



[www.carbon-light.com](http://www.carbon-light.com)



# Carbon Light<sup>®</sup> Carbon Fiber Composite Rollers

Light weight carbon fiber composite roller for  
demanding applications





## Our History

'Carbon Light' is a brand of North Street Cooling Tower that has always been at the forefront of developing latest technology and delivering customized solutions to its customers. We have used our rich expertise and proven technologies in the design and manufacturing of composite products for the development of high performance carbon fiber rollers. Our quest for continual expansion of our product range has now led us to development of various coatings for our carbon fiber rollers to fulfill today's market needs.

## Our Mission

We dedicate ourselves to:

- Strive for Customer satisfaction through quality service and perpetual communication.
- Provide products that meet the customer's expectation by teaming up with well-established international suppliers.
- Promote up-to-date products that will give the customer a competitive edge.
- Engage highly qualified employees, who will ensure the constant progress of the company and the continued service to the customer.

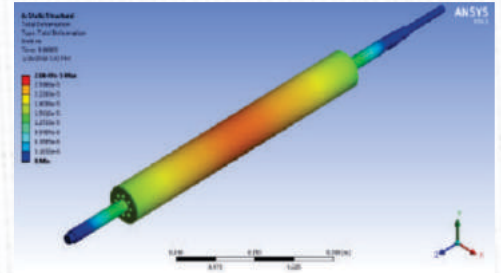
## Our Vision

To provide an efficient environment of quality service and supplies by exploring new market closely and show a competitive edge in all aspects through loyalty and honesty.



## Our Specialties

**Precise Design:** Each roller being manufactured is designed to the exact customer application requirements. Proper material selection and design considerations help us deliver high performance light weight rollers to satisfy each requirement.



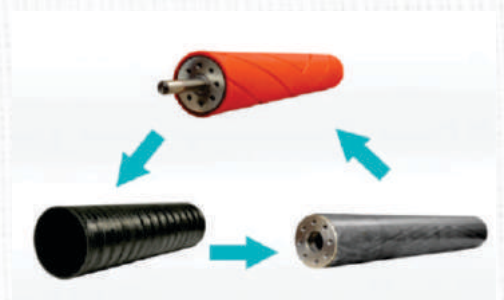
**Coatings Options:** To keep up with the ever evolving nature of materials being processed, we develop coatings to overcome such challenges. Customers can choose from a range of elastomeric, metallic and ceramic coatings.

**Balancing:** Static and dynamic balancing of these rollers is very crucial to ensure long service life as well as uninterrupted performance. To achieve this, each roller is balanced as per the desired grade according to ISO 1940.



**Bonding:** The joint between the metallic hub/ journal and composite tube is achieved by bonding using high strength adhesives. Extensive type testing and prototyping has been conducted to qualify this technology to hold the joint in place.

**Interchangeability:** Owning an existing machine with metallic rollers does not mean that you cannot enjoy the benefits as offered by composite rollers. With the help of our technical team and our design capabilities, we offer 100% interchangeable rollers with all the benefits on your existing machine.



**Repair Service:** For machines that came pre-fitted with composite rollers, we offer repair services to make damaged rollers as good as new. Rollers undergo gradual degradation over years of operation. Being such precious pieces of machinery, no need to throw them away when they can be repaired to regain their original thickness.



