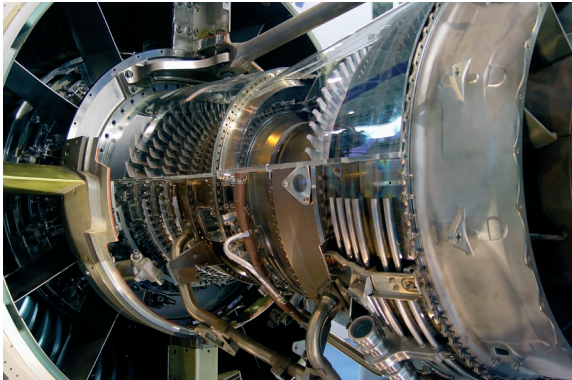


## Innovative weld inspection in aerospace industry



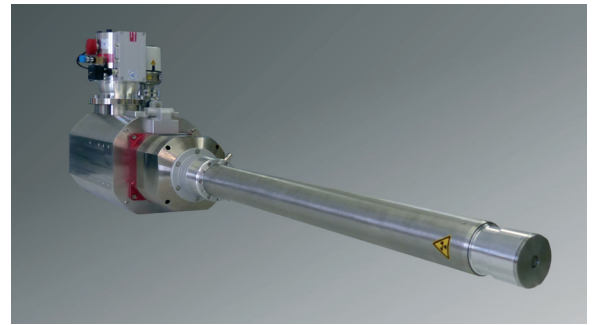
The production of aircraft engine parts requires extensive radiographic testing to comply with quality and safety regulations. The time consuming film radiography of welds is increasingly replaced by automated digital radiography solutions using digital flat panels and automatic image processing.

Microfocus X-ray sources allow to analyze welds at high resolution using magnification in the range of 2x to 10x. X-RAY WorX developed a series of high resolution rod anode tubes to comply with the EN 17636-2 standard that support a wide range of aerospace inspection tasks.

Rod anode tubes are applied to inspect various engine parts with small diameter clearance that require single wall penetration. The flexible design of X-RAY WorX

rod anode tubes allows the application of panoramic exposure using RT and CR but also digital radiography with cone beam exposure.

The targets respectively tube heads of X-RAY WorX rod anode tubes can be easily exchanged to switch from panoramic to cone beam exposure. Furthermore tools are offered to support alignment and calibration of rod anode tubes and to measure the focal spot size according to EN12543-5.



Microfocus X-ray tube XWT-225-RAC

X-RAY WorX rod anode tubes have been implemented in several customized DR solutions by partners of X-RAY WorX around the globe.

To find out how X-RAY WorX solutions can optimize your inspection tasks, contact one of our representatives or X-RAY WorX directly.

## New version of operating software X-COM released

In April 2017, the new version 1.6 of the X-COM software has been released. X-COM gives access to all major functions of an X-RAY WorX tube. It may be used as an exposure timer for RT or CR applications and allows service engineers to test and analyze the proper functionality of an X-ray tube.

The new release is focused on the measurement and monitoring of system conditions. It offers an extended support for maintenance and diagnostics by providing a number of very helpful tools.

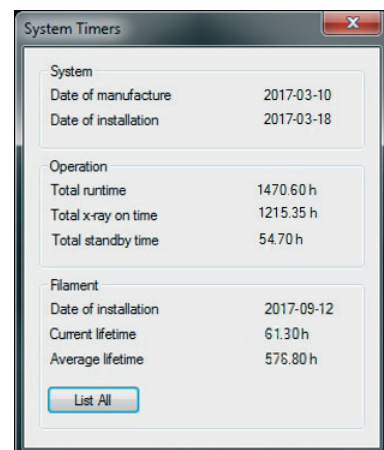
### New features:

- **System states:** An overview of the major system conditions at a glance. Experienced service engineers will love this feature that was developed based on requests from X-RAY WorX service staff.
- **System timers:** The lifetime of the current and consumed filaments as well as the operating hours of the X-ray tube, idling time, and standby times are reported.
- **Self test:** The controller of the tube performs various tests automatically and issues a comprehensive report. A useful feature to monitor the

tube conditions and verify maintenance or repair work.

