

Conventional Learning



Emcomat-20 D universal turning machines with position display for saddle, cross slide and top slide – new as well and perfectly matched with Haidlmair's colour scheme.

Haidlmair GmbH

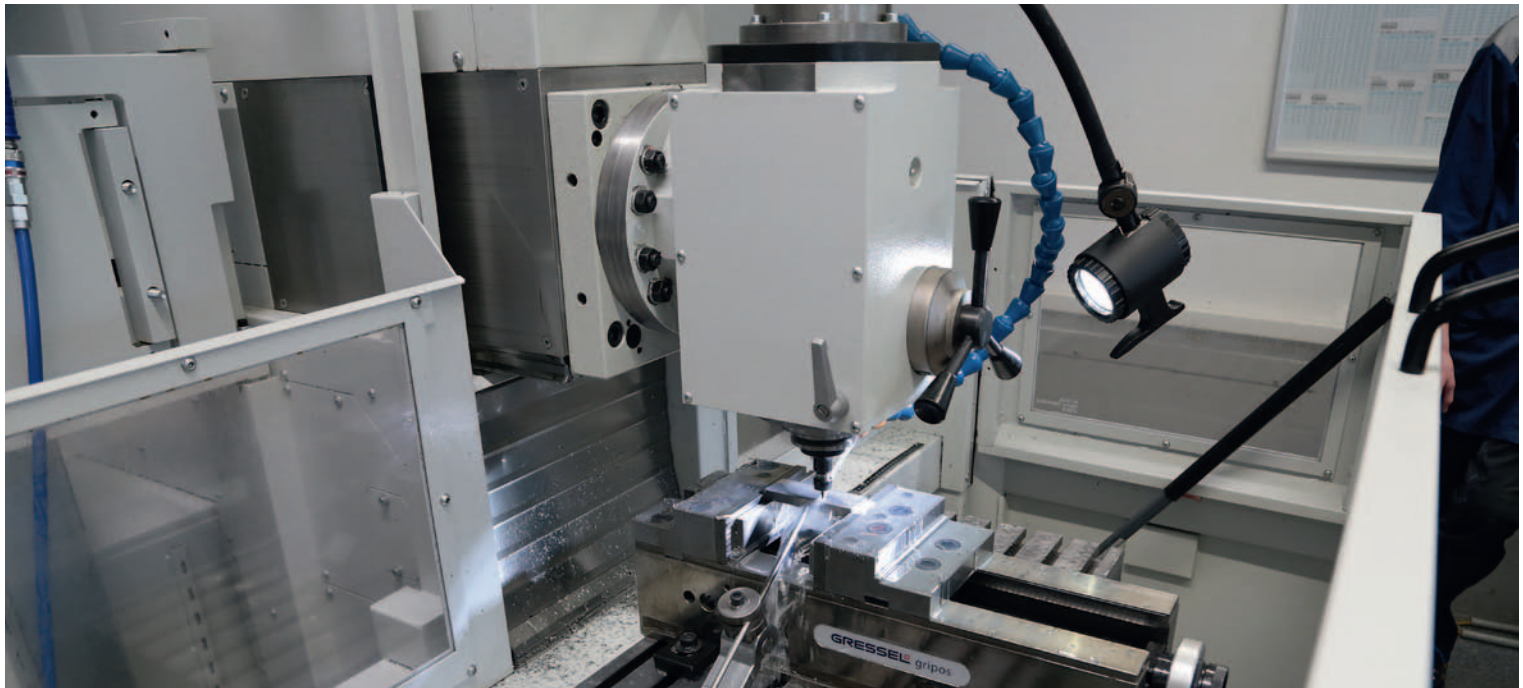
Haidlmair GmbH, Nußbach, Österreich

It did not take long for Haidlmair GmbH from Nußbach in Upper Austria to make a name for itself as a specialist for innovative solutions for the areas of warehouse management and logistics. Within 38 years, the traditional Upper Austrian company has moreover evolved into the global market leader for tools used to manufacture beverage crates. The scope ranges from simple can trays to lightweight boxes in all sizes and shapes to bottle crates in multi-material and/or multicoloured versions. Apart from that, tools made by Haidlmair are used to manufacture versatile transport and logistics applications, recycling containers and technical and/or automotive parts. In 2012, son Mario Haidlmair took over the business dealings and company management. Today, the Nußbach factory with a production area of more than 10,000 m², 50 CNC machine tools and more than 250 employees is the main office and headquarters of a company group with a total of 7 factories and 540 employees.



