

To : Lyncean Technologies, Inc.

GD000012 Canon Toshiba X-Ray Shield VT-69133 Specification

Receipt Signature and Date

Please return one of specification after your receipt signature.

This specification will be applied to the serial delivery or lot delivery until obtaining your signed specification or your counter proposal to be agreed.

SPECIFICATION

FOR

VT-69133



Shinji Ohama

General Manager

Sales Department

Specification Number : T180158-L973

Rev.0

Issued : 2018-10-23

Revised :

To : Lyncean Technologies, Inc.

SPECIFICATION
FOR
VT-69133

Toshiba X-ray Shielding Kit

Contents	Page
1. Product Specification for X-ray Shielding Kit VT-69133	
Table of Contents	1
Product Specification for VT-69133	3
History of Revision	12

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Limitation of Product Liability

In case you receive a claim from a third party that any loss or damage to property, bodily injury or death of a person was caused by a defect of the Component, you shall immediately notify Toshiba Electron Tubes & Devices Co., Ltd. (TETD) of such claim and consult with TETD for any actions to be taken. In any event, liability of TETD shall be confined to the extent reasonably foreseeable and proximately caused by the defect of Component with a limitation of aggregated amount paid by you for the Components.

Provided, however, TETD shall not be liable in the cases, where,

- (1) it was impossible for TETD to discover the defect based upon the state of scientific or technical knowledge at the time of delivery to you,
- (2) the defect is due to the compliance with your instruction regarding the specification or design,
- (3) you failed to incorporate fail-safe design to your products in consideration of the reasonably expected failure ratio/pattern of the Components incorporated therein,
- (4) the defect is due to the compliance with mandatory regulations/standards issued by the public authorities; or
- (5) the defect did not exist at the time of delivery.

About the sales of this product and combination devices

Export Control

1. US Export Administration Regulations: This product is free from the U.S. Export Administration Regulations.
2. Others: Distribution of the products and/or devices which incorporate the products may require prior approval of or notification to the regulatory authorities and/or the relevant government authorities. When distributing the product, all the laws and/or regulations applicable in the country and/or the region must be observed.

PRODUCT SPECIFICATION FOR VT-69133

Description: X-ray shield specific for the TOSHIBA E3772A,A pulse klystron. (Note 1)

PHYSICAL RATINGS:

Parameters

Mechanical

Dimensions	See "OUTLINE DRAWING of VT-69133"
Total Weight	Approx. 70 kg
Material	Lead (Note 3)
Number of Piece Parts	6
Marking	See "Marking Label of VT-69133"
Packing	Standard commercial transport of TETD (Note 2)

QUALITY CONFORMANCE INSPECTION:

Test	Condition	Symbol	Min.	Max.	Unit
Dimensions	Per outline drawing	---	---	---	---

WARRANTY:

1. TETD warrants the X-ray shielding kit to be free of manufacturing defects which will impair their normal operational life during the warranty period, provided that the X-ray shielding kit is used within the ratings and in accordance with TETD's instructions and specifications.
2. The warranty period extends for twelve (12) months from the date of departure at the factory. If the product shall prove to be defective during the warranty period, TETD shall refund the original amount.
3. Notification of the claim shall be received by TETD within three (3) months after discovery of failure. If TETD requires return of the defective product, each return shall be made without delay, and in accordance with the instruction of TETD.
4. The warranty shall not apply to defect resulting from accidents, alterations, abuse or misuse, or improper installation.

CAUTION

Lead is used for X-ray shielding kit, do not abrade because lead powder is harmful if it comes into contact with skin or is ingested. Wear protective gloves when handling it, and be sure to wash the hands after handling.

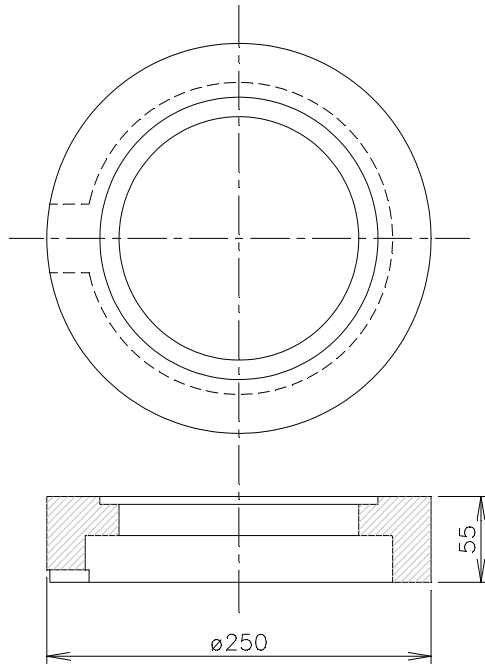
SHIPMENT CONTENTS

Each shipment contains the following, as a minimum:

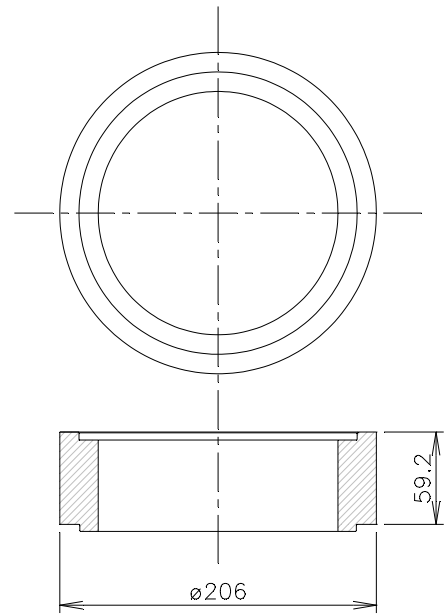
1. X-ray shielding kit ----- One (1) unit
2. Submission documents
 Inspection Data Sheet ----- Three (3) copies

OUTLINE DRAWING of VT-69133

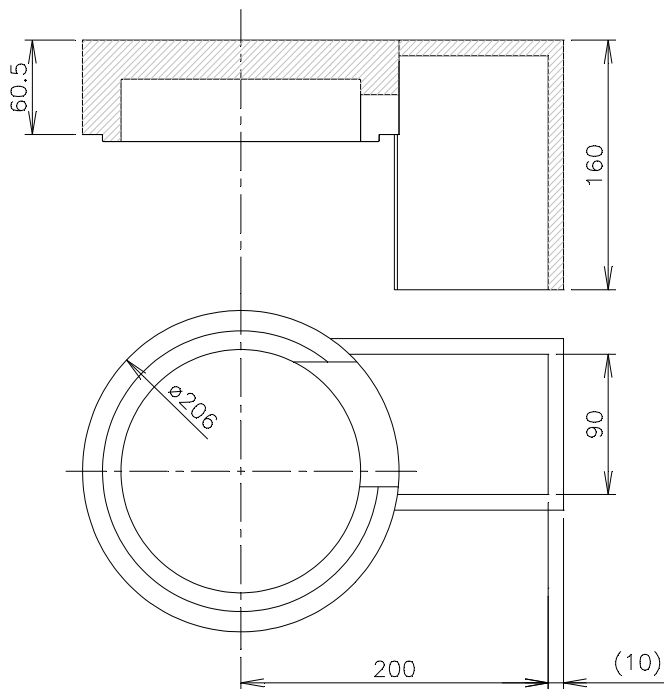
Unit: mm



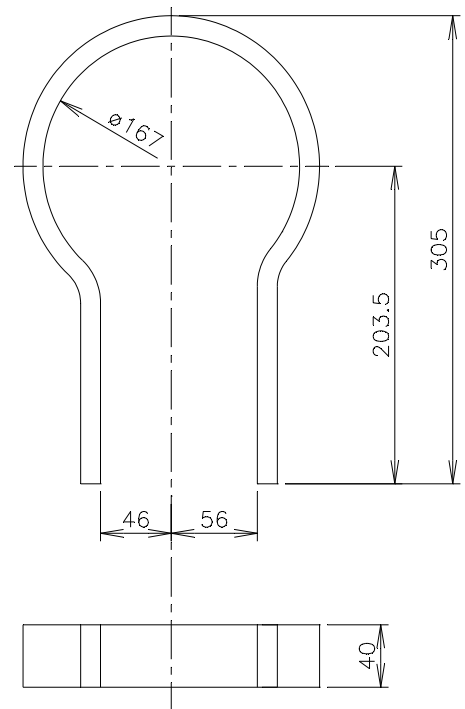
Base Part



Middle Part (3 pieces)



