

**KIRAN**<sup>\*</sup>  
A Division of TRIVITRON Healthcare

*Bringing*  
**LIFE TO LIGHT**



[www.kiranxray.com](http://www.kiranxray.com)

# About Trivitron Healthcare

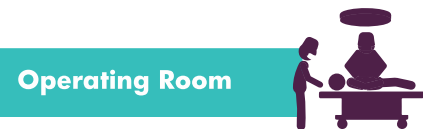
By combining innovation with affordability and accessibility, we are a leading health technology enterprise that has been operating for more than two decades to improve health and medical care throughout the world, like no one else. We consider quality healthcare a fundamental right of people and envisage to make top-notch, cutting edge healthcare technology available for people of all classes.

We lay great emphasis on research and development. Our team includes internationally acclaimed experts and leading scientists who innovate unprecedented health technologies suitable for healthcare needs of today and tomorrow.

We provide technological advancements to hospitals, individual healthcare providers, independent clinics, extended care facilities and laboratories, catering to healthcare needs in multiple verticals like In-Vitro Diagnostics (IVD), Imaging & Radiology (In-vivo Diagnostics), Critical Care & OT Solutions, Newborn screening (NBS) and Radiation Protection Apparels (RPA).

Through a growing network of 1500+ employees, 1200+ channel partners and 9 world-class manufacturing units spread throughout the world, Trivitron Healthcare is reaffirming its commitment to offer superior health technologies in 180+ countries saving lives and improving care.

By simplifying and expanding our business, we are rapidly moving to establish ourselves as a global leader in health technology. We are committed to build a sustainable business that delivers value by offering best available health technology solutions for millions of people worldwide.



**9 Manufacturing and R&D Facilities in India, Finland & Turkey**



**100+ Years of Combined Manufacturing Experience**



**Presence in 180 Countries**



# MANUFACTURING FACILITIES



CE / US FDA certified Kiran Medical Systems at Mumbai facility manufactures and exports Radiology accessories, components & Radiation Protection Products.



AERB approved manufacturing facility at Kiran Mumbai & Pune manufactures and exports imaging products like X-Ray, C-Arm & Mammography to various countries.



CE/JGMP certified ATMT manufactures and exports over 1000 Ultrasound Machines every year.



Biosystems & Trivitron joint venture facility located at TMT manufactures & exports a wide range of Biochemistry Reagents.

With 9 manufacturing facilities, Trivitron occupies an enviable position in the healthcare industry by producing a wide range of equipment, laboratory reagents, diagnostic kits and even protective apparel for radiology departments. The products are used in health care setups and hospitals across the world.



Labsystems Diagnostics facility in Finland manufactures and exports CE certified Newborn Screening and Diagnostics kits for Gastro, Cardiac Panel and Infectious Diseases.



CE Certified manufacturing facility in Chennai inaugurated by the Honorable Prime Minister of India, Shri. Narendra Modi and Prime Minister of Finland, Mr. Juha Sipilä manufactures and exports a wide range of IVD products.



Bome Sanayi Urunleri Dis Tic A.S. at Turkey is involved in research and development of newborn screening tests, hematology solutions, clinical reagents and Quality Control Materials.



CE certified manufacturing facility exports products like ECG Machines, ICU Ventilators, Patient Monitors and Defibrillators.



CE certified Trivitron facility manufactures and exports Operating Room products like Ultraclean Modular OT, Pendants, Bed Head Units, etc.



# INDEX

**10-11** Certifications

**Surgical Imaging 13-27**



**29-39** Radiography



**Mammography 41-45**



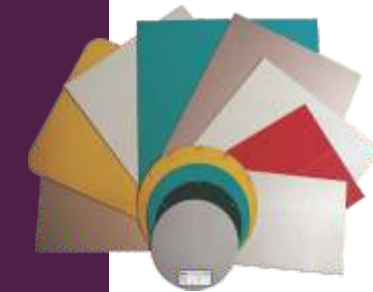
**47-51** Ultrasound



**Radiation Protection Products 53-77**



**79-86** Imaging Accessories & Components



## Compliance to International Quality Standards

Our quality systems are assessed and certified as per the guidelines of ISO 9001:2015 and ISO 13485:2016.

Our Products conform to the stringent quality norms of CE, as specified by European Council's Medical Device Directive (MDD) contained in 93 / 42 / EEC, as well as Regulation (EU) 2016/425.

Most of our Radiation Protection Products meet or exceed EN 61331-1:2014, EN 61331-1:2014, IEC 61331-1:2014, ASTM F 2547, EN 388:2016, EN 420:2003+A1:2009, DIN & IS Standards. Our manufacturing facilities are registered with USFDA.



Health  
Canada



DIN EN  
Deutsches Institut für Normung

## ICMED

Kiran has been registered by Intertek as conforming to the requirements of ICMED 13485 (Indian Certification for Medical Devices Certification Scheme)



## R&D Facility

Kiran has its own R&D facility, approved by Department of Scientific and Industrial Research (DSIR), measuring 100 m<sup>2</sup> of Area.



## Our Testing Facilities

Kiran has its own state-of-the-art Radiographic Testing Centre where we test our products during research and development as well as in-process quality control and final testing before release for sale.



# SURGICAL IMAGING SYSTEMS



## Surgical C-arm Systems

Our state-of-the-art C-Arm Systems use a Flat Panel Detector or High Quality Image Intensifier that provide high contrast images. Kiran C-Arm Systems provide mobility with a compact design with intuitive positioning. Accurate, Reliable & Durable.

**SUPER HARMONIC CONTROLLED FREQUENCY GENERATOR**

Optional High Resolution 32" single monitor with HD Memory



40 kHz x-ray generator with 3.5 kW and 5 kW output power options with stationary and rotating anode tubes



Minimum radiation dose requirement with selection of tailored fluoroscopy modes



Radiographic and ABS Mode



Intuitive Software for convenient selection from multiple configurations



Real time image rotation and image capture



Accurate and reliable operations

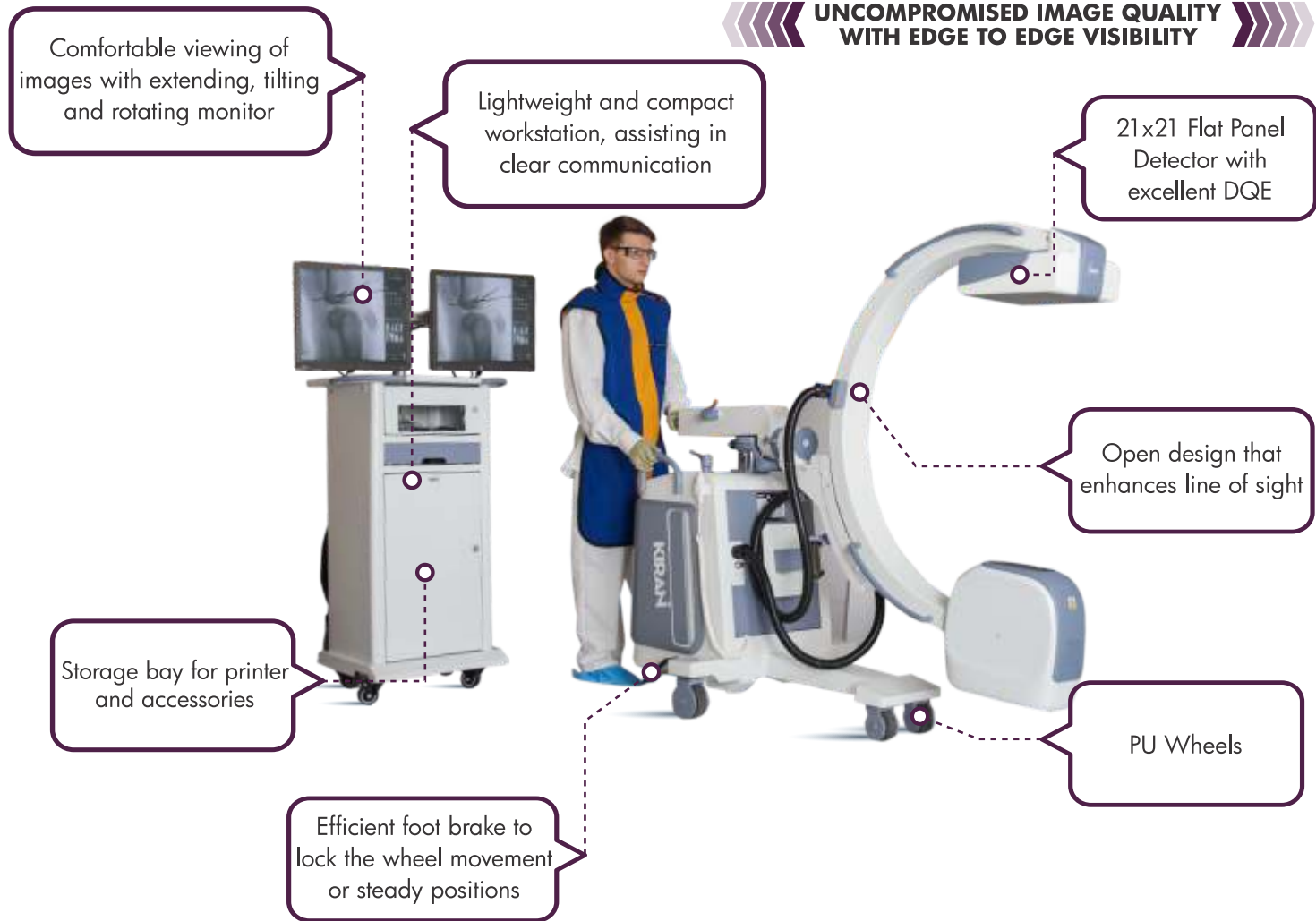


## Digital C-Arm

Innovative and Intuitive Digital C-Arm that address both Clinical Value and Overall Workflow. Elite/Infinity offers Versatility, Robust Performance and High Precision Surgical Imaging. Excellent imaging with 21 x 21 cm Flat Panel Detector and Low Dose Fluoroscopy with User Friendly Dose Adjustment. With Digital Subtraction Angiography and Road Mapping features, Elite/Infinity has wide Intraoperative imaging applications in Orthopaedics, Trauma Surgery, Urology, Pain management, Gastro, Neurology, PMR, Interventional Radiology and peripheral vascular surgery.

### World-Class 5 kW (Elite) & 3.5 kW (Infinity) X-Ray Generator with ABS for optimized dose

#### UNCOMPROMISED IMAGE QUALITY WITH EDGE TO EDGE VISIBILITY



- Orbital Movement : 125° orbital rotation
- Free Space : 780 mm (±10 mm)
- SID : 980 mm (±10 mm)



