MEASURING BENCH PS16 V2 E

BANC DE MESURE PS16 V2 F

MESSBANK PS16 V2 D

INSTRUCTIONS

MODE D'EMPLOI

BEDIENUNGSANLEITUNG

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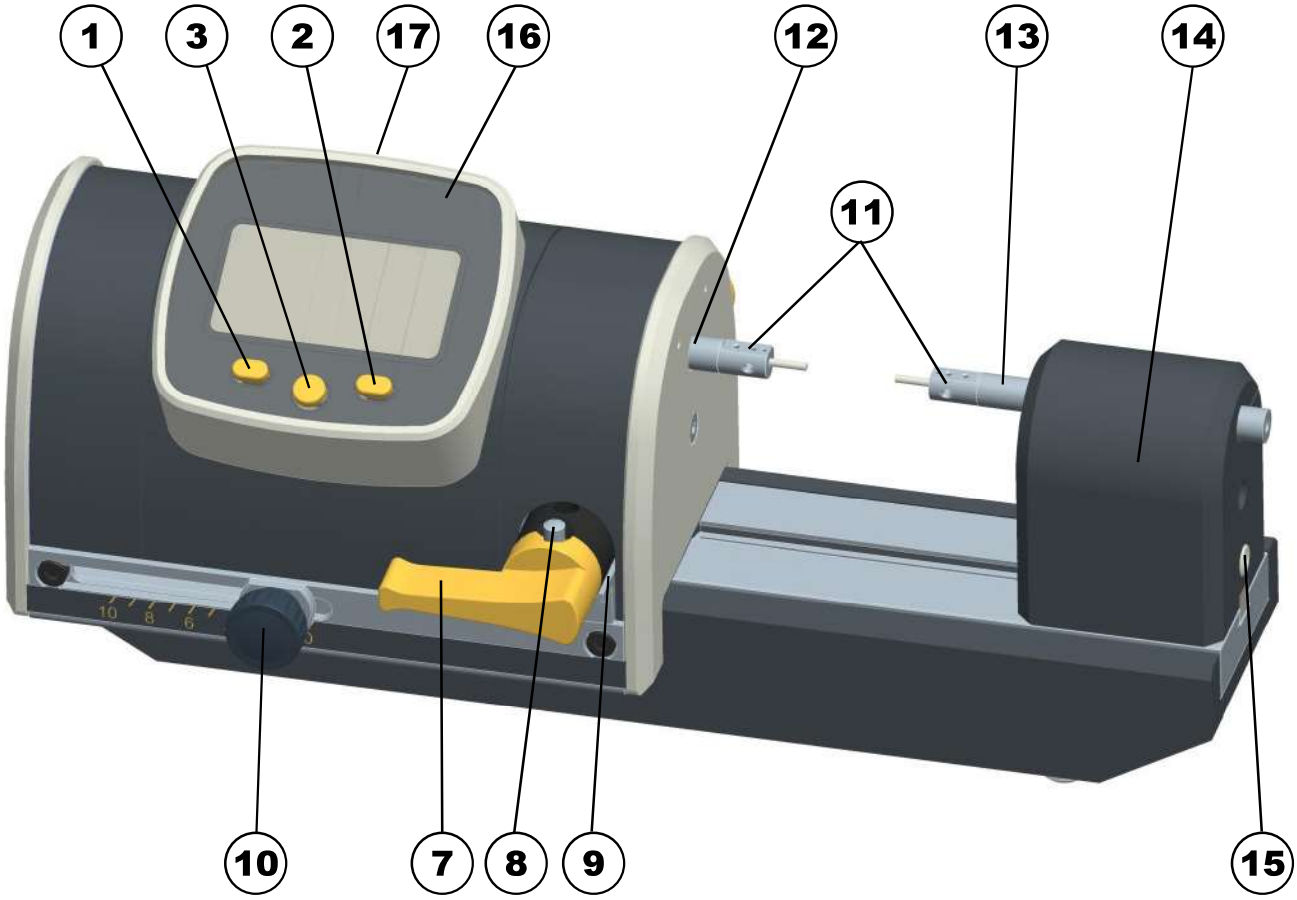

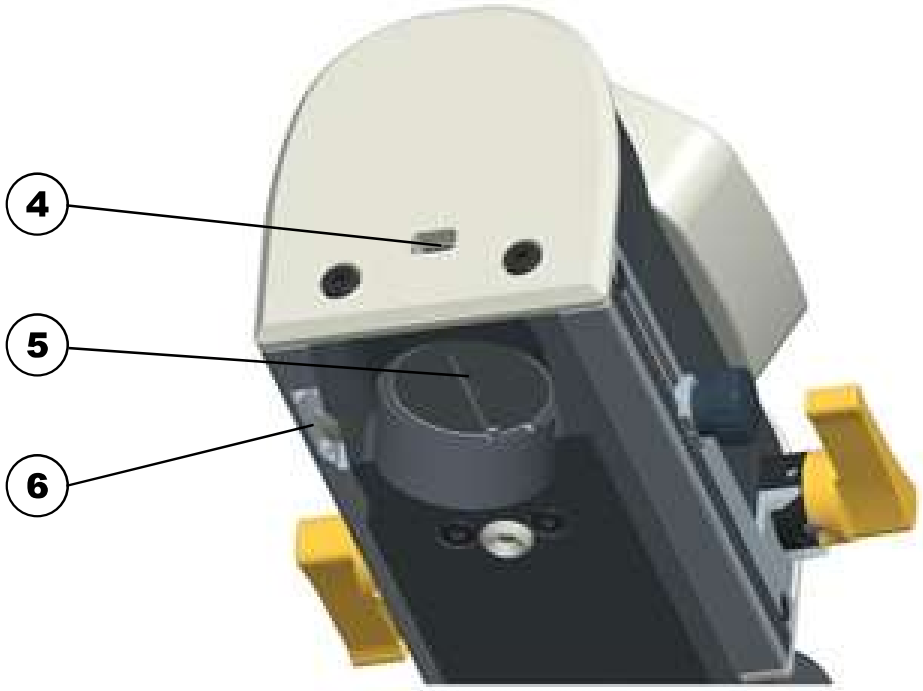

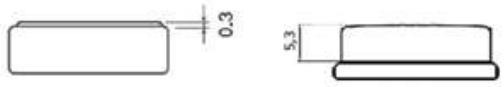

CR2477 CR2477N

✓ ✗

Description

1. MODE button
2. SET button
3. “Favourite” button
4. Mini-USB
5. Compartment for battery CR2477 or CR2032.
6. Adapter CR2477/CR2032
7. Adjustable release lever
8. Optional stop
9. Travel stop
10. Force adjustment knob
11. Anvils locking screw Ø1.5mm
12. Moving measurement spindle for Sylvac Ø1.5 probe and Cary compatible probe
13. Fixed measurement spindle for Sylvac Ø1.5 probe and Cary compatible probe
14. Moveable tailstock
15. Tailstock position locking screw
16. Measurement unit
17. Proximity cable housing

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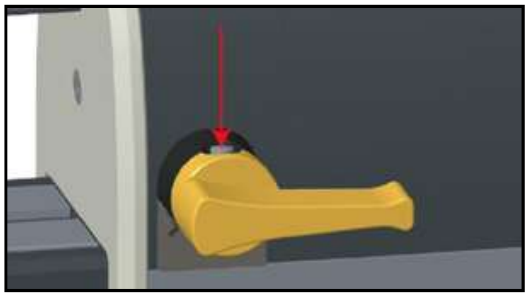
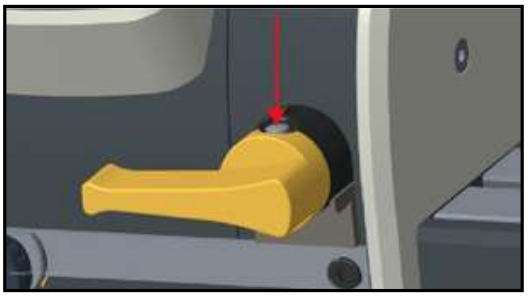
Handling

Unblocking the transport mode axes

Place the 2 optional stops (on the front and rear of the unit) in their middle position.

