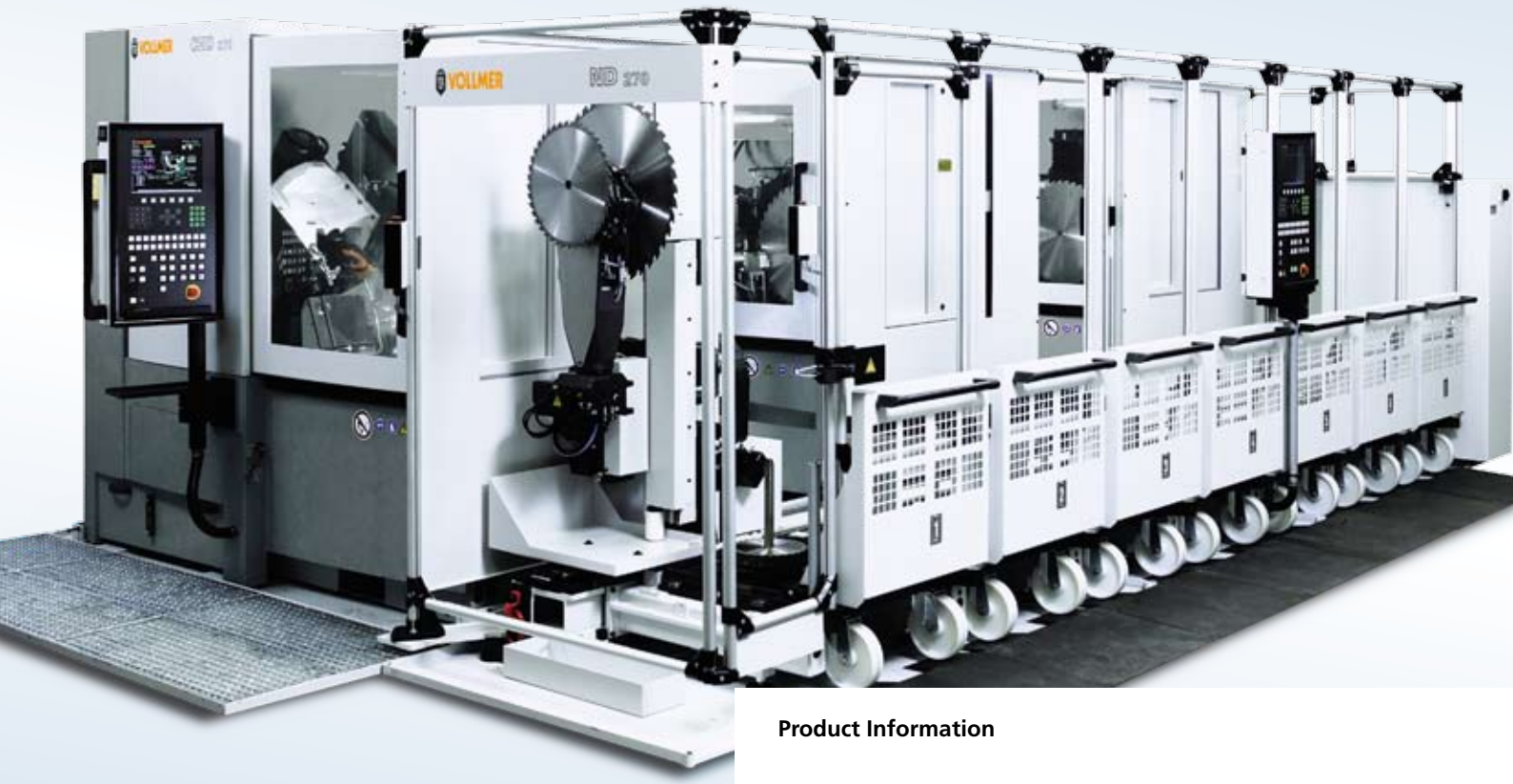
100 YEARS VOLLMER 2009

VOLLMER
Hi-Q for you



Product Information

CHD 270, CHF 270 and Automation

Automated comprehensive machining of uncoated carbide circular saw blades

VOLLMER's automation concept: Greater flexibility, cost-efficiency, and precision.

With this machining concept, VOLLMER sets the standard for the highly efficient, automated grinding of carbide-tipped circular saw blades in production and servicing. VOLLMER's Automation Concept represents a modular system consisting of standalone CNC-controlled machining units designed to sharpen tooth geometries on the tooth top, face and sides, connected with an intelligent handling system. When combined, these units form a highly flexible work-flow set-up that can be customized to meet your specific needs. They are available with three, five or seven loading carriages, allowing the machining up to 650 saw blades with diameters up to 630 mm. Or with two, four or six loading cardiages allowing the machining up to 550 saw blades with Ø up to 840 mm.

The VOLLMER machining centers show a high grinding performance, among other factors also due to short cycle times and reduced non-productive times, while rendering impressive grinding quality. The quality reflects the state of the art of VOLLMER's specific machining units. As batch-produced machines are used instead of specialized units, the concept also allows efficient and easy servicing.

