Freyssibar+ XL

- **Diameter up to 160 mm in length up to 15 m.**
- **Adaptable tensile & yield strengths**
- **Custom made properties**
- **Adaptable type of anchoring**

High Diameters Bars

Technical Sheet Reference: FT En C III 3 5

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Description

Freyssibar+ XL bars are manufactured using specific industrial processes including heat treatment (quench & tempered) that ensures increased mechanical characteristics.

The resulting ductility, tensile and yield strengths are greater than for typical bars (the bars may be bent 90 degrees at tight radii without fracture).

Applications for use **Freyssibar+ XL** bars include heavy lifting, lifting tie downs and structural connections where their greater yield strength allows for more compact solutions. **Freyssibar+ XL** bars are also well suited for power plant applications with high temperature conditions and for structures subjected to seismic loadings. **Freyssibar+ XL** have excellent cold or hot temperature properties.

Advantages

Freyssibar+ XL bars present many advantages over typical bars:

- Consistent mechanical properties throughout the entire cross section
- Consistent Modulus of Elasticity for bars, with a tolerance of +/- 5 GPa
- Enhanced Fatigue Performance and Strength
- High Ductility
- Depending on the grade, guaranteed Resilience for cold temperature applications or guaranteed performance for high temperature applications

Heat treatment low frequency

Cable fixing (Paris - France)

Technical Characteristics

Threading left or right is performed by cold rolling, or by machining threading.
The main mechanical characteristics[1] of the **Freyssibar+ XL** are the following:

Modulus of Elasticity: E= 200 GPa

Minimum of Guaranteed Rupture Strength (on sample): fpk = 355 to 1 200 MPa

Minimum Guaranteed Yield Strength (on sample): fp0.2k = 335 to 1 050 MPa (depending on the grade)

Minimum Guaranteed Elongation at Rupture (on sample): A% > 10 to 22 % (depending on the grade)

Depending on the grade, the guaranteed characteristics of Resilience[2] for XL are indicated below:

Freyssibar+ XL:

- Resilience at 20°C: 50 J

Freyssibar+ XL+:

- Resilience at 20°C: 50 J
- Resilience at 0°C: 30 J
- Resilience at -20°C: 20 J

Resilience characteristics at colder temperature (-40°C, -60°C) can be provided upon request.

[1] Test carried in accordance with EN ISO6892-1.
[2] Test carried in accordance with EN ISO148-1.

Catalog available of bars

Minimum value with grade S355 and maximum value with grade 1200.

Nominal Diameter mm	Resistant Area mm²	Linear Weight kg/m	Frg kN		Fe kN		F tension Max [3] kN	
M110	8,555	69.27	3,272	8,213	2,109	7,186	1,898	6,467
M120	10,273	82.90	3,698	9,892	2,342	8,044	2,108	7,150
M130	12,148	97.88	4,373	10,399	2,769	8,455	2,492	7,610
M150	16,370	131.40	5,893	14,012	3,732	11,393	3,359	10,253
M160	18,716	150.00	6,737	16,020	4,267	13,026	3,840	11,723

[3] Maximum Tensioning Force in accordance with Eurocode 2.

Test carried in accordance with EN ISO6892-1.
Other Thread pitch, yield and strength values available upon request.
All other sizes between M110 and M160 also available. Other sizes above 160 mm available upon request.

Freyssibar+ XL

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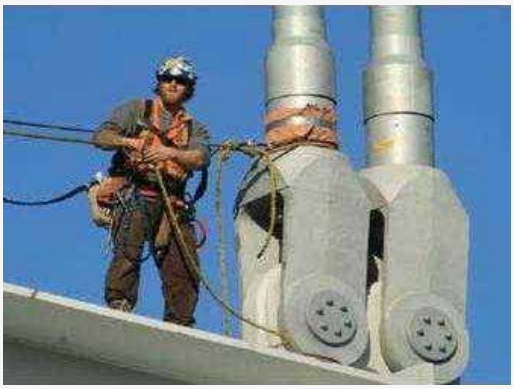

Forks BC place (Canada)

Quality insurance

Production of **Freyssibar+ XL** bars is carried out under a strict Quality Assurance system in compliance with ISO 9001:2008

Each delivery is accompanied by a Certificate of Conformity 3.1 in compliance with the norm EN 10204 for each heat treatment lot.

Each bar is individually marked with its heat treatment lot number.

Specific orders

Freyssibar+ XL bars are available in maximum 15 m lengths or may be pre-cut to specific lengths. Threads are provided at the ends with sufficient thread length to accommodate anchorage hardware, standard construction tolerances and as may be otherwise specified.

Freyssibar+ XL bars can be manufactured to specific custom grades and diameters up to 160 mm by request.

Protection

Permanent protection of the bars may be provided on site through the use of flexible filler material (petroleum wax, grease) or by means of a bonded filler material (cement grout, epoxy,...). The bars can also be provided with a factory applied corrosion protection system.

- Lamellar Zinc coating
- Epoxy coating
- Specific paint
- Denso Protection
- Heat-shrink sleeves

Depending on specific project requirements, other corrosion protection systems may be proposed.

M160x6 Offshore foundation (Malaysia)

M99x4 Steam Tank (Germany)

Local sales contact

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