

**ROTANODE™  
E7242X  
E7242FX  
E7242GX**

**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.
- ◆ These tubes have foci 1.5 and 0.6, and are available for a maximum tube voltage 125 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 ..... 125 kV

Nominal Focal Spot Value:

Large Focus ..... 1.5  
 Small Focus ..... 0.6

Nominal Anode Input Power (at 0.1s):

	60 Hz	50 Hz
Large Focus .....	50 kW	47 kW
Small Focus .....	18 kW	16.5 kW

Nominal Radiographic Anode Input Power:

	60 Hz	50 Hz
Large Focus .....	41 kW	37 kW
Small Focus .....	16 kW	15 kW

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Motor Ratings:

Stator: XS-RA

Driven Frequency [Hz]	Starting		Running
	50/60		50/60
Input Power [W]	1050	270	43
Voltage <sup>1) 3)</sup> [V]	200	100	40
Current <sup>2)</sup> [A]	6.0	3.0	1.2
Min. Speed Up <sup>4)</sup> [s]	0.8	1.5	-
Capacitor [ $\mu$ F]	24	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<sup>-1</sup>  
 50 Hz ..... Minimum 2700 min<sup>-1</sup>

Stator Resistance:

Common-Main Winding ..... 27.5  $\Omega$   
 Common-Auxiliary Winding ..... 58.0  $\Omega$

Resistance between Housing and Low Voltage Terminals ..... Minimum 2 M $\Omega$

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 ..... 14 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 ..... 125 kV, 4 mA

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

Weight (Approx.) ..... 16 kg

High Voltage Receptacle ..... To meet the requirements of IEC60526 Corrigendum1:2010

Cooling Method ..... Natural or forced air

Tube Housing Model Number:

E7242X ..... XH-121

E7242FX ..... XH-126

E7242GX ..... XH-150

## Absolute Maximum and Minimum Ratings

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

### Maximum X-ray Tube Voltage:

Radiographic .....	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 .....	800 mA
Small Focus .....	290 mA

### Maximum Filament Current:

Large Focus .....	5.3 A
Small Focus .....	5.3 A

### Filament Voltage:

Large Focus (At maximum filament current 5.3 A) .....	10.6 ~ 14.4 V
Small Focus (At maximum filament current 5.3 A) .....	5.1 ~ 6.9 V

Filament Frequency Limits ..... 0 ~ 25 kHz

Continuous Anode Input Power ..... 60 W (85HU/s)

### Thermal Characteristics:

Anode Heat Content .....	142 kJ (200 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)
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## Environmental Limits

### Operating Limits:

Temperature .....	10 ~ 40 °C
Humidity .....	30 ~ 85 %
	(No condensation)

