

As require documents for revise drawing



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*Part Name : Adjuster ( RE-J1C)*

*Part No : S2AB041070*

# 1) Pros and Cons of changing process



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## Pros and Cons of changing process.

Sr.no	Process sequence	Process Defect
10	Raw Material Inward	-
20	Sheet Shearing	-
30	Blanking	-
40	U Bending	-
50	First Rounding	-
60	Second Rounding	-
70	Co2 Welding ( Single Spot )	Incomplete welding , Excess & less welding , Spatter , welding shift
80	Co2 Welding ( Full Run )	Incomplete welding , Excess & less welding , Spatter , welding shift
90	Weld Bead Turning & Grinding	Excess & less turning , step mark , one side turning
100	Buffing	Excess buffing , Step mark ,
110	Parting & ID Chamfer	-
120	Single Notch	-
130	First Flaring	-
140	Second Flaring	-
150	Restracking	-
160	OD Trimming & 8 Nos Notching	-
170	Face Debburing	-
180	Buffing	-
190	CED + Powder coating	-
200	Final Inspection	-
210	Packing	-

## 2) Pros and Cons of changing material



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Pros and Cons of changing materia		
Raw Material grade	Thickness	Constant
C.R.C.S. D OR DD ( As per IS: 513 )	3.0 mm	Material not available easily from RM sources of thickness 3.0 mm and above. That's why requesting to added H.R.P.O.( EDD ) AS OPATIONAL

- 3) Chemical composition comparison between CRCS and HRPO steel (Hot Rolled Pickled and Oiled)  
 4) Mechanical properties comparison between CRCS and HRPO steel (Hot Rolled Pickled and Oiled)



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Chemical composition & Mechanical properties comparison between CRCS and HRPO steel (Hot Rolled Pickled and Oiled).								
Raw material	Grade	Carbon (C)	Manganese (Mn)	Sulfur (S)	Phosphorus (P)	Yield Point or Proof Stress MPa, Max	Tensile Strength MPa, Max	Hardness HRB Max
C.R.C.S. IS : 513	CR1	0.15	1	0.035	0.08	280	410	
	CR2	0.12	0.5	0.035	0.04	240	370	55
	CR3	0.1	0.45	0.03	0.025	220	350	55
H.R.P.O.	HR1	0.15	0.6	0.035	0.05	170 to 320	440	
	HR2	0.10	0.45	0.035	0.04	170 to 320	420	
	HR3	0.08	0.40	0.03	0.035	170 to 320	400	

