

PHILIPS

DuraDiagnost

Digital radiography

Release 4.1



Efficient DR room **like no other**

Key benefits:

- Superb diagnostic confidence
 - Ease of use
 - High reliability
 - Latest IT standards
-

Enjoy a radiography system designed for reliable, consistent performance and low cost of ownership. Philips, a leading provider of digital radiography for over 20 years, presents the latest release of DuraDiagnost family.

Equipped with our latest generation of fixed / wireless portable detectors and state-of-the-art IT standards, DuraDiagnost provides your patients a fast, smooth examination, your staff an easy-to-use confident imaging environment, and your facility a reputation for quality.

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Overview of room configurations

The DuraDiagnost family is a flexible range of digital radiography (DR) systems that provides fast and smooth examinations for your patients. Whether you choose single or dual detector table-based design, each room solution provides efficient workflow to perform a medium to high volume of examinations smoothly and productively.



Efficiency room HAT
With two fixed detectors, vertical stand, X-ray tube floor stand, and height adjustable table to provide high workflow efficiency

Efficiency room HP
With one fixed detector in the vertical stand and a wireless detector SkyPlate E in the table, vertical stand, x-ray tube floor stand and height adjustable table



Value room HAT
With single wireless detector, X-ray tube floor stand and fixed or height adjustable table to provide high clinical flexibility

Conformity

The DuraDiagnost Digital Radiography X-ray system by Philips Healthcare complies with the provisions of the Medical Device Directive 93/42 EEC (CE label) and satisfies the IEC standards.

Ambient conditions

Temperature

Operation	+18°C to +30°C
Storage	-10°C to +55°C

Rel. humidity

Operation	30% to 75%
Storage	10% to 95%

Air pressure	700 hPa to 1060 hPa
Altitude	3,000 m (984' 3 1/32")

Rooms

The Philips DuraDiagnost Efficiency room provides efficient workflow for public and private hospitals as well as clinics. It offers the opportunity for enhanced patient care, ergonomic procedures and a good return on investment.

Every DuraDiagnost Efficiency room comes fully outfitted with two detectors, vertical stand, X-ray tube floor stand, and table. The distinction is found in the detector and table combinations.



Knee AP
Perform knee AP examinations comfortably with the height adjustable table

Efficiency room

Efficiency room HAT	Height adjustable table and two fixed detectors
Efficiency room HP	Height adjustable table, one fixed and one wireless detector

Main components

Hardware

- Option 1: Efficiency room HAT
- Dual fixed digital detector
 - Floor-mounted height adjustable table
 - Vertical stand
 - Comfort Align
- Option 2: Efficiency room HP
- One fixed and one wireless detector
 - Floor-mounted height adjustable table
 - Vertical stand

Tube column with X-ray tube assembly

Generator and X-ray tube pack (50 kW and RO1750)
Optional: 65 kW and SRO33100

Eleva workspot with 19" LCD touch screen

Software

Eleva application and examination database software

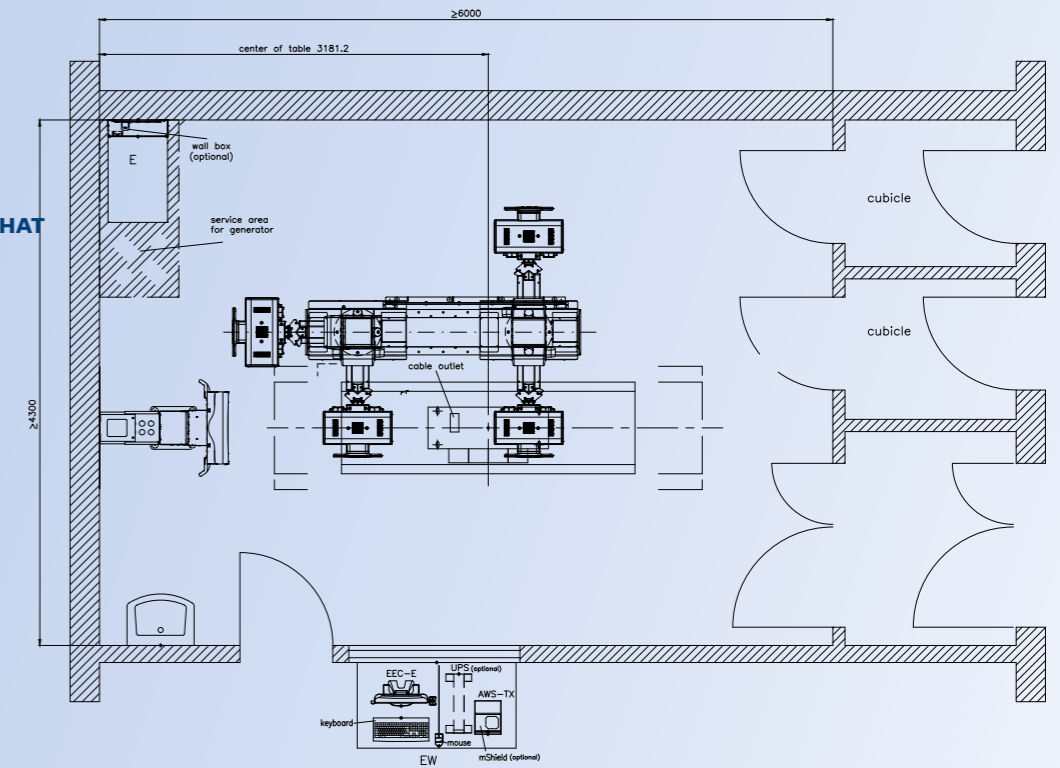
Integrated generator control

UNIQUE 2 image processing

DICOM package plus

Dimensions
All dimensions
in mm and inches

**Room layout -
top view**
Efficiency room HP/HAT



High workflow efficiency with two DR detectors in one room

Note: the collimator light is connected with the foot pedal on a fixed table

Philips DuraDiagnost Value room offers a performance oriented, cost-effective entry into digital radiography. Its ease of ownership and exam versatility makes it a smart choice.

The DuraDiagnost Value room consists of a single wireless detector SkyPlate or SkyPlate E*, X-ray tube floor stand and fixed or height adjustable table. Simply choose the table type that best suits your need.



Chest PA Standing
Detector inserted into the detector carrier of the vertical stand



Elbow lateral
Convenient and easy patient positioning through manual height adjustment and compact detector unit

Note: the collimator light is connected with the foot pedal on a fixed table

Value room

Value room HAT	Height adjustable table and one wireless detector
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Main components

Hardware:

Floor-mounted height adjustable table and vertical stand with one wireless portable detector (Value room HAT)

Tube column with X-ray tube assembly

Generator and X-ray tube pack (50 kW and RO1750)
Optional: 65 kW and SRO33100

Eleva workspot with 19" LCD touchscreen

Software:

Eleva application and examination database software

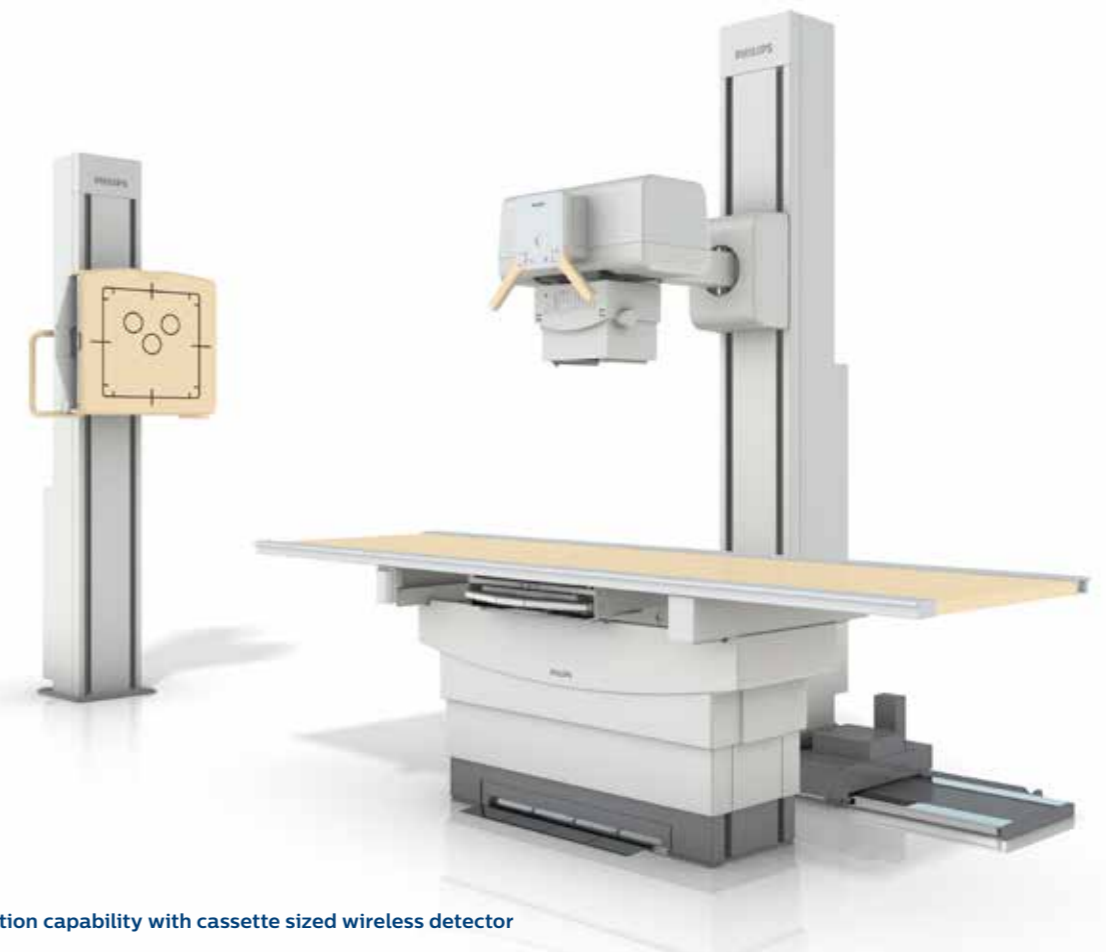
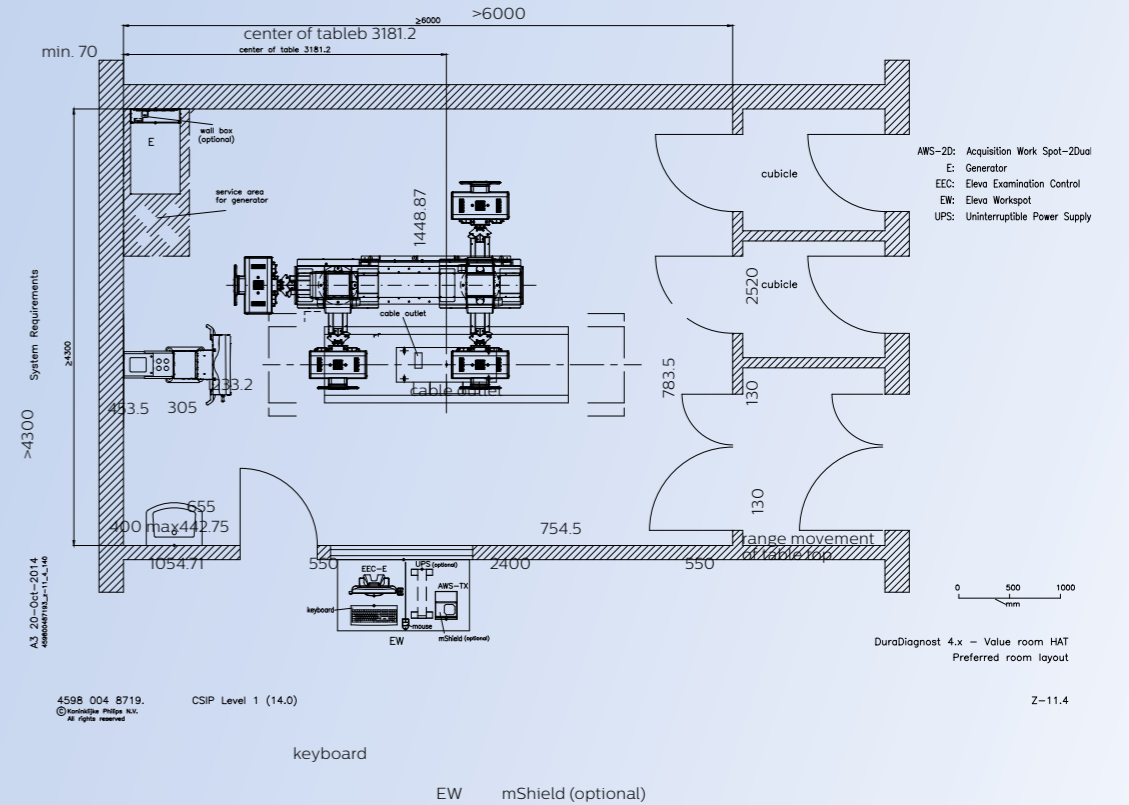
Integrated generator control

UNIQUE 2 Image processing

DICOM package plus

Dimensions
All dimensions in mm and inches

Room layout - top view
Value room HAT



Full application capability with cassette sized wireless detector

The optional hardware and software are universal for all room configurations of DuraDiagnost family.

Optional hardware and software

Optional

Hardware

SRO33100 tube with 65 kW generator

Trolley

SkyPlate/SkyPlate E*

Uninterruptable Power Supply (UPS)

Software

DICOM communication package

mShield dedicated firewall protection

Clinical Quality Control (QC)

SkyPlate sharing

SkyFlow Plus

Dose Reporting in DICOM Structured format

Digital detectors

Philips digital fixed detectors and the SkyPlate detectors feature superb image quality at a low X-ray dose with high DQE and MTF. You can benefit from extended configuration and budget flexibility thanks to table and vertical stand trays for the large SkyPlate detector and the Skyplate E*, as well as the option to share both SkyPlates across compatible Philips DR systems.

