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/"EMCO MACHINES SIGNIFICANTLY REDUCE PRODUCTION TIMES "



Complete machining
at the highest level:
High-performance and universal
turning-milling centers
in action



Brief Description

✓ **Task:** Efficient production of spare parts for die-casting tools weighing up to 70 tons with high precision and minimal time expenditure to meet the demands of the international automotive industry.

✓ **Solution:** Use of the Hyperturn 65 Powermill G2 and EMCOTURN E65 for automated and flexible manufacturing. Features such as counter-spindle, radial turret, Y-axis, and an automated conveyor system reduce machining times by two-thirds.

✓ **Benefits:** The machines significantly increase productivity, minimize setup times and clamping steps, and improve internal spare parts management. This results in more economical, flexible, and high-quality production.



The Hyperturn 65 Powermill G2 from EMCO significantly reduces set-up and clamping times.



EMCO, based in Salzburg, is one of Europe's leading machine tool manufacturers and currently employs around 800 people at a total of five production sites in Austria, Germany and Italy. The key to the success of this international family business lies in the expertise and experience gained from more than 75 years of machine tool manufacturing. That is why EMCO stands for complete, customised and state-of-the-art automation solutions for both turning and milling.

Visit our website www.emco-world.com to find out more.

EMCO machines significantly reduce production times

GF Casting Solutions relies on the Hyperturn 65 Powermill G2 and the EMCOTURN E65 CNC turning centre. Thomas Klade, team leader of contract manufacturing, reports on the effective operation of the two EMCO machines.

GF Casting Solutions Altenmarkt in Styria specialises in magnesium and aluminium die casting solutions for the international automotive industry. With around 650 employees, the company is an important regional employer in the field of light metal die casting in Austria and beyond. The company was founded in 1972 and has been one of 12 GF Casting Solutions AG production sites around the world since 1999.

Our cooperation works perfectly

The aluminium and magnesium die cast parts produced are mainly developed for the bodies, interiors and drive systems of premium cars sold worldwide. The focus here is on lightweight construction and ready-to-install solutions. The demands on the tools, which weigh up to 70 tons, are constantly increasing. Fast set-up times are a key factor here.

CNC turning machines from EMCO, based in Hallein, near Salzburg, are used to manufacture the spare parts required for the die casting tools. The Hyperturn 65 Powermill G2 is used here, along with the EMCOTURN E65 CNC turning centre,

which was added this year. 'From the first technical discussions to the sales process and delivery, our collaboration with EMCO went extremely well. Besides, I have been familiar with EMCO machines since my training days, and we know that we are buying machines that deliver what they promise and perform very well in terms of precision,' says Thomas Klade, team leader of GF Casting Solutions.

'Both machines are perfectly tailored to our requirements and run excellently. The support from EMCO is also really good,' says Klade. The EMCOTURN E65 turning centre is used primarily to produce screw cores. 'With this machine, GF Casting Solutions has been able to significantly reduce its machining times. The parts are collected in a pot and unloaded via the partial conveyor belt, which also eliminates the need to open the door. A bar loader can also be installed, which enables partially autonomous production,' explains Leopold Zerz, Head of Sales for EMCO in Austria. He also emphasises how positive the collaboration with GF Casting Solutions is.

High quality in less time

GF Casting Solutions has a high demand for the screw cores to be produced. The company is broadly positioned with the foundry in Altenmarkt and is pleased that the EMCOTURN E65 turning centre has taken its internal spare parts management

to the next level. Screw cores are now also produced in-house and stored for employees to remove as needed.

Regarding the special features of the machine, Mr. Leopold Zenz reveals: 'It is a universal turning machine with a 65 mm spindle passage, counter spindle, radial turret with twelve driven tools, as well as a Y-axis with 80 mm stroke.'

One of the biggest advantages of this purchase is definitely the time saved. 'For example, if the system is given the order to produce 15 pieces, these are produced fully automatically within a certain period and engraved according to the requirements of our plant in Altenmarkt. They are then ejected onto a conveyor belt. No further manual intervention is required, and we have been able to reduce production time by two-thirds,' says Thomas Klade.

