sylvac

# SYLVAC BENCH PS16V2 SERIES : FOR PRECISION MEASUREMENT

Completely redesigned to improve their ergonomics and accuracy, our **PS16 V2 Bench** tables are available in different versions for external and internal measurement.

## Bench PS16 V2

- **New design & measuring system**
  - Bluetooth® Wireless technology
- **Powered by battery**
  - Effective measuring range 25/50mm
- **Adjustable measuring force**
  - Large selection of tables & anvils
- **Built-in display with 0.1µm resolution**



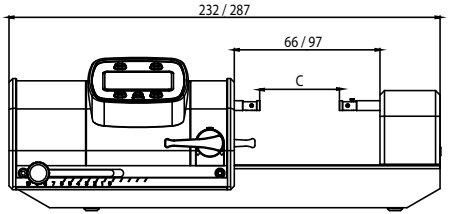

Bluetooth®

SWISS MADE

sylvac

SWISS MADE

# Bench PS16 V2







## TECHNICAL SPECIFICATIONS

| Specifications | 808.1231 | 808.1232 |
|---|---|---|
| Effective measuring range C | 25 mm | 50 mm |
| Max. error | 1.5 µm | 2.0 µm |
| Repeatability | 0.2 µm | 0.3 µm |
| Resolution | 0.1 µm | |
| Measuring force (adjustable) | 0.2 – 1.0 N (±20%) | |
| Weight | 3.6 kg | 4.2 kg |
| Anvils clamping system | Ø1.5 mm + Cary compatibility | |
| Data transmission | Bluetooth® and USB | |

* other models (Goutte, 3 points, etc..) : on request.

Bluetooth®

Available on the App Store



Sylvac Smart App for IOS and Android

ANDROID APP ON Google play

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**MEASURING BENCH PS16 V2** **E**

BANC DE MESURE PS16 V2 **F**

**MESSBANK PS16 V2** **D**




**INSTRUCTIONS**

MODE D'EMPLOI

**BEDIENUNGSANLEITUNG**

## Description

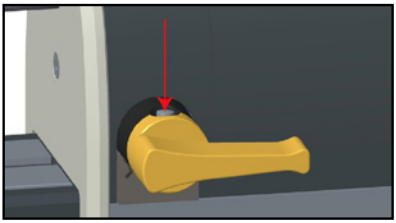
1. MODE button
2. SET button
3. “Favourite” button
4. Mini-USB
5. Compartment for battery CR2477 or CR2032.
6. Adapter CR2477/CR2032
7. Adjustable release lever
8. Optional stop
9. Travel stop
10. Force adjustment knob
11. Anvils locking screw Ø1.5mm
12. Moving measurement spindle for Sylvac Ø1.5 probe 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

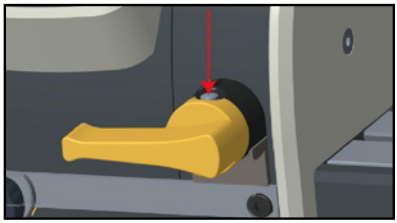
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## Handling

Unblocking the transport mode axes

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

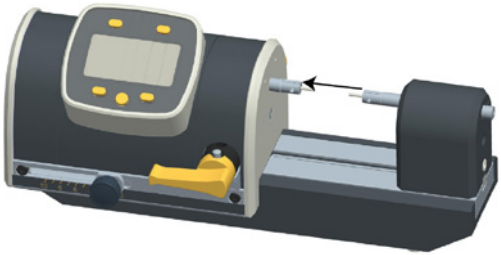




First use

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

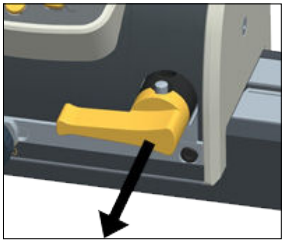
- The original anvils assembled on both measurement axes are lapped in position to guarantee an optimum measurement. Any disassembly of these anvils can lead to a reduction in the accuracy of the instrument.
- The tailstock was positioned to have 0.5mm prestress in the probe zero position.
- Activating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



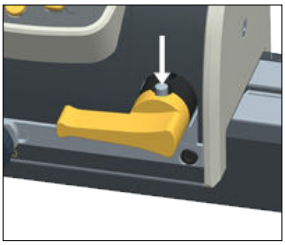
## 2.2 Optional stops

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.

