

## General Purpose Tubing Range – Metric/Telescopic

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### OVERVIEW

The General Purpose Tubing Range has been designed with no specific application in mind but the laminate has been developed to give good all round properties and particularly good strength in bending. The laminate is constructed with HS carbon reinforcements in a high strength Epoxy resin matrix with extremely low moisture absorption making the tubes well suited for marine environments and prolonged outdoors exposure.

If you have a specific application in mind, then please contact us ~~for~~ advice on suitability. It is also likely that we can design and make a tube even better suited to your application and often more cost effective than one from the standard range.

Composite materials are orthotropic which means that, unlike most metals, they do not exhibit the same properties in all directions. The data contained in this document is theoretical data generated by Classical Laminate Theory which is the recognised method for analysing composite materials. Customers must perform their own tests to satisfy themselves that the tubing performs as required for their purposes.

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### SIZES

This range comprises of the following sizes and in most cases we will have stock on the shelf for immediate despatch. In extreme circumstances we may find ourselves depleted and we make no guarantee on the availability of these tubes but we make regular batches and are unlikely to be out for any period of time.

Product Code	I.D. (mm)	O.D. (mm)	Wall (mm)	Stiffness - I x E (KNm <sup>2</sup> )	Weight (Kg/m)	Stocked Length (m)
CC10.0/08.0	8.0	10.0	1.0	0.03	0.04	2.5
CC14.0/11.0	11.0	14.0	1.5	0.13	0.09	2.5
CC18.0/15.0	15.0	18.0	1.5	0.29	0.12	2.5
CC22.0/19.0	19.0	22.0	1.5	0.56	0.15	2.5
CC26.0/23.0	23.0	26.0	1.5	0.96	0.18	2.5
CC30.0/27.0	27.0	30.0	1.5	1.50	0.21	2.5
CC34.0/31.0	31.0	34.0	1.5	2.23	0.24	2.5
CC38.0/35.0	35.0	38.0	1.5	3.16	0.27	2.5
CC42.0/39.0	39.0	42.0	1.5	4.31	0.30	2.5
CC46.0/43.0	43.0	46.0	1.5	5.72	0.33	2.5
CC50.0/47.0	47.0	50.0	1.5	7.40	0.36	2.5
CC54.0/51.0	51.0	54.0	1.5	9.38	0.39	2.5

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## PHYSICAL AND THERMAL PROPERTIES

Property	Value	Units
Density	1580	kg/m <sup>3</sup>
Max. Temp. (T <sub>g</sub> )	120	°C
Axial Thermal Expansion (CTEx)	1.9E-06	strain/K

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## THEORETICAL MECHANICAL PROPERTIES

Property	Symbol	Value	Units
Tensile modulus 0°	E <sub>1</sub>	110	GPa
Tensile modulus 90°	E <sub>2</sub>	35	GPa
In-plane shear modulus	G <sub>12</sub>	5	GPa
Major Poisson's ratio	ν <sub>12</sub>	0.01	
Ultimate tensile strength 0°	S <sub>1t</sub>	1000	MPa
Ultimate tensile strength 90°	S <sub>2t</sub>	176	MPa
Ultimate compressive strength 0°	S <sub>1c</sub>	977	MPa
Ultimate compressive strength 90°	S <sub>2c</sub>	310	MPa

**NB. If you require any specific data on the tubing that is not shown in this document then please contact us.**