

18 Series

Powerful, single and double spindle Machining centers for
high-speed machining and heavy cutting

chiron

www.chiron.de



FZ18 W
Machining centre with basket tool changer (20 tool places) and workpiece changing device
0° / 180° for loading and unloading during machining.

Compact, strong and fast

For productive cutting

The CHIRON 18 Series offers the optimal prerequisites for highly productive cutting and precise machining results. Whether your focus is on flexible single-unit production, or high volume precision manufacturing – due to its modular design and numerous configuration possibilities, every 18 Series basic machine can be assembled into a perfect individualized solution:

Reliably high productivity

Highest precision and
processing quality

Powerful drives

Fast set-up

High stability

High stability

High dynamics

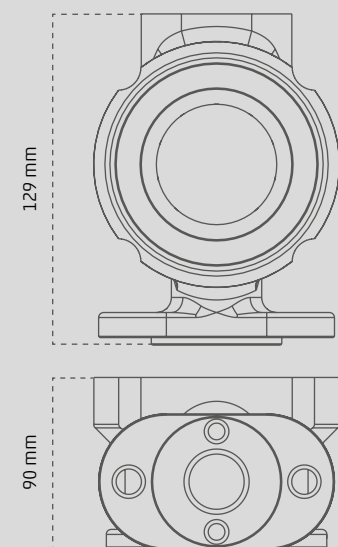
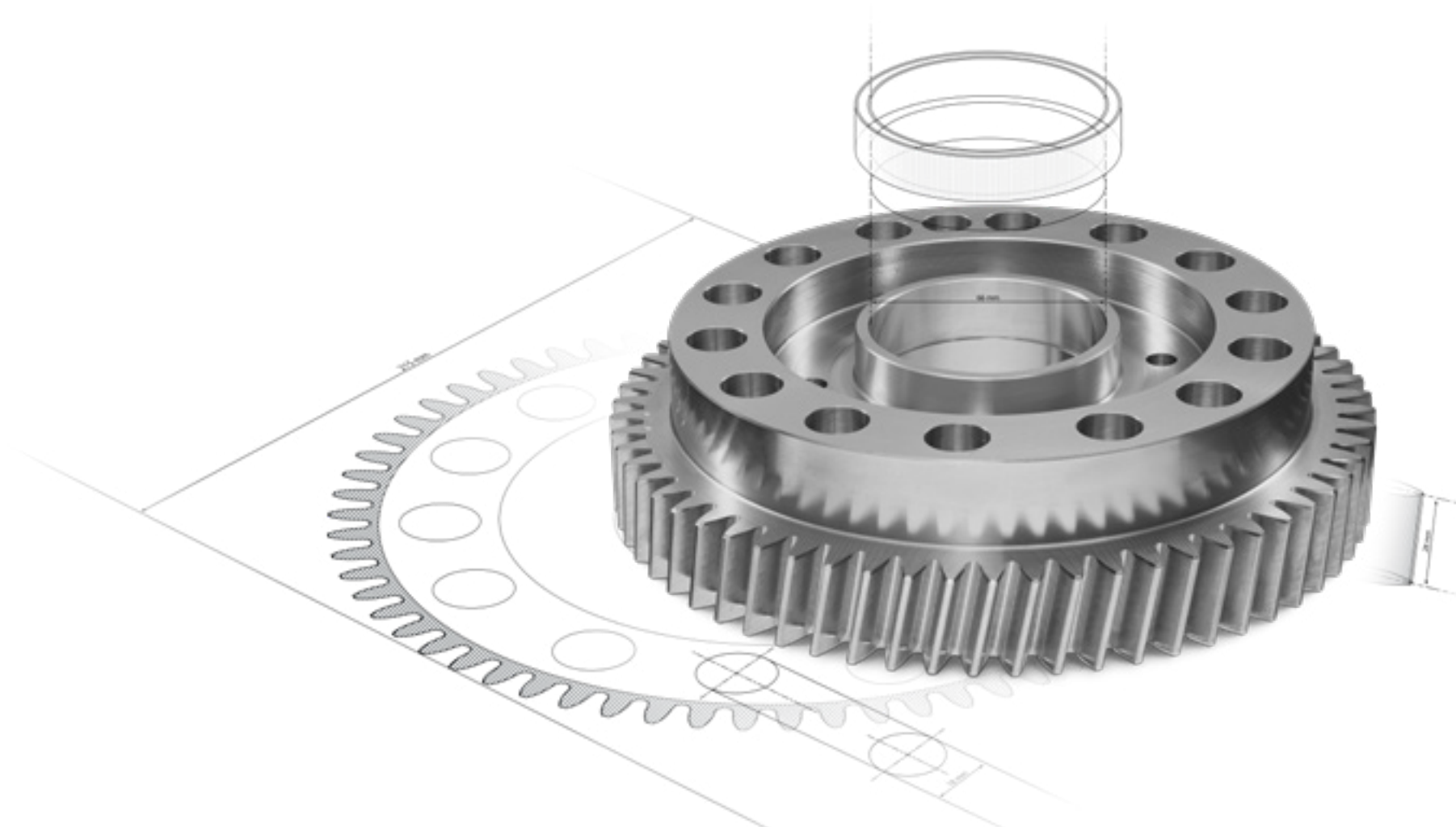
Easy maintenance