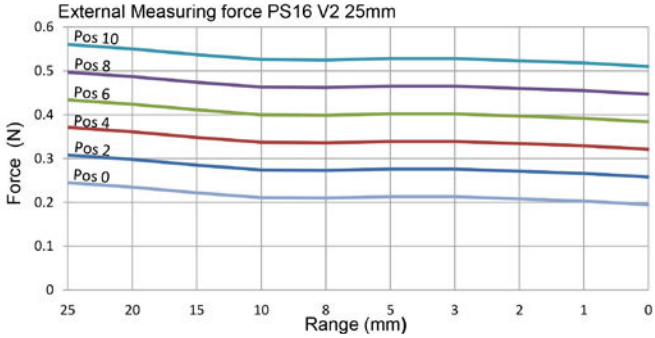


## 2.3. Measuring force

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



### 3.1.1 Operating features of the instrument

- MODE The instrument has two operating modes: basic functions (direct access) and advanced 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)

E

- 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

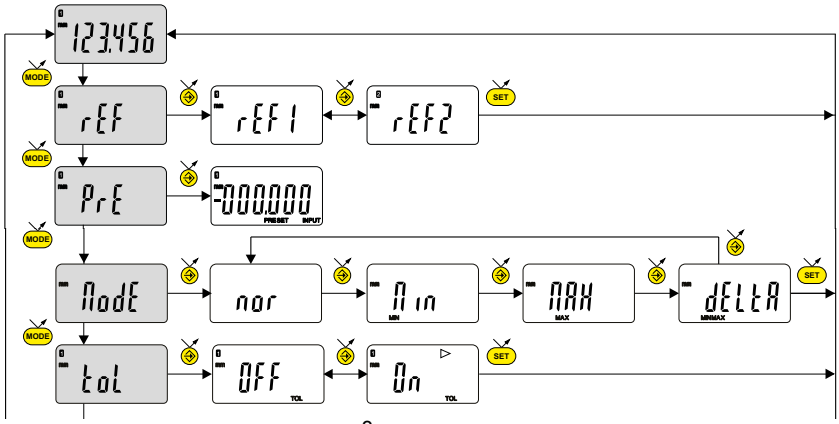
### 3.2. Start, re-initialisation

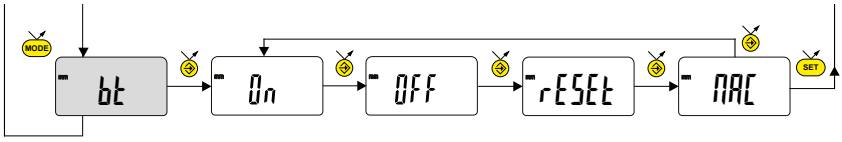
Press a button.
When the instrument is used for the first time after the battery has been changed or after it has been completely switched off (OFF), the instrument needs to be reinitialised (--rEF--). Simply insert the measuring spindle to the end of its travel.

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

### 3.3. Basic functions

Each short press on MODE gives direct access to the basic 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)

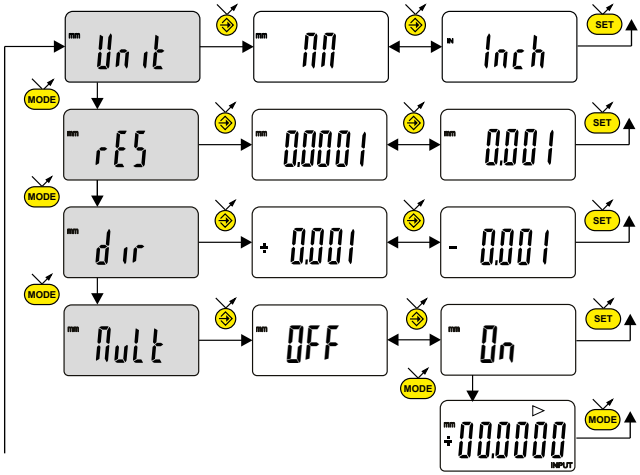
bt *Bluetooth*® ON/OFF or MAC address display

