NF Wire Forum

Aurubis Metals for Progress

BALLOFFET

BECHEM LUBRICATION TECHNOLOGY

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NIEHOFF GRUPPE

Balloffet presentation

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Outline of my presentation:

- Who we are
- What do we do
- Sustainability on drawing dies
- Repair on drawing dies
- Requirement for the wire industry
- New challenges

Balloffet presentation

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Who I am:

- Michael Biller
- Sales manager - Balloffet GmbH
- Austria and Germany

- Westerstede – 40 km to North Sea
- Since 2009 on board by Balloffet

Balloffet – Who we are

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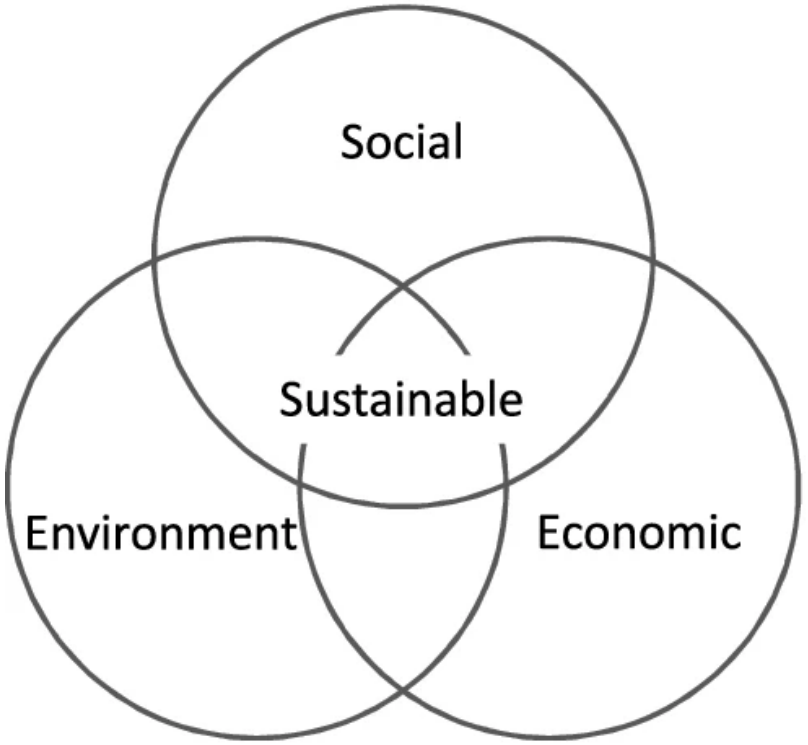
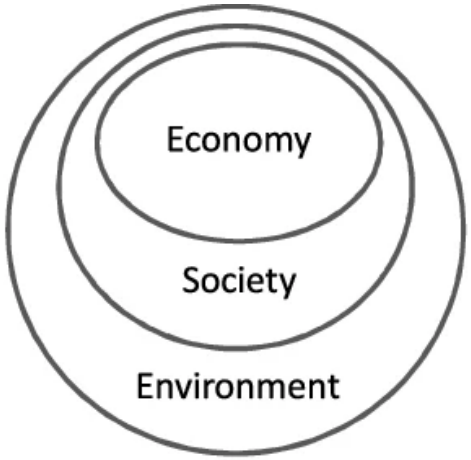
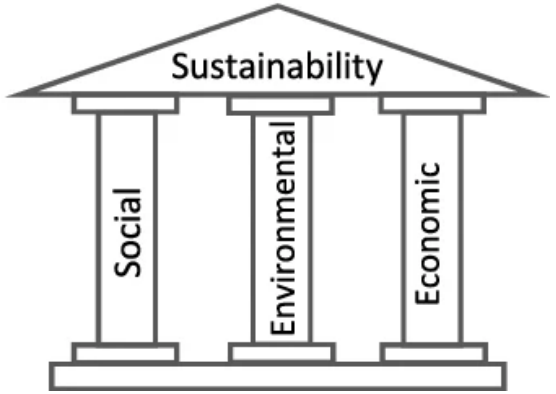
153 years tradition

- A French company
- 7. generation family owned
- Manufacturer od diamond dies since 153 years
- First company in the world to develop atechnology to drill natural diamond
- First company in the world to use PCD for drawing dies
- Leading in developing and producing on machines for die repair
- Location close to Lyon
- 160 empoloyees
- Represented worldwide

Balloffet – Sustainable







What does Wikipedia say:
Sustainability is a princip of action for the use of resources in which long-term satisfaction is to be guaranteed by preserving thee natural regeneration ability of the system

Colloquially: Long use and long benefit

Balloffet – These are our tools

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Balloffet – These are our products