18 Series precision machining centers are available as single and twin-spindle machines or as wheel variants and have enormous reserves for powerful milling performance.

Precision without compromise – Wide variety of workpieces and excellent surface quality

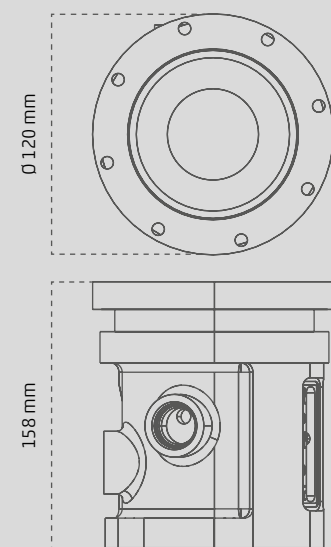
We love perfection

That's why we view every detail as an exciting challenge. Whether automotive, aerospace, mechanical engineering, medical or precision engineering – the highquality machining centers of the CHIRON 18 Series reduce processing times, produce with high milling capacity and compress your manufacturing process into the smallest space possible. The perfect tools to implement your product ideas quickly, with micron-level precision.



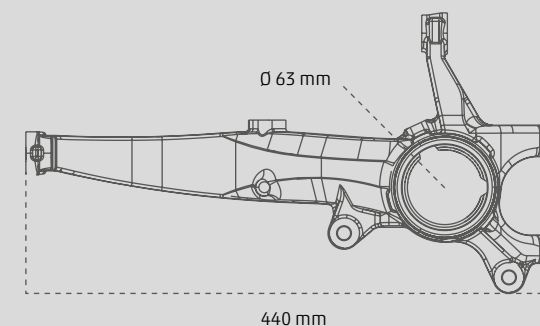
Mechanical Engineering

4-sided complete machining of components for Measuring and Control Technology, e. g. valve housings made of stainless steel



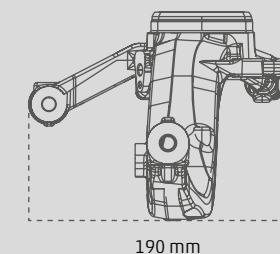
Aerospace

Piece cost-effective complete machining of aircraft- and helicopter parts, e. g. engine housings



