## **Radiation Protection Products**





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 Products.

Through a growing network of 1500+ employees, 1200+ channel partners and 15 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.





15 Manufacturing and R&D Facilities in India, Finland, USA & Turkey



100+ Years of Combined Manufacturing Experience



Presence in 180 Countries



# Kiran & You! A Story of Mutual Trust & Confidence



Kiran is one of the most respected global brands in the field of Radiology.

The Kiran Journey started in 1974 with our first set of customers who placed their complete trust and confidence in our Radiology products. At Kiran, we have continued to evolve and innovate with the hope of bringing the best technology to our valued customers. Over the past 4 decades, Kiran has become one of the leading solution providers in Medical Imaging, catering to customers in 180 countries across the world.



#### Kiran is driven by 3 Cardinal Business Principles







Kiran - committed to the field of Radiology catering to customers across 180 Countries



# Manufacturing Facilities in Mumbai & Pune - India





# **World-Class Radiation Protection Products**

Adequate Protection against scatter radiation is of paramount importance for health care professionals working with Radiography, CT, Mammography, C-Arm and Cathlab Systems.

Exposure to a very high dose of radiation over a short period of time can produce acute effects such as redness of skin, hair loss, radiation burns, or even acute radiation syndrome. These are known as the Deterministic Effects of radiation exposure.

Exposure to low dose scatter radiation over an extended period of time may lead to a significant risk of long-term effects such as cancer, which may appear years or even decades later. These are known as the Stochastic Effects of radiation exposure.

It is important to protect medical professionals against the stochastic effects of radiation exposure. Because the effects of exposure is not immediately apparent, it is often ignored and procedures are performed every single day all across the world without optimum protection. The scatter radiation stealthily acts as a silent killer.

Kiran's offerings in radiation protection are the result of relentless R&D to offer you maximum protection & Comfort with adherence to Global Quality Standards and flexibility to customize the apron based on your requirements.

Aprons | Shields | Gloves | Eyewear | Storage Systems | RadShield



# Saving the Saviours!

Constant innovation in material science has helped Kiran develop some of the world's finest Radiation Protection products that offer the highest level of radiation attenuation are lightweight, ergonomic and aesthetically appealing.

Kiran offers a wide range of radiation protection products for Interventional Radiology, Cardiology procedures, CT procedures, Image Guided Surgery and General Radiology.

#### **Protection**

Kiran's Radiation Protection products are a result of extensive R&D, innovation and are made with world-class core materials which offer maximum radiation attenuation that protects the healthcare providers from the damaging effects of ionizing radiation generated by Xray systems, C-Arm systems, Cathlabs, Fluoroscopy Systems and CT.

#### Comfort

Kiran's Radiation Protection products are ergonomically designed with the needs of surgeons, doctors and technicians in mind. Our aprons are lightweight and are offered in a wide range of designs that suits various clinical applications. Every aspect of the apparel is designed for comfort with Lightweight core material, Satin Touch Fabric, shoulder pads, belts etc ensure maximum comfort throughout the procedure and results in reduced fatigue to the Care providers.

# Elegance

Kiran's Radiation Protection products offer flexibility to customize the Radiation Protection Products based on your personal preferences and comfort requirements.

We offer a vast range of customization possibilities which allows you to get Kiran apron created exactly the way you want it.

#### Wide Range of Customization Options















# Certifications

#### 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(MDD) 2017/745 & also PPE Regulation (EU) 2016/425 NB no 0598.

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



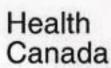


























#### **ICMED**

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.



#### **Core Materials**

#### 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





10% Lighter than Zerolead



Odour-Free Plasticizers



Ecofriendly

Material

Ultimate

Comfort





Micro Particle Technology for better protection from scatter radiation



#### • 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

An Optimized

V

Optimum

Safety

Ergonomic

Comfort



Lighter than









Leadlite





Odour-Free Plasticizers



Antimony &

Lead particles

Resistant to Humidity



Stability between -20° to +70° Centigrade

# **LEADLITE**

The Industry Standard Re-defined



Liahtest Lead Material







Lead Particles









Humidity



supple for several years



Stability between -20° to +70° Centigrade

# **Core Materials**

#### **Radiation Attenuation Data**









		% Affenuation						
Protection at Various V	oltages	0.25 mm	0.35 mm	0.50 mm	1.00 mm			
	60 kV	97 %	99 %	100 %	≥100 %			
8	70 kV	94 %	98 %	99 %	100 %			
Di-	80 kV	91 %	96 %	98 %	100 %			
TM E	90 kV	88 %	94 %	96 %	99 %			
ZeroLead AIR	100 kV	85 %	92 %	95 %	99 %			
ZeroLead AIR Distribution	110 kV	82 %	90 %	93 %	99 %			
	120 kV	80 %	88 %	92 %	98 %			
	130 kV	78 %	86 %	91 %	97 %			

			% Attenuation							
Protection at Various Voltages			0.25 mm	0.35 mm	0.50 mm	1.00 mm				
		60 kV	97 %	99 %	100 %	≥100 %				
	*	70 kV	94 %	98 %	99 %	100 %				
₽.	B =	80 kV	91 %	96 %	98 %	100 %				
7	E 3	90 kV	88 %	94 %	96 %	99 %				
ZeroLead®	The Man	100 kV	85 %	92 %	95 %	99 %				
	출조	110 kV	82 %	90 %	93 %	99 %				
	4	120 kV	80 %	88 %	92 %	98 %				
		130 kV	78 %	86 %	91 %	97 %				

#### **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

		% Attenuation							
Protection at Vari	ous Vo	ltages	0.25 mm	0.35 mm	0,50 mm	1.00 mm			
		60 kV	97 %	99 %	100 %	≥100 %			
		70 kV	94 %	98 %	99 %	100 %			
		80 kV	91 %	96 %	98 %	100 %			
ТМ	10	90 kV	88 %	93 %	96 %	99 %			
<b>ultra</b> lite <sup>™</sup>	of E	100 kV	85 %	91 %	95 %	99 %			
Social Section 1	혈읍	110 kV	83 %	90 %	94 %	99 %			
	œ	120 kV	81 %	88 %	93 %	98 %			
		130 kV	79 %	86 %	91 %	99 %			

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

<sup>\*</sup>Uncertainity of Measurement: ±7 %

## **Aprons - Weight Chart**















#### Double-Sided Apron - Maxima

Size/Type	LE, m	ım Pb	Dimens	ions cm		Weight of	rticles (kg)		
	Front	Back	W/G	L	ZeroLead Are	ZeroLead®	<b>ultra</b> lite™	LEADLITE®	
L	0.5	0.25	60	100	5.87	6.52	6.73	7.16	

# Double-Sided Apron - Optima

Size/Type	LE, m	ım Pb	Dimens	ions cm	Weight of Articles (kg)			
	Front	Back	W/G	L	ZeroLead Arr	ZeroLead®	<b>ultra</b> lite <sup>™</sup>	LEADLITE®
L	0.5	0.25	60	100	5.69	6.32	6.61	7.06

#### Vest - Maxima

Size/Type	LE, m	ım Pb	Dimens	ions cm	Weight of Articles (kg)			
	Front	Back	W/G	L	ZeroLead AR	ZeroLead®	<b>ultra</b> lite <sup>™</sup>	LEADLITE®
L	0.5	0.25	60	63	3.60	4.00	4.20	4.40

