# Product Highlights 2024

PTW THE DOSIMETRY COMPANY



ptwdosimetry.com


# VERIQA® - The Modular Software Platform

## For comprehensive Patient QA

Treatment plan visualization
VERIQA module RT View

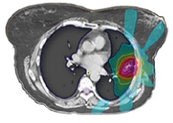
Treatment plan evaluation
VERIQA module RT Evaluate

Pre-treatment verification
VERIQA module
RT MonteCarlo 3D

Pre-treatment and in vivo
verification VERIQA module
RT EPID 3D

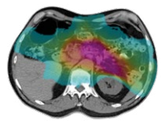
### Your advantages

- One platform: from visualization and evaluation to verification and reporting – an all-in-one modular platform, built on future-proof, client-server architecture
- Take your workflow efficiency to the next level and automate your processes
- Track and analyze your results with the automated integration of Track-it
- Clinically proven, independent 3D dose verification tools and calculation algorithms for reliable results regardless of treatment complexity



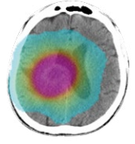
Lung SBRT

3D / 7 beams
6 MV FFF



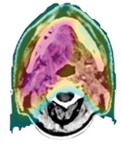
Pancreas

VMAT / 2 arcs / 180 CP[1]
6 MV - SIB[2]



Brain

VMAT / 1arc / 90 CP[1]
6 MV FFF



Head and Neck

VMAT / 2arc / 180 CP[1]
6 MV - SIB[2]

| | | | | |
|---|---|---|---|---|
| PTV volume | 46.45 $cm^3$ | 589.26 $cm^3$ | 264.48 $cm^3$ | 907.74 $cm^3$ |
| Dose grid size | 3 x 3 x 3 mm | 3 x 3 x 3 mm | 2 x 2 x 2 mm | 2 x 2 x 2 mm |
| MC accuracy | 1 % | 1 % | 0.5 % | 0.5 % |
| **Calculation time** | **12 sec** | **30 sec** | **46 sec** | **246 sec** |

Calculated on a dual 12-core Intel Xeon Silver 4214
2.2 GHz server with hyperthreading (48 logical cores).





# VERIQA® RT MonteCarlo 3D

## 3D dose calculation with SciMoCa. Accurate. Fast. Automated.

“VERIQA is a powerful QA platform which easily enabled us to implement a fully automated secondary Monte Carlo dose calculation for every one of our patients.

The excellent accuracy and reliability of RT MonteCarlo 3D allowed us to reduce the amount of plan-specific phantom measurement by 75 % – without compromising the quality and safety of our patient treatment.”

Dr. Bernhard Rhein
Medical Physicist, Heidelberg University Hospital

### Your advantages

- Monte Carlo simulations are the most accurate method for dose calculation in radiotherapy treatment planning. With its ability to simulate the physics of photons and charged particles interacting with matter, Monte Carlo can accurately compute the dose under almost any circumstances.
- VERIQA RT MonteCarlo 3D comes pre-installed on a powerful server, allowing for high-speed dose computations. Calculation results are available within a few minutes.
- Due to its specific beam modelling process, which is based on water phantom measurements, VERIQA RT MonteCarlo 3D performs truly independent dose calculations for a reliable secondary plan check.


**Automated pre-treatment and in vivo 3D EPID dosimetry** provides you with a fully automated solution for both pre-treatment and in vivo patient dosimetry. It reduces your workload significantly and enables true 3D patient dosimetry.

# VERIQA® RT EPID 3D

## True EPID dosimetry. Pre-treatment. In vivo. Fully automated.

“The VERIQA module RT EPID 3D is like a Swiss army knife: it delivers a fast patient QA solution and provides your radiotherapy treatment chain with an extra safety net.”

