



**DIAMOND DIES & TOOLS  
MACHINES & EQUIPMENT  
EXTRUSION TOOLING**



[balloffetdie.com](http://balloffetdie.com)

# DIAMOND DIES - Ø 36 ▶ 0.006 mm



## Diamond dies

- Single Crystal Natural (NSCD)
- Single Crystal Synthetic (SSCD)
- Polycrystalline (PCD)



## Drawing applications

- Multiwire machines (down to Ø 0.05 mm)
- Intermediate drawing machines
- Rod breakdown machines

### All metals:

Copper, aluminum, stainless steel, alloys, coated wire, welding wire ...



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## Other applications

- Tubes and bars drawing Dies
- Stranding/compacting dies
- Diamcoat® Nano-Coated dies (up to Ø 80 mm)
- Enamelling diamond Dies



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Die sequence calculation based on machine elongation



Advice and die design according to application



Elongation control



Size and geometry Report



Custom-made casing and marking



Emergency die supply on demand



# FINE & ULTRA FINE DIES - $\varnothing < 50 \mu\text{m}$

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- Elongation control
- $\varnothing$  control on wire (laser - weight measurement)
- Custom-made casing and marking
- Shaped dies
- Refurbishing

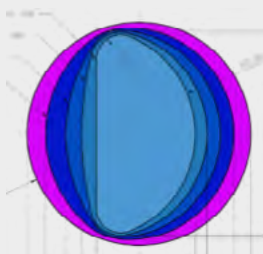
## Very high accuracy

- Diameter down to **6.7  $\mu\text{m}$**
- Tolerances down to **0.2  $\mu\text{m}$**
- Dedicated workshop
- Wire straightness
- Superior surface finish

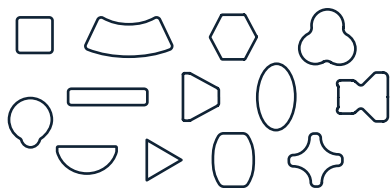


## SHAPED DIES

- Any shape
- From a round or pre-shaped wire (rolled or drawn)
- SSCD or PCD Diamond
- In substitution or in addition to rolling



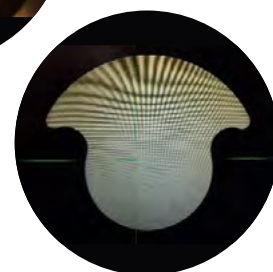
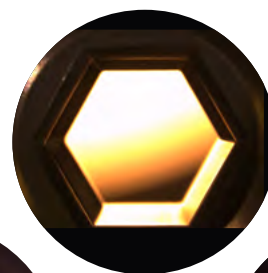
CHARACTERISTICS	SSCD	PCD
MIN. DIMENSION	0.020 mm	0.50 mm
MAX. DIMENSION	1.00 mm	25.00 mm
MIN. RADIUS.	< 0.01 mm	0.06 mm
STANDARD TOLERANCES	2 $\triangleright$ 5 $\mu\text{m}$	5 $\triangleright$ 10 $\mu\text{m}$



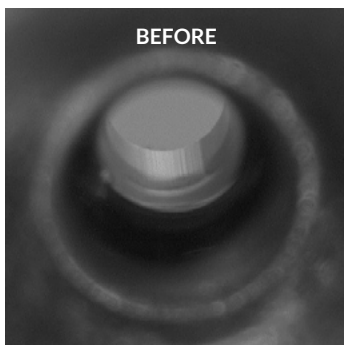
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- Dies sequences calculation by Balloffet
- Dimensional control report
- Custom-made casing and marking
- Carbide prototypes

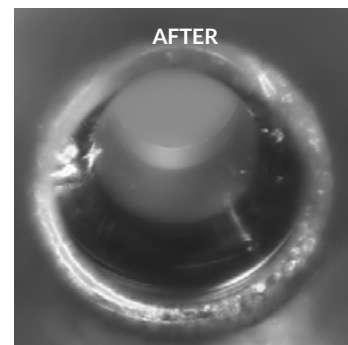


# REPOLISHING - RECUTTING



## Refurbishing adapted to each die

- Simple Repolishing to size or diameter change
- Dedicated profile
- Dies from any manufacturer



## Refurbishing of any type of die

- Diamond die (SSCD-ND-PCD)
- For Rod breakdown, intermediate or multiwire machines
- Tubing, stranding, compacting dies



