

Corsix DR

Digital Radiography Mobile Unit



REV.02 (May 2018)

PRODUCT DATA SHEET

DESCRIPTION

Corsix DR (power: 4/ 16/ 32 kW) is a compact digital mobile x-ray unit with innovative design and advanced technology. With the help of the innovative digital flat panel detector, **Corsix DR** allows the user 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 operates with two-point radiological technique with selection of kV/mAs or three points kV/mA/s. Values and exposure time are always selected and displayed, automatically by the microprocessor. Generator parameters are directly embedded into the acquisition software so to make it a FULL DR solution with generator parameters directly embedded into the final DICOM image.

Corsix DR is available with or with out rotation of $\pm 90^\circ$ of the counterbalanced arm as per the end user preference. Travel movement is characterized with a **"dead man" breaking system** that with a comfortable handle both facilitates the push of the unit and its positioning. The breaking 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.

System can be provided also with a wifi double switch exposure remote control so to avoid the operator to stay in the same room with the patient. Thanks to the quite long distance (more than 30 meters in open air) at which operator can take the exposure, it's possible also to avoid wearing aprons.

Corsix DR can be provided with an optional battery package that permits to perform at least 200 examinations without having to reconnect to the unit to the power supply during the exam. Battery indication included.



LCD TOUCH SCREEN DISPLAY

Corsix DR is built with a large area 26" LCD high contrast touch screen display for the digital imaging system and for the generator parameters. This offers the operator the complete control of all generator parameters and APR Programs: from patient and exam selection on RIS Worklist to radiological parameter setting by means of a step-by-step procedure, to image acquisition and processing, up to exam transfer to PACS system.

Unit is also provided of flat panel detector storage container and a small step over mechanism to overcome small floor level changes as picture below shows.



X-FRAME DR SOFTWARE

The proprietary ITALRAY **X-Frame DR** software provides the system of the essential pre and post tools for immediate, reliable and high quality image visualization, with the guarantee of **minimum radiation dose for patient** in any type of examination.

The X-Frame DR software automatically analyses the characteristics of each image and optimizes processing parameters, basing on the exam anatomic region and, by a dedicated algorithm for image enhancement extracts the diagnostic content of the image, optimizing the visualization of anatomic details, without further user inputs.

X-Frame DR software provides an easy access to any available feature through its intuitive and large buttons, guaranteeing a less traumatic passage for those users switching directly from traditional environments and an immediate confidence and ease of use for windows trained users that start working with the system for the first time.

The on board **Full DICOM package** provides immediate availability of patient and exam data throughout the network connection, for urgent data transfer to PACS or to a DICOM printer.

An optional dose meter (DAP) can be mounted in order to add the dose level to the final DICOM image.

DIGITAL FLAT PANEL DETECTOR

Corsix DR acquires digital radiographic images by means of a portable digital flat panel detector, while providing outstanding image and diagnosis quality, the flat panel detector is designed to simplify examination conditions and the versatility and autonomy of this portable, ultra-light and robust detector optimise patient workflow.


The digital flat panel detector is a solid state detector, featuring amorphous Silicon (a-Si) technology and Caesium Iodide scintillator: that providing a very efficient x-ray absorption, guarantees high DQE and reduced patient dose.

Images are acquired with a minimum pixel pitch thus producing brilliant images with an extremely sharp resolution matrix. Also, thanks to a wide grayscale acquisition depth and the very-low-noise electronics, an incredible grayscale dynamic range is guaranteed, and even the subtlest details and the most diverse structures can be effectively identified in only one image, with image retakes practically eliminated.

Various are the main features of this flat panel detector. First is the possibility to **communicate in wireless mode**: no physical connection is required with the digital workstation to transfer controls and acquired images. This feature, together with its **"cassette-size" dimensions**, make the detector perfect to be used inside every potter of every already existent radiological accessory, to acquire images of unusual and difficulty projections, also in contact with the patient, and on traditional analogic x-ray systems. Wireless technology allows for a free use of the detector inside Radiology Department, to acquire images of patient both on a wheelchair and on a stretcher, increasing the flexibility of the radiological system.

Corsix DR is also capable, in case of need, to perform radiological examinations also on Film or CR Cassettes, simply running the system in "Generator Only" modality.

OPERATING CONDITIONS

Operator interface	Directly embedded into the acquisition software.
	
