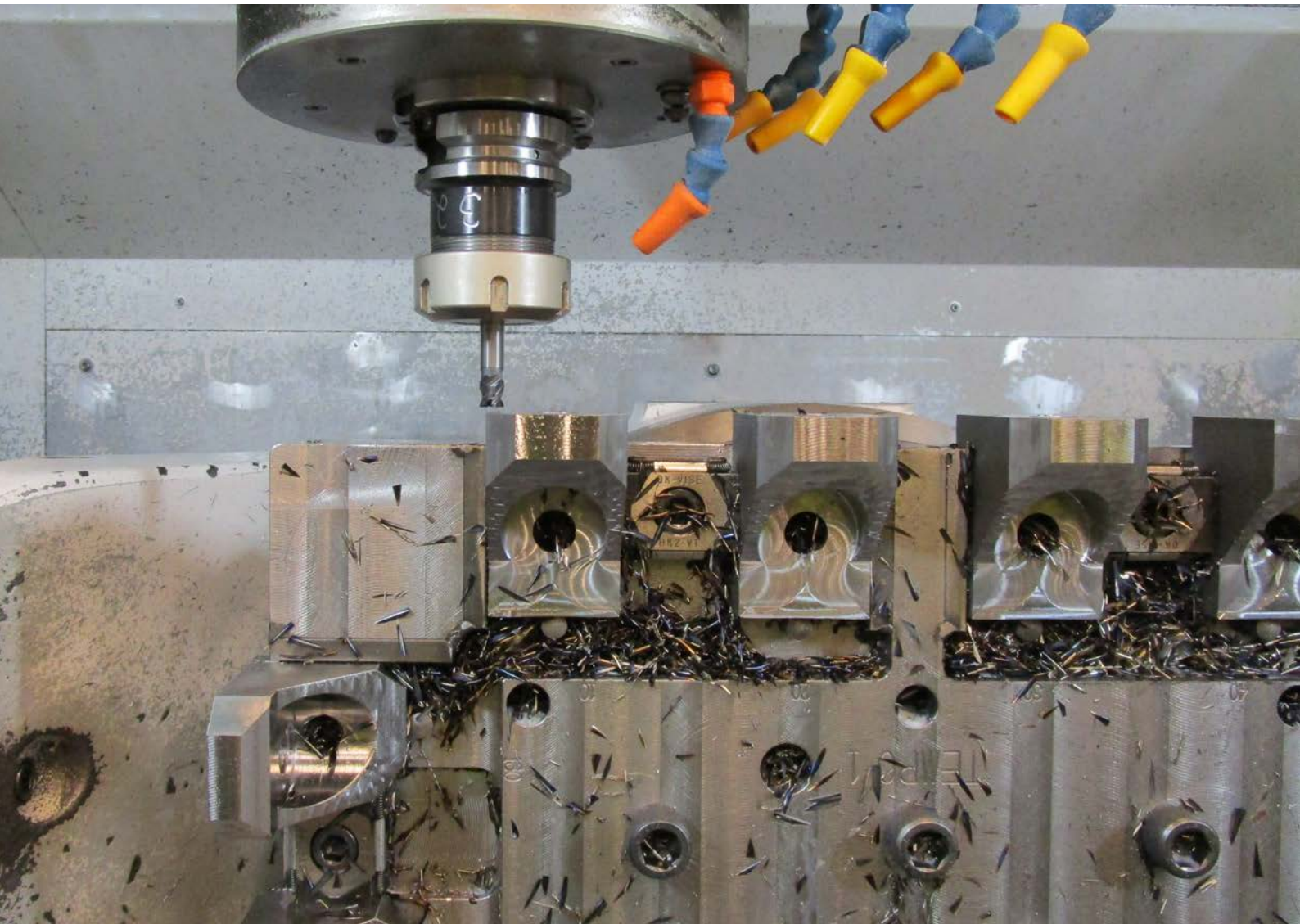

CAR-O-LINER & MITSUBISHI MATERIALS

SUCCESS STORY



PRECISION AND RELIABILITY



Car-O-Liner straightening bench



The Car-O-Liner bench in use - Establishing the extent of the mis-alignment damage

ABOUT THE IMX END MILL

Profile	Heads for precision machining. Roughing, finishing, contouring and chamfering.
Sizes	Ø 10 - 25 mm
Geometry	21 different types Solid carbide heads, with and without through coolant. Steel or solid carbide holders.
Features	Solid carbide face and taper clamping surfaces. Precise replacement positioning.

