

PR302**- INDEX-****MOLDING SECTION**

Revision: 10/21/2015

This Quality Standard applies unless otherwise specified by drawing or specification.

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PR302

Definitions (Revision 04/14/14)

Blisters/Pimples

A condition that is the result of internal gas release or air pockets evidenced by the appearance of a bump.

Chips

Small nicks along edges of part or small pieces broken off from the edge.

Closed Knit Line

A visible material flow line having no perceptible depth.

Color Uniformity

Surface color varying in uniformity resulting in spots, blotches and striations of different color.

Contamination

An inclusion of foreign material detectable on the surface of the part.

Cracks

A fracture passing completely through the thickness or section of a part.

Crazing

Fine surface cracks appearing as a network of interconnecting hairline cracks on the surface.

Cut

Material severed or damaged as a result of piercing or slicing action with a sharp instrument or tool.

Deformed

A departure from the normal shape greater than the dimensional tolerance. Parts often deform out of round, out of square, twisted, warped, bent or flattened.

Dent

A depression with no removal of material or change in surface texture.

Dry Spot

An area on the surface of the part where reinforcement has not been wetted with resin, usually distinguished by the presence of loose fibers.

Flash

Excess material adhering to part. Flash has 2 dimensions- extension and thickness.

Flash Extension

The film of material projection from the part along the parting line of the mold.

Flash Thickness

Is measured perpendicular to the mold parting line.

Gouges

The result of scooping out of material by another object.

Mutilation

May consist of any combination of a gouge, cut, nick, tear, porosity and other abnormal material conditions that result in the part exhibiting a non uniform appearance.

Nicks

Sharp surface indentation caused by impact of a foreign object. Parent material is normally displaced, seldom separated.

Non-fill / Void

An incomplete part due to insufficient material.

Parting Line

The place where two or more parts of the mold meet

Pit / Pinhole

A small sharply defined hole in the surface of the part.

Porosity

Multiple pits or pin holes

Scuff

A mark caused by an abrasion which changes the surface smoothness or texture.

Sink Marks

A dimple like depression in surface of part.

Surface Cracks

A fracture on surface of part that does not go completely through thickness of part.

Surface Discoloration

An apparent surface inconsistency in material evidenced by the appearance of light to dark streaks.

Tear

Separation of material due to mechanical stress.

Wire Marks

Visible marks caused by the part having rested against the curing trays.

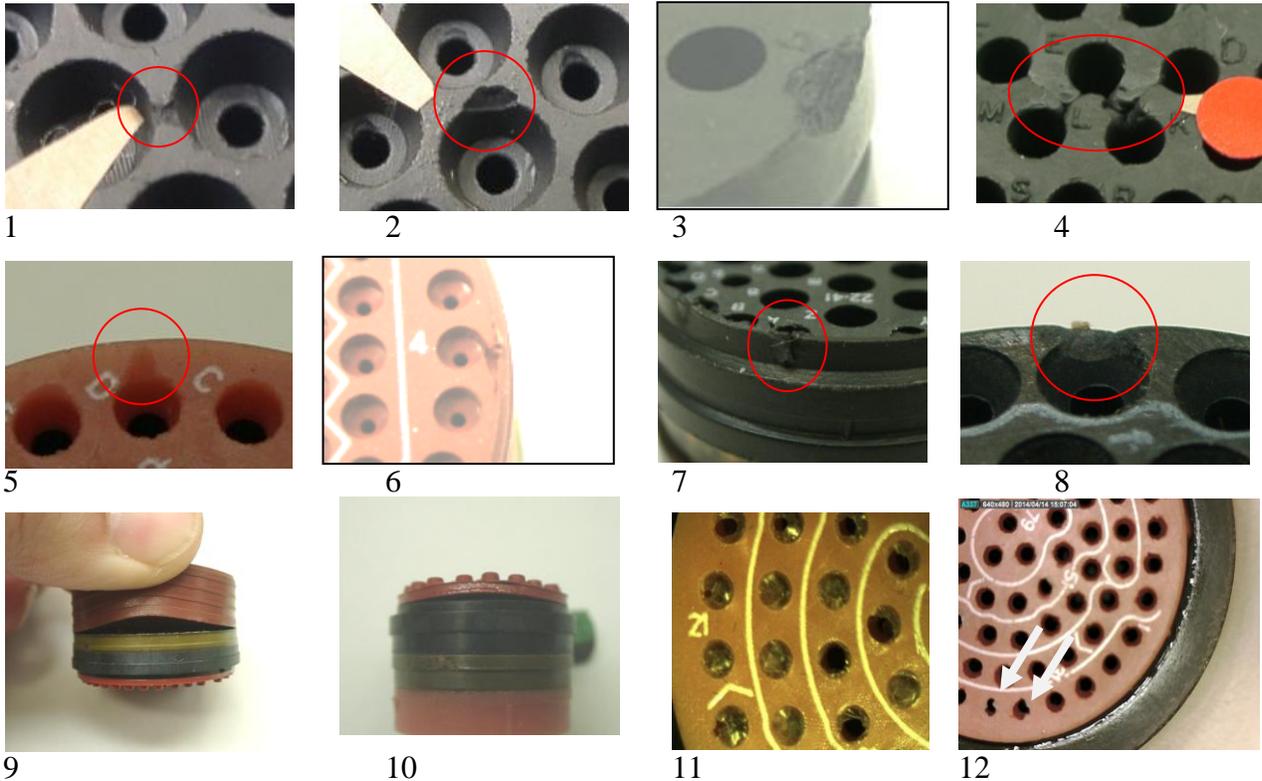
PR302

GENERAL MOLDING STANDARDS

Revision: 5/17/17

1. Engineering drawing requirements take precedent over this document.
2. Specific workmanship standards for the product under review take precedent over this page.
3. Acceptable: Sz 22/23 **interfacial seal** holes must have a 25% open through hole. The flash extension present around the periphery must be firmly attached and no more than .003 thick. See photos on separate page. See page 13 for sizes larger than 22/23.
4. Sealing rings, sealing faces or sealing diameters must be flash free.
5. NO flash extension exceeding .007" and NO flash thickness greater the .003" allowed on either side on surface of the insert sandwich, (on the faces, grommet or insert, see photo 11& 12 below).
6. Closed knit lines allowed except on sealing surfaces.
7. Gate or vent breakout not to exceed limits on engineering drawing or if not established: 1/8 inch in length and 1/64 inch in depth.
8. Wire marks or sticking marks on insert having no perceptive depth are allowed.
9. Nicks, cracks or tears less than 1/4 distance hole to hole or from hole to outside diameter are allowed.
10. .020 max standing flash around holes on sealing surface of grommet. Sealing surface of grommet include internal webs.

ALL Photos below represent UNACCEPTABLE CONDITIONS. More photos available on pages 25 -35.



10. Open bond line between insert and wafer is acceptable if the open bond line is less than 1/16 of the circumference of the insert or the open bond line is completely filled by adhesive: providing the part passes all electrical tests. Open bond lines are not acceptable if the tines are visible.

11. Dimensionally check and gage all out of round OD dimensions, overall length and threaded dimensions of the molded components.

