

TOSHIBA ELECTRON TUBES & DEVICES

X-ray Flat Panel Detectors
X-ray Image Intensifiers

X-ray Tube Assemblies
X-ray Tubes

Proportional Counters for X-ray
Ionization Chambers for X-ray

ELECTRON TUBES & DEVICES ***PRODUCT CATALOG***



Expertise in X-ray Imaging Devices

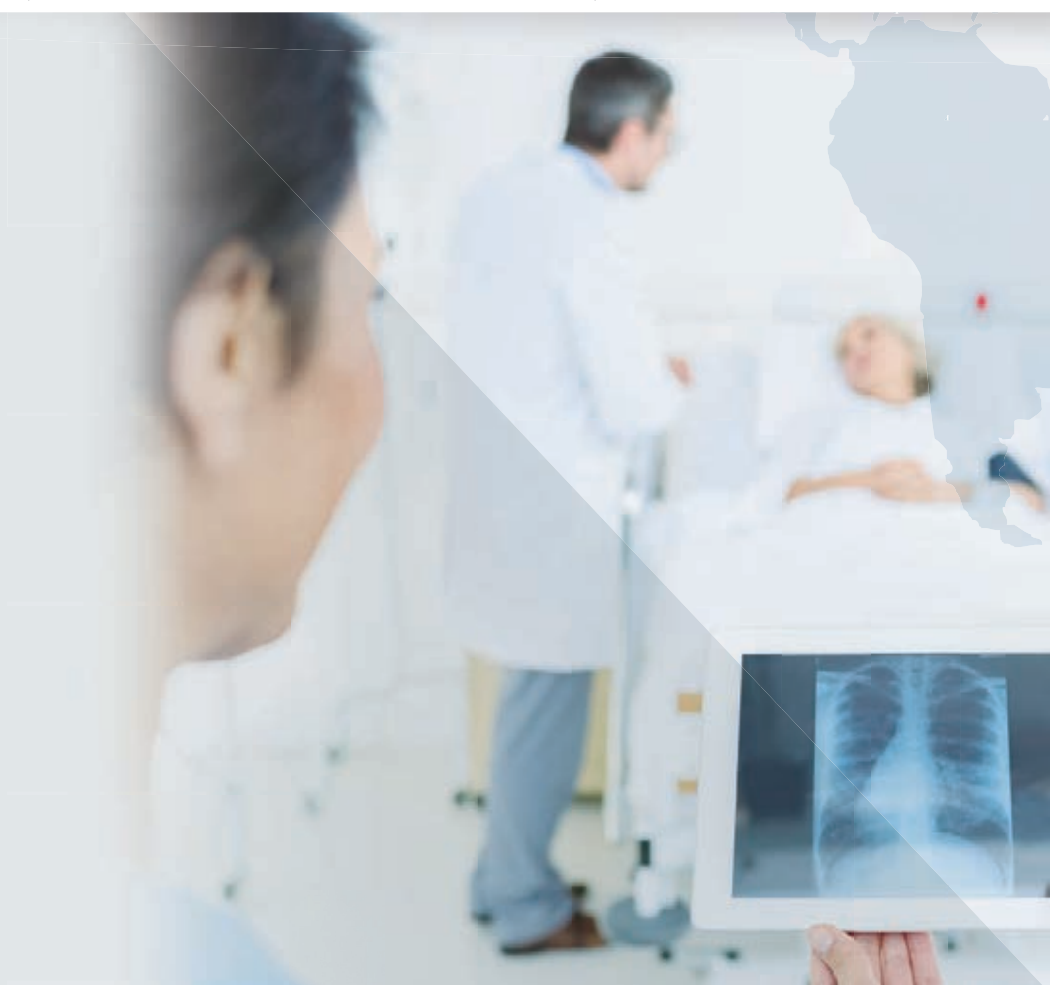
Over one century period,
We have contributed to the development and
production of state-of-the-art electronic devices with
excellent performance and reliability.

Product

*X-ray
Flat Panel Detectors*

*X-ray Tube Assemblies
X-ray Tubes*

X-ray Image Intensifiers



Application for Medical Devices

X-ray Flat Panel Detectors Application

Model Name	DR	Mobile DR	Mobile C-arm	Rad & Fluoro	Retrofit
FDX2530RPW		★			
FDX4343RPW	★				★
FDX3543RPW		★			★
FDX3543RP		★			★
FDX4343R	★				
FDX3334RF				★	

* DR: Digital Radio-graphic

* ★ Most recommendable product.



Mobile DR



Mobile C-arm



Rad & Fluoro



Digital Radiography

X-ray Image Intensifiers Application

Size	Model Name		Mobile C-arm	Rad & Fluoro	Simulator	Angiography
4inch	E5881J-P1	—				
	E5877J-P1	—				
6inch	E5863SD-P6	E5863SD-P6A				
	E5883SD-P6	E5883SD-P6A	★	★		
9inch	E5804SD-P3	E5804SD-P3A				
	E5764SD-P3	E5764SD-P3A				
	E5830SD-P3	E5830SD-P3A				
	E5804SD-P4	E5804SD-P4A				
	E5764SD-P4	E5764SD-P4A				
	E5830SD-P4	E5830SD-P4A	★			
	E5804SD-P6	E5804SD-P6A				
	E5764SD-P6	E5764SD-P6A				
	E5830SD-P6	E5830SD-P6A		★	★	
	E5764SD-P7	—				
12inch	E5830SD-P7	—	★			
	E5765SD-P2	E5765SD-P2A				
	E5796SD-P2	E5796SD-P2A		★	★	★
16inch	E5876SD-P1	E5876SD-P1A				
	E5876SD-P2	E5876SD-P2A		★		

* Products with a model name ending in "A" are 24 Vdc input type. * Products with a model name not ending in "A" are 100-240 Vac input type.

* ★ Most recommendable product.



Mobile C-arm



Rad & Fluoro



Simulator



Angiography

X-ray Tubes Application

Stationary Anode X-ray Tubes and X-ray Tube Assemblies

Model Name	Stationary Anode X-ray tube	X-ray Tube	X-ray Tube Assembly	Mobile	Mobile C-arm	General Radiographic		Rad & Fluoro	
						Analog	Digital	Analog	Digital
DF-151 series	○				★				
DF-161 series	○				★				
DF-183 series	○			★					
E7846		○							
XRR-1231		○			★				
XRR-2251		○			★				
E7894X			○						
E7240X series			○						
E7299X series			○						
E7239X series			○			★			
E7843X			○						
E7242X series			○			★			
E7876X			○						
E7833X			○						
E7252X series			○					★	
E7884X series			○				★		
E7886X series			○				★		
XRR-3331X			○					★	
XRR-3332X			○						
E7100X			○						
E7255X series			○						
E7254X series			○				★		
E7864X series			○						★
XRR-4631G			○						★
E7869X			○				★		★

* ★ Most recommendable product.

X-ray Tubes Application

Stationary Anode X-ray Tubes

Model Name	Intraoral	Panorama	C-arm
D-045 series			
D-0711 series			
D-0712 series			
DG-073B-AC			
DG-073B-DC			
D-023 series			
D-058R			
D-054 series			
D-0510 series			
D-0813 series			
D-0814			
D-063 series			
D-125 series			
D-205B series			
DF-151 series			
DF-161 series			
DF-183 series			



Mobile



Intraoral



Panorama/Cephalo



Expertise in X-ray Imaging Devices

Over one century period,
We have contributed to the development and production of state-of-the-art electronic devices with excellent performance and reliability.



Product

*X-ray
Flat Panel Detectors*

*X-ray Tube Assemblies
X-ray Tubes*

X-ray Image Intensifiers

*Proportional Counters for X-ray
Ionization Chambers for X-ray*

Company Profile



Product lineup



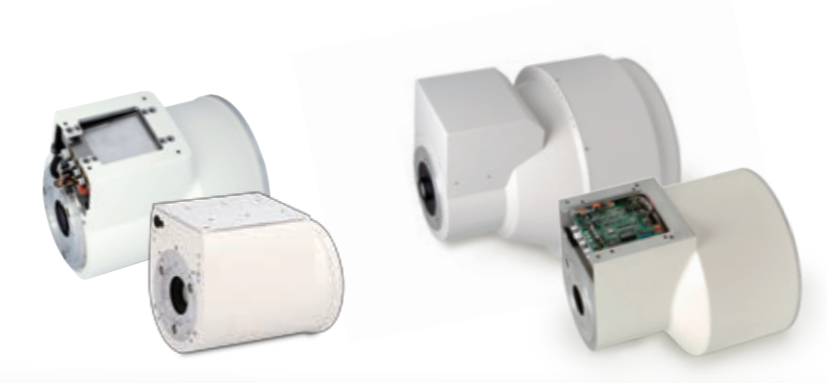
X-ray Flat Panel Detectors



**X-ray Tube Assemblies
X-ray Tubes**



X-ray Image Intensifiers



**Proportional Counters for X-ray
Ionization Chambers for X-ray**



X-ray Flat Panel Detectors

X-ray Tube Assemblies
X-ray Tubes

X-ray Image Intensifiers

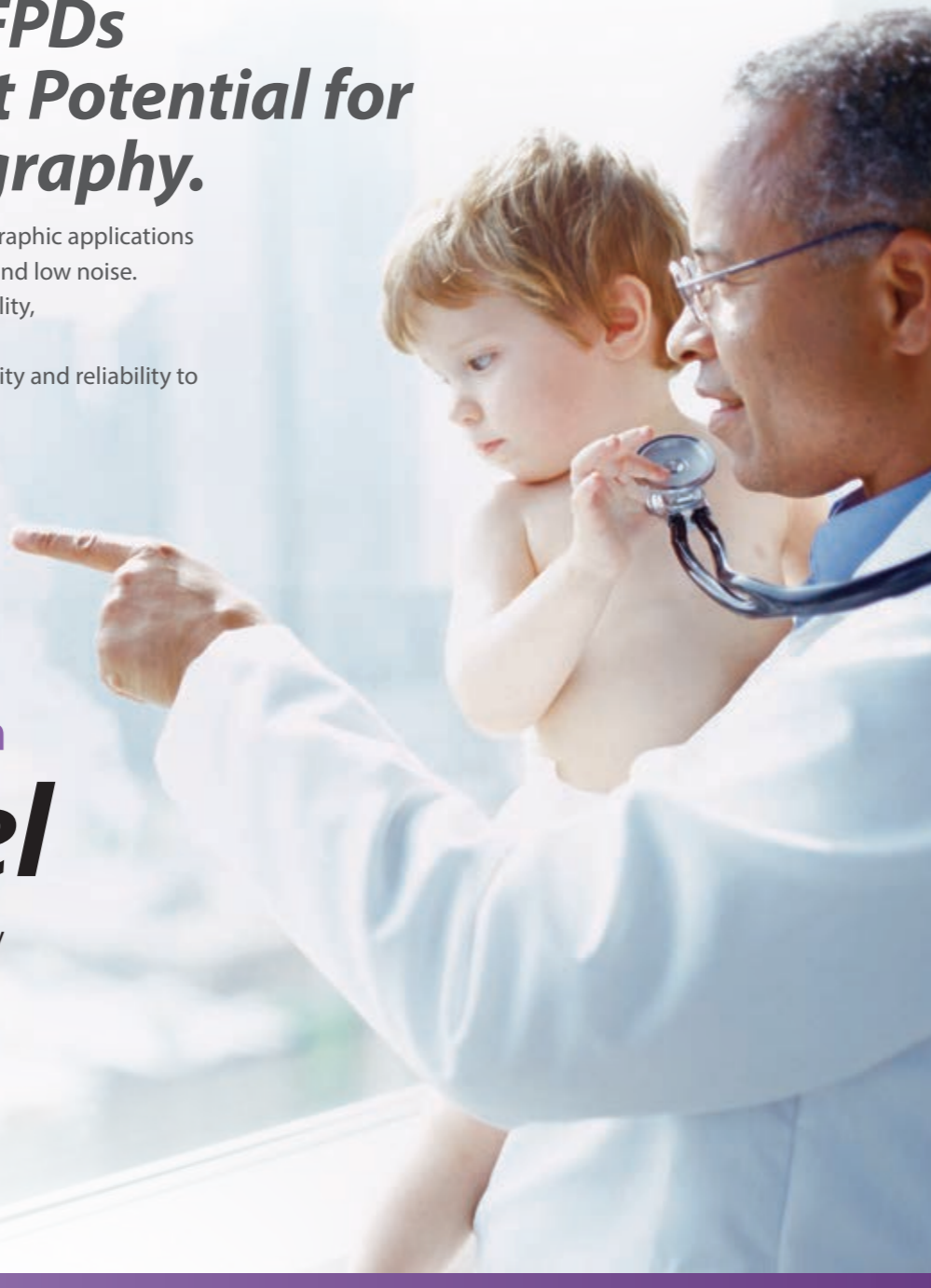
Proportional Counters for X-ray
Ionization Chambers for X-ray

Company Profile

X-ray Flat Panel Detectors

High-quality FPDs Increase Great Potential for Digital Radiography.

