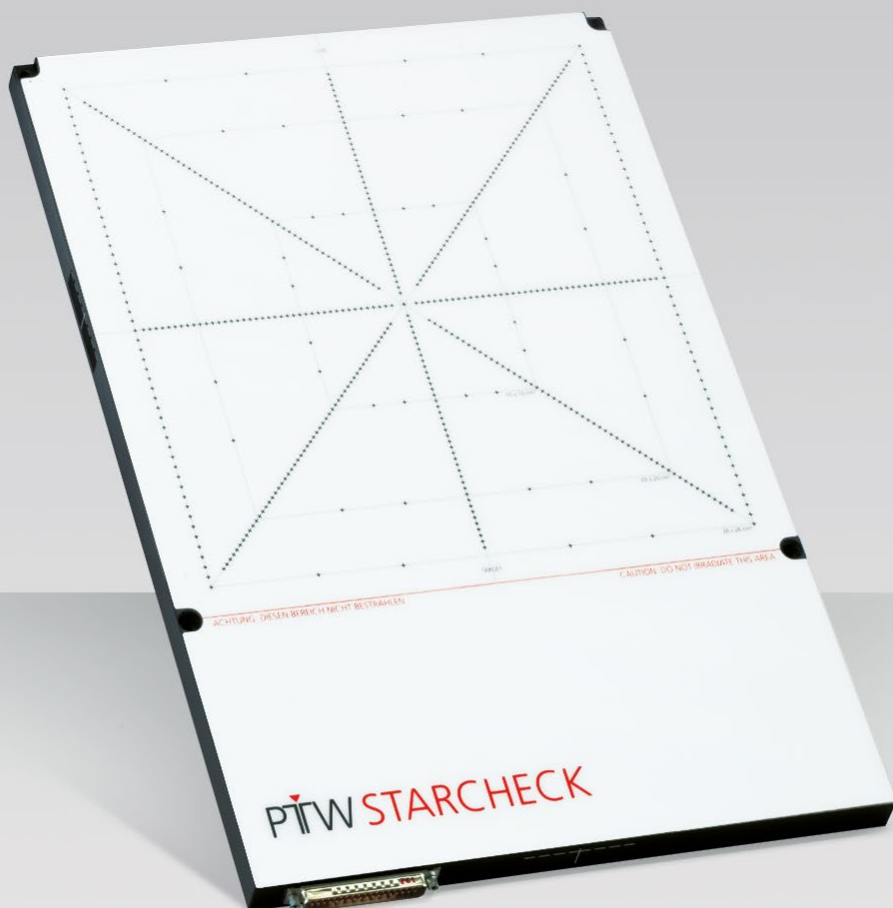


STARCHECK®

Process Optimization in LINAC QA



STARCHECK®

Excellent Resolution, Unprecedented Convenience

STARCHECK is a precise and reliable tool for fast, comprehensive measurements in radiation therapy beams as required by standard guidelines, e.g., AAPM TG-142. Typical applications are quality control and linac beam adjustment measurements with the detector panel embedded in a solid-state phantom. The ionization chambers feature excellent relative response stability, eliminating the need for frequent recalibration.

A full set of four profiles is measured in real-time, making STARCHECK useful for start-up behavior checks of the linac. Additional detectors distributed along the array's side axis enable accurate checks of MLC leaf positions. An MR-compatible version is available for MRgRT QA measurements.