PRECISION AND PERFECTION WITH THE IMX EXCHANGEABLE HEAD END MILL SERIES FROM MITSUBISHI MATERIALS

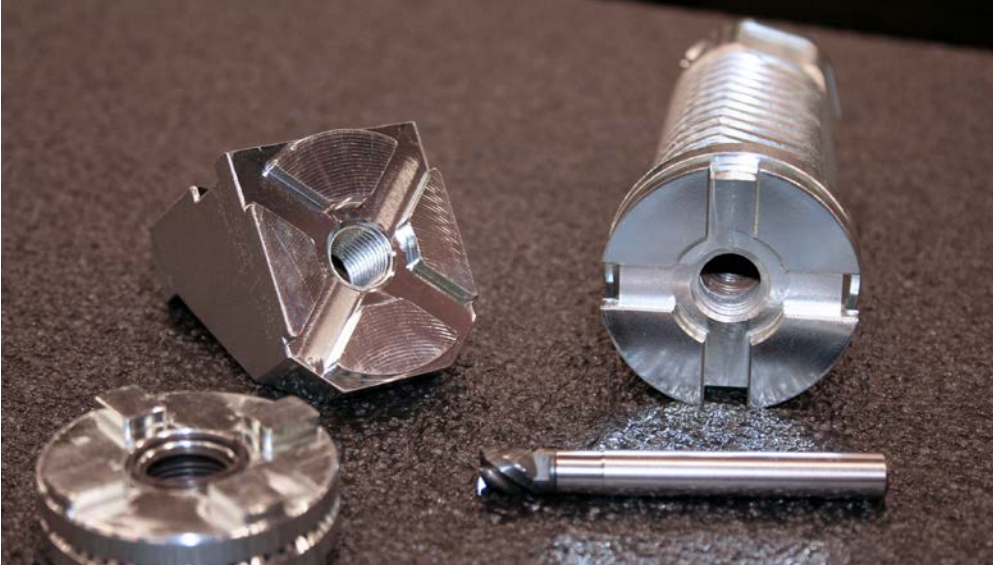
Outstanding surface finishes, short processing times, flexible cutting tools; when it comes to meeting the demands of the automotive repair business, exceptional machining results are a challenge. Car-O-Liner, one of the leading manufacturers of collision repair, alignment and induction heating systems, chose Mitsubishi's iMX series to achieve the required increase in production and improved surface finish. "In our business, the eye tends to be drawn to even the smallest blemishes. This is why we target perfection", says Peter Hedenström, production manager at Car-O-Liner in Kungsör, Sweden.

The Swedish Car-O-Liner Group has over 45 years' experience in manufacturing, among others, straightening benches, measuring solutions as well as EVO anchoring and holding equipment for passenger cars. Along with its group companies Josam and TruckCam that specialise in wheel alignment and straightening equipment for trucks, the company serves customers across the globe via numerous dealers. Four distribution centres located in Europe, China, Thailand and the US ensures quick deliveries to more than 75 countries worldwide.

The site in Kungsör, Sweden, is Car-O-Liner's main production

facility for alignment benches between 4.2 and 6.3 metres as well as for EVO accessory systems and tool boards. The company's recent acquisition by the American Snap-on Group added further products to Car-O-Liner's portfolio and strengthened its international presence and operation. Peter says: "Today, our product portfolio is so diverse that we can practically offer a complete repair factory to our customers; all the equipment they need for straightening and repairing vehicles from one supplier".

The latest generation vehicles are made of many different materials, making repair works even more complex; hence, they require sophisticated equipment to ensure accurate repairs. By analysing and keeping detailed manufacturing data for over 16,000 vehicles, Car-O-Liner is able to offer tools for the most demanding applications. "Our toolboards are not only of highest quality, they are also universal thus they can be successfully utilised for various vehicles from many different brands and ensure the original tight tolerances can be restored after repair. This is our competitive advantage", Peter states. Adding to this statement, Mats Jonsson, production engineer at Car-O-Liner says: "To reach this flexibility and versatility we carefully choose cutting



iMX exchangeable head end mill and the finish machined clamping components



Modular clamping and measuring

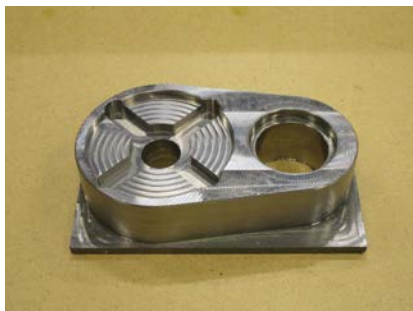
tools for our production lines that lead to super surface finishes directly after machining, without the need for any post-processing or further surface treatment. Mitsubishi's iMX series enables us to achieve the perfect result".