Atmospheric Pressure ..... 70 ~ 106 kPa

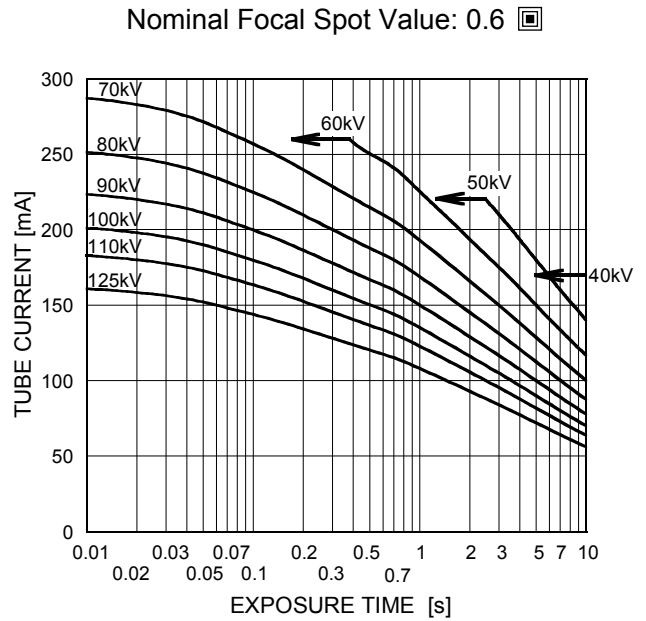
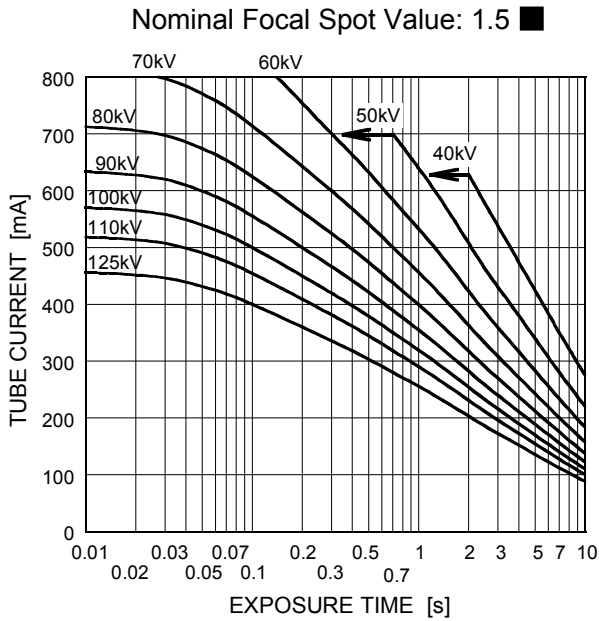
### Shipping and Storage Limits:

Temperature .....	-20 ~ 70 °C
Humidity .....	20 ~ 90 %
	(No condensation)

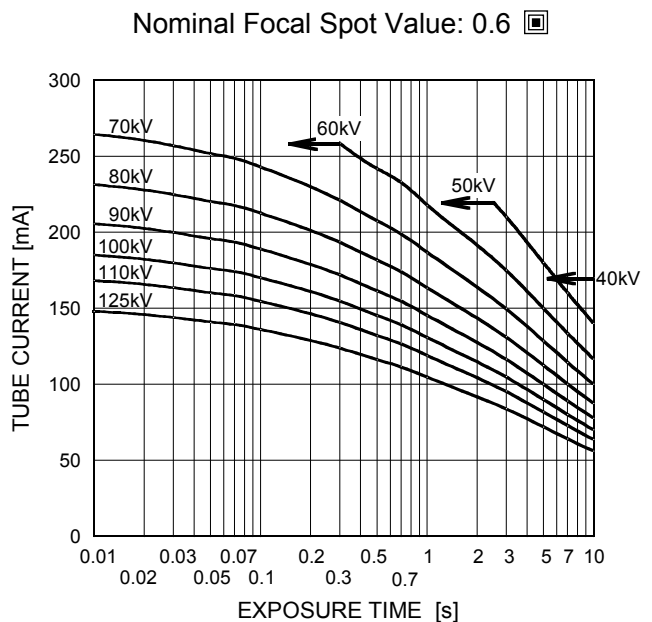
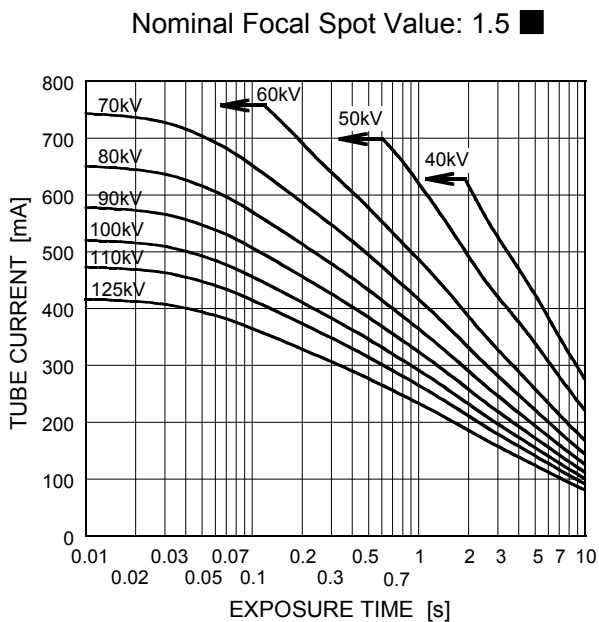
Atmospheric Pressure ..... 50 ~ 106 kPa

