

C-QUADRIWRAP

fka Ruredil X Quadriwrap 380

Four-axis carbon fabric for FRP strengthening system with epoxy resin



C-QUADRIWRAP is a four-axis carbon fiber connection system for the construction of FRP structural strengthening systems.

The reinforcement is to be carried out on site and provides for the application of the primer on the adequately prepared substrate, before proceeding with the impregnation of the fabric with the epoxy resin.

FIELDS OF APPLICATION

- ▶ Structural reinforcement of concrete elements to bending, shear, and torsion;
- ▶ Confinement of columns subject to bending and compression with small and large eccentricity;
- ▶ Improvement of the rigidity of the beam-column joints;
- ▶ Anti-seismic reinforcement of undersized or damaged elements.

PROPERTIES OF THE SYSTEM

- ▶ High mechanical strength even on supports with complex morphology;
- ▶ Minimum overloads especially on severely damaged structures;
- ▶ Applicability on any type of structure: concrete, masonry, wood or steel;
- ▶ Maximum versatility and adaptability to the geometries of the structures;
- ▶ Extremely reduced thickness, minimal space needed.

THE SYSTEM IS MADE UP OF:



▶ C-QUADRIWRAP

Four-axis fabric made of carbon fiber, available in the following heights:
 • 30 cm (roll length equal to 50 m)
 • 48,5 cm (roll length equal to 50 m).



▶ C-PRIMER WRAP

Special epoxy primer with high impregnating power for the application of C-QUADRIWRAP.



▶ C-RESIN WRAP

Special epoxy resin with high adhesive power for the application of C-QUADRIWRAP.



TECHNICAL CHARACTERISTICS

PROPERTIES OF THE CARBON FABRIC (according to Guidelines) CLASS 210C			
Elastic modulus of the fabric (referring to the net area of the fibers) 2:1	210 GPa		
Resistance of the fabric (referring to the net area of the fibers)	2700 MPa		
GEOMETRIC AND PHYSICAL PROPERTIES			
C-QUADRIWRAP			
Density of the fibers [g/cm ³]	1,80		
Mass of fabric per unit area [g/m ²]	373 (± 3%) - total		
Density of the resin [g/cm ³]	1,10 (± 0,05)		
Equivalent area [mm ² /m]	203,33 - total		
Equivalent thickness [mm]	0,203		
Fraction by weight of the fibers in the composite	0,318		
Fraction in volume of the fibers in the composite	0,222		
Primer glass transition temperature [°C]	+58		
Resin glass transition temperature [°C]	+67		
Limit temperatures, minimum and maximum, of use [°C]	-10/+43		
Reaction to fire [Euroclass]	E		
MECHANICAL PROPERTIES			
C-QUADRIWRAP (single layer)			
Elastic modulus of the fabric referring to the net area of the fibers - average value (GPa)	307		
Resistance of the fabric referring to the net area of the fibers - characteristic value (MPa)	3.860		
Deformation at rupture - calculated in the event of elastic linear behavior (%)	1,26		
SPECIFICATIONS FOR THE SUPPLY			
Package	Various sizes (see price list)		
Consumption	Overlap of about 10 cm at the junctions		
MECHANICAL PROPERTIES			
C-QUADRIWRAP (triple layer)			
Elastic modulus of the fabric referring to the net area of the fibers - average value (GPa)	302		
Resistance of the fabric referring to the net area of the fibers - characteristic value (MPa)	4.389		
Deformation at rupture - calculated in the event of elastic linear behavior (%)	1,45		
SPECIFICATIONS FOR THE SUPPLY			
Package	Various sizes (see price list)		
Consumption	Overlap of about 10 cm at the junctions		
PROPERTIES OF RESINS		C-PRIMER WRAP	C-RESIN WRAP
Catalysis ratio (A:B)	2:1	2:1	
Specific weight (A + B) at 17°C	1,00 - 1,10 kg/liters	1,05 - 1,15 kg/liters	
Workability (EN ISO 9514) at 23°C	45 - 60 minutes	45 - 60 minutes	
Compressive strength (ASTM D965)	≥ 60 MPa	≥ 60 MPa	
Adherence/bond strength EN 12188)	≥ 14 MPa	≥ 14 MPa	
Reaction to fire (EN 13501-1)	Euroclass E	Euroclass E	
Glass transition temperature (DSC ISO 11357-2)	+58 °C	+67 °C	
SPECIFICATIONS FOR THE SUPPLY			
Package	Buckets of 4 + 2 kg	Buckets of 4 + 2 kg	
Consumption	~ 0,25 Kg/m ²	1° layer ~ 0,5 kg/m ² after the 2° layer ~ 0,25 kg/m ²	