



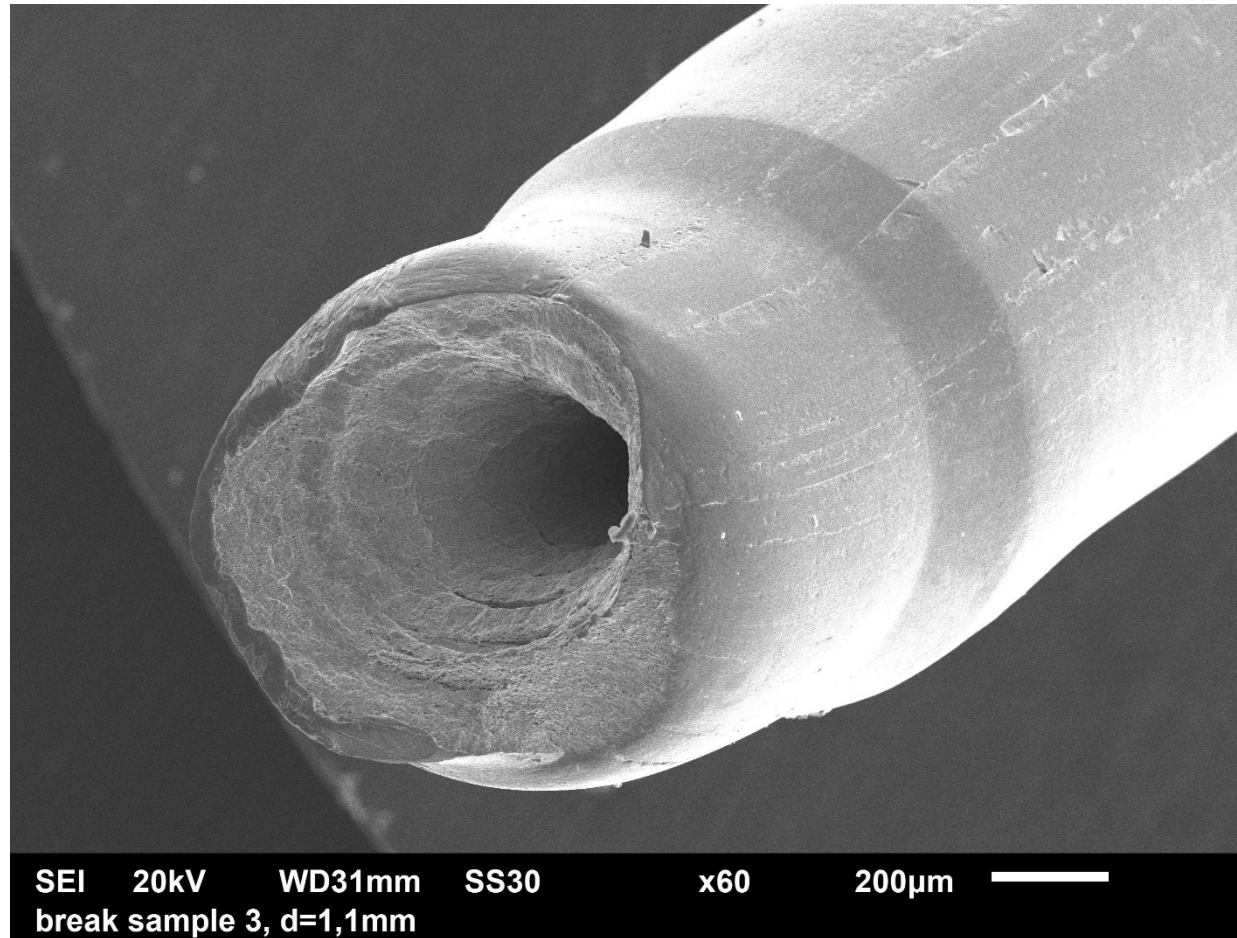
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