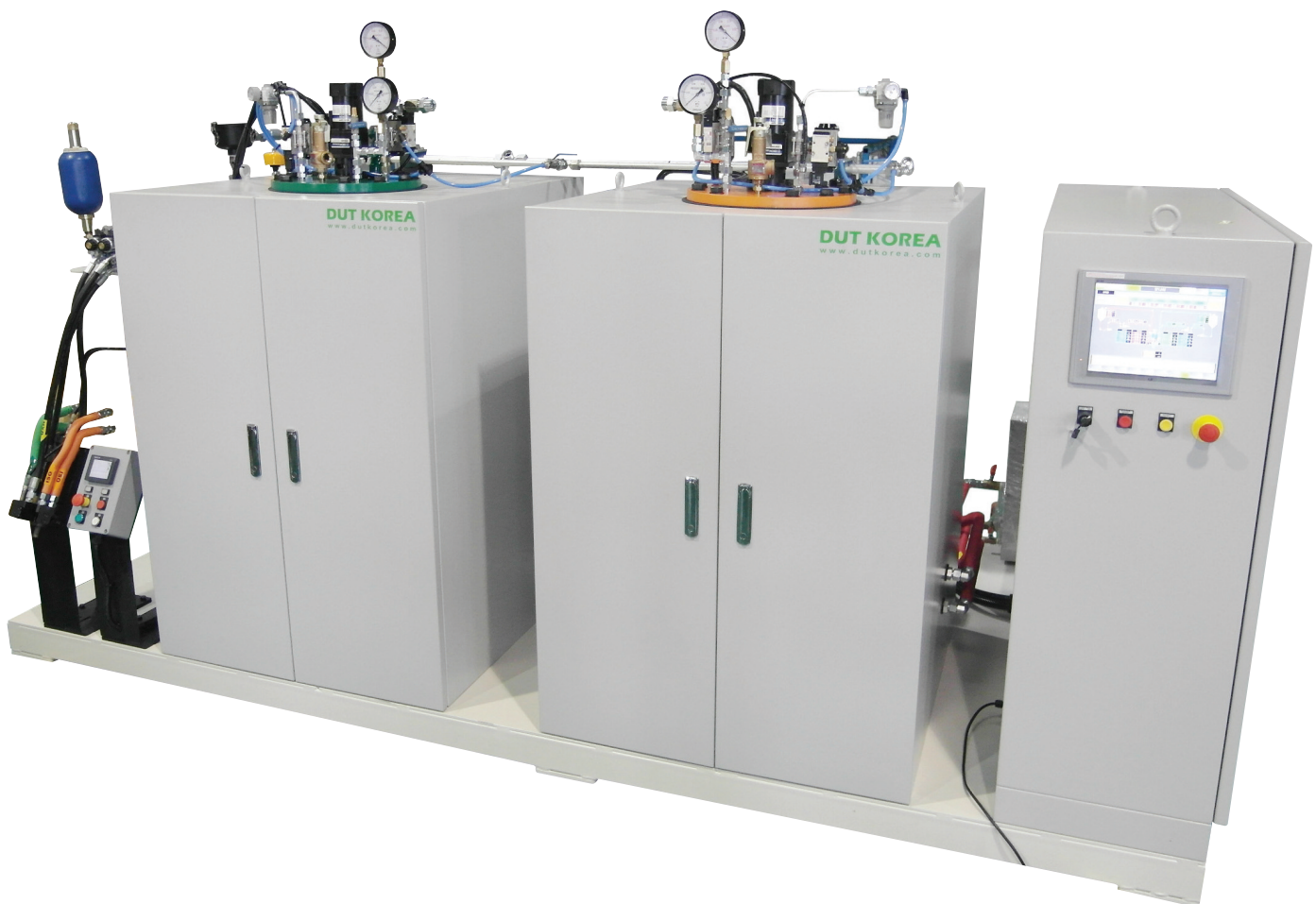


Fiber reinforced composites allow the automotive industry to achieve weight savings that were previously not possible!

