



ELECTRONIC BORE GAUGE

M1 Star is an innovative line of manual gauges for measuring the diameters of bores. Thanks to the application experience Marposs gained through the M1 Electron, a product that boasts an extremely extensive diffusion, with more than 100,000 units present in all sorts of industrial environments, the M1 Star EBG (Electronic Bore Gauge) is the ideal manual electronic gauge for measuring the diameter, ovality and taper of bores, wherever a high-precision performance is required.

MAIN CHARACTERISTICS

- Application range**
 Diameters from 3 to 300 mm, with a measurement section depth up to 500 mm.
- Accuracy**
 Marposs' completely friction-free measurement reading system ensures repeatability within 0.5 microns, constant over the entire application range. Each plug is delivered with a certificate of individual testing of the product.
- Electrical compatibility**
 The EBG plug heads are available with Marposs standard LVDT

or HBT transducer. The compatibility to third party electronic units is obtained by means of special cables.

- Versatility of application**
 The connection between plug gauge and cable is made with a connector allowing quick replacement of the plug gauge itself. The extensive linearity range of the transducers used in the M1 Star EBG requires only one zero-setting ring.
- Sturdiness and resistance to environmental factors**
 The M1 Star EBG has been designed to be used in the harshest production environments. Guaranteed IP67 protection (waterproof, dirt and dust sealed) with excellent resistance to impacts and accidental falls, plus replaceable tear resistant cable make the EBG sturdy and reliable, thus reducing maintenance costs and down times to a minimum.
- Supply conditions**
 The most advanced engineering and production processes allow Marposs to offer the EBG with extremely competitive pricing and fast delivery times. The M1 Star EBG is also available for customized OEM supplies.

TECHNICAL SPECIFICATIONS

DESCRIPTION	WORKING RANGE						
	STANDARD MEASURING RANGE FOR TYPE B AND T (mm)	Ø 3 - 8 0,050		Ø 8 - 13 0,060	Ø 13 - 26 0,060	Ø 26 - 50 0,070	Ø 50 - 150 0,070
EXTENDED MEASURING RANGE FOR TYPE B AND T (mm)	Ø 3 - 6 0,050 - 0,070	Ø 6 - 8 0,050 - 0,100	Ø 8 - 13 0,060 - 0,150	Ø 13 - 26 0,060 - 0,200	Ø 26 - 38 0,070 - 0,200	Ø 38 - 150 0,070 - 0,350	Ø 150 - 300 0,080 - 0,300
STANDARD MEASURING RANGE FOR TYPE SB AND BC (mm)				Ø 13 - 26 0,060	Ø 26 - 50 0,070	Ø 50 - 150 0,070	Ø 150 - 300 0,080
REPEATABILITY (2,77 σ) (µm)	≤ 0,5						
THERMAL DRIFT (µm/°C)	≤ 0,3						

(*): THE WORKING RANGE CAN BE FURTHER EXTENDED, ON REQUEST, THROUGH A DEDICATED DESIGN OF THE BORE GAUGE

M1 STAR EBG ELECTRONIC BORE GAUGE

- 1 **NOSEPIECE:** it is the guiding element ensuring that operator's ability does not affect the measurement result.
- 2 **MEASURING CONTACTS:** they are available in various radii and materials (carbide, diamond and DLC), depending on the type of part to be measured.
- 3 **MEASURING ARMSET:** this element is composed, depending on the measuring range, of two or four fingers with a fulcrum. The built-in LVDT or HBT transducer is extremely precise, reliable and durable (IP67 waterproof, frictionless) and mechanically transduces the acquired measurement into an electrical signal proportional to the movement.
- 4 **SIGNAL-PROCESSING ELECTRONIC UNIT:** the embedded electronic circuit allows to perform a fine adjustment of the sensitivity and is totally protected (IP67 protection degree).
- 5 **CONNECTOR:** it connects the plug gauge to the cable, making retooling a simple operation and reducing the cost for repairs.
- 6 **HANDLE:** The ergonomic design and the antislip surface allow a safe handling of the bore gauge. Under the product label a plate is available, on which any information required by the customer can be marked.
- 7 **CABLE EXTENSION:** It is a special reinforced cable (Ø 4,7 mm) specifically developed for use in manual gauges, with considerably reduces the risk of damage and unintended torsion. It complies with EMC Standards for manual gauges.
- 8 **CONNECTION TO ELECTRONIC DISPLAY UNIT:** for connection to electronic display units the EBG is supplied with a Lumberg type SV50/6 or S3. Extensions with dedicated connectors can be supplied, making it possible to achieve compatibility with many of the electronic display units available on the market.

