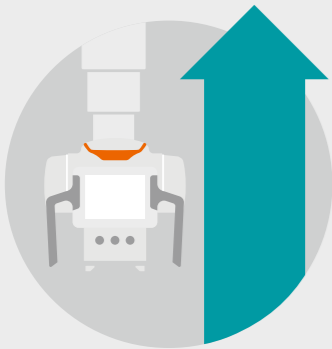YSIO X.pree VA20

Intelligence for excellence

siemens-healthineers.com/ysio-xpree

A challenging situation that calls for an intelligent solution so that you can excel

+2.3%
radiography examination volume until 2025[1]

81%
of technologists spend over 2 hours a day in awkward positions[2]

+8.5%
technologist vacancy rate[3]

In physically demanding high-throughput environments, safeguarding excellent results can be challenging.

YSIO X.pree
Intelligence for excellence

Designed to help you maintain high standards in the face of daily challenges: YSIO X.pree is where great usability meets outstanding image quality.

Its system intelligence helps you preserve your team's well-being and deliver excellent results for optimal patient care – even in high-throughput situations.
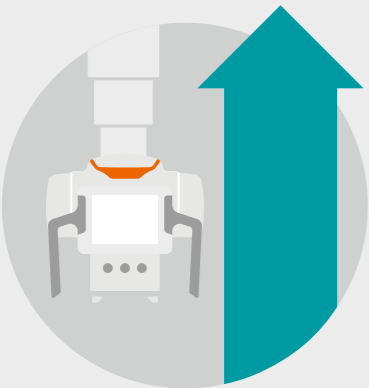
Intelligence – for smoother system and patient interaction

YSIO X.pree offers intelligent solutions, combining AI-supported imaging for consistent results and fast workflows with features that reduce physical strain. Experience smoother interactions with the system and patients – as well as precision, accuracy, and speed in workflows.

Excellence – for consistent results tailored to your needs

At the same time, YSIO X.pree safeguards excellence in imaging, providing customizable yet consistent images. State-of-the-art detectors and intelligent features allow you to optimize images for individual needs and reduce variations even in demanding situations.

Rising radiography workloads put pressure on technologists

+2.3%

radiography examination volume until 2025[1]

86%

of technologists reporting musculoskeletal symptoms[2]

The volume of radiography examinations continues to rise, which means that technologists spend a significant amount of time on system adjustments, exam settings, and patient positioning – increasing the already high physical demands.

# Intelligence – for smoother system and patient interaction

YSIO X.pree offers intelligent solutions for smoother interaction both with the system and with patients. From intelligent workflow support to a holistic concept for smoother daily routines, YSIO X.pree helps you tackle your workload with more ease.
Benefit from precision, accuracy, and speed in workflows, from more patient focus through less system interaction – and from easy and less physically demanding operation.

YSIO X.pree is so intuitive that technologists are able to perform a standard chest X-ray exam without any prior explanation.[4]

Speed up and standardize examinations

YSIO X.pree revolutionizes collimation workflows by leveraging intelligent, camera-based support. The backbone of this is the myExam 3D Camera* which is integrated in the collimator housing. It delivers a live patient image to the workstation and enables Virtual Collimation* – touchscreen collimation that reshapes the way X-ray exams are performed.

Based on this, you can choose from a range of AI-supported functionalities that help you focus on your patients and speed up workflows. Benefit from standardized examinations, improved comparability, reduced time in setting scan ranges, and peace of mind in advanced examinations.

Study setup

Recordings

Field notes

Observations

Data points & system log files
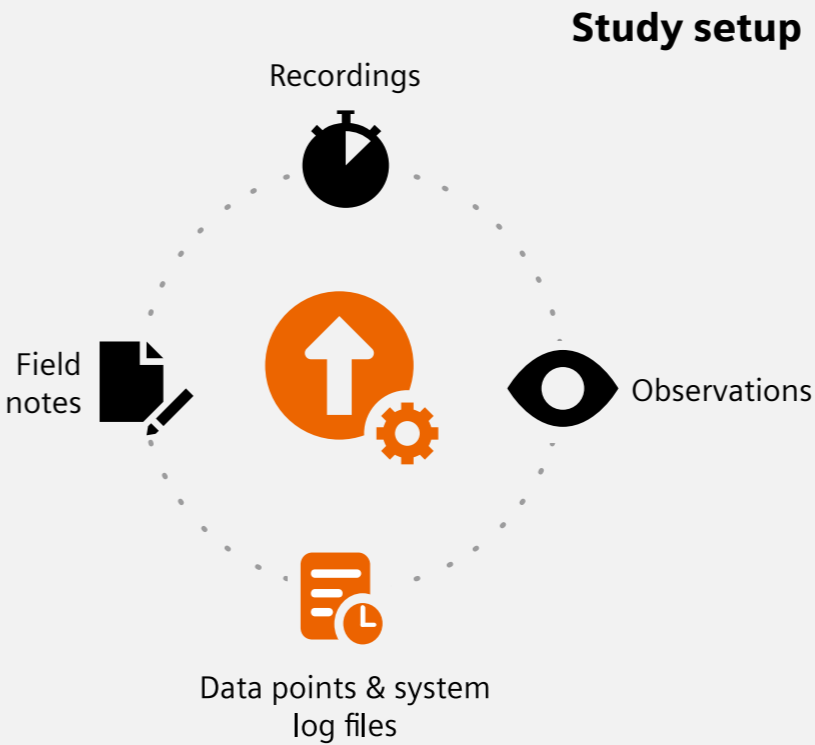
Multicenter product evaluation study