Solution for Lightweight fiber Composites

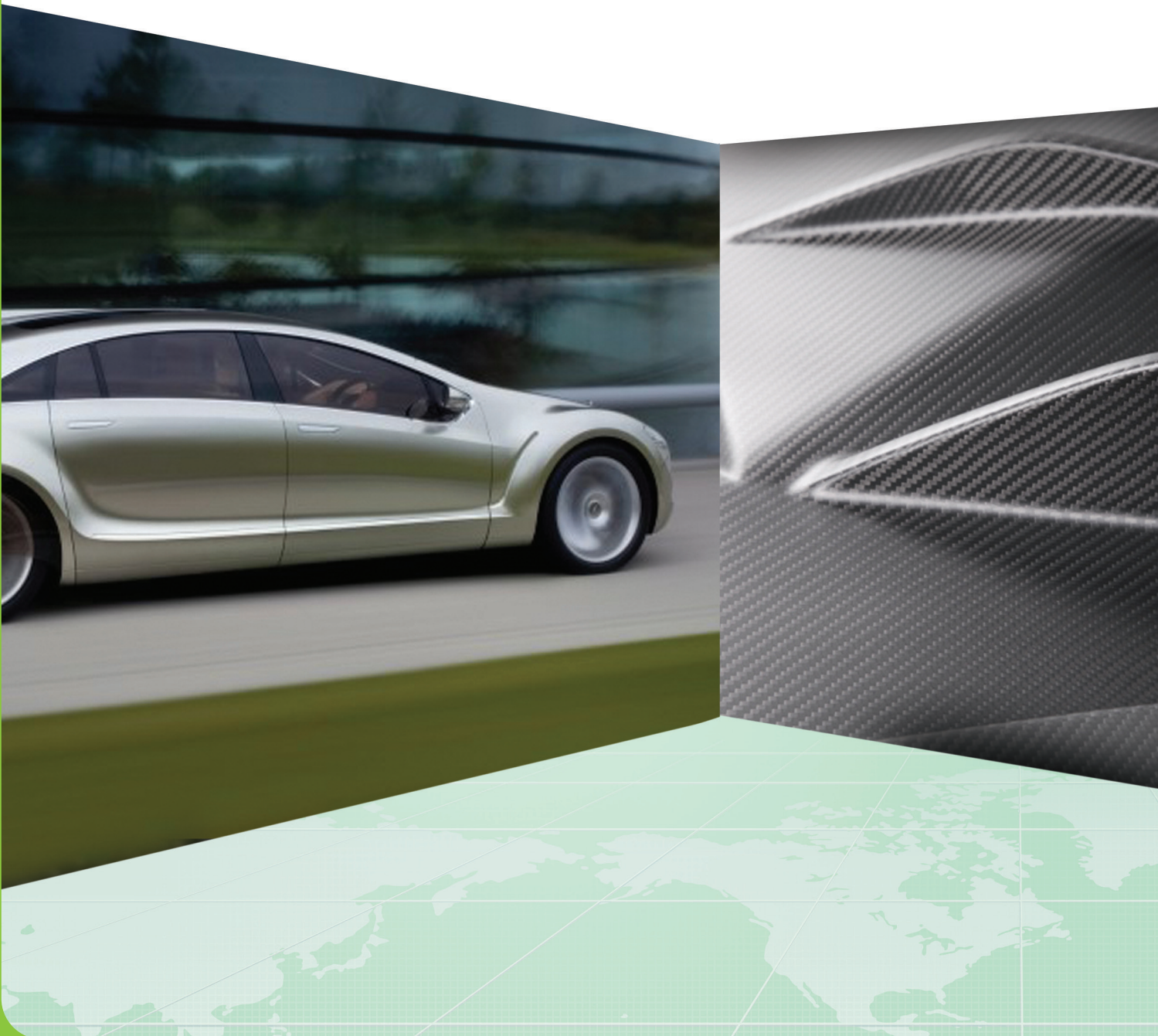


LIGHTER AND STRONGER

It is well known that the next major advance in lightweight automotive applications will be achieved through the use of fiber-reinforced high-performance composites.

