Permanent Freyssibar anchor

- Reliable
- Easy installation
- Maximum corrosion protection

Retaining walls, slope stabilization, anchoring

Technical data sheet reference n°: FT En C IX 1 2 1

FREYSSINET
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The system

The permanent Freyssibar anchor comprises a post-tensioning bar and accessories contained in a bore hole (anchor body) and an external part (anchor head) that connects to the structure.

The anchor body is bonded to the ground by injecting a cement-based grout. The grout is injected through an additional injection system.

Over length (Slg)

Free length (Lgl)

Bond length (Lgs)

Anchor head

Freyssibar

Corrugated sheathing injected with cement grout + smooth sheathing

Injected corrugated sheathing
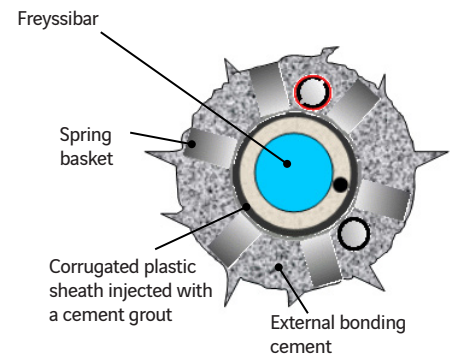
Spring basket (every 2 meters)

Anchor foot
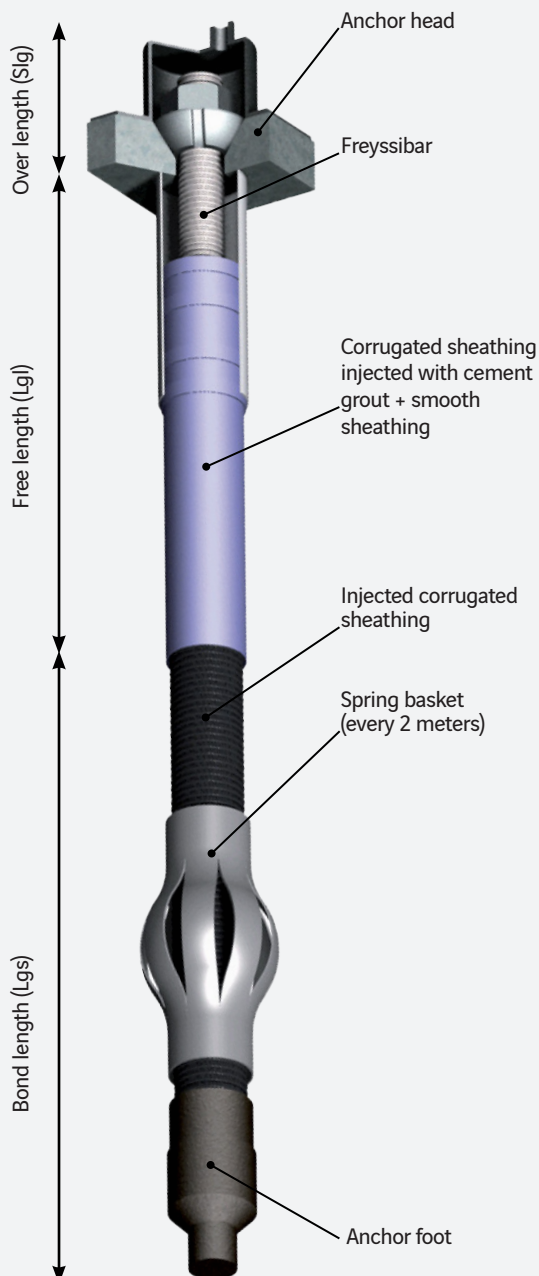
Prestressing bar

The main element of this anchor is a post-tensioning bar, called a Freyssibar, whose mechanical characteristics comply with European standard EN 10138 "Prestressing steels".
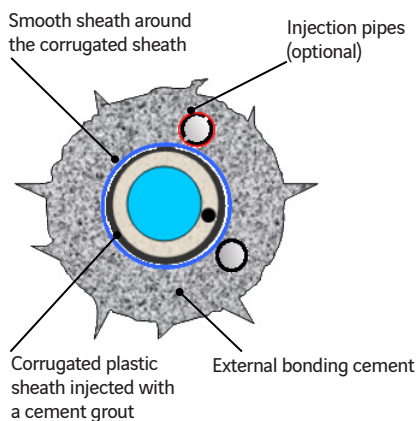
Characteristics	Unit	Nominal diameter (mm)				
		26.5	32	36	40	50
Steel grade	MPa	1,030	1,030	1,030	1,030	1,030
Nominal	mm²	552	804	1,018	1,257	1,964
Linear mass	kg/m	4.56	6.66	8.45	10.41	16.02
Characteristics value of maximum force: F_{pk}	kN	568	828	1,048	1,295	2,022
Characteristics value of 0.1% proof force: $F_{p0.1\%}$	kN	461	672	850	1,049	1,640
Thread pitch	mm	6	6	6	8	8
Average Young's modulus	GPa	170	170	170	170	170
Minimum elongation at break	%	3.5	3.5	3.5	3.5	3.5

Anchor body

The bond length comprises a Freyssibar contained in a watertight corrugated plastic sheath, into which the cement grout is injected. While the anchor is being tensioned, the load is transferred from the Freyssibar to the grout, then to the external duct (through the ribs of the sheath) and finally to the ground. Since the cement grout is injected at the factory, the corrosion protection offers an optimal service life.

