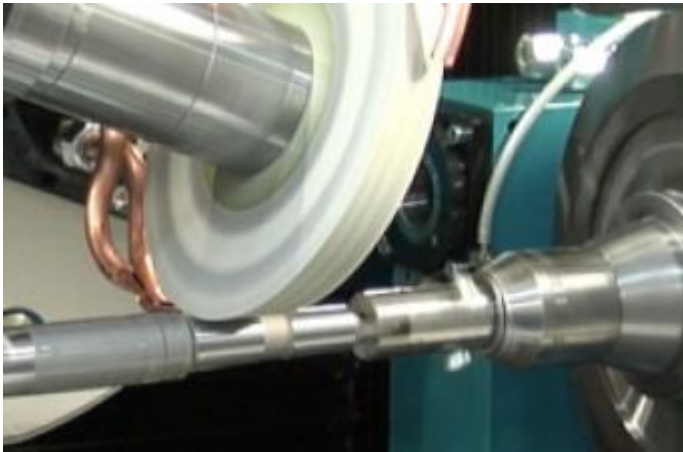


PRODUCTION GRINDING

CYLINDRICAL, THREAD GRINDING

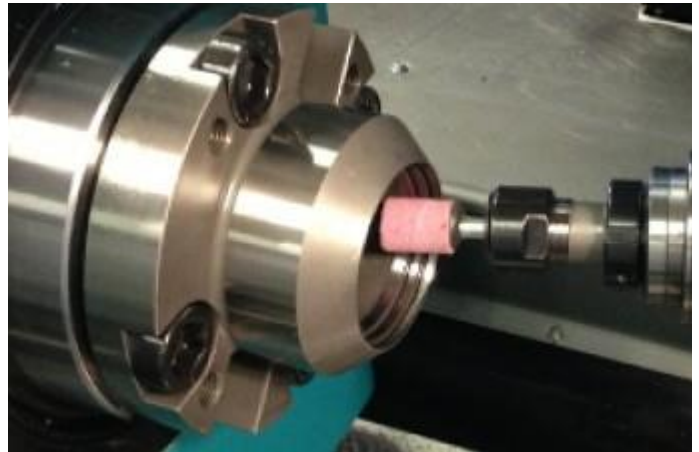
CYLINDRICAL GRINDING

Standard cylindrical grinding or profile cylindrical grinding. Complex geometries are ground using profile cylindrical grinding with standard discs or by using profiled discs which can be directly trued on the machine. Both HSS and carbide can be ground on the machines. Thanks to the fully-automatic, high-precision measuring process for the grinding disc diameter and the workpiece, the QUINTO software can grind to the final size in one cycle in the micrometre range.



INTERNAL GRINDING

Internal grinding or profile internal grinding. A high-frequency grinding spindle has to be used depending on the diameter to be ground. Complex internal geometries are ground using profiled discs that can be trued directly on the machine. Both HSS and carbide can be ground on the machines. Thanks to the fully-automatic, high-precision measuring process for the grinding disc diameter and the workpiece, the QUINTO software can grind to the final size in one cycle in the micrometre range.



THREAD GRINDING

Thread grinding of any thread thickness. The correct thread shape is achieved by truing the grinding disc. The thread shape is programmed using parameter entries in the QUINTO software. Special thread profiles can be defined by dxf profiles.

In order to keep the disc profile within the specified tolerance, the truing process is integrated in the entire grinding process. Roughing and finishing cycles and the corresponding preparations are also integrated.

Automatic clamping and loading systems are available for fully-automatic operation.



POLYGONAL GRINDING

Profile grinding can be carried out on external diameters, as well as in internal. The grinding profile is read into the QUINTO software via profile data in dxf format.

Dressing cycles can also be integrated into the process. The machines can be used for grinding both, bearing seats and cam geometries in one clamping.

Thanks to the fully-automatic, high-precision measuring process of the grinding wheel diameter and the workpiece, the QUINTO software can grind to the final size in just one cycle down to micron tolerances.



Norma GGC, gemini NGM, corvus GDS, corvus C type

SPLINE GRINDING

GROOVED SHAFTS

Grooved shafts are normally ground using standard discs from a cylindrical blank and from the solid. The data to true the disc for gear profiles, coupling profiles or other standard profiles is available in a comprehensive library.

Special profiles are trued based on dxf geometry data. The profiling process for the shaft is fully automatic and includes the truing cycles. A V-shaped CBN disc for rough grinding can be used to shorten the entire grinding time.