Lightweight structures, consisting of fiber composite materials can excellently meet the demanding requirements of the transportation industry which is looking for lighter and stronger applications to comply with a rising Energy Saving policy.

Especially, these lightweight structures are precisely the requirements that are important in the development of vehicles with alternative drive systems, because the main problems with the first battery-powered cars are the short range and higher safety requirements in operation. Lightweight construction and fiber composite technology can make a valuable contribution to these aspects.



COMPANY INTRODUCTION

DUT's slogan is "Solution for Polyurethane". It means we do not just sell the product but care of products until customer's satisfaction. Our technology of polyurethane is started from customer's need and finished by their satisfaction.



DUT KOREA

DUT has established in 1992 and became a leading company as manufacturer & specialist in field of High Pressure PU Solutions including Foaming Machine, Mixing Head, Metering Pump and all kinds of PU Applications in Korea. DUT started PU business with high quality of Mixing Head which is core of PU technology then the business expanded to all kinds of PU applications. DUT's market share of this field is getting bigger rapidly.

Huge Sales Network

Sales Department has huge international network over 57 countries including USA, Germany, Italy, UK, Poland, Hungary, Egypt, China, Mexico, Japan, India, Iran, Thailand, New Zealand, and Brazil so customers are able to contact easily in their region.



TECHNOLOGIES

HP-RTM (High Pressure Resin Transfer Molding):

The fiber mat is preformed, positioned in the closed mold. The resin is injected and cures.

R-RIM (Reinforced Reaction Injection Molding):

PU components are filled with short fibers, the mix is injected into the closed mold.

LFI (Long Fiber Injection Molding With Reactive):

Glassfiber rovings are chopped and mixed with the PU. It is poured into the mold.

CSM (Composite Spray Molding):

Spraying a pre-assembled sandwich with a PU mix, pressing and curing in a closed mold.

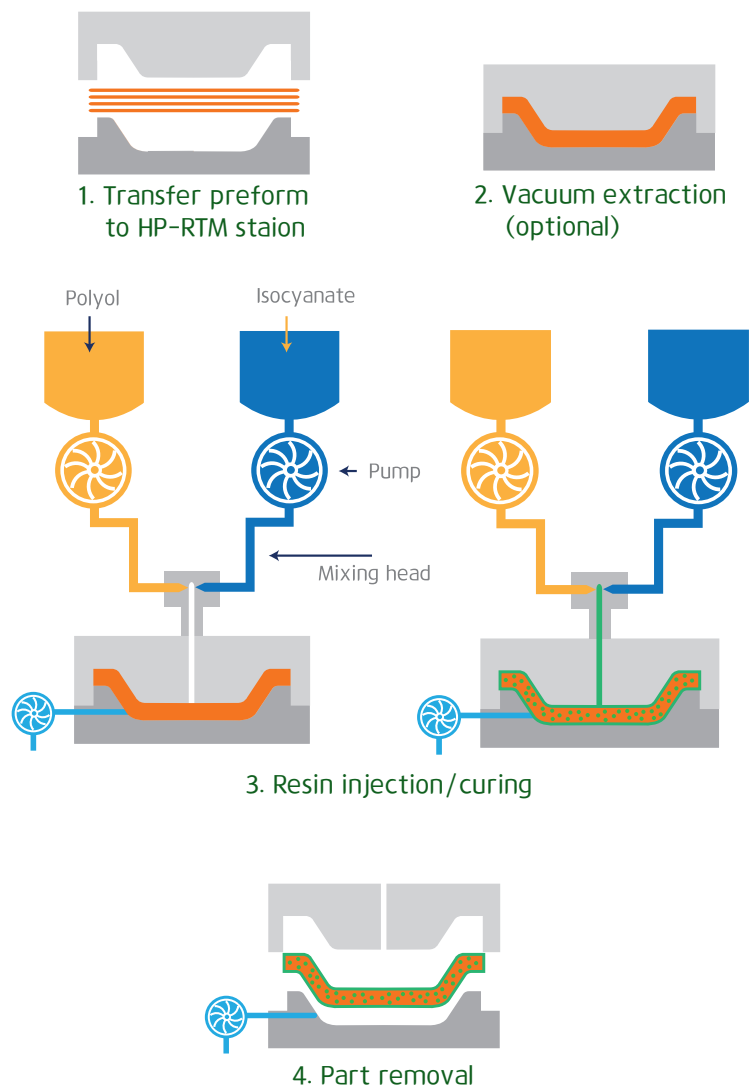
SURFACE-RTM (SURFACE Resin Transfer Molding) :

After the compression of perform, the mold is opened to a specified gap width, the component surface is flowcoated.

