



EXEL ULTRALITE™ CARBON OR/AND GLASSFIBRE TUBES

The EXEL ULTRALITE™ is a range of glass and/or carbon fibre tubes manufactured by pultrusion process. The tubes are made with a vinylester resin, but can also be supplied with various epoxy based hybrid resins. By using these hybrid structure the optimum ratio performance is reached with the most economical impact.

EXEL ULTRALITE™ tubes are used in applications where replacing aluminium on the stiffness, economical and weight focus.

The structure of EXEL ULTRALITE™ tubes with fabric surface is an optimum solution when high compression strength is required, tubes having more than 2 times better transverse compression strength than EXELITE tube.

EXEL ULTRALITE™ tubes come with very thin wall, starting from 0,9 mm

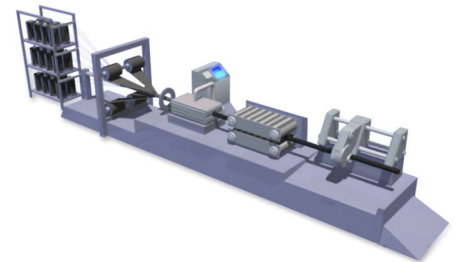
COLOUR OF EXEL CROSSLITE

Colour of EXEL ULTRALITE™ tubes can be colored to the color of your choice by resin pigmentation if the structure use a glass fiber fabric. Note that the carbon fibre tubes cannot be used as insulators as carbon conducts electricity

SOME APPLICATION IDEAS

telescopic poles, barriers, tool handles, fences, roll up systems, bike parts, defence applications and many more.

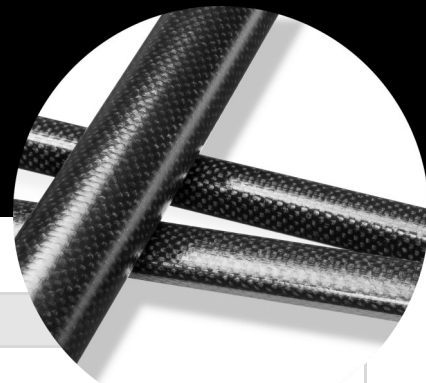
PRINCIPLE DRAWING OF PULTRUSION PROCESS



In pultrusion process the fibers are impregnated with a thermoset resin and pulled through a heated die where curing takes place. The products are cut to length at the end of production line.

Exel Composites has a wide range of tubes available where various reinforcements and resin systems are being utilized to compose the optimized product for each application

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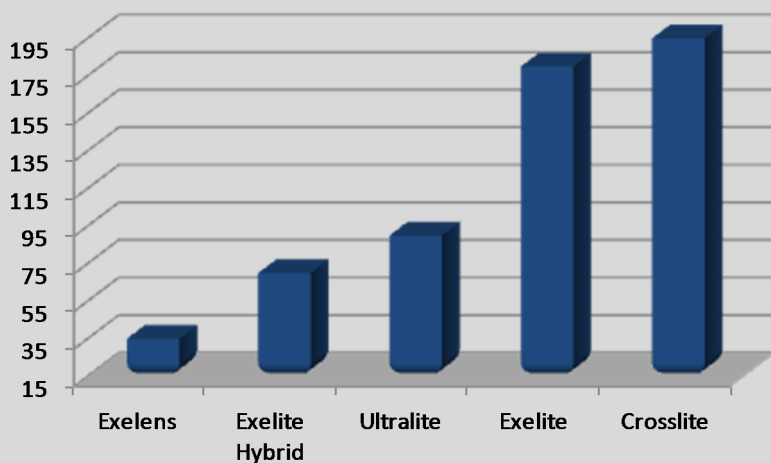


TECHNICAL DATA SHEET

Manufacturing Method	Pultrusion	
Structure	FUF Reinforcement structure U = unidirectional fibers F = Fabric	
Materials	Glass fibre and Carbon fibre, vinylester resin (Epoxy also available)	
Diameter Range O.D.	25–250 mm	
Wall Thickness	0,90 - 3,00 mm	
Colours	RAL Code or Black when Carbon is used	
Fiber volume content	56 v-%	
Fiber weight content	70 w-%	
Surface finish	Fabric	
Water absorption	<1,5w-%	
Fiber Type	Glass fibre	Carbon fibre
Stiffness	25-35 Gpa	70-90 Gpa
Bending strength	>350 Mpa	>400 Mpa
Tensile strength	>400 Mpa	>450 Mpa
Density	1.9g/cm ³	1.6g/cm ³

Typical minimum production quantity for EXEL ULTRALITE™ tubes is 500 meters

Stiffness: E-modulus, GPa



PULLWINDING process enables the reduction of wall thickness and weight while retaining and improving stiffness and strength compared to conventional pultrusion.

Each product can be optimized according to application and requirements by combining suitable fibres and resin systems and utilizing certain amount of lengthwise and crosswise layers.

- **Exel Exelens™** for glassfibre tubes.
- **Exel Exelite Hybrid™** for combination of glass- and carbon fibre tubes
- **Exel Exelite HS™, Ultralite, Exelite IM™ and Exelite HM™** for various carbon fibre tube alternatives