Our Flat Panel Detectors (FPDs) for radiographic applications provide high sensitivity, high resolution, and low noise. They produce images of unparalleled quality, allowing reduction of the radiation dose. These FPDs offer a new level of functionality and reliability to imaging system manufacturers.



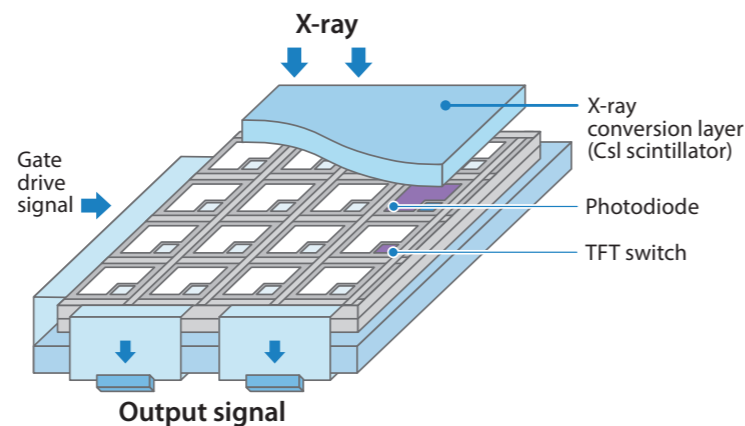
The low-dose medical solution

Quadcel

Quadcel cutting edge technology for your precious family.

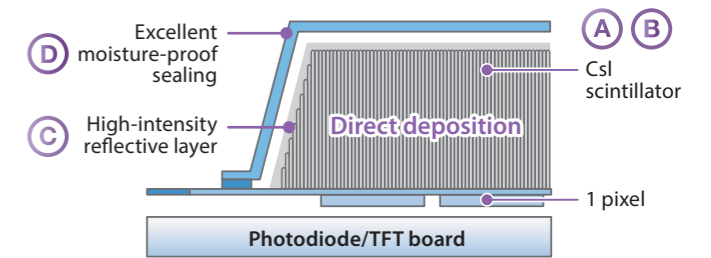
Principle of Operation

X-rays are converted into light by a CsI scintillator. This light is then converted to electrical signals at the photodiode within each pixel. The electrical signals from each diode are read out through a thin-film transistor (TFT) switch connected to the photodiode via a signal wire, and A/D (analog/digital) conversion and low-noise amplification are then performed to produce the image.



Quadcel technology (Core technologies)

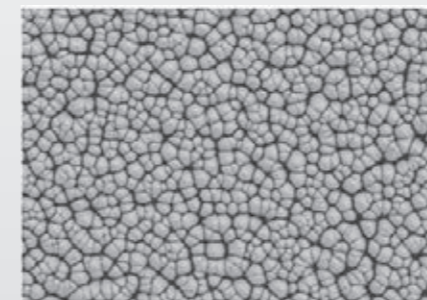
Quadcel is the name for the four core technologies that improve the performance of our FPD products.



A In-house CsI : TI

High performance & Low dose

- Advanced in-house technology which is cultivated in long history and experience
- X-ray Scintillator produced by the optimum process control for Flat panel Detector
- The technology enables high performance & low dose

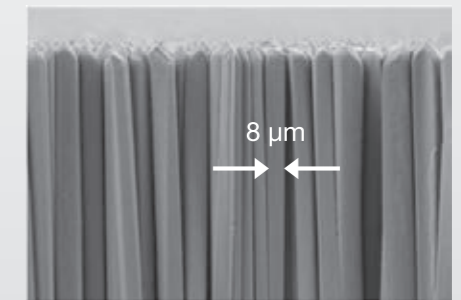


Superstructure (Top view)

B Direct CsI : TI vapor deposition

High performance & Low dose

- Fine CsI:TI structure on Photodiode/TFT board manufactured by advanced process control
- The technology enables high performance & low dose



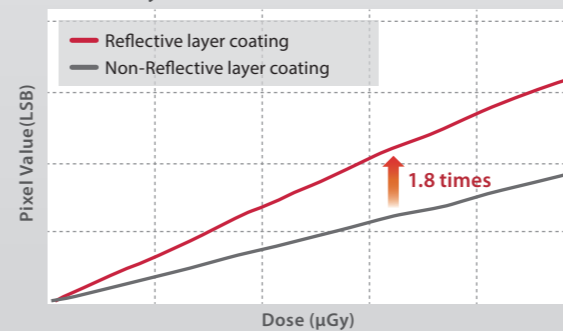
Superstructure (Side view)

C Reflective layer coating

High sensitivity & Low dose

- 1.8 times sensitivity against Non-Reflective layer coating
- The technology enables high sensitivity & low dose

Sensitivity

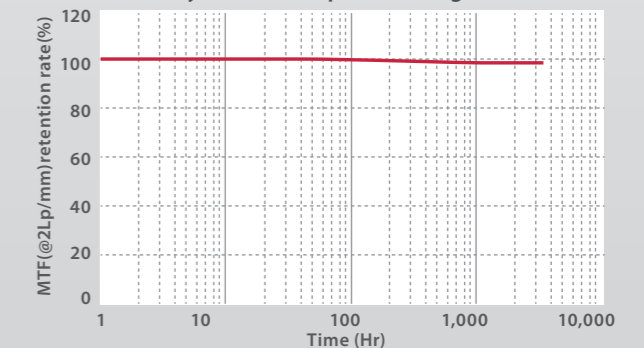


D Moisture-proof sealing

Long life & Stable high performance

- High reliability is achieved by advanced sealing
- The technology enables long life & stable high performance

Reliability of Moisture-proof Sealing (at 60°C-90%RH)



X-ray Flat Panel Detectors:

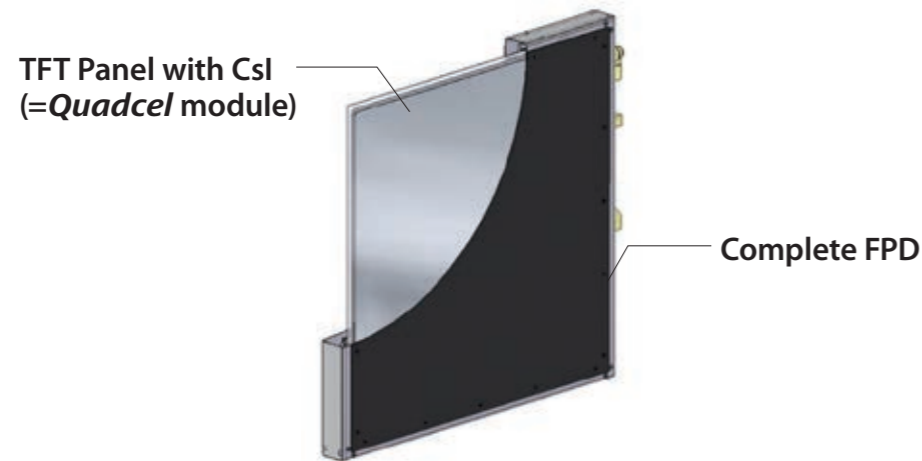
"Quadcel technology low dose medical solution"

Scanning this QR code brings you to a video that provides more details about these products.



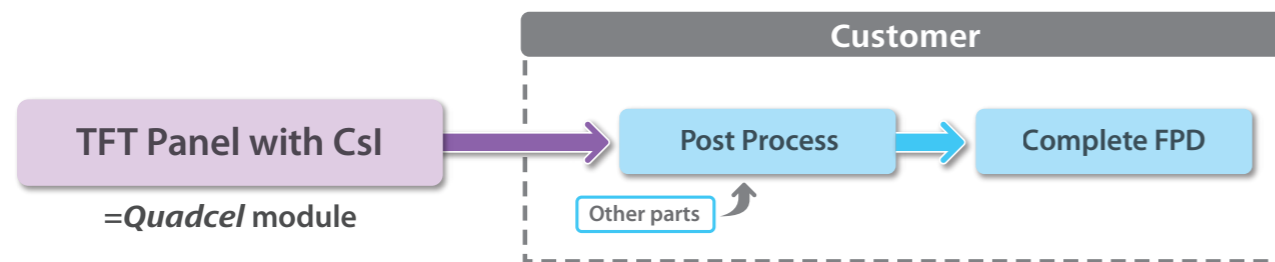
Product lineup Quadcel Module (TFT Panel with CsI)

TFT Panel with CsI



Fast solution for high performance FPD development

- TFT panel with a-Si Photodiode and sealed CsI/Tl scintillator using *Quadcel* technology.
- Unparalleled image quality, allowing reduction of the radiation dose with your own FPD.
- Most favorable pixel size simultaneously achieve high sensitivity and high resolution sophisticated.



	FM2530S-D6S	FM3543S-D6S	FM4343S-D6S
Technology	Quadcel technology		
Pixel Pitch	140 μm		
Active area	25 (H) × 30 (V) cm (10 × 12 inches)	35 (H) × 43 (V) cm (14 × 17 inches)	43 (H) × 43 (V) cm (17 × 17 inches)
Active pixel matrix	1750 (H) × 2108 (V)	2466 (H) × 3040 (V)	3036 (H) × 3040 (V)
MTF (2lp/mm) (typical)	36 % *		
DQE (0) (typical)	70 % *		
Dimensions	258 × 309 × 1.6 mm	359 × 439 × 1.6 mm	438 × 439 × 1.6 mm
Dimensions (for shipment, with ESD protection)	340 × 440 × 1.6 mm	440 × 520 × 1.6 mm	520 × 520 × 1.6 mm

* According to internal test

Product lineup X-ray Flat Panel Detectors

For X-ray Flat Panel Detectors



Wireless Flat Panel Detectors



- *Quadcel* technology is packaged in a cassette-sized wireless FPD with excellent image quality.
- Automatic switching between wireless mode and tethered mode.
- Short cycle time (less than 10 sec.) supports improved diagnostic efficiency.
- Compact and lightweight for easy handling.
- Compact, lightweight battery charger permits more flexible installation locations.
- Most favorable pixel size simultaneously achieve high sensitivity and high resolution sophisticated.

X-ray Flat Panel Detectors:

"Quadcel for your precious family"

Scanning this QR code brings you to a video that provides more details about these products.



	FDX2530RPW	FDX3543RPW	FDX4343RPW
Application	General radiography		
Technology	Quadcel technology		
TFT	TFT array + Photodiode (a-Si)		
Pixel pitch	140 μm		
Active area	25 (H) × 30 (V) cm (10 × 12 inches)	35 (H) × 43 (V) cm (14 × 17 inches)	43 (H) × 43 (V) cm (17 × 17 inches)
Active pixel matrix	1750 (H) × 2108 (V)	2466 (H) × 3040 (V)	3036 (H) × 3040 (V)
A/D conversion	16 bits	14 bits	16 bits
Image output time	1.5 seconds for full image	3 seconds for full image	4 seconds for full image
Cycle time	8 seconds (Ethernet) 10 seconds (WLAN)	9 seconds (Ethernet) 12 seconds (WLAN)	
Environment	Operation: 10 to 35 °C 20 to 75 % RH (non-condensing)		
	Storage: -15 to 55 °C 10 to 95 % RH (non-condensing)		
Dimensions	282 × 333 × 15 mm	384 × 460 × 15 mm	460 × 460 × 15 mm
Weight (approx.)	1.7 kg (include battery)	3.1 kg (include battery)	3.7 kg (include battery)
Mechanical load	150 kg over front panel 100 kg on 40 mm dia.		
Other feature	AED available		
Certification	IEC60601-1, IEC60601-1-2 MDD93/42/EEC (CE marking)		

Product lineup X-ray Flat Panel Detectors

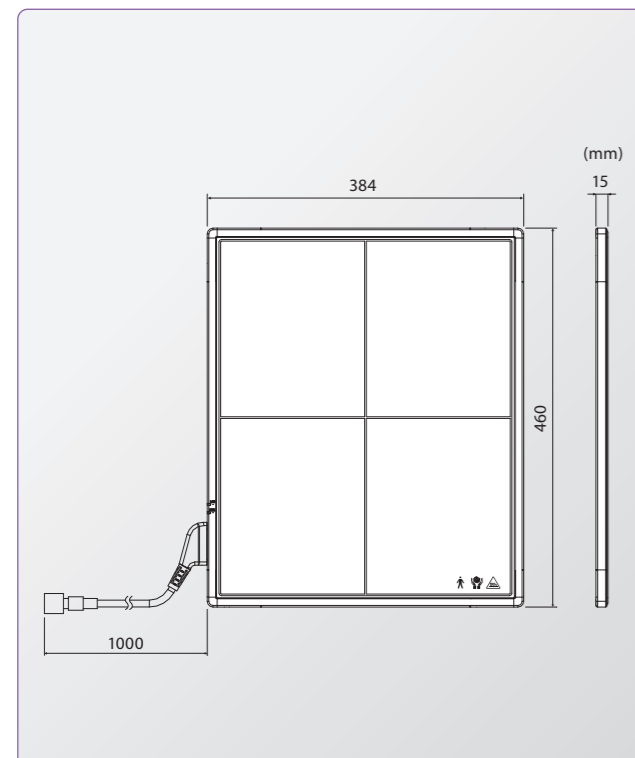


Tethered Flat Panel Detectors



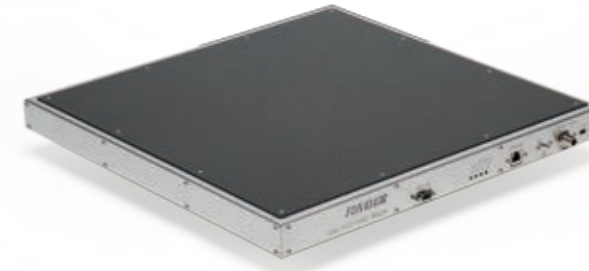
- **Quadcel** technology is packaged in a cassette-sized tethered FPD with excellent image quality.
- Quick preview, quick full-image display, and short cycle times for frequent usage.
- Compact and lightweight for easy handling.
- Most favorable pixel size simultaneously achieve high sensitivity and high resolution sophisticated.