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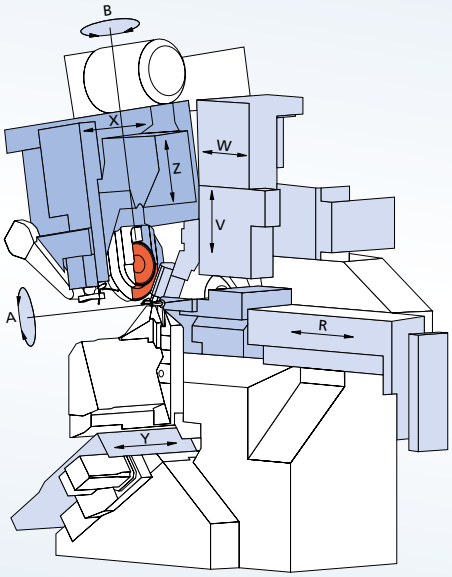
Components: Compatible.

CHD 270 – all-in-one tooth top and face machining in a single pass.



A new step ahead in innovating a superior machine concept to ensure the highest grinding precision for uncoated carbide circular saw blades. Fully CNC controlled (with 8 CNC axes) including the feed, hook and clearance angle adjustment and automated measuring device.

The machine design brings you high stability, requires little space and allows easy operation. The CHD 270 grinding system is fully self-enclosed and robust, built on a central block (mono-block design). This ensures the highest precision and smooth running.
Its advanced and highly ergonomic design makes the unit very easy to operate and to access for maintenance work in the control cabinet, coolant pump, pneumatic system and fire fighting device.

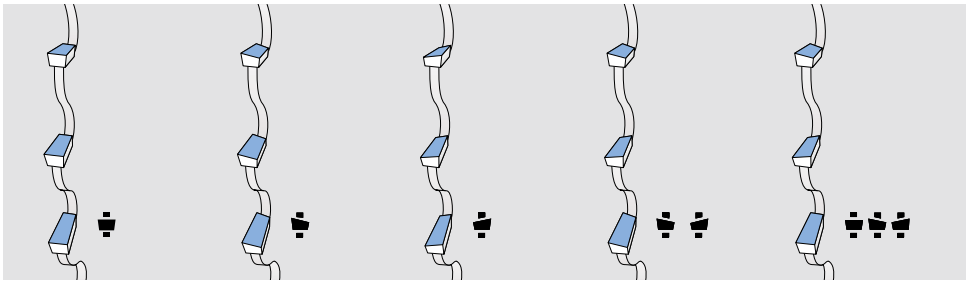
A concept for a highly efficient and precise grinding of complex tooth geometries in a single pass.

- Patented twin grinding wheel for all-in-one machining without grinding wheel exchange
- Greater tooth cutting accuracy ensured by comprehensive tooth geometry measuring
- High performance due to great machining speed.

Highest flexibility for all tooth shapes.

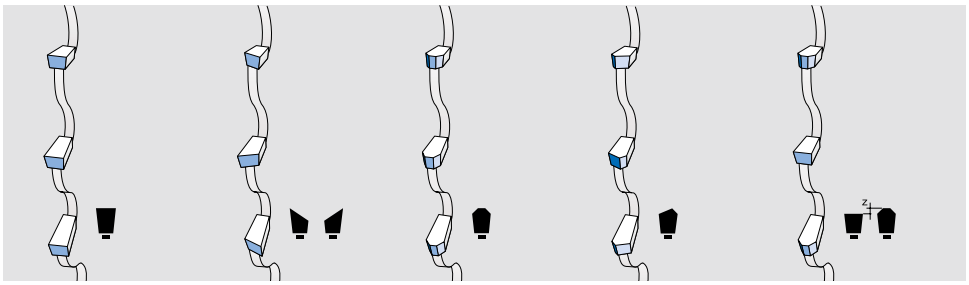
Designed for universal applications

Its eight CNC-controlled axes combined with the VOLLMER PMC control enable the machine to be used for universal applications. A wide variety of different grinding programs are already pre-programmed, and the main program can be used anytime to add special tooth geometries.



