
To
Mrs. Sugandhi,
Technical Director, NIC
North Block, New Delhi
Email: mpsugandhi@nic.in

Subject: - Regarding uploading of Draft QRs/TDs of B.P. Patkas:

In pursuance to MHA letter No. 11012/02/2009-Fin-I/Prov-I/17 dated 02/01/2018 regarding guidelines for finalization of QRs/TDs by CAPFs. The draft QRs/TDs for Bullet Proof Patka to be uploaded on the website of MHA for 15 days for seeking comments of OEMs/Vendors/Organisation to make more generic.

02. Keeping in view of the above, it is requested that the draft QRs/TDs of above items may be uploaded on MHA website for 15 days for seeking comments of vendors/OEMs and thereafter QRs/TDs may be removed from website. The interested vendors/OEMs will send their comments on the following address/route:

| Through Mail | deordnance@crpf.gov.in |
| Through Fax  | 011-24360155         |
| By Hand      | Room No. 007, Ground Floor, Block No. 01, Directorate General, CRPF, Lodhi Road, New Delhi-03 |

03. An early action in this regard is highly appreciated.

Encl:- Soft copy of QR/TDs of B.P. Patka


Copy forwarded to:-

SL (IT), North Block for necessary action please. (soi@nic.in)

(Narinder Paul)
DIG (Ordnance)
Service Employment:

Bullet Proof Patkas (LWBPP) has been in use as an individual protection gear with Armed Forces. It offers protection around the forehead and sides of the head from Ballistics (bullets). There is a requirement to procure Light Weight Bullet Proof Patkas to facilitate Safety to the most vital portion of a Jawan i.e. head.

General Characteristics:-

1. Bullet Proof Patkas should be convenient and comfortable to wear/handle.
2. It should not impede the movement of the wearer in carrying out his functions.
3. It should not have any ill effect on the head of a soldier.
4. The material encasing the steel protection should be breathable.

Physical Characteristics:-

5. Should be in four components viz.: fourth part i.e., skull protection is optional
   a) Steel band to be covered with Expandable Polyethylene Sheet/EVA foam sheet.
   b) Suitable disruptive cover with strapping harness, having suitable arrangement for air circulation.
   c) High density foam trauma pad, with water resistant cover.
   d) Top plating of Kevlar or other suitable B.R. Material (Ballistic resistance) affording protection from injuries to skull portion. Conical/spherical metallic cover at the top to cater for low velocity bullet (The protection for skull is optional and user may decide to keep it or otherwise).

6. Comparable Trauma pad to absorb shock.
7. The steel band should cover the entire circumference of the head above the eyes and ears.
8. Should have balance strapping/adjustable system using Velcro or better fastener.
9. The harness of Patka should not be affected by moisture/rain. It should meet the Requirement as mentioned below.
Requirement of Harness  (Table-1)

<table>
<thead>
<tr>
<th>SI No</th>
<th>Test Parameter</th>
<th>Requirement</th>
<th>Method of Test, Ref to</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>i)</td>
<td>Mass, g/m² Max</td>
<td>160</td>
<td>IS 7016 (Part-I)</td>
</tr>
<tr>
<td>ii)</td>
<td>Tensile strength N, Min (a) Warp wise</td>
<td>1150</td>
<td>IS 7016 (Part- 2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>900</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(b) Weft wise</td>
<td></td>
<td></td>
</tr>
<tr>
<td>iii)</td>
<td>Tear strength ,N,Min: (a) Warp wise</td>
<td>160</td>
<td>IS-7016 (Part3), Method A2, Trouser shaped test piece, single tear method.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>140</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(b) Weft wise</td>
<td></td>
<td></td>
</tr>
<tr>
<td>iv)</td>
<td>Flame resistance test: (a) Duration of flame (After flame time), s, Max</td>
<td>5</td>
<td>IS 11871, Method A</td>
</tr>
<tr>
<td></td>
<td>(b) Duration of afterglow, s, Max</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>(v)</td>
<td>WATER REPELLENCY, Rating, Minimum</td>
<td>50</td>
<td>IS 390</td>
</tr>
<tr>
<td>(vi)</td>
<td>Colour fastness rating to light (Change in colour on blue wool), Min</td>
<td>4</td>
<td>IS 2454</td>
</tr>
</tbody>
</table>

10. Firm Hologram along with serial number and batch number should be there during lot supply on the steel band.

Operational Characteristic:

11. Steel ring should have anti rust & moisture proof coatings. It should pass Salt Spray (Fog) Test as per MIL STD-810G, Method-509.5/ASTM B117 ISO9227 BIS 9844.