Dimensions

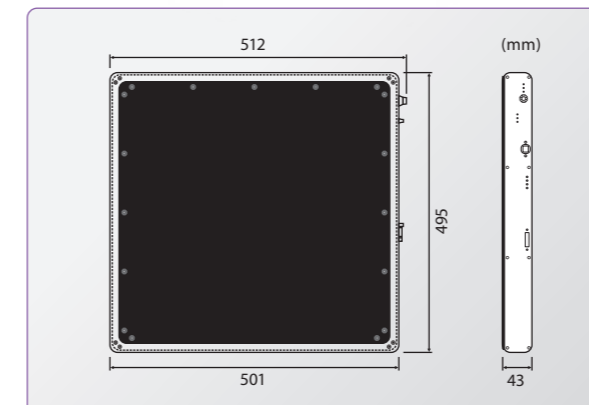


		FDX3543RP
Application		Gneneral radiography
Technology		Quadcel technology
TFT		TFT array + Photodiode (a-Si)
Pixel pitch		143 μm
Active area		35 (H) × 43 (V) cm (14 × 17 inches)
Active pixel matrix		2448 (H) × 2984 (V)
A/D conversion		16 bits
Image output time		3 seconds for full image
Cycle time		6 seconds
Environment	Operation	10 to 35 °C 10 to 85 % RH (non-condensing)
	Storage	-15 to 55 °C 10 to 90 % RH (non-condensing)
Dimensions		384 × 460 × 15 mm
Weight (approx.)		3.2 kg
Mechanical load		150 kg over front panel 100 kg on 40 mm dia.
Certification		IEC60601-1, IEC60601-1-2 MDD93/42/EEC (CE marking)

Fixed Flat Panel Detectors

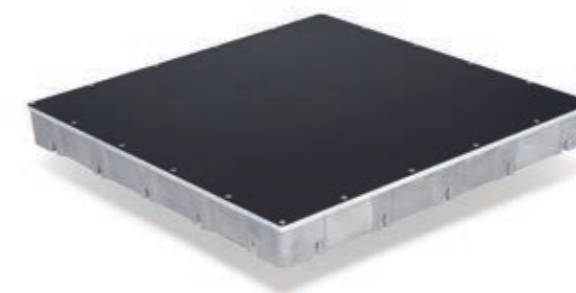


Dimensions

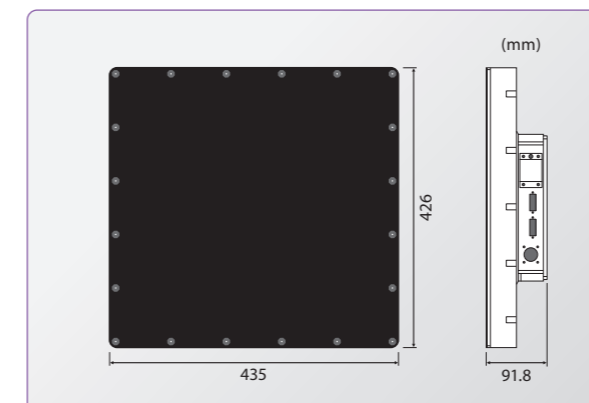


		FDX4343R
Application		Gneneral radiography
Technology		Quadcel technology
TFT		TFT array + Photodiode (a-Si)
Pixel pitch		143 μm
Active area		43 (H) × 43 (V) cm (17 × 17 inches)
Active pixel matrix		3008 (H) × 3072 (V)
A/D conversion		14 bits
Image output time		4 seconds for full image
Cycle time		6 seconds
Environment	Operation	10 to 35 °C 30 to 85 % RH (non-condensing)
	Storage	-15 to 55 °C 10 to 90 % RH (non-condensing)
Dimensions		512 × 495 × 43 mm
Weight (approx.)		9 kg
Certification		IEC60601-1, IEC60601-1-2 MDD93/42/EEC (CE marking)

Dynamic Flat Panel Detectors



Dimensions



		FDX3334RF
Application		Gneneral radiography and fluoroscopy
Technology		Quadcel technology
TFT		TFT array + Photodiode (a-Si)
Pixel pitch		143 μm
Active area		33 (H) × 34 (V) cm (13 × 13.5 inches)
Active pixel matrix		2304 (H) × 2400 (V)
Binning mode		2 × 2 (binning)
Acquisition mode		30 fps (binning), 15 fps (nonbinning); 330 × 343 mm (full scan) 60 fps (binning), 30 fps (nonbinning); 330 × 146 mm (zoom scan)
Cooling		Active air cooling
A/D conversion		14 bits
Environment	Operation	10 to 35 °C 30 to 85 % RH (non-condensing)
	Storage	-15 to 55 °C 10 to 90 % RH (non-condensing)
Dimensions		435 × 426 × 91.8 mm (with fan motor, 106 mm)
Weight (approx.)		20 kg
Certification		IEC60601-1, IEC60601-1-2 MDD93/42/EEC (CE marking)



X-ray Tube Assemblies / X-ray Tubes

Product lineup Stationary Anode X-ray Tubes



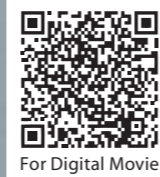
High-quality X-ray Tube Assemblies and X-ray Tubes for Medical and Industrial X-ray Systems

We have been at the forefront of X-ray tube development for over 100 years and are proud to be one of the world's largest manufacturers of X-ray tubes for medical and industrial X-ray systems.

X-ray Tube Assembly:

"We Offer the high Reliability X-ray tube assembly for your Health"

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Stationary Anode X-ray Tubes



Standard



R-type: with radiator



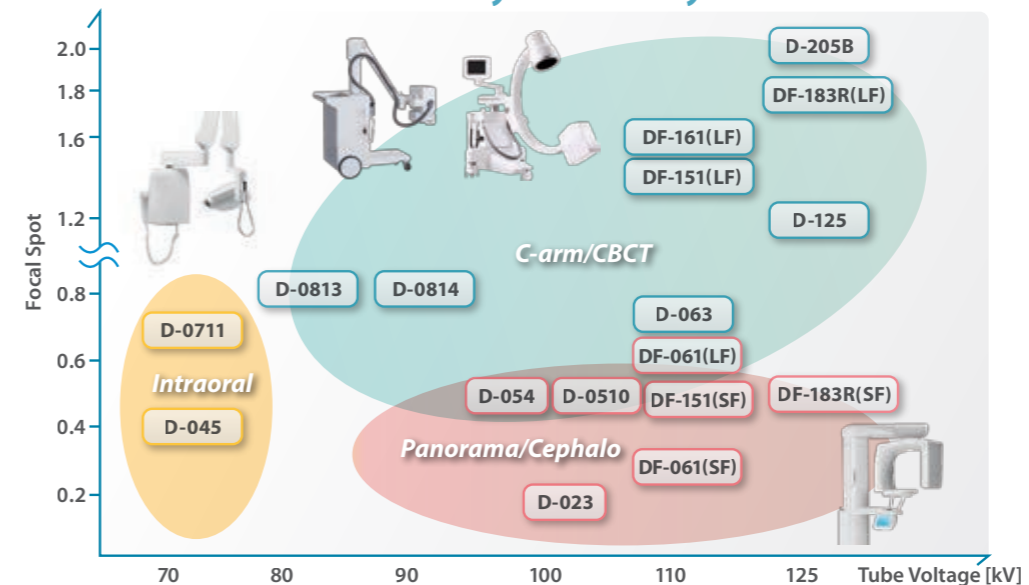
SBR-type
S: with insulation cylinder
B: with lead cylinder
R: with radiator

Stationary Anode X-ray Tubes

Model Name	Focal Spot	Max. Rating (1 s) (W)	Max. Voltage (kV)	Max. Current (mA)	Circuit	Anode			Type			
						Angle (°)	Heat Content (kJ)	Cooling Rate (W)	without	S	SB	
										Dimensions (mm) Length x Diameter		
Intraoral												
D-045	0.4	585	70	12	C	12.5	4.3	100	66 x 31	-	-	
D-0711	0.7	940	70	19.9	C	16	7	210	66 x 31	72 x 38	74 x 42	
D-0712	0.7	600	70	19	AC	16	4.3	100	66 x 31	72 x 38	74 x 42	
DG-073B-AC	0.7	398	70	8	AC	20	7	210	67 x 31	-	-	
DG-073B-DC	0.7	560	70	8	C	20	7	210	67 x 31	-	-	
Panorama / Cephalo												
D-023	0.2	387	100	4.3	C	10	35	250	138 x 45	-	146 x 58	
D-058R	0.5	675	70	13	C	12.5	13	300	82 x 31	88 x 38	88 x 42	
D-054	0.5	1750	100	22	C	5	35	250	138 x 45	146 x 54	146 x 58	
		840		SF								
D-0510	0.5	1270	100	22	C	10	35	250	138 x 45	146 x 54	146 x 58	
DF-061	0.3	600	110	10	C	12	28	265	139 x 52	-	145 x 64	
	0.6	1200		20								
C-arm/Portable												
D-0813	0.8	1350	80	33	C	16	7	210	66 x 31	72 x 38	74 x 42	
D-0814	0.8	1350	90	33	C	16	7	210	90 x 37	-	-	
D-063	0.6	2020	110	20	C	8	28	265	120 x 52	130 x 60	-	
D-063R	0.6	2020	110	20	C	8	32	600	141 x 52	151 x 60	-	
D-125	1.2	2700	125	40	C	16	35	250	138 x 45	146 x 54	146 x 58	
D-205B	2.0	3300	100	70	C	20	28	265	120 x 52	130 x 60	-	
		3000	125	80	SF							
		2000	125	40	AC							
DF-151	0.5/1.5	680/3200	110	15/60	C	16	28	265	139 x 52	145 x 60	145 x 64	
DF-151R	0.5/1.5	680/3200	110	15/60	C	16	35.5	600	160 x 52	166 x 60	166 x 64	
DF-161R	0.5/1.6	700/4000	125	15/60	C	16	35.5	600	-	-	176 x 64	
DF-183	0.5/1.8	1000/4200	125	15/100	C	16	28	265	139 x 52	-	-	
DF-183R	0.5/1.8	1000/4200	125	15/100	C	16	35.5	600	160 x 52	-	176 x 64	

Circuit C: Constant Potential High-Voltage Generator (All tubes are center grounded) SF: Two-peak high-voltage generator
AC: One-Peak High-Voltage Generator (Self-rectified) R: with radiator

Selection Guide for Stationary Anode X-ray Tubes



Product lineup General X-ray Tube Assemblies

For 3" X-ray Tube Assemblies

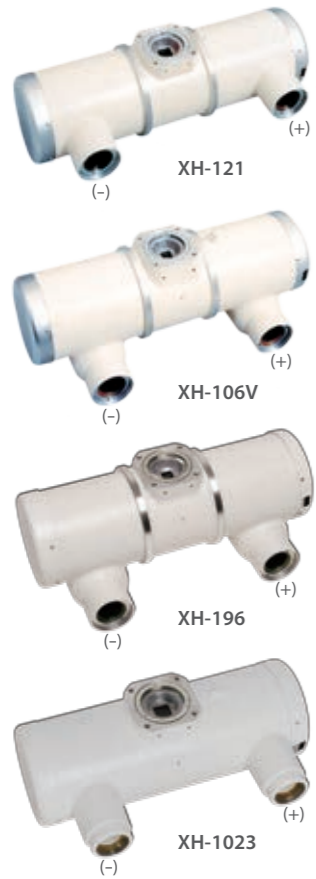


For 4" X-ray Tube Assemblies

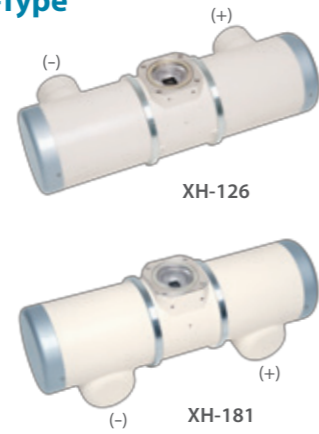


3" X-ray Tube Assemblies

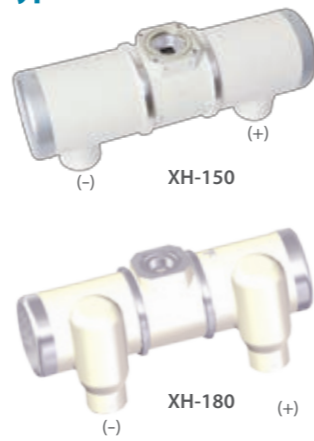
X-Type



FX-Type



GX-Type

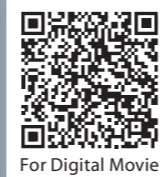
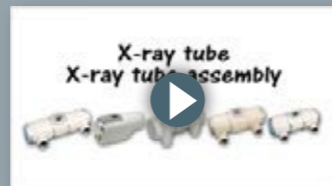


