


ROTANODE™
E7252X
E7252FX  **0197**
E7252GX

Rotating Anode X-ray Tube Assembly

- ◆ High speed 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.
- ◆ These tubes have foci 1.2 and 0.6, and are available for a maximum tube voltage 150 kV.
- ◆ Accommodated with IEC60526 type high-voltage cable receptacles.



General Data

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

Electrical:

Circuit:

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

Nominal X-ray Tube Voltage (IEC60613:2010):

Radiographic 150 kV
Fluoroscopic 125 kV

Nominal Focal Spot Value (IEC60336:2005):

Large Focus 1.2
Small Focus 0.6

Nominal Anode Input Power (at 0.1s) :

		50 Hz	60 Hz	180 Hz
Large Focus	40.6 kW	44.6 kW	75 kW
Small Focus	14.2 kW	16 kW	27 kW

Nominal Radiographic Anode Input Power (IEC60613:2010):

		50 Hz	60 Hz	180 Hz
Large Focus	36 kW	40 kW	70 kW
Small Focus	14.2 kW	16 kW	27 kW

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Motor Ratings:¹⁾

Stator: XS-AL

		Starting		Running	
Driven Frequency	[Hz]	180 ²⁾	60	180 ²⁾	60
Input Power	[W]	1100	910	83	83
Voltage ⁴⁾⁶⁾	[V]	220	130	60	40
Current ⁵⁾	[A]	5.7	7.8	1.6	2.3
Min. Speed Up ²⁾⁸⁾	[s]	1.2	0.8	-	-
Capacitor	[µF]	6	44	6	44
Min. Braking ³⁾⁸⁾	[s]	3 / 90 V (DC)			

Stator Resistance:

Common-Main Winding 9.4 Ω
 Common-Auxiliary Winding 28.3 Ω

Stator: XS-RA

		Starting		Running	
Driven Frequency	[Hz]	180 ²⁾	50/60	180 ²⁾	50/60
Input Power	[W]	2300	1450	300	80
Voltage ⁴⁾⁶⁾	[V]	460	240	130	58
Current ⁵⁾	[A]	5.4	6.5	2.0	1.5
Min. Speed Up ²⁾⁸⁾	[s]	1.0	0.6	-	-
Capacitor	[µF]	3	24	3	24
Min. Braking ³⁾⁸⁾	[s]	1.5 / 90 V (DC)			

Stator Resistance:

Common-Main Winding 27.5 Ω
 Common-Auxiliary Winding 58.0 Ω

Note 1) To be obtained with AID starter Model 60/180.

2) The speed up time from normal speed to high speed is 2/3 times of the specified speed up time from 0 to high speed, which is described on motor rating table.

3) To be applied for high speed rotation.

4) Applied voltage between common and main terminal.

5) Common current.

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

7) No more than two high speed starts per minute are permissible.

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

Anode Speed:

50 Hz Minimum 2700 min⁻¹
 60 Hz Minimum 3200 min⁻¹
 180 Hz Minimum 9700 min⁻¹

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	476 mm
Maximum Diameter	152.4 mm
Target:	
Anode Angle	12 degrees
Diameter	74 mm
Construction	Rhenium-Tungsten faced Molybdenum
Filtration:	
Permanent Filtration	0.9 mm Al / 75 kV IEC60522:1999
Available Additional Filter combination (0.4 - 1.5 mm)	Maximum 2.4 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.)	18 kg
High Voltage Receptacle	To meet the requirements of IEC60526 Corrigendum1:2010
Cooling Method	Natural or forced air
Tube Housing Model Number:	
E7252X	XH-106V
E7252FX	XH-181
E7252GX	XH-180

Absolute Maximum and Minimum Ratings

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

Maximum X-ray Tube Voltage (IEC60613:2010):

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 (IEC60613:2010) See rating charts

Large Focus 1000 mA

Small Focus 400 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) 6.3 ~ 8.5 V

Filament Frequency Limits 0 ~ 25 kHz

Continuous Anode Input Power (IEC60613:2010) 120 W (169 HU/s)

(Fluoroscopic, repeated radiographic or mixed exposure)

Thermal Characteristics:

Anode Heat Content 210 kJ (300 kHU)

Maximum Anode Heat Dissipation 475 W (667 HU/s)

X-ray Tube Assembly Heat Content 900 kJ (1250 kHU)

Nominal Continuous Input Power (IEC60613:2010):

Without Air-circulator 200 W (16 kHU/min)

Environmental Limits

Operating Limits:

