

Corsix DR

Digital Mobile Unit

Product Data



Cod. PDE-COD Rev. 00

CORSIX DR

Corsix (32 kW) is a digital mobile x-ray unit with innovative design and advanced technology, made to perform radiologic examinations and diagnostic investigations both in the department (Operating room, Sports Medicine, Plaster Room, Emergency Department, Paediatrics, Orthopaedics, ...) and in the ward.

Corsix DR combines portability and ease of use of ITALRAY mobile systems with the innovation of digital technology for the optimization of both image quality and patient dose.

Images are acquired with a portable digital flat panel detector featuring amorphous Silicon (a-Si) technology; this detector employs wireless image data transmission, thus freeing the room from cumbersome and risky cables.

This battery-powered and extremely lightweight detector offers large operating autonomy and versatility of use.

Corsix DR is strongly characterized by its extremely lightweight, easy manoeuvrability, compact design and limited overall dimensions. This grants for easy moving around every hospital with perfect visibility.



User interface is a large 21,5" touch screen monitor.

The everest-X algorithm automatically optimizes image-processing based on exam type and anatomical region. everest-X enhances image content details in both high attenuation image areas (shoulders, abdomen) and, at the same time, low attenuation image areas (lungs, cavities).

Additional post-processing tools are also available such as Edge Enhancement, Unlimited Zoom and Real Size, Window/Level (auto and manual), Measurements, Annotations, Electronic Collimators, Deviation Index (DI), Exposure Index (EI).

The software is integrated with an easily configurable Full DICOM package compatible with any RIS and PACS system or DICOM Printer.

Corsix DR is supplied with a 32 kW high-frequency microprocessor controlled generator, for shorter exposure times, with a rotating anode with double focus.

This digital mobile system operates with a 3-points technique (kV, mA, ms), or a 2-points technique (kV/mAs) selection generator, with more than 900 anatomical programs (APR) for adult and paediatric applications.

Corsix DR is characterized with a **"dead man" braking system** that with a comfortable handle both facilitates the push of the unit and its positioning. The braking system is a "dead man" type and blocks the unit in any position, just releasing the handle.

An **automatic closedown** system (after 20 minutes of inactivity) prevents the unit from remaining in ON mode for prolonged time, so avoiding also x-ray tube focus always on.

MAIN CARACTERISTICS

TOUCH SCREEN INTERFACE

Friendly user colors touch screen interface: provides an easy and intuitive access to any available feature through its large icons, on the lateral toolbar



ALGORITMI DI ELABORAZIONE IMMAGINI

The everest-X algorithm is an image processing algorithm that highlights the diagnostic content of acquired sessions. The images acquired with the digital detector, thanks to the very wide dynamic range, contain details and information both in high attenuation image areas (shoulders, abdomen) and low attenuation image areas (lungs, cavities).



With everest-X it's possible to automatically expand the latitude of a single image and see all the relevant clinical details at the same time and without time-consuming Window/Level adjustments.

DOSE MONITORING

The display, documentation and storage system of the dispensed dose is achieved thanks to the DAP meter positioned at the exit of the X-ray tube and connected to an electronic unit for the detection and measurement of the product dose per area (DAP meter). The software manages all the dosimetric data acquired in the patient file and generates a report of the individual exposures or of the entire examination. These data can then be exported in DICOM format to a network node.

The detected dose values (together with the values of the radiological parameters used in image acquisition) are displayed on the control console monitor and automatically stored in the DICOM file.

In this way the user can always have the RX emission data available, allowing (for Modality Perform Procedure Step service) the exportation also of the details related to the exposure of the patients in a standard format. The data thus available can therefore be sent automatically or upon request to a company analysis system (Radiation Report System) or to the RIS-PACS system.

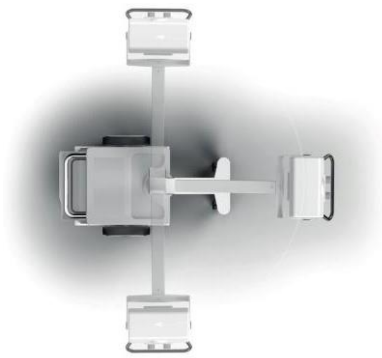
The DICOM classes necessary to be able to send to PACS together with the acquired images also the information about dose delivered to the patient for each exam, are: DICOM MPPS (SCU): Sending the examination status to HIS / RIS and DICOM RDSR (Radiation Dose Structured Report)^(*).

