

Rail Coach Factory Kapurthala

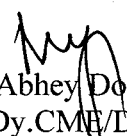
Dated 03-Sep-19

MD35131

Sub: Issue of specification No. MDTS109 Rev02.

Please find enclosed a copy of following specification for information and necessary action at your end.

S. No	Description	Specification No.
1.	MECHANICAL DESIGN TECHNICAL SPECIFICATION OF INTERIOR DOORS FOR ALSTOM-LHB DESIGN GENERATOR CUM POWER CAR	MDTS109 Rev02.

 03/09/2019
(Abhey Dogra)
Dy.CME/D-II

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

Dy.CMM/LHB/Fur.
Dy.CMM/Fur

Dy.CMM/G

CMT

Dy. CPLE-II

SSE/Filing Section

SSE/Library, Mech. Design

✓ SSE Record (Original copy)

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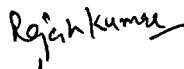



CDE

Dy.CME/D-1

RAIL COACH FACTORY KAPURTHALA

(MECHANICAL DESIGN DEPARTMENT)

SPECIFICATION	MECHANICAL DESIGN TECHNICAL SPECIFICATION OF INTERIOR DOORS FOR ALSTOM-LHB DESIGN GENERATOR CUM POWER CAR	MDTS109 REV-2 PAGE 1 OF 5 DT: 15.07.2019
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NAME	DESIGNATION	SIGN	DATE	LEVEL
Rajesh Sharma	SSE/Fur		26.08.19	Prepared
Ravi Ranjan Kumar	ADE/FUR		26.08.19	Agreed
Abhey Priya Dogra	Dy.CME/D-II		28.08.19	Reviewed
Manish Bhimte	CDE		31.8.19	Approved

REV NO	DETAILS OF CHANGES	DATE
1	1. In Clause 4.1 and 4.2, material of ferritic stainless steel to RDSO/Spec C-K201 Grade X2 Cr Ni12 (409 M) was IS:6911 Grade X2 Cr11. 2. Note for colour scheme of paint revised in clause 3.0.	29.04.13
2	1. The supplier shall give warranty for the complete or part of the door, failing or proving unsatisfactory in service due to defective design, material or workmanship, within 84 months from the date of supply or 72 months from the date of commissioning of coach, whichever is earlier and shall replace the same at his own cost and risk. (clause 7.1.)	15.07.19

RAIL COACH FACTORY KAPURTHALA

SPECIFICATION	MECHANICAL DESIGN TECHNICAL SPECIFICATION OF INTERIOR DOORS FOR ALSTOM-LHB DESIGN GENERATOR CUM POWER CAR	MDTS109 REV-2 PAGE 2 OF 5 DT: 15.07.2019
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1.0 Scope:

This specification covers the general and technical requirements of interior door assemblies for ALSTOM-LHB Design Generator cum Power Car. The general arrangement, mounting and scope of supply shall be as per the following:

Description	Mounting drawing	Scope of supply
Guard- Crew room door	1 11012.0.22.120.002 & 1 11012.0.22.120.012	All items as per drawing
Crew- Generator room door	1 11012.0.22.120.001 & 1 11012.0.22.120.011	-do-

2.0 Applicability:

These doors are to be fitted in Generator Van of ALSTOM-LHB design. The door arrangements shall be supplied as per the following:

Description	Quantity per coach
Guard- Crew room door	1
Crew- Generator room door	1

3.0 Functional requirements:

Doors should fulfill the following during operation:

- The hinge shall provide smooth running without jerks.
- EPDM rubber sealing (Material to RCF's spec. No.MDTS-030) shall be provided to stop ingress of dust/dirt/moisture in all gaps (both in closed and open position).
- The doors shall have a pleasant and good looking appearance. The doors assly shall be painted as per applicable interior colour scheme of the coach.

Rajesh Kumar

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SPECIFICATION	MECHANICAL DESIGN TECHNICAL SPECIFICATION OF INTERIOR DOORS FOR ALSTOM-LHB DESIGN GENERATOR CUM POWER CAR	MDTS109 REV-2 PAGE 3 OF 5 DT: 15.07.2019
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4.0 Technical Requirements:

- The maximum force necessary for opening the doors shall not be more than 150 N.
- Fire characteristics of the unit shall be as per appendix-6 of UIC 564 (2).