Automotive

5-axis complete machining of undercarriage components, e. g. steering knuckles



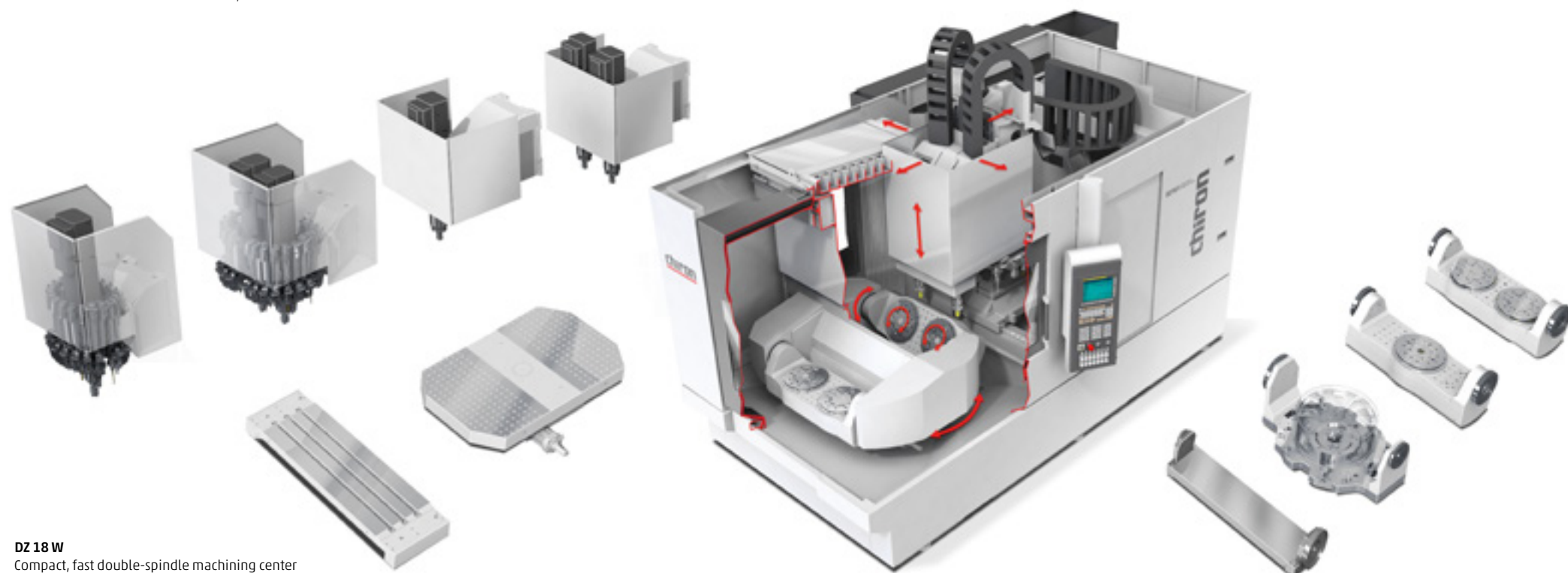
High-tech modules for any application – Unique versatility for maximum flexibility

Modular concept

- Vertical traveling column principle
- Compact installation area from width 1,900 x depth 3,690 mm (S)
- Sturdy machine bed
- High rigidity and thermal stability
- Precision glass scales on all axes
- Dynamic direct drives and precision guides
- Robust CHIRON rotary axes
- High running, positioning and long-term precision
- Fully enclosed work area, stainless steel covers
- Smooth, steep walls for ideal chip flow directly to the chip conveyor
- Ergonomic operating and loading concept
- Service friendly access to all auxiliary units
- Low-maintenance and durable



CNC controls of the 15 Series: Siemens, Fanuc.



DZ 18 W
Compact, fast double-spindle machining center
with integrated workpiece changing device
0° / 180° for convenient loading and unloading
during machining.

Spindles and spindle systems



Proven single-spindle machining centers in the vertical traveling column design.



Highly productive twin-spindle machining centers with spindle distance 320 or 400 mm.

Tool changing systems



CHIRON basket tool changer with 20 (2 x 12 for DZ) tool places (SK-40 or HSK-A63). High productivity due to the shortest chip-to-chip times starting from 1.9 s.



Automatic tool change with the pick-up procedure in as little as 1.0 seconds with 2 x 35 tool places, HSK-A63.

