

Title: RAW MATERIAL HANDLING PROCEDURE

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LIGO VACUUM EQUIPMENT

Hanford, Washington

and

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Title

RAW MATERIAL HANDLING PROCEDURE

TABLE OF CONTENTS

1.0 Purpose

2.0 General

3.0 Responsibilities

4.0 Procedure

Number

Rev.

SPECIFICATION

Number

A

V049-2-120

Rev.

Ø

Title

RAW MATERIAL HANDLING PROCEDURE

1.0 PURPOSE

The purpose of this procedure is to define the requirements for handling and storing LIGO raw material.

2.0 GENERAL

This procedure is applicable to all LIGO vacuum boundary and vacuum internal component raw materials.

Contamination of LIGO vacuum surface materials must be prevented during receiving, storage and fabrication in order for the vacuum system to achieve its design goals. Contamination is defined as any foreign material (carbon steel, oil, grease, etc.) which could come in contact with the 304/304L S.S. and aluminum.

3.0 RESPONSIBILITIES

The receiving department is responsible for preventing contamination during receiving and storage of the raw material.

The manufacturing department is responsible for preventing contamination during the fabrication process.

4.0 PROCEDURE

4.1 Receiving

4.1.1 All LIGO Vacuum Boundary Material (304/304L S.S.) shall be handled (i.e. lifted, rolled, etc.) without coming in contact with carbon steel or other contaminants.

4.2 Storage

4.2.1 Vacuum Boundary material shall be stored indoors and shall be protected from carbon steel, hydrocarbon and other types of contamination.

4.3 Fabrication

4.3.1 Raw materials shall be protected from contamination throughout the fabrication process. All welding and fitting shall be done in clean manufacturing space (Class 100,000 - 200,000) with outside air purge to minimize contamination. Welding gases shall be collected in exhaust systems and vented outside.

Number

Rev.

SPECIFICATION

Number

A

V049-2-120

Rev.

0

Title

RAW MATERIAL HANDLING PROCEDURE

- 4.3.2 No solvent wiping, grinding or wire brushing shall be done to the vacuum surfaces.
- 4.3.3 All machining fluids shall be water soluble and low in chlorides.
- 4.3.4 Welding wire and joints shall be cleaned with a CO₂ spray prior to welding.
- 4.3.4 After Ultra High Vacuum (UHV) cleaning, vacuum surfaces shall not be touched by skin or other contaminants. All cleaned vacuum boundary components shall be sealed (vessels with covers on), double plastic bagged or protected by a Class 100 Cleanroom atmosphere at all times.
- 4.4 Smoking is not allowed in any LIGO storage or manufacturing area.

Number

Rev.

SPECIFICATION

Number

A

V049-2-120

Rev.

0