^(*)Optional

MAIN CARACTERISTICS

“CORSIX R DR” ^(*) version with rotating arm

Version with +90°/-90° rotation of the the x-ray monoblock arm



MOVEMENT AND BREAKING SYSTEM

Comfortable handle that both facilitates the push of the unit and its positioning



Dedicated bin to store detector during transport.

“ENERGY” OPTION FOR BATTERY POWERED SYSTEM ^(*)

Corsix DR can be provided with internal power supply (batteries) to protect the electronics from every voltage variation.



This digital mobile can be supplied also by internal battery (UPS) for an operating autonomy up to 100 x-ray exposures (**Energy**^(*) option).

^(*) Optional

TECHNICAL SPECIFICATIONS

MECHANICAL CHARACTERISTICS

X-ray monoblock arm rotation (only for CORSIX R DR version)	± 90°
X-ray tube rotation	± 180°
Collimator	Rectangular, LED light. Equipped with meter for SID indication
Collimator tube rotation (z axis)	± 90°
Width (parking position)	63,7 cm
Length (parking position)	137 cm
Height (parking position)	151,5 cm
Max. focus height	209 cm
Min. focus height	37,8 cm
Rear wheel diameter	30 cm
Front wheel diameter	7,5 cm
Handling	Dead man brake
Weight (CORSIX DR)	180 kg (AR) – 210 kg (Energy ^(*) option)
Weight (CORSIX R DR)	250 kg (AR) – 280 kg (Energy ^(*) option)
Automatic closedown	The unit is fitted with an automatic closedown system after 20 minutes of not use. This features prevent the unit from remaining on by mistake for long periods thereby avoiding jeopardising the x-ray tube operation (focuses always on)

(*) Optional

TECHNICAL SPECIFICATIONS

RADIOLOGICAL CHARACTERISTICS

Maximum power	32 kW
Inverter frequency	40 ÷ 100 kHz
Max ripple	< 3%
Monoblock type	MQD-30R
mAs range	0,2 – 250 (29 steps) 0,2 – 320 (30 steps) ^(*) 0,2 – 100 (with Energy ^(*) option, when battery powered)
mA range	50 - 400 mA ± 5%
kV range	40 - 125 kV ± 5% (step di 1 kV) 40 - 130 kV ^(*) ± 5% (step di 1 kV)
Exposure time	0.001 – 4 sec.
Exposition number	Unlimited (supplied by the mains) Max. 100 (with Energy ^(*) option, when battery powered)
X-ray push button	- Manual with double click and 4 m extensible cable - Wireless ^(*)
Total filtration	> 2.5 mm Al
Monoblock thermic capacity	600 kJ (800 kHU)
Monoblock continuous thermal dissipation	85 W
Operating mode	2-points radiological technique with selection of kV/mAs, or 3-points radiological technique with selection of kV/mA/ms
Dose Area Product (DAP)	YES, with dose information stored in image DICOM header ^(*)
Anode type	Rotating (R.A)
Anode speed	3000 gg/min
Anode angle	15°
Focal spot	0,6 mm – 1,3 mm
Maximum power	11 kW (S.F.) – 32 kW (L.F.)
Safety devices	–mA _{min} and mA _{max} safety device –Maximum X-ray tube load safety device –Maximum exposure time safety device –Temperature and Monobloc –Max kV, min kV, max I –Capacitor faulty –Starter anode faulty –Microprocessor auto-test with display of diagnostic messages

^(*) Optional

TECHNICAL SPECIFICATIONS

DIGITAL IMAGING SYSTEM

FLAT PANEL DETECTOR	Pixium 3543 DR
Detector type	Portable wireless
Technology	Amorphous silicon
Scintillator	Cesium Iodide (CsI)
Format (ISO 4090)	35 x 43 cm
Active detector matrix (Effective Pixel matrix)	2664 x 2156 pixels
Image depth	16 bit
Pixel pitch	160 µm
Detector Battery Indicator	Yes. Into the GUI
Battery charging time	Max 4 hours
Battery autonomy	Max. 8 hours
Max.load capacity	Distributed: 150 kg
Typical DQE (@ 0lp and RQA5, per IEC 62220-1)	70%
Modulation Transfer Function (MTF)	@ 1 lp/mm: 61% @ Nyquist: 13%
Image time	< 6 s (Preview: 2 s)
Spatial resolution	3,13 lp/mm
Communication interface	Wireless / Tethered ^(*)
X-ray generator synchronization	X-ray push button – Autotriggering mode
Internal memory	1 GB (approx. 50 images full resolution)
Standard components	One detector One battery
Optional components	One 3-slot battery charger ^(*) One battery ^(*)