Freyssibar

Spring basket

Corrugated plastic sheath injected with a cement grout

External bonding cement

Cross-section of the bond length

Smooth sheath around the corrugated sheath

Injection pipes (optional)

Corrugated plastic sheath injected with a cement grout

External bonding cement

Cross-section of the free length

Along the free length, the Freyssibar is protected exactly like the bond length. Additionally, a smooth sheathing covers the corrugated sheathing, ensuring the free longitudinal movement of the anchor.

	Nominal bar diameter (mm)				
Bare bar	26.5	32	36	40	50
Over the bond length (mm)	60	60	65	80	80
Over the free length (mm)	75	75	75	90	90

Anchor outer diameter (mm)

Permanent Freyssibar anchor

Transportation

On delivery, the pre-grouted anchor body elements are packed in bundles for easy handling.

Installation

The spring baskets and injection system are fitted to the Freyssibar anchor before it is introduced into the bore hole. The couplings can be done before or during installation of the anchor.

Tensioning and testing

Specific hire equipment is available for tensioning and testing the anchor. Freyssinet also offers on-site technical assistance for tensioning and testing. Where tensioning and testing are performed by Freyssinet, a report is issued for each anchor to confirm compliance with the applicable standard.
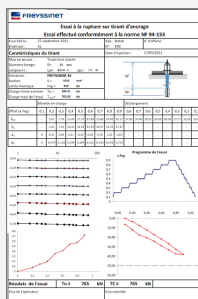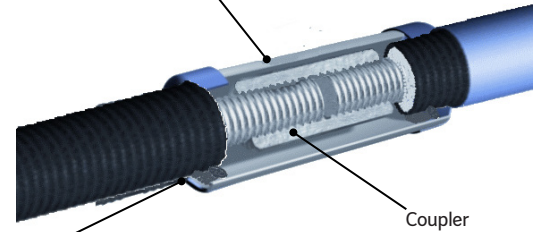
Example of report

Quality insurance

A mill certificate of the Freyssibar system can be delivered upon request.

Coupling

The coupling is used to connect several prefabricated anchor body elements together.
The length of every single element is limited to 11.80 m. It can be reduced if needed.

Coupling sheath full of wax or grease

Sealing

Coupler

Internal view of coupler connection

Nominal diameter (mm)				
26.5	**32**	**36**	**40**	**50**
Ext. D (mm) 90	90	90	100	100

Coupling sheath diameters, without injection pipes.

Anchor head

Installation:

A joint is placed on the anchor. Then the plate, whose trumpet tube is filled with wax, is fitted. The nut is fitted, and tensioning is performed. After cutting off the extra over-length, the cap is fixed onto the plate, with a seal, and filled with wax. If a long cap is used, the over-length behind the nut enables the tension in the anchor to be measured or adjusted.

L x L

Cap

Nut

H1

H2

Trumpet tube

Sealing joint
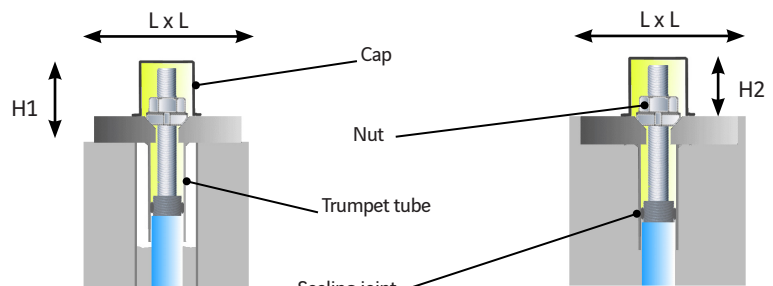
Installation after concreting

Installation before concreting

	Nominal diameter (mm)				
	26.5	**32**	**36**	**40**	**50**
L x L	180 x 180	200 x 200	200 x 200	220 x 220	250 x 250
H1 short	110	115	120	145	160
H1 long	235	240	245	250	255
H2 short	80	80	80	100	110
H2 long	205	205	205	205	205

Outer dimensions of the anchor heads (mm).

Injection grout control

Freyssinet 1 bis, rue du Petit Clamart - Bât C - 78140 Vélizy-Villacoublay - France · Tel.: +33 1 46 01 84 84 - Fax: +33 1 46 01 85 85 · www.freyssinet.com

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