Table options



Fixed table with ample space for devices, or NC rotary table superstructures for multi-sided machining.



2-axis swivel rotary table with one or two face plates (Ø 1 x 280 / 2 x 280 mm) for single or twin-spindle multi-sided machining.



Workpiece changing device with table loading capacity of up to 400 kg per side and large clamping surfaces (2 x 940 x 520 mm), borehole pattern, central distributor for energy supplies.



Wheel: Flexible wheel machining system for individual needs.

The right machine for each component

Proven modules for customized configurations



FZ 18 S
Powerful precision machining center with fast basket tool changer, fixed table and large work area for universal use. The fixed table provides ample space for various devices or NC rotary table assemblies.

FZ 18 S five axis
Flexible precision machining center with a basket tool changer and a 2-axis swivel rotary table for 5-axis simultaneous and complete machining in one set-up.

DZ 18 W
Highly productive twin-spindle machining center with automatic tool change using the pick-up method and tool changing device (0° / 180°) for loading and unloading during machining.

FZ 18 S Wheel
Fast precision machining center with basket tool changer, integrated rotary table and CHIRON universal device for wheels.



Process advantages

Travel X – Y – Z max.	800 – 550 – 630 mm
Power max.	37 kW
Spindle distance DZ	320 oder 400 mm
Spindle speed max.	15,000 rpm
Chip-to-chip time	1.9 s
Axis acceleration X – Y – Z max.	16 / 16 / 16 m/s²
Rapid feed max.	75 m/min
Number of tools max.	70 / 2 x 35
Tool taper	SK-40 / HSK-A63
Tool weight max.	10.0 kg
Tool diameter max.	180 mm
Tool leght max.	380 mm
Workpiece change starting from	3.5 s

		Spindles & spindle systems			
		Automatic tool changer			
		Table options			
		S	FX	W	WHEEL
FZ	BASKET	FZ 18 S	FZ 18 S five axis	FZ 18 W	FZ 18 S Wheel FZ 18 W Wheel
DZ	BASKET			DZ 18 W	
FZ	CHAIN		FZ 18 S five axis	FZ 18 W	
DZ	CHAIN		DZ 18 S five axis	DZ 18 W	

Diversity and flexibility

Your advantages with the CHIRON fixed table or workpiece changing device

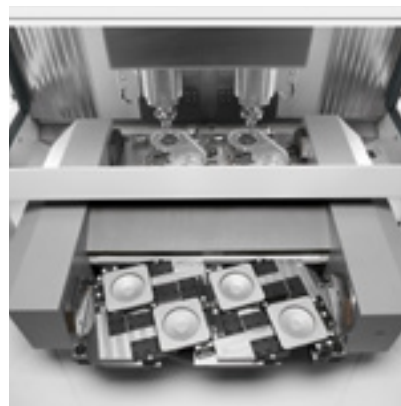
- 3-axis machining center based on the vertical traveling column principle
- Expandable to 4-axes with the basic device or 5-axis machining with 2-axis swivel rotary table
- High rigidity and thermal stability
- Clear, easily accessible work area
- Work area for larger workpieces or multiple set-ups
- Chip-to-chip time starting from 1.9 s
- Loading and unloading with workpiece changing device during machining (Workpiece change times starting from 3.5 s)
- Workpiece changing device with central splash guard and optimal accessibility
- High table loading
- High milling capacity
- Integrated automation solutions possible

Proven technology and high precision as a foundation



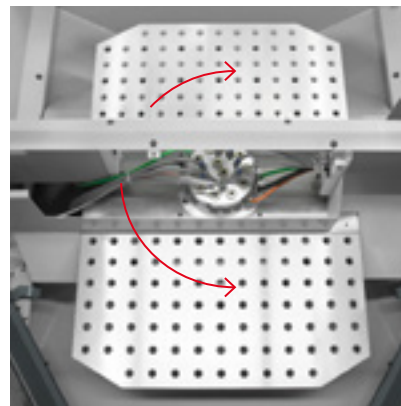
FZ 18 S

Powerful precision machining center with a fast basket tool changer. The fixed table offers ample space for devices or NC rotary table assemblies.



