

**INDUSTRIAL X-RAY TUBE
E7690**

Toshiba X-ray Tube for Industrial Use

- ◆ The Toshiba X-ray tube E7690, which has focus 1.0 mm, is designed for non-destructive X-ray inspection.
- ◆ This tube can be used with Max. 75 kV constant potential circuit of cathode grounded.



General Data

Electrical:

Circuit:

High Voltage Generator Constant potential high-voltage generator
 Grounding Cathode and X-Ray port grounded
 Nominal X-ray Tube Voltage 75 kV
 Nominal Focal Spot Value (*) 1.0

(*) Permissible Value: Refer to IEC60336:1982.

Mechanical:

Dimensions See dimensional Outline
 Overall Length 198 mm
 Maximum Diameter ϕ 62 mm
 Target:
 Angle 20 degrees
 Material Tungsten
 Inherent Filtration Be 1.0 mm
 X-ray Coverage (Angle):
 Tube Axis Direction 30 degrees
 Nominal to Tube Axis Direction..... 45 degrees
 Weight (Approx.) 1000 g
 Insulating Medium Insulation Oil
 Cooling Method Oil immersed (60°C Max.) and convection oil cooling.
 Tube Holding Holding the mounting flange with 6-M4 screws

★The information contained herein is presented only as a guide for the applications of our products.
 No Responsibility is assumed by TOSHIBA ELECTRON TUBES & DEVICES CO.,LTD.(TETD) for any infringements of patents or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of TETD or others.
 ★The information contained herein may be changed without prior notice. It is therefore advisable to contact TETD before proceeding with the design of equipment incorporating this product.

Absolute Maximum and Minimum Ratings

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

Maximum X-ray Tube Voltage	75 kV
Minimum X-ray Tube Voltage	20 kV
Maximum X-ray Tube Current	8 mA
Maximum Filament Current	3.9 A
Filament Frequency Limit	DC or AC (Sine Wave) 0 ~ 20 kHz
Maximum Input Energy (Continuously)	350 W

Environmental Limits

Operating Limits (in dielectric oil):

Oil Temperature	10 ~ 60 °C
Oil pressure	70 ~ 140 kPa

Shipping and Storage Limits:

Temperature	-40 ~ 70 °C
Humidity	10 ~ 90 % (No condensation)
Atmospheric Pressure	50 ~ 106 kPa

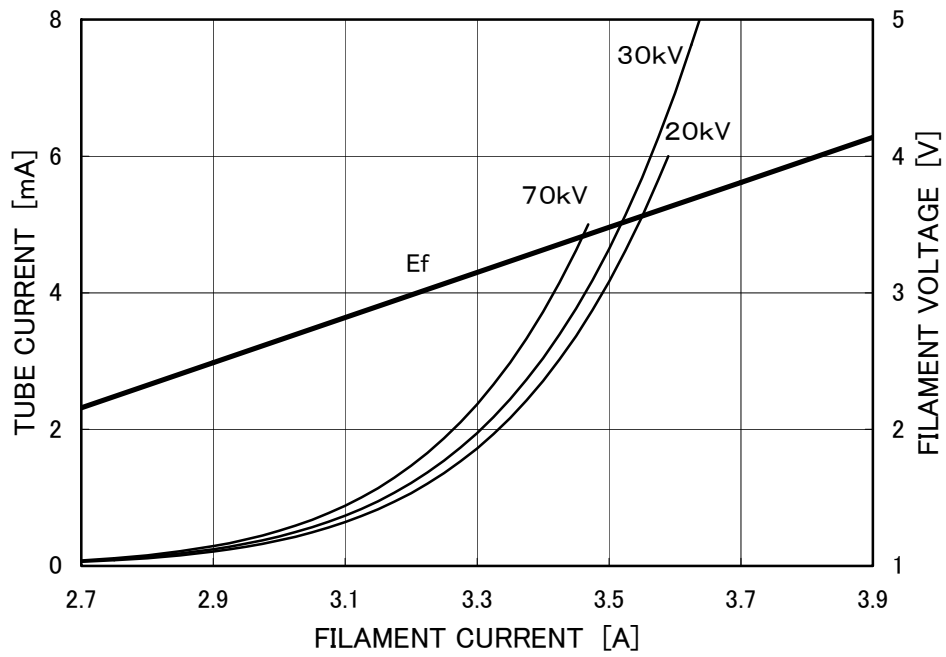
Cautions

Read this page carefully before using the tube.

