

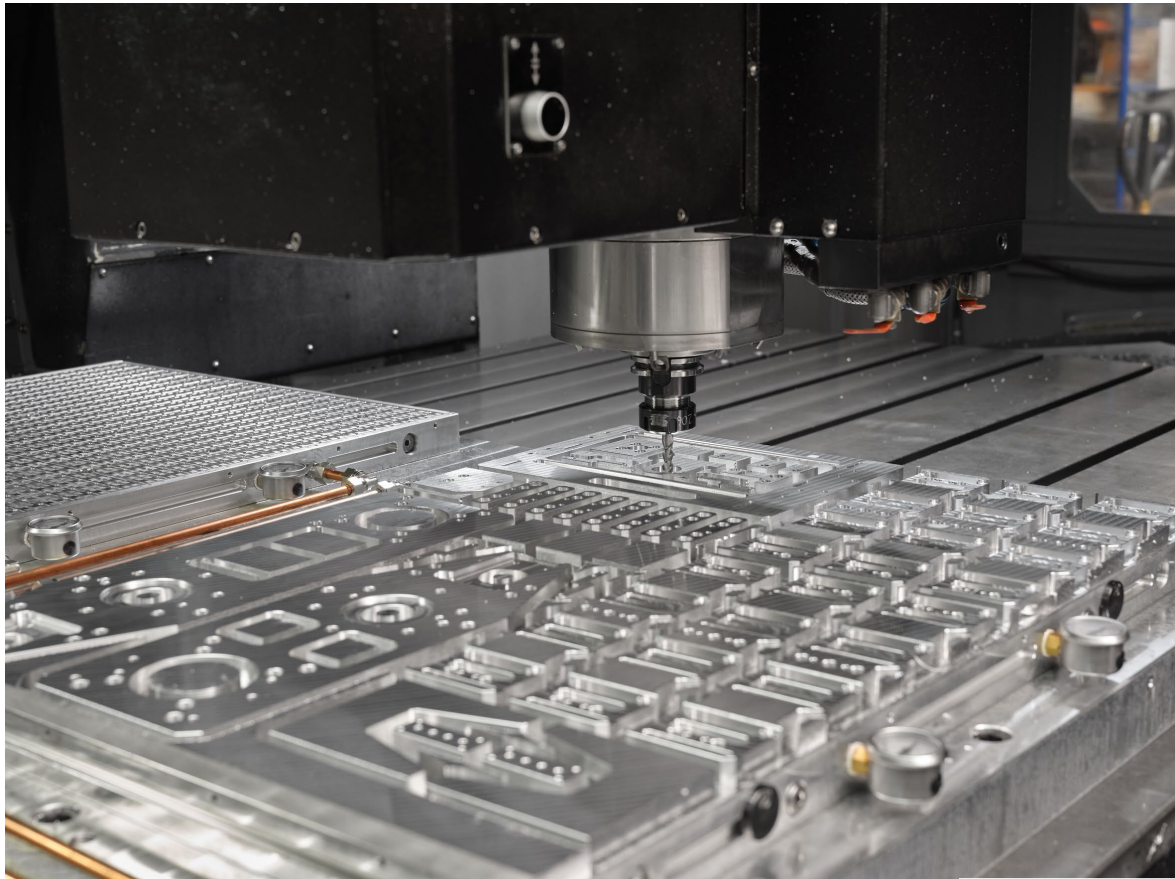
Press release

Neubauer application

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Vacuum clamping technology from AMF pulverises set-up times in single-part production



Optimum clamping solution thanks to partners who think along with us

(Föritzal/Fellbach) Just in time for the largest order in the company's history, a trusted dealer suggests using vacuum clamping technology to a specialist mechanical engineering manufacturer. This allows many aluminium workpieces to be produced in a single clamping operation, where otherwise individual workpieces had to be clamped. With this, the clamping experts at AMF have virtually pulverised the set-up time. A wonderful example of how tpartners who think along with us contribute to a success story.

