X-RAY SOURCE

180 kV MICROFOCUS X-RAY SOURCE L14351-02

FEATURES

- **High output: 90 W Max.**
- **No high voltage cable connection required**
  High voltage power supply is integrated with the main unit
- **External control via RS-232C interface**

APPLICATIONS

- **Dimension measurement**
- **Failure analysis**
- **Quality management**
- **Automatic inspection**

[Applicable objects]

- **Metal component**
- **Battery**
- **Printed circuit board**
- **Electronic component**
- **Plastic component**

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SPECIFICATIONS

GENERAL

Parameter	Description / Value	Unit
X-ray tube voltage setting range	0 to 180	kV
X-ray tube current setting range	0 to 500	μA
X-ray tube voltage operational range ①	40 to 180	kV
X-ray tube current operational range ①	10 to 500	μA
Maximum output	90	W
X-ray focal spot size (Nominal Value) ②	200 (20 at 4 W)	μm
X-ray output window material / Thickness	Beryllium / 0.5	mm
X-ray beam angle ③	Approx. 62	degree
Focus to object distance (FOD)	Approx. 19.8	mm
Target material	Tungsten	—
Weight ④	Approx. 38	kg
Communication method	Interface: RS-232C (9-pin D-sub connector)	—

RATINGS

Parameter	Description / Value	Unit
Input voltage (DC)	+48 (+2.4, -2.4)	V
Power consumption	Less than 240	W
Rated output	Continuous rating	—
Operating ambient temperature	+10 to +40	°C
Storage ambient temperature	0 to +50	°C
Operating and storage ambient humidity	20 to 85 (No condensation)	%

REGULATION AND STANDARD

Parameter	Description		Unit
RoHS directive	EN 50581 Category 9		—
EMC	IEC/EN 61326-1	Emission limits: CISPR 11 Group 1 Class A Immunity requirements: Table 2	—

CONTROL SOFTWARE ⑤

Parameter	Description	Unit
Applicable PC	PC / AT compatible	—
Applicable OS	Windows® 8.1, 10	—
Interface	RS-232C interface	—

NOTE: ①See the graph of the "X-ray tube voltage / current operation range".
②This focal spot size changes depending on the output.
③Reference value: With 50 % of maximum X-ray emission.
④This weight includes the accessories of approx. 0.3 kg.
⑤The control software is provided as a sample software for the purpose of MFX operation.
The performance of the software is not guaranteed.

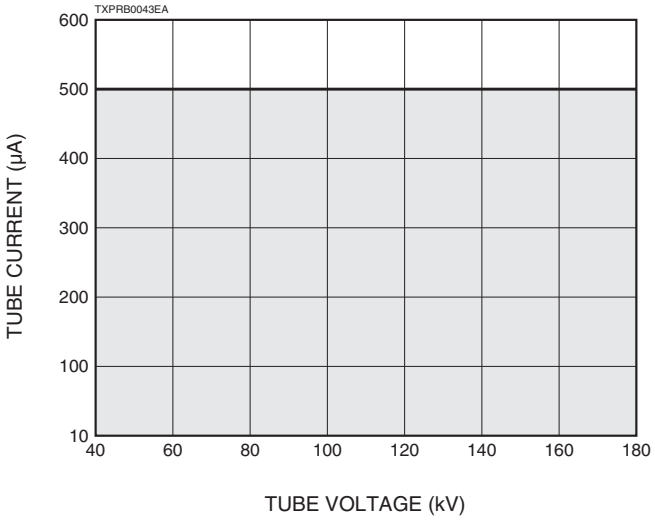
⚠ PRECAUTIONS TO USE

- This microfocus X-ray source generates X-rays harmful to the human body. Use sufficient caution when handling the equipment to avoid direct or inadvertent exposure to X-rays.
- Install the X-ray source or the X-ray tube unit in an X-ray shielded cabinet or room equipped with safety interlock functions to prevent accidental exposure to X-rays.

OPERATIONAL CAUTION

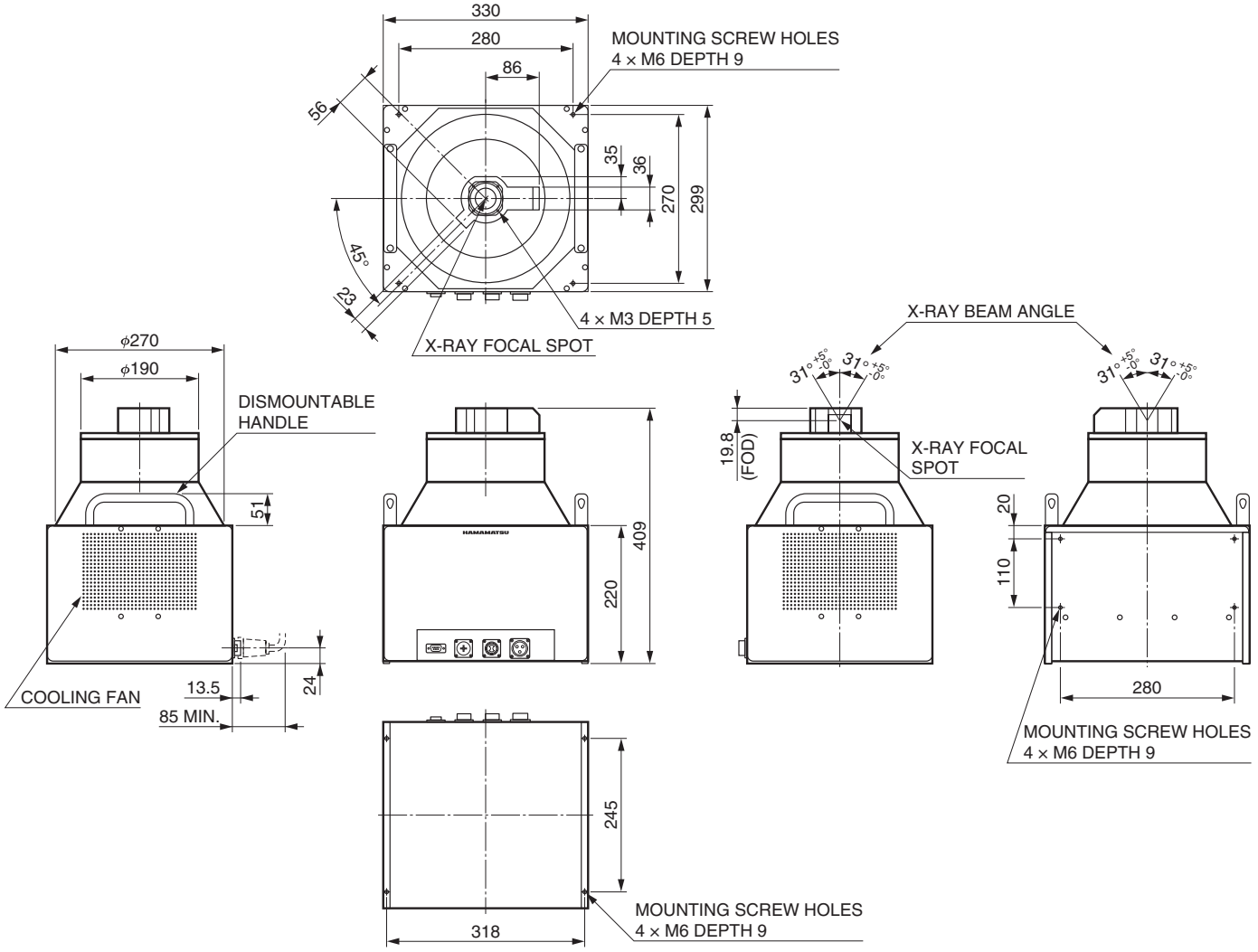
- This microfocus X-ray source generates X-rays and must therefore be used only under the supervision of qualified personnel.
- This microfocus X-ray source shall be used in compliance with health and safety regulations enforced in order to prevent health hazards problems due to ionizing radiation.

X-RAY TUBE VOLTAGE / CURRENT OPERATION RANGE



* The X-ray tube voltage guaranteed range is 40 kV to 180 kV.
* Operation is not guaranteed when the tube current is below 10 μA.