The EMCO Hyperturn 65 Powermill G2, which was purchased in 2022, is also doing its job to our complete satisfaction. 'Thanks to this machine, we have been able to minimise and simplify the work steps. The set-up and clamping times have been significantly reduced and we can produce very efficiently,' says Thomas Klade with satisfaction.



GF Casting Solutions Altenmarkt GmbH & Co. KG was founded in 1972 and taken over by GF Casting Solutions in 1999. With around 490 employees, the company is an important regional employer in the light metal casting sector in Austria. The company is one of 13 GF Casting Solutions production sites worldwide and specialises in magnesium and aluminium die casting solutions for the international automotive industry. For further information, visit: www.gfcs.com



The CNC turning centre EMCOTURN E65 primarily produces screw cores for GF Casting Solutions. This makes it possible to produce spare parts at a high level and at high speed.

TECHNICAL DATA

HYPERTURN 65 PM G2

Work area

Swing over bed	500 mm
Distance between spindle noses	1500 mm
Maximum turning diameter	500 mm
Max. part length	1230 mm
Max. bar-stock diameter	65 (102) mm

Travel

Travel path X1 / X2	530 / 210 mm
Traverse path Z1 / Z2	1215 / 1205 mm
Traverse path Y	240 mm
Traverse path counter spindle Z3	1250 mm

Main spindle

Speed range (infinitely variable)	0 – 5000 (4000) rpm
Maximum torque	250 (800) Nm
Spindle nose DIN 55026	A2-6 (A2-8)
Spindle bearing (inside diameter)	105 (160) mm
Spindle bore (excluding draw-back rod)	Ø 73 (116) mm

Counter spindle

Speed range (infinitely variable)	0 – 5000 (4000) rpm
Maximum torque	250 (420) Nm
Spindle nose DIN 55026	A2-6 (A2-8)
Spindle bearing (inside diameter)	Ø 105 (160) mm

C-axes

Resolution	0,001°
Rapid traverse	1000 rpm

Drive power

Main spindle (AC integrated-spindle motor)	29 (38) kW
Counter spindle (AC integrated-spindle motor)	29 (33) kW

Milling spindle – Powermill

Speed range	0 – 12000 (20000) rpm
Maximum torque	110 (58) Nm
Maximum drive power	37 (30) kW
Type of tool shank	HSK-T63 or r PCS63 (CAPTO C6)
Resolution of the rotary axis	0,001°
Clamping for turning operations	in any position
Clamping moment	400 Nm
Max. coolant pressure (IKZ)	80 bar
Max. coolant pressure (EKZ)	20 bar

B-axis

Travel range	240°
Resolution of the rotary axis	0,0001°
Rapid traverse speed	360°/sec.
Holding torque of clamp	2000 Nm
Interpolating drive torque	614 Nm

Tool magazine

Tool storage capacity	40 / 80 / 120
Max. tool diameter	Ø 93 (Ø 120) mm
Max. tool length	350 mm
Max. tool weight	12 kg

Tool turret with direct drive

Number of tool positions	12 (16)
Precision interface	BMT55P (BMT45P) / VDI40
Tool cross-section for square-shank tools	25 x 25 (20 x 20)
Shank diameter for boring bars	40 (32)
Tool indexing time	0,7 sec.
Speed range of driven tools	0 – 12000 rpm
Torque of driven tools	28 (25) Nm
Drive power of driven tools	11,7 kW

Tailstock

Max. Pressing force	14000 N
Travel	1200 mm
Centre punch holder	MK5
Pinole diameter	120 mm

Steady rest SMW SR-3.1

Centring range	Ø 25-165 mm
Lever/ roller width	45/25 mm
Max. Clamping force/ roller	1000 daN
Max. Operating pressure	80 bar

