

REGD.

Supply Order

From:

The Director General, Supplies & Disposals,  
Haryana, SCO No.09 (1<sup>st</sup> & 2<sup>nd</sup> Floor),  
Sector-16, Panchkula E-mail: [supplies@hry.nic.in](mailto:supplies@hry.nic.in)

To

M/s. Expo Combine, Plot No. 69,  
Baba Haridas Nagar, Najafgarg,  
New Delhi. E-mail:- [sac.dhari@gmail.com](mailto:sac.dhari@gmail.com)

Memo. No.1937/HR/TLA-II/2021-2022/  
Dated Panchkula, the:-

**Subject:- Purchase of Full Body Protector required by the Police Department, Haryana.**

\*\*\*\*\*

Dear Sirs,

Reference your offer No. Nil dated 24.09.2021, your letter dated 09.10.2023, this office acceptance No.17136 dated 17.10.2023 and your letter No. BR:BLYROH:2023-24/BG/6 dated 25.10.2023, on the subject noted above.

2. Please supply the following material within 120 days from the date of issue of supply order under the terms and conditions already accepted by you in the tender to the consignees to be intimated by the Director General, Police Department Haryana, Sector-06, Panchkula.

3. The material may please be sent direct to the consignees to be intimated by the Director General, Police Department Haryana, Sector-06, Panchkula for payment and the bill of the cost in triplicate to the consignees to be intimated by the Director General, Police Department Haryana, Sector-06, Panchkula under advice to this office.

Rates are in Rs. Per No. inclusive of GST @12% freight and all other type of taxes/Duties/Levies/Labour & FOR destination etc.			
Sr. No.	Description of Stores	Qty.	Rates (in Rs.)
1.	Male Full Body Protector	2496 Nos. (40% of total qty. i.e. 6240 Nos.)	9,500/-

A. The detailed Specifications will be as per Annexure-I.

B. TERMS AND CONDITIONS:-

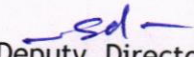
1. **F.O.R.:-** The above rates are FOR destination anywhere in Haryana at supplier's risk.
2. **DELIVERY PERIOD:-** Within 120 days from the date of issue of supply order.
3. **G.S.T. :-** Inclusive in above rates.
4. **FREIGHT CHARGE:-**Inclusive in above rates.
5. **PAYMENT TERMS:-** 100% payment will be made by the concerned units of Haryana Police against physical delivery supported with satisfactory inspection note and after receipt of correct goods at Consignee's site. **The Indenting Department would have to release payments in RTGS/Electronics mode also.**

Delay in payments to the suppliers beyond the stipulated credit period indicated in the supply order, unless supported by cogent reasons and approved by a higher authority, will attract penal interest on the defaulting amount @ Rs. 25/- per rupees one lakh per day of delay beyond the stipulated credit period. Non provision of adequate budget will be no ground for delay in payments to the supplier.

6. **INSPECTION:-** The Inspection of the material will be carried out by the committee constituted by Indenting Department or their authorized representatives at the premises of the supplier before dispatch.

In case, the material offered for inspection by the firm fails to meet the specifications stipulated in NIT/Order/Contract and the samples are rejected by the Inspecting Committee, the Indenting Department will have the right to levy a penalty at 0.1% of the total order value. In case, the material offered for inspection fails during the 2<sup>nd</sup> inspection also, the Indenting Department will have the right to increase the penalty to 0.25% of the total order value. In case, the material offered fails during the 3<sup>rd</sup> and final inspection also, the firm will be liable for penal action including forfeiture of EMD, risk purchase, debarring/ blacklisting in future, and no further opportunity for inspection would be provided to the supplier firm.

- 7 Failure the effect supply within the stipulated delivery period or repeatedly offering supply liable for rejection may render to forfeiture of Earnest Money / Security and other penal action as per terms & conditions of the contract will also be taken.
- 8 **Price Fall Clause:-** The price charged for the stores shall not exceed in any way the lowest price at which you quote/supply the stores of identical description of stores to State Govt./Central Govt./GeM Portal/Institutions/undertaking/any other person during the delivery period/currency period of the rate contracts. If at any time during the delivery/currency period, you reduce the rate, sale price of quoted stores to any person at the price lower than the price chargeable under this supply order/contract, you are required to inform this office and price payable under the supply order/contract for the stores supplied after the date of coming into force of such reduction of rates shall stand correspondingly reduced to that level. You shall promptly notify the reduction of rates to this office as well as to concerned Indenting Officers/ Consignees. You shall also give a certificate on your bills that the rates charged by you are not in any way higher to these quoted to the other State Govt. Central Govt. GeM Portal, Institutions etc. during the corresponding period. The Indenting Officer shall be required to ensure that requisite certificate is given by the concerned firm on the bills before releasing their payments.
- 9 **SCHEDULE "B":-** One copy of the Schedule "B" i.e. conditions of contract applicable is sent herewith duly signed on behalf of Governor of Haryana.
- 10 **Other terms & Conditions will be as per NIT/Schedule-A/Schedule-B attached.**

  
Deputy Director,  
For & On behalf of Governor of Haryana

Endst. No.