Anode (+) is right side
(except XH-183)



X-ray Tube Assembly:
**"We Offer the high Reliability
X-ray tube assembly
for your Health"**

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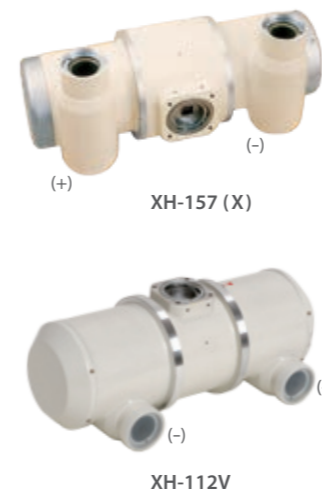


Model Name	Focal Spot	Max. Rating (0.1 s) (kW)	Max. Voltage (kV)	Max. Current (mA)	Anode			Housing Assembly					
					Angle (°)	Heat Content (kJ)	Heat Content (kHU)	Min. Rotation Speed (min ⁻¹)	Heat Content (kHU)	Housing Type			Stator Type
									X-type	FX-type	GX-type		
E7894X	0.6/1.2	15/30	150	200/500	12.5	100	140	3200	1260	XH-196	-	-	XS-BF
E7240X series	0.6/1.2	15/30	150	200/500	12	100	140	3200	1250	XH-121	XH-126	-	XS-AV
E7299X series	0.3/1.0	3.7/39	150	70/640	12	100	140	3200	1250	XH-121	XH-126	-	XS-AV
E7239X series	1.0/2.0	22.5/47	125	340/570	16	100	140	3200	1250	XH-121	XH-126	XH-150	XS-AV
E7843X	0.6/1.2	22/50	150	370/760	12	111	150	3200	1250	XH-121	-	-	XS-BA
E7242X series	0.6/1.5	18/50	125	290/800	14	142	200	3200	1250	XH-121	XH-126	XH-150	XS-RA
E7876X	0.6/1.2	22/54	150	300/700	12	163	230	3200	1250	XH-121	-	-	XS-RA
E7833X	0.3/0.6	8/22	125	100/250	10	210	300	3200	1600	XH-183	-	-	XS-BB
E7252X series	0.6/1.2	16/44.6 27/75	150	300/800 400/1000	12	210	300	3200 9700	1250	XH-106V	XH-181	XH-180	XS-RA/ XS-AL
E7884X series	0.6/1.2	22/54	150	300/700	12	210	300	3200	1250	XH-121	XH-126	XH-150	XS-AL
E7886X series	0.7/1.3	17/40	150	280/550	16	210	300	3200	1250	XH-121	XH-126	-	XS-AL
XRR-3331X	0.6/1.2	22/54 32/78	150	300/700 400/1000	12	210	300	3200 9700	1250	XH-121	-	-	XS-AL
XRR-3332X	0.6/1.2	20/46	150	300/600	14	210	300	3200	1056	XH-1023	-	-	XS-AL

Note: Rotation 3200 (min⁻¹) = 60 Hz / 9700 (min⁻¹) = 180 Hz

4" X-ray Tube Assemblies

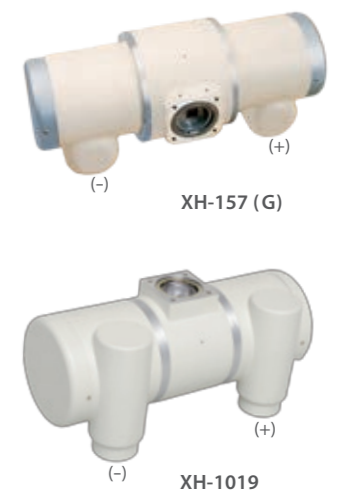
X-Type



FX-Type



GX-Type



XH-157
X-Type : Anode (+) is left side
FX-Type : Anode (+) is left side
GX-Type : Anode (+) is right side
XH-112V / XH-1019
 Anode (+) is right side

Model Name	Focal Spot	Max. Rating (0.1 s) (kW)	Max. Voltage (kV)	Max. Current (mA)	Anode			Housing Assembly					
					Angle (°)	Heat Content (kJ)	Heat Content (kHU)	Min. Rotation Speed (min ⁻¹)	Heat Content (kHU)	Housing Type			Stator Type
									X-type	FX-type	GX-type		
E7100X	0.6/1.2	24/59 40/100	150	400/800 500/1000	12	210	300	3200 9700	1508	XH-112V	-	-	XS-AG
E7255X series	0.6/1.2	21/55.5 40/102	150	400/800 500/1000	12	210	300	3200 9700	1339	XH-157(X)	XH-157(F)	XH-157(G)	XS-RB
E7254X series	0.6/1.2	23/60 40/102	150	400/800 500/1000	12	285	400	3200 9700	1339	XH-157(X)	XH-157(F)	XH-157(G)	XS-RB
E7864X series	0.6/1.2	23/58 40/100	150	340/765 400/800	12	285	400	3200 9700	2000	XH-112V	-	-	XS-AG
XRR-4631G	0.6/1.2	23/58 40/100	150	340/765 400/800	12	285	400	3200 9700	2000	-	-	XH-1019	XS-BM/ XS-AG
E7869X	0.6/1.2	23/58 40/100	150	400/900 500/1000	12	420	600	3200 9700	2000	XH-112V	-	-	XS-AG

Note: Rotation 3200 (min⁻¹) = 60 Hz / 9700 (min⁻¹) = 180 Hz

Rotating Anode X-ray Tubes



For 2" X-ray Tube



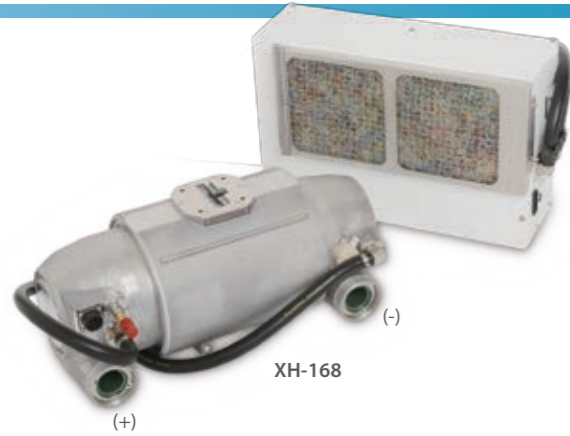
Model Name	Focal Spot	Max. Rating (0.1 s) (kW)	Max. Voltage (kV)	Max. Current (mA)	Anode			Cooling Rate (W)	Rotation Speed (min ⁻¹)	Circuit	Dimensions (mm) Length x Diameter	
					Angle (°)	Diameter (mm)	Heat Content (kJ)					Heat Content (kHU)
E7846	0.6/1.3	11/32	130	220/500	13.5	58	80	107	250	2700	T, C	220 x 81
XRR-1231	0.6/1.3	11/32	130	220/640	15.0	62	80	107	320	2700	T, C	205 x 81
XRR-2251	0.3/0.6	5/17	130	110/360	10.0	62	150	210	400	2700	T, C	200 x 81

Note: Rotation 2700 (min⁻¹) = 50 Hz

Computed Tomography (CT) Tube and Angiography X-ray Tube Assemblies



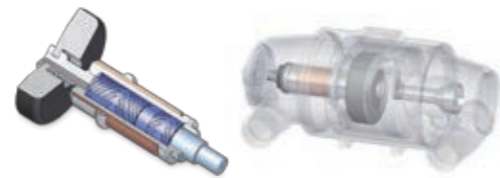
X-ray Tubes for Computed Tomography (CT) Scanners



XH-168

Hydrodynamic liquid metal bearing

The hydrodynamic liquid metal (LM) bearing is a core technology, created through integration of our development and manufacturing technologies. The X-ray tube assembly with LM bearing features long tube life, quiet operation, and continuous high-speed rotation while ensuring excellent stability and reliability.



- Compact X-ray tube assemblies for CT scanner feature extremely high cooling performance.
- Liquid metal bearings (LM bearings) are used in the anode rotation structure.

Liquid Metal Hydrodynamic Bearing (LM bearing)
X-ray Tube Assembly:

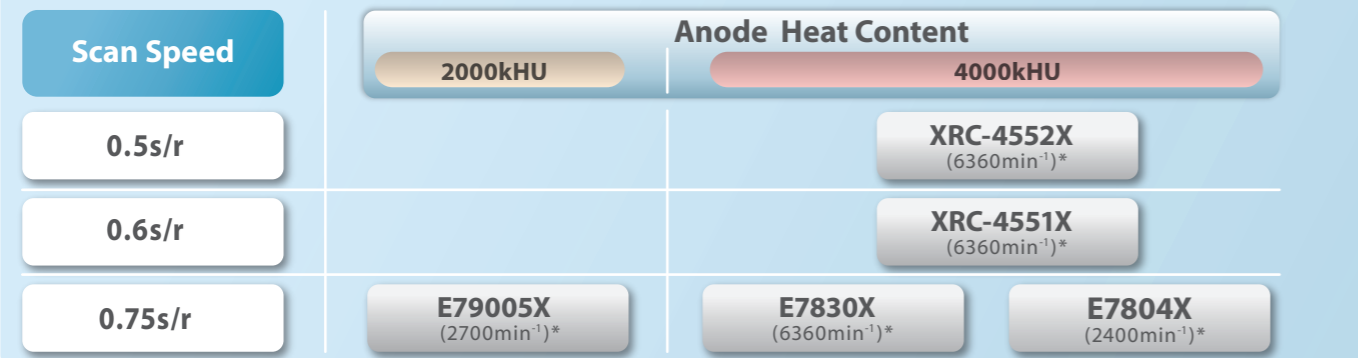
"Safe, Secure & Silent"

Scanning this QR code brings you to a video that provides more details about these products.



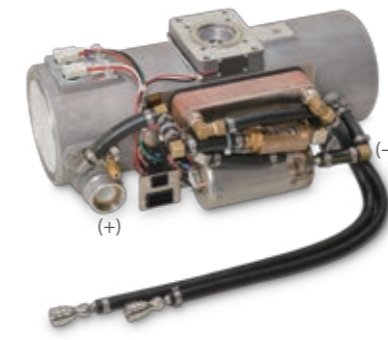
Model Name	Focal Spot	Max. Rating (kW)	Continuous Anode Input Power (kW)	X-ray Tube Voltage (kV)		Max. Tube Current (mA)	Anode				Max. G Proof in Gantry Rotation (G)	Housing Assembly				
				Min.	Max.		Angle (°)	Diameter (mm)	Max. Heat Content (kJ)	Max. Heat Dissipation (kW)		Rotation Speed (min ⁻¹)	Max. Heat Dissipation (kW)	Housing Type	Weight (kg)	
																Max. Heat Content (kHU)
E79005X	L 1.7 × 1.7	36	2.0	80	135	300	7	132	1420	2000	4.0	2700	6.3	3.6	XH-168	38
	S 1.1 × 1.3	24														
E7804X	L 1.7 × 1.6	48	4.0	-	135	400	7	140	2840	4000	10.2	2400	6.3	4.0	XH-168	41
	S 0.9	30														
E7830X	L 1.4 × 1.4	48	4.0	-	135	400	7	140	2840	4000	10.2	6360	6.3	4.0	XH-168	41
	S 0.9 × 0.7	30														
XRC-4551X	L 1.4 × 1.4	48	4.0	-	135	400	7	140	2840	4000	10.2	6360	8.6	4.0	XH-168	41
	S 0.9 × 0.7	30														
XRC-4552X	L 1.4 × 1.4	48	4.0	-	135	400	7	140	2840	4000	10.2	6360	12	4.0	XH-168	41
	S 0.9 × 0.7	30														

The Anode Heat Content and Scan Speed (CT Application)

