SYL 804 - Measuring benches

EN

Sylvac Calibration Method – SYL 804 – Measuring benches

1. TERMS OF REFERENCE

1.1. Standards

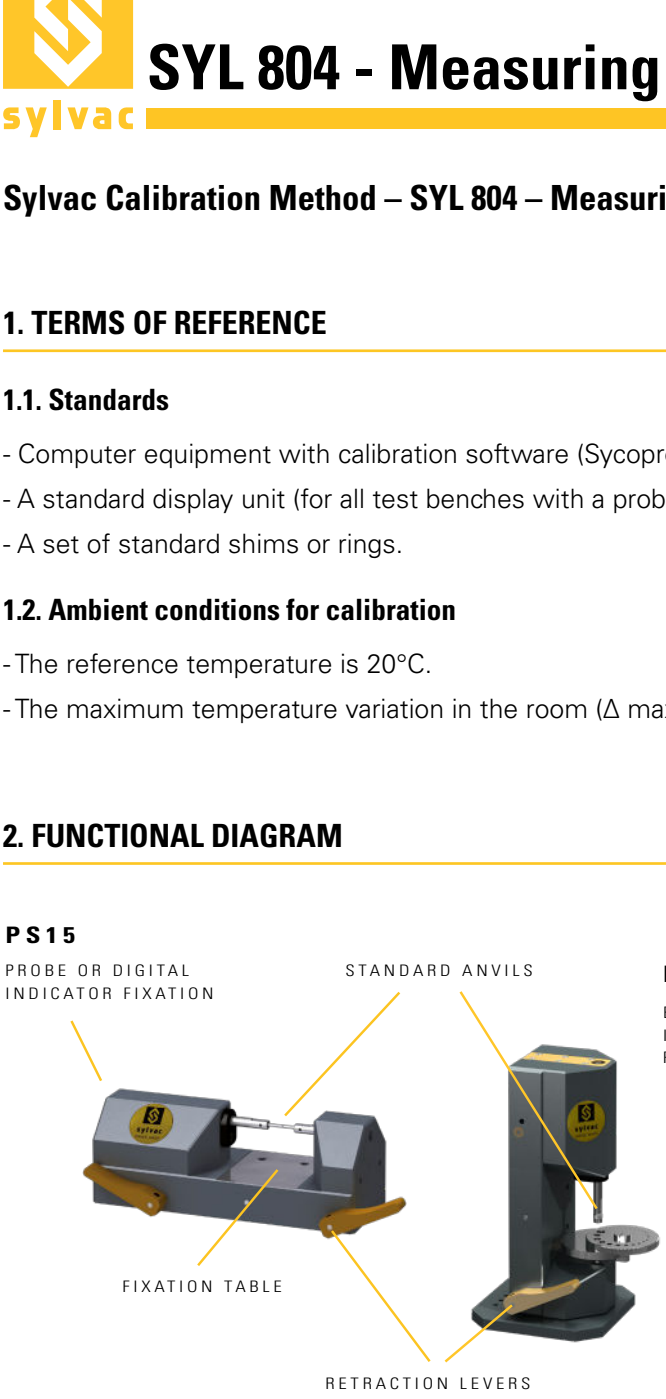
- Computer equipment with calibration software (Sycopro).
- A standard display unit (for all test benches with a probe).
- A set of standard shims or rings.

