Dual Road-Rail "SAAR" Fire-Fighting Vehicle – Technical Chapter

Chapter 1 – Technical Specification

Section 1 – General

Section 2*- Technical requirements for the automotive chassis **to be filled out by the participant.**

Section 3* - Technical requirements for the fire – fighting superstructure and its integration with the chassis **to be filled out by the participant**.

Section 4*- Technical requirements for the Road-Rail driving system and ancillary accessories **to be filled out by the participant.**

Section 5**–Technical requirements for the fire-fighting equipment that will be supplied with the vehicle **to be filled out by the participant**.

Section 6**–Technical specification **to be filled out and complete by the participant.**

Chapter 2 – Acceptance and quality tests

Chapter 3 – Technical literature

Chapter 4 - Training

Chapter 5 – Spare parts, Maintenance and Warranty

Chapter 6 – The role and the authorities of the supervisor

***** For removal of any doubt it is clarified that the supplier shall fill out in section 2, 3 and 4 the "comply / not comply" column and the supplier proposal column when required.

** For removal of any doubt it is clarified that the supplier shall fill out the technical data as requested in section 5 and 6.

Chapter 1 – Technical specification- Dual Road-Rail "SAAR" Fire-Fighting Vehicle and Ancillary equipment

Section 1 - General

1.1 **General**

1.1.1 This document includes the major technical and functional requirements for dual road-rail firefighting vehicle on 4X2 truck chassis with 18 ton permissible GVW and a water tank with a capacity of 3,000 liter at least as follows:

1.1.1.1 Technical requirements for the chassis used as automotive platform for the fire fighting system.

1.1.1.2 Technical requirements for the fire- fighting system including the body and all the fire-fighting installations.

1.1.1.3 Technical requirements for the dual road-rail driving system and ancillary equipment.

1.1.1.4 Technical requirements for the fire-fighting equipment to be supplied with the vehicle.

1.1.2 The vehicle designed for operation on roads and rails.

1.2 The system shall withstand the following environmental conditions without mechanical, hydraulic, pneumatic or electrical failure and without decreasing in its functional performance.

1.2.1.1 Ambient temperature: -5ºC to + 70ºC.

1.2.1.2 Relative humidity of 100% in +35ºC.

1.2.1.3 Continuous rain.

1.2.1.4 Continuous exposing to sun.

1.3 General technical requirements

1.3.1 The fire-fighting vehicle shall comply with EN 1846 or NFPA 1901 standards unless otherwise required.

1.3.2 The way of installation of the fire- fighting equipment on the vehicle shall enable operation of the vehicle with maximum simplicity, convenience and safety.

1.3.3 The body builder shall comply with all the chassis manufacturer instructions for body builders including the installation of the rail driving system.

1.3.4 **The participant will specify in his proposal if the fire- fighting vehicle proposed by him complies with the requirements detailed in the tables of technical requirements in sections 2, 3 and 4, next to each row**.

1.3.5 The proposal of the participant will be technically evaluated according to the technical criterions specified in the tender documents and based on the compliance of the fire-fighting vehicle with the requirements specified in this document and the quality of the proposal.

1.3.6 The supplier will bear the comprehensive responsibility regarding the compliance of the fire-fighting vehicle with the Israeli transportation regulation and the requirements of the ministry of transportation or any relevant other requirement by law, updated to the date of delivering the vehicle.

1.3.7 The supplier will be responsible to get driving approval for the vehicle including all the expenses associated with this process.

1.3.8 The supplier will be kept responsible for the quality, workmanship, strength and reliability of the fire - fighting vehicle with all its components and ingredients.

1.3.9 It is clarified that all the aforementioned shall not derogate from the obligations of the supplier according to the tender and the agreement instructions.

1.4 Milestones

In this technical chapter-, **Approval of the fire-fighting vehicle order**- is the date of issuing the procurement order and submit it to the supplier by the customer.

1.4.1 "Building and approval of the prototype"

1.4.1.1 Preliminary Design Review (PDR), will be conducted up to 30 days from the date of issuing the procurement order; The review shall include preliminary design presentation and control of the major topics including**:**

- Design presentation, checking the compliance of the design with the requirements.
- Compliance of the ordered chassis with the specification requirements.
- Presenting the initial design of the rail driving system, the major technical features and way of connecting to the chassis
- Presentation of the schematic design of the water system.
- Presentation of the pump management system.
- Presentation of accessories samples and their stowage provisions to be used in the vehicle (shutters, shelves, drawers, stowage devices, etc.).
- Layout showing the location and way of installation of the fire-fighting equipment in the equipment compartments.
- Presentation of alternatives – in each paragraph that the supplier has several alternatives as a solution for the requirement, the supplier will present all the alternatives for the customer selection.

1.4.1.2 **Critical Design Review (CDR)**, will be conducted up to 150 days from the date of issuing the procurement order , The review will incorporate comprehensive checking of the full design and the vehicle and their compliance with the technical requirements, detailed presentation of the production methods and processes, "design freezing" for the continuation of the production and including:

- Presentation of updated drawings file.
- Presentation of the ancillary equipment and the certifications regarding the compliance with the requirements in the table of requirements.
- Presentation of the quality assurance program.
- Presentation of the training layout.
- Presentation of the “Warranty Certificate” version.
- Approval of the sign and labeling wording by the customer and the supervisor.

1.4.1.3 **Submitting of "Prototype” for the approval of the National Fire-Fighting and Rescue Authority (**hereinafter referred to as **"the Authority"),** will be conducted up to 270 days from the date of issuing the procurement order; (the supplier shall advice the customer representative at least one week in advance regarding the desired date for performing the inspection), Within the “prototype” inspection process the Authority is entitled to conduct the following inspections (hereinafter referred to as "**the expanded acceptance test**"):

1.4.1.3.1 Papers and documentation inspection, and quality assurance processes approval:

- Presentation of registration certificate issued by the registration department in the ministry of transportation.
- Presentation of certification issued by the Israeli institute of standards or other certified /authorized laboratory / institute if required by the ministry of transportation.
- Presentation of the chassis manufacturer approval regarding the connection of the fire- fighting body and the rail driving system to the chassis.

- Certification of authorized laboratory regarding the compliance of the crew cab air condition system with the Israeli standard.
- Presentation of confirmed reports regarding all the inspections and tests processes conducted under the supplier supervision within his approval procedure of the first vehicle of the series
- Presentation of confirmed reports regarding the stability test according to ISO standard issued by authorized laboratory or institute (the practical test will be performed in the presence of the supervisor and the representative of the Authority) when driving on road with the rail driving system retracted on the vehicle.
- Presentation of weighing certificate of the vehicle in un-laden and loaded condition in both road driving mode and rail driving mode.
- Presentation of certified inspector report for the breathing air supply system.
- Presentation of the quality assurance processes practiced by the supplier and his major subcontractors.
- Presentation of the chassis technical specifications.
- Presentation of the technical specifications of the subcontractors.
- Presentation of the hydraulic schemes including the schemes relating to the hydraulic system of the rail driving system.
- Presentation of computerized “tree product”.
- Presentation of the painting process.
- Presentation of the technical literature.

1.4.1.3.2 Inspections & tests

Inspection in road driving mode (rail driving system retracted)

- Operation inspection of all the fire - fighting systems.
- Measuring of the static rollover angle on a special device in loaded condition to the right and left side.
- Checking the maximum driving speed, grade-ability, grade-ability from static position, braking test during driving.
- Inspection of noise levels in the driver cab, crew cab and operating stand.
- General dimension inspection including ground clearance, departure angles when the rail driving system, is retracted on the vehicle
- Road test for a distance of 200 Km on roads.

Inspection in rail driving mode

- Inspection of the maximal speed when driving on leveled rail and on a slope of 3% approx. in loaded position including grade-ability from static position on a rail slope of 5% at least.
- Inspection of braking distance: hydrostatic braking, braking via the service brake of the system.
- Inspection of the parking brake including holding capability in a slope of 3% at least.
- Operational test of all the system ingredients: raising and lowering of the driven axles, locking of the chassis suspensions, locking of the steering wheel, locking of the rail axles in raised position, automatic locking of the rear climbing ladder and etc.
- Operation of the emergency system (electrical hydraulic pump and manual hydraulic pump).

- Functional inspection of the special accessories on the vehicle: thermal and infrared cameras, temperature sensors, gas detectors in real condition- smoke and high temperature.
- Functional test of the water cooling system for the driver and crew cab and the metal wheels.
- Driving test on rail for a distance of 25 Km including on curves and inspecting of the self-steering capability of the system and tracking the rail.

1.4.1.4 **The inspections the customer is entitled to perform within the prototype test including those specified in par. 1.4.1.3 , will be conducted at the supplier facility in cooperation with the customer representatives , excluding the stability and road test that the customer preserve his right to perform them according to his sole discretion in Israel.**

1.4.1.5 **Delivering of "prototype" to the Authority,** will be performed up to 270 days from the date of issuing the procurement order and no later than 30 days from the date of returning it to the supplier after performing the inspections, according to the later.

1.4.2 **Manufacturing and Delivering of fire fighting vehicles from serial production**:

1.4.2.1 After the approval of the "prototype", each ordered vehicle will be delivered not extending a period of 210 days from the date of issuing the procurement order.

1.4.2.2 In case the "prototype" has not yet been approved, the delivery date may extend the time frame mentioned in par. 1.4.2.1 above, provided that the extending shall not be more than 60 days from the "prototype" approval date.

1.4.2.3 Together with the delivery of the ordered vehicle, the supplier will submit to the Authority, in addition to what specified in this document, full copy of all the reports and certifications.

1.4.2.4 The inspection of fire-fighting vehicle from serial production is detailed in this document in chapter 2-acceptance and quality inspection

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Section 2: Technical Requirements Table for the Automotive Chassis

Designed for Installation of the "SAAR" Fire Fighting Superstructure

Para. No.	Subject	Requirement specification	mandatory	Comply/not comply	Evaluation	Data requested	Supplier proposal
2.1	**Chassis Design**	a. The Chassis is designed for the assembling of the fire fighting superstructure and the rail driving system and will be used in keeping with the mission profile defined in section 1 above.	+		**mandatory**		
		b. The chassis as a system and its automotive components shall be designed to withstand the loads developed during operation of the vehicle as defined in this document.	+		**mandatory**		
		c. The chassis manufacturer shall approve that the chassis is suitable for assembling firefighting superstructure. The majority of the automotive components, excluding few items which are not safe elements, will be assembled in the vehicle production line. The chassis manufacturer shall approve in letter shifting of components / items of the chassis, from their original location, by the superstructure manufacturer.	+		**mandatory**		
		d. Electrical wiring, brake piping and pneumatic lines shall be protected against mechanical hits, from contact with flames and extremely hot particles.	+		**mandatory**		

Para. No.	Subject	Requirement specification	mandatory	Comply/not comply	evaluation	Data requested	Supplier proposal
2.2	**Weight & loads**	a. The permissible gross vehicle weight (GVW) of the chassis will be 18 ton	+		**mandatory**		
		b. The gross vehicle weight (GVW) of the fire fighting vehicle in full operational configuration, should not exceed 18 ton including 8 crew members.	+		**mandatory**		
		c. This weight will include the following items: 1. All the systems, components, accessories and items of the fire fighting system as specified in this document. 2. The rail driving system and the ancillary equipment installed on the vehicle as specified in section 3. 3. 8 crew members with their personal gear – 90 Kg each. 4. Water and foam tanks filled up. 5. Fuel and Ad-Blue tanks filled up. 6. Hydraulic oil tank filled up.	+		**mandatory**	Estimated weight	

Para. No.	Subject	Requirement specification	mandatory	Comply/not comply	evaluation	Data requested	Supplier proposal
	Weight & loads (cont.)	d. The load distribution between the axles and the right & left sides ,when driving on the road, shall be according to the chassis manufacturer instructions and when driving on the rail the load distribution between the driven axles shall be according to the instruction of the rail driving system manufacturer	+		**mandatory**		
2.3	**Center of Gravity Height**	a. The center of gravity height, in loaded position, shall be minimal. Priority to vehicle with lower center of gravity.			**quality**	C.G .Height:	
2.4	**Driving Speed**	a. Maximum driving speed on leveled road and in full loaded position –100 KPH, at least	+		**mandatory**		
2.5	**Drive Type**	a. 4 x 2 (automotive chassis)	+		**mandatory**		
2.6	**Grade-ability**	b. The vehicle loaded to its maximal weight can start moving and stop, ascending or descending permanent slope of 25% at least when driving on the road..			**quality**	Gradeability from static position (%):	

Para. No.	Subject	Requirement specification	mandatory	Comply/not comply	evaluation	Data requested	Supplier proposal
2.7	**Stability**	a. Static tilting angle in full loaded position when driving on road shall be 20 degrees at least.	+		**mandatory**		
		b. The fire fighting vehicle in full loaded position shall meet the following standards: 1. Stability in by-passing course, ISO TR – 3888. 2. Turning behavior in steady state, ISO 4138 – 1982.	+		**mandatory**		
		c. The supplier will undertake to present a certificate from laboratory authorized by the Israel ministry of transportation , confirming that the vehicle in full loaded position complies with the aforementioned standards.	+		**mandatory**		
2.8	**Maneuverability**	a. The turning radius between walls in road driving mode shall not exceed 10.5 meter.	+		**mandatory**		
		b. Priority will be given to vehicle with smaller turning radius.			**quality**	Turning radius between walls:	

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
2.9	**Dimensions**	a. Overall height of the vehicle shall not exceed 3.8 meter (including the monitor and equipment installed on the roof)	+		**mandatory**	overall height:	
2.10	**Ground Clearance**	a. Ground clearance of the lowest rigid point on the loaded vehicle, (excluding the chassis axles) when the rail driving system is fully retracted upward, shall not decreased from 180 mm.	+		**mandatory**		
		b. Priority will be given to higher ground clearance.			**quality**	Ground clearance:	
		c. Inter-axle clearance angle- 10º at least	+		**mandatory**		
		d. Priority to higher inter-axle clearance angle..			**quality**	Angle:	
2.11	**Approach angle**	a. Approach angle for loaded vehicle - 15º at least.	+		**mandatory**		
		b. Priority to higher approach angle.			**quality**	Approach angle:	
2.12	**Departure angle**	a. Departure angle for loaded vehicle when the rail driving system is fully retracted - 8º at least.	+		**mandatory**		
		b. Priority to higher departure angle.			**quality**	Departure angle:	

Para. No.	Subject	Requirement specification	mandatory		evaluation	Data requested	Supplier proposal
2.13	**Engine**	a. Diesel engine with 360 HP at least.	+		**mandatory**		
		b. Priority to engine with higher Hp.			**quality**	Engine HP	
		c. The engine shall comply with the requirements of the Israel transportation regulation valid in the date of delivering the vehicle.	+		**mandatory**		
2.14	**Engine Brake**	a. Engine brake or exhaust brake with deceleration capability as defined in the Israeli transportation regulation.	+		**mandatory**		
2.15	**Power Take Off**	a. The angle of the driving shafts between the PTO and the firefighting pump and between the hydraulic pump of the rail driving system along all their way , shall be according to the chassis manufacturer instructions to body builders.	+		**mandatory**		
		b. The supplier will bear the responsibility to provide certification from the chassis manufacturer approving the compatibility between the PTO's and the vehicle transmission.	+		**mandatory**		
		c. Visual alarm when the PTO's are engaged and audio alarm that will be activated when the PTO's are engaged and the parking brake is released.	+		**mandatory**		