- 210 mm (±10 mm) Horizontal C-Arm run, with manual braking for locking

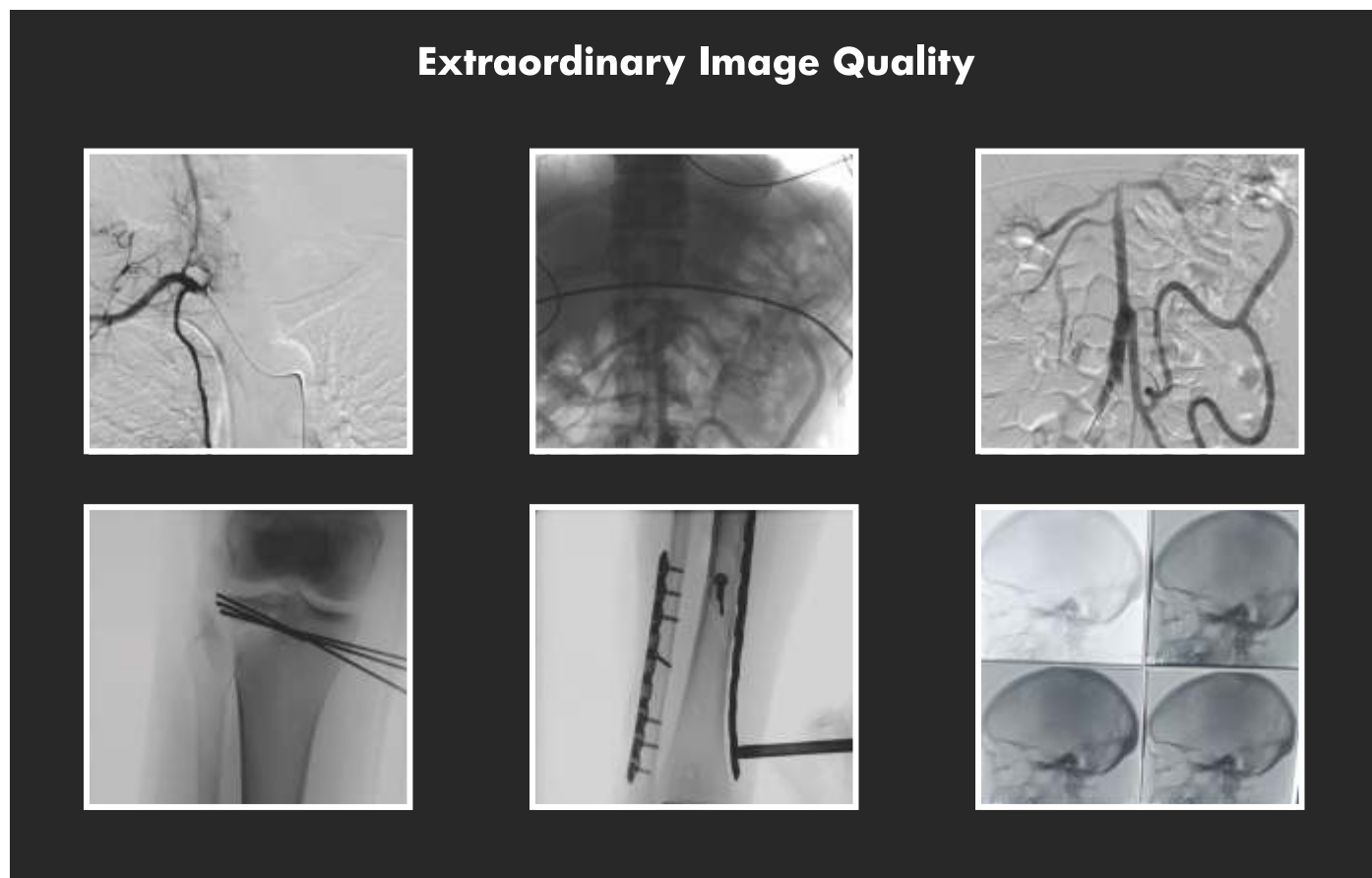


- 270° C-Arm rotation on each side, with manual brake for locking



- 12.5° (±1°) C-Arm swivel on each side with manual brake for locking

- ▶ User Friendly Workstation Interface – Ease of use and faster workflow with ABS & ADRC mode, Semi Auto & Fully Auto mode
- ▶ Comprehensive Image Management – Real time image rotation and Real time image capture with recording of images as 'Last image saved' & Cine loop
- ▶ Efficient Storage & Connectivity – Permanent storage of over 1,00,000 images with DICOM option and PACS & HIS RIS connectivity
- ▶ Flexible Power Management – Extra power for complex cases with Online UPS for steady & unchanged flow of power

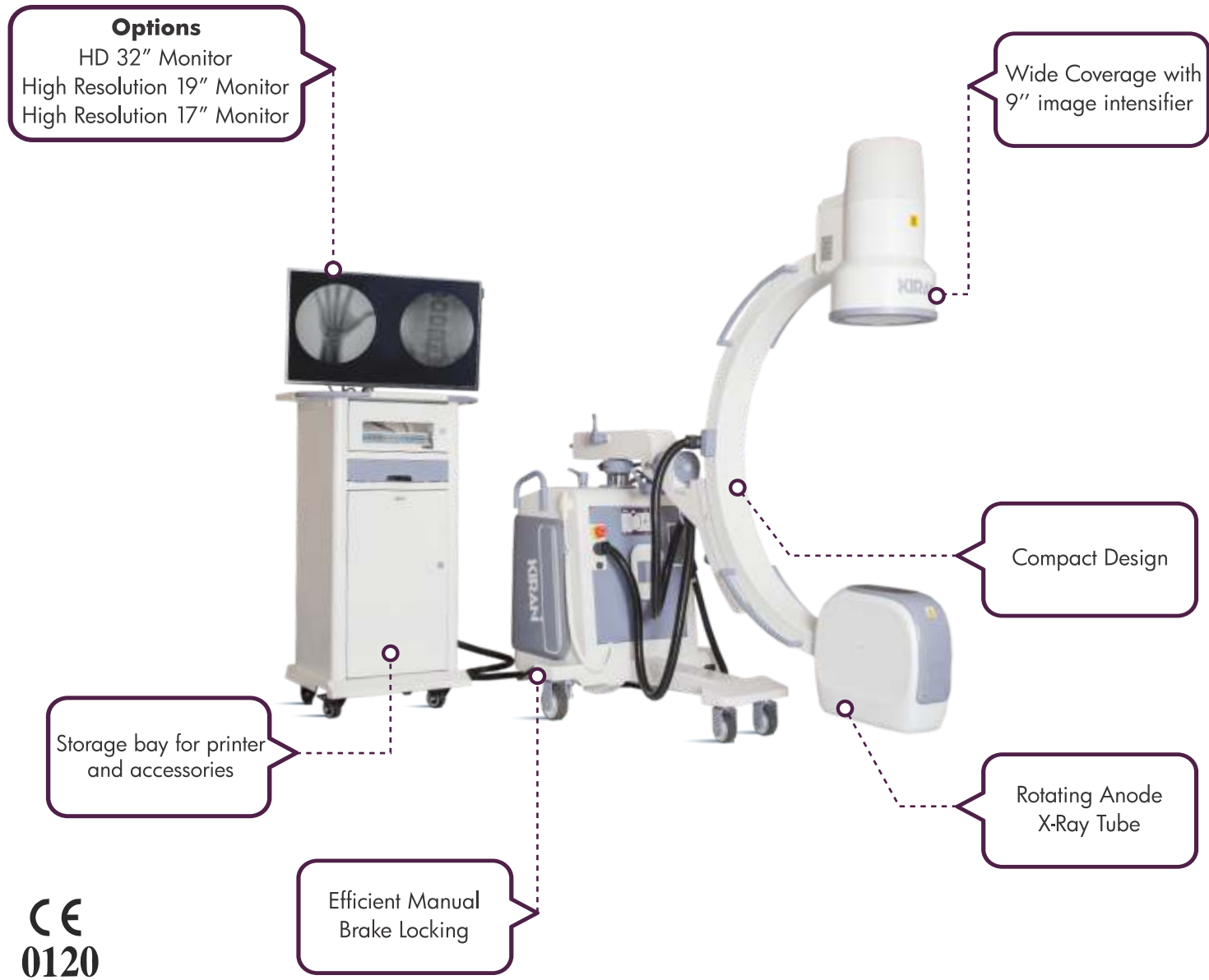


## Technical Specifications

KEY FEATURES	INFINITY - 1K X 1K	ELITE - 1K X 1K
OUTPUT POWER	3.5 kW	5.0kW
NORMAL MODE CURRENT	0.6 - 4.5 mA	0.6 - 5.5 mA
PEDIATRIC MODE CURRENT	0.1 - 2.25 mA	0.1 - 2.5 mA
BOOST MODE CURRENT	0.8 - 8 mA	0.8 - 12 mA
SNAPSHOT MODE CURRENT	0.8 - 8 mA	0.8 - 12 mA
RADIOGRAPHY MODE CURRENT	25 - 70 mA	35 - 80 mA
kV Max	110 kV	120 kV
IMAGING RESOLUTION	1K X 1K	1K X 1K
MONITOR	19" LED Medical Grade	19" LED Medical Grade
FIELD OF VIEW	23cm/9"	23cm/9"
FREE SPACE	80 cm	80 cm
IMMERSION DEPTH	67 cm	68 cm
ORBITAL MOVEMENT	125° (+90° to -35°)	125° (+90° to -35°)
IMAGE RESOLUTION	≥ 2.4 lp/mm	≥ 2.4 lp/mm
IMAGE STORAGE	PC Based Memory - More than 50,000 images	PC Based Memory -More than 50,000 images
PORTABILITY OF IMAGE	USB drive, LAN connectivity & CD writer	USB drive, LAN connectivity & CD writer
DSA	Optional	Optional

## Elite Series

Elite C-Arm is a Comprehensive Surgical Imaging Solution by Kiran that gives you the Clinical Confidence required in the most challenging cases. With an Ergonomic Design & Streamlined Workflow, Elite offers excellent Clinical Value in a wide range of applications.



CE  
0120



- Orbital Movement : 125°
- Free Space : 780 mm (±10 mm)
- SID : 980 mm (±10 mm)



- 200 mm (±10 mm) Horizontal C-Arm run, with manual braking for locking



- 270° C-Arm rotation on each side, with manual brake for locking



- 12.5° (±1°) C-Arm swivel on each side with manual brake for locking

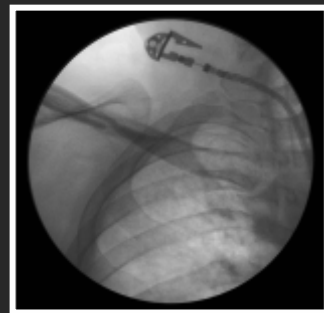
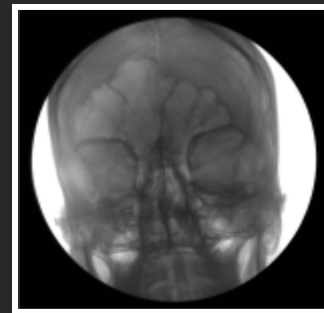
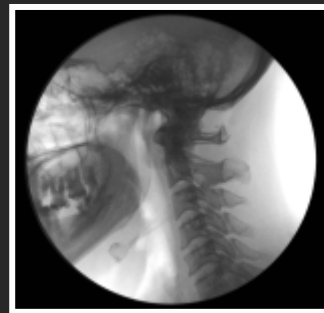
## ► Digital Subtraction Angiography with Roadmap

Digital Subtraction Angiography is used in Vascular Surgery to increase image quality of the vessel map by subtracting the background from the main required image. DSA with Roadmap is used to find blockage or aneurysm in arteries or veins with the help of vessel map & devices.