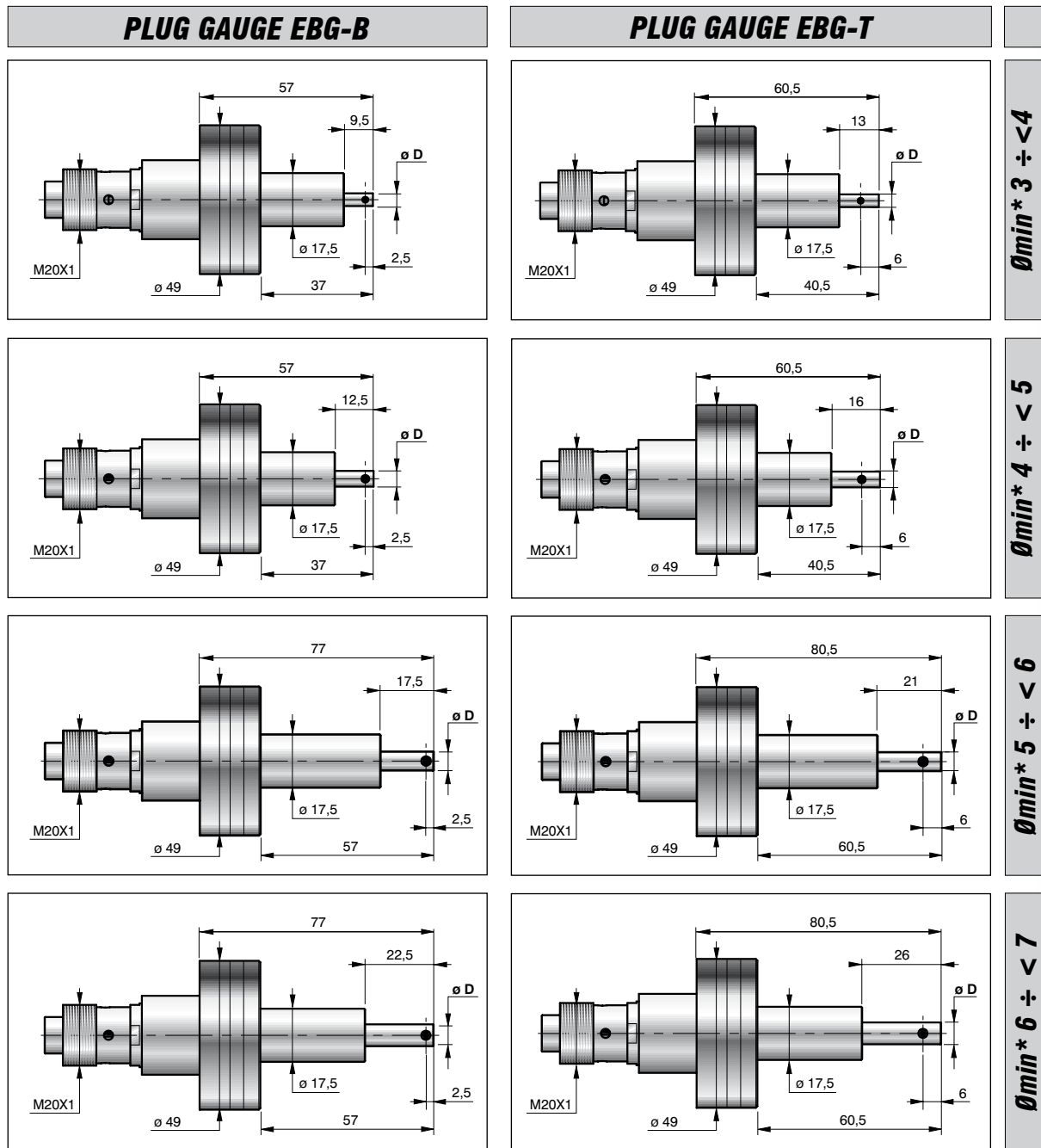


NOSEPIECE DIMENSIONS

$\varnothing D$ (nominal diameter of the nosepiece) =
 $\varnothing \text{ min} - [0,0007 * (\varnothing \text{ min} + 12)]$
 The following table shows the tolerances for $\varnothing D$.