## Maximum Rating Charts (Absolute Maximum Rating Charts)

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



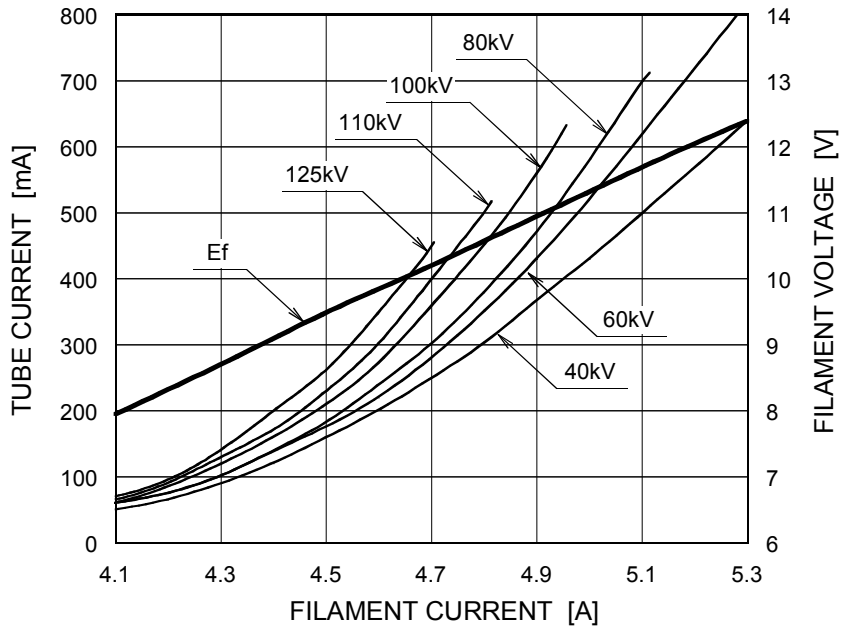
Conditions: Tube Voltage  
Constant Potential High-Voltage Generator  
Stator Power Frequency 50Hz



## Emission & Filament Characteristics

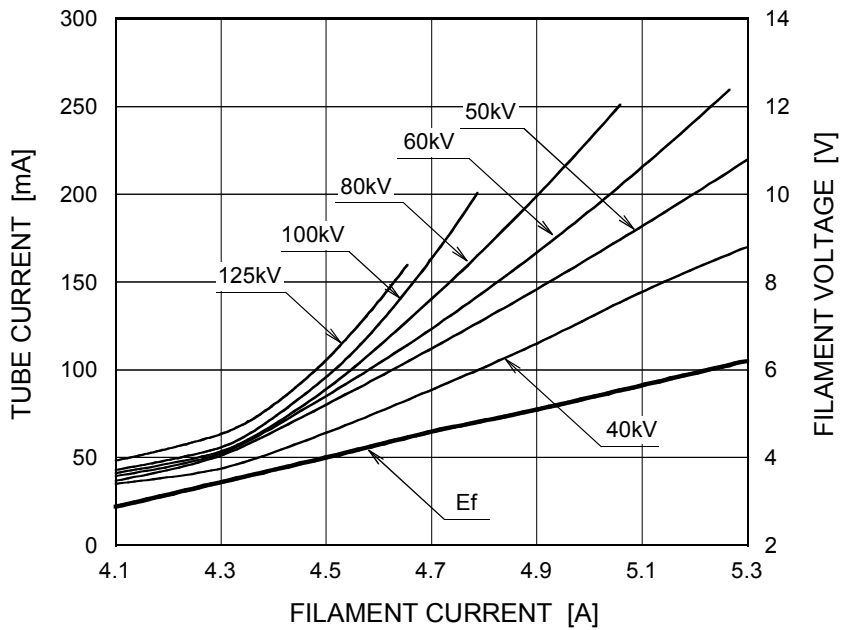
Constant Potential High-Voltage Generator