## ► 1K x 1K Digital Imaging Chain & Memory Unit with Advanced Image Acquisition, Processing, Management & Storage

## ► More than 50,000 image storage with Digital Camera

### Extraordinary Image Quality

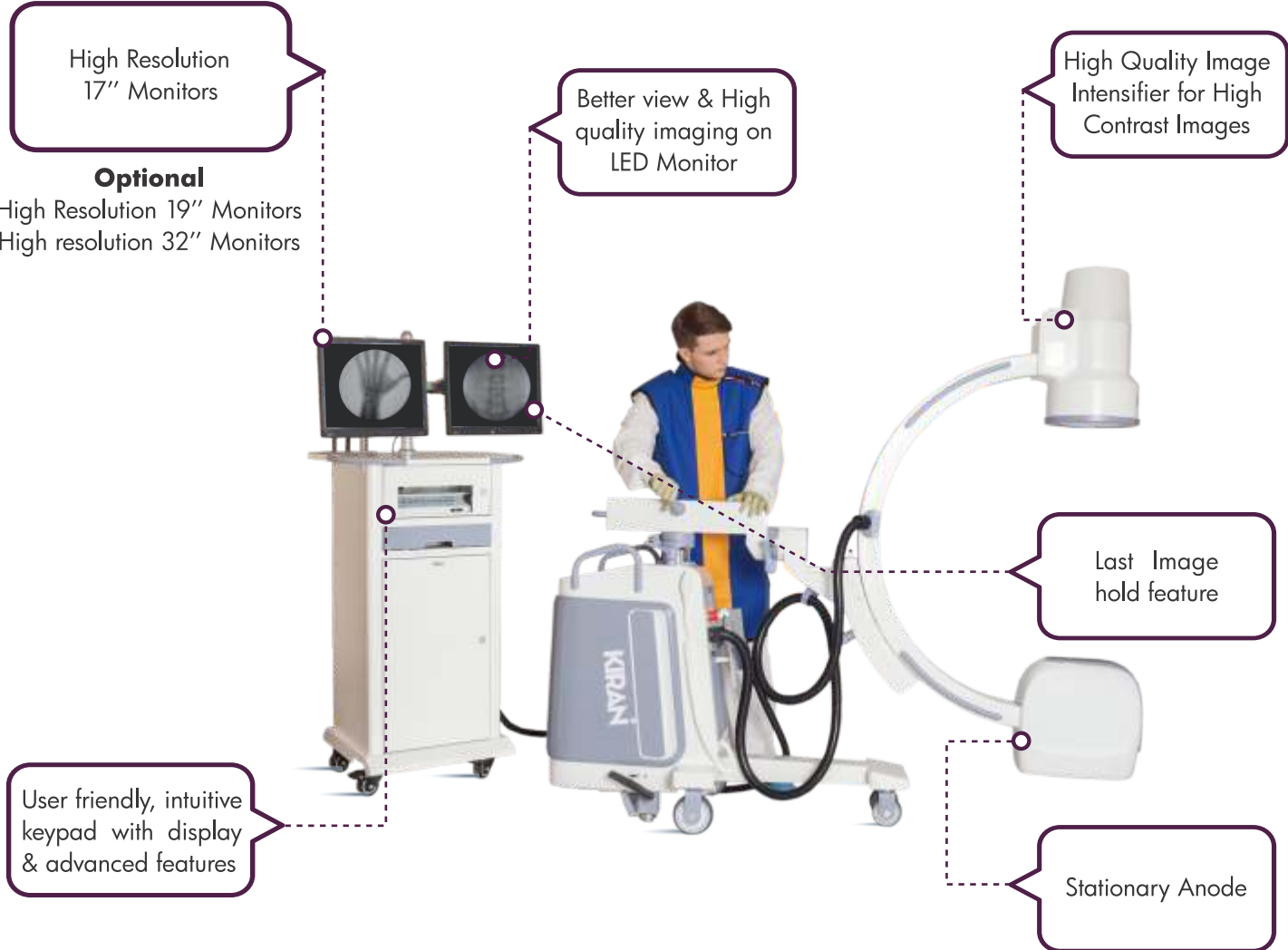


## Technical Specifications

KEY FEATURES	ELITE	ELITE 1K X 1K	ELITE 1K X 1K-DSA
OUTPUT POWER	5.0 kW	5.0 kW	5.0 kW
NORMAL MODE CURRENT	0.6 - 5.5 mA	0.6 - 5.5 mA	0.6 - 5.5 mA
PEDIATRIC MODE CURRENT	0.1 - 2.5 mA	0.1 - 2.5 mA	0.1 - 2.5 mA
BOOST MODE CURRENT	0.8 - 12 mA	0.8 - 12 mA	0.8 - 12 mA
SNAPSHOT MODE CURRENT	0.8 - 12 mA	0.8 - 12 mA	0.8 - 12 mA
RADIOGRAPHY MODE CURRENT	35 - 80 mA	35 - 80 mA	35 - 80 mA
DSA MODE CURRENT			12 mA
kV	40 - 120 kV	40 - 120 kV	40 - 120 kV
IMAGING RESOLUTION	CCD-752 X 582 pixels	1K X 1K	1K X 1K
MONITOR	17" LCD Dual Monitors HD Option: 32" Monitor	19" LED Medical Grade	19" LED Medical Grade
FIELD OF VIEW	23 cm/9"	23 cm/9"	23 cm/9"
FREE SPACE	80 cm	80 cm	80 cm
IMMERSION DEPTH	68 cm	68 cm	68 cm
ORBITAL MOVEMENT	125° (+90° to -35°)	125° (+90° to -35°)	125° (+90° to -35°)
IMAGE RESOLUTION	≥ 2.2 lp/mm	≥ 2.43 lp/mm	≥ 2.43 lp/mm
IMAGE STORAGE	PC Based Memory - Storage depends on Hard Disk space with 17" Monitors Standalone - Storage up to 100 images incase of 32" HD Monitor	PC Based Memory - Storage depends on Hard Disk space	PC Based Memory - Storage depends on Hard Disk space more than 50,000 Images
PORTABILITY OF IMAGE	USB drive, LAN connectivity	USB drive, LAN connectivity & CD writer	USB drive, LAN connectivity & CD writer. DICOM - Optional

# Infinity Series

The Infinity C-Arm features an intelligent software for convenient selection from multiple configurations and provides a user friendly keyboard interface at an affordable price point.



- Orbital Movement : 125°
- Free Space : 780 mm (±10 mm)
- SID : 980 mm (±10 mm)



- 200 mm (±10 mm) Horizontal C-Arm run, with manual brake for locking



- 270° C-Arm rotation on each side, with manual brake for locking



- 12.5° (±1°) C-Arm swivel on each side with manual brake for locking

## Technology made Friendly

Infinity C-Arm is the ideal fit for your OR. Benefit from the Excellent Image Quality and Unmatched Efficiency at an Optimal Cost. A multi functional C-Arm that provides maximum value with the reliability needed for everyday surgeries. Infinity is ergonomically designed for easy movements and has intuitive features that provide the convenience needed for easy operability and smooth workflow.



**Excellent  
Image Quality**



**Unmatched  
Efficiency**

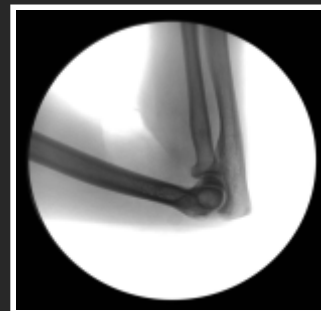
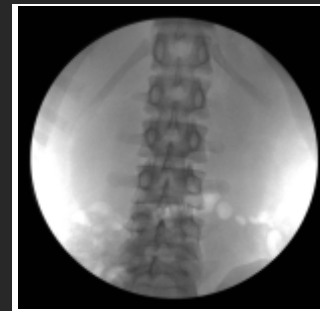
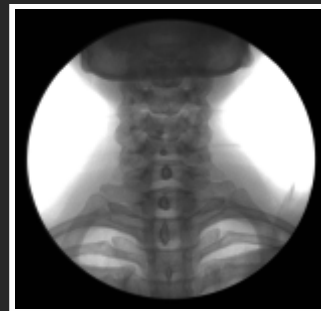
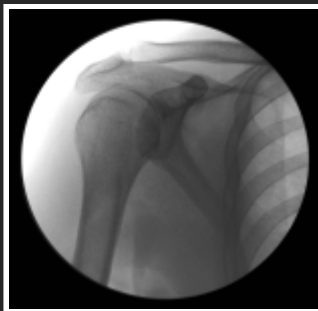


**Optimal  
Cost**



**Smooth  
Workflow**

## Extraordinary Image Quality



## Technical Specifications

KEY FEATURES	INFINITY	INFINITY - HD	INFINITY - 1K X 1K
OUTPUT POWER	3.5 kW	3.5 kW	3.5 kW
NORMAL MODE CURRENT	0.6 - 4.5 mA	0.6 - 4.5 mA	0.6 - 4.5 mA
PEDIATRIC MODE CURRENT	0.1 - 2.25 mA	0.1 - 2.25 mA	0.1 - 2.25 mA
BOOST MODE CURRENT	0.8 - 8 mA	0.8 - 8 mA	0.8 - 8 mA
SNAPSHOT MODE CURRENT	0.8 - 8 mA	0.8 - 8 mA	0.8 - 8 mA
RADIOGRAPHY MODE CURRENT	25 - 70 mA	25 - 70 mA	25 - 70 mA
kV	40 - 110 kV	40 - 110 kV	40 - 110 kV
IMAGING RESOLUTION	CCD-752 X 582 pixels	CCD-752 X 582 pixels	1K X 1K
MONITOR	19" Optional	32" HD	19" LED Medical Grade
FIELD OF VIEW	23cm/9"	23cm/9"	23cm/9"
FREE SPACE	80 cm	80 cm	80 cm
IMMERSION DEPTH	67 cm	67 cm	67 cm
ORBITAL MOVEMENT	125° (+90° to -35°)	125° (+90° to -35°)	125° (+90° to -35°)
IMAGE RESOLUTION	≥ 2.2 lp/mm	≥ 2.4 lp/mm	≥ 2.6 lp/mm
IMAGE STORAGE	Standalone - storage up to 100 images	Standalone - storage up to 100 images	PC Based Memory - Storage depends on HD space more than 10,000 images
PORTABILITY OF IMAGE	USB Drive and LAN Connectivity	USB Drive and LAN Connectivity	USB drive, LAN connectivity & CD writer. DICOM - Optional

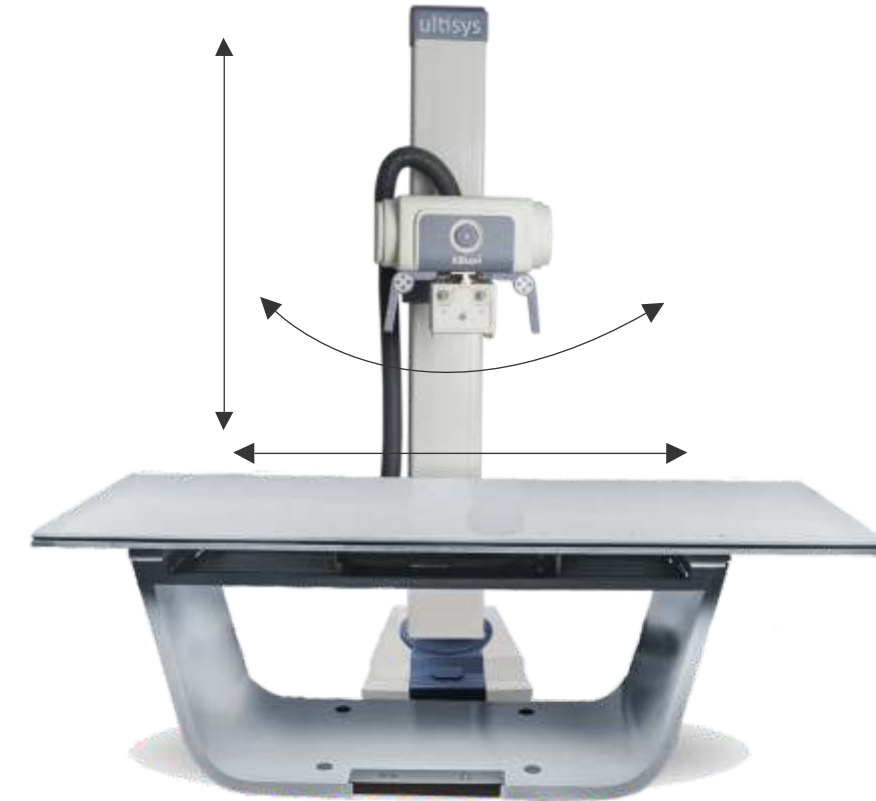


# RADIOGRAPHY SYSTEMS

## Ultisys 20/40/52/82

Ultisys is a Versatile Radiography System with wide clinical applications and Intuitive Control Console comprising of Integrated Graphical Display APR (Anatomical Programming) and Optional AEC (Automatic Exposure Control). It is ergonomically designed for complete flexibility to cover full body examination without patient repositioning and radiographs of standing and supine patients including patients on wheelchairs and stretchers.

Ultisys has Scalability with a wide range of X-ray generators adaptable to specific application & system configuration and is easily upgradable to Full Digital Radiography System.