Examples of tooth shapes: Tooth face

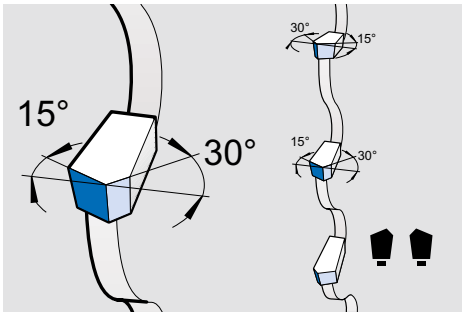
Tooth face machining



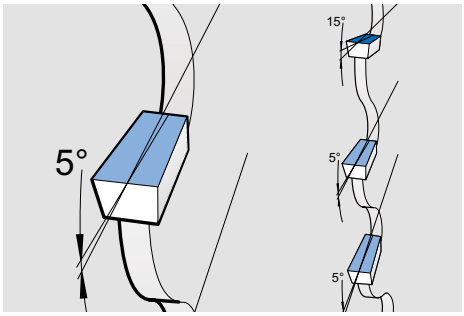
Examples of tooth shapes: Tooth top

Tooth top machining

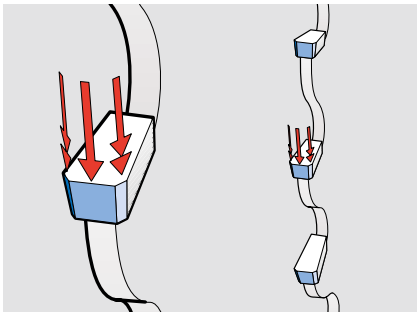
Every tooth geometry, including various chamfer and bevel grinding angles, is ground in only a single clamping. All bevel grinding angles can be selected individually. Machine non-productive times have thus been further reduced.



All bevel grinding angles can be individually selected.



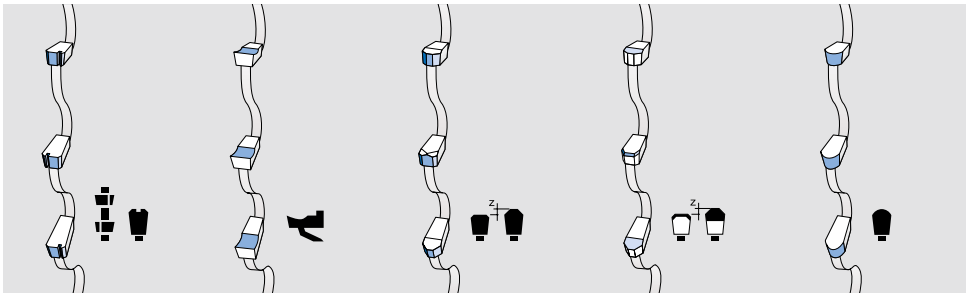
Saw blades with various hook angles can be ground in a single clamping.

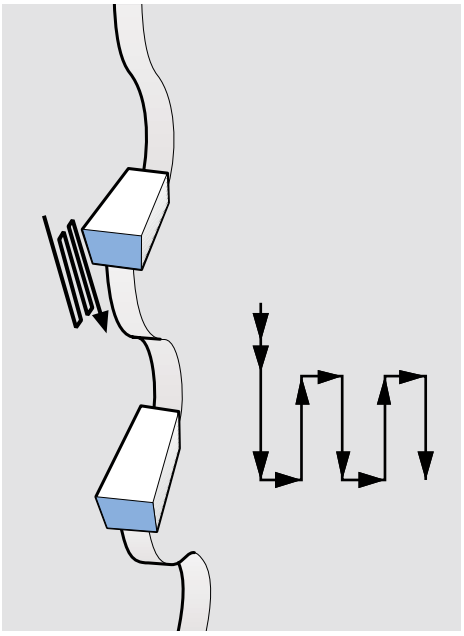


The grinding speeds can be seamlessly effortlessly adjusted for various surfaces.

Precise and fast – tooth geometry grinding for the metal-working industry.

The CHD 270 is designed to meet the ultimate precision requirements of saw blades used to cut metal in the metal industry. The machine is built to be robust, offers CNC-controlled axes, variable control options and convenient operation. Even complex tooth geometries can be ground completely in a single clamping, including chip breaker grooves, chamfers on the roughing and finishing teeth, Braunschweig tooth or chip guide notch. Hook angle of up to –35° and maximum bevel grinding angle of up to 60° guarantee the highest flexibility.





Oscillation makes it possible to achieve excellent surface qualities even at high abrasion performance.

Negative tooth face machining.

Chip breaker groove machining.

Machining of saw blades with chip guide notch.

Intelligent control, easy and reliable operation.

The operation is exceptionally easy. VOLLMER's intelligent control technology allows you to concentrate just on the important tasks.

A simple system of prompts, supported by on-screen graphics, will guide you through the program, and many other technical details will make CHD 270 operation a piece of cake for you.

- Windows-based operator interface
- Control panel with an LCD display has been designed in line with VOLLMER's easy-operation philosophy
- All known tooth geometries are accessible through menus
- All that is required is to enter a minimum of data. Basic data is entered only once and then accessed by the system for all types of machining operations.

Product benefits:

The measuring probe integrated in the machine as a standard component measures all relevant parameters such as cutting width, blade thickness and hook angle.

The feed pawl detects any missing teeth, thus preventing the grinding wheel from breaking.

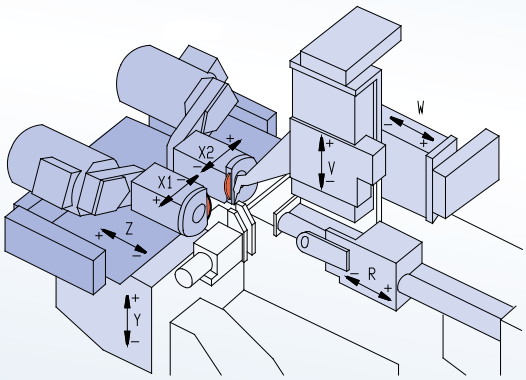
Saw blades with newly replaced teeth can also be machined in a single clamping.