D NOMINAL RANGE	TOLL +	TOLL -
3 ÷ 26	0	-0,015
26 ÷ 50	0	-0,02
50 ÷ 104	0	-0,03
104 ÷ 150	-0,01	-0,05
150 ÷ 180	-0,01	-0,08
180 ÷ 300	-0,01	-0,08

DIMENSIONAL SPECIFICATIONS OF STANDARD PLUG GAUGES



* \varnothing_{min} = minimum bore diameter

CONTACTS FOR B-TYPE PLUG GAUGE				
$\varnothing D$	CARBIDE OR DLC		DIAMOND	
	R1	R2	R1	R2
3 ÷ < 6	0,25	-	-	-
6 ÷ < 7	0,5	1	-	-

CONTACTS FOR T-TYPE PLUG GAUGE				
$\varnothing D$	CARBIDE OR DLC		DIAMOND	
	R1	R2	R1	R2
3 ÷ < 6	0,25	-	-	-
6 ÷ < 7	0,5	1	-	-

TRANSUCERS AND MEASUREMENT TRANSMISSIONS

BORE GAUGES LINE

FORKS AND RING GAUGES

BENCH GAUGES

INDICATORS AND ELECTRONIC DISPLAY UNITS

INTERFACE BOXES FOR DATA ACQUISITION

SOFTWARES

DIMENSIONAL SPECIFICATIONS OF STANDARD PLUG GAUGES

TRANSDUCERS AND MEASUREMENT TRANSMISSIONS

BORE GAUGES LINE

FORKS AND RING GAUGES

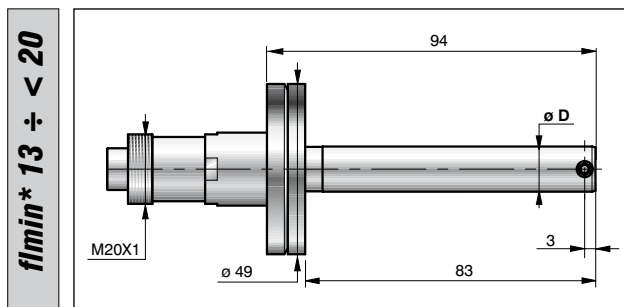
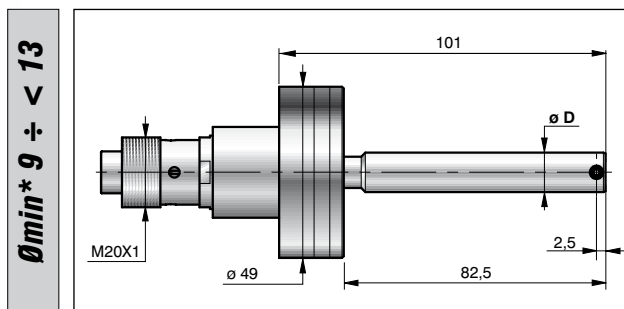
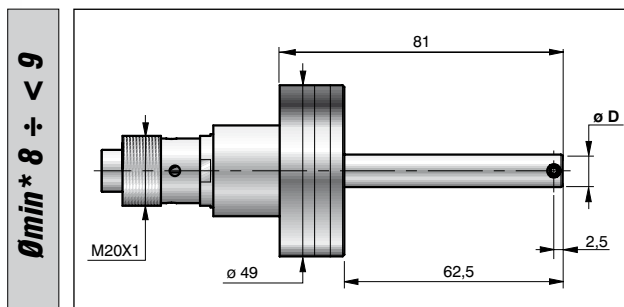
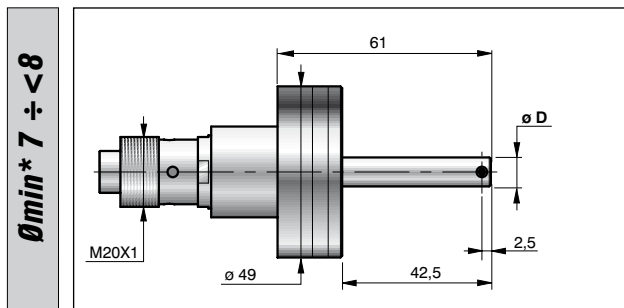
BENCH GAUGES