1.2. Ambient conditions for calibration

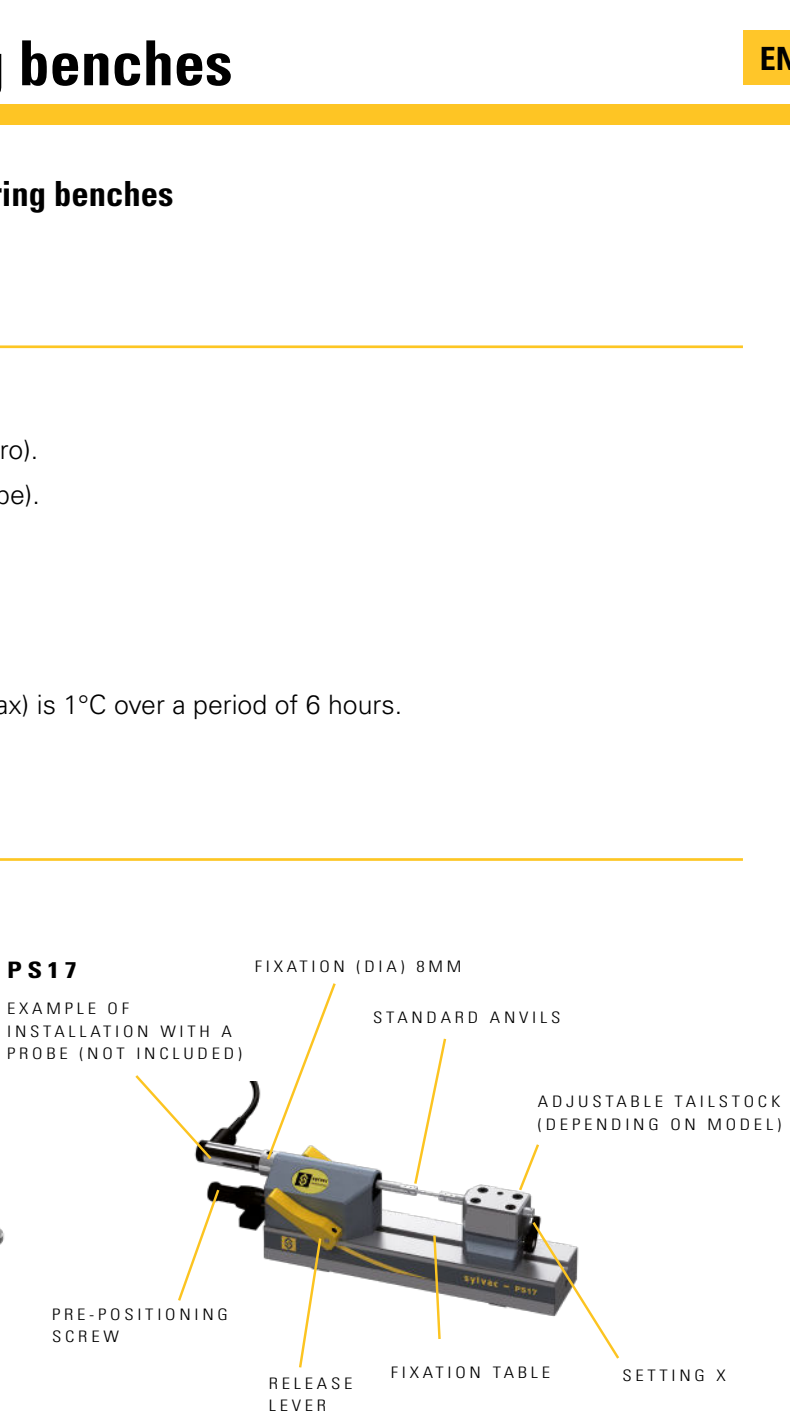
- The reference temperature is 20°C.
- The maximum temperature variation in the room (Δ max) is 1°C over a period of 6 hours.

