



HEIDENHAIN

Precisión en todo.

PRECISIÓN PARA AMBIENTES AL VACÍO.



» Reglas ópticas ideales para ambientes al vacío.

- » **Adhesivo PCBs especial** para montaje en ambientes al vacío.
- » Resistente a altas temperaturas (**Más de 100° C**).
- » Componentes totalmente **anti-magnéticos**.
- » Conectores especiales para cámaras al vacío.
- » **Cables mallados** con aislante PTFE.
- » Señal incremental.

Rangos de precisión
entre ± 1 y $\pm 3\mu\text{m}$!



» LIP 481V / LIP 481U



» LIF 481V



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Product Information

LIF 481 V

Exposed Linear Encoder for
High-Vacuum Technology

June 2008

LIF 481 V

Incremental linear encoder for high-vacuum technology

- Special, vacuum-compatible version
- For measuring steps of 1 µm to 0.1 µm
- Position detection through homing track and limit switches

Dimensions in mm

mm



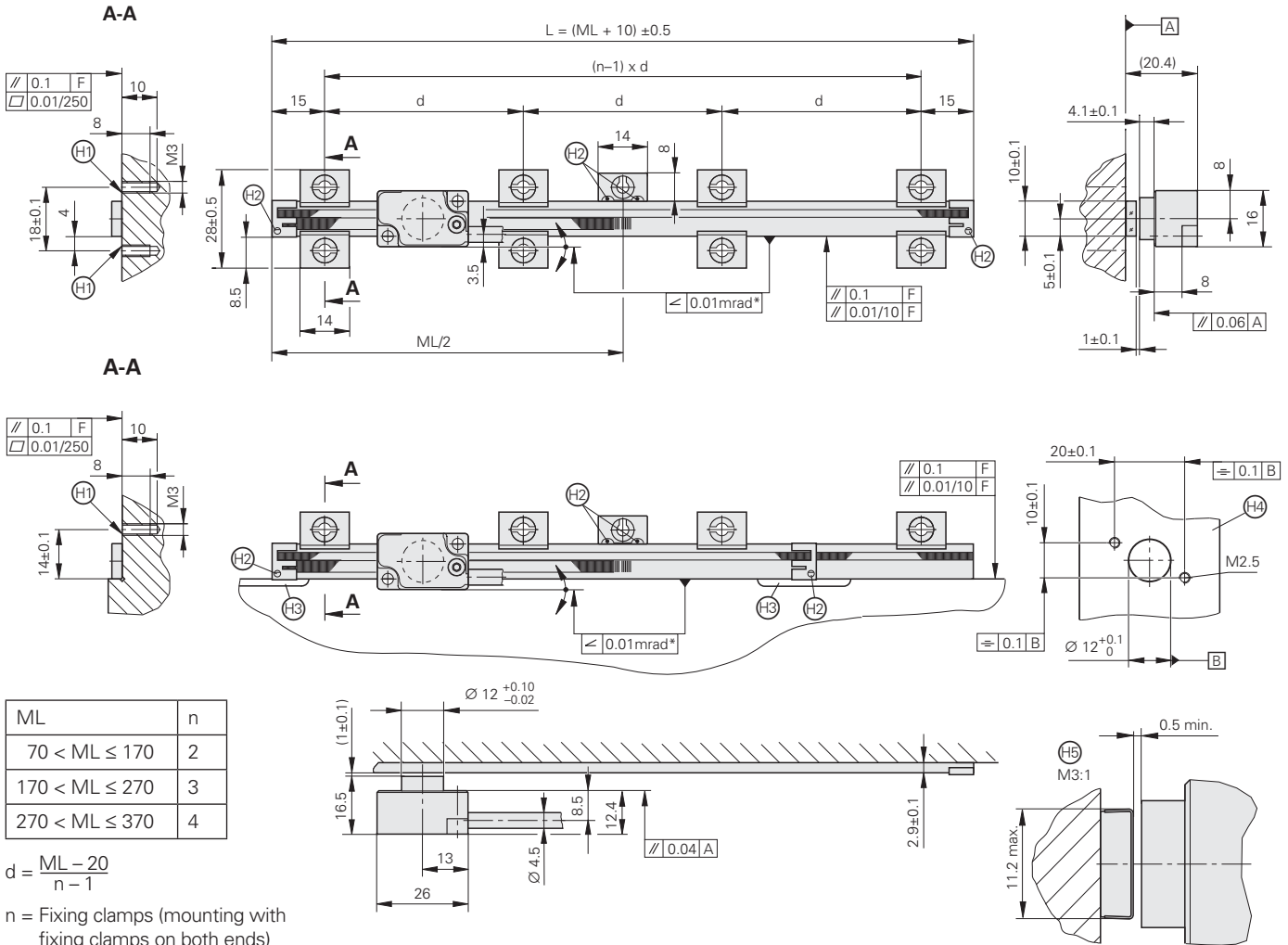
Tolerancing ISO 8015

ISO 2768 - m H

< 6 mm: ±0.2 mm

Illustration without fixing clamps and cover plate

Illustration without fixing clamps and cover plate





Specifications	LIF 481 V
Measuring standard Graduation carrier* Expansion coefficient	SUPRADUR phase grating Glass or Zerodur® glass ceramic Glass: $\alpha_{\text{therm}} \approx 8 \cdot 10^{-6} \text{ K}^{-1}$ Zerodur® glass ceramic: $\alpha_{\text{therm}} \approx (0 \pm 0.1) \times 10^{-6} \text{ K}^{-1}$
Accuracy grade	$\pm 3 \mu\text{m}$
