



CARBON FIBER

ATTENDORN, GERMANY



FUNDAMENTALLY BETTER

For over 30 years Bilsing Automation has concentrated on the development and production of flexible tooling that is unique and simply better.

In 2005 we initiated a program to develop products that are lighter, stiffer and more harmonically stable. The result is an unmatched range of high modulus, graphite carbon fiber profiles that enable us to provide a complete solution from the point of contact back to the handling

device. Using fundamentally better materials right from the start allows us to meet our goals and adapt our new tooling to applications such as press transfers, robotics, plastic part extractors, manual lift assists, and NAAMS frames for automotive body shop operations.

With our customer-centric approach and vast product line, we can quickly meet your application needs with an effective, economical solution.

Argentina | Brazil | China
Czech Republic | France
Great Britain | India | Japan
Italy | Mexico | South Korea
Spain | Sweden | Thailand
Turkey | USA



GLOBAL *MANUFACTURING*

Our skilled workforce is positioned globally using our unique Centers of Excellence approach. We manage manufacturing in the Czech Republic; project management, light fabrication and project assembly in Germany, Brazil and the United States; and computer-generated simulations in France. This flexibility, coupled with tight ISO-certified controls, guarantees our customers a high degree of sourcing flexibility, timely delivery and consistent performance.

While we stock ample inventory, we offer a unique spare parts management program that allows customers to store mission critical inventory in their production facility.

To address customers' needs at local levels we maintain technical sales offices around the world.

Global design and manufacturing



CZECH REPUBLIC



APPLICATION *EXPERIENCE*



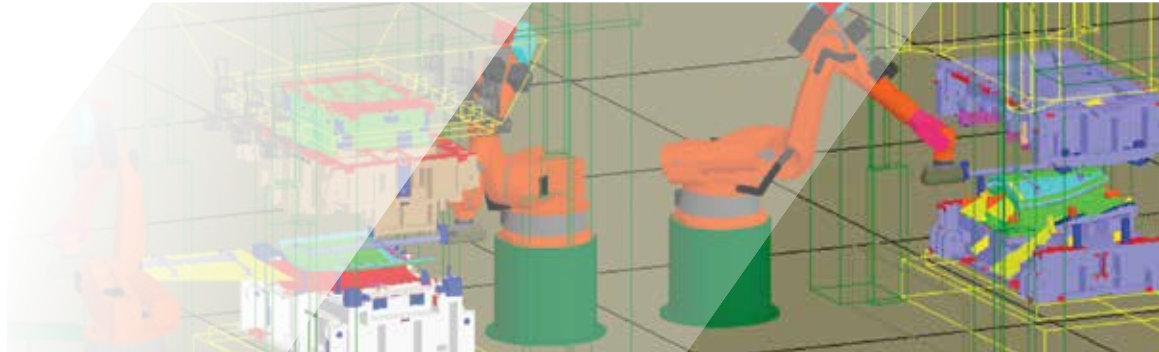
With decades of experience in various industries, you can rely on us to fulfill your tooling needs. We are recognized throughout the world for our professional project planning, up front die and tooling simulations, design, installations and support.

Key to our success has been the provision of low-cost, high quality standard components. While our experience in

providing solutions built with off-the-shelf tooling is vast, we also develop new products to meet specific customer needs. The innovation of an end-effector disconnect for our customer, Magna, demonstrates both our dedication to exceeding our customers' needs while finding an economical balance between using off-the-shelf parts with the creation of new tooling elements that meet custom applications.



Simulation studies ensure desired results





VACUUM *AND GRIPPING*

Bilsing Automation offers one of the most comprehensive selections of freely interchangeable gripping, vacuum and clamping components available on the market. Regardless of the brand you are accustomed to, our parts will fit and make your tooling more robust while saving you money.

Our engineers have developed a comprehensive line of products to meet plastic and metal material handling application needs in various industries and diverse environmental conditions.

While our off-the-shelf components continue to bring our customers bottom line savings, we are constantly researching; learning and adapting our knowledge to meet new challenges. Our latest hot stamp gripper, engineered for high temp applications, demonstrates this dedication to innovation.

