

VW load cells



Description

VW load cells are attached with VW strain gage divided into 3~6 equal parts in the pipe hole of cylindrical shape cell that is processed mechanically with alloyed steel. It is used with principle that when load operates in cell, tension of VW gage is changes.

When load applied on the cell, change in tension of the gages causes change in the frequency that is induced by a plucking coil. The average of the readings from the cells represents the mean load on the anchor, minimizing the effects of eccentric loading.

VW load cells warrant the reliability to be free of defects in materials and processing.

For the most reliable results, the bearing plates must be cast with its upper and lower face flat and perpendicular to the anchor and the anchor should be centralized. The bearing plates help to keep distributing load on the anchor without bending or yielding.

The VW load cell is equipped with a temperature device for compensating for temperature variations.

Applications

The VW load cells are designed to measure loads in tiebacks, anchors, struts, rock bolts and strands in structure.

- Long term measurement of loads in tiebacks, struts, rock bolts and anchors.
- Measurement of loads in supporting systems such as retaining walls, tiebacks and anchors.

Dimensions

Model		1102	1103	1105	1110	1115	1120	1125	1130	1140	1150	1160	1170	
Hollow type	Load (ton · f)	40	80	140	140	140	200	200	200	300	500	1000	1500	
	Size	A	38.5	50	100	125	75	100	125	150	150	200	125	125
		B	72	88	138	158	122	150	168	188	204	268	280	335
		C	80	80	80	80	80	80	80	80	80	100	100	100
Bearing area (mm ²)		2,907	4,118	7,103	7,334	7,272	9,817	9,895	10,087	15,013	24,993	49,303	75,869	

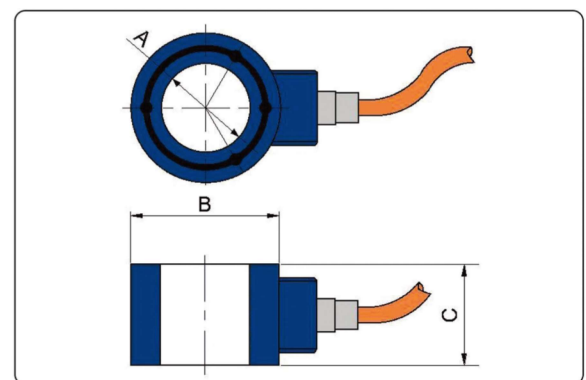
(Unit : mm)

Features

- Different models according to load and use
- Precision of cell process is under 0.05 (shaking, parallel straightness)
- Bearing plate with high confidence
- Not affected by cable length and resistance change, reproducibility are very excellence
- Possible to automatic measurement



[1200ton-f Material testing machine]



[Dimensions]

VW load cells

Specification

Model	1102	1103	1105	1110	1115	1120	1125	1130	1140	1150	1160	1170
Rated capacity(ton.f)	40	80	140	140	140	200	200	200	300	500	1000	1500
Sensor element	Vibrating wire sensor											
Safe overload	150% FSR											
Resolution	0.025% FSR											
Accuracy	±0.5% FSR (Optional ±0.1% FSR)									±0.5% FSR		
Nonlinearity	±1.0% FSR (Optional ±0.5% FSR)									±1.0% FSR		
Coefficient of linear expansion	10.8 × 10 ⁻⁶ / °C											
Operating temp.	-40~80°C											
Built-in temp. device	Thermistor (3kΩ)											
Temp. device range	-40~105°C											
Temp. device accuracy	±0.5°C											
Sensor element	Standard : 3 VW strain gage(individual reading)						Optional : 4~6 VW strain gage					
Waterproof	105m H ₂ O											
Material of cell	SCM series steel											
Sealing materials	High grade silicone potting											
Weight (kg)	3.3	4.0	7.8	7.5	5.7	7.0	9.2	8.6	11.6	18.0	36.0	58.7
Signal cable	Ø10mm, 0.37mm ² × 8C shielded PVC sheath cable											

The readout

It is connected to the system such as the VW readout units, data loggers to be data logging and data acquisition system to monitor readings. It is compatible with other company's readout unit.

- ACE-800 (VW readout)
- ACE-1000 (VW data recorder)
- ACE-1100 series (VW mini logger)
- ADL-16V (VW data logger)
- ADL-200A (Smart logger)
- VL Module (Smart LoRa system)

Ordering information

- Application field
- Capacity
- Quantity of strands, center hole diameter
- Keeping VW readout unit
- Cable length
- Possible to product for special order within 20~1000 ton · f
- VW strain gage can be equipped 3~6nos by considering eccentric load



[1000ton of VW load cell for bridge installation]

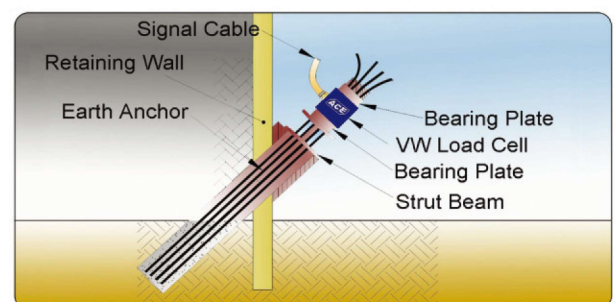
Recommendation

The bearing plates must be cast with its upper and lower face flat and have sufficient strength to avoid significant distortion under load. Positioning and alignment of the cells is important to their reliable performance.

Load expected by design	Optimum thick of bearing plates
0~150 ton · f	30~40mm
150~300 ton · f	40~60mm
300~500 ton · f	60~80mm
Spherical type	25~50mm

Ancillary equipments

- Bearing plates for only struts
- Bearing plates for earth anchors
- Universal terminal box (model 7012/7024)



[Installation of load cell]