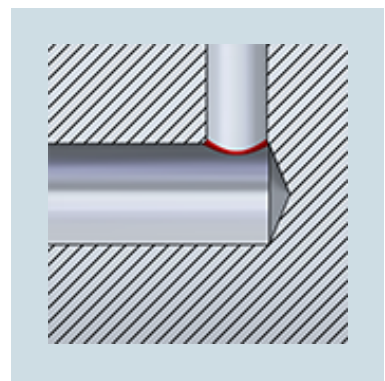
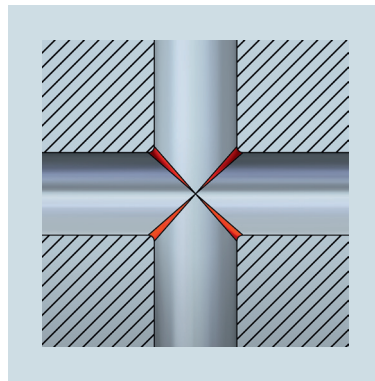
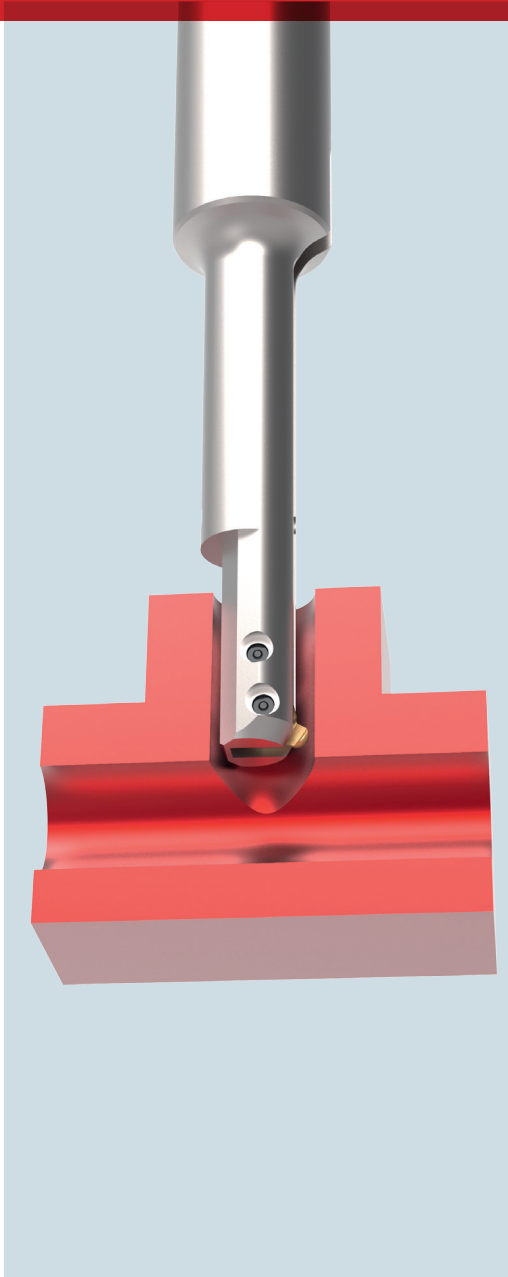


# COFA-X

For 1:1 Ratio Cross Bores

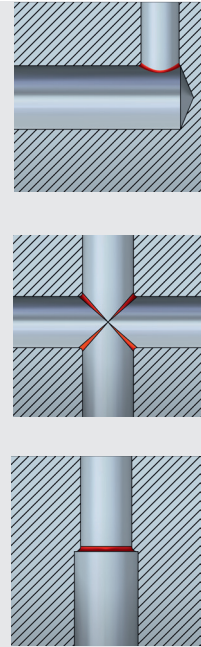


# COFA-X

The NEW Solution for Complex Cross Bores on Extreme Uneven Surfaces

COFA-X is the first and only tooling system that consistently and reliably removes burrs from interior uneven bore edges in applications with large intersections.

- Intersecting bores up to a main bore with a cross bore ratio of 1:1
- Cross bores in elbows: main hole must pass cross hole (recommend 120 degree drill point or less).
- Different size bores on center axis.



## CASE STUDY: Oil Bores on a Crank Shaft

A manufacturer of crank shafts had to guarantee *no hanging burrs* in the oil cross bores after machining.

Bore Diameter: Ø8.0 mm  
 Cross Bore: Ø8.5 mm  
 Material: Alloy Steel 42CrMoA  
 Speed: 500 RPM  
 Feed: 0.1 mm/rev  
 Machine: Horz CNC  
 Tool Solution: Extended COFA  
 C6X-8.0-S with C6X-M-0001-A

Using HEULE's new COFA-X tooling concept automated the process, producing parts free of hanging burrs in the oil bores.

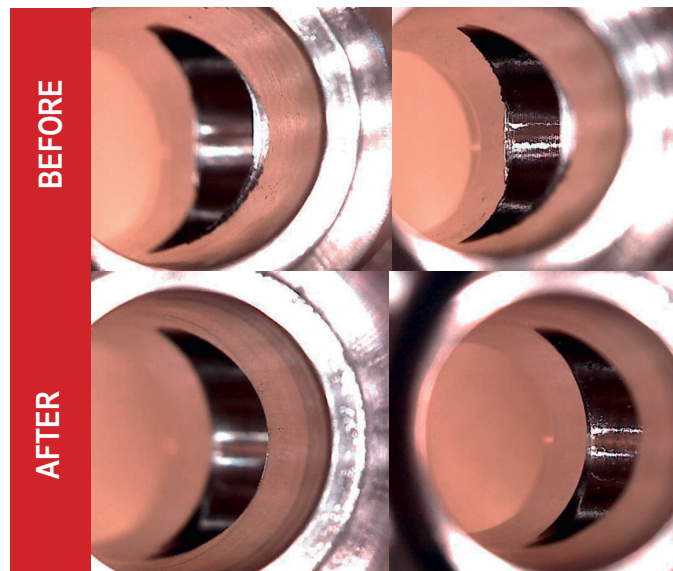
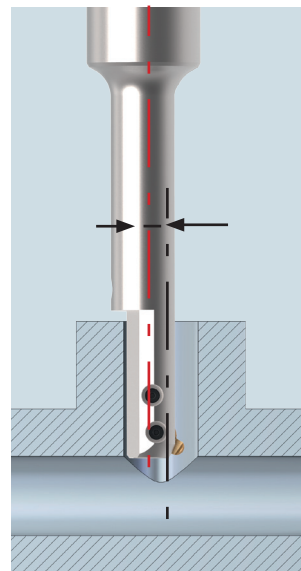


# X BORES

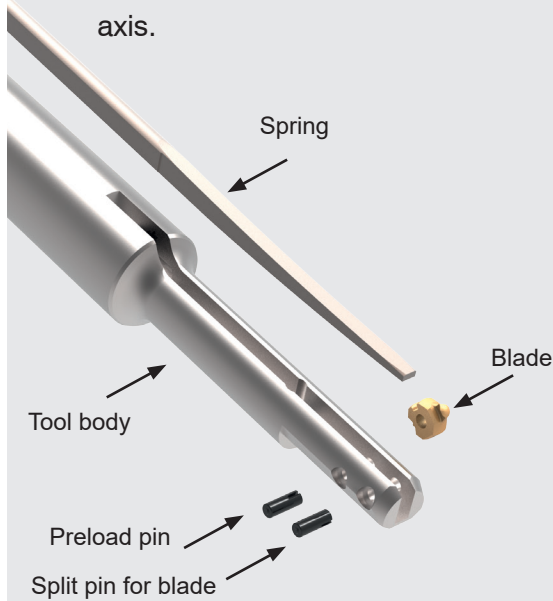
## CASE STUDY: 1:1 Ratio Bores on a T-Fitting



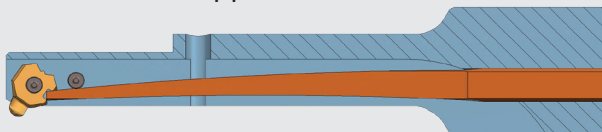
Main hole: Ø10.4 mm  
 Cross hole: Ø10.4 mm  
 Material: Stainless  
 Machine: CNC Trunnion  
 Cycle Time: 15 sec  
 Annual Production: 1 million parts



