

ISO9001:2008	Document No: QC-G-7.1-21	Version No: 1.0	Date Effective: 01.10.2020
Document Title: Item Specific guideline & Schedule of Technical Requirements for Vendor approval for manufacture and supply of Cast Manganese Steel Crossings.			



**RESEARCH DESIGNS & STANDARDS ORGANISATION
Manaknagar, Lucknow – 226011**

Document No: QC-G-7.1-21

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1.0 Amendment History:

S. No.	Amendment Date	Version	Reasons for Amendment
1.	26.11.2011	1.0	First issue under new documentation system.
2.	01.10.2020	2.	<p>STR of all CMS Crossings (Combined of two STRs, STR for RT- 3940 /4734/4967/4867 CMS Crossing and STR for RT- 5265/5693 CMS Crossing) .</p> <p>initial capability assessment replaced by Fresh vendor registration; "General Guidelines for Vendor Approval " is replaced by " ISO Apex Document-Latest Version";</p> <p>re-assessment quality audit; part-II is replaced by Development Vendors ; part-I is replaced by approved Vendor; RENEWAL is replaced by QUALITY AUDIT;</p> <p>Additions</p> <p>item master uploaded on RDSO website under 'Vendor Interface ' on RDSO Vendor Registration Portal –http://www.rds.indianrailways.gov.in is added in (v) of ITEM SPECIFIC GUIDELINES FOR ASSESSMENT–FRESH VENDOR REGISTRATION / REASSESSMENT QUALITY AUDIT OF FIRMS MANUFACTURING CAST MANGANESE STEEL CROSSINGS;</p> <p>Mobile no cum what app number</p> <p>GST number of Firm is added ASSESSMENT PROFORMA FOR APPROVAL OF MANUFACTURE (FRESH / RENEWAL– QUALITY AUDIT) OF CAST MANGANESE STEEL CROSSING; We undertakes that ISO Apex Documents shall be read and abided by our company. is added in SECTION-I GENERAL INFORMATION as S.I.no (v)</p>
3.			
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2.0 Purpose:

This guideline covers all technical requirement for manufacture and supply of Cast Manganese Steel Crossings used for Fresh 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 '1' & ~~QC-G-7.1-36(Combined)~~.

3.0 Scope of Application

This shall be applicable for ~~initial capability assessment~~ **Fresh vendor registration**, 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-29	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

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XEN	Executive Engineer
AIE	Assistant Inspecting Engineer.
ARO	Assistant Research Officer

Scheduled of Technical Requirements for manufacture, testing and Quality control of Cast Manganese Steel Crossings.

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 Cast Manganese Steel Crossings should be maintained in proper register.

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ITEM SPECIFIC GUIDELINES FOR ~~ASSESSMENT~~ FRESH VENDOR REGISTRATION / ~~REASSESSMENT~~ QUALITY AUDIT OF FIRMS MANUFACTURING CAST MANGANESE STEEL CROSSINGS

In addition to the "~~General Guidelines for Vendor Approval~~ ISO Apex Document-Latest Version " the following shall also be applicable for ~~assessment~~ **fresh vendor registration** / ~~re-assessment~~ **quality audit** of firms for manufacturing CMS Crossings.

- i) **The list shall be common for 1:8:5 and 1:12 crossings for 52kg and 60kg rail section and also for 1:8.5 obtuse crossing and 1:16 acute crossings for 52 kg and 60 kg rail section. The firm should be in possession of all the requisites of Class 'A' foundry as per Bureau of Indian Standards at the time of initial approval.**
- ii) The firm shall be required to manufacture two sets of each design of CMS Crossings for Internal Development. During Internal Development, all types of tests as mentioned in the relevant specifications shall be carried out by the firm. Seven stage inspections shall be required to be carried out during internal development.
- iii) After successful completion and approval of Internal Development, the firm shall be asked to produce eleven sets of proto-types of at least one design under consideration (including one set of each design for solidity test). The initial approval shall be given to the firm by the competent authority after the approval of all the above offered proto-type and fulfilling other requirements as per ~~General Guidelines for Vendor Approval~~ **ISO Apex Document-Latest Version**.
- iv) For the purpose of re-assessment the firm shall be required to produce two samples of CMS Crossings for inspection by RDSO officials (including one sample for solidity test) and both should pass the tests.
- v) The gauges shall be approved / revalidated at the time of inspection of infrastructural facilities during ~~assessment~~ **fresh vendor registration** / ~~reassessment~~ **quality audit** of the firm.
- vi) The inspection gauges, internal development and proto-type shall be approved by RDSO for each design of CMS Crossings on order before start of regular production.
- vii) **Up-gradation of Vendor from ~~part-II~~ Development Vendors to ~~part-I~~ approved Vendor shall be done as per “~~General Guideline of Vendor Approval~~ ISO Apex Document-Latest Version and item master uploaded on RDSO website under ‘Vendor Interface ‘ on RDSO Vendor Registration Portal – <http://www.rds.indianrailways.gov.in> ”. Vendor should have supplied minimum 100 CMS Crossings of that particular design. In addition, it should have achieved achieved desired consistent quality in their finished product**

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measured in terms of rejection rate which should be less than 5% (combining internal and external) inspection) before consideration for upgradation. The rejection rate shall be measured with respect to the last 100 CMS crossings of that particular design manufactured and supplied by the vendor.

