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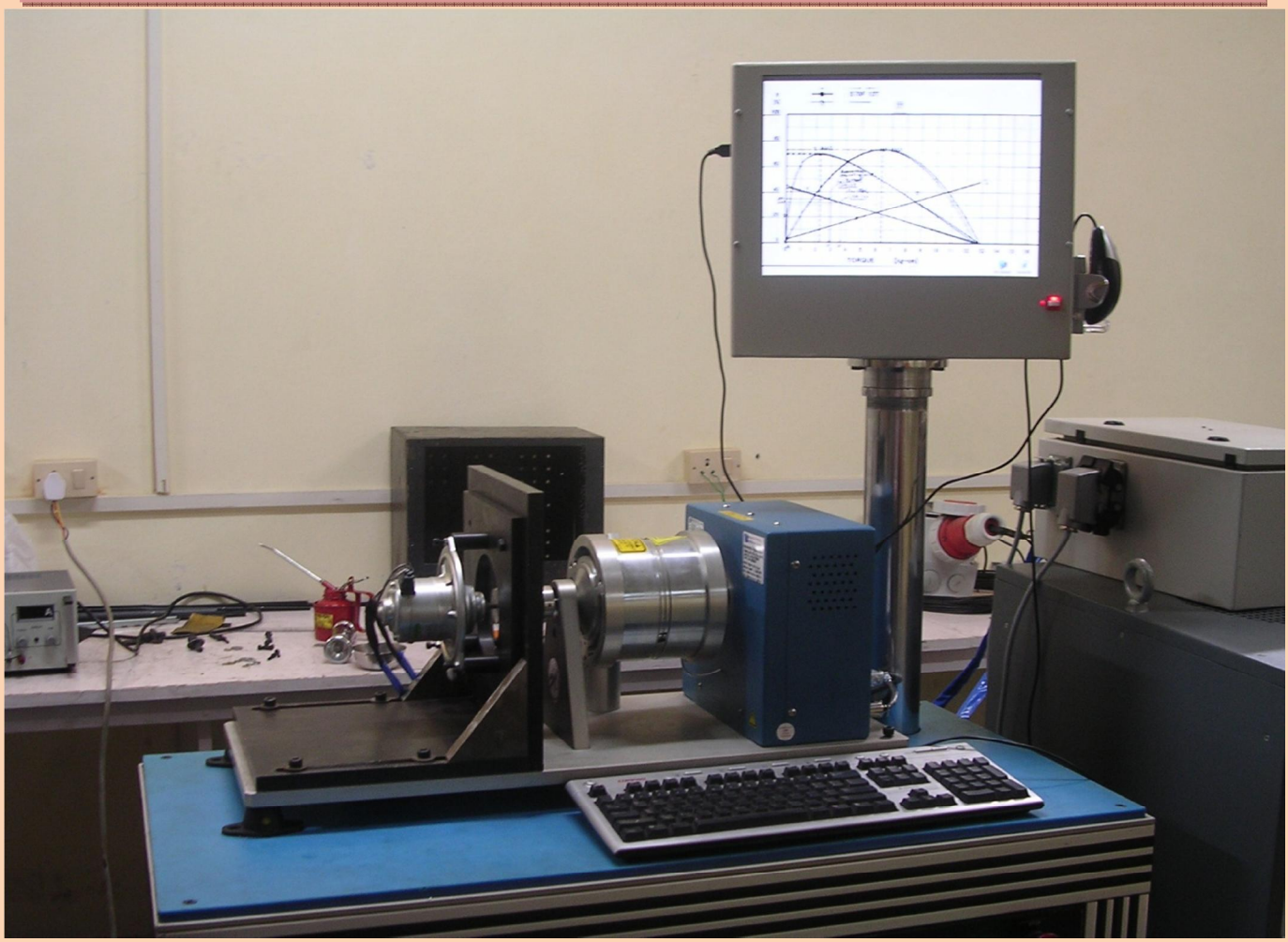
CATALOG

OF

STARTER GENERATOR TEST BENCH



Neometrix Engineering (P) Limited,E-148,Sector-63,Noida.