Requirements Profile

- Machines for service and training workshops
- CNC control and manual operation
- Good accessibility and ergonomics
- Customised adaptations
- Austrian origin



The working area of the FB-600 MC also offers space for large workpieces. The fact that the protective housing can be lowered guarantees best accessibility in manual operation.

A manufacturer of high-quality injection mould tools for transport and logistics solutions, Haidlmair GmbH has worked hard to achieve its strong market position. In order to be able to teach apprentices the basics of machining while at the same time manufacturing simple parts quickly and effortlessly in the service area, Haidlmair relies, for example, on three EMCOMAT FB-600 MC universal milling machines and two Emcomat-20 D universal turning machines.

At the same time, the company has the skills and equipment required for attending its customers from tool development to sampling. This results in high-performance tools that allow, for example, all parts of a folding box or even different material combinations to be processed in a single shot.

Comprehensive Vocational Training

‘We currently train 40 apprentices in different key areas. Our apprentices learn a wide range of technologies and processes. To us, the understanding of the procedures for handling the different materials, tools and machines is fundamental. Of course, the end of the vocational training is marked by the confident handling of all types of machining processes including simultaneous 5-axis machining,’ explains Wolfgang Eisterlehner, manager of Haidlmair’s vocational training centre, the way in which the future specialist workers are made familiar with the different technologies. ‘To us, it is particularly important that our new colleagues get a feel for the forces that act during the machining process. As regards the new milling machines used in vocational training, we had explicitly searched for models that, apart from offering a CNC control, also provide the possibility of manual operation.’

As the company also wanted to renew existing machines for the recently established service centre, an overall solution had been searched for. ‘It is always useful when employees have equipment at their disposal they already got acquainted with during their apprenticeship. This is an approach that prevails in many areas. On the one hand, we are in search of possibilities for teaching our apprentices how to operate the controls they will later use at the factory. On the other hand, it is also advantageous to equip areas such as the service centre with machines our colleagues are probably already familiar with from their apprenticeship and thus able to operate confidently,’ explains Stefan Knödlstorfer, technical manager and COO at Haidlmair. This approach is reflected in the company’s final decision as regards the combination of machines and controls. Since, according to the technical manager, it was the company’s expressed philosophy to go for quality “made in Austria” whenever possible, the machine supplier finally opted for Emco GmbH.

Perfect Accessibility

‘Of course, we had previously gathered comprehensive information about the matching solutions available on the market,’ as Eisterlehner concretises. ‘In the end, however, there were certain criteria that convinced us, such as the good accessibility of the FB-600 MC milling machines. This is a criterion that is of vital importance when it comes to vocational training, because you have the possibility to give multiple apprentices at once insight into the respective machining process and better explain the individual steps of a procedure. What is more, the protective housing can be lowered completely for manual operation. Thus, you may also process larger workpieces – an aspect that is of particular importance to our service centre colleagues,’ says the training manager and adds, ‘Moreover, our apprentices may manufacture one and the same part with the same machine both manually and using a CNC programme. This provides excellent insight into the technologies’ behaviour and the general conditions to be considered.’

While describing this possibility, you cannot fail to notice Eisterlehner’s enthusiasm, for he knows how important it is that apprentices obtain a clear picture of the application. The fact that Emco had catered for the training manager’s wishes by positioning the operating panel of the control lower than usual further facilitated the company’s decision. ‘Although this seems to be a minor detail, it is of utmost importance in the area of vocational training, because sometimes apprentices have not yet reached their full-grown height, which means they need a lower operating panel in order to be able to work in an ergonomic position,’ explains Rupert Lehener, responsible area sales manager at Emco.