Para. No.	Subject	Requirement specification	mandatory		evaluation	Data requested	Supplier proposal
	Power Take Off (cont.)	d. Engagement of the PTO's will automatically cause to the increasing of the engine RPM to the value required for the proper operation of the fire fighting pump and the hydraulic pump of the rail driving system.	+		**mandatory**		
2.16	**Cooling System**	a. The cooling system shall be suitable for tropical regions and for the environmental conditions in the state of Israel as specified in section 1.	+		**mandatory**		
		b. Checking the engine coolant level without raising the driver cab.			**quality**		
2.17	**Fuel System**	a. The fuel tank shall be made of corrosion resistant metal with a capacity shall 200-250 liter.	+		**mandatory**	Fuel tank capacity:	
		b. The filler pipe shall be "direct" as possible enabling quick fuel filling by standard fuel pump pistol for trucks without overflow of fuel.	+		**mandatory**		
		c. The fuel tank can be easily removed for maintenance purpose.			**quality**		
		d. The fuel tank cap shall be secured and while refueling the vehicle it will not be possible to detach it from the vehicle.			**quality**		

Para. No.	Subject	Requirement specification	mandatory		evaluation	Data requested	Supplier proposal
	Fuel System (cont.)	e. The filler neck shall not be situated in the driver cab or the equipment compartments.	+		**mandatory**		
2.18	**Transmission**	a. The vehicle will be equipped with automated transmission.	+		**mandatory**		
		b. The vehicle will be equipped with hydraulic retarder.	+		**mandatory**		
2.19	**Front axle**	a. Maximal permissible load – according to the instructions of the chassis manufacturer.	+		**mandatory**		
2.20	**Rear Axle**	a. Maximal permissible load – according to the instructions of the chassis manufacturer.	+		**mandatory**		
2.21	**Tyres & Wheels**	a. All tyres shall be identical, radial type, with dimensions common in the state of Israel and shall ensure the stability and mobility of the vehicle when driving on roads and unpaved roads as defined in section 1. The treading type of the tyres shall enable driving with the vehicle 50% on road and 50% off road. The trading shall feature crosswise grooves enabling escaping and drainage of water and mud to the sides.	+		**mandatory**		

Para. No.	Subject	Requirement specification	mandatory		evaluation	Data requested	Supplier proposal
	Tyres & Wheels (cont.)	b. The rims shall be of close type.			**quality**		
		c. Spare wheel will be supplied separately (loose item).	+		**mandatory**		
		d. The vehicle will be fitted with standard quick air connection, easily accessible, to connect tyre inflating pipe that will also be provided with the vehicle.	+		**mandatory**		
2.22	**Front suspension**	a. Leafs springs with shock absorbers	+		**mandatory**		
		b. The permissible load shall suit the load on the axle.	+		**mandatory**		
		c. Stabilizer in the front axle.			**quality**		
2.23	**Rear suspension**	a. Leafs springs with shock absorbers	+		**mandatory**		
		b. The permissible load shall suit the load on the axle.	+		**mandatory**		
		c. Stabilizer in the rear axle.			**quality**		
2.24	**Steering system**	a. Hydraulic power steering with adjustable steering wheel	+		**mandatory**		

Para. No.	Subject	Requirement specification	mandatory		evaluation	Data requested	Supplier proposal
2.25	**Brake system**	a. The build-up pressure system shall ensure starting of driving with operational brake system within less than 60 seconds from position of empty air tanks.	+		**mandatory**		
		b. A quick air connection will be fitted under the driver door enabling filling of air from outer source in the brake system for immediately start moving.	+		**mandatory**		
2.26	**Frame**	a. Frame that features adequate strength and torsion stiffness to comply with the design of the vehicle and the nature of using it.	+		**mandatory**		
		b. When the opposite wheels, in diagonal, stand on steps of 200 mm high from the road level: 1. No damage will be caused to the frame and the fire fighting body. 2. No damage will be caused to the rail driving system. 3. No doors or shutters will be opened by themselves. 4. It will be possible to operate all the fire fighting systems and accessories. 5. Every door, shutter or drawer can be freely opened for taking away of required equipment. 6. The sealing of the equipment storing compartment will be maintained	+		**mandatory**		

Para. No.	Subject	Requirement specification	mandatory		evaluation	Data requested	Supplier proposal
2.27	**Bumpers and Towing Devices**	a. Front steel bumper.	+		**mandatory**		
		b. Front towing pin (on the bumper) enabling towing the vehicle in loaded position on the road by another vehicle (regarding towing on the rail see details in section 4 hereinafter).	+		**mandatory**		
		c. 2 Towing eyes at the front.	+		**mandatory**		
		d. Rear bumper protruding from the rear lights.	+		**mandatory**		
2.28	**Driver Cab and Human Engineering**	a. The vehicle shall enable its operation with maximum reliability and convenience for the driver, one crew member next to the driver and 6 crew members at the crew cab in the rear (see details hereinafter).	+		**mandatory**		
		b. The vehicle will be fitted with Electrical- hydraulic tilting system of the driver cab and the crew cab together and with manual back-up. The lifting capability of the system shall fit the loads on it (weight of the driver and crew cab).	+		**mandatory**		
		c. The dumping system of the driver cab shall be original of the chassis manufacturer.	+		**mandatory**		
		d. Two front seats for the driver and one crew member next to him will be according to the specification of the crew cab seats in par. 2.30e hereinafter ,including breathing apparatus and 2X6.8 liter air cylinders installed on the seats back.	+		**mandatory**		

Para. No.	Subject	Requirement specification	mandatory		evaluation	Data requested	Supplier proposal
	Driver Cab and Human Engineering (cont.)	e. Suspended, multi directional driver seat, comfortable for driving on the road and off the road.	+		**mandatory**		
		f. Original electrical windows at both sides, supplied by the chassis manufacturer.	+		**mandatory**		
		g. Internal sun visors.			**quality**		
		h. The vehicle will be supplied with high quality MP3 audio system features operating voltage identical to the vehicle voltage and with two speakers. The system will be part of the multimedia system specified hereinafter.	+		**mandatory**		
		i. Side mirrors complying with the requirements of the Israel ministry of transportation.	+		**mandatory**		
		j. Climbing steps, with non-slip material, to the driver cab and holding rails outside and inside the driver cab. The height of the lowest step not more than 50 cm from the ground when driving on road. A foldable step will be added (also for the crew cab) ensuring that when driving on the rail (vehicle lifted) the height of the step will not exceed 350 mm.	+		**mandatory**		
		k. Defrosting system (heating and air conditioning) for the windshield and side windows activated by the driver.	+		**mandatory**		
		l. 21W adjustable reading LED lamp for the commander beside the driver.	+		**mandatory**		

Para. No.	Subject	Requirement specification	mandatory		evaluation	Data requested	Supplier proposal
2.29	**Climate Control**	a. The driver cab will be equipped with heating and air conditioning system capable to maintain comfortable internal temperature (23ºC) in the driver & crew cab at the extreme ambient temperature as specified in this document. The system will be original of the chassis manufacturer.	+		**mandatory**		
2.30	**Crew Cab**	a. The crew cab will be manufactured by the chassis manufacturer or by the fire-fighting superstructure manufacturer, or by sub-contractor authorized by them who has built 10 crew cabs at least during the last 3 years.	+		**mandatory**		
		b. The driver cab and the crew cab will be one integral unit.	+		**mandatory**		
		c. There shall not be full separation partition between the room of the driver cab and the crew cab.	+		**mandatory**		

Para. No.	Subject	Requirement specification	mandatory		evaluation	Data requested	Supplier proposal
	Crew Cab (cont.)	d. The crew cab will include 3 separate seats across the cab at the rear, facing the driving direction and 3 separate seats opposite to them facing the rear driving direction. e. The seats will feature the following characteristics. 1. Made by company that manufactures seat and fixtures for firefighting vehicles. 2. Head rest and safety belt for each crew member. 3. Wear – resistant, washable padding of lower seat and seat back. 4. Open respiration system units (breathing apparatus) with two 6.8 liter air cylinders stored behind rigid seat back (on all the 8 seats), removable with quick and convenient pulling out capability to put on the back of the crew member and suitable for all kinds of open respiration system. 5. The air cylinders will be attached by spring device that can be easily released by handle. 6. The stowing device of the open respiration kits shall be approved by the customer prior to installation on the prototype vehicle. 7. The depth of the crew cab seat that will be available for the crew member when the open respiration kits are stored behind the seat back, shall be 450 mm at least. The height of the seat from the floor-450 mm approx.. 8. The available space under the seats of the crew cab will be used for storing firefighting bags and personal belongings.	+		**mandatory**	Internal length of crew cab Internal width of crew cab Seat depth Seat height	

Para. No.	Subject	Requirement specification	mandatory		evaluation	Data requested	Supplier proposal
	Crew Cab (cont.)	f. The available passage width between the two rows of the seats shall be 500 mm at least	+		**mandatory**		
		g. Priority to higher available passage			**quality**	Available passage	
		h. The available width for entering the crew cab when the door is fully open, shall be 500 mm at least and. the height in this position shall be 700 mm at least measured from the thigh to the shoulder..	+		**mandatory**		
		i. Priority to higher width and height			**quality**	Width Height	
		j. The internal crew cab height at the lowest point – at least 1.60 m	+		**mandatory**		
		k. Priority to higher one.	+		**mandatory**	Internal height	
		l. The climbing steps to the crew cab shall be of fix type (beside the foldable step for using in rail driving mode) according to EN– 1846-2 or NFPA standard excluding the following dimensions: 1. Depth for the foot in the first step (from the ground) - 240 mm at least. 2. Depth for the foot in the second step (from the ground) - 200 mm at least. 3. Width of the step – 600 mm at least.	+		**mandatory**		

Para. No.	Subject	Requirement specification	mandatory		evaluation	Data requested	Supplier proposal
	Crew Cab (cont.)	m. The following equipment will be fitted in the driver cab or the crew cab: 1. Two lanterns + chargers that will be supplied by the customer. 2. Electrical point for connecting chargers of 2 portable thermal cameras that will be supplied by the customer. 3. Connection point for satellite pinpoint system suitable for the systems used by the firefighting brigades in Israel. The installation of the system will be performed by the Israeli authorized company "POINTER" at the expense of the supplier	+		**mandatory**		
		n. The crew cab will be fitted with 6 open respiration kits , with 2X 6.8 liter air cylinders on each kit that will be supplied by the customer and installed on the seats back as specified in par. 2.30 e 4 above	+		**mandatory**		
		o. The cab will be fitted with 4 hanging hooks.	+		**mandatory**		
		p. The ceiling above the seats will be fitted with holding rails for the crew members.	+		**mandatory**		
		q. The cab will be fitted with ceiling LED light features adequate intensity for enabling the crew cab members to get their way in the cab and to read documents while driving in darkness conditions. The light will be automatically switched on when opening the crew cab door	+		**mandatory**		

Para. No.	Subject	Requirement specification	mandatory		evaluation	Data requested	Supplier proposal
	Crew Cab (cont.)	r. Motorola portable communication device type APX 7000 EX with charger, which will be supplied by the customer, will be installed in the crew cab.	+		**mandatory**		
		s. The floor will be plated with high quality non-slipping rubber carpet or PVC with bubbles.	+		**mandatory**		
		t. The crew cab will be fitted with air conditioning system, capable to provide comfortable environmental condition (maintaining an internal temperature of 23ºC) for the passengers in the crew cab in extreme weather condition specified in section 1. The system will be original or local production/assembling which is qualified by the chassis manufacturer for both the compatibility with the vehicle and installation: all the control buttons on the driver panel will be original of the chassis manufacturer	+		**mandatory**		
		u. The crew cab air conditioning system shall comply with the Israeli standard "MAFM"C" 344 for air conditioning and will be inspected and approved by authorized laboratory in the prototype vehicle.	+		**mandatory**		
		v. The noise level in the crew cab shall not exceed the requirements of the Israeli transportation regulations.	+		**mandatory**		
		w. A security bars will be installed underneath the crew cab for supporting the cab in lifted position. The bar will have fix connection to the chassis	+		**mandatory**		

Para. No.	Subject	Requirement specification	mandatory		evaluation	Data requested	Supplier proposal
2.31	**Materials**	a. All the equipment, materials and items installed on the vehicle shall be new.	+		**mandatory**		
		b. The use of "Ozone attack" materials is prohibited.	+		**mandatory**		
2.32	**Driver tools storing**	a. Driver tools to be supplied with the vehicles (for replacing spare wheel) including warning triangle, chocks, air inflation pipe and cab lifting handle will be installed in one of the equipment compartments.	+		**mandatory**		
2.33	**Covers and Plugs**	a. All the caps such as the hydraulic oil tank cap, oil filling, coolant filing etc. will be without locking device but secured by anchoring chain if it is possible (excluding the fuel tank cap that will be non-detachable).	+		**mandatory**		
2.34	**Paint**	a. The driver cab and crew cab color will be red. The front bumper white.	+		**mandatory**		
2.35	**Electrical System**	a. 12/24 volt system, protected against fluids, water and excessive heat according to EN 60204-1 standard or equivalent American standard.. Systems which are specifically exposed to water damage shall be protected according to EN 60529 standard or equivalent American standard.	+		**mandatory**		
		b. Direct connection to the batteries poles shall not be performed excluding the main feeding cable	+		**mandatory**		

Para. No.	Subject	Requirement specification	mandatory		evaluation	Data requested	Supplier proposal
	Electrical System (cont.)	c. The vehicle will be fitted with main electrical switch enables immediate disconnection of the batteries. The switch will be easily accessible	+		**mandatory**		
		d. The batteries capacity (A.H) shall be compatible with the electrical consuming requirements of the various electrical customers in the system including the firefighting system. The installation of the batteries will be done as follows: (1 on ball bearings drawer that can be pulled out by force not more than 5 Kg, ensuring easy access to the batteries for maintenance and inspection purposes. (2 the battery shelf-locking device will be automatically locked when it is closed. (3 The battery cables shall be protected against mechanical hit along their entire movement. (3 The batteries compartment will be adequately ventilated. (4 In case the batteries are installed in one of the equipment compartments, a plastic tray will be installed for fluids collecting that can be easily pulled out for cleaning needs.	+		**mandatory**		

Para. No.	Subject	Requirement specification	mandatory		evaluation	Data requested	Supplier proposal
	Electrical System (cont.)	e. All the electrical consumers will fit the vehicle voltage. A voltage transformer from 24v to 12V, approved by the chassis manufacturer, will be installed for consumers which are not available in 24V. The communication system will be installed with original transformer of "Motorola" that will serve only the communication system.	+		**mandatory**		
		f. The vehicle will be equipped with two rear LED lights and audio alarm when reverse gear is engaged.	+		**mandatory**		
		g. The alternator output shall enable operating of all the electrical systems at any time and will have positive charging current when operating all the consumers at the same time.	+		**mandatory**		
		h. All the chassis lights shall be switched off when the main ignition switch is switched off. An audio alarm can be an alternate solution for this feature.	+		**mandatory**		
		i. All the lights in the fire-fighting system including those belong to the rail driving system shall be switched off when the main ignition switch is switched off	+		**mandatory**		

Para. No.	Subject	Requirement specification	mandatory		evaluation	Data requested	Supplier proposal
	Electrical System (cont.)	j. The electrical system of all the firefighting vehicle shall be protected by circuit breakers, grouped together in a central box, easily accessible for replacement, each fuse will be clearly signed. The box will contain at least one reserve fuse for each kind of fuse (not for the all system).	+		**mandatory**		
		k. All the switches and the warning lights will be of the same kind that supplied by the chassis manufacturer, and will be installed on the instrument panel.			**quality**		
2.36	**Indicators & Gauges**	a. The instrument panel will include at least the following original gauges (installed in the vehicle production line): speedometer combined with odometer in Km scale, charging gauge, fuel gauge, oil temperature, oil pressure, engine coolant temperature, air pressure, , engine tachometer and time gauge (clock).			**quality**		
		b. The vehicle will be fitted with audio and visual warning devices for the following system: 1. Overheating of engine coolant.			**quality**		