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INTRODUCTION OF TEST RIG:

- The Following Test Bench is for Testing Parameters of Starter Generator of Advanced Light Helicopter **(**ALH**).**

The Test bench has following four tests **:-**

1) Generator Mode Load and no Load Test.
2) Starter Mode Load Test.
3) Vibration Measurement Test.
4) Concentricity And Bar to Bar Difference Measurement Test.

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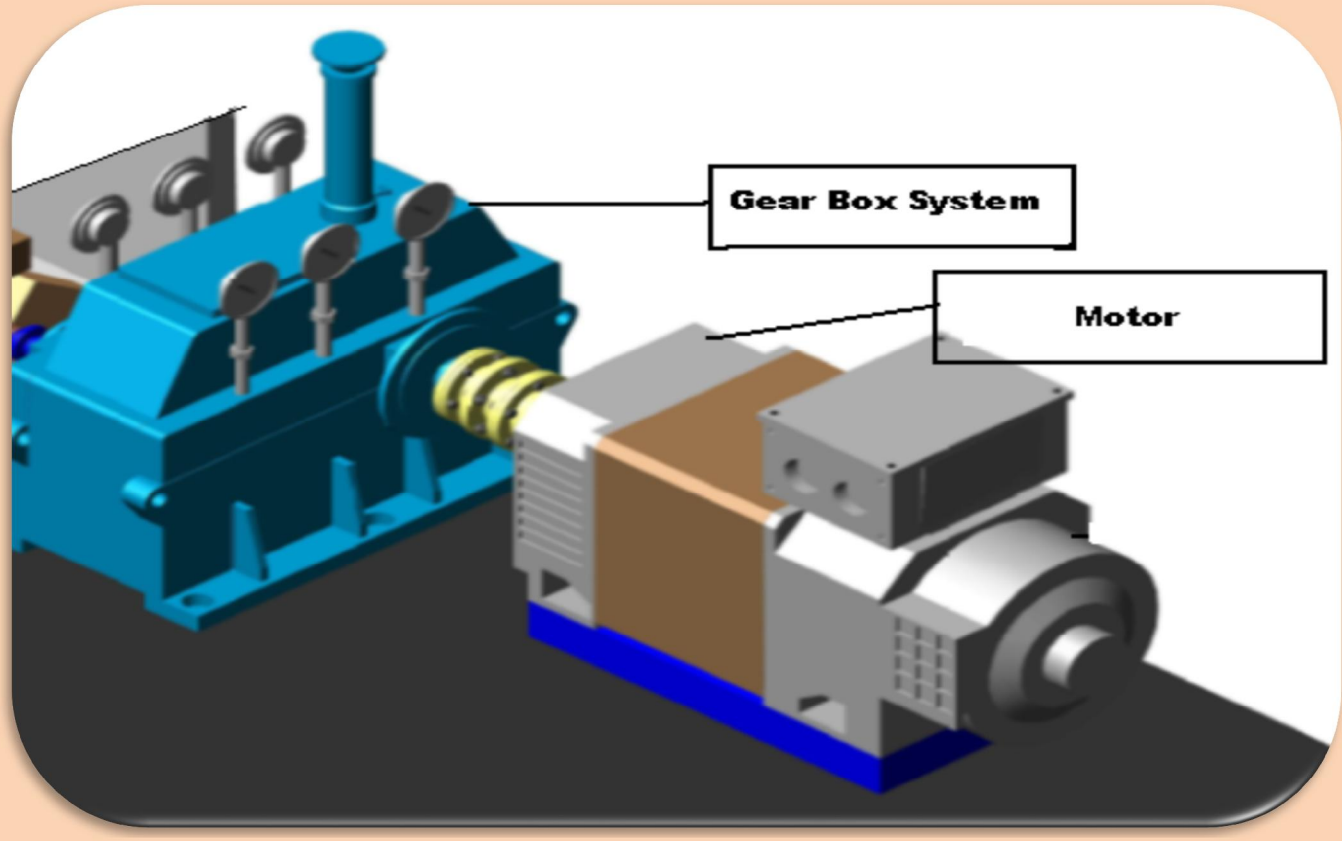
Test Bench Description:

Generator Mode Load and No Load Test

- This test will have a Combination of AC Motor of 5000 RPM rigidly Coupled with the Dual Output Gear Box having Ratio of 1:3 to give maximum speed of 15000 RPM at output .The output is to accommodate the shaft of 6KW Starter Generator With Suitable Clamping On the Common Flange.



