

SPECIFICATION FOR FIRST AID KIT CW TYPE 'B'

Specification No. DRDE/0287/ NBCD/98/09 and DS Cat No. 6545/000568

The First Aid Kit CW Type 'B' should be able to cater to such situations for immediate treatment of CW casualties at Regimental Aid Posts by trained medical personnel. The kit should consist of all essential medicines, drugs, injectibles, syringes, dressing materials, detector paper, water testing kit, etc. to cater to 50 to 60 personnel. The contents of the kit should be housed in an aluminum box compartmentalized into three parts to keep various materials. It should also be used at advanced dressing stations for treatment of casualties after decontamination.

Salient Features

Length	:	708 mm
Width	:	550 mm
Height	:	506 mm
Weight	:	52 Kg
Shelf -life	:	Subject to expiry of medicines

Miscellaneous –

- The firm should be able to provide the following :-
1. Training tools- charts, slides, training brochure, training work model, blow up diagram, video films on demonstrations and use etc.
 2. **The following information is also required:**
 - (a) Attach Annexure – List of the Institution where your product has been Installed
 - (b) Provide Technical Specification of your product brochure.

Note :-

1.) Firm will submit one sample in VIP Security store Sector-29, Chandigarh. and Quotation documents will be submitted in purchase branch (E-8) Chandigarh Police Head Quarter Sector-9, Chandigarh.

2.) The Equipment will be accepted after inspection by purchase committee with the help of technical expert from DRDO Laboratory Gwalior / DRDO Laboratory Jodhpur.

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SPECIFICATION FOR RESIDUAL VAPOUR DETECTION KIT

Specification No. DRDE/ 0287/ NBCD/98/07 and DS Cat No.1195000015

The Residual Vapour detector Kit should be able to detect blister and nerve agents, phosgene, mustard gas, ammonia (the training agent). Cyanogen chloride and hydrogen cyanide in the atmosphere in the vapour or gaseous form. The kit should consist of 60 detector tubes (including ten training tubes for ammonia), a hand pump for sucking air, a torch to work in the night, a heating device for sulphur mustard (SM) test and an operation manual. It should be able to made detection of agents by observing change in colour of the tube material. The kit contents should be housed in an aluminium container with provision for attachment to body through straps/belts to keep the hands free. The kit caters to 10 tests each of five agents and ammonia.

Salient features

Weight	:	Not more than 1.75 kg
Size	:	Not more than 210 mm x 150 mm x110mm
Detection limit (mg/l)	:	
Phosgene	:	0.01
Cyanogen chloride	:	0.01
Nerve agents	:	4 x 10
Sulphur mustard	:	3 x 10 ³
Hydrogen cyanide	:	0.01
Ammonia	:	0.01
Self-life	:	Not less than 2 yr for detection tubes
Guaranty/Warranty.	:	One Year warranty and Sufficient spares should be available in stock with the supplier as per article life span.

Miscellaneous –

The firm should be able to provide the following :-

1. One test sample for each machine for testing during commissioning and during maintenance. Training tools-charts, slides, training brochure, training work model, blow up diagram, video films on demonstrations and use etc.
2. Technical manual giving full description of the item practical training at least 2 times in a year continuing during warranty period.
3. User's handbook and literature on preservation/maintenance as applicable.
4. Procedure for packing, handling, transportation, storage and battery replacement.
5. **The following information is also required:**
 - (a) Attach Annexure – List of the Institution where your product has been Installed
 - (b) Provide Technical Specification of your product brochure.

Note :-

1.) Firm will submit one sample in VIP Security store Sector-29, Chandigarh. and Quotation documents will be submitted in purchase branch (E-8) Chandigarh Police Head Quarter Sector-9, Chandigarh.

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SPECIFICATION FOR PERMEABLE SUIT

Permeable suit should be three-layer suit and to be designed as an over garment to be worn over normal uniform. It should consist of a smock and a trouser. The smock with integrate hood should be able to provide protection to the neck and the head. The outer layer of the suit should be made of flame retardant and oil repellent nylon fabric. The inner layer of the suit should be of high quality adsorbent carbon coated on non-woven fabric for toxic gases. While the inside layer should be lined with a lightweight cotton scrim. The suit should be able to provide protection against toxic vapours, aerosol and droplets.

Salient Features

It should have high breathability to reduce physiological stress

Vacuum packed to give extended storage life

Available in four sizes

Guaranty/Warranty. : **1 Year** warranty

Miscellaneous –

The firm should be able to provide the following :-

1. User's handbook and literature on preservation/maintenance as applicable.
2. Procedure for packing, handling, transportation and storage.
3. **The following information is also required:**
 - (a) Attach Annexure – List of the Institution where your product has been Installed
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Note :-

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SPECIFICATION FOR DECONTAMINATION/ IMPERMEABLE SUIT

The Decontamination Suit should be an impermeable suit worn over normal garment by an individual engaged in decontamination operations. The suit should be able to provide protection against toxic gases, liquid CW agents and radioactive dust fallout, the suit should be able to decontaminate for reuse.

Salient Features

Complete encapsulation of the wearer

Made of lightweight nylon fabric coated on both sides with special impermeable rubber formulation

Weather resistant as well as flame retardant

Universal size and easy to use

Guaranty/Warranty. : **1 Year** warranty.

Miscellaneous –

The firm should be able to provide the following :-

1. User's handbook and literature on preservation/maintenance as applicable.
2. Procedure for packing, handling, transportation, and storage
3. **The following information is also required:**
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SPECIFICATION FOR GLOVES

The GLOVES should be manufactured in three-dimensional design to provide protection to hands in NCB environment.

