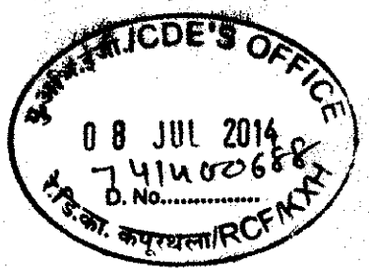
Rail Coach Factory, Kapurthala



MD24121 &
MD46131

Dated: 07.07.2014

Sub : Issue of MDST 110 Rev.01 Dated 04.07.2014
Ref :. SMM/SHELL/TKJ letter no. P5/2014 Dated 25-06-2014

Please find, enclosed herewith MDST 110 Rev.01 i.e for procurement of flanges for conventional coaches and numbering of sub para of clause no 4 corrected.

Encls : MDST-110 Rev.01

(Joginder Singh)
SME/Bogie/design

CPLE
CQM
CWE/Shell
CWE/Fur
CMM/TKJ/HQ
CMM/HSQ

SSE/Lib
SSE/Rec
SSE/Drawing office/TKJ

CDE : For kind information please
CME : For kind information please

SPECIFICATION	SCHEDULE OF INFRASTRUCTURE REQUIREMENTS FOR FLANGE JOINT FITTING USED IN CONVENTIONAL COACHES	MDST: 110 REV: 01 PAGE 1 OF 6 DATED 04.07.14

Name (Sh)	Designation	Signature	Date	Level
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Lalit Kishore	Dy CME/D-III		4/7/14	Reviewed and Agreed
P.N. Singh	CDE		4/7/14	Approved

Issue/REV.	Detail of changes	Date
Rev-01	Numbering of sub-para of clause #4 corrected.	04.07.14

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1. **Scope:**

This schedule describes minimum infrastructure requirements available at the tenderer's premises in working order for manufacture and testing of stainless steel flanges for conventional coaches as per RDSO/Spec 04-ABR-02.

2. **Eligibility Criteria:**

2.1. The tenderer must submit detailed clause-wise comments on the specification specifying the availability of infrastructure with them and the firm with whom tie-up has been made along with the capacity and make. In absence of above, offers shall be deemed as incomplete and may not be considered.

2.2. Since Railways are facing problems of leakages and breakage of pipes leading to train detention and punctuality lose, bulk or regular procurement orders shall only be given to the firms who have infrastructure as mentioned in para #3, 4 and 5 of this specification. Firm will be assessed by CDE/RCF wherever required for ascertaining the infrastructure.

3. **Infrastructure Requirements:**

3.1. Separate, adequate, covered area for manufacturing of stainless steel flange to avoid iron contaminations and also having adequate covered space for storage of raw materials. The covered area should have display board showing different colour shades nominated to different grades of steel to avoid mix up of materials.

3.2. Flanges and sockets require following processes:

3.2.1. Casting or forging.
3.2.2. Machining.

3.3. Firm should have either both facilities in-house or have either of the above facility in-house in working order (para-3.2) and can have tie up for other facility. The firm with which tie-up is made will be approved by CDE/RCF.

3.4. The details of facilities required for forging or casting are placed at Annexure-A & B.

3.5. For machining firm should have at least one CNC machine.

3.6. Firm should have marking facility for manufacturer's identifying marks.

4. **Testing Facilities:**

4.1. **Chemical Lab:** The firm shall be ready for carrying out spectrographic analysis of the material from NABL certified Lab at their own expense as and when required.

4.2. **Physical Testing Lab:** The firm shall be ready for carrying out testing for UTS, Yield strength from NABL certified Lab at their own expense as and when required.

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4.3. **Measuring Instruments:** Firm should have following measuring instruments, duly calibrated, at firm's premises:

4.3.1. Digital Vernier Calipers - 0 mm to 300 mm.
4.3.2. Measuring scales – 3 meter
4.3.3. Inside & outside Micrometers - Ranging from 0 to 150 mm
4.3.4. GO & NO-GO gauges.
4.3.5. Profile gauges

5. Testing facility for stainless steel pipe/tube:

5.1. **Hydro**-static test bench for leakage test.

