



**RAIL COACH FACTORY, KAPURTHALA**

**MD46111**

**Date: 04.06.2018**

**Sub:** Specification no. MDTS-214 Rev-06 for Pre-assembled FRP drop-down modular toilet for high speed stainless steel air-conditioned coaches.

Please find enclosed a copy of spec. no MDTS-214 Rev-06 for Pre-assembled FRP drop- down modular toilet for high speed stainless steel air-conditioned coaches.

(D.K.Singh)  
Dy CME/D-2

Dy CPLE-III

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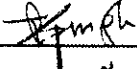



CQM, CPLE, CWE/Fur, CMM/RCF, CMT, CMM/TKJ

✓ SSE/Record

SSE/Lib/Design

SSE/Design/RCF/TKJ

<b>Rail Coach Factory Kapurthala</b>	<b>SCHEDULE OF TECHNICAL REQUIREMENTS FOR PRE-ASSEMBLED FRP DROP- DOWN MODULAR TOILET FOR HIGH SPEED STAINLESS STEEL AIR- CONDITIONED COACH</b>	<b>MDTS- 214 REV - 06 Page 1 of 12 Date 29.05.2018</b>
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Name	Designation	Signature	Date	Level
T.P.SINGH	SSE/FUR-2		29.05.18	Prepared
RAVI RANJAN KUMAR	ADE/D/FUR-2		29.05.18	Agreed
D.K.SINGH	Dy. CME/D-2		30.05.18	Reviewed
R. MUKUND	CDE		31/5/18	Approved

Rev. No	Details of Changes	Date
01	1. S.No. 03 (b) of the table of Clause '3' revised for QPC from 01 to 02. 2. S.No. 06 of the table of Clause '3' deleted to eliminate the applicability of pre assembled toilet in Power car as it is not feasible to fit pre-assembled toilet in Power Car. 3. Drawing no. LE63159 for piping arrgt of Exe. C/Car added in clause '4'. 4. Stainless wash basin inside Lavatory for Exe C/Car to Drg. No. 10112.0.30.000.014 instead of FRP wash basin added at S.No. 03 of table -H of Clause '3'	15.02.2011
02	1. Table of Clause '3 (I) modified to rectify the QPC of Euro-2 Toilet as per drawing no. 1 10113.0.30.000.015 from 02 to 01 for AC /Chair Car. 2. Outside FRP Dust bin & Out side wash basin added in the table of clause 3(1) to clarify the QPC of the same for different coaches. 3. Scraper matting on Lavatory Floor Added as item '6' of Annexure 'A'.	25.05.2011
03	1. Table of Clause '3 (I) modified to incorporate the requirements of Drop Down pre assembled FRP lavatory module with amenities for Double Decker Coach. 2. Table -4 and Table-5 of annexure 'B' and annexure 'C' updated. 3. Specifications for bib cock, scraper matting and soap dispenser updated.	19/03/13
04	1. S.no. 06 of Table 01 of Clause '3' modified to change the drawing no. of attachment wall LW6143 and LW64144 to LD63294 and LD63295 respectively for Double Decker Coach.	02/05/13
05	1. Item no. 7,8 and 9 are deleted from Table-3 (Annexure 'A') as these items are not to be supplied by Supplier. 2. Note 2., below Table-3 (Annexure 'A') added for the fitment of the loose items by RCF.	22/05/15
06	1. Tejas and Humsafar Coach added in scope of supply in Table No. 1. 2. Different drawing no of attachment wall for Tejas and Humsafar coach added. 3. Additional special features added for Tejas and Humsafar Rake. 4. S.No 9 of additional feature of Tejas rake for LED light is deleted..	29.05.18

  
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1. **Scope:** This specification covers the general and technical requirements of pre-assembled drop down (which can be lowered in pre-assembled condition, fitted with selected amenity fittings, from the top of coach) FRP composite modular toilet for High speed stainless steel air-conditioned coaches.

The tenderer should offer clause-wise comments in its offer against this specification and shall also submit deviation statement, if any. RCF reserves the right to summarily reject the offer submitted without clause wise comments.

