

**ROTANODE™
XRR-3332X**

Rotating Anode X-ray Tube Assembly

- ◆ Rotating anode X-ray tube assembly for high energy radiographic 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.



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):

	60 Hz	50 Hz
Large Focus	46 kW	42 kW
Small Focus	20 kW	18 kW

Nominal Radiographic Anode Input Power:

	60 Hz	50 Hz
Large Focus	43 kW	40 kW
Small Focus	19.5 kW	17.5 kW

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Motor Ratings:

Stator: XS-AL

		Starting	Running
Driven Frequency	[Hz]	50/60	50/60
Input Power	[W]	910	83
Voltage ^{1) 3)}	[V]	130	40
Current ²⁾	[A]	7.8	2.3
Min. Speed Up ⁴⁾	[s]	0.8	-
Capacitor	[µF]	44	44

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 9.4 Ω

Common-Auxiliary Winding 28.3 Ω

Resistance Between Housing and Low Voltage Terminals Minimum 2 MΩ

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

Mode of Operation Intermittent

Mechanical:

Dimensions See dimensional outline

Overall Length 385 mm

Maximum Diameter 140 mm

Target:

Anode Angle 14 degrees

Diameter 74 mm

Construction Rhenium-Tungsten faced Molybdenum

Filtration:

Permanent Filtration 1.0 mm Al / 75 kV IEC60522:1999

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

Leakage Technique Factor 150 kV, 3.4 mA

X-ray Coverage 354 × 354 mm at SID 710 mm

Weight: (Approx.)

Without end cap 12.5 kg

With end cap 13.1 kg

High Voltage Receptacle CLAYMOUNT MINI-75

Cooling Method Natural or forced air

Tube Housing Model Number XH-1023

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	600 mA
Small Focus	300 mA

Maximum Filament Current:

Large Focus	5.5 A
Small Focus	5.2 A

Filament Voltage:

Large Focus (At maximum filament current 5.5 A)	12.7 ~ 17.1 V
Small Focus (At maximum filament current 5.2 A)	7.0 ~ 9.4 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	750 kJ (1056 KHU)

Nominal Continuous Input Power:

Without Air-circulator	150 W (13 KHU/min)
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Environmental Limits

Operating Limits:

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

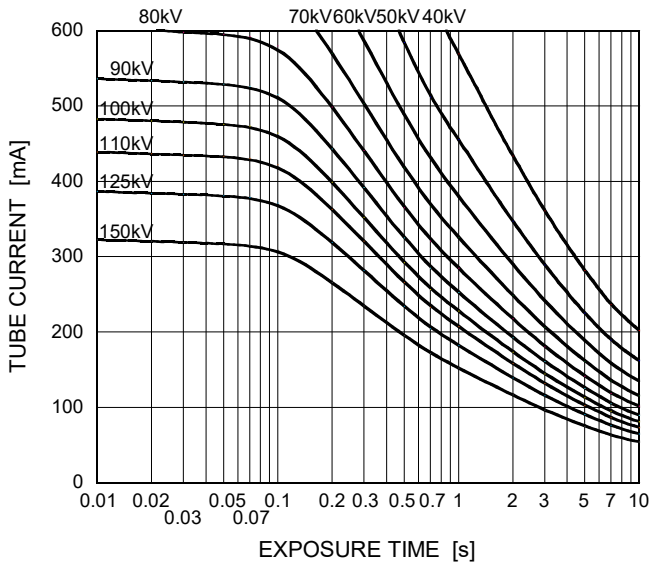
Shipping and Storage Limits:

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

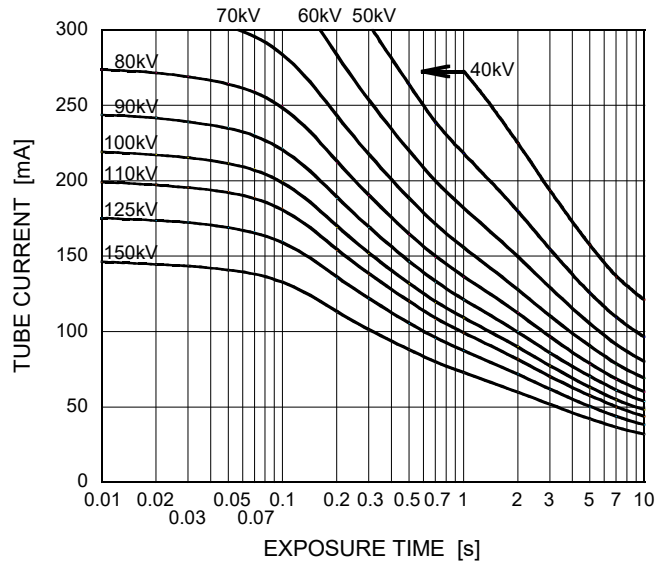
Maximum Rating Charts (Absolute Maximum Rating Charts)