#### Skirt - Maxima/Optima

Size/Type	LE, mm Pb Dimensions cm		Weight of Articles (kg)					
	Front	Back	W/G	L	ZeroLead Ar →	ZeroLead®	<b>ultra</b> lite <sup>™</sup>	LEADLITE®
L	0.5	0.25	192	57	3.17	3.52	3.66	3.86

#### Coat Apron

Size/Type	LE, mm Pb		Dimens	ions cm	Weight of Articles (kg)			
	Front	Back	W/G	L	ZeroLead Arr>→	ZeroLead®	<b>ultra</b> lite <sup>™</sup>	LEADLITE®
L	0.5	-	60	100	3.35	3.70	4.10	4.20

#### Coat Apron with Attached Thyroid Collar

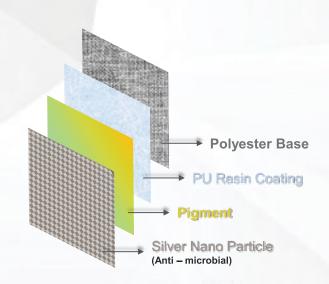
Size/Type	LE, mm Pb		Dimens	ions cm	Weight of Articles (kg)			
	Front	Back	W/G	L	ZeroLead Arr	ZeroLead®	<b>ultra</b> lite <sup>™</sup>	LEADLITE®
L	0.5	-	60	100	4.14	4.50	4.90	5.20

# Satin Touch Fabric

# 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

Pink

Tangerine



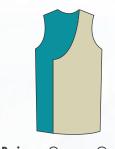
Mauve

Ocean

Green

Royal Blue

#### **Standard Color Combinations**







Bordeaux Red - Cloud Grey

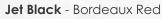


Cloud Grey - Tangerine



Electric Blue - Lilac



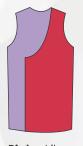




Royal Blue - Ocean Green



Lilac - Electric Blue



Pink - Lilac



Tangerine - Cloud Grey



Mauve - Pink



Ocean Green - Cloud Grey



Biege - Mauve

\*Additional color combinations available upon request

Lilac

#### Maxin Fabric



EXPERIENCE
THE LIGHTEST

RADIATION PROTECTION APPAREL



Water **Repellent** 



Superior **Insulation** 



Absorption + Moisture Control



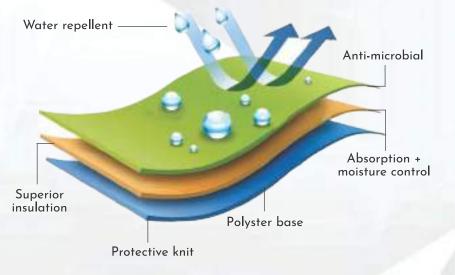
**Polyester** Base



**Protective** Knit



"Maxin" Fabric which includes range of fabric that is Versatile & lightweight enhanced by PU coating for higher resistance to UV. Increased with stronger strength, and pliability which impart antimicrobial properties to the fabric thereby preventing microbial growth. This advanced material provides all the benefit to the user, while offering Ultra Durable & Feather Soft feel, making it extremely comfortable to wear over long durations.



#### Wide Range of Color Options:







Space Technology now for

# **Medical Professionals**

# The Zenith of Radiation Protection



Absorbs, stores & releases heat for optimal thermal comfort



Helps maintain a comfortable, balanced body temperature



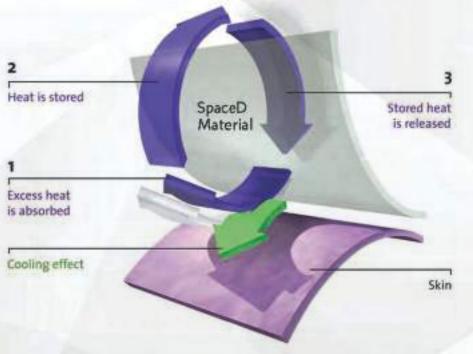
Absorbs excess body heat to prevent sweating



Anti-microbial with silver nano particles



# How SpaceD Technology Works



One of Kiran's most unique offering is its temperature regulating inner fabric with SpaceD technology is the only phase change material that carries the Certified Space Technology seal of approval. SpaceD fabric keeps the temperature at optimal levels with not too hot...not too cold....Just Right.



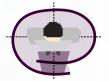




# Double Sided Apron - Optima



# **Protection Area**



- Fabric Type -







#### **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** 

Velcro Panels for

Improved fit

Snap Lock for Comfortable fit



Extra Belt outside Name Tag (to reduce Back

& Shoulder stress)



**Embroidery** (in Pockets)



Thyroid Shield

Accessories



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

Pockets Included

Complete frontal overlap for added protection against scattered radiation

# Lead Equivalence

Front Protection

Back Protection

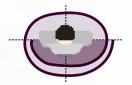
0.50 mm Pb

0.35 mm Pb

0.25 mm Pb



#### **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 -







#### **Ideal For**

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

# **Customization Options**

Snap Lock for Comforatable fit



Name Tag



(in Pockets)

# Accessories







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

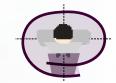
Pockets Included

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

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



#### **Protection Area**



- Fabric Type -







#### **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

Name Tag

**Customization Options** 



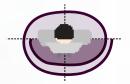


Accessories





#### **Protection Area**



- Fabric Type -

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

Satin touch

Maxin Fabric

SPACE

Skirt Design for Free Movement

**Customization Options** 

#### **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

Name Tag



**Embroidery** (in Pockets)

Accessories



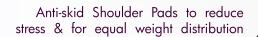
(Attachable Loop)



ZeroLead®

ultralite™ LEADLITE®

# Coat Apron



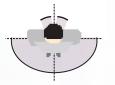
Pockets Included

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

Complete frontal protection

Velcro Closure for a Enhanced Fit

# **Protection Area**



- Fabric Type -







#### **Ideal For**

• Interventional Radiology Procedures

# Lead Equivalence

Front Protection

0.50 mm Pb 0.35 mm Pb

0.25 mm Pb

# **Customization Options**



Name Tag



(in Pockets)

Accessories





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



**Protection Area** 



- Fabric Type -











# Lead Equivalence

Front Protection

0.50 mm Pb

0.35 mm Pb

0.25 mm Pb





Complete Frontal Protection

Name Tag



(in Pockets)

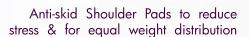


Accessories



ZeroLead®

ultralite<sup>™</sup> LEADLITE®



Pockets Included

Velcro Closure for a Enhanced Fit

Complete frontal protection

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

#### **Protection Area**



- Fabric Type -







#### **Ideal For**

• Interventional Radiology Procedures

# Lead Equivalence

Front Protection

0.50 mm Pb

0.35 mm Pb

0.25 mm Pb

# **Customization Options**



Name Tag



(in Pockets)

Accessories







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



Available with Integrated Thyroid Shield

- Fabric Type -







Complete Frontal Protection

#### **Ideal For**

Velcro Closure for a Comfortable Fit

Pockets Included

- Fluoroscopy Equipment
- Interventional Radiology Procedures

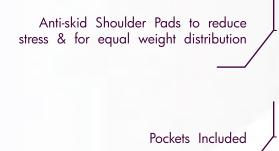
Available in Tangerine & Royal Blue Color Combination

# **Customization Options**



Name Tag





Velcro Closure for a Comfortable Fit

Complete Frontal Protection

# Lead Equivalence

Front Protection

0.50 mm Pb

0.35 mm Pb

0.25 mm Pb



# Dental Protective Apparel

#### **Dental Aprons**

Designed for complete protection while being X-Rayed on a dentist's chair

The apron drapes comfortably over patient, covering sensitive areas from exposure to scatter radiation during radiography.

