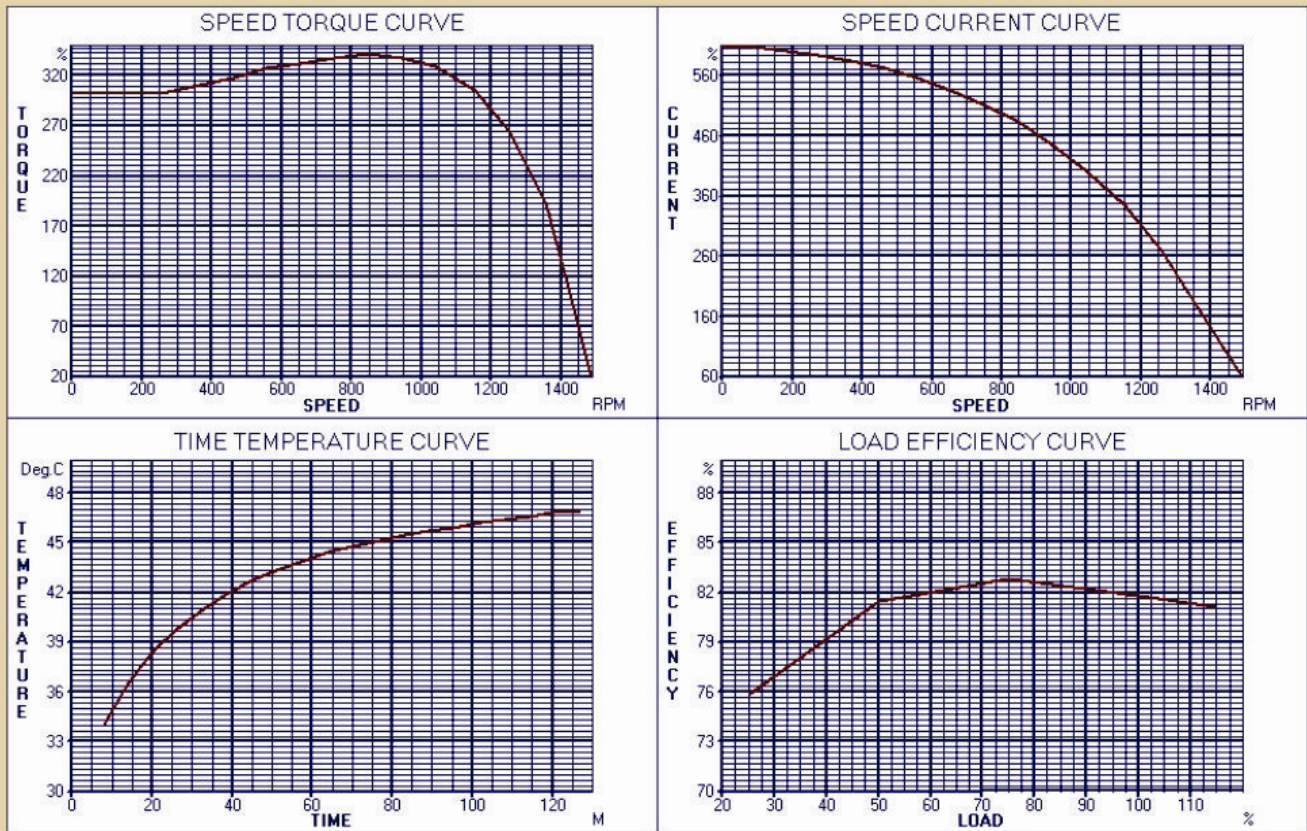
This method allows the torque sensor to be placed as close as possible to the torque of interest and avoid possible errors.

Data captured by measuring equipment is fed to control box as analog current signals. All analog current signals will be converted to analog voltage signals. These signals will be multiplexed on single line. These signals will be converted to digital signals using A to D converter. Micro controller will read the signals and convert them to serial interface compatible form. Control box is designed so that same hardware is used for any rating of motor.

**TYPE TEST REPORT**

Motor No	TCP	V <sub>ph</sub>	415	Connection	Delta	Institution	F
Motor Rating	112M	Amps	6.84	Dist	S1	Reference	2.15
Output (kW)	3.7	Frequency	50	Rating	FOOT	Test Date	02-09-09
Speed (RPM)	1431	Power Factor	0.85	Mounting	FOOT	Tested By	XXX
Torque (Nm)	24.72	Efficiency (%)	86.5	Pole	4	Ambient	50
230							
Phase Resistance (ohm)	Cold	3.71	Hot	4.32			
Ambient (deg C)	Cold	33.80	Hot	35.90			
Temperature Rise	42.4						
Load (%)	100	25	50	75	115		
No Load Input (W)	195	195	195	195	195		
No Load Current (A)	2.56	2.56	2.56	2.56	2.56		
Load Input (W)	4485	1225	2293	3316	5251		
Load Current (A)	7.34	3.16	4.28	5.38	8.44		
Test Voltage (V)	411	414	416	418	416		
Locked Rotor Voltage (%)	408	408	408	408	408		
Locked Rotor Current (A)	56.60	56.60	56.60	56.60	56.60		
Locked Rotor Torque (Nm)	70.56	70.56	70.56	70.56	70.56		
Load EPM	1458	1502	1489	1476	1445		
Frequency (Hz)	50.24	50.12	50.20	50.23	50.21		
Sync EPM	1500	1500	1500	1500	1500		
Sync EPM at Test Freq	1507	1504	1506	1507	1506		
Coil Resistance at 77°	4.28	4.28	4.28	4.28	4.28		
No Load Copper Loss	27	27	27	27	27		
Copper Loss	167	167	167	167	167		
Iron Cu Loss on Load	230	42	78	133	304		
Total Iron Loss	397	209	245	300	471		
Motor Input Power	4087	1015	2047	3015	4779		
Slip	0.032	0.001	0.011	0.020	0.040		
Iron Loss (W)	131	1	22	61	191		
Total Loss (W)	529	211	268	361	663		
Motor Output Power (W)	3955	1014	2024	2954	4587		
Stand Load Loss (W)	22	6	11	17	26		
Hot Output (W)	3933	1008	2013	2937	4561		
% Load Power (W)	106.3	27.2	54.4	79.3	123.2		
Motor Efficiency (%)	87.71	82.29	87.83	88.58	86.87		
Motor Power Factor	0.86	0.54	0.74	0.82	0.86		
Torque (Nm)	24.45	6.00	12.00	17.38	28.14		
L.R. Amp @ Rated Voltage	7.83	7.83	7.83	7.83	7.83		
L.R. Torque @ Rated Voltage	2.94	2.94	2.94	2.94	2.94		





User friendly software is designed so that complete testing is done without manual intervention. Software is divided into three modules Interface Module, Calibration Module and Testing Module. Interface module receive the data from serial port and store it for further processing. Calibration module converts the data received by interface module to actual field readings. Testing module provides the complete testing environment to the operator. Software is designed such that, a person will little training can carry out testing. Data capturing is done by software in fix interval of time. Software switch off load mechanism and test motor, once the testing is over. All required reports and graphics are generated, just by click of button.

Tests conducted by Automatic Motor Type Test System

- |                          |                           |
|--------------------------|---------------------------|
| <b>No Load Test</b>      | <b>Locked Rotor Test</b>  |
| <b>Speed Torque Test</b> | <b>Heat Run Test</b>      |
| <b>Part Load Test</b>    | <b>No Load Test (Hot)</b> |



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