DeSta microcut

waterjet
micro-precision-cutting

chances and possibilities

of a new

manufacturing process

If we evaluate a new cutting process we must answer a number of questions to understand the benefit of the innovation:

- What was the idea to innovate a new cutting process for micro parts?

- What is the difference between a conventional waterjet and our micro-waterjet?

- What is the difference between established micro cutting processes and our micro-waterjet?

- How can you get access to the benefits of this new technology?

What was the idea to innovate a new cutting process for micro parts?

•the machine technology we provide was developed in Switzerland by Waterjet AG, the leader in the European waterjet subcontracting market

•it was the customer‘s needs from the Swiss watch- and medical-industry that forced the development

• together with the Zürich and Bern Technical Universities, the whole waterjet-process was completely rethought

• at the end there was a high precision machine, completely different from conventional waterjet-machines

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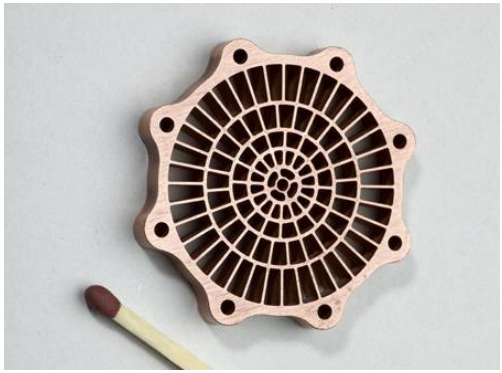
What is the difference between a conventional waterjet and our micro-waterjet (abrasive)?

	conventional waterjet	micro-waterjet
application	big plates any material	micro parts any material
cutting diameter	> 0.8mm	< 0.3mm
machine tolerance	> 0.02mm	0.0025mm
cutting tolerance	> 0.1mm	0.01mm (repeatable results!)
cutting surface	> Ra 5µm	up to Ra 0.8µm (N6)
machine concept	machinery building industry	fine mechanic, wire eroding machine



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What is the difference between established micro cutting processes and our micro-waterjet?

	micro waterjet cutting
limitations and problems	• on thicker parts lower accuracy • max. 50mm thickness • operation costs (jets, abrasive)
advantages	• any material (except diamond) • cold process, no thermal impact • no stress to the material • high surface quality • very little lap • very small bridge width possible •no tooling, small series and samples possible

	micro laser cutting
limitations and problems	•material: must resist the heat impact and must be non-reflective. • max. thickness approx. 2 mm • hot process •cutting surface: irritations and possible change in the micro-structure • cutting surface: sometimes slag+lap • cutting surface: „canyon“-structure • toxic gases
advantages	•fast (depending on the material) •flexible

	wire eroding
limitations and problems	• starting holes • very slow •material: must be electroconductive
advantages	• very accurate even on thick parts

	stamping
limitations and problems	• high tooling costs •very expensive on small and medium series • material must be stampable • limitations on bridge width • limitation on thickness
advantages	• very efficient when having big series

Other: micro-milling, etching

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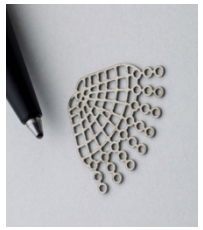
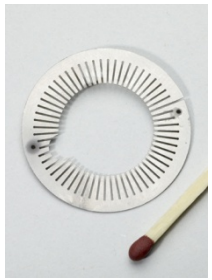
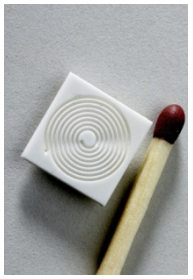
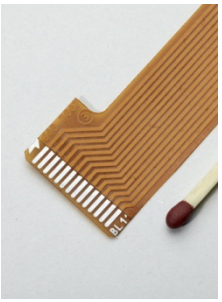
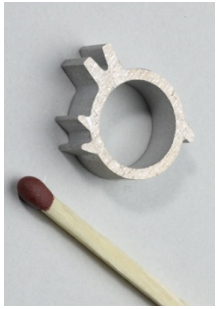
Applications and examples:

- medical industry
- electric industry
- optical industry
- machinery building industry
- automotive industry
- high performance sports and motor sports
- design, watch & jewellery industry
- aviation and aerospace industry
- general micro mechanics and fine mechanics





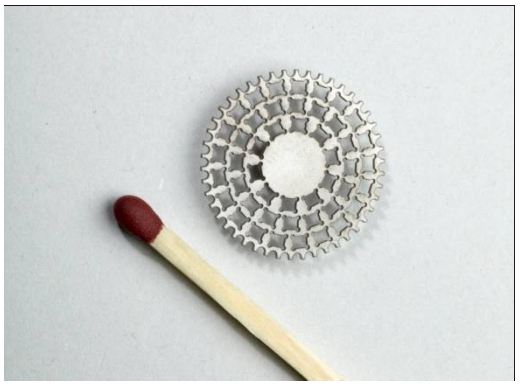

SUMMARY:

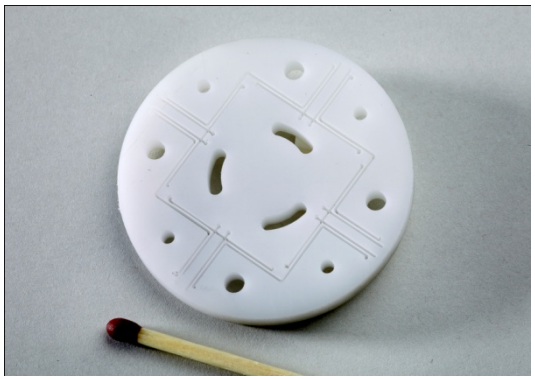
⇒ waterjet micro-precision-cutting is an addition to established cutting processes

⇒ where established processes have limitations and problems, waterjet micro-precision-cutting could solve the problem

CONCLUSION:

⇒each part is worth the effort to check whether waterjet micro-precision cutting is the best cutting process in terms of quality and cost efficiency





How can you get access to the benefits of this new technology?

⇒subcontracting, sample production, testing, show-room, machine sales, know-how-transfer, technology & service center:

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QUESTIONS??

for further questions:
Hannover Exhibition 2010 **Hall 6 Stand K15/1**