



Supplier Booklet

www.svmicrowave.com

TABLE OF CONTENTS

	Page
1.0 Introduction	3
2.0 SV Drawing Format Interpretation	5
3.0 Inspection Criteria.....	8
4.0 Measurement Techniques	9
5.0 Burrs, Roll-Overs and Sharp Edges.....	10
6.0 Contamination/FOD.....	15
7.0 Workmanship.....	17
8.0 Surface Finish.....	22
9.0 Brazing.....	24
10.0 Screw Threads.....	25
11.0 Plating Allowance on Threads.....	27
12.0 Plating	29
13.0 Packaging and Handling.....	35
14.0 Supplier Corrective Action	36
15.0 Change History.....	37

1.0 INTRODUCTION

- 1.1 The purpose of this manual is to communicate requirements for products purchased by SV Microwave from its suppliers. SV Microwave's goal is to minimize or eliminate rejected or reworked parts in order to meet deliveries, while eliminating costly scrap and rework for suppliers.
- 1.2 Additional purchase order requirements are flowed down to SV Microwave suppliers via General Terms and Conditions and Quality Notes (Q-Notes). These will be itemized at the end of every PO. The specific requirements are located on our Website at www.svmicrowave.com
 - 1.2.1 Failing to conform to Q-note requirements can be cause for rejection and return of product. Contact your buyer for questions regarding these prior to manufacture.
- 1.3 If at any time SV receives non-conforming product from a supplier, we reserve the option to:
 - 1.3.1 Return the parts to the supplier for correction, or require that the parts be remade at no cost to SV.
 - 1.3.2 Return the parts to the supplier without payment, and cancel the contract.
 - 1.3.3 Rework the parts within the factory and deduct labor plus overhead costs from the supplier's billing. Parts to be reworked at SV will be discussed in detail with the supplier prior to starting the rework.
 - 1.3.4 SV can reject and return parts to suppliers at any time during the SV assembly process (line rejects).
- 1.4 All drawings sent to SV suppliers are considered proprietary and may be controlled by ITAR, DFARS clause 252.227-7012 (48 CFR 252.227-7013), or SV Customers.
 - 1.4.1 In order to ensure that suppliers are always working to the correct revision and there is no inadvertent dissemination of our drawing to outside interests, SV requires that all hard copies be discarded.
 - 1.4.1.1 SV Purchasing Dept. is required to send new drawings for review with every quote/purchase order. If you do not get a new copy, you need to contact your buyer. DO NOT use old versions or revisions.

- 1.5 Technical collaboration with suppliers is common practice at SV Microwave. Suppliers are encouraged to contact SV with any questions and concerns about meeting requirements. SV will put a subject matter expert in contact with suppliers to engage in reciprocal technical exchanges.
- 1.6 Suppliers are required to provide material certifications matching SV requirements with every shipment. This is covered more in detail on Quality Terms and Conditions (section I, paragraph I).
- 1.7 Certificates of Conformance supplied with every shipment are required to include, at a minimum: Seller's name and address, manufacturer's name (if different from seller's), PO number, SV part number and revision, manufacturer's part number and revision (if different than SV's), lot number or date code, and an authorized representative's signature. This is also covered on Quality Terms and Conditions (section I, paragraph E).

2.0 SV DRAWING FORMAT INTERPRETATION

CONFIGURATION CONTROL LEVEL 3 **ROHS COMPLIANT**

REVISION HISTORY

REV	DESCRIPTION	DATE	APPROVED
1	NRN XXXXX	XXXX	XXX

CUI BASIC

CUI: CONTROLLED UNCLASSIFIED INFORMATION
 WHEN 'CUI BASIC' STAMP IS PRESENT, ACCESS TO THE DOCUMENT MUST BE RESTRICTED TO PEOPLE WITH A PROPER BUSINESS PURPOSE ONLY ("NEED-TO-KNOW" BASIS), AND HARD COPIES MUST ONLY BE DISPOSED OF BY SHREDDING

ITAR STAMP.
 ITAR: INTERNATIONAL TRAFFIC IN ARMS REGULATIONS.
 WHEN ITAR STAMP IS PRESENT, PRINT MUST NOT BE SHARED WITH ANY NON-U.S. PERSON

ITAR Notice
 This document contains data that is controlled by International Traffic in Arms regulations. This data cannot be exported, disclosed or transferred to foreign business or persons (including employees, consultants or agents)

Figure A

Figure B

Figure C

Figure D

Figure E

Figure F

MATERIAL: 400-30-XXX	DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ±1/16" ANGULAR: ±1° ±1/2° DECIMAL: ±.005 ±.010 ±.020 ±.050	UNLESS OTHERWISE SPECIFIED 1) ALL DIMENSIONS ARE AFTER PLATING 2) DIMS ARE CONSIDERED AS DIMS UNLESS NOTED OTHERWISE 3) DIMS TO TOLERANCES ARE TO BE CONSIDERED UNLESS OTHERWISE NOTED 4) DIMS TO OR COMMON DIMS TO BE CONSIDERED UNLESS OTHERWISE NOTED 5) REMOVE ALL BURRS	SV MICROWAVE 2400 CAROLINA WOOD DRIVE, SUITE 100 WEST PALM BEACH, FL 33409
FINISH: PER BOM	INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M - 1994	DRAWN: XXX XX/XX/XX	DESCRIPTION
SURFACE AREA: XXX	THIRD ANGLE PROJECTION	CHECKED: XXX XX/XX/XX	DATE: XXX-XX-XXX
PROPRIETARY THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF SV MICROWAVE, INC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF SV MICROWAVE, INC IS PROHIBITED.		APPROVED: XXX XX/XX/XX	SCALE: 1:1
XXXX-XXXXX USED ON:		E.M. SIMULATION: N/A	SHEET 1 OF 1

SV Microwave Standard Drawing Format

DESCRIPTION:

1. "NRN": NEW RELEASE NOTICE (REVISION "-")
2. "DCN": DRAWING CHANGE NOTICE (REVISION "A" AND ABOVE)
3. "XXXXX": SEQUENTIAL DCN OR NRN NUMBER

DRAWING REVISION:

1. INITIAL RELEASE DENOTED BY A DASH: "-"
2. SUBSEQUENT REVISIONS: "A", "B", "C", ETC.

REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED
-	NRN XXXXX	XX/XX	XXX

Figure A

NEXT HIGHER ASSEMBLY
WHERE THIS PART IS USED

XXXX-XXXXX
USED ON:

Figure B

MATERIAL OF PART.

THIS BLOCK REFERS TO SV MICROWAVE SPEC. # "400-30-XXX," WHERE "XXX" IS THE UNIQUE 3-DIGIT NUMBER OF THE MATERIAL IN QUESTION

MATERIAL:	400-30-XXX
FINISH:	PER BOM
SURFACE AREA:	.XXX

PLATING FINISH OF PART.

PART PLATING FINISH IS USUALLY LISTED ON THE FINAL ASSEMBLY DRAWING, BUT IS SOMETIMES LISTED ON THE PART DRAWING. IF FINISH BLOCK READS "PER BOM" OR "SEE P/L," THEN PART SUPPLIER IS NOT RESPONSIBLE FOR PLATING FINISH, UNLESS OTHERWISE INSTRUCTED BY SV MICROWAVE. IF PLATING IS REQUIRED, THEN SUPPLIER WILL BE GIVEN AN SV MICROWAVE PLATING SPEC. # "400-01-XXX," WHERE "XXX" IS THE UNIQUE 3-DIGIT NUMBER OF THE PLATING SPEC. IN QUESTION

TOTAL SURFACE AREA OF PART IN SQUARE INCHES

Figure C

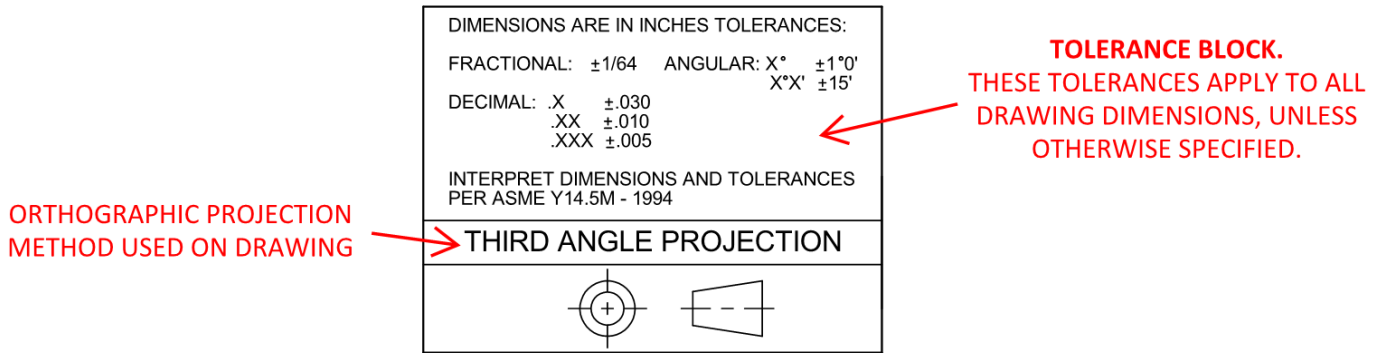


Figure D

1. SUPPLIERS OF UNPLATED PARTS SHALL CONSIDER DIMENSIONS ON SV PRINTS AS MACHINING DIMENSIONS. PARTS SHALL BE MACHINED TO PRE-PLATE DIMENSIONS ONLY WHEN SUPPLIED BY SV (SUPPLIERS ARE NOT EXPECTED TO CALCULATE PLATING ALLOWANCES). ALLOWANCE OF WORST CASE PLATING THICKNESS WILL BE ACCEPTABLE AFTER PLATE.

