

ROTANODE™
E7833X  0197

Rotating Anode X-ray Tube Assembly

- ◆ The TOSHIBA XH-183 housing is developed for use in surgical C-arm application. It provides ease for use at a nominal patient table height.
- ◆ The heavy anode is constructed with specially processed rhenium-tungsten faced molybdenum target which has an improved coating to increase thermal emissivity.
- ◆ This tube has foci 0.6 and 0.3, and is available for a maximum tube voltage 125 kV.



General Data

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

Application Diagnostic Radiography for Mobile C-arm

Electrical:

Circuit:

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

Nominal X-ray Tube Voltage:

Radiographic 125 kV
Fluoroscopic 125 kV

Nominal Focal Value:

Large Focus 0.6
Small Focus 0.3

Nominal Anode Input Power (at 0.1s):

	60 Hz	50 Hz
Large Focus	22 kW	20 kW
Small Focus	8 kW	7.4 kW

Nominal Radiographic Anode Input Power:

	60 Hz	50 Hz
Large Focus	21 kW	19 kW
Small Focus	7 kW	6 kW

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Motor Ratings:

Stator: XS-BB

		Starting	Running
Driven Frequency	[Hz]	50 / 60	50 / 60
Input Power	[W]	450	50
Voltage ^{1) 3)}	[V]	120	40
Current ²⁾	[A]	4	1.4
Min. Speed Up ⁴⁾	[s]	1.2	-
Capacitor	[μ F]	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 20 Ω Common - Auxiliary Winding 50 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 401 mm

Maximum Diameter 212 mm

Target:

Anode Angle 10 degrees

Diameter 74 mm

Construction Rhenium-Tungsten-faced Molybdenum

Filtration:

Permanent Filtration 0.7 mm Al / 75 kV IEC60522:1999

Available Additional Filter combination (0.4 - 1.5 mm) Maximum 2.2 mm Al / 75 kV

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

Leakage Technique Factor 125 kV, 1.5 mA

X-ray Coverage 350 × 350 mm at SID 1000 mm

Weight (Approx.) 19 kg

High Voltage Receptacle PMI H1541 P2 (cathode)

PMI H1541 P1 (anode)

Cooling Method Natural or forced air

Tube Housing Model Number XH-183

Absolute Maximum and Minimum Ratings (At any time, these values must not be exceeded.)

Maximum X-ray tube Voltage:

Radiographic	125 kV
Fluoroscopic	125 kV

Between Anode (or Cathode) and Ground 62.5 kV

Minimum X-ray Tube Voltage 40 kV

Maximum X-ray Tube Current See rating charts

Large Focus 250 mA

Small Focus 100 mA

Maximum Filament Current:

Large Focus 5.0 A

Small Focus 4.1 A

Filament Voltage:

Large Focus (At maximum filament current 5.0 A) 10.1 ~ 12.3 V

Small Focus (At maximum filament current 4.1 A) 6.6 ~ 8.8 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 210 kJ (300 kHU)

Maximum Anode Heat Dissipation 870 W (1226 HU/s)

X-ray Tube Assembly Heat Content 1135 kJ (1600 kHU)

Nominal Continuous Input Power:

Without Air-circulator 177 W (15 kHU/min)

Environmental Limits

Operating Limits:

Temperature 5 ~ 40°C

Humidity 30 ~ 90 %

(No condensation)

Atmospheric Pressure 70 ~ 106 kPa

Shipping and Storage Limits:

Temperature -10 ~ 75 °C

Humidity 10 ~ 90 %

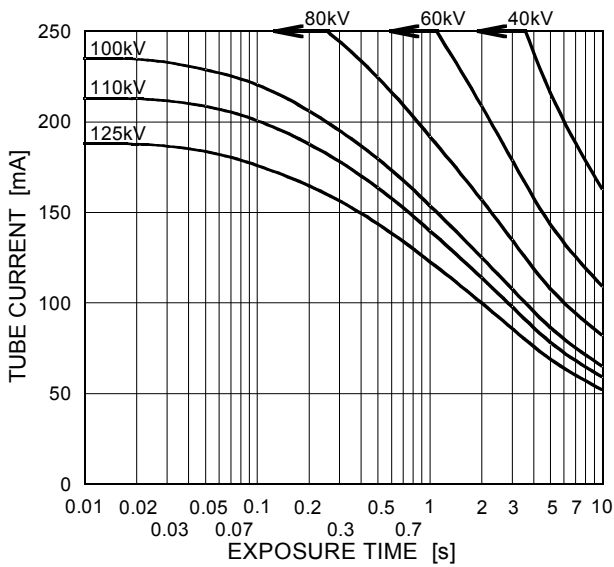
(No condensation)

Atmospheric Pressure 50 ~ 106 kPa

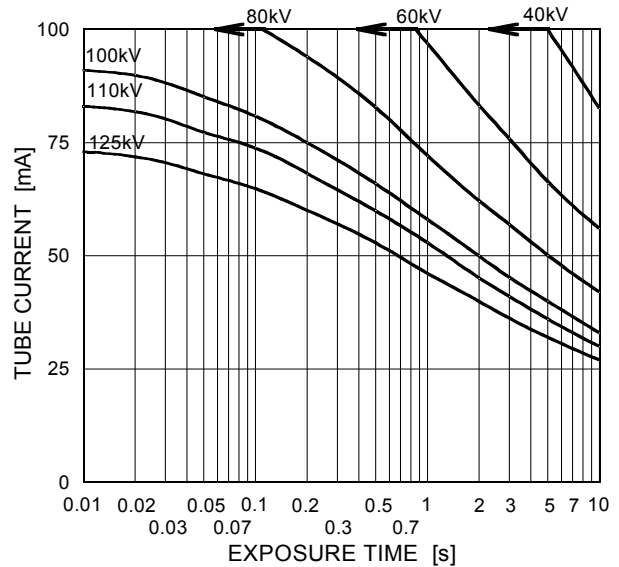
Maximum Rating Charts (Absolute Maximum Rating Charts)

