

ISO9001:2008	Document No: QC-G-7.1-22	Version No: 2.0	Date Effective: 01.10.2020
Document Title: Item Specific guideline & Schedule of Technical Requirements for Vendor approval for manufacture and supply of Improved Switch Expansion Joints .			



RESEARCH DESIGNS & STANDARDS ORGANIZATION
Manaknagar, Lucknow – 226011

Document No: QC-G-7.1-22

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1.0 Amendment History:

S. No.	Amendment Date	Version	Reasons for Amendment
1.	01.12.2001	1.0	First issue under new documentation system
2.	30.04.2015	2.0	Part 1&part-2 is added,Failure reported by Railway and its investigation.
3.	01.10.2020	3.0	Requirement of ISEJ condition deleted. Planning Machine requirement as per Specification.

2.0 Purpose:

This guideline covers all technical requirement for manufacture and supply of Improved Switch Expansion Joints used for vendor registration/ quality audit of vendor. This guideline replaces the provisions of earlier guidelines issued on the subject i.e. QC-G-7.1-22 rev '2'

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3.0 Scope of Application

This shall be applicable for initial capability assessment, quality audit, up-gradation of vendors and maintaining their approved list. In case of any variation between the procedure/provision given in the work instruction and that in this 'Item-specific guidelines', the later shall prevail. The competent authority wherever referred to in this document shall mean Executive Director, Quality Assurance Civil Dte.

4.0 Procedure / Details

Procedure/details is annexed.

5.0 Referenced Documents

S.No.	Document Name	Document No.
1.	IRST-10	Nil
2.	TECHNICAL SPECIFICATION FOR IMPROVED SEJ-PROVISIONAL '2008(Drawing No.RDSO/T-6902 to RDSO/T-6921)	Nil
3.	TECHNICAL SPECIFICATION FOR IMPROVED SEJ-PROVISIONAL '2008(Drawing No.RDSO/T-6922 to RDSO/T-6934)	Nil

6.0 Referenced 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	Director/QAC	ED/QAC	DD/XEN/AIE/ARO	Track Design Dte. & M&C Dte.	All vendors/ concerned through website
Compliance of directives contained in this document	DD/XEN/AIE/ARO	Director/QAC	Respective staff	-	-
Requirement of deviation from this directive	Director/QAC	ED/QAC	DD/XEN/AIE/ARO	Track Design Dte. & M&C Dte.	All vendors/ concerned through website

9.0 Abbreviations

QA	Quality Assurance.
QAC	Quality Assurance Civil.
ED/QA	Executive Director/Quality Assurance Civil
RDSO	Research Designs & Standards Organisation
DD	Dy. Director
XEN	Executive Engineer
AIE	Assistant Inspecting Engineer.
ARO	Assistant Research Officer

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Scheduled 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.
- 3.0 Maintenance of records: Records in respect of manufacture of Improved Switch Expansion Joint should be maintained in proper register.

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ITEM SPECIFIC GUIDELINES OF IMPROVED SWITCH EXPANSION JOINTS (SEJ)

In addition to the provisions given in the '~~General Guidelines for vendor development~~' of QA Civil ~~Track Design~~ Directorate, 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) and another for 65 mm gap maximum (Drawing no. RDSO/T-6922 & RDSO/T-6930) separately.
2. After assessment of the works and checking of two sets of inspection gauges in accordance with the '~~General Guidelines for vendor development~~' **ISO Apex Document-Latest Version.**, the prototype(s) shall be offered for inspection by the firm.
3. For the purpose of assessment of Improved Switch Expansion Joints, the firm shall be required to manufacture prototype of a particular design comprising of all components as per part list of the respective drawings, forming one complete set of improved SEJ i.e. of 52 kg or 60 kg rail section.
4. The firm shall be considered for inclusion in Developmental list ~~Part-II~~ of vendors of a particular design after the approval of prototype and fulfillment of all other requirements as per '~~General guidelines for vendor development~~' **ISO Apex Document-Latest Version.**
5. For the purpose of re-assessment/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/re-assessment/ quality audit of the firm.
7. The firm shall be considered for up-gradation from ~~Part-II~~ Developmental to ~~Part-I~~ 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 ~~General guidelines for vendor development~~ **ISO Apex Document-Latest Version of QA Civil ~~Track Design~~ Directorate.**
8. In case of recurrence of failures reported by user Railway(s), the following actions shall be taken in addition to those given in '~~General Guidelines for Vendor Development~~' **ISO Apex Document-Latest Version:**

