

BASIC INFORMATION

What is MAGNAVI™ ?

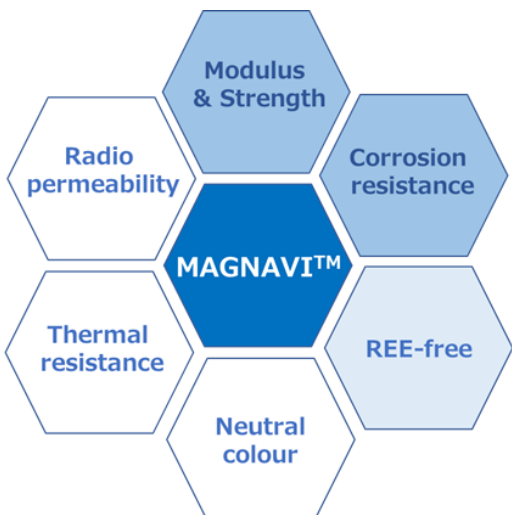
Glass fiber has been used as a reinforcement to improve the dimensional stability and strength of composite materials. NSG's high modulus and specific strength glass fiber, MAGNAVI™, offers superior mechanical properties compared to conventional glass fibers, keeping the radio-permeability and heat resistance that are inherent to glass fibers.

MAGNAVI™ contributes to the weight reduction of components and reduces energy consumption. We have selected raw materials with low environmental impact and we are also committed to reducing energy use and CO₂ emissions during production.

We will contribute to the realization of a decarbonized society by utilizing MAGNAVI™ in various fields, including the renewable energy.



Strength of MAGNAVI™



- **High elastic modulus, High Strength, High impact resistance**

MAGNAVI™ has a rigidity and strength that exceeds that of conventional glass fiber (E glass). MAGNAVI™ also has the flexibility inherent in glass fiber, and thus exhibits impact resistance that exceeds that of carbon fibers. MAGNAVI™ is effective in achieving both increased strength and reduced weight in composite components.

- **Characteristic features of Glass fibers :High heat resistance, high corrosion resistance, electrical insulation / radio permeability, neutral color**

MAGNAVI™ has an extremely high thermal resistance to aramid and carbon fibers. Its radio-permeability also makes it suitable for electronics use, e.g. for 5G/6G applications. MAGNAVI™ is also available in neutral colors, which increases the color flexibility of the material.

- **Cost advantage**

MAGNAVI™ is less expensive than carbon fibers. It offers a realistic solution for more general applications.

- **Environmentally friendly product design**

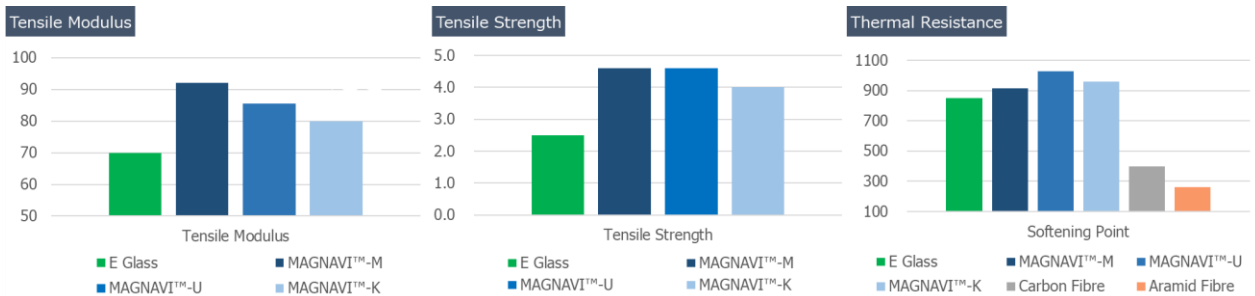
MAGNAVI™ has been based on environmentally friendly product development. It does not contain any rare earth elements, which can pose environmental risks such as radiation contamination during mining. We are also committed to reducing energy use and CO₂ emissions during production.