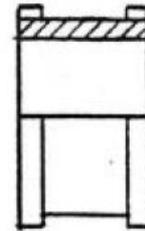
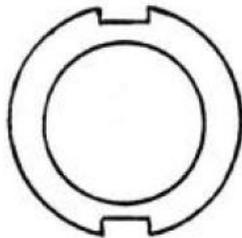
PR302

GROMMET, CABLE CLAMP

Revision 02/21/01

Acceptable Imperfections

1. Closed knit lines
2. .020 max flash
3. Small blisters, .030 max
4. Cracks or splits on OD less than 1/3 thickness of grommet



**GROMMET
10-230935 & others**

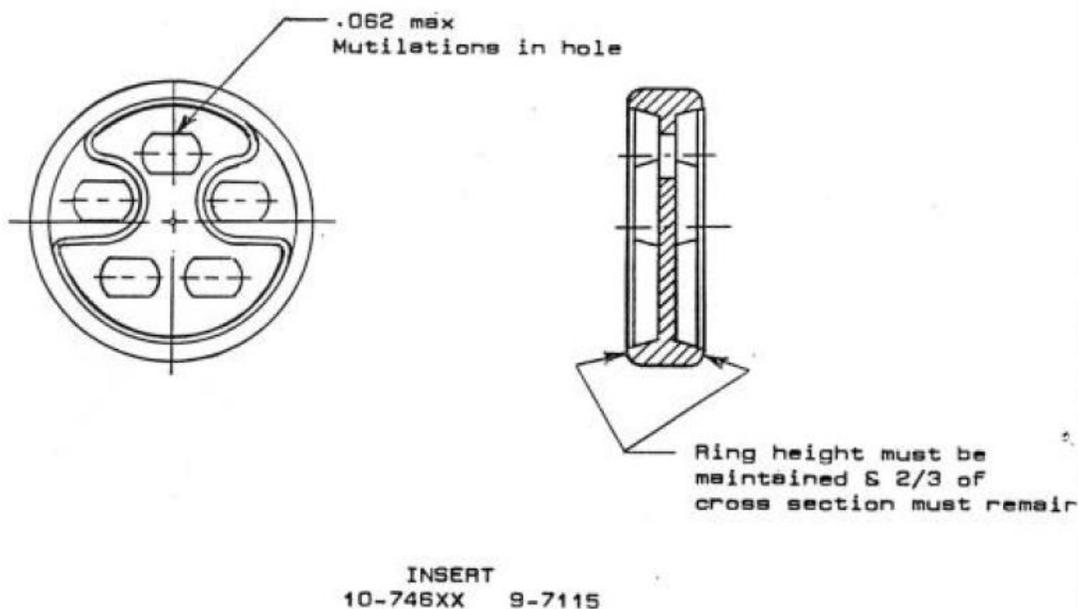
PR302

INSERT, BMT

Revision 10/12/98

Acceptable Imperfections

1. Closed knit lines
2. .015 max flash
3. Mutilations on OD
4. Deformed or out of flat. Must return to original shape when compressed.



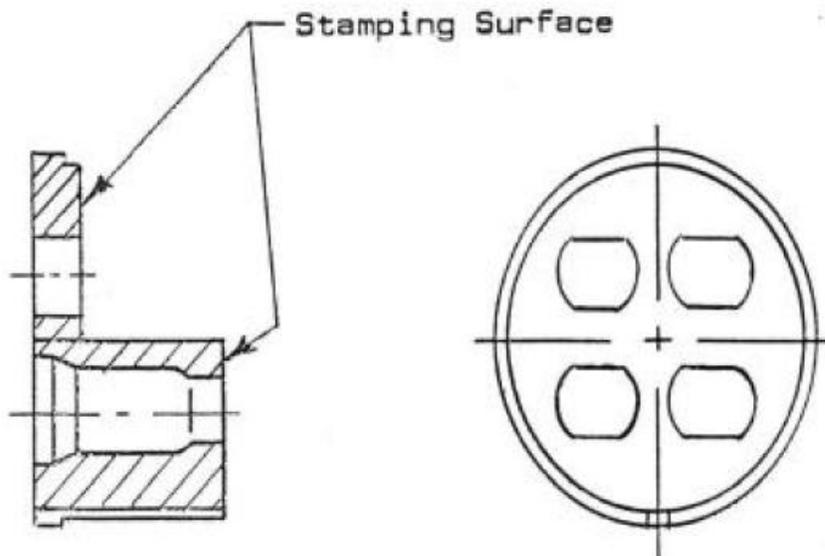
PR-302

INSERTS, CERAMIC

Revision 02/11/08

Acceptable Imperfections

1. Cracks, chips and voids
 - a. less than 1/4 distance hole to hole, hole to OD or hole to key way
 - b. less than .015 in depth.
 - c. Circumference surface cracks less than 1/4 the insert diameter
 - d. No part shall have more than 4 surface cracks and no one surface shall have more than 2 surface cracks
2. Chips / Voids
 - a. Small chips or voids unless detrimental to subsequent stamping or as defined in number 1 above.
3. Blisters
 - a.. Blisters, lumps and /or bumps not exceeding maximum blueprint dimension
4. Contamination/Discolorization
 - a. Discoloration gradually blending into usual color
 - b. Spots with defined borders less than .032 at widest spot
 - c. Metallic contamination which can be removed



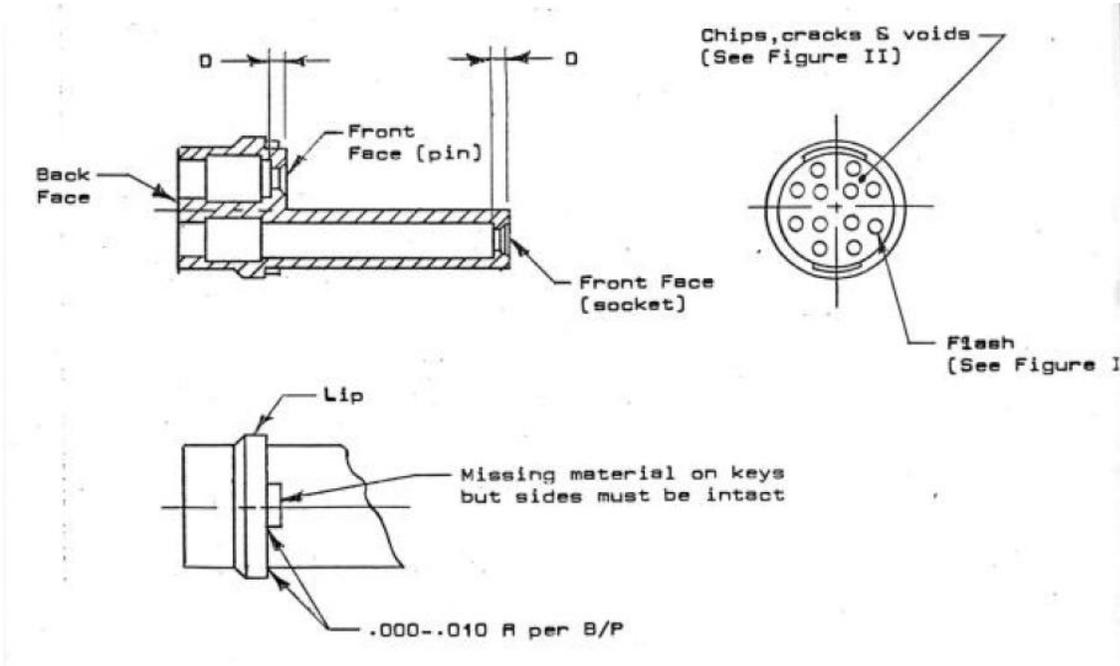
PR-302

INSERT, FIBERITE INCLUDING FILTER

Revision 10/12/98

Acceptable Imperfections

1. Gate breakouts less than 1/2 thickness of lip except breakout at key shall be no deeper than flush to top of key.
2. .000-.010 R per B/P on external corners due to flash removal
3. Voids at contact hole less than 1/3 "D" dimension measured from the front of insert
4. Chips or non - fills on front face less than 1/2 distance hole to hole or hole to OD