Conditions: Constant potential high-voltage generator
Stator Power Frequency 60 Hz

Nominal Focal Spot Value: 1.2 ■

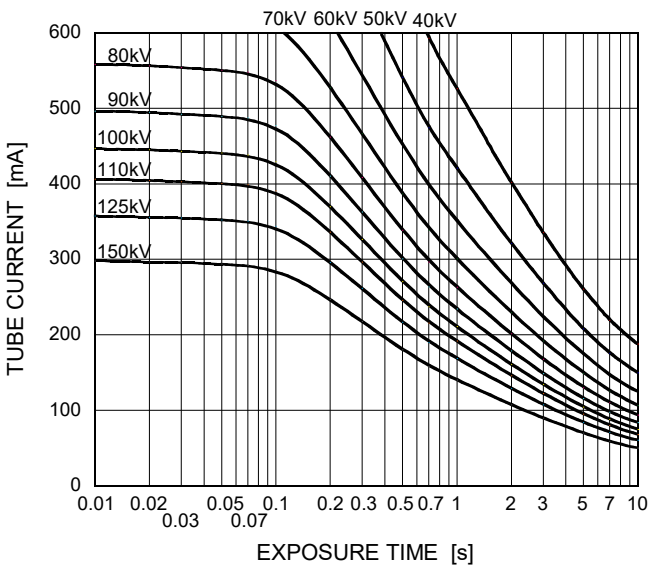


Nominal Focal Spot Value: 0.6 □

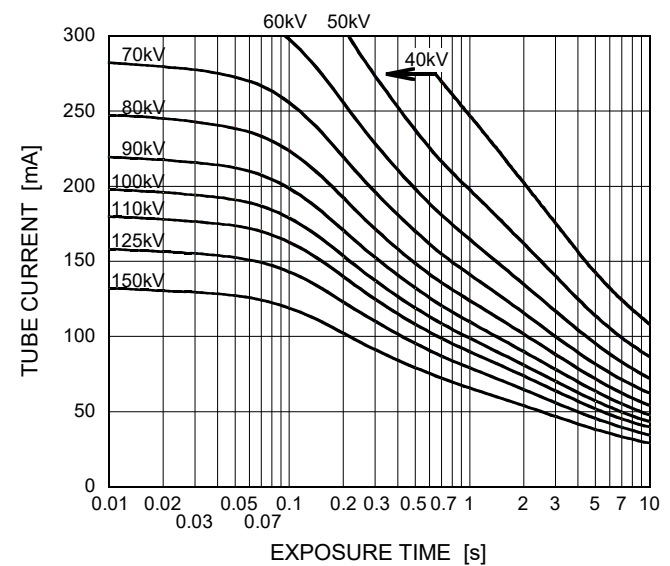


Conditions: Constant potential high-voltage generator
Stator Power Frequency 50 Hz