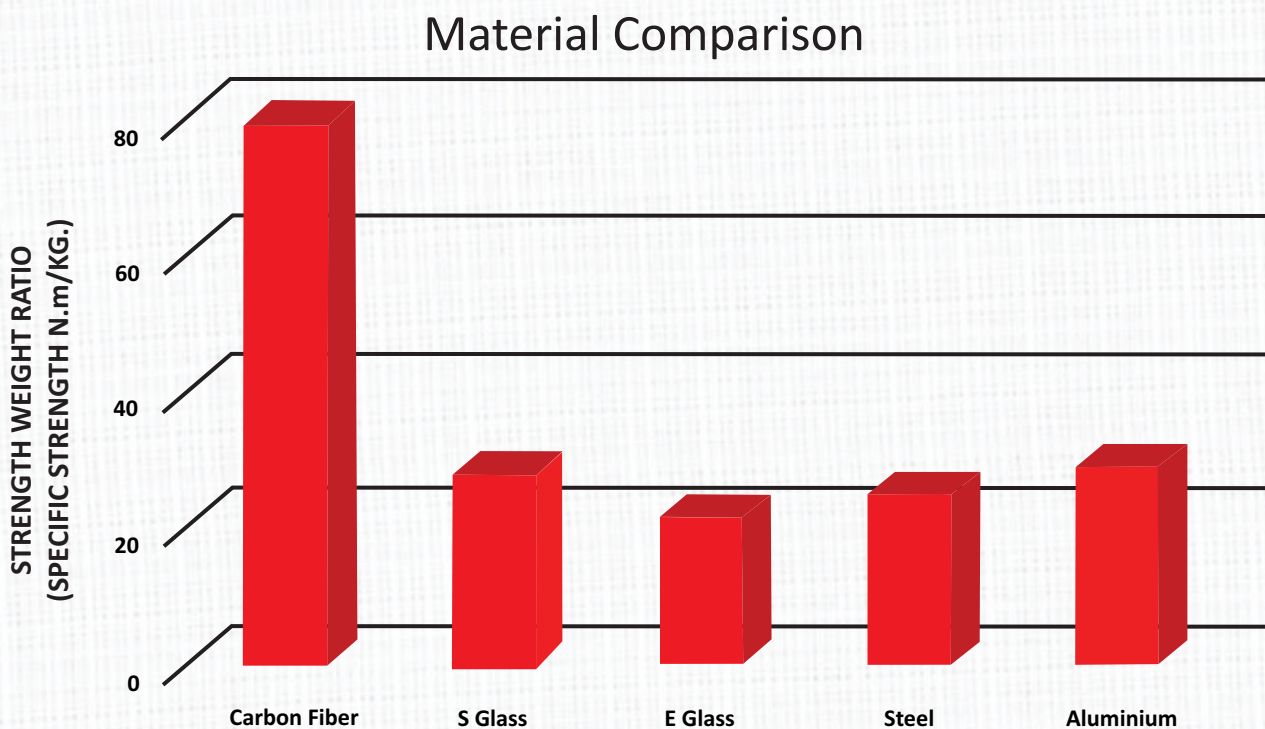
## Constant Development

We at carbon light are always involved in continuous research and development, As of now we have developed different type of coatings for Carbon Fiber Rollers to make it more durable and to cater customer's problems raised in web handling/ processing.

We are always ready to adopt/ incorporates new technologies to best suit the requirements.

## The Material Of Excellence - Carbon Fiber

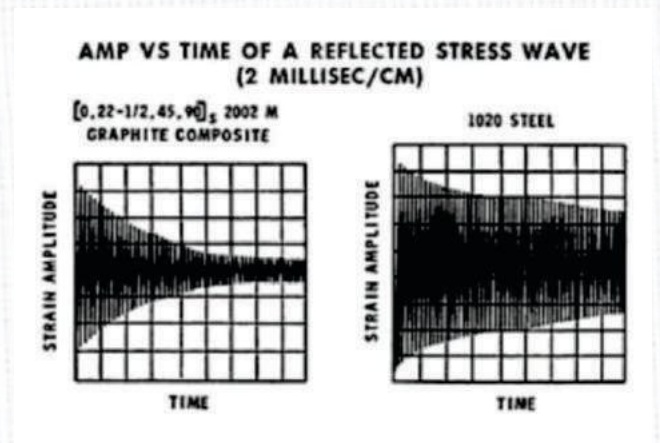
Graph comparing specific stiffness of 5 comparable materials



## Dynamic Material- Controlling Vibrations

Vibrations will usually occur when parts are in a machine. In most of the cases, these vibrations are undesirable as they reduce process dynamics and precision, while increasing the wear on individual components. Thanks to the specific material properties, carbon fiber composite possess high damping ratio which can be further modified by optimized designing of lay-up.

Graph comparing vibration amplitude with time.





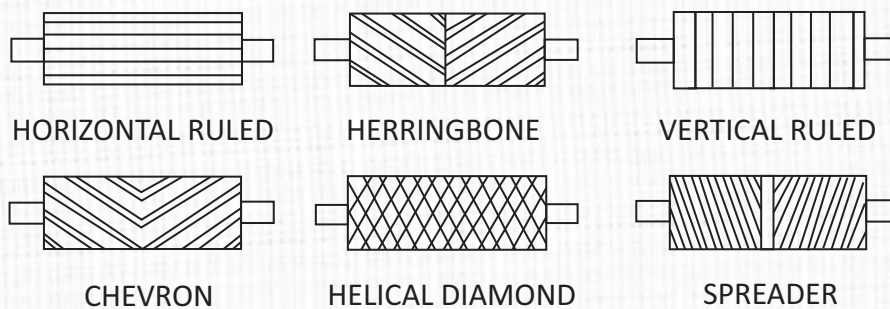
## Comparison Between Aluminum, Steel & Carbon Composite Roller