^(*) Optional

TECHNICAL SPECIFICATIONS

DIGITAL IMAGING SYSTEM

FLAT PANEL DETECTOR	Mars 1717X
Detector type	Portable wireless
Technology	Amorphous silicon
Scintillator	Cesium Iodide (CsI)
Format (ISO 4090)	43x43 cm (17"x17")
Active detector matrix (Effective Pixel matrix)	4267 × 4267 pixels
AD conversion	16 bit
Pixel pitch	100 µm
Detector Battery Indicator and Charger	Yes and charger for up to 2 batteries simultaneously
Battery charge duration	Max. 2,5 hours
Battery autonomy	Max. 8 hours
Max.load capacity	300 kg
Typical DQE (@ 0lp and RQA5, per IEC 62220-1)	77%
Modulation Transfer Function (MTF)	@ 1 lp/mm: 69% @ 3 lp/mm: 22%
Image time	< 4 s
Spatial resolution	5 lp/mm
Weight	3,4 kg (including battery)
Communication interface	Wireless / Tethered
X-ray generator synchronization	X-ray push button – Autotriggering mode
Standard components	One detector One battery

(*) Optional

TECHNICAL SPECIFICATIONS

DIGITAL IMAGING SYSTEM

FLAT PANEL DETECTOR	Mars 1717V
Detector type	Portable wireless
Technology	Amorphous silicon
Scintillator	Cesium Iodide (CsI)
Format (ISO 4090)	43x43 cm (17"x17")
Active detector matrix (Effective Pixel matrix)	3072 x 3072 pixel
AD conversion	16 bit
Pixel pitch	139 µm
Detector Battery Indicator and Charger	Yes and charger for up to 2 batteries simultaneously
Battery charge duration	2 hours
Max.load capacity	150 kg
Typical DQE (@ 0lp and RQA5, per IEC 62220-1)	52%
Modulation Transfer Function (MTF)	@ 1 lp/mm: 60% @ 3 lp/mm: 15%
Image time	5s (preview) 16 s (final image)
Spatial resolution	3,1 lp/mm
Weight	4,8 kg
Communication interface	Wireless / Tethered
Acquisition time	≤5 sec
X-ray generator synchronization	Pulsante raggi – Modalità Autotrigg
Battery autonomy	8 h
Standard components	2 batteries 1 battery charger

(*) Optional

TECHNICAL SPECIFICATIONS

ACQUISITION WORKSTATION

HARDWARE

HDD	System hard disk: 64 GB Local archive for images: 1 TB
CPU	Intel® Core I7
RAM	8 GB
CD/DVD recorder ^(*)	Yes. External
Operating system	Windows Embedded 10
UPS ^(*)	Yes
Image storage capacity	More than 62.000 images (full resolution).
Interfaccia	For Ethernet TCP/IP: integrated RJ45 For external drive: USB 2.0

SOFTWARE

Image size	15 MB (12,5 MB typ.)
Image enhancement	everest-X
Display functions	Image Flip/Mirror, R.O.I., Pan/Zoom, Window/Level, Automatic Window/Level, Annotations, Linear and angular measurements, Greyscale Inversion, Image Rotation, Electronic Collimators, Spatial Filters, Multi-Images Visualization, Generator control
APR	YES, preconfigured and editable
Exposure Index	Yes
Deviation Index	Yes
Reject analisi	Yes
Multi-language	English, Italian, Russian, French, ...

STANDARD MONITOR

Type	Backlit, TFT
Size	21,5"
Recommended resolution	1920 x 1080
Contrast	1000:1
Brightness	250 cd/mq