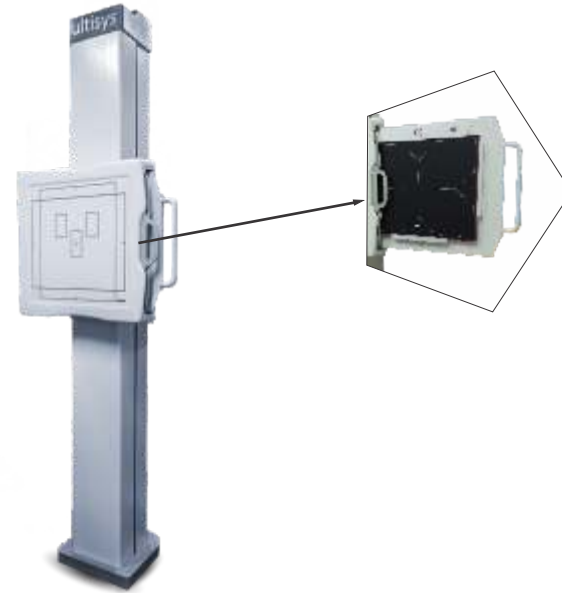


<b>Table Top Specifications</b>	L : 2180mm x W : 890mm x H : 760mm
	Filtration 0.9 mmAl
<b>Bucky type</b>	Max. Patient Weight 200kg Upgradable to 300 kg
<b>Brake Mechanism</b>	Oscillating bucky with integrated High Density Grid.
<b>Anit Scatter Grid</b>	Electro-Magnetic ( Longitudinal and Transverse movement)
	Ratio 10:1, 103 LPI, Focal Distance : 100cm



## Vertical Bucky Stand

Vertical Travel up to 1260mm  
 Electromagnetic Locking System  
 Oscillating Bucky with integrated high density Anti-Scatter Grid  
 Anti-Scatter Grid 10:1, 103 LPI & Focal Size: 150 cm

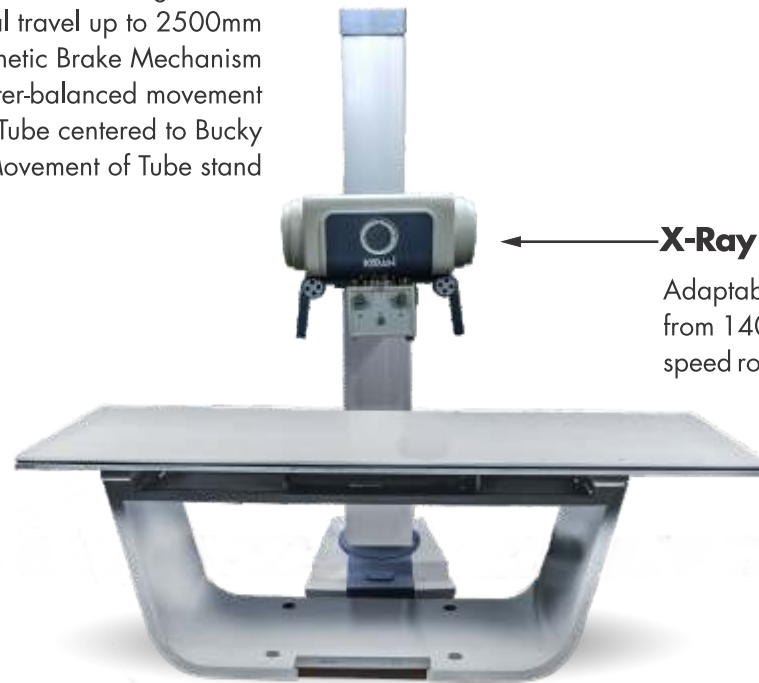


## Generator options

Output Rating	20 kW	40 kW	52 kW	82 kW
kV Range	40-125 kV	40-125 kV	40-150 kV	40-150 kV
mA Range	80-250 mA	10-500 mA	10-640 mA	10-1000 mA
mAs Range	1-320 mAs	0.1-500 mAs	0.1-500 mAs	0.1-500 mAs
Maximum Output Power mA/kW@0.1s	250mA@60 kV	400/16@40 kV	400/16@40 kV	400/16@40 kV
	160mA@80 kV	500/30@60 kV	630/39@60 kV	800/48@60 kV
	120mA@100 kV	500/40@80 kV	625/50@80 kV	800/64@80 kV
		400/40@100 kV	500/50@100 kV	800/80@100 kV
		320/40@125 kV	400/50@125 kV	640/80@125 kV
Leakage Radiation			330/50@150 kV	530/80@150 kV
	<2 mR/hr	<2 mR/hr	<2 mR/hr	<2 mR/hr

## Ceiling Free Tube Stand

Tube rotation angle  $\pm 90^\circ$   
 Longitudinal travel up to 2500mm  
 Electro-magnetic Brake Mechanism  
 Fully counter-balanced movement  
 Tube centered to Bucky  
 Central Control Movement of Tube stand

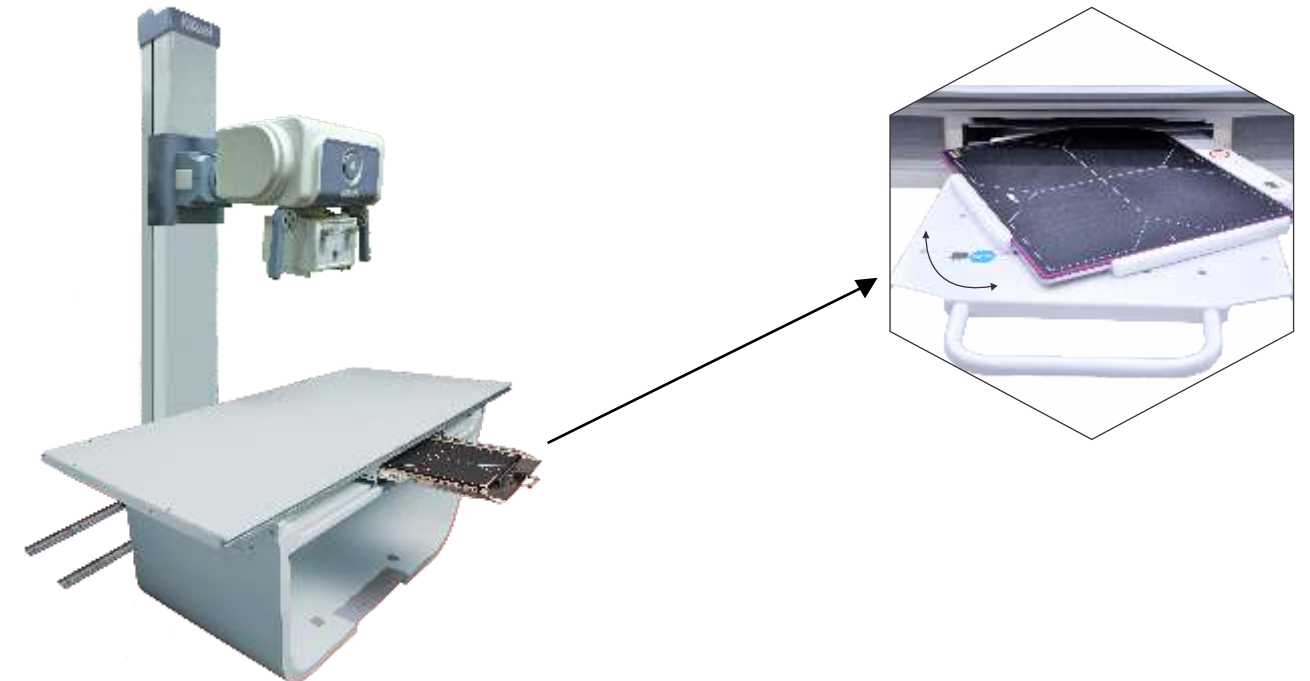


**X-Ray Tube**

Adaptability to variety of X-Ray tubes ranging from 140kHU to 400kHU and Low/High anode speed rotation

## Rotating Bucky

Bucky rotation upto  $90^\circ$



# Ultisys 3.5 Comprehensive Mobile Radiography Solutions



**Easy to Interface with DR**



## The Ultisys Advantage

- Accurate positioning and precise movement, ease of mobility with braking and locking system
- Micro-processor based control system
- Intuitive operation based on Anatomical Program (APR)
- Independent selection of parameters (kV, mAs) with digital display
- Less exposure time, reduced motion artifacts
- Covers all positions with Spring Balanced Mechanism

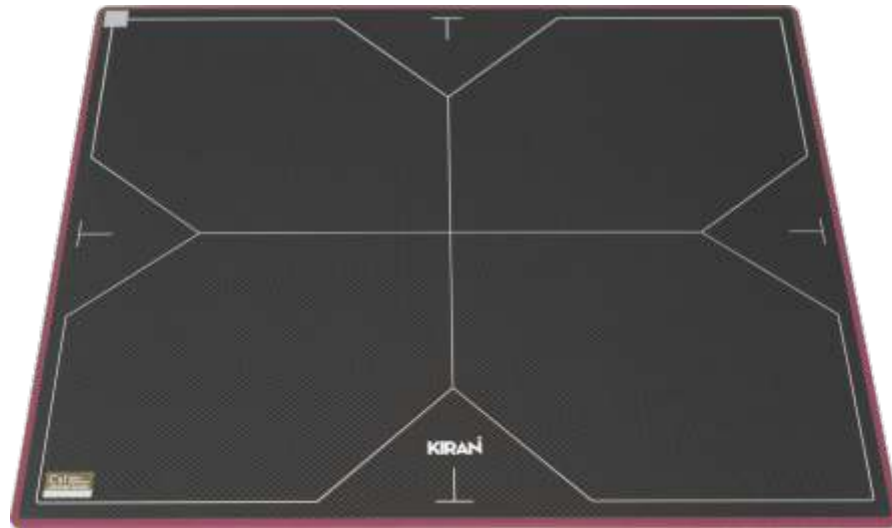


## Technical Specifications

Model	KIRAN Ultisys 3.5 kW	Tube Stand	
Generator Output Rating	3.5kW	Tube Stand	Spring Balanced Stand, light weight, easy to carry and position
Frequency	High Frequency - 40 kHz	Wheels	4 wheels
kV Range	40-110kV	Collimator	A manual light beam diaphragm with rotation for adjustment of exposure area. provision of auto shut off after 45 seconds.
mA Max	70mA	X-ray tube head	Monoblock version Stationary Anode
mAs Range	1-250mAs	Electrical Rating	230V AC, 15A, 50/60Hz
Anatomical Programs	128 programs with APR utility	Weight	<150kg
Display	2 point		

## Ultisys Digital Radiography

Convert an existing Analog X-Ray system to a low dose, High Resolution Digital Radiography System with Kiran Ultisys Digital Radiography. A Lightweight, Wireless Detector with Wi-Fi enabled system that provides ease of sharing DR solution across multiple X-Ray systems.



### FLAT PANEL DETECTOR



**Wi-Fi**  
Wireless Acquisition & Transfer



**Scintillator**  
Direct Deposit Csl:TI



**Digital Retina Technology**  
Lightning Fast Acquisition  
Powerful Image Processing  
High Resolution Display



**Full Field AED**  
Auto Trigger Mechanism

### Easy Workflow

Easily configurable between wired and wireless modes of operation  
Light weight and slim design with built-in foldable handle  
14" x 17" cassette-sized wireless detector

### Wide Operating Environment

Extra long battery life with 1400 shots and 7 hours stand-by time  
Operating Temperature Range is from 5°C - 35°C

### High Image Quality

The best performance Csl direct-deposition technology on TFT/PIN PD panel and low noise electronics

### Lower Doses

Reduction in dosage up to 50%



## Usage

Convert any Analog X-ray to a full Digital Radiography Solution with DR Retrofit Kit

Lightweight, wireless, rugged, cassette sized detector that can be used with both mobile and fixed X-ray system

## Benefits

14" x 17" cassette-sized wireless detector  
Extra-long battery life with 1400 shots and 7 hours stand-by time  
The best performance Csl direct-deposition technology on TFT/PIN PD panel and low noise electronics  
Better image quality at the lowest dose  
Shorter exposure time avoiding kinetic blurring  
Instant image display leading to higher throughput

## Software

Intuitive Image Acquisition & Image Processing



# Technical Specifications

## Sensor

Scintillator	Direct Deposit CsI : TI
Active Area	433.7 x 354.8mm
Pixel Array	2816 x 2304
Pixel Pitch	154 μm

## Communication Interface

Communication Interface	Gigabit Ethernet 2.4/5 GHz, 300Mbps
Image Acquisition Time	2-3s (wired) 4-5s (wireless)
Exposure Control	F <sup>2</sup> AED Manual Sync

## Environmental

Operating Temperature Range	5-35°C
Humidity Range (Non-condensing)	30%-75% RH
Storage Temperature Range	-20-55°C
Humidity Range	10%-90% RH

## Mechanical

Dimensions	460 X 384 X 15mm (18.11" X 15.11" X 0.59")
Weight	3.7 Kg (8.16 lbs.)
Housing Material	Carbon Fiber Front High Strength Aluminum Alloy Back

## Power

Power Dissipation	8W (Standby) 20W (Operating)
Power Supply	100-240V AC

# Diagnostic Medical Monitor

DICOM IMAGES WITH HIGH ACCURACY



## Features

- Display Size : 19"
- Resolution : 1280x1024
- Max. Brightness : 1000 cd/m
- Viewing Angle : 170°/170°
- 4096 Gray Scale Diagnostic Medical Display
- Easy Installation
- Brightness Stabilization
- Long Lasting Continuous Working Steadily
- DICOM Compatibility
- Compliance to International Medical Standard
- Application : DSA/ DSI/ CT/ PACS Acquisition Workstation
- Input port : DVI/ VGA/ VIDEO/ S-VIDEO



# MAMMOGRAPHY SYSTEMS



## Digital Mammography for Precise Diagnosis

Felicia™ is a Reliable & Superior Digital Mammography solution that enables the healthcare providers to deliver high quality patient care with the highest Diagnostic Confidence.