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- ~~8.1. Joint inspection of the failed products shall be carried out by RDSO with representatives of the manufacturing firm and user railway for verification of failure report and to find out nature of defects/deficiencies in product, seriousness of failure and possible causes of failures. As per ISO Apex Document –Latest Version.~~
- ~~8.2. Based on the joint inspection report, if there are sufficient prima-facie reasons to believe by RDSO that the failures are due to manufacturing defects, the production and inspection of the product would be suspended and testing of failed products would be carried out at RDSO for investigation of the cause of failure to substantiate initial observations. Quality Audit of the firm shall be undertaken as per provisions given in ‘General Guidelines for Vendor Development’. The production and inspection shall be restored in case of satisfactory Quality Audit and if no lapse is found on the part of firm for the failed products. In case any discrepancy is observed, in testing and Quality Audit, the firm shall be served show cause notice to improve upon the performance and further action shall be taken as per provisions given in General guidelines for vendor development. As per ISO Apex Document –Latest Version.~~
- ~~8.3. Apart from the possible defect/deficiencies in the manufacturing of product by the supplier, investigation should also bring out the need for revision/strengthening of inspection plan to trace out the defect at the time of inspection in manufacturing premises. If required, the guidelines for laying and maintenance of particular product may also be modified/issued to field units to achieve the desired service life of product, in case the reason for failure is found to be on account of the user railway. As per ISO Apex Document -Latest Version.~~

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MINIMUM FACILITIES & MACHINERIES REQUIRED FOR MANUFACTURING AND SUPPLY OF IMPROVED SWITCH EXPANSION JOINTS

SN	Description	Minimum facilities / machinery considered essential	
		Min. Capacity	Min. 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	Planning machine	To enable 8.0 - 8.5m planning length of rail with surface roughness of 3 -7 micron or <u>required by respective specification.</u>	1 no.
5	Shapers	600 mm stroke	2 nos.
6	Radial drill	32mm dia.	2 nos.
7	Vertical Milling Machine	No.4	1 no.
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.	01 set
9	UTM machine	100 T	1 no.
10	Hardness testers a) BHN/Rockwell and b) Poldi	BHN hardness tester with ball size 2.5 to 10 mm dia -	One each
11	Chemical lab	For chemical analysis of MS, medium and low alloy steel	One unit installed in house
12	Testing facility	1. USFD machine 2. DP test kit 3. MP test kit 4. Surface roughness tester 5. Charpy Impact testing machine 6. Metallurgical microscope 7. Polishing machine	One each
13	Torque wrench	Calibrated for force applied	01-02 no. (one for SG 80mm and one for 65mm)
14	CO ₂ /MIG Welding Equipments	-	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

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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 triplicate. 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)
 - (a) Head Office
 - (b) Works
4. e-mail address

(a)	Head Office
(b)	Head Office
(b) Works	
5. Description of works
 - 5.1 Total Land Area (in sqm)
 - 5.2 Total covered area (in sqm)
 - 5.3 Different sub-units
 - 5.4 A fully dimensioned plan of the works showing covered area and different shall be enclosed
 - 5.5 Special features, if any.
6. Number of personnel employed (category wise)
 - 6.1 Managerial
 - 6.2 Supervisory
(Enclose list of Managers / technical supervisors)
 - 6.3 Skilled/ Artisan
 - 6.4 Un-skilled
7. Hours of Working

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8. Weekly off day

~~9. State whether the firm is already in approved list with RDSO for supply of IRS Design of Switch Expansion Joints/Fabricated curved switches. If so please give details of last approval.~~

~~9.1 Letter no. & date and issued by~~

~~9.2 Date of validity of approval~~

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/Chain-pully block
 - 3.2 Mobile crane
 - 3.3 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 standby generating sets
(Also give make, capacity, and other details of each generating set)
5. Machines; As per STR given at page 4.

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(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 equipments 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:

- Does the factory has any established quality assurance programme as per ISO: 9000 series. If yes, please enclose a copy of the ISO certificate.
- Details of Quality Assurance Organization: Name of key personnel, their qualification, designations and positions in overall management structure (enclose organizational chart for quality control).
- Testing facilities and laboratory equipments available to be listed along with the make, year of procurement and commissioning.
- Calibration of laboratory test equipments/gauges, indicated in Para 3 above (enclose a copy of calibration certificates).
- Frequency of calibration (Yearly).
- Source of procurement of raw materials/bought out components and steps taken to ensure their quality.
- Brief details of manufacturing process as relevant to the items for which registration is sought.
- Details of inspection/checks done on material during various stages of the above manufacturing process (enclose a copy of approved QAP).
- 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.
- System for documentations of the results of the above stage checks.
- Whether one sample set of Improved SEJ is ready for inspection during reassessment /Quality Audit (Report to be submitted by inspecting officials

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