PR-302

INSERT, FIBERITE INCLUDING FILTER
Revision 10/12/98

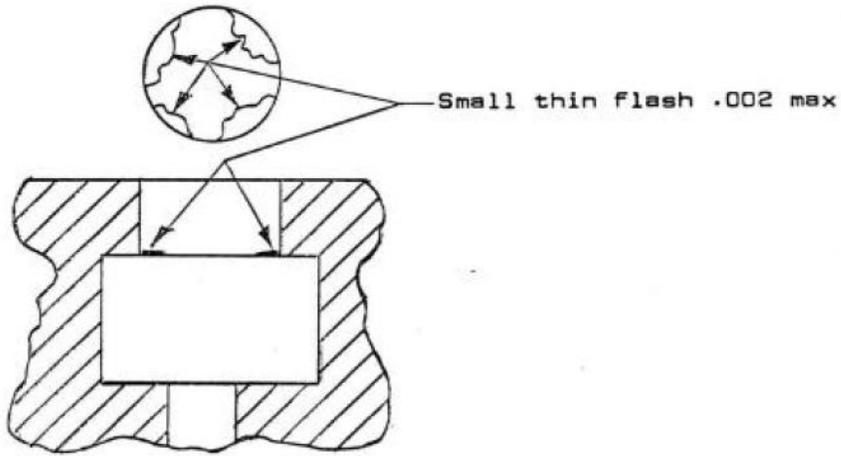


FIGURE I

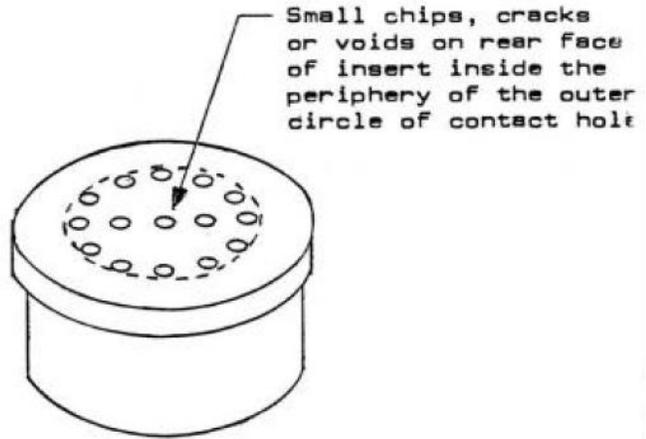
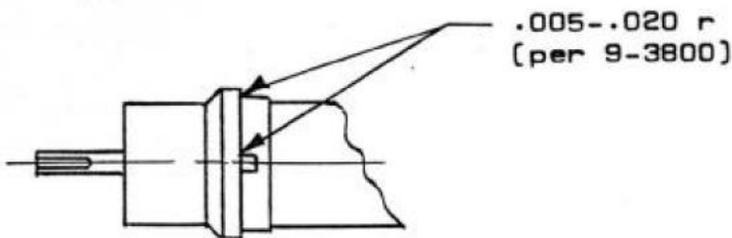
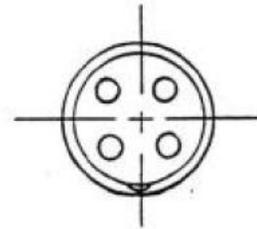
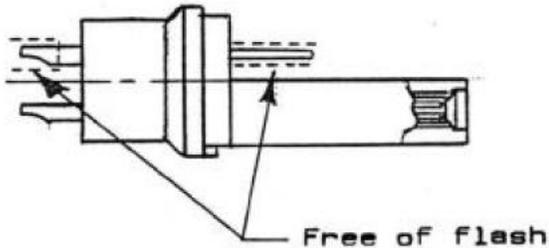


FIGURE II

PR-302INSERT, FIBERITE, MOLDED CONTACT
INCLUDING SA TYPE, LJT, JT PTCRevision
10/12/98

Acceptable Imperfections

1. Surface discoloration or color uniformity of material that gradually blends into usual color
2. Blisters or bumps not exceeding dimensional requirements or broken out resulting in voids
3. Sink marks not exceeding B/P dimensions
4. Dry spots or exposed fibers that do not result in voids or exposure of contacts below surface except not permissible in contact area on front or back face
5. Non-metallic surface inclusions on non contact areas.
6. Chips, surface cracks or voids less than 1/4 distance contact to contact or contact to edge. Depth not to exceed .005 max.
7. Flash around circumference of the part or at the base of contact less than .002 high and .001 wide. Flash may extend entire circumference of part or contact base

**INSERT****10-460136 & others**

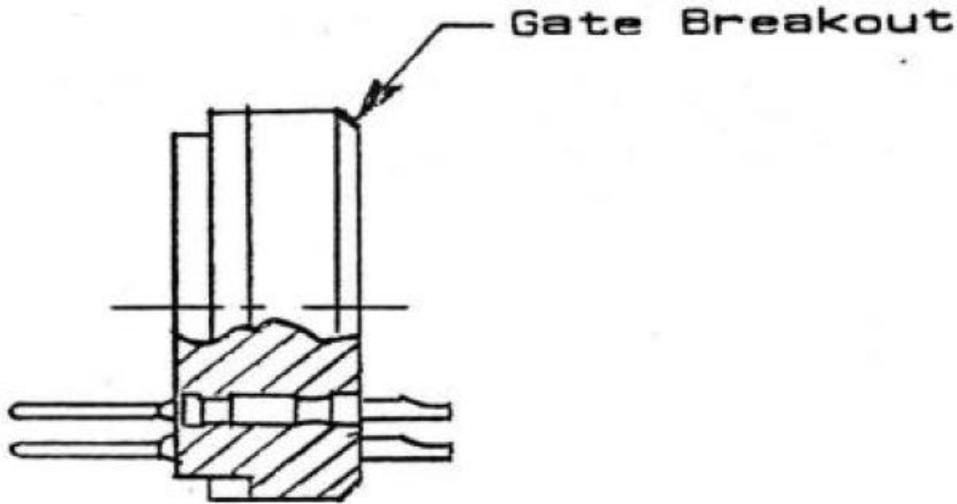
PR-302

INSERT MOLDED CONTACT 97, 67, 165 SERIES

Revision 10/12/98

Acceptable Imperfections

1. Voids or porosity at the base of molded in pins (flat or non-raised barrier) less than 1/2 distance contact to contact or contact to OD and less than .010 deep. A maximum of three (3) contacts with porosity or voids is permissible.
2. Voids or porosity at base of molded in pins (raised barrier type) must have 90% minimum of raised barrier present. Barriers with porosity /voids cannot be next to each other. A maximum of three (3) contacts with porosity or voids permissible.
3. Surface porosity on OD is permissible on 97 series **only** provided overall surface is high gloss. A maximum of one (1) blemish per part is permissible
4. Small blisters on OD not exceeding dimensional requirements
5. Gate breakout less than 1/2 wall thickness. Breakout less than 1/2 wall thickness. Breakout to be no more than 1/2 inch long and 1/16 inch deep.
6. Flats on pin tips are acceptable provided flat is not greater than 1/2 the pin diameter and base metal is not exposed.

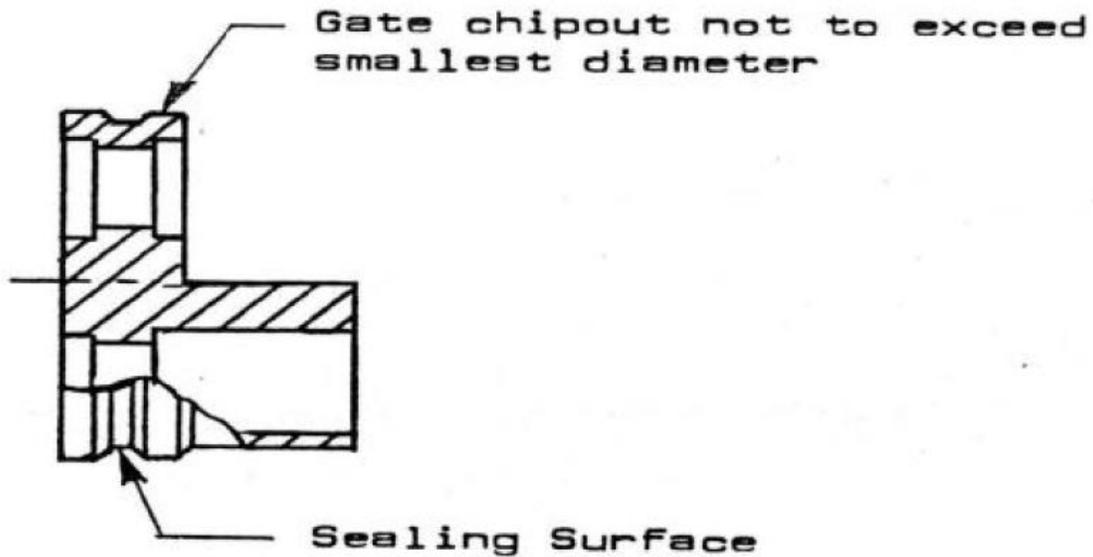


PR-302**INSERTS, RESILIENT RACK AND PANEL**

Revision 10/12/98

Acceptable Imperfections

1. Closed knit lines
2. .020 max. flash
3. Wire marks and sticking marks having no perceptible depth
- 4 Flat spots less than 1/4 distance from edge of insert to edge of nearest contact hole
5. Nicks, cracks or tears less than 1/4 distance hole to hole or hole to OD
6. Slight dents on outside diameter