Salient Features

Made of Butyl rubber

Provided with seamless inner cotton gloves for absorption of sweat

Available in three sizes

Serrated palm for better grip

High dexterity and flexibility

High protection level

Guaranty/Warranty. : **1 Year** warranty

Miscellaneous –

The firm should be able to provide the following :-

1. User's handbook and literature on preservation/maintenance as applicable.
2. Procedure for packing, handling, transportation and storage.
3. **The following information is also required:**
 - (a) Attach Annexure – List of the Institution where your product has been Installed
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SPECIFICATION FOR OVERBOOT

The over-boot should be able to worn over normal shoes to provide protection to feet in NBC environment.

Salient Features

Gumboot design
Sole and upper made from butyl rubber
Special sole design for better grip on slippery surfaces
Provided with nylon laces for tightening
Available in two sizes
Easy to decontaminate
High protection level.

Guaranty/Warranty. : **1 Year** warranty

Miscellaneous – The firm should be able to provide the following :-

1. User's handbook and literature on preservation/maintenance as applicable.
2. Procedure for packing, handling, transportation, storage and battery replacement.
3. **The following information is also required:**
 - (a) Attach Annexure – List of the Institution where your product has been Installed
 - (b) Provide Technical Specification of your product brochure.

Note :-

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SPECIFICATION FOR LEAK TESTER

Leak tester should be able to use for evaluating the functional integrity of a respirator mask. It should have a built-in suction generator to apply a known suction to the mask, and a micro-flow meter and suction sensor to measure inward leak rate and suction built-up inside the mask cavity. It should be portable tester having weight not more than 25kg and be able to test one mask in 40s.

Guaranty/Warranty. : **1 Year** warranty and Sufficient spares should be available in stock with the supplier and certificate for availability of spares in Chandigarh for at least as per equipment/article life span.

Miscellaneous –

The firm should be able to provide the following :-

1. One test sample for each machine for testing during commissioning and during maintenance. Training tools-charts, slides, training brochure, training work model, blow up diagram, video films on demonstrations and use etc.
2. Technical manual giving full description of the item practical training at least 2 times in a year continuing during warranty period.
3. User's handbook and literature on preservation/maintenance as applicable.
4. Procedure for packing, handling, transportation, storage and battery replacement.
5. **The following information is also required:**
 - (a) Attach Annexure – List of the Institution where your product has been Installed
 - (b) Provide Technical Specification of your product brochure.
 - (c) Also informed your term & condition regarding annual maintenance of the entire equipment for all 02 (Two) years after expiry of the Warrantee period.

Note :-

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**SPECIFICATION FOR INTEGRATED HOOD MASK
(For bearded Sikh personnel)**

Integrated Hood Mask (IHM) should consist of a mask with canister and a hood. The hood should have an additional protection to the wearer against the toxic agents. It should be detachable and be used once only. It should be made of five panels of three-layered fabric. The front panel should provide with snugly fitting cutouts for anchoring onto the mask. The hood should have adjustable cord with a retainer tab for tightening around the neck, shoulder epaulettes for the rank badges and strap at the armpit to prevent the rear portion of the hood from lifting while performing combat related tasks.

Guaranty/Warranty. : **One (1) Year** warranty

Miscellaneous – The firm should be able to provide the following :-

1. User's handbook and literature on preservation/maintenance as applicable.
2. Procedure for packing, handling, transportation, storage and battery replacement.
3. **The following information is also required:**
 - (a) Attach Annexure – List of the Institution where your product has been Installed
 - (b) Provide Technical Specification of your product brochure
 - (c) Also informed your term & condition regarding annual maintenance of the entire equipment for all 02 (Two) years after expiry of the Warrantee period.

Note :-

1.) Firm will submit one sample in VIP Security store Sector-29, Chandigarh. and Quotation documents will be submitted in purchase branch (E-8) Chandigarh Police Head Quarter Sector-9, Chandigarh.

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SPECIFICATION FOR CANISTER NEELKANTHA 'A'

(Specification No. DRDE/ 0287/ NBCD/ 98/04

(a) DS Cat No.1195 000003

The Canister *Neelkantha* 'A' should be able to use with gas mask to provide respiratory protection to an individual against NBC warfare agents. The canister should consist of two main components, pleated high efficiency particulate aerosol (HEPA) filter and gas filter. HEPA should be able to provide protection against the particulate aerosols, nuclear fallouts, bacteria etc. Gas filter should be a bed of impregnated carbon to remove the CW agents from contaminated air to make it breathable. The canister should be able to remove nerve and blister agents in vapours or gaseous form by physical adsorption, while choking blood agents are degraded chemically.

Both HEPA and gas filter, should be housed in an aluminum body and secured properly with the retainers. Retainers should also include the perforated discs for proper and uniform distribution of air.

Guaranty/Warranty. : **One (1) Year** warranty

Miscellaneous –

The firm should be able to provide the following :-

1. User's handbook and literature on preservation/maintenance as applicable.
2. Procedure for packing, handling, transportation, storage and battery replacement.
3. **The following information is also required:**
 - (a) Attach Annexure – List of the Institution where your product has been Installed
 - (b) Provide Technical Specification of your product brochure
 - (c) Also informed your term & condition & cost regarding annual maintenance of the entire equipment after one (1) year warranty for yearly.

Note :-

1.) Firm will submit one sample in VIP Security store Sector-29, Chandigarh. and Quotation documents will be submitted in purchase branch (E-8) Chandigarh Police Head Quarter Sector-9, Chandigarh.