Both Adult & Child sizes are available

Available with thyroid collar attached option (Velcro / Magnetic Closure)

	Dimensions							
Model	Ad	lult	Child					
	L cm	W cm	L cm	W cm				
Economy	70	60	60	40				
Standard	80	60	60	45				
Premium	90	60	70	45				

#### **Panoramic Apron**

#### **Economy**

Optimum protection during Panoramic Radiography

Split in back with Velcro closure for adjustable fit

#### **Standard**

Complete Front Protection, Optimum Back protection

Split in back

Available with Velcro/ Magnetic Lock



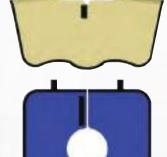
# Lead Equivalence

0.25 mm Pb

0.35 mm Pb

0.50 mm Pb







#### Premium

Extended & Equal protection on both front & back

Velcro closure on shoulder



	<b>Dimensions</b>							
Model	Ad	lult	Child					
	L cm	W cm	L cm	W cm				
Economy	35	60	-	-				
Standard (Front)	80	55	-	-				
Premium (Front & Back)	80	60	60	45				

# Lead Equivalence

0.35 mm Pb

0.50 mm Pb

#### **Technician Apron**

· Provides protection to the dental staff during radiography.

· Adjustable strap and buckle for more secure, ergonomically superior fit



	Dimensions			
Model	Adult			
	L cm W cm			
Standard	100	60		
Premium	110	70		

# Lead Equivalence

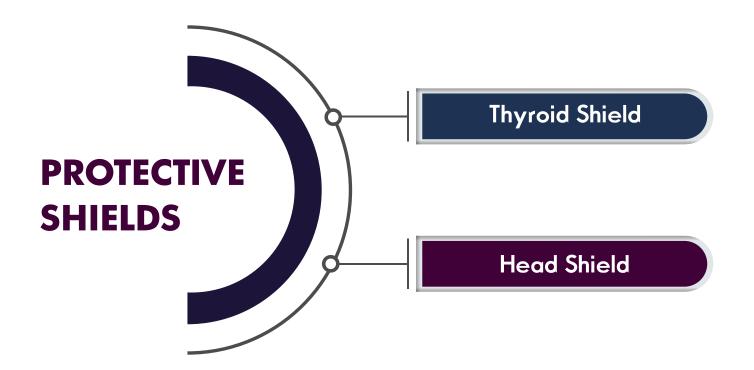
0.35 mm Pb

0.50 mm Pb









Kiran's wide range of thyroid shields provide complete protection to the neck and sternum from ionizing Radiations.

**Ultraslimline** 

Ergonomic design for comfort



## Classic



All-time popular design Wide Coverage Area One size fits all

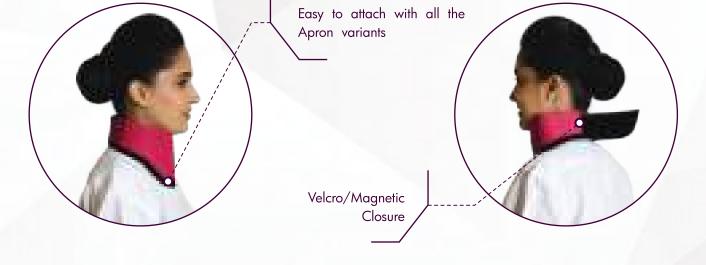
Velcro Closure

# Elegant



Easy to attach with Kiran's Double Sided Apron & Vest Adjustable fastener

Velcro Closure



# Slimline



Provides perfect fit and protection Easy to attach with all the apron variants Velcro Closure

Also available with Magnetic Closure

# Harmony



Collar design which perfectly fits thyroid gland Velcro Closure

ZeroLead Air

ZeroLead<sup>®</sup> ultralite<sup>™</sup> LEADLITE<sup>®</sup>



# **Head Shield**



The head and ears stay safe, inside head gear, from radiations

Also Available Disposable Head Shield



Complete protection from scattered radiation Maxima

# Lead Equivalence

0.25 mm Pb

0.35 mm Pb

0.50 mm Pb

1.00 mm Pb

# **Gonad Shield**



Available in one-size-fits-all & child size

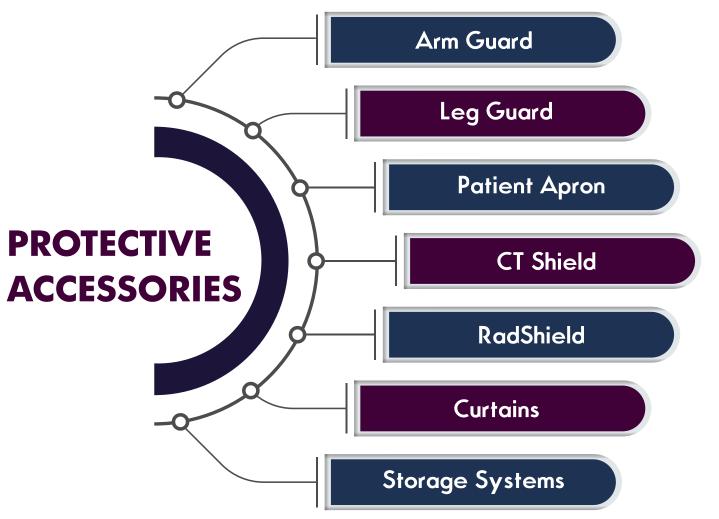
Lead Equivalence 0.50 mm Pb, 1.00 mm Pb

#### **Ovarian Shield**









#### **Arm Guard**

Kiran Arm guard offers protection to the upper part of the body from scattered radiation.

- · Prevents radiation from being scattered to the shoulders and arms
- · Can be attached with hook-and-loop fasteners and a snap
- · Can be paired with wrap around styles apron and vest
- · Can be used in all radiology procedures
- · One size fits all



Kiran Leg guard offers complete protection to the lower part of the body from scattered radiation.

- · Protects the Leg from radiation exposure
- · Velcro Closure for easy adjustments
- · One size fits all



#### **Patient Apron**

Patient apron is apron used for protection of patient from direct /scattered radiation while getting examined under X-Ray table.

- Universal use as gonad and ovarian shields
- Complete lower body protection
- Designed to provide comfort and adequate protection
- Adjustable back strap for snug fit
- Child Size Available

#### **Dimension**

 $30 \times 30 \text{ cm}, 40 \times 40 \text{ cm}, 50 \times 50 \text{ cm}$ 

**Patient Apron (without belt)** 



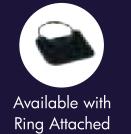
# Lead Equivalence

0.50 mm Pb 0.35 mm Pb

Lead Equivalence

1.00 mm Pb 0.50 mm Pb







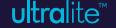














#### CT Shield

#### **CT Breast Shield**

Designed to protect the sensitive breast area and reduce cancer risk due to large radiation doses during CT.