INSERT
10-113582 & others

PR-302

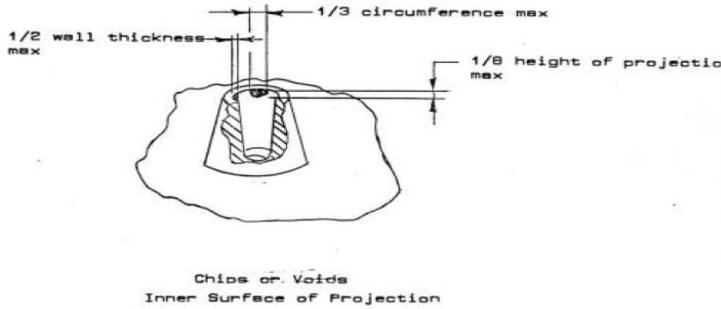
INTERFACIAL SEAL

Revision 12-04-2013

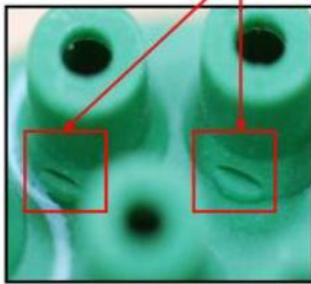
When looking down the contact hole of the interfacial seal tower, 20% or less of that diameter may be overlapped by the face of the insert.

Adhesive may be visible protruding into or covering the contact hole with a thin translucent membrane.

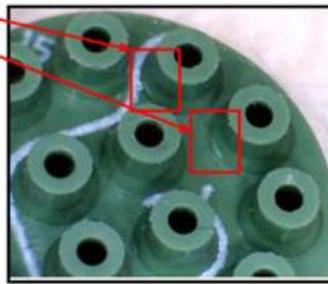
Porosity is **not** acceptable any place on the tower area.



Not acceptable marks

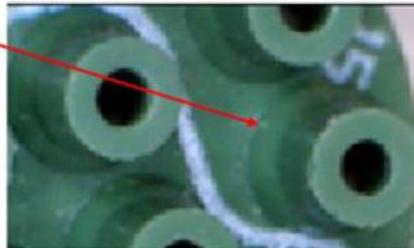


Picture 1



Picture 2

Acceptable with out marks

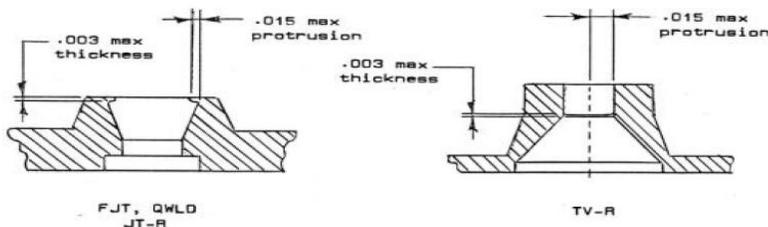


Picture 3

MACHINE: MOLDING PRESS
PART NAME: MOLDING PRESS

PAGE 3 OF 3
BOOK LOC.
MACHINE CODE: 80XX
PART NUMBER: 12-04-2013

Interfacial Seals Cavities LARGER than size 22/23



PR-302
Interfacial Seal, size 22/23 cavity holes
12/04/2013

ACCEPTABLE: Full hole visible, No flash.



ACCETABLE: small amounts of flash extension along outer edges, firmly attached.



ACCEPTABLE: Hole reduced but clear visible hole still present through center. Flash extension firmly attached.



UNACCEPTABLE: Less than 25% of hole is open.



UNACCEPTABLE: Hole completely covered with flash extension.



PR-302**PHENOLIC MOLDINGS**

Revision 10/12/98

Acceptable Imperfections

1. Holes must be free of flash after cleaning.
2. Flash on OD is permissible providing diameter is to print requirement, measuring over flash line.
3. Blisters on OD or front face are permissible providing parts are to print requirement when measured over blister.
4. Blisters on rear face are permissible providing part does not "rock" when placed back to back with a similar part.
5. Key ways may be rotated + - 1/2 degree.
6. Key and/or flat in a contact hole may be rotated + - 15 degrees.
7. Voids or chips are permissible on OD providing the void or chip does not exceed 50% of the area from hole to hole or hole to OD.
8. Voids or chips are permissible on OD providing the void or chip does not exceed .010 deep and .015 width.
9. Voids or chips on a barrier are permissible providing they to not exceed 10% of the barrier.
10. One missing or incomplete character (contact identification) providing the two adjacent holes are identified. Use 4X magnification when checking to legibility.
11. Foreign material is acceptable providing it is embedded and will not chip off parts. Metallic material is permissible providing chip is non-magnetic and does not exceed 50% of the area between pins or between pin and OD.
12. Flats on pins are acceptable providing radius is not omitted and flat does not exceed 50% of the diameter.
13. Cracks are acceptable providing the crack does not go through entire wall.
14. Flash permissible on front face (lettered Side) to height of lettering except on 67, 165, 238 series.

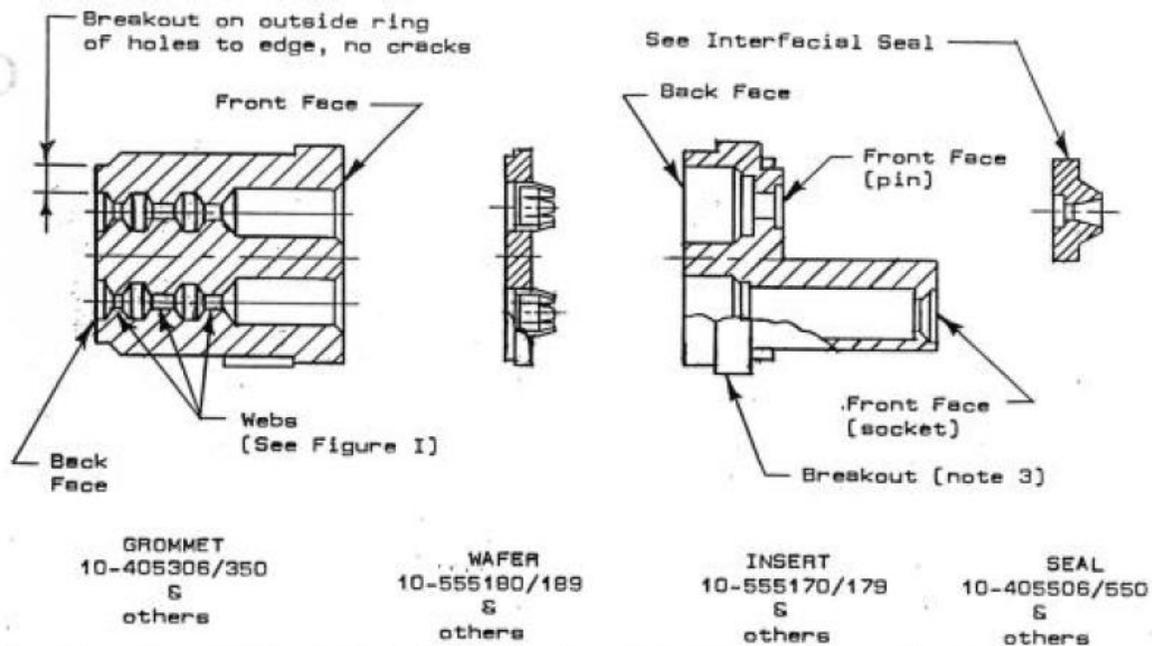
PR-302

Revision 03/01/01

INSERT ASSEMBLY

Acceptable Imperfections

1. .020 max standing flash around holes on sealing surface of grommet.
2. Flash around holes on back face of insert less than .002 height and .001 width.
3. Breakout on insert shoulder not exceeding smallest diameter. Breakout may extend full length of shoulder provided 1/2 depth of shoulder remains or may extend full depth of shoulder provided 1/2 length of shoulder remains.
4. Filter Inserts Only: Small chip on OD of insert is acceptable
5. Breakout on wafer shoulder less than 1/2 the depth of shoulder not extending into smallest diameter of wafer. Slight abrasion on smallest diameter permissible.