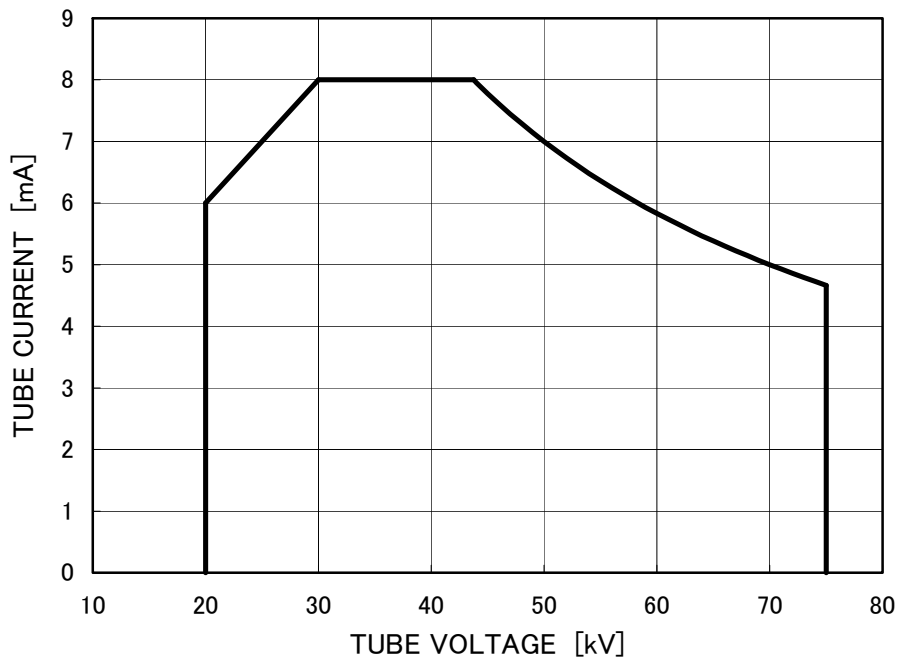
Since X-ray tube will emit X-rays when it is energized with high voltage, special knowledge is required to handle it. The items below show general cautions for the tube handling.

1. The tube shall be handled or operated only by qualified personnel.
Only a specialist with knowledge of X-ray tube should assemble, maintain and remove the tube.
2. The tube envelope is made of glass. In transporting and handling, sufficient care should be taken not to give strong impact or vibration to the tube.
3. The tube might be broken due to only one overload operation.
Provide proper overload protection circuit. Operate the tube by selecting a proper input condition according to the conditions for operation and tube characteristics charts.
4. The X-ray radiation port of this tube is made of the Beryllium metal (Be).
The powdered or vaporized Beryllium is harmful to the human body.
The X-ray radiation port should not be machined, polished, burnt, and wiped with chemicals.
If the X-ray radiation port was broken during handling, collect fragments of the Beryllium metal.
5. Keep the product to be free from water or alkali atmosphere and shall be in the environmental limits required in the attached Technical Data sheets when using, storing or transporting.
Because Beryllium used for X-ray port is chemically reactive with water or alkali.
6. Dispose the scrapped products according to the requirement of local regulation.
7. Returning Tube
X-ray tube should be repackaged with the original material when it is returned back for quality examination in our factory. If the packaging is not proper, the tube may not be correctly examined. TETD does not warrant it if returned X-ray tube is in damage at receiving.
8. If any abnormality is found in using this tube, immediately switch off the power supply and contact TETD.
9. The charts of this technical data are indicating standard values.
For usage not described here or for any unclear items, please contact TETD.