MINIMUM FACILITIES & MACHINERIES REQUIRED FOR MANUFACTURE OF CMS CROSSING

S. No.	Description	Minimum Capacity	Minimum Quantity
1.	Covered Area	2000 Sq. m	2000 Sq. m.
2.	Sand Mullers	500 Kg. 300 Kg.	One No. One No.
3.	Sand Testing laboratory	With standard Equipment's	One Complete Set
4.	Patterns / Core making facilities	As required	One set.
5.	Mould / Core Drying facilities & mould boxes	As required	One set
6.	Electric Arc Furnace (with other refining & alloying facilities) and temperature measuring equipment	5 T (approx.)	One No.
7.	Ladle for molten metal	5 T	One No.
8.	Heat treatment furnace	6m long with matching width x height	One No.
9.	Shot blasting arrangement (complete)	-	One No.
10.	Quenching tank (with water circulating & agitating facility with digital temperature measuring equipments)	6m x 2.5m x 2.5m	One No.
11.	Fettling Equipment a) Oxy cut b) Grinders	As required As required	One No. Five Three Nos.
12.	Hydraulic Press	400 T	One No.
13.	Welding facility for Austenitic manganese steel with proper cooling arrangements	-	One set
14.	Finishing Equipments a) Pneumatic or rotary grinder b) Fettle Arc machine/machine c) Heavy duty planers or Plano millers d) Marking Table (with measuring instruments)	- - 6m stroke 6 x 1m	Five Three Nos. One No. One No. One No.

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15.	Testing Machines / Facilities a) Vacuum spectrometer b) UT machine c) Brinell Hardness Testing Machine d) Poldi hardness Testing Kit e) DP Testing Equipment f) Polishing Polishing g) Metallurgical Microscope h) Radiograph Check Up Arrangement	- 40 T	One No. One No. One No. One No. One No. One No. One No. One No.
16.	Handling equipments	5 T	One No.
17.	EOT Cranes	10 T	Two Nos. in each bay.
18.	Inspection Bay	--	Separate levelled area should be dedicated for proper inspection of finished crossings with Suitable No of Stands and their end fittings.
19.	Dedicated area with all above machineries installed in a proper flow line.	--	2000 1800 Sq. m.

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**ASSESSMENT PROFORMA FOR APPROVAL OF MANUFACTURE
(FRESH / ~~RENEWAL~~ **QUALITY AUDIT**) OF CAST MANGANESE STEEL
CROSSING
(TO BE PREPARED IN DUPLICATE)**

SECTION-I GENERAL INFORMATION

1. Name of the firm

2. Postal address of

Head Office

Works

3. Telephone No. (with STD Code)/Mobile no cum what app number****

Head office

Works

4. Fax & E-mail address of

Head Office

Works

E-mail address

5. GST number of Firm

6 Description of Works

Total land area (in Sq. metres)

Total covered area (in Sq. metres)

Different sub-units

A fully dimensioned plan of the works showing Covered area and different shops shall be enclosed.

5.4 Special features, if any

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6.0 Number of personnel employed (category-wise)

6.1 Managerial

6.2 Supervisory (Encl. list of managers / Tech. Supervisors)

6.3 Skilled / Artisans

6.4 Unskilled

7.0 Hours of working

8.0 State whether the firm is already in the approved list of vendors with RDSO for supply of CMS Crossing. If so, please give details of last approval.

8.1 Letter date and issued by

8.2 Date of expiry of validity of approval

9.0 If this application is an application for ~~renewal of approval~~ **quality audit, have inclusion of any additional items in the approved list also been requested?**

SECTION-II TECHNICAL INFORMATION

1. Production capacity

i) Per month

ii) Per year

2. Type of Stores / Items, which the firm is capable of manufacturing.

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3. Details of Stores / Items / Parts / Components for which ~~fresh approval~~ **Fresh vendor registration /renewal of approval quality audit is sought (please indicate complete description and drawing nos.)**

4. Total Power availability (In KVA / KW)

- a) From State Electricity Board or other regular source (Enclose a copy of current electricity bill)
- b) From own stand-by power generating sets (Also give make, capacity & other details of each generating set).

