

Comprehensive component performance
by **INNOZL**TM
TECHNOLOGIES



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- ✓ INNOZL™ CD (Customer design)
- ✓ INNOZL™ STL (standard line)



Customer benefits

- Coolant is reaching contact area
- To almost no grinding burns
- Higher production capacity (fast grinding)
- Less spindle power consumption
- Increase of tool life (grinding wheel)
- General reduction of coolant related productions costs
 - electric power
 - less coolant
 - smaller coolant and filtration units
- Gives an optimum design space
- Flow analysis for equal coolant speed per coolant outlet

Resulting in:

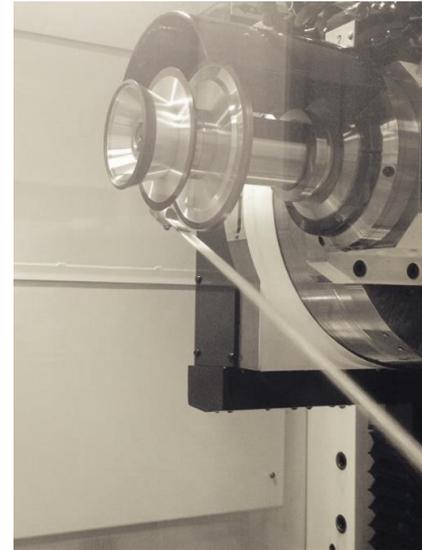
- Higher quality/price ratio per part
- Lifetime increase of parts
- Stress reduction in parts
- Quality increase
- Green and lean production



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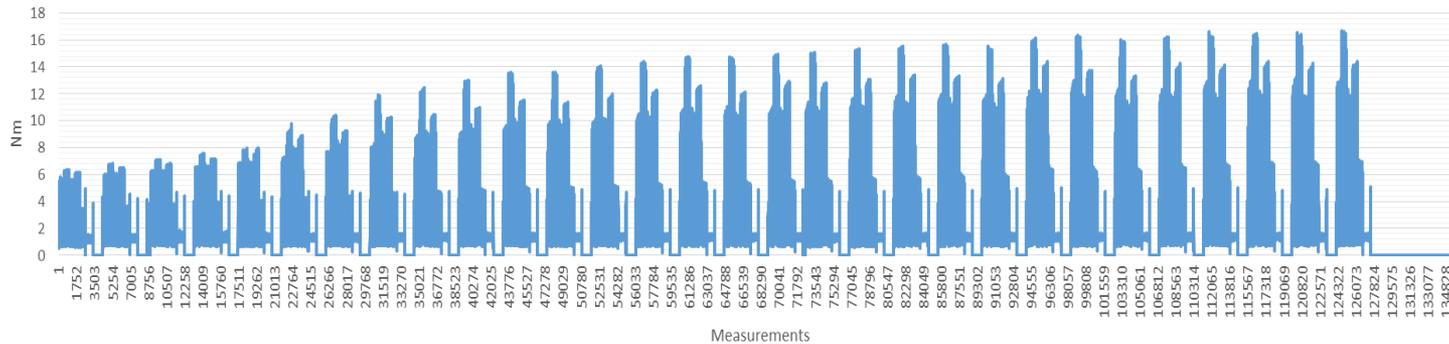
Design dedicated to the process need, no coolant waste



Power draw

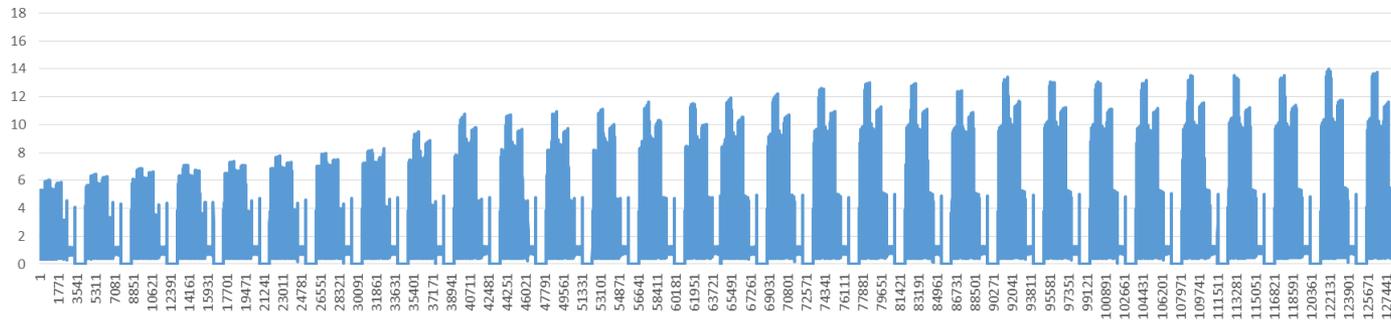
30 pieces 190 mm/min before INNOZL using 186 l/min and 5 loc-line nozzles

