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
Large Focus	50 kW	46 kW
Small Focus	22 kW	20 kW

Nominal Radiographic Anode Input Power:

	60 Hz	50 Hz
Large Focus	50 kW	46 kW
Small Focus	21 kW	19 kW

Motor Ratings:

Stator: XS-BA

		Starting				Running	
Driven Frequency	[Hz]	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	[μF]	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^{-1}

50 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 MΩ

Normal Operating Range of the Housing Temperature ..... 16 ~ 75 ℃

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)

Environmental Limits

Operating Limits:
- Temperature ..... 10 ~ 40 ℃
- Humidity ..... 30 ~ 85 %
  (No condensation)
- Atmospheric Pressure ..... 70 ~ 106 kPa

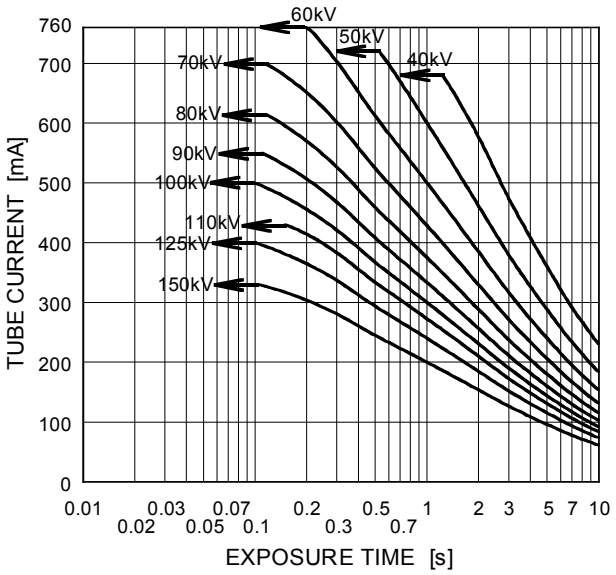
Shipping and Storage Limits:
- Temperature ..... -20 ~ 70 ℃
- Humidity ..... 20 ~ 90 %
  (No condensation)
- Atmospheric Pressure ..... 50 ~ 106 kPa

Maximum Rating Charts

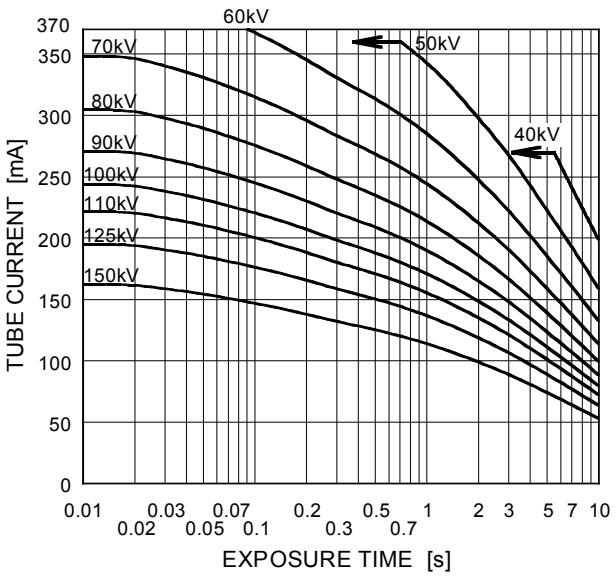
(Absolute Maximum Rating Charts)

