

QR/TDs for Water Cannon

Sl No.	Nomenclature	QRs/Specifications	Trial Directives
Generic Parameters			
1.	Chassis	Chassis of any OEM compatible with capacity of 12 KL water	As per OEM's certification & visual /physical inspection/operation by BOOs which should meet all parameters. BOOs to check.
2.	Type of fuel	Diesel	
3.	Max. Speed (kmph)	≥80	
4.	Emission	As per latest Emission norms of Govt. of India at the time of procurement	As per OEM's certification about the Engine type. Engine emission norms should be checked and verified at local RTA's or any other Govt. accredited agencies as per parameters. BOOs to check.
5.	Fuel Tank (with fuel suppression material) Capacity	≥180ltr	As per OEM's certification & visual /physical inspection/operation by BOOs which should meet all parameters. BOOs to check.
6.	Overall Height (min)	In accordance with the norms laid down by the Transport Department	As per OEM/ fabricator certification & with the help of measuring Tape which should meet all parameters. BOOs to check.
7.	Gradeability (%)	≥18	
8.	Ground Clearance	≥240 mm	


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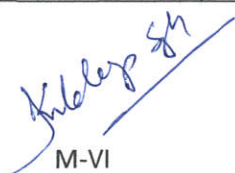

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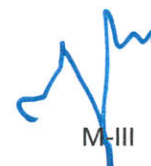
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9.	Stability	No overturning occurs beyond 27 degree slope from the horizontal under fully equipped and loaded conditions.	As per OEM/ fabricator certification & visual /physical inspection/operation by BOOs which should meet all parameters. BOOs to check.
10.	Turning Radius	$\leq 9500\text{mm}$	
11.	Chassis Transmission System	Manual	
12.	Fog Lights	Yes	
13.	Surveillance System	IP cameras system with live streaming facilities(01 camera each at the front, rear, left and right side of the vehicle) with following specifications:- i. High resolution picture/video (min. 2K) ii. Ingress Protection:latest available in market. iii. Capable of capturing/recording photo/video during day and night.	
14.	Size of Monitor screen in Driver cabin	14 inch LED screen	
15.	Power source of Video Camera	12 V DC Vehicle Battery	
16.	Standard Spare wheel and Tool Kit	Yes. The standard spare wheel and tool kit shall be installed in the water cannon in proper way for easy access and utilization. They shall not be placed in the cabin of the vehicle.	


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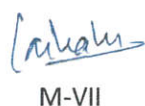

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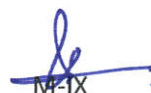

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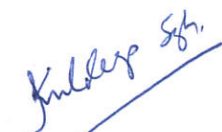

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Constructional Parameters (Note: Timber should not be used in body construction)			
17.	Seating Capacity (in the cabin)	06 (including Driver)	As per OEM/fabricator certification & visual/physical inspection/operation by BOOs which should meet all parameters. BOOs to check.
18.	Auxiliary Engine for Driving Pump	Yes (≥ 135 HP)	
19.	Engine Power	≥ 210 HP	
20.	No. of Water Tank	01 no. semi elliptical shape	
21.	Capacity of Normal Water Tank	12000 ltr	
22.	Material of Water Tank	SS 304 grade steel or better	
23.	Nominal Thickness of SS Plate used for fabrication of Water Tank	≥ 06 mm	
24.	Thickness of Water Tank at bottom, front and rear	≥ 06 mm	
25.	Thickness of Water Tank at side and top	≥ 06 mm	
26.	Thickness of Baffles	≥ 02 mm	
27.	Diameter of Bolted Manholes	≥ 600 mm	
28.	Diameter of Filling Orifice	≥ 250 mm	
29.	Diameter of Drain Cock	≥ 75 mm	
30.	Internal diameter of Overflow Pipe	≥ 100 mm	
31.	No. of Filling Pipes	≥ 02	
32.	Internal diameter of Filling Pipe	≥ 70 mm	


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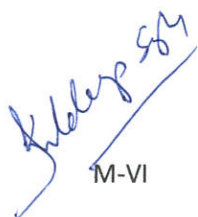