INDICATORS AND ELECTRONIC DISPLAY UNITS

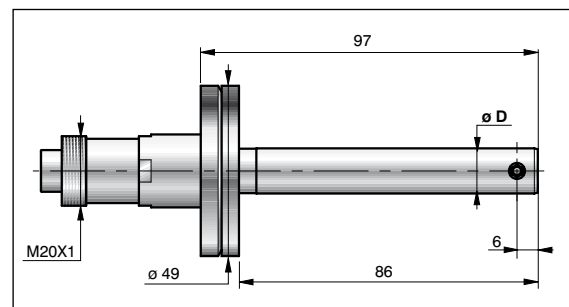
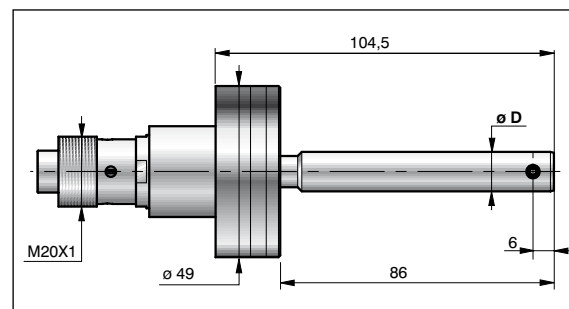
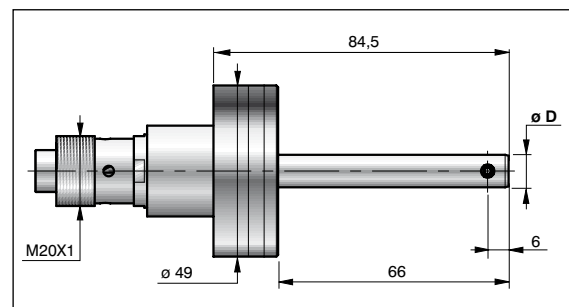
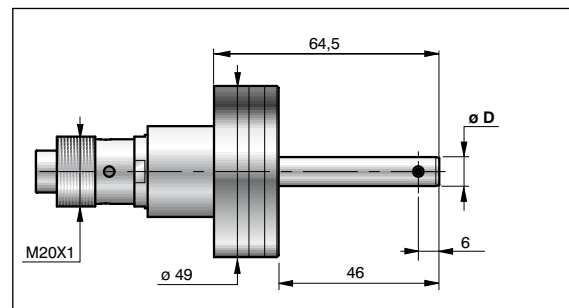
INTERFACE BOXES FOR DATA ACQUISITION

