ROTANODE™

XRR-6652X

Rotating Anode X-ray Tube Assembly

- High speed rotating anode X-ray tube assembly for high energy radiographic operations.
- For the purpose of general diagnostic X-ray procedures.
- This tube has foci 0.8 and 0.3, and is available for a maximum tube voltage 150 kV.
- The anode disk is constructed with specially processed rhenium-tungsten-faced molybdenum target of 100 mm diameter.

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

Fluoroscopic ..... 125 kV

Nominal Focal Spot Value:

Large Focus 0.8

Small Focus 0.3

Nominal Anode Input Power (at 0.1s) ..... See rating charts

	180 Hz	60 Hz	50 Hz
Large Focus	52 kW	30 kW	29 kW
Small Focus	12 kW	6.5 kW	6.1 kW

Nominal Radiographic Anode Input Power:

	180 Hz	60 Hz	50 Hz
Large Focus	52 kW	30 kW	29 kW
Small Focus	12 kW	6.5 kW	6.1 kW

Motor Ratings:

Stator: XS-AG

		Starting		Running	
Driven Frequency	[Hz]	180	60	180	50/60
Input Power	[W]	3710	800	200	90
Voltage [3) 5)]	[V]	420	190	80	48
Current [4)]	[A]	9.6	10.2	3.0	2.2
Min. Speed Up [1) 7)]	[s]	1.2	0.8	-	-
Capacitor	[μF]	6	44	6	44
Min. Braking [2) 7)]	[s]	2.0 (DC 100V)			

Note 1) 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.
2) To be applied for high speed rotation.
3) Applied voltage between common and main terminal.
4) Common current.
5) The every applied voltage must be never exceeded 110% of the above specification.
6) No more than two high speed starts per minute are permissible.
7) The speed-up time is allowed up to 110% of the above specification.

Anode Speed:

180 Hz ..... Minimum 9700 min^{-1}
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 ..... 445.3 mm
- Maximum Diameter ..... 165.6 mm

Target:
- Anode Angle ..... 12 degrees
- Diameter ..... 100 mm
- Construction ..... Rhenium-Tungsten faced Molybdenum

Permanent Filtration ..... 1.5 mm Al / 75 kV IEC60522:1999

Radiation Protection (In accordance with IEC60601-1-3:2008):
- Leakage Technique Factor ..... 150 kV, 3.3 mA

X-ray Coverage ..... 430 × 430 mm at SID 1000 mm

Weight:
- Tube Housing Unit ..... Approx. 23 kg
- Heat Exchanger, Hose ..... Approx. 17 kg

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

Cooling Method ..... Oil Circulation

Tube Housing Model Number XH-1022

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

Maximum X-ray Tube Voltage:
- 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:
- Large Focus ..... 700 mA
- Small Focus ..... 150 mA

Maximum Filament Current:
- Large Focus ..... 5.5 A
- Small Focus ..... 5.0 A

Filament Voltage:
- Large Focus (At maximum filament current 5.5 A) ..... 11.6 ~ 14.8 V
- Small Focus (At maximum filament current 5.0 A) ..... 4.6 ~ 5.8 V

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

Continuous Anode Input Power ..... 500 W (700 HU/s)
(Fluoroscopic, Radiographic or mixed exposure)

Thermal Characteristics:
- Anode Heat Content ..... 420 kJ (600 kHU)
- Maximum Anode Heat Dissipation ..... 1670 W (2300 HU/s)
- X-ray Tube Assembly Heat Content ..... 1420 kJ (2000 kHU)
- Nominal Continuous Input Power:
  - Oil Circulation (Heat Exchanger, Without Tube Cover) ..... 1000 W (84.7 kHU/min)

Environmental Limits

Operating Limits:

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

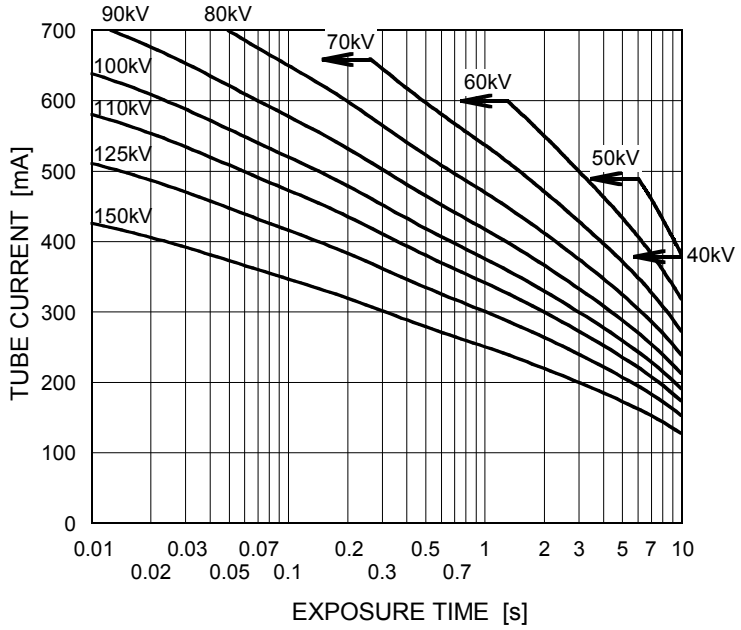
Shipping and Storage Limits:

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

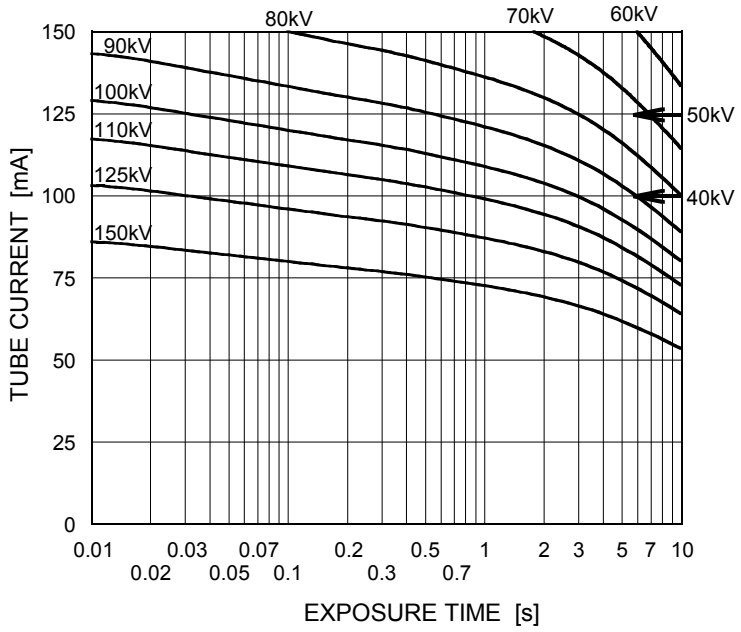
Maximum Rating Charts
(Absolute Maximum Rating Charts)

Conditions: Tube Voltage
Constant potential high-voltage generator
Stator Power Frequency 180Hz