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SPECIFICATION FOR FIRST AID KIT CW TYPE 'A'

Specification No. DRDE/0287/ NBCD/98/02
DS Cat No. 1195 000005

The First Aid Kit CW Type 'A' should be equipped for treatment the NBC injuries primarily to augment first aid resources available with soldiers when speedy evacuation of casualties is not possible. The Kit should contain necessary medicines such as inhaler, antibiotics, antipyretic tablets, dressing pads, personal decontamination kit, three-colour detector paper, amylnitrate durules etc. The contents of the kit should be housed in an aluminum box with shoulder straps for hanging and securing the kit to the body of the soldier. The kit should cater to four to six personnel.

Salient Features

Length	:	330 mm
Width	:	145 mm
Height	:	115 mm
Weight	:	2 Kg
Shelf –life	:	Subject to expiry of medicines

Miscellaneous –

- The firm should be able to provide the following :-
1. User's handbook and literature on preservation/maintenance as applicable.
 2. Procedure for packing, handling, transportation and storage.
 3. **The following information is also required:**
 - (a) Attach Annexure – List of the Institution where your product has been Installed
 - (b) Provide Technical Specification of your product brochure.

Note :-

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SPECIFICATION FOR THREE-COLOUR DETECTOR PAPER

Specification No. DRDE/0287 /NBCD/98/03
DS Cat No. 1195 000004

Three-colour Detector Paper should be able to detect liquid blister and nerve agent. It should be a specific dye mixture impregnated paper possessing water repellent property. The paper should be able to stick any surface and produce three distinct colours when come into contact with blister and nerve (G and V) agents. Three-color detector paper booklet should be comprised of 10 sheets each with easy tearing arrangement. The paper should be protected with a plastic cover and can used under a wide range of temperature and humidity.

Salient features

Size : Not more than 135 mm x 70 mm
Weight : Not more than 25 kg
Shelf-life : Not less than 2 yr
Guaranty/Warranty. : **One (1) Year** warranty

Miscellaneous –

The firm should be able to provide the following :-

1. User's handbook and literature on preservation/maintenance as applicable.
2. Procedure for packing, handling, transportation and storage.
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 - (a) Attach Annexure – List of the Institution where your product has been Installed
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SPECIFICATION FOR RESUSCITATOR

The resuscitator is important medical equipment used as first aid in case of respiratory failure in NBC environment. When an individual is not able to breathe on his own, air is forced into his lungs using the resuscitator. It should have a canister connected to one end of the resuscitator provides air free from contaminants. The resuscitator should consist of four assemblies, viz, rubber bladder, non-breathing valve system, facemask and canister. The weight of the main equipment should be less than 1.6 Kg.

Guaranty/Warranty. : **One (1) Year** warranty.

Miscellaneous –

The firm should be able to provide the following :-

1. User's handbook and literature on preservation/maintenance as applicable.
2. Procedure for packing, handling, transportation, storage and battery replacement.
3. **The following information is also required:**
 - (a) Attach Annexure – List of the Institution where your product has been Installed
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Note :-

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SPECIFICATION FOR AUTOINJECTOR REUSABLE

Specification No. DRDE/0287/NBCD/98/01
Atr Sul DS Cat No. 1195 000006 PAM Cl DS Cat No.1195 000007

Autoinjector Reusable (AJ-1) should be able for self-administration of nerve agent antidotes by the exposed personnel. It should contain two tubes, proximal and distal, made of high strength tough plastic alloy. Distal tube to be housed the drug cartridge, while proximal tube should bear a safety cap and push button. Both tubes should be screwed into each other. An o-ring should be provided inside the distal tube to avoid damage to the glass cartridge due to rough handling. It should have a locking and firing mechanism as well as a high tensile strength spring for pulling back the plunger. Drug cartridge should be glass cartridge with a convoluted needle and drug that is to be sealed at both ends with non-reactive self-sealing rubber septums. Loading of cartridge should be done through screw mechanism by which the injector can be separated and refixed. It should be made in a manner that after loading the drug cartridge the safety cap has to be unlocked, the firing button has to be then released after placing the injector on the thigh.

Salient Features

Length	:	153 mm
Outer diameter	:	19 mm
Needle	:	200 mm effective length
Glass Cartridge	:	
Length	:	50 mm
Inner diameter	:	11 mm
Outer diameter	:	14 mm
Colour	:	Amber for PAM Chloride colourless for Atropine Sulphate
Medication	:	
Atropine Sulphate	:	2.1 ml (1mg ml)
PAM Chloride	:	2.1 ml (300 mg ml)
Ejection time	:	Not more than 5 Second
Shelf-life	:	
Main body	:	5 yr in factory packed condition
Drug cartridge	:	2 yr for Atropine Sulphate and 1 yr for PAM Chloride
Colour of main Body	:	Cream with red safety cap for Atropine Sulphate Injector and olive green with yellow safety cap for PAM Chloride injector
Guaranty/Warranty.	:	1 Year warranty and Sufficient spares should be available in stock with the supplier and certificate for availability of spares in Chandigarh for at least as per equipment/article life span.

Miscellaneous –

The firm should be able to provide the following :-

1. One test sample for each machine for testing during commissioning and during maintenance. Training tools- charts, slides, training brochure, training work model, blow up diagram, video films on demonstrations and use etc.
2. Technical manual giving full description of the item practical training at least 2 times in a year continuing during warranty period.
3. User's handbook and literature on preservation/maintenance as applicable.
4. Procedure for packing, handling, transportation, storage and battery replacement.
5. **The following information is also required:**
 - (a) Attach Annexure – List of the Institution where your product has been Installed
 - (b) Provide Technical Specification of your product brochure.
 - (c) Also informed your term & condition regarding annual maintenance of the entire equipment for all 02 (Two) years after expiry of the Warrantee period

Note :-

1.) Firm will submit one sample in VIP Security store Sector-29, Chandigarh. and Quotation documents will be submitted in purchase branch (E-8) Chandigarh Police Head Quarter Sector-9, Chandigarh.

