ANNEX 3

SPECIFIC REQUIREMENTS FOR FIRE TENDERS

1.0	**SCOPE**
1.1	This annexure specifies performance and functional requirements for small foam tender, Type A water tender, Type B water tender, Type X water tender and Articulated water tower for fire brigade use necessary for roadworthiness of N2, N3, N2G & N3G category vehicles as defined in IS 14272 amended from time to time.
1.2	The fire tender as defined in this standard shall necessarily meet the requirements specified in Part 1 of AIS 163 amended from time to time. Additionally, the vehicles shall meet the requirements specified in this Annexure for those special purpose duty application for which the vehicle is intended to perform.
1.3	Manufacturer may refer IS 10460, IS 948, IS 950 and IS 6067 as recommendatory guidelines for design and constructional requirements for fire tenders
	Note: Latest version of standards (AIS, IS, ISO etc.,) referred in this Annexure shall be checked for compliance
1.4	Any alteration or modification in already type approved vehicle to build fire tender shall be carried out in accordance with sound engineering practices and in compliance with Central Motor Vehicles Act 1988 and Central Motor Vehicles Rule, 1989, as amended from time to time.
2.0	**REFERENCE**
2.1	IS 10460: 1983 Functional Requirements for Small Foam Tender for Fire Brigade Use
2.2	IS 948: 1983 Functional Requirements for Water Tender Type 'A' for Fire Brigade Use
2.3	IS 950: 2012 Functional Requirements for Water Tender, Type B for Fire Brigade Use
2.4	IS 6067: 1983 Functional Requirements for Water Tender Type 'X' Fire Brigade Use
3.0	**DEFINITIONS**
	In addition to the definitions available in Part 1 of this standard, following definition shall apply to Fire tenders.
3.1	**"Approval of a Vehicle"** - The approval of Fire tenders with regard to its special function as defined in Clause Nos. 3.2 to 3.6 of this Annexure

3.2	**"Small foam tender for fire brigade use"** is a specialized firefighting vehicle designed to carry and deploy foam for extinguishing flammable liquid fires. It's a smaller, more agile version of a standard foam tender, ideal for navigating confined spaces or responding to incidents in areas with limited access
3.3	**"Water Tender Type 'A' for fire brigade use"** is a specialized firefighting vehicle designed to transport and supply water to a fire scene, especially in areas where hydrants are not readily available. It's a key component of a fire department's equipment, ensuring a continuous water supply for effective firefighting. Minimum water tank capacity shall be 2700 litres.
3.4	**"Water tender, Type B for fire brigade use"** means a "Special Purpose Vehicle (SPV)" of category N used in towns or parts of town and industries where the fire risk is such that high rate of discharge of water is necessary for firefighting and a high degree of manoeuvrability is also desired for the fire appliance at the same time
3.5	**"Water Tender Type 'X' for Fire Brigade use"** is a specialized vehicle designed to replenish the water supply of other firefighting vehicles like crash tenders during operations. It can also be used to augment water supply in areas with limited access or shortage of water, making it valuable in both urban and rural settings
3.6	"Articulated water tower" refers to a specialized type of firefighting vehicle, often converted from a concrete pump truck, that features an extendable, multi-sectioned boom with a water delivery system. This design allows firefighters to reach high or difficult-to-access areas during firefighting operations, especially in high-rise buildings or industrial settings.
3.7	**"Fire tender appliance"** means special equipment fitted in fire tender vehicles which discharges water for fire fighting
4.0	**APPLICATION FOR TYPE APPROVAL** The application for type approval of a vehicle type shall be submitted by the vehicle / appliance manufacturer along with at least the details given in Appendix 1 to this annexure
5.0	**SPECIFIC REQUIREMENTS**
5.1	Fire tenders shall be Special Purpose Vehicle with following specifications:
5.1.1	Shall have power to gross vehicle weight ratio greater than 5 kW/ton.
5.1.2	Shall be equipped with public address system which shall comply with EMC requirements as defined in AIS 004 (Part 3) amended from time to time
5.1.3	Working lamp shall be required on both sides of fire tender appliance as well as at the rear