^(*) Optional

TECHNICAL SPECIFICATIONS

NETWORKING

DICOM functions

DICOM Storage (SCU)	Yes. Send Image to PACS
DICOM Modality worklist (SCU)	Yes. Interface with HIS / RIS with auto refresh option
DICOM Print (SCU)	Yes. Covers the general cases of printing medical images in standardized layouts.
DICOM Media exchange (DICOM DIR)	Yes ^(*) . Patient images export to DVD/CD
DICOM MPPS (SCU)	Yes ^(*) . Send the status of exams to HIS / RIS
DICOM Storage commitment (SCU)	Yes ^(*) . Send commitment status
DICOM Verification (SCU)	Yes ^(*)
DICOM Query / Retrieve (SCU)	Yes ^(*) . Query and retrieve images from PACS
DICOM Query / Retrieve (SCU)	Yes ^(*) . Query and retrieve images from PACS
DICOM Structured Dose Report	Yes ^(*) . To exchange structured data produced in the course of image acquisition or post-processing.
DICOM Storage Server	Yes ^(*) . The DICOM Storage service is used to transfer DICOM images and other related digital data from a DICOM node to another DICOM node.
IHE Integration Profile	
Scheduled Workflow	Acquisition Modality : Patient Based Worklist Query / Assisted Acquisition protocol Setting / PPS Exception Management
Patient Information Reconciliation	Acquisition Modality
Consistent Presentation of Image	Acquisition Modality
Radiation Exp. Monitoring	Acquisition Modality
Network*	2 x Gb LAN – 4 x USB 3.0
Access point	Data rate: 54/108Mbps. Standard: IEEE 802.11g , IEEE 802.11b, IEEE 802.11, IEEE 802.3, IEEE 802.3u Frequency: from 2.4 GHz to 2.4835 GHz.
REMOTE ASSISTANCE	
Remote access	ITALRAY DR Systems are equipped with a remote service system that allows ITALRAY service engineers to have access the system via remote network for servicing and upgrading purposes. The remote servicing system availability is subordinate upon the technical/policy characteristics of the local Hospital network.

TECHNICAL SPECIFICATIONS

INSTALLATION DATA

Voltage	230 Vac (115 Vac ^(*))
Frequency	50/60 Hz
Max. absorbed current	16 A (intermittent functioning) < 1 A (continuous functioning)
Weight	CORSIX DR: 180 kg (AR) – 150 kg (AF) CORSIX R DR: 250 kg (AR) – 220 kg (AF)

ENVIRONMENT CONDITIONS

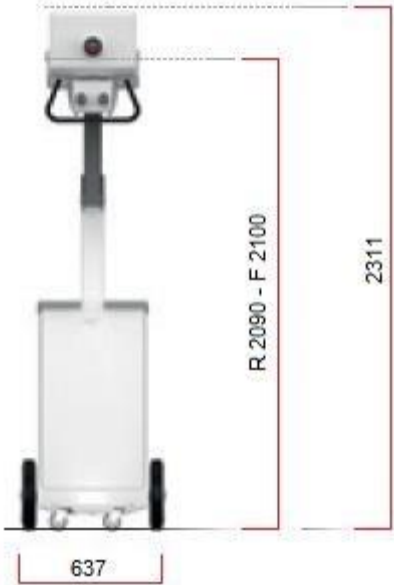
OPERATIVE CONDITIONS	CORSIX DR	DETETTORE WIRELESS
Temperature	10°C ÷ 40°C	+10°C ÷ +35°C
Humidity	30% ÷ 75%	5% ÷ 90%
Pressure	700 ÷ 1060 hPa	700 mbar ÷ 1060 mbar
TRANSPORT AND STORAGE	CORSIX DR	DETETTORE WIRELESS
Temperature	0°C ÷ 40 °C	-20°C ÷ +55°C
Humidity	20% ÷ 90%	5% ÷ 95%
Pressure	500 ÷ 1060 hPa	600 mbar ÷ 1060 mbar

