

FIBRE-tec EST

STRUCTURAL FIBRES COMPLYING WITH UNI EN 14889-2

CORRUGATED AND ASSEMBLED FIBRES, FROM POLYMER EXTRUSION, FOR CONCRETE FLOORS, STRUCTURAL REPAIRS, SPRAYABLE CONCRETE, PREFABRICATED ELEMENTS.

Description Polymer fibres with high tenacity, tensile strength and modulus of elasticity for spray concrete, concrete floors, self compacting concrete, prefabrication etc..

Advantages No wear of the equipment for spraying the concrete. Reduction of re-bound. Perfect miscibility. Reduction of plastic shrinkage. Excellent mechanical strength. Possibility of replacing the steel reinforcement. No corrosion over time even in the presence of salt waters or de-icing salts. High resistance to alkali. Even with lower doses (2-3 kg/m³) obvious advantages in the reduction and elimination of cracks. With doses of 6÷8 Kg/m³ consequent high resistance to static and dynamic stresses: compliance with UNI EN 14889-2 for structural strength.

Packaging Bags of 5 Kg

Technical characteristics (typical values)

- Carved and corrugated surface
- Double Omega shaping
- Elongation max 8÷10%
- Tensile strength 600 N/mm²
- Modulus of elasticity 11.000 N/mm² (11 GPa)
- Density 1,30 gr/cm³
- Dimensions 40 mm x 1,2 mm
30 mm x 1,2 mm
- Dosage 1÷10 Kg/m³ according to the use of the type of concrete.



FIBRE-tec EST

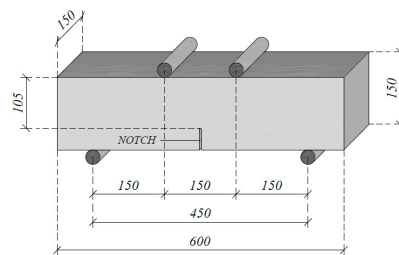
**STRUCTURAL COMPLIANCE OF THE FIBRE FIBRE-tec EST
TEST SCC UNI 14889-2 par 5.8
FLEXURAL EQUIVALENT**

Responding to UNI EN 14889-2 par. 5.8 with dosage 7 Kg/m³:
> 1,5 N/mm² CMOD 0,5 mm
> 1 N/mm² CMOD 3,5 mm

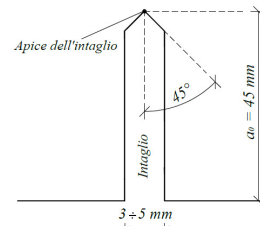
FLEXURAL TEST ON 4 POINTS

CONCRETE Mix Design C25/30	
	MPa / Kg/m ³
Cement Portland 42,5 R (C)	330
Active water (W/C = 0,5)	165
Super plasticizer Tecnos [®] azur CB/ER	3
Aggregates max 15 mm	1900
FIBRE-tec [®] EST 40x1,2 mm	7
Tot. Kg	2405
Consistency	
	S4
Compression strength	
	39,8 MPa
Tensile strength (cylinder)	
	2,6 MPa
Elasticity modulus	
	32 Gpa

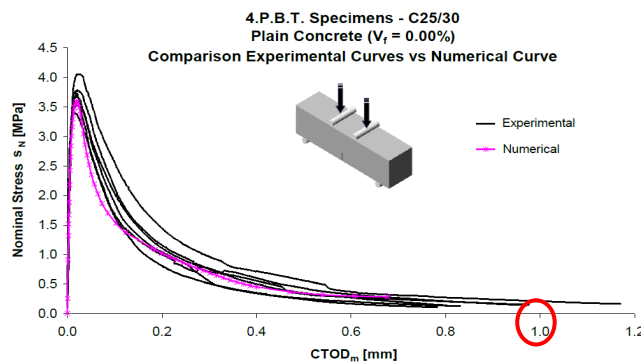
FLEXURAL RESISTANCE ON 4 POINTS LOADING



Geometries and constraints of fiber-reinforced concrete beams



Detail of incision with triangular shaped apex.



