

ISO 9001:2015	Document No: TDG 0022	Version No: 3.0	Date Effective: 10.05.2022
Document Title: Item Specific Guidelines & Schedule of Technical Requirements for Vendor Approval for manufacture and supply of Improved Switch Expansion Joints.			



RESEARCH DESIGNS & STANDARDS ORGANISATION
Manak Nagar, Lucknow – 226011

Document No. : TDG 0022

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1.0 Amendment History:

S.No.	Amendment Date	Version	Reason for Amendment
1.	29.12.2009	0.0	First Issue
2.	23.12.2011	1.0	Second Issue
3.	30.04.2015	2.0	Up-gradation quantity from Part-1 to Part-2 revised. Para added regarding failure reported by Railway and its investigation.
4.	10.05.2022	3.0	Eligibility criteria for SEJ deleted, Planning Machine requirement replaced with CNC Plano Milling Machine, Chamfering tool added, Quantity of torque wrench revised, requirement of PSC Sleeper set for layout added, Para regarding failure reported by Railway and its investigation deleted and Para 5) & 6) in 'Section – III Declaration' added. Earlier Document uploaded as QC-G-7.1-22 is renamed as TDG 0022, Inclusion of Curved ISEJ for curves more than 2° and up to 4°

2.0 Purpose:

This Item Specific Guidelines covers all technical requirements for manufacture and supply of Improved Switch Expansion Joints used for Fresh Vendor Registration / Quality Audit of Vendor. These guidelines replaces the provisions of earlier guidelines issued on the similar subject i.e. TDG 0022, Rev '2' effective from 30.04.2015.

3.0 Scope of Application:

This shall be applicable for Fresh vendor registration, Quality Audit, up-gradation of Vendors and maintaining their approved list of vendors. In case of any variation between the procedure / provision given in the work instructions and that in this 'Item Specific Guidelines', the later shall prevail.

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4.0 Procedure / Details: Procedure / details are annexed.

5.0 Reference Documents:

S. No.	Document Name	Document No.
1.	INDIAN RAILWAY STANDARD SPECIFICATION FOR FABRICATED SWITCHES AND CROSSINGS WELDED/HEAT TREATED CROSSINGS AND SWITCH EXPANSION JOINTS (SEJ), 2000	IRS: T-10-2000
2.	TECHNICAL SPECIFICATION FOR IMPROVED SEJ - Provisional' 2008 (Drg. No. RDSO/T-6902 to 6921)	Nil
3.	TECHNICAL SPECIFICATION FOR IMPROVED SEJ - Provisional' 2008 (Drg. No. RDSO/T-6922 to 6934)	Nil

6.0 Reference Documents of External Origin:

None.

7.0 Associated Records:

None.

8.0 Responsibility and Authority:

Activity	Responsible	Approver	Supporting	Consulted	Informed
Creation, maintenance of this document	ED/Track Design-II/ Director/Track Design-III	PED/Infra - I	DD/AIE/ ADE	M&C Dte.	All vendors / concerned through website
Compliance of directives contained in this document	DD/AIE/ADE	Director/ Track Design-III	-	-	-
Requirement of deviation from this directive	ED/Track Design-II/ Director/Track Design-III	PED/Infra - I	DD/AIE/ ADE	M&C Dte.	All vendors / concerned through website

9.0 Abbreviations:

PED/Infra - I	Principal Executive Director/ Infrastructure - I
ED/ Track Design-II	Executive Director/ Track Design-II
RDSO	Research Designs & Standards Organisation
M&C Dte.	Metallurgical & Chemical Directorate
DD	Deputy Director
AIE	Assistant Inspecting Engineer
ADE	Assistant Design Engineer

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Schedule of Technical Requirements for manufacture, testing and quality control of Improved Switch Expansion Joints.

1. General and Manufacturing facilities required:

Adequate covered and uncovered area for storage of finished material and installation of all plants and equipment including testing equipment. General working condition i.e. proper lighting, ventilation and cleanliness etc.

2. Quality control requirements: There should be a system to ensure –

2.1 The traceability of the product from raw material sample to finished product.

2.2 That there is a QAP for the product detailing various aspects.

- (i) Organisational Chart
- (ii) Process Flow Chart
- (iii) Stage Inspection Details

2.3 That the relevant specifications, BIS Standards & Drawings are available.

3. Maintenance of records:

Records in respect of manufacture of Improved Switch Expansion Joint should be maintained in proper register.

