

CHM 400

The Heavy-Duty Class.

Precision and flexibility even for the largest diameters.

CNC | controlled



Grinding the tooth geometry in a single setting. Using CNC technology. The CHM 400.

Improving economy in the sharpening room calls for processing machines capable of completing a wide range of functions quickly, simply and with outstanding accuracy over a long service life. The new CHM 400 automatic grinding machine offers a whole series of benefits. Five CNC axes control bevel grinding, grinding wheel feed, the grinding path, the saw infeed carriage and the hook and clearance angle. An additional axis controls the saw tooth positioning. This provides the very best possible conditions for grinding. The most complex tooth geometries can be ground in a single pass. As can chip breaking grooves, and chamfers on the leading and trailing teeth. Complete machining of the tooth face, top and chip breaker grooves in a single setting is also possible up to a hook angle of -40° .

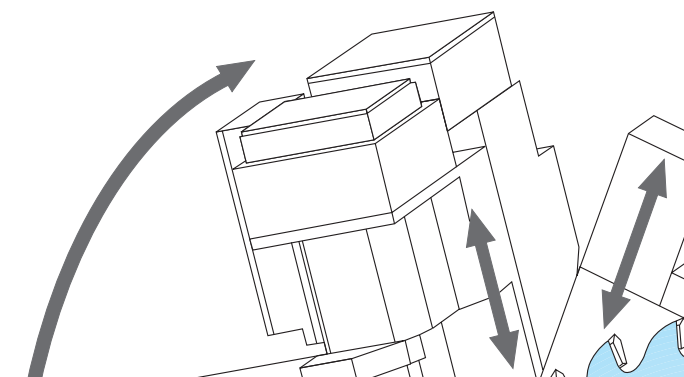
This new machine concept is designed to allow more effective, more economical production of the entire range of grinding functions, even when working with saw blades of unusually large diameters up to 2200 mm and up to blade thicknesses of 20 mm.

Two diamond grinding wheels are fastened in the form of a patent-protected double wheel on the grinding head, and are automatically positioned without the need to change wheels. The grinding spindle drive is variable to permit adjustment to the peripheral speed of the grinding wheel. The Vollmer PMC multiprocessor system controls all the operating parameters along with a high storage capacity and, further facility for storing any optional number of customer-specific programs on individual memory cards. Vollmer supplies the software for all the programs required.

A simple operator prompt system has been included which provides on screen graphic support. Sporting not only an unmistakable design concept but also partial enclosure as a standard feature, the machine complies with safety, noise level and emission protection requirements. An integral central lubrication system is supplied as standard, and we recommend the use of our optional automatic grinding wheel measurement and compensation device. The CHM 400 automatic grinding machine achieves outstanding results using either water-based coolants or oils.

Complying with the most exacting technical standards, this machine concept is well equipped to cope with future tooth geometries and the most complex grinding requirements.

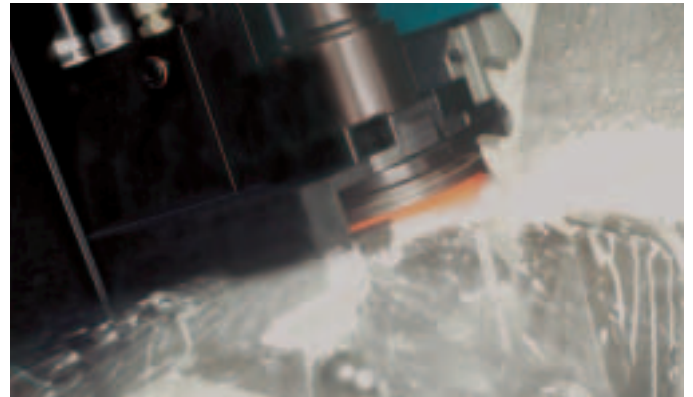
Particular attention was paid in the machine design to ensure simple, convenient operation. All you need to do is concentrate on essentials. Only a minimum of data needs to be entered on the control panel with LCD colour display.



Six controlled axes create ideal conditions for a wide range of applications.



The double grinding wheel principle allows complete machining without the need to change grinding wheels.



Coolant feed – in the form of either water-based coolant or oil – is operated under pressure. This intensive cooling process guarantees an outstanding grinding finish.