"The vacuum clamping technology is a great help for the production of our many different aluminium workpieces. It makes it much easier to produce what are frequently small series or individual parts," reports Marcel Schramm, CNC department manager at

Press contact

Manufacturer:

ANDREAS MAIER GmbH & Co. KG
Marcel Häge
Waiblinger Strasse 116
D-70734 Fellbach
Tel. +49 (0)711 - 57 66 - 264
haege[at]amf.de, www. amf.de

User:

Ingenieurbüro Uwe Neubauer
Uwe Neubauer
Steinräum 20, 96524 Föritzal,
Germany
uwe.neubauer[at]in-un.de
www. lb-un.de

Dealer:

Wütschner Industrietechnik GmbH
Heiko Meyer, Technical Consultant
Rudolf-Diesel-Str. 15,
D-97424 Schweinfurt
h.meyer[at]wuetschner.de

Ingenieurbüro Uwe Neubauer. And machine operator Ronny Neidnicht puts it in a nutshell: "We have reduced set-up times by around 95%. "Naturally, such almost fairytale-sounding savings require a closer look. So let us break down the success story.

Three experts find an ingenious solution together

The engineering office in Föritztal, Thuringia, Germany, with 30 employees guided by its boss Uwe Neubauer, specialises in special mechanical engineering. In doing so, their specialised knowledge is in complete automated robot systems, including quality and presence checks using the latest camera technology. In doing so, each order is an individual customised solution that ensures the best possible efficiency for the customer. From design to delivery, almost all parts, sub-assemblies and fabrications are produced in-house. For weight reasons, aluminium is predominantly the material of choice. And in this way, the machiners use a gantry milling machine and two CNC machining centres to produce every single part - from small to large - with a precise fit. This is very time-consuming, as clamping the individual blanks takes a significant amount of time and is very laborious. Each individual part requires its own special clamping solution to ensure that the cutter reaches all the necessary sides and edges.

When long-standing technical consultant Heiko Meyer from Wütschner Industrietechnik GmbH in Schweinfurt took a look at the situation, he brought in a faster solution. A vacuum clamping plate should be able to achieve an enormous improvement and save time. "When viewed from the outside, the solution is quickly obvious," says Meyer, who has a lot of experience and thinks very broadly and initially in a manufacturer-neutral way. His employer - Wütschner Industrietechnik GmbH - is a brand specialist for precision tools. The family-run company has a wide range of tools from various supplier partners. Meyer always looks for the right solution for the customer from this pool. In this case, Andreas Maier GmbH & Co. KG (AMF) from Fellbach.

A great trick brings exorbitant time savings

Since spring 2023, two Premium Line vacuum clamping plates from the clamping experts based in Fellbach, measuring 600 × 800 mm, have been attached to a base plate on the machine table of the Hurco DCX 22i. Neubauer has dispensed with the optional AMF zero-point clamping technology for quick changing and alignment of the plates. This is because - and this is the great trick with this solution - individual blanks are no longer clamped at all. Instead of that, large aluminium plates are fixed in place, from which the individual parts are milled out. This means that individual parts are no longer machined in a single clamping operation, but rather many parts are produced at once from the large plate. This already gives an idea of

where the 95% saving in set-up time comes from. The designers calculate the optimum utilisation of the aluminium plate with the aim of keeping waste to a minimum.

The individual parts are produced in a five-sided machining process almost to their final dimensions. 0.45 mm of the aluminium plate remains. This is necessary to prevent the vacuum from breaking. The parts are later broken out of the plate, deburred and - if necessary - finished. Individual areas on the vacuum clamping plate can be marked out with the corresponding sealing cord if the entire area is not required. The sealing cords also compensate for minor unevenness on the workpiece surface. The pipework for controlling certain areas and sectors was manufactured by the resourceful inventors at Neubauer themselves. The pumping performance can be precisely controlled using the shut-off valves. The 40 mm high vacuum clamping plate has grooves and 16 suction points on the upper side. This makes it easy to insert the sealing cord. All grooves are labelled with the coordinates so that clamping can be easily reproduced. Holes for stop pins or lateral, height-adjustable eccentric stops make it easy to position workpieces.