With the laterally mounted feed pawl and the accompanying saw blade holder, it is possible to machine cutting tool segments easily in a manual operation mode.

Hollow face grinding.

Machining the V-groove on the tooth top.

Automated tooth side grinding on the CHF 270.



Another step forward in developing the sophisticated machine concept to ensure ultimate precision in grinding carbide-tipped circular saw blades. Fully CNC controlled (with seven CNC axes) to ensure all-in-one machining of tooth sides.

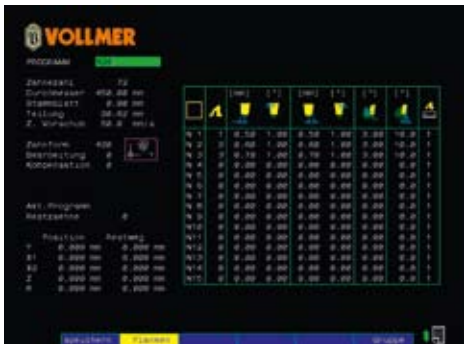
A machine concept designed to meet the highest standard in grinding the tooth sides of carbide-tipped circular saw blades. With the CHF 270, you get a machining center with excellent features and qualities: either as a stand-alone unit or in combination with automatic loaders for saw blade production. Its seven CNC axes are mounted on a central block to form a compact and robust unit (a monoblock design). This ensures the highest stability, quiet running and precision for all tooth geometries.

Tooth side machining

All-in-one machining of all types of tooth shapes.

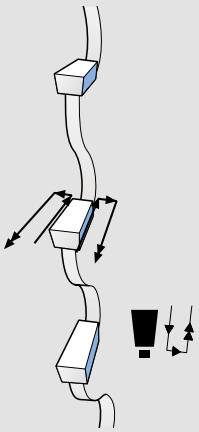
Its seven CNC-controlled axes combined with the VOLLMER PMC control enable the machine to be used for universal applications. A wide variety of different grinding programs are already pre-programmed, and the main program can be used anytime to add special tooth geometries. All machining operations are performed in the highest quality under precise path control.

Examples of tooth shapes:

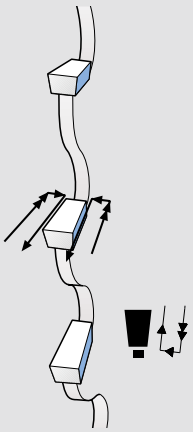


VOLLMER's operation program for multiple-face and rough framing forming can be used to program various faces, angles and oscillation machining operations on single or multiple teeth.

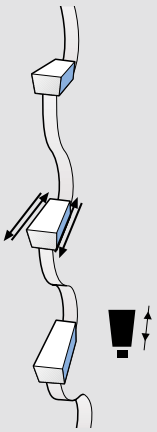
Five integrated grinding programs:



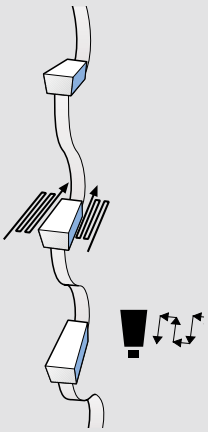
Forward grinding, lift-off and rapid return.



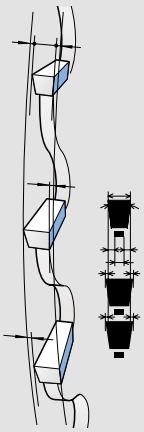
Rapid advance, infeed and return with backward grinding.



Forward grinding backward grinding without lift-off.



Oscillation grinding with user-defined infeeds and strokes.



Program for grinding circular saw blades with tooth side variations.

Technology for flexible machining.

Product benefits:

Each saw blade – whatever its diameter – is positioned automatically as it moves into the grinding position.

The measuring probe then determines the entire tooth geometry: hook angle, radial and tangential clearance angles, cutting width, blade thickness, lateral carbide projection and carbide length.

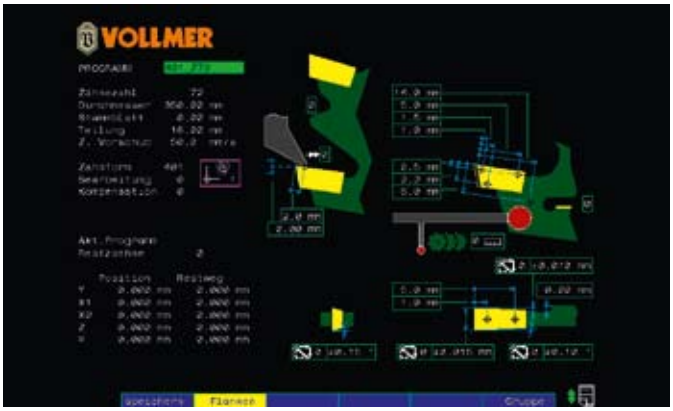
It is this high degree of precision that ensures the accuracy of the subsequent grinding results.