### Superior Image Quality

#### World Class X-Ray Source

**Biangular X-Ray tube** provides significantly higher mA loading and output while maintaining tight focal spot result in exceptionally high quality, high resolution images for both full field and magnification view

**Rhenium Tungsten target X-Ray tube** with rhodium and silver filter reduces radiation dose to the patient without compromise the image quality

#### Efficient Detector

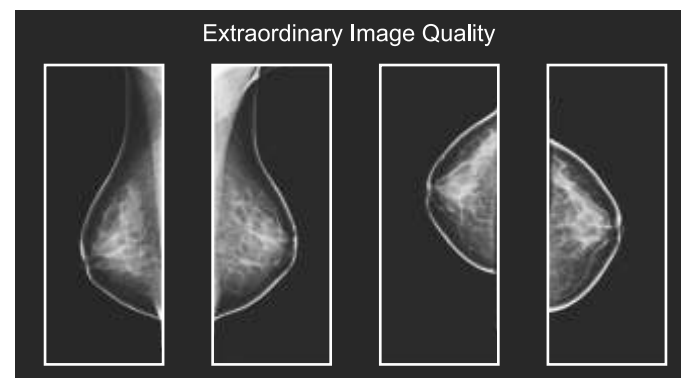
**Cesium Iodide detector** has broader operating temperature range and enabling better image quality at low dose

**77 micron pixel pitch** helps in delineating smallest of calcifications which is a pivotal aspect aiding early detection

#### Intelligent exposure control

State of the art **AEC sensors** provide excellent and consistent image quality.

Provides Manual & Automatic AEC to select exposure factors to compensate for composition and object thickness.

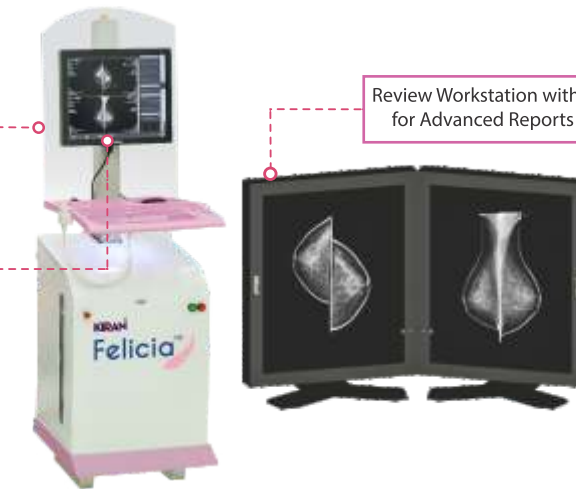


## Streamlined Workflow

0.5 mm Lead Equivalent Glass Operator Console

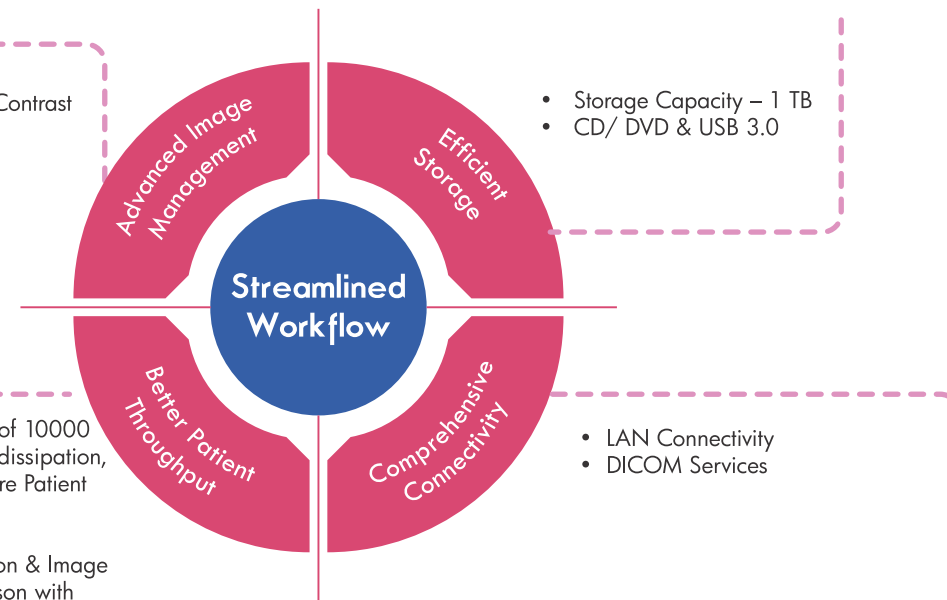
Acquisition Workstation with 1 MP High resolution 19" LCD display  
Optimal upgrade to 23" , 2 MP LCD Display

Review Workstation with 5 MP High Resolution Kiran Monitors for Advanced Reports Management and precise diagnosis



- Brightness/Contrast
- Zoom
- Pan
- Invert
- Flip Image

- Storage Capacity – 1 TB
- CD/ DVD & USB 3.0



- Anode rotation speed of 10000 rpm allows better heat dissipation, longer stability and more Patient Throughput
- Faster Image Acquisition & Image Processing in comparison with Conventional Mammography
- Auto Collimation is available based on the Paddle selection which saves time

- LAN Connectivity
- DICOM Services

## Ergonomics with a Difference

Face shield for ideal positioning that prevents radiation exposure to face

65cm Source to Image Distance allows for easy positioning & utmost patient comfort

Larger Detector with 24 x 30 cm field view, allows you to image wider range of patient profile without requiring additional exposures

Superior Soft Touch Switch and Touch Screen Display – for ease of operation and comfortable patient positioning

Designed for Easy Serviceability



-150° & + 185° Tube Angulation for Easier Patient Positioning

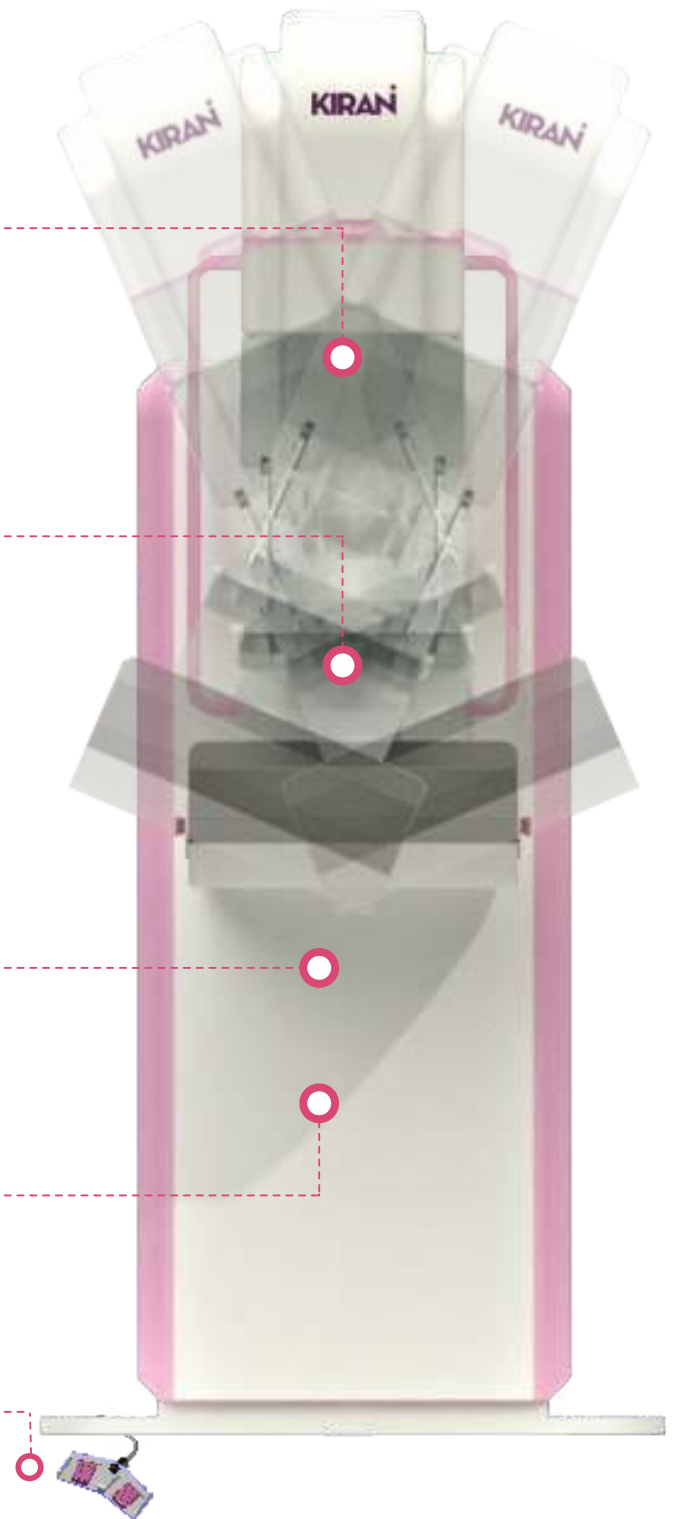
Vertical Movement  
74 cm to 134 cm

Flex Paddle Technology accommodates the natural contour of the breast, and allows image capture with reduced patient discomfort.

Collapsible feature converts the stand-alone system into mobile Unit for Mammography Screening Vans with ease

Compact & Sleek with minimal Footprint

Dual foot switch for easy positioning of the patient during procedure



# ULTRASOUND SYSTEMS





## SonoRad V9

Kiran SonoRad V9 is a Compact & Reliable Ultrasound solution based on the comprehensive RealPic Imaging Platform which provides holistic features that lead to Superior quality Images for conclusive diagnosis. Backed by World-Class Support teams in Applications & Service, SonoRad V9 is more than just Ultrasound. It provides you the diagnostic confidence that you deserve!



19" Anti Glare monitor with wide viewing angle of 170° & Swivel Monitor/ Arm



Intuitive & User Friendly Control Panel with 15° Tilt



4 USB port & 1TB internal Hard Disk

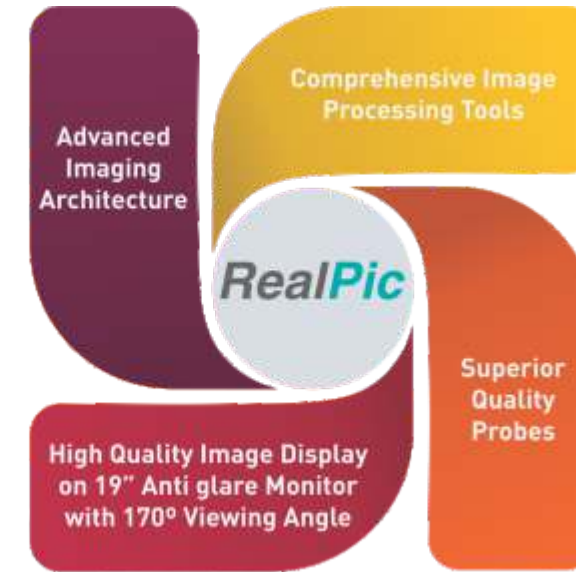


Three active probe connector

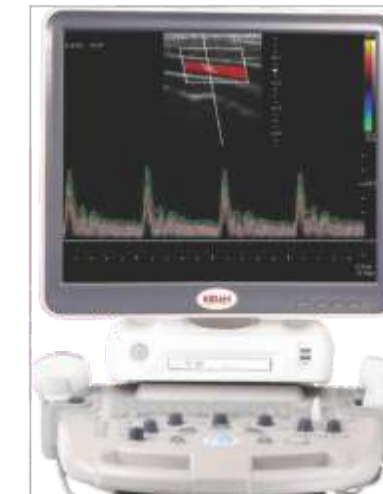
## RealPic

SonoRad V9 is Powered by a comprehensive set of features that contribute to excellent quality imaging at every step of the process, right from the superior acquisition of Sound wave to the high quality Image display.

