



5-HEAD



W



FX



MT



AUTOMATION



Medical

Fast precision machining centers and innovative manufacturing solutions to meet the highest demands

Dedication to your precision manufacturing

Uncompromising quality, with process and production reliability

Uncompromising quality, with process and production reliability

Each component is a masterpiece. Whether producing complex medical instruments, devices, bone plates, prostheses or implants – CHIRON's precision machining centers and engineered solutions are depended upon by medical manufacturing leaders worldwide. When requirements demand shortened production times and exceptional surface quality, as well as a reduction of dedicated resources and machinery footprint; our skilled team of specialists develop the optimal process with accuracy and efficiency. **Market leaders trust us.**

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Dental Technology & Implants	[06–07]
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The **CHIRON Medical & Precision Technology Center** not only specializes in high-precision machining centers, but also serves as a constant resource for medical manufacturing expertise. Through process development, refinement and continuous in-house collaboration with medical technology leaders; experienced CHIRON engineers and technicians provide each customer with an unrivaled solution to meet their production requirements.

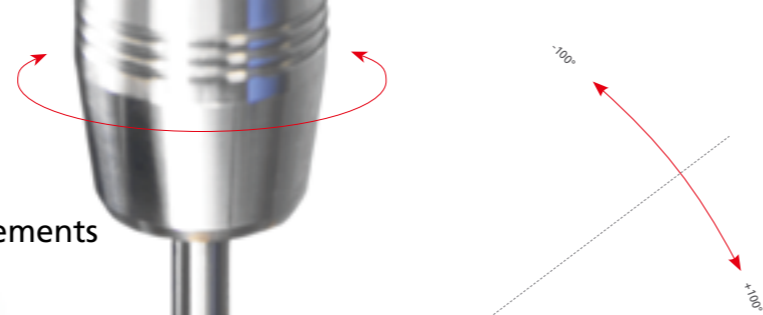


Precise, efficient, compact

and as versatile as your manufacturing requirements

With its **modular design** and numerous configuration possibilities, every CHIRON machine can be assembled into a perfect individual solution.

Your benefits: Tolerance and surface quality that exceeds your requirements, while producing at the lowest cost per piece.



08 Series

Compact, fast and precise. Whether 5-axis or 6-sided complete machining from bar, with the machining centers of the CHIRON 08 series, you can achieve shiny surfaces, extremely fine structures, minute holes, slots, pockets, fits and geometries with tolerances of a few microns – in a reliable, quick and economical way.

Travel X-Y-Z max.	450-270-360 mm
Max. power	14 kW
Spindle speed, max.	54,000 rpm
Chip-to-chip time	from 1.9 s
Number of tools, max.	226
Tool taper	HSK 32 / HSK 40