DIMENSIONAL OUTLINE (Unit: mm)



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RELATED PRODUCTS

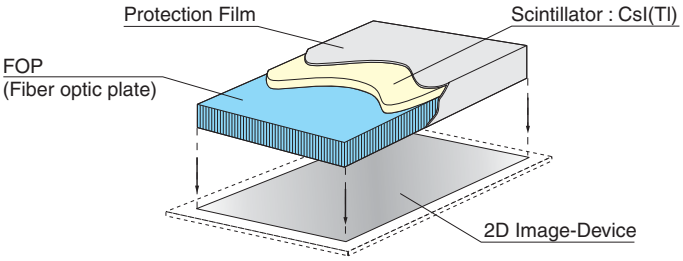
X-RAY IMAGE INTENSIFIER DIGITAL CAMERA UNIT C7336-06/-07

Camera units C7336-06/-07 consist of a high resolution, high contrast 4-inch X-ray image intensifier (X-ray I.I.) and a 2.35 mega-pixel or 3 mega-pixel CMOS image sensor respectively.
The X-ray I.I. has an input window made of thin aluminum which is excellent in X-ray transmission and causes less scattering of X-rays. These features allow real-time detection at X-ray energy levels from about 20 keV.
The captured images can be transferred to PC directly by interface of Mini Camera-Link or USB3.0.

FOS (Fiber optic plate coated with X-ray scintillator)

The FOS is an optical device for X-ray imaging, fabricated by coating an X-ray scintillator material over a fiber optic plate consisting of more than tens of million glass fibers each a few micrometers in diameter. The FOS provides higher sensitivity and resolution than currently used sensitized paper films and also allows real-time digital radiography when directly coupled to a commercially available CCD. The fiber optic plate used in the FOS has excellent X-ray absorption characteristics, so that X-rays penetrating the X-ray scintillator and directly entering the CCD are minimized to less than 1 %. This protects the CCD from the deterioration and increased noise caused by X-ray irradiation, assuring a long service life and maintaining high image quality.
Various sizes and shapes of FOS are available to meet your particular needs, including tapered FOP types.

■Structure



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X-RAY SOURCE

150 kV MICROFOCUS X-RAY SOURCE

L12161-07

FEATURES

●Focal spot size: 5 µm (at 4 W)
The focal spot of 5 µm of the sealed type X-ray tube offers sharp and clear X-ray images even at a high magnification.

●High power: Maximum output 75 W

●External control via RS-232C interface

●High speed ramping-up
Ramping-up speeded up to 3 times faster than conventional 150 kV microfocus X-ray source.

●No high voltage cable connection required
High voltage power supply is integrated.

APPLICATIONS

●Non-destructive inspection

●X-ray CT

[Applicable objects]

- **Semiconductor device**
- **Electronic component**
- **Printed circuit board**
- **Ceramic**
- **Plastic component**
- **Die casting**
- **Metal component**

SPECIFICATIONS

GENERAL

Parameter		Description / Value	Unit
X-ray tube voltage setting range		0 to 150	kV
X-ray tube current setting range		0 to 500	μA
X-ray tube voltage operational range ①		40 to 150	kV
X-ray tube current operational range ①		10 to 500	μA
Maximum output	Small focus mode	10	W
	Middle focus mode	30	
	Large focus mode	75	
X-ray focal spot size (Nominal value)	Small focus mode	7 (5 μm at 4 W)	μm
	Middle focus mode	20	
	Large focus mode	50	
X-ray beam angle ②		Approx. 43	degree
Focus to object distance (FOD)		Approx. 17	mm
Rated output		Continuous rating	—
Communication method		Interface: RS-232C (9-pin D-sub connector)	—

X-RAY TUBE UNIT

Parameter	Description / Value	Unit
X-ray output window material / Thickness	Beryllium / 0.2	mm
Target naterial	Tungsten	—
Operating ambient temperature	+10 to +40	°C
Storage ambient temperature	0 to +50	°C
Operating and storage humidity	20 to 85 (No condensation)	%
Weight	Approx. 13.5	kg

X-RAY CONTROL UNIT

Parameter	Description / Value	Unit
Input voltage (AC)	Single phase 100 to 240 (50 Hz / 60 Hz)	V
Power consumption	Less than 220	W
Operating ambient temperature	+10 to +40	°C
Storage ambient temperature	0 to +50	°C
Operating and storage humidity	20 to 85 (No condensation)	%
Weight ③	Approx. 6	kg

REGULATION AND STANDARDS

Parameter	Description		Unit
RoHS directive	EN 50581 Category 9		—
EMC	IEC/EN 61326-1	Emission limits: CISPR 11 Group 1 Class A Immunity requirements: Table 2	—
Safety	IEC/EN 61010-1		—

CONTROL SOFTWARE ④

Parameter	Description	Unit
Applicable PC	PC / AT compatible	—
Applicable OS	Windows® 8.1, 10	—
Interface	RS-232C interface	—

NOTE: ①See the graph of the X-ray tube voltage / current operation range.
②Reference value: With 50 % of maximum X-ray emission.
③This weight includes the accessories of approx. 1.5 kg.
④The control software is provided as a sample software for the purpose of MFX operation.
The performance of the software is not guaranteed.

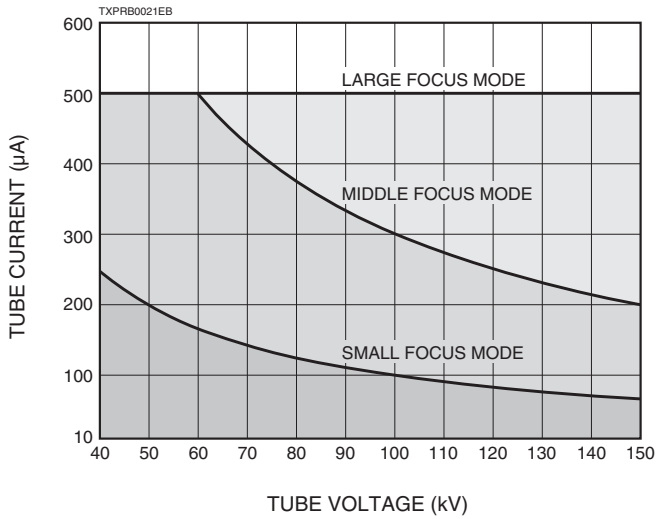
⚠ PRECAUTIONS TO USE

· This microfocus X-ray source generates X-rays harmful to the human body. Use sufficient caution when handling the equipment to avoid direct or inadvertent exposure to X-rays.
Install the X-ray source or the X-ray tube unit in an X-ray shielded cabinet or room equipped with safety interlock functions to prevent accidental exposure to X-rays.

OPERATIONAL CAUTION

· This microfocus X-ray source generates X-rays and must therefore be used only under the supervision of qualified personnel.
· This microfocus X-ray source shall be used in compliance with health and safety regulations enforced in order to prevent health hazards problems due to ionizing radiation.

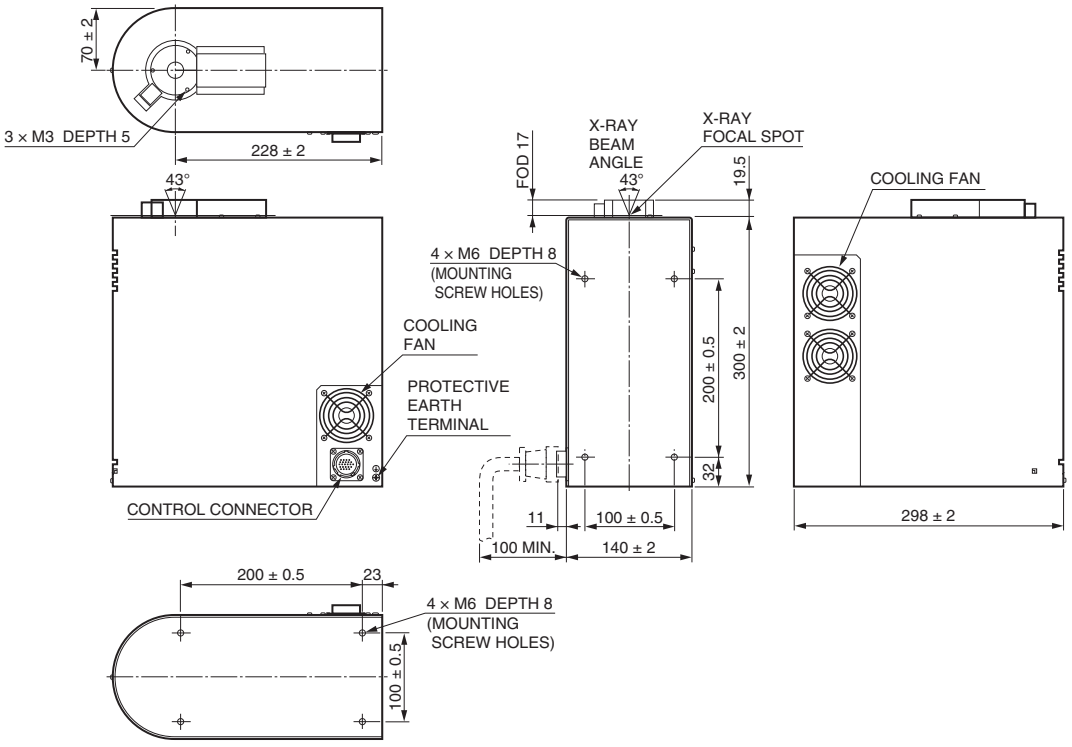
X-RAY TUBE VOLTAGE / CURRENT OPERATION RANGE



* The X-ray tube voltage guaranteed range is 40 kV to 150 kV.
* Operation is not guaranteed when the tube current is below 10 μA.

