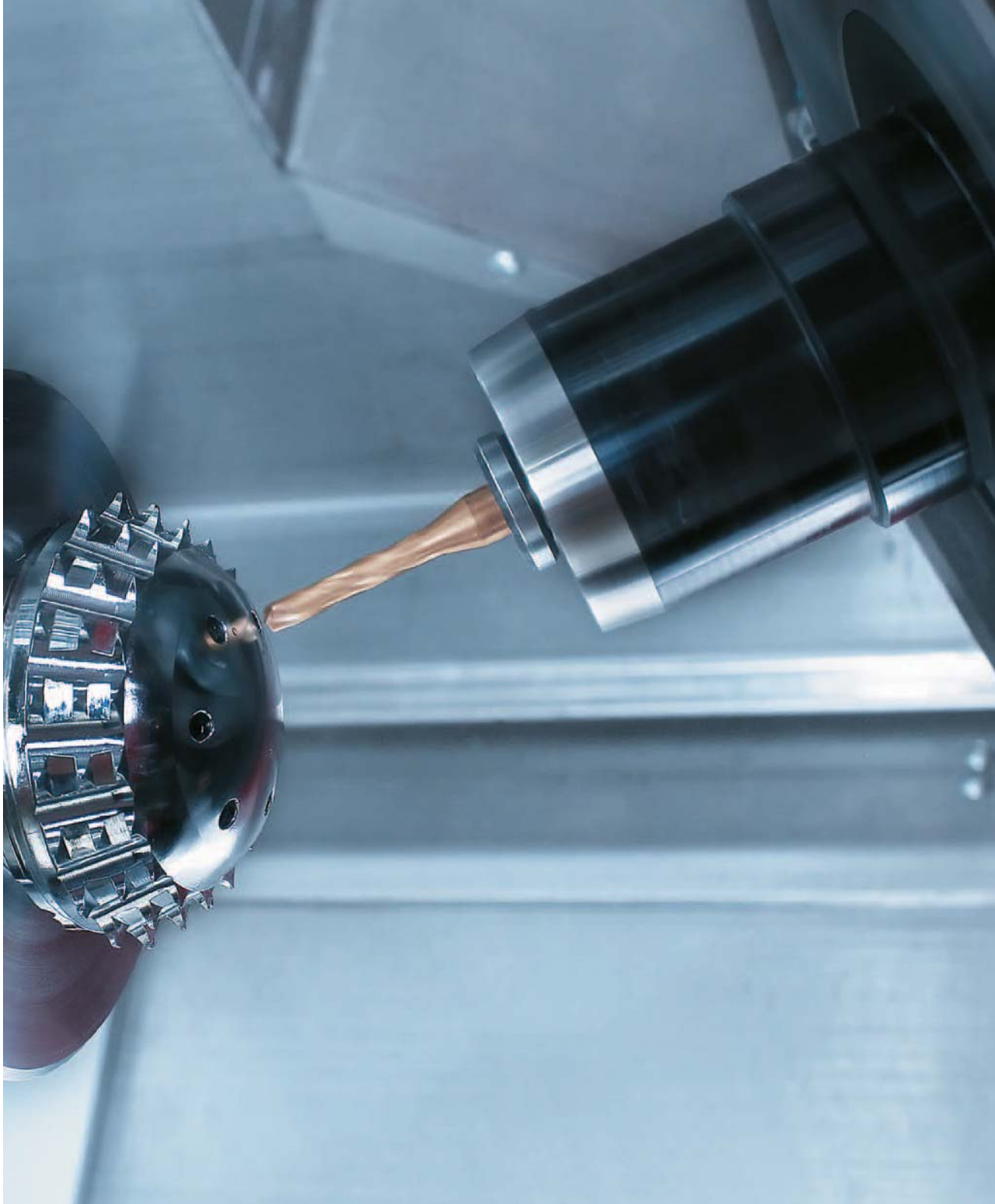
emco

MEDICAL TECHNOLOGY

RELIABLE PARTNERS IN A DYNAMIC INDUSTRY

The demands of medical technology on machining production technologies have developed as dynamically as the industry: it is necessary to meet the increasing complexity and individualization of products while at the same time meeting high price pressure and high safety and quality requirements.

