



BHARTI METAL FINISHERS PVT. LTD.

547 - K, PACE CITY-II, SEC-37, GURGAON

CONTROL PLAN FOR ALKLINE ZINC PLATING WITH Cr3 PASSIVATION (AUTO LINE)

CUSTOMER NAME: - NICE STEEL				CORE TEAM/KEY CONTACT:-		Date (ORIGNAL): - 15.10.2015		Doc. No -		BMF/QAD/02	
PART NAME: - Seat Spring ID YAMAHA		8.0 Micron Min.				CUSTOMER ENGG. APPROVAL DATE(IF REQD)-		Rev. No -		0	
PART NO: -						CUSTOMER QUALITY APPROVAL DATE(IF REQD)-		Rev. Date			
						OTHER APPROVAL DATE (IF REQD)-					
PROCESS	PROCESS NAME	M/C /DEVICE	CHARACTERISTICS		PRODUCT/PROCESS	EVALUATION METHOD	FREQ.	RESP.	CONTROL METHOD	REMARKS	
S.NO	DESCRIPTION	FOR MFG.	NO.	PROCESS	TOLERANCE						
1	Incoming material to store		1		Verify quantity /weight with party challan						
2	Incoming Inspection	Visual	1	Incoming Inspection	No rust, No scratch, No dent	Visual	10 Pcs./1000 pcs.	Eng/Operator	BMF/PCS/03-00		
3	Loading	Stn. No.1	1	Loading in hangers							
4	SOAK CLEANING (Steelex - K-20)	Tank No.14	1	Concentration	80 -120 gm/ltr.	Lab Test	Weekly	Lab Chemist	BMF/LAB/12-01		
			2	Density	8-12 Be	Hydrometer	Verify at twice/day	Eng/Operator	BMF/PCS/01-01		
			3	Time	5-7 min.	PLC		PLC controller			
			4	Temp.	60- 90°C	Auto Temp. controller.	Verify at twice/day	PLC controller	BMF/PCS/01-01		
			5	Discard	Discard Frequency		Monthly	Eng/Operator	BMF/PCS/02-01		
5	Water Rinse I	Tank No.15	1	Water	Running Water						
			2	Time	25-40 sec.	PLC		PLC controller			
			3	Discard	Discard Frequency		Daily	Eng/Operator	BMF/PCS/02-01		
	Water Rinse II	Tank No.16	1	Water	Running Water						
			2	Time	4-10 sec.	PLC		PLC controller			
			3	Discard	Discard Frequency		2 Days	Eng/Operator	BMF/PCS/02-01		
6	DE-SCALING - I (Comm. - HCL)	Tank No.17	1	HCL Concentration	HCL (20-30%)	Lab Test	Weekly	Lab Chemist	BMF/LAB/12-01		
			2	Density	12-18 Be	Hydrometer	Verify at twice/day	Eng/Operator	BMF/PCS/01-01		
			3	Time	4- 5 min.	PLC		PLC controller			
			4	Temp.	room temp.						
			5	Discard	Discard Frequency		Monthly	Eng/Operator	BMF/PCS/02-01		
7	WATER RINSE I	Tank No.18	1	Water	Running Water						
			2	Time	2-4 min.	PLC		PLC controller			
			3	Discard	Discard Frequency		Daily	Eng/Operator	BMF/PCS/02-01		
	WATER RINSE II	Tank No.19	1	Water	Running Water						
			2	Time	4-10 sec.	PLC		PLC controller			
			3	Discard	Discard Frequency		2 Days	Eng/Operator	BMF/PCS/02-01		



