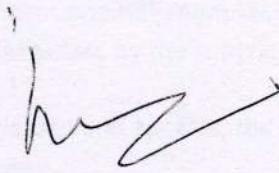


## CERTIFICATE

Certified that the specification No. VFJ/TSS/SP/TATA- 03 ,  
for Bullet Proof TATA-407 contain pages 04 and they have  
been serially numbered from serial no.01 to 04



( H. Bhatnagar )  
Works Manager  
For. Sr. General Manager

तकनीकी सेवा अनुभाग  
TECHNICAL SERVICES SECTION  
वाहन निर्माण, जबलपुर  
Vehicle Factory, Jabalpur  
प्रमाणित सत्य प्रतिलिपि  
CERTIFIED CORRECT COPY  
की जारी / Issued to: JWM / VM-2  
दि / on: 20/12/2019  
क कार्ड प्रदत्तक / टी एस ए  
JWM / TSS

**BULLET PROOF GLASSES FOR TATA-407**

**1. SCOPE**

This specification pertains to 50 mm thick Bullet proof glasses for TATA-407

**2. PROTECTION**

Bullet proof glasses of 50 mm + 1mm thick should provide protection against 7.62 SLR, NATO ball ammunition with muzzle velocity 838 + 8 meters per second (approx.) from a distance of 10 meters.

**3. MATERIAL CONDITION**

- (i) All glasses should be made by using minimum 4mm thick silicon coated, optical quality, scratch proof poly carbonate sheets. Certificate from original manufacturer of Poly Carbonate sheets with batch number etc. Should be furnished by the supplier. The glasses should be splinter proof.
- (ii) No water, air or dust layers should form inside the glasses and for this, the manufacture / suppliers are required to furnish three years guarantee.
- (iii) The glasses should be free from defects such as cracks, pock marks, sand/silica marks, scratches, visual distortions, dust particles etc, on inner/outer surface of all layers.
- (iv) The bullet proof glasses shall be fixed in the frames and fitted on the vehicle strictly as per manufacturer's specifications/advice at VFJ. In spite of this, if the glasses develop cracks within a period of three years from the date of purchase, the manufacturer shall be liable to give free replacement.

**4. TRANSPERANCY**

The bullet proof glasses should be fully transparent without any color tint. The refractive index of the glasses should provided distortion-free single image visual characteristic.

**5. INSPECTION**

- (i) By Sr.GM/VFJ or his authorized representative at VFJ for dimensional, Visual, fitment of rubber beading on the glasses and for ballistic test.
- (ii) One sample of Bullet proof glass of size of size 500x500 mm should be supplied free of cost along with each lot of 10 sets or part there off. The sample should be true representative of bulk in respect of material, thickness and the manufacturing process. This samples will be ballistic tested at VFJ (Manufacturer representative can be allowed to be present during ballistic test on request, if required) if the sample fails in ballistic test, the entire lot supplies will be rejected at the cost of supplier.
- (iii) The sample should withstand 3 rounds of the fire at minimum distance of 120 mm from each other.
- (iv) The supplier should furnish test certificate with each lot of Bullet Proof glasses clearly indicating the tests carried out and a certificate of guarantee that Bullet Proof glass will withstand fire from the weapons as stipulated in para 2 and 5 (iii).
- (v) If the bullet as specified in para 2, penetrates the sample and passes through the full thickness of the glass causing a through hole, it will be considered as a failure of Bullet Proof glass.



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**BULLET PROOF GLASSES FOR TATA-407**

- (vi) If the bullet shatters the glass and lodges inside, without coming out of it and causing a hole on opposite surface, it will be considered acceptable. However, if the glass film on the back side/opposite surface shatters, it will be considered as failure of the Bullet Proof glass.
- (vii) As regard presence of scratches, lint, black spot, interlayer defects and cracks in the Bullet Proof glasses, it will be inspected as per IS 2553 (part-2)-1992-para 5.1.5.
- (viii) The Bullet Proof glasses should be free from the presence of virtual scratches arising due to lack of process control.

**6. RUBBER BEADING**

- (i) Rubber beading to be supplied by the firm along with Bullet Proof glasses. For wind shield glass, rubber beadings as per drawing no. SK-214-54-007 and for side door glasses, trooper glasses and rear glasses U-type rubber beading to drawing no. SK-214-54-011 to be supplied. Drawings referred herein form an integral part of this specification.
- (ii) All Bullet proof glasses including wind shield glass should be supplied with rubber beading having not more than one joint in assembled condition.

**Rubber details:**

- a. Type of rubber : Neoprene/EPDS
- b. Shore hardness : 65+5 at the time of receipt.
- c. Tensile strength : 70+5 kg/Sq.Cm
- d. Elongation : 300% + 10 min.
- e. Polymer content : 60% min.

**7. PACKING**

Glasses are to be packed for safe transportation. Any damage during transportation will be at the cost of the supplier.

**8. GENERAL**

- 1. VFJ reserve the right to randomly select a test sample from the bulk (Not wind shield glass) at any point of time for ballistic test and reject the complete lot if this random sample fails even if the original sample was found acceptable during the ballistic test.
- 2. In case the lot is found acceptable on ballistic testing, the expended piece has to be replenished by the supplier free of cost to make good the set.
- 3. The supplier must fix his monogram and indicate serial No. & year of the manufacture of each glass to ensure traceability.



( H. Bhatnagar )

Works Manager

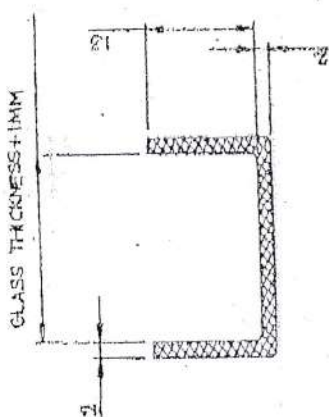
For. Sr. General Manager





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1. ALL DIMENSIONS ARE IN MM.
2. THE CROSS SECTION OF THE RUBBER BEADING SHOULD BE AS PER DRAWING AS SHOWN ABOVE.
3. LENGTH OF RUBBER BEADING SHOULD BE AS PER PERIMETER OF B.F. GLASS FOR WHICH RUBBER BEADING IS MANUFACTURING AND CORNER BENDS ARE TO BE MAINTAINED AS PER GLASS PROFILES AND RADII.
4. RUBBER MATERIAL SHOULD SATISFY THE REQUIRED PROPERTIES AT THE TIME OF RECEIPT.
5. PROPERTIES OF THE MATERIAL:
  - a) TYPE OF RUBBER : NEOPRENE OR EPDS
  - b) SHORE HARDNESS : 65±5 AT THE TIME OF RECEIPT.
  - c) TENSILE STRENGTH : 70KG/SQ.CM.
  - d) ELONGATION : 300%(MIN)

USED ON  
MATERIAL

ISSUE APPROV.		NATURE OF AMENDMENT	
APPROVED BY	DATE	ORG. NO:	SK-214-54-011
ORDNANCE	FACTORY	CROSS SECTION VIEW	MTS
NAME	SIGN	OF RUBBER BEADING	
ORDNANCE		MATERIAL	RUBBER
FACTORY			
MEDAK			

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