5. Crane facility

	No. of Cranes	Make	Capacity
5.1 EOT Crane			
5.2 Mobile Crane			
5.3 Jib Crane			

6. Manufacturing facilities

6.1 Steel making

6.1.1 Type of furnace

6.1.2 Capacity

6.1.3 Stages of checking bath samples

6.1.4 Bath homogenization arrangement

6.1.5 Carbon boil to be maintained

6.1.6 Steel killing practice. If Aluminum killing is followed, please specify maintaining of the residual Aluminum content of the product

6.1.7 Whether facilities for secondary refining of molten steel exist? If so, please give details.

6.2 Proposed Raw material to be used

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6.2.1 Proposed charge mix for CMS Crossing

6.2.2 Preventive measures taken to reduce tramp elements in the product. Please specify.

6.2.3 Weighing facilities for ingredients and additives charged into the furnace and ladle.

6.2.4 Overhead crane facility & capacity.

6.3 Pattern making

6.4 Foundry (Sand Control System)

6.4.1 Moulding (Hand / Machine(s)) and mix testing facilities

6.4.2 Core making

6.4.3 Mould and core drying

6.4.4 Decoring and shake-out

6.5 Dressing facilities (Mainly before and after heat treatment)

6.6 Shot blasting facilities (Travel type / Discrete loading type).

6.7 Heat treatment

6.7.1 Size of the furnace

6.7.2 Type of furnace

6.7.3 Size of quenching tank (L x B x H)

6.7.4 Cooling water system of the quenching tank & digital temperature measuring devices

6.7.5 Distance of quenching tank from the furnace

6.7.6 Handling facility of crossing from furnace to quenching tank

6.7.7 Digital temperature indicating and recording facility of furnace (Pyrometric control device).

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6.7.8 Heavy duty hydraulic press for straightening CMS Crossings (indicating type and capacity)

6.8 Finishing facilities

6.8.1 Welding repair & grinding facilities

6.8.2 “Fettle Arc” Gouging machine

6.8.3 Plano milling machine with vertical cutter

6.8.4 Milling / Boring machine with horizontal cutters and rotating table

6.8.5 Other machines / facility for finishing fishing plane of fish plated area, flange way, wheel tread, bottom surface etc.

6.8.6 Facilities for checking welding defects on the crossings.

6.9 Inspection bay facilities (Inspection table with lighting arrangement, handling facilities etc.)

6.10 A fully dimensioned plan of the works showing locations of various equipments and facilities for manufacture of CMS crossings, flow line indicating locations of various operations during manufacture in proper sequence and storage facilities for finished products may please be enclosed.

PAST PERFORMANCE

1. List of important customers of the firm (as relevant to the works for which requisition is sought)

2. Details of important orders executed in past, in reference to the supplies made.

2.1 To other important firms / companies / undertakings etc.

Directly to the Railways.

3. Important orders in hand

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QUALITY ASSURANCE PROGRAMME

- 1. Does the factory has any established Quality Assurance Programme as per ISO: 9000 series. If yes, please enclose a copy of the write-up in sequential order.**
- 2. Details of Quality Assurance Organization. Name of key personnel, their qualification, designations and positions in overall management structure (Explain with organizational chart, if necessary).**
- 3. Quality Control Testing facilities, laboratory equipments available to be listed along with the make, year of procurement and commissioning.**
- 4. Calibration of laboratory test equipments / gauges, as indicated in para 3 above (Enclose copy of Calibration Certificates).**

How the calibration is done

Frequency of calibration of each instrument

- 5. Source of procurement of raw materials / bought-out items and steps taken to ensure their quality.**
- 6. Brief details of manufacturing process as relevant to the items for which registration is sought.**
- 7. Details of inspection / checks done on material during various stages of the above manufacturing process (Enclose copy of QAP of CMS Crossing).**

Have the acceptable value for the parameters inspected during above stage checks been laid down? If yes, the action taken against values of the parameters inspected does not meet the desired laid-down value.

- 8. System for documentation of the results of the above stage check.**
- 9. Whether facilities for carrying out the following tests are available, also indicate the capacity of each equipment, maker's name and calibration details etc.**

Chemical Analysis

Spectrometric / Instrumental Analysis

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Hardness test

Tensile Bend Test

Impact Bend Test

Izod / Charpy Impact Test

Macroscopic test

Dye-penetrant test

Portable tester for checking residual magnetism

Microscopic test (if microscope with photographic attachment available)

X-Ray

Gamma Ray

Any other test

10. Whether two sample set of CMS Crossings of any one design are ready for inspection during ~~reassessment~~ **quality audit (Report to be submitted by Inspecting Officials)**

11. Whether the firm is possessing officially issued prints of relevant drawings and specifications.

DECLARATION

- i) 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.
- ii) Any change in the plant and machinery and change of place of office and of works site shall be brought to the notice of RDSO for clearance and approval.
- iii) We also declare that our concern has not been black listed by Railway, Railway Board / RDSO for business with the Railways.
- iv) We hereby undertake that all our equipments for manufacturing and testing as listed above shall be maintained in good working order at all times.

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V) We undertakes that ISO Apex Documents shall be read and abided by our company.

Signature of Manufacturer

Place

Date

Office Seal

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