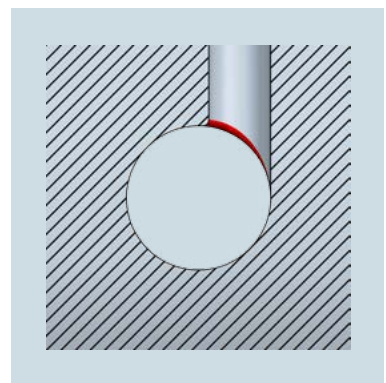
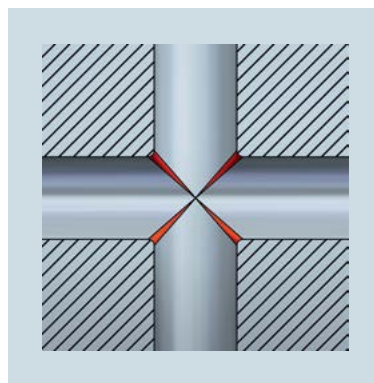
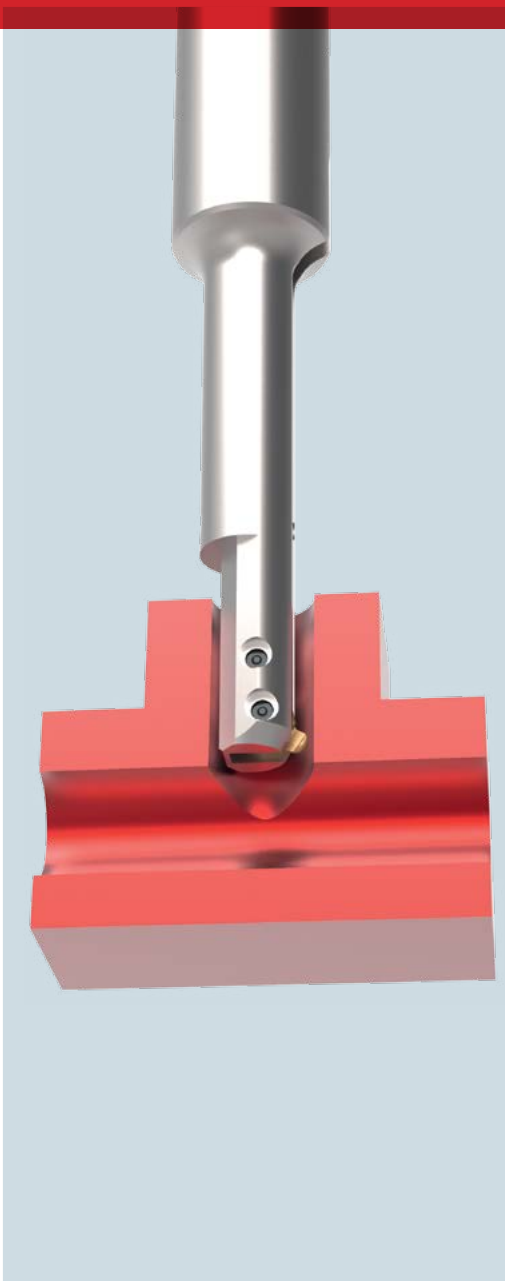


COFA X

The mechanical deburring tool for cross bores with a diameter ratio of 1:1.



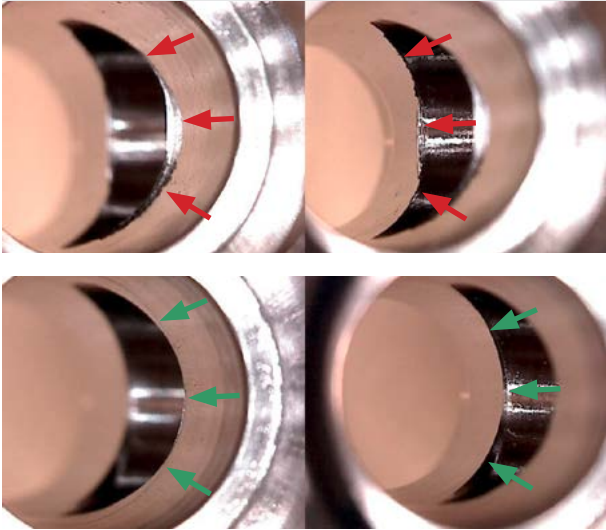


Image 1: The bore edge is clean and completely free of burrs. Top: Before deburring Bottom: After deburring.

Cross bores with almost identical diameters show a very steep unevenness. This condition made it impossible to deburr such cross bores mechanically so far. The shape of the intersection did not allow a complete deburring of the bore.

By solving this challenge HEULE proves once again their competence as a solution provider. We are making use of today's machine capabilities and combine them with a new tool, the COFA-X system.

The defined cutting process using a carbide blade is responsible for a complete edge break. In other words the edge is burrfree.

Function Principle and possible Applications

Tool Function

COFA-X is the first and only tooling system that removes the burrs consistently from interior uneven bore edges in applications with large intersections. It works reliably when NC operated and it is highly efficient and process capable. This simple and mechanically controlled deburring tool reduces your process costs and increases the process capability of the deburring operation massively.

The COFA-X application range starts with bore diameters of Ø4.0 mm and larger. In any case, all COFA-X-tools must be designed individually according to the customers' needs. This explains why a detailed application description is compulsory. One tool machines one diameter. However, all COFA-X tools have in common that they do not cause any secondary burrs.

In order to assure a reliable NC operation the machine requirements have to be respected. The tool has to be inserted into the bore with an offset (Image 1).

Blade Function

The tools possess special geometries that are designed either for front or back cutting only. Accordingly, the blades are preloaded by a spring when assembled. Compared to the COFA standard tool the blade position is different for this reason.

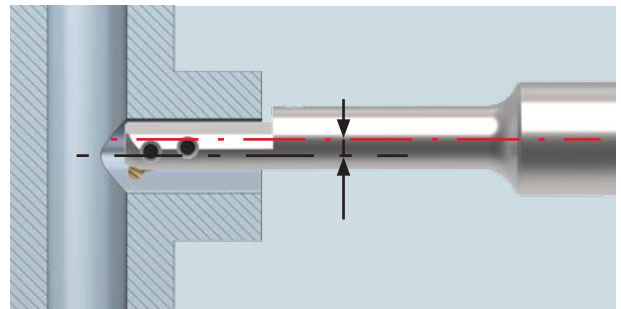


Image 2: The deburring tool accesses the T piece via the cross bore.

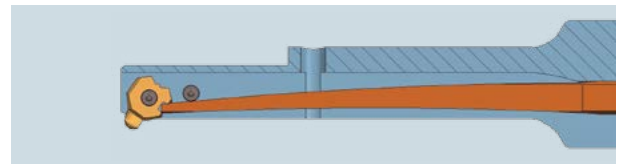
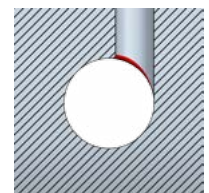
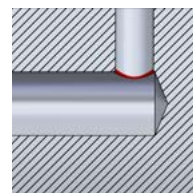
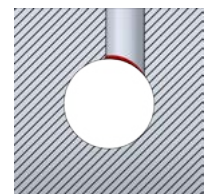
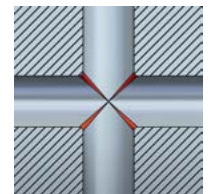


Image 3: The preloaded spring and the shaft with a recess enable the tool to deburr bores with a high degree of unevenness.

Scope of Application

- Intersecting bores up to a main bore - cross bore ratio of 1:1.
- Crossing bores with center axis offset.
- Bores with interfering edges that shield the surface (bore edge) to be deburred indirectly.



In comparison with the COFA standard system, COFA-X possesses a pre-loaded blade (see image 3 on page 2) and the tip of the tool body shows a recess. This recess is necessary in order to enter the bore with an offset so that the blade does not suffer.

The tool itself is characterized by its simple setup. The exchangeable spring is held safely in the tool body by two split pins. It controls the movement of the blade and resets it to the initial position after processing.

The multiple use of blade and spring within a serie is given. Only the tool body has to be selected according to the bore diameter.

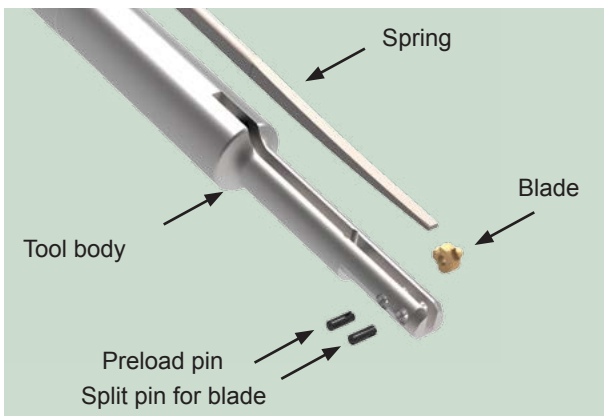
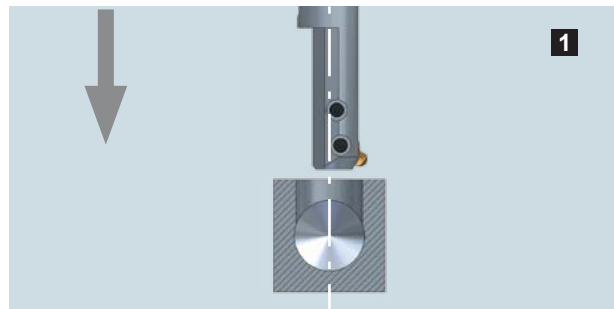
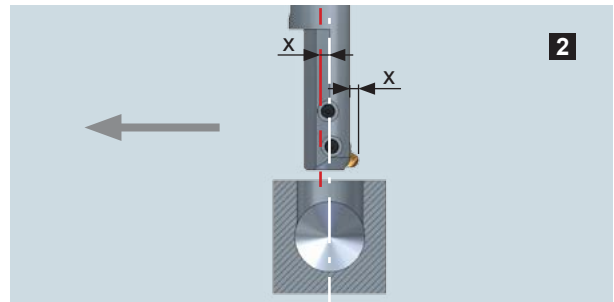


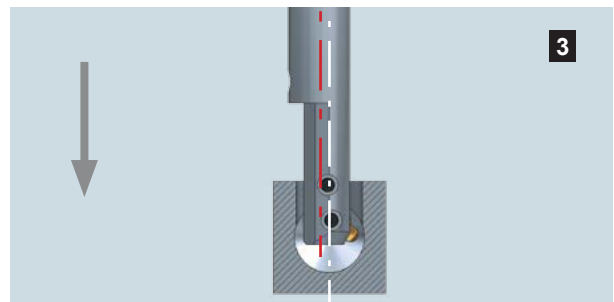
Image 3: To change the blade only remove the front split pin and



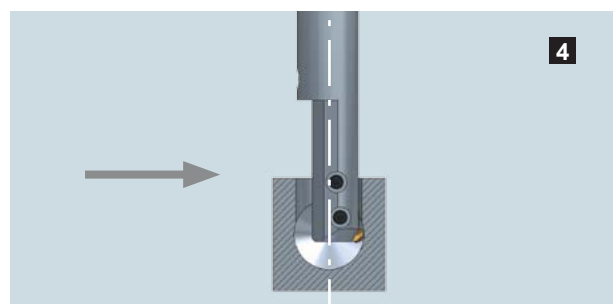
Approach with spindle stopped, orientated and offset 0



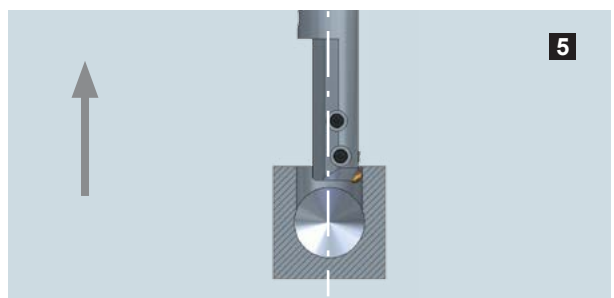
Approach offset dimension x (from center). Value depends from the distance of the blade exceeding the



Enter the bore down to the bore edge to be deburred.



Move back to offset dimension 0.



Spindle ON. Execute deburring in working feed backwards.

Information / data required by HEULE to examine the feasibility of your application.

- Main bore-Ø including tolerance
- Cross bore-Ø including tolerance
- Bore depth
- Material
- Penetration angle
- Offset
- Production volume per year
- Cycle time
- Machine (NC / others)
- Solution / process today
- Particular requirements
- STEP drawing

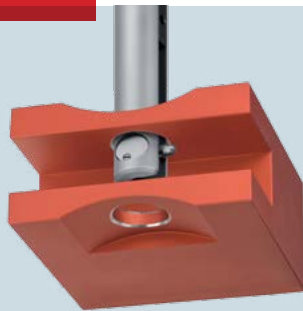


One Operation.

HEULE tools for front and back machining of bore edges in one single pass.

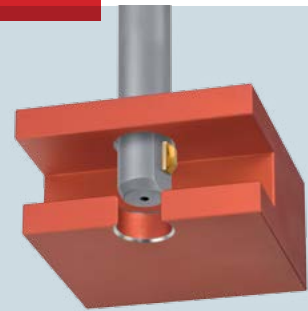
Deburring

- COFA
- SNAP



Chamfering

- SNAP
- GH-S
- DEFA



Countersinking

- BSF
- SOLO
- GH-Z/E



Drilling

- VEX-P
- VEX-S



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