

**ROTANODE™
E7876X**

Rotating Anode X-ray Tube Assembly

- ◆ Rotating anode X-ray tube assembly for high energy radiographic and cine-fluoroscopic operations.
- ◆ The heavy anode is constructed with specially processed rhenium-tungsten faced molybdenum target which is 74 mm diameter and has an improved coating to increase thermal emissivity.
- ◆ 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 EQUIP MET

Electrical:

Circuit:

High Voltage Generator Constant Potential High-Voltage Generator
 Grounding Center-grounded

Nominal X-ray Tube Voltage:

Radiographic 150 kV
 Fluoroscopic 125 kV

Nominal Focal Spot Value:

Large Focus 1.2
 Small Focus 0.6

Nominal Anode Input Power (at 0.1s):

	60 Hz	50 Hz
Large Focus	54 kW	50 kW
Small Focus	22 kW	20 kW

Nominal Radiographic Anode Input Power:

	60 Hz	50 Hz
Large Focus	48 kW	44 kW
Small Focus	21 kW	19 kW

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Motor Ratings:

Stator: XS-RA

		Starting	Running
Driven Frequency	[Hz]	50/60	50/60
Input Power	[W]	1450	80
Voltage ^{1) 3)}	[V]	240	58
Current ²⁾	[A]	6.5	1.5
Min. Speed Up ⁴⁾	[s]	0.6	-
Capacitor	[μ F]	24	24

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⁻¹
 50 Hz Minimum 2700 min⁻¹

Stator Resistance:

Common-Main Winding 27.5 Ω
 Common-Auxiliary Winding 58.0 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
Fluoroscopic	125 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	700 mA
Small Focus	300 mA
Maximum Filament Current:	
Large Focus	5.4 A
Small Focus	5.2 A
Filament Voltage:	
Large Focus (At maximum filament current 5.4 A)	11.9 ~ 16.1 V
Small Focus (At maximum filament current 5.2 A)	6.8 ~ 9.2 V
Filament Frequency Limits	0 ~ 25 kHz
Continuous Anode Input Power	142 W (200 HU/s)
(Fluoroscopic, Radiographic or mixed exposure)	
Thermal Characteristics:	
Anode Heat Content	163 kJ (230 kHU)
Maximum Anode Heat Dissipation	750 W (1056 HU/s)
X-ray Tube Assembly Heat Content	¹⁾ 900 kJ (1250 kHU)
Nominal Continuous Input Power:	
Without Air-circulator	¹⁾ 180 W (250 HU/sec)

Note 1) Based on TETD's nominal temperature range (25°C)

