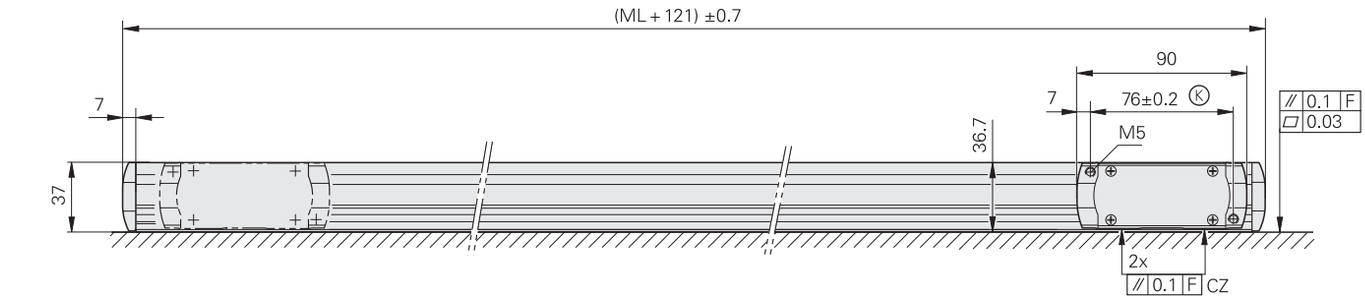
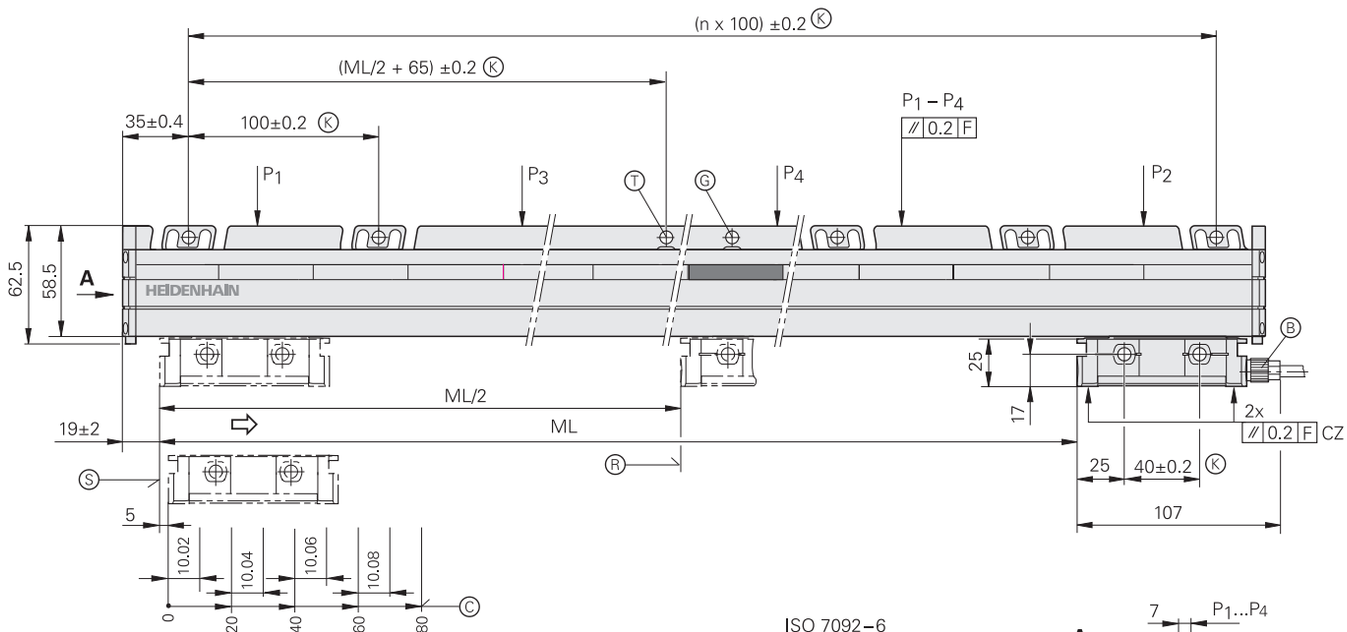
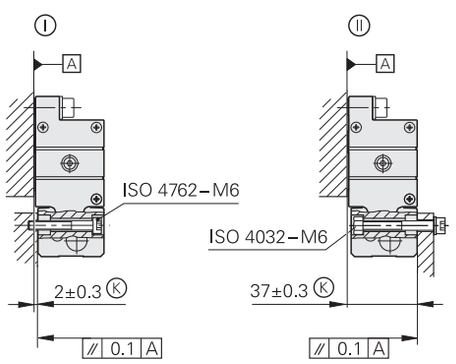
LS 100 series