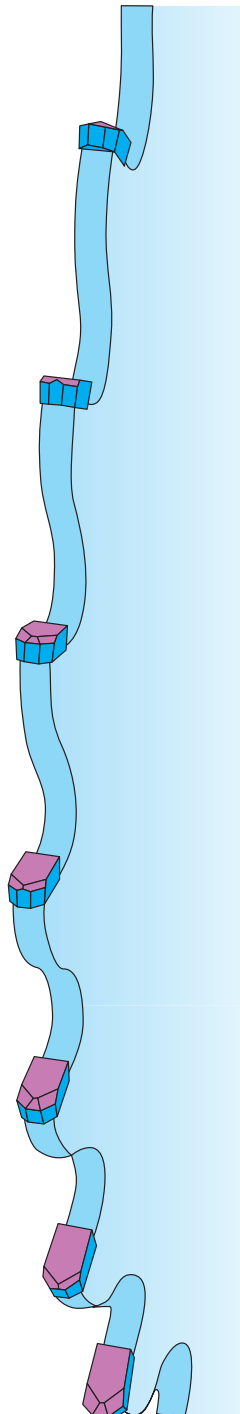


Intelligent control, simple operation.

All the necessary data is entered and accessed on the control panel. With this concept, Vollmer has shown just how simple data input and operation of multi-axis CNC-controlled machines can be. This operating philosophy has been successfully applied for years to Vollmer erosion and grinding machines. Because we have always paid particular attention when developing our software to ensure absolute simplicity for the operator, only a minimum of data needs to be entered. The operator receives clear graphic prompts in plain language, guiding him through the program. It is also possible, for example, to adopt the values directly from drawings or other tools without any laborious conversion processes.

This simple operating system cuts out much of the time-consuming preparatory work previously required. This means you gain more time. It is also possible to enter a new program while an existing saw blade is still being machined.

The operator also receives important on screen instructions on remedies for possible faults.



The control desk with LCD colour display and simple operator prompting.

Only a minimum of data needs to be entered for the face grinding, top grinding, negative face grinding and chip breaker machining modes.

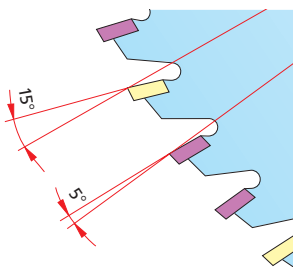
A minimum of data in direct dialogue.

All known tooth geometry data can be accessed using menus as required, i. e. face grinding, negative face grinding, top grinding, grinding of chip breaker grooves. The sequence of operation can be determined individually.

Only a minimum of data needs to be entered, such as number of teeth, tooth geometries, grinding speed. The basic data is entered only once and automatically accessed for all different machining modes. The outside diameter of the saw is automatically registered and displayed.

Even the most complex tooth geometries can be completely ground in a single setting at the cutting face and top as can chip breaker grooves, chamfers on the leading or trailing edge, or trapezoidal teeth with tooth height difference. It is even possible to machine tooth face, top and chip breaker groove in a single setting, even up to a hook angle of -40° .

An added benefit: the grinding speed and grinding path can be steplessly entered for any surface to be ground with different values.



Saw blades with differing hook angles can be ground in a single setting.



Cutting surface with negative hook angle



The grinding wheel set comprises one wheel for the cutting face and top and one wheel for chip breaker grooves. In this arrangement, the top grinding wheel is used for grinding the tooth shape at the cutting face with a negative hook angle of up to -40° in a single setting.



Chip breaker groove

Grinding a chip breaker groove in carbide-tipped saw blades.



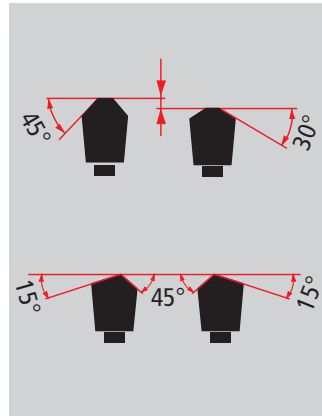
Precision with a wide range of different tooth shapes.

A wide variety of applications is made possible not only by the CNC-controlled axes but also by the Vollmer industrial standard PMC multiprocessor control system. A large selection of grinding programs are provided as standard with the machine, such as an abrasive grinding program with or without lift-off. Oscillation grinding programs with and without feed and programs for multiple-surface machining on the tooth top and step ground chip breaker are available as options.

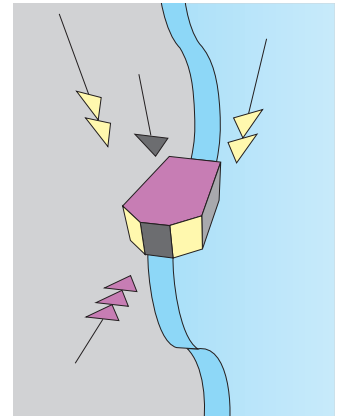
We have reduced machine downtimes even further. Each tooth geometry is ground in only one setting including different chamfer and bevel grinding angles.