With the laterally mounted feed pawl and the accompanying saw blade holder, it is possible to machine cutting tool segments easily in a manual operation mode.

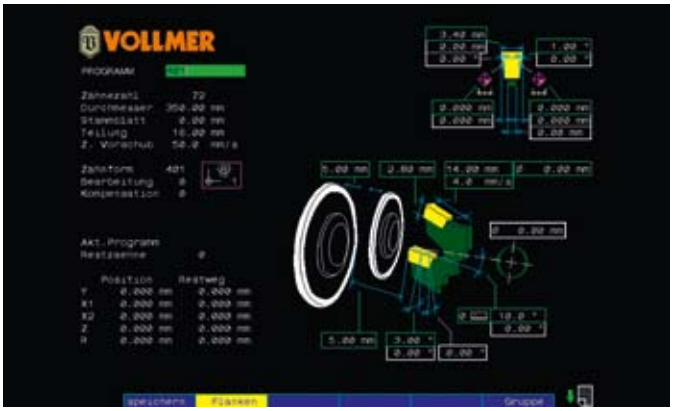
Newly soldered brazed teeth are fully automatically adjusted ground.

The measuring probe integrated in the machine as a standard component measures all relevant parameters such as cutting width, blade thickness and hook angle. It also controls and compensates for grinding wheel wear, and is used to measure newly replaced teeth.

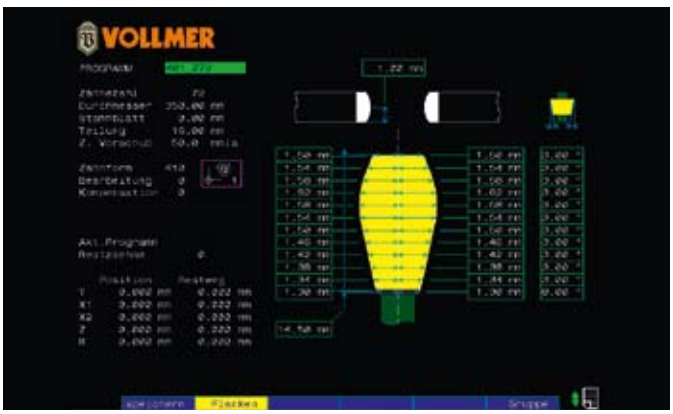
Simple and easy operation.



Input mask for tooth measuring.



Input mask for tooth geometry.



Input mask for convex sides.

VOLLMER's control technology makes it exceptionally simple and easy to operate this machine. Grinding programs, including special programs for convex tooth sides, have already been pre-programmed in the factory and can be launched and canceled using menus on the control panel. A simple system of prompts, supported by on-screen graphics on the LCD color display, guides the operator through the program, giving him among other things important instructions how to quickly eliminate potential faults. It is possible to program a saw blade while another one is still being machined.

ND 230/250/270 – a handling system for saw blade diameters up to 630 mm.

A loading system with seven loading carriages and three machines for automated machining of saw blades of up to 630 mm in diameter.

The flexible and fast ND handling system forms a foundation of VOLLMER's automation concept; it is connected with the grinding machines by means of a data input system. The saw blades to be machined are stacked on a loading carriage and are then fed by the handling system. Each of the loading carriages can carry up to 50 saw blades, allowing you to machine up to 650 saw blades in an automated process. A continuous machining process is ensured by the replacement of the transportation carts. When the transportation cart is being replaced, the robot stops, yet the grinding procedure continues uninterrupted. The robot movements are controlled by four CNC axes, two of which are linear and two are swivel axes. A twin gripper ensures that saw blades are exchanged at a remarkable high speed. Various operation modes guarantee you the highest flexibility.

A loading carriage with a single saw blade stack in a productive operation mode.

Two saw blade stacks on a loading carriage increase loading capacity.

Up to 50 carbide-tipped saw blades of various diameters and tooth geometries can be stacked on each of the loading carriages.

ND 320/340/360 – a handling system for saw blade diameters up to 840 mm

A loading system with six loading carriages and three machines for the automated machining of saw blades of up to 840 mm in diameter.

Saw blade stacks on the ND 320/340/360 loading carriage.

This handling system has been designed especially for the fully automated machining of large saw blades with diameters of up to 840 mm. A particularly robust twin gripper, designed for heavy saw blades weighing up to 11 kg, allows short blade exchange times. When only one gripper arm is used, you can automatically machine saw blades weighing up to 20 kg.

Depending on your requirements, you can select from versions with two, four or six loading carriages, which gives you a sufficient capacity for fully automated machining procedures in multiple-shift operations.

VOLLMER gripping systems.

A standard gripper for the ND 230/250/270, designed for the automated machining of saw blades of up to 630 mm in diameter.

A standard gripper for the ND 320/340/360, designed for the automated machining of saw blades of up to 840 mm in diameter and weighing up to 20 kg.

A gripper specially developed to handle saw blades with a collar; it can be mounted on both handling systems.