Fixed flat detector and SkyPlate detectors

Detector	Fixed flat detector	SkyPlate large	SkyPlate E*
Scintillator	Cesium Iodide (CsI)	Cesium Iodide (CsI)	Cesium Iodide (CsI)
Detector size	43 cm x 43 cm (17" x 17")	35 cm x 43 cm (14" x 17")	35 cm x 43 cm (14" x 17")
Image matrix size	2,840 x 2,874 pixel	2,330 x 2,846 pixel	2,156 x 2,653 pixel
Pixel size	148 µm	148 µm	160 µm
A/D conversion	16 bits	16 bits	16 bits
*Temperature – functional detector panel	15 °C to 40°C	10°C to 35°C	10°C to 35°C
Active area	42 cm x 42.5 cm (16.5" X 16.7")	34.5 cm x 42.1 cm (approx. 13.6" x 16.6")	34.5 cm x 42.5 cm (13.6" x 16.7")
Detector pixels	8.2 Megapixel	6.6 Megapixel	5.7 Megapixel
Image resolution	Up to 3.4 Lp/mm	Up to 3.38 Lp/mm	Up to 3.125 LP/mm
DQE and MTF values at 2 uGy	DQE (%) MTF (%)	DQE (%) MTF (%)	DQE (%) MTF (%)
0.05 Lp/mm	67 N/A	70 N/A	70 N/A
1.0 Lp/mm	51 62	51 63	51 62
2.0 Lp/mm	42 35	42 35	42 34
3.0 Lp/mm	27 19	29 19	22 18
External dimensions (max)	500 x 488.5 x 43.1 mm (19.7" x 19.2" x 1.7")	384 x 460 x 16 mm (15.1" x 18.1 in x 0.63")	384.5 x 460.5mm x 16 mm (15.1" x 18.1" x 0.63")
Weight (incl. battery)	11.7 kg (25.8 lb)	2.8 kg (6.2 lb)	3.1 kg (6.8 lb)
Battery charging time		4 hours max. for 100% charge	4 hours max. for 100% charge
Autonomy operation mode		Typically 6.5 hours/ 1,050 images	Typically 6h35min; one image every 60 seconds
Autonomy listen mode		Typically 11.7 hours without image acquisition	Typically 8h25min without image acquisition



SkyPlate Robustness

Max. patient weight 100 kg (220 lb) on 4 cm disk for weight bearing examinations 300 kg (661 lb) for distributed load, e.g. chest examinations in bed



SkyPlate E* Robustness

Max. patient weight 100 kg (220 lbs) on 4 cm disk for weight bearing examinations. 300 kg (662 lbs) for distributed load, e.g. chest examinations in bed (upto 150 kg on the detector)

*SkyPlate E is not available for sales in all markets.



Sharing SkyPlate detectors between systems

The common Eleva platform across DR and DRF systems not only facilitates the same user interface, but also enables SkyPlate detector sharing across compatible Philips DXR systems, helping you to improve your budget and customize detector disposition. In this manner, one small SkyPlate detector is sufficient to cover the associated specialized application range across compatible Philips systems in your department. Similarly, it is possible to use a system's large SkyPlate on another system for free exams in the room or insert it in the system's vertical stand or table tray.

Cost efficiency as the driver

- In today's medical world, facilities must be mindful of the budget while maintaining their competitive edge.
- Sharing SkyPlate between systems is a convincing answer to financial constraints.
- With a fixed expenditure, room utilization can be increased even more.

Possible scenarios for sharing SkyPlate between systems

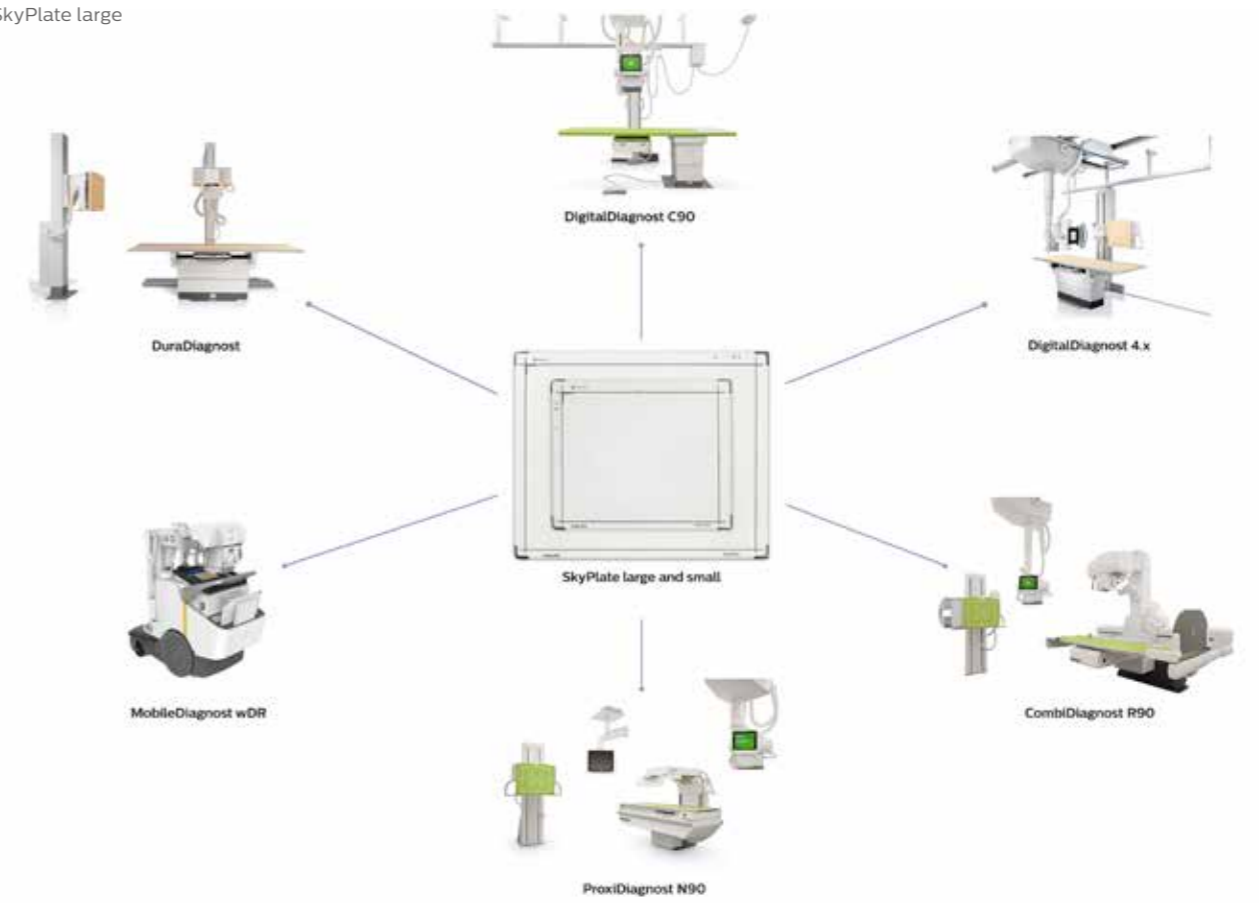
- If there are times during the day when one of our SkyPlate detectors would be enough to cover the room workload.
- If the hospital is equipped with several Philips digital radiography or fluoroscopy rooms in close proximity, which only occasionally need a SkyPlate.
- If the medical facility only needs mobile radiography units at certain times during the day.

