Datasheet

RADII™
KL73-1.0/2.0-125

Rotating Anode X-ray Tube

- Rotating anode X-ray tube for the purpose of general diagnostic X-ray procedures.
- Specially processed Tungsten faced molybdenum target of 74 mm diameter.
- This tube has foci 1.0 and 2.0, and is available for a maximum tube voltage 125 kV.
- Kailong product version adheres to IEC standards.

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General Data

Safety Classification:

FDA ..... **I**

IEC60601-1:2005.....**IB**

Directive 93/42/EEC ..... **IIB**

Application.....**General Radiography**

Electrical:

Circuit:

High Voltage Generator.....Constant Potential High-Voltage Generator

Grounding..... Center-grounded

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

Radiographic.....125 kV

Fluoroscopic.....125 kV

Nominal Focal Spot Value (IEC60336:2005):

Large Focus.....2.0

Small Focus.....1.0

Nominal Anode Input Power (at 0.1s) :

	50 Hz	60 Hz
Large Focus	43 kW	47 kW
Small Focus	21 kW	22 kW

Mechanical:

Dimensions.....See dimensional outline

Overall Length.....233 mm

Maximum Diameter ..... 108 mm

Target:

Anode Angle ..... 16 degrees

Diameter ..... 74 mm

Construction.....Tungsten faced Molybdenum

Inherent Filtration ..... At least 0.7 mm Al at 75 kV

Weight (Approx.).....1.4 kg

Cooling Method.....Oil immersed (80℃ Max.) and convection oil cooling

Absolute Maximum and Minimum Ratings

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

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

Radiographic …… 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……..……..…….....570 mA

Small Focus……..340 mA

Maximum Filament Current:

Large Focus……...5.4 A

Small Focus……...5.4 A

Filament Voltage:

Large Focus (At maximum filament current 5.4 A)……..……..…9.5~11.5 V

Small Focus (At maximum filament current 5.4 A)……..…..…..……7.5~9.0 V

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

Continuous Anode Input Power (IEC60613:2010)……..……60 W (82 HU/s)

Thermal Characteristics:

Anode Heat Content……..……..……111 kJ (150 kHU)

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

Environmental Limits

Operating Limits:

Temperature.....10 ~ 60 °C

Humidity .....10 ~ 90 %

(No condensation)

Atmospheric Pressure ..... 70 ~ 106 kPa

Shipping and Storage Limits:

Temperature..... -40 ~ 70 °C

Humidity .... 10 ~ 90 %

(No condensation)

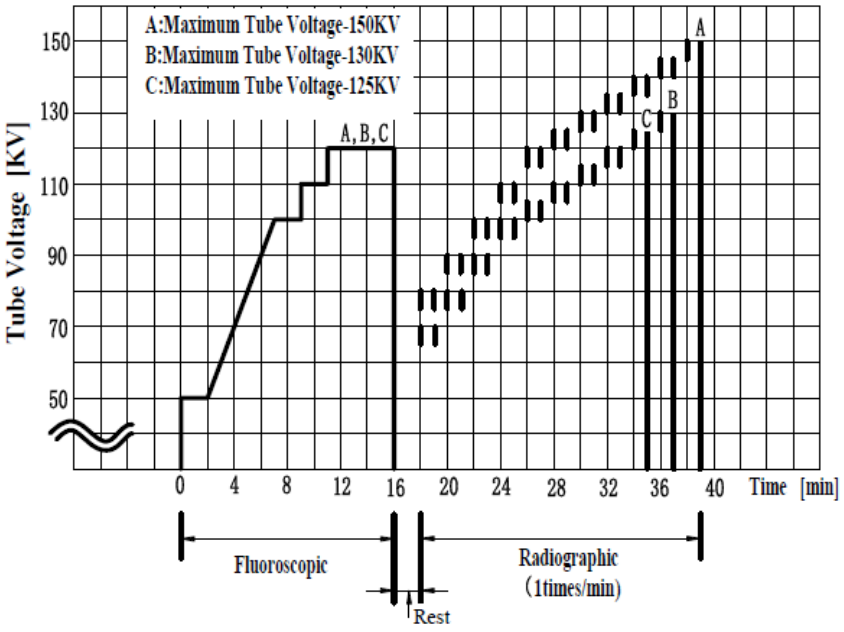
Atmospheric Pressure ..... 50 ~ 106 kPa

Recommended Seasoning Procedure for Long Period Unused Tube

In order to keep long term to use x-ray tube device without any failure, please make seasoning procedure before usage, and enough cooling after application.