YSIO X.pree and its camera-based functionalities were tested in a multicenter study that combined observations with various research methods and data analysis. The study was conducted at five sites across Germany, Austria, the Netherlands, and the USA. During regular radiography examinations two researchers counted system interactions and measured time stamps. In addition, at least two technologists per institution were interviewed to collect subjective evaluations.

The study showed that YSIO X.pree supports easy and efficient workflows and reduces manual interactions. Virtual Collimation, the basis of all camera-based features, was shown to create confidence for technologists and offer possibilities for saving time.

Virtual Collimation helped 100% of technologists to detect whether patients moved and were still positioned correctly before image acquisition.[5]

100%
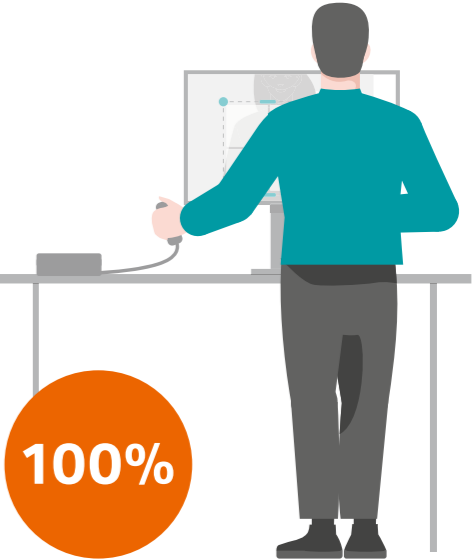
Speed up and standardize examinations
# AI-based standard workflows

The myExam 3D Camera* and AI join forces to advance standard radiography examinations. Experience user-assisting system intelligence – helping you keep the patient in focus at all times and safeguard better comparability of imaging results.

Virtual Collimation

Virtual Collimation* is a revolutionary touch functionality that supports you in all kinds of exams, from standard to orthopedic and pediatric. A live camera image provides a direct view of the collimation field along with a clear visualization of the AEC chambers.

Virtual Collimation allows you to collimate or perform adjustments at the workstation right before X-ray exposure. This not only reduces walking time but also the time patients must remain still.
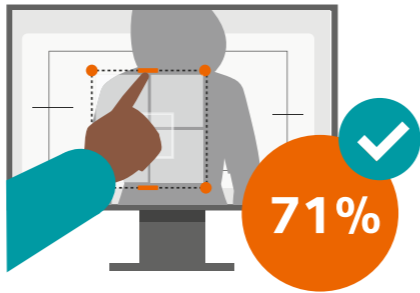
In our study, Virtual Collimation was used in 71% of all examinations to check the field of view or adjust it at the workstation.[6]

Auto Thorax Collimation

Auto Thorax Collimation* is a powerful combination of the myExam 3D Camera, Virtual Collimation, and AI. Based on an AI algorithm, it automatically detects the thorax and delivers automated, appropriate collimation help.

Auto Thorax Collimation allows you to focus on your patients and their well-being while the system does the rest – helping you deliver upright chest images in PA, LAT, and AP position with ease.

Auto Thorax Collimation can reduce the average chest X-ray examination time by 28%.[7]

AI-based stitching workflows

Combining the live camera image of the myExam 3D Camera* with SmartOrtho,* our source-tilt technique for stitched images, YSIO X.pree helps you reduce time in setting scan ranges and promises peace of mind in advanced examinations.
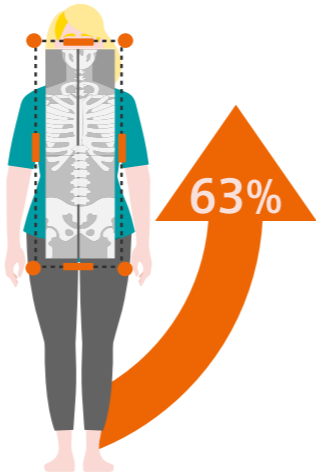
Smart Virtual Ortho

Harness the power of Virtual Collimation in orthopedic exams. The live camera image of the patient makes for smoother preparation and helps you detect patient movement. Upon scan completion, the system automatically delivers the final composed image.