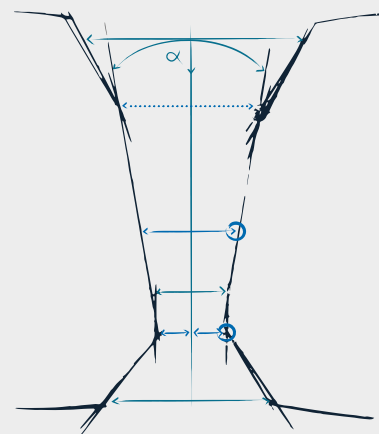
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WATCH  
THE VIDEO

## Complete geometry recut

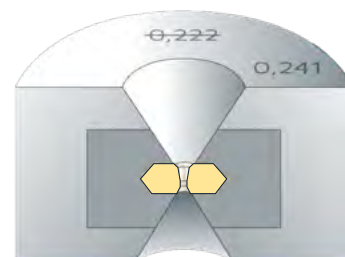
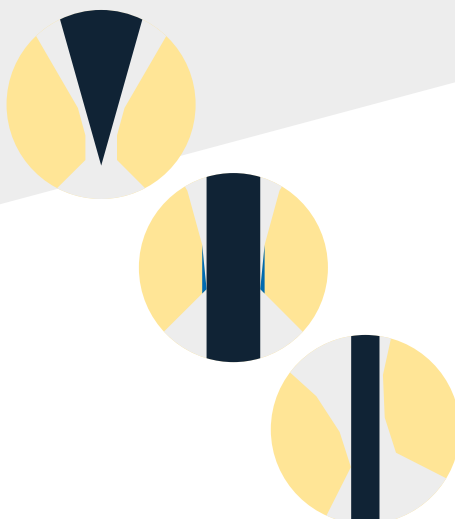
- Same process as for new dies
- Ultrasonic machining of internal angles
- Die diameter wire adjustment
- Adapted geometry



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- Quick turnaround die repair service
- Die wear analysis
- Technical reports upon request
- Advices on dies maintenance and management
- Elongation control
- Marking renewal upon request
- Specific packaging, by set or diameter



LIKE NEW

# EQUIPEMENT & TRAINING

## Ultrasonic machines

Angles adjustment

- BD 140 VGA evo2 automatic - Shaping and Polishing  
Ø 0.15 to 2.5 mm
- Needle Press (Exclusive fitting system)

RANGE	POLISHING	SHAPING & POLISHING SEMI-AUTOMATIC
Ø 0.10 ▶ 3.0 mm	BD 140 M	BD 140 SA
Ø 0.10 ▶ 4.0 mm	BD 200 M	BD 200 SA
Ø 1.50 ▶ 9.0 mm	BD 500 M	BD 500 SA



BD 140 VGA evo2



BD 140 SA

## Wire machines

Diameter adjustment

- RF 06 - 1, 2 or 3 heads  
Ø 0.25 to 3 mm
- RF 15 - Ø 1.5 to 9 mm
- AJF 97 - Ø 0.01 to 0.1 mm



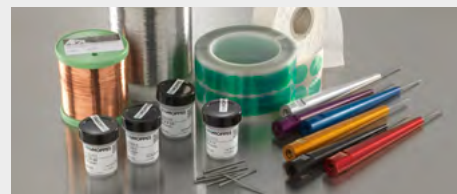
RF 15



RF 06-3

## Consumables & Spare parts

- Diamond powders, needles, needle holders, grinding wheels, sizing wire ...
- Mechanical, electrical, electronic spare parts ...



## Cleaning equipment

- Ultrasonic cleaner UC 515 - 2 L
- Ultrasonic oscillating cleaner UDC 2728 - 25 L
- Extrusion tools cleaning device - ETC 12



UC 515

## Control equipment

- Microscopes:  
BB ZOOM - Ø 0.05 up to 12 mm - x110  
BN 120 - Ø 0.025 up to 2 mm - x120  
Microcam - Ø 0.05 up to 12 mm - x110
- Visiodiam 3:  
Diameter and roundness measurement - contactless.  
Drawing and enamelling dies, diamond or carbide.  
Customizable range (min Ø 0.05 mm - max Ø 8 mm)
- Pulling bench VP 505 - Elongation bar

BB ZOOM



VISIODIAM 3



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Die analysis and investigation report  
Assistance on die-shop  
set-up / expansion

Exclusive needle fitting system

Balloffet customer service

Start-up and maintenance  
by our engineers on request

Balloffet warranty

Second-hand machines  
upon availability

## Technical trainings

- Die geometry
- Optical die analysis
- Refurbishing process
- Balloffet equipment use and maintenance
- Extrusion tools expertise and maintenance





