



QM-C-7.1/COUPLER/0001/A,B,J
Inspection Plan(Check Sheet)

Item: High Tensile CBC (Coupler Body, Knuckle & Yoke)
(Non-transition type)
Specn. : 48-BD-08
Amd.:
Drg. No. & Alt.: SK-62724, Alt.23 (Item-1 & 8, Item-2, Item-3)

Firm's Name :

Date (period) of Inspection :

Contract Details :

- a. Contract no. and date.
- b. Order placing authority.
- c. Specification no.
- d. Drawing no.

Quantity on order

Earlier Passed Qty.

Quantity offered for inspection on date

Consignee

Quality Control Manager of
M/s

Inspecting Official of
RDSO



Lot Size – 200 Nos.

SN	Parameters	Specified Value	Observation	
			Max.	Min.
1	Visual & Operational Check (Sample size 10%)	No cracks, hot tears, cold shuts & weld cracks and surface condition by SCRATA & Marking as per drawing Components should operate freely in assembled condition		
2	Dimensional (Sample size 10%)	By go-no go gauges (As per RDSO Drawing listed at Sn. 11)		
3	Physical Properties	Gr. E (Minimum)		
	i)Tensile Strength	84.35 Kg/mmm2/ 827.47 N/mm2		
	ii) YS	70.30 Kg/mm2 /689.64 N/mm2		
	ii)Elongation	14%		
	iii) RA	30%		
4	(i) Proof Static tension test	Max. permanent set in mm For knuckle at 181.5t - 0.76 For Coupler body at 317.5t - 0.76 Min. Ultimate Load For knuckle 295t For Coupler body 408t		
	(ii) Proof static test of yoke	Max. permanent set in mm. At 340.2t 0.76 Min.Ultimate 408t		
5	Chemical composition (Maximum%)	C-0.28-0.33 Mn-0.8-1.10 P-0.03 S-0.03 Si-0.40-0.60 Cr-0.50-0.80 Ni-0.50-0.60 Mo-0.15-0.25		
6	Microstructure of Knuckle	Fine tempered, Martensite.		
7	Hardness	Except Knuckle 241-311 BHN For Knuckle 261-291 BHN		
8	Destructive test	No blow holes ,slag inclusion, shrinkage etc.		
9	Heat treatment	Record to be checked.		
10	Weight variation	+5% to -3%		
11	Radiographic test (Sample size 5%)	ASTM E446 Level II. Location of radiography test should be as per annexure – II of specification 48-BD-08		

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1. **Visual, Operation & Marking** : Sample size-10% or min 10 nos.

	Specified	Observed Value									
		1	2	3	4	5	6	7	8	9	10
Surface defect	No cracks, hot tears, cold shuts & weld cracks and surface condition by SCRATA										
Marking	As per respective drawing										
Operation	Components should operate freely in assembled condition.										

2. **Dimensions**: Sample size-10% or min 10 nos.

Specified	Observed Value										
	1	2	3	4	5	6	7	8	9	10	
As per respective drawing and with gauges as listed by RDSO. At Sno.11 of check sheet.											

3. **Physical Test** : Sample size- one from each heat.

Mechanical Properties	Grade E (Min)	Observed Value									
		1	2	3	4	5	6	7	8	9	10
UTS	827.47 N/ mm ² or 84.35 Kg/mm ²										
YS	689.64 N/ mm ² or 70.30 Kg/mm ²										
Elongation	14%										
RA	30%										

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4. (i) **Proof Static test (Permanent set in mm):** Sample size- One per lot.

One in 6 months.

	At 181.5 t		At 317.5t		# Min.Ultimate	
	Specified	Observed	Specified	Observed	Specified	Observed
*Knuckle	0.76		-		295 t	
Coupler body	-		0.76		408 t	

* Based on testing with dummy knuckle fixture.

(ii) **Proof Static test (Permanent set in mm):** Sample size- One per lot.

One in 6 months.

	At 340.20t		# Min. Ultimate	
	Specified	Observed	Specified	Observed
Material of yoke- Grade E steel	0.76		408t	

5. **Chemical Composition:** Sample size- one from each heat.

