

**ROTANODE™
E7843X**

Rotating Anode X-ray Tube Assembly

- ◆ Rotating anode X-ray tube assembly for the purpose of general diagnostic X-ray procedures.
- ◆ Specially processed Rhenium-tungsten faced molybdenum target of 74 mm diameter.
- ◆ This tube has foci 1.2 and 0.6, and is available for a maximum tube voltage 150 kV.
- ◆ Accommodated with IEC60526 type high-voltage cable receptacles.



General Data

IEC Classification (IEC60601-1:2005+A1:2012) Class I ME EQUIPMENT

Electrical:

Circuit:

High Voltage Generator Constant Potential High-Voltage Generator

Grounding Center-grounded

Nominal X-ray Tube Voltage:

Radiographic 150 kV

Nominal Focal Spot Value:

Large Focus 1.2

Small Focus 0.6

Nominal Anode Input Power (at 0.1s): (See rating charts)

	60Hz	50 Hz
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Large Focus	50 kW	46 kW
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Small Focus	22 kW	20 kW
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Nominal Radiographic Anode Input Power:

	60 Hz	50 Hz
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Large Focus	50 kW	46 kW
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Small Focus	21 kW	19 kW
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Motor Ratings:

Stator: XS-BA

Driven Frequency [Hz]	Starting				Running	
	50		60		50	60
Input Power [W]	600	2000	520	1700	150	130
Voltage ^{1) 3)} [V]	120	220	120	220	50-60	50-60
Current ²⁾ [A]	3.5~5.5	6.7~8.4	3.5~5.0	5.8~7.5	1.7~2.4	1.4~2.1
Min. Speed Up ⁴⁾ [s]	2.2	0.8	2.2	0.8	-	-
Capacitor [μ F]	43		30		43	30

Note 1) Applied voltage between common and main terminal.

2) Common current.

3) The every applied voltage must be never exceeded 110% of the above specification.

4) The speed-up time is allowed up to 110% of the above specification.

Anode Speed:

60 Hz Minimum 3200 min⁻¹50 Hz Minimum 2700 min⁻¹

Stator Resistance:

Common-Main Winding 18.0 Ω Common-Auxiliary Winding..... 47.5 Ω Resistance between Housing and Low Voltage Terminals Minimum 2 M Ω

Normal Operating Range of the Housing Temperature 16 ~ 75 °C

Mode of Operation Intermittent

Mechanical:

Dimensions See dimensional outline

Overall Length 479 mm

Maximum Diameter 152.4 mm

Target:

Anode Angle 12 degrees

Diameter 74 mm

Construction Rhenium-Tungsten faced Molybdenum

Filtration:

Permanent Filtration 1.3 mm Al / 75 kV IEC60522:1999

Available Additional Filter combination (0.4 - 1.5 mm) Maximum 2.8 mm Al / 75 kV

Radiation Protection (In accordance with IEC60601-1-3:2008):

Leakage Technique Factor 150 kV, 3.4 mA

X-ray Coverage 430 × 430 mm at SID 1000 mm

Weight (Approx.) 16 kg

High Voltage Receptacle To meet requirements of IEC60526 Corrigendum1:2010

Cooling Method Natural or forced air

Tube Housing Model Number XH-121

Absolute Maximum and Minimum Ratings

(At any time, these values must not be exceeded.)

Maximum X-ray Tube Voltage:

Radiographic	150 kV
Between Anode (or Cathode) and Ground	75 kV
Minimum X-ray Tube Voltage	40 kV
Maximum X-ray Tube Current	See rating charts
Large Focus	760 mA
Small Focus	370 mA

Maximum Filament Current:

Large Focus	5.0 A
Small Focus	4.7 A

Filament Voltage:

Large Focus (At maximum filament current 5.0 A)	12.4 ~ 17.0 V
Small Focus (At maximum filament current 4.7 A)	6.5 ~ 8.9 V

Filament Frequency Limits 0 ~ 25 kHz

Continuous Anode Input Power 60 W (85 HU/s)

Thermal Characteristics:

Anode Heat Content	111 kJ (150 kHU)
Maximum Anode Heat Dissipation	475 W (667 HU/s)
X-ray Tube Assembly Heat Content	900 kJ (1250 kHU)

Nominal Continuous Input Power:

Without Air-circulator	180 W (15 kHU/min)
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Environmental Limits

Operating Limits:

Temperature	10 ~ 40 °C
Humidity	30 ~ 85 %
	(No condensation)
Atmospheric Pressure	70 ~ 106 kPa

