REQUEST OF EXPRESSION OF INTEREST

1-17018/PROC/1201/HQ NDRF/2016/1057
Ministry of Home Affairs
Directorate General
National Disaster Response Force
Email: dg.ndrf@nic.in

2nd Floor, Lok Nayak Bhawan
'A' Wing Provisioning Directorate,
Khan Market, New Delhi – 66

Dated, the Sept, 2016

No. I-17018/1201/Porc./DG NDRF/2016 Dated, the 12, Sept-2016

It is to inform that National Disaster Response Force (NDRF) intends to procure various equipment/items on specification prepared by a detailed BOOs which is attached as appendix-A.

2. All the interested vendors/manufacturers are hereby invited to submit their comments/ suggestion on the technical specification of equipment items mentioned in appendix-A to this HQ within 10 days from the date of issue of this expression of interest for further course of action or can visit this HQ for discussion.

Encl: as above.

(S.S. Guleria)
Dy Inspector General(Proc.)
HQ NDRF

Copy to:

IT Cell, HQ NDRF for needful action please

Appendix-A

LIST OF MEDICAL EQUIPMENTS

1. SPECIFICATION OF SEMI-AUTOMATIC BLOOD ANALYZER

Approximate Rate Rs. 1,20,000/ (Rs. One Lac and Twenty Thousand Only)

Srl No	Specification
1.	Static photometer
2.	8 interference filters 340, 405, 505, 546, 578, 600 and 670nm
3.	Silicon photodiode detectors
4.	Photometric Range from 0 to 2.5 OD
5.	Quartz Halogen lamp of 12V, 20W
6.	Unique triple Cuvette system • 18 µl Flow Cell • 10 mm Square Cuvette • 6 mm Round Glass Tube with adaptor
7.	Peltier Temperature Control : 25^0 C, 30^0C and 37^0C and off
8.	Peristaltic Pump
9.	Minimum Aspiration Volume 200 µl
10.	200 User defined Test Programs
11.	1000 test Result
12	3 level QC
Other features	
1.	Display should be big enough to view minimum 120x92 mm and high resolution graphics LCD with backlight
2.	Should have USB Port, USB Port for external printer & connecting facility for external keyboard.
3.	It's keyboard should have multifunctional key and dynamic keys.
4.	Should have in built high resolution Graphic thermal printer.
5.	Should have external Incubator with minimum 16 to 18 dry blocks.
6.	Should have Battery back-up for operation without Electricity.

2. SPECIFICATION OF COMPUTERIZED BATTERY OPERATED ECG MACHINE

Approximate rate Rs. 90,000/- (Rs. Ninety thousand Only)

Srl No	Specification
1.	Multi-channel ECG:- Should have 12 Channel with simultaneous reading.
2.	Should have Storage memory for storing ECGs for later printing.
3.	Should have Automatic and manual recording modes.
4.	Should have dual power Supply mains & Battery operation.

5.	Built in rechargeable battery.	
6.	Power Supply range	AC 230V +/- 10%
7.	Power consumption	Less than 12W
8.	Battery (built-in)	Rechargeable NIMH batteries 10x1.2 volts, 1500 mAH
9.	Battery capacity	Minimum 01 hour
10.	Should have Battery indicator	
11.	Should have Battery low indicator	
12.	Operating temperature	10 to 40 deg. C
13.	Safety standard	Compliant to Class I type CF, CE 0470
14.	ECG Acquisition	11 bits, 1000 samples/sec/Channel Printing and Filters
15.	ECG leads	Standard 12 leads
16.	Recording sensitivity	Manual mode 2.5-5-10-20mm/m v +/-5% Automatic according to number of channels
17.	Filters	Main & muscle interference modified digital notch 50-60Hz
18.	Anti Drift Filter	Digital 0.5 Hz Anti Drift High Pass linear Phase filter always enabled and cannot be switched off
19.	Input Dynamic	+/-300m V@0Hz +/-%Vin the Pass band
20.	Input impendence	>100Mohms
21.	Time constant	>3.2seconds
22.	CMRR	>Than 100dB @ 50Hz
23.	DF Protection	Built in
24.	Recording System	Thermal printer 8 dots/mm 110mm usable print width
25.	Thermal paper compatible with system	100 Nos
26.	Paper transport speed	5-25-50mm/sec +/-5sec.
27.	Patient Cable	01 No
28.	Chest electrodes	06 Nos
29.	Lamp Electrodes	04 Nos
30.	Gel Bottle	25 Nos
31.	User Manual	01 Nos
32.	Battery Charger	01 Nos
33.	Full system Guarantee (Comprehensive plan on site)	05 years
34.	To Quote AMC Rates for next	05 years

3. SPECIFICATION OF RESUSCITATION KIT

Approximate rate Rs. 2,00,000/- (Rs. Two Lac Only)

Srl No	Specification
1.	Oxygen Administration set (Oxygen Cylinder with accessories)
2.	Ambu Bag and mask device (Silicon)
3.	Face mask of Standard Size
4.	Endotrachial tubes of different size (Adult &Paed.)
5.	Oropharyngeal and nasal airway
6.	Laryngoscope of different size (Adult, Medium & Small)
7.	Suction apparatus and catheters
8.	Cardiac Monitor and defibrillator
9.	Mouth gas S.S. (Adult, Medium, & Small Size)
10.	Tray S.S. with Lid Size 10x12 Inch
11.	I.V. Set & I.V. Canula
12.	Nasogastric (Ryles Tube)
13.	Torch-02 Cell
14.	CPR Mask

4. SPECIFICATION OF PHARMACY FREEZER

Approximate rate Rs. 76,000/- (Rs. Seventy Six Thousand Only)

Srl No	Specification
1.	Double-walled Inner Chamber made of Stainless Steel (304 quality)
2.	Outside made of S.S. sheet, surface of primer coated for anti rusting and duly white stove powder coated painted.
3.	Inner made of thick transparent full views.
4.	Insulation between inner and outer wall is done by 75mm thick glass wool to prevent temperature loss, with adjustable/removal 2/3 Nos. perforated S.S. Shelves.
5.	Temperature is controlled by Electronic Digital Temperature Controller Cum-indicator range is from 2^0C to 60^0C
6.	Sensor Inside air circulating system is provided by F.H. motor with fan which keeps uniform temperature throughout the chamber
7.	Cooling with ISI Mark CFC free Environmental friendly compressor of KIRLOSKAR/Tecumseh make with fan motor, Relay capacitor etc.
8.	Heating with ISI mark strip type heaters placed near the cooling coils. Air is circulated by 2-Nos. ISI mark Silicon binded. Motors, connected to balanced blowers On/Off switches Indicators, Digital Controllers etc.
9.	Whole unit is mounted on Castor wheels.
10.	Inner chamber size will be 24x24x36(WxDxH)/12cu.ft.