SPECIFICATIONS	AL-ROLLER	STEEL ROLLERS	CFRP-ROLLER
Outer Diameter, mm	75	75	75
Face length, mm	700	700	700
Average Thickness, mm	4	3	2
Roller weight (excl.ends), gm	1686	3750	497
Roller MOI, kg-cm <sup>2</sup>	23.15	48.1	6.283
Young's Modulus GPa	70	210	110
Specific Stiffness (for unit load)	526.31	569.8	1517.45

## Grooves To Solve Your Material Handling Challenges:

The main purposes of grooving are:

- To smoothen out wrinkles in plastic films and papers.
- To prevent belt slipping and meandering.
- To assist the heat dissipation.
- To raise the coefficient of friction.
- To improve contact stability with paper or plastic films.



## Our Products

- Accumulator rollers
- Air shafts
- Calendar rollers
- Conical sleeves
- Contact rollers
- Conveyor rollers
- Dancer rollers
- Guide rollers
- Idler rollers
- Impression rollers
- Lay on rollers
- Load cell rollers
- News printing rollers
- Nip rollers
- Parallel sleeves
- Pinch rollers
- Pull rollers
- Reel spools
- Roll cores
- Tension rollers

## Why Carbon Fiber Rollers ?

FEATURE	ADVANTAGES	BENEFITS
<b>Low Rotational Inertia</b> (Reduced mass moment of inertia by up to 80%)	Rollers spin at line speed.	Far less web scratching.
		Reduced roller wear.
		Dissipates static electricity.
	Quicker response to changes in line speed	Fewer web breaks.
		Far less start-up waste.
		Less web stretch.
		Less web wrap-up in the event of a web break.
		Extended roller life and reduced Coating thickness.
	Less horsepower and/or fewer motors required.	Lower energy consumption.
<b>High Stiffness</b> (High Modulus)	Less deflection.	Less web wrinkling.
		Longer bearing life.
<b>High Specific Modulus</b> (High Stiffness to Density Ratio)	Faster line speeds with less vibration. (Higher critical speed).	More through output and better product quality.
	Less self-loaded deflection.	Less web wrinkling across wider spans.
<b>Low Mass</b>	Super lightweight.	Easier and safer handling.
	Less bearing wear.	Longer bearing life.
<b>Low Momentum</b>	More accurate transducer measurements.	More precise tension control.
	Less lay-on roller bounce.	Higher quality wound rolls with less air entrainment.
	Quicker dancer and accumulator roller response.	Better dancer and faster performance with consistent tension control and less web stretch.



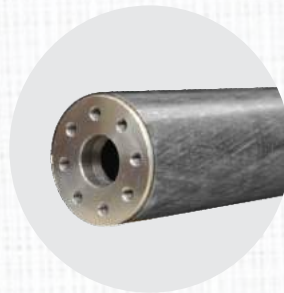
## Offering A Unique Portfolio For All Industries



EPDM Coated Diamond  
Grooved Roller



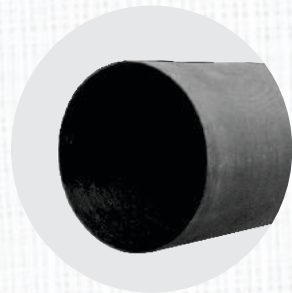
Cork Tape Coated  
Roller



Sacrificial Coating  
Roller



Silicone Coated  
Roller



Carbon Fiber  
Rotogravure Sleeve



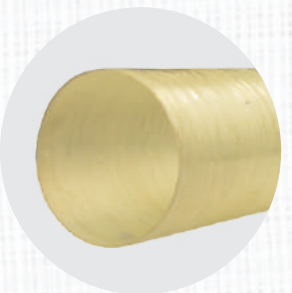
Riblite Roller



Silicone Coated Grooved  
Roller



Air Shaft



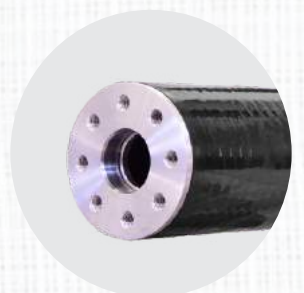
Fiber Glass  
Flexographic Sleeve



Tuflite Coated  
Roller



Tuflite Coated Grooved  
Roller



Ceramic Coated  
Grooved Roller



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