

**DRAFT QR FOR BOMB SUIT**

Sr. No.	QR's	Response from the firm	
		Compliant (Mention Yes or No)	Comments/ suggestion (In case non compliant)
1)	Bomb Disposal Suit is used to protect the operator/technician from blast/heat & fragmentation effect of bomb / IED (Improvised Explosive Device) during handling of bomb/IED		
1.1)	Bomb suit should be designed to protect against IEDs with acceptable standards of ergonomics, optics, head protection; spine protection, fragmentation protection, blast integrity, electrostatic discharge safety, flammability safety and Drag rescue features. Wherever not specifically stated the performance of ergonomics, optics, electrostatic discharge safety, Head Protection / Spine Protection (impact), Drag Rescue features would be evaluated against NIJ Standard-0117.00.		
1.2)	<u>Protection against Threats:</u> The Bomb Suit should offer protection against following effects of bomb/IED explosion. <ul style="list-style-type: none"> <li>· Fragmentation.</li> <li>· Impact.</li> <li>· Blast Over pressure.</li> <li>· Thermal effect.</li> </ul>		
1.3)	<u>Body Protection:</u> Following parts of the body should be protected from the explosion effect of bomb/IEDs:- <ul style="list-style-type: none"> <li>· Arms &amp; fingers.</li> <li>· Feet, Lower leg, Knees &amp; Thighs.</li> <li>· Chest, Groin &amp; Collar.</li> <li>· Spinal chord.</li> <li>· Face (with helmet &amp; visor).</li> </ul>		
1.4)	The suit should consist of the following items, which collectively make a complete garment:-		
(a)	Jacket with attached collar & patch chord, with additional plate for enhanced protection of chest, neck and groin		
(b)	Trouser adjustable		
(c)	Foot protection with the help of boot over shoes or similar arrangement.		

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	(d) Helmet consisting of following : - (i) Visor (Replaceable when damaged) (ii) Adjustable helmet size (iii) Visor cover. (iv) Balaclava. (v) Ear protection. (vi) Ventilation system with Blower. (vii) Communication system. (viii) Power supply. (ix) Minimum one front facing live video camera. (x) Minimum one front facing search light.  (xi) Built in microphones and headphones /integral radio comn in helmet.	Compliant (Mention Yes or No)	Comments/ suggestion (in case non compliant)
	(e) Flame resistant non-static hand gloves (detachable).		
	(f) Transit bag :- (i) Soft Carrying Bag(s) for bomb suit, helmet & cooling suit. (ii) Hard Cases for bomb suit, helmet & cooling suit.		
	(g) Groin protection		
	(h) Hydration bag (Optional)		
	(j) Complete body cooling suit. (i) Cooling Trouser (ii) Cooling Jacket (iii) Cooling Balaclava for head and face. (iv) Water bottles (v) Pump unit		
	(k) Communication system. (i) Wireless hands-free (VOX) Communication without use of PTT (ii) Wireless range of 200 mtrs (Min) (iii) Hard Wire Spool 100 mtrs (Min) (iv) Control Module cum amplifier for communication system. (v) Optional recording facility for recording live communication. (vi) Head set		
	(l) Custom Size to be made available according to the user requirement specified at tendering stage.		

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			Compliant (Mention Yes or No)	Comments/ suggestion (in case non compliant)
	(m)	Back protection		
2)		The suit protection performance figures should be for NIJ 0117.01, NATO STANAG 2920 or MIL Standard 662F. 17 grain fragment simulator V50 protection level to be as under-		
	(i)	Front Chest – 1800 m/Sec or better		
	(ii)	Front Groin - 1800 m/Sec or better		
2.1)		The suit protection performance figures should be of NIJ 0117.01, NATO STANAG 2920 or MIL Standard 662F. 17 grain fragment simulator V50 protection levels to be as under-		
	(i)	Jacket Front 600 M/s. or Better		
	(ii)	Jacket Rear 500 M/s. or Better		
	(iii)	Sleeves Front – 560 M/Sec or better		
	(iv)	Sleeve Rear- 450 M/s. or Better		
	(v)	Collar Front – 850 M/Sec or better		
	(vi)	Collar rear : - 450M/s.		
	(vii)	Front Groin- 500 M/s. or Better		
	(viii)	Rear Groin- 325 M/s. or Better		
	(ix)	Trousers Front Thighs– 690 M/Sec or better		
	(x)	Trousers Front Shins – 620 M/Sec or better		
	(xi)	Rear Trousers- 325 M/s. or Better.		
	(xii)	Boots- 450 M/Sec or better		
2.2)		The Bomb Suit should provide demonstrable integrity and performance against blast by effectively reducing the blast over pressure and shock wave effect below the injury threshold of professionally acceptable head injury, lung injury and ear injury criteria.		
<b>3.</b>	<b>Cooling Suit</b>			
3.1	The Cooling Suit kit should include-			
	(a)	Long sleeve shirt with cooling tubes sewn into trunk and arms.		
	(b)	Long legged pants with cooling tubes sewn into legs.		
	(c)	A closed fitted open faced hood for head.		
	(d)	Cooling unit and pouch.		
	(e)	Two water bottles		
	(f)	Battery pack and recharger.		
	(g)	Carrying bag.		
3.2	(a)	<b>Material:</b> Manufactured from a suitable flame retardant knitted fabric. Should have negligible pilling, flexible & very soft & comfortable to wear and can be worn under virtually any outer clothing without encumbrance. It should be available as detachable shirt, pant & hood. The fabric should be washable.		