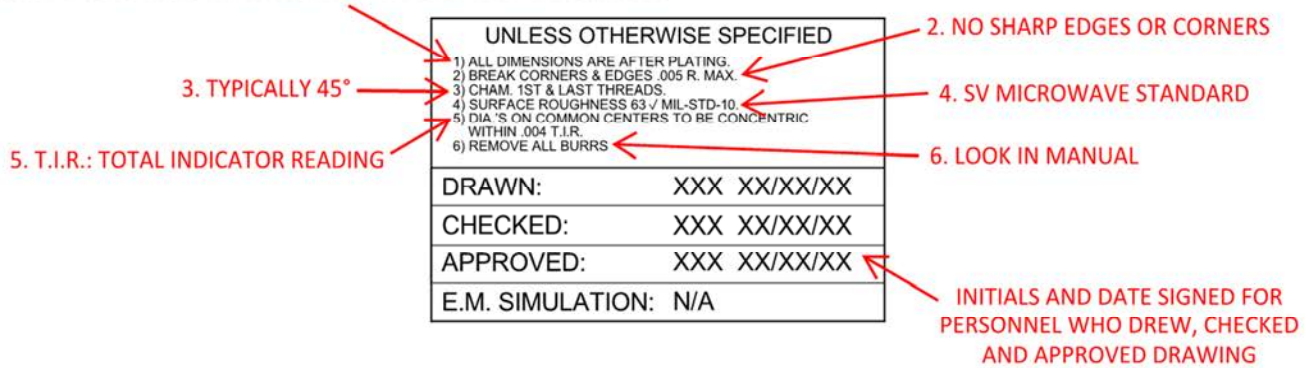


Figure E

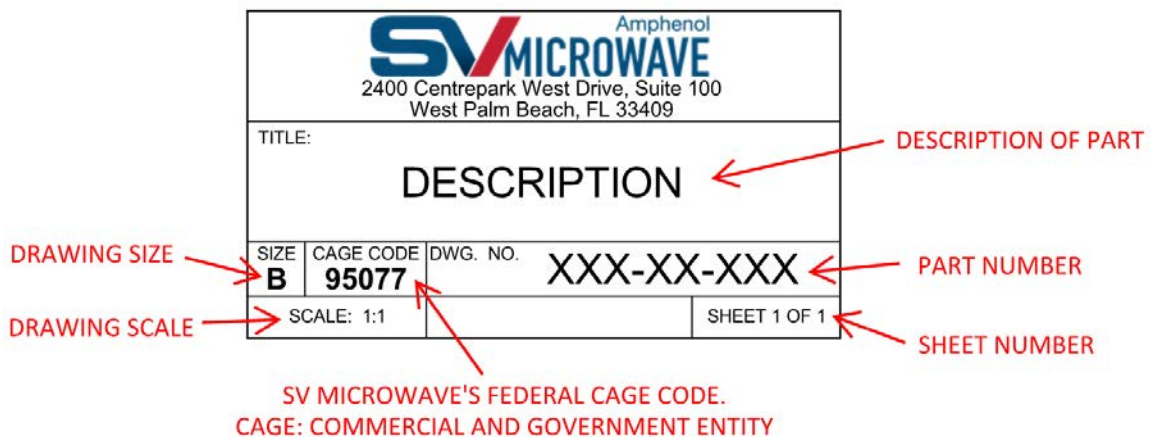


Figure F

3.0 INSPECTION CRITERIA

- 3.1 SV Microwave uses the following criteria as a guideline for visual and mechanical inspection:
- 3.1.1 When visually inspecting the product, an illuminated microscope with at least 7X magnification is used. SV reserves the right to increase magnification to verify a suspect condition.
 - 3.1.2 The sample size for inspection is in accordance with ANSI/ASQC Z1.4, General Inspection Level II, 1.0 AQL (a=0, r=1), unless otherwise specified by a customer or drawing requirement. All inspections are performed on parts randomly selected from the lot.
 - 3.1.3 In the event a conflict arises between this document and the drawing, the drawing shall prevail. Parts are inspected for all dimensions and notes on the drawing.
 - 3.1.4 Parts must be clean and free of all contaminants including oils, dirt and debris left from manufacturing operations (more details on section 6.0).
 - 3.1.5 SV reserves the right to perform any testing to ensure product received meets all requirements.

4.0 MEASUREMENT TECHNIQUES

4.1 The following recommended practices are guidelines for the use of standard measuring tools and techniques to inspect SV products.

4.1.1 External Measurements:

- Use Vernier tool (calipers) for tolerances of .005" or greater.
- Use one-inch micrometer for tolerances of .0005" to .005".
- Use a bench micrometer or dial snap gage for tolerances of .0003" to .0005".
- Use electronic calipers, comparators and gage heads for tolerances of .0005" to .0001".

4.1.2 Internal Measurements:

- Use plus pin gages for tolerances of .0005" or greater.
- Use a dial bore gage for tolerances of .0003" to .0005".

4.1.3 Measurements of counter bore depths:

- Use a height gage with .001" graduations for tolerances of .005" or greater.
- Use a height gage with .0001" graduations for tolerances of .0003" to .005".
- Use an electronic gage with height check for tolerances of .0003" or less.

4.2 The use of optical measurement equipment (automated or otherwise) to inspect SV product is also acceptable.

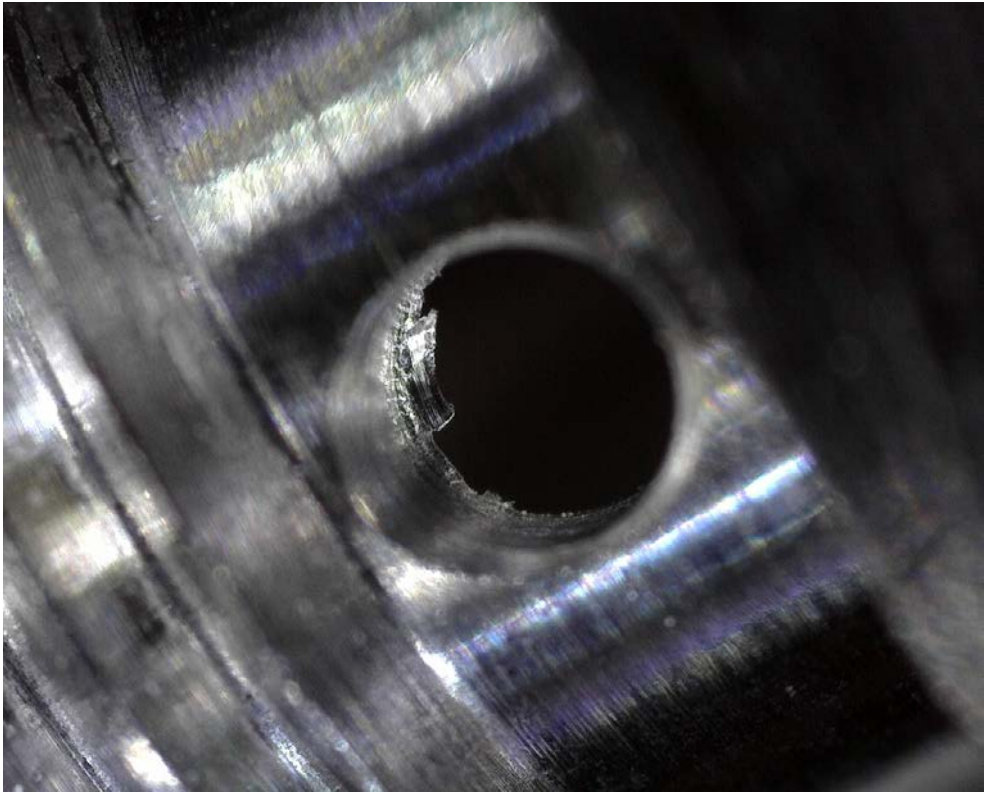
4.3 Whenever a datum is called out by an SV drawing, related dimensions must be inspected with respect to it. If supplier is unclear about this, or inspection method precludes measurement with respect to the datum, SV must be consulted for clarification/resolution.

5.0 BURRS, ROLL-OVERS AND SHARP EDGES

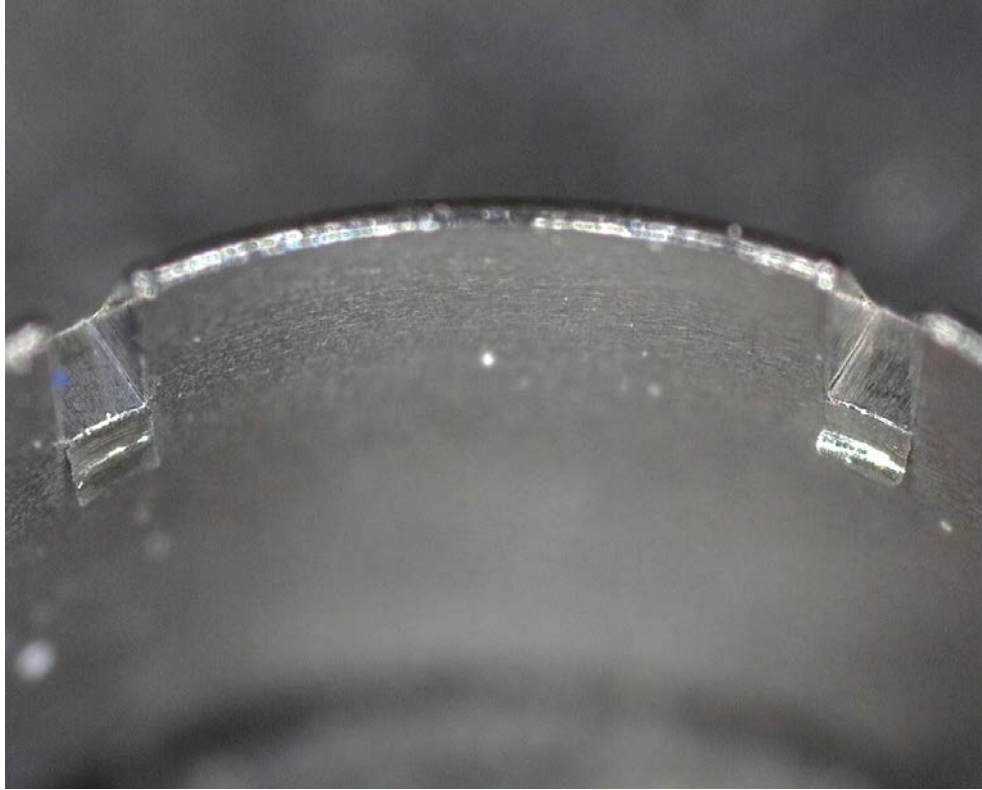
- 5.1 Parts delivered to SV Microwave must be free of burrs, roll-overs and sharp edges visible under an illuminated microscope at 7X magnification, that may cause interference, an out-of-tolerance condition, arcing, corrosion or a malfunction during operation.
- 5.2 Burrs that are firmly attached to the parts should not exceed .002” in size, and may not exceed dimensional tolerances. Firmly attached burrs are those that cannot be detached by picking, brushing or scraping.
- 5.3 Some examples of burr-induced defects are:
- Interference between mating parts.
 - The potential of breaking off, exposing the base surface and leading to deterioration of the base material.
 - Causing parts to seize, gall or function in an erratic manner.
 - Electrical and/or mechanical failures.
 - Corrosion caused by trapped plating solutions.
 - Interference with the plating process that may cause “shadows” or voids in the plating.
- 5.4 Tumbling (barrel or vibratory), magnetic pin spinning, sandblasting, and manual deburring (as needed) are common deburring methods recommended by SV.
- 5.5 Examples of common types of burrs:



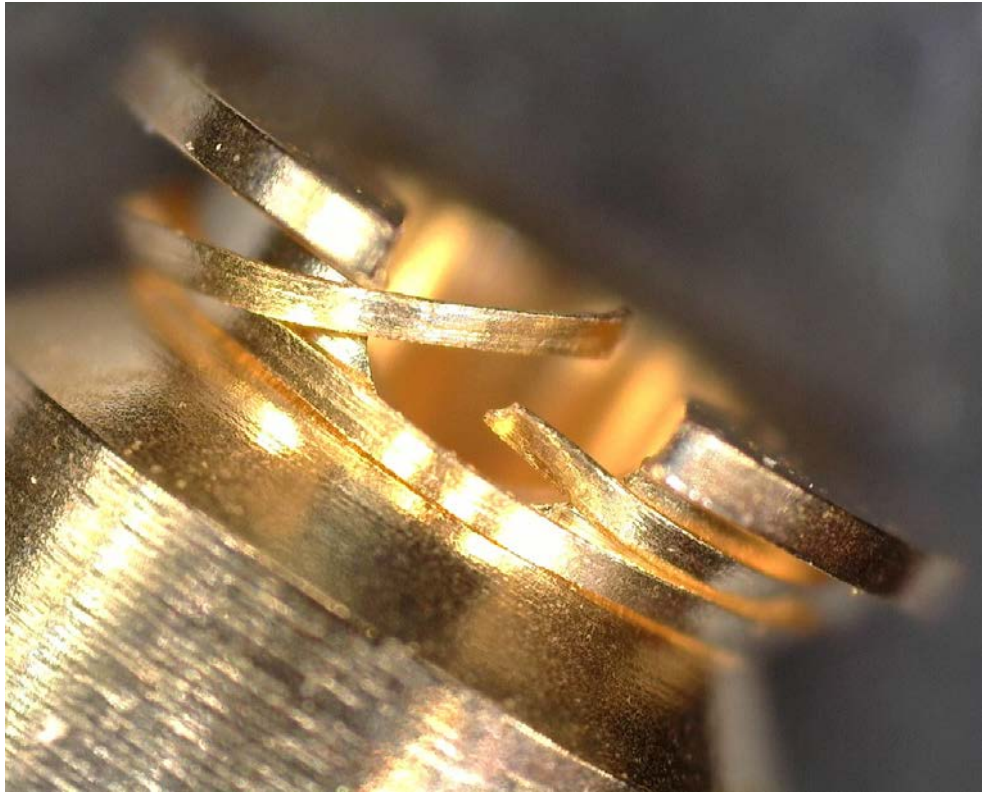
Burr in the ID



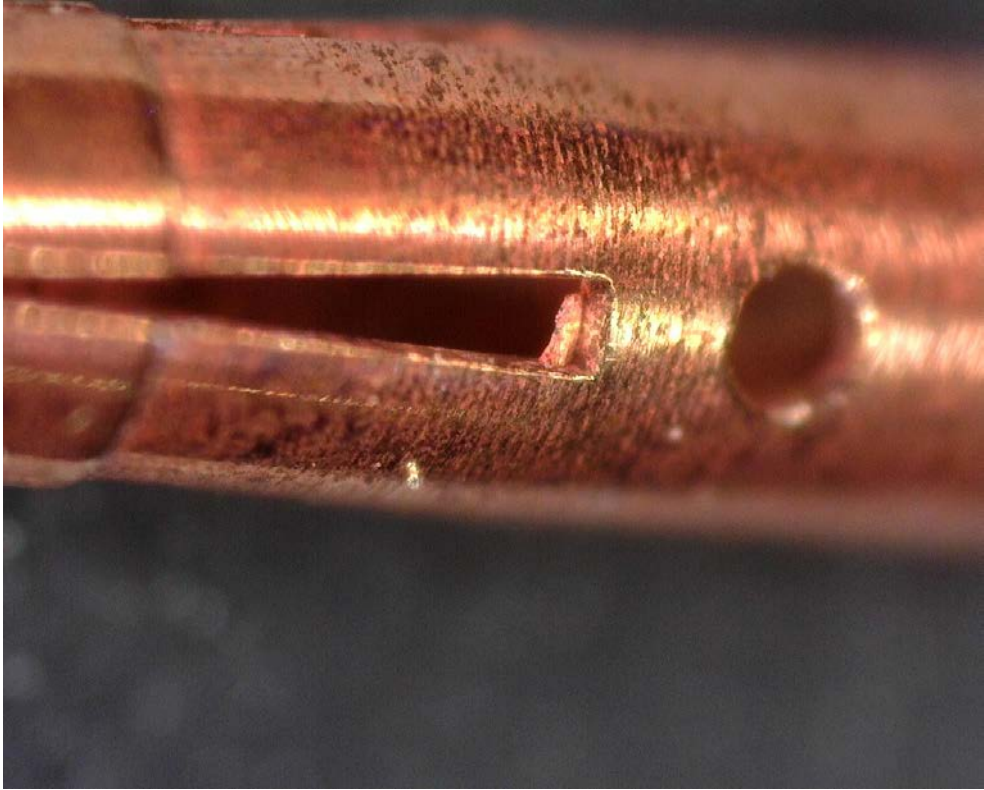
Burr at the edge of a thru hole



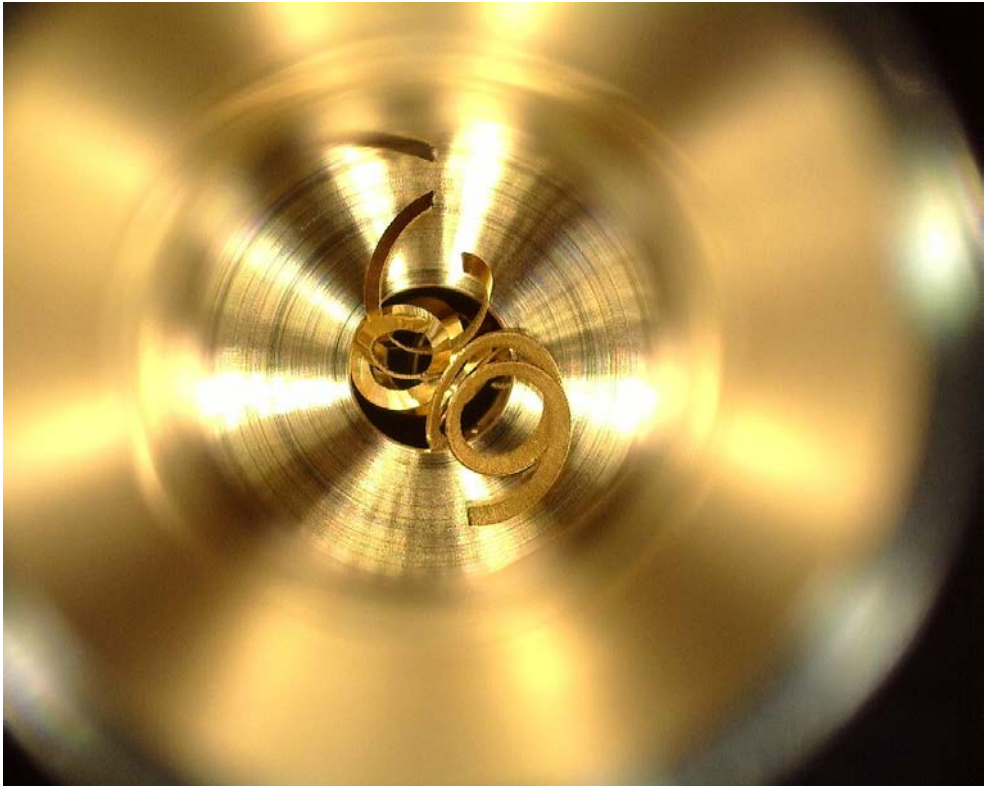
Folded-over burrs



Wrap-around burrs



Burr at the bottom of a slot



Loose metal burrs in the ID



Loose Teflon burrs

6.0 CONTAMINATION/FOD

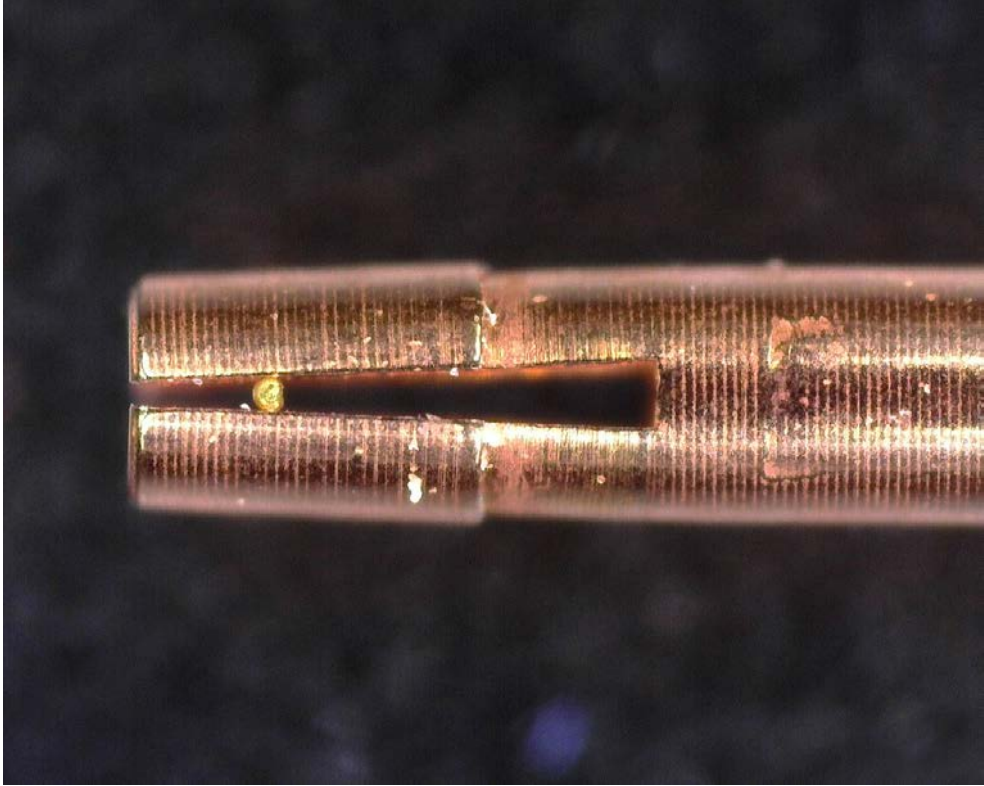
- 6.1 All parts delivered to SV Microwave must be clean and free of oil, material chips, coolant, water, cleaning solution, and deburring media.