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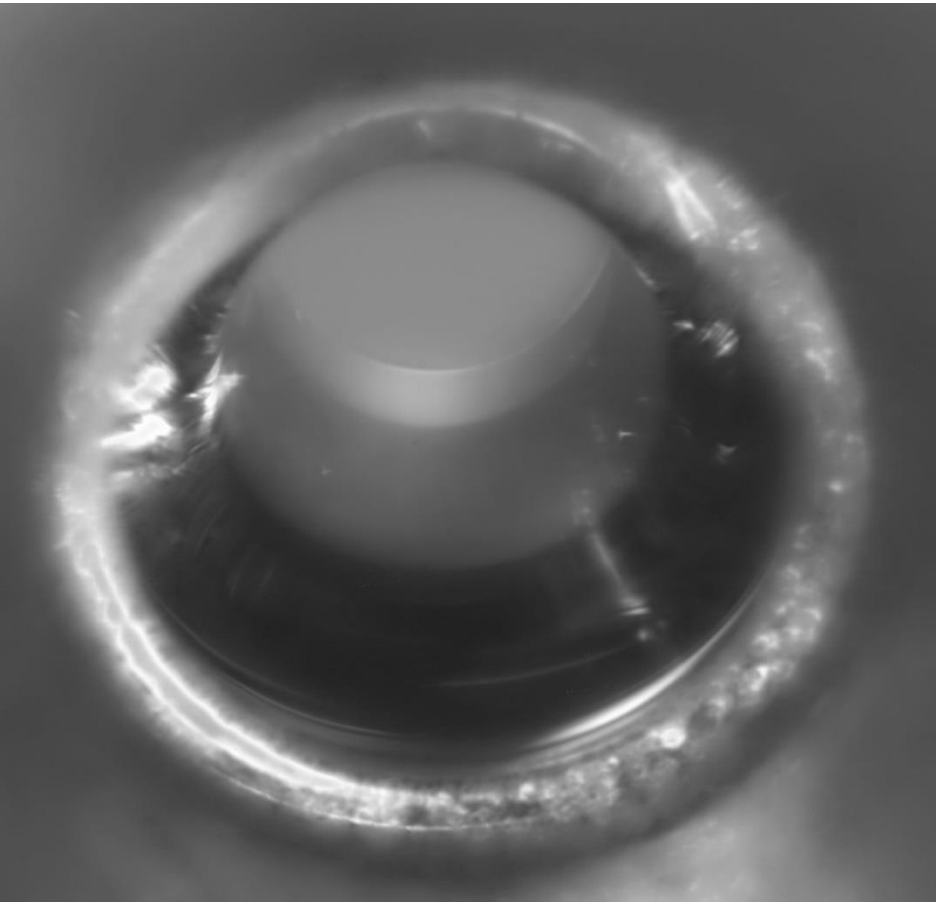
Repair on dies

Used and worn drawing dies

Not possible to achiew a acceptable drawing result

Drawing die – Natural Diamond – New



This is what a new drawing die should look like:

According to the required geometry

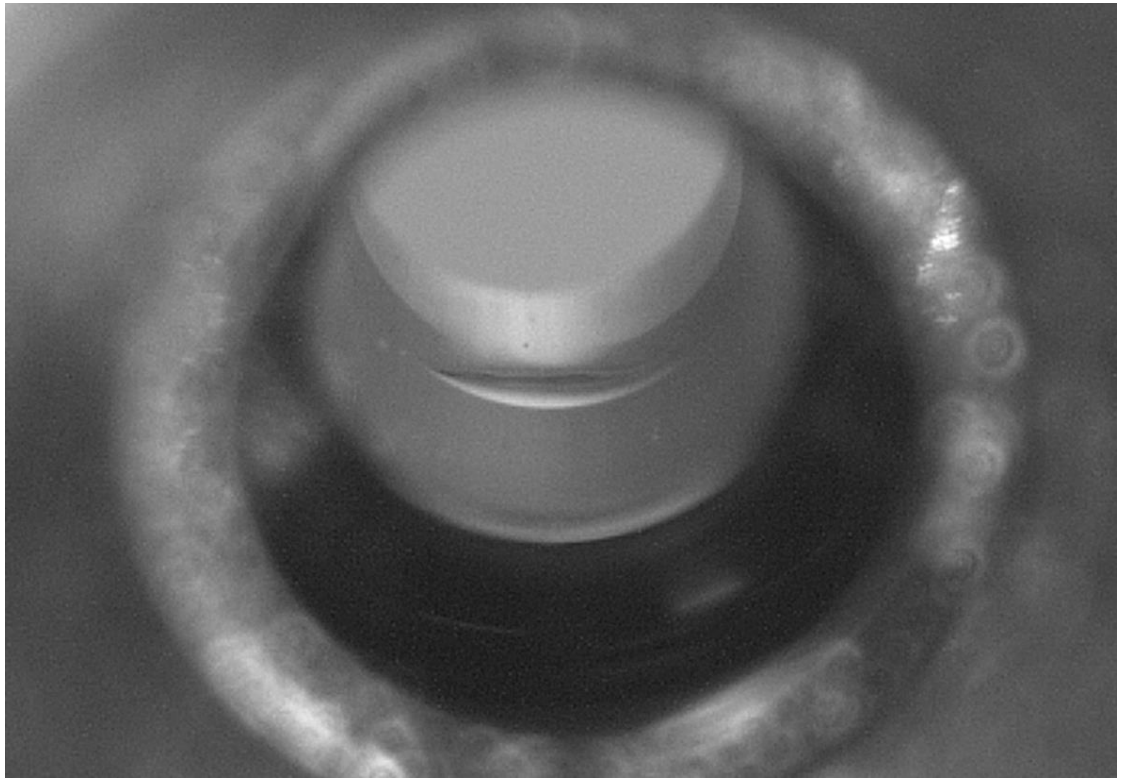
- Bearing
- Drawing angle
- Back relief
- Entrance and exit
- Stamping

ND drawing die – medium drawing ring

Drawing die after medium use:

- Touching point from wire into the die – perfectly to identify
- Medium drawing ring but deep
- Damage to se in the bearing
- Result:

– Recut on the complete geometry
– New diameter has to produced
– After this: - like a brand-new die