HP-RTM (High-Pressure Resin Transfer Molding)

Outstanding strength

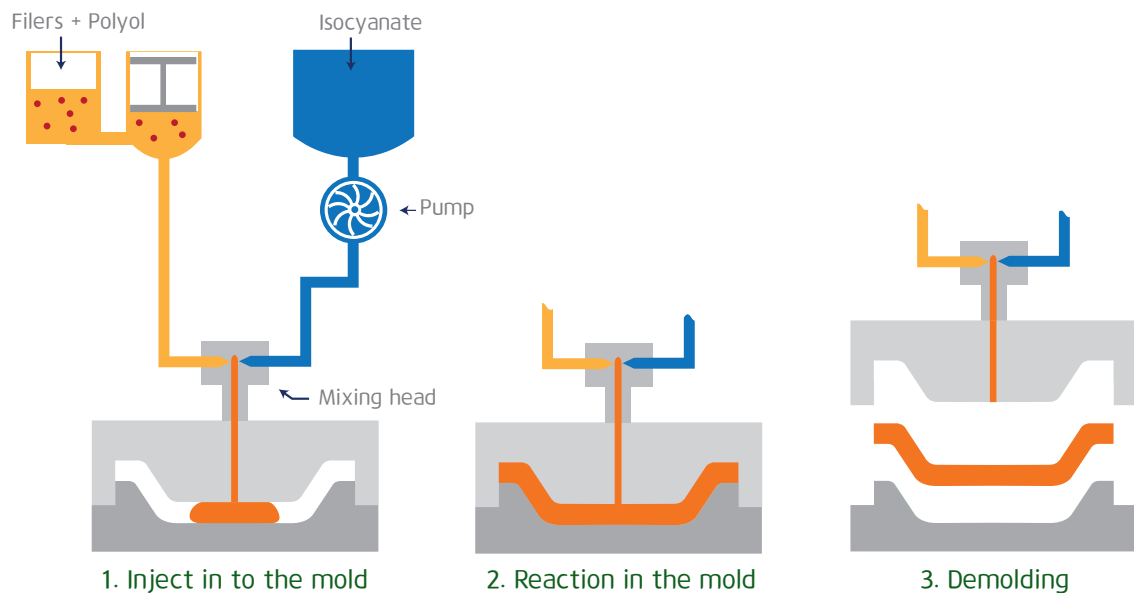
**Lightweight parts to meet highest specifications,
around 50 percent lighter than metal**



- The best surface quality for visible parts with high-quality carbon appearance.
- Extremely lightweight structural components for the highest demands.
- High-pressure technology allows the use of fast-curing systems.
- High-pressure ensures very good mixing and fast response times.
- Process can be fully automated for volume production.

R-RIM (Reinforced Reaction Injection Molding)

Strong, flexible, lightweight parts which can easily be painted
Highly automated process
Short reaction and cycle times