Specific clamping systems and automatic loading are available as options.

GEARS GRINDING

Straight or helical gearing. Special gears are programmed by entering dxf data. Roughing and finishing cycles and the corresponding preparations can be programmed easily in the QUINTO software. Cyclical truing is integrated in the grinding process.

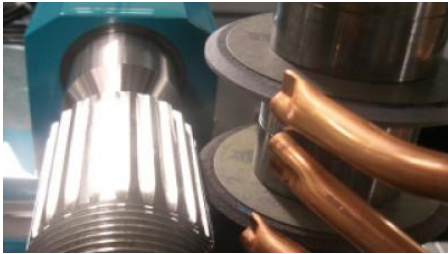
Automatic clamping and loading systems are available for fully-automatic operation.

FLAT GRINDING

A wide range of clamping systems are available for flat grinding tasks. Of course, several surfaces can also be ground together. For example, when grinding slots or dovetail profiles.

Depending on the application, the material can be removed parallel to the clamping area or vertically from the clamping area. By using automatic clamping systems and automatic loading and unloading, you can obtain a fully-automatic production centre.

In conjunction with the Schneeberger machines, this type of centre is highly profitable.



Aries NGP, norma NGC, gemini NGM, corvus GDS, corvus C type

MEDICAL TECHNOLOGY

MEDICAL: HIP RASPS

The grinding paths along textures (spirals, slanted lines, etc.) are generated based on a predefined 3D model. The spiral angle, cutting angle and number can be selected freely in the QUINTO software package for medical devices. Each part of the 3D model that is ground is linked to operations in the program. The tooth depth is calculated based on the surface curvature. All teeth for the hip rasp are ground in one clamping.

Automatic machine loading and de-burring the completed rasps are available options.



MEDICAL: KNEE PROSTHESIS

The grinding paths along textures (spirals, slanted lines, etc.) are generated based on a predefined 3D model. The number of paths, gap and direction can be selected freely in the QUINTO software package for medical devices. Each part of the 3D model that is ground is linked to operations in the program. The grinding paths can be adjusted to the shape of the edges. The entire knee prosthesis is ground in one clamping.

Automatic machine loading and de-burring the completed prosthesis are available options.

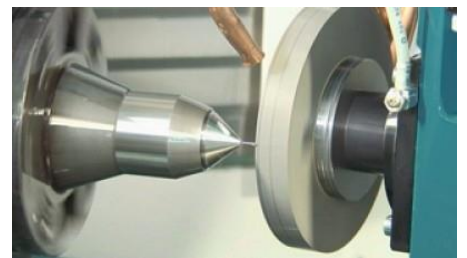


MEDICAL: BIOPSY NEEDLE

The tip geometry of biopsy needles is available in a wide range of shapes.

Oscillating grinding is carried out to prevent burr formation. In order to keep the grinding disc as sharp as possible, truing is carried out at regular intervals in the process.

An automatic loading and unloading system is of course available.



MEDICAL: BONES BLADES

Bone blades for surgical use are available in numerous variants and sizes. The teeth are ground from CBN or ceramic using a V-shaped grinding disc. The teeth can be arranged in a straight line or offset; the blade's shape can be straight or curved.

Depending on the machine, various automatic loading systems can be offered.



MEDICAL: DENT DRILLS

Dental drills for orthodontics are available in many variants. One common feature is the standardised shaft with $\varnothing 2.35\text{mm}$. Profile shapes are read into our QUINTO software as dxf files.

Production is fully automatic thanks to the use of a loading and unloading system, cyclical truing for the discs and integration of an automatic lunette.



Norma NGC, gemini NGM

PUNCHES

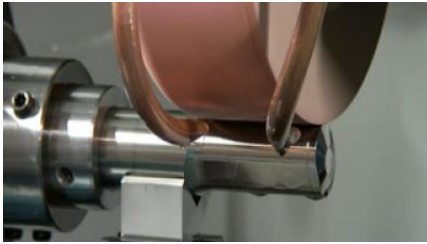
Norma NGC, gemini NGM

CYLINDRICAL AND PROFILE PUNCHES

Punches and cylindrical profiles in HSS and carbide, production and regrinding.

Programming is very easy by entering a dxf profile and using the 3D simulation.

Specific workpiece clamping, double lunette for maximum precision and automatic loading complete the package.

