

FreysCell Load Cell



FREYSSINET
SUSTAINABLE TECHNOLOGY

- Easy to install
- Reliable measurements
- Easy to read
- Durable

Anchor tie rods, prestressing

Technical data sheet reference no.: FT En C IX 17

The system

FreysCell load cells have been developed to aid anchor tie rods and prestressing reinforcement. They measure the load present in the reinforcement during installation and throughout the structure's service life.

The FreysCell system includes a central display unit that can be used to monitor several instrumented tie rods from a single workstation.

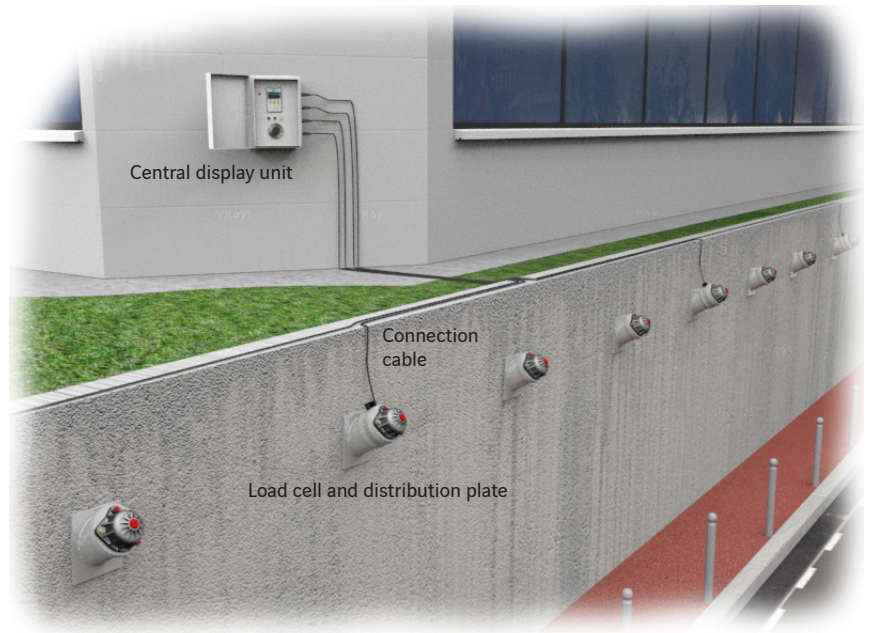
The FreysCell system contains everything required for its installation on the anchors and subsequent use, including:

- Load cells
- Specially designed distribution plates
- Connection wiring
- Display unit.

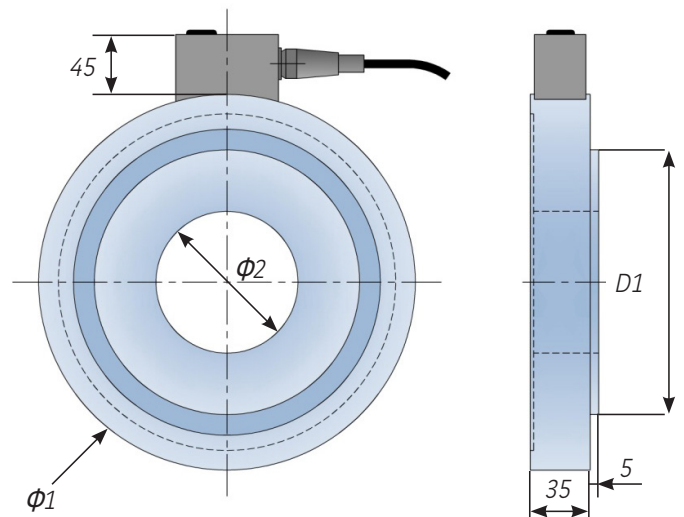
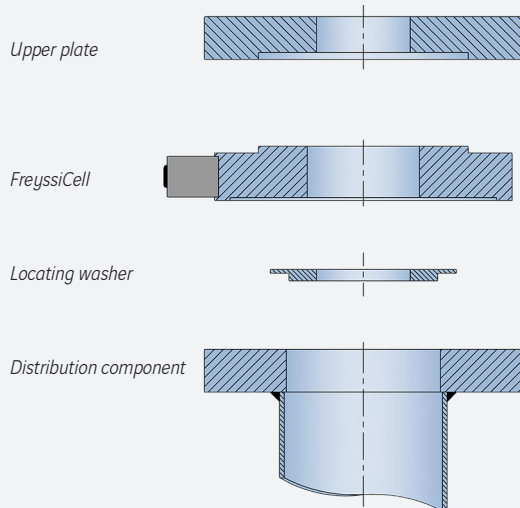
Assembly

The load cell and distribution plate are placed between the component that distributes the prestressing load into the structure (a skewed bearing chair, for example) and the tie rod anchoring mechanism (a nut for Freyssibar or anchor block for strands).