11.	Full system Guarantee should be Five year.
12.	To Quote AMC Rates for next Five year.

5. SPECIFICATION OF INFLATABLE SPLINTS

Approximate rate Rs. 8000/- (Rs. Eight Thousand Only)

Srl No	Specification
	It must be Transparent plastic and nylon zipper is fully x-ray translucent, and the vinyl construction allows x-rays as well as constant observation of the injury should be made up of frosty vinyl, PVC • Zipper-Nylon with metal pull • Push pull valve- Vinyl PVC • Following Items must be present in there standard size
1.	Half Arm Child & Adult
2.	Full Arm Child & Adult
3.	Half leg Child & Adult
4.	Full leg Child & Adult
5.	Foot & ankle for Child and Adult
6.	Hand & Wrist for Child and Adult

OR

SPECIFICATION:

1. Should be radiolucent.
2. Thickness of PVC should be not less than 0.2mm.
3. Inflatory tubes extension should have twin locking.
4. Fixing of splint should be by zipper: zipper should also be radiolucent.
5. Should be washable and reusable
6. Should be able to withstand pressure of 4 PSI
7. Item should be ISO certified
8. Should come in the following 3 adult arm sizes and 3 leg sizes-
    - Hand and Wrist
    - Half Arm
    - Full Arm
    - Foot and Ankle
    - Half Leg
    - Full Leg.

6. SPECIFICATION OF BINOCULAR MICROSCOPE

Approximate rate Rs. 26,000/- (Rs. Twenty Six Thousand Only)

Srl No	Specification
1	Make-Magnus/Olympus
2	Magnification-40x-100x

3	Illumination System: Built in transmitted illumination system 6V 20W halogen bulb-100-240 V 50/60 Hz universal voltage. Supplied with one spare bulb and spare fuse. Easily replaceable lamp from front.
4	Objective- Semi plan achromatic Objectives, Antifungal 4x, N.A-0.10, W.D.-29mm,10x
5	Eye Pieces- WF 10x (FN 18mm) Paired eye piece. The unique optical design of the compensating eyepiece provides relief from eye fatigue and renders color compensated wide-field images of utmost clarity
6	Focusing-Co-axial coarse & fine control up to 25mm.
7	Stage-Co-axial low drive mechanical stage(125mmx145mm) (+5mm) with transverse area of 50mmx76mm (+5mm)
8	Optional accessories- Simple polarized attachment, eyepiece wide field SF15x, image analysis software, Digital camera system.

7. SPECIFICATION OF ASSORTED PRE-FAB. SPLINTS

Approximate rate Rs. 10,000/- (Rs. Ten Thousand Only)

Srl No	Specification
Following Items must be present in there standard size-Small, Medium and Large and must be translucent propylene plastic.	
1	Cervical soft Collar
2	Cervical collar with Trachea opening
3	Lower Abdominal belts
4	Lumbo-Sacral belt
5	Dorso-lumber spinal brace(Taylor Brace)
6	Wrist brace, Left & Right
7	Tennis Elbow support
8	Finger Splint
9	Thumb Spica splint Left & Right
10	Dynamic cock-up splint Left & Right
11	Long Knee Braces
12	Knee Cap
13	Bunion Splint
14	Foot drop splint
15	Rib belt
16	Clavicle brace
17	Adjustable arm pouch
18	Universal shoulder Immobilizer
19	Hypertension (ASH Brace)

8. **SPECIFICATION OF OXYGEN GENERATOR/CONCENTRATOR**

Approximate rate Rs. 1,10,000/- (Rs. One Lac and Ten Thousand Only)

Srl No	Specification
1	Oxygen concentrator : 2-9 LPM at 92%±3%, 10LPM at 90%+3%
2	Oxygen outlet pressure : 20psig (138kpa)
3	Dimensions :- 27.5in Hx16.5in Wx14.5in D
4	Weight : 58lb (26.5kg)
5	Power: 120VAC, 60Hz, 220-240VAC, 50Hz, 220VAC, 60Hz
6	Power consumption: 590 Watts
7	Alarms: Power failure, high and low pressure, temperature, battery test
8	Temperature range: operational temperature : 41^0F to 95^0F(5^0C to 35^0C)
9	Storage temperature: 4^0F to 140^0F (-20^0C to 60^0C)

9. **SPECIFICATION OF PORTABLE OXYGEN CYLINDER**

Approximate rate Rs. 7,600/- (Rs. Seven Thousand and Six Hundred Only)

Srl No	Specification
1	Model : OxyGo Optima
2	Light Weight Aluminium alloy cylinder (45% Lighter than steel) Rust Free
3	Service Pressure (Bar)-139
4	Oxygen Capacity-682 Ltr
5	Flow rate upto 10L/Min
6	Filled Weight-4.9 Kg
7	Non Magnetic (Cylinder & Accessories)
8	Cylinder & Valve certified by Peroleum& Explosives Safety Org. (PSEO) Govt. of India
9	Cylinder with 15 year Warranty

OR

SPECIFICATION:-

1. The medical oxygen cylinder should be made of high quality strength aluminium alloy with head sensitive coating and duly approved and certified by the department of explosives Nagpur. The CCE (Chief Controller of Explosive) approval should be provided with technical bid.

