
SUPER RESIN

Company Profile

Company Name	Super Resin, Inc.
Representative	Shin Sakane
Capital	435 million JPY (by Dec 2017)
Establishment	25 Nov 1957
Employee	150 people (by Dec 2017)
Scope of Business	Fabrication & processing of advanced composites materials with a focus on carbon fiber reinforced plastics (CFRP). Research/production/distribution of CFRP components for aircraft, aerospace, semiconductor manufacturing equipment, industrial machines, automobiles, etc.
Concept	We are the composite tailors.
Website	(JP) www.super-resin.co.jp (CH) www.super-resin.cn

Global Locations

Sakahama Headquarters & Advanced Factory

2283 Sakahama, Inagi, Tokyo 206-0822 Japan

Tsukui Advanced Factory

3512 Nagatake, Midori-ku, Sagamihara, Kanagawa 252-0154 Japan

Ningbo Super Resin, Inc.

197 Shanshan Rd., Wangchun Industrial Zone, Haishu District, Ningbo, Zhejiang Province 315177 P.R. China

Sakahama
since 1964

Tsukui
since 2003

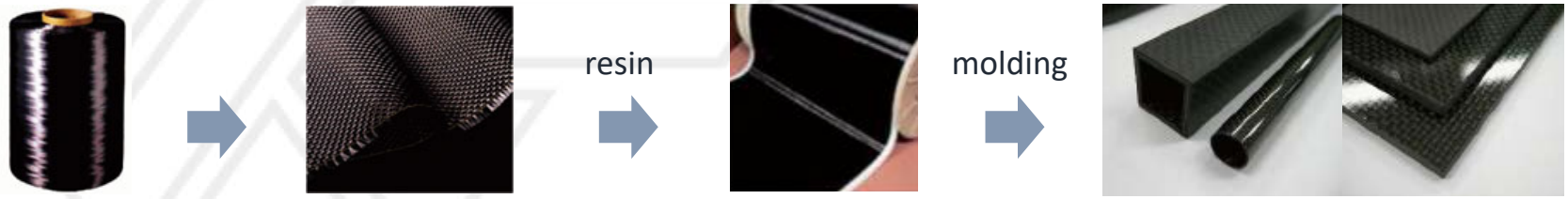
Ningbo
since 2011

History

1957	Established Super Resin, Inc.
1964	Established Sakahama Factory in Inagi City, Tokyo
1965	Moved the Head Office to Sakahama Factory
1986	Completed construction of ACM Plant at Sakahama Factory
2002	Obtained JIS Q 9001:2000 certification for Sakahama Head Office and Advanced Factory
2003	Started operation of Tsukui Advanced Factory in Tsukui, Kanagawa
2004	Obtained JIS Q 9001:2000 (expanded) certification for Sakahama and Tsukui Factory
2006	Obtained JIS Q 9100:2004 certification for Sakahama and Tsukui Factory
2010	Established Resin R&D Department and Process R&D Department
2011	Established Inage Office in Inagi City, Tokyo
2011	Established Ningbo Super Resin as a subsidiary of Super Resin, Inc. in China
2016	Completed construction of Machining Plant and Large Component Assembly Plant at Tsukui Factory
2017	60th anniversary of establishment

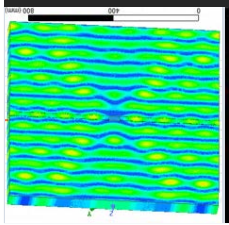
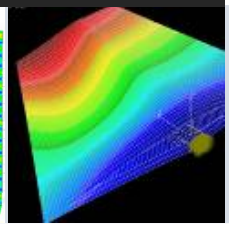
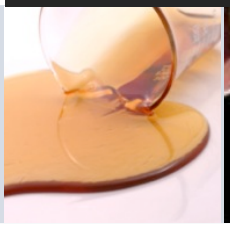
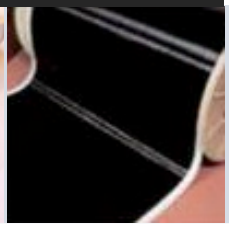
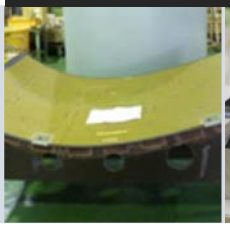
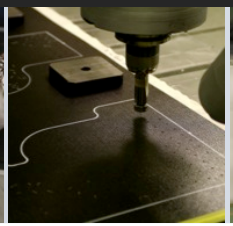
Our Business