Today, cancer is affecting younger population of women, with the highest risk being to women under the age of 35. CT scans and similar doses of radiation increases cancer risk, making it essential to conduct research on new radiation protection methods.



Kiran applied its expertise in radiation protection to develop the breast shield that is used in plane breast shielding to reduce cancer risk.



Offers 67% protection to the sensitive tissue of the breast



Eco-Friendly



Helps prevents breast cancer



Disposable

Available with a foam pad for comfort



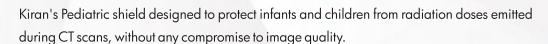
Various sizes available

#### **CT Pediatric Shield**

Designed to protect infants and children from radiation doses emitted during CT scans, without any compromising to image quality.



Infants are ten times more susceptible to carcinogenesis caused by radiation exposure than adults.







Offers 67% protection to the sensitive tissue of the breast



Eco-Friendly



breast cancer

Helps prevents

Disposable



Available with a foam pad for comfort



Available in Neonatal 1,5 &10 Year old

#### CT Eye Shield

Designed to protect the eye, which becomes especially sensitive to radiation after repeated CT procedures.



70% protection to the complete eye



Perfect fit to prevent accidental exposure to radiation



Disposable





Design to mould to the eye's shape



One Size fits all



Eco-Friendly

#### **CT Thyroid Shield**

Disposable

Designed to provide special protection to sensitive thyroid gland.



Offers 65% protection to thyroid gland



Prevents tissue damage



One Size fits all



**Eco-Friendly** 

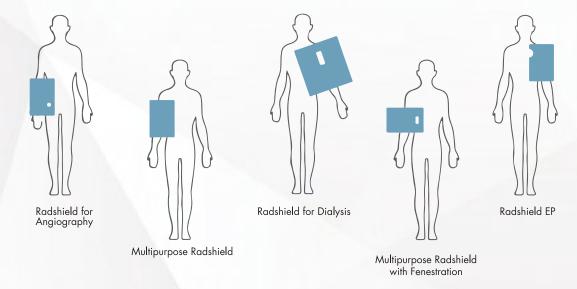


Attenuation tests performed in accordance with EN 61331-1:2014

With the concerns of Interventional Specialists in mind, Kiran has designed RadShield which is an inevitable solution to minimize the Cumulative Career exposure. These shields are placed on the patient's body and positioned to block scattered radiation in all Cath Lab procedures.

#### The Rad Shield Solution

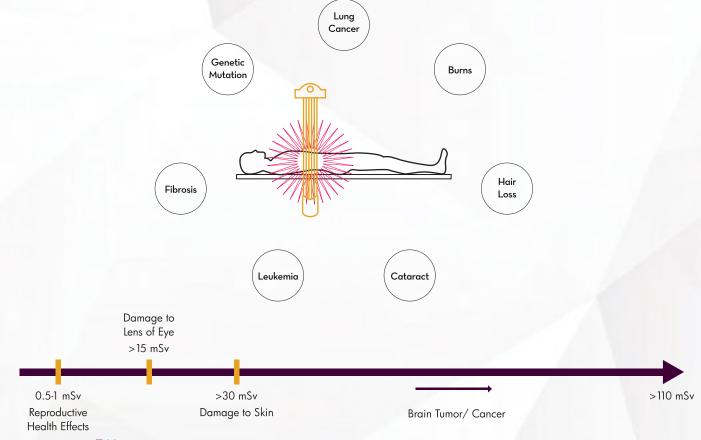
- Placed on patient to protect physician from X-ray scatter radiation and provides sterile surgical barrier to the patient
- Made from proprietary mix of several lead-free elements
- Helps in preventing cancer risks and radiation damage
- Designed to allow physician to conduct surgery without any hindrance
- Used for general & interventional procedures
- 100% sterilized with the latest ethyl oxide radiation sterilization
- Single Use and easy to dispose



Equivalence (mm Pb)	Туре	Minimum Attenuation @90 kVp
0.125	LOW (L)	75.3%
0.250	MEDIUM (M)	90.8%
0.350	HIGH (H)	95.3%

Attenuation tests performed in accordance with IEC 61331-1:2014 & ASTM F 2547

#### Health Hazards faced by Interventionists



#### **Deterministic Effects**

- Exposure to large dose of radiation for a short period of time
- Eg. Skin Erythema, Hair loss, Radiation burns and Acute Radiation Syndrome
- Eg. nausea, vomiting and dizziness

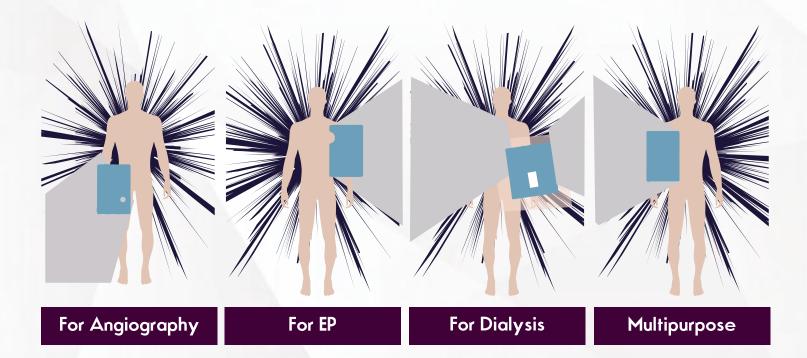
#### Stochastic Effects

- Prolonged exposure to low dose scattered radiation with the disease manifesting after years or even decades
- Eq. Cancer, Bone-marrow damage, Genetic mutation

Every time an Interventional Cardiologists walks out of the Operation Room, the morale of the patients and relatives go up. So does the cumulative radiation exposure the specialist has acquired right from beginning of their career.

In a Career spanning 30 years, Interventional cardiologists, radiologists and technicians are exposed to more ionizing radiations than physicians in any other specialized medical field.

- A Cumulative Career Radiation Exposure for Surgeons is 108 mSv and 45 mSv for Technicians / Nurse.
- According to BEIR VII (Biological Effects of Ionising Radiation Committee VII), the total cancer incidence receiving 2 mSv/y from 18 to 65 years of age should be 1 in 136



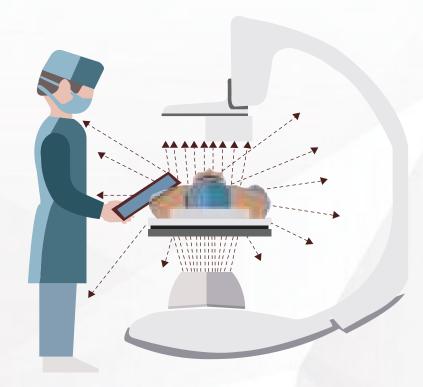
#### **Scattered Radiation**

In the case of Scattered Radiation, the X-Rays are specifically focused on a single target, the x-rays will still scatter and those scattered rays can continue to scatter around the room based on various design features.

