Specification Sheet
Digital Revolution Meter CMO-1

Manufacturer:

Zakład Budowy Maszyn Doświadczalnych [*Experimental Machinery Building Plant]*
ZBMD® Sp. z o.o.
41-708 Ruda Śląska
Ul. Pawła 6

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2 General description

Before measuring, check that the housing is properly attached to the turbine body. Check that the battery has been charged. Connect the magnetic probe plug to the instrument and fix the measuring head directly on the lever activating the centrifugal trigger so that the lever after being activated is outside the magnetic field of the measuring probe head (fig. 2a and 2b).

2 Operation of the instrument - measurement

Before starting the measurement, the instrument and its connection to the centrifugal trigger must be checked according to the instructions in the operating manuals of the meter and the turbine. The measuring head must be fixed very close (touching gently) to the lever that triggers the centrifugal trigger so that the lever is outside the magnetic field of the measuring head after triggering (fig. 7).

Before direct measurement, press the INIT button on the left. Start the turbine by pressing the drain button, and using the control valve knob slowly increase the rpm, which will cause the measuring disc to rotate faster and increase the readings on the device display. The central and lower part of the display shows the result in revolutions per minute (RPM) and the upper part the result in revolutions per second (RPS). When the lever activating the trigger is moved, the measurement in the central part of the display will stop and the measurement in the upper and lower parts will continue showing the value of the still rotating measuring disc. If the magnetic probe is not in contact with a metal mechanical element, pressing INIT will not initiate a new measurement (fig.2a and 2b)

IMPORTANT! The device and the WP-1 turbine may only be used for measuring the speed of centrifugal triggers. It is forbidden to use for drilling, screwing!