Experience seamless orthopedic workflows with more time for patient care. Smart Virtual Ortho* allows you to accurately set start and end points of imaging, helps you avoid unnecessary retakes, and eases the burden on orthopedic patients.
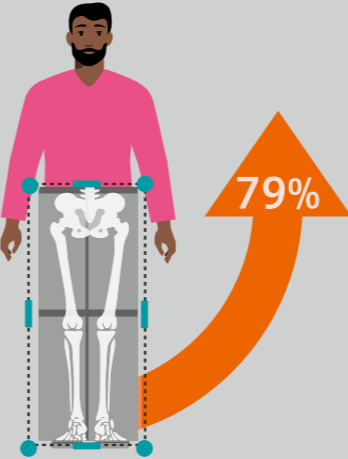
Can speed up range adjustments for long-leg and full-spine examinations by an average of 63% compared to SmartOrtho.[8]

63%

Auto Long-Leg/Full-Spine Collimation

Auto Long-Leg/Full-Spine Collimation** supports your team with built-in AI expertise. It combines myExam 3D Camera, AI, and Smart Virtual Ortho to automatically detect the full spine or the entire leg in standing examinations at the Bucky wall stand.

In this way, YSIO X.pree helps you deliver these images with ease. While the system takes care of everything, you can focus on your patients and their well-being.

79%

Can speed up range adjustments in long-leg and full-spine examinations by an average of 79% compared to Smart Virtual Ortho.[9]

* Option
** Option; only for Bucky wall stand examinations.

YSIO X.pree
Ease your daily routines

YSIO X.pree offers holistic workflow support that has you say goodbye to time-consuming adjustments and physically straining system movement. Combining unique automation with an intelligent workflow concept, YSIO X.pree supports smoother daily routines – and contributes to your and your patients' safety.

MAXalign – just align the tube based on the current detector angles shown on the tube touchscreen for easier and more accurate tube positioning for free exposures.

Reduced physical burden for your staff

YSIO X.pree is designed with your physical well-being in mind. Benefit from easy patient positioning and no more awkward positions while interacting with the system: YSIO X.pree is fully automated, easy to handle, and can be programmed to your individual needs.

AIM* and AIM Plus*

Move the system into into six auto-positions and four freely programmable ones with the full automation offered by AIM. Go one step further with AIM Plus, which allows you to move YSIO X.pree into virtually any user-defined position.

X.wi-D detectors*

Built without a glass panel, our new high-resolution detectors are lighter and more robust: IP67-rated for waterproof protection and easy cleaning, and designed for effortless handling – reducing operator strain.

Ergonomic design

The flat tabletop and low table height facilitate effortless patient positioning, potentially minimizing physical strain of users. Additionally, the ergonomically positioned tube-touchscreen monitor reduces neck bending while interacting with it.

Smooth and Seamless Operation

YSIO X.pree offers holistic workflow support, designed to streamline scanner operation. It starts with an intuitive interface – shared with all Siemens Healthineers modalities – and visually-guided logic for simplified operation. This is completed by the intelligent workflow concept and a range of tools cover acquisition processes from beginning to end and allow you to tailor workflows to your specific needs.

Positioning Guide*

Easily access information about correct patient positioning. Customizable to your needs, you can add your own images and descriptive text to best support your teams.

Barcode reader*

The barcode reader license allows you to connect readers via USB cable – for quick and easy patient identification and speedy examination start.

Patient age brackets and patient size adapter

Age-based protocols and the patient size adapter help you tailor imaging to each individual patient and choose the ideal dose for them – for consistent images with noticeably less dose.

Auto Exposure Timer

Perform examinations using automated clinical protocol steps without having to choose the length of the exposure, regardless of patient size. Reduce the likelihood of incorrect exposures and produce consistent results.

Quickflow or Standard Workflow

Whichever you prefer: YSIO X.pree allows you to decide whether to perform postprocessing after each image or once all images have been acquired.

