

Since 1962

# Sheet Moulding Compound Machine

## Sheet Moulding Compound Sheet

- IS-SMC Machine
- IS-SMC Sheet (CF SMC sheet)
- IS-CFRTP, CFRP Machine



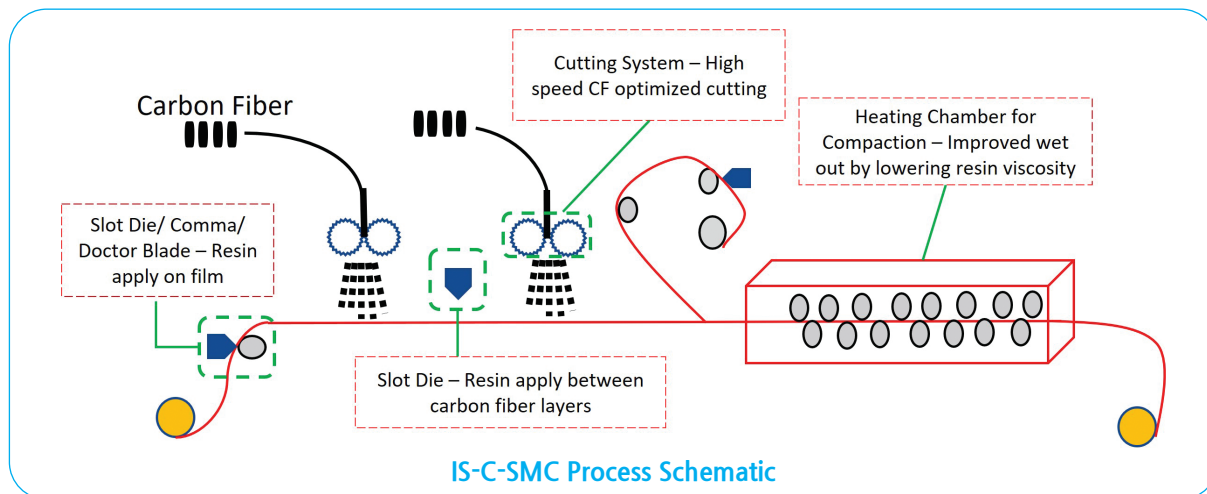
**ILSUNG**

# IS-SMC (sheet moulding compound machine)

High-performance, award-winning, SMC machine improving mechanical properties and productivity

## • Patented (South Korea, EU, Japan) SMC production line

Multiple resin layers improves impregnation ⇒  
Higher mechanical properties, Higher mouldability, Fast production



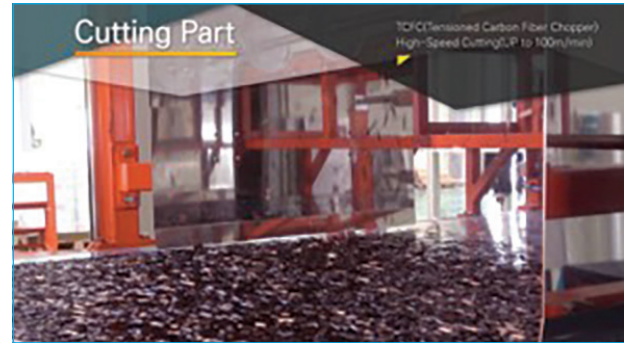
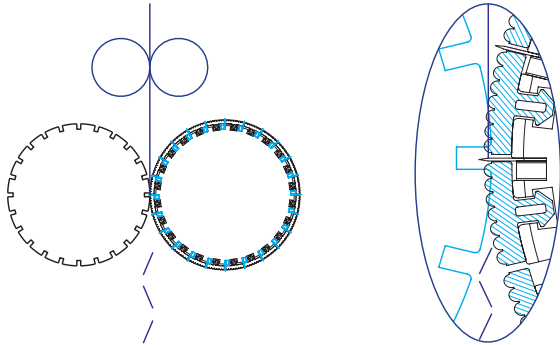
## • Advantages of IS-SMC

Conventional SMC	IS-SMC
<p>  Resin   Chopped Carbon Fiber                 </p>	<p>  Resin   Chopped Carbon Fiber                 </p>
<ul style="list-style-type: none"> <li>• Insufficient wet-out</li> <li>• Blisters or resin-rich in surface</li> <li>• Delamination between layers</li> </ul>	<ul style="list-style-type: none"> <li>• Better wet-out</li> <li>• Low porosity</li> <li>• Gorgeous surface</li> <li>• High carbon fiber contents (up to 65%)</li> </ul>