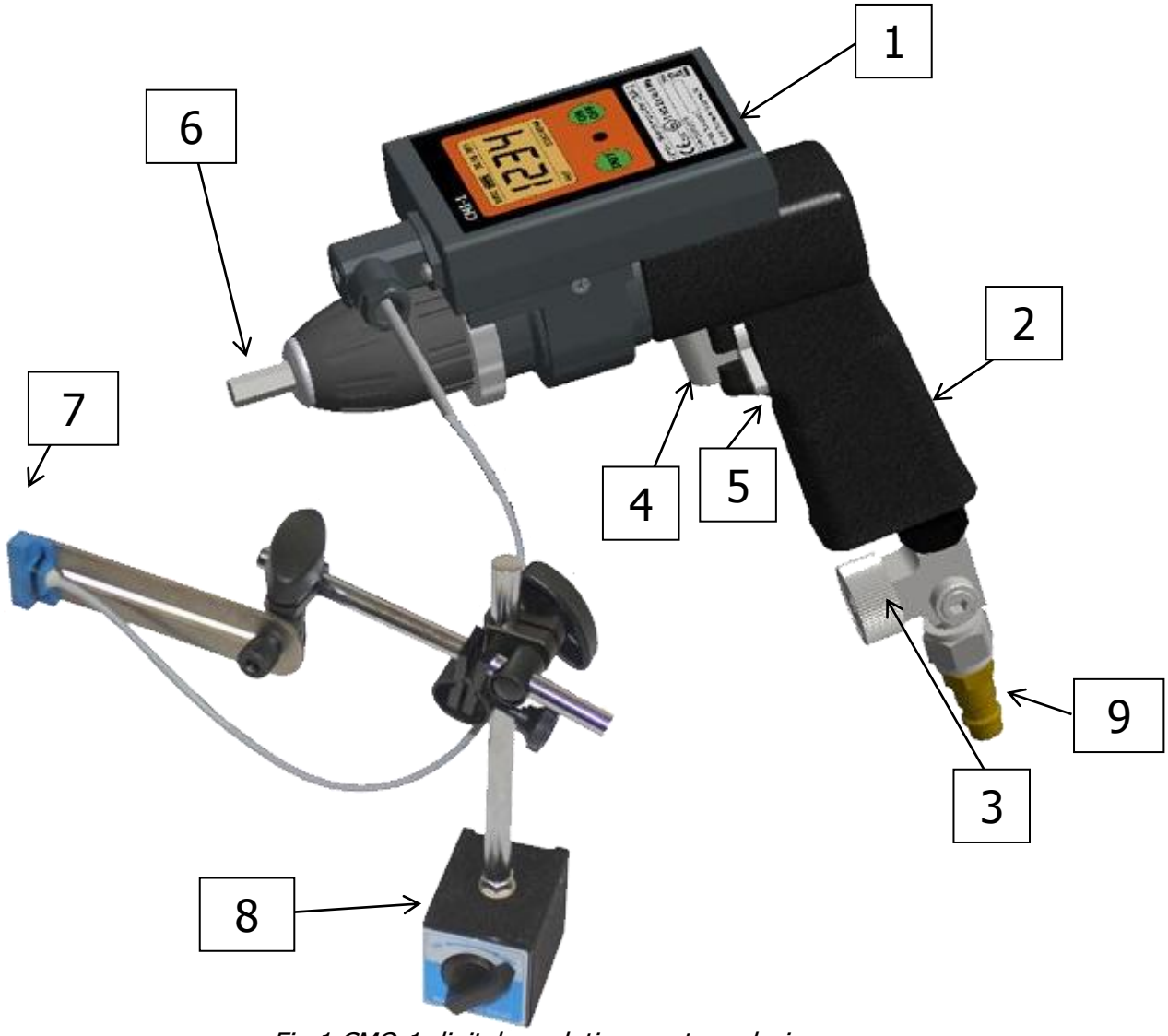

Fig.1 CMO-1 digital revolution meter - design

LEGEND:

1. X Digital pulse meter CMI-1 with LCD display.
2. X Air mechanical turbine.
3. X Control valve.
4. X Button to start the turbine.
5. X Reversing switch.
6. X Self-clamping handle.
7. X Magnetic probe measuring head.
8. X Magnetic stand for mounting the measuring probe head with switch.
9. X Quick-connect coupling.

Fig. 2a. CMO-1 Digital Rotation Meter - position of magnetic probe in relation to the triggering mechanical element during measurement (head in direct contact with the lever)

Fig. no. 2b. CMO-1 Digital Revolution Meter - position of magnetic probe in relation to the triggering mechanical element after the trigger has tripped - end of measurement (Lever outside the magnetic field).