- Fully Digital Multi Beamformer
- Digital Signal Focus
- Doppler Signal Oversampling

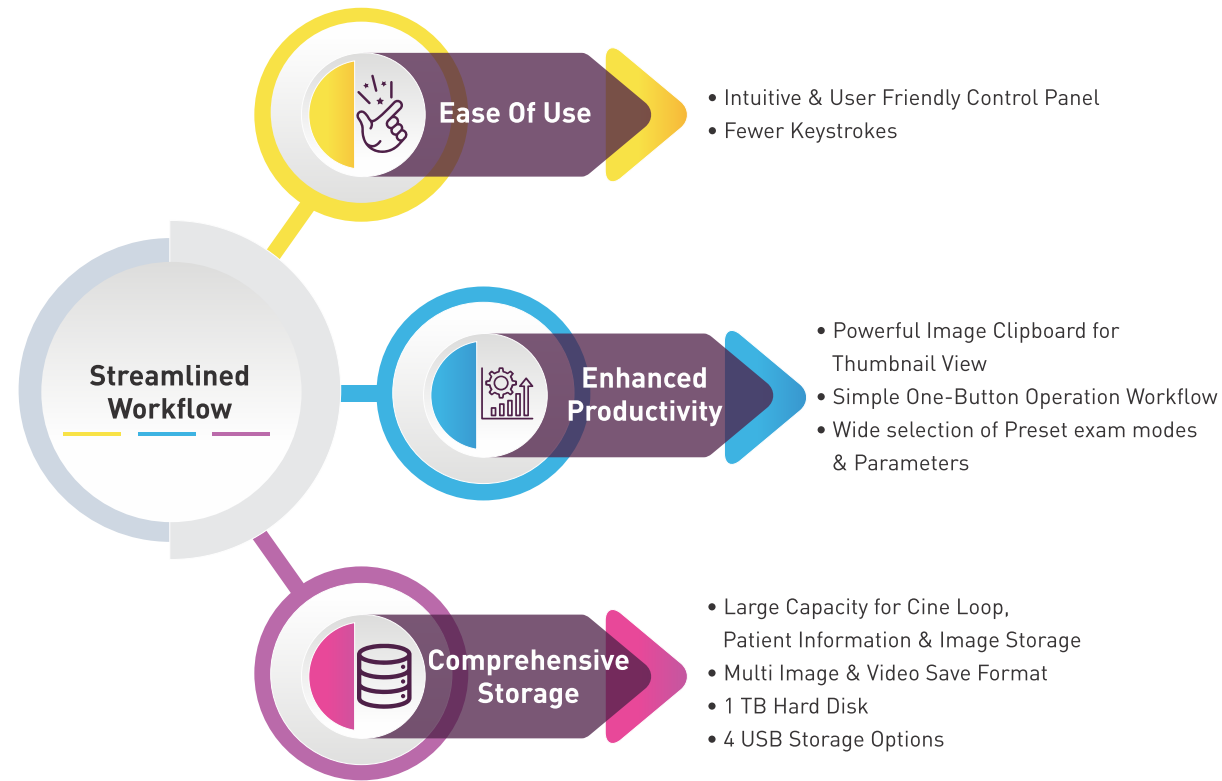


- PIHI
- SRI
- SCI
- FCI



Wide Range of Probes for Various Clinical Applications

- Convex
- Micro-Convex
- Linear
- Endo-Cavity
- Phased Array
- Volume 4D



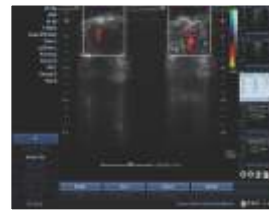
*Uni-K* is the set of One-Touch features that maximizes your productivity and Patient throughput every day.



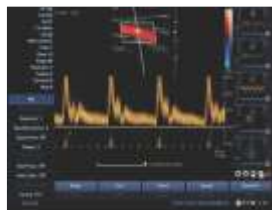
One Touch Probe/Exam Switch



One Touch Image Optimization



One Touch Flow Optimization



One Touch Spectrum Optimization

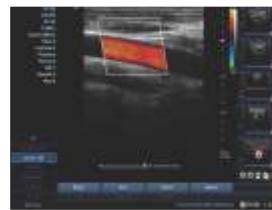


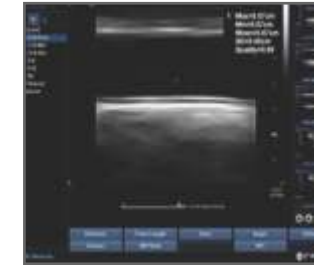
Image Clip Board

## Extraordinary Clinical Value

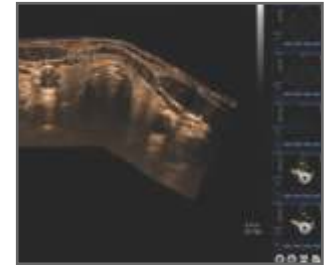
High Resolution B-Mode



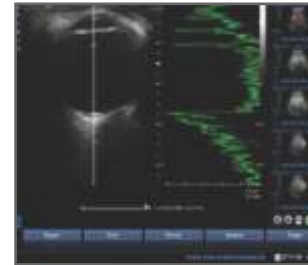
Auto IMT



Panaromic Imaging



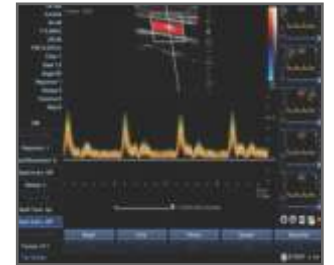
A-Mode



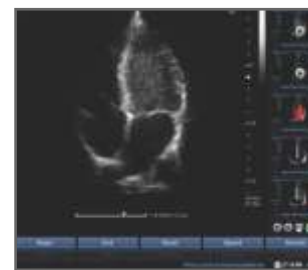
3D/4D



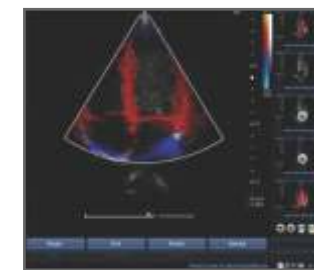
Duplex & Triplex Modes



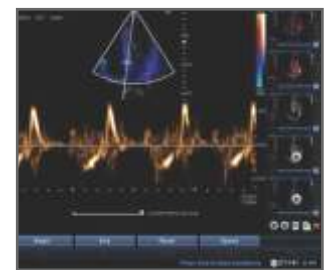
High Resolution B-Mode & Tissue Harmonics



Tissue Doppler Imaging



Tissue Doppler Velocity



### More Clinical Value

- Trapezoidal Imaging
- Real Skin Imaging
- Tomographic Ultrasound Imaging
- CDFI, Power & Directional Power Flow, PW, HPRF
- Anatomical M-Mode with 3 Cursors
- Anatomical M-Mode with 3 Cursors
- Anatomical M-Mode with 3 Cursors
- Color flow peak velocity capture
- Color Flow Peak Velocity Capture
- Comprehensive Image Processing Tools
- PIHI – Pulse Inversion Harmonic Imaging
- SRI - Speckle Reduction Imaging
- Beam Steering
- Auto angle correction
- Real Time Doppler Auto Trace
- Color flow peak velocity Capture
- Color Doppler flow Imaging



# RADIATION PROTECTION

P R O D U C T S

## The Secret Ingredients

World-Class Core materials have been the cardinal components of Kiran's Radiation Protection Products. The core materials are made possible through extensive research in particle engineering and cutting edge material science and offer maximum protection from ionizing radiation.

## Wide Range of Core Materials

**ZeroLead<sup>AIR</sup>**  
The World's Finest

- 10% Lighter than Zerolead
- Micro Particle Bismuth & Antimony
- Ecofriendly Material
- Odour-Free Plasticizers
- Lesser Fatigue
- Ultimate Comfort
- Micro Particle Technology for better protection from scatter radiation

**ZeroLead<sup>®</sup>**  
An Eco-friendly Technological Breakthrough

- Extremely Light
- Bismuth & Antimony particles
- Ecofriendly Material
- Odour-Free Plasticizers
- Resistant to Humidity
- Lesser Fatigue
- Stability between -20° to +70° Centigrade

**ultralite<sup>™</sup>**  
An Optimized Weight Sheeting

- Lighter than Leadlite
- Antimony & Lead particles
- Optimum Safety
- Odour-Free Plasticizers
- Resistant to Humidity
- Ergonomic Comfort
- Stability between -20° to +70° Centigrade

**LEADLITE<sup>®</sup>**  
The Industry Standard Re-defined

- Lightest Lead Material
- Purest & Finest Lead Particles
- Use of minimum Bonding & Mineral oils
- Odour-Free Plasticizers
- Resistant to Humidity
- Materials remain supple for several years
- Stability between -20° to +70° Centigrade

- Maximum protection against scattered radiation—a key health consideration
- Protection for the upper body and the sensitive thyroid gland at a lead equivalence of 0.50 mm Pb & 1.00 mm Pb
- Basic back protection required for use in CT Scans and Cath labs at a lead equivalence of 0.25 mm Pb
- Solutions for the varying needs of X-ray technicians, medical professionals, and patients

Radiation Attenuation Data



Protection at Various Voltages		% Attenuation				
		0.25 mm	0.35 mm	0.50 mm	1.00 mm	
ZeroLead AIR	Radiation Energy Beam Level	60 kV	97 %	99 %	100 %	≥ 100 %
		70 kV	94 %	98 %	99 %	100 %
		80 kV	91 %	96 %	98 %	100 %
		90 kV	88 %	94 %	96 %	99 %
		100 kV	85 %	92 %	95 %	99 %
		110 kV	82 %	90 %	93 %	99 %
		120 kV	80 %	88 %	92 %	98 %
		130 kV	78 %	86 %	91 %	97 %

Protection at Various Voltages		% Attenuation				
		0.25 mm	0.35 mm	0.50 mm	1.00 mm	
ZeroLead	Radiation Energy Beam Level	60 kV	97 %	99 %	100 %	≥ 100 %
		70 kV	94 %	98 %	99 %	100 %
		80 kV	91 %	96 %	98 %	100 %
		90 kV	88 %	94 %	96 %	99 %
		100 kV	85 %	92 %	95 %	99 %
		110 kV	82 %	90 %	93 %	99 %
		120 kV	80 %	88 %	92 %	98 %
		130 kV	78 %	86 %	91 %	97 %

\*Uncertainty of Measurement: ±4%

Radiation Attenuation Data

Kiran's Products offers maximum Radiation Attenuation at broad-beam conditions according to ASTM 2547-18. The Lead Equivalence is determined using narrow as well as inverse broad-beam geometry according to EN 61331-1:2014 & EN 61331-3 : 2014 for the specified range - 50kV to 150kV