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A. ITEM SPECIFIC GUIDELINES OF IMPROVED SWITCH EXPANSION JOINTS (SEJ)

In addition to the provisions given in the ‘ISO Apex Documents of RDSO (Latest version)’, the following specific guidelines shall also be applicable to vendors for Improved Switch Expansion Joints (SEJ):

1. The vendor list shall be maintained for Improved SEJ of two designs – one for 80 mm gap maximum (Drawing no. RDSO/T- 6902, RDSO/T-6914 & RDSO/T-8924) and another for 65 mm gap maximum (Drawing no. RDSO/T-6922, RDSO/T-6930 & RDSO/T-8926) separately.
2. After assessment of the works and checking of two sets of inspection gauges in accordance with the ‘ISO Apex Documents of RDSO (Latest version)’, the prototype (s) shall be offered for inspection by the firm. Checking of Inspection gauges not required for variant RDSO/T-8924 & RDSO/T-8926 in case the firm is in vendor list for variant RDSO/T-6902 & RDSO/T-6922 respectively.
3. For the purpose of initial assessment of Improved Switch Expansion Joints, the firm shall be required to manufacture prototype (s) of a particular design/ Drawing comprising of all components as per part list of the respective drawings, forming one complete set of Improved SEJ.
4. The firm shall be considered for inclusion in Developmental list of vendors of a particular design after fulfillment of all requirements as per ‘ISO Apex Documents of RDSO (Latest version).’
5. For the purpose of Quality Audit of Improved Switch Expansion Joints, one sample set of Improved SEJ of 52 kg or 60 kg rail section of a particular design will be offered for inspection.
6. The gauges shall be approved / revalidated at the time of inspection of infrastructural facilities during assessment / Quality Audit of the firm.
7. The firm shall be considered for up-gradation from Developmental to Approved subject to the condition that it has supplied at least 100 Improved SEJ (combined for the drawings of 60 kg and 52 kg rail sections) of that particular design and fulfills the criteria as mentioned in ‘ISO Apex Documents of RDSO (Latest version).’
8. In case of recurrence of failures reported by user Railway (s), actions shall be taken as given in ‘ISO Apex Documents of RDSO (Latest version).’

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B. MINIMUM FACILITIES & MACHINERIES REQUIRED FOR MANUFACTURING AND SUPPLY OF IMPROVED SWITCH EXPANSION JOINTS (SEJ)

S.N.	Description	Minimum facilities / machinery considered essential	
		Minimum Capacity	Minimum Quantity
1	Gantry crane	2 -5 T	1 No.
2	Circular / band saw	900 mm dia	1 No.
3	Hydraulic horizontal bending/straightening machine, hydraulic / mechanical vertical press	350-500 T	1 No.
4	CNC Plano Milling Machine*	To enable minimum 8.0-8.5m planning length of rail with surface roughness of 3-7 micron	1 No.
5	Chamfering tools	Hand held Power drill machine with suitable size of Chamfering bits appropriate for Chamfering of all types of holes of ISEJ	1 No.
		Hand held Angle grinder	1 No.
6	Shapers	600 mm stroke	2 Nos.
7	Radial drill	32 mm dia.	2 Nos.
8	Induction hardening machine for continuous head hardening of rails	300 kW (min.) with temperature measuring device 600° - 1100° C to achieve hardness as per Technical Specification for Improved SEJ to Drg. No. RDSO/T-6902 - 6914 & Drg. No. RDSO/T-6922 - 6930.	1 Set
9	UTM machine	100 T	1 No.
10	a) BHN/Rockwell and	BHN hardness tester with ball size 2.5 to 10 mm dia.	One each
	b) Poldi	-	
11	Chemical lab	For chemical analysis of MS, medium and low alloy steel	One unit installed in house
	OR Spectrometer	OR One spectrometer having vacuum emission CCD/PMT with printing facilities should be available for carrying out chemical analysis	OR 1 No. Spectrometer
12	Testing facility	1. USFD Machine 2. DP Test Kit 3. MP Test Kit 4. Surface Roughness Tester	One each

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		5. Charpy Impact Testing Machine 6. Metallurgical Microscope 7. Polishing Machine	
13	Torque wrench	Calibrated for force applied	02 Nos.
14	CO ₂ / MIG Welding Equipment	-	1 No.
15	Jigs & Fixture for Drilling Rails	-	1 Set
16	Assembly and Inspection Bay	-	A separate area to be dedicated with proper levelled floor and PSC Sleeper for its layout.
17	Dedicated area with all above machines installed in proper flow line (covered area)	-	700 sq.m

*The CNC Plano Milling Machine shall be installed and shall be in working order at the firm's premises in India to handle rails in the required length in one setup for milling operation along all x, y & z axes without handling / re-handling of rails involved in fabrication of Improved SEJs. The firm shall furnish complete details of this machine such as performance characteristics, machining length, number of milling heads, make & photographs etc.