Nominal Focal Spot Value: 0.8 ■



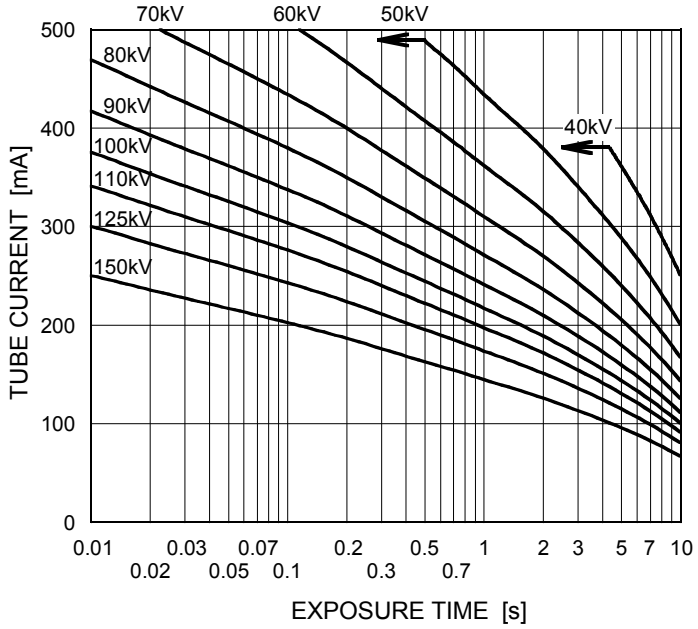
Nominal Focal Spot Value: 0.3 ▣



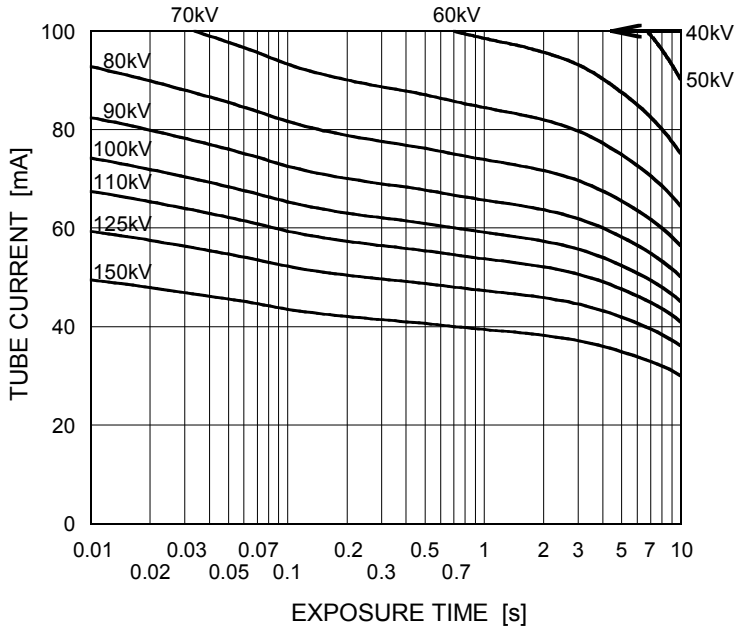
Maximum Rating Charts
(Absolute Maximum Rating Charts)