# IS-SMC (sheet moulding compound machine)

## • Carbon Fiber optimized Chopping system

Cutting Blades penetrate groove roll to cut tension applied CF



- High speed cutting (150m/min)
- Long life of blades
- Ease of maintenance

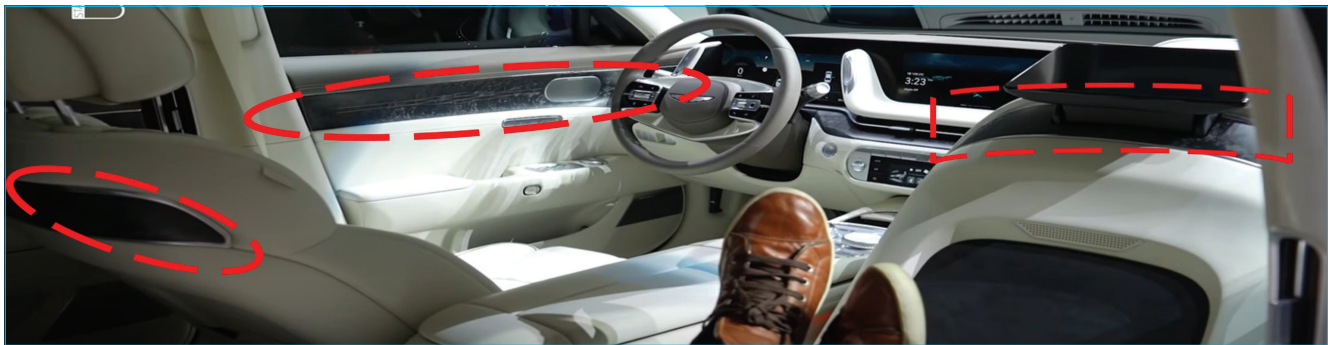
## • Variable Resin spread systems are available upon Customers' request

Slot Die system	Comma system	Doctor Blade System
<ul style="list-style-type: none"> <li>• Metered resin supply</li> <li>• High reproducibility</li> <li>• First come, First Out</li> <li>• 10-2000µm Coat thickness</li> </ul>	<ul style="list-style-type: none"> <li>• Extra thin resin spread</li> <li>• Ease of maintenance</li> <li>• 10-2000µm Coat thickness</li> </ul>	<ul style="list-style-type: none"> <li>• Low cost</li> <li>• Conventional way of coating</li> <li>• Uneven Coating Surface</li> <li>• Thin resin coat impossible</li> </ul>

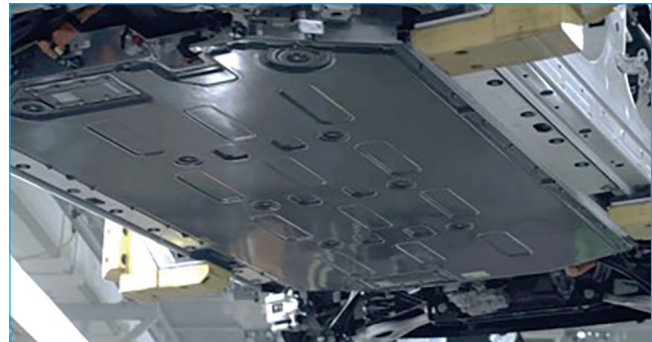


# IS-SMC sheet (Carbon Fiber SMC sheet)

## • Application examples



IS-C-VE series - Hyundai Genesis G90 (2022) garnish panel



IS-G-SMC (fabric & chop) - Hyundai IONIC6 & Kia EV6 battery protector (2021)



IS-C-EP series - Automotive liftgate prototype



IS-C-EP series - Archery recurve bow (2021)

# IS-SMC sheet (Carbon Fiber SMC sheet)

## • IS-SMC sheet List (Carbon Fiber SMC sheet)

Our IS-SMC sheets are suitable for your requests

ILSUNG supplies solutions for compression moulding process

Continuous CF or GF (Fabrics & UD) SMC is also available

Series Code	Resin System	Chopped Fiber Length (inch)	gsm (g/square meter)	CF types, contents (wt%)	Advantages	Application
IS-C-VE series	VE (VOC-free)	1,2 or hybrid (1,2)	1000~4000	12~50K, 30~65%	VOC-Free High mouldability	Automotive (Interior parts)
IS-C-EP series	Epoxy (Low-VOC)	1,2 or hybrid (1,2)	1000~4000	12~50K, 30~65%	High mechanical properties Long shelf life (up to 6 months)	Sports, leisure Automotive (exterior parts)
IS-C-UP series	UP (Recycled PET)	1,2 or hybrid (1,2)	1000~4000	12~50K, 30~65%	Low cost Fire retardant (by fillers)	Automotive

Other than listed products, production upon customers' request is possible  
The specifications are subject to change without any prior notice for quality improvement

