



HEIDENHAIN



Product Information

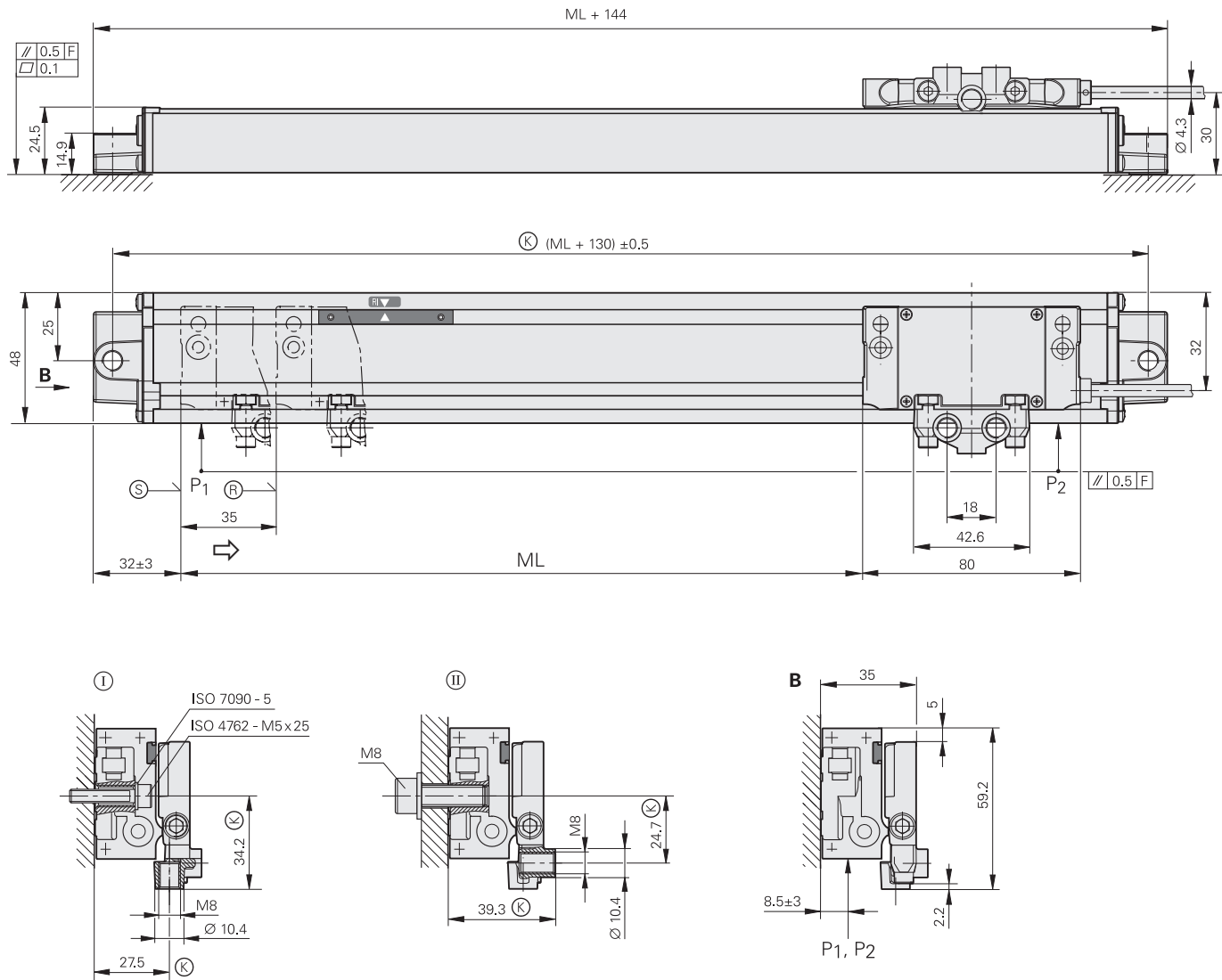
LS 1679


Incremental Linear Encoder
with Integrated Roller Guide

April 2016

LS 1679

- Incremental linear encoder for measuring steps to 5 µm or 1 µm
- Integrated wear-free roller guide with steel ball bearings on steel rods
- Large mounting tolerances when connected by coupling rod or spring rod
- Reference marks selectable every 50 mm



mm

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

- ⓪, ⊕ = Mounting options
- F = Machine guideway
- P = Gauging points for alignment
- Ⓢ = Required mating dimensions
- Ⓡ = Reference mark position
- Ⓢ = Beginning of measuring length (ML)
- ⇨ = Direction of scanning unit motion for output signals in accordance with interface description