Nominal Focal Spot Value: 1.2 ■



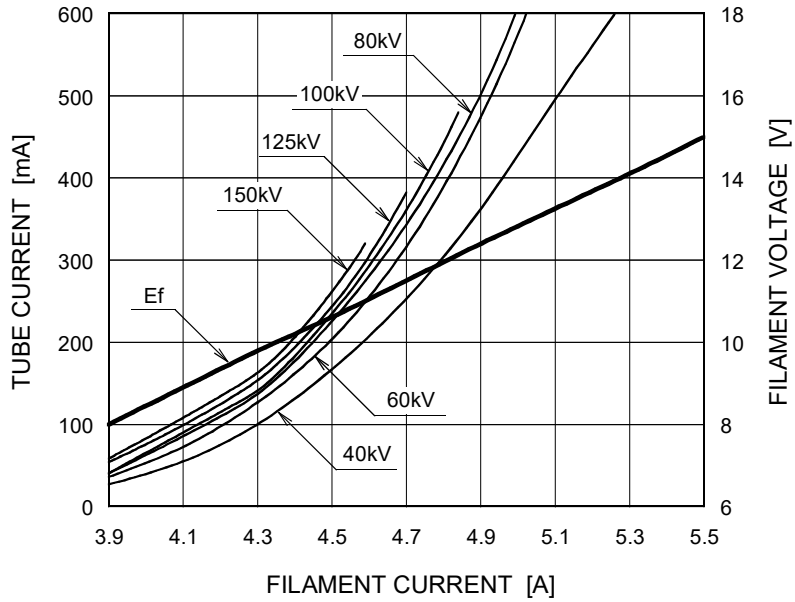
Nominal Focal Spot Value: 0.6 □



Emission & Filament Characteristics

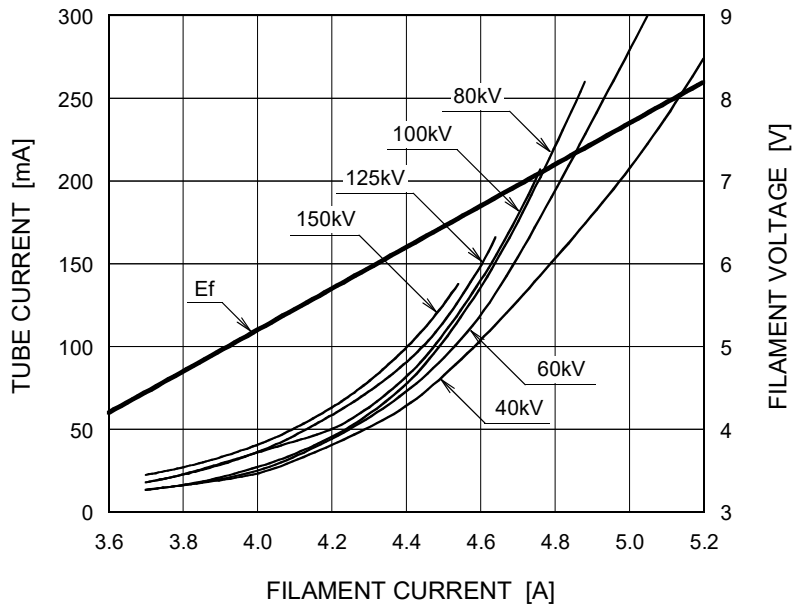
Constant potential high-voltage generator

Nominal Focal Spot Value: 1.2 ■



For Reference Only

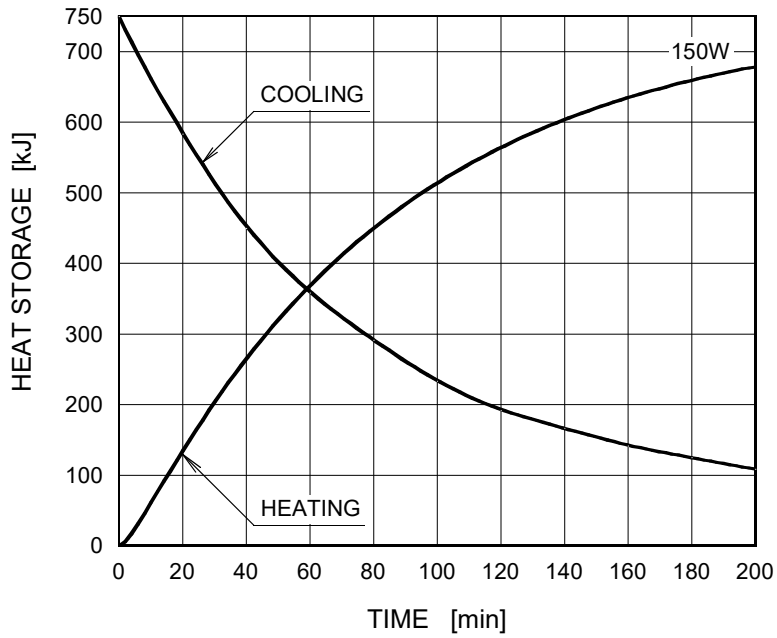
Nominal Focal Spot Value: 0.6 □



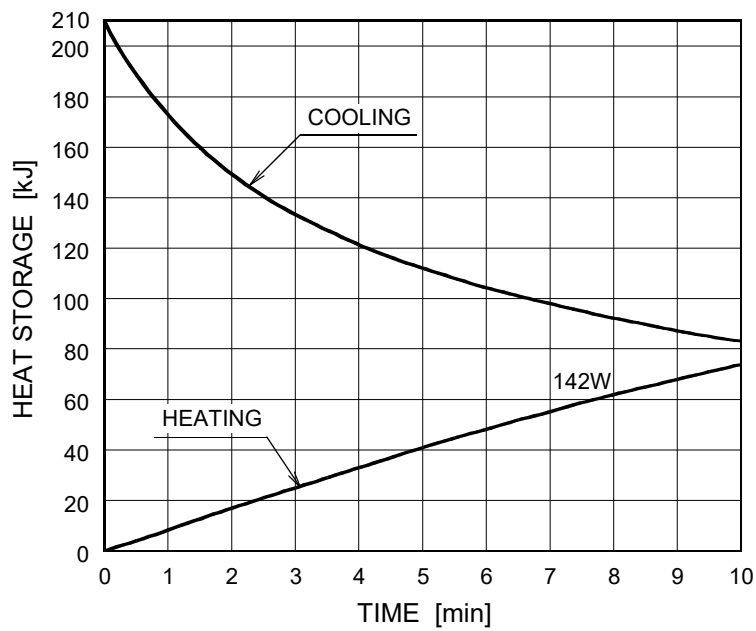
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Thermal Characteristics

