DRAFT QRs (QUALITATIVE REQUIREMENT)/SPECIFICATION OF INFLATABLE TENT 14FEET X10 FEET

The specification covers the requirements of design, manufacture, testing, supply and commissioning of inflatable tent with all standard accessories during rescue operation at the site of the accident.

S.N	TECHNICAL PARAMETERS	INFLATABLE TENT 14X10 FEET (04 PERSONS)
01	Outer Width	10 Ft (– 2 %,+ 5% tolerance)
02	Outer Length	14 Ft (– 2 %,+ 5% tolerance)
03	Inner Height	9.84 Ft (3 Mtr) (± 10% tolerance)
04	Door Entrance Height	6 Ft (1.83 Mtr) (± 10% tolerance)
05	Doors Cum Windows	06 Numbers with Mosquito net & Insect net along with door curtain. Doors -02 Door- 6 Ft height X 3 Ft width (-2%,+5% tolerance) Windows - 04 Window-1.97 Ft height X 1.80 Ft width (-2%,+5% tolerance) Roll able and divisible windows and entrances
06	Anchoring	08 Numbers (small angle iron picket 610 mm and weight 1.78 kg (± 05% tolerance). With 8 Numbers tie rope of 10 meter length, having minimum dia- 6 mm to 9mm each for Anchoring)
07	Accessories	i) Repair kit (Including swatches- 03 Numbers, Adhesive- 02 bottles & 250 ml adhesive solution) ii) AC blower (weight- 1.7 KG) Pipe- length- 60 Inch & pipe Weight- 300 GM) and DC blower weight- 2.2 KG), Pipe length- 53 Inch, pipe weight- 100 GM) with Battery (weight- 14 Kgs) iii) Double faced sledge Hammer (Weight 2 Kg.) with handle length-24 inch, width-3 inch,- Rubberized Mallet light weight material) iv) Carry Box empty for Tent (Fiber- 12.8 Kgs (±10% tolerance) & Empty Accessories Box-13 Kgs (± 10% tolerance) v) One valve to inflate

		vi) One number safety valve to relieve over pressure vii) Bottom Ground sheet-PVC coated Polyester fabric 550 g/m² (GSM) (01 number 15.5 KG) viii) Non woven carpet 300 g/m² (GSM) ix) Digital manometer: Solar Power.
08	Weight of Tent only	55 Kg ± 10%
09	Maximum time required for complete erection of tent.	With AC blower < 4 minutes & with DC Blower 10 minutes With the help of two (02) persons.
10	Colour	Grey, white, Olive green or as per user requirement.
11	Fabric Material	i) Top cover Fabric : PVC coated Polyester Rip Stop, Fabric 300 g/m² (GSM) (± 40 GSM) ii) Air Inflated Beam Fabric: PVC coated Polyester 850 g/m² (GSM) (± 40 GSM). iii) Floor/Ground Sheet attached tent: Polyester Rip Stop Fabric 300 g/m² (GSM) (± 40 GSM) iv) Beam fabric, Ground fabric, Cover fabric should be FR (Fire Retardant) and water proof. No iron poles are required in this tent v) Cotton Liner:- Cotton Liner should be for roof & Doors
12	User manual	Required In two languages Hindi and English
13	Valve for inflation	One Valve (Inflation and deflation type)
14	Total collapse time of Tent	Tent shall stand up to 72 Hrs from the day of Inflation in 02 conditions environmental condition i.e i) At a temperature range of 0°C to 50°C. ii) At a temperature range of-10°C to 50°C. The pressure of the beam will vary between 60 MBAR to 200 MBAR for both temperature conditions. If atmospheric condition varies, it is suggested to top up the air intermittently as and when required. The test report should be submitted to authenticate the temperature range.

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15	Testing Report required from NABL Lab or NABL accredited Lab	Beam fabric, ground fabric and cover fabric for tear and tensile shall be tested in Govt Lab /NABL accredited Lab
16	Stitching and pasting procedure	Single needle stitching and heat sealing pasting.