(*) Optional

SIZE AND DIMENSIONS

CORSIX DR

FRONT VIEW



FRONT VIEW



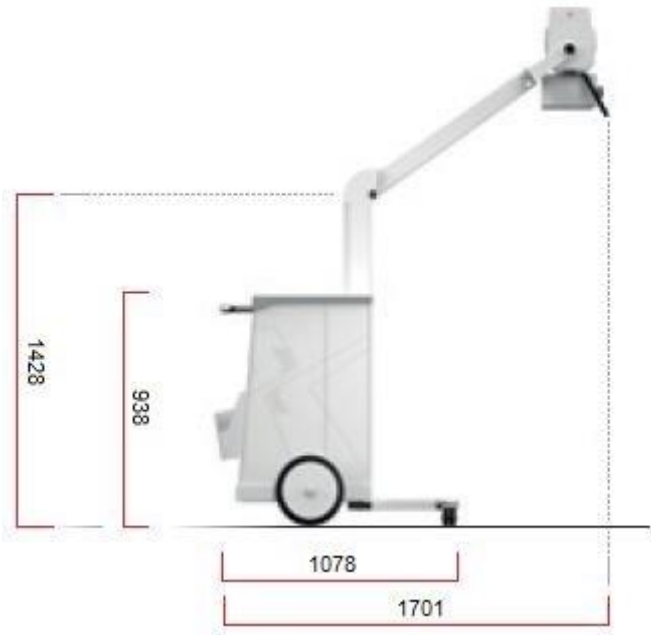
TOP VIEW



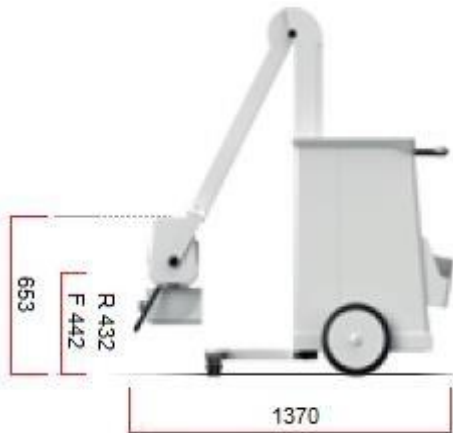
SIZE AND DIMENSIONS

CORSIX DR

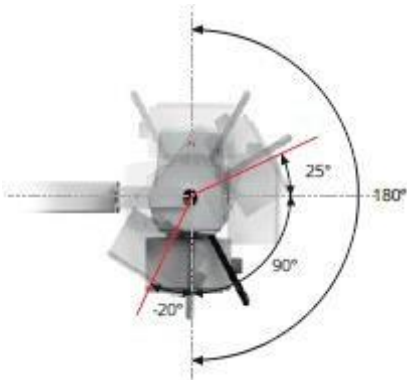
LATERAL VIEW (max focus height in operating condition)



LATERAL VIEW (min focus height in operating condition)



LATERAL VIEW



SIZE AND DIMENSIONS

CORSIX DR

LATERAL VIEW
(transport position)

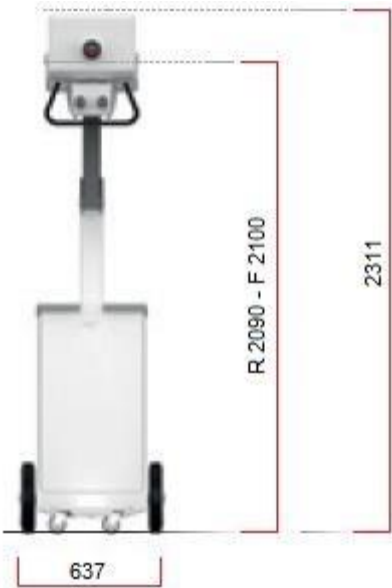

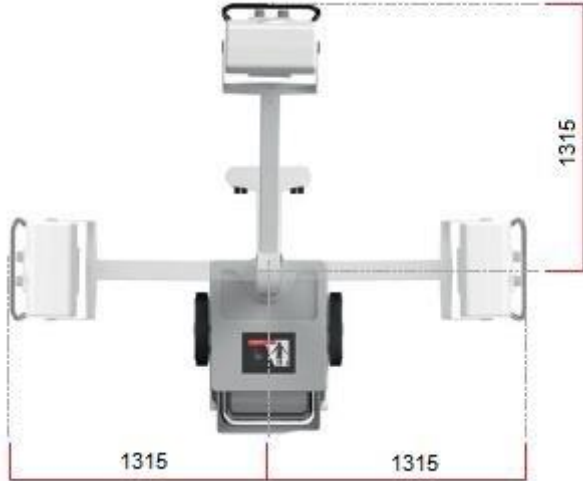


LATERAL VIEW
(x-ray beam perpendicular to the floor)



LATERAL VIEW (x-ray beam
parallel to the floor)