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

Nominal Focal Spot Value: 1.2 ■

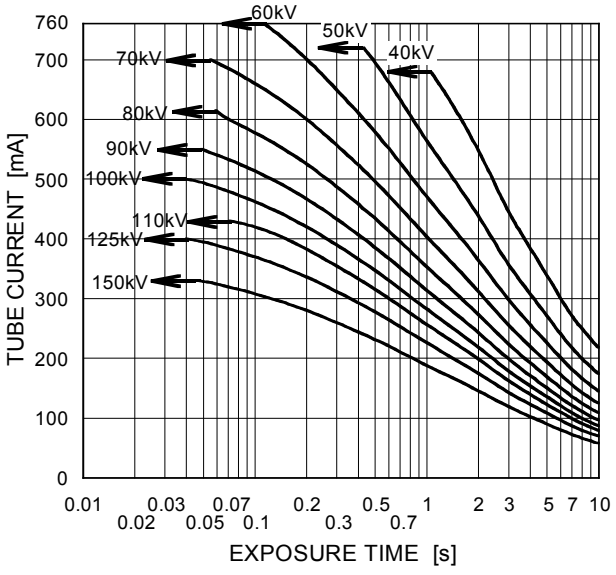


Nominal Focal Spot Value: 0.6 ▣

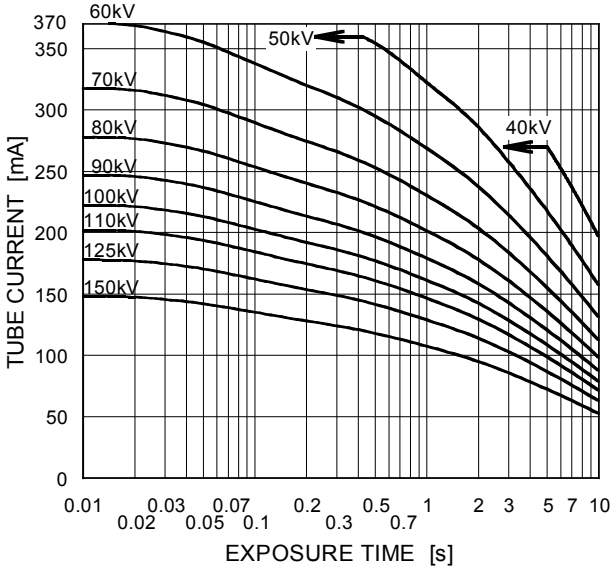


Conditions: Tube Voltage
Constant Potential High-Voltage Generator
Stator Power Frequency 50Hz