- **Fine tuning of focusing:** Micron scale applications may require the tuning of the focus current before starting the scanning process. The modified values may be stored and used throughout the current session until the machine shuts down.
- **Target emission current ratio:** Monitoring thermal and magnetic impact on the electron beam. Centering will be recommended

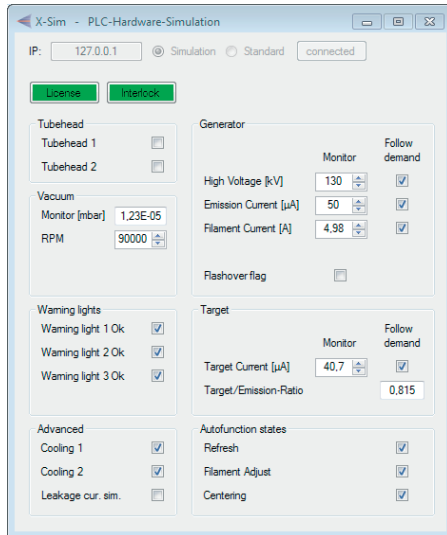
in case of significant variations.



System Timers	
System	
Date of manufacture	2017-03-10
Date of installation	2017-03-18
Operation	
Total runtime	1470.60 h
Total x-ray on time	1215.35 h
Total standby time	54.70 h
Filament	
Date of installation	2017-09-12
Current lifetime	61.30 h
Average lifetime	576.80 h
<input type="button" value="List All"/>	

## Increasing efficiency in software integration with X-SIM

Integrating hardware components into the control software of a computed tomography or digital radiography system is a complex and time consuming task. To support this process by allowing



Screenshot: Simulation software X-SIM

software developers to work independently of the actual hardware, X-RAY WorX has implemented the simulation tool X-SIM.

With X-SIM any type of X-ray tube may be simulated. It allows developing and testing custom software on a single PC without access to the PLC of the tube. Furthermore it allows the user to trigger various regular but also exceptional events like execution of autofunctions, open interlocks, low vacuum, arcing, or a broken warning light.

X-SIM may also support you in training of users and field service engineers on the operation of X-RAY WorX tubes using the operating software X-COM.

X-SIM is available to OEM customers and system integrators on request.

### ■ New X-RAY WorX team members

The production team of X-RAY WorX has been recently extended by two engineers for commissioning of X-RAY tubes and assembly of tube components. Furthermore, in February 2017 we hired a sales assistant for administrative tasks in sales and accounting.

The team of X-RAY WorX grew to 17 members and is looking forward to support you in all areas of microfocus X-ray technology.

### ■ Microfocus Training Week 2018

X-RAY WorX microfocus tubes are integrated into numerous industrial CT and DR systems around the globe. To support our customers with first class maintenance, diagnostics, and repair, we offer regular training courses for the service engineers of our partners.

In September 2017 we held two courses, one of them focused on the maintenance and repair of rod anode tubes. We cordially invite you to one of our next courses that will be held in April and September 2018.

If you would like to participate in spring or fall training week in 2018, please contact our service department: [service@x-ray-worx.com](mailto:service@x-ray-worx.com).

**Next trainings: 16. - 20. April 2018**  
**10. - 14. September 2018**

## Events

### Space Tech Expo 2017, Germany



From 24<sup>th</sup> to 26<sup>th</sup> October 2017 X-RAY WorX shared a booth with DÜRR NDT at **Space Tech**

**Expo** in Bremen, one of the leading exhibitions to meet manufacturers and suppliers of civil, military, and commercial space industry.

X-RAY WorX and DÜRR NDT presented a joint solution of a microfocus rod anode tube and a CR scanner for computed radiography (CR) of aircraft engine and spacecraft parts.

### QC Shanghai 2017, China

From 30<sup>th</sup> October until 1<sup>st</sup> November, Holger Behnsen, managing director of X-RAY WorX supported our partner Dalian Lind Import & Export Corporation at **Quality Control** exhibition in Shanghai (China).



Holger Behnsen and partners from Dalian Lind at QC China

### iCT 2018, Austria

X-RAY WorX will participate in the **8th Conference on Industrial Computed Tomography** at the University of Applied Sciences in Wels (Austria) from 6<sup>th</sup> to 9<sup>th</sup> February 2018. The conference will discuss topics like CT in non-destructive testing, 3D materials characterization, and dimensional measurement.

We are looking forward to meet you at this show. If you like to make an appointment please contact our **sales and marketing department**.

### ■ Marketing support

X-RAY WorX offers comprehensive marketing support, including a demo tube for exhibitions, brochures, data sheets, images and text for websites etc. Please contact our **sales and marketing department** for the marketing support overview.

### ■ Experience Hanover!

Hanover has one of the most renowned music colleges for various genres of music, with students from all over the world. The city is also home of festivals and a vibrant choir and music scene.

Since 2014, Hannover rightly holds the title **UNESCO City of Music**.

Information on current events can be found at: <https://www.hannover.de/UNESCO-City-of-Music/Music-Stadt-Hannover/Festivals>.