

# MT 172

## Alignment of drives, shafts and gears



The illustration shows MT 172 together with a combination gear unit assembled from parts set MT 110.02.

### Description

- assemble and align drive elements
- understanding a wide range of mechanical drives systems
- functional testing of completed GUNT assembly kits

The MT 172 unit is used to perform functional tests on MT 170 (shaft with journal bearings), MT 110 and MT 110.02 (combination gear units). The assembled element system — journal bearing or gear unit — is mounted on the MT 172 test bed. Here, the complete system is properly assembled, with particular regard to the alignment of the system components. A successfully completed assembly project can then be examined in operation with a formal final test. Parameters examined during test procedure are running noise, heat generation, vibrations or leakage.

MT 172 includes a single-phase asynchronous motor drive, a magnetic particle brake with adjustable braking torque, and a rigid machine bed with T-slots on which the motor and the drive element under test are mounted.

The T-slots allow the installed length to be varied, and therefore can be easily adapted to the drive element. Two couplings connect the element system to the motor and the brake. The students must align the connections between the motor and the element system, and between the element system and the brake. The controls are located on the switch box.

The braking torque is set here using a potentiometer. The exciter current of the magnetic particle brake serves as a measure of the braking torque, and is displayed in digital form. Removable guards protect the couplings.

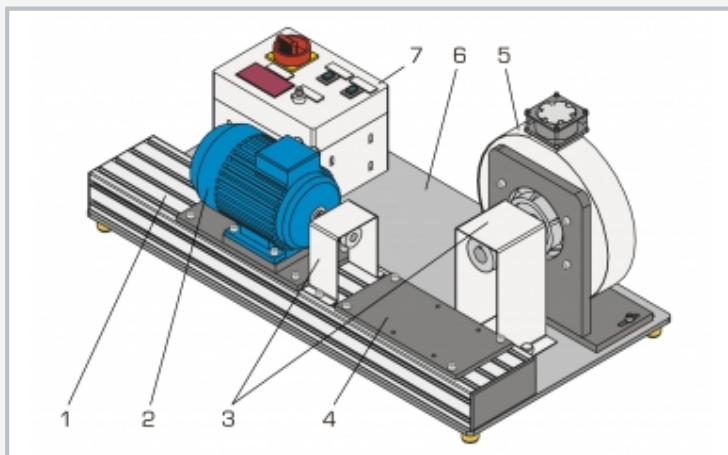
The MT 172 unit is part of the GUNT-Practice Line for assembly, maintenance and repair, which has been designed for technical colleges and company training centres.

### Learning objectives/experiments

- in conjunction with MT 170 and MT 110.02
  - ▶ assembly and alignment of gears or shafts with journal bearings
  - ▶ planning and execution of final testing: on a helical worm gear (MT 110.02); on a journal-bearing-mounted shaft (MT 170)
  - ▶ familiarisation with gear components and their functions
- in conjunction with combined gear unit MT 110.02
  - ▶ checking gear functionality after assembly using a load test
  - ▶ running of the gear under variable load: assessment of running noise; checking for heat build-up; checking for leaks
- in conjunction with MT 170 shaft with journal bearings
  - ▶ running properties of a journal bearing

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1 machine bed, 2 drive motor, 3 coupling guard, 4 combination gear unit mounting plate, 5 magnetic particle brake, 6 base plate with flexible elements for vibration damping, 7 switch box with displays and controls



The illustration shows MT 172 together with the journal bearing-mounted shaft MT 170.

### Specification

- [1] experimental unit for functional testing of mechanical gear units: shaft on journal bearing, combined gear unit
- [2] part of the GUNT-Practice Line for assembly, maintenance and repair
- [3] single-phase asynchronous motor with metal bellows coupling
- [4] externally vented magnetic particle brake with claw clutch, braking power adjustable by potentiometer
- [5] machine-bed T-slot aluminium profile for adjustable mounting of gear components
- [6] switch box with controls and digital display of exciter current of the magnetic particle brake
- [7] coupling guards

### Technical data

#### Drive motor

- 4-pole asynchronous motor
- max. power: 0,55kW
- speed: 1400min<sup>-1</sup>

#### Magnetic particle brake with fan and temperature sensor

- nominal braking torque at exciter current 0...0,4A
  - ▶ 0...45Nm
- max. braking torque at 1A: 110Nm
- bi-metallic strip temperature protection: 70°C

#### Aluminium machine bed with T-slots:

- installation space: LxW: 640x160mm
- slot spacing: 40mm
- for M8 sliding blocks

230V, 50Hz, 1 phase

120V, 60Hz, 1 phase; 230V, 60Hz, 1 phase

UL/CSA optional

LxWxH: 950x500x450mm

Weight: approx. 75kg

### Scope of delivery

- 1 experimental unit
- 1 set of screws, nuts, washers
- 1 set of shims
- 1 set of tools
- 1 set of instructional material

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Optional accessories

020.30009

WP 300.09

Laboratory trolley