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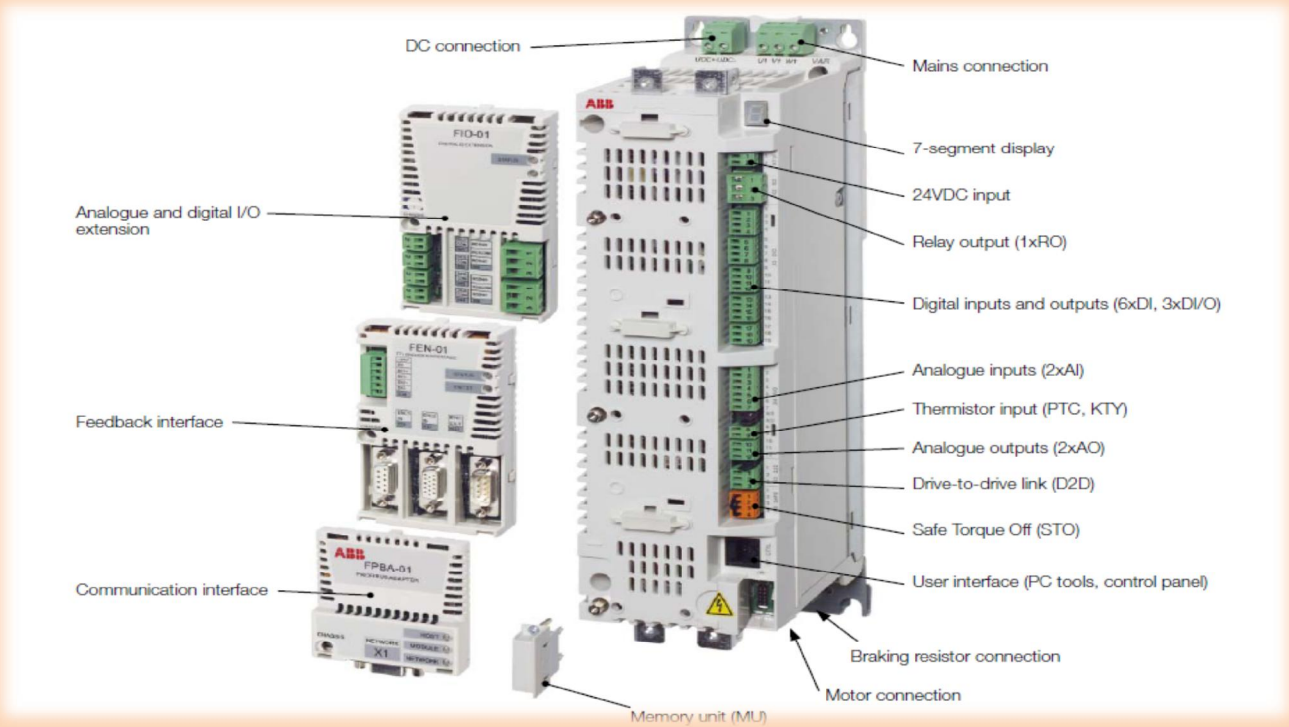
- Resistive Load Bank with good Cooling Facility provides load to the Starter Generator in steps of 0,50,100,150 and 200 Amp with additional loads of 300A , 375A and 450 Amp .Load is selected from the control panel through selectable switches .

- **A.C. Drive** ABB make is also provided for this Test with Control signals from control panel.