2. The capacity of the cylinder should be not less than 620 liter.
3. Since portability of the cylinder is vital, the filling pressure of the cylinder should be minimum 139 Bar having test pressure of 225 Bar. Test certificate of the cylinder from the cylinder manufacturer should also be provided.
4. The length of cylinder should not more than 640 MM outside diameter should not be more than 115 MM.
5. Empty weight should not exceed 3.5 kg without valve.
6. The valve fitted on top of the material cylinder should be as per IS.3745-1978 so as to make sure that the cylinder is easily refilled anywhere in India so that there is no need for extra custom-made connector.
7. All fitting of medical oxygen cylinder should be leak proof and there should be no chances of leakages.
8. Medical oxygen cylinder and all other fitting should be hygienic and there should be no chances of contamination.
9. There should be a certification from the cylinder manufacturer ensuring after sales service & periodic testing of cylinders required as per Gas cylinder rules 1981.
10. The Supplier should have a cylinder periodic testing facility and approval from the chief controller of explosives to provide the same.

A. For regular and flow control with flow meter

1. High-pressure regulator and flow control valve attachment should have pre-set flow control knob and should be compatible with valve made as per IS 3745-1978.
2. The control valve should be designed to provide calibrated floe of gaseous oxygen at specific pressure.
3. The regulator should have built in pressure regulator up to 3000 PSI operating pressure or equivalent reading in kg/cm2
4. The flow rate should be between 0.5 to 15 liters per minute (LMP) with accuracy and easily readable numbers on the regulator body.

B. The system must be accompanied by carry bag, nasal cannula/mask

C. Suitable filling hose to transfer gas from mother cylinder to portable cylinder.

LIST OF MEDICAL EQUIPMENTS

01. SPECIFICATION OF MICROSCOPE BINOCULAR(OLUMPUS) :-

Observation method	Bright filed		√
	Dark filed		√
Illuminator	Transmitted Koehler Illuminator	Halogen Lamp	30W
Focus	Focusing Mechanism	Stage Focus	√
	Coarse Handle Stroke		25 mm
	Coarse Handle Stroke per Rotation		36.8 mm
	Features		• Stage height movement by roller guide (rack & pinion) • Upper limit stopper • Tension adjustment on coarse focus adjustment knob
Revolving Nosepiece	Manual	Standard Type	Built-in 4 position
Stage	Mechanical	Mechanical stages with Right-Hand Control.	Built-in X:76mm,Y:50mm
Condenser	Manual	Abbe Condenser	NA1.25/W.D.-(4x100x) (Built-in)
Observation Tubes	Widefield (FN22)	Binocular	√
		Tilting Binocular	√
	Tube Inclination Angle		30^0
	Trinocular tube Light path Selection (Camera:Observation)		-
	Interpupillary Distance Adjustment		48-75 mm
Dimensions			233(w)x367.5(D)x411(H) mm

02. SPECIFICATION OF CENTRIFUGE MACHINE ELECTRIC:-

Technical Specifications :- AC/DC Motor with 3500 R.P.M. Works an 220-230 Volts. Swing out rotor head & angle rotor.

A) 4 Tubesx15ml
B) 6 Tubesx15 ml
C) 8 Tubesx15 ml

03. SPECIFICATION OF ELECTRICS STERLIZER

- Fitted with cut-off Device when dry of water and auto tray lifting arrangement (For sizes including and above 300x150x140mm).

DIMENSIONS LxBxH	HEATING ELEMENT
200x100x63mm	1 KW

04. SPECIFICATION OF STABILIZER AUTOMATIC :-

		I	I	II
Working Voltage	Input:	160-260V	145-270V	120-270V
	Output:	200-240V	200-240V	200-240V
Mains Frequency		.....50 Hz+/-5%		
Cut-off Voltage-(output)	High	.....252+/-2v.....		
	Low	.....192+/-2v.....		
Indications-output		3Digit 7Segment LED Display/Analog Display		
Time Delay		Red Blinking LED		
Cut-off		No Output Voltage on DPM		
Input Cable		2 Meter (3 Core)		
Output Termination		Terminal Block of 30 Amp.		
Models		3 KVA/ 4 KVA/ 5 KVA		
Accessories		Two plugs with screws & Clamp plate for wall mounting		

05. SPECIFICATION OF URINOMETER:-

Accuracy	±0.002
Increments	0.001
Certifications/ Compliance	No GG-U-681
For Use With (Application)	Urine analysis
Includes	Shot ballast weighted hydrometer and Glass Jar

06. SPECIFICATION OF HAEMOCYTOMETER :-

Srl No	Dimensions	Area	Volume at 0.1 mm depth
1.	1 x 1mm	1mm^2	100 nL
2.	0.25 x 0.25 mm	0.0625 mm^2	6.25nL
3.	0.25 x 0.20 mm	0.05 mm^2	5 nL
4.	0.20 x 0.20 mm	0.04 mm^2	4 nL
5.	0.05 x 0.05 mm	0.0025 mm^2	0.25L

07. SPECIFICATION OF HAEMOGLOBINOMETER:-

The kit should consists of following standard setup:-

- Comparator Holder :- 1 Nos.
- It is black in colour. The back of the holder is fitted with milky colour screen made of acrylic. In front of the holder there are three windows. The two side windows are fitted with colour comparison. The size of all the three windows are Height 3 cms. (Minimum) Width 0.5 cms. (Minimum)
- Square H.B. Tube:- 2 Nos.
- Square H.B. Tube is graduated on both the side for the measurement of haemoglobin in respect of percentage and gram.
- H.B. Pipette-1 Nos.
- 20 microlite H.B. Pipette with latex tube and mouth piece
- Amber coloured glass bottle-1 Nos.
- Glass Stirrer-1 Nos.
- Dropper with teat-1 Nos.
- Cleaning Brush-1 Nos.
- Spare latex tubing one meter-1 Nos.

All the above are fitted in thermoform tray.

