

FAIR-RITE PRODUCTS CORP. VISUAL INSPECTION CRITERIA		Page 1 of 3
TITLE: VIC# 14_Toroids	EFFECTIVE: February 12, 2025	Rev. 8
DEVELOPED BY: John Lynch	SUPERSEDES: Rev. 7	
UPDATE RESPONSIBILITY: Quality Department		

0 Toroids – General (PN Product Classes that could apply: 59)

0.1 Refer to the most current revision of the Fair-Rite Products document Visual Inspection – Definitions & General Criteria for irregularity definitions.

1 Toroids

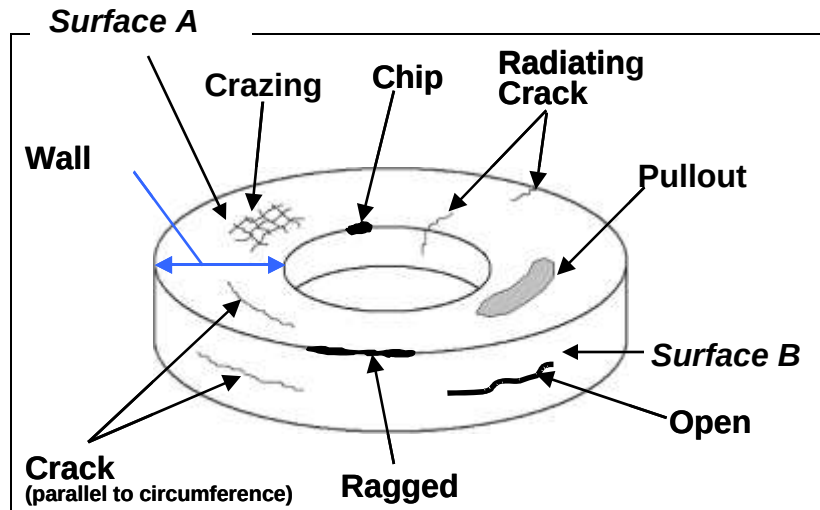


Figure 1



Figure 2

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0 Limits for Chips Based on Toroid Core Size

0.1 The largest dimension of any chip may never exceed the general maximum set in Visual Inspection – Definitions & General Criteria.

Core Size	Surface	Max. Size Allowed	Max Qty
Nominal OD of Less than 0.25in (6.3mm)	A, B	No limit. No broken parts are allowed	3 on each surface, 5 total
Nominal OD greater than 0.25 (6.3mm) to 0.5in (12.7mm)	A	Less than 50% (1/2) of the wall thickness	3 on each surface, 5 total
	B	Less than 50% (1/2) of the C dimension or wall thickness, whichever is smaller	
Nominal OD greater than 0.5in (12.7mm)	A	Less than 50% (1/2) of the wall thickness <i>to a max equiv. area of 5 mm x 7 mm; less than max depth of 0.25 mm</i>	3 on each surface, 5 total
	B	Less than 33% (1/3) of the C dimension <i>to a max equiv. area of 5 mm x 7 mm; less than max depth of 0.25 mm</i>	

1.1 Limits for Irregularities - All Toroid Core Types:

Type	Location	Max. Size Allowed	Max Count Allowed
Bumps	All surfaces	Small to moderate Bumps that do not interfere with part dimensions are allowed	Unlimited
Pits	All surfaces	See chip spec.	3 on each surface, 5 total
Cracks	Radiating	Less than 20% (1/5) of the Wall Thickness	1
	Parallel to the circumference	Cumulative length equal to 33.3% (1/3) of the relative core circumference. Open cracks, or cracks which weaken the part are not allowed. Refer to figure 2 for an example of an unacceptable open crack. See engineering for clarification if needed.	Unlimited up to cumulative length allowance
Crazing	All surfaces	No limit	N/A
Sticking	All Surfaces	No limit	N/A



Actual size 5mm X 7mm

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Limits for Irregularities Based on Toroid Core Size

Defect Type	Core Size	Location	Max. Size Allowed	Max Count Allowed
Pullout	Nominal OD less than 0.5in (12.7mm)	All surfaces	0.003in (0.076mm) deep	Cumulative area of Pullout must be less than 25% (1/4) of the relevant surface area.
	Nominal OD equal to or greater than 0.5in (12.7mm)		0.005in (0.127mm) deep	

1.2 Limits for Irregularities Based on Burnishing and Coating

Defect Type	Core Treatment	Location	Max. Size Allowed	Max Count Allowed	Notes
Partial Coating	Coated Toroids	All surfaces	None	None	All surfaces must be fully coated. Coating must be uniform and fully adhered.
Ragged Edges	Burnished and Un-burnished Cores	All edges	Width as defined in Defect Definitions	Entire Edge surfaces	
Sharp Edges	Un-burnished Cores	All edges	N/A	N/A	Sharp edges allowed on unburnished cores only
	Burnished Cores		None	None	Sharp edges not allowed on burnished cores

2 Associated Documents:

2.1 Fair-Rite Products: Visual Inspection – Definitions & General Criteria

3 Revisions:

Revision Number	Reason for Change	Revision Date
1	Tightened specs in 1.2 and 2.3	4/1/98
2	Revised 1.4.	8/18/98
3	Complete revision	10/29/2007
4	Revised section 1.3	4/25/11
5	Revised section 1 and 1.1 added figure 2	8/12/11
6	Revised Title	12/22/23
7	Revised chip criteria	2/12/25

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)

International Electrotechnical Commission (IEC) International Standard 60424-4: Ferrite Cores – Guide on the Limits of Surface Irregularities Part 4: Ring-cores (First Edition 2001-02)