Seasoning procedure

1. Before the initial start-up of the x-ray tubes or after extended idle time (more than 2 weeks), we suggest to make seasoning procedure. And when tubes become unstable, recommend make seasoning procedure according to below seasoning procedure table.
2. Ensure that adequate radiation safety precautions are taken to protect any existing image intensifier against radiation. In order to protect x-ray leakage radiation, please close the collimator which is assembled into the port window of x-ray source.
3. When the tube current becomes unstable during high voltage ramp up, it is necessary to reduce the high voltage to be sure the tube current become stable.
4. Seasoning procedure must be done by professional and safety knowledge people.



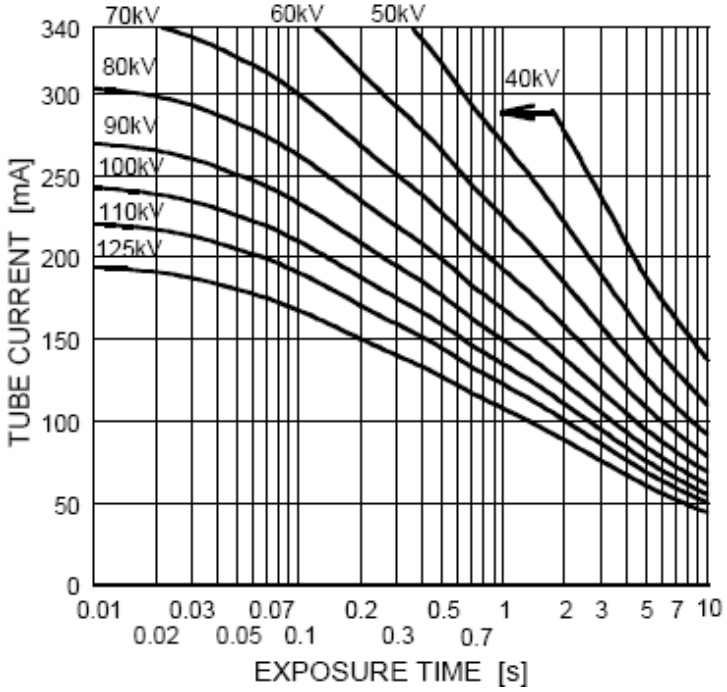
When tube current cannot be set 50% mA, the tube current should be set not excess 50% and nearest value which close to 50% value.

Maximum Rating Charts

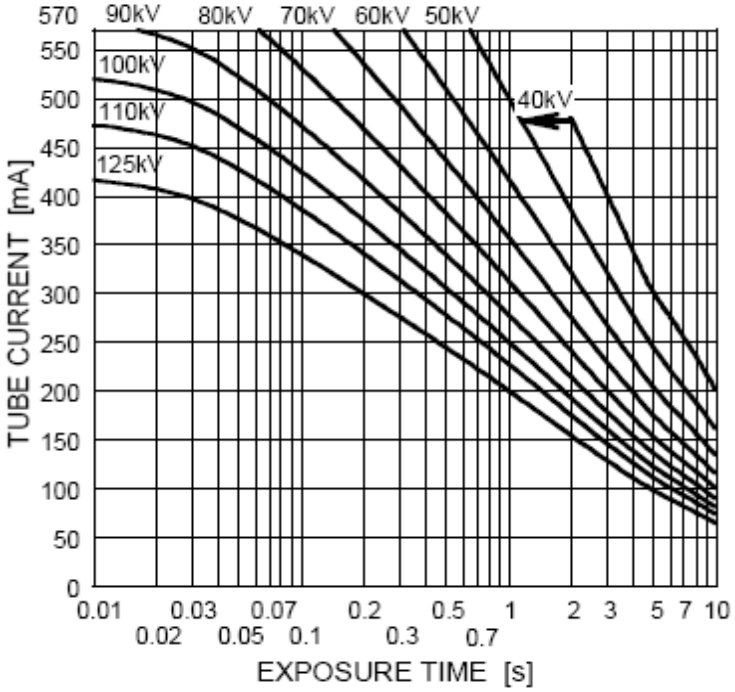
(Absolute Maximum Rating Charts)