Fast Installation

Handy flat format, slight weight and easy setup

Simple Use

Flexible use, intuitive user-prompting and multifaceted online evaluation

Precise Measurement

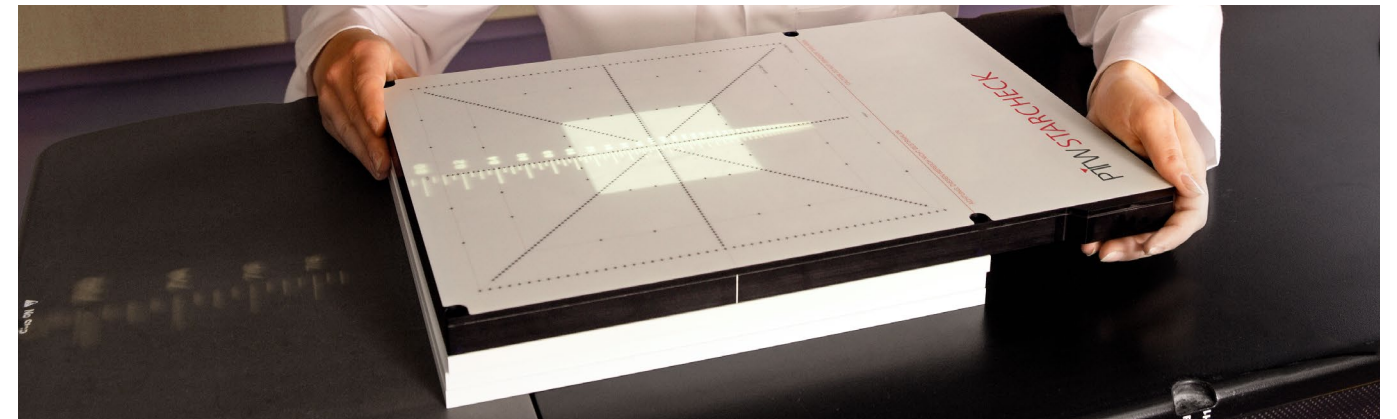
Accurate analysis and **precise profiles with 3 mm resolution**

Long-term Precision

Calibrated vented ionization chambers, constant response behavior and no radiation damage as with semi-conductors

Advanced Machine QA

Individual Options



Applications

Accelerator commissioning with BeamAdjust software

- Displays the profiles along the main axes and diagonals in real time
- Provides color-coded radiation parameter display with adjustable threshold values
- Creates a comprehensive data analysis according to selectable dosimetry protocols and protocols of the accelerator manufacturer
- Eliminates the need to set up a water phantom in many cases, e.g., after maintenance or repair

Test phantom BQ-CHECK and FIELDCHECK

- BQ-CHECK for constancy check of photon and electron beam quality
- FIELDCHECK for checking the congruence of light field and radiation field
- Comprehensive data analysis with the MultiCheck software

