

ZnNi Plating Process

PART/ PROCESS NUMBER	PROCESS NAME/ OPERATION DESCRIPTION	MACHINE, DEVICE JIG, TOOLS FOR MFG.	CHARACTERISTICS			METHODS		
			NO.	PRODUCT	PROCESS	PRODUCT/PROCESS	EVALUATION/ MEASUREMENT	
						SPECIFICATION/ TOLERANCE	TECHNIQUE	
10	Retrieve Parts	Forklift				Part number matches Traveler	Compare label part# to traveler part#	
20	Unpack Parts	Operator				Verify Correct Parts	Compare part to traveler picture	
30	Inspect Parts					Confirm no part damage	Manually inspect	
40	Load Parts	Tooling rack				Parts Properly Situated in Tooling Clean tooling contacts		
50	Soak Cleaner	Fluid Tank				Cleaner Concentration 7.2 mLs min. (Techmatic)	Lab Analysis	
60	Electroclean		60a	Clean substrate	White glove test		Wipe parts with light colored cloth and inspect for cleanliness	Visual
							Temperature 130* - 170*F	Thermometer
							Cleaner Concentration 15.5 mLs min (Techmatic)	Lab Analysis
							Process time is automated	LCD
							Continuous agitation is automated	Visual
							Amperage/Voltage is automated	LCD
							Clean bath tank	Visual
							Solution level to line	
70	Water Rinse						Hydrochloric 20 - 40% by Vol. Minimum (Specialty)	Lab Analysis
80	Acid dip						Metallic impurity concentration;	AA
							Process time is automated	LCD
							Clean bath tank	Visual
							Solution level to line	
90	Water Rinse					8 microns min.; Measure part at lowest current position on tool	X-Ray	
100	Zn/Ni Plating	110A	ZnNi Thickness			Nickel Content 12-16%		
		110B	Ni Content			Visual plating deposit integrity		
		110C		Hull cell test		Temperature 72* - 85* F	Thermometer	
						Process time is automated	LCD	
						Amperage/Voltage	Rheostat	
						Chloride concentration 24 - 30 oz gal.	Lab Analysis	
						pH 5.2 - 6.0		
						Zn metal concentration 2.6 - 6.0 oz gal		
						Ni metal concentration .6 - 3.0 oz gal		
						Metallic impurity concentration;	AA	
						Boric acid buffer 3.5 -4.5 oz gal	Lab Analysis	
						Filtration	Visual	
						Clean bath tank		
						Continuous agitation is automated		
110	Water Rinse					Solution level to line	Visual	
						pH 1.0 - 1.5	Lab Analysis	
120	Sulfamic acid					Process time is automated	LCD	
						Clean bath tank	Visual	
130	Chromate					5 - 15% by Vol min. (Hyprotech)	Lab Analysis	
						Temperature 75* - 125*F	Thermometer	
						Process time is automated	LCD	
						pH 3.0 - 4.0	Lab Analysis	
						Continuous agitation is automated	Visual	
						Clean bath tank		
						Metallic impurity concentration;	AA	
140	Water Rinse					Solution level to line	Visual	
						120 Degrees Fahrenheit min.	Thermometer	
150	Drying	Dryer				Drying time determined by verifying parts are completely dry	Visual	
						Verify blower operation		