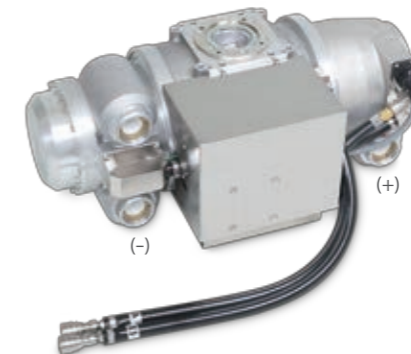


* Rotation Speed

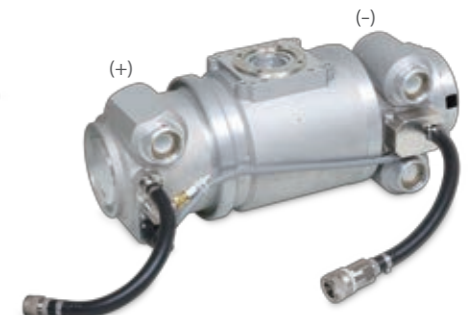
X-ray Tube Assemblies for Angiography Systems



XH-1008



XH-177



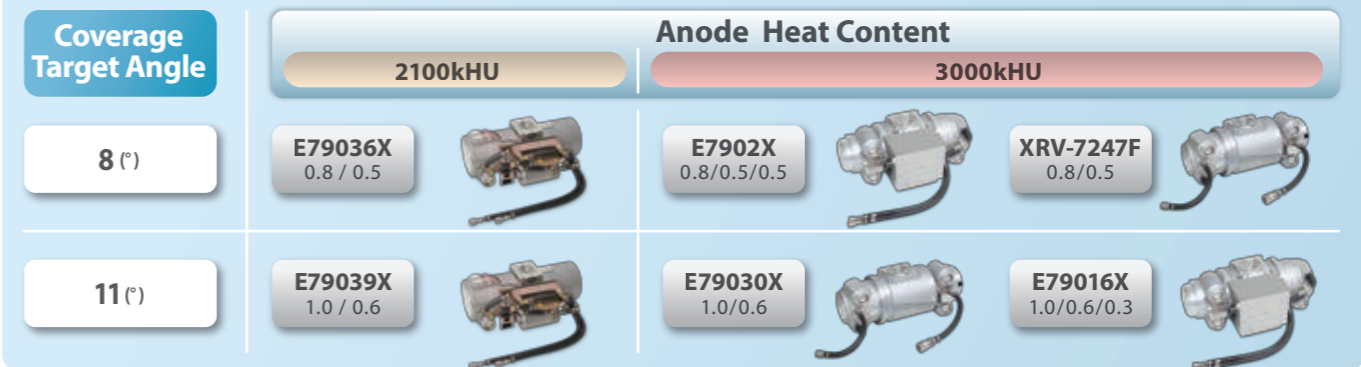
XH-177*

- Continuous high-speed rotation is made possible by the use of hydrodynamic liquid metal bearings.
- These tubes employ a grid control function that enables high-speed pulsed fluoroscopy, which is used in high-speed applications such as cine fluoroscopy.

Model Name	Focal Spot	Max. Rating (0.1 s) (kW)	Continuous Anode Input Power (kW)	Max. Voltage (kV)			Max. Tube Current (mA)	Anode				Housing Assembly				
				R	F			Angle (°)	Diameter (mm)	Max. Heat Content (kJ)	Cooling Rate (W)	Min. Rotation Speed (min ⁻¹)	Max. Heat Dissipation (W)	Housing Type	Weight (kg)	
					Continuous	Grid Control										
E79030X	L 1.0	100	2.2	125	125	110	850	11	140	2130	3000	5500	9000	3100	XH-177*	39
	S 0.6	48														
E79016X	L 1.0	100	2.2	125	125	120	1100	11	140	2130	3000	5500	9000	3500	XH-177	46
	M 0.6	48														
E7902X	S 0.3	17	2.2	125	125	110	180	8	140	2130	3000	5500	9000	3500	XH-177	46
	L 0.8	90														
E79036X	M 0.5	45	2.2	125	125	120	600	8	120	1500	2100	4500	9000	3000	XH-1008	38
	S 0.5	45														
E79039X	L 0.8	80	2.2	125	125	120	800	11	120	1500	2100	4500	9000	3000	XH-1008	38
	S 1.0	44														
XRV-7247F	L 1.0	80	2.2	125	125	120	800	8	140	2130	3000	5500	9000	3100	XH-177*	39
	S 0.6	43														
E79030X	L 0.8	100	2.2	125	125	120	860	8	140	2130	3000	5500	9000	3100	XH-177*	39
	S 0.5	50														

* Without heat exchanger.

The Anode Heat Content and Target Angle (Angiography Application)





Product lineup Industrial X-ray Tubes



Analytical X-ray Tubes

- Analytical X-ray tubes are used in research related to the structure of crystals, qualitative and quantitative analysis, and stress measurement.
- High X-ray transmission and a wide X-ray wavelength range are achieved by hermetically sealing the beryllium windows to the metal body.

Model Name	Target Material	Focal Spot (mm)	Max. Rating (kW)	Max. Voltage (kV)	Max. Current (mA)	Circuit	Ground	Target Angle (°)	Be Thickness (mm)	Dimensions (mm) Length x Diameter
A-26L	Cr/Cu	0.4 × 8	1.5	60	40	C	AG	0	0.3	230 × 65
	Fe	0.4 × 8	0.9	60	40	C	AG	0	0.3	230 × 65
	Co	0.4 × 8	1.2	60	40	C	AG	0	0.3	230 × 65
	Mo/W	0.4 × 8	2	60	40	C	AG	0	0.3	230 × 65
A-40	Cr/Cu	1 × 10	2	60	50	C	AG	0	0.3	217 × 65
	Fe	1 × 10	1.5	60	50	C	AG	0	0.3	217 × 65
	Co	1 × 10	1.8	60	50	C	AG	0	0.3	217 × 65
	Mo/W	1 × 10	2.4	60	50	C	AG	0	0.3	217 × 65
A-41L	Cr/Cu	1 × 10	2	60	50	C	AG	0	0.3	230 × 65
	Fe	1 × 10	1.5	60	50	C	AG	0	0.3	230 × 65
	Co	1 × 10	1.8	60	50	C	AG	0	0.3	230 × 65
	W	1 × 10	2.4	60	50	C	AG	0	0.3	230 × 65
AFX-66D	Mo/W	7 × 7.5	3	60	80	C	AG	26	1	498 × 89
	Cr	7 × 7.5	3	60	80	C	AG	26	0.3	498 × 89
E7340X	Rh	φ14	3	60	100	C	CG	90	0.127	459 × 103
E7341X	Rh	φ14	3	60	100	C	CG	90	0.06	459 × 103

Notes Circuit: C = DC
Ground: AG = Anode ground, CG = Cathode ground



A-40



E7340X

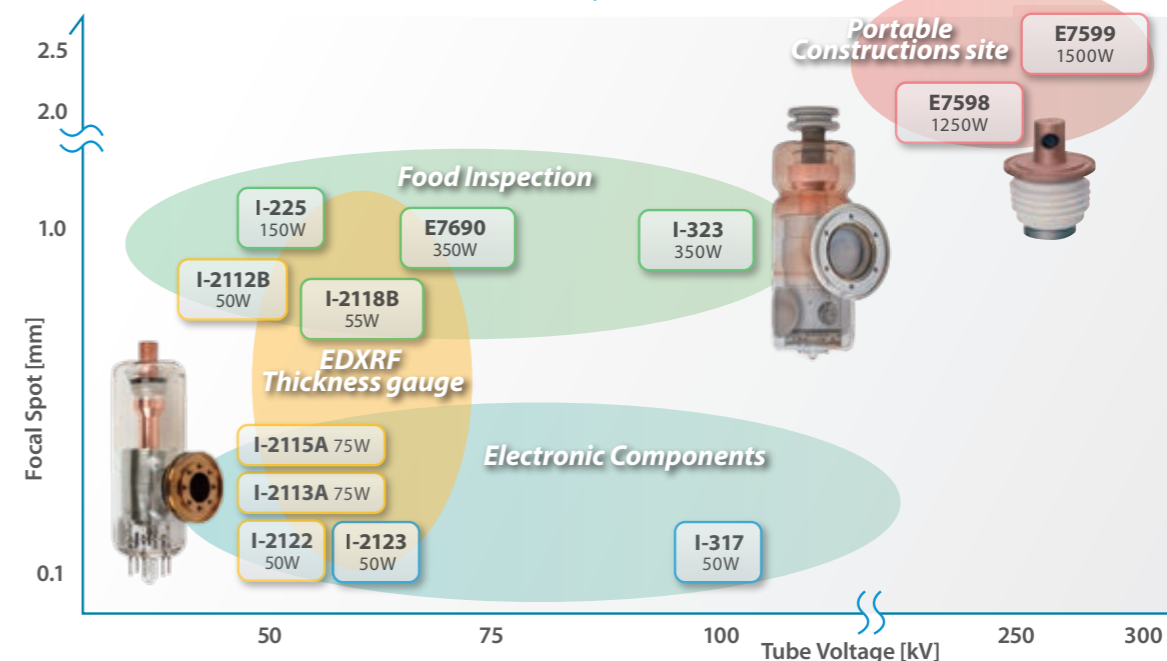
Industrial X-ray Tubes

- Industrial X-ray tubes are used for nondestructive testing, determining the thickness of coatings, and other applications.
- Ceramic tubes are mechanically strong and are therefore suitable for use in portable X-ray generators.

Model Name	Target Material	Focal Spot (mm)	Max. Rating (W)	Max. Voltage (kV)	Max. Current (mA)	Circuit	Ground	Target Angle (°)	Be Thickness (mm)	Dimensions (mm) Length x Diameter	Application
I-225	W	1	150	50	3.8	C	CG	20	0.5	165 × 40	F
I-2118B	W	1 × 0.7	55	55	1	C	N	20	Glass 1.65	96 × 30.5	F
E7690	W	1 × 1	350	75	8	C	CG	20	1	185 × 62	F
I-323	W	1	350	100	5	C	CG	20	1	185 × 62	F
I-2112B	Rh	0.8	50	50	1	C	CG	33	0.05	96 × 33	A
I-2113A	Mo	0.15	75	50	1.5	C	CG	10	0.05	96 × 33	A
I-2115A	W / Mo	0.15	75	50	1.5	C	CG	10	0.2	96 × 33	A, T
I-2122	W	0.15 × 0.1	50	50	1	C	CG	16	0.2	96 × 30.5	A, T
I-2123	W	0.1 ^{*1}	50	60	1.2	C	CG	10	0.2	96 × 30.5	N
I-317	W	0.1 ^{*1}	50	100	0.83	C	CG	10	0.5	180 × 62	N
E7598 ^{*2}	W	2	1250 ^{*3}	250 ^{*4}	5	S	AG	22	1	188 × 132	N
E7599 ^{*2}	W	2.5	1500 ^{*3}	300 ^{*4}	5	S	AG	22	1	198 × 132	N

*1 : Focusing bias *2 : Ceramic Tube *3 : Input peak power(1pulse) *4 : Pulse
Notes : Circuit : C = DC, S = Self Rectification Ground : AG = Anode ground, CG = Cathode ground Application : T = Thickness meter, A = Analysis N = Nondestructive, F = Food Inspection

Selection Guide for Industrial X-ray Tubes





X-ray Image Intensifiers

Highly Accurate Diagnosis Enabled by Best-in-class X-ray Image Intensifiers

The input window of the image intensifier(I.I.) is a thin metal plate with excellent X-ray transparency to reduce X-ray scattering. The I.I. is provided with a thick input phosphor screen consisting of extremely fine pillar crystals. It is also provided with a thin output phosphor screen on a single thick glass output window with an antireflective coating.

Major features related to environmental performance (Chemicals)

No RoHS-restricted substances

- Development of a photocathode surface forming process that does not contain Cr(VI)
- Development of an output phosphor that does not use Cd (currently exempted from RoHS)

No rare earths

- Gd and Tb are not used.

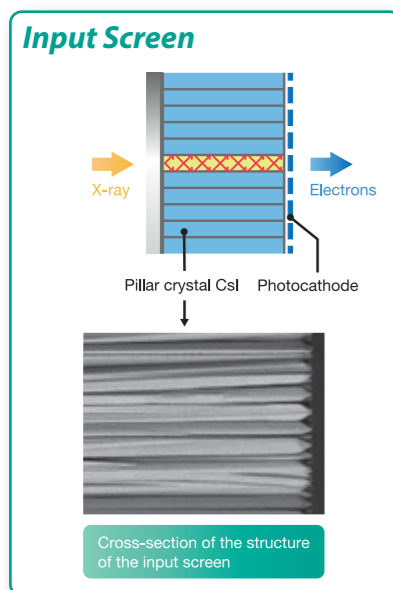
X-ray Image Intensifiers:

"Reliable Immediate Imaging in all environments"

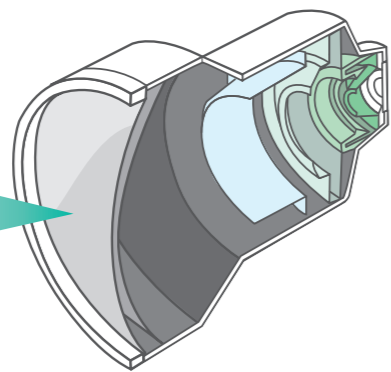
Scanning this QR code brings you to a video that provides more details about these products.

