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SCIENTIFIC-PRODUCTION
ENTERPRISE VIBROBIT LLC

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STAND SP20

Operations and Maintenance Manual

VSPA.421412.061 RE

Rostov-on-Don
2020

SPE VIBROBIT LLC

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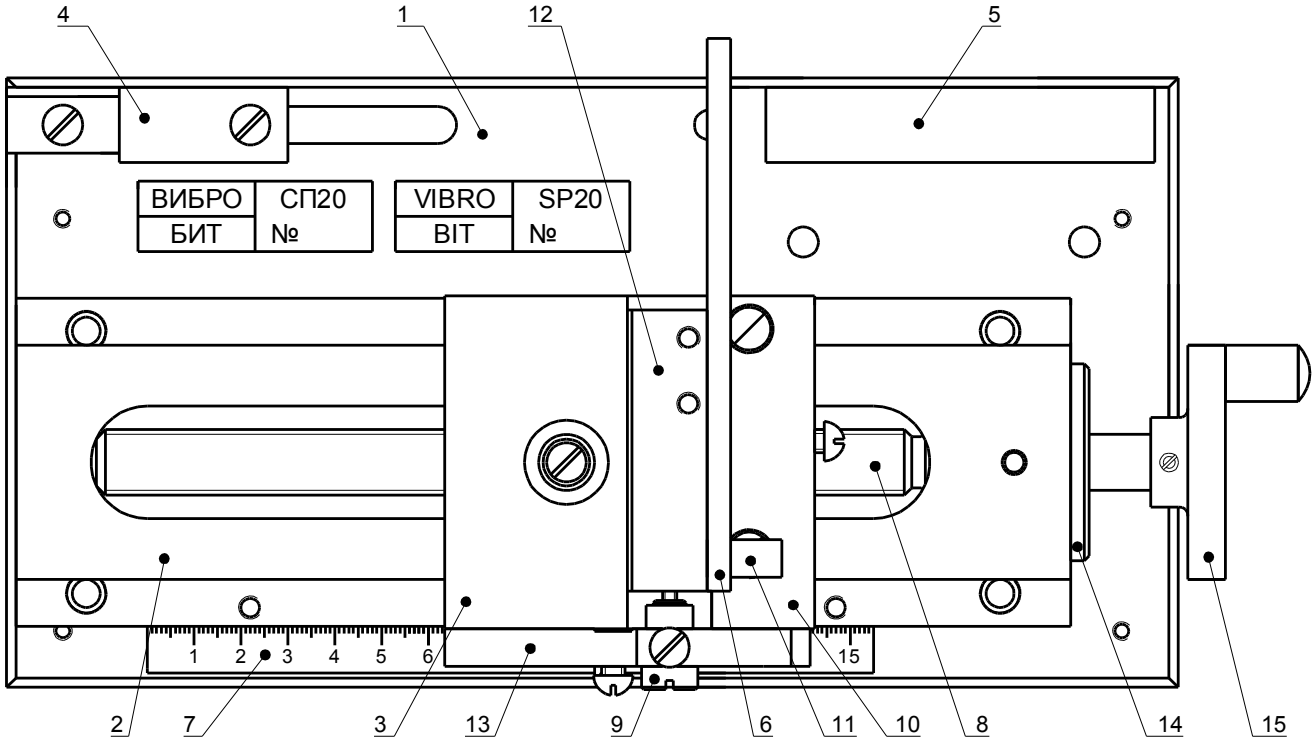
The enterprise “VIBROBIT” reserves the right to modify parts and accessories without loss of product performance.

The Operations and Maintenance Manual (OMM) is intended for familiarization of users (consumers) with purpose, principle of operation, specifications, design, rules of operation and calibration of the stand SP20.

The user must know the rules of electrical appliances, have experience with radio measuring equipment, as well as know the purpose and operation of the equipment "Vibrobit 100".

1 Purpose of equipment

The stand SP20 is intended for calibration and testing of the eddy-current (induction) sensors displacements in conjunction with the transducers.



1 - Plate
2 - Stand
3 - Carriage
4 - Indicator stand
5 - transducer stand
6 - Control sample (control plate)
7 - straightedge
8 - Longitudinal displacement screw
9 - Lateral offset screw
10 - Corner
11 - Lug
12 - Rack
13 - Bar
14 - Strap
15 - Handwheel

Figure 1 - Stand SP20

2 Main technical characteristics

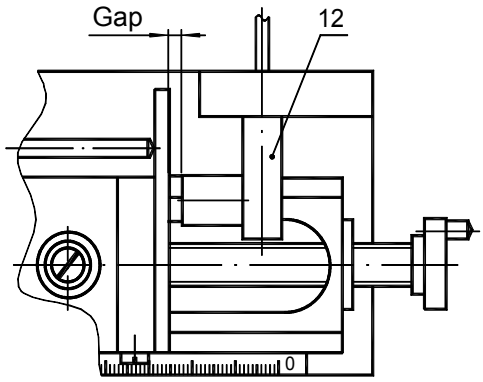
The main technical characteristics are listed in Table 1.