08. SPECIFICATION OF HEATING EQUIPMENT (GAS/BURNER):-

This has the same specification as other gas burner used in normal laboratory with the domestic gas connection.

09. SPECIFICATION OF BLOOD CELL COUNTER:-

Parameters	WBC, LY#, MO#, GR#,LY%, MO%, GR%, RBC, HGB, HCT, MCV, MCH, MCHC, RDW-CV, RDW-SD, PLT, MPV, PDW, PCT 3-part differentiation of WBC 19 parameters and 3 histograms.
Sample	10 µL whole blood, 20 µL pre-diluent
Reagent	0.4mL lytic reagent, 40mL diluent and 18mL detergent per test
Throughput	Up to 30 samples per hour

Parameters	WBC, LY#, MO#, GR#,LY%, MO%, GR%, RBC, HGB, HCT, Date storage : 2000 sample results with histograms
Display	5.5 inches LCD, resolution 320x240
Dimension	430mmx260mmx420mm
N.W.	14.5 Kgs
Power requirement	AC 100V----240V, 50/60Hz
Input/Output	System keyboard, thermal recorder, external printer LQ850 or similar model(optional), RS232 to computer
Carryover	WBC, RBC, HGB, HCT, PLT≤2.0

COMMUNICATION STORES

1. TECHNICAL SPECIFICATION OF JWD-I-CABLE

Srl No	Parameter	Specifications
1	Characteristics	
	i)Conductor	Composite conductor of 4 tinned copper and 3 Galvanized high tensile Wire (To give strength) of size 0.29 mm dia each.
	ii)Insulation	i)Insulation meterials should be of High Density poly Ethylene (HDPE) ii)Diameter of insulation over each wire be 2.35±0.1 MM
	iii)Twisting	Twisting pitch at 150 mm Maximum.
2.	Performance	
	i)Temp Range	-40^0c to + 80^0 c
	ii)Resistance of core	76 ohm/km is maximum Resistance of core at 20^0
	iii)Test Voltage	1 KVA. AC
	iv)Pair Capacitance	Capacitance value of (37±2) pf/m
	v)Impedance	600 Ohm at 1.6 khz
	vi)Attenuation	1.4 db/km at 1.6 khz
	vii)Breaking strength	76 kg is minimum
3	Standard Length	The standard length of wire of every spool/Drum should be 1600 meter±1% or 1000 mtr±1% (to cater for sample testing) (User may quote Length in drum during tender)
4	Iron Drum	Iron Drum made of Iron sheet of thickness 1 mm will be accepted The other measurement of Drum are as under:- Spool:- Length 23 cm Diameter:- 13 cm Wing- Diameter:- -40 cm
5	Colour	Black

2. TECHNICAL SPECIFICATION OF NIMH BATTERY FOR H/HELD SET

Srl No	Parameter	Specifications
01	**GENERAL**	7.2 V Ni-Mhbty 2300 mAH for Hand Held Motorola radio sets GP 300, GP 328/338 & 7.5 V Ni-Mhbty 2100 mAH for Hand Held Motorola radio sets XTS

		2500
02.	**ELECTRICAL**	
	a)Type of battery chemistry	Ni-Mh (Nickel Metal Hydride)
	b)Rated Capacity	2300 mAH and 2100 mAH
	c)Nominal Voltage	7.2 V and 7.5V
03.	**MECHANICAL**	a) The battery casing should make of high strength polycarbonate/ABS blend. Vendor will provide certificate from any Govt. of India approved laboratory in this regard.
		b) The battery casing should be bonded by ultrasonic welding.
		c) The Cells should be interconnected by spot-welded through necessary circuit.
		d) The battery to be made of premium grade cells of achieve consistent capacity & longer lasting performance. Firm should submit certificate to this effect.
		e) The battery should communicate with the hand held radio/chargers easily with minimal force insertion or in the same manner as the OEM supplied battery.
		f) The battery should be equipped with a spring loaded suitable Belt Clip.
04.	**PROTECTION**	The battery should be equipped with protection circuit to protect from over temperature, short circuit and revers polarity etc.
05.	**DESCRIPTION**	i) The sleeve of cells used should preferably indicate the following:-Part number/month and year of manufacturer/voltage of cell/capacity of cell/country of cell.
		ii) The level of the battery should be self-descriptive type and specified the following: Battery voltage/ Capacity/Chemistry of cell/suitable model of set/Serial number/part number/Month & Year of manufacturer & trade mark "Logo"of the firm to be embossed/heat stamped
		iii) Clear instructions shall be given to charge the battery on suitable chargers.
06	i) The battery should pass the following environmental tests mentioned as under as per **IS:9000** or any equivalent standard followed by capacity test @ C/5 rate. Vendor will provide certificate from any Govt. of India approved	a) Operating temperature range :- 10^0C to +55^0C.
		b) Storage temperature range :- 40^0C to +70^0C
		c) Relative humidity : 95% Max at + 40^0C non-condensing

	laboratory in this regard. Battery should be suitable for operation in the following environmental conditions.	
	ii) Tests to be conducted and conditions of tests as per **IS:9000**	a) Dry heat: Part-III/SEC. 5/1977 55^0C+2^0C, RH<50%, duration 16 hours.
		b) Damp Heat(Cyclic) test: Part V/SEC.2/variant 1/1981 $40^0C(+)$ 2^0C, RH 95%, Two cycles of 24 (12+12) hours each.
		c) Cold test: Part II/SEC. 4/1977 (-) 10^0C 3^0C, duration 16 hours.
		d) Drop test (in packed): Part VII/SEC.3/1979 Six drops one on each condition face, Height of fall 1000 mm in case of hand held items and 500 mm in case of other items.
		e) Vibration test : Part VIII/1981 12 hours, 4 hours along with each axis, at 15-150 Hz and with amplitude of 0.15 mm/2g.
		f) Storage test : III/SEC.5/1977 & - 40^0C for 5 hours. Part-II/SEC.4/1977 then rises the temperature to 700C for 16 hours
		g) Bump test: Part VII/SEC.2/1979 4000 bumps at peak acceleration of 400 m/s sq.
	iii) Environmental test report with equivalent or superior conditions would be acceptable.	
	iv) The functional tests and permissible degradation shall be as under: No degradation in battery capacity when measured at C/5 rate.	

