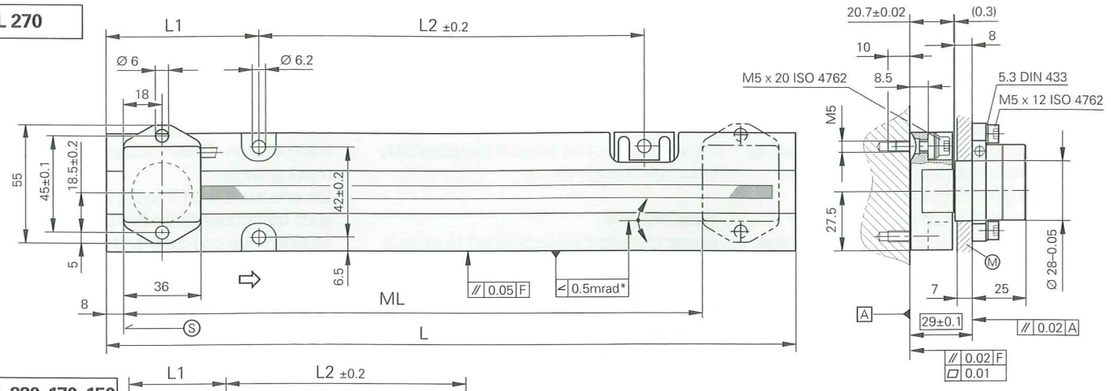
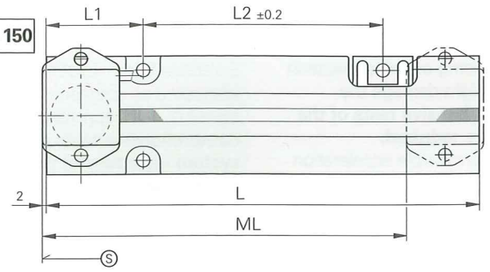
LIP 300 Series

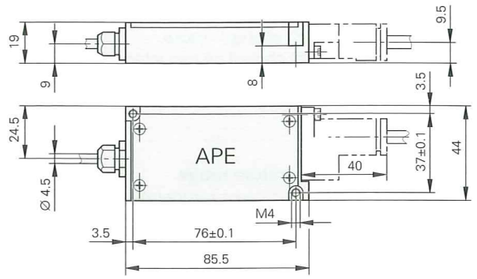
Incremental linear encoders with very high accuracy
For measuring steps to 0.001 µm (1 nm)

