

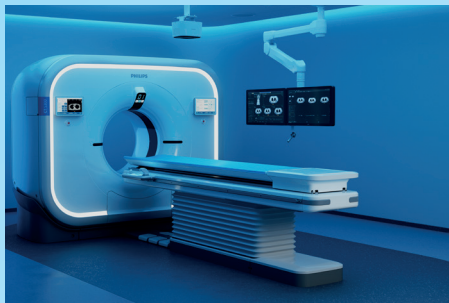
PHILIPS

Computed
Tomography

White paper

CT 5300

AI for speed, consistency and uptime in ED and trauma care



Overview

In emergency and trauma medicine, the phrase “time is of the essence” highlights the urgency of speed, reliability and quality in diagnosis. CT has proven its value in ED and trauma, providing detailed insights about the extent of traumatic injury, allowing for more accurate diagnosis and guiding timely intervention. ED and trauma teams need to be able to reliably scan 24/7 to support patients on their care journey. Philips CT 5300 offers several critical advantages in emergency and trauma medicine, including AI-enabled fast reconstruction with high-quality images for increasing diagnostic confidence in time-sensitive ED and trauma cases. Additional AI-enabled tools help reduce time for patient preparation and scanning, enable quicker post-processing of scans and support high uptime and system performance.

Trauma and emergency patients come in every shape and size – including pediatric and bariatric – and they often present with a multitude of symptoms and medical histories. CT scans of all types are essential for early diagnosis to optimize patient treatment and outcomes. The reliability of the CT scanner is of prime importance in the emergency department. High image quality and fast, efficient workflow and connected teams are crucial to performance in the ED. CT 5300 brings advances for consistently reliable high-quality scanning from head to toe that helps improve ED and trauma care.

Challenges in CT scanning for ED and trauma care

Trauma patients often present with multiple injuries, requiring a full body scan. These patients may have critical injuries and any excess patient movement during positioning could lead to serious consequences. First-time-right patient positioning for a full body scan is important to facilitate fast critical care.

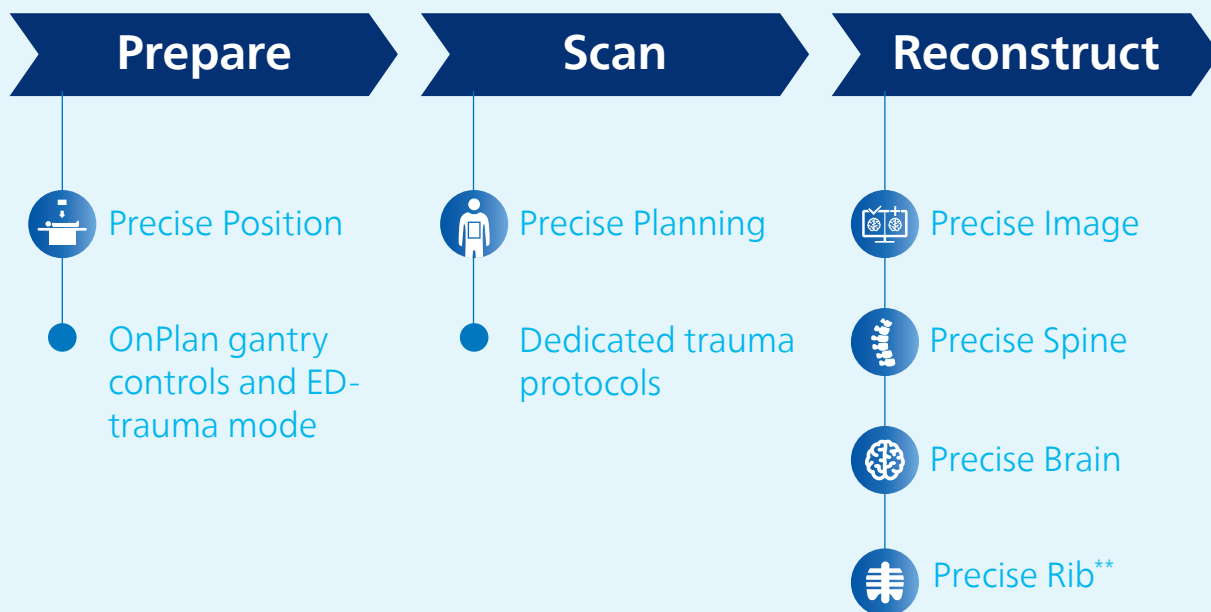
Emergency and trauma patients may require repeated scans to monitor progress, and so it is very important to be able to scan at the lowest possible radiation dose for each scan. In addition, scan protocols for emergency and trauma patients often require multi-phase scanning, which can add to the time and complexity of a CT scan.

