

INDIAN RAILWAYS



CHECKSHEET

FOR

CENTRE SILL (HAT SECTION) OF BOGIE OPEN WAGON TYPE – BOXNHL-MBS(DSIGN-D)

S.No.	Month & Year of issue	Revision / Amendment	Page No.	Reason for Amendment
1.	January - 2012	-	-	First issue

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RESEARCH DESIGNS AND STANDARDS ORGANISATION
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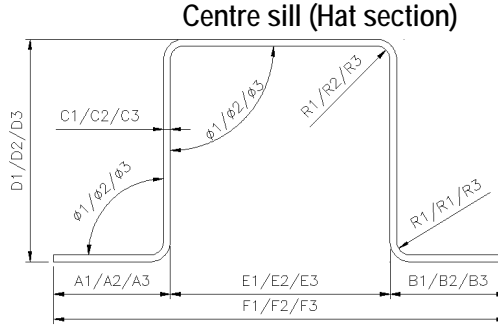
Note:

1.

This check sheet does not details all the dimensions or technical requirements of respective wagon assemblies/components.
 This check sheet is issued only for general guidance & assistance of inspecting officials.
 Notwithstanding the above, the inspecting officials are advised to refer to relevant drawings and/or relevant specifications to confirm conformity to the specified dimensions and technical details

2.

- a. In check sheet wherever it is indicated that two dimensions are to be measured, it means measurement of that dimension at two end locations of the component.
- b. In check sheet wherever it is indicated that three dimensions are to be measured, it means measurement of that dimension at two end locations of the component, and one at the center of the component.



Ref: Drawing No. WD-09034-S-14, Item-2 & WD-11058-S-01(Latest Rev.)

Centre sill (Hat section)			Date:		
S/NO.	STAGE	Works Inspection	Inspecting Authority		Remarks
1.	Dimensions	As follows			
	Location	Nominal Dimensions & Allowable Deviation	Actual Dimension		Remarks
			Works Inspection	Inspecting Authority	
i.	Left Flange	A1 A2 A3	173.5		
ii.	Right Flange	B1 B2 B3	173.5		
iii.	Thickness	C1 C2 C3	10 +0.5/-0		
iv.	Top width (inside)	E1 E2 E3	327+3/-0		
v.	Bottom width	F1 F2 F3	674 ± 3		
vi.	Height	D1 D2 D3	327 ± 1.5		
vii.	Length	Top Bottom	10034+4 / - 2		
viii.	Radius	R1 R2 R3	20 ± 1.5		
ix.	Angle	phi1 phi2 phi3	90° ± 1°		
x.	Waviness	-	2 max.		
xi.	Bow	-	1 in 600		
xii.	Camber	-	1 in 600		
xiii.	Twist	-	1 deg./metre		
xiv.	Appearance	-	Free from Deep Marks, Cracks, & Other Defects		

All dimensions are in mm

Works Inspector		Inspecting Authority	
Signature:		Signature:	
Name:		Name:	
Designation:		Designation:	
Date:		Date:	

Sampling plan											
S. No	Component s/ Operation /Product/ Process		Characteristics/ Parameters	Mode of Inspection/ Equipments	Internal Inspection Sample-		Reference documents/ Specification	Acceptance Criteria	Documents of Records	RDSO Inspection Sample-	
					Size	Frequency				Size	Frequency
1	Raw Material Receipt	a)	Source of Procurement	Visual	-	Every lot	Receipt Particulars & RDSO's Vendor List	Should be procured from RDSO approved sources only	Format no....	-	Every Lot
		b)	System of Unloading	Visual	Complete Lot	Every lot	Nil	No external damage should occur		AUDIT	
		c)	Quantity	Visual	Complete Lot	Every lot	Receipt particulars	To be as per receipt particulars			
		d)	Weight	Weighing Machine	One/Lot	Every lot					
2	Raw Material Inspection	a)	Identification of Coil/plate	Visual	Every coil/plate	Every coil/ plate	T.C.	Coil No. & Heat No. to be as per T.C.	Format no---	AUDIT	
		b)	Coil/Strip width & thickness	Measuring Tape/Steel Rule/ Micrometer	One per Coil/Plate	3 times (start, middle, end) of coil/plate	Indent & T.C.	To be as per indent/design requirement		Complete Lot	Every lot
		c)	Grade	By means of suitable m/c / test equipment in house lab/NABL approved lab	Complete Lot	Every lot	Indent & T.C.	To be as per indent/design requirement			
		d)	Mechanical Properties		Complete Lot	Every lot	Indent & T.C.	To be as per prescribed specification		Complete Lot	Every lot
		e)	Chemical Properties		Complete Lot	Every lot	Indent & T.C.	To be as per prescribed specification			
		f)	Bend Test		Complete Lot	Every lot	Indent & T.C.	To be as per prescribed specification		Complete Lot	Every lot
		g)	Testing of Mechanical & Chemical Properties and Bend Testing		One/Lot	Every lot	Prescribed specification	To be as per prescribed specification			
3	Raw Material & Final Product Storage	a)	Condition of storage area	visual	Complete lot	Daily	WD-01-CRF-08 with latest alt.	Covered area and protection from water	Format no---	AUDIT	
		b)	Availability of Racks/Packing					Proper racks and packing to be available			
		c)	Condition of Material					To be free from damages, dents & rust.			
4	Selection of coil for slitting	a)	Condition of Coil	Visual	Complete coil/plate	Every coil/ plate	-	Coil/plate to be free from damage & rust	Format no---	AUDIT	