Sensitive filters and pressure monitors protect the vacuum circuit

The pipework has a major benefit over plastic hoses that can also be used, as Schramm emphasises: "If the hot chips fly around during milling, they can also burn holes into a hose. Then the system would leak. And we definitely don't want that to happen." This is why the vacuum filter system with liquid separator and a pressure monitor with sensor is extremely sensitive. If, for example, the plate is accidentally drilled through and the vacuum circuit leaks, the machine moves to stop immediately. A clever solution developed by the user bridges a possible leakage for a certain amount of time before cooling lubricant in the circuit reaches the pump and destroys it.

The vacuum required for clamping the aluminium plate is generated by the AMF rotary vane vacuum pump. It ensures reliable continuous operation of the clamping plates used. Because the pump is very compact, it can be installed directly on the machine. A motor power of 0.75 kW suction performance of and 20 m³/h generate a output pressure of 1.5 mbar. Two Venturi nozzles are also integrated into the Premium Line plate, which suck in a maximum of 48.8 l/min of suction volume against the atmosphere at an operating pressure of 3.5 bar and generate a 92 per cent vacuum.

Partners thinking along find the optimally suited solution

The two vacuum clamping plates used at Neubauer can be connected to each other and then operated via a common

connection. "This provides the flexibility that the machiners at Neubauer were looking for," emphasises Norman Rhein from AMF. "Our solution for reducing set-up times drastically convinced very quickly. With 95% time savings, I also do not need to argue any further." As a forward-thinking sales engineer, the state-certified mechanical engineer not only brought in a product, but also a solution. And this is exactly what Wütschner Industrietechnik GmbH and its employees offer: they not only sell, but also think along with the customer and find solutions for their tasks.

Company boss Uwe Neubauer also appreciates it when the supply partners think along with him and implement his ambitions. "With our high-precision customised solutions, we cover a huge area so that our customers don't have to look for many different suppliers. We expect the same understanding from our partners. With Wütschner Industrietechnik and AMF, we have two suitable partners on board." This should also make the largest order in the company's history a success story for Ingenieurbüro Uwe Neubauer's engineering office.

*1,001 words, 7,477 characters
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((AMF company information))

Market leader in machine-table clamping

Today, Andreas Maier Fellbach (AMF), originally founded in 1890, is a one-stop supplier in clamping technology and one of the world market leaders. With a global market presence, the company and its employees always have an open ear for the problems of their customers. By listening to these needs, and through its strong problem-solving ability, professional consultancy, intelligent engineering and high manufacturing quality, AMF repeatedly develops project fabrications and customised solutions for customers as well as standard solutions that succeed in the market. With more than 5,000 products and numerous patents, it ranks among the top innovators in the industry. Speed, flexibility and 240 well-qualified employees guarantee success at Andreas Maier GmbH & Co. KG. In 2022, AMF earned revenue of almost 50 million euro.

((Company information Ingenieurbüro Uwe Neubauer))

Creative solutions for assembly, handling and feeding technology

Ingenieurbüro Uwe Neubauer is a medium-sized company specialising in special mechanical engineering. For over two decades, we have been producing manual workstations, fixtures, special machines, automation systems and complete robot production lines for almost all branches of industry. In addition to the automotive sector, customers include the plastics, glass and ceramics industries as well as the aluminium processing industry. The engineering office offers high-tech solutions for a wide range of applications, combined with process-optimised programming and clear visualisation. The experts only use technologies from well-known manufacturers and always endeavour to find an economical solution.

From development to commissioning, the company supports its customers in word and deed. This is a unique selling point of the engineering office.

((Company information Wütschner Industrietechnik GmbH))

Finding solutions with experience, understanding and a complete programme

As a third-generation family business, Wütschner Industrietechnik GmbH is a full-range supplier of precision tools, clamping technology, measuring equipment, operating and storage equipment, occupational safety and general industrial supplies. With a large network of well-known, quality-conscious supplier partners, Wütschner Industrietechnik is much more than just a trading partner. Regardless of whether customers are looking for economical tools for an existing machining task, whether they need to machine a new material or want to optimise their production - Wütschner Industrietechnik and its strong supplier partners will find the best

solution for the customer and the latest technology! The vision is clearly customer-orientated, according to the motto "Our customers have tasks - we offer the right solutions!" More information at www.wuetschner.de