Dated

A copy is forwarded to the Director General, Police Department, Haryana, Sector-6, Panchkula for information and necessary action w.r.t. this office acceptance Endst. No. 17137 dated 17.10.2023.

Payment may please made to the supplier strictly as per approved payment terms and the instructions appearing at the end may also be complied with.

He is also requested to issue consignee wise dispatch instructions direct to the firm immediately under intimation to this office.

  
Deputy Director,

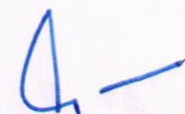
For Director General Supplies & Disposals, Haryana

Dated 26/10/2023

Endst. No. 13/S

A copy is forwarded to the following for information:-

1. The Accountant General, (Audit) Haryana Sector-33, Chandigarh.
2. The Excise & Taxation Commissioner, Delhi.
3. St. Section, O/o DS&D, Haryana.
4. Programmer, O/o DS&D, Haryana.

  
Deputy Director,  
For Director General Supplies & Disposals, Haryana

**APPENDIX - "A"**

**QUALITATIVE REQUIREMENTS (QRs)/ SPECIFICATION OF FULL  
BODY PROTECTOR(Male)**

**01. Nomenclature:- Full Body Protector (Male)**

It comprises of Chest protector, Shoulder Pad, Upper Arm guard, Elbow & Fore Arm guard, Thigh/ Pelvic guard, Groin guard and Shin guard.

**02. Colour**

Fabric and shield of required colour and required plain/ disruptive/ camouflage pattern as agreed to between the manufacturer and the user.

**03. Weight**

The overall weight of full body protector shall be  $\leq 6.5$  kg.

**04. Life**

06 Years.

**05. Size:- Three sizes namely Small, Medium and Large.**

5.1 Reference Size: Based on statistical data and based on ergonomics, dimensions for Small, Medium and Large Size of body protector have been arrived to as given in Appendix- B.

5.2 Sizes of components of Body Protector for Male: Medium size of components of body protector is taken as reference size for Male. Small size shall be 10% smaller than the reference size and large size shall be 10% larger than the reference size.

**06. Dimensions of Full Body Protector**

Components of Full Body Protector for Male should meet to the dimensional requirements of the size of the Full body protector given in Appendix-B. Tolerances for all the measurements shall be  $\pm 5\%$ .

**07. Material:-**

7.1.1 Type of Fabric – The woven and knitted fabric should be made of cotton fiber. The fiber shall be identified as 'cotton' in accordance with IS 667: 1981.

- 7.1.2 a) Mass of Outer and Inner woven fabric shall be  $230 \pm 5\%$  g/ m<sup>2</sup> when tested in accordance with IS 1964:2001.  
b) Mass of cotton knitted neck fabric shall be  $150 \pm 5\%$  g/ m<sup>2</sup>.
- 7.1.3 Tear Strength – Tear Strength of woven fabric Mass:  $230 \pm 5\%$  shall be 25 N (minimum) for Warp and 20 N (minimum) for weft when tested in accordance with IS 6489 (Part-1).
- 7.1.4 Tensile Strength – Tensile Strength of woven fabric Mass:  $230 \pm 5\%$  shall be 770 N (minimum) for Warp and 450 N (minimum) for weft when tested in accordance with IS 1969 (Part-1).  
Bursting strength of knitted fabric of GSM  $150 \pm 5\%$  shall be minimum 240 KPa.
- 7.1.5 Flame Retardency – Outer fabric and fabric for neck protection/ collar shall pass the requirements when tested for Flame Retardance by Surface ignition and Edge ignition in accordance with Procedure A and Procedure B of IS 15758 (Part-4) respectively.

**Requirements for Surface Ignition**

- a) No specimen shall give hole formation.  
b) No specimen shall give flaming to the top or either side edge.  
c) No specimen shall melt or give flaming or molten debris.  
d) The mean value of after-flame time shall be  $\leq 2$  s.  
e) The mean value of after-glow time shall be  $\leq 2$  s.