1-30 Current system 190mm/min



30 pieces 190 mm/min after implementing 1 INNOZL, using 76 l/min

1-30 Innogrid Nozzle 190mm/min

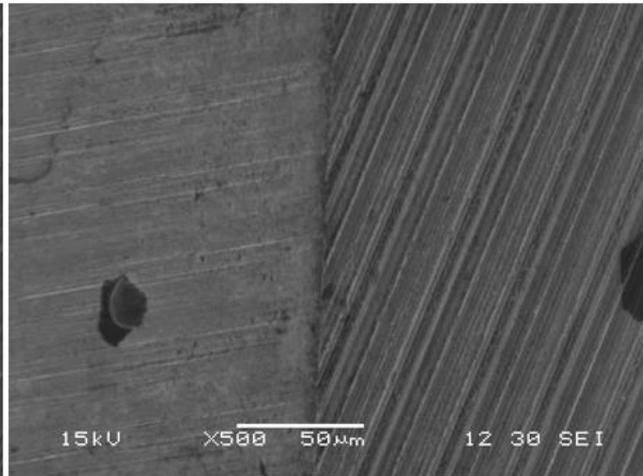
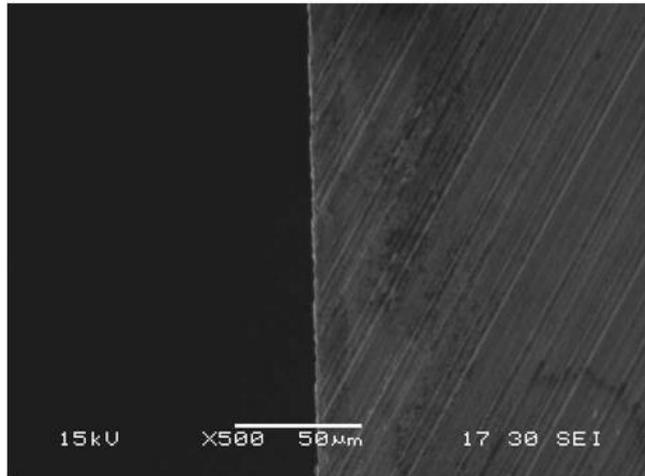


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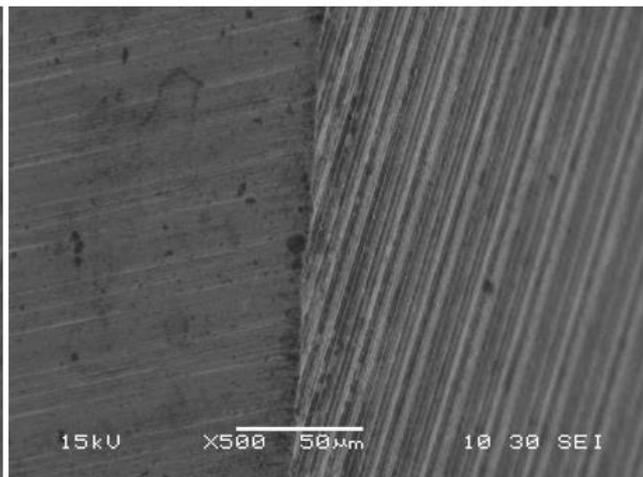
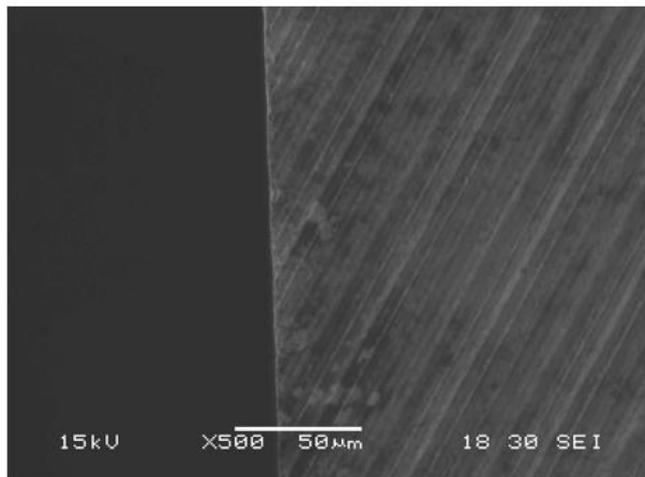
Customer approach 250 mm/min