Steady rest SMW SR-4

Centring range	Ø 30-245 mm
Lever/ roller width	60/25 mm
Max. Clamping force/ roller	1500 daN
Max. Operating pressure	70 bar

Feed drives

Rapid speed X1 / Z1 / Y1	40 / 40 / 30 m/min
Rapid speed X2 / Z2 (Revolver)	30 / 30 m/min
Rapid speed Z3 (Counter spindle)	30 m/min
Feed force X1 / Z1 / Y1	7000 / 9000 / 7000 N
Feed force X2 / Z2	11000 / 11000 N
Feed force Z3 (Counter spindle)	9500 N

Coolant system

Tank capacity	980 + 200 l
Coolant pumps for the tool systems	1x/2x 25 bar
Scavenge pumps for the work area	2x 4,3 bar

Power consumption

Connected load	68 (95) kVA
Compressed air	6 bar

Dimensions / Weight

Height of center above floor	1275 mm
Overall height	2480 mm
Required space L x D (without chip conveyor)	5970 x 2430 mm
Total weight	15000 – 16500 kg

Safety devices CE compliant

TECHNICAL DATA

EMCOTURN E65

Work area

Swing over bed	Ø 610 mm
Swing over slide	Ø 360 mm
Distance between centers on tailstock version	682 mm
Main spindle / counter spindle distance	840 mm
Maximum turning diameter	Ø 500 mm
Maximum part length	520 mm
Maximum bar diameter	Ø 65 (95) mm

Travel

Travel in X / Z	260 / 610 mm
Travel in Y	80 (+/-40) mm

Main spindle

Speed range	0 – 5000 (3500) rpm
Maximum drive power	22 kW
Max. torque on the spindle	305 (380) Nm
Spindle nose DIN 55026	A2-6 (A2-8)
Spindle bearing (inner diameter at front)	105 (160) mm
Spindle bore hole	73 (105) mm

Counter spindle

Speed range	0 – 5000 rpm
Maximum drive performance	16,5 kW
Max. torque on the spindle	130 Nm
Spindle nose DIN 55026	A2-6
Spindle bearing (inside diameter at front)	105 mm
Spindle bore hole	73 mm

Tailstock

Tailstock travel	500 mm
Maximum thrust	8000 N
Maximum travel speed	approx. 20 m/min
Tailstock bore taper	MT4

C-axis

Round axis resolution	0,001°
Rapid motion speed	1000 rpm

Tool turret

Number of tool positions (all driven)	12
VDI shaft (DIN 69880)	30 (40) mm
Tool cross-section for square tools	20 x 20 (25 x 25) mm
Shaft diameter for boring bars	32 mm
Tool change time	0,2 (0,3) sec.

Driven tools DIN 5480

Speed range	0 – 5000 (4500) rpm
Maximum torque	25 Nm
Maximum drive power	6,7 kW

Feed drives

Rapid motion speed X / Y / Z	30 / 15 / 30 m/min
Feed force in X / Y / Z	5000 / 7000 / 7000 N
Feed force in Z2 axis (counter spindle)	8000 N
Positioning scatter Ps VDI 3441 in X / Y / Z	2 / 2 / 2 µm *

* For machines including laser measurement and pitch error compensation

Coolant system

Tank volume (optional)	230 (830) liters
Coolant pressure (optional)	3,5 (14 / 25) bar
Pump power (optional)	0,57 (2,2 / 3) kW

Power consumption

Connected load	39 kVA
Compressed air	6 bar

Dimensions and weight

Height of spindle center above floor	1150 mm
Machine height	2450 mm
Machine footprint L x D	3335 x 2315 mm
Total weight	approx. 6500 kg

EMCO SL 1200

Bar length	250 – 1100 mm
Bar diameter	approx. Ø 8 – 95 mm
Material support	ca. 560 mm
Length	1700 mm
Width	1250 mm
Height (spindle center)	1090 – 1380 mm
Weight	approx. 500 kg

Safety devices CE compliant

beyond standard /

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