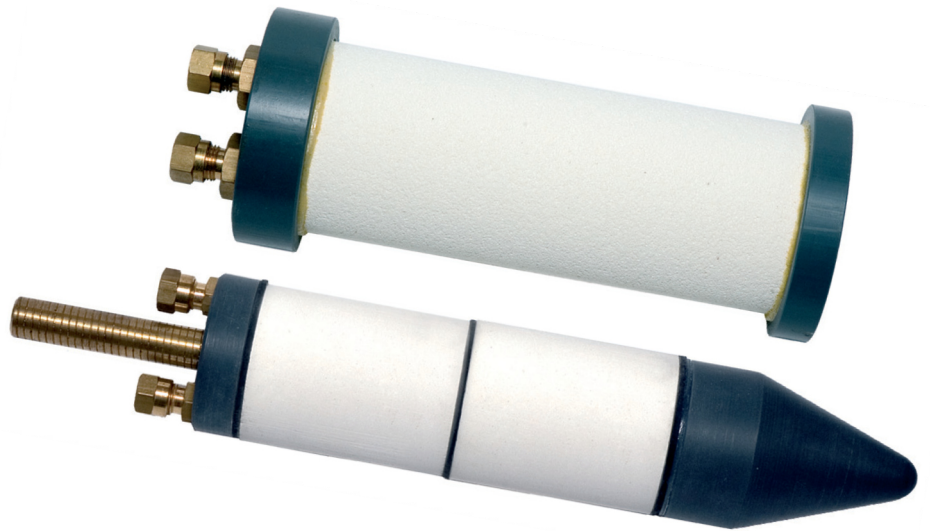


Geomotion
AUSTRALIA



Datasheet W2

Hydraulic Piezometer

DESCRIPTION

The Hydraulic Piezometer is used for accurately measuring pore water pressures in fully or partially saturated soil and rock.

The system comprises a porous ceramic piezometer tip sealed into the measuring horizon and connected to a remote measuring position via twin nylon hydraulically filled tubes.

The piezometer measures overall hydraulic pressure from which pore pressures can be calculated.

FEATURES

- ✓ Simple and reliable device
- ✓ Accurate with excellent long-term stability
- ✓ Fast response to pressure changes
- ✓ Inaccuracies due to air entrapment and gas accumulation at the piezometer tip are avoided
- ✓ Capable of measuring pore pressures from 2000 kPa to -50 kPa

BENEFITS

- ✓ No electronic components in tip ensures long-term reliability
- ✓ Twin hydraulic tubing is strong, flexible and suitable for long-term use
- ✓ Comprises all non corroding materials
- ✓ Pressure measurement takes place at the terminal location and not within the piezometer tip

OPERATION

The Piezometer tip comprises a porous ceramic filter vessel. Twin hydraulic tubes connect each filter tip to a remote reading terminal where the hydraulic pressure may be read by either a Bourdon gauge or an electrical pressure transducer.

The hydraulic system is flushable so that air or gas accumulation at the piezometer filter tip which can produce reading inaccuracies and time lag, can be fully removed to provide a 'hard' hydraulic circuit. In addition, the hydraulic piezometer system may be used for constant head permeability testing of the ground in which the piezometer tips are installed.

Typical applications include:

- ✓ Environmental management including landfill sites
- ✓ Monitoring of aquifers
- ✓ Monitoring of tidal effects on coastal soils
- ✓ Dams
- ✓ Embankments
- ✓ Potential landslide sites
- ✓ Dewatering excavations
- ✓ Tailings lagoons
- ✓ Pumping tests
- ✓ Monitoring seepage
- ✓ Control placement of fill