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33.	Diameter of Male Coupling fitted with filling pipe	≥60 mm	As per OEM/ fabricator certification & visual/physical inspection/operation by BOOs which should meet all parameters. Ease of maintenance to be ensured. BOOs to check.
34.	Tube type Water level indicator calibrated as empty ¼, ½, ¾ and full should be provided	Yes	
35.	Length of Water Filling Pipe (min)	≥50 mtr	
36.	Paint on outer body	≥85 DFT	
37.	Type of welding for fabrication of core structure	MIG welding for MS components & TIG welding for SS components	
38.	Colour Coding for inlet/outlet Pipes	Yes	
39.	Type of Pump	Two stage centrifugal pump capable of delivering 3200 lpm of water at 8.5 kg/sqcm and 2400 lpm at 10.5 kg/sqcm	
40.	Various controls of operating the pump at pump control panel and in drivers cabin also	- The material of various controls of operating the pump at pump control panel should be made of SS - The control panel of Water Cannon should be installed in the way that it may not hinder the front view of the Water Cannon	
41.	Material of Pump casing and impeller	Gun Metal	


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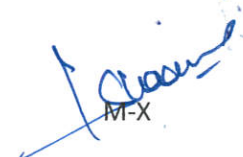

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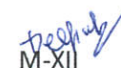

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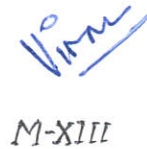

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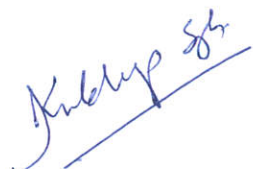

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42.	Pump along with all pipeline should have a capacity to withstand at hydraulic pressure of 28 kg/sqcm	Yes	As per OEM/ fabricator certification & visual/physical inspection/operation by BOOs which should meet all parameters. Ease of maintenance to be ensured. BOOs to check.
43.	The pump shall be capable of giving the performance when working with all internal and external strainer at sea level and upto 35° Water Temperature	Yes	
44.	Water Flow (Pump output discharge)	≥3200 LPM at low pressure /8.5 kg/sqcm, ≤2400 LPM at high pressure/ 10.5 kg/sqcm	
45.	Suction Lift Measured Vertically from Water Level	≥07 m	
46.	Diameter of Suction Hose	100 mm	
47.	The Primer shall be capable of lifting water from a depth of 07 mtr at a rate not less than 300 CC/sec through a suction bore of 100 mm dia	Yes	



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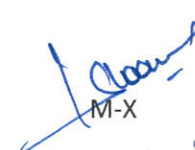
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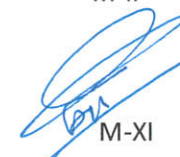
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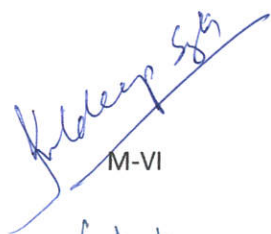


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48.	No. of Irritant Tank	01	As per OEM/ fabricator certification & visual/physical inspection/operation by BOOs which should meet all parameters. Ease of maintenance to be ensured. BOOs to check.
49.	No. of Indelible Ink Tank	01	
50.	Capacity of Irritant Ink Tank	500 ltr	
51.	Capacity of Indelible Ink Tank	500 ltr	
52.	Material of irritant and indelible ink tanks	SS 316 grade or better	
53.	Thickness of Walls of irritant and indelible Tank (min)	05 mm	
54.	Hydraulic Pressure of Tanks to Withstand (kg/sqcm)	0.5	
55.	Diameter of Filling Orifice of each Tank (min)	150 mm	
56.	Diameter of Drain Cock and Pipe (min)	50 mm	
57.	Suitable venting arrangement shall be provided	Yes	
58.	Level indicator for ink and irritant tanks calibrated as empty, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ and full should be provided	Yes	
59.	Inductor and Selector valve should be fitted with proportionate valve to ensure correct intake of irritant/indelible ink from 0 to 8%	Yes	



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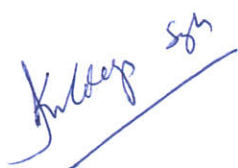