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S. No	Component s/ Operation /Product/ Process		Characteristics/ Parameters	Mode of inspection/ equipments	Internal inspection sample		Ref documents/ specifications	Acceptance criteria	Documents of records	RDSO inspection Sample	
					Size	Frequency				Size	Frequency
5	Handling of coil/plates/Sections till despatch	a)	Care during movement	Visual	Every coil/plate/Section	Every coil/plate/section	-	No damage/dent to occur	Format no---	AUDIT	
6	Coil/plate slitting	a)	Coil/Plate width	Measuring Tape/ Steel Rule/Vernier	One per Coil/Plate	3 times (start, middle, end) of coil/plate	Design requirement	To be as per design requirement	Format no---	AUDIT	
		b)	Edge condition	Visual	Complete slitted Coil/Plate	Every slitted Coil/Plate	Should be smooth	To be free from burrs, sharp edges			
7	Setting of rolls on mill	a)	Correctness of rolls	Visual/Measuring Tape/ Steel Rule/Vernier	Every rolling mill	Twice in one shift		All rolls to be as per design requirement	Format no---	AUDIT	
8	In-process Inspection	a)	Profile of the section	Measuring tape, Vernier, Bevel protactor, Radius gauge	1 no.	3 times (start,middle, end) of coil/plate	Respective RDSO/P.O. drawing/check sheet	To be as per respective RDSO/P.O. drawing/check sheet	Format no---	AUDIT	
		b)	Marking of Coil/plate no.	Visual	1 no.	Every coil/plate	-	To be same as the selected coil	Format no---	AUDIT	
9	Post Roll Forming Operations	a)	Drilling	Vernier/Gauge	1 no.	Every section	Respective RDSO/P.O. drawing/check sheet	To be as per respective RDSO/P.O. drawing/check sheet	Format no---	AUDIT	
		b)	Notching	Visual							
		c)	Edge Preparation	Visual							
		d)	Profile cutting	Visual							
10	Welding	a)	Weld Preparation, Fixtures, Welding machine and current/voltage, welding electrodes, weld cleaning and condition of weld	Visual, Radiography (if, prescribed)	10%	Every lot	WPS, issued by RDSO	To be as per WPS, issued by RDSO	Format no---	5% (Minimum two set)	Each lot
11	Final Inspection	a)	Profile of the section	Measuring tape, Vernier, Bevel protactor, Radius gauge	10%	Every lot	Respective RDSO/P.O. drawing/check sheet	To be as per respective RDSO/P.O. drawing/check sheet	Format no---	5% (Minimum two set)	Each lot
		b)	Edge condition	Visual	10%	Every lot	Respective RDSO/P.O. drawing/check sheet	To be as per respective RDSO/P.O. drawing/check sheet and free from burrs & sharp edges	Format no---	5% (Minimum two set)	Each lot
		c)	Drilling	Plug Gauge/ Vernier	1 no.	Every section	Respective RDSO/P.O. drawing/check sheet	To be as per respective RDSO/P.O. drawing/check sheet	Format no---	AUDIT	
		d)	Notching	Visual							
		e)	Edge Preparation	Visual							
		f)	Profile cutting	Visual							

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					Size	Frequency				Size	Frequency
12	Marking	a)	Correctness of marking	Visual	10%	Every lot	-	Month and year to be current and Coil No. to be same as Original No.	Format no---	5% (Minimum two set)	Each lot
		b)	Legibility of Marking	Visual	10%	Every lot	-	To be legible	Format no---	5% (Minimum two set)	Each lot
13	Linking of punched Coil No. with Grade of Material	a)	Material Properties	Visual	10%	Every lot	T.C. and lab Results	To be as per respective RDSO specification	Format no---	5% (Minimum two set)	Each lot
14	Packing of sections	a)	Condition of Packing	Visual	10%	Every lot	-	Packing to be sturdy and Marking on Packing should contain complete identification details of the Products	Format no---	Minimum Two packs	Each lot
		b)	Marking on Packing								
		c)	Condition of Packed Products								