Scatter radiation. The bulk of this type of radiation derives from the X-rays bouncing off the patient's body.

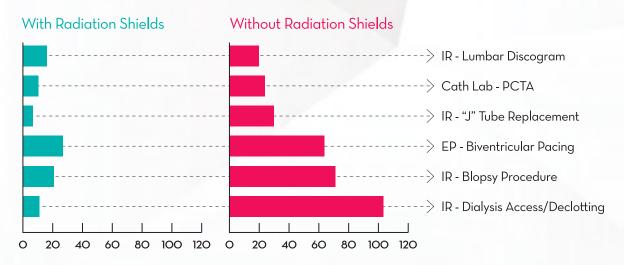
Back scatter. This type of scatter radiation is created from behind the film and directed back towards the X-ray tube.

Side scatter. Side scatter is caused by objects in the immediate areas, such as walls, floors and tables. To mitigate side scatter, you may have noticed that X-ray rooms are typically void of other objects and the table is located in the center of the space.



# RadShield

# Typical Scatter Radiation Exposure Levels



#### **Scattered Radiation**

## RadShield (High) 0.350 mm Pb

	Minimum Attenuation			
Sample Designation	80 kVp	90 kVp	100 kVp	120 kVp
Radshield High Batch No: 35025082016	97.2%	95.4%	92.7%	89.4%

	Lead Equivalency (mm Pb)*			
Sample Designation	80 kVp	90 kVp	100 kVp	120 kVp
Radshield High Batch No: 35025082016	0.36	0.41	0.38	0.36

# RadShield (Medium) 0.250 mm Pb

Sample Designation	Minimum Attenuation			
	80 kVp	90 kVp	100 kVp	120 kVp
Radshield High Batch No: 25025082016	93.3%	90.6%	87.0%	81.2%
	Lead Equivalency (mm Pb)*			

	Lead Equivalency (mm Pb)*				ı	
	Sample Designation	80 kVp	90 kVp	100 kVp	120 kVp	
	Radshield High Batch No: 25025082016	0.27	0.27	0.26	0.24	

# RadShield (Low) 0.125 mm Pb

6 lb: "	Minimum Attenuation			
Sample Designation	80 kVp	90 kVp	100 kVp	120 kVp
Radshield High Batch No: 12525082016	81.2%	78.1%	71.5%	64.0%

	Lead Equivalency (mm Pb)*			*
Sample Designation	80 kVp	90 kVp	100 kVp	120 kVp
Radshield High Batch No: 12525082016	0.13	0.14	0.13	0.12

\*Uncertainity of Measurement: ±4%

#### Curtains

#### **Curtains**

## Adjustable Mobile Shield

Put the protection where you need it, at any height

Ideal for patients undergoing standing diagnostic procedures, the Adjustable Mobile Shield can be set between 36" and 60" high

It is easy to move in any direction



#### **Lead Curtain**

Lead Curtain which block the scattered radiations. Lead Curtain are useful in fluoroscopy suites, emergency rooms, hospitals, industrial radiography locations, and where low-level or secondary radiation is present



Table Shield offers maximum protection from under table scattered radiation. The design allows the shield to be instantly used on either side of the X-ray table with the pivotal arm always facing the head end

The upper shield is detachable and can be removed in the event of a patient emergency. The Table Shield can be easily adjusted for both left- or right-hand side applications



#### **Lead Curtain**

The protective blankets – which is for shielding patient and equipments





Available in royal blue color & Customizable Dimension

Customizable

Lead Equivalence

0.50 mm Pb 1.00 mm Pb



Available in royal blue color & Customizable

Dimension

Customizable

Lead Equivalence

0.50 mm Pb 1.00 mm Pb

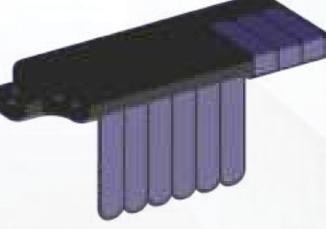
# Curtains

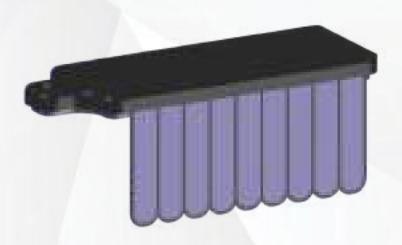
# Table Drapes

Table Drapes is a lower shield which protect the patient body from scattered radiation

Hook and-loop fastener attachments make these drapes a breeze to attach to any style table setup

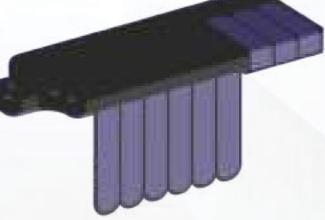
Available in the single-sided option, or double the protection with the double-sided drapes design





Color

Available in royal blue color & Customizable



# Dimension

Customizable

# Lead Equivalence

0.50 mm Pb 1.00 mm Pb

## Apron Hanger

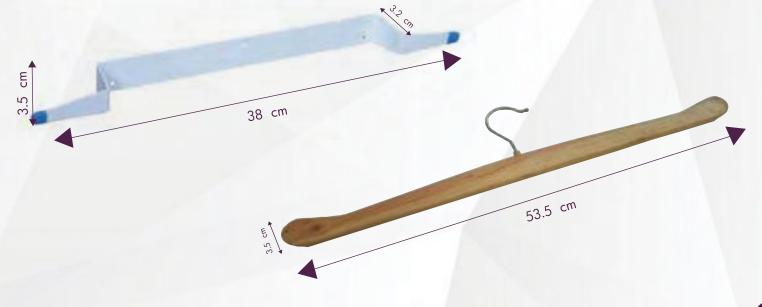
Coated Steel Hanger for use with adult and child X-ray aprons

Composed of Low Carbon Steel, Poly Urethane Plastic Blue Caps and Toggle Bolts

#### **Dimension**

3.2 cm (W) X 38 cm (L) X 3.5 cm (H)

Part Name	Material	Quantity
Hanger	Low Carbon Steel	1
Blue Cap	Poly Urethane Plastic	4
Toggle Bolt	As Mentioned Below	3



# Mobile Storage System with Hangers

A Compact, Space saving and easy to install unit for storing apparels, gloves and shields

Glove Holder

Heavy gauge steel material for longer shelf life

Efficient Wheels

with Locks

Detachable hooks for more storage options





#### Mobile Storage System

- 10 Hangers
- 2 Glove Holders

#### Mobile Storage System

- 5 Hangers2 Glove Holders



#### **Available Models**

10 Hangers & 2 Glove Holders

Stores upto 10 Pairs of apparels

5 Hangers & 1 Glove Holder

Stores upto 5 Pairs of apparels

# Storage Systems

# Storage Systems

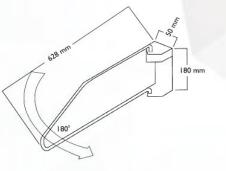
#### **Wall Mounted Racks**

A Compact, Space saving and east to install Wall Racks for storing apparels, gloves & shields.