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

Focal Spot : 1.0 mm



Focal Spot : 2.0 mm

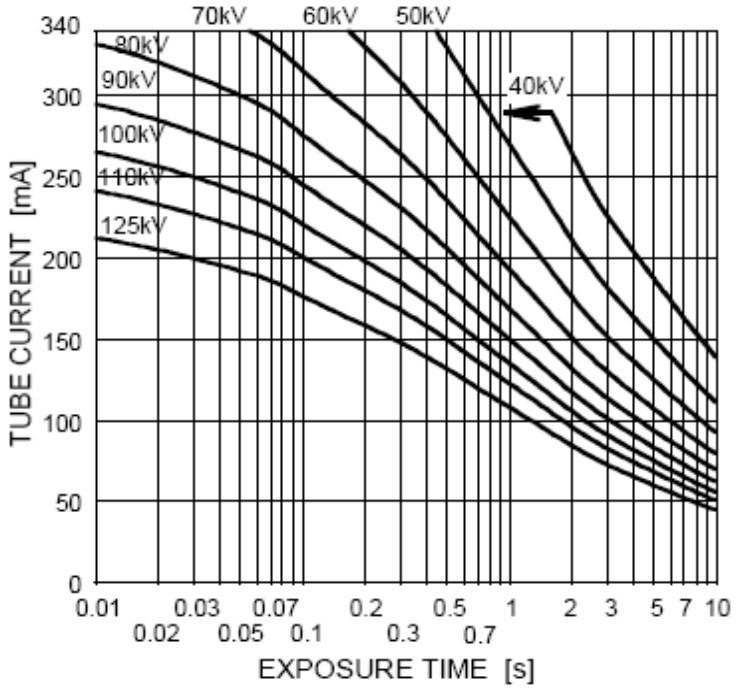


Maximum Rating Charts

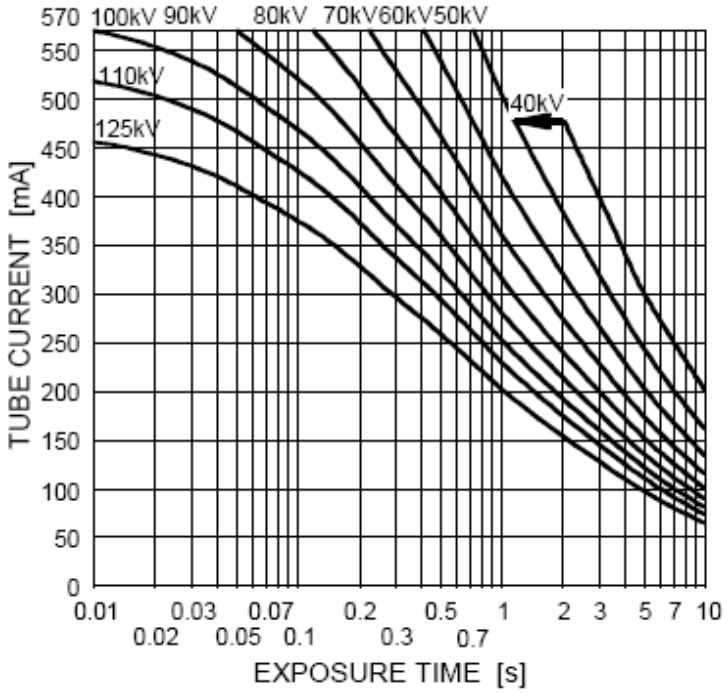
(Absolute Maximum Rating Charts)