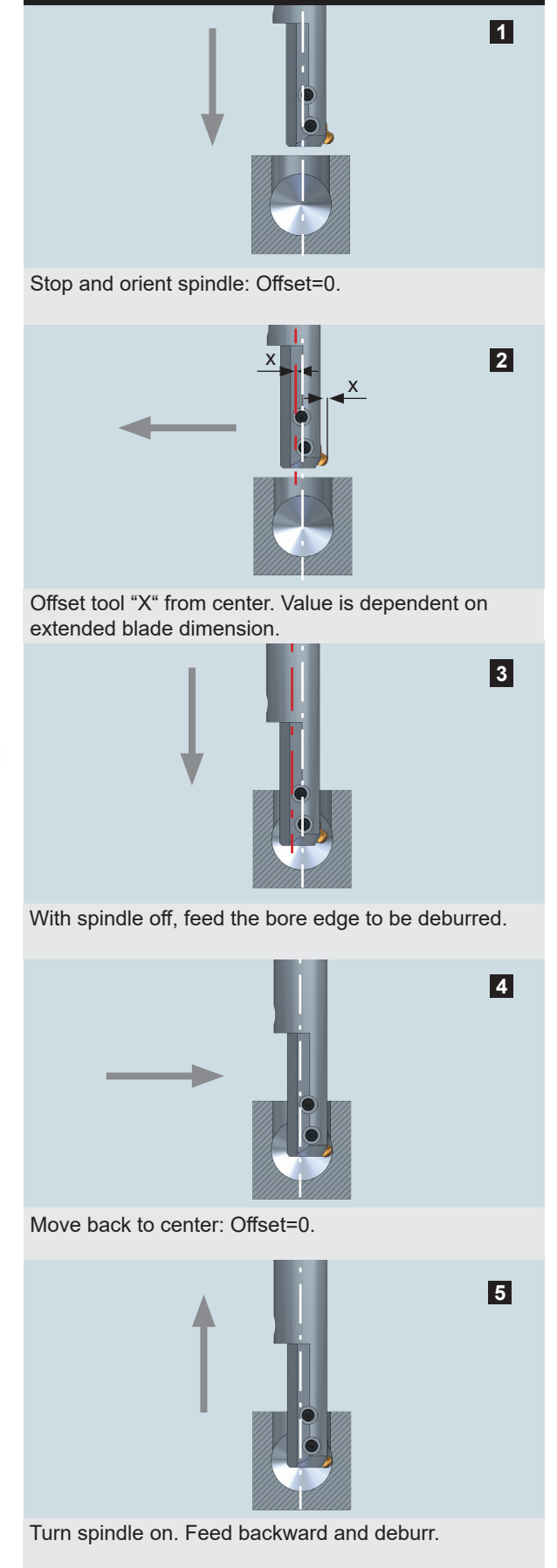
### TOOL CONCEPT

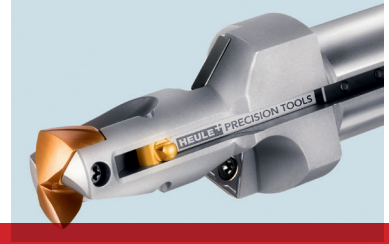


- Bore diameters Ø4.0 mm and larger
- Undercut body allows offset entry to bore so as not to damage the cutting blade
- Separate tool bodies available for front cutting only and back cutting only
- Customized to each application



### Sequence of Operation / Programming





# ONE OPERATION

Front and back machining of bore edges  
in one single pass.

## Deburring issues? We can help.

Solutions begin with a clear description of the problem.

Before we can present a solution, we will need the following information:

- Description of the present deburring process
- Description of the environment: Machine, fixturing, work holding, interference considerations, coolant, etc.
- Number of bores to be produced/production volume per year
- Present cycle time
- Is there any function assigned to the deburr/chamfer surface?
- Description of the desired final result / target description
- Main bore diameter, including tolerance
- Cross bore diameter, including tolerance
- Bore depth
- Material
- Penetration angle
- Offset dimension
- STEP drawing



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