6. For arrangements 10-5 and 14-5 on JTs and arrangements 11-5 and 15-5 on LJs Only: at main key where "dummy hole exists, an open bond is acceptable provided it does not extend into contact locations.

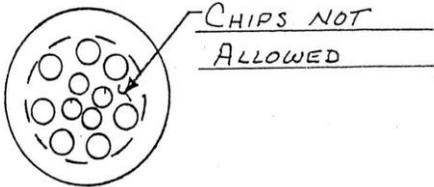
PR-302

Revision 03/01/01

INSERT ASSEMBLY, HIGH RELIABILITY (continued)

DEVIATION ACCEPTANCE CRITERIA

1. Chips are not allowed on the insert face inside the periphery of the outer circle of contact holes.



Maximum of one (1) crack, tear, chip or puncture per contact cavity not exceeding into grommet body can pass through or penetrate 1st web only. Imperfection not to exceed 25% of the circumference and can not occur in more than 10% of holes in any given arrangement.

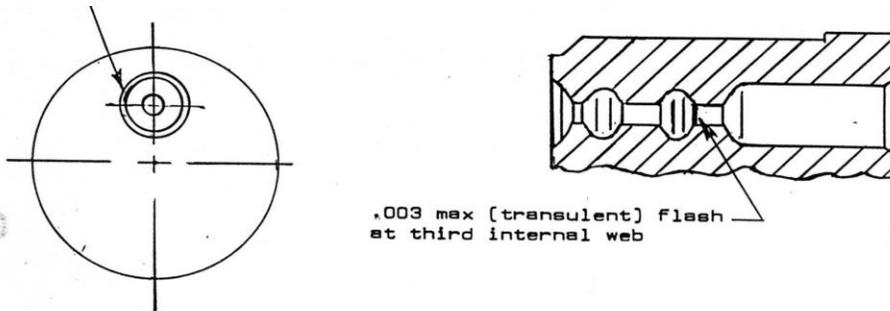


FIGURE I

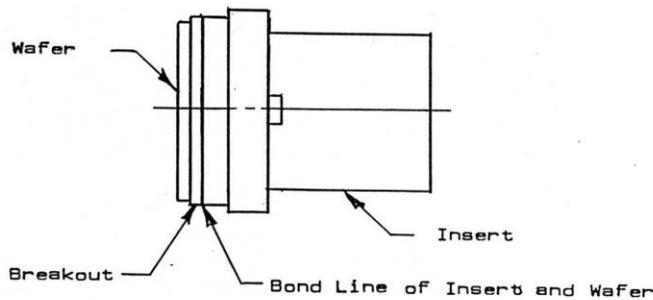
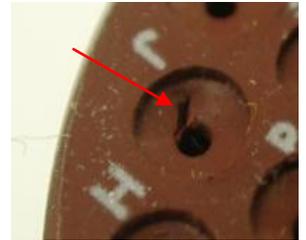


FIGURE II

PR-302

Revision 03/01/01

INSERT ASSEMBLY, HIGH RELIABILITY (continued)**SPACE STATION PRODUCT ONLY****SOCKET INSERTS:**

1SS. Outer peripheral damage exceeding .040" in depth and width and .070" in length is unacceptable. Damaged locations on any insert shall not exceed two locations.

2SS. Chips or cracks in the dielectric material in the cavity or counterbore area are unacceptable.

3SS. Scratches from cavity to cavity or from cavity to the outer periphery are unacceptable.

PR-302

Revision 6-11-01

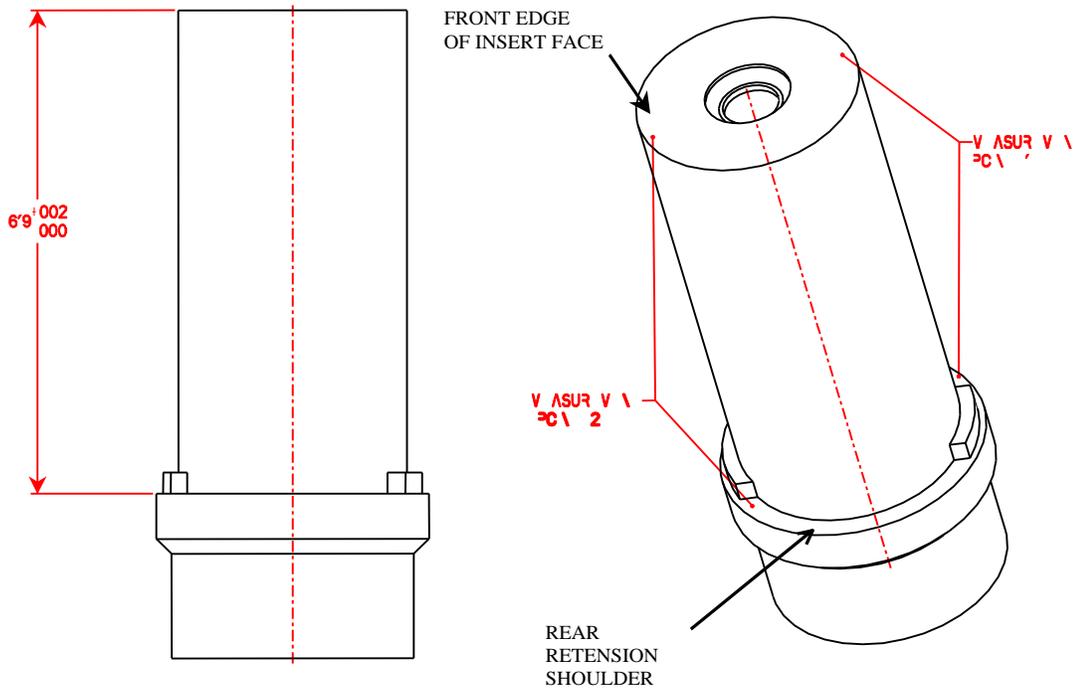
MEASUREMENT SOCKET INSERT: .619 DIMENSION

BACKGROUND:

There has been discussion about method and location of measuring this dimension. The intent of MIL-DTL-38999 is to measure the plane along the front face of the insert. As with any molded part, having a number of thru holes, sinks may occur between the holes due to material shrinkage.

SUMMARY:

For uniformity of inspection method engineering requires the measurements be taken at least two (2) locations. The locations shall be from the rear retention shoulder, as near as practical to the “RE” keys, to the front edge of the insert face. If any excessive sinks which may prove detrimental to the function of the connector are noted the insert must be evaluated for functionality.

