



## Earth & Concrete Pressure Cells Model 4725-GS-PC Series

### FEATURES

- **Stainless Steel Construction**
- **Long Term Stability**
- **High Sensitivity**
- **High Pressure Range**
- **Low Volumetric Displacement**
- **Post-Stressing Tube — available for re-pressurising in hardened concrete**
- **Manual readings (with portable readouts) or automatic datalogging**



### General

Geosystems Earth and Concrete Pressure Cells Model 4725-PC Series are designed to measure total pressure in earth fills and embankments and pressures on the surface of retaining walls, buildings, bridge abutments, sheet piling, tunnel linings etc.

fluid which is measured by the pressure transducer. The cells are fitted with either pneumatic or vibrating wire pressure transducers which are connected by twin tubing or electrical cable respectively to the readout location.

Calibrations provided to enable the measured readings to be converted to units of pressure or stress. The cells are filled with de-aired hydraulic oil, to ensure that the volumetric displacement of the cells is minimised and that their response characteristics are linear and highly sensitive.

All vibrating wire transducers are fitted with a thermistor to enable the measurement of temperature (for temperature correction).

The pressure cells are read using a portable VW readouts (Models 6516-VWR or 6521-VTR01), or connected to a datalogger for automatic monitoring.

### Construction

The cells consist of two circular stainless steel plates welded together by a narrow cavity filled with oil.

A length of high-pressure stainless steel plates is welded together around their periphery and spaced apart by a narrow cavity filled with oil. A length of high pressure stainless steel tubing connects the cavity to a pressure transducer.

### Operating Principle

External pressures acting on the cell are balanced by an equal pressure induced in the internal

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### Models

**Model 4725-PC/P** is an earth pressure cell fitted with a pneumatic transducer (Model PP02) which is connected to the readout location with twin nylon tubes (inside a polyethylene outer sheath). The readings are obtained using a Pneumatic Readout—Model PR02.

**Model 4725-PC/EC** is a single sided, vibrating wire earth pressure cell, designed for attachment to bulkheads, or embedment in concrete retaining walls. The vibrating wire transducer is connected directly to the diaphragm, resulting in a very rugged, compact cell capable of withstanding damage due to concreting or installation on bulkheads.

**Model 4725-PCC** is a vibrating wire concrete pressure cell, fitted with 600 mm long SS pinch tube (for post-stressing after concrete hardening) tube. By pinching the tube, the internal hydraulic fluid will force the pads to expand, thus compensating for any shrinkage during curing. This ensures good physical contact between the cell and the surrounding concrete.

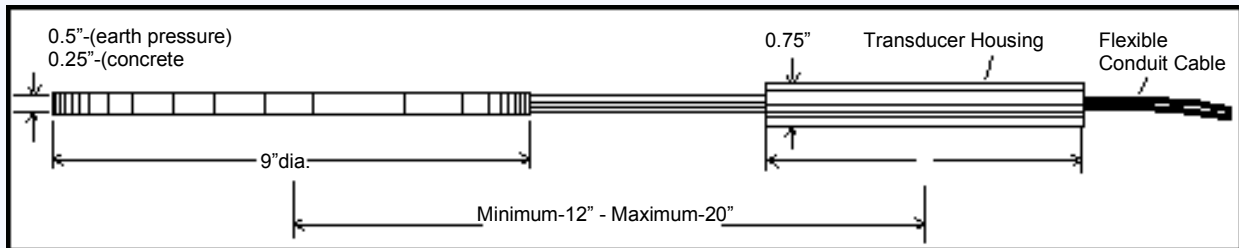
Concrete pressure cells may be pre-encapsulated in concrete to simplify the post-stressing operation.

### Accessories

- VW Readout Units
- Pneumatic Readouts
- Dataloggers
- Terminal Boxes
- Thermistors

### Ordering Information

- Cable type
- Protective conduits
- Model Number
- Pressure range
- Cable lengths
- Accessories required
- Options required



Earth Pressure Cell Schematic

### Specifications

Model number:	4725-PC/P	4725-PC/E	4725-PC/EC	4725-PC/C
Application	Earth Pressure	Earth Pressure	Earth Pressure	Concrete stress
Transducer type	Pneumatic	Vibrating Wire	Vibrating Wire	Vibrating Wire
Typical ranges available	15 to 500 psi*	50, 100, 500 psi	250, 500 psi	50, 100, 500 psi
Over-range capacity	500 psi max.	150%FS	150%FS	150%FS
Accuracy	0.4%FS*	0.25%FS	0.25%FS	0.25%FS
Resolution	0.4%FS*	0.1%FS	0.1%FS	0.1%FS
Thermal effect on zero	zero	<0.5%FS/°F	<0.5%FS/°F	<0.5%FS/°F
Cell diameter	229 mm	229 mm	130 mm	229 mm
Cell thickness	6.5 mm	6.5 mm	15 mm	12.7 mm
Transducer housing dia.	32 mm	25 mm	38 mm	25 mm
Transducer housing length	80 mm	150 mm	90 mm	150 mm
Weight (less cable)	2.3 kg	2.3 kg	2.5 kg	3.2 kg

(\*Depends on pressure gauge in readout unit)

Due to on-going design improvements and reviews, we reserve the right to amend product and specifications without prior notice



FOR FURTHER INFORMATION

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*An electric pulse in the head of the probe drives current up the length of the wand.*

*Interaction with the field produced by the toroid magnet induces an ultra sonic signal that travels back to the head in the wave guide. This acoustic signal is converted into an electrical signal and the time between pulses resolves the differences in position of the anchors as the speed of sound in the wave guide is known.*

*Changes in position of as little as .001 inch can be detected. A switch on the GK-701 allows up to twenty anchor positions to be monitored.*

*Another switch determines whether movements are measured between each anchor and the mouth of the borehole or between each succeeding pair of anchors.*

*Sonic Probe service and repairs are available through Geosystems.*

## Specifications

<b>Sonic Probe Readout Model GK 701</b>	
<b>Size</b>	165 x 127 x 254 mm (6½ x 5 x 10 in)
<b>Weight</b>	2.7 kg (6 lbs.)
<b>Range</b>	7.32 m (288 in)
<b>No. anchor points</b>	20 maximum
<b>Accuracy</b>	0.5% F.S.
<b>Resolution</b>	.02 mm (±0.001 in)
<b>Cable</b>	3 pair indiv. shielded
<b>Temp. range</b>	-7° to 43°C (operational) -29° to 54°C (storage)

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