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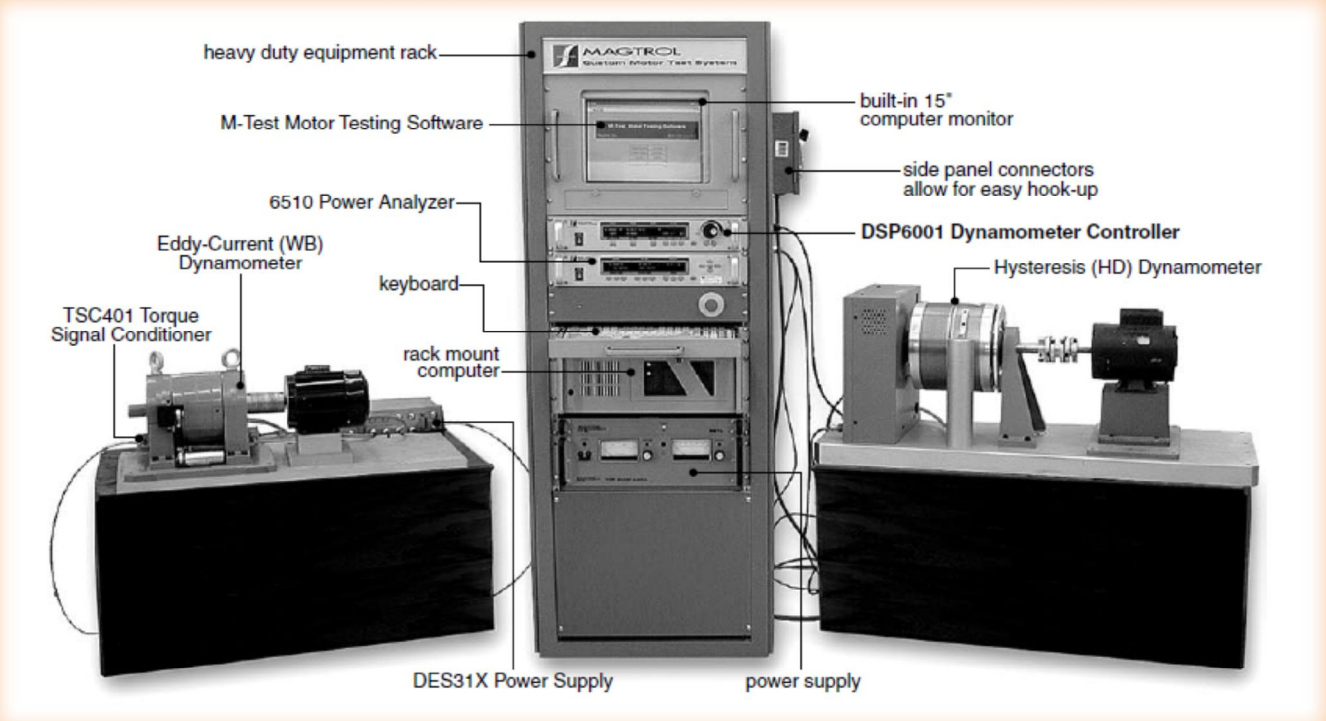
Starter Mode Load Test

- In Starter Mode Load Test the S/G is Provided DC Power Supply of 30V, 500 Amp (California Power Supply) so as to operate it as a DC Motor.
- The S/G is mounted form the Shaft side with the Magtrol Hysteresis Dynamometer.
- With the help of control knob Placed on Control Panel(DSP6001 Processor) we can apply the required Mechanical Load i.e. Torque as required.
- Meters for monitoring the Starting Voltage and Current are fitted on Control panel.



