



---

**QM-C-7.1/Spring/0004**

**CHECK SHEET/INSPECTION PLAN**

**SPRING STEEL ROUNDS (PEELED & GROUND BARS)**

**Specn:- WD-01-HLS-94 (Rev.3), Material – IS:3195**

1. Firm's Name :-
2. Date (period) of Inspection :-
3. Contract Details :-
  - a. Contract no. and date:-
  - b. Order placing authority:-
  - c. Specification no.(as mentioned in contract):-
  - d. Drawing no. (as mentioned in contract) :-
4. Quantity on order:-
5. Quantity previously passed:-
6. Quantity offered for inspection on date:-
7. Quantity passed:-
8. Quantity balance after this:-
9. Consignee:-
10. Delivery Period:-

**(Check Sheet duly filled for first stage inspection of as rolled/annealed bars should be attached)**

QC INCHARGE OF M/s

RDSO INSPECTION OFFICIAL

### SUMMARY OF RESULT

Sr No	Parameters		Specified Value							Observation	
										Max.	Min.
1.	Visual Check		No tool marks, grooves, dent marks or black spots								
2.	Dimensional Check		Tolerance in diameter $\pm 0.05$ mm or as specified in PO								
3.	Straightness		1 mm per meter (max)								
4.	Hardness		1. <b>For Grade 60Si7 (annealed)</b> : 245 BHN max.(or as per PO) 2. <b>For Grade 52Cr4Mo2V (annealed)</b> : 255 BHN max.(or as per PO)								
5.	Inclusion rating		<b>1.5 ABCD for thin series as per IS:4163</b>								
			<b>1.0 ABCD for thick series as per IS:4163</b>								
6.	Depth of decarburization		No decarburization ( Partial or total) shall be permitted on centreless ground bars								
7.	Magnaflux test		Open seams or closed seams upto a depth of 1mm from the surface are not acceptable.								
8.	Surface roughness		Ra value of 5 microns (max)								
9.	Chemical compositions As per IS: 3195										
	SS round grade		C	Si	Mn	S (max)	P (max)	Cr	V	Mo	Pb + As + Sn
a.	52Cr4 Mo2V	Specified	0.48 - 0.56	0.15- 0.40	0.70 - 1.10	0.025	0.025	0.90 - 1.2	0.07 - 0.12	0.15 - 0.25	0.1% max
		Observed									
b.	60Si7	Specified	0.55 - 0.65	1.5 - 2.0	0.80 - 1.0	0.025	0.025	--	--	--	0.1% max.
		Observed									

**1. Visual Check**

Sample Size:-

2% per heat per section.

Actual Sample Size:-

SN	Sample No.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1	Freedom from defects										
2	Marking (para 2.1.4 of spec.)										
3	Colour coding										

Total nos. of defectives:-----

Please use following defect codes for visual check while filling up the check sheet:

0 - No defect, 1 - Tool marks, 2 – Grooves, 3 - Dent marks, 4 - Black spot

**2. Dimensional Check.**

Sample Size:- 10 bars per heat per section

Actual Sample:-

Value Specified:- (i) Dia.-----mm (tolerance in diameter  $\pm 0.05$  mm or as specified in PO)

(ii) Length -----mm as per PO

SN	Sample No.	1	2	3	4	5	6	7	8	9	10
1	Length										
2	Diameter										
Defect code											

Total nos. of defectives:- -----

Please use following defect codes while filling up the check sheet:

0 No defect, 1 Excess Length, 2 Shorter Length, 3 Excess Diameter, 4 Lesser diameter.

**3. Out of Straightness.**

**Sample size:- 2 bars per heat per section**

**Actual sample size:-**

Value Specified:- 1 mm/m (max)

SN	Sample No.	1	2
1	OK/Not OK		

#### 4. Hardness

Sample Size: - 1 bar per heat per section

Actual Sample:-

Value Specified: 1. **For Grade 60Si7 (annealed)** : 245 BHN max.(or as per PO)

2. **For Grade 52Cr4Mo2V (annealed)** : 255 BHN max.(or as per PO)

Sample No.	<b>1</b>	
Diameter of Indentation (mm)	I	
	II	
	Avg.	
Hardness (BHN)		
Defect Code		

Total nos. of defectives.-----

Defect Codes

0 - Hardness as specified, 1 - Hardness more than specified, 2 - Hardness less than specified.

#### 5. Inclusion rating.

Sample Size: - 1 bar per heat per section.

Actual Sample:-

Value Specified:- Not worse than 1.5 A, B, C & D for thin and 1.0 A, B, C & D for thick series when compared to chart of IS:4163.

Sample No.		<b>1</b>
A	THIN	
	THICK	
B	THIN	
	THICK	
C	THIN	
	THICK	
D	THIN	
	THICK	

## 6. Depth of Decarburization

Sample Size: 1 bar per heat per section Heat No.: Size of section:

Actual Sample

Value Specified: No decarburization (Partial or total) shall be permitted on centreless ground bar

Sample No.	1	2
Depth of Decarb(mm)		
Defect Code		

Total nos. of defective -----

0 No Defect

1 Depth of Decarb more than specified.

## 7. Magnaflux test (as per IS 3703) :

Sample Size:- 5 bars per heat per section.

Actual Sample:-

SN	Sample No.	1.	2.	3.	4.	5.
1	OK/Not OK					

## 8. Surface Roughness

Sample Size: 10 bars per heat per section.

Actual Sample size:-

Value Specified:- (Ra value 5 micron max.)

SN	Sample No.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10
1	OK/Not OK										

## 9. Chemical Composition.

Sample Size:- 1 Sample per heat per heat per section

Actual Sample:-

Value Specified:- As per IS 3195 or as per PO

	SS round grade	C	Si	Mn	S (max)	P (max)	Cr	V	Mo	Pb + As + Sn	
a.	52Cr <sub>4</sub> Mo <sub>2</sub> V	Specified	0.48- 0.56	0.15- 0.40	0.70 - 1.10	0.025	0.025	0.90 - 1.20	0.07 - 0.12	0.15 - 0.25	0.1% max
		Observed									
b.	60Si7	Specified	0.55- 0.65	1.5 - 2.0	0.80 - 1.0	0.025	0.025	--	--	--	0.1% max.
		Observed									

QC INCHARGE OF M/s

RDSO INSPECTION OFFICIAL