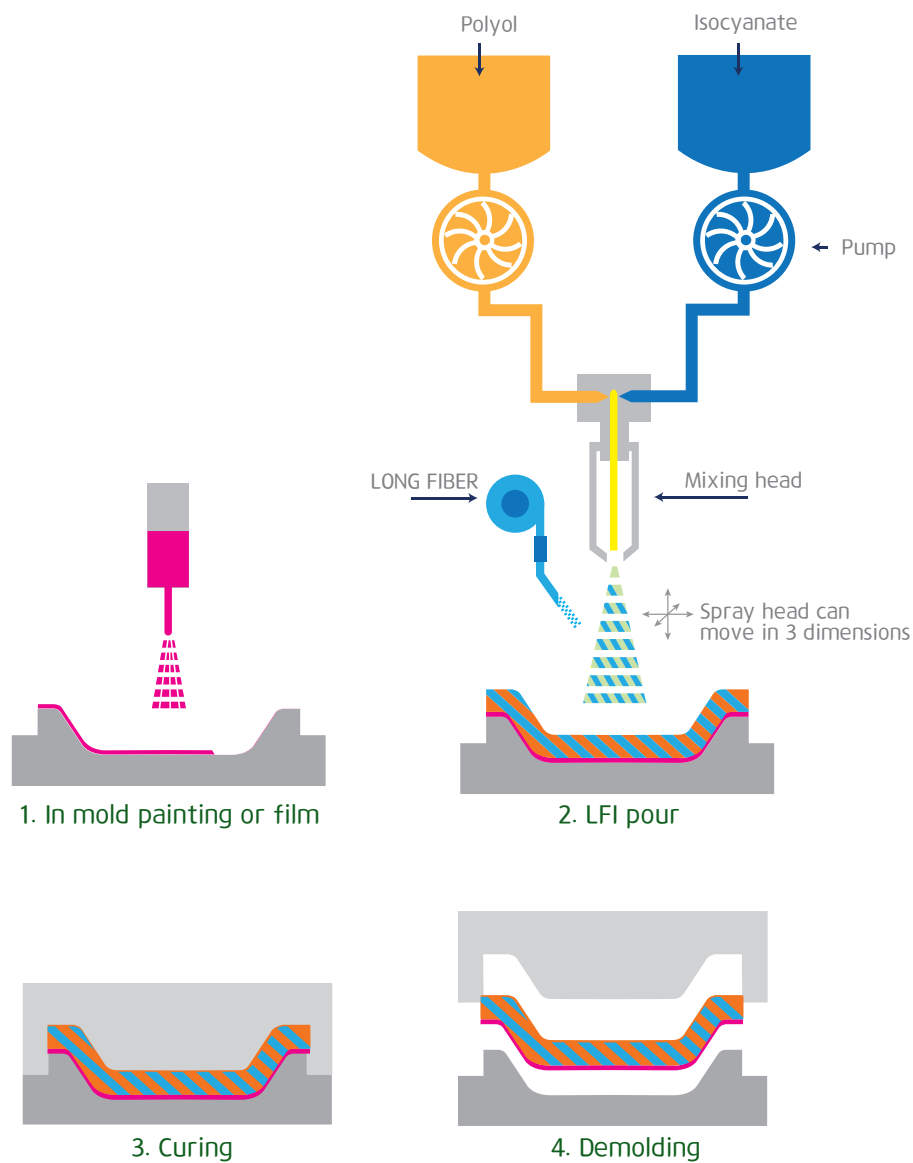


- Freeflowing materials can be processed into thin walled parts.
- Dimensional stability and inherent stiffness even at high temperatures.
- Good paintability, even at temperatures up to 180 °C, inline painting.
- Low investment in molds and tooling.
- Improvement of rigidity and dimensional stability under heat

LFI (Long Fiber Injection Molding With Reactive PU)

