RSF Elektronik

Technik, die zählt
Technology that counts

MSR 40

Modular Rotary Encoder with singlefield scanning

MSR 40 Technical data

Scanning unit: 200 µm grating pitch

Scale model	System resolution [°]	Grating pitch	Integrated Interpolation	Max. velocity	Max. output frequency resp. Edge separation a_{min}
• **Sinusoidal voltage signals**					
MSR 40.06	depending on external interpolation	200 µm	-	10 m/s	50 kHz
• **Square wave Line Driver signals with integrated Subdividing**					
MSR 40.66	360° / Lines x 20	200 µm	times 5	10 m/s	500 ns
MSR 40.76	360° / Lines x 40	200 µm	times 10	9 m/s	500 ns
MSR 40.86	360° / Lines x 200	200 µm	times 50	4.5 m/s	200 ns
MSR 40.96	360° / Lines x 400	200 µm	times 100	2.25 m/s	200 ns

Signal-outputs (optional):

- **Sinusoidal voltage signals MSR 40.06**

Power supply:
+5 V ±5%, max. 130 mA (unloaded)

Output signals:
Encoder signals: 0.6 to 1.2 Vpp, typical 1 Vpp
with terminating resistor Zo = 120 Ω
Reference pulse:
0.2 to 0.85 Vpp, typical 0.5 V (useable component)
with terminating resistor Zo = 120 Ω

- **Square wave signals** (single ended) **with integrated Subdividing Electronics**
- **Square wave signals** (differential) **via Line Driver RS 422 standard with integrated Subdividing Electronics**
  MSR 40.66 = times 5
  MSR 40.76 = times 10
  MSR 40.86 = times 50
  MSR 40.96 = times 100

Power supply:
+5 V ±5%, max. 165 mA (unloaded)

Steel tape scale on steel ring: MSR 40.xx **MOR**

Scale unit: Steel tape scale with tensioning cleat

Deliverable Line rates:
(Further Lines on request, min. 2350, max. 18000)

Lines	Shaft diameter	Lines	Shaft diameter
2400	152.70	10000	636.88
2500	159.07	10800	687.85
3600	229.15	14400	917.19
5000	318.34	18000	1146.54
7200	458.50		

Accuracy of the Grating pitch: ±30 µm/m

Mounting aid: optional accessories
Mounting control: electronic signal test/set-up boxes PG-x resp. PS4

Operating temperature range: 0 °C to +50 °C
(coefficient of expansion of the shaft between 9 x 10^{-6} K^{-1} and 12 x $10^{-6}K^{-1}$)
Temperature range of storage: -20 °C to +70 °C

Weight depending (approx.)**:** 17 g (Scanning unit without cable), 20 g/m (Steel tape scale), 12 g (tensioning cleat)

Steel tape scale on steel ring: MSR 40.xx **MER**

Scale unit: Steel tape scale with elastic layer and tensioning cleat

Deliverable Line rates:
(Further Lines on request, min. 2350)

Lines	Shaft diameter	Lines	Shaft diameter
2400	146.99	10000	630.82
2500	153.35	10800	681.75
3600	223.38	14400	910.93
5000	312.51	18000	1140.12
7200	452.57	20000	1267.44