Dr. Anton Mans
Medical Physicist, Radiation Oncology
Department of The Netherlands Cancer Institute - Antoni van Leeuwenhoek Hospital (NKI-AVL), Amsterdam

Work in progress, not available for sale in all markets

### Your advantages

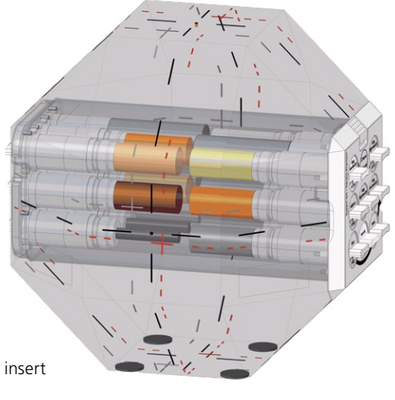
- Detect clinically relevant errors during pre-treatment and in vivo verification and quantitatively assess their dosimetric impact
- True 3D patient dosimetry: for both pre-treatment and in vivo dosimetry, reconstructed dose can be directly compared to the treatment planning dose in 3D and with dose-volume histograms (DVHs)
- Phantomless, efficient and fully automated
- Clinically proven back-projection algorithm, successfully used at The Netherlands Cancer Institute - Antoni van Leeuwenhoek Hospital (NKI-AVL) for more than 75,000 patient treatments since 2005

# Whatever the task – RUBY has a solution to support you.


ptwruby.com

# RUBY® Modular QA Phantom Platform

Base phantom or head phantom. Multiple inserts. System QA. Linac QA. Patient QA.

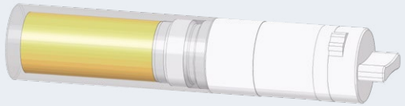


The new RUBY electron density insert

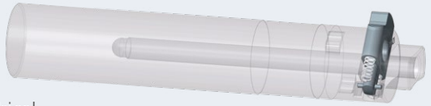
## Your advantages

- Comprehensive modular phantom platform with ready-to-use application-specific inserts
- Integrated testing of the entire treatment chain with one basic phantom – just add the insert that supports your QA task
- Continuously expanding range of inserts to meet QA requirements for evolving treatment techniques
- End-to-end testing of the entire SRS/SBRT treatment process with a single insert
- Measurement-based patient-specific plan verification, including non-coplanar treatments, with film and different detector types
- Compatible with a variety of detector types

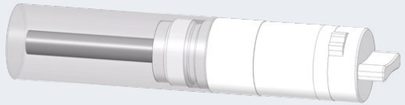
From very low lung density material to implant material: Choose from 19 different electron density materials



Cylinder with tissue-equivalent material



Cylindrical detector holder



Cylinder with metal

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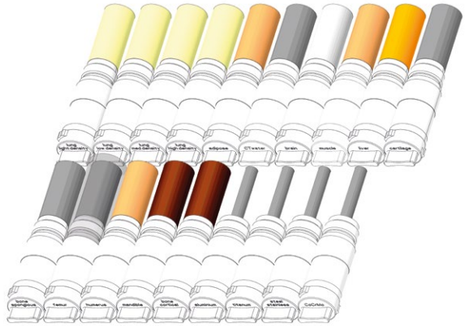
# RUBY® Electron Density Materials

