

MesoFocus: Brennflecke zwischen Micro- und Minifocus

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Kurzfassung

Die neue MesoFocus Technologie ermöglicht innovative Röntgenquellen für industrielle Anwendungen, bei denen Auflösung und Leistung wichtig sind. Die MesoFocus Technologie eliminiert den Trade-off, den bisher zwischen geschlossenen Röntgenröhren und offenen Mikrofokusröhren eingegangen werden musste: Geschlossene Röhren sind robust und stabil und für die Produktionsumgebung geeignet, bieten aber nur eine begrenzte Auflösung, während offene Mikrofokusröhren eine hohe Auflösung bieten, aber nicht für die Produktionsumgebung und den 24/7-Betrieb geeignet sind.

Nebst vielen Anwendungsfeldern in Automotive und insbesondere Luftfahrt ermöglicht die MesoFocus Technologie ideale Voraussetzungen bei der Inspektion von additiv gefertigten Teilen. Überdies bietet die MesoFocus Technologie die Basis zur Inspektion von Batterien und Batterie-Packs, welche durch den Trend zur e-Mobilität systemrelevant geworden ist.

Die Einfachheit und Vielseitigkeit der MesoFocus Technologie schliesst nicht nur die Lücke zwischen Mikro- und Minifokus, MesoFocus senkt auch die Kosten der Prüfung drastisch – die Kostenreduktion ist sowohl durch Durchsatz, Reproduzierbarkeit, Stabilität und hoher Betriebszeit mit minimalem Wartungsaufwand gegeben.

MesoFocus FOCAL SPOTS BETWEEN MICROFOCUS AND MINIFOCUS

**DGZfP Jahrestagung 2022
Kassel, Germany**

Marcel Odermatt
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Introduction

Megatrends

Technology

Applications

Agenda

Introduction

- Welcome, about me, COMET

Megatrends

- Challenges in NDT
- Jobs-to-be-done in X-ray inspection and needs

MesoFocus technology

- Bringing LAB performance to production
- A new range of Focal Spot

Applications



Mega-trends – two selected trends with impact on NDT

Hyperautomation

Everywhere machines perform

- Safer
- Cheaper
- More accurately

Intelligent machines will do more for us

- Take decisions
- Interact with other systems

e-mobility

e-mobility

- Shift in regulations towards electric cars
- Many new cars electric (at least hybrid)
- Electric airplanes become reality

Battery market

- Innovation on battery with high capacity
- Other companies step into automotive and aerospace

Infrastructure

- Charging stations network
- Electric power production

Mega Trends driving NDT

Hyperautomation

Inline Inspection

High uptime

- Built for 24/7 operation
- Stable, no frequent conditioning

Ease of care

- Maintenance free operation
- No need for frequent service

High throughput

- Power & penetration

Miniaturization

Electronics

- Microchips everywhere (IoT)
- Fast and reliable inspection

Additive manufacturing

- New construction possibilities
- More complex shapes combining sub-assemblies into one part
- Optimized structures for energy efficiency and cost savings

e-mobility

Battery Inspection

Cell inspection

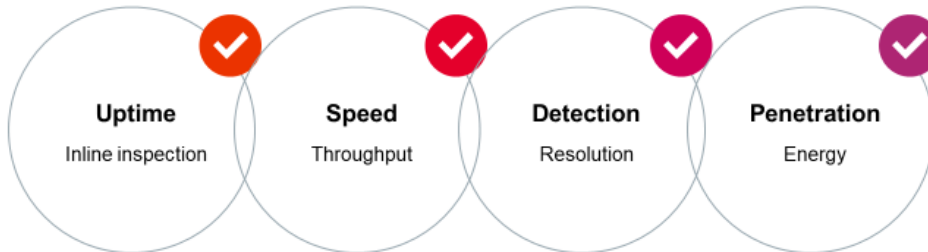
- Electrode overhang inspection
- Cracks and particle inclusions
- High resolution fast inspection