3. TECHNICAL SPECIFICATION OF CO-AXIL CABLE25 MTR ROLL

Srl No	Parameter	Specification
1	**CONFIGURATION**	
	i) Inner Conductor material and plating	Copper
	ii) Dielectric type	PE (Polyethylene)
	iii) Shield materials	Copper Braid
	iv) Jacket Material and color	PVC, Black
2.	**ELECTRIC SPECIFICATION**	
	i) Impedance, Ohm	50
	ii) Velocity of Propagation, %	66

	iii) Maximum operating frequency, Mhz	400
	iv) Capacitance, pF/ft(pF/m)	30.8 (101.050)
3.	**Electrical Specification by Frequency**	
	a) Frequency 1	
	i) Frequency, MHz	100
	ii) Attenuation, db/100ft (dB/100m)	4.8 (15.75)
	b) Frequency 2	
	i) frequency, MHz	400
	ii) Attenuation, db/100ft (dB/100m)	4.8 (15.75)
4.	**Mechanical Specifications**	
	a) Inner Conductor :	
	i) Number of Strands	1
	ii) Material	Copper
	iii) Diameter in mm	2.99
	b) Dielectric :	
	i) Type	PE
	ii) Diameter in mm	7.24
	c) Shield :	
	i) Number of	01
	ii) Material 1	Copper Braid
	iii) Diameter in mm	7.98
	d) Jacket:	
	i) Material	PVC
	ii) Diameter in mm	10.29
	iii) Color	Black
	iv) Weight Kg/m	0.170
5.	**Plotted and Other Data**	
	Value at +250C	At Sea Level
	Max, Operating Voltage (VRMS):	5000
6	**Order Information**	
	Order as	RG 213/U

4. TECHNICAL SPECIFICATION OF CO-AXIL CABLE 35 MTR ROLL

Srl No	Parameter	Specification
1	**CONSTRUCTION**	
	i) Centre Conductor	Copper , Tin Plated
	ii) Dielectric type	PE
	iii) Outer Conductor	Copper, Tin Plated
	iv) Jacket	PVC II
2.	**ELECTRIC SPECIFICATION**	
	i) Impedance, Ohm	50Ω+/-2
	ii) Operating Frequency	450Mhz

	iii) Capacitance	101pF/m
	iv) Velocity of Signal Propagation	66%
	v) Signal delay	5.03s/m
	vi) Insulation Resistance	≥1x 108 MΩm
	vii) Min. Screening effectiveness	≥38dB(up to 1 GHz)
	viii) Max. Operating voltage	≤2.5 kV rms (at sea level)
	ix) Testing voltage	5 kVms (50 Hz/1Min)
3.	**Mechanical Specifications**	
	i) Weight	3.7 Kg
	ii) Min bending radius	25mm static, repeated 50mm
4.	**Environmental Specification**	
	i) Temperature Range	-25^0C...+85^0C
	ii) Installation temperature	-20^0C...+60^0C
5.	**Ordering Information**	
	Order as	RG 58 C/U
6.	**Suitable Connector**	
	Cable Group	U7 3mm/50 Ohm

MOUNTAIN RESCUE EQUIPMENT

1. SPECIFICATION OF SLEEPING BAG

The sleeping bag should provide the highest standards of performance in warmness, comfort to the rescuers and should be durable.

1. FIBER BLENDS

The certified sleeping bags should be filled with 100% PLAfibers or feather specially designed for Ingeofibers.

2. FILLING WEIGHT REQUIREMENTS

A minimum filling weight should be maintained to provide adequate warmth and uniformity throughout the sleeping bag without cold spots. In addition, a sufficient number of fibers are required to prevent excessive fiber movement and resulting clumps in laundering or dry cleaning.

3. BATTING APPEARANCE

There should be no obvious defects in the batting such as holes, heavy cross-lapper marks and clumps of fibers. All fibers in the batting should be well opened without neps, rat tails or rolling rope. Batting should not be contaminated with foreign materials. No excessive compression on batting should be used to reduce the thickness, which will reduce the warmth value (CLO or Tog value) of the batting. Vacuum packing of batting is not recommended.

4. NONWOVEN INTERLININGS

If nonwoven interlining is used, the basis weight should not exceed 20 g/m2 (0.6 oz/yd2). Higher basis weight can reduce the softness and wrap-ability of sleeping bag. The options to use interlining are:

a) To provide unbonded batting stability especially in multilayer offset quilting or shingle construction

b) To reduce fiber percolation (fiber leakage) if used next to shell fabric (ticking). Selecting high quality, low air permeability fabric is the best way to prevent fiber percolation

c) Use in between layers of battings in multilayer construction can prevent excessive deterioration of battings inuse and laundering

5. SHELL FABRICS

Shell fabrics can be made of spun or filament yarns and shall be of adequate construction and porosity to control fiber percolation or leakage in sleeping bags as produced and after three wash (front load washers) and tumble dry cycles. Coated fabrics severely limit moisture permeability and are unacceptable.

6. QUILTING PATTERN

The quilting pattern used shall not exceed an area that is adequate to control shifting and separation of the batting after three front load washing and tumble dry cycles. Stitch density shall provide acceptable durability in use and after laundering or dry cleaning. Suggested patterns and stitch density are:

Suggested Quilting Patterns and Stitch Density		Remark
Stitch Pattern	Spacing	
Straight Line Rows	20 cm	
Box or Diamond	650 cm^2 (25x25)	
Stitch Density	2.4 stitch/cm	

7. Safety and handling considerations Material Safety Data Sheets (MSDS) for Ingeofibers should be provided by the firm at time of delivery.