X-ray Tube Assembly Heating / Cooling Curve



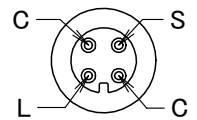
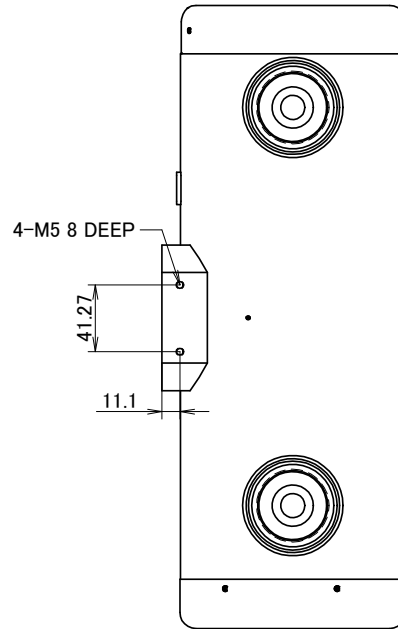
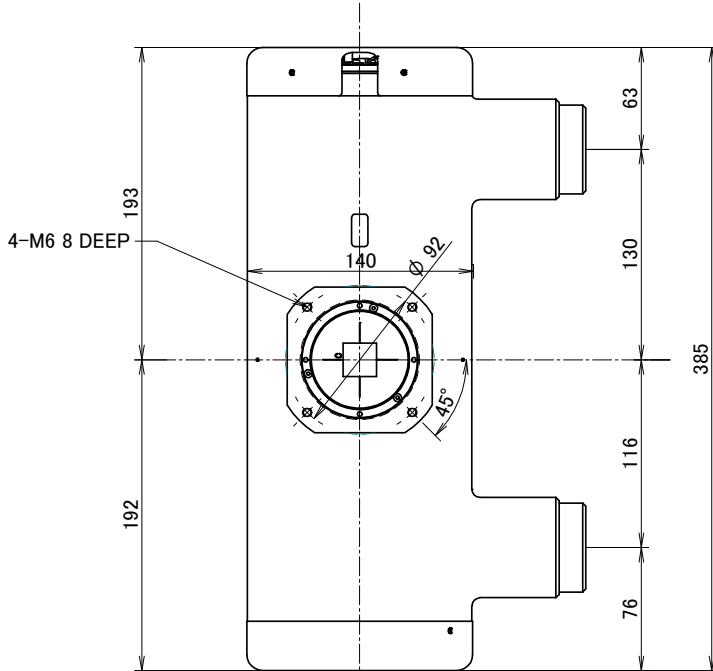
Anode Heating / Cooling Curve



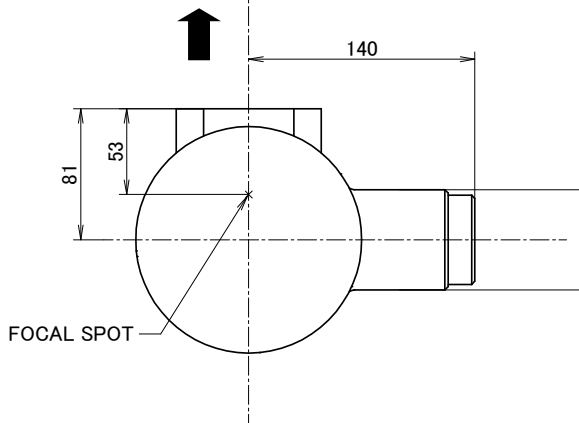
The heating curves are showing example of average input power to anode in operation.

Dimensional Outline

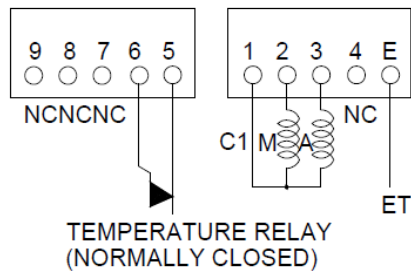
Unit: mm



CLAYMOUNT MINI-75



TERMINAL CONNECTIONS



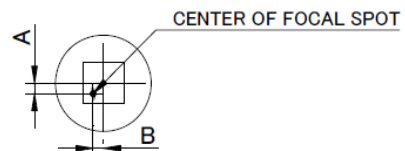
Note) Do not connect terminal No.1 and No.5 or 6 in series circuit.

EXPLANATION OF SYMBOLS

- 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
 : CLAYMOUNT MINI-75