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Sr. No.	QR's	Compliant (Mention Yes or No)	Comments/ suggestion (in case non compliant)
	(b) The cooling suit should have integrated tubes for circulation of cooling water with a battery-operated pump. (c) The cooling suit should provide effective cooling for minimum 30 minutes with ambient temperature at 35°C or less. (d) A powerful battery pack (Rechargeable and Dry battery) may be provided with the minimum operation capacity of 2.5 hrs (e) A spare battery pack with charger may also be provided with cooling suit. (f) Requisite arrangement to be available to attach cooling unit and water bottle to the bomb suit. (g) Should be available indifferent sizes to suit user's requirement. (h) The peak heat removal rate of full cooling suit should be at least 270 watts or better.		
	(i) The cooling suit pump should be operable on Dry and rechargeable batteries. (k) A second compatible water/Ice bottle should be the supplied with the cooling suit (l) The cooling source should be ice/water. (m) Spare connect or for water circulation tube should be supplied with cooling suit. (n) Weight of complete cooling suit (i.e. suit, cooling unit, ice cubes with Water and battery pack) should not exceed 5 kgs.		
<b>4.</b>	<b>Helmet</b>		
<b>4.1</b>	<u>Helmet components:</u> Should include following items: - (a) Visor (Replaceable when damaged) (b) Adjustable helmet size (d) Visor cover. (e) Balaclava. (f) Ear protection. (g) Ventilation system with Blower. (h) Communication system. (j) Power supply. (k) Minimum one front facing live video camera. (l) Minimum one front facing search light. (m) Built in microphones and headphones /integral radio comn in helmet.		

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4.2	Ballistic EOD Helmet protection performance figures should be for the NIJ 0117.01, NATO STANAG 2920 or MIL Standard 662F. 17 grain fragment simulator V-50 protection should be as under	<b>Compliant (Mention Yes or No)</b>	<b>Comments/ suggestion (in case non compliant)</b>
	(a) Helmet- 600 M/Sec or better		
	(b) Visor- 700 M/Sec or better		
	(c) Weight with visor not more than 6 Kgs		
	(d) The system should have an arrangement for breathing in a hazardous gas environment.		
	(e) <b>Ventilation and Demisting.</b> A helmet mount fan should provide effective ventilation with control unit within easy reach of the user. Should be provided with an effective demisting arrangement.		
	(f) The helmet should have built in microphone for operator to hear all the conversation taking place in the vicinity and automatic decibel cutout sys to protect the ears of the operator.		
	(g) <b>Two way Communication</b> It should provide a two way communication whether on radio or on wire between operator and base station up to a min distance of 100 meters wired and 200 mtrs wireless.		
	(h) <b>Search Light</b> The helmet must be fitted with min one front facing search light for working in dark condition.		
	(j) <b>Live Video Camera</b> Helmet must have min one front facing video camera for Live Video transmission to base station located at a distance of 200 mtrs LOS and 100 mtrs in BUA (Non-line of sight).		
	(k) The system must have hand controlled panel within easy reach of the operator for electronic features including light, audio levels, ventilation, demisting.		
	(l) Bomb suit Helmet should also attached ballistic steel visor for protection from fragments.		
	(m) Provision for water intake facility to be provided.		
	(n) Provided with suitable padding arrangement and chin strap arrangement for the comfort of the wearer.		
	(o) Quick release arrangement/mechanism to be provided for fitting and removal of visor.		
	(p) Spare balaclavas and helmet liner hood should be provided with the bomb suit helmet.		
5.	<b>Jacket</b>		
	(a) Arrangements to be made available for immediate removal/quick release of the jacket by the wearer.		
	(b) The jacket should have pouches/ molly straps for keeping working tools		
	(c) It should have high quality Ballistics inserts for chest protection, groin protection, collar protection, sleeves and blast proof hand gloves., arrangements to be made available to remove the ballistics inserts from the jacket.		

