‘EXPRESSION OF INTEREST’

CRPF is in process to frame the **QRs/Specification of “Rucksack(30Ltrs)-cum-Hydration Pack(5Ltrs)”**. The draft Specification of this item is attached herewith.

The interested firms/manufacturers/vendors dealing in subject matter are invited to submit their views on the draft QRs/ Specification by **08/07/2020**.

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0.0 FOREWORD

0.0 This specification has been prepared by Office of the Inspector General of Police, CoBRA sector, CRPF on the authority of the Inspector General of Police, CoBRA sector.

0.1 This specification is for the use by the CRPF – CoBRA.

0.2 This specification would be used for the manufacture, quality assurance and procurement of the item.

0.3 Quality assurance authority for the item covered in this specification is Office of the Inspector General of Police, CoBRA sector, CRPF, New Delhi. All inquiries regarding this specification, including those relating to any contractual conditions contained therein shall be addressed to the Quality Assurance authority at the following address:

Office of the Inspector General of Police, CoBRA Sector, Civil Lines,
Delhi- 110054

0.4 Copies of the specification can be obtained from:

Office of the Inspector General of Police, CoBRA Sector, Civil Lines, Delhi- 110054

0.5 The specification holds good only for the supply order for which it is issued.

0.6 The Quality Assurance Authority reserves the right to amend or modify these specifications as and when required.

0.7 The Quality Assurance Authority is the competent authority to grant concession, if any, in respect of any of the clauses contained in these specifications.

0.8 For the purpose of deciding whether a particular requirement of this specification is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS:2-1960 (Reaffirmed 2006). The number of significant places retained in the rounded off value should be the same as that of the specified value in the specifications.
QRS/SPECIFICATIONS OF RUCKSACK CUM HYDARTION PACK

1.0 SCOPE

1.1 The specification prescribes the requirement of “Hydration pack cum rucksack” herein referred as “Bag” which shall be used by the COBRA commandoes.

1.2 The capacity of the rucksack shall be 30 liters and the capacity of the hydration pack shall be 5 liters.

1.3 This specification does not specify the general appearance, luster, feel, type of finish of the “Bag”.

1.4 This specification shall act as guidelines for the manufacture and supplier for supply of stores.

1.5 Pictures are attached as reference in Appendix-“A”.

2.0 COMPONENTS OF THE BAG

2.1 The “Bag “shall be majorly divided in the following components:
- Main body.
- Hydration bladder compartment.
- Front top pocket.
- Front bottom pocket.
- Back panel.
- Hydration bladder.

2.3.1 Main Body

2.3.1.1 Main body shall be top opening with a zip, which shall run from midpoint of one side over the top to the midpoint of the other side.

2.3.1.2 The division between the main body and the hydration bladder compartment shall have a foam layer.

2.3.1.3 The inner side towards the front shall have a zippered flat pocket.

2.3.1.4 Dimensions: The 21 liters main compartment shall have the following dimensions:
- H - 480(±30) mm
- W - 300(±20) mm
- T - 150(±30) mm.

2.3.1.5 The material of the main body shall be 500 D Cordura Type 3 Class 3.

2.3.2 Hydration bladder compartment

2.3.2.1 The compartment shall be zippered with top opening.

2.3.2.2 The compartment shall be able to hold 5L hydration bladder.

2.3.2.3 There shall be small opening at the top centre for the drinking tube.

2.3.2.4 Dimensions: The compartment shall have the following dimensions:
- H - 480(±30) mm
W - 300(±20) mm  
T - 150(±30) mm.

2.3.2.5 The material of the hydration bladder compartment shall be 500 D type 3 class 3 on the outside with lining material of Nylon 210D HD 106T PU 800 mm WR.

2.3.3 Front top pocket
2.3.3.1 There shall be a protruded top pocket on the front side of the main body.
2.3.3.2 This pocket shall have two sub compartments:
   • 3 L sub zippered compartment with organizer on the back side of the compartment.
   • 1 L sub compartment with vertical zipper opening.
2.3.3.3 Dimensions: The compartment shall have the following dimensions:
   H - 210(±20) mm  
   W - 250(±20) mm  
   T - 110(±20) mm.
2.3.3.4 The material of the pocket shall be 500 D Cordura Type 3 Class 3 and that of the organizer shall be Nylon 420 D HD 106T PU 800mm WR.

2.3.4 Front bottom pocket
2.3.4.1 There shall be a zippered front bottom pocket below the top pocket on the front side of the “Bag”.
2.3.4.2 It shall be single pocket with no divisions on the inside.
2.3.4.3 There shall be 3 MOLLE rows at the front side of the pocket and 2 rows of Velcro.
2.3.4.4 Dimension: The compartment shall have the following dimensions:
   H - 250(±20) mm  
   W - 250(±20) mm  
   T - 120(±20) mm.
2.3.4.5 The material of the pocket shall be 500 D Cordura Type 3 Class 3.