ML 270

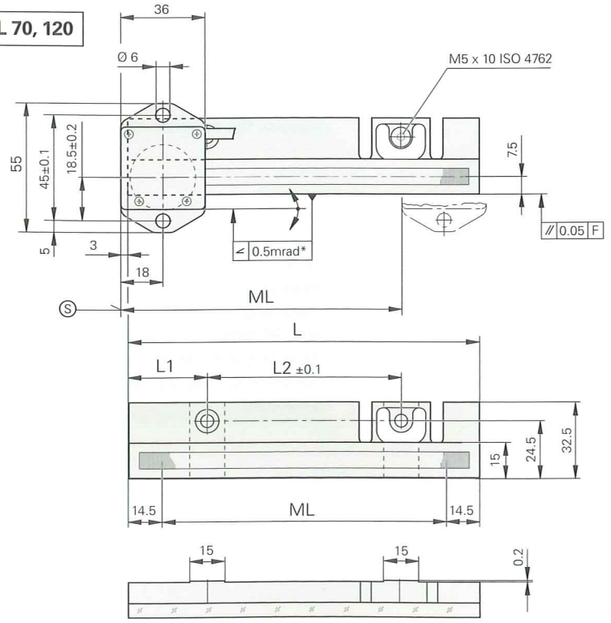


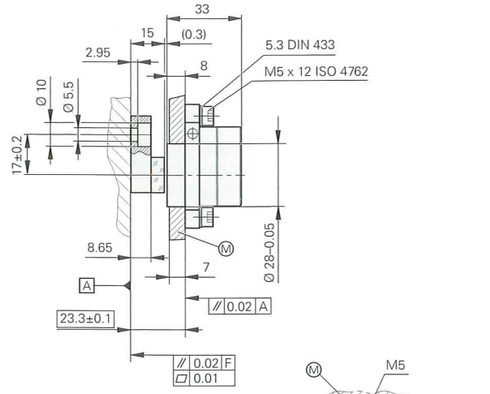
ML 220, 170, 150

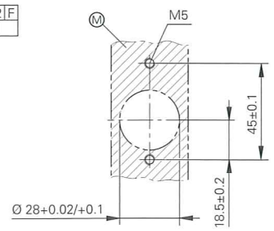




ML 70, 120





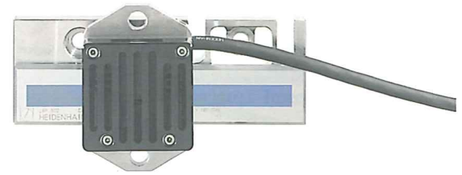


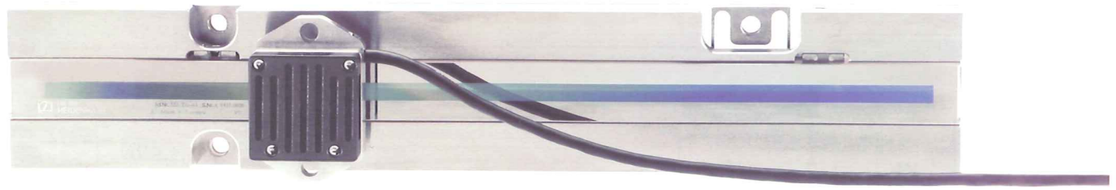
Dimensions in mm

Tolerancing ISO 8015
ISO 2768 - m H
< 6 mm: ±0.2 mm

* = Max. change during operation
F = Machine guideway
Ⓢ = Beginning of measuring length (ML)
Ⓜ = Mounting surface for scanning head
⇨ = Direction of scanning head motion for output signals in accordance with interface description

ML	L	L1	L2
70	100	22.5	55
120	150	33.5	83
150	182	40	102
170	202	45	112
220	252	56	140
270	322	71	180





Specifications	LIP 382	LIP 372		
Measuring standard Coefficient of linear expansion	DIADUR phase grating on Zerodur glass ceramic $\alpha_{therm} \approx (0 \pm 0.1) \cdot 10^{-6}\ K^{-1}$			
Accuracy grade	± 0.5 µm (higher accuracy grades available on request)			
Measuring length ML* in mm	70 120 150 170 220 270			
Reference marks	None			
Incremental signals	⏦ 1 V_{PP}	⎍ TTL		
Grating period	0.512 µm			
Integrated interpolation Signal period	– 0.128 µm	32-fold 0.004 µm		
Cutoff frequency –3dB	≥ 1 MHz	–		
Scanning frequency* Edge separation *a*	–	≤ 98 kHz ≥ 0.055 µs	≤ 49 kHz ≥ 0.130 µs	≤ 24.5 kHz ≥ 0.280 µs
Traversing speed	≤ 7.6 m/min	≤ 0.75 m/min	≤ 0.38 m/min	≤ 0.19 m/min
Power supply **Power consumption**	5 V ± 5 % < 190 mA	5 V ± 5 % < 250 mA (without load)		
Electrical connection Cable length	Cable 0.5 m to interface electronics (APE), sep. adapter cable (1 m/3 m/6 m/9 m) connectable to APE ≤ 30 m (with HEIDENHAIN cable)			
Vibration 55 to 2000 Hz **Shock** 11 ms	≤ 4 m/s^2 (EN 60068-2-6) ≤ 50 m/s^2 (EN 60068-2-27)			
Operating temperature	0 °C to 40 °C			
Weight Scanning head Interface electronics Scale Connecting cable	 150 g 100 g 260 g (ML 70 mm) 700 g (ML ≥ 150 mm) 38 g/m			

* Please select when ordering