

# Composite Solutions for CCUS Applications





## Fulfilling global sustainability with proven, corrosion-resistant products

NOV's Fiber Glass Systems (FGS), the world's leading manufacturer of glass-reinforced epoxy (GRE) products, provides proven, corrosion-resistant composite solutions for onshore and offshore carbon capture, utilization, and storage (CCUS) projects worldwide.

From ducting and piping systems to tanks and structures, our lightweight solutions are designed for easy installation and long-term performance. They combine strength, durability, and corrosion resistance, ensuring superior, long-term performance in demanding the environments inherent in carbon capture and carbon dioxide (CO<sub>2</sub>) transportation and storage systems.

With manufacturing facilities across the world, our composite product portfolio is easily accessible. It not only reduces transportation, installation, maintenance, and life cycle costs but also minimizes your project's carbon footprint.

Built upon more than 65 years of composites experience, we bring a comprehensive suite of benefits to carbon capture and CO<sub>2</sub> transportation and storage applications, leveraging the properties of composite technology to enhance reliability and sustainability.

# Post-Combustion Carbon Capture Capabilities

Corrosion resistance is vital in carbon capture technology, especially in the post-combustion capture process. The presence of corrosive gases like CO<sub>2</sub> and other impurities in the flue gas can lead to the formation of corrosive compounds such as carbonic acid. These corrosive compounds can degrade the costly metallic materials used in capture equipment, resulting in potential safety hazards, increased maintenance costs, and reduced efficiency.

For more than 60 years, we have provided fiberglass ducting, piping, and tanks in various applications and industries across the world. Our corrosion-resistant products eliminate the challenges and concerns of carbonic acid, lowering your total cost of ownership.

From the start of the carbon capture process, our high-temperature fiberglass ducting—capable of withstanding temperatures up to 325°F (162°C)—can reduce your post-combustion capture costs. We design and manufacture complete duct systems, including:

Ductwork

Hoods

Dampers

Anchors

Hangers

Guides

Expansion joints

We have the unique capability to design and manufacture large-scale ductwork systems and tanks either at your job site or from one of our manufacturing facilities worldwide. Our proprietary large-diameter winding equipment, combined with our highly trained field construction personnel, enables us to assemble and install glass-reinforced vinyl ester (GRVE) ducting and tanks up to 40 ft ID and 120 ft ID, respectively.

## Carbon Capture System

Our fiberglass piping and tanks are an excellent selection for a variety of chemical and water services in the carbon capture system. Our extensive portfolio of industrial piping systems eliminate the concern of internal and external corrosion and do not require cathodic protection. Complimentary, our custom fiberglass tanks and vessels are made to suite the service and can be made in any diameter your project requires. With a history of supporting the power industry, FGS can also fabricate large process vessels and scrubbers.



# Transportation and Storage Capabilities

The safe and efficient transportation of large volumes of CO2 from industrial sources to storage and utilization sites presents many challenges. Corrosion control is crucial for developing, maintaining, and ensuring the integrity of robust transportation networks.

Our GRE pipe has been used in high- and low-pressure pipelines, CO2 injection lines, water alternating gas systems, downhole tubing and casing for monitoring and injection wells, as well as other challenging applications for more than 50 years. These advanced solutions handle wet, dry, and supercritical CO2, offering unrivaled corrosion resistance without the additional cost of coatings, cathodic protection, or expensive alloys.

Moreover, GRE pipe has a lower embodied carbon footprint than steel piping. On a per-kilometer basis, GRE piping systems:

Use **31% less energy to manufacture**

Deliver **65% energy savings over a 20-year life cycle**

Reduce **CO2 emissions in transport by up to 77%**



## High-Pressure GRE Solutions

We are proud to offer a family of industry-leading line pipe and downhole products that combine durability, reliability, and corrosion resistance. Our extensive high-pressure GRE line pipe portfolio includes spoolable, jointed, and large-diameter options, all designed for a minimum 20-year service life. These piping systems can be installed as new pipelines or pulled through existing infrastructure. Additionally, our downhole tubing and casing provide corrosion-resistant solutions for injection or monitoring wells.



### Fiberspar™ spoolable line pipe

- Sizes: 2–6 in.
- Pressure: 3,500 psi
- Maximum temperature: 203°F (95°C)



### STAR™ Super Seal jointed line pipe

- Sizes: 2–12 in.
- Pressure: 3,000 psi
- Maximum temperature: 212°F (100°C)



### STAR Super Seal Key-Lock jointed line pipe

- Sizes: 8–40 in.
- Pressure: 3,000 psi
- Maximum temperature: 210°F (99°C)



### STAR Downhole Tubing/Casing

- Sizes: 1.9–8 $\frac{1}{8}$  in.
- Pressure: Up to 2,500 psi
- Maximum Temperature: 212°F (100°C)

## Field Services

Our products are backed by the reliability and responsiveness of our Services and Aftermarket group. From installation and commissioning to repairs, upgrades, certification, and training, our highly trained and certified field service technicians are on call to safely handle your on-site needs 24 hours a day, seven days a week, across the world.

NOV has produced this brochure for general information only, and it is not intended for design purposes. Although every effort has been made to maintain the accuracy and reliability of its contents, NOV in no way assumes responsibility for liability for any loss, damage or injury resulting from the use of information and data herein. All applications for the material described are at the user's risk and are the user's responsibility.

**Corporate Headquarters**

10353 Richmond Avenue  
Houston, Texas 77042  
USA

© 2024 NOV. All rights reserved.  
JIG 240699-EPS-FGS-MOS



[fgs@nov.com](mailto:fgs@nov.com)

[nov.com/fgs](http://nov.com/fgs)