Nominal Focal Spot Value: 1.2 ■



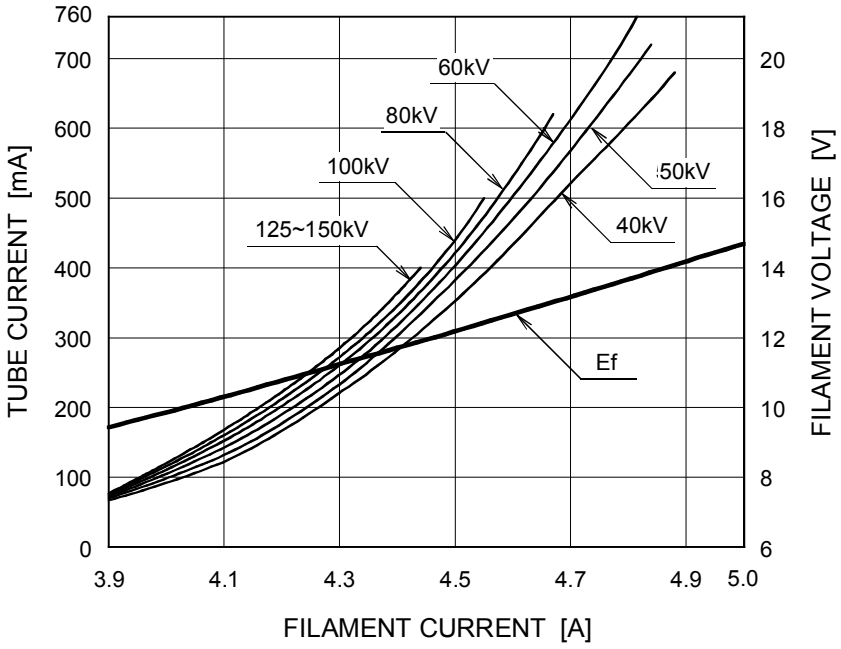
Nominal Focal Spot Value: 0.6 ▣



Emission & Filament Characteristics

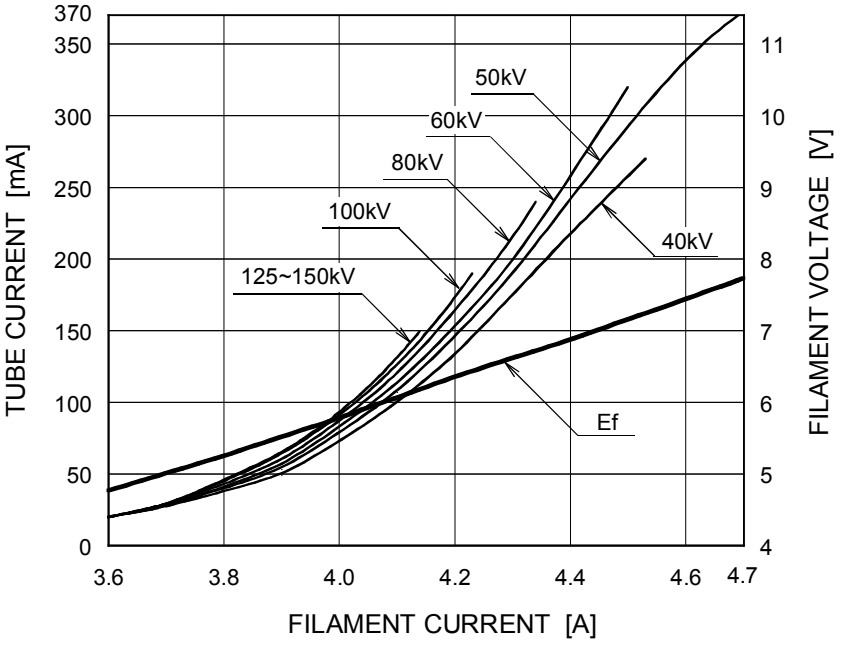
Constant Potential High-Voltage Generator

Nominal Focal Spot Value: 1.2 ■



For Reference Only

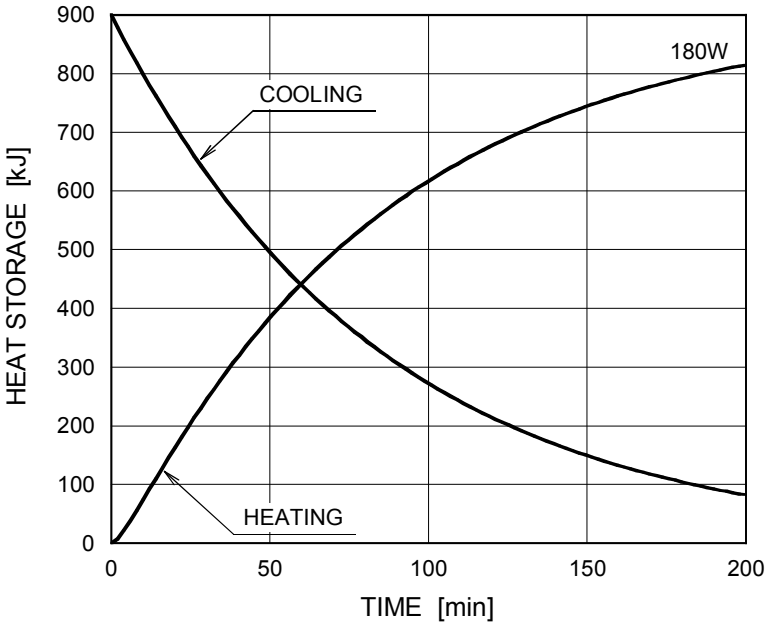
Nominal Focal Spot Value: 0.6 ▣



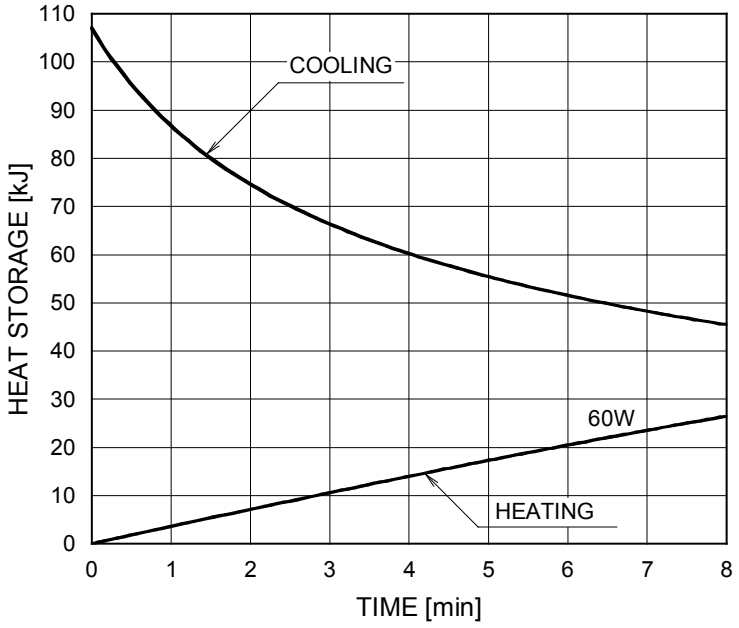
For Reference Only

Thermal Characteristics

X-ray Tube Assembly Heating / Cooling Curve

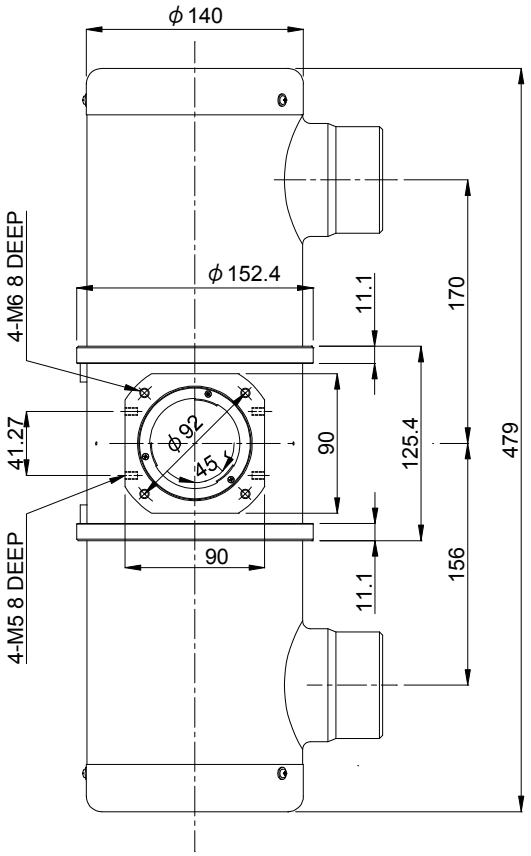


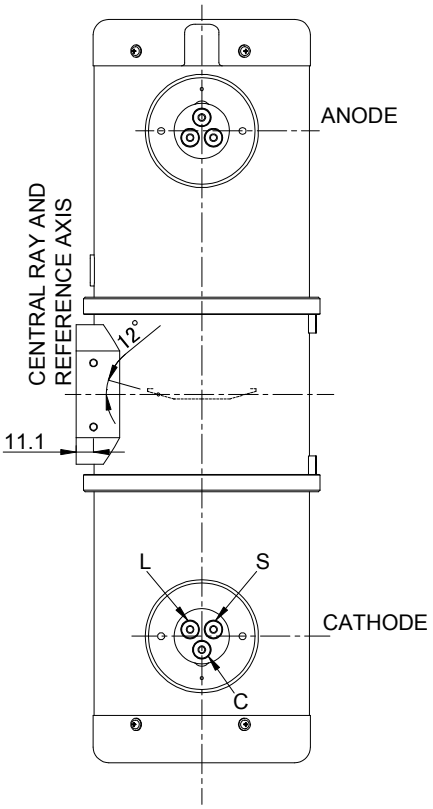
Anode Heating / Cooling Curve

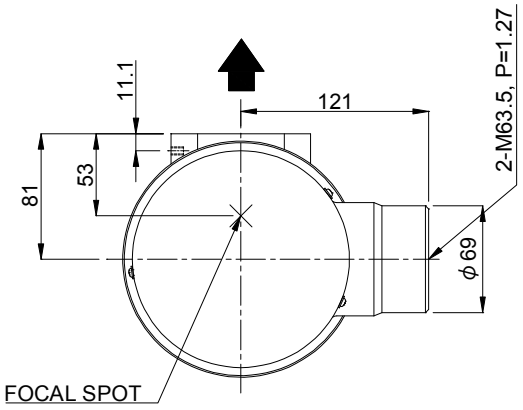


Dimensional Outline

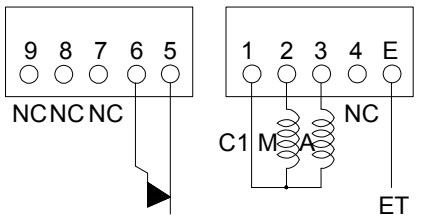
Unit mm







TERMINAL CONNECTIONS

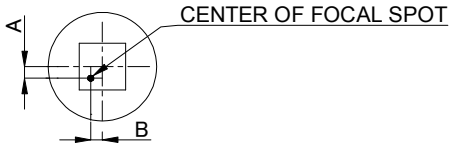


TEMPERATURE RELAY
(NORMALLY CLOSED)

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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