

Title: SPECIFICATION FOR STAINLESS STEEL FLANGE FORGINGS

**SPECIFICATION FOR
STAINLESS STEEL FLANGE FORGINGS
FOR
LIGO VACUUM EQUIPMENT**

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Information contained in this specification and its attachments is proprietary in nature and shall be kept confidential. It shall be used only as required to respond to the specification requirements, and shall not be disclosed to any other party.

REV LTR.	BY-DATE	APPD. DATE	DESCRIPTION OF CHANGE
3	REC, 9/11/96	RES 9/11/96	REVISED TOLERANCES IN SECTION 4.0. ADDED SCHEDULE SECTION 2.0 DEO # 0117
2	DIAW 3-15-2	REC FOR RB	REV SECT 3.5 (MAX SULFUR CONTENT) PER DEO # 0094
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PROCESS SYSTEMS INTERNATIONAL, INC.

SPECIFICATION

INITIAL APPROVALS	PREPARED	DATE	APPROVED	DATE	Number	Rev.
	REC,	11/21/95	RES	11/27/95	A V049-2-040 LIGO - ES50130-03-V	3

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SPECIFICATION FOR STAINLESS STEEL FLANGE FORGINGS

1.0 SCOPE

This specification covers the minimum technical requirements for the materials, fabrication, inspection, testing, preparation for shipping, shipment and delivery of the flange forgings to be used for manufacturing ultra high vacuum boundary equipment.

All attachments are incorporated herein by reference and made a part of this specification.

Information contained in this specification and its attachments is proprietary in nature and shall be kept confidential. It shall be used only as required to respond to the specification requirements, and shall not be disclosed to any other party.

2.0 SCHEDULE OF DELIVERIES

2.1 Flange rings shall be delivered in lots with sizes and quantities as specified in the purchase order.

3.0 MATERIAL REQUIREMENTS

3.1 This material shall conform to the requirements of ASME Specification SA-182 Grade F Type 304L as given in the ASME Code 1992 Edition through 1994 Addenda with the additional supplementary requirements described in this specification.

3.2 Applicable Codes

3.2.1 ASME Boiler & Pressure Vessel Code, Section II, "Materials", 1992 Edition through 1994 Addenda.

3.2.2 ASTM A-700, "Standard Packages for Packaging, marking, and Loading Methods for Steel Products for Domestic Shipment".

3.3 Any apparent conflicts between the requirements given herein and the applicable ASME Specification shall be brought to the attention of PSI for clarification.

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4.0 MANUFACTURE

4.1 Thickness Tolerance, + .06 - 0

The forgings shall be rough machined to the thickness(es) specified in the purchase order.

4.2 ID/OD Tolerance, ID -.06+0, OD + .06-0

The forgings shall be furnished in the diameters as specified in the purchase order.

4.2.1 The ID/OD are to be concentric within $\pm 1/32$ ".

4.3 Flatness Tolerance

The machined forgings shall be flat to $\pm 1/32$ " across the diameter.

4.4 Surface Finish

The surface finish of the forgings shall be 250/500 RMS on four sides.

4.5 Chemistry and Mechanical Properties

The material shall meet the chemistry and mechanical requirements as specified in SA 182 Grade F, 304L material specification. The final content of sulfur is to be limited to 0.006%.

4.6 No grinding with abrasive wheels, cloths or stones is permitted. No iron carbon steel or other contaminants (such as grease, oil or hydrocarbons) to come in contact with the forging after the cleaning process. Machining fluids shall be water soluble and free of oil and sulfur.

4.7 Cleanliness

The forgings are intended for use in a high vacuum application. Potential hydrocarbon contamination shall be eliminated. Also, the material shall be wrapped and covered at all times the material is not being processed to minimize possible exposure to contaminants. The forgings shall be steam cleaned prior to shipment.

5.0 MATERIAL TESTING

5.1 2" x 2" material coupons for each heat of material, must be supplied to PSI for approval prior to release for shipment. The coupons are to be cut from the same heat number, lot and thickness of material to be supplied.

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