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

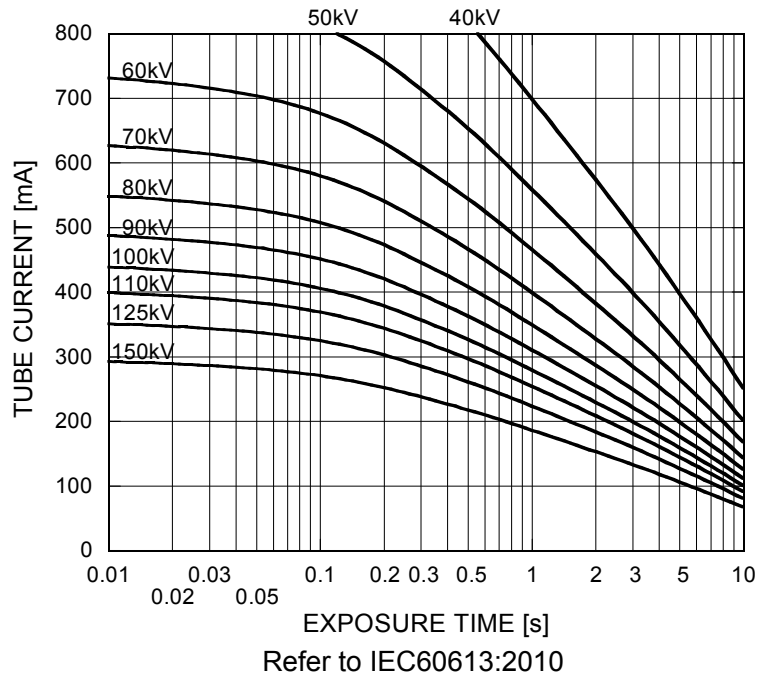
Shipping and Storage Limits:

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

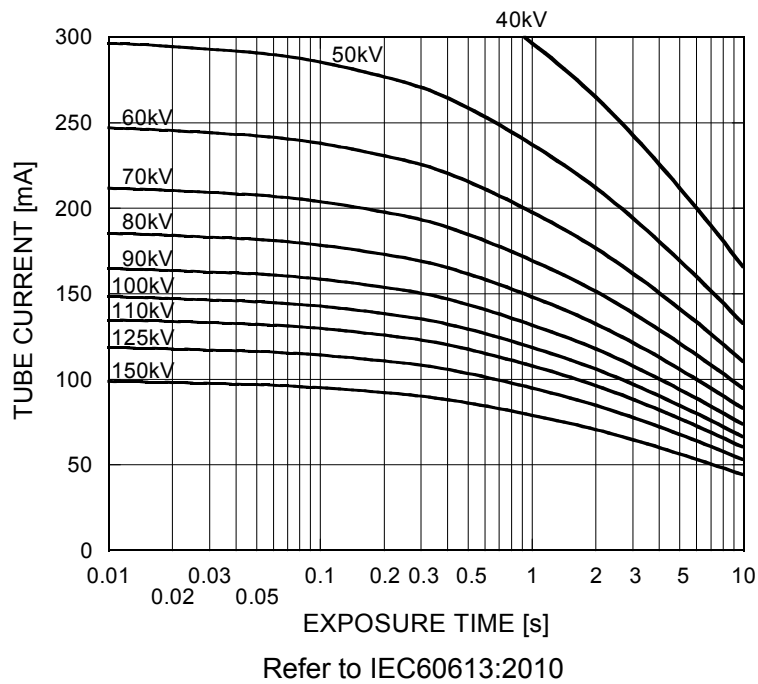
Maximum Rating Charts (Absolute Maximum Rating Charts)

