

DECISIVE ADVANTAGES OF OUR NC HONING SYSTEM

The micrometric expansion unit is directly integrated into the spindle and enables the collection of data from the expansion motor as well as the spindle motor. These data enables very fine tuning of the honing tools during the honing process.

The new technology of 3D printed fixtures significantly reduces the costs of clamping systems and guarantees very fast delivery times.

Mu-Tools' fixtures have a standard base, are easy to maintain and can be dismantled quickly. The clamping core, which holds the workpiece, is made of a two-component material as strong as aluminium. This part is therefore easily replaceable and allows greater flexibility with a single fixture.

The possibility of making diameter corrections in very fine steps of ± 0.001 or 0.0001 mm, even during the honing process.

The honing tools are expanded evenly and absolutely parallel over the entire circumference. This also makes it possible to hone without problems in interrupted-cut bores or with keys.

All materials can be honed with the same tool.

As a manufacturer of honing tools for more than 75 years, Mu-Tools is able to produce all kinds of tools to suit your workpieces.



THE MICRON SO SIMPLE



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M μ -HS1 M μ -HS2



Length (mm)	1800
Width (mm)	1000
Height (mm)	1700
Weight (Kg)	900
Floor surface (m ²)	1.8
Minimum air pressure (bar)	5.5
Power supply	400V AC - 50 Hz
Multifunction touch screen control	15"
Honing range (mm)	Ø 0.6 - 80 mm
Spindle height (mm)	130
Spindle speed (tr/min)	0-8000
Standard spindle motor torque (Nm)	11.4
Max. stroke length (mm)	350
Max. honing length (mm)	200
Max. table oscillation speed (m/s)	1.9
Light	Led
Oil tank (l)	120
Filtering tissue (µm)	10-15
Colours (Ral)	white RAL 9010 / black RAL 7016 / green RAL 6038



A thumbwheel positioned to the right of the operator activates the digitized axes, such as the table, the spindle and the expansion system, for easy adjustments.

Four control buttons above the thumbwheel enables functions to be activated or deactivated or the final diameter of the part to be corrected in steps of ± 0.001 and 0.0001 mm.



IMPORTANT DESIGN FEATURES

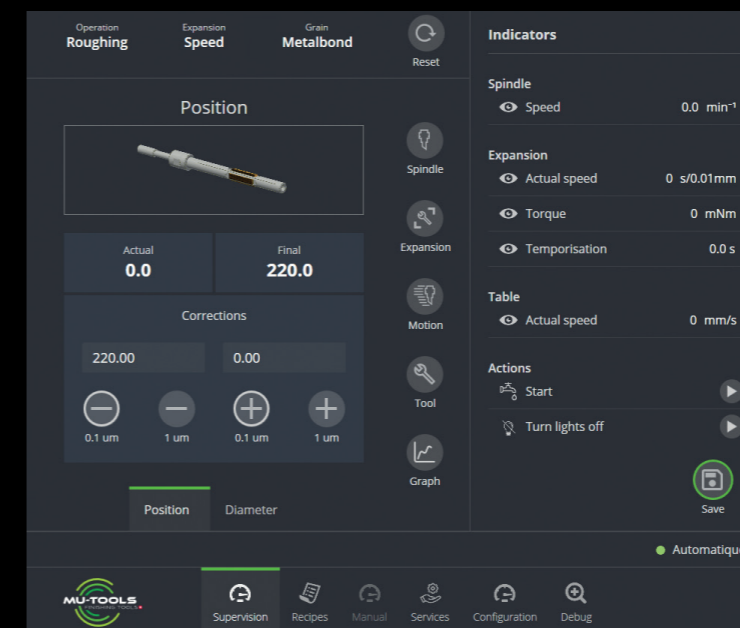
- Very short installation and changeover times due to easy handling and accessibility
- Repetition accuracy to within 0.001 mm
- Solid construction and optimised ergonomics
- High precision production machine for small, medium and large series
- Easy-to-use Beckhoff interface and simple, intelligent parameterisation
- Fast and self-centering honing tool fixation
- High flexibility in changing settings from one type of workpiece to another
- Large honing range Ø 0.6 - 80 mm

THE TABLE MOVEMENT IS DRIVEN BY A LINEAR MOTOR, WHICH ENABLES A VERY PRECISE POSITIONING OF THE WORKPIECE IN THE HONING POSITION AND IN THE LOAD/UNLOAD POSITION.

ON THE M μ -HS2, THE LEFT SPINDLE CAN DO THE ROUGHING OPERATION WHILE THE RIGHT ONE DOES THE FINISHING OPERATION. AS THERE ARE TWO TABLES, IT IS ALSO POSSIBLE TO PERFORM TWO WORKPIECES WITH TWO DIFFERENT HONING LENGTHS.

For blind holes, two strokes movements can be programmed, in order to work more intensively on the bottom of the hole.

Different brands of honing tools are compatible, but the best results will be obtained with the original Mu-Tools SA honing tools.



The Beckhoff control panel enables several hundred programs to be saved and also allows programs to be exported or imported into an external system.

The programming software ensures that all the information required for a successful honing cycle is set and automatically indicates if a parameter is missing.

The material removal is visible live during the process, as well as the expansion modes, the honing time, the desired diameter and the number of honed parts.