Nominal Focal Spot Value: 1.5 ■



For Reference Only

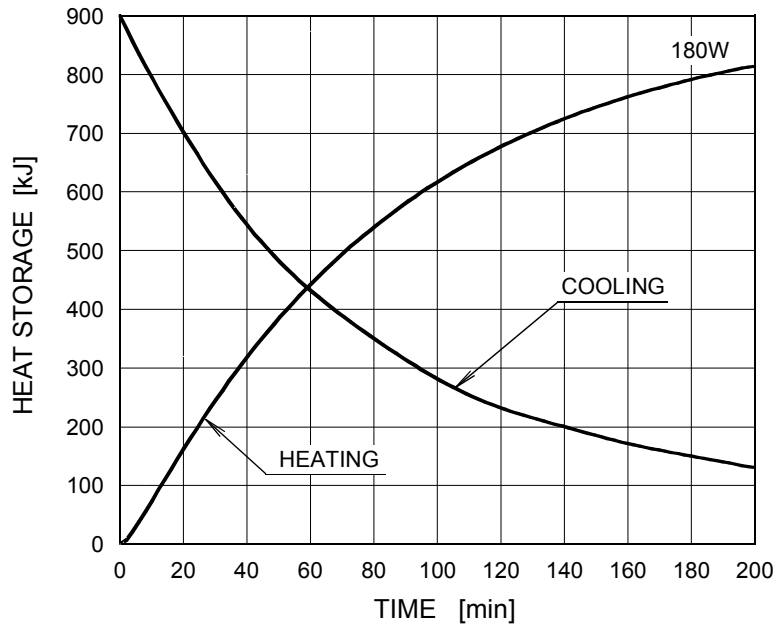
Nominal Focal Spot Value: 0.6 □



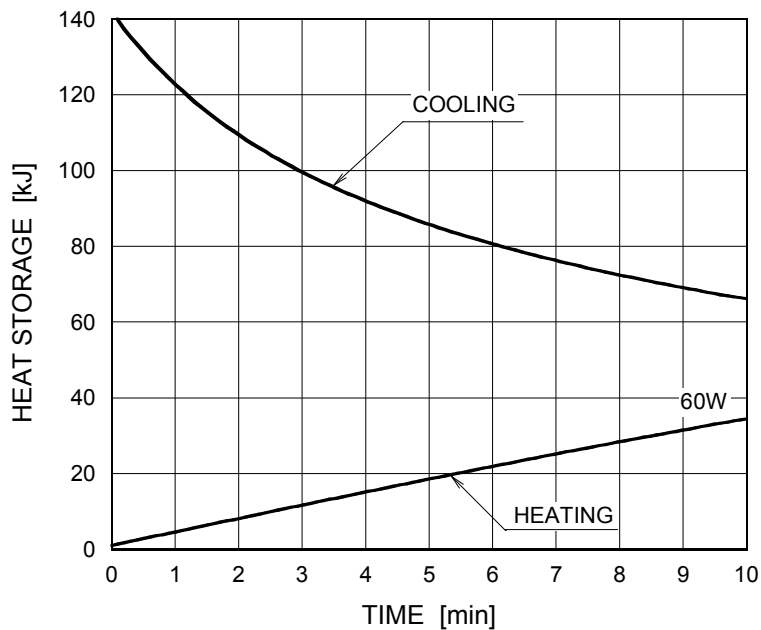
For Reference Only

## Thermal Characteristics

X-ray Tube Assembly Heating / Cooling Curve



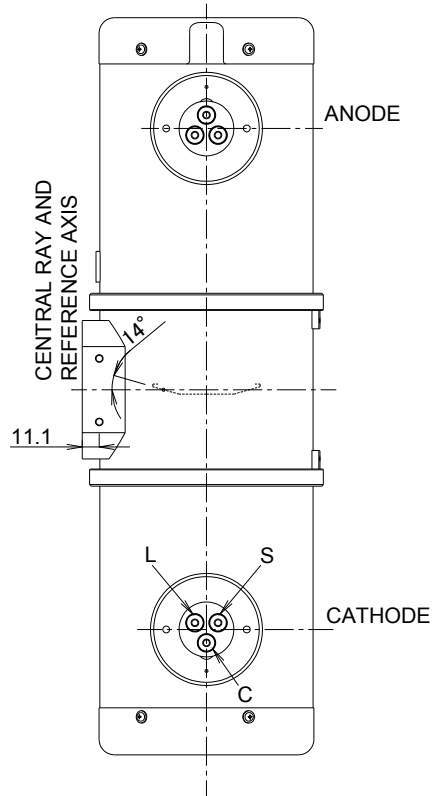
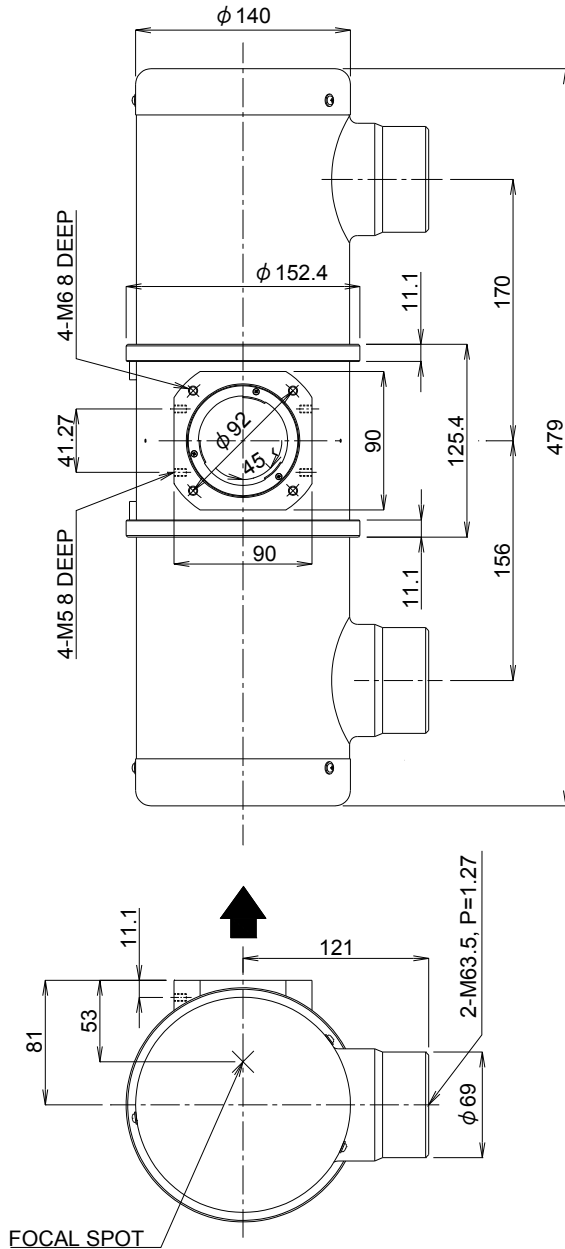
Anode Heating / Cooling Curve



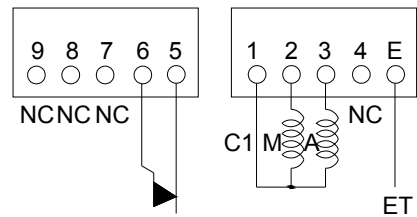
The heating curves are showing examples of average input power to anode in operation.

### Dimensional Outline of E7242X

Unit mm



#### TERMINAL CONNECTIONS



TEMPERATURE RELAY  
(NORMALLY CLOSED)

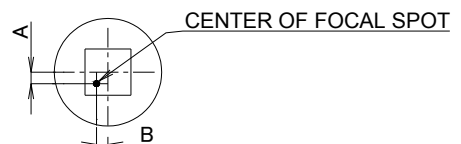
Note) Do not connect terminal No.1 and No.5 or 6 in series circuit.