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

Nominal Focal Spot Value: 1.2 ■



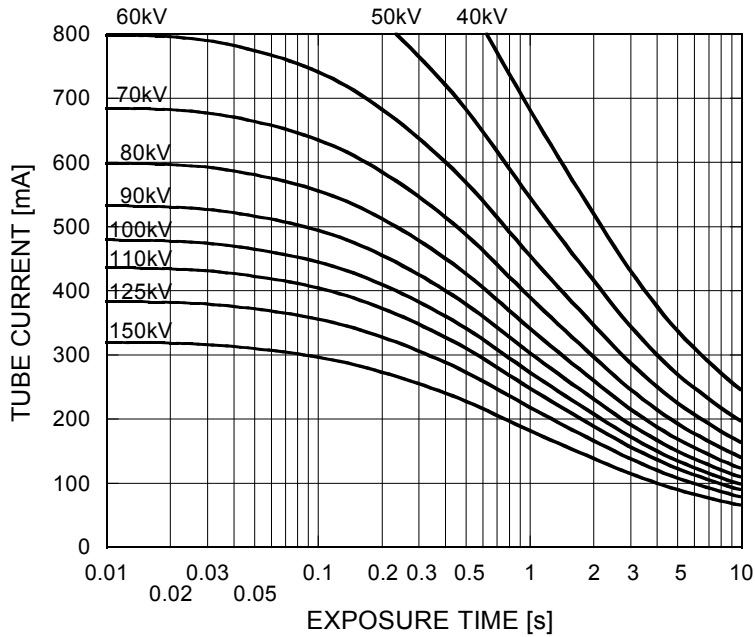
Nominal Focal Spot Value: 0.6 □



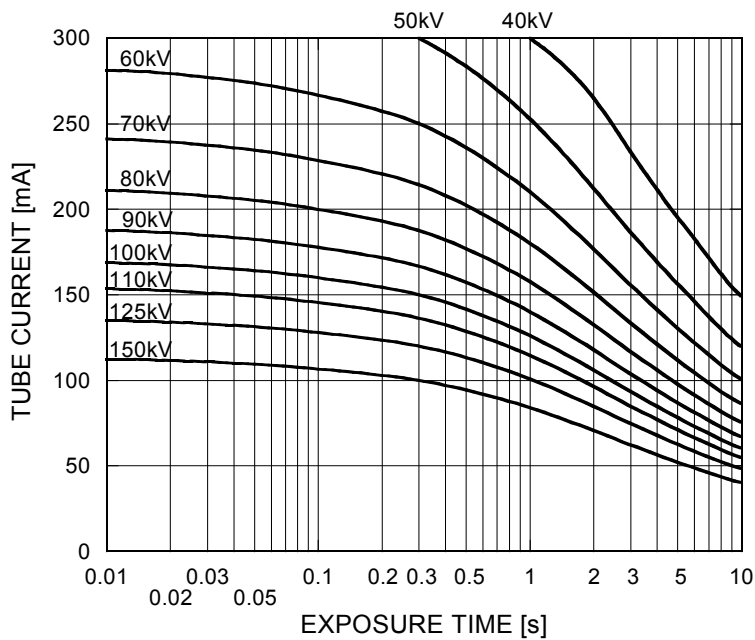
Maximum Rating Charts (Absolute Maximum Rating Charts)