Module assembly inspection

- Positioning and welding inspection
- High penetration need
- High resolution fast inspection

Distilled into addressable requirements

This is how we organize the trends into challenges we can address:



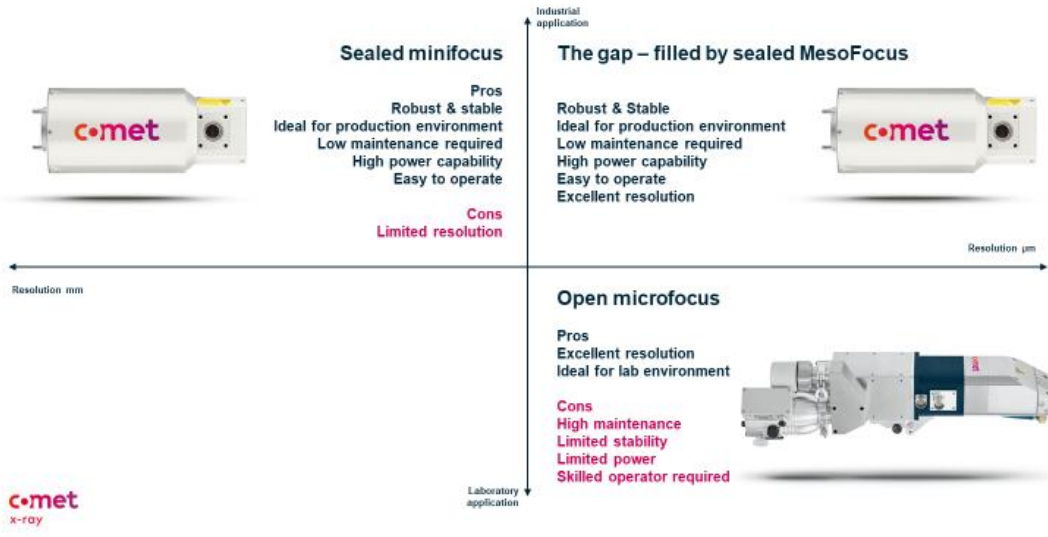
Increasing resolution requirement with high throughput and uptime

The trade-off up to now:

- **Open X-ray sources** provide best resolution, however not suited for industrial environment (ambient conditions, maintenance)
- **Sealed X-ray sources** are designed for inline applications but provide limited resolution capabilities.