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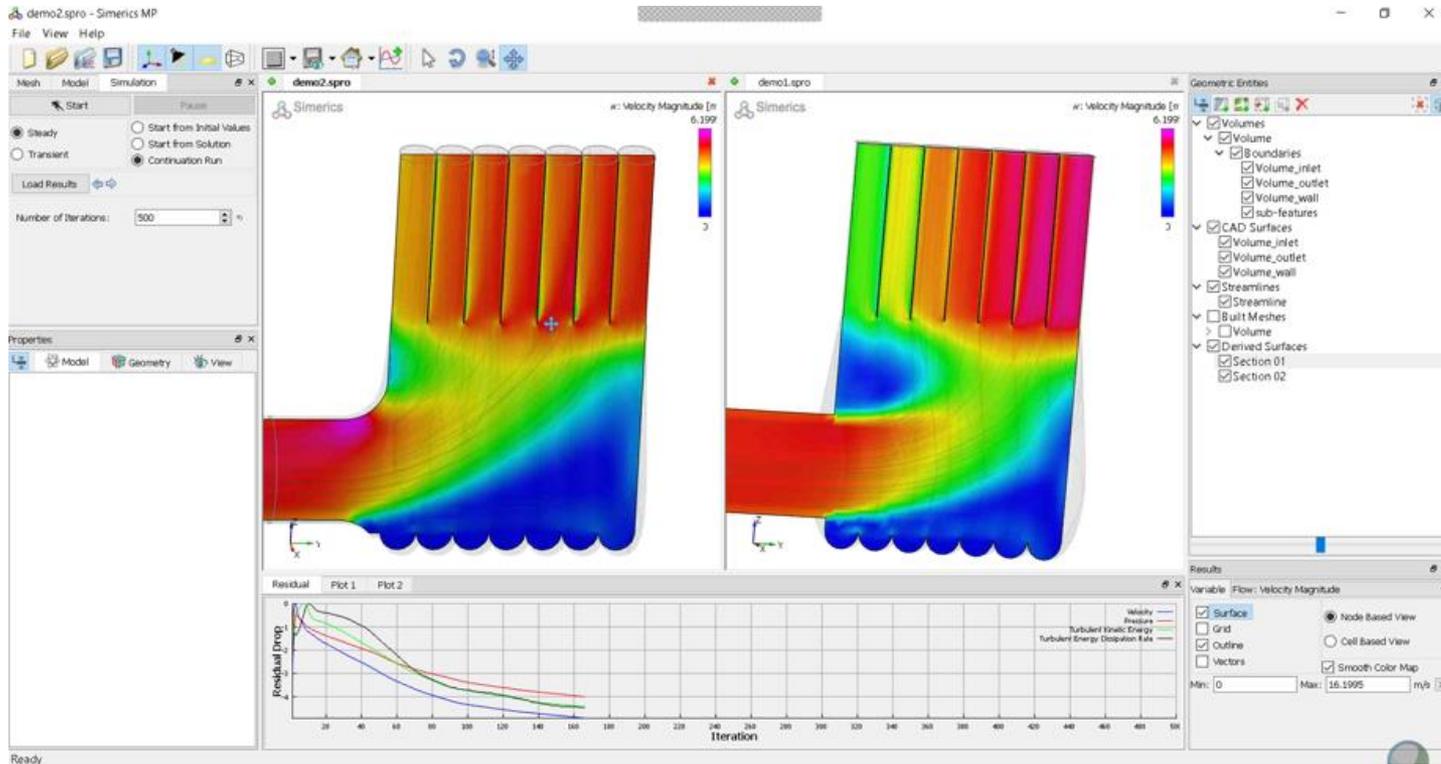