2. FUNCTIONAL DIAGRAM

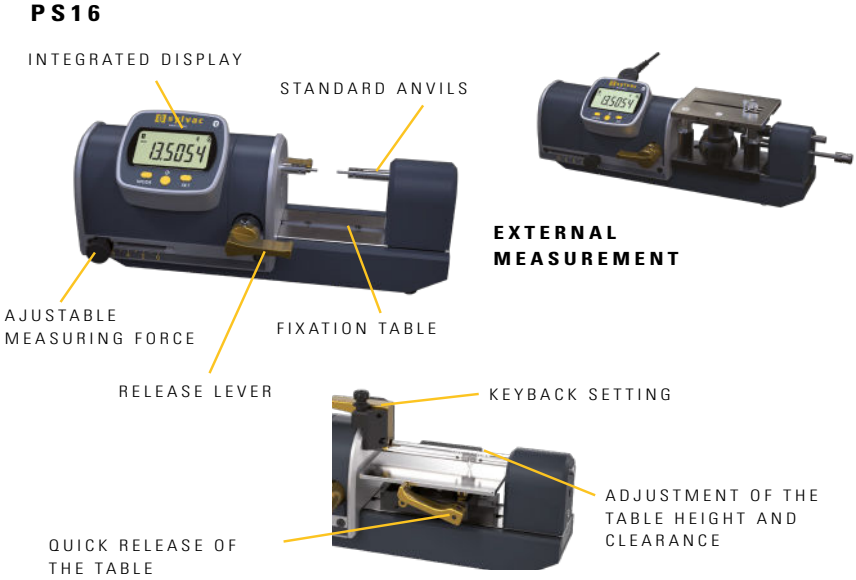
PS15



PS17

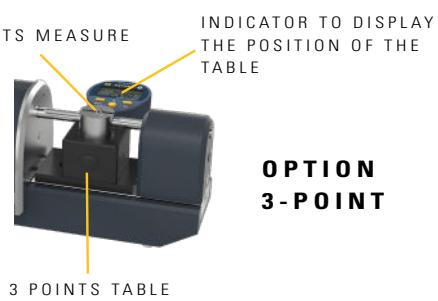


PS16



EXTERNAL MEASUREMENT

OPTION BETWEEN RANGES



OPTION 3-POINT

3. INSTRUMENT CHECKS

3.1. Preparation and Cleaning

- Basic check: Instrument integrity, value display, mobility, condition, and tightness of the measuring anvils. If out of service, have it repaired or recycled as appropriate.
- Clean the exterior with a soft cloth. Acceptable solvents: Mild detergent, isopropyl alcohol (except on the screen), light gasoline.
- Verify the suitability and validity of the calibration method.
- Store the instrument under ambient calibration conditions for at least 5 hours prior to measurements (thermal stabilization).

3.2. Visual Inspection

- Check that the instrument has no signs of impact, corrosion, or excessive wear.
- Check the identification number and/or serial number (clearly visible).

3.3. Functional Check

- Check that the key slides smoothly throughout its entire travel (no sticking points and no gap).
- Check the operation of the anvils (on/off, zero, mode).
- Check the stability of the display. Maximum deviation of 1 digit over 10 seconds.
- Check the data output by connecting the instrument to a PC or a Sylvac display.

4. CALIBRATION SPECIFICATIONS

4.1 Measurement force

Instrument	Force
PS 15	0.3 – 1.0 N
PS 16	0.1 – 0.6 N (+-20%)
PS 17	0.1 – 0.6 N (+-20%)
PS 17 Entre-portée	1 N

The measuring force is not routinely checked during calibration. If necessary, the check is performed as follows: Attach a force gauge to the measuring probe and move the probe using the force gauge.

4.2. Length Measurement Indication Error (MPE E):

Before performing calibration, it is recommended to wear gloves to prevent overheating and contamination.

- Check that the calibration blocks and anvils (blocks, rings, or gauges) are clean.
- Perform the zeroing (SET) by closing the gauges against each other.
- Perform measurements on the range of standard anvils (gages, rings, or plug gauges).
- Calculate the maximum deviation between standard shims (blocks, rings, or gauges).
- Tolerances according to Table 4.5.

4.3. Repeatability (MPE R):

Repeatability is a design parameter and is not verified during calibration. If necessary, it is verified as follows:

- Perform 10 successive measurements on a calibration block (see 4.2 for conditions).
- Calculate the range of the measurement results.
- Tolerances according to Table 4.5.

4.4. Pairing:

Pairing can be performed with the PS15 and PS17 benches; the following pairings are possible:

a) Benches and indicator

b) Benches and probe

c) Benches, probe, and digital display.

This operation is independent of calibration.

- Correction points can be entered via software or manually
- A calibration certificate can be issued after pairing. Tolerances are defined on a case-by-case basis depending on the selected options.

Table 4.5: Metrological specifications (permissible measurement errors and repeatability)

Benches		Maximum indication error (MPE E)	Repeatability (MPE R)
PS 16 V2	25	1.5 µm	0.2 µm
	50	2.0 µm	0.2 µm
	LV interior	6.0 µm	1.5 µm
	LV exterior	6.0 µm	1.5 µm
	3-point	1.5 µm	1.0 µm
	Drop 25	2.5 µm	0.5 µm
	Drop 50	3.5 µm	0.5 µm
PS15 and PS 17		Depending on the probes/indicators	

5. RESULT AND DECISION

- Issue a calibration certificate.
- If the measurement conditions are not met, the instrument will either be repaired and recalibrated, or decommissioned or recycled; in the event of repair, the incident is recorded and communicated to the customer.