0 General

0.1 Any irregularity that interferes with the electrical performance, dimensional specifications, or physical integrity of the part is not allowed.

0.2 Questionable parts should be referred to a QC Inspector or the Quality Department.

0.3 VIC shall be enforced as written unless:

0.3.1 Superceded by specific customer requirements listed in the Method or Print

0.3.2 Variance is obtained from an appropriate source such as Applications, Engineering or Quality.

0.3.3 A signed Deviation is obtained from the customer.

1 Word and Phrase Definitions

1.1 Circumference (figure 1): Generally, the distance around the outside of a circle.

1.2 Outside Diameter (OD) (figure 1): The length across the outside of a circle.

1.3 Inside Diameter (ID) (figure 1): The length across the inside of a circle.

1.4 Cumulative: the sum or addition of two (2) or more lengths, widths, areas, etc. For example: the cumulative length of cracks A, B and C is the length of crack A + length of crack B + length of crack C.

1.5 Wall thickness (figure 1): The distance between the outside edge and the inside edge of a core.

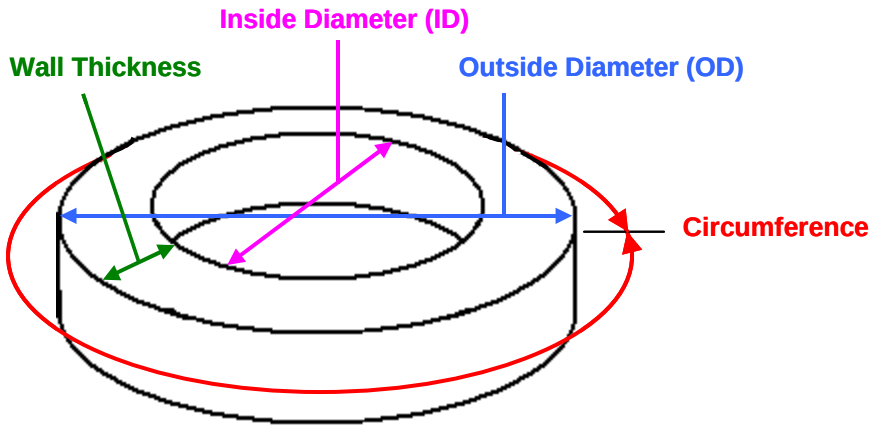

Figure 1

1.6 Relative Surface: The surface that an irregularity is on or touches.

1.6.1 **NOTE: An irregularity that touches or affects two or more surfaces must pass visual criteria specific to each of those surfaces.** For instance, a chip that is on an edge (figure 2) has two related surfaces and must pass size requirements for both of them.

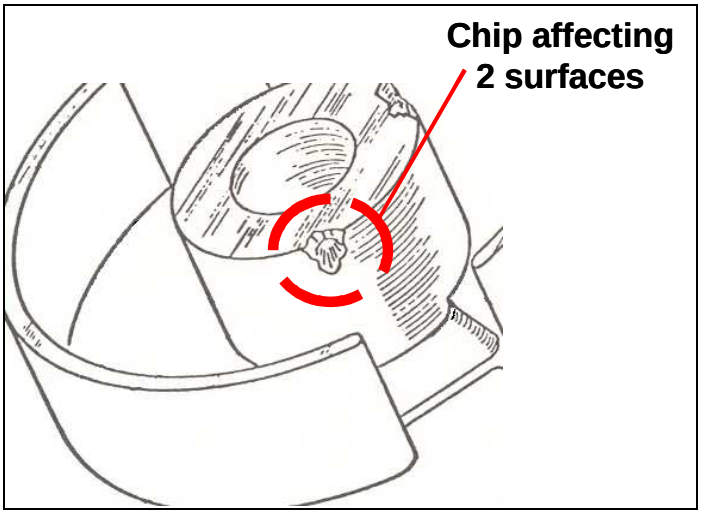

Figure 2

2 **Chips:**

2.1 Chips (figures 2, 3) are areas of the Ferrite core with missing material usually caused by mechanical impact of cores against each other or with other objects. This is usually due to poor handling in Green or Sintered states or during grinding. In almost all cases, they are located on the edges of the core.