Single-line venturi
with auto blow-off



ADVANCED TRACTION VACUUM CUPS

Servo press and automation technologies continue to boost stamping processing speeds, causing components to experience higher transverse forces as they move between operations. To address this challenge, we have designed an advanced series of traction vacuum cups, identified by their bright yellow color. These cups offer high absorption

of transverse forces in addition helping to disperse oils from the sheet metal surface for better gripping capability. They can also adapt to various part geometry and materials, handling both steel and aluminum sheets. The Bilsing yellow suction cups have a stiff head with a profile structure that resists deformation as well as offering stability and durability.







TRANSFER TOOLING

For tri-axis and crossbar transfer press applications Bilsing Automation offers aluminum and steel modular tooling systems, vacuum cups, shovels and pneumatic gripper clamps, as well as quick disconnects with integrated pneumatic and electrical functions.

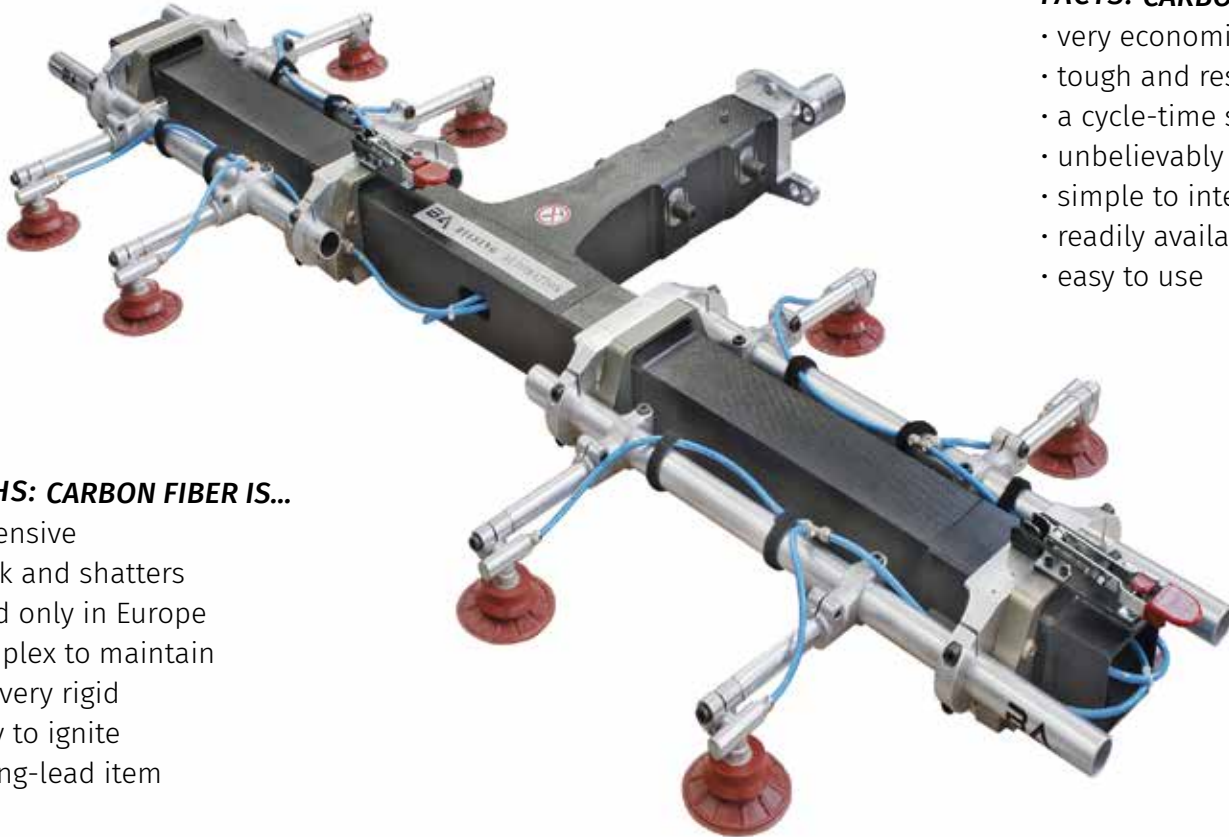
Bilsing's carbon fiber transfer bars and tooling saddles have long been a staple on the world's most popular crossbar transfer presses. Our experience in design, simulation and tooling-build enables us to offer tooling validation prior to the

start of production. This allows our customers to anticipate and avoid interferences and to program motion paths offline, prior to initial die setting and tool launch. This results in tremendous savings in time, materials and cost.

With grippers inside the press and vacuum frames on robotic feeders, we have transfer press tooling covered.

