



Universal (tool) grinding machine

This tool grinding machine shows a very robust design – dedicated to the highest precision. It's flexibility and wide field of applications is unmatched in the market.

USM Typ14

The Type USM 14 permits the resharpener of all kind of high speed steel as well as all sorts of carbides (hard metal). Also the production of small series and prototypes of smaller dimension tools can be done with it in a very efficient and cost saving way.

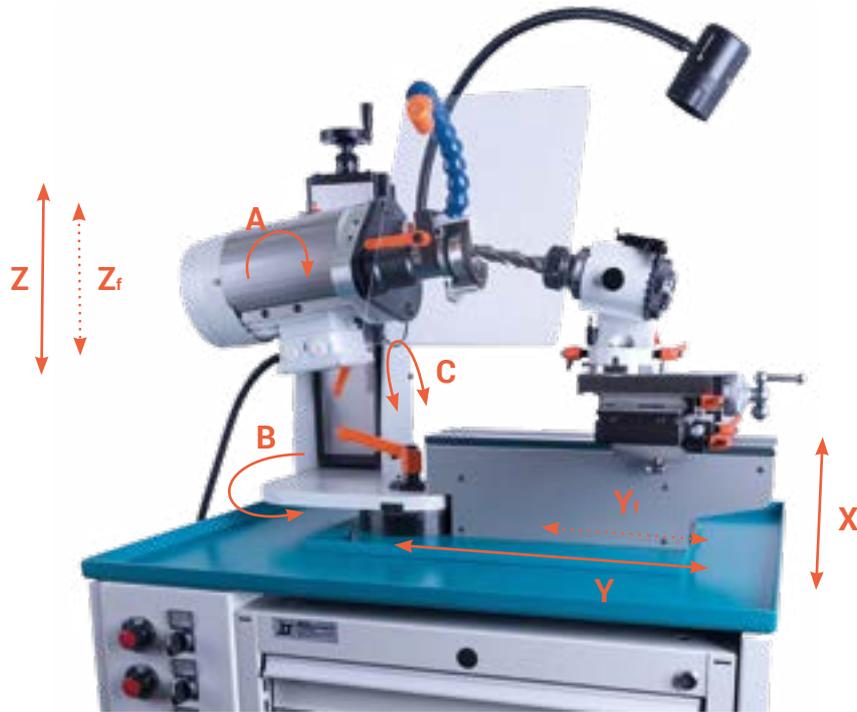
This machine is by far not limited to resharpenings. It serves very well in:

- Tool making
- Tool repair
- Locksmithery
- Production of single tools, prototypes up to small series production

There are four basic setups available of the USM 14. Those setups can be adapted in a flexible manner, to fit your personal needs perfectly.

For further information please contact our webpage www.rihsag.ch.





Technical Specification

USM 3 Typ 14

Work space	430 x 400 x 400 mm
Travel Y axis	360 mm
Travel X axis	300 mm
Travel Z axis	200 mm
High precision adjustment Zr	125 mm
High precision adjustment Yr	40 mm
Stroke length	150 mm
Swivel angle A	+/- 90°
Swivel angle B	+/- 90°
Swivel angle C (spindle stock)	+/- 180°
Revolutions per minute of the spindle	1'000 until 12'000 min ⁻¹
Drive power	0,45 kW
Diameter of Grinding wheel Max.	80
Adaptor/Interface of the spindle nose	MK4, ISO 40
Diameter of tool Max.	0,5 until 250 mm
Length of tool Max.	400 mm
Dimensions of the machine/floorspace	680 x 850 x 1'700 mm
Weight of the machine	175 kg

Range of applications, type of tools

Form milling cutters, Shaft mills, Roller end mills, Cross-toothed disk cutters, Center cutting, Shank cutters	Face: free or cutting angle Scope: chamfering, edge fracture or radius
Reamers	Chamfer, free angle (three-dimensional)
Spiral drills, High performance carbide drills	Surface grinding, Tapering in one clamping special grinding
Step drills	Stage round grinding, Step back grinding, Step back grinding until 180 mm, clearance grinding of the cylindrical part
Countersinking	Grinding the cutting angle, back grinding
Screw taps	Inner peel grinding, First slice back grinding
Thread cutters	Internal peeling back grinding
Turning tools, form-turning tools	Free- and cutting angle, radius and profile grinding

A digital display of the position of the axis is available as an option.



The four different basic machine setups can be equipped with numerous accessories according to specific customer needs.



Light package

The light package can be used to regrind milling, drilling and reaming tools.

Tools with cylindrical shaft

Clamping diameter max.: \varnothing 20 mm



Shank cutters and ball cutters
until \varnothing 6 mm: only front
from \varnothing 6: also spiral incl. back grinding



angle milling cutter
Complete



Slot milling cutter
Complete



Spiral drills
Cutting edge



Reamers
Section grinding (without counter stock)



Pivot countersink
Complete



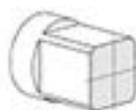
Conical countersink
Flute only



End mill
Flute only



Table milling cutter
from \varnothing 2 mm



face grinding/section grinding
Square grinding

Standard package

The standard package can be used to regrind milling, drilling and reaming tools, rollers and disk cutters.