CT 5300 offers a comprehensive solution for ED and trauma care

CT 5300 is intelligence reimagined, with clinical, operational and financial benefits for ED and trauma scanning. AI-powered workflow and reconstruction enhance procedure speed while providing high-quality images in time-sensitive ED and trauma cases. For example, fast selection of the patient and exam card are made possible by the OnPlan patient-side gantry controls and dedicated ED-trauma mode that allows scanning without entering patient information pre-scan. When additional expert guidance is needed, CT Collaboration Live* makes it possible to immediately connect with the clinical team directly from the CT system. In addition, evolving remote service capabilities support efficient uninterrupted workflow of CT equipment so the system is ready to scan patients at any time, day or night.

AI-enabled scanning at every step of CT Smart Workflow for fast time to results

From scan prep through reconstruction, CT 5300 has intuitive advances from the scanner to the console to the reading room to help improve the patient and staff experience at every step. High-quality, fast results are made possible by the AI-enabled CT workflow, which helps keep the technologist close to the patient and offers workflow consistency scan to scan. Advanced features simplify scanning, reconstruction of images and quick reporting of results to help improve patient care. CT 5300 leverages advanced AI capabilities and smart automation for confident decision-making.



* Not available in all geographies.

** This product is not commercially available for sale in the USA.

Positioned for success

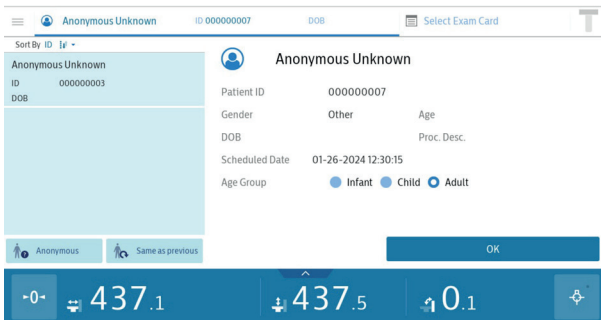
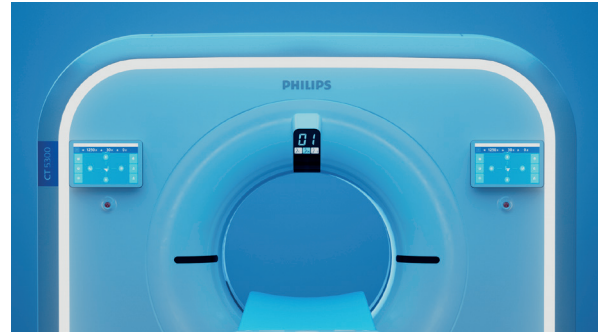
Stay closer to the patient

OnPlan patient-side gantry controls allow more to be done at the gantry, including set-up and pre-scan procedures. Patient care is optimized with a more simplified and intuitive workflow for the technologist, who can now minimize time away from the patient, doing more to alleviate anxiety and improve the patient experience. This workflow efficiency can be valuable in a critical care environment.

Two front panels – one on each side of the gantry, provide easy access to the technologist for managing scan workflow within the scan room.

- Patient registration and exam card selection – Directly access the worklist, confirm patient details and choose the exam card without leaving the patient’s side, or use the dedicated ED-trauma mode to start scanning immediately
- Intuitive table control – OnPlan patient-side gantry controls provide fast touchscreen-optimized table motion control
- Precise Position integrated into OnPlan workflow allows easy access to the AI-enabled camera workflow as part of patient setup

Remaining at the patient’s side during the entire set-up and pre-scan process can speed up workflow and allow for consistent imaging results.