Note: No ozone-depleting chemical shall be used to clean SV Microwave parts.

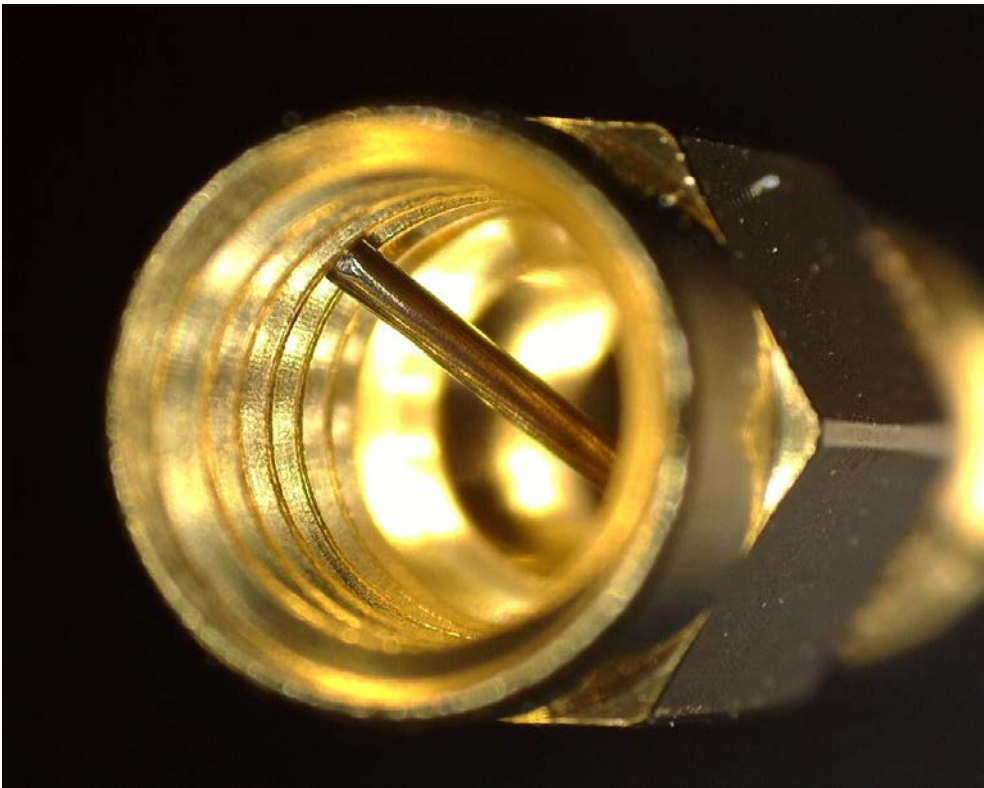
- 6.2 Examples of contamination/FOD on parts:



Oil and material chips



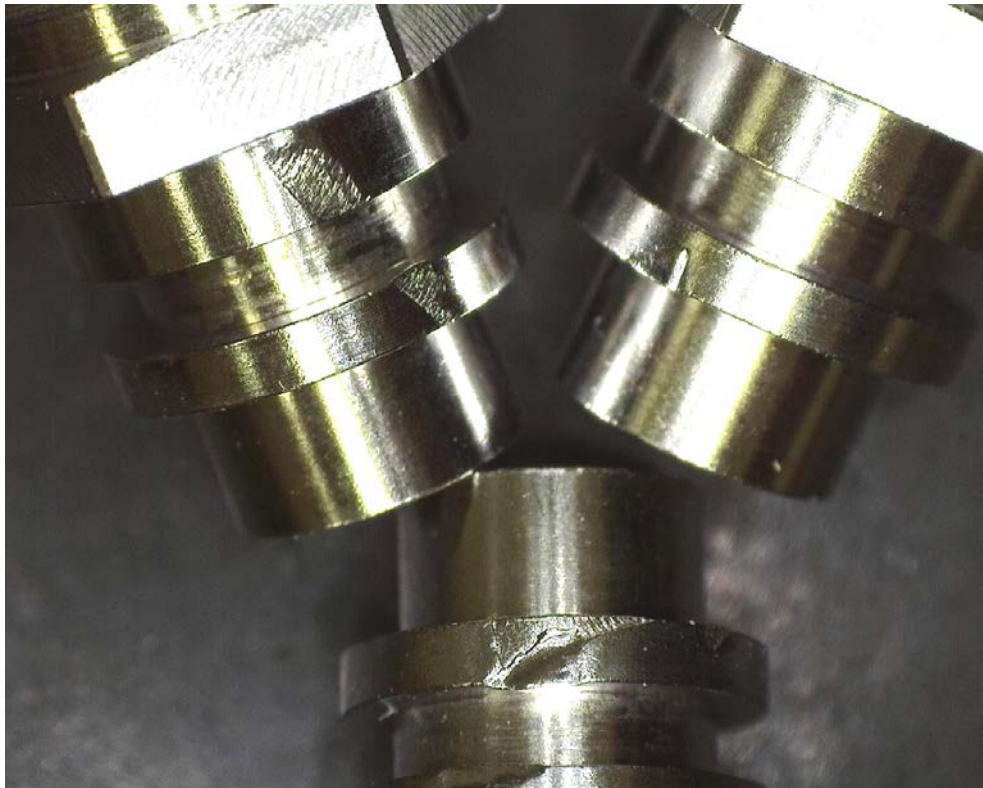
Lodged deburring media



Lodged spinning pin

7.0 WORKMANSHIP

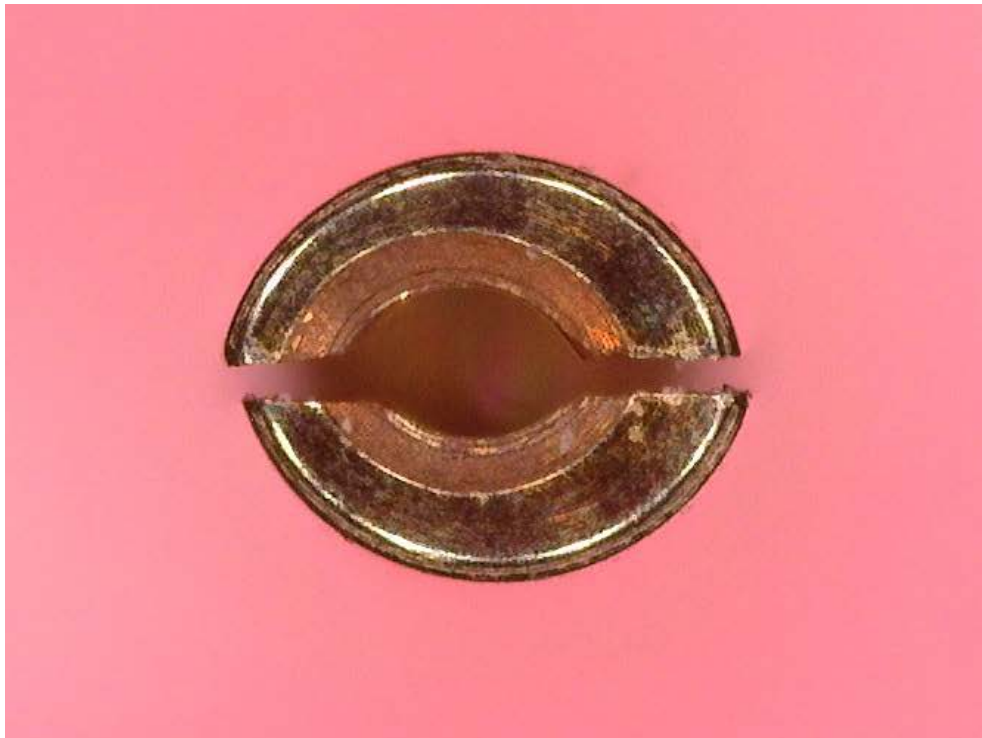
- 7.1 Parts delivered to SV Microwave shall meet industry workmanship standards.
- 7.2 Excessive nicks, dents, gouges, tool marks, scratches, or damage in general considered detrimental to the mechanical, electrical, or environmental performance of parts will be cause for rejection.
- 7.3 Examples of common workmanship issues:



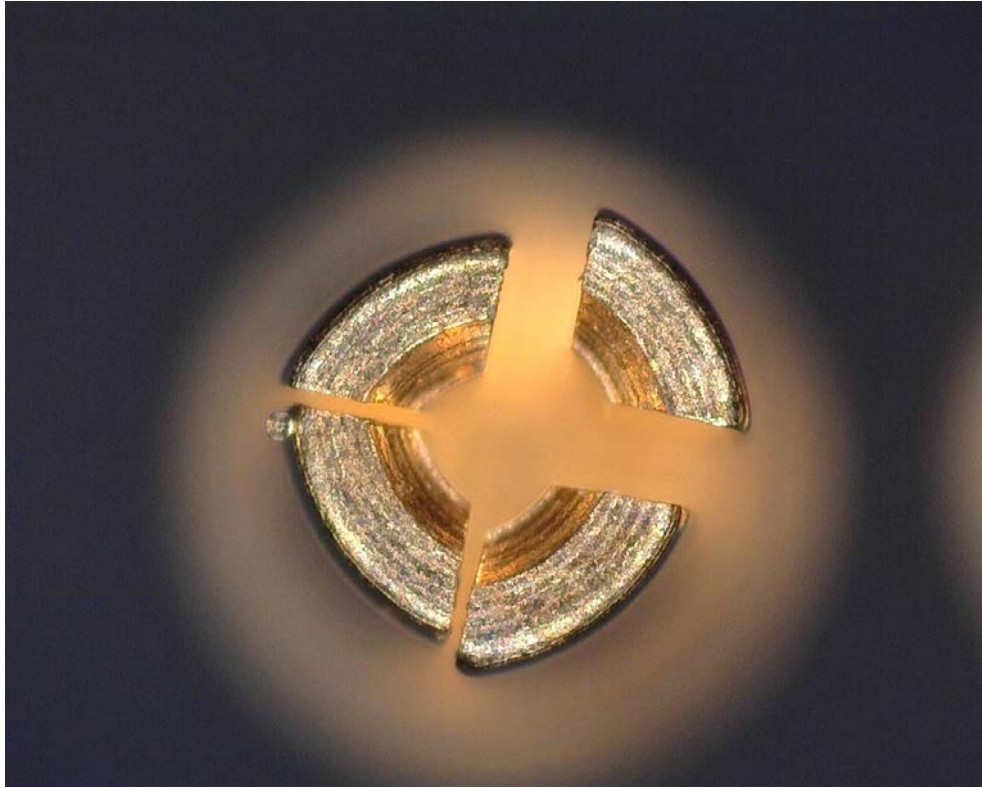
Excessive tool marks



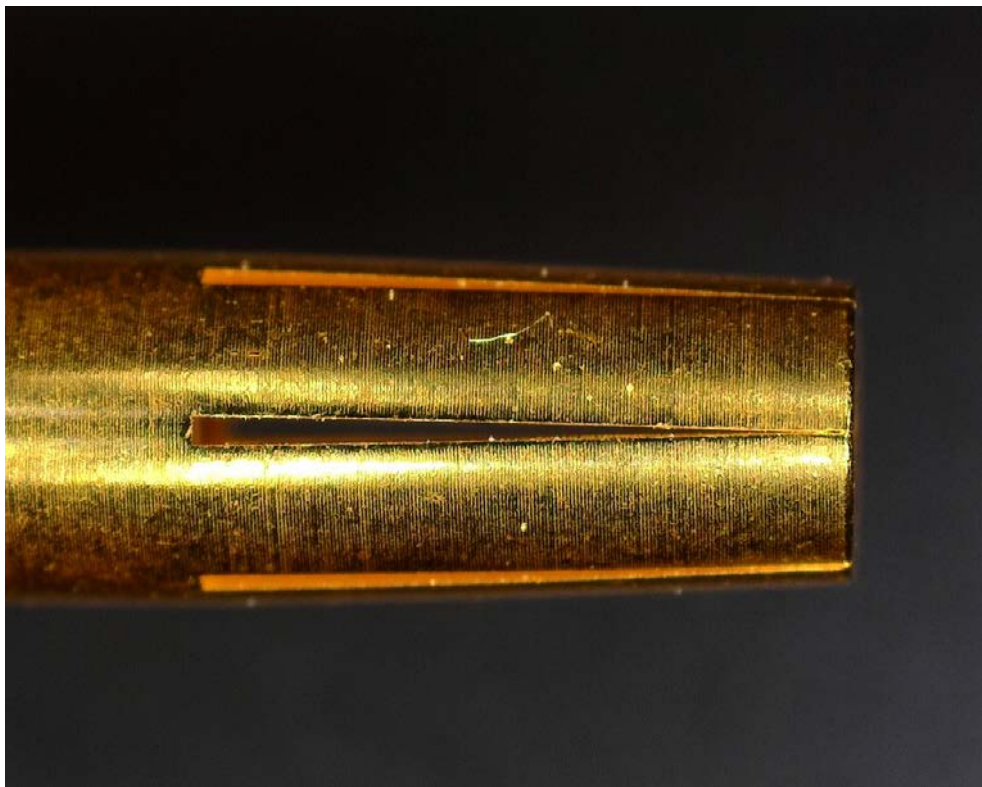
Stamping defect



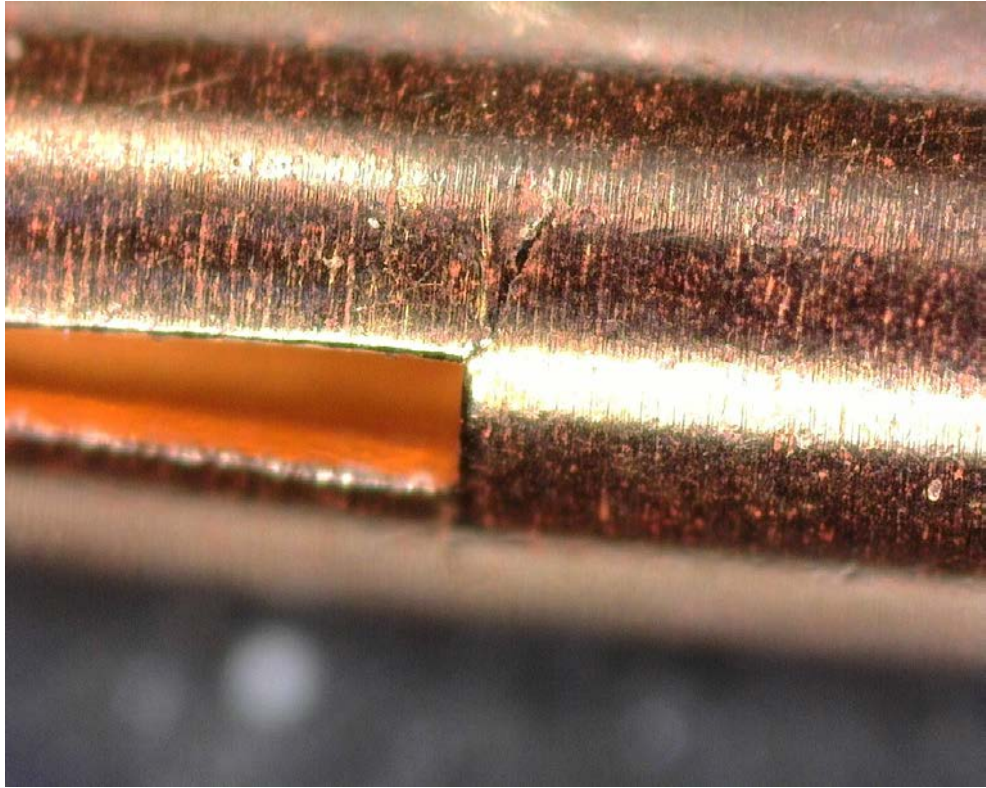
Eccentricity of part features



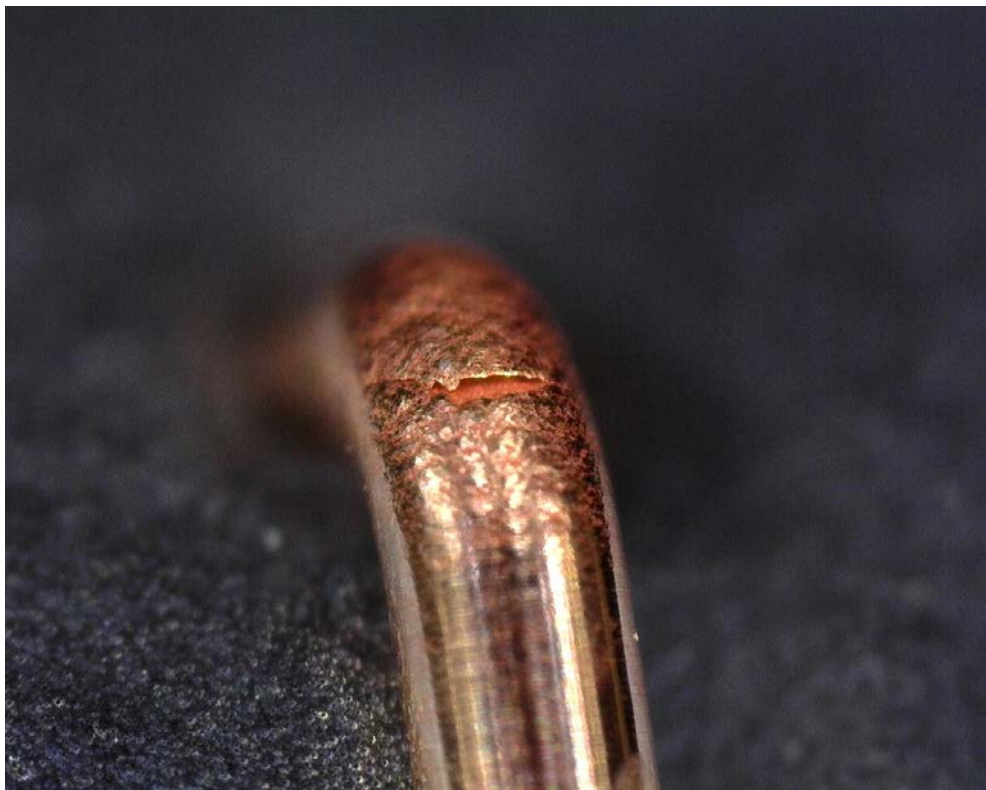
Uneven tine closure



Touching tines



Crack at the bottom of a slot



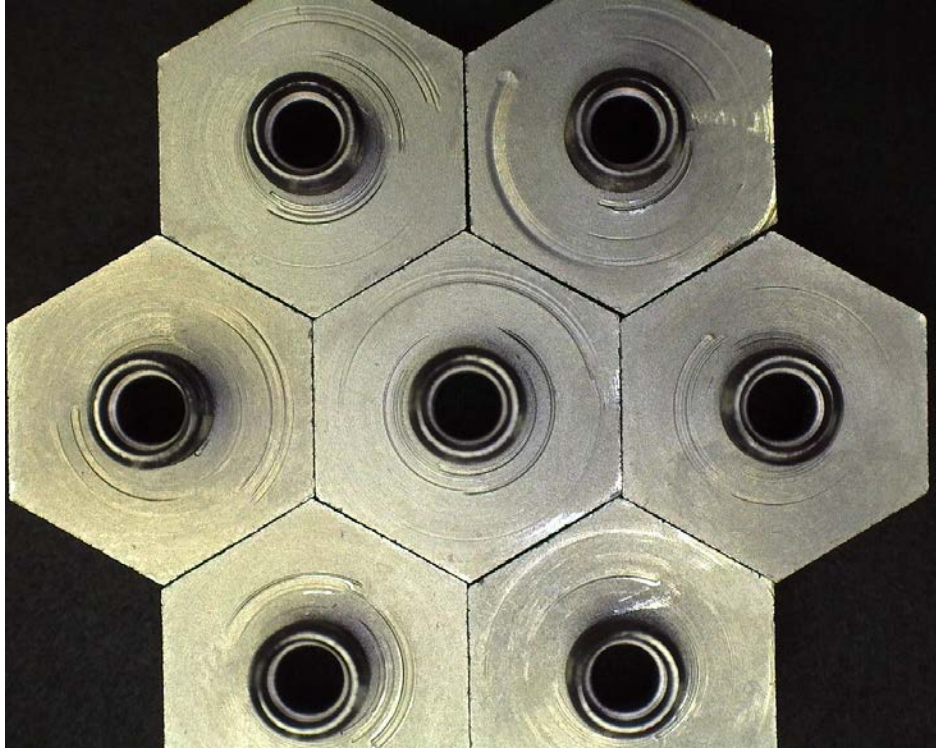
Crack at a right angle bend



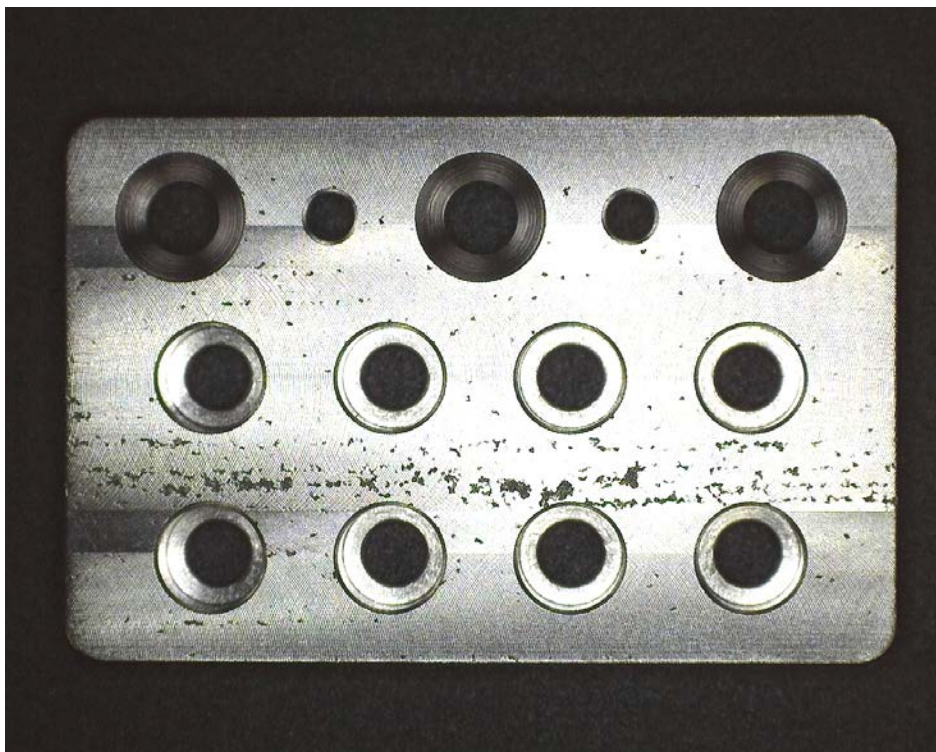
Excessive damage

8.0 SURFACE FINISH

- 8.1 SV Microwave inspects the surface finish of parts using visual standards. The following are descriptions of surface finishes used on SV parts:
- 8.1.1 A 125 μ m surface finish is a coarse production surface for interior clearance and clean-up operations. This finish is typically produced by turning, milling, drilling, boring, etc., and is permitted wherever definite tool marks are not objectionable. This finish is used on interior surfaces where a better finish is not needed, such as areas that are designed to accept insulators.
 - 8.1.2 A 63 μ m surface finish (industry standard), is a medium commercial finish produced by relatively high speeds and fine feeds. This is the finish typically required for non-critical exterior surfaces produced by lathes, mills and controlled drilling and counter-bore operations. When required, tool marks in excess of this surface finish are cause for rejection. This spec is generally used for all diameters, thread reliefs, cable crimps, flats and shoulders.
 - 8.1.3 A 32 μ m surface finish is a good finish produced by the use of high-speed cutting operations combined with fine feeds and well sharpened cutting tools. This finish is generally required on mating parts and surfaces meant for close fits. This type of finish should be used on "O" ring grooves, mating counter-bores, contact areas of outer conductors, center contacts, mating areas, and screw threads.