ND drawing die – big damage

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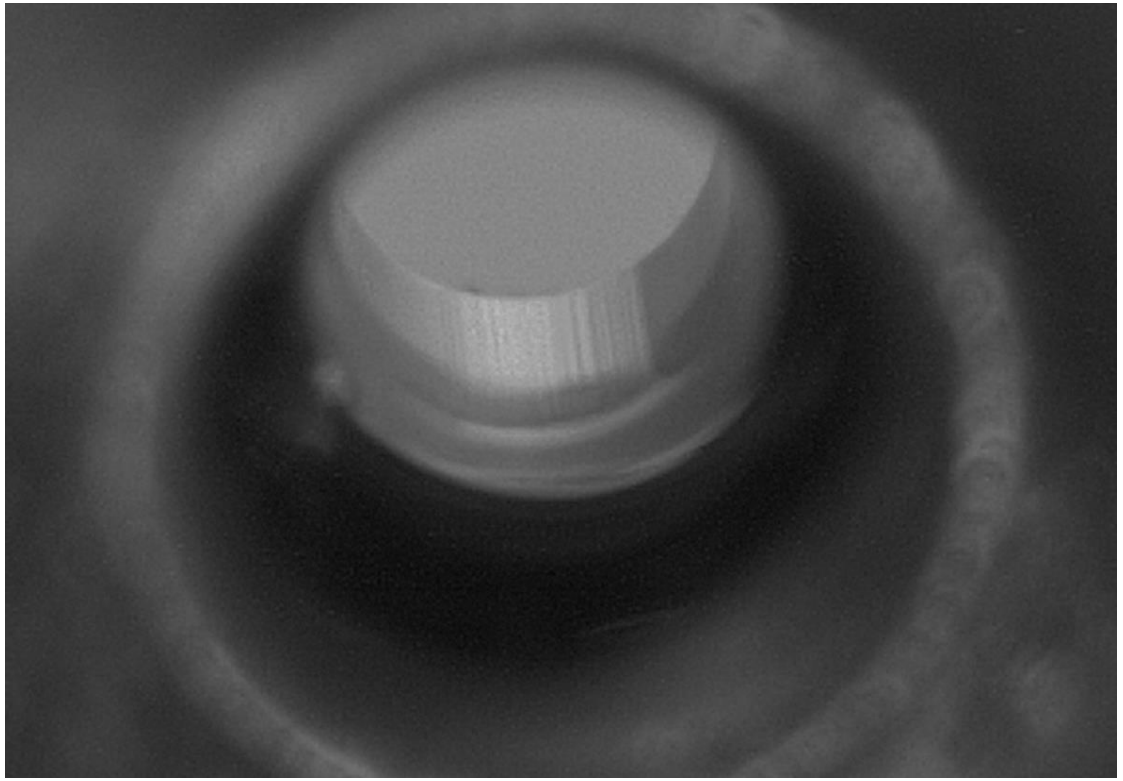
Optical checking:

- Deep and very big drawing ring
- Fines from copper has damaged the bearing – this is to see on the wire surface.
- Possible to rework the die
- Not on the next step in the drawing die set but eventually the next/next position



Analysing of a drawing die

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Optical checking

- Mikroscope MicroCam from Balloffet
- Actual situation
- Questions – share the file with your expert and contact the technical support
- Internal documentation
- Identify your situation on the drawing machine

➢ Ovality drawing ring
➢ Breackage on dies
➢ Not enough cooling
➢ To much dust and fines