Image directory AMF , AWB Neubauer

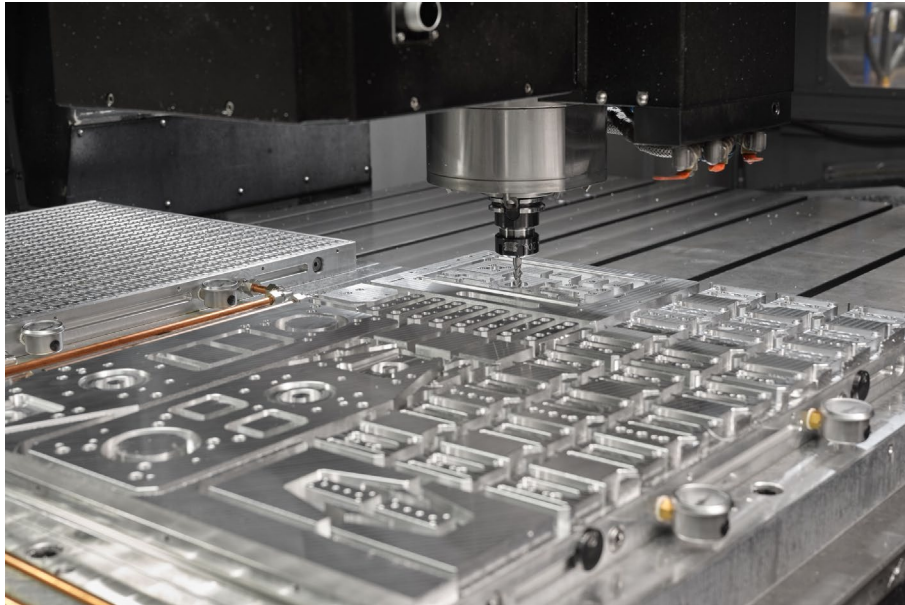


Image no. 130-01 AM_UN-Fräsprozess.jpg.

AMF vacuum clamping technology makes it possible: many milled parts in a single clamping.

©Image source: AMF

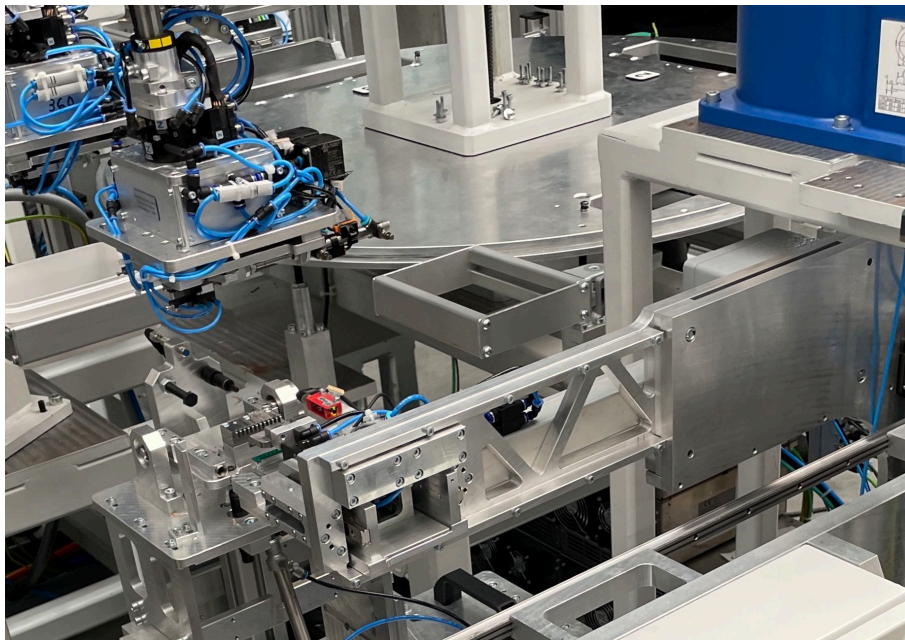


Image no. 130-02 AM_UN-Sondermaschine.jpg.

