

Traction Motor Test Bench

CAPABILITY SHEET · A SERIES MOTOR MUST NOT RUN FREE · INSULATION PROVED BEFORE POWER · ENGINEERING

THE ONE IDEA

PRINCIPLE	A series motor must not run free.
WHY IT MATTERS	In a series motor the field is carried by the armature current, so as the load falls the field weakens and the speed rises, which is why the bench loads the shaft or limits the speed before it gives the motor power.

THE BENCH

BED & SUPPLY	A heavy bench bed with cradles that carry the motor and its load on one axis, and a variable supply with current limits and a way to cut it at once.
LOAD & TRIP	A load machine or a brake on the shaft through a torque-measuring coupling, and a separate over-speed trip that acts whatever the control system is doing.
INSULATION	An insulation test set that measures insulation resistance and applies a high-voltage test before power, and again after the run.
CONSOLE & RECORD	A test console that runs the steps, reads voltage, current, speed, torque, temperature and vibration, and compares every motor with its incoming readings.

THE METHOD

ORDER	Specify, supply, load, build, test and prove. Choosing how the motor is loaded before anything is wired, and proving the trip before any motor is run, are what a quick order skips.
LIMITS	Voltages, currents, speeds and times come from the standard the customer names and from the motor, and are not printed here.

CONFIGURATIONS

DC MOTOR BENCH	A variable DC supply, a load machine and an over-speed trip for series-wound traction motors.
AC MOTOR BENCH	A converter that supplies the voltage and frequency for the no-load run and checks of converter-fed AC motors.
BACK-TO-BACK BENCH	Two coupled motors, one driving and one generating, for long runs where the supply covers only the losses.

STANDARDS & SCOPE

STANDARDS	Public references: IEC 60349-1 for rail traction machines other than converter-fed AC motors, and IEC 60349-2 for converter-fed AC motors.
SCOPE BOUNDARY	It is the traction motor test bench: not an e-motor test bench, not a speedometer test bench and not a bogie rig.
STATUS	Neometrix engineers traction motor test benches to order, and no delivered traction motor test bench is claimed.

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