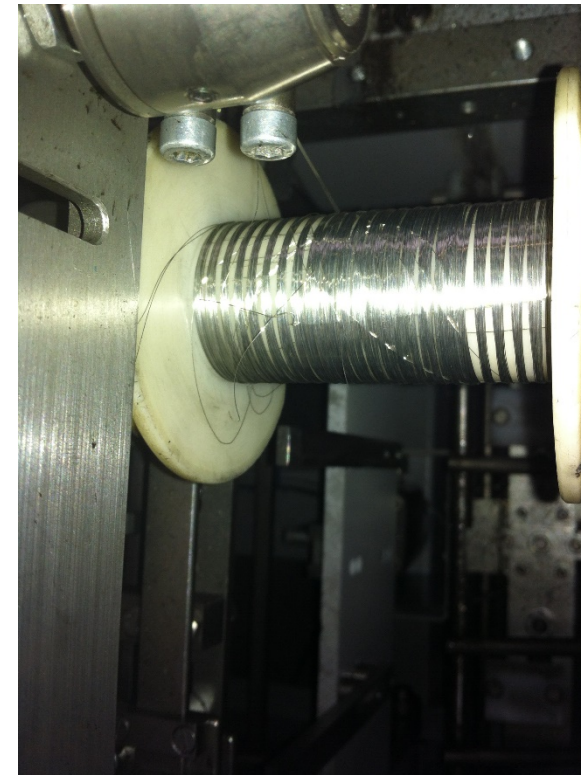
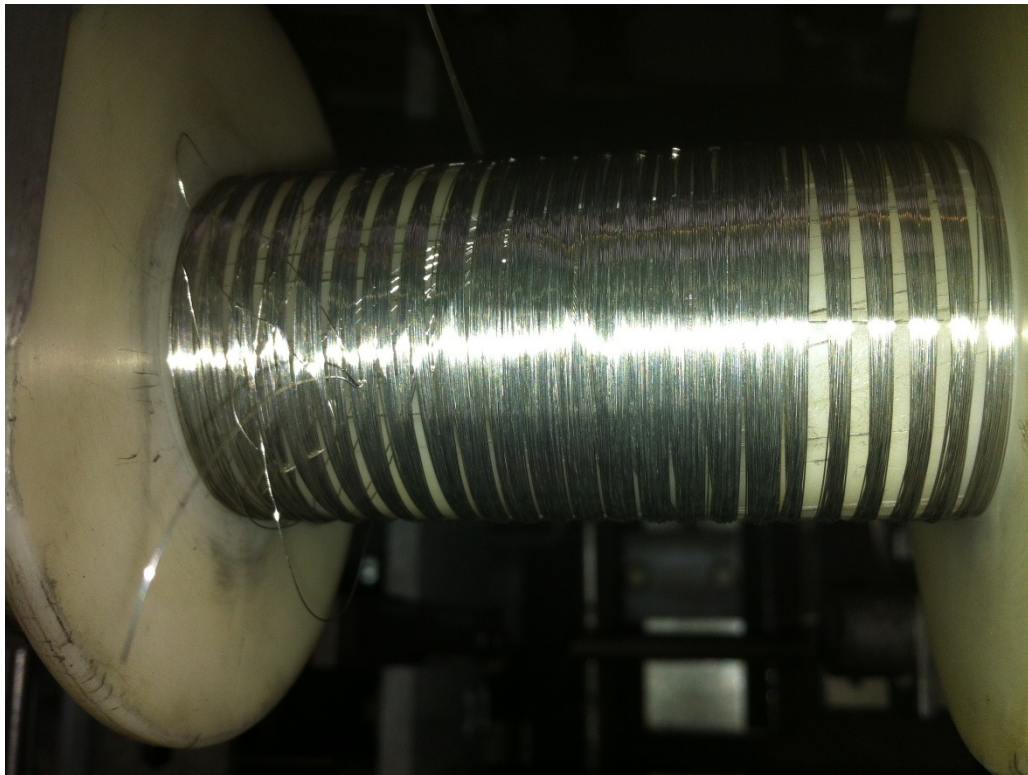