SC Gantry Mount

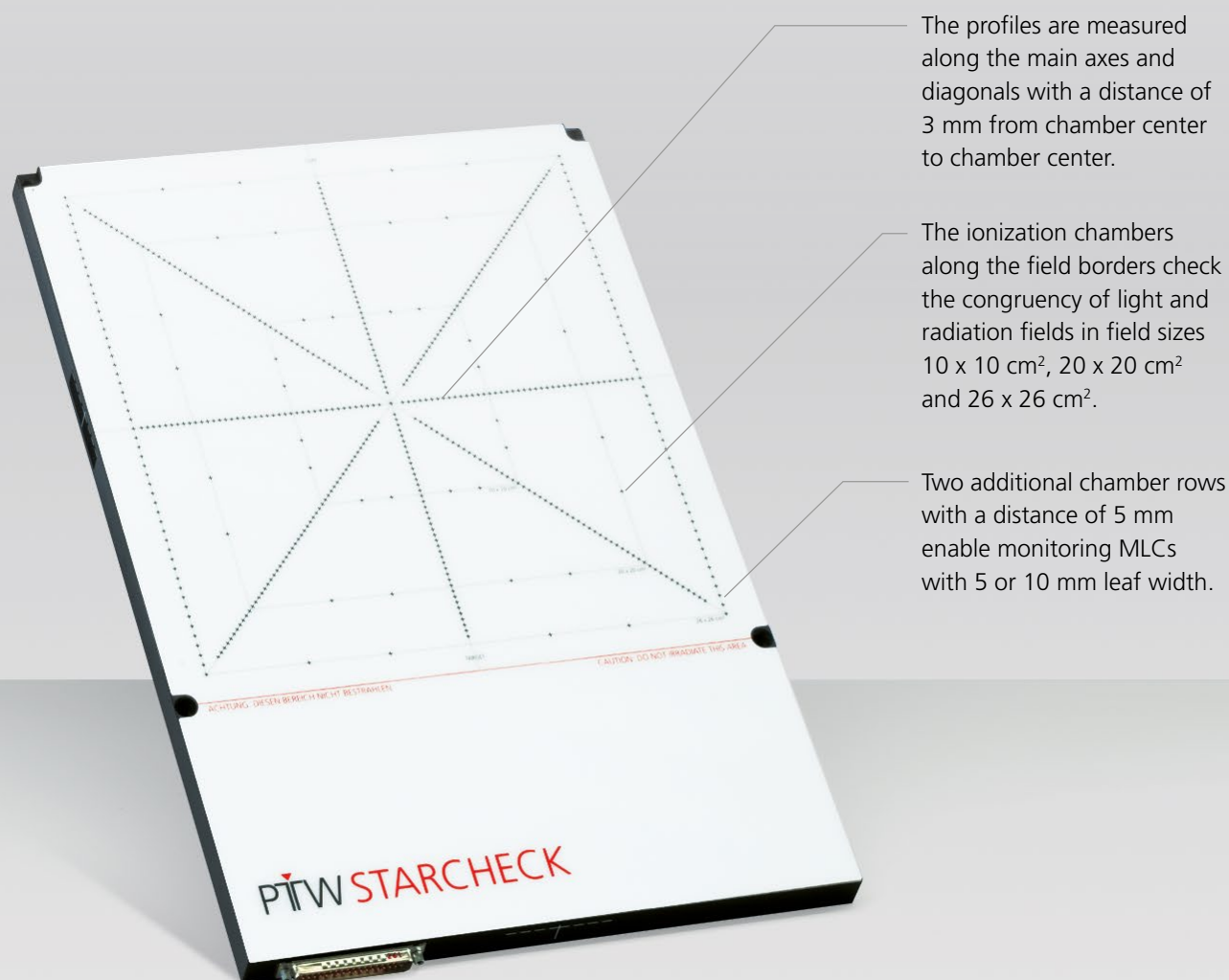
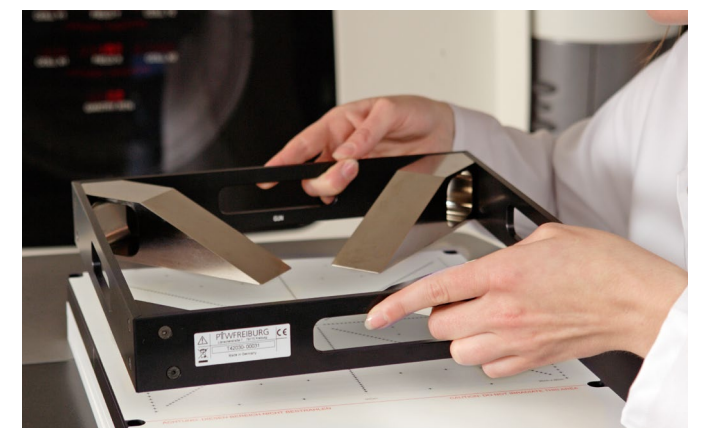
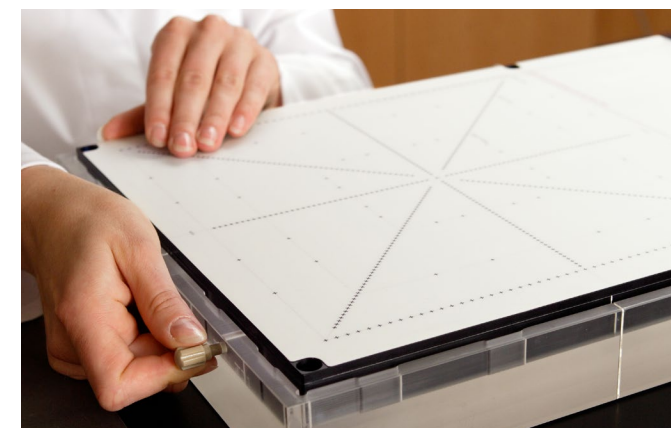
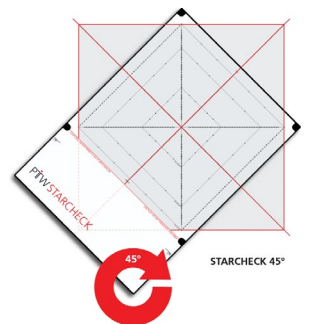
- Enables mounting the chamber matrix on the accelerator head
- Suitable for use with standard setup material

