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Superseding AS708

**Top Visual Quality (TVQ) O-ring Packings and Gaskets -
Surface Inspection Guide and Acceptance Standard**

1. SCOPE:

- 1.1 This standard establishes the inspection requirements and acceptance standards for optimum surface finish O-ring packings and gaskets. (This is not an O-ring specification per se.)
- 1.2 This standard must be used in conjunction with an O-ring drawing and/or material specification.
- 1.3 This standard is to be specified only where stringent performance requirements are necessary.

2. REFERENCES:

The following documents, of the issue in effect on the date of this standard, form a part of this standard to the extent specified herein.

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096.

AS568A Aerospace Size Standard for O-rings
AMS-2817 Packaging and Identification, Preformed Packings

2.2 U.S. Government Publications:

Available from Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094:

2.2.1 Military Specifications:

MIL-P-116 Preservation, Method of
MIL-P-4861 O-rings, Rubber, Preformed, Packing: Packaging of

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2.2.2 Military Standards:

MIL-STD-105	Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-1523	Age Controls of Age Sensitive Elastomeric Material

3. GENERAL REQUIREMENTS:

- 3.1 The requirements of this standard shall take precedence over conflicting surface finish limitations contained in the detail specifications or drawings.
- 3.2 O-rings supplied to this standard shall be inspected for conformance to the detail requirements of Section 4. If receiving inspection is performed on a sample basis, then the sampling shall be in accordance with MIL-STD-105 using AQL of 1.5%.
- 3.3 O-rings are to be handled with care as precision parts. In removing the O-ring from the envelope, the envelope should be torn, not cut, in order to avoid possible damage to the O-ring. O-rings must be kept dry and clean at all times and returned to their respective envelopes (if removed) to retain identification of their size, cure date, and source.
- 3.4 "Bloom," the white substance that forms on the surface of rubber compounds, shall not be cause for rejection. The bloom shall be removed by thoroughly washing rings before visual inspection.

4. DETAIL REQUIREMENTS:

4.1 Dimensions:

- 4.1.1 O-rings shall conform to applicable drawings.
- 4.1.2 Mismatch (Wherein One Cavity Half is Larger than the Other) (See Figure 1): The step shall not exceed 0.001 in.



FIGURE 1

- 4.1.3 Off-Register (Wherein One Cavity Half is Offset from the Other) (See Figure 2): The step shall not exceed the limits of Table 1.



FIGURE 2

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TABLE 1

O-ring Cross Section W (in)	Off-Register Limit (in)
0.040-0.060	0.002
0.070-0.275	0.003

4.2 Parting Line Projection:

The circumferential parting line projections, the triangular cross-sectional shape of which is apparent on a slice of the O-ring cross section, may not be greater than 0.003 x 0.003 in (X and Y) (See Figure 3).

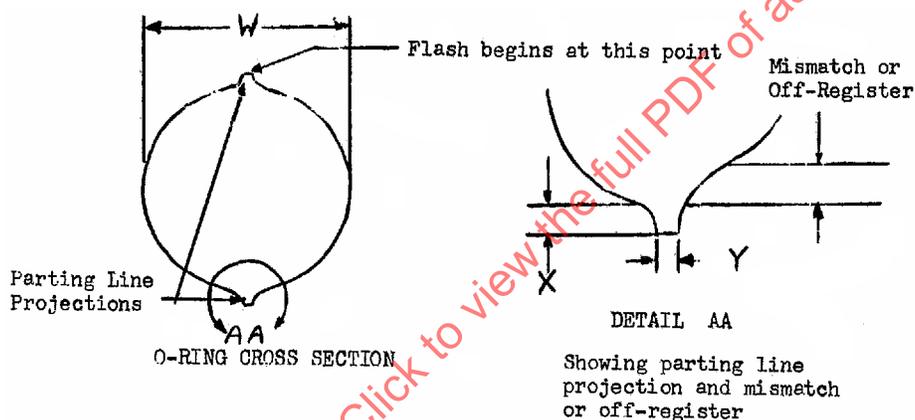


FIGURE 3

Flash removal must be accomplished in a continuous, circular direction only (no localized axial flash removal is permitted).

4.3 Flash:

Flash is not permitted on a TVQ O-ring. Any flash (defined herein as the excess material that begins at and extends beyond the parting line projection), whether loose or affixed, must be removed.

4.4 Quantitative Limits:

4.4.1 With the exception of parting line projection and annular flat area, per 4.2, the O-ring shall have no discernible defects and be devoid of tool marks when inspected by the unaided eye. A feel test using petrolatum or other compatible products can be used to establish nonconformances. Nonconformances found using this method can be cause for rejection if requirement is established between producer and user.