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SPECIFICATION FOR CASUALTY BAG HALF

The Casualty Bag (half) should be able to evacuate wounded and incapacitated casualty from the contaminated environment. The bags should be made from activated charcoal coated non-woven fabric with desired breathability. The outer nylon layer of the bags should be of flame retardant and liquid repellent. Velcro fasteners should be provided for quick use. The Casualty Bag (half) should be able to cover top half of the body down to knees.

Guaranty/Warranty. : **One (1) Year** warranty

Miscellaneous – The firm should be able to provide the following :-

1. User's handbook and literature on preservation/maintenance as applicable.
2. Procedure for packing, handling, transportation and storage.
3. **The following information is also required:**
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SPECIFICATION FOR CASUALTY BAG FULL

The Casualty Bag (full) should be able to evacuate wounded and incapacitated casualty from the contaminated environment. The bags should be made from activated charcoal coated non-woven fabric with desired breathability. The outer nylon layer of the bags should be of flame retardant and liquid repellent. Velcro fasteners should be provided for quick use. The inner layer of the Casualty Bag (full) should be made of thick polyethylene laminate and be used as ground sheet also. The full-length bag should be able to use with stretcher.

Guaranty/Warranty. : **One (1) Year** warranty

Miscellaneous – The firm should be able to provide the following :-

1. User's handbook and literature on preservation/maintenance as applicable.
2. Procedure for packing, handling, transportation and storage.
3. **The following information is also required:**
 - (a) Attach Annexure – List of the Institution where your product has been Installed
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SPECIFICATION FOR PERSONAL DECONTAMINATION KIT(PDK)

Specification No. DRDE/0287/ NBCD/98/08
DS Cat No. 1195000016

Specification Details	:	
Dimensions Over all	:	205±2 x 126±2 x 52±2mm
PDK-I (pads)	:	105± 5 mm x 80±5 mm
PDK-II (Puffer bottles)	:	Length (with cap) 108±2 mm Width 32±1.0 mm Content 50 V5gm Empty weight 20 V 2gm
RDP (Pads)	:	Length 110±5 mm Width 80± 5 mm
Weight of the kit	:	390 ± 20 gm
Contents	:	a) PDK-I (4pads): Shall be of cotton fabric pads containing about 20 gm. Of inert and non irritating adsorbent powder hermetically sealed by polythene laminated aluminium cover inscribed with instructions for use. b) PDK-II (2 Puffer bottle): Shall be polythene puffer bottles containing 100 gm of inert, non irritating adsorbent powder. The bottles shall be provided with easy to operate plug for opening/closing. Instructions shall be printed on the bottle. c) RDP (2 Pouch): Shall be made of tissue papers soaked in a dilute aqueous solution of sodium lauryl sulphate and tripoly sodium phosphate of pH7 and 5 numbers packed in an aluminium coated sealed pouches and instructions printed on the outer covers. d) Box: Shall be made of polypropylene to accommodate PDK-I, PDK_II and RDP with suitable inscriptions. e) Adsorbent Powder: Activated inert earth (Fuller's earth) ISI mark SUPRA (IS: 1965-1972) Colour :Buff pH : 7 Free moisture : 10% Max Bulk density : 1.2g/cc
Working conditions	:	Temperature : -20 to + 50EC
RH	:	: 50%
Ruggedness	:	Except RDP for which the Temperature range shall be 5 to 50°C. Shall be able to withstand normal jerks and vibrations while handling and transportation as Vibration resistance test shall be conducted on a platform with suitable tackles fixed to the kit at a frequency of 120 Hz and 0.1 mm displacement for a specific period of 8 hours. The test shall be repeated with individual components also. No damage to any component inside or to the container shall occur.
Shelf life	:	5 years from the date of manufacturing.
Guaranty/Warranty.	:	1 Year warranty and Sufficient spares should be available in stock with the supplier and certificate for availability of spares in Chandigarh for at least as per equipment/article life span.
Miscellaneous –	:	The firm should be able to provide the following :- 1. User's handbook and literature on preservation/maintenance as applicable. 2. Procedure for packing, handling, transportation and storage. 3. The following information is also required: (a) Attach Annexure – List of the Institution where your product has been Installed (b) Provide Technical Specification of your product brochure.

Note :- 1.) Firm will submit one sample in VIP Security store Sector-29, Chandigarh. and Quotation documents will be submitted in purchase branch (E-8) Chandigarh Police Head Quarter Sector-9, Chandigarh.

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SPECIFICATION FOR PORTABLE DECONTAMINATION APPARATUS (DAP)