Good imaging results can be a challenge in high throughput environments

Number of radiologists per 100,000 population

8.5
UK[10]

13
Europe[11]

10[11]
USA
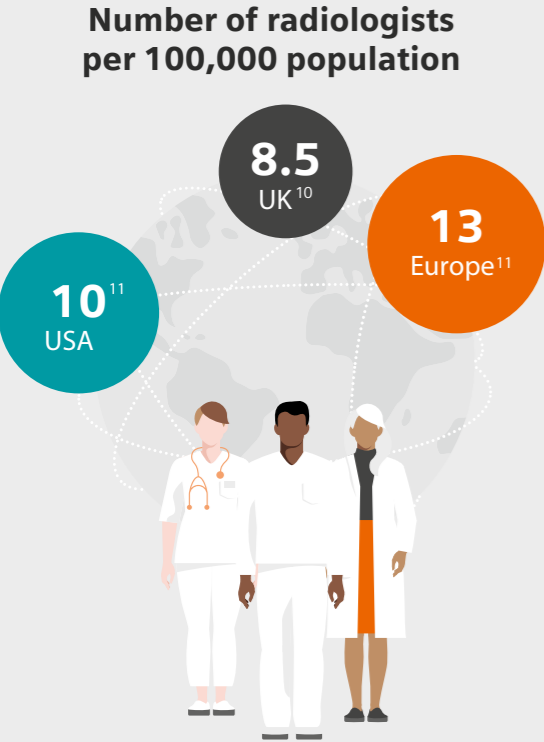
Shortages in radiologist positions combined with high patient throughput can make consistent images across a broad range of patients quite challenging.

# Excellence – for consistent results tailored to your needs

YSIO X.pree offers a holistic concept for customizable, yet consistent image quality. State-of-the-art detectors and a range of intelligent features help you optimally tailor images to your preferences and individual patients' needs.
Reduce unwarranted variations even in challenging situations and benefit from excellent images to better navigate your daily workload.

Combine easy handling and high image quality

The X-wi.D detectors are not only easy to handle and clean – they also deliver outstanding images. With a pixel size of 99 μm and spatial resolution of 5.06 lp/mm, they give you a clear view even with a large zoom factor in reading.[12]

Benefit from consistent, high-resolution images

The high spatial resolution of X.wi-D detectors is complemented by an image impression that is known by the reader from MAX detectors. Images will feel familiar but deliver a higher degree of sharpness. This may give you advantages in a broad variety of tasks: You may, for example, diagnose or rule out fractures with higher confidence, so that additional imaging may not be necessary anymore. The images delivered by X.wi-D also allow you to delineate cortical surfaces or other structures that are challenging due to substantial superimposition. Or they may facilitate the diagnosis of subtle osseous lesions as in rheumatoid arthritis.

Study ID: 5aaf237
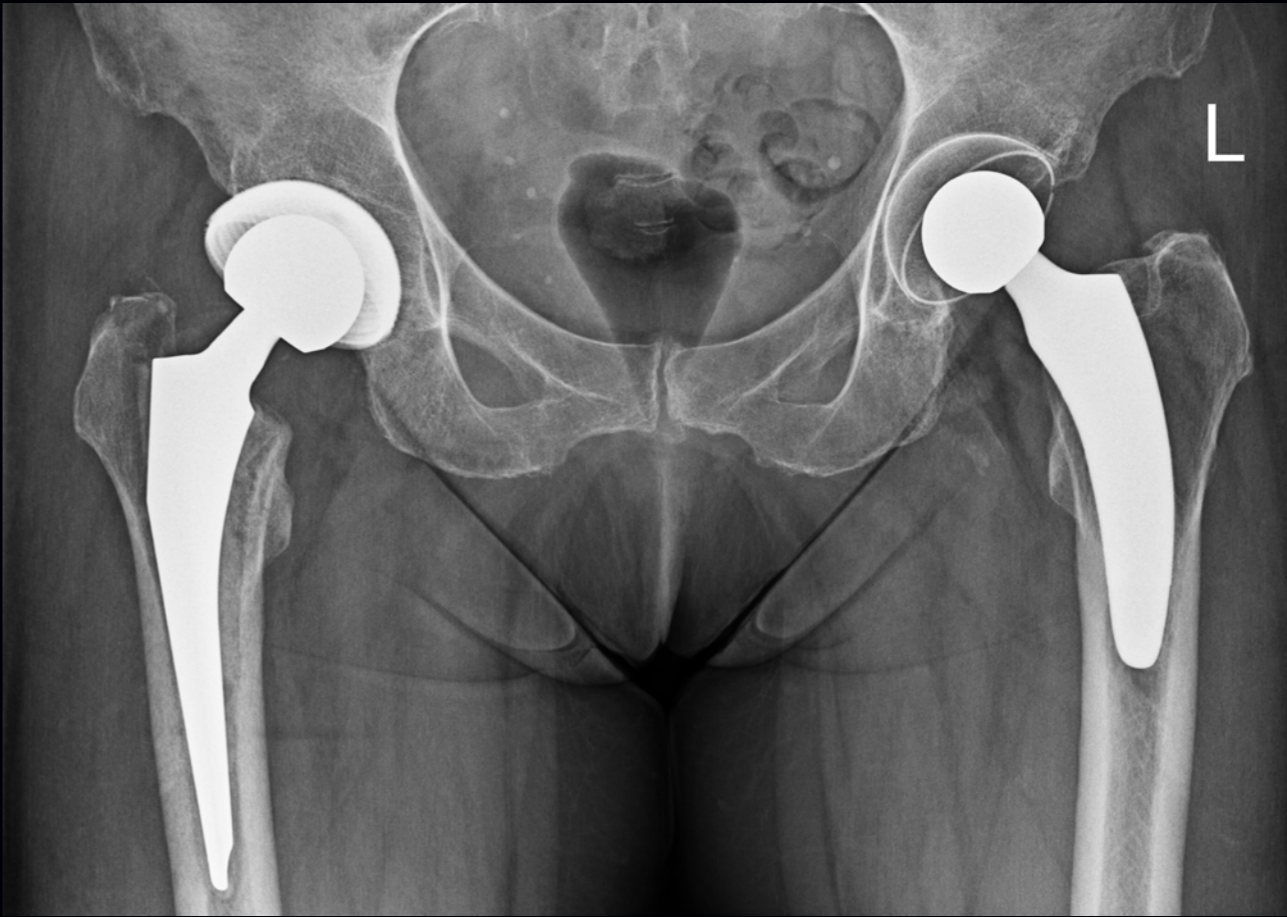
Pelvis AP free | Follow-up after TEP | X.wi-D 43 | Image Flavor 1.1 | 69.22 μGy*m²
Courtesy of University Hospital Augsburg, Germany