**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.

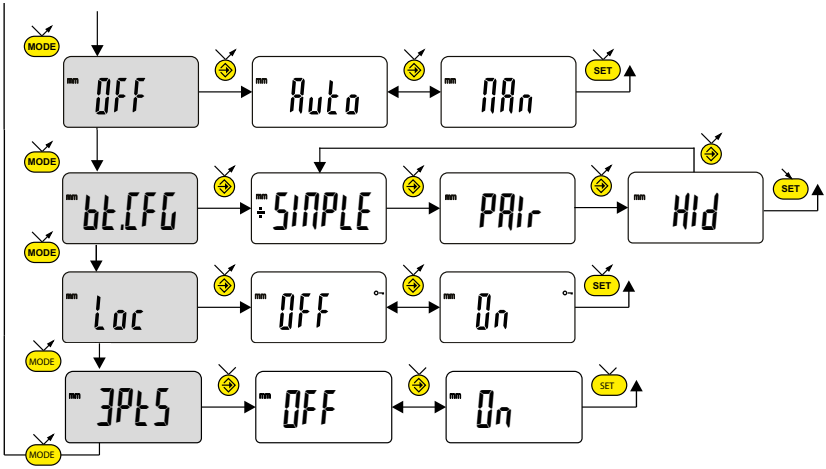
### 3.4. Advanced functions

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

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



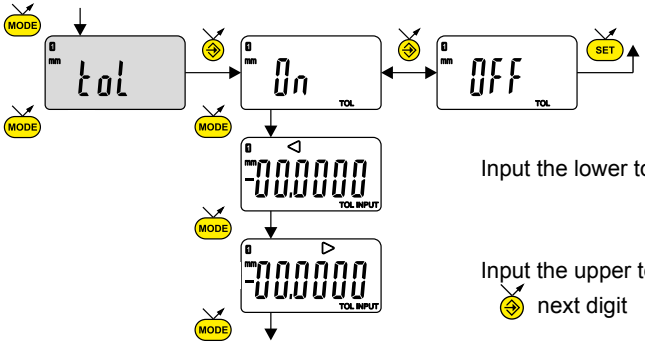
### 3.4. Advanced functions (continuation)




| | |
|---|---|
| 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<br>Next digit (SET) 0...9 (MODE) save MULT |
| OFF | Automatic switch-off mode<br>MAn = de-activated, Auto = active |
| bt.CFG | *Bluetooth*® profile selection (depending on model).<br>(see chap. 4 for details)<br>The ÷ sign indicates the currently active profile. |
| Loc | Keypad lock. Only the favourite key remains active<br>(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.

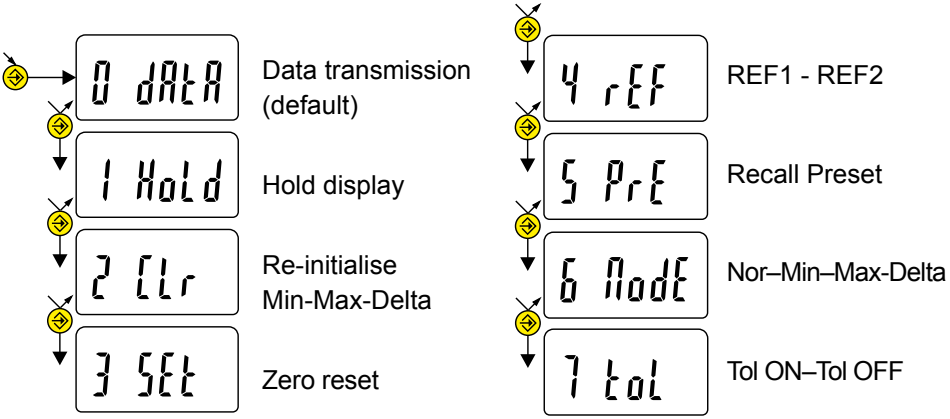
It is also possible to display the tolerance limits when the instrument is operating in MIN, MAX or DELTA (TIR) mode.