Tools with cylindrical shaft

Clamping diameter max.: \varnothing 20 mm



Shank cutters and ball cutters
until \varnothing 6 mm Only front
from \varnothing 6: also spiral incl. back grinding



Roughing cutter
Fasten the end face and sharp spiral groove
grinding also possible



angle milling cutter
Complete



Slot milling cutter
Complete



Spiral drills
Cutting edge (Surface grinding) incl. thinning
also Drill with cone MK1, MK2, MK3 und MK4



Step drills
Cutting edge at the drill tip, step
back grinding



Screw taps
Back grinding on first slice, inner peel grinding
with 3 and 4 cutting edges



Reamers
Section grinding with counter stock



Pivot countersink
Complete



Conical countersink
Groove and scope, back grinding



End mill
Flute only



Table milling cutter
from \varnothing 2 mm



Roller milling cutter

Flatten the front face and sharpen the spiral
sharpening incl. background



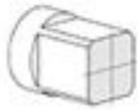
Cross-tooth cutters and disk cutters
Complete with chip surface



Prism cutters and angle grinders
Complete with chip surface



Modulers and shapers
Only chip surface



Face grinding/section grinding
Square grinding

Comfort package

With the comfort package nearly all kind of tools can be resharpended reground.

Tools with cylindrical shank

Clamping diameter max.: \varnothing 26 mm, Tools with cone MK 1, MK 2, MK 3 and MK 4



Shank cutters and ball cutters
until \varnothing 6 mm: only front
to \varnothing 6 mm: also spiral incl. back grinding



Roughing cutter
Fasten the end face and sharp spiral groove
grinding: with experience possible



**Shank cutters, step drills, roller cutters
disk cutters**
radius / corner rounding
R 1, R 2, R 3



Ball milling cutter
to \varnothing 6 mm radius and spiral with Radius
grinding device



angle milling cutter
Complete



Slot milling cutter
Complete



Spiral drills
Cutting edge (Surface grinding) incl. thinning
also drill with cone MK1, MK2, MK3 and MK4



Step drills
Cutting edge at the drill tip, step back
grinding, Can be produced from standard
drills (Grind the cones), Measure the steps
and angles.



Screw taps
Back grinding on the Surface and Peel grin-
ding with 3, 4, 5, and 6 Cutting edge



Reamers
Section grinding with counter stock
(Top range 200mm)



Pivot countersink
Complete



Conical countersink
flute and scope back grinding



End mill
Groove, also radius with radius grinding device



Table milling cutter
to \varnothing 2 mm



Roller milling cutter
Flatten the front face and sharpen the spiral sharpening incl. background



Cross-tooth cutters and disk cutters
Complete incl. chip surface



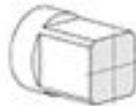
Prism cutters and angle grinders
Complete with chip surface



Modulers and shapers
Only chip surface



Turning tools
Workpieces of all types up to span 50 mm



face grinding/section grinding
Square grinding

Professional package

The professional package permits the resharpener of the whole range of tools, as well as basic outer and inner diameter grinding, multi-plane grinding and parting.

Tools with cylindrical shank

Clamping diameter max.: \varnothing 34 mm, until \varnothing 26 mm continuous: for long tools



Shank cutters and ball cutters
until \varnothing 6 mm: only front
to \varnothing 6 mm: also spiral incl. back grinding



Roughing cutter
Fasten the end face and sharp spiral groove
grinding: with experience possible



**Shank cutters, step drills, roller cutters
disk cutters**
radius / corner rounding
R0.5 bis R5



Ball milling cutter
to \varnothing 6 mm radius and spiral with Radius
grinding device



angle milling cutter
Complete



Slot milling cutter
Complete



Spiral drills
Cutting edge (Surface grinding) incl. thinning
also Drill with cone MK1, MK2, MK3 and MK4



Step drills
Cutting edge at the drill tip, step back grinding. Can be produced from standard drills (Grind the cones), Measure the steps and angles.



Screw taps
Back grinding on the surface and peel
grinding with 3, 4, 5 and 6 cutting edge



Reamers
Section grinding with counter stock
(Top range 400mm)



Pivot countersink
Complete



Conical countersink
flute and scope back grinding



End mill
Groove, also radius with radius grinding device



Table milling cutter
to \varnothing 2 mm



Roller milling cutter
Flatten the front face and sharpen the spiral sharpening incl. Background



Cross-tooth cutters and disk cutters
Complete incl. Chip surface



Prism cutters and angle grinders
Complete with chip surface



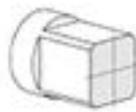
Modulators and shapers
Only chip surface



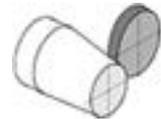
Thread cutting die



Turning tools
Workpieces of all types up to span 50 mm



face grinding/section grinding
Square grinding



External circular grinding



Internal round grinding



microscope



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