Magtrol Hysteresis Dynamometer

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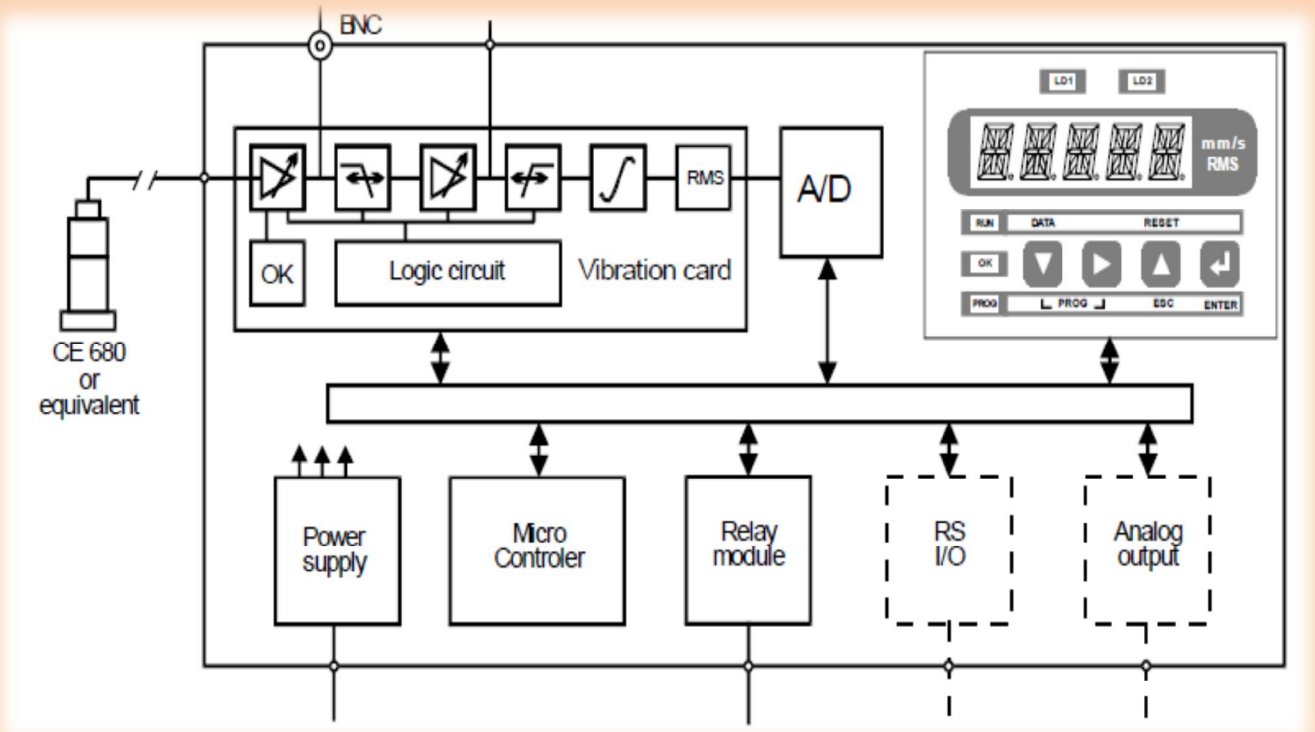
Vibration Measurement Test

- In Vibration Measurement Test the Shaft/Gear is Provided Power Supply of 30V, 100 Amp (Aplab Power Supply) so as to operate it as a DC Motor.
- Vibration Sensor Mounted on the S/G transfers the Vibration level to Vibration Analyzer.
- Meters for monitoring the Starting Voltage and Current are fitted on Control panel.
- RPM of the S/G can be read with the help of Hand Held tachometer.

Block Diagram of Vibration Analyzer :-



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Technical Data of Test Bench

Input Power	3 Phase, 415 Volt, 50 Hz.
Drive Power	90 KW.
Torque	40 Nm Constant
Speed Range	0- 15000 RPM
Load Bank (Resistive)	25 A (2 in no.), 50 A(4 in no.), 100 A(2 in no.)

Measurement and Monitoring

GENERATOR MODE PARAMETERS

Speed	0-15000 RPM
Torque	0-45 Nm.
Energy Current (I ex)	0-10 Ampere
Energy Voltage (V ex)	0-50 VDC
Balance Voltage (Ved)	0-2 VDC
Generator Current (I g)	0-500 Ampere
Generator Voltage (V g)	0-50 VDC
Temperature (Input and Output Air)	0-100 degree C
Frame Temperature of S/G	0-200 degree C

STARTER MODE PARAMETERS

Starting Current (I d) (Starter Mode)	0-500 Ampere (Load Test)
	0-100 Ampere (No Load)
Starting Voltage (V d)(Starter Mode)	0-30 VDC
Starter Mode Torque	0-20 Nm (1650 RPM to 6000 RPM)
Micro Meter	+50 micrometer to -50 micrometer
Vibration Analzer	1-10000 Hz .