Para. No.	Subject	Requirement specification	mandatory		evaluation	Data requested	Supplier proposal
	Indicators & Gauges (cont.)	2. Engine oil pressure. 3. Excessive engine RPM. 4. Low air pressure. 5. Brake system. 6. Green light (without audio alarm) when operating the pump of the fire fighting system and the hydraulic pump of the rail driving system. 7. Lack of engine coolant.			**quality**		
		c. Turning on of the vehicle light system will not automatically dim the light on the control panel.			**quality**		
		d. The signs / instruction on the control panel will be in Hebrew excluding computerized alarms.	+		**mandatory**		

Para. No.	Subject	Requirement specification	mandatory		evaluation	Data requested	Supplier proposal
2.37	**Sign & Symbols**	a. The vehicle will be fitted with the following yellow reflecting signs (will be translated to Hebrew): (1 Sign with the words "Fire fighting and rescue services" will be installed on both sides of the vehicle on the upper portion of the walls. (2 Symbol of the firefighting and rescue authority and the symbol of the district on both sided of the driver cab doors. (3 Sign which define the serial number of the vehicle, (3 big numbers) will be applied on the sides of the vehicle. (4 A sign incorporating the "telephone" symbol and the number 102 will be applied on both side of the driver cab. (5 On both sides of the driver cab the sign www.102.co.il	+		**mandatory**		
		b. White aerial sign will be attached to the entire driver cab roof.	+		**mandatory**		
		c. "Reflector Stripe" will be attached around the vehicle beside on the rolling-up shutters. The stripe will be of yellow 3M 983-71 type and at least 100 mm wide.	+		**mandatory**		

Para. No.	Subject	Requirement specification	mandatory		evaluation	Data requested	Supplier proposal
	Sign & Symbols (cont.)	d. "Reflector stripe" as specified above will be attached to the upper corners of the body	+		**mandatory**		
		e. "Reflector stripe" as specified above will be attached to the space between the rear rolling- up shutter and the body walls at both sides	+		**mandatory**		
		f. All the operation signs will be on rigid labels, in the Hebrew language, in printed letters and clear visible size.	+		**mandatory**		
		e. All the operation signs relating to the operation of the automotive system will be in yellow letters on black background	+		**mandatory**		
		h. Signs will be applied near every filling opening indicating the type of fluid to be filled up.	+		**mandatory**		
		i. Sings will be applied near every external electrical socket / connector and also near the batteries compartment indicating with red letters the voltage of the item (12/24 V) and the use.	+		**mandatory**		
		j. Sign indicating the vehicle voltage will be placed in the driver cab across the driver eyes.	+		**mandatory**		
		k. The tire inflation pressure in PSI will be signed in yellow letters above each wheel housing.	+		**mandatory**		
		l. The signs will be attached by a strong glue with long lasting life of 7 years at least.	+		**mandatory**		

Section 3: Technical Requirements Table for the "SAAR" Fire Fighting System and its Integration with the Chassis

Para. No.	Subject	Requirement specification	mandatory	Comply/not comply	evaluation	Data requested	Supplier proposal
3.1	**The Fire Fighting Body**	a. The body construction shall be made of aluminum, stainless steel profiles or GRP only.	+		mandatory		
		b. Priority to GRP.			Quality	body Material :	
		c. The body shall be protected against water, dirt and rust causing particles, between and inside the structure parts.	+		mandatory		
		d. The body shall enable easy access to the vehicle components for maintenance treatments and replacement without removing the body or parts of it from the chassis.	+		mandatory		
		e. The rear lights shall be sunken into the body and protected against mechanical hits.	+		mandatory		
		f. No flammable material will be used in the structure.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/not comply	evaluation	Data requested	Supplier proposal
3.2	**The Body Deck**	a. The walkways on the roof designed for the firefighters including the walkways on the driver cab roof, will be made of non-slip and abrasion resistant material (as perforated aluminum sheet)	+		mandatory		
		b. The roof shall be designed to carry at least 2 firefighters (2x90 Kg) in addition to the equipment installed on it.	+		mandatory		
		c. The roof surface shall be free of protruding objects excluding the water and foam filling openings covers. The side slope of the roof in the area designed for the working of the firefighters shall not exceed 6º.	+		mandatory		
		d. Both sides of the roof and the rear part of it (beside across the rear ladder) will be fitted with rail or wall that will be integral part of the body ,155 mm high at least (measured from the walkway) to prevent the equipment to slip down from the roof. .	+		mandatory	Type of rail pipe /wall	
		e. LED light system will be installed on the roof along its perimeter (making sure that the light is not concealed by equipment storage boxes and other equipment) to illuminate the walkway on the roof, ensuring that the firefighters can safely ascend the roof in darkness condition.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/not comply	evaluation	Data requested	Supplier proposal
	The Body Deck (cont.)	f. Telescopic ladder 9 m long will be installed on the left side of the roof. The storing device will enable quick and convenient pulling out and storing of the ladder. The ladder will be supplied by the customer (see list of equipment in section 5).	+		mandatory		
		g. 2 rigid storing boxes will be installed on the roof as follows: (1 One box along the right side of the roof incorporates a "bath" for storing six 3" hoses folded in a "snake" shape with a total length of 120 meter. (2 The second one in the center of the front portion of the roof for storing 2 hose bridges	+		mandatory		
		h. The boxes will be made of 3 mm perforated aluminum with cover (covers) that can be opened in 90 degrees equipped with 2 telescopic cylinder for each cover enable to leave the cover in open position and chains with plastic sleeve for limiting the opening stroke. The locks of the boxes covers will be secured in close position by retractable pin.	+		mandatory		
		i. 5 bats and 2 destroying hooks will be installed on the roof. Forward movement of the items will be mechanically prevented by a metal stop in addition to tying down to the roof	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/not comply	evaluation	Data requested	Supplier proposal
3.3	**Climbing Ladder**	a. A climbing ladder to the roof made of aluminum will be installed on the right side of the rear wall of the body, The ladder can be pulled out.	+		mandatory		
		b. When the ladder is pulled out for climbing it will be in a slope position along all its length and in driving it will be attached to the body.,	+		mandatory		
		c. In open position the minimal distance of each step from the body wall will be 150 mm at least..	+		mandatory		
		d. The height of the first step from the ground, when the ladder is open for climbing, will not exceed 600 mm.	+		mandatory		
		e. The distance between adjacent steps will not exceed 300 mm.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
3.3	**Climbing Ladder (cont.)**	f. The height between the upper step and the upper walkway on the roof will not exceed 350 mm.	+		mandatory		
		g. Step width not less than 300 mm.	+		mandatory		
		h. The steps surface will be produced from non- slipping material.	+		mandatory		
		i. The opening and locking system shall ensure positive locking of the ladder in any condition (open/close) to prevent incidental opening of the ladder.	+		mandatory		
		j. The opening of the ladder will activate audio alarm in the driver cab.	+		mandatory		
		k. On the rear part of the body opposite to the ladder, a protection of the walls against the firefighters feet, will be fitted (such as not shiny aluminum plate or rough paint).	+		mandatory		
		l. Two gripping handles will be fitted on the roof across the climbing ladder enabling safe and comfortable movement from the ladder to the roof walkway. The height of the handles from the walkway will be 500 mm at least.	+		mandatory		