17. SEWING THREAD, SLIDE FASTENER AND HOOK & LOOP TAPE

1.	Quality of sewing thread a) Material b) Number of ply c) Strength	IS:1670 amended the year 2002	- Polyester - 3 ply - 25 N (minimum)
2.	Slide Fastener	As per IS 14181:2002 Reaffirmed 2019	Slide fastener shall be covered with a flap of 2.5 Cms(centimeters)MS width
	a) Material		Plastic
	b) Color		Visually matching to the tent color.
	c)Designation		Heavy special
	d)Slider Lock Type		Non Lock/Reversible non lock
	e)Remeshability of Fastener		Remeashable with slide movement over the disengaged chain
	f)Reciprocating movement of slider under Load		1000 Cycles
	g)Security of Interlocking of Textile chain crosswise strength and Further Load		1100 N (minimum)
	h)Security of Attachment of Puller to the slider		350 (Minimum)
	i)Security of Slider Lock holding		60 N (Minimum)
	j) Colour fastness to washing		4 or better
	k)Colour fastness to light		4 or better
	Flammability as per guidelines of IS 11871 (Vertical method)		Nil

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03	HOOK AND LOOP TAPE	IS 8156: 2014 Reaffirmed 2019	
	a) Material - Hook - Loop		Nylon 66 Nylon 6/Nylon 66
	b) Color		Visually matching to the color of tent
	c) Strength of Tape		
	- Sheer strength		900g/cm²(minimum)
	- Peel Strength		200g/cm(minimum)
	- After endurance sheer strength		Shall not be less than 675g/cm²
	- Dot tear strength o Hook o Loop		25 N 25N
4	Guidance parameters - The inner tubes shall be thick, with a 850 g/m² (GSM), which creates a really solid structure when fully inflated. - The diameter of these inner tubes can hold a high air pressure at least of 1.20 PSI.		
5	Specification and rating of all materials being used	To validate specifications, Need to submit the Government Lab/NABL accredited Lab test reports, comprising all specification parameters	

18. BEAM FABRIC SPECIFICATION

S.No.	Properties	Standard Method	Value	
1	Strip Breaking Strength Warp wise Weft wise	IS 7016 PART II:2015	WARP (minimum)	150 Kgf/5cm
		IS 7016 PART II:2015	WEFT(minimum)	100 Kgf/5cm
2.	Tongue Tear Strength Across Warp Across Weft	IS 7016 PART III 1981, Method AI: Reaffirmed 2019	WARP (minimum)	20 kgf
			WEFT(minimum)	20 Kgf
3.	Fire retardant or Flammability	IS 11871:Method B :2004	Average time of flame spread in Sec	shall not ignite (Zero seconds)
4.	Determination of Resistance to Penetration by water	IS 7016 part-VII :2009 a) The duration of the test: 1 Hr. b) Column height: 90 Cms	–	No leakage

19. COVER FABRIC SPECIFICATION (TABLE FORMATTING IS ALSO DONE

Sl.	Properties	Standard Method	Value	
1.	Finished Coating Weight	IS 7016 PART-I Reaffirmed 2019	GSM	300g/m² (± 40)
2.	Strip Breaking Strength Warp wise Weft wise	IS 7016 PART-II :2015	WARP (minimum)	40 Kgf/5 cm
			WEFT(minimum)	40 Kgf/5 cm
3	Adhesion Coating to Base Fabric Warp wise	IS 7016 PART-V Reaffirmed:2019	WARP (minimum)	2.5 Kgf/5 cm
4	Determination of Resistance to Penetration by water	IS 7016 part- VII :2009 a) The duration of the test: 1 Hr. b)Column height: 90 Cms	–	No leakage
5	Fire retardant or Flammability	IS 11871 : Method B : 2004	Average time of flame spread in seconds	shall not ignite (Zero seconds)

20. GROUND FABRIC SPECIFICATION

	Properties	Standard Method	Value	
1.	Finished Coating Weight	IS 7016 PART-I Reaffirmed 2019	GSM	300g/m² (± 40)
2.	Strip Breaking Strength Warp wise Weft wise	IS 7016 PART-II :2015	WARP (minimum)	100 Kgf/5 cm
			WEFT(minimum)	100 kgf/5 cm
3	Tongue Tear Strength Across warp Across weft	IS 7016 PART-III 1981Method A1: Reaffirmed 2019	WARP (minimum)	7 kgf
			WEFT (minimum)	7 kgf
4	Adhesion Coating to Base Fabric Warp wise Weft wise	IS 7016 PART V:2019	WARP(minimum)	3 kgf/5 cm
			WEFT (minimum)	3 kgf/5 cm

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5	Determination of Resistance to Penetration by water	IS 7016 part VII:2009 Head Height: 90 cm Time : 1 Hour	–	No leakage
6	Fire retardant or Flammability	IS 11871 : method B: 2004	Average time of flame spread in seconds	Shall not ignite (Zero seconds)