 - 8.1.4 A 16 μ m surface finish is a fine finish produced by the use of high speed cutting operations combined with fine feeds, well sharpened cutting tools and buffing. This finish is typically used for mating parts and surfaces where other moving metal surfaces will interface. This type of finish is used on contact areas of outer conductors for switch connectors.
- 8.2 Tool marks are irregularities on the surface finish whose height (or depth) and width are in excess of the adjacent surface allowable limits. Tool marks are always objectionable and in most cases unacceptable. Tool marks may be accepted at the discretion of the SV Material Review Board (MRB).
- 8.3 In cases where the surface finish cannot be confirmed via visual standards, SV reserves the right to verify and reject based on testing using a Profilometer.
- 8.4 The following are examples of surface finish defects:



Excessive tool marks



Excessive surface pitting

9.0 BRAZING

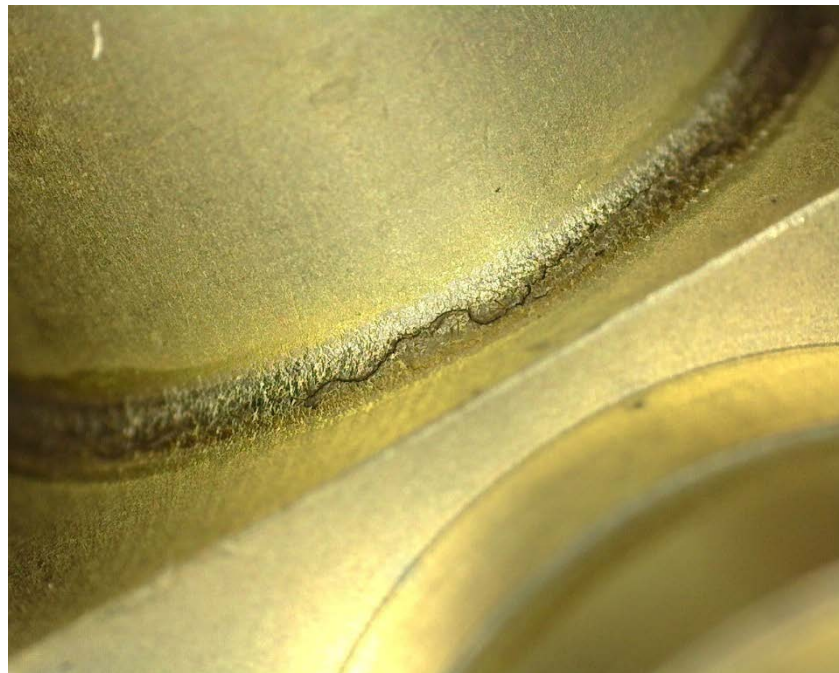
9.1 SV Microwave inspects brazing using the following criteria:

9.1.1 Silver alloy brazed joints are inspected to requirements on SV Microwave drawings, and MIL-B-7883.

NOTE: MIL-B-7883 has been cancelled with no replacement as of this rev date. However, it can still be referenced per DLA.

9.1.2 Nickel alloy brazed joints are inspected to requirements on SV Microwave drawings, and AMS-2675.

9.1.3 Visually inspect sample for evidence of a braze fillet at 7X minimum magnification. Fillet shall be free of cracks that could be detrimental to performance of parts (see picture below). If any part does not exhibit a fillet, the entire lot can be rejected. A fillet is defined as a radius (curvature) that joins two surfaces essentially at right angles to each other.



Cracked braze joint

9.1.4 Torque test samples and data must accompany all shipments. Reference the appropriate SV drawing(s) for minimum torque requirements.

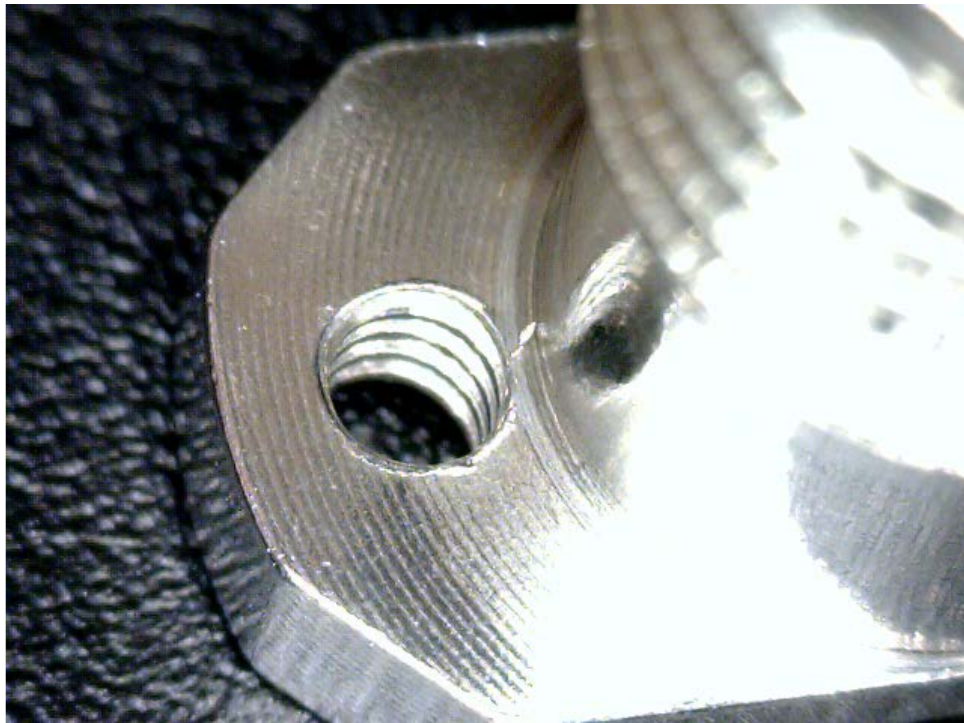
9.2 Stainless steel piece parts will have been passivated per the specifications on SV drawing # 400-01-020 prior to brazing.