# 5) Sample Inspection Report



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A-44, MIDC, Watuj, A'bad Part Name: ADJUSTER Part No.: S2AB041070 / XB Customer Part No.: S2AB041070 / XB Model: RE J1A				Invoice Date 02/02/2022 Invoice No.: Lot Size 10 NOS Sample 05 NOS						
Sr. No.	Parameter	Specification	Checking Instrument	L.C.	Observation					Remarks
					1	2	3	4	5	
1	Outer Dia	42±0.2	Digital Vernier	0.01	42.03	42.02	42.05	42.04	42.01	OK
2	Groove	6+0.2	Digital Vernier	0.01	6.08	6.11	6.07	6.12	6.04	OK
3	Groove Nos	8 nos	Digital Vernier	0.01	OK	OK	OK	OK	OK	OK
4	Outer Dia	48±0.2	Digital Vernier	0.01	48.09	48.10	48.13	48.12	48.11	OK
5	Outer Dia	36.5 Reff.	Digital Vernier	0.01	37.25	37.23	37.19	37.11	37.17	OK
6	Inner Dia	30.5 +0.2	Digital Vernier	0.01	30.86	30.90	30.85	30.79	30.78	-
7	Thickness	3 ± 0.2	Micrometer	0.01	3.03	3.06	3.08	3.04	3.00	OK
8	Total Height	30 Reff.	Height Gauge	0.01	29.42	29.32	29.5	29.6	29.44	OK
9	Radius	R2	Radius Gauge	—	OK	OK	OK	OK	OK	OK
10	Height	11 ±0.2	Dial+Height Gauge	0.01	11.12	11.14	11.09	10.97	11.08	Ok
11	Height	14 ± 0.2	Dial+Height Gauge	0.01	14.14	13.87	13.9	14.03	13.83	OK
12	Height	17 ± 0.2	Dial+Height Gauge	0.01	17.05	17.05	16.9	16.94	17.08	OK
13	Height	20 ± 0.2	Dial+Height Gauge	0.01	20.09	20.08	19.86	19.89	19.95	OK
14	Height	23 ± 0.2	Dial+Height Gauge	0.01	23.12	23.01	22.86	22.95	22.91	OK
15	Height	26 ± 0.2	Dial+Height Gauge	26.09	25.95	26.17	26.05	26.02	25.94	OK
16	Angle	45°	As per Blanking Die	—	OK	OK	OK	OK	OK	OK
17	Radius	R1 Type	Radius Gauge	—	OK	OK	OK	OK	OK	OK
18	Radius	R 2.5	Radius Gauge	—	OK	OK	OK	OK	OK	OK
19	Radius	R 3	Radius Gauge	—	OK	OK	OK	OK	OK	OK
20	Visual defect	Part To be Free from Burr , Scratches, Dent, & welding Spatters	Visual	—	OK	OK	OK	OK	OK	OK
21	Process	Welded	Visual	—	Sample submitted as without welded					OK
22	Material	CRCS GRADE D OR DD AS PER IS 513	-	—	Attached with SIR					OK

Remarks:

Inspected By : Mr. Ganesh Bhombe

Approved By : Mr. Pankaj Deokar

# 6) H.R.C.S. 3.0 mm MTC



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## TATA STEEL

Tata Steel Limited  
CRM Complex, Bara, Jamshedpur, Jharkhand  
Corporate Identity Number: L27100MH1907PLC000260, Website www.tatasteel.com



### TEST CERTIFICATE

TEST CERTIFICATE NO. : 801035713	DESPATCH DATE: 28.12.2021	TEST CERTIFICATE TO:
DO NO. : 9515847914	CUSTOMER CODE: 147959	POSHS METAL INDUSTRIES PRIVATE LIMT Gal No.50, Off.Chaitan, Shikrapur Rd
INVOICE NO. : 2410412870	VEHICLE NO.: JH08AP1209(R)	Village Pimple Jagtap, Taluka-Shirur
MATERIAL No. : 1244528	PRODUCT: HR COILS (P&O)	Pune- 412208

We hereby certify that the above mentioned material is tested in accordance with scheme of testing and inspection contained in BIS certification marks License no. CM/L-0102816 are as indicated against each section (Please refer to IS 1079 HR3(HOT ROLLED CARBON STEEL SHEET, PLATE AND STRIP:2017.)\* for details of specification requirements)

TDC No: HA51	Q Code: THA051	Chemical Analysis, Specifications and Other Information									
Grade: IS 1079 HR3		C	Mn	S	P	Si	N	Ti			
Section(TxWxL): 3.000x1250.000x686.00mm		%	%	%	%	%	PPM	%			
Specification Requirements as per TDC No. HA51	Min	0.0200	0.2000								
	Max	0.0700	0.4000	0.0300	0.0350	0.0400	75	0.0200			

Item	Batch No.	Mother Coil	Cast No.	Tonnage	Pcs.	Test Results						
01	B1C2938000	B1C2938000	V68995	20.230	1	0.0500	0.2700	0.0060	0.0110	0.0130	29	0.0190

TDC No: HA51	Mechanical Analysis, Specifications and Other Information									
Section (TxWxL): 3.000x1250.000x686.00mm	UTS	EL	BEND	YS						
	MPa	%		MPa						
Specification Requirements as per TDC No. HA51	Min	32		170						
	Max	400		320						