Manufacturing Process of Composite Material (in case of fiber reinforced plastic)



fiber → cloth → prepreg → production

The scope of business of Super Resin related to composite industry

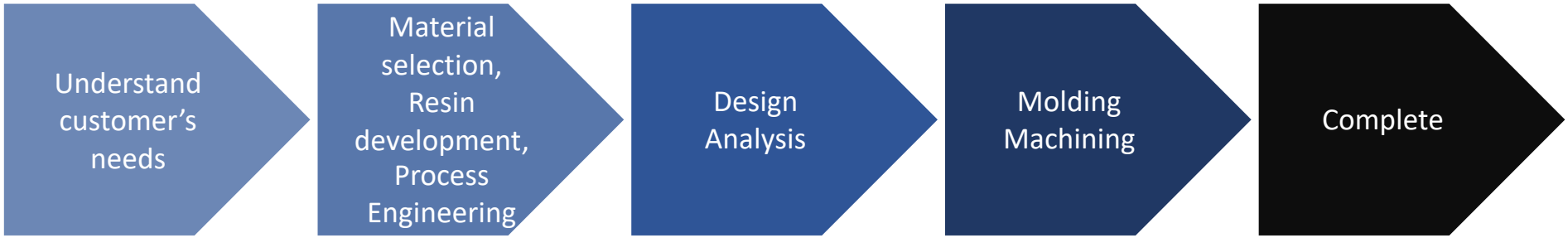
Product design & development		Material selection & development		Manufacturing & inspection			
							
Design & analysis for radio wave properties	Structural design & analysis	Resin	Prepreg	Mold manufact-uring	Composite Molding	Machining	Inspection & quality control

Our Business

Business flow of Super Resin

In the general composite processing industry, manufacturers just process with the drawings from customers.

However, in Super Resin, we will not only do **high quality manufacturing**,
but also provide **design and development solutions** based on the experience of composite production over 60 years.

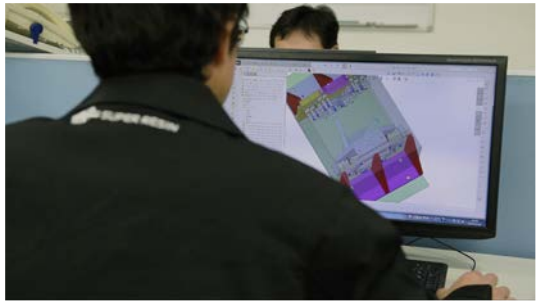


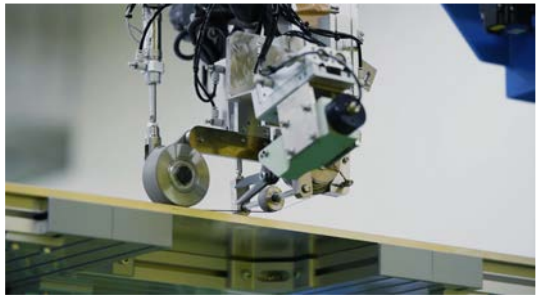
In Super Resin, we will respond to your "**I want something like this**"

R&D Power

R&D Department

- Fundamental Technology Section
- Product Development Section
- Design & Engineering Section

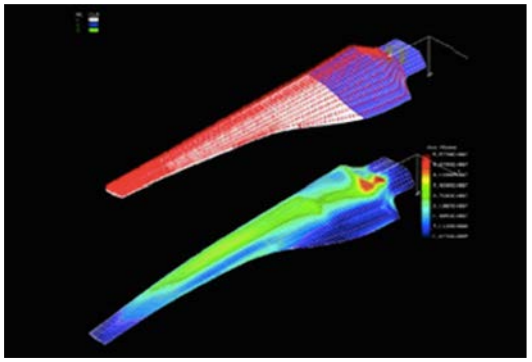




R&D Power

Design & Analysis

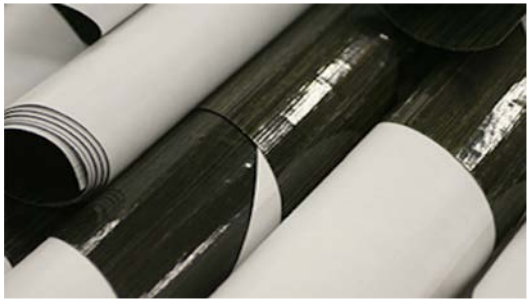
Structural analysis / Radio characteristics analysis / Thermal conduction analysis
Composite structure optimization / Anisotropic design