Main benefits at a glance

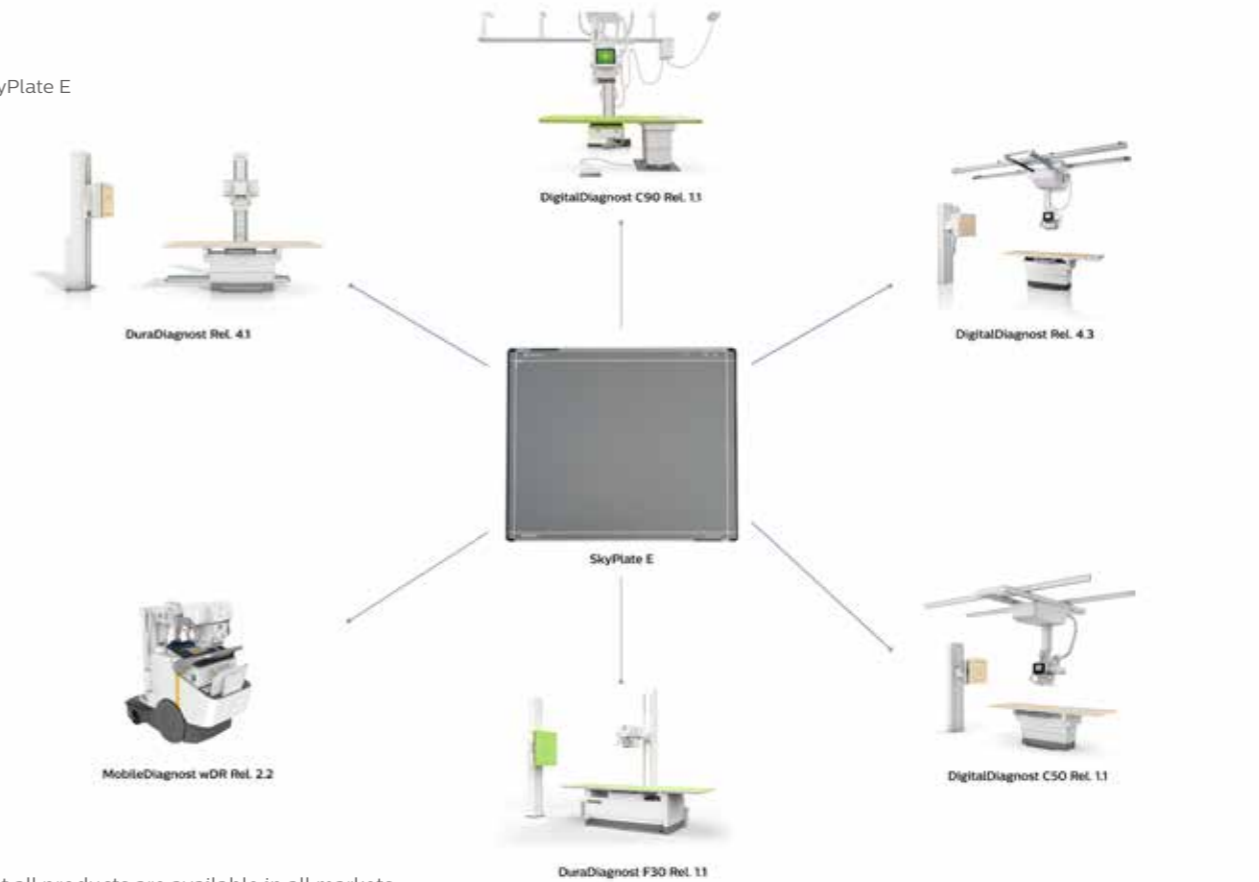
- Low initial investment provides for a high level of flexibility
- Back-up solution to provide continuous uptime
- Smart starting point for expansion, i.e. adding more SkyPlates to your department systems in the future



SkyPlate large



SkyPlate E



Not all products are available in all markets.

Eleva workspot

Eleva is the easy-to-learn common platform for various Philips DR solutions that makes workflow continuity and network communication simple. It provides a clear and intuitive touchscreen and includes the Eleva Workflow Plus and Eleva Review Plus packages – smart tools designed to streamline your daily routine. Just three steps complete an exam

Eleva Workspot computer

Operating system	Windows 10
Processor	Intel® Core™ i5-6500 Processor (up to 3.60 GHz, 6MB Cache)
Hard disc	480 GB SSD total
RAM storage capacity	16 GB
Interfaces	<ul style="list-style-type: none"> • 10/100/1,000 Base-T Gigabit Ethernet • Geometry interface • Detector interface • Memory stick support for quality control
CD/DVD drive	24x CD reader/writer 8x DVD reader/writer
Keyboard with mouse and function buttons	For entering administrative patient data and for operating the screen menus
Integrated generator control	Customizable anatomical database

Monitor

Display	19" high quality LCD color touch screen
Resolution	1280 x 1024 pixels DICOM calibrated display for room environmental illuminance 0 to 500 cd/m ²
Contrast	Typically 1000: 1
Max. brightness	> 250 cd/m ² (typical value)

Image display times	Fixed detector	SkyPlate large/SkyPlate E*
Typical time to preview image	4 seconds	3 seconds
Additional time to full image	2 seconds	5 seconds
Typical image cycle time	6 seconds	10 seconds
Image data		
Data volume	Up to 18 MB/image	
Matrix depth	16 bit/pixel	

DICOM

Dose Reporting in DICOM Structured Report format (optional)

DICOM Query/ Retrieve (optional)

DICOM package plus

The complete DICOM package plus includes:

- DICOM WLM (Work List Management) and Classic RIS
- DICOM MPPS (Modality Performed Procedure Step)
- DICOM Print
- DICOM Image Export incl. Storage Commit
- DICOM media on CD-R and DVD-R

DICOM (optional)

DuraDiagnost is DICOM compatible. This means that you can benefit from all relevant DICOM services offered via this common medical data transfer standard. Storing, retrieving, printing and other features may enhance your workflow.

You can choose between the complete DICOM package, which includes:

DICOM WLM and Classic RIS (Work List Management)
DICOM MPPS (Modality Performed Procedure Step)
DICOM Print

DICOM Image Export, which includes the services DICOM Store and Storage Commit

Or you can choose each DICOM function individually.

Clinical Quality Control (optional)

This convenient statistical tool for images enables users to analyze all images according to, for example, number of images per examination type or number and reasons for rejections. It can also be used to monitor and analyze general imaging parameters. The data files can be downloaded for further use or archived on a standard PC. It is a great tool for providing advice on quality standards in the department and for training situations.

mShield (optional)

Philips mShield is part of an overall strategy to safeguard the integrity of data on medical information systems.

Premium Eleva benefits

Eleva touch screen

Designed for DR working environments for high ergonomics and fast DR workflow

Eleva user interface

Easy to learn, efficient user interface across X-ray modalities, designed with end-users for use in DR working environments

Individual operator login and user profiles

To meet high IT security demands with improved efficiency by automatically filling in dedicated input fields

Built in help feature based on function

Provides improved user convenience and faster workflow

Eleva Review Plus

Provides dedicated review environment and tools for image review at the Eleva workstation

Eleva Workflow Plus

Provides smart tools for an improved and fast workflow such as automatic image markers or the intuitive RIS code learning feature for on-the-fly configuration of new or changed RIS codes

User-configurable and operator-depending user interface
For individualized workflow

Move tool

Allows for fast and easy corrections in case of operator error

Auto ranger function

Automatic selection of the optimal anatomically relevant image area for image processing

ROI pointer function

Manual selection of a dedicated, anatomically relevant image area for image processing

Window width/ Window level (WW/WL) function

For fast image gray level adjustments

Full screen viewing mode

For improved clinical review and quality management of images

High quality display including DICOM display standard

Provides high image quality at the Eleva user interface display



Eleva workstation

SkyFlow Plus

We're committed to providing you with technology to support premium patient care. Philips SkyFlow Plus is an intelligent software that produces images with grid-like contrast by managing the effect of scattered radiation for non-grid exams across all anatomies. You can decide whether or not to use a grid. When working without a grid, SkyFlow Plus can streamline your workflows, deliver high-quality images, and enable you to keep patients at the center of what you do.

