



LME:012: C

LOCOMOTIVE ENGINEERING DEPTT.

PURCHASE SPECIFICATION

LME/PUR/312

ISSUE DT: 22.08.2012

REV.NO.-00

REV DT:

1 of 4

SUBJECT:

**PURCHASE SPECIFICATION FOR FRP CAB INTERIORS FOR CREW
FRIEDNLY CABIN OF WAG-7 LOCOMOTIVE**

Enclosures:

1. MODIFIED SPACIOUS CAB STRUCTURE ASSY Drg. No.- 06/1/35/91(Annex-1)
2. RDSO SPECIFICATION: RDSO/2008/EL/SPEC/0058 (Rev-'0') March 2008(Annex-2)
3. List of equipments (Annex-3)

Rev	Date	Prepared	Rev	Date	Prepared	Rev	Date	Prepared
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CONTINUATION SHEET

LME/PUR/312

REV.NO.:00

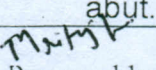
2 of 4

I. GENERAL:

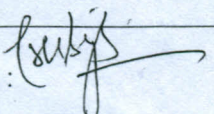
BHEL Jhansi is manufacturing crew friendly WAG-7 locomotives for Indian Railways. FRP cab interiors are being used in the driver's cabin of these locomotives. BHEL Jhansi developed the vendors for the supply of these FRP cab interiors. These vendors supplied the FRP cab interiors according to their own design. Based on the design from different vendors and feedbacks of the user on maintainability etc BHEL Jhansi standardised the design of FRP panels. Standardisation of FRP cab interiors done by BHEL Jhansi by incorporating good features from designs of all vendors. BHEL Jhansi submitted this standardised design to RDSO and got their approval. This specification covers the requirements of the procurement of FRP cab interiors as per BHEL Jhansi drawings and specification.

II. TECHNICAL REQUIREMENTS:

1. The shape and dimensions of FRP cab interiors shall be according to BHEL drawing no.- **1 719 35 05 021 sheet-1 Rev01** and **1 719 35 05 021 sheet-2 Rev01**. These FRP cab interiors shall be fitted in the cabin of WAG-7 locomotive. Drawing No. - 06/1/35/91 of cabin of WAG-7 locomotive is enclosed at annexure-1. Latest revision of the drawings and annexure to be collected by party after placement of Purchase Order.
2. Regarding the material, inspection, testing and other requirements of FRP cab interiors, RDSO purchase specification no.: RDSO/2008/EL/SPEC/0058 (Rev-'0') March 2008 is to be followed. Specification enclosed at **annexure-2**.
3. The fabricated cabin shall be made available to the party by BHEL for the fitment of FRP cab interiors at BHEL Jhansi.
4. The work is to be carried out here in BHEL Jhansi premises only. Further scope of work has been detailed in the RDSO specifications no.: RDSO/2008/EL/SPEC/0058 (Rev-'0') March 2008 is to be followed.
5. Interior color scheme shall as per following details:
 - i. For driver desk and desk skirt- RAL 7043
 - ii. For front panel, side panel, roof panels, wind screen liner and side window liners- NCS S 2000 N (equivalent RAL 7035)
 - iii. Floor panel- NCS S 2000 N (equivalent RAL 7035) with grainy coat
6. The color of resin used for lamination of any particular FRP panel shall be same as the color of that particular panel.
7. FRP cab interiors/ panels to be resistant to graffiti, scuffing, vandalism and cleaning agent
8. Rounded corners to be provided wherever mutually perpendicular flat plane surfaces abut.

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CONTINUATION SHEET

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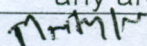
REV.NO.:00

3 of 4

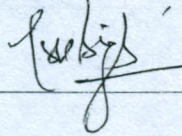
9. All the brackets required to be welded to the cabin structure for mounting of FRP panels shall be in the scope of supplier.
10. All hardware as stipulated in RDSO specification shall be in the scope of supplier.
11. Fitment of the FRP panels and all the instruments to be mounted on the FRP panels shall be in the scope of supplier.
12. All the accessories required to install and operate the AC unit shall be in supplier scope.
13. Hardware used for panel mounting and equipment mounting on driver desk shall be of stainless steel.
14. Finishing of the openings provided in roof panels to attend headlight and flasher light should be good.
15. Riveting shall not be acceptable.
16. Refer Annex-2 (**RDSO Specification no.- RDSO/2008/EL/SPEC/0058 Rev-'0'** March 2008) and party to note that other items as mentioned in clause 6.2 shall not be in their scope. However the panel compatibility is to be ensured by party. The details of these items can be taken from BHEL.
17. Fan and sun-visor shall be supplied by BHEL, party to arrange for its suitable fitment to FRP paneled cabin.
18. As stipulated in RDSO specification vendor must have RTM machine for producing FRP panels. FRP panels made from RTM machine only, shall be acceptable.
19. Finishing at the cab corners shall be free from gaps and rough cutting edges. There shall be no use of putty for finishing/ installation purpose. Only epoxy based putty may be used for finishing/ installation purpose under rarest circumstances.
20. All the mounting plates to be supplied by vendor shall be powder coated.
21. Height of driver's desk and the visibility of driver on track are of utmost importance.
22. Party may be required to check the panels w.r.t. cab design at their end using solid modeling.

III. MANUFACTURING OF PROTOTYPE:

1. First of all prototype panels to be manufactured and to be fitted in loco. The problems if any are to be rectified. Based on revised drawings after prototype, series production is

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CONTINUATION SHEET

LME/PUR/312

REV.NO.:00

4 of 4

to be started. Rectifications shall be done by party free of cost.

2. If deemed fit, parties for their convenience can check the panel drawings w.r.t. driver's cab and hence the effort can be minimised in prototype modification.
3. No separate cost for moulds will be given. Parties will have to absorb the same

IV. SERIES PRODUCTION AFTER PROTOTYPE:

1. Series production to be started only when the prototype is approved by RDSO/competent approving authority.

V. DOCUMENTS TO BE SUBMITTED WITH OFFER:

1. Clause wise comments on RDSO specification as mentioned at Sr. No.-II/2.
2. Clause wise comments on this purchase specification.
3. Shipping list complete for approval by BHEL.
4. Quality plan.
5. Documents to be submitted with supplies:
 - I. Test report and guarantee certificate.
 - II. Complete shipping list indicating all loose items including consumables, chemicals (if any), hardware etc.

VI. INSPECTION AND TESTING:

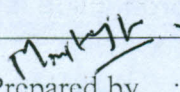
1. All the tests called in the RDSO specification shall be conducted by the party and shall be witnessed by RDSO/BHEL. Supplier to indicate the place/ Lab where the test shall be conducted.
2. Reports of all tests and dimensional checks need to be submitted to BHEL Jhansi.

VII. WARRANTY:

1. Party should give warranty for 5 years against supply and installation of FRP cab in locomotive from the date of installation.

IX. SPECIAL NOTE:

1. The list of items to be fitted in the driver's cabin is enclosed (Annex-3).

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