Resin R&D

Matrix resin type

Polyimide resin: Tg 250-350℃
Cyanate ester resin: Tg 200-300℃
Epoxy resin: Tg 130-180℃
Polyester resin / Bismaleimide resin
Phenolic resin / Fluoro resin



Resin functionality granting technology

Heat resistance control technology / Adhesion technology / High toughness technology /
Low dielectric constant technology / Flame retardancy technology /
Filler dispersion technology / Cure reaction rate control technology / Foaming technology /
Low moisture absorption (water absorption) technology /
Weather resistance technology

Proprietary Resin

Snap curing resin: for all fields / Weather resistance resin: for automobile field /
Heat resistant resin: for aviation & aerospace field / Flame retardant resin: for electronic field

R&D Power

R&D Equipment

Development & design software

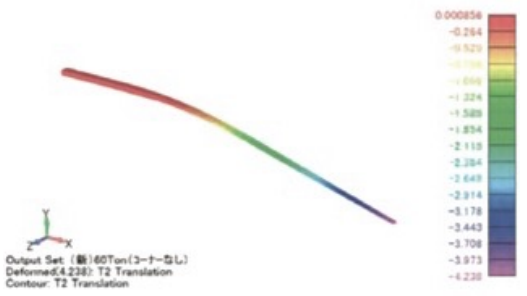
Finite element analysis software

Static load analysis / Eigen value analysis /

Frequency response analysis / Therm conduction analysis

Electromagnetic field analysis software

Antenna analysis / Radar dome analysis / EMC analysis



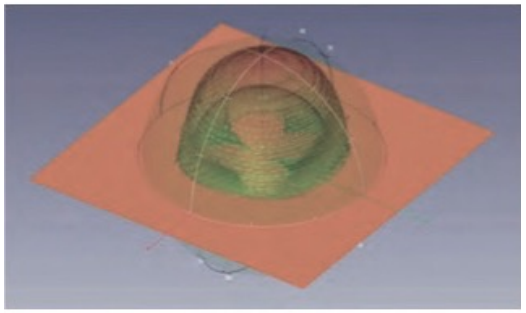
Equipment for resin / composite material process development

Dynamic viscoelasticity measuring device (DMA) / Differential scanning calorimeter (DSC)

Differential thermal analyzer (TG-DTA) / Thermomechanical analyzer (TMA)

Rheometer / Fourier transform infrared spectrophotometer (FT-IR)

Spectrophotometer / Continuous fiber reinforced 3D printer (under development)



Composite evaluation device

Degassing evaluation equipment (ASTM E595)

Ultrahigh precision thermal deformation evaluation device | Accuracy: ~0.01ppm / K

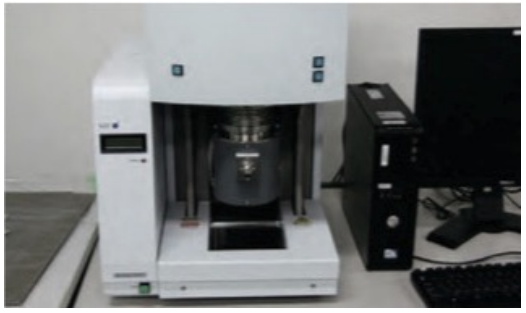
Moisture absorption deformation evaluation device | Accuracy: ~1ppm

Thermal conductivity measuring device (ASTM E1530) Proprietary Equipment

Instron universal testing machine: 55R-4505 (100kN)

5982 (100kN) ~350℃ with constant temperature test tank

Acoustic emission / Scanning electron microscope



Manufacturing Power

Molding & Processing Capacity

ACM molding

Autoclave molding

RTM molding / VaRTM molding

Filament winding molding

Press forming / Vacuum forming / Hand lay-up forming

HTC molding

（HTC : High Throughput Composites ）

Proprietary CFRP mass production technology

Proprietary Technology

Mold design & fabrication

GFRP type / AFRP type / resin block type

Machining

(Operation condition: 21±5℃, humidity < 70% for all year)

Ultrahigh precision machining（accuracy ±0.01/1000mm ）

Mass production machining

Painting

Clear paint / Mat paint

Screen printing / Pad printing

Manufacturing Power

Production Equipment

Sakahama Headquarters / Advanced Factory
ISO 9001 / 9100 certified factory

Molding equipment
Autoclave： 3 units ① Φ1.2×2.8m
② Φ1.4×1.2m
③ Φ2.0×3.0m
Filament winding device ϕ1000×5000mm
Vacuum press machine / Automatic laminating robot
Clean room for molding (Class 100,000) 73.5 m²