DIMENSIONAL OUTLINES (Unit: mm)

X-RAY TUBE UNIT L8122-01



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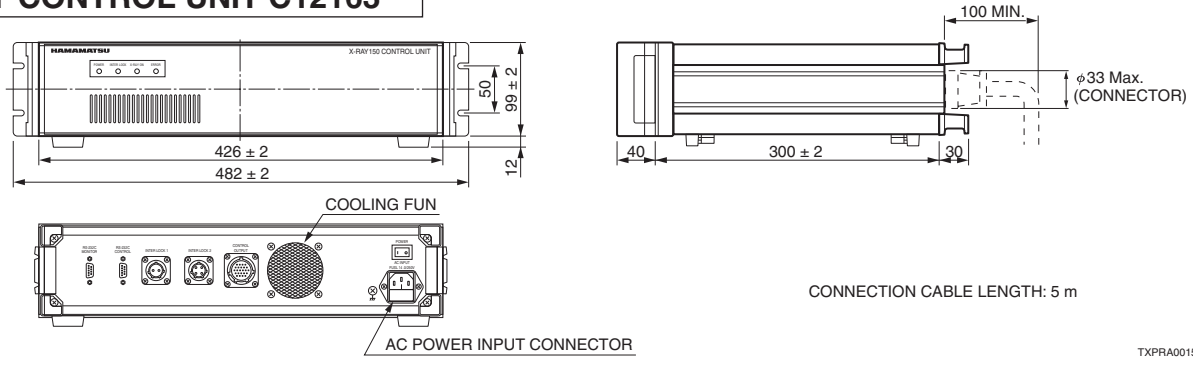
X-RAY CONTROL UNIT C12163



CONNECTION CABLE LENGTH: 5 m

TXPRA0015EA

RELATED PRODUCTS

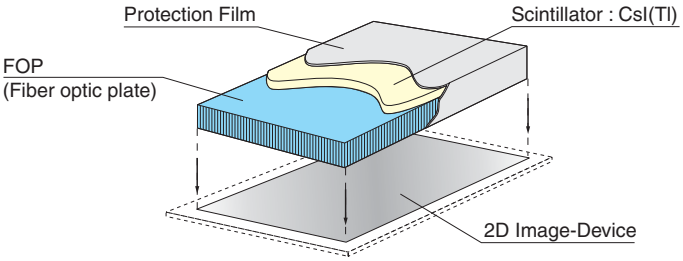
X-RAY IMAGE INTENSIFIER DIGITAL CAMERA UNIT C7336-06/-07

Camera units C7336-06/-07 consist of a high resolution, high contrast 4-inch X-ray image intensifier (X-ray I.I.) and a 2.35 mega-pixel or 3 mega-pixel CMOS image sensor respectively.
The X-ray I.I. has an input window made of thin aluminum which is excellent in X-ray transmission and causes less scattering of X-rays. These features allow real-time detection at X-ray energy levels from about 20 keV.
The captured images can be transferred to PC directly by interface of Mini Camera-Link or USB3.0.

FOS (Fiber optic plate coated with X-ray scintillator)

The FOS is an optical device for X-ray imaging, fabricated by coating an X-ray scintillator material over a fiber optic plate consisting of more than tens of million glass fibers each a few micrometers in diameter. The FOS provides higher sensitivity and resolution than currently used sensitized paper films and also allows real-time digital radiography when directly coupled to a commercially available CCD. The fiber optic plate used in the FOS has excellent X-ray absorption characteristics, so that X-rays penetrating the X-ray scintillator and directly entering the CCD are minimized to less than 1 %. This protects the CCD from the deterioration and increased noise caused by X-ray irradiation, assuring a long service life and maintaining high image quality.
Various sizes and shapes of FOS are available to meet your particular needs, including tapered FOP types.

■Structure



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X-RAY SOURCE

130 kV MICROFOCUS X-RAY SOURCE L9181-02

FEATURES

●Focal spot size: 5 μm (at 4 W)
The focal spot of 5 μm of the sealed type X-ray tube offers sharp and clear X-ray images even at a high magnification.

●No high voltage cable connection required
High voltage power supply is integrated.

●External control via RS-232C interface

●High power: Maximum output 39 W

APPLICATIONS

●Non-destructive inspection

●X-ray CT

[Applicable objects]
- Electronic component
- Printed circuit board
- Plastic component
- Metal component

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SPECIFICATIONS

GENERAL

Parameter		Description / Value	Unit
X-ray tube voltage setting range		0 to 130	kV
X-ray tube current setting range		0 to 300	μA
X-ray tube voltage operational range ①		40 to 130	kV
X-ray tube current operational range ①		10 to 300	μA
Maximum output	Small focus mode	8	W
	Middle focus mode	16	
	Large focus mode	39	
X-ray focal spot size (Nominal value)	Small focus mode	8 (5 μm at 4 W)	μm
	Middle focus mode	20	
	Large focus mode	40	
X-ray output window material / Thickness		Beryllium/0.2	mm
X-ray beam angle ②		Approx. 45	degree
Focus to object distance (FOD)		Approx. 13	mm
Terget material		Tungsten	—
Weight ③		Approx. 10.5	kg
Communication method		Interface: RS-232C (9-pin D-sub connector)	—

RATINGS

Parameter	Description / Value	Unit
Input voltage (DC)	+24 (+2.4, -0)	V
Power consumption	Less than 120	W
Read output	Continuous rating	—
Operating ambient temperature	+10 to +40	°C
Storage ambient temperature	0 to +50	°C
Operating and storage humidity	20 to 85 (No condensation)	%

REGULATION AND STANDARD

Parameter	Description		Unit
RoHS Directive	EN 50581 Category 9		—
EMC	IEC/EN 61326-1	Emission limits: CISPR 11 Group 1 Class A Immunity requirements: Table 2	—

CONTROL SOFTWARE ④

Parameter	Description	Unit
Applicable PC	PC / AT compatible	—
Applicable OS	Windows® XP, 7	—
Interface	RS-232C interface	—

NOTE: ①See the graph of the X-ray tube voltage / current operation range.
②Reference value: With 50 % of maximum X-ray emission.
③This weight includes the accessories of approx. 0.25 kg.
④The control software is provided as a sample software for the purpose of MFX operation.
The performance of the software is not guaranteed.

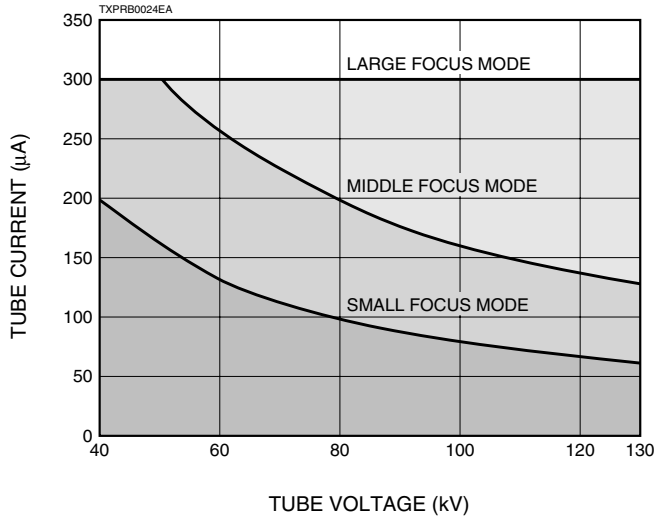
⚠ PRECAUTIONS TO USE

· This microfocus X-ray source generates X-rays harmful to the human body. Use sufficient caution when handling the equipment to avoid direct or inadvertent exposure to X-rays.
Install the X-ray source or the X-ray tube unit in an X-ray shielded cabinet or room equipped with safety interlock functions to prevent accidental exposure to X-rays.