Production of paint-free parts

Efficient, economical and versatile

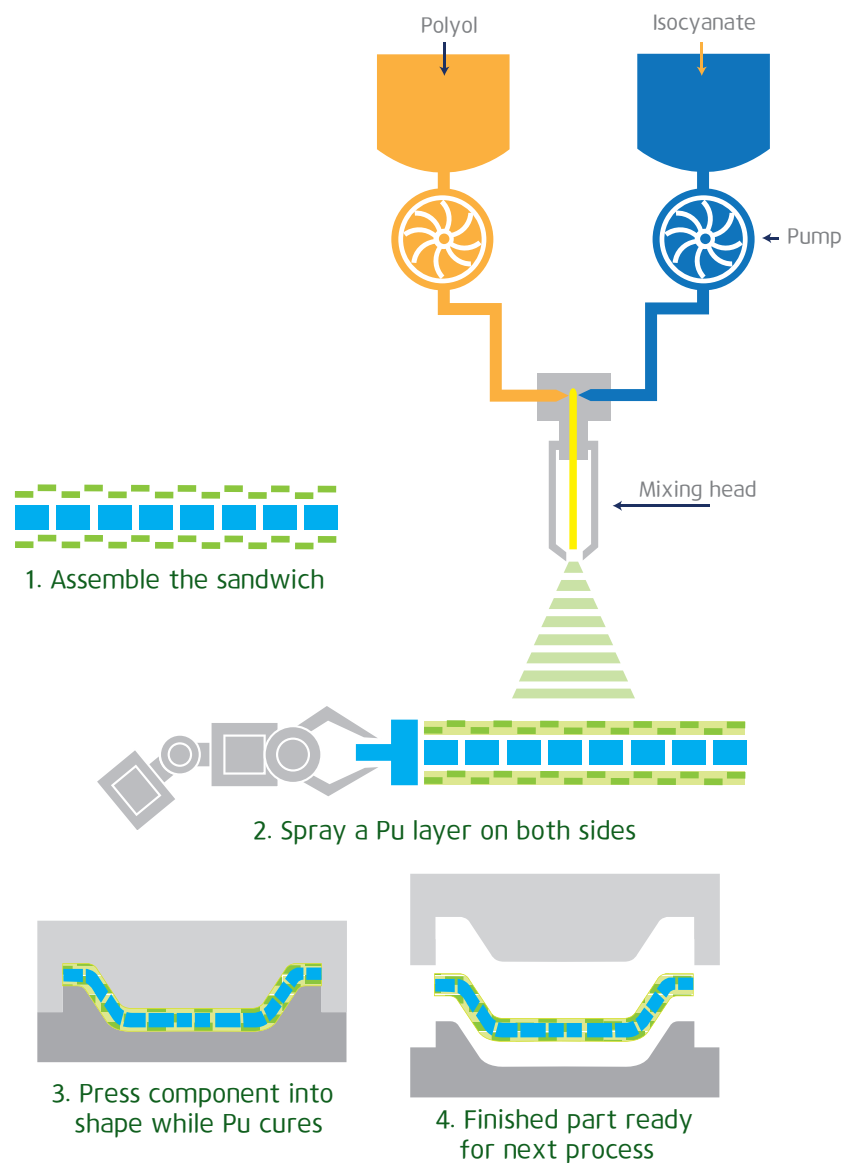


- Clips and other connecting elements can be integrated easily.
- Fiber content and length are changable locally.
- Minimal fiber mixing with high strength.
- Excellent surfaces with simple process combinations (IMP, film inserts).
- Moderate mold, machine and raw material costs.

CSM (Composite Spray Molding)