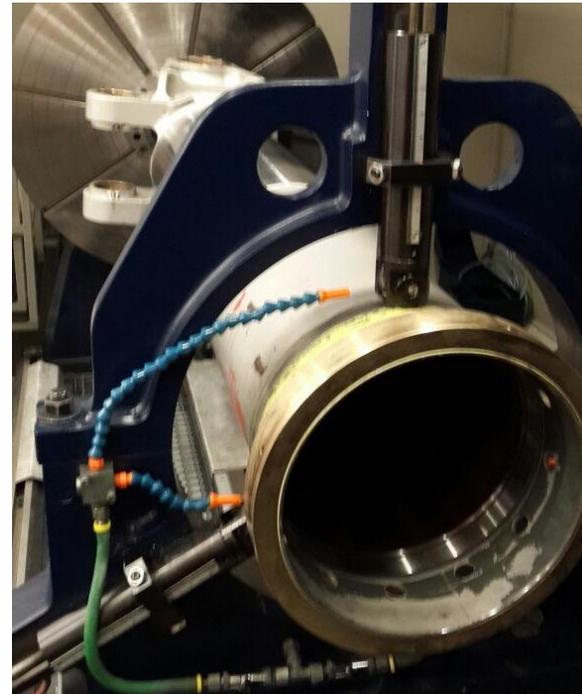
INNOZL 250 mm/min

INNOZL 250 mm/min



Flow analysis

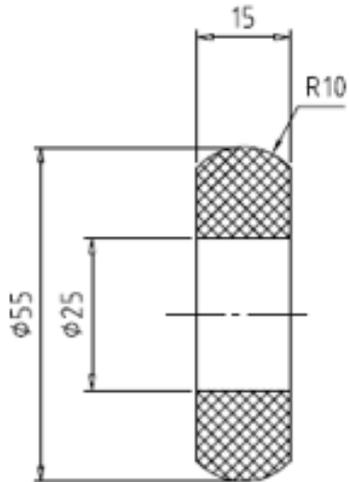




Optimized coolant conditions ID grinding



Design profile ID grinding

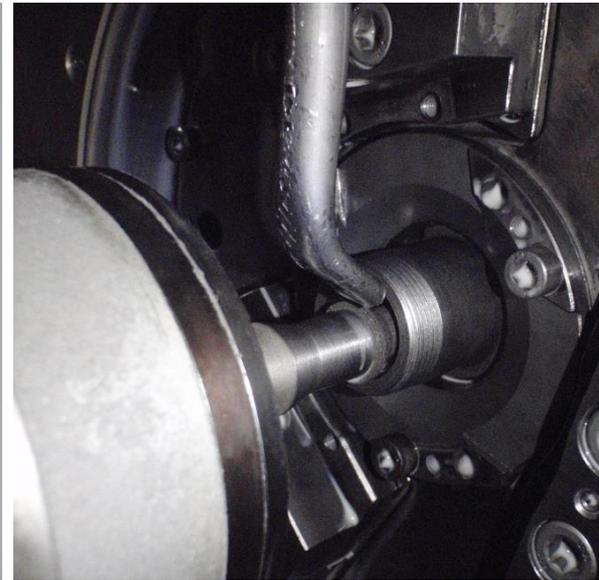
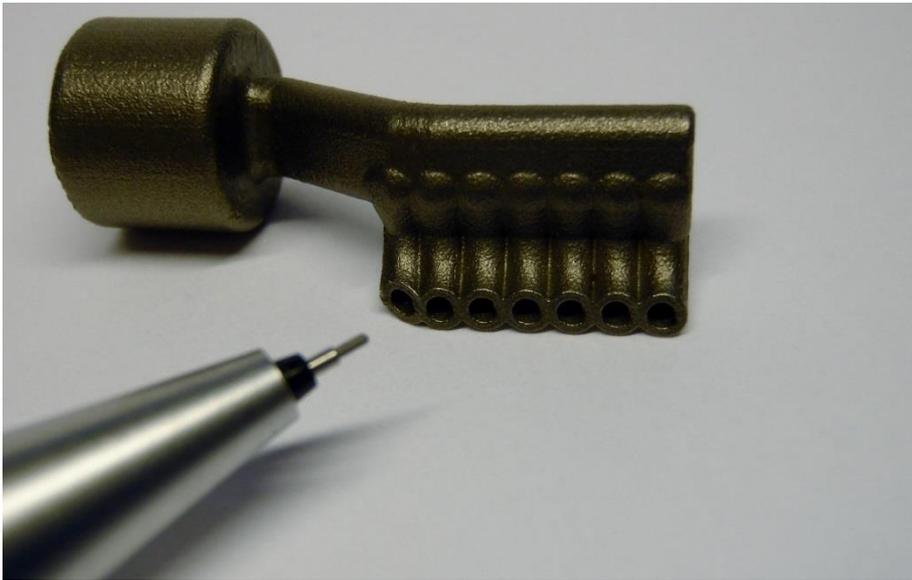


