

PK20M

— MULTIPOINT PIEZOMETERS

PIEZOMETERS

MULTIPOINT PIEZOMETERS

Multipoint vibrating wire piezometers, also called multilevel piezometers, provide measurements of pore-water pressure at different elevations in the same borehole.

A string of multipoint piezometer is composed by a multicore cable with connected at desired depth a PK20 vibrating wire piezometer.

Isolation of the pore-water pressure at each elevation is achieved by the fully-grouted installation method.

To facilitate installation, the multipoint piezometer chain is usually lowered into the borehole with the support of a steel or fiberglass rod (not supplied by Sisgeo).

APPLICATIONS

- Measurement of ground water pressure at different elevations
- Monitoring soil consolidation activities
- Dams and fill embankments
- Landslides monitoring
- Natural or cut slope sites
- Deep excavation

FEATURES

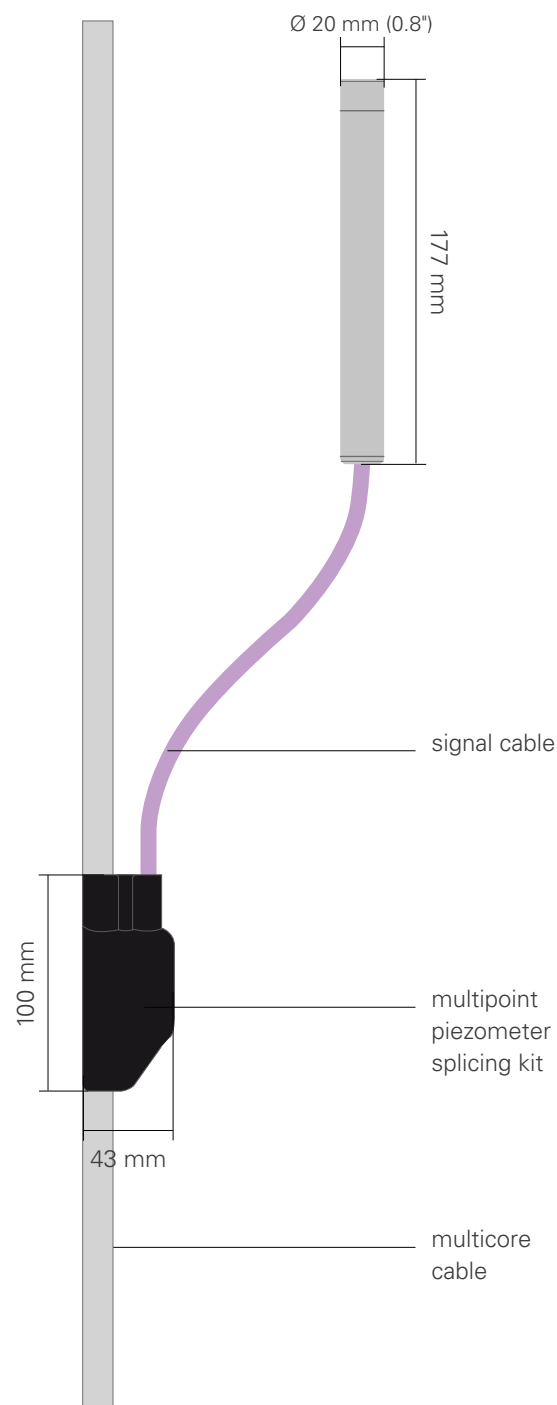
- Simple installation
- Long-term stability
- Cable length does not affect reading
- Long working life and reliability
- Built-in surge protection (overvoltage)
- Built-in temperature sensor
- Hermetically sealed

TECHNICAL SPECIFICATIONS

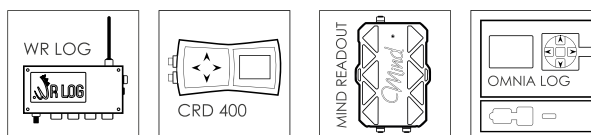
MULTIPOINT PIEZOMETER

| MODEL | PK20M |
|---|---|
| Description | Vibrating wire piezometer for multilevel installation with fully grouted method, including VW piezometers, 1m signal cable and splicing kit for multicore cable |
| Full scales (FS) | 0-350 kPa up to 0-3.5 MPa 0-51 psi up to 0-510 psi |
| Overpressure | 2 x Full Scale |
| Sensitivity | 0.025% FS |
| Accuracy ⁽¹⁾ | < ±0.4% FS |
| Lin. MPE | < ±0.25% FS |
| Pol. MPE | (< ±0.1% FS on request) |
| Typical frequency range ⁽²⁾ | 2250 - 3000 Hz |
| Thermal zero shift | 0.01 ÷ 0.03 % FS /°C |
| Electric insulation | > 50 MΩ |
| Temp. operating range | -20 to +80 °C |
| Temperature sensor | built-in thermistor |
| Material | stainless steel |
| Diameter and weight | Ø 20 mm (0.8"), 0.4 kg (0.9 lb) |
| FILTER UNIT | |
| Type | LAE filter |
| Material | stainless steel or Vyon® |
| Pore size | 40-50 µm |
| CABLE | |
| Signal cables for up to 4 piezometer string | 0WE1160LSZH 8-pair, LSZH jacket cable 0WE11600PVC 8-pair, PVC jacket cable |
| Signal cables for up to 8 piezometer string | 0WE1320LSZH 16-pair, LSZH jacket cable 0WE13200PVC 16-pair, PVC jacket cable |
| Max piezos chain length ⁽³⁾ | 200 m |
| Max cable length to logger ⁽⁴⁾ | 1000 m (for more information see FAQ#77) |