Shipping and Storage Limits:

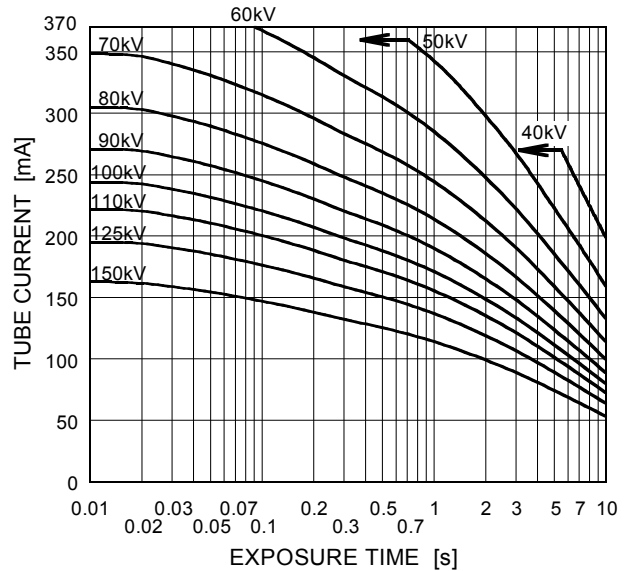
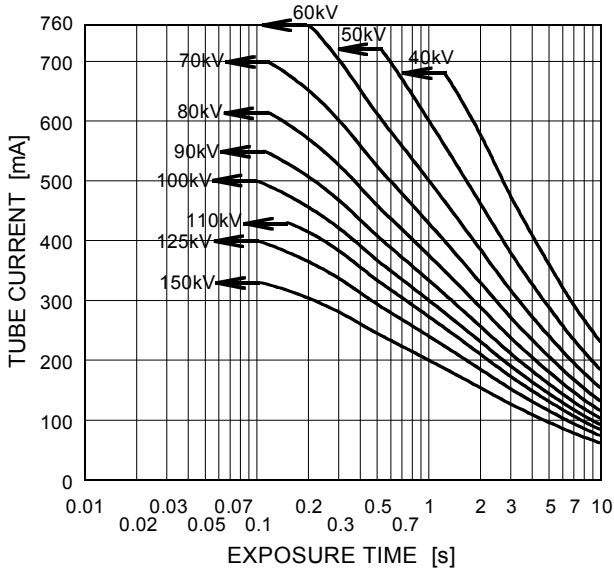
Temperature	-20 ~ 70 °C
Humidity	20 ~ 90 %
	(No condensation)
Atmospheric Pressure	50 ~ 106 kPa

Maximum Rating Charts (Absolute Maximum Rating Charts)

Conditions: Tube Voltage
Constant Potential High-Voltage Generator
Stator Power Frequency 60Hz

Nominal Focal Spot Value: 1.2 ■

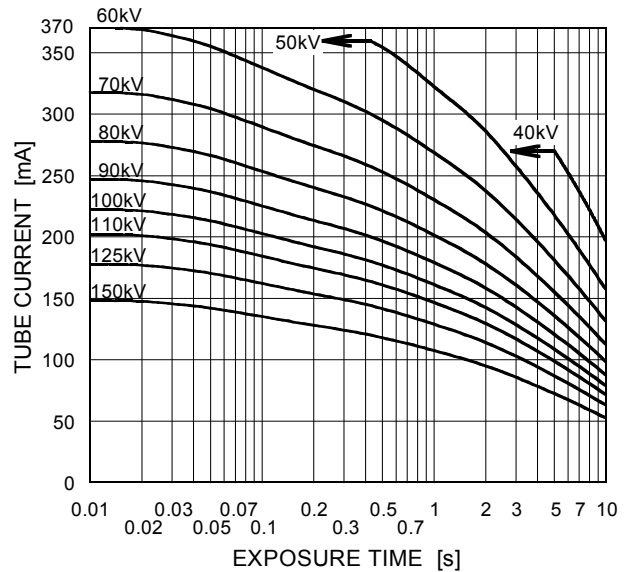
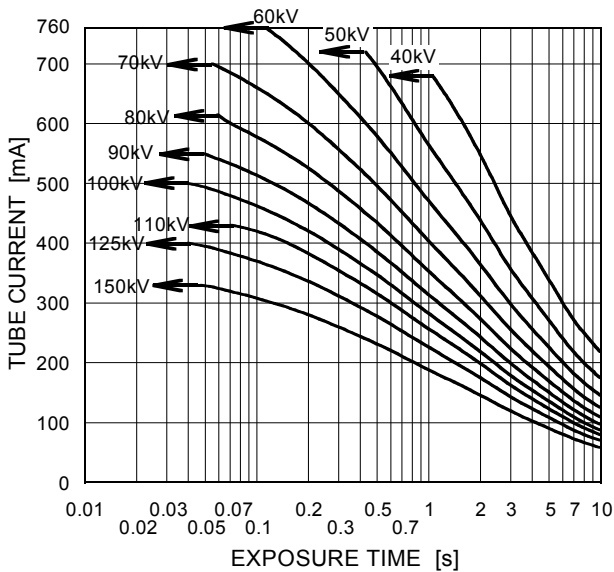
Nominal Focal Spot Value: 0.6 □



