



रेल डिब्बा कारखाना, कपूरथला-144 602
RAIL COACH FACTORY, KAPURTHALA- 144602



MD 22301

Date 15 02 2016

Sub: Issue of Specification No. MDTS 41493 Rev-01 for Opening and closing mechanism (Clutch Wire Type) for IR-DRDO Bio-digesters for ICF and LHB Coaches.

Please find enclosed a copy of Technical Specification No. MDTS-41493 Rev-01 for Opening and closing mechanism (Clutch Wire Type) for IR-DRDO Bio-digesters for ICF and LHB Coaches.

MW
15/2/16
Dy CME/D-2

Dy CPLE-II

CMM/HSQ

CPLE

JE-I/Design/RCF/TKJ

SSE/Lib/Design,

✓ SSE/record (with original specification)

Copy for kind information to:

CDE

CQM

CWE/Shell

CWE/Fur

CMT

Specification	Openeing and Closing Mechanism (Clutch wire type) For IR-DRDO Bio-Digestres for ICF and LHB Coaches	MDTS 41493 REV-01 PAGE 1 OF 4 DATED 15.02.2016
---------------	--	--

Name	Designation	Signature	Date	Level
Ashwani Kumar	SSE/Design	<i>Ashwani</i>	15.2.16	Prepared
Anmol Singh	SSE / Design	<i>Anmol</i>	15.2.16	Reviewed
Lalit Kishore	Dy CME/D-2	<i>Lalit</i>	15.2.16	Agreed
Parmanand Singh	CDE	<i>Parmanand</i>	15.2.16	Approved

Rev. No.	Details of Changes	Date
01	<ul style="list-style-type: none">In the description of header "ICF" added.In clause 1.1 word "ICF type added" and in clasue 1.2 word "LHB" deleted.In clasue 3.1 " drawing no MI006591" added. In clasue 5.1 "LHB" added.Clause 5.2 added for convnetional coaches.	15.02.16

Prepared By <i>Ashwani</i> 15.2.16	Agreed By <i>Parmanand</i> 15/2/16
--	--

Specification	Opening and Closing Mechanism (Clutch wire type) For IR-DRDO Bio-Digestres for ICF and LHB Coaches	MDTS 41493 REV-01 PAGE 2 OF 4 DATED 15.02.2016
---------------	---	--

1. Preabmble:

- 1.1. Opening and closing mechanism (clutch wire type) is required for operating the ball valve provided in the IR-DRDO retention tank fitted in ICF type and LHB coaches. This mechanisim is requiried to be operated from inside the toilet.
- 1.2. The special terms and conditions specify the equipment requirements to be fitted on coaches fitted with IR-DRDO retention tank. This also includes installation/commissioning.
- 1.3. Firm should have well-established design, manufacturing, testing facilities and exprience in designing of mechanisms. In absence of this information offers shall be deemed as incomplete and may not be considered.

2. Eligibility Criteria:

- 2.1. The tenderer must submit detailed clause-wise comments on the specification and specially mention about the in-house facilities for design, manufacturing, testing facilities and experience in designing of mechanisim. In absence of above, offers shall be deemed as incomplete and may not be considered.
- 2.2. Since opening and closing mechanism of ball valve have complexity in design, bulk or regular procurement orders should only be given to the firms who have experience in design, manufacturing and testing of mechanisms.

3. Scope of supply:

- 3.1. Design of opening and closing mechanism (clutch wire type) shall be as per drawing no MI006591.
- 3.2. The complete material required for one set of opening and closing mechanism. It will include all fasteners and mounting plates.
- 3.3. Supply, Installation and commissioning will be in the scope of supply.

4. Technical requirements:

- 4.1. All components and sub-assemblies will be manufactured to a standard for high level of ruggedness, corrosion resistance, and reliability and long-life. There should be no maintenance requirement like painting, lubrication, oiling, periodic tightening of fasteners etc. All fasteners should be of locking type and should not get loose due to coach vibration. If due to any technical/commercial reason, a component/part or sub-assembly does not meet these requirements, it should be clearly spelt out in the offer and the maintenance requirements shall be furnished. However if any mal function occurs due to any unforeseen reason, tenderer will rectify it under warranty with proper tools and equipments to ensure cleanliness and hygiene in the depot.
- 4.2. The tenderer must have adequate plant and manufacturing capacity to to design, manufacture, testing and supply the mechanisim being offered to IR within the

Prepared By <i>[Signature]</i> 15.2.16	Agreed By <i>[Signature]</i> 15/2/16
--	--

Specification	Opening and Closing Mechanism (Clutch wire type) For IR-DRDO Bio-Digestres for ICF and LHB Coaches	MDTS 41493 REV-01 PAGE 3 OF 4 DATED 15.02.2016
---------------	---	--

delivery schedule.