**Requirements for Edge Ignition:**

- a) No specimen shall give flaming to the top or either side edge.  
b) No specimen shall melt or give flaming or molten debris.  
c) The mean value of after – flame time shall be  $\leq 2$  s.  
d) The mean value of after – glow time shall be  $\leq 2$  s.

- 7.1.6 Flame Retardancy after washing – Both fabrics shall be washed for 30 washes in accordance with IS 15370 and shall be tested for Flame Retardancy as per clause 7.1.5 and meet the requirements as mentioned in clause 7.1.5.
- 7.1.7 Bacterial Filtration Efficiency – Inner Fabric shall have Bacterial Filtration Efficiency.
- 7.1.8 Resistance to Chemicals – Outer fabric and neck fabric shall be resistant to chemical when tested in accordance with IS 15758 (Part-3)2007 for
- 10 percent hydrochloric acid solution.

- 10 percent sulfuric acid solution.
  - Kerosene, petrol, diesel and Molotov cocktail liquid.
- When tested in accordance to IS 15758 (Part-3), the penetration index shall be  $\leq 1$  and Repellency Index shall be  $\geq 95\%$ .

7.2 Thread – Polyester sewing thread should be used.

7.3 Protector Shield – Plastic/ Composites/ Metal/ any other suitable material.

7.4 Full Body protector shall withstand stab and impact requirements given at Para 9.1 Table-1 when tested in accordance with the corresponding test methods prescribed in VPAM KDIW 2004: 18/05/2011.

7.5 Protective & Comfort Padding – Padding may be made of suitable material in single layer or made in combination of layers of foam, rubber, plastic or any other suitable material.

#### **08. Construction**

8.1 Number of stitches – Stitches shall be made of double thread. A minimum of 04 stitches per 2.5 cm shall be applied for all components of Full Body Protector.

8.2 Construction of Pads – Single or multilayer.

8.2.1 Multilayer of pads shall be inter- switchable together so as to remain in place and shall not slip. Outer side of pads shall be covered with outer fabric which is flame retardant. Inner side of pads (wearer side) shall be covered with inner fabric which is sweat absorbing and resistant to microbes.

8.2.3 Material coming into contact with the wearer's skin shall not be the type known to cause skin irritation or disease, and shall not undergo significant loss of strength, flexibility, or other physical change as a result of contact with perspiration or body oil.

8.2.4 Any material used in the construction of body protector shall not be adversely affected by ordinary household soap and water, mild household detergent, or cleaners.

#### **09. Mechanical Properties**

9.1 Full Body Protector shall meet the requirements give below in Table 1 when tested in accordance with VPAM KDIW 2004 Edition 18/05/2011.

**Table - 1**  
**Requirements of Mechanical Properties for Chest Protector and Back Protector**

Sl. No.	Requirement	Strike energy/ Joules	Angle of Incidence (degrees)	Permitted value, mm	Reference Clause/ Annex/ IS
1	Stab Resistance	65	90	<20(Penetration depth)	VPAM KDIW 2004:18/05/2011 Class K-3 Section - 5
			25		
2	Impact Resistance	100	90	<20(Deformation depth)	VPAM KDIW 2004:18/05/2011 Class W-5 Section - 8

9.2 **Flame Retardancy** – Full Body Protector shall meet the requirements when tested in accordance with IS 15758 (Part 4) for Surface ignition and Edge ignition and shall meet requirements as mentioned in para 7.1.5. and 7.1.6.

9.3 **Resistance to chemicals** – Full Body Protector shall be resistant to chemicals when tested in accordance with IS- 15758( Part-3) 2007 and shall meet requirements as mentioned in para 7.1.8.

9.4 **Temperature** – Full Body Protector should be able to with stand when exposed to temperature of -20°C for 05 hours and 55° C ( $\pm 2^\circ$  C) for 05 hours separately. There should not be any deformation or cracks after the exposure.

**10. Ergonomic Requirements**

10.1 All the components of Full Body Protector shall be flexible for optimum movement, fit comfortable and suitable to human body parts shape. Body protector shall be designed for maximum wearing comfort and easy maneuverability.

10.2 Upper Arm Protector Shield shall be flexible for easy to wear. Elbow Protector Shield shall be attached with forearm Protector Shield.

10.3 Groin Protection Padding must be segmented and shall be attached to Chest protector Shield. The protection attachment shall cover groin area from the anticipated projectiles and shall be comfortable when sitting.