Table 1 - The main technical characteristics

Parameter description	Norm
Measuring range of longitudinal displacement, mm	from 0 to 120 inclusive
Measuring range of lateral displacement, mm	from 0 to 25 inclusive
Basic error of displacement setting, mm	± 0.02
Parallelism tolerance between the control sample and the sensor surface, mm	0.2
Overall dimensions in assembled form, mm	250x130x195
Mass, kg, not exceeding	12

3 Design and Principle of Operation

The stand consists of a base, on which a support with a guide screw providing a longitudinal movement of a carriage having a lateral movement screw is installed. A check plate is installed on the carriage. A dial test indicator ICh50 is installed in a special rack. The sensors to be checked are installed in a rack in accordance with figures 2 to 3.

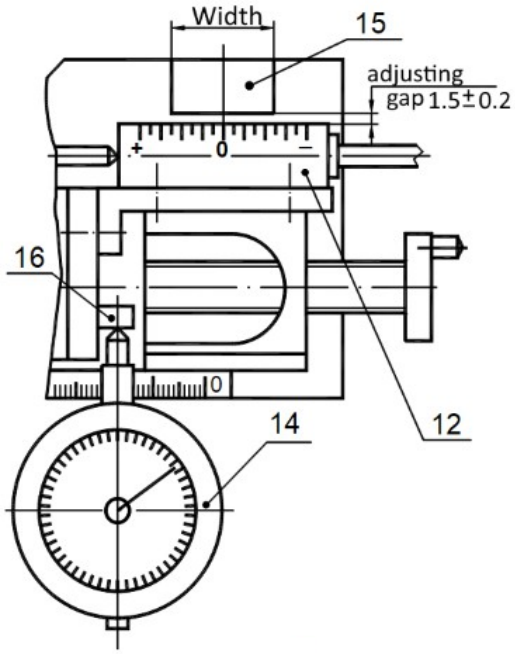


12 – Sensor DVT60.

Figure 2 - Installation of sensor DVT60

In accordance with Figure 2 the displacement of the check plate relative to the sensor is implemented by a rotation of the support guide screw handwheel. Reading of the displacement parameter is performed according the scale of the dial test indicator ICh50.

12 – Sensors DVT40, DVT43.



14 – Dial test indicator ICh10.

15 – Rim

16 – Boss

Figure 3 - Installation of sensors DVT40, DVT43

In accordance with Figure 3 the displacement of the rim relative to the sensor is implemented by a rotation of the support guide screw handwheel. Reading of the displacement parameter is performed according the scale of the dial test indicator ICh50.

Setting the gap between rim and sensor is implemented by rotation transversal displacement screw. Reading of the displacement parameter is performed according the scale of the dial test indicator ICh10.

The stand calibration consists in a calibration of the dial test indicator ICh50 as a linear measuring instrument. Calibration of the indicator ICh10 is not required.

When calibrating the sensors, a check plate made of the monitoring object material should be used.

4 Transportation and Storage

Packaged stand may be transported to any distances by railway or road (in enclosed bodies of the ve-hicles), by see (in holds), by air (in pressurized compartments).

Transport conditions – J as per GOST 25804.4–83.

Packaged stand is designed to withtest rig the following transit conditions:

- temperature – from minus 50 °C to plus 50 °C;
- relative humidity – 95 % at 35 °C;
- vibration (acting alone the three mutually perpendicular axes of the container) when carried by railway, motor vehicle and aircraft within the range of frequencies (10 – 55) Hz at the amplitude of the vi-bratory displacement of 0.35 mm and vibratory acceleration of 5g;
- impacts with the shock acceleration peak value 10g, shock pulse duration 10 ms, number of im-pacts (1000 ± 10) in the direction indicated by the arrow applied on the container.

The stand storage conditions with regard to the impact of the environment must comply with the conditions 3 (J3) as per GOST 15150–69. Warranty period of storage shall not exceed 24 months from the date of manufacture.

Long-term storage of stand shall be carried out in the packaging material inside the heated premises meeting the requirements specified in 1 (L) as per GOST 15150–69.

Notes