To Haidlmair, it was vital that the new universal milling machines would also allow for manual operation, especially for the area of vocational training.



Since September 2016, two new FB-600 MC universal milling machines have been completing Haidlmair's vocational training centre. One machine is equipped with a Siemens 828D control while the other one is operated via a Heidenhain TNC 620.

Maximum Flexibility

Although the FB-600 MC is a universal milling machine, it comes up with considerable performance values. Featuring a working area of 600 x 400 x 400 mm (X/Y/Z), the feed lengths project the clamping area of 800 x 400 mm in all directions, which results in high flexibility. A DIN 698971 SK40 holder perfectly transfers the spindle power of 13 kW to the tools. Thanks to the continuously variable transmission, the spindle accelerates up to 5,000 rpm. The digital axle drives enable feeds of up to 5,000 mm/min. Our two new milling machines in the training workshop have been equipped with a Heidenhain 620 control as well as with a Siemens 828D control. Thus, the essential control types used at the company are already part of the vocational training. The milling machine used at our service centre has been delivered with a Heidenhain 620,' continues Eisterlehner.

Despite their compact design, the Emcomat-20 D universal turning machines – one of which has been positioned in the training workshop while the other one is complementing the service centre – score with quite respectable performance values. 'When it comes to these turning machines, we have deliberately dispensed with a CNC control', explains Knödlstorfer. 'Turning plays a minor role at our company, which is why we rather attach importance to a robust and compact design,' the COO continues. Although the machine has a footprint of only 1,950 x 1,060 mm, it nevertheless features a maximum width of 1,000 mm, which makes it possible to achieve a turning length of 900 mm. The swing of 400 mm, in combination with the cross slide displacement path of 220 mm and the turning length, covers a wide range of applications. Thanks to the spindle power of 5.3 kW, difficult turning tasks can be mastered just as easily. 'The machine stands on a base that absorbs vibration, while the machine bed is equipped with reinforced and ground guide rails. Thanks to the continuously variable speed control, the Emcomat-20 D offers a constant cutting speed. Apart from that, the cross slide is particularly long, which allows the integration of a second tool unit. A TFT screen displays the positions of saddle, cross slide and top slide,' describes Lehener the special features of the universal milling machine.

Haidlmair has been working with the five new machine tools made by Emco since September last year. And the company is more than satisfied. 'Not only did Emco deliver the machines painted in our company colours – which is something we are really happy about – but until now, no service activity whatsoever has been required. This only demonstrates that, with Emco, we have opted for high quality and the right partner,' emphasises Knödelstorfer in conclusion.

In 1979, Josef Haidlmair took over his father's traditional blacksmith's workshop with a plant area of 250 m² and five employees. Together with one employee, he started the establishment of a tool making department in the company's garage. Within 38 years, this small enterprise has evolved into an internationally renowned manufacturer of tools for packaging solutions and the automotive industry. With as much as 540 employees working at eight locations, the Haidlmair Group offers injection mould, die cast and extrusion tools as well as component production. Together with dataformers, a company incorporated into the group in 2016, Haidlmair also offers individual software solutions for many different areas of application.



'We attach importance to using machines in vocational training that allow our apprentices to get to know the entire range from manual operation to CNC control.'

Wolfgang Eisterlehner, manager of Haidlmair's vocational training centre



'Despite its small footprint, the FB-600 MC universal milling machine offers a wide range of possibilities. It can be operated both manually and with CNC control.'

Rupert Lehener, area sales manager at Emco

At the in-house vocational training centre, 40 apprentices learn the entire range of machining procedures from scratch.