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

Nominal Focal Spot Value: 0.8 ■



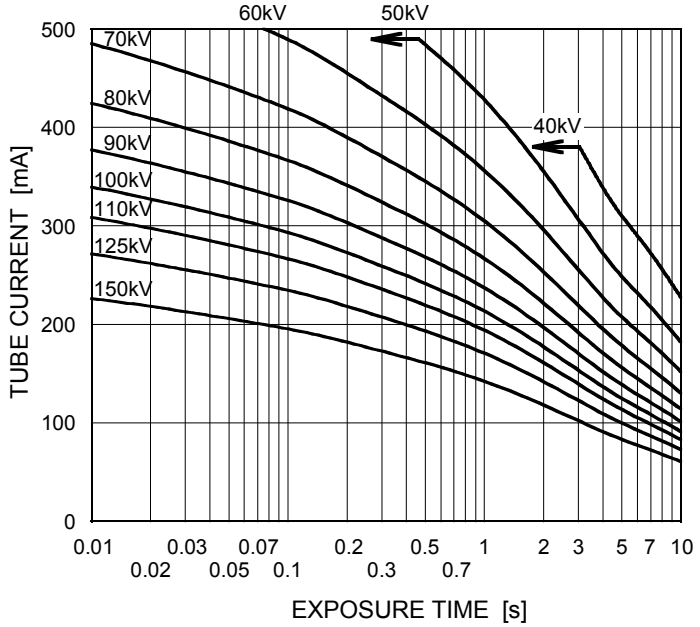
Nominal Focal Spot Value: 0.3 ▣



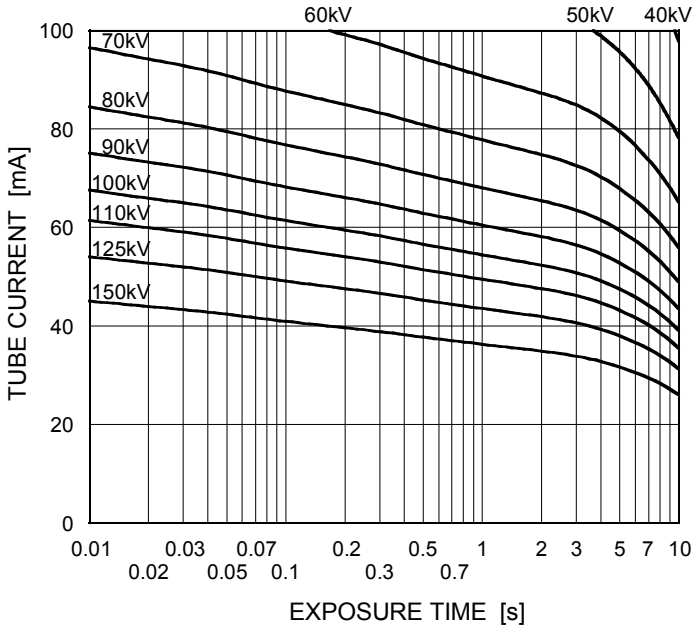
Maximum Rating Charts
(Absolute Maximum Rating Charts)

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

Nominal Focal Spot Value: 0.8 ■



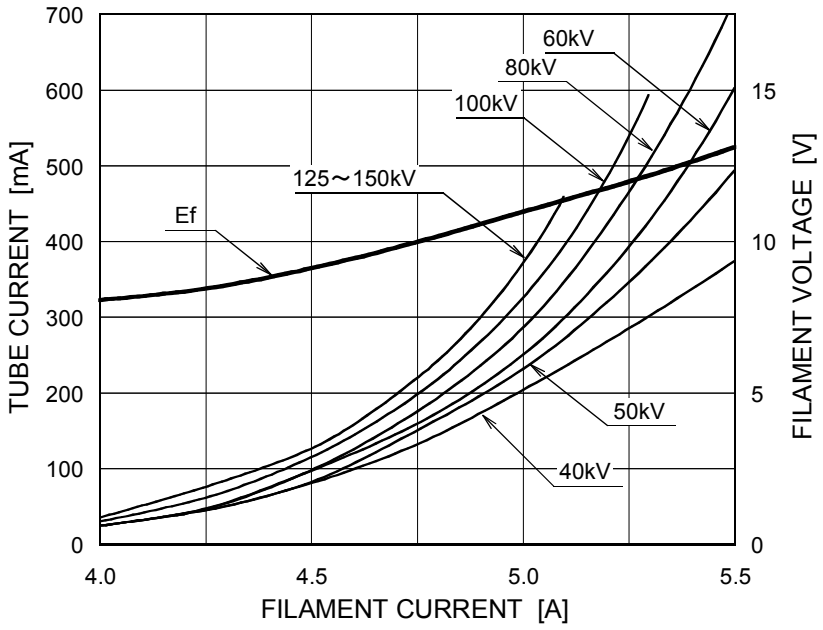
Nominal Focal Spot Value: 0.3 ▣



Emission & Filament Characteristics

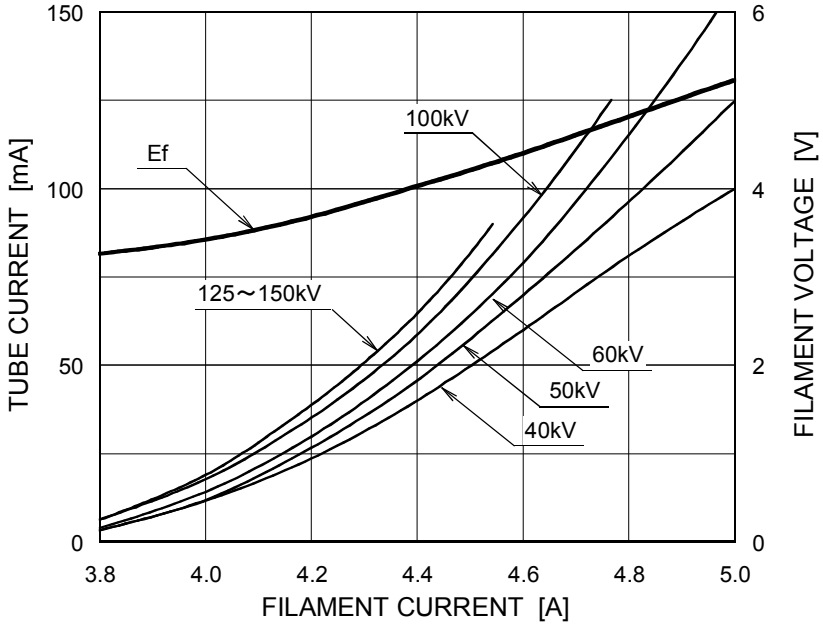
Constant potential high-voltage generator

