

HMH Hungerbühler gave sheet-metal processing specialist BOSCHERT a development order for the Boschert MP 4020.



# PACKING A PUNCH

Swiss subcontractor, HMH Hungerbühler GmbH, awarded a development order to BOSCHERT for a punching machine that could process super-sized XXL sheets.

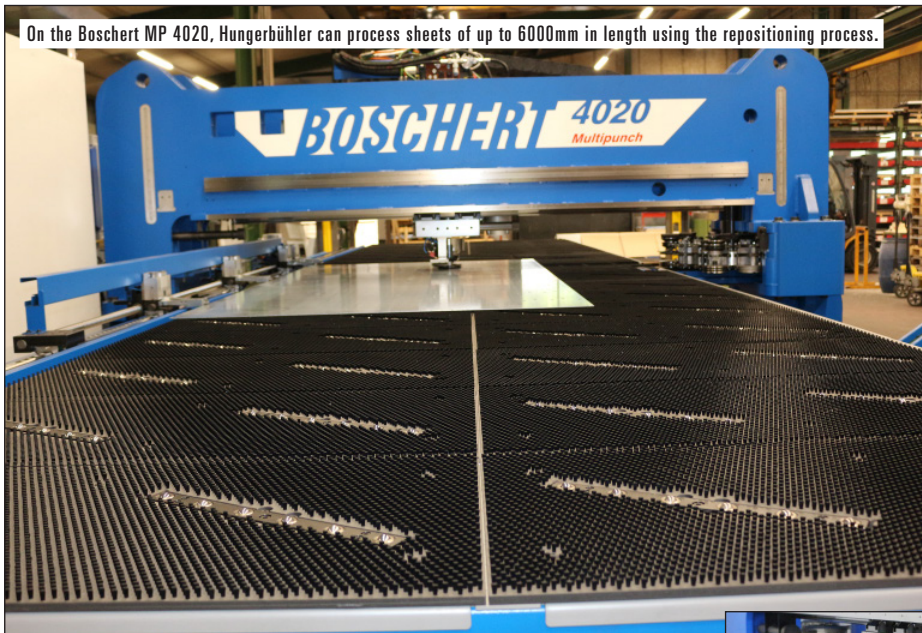
**ISMR SAYS:** *"The MP 4020 can punch, nibble, form or mark sheets of up to 6mm in thickness. The 12-station tool changer is designed to significantly reduce non-productive time."*

**H**MH Hungerbühler GmbH in Arnegg in the Swiss canton of St. Gallen has earned a strong reputation as a contract manufacturer over the past 25 years. The products from company founder and managing director, Markus Hungerbühler, and his 25-person team, are in demand among craftsmen and mechanical engineers in German-speaking Switzerland and beyond.

Customers have highlighted the company's rapid, high-quality production and sensible advice on feasibility and material processing. Hungerbühler mainly processes stainless steel but also aluminium and some brass and copper. The company sells around 2000 tons of material every year.

"We mostly produce small series. We usually run 20 to 30 different programs every day," explained Hungerbühler. "If we bend the same part for two days, that is already a large series for us."





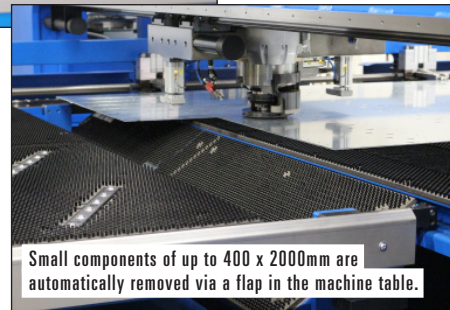
On the Boschert MP 4020, Hungerbühler can process sheets of up to 6000mm in length using the repositioning process.

accurate punching. The punching head can be continuously rotated through 360 degrees and can hold all TRUMPF standard tools up to size three (Ø105mm). The machine also has an active die with an automatic alignment function for punching from below. The lower punching head with 25mm punching stroke is equipped like the upper one. The maximum stroke rate of the MP 4020 is 800 strokes per minute," it continued.

The machine can be used to process panels from 100 x 280mm up to super format 4000 x 2000mm. Loading is easy: the machine table is accessible and features practical helping aids. These include a special opening in the table that makes it easier to insert sheets, as well as liftable ball rollers that support the user when placing super-format sheets.

The panels are clamped with up to four pneumatic clamps and moved in the 'x'

direction by a servo-driven precision rack and pinion drive. This adjustment allows users to process sheets over 4000mm long. Another servo drive moves the punching heads synchronously at the top and bottom in the



Small components of up to 400 x 2000mm are automatically removed via a flap in the machine table.

'y' direction. Positioning speeds of 75m per minute on the 'x' and 'y' axes are possible; simultaneously up to 106m per minute speeds are also possible.

The CNC punching machine has a disposal flap through which scrap metal parts (measuring up to 400 x 2000mm) are transported by conveyor belt either to the operator or to the left end of the table. The 'y' axis boasts a travelling punching slug extraction, and any punching waste is transported to the collection container via a conveyor belt. The scrap skeleton can be unloaded behind the punching unit.

