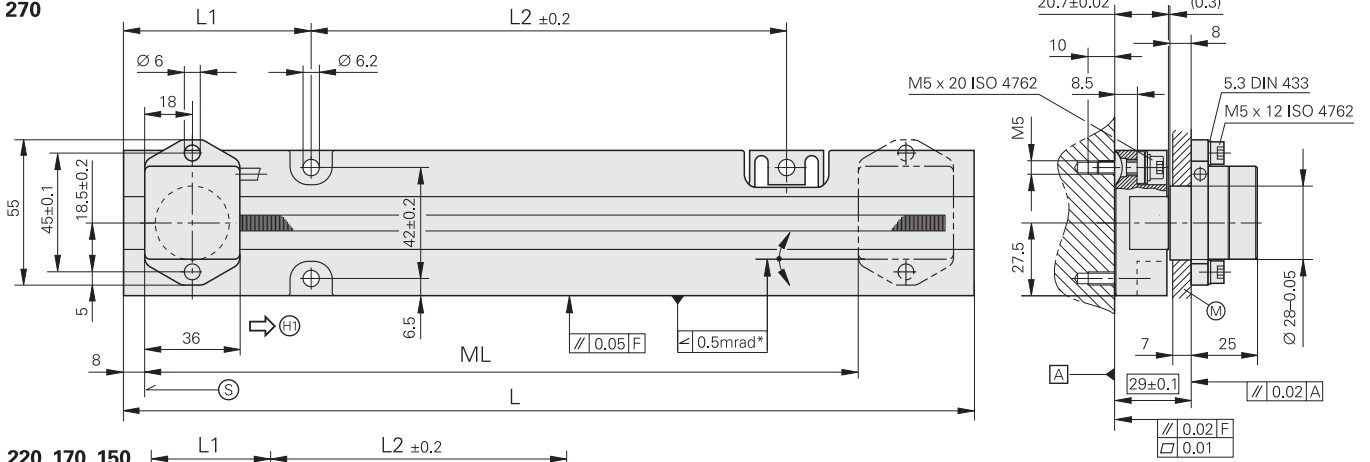


# LIP 372, LIP 382

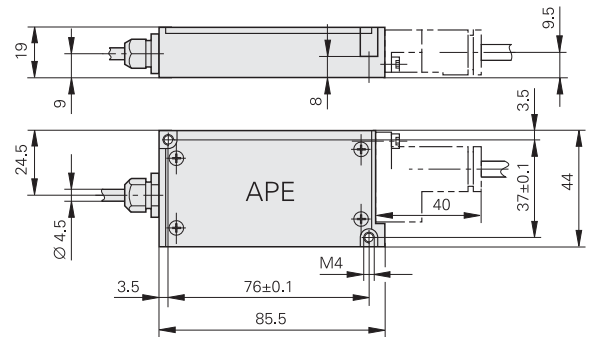
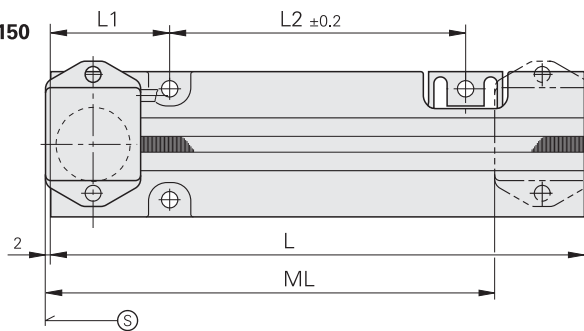
Incremental linear encoders with very high accuracy

- Measuring steps to 0.001  $\mu\text{m}$  (1 nm)
- Measuring standard is fastened by screws