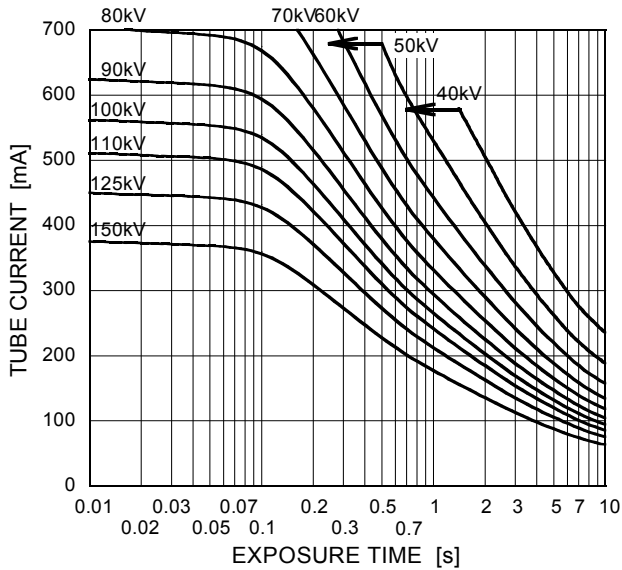
Environmental Limits

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

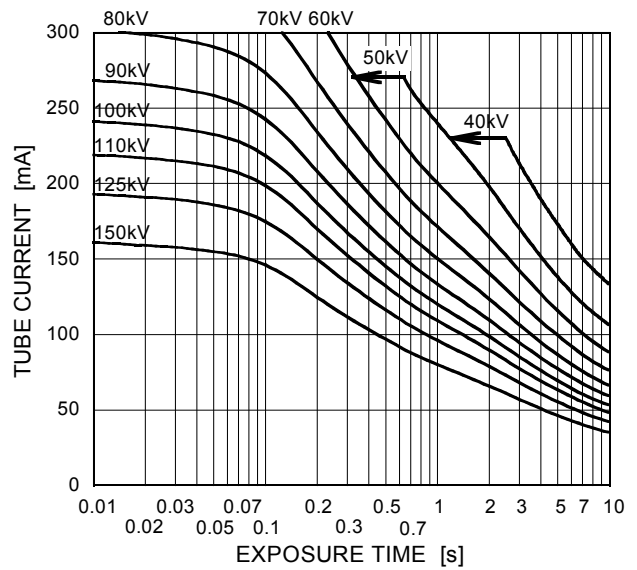
Maximum Rating Charts (Absolute Maximum Rating Charts)

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

Nominal Focal Spot :Value: 1.2 ■

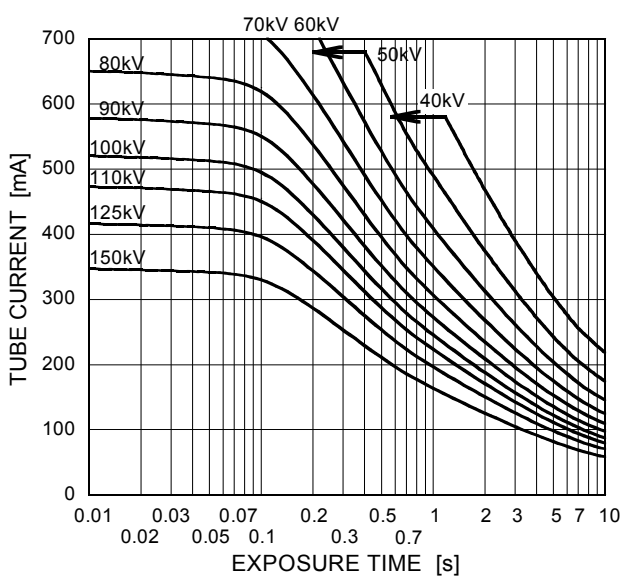


Nominal Focal Spot :Value: 0.6 □

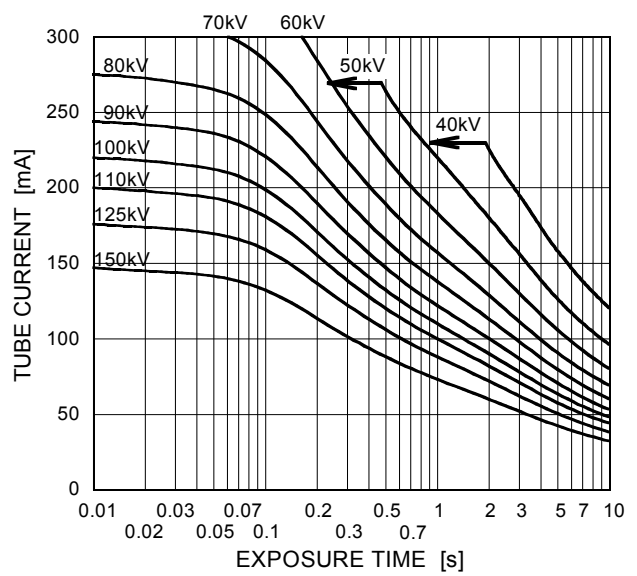


Conditions: Tube Voltage
Constant Potential High-Voltage Generator
Stator Power Frequency 50 Hz