Free up workflows

SkyFlow Plus is designed for efficiency and fully automatic operation. Without an anti-scatter grid, you'll be able to work quickly, avoiding the time and effort associated with having to attach and detach a grid, not to mention carry, position and align one. Because there is no grid, you can eliminate potential retakes due to grid cut-off or misalignment.

Enjoy superb image quality

Support clinical excellence with images of excellent quality. You can review enhanced images and make decisions on the spot since SkyFlow Plus immediately identifies and manages scatter from the image. It also delivers the correct contrast for each individual patient type by automatically adjusting the contrast enhancement based on the amount of scatter. As a result, you can examine a wide range of patients, including bariatric cases, while maintaining high standards for your images.

Enhance the patient experience

Focus on the individual, not the equipment. SkyFlow Plus features fully automatic operation in all functions, so you can devote more attention to patients. Since you may not need to prepare the detector with a grid, you will be able to focus on your patients, helping to shorten their exam times and position them comfortably during exams.

Main benefits at a glance

- Provides time savings, since there is no need to attach/detach a grid
- Obtain high-quality images equivalent to images acquired with a grid
- Saves X-ray dose due to no retakes caused by grid misalignment
- Works fully automatic and patient adaptive without special attention
- More time can be spent focusing on the patient

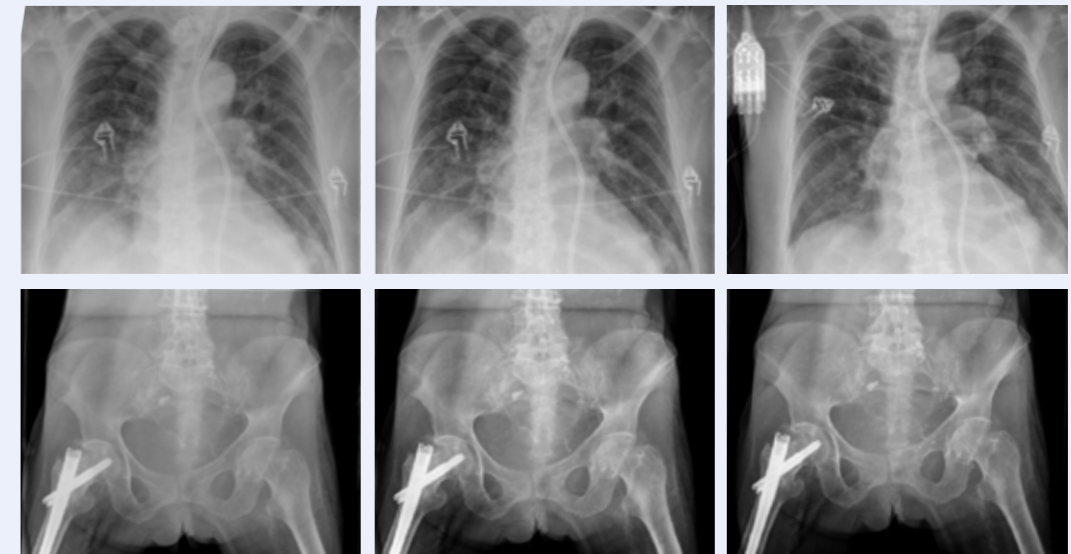


Image taken without grid

Image taken without grid and with SkyFlow Plus scatter correction

Image taken with grid

X-ray generation

The Philips dual-focus rotating anode X-ray tubes provide excellent performance over a long lifetime. The range of Philips generators features a modern architecture based on a modular design. It uses high performance components which can be combined into customer specific solutions. The generator control console is integrated in the Eleva user interface to streamline workflow. It also enables dose reporting. It shares the same generator and tube with Philips premium DR.

Generator

Generator	50 kW	65 kW
High-voltage generator	The converter generator generates high voltage equivalent to DC voltage	
Mains voltage	400 V / 480 V (±10%); 50 Hz or 60 Hz, 3-phase	
Max. mains resistance at 400 V	0.3 Ohm	0.2 Ohm
Max. mains current at 400 V	112 A	134 A
Nominal power (IEC)	50 kW	65 kW
Max. tube voltage	150 kV	150 kV
Max. tube current (at 70 kV)	630 mA	928 mA
Max. tube current (at 100 kV)	500 mA	650 mA
X-ray tube	RO1750	SRO33100
mAs product (with AEC control)	0.4 mAs to 850 mAs	0.4 mAs to 850 mAs
Exposure times	1 ms to 4 s	
Safety	Tube overload protection Automatic mains voltage compensation	

X-ray tubes

Tube	RO 1750	SRO 33100
Focal spot	0.6 / 1.2	0.6 / 1.2
Ratings	17 kW / 50 kW	33 kW / 100 kW
Anode angle	13°	13°
Anode heat storage capacity	220 kJ (300 KHU)	220 kJ (300 KHU)
Maximum voltage	150 kV	150 kV
Tube overload protection	✓	✓



Automatic Exposure Control (AEC)

Sets the exposure time according to exposure voltage and object characteristics in order to automatically obtain the correct exposure.

Collimator

Collimator	
Type	Manual, with light field indicator
Angle of aperture and rotation	±45°
Timer switch	30 s
Minimum inherent filtration value	0.3mm, Al equivalent at 75kV
Added filters	2 mm Al or 1 mm Al + 0.1 mm Cu or 1 mm Al + 0.2 mm Cu or None

UNIQUE 2

With UNIQUE 2 (UNified Image Quality Enhancement) Philips introduces the second generation of the well-established image post processing software. By increasing the image contrast and reducing noise and artifacts, we address today's radiologists' needs. UNIQUE 2 processed images result in improved visibility of details while the overall impression remains natural.

UNIQUE 2 is seamlessly integrated into DigitalDiagnost C90. The intuitive user interface provides an excellent opportunity to tailor the image to suit your needs. By means of the newly designed interface, image parameters can be easily adapted for each anatomy type, depending on the preferred focus. For ease of use, all settings can be customized through well-structured sliders within the interface. In combination with Philips' state of the art cesium iodide detectors, we provide images at superb quality enhancing your confidence in diagnosis.

Main benefits at a glance

- Intuitive user interface
- Increased image contrast
- Enhanced details
- Reduced noise and artifacts
- Consistent image impression with homogeneous background
- Optimal contrast harmonization with enhanced details, while the overall impression remains natural



VarioFocus

Philips' VarioFocus option is a unique generator technology that provides outstanding image resolution by simultaneously using both the small and large tube filaments. This provides high resolution of the small focus and the greater power of the large focus, to enable longer X-ray tube life.

By using both focus spots simultaneously to define a variable focus spot, Philips' VarioFocus automatically balances the power on both focus spots in a defined ratio, providing excellent image resolution at any required power. In addition, tube filaments are preserved through power balancing on both focus spots and reduced power load on each of them, to enable longer tube life.