5.1.4	Sound level for fire tender siren shall be in range of 110dB(A) to 120dB(A) and siren shall comply with EMC requirements as defined in AIS 004 Part 3 amended from time to time. The sirens shall be tested in accordance with IS 1884 as amended from time to time.
5.1.5	All warning lights shall be red / blue / amber / white or combination as per customer requirements. Light colour code shall be as per NFPA 1901. Impact & vibration test shall be as per SAE J575 / SAE J845, IP 65 IS/IEC 60529:2001 requirements.
5.1.6	Electrically operated cable winch of minimum 6 Tonnes capacity shall be provided and shall be mounted with suitable strong supports
5.1.7	Heavy duty towing hook shall be provided and fitted at rear bumper. It shall be tested as per requirements laid down in IS 8299:1976 as amended from time to time
5.1.8	Maximum rear overhang shall be 80% of wheelbase.
5.1.9	The appliance shall be painted preferably in fire red colour or as defined by the competent authority.
5.1.10	Search light — Adjustable to give flood or beam light, mounted in a convenient position but capable of being readily disconnected and mounted on a tripod away from the appliance, complete with tripod and with not less than 30 m of TRS cable on a reel mounted on the appliance.
5.1.11	Spot light — Adjustable, mounted in a convenient position on the near side of the driving compartment.
5.1.12	Inspection lamp — Protected type on wander lead with plug. A socket shall be provided in the control panel in the driver's cab for plugging in the lamp.
5.1.13	Forward-facing crew seats shall meet seat anchorages as per AIS-023 as amended from time to time.
5.1.14	Handhold shall be provided for crew members complying to AIS-046 as amended from time to time.
	Handrails / Handholds complying to IS/ISO 2867: 2011 shall be provided in fire tender appliance as defined in Clause No. 3.7 of this standard, for better accessibility.
5.1.15	Vehicle shall be fitted with reverse parking alert system as per the requirements defined in AIS 145 amended from time to time.
5.1.16	The vehicle shall be loaded to its technically permissible maximum mass distributed between the axles as declared by the vehicle manufacturer. Where provision is made for several arrangements of the mass on the axles, the distribution of the maximum mass between the axles shall be such that the mass on each axle shall not exceed maximum permissible mass for each axle.

5.1.17	TCD / TCCD requirements shall be compliant with IS 12222: 2011 or IS 949: 2012 as amended from time to time		
5.1.18	All surfaces of the access system designed for walking, climbing, stepping or crawling shall be slip-resistant (including any device or structural component designed as part of an access system)		
5.1.19	Fire Tenders shall have an external colour "Fire Red" as defined in colour code 536 of IS 5:2007 as amended from time.		
5.2	**Provisions for consideration for CMVR requirements exemption** –		
	Testing Agency may only grant exemption(s) if the manufacturer demonstrates that the vehicle cannot comply the below requirements due to its special body construction		
	a) External Projection as per IS 13942 provided there shall not be any projection at the rear beyond RUPD or front beyond FUPD or sides beyond SUPD / LUPD in vehicle actual running condition on road		
	b) Installation of lighting and light-signalling devices as per AIS-008 (Rev 1)		
	c) Spray Suppression System as per AIS-013 (Rev.1)		
	d) Rear Under Run Protection Device as per IS 14812		
	e) Vehicle Lateral Protection Side SUPD as per IS 14682		
	f) Approval of Retro-Reflecting Devices as per AIS-057 (Rev.1)		
	g) Constant Speed Fuel consumption test as per IS 11921 exempted		
	h) Retro-Reflective marking installation as per AIS 090		
	i) Speed limiting function as per AIS 018		
5.3	**Stability ratio** - It should never be more than one. The usual recommended stability ratio is 0.7 to 0.9. The stability ratio can be calculated as below:		
	Stability ratio	=	2h x Tan 23°/ b
	moment W.R.T. ground	=	2h x Tan 23°
	h	=	CG ht. Under laden condition
	b	=	Rear outer tyres center distance in m
5.3.1	Stability of fire tenders shall be validated by physical method or simulation method or by calculation as agreed by test agencies.		
6.0	**STATUTORY PLATE**		

	Each appliance shall be clearly and permanently marked with the following information:
	Manufacturer's name, or trade-mark, if any;
	Capacity of the pump in litres/minute, capacity of the water tank and foam tank in litres; and
	Year of manufacture.

APPENDIX 1 TO ANNEX 3

INFORMATION TO BE SUBMITTED AT THE TIME OF APPROVAL OF FIRE TENDERS

Sl. No.	General	Details
1.0	**Manufacturer details**	
1.1	Name and address of the manufacturer	
1.2	Name of variants, if any:	
1.3	Plant/(s) of manufacturer:	
2.0	**Description of vehicle under test**	
2.1	Vehicle category	
2.2	Vehicle type	
2.3	Vehicle manufacturer	
2.4	CMVR certificate no	
2.5	Chassis no	
2.6	Engine no	
2.7	Engine displacement	
2.8	Fuel type	
2.9	Engine Power	
2.10	Dimensions (mm)	
2.10.1	Length	
2.10.2	Width	
2.10.3	Height	
2.10.4	Ground clearance	
2.10.5	Wheelbase	
2.11	Gross vehicle weight	
3.0	**FIRE TENDERS**	
3.1	Capacity of pump	
3.2	Capacity of water tank	
3.3	Nominal speed	
3.4	Transmission ratio of Power Take Off (PTO) unit	
3.5	Working pressure	