Collimator	Multi-leaf collimator manually adjustable with a built-in light beam full field localizer with center field indication and retractable measuring tape. Collimator rotation +/-90°.
Radiography Exposure Control	Handswitch pushbutton with double click 3 meter cable (or/and wifi with double click exposure remote control, optional)
Radiography with free technique	Two-points (selection of kV/mAs) and three-points (selection of kV/mA/ms) radiological techniques
Selectable languages	Italian, French, Spanish, English, German
Preset for DAP camera	Yes ^(*)
Anatomic programs	Unlimited editable anatomical programs divided by anatomical body part, projection and patient dimension. Contrast and density adjustments available.
Automatic <i>closedown</i>	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)
Safety devices	<ul style="list-style-type: none"> -mA_{min} and mA_{max} safety device -Maximum X-ray tube load safety device -Maximum exposure time safety device -Temperature and overload protection -Max kV, min kV, max I -Capacitor faulty -Starter anode faulty -Microprocessor auto-test with display of diagnostic messages -Emergency stop button

(*) Optional

TECHNICAL SPECIFICATIONS

MECHANICAL CHARACTERISTICS

Version	32 kW	16 kW	4 kW
Arm type	Spring balanced foldable cross arm to minimize the movement of the main unit. Locked in its rest position during system movement. Tube is freely adjustable, no electromagnetic breaks, as would not work when unit is not powered.		
Arm rotation	± 90°		
X-ray tube rotation (x axis)	± 180°		
X-ray tube rotation (z axis)	± 90°		
Width (parking position)	637 mm		
Length (parking position)	1370 mm		
Height (parking position)	1500 mm		
Max. focus height	2090 mm (32 kW R.A.)	2090 mm (16 kW R.A.)	2100 mm (4 kW F.A.)
Min. focus height	378 mm (32 kW R.A.)	378 mm (16 kW R.A.)	388 mm (4 kW F.A.)
Tube assembly rest position	In front of the unit with locking device for safe transport		
Horizontal movement	709 mm		
Wheel type	Large wheels in the back, small 360° rotating wheels in the front with hgh quality breaking system		
Moving modality	Wheel guided system with foot lift to overcome obstacles		
Breaking system	Dead man brake		
Weight	150 kg	150 kg	130 kg
Cassette holder	35 x 43 cm		

RADIOLOGICAL CHARACTERISTICS

Maximum power	32 kW	16 kW	4 kW
Generator type	High frequency inverter type microprocessor controlled		
Inverter frequency	100 kHz		
Max ripple	< 3%		
Monoblock type	MQD-30R	MQD-30R	MDQ-4F
mAs range	0,2 – 250 (29 steps) 0,2 – 320 (30 steps) ^(*)	0,2 – 250 (29 steps) 0,2 – 320 (30 steps) ^(*)	0,2 – 320 (30 steps)
mA range	50 - 400 mA ± 5%	50 - 400 mA ± 5%	40÷100 mA ± 5%
kV range	40 - 125 kV ± 5% (step di 1 kV)	40 - 125 kV ± 5% (step di 1 kV)	40 - 110 kV ± 5% (step di 1 kV)
Acquisition parameters	Directly embedded and selectable through the acquisition software		
Exposure time	0.001 – 6 sec.		0.002 – 2 sec.
Total filtration	> 2.5 mm Al		
Monoblock thermic capacity	600 kJ (800 kHU)	600 kJ (800 kHU)	350 kJ (460 kHU)
Monoblock continuous thermal dissipation	85 W	85 W	60 W

CORSIX

Anode thermic capacity	107 - 300kHU		107kHU
Anode type	Rotating (R.A)	Rotating (R.A)	Fixed (F.A)
Anode speed	3000 gg/min		-
Anode angle	15°		
Focal spot	0,6 mm – 1,3 mm	0,6 mm – 1,3 mm	0,5 – 1,5 mm
Maximum power	11 kW (S.F.) – 32 kW (L.F.)	11 kW (S.F.) – 32 kW (L.F.)	0,8 kW (S.F.) – 4 kW (L.F.)
(*) Optional			