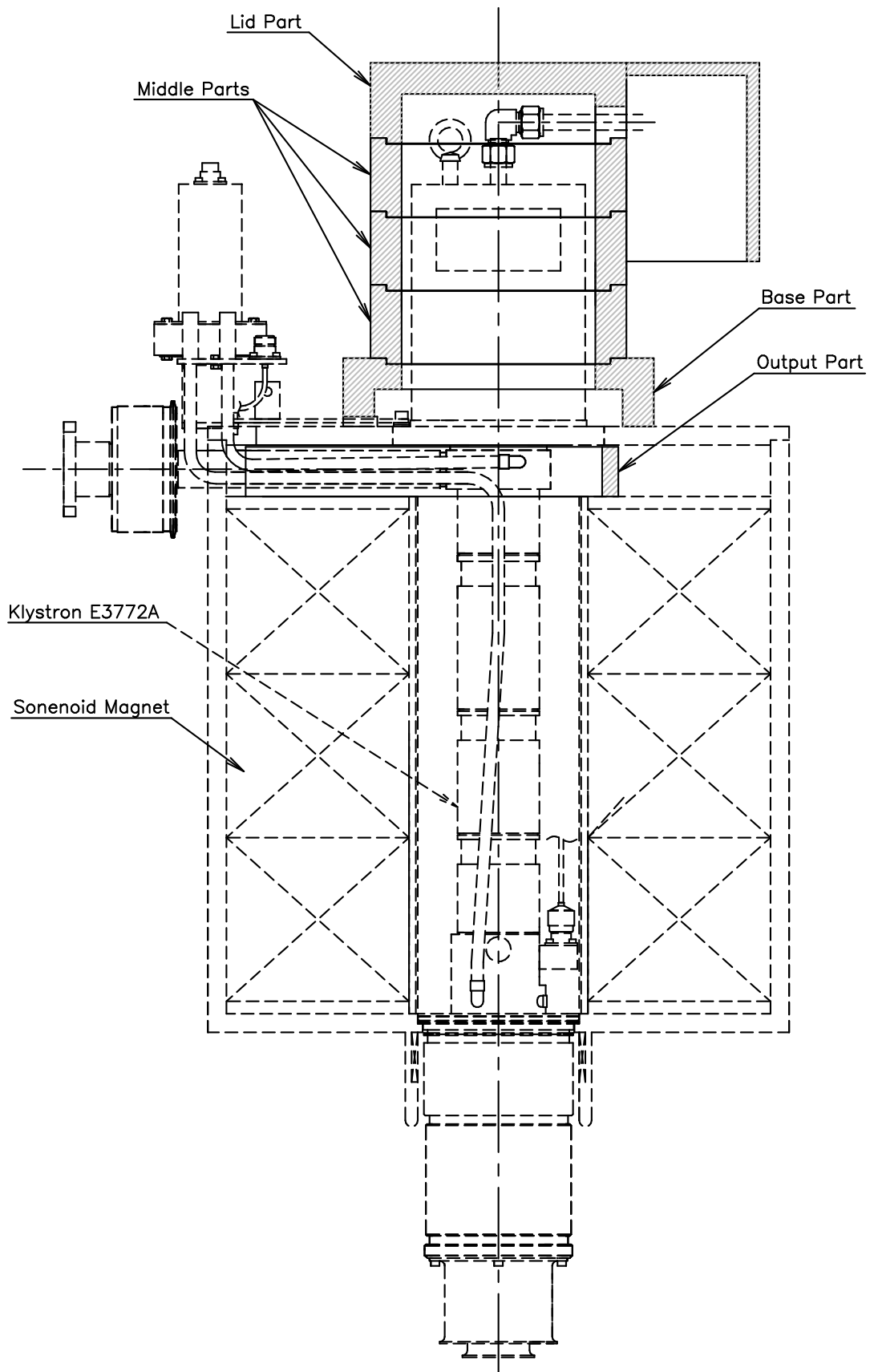
Lid Part



Output Part

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Drawing of Combination with Klystron and Magnet





Marking Label of VT-69133




NOTES:

- Note 1: When used with specific electromagnet VT-68934,E, it is possible to suppress X-ray leakage into the level lower than 20 $\mu\text{Sv/h}$ from the surface of the collector at the output level of 7.5 MW with the pulse repetition rate of 200 pps.
However, X-ray leakage can exceed the above level from the cooling water outlet on the top of the collector.
- Note 2: The packed tube shall not be damaged by a shock of 6 G maximum.
- Note 3: Be careful to handle the shield kit, because it is easily to be deformed by stressing or shock. This shield kit consists of six parts; a lid, cylindrical bodies (three pieces), a base shield on the upper flange of the electromagnet and a shield for the output cavity. Each part is not fixed together. Handle individual part one after another so as not to drop a lid.

SAFETY PRECAUTIONS AND WARNINGS

This specification describes important information for preventing injury to users, personnel at manufactures employing this focusing magnet, and other personnel, as well as for preventing property loss and ensuring safe operation. Fully understand the meanings of the following indications and symbols before reading this manual and observe all precautions to ensure safe operation.

