

## **ENGINE TEST BED (braking dynamometer) MPW 10 F with MP Computer, with 2 senses of rotation, for flange-mounted electric motors**

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.	- 102 Nm
	at	3000 r.p.m.	- 160 Nm
Max. continuous load-carrying capacity:	at	500 r.p.m.	- 1.7 kW
	at	3000 r.p.m.	- 5.0 kW

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

The flange-mounted motors to be tested are to be screwed to the mounting surface of the braking and measuring unit. The mounting surface fits size 112 in accordance with IEC 72, type IMB 5 and equivalent. Bigger sizes (132; 160, 180, 200) and smaller sizes require adapting rings or adapting pieces. For mounting and testing the motors the vertical axis is preferred. Calibration with the calibration lever is only possible if the axis of rotation is horizontal.

The motors to be tested are connected to the brake by a double-cardanic curved tooth coupling. The brake and the coupling are protected against accidental contact by means of a protective grating.

A foundation or fastening to the floor are not required.

Weights:	braking and measuring unit:	approx.	105 kg
	control unit:	approx.	20 kg
Space required:	braking and measuring unit:	approx.	0.95 m x 0.76 m
	control unit:	approx.	0.50 m x 0.60 m
Electric supply:	220 V, 50/60 Hz with protective earth via 10 m cable with connector rated current 1.6 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 circuitries 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	+/- 100	Nm
	display resolution	0.1	Nm
Power	display range	99.99	kW
	display resolution	0.01	kW
	calibration value	100	Nm
or	display range	+/- 200	Nm
	display resolution	0.2	Nm
	calibration value	200	Nm
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 or 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 !