SOFTWARES

PLUG GAUGE EBG-B



PLUG GAUGE EBG-T

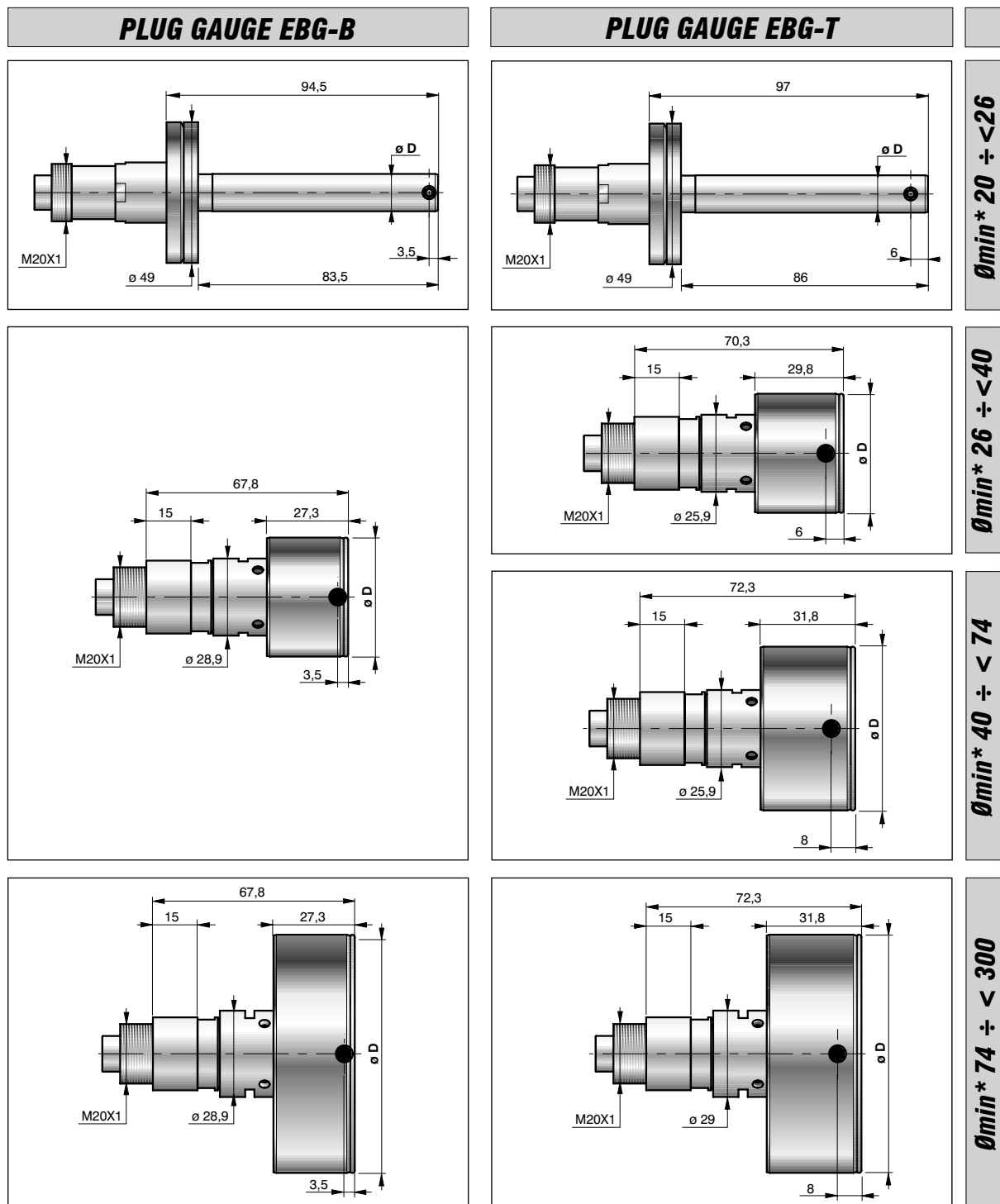


* \varnothing_{min} = minimum bore diameter

CONTACTS FOR B-TYPE PLUG GAUGE				
$\varnothing D$	CARBIDE OR DLC		DIAMOND	
	R1	R2	R1	R2
7 \div < 8	0,5	1	0,4	-
8 \div < 10,5	1,5	2,5	0,4	-
10,5 \div < 13	1,5	2,5	0,75	-
13 \div < 20	2	5	2	5

CONTACTS FOR T-TYPE PLUG GAUGE				
$\varnothing D$	CARBIDE OR DLC		DIAMOND	
	R1	R2	R1	R2
7 \div < 8	0,5	1	0,4	-
8 \div < 10,5	1,5	2,5	0,4	-
10,5 \div < 13	1,5	2,5	0,75	-
13 \div < 20	2	5	2	5

DIMENSIONAL SPECIFICATIONS OF STANDARD PLUG GAUGES



* \emptyset_{min} = minimum bore diameter

CONTACTS FOR B -TYPE PLUG GAUGE				
$\emptyset D$	CARBIDE OR DLC		DIAMOND	
	R1	R2	R1	R2
20 \div < 26	2	5	2	5
26 \div < 32	4	10	2	-
32 \div < 300	4	10	4	10

CONTACTS FOR T -TYPE PLUG GAUGE				
$\emptyset D$	CARBIDE OR DLC		DIAMOND	
	R1	R2	R1	R2
20 \div < 26	2	5	2	5
26 \div < 32	4	10	2	-
32 \div < 300	4	10	4	10