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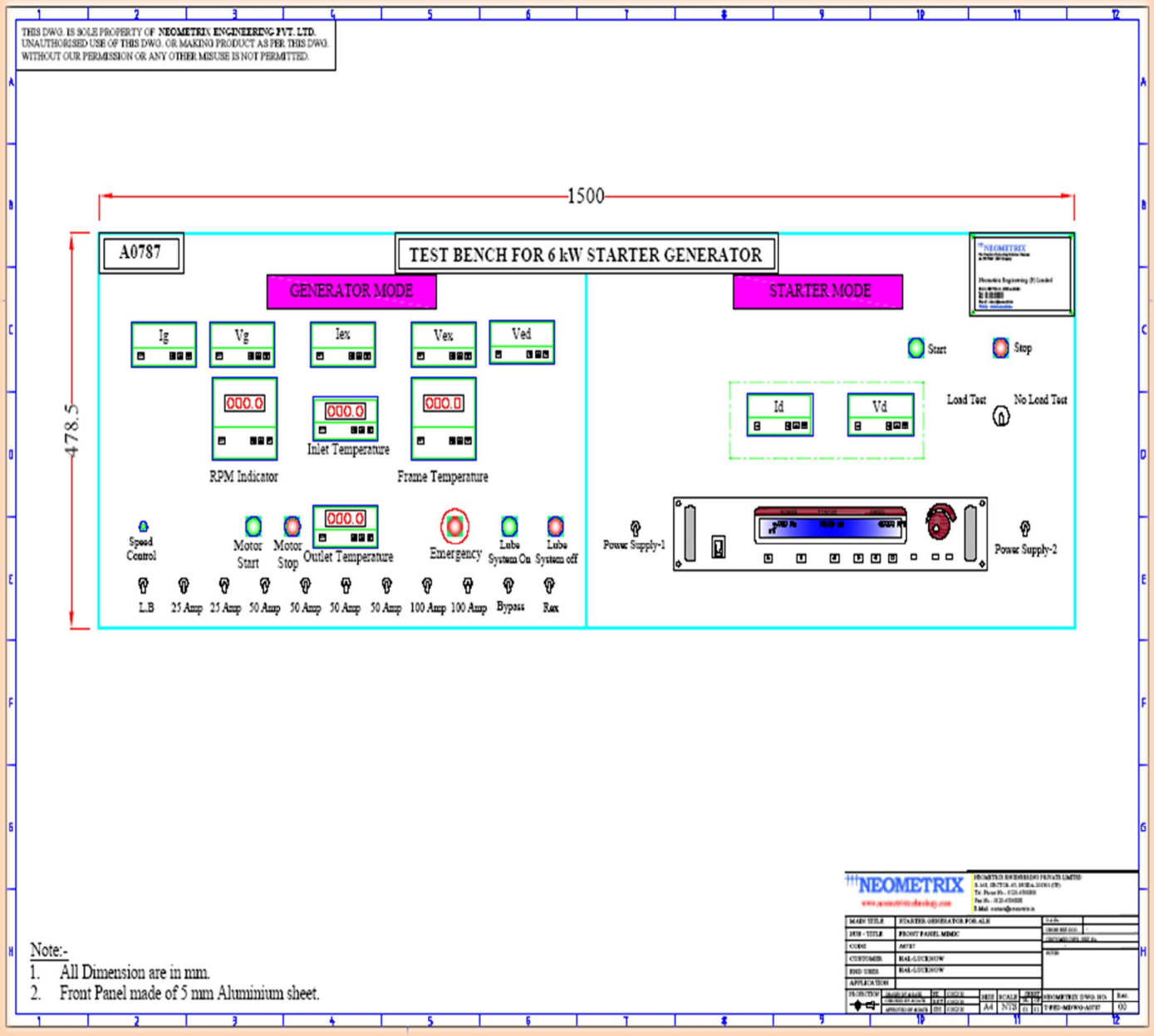
Digital Tachometer	1-25000 RPM
Power Supply	0-30 VDC , 500 Ampere
	0-30 VDC, 100 Ampere
Micro Ohm Resistance	0-2 Ohm

