

ENGINE TEST BED (braking dynamometer) MPW 5 Modular for electric motors with 2 senses of rotation, with MP Computer

In the following the basic design is described. A wide variety of standard functions is additionally available.

In basic design the engine test bed is not supposed to be run unattended, if internal faults of the test bed or external faults may lead to dangerous situations.

Loading system:	air-cooled electromagnetic eddy-current brake both senses of rotation possible		
Max. speed (continuously permissible):	5000 r.p.m.		
Min. sensed speed:	100 r.p.m.		
Max. torque at operation temperature:	at 500 r.p.m.	-	35 Nm
	at 3000 r.p.m.	-	62 Nm
Max. continuous load-carrying capacity:	at 500 r.p.m.	-	1.2 kW
	at 3000 r.p.m.	-	3.5 kW

The engine test bed consists of the braking and measuring unit and the control unit (evaluation, display and control unit with MP Computer). Both units are connected by cables and plugs and are designed to be set up on a table.

The conventional motors to be tested are to be fixed on simple base plates. The flange motors to be tested are to be fixed on a clamping device. The base plates and the clamping device are to be fixed on the table of the braking and measuring unit by a prismatic guide and by clamping sets.

The motors to be tested are connected to the brake by a double cardanic curved tooth coupling. This coupling is protected against contact by an adjustable grating.

A foundation or fixation to the floor are not required.

Weights:	braking and measuring unit:	75 kg
	control unit:	20 kg
Space required:	braking and measuring unit:	0.85 m x 0.70 m
	control unit:	0.50 m x 0.60 m
Electric supply:	220 V, 50/60 Hz with protection earth	
	via 10 m cable with connector	
	rated current 0.85 A, max. fuse rating 16 A	
	Other supply voltages are possible.	

Control and measurement

The control unit in the 19" desktop case contains:
the MP Computer,
the control circuits for the eddy-current brake and
the required power supplies.

Protection class of the control unit: IP 20

Rotational speed n, torque M, power P, work (energy) W

Loading of the engine by the brake is controlled by limiting the brake speed. This is achieved by manually entering the desired speed value (analog input) at a manually operated input potentiometer. This potentiometer acts through a fast response analog control circuit with thyristor amplifier. The amplifier controls the current magnetizing the eddy current brake.

The input potentiometer is installed in a separate hand-control housing and connected to the control unit via a spiral cable in such a way, that it can be operated from any point near the engine, if the control unit is positioned in an appropriate location.

A speed-stabilizing function of the MP Computer with numerical input of the desired value can be optionally superimposed to the manual speed adjustment and allows fast and precise adjustment of the speed.

Speed measurement: digital incremental pick-up non-sensitive for sense of rotation

Torque measurement: analog measurement of the reactive torque at the stator of the brake
by strain gage load cell

The MP Computer displays the following measured and calculated values simultaneously via LED's 20 mm high:

Speed	display range	9999	r.p.m.
	display resolution	1	r.p.m.
Torque	display range	+/- 50	Nm
	display resolution	0.05	Nm
	calibration value	50	Nm
Power	display range	9.999	kW
	display resolution	0.001	kW
Work (energy)	display range (automatic change-over)	9.999	kWs
		or 99.99	kWs
		or 999.9	kWs
		or 9999	kWs
	corresponding display resolution	0.001	kWs
		or 0.01	kWs
		or 0.1	kWs
		or 1	kWs

The work counter (kWs) can be set On/Off and also be reset.

For programmable torque limitation recommended for testing most types of electric motors see „Options for the MP Computer“ and price list.

Subject to change !