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)

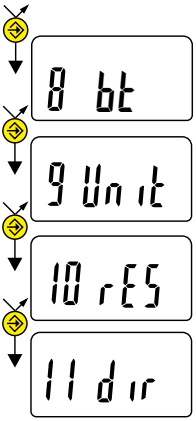
### 3.6. Favourite key

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)

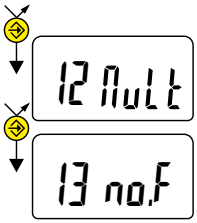



*Bluetooth*® ON or OFF (depending on model)

mm – IN

0.001 – 0.0001

Measurement sense positive - negative




1:1 - N:1 factor

No function

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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*® Smart 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)



**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.

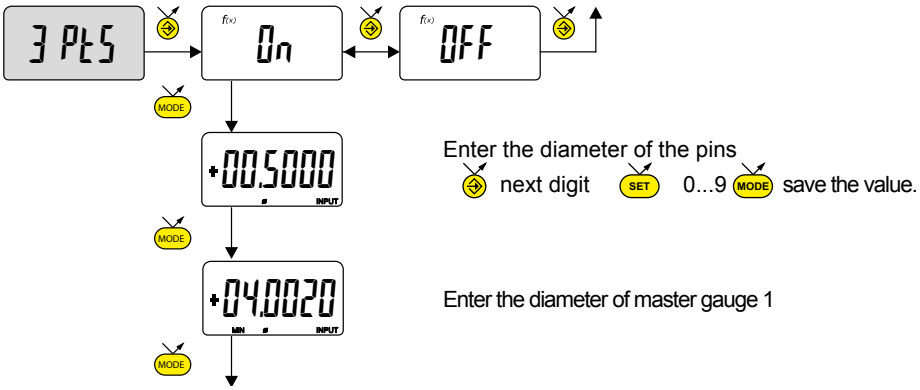
### 4.1. *Bluetooth*® specifications

| | |
|---|---|
| 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<br>Industrial environment: 1-5m |
| Battery life | Continuous : up to 2 months - Always connected with 4 values /sec.<br>Saver : up to 5 months - The instrument sends value only when the position has changed.<br>Blind/Push : up to 7 months - Value is sent from the instrument (button) or requested from the computer. |

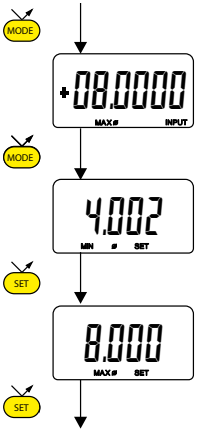
Other specifications on the manufacturer's website.

## 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)




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

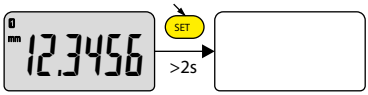
The PS16 is ready to measure. The rEF 1 and rEF 2 reference presets (PrE function) are set to the value of the two gauges.

[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, advanced functions)

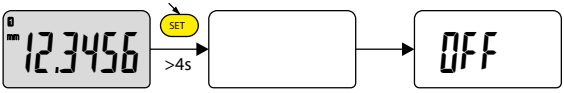
Stand-by mode can be forced by a prolonged press (> 2 sec) on SET




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 advanced 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 ? |

## 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)



## 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**

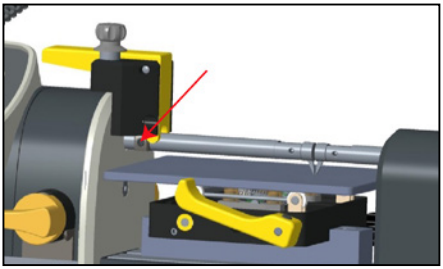
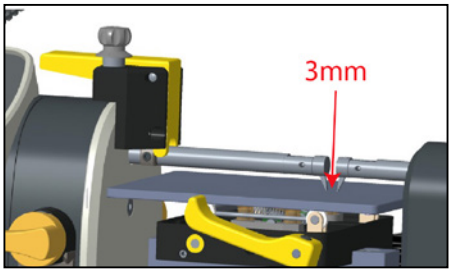