Main benefits at a glance

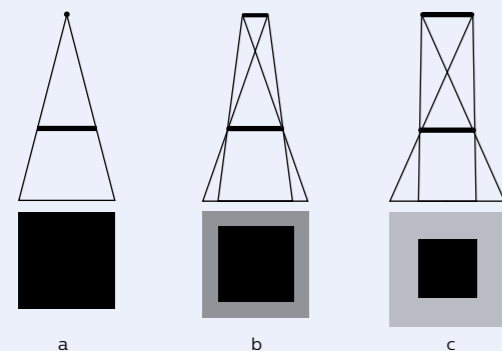
- Outstanding image quality through mixed focus spots adapted to each examination
- Outstanding resolution at the power level required
- Reduced exposure time
- Reduced motion artifacts
- Reduced geometrical blur
- Fully automatic



Principle of the "mixed" focus spots, here with a diagram



Cathode head with two filaments of a double focus tube



Increase in geometrical blur with different sizes of focus spots and constant object size

- Ideal focus spot with no geometrical blur
- Medium-sized focus spot generates minimal geometrical blur
- Large focus spot generates pronounced geometrical blur

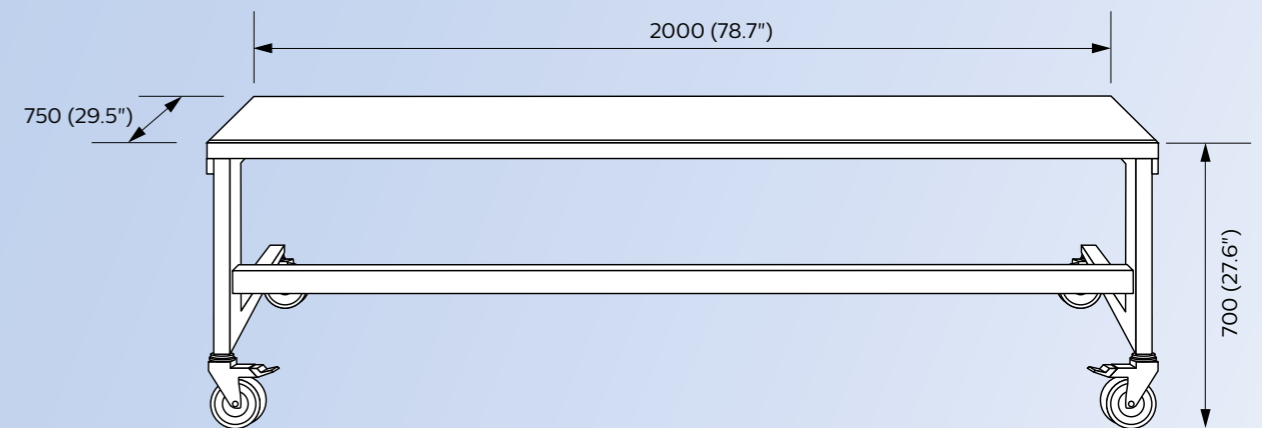
Trolleys (optional)

for Efficiency room

Trolley	
Trolley	
Height	70 cm (27.6")
Total weight	63 kg (139 lb)
Max. patient weight	135 kg (297 lb)
Accessories	Two accessory rails for easy attachment
Table Top	
Type	Fixed table top of sandwich design
Dimension table top (l x w)	200 cm x 75 cm (78.7" x 29.5")
Attenuation equivalent	≤1.1 mm Al
Brakes	
Brakes	At each wheel

Dimensions

All dimensions in mm and inches



X-ray tube floor stand

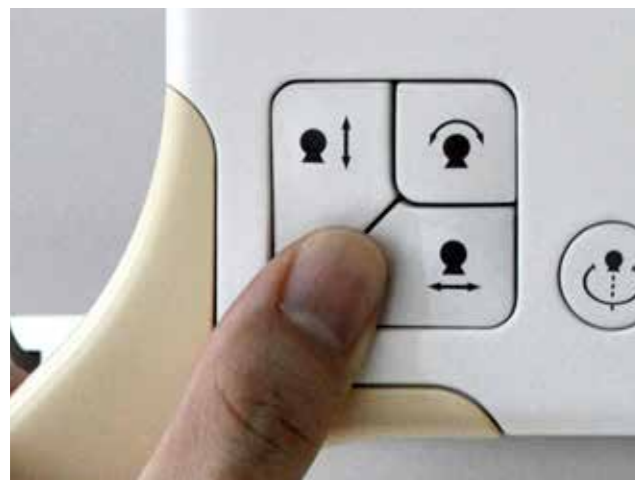
Easily move the floor-mounted X-ray tube stand along its rails to support different applications. It can be rotated a full 180 degrees to image patients in trolley, handle difficult projection angles, and enhance patient comfort.

X-ray tube floor stand

Column	
Height	233.25 cm (91.8")
Room height	min. 270 cm (106.3")
Vertical lift maximum	150 cm (59.0")
Central beam minimum upper floor	35 cm (137.8")
Central beam maximum upper floor	185 cm (72.8")
Rotation of tube around vertical axis	-180° to +90°
X-ray tube rotation	-120° to +120°
Source-image distance	Max. 120 cm (47.2") for table and Max. 250 cm (98.4") for wall stand
Weights	
Column with tube assembly and collimator (net weight)	270 kg (595 lb)

SmartOne button

The "SmartOne" buttons enable the user to easily execute all geometry movements with one finger.



SmartOne button

Default SID

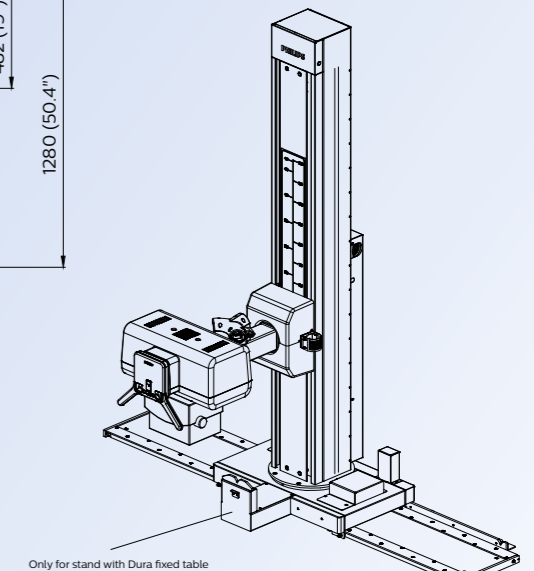
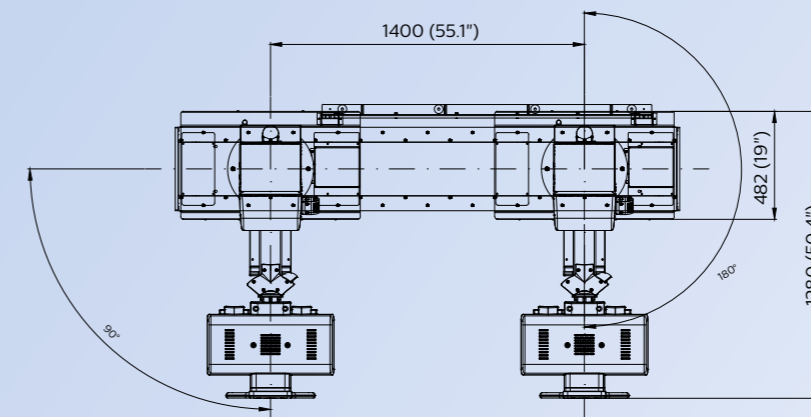
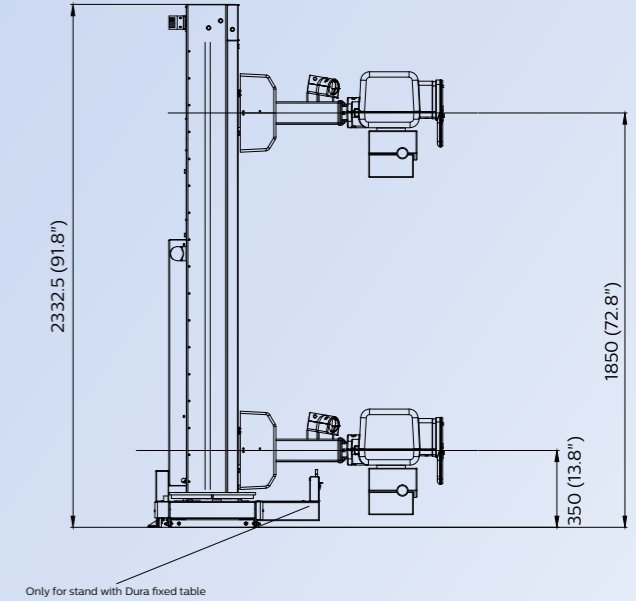
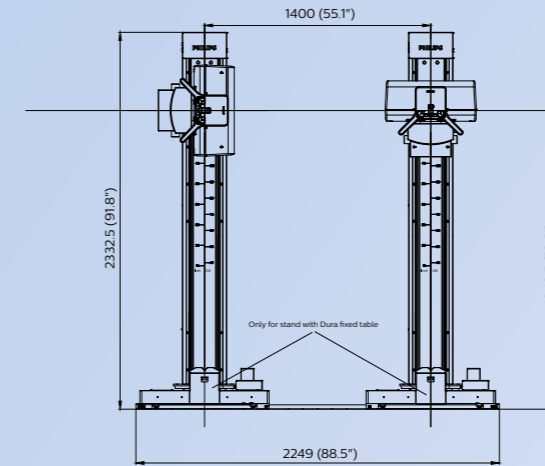
The Default SID (110 cm, 180 cm) facilitates fast positioning, thereby avoiding difficulties in finding floor distance markers.