CONTROL PANEL MIMIC



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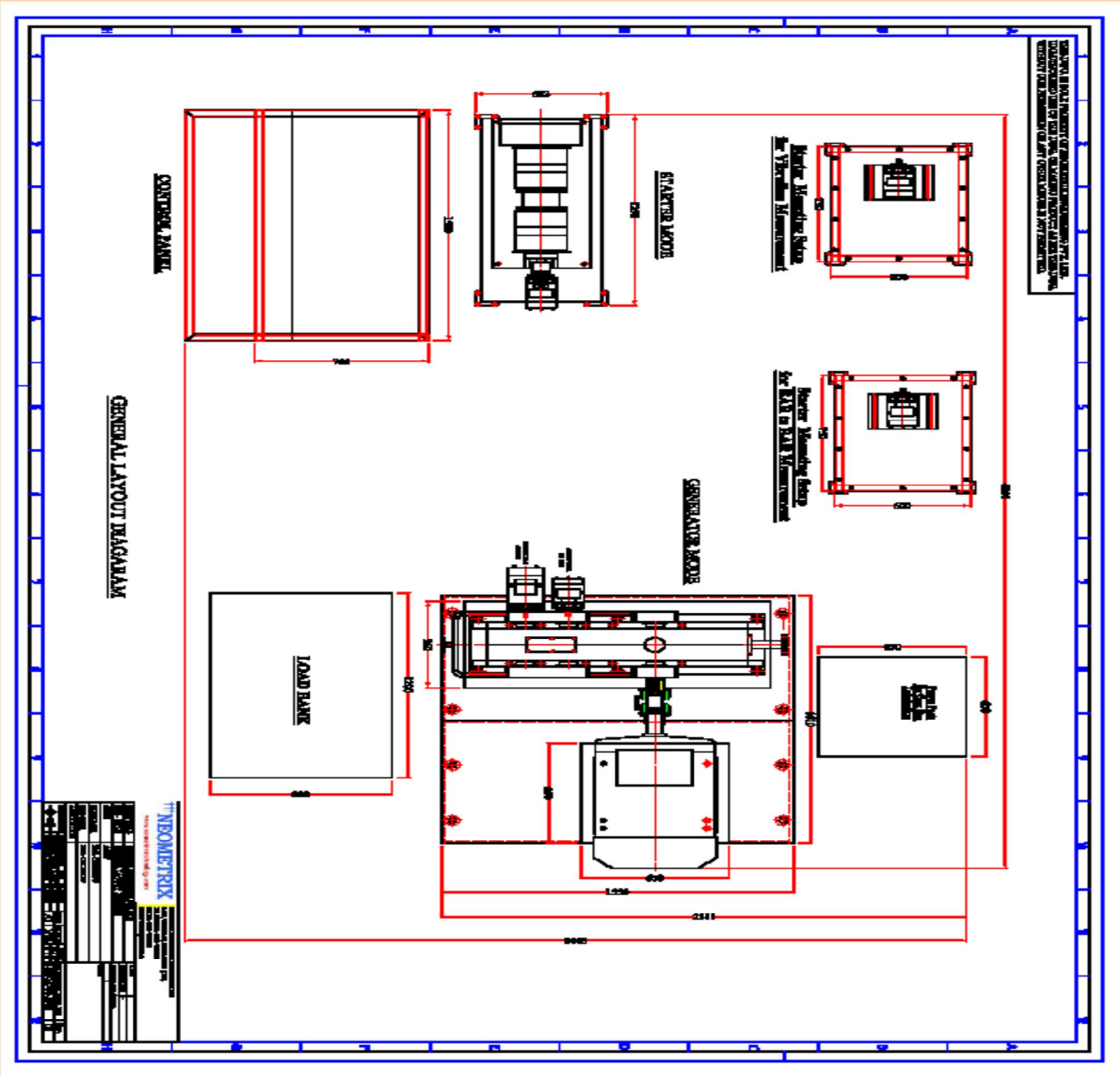
General Layout Diagram



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