



CST

FILAMENT WOUND TUBING

Supplying a vast range of
composite solutions to a
number of different
industries





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CST Optimum can provide filament wound tubing with diameters ranging from 6.3mm (0.25") up to 800mm (31.5"), and up to a maximum length of 12m (40').

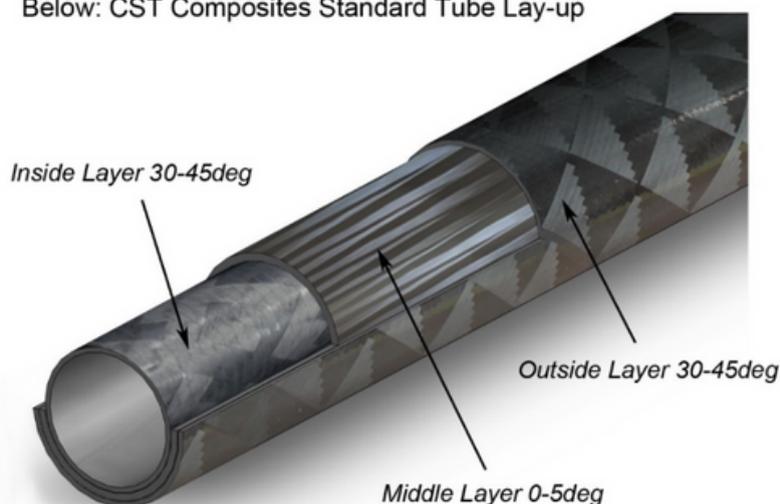
Materials include carbon fibre (12K or 24K), E-glass up to 2400 tex, S2 glass, aramid, other fibres available upon request.

We can tailor your product to meet engineering requirements, such as high temp, UV stable, fire retardancy.

BENEFITS OF CHOOSING CST

- Achieve any custom size requirement with our in-house tooling manufacture capability.
- Win speed to market and less handling costs, less risks associated with outsourcing tooling, and in-house raw materials production and testing.
- Machining of composites, metallic components, and assembly.
- Centreless grinding for greater precision (for under ± 0.001 " tolerance requirement please contact us).
- Design support with our team of composites engineers, custom engineering properties
- All machinery purpose built for maintaining highest quality during production.
- All materials received or produced are batch tested in our lab. DSC, TGA, FTIR, DMA, rheometer to ensure highest quality.
- Finished products tested according to customer requirements; mechanical testing for strength and stiffness.
- Quality is managed and maintained through CST Metrix software to track and summarise quality data:

Below: CST Composites Standard Tube Lay-up





MATRIX

CST uses wet winding and towpreg winding process, using leading brand resin formulations and in-house specialised formulations. The resin is chosen to optimise composite quality and performance. Considerations are;

- Temperature resistance (high Tg)
- Low cure temperature
- Toughness
- Resin flow characteristics
- UV stability
- Chemical resistance
- Pigments
- Fire retardancy

Resin system	CST code	Tg (°C) DSC
Standard system	CTP-MA-1723	122
UV resistant system	CTP-MA-1717	128
Fire retardant system	CTP-MA-1694	134
High temperature system	CTP-MA-1726	174
Flow-modified (toughened)	CTP-MA-1732	130
Flow-modified (toughened) – less bleed out	CTP-MA-1736	122

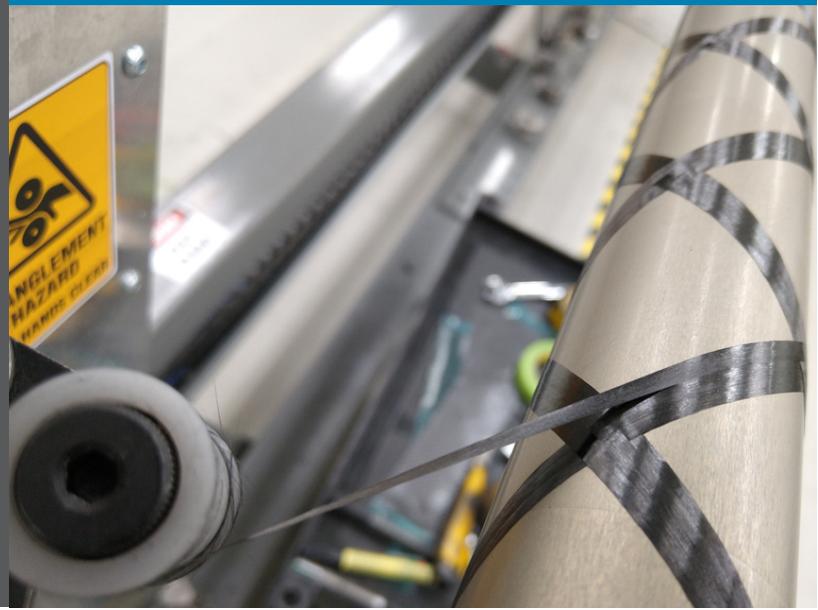
FIBRES

CST has many years of experience working with a diverse range of composites and we only ever use the best quality materials. We have found that not only will higher quality materials give the customer better performance and longevity, it means that we can process these materials in a more efficient manner during the manufacturing process.

- Carbon: standard, intermediate and high modulus
- E-Glass
- S-Glass
- Basalt
- Kevlar/Aramid

Fibre Type	Fibre Modulus	Composite Modulus	Elongation (Fibre Only)	Tensile Strength (Fibre Only)
Standard Modulus Carbon Fibre	240 GPa	100 GPa	2.20%	5000 MPa
Intermediate Modulus Carbon Fibre	280 GPa	117 GPa	1.90%	5660 MPa
High Modulus Carbon Fibre	380 GPa	159 GPa	1.20%	4560 MPa
Ultra High Modulus Carbon Fibre	550 GPa	231 GPa	0.70%	3970 MPa
E-Glass	72 GPa	45 GPa	4.80%	3440 MPa
S2-Glass	87 GPa	55 GPa	5.70%	4890 MPa
Basalt	86 GPa	55 GPa	3.15%	3100 MPa
Aramid	112 GPa	80 GPa	2.40%	3620 MPa

Composite Modulus is ~70% uni, 30% off axis





From its inception, CST Composites, has focused on the design and manufacture of cost effective, high quality, filament wound tubing to service marine, industrial and high-tech markets.

The strength of CST lies with its unique filament winding technology which has been developed and evolving since day one. Today the company runs fourteen filament winding machines and three pultrusion machines giving a production capacity capability of more than 100 tonnes of composite per year. CST is the largest user of carbon tow in Australia and New Zealand. Our products are exported worldwide with significant markets in Europe, USA, China and Asia.



CONTACT

UNITED STATES

+1 435 723 0460
info@optimumct.com

AUSTRALIA

+61 2 9668 8488
sales@cstcomposites.com

