

X-NEWS 04

Garbsen, 31.01.2013

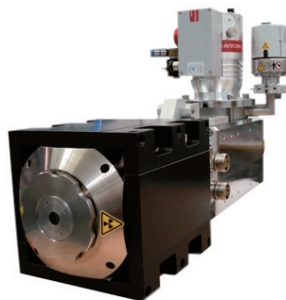
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Fraunhofer Society installs High Resolution X-ray Tube from X-RAY WorX

The Development Center for X-ray Technology ([EZRT](#)), a cooperative department of the Fraunhofer Institutes for Integrated Circuits IIS (Erlangen) and Non-destructive Testing IZFP (Saarbruecken and Dresden) has installed the new high resolution X-ray tube XWT-100-TCHR supplied by X-RAY WorX.



XWT-100-TCHR with cooling of the tube head

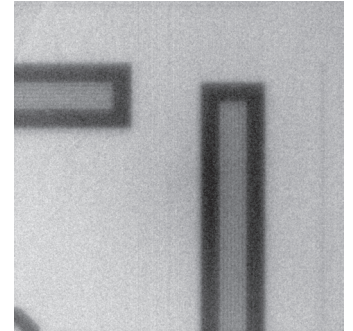
The Development Center for X-ray Technology in Erlangen, Germany, develops new methods of X-ray inspection for non-destructive testing of various materials and for the monitoring of production processes. The highly stable submicron X-ray tube XWT-100-TCHR is mainly

used in long-term computed tomography scans. The areas of application cover the high resolution analysis of low absorbing materials like semiconductor components.

To ensure stability of the focal spot position and intensity during long scans the XWT-100-TCHR is equipped with a special cooling system for the tube head and a vibration-free water cooling of the turbo roughing pump. Using the [JIMA RT RC-02](#) test chart, a standard resolution test for high resolution X-ray tubes, the XWT-100-TCHR allows to image line pairs with a distances of 0,5 microns and 0,4 microns. Details of this analysis were published by members of EZRT on the [World Conference on NDT](#) in April 2012 (refer to [Proceedings of WCNDT 2012](#)).

The new X-ray tube delivers maximum acceleration voltage of 100 kV. Furthermore the High Magnification transmission target allows [geometric magnification](#) of up to 5.000 times at 50 cm distance between detector and X-ray source (FDD) and 10.000 times at 100 cm FDD. Regarding maximum magnification XWT-100-

TCHR clearly outperforms other current microfocus tubes by more than factor two.



JIMA RT RC-02B - 0.5 microns resolution of XWT-100-TCHR

High magnification is of major importance when inspecting new materials like fiber-reinforced plastics or nano-materials.

High Resolution Rod Anode Tube for Digital Radiography

X-RAY WorX introduces the new high resolution *Superfocus* rod anode tubes for digital radiography (DR) of circumferential welds in aerospace-industry and tube manufacturing.

The main objective of the new development was "the maximum flexibility at highest detail resolution", says Thorsten Froeba, Technical Director. X-RAY WorX expects an increase of X-ray testing applications with digital flat panel detectors after the new European standard EN 17636-2 was approved. But also film-based applications will remain standard in many companies.

A unique feature of the new rod anode tubes are exchangeable tube heads. For exposure on film according to EN 17636-1 (that replaced EN 1435) different panoramic targets are available.

For the application of digital flat panel detectors according to EN 17636-2 special reflection targets are offered. Due to the new type of construction the *Superfocus* technology allows rod anodes with length up to 1.5 meters. Areas of the inspected component that are very hard to access can be analyzed using single-wall penetration with a much higher quality than with double-wall penetration.