ara. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
3.4	**Operation stand**	a. The operation stand will be part of the body, situated at its rear part in the center.	+		mandatory		
		b. The stand floor will be made of smooth stainless steel and its wall made of the body material including service openings with a suitable size. The covers of the openings will be secured by quick release and simple device.	+		mandatory		
		c. The height and width of the stand compartment will fit the space required for the components / equipment installed in the stand compartment, thus enabling convenient and efficient operation of the equipment installed inside the stand compartment, by firefighter with average height (1.7 m) standing on the ground.	+		mandatory		
		d. The rear part of the stand will be closed by roll-up shutter on a rail that will maintain the sealing of the stand against dust and water, will enable convenient and safe operation of the equipment in the compartment. In fully open position the shutter shall not fall down by itself..	+		mandatory		
		e. All the gauges & indicators in the stand will be directed rearward towards the firefighters face.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
	Operation compartment (cont.)	f. The system noise level at the operating point of the firefighter will be measured according to EN 1846 standard annex A or NFPA standard. Priority to lower noise level.			quality	Noise level: (dBA)	
		g. The operating compartment will be fitted with LED light including water resistant operation switch that will ensure complete and adequate illumination of the compartment and the instrument panel without glaring the operators.	+		mandatory		
		h. The control stand will be fitted with audio and visual (lamp) alarm for the engine temperature and engine oil pressure The audio alarm will be connected to the vehicle horn or to special separate horn.	+		mandatory		
3.5	**Communication System Storing Box**	a. The front of the operating stand will be fitted with a water resistant box, sealed against water splashing from any direction, made of polypropylene or fiberglass, fitted with lockable cover for storing the communication system rear extension. The minimal internal dimension of the box will be height-30 cm, width- 25 cm and depth- 15 cm.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
3.6	**Water Pump**	a. Centrifugal high pressure pump compliant with EN or NFPA 1901 standards, with proven operational experience in firefighting services. The pump will feature 3 outlets to regular pressure hoses, at least one high pressure outlet to fast intervention hose- reel and one inlet for suction from outer source (direct supply to the pump).	+		mandatory		
		b. The pump housing and the impeller made of bronze and the impeller shaft of stainless steel. The low and high pressures impellers will be installed on common shaft.	+		mandatory		
		c. The nominal flow rate will be: 1. Regular pressure line – 3,000 lmp at least at a pressure of 10 bar at least. 2. High pressure line – 200 lpm at least at a pressure of 30-35 bar at least.	+		mandatory		
		d. The pump location and its connection in the operating compartment shall enable. 1. Easy access for operation. 2. Easy access for checking oil level, filling and changing of oil.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
	Water Pump (cont.)	e. Service openings will be fitted in the walls of the pump compartment that will enable easy and convenient access for performing periodic maintenance treatments in the pump. The openings will be sealed against water and feature quick opening mechanism. The covers of the openings will be made of the body material as specified above.	+		mandatory		
		f. The pump will be driven by the PTO through drive shaft. The drive shaft angle will be minimal and in any case will not exceed the permissible figure according to the SAE standards and the instructions of the chassis manufacturer to body builders, the pump manufacturer and the PTO manufacturer. When operating the pump with initial pressure of 3 bar, no "knocking" will be generated by the drive shaft.	+		mandatory		
		g. Operating of the PTO will be possible from the operating stand. The operation of the PTO will be stopped when the capacity of the water in the water tank has reached to 150-200 liter.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
	Water Pump (cont.)	h. The system will enable pump & roll operation at a speed of 20 Km / h at least.	+		mandatory		
		i. Cooling of the pump will be ensured even when it works without discharge.	+		mandatory		
		j. The system will be equipped with water line fitted with valve, for suction of water from outer source directly to the pump.	+		mandatory		
		k. Automatic priming system which is integral part of the pump. The priming system valves should be protected against dirt penetration.	+		mandatory		
		l. The pump will include manual drain valve enabling complete draining of the water from the pump housing.	+		mandatory		
3.7	**Pump outlets / inlets, piping and valves**	a. All the diameters required for water passages in the piping and the valves will be full passage diameters.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
	Pump outlets / inlets, piping and valves (cont.)	b. Following are the valves to be installed in the operation compartment: 1. Tank-pump line – butterfly valve. 2. Suction inlet from outer source –with 4” storz coupling and cover. 3. Two discharging line – 2.5” rotating "slow" valves according to DIN standard or equivalent with pressure relief valve, 3” storz couplings and covers fitted with pressure relief button. The valve structure shall enable closing of the valve while water flowing through the valve. 4. One discharge line –1” ball valve with 1” storz coupling and cover. 5. The foam system(1) –1" ball valve for suction from outer source 6. The foam system (2) – ball valves adjacent to the foam tank that can be controlled from the operation compartment. 7. Hose reel operation– 1" ball valve. 8. Front discharge line (1) - 3" ball valve at front of the vehicle with 3” storz coupling and cover. 9. Pump draining valve.	+		Mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
	Pump outlets / inlets, piping and valves (cont.)	c. All the water system valves should be of high quality valve for full passage.	+		mandatory		
		d. All the outlets / inlets and valves will be fitted with covers equipped with synthetic rubber seal, with nylon thread or chain in nylon sleeve with adequate length; each cover will be fitted with ventilation hole.	+		mandatory		
		e. All the seals in the storz couplings will be of synthetic rubber type excluding the 3" discharge couplings and the 3" filling opening that will be fitted with metal seal.	+		mandatory		
		f. The inlet for filling – up the tank and the suction inlet from outer source will be fitted with filtering mesh screen made of stainless steel 4 mm thick with holes feature diameter of 8 mm.	+		mandatory		
		g. The piping of the extinguishing system which follows the original ingredients of the water pump and all the foam piping, shall be made of stainless steel complies with DIN/SAE/ASTM standards.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory		evaluation	Data requested	Supplier proposal
	Pump outlets / inlets, piping and valves (cont.)	h. Thread connections will be made by welded flanges method, protected against corrosion. All the welding will be inspected under pressure.	+		mandatory		
		i. Separation by colors of all the control and measuring accessories by the following systems:	+		mandatory		
		1. Foam system – yellow. 2. Low-pressure water system – green. 3. High-pressure water system – purple. 4. Combined system – blue.	+		mandatory		
		j. Penetration of foam to the water tank should be absolutely prevented without using a non-return valve in the pump line.	+		mandatory		
3.8	**Drain Valves**	The valves shall enable complete draining of the pump and the piping.	+		mandatory		
3.9	**Hose Reel**	a. The rear-operating stand will be fitted with quick intervention hose reel. The hose reel will be connected to the high pressure system. The system will enable pulling out of the flexible hose in an angle of 150º without contact with the vehicle wall.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
3.9	**Hose Reel (cont.)**	b. A flexible rubber hose with high pressure branch at its end will be connected to the hose reel as follows: 1. The connection between the hose reel and the hose and between the hose and the branch will be via connector ("thread") suitable to the pressure and flow rate in working condition.	+		mandatory		
		2. The internal diameter of the hose will be 3/4". 3. The hose will be 60 m long (±5%). 4. The capacity of the drum will be 125% of the actual length of the hose. 5. The strength of the hose will be R1. 6. The flow rate at the high-pressure branch will be 150 lpm at least.	+		mandatory		
		c. The hose reel and the way of its connection shall be strong enough to store the defined hose and withstanding the operation conditions in the firefighting services.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
3.9	**Hose Reel (cont.)**	d. The frame and the hose reel body (the "drum") will be made of corrosion resistant metal .The rotating mechanism will be made of stainless steel or bronze	+		mandatory		
		e. The hose reel will be equipped with electrical drive for rewinding the hose with manual back-up.	+		mandatory		
		f. The hose reel will be fitted with brake and clutch systems. The rotation of the hose reel while operating the branch and / or closing it should be prevented.	+		mandatory		
		g. The pulling force of the engine shall enable rewinding of the hose when it is fully deployed.	+		mandatory		
		h. The operation speed of the hose reel will enable average operator to safely and conveniently operate the system.	+		mandatory		
		i. The hose reel as mentioned above will be fitted with a clutch that will enable the operator to pull the hose without rotating the engine.	+		mandatory		
		j. The hose reel will be equipped with hose guiding system to prevent contact between the hose and the vehicle wall also when the hose is pulled to the sides.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
3.9	**Hose Reel (cont.)**	k. The hose reel operating switch with built in control light will be installed in sealed box nearby the hose reel.	+		mandatory		
3.10	**Control system**	a. Control system sealed against water in the operation compartment, original of the pump manufacturer and including: 1. Combined pressure gauge in the suction line protected against vibrations. 2. Pressure gauge in the discharging line protected against vibrations. 3. Pump working hours meter. 4. Water and foam gauges, which enable continuous reading. 5. Control light for pump engagement. 6. Engine oil pressure control light + alarm buzzer connected to the vehicle horn or special horn. 7. Engine temperature control light + alarm buzzer connected to the vehicle horn or special horn. 8. The alarms indicated in par. (6 and (7 above will be activated when engaging the pump and when the values of the temperature and the oil pressure exceed the permissible values.	+		mandatory		
		b. The gauges and control lights will be clearly viewed in night activity / light of the operation compartment.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
3.11	**Pump operation system**	a. Original pump operating system of the pump manufacturer will be installed in the operation compartment.	+		mandatory		
		b. The pump operation system will ensure adequate and continuous working temperature in all the time when the pump is working.	+		mandatory		
		c. The system will include the following functions: 1. Automatic stop of the pump operation when the capacity of the water in the tank reached 150-200 liter. 2. PTO operating switch. 3. Engine RPM switch with manual adjustment. 4. Automatic management system that will maintain permanent working pressure in variable flow rates.	+		mandatory		
		d. Fault in the system will not cause breakdown of the automotive chassis..	+		mandatory		
		e. In addition to the above operation system, a non-dependent manual operation system will be fitted enabling operation of the pump and discharge of water and foam in case of failure in the electrical and pneumatic control system of the firefighting system.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
3.12	**The Water Tank**	a. The tank manufacturer shall be well known producer who has an experience of 5 years at least in producing tanks installed on automotive chassis having the ability to drive in paved roads.	+		mandatory		
		b. The tank will be made of polypropylene or GRP . Priority to GRP.				Tank material	
		c. The capacity of the tank shall be 3,000 liter at least.	+		mandatory		
		d. Priority to higher water capacity				Tank capacity	
		e. The tank will be fitted with internal baffles to prevent dynamic forces during driving as a result of water shifting. Opening in the upper and lower part of the baffles will enable free water and air movement between the tank compartments.	+		mandatory		
		f. Inspection & maintenance procedures can be applied to all internal parts of the tank.	+		mandatory		
		g. Removable internal parts shall be connected by corrosion resistant elements featuring self-securing elements to prevent loosening during driving.	+		mandatory		
		h. The tank structure will enable to drain at least 95% of the water capacity.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
	The Water Tank (cont.)	i. Connection of the tank to the vehicle chassis shall enable "movement" of the chassis in any way without causing damage to the tank and vice versa, .The location of the connection points will enable convenient access for removal and installing of the tank in case the tank is separated from the body.	+		mandatory		
		j. In case of aluminum body, no contact shall be established between the tank and the fire fighting body.	+		mandatory		
		k. Tank that is not integral part of the body will be fitted with lifting hooks enabling to pull it out from the body.	+		mandatory		
3.13	**Water Tank Fitting & Accessories**	a. Filling of water will be performed through one filling opening at the rear part of the body outside and underneath the operation compartment. The filling opening including the valve shall not protrude from the rear part of the vehicle, shall not decrease the departure angle of the vehicle and will enable convenient opening and closing of the valve handle	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
	Water Tank Fitting & Accessories (cont.)	b. The filling opening will be equipped with: 1. 3” ball valve. 2. 75 mm storz coupling with cap.	+		mandatory		
		c. 3” filling pipe will ascend to the upper portion of the tank to prevent draining of the tank by gravitation.	+		mandatory		
		d. The diameter of the outlet pipe from the tank to the pump shall enable full flow rate of the pump and will include 4” butterfly valve with locking in open and close position..	+		mandatory		
		e. Water surplus pipe will be fitted at the bottom of the tank to enable full surplus draining in all the flow position. The drain opening will be behind the rear axle of the vehicle and will be fitted with extension of hose so when draining the vehicle, component will not get wet. The water surplus pipe structure will ensure that no spilling of water from the tank occurs in a slope of 5º. In any case no water spilling on the roof is allowed.	+		mandatory		
		f. 2" draining valve at the bottom of the tank , will enable draining of 95% of the tank capacity as mentioned above. The valve location will be on external protrusion from the tank contour. The valve can be easily accessed.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
	Water Tank Fitting & Accessories (cont.)	g. If the pump requires water circulation in the tank for cooling needs, the connections to the tank and the cooling system inside the tank will be original of the tank manufacturer.	+		mandatory		
3.14	**The Foam System**	a. The foam tank will be built as one unit with the water tank. Penetration of foam to the water tank should be prevented.	+		mandatory		
		b. The foam mixer will be original of the pump manufacturer and will be installed in front of the pump.	+		mandatory		
		c. The tank capacity shall be 600 liter at least.	+		mandatory		
		d. The tank will be fitted with 3” upper filling opening or opening for filling by fuel container, equipped with sealed cover and breather.	+		mandatory		
		e. The main valve of the tank will also be the draining valve that will enable complete draining of the tank.	+		mandatory		
		f. The foam mixing will be around the pump. The dosage rate will be 1% , 3% and 6%. The foam dosage system will automatically maintain the adjusted dosage rate even if the water flow rate has been changed.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
3.14	**The Foam System (cont.)**	g. 1" storz coupling with ball valve, cover and chain, will enable suction of foam concentrate from outer source. Additional ball valve will be installed at the outlet of the foam tank.	+		mandatory		
3.15	**Discharge monitor**	a. Discharge monitor will be mounted on the front of the driver cab roof on a spupport 300 mm high from the driver cab roof, with adequate structural reinforcements of the roof.	+		mandatory		
		b. The monitor can be operated with both water and foam ensuring proper mixing via muzzle.	+		mandatory		
		c. The monitor will be electrically controled by a joystick situated in the driver cab with manual override enabling operating of the turret manually from inside the driver cab in case of failure in the main system.	+		mandatory		
		d. The joystick will enable to perform all the operation related to the monitor including horizontal rotation, vertical travel, discharge of water while controlling the discharge pattern (straight stream/ dispersed stream)	+		mandatory		
		e. A pointing device in the cab will show the operators the direction and elevation the system is pointing to.	+		mandatory		
		f. The nozzle will be of turbo-jet type	+		mandatory		
		g. Flow rate- between 1,000 to 1,900 liter / minute in straight stream or dispersed stream	+		mandatory		
		h. Horizontal rotation - 360º.	+		mandatory		
		i. Vertical travel : -15º to +80º.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
	Discharge monitor (cont.)	j. Discharge pattern – infinitely variable from straight stream (jet) to fully dispersed stream (spray)	+		mandatory		
		k. In storing position the monitor will be locked securely to enable safe driving when not in use.	+		mandatory		
3.16	**Equipment compartments**	a. The equipment compartments shall store all the equipment specified hereinafter in section 4 of this technical chapter.	+		mandatory		
		b. The storing will be on fix shelves or on pulled out shelves rotating around vertical axis, made by well-known manufacturer in the area of firefighting equipment, specially designed for use in firefighting vehicles. Part of the equipment can be stored in aluminum or plastic boxes secured on the compartment shelf by quick release device.	+		mandatory		
		c. The equipment compartment shall be sealed against water and dust penetration even in chassis frame torsion position (see method of inspection in section 2 paragraph 2.26b- the automotive chassis).	+		mandatory		
		d. All the shelves shall be made of aluminum 3 mm thick at least. It should be ensured that the shelves would not bend under load of heavy equipment.	+		mandatory	Shelf thickness	
		e. The location of the compartments shall enable convenient removal / insert of equipment by an average person 1.7 high when standing on the ground or on adequate shelf.	+		mandatory		
		f. The equipment shall be fixed to prevent movement of the equipment in the compartment during driving of the vehicle. The anchoring of the equipment shall not be done by scotch straps and not by rubber straps fitted with hook..	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
	Equipment compartments (cont.)	g. The compartments will be closed by roll-up shutters typically used in fire fighting vehicles, produced by well known experienced manufacturers in the area of firefighting vehicles shutters and have at least 5 years of experience in manufacturing shutters for firefighting application that are in use in firefighting vehicles. The shutters will have the following features: (1 Sealed to water and dust. (2 Smooth movement, which does not require applying of effort by the operator (special care regarding the method of installing the shutters in the body vehicle). (3 Do not "pinch" the equipment in their internal surface. (4 Can be stopped at any close or open position. (5 Do not incidentally close by themselves in any working condition. (6 Locking by locking bar across the shutter full width or by high-level quality handle and lock.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
	Equipment compartments (cont.)	h. Each shutter will be equipped with water resistant magnetic warning switch or water resistant wheel of high quality level situated in the bottom of the rail, secured against loosening as a result of road vibrations. The warning switch will activate warning light and buzzer in the driver control panel when a shutter has been left open. The switch will be connected to the parking light system of the vehicle.	+		mandatory		
		i. The compartments will be fitted with interior light consist of LED light stripes that will be fitted across the front of the compartments. The light will automatically come up when the shutter is opened, illuminating all the storing levels in the compartment. The light shall be protected against mechanical hits by the equipment in the compartment.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
	Equipment compartments (cont.)	j. Footstools for closing lower equipment compartments: In any case of using footstools for closing equipment compartment in the lower portion of the body, the footstool will withstand the following requirements: 1. Payload capacity in open position – 200 Kg (2 fire fighters) without deformation or sinking. 2. In close position the footstool structure will ensure complete sealing against water and dust penetration in the perimeter of the compartment and the interface line with the roll-up shutter. 3. The footstool will be equipped with 2 assistance cylinders for lifting and lowering with protecting sleeve against dust and protection against stones that are thrown from the tyres. 4. Both side of the footstool will be fitted with internal width LED light that will not extend the footstool contour line and will flash in red color to the rear and yellow color to the front. The electrical wiring inside the footstool will be protected against mechanical hits and fix in its place. 5. The system shall ensure simple and convenient replacement of the bulbs in the footstool. 6. The upper portion of the footstool (walkway) will be made of non- slip perforated aluminum or other non-slip material withstanding wear for preventing slipping.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
	Equipment compartments (cont.)	k. Pulled out shelves that when pulled out are going down up to the point they are leveled with the surface of the footstools, will be fitted above the wheel housings	+		mandatory		
		l. Each compartment will be fitted with list of the equipment stored in it. The list will be graved on red PVC material and 10 mm white letters. Each storing device will be signed by the equipment name designed to be stored in it.	+		mandatory		
		m. The hoses that are installed on the firefighting vehicle will be installed in hoses storing device made of polypropylene with hose blocking device that will enable quick storing of the hoses (each hose separately in rolled – up position).	+		mandatory		
		n. The rescue kit as defined in section 5 of this technical chapter , will be installed on pulled out shelf and/or rotating shelf around vertical axis. It will be possible to start the engine of the equipment without removal from the vehicle.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
	Equipment compartments (cont.)	o. The smoke pusher as defined in section 5 of this technical chapter, will be mounted on fix shelf , can be conveniently removed from the vehicle and secured during driving by stops inside the compartment preventing any movement of the pusher wheels this in addition to tie down stripe	+		mandatory		
3.17	**Electrical System - General Requirements**	a. All the wiring and connectors of the electrical system shall be done according to automotive standards (as SAE J1292) making the distinction, by colors, between the various systems.	+		mandatory		
		b. The conductors in each circuit shall withstand 125% of the maximum current allowed by the fuse in the circuit.	+		mandatory		
		c. The insulation shall be according to SAE J 1128.	+		mandatory		
		d. The voltage drop in all the wires shall not exceed 10% of the voltage source to the relevant accessory.	+		mandatory		
		e. All the wiring and connectors shall withstand humidity and heat of 105ºC at least.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
	Electrical System - General Requirements (cont.)	f. The system shall be protected against fluids and excessive heat according to EN 60204-1. Systems exposed to water damage shall be protected according to EN 60529 standard. The wiring passages shall ensure complete sealing of the compartment against water and dust.	+		mandatory		
		g. The harnesses or the protecting tubes will be fastened by clips half meter apart from each other along the entire route of the harnesses/tubes. Bonding of harnesses or tubes to the body or the chassis is prohibited.	+		mandatory		
		h. The cables shoes and ends shall fit the threads diameter. The cables shoes will be pressed by pressing device.	+		mandatory		
		i. The passages through the body or the vehicle will be protected by EPDM rubber grommet and shall withstand ASTM D. 2000 standard.	+		mandatory		
		j. The threads will be signed by colors or numbers according to the marking method that applied to the chassis.	+		mandatory		
		k. The threads shall be whole (will not be cut unnecessarily).	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
	Electrical System - General Requirements (cont.)	l. Grounding to the body shall be performed by strictly cleaning the grounding area and using of spring and star washers, cadmium plated or treated by passivation process.	+		mandatory		
		m. Major grounding cable to the body will feature minimum cross section of 2.5 mm^2.	+		mandatory		
		n. The wiring route will ensure preventing of mechanical hits.	+		mandatory		
		o. Metal protection sleeve will be used when there is a risk of mechanical damage to the threads.	+		mandatory		
		p. All the warning lights for the fire fighting systems will be wired to the front panel near the driver.	+		mandatory		
		q. All the electrical systems will be connected through adequate fuses.	+		mandatory		
		r. All the relays and fuses of the body will be according to the chassis quality level, will be grouped together in a central box, easily accessible and protected, on the firefighting body but not in the equipment compartments. All the relays will be interchangeable with each other.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
3.18	**Light Flooding Post**	a. Light flooding post with minimal intensity of 19,000 lumens will be mounted on the front wall of the body between the body and the crew cab at the right side..	+		mandatory	Intensity lumens	
		b. The system will feature focused light pattern			quality		
		c. The system will be of telescopic type which enables lifting of the mast manually to height of at least 1.2 m from the body roof (measured from the projectors axis), horizontal rotation of 360 degrees and vertical travel of ±45 degrees relatively to the horizon. The system can be easily and conveniently operated.	+		mandatory	Height from the body roof	
		d. The projector will not hit the driver cab or the firefighting body in any condition including in torsion position of the chassis.	+		mandatory		
		e. Water resistant operating switch/handle will be situated on the front wall next to the telescopic post in a way it can be conveniently and safely operated by firefighter 1.7 m high standing on the ground.	+		mandatory		
		f. In storing position (zero degree horizontal rotation of the projectors) the light body will sit on a device that will prevent any rotating movement of the system and will protect the projectors against hit by trees branches.	+		mandatory		
		g. The driver cab will be fitted with alarm light that will turn on when the system is activated.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
3.19	**Rear & front Roof Projector and side projectors**	a. A LED projector will be installed on upper portion of the rear wall of the body in the center and on each side of the upper portion of the body walls in the center. The projectors will be directed downward, protected against mechanical hits and will be used to illuminate the area around the vehicle at the rear and both sides.	+		mandatory		
		b. Each projector will feature intensity of 3,000 lumens. Operating voltage as the chassis voltage.	+		mandatory	Light intensity: (lumens)	
		c. The operating will be via a switch located at the rear stand that will turn on all the three projectors at the same time.	+		mandatory		
		d. The rear projector will also be automatically turned on when the reverse gear is engaged.	+		mandatory		
		e. A LED adjustable projector will be installed on the upper portion of the driver cab in the center, features intensity of 6,000 lumens at least and activated by a switch in the driver cab	+		mandatory	Light intensity: (lumens)	