SPECIFICATIONS

SENSOR

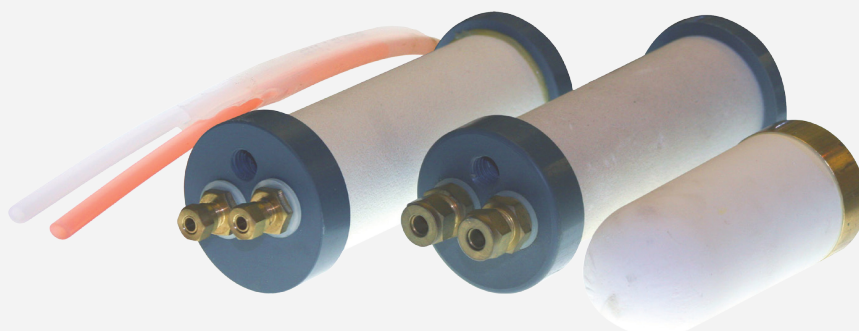
Range (kPa)	Bourdon gauge: -5kPa to 2000kPa	Bourdon master gauge panel: 0kPa to 1500kPa
Accuracy	±1.0% full scale	±0.25% full scale

Filter Type

Material	Porous Ceramic
Porosity	HAE 1 Micron or LAE 60 Microns

Hydraulic Tubing

Type	Twin Nylon tubes sheathed in Polythene, flat or round in section		
Minimum bend radius	0.3m		
Burst pressure	13.8MPa		
Nominal bores	4.76mm or 6.35mm		
External width Diameter	Flat: 18mm	Round: 16mm	
Weight /m	36g		



ORDERING INFORMATION

Hydraulic Piezometer Tips

W2-1.6	Bull Nosed HAE piezometer tip; high resistance to air entry (1 Micron), for 1/4inch tubing
W2-1.10	Cylindrical LAE piezometer tip; low resistance to air entry (60 Micron), for 1/4inch tubing
W2-1.9	Cylindrical LAE piezometer tip; low resistance to air entry (60 Micron), for 3/16 inch tubing
W2-1.13	Push-in LAE piezometer tip; low resistance to air entry (60 Micron), for 1/4inch tubing
W2-1.15	Push-in HAE piezometer tip; high resistance to air entry (1 Micron), for 1/4inch tubing
W2-1.11	Push-in LAE piezometer tip; low resistance to air entry (60 Micron), for 3/16 inch tubing
W2-2.12	Push-in HAE piezometer tip ; high resistance to air entry (1 Micron), for 3/16 inch tubing

Piezometer 1/4 Inch Tubing and Tube Fittings

W6-2.5	Twin 1/4inch nylon tubing; flat Tube 18mm external width, priced per metre
W6-3.21	Quick release coupling set, 1/4inch; for connection of tube to water circulation unit
W6-3.20 / W6-3.19	Male quick release coupling, 1/4inch / Female quick release coupling, 1/4inch
W6-3.5	Spare nut and olive, Enots 1/4inch
W6-3.7	Straight coupling, Enots 1/4inch; in-line tubing connections, 2No. required per twin tube connection
W6-3.18	Connection charge per piezometer tip to twin tube

Piezometer 3/16 Inch Tubing and Tube Fittings

W6-2.2	Twin 3/16 inch nylon tubing; round Tube 13mm external diameter, priced per metre
W6-3.12	Quick release coupling set, 3/16inch; for connection of tube to water circulation unit
W6-3.11	Spare nut and olive, Enots 3/16inch
W6-3.22	Straight coupling, 3/16inch; in-line tubing connections, 2No. required per twin tube connection
W6-3.18	Connection charge per piezometer tip to twin tube

Piezometer Tubing Accessories

W3-4.8	Tube cutter
CA-4.2	Coloured adhesive tapes; set of 10No.