Ingenieurbüro Uwe Neubauer specialises in special machine construction with a focus on robot-based complete lines.

Image source: AMF

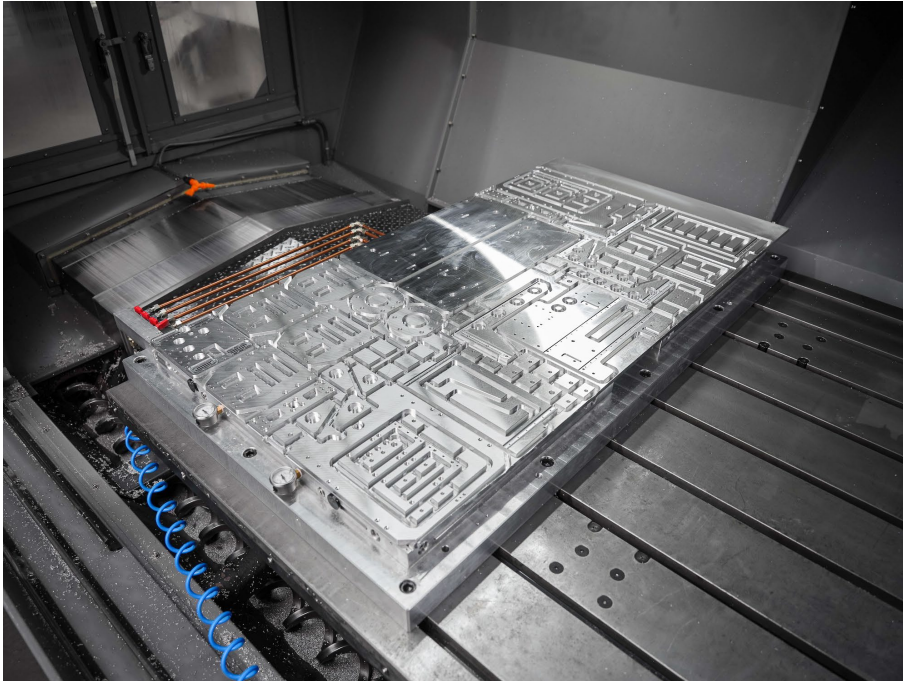


Image no. 130-03 AM_UN-Aluplatte.jpg

The individual parts are produced in a five-sided machining process almost to their final dimensions. The designers calculate the optimum utilisation of the aluminium plate with the aim of keeping waste to a minimum.

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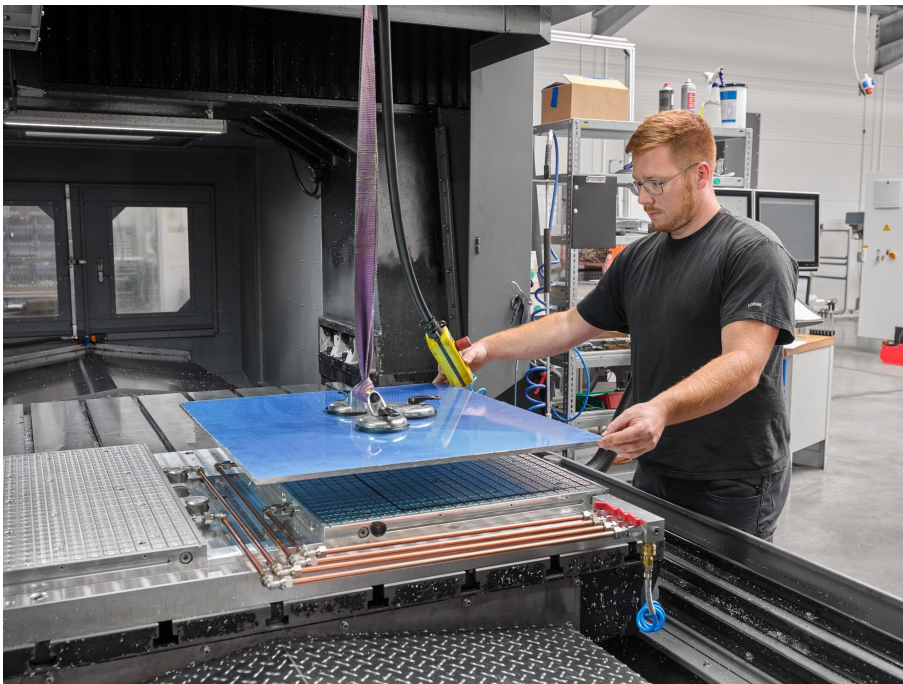