**Fig. 2**



### 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 relea

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### 9.4. Specifications

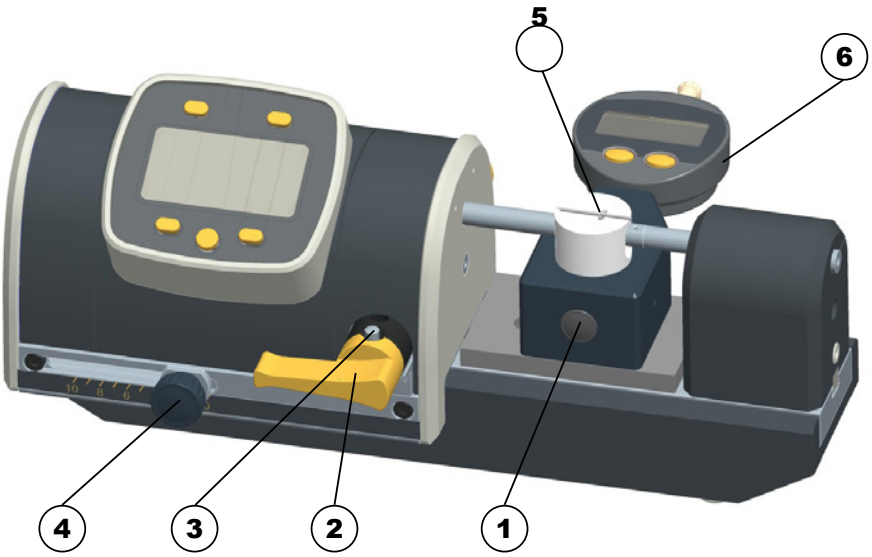
| Type | 25 | 50 |
|---|---|---|
| Dimension table | 58x70 | 92x70 |
| Release | 7mm | |
| Measuring range | 3mm | |
| Measurement capability | 25mm | |

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 p
- If necessary repeat the procedure until the workpiece is correctly positioned.

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

### 11.2. 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

- 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 workp

**Note**

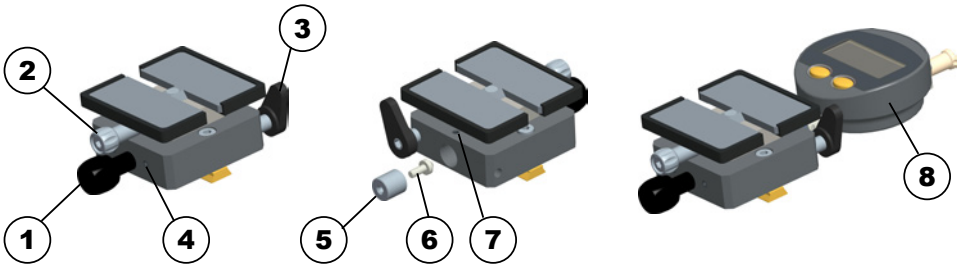
The table can be locked into a set position using the locking screws (5).

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

## 12. Accessories

### 12.1. XZ Table

E




#### 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 :

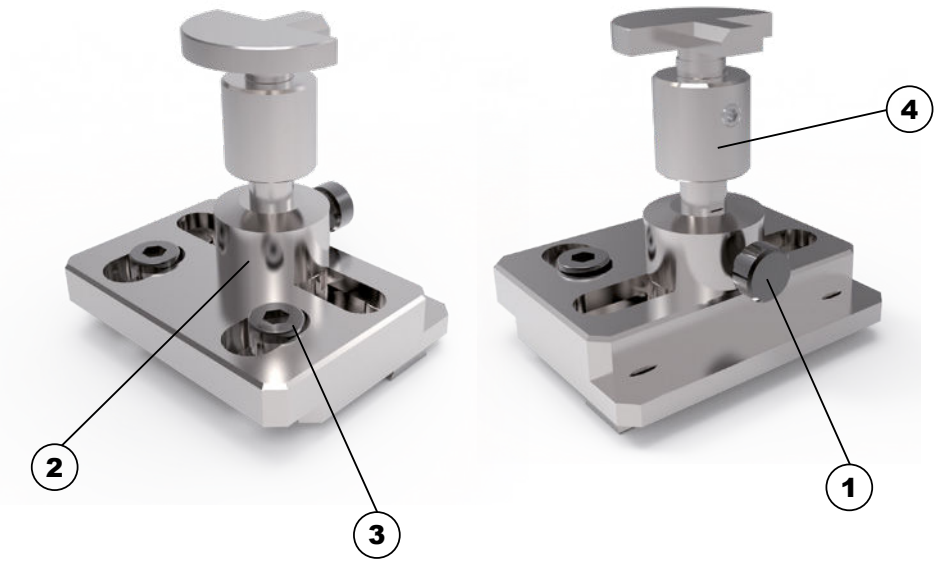
- After positioning it horizontally in the desired location it lock the table using the locking lever (3)
- Unlock the plate using the locking screw (2) and move it manually close to the desired height.
- Adjust the desired height accurately using the fine adjustment screw (1). Lock as needed using the 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 insertin
- Moderately tighten the locking screws (7)