Optimized coolant conditions ID grinding, also for profiled grinding wheels

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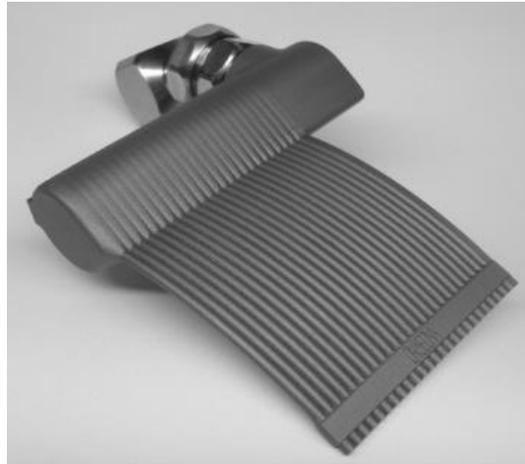
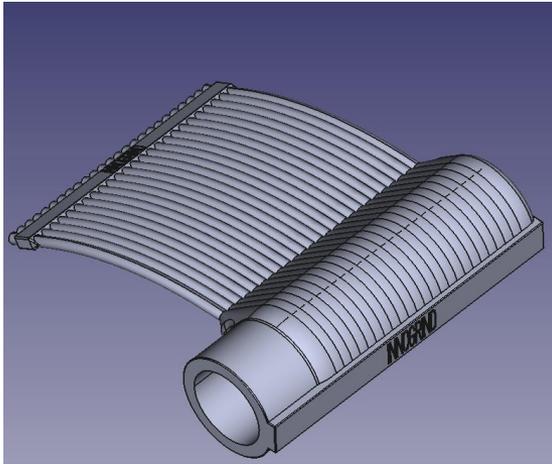
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Design ID grinding on Buderus