OPERATIONAL CAUTION

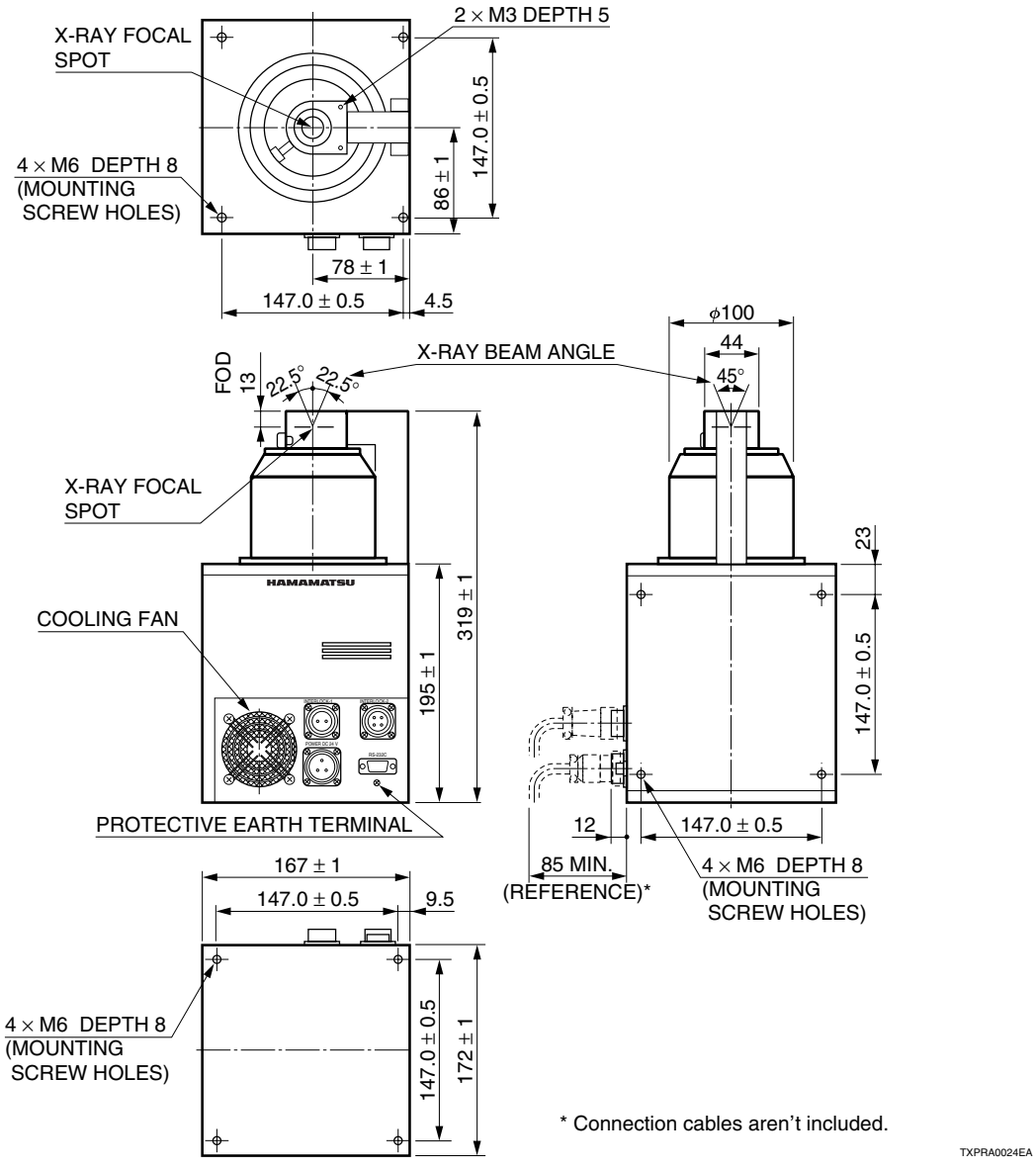
· This microfocus X-ray source generates X-rays and must therefore be used only under the supervision of qualified personnel.
· This microfocus X-ray source shall be used in compliance with health and safety regulations enforced in order to prevent health hazards problems due to ionizing radiation.

X-RAY TUBE VOLTAGE / CURRENT OPERATION RANGE



* The X-ray tube voltage guaranteed range is 40 kV to 130 kV.
* Operation is not guaranteed when the tube current is below 10 μA.

DIMENSIONAL OUTLINE (Unit: mm)



* Connection cables aren't included.

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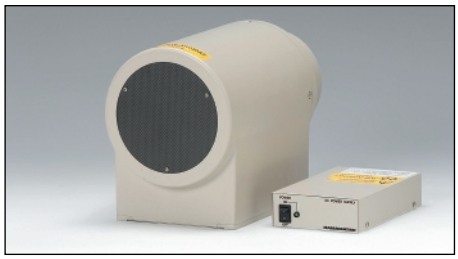
RELATED PRODUCTS

X-RAY IMAGE INTENSIFIER DIGITAL CAMERA UNIT C7336-05/-52

The C7336 series consist of a high resolution, high contrast 4-inch X-ray image intensifier (X-ray I.I.) and a 2.8 megapixel CMOS image sensor.
The X-ray I.I. used has a fixed field-of-view of 100 mm diameter or a 4 inches/2 inches adjustable field-of-view and an input window made of thin aluminum which is excellent in X-ray transmission and causes less scattering of X-rays. These features allow real-time detection at X-ray energy levels from about 20 keV.
The captured images can be transferred to PC directly by interface of IEEE1394b.



X-CUBE™ (COMPACT X-RAY CCD CAMERA) H8480, H8481, H8953

X-CUBEs are compact X-ray CCD camera designed for non-destructive inspection, which make X-ray imaging as easy as an ordinary CCD camera in handling. The H8480 and H8953 use a 2/3 type CCD coupled to large-diameter tapered FOPs which are coated with CsI. The H8481 uses a straight type FOP instead of the large FOP, achieving a high resolution of 20 Lp/mm.

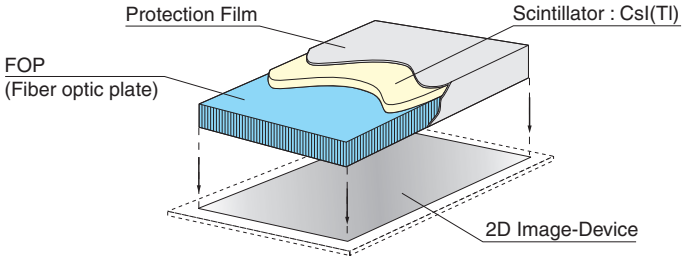
TXPRF0020

Left: H8480 Center: H8953 Right: H8481

FOS (Fiber optic plate coated with X-ray scintillator)

The FOS is an optical device for X-ray imaging, fabricated by coating an X-ray scintillator material over a fiber optic plate consisting of more than tens of million glass fibers each a few micrometers in diameter. The FOS provides higher sensitivity and resolution than currently used sensitized paper films and also allows real-time digital radiography when directly coupled to a commercially available CCD. The fiber optic plate used in the FOS has excellent X-ray absorption characteristics, so that X-rays penetrating the X-ray scintillator and directly entering the CCD are minimized to less than 1 %. This protects the CCD from the deterioration and increased noise caused by X-ray irradiation, assuring a long service life and maintaining high image quality.
Various sizes and shapes of FOS are available to meet your particular needs, including tapered FOP types.

■Structure



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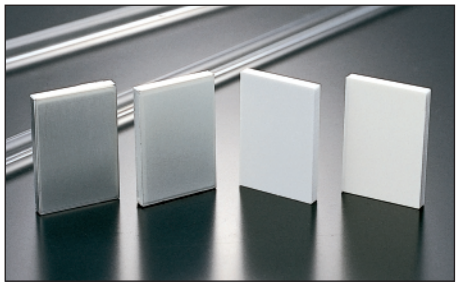

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X-RAY SOURCE

110 kV MICROFOCUS X-RAY SOURCE L10951

FEATURES

- **High power: Maximum output 50 W**
- **High stability**
- **External control via RS-232C interface**
- **No high voltage cable connection required**
  High voltage power supply is integrated.