The rod anode tube achieves focal spot sizes of less than 40 microns at 50 Watt tube power and less than 140 microns at 300 Watt tube power when operated with a reflection target. With a panoramic target less than 80 microns at 50 Watt tube power can be achieved (measurements according to EN 12543-5). Due to the patented internal cooling of the rod anode, sealings and target a continuous and highly stable operation is guaranteed

Extreme Magnification in Semiconductor Industry

Especially for applications in semiconductor industry X-RAY WorX developed the High Energy rod anode tube with transmission target for up to 25 Watt target power. The rod anode allows the placement of the X-ray source directly on the examined component. This leads to extreme magnification of the details under inspection.



Rod anode tube XWT-160-RA-30-15-P4HE

The easy to replace High Energy transmission target of type P4HE is responsible for the maximum

target power of 25 Watt. The rod anode may be delivered with different lengths and enables the user to adapt the X-ray source to different requirements and components.



Tube head with cooling

The variant XWT-160-RA-30-15-P4HE has a rod anode with a diameter of 15 mm and a length of 30 mm. It resolves the 4 micron pattern of the JIMA test chart at 45 kV and 2 Watt target power. At a source to detector distance of 600 mm a magnification of more than 2000 may be achieved. The high energy rod anode tube is offered with acceleration voltage of 100 kV, 160 kV, 190 kV, 225 kV, and 240 kV.

Microfocus Training Weeks 2013

In the year 2013 X-RAY WorX again offers its partners and OEM customers comprehensive technical seminars and practical workshops covering microfocus technology. In the scope of the microfocus training weeks 2013 beginners as well as specialists may increase and update their knowledge in handling high resolution X-ray technology.

During the training weeks we introduce the basics of X-ray technology, explain the maintenance and repair of X-ray systems, and practice the analysis of erratic behavior and structured diagnostics in real-life situations. Over five days we will work with microfocus X-ray tubes with increasing level of experience.

More Floor Space in new Premises

Two and a half years after establishment X-RAY WorX GmbH moved to new premises in Garbsen. Due to the increasing product and service business the available floor space was no longer sufficient.

"We were very lucky to find an appropriate production hall with storage and office space in the same building," explains Production Manager Oliver Abé. "So the relocation did not seriously interfere with operation."

Every participant may choose his entry level according to his personal experience. We are glad to welcome you during our microfocus training weeks 2013 in Garbsen:

- Spring 2013:
11. until 15. March 2013
- Fall 2013:
9. until 13. September 2013

To apply please contact our service department. Just send an e-mail to: service@x-ray-worx.com.

"Now we have available double floor space for production, workshops and stock," says Thorsten Froeba, Technical Director. "With five X-ray cabinets we are perfectly equipped for current and future projects in production and development." The postal address of X-RAY WorX did not change.

350 Watt Power Booster for CT Tubes

Since November 2012 X-RAY WorX delivers its microfocus X-ray tubes of types -SE and -CT with 10% higher tube power. These types of tubes with reflection target are mainly used in computed tomography and metrology systems, frequently operated at the limit of power to achieve short scanning times.

The power boost to 350 Watt enables 10% more tube current at constant acceleration voltage. This leads to images with higher contrast and allows reduction of exposure time.

High Energy Transmission Tube with 50 Watt Target Power

Up to 50 Watt target power is delivered by the new High Energy X-ray tube XWT-160-THE with cooling of the transmission target. It is perfectly designed for all applications that require high resolution and short scanning times.

X-RAY WorX introduces the most powerful transmission tube for industrial applications. XWT-160-THE allows the reduction of scanning time of computed tomography and metrology systems for more than 50%.

The high energy transmission tubes are supplied with acceleration voltages of 160kV, 190kV, 225kV, and 240kV. X-RAY WorX also offers to update existing transmission tubes to 50 Watt target power.

Experience Hanover!

Hanover is worth visiting in every season.

On 17.01.2013, the reconstructed Royal Castle of Herrenhausen has been reopened with an official ceremony. It offers impressive rooms for celebrations, seminars, meetings and events as well as a museum. A visit can be combined with a walk in the famous Royal Gardens of Herrenhausen.

<http://www.hannover.de/>

Legal information

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