10.4 Thigh guard & pelvic guard shall be attached and flexible & easy to wear/ movement. It must be supported by kamarbandh to avoid slippage while running and during movement.

**11. Hook & Loop Fasteners**

11.1 The components of the fasteners for securing attachments to the Full Body Protector shall not reduce the degree of protection afforded to the wearer by the protective padding or cushioning material of the Full Body Protector.

11.2 Hook and Loop fasteners (Velcro) shall be adjustable, durable and shall be attached to elastic strips.

11.3 Hook and Loop Fasteners shall withstand to 300 cycles of opening and closure operations.

11.4 Shear strength of Hook & Loop Fasteners: Minimum- Lengthwise – 750, Widthwise – 750 as per Annex-E of IS 8156: 1994

11.5 Endurance test of hook and loop fasteners (after 5000 cycles of closing and opening operations). The shear strength shall not decrease by more than 10% of their original value as per Annexure -G of IS 8156: 1994.

**Dimensional Requirements for components of Full Body  
Protector (Male)**

**Table B-1**

**Dimension of Chest Protector Shield and padding:-**

Sl.No	Description	Male (Medium size)	
		Length (cm)	Width (cm)
i.	Front Protector shield (Ref. Fig.01)	40	39
ii.	Back Protector shield (Ref. Fig. 02)	42	31
iii.	Front padding with Segmented Groin Pad (Ref. Fig.03)	60	43
iv.	Back padding (Ref. Fig. 04)	50	55
v.	Neck Pad	30	92.5

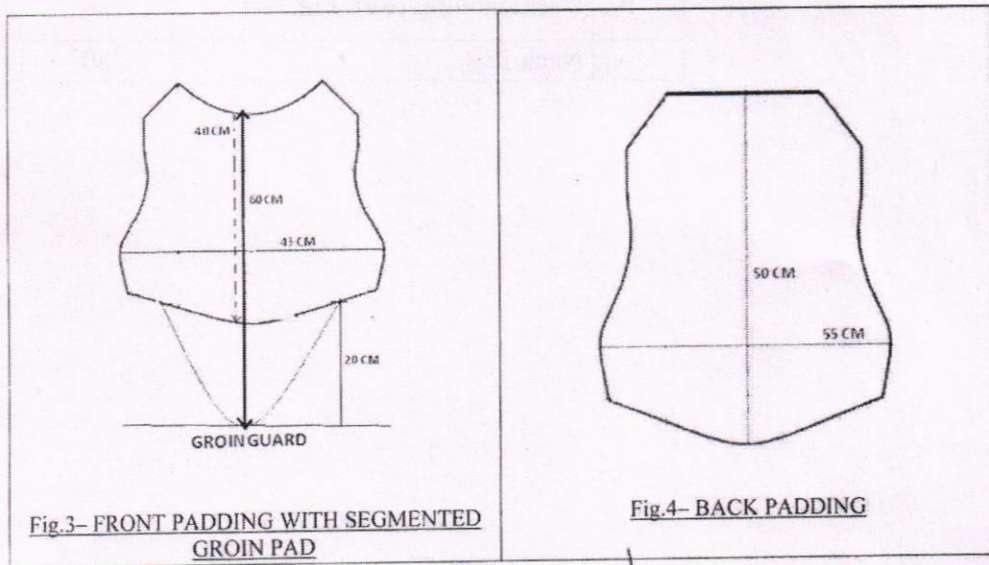
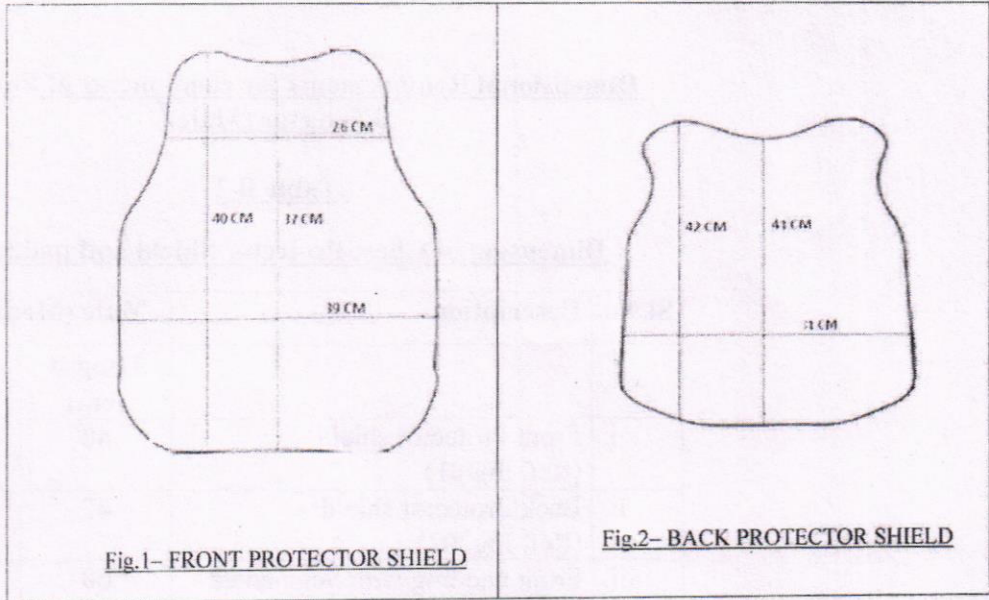