APPLICATIONS

- **In-line X-ray inspection**
- **Non-destructiveinspection**
- **X-ray CT**

[Applicable objects]

- **Electronic component**
- **Printed circuit board**
- **Plastic component**
- **Metal component**
- **Food**
- **Beverage**
- **Medicine & drug**
- **Bioproduct**
- **Small animal, insect**

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SPECIFICATIONS

GENERAL

Parameter	Description / Value	Unit
X-ray tube voltage setting range	0 to 110	kV
X-ray tube current setting range	0 to 800	μA
X-ray tube voltage operational range ①	40 to 110	kV
X-ray tube current operational range ①	10 to 800	μA
Maximum output	50	W
X-ray focal spot size (Nominal value) ②	15 to 80	μm
X-ray beam angle ③	Approx. 62	degree
Focus to object distance (FOD)	Approx. 16.8	mm
Rated output	Continuous rating	—
Communication method	Interface: RS-232C (9-pin D-sub connector)	—

X-RAY TUBE UNIT

Parameter	Description / Value	Unit
X-ray output window material / Thickness	Beryllium / 0.5	mm
Target material	Tungsten	—
Operating ambient temperature	+10 to +40	°C
Storage ambient temperature	0 to +50	°C
Operating and storage humidity	20 to 85 (No condensation)	%
Weight	Approx. 8.5	kg

X-RAY CONTROL UNIT

Parameter	Description	Unit
Input voltage (DC)	+24 (+2.4, -0)	V
Power consumption	Less than 120	W
Operating ambient temperature	+10 to +40	°C
Storage ambient temperature	0 to +50	°C
Operating and storage humidity	20 to 85 (No condensation)	%
Weight ④	Approx. 5.5	kg

REGULATION AND STANDARD

Parameter	Description		Unit
RoHS directive	EN 50581 Category 9		—
EMC	IEC/EN 61326-1	Emission limits: CISPR 11 Group 1 Class A Immunity requirements: Table 2	—

CONTROL SOFTWARE ⑤

Parameter	Description	Unit
Applicable PC	PC / AT compatible	—
Applicable OS	Windows® XP, 7	—
Interface	RS-232C interface	—

NOTE: ①See the graph of the X-ray tube Voltage / Current operation range.
②This focal spot size changes depending on the output.
③Reference value: With 50 % of maximum X-ray emission.
④This weight includes the accessories of approx. 2 kg.
⑤The control software is provided as a sample software for the purpose of MFX operation.
The performance of the software is not guaranteed.

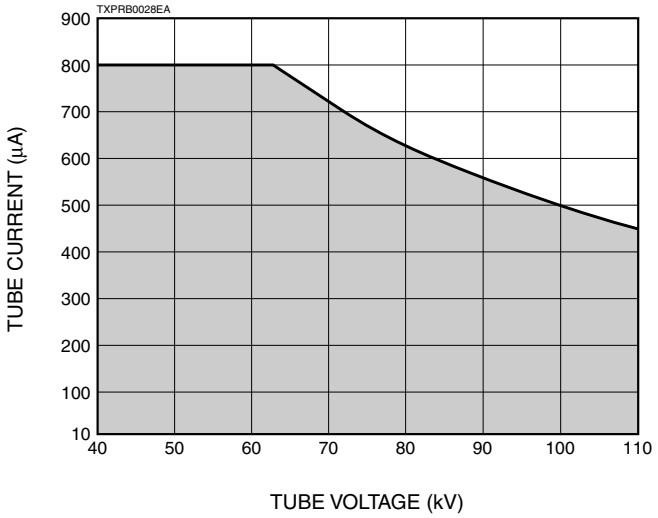
⚠ PRECAUTIONS TO USE

· This microfocus X-ray source generates X-rays harmful to the human body. Use sufficient caution when handling the equipment to avoid direct or inadvertent exposure to X-rays.
Install the X-ray source or the X-ray tube unit in an X-ray shielded cabinet or room equipped with safety interlock functions to prevent accidental exposure to X-rays.

OPERATIONAL CAUTION

· This microfocus X-ray source generates X-rays and must therefore be used only under the supervision of qualified personnel.
· This microfocus X-ray source shall be used in compliance with health and safety regulations enforced in order to prevent health hazards problems due to ionizing radiation.

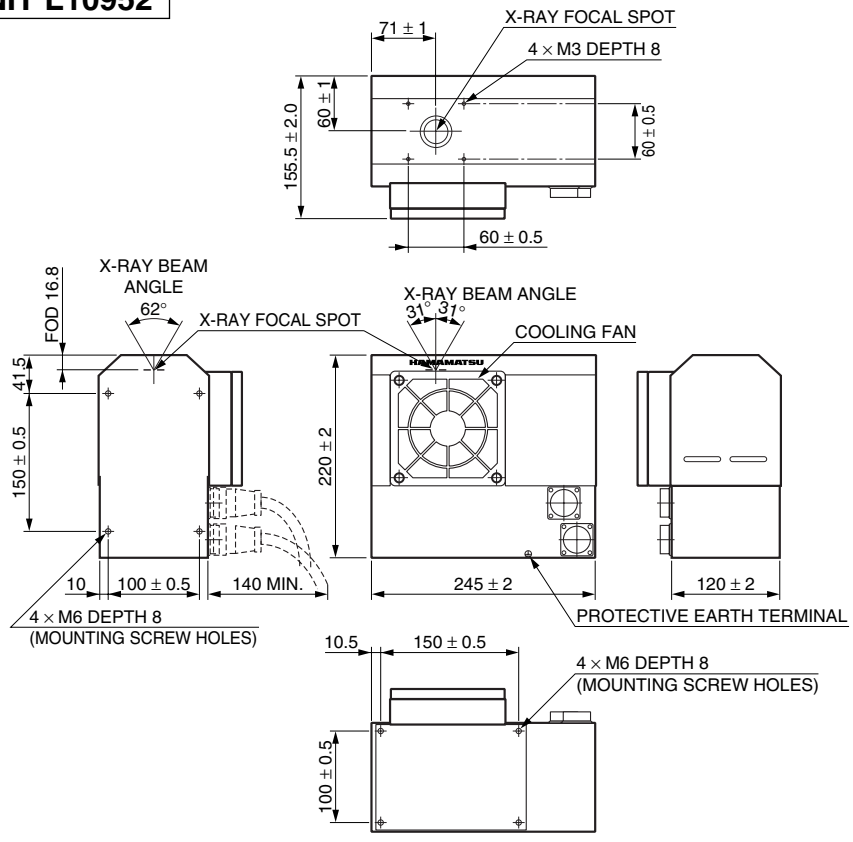
X-RAY TUBE VOLTAGE / CURRENT OPERATION RANGE



* The X-ray tube voltage guaranteed range is 40 kV to 110 kV.
* Operation is not guaranteed when the tube current is below 10 μA.

DIMENSIONAL OUTLINE (Unit: mm)

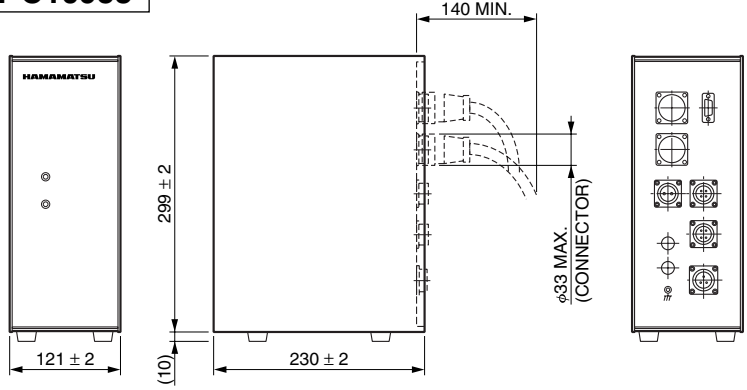
X-RAY TUBE UNIT L10952



CONNECTION CABLE LENGTH: 5 m

TXPRA0003EB

X-RAY CONTROL UNIT C10953

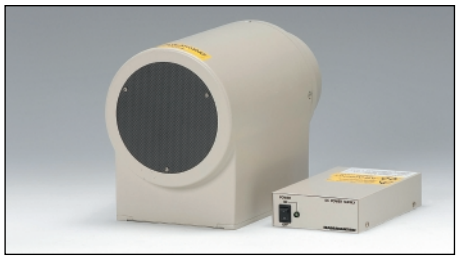


TXPRA0004EA

RELATED PRODUCTS

X-RAY IMAGE INTENSIFIER DIGITAL CAMERA UNIT C7336-05/-52

The C7336 series consist of a high resolution, high contrast 4-inch X-ray image intensifier (X-ray I.I.) and a 2.8 megapixel CMOS image sensor.
The X-ray I.I. used has a fixed field-of-view of 100 mm diameter or a 4 inches/2 inches adjustable field-of-view and an input window made of thin aluminum which is excellent in X-ray transmission and causes less scattering of X-rays. These features allow real-time detection at X-ray energy levels from about 20 keV.
The captured images can be transferred to PC directly by interface of IEEE1394b.



X-CUBE™ (COMPACT X-RAY CCD CAMERA) H8480, H8481, H8953

X-CUBEs are compact X-ray CCD camera designed for non-destructive inspection, which make X-ray imaging as easy as an ordinary CCD camera in handling. The H8480 and H8953 use a 2/3 type CCD coupled to large-diameter tapered FOPs which are coated with CsI. The H8481 uses a straight type FOP instead of the large FOP, achieving a high resolution of 20 Lp/mm.