Welcome to the Virtual NF Wire Forum online event 2020



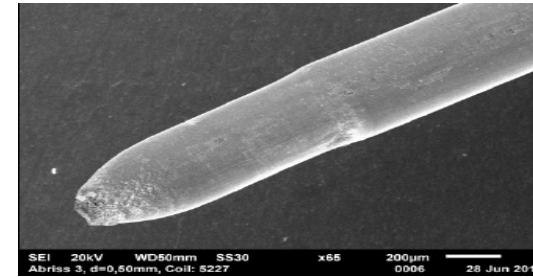
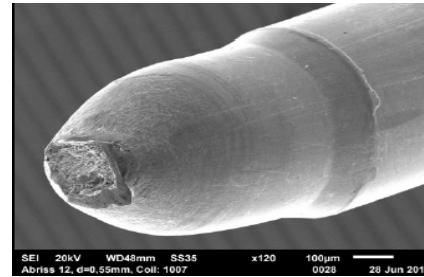
Wire Breaks in Copper wire Production

Occasional wire breaks are inevitable when drawing wire.

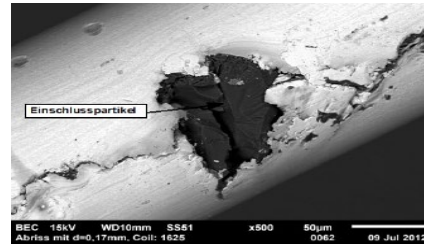


Wire Breaks in Copper wire Production

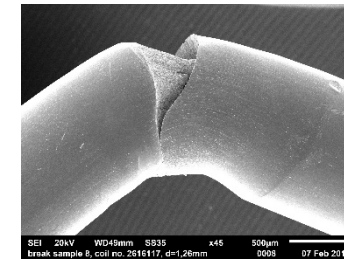
Tensile Break



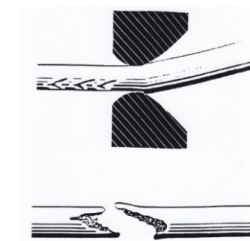
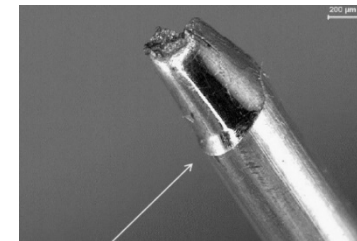
Inclusion Break



Cup and Cone Break



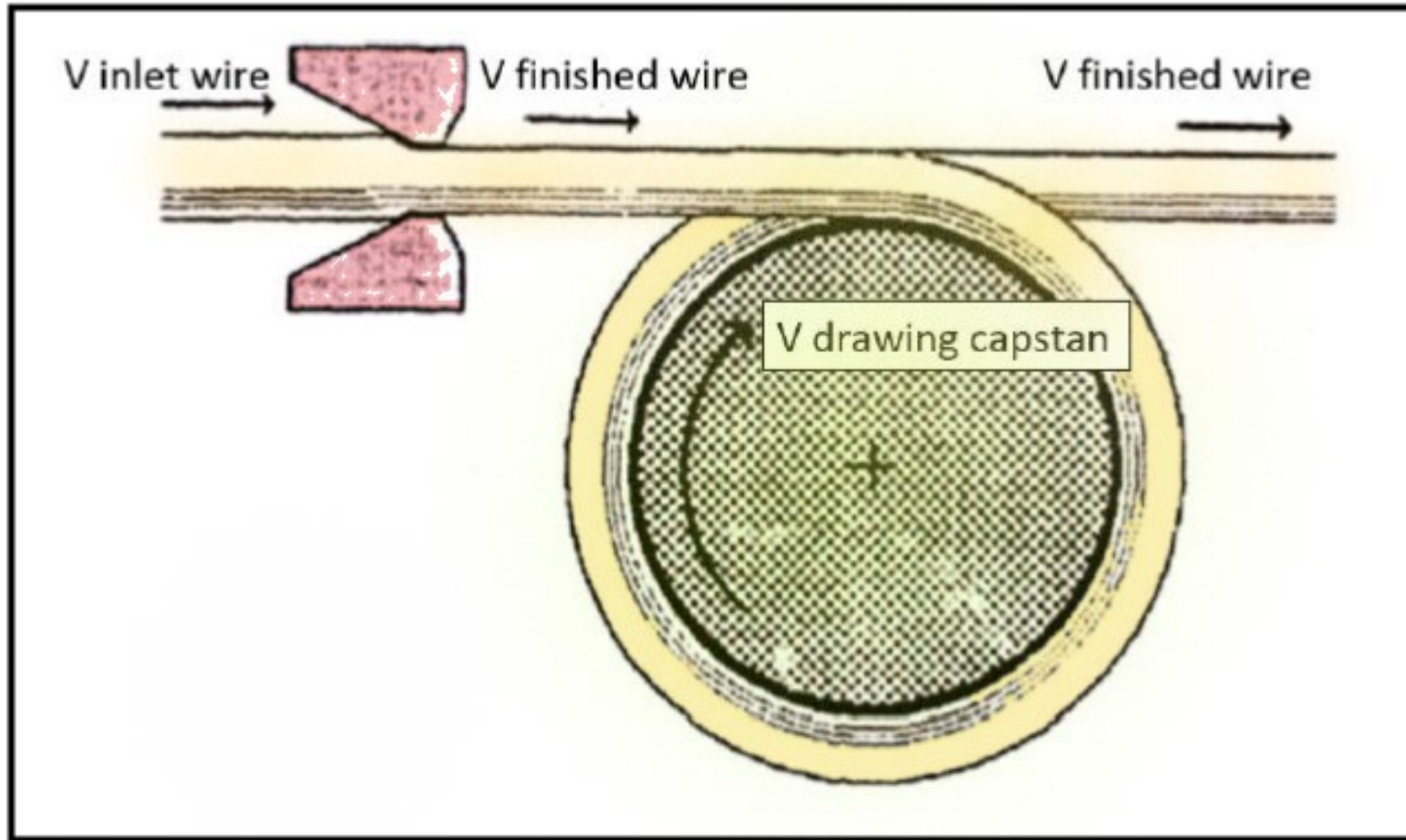
Wire Break with Surface Damages in Form of Crow's Feet