DZ 18 W

Fast precision twin-spindle machining center with automatic pick-up tool changer and workpiece changing device (0° / 180°) for loading and unloading during machining.



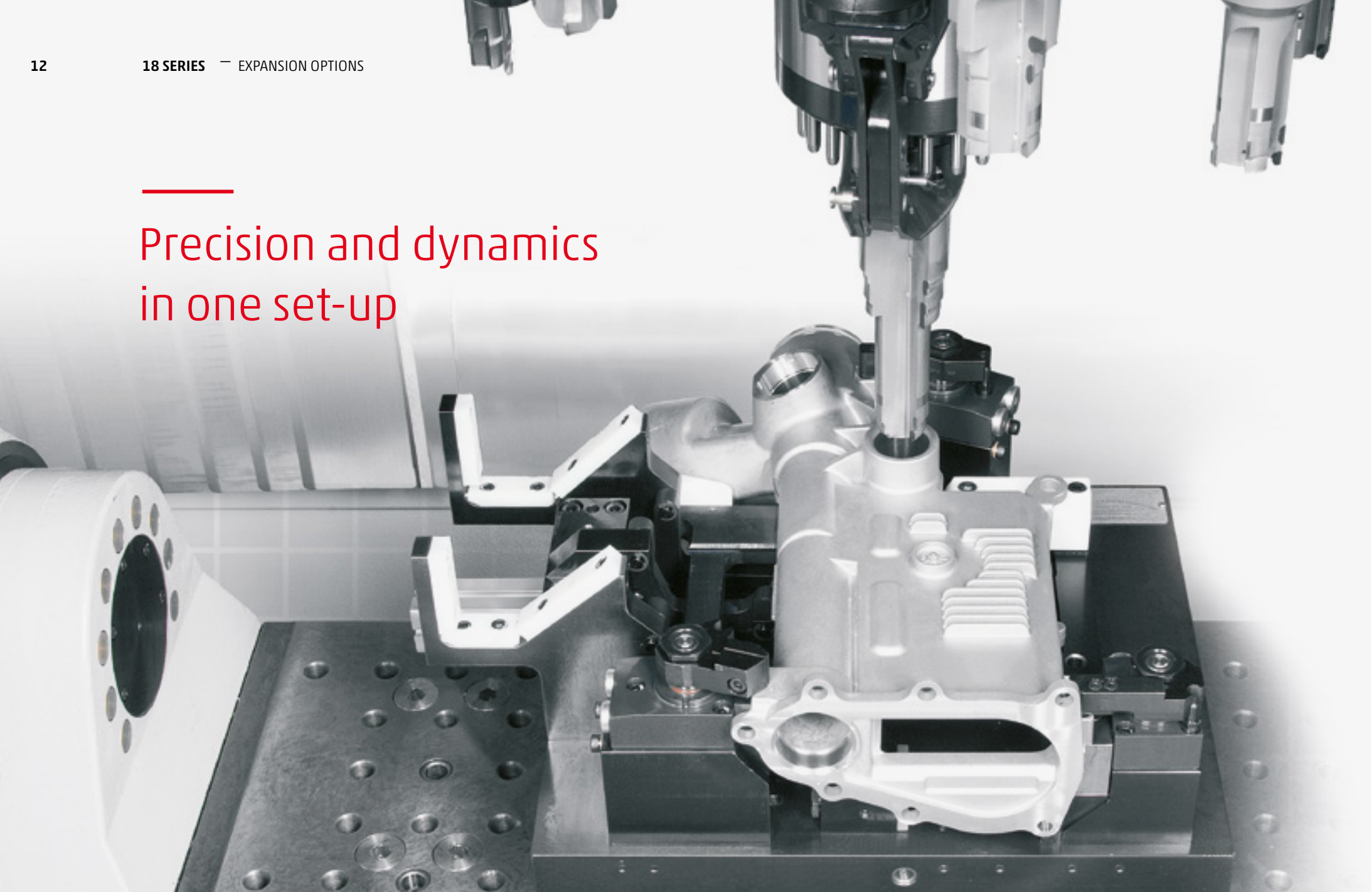
Workpiece changing device 0° / 180°

Depending on the customer's requirements, the workpiece changing device can be configured with individual table assemblies for 3-, 4-, or 5-axis machining. It offers plenty of space for devices and is equipped with a central distributor for energy supplies.

Downtimes are greatly reduced, due to the capability of loading and unloading workpieces during machining.



Precision and dynamics in one set-up



Your advantages with CHIRON five axis

- Highest precision in positioning and simultaneous operation
- Mineral cast machine bed
- High rigidity and thermal stability
- Spindle speeds up to 16,000 rpm
- Excellent surface quality
- Integrated CHIRON 2-axis swivel rotary table with direct measuring systems
- Integrated 6-way energy supply for clamping device on the face plate