13. It should be able to provide following protection levels:

(a) AK 47 (7.62x39 mm, HSC) - From 10 meters (Forehead only)

(b) 9 mm x19 mm parabellum- From 05 meters (remaining area)

(7.62x39 mm, HSC Ordnance Factory bullet fired through A.K. Series rifles to achieve a muzzle velocity of 700±15 m/s and weight of the bullet 7.45 gm to 8.05 gm) (9 mmx19 mm Ordnance factory bullet fired through Pistol Carbine to achieve a muzzle velocity of 430±15 m/s and weight of the bullet 7.4 to 8.2 gm).

Physical Parameters:

i) Weight with skull protection 1.55 kg ±10%

ii) Weight without skull protection 1.4 kg± 10%

Outer Circumference

(A) 680 mm±10 mm (Small)
(B) 700 mm±10 mm (Medium)
(C) 720 mm± 10 mm (Large)
1. Width of Steel - 76.2 mm ± 4 mm
2. Thickness X Length

(A) Front Portion - 4.8 mm ± 0.2 mm x 225 mm ± 5 mm
(B) Rear Portion:
    Small - 2.4 mm ± 0.2 mm x 460 mm ± 5 mm
    Medium - 2.4 mm ± 0.2 mm x 480 mm ± 5 mm
    Large - 2.4 mm ± 0.2 mm x 500 mm ± 5 mm

Areal density - 0.00785 g/cubic mm

**Miscellaneous:**

14. The Patka should also incorporate the following:
   (a) Suitable Cup shaped, synthetic/any comfortable material chin strap to be provided for secure fastening instead of Velcro strap.
   (b) Additional padding for the scalp portions and proper fitting.
   (c) All strap joints should have box stitching.

15. Warranty up to 10 years for Steel Panel and 01 years for Harness and trauma pad from the date of acceptance of store.

16. The Ballistic testing of the B.P. Patka shall be carried out at TBRL, CFSL, GFSU or any other laboratory mandated to carry out such tests by Govt. of India/concerned States/UTs.

17. The firm shall provide 06 samples (02 samples in each size ie, small, medium & Large)

18. The Measurements, physical and visual inspection shall be carried out by the BOOs comprising of members from all the CAPFs.

19. The testing for parameter 9 and 11 will be carried out at any National and International Accredited lab.
# Draft Trial Directives of Bullet Proof Patka

<table>
<thead>
<tr>
<th>S/No</th>
<th>QRs for Light Weight Bullet Proof Patka</th>
<th>Trial procedure to be adopted by STEC during trial evaluation cum physical demonstration of B.P. Patka</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>Service Employment</strong>: Bullet Proof Patkas (LWBPP) has been use as an individual protection gear with Armed Forces. It offers protection around the forehead and sides of the head from BALLISTICS (bullets). There is a requirement to procure Light Weight Bullet Proof Patkas to facilitate safety to the most vital portion of a Jawan i.e, head</td>
<td>Certificate to this effect should be provided by the OEM.</td>
</tr>
<tr>
<td></td>
<td>(a) Service Employment: Bullet Proof Patkas Certificate to this effect should be provided by the OEM. (LWBPP) has been use as an individual protection gear with Armed Forces. It offers protection around the forehead and sides of the head from BALLISTICS (bullets). There is a requirement to procure Light Weight Bullet Proof Patkas to facilitate safety to the most vital portion of a Jawan i.e, head.</td>
<td></td>
</tr>
</tbody>
</table>
|      | (b) General characteristics: -  
|      | a) Bullet Proof Patkas should be convenient and comfortable to wear/handle  
|      | b) It should not impede the movement of the wearer in carrying out his functions.  
|      | c) It should not have any ill effect on the head of a soldier.  
|      | d) The material encasing the steel protection should be breathable. | (a) to (c)  
|      | Jawans should be made to wear the B.P. pataka for 1 to 2 hours with their weapons, rears & other equipment. Whether the Patka is causing any ill effect or not, shall be ensured by the feedback from the Jawan during the fitment trial & same should be recorded by a doctor/physician. The Patka should not cause inconvenience to him.  
|      | d) To be checked by the board of officers. |
| 2.   | Physical Characteristics: -  
|      | a) Steel band to be covered with Expandable Ply ethylene Sheet/EVA foam sheet.  
|      | b) Suitable disruptive cover with strapping harness, having suitable arrangement for air circulation.  
|      | c) High Density foam trauma pad, with water resistant cover.  
|      | d) Top plating of Kevlar or other suitable B.R. material (Ballistic resistance) affording protection from injuries to skull portion. Conical/spherical metallic cover at the top to cater for low velocity bullets (The protection for skull is optional and user may decide to keep it or otherwise) | For (a), Firm to produce OEM certificate.  
|      | For (b,c,d) To be checked by the board of officers. For only (d) one 9x19 mm bullet will be fired on the kevlar from 10 m. There should be no penetration with BFS 25 mm. |
| 3.   | Comparable Trauma pad to absorb shock | To be physically checked by the board of officers by making soldiers wear it. |
| 4.   | The steel band should cover the entire circumference of the head above the eyes and ears. | To be physically checked by the board of officers |
| 5.   | Should have balance strapping/adjustable system using Velcro or better fastener. | To be physically checked by the board of officers |
7. The harness of Patka should not be affected by moisture/rain.

