

**ACCEPTANCE TEST PROCEDURE (ATP)**  
**COMPOSITE ARMOUR FOR MPV 6x6**

**No. : VFJ/ODC/SP/COMPOSITE ARMOUR/01 dt 05.05.2017**

Ref:- (i) Specification No. OFPM/R&D/SP/COMPOSITE \_ARMOUR/07, Dated 16.03.2007 (Acceptance test procedure (ATP)/Composite Armour for MPV (Army version)  
(ii) OFMK Letter No. 78201/MMPV/ODC-OFMK/16-17 Dated:- 29.04.2017

**1. Technical specification:-**

- i. Material: - Composite armour material (Ultra High molecular weight polyethylene) – DYNEEMA-UD HB 25/26.
- ii. Thickness :- 23±1 mm
- iii. Aerial density:- 21.00 -1/+2 Kg/m<sup>2</sup>
- iv. The material should be able to retain its original physical properties (ii & iii), when used in temperature conditions of -40°C to +55°C.

**2. Protection level:**

The material should offer protection against 7.62 SLR (Self loading Rifle) from a distance of 10 mts.

**3. Test Conditions:-**

- i. The firm is to give material certificate for all the components manufactured.
- ii. The firm is to give a certificate that all the components against each set manufactured should be from the same lot of material and whenever there is a change in the material lot size, separate sample should be provided.
- iii. The firm is to provide a certificate along with the samples, that they are the true representative of the bulk of upto 20 sets manufactured as per drawings of Annexure-A.
- iv. However, for upto 20 sets of material at least one set of sample as per Annexure - A , will be tested at VFJ to prove the above protection level and also practical trials on vehicle application. One set of test samples will be selected randomly from the components already manufactured. The firm should make good of this deficiency before dispatch to consignee. (In case of foreign vendor the firm should give a certificate as per (iii) and dispatch the sample to VFJ for trials)
- v. From the above one set of test sample components two numbers of components will be selected and subjected for check at -40 degree first in cold chamber for two hours and subsequently at +55 degree in an oven for two hours to check the physical parameters of the samples for size and weight at both stages of cold chambers test and heat oven test. The samples should retain its physical properties compared to the results obtained at ambient temperature conditions. The same samples will be subjected to 24 hours conditioning at 24-28 degree C before the ballistic test is conducted.

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- vi. Based on the satisfactory ballistic test results at (4) below, other panels as per drawings of Annexure-A will be subjected for practical trials for vehicle application.

The test results will be communicated to the firm within one month's time for bulk dispatch clearance of upto 20 sets. Quantity consumed in test practical trials will have to be made good by the firm at their own cost.

- vii. The firm should offer the items in sets only and upto 20 sets can be offered in each consignment.
- viii. Based on the test results, bulk dispatch clearance will be accorded for each 20 sets, confirming to the approved samples.

**4. Ballistic Test Procedure:-**

- i. Samples are hung on a heavy and rigid support in vertical condition.
- ii. Shooting distance 10m
- iii. Angle of incidence: 0° (approx)
- iv. No. of shots on each sample must be 06 from 7.62 SLR with 51mm NATO Ball ammunition M80
- v. Distance between two shots and also from edges must be 50 mm (minimum).
- vi. Muzzle velocity to be recorded. (810+/-10 Mts/Sec)

**5. Traceability:-**

Every component in each set should have the manufactures initials with year of manufacture for identification of the product.

**6. Acceptance Criteria:-**

Samples and subsequently whole batch consisting of upto 20 sets are accepted,

- i. When there is no penetration/perforation either by the bullet or its fragment.
- ii. When passes successfully, in the practical trials for vehicle application carried out on complete sets as per drawings of Annexure-A .

Otherwise, the whole batch stands rejected.

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