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S.NO	DESCRIPTION	FOR MFG.	NO.	PROCESS	TOLERANCE					
8	ANODIC CLEANING (Ginbond - 808)	Tank No.20	1	Concentration	70-100 gm/ltr.	Lab Test	Weekly	Lab Chemist	BMF/LAB/12-01	
			2	Density	8-12 Be	Hydrometer	Verify at twice/day	Eng/Operator	BMF/PCS/01-01	
			3	Time	4-6 minutes	PLC		PLC controller		
			4	Temp.	60-90 °C	Auto Temp. controller	Verify at twice /day	Eng/Operator	BMF/PCS/01-01	
			5	Current	400 - 600 Amp. (4-7 volt)	Rectifier	Verify at twice/day	Eng/Operator	BMF/PCS/01-01	
			6	Discard	Discard Frequency		Monthly	Eng/Operator	BMF/PCS/02-01	
9	WATER RINSE I	Tank No.21	1	Water	Running Water					
			2	Time	4-10 sec.	PLC		PLC controller		
			3	Discard	Discard Frequency		Daily	Eng/Operator	BMF/PCS/02-01	
	WATER RINSE II	Tank No.22	1	Water	Running Water					
			2	Time	1-2 min.	PLC		PLC controller		
			3	Discard	Discard Frequency		2 Days	Eng/Operator	BMF/PCS/02-01	
10	DE-SCALING - II (Comm. - HCL)	Tank No.23	1	Concentration	HCL (10-20%)	Lab Test	Weekly	Lab Chemist	BMF/LAB/12-01	
			2	Density	8 -12 Be	Hydrometer	Verify at twice/day	Eng/Operator	BMF/PCS/01-01	
			3	Time	2 - 3 min.	PLC		PLC controller		
			4	Temp.	room temp.					
			5	Discard	Discard Frequency		Monthly	Eng/Operator	BMF/PCS/02-01	
11	WATER RINSE I	Tank No.24	1	Water	Running Water					
			2	Time	1-2 min.	PLC		PLC controller		
			3	Discard	Discard Frequency		Daily	Eng/Operator	BMF/PCS/02-01	
	WATER RINSE II	Tank No.25	1	Water	Running Water					
			2	Time	1-2 min.	PLC		PLC controller		
			3	Discard	Discard Frequency		2 Days	Eng/Operator		
12	NEUTRALISER (Caustic)	Tank No.26	1	Concentration	(Caustic) - 40~ 60 gm/lit.	Lab Test	Weekly	Lab Chemist	BMF/LAB/12-01	
			3	Density	2-5 Be	Hydrometer	Verify at twice/day	Eng/Operator	BMF/PCS/01-01	
			4	Time	4 - 6 Min.	PLC		PLC controller		
			5	Discard	Discard Frequency		2 Weeks	Eng/Operator	BMF/PCS/02-01	