12 Series

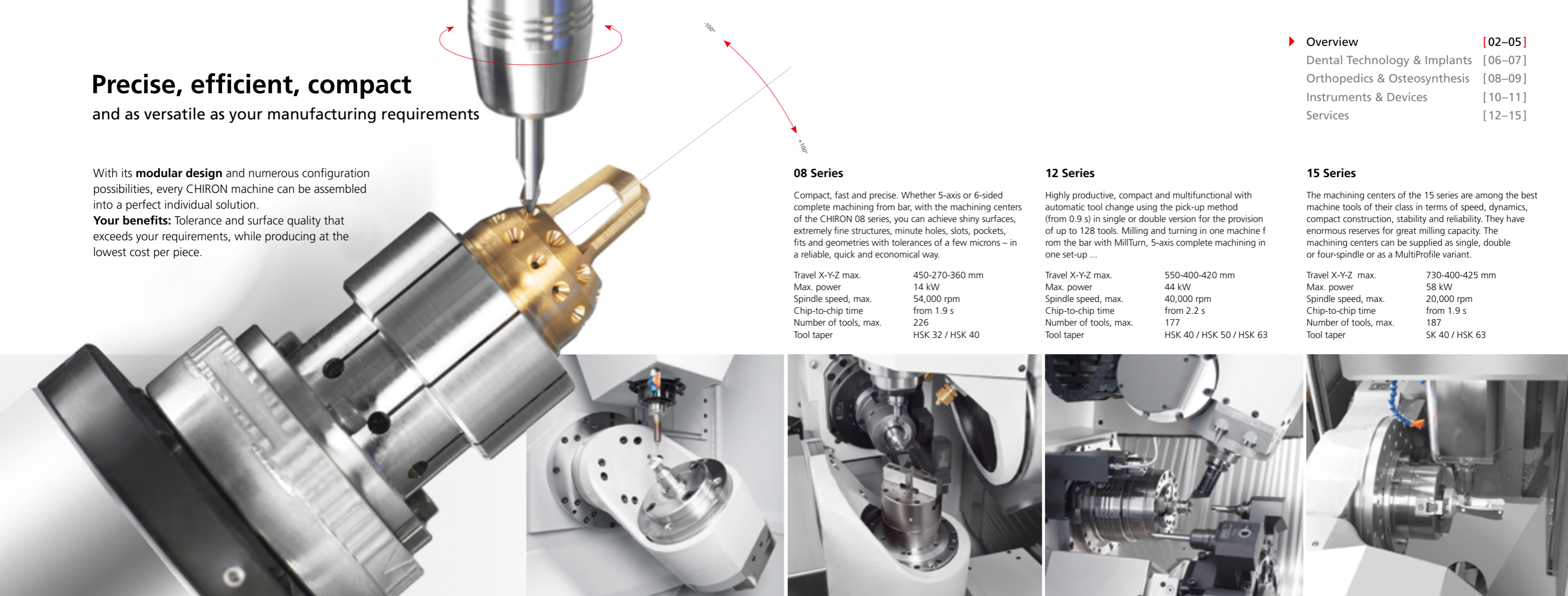
Highly productive, compact and multifunctional with automatic tool change using the pick-up method (from 0.9 s) in single or double version for the provision of up to 128 tools. Milling and turning in one machine from the bar with MillTurn, 5-axis complete machining in one set-up ...

Travel X-Y-Z max.	550-400-420 mm
Max. power	44 kW
Spindle speed, max.	40,000 rpm
Chip-to-chip time	from 2.2 s
Number of tools, max.	177
Tool taper	HSK 40 / HSK 50 / HSK 63

15 Series

The machining centers of the 15 series are among the best machine tools of their class in terms of speed, dynamics, compact construction, stability and reliability. They have enormous reserves for great milling capacity. The machining centers can be supplied as single, double or four-spindle or as a MultiProfile variant.

Travel X-Y-Z max.	730-400-425 mm
Max. power	58 kW
Spindle speed, max.	20,000 rpm
Chip-to-chip time	from 1.9 s
Number of tools, max.	187
Tool taper	SK 40 / HSK 63



Configuration examples

Your advantages:

- Highest precision and excellent surface quality
- Ideal swivel head kinematics with direct torque drive
- Multifunctional processes within a single machine
- Turning spindle provides full-range turning capabilities
- Counter spindle for reverse-turning and 5-axis simultaneous milling
- Reduction of lead times and high autonomy with six-sided, complete machining from bars
- Wear-free, highly dynamic linear direct drives in the X, Y and Z axes
- Direct path measurement system in all axes
- Compact set-up area (from 3.1 sq. m)
- Automatic tool change using the pick-up method
- Customized material feeding solutions (bar loader/bar loading magazine)
- Integrated finished part removal system (chute, drawer)
- Service-friendly accessibility to all modules (FluidTower)
- Machine tool construction „Designed and Made in Germany“



FZ08 FX

Fast and compact precision machining center with a 2-axis swivel rotary table for 5-axis simultaneous and complete machining. Workpieces can be machined with high surface quality in one set-up.



FZ08 MT PRECISION+

Multifunctional machining centers for 6-sided complete machining of complex precision parts from the bar on 3.1 sq. m. The swivel head axis is located in the tool center point for highest accuracy in simultaneous machining.