Table B-2

**Dimensions of Elbow and Fore Arm Protector Shield and  
Padding:**

Sl.No	Description	Male ( Medium size)	
		Length (cm)	Width (cm)
i.	Elbow shield(Ref. Fig. 05)	13	18
ii.	Forearm guard shield outer (Ref. Fig.06)	17	16
iii.	Forearm guard shield Inner (Ref. Fig.07)	17	9.5
iv.	Elbow & Fore Arm shield Padding (Ref. Fig.08 )	37 (overall)	27 (overall)

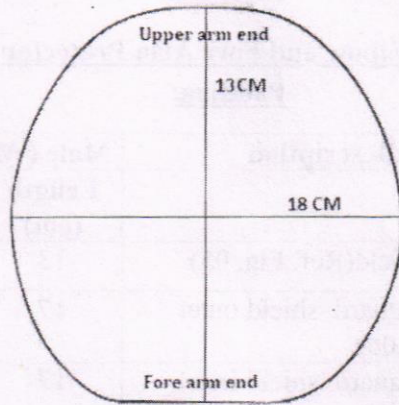


Fig.5 ELBOW SHIELD

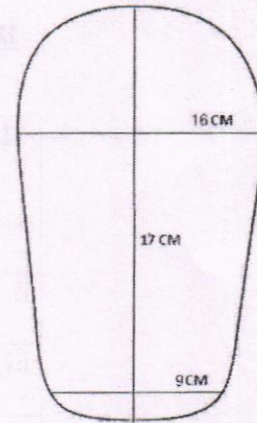


Fig. 6 FOREARM GUARD SHIELD OUTER

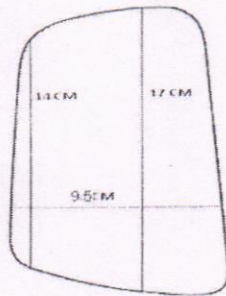


Fig.7 FOREARM GUARD SHIELD INNER

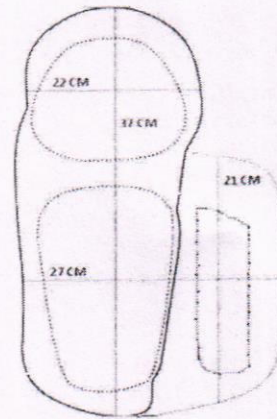


Fig.8 ELBOW AND FORE ARM GUARD INNER PADDING

Table B-3

**Dimensions of Shoulder Protector Shield and padding:**

Sl.No	Description	Male ( Medium size)	
		Length (cm)	Width (cm)
i.	Shoulder Protector Shield (Ref. Fig.09)	11	19
ii.	Shoulder Protector Shield Padding(Ref. Fig.10)	13	23