- Zero-point clamping systems can be integrated
- Fourth axis with a pivoting range of up to +/- 120°
- 5th axis with torque drive up to 1,000 rpm for turning work
- Automatic machine compensation due to the 3D touch probe TS27
- Integrated automation solutions possible

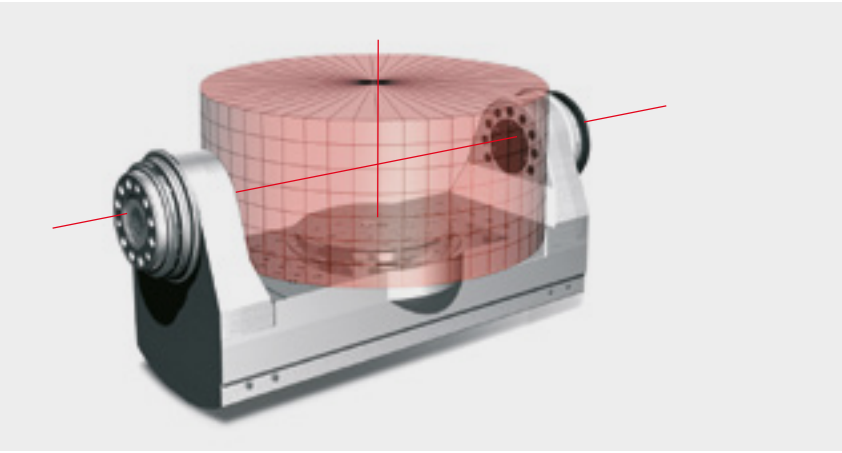
FZ 18 S five axis
Flexible precision machining center with the CHIRON basket tool changer and a 2-axis swivel rotary table. High productivity due to chip-to-chip times as short as 1.9 s. and tool changing times starting from 1.0 s.

Complete machining with CHIRON five axis



DZ 18 S five axis: Doubled productivity with minimal space requirements: fast double-spindle machining center with a 2-axis swivel rotary table with two face plates for efficient complete machining with five simultaneously controlled axes.

- 5-axis machining with the CHIRON rotary table program**
- Solid and reliable technology - developed and manufactured by CHIRON
 - Backlash-free preclamped precision gears with high overload capacity
 - Rotation option due to highly dynamic torque drives



