

◆ Carbon Fiber Oxidation Oven

Center-to-ends airflow for optimal temperature uniformity resulting in consistently oxidized density across the entire tow band

Oxidation is considered to be one of the most important process steps, yet is also considered the process step that still has the greatest improvement potential.

Since oxidation is an exothermic process, consistent airflow to uniformly remove heat from all tows across the web is a critical success factor. The Despatch center-to-ends carbon fiber oxidation oven produces a uniform airflow over the tows allowing the process to be operated closer to the “exotherm”, increasing the chemical reaction rate. Airflow turbulence is minimized to prevent cosmetic damage to fiber tows. Consistency of process results in no skinning (uncured core) and more uniform densification across the entire tow band. Center-to-ends airflow provides for up to 30% faster rates of oxidation than conventional cross flow or vertical down flow oven designs.



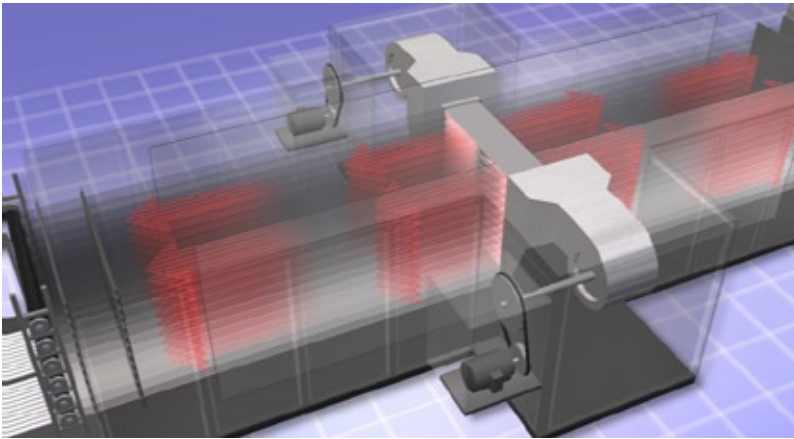
FEATURES AT A GLANCE

- ◆ Center-to-ends airflow
- ◆ Industry's finest airflow and temperature uniformity resulting in uniform oxidized density across the entire tow band
- ◆ Maximized heated zone size provides for increased fiber production
- ◆ Air velocities up to 4 meters per second
- ◆ Insulated vestibules for capture of process and potential fugitive emissions
- ◆ Provisions for vertical stacking (up to 3 high)
- ◆ Scalable designs
- ◆ Easy access for periodic cleaning
- ◆ Filter removal while in operation
- ◆ End louvers to reduce the inward migration of cold air and egress of the heated process chamber
- ◆ Energy efficient design
- ◆ Fully tested prior to shipment
- ◆ Advanced process automation control



For more than 40 years, Despatch has been the industry's leading provider of carbon fiber manufacturing equipment and process technology. Trust the experts in thermal process technology for the lowest risk solution.

PATENTED CENTER-TO-ENDS AIRFLOW DESIGN



Through extensive fiber trials, we have identified center-to-ends airflow directionality as the most effective type of airflow to uniformly oxidize PAN fibers from 1K up to 320K.

OPTIONS

- ◆ Patent-pending ACER Tech (Atmosphere Control and Energy Reduction Technology)
- ◆ Automated end slots
- ◆ State-of-the art controls systems
- ◆ Fire mitigation systems
- ◆ Rapid cool-down systems
- ◆ Hybrid heat system
- ◆ Pressure relief
- ◆ Modular to fully assembled construction
- ◆ Installation and start-up supervision
- ◆ Commissioning services
- ◆ Oxidation rolls, stands and drives
- ◆ CE



Patent-pending ACER Technology reduces energy cost, enhances process atmosphere control and improves fiber quality.



Optional auto-adjust end-louvers open for easy threading and close for reduced heat loss.



A PLC with a SCADA interface monitors all systems including an optional fire mitigation system.

TECHNICAL SPECIFICATION SUMMARY	PILOT SCALE	CTE 1000	CTE 1800	CTE 2100	CTE 3000	CTE 4200
Web width	400 mm	1.0 meter	1.8 meter	2.1 meter	3.0 meter	4.2 meter
Temperature Uniformity	±1.5°C in effective heated length		±2.5°C in effective heated length			
Number of passes per zone	6 passes	up to 12 passes	up to 12 passes	up to 12 passes	up to 12 passes	up to 12 passes
Heated zone length	8 meters	up to 15 meters	up to 15 meters	up to 15 meters	up to 15 meters	up to 15 meters
Typical Roll Diameters	200 mm	200 mm	228 mm	228mm	275mm	228mm (x2)
Heating Method	Electric or indirect gas or hybrid					
Operating Temperature	Up to 300°C (typical)					

* Other sizes available by request.

SERVICE AND TECHNICAL SUPPORT

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