Schuler has long relied on Bilsing quality





MYTHS: CARBON FIBER IS...

- expensive
- weak and shatters
- used only in Europe
- complex to maintain
- not very rigid
- easy to ignite
- a long-lead item

FACTS: CARBON FIBER IS...

- very economical
- tough and resilient
- a cycle-time saver
- unbelievably light
- simple to integrate
- readily available
- easy to use

CARBON FIBER SPECIALISTS



Although aluminum and steel tooling components continue to be a large part of our business, we saw the benefits of investing time and research into the development of lighter, stiffer and more harmonically stable tools. Years of work with manufacturers specialized in advanced materials processes for aerospace and boating has resulted in our high modulus, graphite carbon fiber (CF) tooling, which is much different than the carbon fiber people typically envision. Bilsing's CF offers increased strength and rigidity without being brittle – yet weighs less than half of traditional materials for improved productivity. Today, we often mix our aluminum, steel and CF components to meet application needs while improving productivity.

In impact tests
aluminum mounts
fail before CF





Bond+Bolt™
Bonding Automation Technology



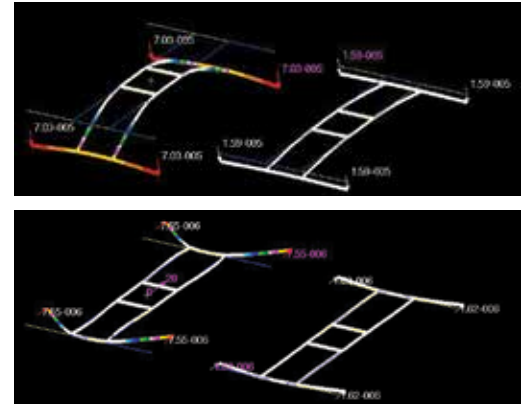
NAAMS FRAMES REINVENTED

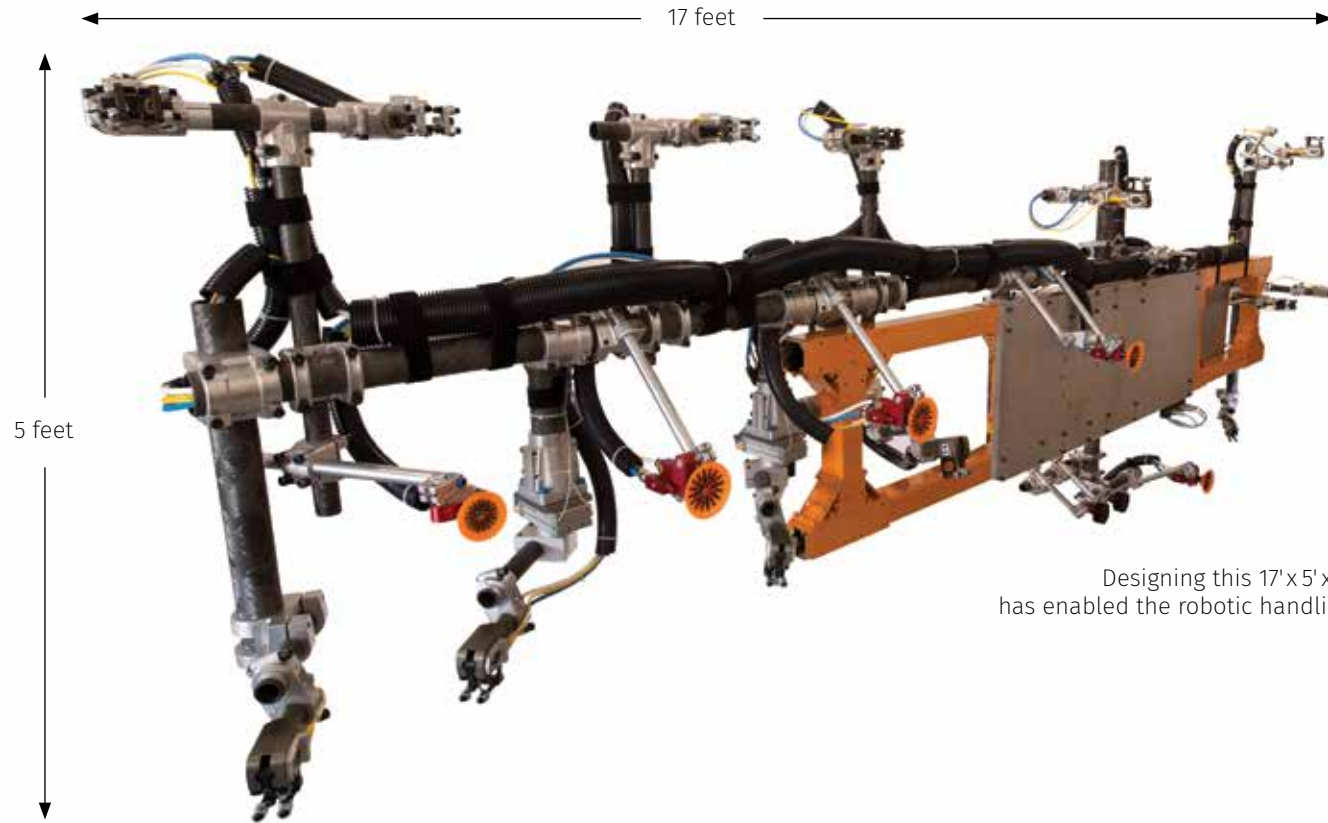
Aimed at industry cost-reduction without sacrificing quality, the NAAMS global standard has been adopted by automotive companies for the design and construction of stamping and body shop end effector tooling for high speed robotic applications.



