Anchor Load Cell

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HIGHLIGHTS

- Simple fitting
- Robust construction
- Automatic data acquisition possible

Portal support with load cells

Field of Application

Anchor load cells are used for monitoring anchor forces in pre-stressed anchors. They are therefore an indispensable instrument for monitoring the functionality and rate of utilization on protection measures for the anchoring of slope protections, open cuts and in caverns.

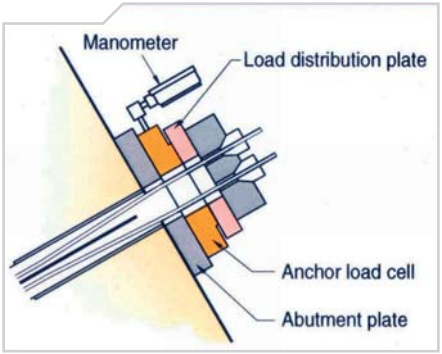
Stressing of anchor with load plate

Principle of Operation

Two circular steel plates are welded together at the edges. The gap between the plates is filled with a hydraulic fluid. The pressure in the fluid is directly proportional to the load on the anchor and can be recorded via a pressure gauge or an electrical pressure transducer.

Construction

The oil-filled measurement plate is arranged between an abutment plate and a load distribution plate. The plates are designed such that they cannot slide relative to each other and guaranteeing optimal transmission of the force. Note the dimension of the required anchor feed-through when ordering. Special bores can be provided on request.



Schematical assembly

Data Acquisition

When using pressure gauges for reading the measurements directly, you must ensure that the measuring dial is accessible and visible during the time that the measurements are to be carried out. If the standard device cannot be read visually, an electrical remote reading method should be incorporated, using a pressure transducer, or an appropriate pressure gauge orientation should be requested / ordered.

For reading the data electrically, the cables can be collected at an accessible place and a portable instrument used for reading the data. Incorporation into an automatic data acquisition system is of course also possible.

Load cell with electric pressure transducer

Technical Specifications

Anchor Load Cell
Type LPM – with manometer
Type LPE – with electrical pressure transducer

LP 1-10	load plate + M	LPM	250 KN	OD 155	ID 35	h 18 mm
LP 1-12	load plate + E	LPE	250 KN	OD 155	ID 35	h 18 mm
LP 1-13	distribution plate	VP	250 KN	OD 125	ID 25	h 18 mm
LP 1-14	abutment plate	UP	250 KN	OD 155	ID 35	h 18 mm
LP 2-10	load plate + M	LPM	500 KN	OD 210	ID 50	h 18 mm
LP 2-12	load plate + E	LPE	500 KN	OD 210	ID 50	h 18 mm
LP 2-13	distribution plate	VP	500 KN	OD 180	ID 25	h 23 mm
LP 2-14	abutment plate	UP	500 KN	OD 210	ID 50	h 23 mm
LP 3-10	load plate + M	LPM	750 KN	OD 265	ID 100	h 18 mm
LP 3-12	load plate + E	LPE	750 KN	OD 265	ID 100	h 18 mm
LP 3-13	distribution plate	VP	750 KN	OD 235	ID 50	h 33 mm
LP 3-14	abutment plate	UP	750 KN	OD 265	ID 100	h 28 mm
LP 4-10	load plate + M	LPM	1000 KN	OD 290	ID 100	h 18 mm
LP 4-12	load plate + E	LPE	1000 KN	OD 290	ID 100	h 18 mm
LP 4-13	distribution plate	VP	1000 KN	OD 260	ID 75	h 38 mm
LP 4-14	abutment plate	UP	1000 KN	OD 290	ID 100	h 28 mm

or

Type LPE with distribution and abutment plate

Anchor Load Cell

LP 5-10	load plate	LPM	1000 KN	OD 305	ID 120	h 18 mm
LP 5-11	load plate	LP	1000 KN	OD 305	ID 120	h 18 mm
LP 5-12	load plate	LPE	1000 KN	OD 305	ID 120	h 18 mm
LP 5-13	distribution plate	VP	1000 KN	OD 272	ID 120	h 38 mm
LP 5-14	abutment plate	UP	1000 KN	OD 302	ID 120	h 28 mm
LP 6-10	load plate + M	LPM	1250 KN	OD 335	ID 130	h 18 mm
LP 6-11	load plate + W	LP	1250 KN	OD 335	ID 130	h 18 mm
LP 6-12	load plate + E	LPE	1250 KN	OD 335	ID 130	h 18 mm
LP 6-13	distribution plate	VP	1250 KN	OD 305	ID 90/120	h 43 mm
LP 6-14	abutment plate	UP	1250 KN	OD 335	ID 130	h 33 mm
LP 7-10	load plate + M	LPM	1500 KN	OD 373	ID 160	h 18 mm
LP 7-12	load plate + E	LPE	1500 KN	OD 373	ID 160	h 18 mm
LP 7-13	distribution plate	VP	1500 KN	OD 345	ID 105/154	h 53 mm
LP 7-14	abutment plate	UP	1500 KN	OD 375	ID 160	h 38 mm
LP 8-10	load plate + M	LPM	2500 KN	OD 385	ID 175	h 23 mm
LP 8-12	load plate + E	LPE	2500 KN	OD 385	ID 175	h 23 mm
LP 8-13	distribution plate	VP	2500 KN	OD 256	ID 173	h 63 mm
LP 8-14	abutment plate	UP	2500 KN	OD 385	ID 175	h 38 mm

M = with manometer E = with pressure sensor (4 to 20 mA)

Type LPM between abutment and distribution plate

Electrical Pressure Transducer (optional)

Supply voltage	15 to 30 VDC
Output	4 to 20 mA, 2-wire
Linearity	typ. ± 0.2 % FS , max ± 0.3 % at 20°C
Working temperature	standard - 10° to + 55° C
	optional - 10° to + 70° C
Sealing	IP65 plug, IP67 cable output

The following other datasheets are associated with this datasheet:

Services:	*Geotechnical Monitoring - Installation, Data Acquisition and Evaluation*
Systems:	*DAMOS - Automatic Data Acquisition System*
Software:	*KRONOS Tunnel Information System*