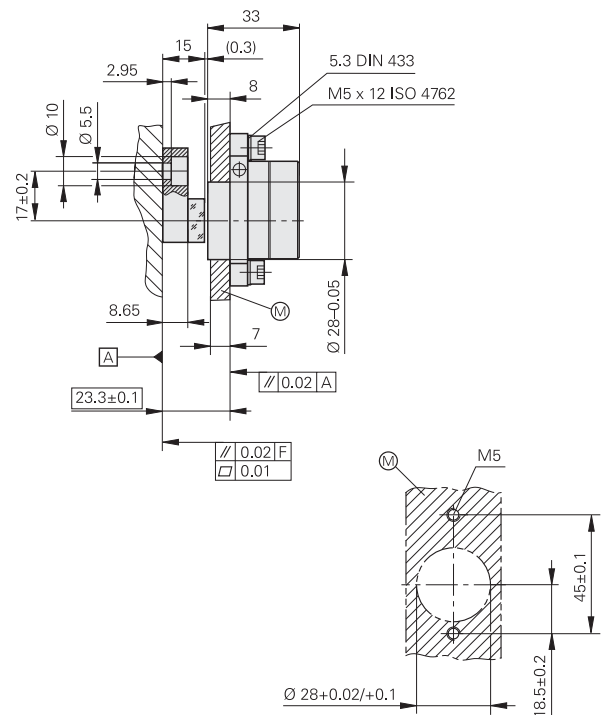
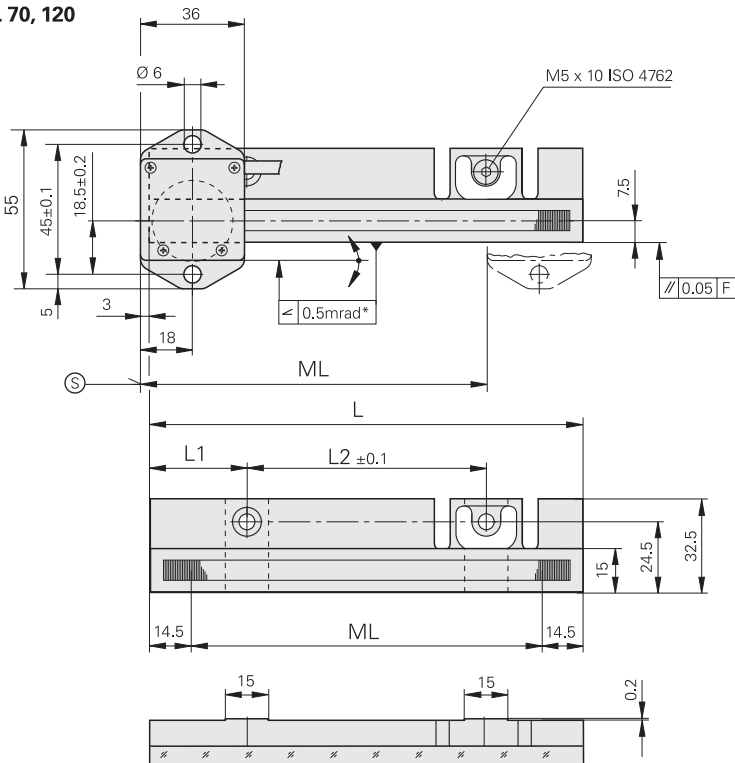
**ML 270**



**ML 220, 170, 150**



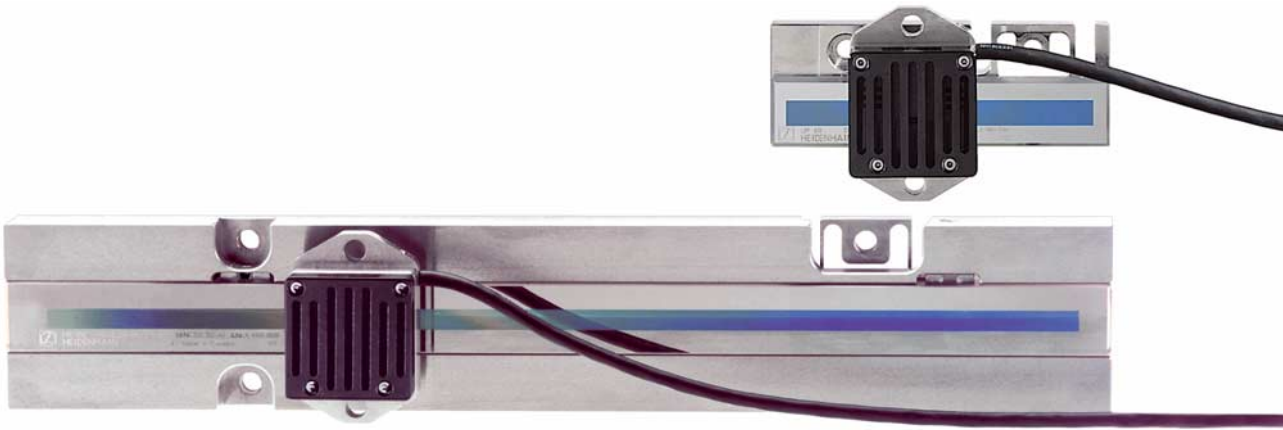
**ML 70, 120**



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

\* Please select when ordering

Representante oficial de:



**HEIDENHAIN**

[Argentina – Bolivia – Chile – Colombia - Costa Rica – Ecuador - El Salvador –  
Guatemala – Honduras – Nicaragua – Panamá – Paraguay – Perú -  
República Dominicana – Uruguay – Venezuela.]



Calle 49 N° 5764 - Villa Ballester (B1653AOX) - Prov. de Buenos Aires - ARGENTINA  
Tel: (+54 11) 4768-4242 / Fax: (+54 11) 4849-1212  
Mail: [ventas@nakase.com.ar](mailto:ventas@nakase.com.ar) / Web: [www.nakase.com.ar](http://www.nakase.com.ar)