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
3.20	**Red light flashing system**	a. "Light-Bar" with operating voltage identical to the chassis voltage, will be installed on the driver cab roof. The customer will supply the "Light-Bar".	+		mandatory		
		b. Two rectangular red flashing LED lights will be mounted on both sides on the upper portion of the body at front and rear. Each flashing light will consist of 6 LED bulbs. The light will have double flickering light pattern and shall comply with the European standard ECE R 65 Class 1 or with the American standard SAE J845 Class 1	+		mandatory		
		c. Two flashing lights of the same kind specified above, will be installed on the upper rear portion of the vehicle and at the front portion above the bumper (total 4 units – 2 at the front and 2 at the rear).	+		mandatory		
		d. Fault in one of the flashing light will not affect and interfere the operation of the others.			quality		
		e. The operating switches will be placed on the original control panel of the chassis in the driver cab including indication light and sign.			quality		
3.21	**Public address system and siren**	a. The vehicle will be fitted with PA system and siren that will be supplied by the customer. Operating voltage as the chassis voltage.	+		mandatory		
		b. The control switch will be situated on the control panel in the driver cab, including indication light and sign and will disconnect the vehicle horn. The loudspeaker will be installed at the front underneath the vehicle.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
3.22	**External charging socket**	a. An external charging socket, "ANDERSON" type ,will be installed at the area of the climbing steps to the driver cab at the driver side and will be used for quick charging of the chassis batteries, sealed against water and can transfer electrical current of 30 ampere at least .Compatible plug will be supplied with the vehicle.	+		mandatory		
3.23	**External starting socket**	a. An external starting socket will be installed adjacent to the batteries compartment. The vehicle will be supplied with electrical cable 3 meter long that one of its end will be connected to the starting socket via suitable plug and its second end will be connected directly to the batteries poles via suitable clamps.	+		mandatory		
3.24	**Power take off control lights**	a. Lights which indicate the operation of the PTO for the water pump and the PTO for the hydraulic pump of the rail driving system ,will be fitted on the control panel in the driver cab.	+		mandatory		
3.25	**Rear driving lights**	a. All the rear road lights will be sunken into the body and protected against mechanical hits.	+		mandatory		
3.26	**Reverse sensors**	a. Sensors to prevent collision of the vehicle with obstacle when driving in reverse gear, will be installed at the rear of the vehicle	+		mandatory		
		b. When approaching the obstacle the system start beeping while displaying the distance from the obstacle in the driver cab.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
3.27	**Multimedia system**	a. The vehicle will be equipped with multimedia system in the driver cab that includes the regular rear camera display, the audio system (radio) and GPS with WAZE software built in the system.	+		mandatory		
		b. The camera will be installed at the rear of the vehicle on the upper portion of the body in lockable box and will be protected against water and mechanical hits.	+		mandatory		
		c. The camera will start working immediately after the main ignition switch has been turned on.	+		mandatory		
3.28	**Switches and warning lights**	a. Foldable and pulled out systems will be fitted with contact switch that will warn the driver in case the system has not been retracted to its original position (such as pulled out drawers, shutters, telescopic light mast, foldable shelves, rear ladder etc.)	+		mandatory		
		b. All the switches will be connected to warning light and audio alarm installed in the control panel in the driver cab.	+		mandatory		
		c. It is desirable to combine all the special light of the fire fighting system, into the original instrument panel at the chassis manufacturer. The warning will be activated only when the starting switch is turned on to "accessories" position.			quality		
		d. The switches will be of high quality level, can be adjusted and protected against water and dust.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
3.29	**The Communication System**	a. The communication system will be of "Motorola" company, model APX 7500 and will be supplied by the customer. The supplier will make all the preparations required for the installation of the system in coordination with the customer and "Motorola" company. The system will include: (1 External microphone with key board. (2 Operation panel O5 (3 Loudspeaker. (4 GPS antenna. (5 Control cable. (6 Antenna cable 5 m long + installation accessories.	+		mandatory		
		b. The system will be mounted in the driver cab with extension to the rear operating stand that include operation panel O5 including loudspeaker and key board.	+		mandatory		
		c. The communication system antenna will be installed as far as possible from the public address system to avoid mutual electromagnetic communication interferences. The communication system will undergo powers inspection and communication interferences.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
	The Communication System (cont.)	d. Following are the preparations to be made by the supplier on the vehicle for the installation of the communication system: 1. Driver cab preparation. 2. Rear operating stand preparation. 3. Preparation for installing the antenna. 4. System for preventing communication interferences.	+		mandatory		
		e. The communication device in the driver cab will be installed between the driver and the commander next to him enabling free access for crewmember sitting in the crew cab.	+		mandatory		
		f. The communication system ingredients and the way of installation will prevent communication interferences.	+		mandatory		
		g. In case the vehicle voltage is 24 V, the communication system will be connected to the batteries via transformer of Motorola.	+		mandatory		
		h. The rear extension will be installed in the box specified in par. 3.5 above	+		mandatory		
3.30	**Maintenance**	a. The fire fighting systems installed on the vehicle will not block the access to the chassis maintenance system such as water separator, primary fuel filter, air inflating valve, lubrication nipples, etc.			quality		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
3.31	**Sign & Marking**	a. All the sign will be applied in Hebrew language with clear size, visible printed letters on rigid labels.	+		mandatory		
		b. All the sign relating to the fire fighting system will be applied by red letters on white background.	+		mandatory		
		c. All the fire fighting system ingredients including those installed in the control panel in the driver cab, will be signed.	+		mandatory		
		d. The labels will be bonded to the vehicle by a strong glue with lasting life of 7 years.	+		mandatory		
3.32	**Painting**	a. The vehicle color will be red.	+		mandatory		
		b. The color of the body and the driver and crew cab will be completely identical regarding the tint and the paint specification.(The external color code should be identical).	+		mandatory		
		c. The bottom of the body on both sides and up to the shutters will be painted in rough color in order to improve the withstanding of the body paint against scratches caused by bushes and branches.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/ not comply	evaluation	Data requested	Supplier proposal
3.33	**Bolts & nuts**	a. The strength level of the bolts and screws shall be grade 5 at least.	+		mandatory		
		b. All the threads will be in the metric method.			quality		
		c. All the body screws and bolts will be secured by self securing nuts or by synthetic material.			quality		
		d. Metal sheet screws shall not be used.			quality		

Section 4: Technical Requirements Table for the Rail Driving System and special accessories for tunnel operation

Para. No.	Subject	Requirement specification	mandatory	Comply/not comply	evaluation	Data requested	Supplier proposal
4.1	**General structure**	a. The rail driving system will incorporate 2 hydraulically driven axles one after the front axle of the chassis and the second one after the rear axle of the chassis.	+		mandatory		
		b. The system will be connected to the truck chassis via adequate frame	+		mandatory	:	
		c. Each axle will include 2 metal wheel suitable for driving on typical railway in Israel . The diameter of the wheel 550 mm and the width 135 mm approx.	+		mandatory	Wheel material	
						Wheel diameter and width mm	
		d. The track width between the wheels in each axle (truck gauge) will be according to the international homologation- 1,435 mm.	+		mandatory		
		e. Each wheel will be driven by separate hydraulic motor connected directly to the driven wheel.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/not comply	evaluation	Data requested	Supplier proposal
	General structure (cont.)	f. The supply of the hydraulic oil to the motor will be performed via hydraulic pump driven by the second PTO mounted on the chassis (the first PTO designed for operating the water pump as mentioned in section 3 above).	+		mandatory	Hydraulic pump power in HP	
		g. The system will include hydraulic operation mechanism for lowering the hydraulic driven axles on the rail when rail driving mode is required and raising the axles and locked them in this position when road driving mode is required. The locking of the axles in raised position will be automatically done when shifting to road driving mode. The system will be electrically controlled.	+		mandatory		
		h. When the hydraulic driven axles are lowered for rail driving mode, the chassis axles will be in the air and the system will include mechanism that locks the chassis axle when shifting to rail driving mode to prevent their movement when driving on the rails.	+		mandatory		
		i. The locking of the chassis axles will be made automatically when shifting to rail driving mode.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/not comply	evaluation	Data requested	Su pplier proposal
	General structure (cont.)	j. The vehicle will be fitted with cameras to view the metal wheels on the rail from the driver cab.	+		mandatory		
		k. The vehicle will include a mechanism that will lock the rear climbing ladder automatically when shifting to rail driving mode so it cannot be pulled out to climbing position.	+		mandatory		
		l. The system will include mechanical locking mechanism of the steering wheel in straight forward driving position when rail driving mode is required	+		mandatory		
		m. Non locking of the steering wheel will prevent driving of the vehicle on the rail.	+		mandatory		
		n. The hydraulic driven axles system and its connection to the truck chassis shall withstand the loads as defined in section 2 above and will be approved in writing by the chassis manufacturer and the rail driving system manufacturer.	+		mandatory		
		o. Way of mounting the system on the chassis shall ensure full stability of the vehicle on the rail and minimal stress on the chassis as dictated by the chassis manufacturer	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/not comply	evaluation	Data requested	Supplier proposal
	General structure (cont.)	p. The rail driving system shall not affect the performance of the firefighting vehicle when driving on the road	+		mandatory		
		q. The system in its 2 position (raised / lowered) shall not affect the capability to operate the firefighting system. In folded position the hydraulic driven axle shall not protrude from the rear portion of the vehicle.	+		mandatory		
		r. The hydraulic and pneumatic piping and the electrical wiring shall withstand a temperature of 250ºC at least.	+		mandatory		
4.2	**Performance when driving on rails**	a. Maximal driving speed in loaded position- 40 Km/h at least in both directions in a grade of 1%. Priority to higher speed.	+		mandatory	speed	
		b. Driving speed in loaded position and slope of 3%- 20 Km/h at least. Priority to higher one	+		mandatory	speed	
		c. Grade-ability from static position and fully loaded- 5% at least. Priority to higher one	+		mandatory	Gradability	
		d. Minimal turning radius- 35 m at least	+		mandatory	Turning radius	
		e. Departure angle when the system is raised for road driving mode- according to the requirement section 2.	+		mandatory		
		f. Ground clearance underneath the lowest point of the system- according to the requirement in section 2.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/not comply	evaluation	Data requested	Supplier proposal
4.3	**Brake system**	a. Hydrostatic braking by the hydraulic motors when releasing the driving direction selector.	+		mandatory		
		b. Service brakes controlled from the driver cab: Stopping distance in loaded position and speed of 40 Km/h shall not extend 65 m.	+		mandatory	Stopping distance	
		c. Each wheel will be fitted with service brakes	+		mandatory		
		d. Priority to disc brakes	+		mandatory	Type of brakes	
		e. Parking brake on front & rear axles enabling to hold the loaded vehicle in ascending or descending slope of 5% at least.	+		mandatory	Holding capacity	
4.4	**Hydraulic system**	a. The hydraulic pump shall be made of non- corrosive material and with a power adequate to the needs of the system.	+		mandatory	Pump material	
		b. The system will include hydraulic oil cooler for maintaining the permissible temperature in the high temperature conditions.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/not comply	evaluation	Data requested	Supplier proposal
	Hydraulic system (cont.)	c. The angle of the pump drive shaft will be minimal according to the requirement of the SAE standard as mentioned above.	+		mandatory		
		d. The hydraulic oil tank shall be made of corrosive resistant material.	+		mandatory		
		e. Priority to stainless steel.	+		mandatory	Tank material	
		f. The tank cap will be secured by chain.	+		mandatory		
		g. The tank will include view window showing the oil level in the tank combined with temperature gauge or separate gauges.	+		mandatory		
		h. The hydraulic piping shall be made of corrosion resistant material	+		mandatory	Piping material	
4.5	**Emergency and back-up systems**	a. The system will be equipped with 24V electrical emergency hydraulic pump feed by the chassis batteries that will enable driving the vehicle in case of failure in the main system or the chassis engine, raising and lowering the axles and releasing the hydrostatic brakes for recovering the vehicle by towing on the rail.	+		mandatory	Driving speed in emergency on leveled rail	

Para. No.	Subject	Requirement specification	mandatory	Comply/not comply	evaluation	Data requested	Supplier proposal
	Emergency and back-up systems (cont.)	b. In addition the system will be fitted with manual pump enabling raising and lowering of the axles in case of failure in the main system or the chassis engine, and releasing the hydrostatic brakes for towing the vehicle on the rail.	+		mandatory		
4.6	**Temperature sensors**	a. The system will include two temperature sensors at the front of the vehicle one at the height of the chassis frame and the second one above it.	+		mandatory	Manufacturer and type and location of sensors	
		b. The driver cab will be fitted with digital display enabling to watch the reading of the two sensors at the same time.	+		mandatory		
		c. The sensors shall enable reading of temperatures in a range between -20ºC to 100ºC. Accurate location of the display in the driver cab will be determined separately.	+		mandatory		
		d. The system will include audio alarm activated when the temperature reaches certain values that will be determined separately	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/not comply	evaluation	Data requested	Supplier proposal
4.7	**Gas detectors system**	a. The system will include two gas detectors at the front of the vehicle one at the height of the chassis frame and the second one above it	+		mandatory		
		b. The system shall enable to detect gases according to EC/2003/97 standard as follows: O2, CO (0-100 ppm), SO2 (0-25 ppm), C12 (0-5 ppm), NH3 (0-100 ppm), NOx (0-100 ppm), C5H12 (0-100%LIE) and other explosive gases	+		mandatory	Manufacturer and type and location of detectors	
		c. The system will include audio alarm activated when the gas level reaches certain values that will be determined separately	+		mandatory		
4.8	**Thermal and infrared cameras**	a. Two thermal cameras will be installed on the vehicle one on the front grill and the second at the rear on top of the body, protected against mechanical hits+ four infrared cameras , one above each metal wheel to view the four hydraulic driven wheels.	+		mandatory	Manufacturer and type of thermal cameras	

Para. No.	Subject	Requirement specification	mandatory	Comply/not comply	evaluation	Data requested	Supplier proposal
	Thermal and infrared cameras (cont.)	b. The cameras display in the driver cab will installed on two gas cylinders when in road driving mode the display will be folded up against the cab ceiling and in rail driving mode will be lowered in front of the driver to view the pictures of the cameras	+		mandatory		
		c. The cylinders will be secured in both position.	+		mandatory		
		d. The size of the display 16" at least. The display will be split- type display enabling to view all the cameras simultaneously or part of the cameras separately as decided by the driver.	+		mandatory	Display size	
		e. The resolution of the thermal cameras 640X480 pixels at least. Priority to higher resolution.	+		mandatory	Resolution	
		f. Field of view of the thermal cameras: 65ºX55ºat least. Priority to higher angle.	+		mandatory	Field of view	
		g. Start-up time of the thermal cameras : not more than 30 seconds.	+		mandatory	Star-up time	
		h. Color: black- white.	+		mandatory		
		i. Video standard-NTSC	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/not comply	evaluation	Data requested	Supplier proposal
	Thermal and infrared cameras (cont.)	j. Operation temperature range of the thermal cameras: -10ºC to + 65ºC at least.	+		mandatory	Temperature range	
		k. Protected against explosion.	+		mandatory		
		l. Water and dust resistance: IP67 and withstanding against heavy smoke typically developed in firefighting activities inside tunnels	+		mandatory		
4.9	**Driver cab and metal wheels cooling system**	a. The vehicle will be equipped with a water cooling system for the driver and the crew cab and the hydraulic driven wheels by spraying water around the cab and the wheels.	+		mandatory		
		b. The system will be activated via 24V electrical water pump feed by the chassis batteries, made of stainless steel, brass or bronze.	+		mandatory	Pump material	
						Number of pumps and flow rate of each pump	
		c. Flow rate of each nozzle- 4 lpm at least	+		mandatory	Nozzle flow rate	