Nominal Focal Spot :Value: 1.2 ■



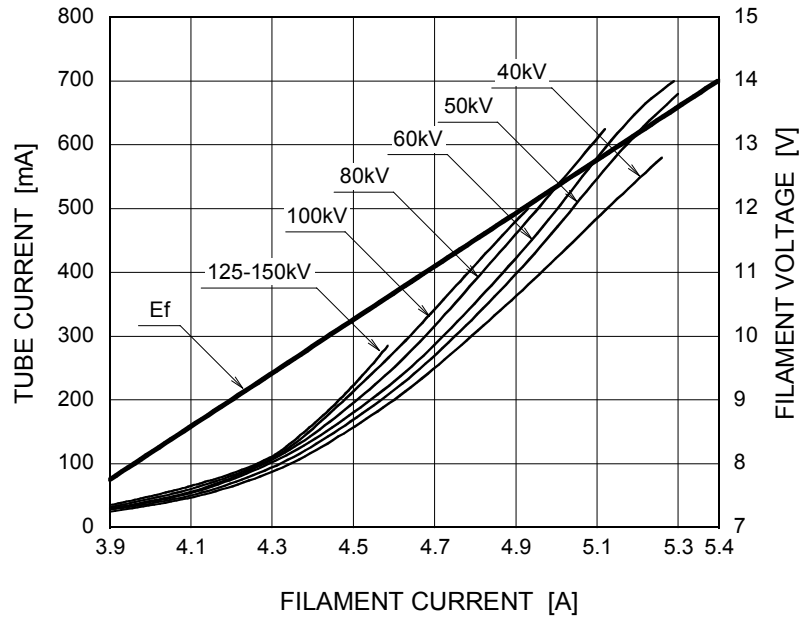
Nominal Focal Spot :Value: 0.6 □



Emission & Filament Characteristics

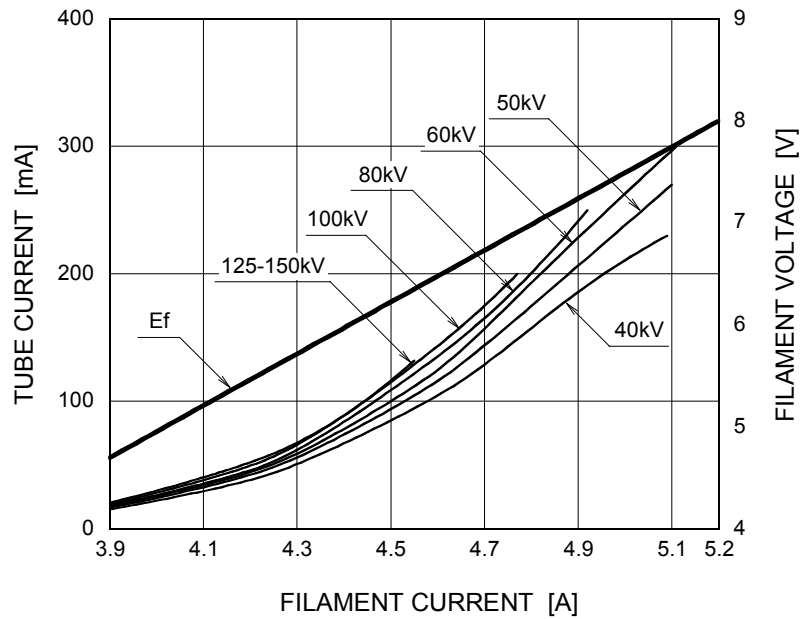
Constant Potential High-Voltage Generator