Measuring length ML* in mm	70 120 170 220 270 320 370 420 470 520 570 620 670 720 770 820 870 920 970 1020
Reference marks	One at midpoint of measuring length
Output signals	$\sim 1 \text{ V}_{\text{PP}}$
Signal period	4 μm
Cutoff frequency	-3 dB $\geq 300 \text{ kHz}$ -6 dB $\geq 420 \text{ kHz}$
Traversing speed	-3 dB: 72 m/min -6 dB: 100 m/min
Position detection	Homing and limit signal
Power supply Current consumption	5 V $\pm 5 \%$ < 175 mA
Electrical connection*	<ul style="list-style-type: none"> • <i>Interface electronics outside of the high vacuum:</i> Cable 0.5 m or 1 m up to high-vacuum feedthrough; cable 0.5 m up to D-sub connector (15-pin) with integrated interface electronics • <i>Interface electronics in high vacuum:</i> Cable 0.5 m or 1 m with D-sub connector (15-pin); interface electronics integrated in connector
Cable length ¹⁾	<i>Incremental:</i> $\leq 30 \text{ m}$; <i>homing, limit:</i> $\leq 10 \text{ m}$
Vibration 55 to 2000 Hz Shock 11 ms	$\leq 200 \text{ m/s}^2$ (IEC 60068-2-6) $\leq 500 \text{ m/s}^2$ (IEC 60068-2-27)
Operating temperature	0 °C to 40 °C
Bake-out temperature	100 °C
PCB material	FR4
Weight Scanning head Connector Scale Connecting cable	9 g (without connecting cable) 32 g; <i>with integrated interface electronics:</i> 140 g 0.8 g + 0.08 g/mm measuring length 38 g/m

* Please select when ordering

¹⁾ With HEIDENHAIN cable

Electrical Connection

The LIF 481V is available with two different cable versions:

- **Interface electronics outside of the high vacuum:**

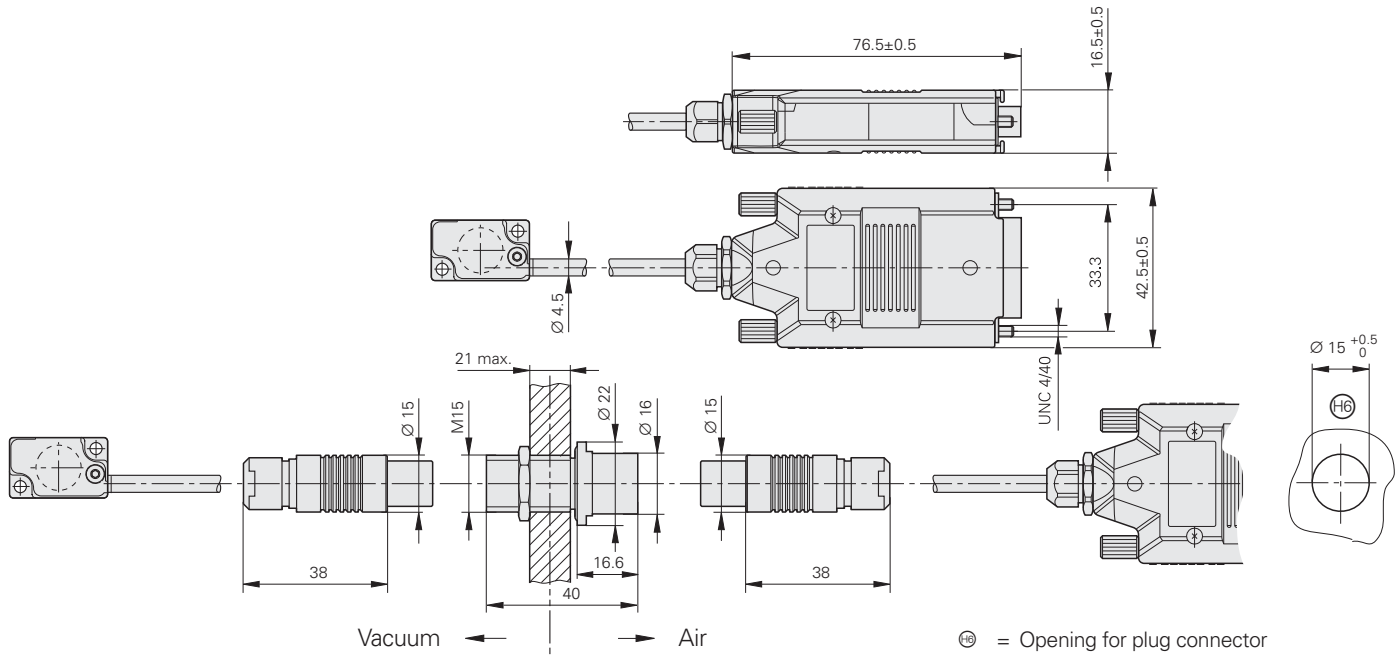
The scanning head cable has a high-vacuum-compatible round connector. The items supplied include a suitable


high-vacuum feedthrough and the adapter cable with 15-pin D-sub connector. The interface electronics are integrated in the D-sub connector.

- **Interface electronics in high vacuum:**

The scanning head cable has a 15-pin D-sub connector within which the

interface electronics are integrated. Available accessories are a vacuum feedthrough (15-pin D-sub connector on DN63CF flange) and an extension cable.



15-pin D-sub connector with integrated interface electronics													
	Power supply				Incremental signals						Other signals		
	4	12	2	10	1	9	3	11	14	7	13	8	6
	U_P	Sensor 5V	0V	Sensor 0V	A+	A-	B+	B-	R+	R-	Vacant	H	L
	Brown/ Green	Blue	White/ Green	White	Brown	Green	Gray	Pink	Red	Black	Violet	Green/ Black	Yellow/ Black

Shield on housing; **U_P** = power supply voltage

Sensor: The sensor line is connected internally with the corresponding power line

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For more information

- Brochure: *Exposed Linear Encoders*
- Technical Information: *Linear Encoders for Vacuum Technology*

Representante oficial de:



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