Specification No. DRDE/0287/ NBCD/98/06

DS Cat No.1195 000001

Specification Details	:	
Capacity	:	14 ± 0.4 litre total
	:	12 ± 0.4 litres charged
Weight (Without lance assy)	:	9 ± 0.1 Kg.
Weight complete assembly	:	10.5 ± 0.5 Kg.
But without mounting bracket	:	
Weight of mounting bracket	:	5.2 ± 0.1 Kg.
Operating pressure	:	5.5 ± 0.5 Kg/cm ²
No of strokes to attain	:	Not more than 35 strokes the operating pressure by
Ruggedness	:	Shall withstand normal vibrations and shocks during handling and transportation.
Working conditions	:	The apparatus shall be capable of working in a temperature range of -30 to 50 ° C and up to RH 100 %.
Shelf life	:	DAP has long shelf life provided it is operated minimum once in six months period and the rubber components such as gaskets, O-rings are replaced every 5 years or earlier depending up on its aging. UHB should be referred for maintaining its serviceability during storage by ordnance depot or actual users.
Discharge time at 4 Kg/cm ²	:	Not more than 5 min.
Jet Range at 4 Kg/cm ²	:	Not less than 5 meters
Leakage	:	Not more than 1 kg/cm ² in 48 hrs.
Corrosion Resistance	:	No trace of corrosion shall be permitted when tested two sheets of 150 x 150 mm of the material used for fabrication of the DAP shall be cleaned, dried and weighted. After weighting the sheets shall be placed in DS2 solution for 48 hours. Then these sheets shall be removed, cleaned, dried and weighted. Weight loss/gain shall be measured. No weight loss/gain should take place.
Hydraulic Pressure test	:	The equipment shall not fail or show any sign of leakage when pressurized at 2.5 times the operation pressure i.e. 13.75 Kg/cm ² .
Burst pressure	:	Not less than 22 Kg/cm ² when tested the apparatus shall not be pressurised to static hydraulic pressure till 22 Kg/cm ² . The apparatus should not burst below this pressure.
Pressure gauge	:	Size 40 +/- 2mm, Range 0-10 +/- 1 Kg/cm ² , conforming to IS 3624:66. The dial shall be marked with green for operation pressure range and red for maximum permissible range.
Guaranty/Warranty.	:	1 Year warranty and Sufficient spares should be available in stock with the supplier and certificate for availability of spares in Chandigarh for at least as per equipment/article life span.
Miscellaneous –	:	The firm should be able to provide the following :- <ol style="list-style-type: none">1. User's handbook and literature on preservation/maintenance as applicable.2. Procedure for packing, handling, transportation and storage.3. The following information is also required:<ol style="list-style-type: none">(a) Attach Annexure – List of the Institution where your product has been Installed(b) Provide Technical Specification of your product brochure.

Note :- 1.) Firm will submit one sample in VIP Security store Sector-29, Chandigarh. and Quotation documents will be submitted in purchase branch (E-8) Chandigarh Police Head Quarter Sector-9, Chandigarh.

2.) The Equipment will be accepted after inspection by purchase committee with the help of technical expert from DRDO Laboratory Gwalior / DRDO Laboratory Jodhpur.

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SPECIFICATION FOR DECONTAMINATION SOLUTION (DS-2)

Specification No. DRDDE/0287 /NBCD/2K/10

DS Cat No.1195000014

Specification Details

- Composition** : a) Diethylene triamine (DETA) 70.0%
98% pure, density 0.949 at 20°C
b) Methyl cellosolve 28.0%
99% Pure, Density 0.963 at 20°C
c) Sodium hydroxide 2.0%
As per IS 252
- Viscosity** : 6.0± 1 Relative to water
- pH** : 12 approximately by pH strip
- Decontamination efficiency** : 1 ml DS-2 shall be able to neutralize 20 micro litre of Sulphur Mustard (SM) in 15 minutes as per procedure i.e. prepare the standard SM solution by taking 20µl of SM in a graduated tube adding isopropanol to it to make up the volume to 10ml and mix thoroughly. Keep the solution marked as Ps safely. Take 20µl of SM on bowl shaped aluminium plate add mix of 1ml of DS-2 on it. Wait for 15 minutes. After 15 minutes the reaction mixture is made up to 10 ml with isopropanol, mix thoroughly and mark as Pd. Inject 2µl of standard solution to GC and record the chromatogram. Inject 2µl of above mixture (Pd) and record chromatogram. Calculate the decontamination efficiency as bellow.
- $$\text{Decontamination efficiency} = \frac{P_s - P_d}{P_s} \times 100$$
- Where Ps = Peak area of standard SM solution
Pd = Peak area of reaction mixture obtained after decontamination.
The residual contamination of SM shall be less than minimum detectable limit as stated the DS-2 solution packing shall be tested by mounting the packing on the vibration platform by suitable tackles. The platform is vibrated at 120 Hz with 0.1mm displacement for 1 hr. No damage to any component of the packing shall occur.
- Shelf life** : 5 Yrs.
- Ruggedness** : The packing shall be able to withstand normal jerks and vibrations during transportation when tested as per appendix B. It shall not show any crack, damage, leakage etc.
- Working conditions** : Shall not lose its decontamination efficiency at -35 to 50 °C and RH up to 95 %
- Guaranty/Warranty** : **1 Year** warranty and Sufficient spares should be available in stock with the supplier and certificate for availability of spares in Chandigarh for at least as per equipment/article life span.

Miscellaneous

The firm should be able to provide the following :-

1. User's handbook and literature on preservation/maintenance as applicable.
2. Procedure for packing, handling, transportation and storage.
3. The following information is also required:
 - (a) Attach Annexure – List of the Institution where your product has been Installed
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SPECIFICATION FOR RPL DOSIMETER (WATCH TYPE)

The Radiacmeter Personal Locket (RPL) Dosimeter should consist of Radiophotoluminiscent glass and pin diode for measuring gamma and neutron dose received by a soldier in a nuclear warfare scenario. It should be able to cover the radiation dose ranging from 1 R to 1000 R. The device should be of wristwatch type, rugged, and be able to withstand JSS 55555-L2 test series specifications. The gamma radiation dose measurement accuracy of the dosimeter should be about 75 percent just after termination of exposure, up to 90 percent in 6 hr and 100 percent in 24 hr. Fast neutron dose should be final as and when read. Neutron and gamma dose fading should be less than 5 percent in 7 days and later fading should be insignificant.

Salient features

Sensors	:	Radiophotoluminiscent (RPL) glass and pin diode in lead lined nylon wrist locket
Weight	:	No more than 30 g
Locket size	:	40mm dia. 12mm thick with 280 mm long wrist strap
Storing and working temperature	:	-40 °c to + 75 °c
Relative humidity	:	Sealed locket sustains humidity up to 1.8 m deep water
Guaranty/Warranty.	:	1 Year warranty and Sufficient spares should be available in stock with the supplier and certificate for availability of spares in Chandigarh for at least as per equipment/article life span.

