

# Tool Steel Ring



## Mag Particle Test Piece

The Tool Steel Ring is a standardized test piece commonly used with wet bench magnetic particle equipment. The ring is machined from AISI O1 Tool Steel, annealed, tested and certified to meet AS 5282 specifications. Typically used with a 1 inch central conductor, the Tool Steel Ring has 12 machined holes at increasing depths from the edge and is used to verify the performance of HWDC, FWDC, and 3-phase FWDC magnetizing equipment. Suitable for use with wet or dry materials and visible or fluorescent particles. The number of indications required depends on the waveform and magnetizing current amperage (refer to AS 5282 or ASTM E1444 for more information).



### FEATURES

Dimensions	
Outer Diameter	5.00 in / 127.0 mm
Inner Diameter	1.25 in / 31.8 mm
Thickness	0.88 in / 22.2 mm

Manufactured and annealed to AS 5282 specifications.

Precision-machined subsurface defects

1. 0.07 in / 1.78 mm
2. 0.14 in / 3.56 mm
3. 0.21 in / 5.33 mm
4. 0.28 in / 7.11 mm
5. 0.35 in / 8.89 mm
6. 0.42 in / 10.67 mm
7. 0.49 in / 12.45 mm
8. 0.56 in / 14.22 mm
9. 0.63 in / 16.00 mm
10. 0.70 in / 17.78 mm
11. 0.77 in / 19.56 mm
12. 0.84 in / 21.34 mm

### INSTRUCTIONS

Place the Tool Steel Ring on a non-ferrous central conductor (1.00 to 1.25 in / 2.5 to 3.2 cm diameter). Clamp the central conductor between head and tail stocks. Set the equipment amperage to the pre-determined levels according to AS 5282 or the table below. Magnetize and apply particles according to normal procedures. Verify the number of indications observed against the minimum number required by AS 5282 or in the table below. If multiple amperages are being checked, proceed from the lowest to the highest setting, demagnetizing the ring between each setting.

It is recommended to benchmark the performance of the Tool Steel Ring on a specific magnetic particle equipment in order to detect any decrease or change in performance over time.

For best results, demagnetize ring after use, clean with acetone or equivalent cleaning solvent. Apply oil or other rust protection before storage.

Materials	Amperage FWDC or HWDC	Minimum Holes Indicated
Fluorescent (wet)	500	3
	1000	5
	1500	6
	2500	7
	3500	9
Visible (wet)	500	3
	1000	4
	1500	5
	2500	6
	3500	8
Dry Powder	500	4
	1000	6
	1500	7
	2500	8
	3500	9

NOTE: The Tool Steel Ring is not intended for use with AC magnetic fields.

### SPECIFICATIONS

Compliant with:

- AS 5282
- ASME BPVC Section V Article 7
- ASTM E709
- ASTM E1444

For use with systems complying to:

- ISO 9934
- ASTM E3024

### PART NUMBER

159999



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