Technical data:

		Standard gripper ND 230/250/270	Standard gripper ND 320/340/360	Sawmill gripper for flanged saw blades
Circular saws outer diameter:				
Single stack	ND 230 to 270	100 to 630 mm		150 to 630 mm
	ND 320 to 360		200 to 840 mm	150 to 840 mm
Double stack	ND 230 to 270	100 to 305 mm		150 to 250 mm
	ND 320 to 360		200 to 410 mm	150 to 305 mm
Max. blade weight:				
Single-sided use	ND 230 to 270	9 kg		10 kg
	ND 320 to 360		20 kg	10 kg
Two-sided use	ND 230 to 270	6 kg		6 kg
	ND 320 to 360		11 kg	10 kg

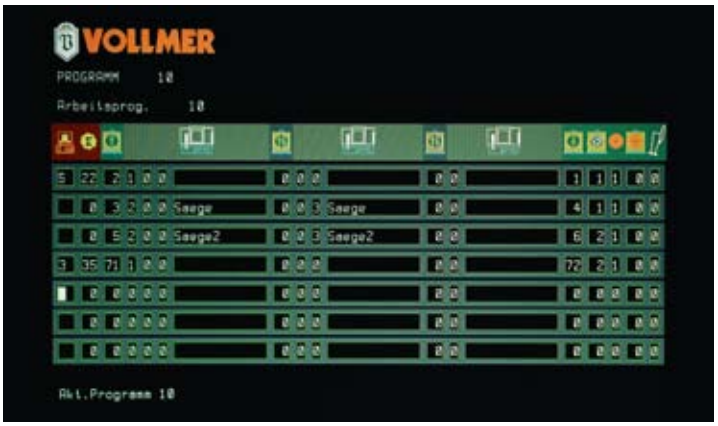
Intelligent workflow organization.

The saw blade stacks are prepared and programmed using a data input station designed for use in workshop environments.

VOLLMER's automation concept brings you more flexibility in every respect. You determine the sequence of specific machining steps on the saw blade as well as the sequence in which the loading carriages are to be handled and where the finished saw blades are to be stored. You can individually determine every single procedure step and adapt your workflow organization. The possibility to machine multiple batches gives you even more additional flexibility. At the same time, you can alter the saw blade diameters, tooth numbers and geometries – this is a particularly economical solution for batches with low unit quantities.

- Stacked saw blades on loading carriages that are fed into the handling apparatus
- Input the planned automated procedure at the control panel
- Set just a few saw blade parameters in the data input station
- Start of the automatic program
- To produce saws on a continuous basis, just replace the transportation carts and supply raw saw blades.

It is practical if the operator sits in a separate, quiet room. There he can inspect the saw blades, stack them on the nearby loading carriage and input the data in peace.

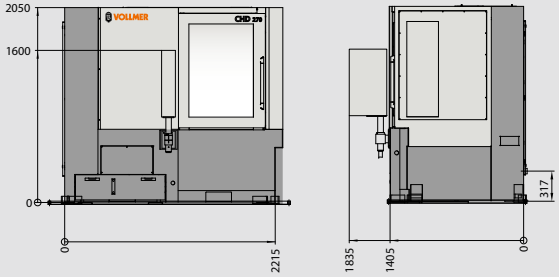


You can program various saw blade stacks on the loading system regardless of the data input station.

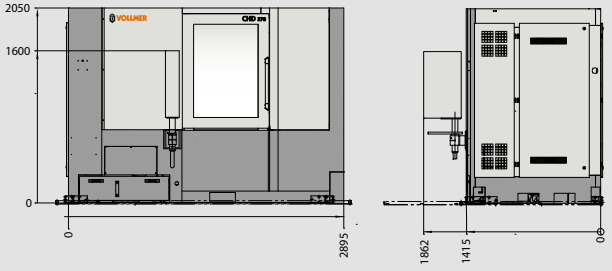
Depending on your requirements, you can program workflows and blade stacks for the machining of tooth top, face and sides.

Dimensions:

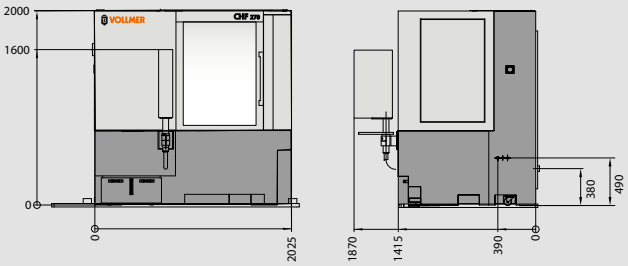
CHD 270



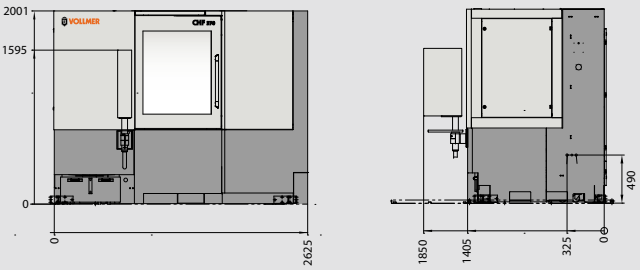
CHD 370



CHF 270



CHF 370



We reserve the right to make design modifications in the interest of technical improvement.

