

Shotcrete Penetrometer HPV-B2

according to guidelines for shotcrete

With the penetration needle method, the force required to push a needle with defined dimensions 1.5 cm deep into the shotcrete is measured. A Proctor penetrometer according to ASTM C 403-70 is used for the measurement. When a calibrated spring is compressed, the device shows a drag force on a drag indicator.

The device can be used with 2 tips:

1. Needle with a diameter of 3 mm and an end that is pointed at 60 ° to determine the compressive strength from 0 ... 1.2 N / mm².

This method is suitable for the shotcrete used in Austria in accordance with the guidelines of the Austrian Concrete Association „Richtlinie Spritzbeton“ Part 1 – Application for various largest grains [see Calibration Curve].

If there are any deviations from this, separate calibration curves must be created as follows: For the calibration (calibration) test cubes 200 x 200 x 200 mm and plates 300 x 300 x 100 mm are produced. At the same time, the strength of the test cubes must be determined and the measurement carried out on the plates. The evaluation is carried out according to the rules of regression calculation.

2. Needle with flat tip (Ø 9 mm) only for comparative assessment of the solidification behavior or for laboratory testing. A calibration to determine strength is not possible. **(Not used for shotcrete testing!)**

Test process and evaluation

- Apply the device and press in with a pressure of up to 15 mm
- Read the resistance force from the scale and note it down
- At least 10 individual tests per test process - it must be ensured that no large aggregate is pressed
- Record the point in time and the test point
- **Read the value through the opening in the ring!**