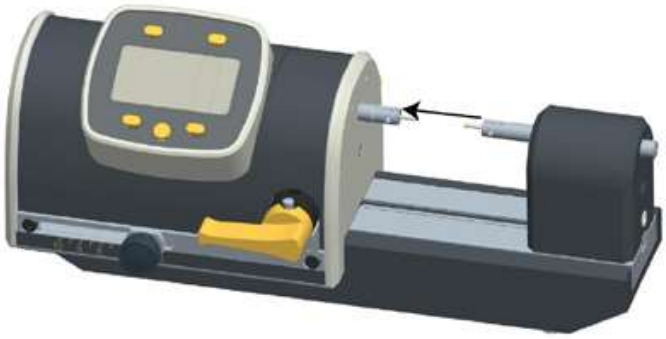




First use

For the first use, after a complete stop (off) or battery change, the instrument will request a new reference measurement (--rEF--).

Move the measurement axis to the end of its run, (fully entered)



1. General usage remarks

- The original anvils assembled on both measurement axes are lapped in position to guarantee an optimum measurement. Any disassembly of these anvils can lead to a reduction in the accuracy of the instrument.
- The tailstock was positioned to have 0.5mm prestress in the probe zero position.

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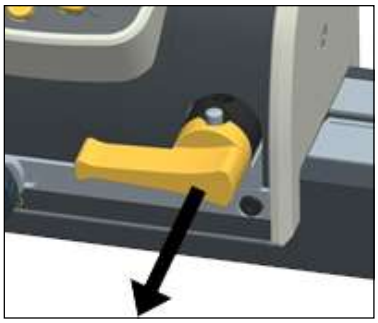
- Activating the lever opens the anvils. Releasing the release lever too sharply can have a harmful influence on the probes and the measurement accuracy.
- It is advisable to check the reference (origin) during use.
- Monitor the cleanliness of the moving spindle. If necessary clean with light benzene. Using a cloth that could leave residual particles is not recommended.
- Certain components, notably the headstock clamp screws are sealed after assembly and consequently must not be removed. Any work on these components by a third party can lead to loss of the guarantee.

2. Use

2.1 Adjustable release lever

The movable measuring spindle is retracted by means of the adjustable lever (7). The position of the lever can be adjusted to suit the location of the workpiece. In order to change the position, pull the lever out axially and move it to the desired position.

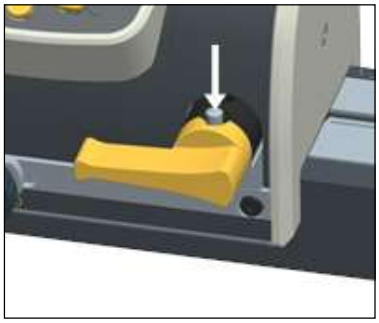


2.2 Optional stops

The PS16 V2 is equipped with 2 optional stops (at the front and back of the instrument). Used in combination, they allow the travel to be restricted in 2 directions (opening/closing) so that the position and the measuring travel can be adjusted to suit the workpiece.

This prevents the anvils from coming back into contact (0) and having to repeat the full travel with each measurement. The stop is engaged by pushing the radial button (8).

The stop positions are adjusted by positioning the release lever (see chap. 2.1). If 2 stops are being used, the release lever has a set position that cannot be modified.

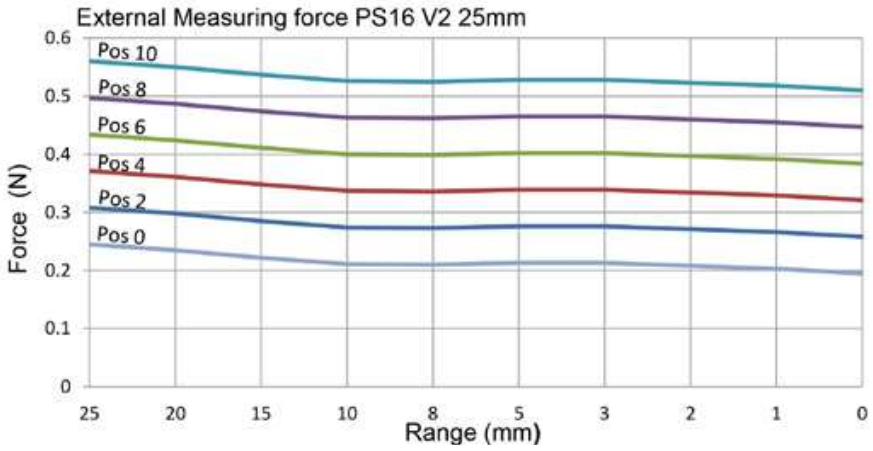


2.3. Measuring force

The measuring force can be adjusted by moving the adjustment knob (10) as follows: unscrew the knob (~1/2 a turn), position it at the required force and re tighten it.

Optimise the measuring force setting for workpiece weight and deformation. Do not adjust the measuring force during a measurement process.

Force for external measurement PS16 V2 25mm



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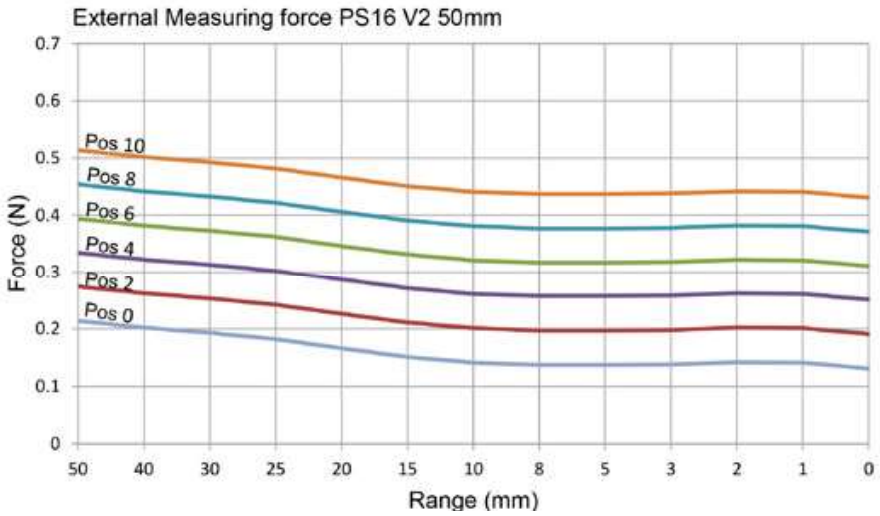
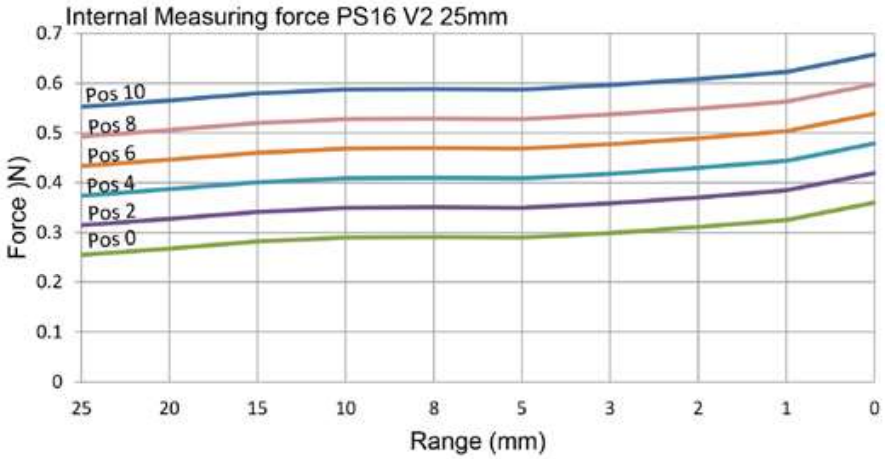
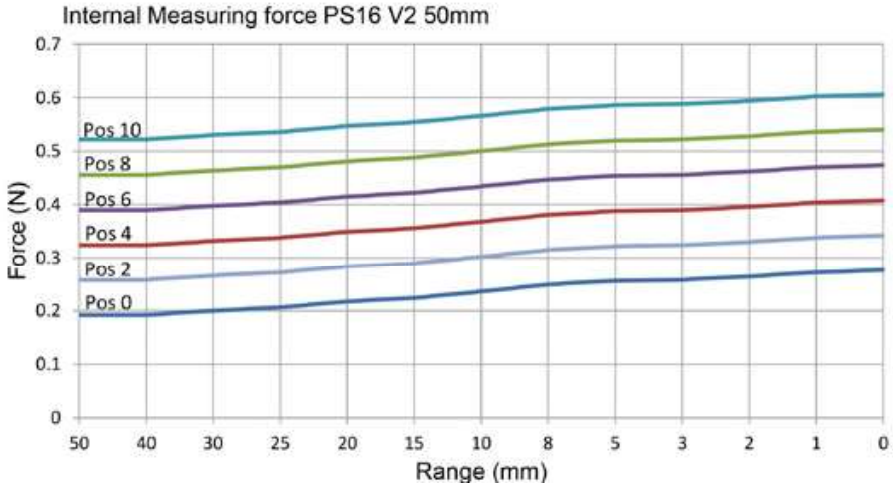
Force for external measurement PS16 V2 50mm