X-ray Image Intensifier

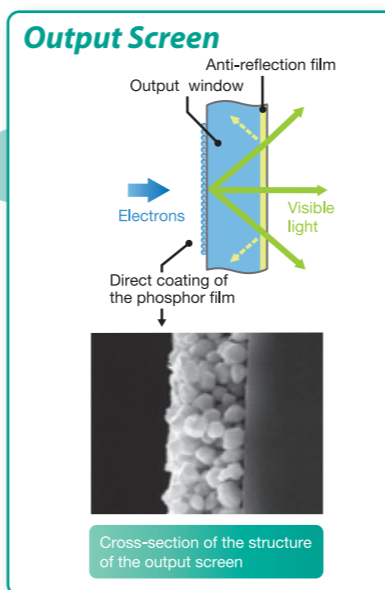
For Digital Movie



Principle of Operation



X-ray image intensifier is an imaging component which converts X-rays into a visible image. Provides higher-contrast and clearer images than the previous model, making diagnostics easier.



16-inch



E5876SD-P1/P1A

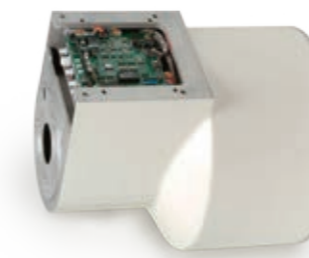


E5876SD-P2/P2A

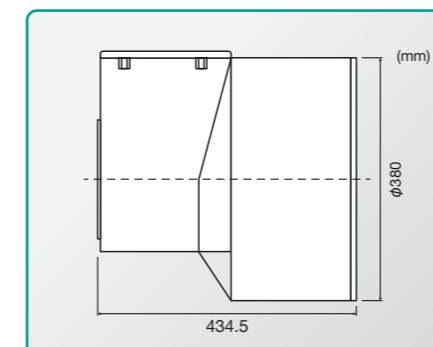
		E5876SD-P1 ^{*1} E5876SD-P1A ^{*2}	E5876SD-P2 ^{*1} E5876SD-P2A ^{*2}
Size		Overall length 520 ±3 mm Maximum diameter 450 ±1.5 mm	
Optical Distance		1.75 ±0.25 mm	
Weight (Approx.)		43 kg	
Mounting Surface		Front of the image intensifier Side of the image intensifier	Front of the image intensifier
Application		C-arm/Fluoro table	Fluoro table
Nominal Entrance Field Size	N (16") mode	400 mm min.	
	M1 (12") mode	360 mm min.	
	M2 (9") mode	290 ±5 mm	
	M3 (6") mode	215 ±5 mm	
Useful Entrance Field Size	M1 (12") mode	290 ±5 mm	
	M2 (9") mode	215 ±5 mm	
	M3 (6") mode	160 ±5 mm	
	M3 (6") mode	160 ±5 mm	
Output Image Diameter		35 ±0.5 mm	
Central Resolution (typical)	N (16") mode	46 Lp/cm	
	M1 (12") mode	50 Lp/cm	
	M2 (9") mode	56 Lp/cm	
	M3 (6") mode	65 Lp/cm	
Conversion Factor (Gx) (typical)		35 (cd/m ²)/(μGy/s)	
Contrast Ratio (typical)	10% area	30	
	10 mm dia.	18	
DQE (IEC Standard) (typical)		65 %	

^{*1}: 100-240V Vac input type.
^{*2}: 24 Vdc input type.

12-inch



Dimensions



		E5765SD-P2 ^{*1} E5765SD-P2A ^{*2}	E5796SD-P2 ^{*1} E5796SD-P2A ^{*2}
Size		Overall length 434.5 ±5 mm Maximum diameter 380 ±2 mm	
Optical Distance		10.4 ±0.25 mm	5.7 ±0.25 mm
Weight (Approx.)		31 kg	
Mounting Surface		Side of the image intensifier same side as the power supply box Front of the image intensifier	
Application		C-arm/Fluoro table/Simulator	
Nominal Entrance Field Size	N (12") mode	310 mm min.	
	N (12") mode	290 mm min.	
	M1 (9") mode	215 ±5 mm	
	M2 (6") mode	160 ±5 mm	
Useful Entrance Field Size	M1 (9") mode	215 ±5 mm	
	M2 (6") mode	160 ±5 mm	
	M2 (6") mode	160 ±5 mm	
	M2 (6") mode	160 ±5 mm	
Output Image Diameter		25 ±0.5 mm	
Central Resolution (typical)	N (12") mode	46 Lp/cm	
	M1 (9") mode	50 Lp/cm	
	M2 (6") mode	56 Lp/cm	
Conversion Factor (Gx)(typical)		29 (cd/m ²)/(μGy/s)	34 (cd/m ²)/(μGy/s)
Contrast Ratio (typical)	10% area	24	30
	10 mm dia.	15	18
DQE (IEC Standard)(typical)		65 %	

^{*1}: 100-240V Vac input type.
^{*2}: 24 Vdc input type.

Product lineup X-ray Image Intensifiers

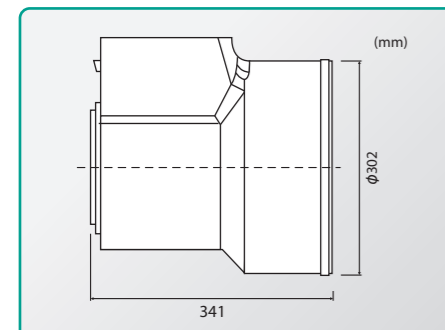


9-inch

Housing type : P7



Dimensions

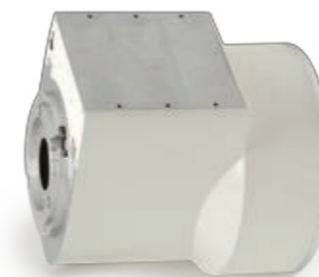


		E5764SD-P7	E5830SD-P7
Size		Overall length 341 ±5 mm Maximum diameter 302 ±2 mm	
Weight (Approx.)		18 kg	
Mounting Surface		Side of the image intensifier same side as the power supply box Front of the image intensifier	
Application		C-arm	
Nominal Entrance Field Size	N (9") mode	230 mm min.	
	Useful Entrance Field Size	215 mm min.	
Useful Entrance Field Size	M1 (6") mode	160 ±5 mm	
	M2 (4.5") mode	120 ±5 mm	
	Output Image Diameter	20 ±0.5 mm	25 ±0.5 mm
Central Resolution (typical)	N (9") mode	48 Lp/cm	52 Lp/cm
	M1 (6") mode	56 Lp/cm	58 Lp/cm
	M2 (4.5") mode	66 Lp/cm	68 Lp/cm
Conversion Factor (Gx) (typical)		28(cd/m ²)/(μGy/s)	29(cd/m ²)/(μGy/s)
Contrast Ratio (typical)	10% area	25	30
	10 mm dia.	16	19
DQE (IEC Standard) (typical)		65 %	

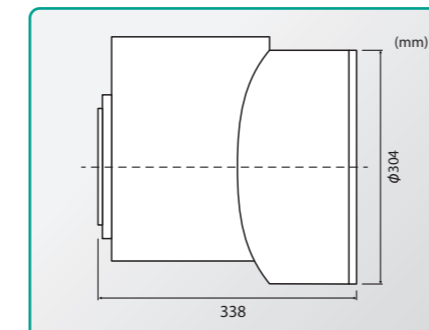
*1: 100-240 Vac input type.

9-inch

Housing type : P4



Dimensions



		E5804SD-P4*1 E5804SD-P4A*2	E5764SD-P4*1 E5764SD-P4A*2	E5830SD-P4*1 E5830SD-P4A*2
Size		Overall length 338 ±5 mm Maximum diameter 304 ±2 mm		
Weight (Approx.)		20 kg		
Mounting Surface		Side of the image intensifier same side as the power supply box		
Application		C-arm/Simulator		
Nominal Entrance Field Size	N (9") mode	230 mm min.		
	Useful Entrance Field Size	215 mm min.		
Useful Entrance Field Size	M1 (6") mode	-	160 ±5 mm	
	M2 (4.5") mode	-	120 ±5 mm	
	Output Image Diameter	20 ±0.5 mm	25 ±0.5 mm	
Central Resolution (typical)	N (9") mode	48 Lp/cm	52 Lp/cm	
	M1 (6") mode	-	56 Lp/cm	58 Lp/cm
	M2 (4.5") mode	-	66 Lp/cm	68 Lp/cm
Conversion Factor (Gx) (typical)		28(cd/m ²)/(μGy/s)		29(cd/m ²)/(μGy/s)
Contrast Ratio (typical)	10% area	25		30
	10 mm dia.	16		19
DQE (IEC Standard) (typical)		65 %		

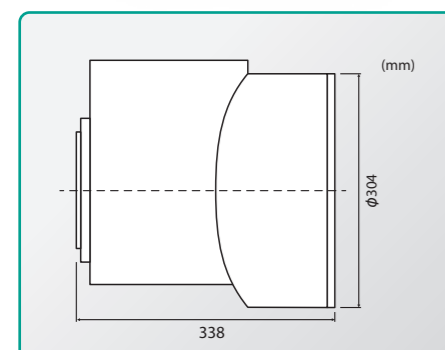
*1 : 100-240V Vac input type.

*2 : 24 Vdc input type.

Housing type : P6



Dimensions



		E5804SD-P6*1 E5804SD-P6A*2	E5764SD-P6*1 E5764SD-P6A*2	E5830SD-P6*1 E5830SD-P6A*2
Size		Overall length 338 ±5 mm Maximum diameter 304 ±2 mm		
Weight (Approx.)		20 kg		
Mounting Surface		Front of the image intensifier		
Application		Fluoro table/Simulator		
Nominal Entrance Field Size	N (9") mode	230 mm min.		
	Useful Entrance Field Size	215 mm min.		
Useful Entrance Field Size	M1 (6") mode	-	160 ±5 mm	
	M2 (4.5") mode	-	120 ±5 mm	
	Output Image Diameter	20 ±0.5 mm	25 ±0.5 mm	
Central Resolution (typical)	N (9") mode	48 Lp/cm	52 Lp/cm	
	M1 (6") mode	-	56 Lp/cm	58 Lp/cm
	M2 (4.5") mode	-	66 Lp/cm	68 Lp/cm
Conversion Factor (Gx) (typical)		28(cd/m ²)/(μGy/s)		29(cd/m ²)/(μGy/s)
Contrast Ratio (typical)	10% area	25		30
	10 mm dia.	16		19
DQE (IEC Standard) (typical)		65 %		

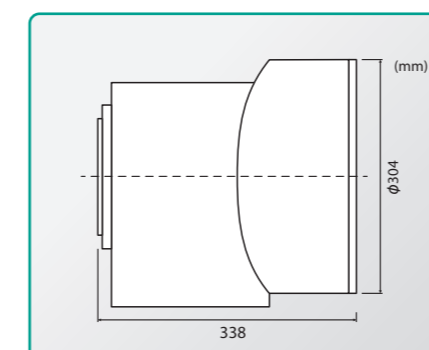
*1 : 100-240V Vac input type.

*2 : 24 Vdc input type.

Housing type : P3



Dimensions



		E5804SD-P3*1 E5804SD-P3A*2	E5764SD-P3*1 E5764SD-P3A*2	E5830SD-P3*1 E5830SD-P3A*2
Size		Overall length 338 ±5 mm Maximum diameter 304 ±2 mm		
Weight (Approx.)		20 kg		
Mounting Surface		Side of the image intensifier side opposite the power supply box		
Application		C-arm/Simulator		
Nominal Entrance Field Size	N (9") mode	230 mm min.		
	Useful Entrance Field Size	215 mm min.		
Useful Entrance Field Size	M1 (6") mode	-	160 ±5 mm	
	M2 (4.5") mode	-	120 ±5 mm	
	Output Image Diameter	20 ±0.5 mm	25 ±0.5 mm	
Central Resolution (typical)	N (9") mode	48 Lp/cm	52 Lp/cm	
	M1 (6") mode	-	56 Lp/cm	58 Lp/cm
	M2 (4.5") mode	-	66 Lp/cm	68 Lp/cm
Conversion Factor (Gx) (typical)		28(cd/m ²)/(μGy/s)		29(cd/m ²)/(μGy/s)
Contrast Ratio (typical)	10% area	25		30
	10 mm dia.	16		19
DQE (IEC Standard) (typical)		65 %		

*1 : 100-240V Vac input type.

*2 : 24 Vdc input type.