## 12.2 Table XYZ






### 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.

**CERTIFICATE OF CONFORMITY**

We certify that this instrument has been manufactured in accordance with our Quality Standard and tested with reference to masters of certified traceability by the National Office of Metrology.

**CERTIFICAT DE CONFORMITE**

Nous certifions que cet instrument a été fabriqué et contrôlé selon nos normes de qualité et en référence avec des étalons dont la traçabilité est reconnue par l'office national de métrologie.

**QUALITÄTSZEUGNIS**

Wir bestätigen, dass dieses Gerät gemäss unseren internen Qualitätsnormen hergestellt wurde und mittels Normalen mit anerkannter Rückverfolgbarkeit, kalibriert durch das Eidgenössische Institut für Metrologie, geprüft worden ist.

**U.S./Canada Certification**

This device contains
FCC ID: 2AAQS-ISP091201
IC: 11306A-ISP091201

**NOTICE:**
Changes or modifications made to this equipment not expressly approved by Sylvac may void the FCC authorization to operate this equipment.

**NOTICE:**

This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry

Canada. Operation is subject to the following two conditions.

**Brazil Certification**

**Description:**
This module is based on Nordic Semiconductor nRF8001 µBlue *Bluetooth*® Low Energy Platform. The nRF8001 is a single chip transceiver with an embedded baseband protocol engine, suitable for ultra-low power wireless applications conforming to the *Bluetooth*® Low Energy Specification contained within v4.0 of the overall *Bluetooth*® specification. The nRF8001, used in the current revision of ISP091201, is a production product using a RoM for the baseband protocol engine

Este equipamento opera em caráter secondário isto é, não tem direito à proteção contra interferência prejudicial, mesmo de estações do mesmo tipo e não pode causar interferência a sistemas operando em caráter primário.




**Mexico certification**

**Contiene modulo inalámbrico**
**Marca: Sylvac**
**Modelo: ISP091201D**
**IFT: RCPSYIS14-0655**

La operación de este equipo está sujeta a las siguientes dos condiciones: (1) es posible que este equipo o dispositivo no cause interferencia perjudicial y (2) este equipo o dispositivo debe aceptar cualquier interferencia, incluyendo la que pueda causar su operación no deseada.

**Other Certifications:**

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Email admin@sylvac.ch
www.sylvac.ch

# EU DECLARATION OF CONFORMITY (DoC)

We, Sylvac SA, hereby declare under our sole responsibility that the product

| | |
|---|---|
| Name | PS 16 V2 BT |
| Description | Bench table with Bluetooth® wireless technology |
| Part Numbers | 808.1231, 808.1232, 808.1233, 808.1234, 808.1335, 808.1336, 808.1337, 808.1338, 808.1339, 808.5213, 808.5413 |

has been submitted to a conformity assessment and fulfils the essential requirements of the following European directives

| | |
|---|---|
| 2001/95/EC | General product safety |
| 2014/30/EU | EMC |
| 2011/65/EU & 2015/863/EU | RoHS |
| 2014/53/EU | Radio Equipment Directive (RED) |

and complies with the following harmonized standards or other normative documents

| | |
|---|---|
| EN 61326-1:2013 | Electrical equipment for measurement, control and laboratory use – EMC requirements |
| EN 50581:2012 | Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances |
| EN 300 328 V1.7.1 | Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband transmission systems |

Person authorized to compile the technical file and issue the declaration of conformity: Eric Schnyder

| | |
|---|---|
| Place and date of issue | Yverdon-Les-Bains, September 12, 2019 |
| Name (position) | Eric Schnyder (CEO) |
| Signature |  |