- 4.3. The tenderer should have established quality control system and organization to ensure quality of the product and should be an ISO 9000 certified company or should have an internationally certified quality control system.
- 4.4. The tenderer should have adequate financial stability and status to meet the obligations under the contract and should submit a report from a recognized bank or a financial institution. The tenderer should also submit a copy of his company's annual report of last three years.

5. Interface of the mechanism:

5.1. Mechanisim for LHB coaches shall be designed with following interface drawings:

- 5.1.1. Front part to drawing no: LE11461 alt-a.
- 5.1.2. Mounting of retention tank to drawing no: MI005710 alt-b.
- 5.1.3. Operating handle to be mounted on the Lavatory module to drawing no: 1 10113.0.30.000.013.

5.2. Mechanisim for Conevntional coaches shall be designed with following interface drawings:

- 5.2.1. SE14146- Lavatory Side Wall LH (NPA End).
- 5.2.2. CC14720- Lavatory Side Wall LH (PA End).
- 5.2.3. SE14148- Lavatory Side Wall RH (NPA End).
- 5.2.4. CC14721- Lavatory Side Wall RH (PA End).

6. Operating Conditions:

6.1. Ambient Conditions:

-4°C to 55°C with 100% humidity and dust. Mechanisim should not get damaged in these conditions. Quality of manufacturer should be excellent. Temperature variations can be quite high in the same journey or short period of time. Most coaches are based in coastal cities, with continued exposure to salt laden air.

6.2. Car-body dynamics and forces on the mechanisim system:

- ±100 mm vertically
- ±55 mm laterally
- ±10 mm longitudinally
- ± 4° bogie rotation about centre pivot
- Maximum Speed of train - 130 KMPH.

Prepared By <i>Aswani</i> 15.2.16	Agreed By <i>Amul</i> 15/2/16
---	-------------------------------------

Specification	Openeing and Closing Mechanism (Clutch wire type) For IR-DRDO Bio-Digestres for ICF and LHB Coaches	MDTS 41493 REV-01 PAGE 4 OF 4 DATED 15.02.2016
---------------	--	--

7. Testing and approval of prototype:

- 7.1. Tenderer must submit and get the approval of drawings and Quality Assurance Plan of the mechanisim from CDE/RCF before taking up prototype manufacture.
- 7.2. One prototype shall be inspected at firm premises on test stand by CDE/RCF. After inspection at firm premises on test stand same prototype will be fitted on coach for fitment approval before bulk supply. Supplier has to incorporate any changes noticed during the inspection without any additional cost. Bulk manufacturing will be commenced only after clearance of prototype by CDE/RCF.
- 7.3. Test certificates to be submitted by the manufacturer for raw material and testing of all critical components/assemblies.
- 7.4. If supplier upgrades any component/sub-system on this equipment, he shall get it approved by RCF before its implementation.

8. Endurance Test:

- 8.1. The mechanisim shall be subjected to 25,000 (twenty five thousand) operations of actuating the ball valve from its normal closed position to the full open position and returning it to its closed position. It shall not show any waear and tear or failure of any other working parts. Also there should be consistency in the opening & closing of Ball Valve throughout the whole operations.
- 8.2. The medium for endurance test shall be slurry of cow dung. Suitable test rig should be available for endurance testing of ball valve hydraulic opening/closing mechanism.

9. Warranty:

Tenderer shall ensure warranty for 36 months from the date of supply or 30 months from fitment, whichever is earlier. During warranty, the tenderer shall rectify the equipment by replacing or repairing components at his cost. The warranty period would get extended on a pro-rata basis if warranty replacement/repairs is not provided within 5 days of notice. If tenderer fails to provide warranty in 5 days of notice, Railway reserves the right to cancel balance contract.

Prepared By <i>Ashwini</i> 15.2.16	Agreed By <i>[Signature]</i> 15/2/16
--	--