Default SID

Dimensions

All dimensions in mm and inches

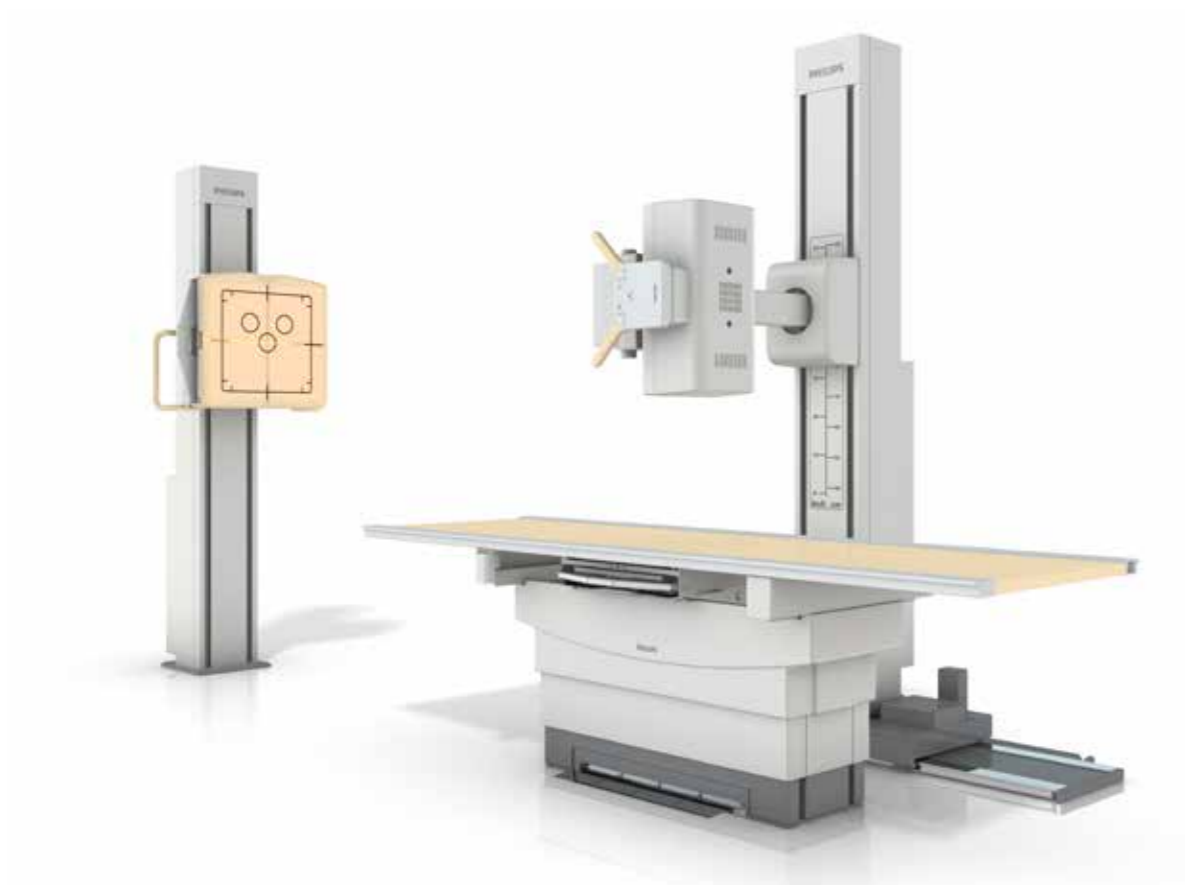


Table

The free floating tabletop supports easy positioning of even large size patients with a light touch. The tube and table detector can be coupled for most straight projections to save alignment time and decoupled for oblique projections.

Height adjustable table

Type	Radiographic table with floating tabletop, stationary grid and three measuring chambers.
Table height adjustment	51.5 cm to 91.5 cm (20.3" to 36")
Tabletop dimensions	240 cm x 75 cm (94.5" x 29.5")
Radiation absorption	< 1.2 mm Al
Tabletop travel	Longitudinal: ± 56 cm (± 22") Transverse: ± 12.8 cm (± 5.0")
Max. patient load	
Static load center	375 kg (820 lb)
Dynamic load center	318 kg (700 lb)
Dynamic load off center	210 kg (460 lb)
Oscillating Grid in bucky	40 line/cm, 12:1, F: 110 cm (43.3")
Detector unit movements in longitudinal table direction	47 cm (18.5")