EMCO is represented with its product range of lathes and milling machines in various sub-sectors of medical technology. The flexibility of the machines, their multifunctional use, digitalization and automation possibilities and above all a team of process and technology specialists offer a **thorough analysis, production and technology consultation** and a selection of **machines** for the implementation of the specified quality requirements and production times.



HIGHEST PRECISION FOR MORE QUALITY OF LIFE

MEDICAL DEVICES

Whether computer tomographs, laboratory automation or centrifuges, there are a large number of product groups in the field of medical technology equipment that have one thing in common: they consist of complex components and assemblies that place the highest demands on machining production. A wide variety of materials and shapes are used, and high demands are placed on surface accuracy, dimensional and shape accuracy and reproducibility. EMCO offers the right solution with its extensive product portfolio and decades of know-how.

PROSTHESES AND ORTHOSES

Machines of the HYPERTURN and MAXXTURN series enable the flexible use for individual production / batch size 1, tailor-made for the respective patient, as well as the efficient series production of complex standard product components in complete machining with high repeat accuracy.

DENTAL

Narrow tolerances, perfect surface finishes and complex geometries are the core topics in the field of dental technology. In most cases, it is also filigree components that are used in dental turbines. The smaller EMCO machines of the EMCOTURN, MAXXTURN and HYPERTURN series are particularly popular here.

IMPLANTS

Hip implants, knee implants, tooth and jaw implants, as well as bone screws are selected examples of process solutions with EMCO machines. High-strength materials and also non-metallic workpieces up to ceramics are processed reliably and economically in EMCO machines.

PHARMACY

In highly sensitive pharmaceutical production with extremely high product safety requirements, the use of reliable, precise machines is a basic requirement. For a wide range of suppliers, EMCO machines are available from a single source with both individualized and standard automation solutions.

MEDICAL INSTRUMENTS

Scissors, pliers, scalpels, clamps, needles, etc. all medical instruments with high quality and complexity requirements. The production of these instruments requires specific know- how, since complex contours and clamping are usually required. This is where the flexible EMCO turning/milling centers and 5-axis machining centers find their typical area of application.

MEDICAL DEVICES

The precision machining of large and complex workpieces in small to medium batch sizes is a great challenge for the flexibility of machine tools.

With the HYPERTURN 100 POWERMILL large components can be completely machined in two clamping positions without intervention. With two spindles, a turning/milling spindle, a comprehensive tool magazine and much more, a wide range of machining operations can be carried out. And all this with minimum set-up effort.

Turning/milling centre HYPERTURN 100 POWERMILL for the complete machining of large-volume, complex workpieces

HIGHLIGHTS

/ Precise, directly driven main and counter spindle

/ 3 bed lengths to choose from

/ For shaft machining also with NC steady rests

/ Up to 100 tools in chain magazine

/ Up to 4 XL tools in pick-up magazine

/ 5-axis simultaneous machining

/ EMCO Technology Cycles

CENTRIFUGE ROTOR

PROSTHESES AND ORTHOSES

High stress with low weight, high wearing comfort and high functionality – these are the core features for prostheses. In terms of design, this means complex, precise, compact components made of high-strength aluminum and in some cases titanium.

With the HYPERTURN 65 POWERMILL the components can be produced either from the bar up to ø 100 mm, but also as inserts up to ø 300 mm. With two spindles, a turning/milling spindle, a tool turret and an extensive tool magazine, highly complex components can be completely machined and produced without burrs.

High-performance turning-milling centre HYPERTURN 65 POWERMILL for the complete machining of complex workpieces from bar stock or as inserts

HIGHLIGHTS

/ Water-cooled spindle motors on main and counter spindle

/ 2 bed lengths to choose from

/ Tool turret with direct drive (12000 rpm)

/ Up to 120 tools in chain magazine

/ EMCO gantry loader for automatic loading and unloading

/ 5-axis simultaneous machining

/ EMCO Technology Cycles

PROSTHESIS HEAD

/ DENTAL

Mostly, these are small, filigree but highly precise workpieces made of stainless steel, which are used in turbines, straight and contra-angle handpieces, couplings or air and electric motors. Clamping for machining represents a great challenge. A lot of know-how is necessary to be able to survive in this segment.