2.3.5 Back panel
2.3.5.1 The pack panel shall be ergonomically designed with proper air flow channels to ventilate the back and delay the onset of sweat by reducing the surface area of the back against the backpack.
2.3.5.2 The back system shall have an Aluminum bar for centre support, made of 6061-T6 and with the following dimensions:
2.3.5.3 Back Padding: Back panel shall have mirror padding keeping Aluminum bar as the central axis. “Bag” shall also have some extra lumber padding for lower back. The material used in back padding shall be PU Open cell with 5
mm thickness and EV200 PA Closed cell with 10 mm thickness. It shall be covered under a 3D mesh.

2.3.4 Shoulder straps: It is the most important feature of the back panel. It shall have the followings specifications:

- Contoured straps curved in accordance to the human body in a shallow S-curve that bends inwards just above the sternum and back outwards below the arms.
- The shoulder strap should be sufficiently wider around the points of contact with the shoulders so that it increases strap-to-shoulder surface area and distribute weight more efficiently.
- The shoulder strap shall not be too closely anchored to each other at the top of the shoulder so that there is no pinching around the neck.
- The outer fabric of the shoulder straps shall be made of 500D Cordura Type 3 Class 3 and the inner portion shall be made of EV200 PA Closed cell with 10 mm thickness covered under a 3D mesh.

2.3.5.5 Waist belt: A detachable padded waist belt shall be there which sits directly on the top of the hip bones. It shall have a buckle locking mechanism and width at the centre shall be (120 ± 30) mm. The outer material of the waist belt shall be 500D Cordura Type 3 Class 3 and the inner portion shall be made of EV200 PA Closed cell with 10 mm thickness covered under a 3D mesh.

2.3.6 Hydration Bladder

2.3.6.1 There shall be a 5L hydration bladder and drinking assembly to fit in the hydration bladder compartment of the “Bag”.

2.3.6.2 The bladder must be made flexible impermeable material through water does not seeps out or evaporates.

2.3.6.3 Bladder shall have 130mm wide top opening at the top for cleaning, easy drying and filling water from river or water tank. Top opening shall have air tight closure.

2.3.6.4 The bladder must be made of transparent or semi-transparent co-extruded PE film which restrains pure liquid taste with no plastic flavor and is BPA & phthalate free.

2.3.6.5 All components of the hydration system in contact with water must be made of FDA CFR and EU 10-2011 approved material.

2.3.6.6 Inner lining of the bladder shall have RMS roughness less than 100 Nm.
2.3.6.7 The length of the drinking tube of the drinking system shall be (910 ± 20) mm. The tube shall be flexible and shall have quick hose fittings with push button convenience. It shall also have built in shut off mechanism which allows the tube to disconnect without spilling water. It shall join the bladder very near to the bottom to maximize the volume of accessible liquid.

2.3.6.8 The outside of the tube shall be covered with insulate elastic weave textile which comply with AS/NZS 4399:1996 which gives solar UV protective properties.

2.3.6.9 The drinking tube shall have 2 optional drinking valves:
   - Bite Valve
   - Push-pull Valve
   Valves shall have 360° angular rotation and a dirt shield cover.

2.3.6.10 **Dimensions:** the dimensions of the empty hydration bladder shall be as follows:
   - H - 460(±20) mm
   - W - 210(±20) mm.

3.0 ADD-ONS

3.1 **Sternum straps**- There shall be sternum straps to keep shoulder straps in place ensuring that they don’t slide off the shoulders. The sternum straps shall be adjustable in width across the chest, via adjuster buckles, and in height. The basic purpose of the sternum straps is to disperse the weight of the “Bag”, preventing the shoulders from getting sore.

3.2 **Stabilizer straps (Load lifting straps)**- There shall be a set of adjustable straps that connects the upper portion of the shoulder straps to an anchor point near the top of the “Bag”. They provide further support to the shoulder by pulling the “Bag” forward.

3.3 **Additional stabilizer straps on the waist belt**- Similar to the load lifting straps, there shall be additional stabilizer straps on the waist belt to pull the “Bag” closer and to improve the balance by bringing the centre of gravity closer.

3.4 **Curry Loop**- There shall be a curry loop to allow lifting the “Bag” with one hand bearing its weight when fully loaded.

3.5 **Compression straps**- There shall be compression straps on the side of the “Bag” to reduce the size of the “Bag” when it is not fully loaded and thus minimizing its appearance.

3.6 **MOLLE (Modular Lightweight load carrying equipment)**- There shall be MOLLE system to allow user to attach gears and equipments. There shall be 3 MOLLE rows at the front and 3 MOLLE rows on each side of the “Bag”.

3.7 **Zippers** - YKK zippers no. 8 or 10 as per requirement. All zippers must have provision for pulling the slider from both the ends. They shall have 3” long nylon cord loops at the end to make pulling of zipper easier in the dark without fumbling.