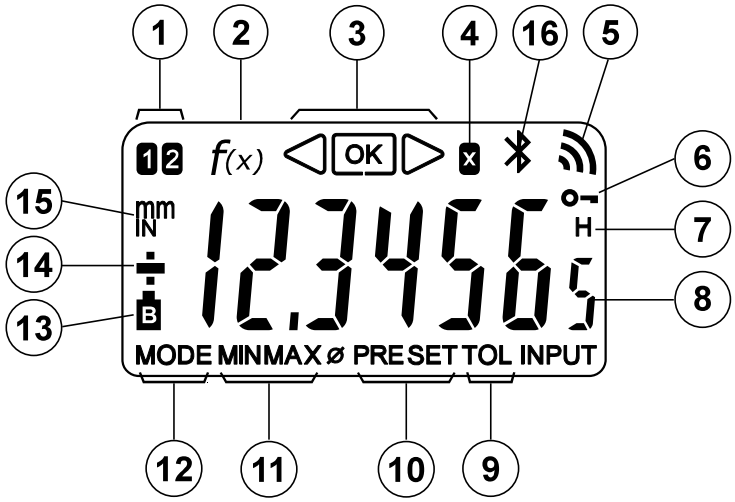
Force for internal measurement PS16 V2 25mm



Force for internal measurement PS16 V2 50mm



3. Measurement unit



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3.1. Description

1. Active reference
2. Measuring mode with 3-point function
3. Tolerance indicator
4. Multiplication factor
5. Sending data
6. Keypad lock
7. Hold measured value
8. 6-digit display
9. Tolerance mode
10. Preset Mode
11. Mode Min/Max/Delta
12. MODE menu indicator
13. Low battery
14. Indicator + / -
15. Measurement unit mm/INCH
16. *Bluetooth*® connection

3.1.1 Operating features of the instrument

- MODE The instrument has two operating modes: first level functions (direct access) and second level functions. In addition to the configuration functions, 2 working reference functions can be accessed, in MIN, MAX and DELTA (TIR) mode, plus tolerance display or input of multiplication factor other than 1:1 (see chaps. 3.3 and 3.4)

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- The «favourite» key gives direct access to the function used most often (see chap. 3.6)

- SET Sets a Preset value, reset the MIN/MAX mode, verifies a selection, and controls switching off the instrument. By default, SIS mode enables automatic switch-off with no loss of origin (see chap. 6)

3.1.2. Personalising the functions

It is possible to activate or deactivate certain functions of the instrument. (requires a connection, see chap. 6.2)

3.1.3. Data transmission parameters

4800Bds, 7 bits, even parity, 2 stop bits

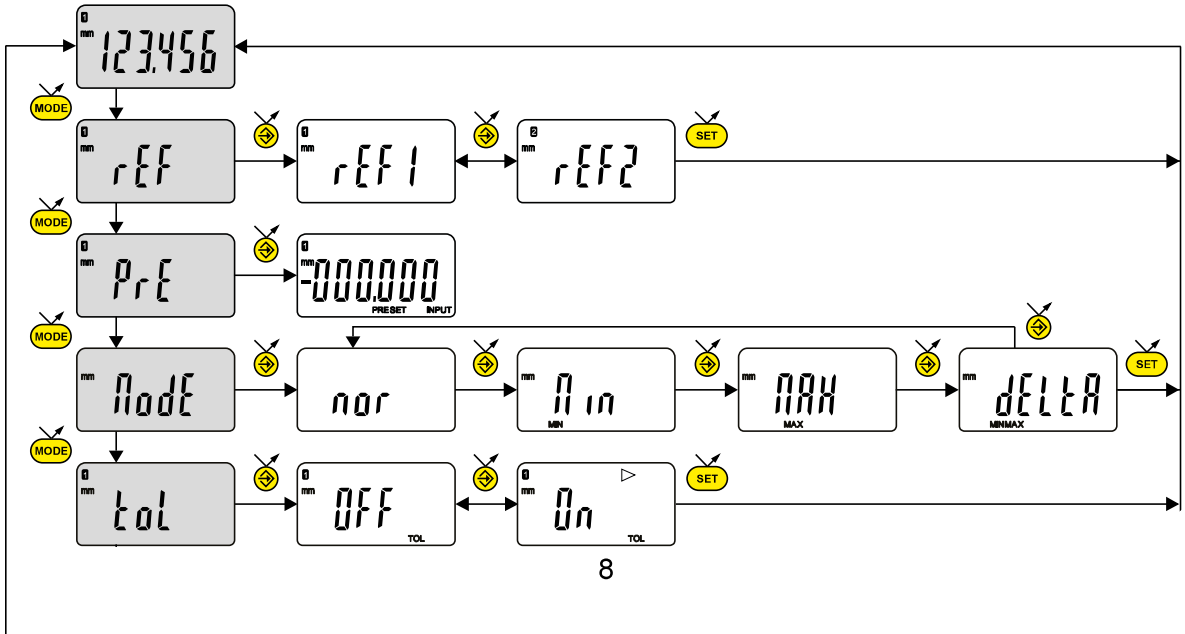
3.2. Start, re-initialisation

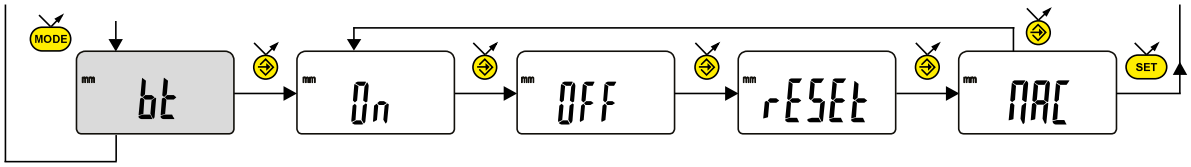
Press a button.
When the instrument is used for the first time after the battery has been changed or after it has been completely switched off (OFF), the instrument needs to be reinitialised (--rEF--). Simply insert the measuring spindle to the end of its travel.

For a *Bluetooth*® connection (see chap. 4).

3.3. First level functions

Each short press on MODE gives direct access to the first level functions :





rEF Choice of reference (REF1 or REF2)

PrE Inputting a Preset value

next digit SET 0...9 MODE save the PRESET

ModE Minimum, Maximum and Delta (TIR) measurement

toL Tolerance display
(inputting tolerance limits, see chap. 3.5)

bt *Bluetooth*® ON/OFF or MAC address display

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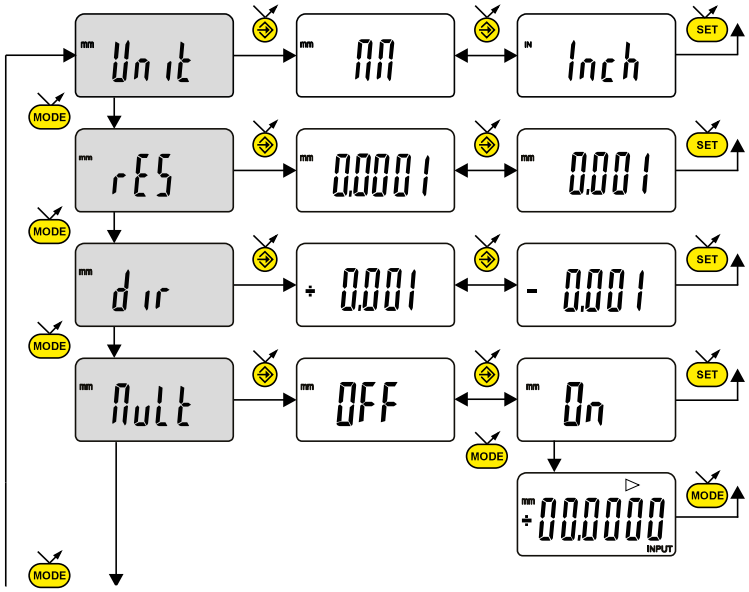
Note :
It is possible to assign a different preset value to each of the 2 References. Similarly, different tolerance limits can be assigned to References 1 and 2.

3.4. Second level functions

Prolonged pressure (>2s) on MODE gives access to the second level functions.

