



BEML LIMITED
BANGALORE
R & D CENTER

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**Procurement Technical Specification of
Labels (Interior & Exterior) for Metro Cars**

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1 Introduction

1.1 General

This Procurement Technical Specification (hereafter PTS) describes the technical requirements for the Interior & Exterior labels to be supplied for use in Metro Cars.

The supplier shall be responsible for all works required in this PTS with regard to Interior & Exterior labels and shall be responsible for supporting the BEML activities as contractor for manufacture of Metro Cars.

2 Definitions and Abbreviations

The following definitions and abbreviations are applicable.

- “Customer” means the order placing authority of the Mass Rapid Transport System (MRTS).
- “Customer’s Representative” mean such persons appointed by customer to act as Engineer for the purpose of the MRTS.
- “BEML” means the Contractor to procure the bulk head panel for metro cars.
- “Supplier” means the Supplier of bulk head panel to BEML.

3 General Requirements

The supplier shall supply Labels(Interior & Exterior) in conformance to this PTS and the applicable drawings.

3.1 Defining of unclear aspects

If any term or clause is not described or not clear in the specification, supplier shall discuss those with design team in BEML, prior to making a contract, to confirm their definitions.

After making a contract, supplier shall follow the definition and opinions of design team in BEML.

4 Standards

Test and inspection standard applicable for the Interior & Exterior labels shall conform to the national and international standards as at clause -7.

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5 Scope of supply

5.1 General

The Supplier shall supply labels(Interior & Exterior) conforming to this PTS and the applicable drawings.

Interior labels shall be either regular labels or fluorescent labels with surface screen printed as per applicable drawings. The supplier shall do art work as per applicable drawings and obtain approval shall before mass printing. These labels are applied in the saloon area and cab area.

Exteriors labels are colour band of width and length as per applicable drawings. These labels are applied on the external surface of carbody.

5.2 Submission of Documents

Supplier shall submit the following documents as a minimum along with the offer.

- ✓ Technical Data Sheet (TDS) & Material Safety Data Sheet (MSDS)
for Label (Interior and Exterior)
- ✓ Type test & routine Test reports

5.3 Packing

Supplier shall pack properly in order that in transit and after supply of the labels to BEML works, no damage shall occur.

6 Quality Assurance Program

6.1 General

The supplier shall hold ISO 9001 certification and shall manufacture the product accordingly. The supplier shall submit a copy of ISO 9001 certification along with the offer. The supplier shall monitor and control the quality systems as per ISO 9001 guidelines. BEML and / or customer's representative may periodically conduct compliance audits of the supplier's quality management system.

6.2 Quality Assurance Plan

The supplier shall develop and submit a Quality Assurance Plan (QAP) to BEML for review and approval based on ISO 9001 guidelines.

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7 Technical Requirements

7.1 General

The labels (Interior & Exterior) shall conform to requirement of drawings for printing matter and for physical properties & mechanical properties shall generally conform to Table-1 & Table -2 shown below.

Sl. No.	Description	Interior Labels		Exterior Labels
		Vinyl labels	Fluorescent Labels	
1.	Face film			
	Material	High grade cast vinyl	High grade polymeric, photo luminescent complying to ASTM E 2072	Weather Resistant, highly conformable Exterior grade
	Thickness	50 $\mu\text{m} \pm 10\%$	360 $\mu\text{m} \pm 10\%$	130 $\mu\text{m} \pm 10\%$
2	Adhesive			
	Material	Clear, Permanent, Acrylic	Clear Acrylic pressure sensitive	Clear, permanent, acrylic, pressure sensitive
	Thickness	25 μm		
3	Liner	One side Coated with white kraft paper 135 g/sq.m		
4	Surface printing	Silk screen printing		-
5	Finish	Clear Coat		-
6	Gloss	High		
7	Conformability to irregular surfaces	Excellent		
8	Durability	5 years		7 Years
9	Dimensional stability	0.20 – 0.40 mm		
10	Temperature Range			
	Application	10°C min.		
	Service	-40°C to 90 °C		

Table -1: Physical Properties of Labels

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Test Types	Interior Labels		Exterior Labels	Test method /Remarks
	Vinyl labels	Fluorescent Labels		
Adhesion on steel on 24 hrs on application.	Min.1600 gm/2.5 cm	Min.1200 gm/ 2.5 cm	Min.1750 gm/ 2.5 cm	IS 7809 Part II
Weather Resistance as per SAE J 1960	1000 hrs on Xenon arc weather meter	400 hrs on Xenon arc meter	1000 hrs on Xenon arc meter	No fading of printed matter or colour fading
Flammability	Self -Extinguishing			
Chemical Resistance.	Resistant to most acid alkalis and salt solutions			No peeling off, edge lifting or deterioration in properties/appearance
Illuminescent Characteristics	--	Yes	--	
Humidity Resistance (exposed for 168 hrs at 50°C and 95%RH)	Very good		Excellent	No peeling off, edge lifting or deterioration in properties/appearance
Sea Water resistance as per BS 5609	Very good		Excellent	No peeling off, edge lifting or deterioration in properties/appearance
Abrasion resistance as per BS 3110	Rubbed with dry cloth for 200 cycles under 2 kg			Printed text shall remain legible
Ant-graffiti	Yes			

Table -2: Mechanical Properties of Labels

8 Submittals with Technical Offer

The supplier shall provide, as a minimum, the following along with the technical offer:

- 1) Complete Technical Offer for Lables (Interior & Exterior).
- 2) Technical Data Sheet (TDS) & Material Safety Data Sheet (MSDS) of Lables (Interior & Exterior)
- 3) The supplier shall provide clause by clause compliance against the PTS Doc No. GR/TD/3778
- 4) Type test reports.
- 5) The supplier has to submit the Art-work along with the technical offer.