FZ12 MT

The fastest 6-sided complete machining with swivel head, turning spindle, turning turret and opposed spindle for simultaneous milling and turning from bars.



FZ15 FX

Highly productive precision machining center with a 2-axis swivel rotary table. 5-axis simultaneous operations are carried out using high-performance control options.

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Produced with great care

Multi-functional machining of dental precision parts

In dental technology, the required precision for instruments and hand-tools (such as drills) can only be achieved by incorporating the finest details into the manufacturing process. With six-sided complete machining from bar, CHIRON provides our customers with the ultimate production platform, flexibly engineered to incorporate your highly-sophisticated designs.

In the field of implantology, 5-axis dental components can be machined completely and quickly from round blanks, or abutments from the bar - fully automated depending on your individual needs. Whether titanium or CoCr alloys, green, white, or hard ceramic; CHIRON can provide a proven, reliable solution to meet your production goals.

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Grade 4/5 titanium **abutments customized for each individual**, manufactured on an FZ08 MT Precision⁺



Customized superstructures/bridges/crowns made of a cobalt-chromium-molybdenum alloy, manufactured on an FZ12 FX



Fixture for a mandibular model cast prosthesis made of a cobalt-chromium-molybdenum alloy, manufactured on an FZ08 FX



Patient-individualized abutments made of grade 4/5 titanium, manufactured on an FZ08 MT Precision⁺

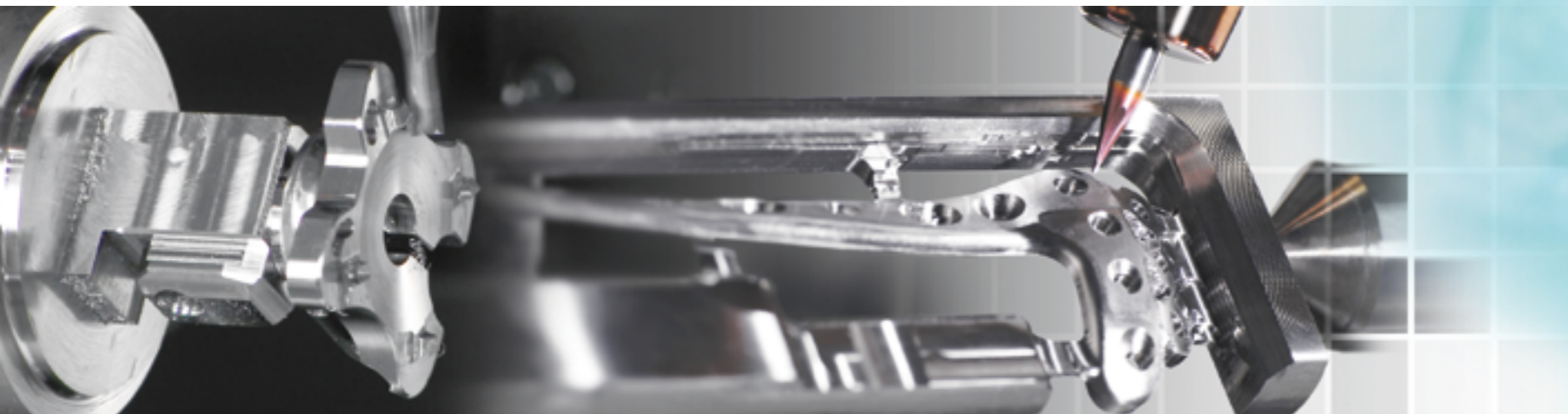
Unsurpassed quality

Complete machining of orthopedics and osteosynthesis components

Increasingly complex anatomical implants require multi-axis, highly versatile CNC machining. Whether orthopedic implants for knees, hips and spinal columns; or osteosynthesis implants from intramedullary nails via bone plates for hands and feet, to craniomaxillofacial plates for cranial and facial surgery - with CHIRON machining centers, finished components can be manufactured quickly and accurately. For even greater production efficiency, intelligent automation and auxiliary processes, such as measuring, marking, cleaning and many more, can be fully integrated with ease.