Connection of the components



Cells



FreysCell system fitted to a Freyssinet 4C15 tie rod

Model	Nominal load (kN)	Φ1 (mm)	Φ2 (mm)	D1 (mm)	Operating range	
					Tendon	Freyssibar
FreysCell500	500	155	82	95	1 to 3C15	26.5
FreysCell750	750	155	82	95	2 to 3C15	32
FreysCell1000	1,000	155	82	95	2 to 4C15	36
FreysCell1700	1,700	220	100	155	5 to 7C15	40 - 50
FreysCell2200	2,200	260	144	190	8 to 9C15	
FreysCell2700	2,700	300	144	230	10 to 13C15	
FreysCell3100	3,100	340	160	230	10 to 13C15	

Durability

The FreyssiCell system's stainless steel construction and IP68 (EN 60529) sealing rating make it extremely durable.

The distribution plates are specially designed to fit the cell and the Freyssinet anchor, and are made from steel protected by a C4ANV paint system.

We recommend that the connection wiring between the load cell and the display unit be protected by ducting or cable runs to prevent any damage.

Calibration

The entire system, made up of the load cell, wiring and connection unit, is calibrated in the factory before delivery. This means that the reading on the display unit is an actual value, already corrected. A calibration certificate is provided with every load cell.

Traceability

FreyssiCell load cells are marked with a batch number to ensure traceability.



Special requirements

Additional functions such as a data acquisition unit or a Wi-Fi transmitter can be incorporated into the FreyssiCell system upon request.

As standard, the load cell measurement is transmitted to the display unit by a 2mV/V signal. If a very long cable is necessary or if special apparatus is connected to the system (data acquisition unit, radio transmitter, etc.), a cell with an amplified signal is used:

	Standard version	Amplified version
Cell name	FreyssiCell500N to FreyssiCell3100N	FreyssiCell500A to FreyssiCell3100A
Nominal load Fs	500 to 3,100 kN	500 to 3,100 kN
Output signal	2mV/V ± 0.15%	4 to 20 mA
Nominal excitation range	5 to 10 V (15 V max.)	12 ± 1 V
Output signal at zero	≤ ± 1%.Fs	4 mA
Input resistance	1,450 ± 50Ω	1,450 ± 50Ω
Output resistance	1,400 ± 5Ω	1,400 ± 5Ω
Insulation resistance	> 5 GΩ	> 5 GΩ
Combined error	≤ ± 0.3%.Fs	≤ ± 0.3%.Fs
Non-repeatability	≤ ± 0.15%.Fs	≤ ± 0.15%.Fs
Effect of temperature on zero	≤ ± 0.1%.Fs	≤ ± 0.1%.Fs
Effect of temperature on nominal power	≤ ± 0.1%.Fs	≤ ± 0.1%.Fs
Compensated temperature range	-10°C to +40°C	-10°C to +40°C
Operating temperature range	-15°C to +70°C	-15°C to +70°C
Maximum safety load	130%.fs	130%.fs
Ultimate load	> 200%.fs	> 200%.fs
Maximum cable length	15 m	200 m

A 6 x 0.34 mm² sealed cable is crimped to each cell. By default, the cable is 15 m long for standard cells and 25 m long for amplified cells (length can be adjusted on request). A plug at the end of the cable can be used to connect a portable display unit.

FreyssiCell load cells are designed to operate within a temperature range of -15°C to 70°C.

Display units

Connection unit:

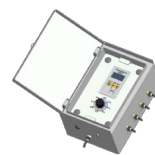
This sealed unit is fixed to the wall. It is used to connect a standard or amplified cell. A portable display unit must be connected to read the cell.



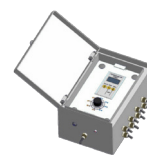
1-channel unit
(H = 105 x L = 70 x thickness = 48)

Permanent units with built-in display:

These are installed on the structure and provide a direct display of the load (in kN). There are two models for connecting up to eight cells. They can only be used with amplified cells.



4-channel unit
(H = 308 x L = 207 x thickness = 158)



8-channel unit
(H = 308 x L = 207 x thickness = 158)

Portable display unit:

This display unit is connected to the connection unit or directly to the plug on the sealed cable.



Portable display unit

Local sales contact