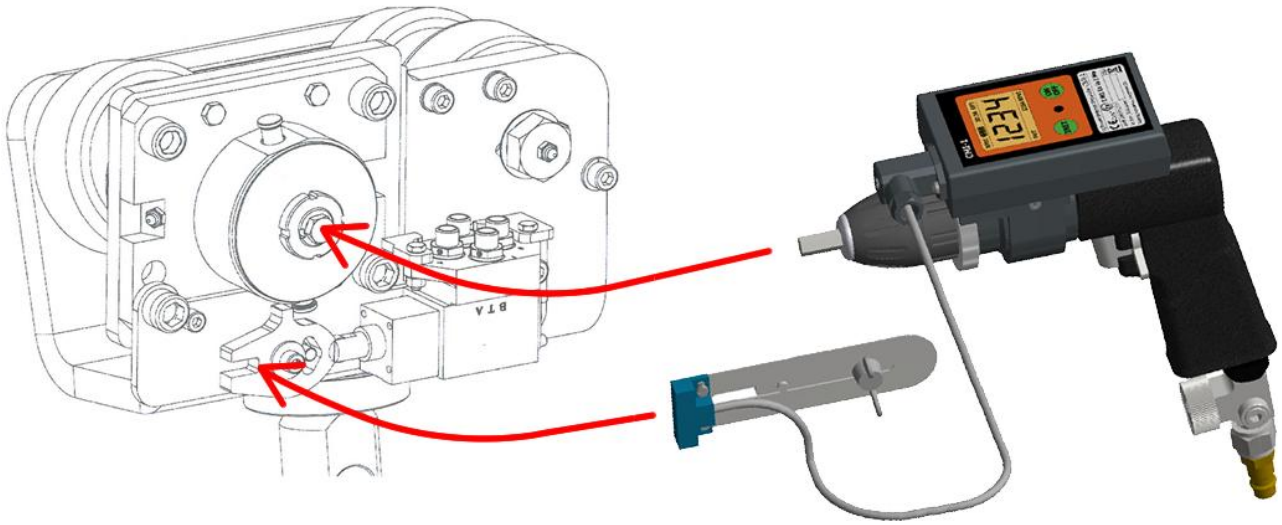

Fig. 4. CMO-1 Digital revolution Meter - example application

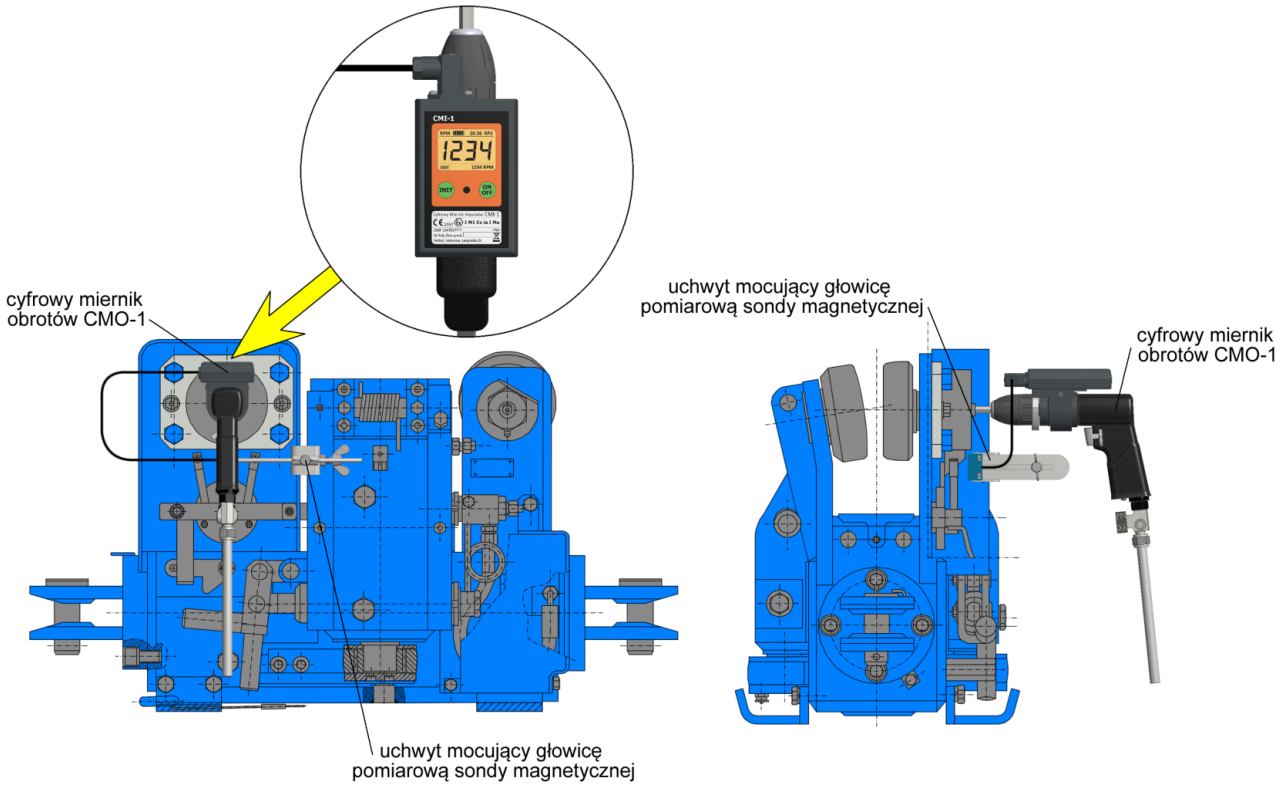

Fig 5. Digital revolution meter CMO-1 -example application - testing the speed limiter trigger of the WHR-1 trolley

Digital revolution meter; head mounting bracket; digital revolution meter; Magnetic probe head mounting bracket

1 Description of display indications

The LCD display (fig. 6) during measurement shows the rotational speed of the rotating element driven by the air turbine. In the central part of the display the speed measured in revolutions per minute RPM is indicated, whereas in the upper part of the display the speed measured in revolutions per second RPS is indicated.

There is also a battery status indicator at the top of the display.

Fig.6 Digital revolution meter CMO-1 - view of LCD display

2 Technical data

Digital Revolution meter

Type	CMO-1
EC type examination certificate	TEST 19ATEX000
Designation	ZBMD-CMO-1-sequential number/year of production
Manufacturer	ZBMD Sp. z o.o.
Max. turbine supply pressure	6.2 bar.
Average air consumption	120 l/min
Pneumatic connection of the turbine	3/8 inch
Dimensions	180x165x65mm
Weight	1,25 kg
Degree of protection of housing	IP 54
Ambient temperature	$-20C^0$ to $+40C^0$
Relative humidity	up to 96% RH non-condensing
Performance	intrinsically safe
Maximum measured speed	1800 rpm.
Measurement error	0.1 per cent
Automatic switch-off time	after approx. 30 sec.
Zone of operation of the inductive sensor	up to 4mm

3 Scope of delivery

Delivery includes:

- the complete CMO-1 revolution meter in a suitcase or mining bag with the logo of the ZBMD® or your company on page 11.
- warranty card,
- DTR original user's manual,
- EC type examination certificate ATEX,
- EC/EU declaration of conformity.

4 Product ordering

The CMO-1 digital revolution meter can be ordered from:
Zakład Budowy Maszyn Doświadczalnych Sp. z o.o. ul.
Pawła 6; 41-708 Ruda Śląska
Krzysztof Klasik
tel:+48515797227
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