Emcomat-20 D

Technical Data

Working area

Maximum width	1000 mm
Maximum height	200 mm
Swing over bed	400 mm
Swing over cross slide	250 mm
Travel distance longitudinal slide	900 mm
Travel distance cross slide	220 mm
Travel distance top slide	110 mm
Turning tool cross section	20 x 20 mm

Main spindle

Spindle nose	CAMLOCK DIN 55029 S5
Spindle bore	Ø 50 mm
Max. face plate diameter	260 mm
Max. chuck diameter	200 mm
Spindle speeds	40 – 3000 rpm
Speed control	continuously variable
Speed levels	4
Speed ranges	40 – 130, 110 – 360 310 – 1070, 870 – 3000 rpm

Drive motor

Power	5.3 kW
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Feed range

Longitudinal feeds*	0.045 – 0.787 mm/rev
Planvorschübe*	0.023 – 0.406 mm/rev

Thread-cutting range

Metric threads (basic equipment)	20 (0.4 – 7.0 mm)
Metric threads*	28 (0.4 – 7 mm)
Imperial threads*	32 (4 – 56 gg/inch)
Module threads*	28 (0.2 – 3.5)
Diametral pitch threads*	32 (8 – 112)

Tailstock

Quill diameter	50 mm
Inside taper of the quill	MK 3
Quill stroke	120 mm
Lateral adjustment	+ / – 13 mm

Sound pressure level

Max. sound pressure level DIN 45635	79 dB(A)
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Permissible tool weights

Unsupported	50 kg
With tailstock	150 kg

Electrical connection

Voltage supply	400 – 440 V/3 PE/50(60) Hz
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General data

L x W x H of the machine	1950 x 1060 x 1635 mm
Lathe spindle above floor	1103 mm
Total weight	865 kg

*The feed range and the number of different thread types can be upgraded by the translating gear wheel set (available as an option).

EMCOMAT FB-600

Technical Data

Work area

Horizontal longitudinal feed (X)	600 mm (23.6")
Vertical table feed (Z)	400 mm (15.7")
Horizontal cross feed (Y)	400 mm (15.7")

Table

Clamping area vertical table (LxW)	400 x 270 mm (15.7 x 10.6")
Width/number of T-grooves	14 mm (H 8) / 5 pieces (0.6" (H8))
Permissible workpiece weight	450 kg (992.1 lb)
Clamping area rigid angle table (LxW)	800 x 400 mm (31.5 x 15.7")
Width/number of T-grooves	14 mm (H 8) / 8 pieces
Permissible workpiece weight	300 kg (661.4 lb)

Horizontal milling spindle

Tool chuck	DIN 69871 SK 40
Mechanical speeds	continuous
Speed range	10 – 5000 r.p.m.
Clearance above table	230 – 630 mm (9.1 – 24.8")

Vertical milling head

Tool chuck	DIN 69871 SK 40
Quill travel	80 mm (3.1")
Swiveling vertical milling head	+/-90°
Mechanical speeds	continuous
Speed range	10 – 5000 r.p.m.
Clearance above table	40 – 440 mm (1.6 – 17.3")

Power

Nominal speed motor	1500 r.p.m.
Power	100% / 40% ED, 9 / 13 kW 100% / 40% ED(12.1/17.4 hp)

Feed drive

Power feed motor 100% ED	1 kW (1.3 hp)
Feed range X/Y/Z axis	10 – 2000 mm/min
Rapid motion speed in X/Y/Z	5000 mm/min
Feed force X/Y/Z	10/15 kN

Coolant system

Coolant in tank	40 liters (10.6 gal)
Max. pump capacity	25 l/min

Machine dimensions

Overall length	2100 mm (82.7")
Overall width	2190 mm (86.2")
Overall height	1990 mm (78.3")
Weight of machine	2370 kg (5225 lb)

www.emco-world.com

EMCO GmbH
Salzburger Str. 80 · 5400 Hallein-Taxach · Austria
T +43 6245 891-0 · F +43 6245 86965 · info@emco.at · www.emco-world.com