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

Focal Spot : 1.0 mm



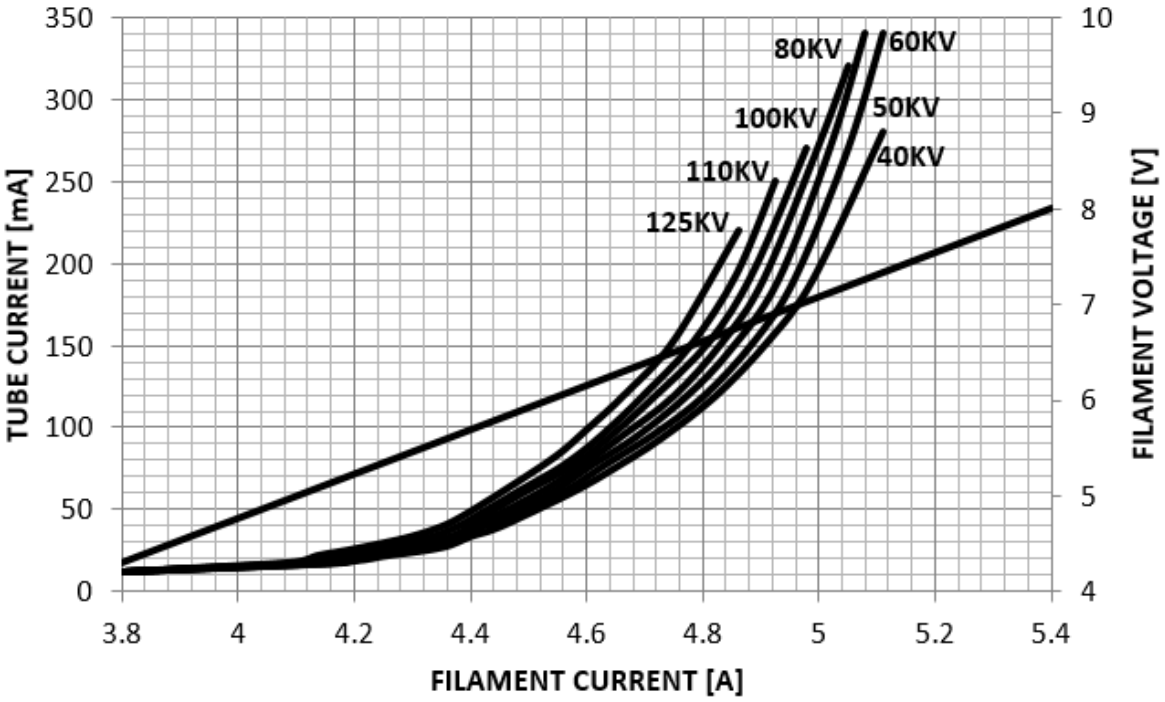
Focal Spot : 2.0 mm



Emission Curves of the Cathode

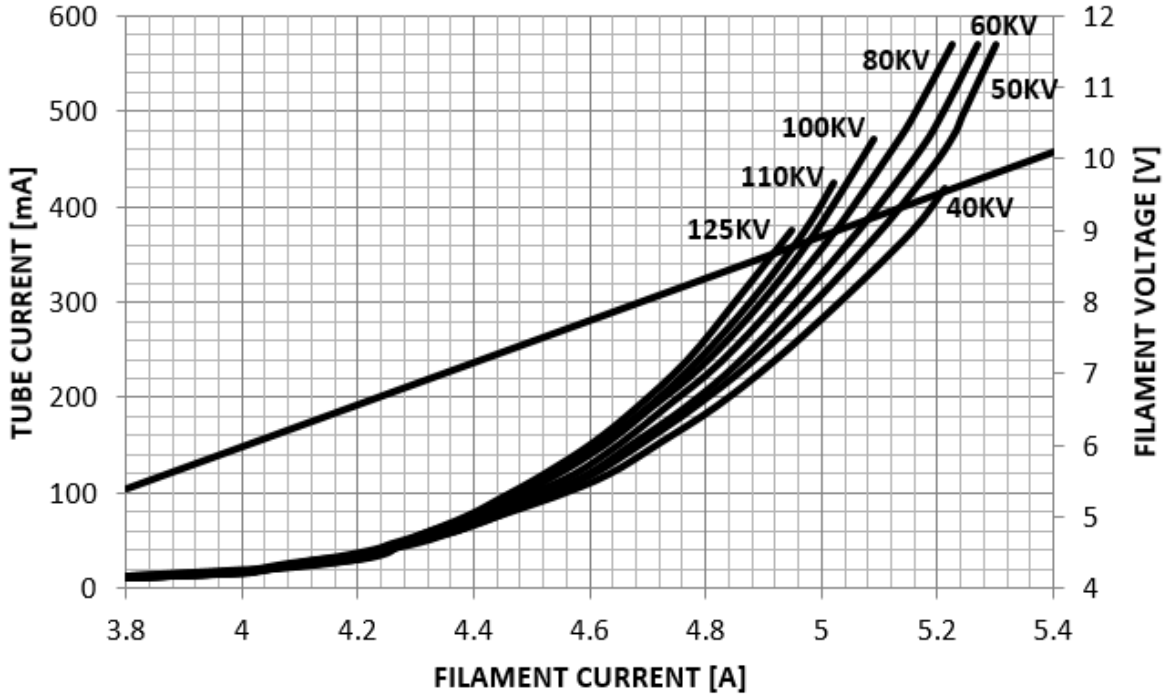
Constant Potential High-Voltage Generator