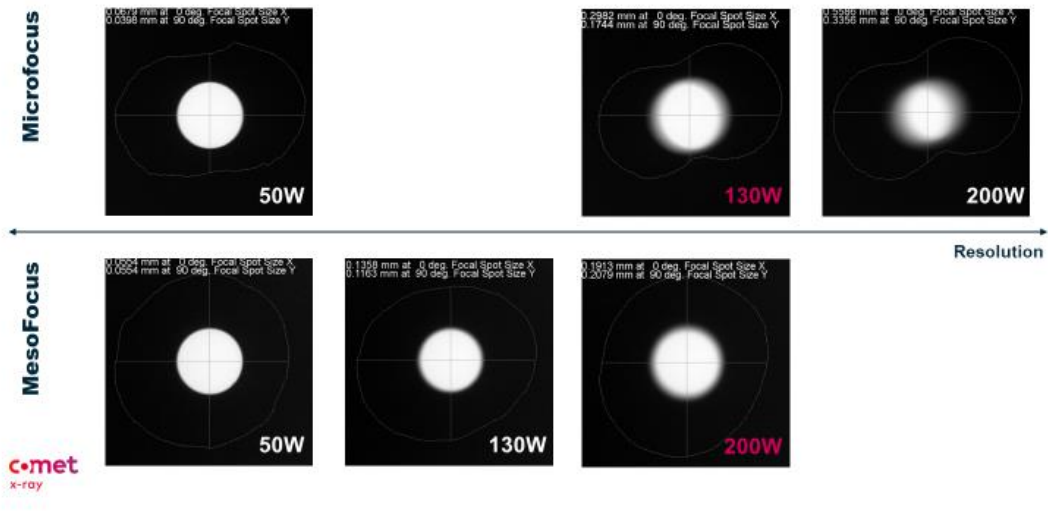


X-ray sources landscape

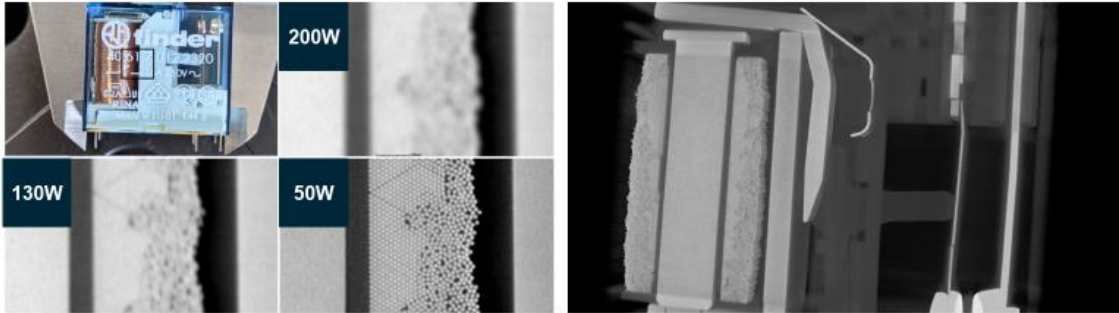


Comparison: Open microfocus vs. MesoFocus

MesoFocus tube 200W FS is comparable in size with Microfocus tube 130W



3D CT example with round & symmetrical focal spot



Relay at 225kV at 200W / 130W / 50W
 Example to demonstrate 3D CT and large span of resolution at highest kV

Plastic housing and contact material visible
 Scan time 50W / 18 min, 130W / 10min, 200W / 6min

c•met
x-ray

Symmetrical focal spot provides identical resolution in all directions

True values for your application

Time-saving installation, configuration, and integration

- Easy configuration and control tool
- Known and proven stationary X-ray module

Cost-optimized operation

- Sealed tube design
- No conditioning required

Consistent image quality

- Focal spot "presets" deliver the best results
- Very low focal spot drift

High uptime

- Reliable and proven sealed tube technology
- Built for 24/7 operation

Maintenance-free operation

- No need for frequent service intervention
- Robust and stable in industrial and production environment

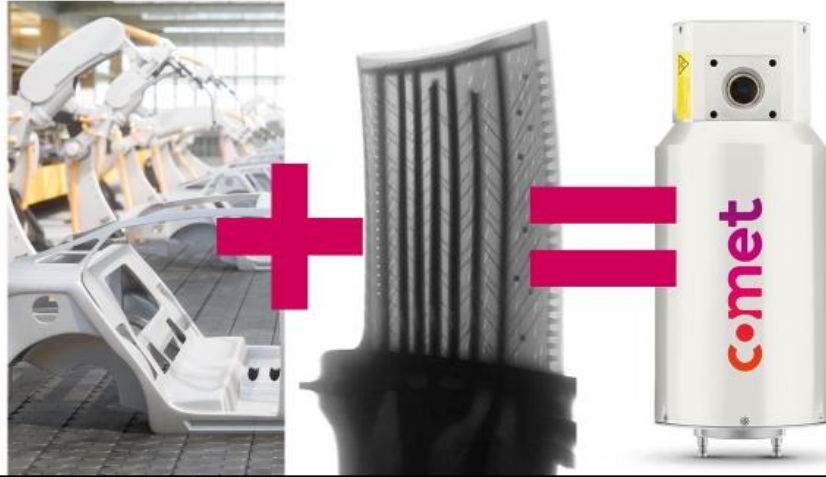
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MesoFocus attributes

Combining inline capability of sealed tubes with microfocus resolution capability

The best of two worlds:
Resolution &
inline capabilities



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Q&A

If you have any questions related to the presented topic, feel free to reach out:

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