Repair of a drawing die

Analysing of a drawing die – PCD die

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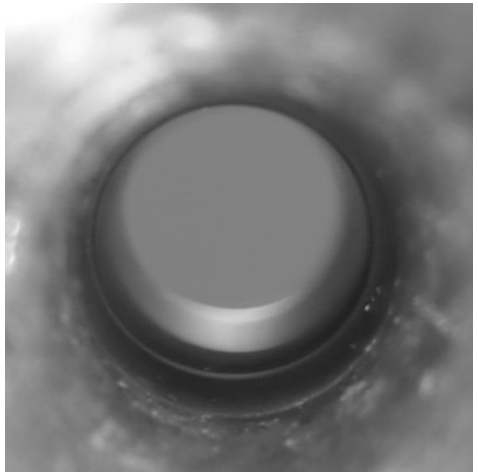
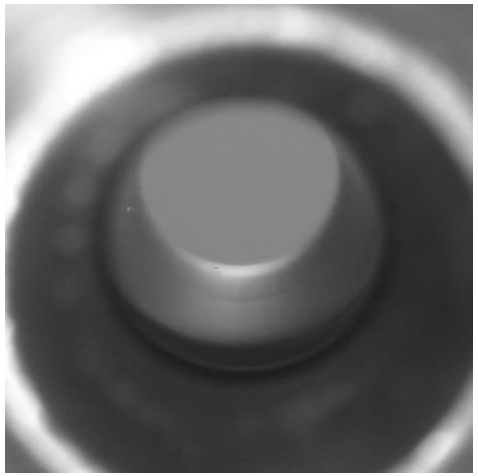
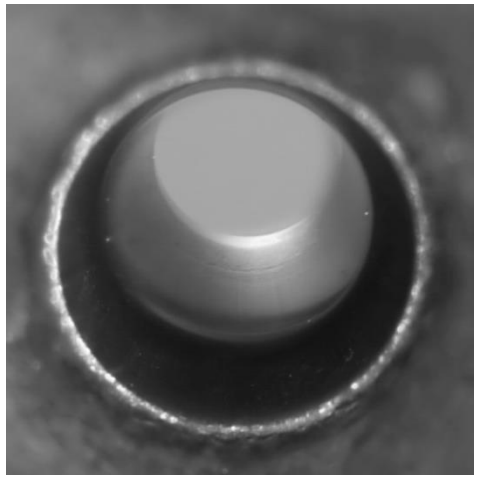
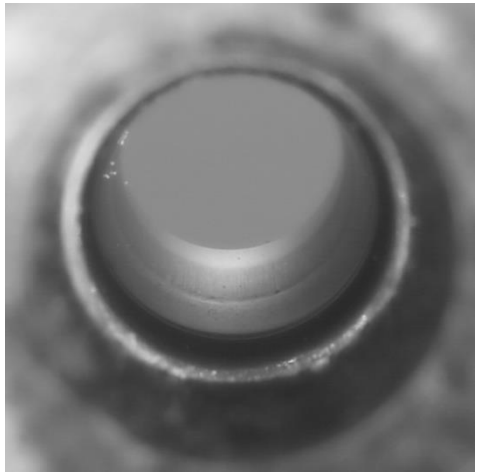
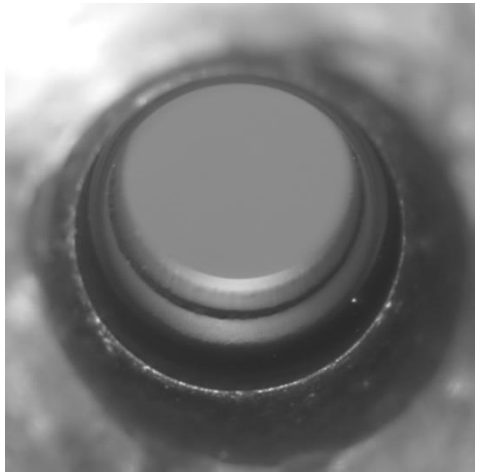
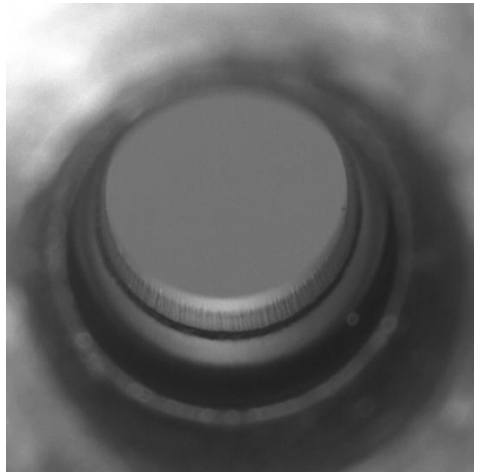
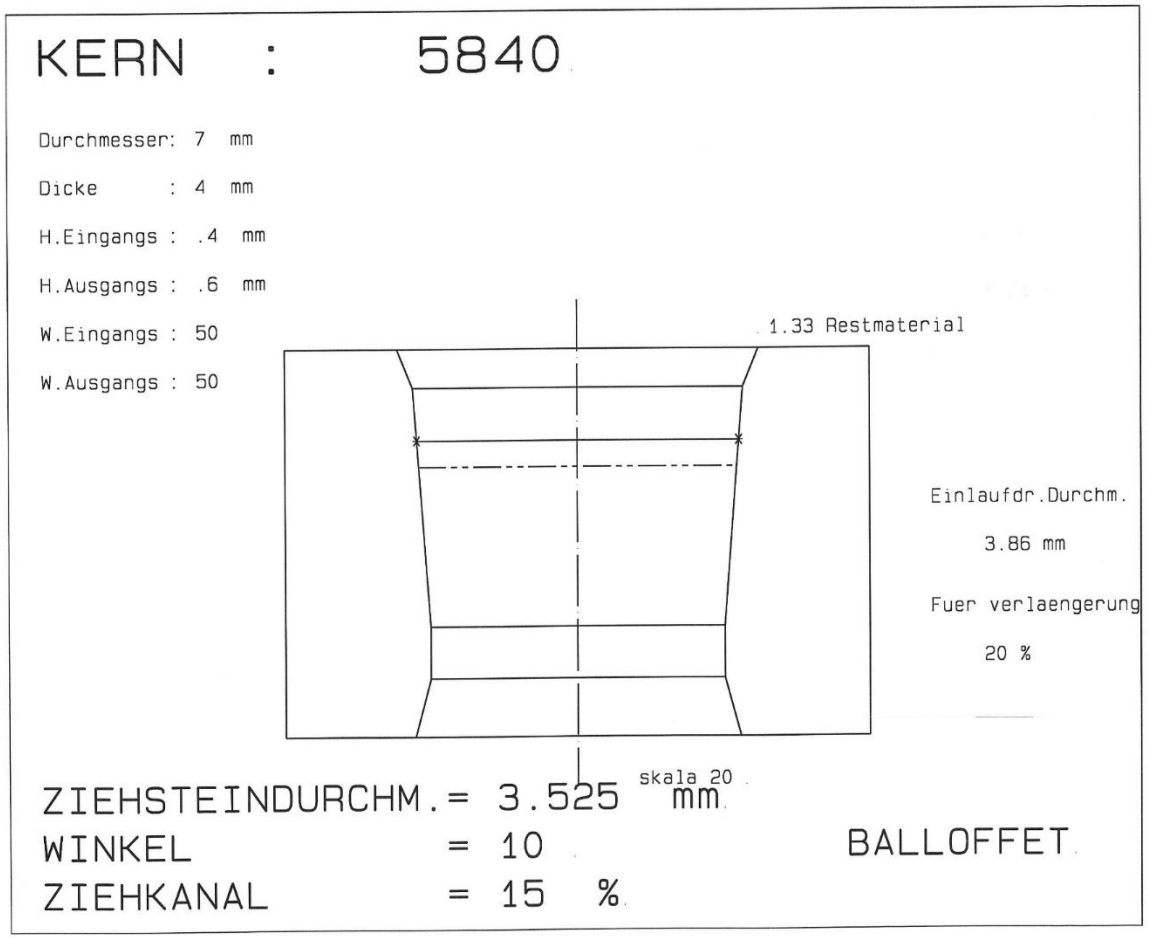