Vertebral implant made of grade 5 titanium, manufactured on an FZ08 MT Precision⁺

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Hip joint
made of grade 5 titanium,
manufactured on an FZ12 MT

Bone plate made of grade 5 titanium,
manufactured on an FZ12 MT



Prosthetic knee
joint made of an aluminum alloy,
manufactured on an FZ15 FX.



Radius plate
made of grade 5 titanium,
manufactured on an FZ12 MT



Knee joint implant
made of a cobalt-chromium-molybdenum alloy,
manufactured on an FZ12 FX



Fragment plate for spinal column
made of grade 5 titanium, manufactured on
an FZ12 MT

Manufacturing with microscopic accuracy

Economic, precision machining of medical instruments

Minimally invasive surgical techniques require ever-smaller instruments and devices. Manufacturing these components requires minute dimension, shape and position tolerances as well as the highest surface quality to keep finishing processes to a minimum. Regardless of production volumes, integrated automation features enable 24/7 availability.

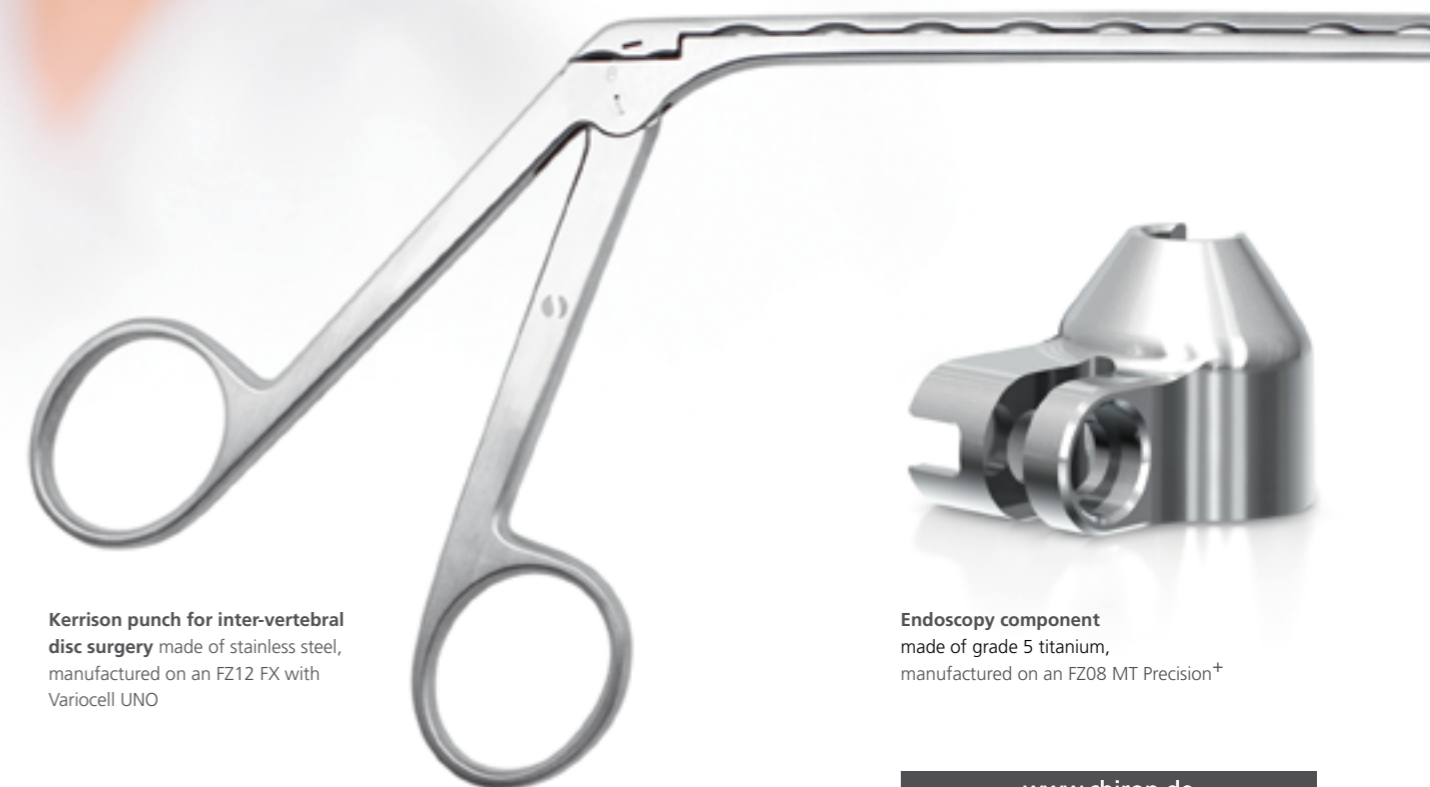
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Rotation container for laboratory centrifuge
made of a stainless steel/aluminum alloy,
manufactured on an FZ15 FX