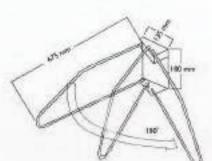
Wall racks with 1,2,3 & 5 Hanger options

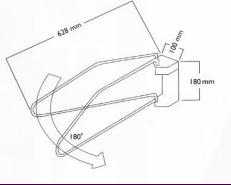
Hooks are available for fixing on a wall racks



#### One hanger wall rack (left to right)

- Stores the apparel closest to the wall
- · Available with one swivel hanger





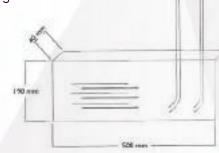
#### Two hanger wall rack (left to right)

- · Wall bracket flush on the left or right for storing two apparels
- Optimum use of available space



#### Three hanger wall rack (left to right)

- Wall bracket flush on the left or right for storing three apparels
- Optimum use of available space

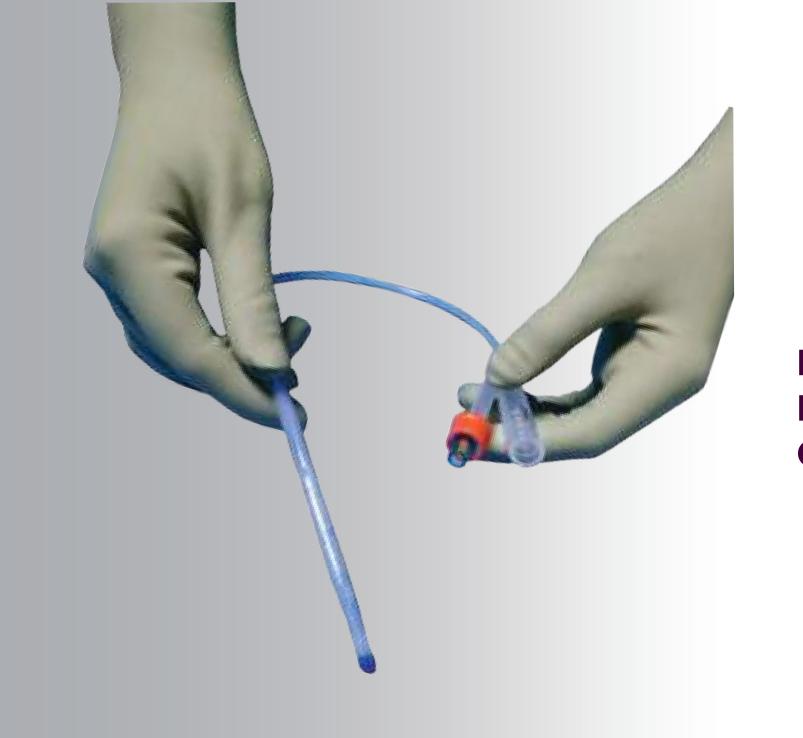


#### Five hanger wall rack (left to right)

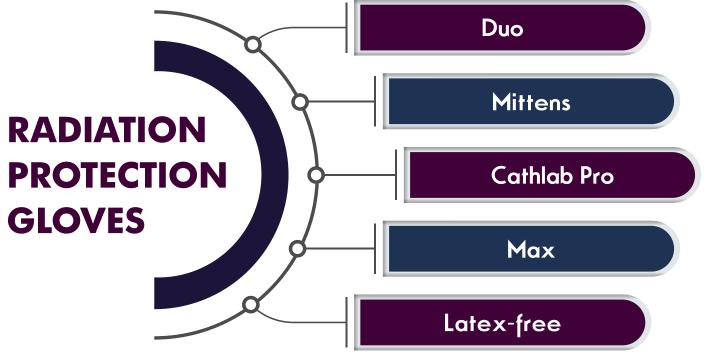
- · Wall bracket flush on the left or right for storing five apparels
- Optimum use of available space



- Wall mounted glove holder for storing gloves
- Optimum use of available space



# Protection | Grip | Comfort



#### **Reusable Lead Gloves**

Made of soft, pliable material, Kiran gloves are non-sterile, protective, comfortable, and usable.



#### Duo

Our dual-layered gloves have a seamless external covering and an internal lining, all of which can be dismantled and cleaned.

Measured with narrow as well as inverse broad beam geometry condition at 150 KVp, in accordance with EN 61331-1:2014 & EN 61331-3-2014

#### **Ideal For**

Proper positioning in Veterinary & Pediatric X-Ray



Mittens, one of our bestsellers, allows wearers the mobility of using their bare hands directly in beam field, thanks to protective mitten design and snug internal strap.

Measured with narrow as well as inverse broad beam geometry condition at 150 KVp, in accordance with EN 61331-1:2014 & EN 61331-3-2014

#### **Ideal** For

Technicians hand protection during intervention cardiology procedures



0.25 / 0.35 / 0.50

Lead Equivalent thickness in mm Pb

Length of the glove in cm

Half circumference of the glove on cuff/palm in cm

Half circumference of the hand of the user in cm

Kiran offers a wide range of sterile Lead-Free and disposable radiation protection gloves that provide the highest possible protection in Surgical procedures and are easy to dispose in an eco-friendly manner

Produced at our independent sterilization facility, each glove is subjected to rigorous contamination control and is 100% sterilized using the latest gamma sterilization equipment and complies with International quality standards.



#### Cathlab Pro

Ideal for use in Interventional Cardiology Procedures



Max

Ideal for use in Fluroscopy / Orthopaedic / Urology Procedures



Ideal for use in Interventional Cardiology Procedures



**Available Size** 

38



Proprietary hypoallergenic formulation for complete protection



Textured external surface for Superior Grip



Multiple Lead Equivalence & thickness options for various Clinical applications



Flexible & Powder free material for comfort & durability



Composed of a Proprietary mixture of Lead-free elements, making them safe for the environment and for users



Easily disposable material for one-time use

### Characteristics

Technical Parameters	Max NXPG35	Thin NXPG25	Ultrathin NXPG 20	Cathlab Pro CNXPG20	Latex-free SXPG 20
Finger tip thickness (mm/mils)	Min. 0.35	Min. 0.25	Min. 0.20	Min. 0.20	Min. 0.25
Palm thickness (mm/mils)	Min. 0.32	Min. 0.24	Min. 0.19	Min. 0.19	Min. 0.24
Cuff thickness (mm/mils)	Min. 0.30	Min. 0.22	Min. 0.18	Min. 0.18	Min. 0.22
Lead equivalence (mm Pb)	Min. 0.04	Min. 0.025	Min. 0.02	Min. 0.02	Min. 0.025
Color	Khaki	Khaki	Khaki	Yellow	Brown
Material	Natural Latex with hypoallergenic inner coating Synthetic Latex			Synthetic Latex	
Tensile strength (MPa)	Min 14				
Minimum elongation (%)	700				
Protective material	Mixture of lead-free elements				
Donning agent	Powder free				
Azo dyes		None			
Residual powder	≤ 2mg/glove				
Protein content	Less than 50 micrograms/gram				
Sterilization	Gamma sterilization				
Packing	One sterile pair per pouch				
Storage	Store in cool, dry place away from Ozone (Below 25°C) 40-50% RH				

# **Specifications**

Size	Minimum Length (mm/inches)	Palm Width (mm/inches)
6	280/11.0	78/3.1
6.5	280/11.0	80/3.1
7	280/11.0	85/3.3
7.5	280/11.0	94/3.7
8	280/11.0	100/3.9
8.5	280/11.0	107/4.2
9	280/11.0	114/4.5