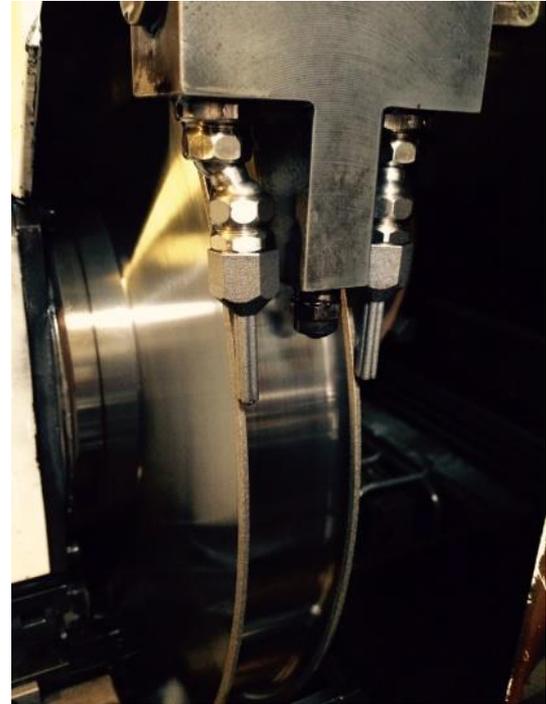
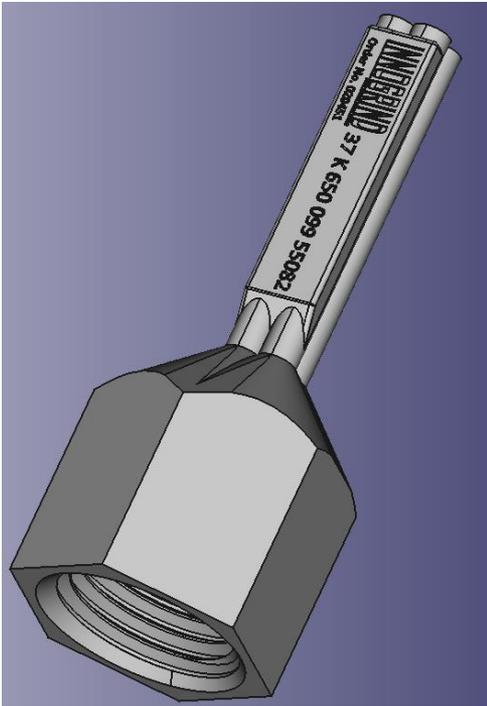


Optimized flow and coolant speed for narrow chambers

Design for ID grinding



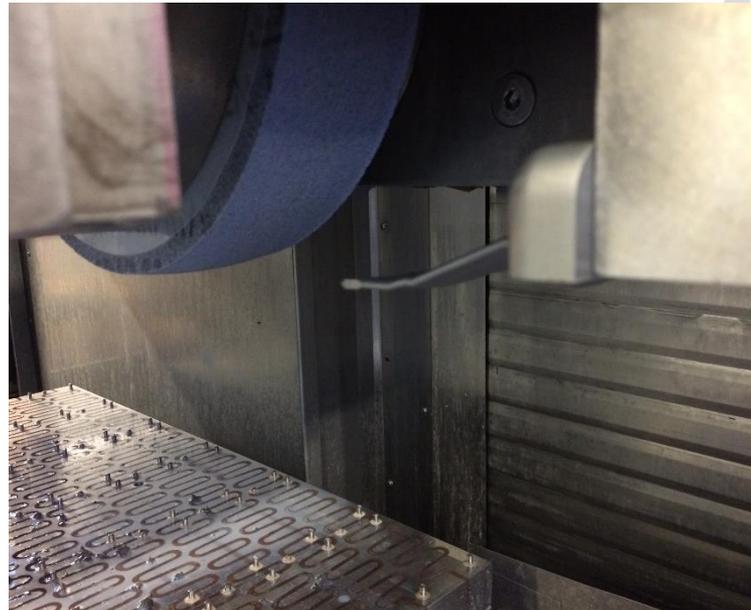
Design for Junker



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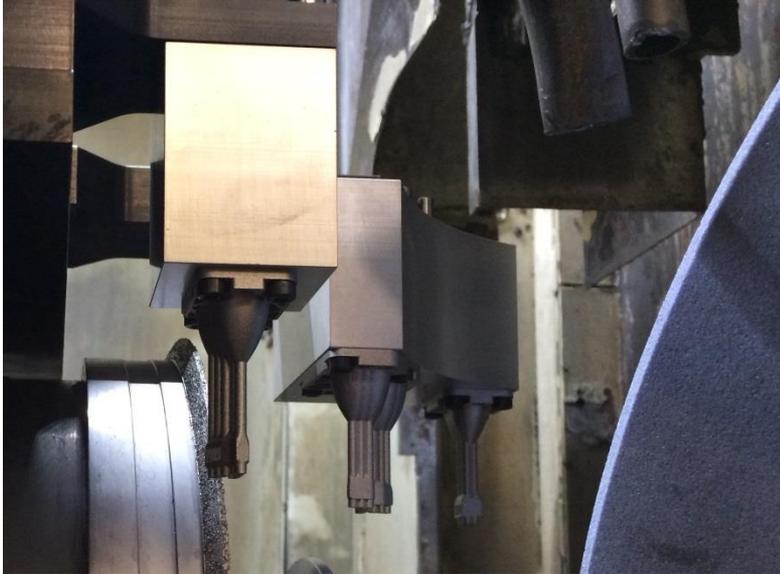
Design and retrofit for ELB