"The diagnosis of subtle osseous lesions, such as in rheumatoid arthritis, may benefit particularly from the higher spatial resolution of 99 μm."

Dr. med. Jan-Peter Grunz, MD University Hospital Wuerzburg, Germany

Study ID: 5aaf325

Ankle AP free | Arthritis MTP joints
X.wi-D 43 | Image Flavor 1.1 | 1.21 μGy*m²

Tailor images to your needs

YSIO X.pree features myExam IQ and other intelligent technologies, like AI-based body part detection and collimation support, to deliver exceptional, uniform images. Experience tailor-made clinical images that meet your exact needs without compromising on image clarity or consistency.

myExam IQ is a sophisticated imaging concept that deploys smart technologies to produce superb, consistent images. It encompasses intelligent dynamic range optimization, neural networks, and intelligent noise elimination. Tailor images to your needs in terms of image contrast and dose.

It also helps you with image contrast and image noise. Intelligent dynamic range optimization provides your preferred image contrast and consistent image impression. Intelligent noise elimination automatically removes image noise – and enables low-dose settings for all clinical tasks.

AI-based cropping

Get support when cropping images with our AI-based cropping algorithm – a deep neural network trained on about 1,800 images.[13] The algorithm detects the edges of the image and segments it into collimator and image areas. Get well-cropped images regardless of type of acquisition (e.g., free examinations or examinations with a rotated collimator).

Ankle with metal implants ▶
Study ID: 5aaa433
Courtesy of University Hospital Erlangen, Germany

Forearm pediatric ▶
Study ID: 5aaa436
Courtesy of University Hospital Erlangen, Germany

Adaptable Image Flavors

Align and standardize image impressions based on your clinical requirements. You can choose your preferred image impression from 16 Image Flavors for each clinical protocol, which can then be customized even more. Dual processing automatically processes the image in a second flavor – e.g., for tube and line enhancement (TLE). This helps to increase standardization of results and perform your diagnostics with fewer technical adjustments.

Chest PA upright
Image Flavor 3.2
Study ID: 5aaf053

Chest PA upright
Dual Processing | TLE Flavor 03
Study ID: 5aaf053

Hand PA Free exam | Gridless acquisition
Image Flavor 2.2
Study ID: 5aab537

Lumbar spine AP
Image Flavor 2.1
Study ID: 5aae313

Gridless imaging

An essential part of myExam IQ image quality is gridless imaging. myExam IQ optimizes gridless images by reducing the appearance of scatter with a special algorithm based on multi-frequency band processing. Benefit from clear images with high contrast for thorax exams and other body regions.

> **Gridless imaging is an essential part of myExam IQ image quality and is shipped with every YSIO X.pree system.**

Without myExam IQ
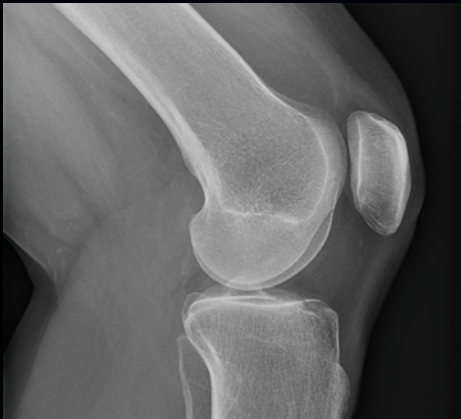
Study ID: 5aab479

With myExam IQ

Study ID: 5aab479

Gridless imaging of knee
Both images courtesy of Martha-Maria Hospital
Nuremberg, Germany

# Ensure the right dose for each patient

Dose adaptations

During system installation, you can define dedicated clinical protocols and dose settings in up to 22 age brackets and four size classifications (S, M, L, XL). During procedures, simplychoose the patient size and the system will automatically set the scan parameters. If desired, you may adjust the AEC target dose in steps of 0.5 EP.

