

QRS OF BULLET PROOF PATKA

Service Employment:

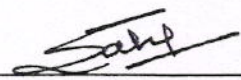
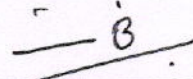
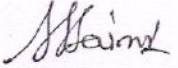
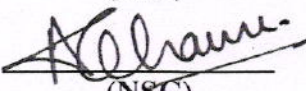
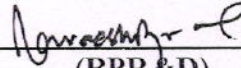
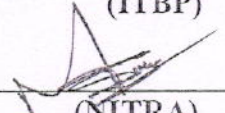
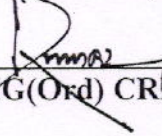
Bullet Proof Patkas (LWBPP) has been in use as an individual protection gear with Armed Forces. It offers protection around the forehead and sides of the head from **BALLISTICS (bullets)**. There is a requirement to procure Light Weight Bullet Proof Patkas to facilitate Safety to the most vital portion 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 **Poly 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 **Para Aramid** 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. Compatible 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 Hook and Loop fastener.
9. The harness of Patka should not be affected by moisture/rain. It should meet the Requirement as mentioned below.

 (BSF)	 (SSB)	 (CISF)	 (ITBP)
 (NSG)	 (BPR&D)	 DMSRDE (DRDO)	 (NITRA)
 DC(Ord) CRPF	 DIG(Ord) CRPF		

Requirement of Harness

(Table-1)

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

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

Operational Characteristic:

11. Ring material should be anti Rust/Corrosion & Moisture proof Steel. It should pass Salt Spray (Fog) Test as per MIL STD-810G or Method-509.5/ASTM B117 ISO9227 BIS 9844.

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

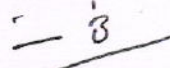
(a) AK 47 (7.62x39 mm, HSC) - From 10 meters (Forehead only)

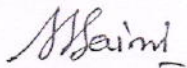
(b) 9 mm x19 mm parabellum- From 05 meters (remaining area)

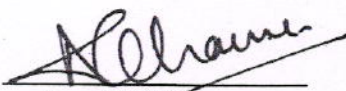
(7.62x39 mm, HSC Ordnance, Factory bullet fired through A.K. Series rifles to achieve a muzzle velocity of 700 ± 15 m/s and weight of the bullet 7.45 gm to 8.05 gm) (9 mmx19 mm Ordnance factory bullet fired through Pistol Carbine to achieve a muzzle velocity of 430 ± 15 m/s and weight of the bullet 7.4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

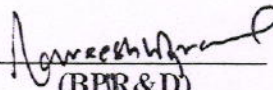

(BSF)


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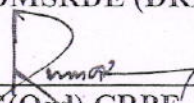

(NSG)


(BPR&D)


DMSRDE (DRDO)


(NITRA)

DC(Ord) CRPF


DIG(Ord) CRPF

Physical Parameters:

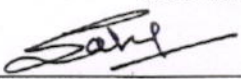
- i) Weight with skull protection 1.55 kg $\pm$ 10%
- ii) Weight without skull protection 1.4 kg $\pm$ 10%

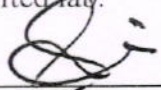
Outer Circumference

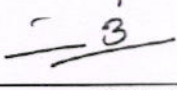
- (A) 680 mm $\pm$ 10 mm (Small)
- (B) 700 mm $\pm$ 10 mm (Medium)
- (C) 720 mm $\pm$ 10 mm (Large)
- 1. Width of Steel - 76.2 mm $\pm$ 2 mm
- 2. Thickness X Length
 - (A) Front Portion - 4.8 mm $\pm$ 0.2 mm x 225mm $\pm$ 5 mm
 - (B) Rear Portion:-
 - Small - 2.4 mm $\pm$ 0.2 mm x 460 mm $\pm$ 5 mm
 - Medium - 2.4 mm $\pm$ 0.2 mm x 480 mm $\pm$ 5 mm
 - Large - 2.4 mm $\pm$ 0.2 mm x 500 mm $\pm$ 5 mm
- Density- 0.00785 g/cubic mm