The Working Principle of the Wire Drawing Systems



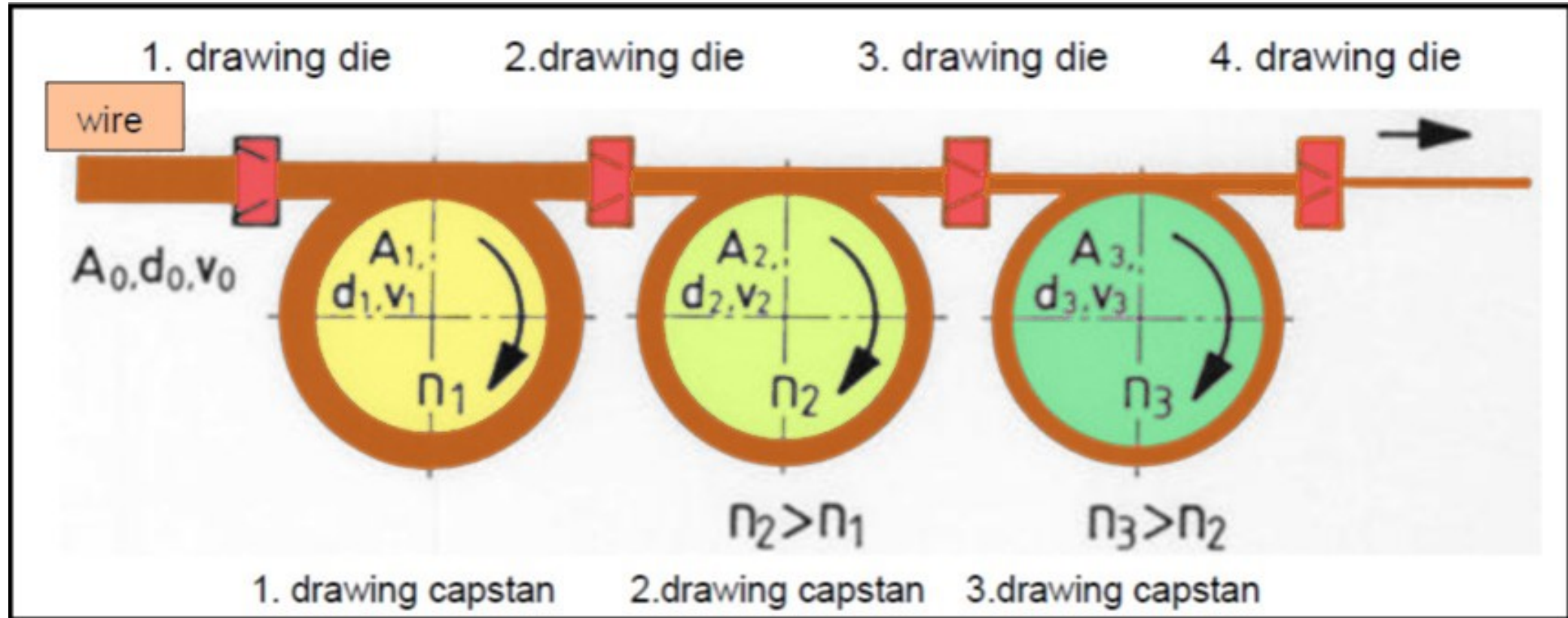
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The Working Principle of the Wire Drawing Systems