\*Uncertainity of Measurement: ±4%

# % Attenuation as per ASTM-2547-18

	Skin Dose Reduction			
Radiation Beam Energy Level	Max NXPG35	Thin NXPG25	Ultrathin NXPG20	Cathlab Pro CNXPG20
60 kV	55%	51%	46%	39%
70kV	50%	46%	42%	35%
80 kV	45%	41%	38%	32%
90 kV	41%	38%	34%	29%
100 kV	39%	35%	32%	27%
110kV	36%	34%	30%	25%
120 kV	35%	32%	28%	24%
130kV	33%	30%	27%	22%

# Kiran's World-Class Glove Manufacturing Line





Light & Comfortable

long durations

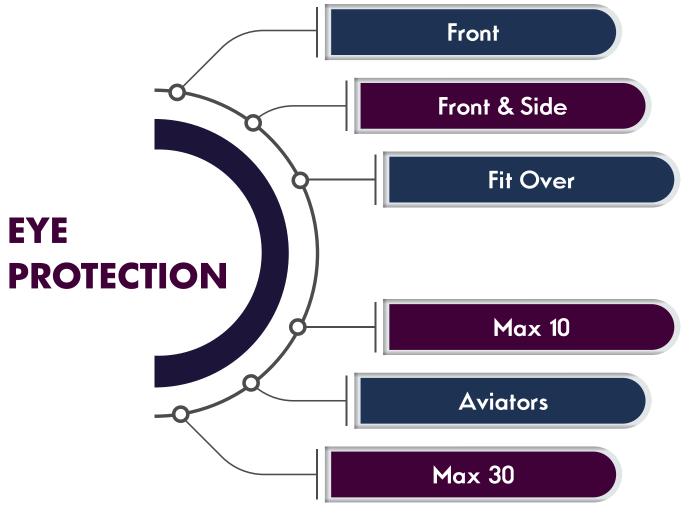
Ease of Wearing of

Absorbs Lead Glass

Absorbs 99 % radiation

Wide Range of Models

Designed for differing application



# Wide Range of Eyewear

# 2 4

1. Nose Pads

Soft nose pads provide comfort to the user during long procedures. It is available with adjustable nose pads and adjustable bridges

2. Nose Bridge

Nose bridge keeps the frame evenly balanced

3. Temple Grips

Rubber temple grips with different eyewear styles offer non-slip, comfort grip support

4. Glass

Contains minimum 0.75mm Pb equivalent leaded glass providing 95 percent attenuation up to 150 kVp

#### **Front**

#### **Complete Frontal Protection**

- Offers a stylish wrap around frame
- This Frame fits best for medium and large style heads.

#### Weight

85 g



0.75 mm lead Equivalency

Rubberized soft grip

Nose pads for secure fit

#### Front & Side

#### Protection from frontal as well as Lateral Protection

- Offers large view area and side shield provides additional lateral protection.
- The Frame features a silicone no slip, unifit bridge with adjustable nose pads for increased comfort.
- This Frame fits best for medium to large style heads.

#### **Specification**

Eye Size 51 mm | Nose Bridge Width 20 mm | Temple Length - 140 mm

#### Weight

90 g



0.75 mm & 0.50 mm lead equivalency lateral protection

Flexible temple bars & acetate frame

Adjustable Nose pads



# Wide Range of Eyewear

#### Fit Over

#### Fits perfectly over the wearer's exisiting eyeglasses

- Offers a comfortable, lightweight, and durable design that fits over prescription eyewear
- This Frame fits over almost any style of glasses and head size with comfort



Eye Size 62 mm | Nose Bridge Width 15 mm | Temple Length - 145 mm

#### Weight

85 g



0.75 mm lead Equivalency

Ultimate fit over design for weight & comfort

#### Max 10

#### Protection & Comfort with padding for the temple & bridge of the nose

- Offers a stylish wrap around frame
- This Frame models fits best for medium and large style heads

#### **Specification**

Eye Size 64 mm | Nose Bridge Width 16 mm | Temple Length - 140 mm

#### Weight

67 g

# **Key Benefits**

Rubberized soft grip temple bars & nose pads for secure fit

Nose pads for secure fit

#### **Aviators**

#### Wraparound style eyeglasses with protection & stylish design

- · A classic Radiation Protection Frame that is solid, sturdy and comfortable
- Its lateral shield protect around the orbit of the eye with 0.35mm lead equivalency

#### **Specification**

Eye Size 57 mm | Nose Bridge Width 16 mm | Temple Length - 125 mm

#### Weight

70 g

# **Key Benefits**

0.75 mm lead Equivalency

Rubberized soft grip temple bars & removable nose pads for secure fit

#### Max 30

#### Unisex models that's fits all faces & shapes

- Offers a stylish wrap around frame style with a removable foam insert.
- This Frame fits best for small to medium style heads.

#### Specification

Eye Size 55 mm | Nose Bridge Width 20 mm | Temple Length - 140 mm

#### Weight

69 g

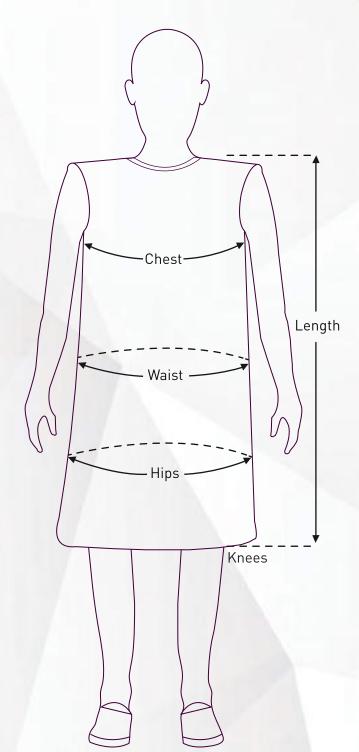
# **Key Benefits**

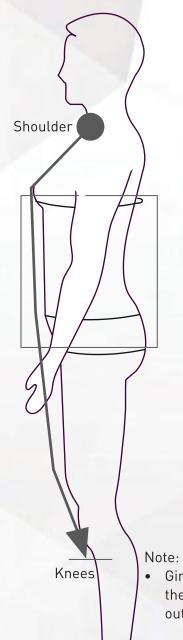
Rubberized soft grip temple bars & nose pads for secure fit

Rubberized foam insert with fog reducing ventilation ports.