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60.	No. of Water Cannons	02	As per OEM/ fabricator certification & visual/physical inspection/operation by BOOs which should meet all parameters. BOOs to check.
61.	Operation of Water Cannon	Electro Hydraulic	
62.	Mounting of Water Cannon	On the front of roof of the vehicle. the height of cannon to be reduced optimum without impacting sole operation of water Cannon	
63.	Operated by	Joysticks	
64.	Each Cannon should be capable of traversing 0° to 210° in azimuth and from -15° to 60° in elevation	Yes	
65.	Search light fitted with Water Cannons	Yes	
66.	Provision of manual override control of Water Cannons in case of failure of electro hydraulic control	Yes	
67.	Water Flow from each Cannon	1100 LPM @ 10.5 kg/sqcm	
68.	Distance of Water Jet Throw (min)	50 mtr	
69.	Water Cannon fitted with Pulse Jet arrangement	Yes	
70.	Pulse Jet arrangement both for Pulse and continuous jet throw arrangement	Yes	



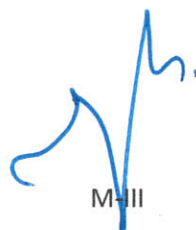
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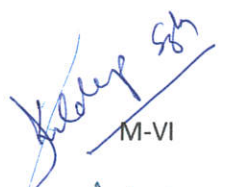
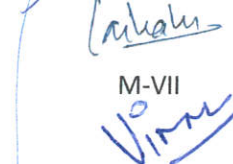
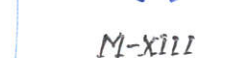
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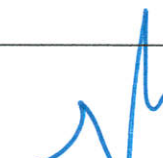
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71.	Discharge Water Pulse Duration	02 sec on & 02 sec off	As per OEM/ fabricator certification & visual/physical inspection/operation by BOOs which should meet all parameters. BOOs to check.
72.	Switchover from continuous system to pulse jet arrangement	Yes	
73.	To protect the vehicle during operation, spray nozzles at front, sides and rear shall be provided	Yes	
74.	Adequate sitting arrangement for driver and team should be in driver's cabin, Maximum possible vision and adequate ventilation should be provided in cabin, The doors should open outwards and the glasses on doors and windows should be fitted with wire mesh, Windscreen of splinter proof safety shall be provided.	Yes	
75.	The frame/core structure of the vehicle	Zinc-coated, followed by epoxy coating	
76.	Material used for panelling and locker	Aluminium sheets	
77.	Thickness of material used for Panelling and locker	≥1.62mm (16 gauge)	
78.	Checkered plate shall be provided on top of the entire vehicle	Yes	
79.	Lockers shall be provided for stowage of all the accessories, spare/tools	Yes	
80.	Locker shall be fitted with internal automatic lighting and should be weather proof and self-draining to release all water following a wash-down	Yes	
81.	An additional compressed air cylinder shall be provided for pneumatic systems	Yes	


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Instruments and Controls			
82.	Digital control Panel for operating various instruments in driver cabin	Yes	As per OEM/ fabricator certification & visual/physical inspection/operation by BOOs which should meet all parameters. BOOs to check.
83.	Pneumatic controls for Water Supply for Water Cannon, cooling system, inductor, rear and front tyre saving spray nozzle	Yes	
84.	Pneumatic controls indelible and irritant ink supply for mixing with water	Yes	
85.	Pneumatic controls for selector valve and control for air release	Yes	
86.	Hydraulic auto/manual controls for oil hydraulic system for cannon movement	Yes	
87.	Elevation for cannon	Yes	
88.	Azimuth for cannon	Yes	
89.	Mechanical control level for water supply from water tank to pump valve	Yes	
90.	Calibrated pressure gauge	Yes	
91.	Calibrated vacuum gauge	Yes	
92.	Control for engine throttle	Yes	
93.	Control lever for priming and exhaust primer valve	Yes	
94.	Water supply control from pump to water tank filling valve	Yes	
95.	Suction Mouth	Yes	
96.	Delivery valves	Yes	


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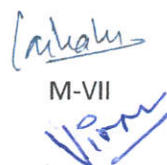

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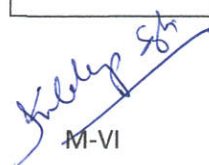