(1) MPE is the Maximum Permitted Error on the measuring range (FSR). In the Calibration Report, the accuracies of the gauge are calculated using both linear regression (≤ Lin. MPE) and polynomial correction (≤ Pol. MPE)
 (2) The expressed frequency range may vary +/- 10%
 (3) From lower piezo up to borehole collar. It is then possible to connect an elongation cable to reach the logger
 (4) Refer to FAQ section of Sisgeo website: www.sisgeo.com/faq

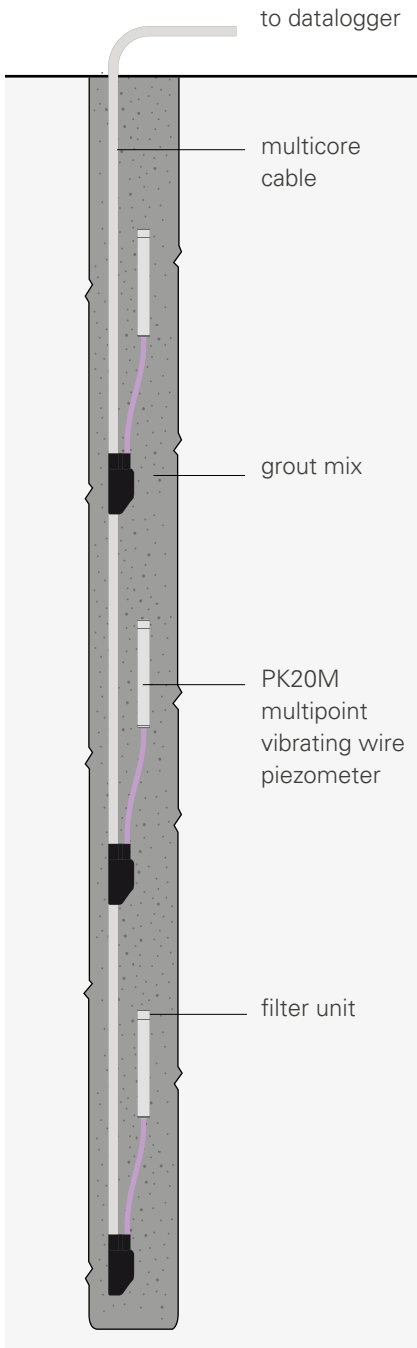


READABLE BY



Refer to separate datasheets for further information

INSTALLATION METHOD AND ACCESSORIES



The fully-grouted installation method provides a reliable way to install piezometers in the same borehole, each measuring pore-water pressure at a different elevation. It eliminates problems with placing sand intake zones, bentonite seals, and channeling of water along signal cables.

The working principle is based on the idea that in a low permeability grout, radial pressure gradient around the piezometer tip is magnitudes higher than the vertical pressure gradient along the borehole, and that the response of the piezometer is controlled by the higher pressure gradient. Grout mixes (water-cement-bentonite) should be controlled by weight and proportioned to give the desired strength of the set grout. (See Mikkelsen - Piezometers in Fully Grouted Boreholes - FMGM 2003).

The fully-grouted method can also be used for Casagrande piezometers installation or for multiple-instrument columns (i.e. inclinometer tube + piezometers. See Field Performance of Fully Grouted Piezometers - Simeoni, De Polo, Caloni, Pezzetti - FMGM 2011).

LSZH CABLE, UP TO 4 PIEZO OWE1160LSZH

Multicore cable for up to 4 multipoint piezometers, with 8 twisted-pair conductors and LSZH flame retardant jacket. External diameter 9.2 mm.

LSZH CABLE, UP TO 8 PIEZO OWE1320LSZH

Multicore cable for up to 8 multipoint piezometers, with 16 twisted-pair conductors and a LSZH flame retardant jacket. External diameter 12.2 mm.

PVC CABLE, UP TO 4 PIEZO OWE116000PV

Multicore cable for up to 4 multipoint piezometers, with 8 twisted-pair conductors and a standard PVC jacket. External diameter 8.2 mm.

PVC CABLE, UP TO 8 PIEZO OWE132000PV

Multicore cable for up to 8 multipoint piezometers, with 16 twisted-pair conductors and a standard PVC jacket. External diameter 11.2 mm.

LAE STEEL FILTER OPF20D20000

Spare LAE sintered steel filter for PK20 piezometers, pore size 40/50µm.

LAE VYON® FILTER OPF20D2000P

Spare LAE Vyon® (polyetyilene) filter for PK20 piezometers, pore size 40/50µm.

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