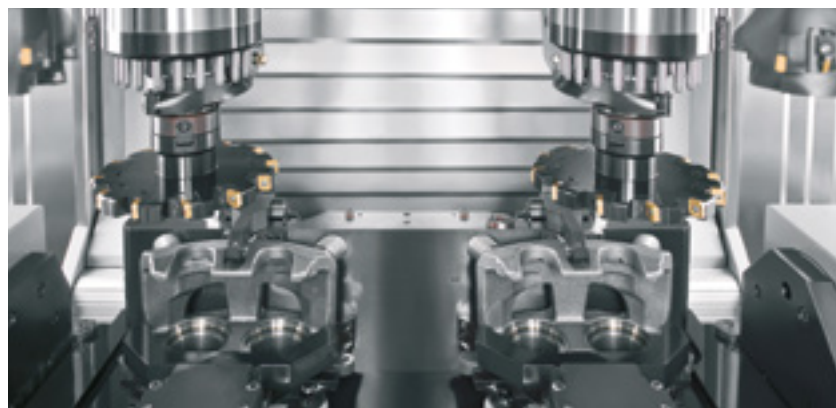
The workpiece is positioned exactly in the center of the swivel axes, which minimizes compensating movements of the linear axes. The unique CHIRON basket tool changer allows extremely short cycle times. Combined with fast rapid feeds and the dynamic NC swivel rotary tables, non-productive times are reduced to a minimum.

2-axis swivel rotary table	CASD 280	CASD 280-2
Max. workpiece dimensions	Ø 700 x 630 mm	2 x Ø 320 x 630 mm
Interference range	Ø 790 mm	Ø 790 mm
Swivel range	± 120°	± 120°
Face plate(s)	Ø 280 mm	2 x Ø 280 mm
Borehole pattern	M16 x Ø 15 H 7x50 mm	M16 x Ø 15 H 7x50 mm

Doubled productivity with CHIRON multi-spindle processing

Your advantages with CHIRON multi-spindle machining

- Reduction of energy and space requirements
- Reduction of the total processing time
- Simplification of the material flow
- Reduced investment costs
- Reduced staff resources
- Spindle speeds up to 16,000 rpm
- High productivity
- High rapid-feed speeds of up to 75 m/min
- Highest precision in positioning and simultaneous operation
- Precision glass scales on all axes
- Shortest chip-to-chip times starting from 1.9 s
- CHIRON 2-axis swivel rotary table possible
- Integrated automation solutions possible



The multiplier effect – more spindles, more cutting, more profit

The combination of 2 spindles and a 4-fold clamping device results in a cost saving of up to 50 %. Doubled productivity on one machine means a reduction of machining time of nearly 50 %. There is also the option of multi-side machining through NC controlled rotary axis.

DZ 18 W

The combination of two spindles and a workpiece changing device 0° / 180° as well as a quadruple clamping device results in cost savings of up to 50 %.



DZ 18 W

A perfect combination of two spindles, workpiece changing device 0° / 180° and NC rotary table.



Highly productive wheel machining for individual needs

Your advantages with CHIRON

- Maximum flexibility and minimal set-up costs for all wheel variants and batch sizes
- Different wheel sizes on one device (14" bis 25")
- Non-productive times reduced by wheel machining on the front and rear side in a single set-up
- Loading and unloading with workpiece changing device during machining (Workpiece change times starting from 3.5 s)
- User-friendly work area with perfect ergonomics
- High machine availability and process reliability
- Can be easily automated with different loading and unloading systems
- Low-maintenance and durable



60 million wheels per year are manufactured on CHIRON machining centers

Innovative concepts are required in order to produce 1,000 wheels per day in minute cycles: e. g. special clamping cylinders (without hydraulics), allowing each wheel size to be reliably clamped. The height adjustment of the support plate allows wheels of various widths to be machined.



FZ18 S Wheel

Wheel machining on the front and rear side in a single set-up.



FZ 18 S Wheel

Fast precision machining center with integrated rotary table for productive machining of screw, valve and air supply boreholes in one set-up.



FZ 18 W Wheel

Efficient machining center with workpiece changing device. While a wheel is machined on one table side, loading and unloading can be carried out on the other side of the table. This reduces non-productive time to a minimum.



CHIRON TURNKEY

- Comprehensive process design
- Expert engineering
- Experienced project management
- Validation of statistical process capability
- Ensuring targeted productivity
- Production assistance during the initial phase
- Training in operation and programming
- CHIRON Service available around the world

Turnkey customization completely from one source

Individual automation and engineered solutions for greater productivity

VariocellUno

Flexible and inexpensive: a compact machining center, handling robot, workpiece storage and workpiece changing device (0° / 180°) for loading and unloading during machining.