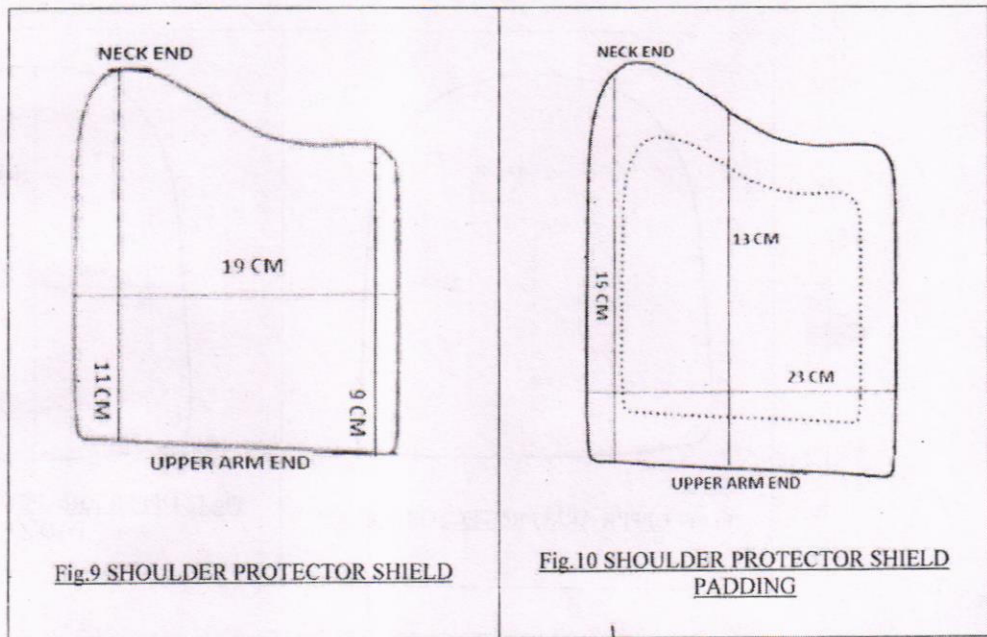


Table B-4

Dimensions of upper Arm Protector Shield and padding:

Sl.No	Description	Male ( Medium size)	
		Length (cm)	Width (cm)
i.	Upper Arm Protector Shield(Ref. Fig.11)	17	22
ii.	Upper Arm Protector Shield Padding (Ref. Fig.12)	23	24

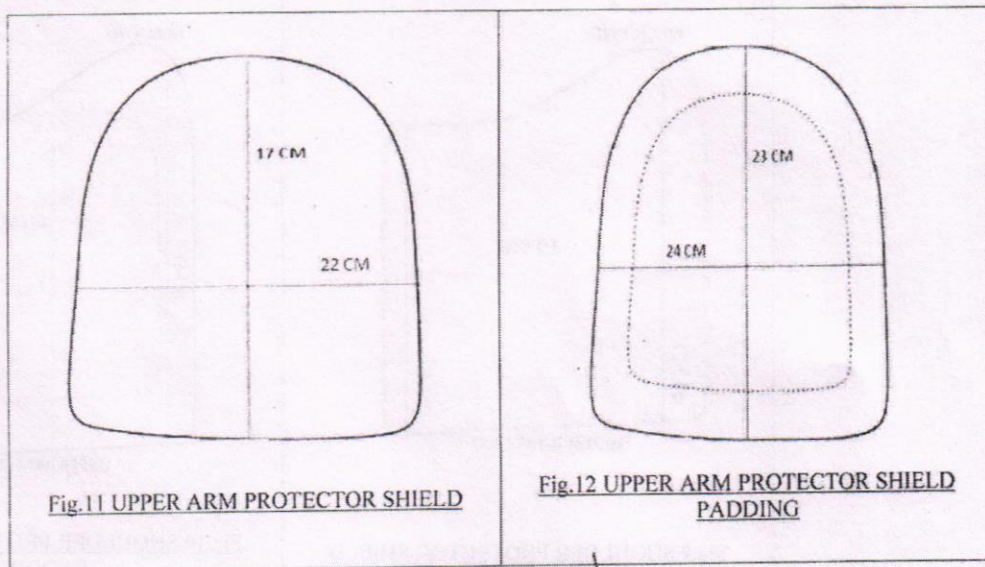


Table B-5

**Dimensions of Thigh and Pelvic Protector Shield and Padding:**

Sl.No	Description	Male ( Medium)	
		Length (cm)	Width (cm)
i.	Thigh and Pelvic Protector Shield(Ref. Fig. 13)	25	31
ii.	Thigh and Pelvic Protector Shield Padding (Ref. Fig.14)	50	85 to 110