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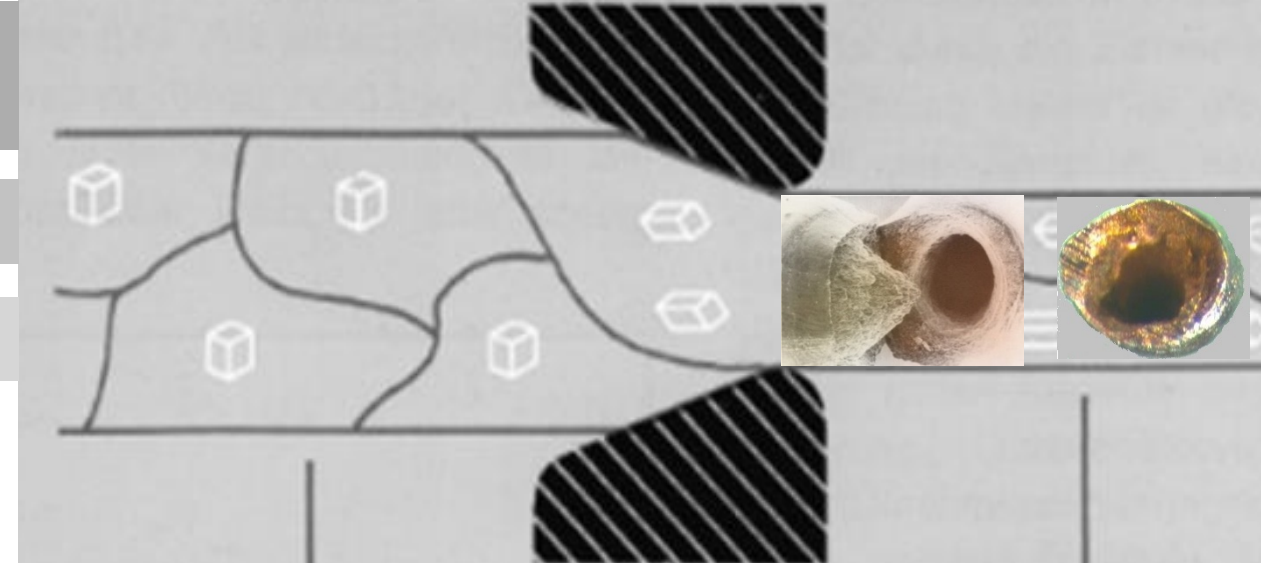
Cup and Cone Break



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Possible causes for the cup and cone break:

- Combination of large cross-section area reduction and large deformation angles in the die (**die wear**)
- Too strong cross-section area reduction
- Lack of lubrication



In case of high friction in the die, wrong geometrie or too strong cross-section area reduction,

- *the outer skin of the wire is held back,*
- *the center of the wire moves faster,*
- *It comes to cracks in the wire interior.*