LINAC QA with MultiCheck software

- Checks homogeneity, symmetry, dose deviation in the central axis, wedge filter angle of dynamic, virtual or fixed wedges as well as the correspondence of light and radiation fields
- Compares all parameters with a reference data record and displays deviations
- Enables tracking parameters via a statistics function
- Creates a comprehensive data analysis according to selectable dosimetry protocols and protocols of the accelerator manufacturer
- Provides snapshot mode for fast checking of a beam

Large field size coverage

STARCHECK ensures precise, high-resolution measurements for different field sizes. The STARCHECK array detector is suitable for field sizes up to 26 cm x 26 cm and with a rotation of 45°, it can also be used for a field length larger than 36 cm.

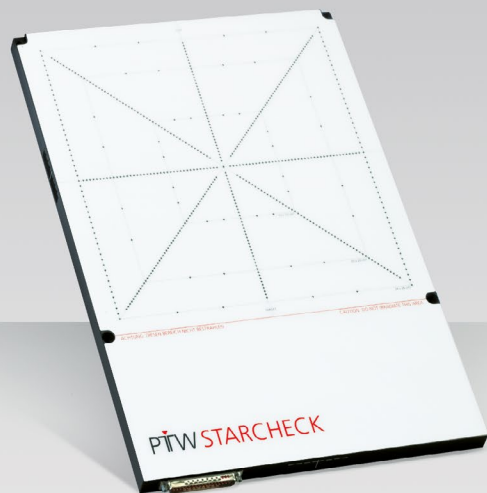


The profiles are measured along the main axes and diagonals with a distance of 3 mm from chamber center to chamber center.

The ionization chambers along the field borders check the congruency of light and radiation fields in field sizes 10 x 10 cm², 20 x 20 cm² and 26 x 26 cm².

Two additional chamber rows with a distance of 5 mm enable monitoring MLCs with 5 or 10 mm leaf width.

Technical Specifications



STARCHECK®

Description	Two-dimensional chamber matrix with 527 ionization chambers
Application	LINAC QA, consistency check and online alignment of the accelerator
Detector type	Vented plane parallel ionization chambers
Chamber arrangement	83 measurement points per main axis, 109 measurement points per diagonal axis, 2 x 53 measurement points for MLC check and 40 measurement points for checking the radiation field size
Detector intervals	3 mm along the profile and diagonals (center to center)*; 5 mm for the MLC chambers
Scanning range	25.2 cm along the main axes, 34.5 cm along the diagonals
Measurement range	50 mGy...1000 Gy; 50 mGy/min...80 Gy/min
Reproducibility	≤± 0.5%
Detector size	Volume 0.05 cm³
Resolution	0.1 mGy, 0.1 mGy/min
Dead time	0 ms
Display cycle	200 ms
Chamber voltage	1000 V
Reference point	8.5 mm under the surface
Field sizes	10 x 10 cm², 20 x 20 cm², 26 x 26 cm²
Outer dimensions	300 mm x 420 mm x 22 mm
Weight	approx. 5.5 kg

Ordering Information

L981389 STARCHECK	Measurement system with 527 ionization chambers, including interface cable and storage case, BeamAdjust software for online display and MultiCheck for consistency checks
Options:	
T41021	SC Gantry Mount for mounting on the STARCHECK accelerator head
T40049	Positioning phantom for precise alignment of STARCHECK
T42030	BQ-CHECK Energy test phantom
T40052	FIELDCHECK phantom

* The distance of the three center detectors is 6 mm along the main axes and 13 mm along the diagonales.