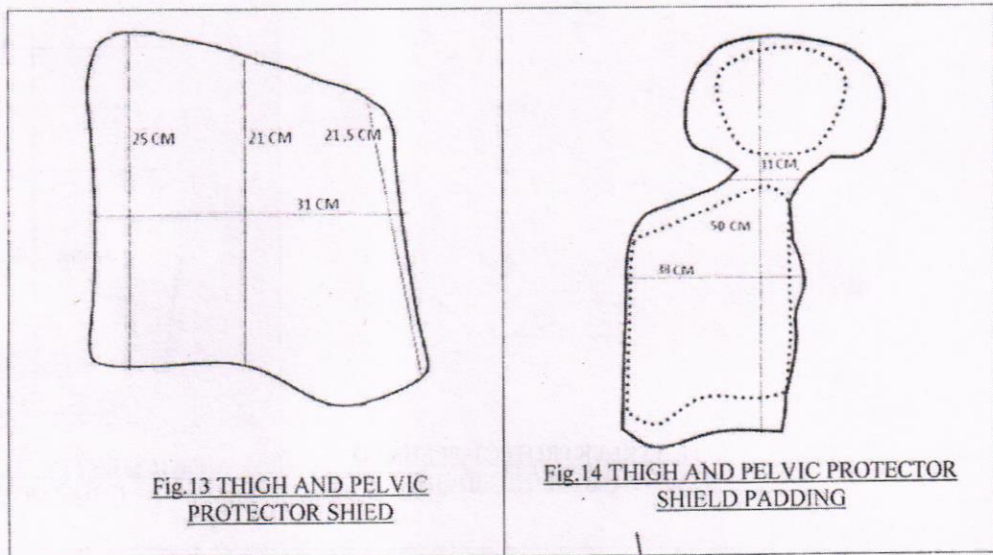


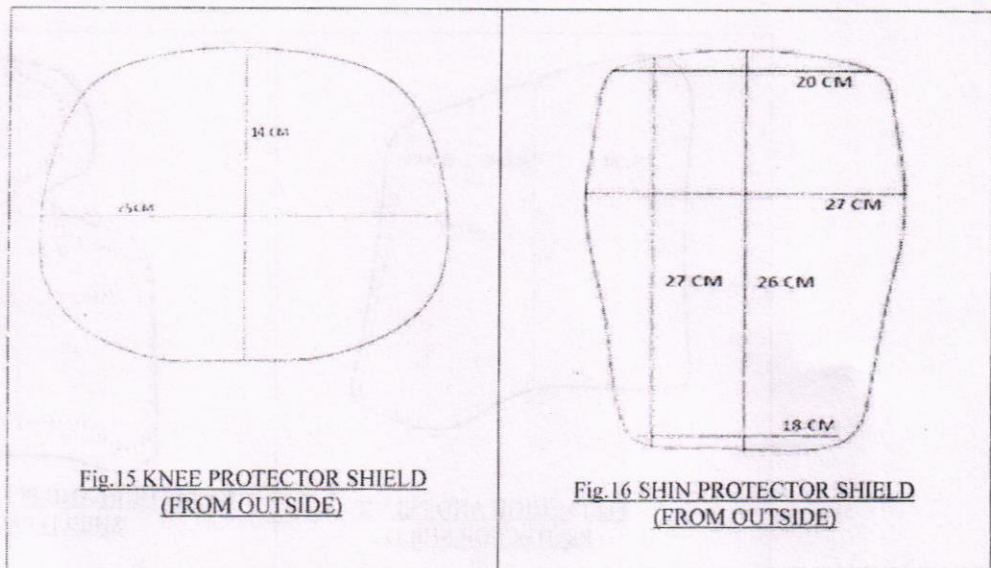
Fig.13 THIGH AND PELVIC PROTECTOR SHIELD

Fig.14 THIGH AND PELVIC PROTECTOR SHIELD PADDING

Table B-6

**Dimensions of Shin Protector Shield and Padding:**

Sl.No	Description	Male ( Medium size)	
		Length (cm)	Width (cm)
i.	Knee Protector Shield (from outside)(Ref. Fig.15)	14	25
ii.	Shin Protector Shield (from outside)(Ref. Fig.16)	26	27
iii.	Shin Protector Padding (Ref. Fig.17)	55	27



**Fig.15 KNEE PROTECTOR SHIELD (FROM OUTSIDE)**

**Fig.16 SHIN PROTECTOR SHIELD (FROM OUTSIDE)**



Fig.17 SHIN PROTECTOR PADDING

#### APPENDIX -'C'

#### TRIAL DIRECTIVES (TDs) OF FULL BODY PROTECTOR(Male)

##### **TRIAL PHILOSOPHY**

The purpose of the Full body protector is to protect the wearer from the various types of missiles that are thrown at him by the rioters most commonly. Such missiles range from stones or similar pieces of bricks/concrete, pieces of glass and glass bottles, acid bulbs/bottles containing sulphuric acid used in storage batteries and hydrochloric acid used for toilet cleaning purposes and burning rags/ bicycle tyres and Molotov Cocktails/ firebombs made basically by petrol/ diesel/ kerosene. The rioters may also attack with various types of wooden/ bamboo sticks and bicycle chains that would not be thrown but would be wielded by hands on coming close to the policemen. Therefore, the Full body protector must be able to provide him adequate protection from all above threats.