Work can be carried out at different grinding speeds for each surface. Any optional number of customer-specific programs can be stored on individual memory cards.

It is also possible to grind newly brazed carbide teeth or to bypass individual missing teeth.

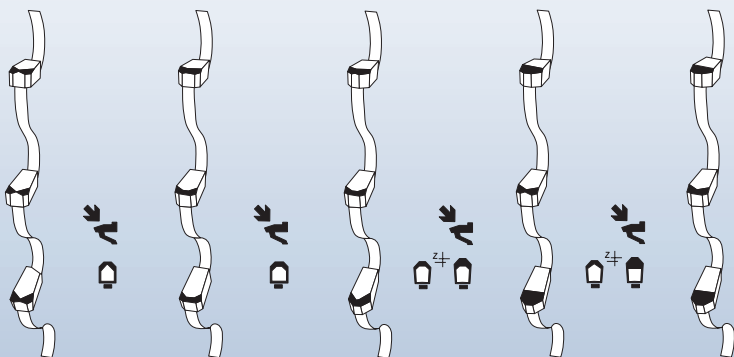


All bevel grinding angles can be individually selected, providing ideal conditions for the machining of new tooth geometries.

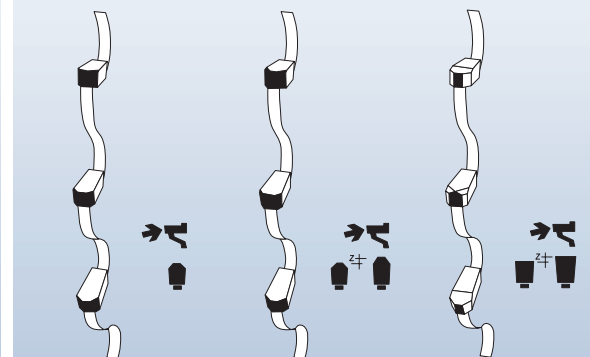


The grinding speed and grinding path can be steplessly entered with different values for each surface to be ground.

These tooth shapes are included as standard and are ground in only one pass



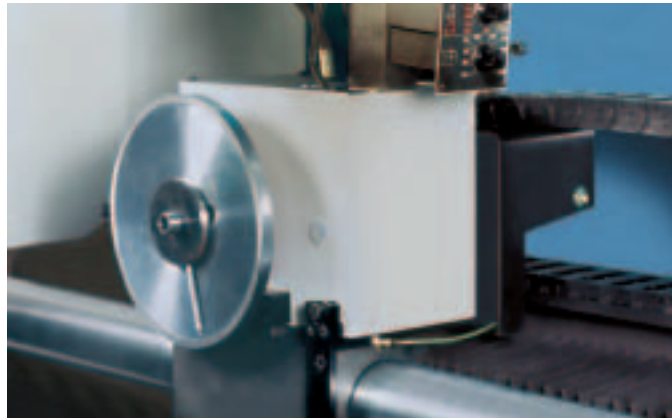
Face grinding



Top grinding

Interesting applications

The degree of economy achievable is largely determined by how universally the processing machine can be used. Some interesting applications and benefits are outlined here.



The hydraulically controlled central drive system transports the blade tooth by tooth from the central point and the positioning device indexes the next tooth to be machined precisely into the grinding position.



The rigid blade clamp can be opened well forward to simplify saw blade changes.



Automatic grinding wheel measuring and compensation device as an optional extra.



Grinding the chamfers on the leading and trailing teeth on HSS segmental saw blades.

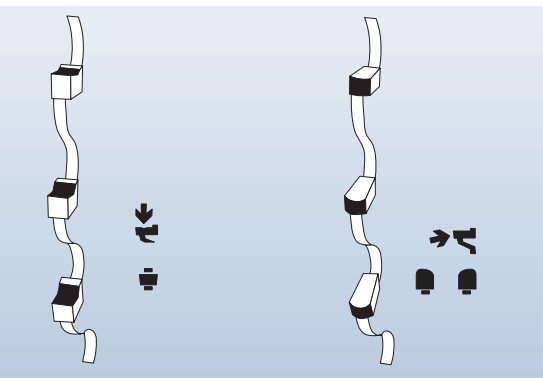
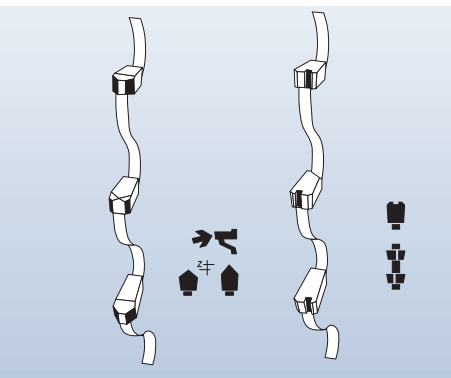


When relief grinding the saw body, the stock removal required is ground away in a single pass.