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

Nominal Focal Spot Value: 1.2 ■



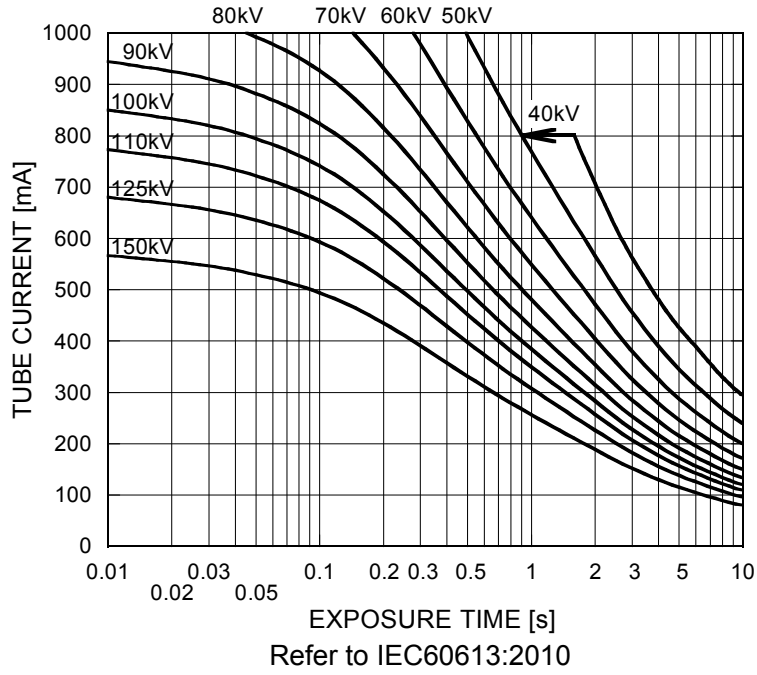
Nominal Focal Spot Value: 0.6 □



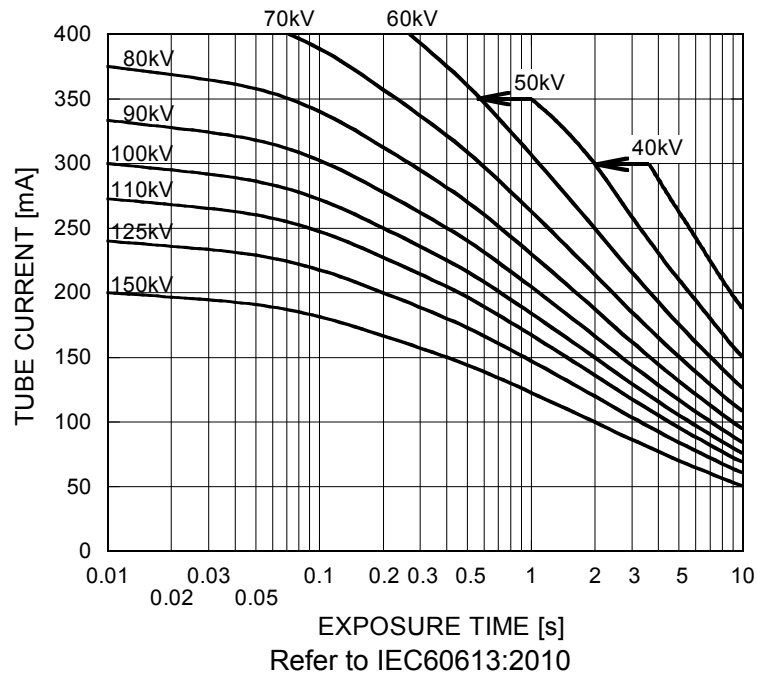
Maximum Rating Charts (Absolute Maximum Rating Charts)

Conditions: Tube Voltage
Constant Potential High-Voltage Generator
Stator Power Frequency 180Hz

Nominal Focal Spot Value: 1.2 ■



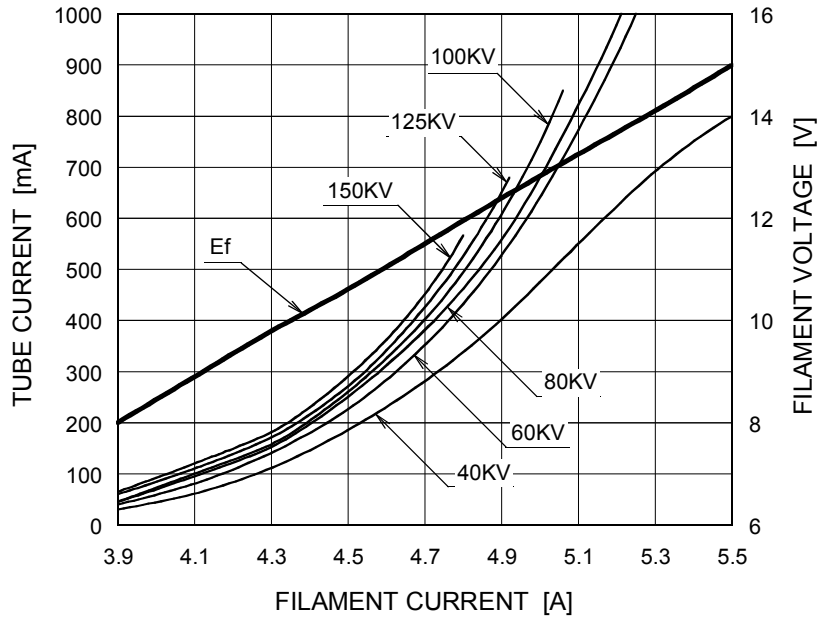
Nominal Focal Spot Value: 0.6 □



Emission & Filament Characteristics

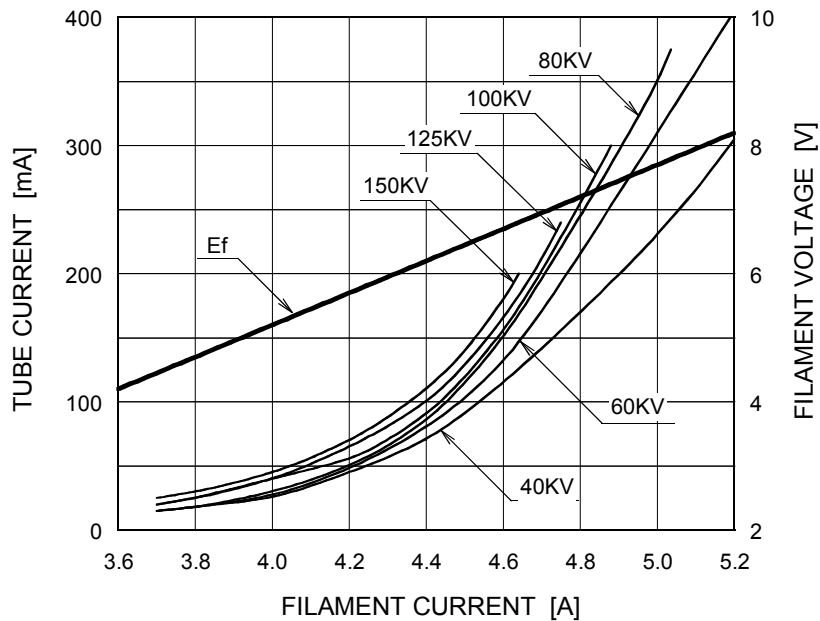
Constant Potential High-Voltage Generator