2.2 Chip size (figure 3) is defined as the maximum dimension of the chip.

2.3 The maximum dimension of any chip shall be less than 7mm regardless of part size or location.

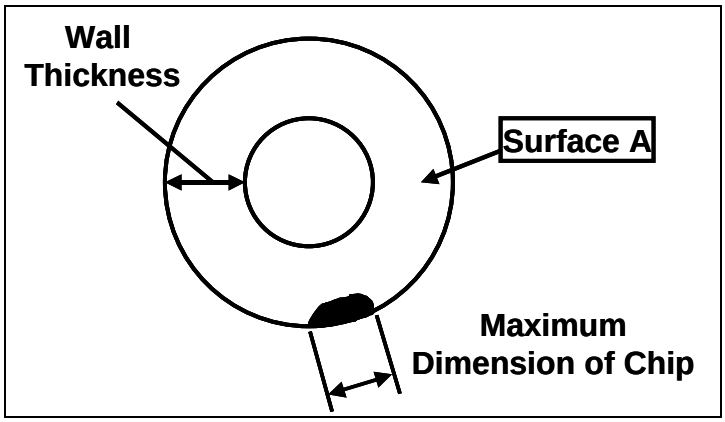

Figure 3

Actual size 5mm X 7mm

3 Ragged Edges:

3.1 Ragged edges (figure 4) are a series of small chips usually along an edge having a width less than 1mm (0.039in).

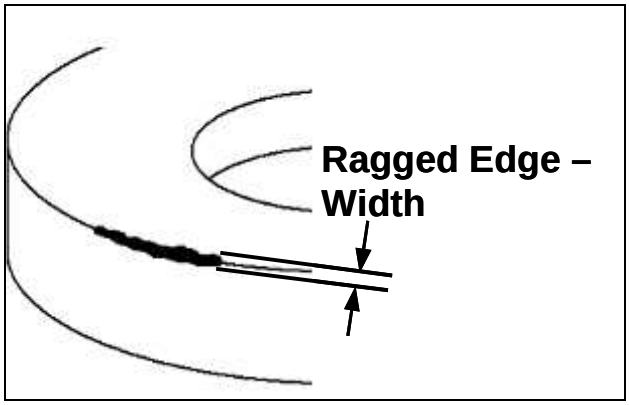

Figure 4

4 Cracks and Crazing

4.1 A crack (figure 5) is defined as an irregularity where the core is partially broken but without a complete separation of the part. The width of a crack is much smaller than the length, and penetrates into the core.

4.1.1 Unopened cracks are similar to “hairline” cracks. They appear as a thin line upon the part.

4.1.2 Open cracks have a visible space between the edges of the crack.

4.2 Crazing (figure 5) is a superficial or shallow group of cracks usually forming a grid-like pattern.

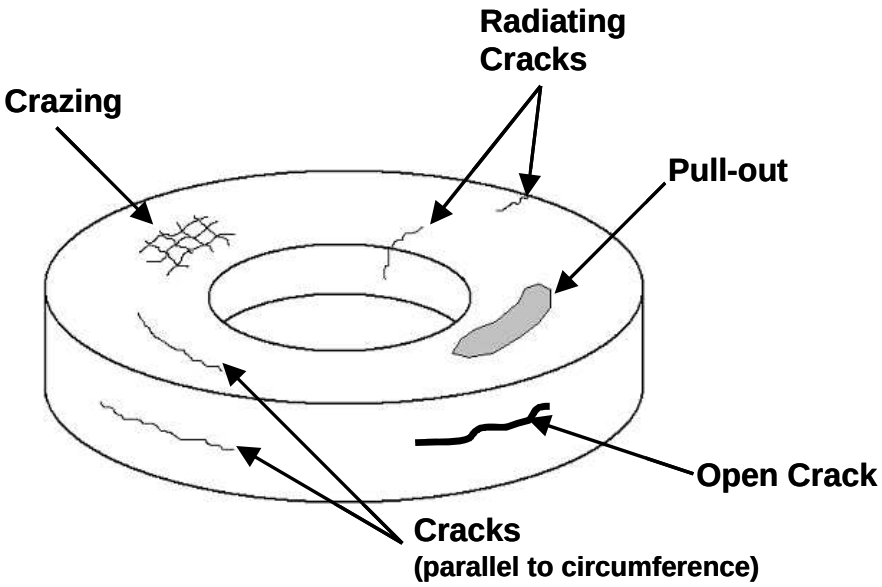

Figure 5

5 **Pits and Bumps:**

5.1 A Pit is defined as a void or area of the core that is missing material from some other means than mechanical shock, (see chip definition).