Then, each short press on MODE accesses the required function :



3.4. Second level functions (continuation)

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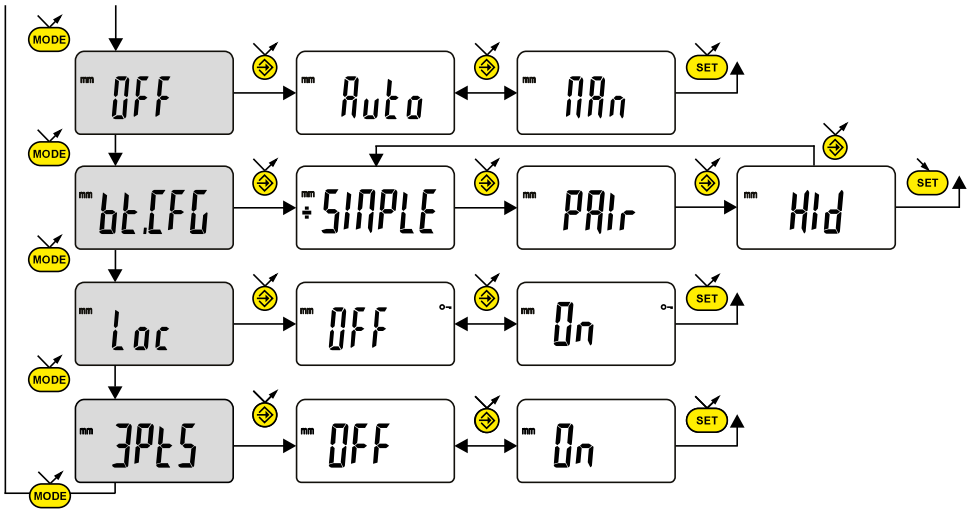


Unit — Units selection (mm or Inch)

rES — Choice of resolution (depending on version)

dir — Choice of measurement direction (positive or negative sense)

MuLt — Inputting a multiplication factor other than 1.0000

Next digit — SET — 0...9 — MODE — save MULT

OFF — Automatic switch-off mode
MAn = de-activated, Auto = active

bt.CFG — *Bluetooth*® profile selection (depending on model).
(see chap. 4 for details)
The ÷ sign indicates the currently active profile.

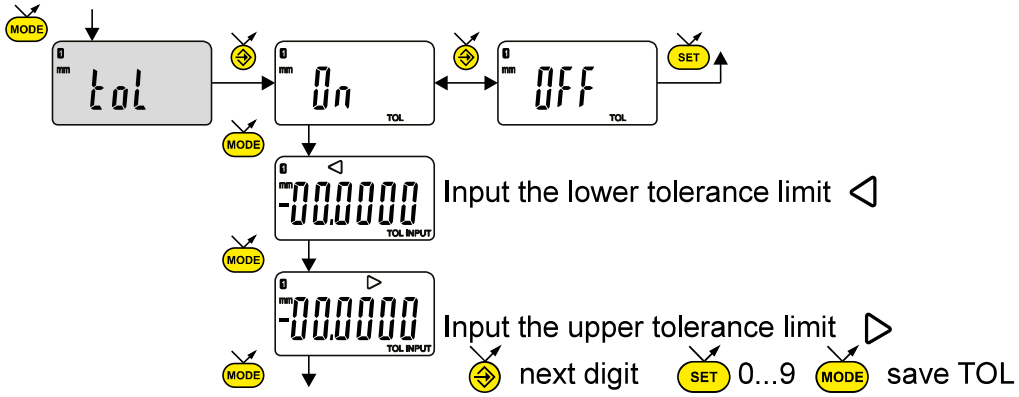
Loc — Keypad lock. Only the favourite key remains active

(to unlock the keypad, press SET for 5 sec)

3PtS — Diameter measurements at 3 points (for 3 points version)

3.5. Inputting tolerance limits

To input or modify the tolerance limits, tol → On mode should be selected, followed by a short press on MODE



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Note:
For measuring internal dimensions, the red and yellow indicators can be switched over by reversing the order in which the tolerance limits are input (lower limit > upper limit).

It is possible to input different tolerances on REF1 and REF2.

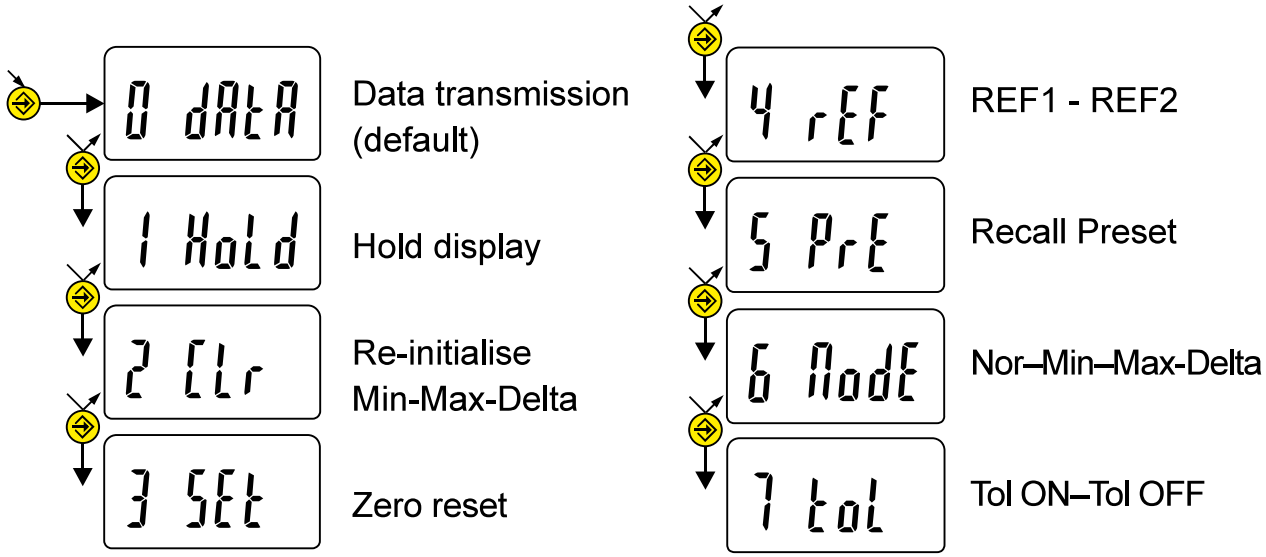
It is also possible to display the tolerance limits when the instrument is operating in MIN, MAX or DELTA (TIR) mode.

If no tolerance limits have been defined by the user, the instrument will display the tolerance limits have indicators ◁ OK ▷ , but will not turn on the indicator lights (red - green - yellow)

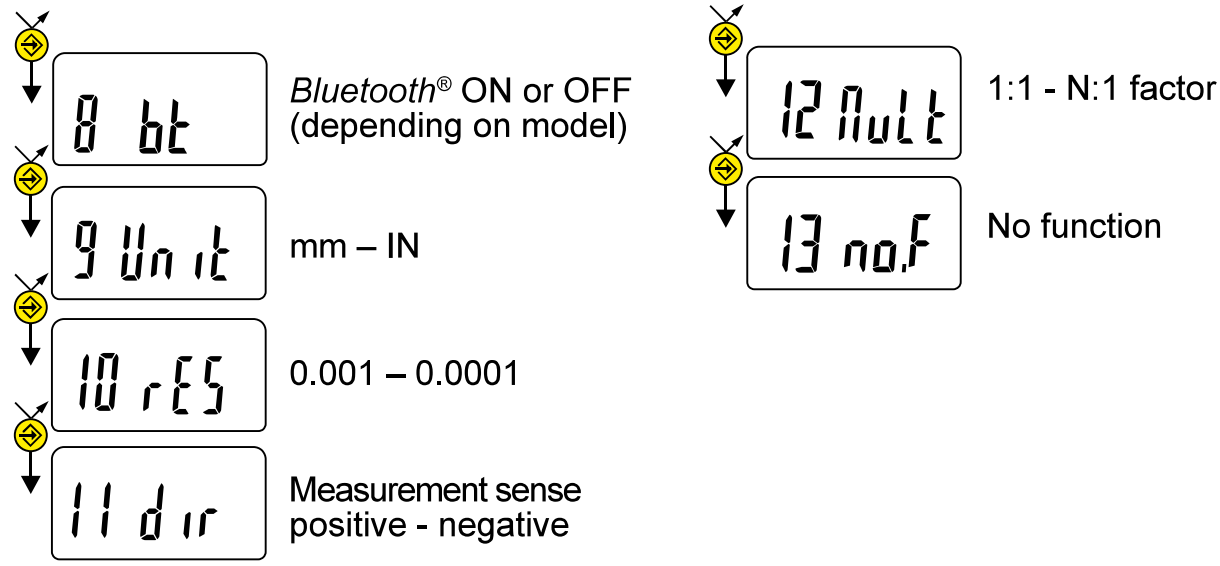
3.6. Favourite key

The «favourite» key gives direct access to a predefined function, and can be configured according to the needs of the user. In order to assign a function to the «favourite» key.