10.0 SCREW THREADS

- 10.1 Screw threads on SV Microwave parts shall be manufactured and inspected in accordance with FED-STD-H28, except as modified herein.
- 10.2 SV inspects screw threads using “before-plate GO” and “after-plate NO-GO” plug and ring gages.
- 10.2.1 The “before-plate GO” and “after-plate NO-GO” thread plug gages check the limits of the major and pitch diameters of the part’s internal threads. The “before-plate GO” plug gage must completely enter the part’s internal thread to assure that the major and pitch diameters do not exceed the maximum material limit. The “after-plate NO-GO” thread plug gage must not enter the part’s internal thread by more than 2 ½ turns to provide adequate assurance that the major and pitch diameters do not exceed the minimum material limit.
- 10.2.2 The “before-plate GO” and “after-plate NO-GO” thread ring gages are used to check all thread parameters except the major diameter of the part’s external threads. The “before-plate GO” gage must completely receive or pass over the part’s external thread to assure that the minor and pitch diameters do not exceed the maximum material limit. The “after-plate NO-GO” gage must not pass over the major diameter of the part’s external thread by more than 2 ½ turns, to assure that the minor and pitch diameters are not less than the minimum material limit.
- 10.3 Screw threads should be smooth and free of surface defects. Common surface defects are nicks, burrs, chatter marks, and finish not meeting the surface finish requirement on the drawing.
- 10.4 Examples of thread defects:



Burr on thread



Lack of chamfer at end of a thread

11.0 PLATING ALLOWANCE ON THREADS

11.1 When Brass or BeCu parts are purchased by SV, screw threads on them must be machined in a way that allows them to accept “before-plate GO” thread gages with pitch diameters per table below, to accommodate for plating thickness. Suppliers must contact their SV buyer for any thread types not on this list.

<u>“GO” BEFORE-PLATE PLUG GAGES</u>		<u>“GO” BEFORE-PLATE RING GAGES</u>	
<u>THREAD SIZE</u>	<u>PITCH DIA.</u>	<u>THREAD SIZE</u>	<u>PITCH DIA.</u>
0-80 UNF-2B	.0529”	0-80 UNF-2A	.0504”
1-72 UNF-2B	.0652”	1-72 UNF-2A	.0622”
2-56 UNC-2B	.0756”	2-56 UNC-2A	.0728”
3-56 UNF-2B	.0884”	4-40 UNF-2B	.0940”
4-40 UNC-2B	.0970”	6-32 UNC-2A	.1159”
6-32 UNF-2B	.1187”	6-40 UNF-2A	.1200”
6-40 UNF-2B	.1228”	8-36 UNF-2A	.1440”
8-32 UNC-2B	.1447”	10-32 UNF-2A	.1676”
8-36 UNF-2B	.1472”	10-36 UNS-2A	.1700”
10-32 UNF-2B	.1709”	10-48 UNS-2A	.1746”
10-36 UNF-2B	.1732”	12-32 UNEF-2A	.1936”
10-48 UNS-2B	.1777”	12-40 UNS-2A	.1978”
12-40 UNS-2B	.2010”	¼-28 UNF-2A	.2246”
¼-28 UNF-2B	.2282”	¼-32 UNEF-2A	.2275”
¼-32 UNEF-2B	.2309”	¼-36 UNS-2A	.2301”
¼-36 UNS-2B	.2330”	9/32-40 UNS-2A	.2629”
9/32-40 UNS-2B	.2662”	5/16-32 UNEF-2A	.2900”
5/16-32 UNEF-2B	.2934”	3/8-32 UNEF-2A	.3525”
3/8-24 UNF-2B	.3490”	3/8-40 UNS-2A	.3567”
3/8-32 UNEF-2B	.3559”	7/16-28 UNEF-2A	.4120”
3/8-40 UNS-2B	.3598”	15/32-32 UNS-2A	.4474”
7/16-28 UNEF-2B	.4155”	½-28 UNEF-2A	.4745”
7/16-32 UN-2B	.4182”	½-32 UNEF-2A	.4777”
½-20 UNF-2B	.4687”	½-40 UNS-2A	.4816”
½-28 UNEF-2B	.4780”	9/16-24 UNEF-2A	.5330”
½-32 UN-2B	.4810”	9/16-32 UNS-2A	.5400”
½-40 UNS-2B	.4850”	5/8-24 UNEF-2A	.5955”
9/16-24 UNEF-2B	.5366”	11/16-24 UNEF-2A	.6580”
9/16-28 UN-2B	.5405”	¾-20 UNEF-2A	.7150”
9/16-32 UN-2B	.5432”		
5/8-24 UNEF-2B	.5991”		
11/16-24 UNEF-2B	.6616”		
¾-20 UNEF-2B	.7189”		

- 11.2 Standard “NO-GO” thread gages in accordance with FED-STD-H28 will be used to inspect all parts, including Brass and BeCu, both before and after plate.
- 11.3 Reference Section 2.0, Figure E, Note 1 for pre-plate ‘dimension’ requirements.

12.0 PLATING

- 12.1 Random samples are pulled from lots of plated parts and examined for the following:
 - 12.1.1 Correct plating type.
 - 12.1.2 Plating omitted.
 - 12.1.3 Plating coverage that meets all requirements of SV applicable plating specification (400-01-XXX).
 - 12.1.4 Critical dimensions after plating (typically contact ODs, body IDs, and dimensions with $\pm.0005$ " or tighter tolerances).
 - 12.1.5 Threaded areas are checked with standard after plate "GO" and "NO-GO" thread gages.
- 12.2 Visual examination at 10X magnification will be performed for:
 - 12.2.1 Evidence of chipping, peeling, nodules, pits or blistered plating.
 - 12.2.2 Evidence of scratches, nicks or gouges on any part where the base metal has been exposed.
 - 12.2.3 Verification of complete removal of plating salts.
 - 12.2.4 Evidence of discoloration, contamination or corrosion.
 - 12.2.5 To ensure the color shade of the plating is as specified on the contract, as well as the type of finish (matte or polished).
 - 12.2.6 Evidence of bleeding. This is where trapped plating solutions bleed through the outside plating layer.
 - 12.2.7 Evidence of tarnish that detracts from the appearance of the finished part.
- 12.3 Platers are responsible for all quality assurance provisions and inspections required by the applicable plating standards. SV Microwave has the option to perform all or some of those tests.

12.4 Adhesion Testing

12.4.1 A minimum of one sample is subjected to a crush test for adhesion verification. The bend test is used on some contacts, but the crush test is used on all other products to break the base metal. The sample is crushed in a hand vise, or other suitable type of equipment, only until the base metal fractures.

12.4.2 The adhesion of all plating layers is examined at a magnification no greater than 10X. Neither the outer plating, nor any underplating, may show blistering, peeling, lifting or flaking. Cracks in the base metal, or any plating, are not considered failures unless accompanied by flaking, peeling or blistering. When crushing contacts, the solder pot is crushed just enough to fail the base metal. A sharp pointed tool is then used to determine if any area of plating can be separated from the base metal.

12.5 Bake Test (when required on SV drawing)

12.5.1 A 1.0 AQL sample per ANSI/ASQC Z1.4, General Inspection Level II (U.O.S.), will be pulled and subjected to a bake test per requirement on SV drawing.

12.5.2 After removal and cooling, the surface of the sample will be examined at 10X for evidence of flaking, peeling, blistering, or discoloration.

12.6 Plating Thickness

12.6.1 A five-piece sample must be measured by the plater for plating thickness via a non-destructive method, unless otherwise specified by the SV drawing or PO. The measured data must be supplied with the plater's C of C. SV Microwave's plating inspection will verify these readings.

12.6.2 SV Microwave's Hi-Rel customers require cross-sections be performed for plating thickness verification. SV's Purchase Order may require plater to cross-section a 2-piece sample for this purpose.

12.7 Hardness Testing

12.7.1 Platers are responsible for checking the hardness of plating per applicable plating standards. Certificates of Compliance are required.

12.8 Salt Spray

12.8.1 Salt Spray testing is the responsibility of the plating suppliers.

12.9 Form-over Parts

12.9.1 Prior to incoming inspection acceptance, parts requiring a form-over in the assembly process may have a sample sent to production in order to test the plating integrity at the form-over location.