4.0 **BUCKLES AND STITCHING**

4.1 **Buckles** - The hardware materials that fasten together (e.g. on hip belt and sternum straps) shall be made of plastic.

4.2 **Adjusters** - There shall be adjuster buckles made of plastic to make adjustments in the height of the shoulder straps, waist belt, sternum strap etc. the adjuster buckle shall hold the webbing strap securely enough so that the size does not constantly change unintentionally, but not so tight that they become a hassle to adjust.

4.3 **Stitching** - All stitching shall be heavy duty tight double stitch [lock stitch (4 stitches /cm) and Bartack (2mm wide)]. Stitching shall be evenly done, free from missing stitches, holes, cuts or any defects. 

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**TRIAL DIRECTIVE OF RUCKSACK CUM HYDARTION PACK**

0.0 **GENERAL INFORMATION:**

0.1 The design of the “Bag” shall be as per the details given in QRs.

0.2 The “Bag” shall be visually examined. It shall be evenly stitched, free from missed stitches, holes, cuts, puckering and other defects. The “Bag” shall be free from any other defect which may significantly mark the appearance or serviceability.

0.3 Then the dimensions of the “Bag” and the hydration bladder shall be checked and its capacity as specified in the qualitative requirements shall be verified.

1.0 **MATERIAL AND TESTING**

1.1 The various components of the “bag” shall be made of the following materials and the testing/ certifications required are mentioned against them.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Name of Component</th>
<th>Description</th>
<th>Testing/ Certification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Basic Fabric</td>
<td>500 D Cordura type 3 Class 3</td>
<td>To comply with MIL-DTL-32439</td>
</tr>
<tr>
<td>2.</td>
<td>Lining inside the main</td>
<td>Nylon 210D HD</td>
<td>To be decided during sub</td>
</tr>
<tr>
<td></td>
<td>and hydration bladder compartment.</td>
<td>106T PU 800mm WR.</td>
<td>group meeting with experts.</td>
</tr>
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</tr>
<tr>
<td>3.</td>
<td>Organizer in top front pocket.</td>
<td>Nylon 420D HD 106T PU 800mm WR.</td>
<td>To be decided during sub group meeting with experts.</td>
</tr>
<tr>
<td>4.</td>
<td>Foam in shoulder straps</td>
<td>EV200 PA, closed cell, 10mm thickness</td>
<td>To be decided during sub group meeting with experts.</td>
</tr>
<tr>
<td>5.</td>
<td>Foam in water bladder compartment</td>
<td>PE, Closed cell, 5mm thickness</td>
<td>To be decided during sub group meeting with experts.</td>
</tr>
<tr>
<td>6.</td>
<td>Foam in back padding (under 3d mesh)</td>
<td>PU Open cell foam, 10 mm thickness and EV200 PA, closed cell 10 mm thickness</td>
<td>To be decided during sub group meeting with experts.</td>
</tr>
<tr>
<td>7.</td>
<td>Foam at bottom of bag</td>
<td>EV200 PA, Closed cell, 10 mm thickness</td>
<td>To be decided during sub group meeting with experts.</td>
</tr>
<tr>
<td>8.</td>
<td>Foam in hip belt</td>
<td>EV200 PA, Closed cell, 10mm thickness</td>
<td>To be decided during sub group meeting with experts.</td>
</tr>
</tbody>
</table>

1.2 All stitching shall be in accordance with the MIL spec ASTM D6193.

1.3 The Velcro used in the “Bag” shall comply with the MIL standard A-A-55126B type II class I.

1.4 The 0.25", 1", 1.5"and 2" shall comply with MIL W-177337 C2.

1.5 The zippers shall be YKK zippers.

1.6 The hydration bladder shall be checked as per the following specification [Test method will be decided in Sub-group meeting].
   1.6.1 Material used in making hydration bladder shall be BPA and phthalate free.
   1.6.2 Sensory taste analysis according to ISO 4120, methodology triangle test EN-1230-2.
   1.6.3 All components of hydration bladder in contact with water shall comply with FDA CFR 21 and EU 10-2011.
   1.6.4 Inner lining of the bladder shall have RMS roughness less than 100 Nm when analyzed with Atomic Force Microscope (AFM).

1.7 The outside insulated elastic weave cover of drinking tube of hydration bladder shall comply with AS/NZS 4399:1996 which gives solar UV protection.

2.0 Any deviation from the above mentioned specifications when tested as per trail directives specified above will lead to rejection. Decision of the board shall be final and binding.
APPENDIX- ‘A’

FIGURES OF RUCKSACK CUM HYDRATION PACK

FRONT VIEW

BACK PANEL

SHOULDER STRAP

RIGHT SIDE

LEFT SIDE

TOP POCKET

BOTTOM POCKET

HYDRATION BLADDER

WAIST BELT