6. Testing and Approval Of Prototype:

6.1. **Tenderer** must submit and get approval of Quality Assurance Plan from CDE/RCF before taking up prototype manufacture.

6.2. Type **test**/routine test shall be carried out by CDE/RCF or inspecting agency as under:

6.2.1. **Type Tests:** The Type Test shall be conducted for approval of the firm and as a part of audit check/modified specification when required by the purchaser at any point of time. Report of 'TYPE TEST' results witnessed by CDE-RCF/RITES, shall be submitted by the firm before executing first supply. Two samples drawn at random shall be subjected to the test as specified in the Clause-5. In case sample fails, two more samples shall be drawn at random and subjected to the tests as mentioned in the Clause-5. The assembly shall pass the test specified or else the entire lot shall be rejected. The lot shall be accepted if the sample passes the tests. In the event of rejection fresh lot shall be offered for type tests.

6.2.2. **Routine Tests:** Five percent test pieces of a lot for each fitting, selected at random shall be subjected to the tests as specified in clasue-5. In case the item/assembly fails, one more sample shall be drawn at random and subjected to the tests mentioned above. The sample shall pass the tests specified or else the entire lot shall be rejected. The lot shall be accepted if the sample passes the tests. In the event of rejection fresh lot shall be offered for tests.

7. Code of Practice for Quality Control and Inspection:

7.1. Regular inspection shall be done by inspecting agency as per approved Quality Assurance Plan.

7.2. The raw materials should be procured from the authorized distributor of original manufacturer along with their test certificates. These test certificates shall be co-related with the stamping on the raw material taken up for manufacture, prior to commencement of work or with any other adequate alternate system to ensure proper traceability with the raw material.

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7.3. Wherever test certificates are not available, sample shall be drawn and tested both for chemical composition and physical properties in the presence of Inspecting Agency. All records of physical and chemical tests shall be made available to Inspecting Agency.

7.4. The manufacturers shall furnish to the purchasing/ inspecting authorities information in respect of quality control systems in force at their works on various materials used in the manufacture of components.

7.5. The manufacturers shall furnish to the Purchasing/ Inspecting authorities the details of tests and inspection records and other relevant records as required under the quality control systems in force.

7.6. These records and reports shall be maintained by the Competent Technical Authority of the manufacturer and shall be open to examination by the Purchasing/ Inspecting Authorities at all reasonable time.

7.7. Purchasing / Inspecting Authorities at their discretion may select samples of products at any stage of production for conformity tests of raw material at the works of the manufacturer or in an approved laboratory. In case the samples do not conform to the requirements of the specification, double the number of samples from the same lot/batch shall be drawn for re-tests. If any of the re-test samples do not conform to the requirements, the entire lot/batch shall be rejected.

8. Identification Marking:

Each pipe length shall have the following marking clearly on the pipe for the ease of identification and trace-ability:

1. Manufacture's Name/Logo
2. Size
3. Material
4. Part/Drawing No.
5. Year of Manufacture

9. Packing:

The packing shall be such that all the machined surfaces shall be properly protected against rubbing/ impact/scratches during transportation. Contractor shall also ensure that fittings are properly packed with necessary anti-rust/anti-galling treatment in sealed carton boxes. Each package shall be of convenient mass for easy handling.

10. Warranty:

The manufacturer shall warrant the fitting for conformance to quality for a period of 30 months from date of supply or 24 months from date of installation which ever shall be sooner, as per IRS conditions.