BORE GAUGES LINE

TRANSducers AND MEASUREMENT TRANSMISSIONS

FORKS AND RING GAUGES

BENCH GAUGES

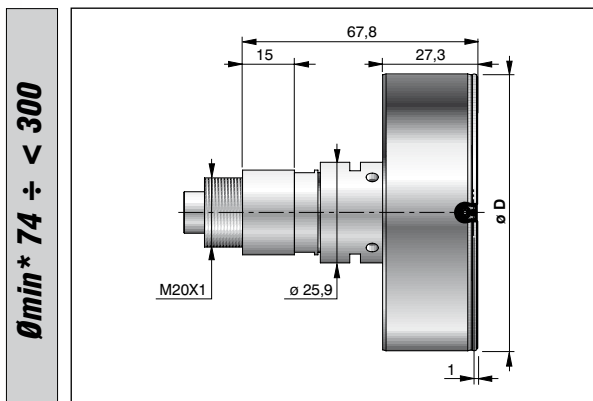
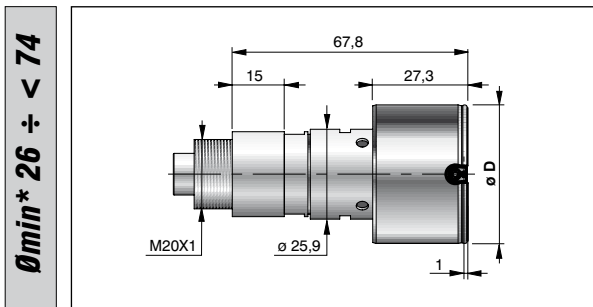
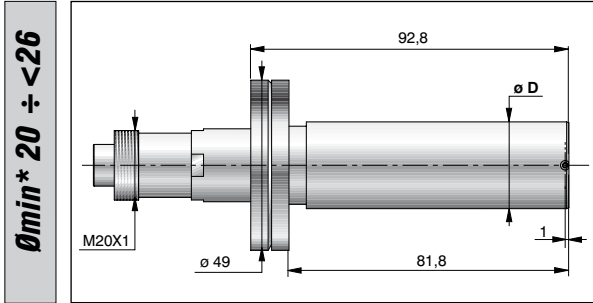
INDICATORS AND ELECTRONIC DISPLAY UNITS

INTERFACE BOXES FOR DATA ACQUISITION

SOFTWARES

DIMENSIONAL SPECIFICATIONS OF STANDARD PLUG GAUGES

PLUG GAUGE EBG-SB



* \varnothing_{min} = minimum bore diameter

CONTACTS FOR SB-TYPE PLUG GAUGE				
$\varnothing D$	CARBIDE OR DLC		DIAMOND	
	R1	R2	R1	R2
13 \div < 26	2	5	-	-
26 \div < 300	4	10	-	-

STANDARD HANDLES

HANDLE FOR BORE GAUGE WITH CABLE

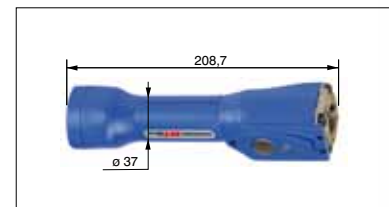
DESCRIPTION	ORDER CODE
Handle for bore gauge with cable	2THS000000
Cable 2 mt LVDT - connector SV50/6	2TG0000026
Cable 3,5 mt LVDT - connector SV50/6	2TG0000356
Cable 5 mt LVDT - connector SV50/6	2TG0000056
Cable 2 mt LVDT - connector S3	2TG0000023
Cable 2 mt TESA COMPATIBLE - connector SV50/6	2TG00TS026
Cable 2 mt HBT - connector SV50/6	2TG0001026
Cable 3,5 mt HBT - connector SV50/6	2TG0001356
Cable 5 mt HBT - connector SV50/6	2TG0001056



HANDLES WITH WIRELESS TRANSMISSION

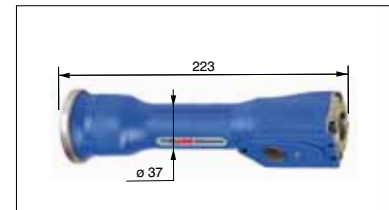
WAVE HANDLE WITH ALKALINE BATTERIES

DESCRIPTION	ORDER CODE
Wave handle with alkaline batteries	2TW0SFB000



WAVE HANDLE WITH LI-ION INDUCTIVE BATTERIES

DESCRIPTION	ORDER CODE
Wave handle with Li-Ion inductive batteries	2TW0SFI000



MECHANICAL INTERFACE FOR PLUG GAUGE

DESCRIPTION	ORDER CODE
Interface adapter to fix EBG plug heads to Wave handle	2TIESF0000



