

# 1M-350 and 1M-315

## Rail Wheel Diameter Measuring Devices

Wheel diameter or diameter differences of a wheelset can be measured quickly and accurately with the diameter measuring devices 1M-350 and 1M-315. Diameters can also be easily measured under the locomotive or the car in field conditions.



Measuring is very simple. After a brief practice period, reliable results can be obtained. The operating principle of the measuring devices 1M-350 and 1M-315 is simple making the device easy to use.

The distance of the travel circle from the side of the flange's side, also called the reference face or plane, is quite commonly 70 mm. However, it may deviate from this. If so, please let us know this distance, so we can produce corresponding holders for it, optional.

### The total measuring range of the measuring devices:

**1M-315** is as smallest from Ø580 mm to Ø1000 mm or e.g. from Ø607 mm to Ø1090 mm.

**1M-350** is as smallest from Ø660 mm to Ø1072 mm or e.g. from Ø713mm to Ø1239 mm.

Previous divided into four sub-ranges without gaps. There is no upper limit for the diameters and the smallest can be any diameter greater than Ø580 mm or respectively Ø660 mm. Gaps can also be left between sub-ranges. The sensor has a different position for each sub-range and this position is adjusted in the calibration rack using appropriate gage blocks. Each unit's individual calibration values are recorded on the device behind the cover plate.

Please note, before we can deliver the devices, we need to know the max and min diameters of the wheels that will be measured. In this way, we can ensure that the device will fit in the best way to measure those wheels.

### Accuracy

The diameters are indicated on the display with a resolution of 0.1 mm which is the reading accuracy. True measuring accuracy is in the range of 0.2 mm when the wheel to be measured is round, has a good surface and the reference face is proper. For example in repair turning, with a feed of 1.5...2 mm/turn the above measurement accuracy can be easily achieved.

## Temperature

Ambient temperature range -5 °C ...+45 °C.

## Batteries and current consumption

The device powered by two 9V alkaline batteries. If one measurement lasts 15 seconds, it can be estimated that the batteries can be used for more than 2000 measurements.

## Extent of delivery and dimensions

- the device with low holders
- 2 pieces high holders
- 2 pieces spare batteries
- 1 piece fork wrench
- 4 pieces calibration gage blocks
- calibrating rack
- storing bag
- operating instructions

Weight of device 1.8 kg

Length = 345 mm / 380 mm

Depth = 100 mm, Height = 176 mm

Weight = complete set approx. 6.5 kg



## Names of some parts and some important technical information are as follows

The body is made of black anodized aluminum. Support rollers,  $\varnothing 20 \pm 0,002$  mm of hardened alloy steel and the distance of their center points,  $L=350,0$  mm or  $L=315,0$  mm, are measured with an accuracy of 0,002 mm. The sensor is an inductive sensor, equipped with a hard alloy ball-head measuring probe. A metallic core shell protects the probe. Max. linearity error of the sensor is 0,1%. Holders are black anodized aluminum with stainless locking bolts and position setting by two adjuster pins of tempered steel and a permanent magnet with holding strength of 70 N. The devices are equipped on both sides with a 5-digit bright LED display and contrast filters. The measuring result can be easily read from both sides of the device using the display side selector switch. Calibration rack and four gage blocks are intended for calibration purposes. Behind the cover plate is a locking screw for the sensor and a 4-position binary switch to change the measuring range.

## Utilization examples

One condition for trouble free operating of rolling stock is that the wheel diameters per wheelset, either as new or after repair turning, are identical at better accuracy than 0,5 mm. The more the wheelset's diameter difference increase due to abnormal wear, the stronger the bogie attempts to travel in a slanting position. The axial force component increases and the flange wear considerably more. For early detection of this anomaly, these diameter measuring devices have proven to be extremely useful. In power vehicle, particularly in locomotives, where the wheelsets' power transmission is mechanically coupled, the benefits of the measuring device are emphasized.

In overhauls of locomotives, this means considerable cost savings.

***gomek oy***  
Helsinki  
Finland

Contact Us

[info@gomek.fi](mailto:info@gomek.fi)