Low-dose stitching exams

Our camera-guided ortho examinations (Smart Virtual Ortho* and Auto Long-Leg/Full-Spine Collimation*) also benefit from dose adaptions. Easily judge if you can perform an exam with fewer images. Adjust dose levels individually and potentially reduce both retakes and dose.
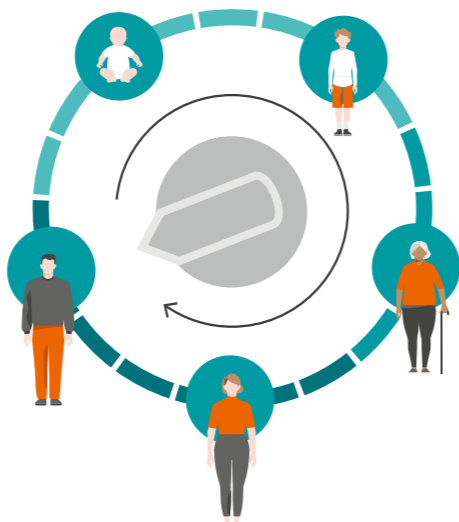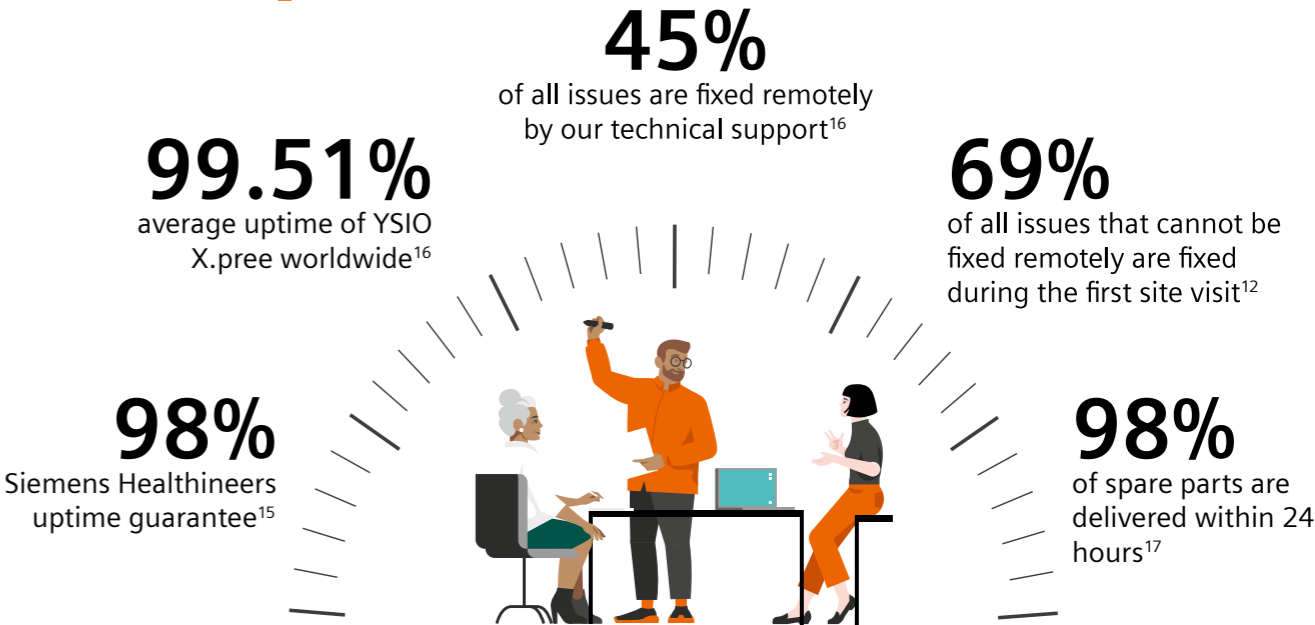
Supporting your sustainability efforts