Heat resistant at over 3,300°C (5,972°F)

Bilsing has developed a carbon fiber (CF) process resulting in structural composite tubes, which are particularly suited where high loads, bending stiffness and stability are needed. Our NAAMS frames meet all interchangeability requirements while exceeding dynamic and static loading standards, yet are only about half the weight of comparable steel counterparts. Even more impressive, our CF frames are able to rapidly settle at the end of a robot move, greatly reducing production cycle time.





Designing this 17'x5'x2' tooling in carbon fiber has enabled the robotic handling of an entire body side.

Bond+Bolt™
Bliss Automation Technology

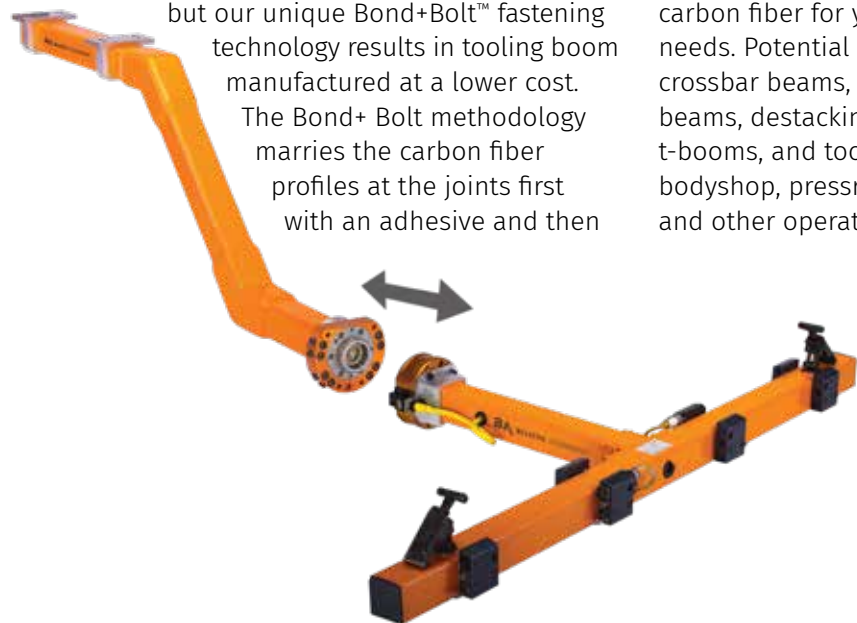


STRONGER JOINTS

Not only does Bilsing's carbon fiber (CF) tooling reduce cycle times by up to 20%, but our unique Bond+Bolt™ fastening technology results in tooling boom manufactured at a lower cost.

The Bond+ Bolt methodology marries the carbon fiber profiles at the joints first with an adhesive and then

reinforces it with steel bolts through the core. It's just another reason to consider carbon fiber for your automation tooling needs. Potential CF applications include crossbar beams, loading and unloading beams, destacking beams, panel loading t-booms, and tooling supports for bodyshop, pressroom, injection molding and other operations.



Bond+Bolt produces joints as strong as steel welds.

BA
Cf





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