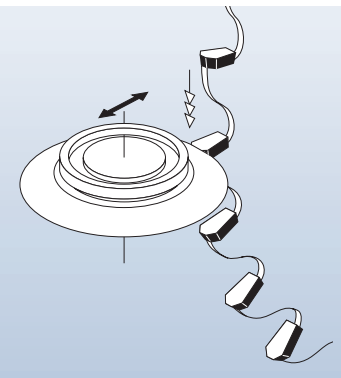
An optional filtration system extracts the coolant mist.

Other Options



Step-type chip breaker

Multiple-surface grinding
Top grinding



Oscillation grinding

All this is possible:

The major benefits for you at a glance:

Complete processing of saw blades at the cutting faces and top in a single setting with patent-protected double grinding wheel.

Short grinding times coupled with outstanding precision.

Five CNC axes control bevel grinding, grinding path, hook / clearance angle, feed and saw infeed carriage.

An additional axis controls the saw tooth positioning.

Intensive cooling using either water-based coolants or oil directly onto the grinding wheel.

No setting of saw blade diameters, tooth pitch or blade thickness required.

Only minimal data input required centrally at the control desk.

Simple user prompting on the LCD colour display, with graphic support.

For complex tooth geometries with differing bevel grinding angles and tooth heights.

Complete machining of tooth face, top and chip breaker grooves in a single setting up to a hook angle of -40° possible.

Optimum handling. The operator moves the saw blade into position by pressing a button.

Good access to the machine interior using hoisting gear though a generous swivel door if required.

Enclosure of the grinding area for enhanced safety, noise and emission protection.

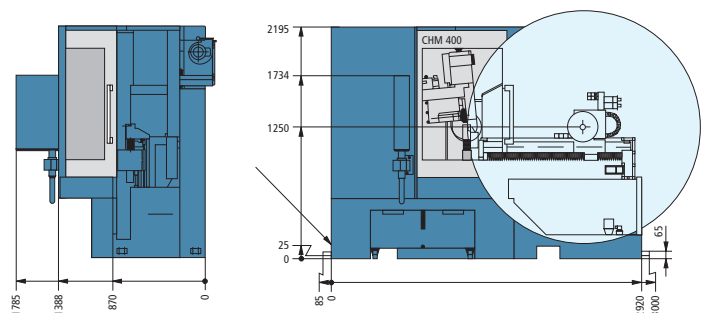
Special machine design including smooth surfaces in the machine interior for outstanding cleaning facility.

Modern machine concept, developed with future requirements in mind.

CHM 400 specifications at a glance:

| | |
|---|---------------------------------|
| Circular saw blades | |
| Outside diameter | 600 to 2200 mm |
| Bore diameter | from 25 mm |
| Blade thickness | to 20 mm |
| Tooth pitch | from 12 mm |
| Grinding paths (carbide lengths) | |
| Face grinding with grinding wheel diameter 200 mm | 20 mm |
| Face grinding with grinding wheel diameter 125 mm | 15 mm |
| Top relief grinding 0 to 20° bevel grinding | 26 mm |
| Top relief grinding 20 to 45° bevel grinding | 15 mm |
| Hook angle | from -40° to $+30^\circ$ |
| Clearance angle | from 5° to $+45^\circ$ |
| Bevel grinding on the tooth top | to 45° |
| Bevel grinding on the tooth face | to 30° |
| Tooth height difference | optional |
| Grinding the chip breaker flute | |
| Hook angle | 0 to -6° |
| Grinding wheel face grinding | |
| Outside diameter | 200 mm |
| Bore diameter | 32 mm |
| Peripheral speed | 45 m/s |
| Grinding wheel top grinding | |
| Outside diameter | 125 mm |
| Bore diameter | 32 mm |
| Peripheral speed | 27 m/s |
| Pneumatic pressure | 0.5 bar |
| Air consumption | appr. 13 l/min |
| Working speed | to 12 teeth/min |
| Grinding speed | 0.5 to 20 mm/s |
| Delivery output, coolant pump | 80 l/min |
| Capacity of coolant tank | 300 l |
| Total connected load | appr. 6 KVA |
| Weight | appr. 2800 kg |

Dimensions:



VOLLMER WERKE
 Maschinenfabrik GmbH
 P. O. Box 1760
 D-88396 Biberach/Riss
 Telefon 07351/571-0
 Telefax 07351/571-130
 info-vobi@vollmer.de
 www.vollmer.de