Hilger u. Kern
Industrietechnik

TRUMMETER®

Bedienungsanleitung / Operating Instructions

HILGER&KERNGROUP

TRUMMETER®

Präzisionsinstrument zum Messen der Riemenspannung
Precision instrument for measuring belt tension

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EG Konformitätserklärung und WEEE:

Das Trummeter Riemenspannungsmessgerät ist hergestellt von der Hilger u. Kern GmbH in Deutschland. Es wird bestätigt, dass die Anforderungen über die elektromagnetische Empfindlichkeit (EMV) nach der Richtlinie EMV 2014/30/EU erfüllt sind.

Gemäß Elektro- und Elektronikgesetz – Elektro G ist Hilger u. Kern unter der WEEE-Reg.-Nr. DE 91093691 registriert.

CE Confirmation and WEEE:

The belt tensionmeter TRUMMETER is made by Hilger u. Kern GmbH in Germany. We confirm that it is designed and manufactured in accordance with the EMC directive 2014/30/EU.

Hilger u. Kern is registered with no. DE 91093691 following the EC – directive on waste electrical and electronic equipment (WEEE).

Mounting

After mounting, the belt length will extend within 1 hour. This is why it makes sense to adjust the strand force with 30 % more and to repeat the measurement after 1 hour. In addition to the calculated strand force, consider the limit of the radial load of the bearings. Pulley radial load F = 2 x strand force of the belt.

Note

Measurement deviations of up to +/- 10 % over several measurements taken on the same drive belt are not normally caused by a measurement error or fault in the unit. In most cases, measurement deviations are due to the mechanical tolerances of the drive systems.

Attention! Newton or Pounds Force calculations have a **square factor** higher error result ($F = 4 \times m \times L^2 \times f^2$)!

Belt masses

To measure the belt mass precisely, we recommend that you weigh the drive belt and then recalculate this weight based on a belt length of 1 metre. See weight button. The set point value can be taken from the list below. If your belt type is not listed you may weigh the belt and calculate the weight per metre.

Ribbed V-belts	PJ = 0.082 PM = 1.100	PL = 0.320	kg/m per 10 ribs
V-belts	SPZ = 0.074 SPB = 0.195	SPA = 0.123 SPC = 0.377	kg/m per belt
	10 = 0.064 17 = 0.196 22 = 0.324 32 = 0.668	13 = 0.109 20 = 0.266 25 = 0.420 40 = 0.958	kg/m per belt
Power belts	SPZ = 0.120 SPB = 0.261	SPA = 0.166 SPC = 0.555	kg/m per rib
	3V/9J = 0.120 8V/25J = 0.693	5V/15J = 0.252	kg/m per rib
Polyurethane timing belts	T 2.5 = 0.015 T 10 = 0.048	T 5 = 0.024 T 20 = 0.084	kg/m per 10 mm width
	AT 3 = 0.023 AT 10 = 0.063	AT 5 = 0.034 AT 20 = 0.106	kg/m per 10 mm width

Technical data

Measuring range	10 up to 800 Hz
Digital sampling error	< 1 %
Indication error	+/- 1 Hz
Total error	< 5 %
Nominal temp.	+20 °C
Operating temp.	+10 °C ... +50 °C
Shipping temp	-5 °C ... +50 °C
Casing	Plastic (ABS)
Dimensions, unit	80 x 126 x 37 mm
Dimensions, case	226 x 200 x 65 mm
Display	2-line LCD, 16 char./line
Languages	10
Input range: **– free strand length** **– belt mass**	 up to 9.99 m up to 9.999 kg/m
Power supply	9-V battery

Troubleshooting

If despite careful preparations no measurement results are displayed, this may be due to one of the following reasons:

1. The drive belt is oscillating below the minimum measurement limit of 10 Hz.
   ➜ Tighten the belt or, if the strand length is very long and open, support the belt in order to shorten the strand length. Enter the new belt length before repeating measurement.

2. The unit cannot be switched On.
   ➜ The battery must be exchanged when the display shows “Low Bat”.

3. The unit will automatically switch itself OFF after pauses longer than 8 minutes.

Either no or low measuring values are displayed despite the drive belt being correctly tensioned.

It may be the case that the light from the measuring probe has not been reflected sufficiently.

➜ To improve reflection, affix a piece of light-coloured adhesive tape to the belt or slightly moisten the belt at the measuring point.

The distance between the drive belt and the measuring probe should be between 3 and 20 mm.

Menu structure

The following menu structure explains the possibility of choices and insertions via the keys of the instrument: the insertion of the belt length and mass as well as the choice of the display of Hertz, Newton or poundforce, the choice of 10 languages and of the different values (international or US). All inserted values are stored with the key „ENTER“ and also stay in the store after being switched off.