Thin layers on lightweight honeycomb cores

Low operation costs and low material consumption



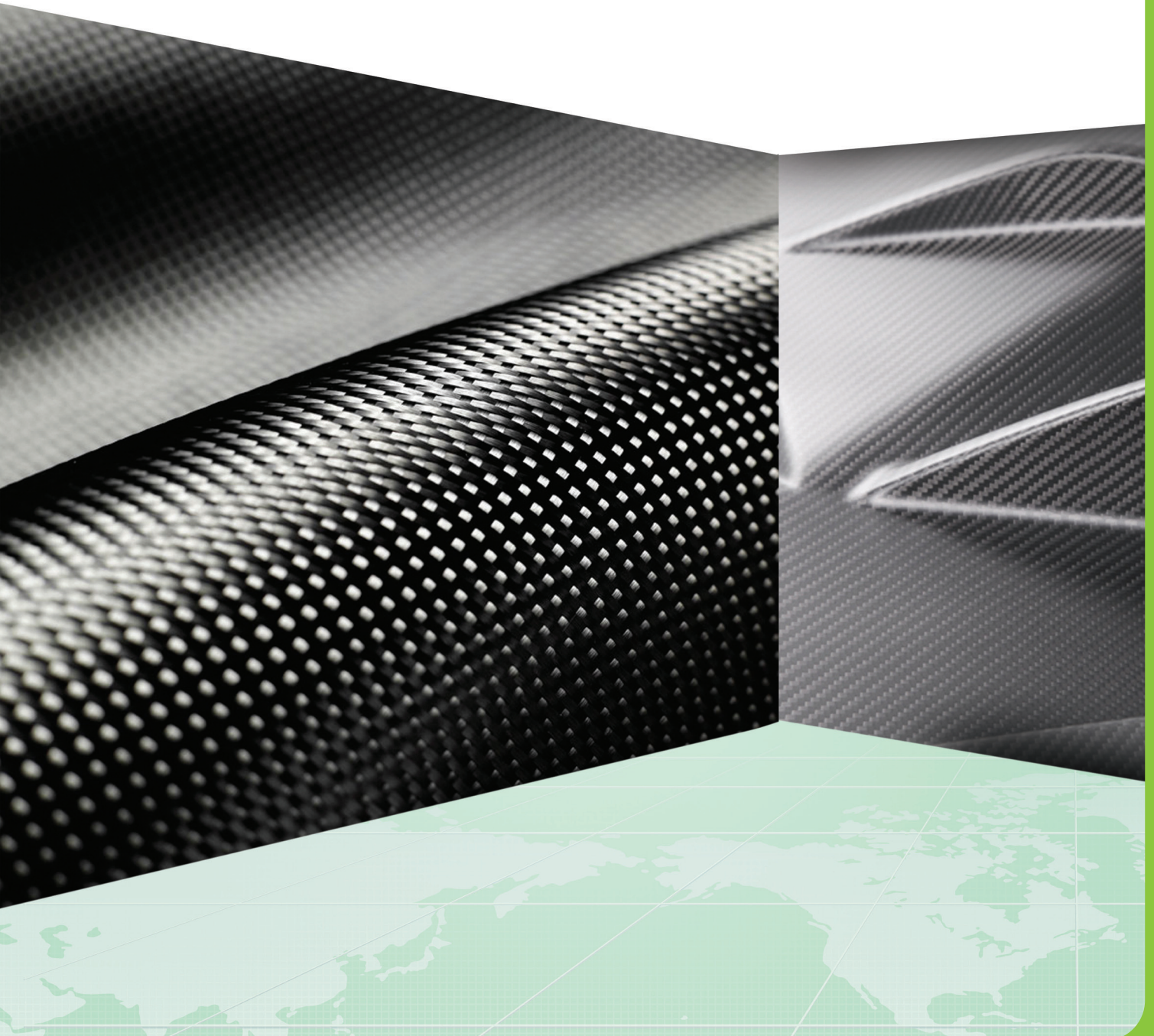
- Optimized lightweight construction applications with honeycombed structures.
- Glassfiber mat in a holding frame sprayed on both sides with PU.
- Extremely lightweight components with high rigidity and flexural strength.
- Combines easily with in-mold surface decoration.
- Premium-quality finish on both sides surfaces are already feasible in the process.

ABOUT US

DUT Korea, established in 1992 in Busan, is the leading company of Korean PU industry that specialized in the field of composites manufacturing equipment for lightweight auto parts. DUT can draw on the company's 23years know-how in the areas of polyurethane, so DUT can provide total solution for producing the parts with high performance thermoset composites with our own high technology including HP-RTM, R-RIM, LFI, FCS, SCS.

DUT's experts focus their work to optimize the manufacturing process chain.

In combination with different matrix polymers as well as various types of fiber and fabric architecture, DUT offers a high level of design flexibility for component parts. At the same time cost efficient processes that are suitable for mass production are the prerequisite for market success.