Para. No.	Subject	Requirement specification	mandatory	Comply/not comply	evaluation	Data requested	Supplier proposal
	Driver cab and metal wheels cooling system (cont.)	d. The water tank for the cooling system will be integral part of the main water tank and situated at its bottom. The tank will be automatically filled up with water from the main tank when the quantity of the water in the tank reaches certain level that will be determined separately.	+		mandatory		
		e. The capacity of the built-in tank will be 400 liters at least.	+		mandatory	Tank capacity	
		f. The tank will be fitted with water level gauge easily accessible to view.	+		mandatory		
		g. The nozzles will be made of brass or other corrosion resistant material.	+		mandatory	Nozzle number and material	
		h. All the rigid piping in the system will be made of stainless steel 304L grade at least.	+		mandatory	Piping material	
		i. The system will be fitted with fine water filters for preventing dirt penetration to the water system.	+		mandatory		
		j. The system will be controlled from the driver cab.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/not comply	evaluation	Data requested	Supplier proposal
4.10	**Electrical and light system**	a. All the electrical components, relays, switches ,and indications light shall comply with IP67 standard	+		mandatory		
		b. All the projectors and indication lights shall be of LED type.	+		mandatory		
		c. Projector above each of the metal hydraulic driven wheel.	+		mandatory	Projector intensity lumens	
4.11	**Coupling device and towing**	a. Capability to tow the vehicle in emergency by another R-R vehicle via towing hitch according to UIC standard,			Quality		
4.12	**Controls and indication devices in the driver cab**	a. Selector between road and rail mode	+		mandatory	Additional controls if exist	
		b. Switch for raising / lowering the rail driving system.	+		mandatory		
		c. Driving direction selector	+		mandatory		
		d. Joystick for driving and braking when driving on rail	+		mandatory		
		e. Steering wheel locking switch.	+		mandatory		
		f. Driver cab and wheels water cooling switch.	+		mandatory		
		g. Temperature sensors operation switch.	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/not comply	evaluation	Data requested	Supplier proposal
	Controls and indication devices in the driver cab (cont.)	h. Gas detectors operation switch.	+		mandatory		
		i. Front & rear thermal cameras operation switch.	+		mandatory		
		j. Light system switch	+		mandatory		
		k. Emergency stopping red illuminated button.	+		mandatory		
		l. Speedometer with internal light	+		mandatory		
		m. Indication light and audio alarm for hydraulic oil temperature	+		mandatory		
		n. Audio alarm when gas concentration above the permissible value	+		mandatory		
		o. Audio alarm when temperature exceeds the permissible value	+		mandatory		
		p. Indication light for wheel steering locking.	+		mandatory		
		q. Indication lights for complete lowering of the hydraulic driven axles. Two indication light one for each axle	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/not comply	evaluation	Data requested	Supplier proposal
	Controls and indication devices in the driver cab (cont.)	r. Indication lights for complete retracting of the hydraulic driven axles. Two indication light one for each axle	+		mandatory	Additional indication devices if exist	
		s. Indication light for locked rear climbing ladder	+		mandatory		
		t. Hydraulic pump working hours gauge	+		mandatory		
		u. All the switches will be fitted with indication light for "ON" position. The light will situated next to the switch or built in the switch.	+		mandatory		
4.13	**Compressed breathing air supply system to driver cab**	a. 4 air cylinder 50 liter and 300 bar pressure each, will be installed across and inside the front equipment compartment adjacent to the front wall. The system will be fitted with selector valve between the cylinders for suppling breathing air to the eight crewmembers siting in the driver+ crew cab,	+		mandatory		
		b. Each cylinder will be equipped with valve and pressure decreasing regulator that installed on breathing apparatus MSA type AirMax	+		mandatory		

Para. No.	Subject	Requirement specification	mandatory	Comply/not comply	evaluation	Data requested	Supplier proposal
	Compressed breathing air supply system to driver cab (cont.)	c. The connection between the air cylinders and the crew cab for suppling the air to the cabs will be via flexible hose. The way of installation will enable free raising of the driver+ crew cab for maintenance of the chassis components.	+		mandatory		
		d. 8 air feeding point will be fitted inside the cabs next to the crewmembers that will enable to connect the mask of the breathing apparatus as mentioned above.	+		mandatory		
		e. The system will include audio alarm in case the pressure in the system has reached to 50 bar	+		mandatory		
		f. The air cylinders will be fitted with "hot point" enables to fill the personal air cylinders when those are on the back of the crew member as part of the breathing apparatus..	+		mandatory		
		g. All the piping for suppling air from the cylinders to the cabs shall comply with the requirements for piping used in breathing apparatus system.	+		mandatory		

	Subject	Requirement specification	mandatory	Comply/not comply	evaluation	Data requested	Supplier proposal
	Compressed breathing air supply system to driver cab (cont.)	a. Free access will be ensured for removal of the cylinder out for periodic inspection	+		mandatory		
		b. Free access will be ensured for opening the cylinders valve and filling of the cylinders	+		mandatory		
		c. The entire system will be inspected and approved by certified inspector as suitable for use with the masks of the breathing apparatus.	+		mandatory		

Section 5 – Fire Fighting Equipment

to be Supplied with the "SAAR" Dual Fire Fighting Vehicle

4.1 General Requirements

4.1.1 All the firefighting equipment will be supplied by the supplier and under his responsibility excluding the equipment that will be supplied by the customer as indicated in the table hereinafter.

4.1.2 The equipment will be new, from reliable source and produced by well-known manufacturers in the area of firefighting equipment production.

4.1.3 All the equipment defined in this section will include also one-year warranty unless otherwise indicated.

4.1.4 All the equipment will be produced by a manufacturer who has an agent in Israel capable to provide maintenance services for the equipment.

4.1.5 The participant shall clearly and precisely define in column “make and model of equipment” and across each item row, the equipment suggested by him within the tender. The supplied equipment will be of the last new model exists on the date of signing the contract with the customer.

4.1.6 All the firefighting equipment shall comply with the international fire fighting standards relevant to each equipment.

4.1.7 All the equipment specified in this section will be stored on the suggested dual fire - fighting vehicle.

4.2 Equipment list

No.	Type of Equipment	Standard	Quantity	Requirement / Specification	Remarks	Make & Model of the equipment
1	Open respiration system with hearing and speaking kit + 2 air cylinder		8 kit	**Will be supplied by the customer**	Weight 100 Kg	
2	Reserve air cylinder for open respiration system		8	**Will be supplied by the customer**	Weight 40 Kg	
3	Rubber gloves against chemical material		2 pair	**Will be supplied by the customer**	Weight 1 Kg	
4	Rubber gloves against electrocution		2 pairs	**Will be supplied by the customer**	Weight 1 Kg	

No.	Type of Equipment	Standard	Quantity	Requirement / Specification	Remarks	Make & Model of the equipment
5	Manual portable lantern		2	**Will be supplied by the customer**	Weight 3 Kg, will be supplied with charger that will be installed and connected to the electrical system by the supplier	
6	Transparent spiral tube for foam suction from portable containers		1	**Will be supplied by the customer**	Weight 1 Kg	
7	Foam branch		1	**Will be supplied by the customer**	Weight 4 Kg	
8	Multi volume foam branch		1	**Will be supplied by the customer**	Weight 4 Kg	
9	Hydrants opening handle		2	**Will be supplied by the customer**	Weight 1 Kg	
10	Magnetic "POMS" wrench		1	**Will be supplied by the customer**	Weight 1 Kg	
11	Wrenches for “STORZ” couplings		2	**Will be supplied by the customer**	Weight 2 Kg	
12	2“ Branch with handle and 52 mm “STORZ” coupling		3	**Will be supplied by the customer**	Weight 7.5 Kg	

No.	Type of Equipment	Standard	Quantity	Requirement / Specification	Remarks	Make & Model of the equipment
13	1" Branch with 25 mm "STORZ" coupling		2	**Will be supplied by the customer**	Weight 3 Kg	
14	Hoses with "STORZ" couplings (details regarding dimensions and types in 14.1 – 14.5 paragraph)					
14.1	Hose with STORZ coupling , 75 x 5		2			
14.2	Hose with "STORZ" coupling, 75 x 20		14	**Will be supplied by the customer (6 on the roof and 8 in the equipment compartments)**	Weight 145 Kg	
14.3	Hose with "STORZ" coupling, 52 x 15		8	**Will be supplied by the customer**	Weight 38 Kg	
14.4	Hose with "STORZ" coupling, 37.5 x 20		6	**Will be supplied by the customer**	Weight 50 Kg	
14.5	Hose with "STORZ" coupling, 25 x 20		10	**Will be supplied by the customer**	Weight 28 Kg	
15	Distributor with STORZ couplings 52X75X52X75		2	**Will be supplied by the customer**	Weight 5.5 Kg	

No.	Type of Equipment	Standard	Quantity	Requirement / Specification	Remarks	Make & Model of the equipment
16	Unifier with “STORZ” couplings 110X75X75		1	**Will be supplied by the customer**	Weight 5 Kg	
17	Portable monitor with "STORZ" 75 mm		1	**Will be supplied by the customer**	Weight 12 Kg	
18	Adapter with “STORZ” coupling 110 x 75		1	**Will be supplied by the customer**	Weight 1.5 Kg	
19	Adapter with “STORZ” coupling 75 x 52		4	**Will be supplied by the customer**	Weight 2.3 Kg	
20	Adapter with “STORZ” coupling 52 x 25		4	**Will be supplied by the customer**	Weight 1.3 Kg	
21	2" adapter with external thread		1	**Will be supplied by the customer**	Weight 0.25 Kg	
22	2” adapter with internal thread	DIN or NFPA Std.	1	The adapter will be fitted with syndetic sealing ring		
23	3” adapter with internal thread	DIN or NFPA Std.	1	The adapter will be fitted with syndetic sealing ring		
24	3” adapter with external thread		1	**Will be supplied by the customer**	Weight 0.45 Kg	
25	1” Fire - fighting bayonet with 52 mm “STORZ” coupling		1	**Will be supplied by the customer**	Weight 4 Kg	

No.	Type of Equipment	Standard	Quantity	Requirement / Specification	Remarks	Make & Model of the equipment
26	Hoses Bridge		2	**Will be supplied by the customer**	Weight 23 Kg	
27	Diaper for 75 mm hoses		4	**Will be supplied by the customer**	Weight 0.65 Kg	
28	Diaper for 52 mm hoses		4	**Will be supplied by the customer**	Weight 0.6 Kg	
29	Telescopic ladder 9 m long		1	**Will be supplied by the customer**	Weight 40 Kg	
30	Big firefighters axe fitted with blade and tip		1	**Will be supplied by the customer**	Weight 5 Kg	
31	Destroying Hook		2	**Will be supplied by the customer**	Weight 5.5 Kg	
32	Hammer 5 Kg		1	With Okolon handle		
33	Breaking through scissors		1	24"		
34	"TOOKY" cutter		1	Manual cutter for cutting electrical cables, maximal distance between jaws 10 mm		
35	American patent pliers		1	10"		
36	Open wrench (“Swedish” wrench)		1	12"		
37	Pipes wrench		1	24"		
38	Pipes wrench		1	18"		

No.	Type of Equipment	Standard	Quantity	Requirement / Specification	Remarks	Make & Model of the equipment
39	Crow bar		1	Made of steel, 75-100 cm long		
40	Digging shovel		2	**Will be supplied by the customer**	Weight 4 Kg	
41	Wide hoe		2	**Will be supplied by the customer**	Weight 4 Kg	
42	Disc saw driven by engine		1	**Will be supplied by the customer**	Weight 12 Kg	
43	Diamond disc		1	Suitable for use with the disc saw in par. 42		
44	10 liter armored fuel container		1	**Will be supplied by the customer**	Weight 0.8 Kg	
45	Safety belts cutter		1	**Will be supplied by the customer**	Weight 0.1 Kg	

No.	Type of Equipment	Standard	Quantity	Requirement / Specification	Remarks	Make & Model of the equipment
46	Breakthrough kit		1 kit	Breakthrough kit, model "Hydro-Noa" HN – 9478 that includes:		
				a. Cutter with 17,000 Kg cutting capacity.		
				b. Spreader with 2,500 Kg spreading capability.		
				c. Multi purpose RAM with 1500 Kg lifting capacity.		
				d. Manual hydraulic pump.		
				e. Hydraulic piping.		
				f. carrying case.		
				g. The total weight of the breakthrough kit will not exceed 14.5 Kg.		
47	Device for releasing engagement locks		1	Model "Hydro – Noa" NH 3176		

No.	Type of Equipment	Standard	Quantity	Requirement / Specification	Remarks	Make & Model of the equipment
48	Fire resistant portable thermal camera		2	**Will be supplied by the customer**	Weight 3 Kg, the camera will be supplied with charger that will be installed and connected to the electrical system by the supplier. If 12V charging voltage is required , a suitable transformer will be provided by the supplier	
49	Hydraulic, doors breakthrough device		1	**Will be supplied by the customer**	Weight 10 Kg	
50	bat		5	Wood handle		
51	6 Kg powder fire extinguisher	Israeli standard 463	2			

No.	Type of Equipment	Standard	Quantity	Requirement / Specification	Remarks	Make & Model of the equipment
52	16" Smoke pusher driven by diesel engine		1	**Will be supplied by the customer**	Weight 31 Kg	
53	Manual saw for cutting laminated windshield		1	**Will be supplied by the customer**	Weight 1.5 Kg	
54	Chain saw		1	**Will be supplied by the customer**	Weight 10 Kg	
55	Medium cutting and spreading kit driven by gasoline engine		1Kit	**Will be supplied by the customer**	Weight 120 Kg	

No.	Type of Equipment	Standard	Quantity	Requirement / Specification	Remarks	Make & Model of the equipment
56	Portable light kit		1	**Will be supplied by the customer**	Weight 7 Kg, , the Kit will be supplied with charger that will be installed and connected to the electrical system by the supplier. If 12V charging voltage is required , a suitable transformer will be provided by the supplier	
57	Life line rope		1	Will be determined separately		

No.	Type of Equipment	Standard	Quantity	Requirement / Specification	Remarks	Make & Model of the equipment
58	Small telescopic ladder for smoke releasing	Israeli standard 1847	1	a. Material- aluminum. b. Working load- 150 Kg. c. Working in 3 position (3*3): • Double ladder (A) • Single ladder (lean on the wall) • On stairs surface d. It will be possible to shorten or lengthen the height of the ladder in any working position by increments of 280 mm approx.. e. Weight- not more than 10 Kg. f. Height in close position- not more than 100 cm. g. Height in open position –at least 300 cm.		
59	Foldable stretcher		1	Foldable stretcher for carry injured person features 4 metal gripping handles, 200 kg loading capacity		
60	Manual cart for carry equipment		1	Will be defined separately		

No.	Type of Equipment	Standard	Quantity	Requirement / Specification	Remarks	Make & Model of the equipment
61	Plastic tool box		1	Plastic tools box that includes the following items (with insulated handles): 2.5 Kg hammer, 4 Philips screwdrivers with various size, 4 flat head screwdrivers with various size, plier, tip plier, cutter, screwdriver with metal head.		
	Equipment that will be supplied with the chassis without additional charge					
1	Standard reflecting triangle in package		1			
2	Chocks in stowage device		2			
3	First aid box and paper page that on one of its side indicated the list of the equipment in the box and on the other side the treatment instruction for the equipment	As specified in the seventh addition of the transportation regulation par. a+c	1			
4	Air inflation hose+ pressure gauge by the air tanks of the vehicle		1	The length of the hose will enable to reach each tire of the vehicle from the air filling point		

No.	Type of Equipment	Standard	Quantity	Requirement / Specification	Remarks	Make & Model of the equipment
5	Hydraulic jack + handle compatible with the weight of the vehicle in loaded position		1			
6	Wheel nuts wrench + handle		1			
7	Driver tools kit in tools box that will be stored in one of the equipment compartment		1			

Section 6- Technical specification
to be filled out by the participant

1 General

The participant has to submit, together with his proposal, all the documentation and data defined in this section.

2 Technical data of the fire-fighting vehicle.

2.1 The participant will enclose computerized technical specification with code numbers of the chassis manufacturer relating to the chassis suggested in the tender.