21. ANCHORING ROPE SPECIFICATION

S N.	Properties	Standard Method	Value	Tolerance
01	Colour	Visually matching to the tent color.	-.	
02	Type	SP 45: 1998 test method	Braided Twine	
03	Nominal Diameter	IS 7071:2004 (Part 1to 3)	Tie rope of 10 meter length, having dia meter- 6 to 9 mm each for Anchoring)	
04	Material	IS 667	Nylon	
05	Runnage	ISO 2060: 1994	51 Mtr/Kg	± 15%
06	Twine Breaking	ISO 1805 : 2006	300Kgf	Minimum
07	D-Ring - Size - Hardness (Rockell B) - Material	1 inch tolerance 10% 70(minimum) HRB Stainless steel (SS 304) 1) It shall be free from burrs, cracks, splits, dents and other defects. 2) It shall securely grip the material through strong securing fabrics and stitching, to with stand wind current of 50 kms per hour.		

22. NET SPECIFICATION

S N.	Properties	Standard Method	Value	Tolerance
01	Colour	Visually matching to the tent color.		
02	Weight of the fabric g/m² (GSM)	IS 1964	125	± 10%
03	Breaking Strength (warp way)	IS 1969 (part I)	10 Kgf	Minimum
04	Breaking Strength	IS 1969 (part I)	30 Kgf	Minimum

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23. COTTON LINER SPECIFICATION

S N.	Properties	Standard Method	Value	
01	Fire Retardant	IS 11871:Method B: 2004	Average time of flame spread in sec	Shall not ignite (zero seconds)

24. TEMPERATURE RANGE:-

S N.	Properties	Standard Method	Value	
01	Any of the following two temperature ranges as per user requirement – ➢ Condition I: At-10° C to 50°C	IS 7016 Part-8	Heat exposure and cold weather exposure at -10 degree for 24 hours and at 50 degree for 168 hrs	No deformities/No deterioration
	➢ Condition II: At 0° C to 50°C		Heat exposure and cold weather exposure at 0 degree for 24 hours and 50 degree for 168 hrs	No deformities/No deterioration

25. ACCESSORIES

S.N.	Accessories	Description
01	AC Blower	Specification of AC blower:- 1. Input: AC 220-240V 50 HZ 2. Noise less than 90 DB 3. Power : 1200 W
02	DC Blower	Specification of DC blower and battery Blower: Current- 20A Voltage- DC 12V Maximum continuous working time 15-20 Minutes Maximum inlet air- 500L/min Maximum Pressure- 80kpa Battery- Sealed Lead Acid battery 12 Volts Capacity 42 AH
03	Repair of pin holes/punctures and Tears	Glue patches = 03 Numbers of repair patches (0.5 Mtrs X 0.5 Mtrs) Adhesive based patches = 02 Numbers of adhesive (250 ml each)

26. WIND SUSTAINABILITY

01	Wind Sustainability	The manufacturer will render an undertaking of wind sustainability in respect of the tent for a wind speed of – 50 kms per hour.

27. OTHER POINTS

01	Type of Blowers	Option of both AC blowers and Battery Operated DC blower.
02	User manual	Required
03	Warranty	One year repair Warranty for manufacturing and workmanship defects of Tent (Fabric) only.
04	Repair	Damage due to misuse or improper care may be repaired by the manufacturer at an extra cost.

Note :

- Following raw materials along with tent shall be submitted by the short listed vendor to the Lab (Govt./NABL accredited lab to be decided by the buyer) at the time of testing.
  1. Slide fastener required for testing : 10-12 numbers
  2. Hook and loop tape : 4 meters

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DRAFT QRs/SPECIFICATIONS AND TRIAL DIRECTIVES (TDs) OF INFLATABLE TENT 14FEET X10 FEET