Technical data for the CHD 270 and CHF 270:

	CHD 270	CHF 270
Circular saw blades:		
Outside diameter	80 to 840 mm	80 to 840 mm
Bore diameter	from 10 mm	from 10 mm
Blade thickness	up to 14 mm	up to 14 mm
Tooth pitch	6 to 180 mm	6 to 180 mm
Cutting edge distances:		
Cutting edge length	up to 20 mm	up to 30 mm
Hollow face	up to 15 mm	–
Relief grinding on the top	up to 40 mm	–
Angle:		
Hook angle	–30° to +40°	– 40° to +40°
Hook angle at hollow face	–10° to +25°	–
Clearance angle	+5° to +45°	–
Tangential clearance angle	–	up to +8°
Radial clearance angle	–	–20° bis +6°
Bevel grinding:		
of the flank face	up to 60°	–
of the rake face	up to 30°	–
of the neg. rake face	up to 30°	–
Size of tooth difference:	optional	–
Grinding Weels		
	Rake face:	**Flank**
Outside diameter	200 mm	68 to 100 mm
Bore diameter	32 mm	32 mm
Peripheral speed	17 m/s to 57 m/s	26 m/s (Option: 14 to 36 m/s)
	Flank face:	
Outside diameter	125 mm	–
Bore diameter	32 mm	–
Peripheral speed	11 m/s to 36 m/s	–
	Chip breaker:	
Outside diameter	26 mm to 50 mm	–
Peripheral speed	11 m/s to 52 m/s	–
	Hollow face:	
Shaft diameter	6 mm	–
number of revolutions	35.000 to 60.000 U/min	–
Coolant container capacity	approx. 140 L	approx. 120 L
Connected load	approx. 5,8 KVA	approx. 8,5 KVA
Air Supply	> 5 bar	> 6 bar
Weight	approx. 3.000 kg	approx. 2.400 kg

Variant Technical Data CHD 370 and CHF 370:

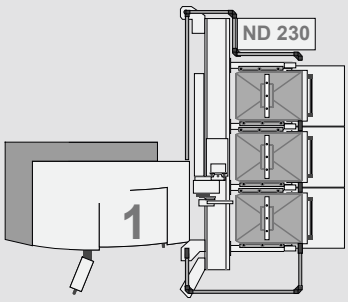
	CHD 370	CHF 370
Circular sawblades outside diameter	80 to 1.380 mm	80 to 1.380 mm
Weight	approx. 3.400 kg	approx. 3.000 kg

According to configuration, technical datas could be limited.

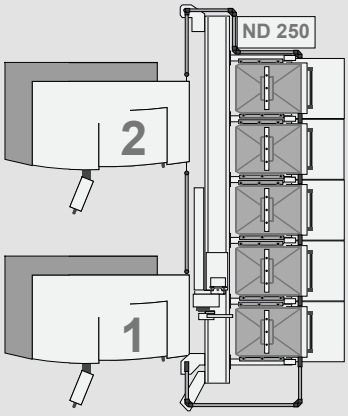
Combination options: solutions suitable for any task.

Depending on your preferences and requirements, the VOLLMER centers can be individually set up using various stand-alone machines in different versions.

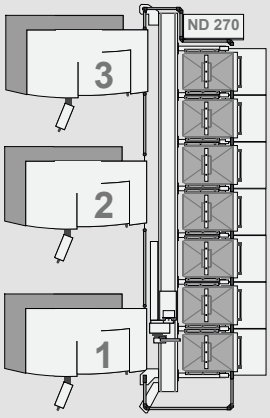
A VOLLMER center for saw blade diameters from 100 to 630 mm:



ND 230 for one machine
with three loading carriages.

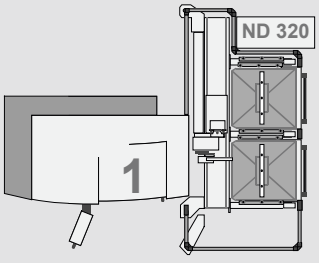


ND 250 for up to two machines
with five loading carriages.

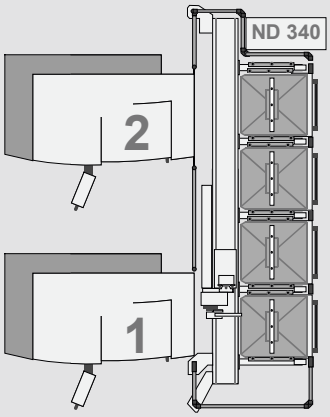


ND 270 for up to three machines
with seven loading carriages.

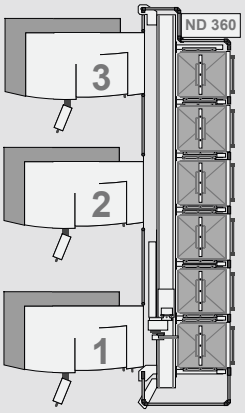
A VOLLMER center for saw blade diameters from 200 to 840 mm:



ND 320 for one machine
with two loading carriages.