Give a prolonged press on , and then select the required function :



3.6. Favourite key (continuation)



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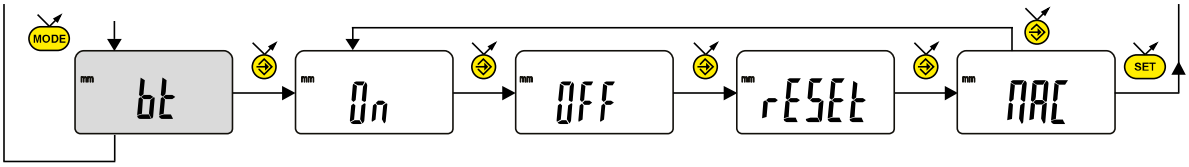
Validation of selection: By a prolonged press on SET or a short press on or MODE .

Note :
A function can also be assigned via RS232 using the command
<FCT + Function No.> (FCT 0..9 A..F)
example: Toggle unit = **<FCT9>**, reverse measurement direction = **<FCTB>**.

4. *Bluetooth*® configuration



The connection procedure has been designed to be simple and is signalled by the following three states:

Symbol off..... disconnected mode
Symbol blinking..... advertising mode
Symbol on..... connected mode

The following options can be selected to control the *Bluetooth*® module.

- On Enable *Bluetooth*® module (start advertising mode).
- OFF Disable *Bluetooth*® module (terminate active connection).
- rESEt Clear pairing information.
- MAC Display the MAC (Media Access Control) address.

Three *Bluetooth*® profiles are available.

- SIMPLE Profile without pairing (default).
- PAIr Paired and secured profile.
- Hid Virtual keyboard mode (compatible with recent equipment without driver installation).

Note:
- *Bluetooth*® pairing information is cleared when the profile is changed.

Connection :

1 Activate *Bluetooth*® compatible software and hardware (Master : PC, Display Unit)

2 Start the instrument. By default the *Bluetooth*® module is active and the instrument is available for connection (advertising mode)

3 If no connection is established during the advertisement period reactivate the *Bluetooth*® module using the bt / On menu.

4 Instrument is ready to communicate (connected mode)

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Only with paired profile :

Pairing with master is automatically done at first connection.

To connect the instrument to a new master (new pairing), pairing information on the instrument must be cleared using the bt / rESEt menu.

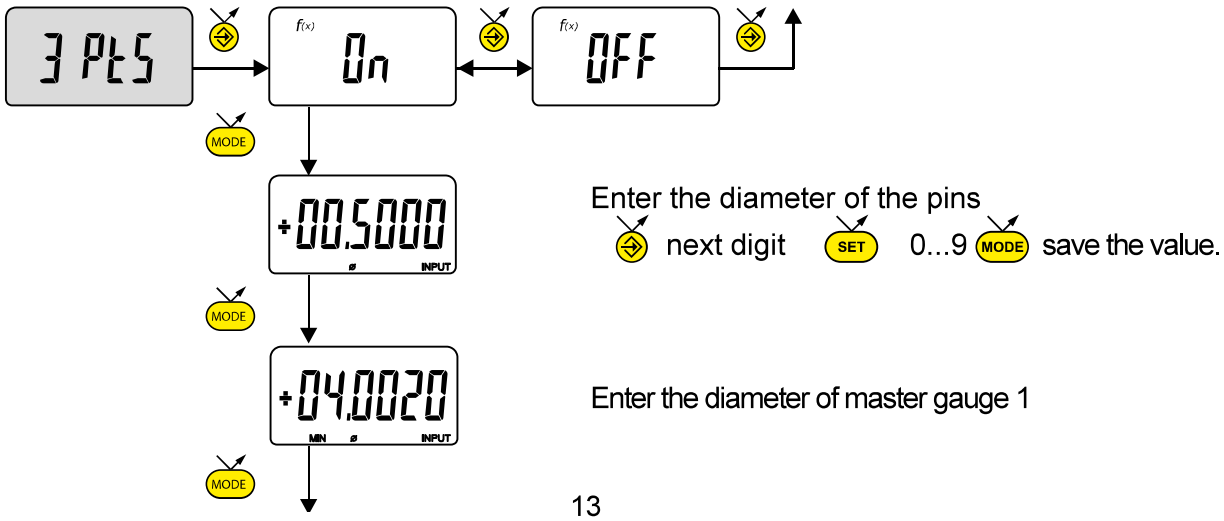
4.1. *Bluetooth*® specifications

Frequency Band	2.4GHz (2.402 - 2.480GHz)
Modulation	GFSK (Gaussian Frequency Shift Keying)
Max Output Power	Class 3: 1mW (0dBm)
Range	Open space: up to 15m Industrial environment: 1-5m
Battery life	Continuous : up to 2 months - Always connected with 4 values /sec. Saver : up to 5 months - The instrument sends value only when the position has changed. Blind/Push : up to 7 months - Value is sent from the instrument (button) or requested from the computer.

Other specifications on the manufacturer's website.

5. Adjusting the 3 points measurement system (for 3 point model)

To adjust the 3 points measurement system, select the 3 Pts ON menu and then briefly press MODE.



5. Adjusting the 3 points measurement system (continued)

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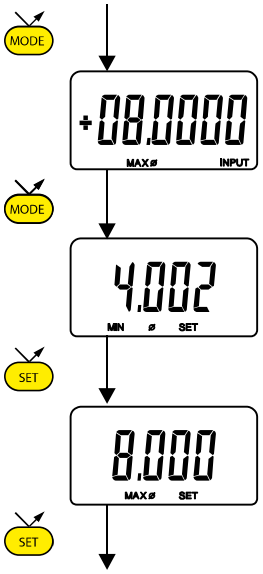


Enter the diameter of master gauge 2

Measure gauge 1 [1)]

Confirm the measurement of gauge 1

Measure gauge [1)]

Confirm the measurement of gauge 2

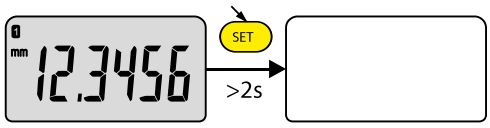
The PS16 is ready to measure. The rEF 1 and rEF 2 reference presets (PrE function) are set to the value of the two gauges.

[1)] the display will return to measurement mode as soon as the measurement probe is moved, to allow for ideal gauge positioning.

6. Switching off

The dial gauge goes automatically into stand-by if not used for 10 minutes, unless automatic switch-off mode has been turned off (see Chap. 3.4, second level functions)

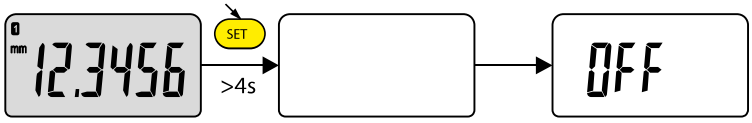
Stand-by mode can be forced by a prolonged press (> 2 sec) on SET



In stand-by mode, the value of the origin is retained by the sensor (SIS mode), and the instrument automatically restarts with any movement of the measurement probe, RS command, *Bluetooth*® request or press a button.

The instrument can be switched off completely for a long period of non-use, but this will necessitate a zero reset on restart (the origin will be lost) :

Prolonged press (>4 sec) on SET :



6.1. Re-initialising the instrument

The initial instrument settings can be restored at any time by a prolonged press (>4 sec) simultaneously on MODE and SET until the message rESEt. The instrument now needs to be reinitialised.

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6.2. Personalising the instrument

Access to the functions of your instrument can be personalised, for more information see manufacturer's website (requires you to connect your instrument via an USB cable, Proximity or *Bluetooth*®).

Possibilities :
- Enable or disable the required functions
- Modify access to the second level functions (direct access)

6.3. Connecting the instrument

The instrument can be connected to a peripheral device via a USB, or Proximity cable or via *Bluetooth*®. Measurement values can be transmitted and the instrument can be controlled with the help of predefined remote commands (for a list of the main commands, see chap. 7).

Note :
In Tolerance mode, the tolerance limit lights remain lit only for a few seconds while the measurement stabilises. However, they will remain permanently lit if the instrument is connected and powered by the USB connector.