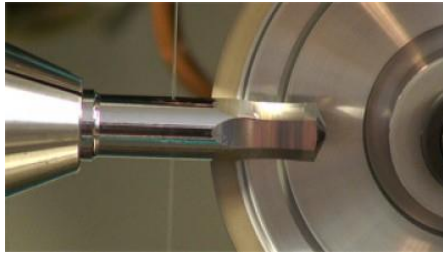


HEXAGONAL PUNCHES

Production of hexagonal punches in HSS or carbide.

Programming is very easy by entering a dxf profile and using the 3D simulation.

Specific workpiece clamping, double lunette for maximum precision and automatic loading complete the package.



TORX PUNCHES

Production of Torx punches in HSS or carbide.

Programming is very easy by entering the dxf profile and using the 3D simulation.

Specific workpiece clamping, double lunette for maximum precision and automatic loading complete the package.



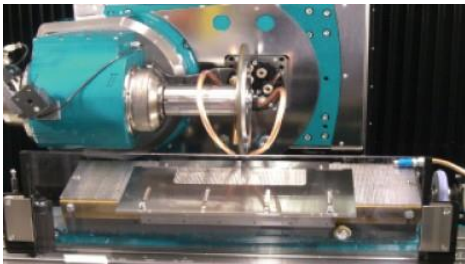
BLADES

Aries NGP, norma NGC, gemini NGM

FLAT PAPER KNIFE

Production of blades in HSS or carbide. High efficiency when grinding paper knives. Specific clamping systems. Double-sided machining of single cutting angles, double cutting angles or profiles in one clamping.

Automatic loading and unloading system in conjunction with a magnetic clamping plate and a very efficient process cooling system guarantees extremely economical production. Process reliability is guaranteed by cleaning cycles. A 6-axis Fanuc robot with a magazine loader allows great autonomy.



CIRCULAR SAW BLADES FOR PAPER

For production and regrinding. The diameter and thickness are measured for each blade. The roughing cycle is carried out in sub-steps by oscillating the grinding disc.

The left + radius and right + radius finishing cycle is ground in two passes. The 1V1 grinding disc is permanently in contact during the oscillation grinding process.

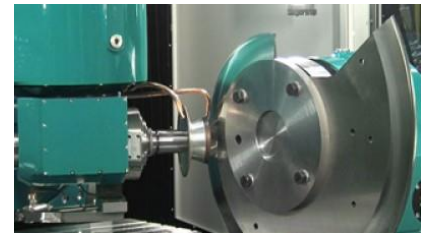
High-precision internal clamping and an automatic loading system complete the package.



BLADES FOR FOOD-INDUSTRIES

Blades for the food industry with a smooth or profiled cut. The blade may also have an elliptical basic shape. Input screen for programming parameters in our QUINTO software. Integrated scanning cycles determine the blade's actual geometry before the grinding process.

Various clamping systems are available, including customer-specific clamping systems



PULVERIZERS DISCS

Pulveriser discs with a diameter of up to 850mm can be produced or re-ground. To do this, the discs are mounted in an ARIES *enp4* on a dividing attachment that is placed at an angle. A truing unit enables optimum conditioning for the grinding disc.

The software program for pulveriser discs enables the division, concave angle, cutting angle, number of teeth, truing interval and preparation to be defined

CAR BODY BLADES

The cutting line of car body blades can have a 3-dimensional free form. The blades do not have an exact, defined position on the magnetic clamping plate. Therefore, it is roughly pre-positioned using the 3D sensor. The 3D sensor detects the final position automatically. During the automatic identification process, the gap between the measuring points can be set freely in the software.

Based on the result of the automatic identification process, the QUINTO software calculates the tool shape independently and generates the grinding cycle.

The oscillating grinding process of the W-axis enables an optimum surface quality with the highest precision.

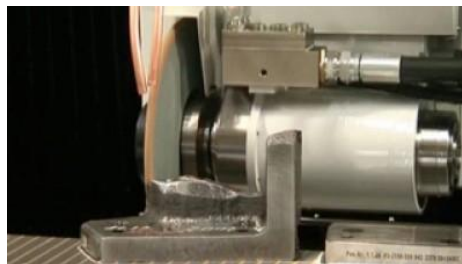
SAW-BLADES

Manufacturing or re-sharpening on the clamping mandrel in a package or using the internal clamping gripper in loading mode.



