

NF Wire Forum

Aurubis
Metals for Progress

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BECHEM
LUBRICATION
TECHNOLOGY

Deutsches
Kupferinstitut

NIEHOFF
GRUPPE

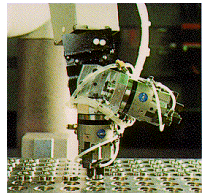
Balloffet France

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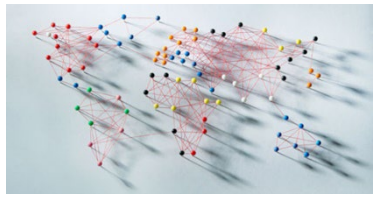
- Balloffet – where we are
- Program – what we do
- Tools – drawing dies
- Special – fine size drawing

- Conclusion







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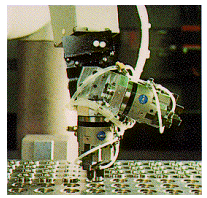
Family owned company specialized since 150 years in drawing tool & Dies for the drawing applications

R&D and permanent innovation to optimize tool and dies for Non ferrous high performance drawing for a fully integrated known how & expertise

Production in France of diamond drawing dies, diamond tools & wear parts and die repair equipment

100 % European Production + worldwide local services

Latest integrated technology & automated process for the best quality





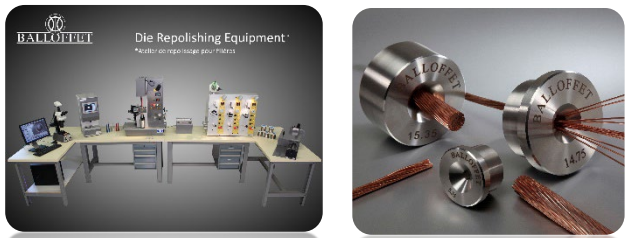



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Balloffet Product Description

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- Drawing dies
- Extrusion tools
- Compacting dies
- Stranding dies
- Shaped dies
- Enameling guides
- Repolishing service
- Training on die analysis and die repair
- Equipment for die shop













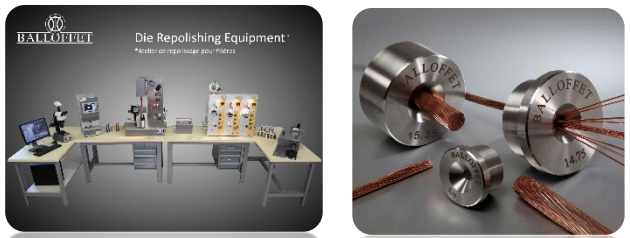
Balloffet produce diamond tools from 5 µm up to 40,00 mm

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Balloffet France

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- Sales manager
- Austria
- Germany
- Liechtenstein
- Since 12 years on board

Michael Biller











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Range of Products

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- **70% of Natural and PCD Diamond Dies**:
  Fine Drawing, big PCD dies for drawing, Compacting, Stranding, Tubing, Shaping,

Range of Ø :

3 mm to 0.0025 mm



Range of Ø :

33 mm to 0.025 mm



• 5 % Diamond Extrusion Guides
Tooling for High speed & high precision extrusion process



• 10% Special Diamond tools
Enamelling dies, colouring nozzles, fibre optic & jet nozzles.



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RANGE OF PRODUCTS

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5 % Repolishing for copper, aluminium alloys, hard wires and stainless steel drawing companies .

10% Die reconditioning machines, enamelling dies cleaning, measuring & controlling equipments.





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RANGE OF PRODUCTS

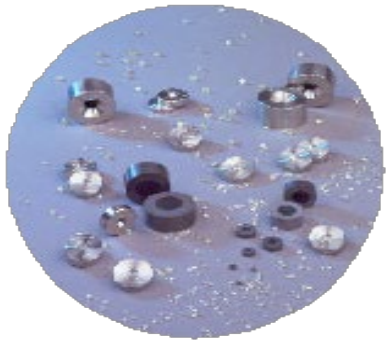
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- **Technical Training for management and production**
- Die analysis
- Technical reports
- Management of customer die stock
- Inhouse training
- New and repolished dies