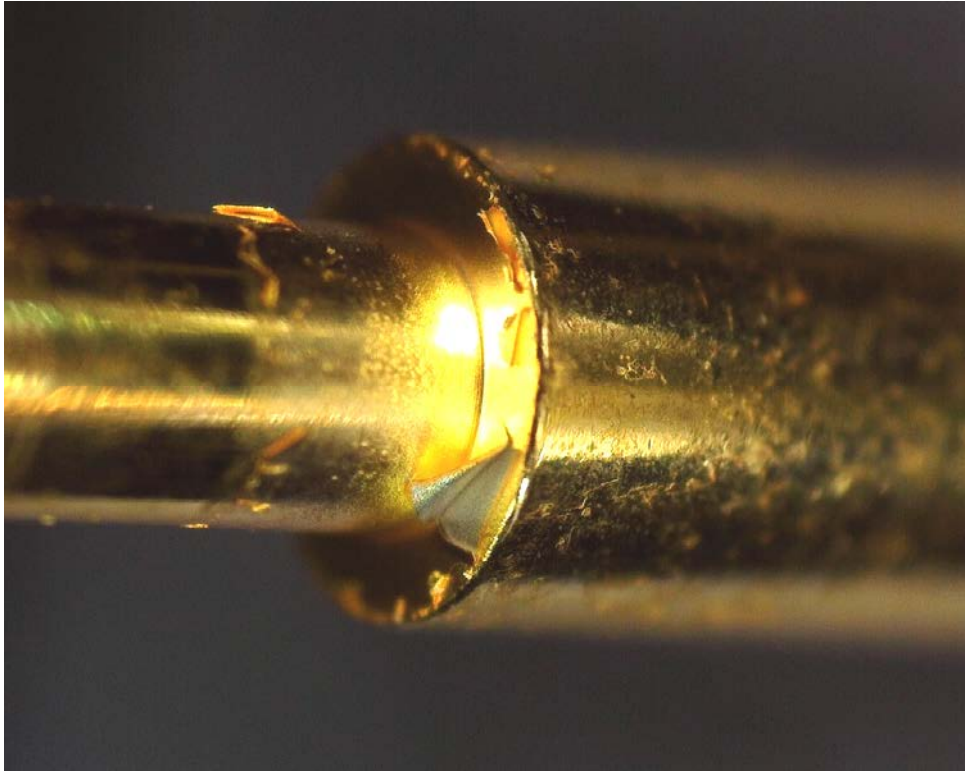
12.10 Glass Seals

12.10.1 Glass seal assemblies must have plating thickness documentation verified and supplied. This includes plating on the pins, if applicable. SV will crush test the internal pin and body, where applicable. Glass seal assemblies will be tested for thermal shock capability, leakage, insulation resistance and dielectric withstanding voltage.

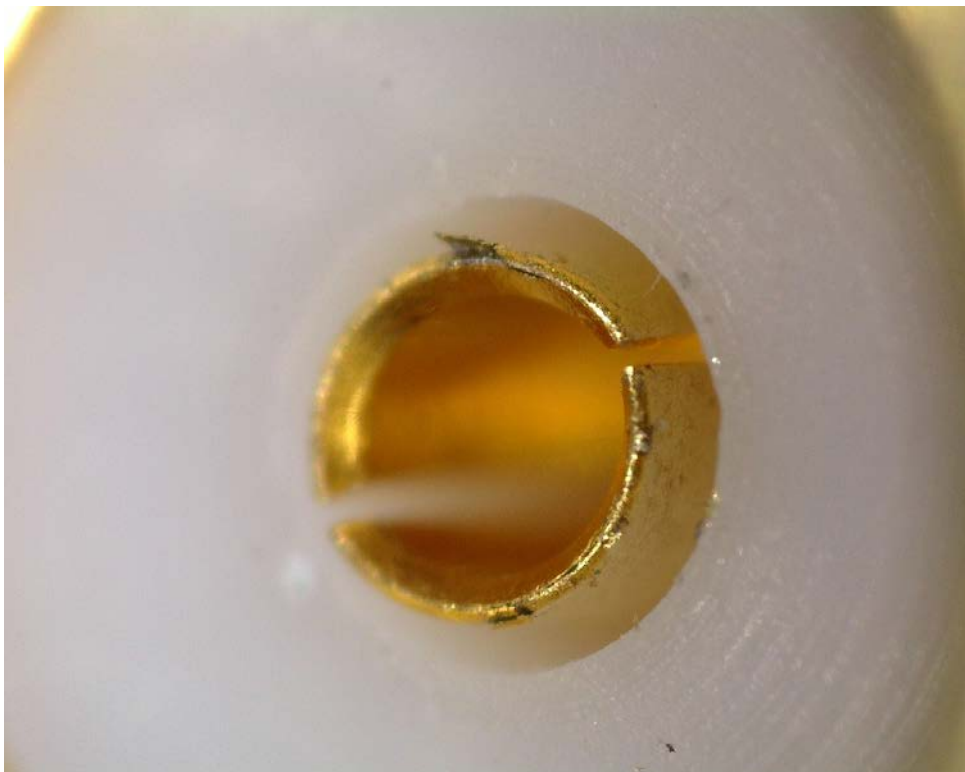
12.11 Examples of common plating defects:



Blistering



Peeling off



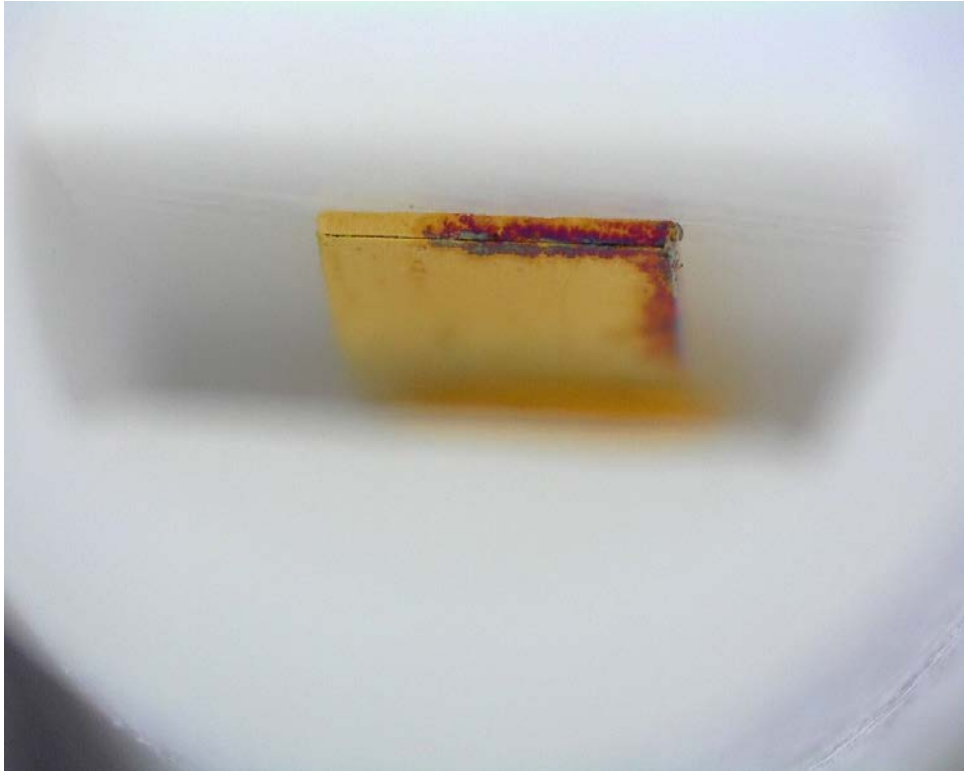
Flaking off



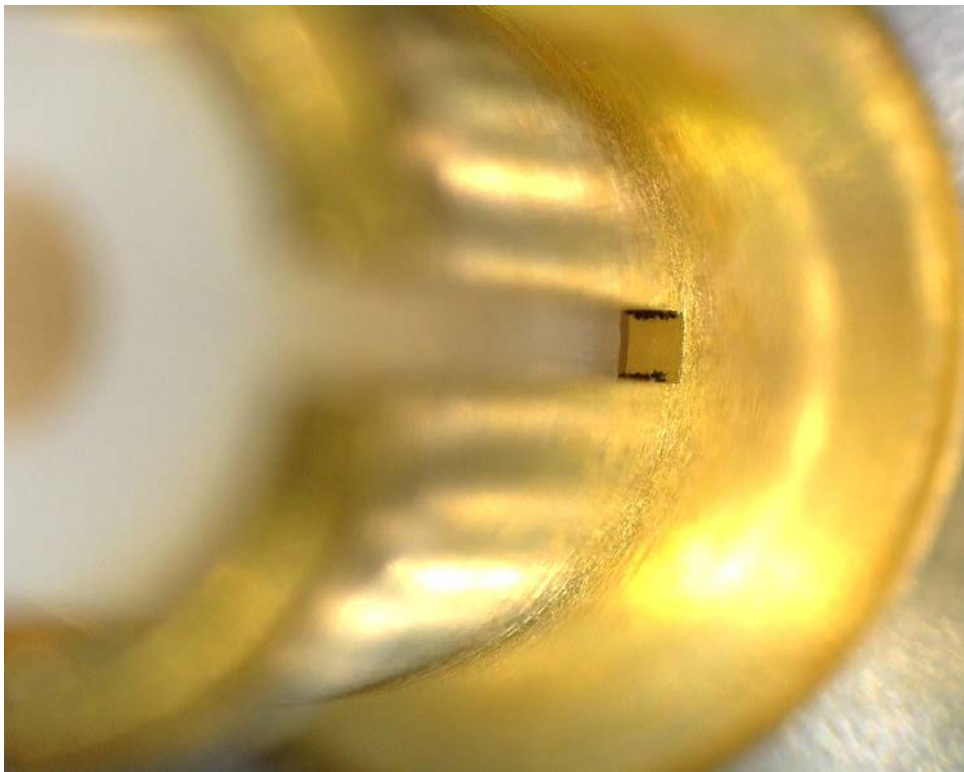
Poor adhesion



Over-etching of parts



Bleed-thru



Bleed-thru at the bottom of slots

13.0 PACKAGING AND HANDLING

- 13.1 All lots of SV Microwave parts must be packaged to ensure no damage occurs to the product during shipment.
- 13.2 All parts will be properly handled and packaged to prevent dings, dents, damage, gouges, scratches, etc.
- 13.3 Platers must put desiccants in all bags of gold plated parts.
- 13.4 No carton or paper packaging that comes in direct contact with SV's plated parts is allowed.

14.0 SUPPLIER CORRECTIVE ACTION

- 14.1 Suppliers who consistently perform at an unsatisfactory level will be reviewed quarterly during Key Supplier meetings, and actions will be taken accordingly.
- 14.2 Whenever defective product is found at SV incoming inspection, the magnitude of the problem is appraised against established product or process capability history. From this appraisal, if a corrective action is required, a Corrective Action Request (CAR) will be generated and sent to the supplier.
- 14.3 Suppliers are required to identify the root cause of the discrepancy, method(s) to contain any product that may have the discrepancy, method(s) to correct the condition (corrective action), and actions taken to prevent discrepancy from occurring on any future shipments.
- 14.4 Suppliers are required to reply by the documented due date, so as not to affect their vendor status with SV Microwave. SV's Quality Manager may allow a reasonable extension if warranted.

15.0 CHANGE HISTORY

Rev -, QCBD Change Order No 240, Initial Release as Controlled Document

9/19