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S.NO	DESCRIPTION	FOR MFG.	NO.	PROCESS	TOLERANCE							
13	ALKALINE ZINC ELECTRO PLATING	Tank No.30,31,32 No.33	1	Concentration	Zinc Metal (8 -14 gm/ltr.)	Lab Test	Weekly	Lab Chemist	BMF/LAB/12-01			
			2	Concentration	KOH (140 -180) gm/ltr	Lab Test	Weekly	Lab Chemist	BMF/LAB/12-01			
			3	Concentration	Brightener - A (100-150 ml /KAH)							
			4	Concentration	Brightener - B (60 -100 ml/KAH)							
			5	Concentration	Brightener -C (30-50 ml /KAH)							
			6	Concentration	Conditioner (30-50 ml /KAH)							
			7	Time	18 - 22 min. (8.0 μ Min.)		PLC			PLC controller		
			8	Temp.	20-40 °C		PLC		Verify at twice/day	Eng/Operator	BMF/PCS/01-01	
			9	Current	1500~2000 Amp. (4 ~ 8 Volt.)		Rectifier		Verify at twice/day	Eng/Operator	BMF/PCS/01-01	
			10	Decantation	Decant Frequency				6 Months	Eng/Operator	BMF/PCS/02-01	
14	DRAG OUT	Tank No .29	1	Density	DENSITY < 3 Be	Hydrometer	Verify once/day	eng/operator	BMF/PCS/01-01			
			2	Discard	Discard Frequency		2 Weeks	Eng/Operator	BMF/PCS/02-01			
15	WATER RINSE I	Tank No.28	1	Water	Running Water							
			2	Time	4-15 sec.	PLC		PLC controller				
			3	Dicard	Discard Frequency		Daily	Eng/Operator	BMF/PCS/02-01			
	WATER RINSE II	Tank No.27	1	Water	Running Water							
			2	Time	1-2 min.	PLC		PLC controller				
			3	Discard	Discard Frequency		2 Days	Eng/Operator	BMF/PCS/02-01			
16	WATER RINSE III	Tank No.13	1	Water	Running Water							
			2	Time	4-5 min.	PLC		PLC controller				
			3	Discard	Discard Frequency		3 Days	Eng/Operator	BMF/PCS/02-01			
17	ACTIVATION DIP (Comm. - Nitric Acid)	Tank No.12	1	Concentration	Nitric Acid (5-15 ml/ltr.)	Lab Test	Weekly	Lab Chemist	BMF/LAB/12-01			
			2	Time	15 - 25 Sec.	PLC		PLC controller				
			3	Discard	Discard Frequency		Daily	Eng/Operator	BMF/PCS/02-01			
18	Cr3 PASSIVATION (Tri. HB - 2205 - Light Iridescent Colour)	Tank No.11	1	Concentration	Trichrome Cr3 (C* - Light Iridescent)- 60-80 ml/ltr.	Lab Test	Weekly	Lab Chemist	BMF/LAB/12-01			
			2	Time	15-30 sec.	Automatic		PLC controller				
			3	PH value	1.8 - 2.5	PH meter	Verify at twice/day	Eng/Operator	BMF/PCS/01-01			
			4	Discard Frequency as per impurity Level Zinc - up to 15000 PPM ,Pb- 5PPM, Iron upto 50 PPM)						Third Party Report	Lab Test Report	



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S.NO	DESCRIPTION	FOR MFG.	NO.	PROCESS	TOLERANCE					
19	WATER RINSE	Tank No.10	1	Time	5-10 sec.	PLC		PLC controller		
			2	Water	Running Water					
			3	Discard	Discard Frequency		2 Days	Eng/Operator	BMF/PCS/02-01	
20	FINAL D.M WATER	Tank No.9	1	Time	40-60 sec.	PLC		PLC controller		
			2	Water	DM Water					
			3	Conductivity	100 µs/cm Max .	Conductivity Meter	Daily Twice	Eng/Operator	BMF/PCS/01-01	
			4	Discard	Discard Frequency		3 Days	Eng/Operator	BMF/PCS/02-01	
21	OVEN DRYING	OVEN station No.3,4	1	Time	10 - 15 Min	Automatic	Each lot	PLC controller		
			2	Temp.	50-80 ° C	Auto Temp. controller	Verify at twice/day	Air hot water generator	BMF/PCS/01-01	
22	UNLOADING	Strn. No.2			Unloading components from hangers			Operator		
23	CURING	Curing Area		Period	24 Hrs.	Date & Time on The Tag	Each Day	Inspector		
24	INSPECTION	MICRON TEST	1	Thickness / Micron tester	Drawing/ As per customer requirement	Thickness Tester	Each lot / 5PCS	Inspector	BMF/PCS/04-00	
		APPEARENCE	2	APPEARENCE	No Black Spot, No White Spot, No Patches, No Blisters	Visual		Inspector		
25	PACKING		1		As per customer Requirement					
26	DISPATCH		1		Packing standard customer requirement			Inspector		
27	S.S.T	S.S.T CHAMBER	1		IN HOUSE/ THIRD PARTY	48 hrs. White Rust 152 hrs. Red Rust	As per Plan	LAB	Test Report	

PREPARED BY:-

APPROVED BY: