

Application lab report

Cutting of a copper pipe



QATM-Preparation method

Objective:

The copper pipe must be cut crosswise to a length of 200 mm. After that, a 18.5 mm wide longitudinal strip from the pipe section is required. All cuts were made on the Qcut 400 A. Detailed parameters and pictures will follow in this report.



Figure 1: Overview of the sample.

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Cutting

 Cutting			
Device	Cut-off disc	Anti-corrosion coolant	Clamping tool
Qcut 400	Metal saw blade 400x2,5x32mm	Without cooling	2x Qtool 80 - 250mm (Z2231202) 4xClamping jaw 70mm slotted (02231233)
Cutting method			
Crosswise Vertical cut (Y-axis) Longitudinal Horizontal cut (X-axis)			
Parameters			
Feed speed	Pulse parameter	Cut-off disc rotational speed	
Crosswise 5,0 - 20,0 mm/s Longitudinal 5,0 - 10,0 mm/s	Without pulse	1000 RPM	
Notes			
- We have performed some tests to check what feed speed is possible (see picture 7) - After the first longitudinal cut, the tube has opened by approx. 30 mm due to residual stress. This must be prevented by modifying the clamping devices. (see picture 6)			

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Figure 2: Saw blade.

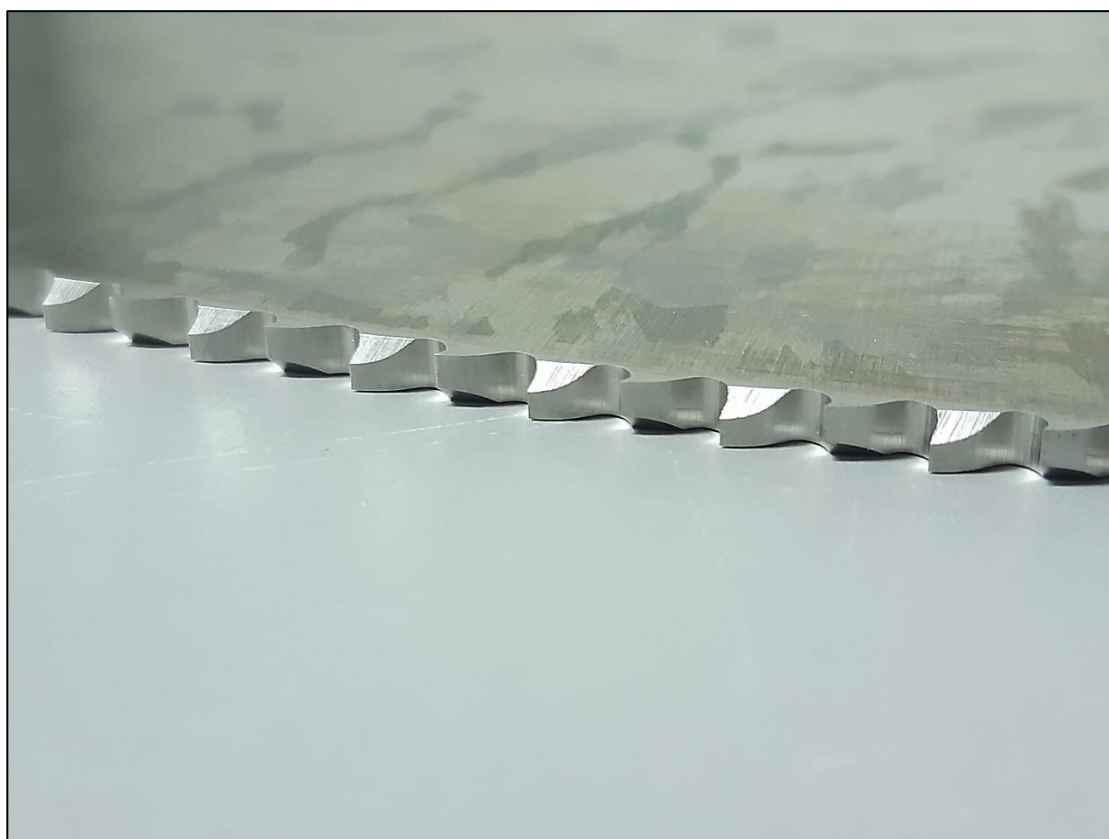


Figure 3: Saw blade teeth.

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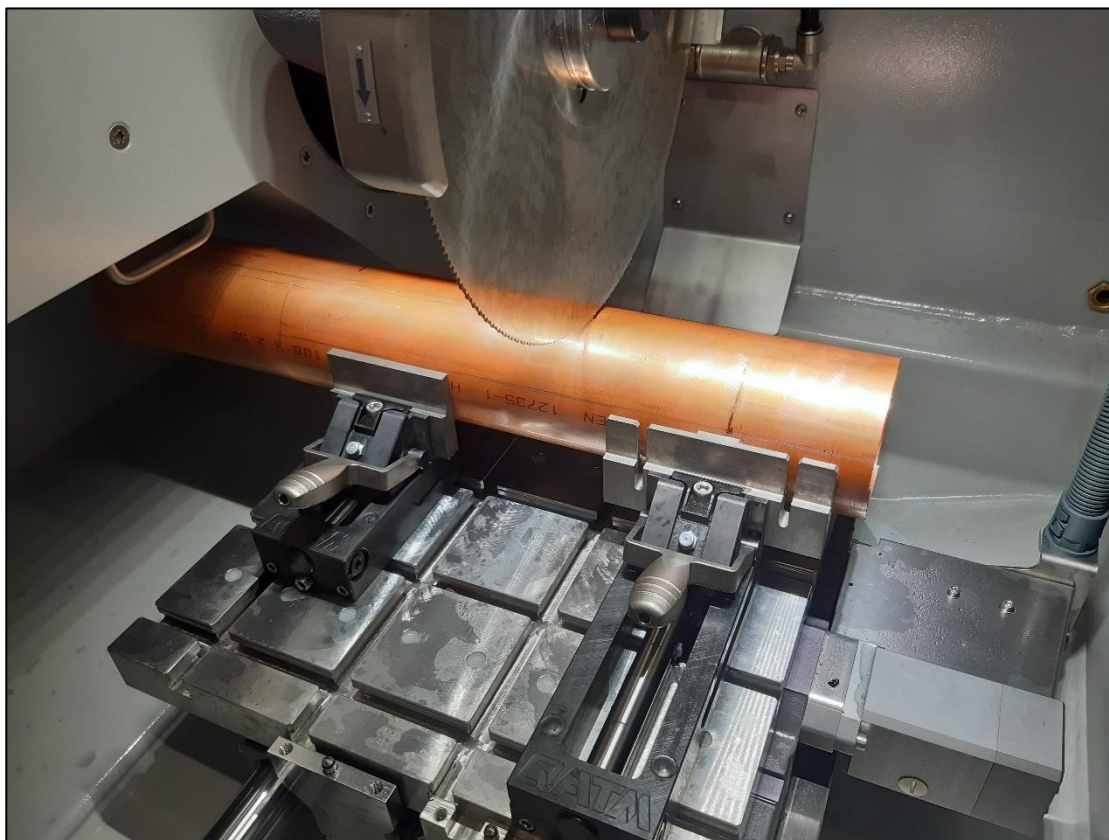


Figure 4: Cross wise cut.

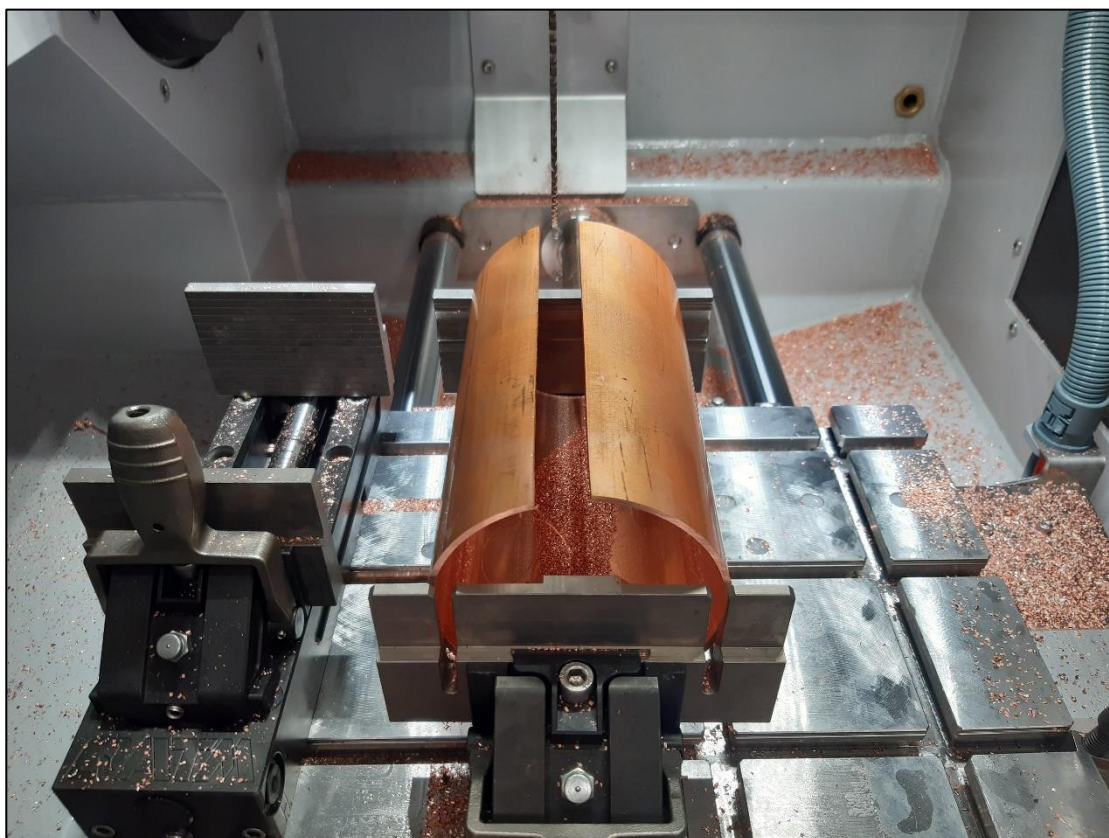


Figure 5: Longitudinal cut.

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Figure 6: Longitudinal cut.

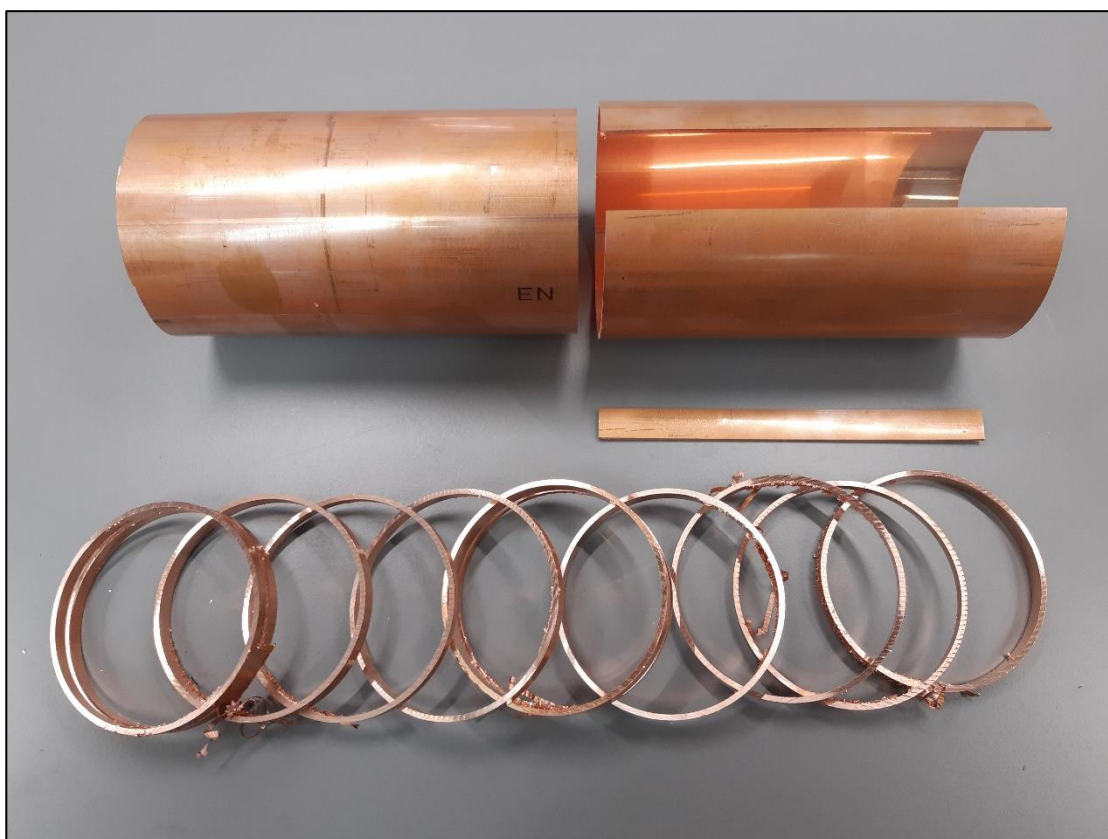


Figure 7: Overview of the samples after cutting.