The HYPERTURN 45 G3 with two spindles, two tool turrets including direct drive and a Y-axis, offers all the prerequisites for the economic production of these components. High flexibility in the use of a wide variety of clamping devices, coupled with sensitive differential pressure clamping, enables the deformation-free clamping of filigree components.

Compact turning center HYPERTURN 45 G3 with milling turrets for complete machining

DENTAL CONTRA-ANGLE HANDPIECE

HIGHLIGHTS

- **/ Water-cooled spindle motors on main and counter spindle**
- **/ Wide speed range up to 7000 rpm**
- **/ Tool turret with direct drive up to 12000 rpm**
- **/ Bar machining up to ø 65 mm**
- **/ Tailstock function for counter spindle and turret**
- **/ Steady rest support for shaft parts**
- **/ EMCO Technology Cycles**

IMPLANTS

Increasing life expectancy, risky hobbies and exaggerated competitive sports are just a few of the things that make surgeons in the operating room perform at their best. Associated with this is the use of implants, some of which are very complex and usually pose great challenges to the cutting technology during manufacture. Mostly it is components made of high-alloy steels, titanium alloys or ceramic materials that place very special demands on the machine tool.

The HYPERTURN 65 TRIPLETURN with two spindles, three tool turrets including direct drive and up to three Y-axes enables the highly efficient production of these products. With coolant pressures of up to 100 bar, even the most difficult high-alloy steels can be effectively machined. With a large number of tools, coupled with probes on the three turrets, components can be manufactured with a minimum of manpower.

High-performance HYPERTURN 65 TRIPLETURN turning center with milling turrets for economical large-volume series production

HIGHLIGHTS

- **/ Water-cooled spindle motors on main and counter spindle**
- **/ Three spindle sizes with bar capacity 65/75/95 mm**
- **/ Tool turret with direct drive up to 12000 rpm**
- **/ Up to three y-axes**
- **/ Up to 100 bar coolant pressure through the tool**
- **/ Tailstock function for counter spindle and turret**
- **/ Probes with extensive measuring cycles**

HIP JOINT SCREW-IN CUP

/ PHARMACY

The components and assemblies used in mechanical and plant engineering for the production of pharmaceutical products also present special challenges. From the forging die for the tablet press made of tool steel to the piping made of stainless steel. High precision, contour accuracy, economy and high availability guarantee competitiveness in this sector.

The MAXXMILL 750 with its powerful, direct-driven milling spindle, dynamic feed axes and rotary swivel table offers all the prerequisites for the economical production of complex components in one clamping. This guarantees compliance with tight form and position tolerances in the production of precision assemblies.

