

LF 103
LF 183

Incremental linear encoders for measuring steps of 1 µm to 0.1 µm
(0.00005 in. to 0.000005 in.)

- Thermal behavior similar to steel or cast iron
- High vibration rating
- Horizontal mounting possible



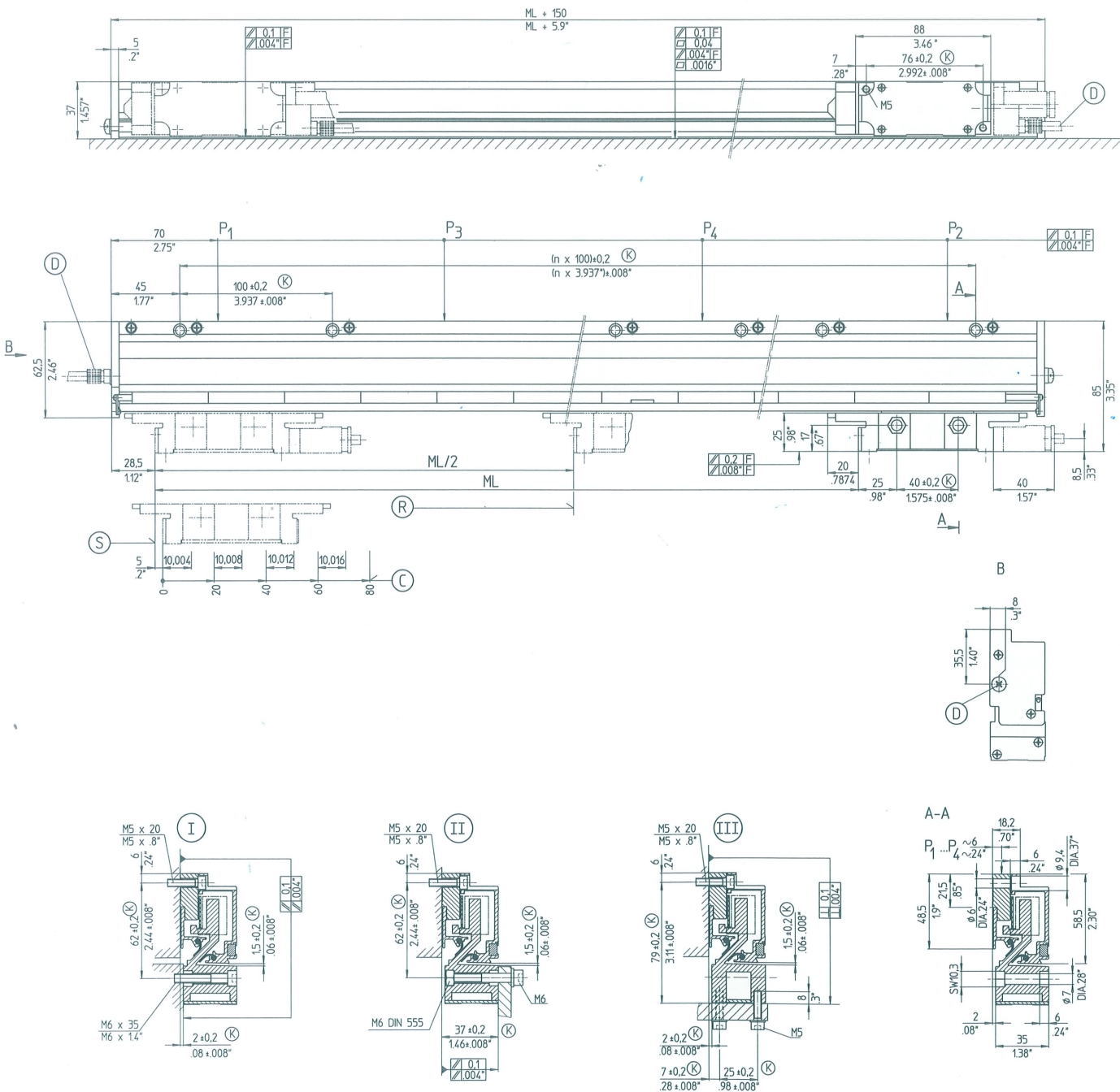
Specifications		LF 103 LF 183
Measuring standard	Grating period	DIADUR phase grating on steel 8 µm
	Thermal expansion coefficient	$\alpha_{\text{therm}} \approx 10 \text{ ppm/K}$
Accuracy grade		$\pm 3 \text{ µm}$ ($\pm 0.00012 \text{ in.}$) $\pm 2 \text{ µm}$ ($\pm 0.00008 \text{ in.}$)
Measuring length ML in mm inches		140, 240, 340, 440, 540, 640, 5.5, 9.5, 13.4, 17.3, 21.3, 25,
		740, 840, 940, 1040, 1140, 1240, 29, 33, 37, 41, 44, 48,
		1340, 1440, 1540, 1640, 1740, 1840, 52, 56, 60, 64, 68, 72,
		2040, 2240, 2440, 2640, 2840, 3040 80, 88, 96, 104, 112, 120
Reference marks	LF 1x3	Every 50 mm (2 in.) via selector magnets Standard setting: one reference mark at midpoint
	LF 1x3C	Distance-coded; absolute position value available after max. 20 mm traverse
Max. traversing speed		60 m/min (2362 ipm)
Vibration (55 to 2000 Hz)		$\leq 200 \text{ m/s}^2$ (IEC 68-2-6)
Shock (11 ms)		$\leq 300 \text{ m/s}^2$ (IEC 68-2-27)
Required moving force		$\leq 4 \text{ N}$
Protection (EN 60529 or IEC 529)		IP 53 when installed as per instructions IP 64 with compressed air
Operating temperature		0 to 40 °C (32 to 104 °F)
Weight		1.1 kg + 3.8 kg/m measuring length
Power supply	LF 103 LF 183	5 V $\pm$ 5% / < 100 mA 5 V $\pm$ 5% / < 150 mA (with terminating resistor $Z_0 = 120\Omega$)
Output signals/ Signal period	LF 103 LF 183	$\sim 11 \mu\text{App}/4 \mu\text{m}$ $\sim 1 \text{ Vpp}/4 \mu\text{m}$
Electrical connection		Sep. adapter cable (1 m/3 m/6 m/9 m) for mounting block (see Accessories)
Cable length to subsequent electronics	LF 103 LF 183	30 m (98.5 ft) max. 150 m (492 ft) max.

Dimensions

in mm/inches



DIN ISO 8015
ISO 2768 - m H



- ①, ②, ③ = Mounting options
- F = Machine guideway
- P = Gauging points for alignment
- Ⓚ = Required mating dimensions
- Ⓛ = Compressed air inlet
- Ⓡ = Reference mark position LF 1x3
- Ⓒ = Reference mark position LF 1x3C
- Ⓢ = Beginning of measuring length