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Sr. No.	QR's	Response from the firm	
	(d) Outer cover of jacket to be made in good quality washable material preferably NOMEX IIIA, Silicon blended Kevlar/Aramid or better fabric.	<b>Compliant (Mention Yes or No)</b>	<b>Comments/ suggestion (in case non compliant)</b>
	(e) Moulded chest protection plate, groin protection plate and collar protection plate should be provided. Blast plates should be moulded from woven roving with added fire retardant polymer/GRP/Composite material or better without metal.		
	(f) Velcro/quick release arrangements with adjustment strap may be provided for comfortable fittings.		
	(g) The Jacket should have ballistics inserts made from light weight multilayered, water repellent, Aramid, Kevlar blend static reducing fiber or better. (i) <u>Outer cover:</u> Kevlar blend fabric, with Kevlar thread. (ii) <u>Weight:</u> Not more than 15 kg (without armor plate) (iii) <u>Colour:</u> Olive green/Desert Tan/Navy Blue/Black etc. (iv) <u>Size:</u> Should be available in different sizes to suit the user's requirement. (v) <u>Blast plate pouch:</u> 725 Denier Nylon or equivalent and should be water and fire retardant. (vi) <u>Attached system:</u> Nylon webbing & Velcro, Hook & Loops, Acetal. (vii) <u>Soft components:</u> Layered Aramid fiber contained in water and fire retardant fabric. (viii) <u>Rigid component:</u> Polycarbonate, Foam, UHMPE (Ultra High Molecular Weight Polyethelene)		
6.	<b>Trousers</b>		
	(a) The trousers should be adjustable catering for different sizes		
	(b) Immediate removable/quick release of the trouser should be achievable, break way zip and Velcro tape may be provided for trouser fitments.		
	(c) Trouser boot should be adjustable and removable.		
	(d) The trousers may be designed for thigh protection, leg protection, boot protection, shoulder strap with buckle and Velcro tape adjustments added with waistband.		
	(e) The Trouser should have ballistics inserts made from light weight multilayered, water and fire retardant, Aramid , Kevlar blend static reducing fibre and shin guard HAP. (i) <u>Outer cover:</u> Kevlar blend fabric, with Kevlar thread or better. (ii) <u>Weight:</u> Not more than 8 kg (without armor plate) (iii) <u>Colour:</u> Olive green/Desert Tan/Navy Blue/Black etc. (iv) <u>Size:</u> Should be available in different sizes to suit the user's requirement. (v) <u>Knee &amp; Shin Guard cover:</u> Silicon filled aramid/Kevlar blended fabric. (vi) <u>Attached system:</u> Nylon webbing & Velcro, Hook &Loops, Acetal. (vii) <u>Soft components:</u> Layered Aramid fiber contained in water and fire retardant nylon. (viii) <u>Shin Guard:</u> Polycarbonate, Foam, UHMPE (Ultra High Molecular Weight Polyethelene).		