Machine equipment	Size
Portal type machining center | OKUMA	2000×3000×900mm
Small machining center| Mazak	600×1500×300mm
5 axis machining center | Mazak	Φ300mm
NC lathe | OKUMA	Φ300×400mm
NC milling machine | ENSHU	Φ300×800mm×250mm

Drying integrated painting room 34 m²
Clear paint / Mat paint
Screen printing / Pad printing (plate size up to 100×200)

Manufacturing Power

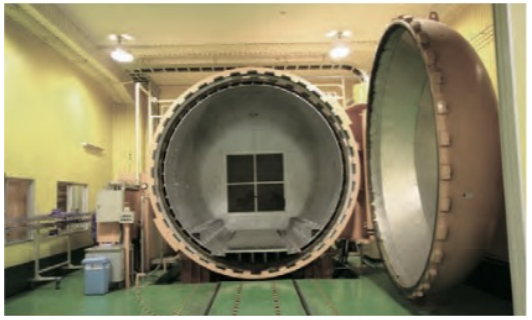
Production Equipment

Tsukui Advanced Factory
ISO 9001 / 9100 certified factory

Molding equipment
Autoclave： 3 units ④ Φ3.5×6.0m
⑤ Φ2.5×5.0m
⑥ Φ1.6×2.5m
Clean room for molding (Class 100,000) 138m²
Clean room for molding (Class 100,000) 290m²
Clean room for molding (Class 100,000) 78m²

Machine equipment	Size [Accuracy]
Plano miller｜ Mitsubishi	3500 × 8000 × 900mm [± 0.02/300mm]
Portal type machining center ｜ OKUMA	2500 × 5000 × 1200mm [± 0.01/1000mm]
Small machining center ｜ Makino	600 × 1200 × 500mm
NC router (3 heads) ｜ HEIAN	600 × 6000mm × 3EA [± 0.05mm each axis]
Universal lathe ｜ Mazak	Φ300 × 600mm

Clean room for satellite assembly (Class 100,000) 222m²
※ h10m part 65m²



Manufacturing Power

Production Equipment

Ningbo Factory

ISO 9001 / 13485 certified factory

Molding equipment

Autoclave: 1 unit Φ2.5×5.0m

RTM (Resin Transfer Molding) equipment

HTC (High Throughput Composite) equipment

Machine equipment	Size
Portal type machining center	3000×5000mm
Small machining center	500×2000mm
Small machining center	500×800mm

Quality Control

Spin arm

Laser tracker

Portal 3D measuring device

Electronical gradienter

Ultrasonic testing machine

Digital microscope

3D scanner

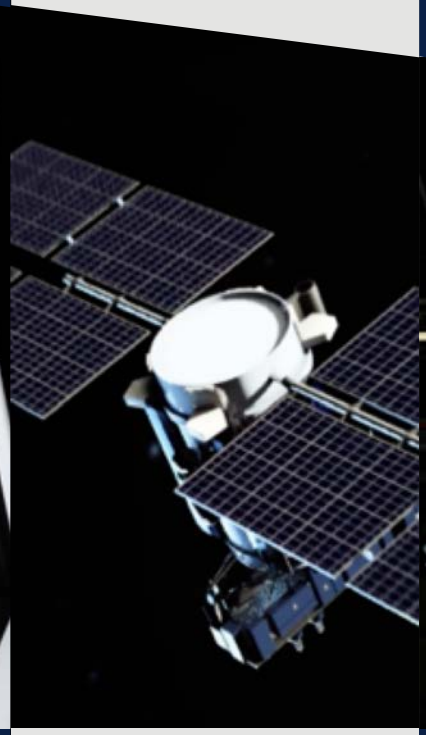
Products

Main Products

Industrial machinery

- industrial robot arm
- industrial roller / shaft
- flywheel
- LCD / organic EL display manufacturing equipment
- Semiconductor component mounting apparatus

Aviation & aerospace



- Artificial satellite part (structure, antenna, solar cell substrate)
- Radar dome (ground antenna, aircraft)
- Aircraft component (main wing, tail wing, body part)

Transportation

- Exterior panel component (aero parts, roof)
- Drive device (drive shaft)
- Engine cover
- Battery cover
- Fuel tank

Electronic

- Notebook case component
- AV component

Construction

- Wind blade
- Civil engineering / construction
- Water stop plate

We are the Composite Tailors.