2.2 The participant will complete the folowwing data:

chassis	
Chassis manufacturer name	
Chassis model	
Chassis, country of production	
Manufacturer name and model of the engine	
Engine displacement	
Engine maximal power in HP according EEC 89/491	
Engine torque in N.M according to EEC 89/491	
manufacturer and model of the transmission	
No. of gears	
Rail driving system	
Manufacturer	
model	
Auxiliary accessories	
Air condition system original / local	
Manufacturer	
Model.	
Power in KWA	
Multimedia Manufacturer	
Model	

Firefighting Body		
Make		
material		
Fire- fighting pump		
Make		
Model		
Flow rate regular pressure		
Flow rate high pressure		
Water tank		
Make		
Manufacturer years of experience in production water tank for fire-fighting vehicle		
material		
Actual capacity in liters		
Equipment compartments		
Roll-up shutter	Make	
	Model	
Rotating walls	Make	
	Model	
Pulled-out shelves	Make	
	Model	
Firefighting system - light system		
Light flooding mast	Make and Model	
	Intensity (Lumens)	
	No. of projectors	
	Horizontal rotation (degrees)	
	Vertical travel (degrees)	

Flashing light system Make	
Model	
Equipment compartments LED light stripe	
Manufacturer	
Model	
Intensity (lumens)	
Warning switches (opening drawers, shutters, etc.)	
Make	
Model	
Rear and side projectors	
Make	
Model	
Intensity (lumens)	
Front projectors	
Make	
Model	
Intensity (lumens)	
Hose reel	
Make and Model	
Internal diameter	
Hose length	
Manufacturer name and model of the high pressure pistol grip turbo jet nozzle	
Nozzle flow rate in lpm	
Material of the hose-reel drum	
Material of the rotating mechanism	
Top monitor on driver cab roof	
Make	
Model	
Flow rate in lpm	

Thermal camera front & rear	
Make	
Model	
Display size (")	
Infrared cameras for metal hydraulic driven wheels	
Make	
Model	
Display size (")	
Gas detectors	
Make	
Model	
Temperature sensors	
Make	
Model	

2.3 Weights

Road driving mode: Please fill out the following data in Kg

	Weight on rear axle	Weight on front axle	Total weight
*Curb weight			
Driver+7			
Water			
Foam			
Fire- fighting equipment and special accessories			
Rail driving system assembly with all its ingredients			
Remained weight for additional load			
Total weight (shall not exceed 18 ton as specified in section 2)			

*__Note__

Curb weight without driver, with spare wheel, standard tools of the chassis, full fuel tank and AdBlue (if exist), fire-fighting body without water and foam and without fire fighting equipment detailed in section 5 and without the rail driving system.

Rail driving mode: Please fill out the following data in Kg

	Weight on rear axle on rail	Weight on front axle on rail	Total weight
*Curb weight			
Driver+7			
Water			
Foam			
Fire- fighting equipment and special accessories			
Rail driving system assembly with all its ingredients			
Remained weight for additional load			
Total weight (shall not exceed 18 ton as specified in section 2)			

2.4 Sketches, layouts and certifications

The participant shall enclose to his proposal the following sketches, layouts and certifications

2.4.1 Sketche of the vehicle with front and side view with the main external dimensions of the fire fighting body and the fire-fightin truck (overall length, overall width, overall height), wheelbase, approach & departure angles with retracted rail driving system, rear overhang (ROH) , loction of the fire-fighting body on the chassis and location of the center of gravity along the vehicle and height from the ground.

2.4.2 Sketch showing the location of the rail axles in road and rail mode and route of retracting.

2.4.3 Sketch of the lifting and lowering mechanusm of the rail axles.

2.4.4 Sketch showing way of conection of the frame for the rail driving system to the truck chassis

2.4.5 Sketch of the chassis axles locking mechanism in rail driving mode.

2.4.6 Sketch of the rail axles locking mechanism in road driving mode

2.4.7 Sketch showing the location of the temperature sensors, gas detectors, thermal cameras, driver cab and metal wheels water cooling nozzles.

2.4.8 Sketch of the controls , indication lights in the driver cab and location of the various displays

2.4.9 Calculation of static side tilting angle in road driving mode.

2.4.10 Schem of turning radius between walls (Wa), between curbs ,internal and tail throwing in maximm turning raduis in road driving mode .

2.4.11 Schem of turning radius in rail driving mode.

2.4.12 A sketch of the driver cab and crew cab, at least from two views, with all the overall dimensions, including doors, windows, climbing steps, internal seats.

2.4.13 Sketch of the body that includes- location of the equipment compartments, location of the operation stand, connection items of the roof to the walls, connection of the body to the vehicle chassis.

2.4.14 Sketch of the drive shafts showing the angles between the power take off and the water pump and the second power take off and the hydraulic pump, from two views.

2.4.15 Sketch that specify the structure of the compartments, location of the fire-fighting equipment (listed in section 5) in the compartment and method of installation in the compartment (it Is required to specify including pictures of fix shelves, rotating walls, pull-out and rotating shelves).

2.4.16 Sketch of the installations array on the roof including dimensions.

2.4.17 Scheme that specify the location of the entire device in the operating stand.

2.4.18 Drawing of the climbing ladder to the roof including dimensions, location relative to the body wall and location of griping handle to the roof.

2.4.19 Sketch of the breathing air supply system to the cabs that show the location of the air cylinders, way of their connection in the front compartment , the piping route to the cab and protection.

2.4.20 Authorized laboratory report regarding the noise level at the operation stand measured according to EN 1846 appendix A standard.

2.4.21 Electrical drawings of the installations on the fire-fighting body.

2.4.22 Performance curve of the chassis engine.

- Power curve as function of the engine RPM
- Torque curve as function of the engine RPM

2.4.23 Painting specification of the vehicle.

2.4.24 Certification about the crew cab manufacturer as required in par. 2.30 a in section 2

2.4.25 Certification about the water pump as required in par. 3.6 a in section 3.

2.4.26 Certification about the water tank manufacturer as required in par. 3.12 a in section 3.

2.4.27 Certification regarding the roll-up shutter manufacturer as required in par. 3.16 g in section 3.

2.4.28 Certifications regarding the compliance of the fire-fighting equipment with the relevant standards as required in section 5.

2.4.29 Technical brochures / specification of the firefighting equipment the supplier has to provide as detailed in section 5.

2.4.30 Technical brochures / specification of the temperature sensors, gas detectors and the thermal and infrared cameras.

2.4.31 Preventive maintenance specification for the rail driving system detailing the treatment frequency and the activities that has to be done.

2.4.32 In addition, the supplier will submit with his proposal a list of the authorized workshops for maintaining the chassis as required in par. 5.5.7 in chapter 5 hereinafter.

Chapter 2 – Acceptance and quality inspection

2.1. After completing the building of the prototype, the supplier will invite the customer and the supervisor to conduct expanded acceptance test as defined in section 1 par. 1.4.1.3.

2.2. Within the serial acceptance test the supervisor is entitled to perform / ask the following acceptance tests on his behalf:

2.2.1. Certifications and reports inspection:

The supplier should provide the supervisor with the following certifications and reports:

2.2.1.1. Vehicle license.

2.2.1.2. Certified inspector report for the breathibg air supply system.

2.2.1.3. Certificates of the supplier and the original manufacturers regarding the quality assurance processes and inspections applied by them during the production.

2.2.1.4. Statement that all the parts and equipment installed in the chassis and the fire fighting systems are new and comply with the specification requirements, which constitute an integral part of the contract.

2.2.1.5. Statements that all the plastic, rubber and fabric material as well as oils, paints, and bonding materials used in the chassis and the fire fighting system have not expired and useable.

2.2.1.6. Inspection reports of the original manufacturer of the equipment.

2.2.1.7. The supplier final inspection report before delivery, specifying the par. number in the tables of requirements in section 2 ,3 and 4 indicating the inspection that has been performed – existing, measuring, operation , etc. and the test results.

2.2.1.8. Pressure inspection results of the welding in the thread connections.

2.2.2. Quality survey

The customer reserve his right to perform quality survey at the supplier facility and/or at his subcontractors in Israel and / or abroad, where the production and installation activities of the vehicle and its components, take place and including the following topics:

2.2.2.1. Verification the installation of the components according to the procurement specification, which cannot be inspected after assembling the vehicle.

2.2.2.2. Quality assurance survey of the supplier and the sub-contractors on his behalf.

2.2.2.3. Static inspection of the equipment and inspection of workmanship quality and finishing level.

2.2.2.4. Random inspection in the quality control station of the manufacturer.

2.2.3. Final inspection of the fire fighting vehicle after finishing the inspections by the supplier:

2.2.3.1. Compliance of the chassis with the chassis specification.

2.2.3.2. Compliance of the fire fighting system with the specification, the technical proposal of the supplier and the prototype.

2.2.3.3. Inspection the existence of the fire-fighting equipment according to the list in section 5.

2.2.3.4. Operational inspection of the fire fighting system (actual operation of the water tank, foam, pump, top monitor, hose-reel, equipment compartments, fire-fighting equipment, light flooding mast, switches, gauges, etc.).

2.2.3.5. Operational test of the rail driving system, axles locking in road and rail driving mode, steering wheel locking.

2.2.3.6. Operational test of all the special accessories installed on the vehicle- temperature sensors, gas detectors, thermal and infrared cameras, water colling system for the cabs and wheels, climbing ladder automatic locking mechanism and etc.

2.2.3.7. Short road test that will include inspection of all the automotive systems and the strength and reliability of the various fixtures on the vehicle during driving .

2.3. **Means**

2.3.1. The supplier will provide the supervisor with the following means during performing of the inspection at his facility and with no charge.

2.3.1.1. The equipment and place required to perform the inspections including:

- Digital system for measuring flow rates and pressures.
- Suction from low water source according to DIN standard.

2.3.1.2. Senior professional workers for assistance during the inspection.

2.3.1.3. Office services if required.

2.3.2. It is emphasized that inspections required to be performed by authorized laboratory and / or institute, will be done on the supplier own expense.

2.4. Faults repair – list of deficiencies found during the inspection by the customer and the supervisor will be submitted to the supplier. The supplier will fix all the rejects and will submit the vehicle for a repetitive inspection within not more than 7 working days from the date of submitting the deficiencies list to the supplier.

2.5. After the completion of the acceptance test including the repetitive inspection, for the satisfactory of the customer and the supervisor , the supplier will be provided with completeness approval according to the version in Appendix A attached to this document (hereinafter referred to as " **completeness approval**").

2.6. After given the completeness approval the supplier will coordinate with the customer and the supervisor the date of delivery the vehicle and the ancillary equipment to the customer. The delivery will take place at the customer facility or another place as will be determined by the customer.

2.7. On the date of delivery of the vehicle in Israel the customer will provide the supplier with delivery approval according to the version in Apendix B attached to this document (hereinafter referred to as "**delivery approval**").

2.8. It is clarified that the timetable for conducting the expanded acceptance test is as follows: The supplier will give the customer a notice of 10 days in advance. Within this 10 days period the customer will come to perform the test. Any additional inspection required for repairs inspection, will be coordinated with the customer by the supplier, 3 days in advance, and during this period the customer will come to perform the repetitive inspection.

Chapter 3 – Technical literature

3.1. At the time of delivering the vehicle, the supplier will provide the customer , free of charge , with the following technical literature:

3.1.1. Driver book of the chassis in Hebrew. The book will refer to the specific chassis.

3.1.2. Operator book in Hebrew for the fire-fighting systems- The book will refer to the rail driving system, fire-fighting body, the special equipment installed on the vehicle including the ancillary equipment stored in the equipment compartments and as follows:

3.1.2.1. Rail driving system- general description, operation and safety aspects.

3.1.2.2. General description, location of installations and the ancillary equipment in the various compartments.

3.1.2.3. Water pump and foam system – description, operating, maintenance and safety instructions.

3.1.2.4. Ancillary equipment – picture, description, operating, maintenance, safety instructions and the way of communicating with the equipment supplier. It is possible to attach to the operation book translated operation instruction of the manufacturer / importer of the equipment.

3.1.2.5. Daily and weekly maintenance routine in the operator echelon for the fire- fighting system and rail- driving system.

3.1.2.6. Information and general data (including overall dimensions, weights and center of gravity location).

3.1.2.7. Safety instructions, remarks and special warnings.

3.1.2.8. Lubrication chart.

3.1.2.9. General electrical scheme.

3.1.2.10. Fuses table.

3.1.3. Original workshop manual of the chassis manufacturer. The manual will refer to the specific chassis model.

3.1.4. Catalogues

3.1.4.1. Hebrew spare parts catalogue for the fire fighting and rail driving system. The catalogue will include all the ingredients and items of the fire-fighting system and will be updated by the manufacturer once of 6 months. The catalogue will include explanation regarding the numbering method of the produced parts, and will enable to locate the part according to its catalogue number and name. The catalogue will consist of detailed table of content, catalogue body with parts list, drawings and index.

3.1.4.2. Original catalogue of the chassis manufacturer for the automotive system in English.

3.1.5. Repairs times for the chassis in Hebrew.

3.2. Changes or amendments of the technical literature that will be performed by the supplier or by someone on his behalf will be delivered to the customer within 60 days from publishing of the amendments.

3.3. The technical literature referring to the operation of the chassis, the superstructure ,the rail driving system and the special accessories installed on the vehicle, will also be provided on

magnetic media that will enable the customer to make copies according to his own needs and willingness.

Chapter 4 - Training

4.1 At the time of delivering the vehicle, the supplier will conduct an initial training in Hebrew language relating to the operation of the chassis, the rail driving system and the fire-fighting systems.

It is clarified that issuing of "delivery approval" on behalf of the customer, depends on conducting the above initial training.

4.3 Additional training: No later than 5 working days from the date of delivering the vehicle, the supplier will conduct additional training free of charge as follows:

The Course Name	No. of students	The Course Content	Remarks
Training for driving on road	15	The training will be conducted by instructors certified by the chassis importer and will include: • Special care regarding the transmission operating. • Using the braking and deceleration systems. • ABS operating and load regulator. • Daily and weekly maintenance routine. • Maintenance procedures and troubleshooting for the chassis in level which is customary in the national fire-fighting and rescue Authority . The training will be conducted in the Authority facility and will include guided driving at the operation areas of the vehicle.	3 training cycles. 5 students in each cycle. At least 4 training hours in each cycle.

The Course Name	No. of students	The Course Content	Remarks
Training for driving on rail		The training will be conducted by instructors certified by the supplier or the rail driving system manufacturer and will include • Operation of the system • Operation of the brake system • Operation of the special accessories • Operation of the emergency and safety systems • Detailed information relating to the performance of daily and weekly maintenance and troubleshooting according to the level that is customary in the customer facilities. • The training will be conducted at the customer facilities and after this training the supplier will conduct actual training of driving on rail that will be coordinated with the customer.	
Training for operation of the fire fighting systems	30	The training will be conducted by instructors certified by the supplier and will include: • General overview of the fire fighting system and its integration with the chassis. • Operating processes of all the systems and equipment supplied with the vehicle. • Trouble shooting in operator echelon. • Maintenance procedures and troubleshooting for the fire fighting systems and equipment in level that is customary in the customer facilities.	3 training cycle. 10 students in each cycle. At least 8 training hours in each cycle.

4.3 The training will be conducted at the cistomer facilities or any other place as will be determined by the customer.

Chapter 5 – spare parts, maintenance and warranty

5.1. The supplier is obliged to provide the customer maintenance support and spare parts for the rail driving system, the fire – fighting system including the fire-fighting equipment supplied by him according to the list in section 5, for a period of 15 years. This from the date of delivery the fire-fighting vehicle to the customer and receiving of delivery approval. In case a spare part which is produced abroad is not in the supplier stock, the supplier committed himself to import the part, if so required ,according to the instructions specified in the products and services supervision directive, importing and providing services to vehicle 1978 .

5.2. The spare parts will be identical and of the same quality level as the parts installed in the fire-fighting vehicles that had been supplied within the agreement and for the satisfactory of the customer.

5.3. Spare parts for the chassis and the superstructure indicated in the financial proposal of the supplier, will be priced according to the supplier proposal in the tender. The prices will be linked to the consumer price index according to the link mechanism specified in annex F to the agreement.

5.4. Maintenance of the rail driving system and thefire-fighting system

5.4.1. Repairs will be accomplished at the fire- fighting station where the vehicle is operated.

5.4.2. The supplier will use service cars fitted with special tools boxes and spare parts that enable the supplier to provide maintenance services at the fire-fighting stations. All of this for a period of 15 years from the date of delivery the fire-fighting vehicle to the fire-fighting station.