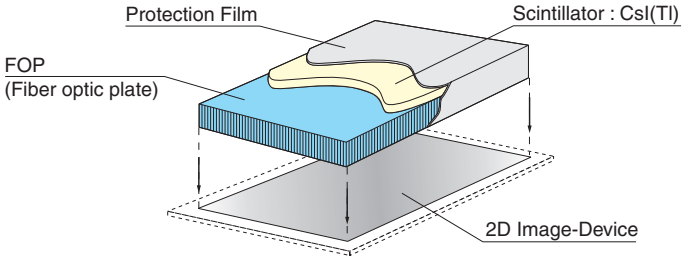
TXPRF0020

Left: H8480 Center: H8953 Right: H8481

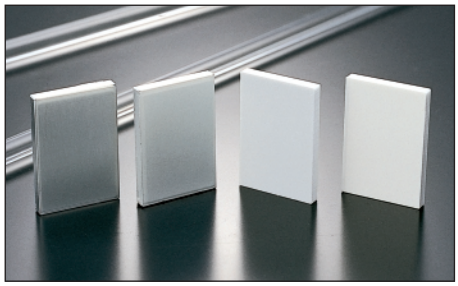
FOS (Fiber optic plate coated with X-ray scintillator)

The FOS is an optical device for X-ray imaging, fabricated by coating an X-ray scintillator material over a fiber optic plate consisting of more than tens of million glass fibers each a few micrometers in diameter. The FOS provides higher sensitivity and resolution than currently used sensitized paper films and also allows real-time digital radiography when directly coupled to a commercially available CCD. The fiber optic plate used in the FOS has excellent X-ray absorption characteristics, so that X-rays penetrating the X-ray scintillator and directly entering the CCD are minimized to less than 1 %. This protects the CCD from the deterioration and increased noise caused by X-ray irradiation, assuring a long service life and maintaining high image quality.
Various sizes and shapes of FOS are available to meet your particular needs, including tapered FOP types.

■Structure



TMCPF0072



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X-RAY SOURCE

100 kV MICROFOCUS X-RAY SOURCE L10101

TLSOF0185

FEATURES

●Short FOD (Focus to Object Distance): 6.8 mm
X-ray image with higher magnification ratio

●High power: Maximum output 20 W

●Focal spot size: 5 μm (at 4 W)
The focal spot of 5 μm of the sealed type X-ray tube offers sharp and clear X-ray images even at a high magnification.

●No high voltage cable connection required
High voltage power supply is integrated.

APPLICATIONS

●Non-destructive inspection

●X-ray CT

[Applicable objects]

- **Electronic component**
- **Printed circuit board**
- **Plastic component**
- **Metal component**

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SPECIFICATIONS

GENERAL

Parameter	Description / Value	Unit
X-ray tube voltage setting range	0 to 100	kV
X-ray tube current setting range	0 to 200	μA
X-ray tube voltage operational range ①	40 to 100	kV
X-ray tube current operational range ①	10 to 200	μA
Maximum output	20	W
X-ray focal spot size (Nominal value) ②	5 to 30	μm
X-ray output window material / Thickness	Beryllium/0.15	mm
X-ray beam angle ③	Approx. 42	degree
Focus to object distance (FOD)	Approx. 6.8	mm
Target material	Tungsten	—
Weight ④	Approx. 9.5	kg
Communication method	Interface: RS-232C (9-pin D-sub connector)	—

RATINGS

Parameter	Description / Value	Unit
Input voltage (DC)	+24 (+2.4, -0)	V
Power consumption	Less than 120	W
Rated output	Continuous rating	—
Operating ambient temperature	+10 to +40	°C
Storage ambient temperature	0 to +50	°C
Operating and storage humidity	20 to 85 (No condensation)	%

REGULATION AND STANDARD

Parameter	Description		Unit
RoHS directive	EN 50581 Category 9		—
EMC	IEC/EN 61326-1	Emission limits: CISPR 11 Group 1 Class A Immunity requirements: Table 2	—

CONTROL SOFTWARE ⑤

Parameter	Description	Unit
Applicable PC	PC / AT compatible	—
Applicable OS	Windows® XP, 7	—
Interface	RS-232C interface	—

NOTE: ①See the graph of the X-ray tube Voltage / Current operation range.
②This focal spot size changes depending on the output.
③Reference value: With 50 % of maximum X-ray emission.
④This weight includes the accessories of approx. 0.25 kg.
⑤The control software is provided as a sample software for the purpose of MFX operation.
The performance of the software is not guaranteed.

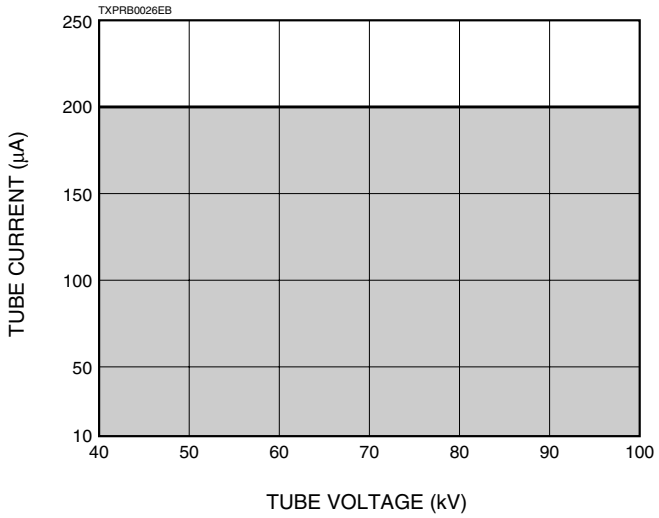
⚠ PRECAUTIONS TO USE

· This microfocus X-ray source generates X-rays harmful to the human body. Use sufficient caution when handling the equipment to avoid direct or inadvertent exposure to X-rays.
Install the X-ray source or the X-ray tube unit in an X-ray shielded cabinet or room equipped with safety interlock functions to prevent accidental exposure to X-rays.

OPERATIONAL CAUTION

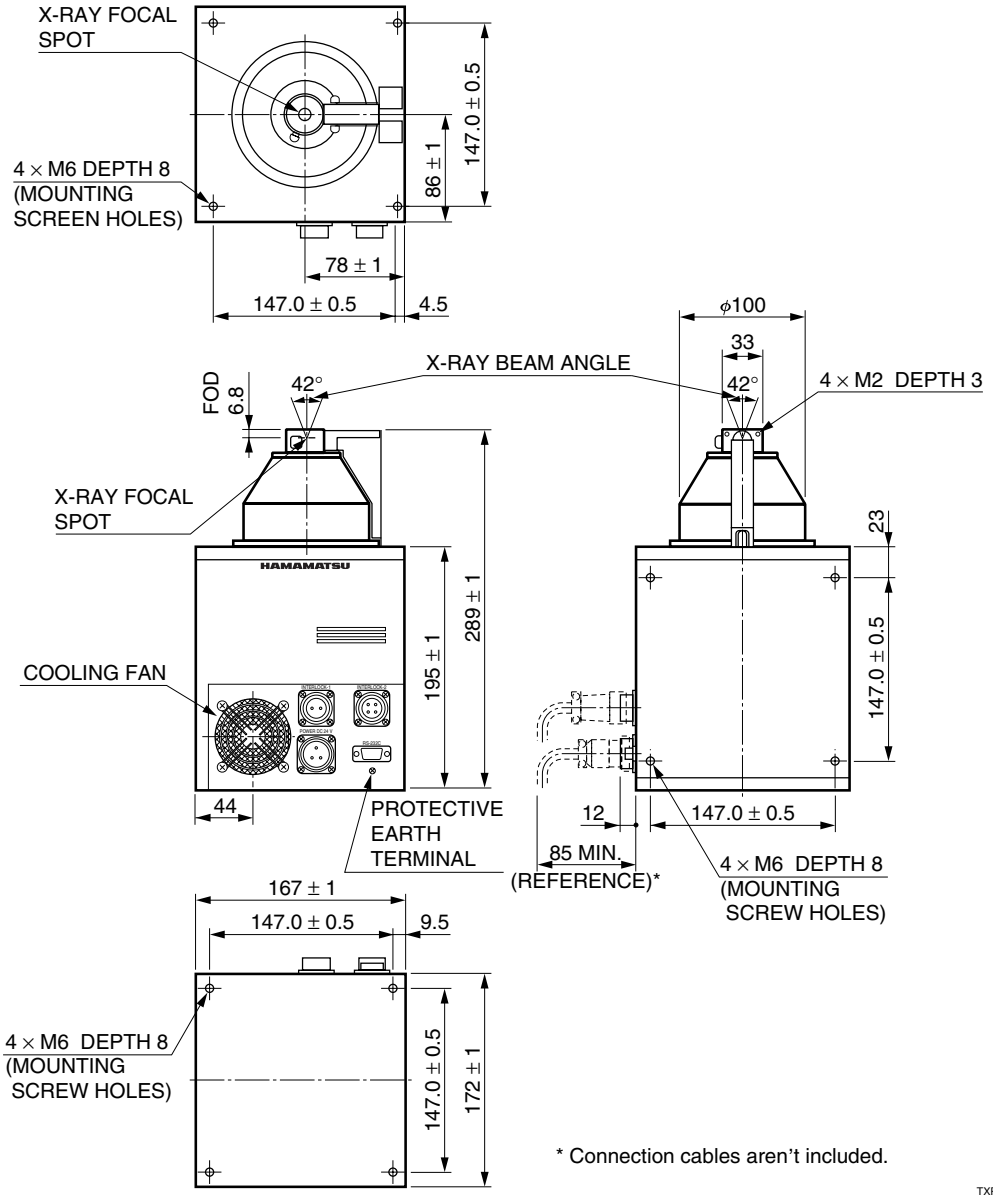
· This microfocus X-ray source generates X-rays and must therefore be used only under the supervision of qualified personnel.
· This microfocus X-ray source shall be used in compliance with health and safety regulations enforced in order to prevent health hazards problems due to ionizing radiation.

