



**Government of India  
Ministry of Railways**

**DOCUMENT NO. TDG 0022, Rev. '2'**

**ITEM SPECIFIC GUIDELINES  
FOR IMPROVED SWITCH EXPANSION JOINTS**

**TRACK DESIGN DIRECTORATE**

**RESEARCH DESIGNS & STANDARDS ORGANISATION  
MANAK NAGAR, LUCKNOW - 226011**

### **A. ITEM SPECIFIC GUIDELINES**

In addition to the provisions given in the 'General Guidelines for vendor development' of 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', 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 Part–II list of vendors of a particular design after the approval of prototype and fulfillment of all other requirements as per 'General guidelines for vendor development'.
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 to Part-I 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 of 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':
  - 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.
  - 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.

- 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.

**B. 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.	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 no.
14	CO <sub>2</sub> /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
17	Dedicated area with all above machines installed in proper flow line (covered area)	-	700 sq.m

**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) 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

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.  
(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.

**QUALITY ASSURANCE:**

1. Does the factory has any established quality assurance programme as per ISO: 9000 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 results 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.



### **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.

Signature of Inspecting Engineer

Signature of Firm's representative  
with stamp