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.

- This tube has foci 1.2 and 0.6, and is available for a maximum tube voltage 150 kV.

- Accommodated with IEC60526 type high-voltage cable receptacles.

General Data

IEC Classification (IEC60601-1:2005+A1:2012) .......... Class I ME EQUIPMENT

Electrical:

<table>
<thead>
<tr>
<th>Circuit:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>High Voltage Generator</td>
<td>Constant Potential High-Voltage Generator</td>
<td></td>
</tr>
<tr>
<td>Grounding</td>
<td>Center-grounded</td>
<td></td>
</tr>
</tbody>
</table>

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): (See rating charts)

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Large Focus</th>
<th>Small Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 Hz</td>
<td>50 kW</td>
<td>22 kW</td>
</tr>
<tr>
<td>50 Hz</td>
<td>46 kW</td>
<td>20 kW</td>
</tr>
</tbody>
</table>

Nominal Radiographic Anode Input Power:

<table>
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<th>Frequency</th>
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Motor Ratings:

<table>
<thead>
<tr>
<th></th>
<th>Starting</th>
<th>Running</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driven Frequency</td>
<td>50 Hz</td>
<td>60 Hz</td>
</tr>
<tr>
<td>Input Power</td>
<td>600 W</td>
<td>2000 W</td>
</tr>
<tr>
<td>Voltage</td>
<td>120 V</td>
<td>220 V</td>
</tr>
<tr>
<td>Current</td>
<td>3.5~5.5 A</td>
<td>6.7~8.4 A</td>
</tr>
<tr>
<td>Min. Speed Up</td>
<td>2.2 s</td>
<td>0.8 s</td>
</tr>
<tr>
<td>Capacitor</td>
<td>43 μF</td>
<td>30 μF</td>
</tr>
</tbody>
</table>

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 ........................................ 18.0 Ω
Common-Auxiliary Winding ..................................... 47.5 Ω

Resistance between Housing and Low Voltage Terminals ................................... Minimum 2 MΩ

Normal Operating Range of the Housing Temperature ............................................. 16 ~ 75 ℃

Mode of Operation .................................................. Intermittent

Mechanical:
Dimensions .............................................................................. See dimensional outline
Overall Length ................................................................. 479 mm
Maximum Diameter ............................................................. 152.4 mm

Target:
Anode Angle ................................................................. 12 degrees
Diameter ................................................................. 74 mm
Construction ............................................................. Rhenium-Tungsten faced Molybdenum

Filtration:
Permanent Filtration .......................................................... 1.3 mm Al / 75 kV IEC60522:1999
Available Additional Filter combination (0.4 - 1.5 mm) ..................... Maximum 2.8 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.) ............................................................. 16 kg
High Voltage Receptacle ...................................................... To meet requirements of IEC60526 Corrigendum1:2010
Cooling Method ............................................................. Natural or forced air
Tube Housing Model Number .................................................. XH-121
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 ................................................................................................................. 760 mA
- Large Focus ................................................................. 760 mA
- Small Focus ................................................................. 370 mA

Maximum Filament Current:
- Large Focus ................................................................. 5.0 A
- Small Focus ................................................................. 4.7 A

Filament Voltage:
- Large Focus (At maximum filament current 5.0 A) ...................................................... 12.4 ~ 17.0 V
- Small Focus (At maximum filament current 4.7 A) ......................................................... 6.5 ~ 8.9 V

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

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

Thermal Characteristics:
- Anode Heat Content ...................................................... 111 kJ (150 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)

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

Nominal Focal Spot Value: 1.2
Nominal Focal Spot Value: 0.6

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

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

For Reference Only
Thermal Characteristics

X-ray Tube Assembly Heating / Cooling Curve

Anode Heating / Cooling Curve
Dimensional Outline

Unit mm

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

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

CENTER OF FOCAL SPOT

-1.5mm ≤ A ≤ 1.5mm
-1.5mm ≤ B ≤ 1.5mm

*: CENTRAL X-RAY ANODE & CATHODE TERMINAL
: IEC60526 TYPE
- The head office of Canon Electron Tubes & Devices Co., Ltd. has been certified to meet all the requirements of Environmental Management System ISO14001.
- Canon Electron Tubes & Devices Co., Ltd. has been certified to meet all the requirements of Quality Management Systems ISO9001 and ISO13485.
Product scope is referred to the following URL. [https://etd.canon/eng/company/quality.htm](https://etd.canon/eng/company/quality.htm)