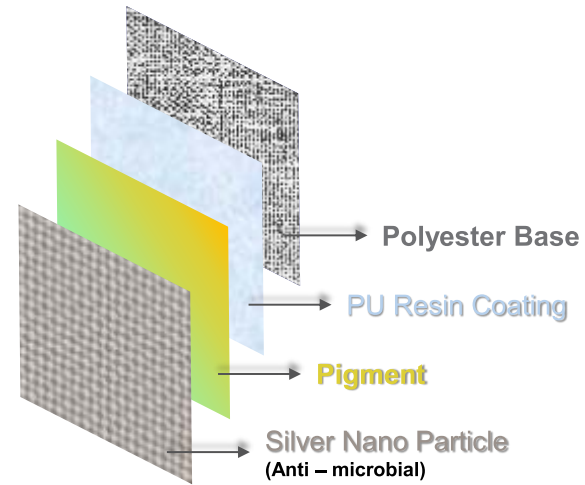
Protection at Various Voltages		% Attenuation				
		0.25 mm	0.35 mm	0.50 mm	1.00 mm	
ultralite	Radiation Energy Beam Level	60 kV	97 %	99 %	100 %	≥ 100 %
		70 kV	94 %	98 %	99 %	100 %
		80 kV	91 %	96 %	98 %	100 %
		90 kV	88 %	93 %	96 %	99 %
		100 kV	85 %	91 %	95 %	99 %
		110 kV	83 %	90 %	94 %	99 %
		120 kV	81 %	88 %	93 %	98 %
		130 kV	79 %	86 %	91 %	99 %

Protection at Various Voltages		% Attenuation					
		0.25 mm	0.30 mm	0.35 mm	0.50 mm	1.00 mm	
LEADLITE	Radiation Energy Beam Level	60 kV	97 %	98 %	99 %	100 %	≥ 100 %
		70 kV	95 %	97 %	98 %	99 %	100 %
		80 kV	92 %	94 %	96 %	97 %	100 %
		90 kV	88 %	92 %	94 %	96 %	99 %
		100 kV	86 %	90 %	92 %	95 %	99 %
		110 kV	85 %	88 %	91 %	94 %	99 %
		120 kV	84 %	87 %	91 %	94 %	99 %
		130 kV	82 %	87 %	90 %	93 %	99 %

# Satin touch

Smooth • Comfortable • Hygienic

Satin Touch includes a range of fabric that are infused with silver nanoparticles which impart antimicrobial properties to the fabric thereby preventing microbial growth. This advanced material provides all the benefits, while offering a super smooth satin feel, making it extremely comfortable to wear over long durations.



## Wide Range of Color Options



## Standard Color Combinations

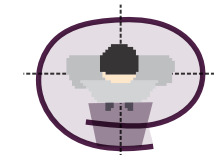


\*Additional color combinations available upon request

# Double Sided Apron - Optima



## Protection Area



- Fabric Type -  
**Satin touch**  
 Smooth • Comfortable • Hygienic

Velcro Panels for Improved fit

Snap Lock for Comfortable fit

## Ideal For

1. Cathlabs
2. Interventional Surgical Procedures
  - Interventional Radiology
  - Interventional Cardiology
  - Interventional Urology

## Lead Equivalence

Front Protection

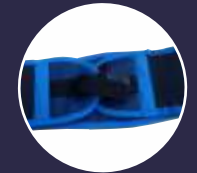
0.50 mm Pb

0.35 mm Pb

Back Protection

0.25 mm Pb

## Customization Options



Extra Belt outside (to reduce Back & Shoulder stress)



Name Tag



Embroidery (in Pockets)



Thyroid Shield

# Double Sided Apron - Maxima

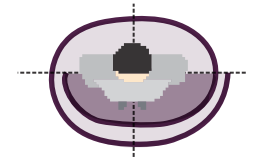
Anti-skid Shoulder Pads to reduce stress & for equal weight distribution

Pockets Included

Complete frontal overlap for added protection against scattered radiation



## Protection Area



Wide Belt Provided – 4 inch or 6 inch supportive belt keep the garment's weight off the shoulder and hip while providing lumbar support.

- Fabric Type -  
**Satin touch**  
Smooth • Comfortable • Hygienic

## Ideal For

1. Cathlabs
2. Interventional Surgical Procedures
  - Interventional Radiology
  - Interventional Cardiology
  - Interventional Urology

Snap Lock for Comfortable fit

## Lead Equivalence

Front Protection

0.50 mm Pb

0.35 mm Pb

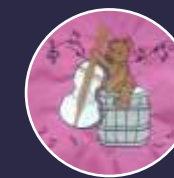
Back Protection

0.25 mm Pb

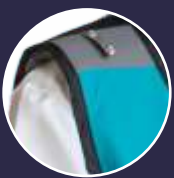
## Customization Options



Name Tag



Embroidery (in Pockets)



Thyroid Shield (Attachable Loop)

## Accessories





Anti-skid Shoulder Pads to reduce stress & for equal weight distribution

Pockets Included

Vest Closure with 3 Velcros (2 inch each) for comfortable fit

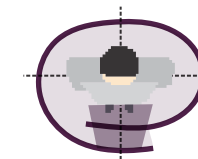
Vest overlaps skirt for upto 15 cm which provides additional lower body protection



Adjustable Velcro panels for Comfortable Fit

Snap Lock for proper fit

Protection Area



- Fabric Type -

**Satin touch**

Smooth • Comfortable • Hygienic

Ideal For

1. Cathlabs
2. Interventional Surgical Procedures
  - Interventional Radiology
  - Interventional Cardiology
  - Interventional Urology

Lead Equivalence

Front Protection

Back Protection

0.50 mm Pb

0.35 mm Pb

0.25 mm Pb

Customization Options



Name Tag



Embroidery (in Pockets)



Thyroid Shield (Attachable Loop)

Accessories

# Skirt & Vest - Maxima



4 inch Velcro closure for a Snug Fit



Snap lock for proper fixation

Anti-skid Shoulder Pads to reduce stress & for equal weight distribution

Pockets Included

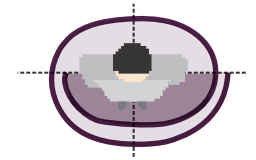
Front Opening for ease of wearing



Vest Overlaps the skirt for sufficient length to ensure protection during movements like Bending forward

Skirt Design for Free Movement

## Protection Area



- Fabric Type -  
**Satin touch**  
Smooth • Comfortable • Hygienic

## Ideal For

1. Cathlabs
2. Interventional Surgical Procedures  
Interventional Radiology  
Interventional Cardiology  
Interventional Urology

## Lead Equivalence

Front Protection

0.50 mm Pb

0.35 mm Pb

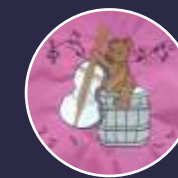
Back Protection

0.25 mm Pb

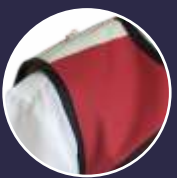
## Customization Options



Name Tag



Embroidery (in Pockets)



Thyroid Shield (Attachable Loop)

## Accessories

# Coat Apron

Anti-skid Shoulder Pads to reduce stress & for equal weight distribution

Pockets Included

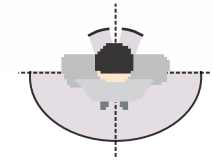
Also available Flex Back (Elastic belt provides lumbar support & improved fit)

Complete frontal protection



Velcro Closure for a Enhanced Fit

## Protection Area



- Fabric Type -  
**Satin touch**  
Smooth • Comfortable • Hygienic

## Ideal For

- Interventional Radiology Procedures

## Lead Equivalence

Front Protection

0.50 mm Pb

0.35 mm Pb

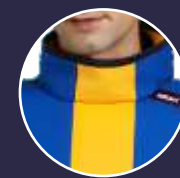
## Customization Options



Name Tag



Embroidery (in Pockets)



Thyroid Shield (Stitched & Integrated)

## Accessories

# Coat Apron with Front Snaplock

# Coat Apron with Back Snaplock

Anti-skid Shoulder Pads to reduce stress & for equal weight distribution

Pockets Included

Wide Stretchable Wings, enables adjustments & provides a Snug Fit and Shoulder relief.

Front Snap Lock for proper fixation

Anti-skid Shoulder Pads to reduce stress & for equal weight distribution

Pockets Included

Complete Frontal Protection

### Protection Area

- Fabric Type -  
**Satin touch**  
Smooth • Comfortable • Hygienic

Back Snap Lock for proper fixation

### Lead Equivalence

Front Protection

0.50 mm Pb	0.35 mm Pb
------------	------------

### Customization Options

- Name Tag
- Embroidery (in Pockets)

### Accessories

- Thyroid Shield (Stitched & Integrated)

# C-Arm Pro Apron

# C-Arm Pro Elite

Anti-skid Shoulder Pads to reduce stress & for equal weight distribution

Pockets Included

Velcro Closure for a Comfortable Fit

Complete Frontal Protection



Anti-skid Shoulder Pads to reduce stress & for equal weight distribution

Available with Integrated Thyroid Shield

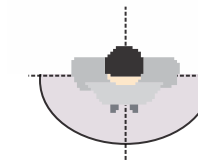
Pockets Included

Complete Frontal Protection

Velcro Closure for a Comfortable Fit



## Protection Area



- Fabric Type -

### Satin touch

Smooth • Comfortable • Hygienic

## Ideal For

- Fluoroscopy Equipment
- Interventional Radiology Procedures

Available in Tangerine & Royal Blue Color Combination

## Lead Equivalence

Front Protection

0.50 mm Pb

0.35 mm Pb

## Customization Options



Name Tag



Embroidery (in Pockets)

World-Class Radiation Protection Product Range



Thyroid Shield



Head Shield



Eyewear



Gonad Shield



Ovarian Shield



RadShield



Gloves



Curtain

World-Class Radiation Protection Product Range



Arm Guard



Leg Guard



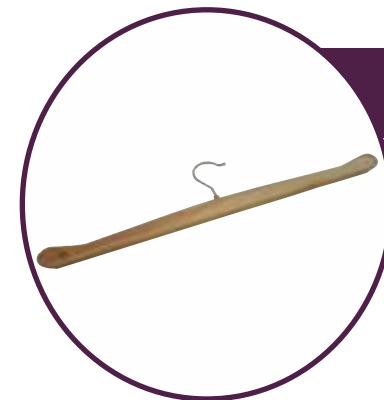
Wall Mounted Racks



Patient Apron



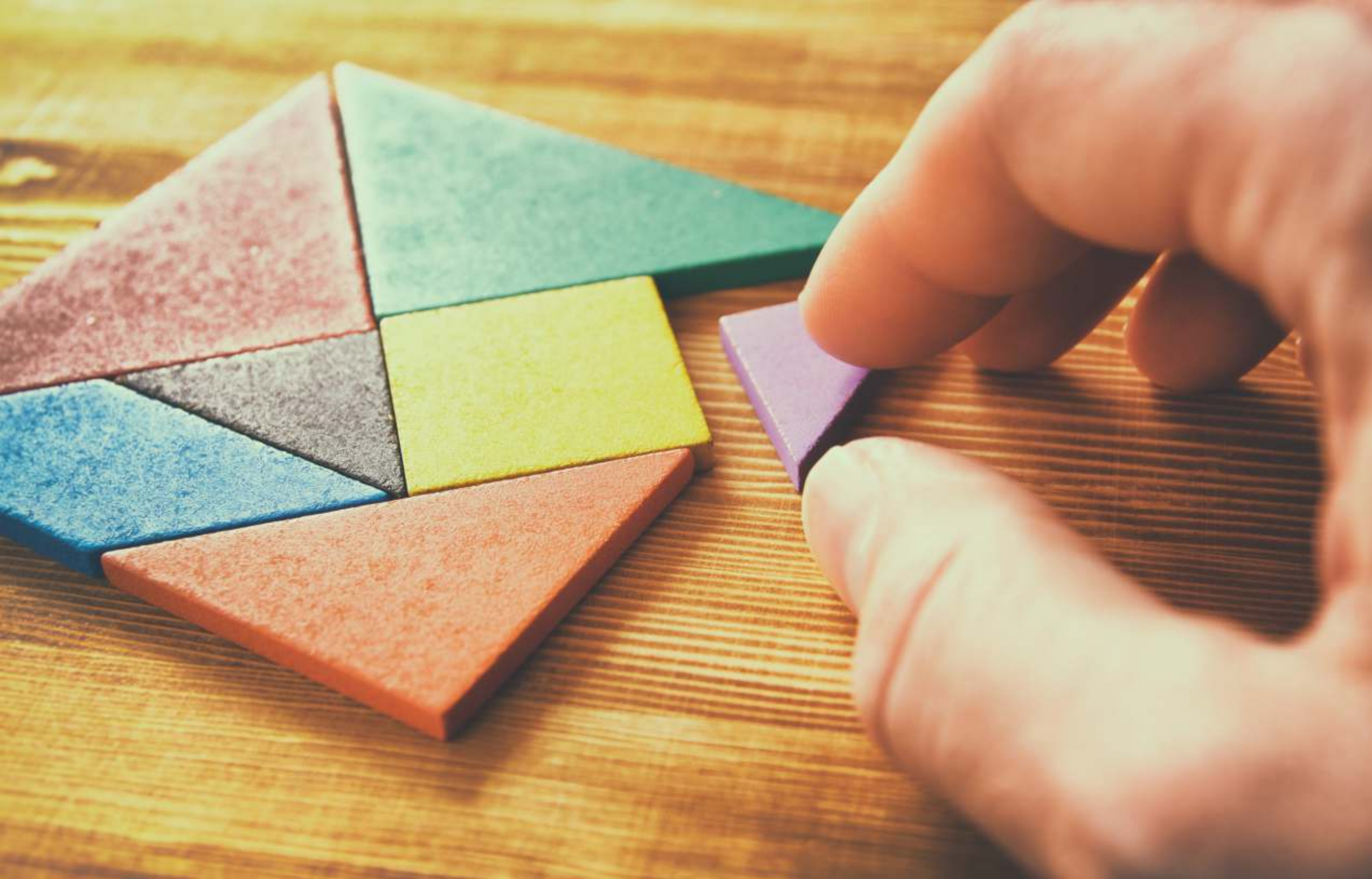
CT Shield



Apron Hanger



Mobile Storage System



# IMAGING ACCESSORIES & COMPONENTS



## Anti-Scatter Grids

### Image Enhancement Solutions

We at Kiran have spent more than three decades on research and development in the field of X-rays, with a specialty in image enhancement.