Firm to provide 3 meter of sample of harness for testing as per the standards mentioned at Para (9) of the QRs at any National and International Accredited lab. Testing charges will be borne by the vendor.

8. Firm Hologram along with serial number and batch number should be there during lot supply on the steel band.

To be checked by Board of Officers.

9. Operational Characteristics:
   i) Steel ring should have anti rust & moisture proof coatings. It should pass Salt Spray (Fog) Test as per MIL STD-810G, Method-509.5/ASTM B117 ISO9227 BIS 9844.

   ii) It should be able to provide following protection levels:
   a) AK-47 (7.62x39 mm/HSC- From 10 meters (Forehead only)
   b) 9mm x19 mm parabellum- From 5 mtrs (remaining area)

   i) Certificate to be provided by the firm from any national/international accredited lab. No severe localized corrosion should be observed during the lab test.

   ii) to iii) To be checked at TBRL, CFSL, GFSU or any other laboratory mandated to carry out such tests by Govt. of India/concerned States/UTs as per instructions issued by MHA vide letter No. IV-24011/43/2010-Prov-I dated 03/11/2010.

   The distance was decided on the basis of threat perception of such ammunition in field conditions.

10. Physical Parameters: -
   i) Weight with skull protection 1.55 ±10%
   ii) Weight without skull protection 1.4 Kg ± 10%

   Outer Circumference
   a) 680 mm±10 mm (Small)
   b) 700 mm± 10mm (Medium)
   c) 720 mm ± 10mm (Large)

   Width of steel- 76.2 mm ± 4 mm

   Thickness X Length
   a) Front portion - 4.8 mm ± 0.2mm x 225 mm ± 5mm.
   b) Rear Portion:
      Small - 2.4mm ± 0.2 mm x 460 mm ± 5 mm
      Medium - 2.4 mm ± 0.2 mm x 480mm ± 5 mm, Large - 2.4 mm ± 0.2 mm x 500 mm ± 5 mm

To be measured by the board of officers.
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>11</strong></td>
<td><strong>Miscellaneous</strong>&lt;br&gt;The Patka should also incorporate the following:&lt;br&gt;a) Suitable Cup shaped, synthetic/any comfortable material chin strap to be provided for secure fastening instead of Velcro strap.&lt;br&gt;b) Additional padding for the scalp portions and proper fitting.&lt;br&gt;c) All strap joints should have box stitching.</td>
<td>To be physically checked by the board of officers</td>
</tr>
<tr>
<td><strong>12</strong></td>
<td><strong>Warranty upto 10 years for steel panel and 01 years for Harness and trauma pad.</strong></td>
<td>An undertaking from the OEM should be provided</td>
</tr>
<tr>
<td><strong>13</strong></td>
<td><strong>The Ballistic testing of the B.P. Patka shall be carried out at TBRL, CFSL, GFSU or any other laboratory mandated to carry out such tests by Govt of India.</strong>&lt;br&gt;03 (Three) single shots of each ammunition will be fired from a distance of 10 m (for 7.62×39mm) and 05 m (for 9×19mm) and inter shot distance should not be less than 20 mm. There should not be any penetration in the panel(s). Further the Panel will be declared to be failed under following conditions.&lt;br&gt;a) Bulge at the back with radial cracks permitting kerosene oil applied at the point of impact to penetrate through to the back of the plate.&lt;br&gt;b) Bulge with tear along the circumference seen at the back of the armor plate.&lt;br&gt;c) Development of cracks in the amour plate permitting kerosene oil extending beyond the area of penetration of bullet.</td>
<td>To be checked by TBRL, CFSL, GFSU or any other laboratory mandated to carry out such tests by Govt. of India/concerned States/UTs as per instructions issued by MHA vide letter No. IV-24011/43/2010-Prov-I dated 03/11/2010.</td>
</tr>
<tr>
<td><strong>14</strong></td>
<td><strong>The measurements, and physical and visual inspection shall be carried out by the BOOs comprising of members from all the CAPFs</strong></td>
<td>Trial procedure to be adopted by STEC during trial evaluation cum physical demonstration of BP. Patka.</td>
</tr>
<tr>
<td><strong>15</strong></td>
<td><strong>The firm shall provide 06 Nos samples (02 samples in each size ie, small, medium &amp; large)</strong></td>
<td>Samples shall be checked physically in accordance with physical parameters mentioned at sl. No.10 above.</td>
</tr>
</tbody>
</table>