Image no. 130-04 AM_UN-Spannvorgang.jpg

The 40 mm high vacuum clamping plate has grooves and 16 suction points on the upper side. Holes for stop pins or lateral, height-adjustable eccentric stops make it easy to position workpieces.

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Image no. 130-05 AM_UN-AMF-Vakuumschneidplatten.jpg

Since spring 2023, two AMF Premium Line vacuum clamping plates from the clamping experts based in Fellbach, measuring 600 x 800 mm, have been attached to a base plate on the machine table.

©Image source: AMF

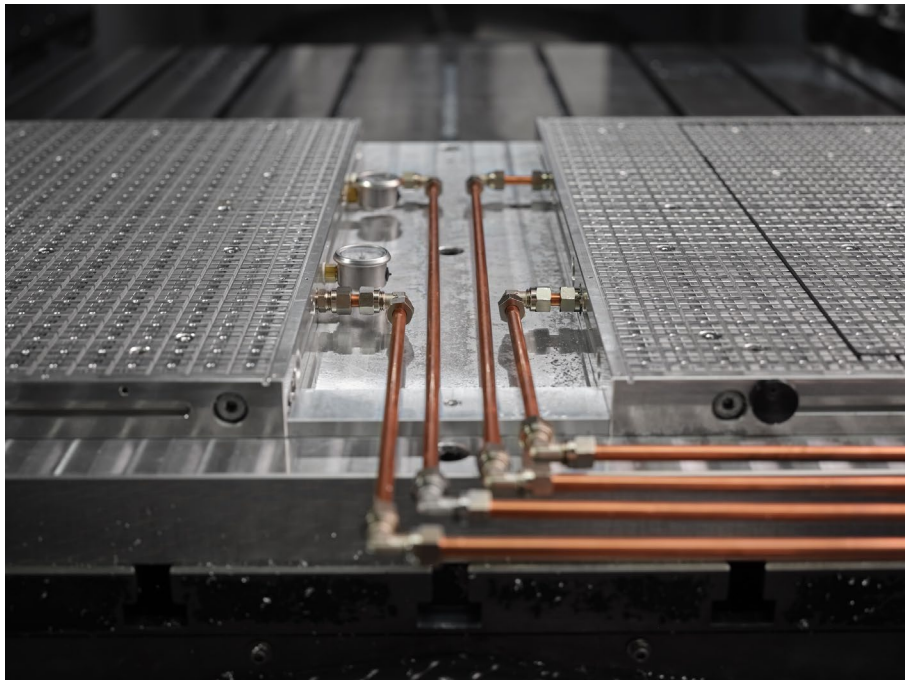


Image no. 130-06 AM_UN-Verrohrung.jpg

The two AMF vacuum clamping plates can be connected to each other and then operated via a common connection.