Specifications	LS 1679	
Measuring standard Coefficient of linear expansion	Glass scale with DIADUR graduation $\alpha_{\text{therm}} \approx (8 \pm 1) \cdot 10^{-6} \text{ K}^{-1}$	
Accuracy grade	$\pm 10 \mu\text{m}$	
Measuring length ML* in mm	70 120 170 220 270 320 370 420 470 ¹⁾	
Reference marks*	One, located 35 mm from the beginning or end of the measuring length, or selectable via magnet every 50 mm	
Interface	□□TTL	
Measuring step (after 4-fold evaluation)	5 μm	1 μm
Edge separation a	$\geq 1.6 \mu\text{s}$	$\geq 0.8 \mu\text{s}$
Electrical connection	Connecting cable, cable outlet at mounting block, left or right	
Length*	3 m/6 m ¹⁾	
Connecting element*	With connector, male, 12-pin; coupling, male, 12-pin or with D-sub connector, 9-pin	
Voltage supply (without load)	DC 5 V $\pm 0.25 \text{ V}$ / < 120 mA	
Traversing speed	$\leq 60 \text{ m/min}$	
Required moving force	$\leq 5 \text{ N}$	
Vibration 55 Hz to 2000 Hz Shock 11 ms Acceleration	$\leq 150 \text{ m/s}^2$ (EN 60068-2-6) $\leq 300 \text{ m/s}^2$ (EN 60068-2-27) $\leq 30 \text{ m/s}^2$ in measuring direction	
Operating temperature	0 °C to +50 °C	
Protection EN 60529	IP53 when mounted as per Mounting Instructions	
Mass	0.46 kg + 1.34 kg/m measuring length	
Coupling the scanning unit*	By coupling rod (accessory) or spring rod	

