

## WIRAND FF3 HS

# FF3 HS

High Strength



### DESCRIPTION

WIRAND FF3 HS are high-strength, high-performance steel fibres designed for demanding engineering applications such as precast concrete structures used in tunnel linings or other civil engineering applications.

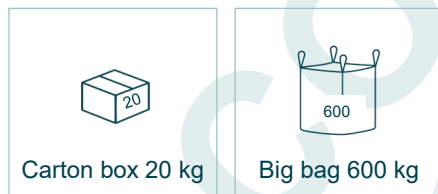
With the use of WIRAND FF3 HS the need for conventional steel reinforcement can be reduced or eliminated.

### REINFORCED CONCRETE PERFORMANCE

Minimum dosage as per EN 14889-1

<b>14 kg/m<sup>3</sup></b>	<b>EFFECT ON STRENGTH</b>	
	CMOD = 0.5 mm	1.5 N/mm <sup>2</sup>
	CMOD = 3.5 mm	1.0 N/mm <sup>2</sup>
	<b>EFFECT ON CONSISTENCE</b>	
	Vebe time 7 s	

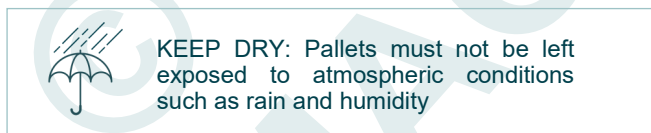
### PACKAGING



Carton box 20 kg

Big bag 600 kg

### HANDLING AND STORAGE



### CERTIFICATES

**CE** This product is CE certified.  
1372-CPR-3754

**EPD** **kiwa** **VERIFIED** Ecobility Experts EPD-Kiwa-EE-000478-EN

Wirand is manufactured in ISO 9001, ISO 14001, ISO 45001 certified plants.

### SHAPE

The double end hooks of FF3 HS fibres ensure perfect anchorage in concrete.

### PHYSICAL PROPERTIES

Diameter (d)	0.75 mm
Length (l)	50 mm
Aspect Ratio (l/d)	67
<b>Number of fibres/kg</b>	<b>5,700</b>

### MATERIAL PROPERTIES

Young's Modulus > 180 GPa

### MECHANICAL PERFORMANCE

Nominal tensile strength of the wire (Rm)	1,500 MPa
Ultimate Strain (DI)	< 4%

### REFERENCE STANDARDS

- EN 14889-1:2006 - Fibres for concrete - Part 1: Steel fibres - Definition, specification and conformity
- EN 14845-1:2007 - Test methods for fibres in concrete - Part 1: Reference concretes
- EN 14845-2:2007 - Test methods for fibres in concrete - Part 2 : Effect on concrete
- EN 14651:2005 - Test method for metallic fibred concrete - Measuring the flexural tensile strength (limit of proportionality (LOP), residual)
- ASTM A820-11 - Standard Specification for Steel Fibres for Fibre-Reinforced Concrete
- GB/T 39147-2020 - Fibres for concrete

The producer, for his optimisation and improving process of the product's technical characteristics, has the faculty to modify the standards and the characteristics of the product without any pre-advise. All the information are given in base to our experience; in any case no responsibility for an incorrect use could be referred to the producer or one of his distributors.

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