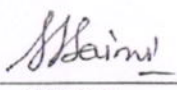
Miscellaneous:-

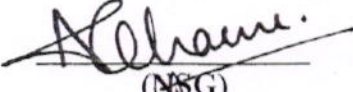
- 14. The Patka should also incorporate the following:-
 - (a) Suitable Cup shaped, synthetic/any comfortable material chin strap to be provided for secure fastening instead of Velcro strap.
 - (b) Additional padding for the scalp portions and proper fitting.
 - (c) All strap joints should have box stitching.
- 15. Warranty of at least 10 years for Steel Panel and 01 years for Harness and trauma pad from the date of acceptance of store.
- 16. The shelf life of BP Patka shall be minimum 10 years from the date of acceptance of store.
- 17. The Ballistic testing of the B.P. Patka shall be carried out at TBRL, CFSL, NFSU or any other laboratory mandated to carry out such tests by Govt. of India/concerned States/UTs.
- 18. The firm shall provide 06 samples (02 samples in each size ie, small, medium & Large)
- 19. The Measurements, physical and visual inspection shall be carried out by the BOOs comprising of members from all the CAPFs.
- 20. The testing for parameter 9 and 11 will be carried out at any National and International Accredited lab.

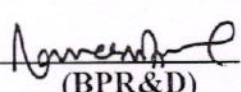

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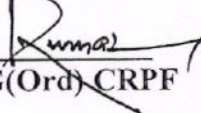

(NSG)

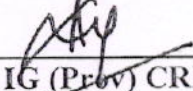

(BPR&D)

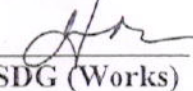

DMSRDE (DRDO)


(NITRA)


DC(Ord) CRPF


DIG(Ord) CRPF


IG (Prov) CRPF


SDG (Works)

✓
Approved/Not approved

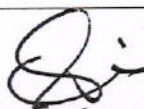

DG BPR&D

TRIAL DIRECTIVES OF BULLET PROOF PATKA

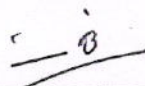
S/No	QRs for Light Weight Bullet Proof Patka	Trial procedure to be adopted by STEC during trial evaluation cum physical demonstration of B.P. Patka
1.	Service Employment: Bullet Proof Patkas (LWBPP) has been use as an individual protection gear with Armed Forces, It offers protection around the forehead 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	Certificate to this effect should be provided by the OEM.
2.	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. patka for 1 to 2 hours with their weapons, rears & other equipments. 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 any inconvenience to him. d) To be checked by the board of officers.
3.	Physical Characteristics :- Should be in four components viz : (fourth part i.e., skull protection is optional) a) Steel band to be covered with Expandable Poly 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 Para Aramid 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 certifieate. For (b,c,d) To be checked by the board of officers. For only (d) one 9x19 mm bullet will be fired on the Para Aramid from 10 m. There should be no penetration with BFS 13 mm.



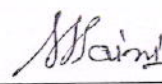
(BSF)



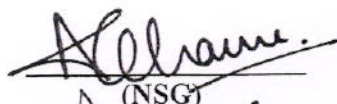
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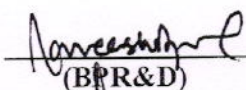
(CISF)



(ITBP)



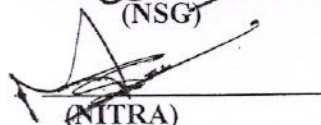
(NSG)



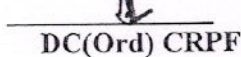
(BPR&D)



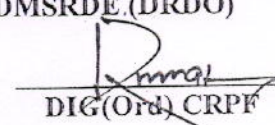
DMSRDE (DRDO)



(NITRA)

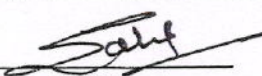


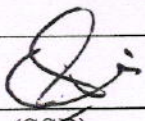
DC(Ord) CRPF

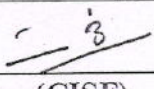


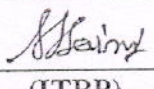
DIG(Ord) CRPF

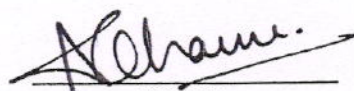
4.	Compatible Trauma pad to absorb shock	To be physically checked by the board of officers by making soldiers wear it .
5.	The steel band should cover the entire circumference of the head above the eyes and ears.	To be physically checked by the board of officers
6.	Should have balance strapping/adjustable system using Hook and Loop 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 on the steel band during lot supply.	To be checked by Board of Officers.
9.	Operational Characteristics : i) Ring material should be anti Rust/Corrosion & Moisture proof Steel. It should pass Salt Spray (Fog) Test as per MIL STD-810G or 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) (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 x19 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.)	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 be checked at TBRL, CFSL, NFSU 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.