## A customised solution

The St. Gallen company specialises in large pieces of up to six metres. However, it still lacked the right punch press. A smaller system was in use which brought challenges such as a lot of transfer work at the table and the associated risk of misalignment. A better solution had to be found so HMH Hungerbühler GmbH decided to look for a punching machine on which it could also process sheets in XXL or super format quickly, easily and economically.

"We had a 6m shear, a 6m laser and 6m press brakes," outlined Markus Hungerbühler. "What we still needed was a corresponding punching machine that could do 'that certain something' more than any other."

However, he was unsuccessful in his market-wide search. Even his longstanding sheet-metal technology partner, Boschert GmbH & Co KG in Lörrach (Germany), did not have a suitable machine in its portfolio at the time.

"It took another two years until the penny dropped and I sat down with Boschert again to discuss a large punching machine," remembered Hungerbühler.

The partners came up with a solution: a development order for a punch machine for super-format sheet metal.

"It was a real win-win deal. Thanks to our cooperation with HMH Hungerbühler, we had the scope to design this machine from the ground up," explained Michael Roser, Sales Manager, Boschert. "Markus Hungerbühler was significantly involved in the development and was able to contribute his ideas and wishes. The specifications with the features that we would have wanted were three pages long."

Boschert implemented a reported 95 percent of these specifications into the MP-4020 when it celebrated its premiere a year

and a half later at the Blechexpo 2019 exhibition in Stuttgart, Germany.

## Super-sized sheet punching

The heart of the Boschert MP 4020 is its robust O-frame. This stabilises the machine like the closed frames of a submarine.

"This means that operators can use the 28 tons of the MP 4020's punching force quickly and with repeat accuracy. The machine can punch, nibble, form or mark sheets of up to 6mm in thickness. The 12-station tool changer significantly reduces non-productive times," said Boschert.

"The MP 4020 is equipped with two punching heads. The upper punching head with 55mm punching stroke is equipped with HDE hydraulics for rapid stroke and



With the MP 4020, Hungerbühler produces newly developed lightweight safety components for mobile homes in one clamping operation and with one automatic tool change. The 200 shapes are punched from above, and the system then sets up the high forming shapes from below.

# FOCUS ON PUNCHING



The MP 4020 can be controlled via CAD data or via the control panel directly on the system. Here the worker can quickly adjust programs and make corrections on a user-friendly interface.

“Ease of use was very important for us,” said Hungerbühler. “Multiple options mean that I have the opportunity to adjust everything down to the last detail, but the risk of disruptions also increases.”

## A flexible format

The MP 4020 has been at HMM Hungerbühler in Arnegg since the beginning of 2020. The company uses the machine for different jobs. These include the addition of welding “bosses” to super-sized, stainless-steel sheets for pool floors (ensuring slip resistance in the pool) and the production of newly developed lightweight safety components for mobile homes.

This process takes place in a single clamping with one automatic tool change. First, the MP 4020 punches 200 shapes (four slots arranged in a square) from above into a large-format, 1mm-thick aluminium sheet. In the second step, another tool presses against the previously introduced moulds from below, creating 200 high deformations.

“In a further process, two of these sheets are used to create a light and very stable component,” explained Hungerbühler.

“At first I was amazed at what was actually possible with the system,” added Hungerbühler, describing his experiences with the MP 4020. “We now have a punching machine in the hall with much greater capability. For example, processing 6m metal sheets without repositioning them is no longer a problem and we now have more flexibility in production.”

If a part to be manufactured does not have too many complex contours, punching is usually a more economical alternative to laser cutting.

## Close collaboration

“The close, open and honest collaboration with Boschert during development was also a lot of fun and really impressed me,” confirmed Hungerbühler.

Roser agreed, adding: “There was never a bad word the entire time, even when there were delays in the project for example due to delivery bottlenecks or the COVID-19 pandemic.”

“One of our proudest achievements over the last few years was the development of the 4020. It is the only punching machine in the world able to punch 4 x 2m without repositioning. This helps customers who want to punch large sheets,” Boschert told *ISMR* last year.

“Many customers would like to process all

## About Boschert GmbH & Co KG

Boschert GmbH & Co KG celebrated its 75th anniversary in 2021. Founded in 1946 as a small workshop for the textile industry, today it builds a wide range of sheet-metalworking equipment. This includes notching; punching; small and mid-sized press-brake bending systems; plasma; laser; combined punching/plasma/fibre laser and copper processing machines. It also builds special machines to meet specific customer requirements.

Based in Lörrach (near Freiburg, Germany), Boschert employs 120 members of staff and has a production and assembly area of some 8,000 square metres. There are a further 700 square metres of office space, as well as a presentation and demonstration centre.

their metal sheets in one working cycle so the machine features a new tooling system with 12 stations for TRUMPF tooling. With stepless indexable tools, it offers a total of max. 96 tools which is more than enough for most sheet-metalworking operations. It is possible to pre-adjust tooling for different sheets or for partial sheets. This reduces non-productive downtime to a minimum and enables longer machine useful life,” it continued.

Development on the MP 4020, in the meantime, still continues apace. Additional systems have been installed by other users, leading to new input and customer feedback for Boschert. Meanwhile, the first combined FiberLaser/punching MPL 4020 is in operation with another customer. ■



The first MPL 4020 combined FiberLaser/punching machine was delivered in 2023 to a customer in Poland.

 <https://hungerbuehler.gmbh/>

 <https://boschert.de/en/>