5.4.3. Deep repairs that required special tool, that cannot be transported in a service car, will be performed at the supplier facility.

5.4.4. Service level for performing repairs at the fire-fighting station:

- Critical failure that prevents using the rail driving system and the fire-fighting system- arrival of maintenance technician within no more than one working day from calling.
- Regular failure - arrival of maintenance technician within no more than 2 working day from calling

5.4.5. In case that repairs have to be done at the supplier facility, the availability of the supplier to perform the repairs will be from the moment a notice regarding the required repair had been given to the supplier. The supplier will not be entitled to postpone the receiving of the vehicle using various arguments such as working load, lack of place etc. The supplier will indicate in his financial offer for repairing the timetable required for completing the repair that will be reasonable and acceptable by the customer representative. The supplier will be obliged to withstand this agreed timetable.

5.4.6. Annual preventive maintenance in the rail driving system (if will br required) and the superstructure will be performed at the fire-fighting stations according to the preventive maintenance specification attached in appendix C to this document. The preventive maintenance date will be coordinated with the supplier 6 working days at least in advance. The technician on behalf of the supplier shall arrive to the fire-fighting station on the finalized date. The preventive maintenance will be completed in the same day.

5.4.7. The consideration for providing the maintenance services for the rail driving and fire-fighting systems and the ancillary equipment will be as follows:

- **Repairs**- The repairs pricing will be in a method of "time and material" according to the working hourly rate the supplier indicated in his financial proposal. The spare parts will be priced according to par. 5.3 above.
- **Preventive maintenance in the rail driving system and the fire-fighting system**- the consideration will be according to the financial proposal of the supplier. The price will be linked to the consumer price index according to the link mechanism in appendix F attached to the agreement. That link will be applied when issuing the invoice.

5.4.8. Upon the request of the customer, the supplier will qualify, free of charge, the maintenance facilities of the customer for performing maintenance activities on the rail driving system and the fire- fighting system within the minimal level (Echelon A) that will be defined in cooperation between the two parties. The aforementioned shall not derogate from the commitments and responsibilities of the supplier according to the agreement.

5.5. Maintenance of the chassis

5.5.1. Preventive maintenance and repairs in the chassis will be performed at the workshops authorized by the chassis importer as indicated in the supplier proposal as required in par. 5.5.7 hereinafter. (Each fire-fighting station in the nearest authorized workshop).

5.5.2. The preventive maintenance will be performed according to the instruction of the chassis manufacturer as indicated in the service book of the chassis. The date of the preventive maintenance will be coordinated with the authorized workshop 3 days in advance and the supplier should receive the vehicle within the timetable finalized between the two parties.

5.5.3. The price of the preventive maintenance will be according to the price the supplier had indicated in his proposal. The price will be linked to the consumer price index according to the link mechanism specified in appendix F attached to the agreement. The link will be exercised when issuing the invoice.

5.5.4. **Repairs -** The repairs pricing will be in a method of "time and material" according to the repairs time determined by the chassis manufacturer for each repair (hereinafter referred to as the "**standard times**"), the working hourly rate the supplier indicated in his financial proposal and the importer spare parts and oils price list (excluding the spare parts appear in the financial proposal of the supplier that will be priced according to par. 5.3 above) after deducting the discount indicated in the financial proposal of the supplier.

5.5.5. It is clarified that the preventive maintenance price, the spare parts and oil price, the spare parts and oils discount rate, the standard times for repairs and the hourly rate will be uniform in all the authorized workshops for the chassis that had been indicated in the proposal of the supplier as required in par. 5.5.7 hereinafter.

5.5.6. The repairs of the chassis will be given superior priority relative to other civilian vehicle while the service level in the authorized workshop will be as follows:

- The vehicle shall not stay in the workshop more than three times the standard time for the repair that had been performed.
- If the standard time does not exceed 4 hours, the vehicle shall not stay in the workshop more than one day.

- In case there is not standard time, the time estimation for completing the repair will be given to the customer with the financial offer for performing the work.
- The staying time will be calculated from the moment the vehicle had been delivered to the workshop until leaving the workshop where the repair had been completely handled.
- The workshop will not be entitled to postpone the receiving of the vehicle using various arguments such as workload, lack of place, etc.

5.5.7. The supplier will submit a list of at least five authorized service workshops deployed in the north, center, south, Jerusalem and Eilat.

5.6. At the time of delivery the vehicle the supplier will provide the customer with warranty certificate that reflects the warranty periods as specified hereinafter.

5.7. The warranty periods will be counted from the delivery date of the vehicle to the customer as follows:

5.7.1. The chassis, two years "bumper to bumper" + 3 years for the engine and the transmission.

5.7.2. The rail driving system and the special ancillary accessories – two (2) years

5.7.3. The fire-fighting superstructure with all its ingredients and installations- two (2) years excluding the following systems:

5.7.3.1. Warranty for cracks, painting and corrosion protection of the fire-fighting body- seven (7) years.

5.7.3.2. Fire-fighting equipment that is supplied with the vehicle by the supplier as specified in section 5 – one year at least.

5.7.3.3. Warranty for the water pump including the piping and the mechanical seals- five (5) years.

5.7.3.4. Warranty for the water and foam tanks- twenty (20) years at least.

5.7.3.5. Warranty for every item that was found, during the warranty period, defective and need to be repaired, the warranty period will be extended by four (4) additional months.

5.7.4. Every spare part thas was replaced by new spare part in the rail driving system, the firefighting system and the ancillary equipment, at the time behind the warranty period, the warranty of the new part will be two (2) years according to the original warranty period of the system

If during the warranty time, discrepancy had been detected between the requirements and the conditions of the tender and the agreement including all its appendixes, and what is actually exist in the vehicle and / or in the supplied equipment ,the supplier commits himself to repair the discrepancy immediately after receiving written requirement from the customer and without derogating from his commitments according to the agreement.

5.8. The warranty periods mentioned above will not be applied on the following items:

5.8.1. Natural wear of parts that have to be replaced in the preventive maintenance treatments.

5.8.2. Belts.

5.8.3. Bulbs.

5.8.4. Filters.

5.8.5. Oils.

5.8.6. Every item that had been damaged as a result of accident or negligence of the customer or somebody on his behalf, including, but not only, operation which does not fit the design of the fire-fighting vehicle and provided that the damage had been caused as a result of deed or omission of the customer and approved by the customer representative who is in charge of operation and maintenance .

5.8.7. Every item that had been damaged because of losses, break-in, destructions and fires, not because of failure in the vehicle, and / or force majeure.

5.8.8. Every item that had been damaged as a result of repair or treatment done not by the supplier or under his approval, after delivering the vehicle to the customer.

5.9. The supplier will bear the responsibility to quickly repair or replace the equipment or the defective equipment, provided that the customer representative informed the supplier, within the warranty period, about the failure. Requirement for repair will be submitted to the supplier by FAX or electronic mail.

5.10. Each part that had been rectified three times by the supplier will be replaced by new part.

5.11. In addition to the aforementioned, a failure which occurs in the rail driving and firefighting system more than three (3) times during the warranty Period, whether in the same vehicle or different vehicles, will be defined as an epidemic failure and the following preventive steps will be taken by the Supplier:

5.11.1. Carrying out "failure research" in order to find out the reason and the source of this epidemic failure and the method to prevent it in the future. A detailed failure analysis report will be submitted to the customer for review.

5.11.2. The steps to be taken according to the failure analysis report will be implemented immediately in all the vehicles even in vehicles that the failure has not yet occurred.

The warranty period of a part / component in which an epidemic failure has been found, will be extended for one (1) additional year

5.12. Significant safety failure will be considered and handled as an epidemic failure.

5.13. In case of disputes between the customer and the supplier regarding the implementation of the maintenance services and warranty, the issue will be delivered for the decision of the supervisor on behalf of the customer; The supervisor's decision will be final decision,this without derogating from all the aforementioned. Submitting the subject to the supervisor's decision shall not delay the performing of the repair by the supplier.

5.14. The supplier commits himself that the maintenance services for the rail driving system and the fire-fighting system will be accomplished by the supplier or by the subcontractors on his behalf as indicated in his proposal, subject to the approval of the customer in advance. The services will be given in high professional and skill manner and according to the manufacturer instructions.

5.15. For performing the maintenance, the supplier commits himself to maintain in the workshop experienced technical team that will be trained to provide maintenance services for the fire-fighting vehicles.

5.16. The supplier will bear the responsibility for the quality of the work performed by him, including all the damages that will be caused, if at all, as a result of the work performed by him. It is clarified that in case that the supplier will not provide the maintenance services as required he will bear the costs for repairing the damaged parts.

5.17. A repair instruction (hereinafter referred to as "repair order") shall be issued for each repair activity either in the supplier workshop or in the fire-fighting station.

5.18. The repair order will include details about all the deficiencies found within the operation of the vehicle by the customer.

5.19. The supplier will manage repairs file for each fire-fighting vehicle. The file will include the following data: The date and time of calling, name of the informer, Speedometer reading, the required repair or maintenance, the parts that had been replaced, date and time of finishing the repair and / or any additional relevant detail. The notification regarding finishing the repair will be given to the customer representative.

5.20. The supplier will use the vehicle only for performing the required repair or maintenance.

5.21. For performing the repairs or the preventive maintenance including accidents repairs, the supplier shall use original spare parts. Identification badge will be attached to each part that was replaced and the replaced part will be presented to the customer representative upon his request. Using of non-original spare parts shall be approved in advance by letter of the customer representative.

5.22. Without derogating from the aforementioned and during the warranty period, the supplier will bear the responsibility for all the repairs that were performed by him, for a period of six (6) months after the completion of the repair or at the end of the warranty period according to the later.

5.23. Spare parts stock

The supplier commits himself to maintain stock of complete and useable components for the rail driving system and the fire-fighting system for shortening the waiting time of the fire-fighting vehicle during the repair. The repair method will be replacement of the defective component with new one and repair / refurbishment of the defective component.

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Chapter 6 – The role and authorities of the supervisor

6.1. The supervisor is authorized by the customer to control, to inspect and to supervise the quality of work and material in regards to the supply of the fire-fighting vehicles according to this agreement.

6.2. Within his authorities the supervisor will be authorized to:

6.2.1. Not to approve certain works or material. If the supervisor notify the supplier regarding his decision not to approve the aforementioned, the supplier should stop the work or the use of such materials.

6.2.2. To approve, according to his sole discretion, the extending of the timetable, if he concluded that the supplier is not responsible to the delay that was created.

6.2.3. The supervisor will have the sole authority to confirm that the fire-fighting vehicles and the ancillary equipment comply or do not comply with the agreement conditions and his decision about this issue will be final and decisive.

6.2.4. In case of disputes between the two parties , to decide solely if the repairing of the failure in the fire- fighting system will be performed at the fire-fighting station via service car or at the supplier facility.

6.3. It is clarified that the supervision on behalf of the supervisor shall not release the supplier from all his commitments according to this agreement, and the inspection of the supervisor will not derogate from the responsibility of the supplier to supply the fire-fighting vehicle and the ancillary equipment according to the agreement.

6.4. If the supervisor will decide , according to his sole discretion, that the fire-fighting vehicle or part of it does not fit the agreement document ant its appendixes, the customer will be entitled to refuse to accept the vehicle and to receive from the supplier any amount of money that was payed to him, if was payed, until this date with the addition of the interest amount based on the monthly interest rate published by the accountant general in the ministry of treasury and calculated from the date the payment had been delivered until the date the payment was actually returned by the supplier. Alternately, the customer will be entitled to demand from the supplier to replace the vehicle or part of it, if so supplied, with proper vehicle or part of it, all according to his sole discretion. Having decided by the customer to replace the vehicle, the supplier shall replace the vehicle within 30 days from the date he had been advised about this decision.

6.5. If the supervisor will need to perform repetitive inspections because of rejects and / or non-compliances found during the inspections, the supplier will bear all the expenses involved with the repetitive inspections need to be performed by the supervisor or somebody on his behalf .The supplier will pay the customer the same amount of money payed by the customer to the supervisor because of those repetitive inspection.

6.6. The supplier is not entitled to deliver to somebody else the production activities and / or the assembling and / or the supply and / or the ancillary equipment, all or part of them, and /or to deliver to any third party any part of the activities related to the production, assembling and supplying of the vehicles and / or the ancillary equipment, unless he received in advance a written approval of the customer and / or the supervisor and / or somebody on their behalf.

6.7. It is clarified that the supervisor is not authorized to ask the supplier to make changes and modifications that are involved with additional payment behind to the costs indicated in the agreement, the supplier will not have any complaint and / or demand in regards to that.

Appendix A

Approval of completeness for "SAAR" Dual fire-fighting vehicle

According to chapter 2 of the statement of work of tender No. _____for supplying of "SAAR" Dual fire-fighting vehicle, the parties herby confirm that the acceptance tests of the "SAAR" Dual fire-fighting vehicle, bearing registration No._____, for the National Fire-Fighting and Rescue Authority, have been successfully concluded

The supplier	
Name:	
Date:	
signature	

The chairman of the committee	
Name:	
Date:	
signature	

The supervisor	
Name:	
Date:	
signature	

Appendix B

Approval of delivery for "SAAR" Dual fire-fighting vehicle

According to chapter 2 of the statement of work of tender No. _____for supplying of "SAAR" Dual fire-fighting vehicle, the parties herby confirm that the "SAAR" Dual fire-fighting vehicle, bearing registration No._____, had been delivered to the representative of the National Fire-Fighting and Rescue Authority.

The supplier	
Name:	
Date:	
Signature:	

The chairman of the committee	
Name:	
Date:	
Signature:	

Appendix C

Annual preventive maintenance specification for the rail driving system and the fire-fighting system of the "SAAR" Dual fire – fighting vehicle

No.	**Type of treatment**	**Remarks**
1	Treatment of the water pump including valves	According to manufacturer instructions
2	Operational test of the water pump, the control and the operation system, gauges, meters. etc..	
3	Operational test of the top monitor	
4	Operational test of the hose-reel	
5	Inspection and greasing of the water pump drive shaft	
6	Operational test and inspection of completeness of all the valves, STORZ couplings and draining valves.	
7	Inspection of the entire water and foam piping	
8	Inspection the connection of the body to the chassis	Tightening the bolts as required
9	Inspection of the body, cracks et.	
10	Inspection of the tanks, cracks, leaks etc.	
11	Inspection and operational test of the tanks' accessories	
12	Inspection of the installations and fixtures in the equipment compartments	Tightening the bolts / adjusting as required
13	Inspection of the installations and fixtures on the roof	Tightening the bolts / adjusting as required

No.	Type of treatment	Remarks
14	Inspection of the climbing ladder	
15	Inspection of the footstools cylinders	
16	Inspection of the roll-up shutters	Adjusting / lubricating as required
17	Inspection of all the clips / belts / locks	
18	Inspection of the electrical system	
19	Inspection of the light system related to the fire-fighting superstructure(projectors, deck lights, compartments lights, flashing light system, Light-Bar, light flooding system, etc.)	
20	Inspection of all the warning system (visual and audio)	
21	inspection and treatment of the rail driving system	According to manufacturer specification that has to be attached to the proposal in Hebrew
22	Inspection of all the special accessories on the vehicle- temperature sensors, gas detectors, thermal and infrared cameras, displays, climb ladder locking mechanism , water cooling system for the cabs and wheels and etc.	

Note: The annual treatment includes the performance of all the inspections specified in the table above, including the spare parts ,lubricants / fluids that have to be replaced anyway according to the manufacturer instructions and filling up of oils / fluids in case it was found that there is lack of oils / fluids.

The cost of the treatment does not include working hours and spare parts required for repairing deficiencies found during the treatment