Nominal Focal Spot Value: 1.0 ▣



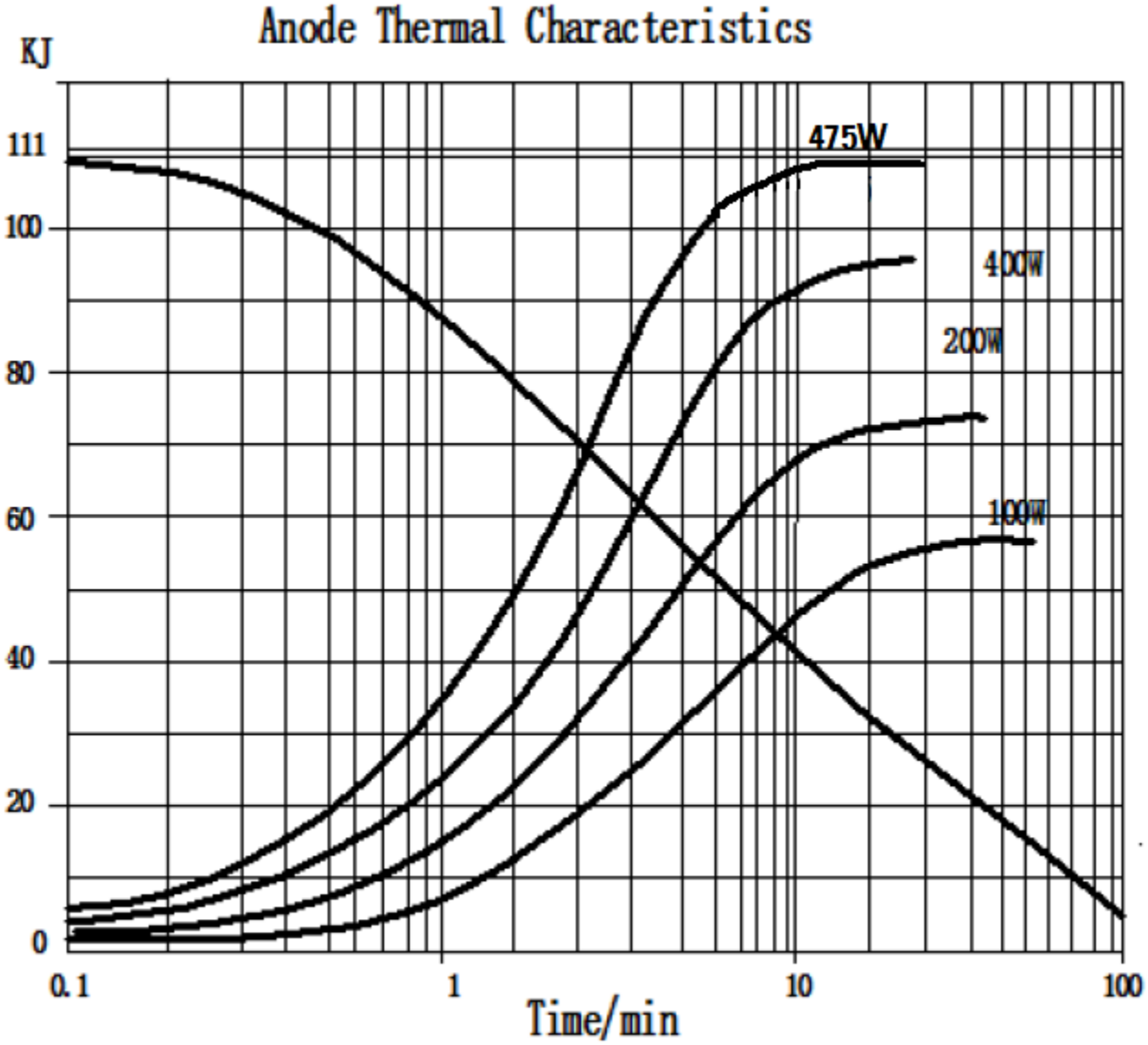
Constant Potential High-Voltage Generator