BASIC INFORMATION

Features of MAGNAVI™

1

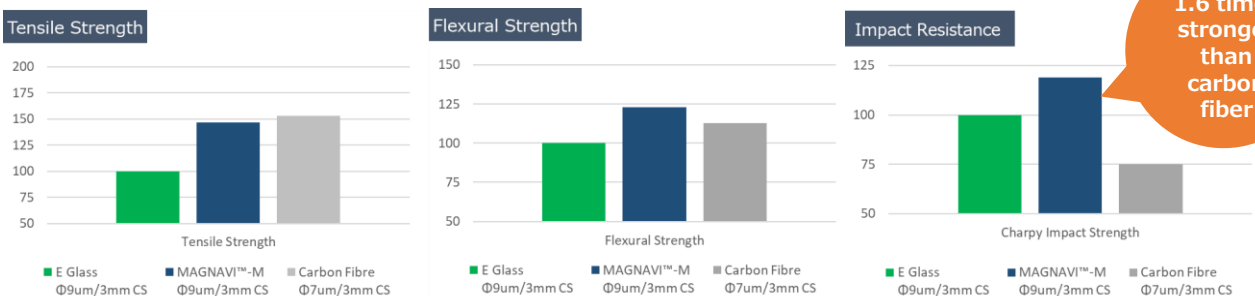
MAGNAVI™ exhibits superior modulus and strength compared to conventional E-glass fiber. MAGNAVI™ also has extremely high heat resistance compared to carbon fiber and aramid fiber, which are also used as reinforcement in composite materials.



※The indicated values are measured values and not intended for guarantee use.

2

When the reinforcing composites were added to the respective composite materials, MAGNAVI™ increased the strength and impact resistance and dramatically improved the mechanical performance of the components



1.6 times stronger than carbon fiber

※Reinforcement fibers added to PA66 at 20%. The data sets are normalized to 100 for E glass composites. The indicated values are measured values and not intended for guarantee use.

INTENDED END-USAGE

Low Dielectric Constant/Electric Insulation x High Elasticity

MAGNAVI™ has the unique electrical insulation properties of glass fiber and higher mechanical properties than conventional glass fiber, making it suitable for a wide range of applications where electric insulation and high strength are required, notably in the field of electronics.

[Application Use]

Radome /UD components for electronic devices/
Lightweight & high-strength insulators for power devices/GFRP cases of the medium to large drones (incl. Central Plate)



High Mechanical Properties x Neutral Color x Cost Advantage

Although MAGNAVI™ has a lower elastic modulus when compared to carbon fiber, its higher impact resistance, color selectivity and lower cost make it a practical alternative to carbon fiber in a wider variety of applications.

[Application Use]

Air cylinder/high-pressure gas containers/Hydrogen tanks for FCVs/Airplane interiors: flooring, walls in cargo rooms



High Strength and Elasticity x Electrical Insulation x Corrosion Resistance

Insulators in the high voltage transmission segment are being replaced by plastic insulators instead of porcelain. These applications require light weight, high strength, and good insulation properties, which means that carbon fiber cannot be used and that the insulators must be acid resistant to avoid brittle fracture in acidic atmospheres. For these special applications, MAGNAVI™ can be the right solution.

[Application Use]

Polymer Insulators/GFRP Wire



PRODUCTS

Roving

MAGNAVI™ rovings are effective in increasing the impact resistance of components, reducing energy consumption by reducing weight, preventing warping and deflection in a wide range of applications, from transport equipment to industrial materials, sports and leisure.

Standard Product Form

Count (g/1000m)	800-2,400
Fibre diameter	7-11um
Sizing	Starch sizing/ Epoxy sizing
Product Weight (kg)	5-10*

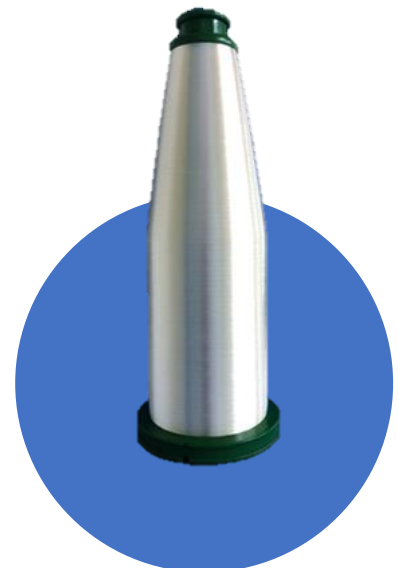


Yarn for industrial use

MAGNAVI™ yarns are not only highly elastic and strong, but also have excellent heat resistance, contributing to the functional improvement of a wide range of industrial material components.

Standard Product Form

Product No.	E225-1/0-1.0Z	G150-1/0-1.0Z	G75 1/0-1.0Z
Fibre diameter	7um	9um	9um
Tex	22.5	34	68
Product weight (kg)	2*	2*	2-4*



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