Anonymized patient entry of the dedicated ED-trauma mode allows scans to be started as quickly as possible.

Dedicated ED-trauma mode

The dedicated ED-trauma mode lets the user bypass the HIS RIS patient setup, creating a quick anonymized patient entry, and the workflow is streamlined by using dedicated trauma protocols.



Precise Position AI-enabled smart camera

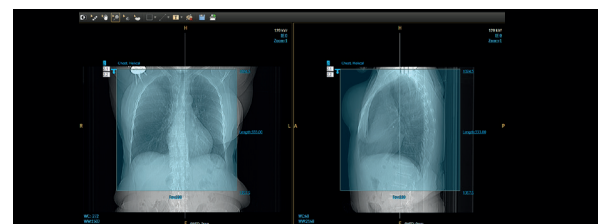
Precise Position improves patient positioning accuracy, speed and user-to-user consistency, using 13 anatomical landmarks to automatically position the patient at isocenter and select the surview start and end position.

- Reduces patient positioning time by up to **23%***
- Increases consistency from user to user by up to **70%***
- Improves accuracy of vertical centering relative to manual positioning by up to **50%***



Precise Planning

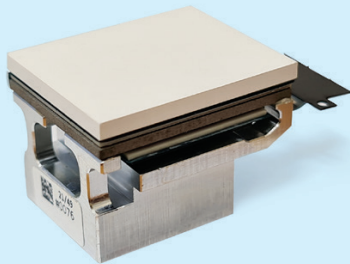
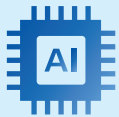
Precise Planning automatically positions the diagnostic scan plan box on the surview over the anatomy to be scanned, simplifying exam preparation and supporting the speed, efficiency and consistency of scans.



*Based on Philips in-house assessment by five clinical experts, comparing manual positioning versus Precise Position in 40 clinical cases using a human body phantom.

Built for speed and high-quality images at low dose

The NanoPanel Precise detector paired with Precise Image AI-based reconstruction allows for improved image quality, at ultra-low dose levels.



NanoPanel Precise is made for AI

Application-specific integrated circuit (ASIC) design for AI reconstruction reduces artifacts inherent in low dose imaging, **reducing noise by up to 19%***

AI deep learning for fast image reconstruction

Up to **40 IPS** for AI-reconstructed images to speed diagnosis in a time-sensitive ED environment



Precise Image

80% lower radiation dose**

85% lower noise**

60% improved low contrast detectability**

Quick image reconstruction

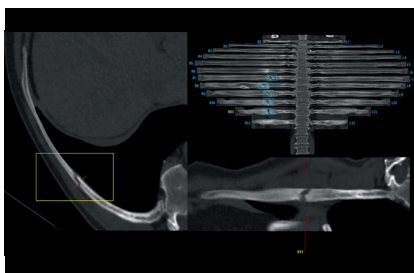
CT scans for emergency and trauma produce a multitude of images, and image reconstruction must occur quickly to ensure the clinician is able to view the images as soon as possible. For precise diagnosis, multiple axial images must be manipulated into sagittal and coronal reconstructions. Automatic production of these images can save the technologist time and provides consistent results for clinician review.

Automated visualization and processing tools

These smart algorithm tools automatically create different views for the ribs, spine, brain or volume images that can be saved as a series. This saves precious time, as the technicians do not have to create these images manually.

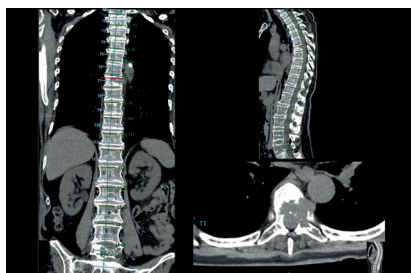
Precise Rib†

Provides dedicated visualization of the ribs in various layouts, allowing faster and more confident interpretation