Nominal Focal Spot Value: 1.2 ■



Note1) For Reference Only
 Note2) Refer to IEC60613:2010

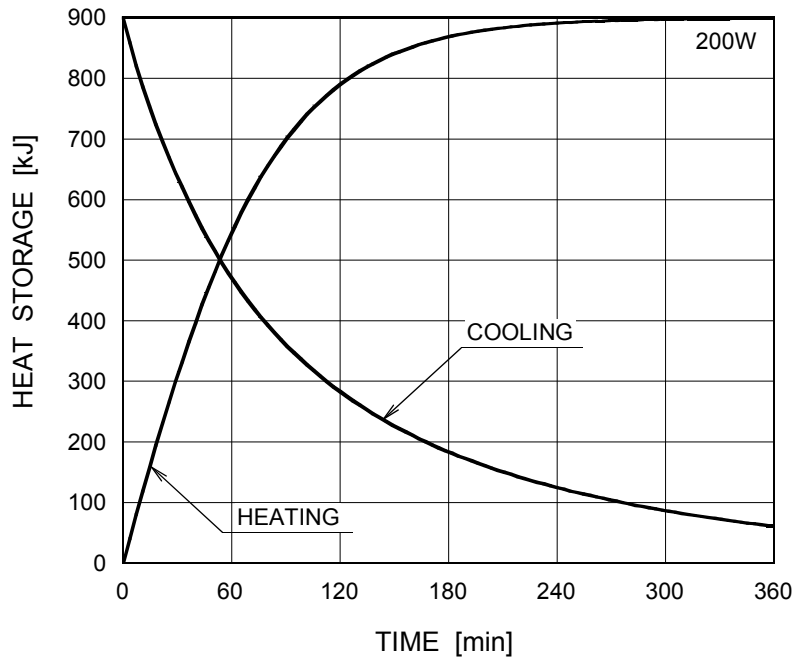
Nominal Focal Spot Value: 0.6 □



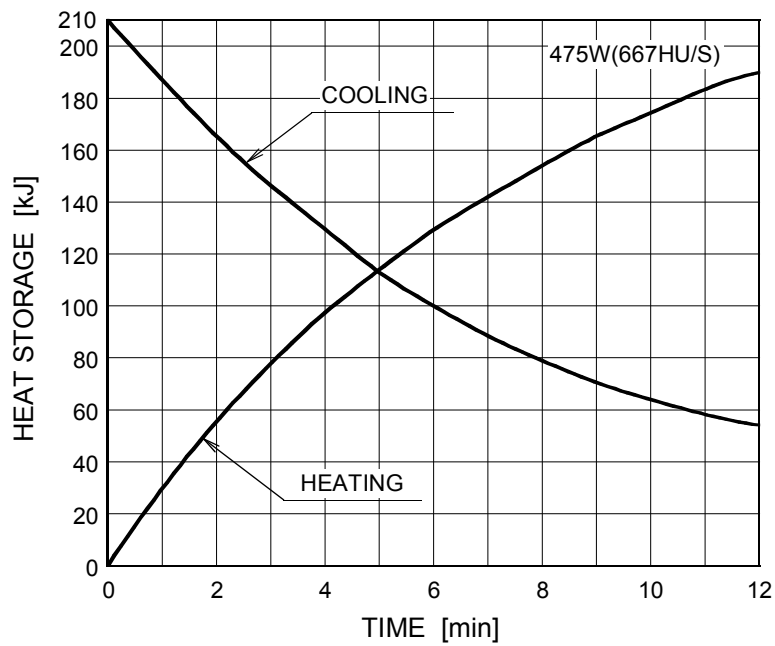
Note1) For Reference Only
 Note2) Refer to IEC60613:2010