With our long-term commitment to research, we have developed outstanding technical expertise in understanding and developing products and processes needed to capture and manage images. We use this special knowledge and experience in the manufacture of our Anti-scatter Grids. These grids address a key ingredient of image quality—contrast—which helps complete the picture in X-ray images.

An ever-evolving and dynamic company, Kiran provides a complete range of anti-scatter grids, which includes Standard Grids, Digital Grids, Bucky Grids, and Circular Grids. We also manufacture customized grids to meet the specialized needs of our customers.

### Quality Parameters

Quality control is serious business at Kiran.

Our robust quality management system ensures a stringent testing protocol for incoming raw material and at each production stage for every grid manufactured by us. Statistical Process Control and a rigorous final product testing regimen post manufacture result in defect-free grids with optimal performance.

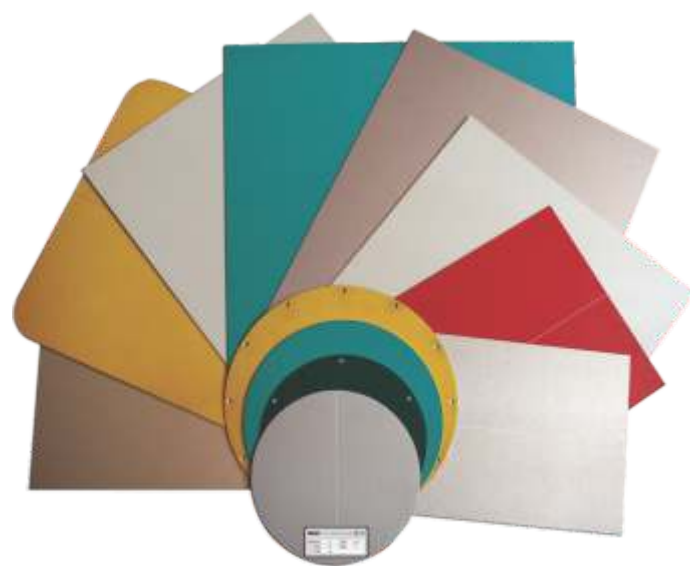
**K Factor** is a key performance parameter that measures how efficiently a grid absorbs scattered radiation. With a superior K factor, Kiran grids result in three to four times' better contrast.

**B Factor** or the Bucky Factor is the quantity of additional X-ray intensity needed with the use of a grid. The lower the B Factor, the higher the quality. Kiran grids employ high quality septa and interspacer coupled with precision assembly, resulting in a low B factor.

**Primary Transmission** is the ratio of the K Factor to the B Factor (K:B). Kiran grids are designed to allow a transmission of highest possible primary rays.

**SNR** is the Signal to Noise ratio. Scattered rays generated are several times that of the primary radiation. Kiran grids employ a delicate balance of lead thickness and interspacer to block maximum scatter leading to a higher SNR.

Our grids meet and exceed the specifications laid down by IEC 60627. Kiran grids are CE certified.



## Digital Applications

The key to a superior contrast in case of digital applications is to reduce and eliminate the scatter as well as electronic noise.

Such noise generated in all digital systems can be compared with the signal as a ratio—Signal to Noise Ratio—known as SNR. The lower the noise, the higher the image quality.

Kiran grids are designed to improve the SNR in digital systems. Since post processing of a digital image cannot eliminate noise, the scatter has to be eliminated before it enters the digital detector, using a grid.

### Customized Solutions

Types	Standard Grids
	Digital Grids
	Bucky Grids
	Circular Grids
Dimensions	Various dimensions covering every size, shape, and profile.
	We also provide grids with custom dimensions.
Line Density	60 lpi (24 I/cm)
	85 lpi (34 I/cm)
	103 lpi (40 I/cm)
	150 lpi (60 I/cm)
	178 lpi (70 I/cm)
	200 lpi (80 I/cm)
Focal Distance	20 inches (50 cm) to 120 inches (300 cm)
	Parallel grids are also available.
Grid Ratio	6:1 to 15:1
Applications	Conventional systems
	Image intensifiers
	Digital systems

## Radiographic Cassettes & Screens

Cassettes with perfect film-screen contact with nitrogen-imploded open cell P.U. foam system and a perfectly curved back door profile and textured surface.

Kiran screens are manufactured with an age-defying protective layer that gives them outstanding durability. Our cassettes made with aviation-grade aluminium are made strategically strong to avoid damage from repeated handling at a busy X-ray facility.

Lightweight but with strong corners, locks, and hinges made from the virtually indestructible German Desmopan® polymer and engineering plastics.

Superb image clarity with outstanding product design and precision manufacturing techniques.

Minimum patient dose with optimally balanced formulations.

Screens compatible with all conventional films available in the market.

### Cassettes

Kiran cassettes are also available as replacement products in two versions—with and without a Patient ID window.



### GRID CASSETTES



Kiran Grid Cassettes are available in all popular film sizes and manufactured applying the same superior technology as our standard X-ray cassettes.

Our grid cassettes meet the exacting needs of of most of the leading systems available in the market



## Screens

### Rare Earth: Green Screens

Kiran Rare Earth Green Screens use terbium-activated gadolinium oxy-sulfide phosphor for increased efficiency. They are designed for outstanding contrast, detail perception, and reduction in X-ray dosage with a low mAs.

#### Range of Green Screens:

Green 400	Speed Class 400	The industry standard—high intensification and excellent detail perceptibility
Green 800	Speed Class 800	Maximum speed for lowest dosage

Also available: Green Screens in Speed Class 100 and 200.

### Rare Earth: Blue Screens

Kiran Rare Earth Blue Screens use state-of-the-art rare earth phosphors that lead to extra sharpness, minimum dosage, and reduction in quantum noise. This leads to a phenomenal improvement in the X-ray tube's life span.

#### Range of Blue Screens

Blue 400	Speed Class 400	The industry standard—high intensification and excellent detail perceptibility
Blue 800	Speed Class 800	Maximum intensification with lowest dosage
		Using it with half-speed X-ray film will reduce the system speed to 400

Also available: Blue Screens in Speed Class 100, 200 & 300.

### Calcium Tungstate Screens

Kiran Calcium Tungstate Screens use high-quality phosphor possessing exceptional luminescence, resulting in an optimum combination of speed and resolution with minimum mottle.

#### Range of Calcium Tungstate Screens:

Hi Plus	Speed Class 200	For high resolution and ultra-high speed. Ideal for a wide range of applications.
---------	-----------------	---

Also available: Calcium Tungstate Screens in Speed class 100 (medium) and 150 (hi-speed).

## Cassettes & Screens

### MAMMOGRAPHIC CASSETTES AND SCREENS

Kiran sources some of the world's best mammo cassettes and screens from Germany.

These cassettes are characterized by tough and lightweight durable engineering plastic, perfect film screen contact due to pneumatic foam, and excellent diagnostic results.

The R Series, including the R 200 and R 300 Mammo Screens, contribute to the high definition obtained with the Mammography System.



### SPECIAL PURPOSE PRODUCTS



### DENTAL CASSETTES & SCREENS

Kiran Dental Cassettes are available in sizes 8X10, 13X18, 15X30 & 15X40 with and without patient ID window and manufactured applying the same superior technology as our standard X-ray cassettes.

Our dental cassettes meet the exacting needs of extraordinary tolerances built in the mechanisms of most of the leading dental systems available in the market



### GRADUAL SCREENS & FLFS CASSETTES

We have specially designed cassettes for full leg, full spine, lumbar spine (lateral), and thoracic spine (lateral). Specially designed for each of these applications, our screens take into account the variations of the human anatomy and positioning within an application. The speed of our gradual screens changes such that a high contrast film can be used.

## X - Ray View Box

**Slim, Effective and Durable**

### Viewing Area:

1F: 14x17 inches

2F: 17x28 inches

3F: 17x42 inches

4F: 17x56 inches



## Features

- Slim Construction (~25 mm Thickness)
- High Brightness: >10,000 lux
- Excellent uniformity of Luminance
- LED Light Source with Life of 1,00,000 Hours
- No UV Emissions
- All 4 Variants are available with Dimmer option (Intensity Controller) and Film Sensor
- Flicker-free Light reduces fatigue to eye
- Available with Wall Mounted/Table Top options

## Sonogel

Sonogel Ultrasound Gel is manufactured at Kiran's state-of -the-art factory, where our chemical technologists develop advanced formulations that meet the following critical parameters:

- Transmission of a broad range of frequencies
- Non-irritating formulation that does not harm sonologists or patients
- No damage to transducers
- Slow drying formulation to avoid reapplication and maintain continuity during diagnosis
- Non-staining, non-toxic
- No formaldehyde

### Packaging:

- 250 ml collapsible tubes (25 tubes per pack)
- Innovatively designed 5 liter cans with dispensers for ease of use (4 cans per pack)



## Contrast Media K-Scan

The Trusted Radiology Specialists Offers K-SCAN, IOPAMIDOL Injection

### Clinical Particulars

- Neuroradiology
- Angiography
- Digital Substraction Angiography
- Urology
- Computerized Axial Tomography
- Arthrography
- Fistulography
- Posology
- Neuroradiography

### Features

- Water Soluble
- Non Ionic Contrast Medium
- With Diagnostic Efficacy & Safety



Concentration		Ph	Viscosity (mPa.s)		Density		Osmolality (Mosm/g) 37°C	Osmolality Pressure (atm.) 37°C
Iodine (mg/ml)	Iopamidol (g/100ml)		20°C	37°C	20°C	37°C		
300	61.2	7+0.5	88	4.7	1.335	1.328	0.62	15.7
370	75.5	7+0.5	20.9	9.4	1.415	1.405	0.8	20.3

## Kiran AceCare – World-Class Customer Support

### Precisely on-time for Enhanced Uptime!

Uptime of your Medical Equipment is important to your Productivity & ROI just as Precision is crucial in delivering the right Clinical Value to your patient. Our range of Service Contracts are tailored to meet your needs, ensuring that your medical equipment is optimally maintained and total cost of ownership is lowered.



For Service Support

Please Call



# On A **Global Mission** With A **Local Heart**

Speaking your language across 180 countries




**KIRAN**<sup>\*</sup>  
A Division of TRIVITRON Healthcare

[www.kiranxray.com](http://www.kiranxray.com) | [www.trivitron.com](http://www.trivitron.com)  
[kiran@kiranxray.com](mailto:kiran@kiranxray.com)

 /Trivitronindia

 /Trivitronindia

 /company/trivitron-healthcare

 /TrivitronHealthcare