Specifications of the latest version of the Polymer Tensiometer (POT):

Polymer Tensiometer, measuring range: matric potentials from 0 to -1.6 MPa (= 0 to -16000 cm H_2O) @ 25℃, operating temperature 5-35℃, power supply 3.6 V battery included (>7 years of lifetime), internal memory 2 Megabit (>20 000 readings), cable length appr. 1.7m, software for programming and data collection included, calibrated for 15-35℃ (other ranges on request), largest diameter 27 mm.

POTs have proven to be maintenance-free and to have a long useful life (our oldest versions have been functioning for over 5 years without servicing and can be stored dry and only need to be rewetted to resume functioning). Once programmed they can function in stand-alone mode for many months. Their self-wetting capability ensures that a dried-out POT will produce valid data when the soil wets up. High fluid pressures within the sensor eliminate the formation of air or vapor bubbles.

Fig. 1: picture of a polymer tensiometer including cable and data logger/power supply unit

Publications featuring the Polymer Tensiometer

Durigon, Angelica; Gooren, Hermanus P.A.; de Jong van Lier, Quirijn; Metselaar, Klaas (2011)
Measuring hydraulic conductivity to wilting point using polymer tensiometers in an evaporation experiment
Vadose Zone Journal 10:741–746 doi:10.2136/vzj2010.0057

Ploeg, M.J. van der; Gooren, H.P.A.; Bakker, G.; Hoogendam, C.W.; Huiskes, C.; Koopal, L.K.; Kruidhof, H.; Rooij, G.H. de (2010)
Polymer tensiometers with ceramic cones: direct observations of matric pressures in drying soils
Hydrology and Earth System Sciences 14 (10). - p. 1787 - 1930.

De Rooij, G.H.;van der Ploeg, M.J.; Gooren, H.P.A.; Bakker, G.; Hoogendam, C.W.; Huiskens, C.; Kruidhof, H.; Koopal, L.K. (2009)
Measuring very negative water potentials with polymer tensiometers: principles, performance and applications
Biologia 64 (3). - p. 438 - 442. doi: 10.2478/s11756-009-0077-8

van der Ploeg, M.J. (2008)
Polymer tensiometers to characterize unsaturated zone processes in dry soils.
PhD thesis WUR Wageningen UR. Promotor: Feddes, Prof dr ir R.A., co-promotor: de Rooij, Dr ir G.H..,

Ploeg, M.J. van der; Gooren, H.P.A.; Bakker, G.; Rooij, G.H. de (2008)
Matric potential measurements by polymer tensiometers in cropped lysimeters under water-stressed conditions
Vadose Zone Journal 7 . - p. 1048 - 1054. doi: 10.2136/vzj2007.0104

Bakker, G.; van der Ploeg, M.J.; de Rooij, G.H.; Hoogendam, C.W.; Gooren, H.P.A.; Huiskes, C.; Koopal, L.K.; Kruidhof, H. (2007)
New polymer tensiometers: measuring matric pressures down to the wilting point
Vadose Zone Journal 6 (1). - p. 196 - 202. doi: 10.2136/vzj2006.0110

Availability of the Polymer Tensiometer

Please note that POTs are currently still hand-built. We can offer limited numbers for purchase. Current price is € 3500,- each excluding VAT and shipping according to the above mentioned specifications. Delivery time on request. Specifications and price are subject to change without notice.

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