X-RAY TUBE VOLTAGE / CURRENT OPERATION RANGE



* The X-ray tube voltage guaranteed range is 40 kV to 100 kV.
* Operation is not guaranteed when the tube current is below 10 μA.

DIMENSIONAL OUTLINE (Unit: mm)



* Connection cables aren't included.

TXPRA0026EA

RELATED PRODUCTS

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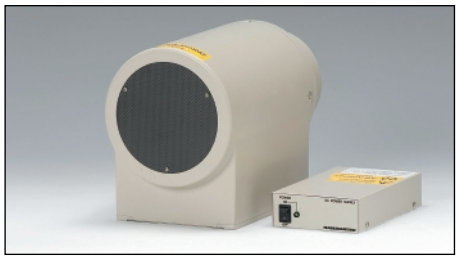

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TXPRF0020

Left: H8480 Center: H8953 Right: H8481

FOS (Fiber optic plate coated with X-ray scintillator)

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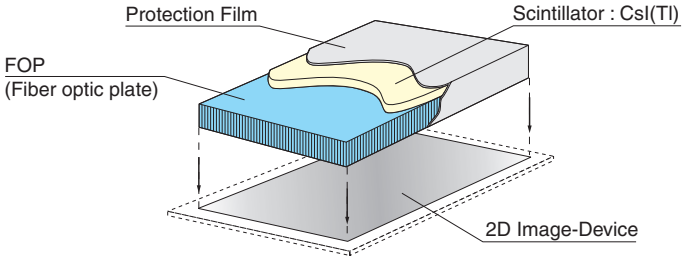
Various sizes and shapes of FOS are available to meet your particular needs, including tapered FOP types.

■Structure



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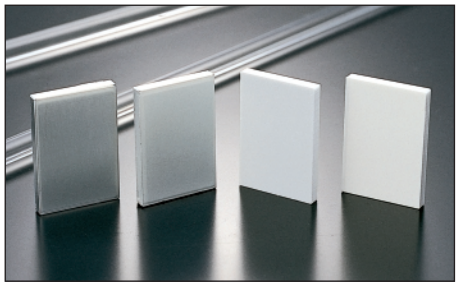

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X-RAY SOURCE

300 kV OPEN TYPE MICROFOCUS X-RAY SOURCE L12721

FEATURES

- High power: 300 kV
- No high voltage cable connection required
- Easy to replace cathode
- Easy operation
- High stability

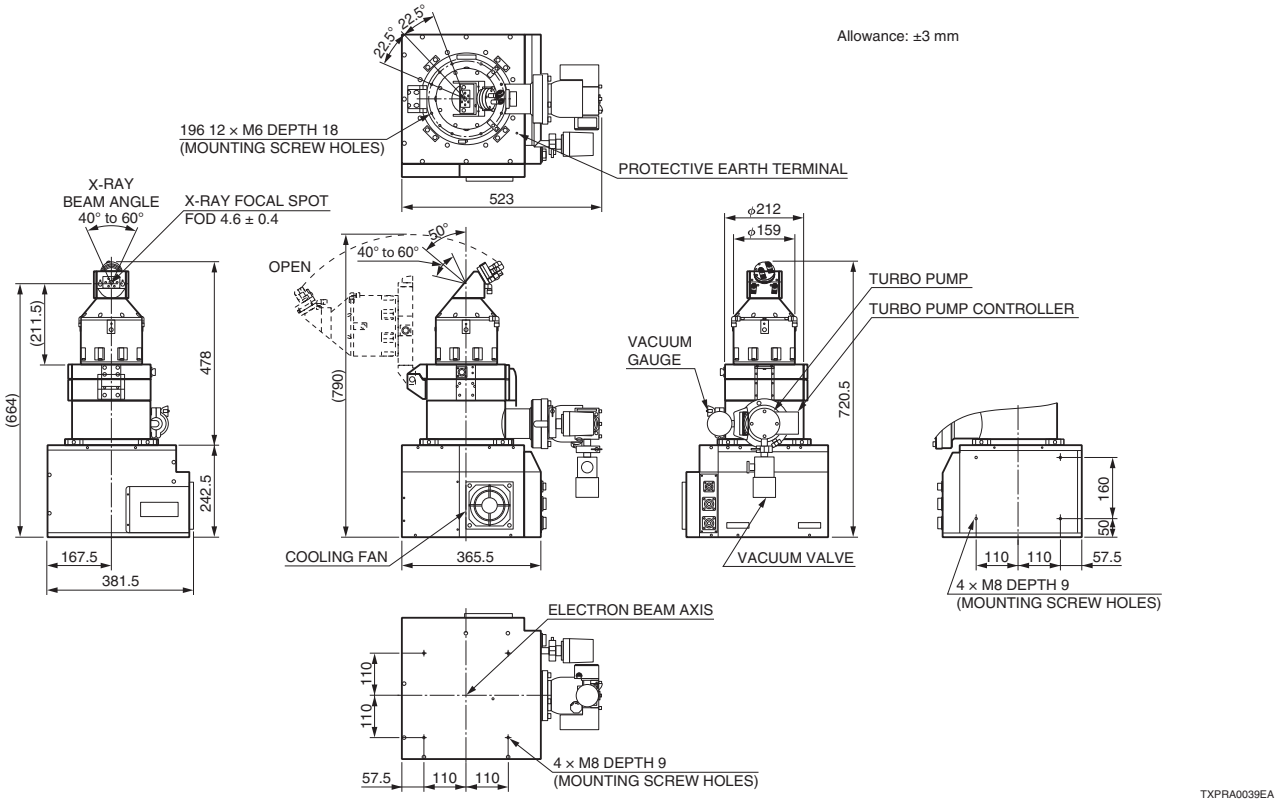
SPECIFICATIONS

Parameter		Description / Value
Maximum tube voltage ①		308 kV
X-ray tube voltage setting range		20 kV to 300 kV
X-ray tube current setting range	at 20 kV to 230 kV	0 μA to 1000 μA
	at 231 kV to 300 kV	0 μA to 500 μA
Cathode material		Tungsten
Minimum resolution		4 μm ②
Maximum target power		Approx. 200 W
Target type		Reflection type
X-ray beam angle		40 degrees to 60 degrees
Target material		Tungsten
X-ray output window material / Thickness		Aluminum / 0.5 mm
Focus to object distance (FOD)		4.6 mm ± 0.4 mm
Protection Interlock 1 / Interlock 2		External short-circuit method (Normally closed) DC24 V / DC12 V
Input voltage (AC)	X-ray control unit	100 V to 240 V (50 Hz / 60 Hz) ③
	Power supply for turbo pump controller	100 V to 240 V (50 Hz / 60 Hz) ③
	Power supply for vacuum pump	100 V to 240 V (50 Hz / 60 Hz) ③
Power consumption (Max.)	X-ray control unit	700 VA
	Turbo pump set	300 VA
Rated output		Continuous operation
Weight	X-ray tube unit / X-ray control unit	Approx. 111 kg / Approx. 11 kg
	Power supply for turbo pump controller	Approx. 1 kg
	Vacuum pump (diaphragm pump)	Approx. 4.3 kg
Operating ambient temperature	X-ray tube unit / X-ray control unit	+15 °C to +35 °C
Storage temperature	X-ray tube unit / X-ray control unit	+5 °C to +50 °C
Operating and storage humidity	X-ray tube unit / X-ray control unit	20 % to 85 % (No condensation)

NOTE: ①Maximum tube voltage during the warm-up period.
②X-ray chart use
③Auto switching