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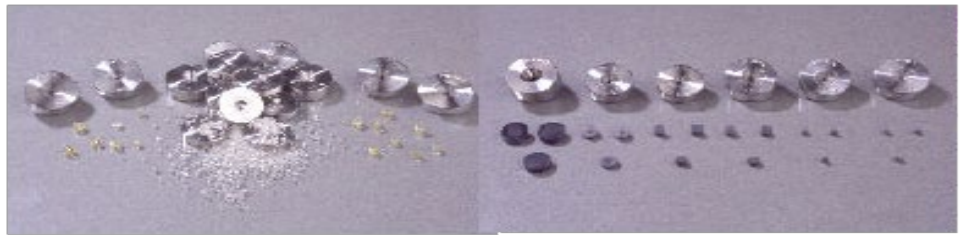


WIRE DRAWING DIES









Diamond types



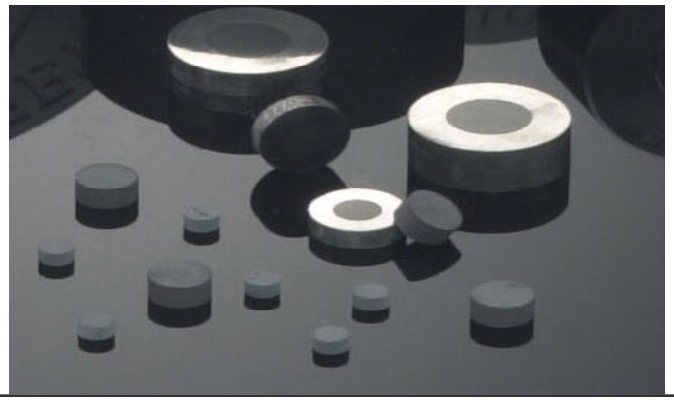
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Natural diamonds found in nature are MONOCRYSTALLINE.

These POLYCRYSTALLINE diamonds consist of randomly orientated micron size diamond crystals, with extremely high diamond-to-diamond bonding

To sum up, in order to manufacture diamond dies, we can use :

- **Monocrystalline (Natural or Synthetic) diamonds**
- **Polycrystalline diamonds in the form of cores**



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Range Monocrystal

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- **Natural Monocrystall**
  - From 4 µm to 3,00 mm wire diameter
- **Synthetic Monocrystal**
  - From 7 µm to 2,60 mm wire diamater



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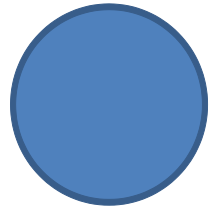
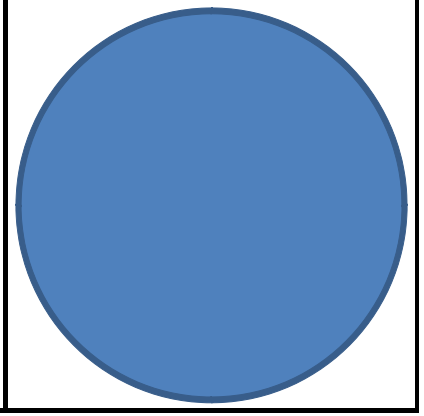
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Polycrystalline Diamond (PCD)

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Grain size available

1 µ	3 µ	5 µ	12 µ	25 µ	50 µ
					

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Polycrystalline Diamond (PCD)