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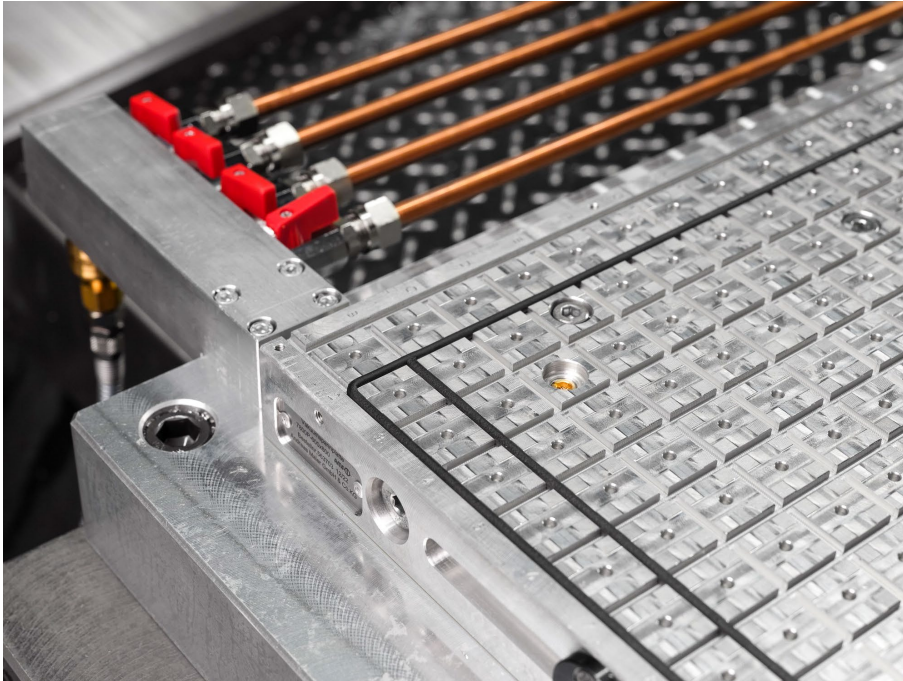


Image no. 130-07 AM_UN-Absperrhähne.jpg

The resourceful inventors at Neubauer manufactured the pipework themselves. The pumping performance can be precisely controlled using the shut-off valves.

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Image no. 130-08 AM_UN-Filter.jpg

The vacuum filter system with liquid separator and a pressure monitor with sensor is extremely sensitive.

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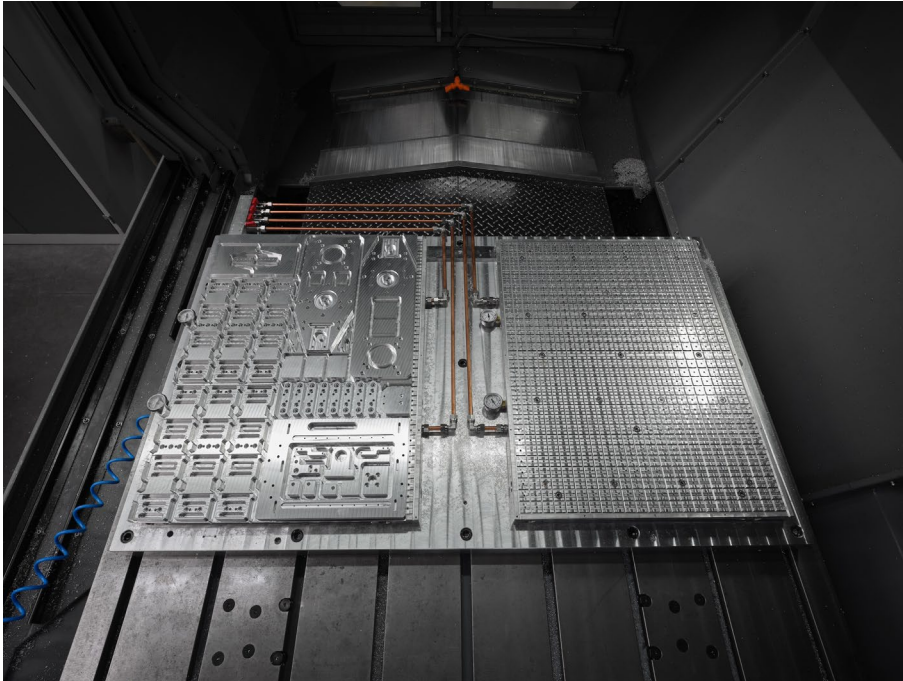


Image no. 130-09 AM_UN-.jpg

Individual areas on the vacuum clamping plate can be marked out with the corresponding sealing cord if the entire area is not required.

©Image source: AMF



Image no. 130-10 AM_UN-People.jpg

Partners thinking along find the optimum solution: (from the left) Normann Rhein, AMF, Uwe Neubauer, Marcel Schramm, Ingenieurbüro Uwe Neubauer, Heiko Meyer, Wütschner Industrietechnik

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