Installation Accessories

W6-8.3	Placing tool; for use with W2-1.6, W2-1.10, W2-1.9 piezometer tips
W2-4.8	Placing tool; for use with W2-1.13, W2-1.15, W2-1.11, W2-2.12 push-in piezometer tips
W6-8.1	Punner; to compact material in borehole, for use with W6-8.2 or W1-2.7
W2-4.5	Bishop hole forming tool; for shallow surface installation
W6-8.2	Placing tube, 3/4 inch BSP, 3 metre length for use with the placing tool; galvanised mild steel tubing with 3/4 inch BSP coupling
W1-2.7	Placing tube, 3/4 inch BSP, 1 metre length for use with the placing tool; galvanised mild steel tubing with 3/4 inch BSP coupling
E2-2.13	Protective cover; 2inch BSP threaded cap, 50mm inner diameter, 500mm length
E2-2.14	Security cover; with bar and padlock, 50mm inner diameter, 500mm length
W2-4.11	Standard Tool Kit; tool box includes: knife, 3 metre measuring tape, 8 inch adjustable spanner, 2No. flat screwdrivers, combination pliers, ball hammer, 6No. English spanners 5/16 to 1 inch
W2-4.14	Installation Accessories Kit; includes installation spares: 2No ball valves, valve saddle, screws, plugs, spare tube fittings and 20 meters of single 1/4inch nylon tubing
W2-4.15	Installation Accessories Kit (includes installation spares); selection of self tapping screws, 10No. Enot olives, 10No. Enot nuts, 6No. Enot plugs, 2No. Enot straight adapter, 2No. ball valves, 2No. standpipe adapters and 20 meters of single 1/4inch nylon tubing
W6-2.8	1/4inch nylon tubing, LDP coated; single tube 8.6mm external diameter, priced per metre
E2-3.12	3/16inch nylon tubing; single tube 3/16inch external diameter, priced per metre
W6-1.1 / W6-1.3	Bentonite pellets; 25kg bag / Filter sand; 25kg bag

ORDERING INFORMATION

Bourdon Master Gauge Unit

Single gauge to read from terminal panel. Wall mounted panel, for use with 1/4inch nylon tubing

W2-6.3-50	0 to 500kPa pressure range
W2-6.3-100	0 to 1000kPa pressure range
W2-6.3-150	0 to 1500kPa pressure range

Bourdon Gauge Unit

Each instrument has an individual gauge. Wall mounted panel, for use with 1/4inch nylon tubing

W2-6.2-1-20 to W2-6.2-5-20	1 to 5 Channel, 0 to 200kPa pressure range
W2-6.2-1-50 to W2-6.2-5-50	1 to 5 Channel, 0 to 500kPa pressure range
W2-6.2-1-100 to W2-6.2-5-100	1 to 5 Channel, 0 to 1000kPa pressure range
W2-6.2-1-200 to W2-6.2-5-200	1 to 5 Channel, 0 to 2000kPa pressure range
W2-6.2-1-5-20 to W2-6.2-5-5-20	1 to 5 Channel -50 to 200kPa pressure range
W2-6.2-1-5-50 to W2-6.2-5-5-50	1 to 5 Channel -50 to 500kPa pressure range

Terminal Panel

Connects to Master Bourdon Gauge. Wall mounted panel, for use with 1/4inch nylon tubing

W2-7.2-2 to W2-7.2-20	For 2No. to 20No. piezometer tips
W6-5.1 / W6-5.2	Terminal cabinet; 600 x 600 x 250mm, for up to 8No. piezometer terminal panel / 800 x 600 x 250mm, for up to 12No. piezometer terminal panel

De-Airing Equipment

For use with 1/4inch nylon tubing

W6-7.1	Water circulating unit; single cylinder, send pressure only
W2-8.1-1	Portable/Wall Mount De-airing Unit 4.5 litres; 500kPa pressure range - manual pumps only
W2-8.1-2 / W2-8.1-3 / W2-8.1-4	Portable/Wall Mount De-airing Unit 4.5 litres; 500kPa / 1000kPa / 1700kPa pressure range - manual pumps supplied for up to 500kPa with connection for electric pumps
W2-8.3-1	Portable/Wall Mount De-airing Unit 9 litres; 500kPa pressure range - manual pumps only
W2-8.3-2 / W2-8.3-3 / W2-8.3-4	Portable/Wall Mount De-airing Unit 9 litres; 500kPa / 1000kPa / 1700kPa pressure range - manual pumps supplied for up to 500kPa with connection for electric pumps
W6-7.2 / W6-7.3	De-aired water boiler; 240Vac, 50Hz electrical supply / De-aired water boiler; 110Vac, 60Hz electrical supply
W2-8.10 / W2-8.11	Portable Electric Compressor; 240Vac, 50Hz electrical supply / Portable Electric Vacuum Pump; 240Vac, 50Hz electrical supply
W6-7.5 / W2-8.15	Pressure Pump / Vacuum Pump