MAXXMILL 750 vertical machining centre for 5-sided machining

HIGHLIGHTS

/ 5-sided machining in only one clamping

/ Highest thermostability

/ Swivel range B axis ±100°

/ Best machining accuracy

/ Modern moving column concept

/ Compact machine design

PUNCH OF A TABLET PRESS

MEDICAL INSTRUMENTS

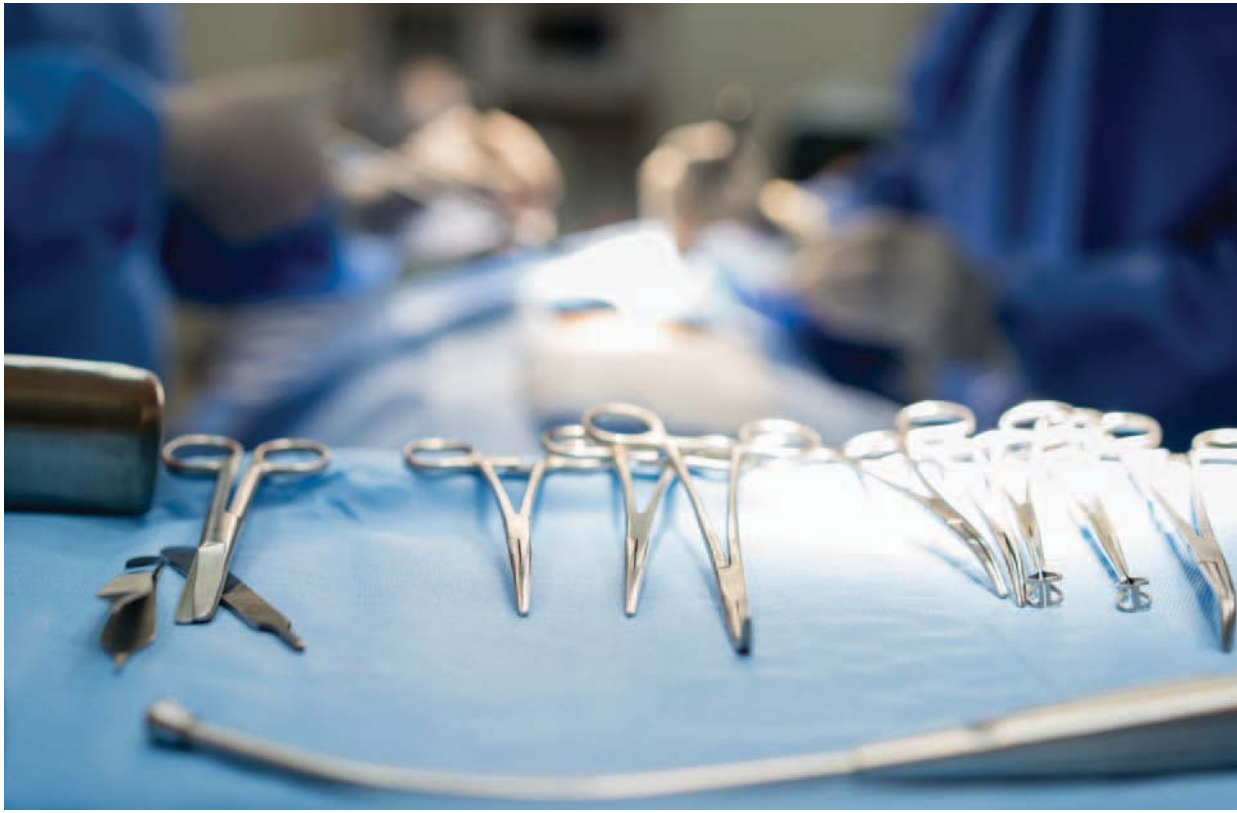
Medical instruments represent the forestry of the senses as tools for doctors. Sensitivity, precision, handiness and sterility are basic requirements for successful interventions. Accordingly, the partly bulky, thin-walled components place high demands on the production specialist. The correct clamping, the optimum cutting sequence and collision-free complete machining require many years of experience.

The UMILL 630 with its five directly driven axles including 5-axis interpolation has been specially designed for these requirements. It impresses with its compactness and convinces with the highest level of ergonomics.

UMILL 630 Universal Machining Center for simultaneous 5-axis machining

HIGHLIGHTS

- **/ 5-axis simultaneous machining**
- **/ Maximum thermal stability**
- **/ Maximum machining precision**
- **/ Modern moving column concept with optimum accessibility**
- **/ Swivel range B-axis ±100°**
- **/ Standard linear scales in X, Y and Z included in delivery**

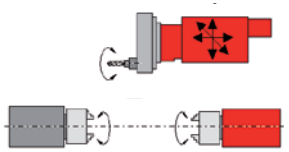


DENTAL FORCEPS

FLEXIBLE, MULTIFUNCTIONAL, EFFICIENT EMCO TURNING AND MILLING MACHINES IN MEDICAL TECHNOLOGY

MAXXTURN 25

DENTAL / dental implant



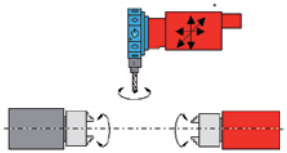
Dimension	**ø 6 x 15 mm**
Material	**Titanium**
Cycle time	**3 min 38 sec**

DENTAL / abutment carrier

Dimension	**ø 5 x 7 mm**
Material	**Titanium**
Cycle time	**2 min 25 sec**

MAXXTURN 45-G2

DENTAL / contra-angle handpiece

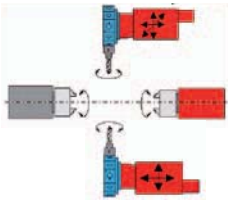


Dimension	**ø 18 x 62 mm**
Material	**Stainless steel**
Cycle time	**12 min 30 sec**