Minimum Lengthshould not be less than 7feet	
Pad Size	20"x78"
Color	Blue
Fill Type	Insotectl lotstream
Fill Weight	350 gm
Bag Weight	1lb 13oz
Shoulder Girth	70" -75"
Hip Girth	65" -70"
Foot Girth	50"-55"
Stuff Sack Size	S-7.5"x15"
Compressed Bag Size	7.5" x 7"

2. SPECIFICATION OF GLOVES LEATHER WHITE LINED

General:

For the Manufacture of this leather, well preserved sheep, goat or calf skins free from adverse grain defects, cuts and holes shall be used.

Material:

The leather shall be chrome tanned in either natural finish or with white pigment finish and shall be soft and pliable, uniform color, even thickness smooth feel and compact texture, free from fly cuts, grain defects like pock marks, tick marks, cuts pin holes, scratches, perforation, store marks, vulture marks, abrasions etc.

Finish:

Natural color finish.

Water proof ability: No material which is known to be toxic or harmful to the skin and which may cause dermatitis, chafing or irritation shall be used for waterproofing.

White Pigment finish with suitable binder.

Physical requirement:

- Thickness, range 0.7 to 1.0 mm
- Tensile strength MPa, Min 15
- Double hole stitch tear strength, KN/m thickness, Min : 44
- Creakiness of the gain: The grain shall not crack at the double fold when leather is folded with the grain side out.
- Water vapor permeability/m2/h : 20

Packing and marking: As agreed to purchaser and supplier.

Marking: Each skin shall clearly and legibly be marked at one corner on the flesh of skin with trade-mark, if any; size, month and year of manufacture.

Length & Width: As per IS: 5914-1970

3. SPECIFICATION OF COAT PARKA / WINTER JACKET

The main fabric of coat parka shall have on the inner side fleece and the outer side shall have woven dobby check weave. It shall be made from 90% polyester, 4% elastane and 6% polyurethane. The condition of the fabric shall confirm to the requirements given in annexure '1'.

- The outer side of the collar band, shoulder and the pockets as shown in the figure shall be made from black polyester crepe fabric. The blend

composition of the fabric shall be as per the requirements given in annexure 'A'

- The coat Parka shall have a waist coat stitched in side as shown in the picture. The waist coat shall be made of the main fabric with inside lining of black Polyester crepe fabric as shown in the picture.

- Retro reflective material: The back side of the Coat Parka shall have a letter 'NDRF INDIA' in retro reflective material of 15 mm width. The size of the letter should be 6 cm.

- The NDRF logo should be provided at the left side of the Coat Parka of the wearer. The position of the logo is shown in the picture. For more clarification of the logo NDRF may be contacted. The design and shape shall be as per picture.

- Good quality 1x1 cotton spandex rib of 250 GSM + - 20 should be used two inches inside the sleeve opening so that air does not pass through. The rib opening should be 8 cm in width for sizes small, medial, large and 8.5 cm for size extra large and double extra large.

- Zip: The opening & closing of the Coat Parka & the waist coat shall be carried out using black colour slide fastener of YKK brand CFC No. 5 open end. Size of zips may be referred in Annexure 'A'

- The bottom hem of the Coat Parka shall have an elastic cord of at least 2 mm thickness all round with two cord adjusting stoppers.

- The Coat Parka shall have two side pockets with 2.5 wide cm band. The pocket shall open and close with slide fasters of CFC No. 3 close end. Size of zips may be referred in Annexure 'A'.

Stitching: Lock stitch having at least 4 stitches per cm shall be employed for assembling the Coat Parka. The stitch shall be done with even tension and all loose ends shall be securely fastened off with the interlock stitches. Sewing thread colour shall match with the Coat Parka fabric.

Workmanship and finish: The Coat Parka shall be free from workmanship defects i.e texture, weaving, dyeing flaws etc. The Coat Parka shall not have missed stitches, hole, cut, oil stains or any other defect which may significantly affect appearance or serviceability of Coat Parka.

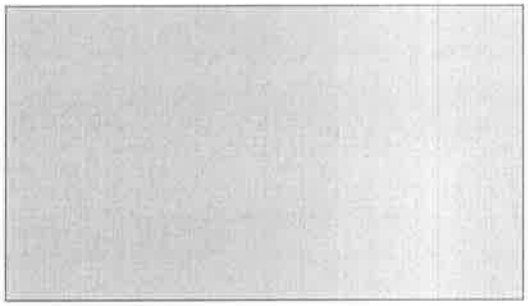
Marking: A woven cloth label (length 5.5 cm and width 4 cm, double fold) marked with the following information (Label colour shall not bleed on to the Coat Parka during storage or use) shall be stitched to the inside of the neck portion (backside) of Coat portion of the Coat Parka.

a) Size in cm.

b) Manufacturer's name or trade mark, if any
c) Any other information required by the buyer.

Packing: The Coat Parka shall be delivered in clean and dry condition. One Coat Parka shall be packed in a polyethylene bag and then appropriate quantity to be finally packed in corrugated box. Before dispatch each box shall be legibly marked by stencil/ printed paper pasted showing the following information.

i) Nomenclature of the store.
ii) Quantity packed in the box.
iii) Serial number of the box.
iv) Month& year of packing.
v) Name/ Trademark of the Manufacture.
vi) Gross weight of the box in Kg.
vii) Name & Address of the consignee.