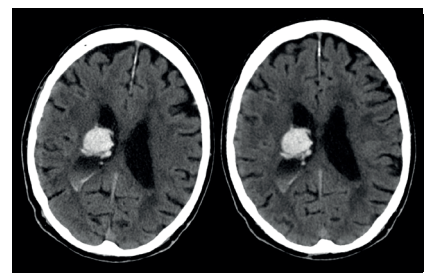
Precise Spine

Automatically labels the vertebrae and creates an axial series of images based on the spinal cord, saving manual processing time



Precise Brain

Automatically generates a symmetrical brain batch to reduce manual processing time



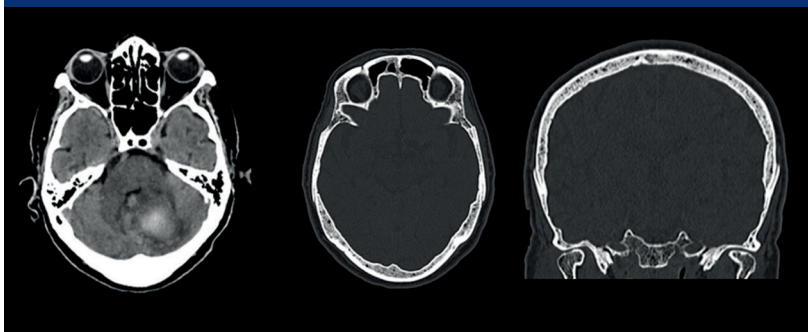
*Measured with Precise Image on water and anthropomorphic phantoms relative to predecessor detector. Data on file.

**In clinical practice, the use of Precise Image may reduce CT patient dose depending on the clinical task, patient size, and anatomical location. A consultation with a radiologist and a medical physicist should be made to determine the appropriate dose to obtain diagnostic image quality for the particular clinical task. Dose reduction assessments were performed using reference body protocols with 1.0 mm slices at the "Smoother" setting, and tested on the MITA CT IQ Phantom (CCT189, The Phantom Laboratory) assessing the 10mm pin and compared to filtered-back projection. A range is seen across the 4 pins, using a channelized hotelling observer tool, that includes lower image noise by 85% and improved low-contrast detectability from 0% to 60% at 50% to 80% dose reduction. NPS curve shift is used to evaluate image appearance, as measured on a 20 cm water phantom in the center 50 mm x 50 mm region of interest, with an average shift of 6% or less.

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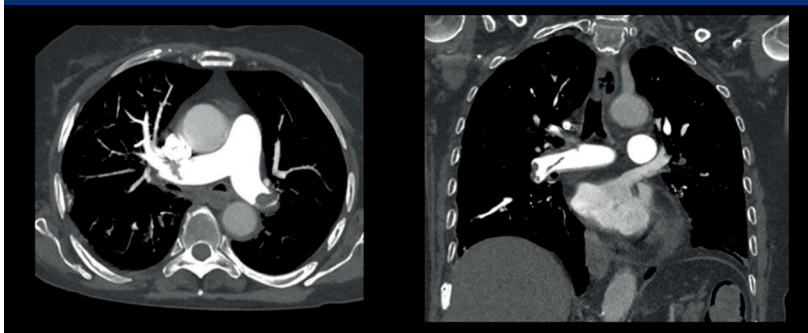
Clinical cases

Precise Image improves low contrast detectability



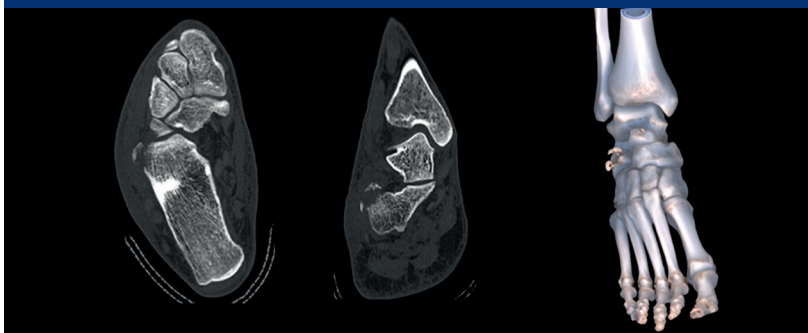
CT brain scan performed on an elderly patient after head trauma shows a left-side hematoma and several skull fractures on the bone window. Precise Image improves the low-contrast image quality and enables routine use of 1 mm slices.

