

## Carbon Fiber Accumulator

Siken Hydraulics have the design and production ability to provide Carbon Fiber Wrapped Accumulator. During the past, Siken has been offering the custom design Carbon Fiber Wrapped Accumulator to the markets such as Aerospace, Industrial Machinery, Renewable Energy.

A carbon fiber wrapped accumulator is a type of hydraulic accumulator that utilizes a composite material, specifically carbon fiber, to enhance its performance characteristics. Carbon fiber wrapped accumulators offer significant performance improvements over traditional designs, particularly in applications where weight, pressure capacity, and durability are critical. They represent a key advancement in hydraulic accumulator technology, catering to the needs of modern engineering and high-performance systems. Here's an overview of its components, benefits, and applications:



### Structure:

-----**Accumulator Shell:** The main body is typically made from a high-strength metal like steel or aluminum, providing a base structure.

-----**Carbon Fiber Wrapping:** The outer layer of the accumulator is wrapped with carbon fiber. This process involves winding continuous carbon fiber filaments around the shell in a specific pattern to optimize strength and durability.

-----**Bladder or Diaphragm:** Inside the accumulator, a bladder or diaphragm separates the hydraulic fluid from the gas charge (usually nitrogen). The gas compresses and expands to store and release energy.

-----**End Caps and Ports:** These components allow for the connection to hydraulic systems and facilitate maintenance and gas charging.

## Benefits

----**Increased Strength-to-Weight Ratio:** Carbon fiber significantly increases the strength of the accumulator while keeping the weight relatively low compared to traditional all-metal designs.

----**Improved Durability:** The composite material enhances the accumulator's resistance to fatigue, corrosion, and impact, extending its operational life.

----**Higher Pressure Capacity:** Carbon fiber wrapping allows the accumulator to handle higher internal pressures, making it suitable for more demanding hydraulic applications.

----**Thermal Stability:** Carbon fiber exhibits excellent thermal stability, which helps maintain performance under varying temperature conditions.

----**Weight Reduction:** A lighter accumulator improves overall system efficiency and reduces energy consumption.

----**Performance Under High Pressure:** Enhanced pressure handling capabilities make them ideal for modern high-pressure hydraulic systems.

----**Longevity:** Improved material properties lead to a longer lifespan and reduced maintenance needs.

Siken Hydraulics provides carbon fiber wrapped accumulator.

## SC series



## Parameters:

- **Pressure:** 100Bar, 250Bar, 330Bar, 350Bar, 690Bar  
1500PSI, 3600PSI, 4700PSI, 5000PSI , 10000PSI
- **Volumes:** 0.1 liter to 50 Liter , 1Pint to 15Gallon
- **Service temperature:** -40°C ... +100°C
- **Rubber materials::** NBR, HNBR, ECO. etc.
- **Housing materials:** Plastic, Aluminum alloy, Stainless Steel, Titanium alloy, etc...