



QM-C-7.1/BOGIE/0003/E

Inspection Check Sheet for Spring Loaded Side Bearer (SLSB)

Item: Spring loaded side bearer

Specn:

Drg. No. & Alt.: WD-12007-S/01 & WD-12008-S/01

1. P.O. NO.
2. RDSO CASE NO.
3. NAME OF THE FIRM
4. DATE OF INSPECTION
5. QTY. ON ORDER
6. QTY PASSED EARLIER
7. QTY. NOW OFFERED
8. QTY NOW PASSED
9. QTY REJECTED
10. DATE OF OFFER
11. CONSIGNEE
12. D. P.

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Summary of Results

Lot Size: 2000 Nos. Or Part

Sr. No.	Parameters	Specified value	Observations	
			Max.	Min.
1.0	Visual check and marking check	Free from air bubbles, surface streaks, splash mark, pin hole, voids and marking as per drg		
1.1	Dimensional check	As per drawing		
1.2	Inspection of springs	As per check sheet and drawing		
2.0	Chemical composition	%		
	C -	3.4-3.8		
	Si -	2.3 - 2.7		
	Mn -	0.3 -0.4		
	Mg -	0.035± 0.01		
	Cu -	0.8 Max		
	Ni -	2.0 Max		
	Mo -	0.30Max		
	S -	0.02Max		
	P -	0.04Max		
3.0	Micrographic properties			
	Nodularity	80% (Min.)		
	Nodule count at 100 X magnification.	100/mm ² (Min)		
	Matrix	Ausferrite		
4.0	Physical properties			
	Tensile strength (Mpa)	1050 (Min.)		
	Yield strength (Mpa)	750 (Min.)		
	Elongation in 50 mm	7 (Min.)		
	Impact energy (J)	80 (Min.)		
	Hardness (BHN)	302 – 375		
5.0	Load – deflection / Preload test			
	Preload test	Load at test setup ht. 128.5 mm		
	Solid height test	Solid height of Assembly		
6.0	Structural strength test	Housing to withstand at 94.8T vertical load		
7.0	Fatigue test of Assy.	Crack/Failure of any components		

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1.0 Visual, marking and dimensional checks(20 samples / lot):

CCSB components (top housing, bottom housing and springs) shall smooth, free from air bubbles, Splash mark, pin hole, voids etc and marking should be as per drawing.

Sample No.	1	2	3	4	5	6	7	8	9	10
Visual& marking check										
Sample No.	11	12	13	14	15	16	17	18	19	20
Visual& marking check										

1.1 (a) Dimensional checks: (TOP Housing)

Sample No.	Outer Dia. ($\varnothing 167 \begin{smallmatrix} +0.0 \\ -0.3 \end{smallmatrix}$)	Inner Dia. ($\varnothing 149 \begin{smallmatrix} +0.0 \\ -0.5 \end{smallmatrix}$)	Height (106.5 ± 0.3)	Top thick. (14 ± 0.2)	Spigot OD (60mm)	Spigot height (15mm)	Slot width (20mm)
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
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(b) Dimensional checks:(BOTTOM HOUSING)

Sam ple No.	Inner Dia. ($\emptyset 169 \begin{smallmatrix} +0.3 \\ -0.0 \end{smallmatrix}$)	Height (100 0.3)	Bottom thick. (6 ± 0.2)	CRS hole (216 ± 0.5)	Hole Dia. ($\emptyset 21.5$)	Seat dia. ($\emptyset 40$)	Housing Bas (194)
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
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1.2 INSPECTION OF INNER AND OUTER SPRINGS

Inner and Outer Springs of the CCSB are to be inspected as per RDSO spec. - WD-01 – HLS-94 and QA (Mech) Directorate RDSO Check sheet - QM-C-7.1/Spring/0002. Additionally solid height of springs should be checked and recorded.

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2.0 Chemical composition of each heat(As per ladle analysis*)

No. of heats involved in the lot offered:

Chemical composition	C	Si	Mn	Mg	Cu	Ni	Mo	S	P	C Eq.
Specified Range % → Heat No. ↓	3.4 - 3.8	2.3 - 2.7	0.3 - 0.4	0.035 ± 0.01	0.8 (Max)	2.0 (Max)	0.30 (Max)	0.02 (Max)	0.04 (Max)	4.4-4.6

*** In case of carbon content found out of range in spectrometer test, it should be confirmed by wet analysis method.**

**3.0 Micrographic properties (1 No. / Heat / Lot)
(From integral cast test coupon or finished product)**

Parameters → Heat No. ↓	Matrix (Ausferrite)	Nodularity 80% (Min.)	Nodule count at 100 X 100/mm ² (Min)

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4.0 Physical properties (1 No. / Heat / Lot, from integral cast test coupons):

Parameters→ Heat No. ↓	Tensile strength 1050MPa (Min)	Yield strength 750MPa (Min)	Elongation 7% (Min.)	Impact Energy 80J (Min.)	Harness 302-375 BHN

5.0 Load – Deflection Characteristics Test (Preload and solid height test):
Sample size - 20 CCSB samples/lot

Sample No.	Free height (mm)	Pre load at 128.5 mm (as per drg.)	Solid height 112.5±0.3mm	Load at solid height (kg)
1				
2				
3				
4				
5				
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7				
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12				
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6.0 Structural strength tests (5 Nos. / Lot):

The CCSB assembly with springs should have to be tested for a vertical load of 94.8t. For this test the CCSB assembly with springs to be loaded for 94.8t vertical load on a suitable test machine and hold load for 1-2 minute. During and after test, any component of the assembly should not observe any catastrophic failure or permanent deformation. Crack detection by suitable method may be applied before and after test.

Sample no. → vertical load ↓	1	2	3	4	5
94.8t					
Observations					

7.0 Vertical fatigue testing:

(One sample for every supply of 10,000 numbers or one year whichever is earlier)

One CCSB assembly with springs has to be fatigue tested in displacement mode about setup height (128.5mm) as per table given below. For fatigue test, any frequency or more than one frequency may be chosen as per capacity of fatigue test machine and displacement of CCSB and are to be recorded. A value of 2Hz or more is preferred.

S. No.	Amplitude (mm)	Peak to Peak (mm)	Cycles
1.	3.2	6.4	12,00,000
2.	6.4	12.8	2,40,000
3.	9.5	19.0	40,000
4.	12.7	25.4	10,000
5.	Travel	2 X Travel	2,500
			14,92,500 Cycles

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Before and after fatigue test following checks be carried out and recorded in following table-

- Crack detection of housings / springs by suitable method.
- Free height, load at set up height, load at solid height are to be recorded and load deflection graph from free to solid height to be plotted.
- There should not be any crack / failure of any component during / after fatigue test.

Parameters	Before fatigue	After fatigue	Remarks
Crack detection of housings / springs			
Free height of Assy.			
Load at set up height			
solid height of Assy.			
Load up to solid height			
Observations			

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