

MotorTest

Retrofit

Reconditioning of brake benches
for electric motors



MotorTEST Retrofit This is Intesys offer in the mechanical, electrical, electronic and software reconditioning of obsolete test benches for electric motors.

Brake reconditioning

- Replacement of the eddy current braking element with an inverter-driven braking motor system in “energy recovery” (regenerative) configuration
- Replacing the load cell with a torque transducer
- Load cell replacement / calibration
- Electronic overhaul and calibration of eddy current brake control
- Mechanical adaptation to safety regulations with issuing of certificate

Replacement of the control and data acquisition system

Standard control system

The obsolete control system is replaced with a market standard control and data acquisition system and a Windows-based Personal Computer

Data acquisition and control system and software

Intesys MotorTest in LabVIEW environment

The control and data acquisition system is composed of a Windows-based Personal Computer, an electronic control of the dynamic brake bench and acquisition of the quantities to be measured from the sensors and instrumentation.

Detectable quantities: engine speed, torque, power output, voltages, currents, absorbed and apparent power efficiency, slip, mains frequency, motor winding resistances (optional), temperatures.

Engine and brake plate data archive: will be used to automatically set the inverter parameters of the braking motor

Empty Test: The motor under test is powered at a voltage that varies automatically in the range $\pm 100\% V_n$ (after setting the min and max threshold) and at the same time the acquisition is performed

Locked Rotor Test: where the voltage is automatically varied from 0 to 100% of the voltage nominal (after setting the max current) and at the same time the acquisition of the electrical quantities is carried out

and mechanics at regular intervals

Load scaling. The test is performed at constant nominal voltage but with load automatically variable from 0 to 200% of rated power.

Max. torque The test is performed at constant nominal voltage and with braking torque varying linearly from 0Nm to maximum torque C_{max} .

Type S1 heating tests: with adjustable torque or power until thermal equilibrium is reached, after which the winding resistance is measured using a special microohmmeter or the Resistance Meter instrument supplied with the bench. Subsequently, the overtemperature calculation is performed.

S6 type heating tests: like the S1 test but with load applied periodically with settable ON and OFF cycles

Type S3 heating tests. A sequence of identical operating cycles, each comprising a period of constant load operation and a rest period. In this duty, the cycle is such that the starting current does not significantly influence the temperature rise.

Mechanical characteristic from 0 to RPMmax. The aim is to track the power and torque curve and power in

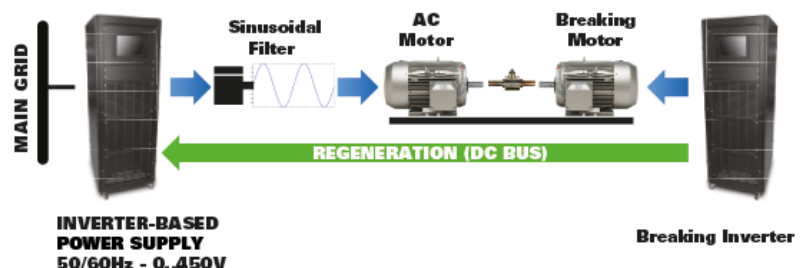
the entire speed range. Three operating zones are distinguished: constant torque operation, power operation constant

Reports

All the test data flow into a report headed with the plate data of the engine being tested, the brake and the used instrumentation (with certification date) with the possibility of additional comments and notes. The data is in the form of table plus an associated graph where applicable

WaveGEN, 50 or 60 Hz regenerative power system, variable voltage 0-450V, as required by IEC 60034-30-1:2014

The power supply of the motors under test is provided by an inverter-based power supply that can be excluded and can vary from 0 to 450V. Power is drawn from the braking inverter via common DC bus. The system also allows for motor tests to be carried out under IEC 60034-30-1:2014 (IE4)



Certified precision instrumentation for the detection of Yokogawa wattmeters

Basic accuracy: 0.1% of reading

DC measurement: 0.5 Hz to 100 kHz

Measurements of all CA parameters

Standard USB and GPIB or RS232 interfaces

Current measurements up to 50 micro-Amperes

Maximum forward current measurements up to 40 Amps RMS

High data update speed (up to 10 readings per second)

Simultaneous normal and harmonic measurements

Simultaneous torque and speed measurements using a wattmeter or National Instruments data acquisition system