Miscellaneous –

The firm should be able to provide the following :-

1. One test sample for each machine for testing during commissioning and during maintenance. Training tools-charts, slides, training brochure, training work model, blow up diagram, video films on demonstrations and use etc.
2. Technical manual giving full description of the item practical training at least 2 times in a year continuing during warranty period.
3. User's handbook and literature on preservation/maintenance as applicable.
4. Procedure for packing, handling, transportation, storage and battery replacement.
5. **The following information is also required:**
 - (a) Attach Annexure – List of the Institution where your product has been Installed
 - (b) Provide Technical Specification of your product brochure.
 - (c) Also informed your term & condition & cost regarding annual maintenance of the entire equipment after one (1) year warranty for yearly.

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SPECIFICATION FOR RPL DOSIMETER READER

RPL Dosimeter Reader should be able to read the cumulative dose registered by the dosimeter. The instrument should be used in the range of 1 R to 1200 R total dose (minimum 5 R), be able to withstand JSS 55555-L2 test series specifications and operate on battery (12-14 V DC) of any armoured vehicle. All the electronic components of the dosimeter reader should be LCSO approved or type approved. Accuracy of the dosimeter reader should be ± 10 percent or ± 10 R, whichever is greater. Any over range should be indicated by a flashing LED display.

Salient features

Weight	:	Not more than 14.25 kg
Size	:	Not more than 410 mm x 200 mm x 200 mm
Test facility	:	Built-in battery check facility
Storing and working temperature	:	-40 °c to + 75 °c
Surface finish	:	Powder coating, olive green colour
EMP	:	Not vulnerable
Tree	:	Fully functional up to 1300 R
Guaranty/Warranty.	:	1 Year warranty and Sufficient spares should be available in stock with the supplier and certificate for availability of spares in Chandigarh for at least as per equipment/article life span.

Miscellaneous –

The firm should be able to provide the following :-

1. One test sample for each machine for testing during commissioning and during maintenance. Training tools-charts, slides, training brochure, training work model, blow up diagram, video films on demonstrations and use etc.
2. Technical manual giving full description of the item practical training at least 2 times in a year continuing during warranty period.
3. User's handbook and literature on preservation/maintenance as applicable.
4. Procedure for packing, handling, transportation, storage and battery replacement.
5. **The following information is also required:**
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SPECIFICATION FOR POCKET DOSIMETER (PDM)

Pocket Dosimeter (PDM) should be of pocket size microcontroller based instrument able to indicate radiation dose rate alternately in any X and gamma radiation field. It should be rugged in design and to withstand JSS 55555-L2 test series specifications. The PDM should have a nylon fabric carrying case. The dosimeter should be able to give an audio warning at 50, 75, 150 R and battery low through a microcontroller.

Salient features

Sensor	:	Energy compensated GM tube
Dose range	:	
Radiation dose	:	0.1 to 999.9 R
Dose rate	:	0.001 to 999.9 R/h
Accuracy	:	± 15 per cent below 500 R/h ± 30 per cent from 500 to 999.9 R/h
Power (30 hr operation)	:	2 x 3.6 V lithium cells (R 6/AA Size)
Weight	:	Not more than 200 g
Size	:	Not more than 96 mm X 64 mm x 28 mm
Working temperature	:	-30 °c to + 65 °c
Storage temperature	:	-40 °c to + 75 °c
Relative humidity	:	Up to 100 per cent
EMP test	:	As per MIL-STD
Guaranty/Warranty.	:	1 Year warranty and Sufficient spares should be available in stock with the supplier and certificate for availability of spares in Chandigarh for at least as per equipment/article life span.

Miscellaneous –

The firm should be able to provide the following :-

1. One test sample for each machine for testing during commissioning and during maintenance. Training tools-charts, slides, training brochure, training work model, blow up diagram, video films on demonstrations and use etc.
2. Technical manual giving full description of the item practical training at least 2 times in a year continuing during warranty period.
3. User's handbook and literature on preservation/maintenance as applicable.
4. Procedure for packing, handling, transportation, storage and battery replacement.
5. **The following information is also required:**
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SPECIFICATION FOR PORTABLE DOSE RATE METER (PDRM)

Portable Dose Rate Meter (PDRM) should be able to measure X and gamma radiation dose rate in a radioactive contaminated area. This instrument should also be able to use for emergency operations arising from a nuclear accident or for locating a powerful gamma radiation source. It should have a nylon fabric carrying case with shoulder strip and belt strap for easy handling and storage. The PDRM should conformed to JSS 55555-L 2 test series specifications.

Salient features

Sensor	:	Energy compensated GM tube
range	:	0 to 1000 R/h in 4 ranges (analog display)
Accuracy	:	± 20 per cent
Power	:	4 x 1.5 V dry cells (R 6/AA Size)
Battery life	:	> 500 hr for alkaline cells
Weight	:	Not more than 950 g (approx)
Size	:	Not more than 16 cm x 9.5 cm x 9cm
Working temperature	:	-30 °c to + 65 °c
Storage temperature	:	-40 °c to + 75 °c
Relative humidity	:	Up to 100 per cent
EMP test	:	As per MIL-STD
Guaranty/Warranty.	:	1 Year warranty and Sufficient spares should be available in stock with the supplier and certificate for availability of spares in Chandigarh for at least as per equipment/article life span.

Miscellaneous –

The firm should be able to provide the following :-

1. One test sample for each machine for testing during commissioning and during maintenance. Training tools- charts, slides, training brochure, training work model, blow up diagram, video films on demonstrations and use etc.
2. Technical manual giving full description of the item practical training at least 2 times in a year continuing during warranty period.
3. User's handbook and literature on preservation/maintenance as applicable.
4. Procedure for packing, handling, transportation, storage and battery replacement.
5. **The following information is also required:**
 - (a) Attach Annexure – List of the Institution where your product has been Installed
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 - (c) Also informed your term & condition & cost regarding annual maintenance of the entire equipment after one (1) year warranty for yearly.

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SPECIFICATION FOR HAVERSACK

The haversack should be able to carry respirator mask, canister, detector papers and other items of personal decontamination and medical kits in the event of NBC alert. .

Salient Features

Made of PU coated nylon fabric
Designed for easy handling and snug fitting of components
Nylon tapes and buckles for securing.

Guaranty/Warranty. : **One (1) Year** warranty

Miscellaneous –

The firm should be able to provide the following :-

1. User's handbook and literature on preservation/maintenance as applicable.
2. Procedure for packing, handling, transportation and storage.
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SPECIFICATION FOR TELESCOPIC GAMMA SURVEY METER

Detector	:	GM Tubes (Two numbers)
Measuring Range	:	0.05 mR/h to 1000R/h
Power requirement	:	Battery operated
Display	:	Digital
Probe Length	:	Extended : 400cm or more Collapsed : 100cm or less
Radiation detected	:	Beta and Gamma
Guaranty/Warranty.	:	1 Year warranty and Sufficient spares should be available in stock with the supplier and certificate for availability of spares in Chandigarh for at least as per equipment/article life span.

Miscellaneous –

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2. Technical manual giving full description of the item practical training at least 2 times in a year continuing during warranty period.
3. User's handbook and literature on preservation/maintenance as applicable.
4. Procedure for packing, handling, transportation, storage and battery replacement.
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SPECIFICATION FOR MICRO R GAMMA SURVEY METER

Detector	:	Scintillator / GM tube
Range	:	0 to 5000 μ R/h
Radiation detection	:	Gamma
Power requirement	:	Battery operated
Display	:	Digital/Analog
Audio	:	Chirp Sound
Accuracy	:	± 10 or better
Guaranty/Warranty.	:	1 Year warranty and Sufficient spares should be available in stock with the supplier and certificate for availability of spares in Chandigarh for at least as per equipment/article life span.

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SPECIFICATION FOR GAMMA SURVEY METER

Radiation detection	:	Gamma
Display	:	Analog / Digital
Detector	:	GM tube /Scintillator
Range	:	0 to 200 mR/h
Power requirement	:	Battery operated
Accuracy	:	± 10 or better
Guaranty/Warranty.	:	1 Year warranty and Sufficient spares should be available in stock with the supplier and certificate for availability of spares in Chandigarh for at least as per equipment/article life span.

Miscellaneous –

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2. Technical manual giving full description of the item practical training at least 2 times in a year continuing during warranty period.
3. User's handbook and literature on preservation/maintenance as applicable.
4. Procedure for packing, handling, transportation, storage and battery replacement.
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SPECIFICATION FOR ALFA CONTAMINATION MONITOR

Radiation detected	:	Alpha
Detector	:	ZnS screen covered with aluminized mylar sheet
PMT	:	2''
Power	:	DC
Display	:	Digital
Mode of Operation	:	CPS/CPM/Preset Time
Background	:	Less than 0.5 cpm
Count Capacity	:	9999 or better
Guaranty/Warranty.	:	1 Year warranty and Sufficient spares should be available in stock with the supplier and certificate for availability of spares in Chandigarh for at least as per equipment/article life span.

Miscellaneous –

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1. One test sample for each machine for testing during commissioning and during maintenance. Training tools- charts, slides, training brochure, training work model, blow up diagram, video films on demonstrations and use etc.
2. Technical manual giving full description of the item practical training at least 2 times in a year continuing during warranty period.
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SPECIFICATION FOR BETA & GAMMA CONTAMINATION MONITOR

Radiation Detected	:	Beta & Gamma
Detector	:	Pancake GM Tube
Range	:	0 to 1000 cpm or better
Display	:	Digital/Analog
Power	:	DC
Accuracy	:	± 20% or better
Mode of operation	:	CPS/CPM
Guaranty/Warranty.	:	1 Year warranty and Sufficient spares should be available in stock with the supplier and certificate for availability of spares in Chandigarh for at least as per equipment/article life span.

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1. One test sample for each machine for testing during commissioning and during maintenance. Training tools- charts, slides, training brochure, training work model, blow up diagram, video films on demonstrations and use etc.
2. Technical manual giving full description of the item practical training at least 2 times in a year continuing during warranty period.
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SPECIFICATION FOR MICRO RADIATION SURVEY METER

Specification : Hand held, portable, flight weight and Analog dose rate meter.
Range : 0 to 200 mR/h
Detector : plastic scintillator NaI (TI)
Guaranty/Warranty. : **1 Year** warranty and Sufficient spares should be available in stock with the supplier and certificate for availability of spares in Chandigarh for at least as per equipment/article life span.

Miscellaneous –

The firm should be able to provide the following :-

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SPECIFICATION FOR ALSCIN WALL MONITOR

Specification	:	Hand held, portable, light weight and Digital LCD Readout efficiency; Better than 20%
Detector	:	Built in Zns with PMT
Power Source	:	Battery operated device
Guaranty/Warranty.	:	1 Year warranty and Sufficient spares should be available in stock with the supplier and certificate for availability of spares in Chandigarh for at least as per equipment/article life span.
Miscellaneous –		The firm should be able to provide the following :-
	1.	One test sample for each machine for testing during commissioning and during maintenance. Training tools-charts, slides, training brochure, training work model, blow up diagram, video films on demonstrations and use etc.
	2.	Technical manual giving full description of the item practical training at least 2 times in a year continuing during warranty period.
	3.	User's handbook and literature on preservation/maintenance as applicable.
	4.	Procedure for packing, handling, transportation, storage and battery replacement.
	5.	The following information is also required:
	(a)	Attach Annexure – List of the Institution where your product has been Installed
	(b)	Provide Technical Specification of your product brochure.
	(c)	Also informed your term & condition & cost regarding annual maintenance of the entire equipment after one (1) year warranty for yearly.

