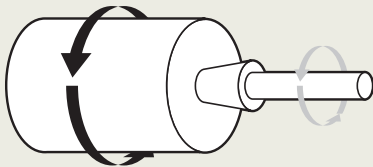


The measuring methods in rpm measurement can be divided into three main groups:

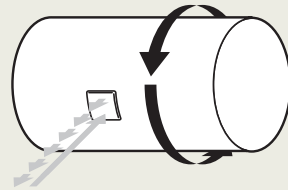
### 1. Mechanical rpm measurement

Data acquisition via mechanical measuring sensors is the oldest way to measure rpm. The revolutions in the sensor are electronically analysed in the instrument. This method is still used frequently but mostly for low revolutions between 20 and 20,000 rpm. The disadvantages of this measuring method are the nonconstant load movements during measurement which depend largely on the contact pressure. In addition, mechanical rpm measurement cannot be used for small objects. If the revolutions are too high slip may occur.



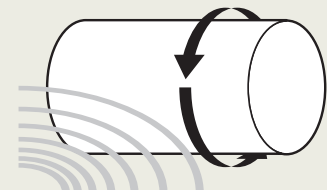
### 2. Electric method using reflections (optical rpm measurement)

The rotation is transmitted to the measuring instrument via an infrared light beam coming from the instrument which is then reflected by a reflective tape on the object. Please note that the maximum distance between reflective tape and instrument should not be exceeded (distance max. = 350 mm). This method is superior to mechanical rpm measurement. However, it is not always possible to attach reflective tapes.



### 3. rpm measurement using the stroboscopic method

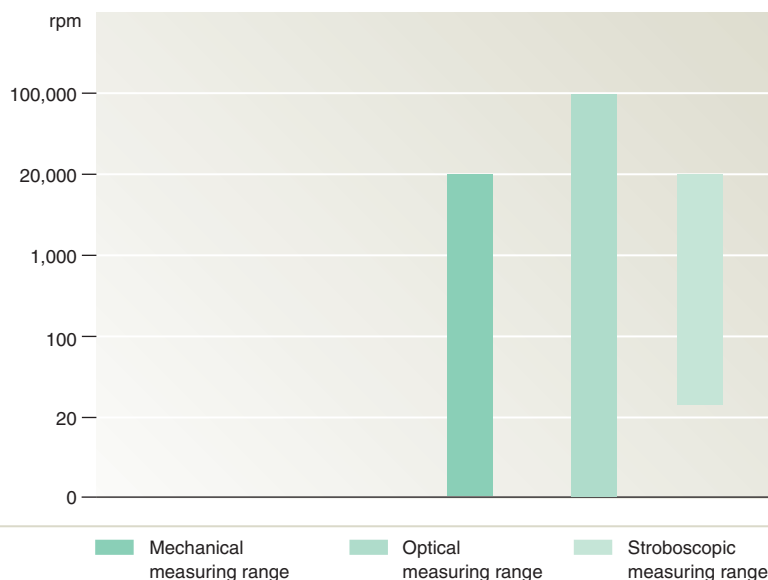
According to the stroboscopic principle, objects are stationary in the eyes of the observer when the frequency of the high-speed flashes is in synchronisation with the rpm (movement) of the object. The stroboscope principle has clear advantages over other measuring methods using mechanical or optical sensors: Using this method it is possible to measure the rpm of very small objects or in inaccessible places. It is not necessary to attach reflective tapes to the objects being measured. For example, production processes do not



need to be interrupted.

Measuring range: 30 to 20,000 rpm. In addition to rpm measurement the stroboscopic measuring method can also analyse oscillations and monitor motion e.g. in moving diaphragms, loudspeakers etc.

Measuring ranges of the different measuring methods



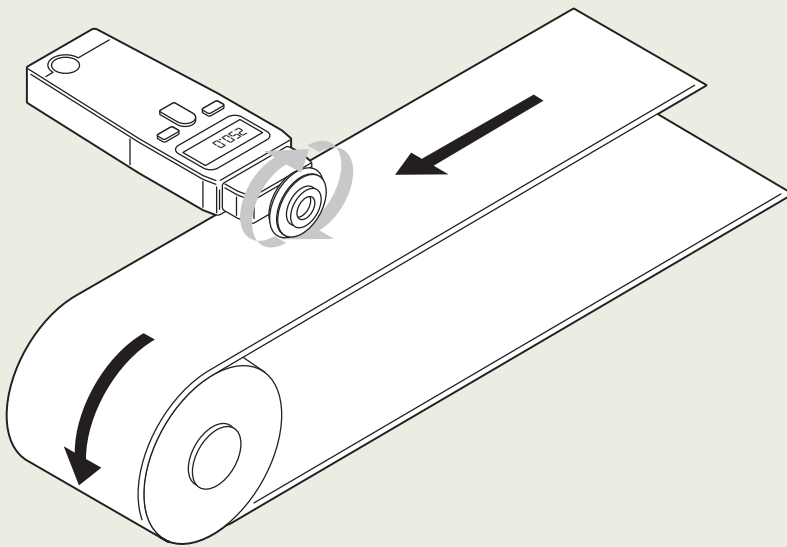
#### Note:

**testo 465** measures optically

**testo 470** uses mechanical and optical measuring methods

**testo 475** uses mechanical and stroboscopic measuring methods

**testo 476** uses stroboscopic measuring methods

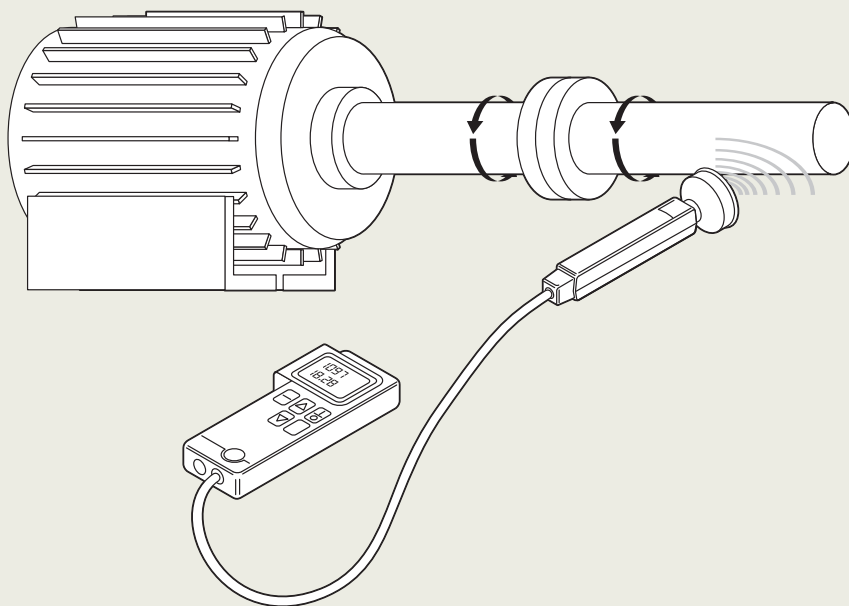


### Measuring speed and length

Speed and length can be measured using a surface speed disc and a suitable measuring instrument.

The running wheel is simply placed on the moving object (e.g. conveyor belt etc.) and the reading can be taken.

(Note: do not put too much pressure on the surface speed disc, press lightly).



### testo 475

The testo 475 mini stroboscope functions according to the stroboscopic measuring principle. By using the flashlight transmitter as a data sensor, oscillation measurements and motion monitoring are possible in addition to rpm measurement.