#### 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

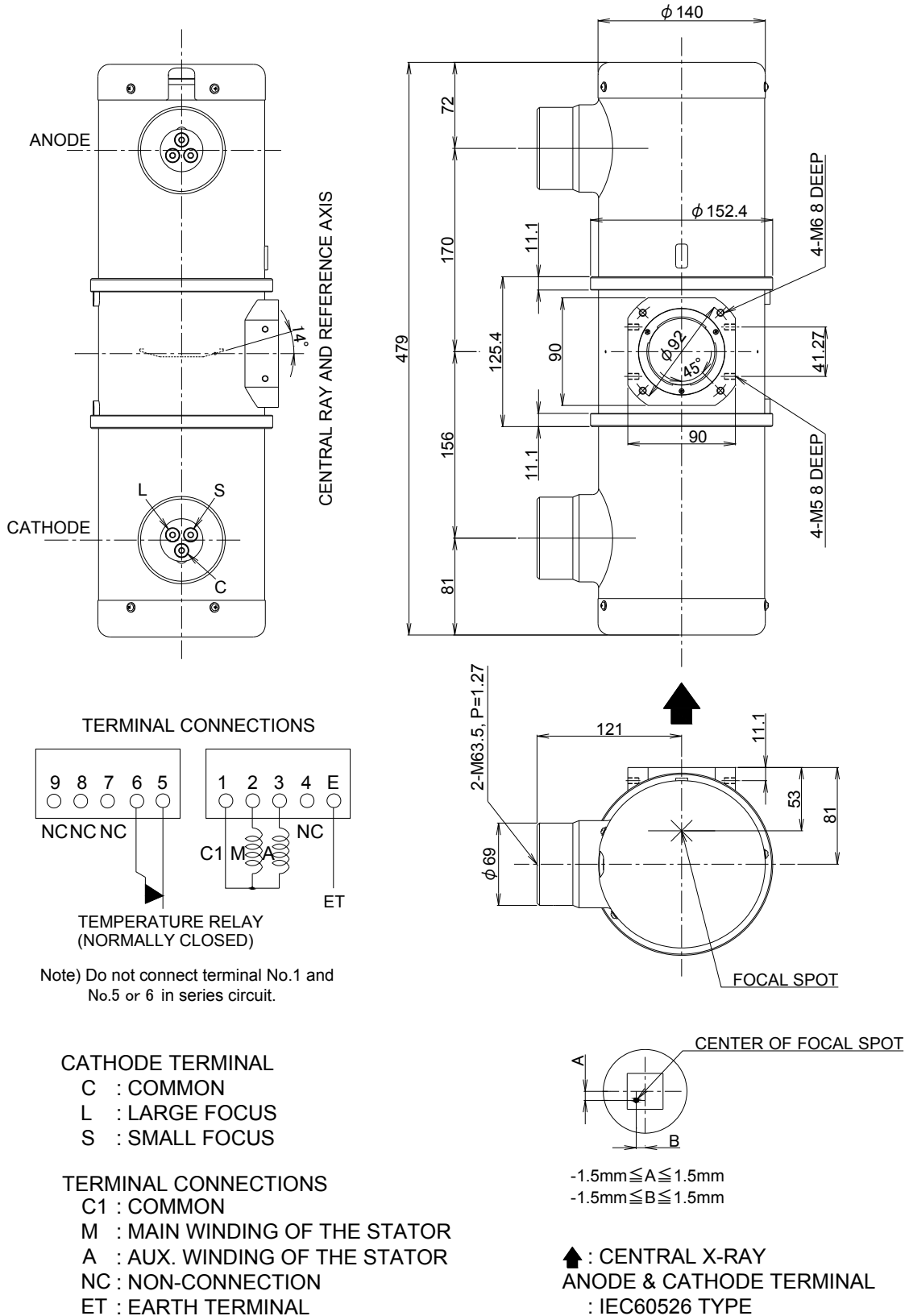


$-1.5\text{mm} \leq A \leq 1.5\text{mm}$   
 $-1.5\text{mm} \leq B \leq 1.5\text{mm}$