Thermal Characteristics

X-ray Tube Assembly Heating / Cooling Curve



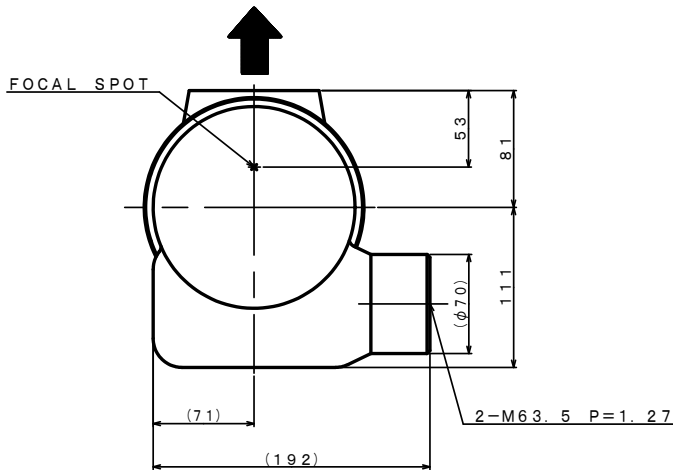
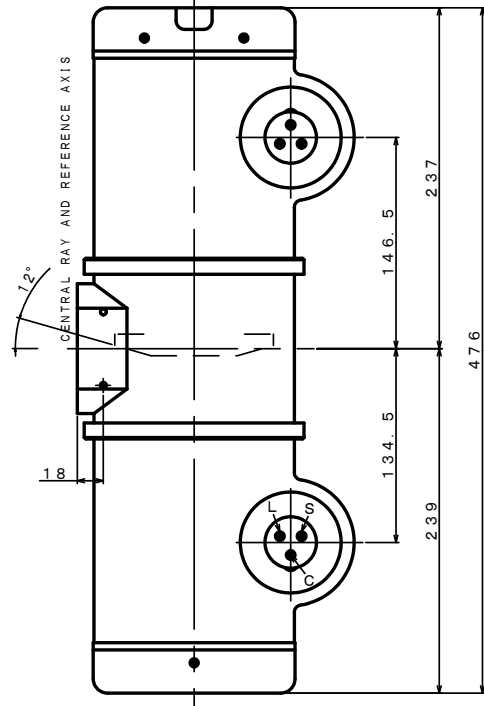
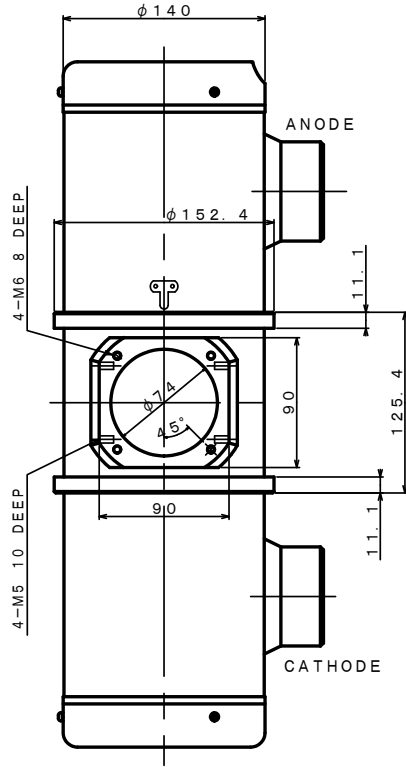
Anode Heating / Cooling Curve



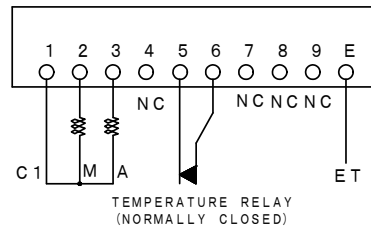
The heating curves are showing examples of average input power to the anode in operation.