Note :-

1.) Firm will submit one sample in VIP Security store Sector-29, Chandigarh. and Quotation documents will be submitted in purchase branch (E-8) Chandigarh Police Head Quarter Sector-9, Chandigarh.

2.) The Equipment will be accepted after inspection by purchase committee with the help of technical expert from DRDO Laboratory Gwalior / DRDO Laboratory Jodhpur.

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SPECIFICATION FOR RADIATION SURVEY METER

Scope

Radiation Survey Meters are used for survey and monitoring of gamma rays. High level of accuracy and ability to detect the radiations in extreme climatic conditions makes the use of Radiation Survey Meters versatile. The equipment can be effectively used to detect the presence of gamma radiations emitted from a suspected radioactive source. Malicious intentions to smuggle/place radioactive sources in crowded places like stadiums, hotels, buses, aircrafts etc can be countered with the effective use of Radiation Survey Meters along with the use of other detection equipments. These instruments can be worn by security personnel with belt-holster facility.

General Requirements:

1. Radiation Survey Meters should be sturdy and capable for uninterrupted operation in extreme weather conditions.
2. Should be User-friendly.
3. Should be able to integrate with other equipments, networking, command and control stations, etc. wherever required.
4. Selectable Audio/Vibration mode for alarm
5. Radiation Survey Meters should have following salient features:-
 - (a) Should be light weight, vibration and water resistant.
 - (b) Should have user friendly display with back lit facility to note the reading during night.
 - (c) Should have easy and shortest start up with quick reset facility.

Operational Requirements:

1. Should be able to withstand environmental condition arising due to sand, dust, rain, fog, etc.
2. Radiation Survey Meters shall be able to measure gamma dose rates of varying energy levels in minimum possible timeframe.
3. Radiation Survey Meters should be capable of working up to a period of 8 hrs.

Technical specifications

1. Detector: NaI(Tl)-detector.
2. Range: 1 μ R/h – 25 mR/h; 1.5 cps per μ R/h (150cps/ μ Sv/h) for Cs-137; 30 cps per μ R/h for Am-241
3. Energy Range: 60 keV – 1.3 MeV.
4. Power requirement: Battery operated.
5. Linearity Error (Cs-137): max. \pm 10 %
6. Selective Audio/Vibration mode for alarm
7. Should have the provision to be worn in a belt-holster with built-in vibrator to indicate alarm.

Terms and conditions

1. Installation and commissioning: Suppliers responsibility.
2. Performance demonstration: Against radioactive source at manufacturers place and also on site (sources to be arranged by the supplier).
3. Comprehensive warranty: Two years from the date of commissioning.
4. After sale service: Prompt sales service for a minimum period of 5 years with the availability of spare parts for the same model after warranty period.
5. Standby availability: Minimum fifteen instruments.
6. Zero down time during operational requirement: For replacement of any defective/faulty/malfunctioning equipment/spare parts.
7. Withstanding Meteorological conditions: To withstand Indian meteorological conditions.
8. Availability of service engineer from installation.

Note :-

1.) Firm will submit one sample in VIP Security store Sector-29, Chandigarh. and Quotation documents will be submitted in purchase branch (E-8) Chandigarh Police Head Quarter Sector-9, Chandigarh.

2.) The Equipment will be accepted after inspection by purchase committee with the help of technical expert from DRDO Laboratory Gwalior / DRDO Laboratory Jodhpur.

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SPECIFICATION FOR WATER POISON DETECTION KIT

The Water Poison Detection Kit should be able to test water sources like reservoirs, tanks and wells in battlefield as well as for routine testing under normal conditions. The contents of the kit such as reagent bottles, impregnated filter paper strips, essential glassware etc. should be housed in an aluminium container and properly cushioned to withstand transport hazards. The kit should be able to detect mercury, manganese, copper, lead, arsenic, cyanide, sulphur mustard, nerve agents and microbial contaminants. The kit caters to 50 tests for each type of contaminant except for nerve agents and microbial contaminants where it catered to 5 tests only.

Salient features

Weight	:	Not more than 3.4 kg
Size	:	Not more than 325 mm x 270 mm x 110mm
Detection limit (mg/l)	:	
Cyanide	:	0.05
Mercury	:	0.5
Lead	:	0.001
Arsenic	:	0.2
Manganese	:	0.2
Copper	:	1.5
Nerve agents	:	0.01
Sulphur mustard	:	2.0
Microbial contaminants	:	1-3 coliform/100 ml
Shelf-life	:	Not less than 2 yr for detection tubes
Guaranty/Warranty.	:	One (1) Year warranty

Miscellaneous –

- The firm should be able to provide the following :-
1. User's handbook and literature on preservation/maintenance as applicable.
 2. Procedure for packing, handling, transportation and storage.
 3. **The following information is also required:**
 - (a) Attach Annexure – List of the Institution where your product has been Installed
 - (b) Provide Technical Specification of your product brochure.

Note :-

1.) Firm will submit one sample in VIP Security store Sector-29, Chandigarh. and Quotation documents will be submitted in purchase branch (E-8) Chandigarh Police Head Quarter Sector-9, Chandigarh.

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