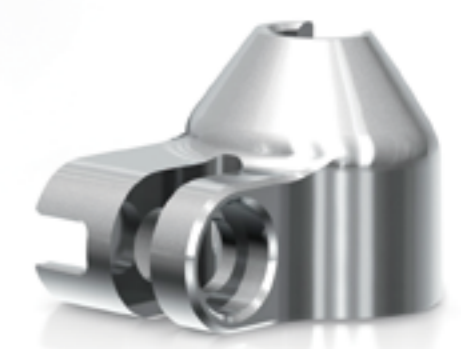
Angle head made of stainless steel
for dental instruments, manufactured
on an FZ08 MT Precision⁺



Kerrison punch for inter-vertebral disc surgery made of stainless steel,
manufactured on an FZ12 FX with Variocell UNO

Endoscopy component made of an aluminum alloy,
manufactured on an FZ12 MT

Sliding carriage for disc surgery
made of grade 5 titanium, manufactured
on an FZ12 MT



Endoscopy component
made of grade 5 titanium,
manufactured on an FZ08 MT Precision⁺

Productivity and quality, firmly under control

Flexible automation solutions for increased production

- Integrated and customized automation
- Manufacturing with minimal personnel resources
- Maximum efficiency through intelligent process design
- Predictable and reliable set-up and production times
- Supplementary processes - such as cleaning, polishing, measuring, marking
- High process reliability and productivity through complete turnkey solutions
- Resource efficiency through the use of innovative production technologies

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Individual automation solutions

- Machine-integrated spindle grippers
- Portal and articulated-arm solutions
- Load and unload devices
- Pallet changing systems
- Pallet storage for raw and finished parts
- Interlinked systems and much more



Customized automation solutions including: Autonomous production due to the use of a pallet changer/storage and loading and unloading robot.

Integrated automation in the smallest possible space, e.g.: Variocell UNO as a compact unit consisting of machining center, handling robot and workpiece storage for up to 24 raw part pallets.

Variocell UNO – integrated automation solutions

- Integrated automation in the smallest possible space (< 1 sq. meter)
- Machine and automation as a unit – no safety fence
- Easy set-up and commissioning as well as in-plant repositioning
- High efficiency for more profit
- High storage capacity
- Simple operation and programming
- Raw and finished part pallets can be replaced during machining
- Double gripper robot for quick workpiece change
- Integrated measuring part discharge (for instance SPC parts)
- Unlimited access to the work area during manual operation
- Robot can be used for additional tasks
- Machine tool construction „Designed and Made in Germany“