Dimensional Outline of E7252X

Unit mm



TERMINAL CONNECTIONS



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

EXPLANATION OF SYMBOLS

CATHODE TERMINAL

C : COMMON

L : LARGE FOCUS

S : SMALL FOCUS

TERMINAL CONNECTIONS

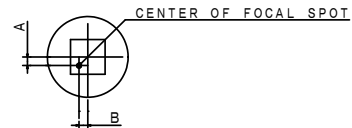
C1 : COMMON

M : MAIN WINDING OF THE STATOR

A : AUX. WINDING OF THE STATOR

NC : NON-CONNECTION

ET : EARTH TERMINAL

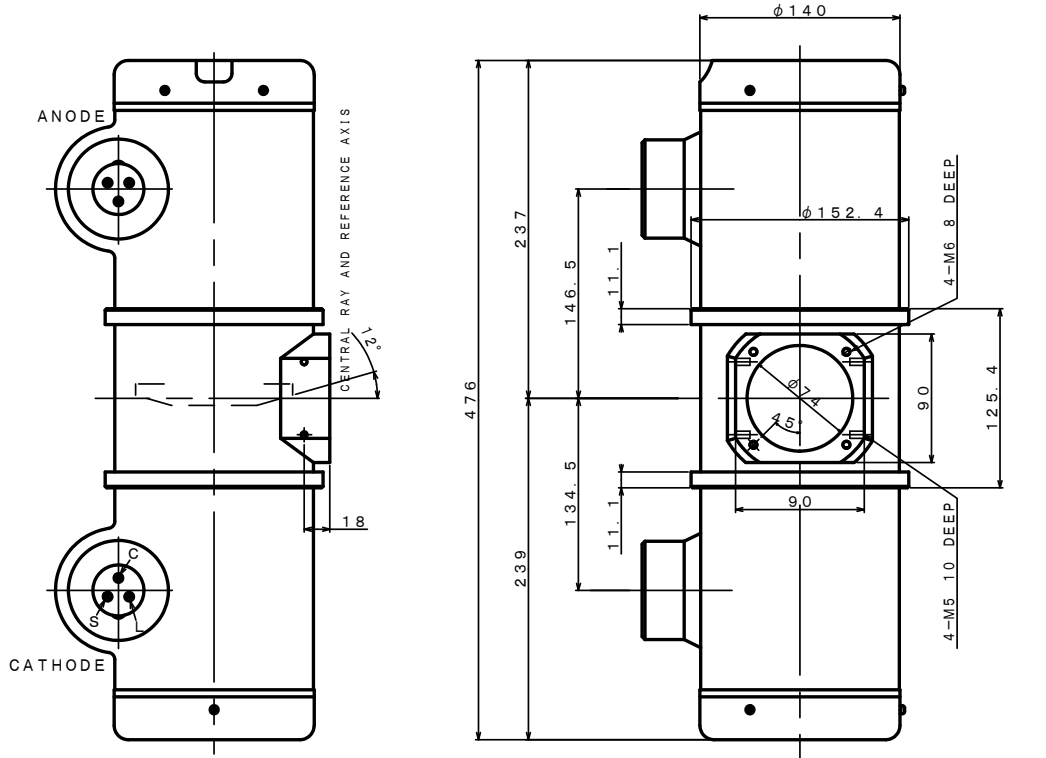


-1.5mm ≤ A ≤ 1.5mm
-1.5mm ≤ B ≤ 1.5mm

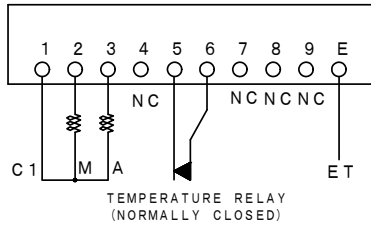
↑ : CENTRAL X-RAY
ANODE & CATHODE TERMINAL
: IEC60526 TYPE

Dimensional Outline of E7252FX

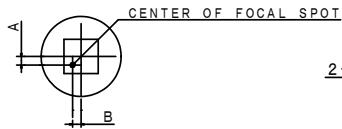
Unit mm



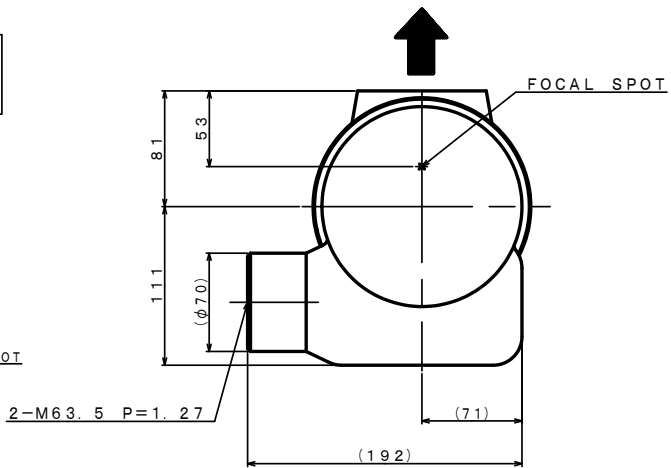
TERMINAL CONNECTIONS



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



-1.5mm ≤ A ≤ 1.5mm
-1.5mm ≤ B ≤ 1.5mm



