

FSG earth pressure cells



Description

Model 4910, 4920 FSG (foil strain gage type) earth pressure cells consist of $\varnothing 230\text{mm}$ two circular stainless steel plates welded together their periphery and spaced apart by a narrow cavity filled with de-aired ethylene glycol.

Each end of cell in model **4910&4920** is connected with pressure sensor, of the two round boards, thin side is actuating side, and it should be directly contacted with soil or measured member. The pressure sensor converts the electrical signal delivered in actuating side.

Inside of cell of model **4930&4940**, foil strain gage is directly attached in wheatstone bridge type, when the actuating side receive the earth pressure, the interior circuit also launch the electric signal in proportion to the earth pressure by distortion.

When the cell get weight, foil strain gage perceive the deformation of cell, and resistance factor changes slightly, this output is transmitted to output device and displayed in mechanical unit. According to the correct record, you can calculate in unit of pressure.

Correct record is provided by sensors, and sensors are operated automatically, within water pressure chamber, it is individually inspected, so confidence is guaranteed.

FSG earth pressure cells is designed into waterproof and insulated structure so that it gets stable output for a long term period and can overcome severe environment in construction site.

Features

- The material that minimize datum change and temperature factor
- High precision and reliability
- Stability and reliability in extreme environment
- Easy to use and installation
- Possible to dynamic measurement

Dimensions

(Unit : mm)

Model	4910	4920	4930	4940
O.D	$\varnothing 230$		$\varnothing 100$	
Thickness	10.5		20	

Applications

FSG earth pressure cells is used for inspect of design hypothesis or excess pressure of structure.

Specially, it is useful for the real time measurement where consolidation feature of filling or experimental construction with a view of study need dynamic measurement.

- Collection data to determine the distribution of, orientation of and magnitude of total stresses
- Measurement of the contact pressure on banking and foundations
- Measurement of total pressure on the structures during heave
- Checking of density of fills in dams

[Model 4910 & model 4930 standard]

Model 4910 is standard type (exterior diameter : $\varnothing 230\text{mm}$) and is used to measure total pressure operating in levee, filling, building, bridge abutment and sheet pile.

It is very useful to establish by lining up with 3~5 sets of group in the road site.

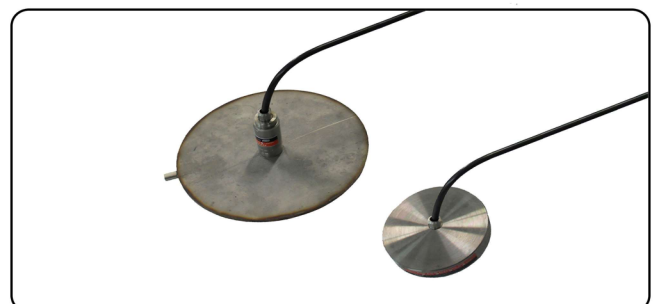
Model 4930 (exterior diameter : $\varnothing 100\text{mm}$) is useful to measure total pressure and can be used in case place to establish has limit like lining tunnel.



[Model 4920 & 4940 jack out type]

Model 4920 is jack out type (exterior diameter : $\varnothing 230\text{mm}$) and is designed to measure the total pressure operating in retaining wall or slurry wall.

Model 4940 (exterior diameter : $\varnothing 100\text{mm}$) is useful in case of limit of establishment.



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Specification

Model	4910	4920	4930	4940
Sensor Element	FSG sensor (foil strain gage)			
Range	2.0~35kg/cm ²			
Accuracy	±0.5% FSR			
Nonlinearity	±1.0% FSR			
Over range capacity	120% FSR			
Rating output	1 mV/V (1,000 × 10 ⁻⁶)			
Resistance	350 Ω			
Insulation resistance	More than 100 MΩ / 500V			
Exciting voltage recommended	Less than 5 VDC			
Exciting voltage allowable	Less than 10 VDC			
Operating temperature	-30~80°C			
Water proof	300m H ₂ O			
Weight	4.0kg	4.0kg	1.2kg	1.2kg
Material	Stainless steel, high grade epoxy potting			
Signal cable	Ø 10mm, 0.5mm ² × 5C shielded PVC sheath cable			

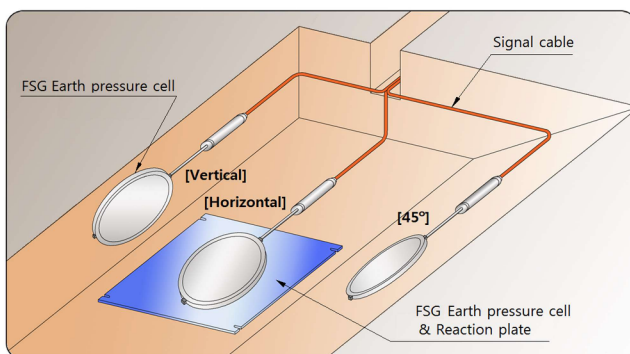
The readout

It is electric resistance sensor that generates mV and can be used by connecting with strain meter or data logger that can read strain

- ACE-600A (FSG readout)
- ADL-200A (Smart logger)

Recommendation

For the precision measurement, must be put with epoxy to fill gaps between cells and bearing plates, or bearing plates and steel members.



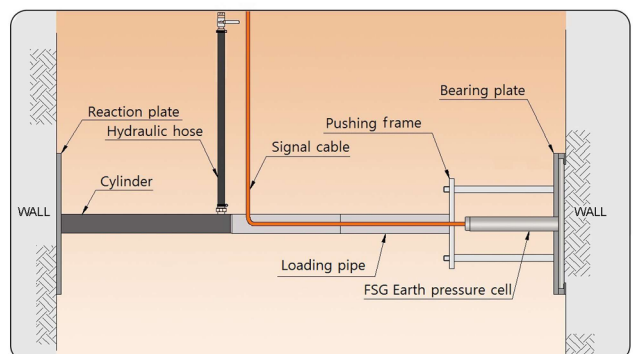
[Installation of standard type FSG earth pressure cell]

Ordering information

- Place to establishment or use
- Range
- Length of signal cable
- Specially ordered goods that is not in catalog is possible to manufacture to 200kg/cm² and size of Ø500 or 500 × 500mm
- keeping readout unit

Ancillary equipments

- Universal terminal box (model 7012/ 7024)
- Reaction board : for the use of wall earth pressure cell
- Reaction board : for the use of wall earth pressure cell (round shape)
- Reaction board : for the use of standard earth pressure cell (round and square)
- Hydraulic jack kit : for the use of model 4920 & 4940



[Installation of jack out type FSG earth pressure cell]