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Annexure –A

1. Separate, adequate, covered area for stainless steel flange to avoid iron contaminations and also having adequate covered space for storage of raw materials. The covered area should have display board showing different colour shades nominated to different grades of steel to avoid mix up of materials.
2. At least 1 no. fork lift /overhead crane/pulley block shall be available for material handling.
3. At least two power hacksaw or one number billet shearing machine to cut shear the billets/RCS / rounds shall be available.
4. At least one drop hammer of 2t capacity shall be available.
5. At least one number 200 t mechanical press for stamping / trimming shall be available.
6. Minimum one batch type oil fired or gas fired or induction furnace of sufficient capacity should be available. Temperature range should be up to 1200 ºc and the furnaces should be provided with temperature recorders and controllers. The furnace shall have arrangement of controlling the internal atmosphere to avoid undesirable scaling and decarburizing.
7. The firm shall have suitable facility for shot penning.

Annexure –B

1. Separate, adequate, covered area for manufacturing of stainless steel flange to avoid iron contaminations and also having adequate covered space for storage of raw materials. Separate identified area for different grade of scarp and foundry returns should be available for avoiding wrong charging. The covered area should have display board showing different colour shades nominated to different grades of steel to avoid mix up of materials. Covered shed should have sufficient height and space provided with at least one EOT crane in main bay for melting, molding, felting and heat treatment.
2. Sand preparation and testing:
   - 2.1. Automatic sand continuous mixer machine for making 'Mold' and 'core' should be available, the mixer should be intensive type the calibrated dozing of important ingredients or sand mixing Muller with arrangement of ensuring correct mixing of ingredients. Ensure that the system exist for testing of prepared sand as per the following frequency: Moulding sand 1 in every 5 batch. Core sand 1 in every 20 batch.
   - 2.2. Whenever sand is tested the following properties of prepared sand shall be checked:
     - 2.2.1. Green compressive strength, Green shear strength, moisture, Permeability, shatter index, flow ability, hardness etc.
     - 2.2.2. The acceptance value for each test must be clearly specified and any sand not meeting the above parameters must not be used for mold/core making.
     - 2.2.3. All incoming sand must be tested before acceptance as per frequency set by QC department. The following must be checked:
       - 2.2.3.1. AFS grain size.
       - 2.2.3.2. Clay contents
       - 2.2.3.3. Moisture content
       - 2.2.3.4. Loss of ignition
   - 2.3. For testing incoming virgin sand, moulding sand, core sand following equipment, at least one number each, should be available:

i. Permeability tester
ii. Sand Rammer
iii. Quick moisture teller
iv. Chemical balancing
v. Sand sieve shaker
vi. Sand Muller for preparing test samples
vii. Shatter Index tester.
viii. Dry compression strength tester
ix. Sand mouldability / compatibility tester
x. Sand flowability tester
xi. Mold / core hardness tester
xii. Methylene blue test equipment for clay
xiii. Portable hardness tester other than poldy

3. At least one number tilting type electric arc furnace having ladle refining facility with minimum 0.5T capacity should be available. Facilities for preheating of ladle should be available. Ladle lining should be of Kaltex or of high alumina bricks. In case of use of cold ladle board, it should be ensured that there is no drop in temperature of molten metal and it is one time used only. Ensure that refractory pouring cup & down sprouds are used.
4. Heat treatment:
   4.1. Heat treatment facility capable of handling the entire production must be available in house. Heat treatment furnace should be either oil fired or electric type.
   4.2. Heat treatment furnace should be provided with digital indicators and cut off s for each point. (one point at every five feet length)
   4.3. The heat treatment furnace must be calibrated using sufficient no. of thermocouple for assessing temperature at different zones at various temperature ranges. The calibration is to be done at least once in a year.
5. At least one no. forklift shall be available for material handling.
6. The firm should have compressor of suitable capacity.
7. The firm should have adequate nos. of hand grinders for removal of fins and burs.
8. The firm should have adequate machining facilities of horizontal lathe and drilling machine of suitable capacity and standard make.
9. Suitable shot blasting machine conveyor monorail type or Twin table type should be available. Casting to be shot blasted before and after heat treatment using steel shot of size 1000, IS: 4606.

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