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7.	<b>Power Pack</b>	<b>Compliant (Mention Yes or No)</b>	<b>Comments/ suggestion (In case non compliant)</b>
7.1	<p>A suitable power pack should be provided with the suit which can provide min 2 hrs of working time with all systems switched on. There should be a special pocket on the back of the BD suit to accommodate it. The power pack should have battery status indicator. The Battery type should be rechargeable. The battery should have outlets:-</p> <p>(a) Dedicated to helmet ventilation.            (b) For all accessories.            (c) Recharging: - A charger should be provided. Also, a compatible charger cord for plugging into a 12V-DC source such as a cigarette lighter.</p>		
8.	The complete weight of the suit along with complete accessories should not exceed 45 Kgs.		
9.	<b>Back Bone Protection</b> The suit should provide a high impact back bone protection arrangement.		
10.	<b>Operational Time.</b> The suit with all accessories should take no more than 10 minutes to wear when assisted by a trained technician.		
11.	<b>Static Discharge</b> The bomb suit should have protection against static charge		
12.	All replaceable items/accessories of the bomb suit should be of the same or better protection levels.		
13.	<b>Miscellaneous.</b> The firm should be able to provide the following as applicable, along with the equipment: -		
(a)	Spare Sets of all kinds of rechargeable batteries used in suit including all accessories		
(b)	All operator level maintenance tools		
(c)	Training aids – charts, slides, training brochure, training work model, blow up diagram, video films etc, if any		
(d)	Physical training in India		
(e)	Proof schedule to include details of testing and acceptance criteria by the supplier and manufacturer.		
(f)	Technical Manual and user handbook in English giving shelf life and full description of the item		
(g)	Specification for packing handling/transportation/ storage		
(h)	Details regarding periodical inspection by the user		
14.	Validity and authenticity of lab test reports and certificates:		
15.	The OEM should also confirm that no product changes related to ballistic rating/ testing or material have taken place since the last test. Certificates should not be more than one year old.		
16.	All the test reports and certificates must invariably have the name, address, web site, e-mail address and contact Numbers of the testing agencies/lab.		

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1)	Bomb Disposal Suit is used to protect the operator/technician from blast/heat & fragmentation effect of bomb / IED (Improvised Explosive Device) during handling of bomb/IED	OEM to furnish cert	Compliant (Mention Yes or No)	Comments/ suggestion (in case non compliant)
1.1)	Bomb suit should be designed to protect against IEDs with acceptable standards of ergonomics, optics, head protection; spine protection, fragmentation protection, blast integrity, electrostatic discharge safety, flammability safety and Drag rescue features. Wherever not specifically stated the performance of ergonomics, optics, electrostatic discharge safety, Head Protection / Spine Protection (impact), Drag Rescue features would be evaluated against NIJ Standard-0117.00.	OEM to furnish live test reports from NABL/ international accredited lab for protection standards offered by the Bomb Suit. Tests reports not to be more than one year old.		
1.2)	<u>Protection against Threats:</u> The Bomb Suit should offer protection against following effects of bomb/IED explosion. <ul style="list-style-type: none"> <li>· Fragmentation.</li> <li>· Impact.</li> <li>· Blast Over pressure.</li> <li>· Thermal effect.</li> </ul>	To be checked physically by BOO by relevant test certificates. BOO to check test reports of Bomb Suit Integrity Test(Latest) and Fragmentation test issued for BOMB SUIT test done by laboratory. Tests reports not to be more than one year old.		
1.3)	<u>Body Protection:</u> Following parts of the body should be protected from the explosion effect of bomb/IEDs:- <ul style="list-style-type: none"> <li>· Arms &amp; fingers.</li> <li>· Feet, Lower leg, Knees &amp; Thighs.</li> <li>· Chest, Groin &amp; Collar.</li> <li>· Spinal chord.</li> <li>· Face (with helmet &amp; visor).</li> </ul>	OEM to furnish live test reports from NABL/ international lab for protection standards offered by the Bomb Suit. Tests reports not to be more than one year old.		



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			Compliant (Mention Yes or No)	Comments/ suggestion (in case non compliant)
1.4)	The suit should consist of the following items, which collectively make a complete garment:-			
(a)	Jacket with attached collar & patch chord, with additional plate for enhanced protection of chest, neck and groin	To be checked physically by BOO.		
(b)	Trouser adjustable	To be checked physically by BOO.		
(c)	Foot protection with the help of boot over shoes or similar arrangement.	To be checked physically by BOO.		
(d)	Helmet consisting of following : - (i) Visor (Replaceable when damaged) (ii) Adjustable helmet size (iii) Visor cover. (iv) Balaclava. (v) Ear protection. (vi) Ventilation system with Blower. (vii) Communication system. (viii) Power supply. (ix) Minimum one front facing live video camera. (x) Minimum one front facing search light.  (xi) Built in microphones and headphones /integral radio comn in helmet.	To be checked physically by BOO.		
(e)	Flame resistant non-static hand gloves (detachable).	OEM to furnish live test reports from NABL/ international lab for flame and static electricity protection standards offered by the gloves. Tests reports not to be more than one year old.		