# EXTRUSION TOOLING

- Guides, tips
- Dies
- Breaker plates
- Nitrogen injectors



- Diamond Insert
- Carbide Insert
- Solid carbide
- Steel, hardened steel
- Diamond coated steel
- Hastelloy

## Diamond Guides

- Up to Ø 4.5 mm
- High concentricity
- Sintered mounting
- Long lifespan

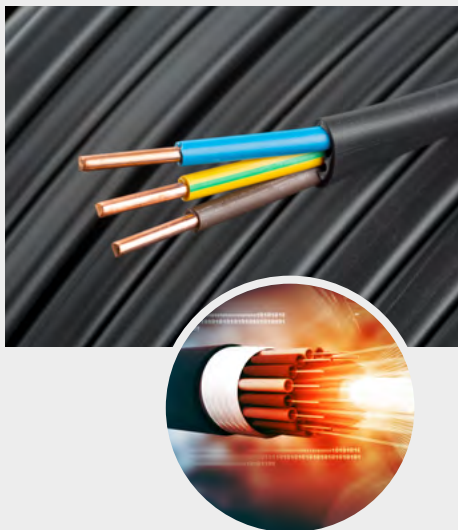


Insulation: Compression / Semi-compression  
Ranges: 2/6 - 4/6 - 12/14



Foaming / Tubing  
Ranges: 2/6 - 4/6 - 12/14

6



- Low, Medium, High and Very High Voltage
- Automotive, data, signal, railway, aeronautics, fibre optics, submarine, special cables ...
- Flat or coaxial cables
- PE, PTFE, PU, PVC, HFFR, XLPE, Rubber ...



## Cleaning

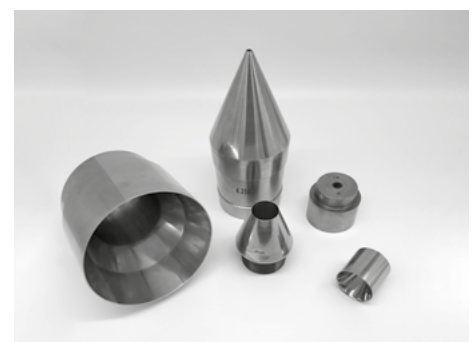
## Custom-made tools

Up to Ø 350 mm

BEFORE



AFTER



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- Cleaning service
- Cleaning machine
- Mirror-polished surface finish
- Tight tolerances, concentricity
- Custom-made casing and marking

# HP DIAMOND WATERJET NOZZLES

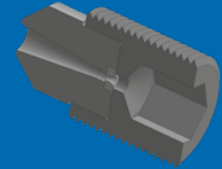
## Cutting

- Pure water or with abrasive
- Range 20  $\mu\text{m}$  up to 0.6 mm
- Jet cohesion
- Pressure up to 6300 bars
- Up to 1500 h working time



## Hydroblasting - Hydrodemolition - Cleaning

- Range 0.1 up to 3 mm
- Pressure up to 4500 bars
- Up to 1500 h working time
- Recommended for robot



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## Other applications

- Paper pulp cutting nozzles
- Contouring nozzles
- Flat jet nozzles
- Painting nozzles



- Unit or mass manufacturing
- Suitable for all machines
- Lifespan: 20 to 50 x sapphire
- Possibility of trials
- Manufactured to drawing or reference design

# DIAMOND TOOLS & ON-DEMAND JOB

## Diamond tools

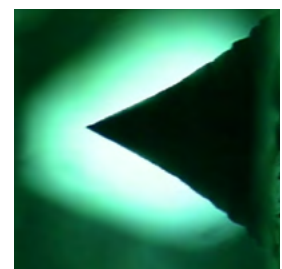
- Coating dies for technical textiles
- Diamond pinholes for high-intensity laser beams
- Diamond Anvils (natural or PCD)
- Injectors
- Atomizers
- Flow and flow control Dispensers
- Control and regulating Orifices
- Ball seats or valves for abrasive environment



## On-demand job

Ultra-hard materials machining, drilling, polishing:

- Diamond
- Ceramics
- Zirconium
- Quartz
- CBN
- Silica
- ...



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- Custom-made job to supplied drawing
- Possibility of trials
- High precision
- Long lifespan

**+ 90 COUNTRIES**



Conception: artenum® - 06/2021



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