CROSSING THE EFFICIENCY BOUNDARY

The materials processed in Kungsör are mainly cast iron, carbon and alloy steels. As such, Car-O-Liner focuses on tooling solutions with proven high strength and hardness as well as high durability. Components such as the interlocking male and female blocks used on the modular EVO anchoring and clamping system require high product reliability and accuracy as they influence the safety performance of the equipment. Car-O-Liner has tested various cutting tools from different suppliers to identify the optimal solution. Many of the tools tested failed due to poor vibration resistance, which led to breakages, chip welding and poor surface finishes.

Today, this application is part of Car-O-Liner's daily business and is related to almost every component of the tool board. Mats reports: "Before we changed to Mitsubishi tools we could successfully machine

up to 6 parts with one tool and then the result deteriorated considerably, leading to a rough surface finish of the workpiece.



One of our tool suppliers, Colly Verkstadsteknik* introduced Mitsubishi's iMX series, that enabled us to increase the feeds and speeds and also prolong the tool life by 30 percent whilst maintaining the surface finish at the highest levels. In addition, the cycle time was also reduced by 20 minutes". The standard 4 flute, Ø10 mm iMX head used on this application provides not only the machining capability and long tool life provided by the latest (Al,Cr)N coating, but also precise interchangeability within +/-0.02mm radially. Anders Kock, salesman at Colly, says: "We always look at our customers' needs first, but it is easy to be a salesman when you can trust the tools. The technology of the iMX series with the steel thread and the carbide to carbide taper and face contact stood out towards

"One of our tool suppliers, Colly Verkstadsteknik, introduced Mitsubishi's iMX series, that enabled us to increase the feeds and speeds and also prolong the tool life by 30 percent whilst maintaining the surface finish at the highest levels. In addition the cycle time was also reduced by 20 minutes."

**MATS JONSSON (PRODUCTION ENGINEER)
CAR-O-LINER**





Part machined female modular clamping component

ABOUT CAR-O-LINER

Car-O-Liner Group is the leading global innovator, manufacturer and marketer of collision repair and wheel alignment systems. The group's brands include Car-O-Liner, Josam and TruckCam. Since October 2016 Car-O-Liner is a part of Snap-on Incorporated. The products and services include equipment, systems, software and data for the repair of collision damaged vehicles (cars, SUVs and light trucks) and for axel alignment/straightening (heavy trucks and buses). All systems and solutions are well known for their high quality, advanced technology and ergonomic design.

The Car-O-Liner Group headquarters is located in Gothenburg, Sweden. Subsidiaries are located in Sweden, Norway, France, Italy, Germany, the UK, the USA, UAE, India, Thailand and China, and is sold through local distributors in more than 70 countries.

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ABOUT MITSUBISHI MATERIALS & COLLY VERKSTADSTEKNIK

Mitsubishi Materials Corporation is a leading Japanese company, specialising amongst others, in the production of cutting materials, coatings and precision tools for the metal working industry. Mitsubishi Materials Corporation operates Head Offices in Europe, India, Brazil, China, USA, Japan and Thailand, a modern Research and Development Centre in Japan and several production facilities throughout the world. The Corporation employs over 24,000 people in more than 77 countries.

Colly Verkstadsteknik is the authorised distributor of Mitsubishi Materials in Sweden that specialises in cutting tools and tool holding equipment. With a wide range of standard items and an unlimited range of special tools, Colly's 27 dedicated employees find tailored solutions to customer's specific requirements. In addition Colly is authorised by Mitsubishi Materials to handle re-grinding of cutting tools at its facility in Sweden.

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(From left to right): Anders Kock (salesman, Colly Verkstadsteknik), Peter Hedenström (production manager, Car-O-Liner), Mats Jonsson (production engineer, Car-O-Liner)

competitive solutions because it offered the required tool stability and reliability, driving top and bottom line results".

As a tooling expert, Colly plays an increasingly important role in Car-O-Liner's recent plans to expand production capacity. "Investing in new modern machines is one thing; increasing volumes with the same amount of machines though, requires professional consultancy from our tool suppliers coupled with our KAIZEN and RCI (rapid continuous improvement) activities. For this new thinking,

high-end technologies and operational support, we value our tool supplier Colly and Mitsubishi Materials' tooling solutions", concludes Peter.

*Colly Verkstadsteknik is the authorized distributor of Mitsubishi Materials in Sweden.