##### **TRIAL METHODOLOGY**

###### **01. PHYSICAL TEST**

The dimensions of Full Body Protector will be measured physically by board of officers as per figures mentioned in Appendix -B in QRs.

###### **02. TESTS AS MENTIONED IN QRs FOR EACH TYPE OF RESISTANCE**

To withstand various threats enumerated in trial philosophy, following tests will be Conducted:

- 2.1. **Anti Stab** – Full Body Protector shall meet the requirements given below in Table I when tested in accordance with VPAM KDIW 2004 Edition 18/05/2011, level K-3 Section 5.
- 2.2. **Anti Impact** – Full Body Protector shall meet the requirements given below in Table I when tested in accordance with VPAM KDIW 2004 Edition 18/05/2011 Class W-5 section-8.

**Table – 1**

**Requirements of Mechanical Properties for Chest Protector and Back Protector**

Sl. No.	Requirement	Strike energy/ Joules	Angle of Incidence (degrees)	Permitted value, mm	Reference Clause/ Annex/ IS
1	Stab Resistance	65	90	<20 (Penetration depth)	VPAM KDIW 2004:18/05/2011 Class K-3 Section - 5
			25		
2	Impact Resistance	100	90	<20 (Deformation depth)	VPAM KDIW 2004:18/05/2011 Class W-5 Section - 8

**2.3. Flame Retardancey test** - Full Body Protector shall meet the requirements of Flame Retardancy test for Outer fabric and fabric for neck protection/ collar when tested for 'flame retardance' by Surface ignition and Edge ignition in accordance with Procedure A and Procedure B of IS 15758 (Part-4) respectively.

**Requirements for Surface Ignition**

- a) No specimen shall give hole formation.
- b) No specimen shall give flaming to the top or either side edge.
- c) No specimen shall melt or give flaming or molten debris
- d) The mean value of after-flame time shall be  $\leq 2$  s.
- e) The mean value of after-glow time shall be  $\leq 2$  s.

**Requirements for Edge Ignition:**

- a) No specimen shall give flaming to the top or either side edge.
- b) No specimen shall melt or give flaming or molten debris
- c) The mean value of after - flame time shall be  $\leq 2$  s.
- d) The mean value of after - glow time shall be  $\leq 2$  s.



#### 2.4. Resistance to Chemicals -

Full Body Protector shall be resistant to chemicals for Outer fabric and neck fabric when tested in accordance with IS 15758 (Part-3)2007 for

- 10 percent hydrochloric acid solution.
  - 10 percent sulfuric acid solution.
  - Kerosene, petrol, diesel and Molotov cocktail liquid.
- When tested in accordance to IS 15758 (Part-3), the penetration index shall be  $\leq 1$  and Repellency Index shall be  $\geq 95\%$ .

**Note:-** Vendor shall provide 2 meter of each type of extra fabric (Woven and Knitted) used in the body protector for testing purposes.

#### 2.5 Hook & Loop Fasteners test-

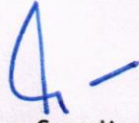
2.5.1 Strength of hook & Loop fasteners: Shear strength of hook & Loop fasteners minimum lengthwise-750, widthwise-750 as per Annx.-E of IS 8156:1994

2.5.2 Endurance test of hook and loop fasteners: Endurance test of hook and loop fasteners (after 5000 cycles of closing and opening operations). The shear strength shall not decrease by more than 10% of their original value as per Annx.-G of IS 8156:1994.

**Note:-** Vendor shall provide 5 meter of same Hook and Loop fastener which is used in the body protector sample for testing purposes.

### 03. Certification

- a) Self certification by the manufacturer that all parts of FBP are made of same material.
- b) Various tests mentioned in the trial directives can be conducted at one of the following laboratories.
  - i. NITRA, Ghaziabad(UP)
  - ii. ATIRA, Ahmadabad(Gujarat)
  - iii. DMSRDE/DRDO, Kanpur(UP)
  - iv. GFSU, Gujarat
  - v. CFSL, Labs
  - vi. CIPET Labs
  - vii. Any other NABL approved laboratory having scope for Parameters mentioned in QRs.

  
Deputy Director, Supplies & Disposals  
For & on behalf of Governor of Haryana