EXPLANATION OF SYMBOLS

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

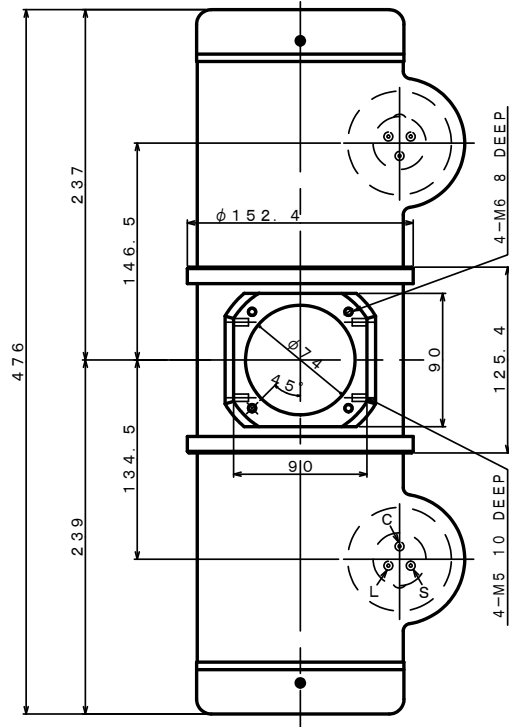
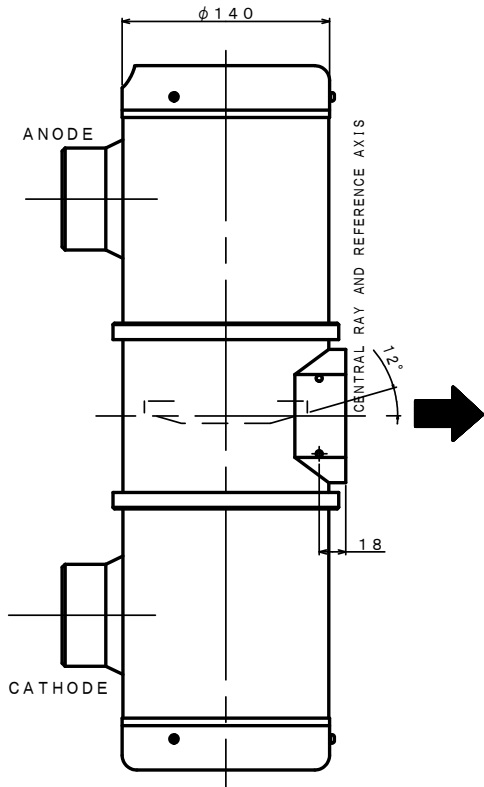
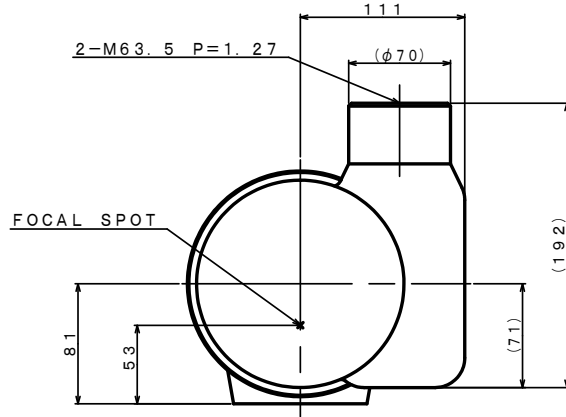
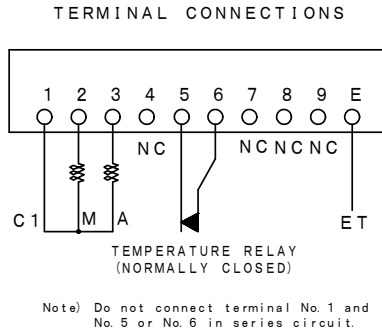
TERMINAL CONNECTIONS

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

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

Dimensional Outline of E7252GX

Unit mm



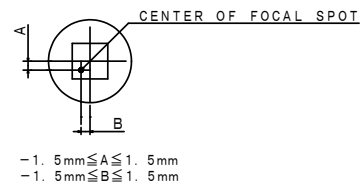
EXPLANATION OF SYMBOLS

CATHODE TERMINAL

- C : COMMON
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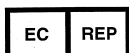
TERMINAL CONNECTIONS

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- NC : NON-CONNECTION
- ET : EARTH TERMINAL



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

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