“CLIP ON” MANUAL CHARGER

DESCRIPTION	ORDER CODE
“Clip On” manual charger for Wave handle with Li-Ion batteries (the power supply unit is included in the supply)	2T0IRMS000



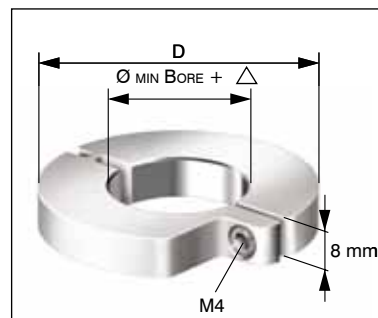
STAND CHARGER WITH PLUG SUPPORT

DESCRIPTION	ORDER CODE
Stand with battery charger for Wave handle with Li-Ion batteries	2T0IRBS001
Power supply unit for one stand with battery charger	2T0IRCS000
Power supply unit and junction box for up to four stands with charger	2T0IRSS004



DEPTH STOPS FOR NOSEPIECE

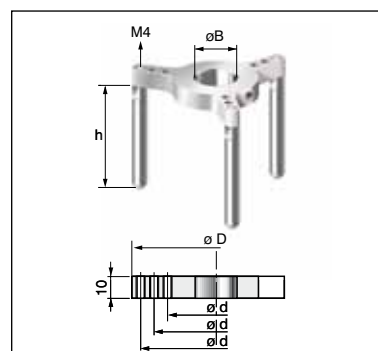
\varnothing min Bore (mm)	\varnothing D (mm)	\varnothing min Bore (mm)	\varnothing D (mm)
$8 \leq \varnothing < 11$	33	$40 \leq \varnothing < 45$	71
$11 \leq \varnothing < 15$	37	$45 \leq \varnothing < 50$	76
$15 \leq \varnothing < 20$	42	$50 \leq \varnothing < 60$	86
$20 \leq \varnothing < 25$	51	$60 \leq \varnothing < 70$	96
$25 \leq \varnothing < 30$	56	$70 \leq \varnothing < 80$	106
$30 \leq \varnothing < 35$	61	$80 \leq \varnothing < 90$	116
$35 \leq \varnothing < 40$	66	$90 \leq \varnothing \leq 100$	126



$\Delta < 0,2 \text{ mm}$

DEPTH STOPS FOR EXTENSION

\varnothing B (mm)	\varnothing D (mm)	h (mm)	\varnothing d (mm)				ORDER CODE
22	45	63,3	38				2TDEE220A0
	75		44	56	68		2TDEE220B0
	110		79	91		103	2TDEE220C0
	160		117	129	141	153	2TDEE220D0
	220		177	189	201	213	2TDEE220E0



EXTENSIONS

The stainless steel extensions, when inserted between the plug gauge and the handle, make it possible to reach the correct position in a bore, where the measurement must be read. The following codes can be ordered:

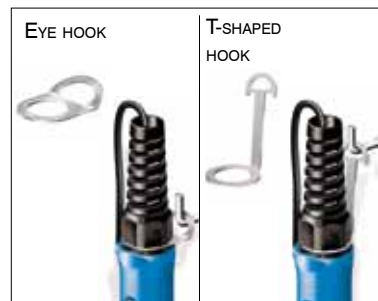
DIAMETER RANGE (mm)	L (mm)	ORDER CODE
26 ÷ 300	20	1TX0S00020
	30	1TX0S00030
	40	1TX0S00040
	50	1TX0S00050
	65	1TX0S00065
	80	1TX0S00080
	100	1TX0S00100
	125	1TX0S00125
	250	1TX0S00250
500	1TX0S00500	



HOOKS


Hooks to hang up the M1 Star MBG bore gauges are available in two styles, for all handle types as shown (see the figures).

DESCRIPTION	ORDER CODE
Eye hook for pencil probe handle	1T0JHS0810
T-shaped hook for pencil probe handle	1T0JHS0811
Eye hook for indicator handle	1T0JHS0812
T-shaped hook for indicator handle	1T0JHS0813



For a full list of address locations, please consult the Marposs official website

D6M1EB03G0 - Edition 03/2011 - Specifications are subject to modifications
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Marposs has an integrated system to manage the Company quality, the environment and safety, attested by ISO 9001, ISO 14001 and OHSAS 18001 certifications. Marposs has further been qualified EAQF 94 and has obtained the Q1-Award.