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				Compliant (Mention Yes or No)	Comments/suggestion (in case non compliant)
	(f)	Transit bag :- (i) Soft Carrying Bag(s) for bomb suit, helmet & cooling suit. (ii) Hard Cases for bomb suit, helmet & cooling suit.	To be physically checked by BOO		
	(g)	Groin protection	To be checked physically by BOO.		
	(h)	Hydration bag (Optional)	To be checked physically by BOO.		
	(j)	Complete body cooling suit. (i) Cooling Trouser (ii) Cooling Jacket (iii) Cooling Balaclava for head and face. (iv) Water bottles (v) Pump unit	To be checked physically by BOO.		
	(k)	Communication system. (i) Wireless hands-free (VOX) Communication without use of PTT (ii) Wireless range of 200 mtrs (Min) (iii) Hard Wire Spool 100 mtrs (Min) (iv) Control Module cum amplifier for communication system. (v) Optional recording facility for recording live communication. (vi) Head set	To be checked physically by BOO.		
	(l)	Custom Size to be made available according to the user requirement specified at tendering stage.	To be checked physically by BOO		

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	(m)	Back protection	To be physically checked by BOO.	Compliant (Mention Yes or No)	Comments/ suggestion (in case non compliant)
2)	The suit protection performance figures should be for NIJ 0117.01, NATO STANAG 2920 or MIL Standard 662F. 17 grain fragment simulator V50 protection level to be as under-		OEM to furnish min two test reports from NABL/ international lab for protection standards offered by the Bomb Suit. Tests reports not to be more than one year old and to include name of part tested.		
	(i)	Front Chest – 1800 m/Sec or better	To be checked physically by BOO by relevant test certificates.		
	(ii)	Front Groin - 1800 m/Sec or better	To be checked physically by BOO by relevant test certificates.		
2.1)	The suit protection performance figures should be of NIJ 0117.01, NATO STANAG 2920 or MIL Standard 662F. 17 grain fragment simulator V50 protection levels to be as under-		OEM to furnish min two test reports from NABL/ international lab for protection standards offered by the Bomb Suit. Tests reports not to be more than one year old and to include name of part tested.		
	(i)	Jacket Front 600 M/s. or Better	To be checked physically by BOO by relevant test certificates.		
	(ii)	Jacket Rear 500 M/s. or Better	To be checked physically by BOO by relevant test certificates.		
	(iii)	Sleeves Front – 560 M/Sec or better	To be checked physically by BOO by relevant test certificates.		
	(iv)	Sleeve Rear- 450 M/s. or Better	To be checked physically by BOO by relevant test certificates.		
	(v)	Collar Front – 850 M/Sec or better	To be checked physically by BOO by relevant test certificates.		
	(vi)	Collar rear : - 450M/s.	To be checked physically by BOO by relevant test certificates.		
	(vii)	Front Groin- 500 M/s. or Better	To be checked physically by BOO by relevant test certificates.		
	(viii)	Rear Groin- 325 M/s. or Better	To be checked physically by BOO by relevant test certificates.		
	(ix)	Trousers Front Thighs– 690 M/Sec or better	To be checked physically by BOO by relevant test certificates.		
	(x)	Trousers Front Shins – 620 M/Sec or better	To be checked physically by BOO by relevant test certificates.		
	(xi)	Rear Trousers- 325 M/s. or Better.	To be checked physically by BOO by relevant test certificates.		
	(xii)	Boots- 450 M/Sec or better	To be checked physically by BOO by relevant test certificates.		
2.2)	The Bomb Suit should provide demonstrable integrity and performance against blast by effectively reducing the blast over pressure and shock wave effect below the injury threshold of professionally acceptable head injury, lung injury and ear injury criteria.		OEM to furnish reports from NABL/ international lab for protection standards offered by the Bomb Suit against shock wave and blast overpressure. Tests reports not to be more than one year old and to include name of part tested.		

