	WORK INSTRUCTION	
	HIGH DENSITY (HD) CARTRIDGE HEATERS TYPICAL FUNCTIONAL FLOW	
REVISION: 02	PROCEDURE NO.: WI-8.2.4.11	DATE EFFECTIVE: 02/04/25

	Operation Description	Documentation Clarifying Characteristics (as applicable for each operation)	Monitoring & Measurement Activities	Monitoring & Measurement Records/Check Lists
1a	Tube Cutting	Electronic Tube/Cable Tickets	<ul style="list-style-type: none"> • 1st Piece Verification on Set-up • Ongoing Verification based on Random Sample 	Order Tracker automatically updates. Tube/Cable Ticket has a hole punched and attached to the tubes to indicate the operation is complete
1a1	Sandblasting	Tube Tickets or specification sheet	<ul style="list-style-type: none"> • Verification based on Visual Review 	Order Tracker Tube Ticket or specification sheet is initialed on the back to indicate the operation is complete
1a2	Apply End Disc	Tube Tickets	<ul style="list-style-type: none"> • Verification based on Visual Review 	Tube Ticket is initialed on the back to indicate the operation is complete
1a3	Weld End Disc	Tube Tickets	<ul style="list-style-type: none"> • Verification based on Visual Review 	Order Tracker Tube Ticket is initialed on the back to indicate the operation is complete
1b	Lead Wire Cutting	Electronic Lead Wire/Thermocouple Tickets	<ul style="list-style-type: none"> • 1st Piece Verification on Set-up • Ongoing Verification based on Random Sample 	Order Tracker automatically updates. Lead Wire ticket is attached to the product to indicate the operation is complete
1b1	Welding	Lead Wire Tickets or Specification Sheet Work instruction sheet	<ul style="list-style-type: none"> • Verification based on Visual Review 	Order Tracker Lead Wire Ticket or specification sheet is initialed on the back to indicate the operation is complete
1b2	Brazing	Lead Wire Tickets or Specification Sheet Work instruction sheet	<ul style="list-style-type: none"> • Verification based on Visual Review 	Order Tracker Lead Wire Ticket or specification sheet is initialed on the back to indicate the operation is complete
1c	Core Cutting	Specification Sheet	<ul style="list-style-type: none"> • 1st Piece Verification on Set-up using caliper • Ongoing Verification based on Random Sample 	Order Tracker Initial & Date Specification Sheets



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2	Winding	Specification Sheet	<ul style="list-style-type: none"> 1st Piece Verification on Set-up using multimeter/ohmmeter Ongoing Verification based on Random Sample 	Order Tracker Initial & Date Specification Sheets
3	Cutting - Terminal Pin - N (Normal Pin) - F (Flexible Lead)	Specification Sheet	<ul style="list-style-type: none"> 1st Piece Verification on Set-up Ongoing Verification based on Random Sample 	Initial & Date Specification Sheets
4	Assembly - Pick material - Assembly/Filling - Wound Core - Terminal Pin/Leads - Tube - Magnesium Oxide (MGO) Powder	Specification Sheet	<ul style="list-style-type: none"> 1st Piece Verification on the Tube Length & Winding Ohms Ongoing Ohms verification based on a random sample 100% Ohms 100% Hypot on Thermocouples Only Visual Verification 	Order Tracker Initial & Date Specification Sheets
5	MGO Loading	Specification Sheet	<ul style="list-style-type: none"> 100% Hypot prior to load Visual Verification 	Order Tracker Initial & Date Specification Sheets
6	Marking	Tube Ticket or Specification Sheet	<ul style="list-style-type: none"> Visual Verification 	Order Tracker
7	Baking - Teflon Only	Work Instruction sheet	<ul style="list-style-type: none"> Visual Verification 	No Initial off required

	Operation Description	Documentation Clarifying Characteristics (as applicable for each operation)	Monitoring & Measurement Activities	Monitoring & Measurement Records/Check Lists
8	Swaging	Specification Sheet	<ul style="list-style-type: none"> 1st Piece submitted to the Lathe for a length dimension check 1st Piece Operator checks the Ohms Resistance verified on a periodic random basis 	Order Tracker Initial & Date Specification Sheets

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9	Lathe	Specification Sheet	<ul style="list-style-type: none"> • 1st Piece dimensional check • Ongoing Verification based on Random Sample 	Order Tracker Initial & Date Specification Sheets
10	In-Process Test	Specification Sheet	<ul style="list-style-type: none"> • 100% Ohms Test & 100% Hypot 	Order Tracker Initial & Date Specification Sheets
11	Potting (if applicable)	Specification Sheet Work Instructions	<ul style="list-style-type: none"> • Visual Verification • Scale is used for epoxy mixing (as required) 	Order Tracker Initial & Date Specification Sheets
12	Termination	Specification Sheet	<ul style="list-style-type: none"> • Visual Verification 	Order Tracker Initial & Date Specification Sheets
13	Outsourced (if applicable) - Centerless Grinding - Electropolishing - Die Penetration Test - Passivation - Other Operations	Separate Drawing if required Purchase Requisition/P.O. Specification Sheet – used Internally	<ul style="list-style-type: none"> • Review the product to ensure it matches the specification sheet • Visual Verification 	No Initial off required Final Quality Inspection ensures visual compliance Supplier certifications are received as appropriate (e.g. ISO 9001 Certified)



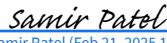
	Operation Description	Documentation Clarifying Characteristics (as applicable for each operation)	Monitoring & Measurement Activities	Monitoring & Measurement Records/Check Lists
14	Final Test (as appropriate) - Hypot - Resistance Ohms - IR Insulation Resistance - Ground	Specification Sheet	<ul style="list-style-type: none"> • 100% Ohms Test & 100% Hypot using any following option: • Hypot Meter • Multimeter • Milliohm Meter 	Order Tracker Initial & Date Specification Sheets Software data recording if required
15	Manufacturing Order & Specification Sheet are matched up	Specification Sheet Manufacturing Order	<ul style="list-style-type: none"> • Verify P/N, MO# 	No Initial off required Final Quality Inspection ensures visual compliance

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REVISION HISTORY

REVISION LEVEL	DATE OF REVISION	SECTIONS	DESCRIPTION OF CHANGE
00	01/27/09	All	Initial release
01	2/28/20	6 & 18	Section 6 remove (mechanical stamp) / remove section 18
02	2/4/25	All	Modified, sections 1a, 1b, 1c, 3, 4, 6, 15, & 16 Deleted sections 9 & 13

AUTHORIZATION

POSITION	HELD BY	AUTHORIZATION SIGNATURE OR INITIALS
Prepared By: Assistant Production Manager	Martha Vazquez	 <small>Martha Vazquez (Feb 25, 2025 14:50 CST)</small>
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