## High quality tissue-equivalent materials and various metal materials



Your advantages

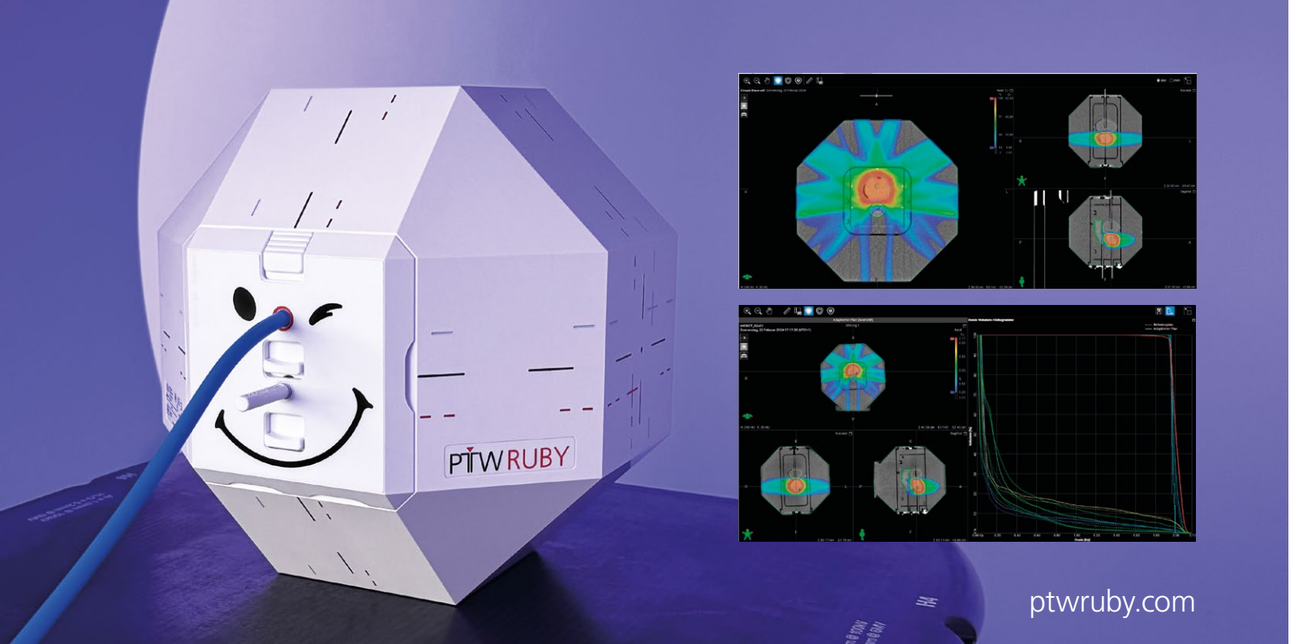
- Tissue-equivalent materials of highest quality according to ICRU report 44 and 46
- Very low density lung-equivalent material with relative electron density of 0.07
- All materials are encapsulated for safe handling
- 19 different electron density materials available


# RUBY® Electron Density Insert

## Now available as part of the RUBY modular QA phantom platform

### Your advantages

- Very low density lung-equivalent material for lung treatment planning
- Four different high density metal materials for considering implants
- For dose measurements, an ionization chamber can be positioned instead of material
- All materials are encapsulated for safe handling
- Software supported automatic workflow for HU/density calibration (work in progress)
- Click mechanism – simple, fast, reproducible





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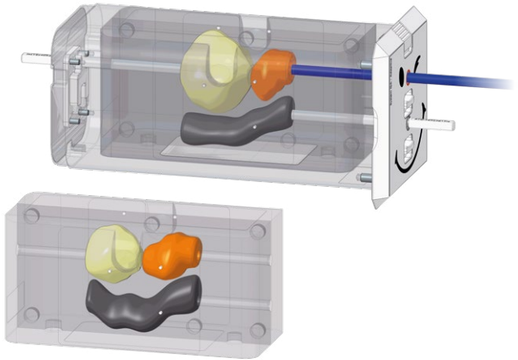
# RUBY® System QA - Adaptive Insert

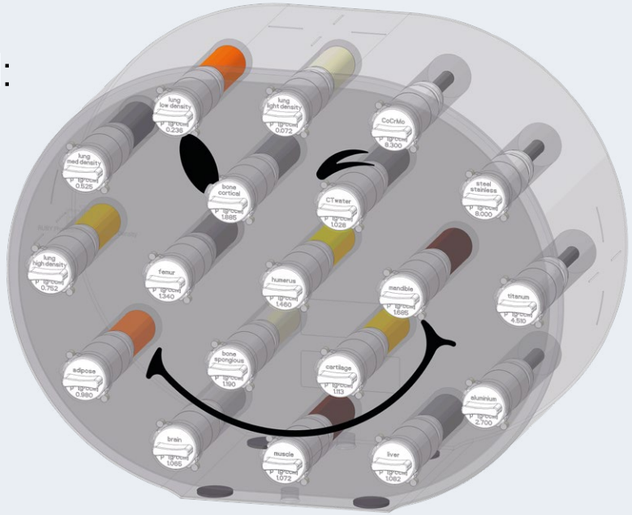
## End-to-end QA for adaptive radiotherapy



### Your advantages

- Two different organ sets consisting of bladder, prostate, and rectum
- Dose measurements in each organ using a PTW Semiflex 3D ionization chamber
- End-to-end testing of adaptive radiotherapy
- Easy to handle

From very low lung density material to implant material: Choose from 19 different electron density materials