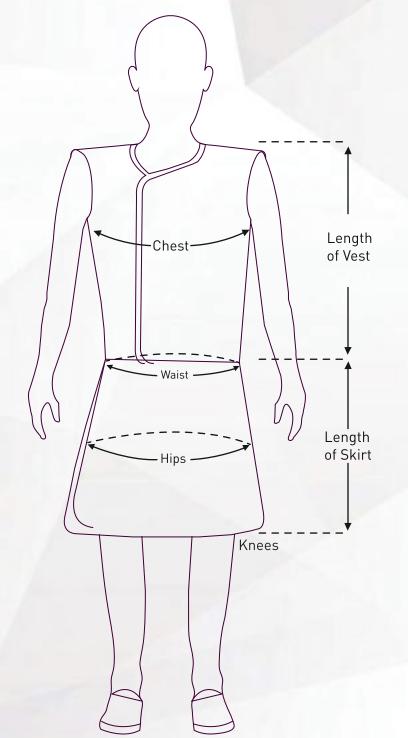


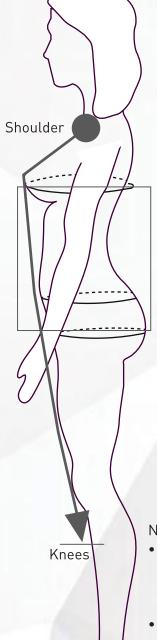






- Girth of Operator Consider the highest circumference out of the Chest / Waist / Hips
- Length should be measured from Shoulder to Knee (upto 10 cm below the Knee)





#### Note:

- Girth of Operator Consider the highest circumference out of the Chest / Waist / Hips
- Length should be measured from Waist to Knee (upto 10 cm below the Knee)

# **Double Sided Apron**

# We have 8 digits in Kiran Code

Step 1

Digit 1&2

Radiation Protection Apparel = X1

Step 2

Digit 3

Double Sided Apron = 2

Step 3

Digit 4

For Double Sided Apron: Optima = 1 Maxima = 2

Step 4

Step 5

Digit 5

Ultralite = 1

Zerolead = 2

Leadlite = 3

Zerolead Air\*

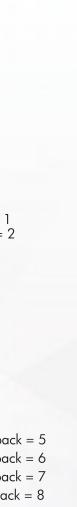
Digit 6

0.25 mm Pb Front / 0.25 mm Pb back = 5

0.35 mm Pb Front / 0.25 mm Pb back = 6

0.50 mm Pb Front / 0.25 mm Pb back = 7

1.00 mm Pb Front / 0.25 mm Pb back = 8



# \_Waist\_ -Hips-

#### \*ZeroLead Air variant is available in select geographies. Please get in touch with your Kiran respresentative for more details.

# Example

Name

Mr. XYZ

**Department** 

XY

Code

X12137C2



<b>5</b> 1	Width of DSA		
Size	Girth of Operator	Our Size (Digit 7)	
XS	80-85	В	
S	86-91	1	
М	92-97	С	
L	98-107	2	
XL	108-113	3	
XXL	114-120	Е	
XXXL	121-127	4	

Step 7

Length of DSA	
Our Length (Digit 8)	
85  cm = B	
90  cm = 1	
100  cm = 2	
105 cm = D	
110  cm = 3	
115 cm = E	
120  cm = 4	

#### Vest

# We have 8 digits in Kiran Code

Step 1

Digit 1&2

Radiation Protection Apparel = X1

Step 2

Digit 3

Vest = 4

Step 3

Digit 4

For Vest: Optima = 1 Maxima = 2

Step 4

Digit 5

Ultralite = 1

Zerolead = 2

Leadlite = 3

Zerolead Air\*

Digit 6

Step 5

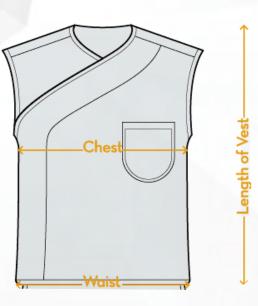
0.25 mm Pb Front / 0.25 mm Pb back = 5

0.35 mm Pb Front / 0.25 mm Pb back = 6

0.50 mm Pb Front / 0.25 mm Pb back = 7

1.00 mm Pb Front / 0.25 mm Pb back = 8

\*Zerolead Air variant is available in select geographies.
Please get in touch with your Kiran respresentative for more details.



Name

Department

Code



Step 6

(Digit 7)

	. •	Ť	
	Width of Vest		
Size	Girth of Operator	Our Size (Digit 7)	
XS	80-85	В	
S	86-91	1	
М	92-97	С	
L	98-107	2	
XL	108-113	3	
XXL	114-120	Е	
XXXL	121-127	4	

Step 7

Length of Vest
Our Length (Digit 8)
42 cm = A
50  cm = 1
57  cm = 2
63 cm = 3
68 cm = 4
72 cm = 5
75 cm = F

#### Skirt

# We have 8 digits in Kiran Code

Step 1

**Digit 1&2**Radiation Protection Apparel = X1

Hips Hips

Step 2

**Digit 3**Skirt = 3

Step 3

Digit 4

For Skirt: Optima = 2 Maxima = 2

Step 4

Step 5

Digit 5

Ultralite = 1 Zerolead = 2

Leadlite = 3

Zerolead Air\*

Digit 6

0.25 mm Pb Front / 0.25 mm Pb back = 5

0.35 mm Pb Front / 0.25 mm Pb back = 6

0.50 mm Pb Front / 0.25 mm Pb back = 7

1.00 mm Pb Front / 0.25 mm Pb back = 8

\*Zerolead Air variant is available in select geographies.
Please get in touch with your Kiran respresentative for more details.



Department

Code



Step 6

(Digit 7)

		· ·	
	Width of Skirt		
Size	Girth of Operator	Our Size (Digit 7)	
XS	80-85	G	
S	86-91	S	
М	92-97	0	
L	98-107	R	
XL	108-113	3	
XXL	114-120	4	
XXXL	121-127	N	

Step 7

, •
Length of Skirt
Our Length (Digit 8)
48  cm = A
53  cm = 2
57  cm = 3
62  cm = 4
65 cm = D
70 cm = E
75 cm = F

# Coat Apron

# We have 8 digits in Kiran Code

Step 1

Digit 1&2

Radiation Protection Apparel = X1

Step 2

Digit 3

Coat Apron = 1

Step 3

Digit 4

For Coat Apron: Basic = 0

Coat Apron with back protection = 1 Coat Apron with Front snaplock = 2 Coat Apron with back snaplock = 3

Step 4

Digit 5

Ultralite = 1 Zerolead = 2

Leadlite = 3

Zerolead Air\*

Step 5

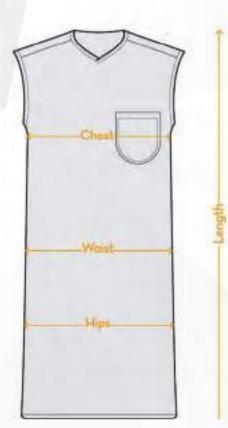
Digit 6

0.25 mm Pb Front = 1

0.35 mm Pb Front = 2

0.50 mm Pb Front = 3

1.00 mm Pb Front = 4



Name

Department

Code



Step 6

(Digit 7)

	Width of Coat Apron		
Size	Girth of Operator	Our Size (Digit 7)	
XS	80-85	В	
S	86-91	1	
M	92-97	С	
L	98-107	2	
XL	108-113	3	
XXL	114-120	Е	
XXXL	121-127	4	

Step 7

Length of Coat Apron
Our Length (Digit 8)
85  cm = B
90 cm = 1
100  cm = 2
105 cm = D
110  cm = 3
115 cm = E
120  cm = 4

<sup>\*</sup>ZeroLead Air variant is available in select geographies. Please get in touch with your Kiran respresentative for more details.

# On A Global Mission With A Local Heart

Speaking your language across 180 countries





www.kiranxray.com | www.trivitron.com kiran@kiranxray.com