5.2 A Bump is an area where there is extra ferrite material forming a mound that is irregular or non-normal to the part.

5.2.1 Generally, a Bump that causes the part to be out of specification mechanically or electrically is not allowed.

6 **Pullout and Sticking:**

6.1 Pullout (figure 5) is the partial or complete removal of surface material due to adhesion to the Press Tool or Die.

6.2 Sticking is defined as Pullout that is less than 0.001 inches (0.025mm) in depth.

7 Flash (figure 6):

7.1 Flash is a thin edge of excess ferrite material extending beyond the intended shape of a core. It is usually sharp and potentially damaging to wires and wire insulation.

7.2 Flash is usually not allowed in any area that may contact wiring, such as the wire way of a Pot core.

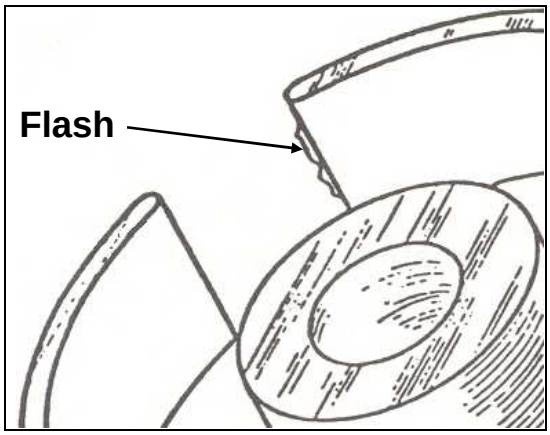

Figure 6

8 Sharp Edges

8.1 A Sharp edge is any surface edge that is sharp enough to have the possibility of cutting into a wire or the insulation on a wire.

8.2 Sharp edges can usually be removed by Burnishing.

9 Double-Grinds (figure 7):

9.1 Apply to ground or machined cores or parts only

9.2 A Double-Grind is an irregularity of the machined surface caused by the part moving or shifting position during the machining operation when the grinding wheel is in contact with the core.

9.3 Double-Grinds are identified by two (2) or more sets of grinding marks.

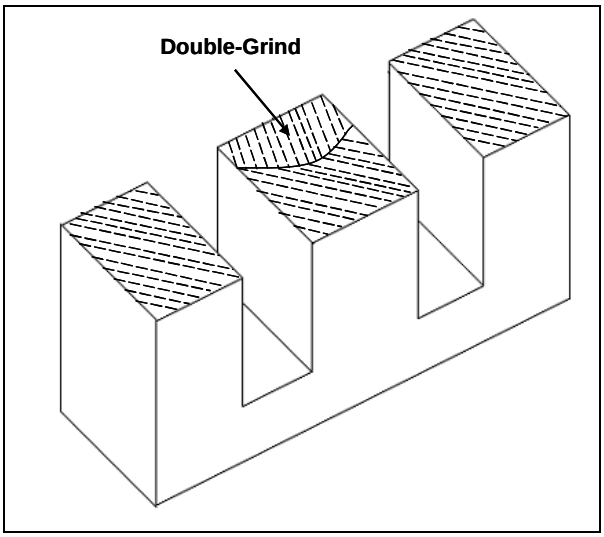

Figure 7

10 Stains and Discolorations:

10.1 Stains and discolorations that do not affect the performance of the part are acceptable.

11 Cleanliness:

11.1 Parts should be free of foreign material including dust, dirt, alumina, etc.

12 Associated Documents:

12.1 Fair-Rite Products Visual Inspection Criteria Book

13 Revision History:

Revision Number	Reason for Change	Revision Date
1	Revised section 2.0	8/12/11

References:

International Electrotechnical Commission (IEC) International Standard 60424-1: *Ferrite Cores – Guide on the Limits of Surface Irregularities Part 1: General specification* (First Edition 1999-05)

Magnetic Materials Producers Association (MMPA) Standard PC 110: *Standard Specifications for Ferrite Pot Cores* (rev. January, 1984)

Magnetic Materials Producers Association (MMPA) Standard UEI 310: *Standard Specifications for Ferrite U, E & I Cores* (rev. September, 1988)