Heat No.										
Body Sl. No.										
Qty. Cast										
Qty. Offered										
Qty. Passed										
Qty. Balanced										

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Chemical Analysis	Specified Value (Max. %)	Observed Value									
		Heat									
	Grade E	1	2	3	4	5	6	7	8	9	10
C	0.28-0.33										
Mn	0.8-1.10										
P	0.03										
S	0.03										
Si	0.40-0.60										
Cr	0.50-0.80										
Ni	0.50-0.60										
Mo	0.15-0.25										

6. **Microstructure of knuckle:** Sample size : One from each heat.

specified	Observed	1	2	3	4	5	6	7	8	9	10
Fine tempered Martensite	OK/NOT OK										

7. **Hardness :** Sample size-5% or min 5 nos.

Grade	Specified Value	Observed Value									
	BHN No.	1	2	3	4	5	6	7	8	9	10
Grade E (Except knuckle)	241-311										
Grade E (For knuckle)	261-291										

Testing should be done as per ASTM A 370.

8. **Destructive Test :** 2% should be subjected to destructive test as per annexure II (sheet 1,2,&3) of amendment 1 of Jan 04.

Specified Value	Observation	
	1	2
No Blow holes, slag inclusion and shrinkage etc. after sectioning.		

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9. Heat treatment :

Record of heat treatment to be verified as per clause 3.6. of Specn.	OK / NOT OK	
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10. Variation of Weight: One component per P.O.

Specified Value	Observation
Within +5% to -3%	

11. Radiographic test (Sample size 5%) - ASTM E446 Level II. Location of radiography test should be as per annexure – II of specification 48-BD-08.

12. Gauge Check: As per RDSO Drawing.
(Sample size-10% or min 10 nos.)

	Parameters	Gauge No. WD-84073-S-	Observation
COUPLER HEAD	10A Contour Gauge	1-RC	
	Bottom anticreep Vertical Location	2-RC	
	Bottom anticreep Horizontal Location	3-RC	
	Top anticreep Vertical Location	4-RC	
	Pivot Lug	5-RC	
	Pin Protector	6-RC	
	Pulling Lug (Knuckle side)	7-RC	
	Pivot Pin	8-RC	
	Lock chamber	9-RC	
	Lock hole	10-RC	
	Rotary Lug	11-RC	
	Shank end pinhole	12-RC	
	Coupler Shank	Shank height	15-RC
Shank butt width		17-RC	
Pin hole shank wall thickness		18-RC	
Butt rear wall thickness		19-RC	
Pivot pin hole		20-RC	
Shank height with Wear Plate		21-RC	
Shank Length (Non transition)		22-RC	
Shank butt end contour		23-RC	
Spherical butt and pin hole		24-RC	
Shank butt height	25-RC		

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COUPLER PARTS	Knuckle Bottom Pulling Lug	41-RC	
	Knuckle Movable Point	42-RC	
	Knuckle Hub	43-RC	
	Knuckle Tail Height	44-RC	
	Knuckle Top Pulling Lug	45-RC	
	Knuckle Tail Shelf	46-RC	
	Knuckle Pin Hole	47-RC	
	Knuckle Length	48-RC	
	Lock Contour guard arm side	56-RC	
	Lock Contour Knuckle Side	57-RC	
	Lock Toggle	58-RC	
	Lock Parallel & thickness	59-RC	
	Lock slot	60-RC	
	Lock Toggle arm width-GO & NO GO	61-RC	
	Knuckle Thrower Contour (Composite)	66-RC	
	Knuckle Thrower Trunion	67-RC	
	Lock lift assembly	76-RC	
	Composite Gauge for connector	77-RC	
	Composite Gauge for Hook	78-RC	
	Composite Gauge for Toggle	79-RC	
Knuckle Pivot Pin Diameter & Length	96-RC		
Yoke pin	Diameter & length	YP-1	
Yoke pin Support	Composite	YPS-1	
	Flange thickness	YPS-2	
Yoke	Mouth opening	Y-1	
	Concentricity	Y-2	
	Head height	Y-3	
	Strap thickness	Y-4	
	Strap width	Y-5	
	Strap out side width	Y-6	
	Pocket height	Y-7	
	Pocket length	Y-8	
	Back height	Y-9	
	Head width (out side)	Y-10	
	Yoke pin hole	Y-11	

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13. **Details of in process inspection conducted by inspectors during this Purchase Inspections (At least one or two in process inspection shall be done)-**

Name of process inspection	Remarks (Give in details)

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Inspecting Official of
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