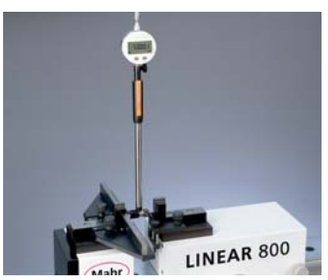
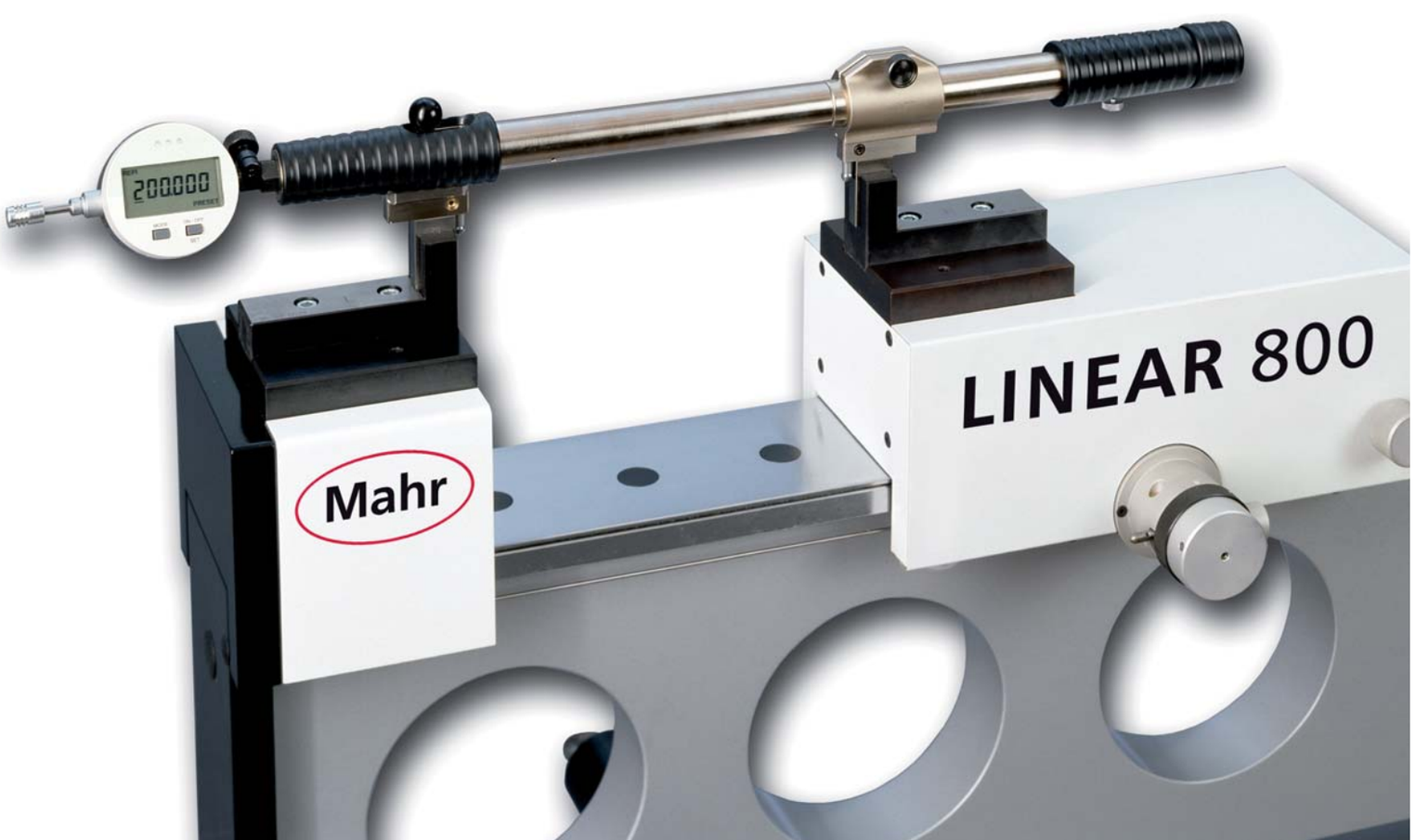
LINEAR. Setting and Measuring Instruments
FOR GENERAL USE IN WORKSHOP LENGTH METROLOGY

► I The LINEAR product range satisfies today's manufacturing requirements. LINEAR length measuring instruments are used as setting and measuring instruments and deliver measuring results quickly and reliably, even in rough workshop environments. Priority is given to simple operation. LINEAR length measuring instruments are an economical alternative for setting internal and external comparators, internal precision measuring instruments and snap gages with displays. I ◄





Precimar. LINEAR 800, 1200

Universal single-axis length measuring and setting instruments

Description

LINEAR length measuring instruments from **Mahr** are ideal for use as setting and adjusting instruments in the manufacturing environment. They allow precise setting of internal and external comparators, internal precision measuring instruments, snap gages with displays and many other measuring instruments. As an infinitely adjustable measurement standard, the LINEAR series is also an economical alternative to setting gages. The simple handling and short measuring time are key advantages. A measuring force control feature can be activated to allow measuring results independent of the user for both internal and external measurements.
Based on the steel scale, the **LINEAR** series ensures reliable measuring results over the entire measuring range. Compatibility with national standards means that **LINEAR** length measuring instruments are DIN EN ISO 9000-compliant.

Universal
A large number of contacting elements, anvils and clamping devices are available to satisfy all manner of requirements.

Features

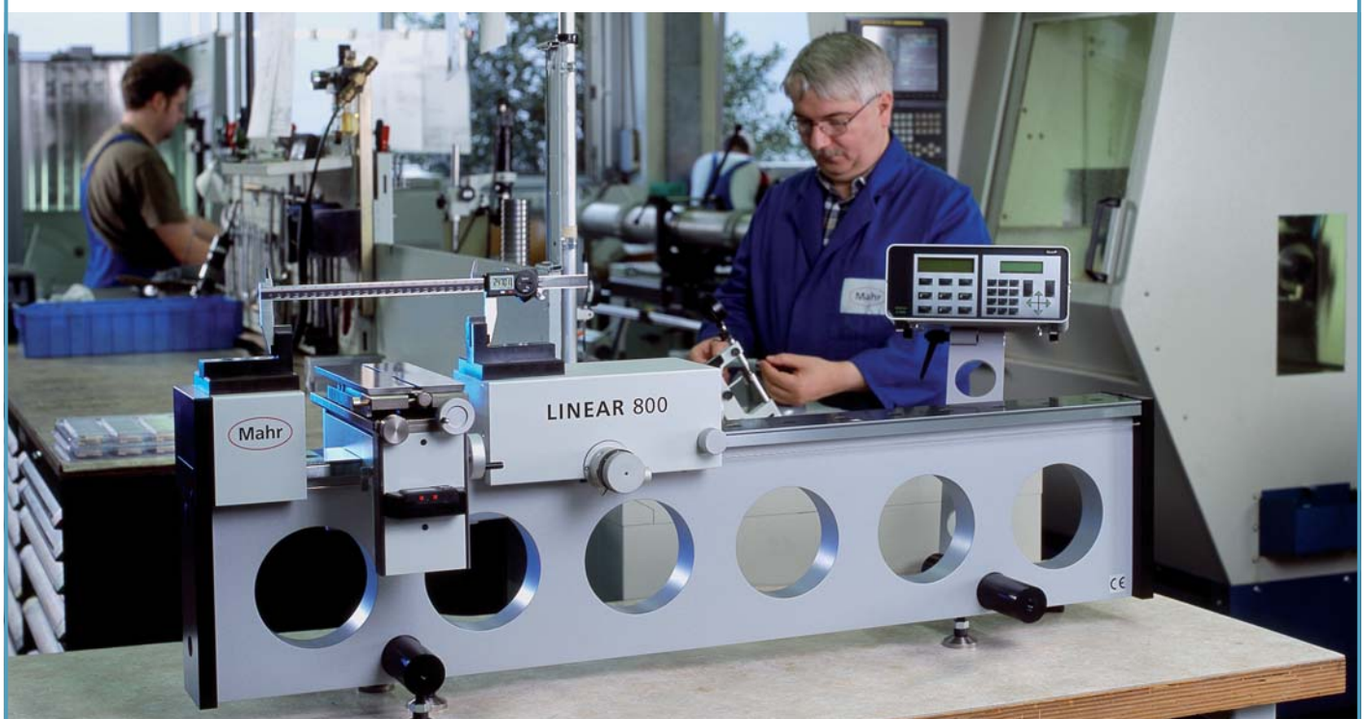
Applications
- Setting measuring instruments with displays such as the Multimar 844T
- Setting two-point internal measuring instruments such as the 844 N
- Checking setting standards
- Checking calipers
- Checking inside micrometers
- Measuring cylindrical parts
- Measuring internal dimensions and bores, etc.

Measured values are displayed on the clearly laid out **UNITRON 2 CHA** digital display which has a large number of measuring functions and an RS 232 interface. This makes it easy to transfer measured values to PCs.

Versions

LINEAR 800
LINEAR 1200
LINEAR 2000 (on request)

Precimar. LINEAR 800, 1200



Application

The **LINEAR** series of universal measuring instruments is used to check setting standards, calipers and inside micrometers and for other setting tasks.
As an infinitely adjustable measurement standard, the **LINEAR** series is an economical alternative to setting gages.

It allows precise setting of internal and external comparators, internal precision measuring instruments and many other measuring instruments.

The simple handling and short measuring time of the **LINEAR** series are key advantages.

LINEAR Accessories

- Anvils with hard metal balls. For external measurements on level measuring surfaces such as groove gages. Fitted simply by sliding them onto the measuring instrument's spindle.
  Mount diameter 20 mm (0.79 in), ball diameter 6 mm (0.24 in)
- Clamping device for internal precision measuring instruments for universal measuring table
- Support for large internal measuring instruments for precise positioning of 2-point internal precision measuring instruments when setting on the LINEAR
- Support with adjustable height for setting internal precision measuring instruments
- Support plates for rings larger than 200 mm (7.87 in).
  Three-point support for rings larger than 200 mm (7.87 in)

Details on metrological accessories are available on request.

Precimar. LINEAR Applications in the Manufacturing Environment

Testing calipers:

Sample measuring sequence:

- Apply caliper
- Set dimension on calipers
- Contact measuring surfaces
- Read off value displayed on Unitron 2 CHA
- Assess difference between values measured by caliper and Unitron display in accordance with VDI 2618/DIN 862

Measuring internal dimensions / bores

Sample measuring sequence:

- Clamp caliper
- Position reference ring on object table and fix in place
- Set up reference ring and set display to reference dimension
- Insert testpiece and fix in place
- Contact testpiece with calipers and locate reversing point
- Read off measuring result on Unitron and evaluate

Measuring cylindrical parts

Sample measuring sequence:

- Bring together spindles
- Position testpiece on object table and fix in place
- Contact testpiece and read off value
- Evaluate result of measurement

LINEAR. Technical Data

Name		LINEAR 800	LINEAR 1200
External meas.	Direct difference	0 to 820 (0 to 32.28)	0 to 1,220 (0 to 48.00)
Internal meas.		1 to 620 (0.04 to 25.59)	1 to 1,030 (0.04 to 41.34)
Cylindrical	External d2 (P=0.2 ... 6)	3 to approx. 300 (0.118 to approx. 11.81)	3 to approx. 300 (0.118 to approx. 11.81)
Thread	Internal D2 (P=0.45 ... 6) Lead (P/T)	4 to 200 (0.16 to 7.87)	5 to 200 (0.20 to 7.87)
Meas. instruments with displays	Lever-type test indicators, dial indicators, dial comparators micrometers, two-point internal meas. instrum.	from 0.3 to 100 (0.012 to 4) up to 100 (4)	from 0.3 to 100 (0.012 to 4) up to 800 (31.50)

Notes:
*) On request
**) Max. workpiece weight 20 kg (44 lbs)
All values in mm (inch values in brackets).
In some cases, additional standards and optional accessories are required to achieve the measuring ranges indicated.

Values higher or lower than those given can be achieved with special accessories.
The concrete geometry and weight of the testpiece may restrict the measuring ranges indicated.

Performance Data for All Models

Length measuring system X-axis	Resolution	0.0001 mm (4 µm)
Instrument system	Length measuring deviation	MPE_{E1} = (0.7 + L/1,000) µm (L in mm)
	Reproducibility	0.1 µm
Measuring force		3 N

Dimensions, Weights and Operating Conditions

		LINEAR 800	LINEAR 1200
Instrument dimensions	L x W x H	1,250 x 240 x 460 (49.21 x 9.45 x 18.11)	1,650 x 240 x 460 (64.96 x 9.45 x 18.11)
Instrument weight	in kg (lbs)	120 (265)	150 (331)
Weight of testpiece	for testpiece table		
	table size	110 x 240 (4.33 x 9.45)	110 x 240 (4.33 x 9.45)
Electrical connection values	instrument, eval. instrument	5 W	5 W
Humidity		< 80 %	< 80 %
Ambient temperature for operational readiness		15 to 45 °C (59 to 113 °F)	15 to 45 °C (59 to 113 °F)