Nominal Focal Spot Value: 0.8 ■



For Reference Only

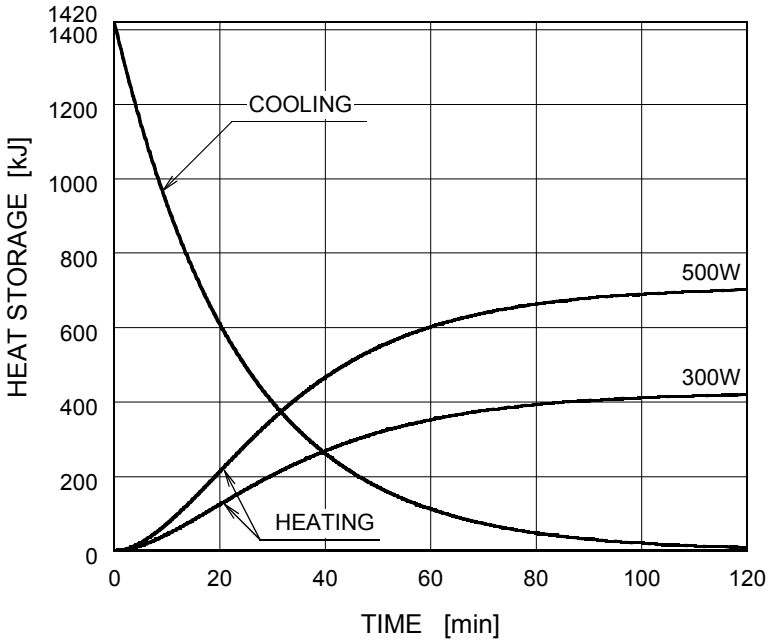
Nominal Focal Spot Value: 0.3 ▣



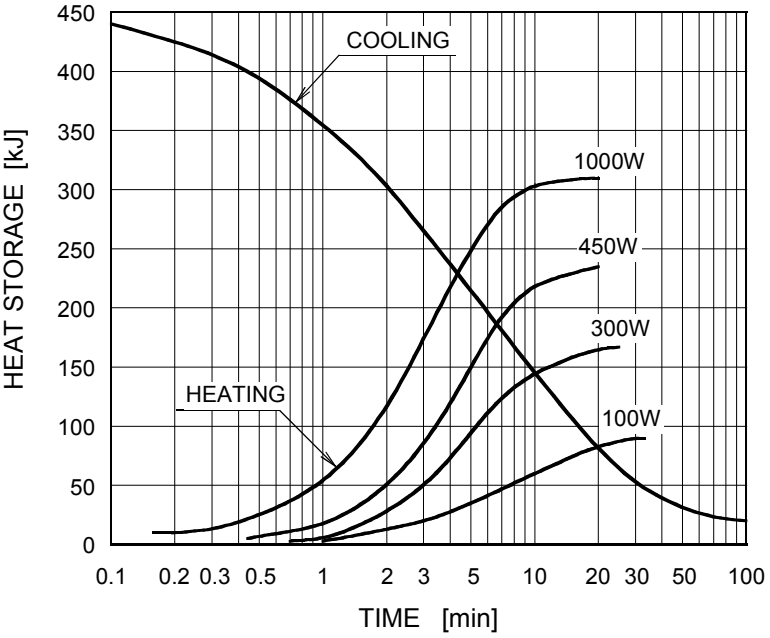
For Reference Only

Thermal Characteristics

X-ray Tube Assembly Heating / Cooling Curve

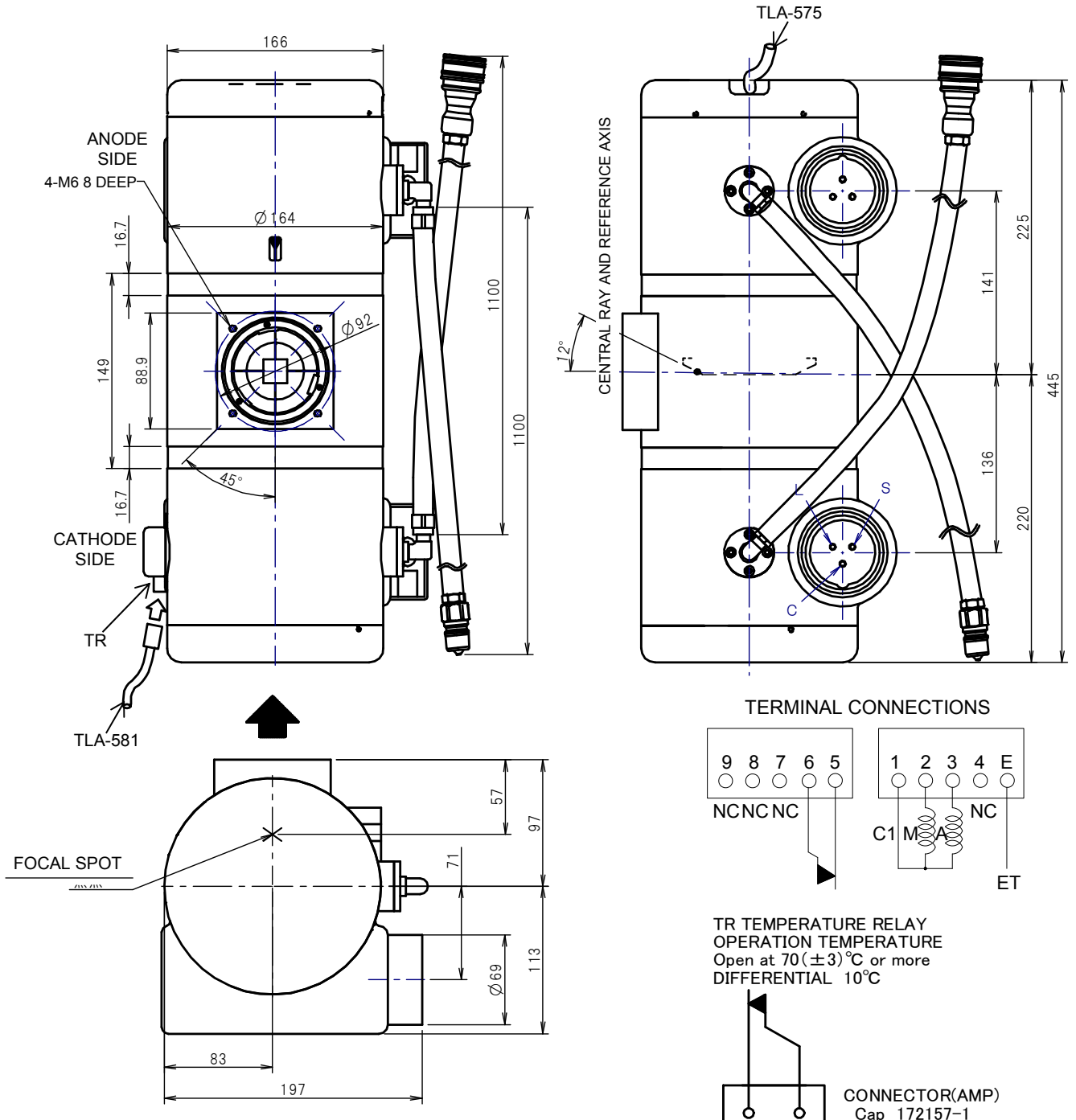


Anode Heating / Cooling Curve



Dimensional Outline

Unit: mm



TERMINAL CONNECTIONS

TR TEMPERATURE RELAY
OPERATION TEMPERATURE
Open at 70(±3)℃ or more
DIFFERENTIAL 10℃

CONNECTOR(AMP)
Cap 172157-1
Pin 170364-1

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
- ET .... EARTH TERMINAL
- NC .... NON-CONNECTION
- TR..... TEMPERATURE RELAY