Nominal Focal Spot Value: 1.2 ■



For Reference Only

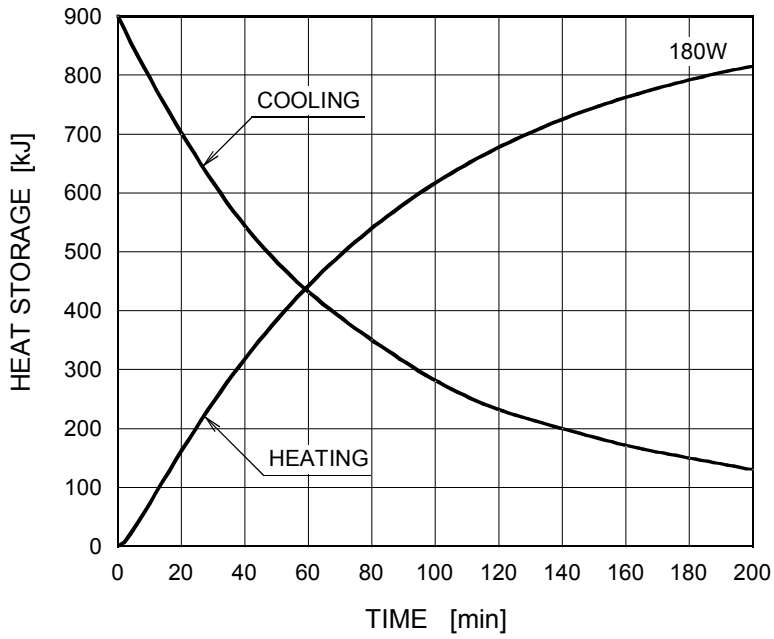
Nominal Focal Spot Value: 0.6 □



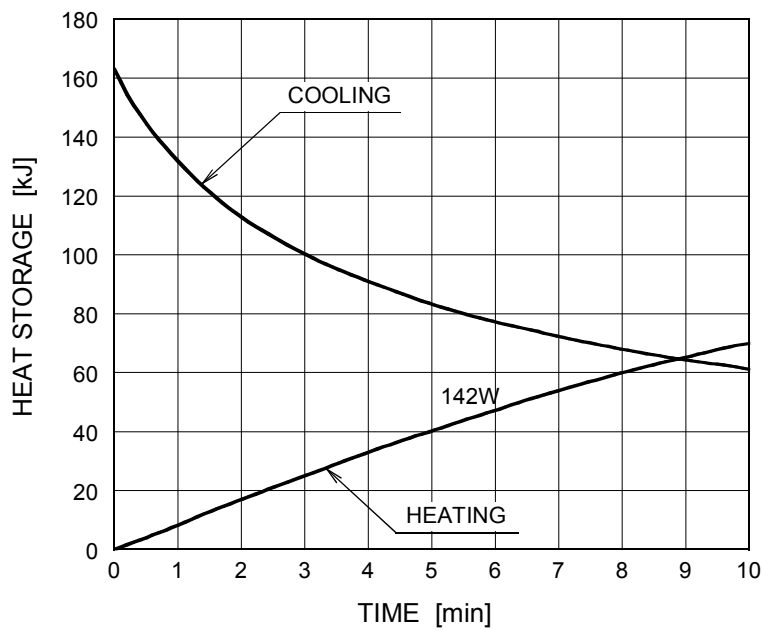
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Thermal Characteristics