Analysing of a drawing die

Balloffet Ziehstein – ready for use



Sustainability in daily use

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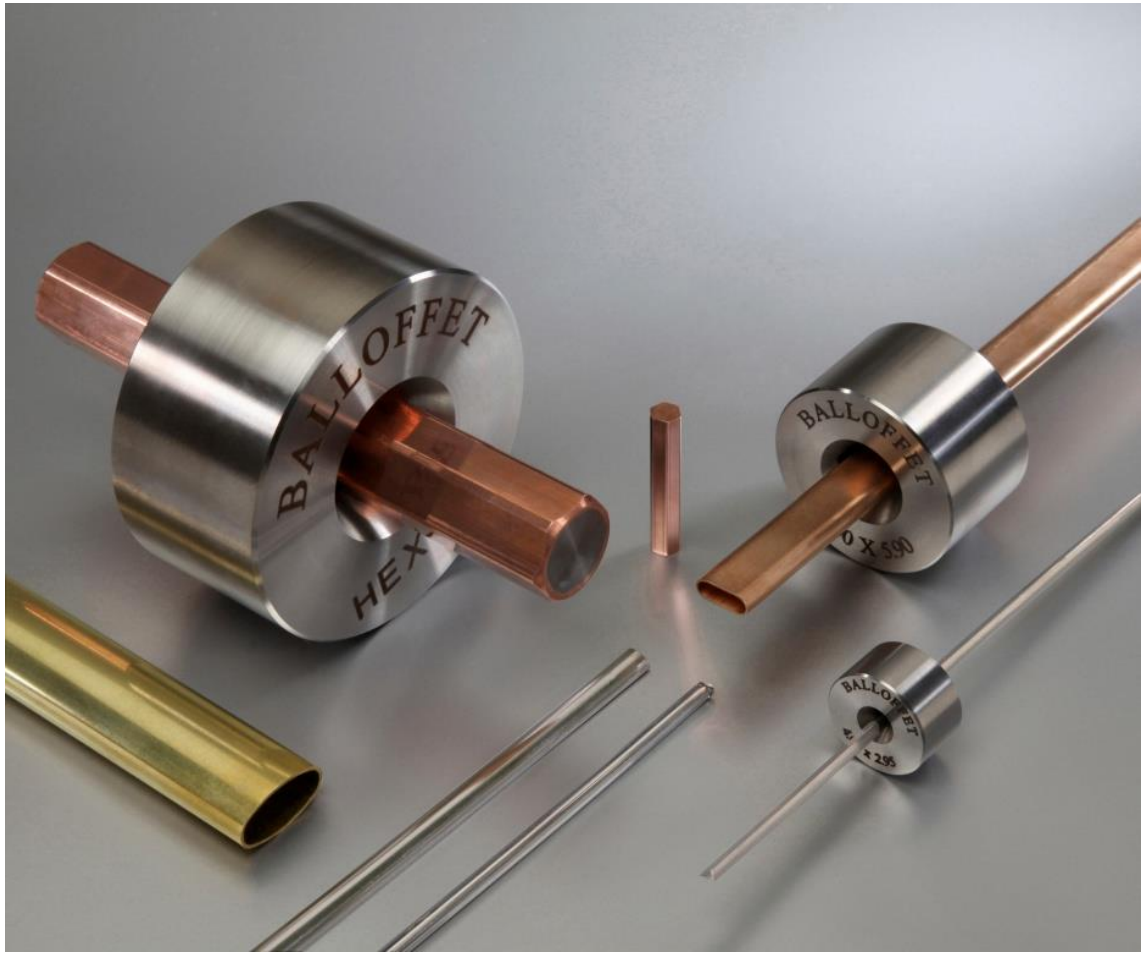
- Drawing dies can be used for new applications
- Special in new and coming mobility applications

- **<u>Shaped wire – Non Ferrous applications</u>**

❖ E – Mobility for cars
❖ E – Mobility for trucks
❖ Energy - transport
❖ Medicine technology
❖ Aeronautic
❖ Endless variations and possibities