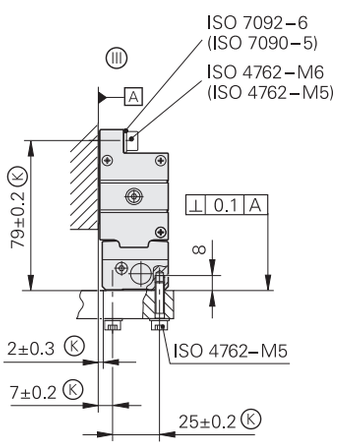
Incremental linear encoders with full-size scale housing

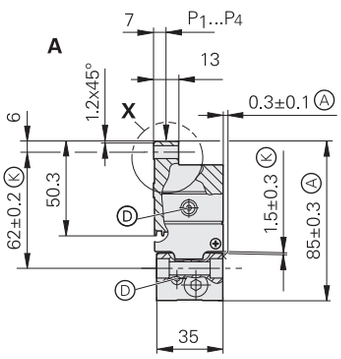
- **High vibration tolerance**
- **Flat-lying installation possible**

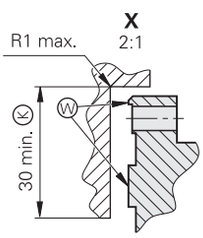












mm

Tolerancing ISO 8015
ISO 2768:1989-mH
≤ 6 mm: ±0.2 mm

Ⓘ, Ⓘ,
Ⓘ = Mounting options
F = Machine guideway
P = Measuring points for alignment
Ⓚ = Required mating dimensions
Ⓐ = Alternative mating dimensions
Ⓑ = Cable connection, usable on either side
Ⓓ = Compressed air inlet usable on either side
Ⓣ = Mechanical fixed point (to be preferred)
Ⓖ = Mechanical fixed point, with spacing interval of 100 mm
Ⓡ = Reference mark position on LS 1x7
Ⓒ = Reference mark position on LS 1x7C
Ⓢ = Beginning of measuring length (ML)
Ⓦ = Mating surfaces
⇨ = Direction of motion of the scanning unit for ascending position values

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1-888-354-2525 | sales@auto-met.com
Request a quote: auto-met.com

Specifications	LS 187	LS 177						
Measuring standard Coefficient of linear expansion	Glass scale with DIADUR grating; grating period: 20 µm $\alpha_{therm} \approx 8 \cdot 10^{-6}\ K^{-1}$							
Accuracy grade*	±5 µm; ±3 µm							
Measuring length (ML)* in mm	140 240 340 440 540 640 740 840 940 1040 1140 1240 1340 1440 1540 1640 1740 1840 2040 2240 2440 2640 2840 3040							
Reference marks* LS 1x7 LS 1x7 C	Selectable with magnets every 50 mm; standard setting: one reference mark in the center Distance-coded							
Interface	∿ 1 V_{PP}	⊓⊔ TTL						
Integrated interpolation* Signal period	– 20 µm	5-fold –		10-fold –			20-fold –	
Diagnostics interface	Analog	–						
Cutoff frequency –3 dB	≥ 160 kHz	–		–			–	
Scanning frequency* Edge separation *a*	–	100 kHz ≥ 0.5 µs	50 kHz ≥ 1 µs	100 kHz ≥ 0.25 µs	50 kHz ≥ 0.5 µs	25 kHz ≥ 1 µs	50 kHz ≥ 0.25 µs	25 kHz ≥ 0.5 µs
Measuring step	Depends on interpolation	1 µm[1)]		0.5 µm[1)]			0.25 µm[1)]	
Electrical connection	Separate adapter cable (1 m / 3 m / 6 m / 9 m) connectable on mounting block							
Cable length[2)]	≤ 150 m	≤ 100 m						
Supply voltage without load	DC 5 V ±0.25 V/< 120 mA	DC 5 V ±0.25 V/< 140 mA						
Traversing speed	≤ 120 m/min	≤ 120 m/min	≤ 60 m/min	≤ 120 m/min	≤ 60 m/min	≤ 30 m/min	≤ 60 m/min	≤ 30 m/min
Required moving force	≤ 4 N							
Vibration 55 Hz to 2000 Hz **Shock** 11 ms **Acceleration**	≤ 200 m/s^2 (EN 60068-2-6) ≤ 400 m/s^2 (EN 60068-2-27) ≤ 60 m/s^2 in direction of measurement							
Operating temperature	0 °C to 50 °C							
Protection EN 60529	IP53 when mounted as per the mounting information and instructions IP64 with purge air via DA 400							
Mass	0.4 kg + 2.3 kg/m of measuring length							

***** Please select when ordering
1) After 4-fold evaluation in the downstream electronics
2) With HEIDENHAIN cable

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