Conditions: Tube Voltage
Constant Potential High-Voltage Generator
Stator Power Frequency 50Hz

Nominal Focal Spot Value: 1.2 ■

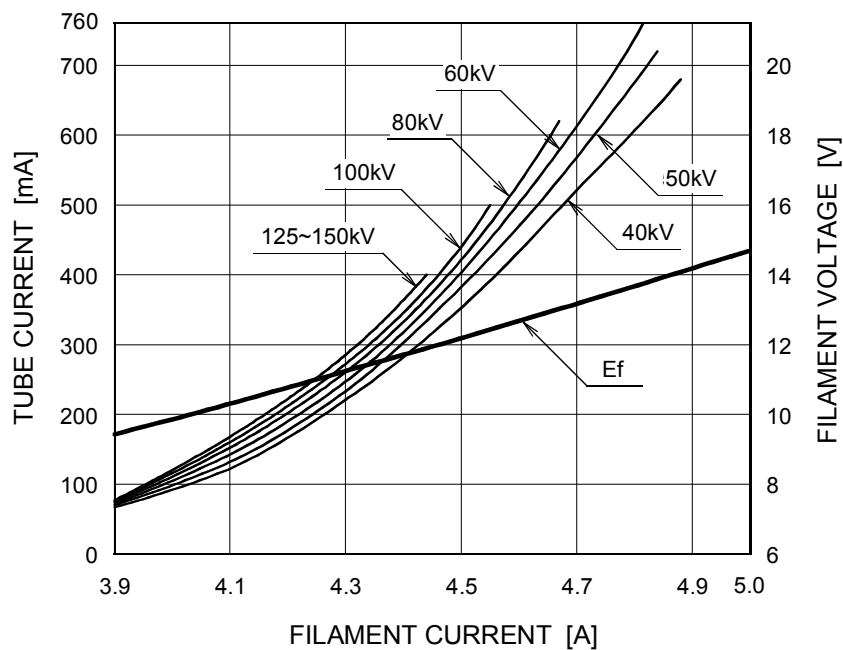
Nominal Focal Spot Value: 0.6 □



Emission & Filament Characteristics

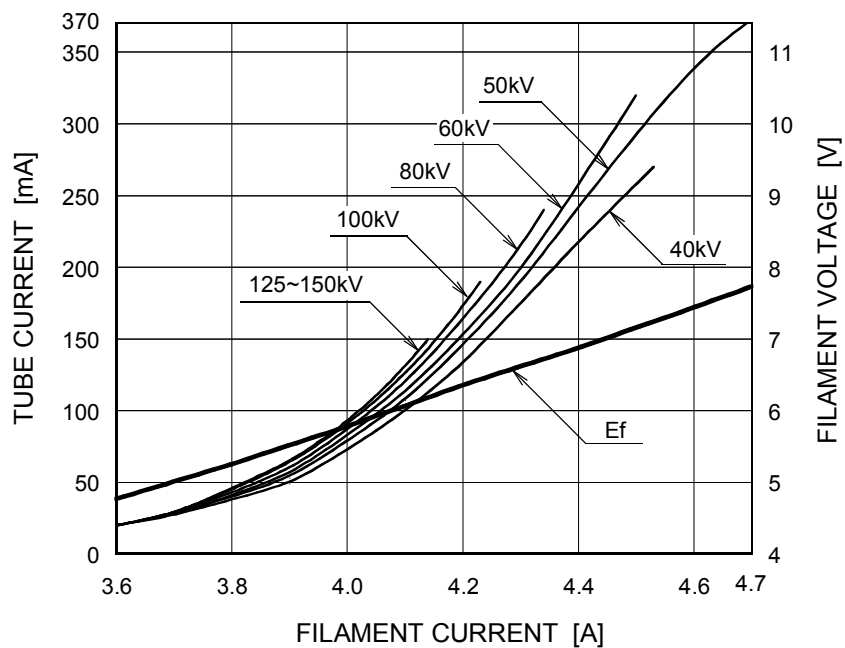
Constant Potential High-Voltage Generator