Emission & Filament Characteristics

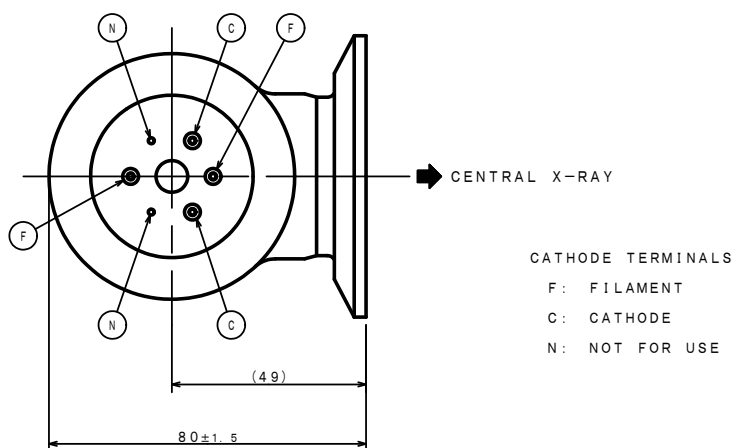
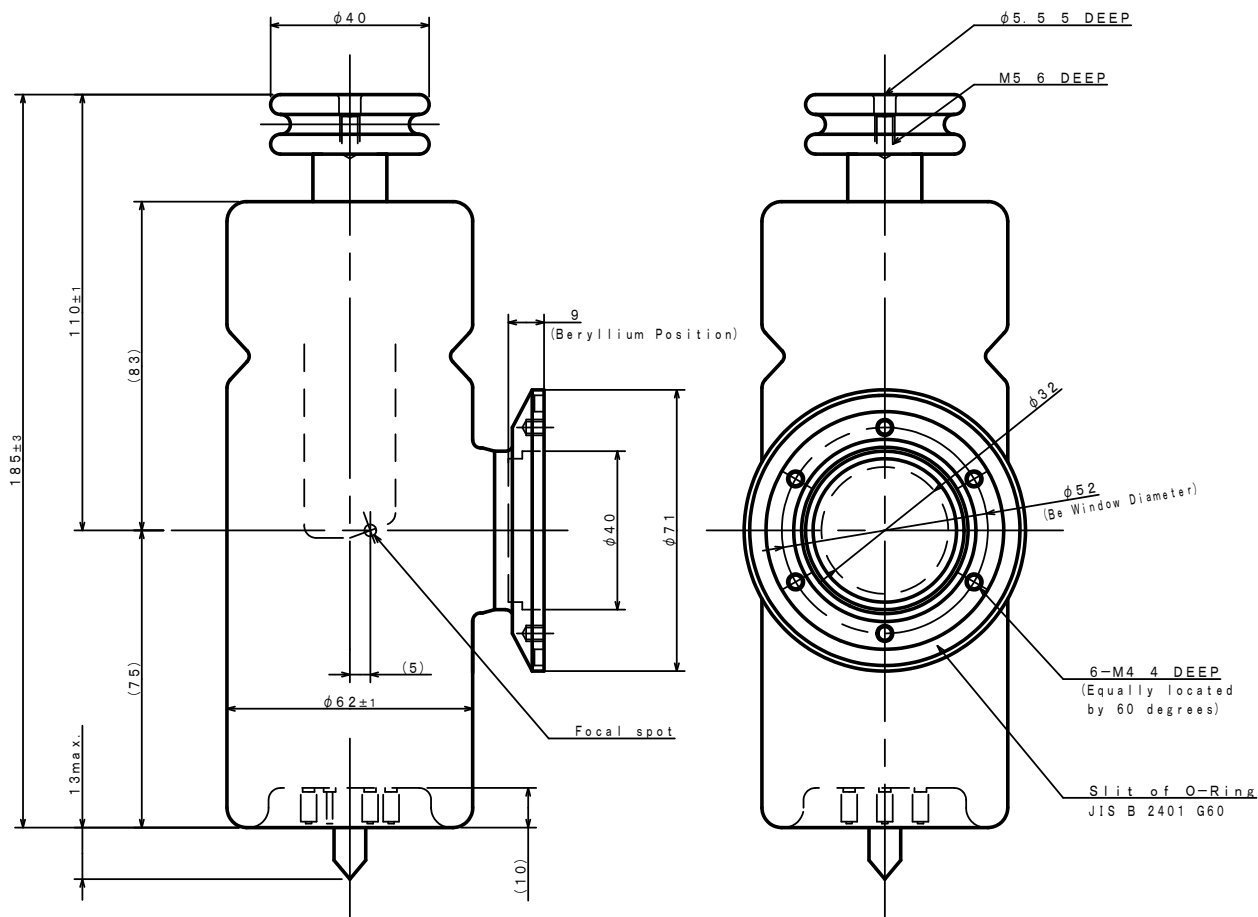


Maximum Input (continuous)



Dimensional Outline

Unit: mm



OVERSEAS SUBSIDIARIES AND AFFILIATES

EU REPRESENTATIVE

·TOSHIBA ELECTRONICS EUROPE GMBH

HANSAALLEE 181 40549 DÜSSELDORF, GERMANY

PHONE +49 (211) 5296-107 FAX +49 (211) 5296-402

For Sales & Technical Services, please contact the following representative:

·TOSHIBA ELECTRONICS EUROPE GMBH

HANSAALLEE 181 40549 DÜSSELDORF, GERMANY

PHONE +49 (211) 5296-107 FAX +49 (211) 5296-402

·TOSHIBA AMERICA ELECTRONIC COMPONENTS, INC.

2150 EAST LAKE COOK ROAD, SUITE 310

BUFFALO GROVE, ILLINOIS 60089 USA

PHONE +1 (847) 484-2400 FAX +1 (847) 541-7287

·TOSHIBA ELECTRON DEVICES & MATERIALS (SHANGHAI) CO., LTD. (TEMS)

RM1606, SH-PLAZA,

No.336, XIZANG ROAD (MIDDLE), SHANGHAI, 200001, CHINA

PHONE +86 (21) 6361-0077 FAX +86 (21) 6351-5760

TOSHIBA ELECTRON TUBES & DEVICES CO., LTD.

(Product Development Engineering Department)

1385 SHIMOISHIGAMI, OTAWARA-SHI, TOCHIGI-KEN, 324-8550, JAPAN

PHONE: +81-287-26-6666 FAX: +81-287-26-6060

<http://www.toshiba-tetd.co.jp/>

·Toshiba Electron Tubes & Devices Co., Ltd. meets the Environmental Management System Standard, ISO14001.

·Toshiba Electron Tubes & Devices Co., Ltd. meets internationally recognized Standards for Quality Management System ISO9001, ISO13485.