Nominal Focal Spot Value: 2.0 ▣

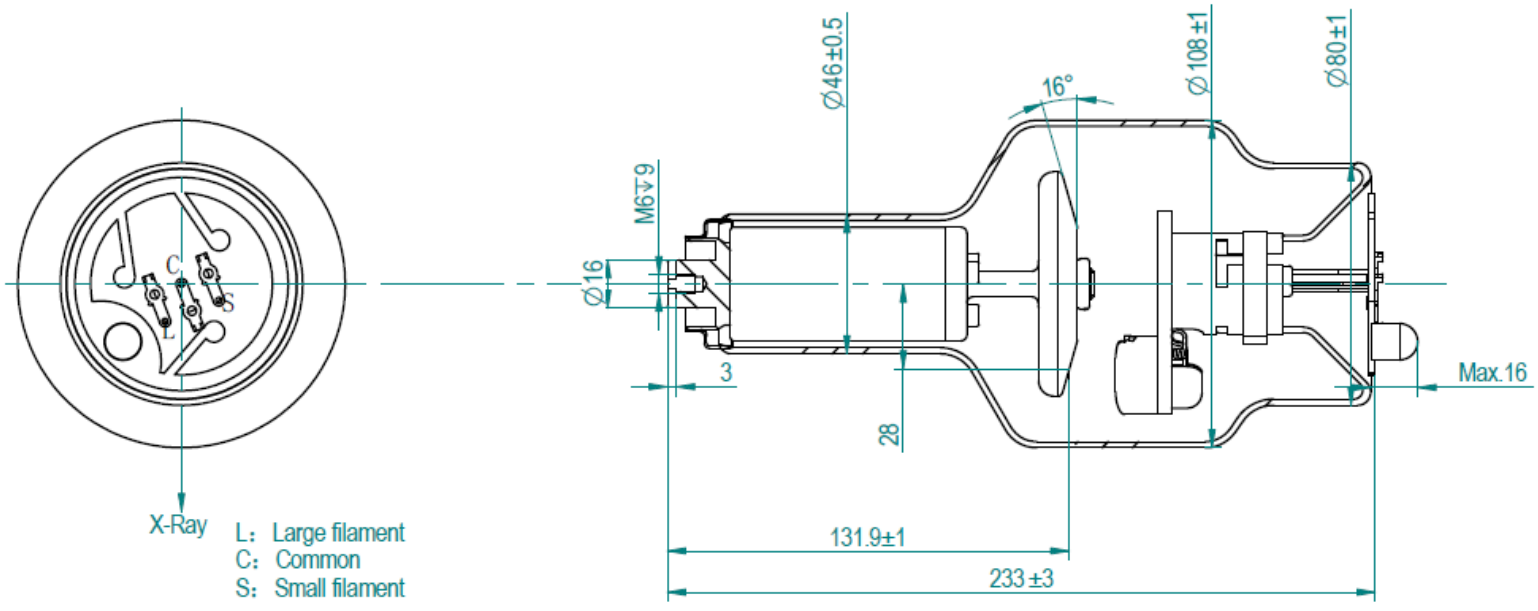


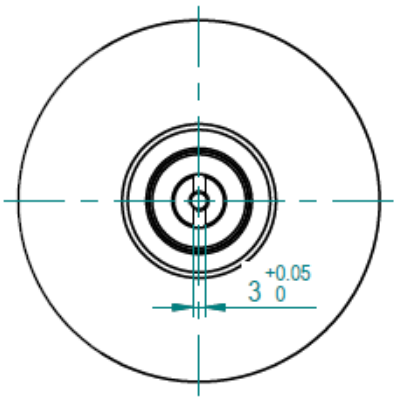
Thermal Characteristics

X-ray Tube Heating / Cooling Curve



X-Ray Tube Dimensional Drawings – KL73-1.0/2.0-125





Cautions!!!

X-ray tube will emit X–ray when it is energized with high voltage, Special knowledge should be required and cautions need to be taken when handling it.

1. Only a qualified specialist with X-Ray tube knowledge should assemble, maintain and remove the tube. When mounting tube inserts adopt proper caution, in order to avoid glass bulb breaking and fragments projection. Please use protective gloves and glasses.
2. Tube insert connected to H.V. supply is a radiation source: be sure to take all necessary safety cautions.
3. Wash thoroughly with alcohol the external surface of tube insert (care of fire risk). Avoid contact of dirty surfaces with cleaned tube insert.
4. Clamp system inside housing or self-contained units must not mechanically stress the tube.
5. After installation, check the right working of the tube (no fluctuation of tube current nor crackling).
6. Comply with insert thermal parameters, planning and programming the exposure parameters and cooling pauses. Housing or self-contained units must be provided with an adequate thermic protection.
7. Voltages indicated in charts are valid for transformer supplied with ground center.
8. It is extremely important to observe the connection diagram and the grid resistor value. Any change could modify the dimensions of the focal spot, also varying diagnostic performances or overloading anode target.
9. Tube inserts contain environment polluting materials, particularly lead liner tubes. Please apply to qualified operator for waste disposal, according to local regulation requirements.
10. When any abnormalities are found during operation, immediately switch off the power supply and contact the service engineer.

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Notes

• This high vacuum product is produced according to state-of-the–art technology. To prevent implosion please handle with care and use protective devices, e.g. glasses!

• In the interest of complying with legal requirements concerning the environmental compatibility of our products (protection of natural resources, avoidance of waste) we endeavor to reuse components and to return them to the production cycle. We guarantee the functioning, quality and life of these components by taking extensive quality assurance measures, just as for factory-new

The Hangzhou Kailong Medical instruments Co., Ltd. is ISO 13485 certified, manufactures in accordance with the Quality System Regulations (QSR) as defined by the Food and Drug Administration (FDA) and endeavors to comply with legal requirements concerning the environmental compatibility of its products.