DENTAL / handpiece

Dimension	**ø 16 x 75 mm**
Material	**Stainless steel**
Cycle time	**2 min 05 sec**

HYPERTURN 45



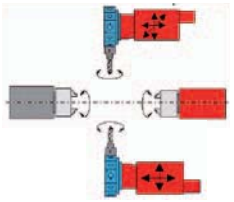
IMPLANT / hip joint inlay

Dimension	**ø 58 x 30 mm**
Material	**Technical ceramics**
Cycle time	**58 sec**

IMPLANT / Hip joint head

Dimension	**ø 35 x 28 mm**
Material	**Technical ceramics**
Cycle time	**48 sec**

HYPERTURN 45 G3



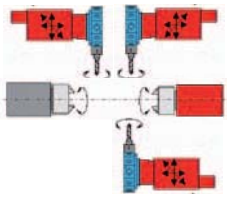
IMPLANT / Hip joint screw cup

Dimension	**ø 50 x 22 mm**
Material	**Titanium**
Cycle time	**4 min 50 sec**

IMPLANT / hip joint inlay

Dimension	**ø 45 x 20 mm**
Material	**Polyethylene**
Cycle time	**1 min 40 sec**

HYPERTURN 65 TRIPLETURN



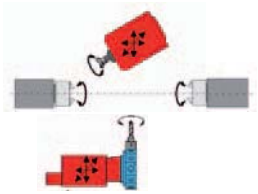
IMPLANT / Hip joint head

Dimension	**ø 28 x 24 mm**
Material	**Cobalt–chromium alloy**
Cycle time	**1 min 45 sec**

IMPLANT / bone screw

Dimension	**ø 16 x 48 mm**
Material	**Titanium**
Cycle time	**1 min 50 sec**

HYPERTURN 65 POWERMILL



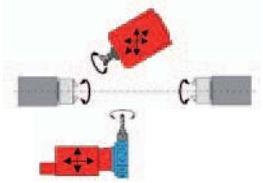
PROTHESESES / Clamping sleeve

Dimension	**ø 60 x 55 mm**
Material	**High- strength aluminum**
Cycle time	**4 min 55 sec**

PROTHESESES / head piece

Dimension	**80 x 70 x 65 mm**
Material	**High- strength aluminum**
Cycle time	**4 min 30 sec**

HYPERTURN 65 POWERMILL G2



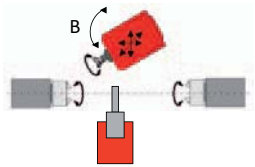
MEDICAL DEVICES / Centrifuge beakers

Dimension	**ø 120 x 105 mm**
Material	**High- strength aluminum**
Cycle time	**11 min**

MEDICAL DEVICES / sensor carriers

Dimension	**ø 60 x 90 mm**
Material	**Brass**
Cycle time	**5 min 40 sec**

HYPERTURN 100 POWERMILL



MEDICAL DEVICES / Centrifuge rotor

Dimension	**ø 380 x 140 mm**
Material	**Polypropylene**
Cycle time	**8 min**

MEDICAL DEVICES / matrix plates

Dimension	**ø 650 x 80 mm**
Material	**High-alloy steel**
Cycle time	**28 min**

EMCOMILL E350

DENTAL / Bar

Dimension	**48 x 27 x 9 mm**
Material	**Titanium**
Cycle time	**18 min**

DENTAL / Dentures

Dimension	**Ø 100 x 16 mm**
Material	**Zirconium**
Cycle time	**48 min**

MAXXMILL 750

IMPLANT / bone plate

Dimension	**67 x 35 x 12 mm**
Material	**Titanium**
Cycle time	**38 min 30 sec**

IMPLANT / Hip stem

Dimension	**195 x 45 x 30 mm**
Material	**Titanium**
Cycle time	**39 min**

UMILL 630

IMPLANT / Femur component

Dimension	**89 x 92 x 76 mm**
Material	**Cobalt Chromium steel**
Cycle time	**44 min**

MEDICAL INSTRUMENTS / Dental forceps

Dimension	**160 x 38 x 13 mm**
Material	**Stainless steel**
Cycle time	**31 min**

beyond standard

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