

MV-5, MV-5L measurement device for vibrations and bearings status

- ◆ the measured values are **acceleration, speed and deviation of vibrations**
- ◆ a special variant of the L device is designed for **monitoring the bearing status** by means of acceleration at higher frequencies
- ◆ measurement of **effective (True RMS) and peak value** of vibrations, approximate measurement of frequency
- ◆ **adjustable** width of the frequency band **from 1 Hz do to kHz**, (variant L **from 3 Hz to 10 kHz**)
- ◆ option for **storage** of the measured values into the **memory of the device**
- ◆ low energy consumption, **battery supply** from dry cell accumulator, **easy charging**
- ◆ optional **USB-2.0 communication** with computer - transmission of data, archiving of values, inspection measurement (see MV Data Manager)



MV-5, MV-5L Design

MV-5, MV-5L devices with connected sensors are portable measuring devices designed for the measurement of industrial vibrations. The measuring chain is constructed according to the requirements of the respective standards and is primarily designed for evaluation of machine vibrations according to ISO 10816. Special MV-5L variants use a special measuring regime for the evaluation of the bearings status.

The device also measures the acceleration and deviation of the oscillation in several other frequency ranges from 1Hz (variant L from 3Hz), and is recommended for the measurement of vibrations affecting buildings, people, transport, planes and ships.

The measured value is adjustable – the device measures either acceleration, speed or deviation of vibrations; variant L in the special regime measures bearings acceleration with the suppression of common operating vibrations.

For measured values the device evaluates either its effective value or bi-deviation (amplitude peak - peak), or approximate oscillation frequencies.

The device is designed for regular operating measurement of vibrations by its small dimensions and compact construction. Measured values can be stored into the memory and after measuring inspection, measured data can be stored to evaluate the data. In the case that the device is equipped with the option for communication, the measured values can be automatically transferred into a computer and stored in the measured values archive, e.g. with the use of the MV Data Manager program.

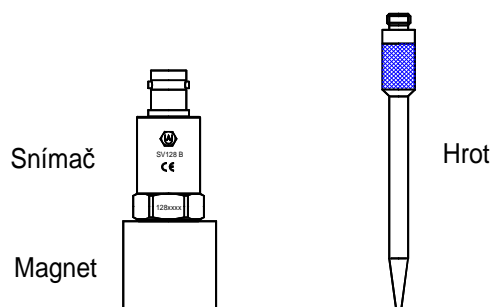
Content of the MV-5, MV-5L set

- ◆ **MV-5 or MV-5L measuring device**
- ◆ **sensor of vibrations SV128B or SV162 vibration sensor**
- ◆ **sensor cable**
- ◆ **magnetic clamp**
- ◆ **measuring pin**
- ◆ **network charging source**
- ◆ **NiCd 9V, 120 mAh** or **NiMH 9V, 150mAh (inside device) accumulator**
- ◆ **transport pocket**
- ◆ **User Manual**

Sensor and accessories

As a vibrations sensor, a shearing type accelerometer meter is used, construction DiscShear®. Standard delivered type SV128B, optional for selected applications, the SV162 s 3 x can be used with higher sensitivity. The sensor is connected to the MV-5, MV-5L measuring device by a special low-noise cable, using RNC connectors. The standard length of the cable is 1.5 m. The principle of measurement ensures that the precision of measurement is not influenced by the length of the cable to the sensor.

For the placement of the vibration sensor in the measured place, a magnetic clamp is used (if the measuring place is from ferro-magnetic material), or a pressure measuring pin. The magnetic clamp or pin are screwed by thread M5 to hole M5 in the lower area of the sensor.



MV-5, MV-5L device and accessories

The MV-5, MV-5L device is lightweight manual apparatus in a pocket-size format. On the front is a multi-function panel which displays the measured value, including the buttons to adjust the parameters and control the device.

On the upper part of the device there is BNC signal connector for the connection of the sensor, the connector for the charging source and the signal lamp for charging or the connector for computer communication.

On the rear of the device there is a removable cap under which there is the supply battery – accumulator 9V, 120mAh, type IEC 6F22.

The MV-5 device is delivered with the network supply source which serves for charging the accumulator located inside the device.

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MV-5, MV-5L measuring set



Calibration of the MV-5, MV-5L device

The MV-5, MV-5L device has a numeric adjustable constant for the charge sensitivity of the accelerometer as stated in the calibration sheet for the accelerometer. During the replacement of the sensor it is necessary to correctly set the constant.

The producer recommends to 1x a year, set the electric parameters of the device and verify the properties of the accelerometer used. This verification is performed by the producer or a service authorized by the producer.

Technical data		
Sensor		accelerometer SV128B, SV162
parameters of the sensor		see calibration sheet for the accelerometer
Measuring instrument		MV-5, MV-5L (* - the datum is valid only for MV-5)
Frequency ranges	Åö	1*, 3, 10, 30 ...100, 1000, 10 000
	Åö	10...1000 (according to ČSN ISO 2954)
Measuring ranges		
acceleration and	m/s ²	1.99, 19.9, 199
speed in	mm/s	19.9, 199
deviation with	µm	199, 1990
frequency at a, v, s	Åö	1...1990
Detectors		elective value, peak-peak, frequency
Measurement of the bearings status (only MV-5L)	m/s ²	1.99, 19.9, 199 (300Hz – 10kHz)
Error of displayed value		5% of the measured range +/- 1digit
Memory for measured values		192 measurements
Supply		9V accumulator or plate battery 9V
range of supply voltage	Height	7,5...12
input power	mW	type 90 max. 200 with backlit display
time of operation	h	approximately 8
time of charging	h	10 ... 12
Dimensions		
measuring instrument	mm	175 x 75 x 35
pocket for the set	mm	207 x 160 x 50
Weight of the set	kg	0,9
MV-5, MV-5L working conditions		
Environment		normal without aggressive vapours
Reference temperature	°C	22
Working temperature - device / sensor	°C	+5 to +40 / - 25 to +125
Reference moisture	%	10 to 80
Air pressure	kPa	86 to 106
Working temperature of device and sensor		arbitrary