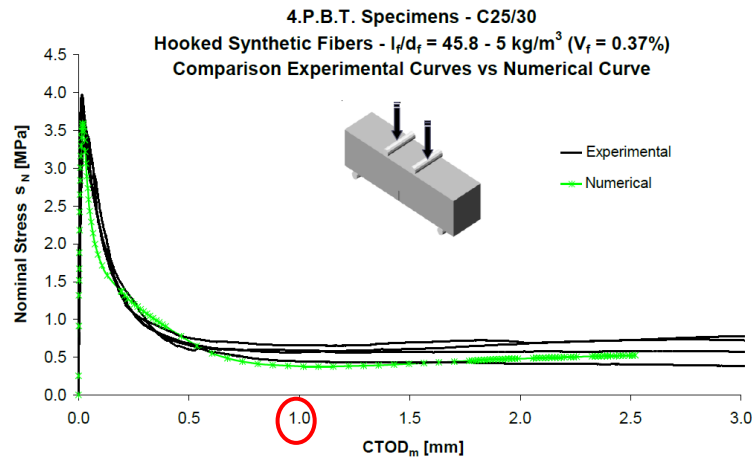
CTOD_m = 1 mm
→ 0,2 MPa

CTOD_m = 2 mm
→ break

Comparison between the curve strain –CTOD_m for concrete $R_{ck} = 30$ MPa **WITHOUT FIBRES**

	V_f (%)	f_{ct} (MPa)	E_c (MPa)	G_f (N/mm)	w_l (mm)	σ_l (MPa)	w_c (mm)
Reference concrete	0,00	2,6	35.000	0,115	0,030	0,450	0,338

Values of the parameters which characterise the reference concrete **WITHOUT FIBRES**

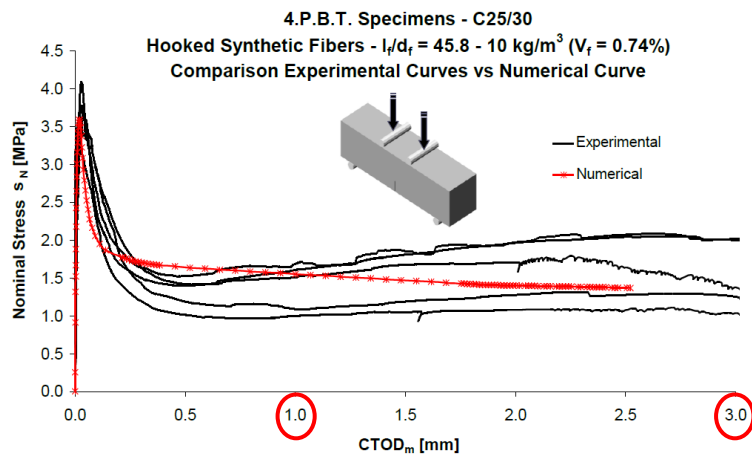


CTOD_m = 1 mm
→ 0,5 MPa **5 times**
CTOD_m = 3 mm
→ 0,5 MPa

Comparison with the curve of strain-CTOD_m for the concrete $R_{ck} = 30 \text{ MPa}$ reinforced with 5 kg/m^3 of FIBRE-tec EST 40x1,2

	V_f (%)	f_{ct} (MPa)	E_c (MPa)	G_f (N/mm)	w_l (mm)	σ_1 (MPa)	w_c (mm)
FIBRE-tec EST	0,37	2,6	35.000	0,175	0,029	0,522	0,526

Values of the parameters which characterise the concrete **with 5 Kg/m^3** of FIBRE-tec 40x1,2 in a concrete with $R_{ck} = 30 \text{ MPa}$



CTOD_m = 1 mm
→ 1,2 MPa **12 times**
CTOD_m = 3 mm

Comparison with the curve of strain-CTOD_m for the concrete $R_{ck} = 30 \text{ MPa}$ reinforced with 10 kg/m^3 of FIBRE-tec EST 40x1,2

	V_f (%)	f_{ct} (MPa)	E_c (MPa)	G_f (N/mm)	w_l (mm)	σ_1 (MPa)	w_c (mm)
FIBRE-tec EST	0,74	2,6	35.000	0,900	0,028	0,593	2.911

Values of the parameters which characterise the concrete **with 10 Kg/m^3** of FIBRE-tec 40x1,2 in a concrete with $R_{ck} = 30 \text{ MPa}$

Safety indications Read carefully the safety indications on the packaging and eventually demand for the Material Safety Datasheet of this product.

These information is based on our experiences and latest laboratory testing. The above information may be subject to modifications, which will be announced in the updated technical datasheets. Eventual changes to the information on top will be announced on www.tecnocem.it in which the technical datasheets are updated regularly and always the most updated can be found. Tecnochem Italiana cannot hold responsible for poor results that are due to causes unconnected to the quality of the product or for defects deriving from factors different than the quality of the product including the wrong storage.