Starting from round wire to a half round wire

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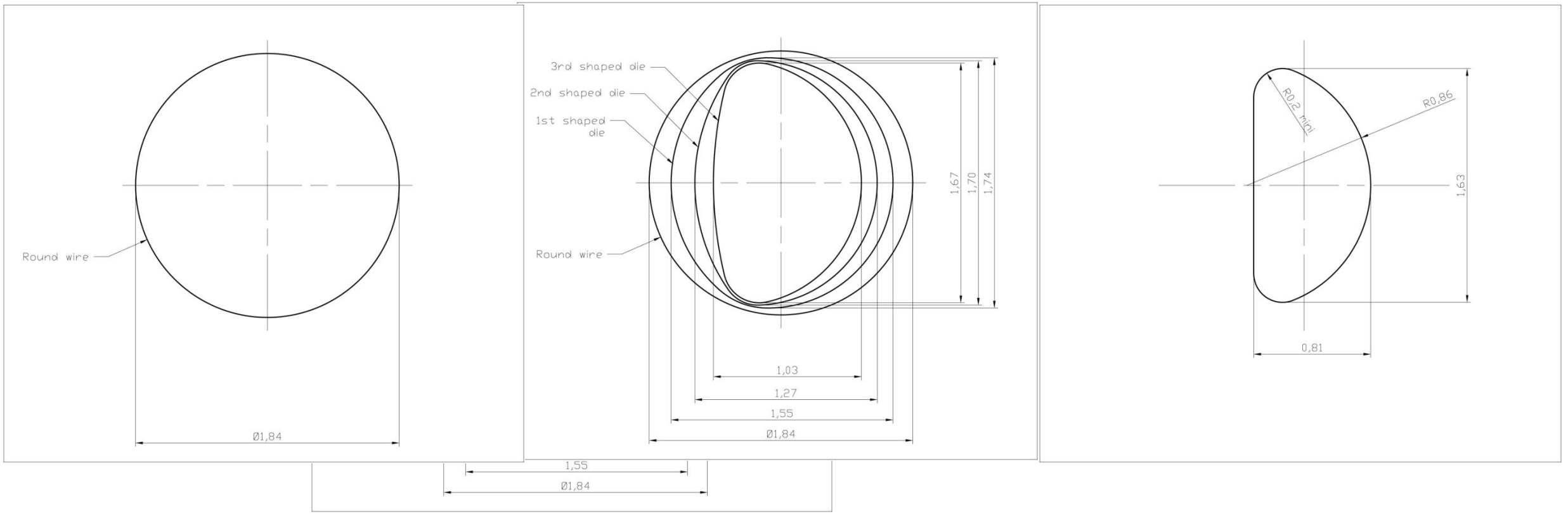

BALLOFFET is supporting you to install this technology from inlet wire to finished product