MEASUREMENT SHEET IN CM						
		S	M	L	XL	XXL
1	LENGTH FROM H P S	65	67	69	71	73
2	CHEST	55	57.5	60	62.5	65
3	WAIST 40 CM FROM H P S	55	57.5	60	62.5	65
4	BOTTOM	53	55.5	58	60.5	63
4	SLEEVE LENGTH	61.5	63	64.5	66	67.5
6	SLEEVE OPENING	14.5	15	15.5	16	16.5
7	BICEP	21.5	22.5	23.5	24.5	25.5
8	COLLAR LENGTH (TOP)	46.5	48	49.5	51	52.5
9	COLLAR WIDTH (CENTRE BACK	7.5	7.5	7.5	7.5	7.5
10	CENTRE FRONT ZIP LENGTH (UPPER)	62	64	66	68	70
11	FRONT POCKET OPENING	19	19	19	19	19
12	FRONT POCKET BAND WIDTH	2.5	2.5	2.5	2.5	2.5
13	INNER CENTRE FRONT	42	44	46	48	50

	LENGTH					
14	CENTRE BACK YOKE HEIGHT	15.5	15.5	15.5	15.5	15.5
15	CENTRE BACK LENGTH	64	66	68	70	72
16	BACK ACROSS (AT SEAM)	46	47	48	49	50

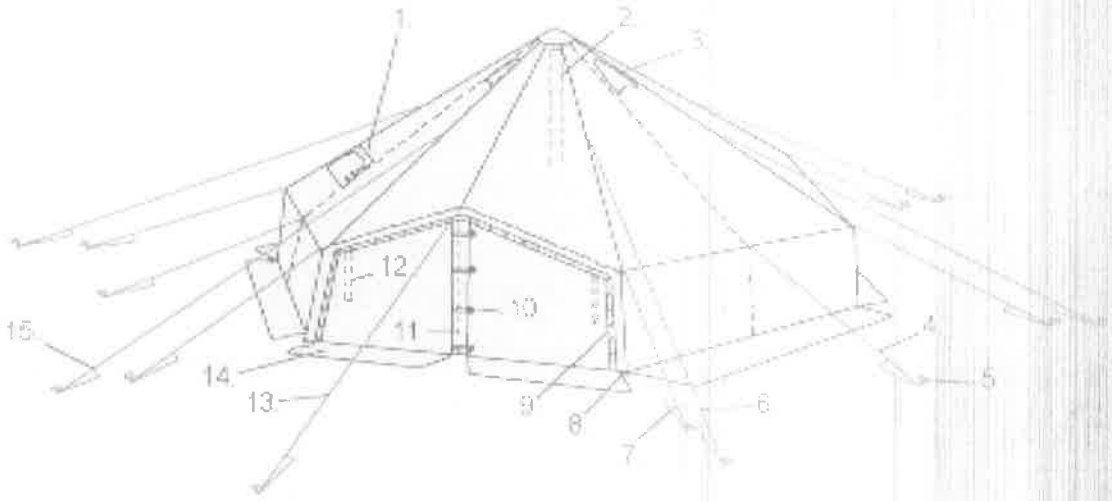
4. SPECIFICATION OF ARCTIC MEDIUM TENT

Arctic Tents should be withstand extreme cold, and set up quickly and easily.

FEATURES:

- Tent arctic medium should be available in 10-Man and 14-Man models
- It should be Set up in 5 minutes with minimal personnel.
- Easily packed on to an Ahkio Sledge for transport during arctic weather conditions.
- The fabric of tent arctic medium should be fire retardant, mildew resistant, water repellent, abrasion resistant and UV resistant. The exterior fabric includes blackout in the visual and near infrared spectrum. The liner is made from 5.2 ounces of permeable cotton sheeting that helps to insulate the tent.
- Removable floor should be made from a heavy duty polyester material to provide a barrier against insects and vermin, abrasion and ground moisture.
- It should be two doors on opposite sides and four built-in ventilators provide air flow. The ventilators have inside ducts and fixed hoods that extend out from the ventilator openings. The inside ducts on the ventilators may be closed by tie cords.
- Supports the Army's Family of Space Heaters (FOSH), specifically, the Space Heater Arctic (NSN: 452001478927), and Space Heater Small (NSN: 452001478927). May also be heated by a Yukon Stove.

Snow cloths (flaps) should be sewn to the bottom of each side of the tent. When the tent is erected, the snow cloths sit flat on the ground outside of the tent. Snow or weight can then be placed on top of the snow cloths to assist in the insulation and staking of the tent.



1. Stovepipe opening
2. Telescopic tentpole
3. Ventilator
4. Tent line, eave
5. Tent stake
6. Tentline, corner
7. Tentline, corner eave
8. Footstop
9. Velcro
10. Clips
11. Zipper
12. Tie tape
13. Tent line, door eave
14. Snow cloth
15. Tent slip

		10-Man	14-Man
Height (Peak)	ft..	8.5	9.6
	m.	2.6	2.9
Height (Eave)	ft..	3	3
	m.	.9	.9
Length (on each side)	ft.	8.75	10.2
	m.	2.7	3.1
Width (hexagonal floor diameter)	ft..	17.5	20.2
	m.	5.3	6.2
Weight (Tent and Liner)	lbs.	68	122
	kg.	30.1	55.3
Weight (Pins and Pole)	lbs.	8	8
	kg.	3.6	3.6
Packed Volume	cu. ft.	7.1	7.1
	cu. m.	.2	.2
Usable Area	sq. ft.	198.9	260
	sq. m	18.5	24.

5. SPECIFICATION OF GENERATOR SET 2 KVA-.

Bisspecification :bOS Code No. . IS 2646 & 2635

Qualitative Requirement :-

a) Rated out put -- 2100-2300 watt

b) Maximum output - 2400 – 2600 watt

c) Fuel : Kerosene/ petrol

d) Rated Current : 10.5 amp

e) Over load protector: for ACV 7DC earthling.

f) Other provision of battery charging, pull cord manual start facility.

g) Rated Voltage : 220 Volts

h) Rated frequency: 50 hrtz.

i) DC output: only for charging 12 volts automotive batteries, maximum charging out 8.3 amps.

j) Dimension : (LXWXH) 605 mm x 425mm x 550 mm (+ 20% margins)

k) Dry Weight: 60 to 65 Kgs.

l) Engine type: 4 stroke, 1 cylinder.

m) Cooling System: Forced air cooling.

n) Ignition system: Transistorized coil ignition.

o) Oil Capacity: 1 to 1.5 Liters.

p) Fuel trunk capacity: 12 to 15 liters.

6. SPECIFICATION OF RUCKSACK

Manufactured in 420 D to 450 D Cordoba Vinyl fabric Height :-84 CM with Integrate frame extendable by 10-15 cm with basting in case of external frame model.