Low radiation, low contrast dose CTA for PE



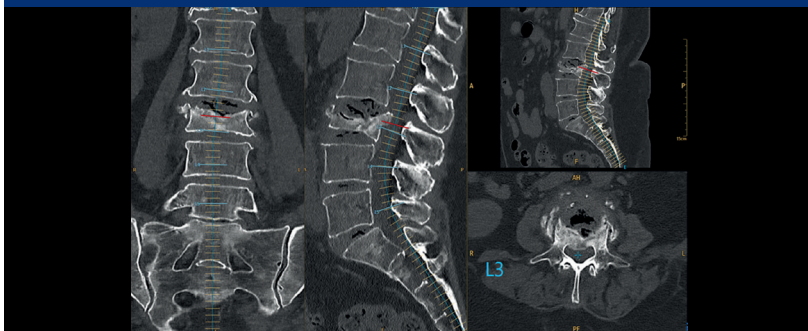
A patient was scanned in the emergency department to rule out pulmonary embolism due to shortness of breath. Due to symptoms, the patient was unable to suspend respirations during the scan. 80 kVp was used for this exam, which enabled a reduction in contrast bolus (30 mL) and resulted in an effective dose below 1 mSv.

Excellent resolution with the new NanoPanel Precise detector



Excellent resolution with the new NanoPanel Precise detector in the extremity scan of the patient that fell from a height, resulting in a fractured calcaneus.

Precise Spine provides automated workflow for fast and easy workup



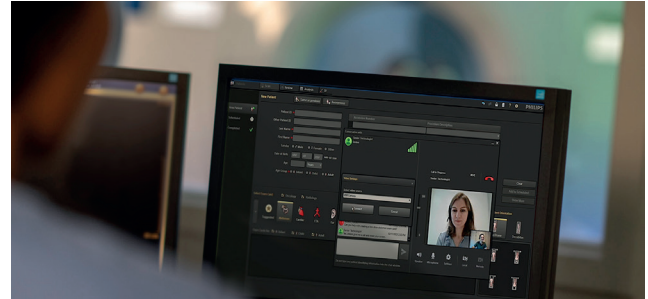
Precise Spine provides an automated workflow for a fast and easy workup to visualize fractures along the spinal cord. The vertebrae are automatically labeled for quick reporting.

Empower your ED and trauma imaging team

Philips can help you address the challenges of ED and trauma imaging through streamlined workflow with CT Collaboration Live*, high uptime and remote service support for system performance.

CT Collaboration Live*

Now team members have more of the support they need to be successful. CT Collaboration Live lets users connect remotely so they can communicate through voice and video calls from the scanner. This gives the CT user the ability to consult with peers when necessary. It also offers the opportunity to easily connect with the clinical team for guidance to help make quick decisions in a time-critical situation about the most effective course of action.



Enabling uninterrupted workflow with remote monitoring and diagnostics

Philips provides advanced remote service capabilities by harnessing AI and machine learning. Technical remote support using data from remote monitoring and diagnostics allows our experts to remotely identify and resolve issues. This 24/7 proactive approach detects anomalies and helps to address issues before they impact system performance, and even prevent them from happening in the first place.

Mission-critical capabilities, uptime and reliability

CT 5300 is designed with the imaging advances and reliability you need to support your ED and trauma department with high-quality imaging, night and day. Philips has been perfecting X-ray tubes for more than 100 years, and the CT 5300 vMRC is no ordinary tube. Each vMRC tube is rigorously tested using multipliers of stress to assure reliability and arcing stability. With our tailored maintenance services and industry-first Tube for Life guarantee, each tube is also supported by expert Philips service engineers and designed to maximize system availability, reduce unplanned downtime and help lower total ownership costs. We are so confident about vMRC tube reliability that, with this guarantee, we'll replace it—if necessary—for the life of your system at no cost to you.**

Reduce unplanned downtime with remote maintenance services

41%

faster resolution when critical system issues arise with remote service capability¹