Nominal Focal Spot Value: 1.2 ■



For Reference Only

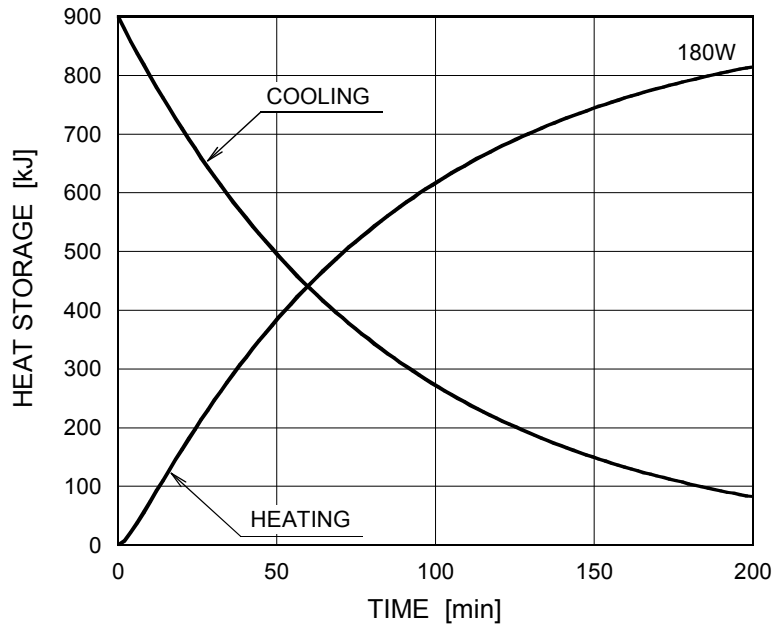
Nominal Focal Spot Value: 0.6 □



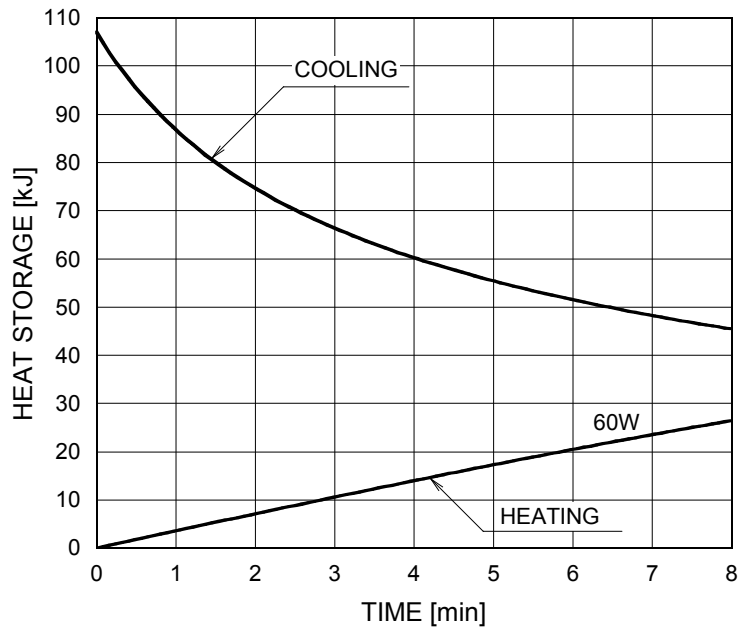
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Thermal Characteristics