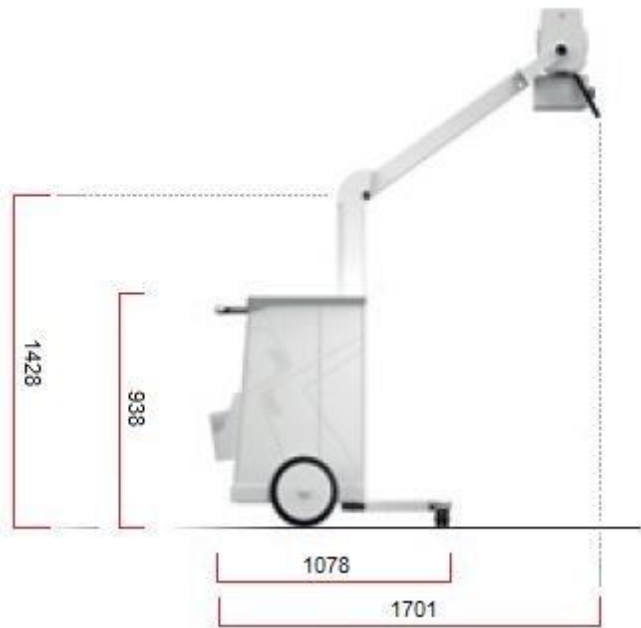


SIZE AND DIMENSIONS		
CORSIX R DR		
FRONT VIEW		
FRONT VIEW		
TOP VIEW		

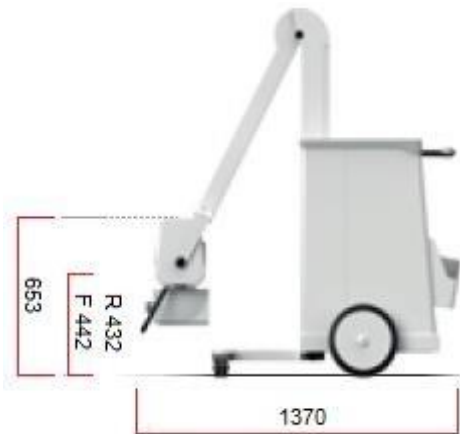
SIZE AND DIMENSIONS

CORSIX R DR

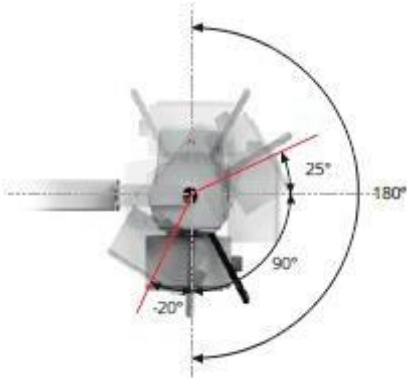
LATERAL VIEW
(operative position: max focus height)



LATERAL VIEW
(operative position: min focus height)



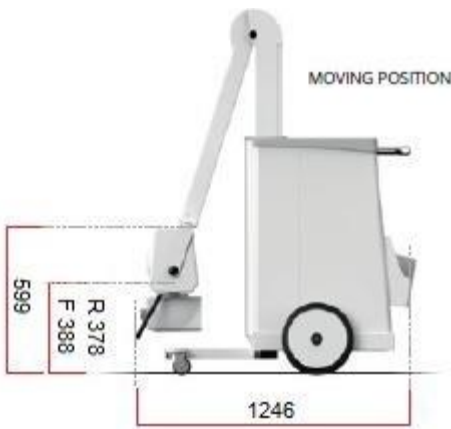
LATERAL VIEW



DIMENSIONI ED INGOMBRI

CORSIX R DR

LATERAL VIEW
(transport position)

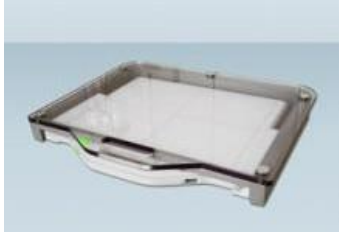




LATERAL VIEW
(x-ray beam perpendicular to the floor)



LATERAL VIEW (x-ray beam
parallel to the floor)



ACCESSORIES		
WEIGHT DISTRIBUTION SUPPORT FOR WIRELESS DETECTOR (UP TO 350 kg ^(*))		
		
CLIP-ON GRID SUPPORT WITH HANDLE ^(*)		
<ul style="list-style-type: none"> • Holds DR Panel during exams. • Protects DR Panel during routine handling. • Provides ergonomic handle and double positive lock to secure DR Panel during transport. • Made of shock absorbing materials 		
DOUBLE-CLICK WIRELESS CONTROL ^(*)		
		

CERTIFICATION, INSTALLATION AND WARRANTY

INSTALLATION

Only authorized technical personnel, appropriately trained by ITALRAY, can install CORSIX DR. Upon request, ITALRAY Installation Office can prepare system installation layouts (including eventual construction/electrical).

WARRANTY

ITALRAY guarantees its products for 1 (one) year from the delivery date. ITALRAY can offer to its customers a wide range of service plans that will perfectly fit all needs and preferences.

ITALRAY reserves the right to make modifications without any prior notice



Via Del Parlamento Europeo 9/D 50018 Scandicci
Firenze
Tel. +39/055/7228511 fax. +39/055/7228512

info@italray.it
italray.it