SL No.	Topic	Sub-Heading	Qualitative Requirements/ Specifications	Trial Directives
1.	Product	Technical specifications	Inflatable Tent without any poles or supporting structure.	To be assessed manually.
2.	Dimensions	Dimensions of Inflatable tent	Outer Width: 10 ft (-2%+5% tolerance) Outer Length: 14ft (-2%+5% tolerance) Inner Height: 9.84ft (3mtr) (± 10% tolerance) Door Entrance Height: 6ft (1.83Mtr) (± 10% tolerance)	To be assessed manually by measuring tape
3.	Doors and Windows	Number of doors and windows	Doors – 02 No's 6ft height x 3ft width(-2%+5% tolerance) Windows-04 No's 1.97 ft height x 1.80 ft width(-2%+5% tolerance) Roll able and divisible windows and entrances.	To be assessed manually by measuring tape
4.	Anchoring	Details of Steel nails and Tie ropes	08 Numbers (small angle iron picket 610 mm and weight 1.78 kg (± 05% tolerance). With 8 Numbers, tie rope of 10 meter length, having minimum dia- 6 mm to 9mm each for Anchoring)	To be assessed manually by measuring tape & electronic weighing machine.
5.	Accessories	AC Blower &DC Blower	AC blower (weight- 1.7 kg) Pipe- length- 60 Inch & pipe Weight- 300 GM) and DC blower weight- 2.2 kg), Pipe length- 53 Inch, pipe weight- 100 GM) with Battery (weight- 14 kg)	To be assessed manually.
		Battery	Battery: Sealed Lead Acid battery 12 Volts Capacity 42 AH weight-14 kg	To be assessed manually.
		Repair Kit	Repair kit (Including patches- 03 Numbers, Adhesive- 02 bottles & 250 ml adhesive solution)	To be assessed manually.

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		Bottom Ground sheet	Bottom Ground sheet-PVC coated Polyester fabric 550 g/m^2 (GSM) (01 number 15.5 kg)	To be assessedbytest reports submitted by vendor from designated Govt. Lab/NABL accredited testing labs
		Manometer	Digital manometer, Solar Power.	To be assessed manually.
		Hammer	Double faced sledge Hammer (Weight 2 kg.) with handle length-24 inch, width-3 inch,- Rubberized Mallet light weight material)	To be assessed manually by measuring tape & electronic weighing machine.
		Carpet	Non woven carpet 300 g/m^2 (GSM)	To be assessed bytest reports submitted by vendor from designated Govt. Lab/NABL accredited testing labs
		Carry Box	Carry Box empty for Tent (Fiber- 12.8 kg (±10% tolerance) & Empty Accessories Box-13 kg (± 10% tolerance)	To be assessed manually by Electronics Balance.
		Safety Valve	One number safety valve to relieve over pressure	To be assessed manually
6.	Weight	Weight of Inflatable Tent only	55 kg ± 10%	To be assessed by Electronics Balance.
7.	Time required for complete erection of tent.	Time taken by both blowers	With AC blower < 4 minutes & with DC Blower 10 minutes With the help of two (02) persons.	To be assessed manually
8.	Color	Color of tent	Grey, white, Olive green or as per user requirement.	To be assessed manually/visually
9.	Fabric Material	Cover Fabric	Top cover Fabric : PVC coated Polyester Rip Stop, Fabric 300 g/m^2 (GSM) (± 40 GSM)	To be assessed by test reports submitted by vendor fromdesignated Govt. Lab/NABL accredited testing labs.
		Beam Fabric	Beam fabric, Ground fabric, Cover fabric should be FR (Fire Retardant) and water proof. No iron poles are required in this tent	To be assessed by test reports submitted by vendor from designated Govt. Lab/NABL accredited testing labs.
		Floor/ Ground Sheet attached with tent	Polyester Rip Stop Fabric 300 GSM (± 40 GSM)	To be assessed by test reports submitted by vendor fromdesignated Govt. Lab/NABL accredited testing labs.
		Cotton Liner	Cotton Liner:- Cotton Liner should be for roof & Doors	To be assessed by test reports submitted by vendor from designated Govt. Lab/NABL accredited testing labs
10.	Rope	Anchoring/Tie rope	Tie rope of 10 meter length, having minimum dia- 6 mm to 9mm each for Anchoring)	To be assessed by test reports submitted by vendor fromdesignated Govt. Lab/NABL accredited testing labs.

11.	Hook & Loop tape, & Zipper	Quality of Hook & Loop tape, & Zipper	Thread- Polyester, Hook & loop tape and Zipper.	To be assessed by test reports submitted by vendor fromdesignated Govt. Lab/NABL accredited testing labs.
12.	Temperature range.	Temperature range Fabric	Any of the following two temperature ranges as per user requirement – ➢ Condition I: At-10° C to 50°C ➢ Condition II: At 0° C to 50°C	To be assessed by test reports submitted by vendor fromdesignated Govt. Lab/NABL accredited testing labs
13.	Net	Window net	GSM 125±10% Breaking Strength (warp way) 10kgf Minimum Breaking Strength (Weft way) 30 kgf Minimum.	To be assessed by test reports submitted by vendor fromdesignated Govt. Lab/NABL accredited testing labs.
14.	Valve for inflation	Dual action Valve	One Valve(Inflation and deflation type)	To be assessed manually

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ANNEXURE- "A" (12)

PROFORMA/CHECKLIST FOR FRAMING QRs AND TRIAL DIRECTIVES REQUIRED TO BE RECEIVED FROM OTHER FORCE/INDENTOR.