TECHNICAL SPECIFICATIONS

FLAT PANEL DETECTOR

Model	Pixium 3543 DR	iRay 4343V
Detector type	Carbon fiber portable wireless	Carbon fiber portable wireless with retractable handle for easy transportation
Technology	Amorphous silicon	Amorphous silicon
Scintillator	Gadolinium (GoS) / Cesium Iodide (CsI) ^(*) with reflective coating	Cesium Iodide (CsI) with reflective coating
Active area. Format (ISO 4090)	35X43 cm	43X43 cm
Active detector matrix (Effective Pixel matrix)	2664x2156x16 bit	3072x3072 pixels
Image depth	16 bit	16 bit
Pixel pitch	160 µm	139 µm
Image transfer time	< 5 s (full image), < 3 s (preview)	< 5 s (full image), no preview
Detector Battery Indicator	Yes. Into the GUI	Not available
Battery charging time	Max 4 hours	Max 2 hours
Battery autonomy	Up to 8,5 hour (listen state)	Up to 8,5 hour (listen state)
Max.load capacity	Distributed: 150 kg Concentrated (ø=8 cm): 100 kg	Distributed: 100 kg
Typical DQE (@ 0lp and RQA5, per IEC 62220-1)	42% (GoS) - 70% (CsI) I)	58%
Spatial resolution	3,13 lp/mm	3,59 lp/mm
Weight	3,1 kg (including battery)	4.8 kg (including battery)
Communication interface	Wireless / Tethered ^(*)	
X-ray generator synchronization	X-ray push button – <i>Autotriggering</i> mode	
Internal memory	1 GB (approx. 50 images full resolution)	
Standard component	One detector Two batteries One 3-slot external battery charger	One detector Two batteries One 2-slot external battery charger

TECHNICAL SPECIFICATIONS**ACQUISITION WORKSTATION****HARDWARE**

Type	Integrated high performance workstaton with acquisition software, generator control interface, patient and exam management and post processing and DICOM features on board
HDD	500 GB (SATA) for data storage + 64 GB (MSATA) read only for operative system for protection against viruses
CPU	Intel i5 core (at least)
RAM	4 GB RAM DDRIII
CD/DVD recorder	Yes
Operating system	Windows 10 Embedded
UPS	Yes
Image storage capacity	More than 30.000 images (full resolution)

MONITOR

Type	23.8" touch screen display
Resolution	1600 x 1200 pixel

SOFTWARE

Image acquisition times	< 5 s
Image size	Max 15 MB (12,5 MB typ.)
Image enhancement	Everest-X, edge enhancement, Noise suppression
Patient/Exam data management	Yes with manual imimage patient registration, emergency exam and RIS patient/exam selection
Generator console	Directly integrated into software with possibility to select the APR programs and edit kV, mA, mAs, mS
Processing functions	Patient and exam management, Possibility to insert/modify anatomical programs, Organ program selection, Horizontal/Vertical Flip/Mirror, R.O.I., Pan/Zoom, Window/Level, Automatic Window/Level, Text Annotations, Linear and angular measurements, Greyscale Inversion, Image Rotation, Electronic Collimators, Spatial Filters, Multi-Images Visualization (Mosaic View), able to select different print layouts of selected images.
APR	Yes, preconfigured and editable
Exposure Index	Yes
Deviation Index	Yes
Reject analysis	Yes
Multi-language	English, Italian, Russian, French, Spanish.

TECHNICAL SPECIFICATIONS

NETWORKING

DICOM functions	DICOM 3.0 compliant
DICOM communication	Via LAN or wifi key
DICOM Send (SCU)	Yes. Send Image to PACS. Image autotransfer
DICOM Modality worklist (SCU)	Yes. Interface with HIS / RIS with auto refresh option
DICOM Print management Class	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 Grayscale print (SCU)	Yes ^(*) . Support DICOM printers
DICOM Structured Dose Report	To exchange structured data produced in the course of image acquisition or post-processing.
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	3x Ethernet 10/100/1000 Mbit, Base-T, RJ45 integrate
Access point	WLAN (standard IEEE 802.11) ^(*)
REMOTE ASSISTANCE	
Remote access	XFM is 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

OPTIONAL ACCESSORIESDAP (dose area meter) ^(*)Printer ^(*)Potter bucky^(*)AEC^(*)

Additional Battery package for independant exposures (Up to 100 exams with one single charge)

^(*) Optional**TECHNICAL SPECIFICATIONS****INSTALLATION DATA**

Voltage 230 Vac +/-10%

Frequency 50/60 Hz

Max. absorbed current 13A (intermittent functioning)
<1 A (continuous functioning)