2. **Material & other relevant specification:**

- (a) Material specification should be as given in concerned component /assembly drg.
- (b) Painting of FRP components shall be as per RCF's technical specification for painting system for FRP components, MDTS-118.
- (c) FRP (hand lay-up) components shall be as per RCF's technical specification for hand lay-up FRP components for all passenger coaches, MDTS-133.
- (d) List of applicable drawings/spec are mentioned in Table-6 (Annexure D)

3. **Scope of Supply:**

I. Following scope of supply for FRP lavatory module and amenity fittings shall be applicable for different types of coaches:

Table-1

S.no.	Description	Drg. no.	Qty. per coach	Type of coach
(i)	A.1) Lavatory module orient-1 with A.2) Attachment wall.	1 10113.0.30.000.013 LW64143	02 02	AC/chair car
	B. 1) Lavatory module Euro- 2 with B.2) Attachment wall	1 10113.0.30.000.015 LW64144	01 01	
	C.1) Waste bin Arrangement	LE63100	01	
(ii)	A.1) Lavatory module orient-1 with A.2) Attachment wall.	1 10113.0.30.000.013 LW64143	01 01	AC/Executive chair car
	B.1) Lavatory module Euro-2 with B.2) Attachment wall	1 10113.0.30.000.015 LW64144	01 01	

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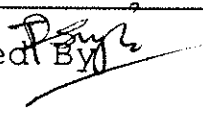
	B.3) Lavatory module Euor-1 with B.4) Attachment wall	1 10112.0.30.000.014 LW64143	01 01	
	C) Waste bin Arrangement	LE63100	01	
(iii)	A.1) Lavatory module orient- 1 with A.2) Attachment wall.	1 10113.0.30.000.013 LW64143	01 01	First class AC
	B.1) Lavatory module Euro-2 with B.2) Attachment wall	1 10113.0.30.000.015 LW64144	02 02	
	C.1) Shower Room Arrgt (corresponding to Lavatory Module 10112.0.30.000.014) with C.2) Attachment wall	MI004371 LW64143	01 01	
	D) Waste bin Arrangement	LE63100	01	
(iv)	A.1) Lavatory module orient- 1 with A.2) Attachment wall.	1 10113.0.30.000.013 LW64143	02 02	AC 2-Tier & 3-Tier
	B.1) Lavatory module Euro-2 with B.2) Attachment wall	1 10113.0.30.000.015 LW64144	01 01	
	C.1) Lavatory module orient- o With C.2 ) Attachment wall	LE63110 LW64144	01 01	
	D.1) Waste bin Arrangement	LE63100	01	
	E.1) Out Side Wash Basin with Dust bin arrgt below.	LW63163	02	

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(v)	A.1) Lavatory module orient-1 with A.2) Attachment wall	1 10113.0.30.000.013 LW64143	01 01	Hot Buffet
	B.1) Lavatory module Euro- 2 with B.2) Attachment wall	1 10113.0.30.000.015 LW64144	01 01	
	C) Waste bin Arrangement	LH63102	01	
(vi)	A.1) Lavatory module orient- 1 with A.2) Attachment wall.	LD63274 LD63294	02 02	Double Decker
	B.1) Lavatory module Euro-2 with B.2) Attachment wall	LD63273 LD63295	01 01	
	C.1) Lavatory module orient- o	LD63275	01	
	z With C.2) Attachment wall	LD63295	01	
	D.1) Waste bin Arrangement	LE63100	01	
	E.1) Out Side Wash Basin with Dust bin arrgt below.	LW63163	02	
(vii)	A.1) Lavatory module orient-1 with A.2) Attachment wall.	1 10113.0.30.000.013 LZ64104	02 02	AC/chair car for TEJAS Rake( See Additional features also.)
	B. 1) Lavatory module Euro- 2 with B.2) Attachment wall	1 10113.0.30.000.015 LZ64105	01 01	
	C.1) Waste bin Arrangement	LE63100	01	
			01	
	A.1) Lavatory module orient-1 with A.2) Attachment wall.	1 10113.0.30.000.013 LZ64104	01 01	