# Electron Density Phantom

## Electron density phantom with classical shape


Your advantages

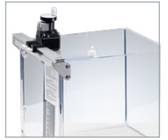
- 19 holes for RUBY electron density materials
- Very low density lung-equivalent material for lung treatment planning
- For dose measurements, an ionization chamber can be positioned instead of material
- All materials are encapsulated for safe handling
- Software supported automatic workflow for HU/density calibration
- Click mechanism – simple, fast, reproducible

| Product | Beam Commissioning | Machine QA | Daily QA | Reference Dosimetry | System QA | Patient QA |
|---|---|---|---|---|---|---|
| BEAMSCAN MR | ✓ | ✓ | | ✓ | | |
| STARCHECK maxi MR | | ✓ | ✓ | | | |
| OCTAVIUS 4D MR | | ✓ | | | | ✓ |
| OCTAVIUS Detector 1600 MR | | ✓ | | | | ✓ |
| OCTAVIUS Detector 1500 MR | | ✓ | | | | ✓ |
| RUBY | | | | | ✓ | ✓ |
| UNIDOS Tango, UNIDOS Romeo | | | | ✓ | | |
| MP1 Manual MR | | | | ✓ | | |



# The Complete MRgRT Portfolio

## MR Conditional products for all your tasks in MR-guided radiotherapy

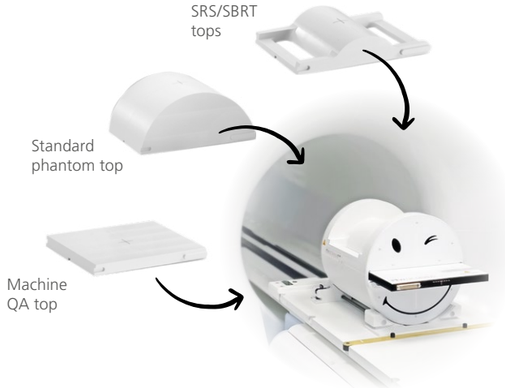

- Everything made from a single source – MR Conditional products for all your tasks in MR-guided radiotherapy
- MR-guided radiotherapy is now a well-established addition to standard radiotherapy. Because of the strong magnetic fields necessary for MR imaging, dedicated dosimetry equipment is required for patient- and machine-specific MRgRT QA.

Everything made from a single source.

# Making the MRgRT portfolio complete

## OCTAVIUS 4D MR

Independent 3D patient plan verification and machine QA measurements for MR linacs



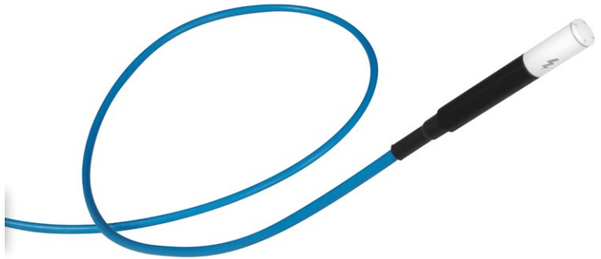

Your advantages

- 3D dose verification in the entire phantom volume
- Filmless patient plan verification and machine QA in one system
- Rotating phantom – true 3D, true isotropic geometry, no need to make angular corrections
- Modular and scalable with various array detectors and phantom tops to choose from
- Easy workflow for off-axis treatment plan verification
- Supported by the measurement and evaluation softwares VeriSoft and BeamAdjust
- Fully integrated with Track-it for automated reporting


Combine your flashDiamond with the flashAdapter for optimal compatibility with your PTW electrometer.

# flashDiamond

## Diamond detector with outstanding characteristics – optimized for FLASH-RT



### Your advantages

- Synthetic single crystal diamond detector optimized for ultra-high dose rates at pulsed beams
- microDiamond accuracy:
  - Minimal dose-rate and dose-per-pulse dependence
  - Excellent spatial resolution
  - Small deviation of absorbed dose to water even in the smallest field sizes

To be used for research purposes only

PTW THE DOSIMETRY COMPANY

**PTW Freiburg GmbH**
Lörracher Str. 7
79115 Freiburg · Germany
Phone +49 761 49055-0
Fax +49 761 49055-70
info@ptwdosimetry.com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