Product lineup X-ray Image Intensifiers

For X-ray Image Intensifiers



For X-ray Image Intensifiers for Industrial Use

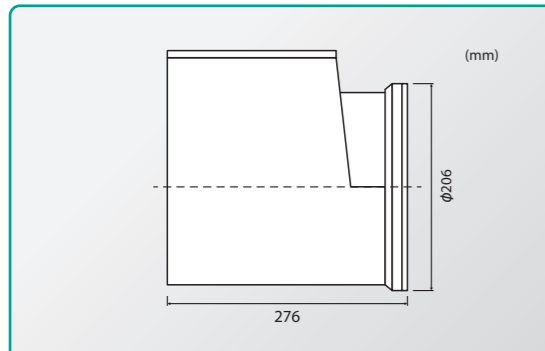


6-inch



		E5863SD-P6 ^{*1} E5863SD-P6A ^{*2}	E5883SD-P6 ^{*1} E5883SD-P6A ^{*2}
Size		Overall length 276 ±5 mm Maximum diameter 206 ±2 mm	
Weight (Approx.)		11 kg	
Mounting Surface		Side of the image intensifier Front of the image intensifier	
Application		C-arm/Fluoro table	
Nominal Entrance Field Size	N (6") mode	150 mm min.	
Useful Entrance Field Size	N (6") mode	140 mm min.	
	M (4") mode	-	105 ±5 mm
Output Image Diameter		20 ±0.5 mm	
Central Resolution (typical)	N (6") mode	54 Lp/cm	
	M (4") mode	-	64 Lp/cm
Conversion Factor (Gx) (typical)		18 (cd/m ²)/(μGy/s)	21 (cd/m ²)/(μGy/s)
Contrast Ratio (typical)	10% area	30	
	10 mm dia.	20	
DQE (IEC Standard) (typical)		65 %	

Dimensions



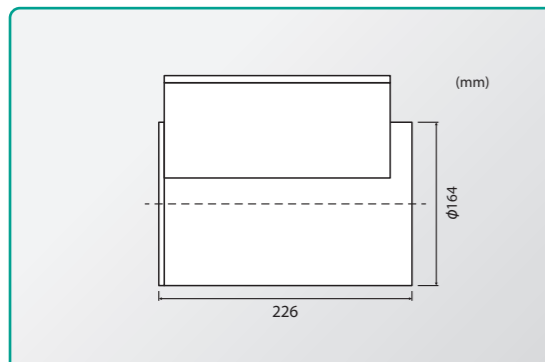
*1 : 100-240V Vac input type.
*2 : 24 Vdc input type.

4-inch



		E5881J-P1*	E5877J-P1*
Size		Overall length 226 ±3 mm Maximum diameter 164 ±3 mm	
Weight (Approx.)		8 kg	
Mounting Surface		Side of the image intensifier	
Application		C-arm	
Nominal Entrance Field Size	N (4") mode	100 mm min.	
Useful Entrance Field Size	N (4") mode	95 mm min.	
	M (2") mode	-	50 ±5 mm
Output Image Diameter		20 ±1 mm	
Central Resolution (typical)	N (4") mode	77 Lp/cm	
	M (2") mode	-	110 Lp/cm
Conversion Factor (Gx) (typical)		10 (cd/m ²)/(μGy/s)	
Contrast Ratio (typical)	10% area	22	
	10 mm dia.	18	
DQE (IEC Standard) (typical)		42 %	

Dimensions



* 100-240 Vac input type.

1M CCD Camera

Type VP-34509 provides superior image quality and excellent solution in cost effectiveness.

- Gigabit Ethernet Interface
- 1,024 × 1,024 pixel CCD
- Optimal for digital fluoroscopy
- Simple capture system

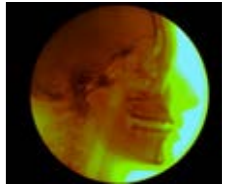


VP-34509

Color X-ray Image Intensifier

Wide dynamic range covered by 3 different output phosphors RGB phosphors make composite wide range image at a time.

- Red has quite high sensitivity from low dose region.
- Regular Green
- Blue has less sensitivity but high saturation level even at high dose.



Color output image

X-ray Image Intensifiers for Industrial Application

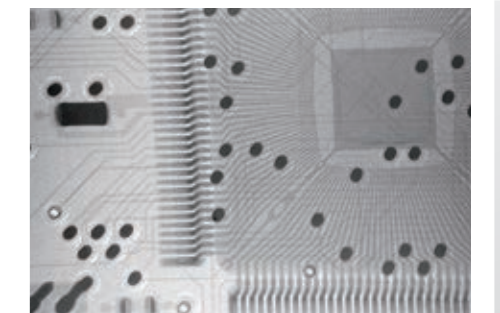
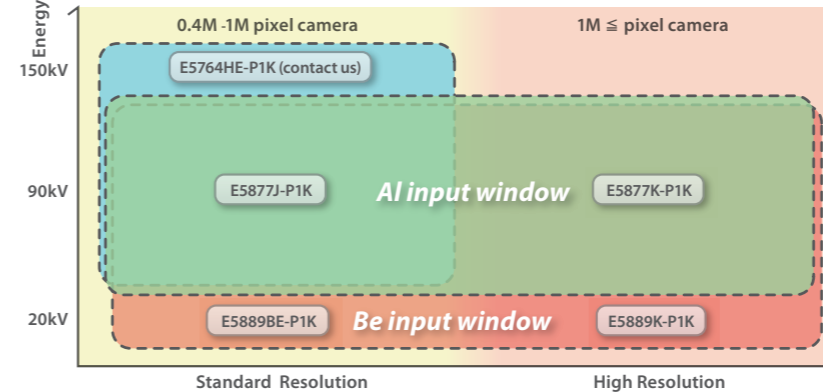
Industrial X-ray image intensifier are suitable for inspection and measurement applications, ranging from semiconductor chips and printed circuit boards to filling conditions of plastic bottles.

Aluminum (Al): Standard Aluminum input windows	Beryllium (Be): Beryllium input window for low energy/soft X-rays
Standard: Standard CsI	High resolution: Super fine pillar CsI
High speed response: High speed response with short luminance decay time	Wide dynamic range: color Phosphor

	E5881J-P1K	E5877J-P1K	E5881K-P1K	E5877K-P1K	E5877RE-P1K	E5877CS-P1K
Material of Input Window	Aluminum (Al)					
Application	Standard		High Resolution		High Speed Response	Wide dynamic range
Central Resolution (typical)	N (4") mode	77 Lp/cm	92 Lp/cm		77 Lp/cm	75 Lp/cm
	M (2") mode	-	110 Lp/cm	125 Lp/cm		110 Lp/cm
Conversion Factor (Gx) (typical)	10 (cd/m ²)/(μGy/s)		26 (cd/m ²)/(μGy/s)		1.5 (cd/m ²)/(μGy/s)	30 (cd/m ²)/(μGy/s)
Contrast Ratio (typical)	10% area	22		26		22
	10 mm dia.	18		19		16

	E5888BE-P1K	E5889BE-P1K	E5888K-P1K	E5889K-P1K	E5889BP-P1K
Material of Input Window	Beryllium (Be)				
Application	Standard		High Resolution		High Speed Response
Central Resolution (typical)	N (4") mode	77 Lp/cm	92 Lp/cm		77 Lp/cm
	M (2") mode	-	110 Lp/cm	125 Lp/cm	
Conversion Factor (Gx) (typical)	10 (cd/m ²)/(μGy/s)		10 (cd/m ²)/(μGy/s)		1.5 (cd/m ²)/(μGy/s)
Contrast Ratio (typical)	10% area	22		26	
	10 mm dia.	18		19	

Selection Guide



Proportional Counters for X-ray Ionization Chambers for X-ray



Long Life and High Stability Shock-resistant Structure

X-ray Proportional Counter (PC) is a detector which uses ionization caused by interaction between X-ray and internal gas.
This detector is suitable for measuring thickness of metal plating.



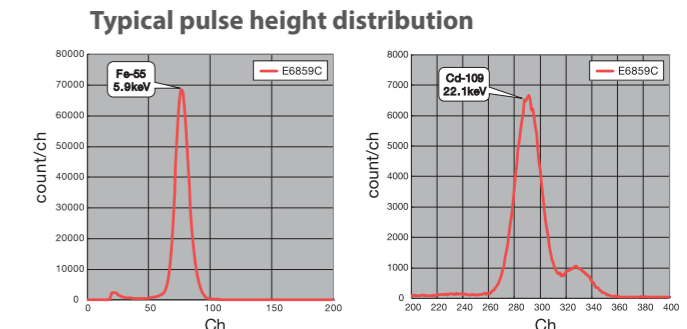
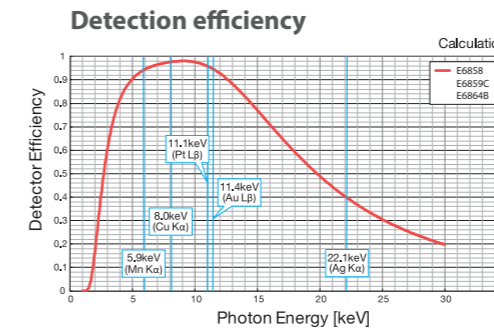
Radiation Detector:
"High Quality & Long Life"

Scanning this QR code brings you to a video that provides more details about these products.



Product lineup

Proportional Counters

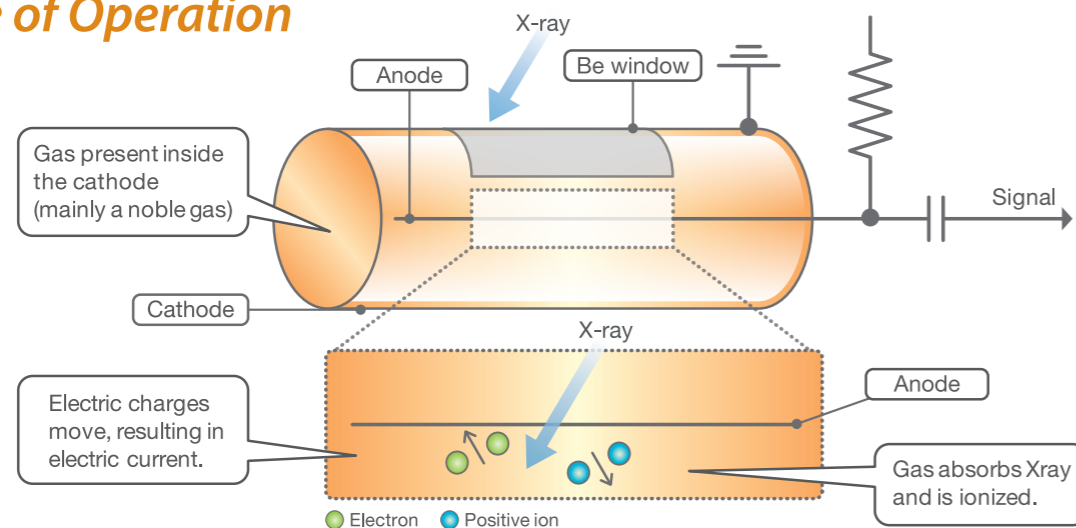


Model Name	E6858	E6859B	E6859C	E6864B	E6860 (C)	E6860 (P)	E68931-12P
General Specification							
Fill Gas	Xe + additive gas				Ne + additive gas		
Housing Material	Stainless Steel						
Gas Pressure (Approx) [kPa]	100	90	100	100	70	70	150
Maximum Length [mm]	252	204	204	178	156	126	165
Maximum Diameter [mm]	50.8	50.8	50.8	50.8	38	38	25.4
Effective Length [mm]	175	142	142	116	75	75	100
Connector	Pin	MHV	MHV	MHV	MHV	Pin	Pin
Operating Temperature [°C]	-20 to 70				-20 to 70		
Window Specification							
Material	Beryllium						
Thickness [mm]	0.3	0.2	0.1	0.1	0.062	0.062	0.04
Dimension (W) × (L) [mm]	40 × 82	40 × 82	26 × 52	26 × 52	20 × 20	9.5 × 25.4	9.5 × 25.4
Electrical Specifications							
Operating Voltage Range [V]	1,900 to 2,300	1,800 to 2,100	1,900 to 2,300	1,900 to 2,300	1,100 to 1,400	1,100 to 1,400	1,500 to 1,700
Recommended Voltage [V]	2,000	1,850	2,000	2,000	1,300	1,300	1,600
Resolution							
Fe-55 (5.9 keV) (Max) [%FWHM]	21	19	19	19	20	20	20
Cd-109 (22.1 keV) (Max) [%FWHM]	10	9	9	9	-	-	-