* Please select when ordering

¹⁾ Further lengths up to 2270 mm upon request

Mounting accessories

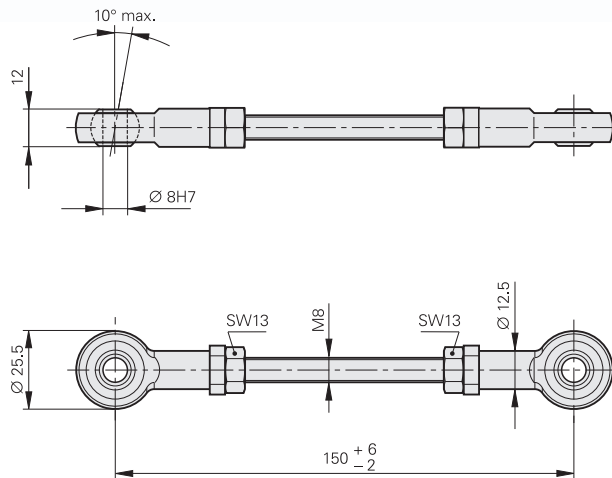
Coupling rod

For coupling the LS 1679 to press brakes and bending machines, includes bolts

ID 538768-01



Included in delivery

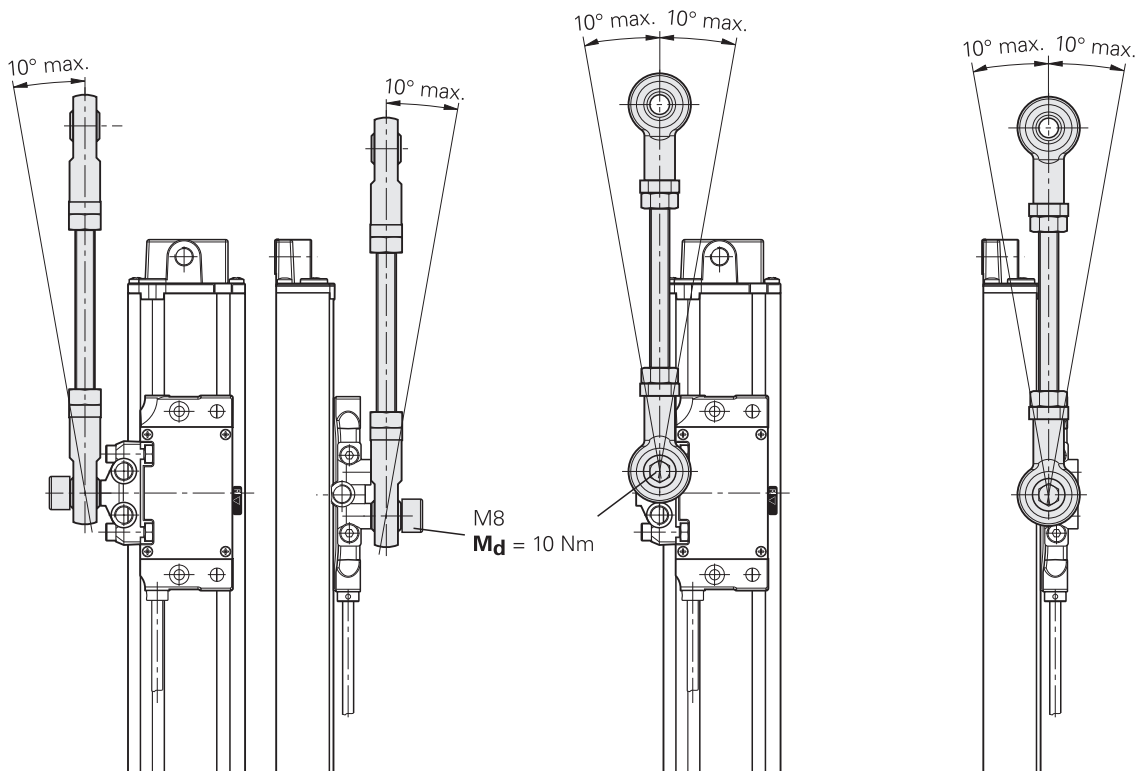


mm



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Coupling the scanning unit via coupling rod



mm



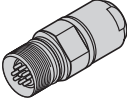


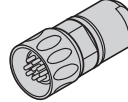
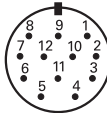




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ISO 2768 - m H
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F = Machine guideway


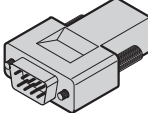
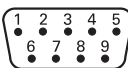


Electrical connection

Pin layout

12-pin M23 flange socket or M23 coupling					12-pin connector M23									
														
	Voltage supply				Incremental signals						Other signals			
	12	2	10	11	5	6	8	1	3	4	7	/	9	
	U_P	Sensor U_P	0V	Sensor 0V	U_{a1}	$\overline{U_{a1}}$	U_{a2}	$\overline{U_{a2}}$	U_{a0}	$\overline{U_{a0}}$	$\overline{U_{aS}}$ ¹⁾	Vacant	Vacant ²⁾	
	Brown/ Green	Blue	White/ Green	White	Brown	Green	Gray	Pink	Red	Black	Violet	–	Yellow	

Shield is on housing; U_P = Power supply

Sensor: The sensor line is connected internally to the respective power supply.

9-pin D-sub connector for DELEM control								
								
	Voltage supply		Incremental signals					
	9	5	3	8	2	7	1	6
HEIDENHAIN	U_P	0V	U_{a1}	$\overline{U_{a1}}$	U_{a2}	$\overline{U_{a2}}$	U_{a0}	$\overline{U_{a0}}$
DELEM			T_1	T_1	T_2	T_2	T_0	T_0
	Brown/Green + Blue	White/Green + White	Brown	Green	Gray	Pink	Red	Black

Shield is on housing; U_P = Power supply

Sensor: The sensor line is connected internally to the respective power supply.

Cables and connecting elements

PUR connecting cable Ø 8 mm for encoders with coupling or flange socket		PUR connecting cable Ø 8 mm for encoders with connector	
Complete with M23 connector (female), and M23 connector (male)	12-pin 298399-xx	Complete with M23 coupling (female), and M23 connector (male)	12-pin 298400-xx
With one M23 connector (female)	12-pin 309777-xx	With one M23 connector (female)	12-pin 298402-xx
Cable only	12-pin 816317-xx	[4(2 · 0.14 mm ²) + (4 · 0.5 mm ²)]; A _P 0.5 mm ²	

M23 connectors and couplings			
Coupling on encoder cable	M23 coupling (male)	Connector on encoder cable	M23 connector (male)
For cable Ø 6 mm	12-pin 291698-03	For cable Ø 6 mm	12-pin 291697-07
Mating element for coupling to encoder cable or flange socket	M23 connector (female)	Mating element on connecting cable for encoder connector	M23 coupling (female)
For connecting cable Ø 8 mm	12-pin 291697-05	For connecting cable Ø 8 mm	12-pin 291698-02

Connector for connection an to subsequent electronics	M23 connector (male)
For connecting cable Ø 8 mm	12-pin 291697-08

Couplings and M23 flange socket for mounting			
	M23 flange socket (female)		M23 mounted coupling with flange (male)
	12-pin 315892-08	For cable Ø 8 mm	12-pin 291698-31
			M23 mounted coupling with flange (female)
		For cable Ø 8 mm	12-pin 291698-07

A_P: Cross section of power supply lines

HEIDENHAIN

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This Product Information supersedes all previous editions, which thereby become invalid. The basis for ordering from HEIDENHAIN is always the Product Information document edition valid when the order is made.

Related documents: Comply with the information in the following documents to ensure the correct and intended operation of the encoder:

- Catalog *Linear Encoders for Numerically Controlled Machine Tools* 571470-xx
- Catalog: *Interfaces of HEIDENHAIN Encoders* 1078628-xx