>50%

of CT service cases are diagnosed and resolved remotely²

84%

first-time-fix rate for on-site visits³

Philips proactively detects issues related to critical components such as the tube and detector before they interrupt your operations⁴

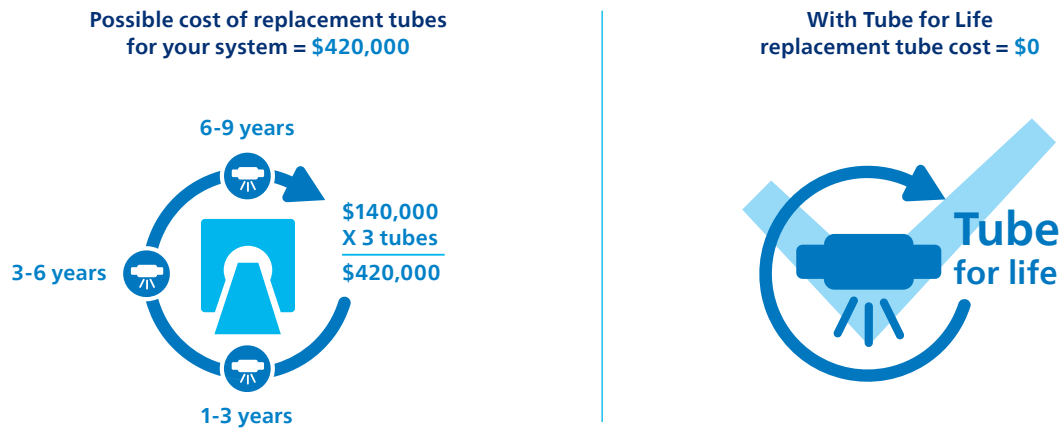
Up to **98%**
system uptime guarantee⁵

* Not available in all geographies.

** Life of the product is defined by Philips as 10 years. Tube for Life guarantee availability varies by country. Please contact your local Philips sales representative for details.

Tube for Life guarantee*

The Philips industry-first Tube for Life guarantee can increase uptime and help lower operating costs by an estimated \$420,000 over the life of your system.**



*Life of the product is defined by Philips as 10 years. Tube for Life guarantee availability varies by country. Please contact your local Philips sales representative for details.
**Actual operating costs for customers vary significantly because many variables exist (such as CT make and model, hospital or imaging center size, case mix, system usage). The potential savings identified estimates the avoidance of purchasing replacement tubes over a 10-year useful life of a CT system, based on an average selling price of \$140,000 per replacement tube and estimated tube life of three years. There can be no guarantee that all customers will achieve this result.

Conclusion

Philips CT 5300 is intelligence reimaged, offering advanced capabilities powered by AI that help you meet the demands of ED and trauma imaging. Scans are fast to set up and perform, with quick high-quality results to help enhance diagnostic confidence in time-sensitive ED and trauma cases. AI-powered capabilities, services and solutions for high system reliability provide clinical, operational and financial benefits. Philips is committed to helping support ED and trauma teams as they improve care.

References

1. Data on file is based on the comparison between remotely connected & reachable and non-remotely connected / non-reachable systems. Data sample from August 2021 to July 2022 for all CT Brilliance Air Product Line, iCT Product Line, Ingenuity Product Line, Incisive and Spectral CT, which are with full remote capabilities under service contract (n=5144). Case priority = 1 & 2.
2. Data on file is based on the comparison between remotely connected & reachable and non-remotely connected / non-reachable systems. Data sample from August 2021 to July 2022 for all CT Brilliance Air Product Line, iCT Product Line, Ingenuity Product Line, Incisive and Spectral CT, which are with full remote capabilities under service contract (n=5144).
3. Philips internal data. Case Resolution Dashboard in Qlikview, May'21-Mar'22. Data shown is an average based on a comparison of remotely connected CT systems.
4. Based on data collected between Jun 2023 and May 2024 on all service events registered on remotely connected Philips CT systems globally. Downtime does not include time due to planned maintenance.
5. Depending on type of service agreement. Individual service agreements may vary per market.



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