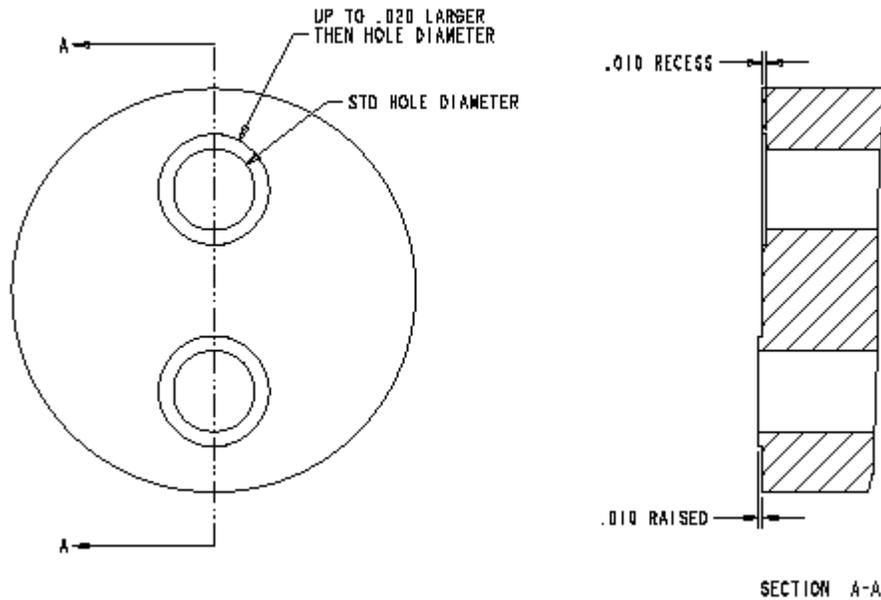


PR-302

Revision 5-16-02

NEOPRENE INSERTS

Neoprene inserts that are intended to be used as a one piece insert (with no bonded on wafers, grommets, or other insert halves) may have a .010 max depression or recess OR may have an .010 maximum extension or raised lip that is concentric up to .020 larger in diameter than the contact cavity hole diameter on either face of the insert (mating or back/grommet side) to facilitate molding. Depressions or Extensions must be consistent on the insert face (either an extension or depression but not both on a given face).



PR-302
Revision 6-10-05
COMPOSITE MOLDING

APPROVED		REJECTED		REVISIONS																															
				<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>LTR</th> <th>DESCRIPTION</th> <th>DATE</th> <th>APPVD</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>KNIT LINE STANDARD</td> <td>02-15-05</td> <td>B.SOSA</td> </tr> </tbody> </table>		LTR	DESCRIPTION	DATE	APPVD	A	KNIT LINE STANDARD	02-15-05	B.SOSA																						
LTR	DESCRIPTION	DATE	APPVD																																
A	KNIT LINE STANDARD	02-15-05	B.SOSA																																
				<p>REJECTED IF... DETAILS</p> <p>KNIT LINE IS LESS THAN .100 FROM THE BASE OF THE SERRATIONS</p> <p>KNIT LINE IS VISIBLE ALONG ANY SECTION OF THE "V-THREAD"</p> <p>KNIT LINE IS WITHIN THE MACHINED GROOVE</p>																															
				<p>APPROVED IF... DETAILS</p> <p>KNIT LINE REMAINS .100 FROM THE BASE OF THE SERRATIONS</p> <p>KNIT LINE NOT VISIBLE ALONG THE OUTSIDE OF THE "V-THREAD"</p> <p>KNIT LINE NOT VISIBLE IN THE MACHINED GROOVE</p>																															
				<p>DETAIL A SCALE 5.000</p> <p>DETAIL B SCALE 6.000</p> <p>DETAIL C SCALE 5.000</p> <p>DETAIL A SCALE 5.000</p> <p>DETAIL B SCALE 6.000</p> <p>DETAIL C SCALE 5.000</p>																															
<p>SECTION A-A</p>		<p>SECTION A-A</p>		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>POS</th> <th>QTY</th> <th>PART NUMBER</th> <th>DESCRIPTION</th> <th>NOTE</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td>AMPHENOL CORPORATION</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>KNIT LINE STANDARD</td> <td>L</td> </tr> <tr> <td></td> <td></td> <td></td> <td>JAM NUT SHELL</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>INSPECTION CRITERIA</td> <td></td> </tr> <tr> <td></td> <td></td> <td>C</td> <td>77820 KNIT LINE STANDARD</td> <td>A</td> </tr> </tbody> </table>		POS	QTY	PART NUMBER	DESCRIPTION	NOTE				AMPHENOL CORPORATION					KNIT LINE STANDARD	L				JAM NUT SHELL					INSPECTION CRITERIA				C	77820 KNIT LINE STANDARD	A
POS	QTY	PART NUMBER	DESCRIPTION	NOTE																															
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			JAM NUT SHELL																																
			INSPECTION CRITERIA																																
		C	77820 KNIT LINE STANDARD	A																															
<p>UNLESS OTHERWISE SPECIFIED</p> <p>LINEAR DIMENSIONS ARE IN INCHES</p> <p>TOLERANCES:</p> <p>XXXX = ±.0005</p> <p>XXXX = ±.010</p> <p>XX = ±.03</p> <p>XX = ±.04</p> <p>ANGLES ±.5°</p> <p>OTHER DIMENSIONS FOR 1-3000 AND 300-9-1000 THIRD ANGLE PROJECTION</p>		<p>SPECIFICATIONS</p> <p>MATERIAL SPEC: FALSE</p> <p>PROCESS SPEC: FALSE</p> <p>OTHER DIMENSIONS FOR 1-3000 AND 300-9-1000: FALSE</p> <p>THIRD ANGLE PROJECTION: FALSE</p>		<p>APPROVALS</p> <p>DATE: 08.05.04</p> <p>BY: B.SOSA</p>																															
<p>COMPANY ID: 2</p> <p>INTERNAL: 5</p> <p>DATA CODE: 8-2005</p>		<p>CORE/PRO/COST: 1</p> <p>LOT NO.: 1</p> <p>SEL LEAN: 1</p>		<p>STAMPING DATA</p> <p>NEXT ASSEMBLY</p>																															

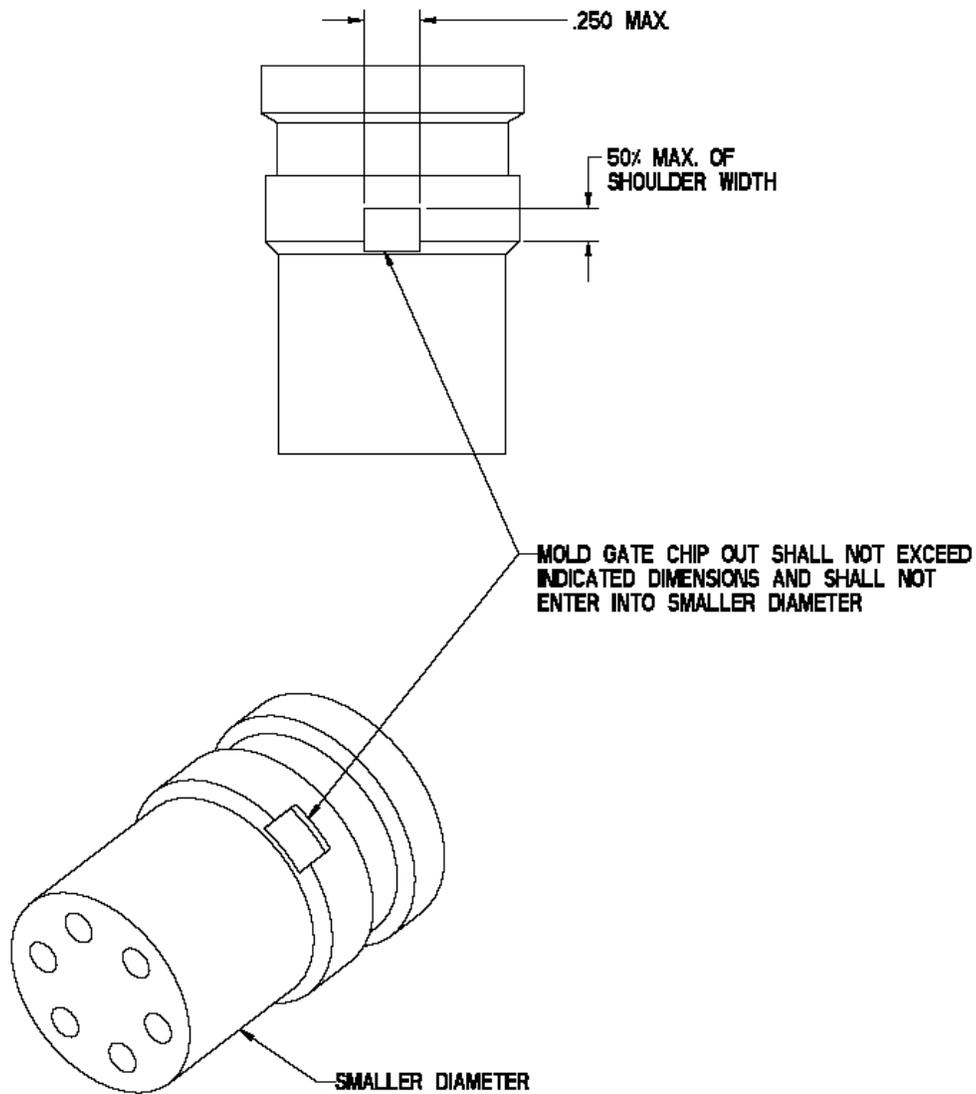
SCALE : 2.000 TYPE : PART NAME : JN25FAL SIZE : C