Weight :-2.3 Kg to 2.5 Kg.
Total Capacity - 70 Ltr.

Ruck Sack –

Suitable for long distance expeditions, the inner space divided into two compartments. A number of pockets and attachments spread around the periphery of the RuckSack to carry mountaineering equipments such as Crampons, Ice Axe, Shovel and other tools. Padded hip rest belt for stabilizing the load during skiing with special buckle which can be quickly released in case of

need, adjustable in both directions easily managed with gloves, 3 compassion straps, padded kidney protectors and bandoleers. To withstand continuous rough handling in Crevasses, hard ice face and ice walls in minus 50 degree temperature at high altitude/snow bound areas.

Ruck Suck should have following characteristics

1. Manufactured in Cordoba Vinyl fabric with felted flannel backing with 6 to 10 stitches per inch.

2. Twin stitching method, where all stitching is doubled stitched for added strength, including the zippers attachment to the backpack.

3. The weight of Ruck Sack should not be more than 2.800 Kg.

4. The height of Ruck Sack should be 65-70 cm.

5. Dimension of Base should not be more than 26x30 cm.

6. Ruck Sack should have 04 side zippers stitched pocket.

7. Ruck Sack should have a provision of a small carry bag which is attached with zipper stitched.

8. Ruck Sack should have solid tooth zippers stitched with Nylon thread.

9. Ruck Sack should have fine quality foam in back , shoulder, & hip packing.

10. Ruck Sack should have Retractable Shoulder Strap and Zipper and Buckle Closure.

11. Ruck Sack should have external frame model highly resistant tubular aluminum alloy suitable for long distance expeditions, number of pockets spread around the periphery of the Ruck Sack and should have side compression straps, Waist strap and clip, Top and front carry handles.

12. Ruck Sack should have Hood with a gusseted pocket, which ensures that there is extra room to
store essentials with Side mesh pocket.

13. Ruck Sack should have Shoulder pads with depth and angle adjusters that keeps the pack snugSternum straps.

7. SPECIFICATION OF GROUND SHEET

- The size of ground sheet should be 6'x3' with heavy duty PVC
- Ground sheet should be fully waterproof
- the thickness of ground sheet should be 3mm

- Ground sheet should be EXTRA STRONG AND ROBUST
- It should be Ideal for camping, caravanning or use as a tarpaulin
- Should have at least 06 Eyeleted in corners
- should be available with free carry bag
- Rot proof

SPECIFICATION OF PETROGEN GAS CUTTER

Portable cutting torch systems shall be used by everyday liquid fuels like gasoline, diesel, and kerosene. These liquid fuels, portable system packages, provide operators with the opportunity to reduce operational safety hazards, take advantage of greater performance capabilities, and reduce operational costs. The portable cutting system shall be rugged, field cutting torch system that provides operators with all the components necessary to contact rapid hot cutting operations. Ideal for rescue or tactical use, these robust tools offers the same massive power and performance as the largest industrial system, but with a small footprint. It slices through the steel like knife, jumping air gap, cutting through layers, punching deep holes in seconds. It cuts everything from thinnest steel up to 14 inches.

SAFETY

1. Automatic shut-off
2. Gas cutter head and tips shall be produced a refrigeration (cold) effect.

PERFORMANCE

1. Multi layer cutting efficiency.
2. Allows cutting where optimal position is not possible.
3. Higher level of oxidation.
4. The flame temperature of the gas cutter ranges not less than 5000 degrees Fahrenheit (forceful flame).

The package shall includes a trans-fill cable for field expedient filling of the jumbo-D bottle from a large bottle , as well as a adapter to allow operators to use medical oxygen bottles. Comprising of main components as under:

- Liquid Fuel Torch (20 inch, 90 degree)
- (3) Cutting Tips (0, 81, & 83)
- Liquid Fuel Hose (20 foot)
- Oxygen Hose (Whip Line - 20 foot)
- Liquid Fuel Tank (2 quart)
- (2) Fuel Quick Disconnects
- (2) Oxygen Quick Disconnects
- Oxygen Flashback Arrestor
- 23 Cubic Foot CGA 540 Industrial Oxygen Bottle
- Medium Duty Oxygen Regulator (CGA 540)
- Heavy Duty Igniter
- Carry Case with Bracket
- Filler Pigtail
- Medical Yoke Adapter
- Spare Parts Kit
- Tool Kit
- Adjustable Wrench
- Welding Gloves
- Safety Glasses (Shade 5)

Approved / certification:-

- UL certified

SPECIFICATION OF LIGHTWEIGHT LIFE SC1 SPLASH SUIT & CASUALTY TRANSPORTATION BAG

A liquid tight chemical splash contamination suit in Chemprotex TM 300 material one piece construction suit. It can be used both with either a BA set or a face mask with filters. It comes with an Integral hood, with Neoprene rubber face grommet, to seal around the wearer's face mask. It comes with Welded Gloves and integral socks.

Compliance: Certified to Type 3&4 with EN14605:2005/
Type 5 EN13982-1/
Type 6 EN13034/
Radioactive IL: Class 1
EN 1073-2:2002, Infective agent EN 14126:2003/
Antistatic EN 1149-5:2008 approvals.
Available Sizes: Small, Medium &Large

Respirex Casualty Transportation Bag

The casualty bag is designed for transporting chemically contaminated and seriously injured patients.

- Designed to prevent chemical contamination of staff, vehicles and facilities from casualties in transit or at medical facilities prior to decontamination or treatment
- Manufactured from Chemprotex™ 300 material, a high performance barrier material which is extremely flexible
- Provides outstanding protection against hazardous dusts and powders, organic and inorganic acids and bases, blood and blood borne pathogens, and many chemical mixtures is aerosol or spray form
- Full length nylon zipper
- Elasticated hood
- Ultrasonically welded or sewn and taped seams
- Facemask supplied separately

Sizes: One size fits all
Overall Length: 2200mm
Zip length: 1750mm
Face mask: compatible with the majority of full face mask

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