⬆: CENTRAL X-RAY

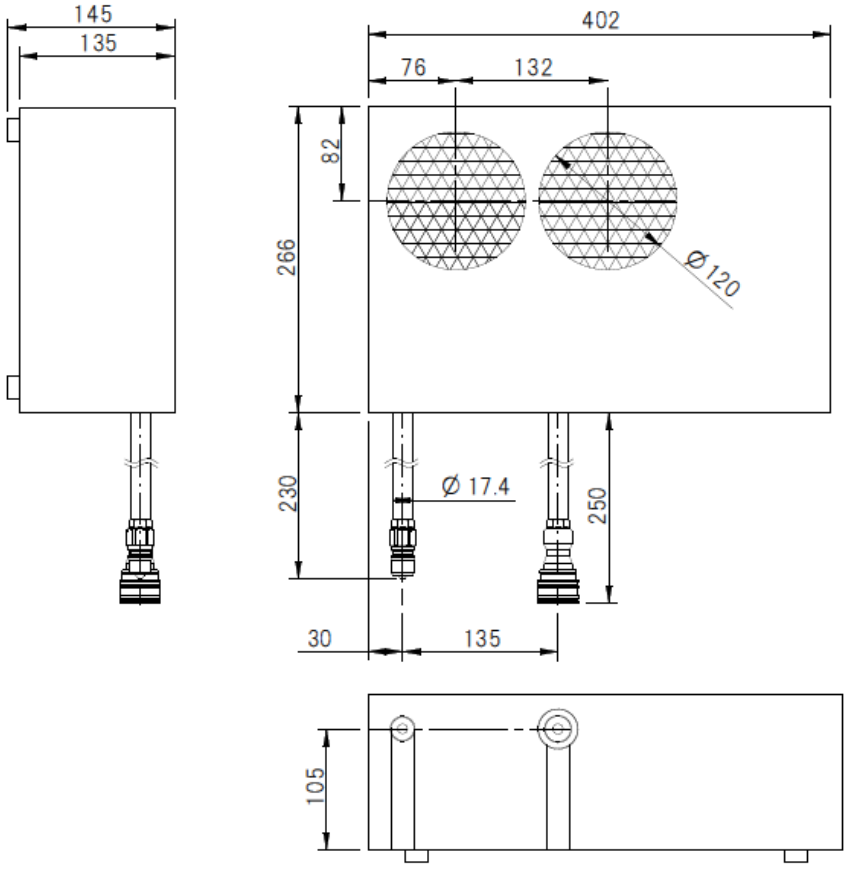
ANODE & CATHODE TERMINAL : IEC60526 TYPE

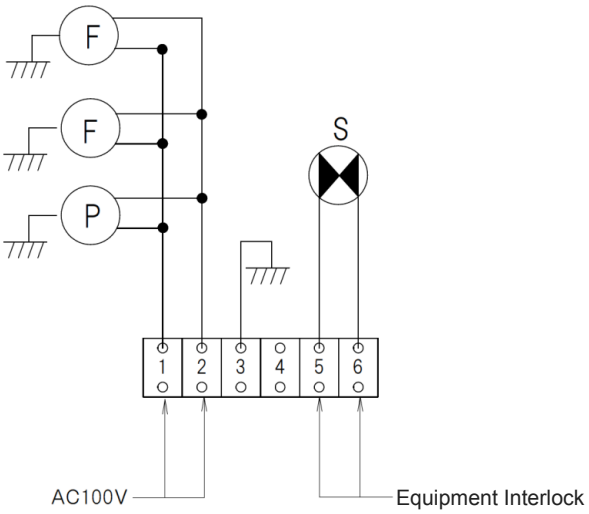
Do not remove part of the radiation port, as the nominal inherent filtration is met including the AL filter at the emission port.

Dimensional Outline

(Heat Exchanger)

Unit: mm





P------Pump
F------Fan
S------Flow Switch

CANON ELECTRON TUBES & DEVICES CO., LTD.
Marketing Engineering Group, Sales Department
1385, Shimoishigami, Otawara-shi, Tochigi 324-8550, Japan
Tel: +81-287-26-6666 Fax: +81-287-26-6060
https://etd.canon