

## **ENGINE TEST BED (braking dynamometer) MPW 5 Modular for combustion engines, with evaluation- and display unit MP-E**

In the following the basic design is described.

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 sense of rotation clockwise seen from the engine to the brake
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 (The measuring range is only 19.99 Nm. Special types available.)
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 device MP-E). Both units are connected by cables and plugs.

The braking and measuring unit is suitable for testing engines with horizontal axis. The engines to be tested are to be fixed on module plates. These module plates are adjusted on the table of the braking and measuring unit by a prismatic guide and then fixed by clamping sets.

The brake is fixed on the table. The engine to be tested is connected to the brake by a double-cardanic flexible damping coupling. The brake and the coupling are protected against accidental contact by means of a protective grating.

The table is equipped with damping masses and elastically fixed to the mobile support of the braking and measuring unit.

A foundation or fastening to the floor are not required. The test bed is mobile.

Weights:	braking and measuring unit: approx. 145 kg control unit: approx. 20 kg
Space required:	braking and measuring unit: approx. 0.85 m x 0.90 m control unit: approx. 0.70 m x 0.75 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.
Exhaust evacuation:	required, available on request

### Control and measurement

The control unit contains:

- the evaluation- and display unit MP-E
- the adjustable supply for the magnetizing current of the eddy-current brake and further required power supplies.

Protection class of the control unit: IP 55

The 19" desktop case shown on several illustrations is no more recommended.

### Rotational speed n, torque M

Loading of the engine by the brake is controlled by adjusting the magnetizing voltage of the eddy-current brake. The adjusting knob for the magnetizing voltage is placed on the panel of the display and control unit.

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 unit MP-E displays the following measured values simultaneously via LEDs 20 mm high:

Speed	display range	9999	r.p.m.
	display resolution	1	r.p.m.
Torque	display range	19.99	Nm
	display resolution	0.01	Nm
	permissible oscillation amplitude	+/- 50	Nm
	calibration value	10	Nm

Subject to change !