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(viii)	B.1) Lavatory module Euro-2 with	1 10113.0.30.000.015	01	AC/Executive chair car for Tejas Rake (See Additional features also.)
	B.2) Attachment wall	LZ64105	01	
	B.3) Lavatory module Euro-1	1 10112.0.30.000.014	01	
	B.4) Attachment wall	LZ64104	01	
	C) Waste bin Arrangement	LE63100	01	
(ix)	A.1) Lavatory module orient- 1 with	1 10113.0.30.000.013	02	3-Tier For Humsafar Coach (See Additional features also)
	A.2) Attachment wall.	LZ64104	02	
	B.1) Lavatory module Euro-2 with	1 10113.0.30.000.015	01	
	B.2) Attachment wall	LZ64105	01	
	C.1) Lavatory module orient- 2 With	LE63110	01	
	C.2 ) Attachment wall	LZ64105	01	
	D.1) Waste bin Arrangement	LE63100	01	
	E.1) Out Side Wash Basin with Dust bin arrgt below.	LW63163	02	

#### **Additional Special features for Tejas Rake :**

1. For improved aesthetic and longer performance of interior surface, gel coated surface finish panels with approved colour scheme by CDE/RCF shall be provided. Colour scheme shall be approved before manufacturing.
2. All interior surface finish should be good and blending with interior fittings to provide a pleasant look and shall have ease of cleaning and maintenance. Lavatory should have double side finish i.e. there is no HPL pasted outside.
3. Interior panels should be coated with anti graffiti as per RDSO specification no. M&C/PCN/127-2009.
4. Touchless sensor based tap for wash basin is to be provided.

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5. The faucet should be wall mounted having 200 mm long spout and Jaquar make, Model No. SNR-CHR-51071 or equivalent models from reputed make provided tenderer submit its details and same is approved by CDE/RCF.

6. Touchless Automatic Soap dispenser are to be of Jaquar make Model : DJ0160AS having capacity of 0.8L and with Chrome/Black finish. The dispenser should have following features :

- LED flashes when the batteries need to be replaced.
- Suitable for natural pH, chlorine- free liquid hand soap and disinfectant solutions or hydro-alcoholic gel.
- Content viewer on the front.
- Lock and special key for accessing the soap container.
- Transparent polyethylene tank.
- ABS body with Aluminium covers.
- Quantity Dispensed per pump-1ml.

**Equivalent models from reputed make can also be accepted provided tenderer submit its details and same is approved by CDE/RCF.**

**7. Wash Basin:**

Wash basin shall be Bright Finish: AISI 304, Top and Front surface shall be FRP solid surface get coated with granite granular effect finish. The colour scheme to be got approved from CDE/RCF.

**8. Waste Bin Arrangement:**


A stainless steel waste bin of suitable capacity shall be provided below the inside wash basin. The details and drawings of same shall be got approved from CDE/RCF.

**Additional Special Features for Humsafar rake :**

1. For improved aesthetic and longer performance of interior surface, gel coated surface finish panels with approved colour scheme (may be of two tone colour scheme) shall be provided. The colour, shade and pattern of the interior panel is to be approved by CDE/RCF before manufacturing.

2. All interior surface finish should be good of blending with interior fittings to provide a pleasant look and shall have ease of cleaning and maintenance.

3. Interior panels should be coated with anti graffiti coating as per RDSO specification no.M&C/PCN/127-2009.

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**4. Wash Basin:**

Wash basin shall be Bright Finish: AISI 304, Top and Front surface shall be FRP solid surface get coated with granite granular effect finish. The colour scheme to be got approved from CDE/RCF. The wash basin should be suitable smaller size to accommodate baby napkin changer. For other toilets, it's size should be of full length (wash basin top).

**5. Waste Bin Arrangement:**

A stainless steel waste bin of suitable capacity shall be provided below the inside wash basin. The details and drawings of same shall be got approved.