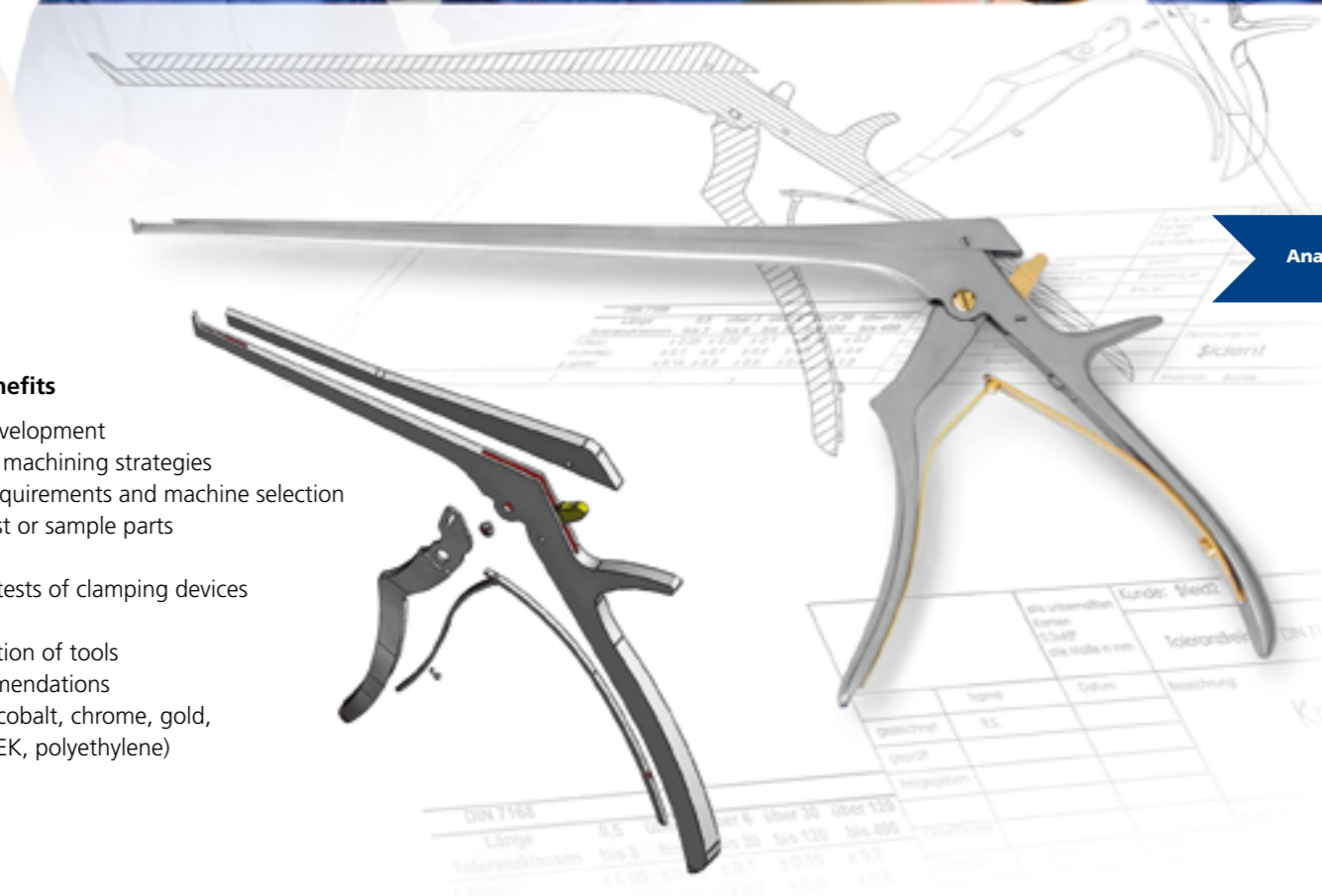