Customized automation solutions

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



Your advantages with CHIRON VariocellUno

- Integrated automation in the smallest possible space (< 1.5 m²)
- Machine and automation as a unit
- Simple installation and set-up, 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 (option)
- Integrated measuring part discharge (for instance SPC parts)
- Unrestricted access to the work area in the manual mode
- Robots can be used for additional tasks

Today, manufacturing excellent machining centers is not enough. Users expect a solution, which is as individual as it is intelligent. From one specific machining task, a »Turnkey process« is to be developed around the workpiece based on the specifications and constraints. The CHIRON TURNKEY makes it possible to optimally solve complex tasks.

Together with perfectly adapted technology modules, CHIRON engineers create the most economical solution from one source to meet the customer's special needs. This ensures decisive competitive advantages for CHIRON customers. CHIRON not only offers the machining solution itself, but also the support to keep manufacturing running at an optimal level.

Analyzing

Conceptual
designing

Specifying

Implementing

Profiting

Machining center and the robot cell VariocellUNO

VariocellUno

Machining center and the robot cell VariocellUno as a unit: Transported together, no separate setup, robot cell alignment is not required. Integrated automation in the smallest possible space.



SmartLine

The path to »digitally enhanced machining« is prepared

Intelligent machine control, digital networking, mutual machine communication, if »digitally enhanced machining« is mentioned, CHIRON may already has something to say. With the SmartLine program, the CHIRON Group provides a modular software system that enables customers to unlock the full potential of the digital manufacturing process.



Machine
TouchLine, ProtectLine,
ConditionLine



Factory
DataLine, ProcessLine,
ConditionLine



Cloud
RemoteLine,
ConditionLine

An overview of all software modules

User

ConditionLine	– Early detection of unusual operation behavior	– Maintenance engineer
	– Constant monitoring and analysis of the machine condition	– Service
	– Customized degree of networking	
ProtectLine	– Collision monitoring in all types of operation	– Machine operator
	– Preventative collision protection	– Maintenance engineer
	– Safety during machining	
TouchLine	– Context-sensitive information	– Machine operator
	– Machine-specific support	– Maintenance engineer
	– User-guided operation	– Installer
RemoteLine	– Machine remote access	– Maintenance engineer
	– Rapid assistance in event of fault	– Service
	– Automatic notifications	
	– Optimum data security	
DataLine	– Visualization of machine condition and process progress	– Production planner
	– Configurable system	– Head of manufacturing
	– Real-time information about all machinery	– Controlling
ProcessLine	– Digital twin and post-processor	– Production planner
	– »Digital« process run-in	
	– Collision-tested NC program	



Trainings and workshops

Ahead through qualification, because knowledge leads to success.

To enable you to use your CHIRON CNC machining center optimally, we offer a comprehensive range of qualification measures, training courses and training for operators, setup personnel and service technicians.

The training programme is characterised above all by flexibility in implementation. In addition to the courses in our CHIRON training centre, these can also take place at your location. Our trainers are able to offer courses in German and English. Optionally we offer further languages with the help of an translator.

In the CHIRON Training Center, we get interested persons, both beginners and pros, up-to-date with the latest technology, step by step. With a number of individually combinable machine courses and programming courses. In this way we qualify your employees while increasing the productivity of your CHIRON CNC machining center. This leads to more success for your company, since qualified and motivated employees are an important success factor.

Our training courses are designed didactically according to the latest teaching methods. By doing practical work in small groups, we take into account the field of interest and the level of knowledge of the participants.

Our philosophy is to strongly qualify the participants through their own work on our training objects. Subsequently, what has been learned can be directly put into practice in routine work.

CHIRON training, courses and training are available for the following topics:

- Service and maintenance
- Operation
- Programming
- Components
- Robots
- Customer-specific



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