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## EXTERNAL VISUAL INSPECTION OF WAVEGUIDE DEVICES

**ESCC Basic Specification No. 2053102**

Issue 1	October 2002
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Document Custodian: European Space Agency - see <https://escies.org>

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## 1. **SCOPE**

This specification, to be read in conjunction with ESCC Basic Specification No. 20500, External Visual Inspection, contains additional requirements for waveguides.

## 2. **GENERAL REQUIREMENTS**

### 2.1 **APPLICABILITY**

The following criteria may not be varied or modified after commencing an inspection stage. Any ambiguity or proposed minor deviation shall be referred to the ESCC Executive for resolution and approval.

### 2.2 **PROCEDURE**

All items shall be examined in such a manner that a minimum of handling is involved. Lint free gloves shall be worn during inspection.

### 2.3 **MAGNIFICATION**

All items shall be examined with a binocular or stereoscopic microscope under a magnification of at least X8 unless the defect would be apparent to the naked eye and designated (NE) in the text.

In the case of doubt in the interpretation of a defect a magnification of X20 is allowed.

### 2.4 **MOUNTING FIXTURES**

Suitable fixtures may be used to assist in the inspection process, provided that they do not themselves cause damage to the device.

## 3. **DETAILED REQUIREMENTS**

### 3.1 **GENERAL**

A component shall be rejected if it exhibits one or more of the defects listed in the following paragraphs. Some are considered as minor defects and any two or more of these present in one component shall also entail rejection of the component.

- Minor defects are identified by an asterisk (\*).
- The letters PID in the text mean Process Identification Document.

The external visual inspection includes verification of:

- Dimensions.
- Marking.
- Materials.
- Mechanical defects.

#### 3.1.1 **Cleaning Process**

Cleaning of the component is only allowed as follows:

- Aerosol safety solvent, non residue (e.g. AF Spray) and cotton wool bud.

- According to the process specified in the PID.

Foreign matter shall be considered attached if it cannot be removed by the specified cleaning process.

### 3.2 DIMENSIONS AND MARKING

Dimensions and marking shall be inspected with the requirements of ESCC Basic Specification No. 20500. All letters and numbers shall be clearly legible without the use of optical resources. Dimensional tolerances, shall be as specified in the relevant ESCC Detail Specification.

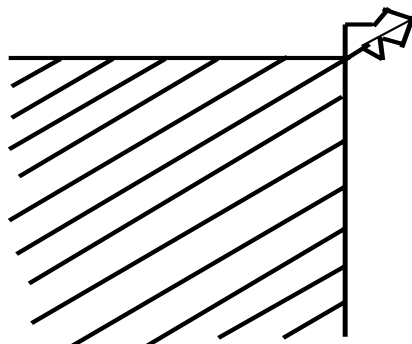
### 3.3 MATERIALS

The materials used shall be verified for conformance to the requirements of the applicable ESCC Detail Specification. The production records shall be checked to ensure that the specified material requirements are met.

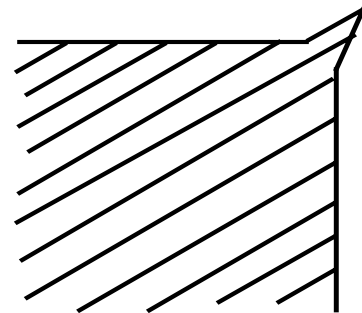
### 3.4 MANIFOLD IRISES AND CAVITIES

#### 3.4.1 Burrs and Bulges

A burr is any rough or ragged protrusion such as is caused by a cutting tool. A bulge is any raised material which distorts the design profile.



Burr



Bulge

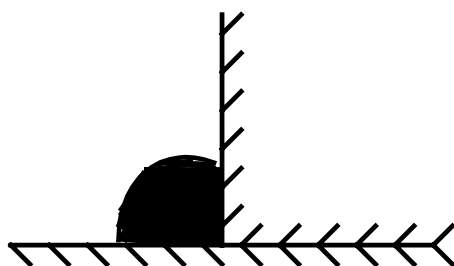
Either shall be considered as a defect when it:

- Is greater than 0.1mm in any direction.
- Causes any dimension to exceed its limits.

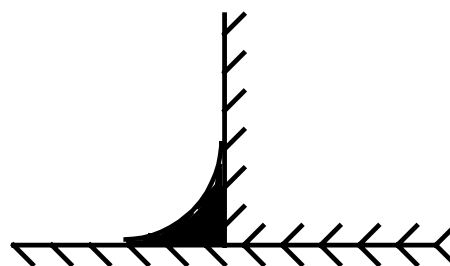
#### 3.4.2 Brazed Parts

The following shall be looked for in particular and shall be deemed cause for rejection:

- Incorrect distribution of braze alloy (NE)



Incorrect



Correct

- Incomplete covering or dewetting.
- Brazing alloy with a granular aspect.
- Porosity in brazing alloy.
- Hole(s) in brazing alloy.

### 3.4.3 Plating

All surfaces shall be free from foreign particles and contamination. There shall be no evidence of corrosion, holes, cracks or peeling. Surfaces shall be of uniform appearance and colour. The following shall be looked for in particular and shall be deemed cause for rejection:

- Any scratch on the plating, showing base metal or underplate.
- Stained plating (\*).
- Any blister on the plating.
- Any extraneous plating residues which cannot be removed by the specified cleaning process.
- Nodular aspect.
- Flakes and whiskers.

## 4. **COMPLETE ASSEMBLIES**

The following shall be looked for in particular and shall be deemed a cause for rejection:

- Illegal or incomplete marking (NE).
- Incorrect positioning of marking (NE) (\*).
- Faulty marking (NE).
- Dirty threads (accept if dirt is removed after applying the specified cleaning process).

### **NOTES:**

All defects described in the preceding paragraphs of this specification are also applicable to complete assemblies.