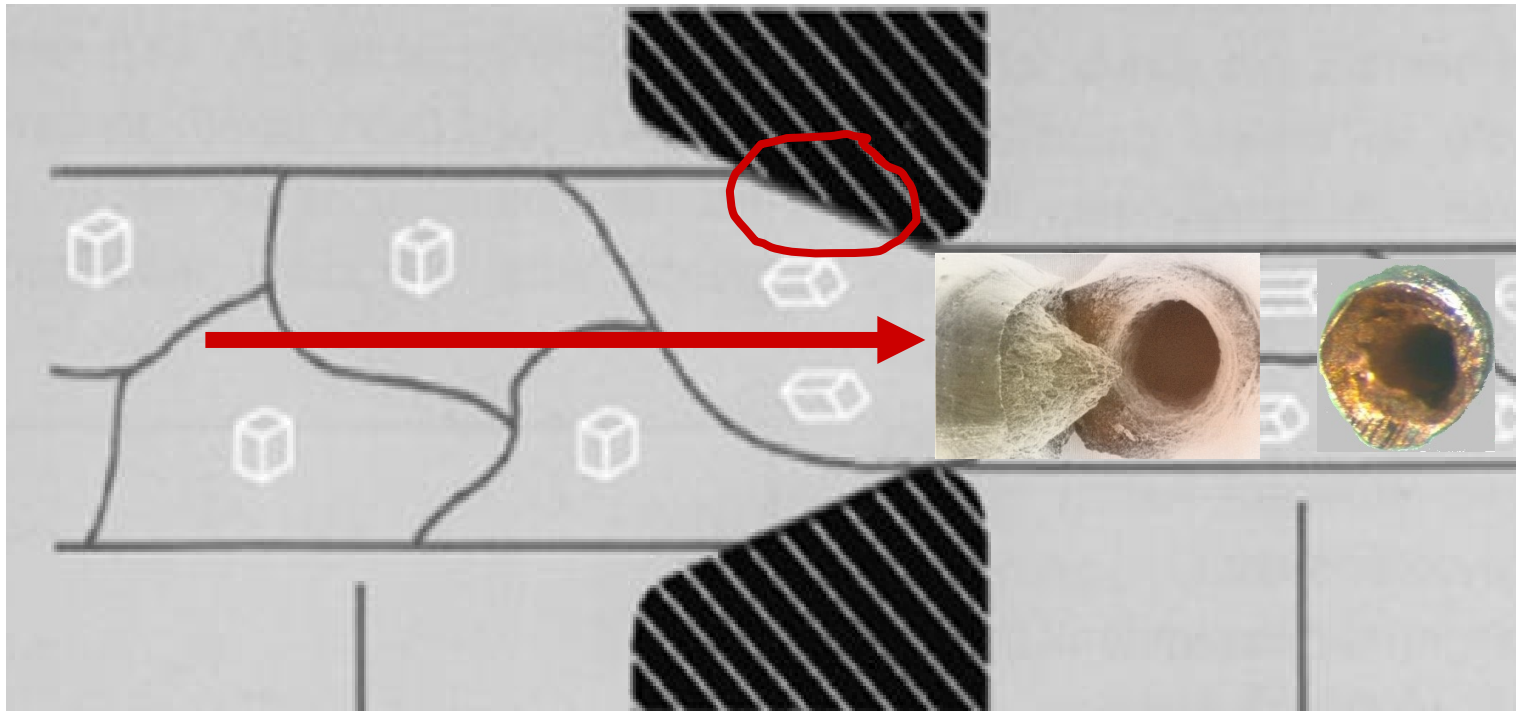
Cup and Cone Break



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Possible causes for the cup and cone break:

a cup and cone break is caused in the die mostly



Cup and Cone Break

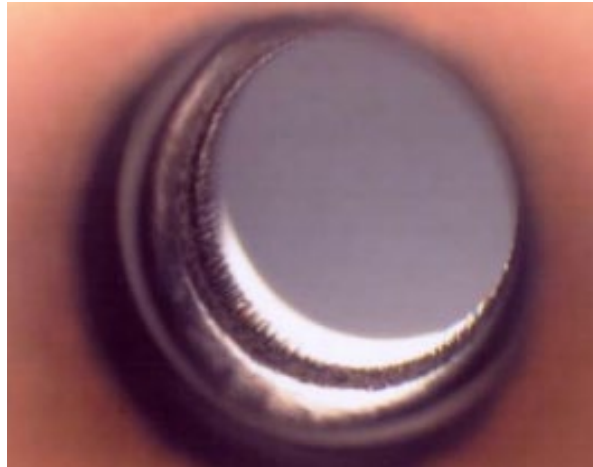


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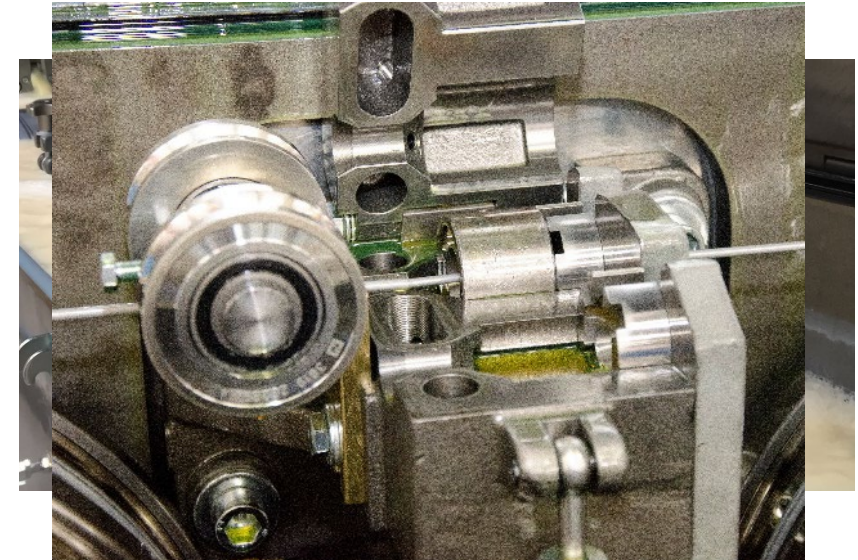
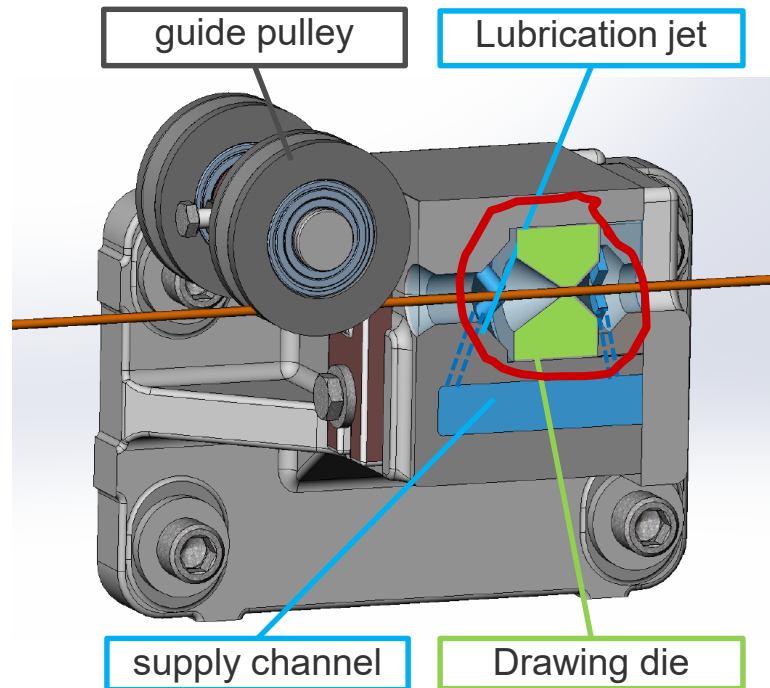
Possible causes for the cup and cone break:

a cup and cone break is caused in the die mostly

damaged die

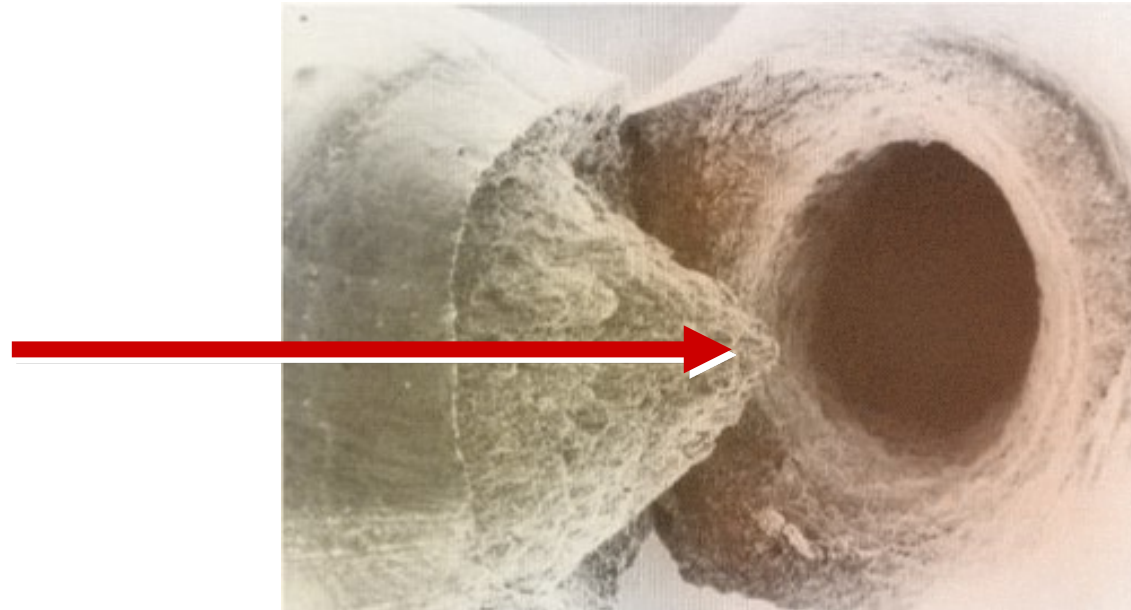


Drawing die emulsion Pressure circulation in the drawing die holder



Cup and Cone Break

The cone tip of the break always shows in the direction of drawing!