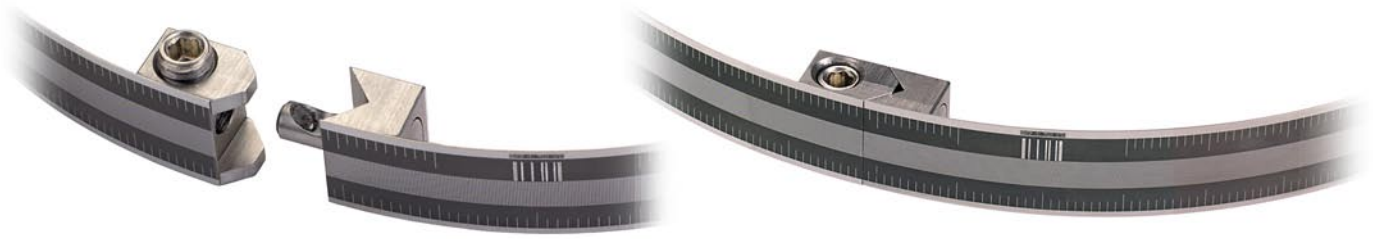
Accuracy of the Grating pitch: ±30 µm/m

Mounting aid: optional accessories
Mounting control: electronic signal test/set-up boxes PG-x resp. PS4

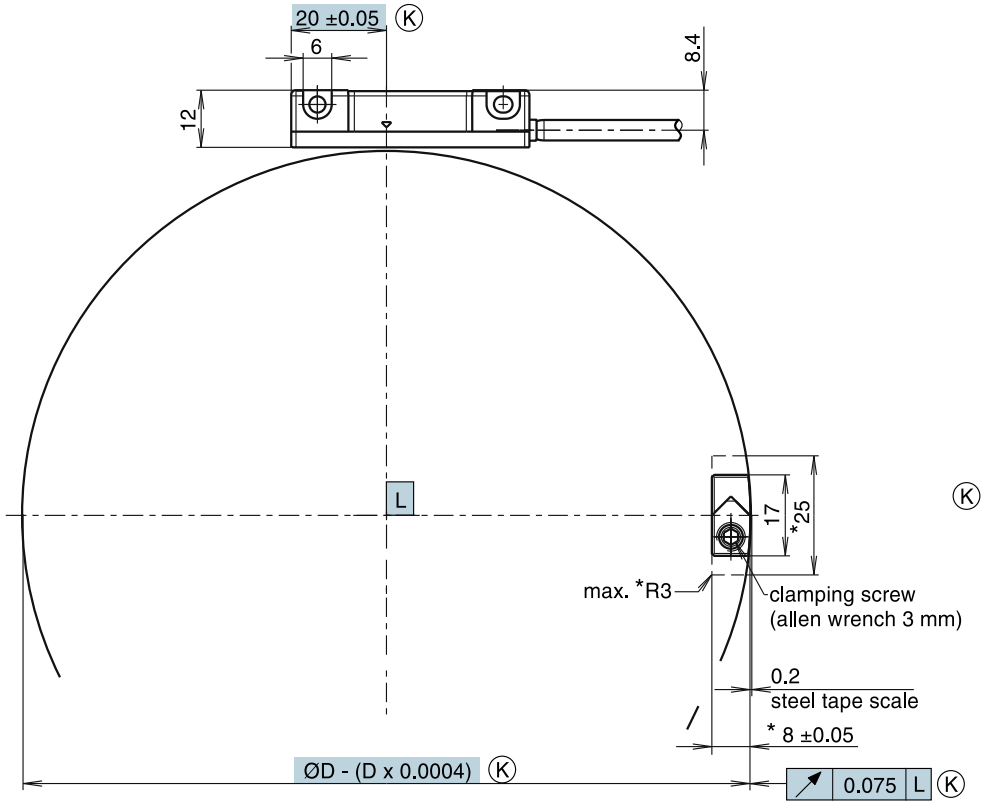
Operating temperature range scanning unit: 0 bis +50°C
Operating temperature range scale unit: Range of temperature is dependent on coefficient of expansion of the shaft.
Max. Ø difference of shaft to steel tape scale ΔD ±0.2 mm (steel tape scale α = 10.6 x 10^{-6} K^{-1})
Temperature range of storage: -20 °C to +70 °C

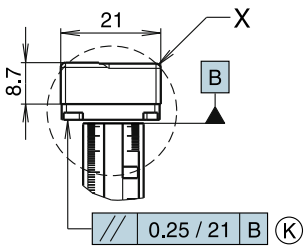
Weight depending (approx.)**:** 17 g (Scanning unit without cable), 45 g/m (Steel tape scale with elastic layer), 2.5 g (tensioning cleat)