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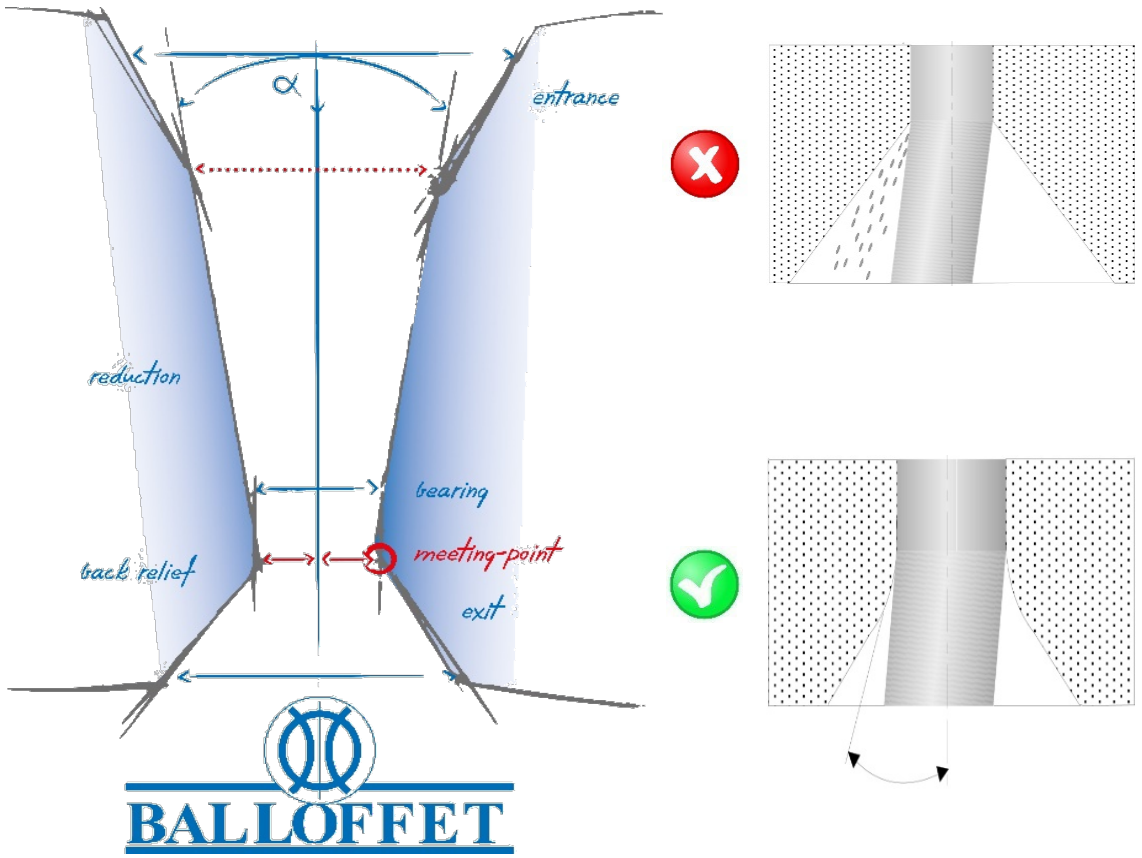
Polycrystalline Diamond (PCD)

From 0,035 mm to 33,00 mm

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Balloffet technical check list: Fine size drawing

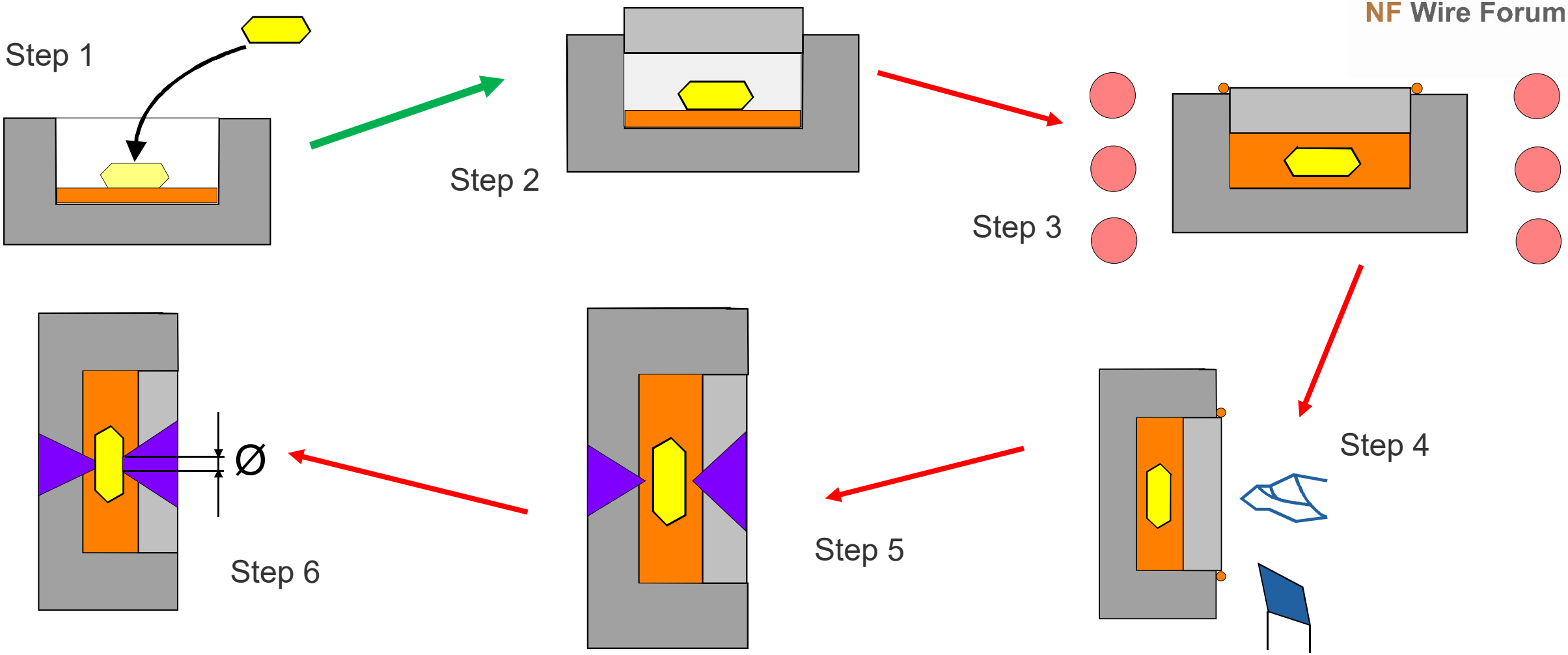
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Balloffet Check list:

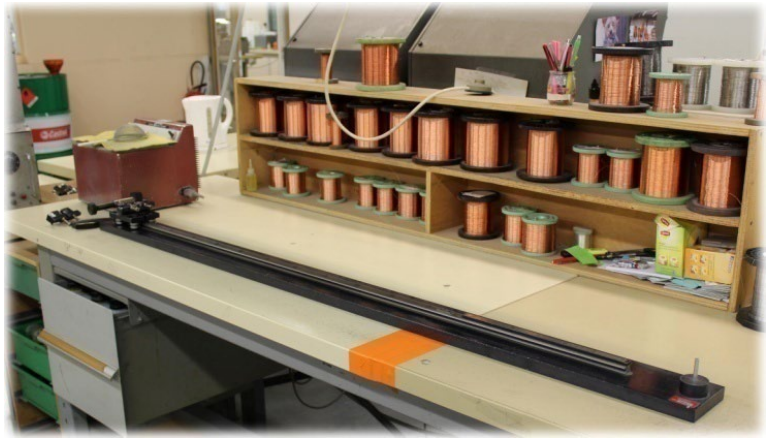
- Securing a premium quality on :
- Die Size Ø with adapted tolerances
- Die geometry (angle, cylindrical part, back relief, exit) depending on material & drawing specifications.
- Die blending on the geometry : importance of a precise geometry but well blended.
- Mirror polishing on all the working areas in the die.
- The same quality and repetitive geometries between all dies from:
  - same size (from the same position) and
  - inside the same die set in the machine.

Production and mounting of drawing dies



Wire control with specific device for Fine Wire

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Elongation:
Used for very tight and accurate drawing conditions (high speed, multi wire sets, …)

Equipment accuracy :

- **1 % of Elongation**

1 % = 0.5 µ for a Ø of 100 µ



Weight:
Mostly used for Ø < 0.10 mm

Equipment accuracy :