Height adjustable table

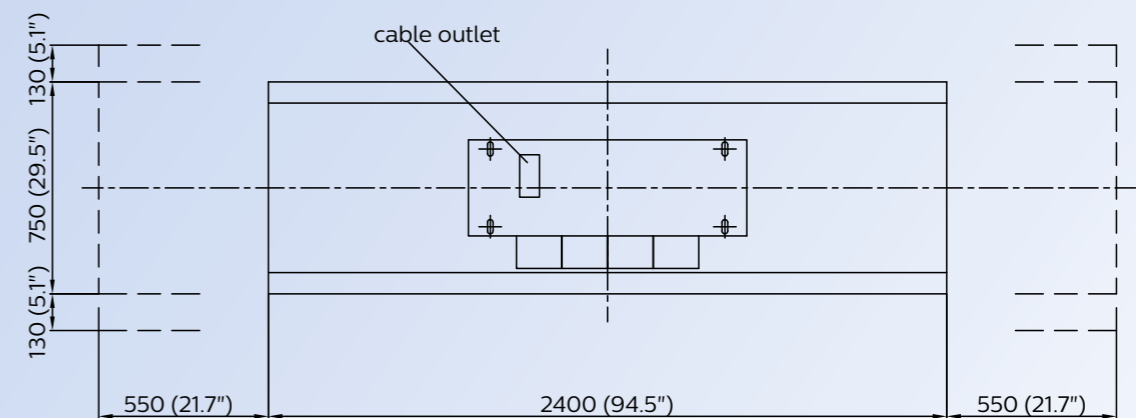
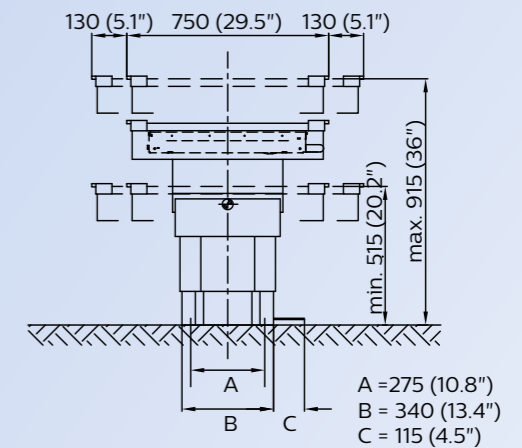
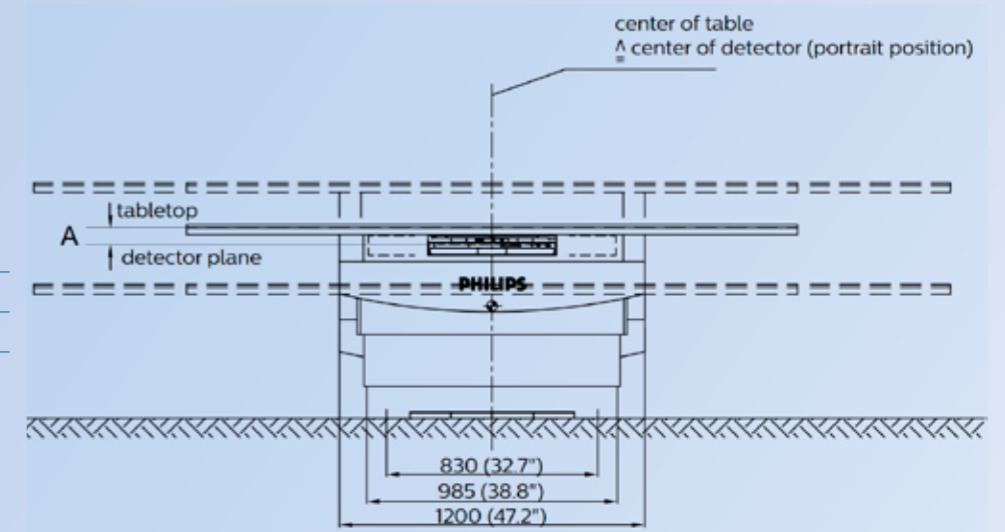
Dimensions

All dimensions in mm and inches

A

Tabletop-detector plane distance

Wireless detector	63.2 (2.5")
Fixed detector	61.1 (2.4")



Vertical stand

The large range vertical movement supports examinations for patients with different height. Technologists save time walking back and forth to the patient with the “Comfort Align” feature which indicates the correct alignment between the detector and tube.

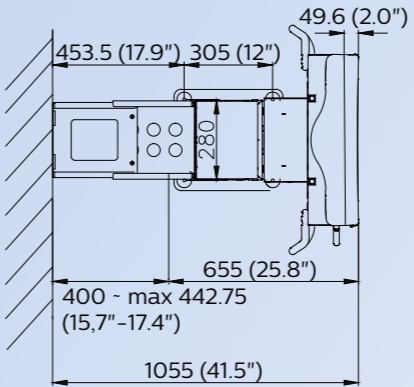
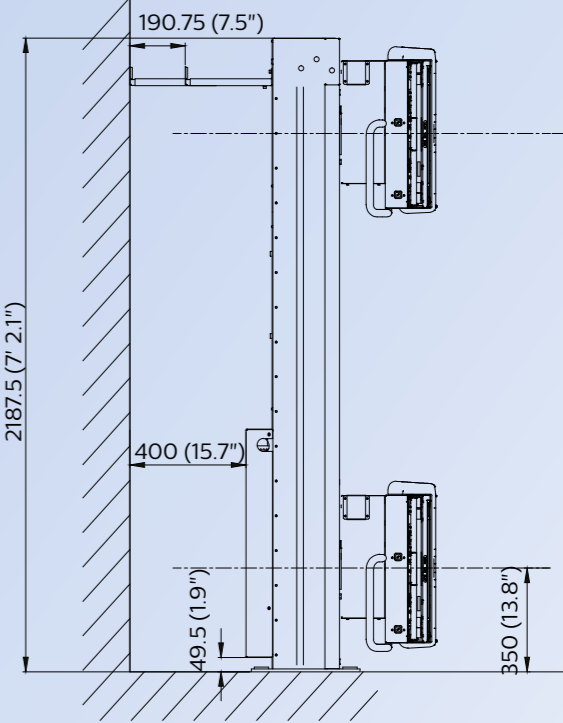
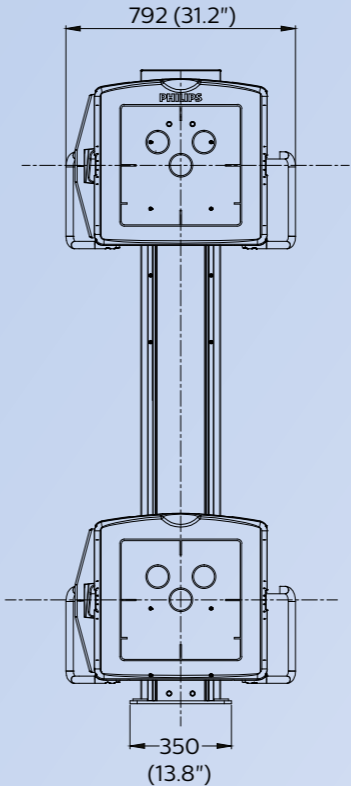
Vertical stand with detector unit

Vertical stand with detector unit, grid and three measuring chambers.	
Height	218.75 cm (86.1")
Vertical movement	35 cm to 185 cm (14" to 72.8")
Grid configurations	Standard grid: 40/8/110 Standard grid: 40/8/140 option1: 40/8/110 option2: 40/8/140 option3: 40/12/110 option4: 40/12/140 option5: Grid portrait for SkyPlate option6: Grid landscape for SkyPlate
Object-to-detector distance	46 mm (1.8") fixed detector 47.4 mm (1.9") wireless detector

Comfort Align
The Comfort Align feature facilitates laser assisted alignment between X-ray tube and detectors.



Dimensions
All dimensions in mm and inches



Always there, always on

We work as one with your teams to keep your systems running smoothly, seven days a week, if needed.¹

- Your service needs don't conform to convenient working hours – our service teams match ability with availability
- You need parts in a hurry – call whenever needed for technical parts expertise across all Philips modalities, and next day delivery
- Waiting for on site service affects your productivity and patients – our remote service and security experts provide over your shoulder protection and advanced fault diagnosis to pro-actively fix your systems seven days a week¹

¹ Requires minimum Right Fit contract. Conditions apply. Offerings are available in selected countries and for selected products only.

“ The level of care coming from the whole Philips team – sales, engineering, servicing – is excellent.

We have entered into a partnership that we can trust. I can't speak highly enough of the team”

David Ripper, Clinical Service Manager, Chesterfield Royal Hospital, Chesterfield, UK.



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