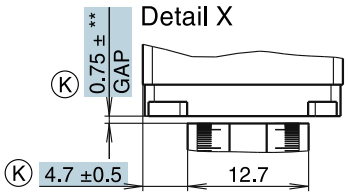
MSR 40.xx MOR Steel tape scale with tensioning cleat



Dimensions, Mounting tolerances:







Ⓚ = required mating dimensions

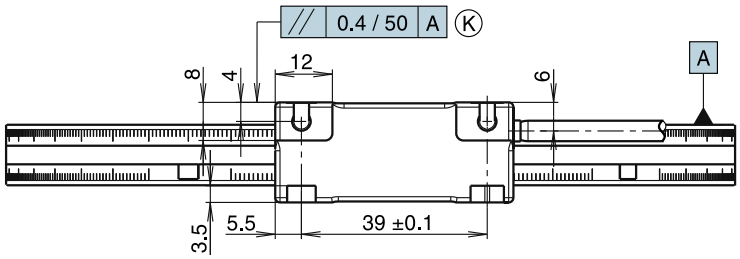
* = recess for tensioning cleat

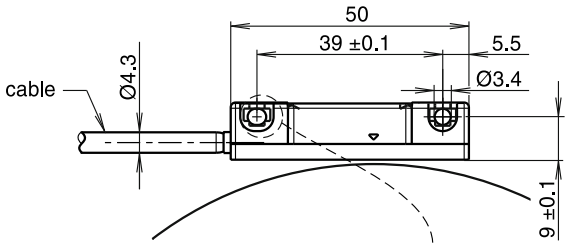
** = depends on shaft diameter

L = bearing

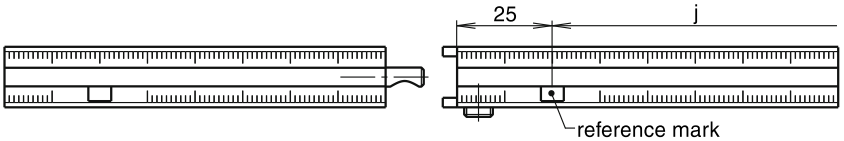
D = shaft diameter

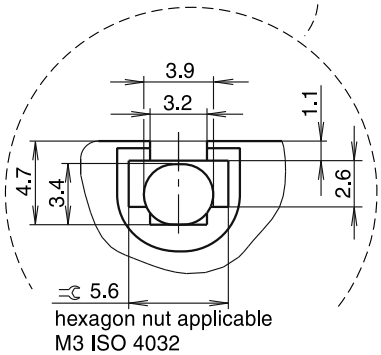
reference mark:
j=additional reference marks
separated by n x 100 mm