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Sr. No.	QR's	Trial directives	Compliant (Mention Yes or No)	Comments/ suggestion (in case non compliant)
3.	<b>Cooling Suit</b>			
3.1	The Cooling Suit kit should include- (a) Long sleeve shirt with cooling tubes sewn into trunk and arms. (b) Long legged pants with cooling tubes sewn into legs. (c) A closed fitted open faced hood for head. (d) Cooling unit and pouch. (e) Two water bottles (f) Battery pack and recharger. (g) Carrying bag.	To be checked physically by BOO.		
3.2	(a) <u>Material:</u> Manufactured from a suitable flame retardant knitted fabric. Should have negligible pilling, flexible & very soft & comfortable to wear and can be worn under virtually any outer clothing without encumbrance. It should be available as detachable shirt, pant & hood. The fabric should be washable.	To be checked physically by BOO.		
	(b) The cooling suit should have integrated tubes for circulation of cooling water with a battery-operated pump.	To be checked physically by BOO.		
	(c) The cooling suit should provide effective cooling for minimum 30 minutes with ambient temperature at 35°C or less.	To be checked physically by BOO.		
	(d) A powerful battery pack (Rechargeable and Dry battery) may be provided with the minimum operation capacity of 2.5 hrs	To be checked physically by BOO.		
	(e) A spare battery pack with charger may also be provided with cooling suit.	To be checked physically by BOO.		
	(f) Requisite arrangement to be available to attach cooling unit and water bottle to the bomb suit.	To be checked physically by BOO.		
	(g) Should be available indifferent sizes to suit user's requirement.	To be checked physically by BOO.		
	(h) The peak heat removal rate of full cooling suit should be at least 270 watts or better.	OEM to furnish test reports from NABL/ international accredited lab for cooling standards offered by the cooling Suit. Tests reports not to be more than one year old and to include name of part tested.		

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	(j)	The cooling suit pump should be operable on Dry and rechargeable batteries.	To be checked physically by BOO.	
	(k)	A second compatible water/Ice bottle should be the supplied with the cooling suit	To be checked physically by BOO.	
	(l)	The cooling source should be ice/water.	To be checked physically by BOO.	
	(m)	Spare connect or for water circulation tube should be supplied with cooling suit.	To be checked physically by BOO.	
	(n)	Weight of complete cooling suit (i.e. suit, cooling unit, ice cubes with Water and battery pack) should not exceed 5kgs.	To be checked physically by BOO.	
<b>4.</b>	<b>Helmet</b>			
<b>4.1</b>	<b>Helmet components:</b> Should include following items: - (a) Visor (Replaceable when damaged) (b) Adjustable helmet size (d) Visor cover. (e) Balaclava. (f) Ear protection. (g) Ventilation system with Blower. (h) Communication system. (j) Power supply. (k) Minimum one front facing live video camera. (l) Minimum one front facing search light. (m) Built in microphones and headphones /integral radio comn in helmet.		To be checked physically by BOO.	

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4.2	Ballistic EOD Helmet protection performance figures should be for the NIJ 0117.01, NATO STANAG 2920 or MIL Standard 662F. 17 grain fragment simulator V-50 protection should be as under	OEM to furnish min two test reports from NABL/ international accredited lab for protection standards offered by the helmet. Tests reports not to be more than one year old and to include name of part tested.		
	(a) Helmet- 600 M/Sec or better	To be checked physically by BOO by relevant test certificates.		
	(b) Visor- 700 M/Sec or better	To be checked physically by BOO by relevant test certificates.		
	(c) Weight with visor not more than 6 Kgs	To be checked physically by BOO.		
	(d) The system should have an arrangement for breathing in a hazardous gas environment.	To be checked physically by BOO.		
	(e) <b>Ventilation and Demisting.</b> A helmet mount fan should provide effective ventilation with control unit within easy reach of the user. Should be provided with an effective demisting arrangement.	To be checked physically by BOO.		
	(f) The helmet should have built in microphone for operator to hear all the conversation taking place in the vicinity and automatic decibel cutout sys to protect the ears of the operator.	OEM to furnish test reports from NABL/ international accredited lab for protection standards offered. Tests reports not to be more than one year old and to include name of part tested.		
	(g) <b>Two way Communication</b> It should provide a two way communication whether on radio or on wire between operator and base station up to a min distance of 100 meters wired and 200 mtrs wireless.	To be checked physically by BOO.		

