


Clad and plated carbon fiber rollers among the world's longest

Registration No.	Number 00251		
Registration Date	August 28, 2018	Registration Category	Category 1
Name (Model, etc.)	Carbon Fiber Roller CARBOLEADER		
Location	Shiroi-shi, Chiba		
	Sunray-kouki Inc.		
Owner (Custodian)	Mitsubishi Chemical Corporation, Sunray-kouki Inc.		
Manufacturer (Company)	Mitsubishi Plastics, Inc. (now Mitsubishi Chemical Corporation) , Sunray-kouki Inc.		
Year Manufactured	2012		
Year first appeared	1990		
Reason For Selection	<p>A wide web roller for industrial use made of pitch-based carbon fiber composite. A Chrome-plated, stainless steel sleeve is clad onto its surface. With conventional metallic materials such as steel and aluminum, the weight, degree of deflection, and vibration caused during high-speed rotation unavoidable, becoming the major cause of wrinkles and defects which reduces product value. Pitch-based carbon fiber has one quarter the specific gravity, ten times the specific strength, and four times the elastic modulus compared to steel; a negative coefficient of thermal expansion; and over twice the thermal conductivity of copper. To achieve similar performance as this 400-kilogram unit it would require 2.8 tons of steel roller. This unit is among the world's longest at 9.2 meters, and is utilized in film manufacturing which requires high precision cylindricity, circularity, and balance. These characteristics are essential to the production of high line speed, quality, and consistent film production.</p>		
Registration Standard	1-B (Show a uniquely Japanese scientific or technological development from an international perspective.)		
Open/Closed to Public	Closed to Public		
Photo			
Other useful information	*The unit marked with a ▲ in the photograph is preserved.		