Item	Batch No.	Mother Coil	Cast No.	Tonnage	Pcs.	UTS	EL	BEND	YS
01	B1C2938000	B1C2938000	V68995	20.230	1	376	39	OK	290

Route-BOF>LF>CC>HSM>PKL	*For further details please visit <a href="http://www.bis.gov.in">www.bis.gov.in</a>	Material clearance date	Document certified by KRAN VINAYAK SOFTWARE -> <a href="mailto:kran.vinayak@tatasteel.com">kran.vinayak@tatasteel.com</a> . Digitally signed by KRAN VINAYAK Date: 2022.12.27 06:11:57 IST Location: Jamshedpur
1 MPa = 1 N/mm <sup>2</sup> YS = Yield Strength UTS = Ultimate Tensile Strength EL= % elongation on standard gauge length TxWxL = Thickness x Width X Length CE (Carbon Equivalent) = (C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15)	Material is ROHS Compliant Tensile Sample testing transverse to rolling direction	27.12.2021 This TC is electronically generated	

Head Quality Assurance  
TATA STEEL LIMITED

7) Breaking load report of 10 adjusters

8) Rotation test report of 10 adjusters



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Breaking load report of adjusters						
Strength Testing				Rotation Testing		
Sr. no	Breaking Load Kgf	Remark		Sr. no	Breaking Load Kgf	Remark
1	2304	EAR Bend		1	2153	EAR Bend
2	2337	EAR Bend		2	2182	EAR Bend
3	2311	EAR Bend		3	2049	EAR Bend
4	2407	EAR Bend		4	2385	EAR Bend
5	2256	EAR Bend		5	2261	EAR Bend
6	2320	EAR Bend		6	2224	EAR Bend
7	2445	EAR Bend		7	2341	EAR Bend
8	2346	EAR Bend		8	2355	EAR Bend
9	2307	EAR Bend		9	2315	EAR Bend
10	2285	EAR Bend		10	2305	EAR Bend
Min	2256			Min	2049	
Max	2445			Max	2385	
Average	2332			Average	2257	

# 9) Supplier and ETL QA NSS report



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**Sanjay Techno Products Pvt. Ltd.**

(SURFACE COATED COMPONENT TESTING LABORATORY)

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 visit us at - www.sanjaygroup.in

## TESTING REPORT OF POWDER COATED COMPONENT

Part Name :- Adjuster ( RE - J1C )

Lab. Sr. No. :- 8067  
 Date :- 16 / 12 / 2021

Type :- Pretreatment + CED + Powder Coating

Part Number :-

Name of Main Supplier :- M/s. Saptagiri Industries

Name of Sub Supplier :-

Ref. :- Sample receipt Number and Date :- 122 , 09 / 11 / 2021

Test to be carried out on the component as per technical Doc. No. T0385 / 2

Sr. no.	Name of the test	Specifications & Acceptance Criteria	Observations	Remarks
1	Corrosion Test for 800 hrs.	Test at 35±1/2 deg.c. with 5 % NaCl in DM water. Fog collection 1-2 ml / hr. Tested sample to be cleaned, dried and checked within 1/2 hr. Use paint film remover like adhesive tape to evaluate. Test as per ASTM B117 Creepage along X mark to be 3 mm max. blister size Max 8 F & no adhesion failure beyond 3 mm from X mark check after 24 hrs. removal after 800 hrs.	Rust creepage observed 1-2 mm after 800 hrs. Adhesion observed 1-2 mm on X cut mark on other surface blistering not observed after 800 hrs. Passes.	Passes

### REMARKS :-

Component found to have Passed Salt Spray test for 800 hrs. as per Specifications.

Tested By :-

Mr. A. A. Amage

Authorized By :-

Mr. G. S. Inamdar  
 Sanjay Technoproducts Pvt. Ltd  
 Unit-IV  
 Surface Coated Component  
 Testing Laboratory  
 M-108/1, MIDC Waluj  
 Aurangabad - 431 136





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*Thanks...*