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

Nominal Focal Spot Value: 0.6 ■

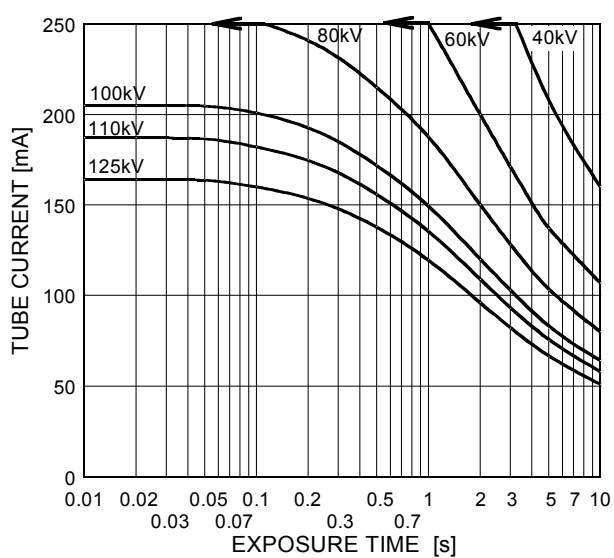


Nominal Focal Spot Value: 0.3 □

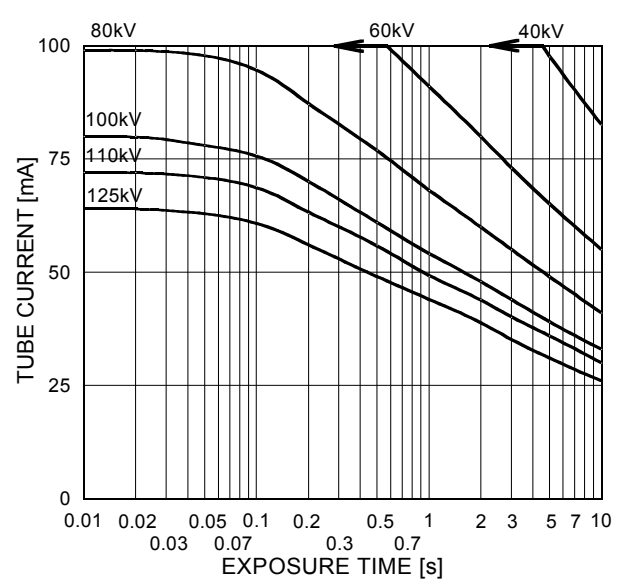


Conditions: Tube Voltage
Constant Potential High-Voltage Generator
Stator Power Frequency 50 Hz

Nominal Focal Spot Value: 0.6 ■



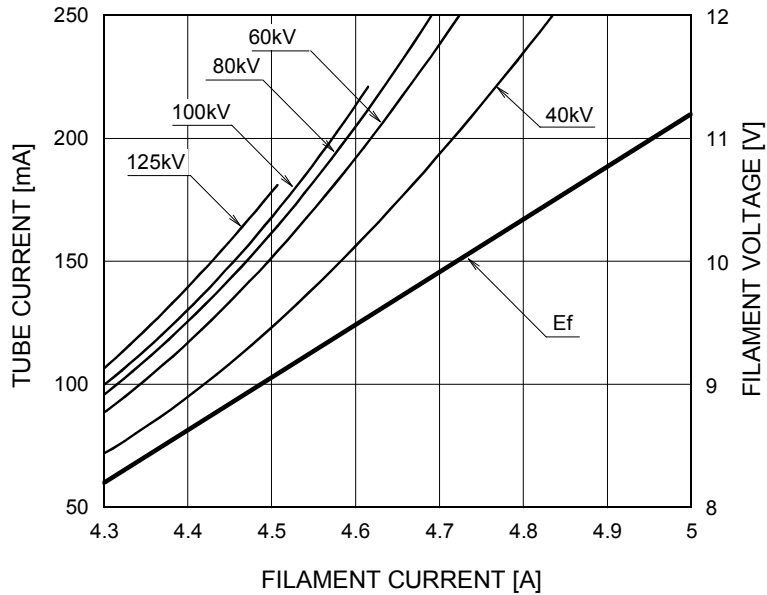
Nominal Focal Spot Value: 0.3 □



Emission & Filament Characteristics

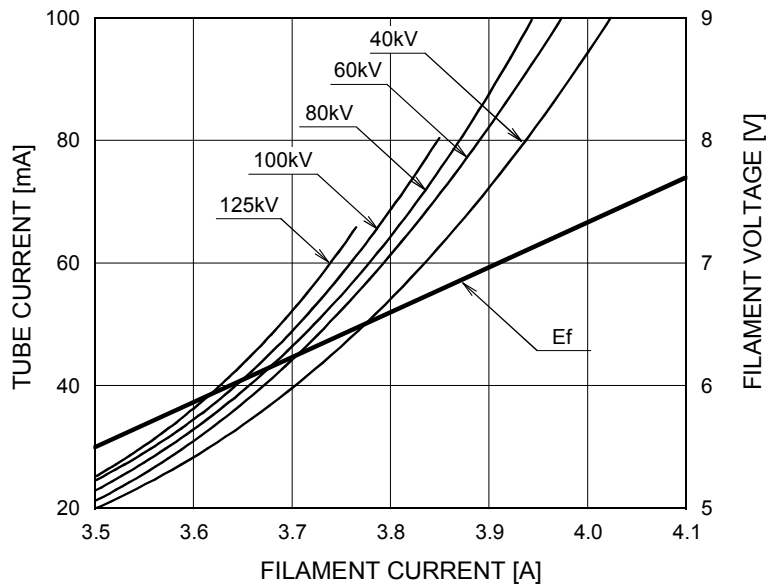
Constant Potential High-Voltage Generator

Nominal Focal Spot Value: 0.6 ■



For Reference Only

Nominal Focal Spot Value: 0.3 □

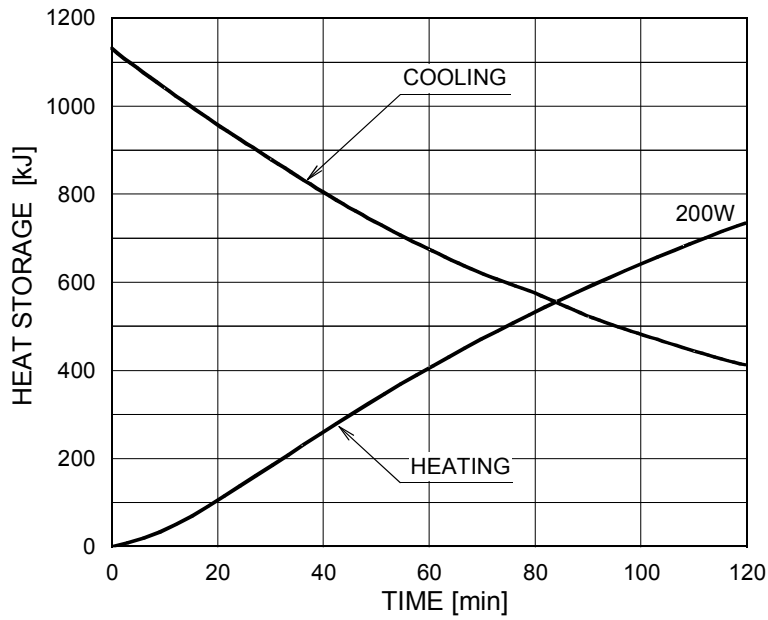


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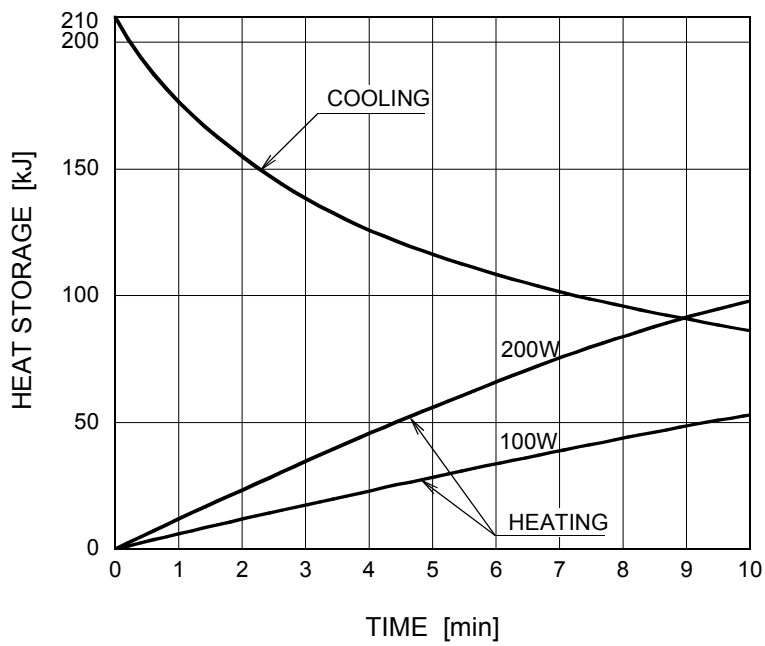
When using these emission curves for trial exposure, refer to the power rating curves shown for maximum KV, tube emission, filament current, exposure time, and target speed.

Thermal Characteristics

X-ray Tube Assembly Heating / Cooling Curve

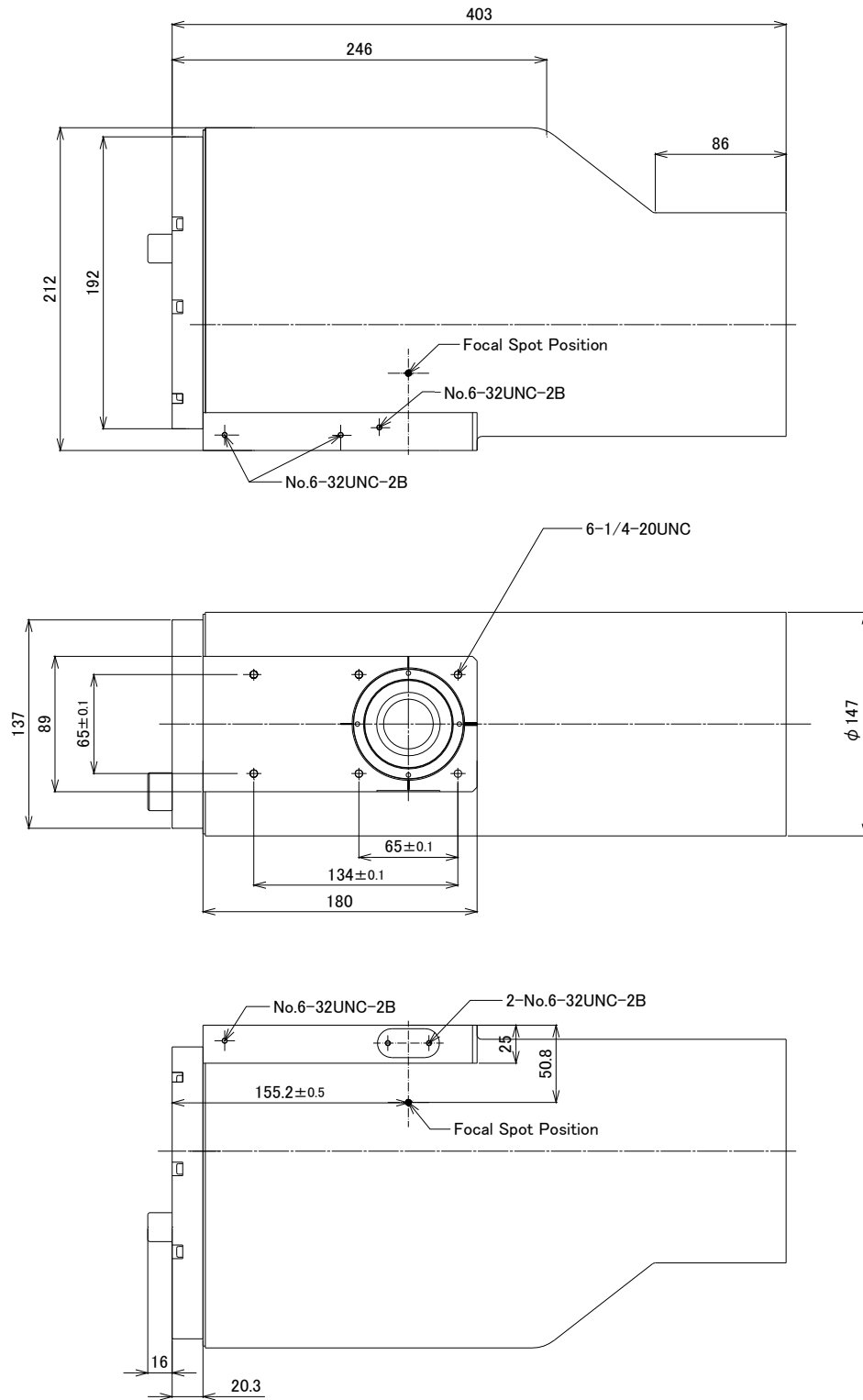



Anode Heating / Cooling Curve



Dimensional Outline

Unit mm



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·Toshiba 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. <http://www.toshiba-tetd.co.jp/tetd/eng/company/quality.htm>.