4.1 Guard- Crew room door:

Item	Description
Module characteristic Door Leaf	<ul style="list-style-type: none">• A self contained module consisting of a single leaf hinged door and the frame into which this integral unit is assembled.• As viewed from the Guard-room, the internal door guard-crew room door is hinged on its right side, opening into the crew room. The clear width is approx. 608 mm and the clear height is 1922 mm. The door is 30 mm thick. A door handle is provided on both sides to operate the opening mechanism. A door seal strip is mounted on the door frame. The lower door section is fitted with a ventilation grid in order to ensure air circulation in accordance with the air conditioning concept.• Size of the door shall be as indicated in drawings in clause 1.0.• The door shall generally be made up of a frames as per drawing no. 842.002, door leaf shall generally be as per drawing no. 842.001 (material of panelling -1.6 mm thick stainless steel as per ferritic stainless steel to RDSO/Spec C-K201 Grade X2CrNi12 (409 M) on both sides) and filled with phenolic resin foam (or some other suitable sandwich material) inside the door leaf. Supplier should take precautionary measures to prevent corrosion between frame and leaf during usages.• Wherever rubber profiles are used, material shall be EPDM to RCF's specification No MDTS-030.• The door shall be provided with stainless steel handles on both sides of the door leaf.• Door leaves shall be provided with ventilation grid with cross section area of 0.065 m².
Locking	<ul style="list-style-type: none">• Lock shall be operated by handle from both sides.• Separate pad locking must be possible from outside and inside.

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SPECIFICATION	MECHANICAL DESIGN TECHNICAL SPECIFICATION OF INTERIOR DOORS FOR ALSTOM-LHB DESIGN GENERATOR CUM POWER CAR	MDTS109 REV-2 PAGE 4 OF 5 DT: 15.07.2019
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4.2 Crew - Generator room door:

Item	Description
Module characteristic Door Leaf	<ul style="list-style-type: none"> A self contained module consisting of a single leaf hinged door and the frame into which this integral unit is assembled As viewed from the crew room, the internal door crew-Generator room is hinged on its right side, opening into crew-room. The door frame work is made of stainless steel profiles (ferritic stainless steel to RDSO/Spec C-K201 Grade X2Cr Ni12 (409 M) covered with stainless sheets (ferritic stainless steel to RDSO/Spec C-K201 Grade X2Cr Ni12 (409 M) 1 mm thick. The internal core is composed of 54 mm thick suitable sandwich foam covered on both sides by 2mm thick auto expanding fire board. Size of the door shall be as indicated in drawings in clause 1.0. The clear width is approx. 621mm and the clear height is 1872mm. Wherever rubber profiles are used, material may be as per RCF's specification No MDTs-030. The door shall be provided with stainless steel handles on both sides of the door leaf. The door leaves shall be provided with 5 mm thick toughened glass window to IS:2553 to supervise the generator room from the crew room.
Locking	<ul style="list-style-type: none"> The doors shall be provided with three latch locks i.e. at the top, bottom & centre of door leaf. Indicative sketches of Locks are placed at Annexure-4. Lock shall be operated by handle from generator and crew room. Square key shall be operable from crew room and in case of locked with square key, it shall not be possible to open the door with handle.

5.0 Interfaces with the car-body

The fixing dimensions, tolerance and mounting arrangement of doors shall be as per the drawings indicated at clause 1.0 of this specification.

6.0 Mechanical strength requirements:

6.1 Doors shall meet the mechanical strength requirements as per UIC 566.

6.2 The passenger coaches running on Indian Railways are designed for a service life of 30 Years. The doors are to be developed and assembled accordingly.

6.3 Resistance to vermin:

Selection of the materials (insulation, sealant, rubber etc.), should be done with due Consideration to their resistance to vermin e.g. termites.

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7.0 Warranty:

7.1 The supplier shall give warranty for the complete or part of the door, failing or proving unsatisfactory in service due to defective design, material or workmanship, within 84 months from the date of supply or 72 months from the date of commissioning of coach, whichever is earlier and shall replace the same at his own cost and risk. The supplier shall fix metallic stickers on each door mentioning name of the supplier and month of supply of doors to RCF. These stickers shall not be visible to the passenger easily.

8.0 Documents to be submitted by supplier for prototype approval:

The following documentation for the assembly of the doors is to be prepared by the supplier for submission along with the prototype assembly.

- 8.1** A set of drawings consisting of drawings and parts lists.
- 8.2** Clearly organized instructions for mounting and adjusting the doors, changing the door and wearing parts.
- 8.3** Maintenance and repair instructions.
- 8.4** Technical description of the door.

9.0 Testing of prototype & regular production assemblies:

The supplier shall supply one prototype of doors along with the documents indicated above for approval before commencing bulk supply. The prototypes and drawings shall be examined and tested from all view points and these shall be fitted on the coach/mock-up for checking the smooth running and proper fitment/functioning of the doors. The doors shall also be checked as per check-list enclosed as Annexure-3. Supplier shall incorporate changes suggested by RCF in the prototype as well as bulk supply. The bulk manufacturing shall be undertaken only after the approval of prototype.

Fire test: The door shall be tested for fire retardance as per UIC 564 (2) by the supplier and shall supply a certificate from a reputed laboratory in this regard.

This clause is applicable for first supply of a supplier. However, RCF shall have the right to repeat prototype approval process in subsequent order also. In this regard RCF decision shall be final.

10.0 Up-gradation of design:

Supplier may offer alternate design of doors for all the above or any of the above clause with a view to upgrade the design. Clause wise justification shall be given by the supplier in such case. Doors having lower weight shall be preferred. Specification details may be deviated from those specified above, if sufficient technical justification is available. However, RCF's decision on all such matters shall be final.


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