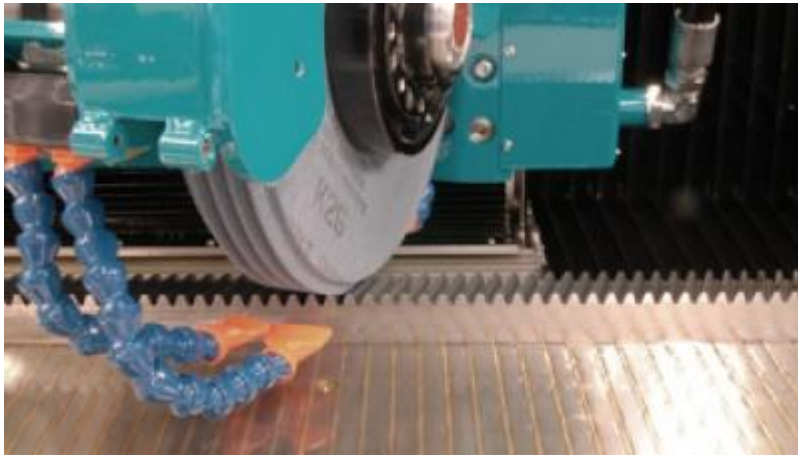
RADIATOR KNIVES

Profile blades with double chamfer to manufacture evaporator sheets. Automatic loading with internal clamping is available as an option.



Norma NGC, gemini NGM and corvus machine variations

RACKS



Production of racks up to module 40, pre-milled, tempered and with any angle of inclination. The workpieces are clamped in groups on a magnetic clamping plate. A grinding disc with a diameter of up to 500mm and a width of up to 100mm can be used to grind multiple teeth at the same time depending on the module. The grinding disc is trued to the appropriate tooth profile in the machine directly. Re-profiling in the grinding cycle is freely programmable.

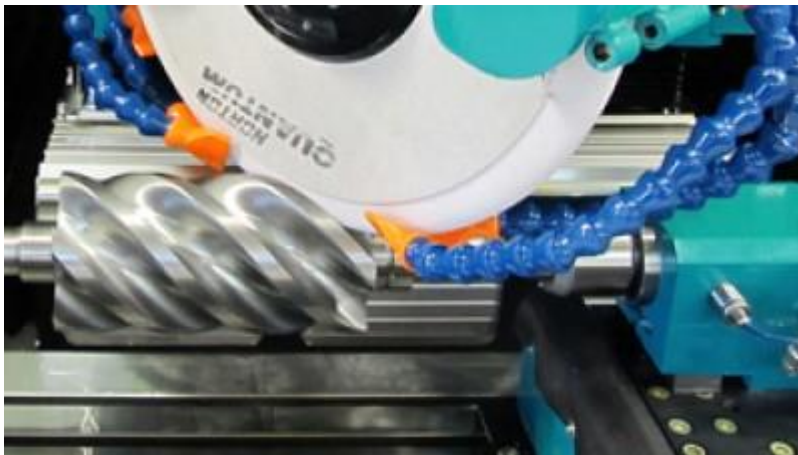
In the CORVUS *cType*, both the profile and the flat side can be ground, up to a length of 2800mm. A gear quality of 5 in accordance with DIN 3962-1 is achieved; if the time taken is increased, quality 4 can also be achieved. The racks can again be measured on the machine using a sensor. A measurement report can be generated directly on the machine.

corvus C type

ROTORS

COMPRESSOR SCREW

Production of compressor screws, with measurements, pre-milled. The grinding disc shape is trued in the machine. The basis of this calculation is the slot shape as a dxf file. Truing cycles can be defined freely in the grinding process. Thanks to the machine's own sensor, the result can be checked in the machine. This grinding application requires a large spindle capacity due to the very long contact line. The CORVUS *cType* is perfectly suited to this type of task.



corvus C type

DIES

Taps, Forming Taps, Threading Endmills

THREAD DIES

Thread dies and gear dies for all known profiles; also with inlet and outlet zone. The following can be integrated into the production process: Profiling the disc, cyclical truing of the profiled grinding disc, roughing cycles, finishing cycles, measuring cycles and automatic loading and unloading.

This in conjunction with the flexible QUINTO software and the accuracy of our machines enables these tools to be produced very economically. V-shaped CBN grinding wheels can also be used to accelerate the roughing cycle



THREAD ROLLERS

Thread rollers for all known profiles; also with inlet and outlet zone. The following can be integrated into the production process: Profiling the disc, cyclical truing of the profiled grinding disc, roughing cycles, finishing cycles, measuring cycles and automatic loading and unloading.

This in conjunction with the flexible QUINTO software and the accuracy of our machines enables these tools to be produced very economically. V-shaped CBN grinding wheels can also be used to accelerate the roughing cycle.



Norma NGC, gemini NGM, corvus GDS