X-ray Tube Assembly Heating / Cooling Curve



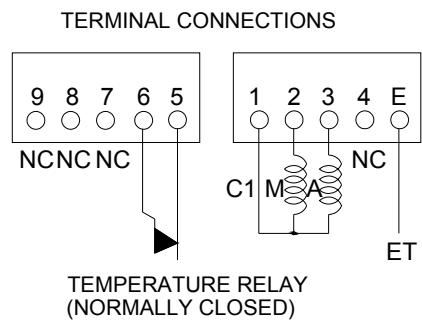
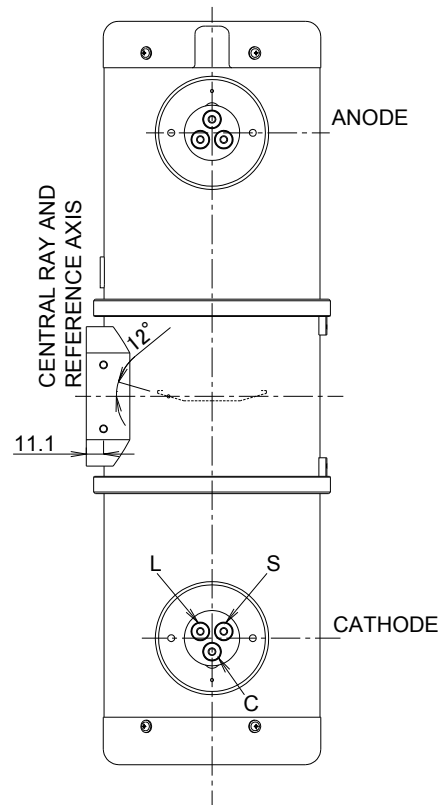
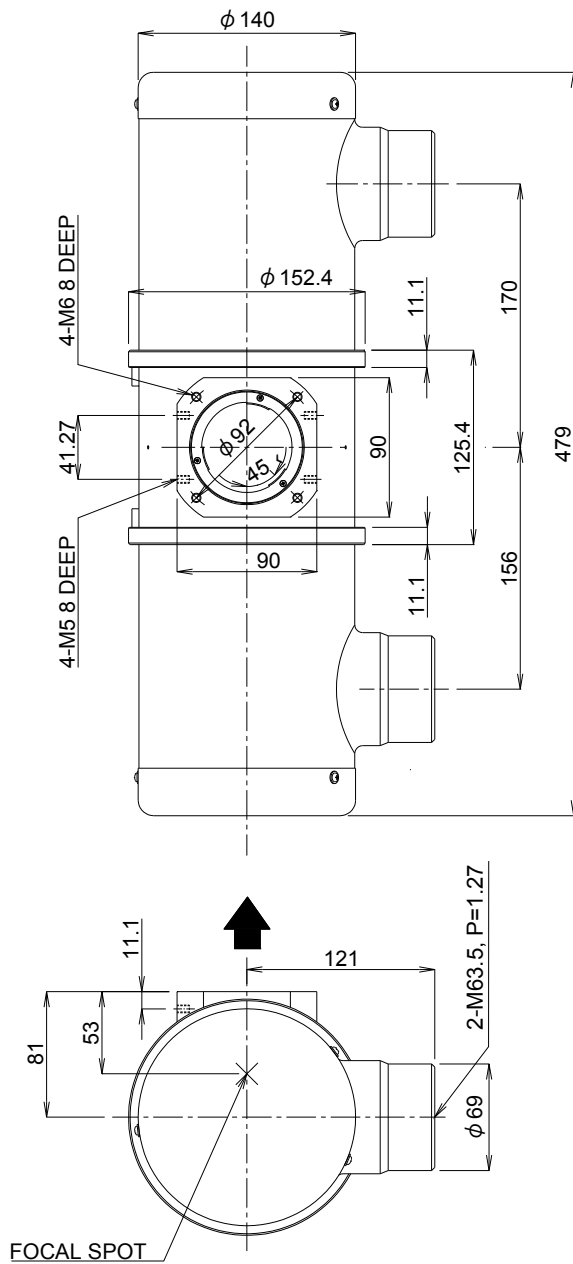
Anode Heating / Cooling Curve



The heating curves are showing example of average input power to anode in operation.

Dimensional Outline

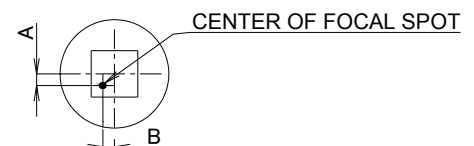
Unit: mm



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



CANON ELECTRON TUBES & DEVICES CO., LTD.

Marketing Engineering Group, Sales Department
1385, Shimoishigami, Otawara-shi, Tochigi 324-8550, Japan
Tel: +81-287-26-6666 Fax: +81-287-26-6060
<https://etd.canon>

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Product scope is referred to the following URL. <https://etd.canon/eng/company/quality.htm>.