- **6.0 µg**

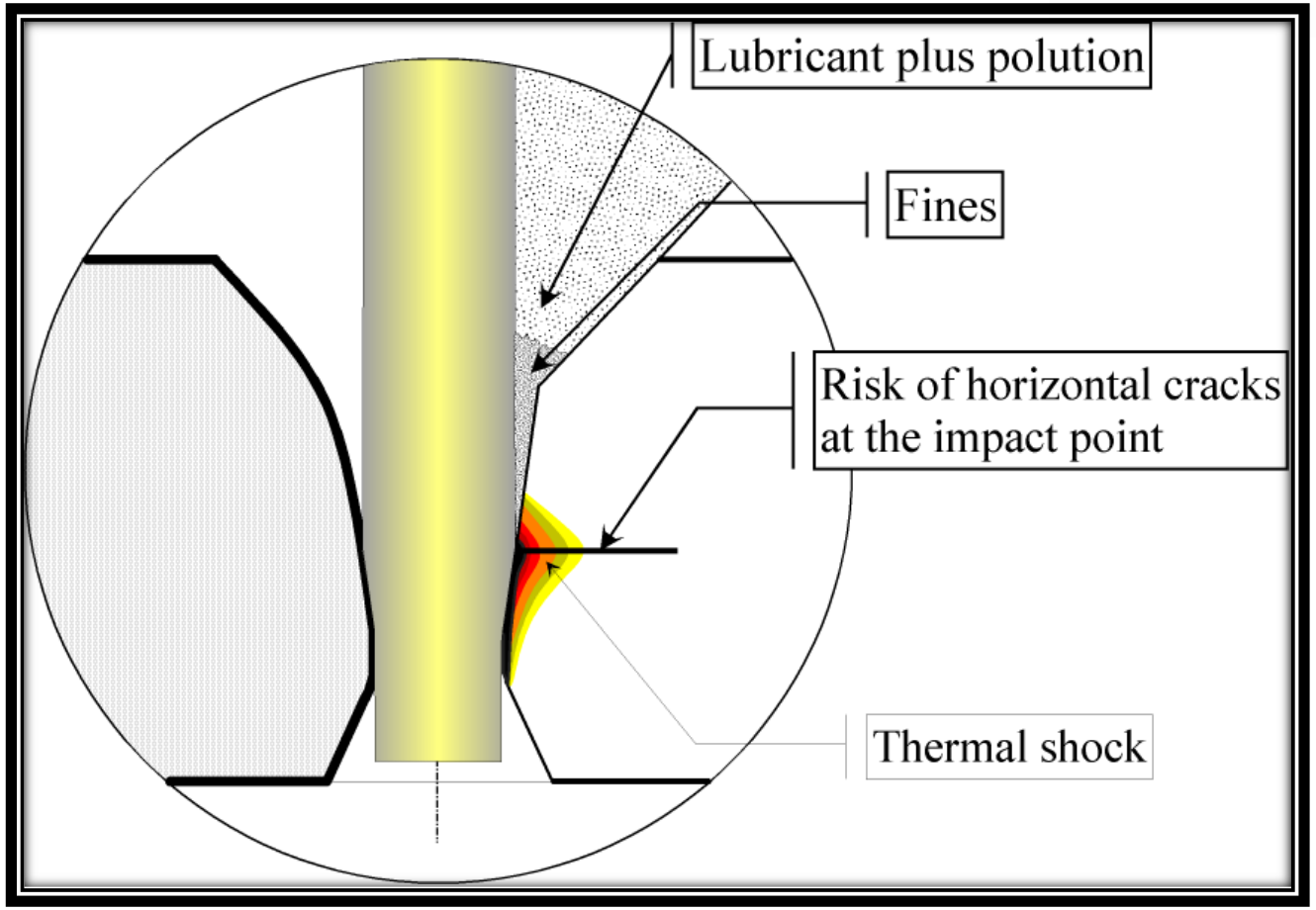
6 µg = 0.03 µ for a Ø of 20µ

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Good practice to maintain the drawing die

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- Clean raw material
- Fitting lubricants
- Good filtration
- Large tanks with cleaning paper use
- Perfect fitting geometry
- Diamond quality
- Perfect mounting
- Glazing on internal parts in the die
- Diameter accuracy
- Consitancy in geometry / multi wire
- Checking and control the process
- Checking and controll the dies
- Outtaking from machine earlier
- Quick repair and repolish for longer use



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For more information:

www.balloffetdie.com

For detailed questions:

balloffet@balloffetdie.com

Thanks for your attention

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Join in:
Live Panel on May 11th at 14h CET

NF Wire Forum

Please send **your questions** until May 10th to nf-wire-forum@aurubis.com

We look forward to seeing you again virtually!

www.nf-wireforum.com



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Beispiel einzeilige Headline

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Beispiel für eine zweizeilige Headline

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