PR-302

Revision 1-03-06

NEOPRENE INSERT MOLD GATE REMOVAL

**PERMISSIBLE MOLD GATE CHIP OUT
FOR ALL NEOPRENE INSERTS**



ADDITIONAL MOLDING RELATED WORKMANSHIP STANDARDS ARE AS BELOW

Pages 21 through 25 as referenced on INDEX page:

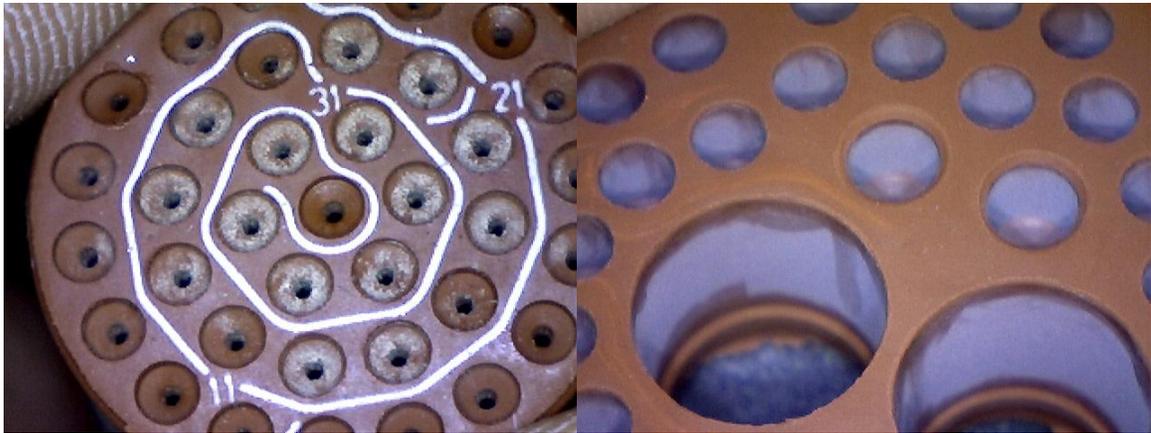
BRUSH MOLDINGS, CONTACT CAVITY FLASH / SEE **ROUTINE PR302 BRUSH**

BRUSH MOLDINGS, CONTACT CAVITY FLASH / SEE **ROUTINE PR302 BRUSH**

In Shell Molding / SEE **ROUTINE PR302 ISM**

In Shell Molding / SEE **ROUTINE PR302 ISM**

In Shell Molding / SEE **ROUTINE PR302 ISM**



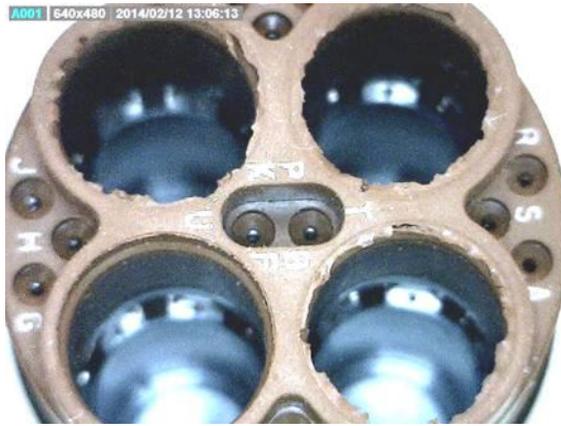
Not Acceptable

Dirt or contamination inside cavity holes



Not Acceptable.

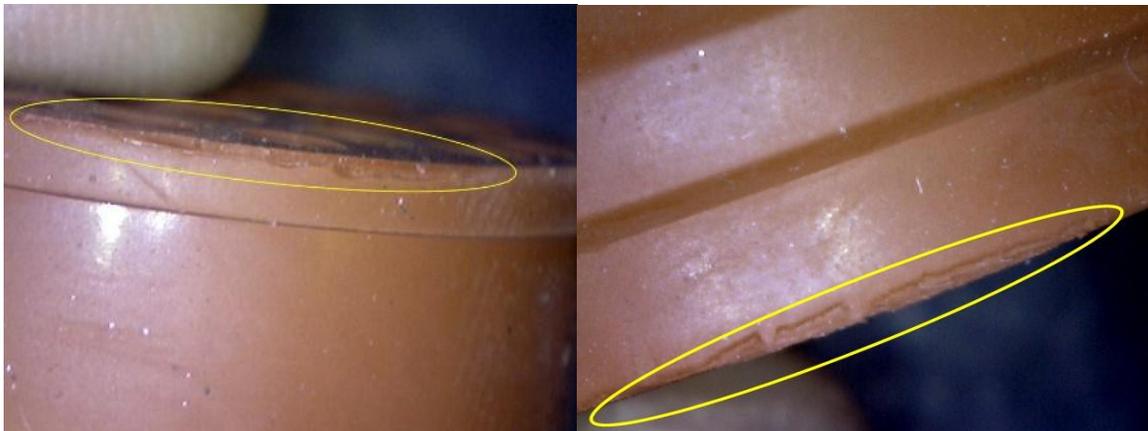
Flash Height Bigger than .002



Not Acceptable.
Flash Tower Grommet



Not Acceptable.
Flash Grommet covering all holes

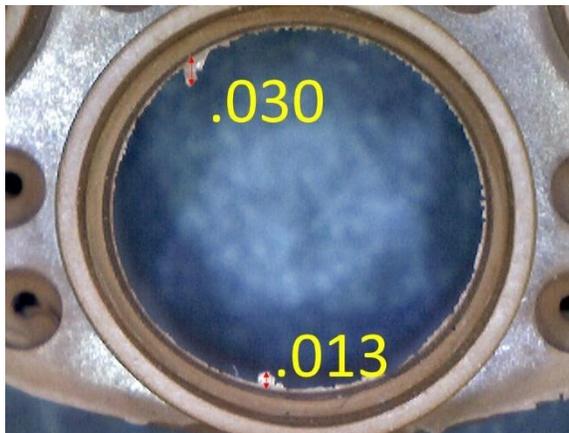


Not Acceptable
Mutilation on OD



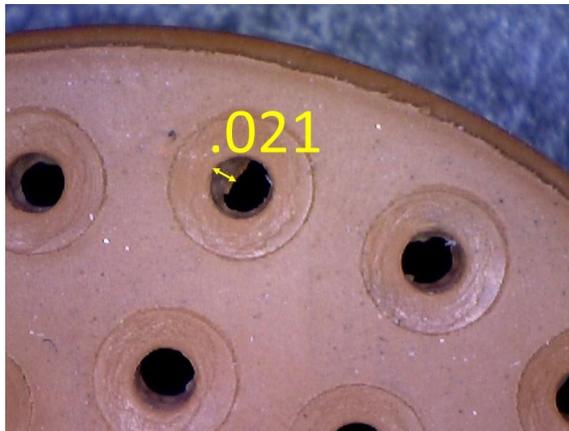
Not Acceptable.