[Description of indications]

Indication	Meaning
 DANGER:	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
 WARNING:	Indicates a potentially hazardous situation which, if not avoided, will result in death or serious injury.
 CAUTION:	Indicates a potentially hazardous situation which, if not avoided, will result in minor or moderate injury or extensive property damage (e.g. damage to machinery, units, and accessories or occurrence of a fire).

This X-ray shielding kit is intended and designed for use in combination with a klystron amplifier for industrial devices and scientific equipment.

If this X-ray shielding kit is to be used with equipment other than the above, contact TETD in advance. TETD will not be held responsible for malfunction or damage caused by the use of this focusing magnet in applications other than those specified without prior approval.



When designing or operating equipment employing X-ray shielding kit, do not attempt to modify the X-ray shielding kit and do not allow X-ray shielding kit to be operated beyond its ratings. TETD will not be held liable if these precautions are not observed.






[Warning Labels]

1. Warning labels as described in the operation manual are attached to this X-ray shielding kit. Confirm that they are attached correctly before operating the X-ray shielding kit. If incorrectly attached or missing labels are found, Contact TETD.
2. Read all the labels and fully understand their meanings to ensure safe operation of the X-ray shielding kit.
3. Maintain the labels so that they can be seen easily. Do not remove any labels or allow them to become dirty, covered, or otherwise obscured.

[Manufacturing equipment, warning indications for equipment, use of the X-ray shielding kit]

- | | |
|-----|--|
| (1) | All equipment incorporating this X-ray shielding kit must be equipped with safety mechanisms as described below. |
| (2) | All equipment incorporating this X-ray shielding kit and their operations manual must include the warning indications described below to ensure safe operation of the X-ray shielding kit. |
| (3) | To ensure safe operation of this X-ray shielding kit, observe the precautions described below. |
| (4) | For any questionable points, consult with TETD before operating this X-ray shielding kit. |

<div style="text-align: center;">  Warning </div>	
 (X-ray Radiation)	<p>The X-ray shielding kit does not generate X-ray. An electron tube which is used with the X-ray shielding kit generates X-rays at tube voltage of more than 10 kV. X-ray generation increases as the voltage and current are increased.</p> <p>(1) Perform thorough evaluation for X-ray leakage for the equipment used in combination with this X-ray shielding kit. Add shielding appropriate for the installation and operating conditions as required. Checks for X-ray generation must be performed both when microwave is outputted and when it is not outputted.</p> <p>(2) If an X-ray shield has already mounted, do not remove or modify it. Since the amount of X-ray generation may change over time, perform X-ray checks periodically.</p>

	CAUTION
 (Handling)	<p>Read the Operating Instructions carefully and fully understand the contents before handling the X-ray shielding kit.</p>
 (Weight)	<p>Be careful when handling this X-ray shielding kit because it is very heavy (Approx. 70kg).</p> <ol style="list-style-type: none"> (1) Be extremely careful to ensure safety when lifting, moving, or installing this X-ray shielding kit. (2) Be careful not to subject this X-ray shielding kit to excessive vibration or shock because it is a precision device. (3) Use the standard packing box of TETD to carry or store the X-ray shielding kit.
 (Caution)	<p>Note the following when handling damaged or used X-ray shielding kit:</p> <ol style="list-style-type: none"> (1) When handling a focusing magnet that has fractured, wear protective gloves, protective glasses, etc. because the metal fragments are sharp and very dangerous. (2) Dispose the scrapped products according to the requirement of local regulation. If you have any questions, please contact to our local sales representatives for further information. (3) The main material used in this X-ray shield kit is as follows: Lead. Note that no radioisotopes or beryllia porcelain are used. (4) Lead is used for this X-ray shielding kit. Do not abrade or melt the lead because lead powder or vapor is harmful if it comes into contact with the skin or is ingested. For lead disposal, consult with a specialized disposal personnel.
 (Caution)	<p>Perform periodic inspection.</p> <ol style="list-style-type: none"> (1) During storage of the X-ray shielding kit, cover all pieces to prevent the X-ray shield kit from pollution by dust or humidity.

OPERATING HAZARDS

Read the following instruction and take necessary precautions to prevent personnel from hazards. Safe operating conditions are the responsibility of the equipment designers and the users of such tubes.

(1) Storage and Transportation

Storage

For storage of the X-ray shielding kit, store the product in the formal packing case or put it in a stand for storage. Cover all pieces to prevent the X-ray shield kit from pollution by dust or humidity.

Transportation

Use the formal package and cushion for transportation of the X-ray shielding kit.

History of Revision

Date	Page	Revised Contents	Revised Reason