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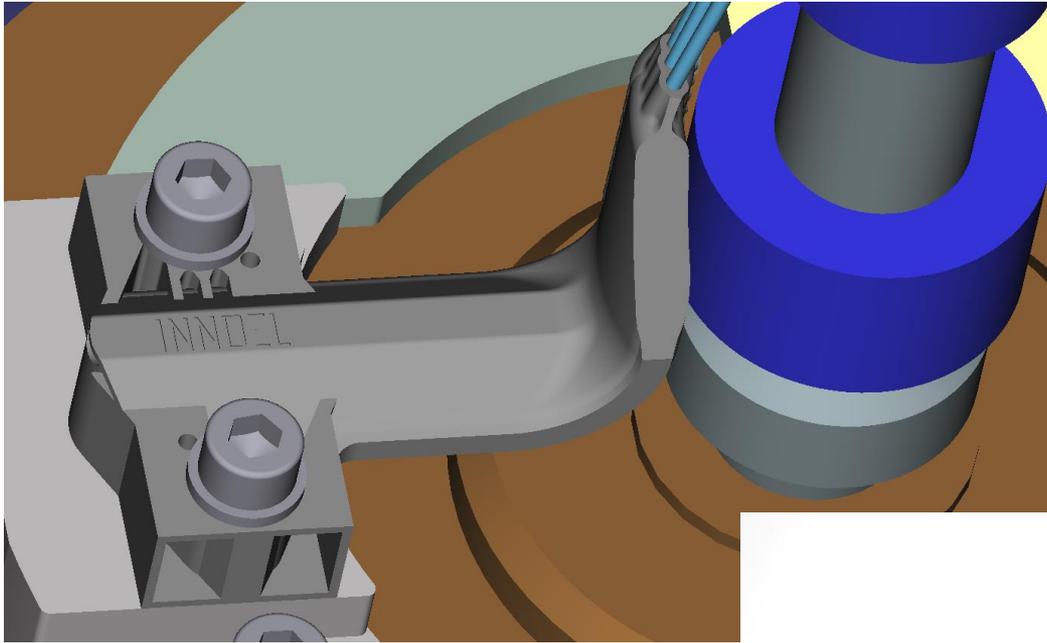
Design and retrofit for EMAG



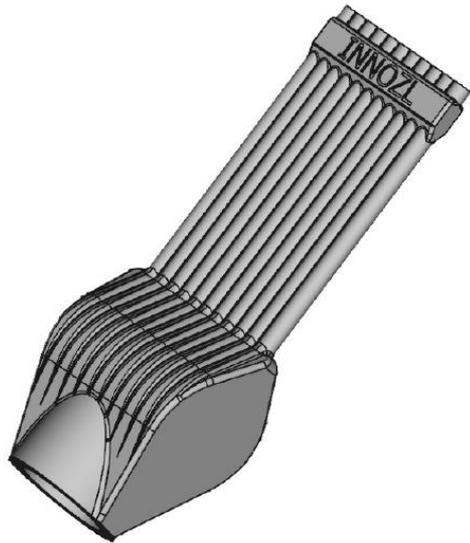
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Design for EMAG ID grinding



Green solutions by adapted INNOZL™ STL (Standard Line)



Standard dimensions:

Widths: 15-20-25-30-40-50-60-80-100

Total Height: 85mm

Thread: 3/8G

Attack angle: 5°

Material: Titanium

Operations:

Surface grinding

Cylindrical grinding

Centreless grinding



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Piston Pins



Universal Joints



Fuel injection
nozzles



Camshafts

*All hardened and
ground components*



Bearings



Crankshaft



Landing gears



Gears

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Discussion points,

Questions?