SLNO.	PARTICULARS	REMARKS
1	Description /Nomenclature of store/item	Inflatable tent Outer Width 10Ft(-2%,+5% tolerance) Outer length 14Ft (-2%,+5% tolerance)
2	Use of the Store/item	The item will be used for operational deployment
3	Whether the store/item is user specific?	It is user specific for duties with greater movement & displacement and will be used by the Battalion personnel.
4	Is it a fresh QR or revision of existing QRs?	It is fresh QR.
5	If a case of revision, need for revision and comparative statement of old and new QRs be provided.	NA
6	If revision, copy of existing QRs and fresh/revised QR/TD be enclosed	NA
7	Whether Trial Directives are being proposed along with QRs?	Yes, trial directives are proposed.
8	Details of research/study conducted before proposing the new QRs.	Feed backs and suggestions have been obtained from other CAPFs, (including NSG), BPR&D and NITRA various Inflatable tent manufacturing factories and their representatives.
9	Whether QRs/Specifications are generic in nature?	Yes, the specifications are generic in nature.
10	Whether adequate tolerance range has been provided to make these competitive?	Yes
11	Whether the store/item confirming to QRs are available in market?	Yes, the item conforming to the QRs is available in the market
12	Shelf life of store.	05 years
13	Whether technical details /drawings, if necessary, are included with the QRs?	As per QRs and Trial Directives
14	Confirmation to the effect that the proposed QRs have been prepared with the adoption of the latest technology.	It is hereby, confirmed that the QRs have been prepared after due deliberation with all the CAPFs , BPR&D and NITRA as per the latest techniques used in Inflatable tent manufacturing.
15	Whether QRs meet the actual and essential needs of the user because over specifications may increase the cost and may stifle competition?	The QRs proposed meet the essential needs of the user and do not prescribe over specifications.

13/4/23

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ANNEXURE- "B"

PROFORMA/CHECKLIST FOR FRAMING QRs AND TRIAL DIRECTIVES BY COMMITTEE/SUB-GROUP OF TECHNICAL EXPERTS

SLNO.	PARTICULARS	REMARKS
1	Description /Nomenclature of store/item	Inflatable tent Outer Width 10Ft(-2%,+5% tolerance) Outer length 14Ft (-2%,+5% tolerance)
2	Use of the Store/item	The item will be used for operational deployment
3	Whether the item is user specific?	It is user specific for duties with greater movement & displacement and will be used by the Battalion personnel.
4	If a case of revision, a comparative statement of old and new QR may be provided.	NA
5	Name, designation, educational qualification and experience of experts associated.	Northern India Textile Research Association (NITRA)
6	Whether presence of representative of at least five CAPFs only (as a quorum) has been ensured?	Yes, 05 representatives from CAPFs were present.
7	Whether a representative of proposer/indentor has been present in the deliberations?	Yes, representative of proposer/indentor was present in the deliberations.
8	Details of study carried out by the Sub-group before formulation or QRs	Manufacturing sites of OEMs (Original equipment manufacturer) and types of various Inflatable tents were studied.
9	Whether the QRs and Trial Directives were hosted on website for at least 15 days by the Sub-group?	No, not yet.
10	Whether the information regarding draft QRs was sent to prospective vendors as per database?	NA
11	Whether each suggestion in response to draft QRs uploaded on the website has been attended to?	NA
12	Whether QRs/Specifications are generic in nature.	Yes, the specifications are generic in nature.
13	Whether adequate tolerance range has been provided to make these competitive?	Yes
14	Whether the store/item is available in market?	Yes, the item is available in the market
15	Whether Trial Directives are being proposed along with ORs?	Yes, Trial Directives are proposed.
16	Whether technical details/drawings, if necessary, included with the QRs	As per QRs and Trial Directives
17	Confirmation to the effect that the proposed QRs have been prepared with the adoption of the latest technology.	It is hereby, confirmed that the QRs have been prepared after due deliberation with all the CAPFs, BPR&D and NITRA as per the latest techniques used in Inflatable tent manufacturing.
18	Whether QRs meet the actual and essential needs of the user because over specifications may increase the cost and may stifle competition?	The QRs proposed meet the essential needs of the user and do not prescribe over specifications.

13/4/23

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