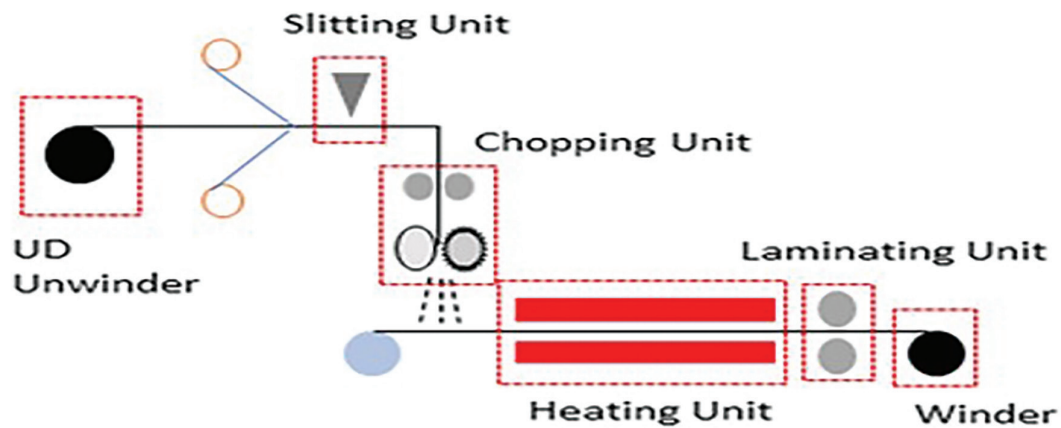
## • IS-SMC sheet (Carbon Fiber SMC sheet) TDS

Resin Type	Vinyl Ester	Vinyl Ester	Epoxy	Epoxy	Recycled-PET
Resin Content (w/w)	50%	50 %	60%	50%	50%
Fiber type	12K	12K	12K	12K	12K
Fiber Length	1 inch	2 inch	1 inch	2 inch	1 inch
Fiber Content (w/w)	50%	50%	40%	50%	50%
Tensile Strength	200 MPa	250 MPa	202 MPa	271 MPa	133 MPa
Tensile Modulus	26.7 GPa	30.6 GPa	27.8 GPa	37.4 GPa	34.9 GPa
Flexural Strength	255 MPa	472 MPa	417 MPa	456 MPa	249 MPa
Flexural Modulus	16.9 GPa	29.0 GPa	22.8 GPa	29 GPa	22.4 GPa

- Above data may be changeable depends on test environment
- Tensile Standards (ASTM D 638), Flexural Standards (ASTM D 790)

# IS-CFRTP (CFRP) machine

- High Mechanical Properties (High carbon fiber contents)
- No need for maturation ⇒ Productivity
- Resin tank and resin distributing equipment not required
- Variable selections of chopped prepreg width and length



## • Specification

IS-CFRTP (CFRP) machine			
Working Speed (M/min)	10	Chopped prepreg length (mm)	25, 50, 75
Sheet Width (mm)	500	Slit prepreg width (mm)	6, 8, 10, 12
Sheet areal weight (gsm)	800~2,500	• The specifications are subject to change without any prior notice for quality improvement	

## • Delivered to

- SK Chemical (2017)
- KCARBON (Korea Carbon Industry Promotion Agency) (2018)

## • Application Examples

- Automotive
- Sports, leisure

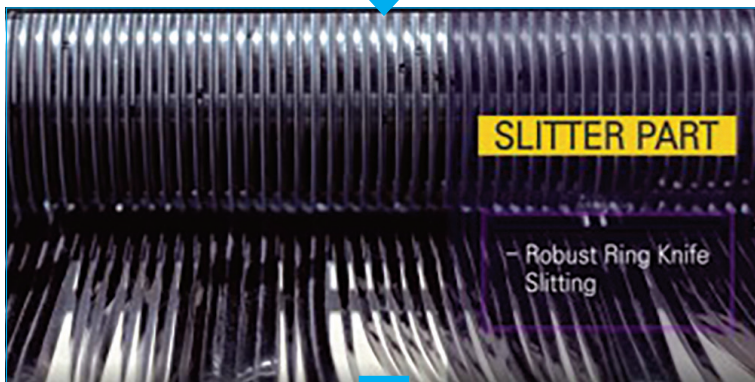


# IS-CFRTP (CFRP) machine

## • Production Process



- UD Prepreg
- High carbon fiber contents (up to 75%)
- Removes carrier film



- Slitting into 6mm to 12mm width by robust ring-knives
- Ease of maintenance



- Slit prepreg tape chopped into 25mm, 50mm and 75mm length
- Combination of different lengths possible



- Ready to mould PMC
- Sheet form, Bulk form
- 500mm, 1000mm width
- 800gsm to 2500gsm

## • ILSUNG Composites Business Unit history

The Biggest, Oldest textile machinery in South Korea  
Global No.1 sTenter machinery

1962 - ILSUNG Machinery Established

1978 - Developed sTenter

2016 - Composites Business Unit Established / IS-C-SMC developed

2019 - Developed EV battery protector for Hyundai Motors (project with LX Hausys, Dongsung Chemical and KCARBON)

2019 - Won JEC Innovation Award (Equipment & Machinery)

2020 - Developed CF-EPOXY-SMC Archery Bow (project with GK archery)

2020 - Start developing Spread Carbon Fiber Weaving Machine & Double Belt Press

2021 - Released VOC-Free C-SMC (project with Aekyung Chemical)

2022 - Construct New Production Lines for Composites BU



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ILSUNG HAS STARTED GOING TOWARD NEW WORLD  
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