7. List of the main commands

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Selection and configuration

CHA+ / CHA-	Change measurement direction
FCT0 ...9...A...F	Assign «favourite» function
MM / IN	Change measurement unit
KEY0 / KEY1	Lock / unlock keypad
MUL [+/-]xxx.xxxx	Modify multiplication factor
PRE [+/-]xxx.xxx	Modify preset value
REF1 / REF2	Change active reference
STO1 / STO0	Activate / de-activate HOLD
TOL ON / TOL OFF	Activate / de-activate tolerances
ECO1 / ECO 0	Activate / de-activate economic mode
LCAL dd.mm.yy	Modify last calibration date
NCAL dd.mm.yy	Modify next calibration date
NUM x...x (up to 20chars)	Modify the instrument number
TOL +/-xxx.xxx +/-yyy.yyy	Inputting tolerance limits
MIN /MAX /DEL /NOR	Selecting MIN, MAX, Delta, Normal mode
CLE	Re-initialisation of MIN, MAX or Delta
UNI1 / UNI0	Activate / de-activate change of units
OUT1 /OUT0	Activate / de-activate contin. data transmission
PRE ON / PRE OFF	Activate / de-activate Preset function
PRE	Recall Preset
SET	Zero reset
RES1 / RES2	Change of resolution
SBY xx	xx number of minutes before stand-by
BT0/BT1	Activate / de-activate *Bluetooth*® module
BTRST	Reset pairing information

Interrogation

CHA?	Measurement sense?
FCT?	«favourite» function active?
UNI?	Measurement unit active?
KEY?	Keypad locked?
MUL?	Multiplication factor?
PRE?	Preset value?
REF?	Reference active?
STO?	Status of HOLD function?
TOL?	Current tolerance limit values?
ECO?	Current economic mode
LCAL?	Date of last calibration?
NCAL?	Date of next calibration?
NUM?	Instrument number?
?	Current value (mode Tol, value followed by <=>)
MOD?	Active mode (MIN, MAX, Delta or Normal)?
SET?	Main instrument parameters?
ID?	Instrument identification code?

Maintenance functions

BAT?	Battery status (BAT1 = OK, BAT0 = low battery)
OFF	Switch-off (wake up using a button or RS)
RST	Re-initialisation of the instrument
SBY	Put instrument in stand-by (SIS)
MAC?	*Bluetooth*® MAC address ?

8. Specifications

Measurement range :	25mm	50mm
Max error :	1.5µm	2.0µm
Repeatability :	0.2µm	0.3µm
Weight (without any accessories) :	3550g	4180g
Measurement force :	0.15 - 0.65N	0.15 - 0.60N
No. of measurement/ sec :	meas.: 4.4 meas/s	MIN/MAX mode: 5.3 meas/s
Measurement unit :	metric/english (Inch)	
Maximum preset (resolution 0.001mm) :	±999.999 mm/±39.99995 IN	
Maximum preset (resolution 0.0001mm) :	±99.9999 mm/±3.999995 IN	
Measurement system :	Sylvac inductive system (patented)	
Power :	Lithium battery 3V, type CR2032 (capacity 220mAh) or lithium battery type CR2477 (950mAh) or USB	
Average consumption :	155µA	
Average battery life:	4'000 hours / with *Bluetooth®* enabled, see chapter 4.1	
Data output:	USB (RS232 compatible) / *Bluetooth® 4.0 (see chapter 4)*	
Working temperature (storage):	+5 to +40°C (-10 to +60°C)	
Electromagnetic compatibility:	as per EN 61326-1	
IP rating (in accordance with IEC60529):	IP 40	
Anvils system :	Ø1.5, Cary compatible	

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9. Goutte Version

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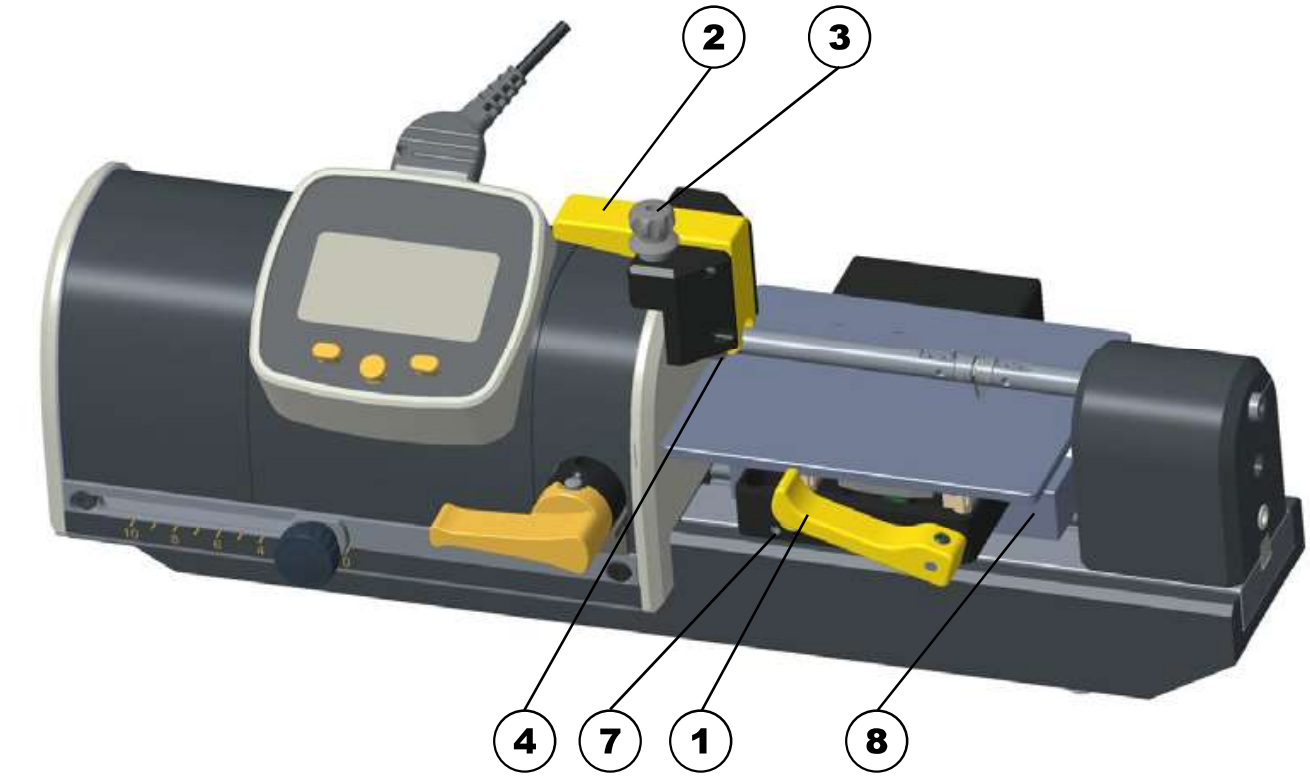

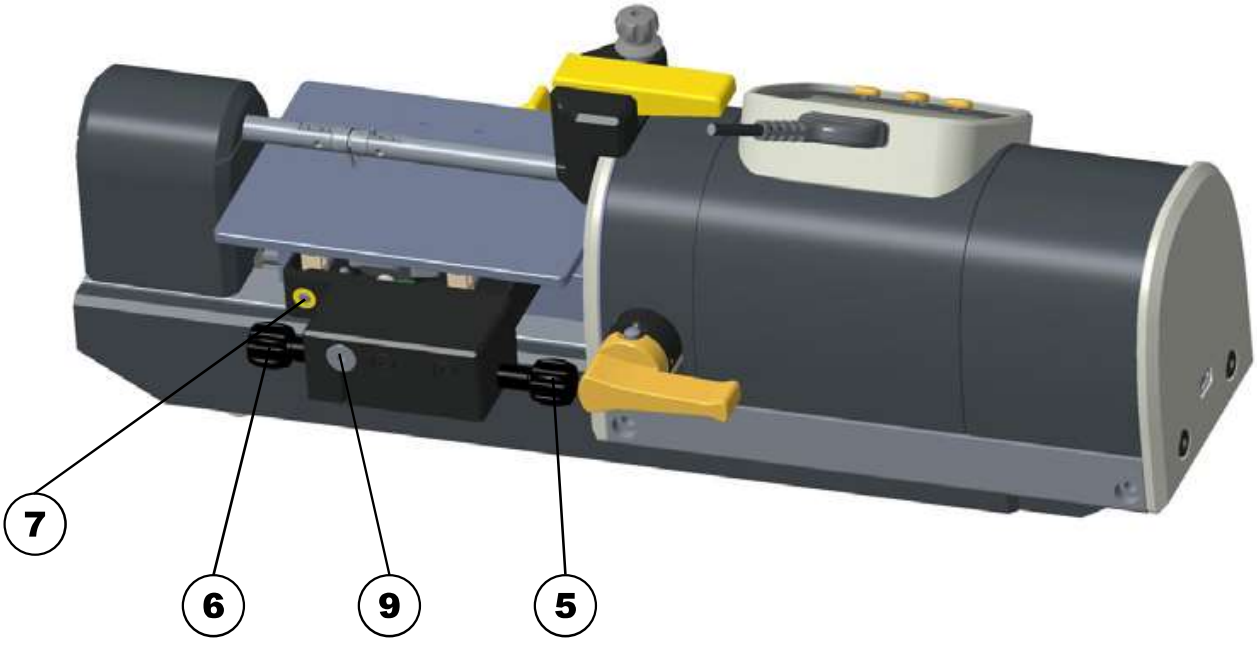

9.1. Description

1. Quick release lever
2. Lever measurement
3. Measurement position adjustment knob
4. Positioning ring
5. Stop adjustable, high position
6. Stop adjustable, low position
7. Screws of the table (front and rear)
8. Spacer for thicker components
9. Location for dial gauge (plug)