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

## Dimensional Outline of E7242FX

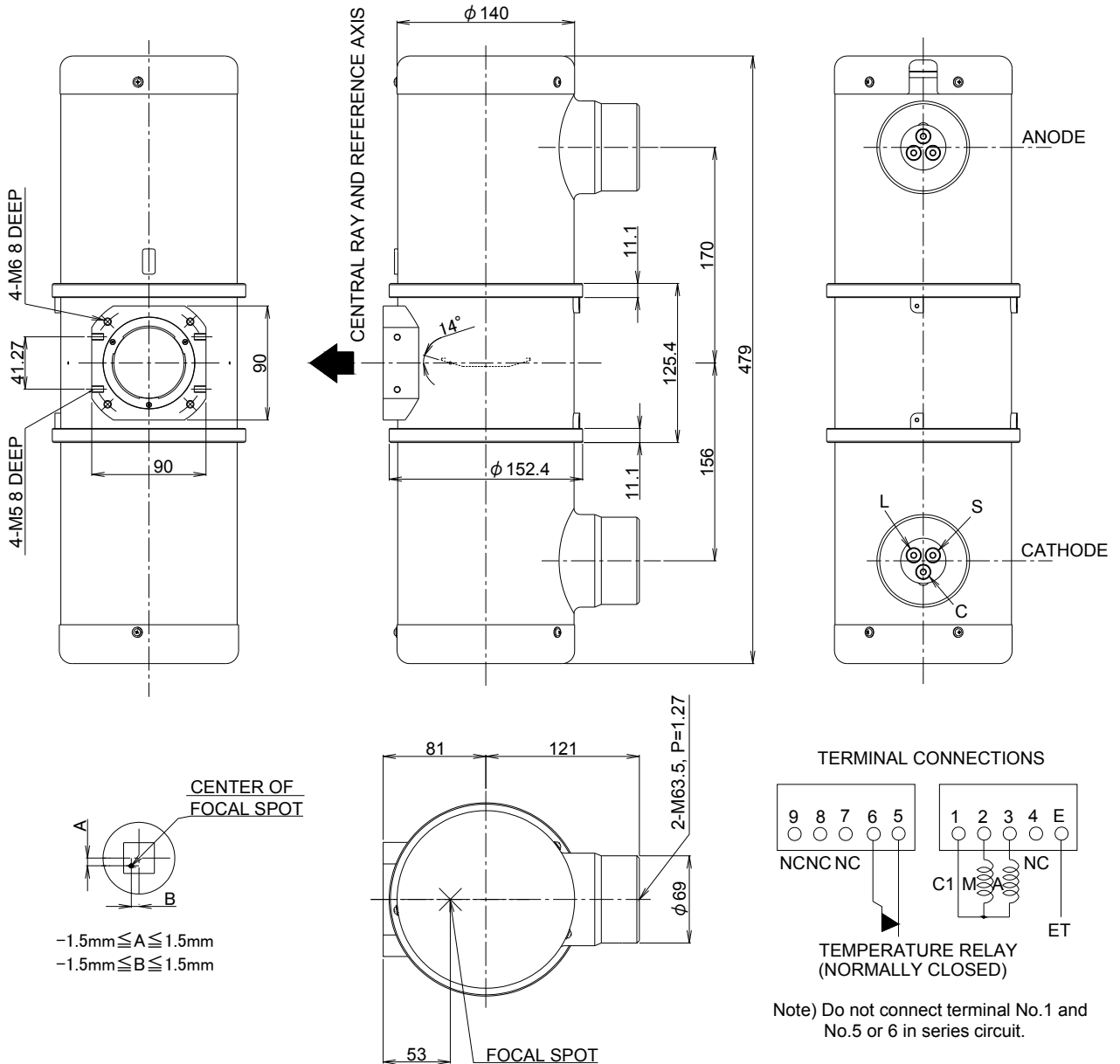
Unit mm





### Dimensional Outline of E7242GX

Unit mm



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

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



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