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	(h)	<b>Search Light.</b> The helmet must be fitted with min one front facing search light for working in dark condition.	To be checked physically by BOO.	<b>Compliant (Mention Yes or No)</b>	<b>Comments/ suggestion (in case non compliant)</b>
	(j)	<b>Live Video Camera</b> Helmet must have min one front facing video camera for Live Video transmission to base station located at a distance of 200 mtrs LOS and 100 mtrs in BUA (Non-line of sight).	To be checked physically by BOO.		
	(k)	The system must have hand controlled panel within easy reach of the operator for electronic features including light, audio levels, ventilation, demisting.	To be checked physically by BOO.		
	(l)	Bomb suit Helmet should also attached ballistic steel visor for protection from fragments.	To be checked physically by BOO.		
	(m)	Provision for water intake facility to be provided.	To be checked physically by BOO.		
	(n)	Provided with suitable padding arrangement and chin strap arrangement for the comfort of the wearer.	To be checked physically by BOO.		
	(o)	Quick release arrangement/mechanism to be provided for fitting and removal of visor.	To be checked physically by BOO.		
	(p)	Spare balaclavas and helmet liner hood should be provided with the bomb suit helmet.	To be checked physically by BOO.		
5.	<b>Jacket</b>				
	(a)	Arrangements to be made available for immediate removal/quick release of the jacket by the wearer.	To be checked physically by BOO.		
	(b)	The jacket should have pouches/molly straps for keeping working tools	To be checked physically by BOO.		
	(c)	It should have high quality Ballistics inserts for chest protection, groin protection, collar protection, sleeves and blast proof hand gloves., arrangements to be made available to remove the ballistics inserts from the jacket.	To be checked physically by BOO.		

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Sr. No.	QR's		Trial directives	Response from the firm	
				Compliant (Mention Yes or No)	Comments/suggestion (in case non compliant)
	(d)	Outer cover of jacket to be made in good quality washable material preferably NOMEX IIIA, Silicon blended Kevlar/Aramid or better fabric.	To be checked physically by BOO.		
	(e)	Moulded chest protection plate, groin protection plate and collar protection plate should be provided. Blast plates should be moulded from woven roving with added fire retardant polymer/GRP/Composite material or better without metal.	To be checked physically by BOO.		
	(f)	Velcro/quick release arrangements with adjustment strap may be provided for comfortable fittings.	To be checked physically by BOO.		
	(g)	<p>The Jacket should have ballistics inserts made from light weight multilayered, water repellent, Aramid, Kevlar blend static reducing fiber or better.</p> <p>(i) <u>Outer cover:</u> Kevlar blend fabric, with Kevlar thread.</p> <p>(ii) <u>Weight:</u> Not more than 15 kg (without armor plate)</p> <p>(iii) <u>Colour:</u> Olive green/Desert Tan/Navy Blue/Black etc.</p> <p>(iv) <u>Size:</u> Should be available in different sizes to suit the user's requirement.</p> <p>(v) <u>Blast plate pouch:</u> 725 Denier Nylon or equivalent and should be water and fire retardant.</p> <p>(vi) <u>Attached system:</u> Nylon webbing &amp; Velcro, Hook &amp; Loops, Acetal.</p> <p>(vii) <u>Soft components:</u> Layered Aramid fiber contained in water and fire retardant fabric.</p> <p>(viii) <u>Rigid component:</u> Polycarbonate, Foam, UHMPE (Ultra High Molecular Weight Polyethylene)</p>	To be checked physically by BOO.		
6.	<b>Trousers</b>				
	(a)	The trousers should be adjustable catering for different sizes	To be checked physically by BOO.		
	(b)	Immediate removable/quick release of the trouser should be achievable, break way zip and Velcro tape may be provided for trouser fittings.	To be checked physically by BOO.		
	(c)	Trouser boot should be adjustable and removable.	To be checked physically by BOO.		