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C. PROFORMA FOR TECHNICAL CAPABILITY ASSESSMENT OF FIRMS FOR MANUFACTURING AND SUPPLY OF IMPROVED SEJ

(To be filled in by the firm in duplicate. Attach extra sheets wherever necessary)

SECTION-I: GENERAL INFORMATION (For record purpose only)

1. Name of the Firm

2. Postal Address of
 - (a) Head Office

 - (b) Works

3. Telephone No. (with STD Code) / Mobile cum whatsapp number
 - (a) Head Office

 - (b) Works

4. Fax & E – mail address
 - (a) Head Office

 - (b) Works

5. GST Identification Number of firm

6. Description of works
 - 6.1 Total Land Area (in sqm)
 - 6.2 Total covered area (in sqm)
 - 6.3 Different sub-units
 - 6.4 A fully dimensioned plan of the works showing covered area and different shall be enclosed:
 - 6.5 Special features, if any

7. Number of personnel employed (category wise)
 - 7.1 Managerial
 - 7.2 Supervisory
(Enclose list of Managers / technical supervisors)
 - 7.3 Skilled/Artisan
 - 7.4 Un-skilled

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8. Hours of Working
9. Weekly off day
10. Details of important orders executed in the past, in reference to the supplies made.
 - 10.1 To other important firms / companies / undertakings.
 - 10.2 Directly to the railways.

SECTION-II:

TECHNICAL INFORMATION

1. Production capacity
 - (i) Per month
 - (ii) Per year
2. Type of stores / items / which firm is capable of manufacturing
3. Crane facilities No. of cranes Make of crane Capacity
 - 3.1 EOT Crane
 - 3.2 Chain – pulley block
 - 3.3 Mobile Crane
 - 3.4 Jib Crane
4. Total Power Availability (in kVA / kW)
 - (a) From the state electricity Board or other regular source
(Enclose a copy of electricity bill)
 - (b) From own stand by generating sets
(Also give make, capacity and other details of each generating set)
5. Machines; As per STR given at Page 5 & 6.
(for manufacturing & supply of Improved Switch Expansion Joints and related components)
6. Handling facilities
It should be mentioned whether there is proper facilities for handling for finished Improved SEJ.
7. A fully dimensioned plan of the works showing locations of various equipment and facilities for manufacture of Improved SEJs, flow line indicating locations of various operations during manufacture in proper sequence and storage facilities for finished products and dispatch may please be enclosed.

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QUALITY ASSURANCE:

1. Does the factory have any established Quality Assurance Programme as per ISO: 9001 Series? If yes, please enclose a copy of the ISO Certificate.
2. Details of Quality Assurance organization: Name of key personnel, their qualification, designations and positions in overall management structure (enclose organizational chart for quality control).
3. Testing facilities and laboratory equipments available to be listed along with the make, year of procurement and commissioning.
4. Calibration of laboratory test equipments / gauges, indicated in Para 3 above (enclose a copy of calibration certificates).
5. Frequency of calibration (Yearly).
6. Source of procurement of raw materials / bought out components and steps taken to ensure their quality.
7. Brief details of manufacturing process as relevant to the items for which registration is sought.
8. Details of inspection / checks done on material during various stages of the above manufacturing process (enclose a copy of approved QAP).
9. Has the acceptable value of the parameters inspected during above stage checks been laid down? If yes, the action taken if value of the parameters inspected does not meet the desired laid down value.
10. System for documentations of the result so of the above stage checks.
11. Whether one sample set of Improved SEJ is ready for inspection during reassessment / Quality Audit (Report to be submitted by inspecting officials).
12. Whether the firm is possessing officially issued prints of relevant drawings and specifications.

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SECTION-III: DECLARATION

- 1) We do hereby declare that the above particulars are correct and no discrepancy shall be found during actual investigation before and during execution of order on our firm.
- 2) Any change in the plant & machinery, place of office and place of Works premises shall be brought to the notice of RDSO for clearance and approval.
- 3) We also declare that our concern has not been blacklisted by Railway / Railway Board / RDSO for business with the Railways.
- 4) We hereby undertake that all our equipments for manufacture and testing as listed above shall be maintained in good working order at all time.
- 5) We hereby declare that the contents and instructions of ISO Apex Documents of RDSO have been read by us and our firm shall agree to abide by all the stipulations laid therein.
- 6) We hereby undertake to maintain the record of the procurement of raw material for production of Improved Switch Expansion Joints, supply of Improved Switch Expansion Joints. & disposal of scrap of Improved Switch Expansion Joints in the proper format.

Place:

Signature of Manufacturer
Office Seal

Date:

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