**6. Baby Diaper Change Stand:**

Provision of baby diaper change stand should be done on endwall side panel of modular toilet. This unit is to be provided in two lavatories no.2 and 4 (Orient 1 to drg.no.1.10113.0.30.000.013). Baby diaper change stand should have following features:

- This should be of model no.EDC2, Make : Euronics or similar having approx same size.
- Diaper change stand should be mounted at a slightly higher level from wash basin.
- A suitable belt arrangement should be provided for securing the baby while changing diapers.
- The diaper change stand should be made of durable and high quality HDPE (high Density Poly ethelene) and should be strong enough to withstand the load of 20kg.
- Stand should have proper housing behind it.

**7. Other features:**

- Lavatory should have double side finish i.e. there is no HPL pasted outside.
- Mirror size should be suitable to wash basin.
- Lavatory door aluminum powder coated with matching colour.

**II Other Requirements :**

**Table-2**

S. no.	Description	Drg. No.	Qty/toilet
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1.	Lavatory Window panel	1 10113.0.30.400.057	01
2.	Stainless Steel Wash basins to drawings no MI004544 will be used in place of FRP Wash basins in Lavatory Module to drawing no. 1 10112.0.30.000.014.	MI004544	01

### III Electrical Requirements:

Following Electrical items should be procured only from the sources as per RCF's approved vendor directory.

- i) Light to drg. no. LW76033 'Alt.-'c' of quantity 01 per toilet to be provided on top of mirror inside the toilet. The supplier shall provide indelible marking of its own in addition to OEM's identification at a location which is normally not visible but can be viewed for identification in fitted condition.
- ii) Razor socket to EDML-047 Item-4 of quantity 01 per toilet.
- iii) Terminal connector to EDML-037 Rev 'a' of quantity 01 per toilet to be provided.
- iv) Polyamide flexible conduits PG-16 (in meters) to spec. EDTS-291 Table-1, Item-5 to be provided for wiring of lavatory light, razor socket and limit switch etc.
- v) Clamping arrangement of for double conduits to be provided over the lavatory area to drg. no. LP76001 Item-8.
- vi) Cable jacket system, item-8 to EDTS138 to be provided.
- vii) Cable duct A45, Standard Slot Grey to Cat. No. CDA4545SG to be provided.
- viii) Cable duct cover A45, standard slot gray to cat. No. CCA45SG.
- ix) Cable binder 3.6 x 200 cat. No. HOD etc. to be provided.
- x) E-beam copper cable of size 1.5 sq mm to be used for wiring from RCF approved sources.
- xi) Mounting arrangement for WAGO connector to be provided on wall of Module.
- xii) Limit switch in the lavatory door frame & its wiring to be provided.
- xiii) **The route of Electrical wiring shall be as per Sked no. 598.**

**Reference:** : Electrical Design's letter no. ED-2008 dated 29.06.2009.

4. **Plumbing: Supply and Fitment of Plumbing arrangements as per drawing no. LE63157 and LE63160 shall be in the scope of RCF .**

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**5. Manufacturing, testing facilities and Eligibility Criteria:**

- 5.1 The tenderer shall have plant, machinery and infrastructure requirements as per clause-3 of Section-B of MDTS-133.
- 5.2 The tenderer shall have testing facilities for FRP components as per clause-4 of Section-B of MDTS-133.
- 5.3 The tenderer shall have testing facilities for painting as per Table-1 & 2 of MDTS-118.

**6. Documents to be submitted with the prototype sample:-**

- 6.1 The supplier shall get prototype approved from CDE RCF before bulk supply.
- 6.2 The supplier shall submit WTC (along with supply) from OEM for different constituents used for manufacture of FRP panels of lavatory module.
- 6.3 The supplier shall submit details about warranty, purchase bills for fittings purchased from OEM and supplied with the lavatory modules.
- 6.4 The supplier shall submit WTC for anti graffiti paint as per Table-1 & 2 of MDTS-118.