GLOBAL NETWORK

 **DUT-China**
SHANGHAI
E-mail : Kimhongam@hotmail.com



DUT-Korea Head Office
914-4, Janglim-dong, Saha-gu, Busan, Korea 604-040
E-mail : webmaster@dutkorea.com



 **DUT-Russia**
MOSCOW
E-mail : khmile@lprglobal.com

 **DUT-Europe**
LUXEMBOURG
E-mail : fesselbrandjy@pofi.lu

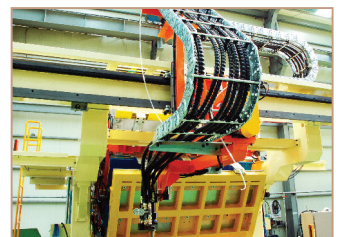
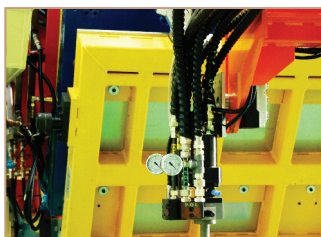
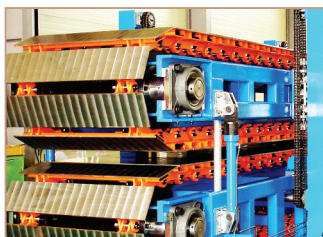


 **DUT-Iran**
TEHRAN
E-mail : info@bfgco.com

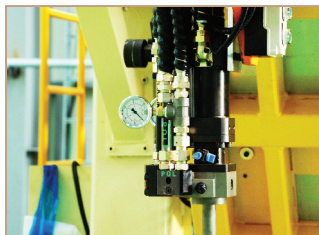
 **DUT-middle East**
DUBAI
E-mail : business@dutkorea.com

 **DUT-South Africa**
CAPE TOWN
E-mail : africa@dutkorea.com

 **DUT-India**
BANGALORE
E-mail : siddhifoams@airtelmail.in
siddhi@bgl.vsnl.net.in



GLOBAL NETWORK



Fiber reinforced composites allow the automotive industry to achieve weight savings that were previously not possible!

Solution for Lightweight fiber Composites

R&D

DUT's R&D Team consists of PU specialists. They are always consider to solve customer's difficulties and DUT's innovative technology is created from customer's requirement. DUT's R&D center is totally set by customers.

Q/A

To offer reliable products, Q/A team has been working to control product's quality. The technical data and troubleshootings are stored in DUT's Q/A database, and it helps to produce DUT's better products.

PRODUCTION

The Production team has organized by skilled engineers and they manufacture DUT's innovative products by reliable equipments.

Korea Head Office

Address : 914-4, Janglim-dong, Saha-gu, Busan, Korea
604-040
E-mail : webmaster@dutkorea.com
Tel : + 82 51 202 0586
Fax : + 82 51 202 0647

China Office

Address : Rm501-A, Hengjie Bldg, No.1234,
Xinsongjiang Road, Songjiang Shanghai, China, 201600
E-mail : Kimhongam@hotmail.com
Tel : + 86 216 782 5061
Mobile : + 86 13801883360

India Office

Address : 106/64, byraveshwara Industrial Estate,
Andrahail Main Road, Hegganahalli, Peenya IInd Stage,
Bangalore-560 091
E-mail : siddhifoams@airtelmail.in, siddhi@bgl.vsnl.net.in
Tel : +91 802 836 4563
Mobile : +91 984 527 1701

Europe Office

Address : 19, rue de Luxembourg L-4391 PONTPIERRE
E-mail : fisselbrandjy@pofi.lu
Mobile : + 33 6 78 66 41 26
Fax : (00 352) 26 55 68 55

Brazil Office

Address : Rua Dona Maria Fidélis, 161, Diadema - SP-
Brasi, BRAZIL
E-mail : comex@amino.com.br
Tel : + 55 11 4077 3777

North America Office

USA Office,
Address : 2425 Amesbury Road - Akron, OH 44313,
USA
E-mail : Jeff@hunterpure.com
Tel : + 1 330 805 4414
Mobile : +1 330 801 6766
Fax : +1 330 805 4414

Canada Office

Address : Toronto, Ontario, Canada
E-mail : khmile@lprglobal.com
Tel : + 1 905 370 0410
Fax : +1 416 572 3736

Iran Office

Address : No,11,Second floor, Build, NO.382, Moalem
Blvd, Yaft Abad, Tehran-Iran
E-mail : info@bfgco.com
Tel : +9821 66211 994
Fax : +9821 6629 6919