Injection Point bigger than 1/64 (.015) in depth



Acceptable

Flash Grommet Cavity Size 8



Not Acceptable

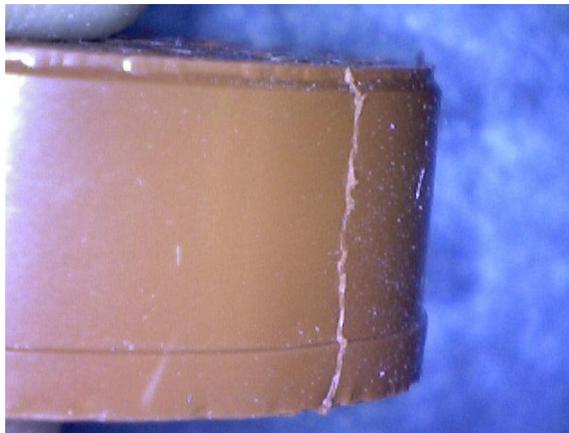
Flash Grommet Cavity Size 16
Per Note 10 on Page 3



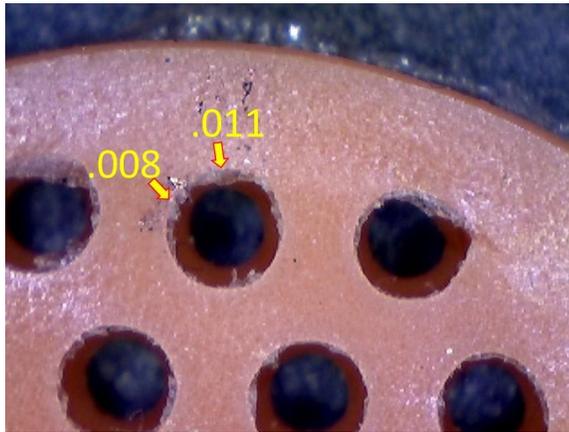
Acceptable
Surface Mark in Grommet



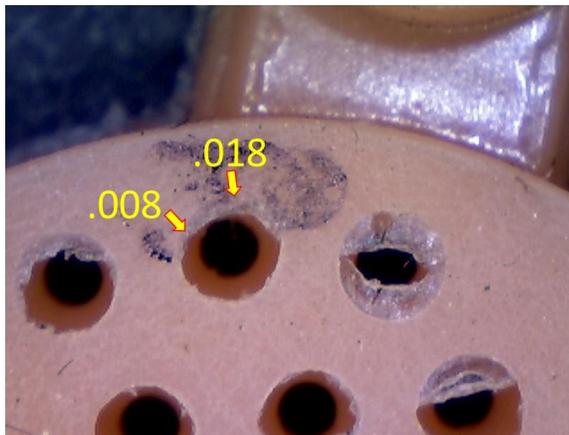
Not Acceptable
Porosity in Grommet



Not Acceptable
Flash in Grommet



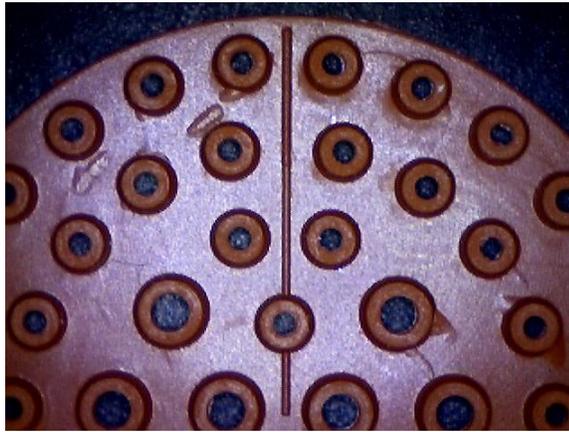
Not Acceptable
Flash Spacer Cavity Size 20



Not Acceptable
Flash Spacer Cavity Size 23



Acceptable (Only For Pyle)
Flash Tower Seal



Acceptable
Blisters



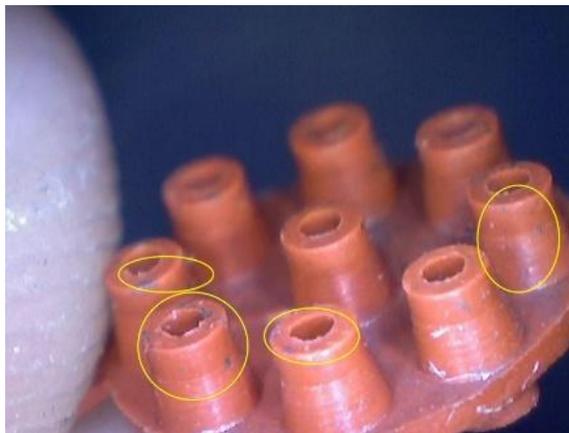
Acceptable
Marks in seal



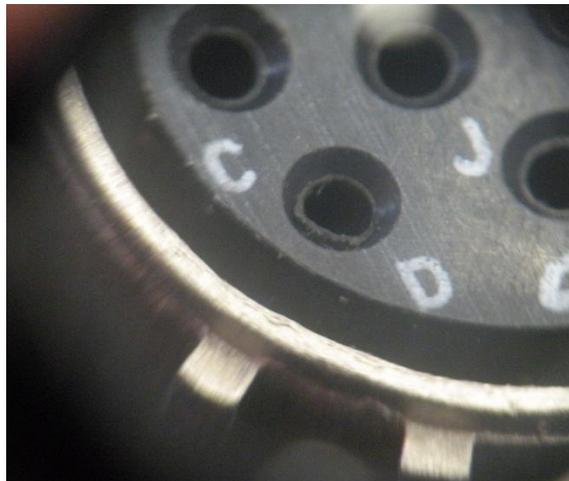
Not Acceptable.
Flash Tower Seal



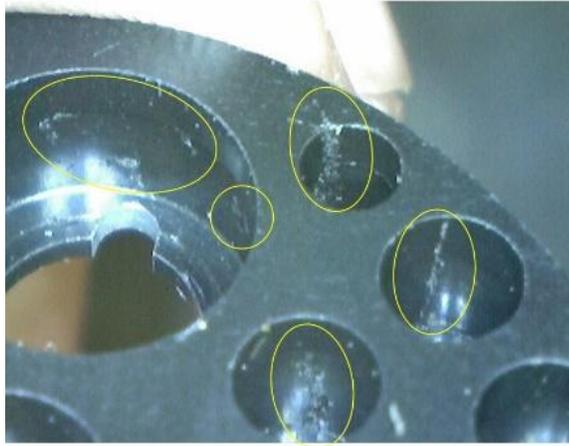
Not Acceptable
Seal Towers Porosity



Not Acceptable.
Spots in Seal



Not Acceptable.
Flash in Cavity Holes



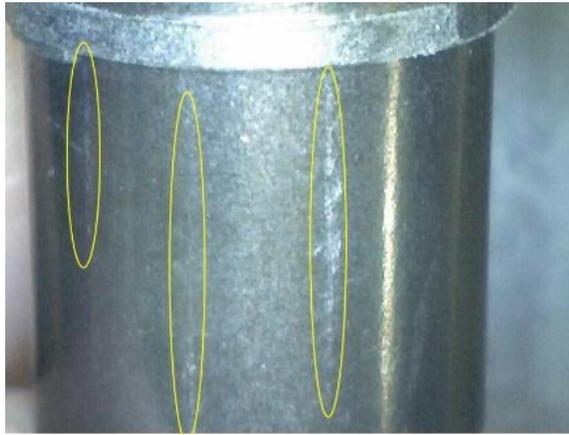
Not Acceptable.
Cracks inside cavity holes



Not Acceptable.
Voids in insert



Not Acceptable.
Porosity in insert



Not Acceptable.
Cracks in insert



Not Acceptable.
Cracks in insert



Not Acceptable.
Cracks in insert



Not Acceptable.
Cracks in insert



Not Acceptable.
Torlon with Sinking after turn operation



Insert Out Of Concentricity



Acceptable