36%
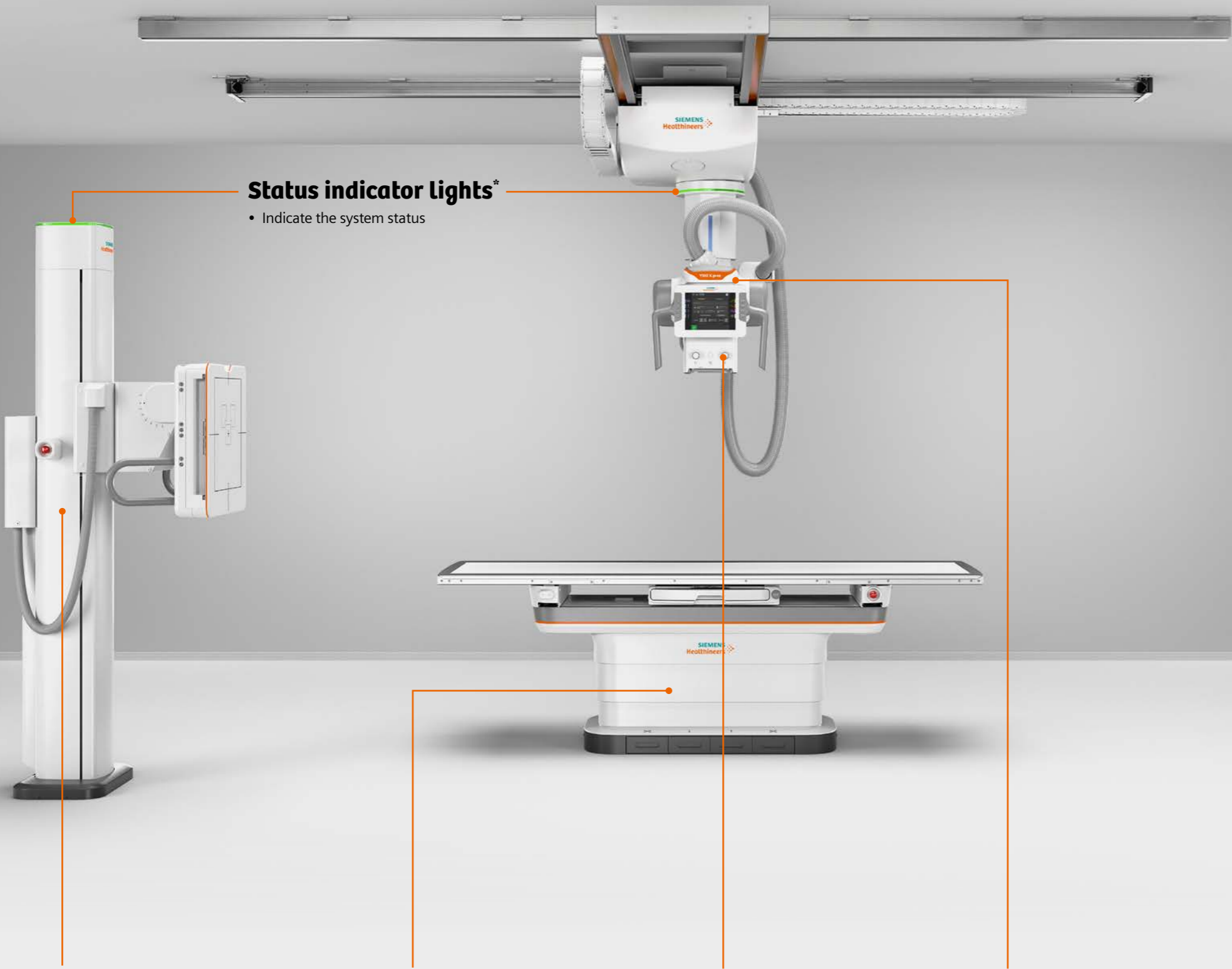**less energy consumption** in system use phase[14]
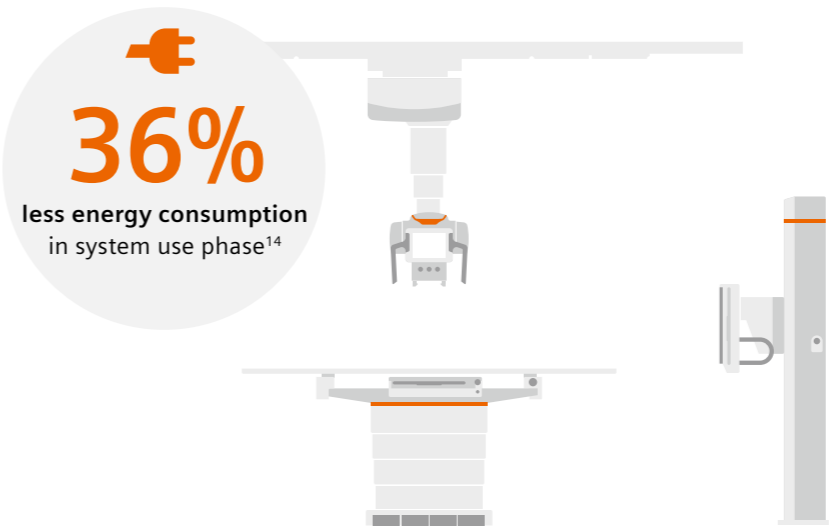
Empowering Efficiency

- Reduced energy consumption to increase resource efficiency
- Save up to **1,380 kWh per year**[14]

Anytime remote support for YSIO X.pree

45%
of all issues are fixed remotely by our technical support[16]

99.51%
average uptime of YSIO X.pree worldwide[16]

69%
of all issues that cannot be fixed remotely are fixed during the first site visit[12]

98%
Siemens Healthineers uptime guarantee[15]

98%
of spare parts are delivered within 24 hours[17]

* Option

Technical specifications

Status indicator lights*

- Indicate the system status

MAX Detectors*

(Wireless) detectors with a resolution of 148 μm.