STARCHECK maxi® Full Size Array Detector

Chamber matrix system to measure high resolution star profiles for fields up to 40 cm x 40 cm



- Measures fields up to a size of 40 cm x 40 cm
- Measures high-resolution (3 mm) profiles along the principal axes and the diagonals
- Checks the start-up behaviour
- Checks congruence between the light field, radiation field and beam quality with dedicated phantoms

STARCHECK maxi is a precise and reliable tool for fast measurements in radiation therapy beams. Typical applications are quality control and linac beam adjustment measurements with the detector panel embedded in a solid state phantom. The ionization chambers feature an excellent relative response stability, negating the need for frequent recalibration. A full set of 4 profiles is measured every 200 ms (or one profile every 100 ms), making the device useful for realtime measurements. The excellent spatial resolution of only 3 mm ensures precise measurements even in penumbra regions. The scanning lengths covered by the detectors are 40 cm along the principal axes and 56.5 cm along the diagonals. BeamAdjust software displays up to four profiles in realtime. The profiles can be analyzed according to selectable dosimetry protocols and the protocols of the accelerator manufacturers. The software displays the start-up behaviour with a time resolution of 100 ms. With an additional accessory plate BQ-CHECK phantom and FIELDCHECK phantom can be used with STARCHECK maxi. The STARCHECK maxi can be manually rotated using the optional rotation unit.

Ordering Information

L981377	STARCHECK maxi measuring system
T40059	Rotation unit for STARCHECK maxi
T10033.1.050	Build up plates for STARCHECK maxi
T10033.1.550	Carrying case for build up plates
T10033.1.150	STARCHECK maxi accessory plate for BQ-CHECK and FIELDCHECK
E41330B/S/G	Service contract Bronze, Silver or Gold

STARCHECK maxi® MR Full Size Array Detector

Chamber matrix system to measure high resolution star profiles for MR fields up to 40 cm x 40 cm



- Safe for use in high magnetic fields (≤ 1.5 T)
- Measures fields up to a size of 40 cm x 40 cm
- Measures high-resolution (3 mm) profiles along the principal axes and the diagonals
- Checks the start-up behaviour

The STARCHECK maxi MR is a precise and reliable tool for fast measurements in radiation therapy beams. Typical applications are quality control and linac beam adjustment measurements with the detector panel embedded in a solid state phantom. The ionization chambers feature an excellent relative response stability, negating the need for frequent recalibration. A full set of 4 profiles is measured every 400 ms (or one profile every 100 ms), making the device useful for real-time measurements. The excellent spatial resolution of only 3 mm ensures precise measurements even in penumbra regions. The scanning lengths covered by the detectors are 40 cm along the principal axes and 56.5 cm along the diagonals. BeamAdjust software displays up to four profiles in real-time. The profiles can be analyzed according to selectable dosimetry protocols and the protocols of the accelerator manufacturers. The software displays the start-up behaviour with a time resolution of 100 ms. The delivery includes the detector panel, an interface box which connects to a PC via TCP/IP and data acquisition software.

Ordering Information

L981488	STARCHECK maxi MR incl. electronics and data acquisition software BeamAdjust
T10033.3.052	Build-up plate (25 mm)
E41330B/S/G	Service contract Bronze, Silver or Gold



Making Radiation Safer.

PTW is a global market leader for dosimetry and quality control solutions in radiation medicine, serving the needs of medical radiation experts in more than 160 countries worldwide. Starting with the famous Hammer dosimeter in 1922, the German manufacturer is the pioneer in medical radiation measurement, known for its unparalleled quality and precision.

For PTW, making medical radiation safer is both a passion and lifetime commitment. The family-run high-tech company operates the oldest and largest accredited calibration laboratory in the field of ionizing radiation and established THE DOSIMETRY SCHOOL to globally promote the exchange of knowledge in clinical dosimetry.

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