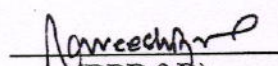

(BSF)


(SSB)


(CISF)


(ITBP)

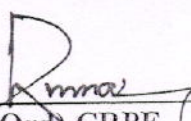

(NSG)


(BPR&D)

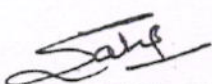

DMSRDE (DRDO)

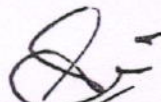

(NITRA)

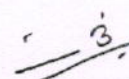

DC(Ord) CRPF

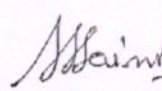

DIG(Ord) CRPF

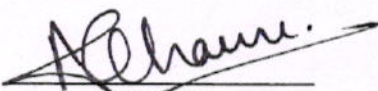
10	Physical Parameters :- i) Weight with skull protection $1.55 \pm 10\%$ ii) Weight without skull protection $1.4 \text{ Kg} \pm 10\%$ Outer Circumference a) $680 \text{ mm} \pm 10 \text{ mm}$ (Small) b) $700 \text{ mm} \pm 10 \text{ mm}$ (Medium) c) $720 \text{ mm} \pm 10 \text{ mm}$ (Large) Width of steel- $76.2 \text{ mm} \pm 2 \text{ mm}$ Thickness X Length a) Front portion - $4.8 \text{ mm} \pm 0.2 \text{ mm} \times 225 \text{ mm} \pm 5 \text{ mm}$. b) Rear Portion : Small $2.4 \text{ mm} \pm 0.2 \text{ mm} \times 460 \text{ mm} \pm 5 \text{ mm}$ Medium - $2.4 \text{ mm} \pm 0.2 \text{ mm} \times 480 \text{ mm} \pm 5 \text{ mm}$, Large - $2.4 \text{ mm} \pm 0.2 \text{ mm} \times 500 \text{ mm} \pm 5 \text{ mm}$ Density- $0.00785 \text{ g/cubic mm}$	To be measured by the board of officers
11	Miscellaneous 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.	To be physically checked by the board of officers
12	Warranty of at least 10 years for steel panel and 01 years for Harness and trauma pad.	An undertaking from the OEM should be provided.
13	The shelf life of BP Patka shall be minimum 10 years from the date of acceptance of store.	An undertaking from the OEM should be provided.

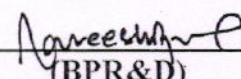

(BSF)


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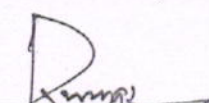

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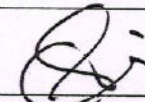
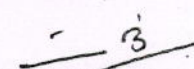
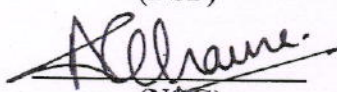
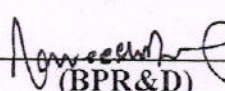
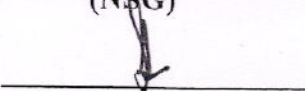
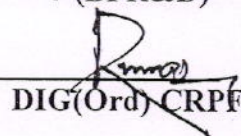
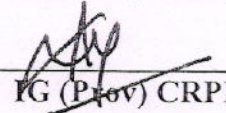
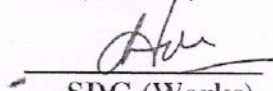

DMSRDE (DRDO)


(NITRA)

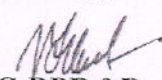

DC(Ord) CRPF


DIG(Ord) CRPF

14	The Ballistic testing of the B.P. Patka shall be carried out at TBRL, CFSL, NFSU or any other laboratory mandated to carry out such tests by Govt of India. .	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. 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. b) Bulge with tear along the circumference seen at the back of the armor plate. c) Development of cracks in the amour plate permitting kerosene oil extending beyond the area of penetration of bullet. To be checked by TBRL, CFSL, NFSU 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.
15.	The measurements, and physical and visual inspection shall be carried out by the BOOs comprising of members from all the CAPFs	Trial procedure to be adopted by STEC during trial evaluation cum physical demonstration of BP. Patka.
16	The firm shall provide 06 Nos samples (02 samples in each size ie, small, medium & large)	Samples shall be checked physically in accordance with physical parameters mentioned at sl. No.10 above.

 (BSF)	 (SSB)	 (CISF)	 (ITBP)
 (NSG)	 (BPR&D)	 DMSRDE (DRDO)	 (NITRA)
 DC(Ord) CRPF	 DIG(Ord) CRPF	 IG (Prov) CRPF	 SDG (Works)

Approved/Not approved


DG BPR&D