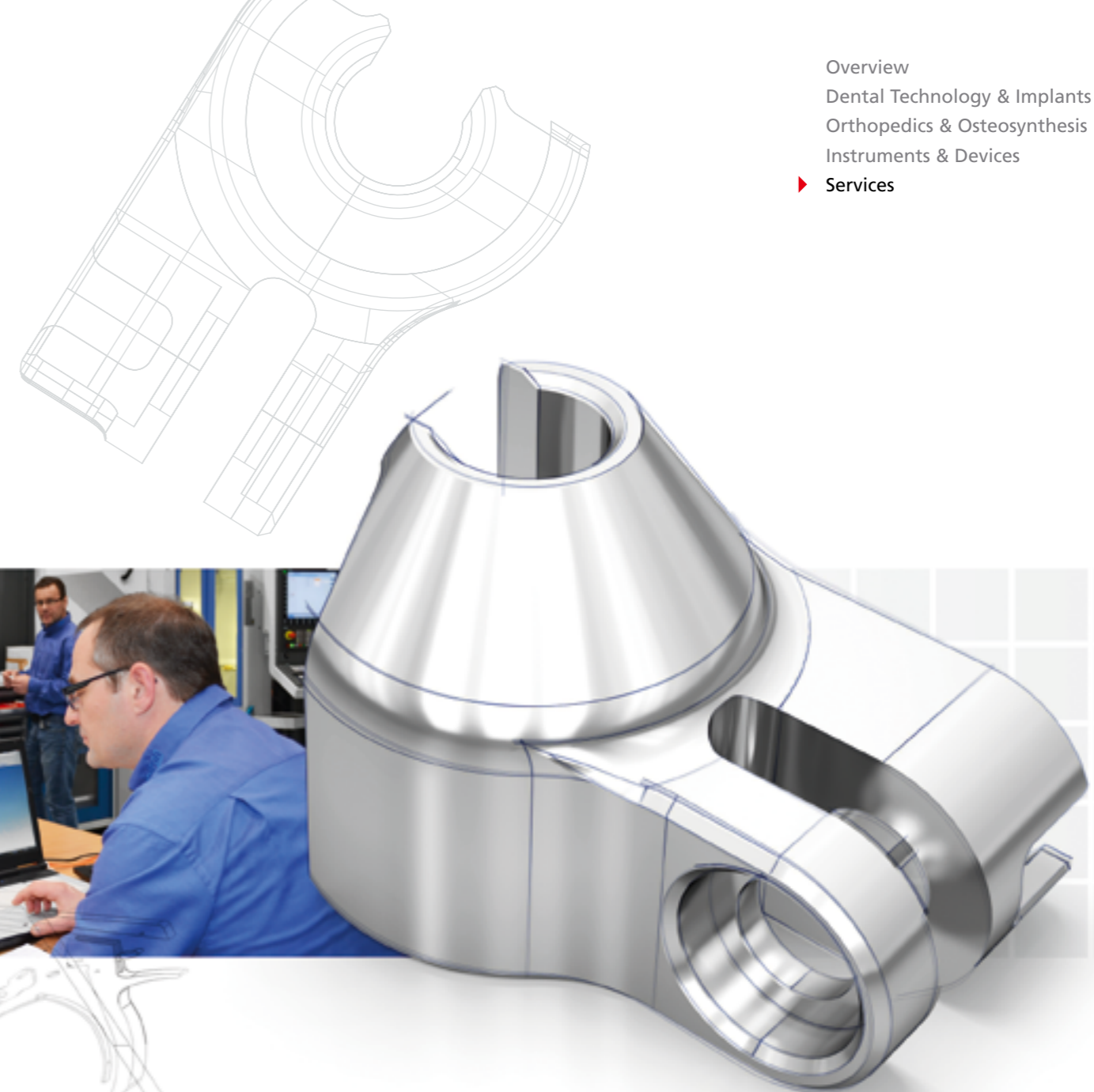
Individual and turnkey from one source