**DRAFT QR AND TRIAL DIRECTIVES FOR BOMB SUIT**

Sr. No.	QR's	Trial directives	Response from the firm	
	(d) The trousers may be designed for high protection, leg protection, boot protection, shoulder strap with buckle and Velcro tape adjustments added with waistband.	To be checked physically by BOO.	Compliant (Mention Yes or No)	Comments/ suggestion (In case non compliant)
	(e) The Trousers should have ballistics inserts made from light weight multilayered, water and fire retardant, Aramid, Kevlar blend static reducing fibre and shin guard HAP. (i) <u>Outer cover:</u> Kevlar blend fabric, with Kevlar thread or better. (ii) <u>Weight:</u> Not more than 8 kg (without armor plate) (iii) <u>Colour:</u> Olive green/Desert Tan/Navy Blue/Black etc. (iv) <u>Size:</u> Should be available in different sizes to suit the user's requirement. (v) <u>Knee &amp; Shin Guard cover:</u> Silicon filled aramid/Kevlar blended fabric. (vi) <u>Attached system:</u> Nylon webbing & Velcro, Hook & Loops, Acetal. (vii) <u>Soft components:</u> Layered Aramid fiber contained in water and fire retardant nylon. (viii) <u>Shin Guard:</u> Polycarbonate, Foam, UHMPE (Ultra High Molecular Weight Polyethylene).	To be checked physically by BOO.		
7.	<b>Power Pack</b>			
	7.1 A suitable power pack should be provided with the suit which can provide min 2 hrs of working time with all systems switched on. There should be a special pocket on the back of the BD suit to accommodate it. The power pack should have battery status indicator. The Battery type should be rechargeable. The battery should have outlets:-  (a) Dedicated to helmet ventilation. (b) For all accessories. (c) Recharging: - A charger should be provided. Also, a compatible charger cord for plugging into a 12V-DC source such as a cigarette lighter.	To be checked physically by BOO.		
		To be checked physically by BOO.		
		To be checked physically by BOO.		
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DRAFT QR AND TRIAL DIRECTIVES FOR BOMB SUIT

Sr. No.	QR's	Trial directives	Response from the firm	
			Compliant (Mention Yes or No)	Comments/ suggestion (in case non compliant)
8.	The complete weight of the suit along with complete accessories should not exceed 45 Kgs.	To be checked physically by BOO.		
9.	<b>Back Bone Protection</b> The suit should provide a high impact back bone protection arrangement.	OEM to furnish test reports from NABL/ international accredited lab for protection standards offered. Tests reports not to be more than one year old and to include name of part tested.		
10.	<b>Operational Time.</b> The suit with all accessories should take no more than 10 minutes to wear when assisted by a trained technician.	To be checked physically by BOO.		
11.	<b>Static Discharge</b> The bomb suit should have protection against static charge	OEM to furnish test reports from NABL/ international accredited lab to this affect. Tests reports not to be more than one year old and to include name of part tested.		
12.	All replaceable items/accessories of the bomb suit should be of the same or better protection levels.	OEM to furnish test reports from NABL/ international accredited lab to this affect. Tests reports not to be more than one year old and to include name of part tested.		
13.	<b>Miscellaneous.</b> The firm should be able to provide the following as applicable, along with the equipment: -			
	(a) Spare Sets of all kinds of rechargeable batteries used in suit including all accessories	To be checked physically by BOO. The OEM must specify the list of spare parts provided by them with Bomb Suit and the life of rechargeable batteries. The manufacturer must submit list of cleaning kit tools required for Bomb Suit.		
	(b) All operator level maintenance tools	To be checked physically by BOO, The manufacturer must submit list of special maintenance tools required for Bomb Suit..		
	(c) Training aids – charts, slides, training brochure, training work model, blow up diagram, video films etc, if any	To be checked physically by BOO, manufacturer to submit training aid list available with them for Bomb Suit.		

DRAFT QR AND TRIAL DIRECTIVES FOR BOMB SUIT

Sr. No	QR's		Trial directives	Response from the firm	
				Compliant (Mention Yes or No)	Comments/ suggestion (in case non compliant)
	(d)	Physical training in India	Manufacturer to submit after sales service and training programme conducted in past with existing customers in India.		
	(e)	Proof schedule to include details of testing and acceptance criteria by the supplier and manufacturer.	To be physically checked by BOO		
	(f)	Technical Manual and user handbook in English giving shelf life and full description of the item	To be checked physically by BOO during technical bid evaluation, manufacturer to give options of providing technical manual in local language. (Hindi, English, Punjabi etc.)		
	(g)	Specification for packing handling/transportation/storage	Manufacturer to provide details of for packing handling/transportation/ storage.		
	(h)	Details regarding periodical inspection by the user	To be checked physically by BOO, Manufacturer to submit after sales service and training programme conducted in past with existing customers in India. BOO to verify satisfactory reports from end user, minimum 4 visits desired by rep of OEM in India for training and after sales support.		
14.	Validity and authenticity of lab test reports and certificates:				
15.	The OEM should also confirm that no product changes related to ballistic rating/ testing or material have taken place since the last test. Certificates should not be more than one year old.		To be checked physically by BOO.		
16.	All the test reports and certificates must invariably have the name, address, web site, e-mail address and contact Numbers of the testing agencies/lab.		To be checked physically by BOO.		