Notice: If in a finewire drawing machine (or multiwire machine) the cone tip shows against the drawing direction, then it's a clear indication that the error cause originated in the rod breakdown machine

Cup and Cone Break



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Requirements for trouble-free operation

Qualification of the operator

Careful handling of the machine

Regular inspection of:

- wire,
- drawing dies,
- emulsion,
- drawing cones

Regular cleaning of the machine

Cup and Cone Break



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Requirements for trouble-free operation

bad cones
that need to be replaced



good cones
for optimal results

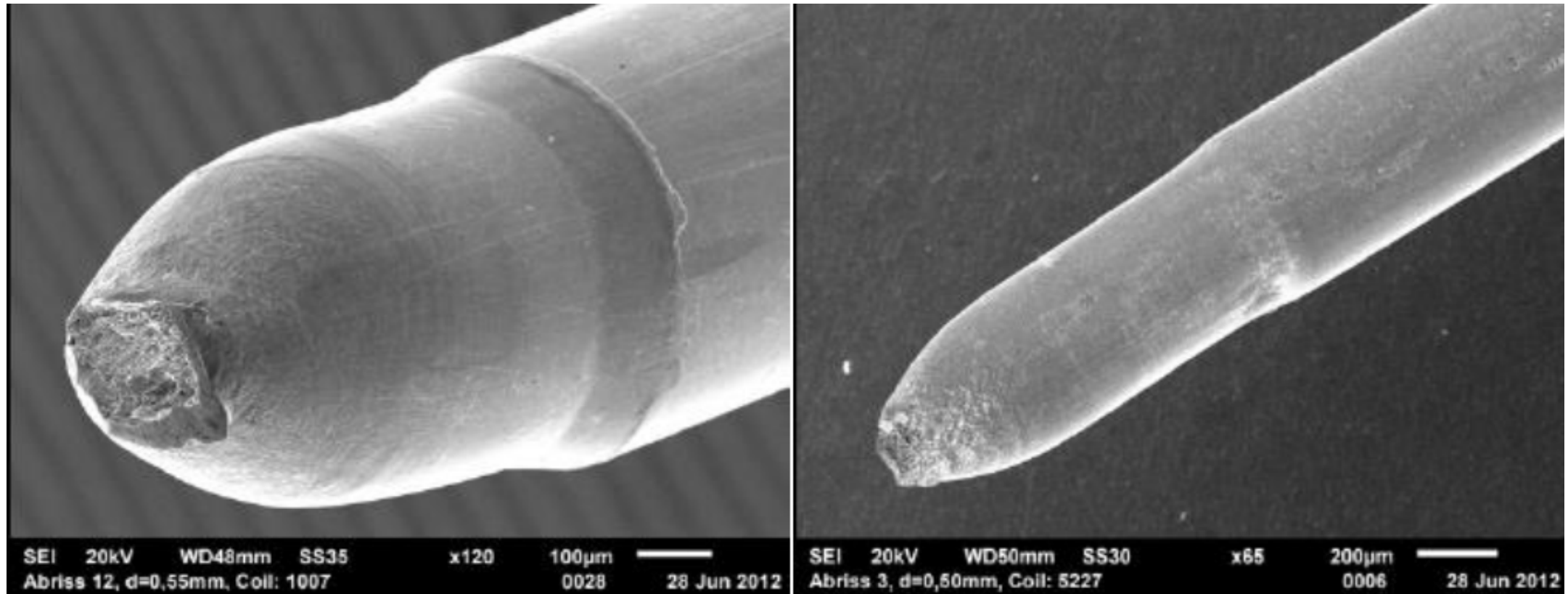


Possible causes for a wire break:



Cup and Cone Break

This wire break is not a cup and cone break, it is a tensile break!





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Thank you for your attention!

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