ND 340 for up to two machines
with four loading carriages.



ND 360 for up to three machines
with six loading carriages,

We reserve the right to make design modifications in the interest of technical improvement.

Technical Data ND 230/250/270:

Circular saws	
Outer diameter:	
One saw blade stack per loading carriage	100 to 630 mm*
Two saw blade stacks per loading carriage	100 to 305 mm*
Bore diameter	16 to 180 mm
Blade thickness	up to 5 mm
Stack height	< 300 mm
Connected load	approx. 1.8 KVA
Pressurized air supply	> 6 bar
Weight	
ND 230	approx. 1,400 kg
ND 250	approx. 1,500 kg
ND 270	approx. 1,850 kg

Technical Data ND 320/340/360:

Circular saws	
Outer diameter:	
One saw blade stack per loading carriage	200 to 840 mm*
Two saw blade stacks per loading carriage	200 to 410 mm*
Bore diameter	16 to 180 mm
Blade thickness	up to 5 mm
Stack height	< 300 mm
Connected load	approx. 1.8 KVA
Pressurized air supply	> 6 bar
Weight	
ND 320	approx. 1,400 kg
ND 340	approx. 2,000 kg
ND 360	approx. 2,600 kg

* According to mounted gripper.

According to configuration, technical datas could be limited.

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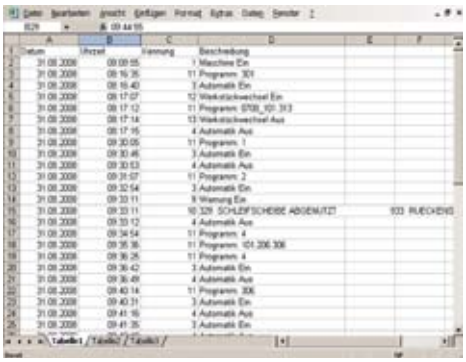
VOLLMER Hi-Q for you

Network concept.

You can benefit in particular from the saw blade management function that allows the direct data transmission to the customer's own computing system. Functions for the collection of operation and machine data have been implemented in the control system, adding more security to the entire production process. This allows you to analyze the machine utilization and productivity, as well as to store workpiece data.

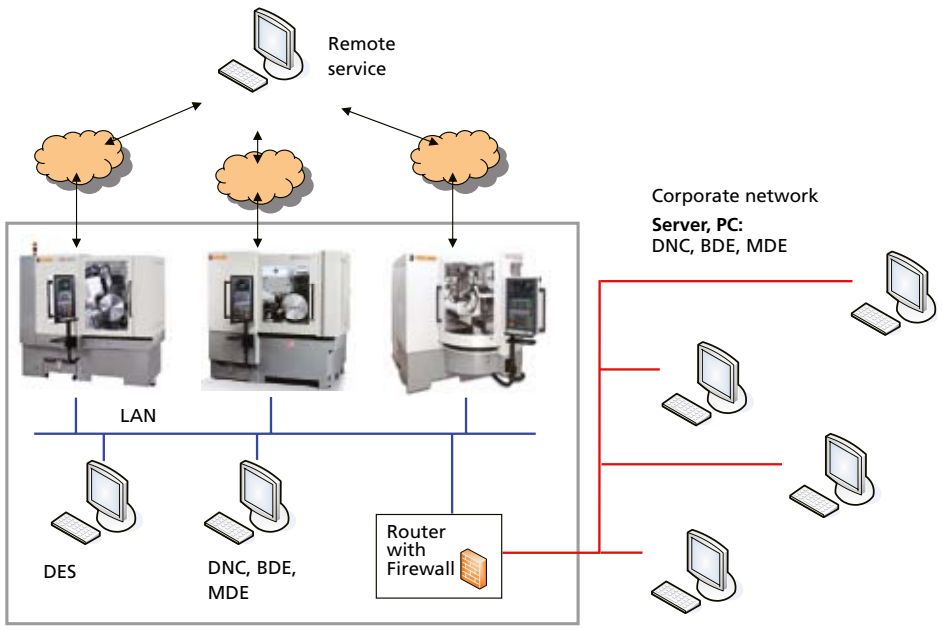
VOLLMER's Remote Service brings you the option of allowing the VOLLMER Service Team to connect to your machine in order to establish the current machine position and condition. Software updates can also be uploaded in this manner. This is an excellent opportunity to analyze errors and also to provide programming support.

During operation data collection (BDE), measured data (diameter, cutting width, hook angle, ...), machining times and grinding wheel wear are saved for every particular tool. This data can then be used again at any point in time.



During machine data collection (MDE), run times, interruption times and error messages are saved. This data can then for example be used to calculate the machine utilization, or for any other purpose.

Network design:



Specific components can be connected to a network by means of the standard 10BaseT Ethernet RJ45. The data input station with an integrated router acts as the interface between the machines, toward the customer's own server or PC.

DES = Data input station
DNC = Electrical control device (processor and axis driver)
BDE = Operation data collection
MDE = Machine data collection

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