Flexible solutions, based on your budget and requirements

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CHIRON Medical & Precision Technology Center

CHIRON engineers and technicians possessing profound medical technology expertise are continuously developing leading products and techniques, cooperatively with our customers at our own "Medical Technology Center." Trial machining, tests of clamping devices and tooling, and researching the behavior of metals and materials are everyday activities for our dedicated team of industry specialists. A solution isn't complete until you are fully satisfied, which is why both process quality and finished components are verified prior to acceptance. To ensure the perfect solution, we form long-lasting partnerships with each individual customer, committed to their ongoing success.



Core tasks and customer benefits

- Joint product and process development
- Development of process and machining strategies
- Determination of machine requirements and machine selection
- Professional machining of test or sample parts
- Cycle time determination
- Development, selection and tests of clamping devices (hydraulic, pneumatic)
- Tests, comparisons and selection of tools
- Lubricant testing and recommendations
- Material behavior (titanium, cobalt, chrome, gold, aluminum, stainless steel, PEEK, polyethylene)
- Project support
- Customer training



CHIRON turnkey – from planning to series production

- Comprehensive process design
- Experienced project management
- Ensuring targeted productivity
- Tooling and device design in close consultation with the customer
- Validation of statistical process capability
- Production support
- Complete plants
- Individual software packages for machine and process diagnostics
- IT reliable maintenance and remote diagnostics modules
- Operation and programming training
- Globally available CHIRON Service



24 | 7 SERVICE

Fast, global and interconnected

- Reliability „Made in Germany“
- Preventive diagnosis and maintenance
- Short reaction times
- Global service and spare-part network



CHIRON WORDWIDE

■ Germany

CHIRON Werke GmbH & Co. KG
Kreuzstraße 75
78532 Tuttlingen, Germany
Tel. +49 7461 940-0
Fax +49 7461 940-53000
info@chiron.de
www.chiron.de

CMS-GmbH
Gewerbepark „take-off“ 125
78579 Neuhausen ob Eck, Germany
Tel. +49 7461 940-3700
Fax +49 7461 940-53701
cms@chiron.de
www.pre-owned-machines.com

■ France

CHIRON Technologies
de Production SAS
14 Chemin de la Litte
92390 Villeneuve-la-Garenne, France
Tel. +33 1 479 859 50
Fax +33 1 479 854 31
info@chiron-technologies.fr
www.chiron-technologies.fr

■ Italy

CHIRON Italia S.p.A.
Via Ambrosoli 4/C
20090 Rodano Millepini - MI, Italy
Tel. +39 02 953 211 02
Fax +39 02 953 286 20
info@chironitalia.it
www.chironitalia.it

■ Turkey

CHIRON Istanbul
Makine Ticaret ve Servis Ltd. Şti.
MURAT PAŞA MAHALLESİ ULUYOL
Caddesi No:19 ISTANBUL TOWER
Plaza Kat:13 D:59-60
34040 Bayrampaşa - ISTANBUL, Turkey
Tel. +90 212 612 12 11
Fax +90 212 612 48 28
info@chiron-turkey.com
www.chiron-turkey.com

■ Poland

CHIRON Polska Sp. z o.o.
ul. Darwina 42
44-177 Paniowki, Poland
Tel. +48 32 790 9850
info@chiron-poland.com
www.chiron-poland.com

■ USA

CHIRON America INC.
10950 Withers Cove Park Drive
Charlotte, NC 28278, USA
Tel. +01 704 587 95 26
Fax +01 704 587 04 85
info@chironamerica.com
www.chironamerica.com

Detroit Office
44692 Helm Street
Plymouth, MI 48170
Tel +01 734 233 9650
Fax +01 704 587 0485
info@chironamerica.com
www.chironamerica.com

- Production, Sales & Service
- Sales & Service
- CHIRON Partner

■ China

CHIRON Machine Tool (Beijing) Ltd. China
Room 1805, NUO Office
A2 Jiangtai Road, Chaoyang District
Beijing 100016, PRC
Tel +86 10 6598 9811
Fax +86 10 6598 9812
info@chiron-china.com
www.chiron-china.com

CHIRON Machine Tools (Taicang) Co., Ltd.
No.1-1, Fada Road
Technological Development Zone,
Taicang 215413, Jiangsu Province
P.R. China
Tel. +86 512 5367 0800
Fax +86 512 5367 0808
info@chiron-china.com
www.chiron-china.com

■ India

CHIRON India Machine Tools
Private Limited
#33, Naseer Affinity , 1st Floor
Miller Tank Bund Road, Kaveriappa Layout
Vasanth Nagar, Bangalore - 560 052, India
Tel. +91 80 4905 6490
Fax +91 80 4905 6450
info@chiron-india.com
www.chiron-india.com

CHIRON Werke GmbH & Co. KG

Kreuzstrasse 75
78532 Tuttlingen, Germany

Phone +49 7461 940-0
Fax +49 7461 940-53000

CHIRON Group