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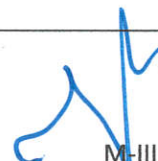
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Tools And Documents			
97.	All tools required for normal maintenance of vehicle and system shall be provided along with the system	Yes	As per OEM's/fabricator certification & visual/physical inspection/operation by BOOs which should meet all parameters. BOOs to check.
98.	User Handbook, Technical Manual, Illustrated part identification list shall be provided	Yes	
99.	CCES and Equipment Dossier	Yes	
100.	Detailed drawing of the product available	Yes	
101.	Markings of Manufacturers name or trade mark, Year of manufacture, Capacity of pump, water tank, irritant tank and indelible tank, Engine and chassis number and Pump number should be present	Yes	
102.	The appliance will be painted as per requirement of the force/indentor. The name and insignia of the indentor be painted (in English and Hindi) on both sides of the vehicle.	Yes	
103.	Public Address System for issuing warnings and commands to the crowd	Yes	
104.	Revolving LED beacons of Red, Blue and White colour with Hooter shall be mounted on top of the driver cabin	Yes	

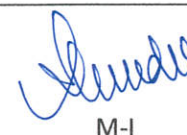

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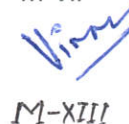

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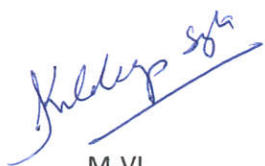

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Accessories			
105.	No. of armored suction hose in 2.5 mtr length with internal dia of 100 mm with standard round thread coupling (IS: 902/2410)	04	• Certification from any Valid NABL accredited LAB for the test prescribed in IS: 902/2410. • As per OEM/ fabricator certification & visual /physical inspection/ operation by BOOs which should meet all parameters. • BOOs to check.
106.	No. of low level suction strainer (IS: 907)	01	• Certification from any Valid NABL accredited LAB for the test prescribed in IS: 907 • As per OEM/ fabricator certification & visual /physical inspection/ operation by BOOs which should meet all parameters. • BOOs to check.
107.	No. of basket strainer for above (IS: 3582)	01	• Certification from any Valid NABL accredited LAB for the test prescribed in IS: 3582 • As per OEM/ fabricator certification & visual /physical inspection/ operation by BOOs which should meet all parameters. • BOOs to check.



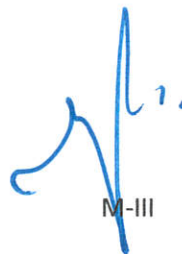
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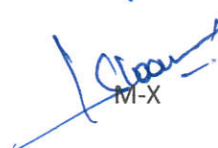
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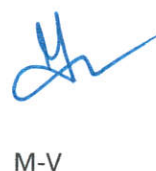
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108.	No. of suction wrenches (IS: 4643)	01 pair	• Certification from any Valid NABL accredited LAB for the test prescribed in IS: 4643 • As per OEM/ fabricator certification & visual /physical inspection/ operation which should meet all parameters. • BOOs to check.
109.	No. of suction collecting head 3 way	01	As per OEM/ fabricator certification & visual /physical inspection/operation by BOOs which should meet all parameters. BOOs to check.
110.	No. of suction adopter to hydrant	01	
111.	RRL Hose 63 mm diameter and 30 m long with instantaneous IS-636 II & IS-903	02	
112.	Light alloy branch pipe	02 sets	
113.	Front bumper hook	Yes	
114.	Rear hook	Yes	
115.	Additional flood light with 60 m cable	Yes	


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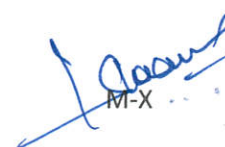

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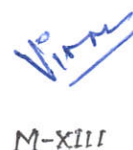

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Safety Features			
116.	Features	- First Aid Box. 02 Nos hand held portable fire extinguishers (CO2 type, Minimum 2 Kgs each).	As per OEM/ fabricator certification & visual /physical inspection/operation by BOOs which should meet all parameters. BOOs to check.


 (Deepak Sharma)
 SSA(T&T)BPR&D
 Member-XII

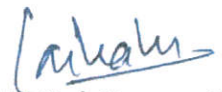

 (R.S. Shekhawat)
 Asst. Comdt. BSF
 Member-XI


 (Tushar Sharma)
 Asst. Comdt, CISF
 Member-X


 (Ravi Shankar Singh)
 Dy. Comdt(TPT)ITBP
 Member-IX


 Vikas Singh
 AC(MOD)RAF
 Member-VIII


 Vimal Kumar
 Dy. Comdt. SSB
 Member-XIII


 (Lt. Col Gaurav Shahi)
 OC -W/Shop, Assam Rifle
 Member-VII


 (Kuldeep Singh Rana)
 2I-C, CRPF, Dte.
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 (G.P. Singh)
 DG CRPF