Ionization Chambers

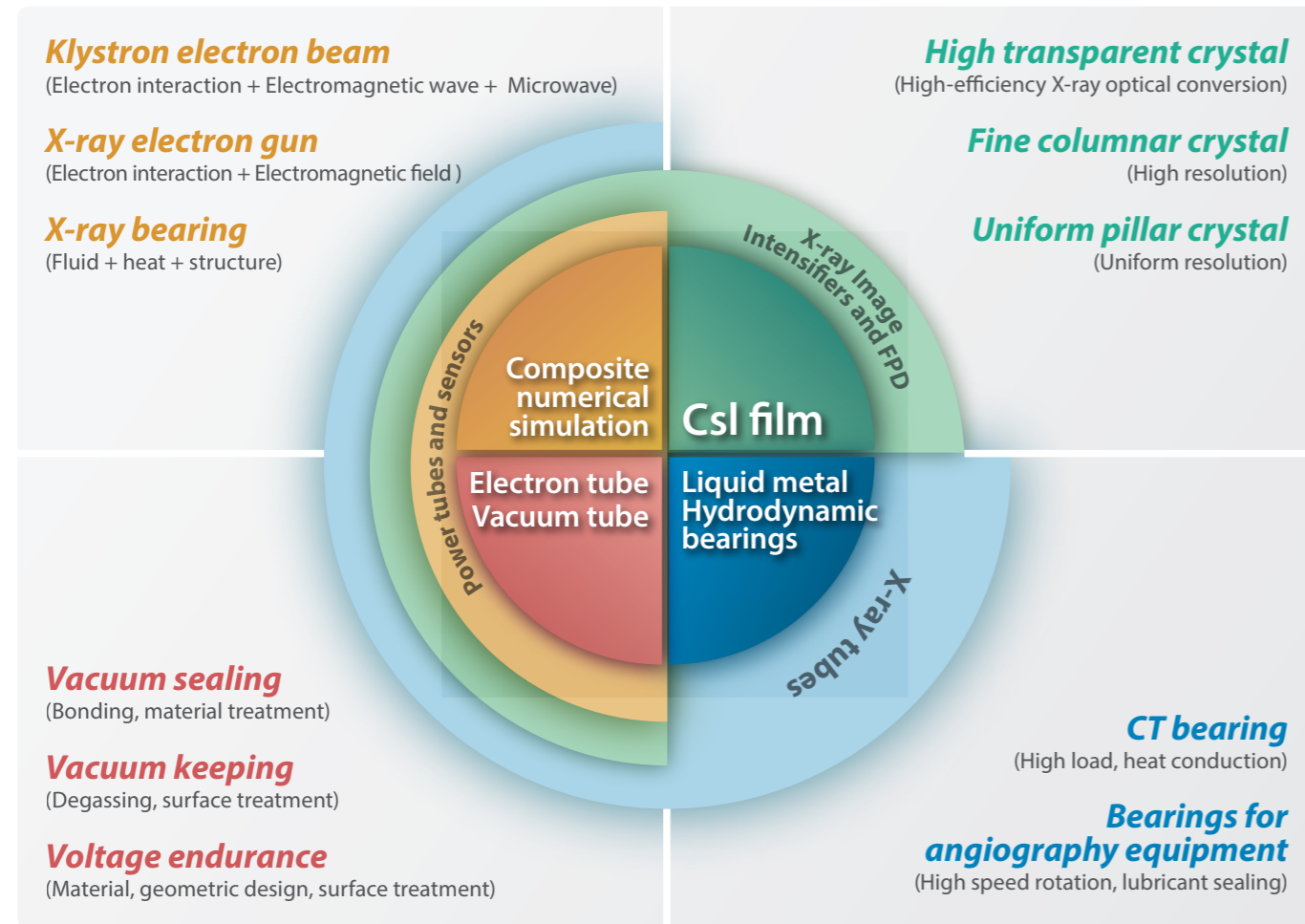
Model Name	E6854	E6861	E6866A	E6866C	M4952F
General Specifications					
Fill Gas	100% Xe				
Housing Material	SGP	Al	SUS304		SGP
Gas Pressure (Approx) [MPa]	0.8	0.8	1.5	3.0	0.4
Maximum Length [mm]	209	220	174.5		220
Maximum Diameter [mm]	113	50	15		140
Effective Length [mm]	150	167	100		50
Operating Temperature [°C]	-20 to 70				
Window Specification					
Material	Beryllium	-	-		SUS304
Thickness [mm]	2.0	1.0	0.5		0.5
Dimension (W) × (L) [mm]	φ70	-	-		φ132
Electrical Specifications					
Operating Voltage Range [VDC]	200 to 700		300 to 700		100 to 300
Maximum Voltage [VDC]	1,500				

Principle of Operation



Technologies for Products

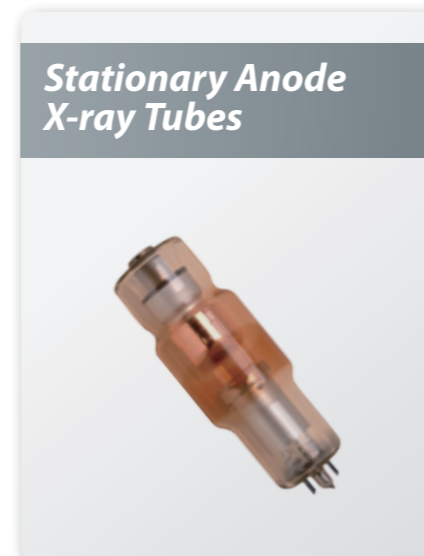
Core Technologies



World's Largest Shipment Volume Products

(An internal investigation 2015)

World's largest shipment volume share based on long life, high reliability, superior cost performance



Environmental Consideration

Our Policy

We are promoting the creation of environmentally friendly products. They are designed to help curb global warming, use resources efficiently and facilitate the management of chemical substances. While being committed to reducing environmental burdens, we offer products that will help reduce the overall life-cycle costs of medical systems. Our focus is on creating products that contribute to society and enhance the total value of our customers' medical systems.

Environmentally Conscious Products Spawned from Core Technologies

Products Certified In-House for Outstanding Environmental Performance

2MHU-CT X-ray Tube

Resource-saving
Reduction in weight by downsizing from previous higher-end models
Development of technology to improve reliability of anode target
Development of technology to improve maintainability of cooler

Chemical substances
Conforms to the revised European RoHS2 Directive (2011/65/EU)

X-ray Flat Panel Detector (Tethered)

Energy-saving
Low-dose imaging using Quadcel, our developed core technology core technology Reduces exposure of patients to radiation and saves energy through the use of a low-power technology

Resource-saving
Compact sizing and product-life extending can be achieved with Quadcel technology

Chemical substances
Conforms to the revised European RoHS2 Directive (2011/65/EU)

X-ray Image Intensifiers

Energy-saving
High sensitivity through technical improvements in the input fluorescent surface and photoelectric surface

Resource-saving
Extended life through technical improvements in the output fluorescent surface

Chemical substances
Conforms to the revised European RoHS2 Directive (2011/65/EU)
First in the world to be free of Cd and Cr (VI)Cd-free output fluorescent surface
Photoelectric surface manufacturing process that does not leave behind any Cr (VI)

Multi-beam Klystron

Energy-saving
Large power efficiency achieved with a low operating voltage

Resource-saving
Extended life through optimization of the cathode loading

Chemical substances
Conformance with European RoHS2 Directive (2011/65/EU) from the prior period of application onwards

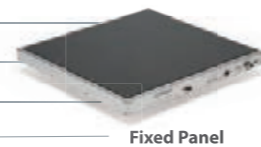
Company Profile

History

Our products, such as Japan's first commercially available X-ray tube in 1915, X-ray Image Intensifiers, Flat Panel Detectors, and electron tubes, have served as components in a wide range of equipment. Building on the reliability and business performance achieved so far, we will continue to pursue stable and continuous growth for the next 100 years.



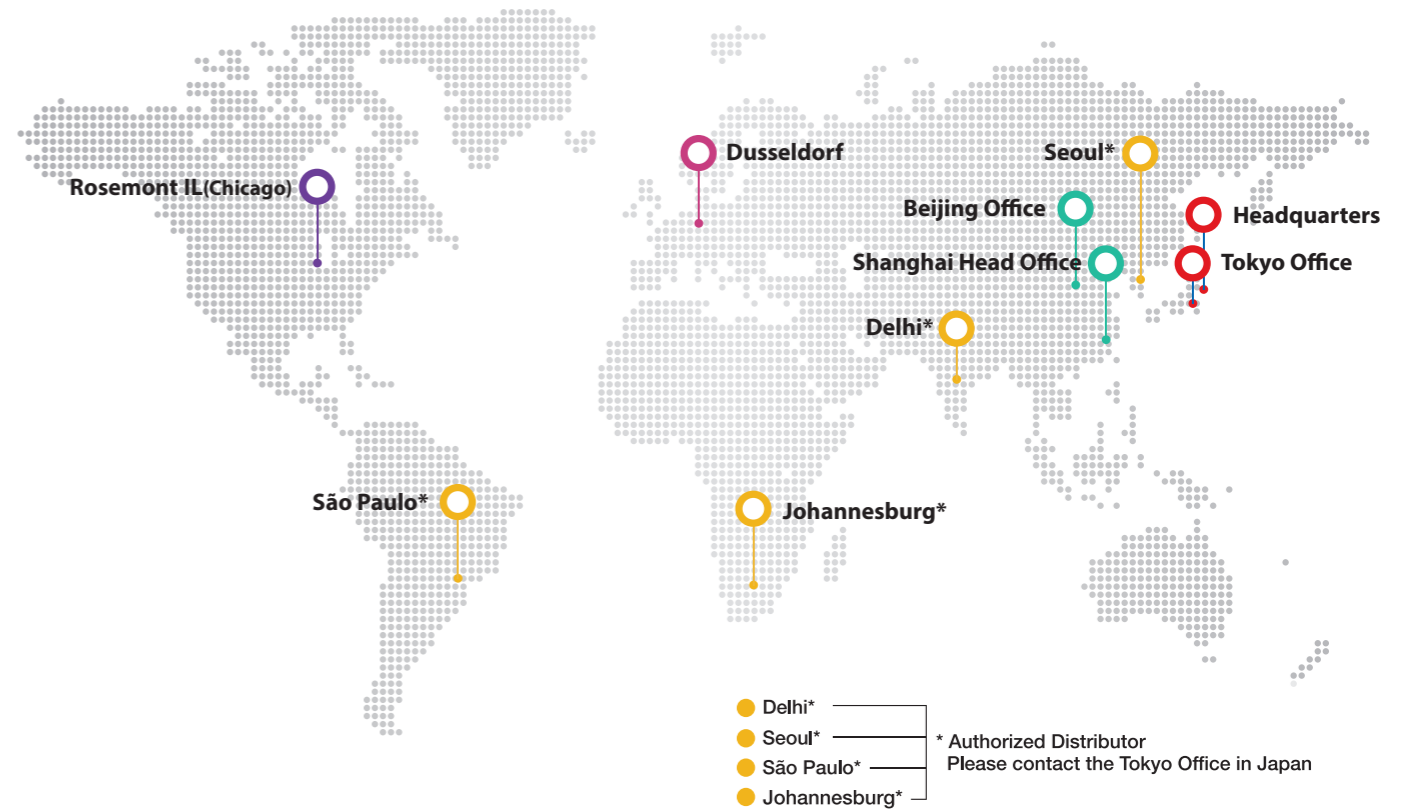
- 1915** :Developed X-ray tube.
- 1954** :Developed X-ray Image Intensifiers (I.I.).
- 1977** :Succeeded in growing CsI crystals with a pillar structure and using them in the input phosphor.
- 1986** :Developed high DQE Super Metal X-ray image intensifier.
- 1990** :Developed high-Gx and high-contrast advanced super-metal I.I. (H-series).
- 1991** :Completely discontinued use of Freon and trichloroethane.
:Achieved production of a total of 200,000 rotating anode X-ray tubes.
- 1992** :Developed 4 inch I.I. for industrial-use soft X-ray (initial full-scale entry into industrial-use equipment market).
- 1994** :Developed 4 MHU CT tube with hydrodynamic pressure bearing (CSRX-7713D-H).
- 1995** :Developed high-DQE and high-contrast I.I. (J-series).
- 1996** :Obtained CE mark certification, BS 7750 certification, and ISO 14001 certification.
:Achieved compliance with the European Medical Devices Directive.
- 1998** :Developed SD series I.I. with high MTF and high image uniformity.
- 2001** :Developed LM cardiac tube.
- 2008** :Developed digital X-ray sensor with CsI and CMOS technology.
:Developed the world's first nano focus soft X-ray tube with a closed structure and thermal field emitter.
- 2009** :Commenced commercial production of 43 cm × 43 cm Flat Panel Detector for radiography (FDX4343R).
- 2012** :Commenced commercial production of 35 cm × 43 cm portable Flat Panel Detector for radiography (FDX3543RP).
- 2013** :Commenced commercial production of 35 cm × 43 cm portable Wireless Flat Panel Detector for radiography (FDX3543RPW).
- 2015** :100th anniversary
- 2016** :Developed 5.7 MHU CT tube with hydrodynamic pressure bearing (CXB-750U).



Essential Historical Materials for Science and Technology (Mirai Technology Heritage) in Japan

- | | | |
|----------|--|--|
| 1 | | 1 GIBA X-ray Tube (Registered in 2010) |
| 2 | | 2 Collector Potential Depression (CPD) type gyrotron (Registered in 2009) |
| 3 | | 3 Klystron E3732 (Registered in 2014) |
| 4 | | 4 Traveling Wave Tube 1W50 (Registered in 2014) |

Company Outline



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etd.canon/

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<https://etd.canon/>

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