**Table-3**

**Annexure-‘ A’**

**List of items to be supplied loose by the supplier**

S. NO.	Item Description	Drg. No.
1.	Inside Mirror	Item-1 of LW63182 alt-d
2	Outside mirror	Item- 6 of MI004725 Alt-c
3.	Inner attachment wall	LE63154 alt-d
4.	Lavatory Ceiling flap-1 mounting	2 10113.0.21.450.002 alt-A
5.	Lavatory Ceiling flap-2 mounting	2 10113.0.21.450.004 alt-A
6	Scraper Mating: Scraper matting as per MDTS-229 shall be provided on complete lavatory floor area except pan.	
10	Soap Dispenser with Cage : Soap dispenser with cage shall conform to RCF specification MDTS-209	
11	Automatic Hygiene & Odour Control System: Automatic hygiene and odour control system for toilets shall conform to RDSO specification RDSO/2008/CG-11 (except clause 3.2 and 3.3) in each toilet.	

**Note : 1. Necessary clearance should be provided between the toilet floor (with covering of 3-M Scraper mating) and lavatory door, so that door shall not infringe. Toilet Door should be replaceable by opening of mounting screws.**

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2. Loose items (To avoid breakage during transportation) are to be fitted by RCF at shop floor after dropping down of Modular Toilet in the coach .

**Table-4**

**Annexure-'B'**

**Colour scheme for Lavatory area of 2nd class chair/car. AC-2 Tier. 3 Tier  
EOG.**

**Hot Buffet and Double Decker Coach.**

S. NO.	Item Description	COLOUR SHADE	FINISH
1.	Ceiling Component Alucbond	RAL-DS- 9000	Matt finish Gloss value 10- 12 at 45°
2.	<b>PARTITION WALL/WINDOW SURROUND</b>	RAL-DS-160 80 05	Matt finish Gloss value 10- 12 at 45°
3.	Pillars	RAL 9006	High Gloss
4.	Wash basin	Natural steel colour	Brushed finish
5.	Lavatory bowl Euro/orient	Natural steel colour	Brushed finish
6.	Trough floor with corundum	RAL-DS-170 60 20	Matt finish Gloss value 10- 12 at 45°
7.	Entrance area Wall paneling	Pattern similar to Abet Perlalei 1024manadrin	

**Table-5**

**Annexure-'C'**

**Colour scheme for Lavatory area of 1<sup>st</sup> Executive Chair/car & 1<sup>st</sup> AC Coach**

S. NO.	Item Description	COLOUR SHADE	FINISH
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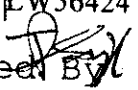
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1.	Ceiling Component Alucbond	RAL-DS- 9000	Matt finish Gloss value 10-12 at 45°
2.	Partition Wall/Window Surround	RAL-DS-160 80 05	Matt finish Gloss value 10-12 at 45°
3.	Pillars	RAL 9006	High Gloss
4.	Wash basin	Natural steel colour	Brushed finish
5.	Lavatory bowl Euro/orient	Natural steel colour	Brushed finish
6.	Trough floor with corundum	RAL-DS-170 60 20	Matt finish Gloss value 10-12 at 45°
7.	Entrance area Wall paneling	Pattern similar to Abet Rosso Terracotta 417	Matt finish Gloss value 10-12 at 45°

**Table-6**  
**List of enclosed drawings**

**Annexure-D**

Sl. No	Drawing no/spec.
1.	I 10113.0.30.000.003
2.	I 10113.0.30.000.005
3.	LE63101
4.	I 10112.0.30.000.004
5.	I 10113.0.30.000.013
6.	I 10112.0.30.000.014
7.	I 10113.0.30.000.015
8.	MI004371
9.	LW64143
10.	LW64144
11.	LE63100
12.	LH63102
13.	MI004544
	MI004545
15.	LW63163
16.	MI004725
17.	MDTS-209
18.	LW56424

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19.	LW56475
20.	1 10113.0.30.095.083
21.	1 10113.0.30.095.002
22.	CC64254
23.	CC63933
24.	2 10113.0.30.400.006
25.	1 10113.0.30.400.057
26.	LW63182
27.	LW63198
28.	LW76033.
29.	EDTS138
30.	LP76001
31.	EDML-037
32.	EDTS-291
33.	EDML-047
34.	Sked no. 598
35.	RDSO/2008/CG-11
36.	LD63273
37.	LD63274
38.	LD63275
39.	MDTS-229
40.	LD63294
41.	LD63295
42.	LZ64104
43.	LZ64105

  
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