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9.2.Reference taking (--rEF--)

To place the axis at the end of its run and take the reference (--rEF--). --), the measurement positioning ring must be released (release the screw). After taking the reference, retighten the ring leaving 3mm between the measurement probes.

Fig. 1

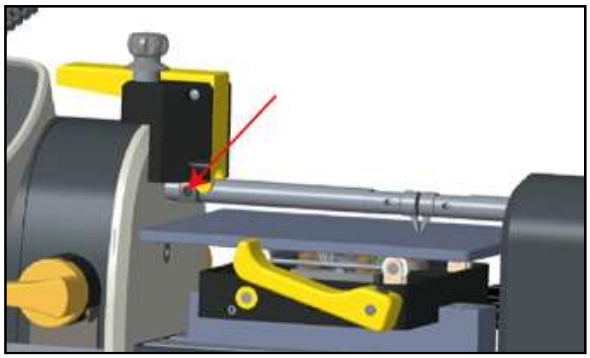
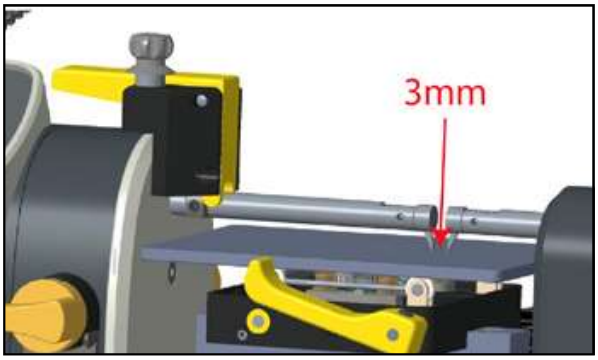


Fig. 2



9.3. Use

- Lower the table and set up the depth stop using the knob (6) in order to let the necessary gap to introduce the part to be measured
- Place the part to be measured and set up the anvils opening with the knob (3).
- Lift the table again with the knob (6) to the required position
- Make the measurement using lever (2).
- Use lever (1) for quick release of the table. Once setting is done, use only the quick release lever (1) to measure the next parts.

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9.4. Specifications

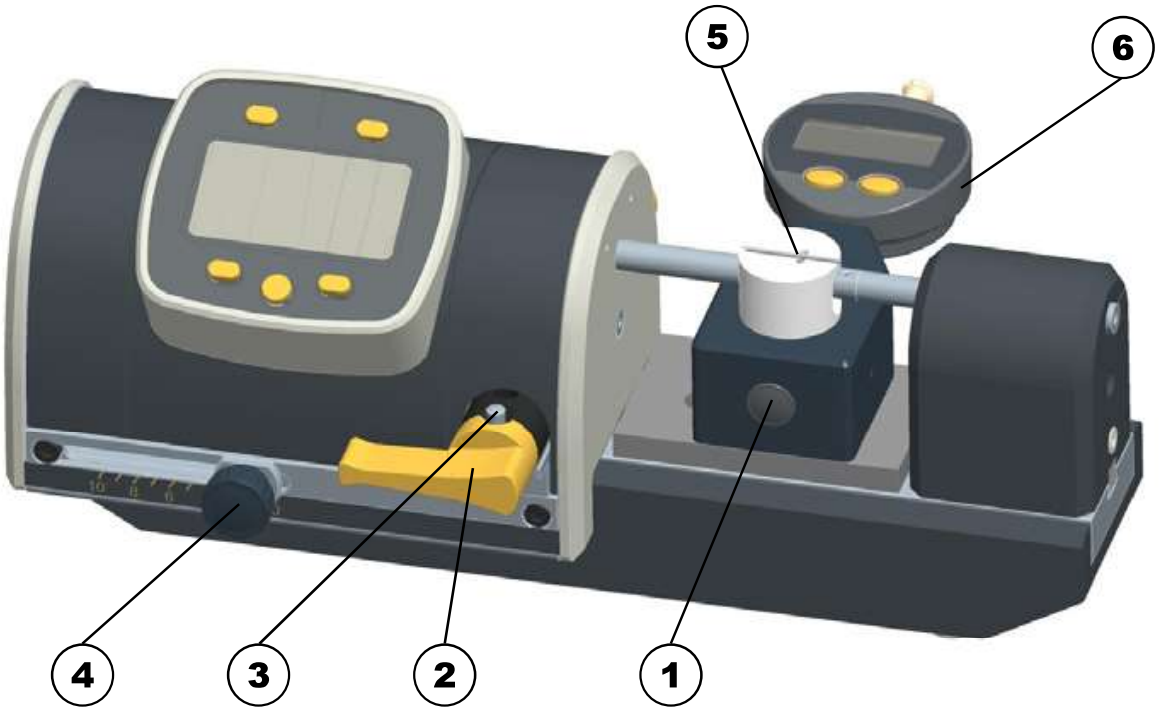
Type	25	50
Dimension table	58x70	92x70
Release	7mm	
Measuring range	3mm	
Measurement capability	25mm	

Remark
The table may touch the anvils in the up position and damage them.

9.5. Options

Table can be adjusted in a lower position in order to measure thicker components. A set of spacers (8) is delivered with the table. A dial indicator (9) with special contact point can be mounted on the table.

10. 3-Points version



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10.1. Description

1. Height adjustment knob
2. Release lever
3. Optional stops (front and rear of the unit)
4. Force adjustment knob
5. Measurement probes (depending on measurement range)
6. Height adjustment comparator

10.2. Adjusting measurement force

- Set the measurement force using the force setting knob (4), never change the force setting during a measurement procedure (PRESET and workpiece measurements).
- Adjusting measurement as indicated in chapter 5