X-ray Tube Assembly Heating / Cooling Curve

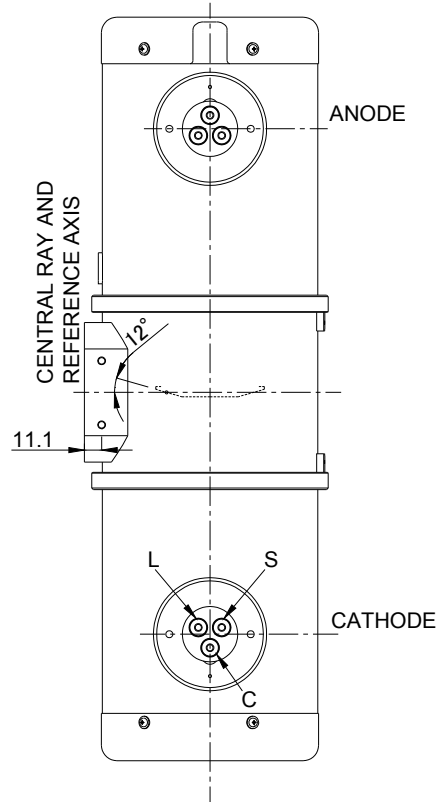
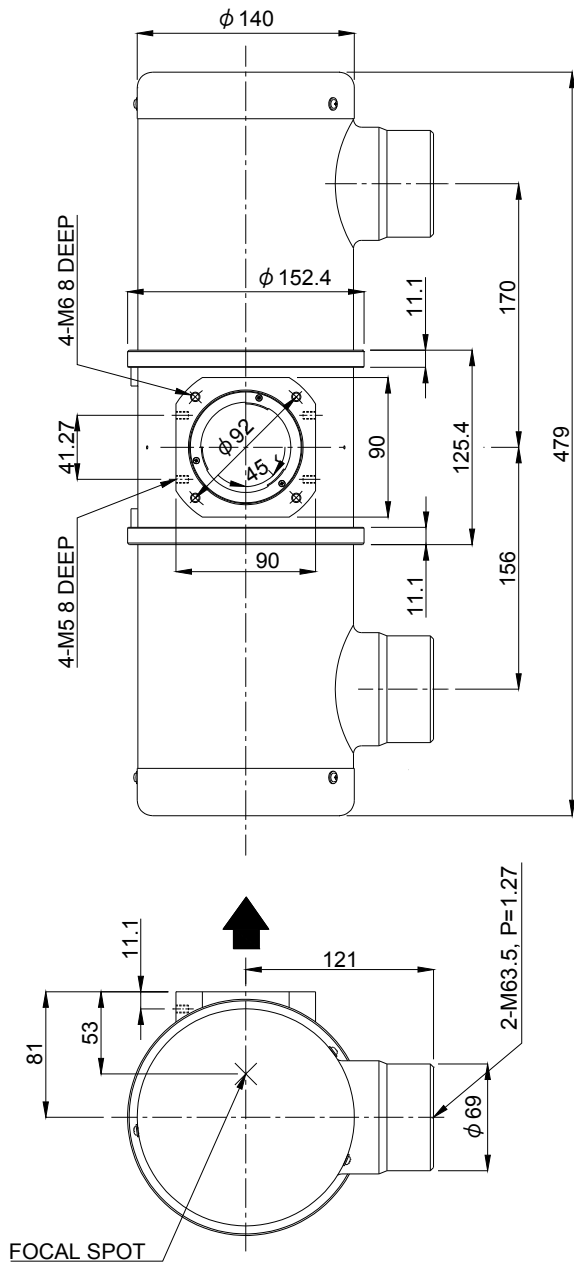


Anode Heating / Cooling Curve

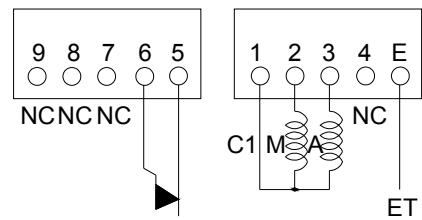


Dimensional Outline

Unit mm



TERMINAL CONNECTIONS



TEMPERATURE RELAY
(NORMALLY CLOSED)

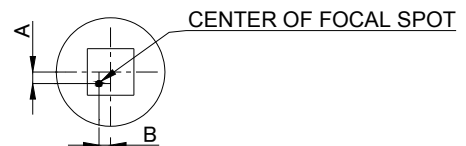
Note) Do not connect terminal No.1 and No.5 or 6 in series circuit.

CATHODE TERMINAL

- C : COMMON
- L : LARGE FOCUS
- S : SMALL FOCUS

TERMINAL CONNECTIONS

- C1 : COMMON
- M : MAIN WINDING OF THE STATOR
- A : AUX. WINDING OF THE STATOR
- NC : NON-CONNECTION
- ET : EARTH TERMINAL



- 1.5mm ≤ A ≤ 1.5mm
- 1.5mm ≤ B ≤ 1.5mm

▲ : CENTRAL X-RAY
ANODE & CATHODE TERMINAL
: IEC60526 TYPE

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·Canon Electron Tubes & Devices Co., Ltd. has been certified to meet all the requirements of Quality Management Systems ISO9001 and ISO13485.
Product scope is referred to the following URL. <https://etd.canon/eng/company/quality.htm>.