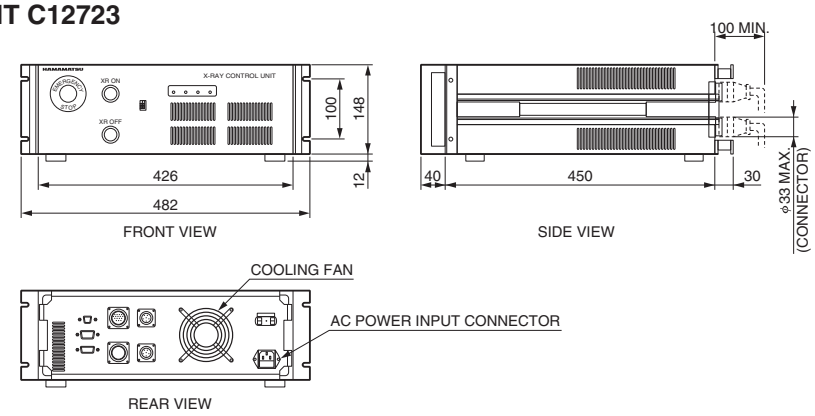
DIMENSIONAL OUTLINES (Unit: mm)

●X-RAY TUBE UNIT L12722



TXPRA0039EA

●X-RAY CONTROL UNIT C12723



TXPRA0040EA

System configuration of L12721 X-ray tube unit (L12722) + X-ray control unit (C12723) + turbo pumps + accessories

⚠ PRECAUTIONS TO USE

· This microfocus X-ray source generates X-rays harmful to the human body. Use sufficient caution when handling the equipment to avoid direct or inadvertent exposure to X-rays.
Install the X-ray source or the X-ray tube unit in an X-ray shielded cabinet or room equipped with safety interlock functions to prevent accidental exposure to X-rays.

OPERATIONAL CAUTION

· This microfocus X-ray source generates X-rays and must therefore be used only under the supervision of qualified personnel.
· This microfocus X-ray source shall be used in compliance with health and safety regulations enforced in order to prevent health hazards problems due to ionizing radiation.

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X-RAY SOURCE

230 kV OPEN TYPE MICROFOCUS X-RAY SOURCE L10801

FEATURES

- High power: 230 kV 1 mA
- No high voltage cable connection required
- Easy to replace cathode
- Easy operation

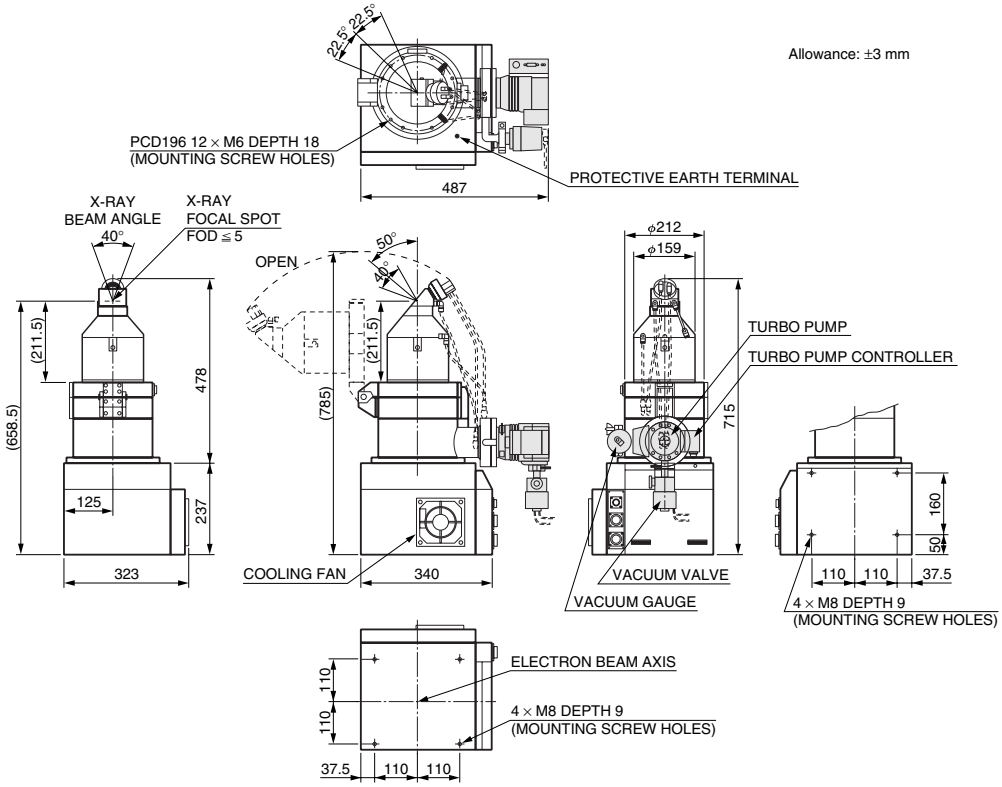
SPECIFICATIONS

Parameter		Description / Value
Maximum tube voltage ①		238 kV
X-ray tube voltage setting range		20 kV to 230 kV
X-ray tube current setting range		0 µA to 1000 µA
Cathode material		Tungsten
Minimum resolution		4 µm ②
Maximum target power		Approx. 200 W
Target type		Reflection Type
X-ray beam angle		Approx. 40 degrees
Target material		Tungsten
X-ray output window material / Thickness		Beryllium / 0.5 mm
Focus to object distance (FOD) (Max.)		5 mm
Protection Interlock 1 / Interlock 2		External short-circuit method (Normally closed) 24 V dc / 12 V dc
Input voltage (AC)	X-ray control unit	100 V to 240 V (50 Hz / 60 Hz) ③
	Power supply for turbo pump controller	100 V to 240 V (50 Hz / 60 Hz) ③
	Power supply for vacuum pump	100 V to 240 V (50 Hz / 60 Hz) ③
Power consumption (Max.)	X-ray control unit	700 VA
	Turbo pump set	360 VA
Rated output		Continuous operation
Weight	X-ray tube unit / X-ray control unit	Approx. 98 kg / Approx. 11 kg
	Power supply for turbo pump controller	Approx. 1 kg
	Vacuum pump (diaphragm pump)	Approx. 4 kg
Operating ambient temperature	X-ray tube unit / X-ray control unit	+15 °C to +40 °C
Storage temperature	X-ray tube unit / X-ray control unit	+5 °C to +50 °C
Operating and storage humidity	X-ray tube unit / X-ray control unit	Below 85 % (No condensation)

NOTE: ①Maximum tube voltage during the warm-up period.
②X-ray chart use
③Auto switching

DIMENSIONAL OUTLINES (Unit: mm)

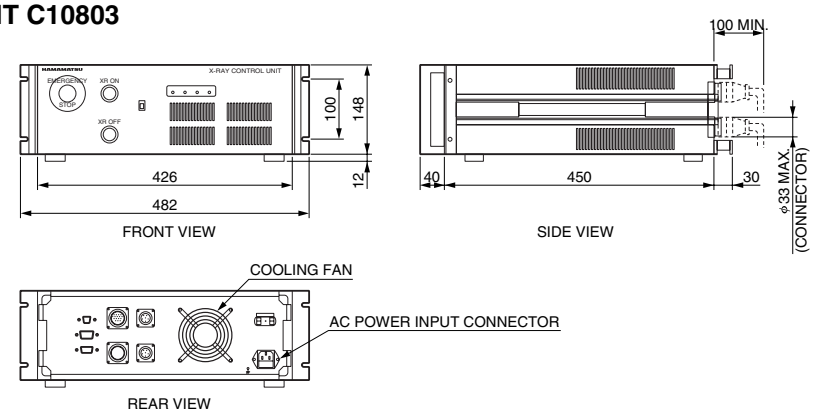
●X-RAY TUBE UNIT L10802



The shape that installed ( ), turbo pump, turbo pump controller, vacuum gauge and vacuum valve.

TXPRA0008EC

●X-RAY CONTROL UNIT C10803



TXPRA0009EA

System configuration of L10801 X-ray tube unit (L10802) + X-ray control unit (C10803) + turbo pumps + accessories

⚠ PRECAUTIONS TO USE

· This microfocus X-ray source generates X-rays harmful to the human body. Use sufficient caution when handling the equipment to avoid direct or inadvertent exposure to X-rays.
Install the X-ray source or the X-ray tube unit in an X-ray shielded cabinet or room equipped with safety interlock functions to prevent accidental exposure to X-rays.

OPERATIONAL CAUTION

· This microfocus X-ray source generates X-rays and must therefore be used only under the supervision of qualified personnel.
· This microfocus X-ray source shall be used in compliance with health and safety regulations enforced in order to prevent health hazards problems due to ionizing radiation.

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