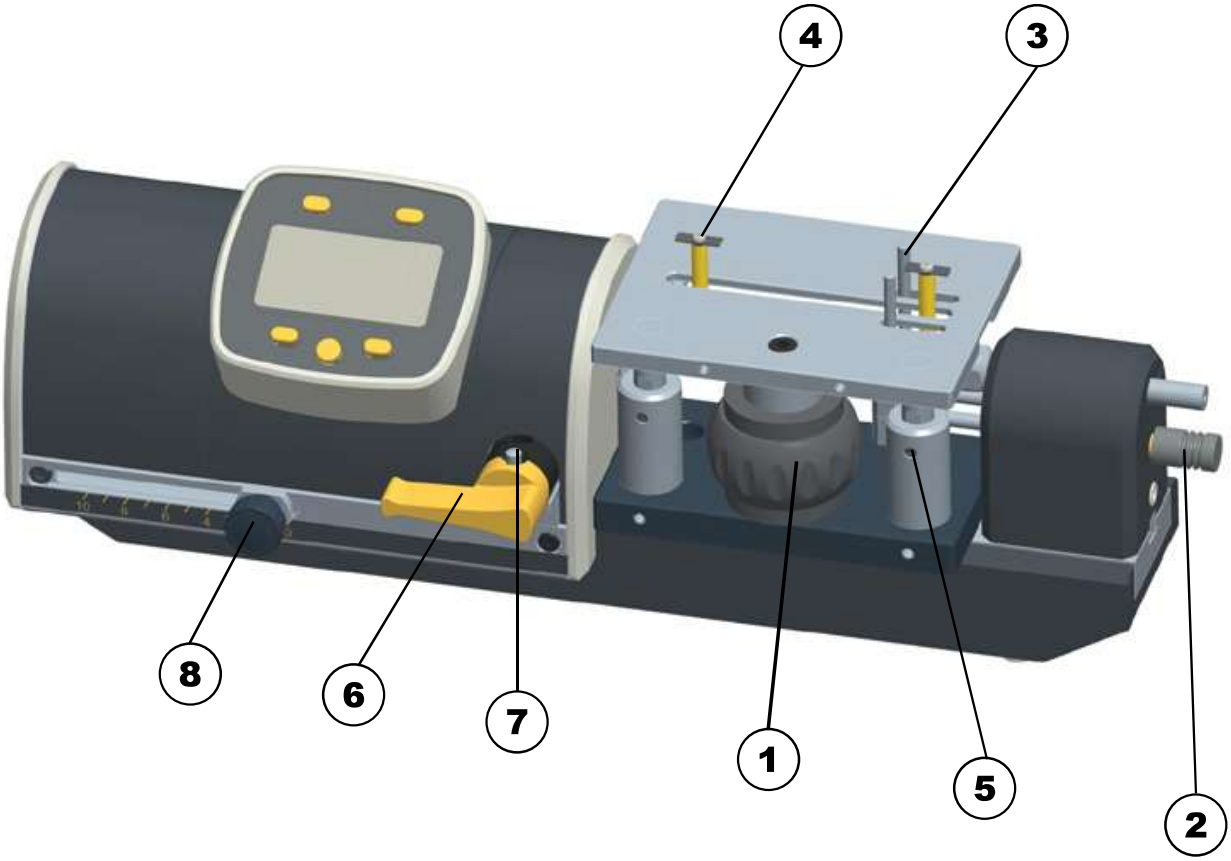
10.3. Use

- Set the measurement height using the height measurement knob (1)..
- Release the measurement probes using the release lever (2).
- Place the workpiece on the table
- Release the measurement probes, the workpiece will be centred automatically by the probes.
- If necessary repeat the procedure until the workpiece is correctly positioned.

Note
The axis return run may be limited using the optional stops (3).

11. LV version

E



11.1. Description

1. Height adjustment knob
2. Centring lever
3. Centring tool
4. Fixed probe
5. Locking screw
6. Release lever
7. Optional stops (front and rear of the unit)
8. Force adjustment knob

11.2. Adjusting measurement force

- Set the measurement force using the force setting knob (8), never change the force setting during a measurement procedure (PRESET and workpiece measurements).

- Enter the PRESET value (Chap 3.3) depending on the desired gauge ring, as near as possible to the measurement to be made.

- Adjusting the measurement using the gauge ring (see use), and recalling the SET preset.

11.3. Use

- Set the measurement height using the height measurement knob (1).
- Release the measurement probes using the release lever (6).
- Place the workpiece on the table
- Release the measurement probes
- Centre the workpiece using the centring lever (2), repeat the procedure until the workpiece is correctly positioned.

Note

The table can be locked into a set position using the locking screws (5).

The axis return run may be limited using the optional stops (7).

12. Accessories

12.1. XZ Table

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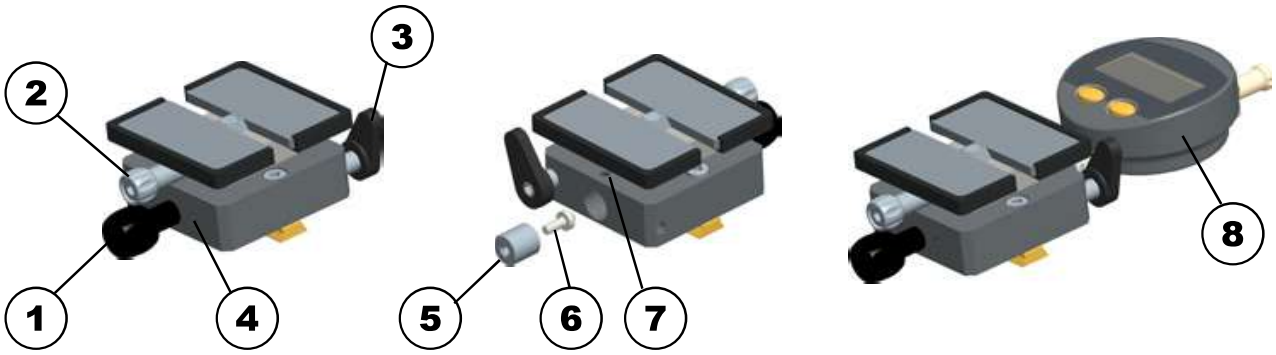


12.1.1. Description

1. Fine height adjustment screw
2. Plate locking screw
3. Horizontal locking lever
4. Height locking screw
5. Closure plug
6. Comparator probe
7. Plug / comparator retaining screw
8. Vertical movement indication comparator (sold separately)

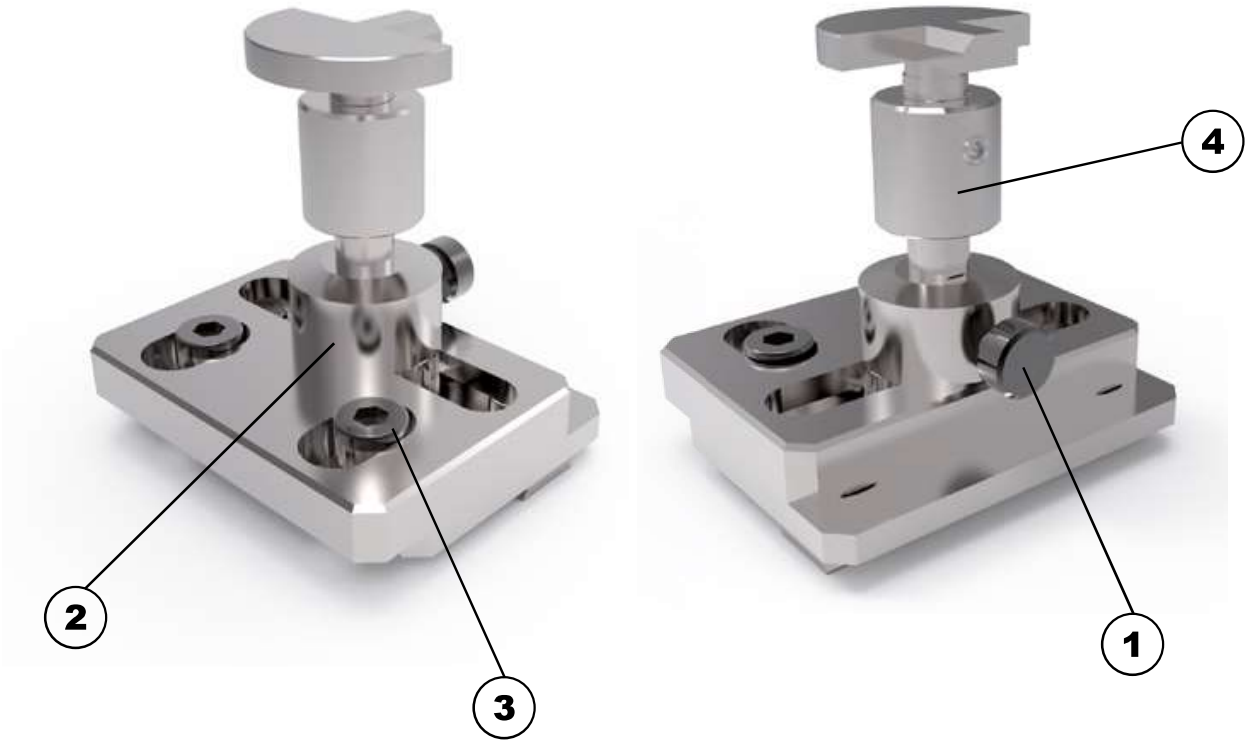
12.1.2. Use :

- After positioning it horizontally in the desired location it lock the table using the locking lever (3)
- Unlock the plate using the locking screw (2) and move it manually close to the desired height.
- Adjust the desired height accurately using the fine adjustment screw (1). Lock as needed using the locking screw (4)

12.1.3. Fitting the comparator: (option) :

- Unlock the locking screw (7) and remove the closure plug (5) with the assistance of an M2.5 screw if necessary.
- Remove the special conical contact point (6) behind the plug and screw on the comparator measurement plunger.
- Raise the table as far as it will go using the fine adjustment screw (1) before inserting the comparator until it stops.
- Moderately tighten the locking screws (7)

12.2 Table XYZ



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12.2.1. Description

1. Vertical locking screw
2. Movable pillar
3. Fixing screw
4. Extension

12.2.2. Use :

- The pillar (2) can be moved laterally. It's position is maintained by friction.
- Unlock the screw (1) to adjust the height according to the parts and anvils.