MAX wi-D: 35 cm x 43 cm
MAX mini: 24 cm x 30 cm
MAX static: 43 cm x 43 cm

X.wi-D detectors*

Glassfree wireless detectors with a high resolution of 99 μm and IP67 rating.

X.wi-D 24: 24 cm x 30 cm
X.wi-D 35: 43 cm x 35 cm
X.wi-D 43 : 43 cm x 43 cm

Intuitive workflows

Intuitive interfaces, AI support, and workflows adapted to your institutional needs.

myExam IQ

Smart technologies help you produce superb, consistent images from day one.

Bucky wall stand*

- Automatic tube tracking
- Vertical travel range: up to 144 cm
- Low central beam height: 31.5 cm
- Tilting (+90° / −20°) and non-tilting versions available
- Optional with MAX static, MAX wi-D, X.wi-D 43, or X.wi-D 35

Table*

- Automatic tube tracking
- Adjustable height: from 51.5 to 95.5 cm
- High weight capacity: 450 kg (static)
- Flat table top or standard table top
- Optional with MAX static, MAX wi-D, X.wi-D 43, or X.wi-D 35

myExam 3D Camera*

enables myExam Collimate for
- Virtual Collimation*
- Auto Thorax Collimation*
- Smart Virtual Ortho*
- Auto Long-Leg/Full-Spine Collimation*
- Live camera image

Ceiling-mounted tube

- Easy reachable touchscreen
- 10.4 inch touch user
- Automation AIM Plus*
- MAXalign for automatic display of detector angle

Why Siemens Healthineers

We pioneer breakthroughs in healthcare. For everyone. Everywhere. The innovative healthcare solutions offered by Siemens Healthineers are crucial for clinical decision making and treatment pathways. We are a team of 66,000 highly dedicated employees across more than 70 countries passionately pushing the boundaries of what's possible in healthcare to help improve people's lives around the world.

1   Signify Research Diagnostic Imaging Procedure Volume Database

2   Shubayr N, Alashban Y (2021): Musculoskeletal symptoms among radiation technologists in Saudi Arabia: prevalence and causative factors.

3   ASRT Radiologic Sciences and Staffing Survey

4   Based on a study with 16 technologists, data on file.

5   Whitepaper (2023): YSIO X.pree – How intelligent imaging assures an efficient and patient-centered radiography work-flow: Based on a study with 13 technologists, data on file.

6   Whitepaper (2023): YSIO X.pree – How intelligent imaging assures an efficient and patient-centered radiography workflow

7   Whitepaper (2023): YSIO X.pree – How intelligent imaging assures an efficient and patient-centered radiography work-flow: A chest X-ray examination is defined as the time between patient positioning on the Bucky wall stand and images being displayed on the workstation.

8   Compared to SmartOrtho; Whitepaper (2023): YSIO X.pree – How intelligent imaging assures an efficient and patient-centered radiography workflow: Range adjustments for long-leg and full-spine examinations are defined as the time between setting the upper and lower limits of the desired field of view.

9   Compared to Smart Virtual Ortho; Whitepaper (2023): YSIO X.pree – How intelligent imaging assures an effi-cient and patient-centered radiography workflow: Range adjustments for long-leg and full-spine examinations are defined as the time between setting the upper and lower limits of the desired field of view. This is based on the assumption that technologists require 1.5 seconds of perception time (Hooper-McGee, 1983) to assess the AI-based collimation results.

10 Henderson M. Radiology Facing a Global Shortage. RSNA.org; May 10, 2022 [cited 2023 Jun 13]. Available from: https://www.rsna.org/news/2022/may/Global-Radiologist-Shortage

11 Hricak H, et al. Medical imaging and nuclear medicine: a Lancet Oncology Commission. Lancet Oncol. 2021;22(4):e136-e172

12 Based on a user survey with the leading radiologist of the University Hospital in Augsburg, Germany. The individual experience may vary.

13 MAX detectors only. Data on file.

14 YSIO X.pree 11574001 compared to its predecessor system Ysio Max with similar configuration. Based on use case scenario of 365 working days, defined by COCIR for 12 hrs. standby/ready to scan (includes 6 hrs. working time to cover 234 radiographic exposures on an average), and 12 hrs. off/low power mode

15 Requires service contract Performance Plan TOP, including Smart Remote Services.

16 Data on file.

17 Siemens Healthineers Logistics cockpit