Starting from a round wire to a rectangular wire

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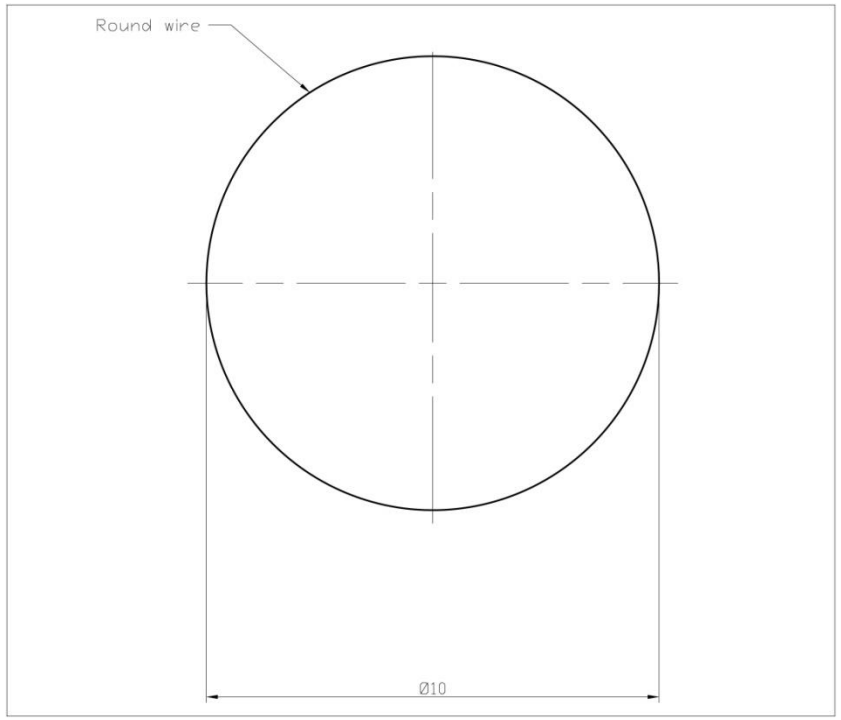
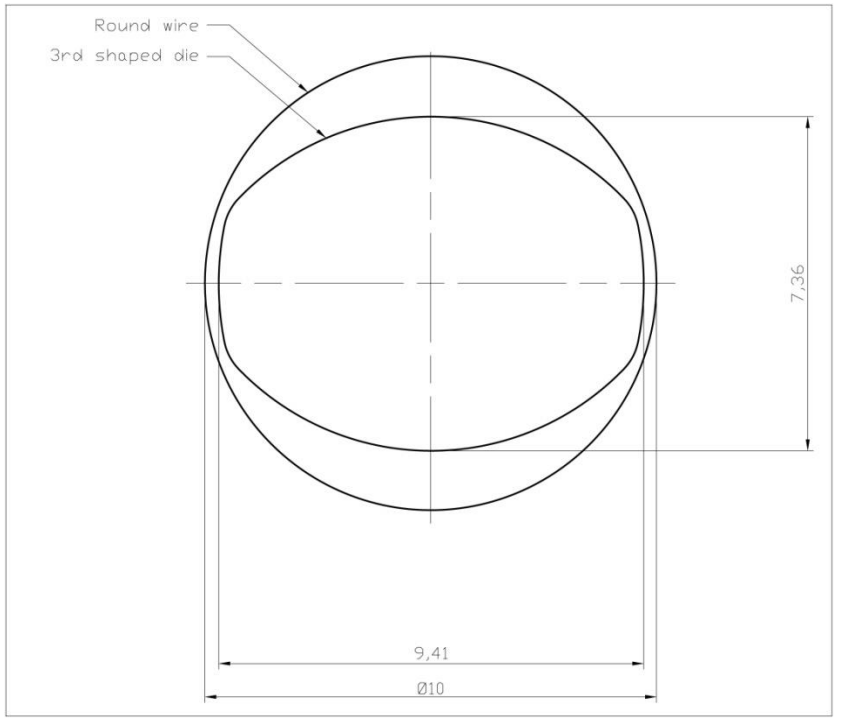
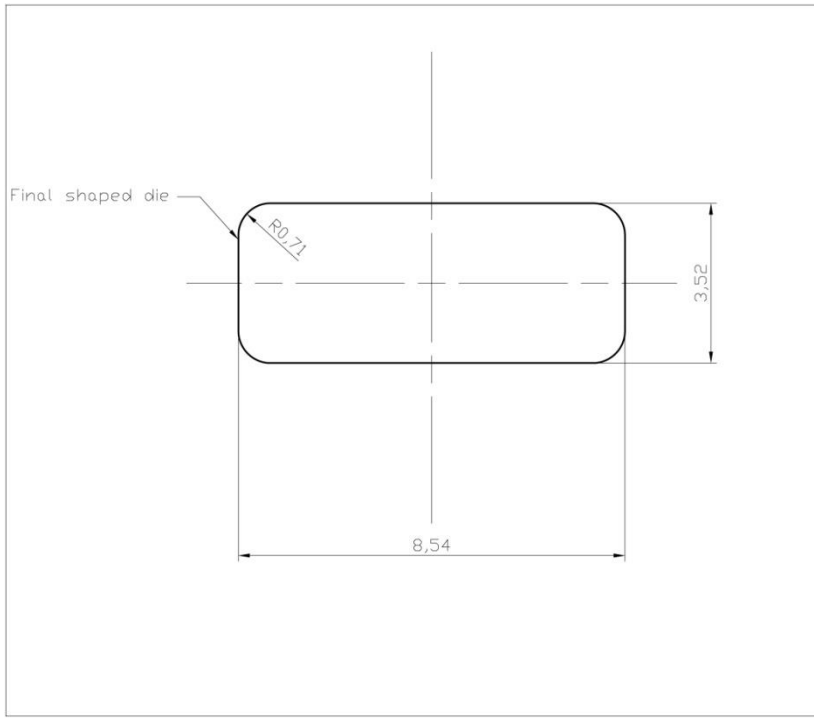
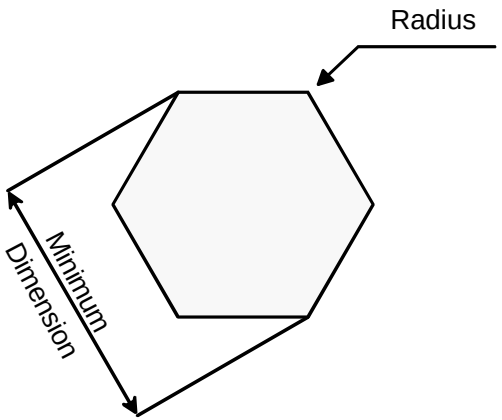