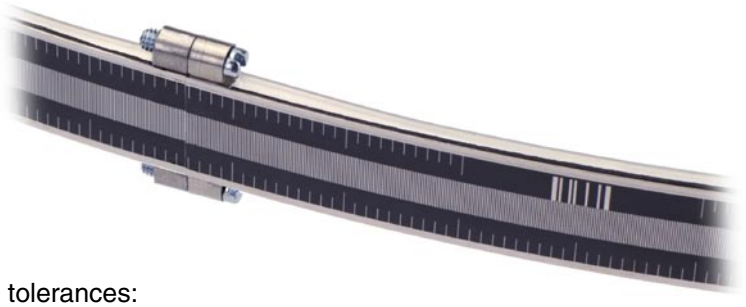


representation stretched

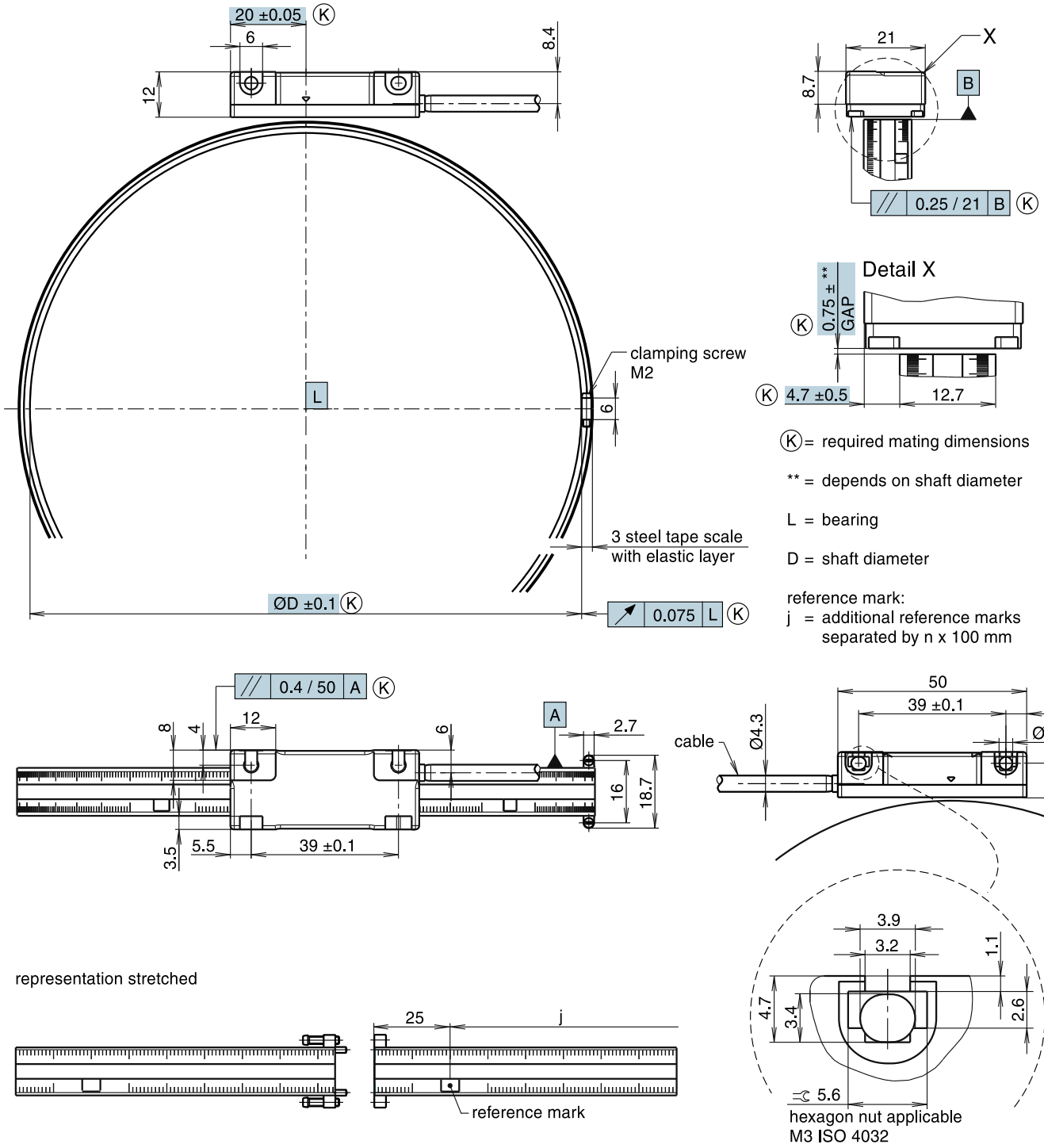




MSR 40.xx MER Steel tape scale with elastic layer and tensioning cleat



Dimensions, Mounting tolerances:



Date 04/2008 • Art.Nr. 643679-22 • Techn. adjustment in reserve!