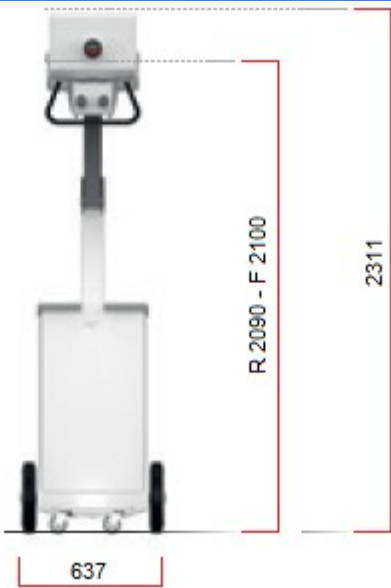
Power cable 6 meters long

Plug type Shuko type F

ENVIRONMENT CONDITIONS**OPERATIVE CONDITIONS**Temperature 10°C ÷ 40°C
Humidity 30% ÷ 75%
Pressure 700 ÷ 1060 hPa**TRANSPORT AND STORAGE**Temperature 0°C ÷ 40 °C
Humidity 20% ÷ 90%
Pressure 500 ÷ 1060 hPa^(*) Optional

SIZE AND MEASURES

FRONTAL VIEW

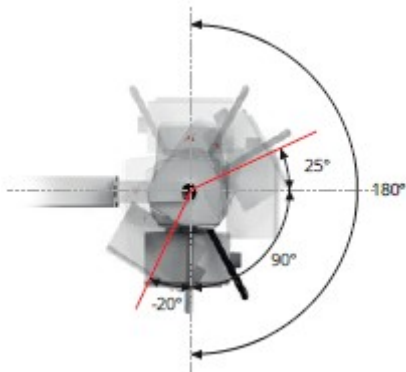
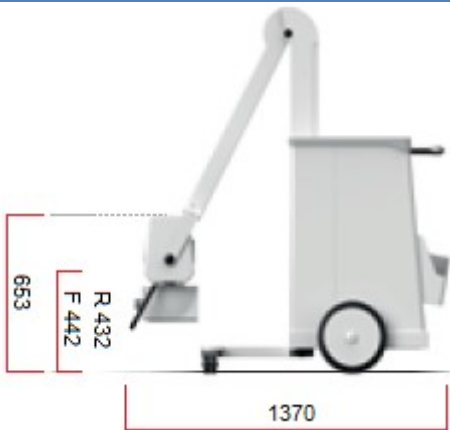
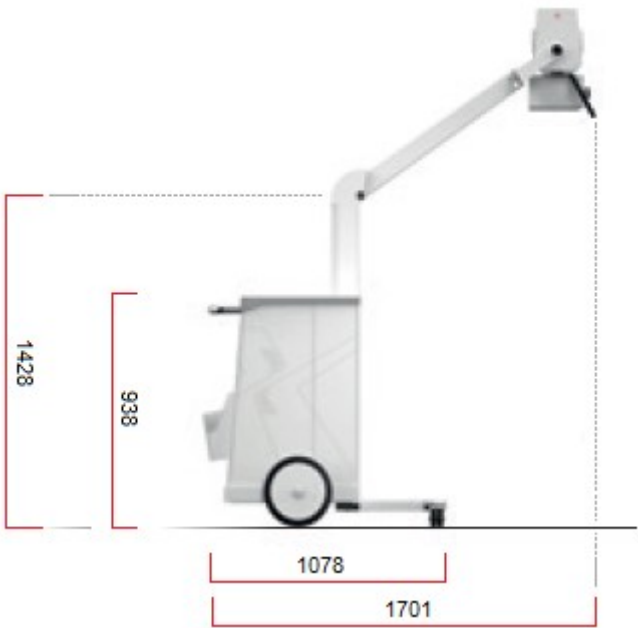


TOP VIEW



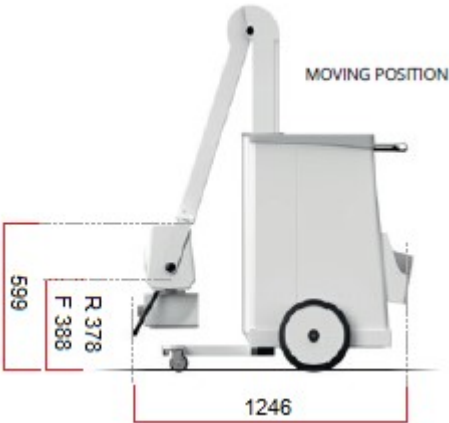
SIZE AND MEASURES

LATERAL VIEW



SIZE AND MEASURES

LATERAL VIEW



ITALRAY reserves the right to make modifications without any prior notice.



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