BALLOFFET is supporting you to install this technology from inlet wire to finished product

Standard sizes and tolerances

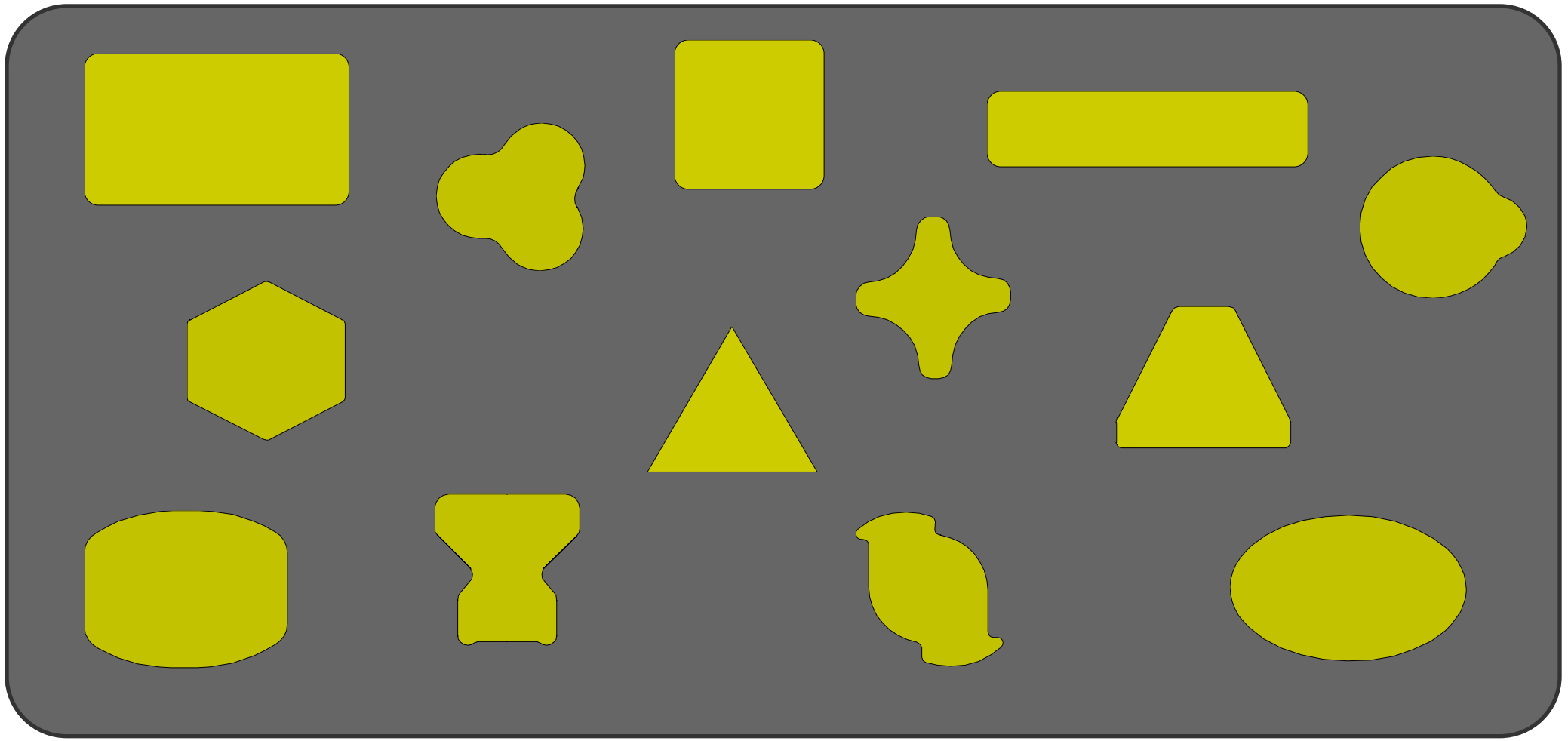


	SSCD	PCD
Minimum	**0.020 mm**	**0.80 mm**
Maximum	**1.00 mm**	**25.00 mm**
Minimum radius	**< 0.01 mm**	**0.06 mm**
Standard tolerance	**2 µm bis 5 µm**	**5 µm bis 10 µm**

Minimum / maximum size and radius accordant to the ratio (hight and wight)

Specific request can be studied by BALLOFFET

Shaped dies / Form dies



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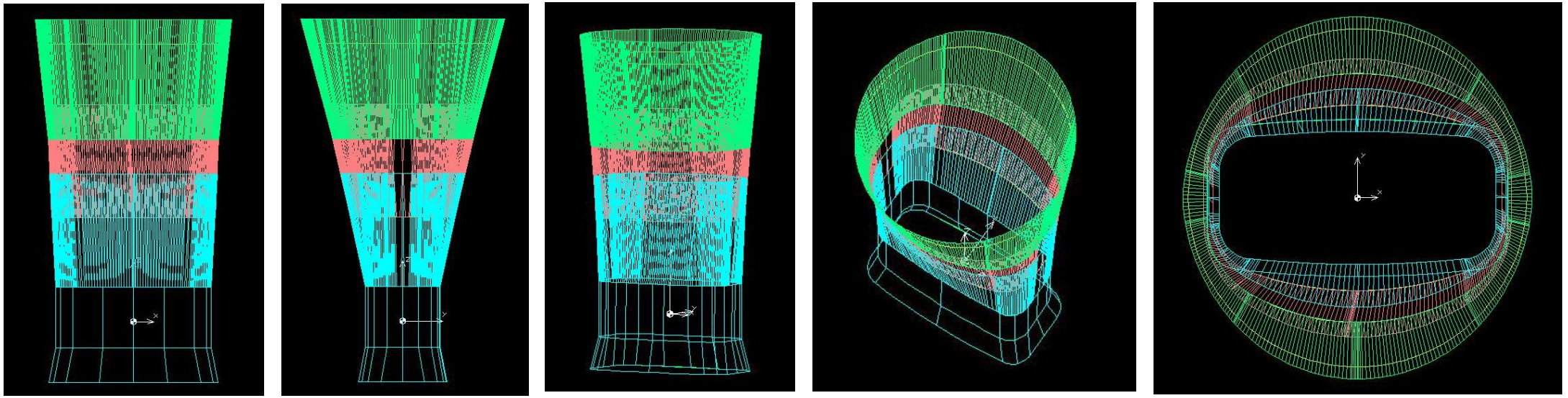
Shaped dies / Form dies



« Highly developed technology for highest and precise Anwendung »

Shaped die control

Checking the internal shape / sizes / tolerances

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Made by :	H. MORENO	Control report	
Approved by	P. JOFFRAUD	Drawing number	Rev
		BALLOFFET order	date

Control equipment		Vision	Vision	Vision
Dimension		6.550	6.550	6.550
Caract.				
Nominal		4.860	4.860	4.860
Tol sup		30µ	30µ	30µ
Tol inf		0.000	0.000	0.000
Measurment	1	4.866	4.865	4.865
	2			
	3			
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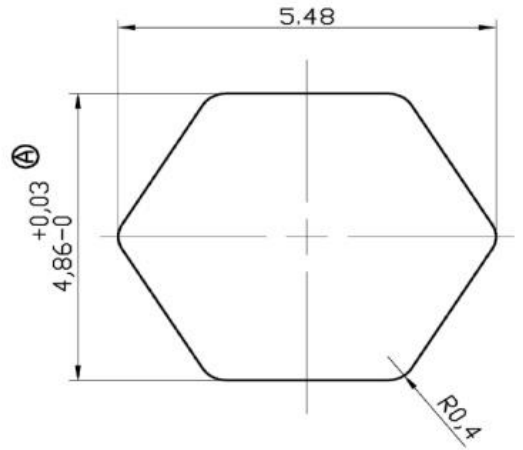
	20			
ΔMean/target				



Dimension	Comments

www.balloffetdie.com