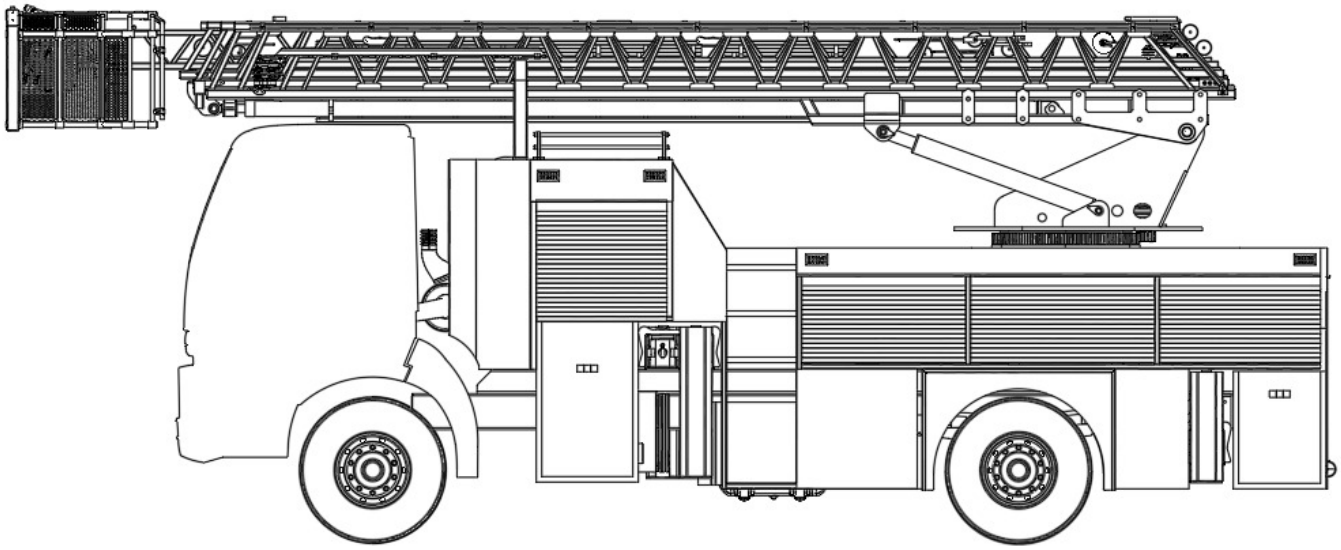
**32 Mt. FIRE LADDER WITH WATER & FOAM TANK SUPERSTRUCTURE FOR FIRE FIGHT TECHNICAL SPECIFICATION**

**INTRODUCTION:**



**1.CHASSIS VEHICLE**

Axle Configuration
Emission

**2.BODYWORK**

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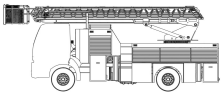
|---|---|
| Construction | The superstructure is made of steel coverings and steel framework.<br>All components of the superstructure will be assembled to an auxiliary frame. This frame is fastened to the main chassis by means of suitable fastening to avoid harmful influences on the bodywork. |
| Design | Will be designed in such a way to allow maximum accessibility to all areas |
| Working Deck | It will be covered by anti-slip material with light alloy handrails. |
| Roof Access | One unit climbing ladder will be fixed at the rear part of the vehicle to access the upper platform.<br>Handgrips will be provided on the ladder. |
| Storage Lockers | There are 7 storage lockers surrounding the vehicle. Lockers are closed by lockable aluminum roller shutters.<br>All locks on the vehicle can be opened by one universal key. The base of the lockers will be covered with aluminum plates.<br>Drain holes are provided on the floor of the compartment to supply the water drainage. |



## 3. WATER TANK

| | |
|---|---|
| Type | Modular type tank placed between the two locker compartments |
| Capacity / Material | 2.000 liters / Stainless steel 4mm AISI 316L |
| Baffle Plates | There will be vertical & horizontal baffle plates inside the Water Tank. Baffle plates will be made of same material with the tank and permit human passing between partitions |
| Manhole | At least 450 mm diameter Manhole Cover with mechanically lockable lid. |
| Filling the Tank | Fitted with 2 side filling inlets which are 2.5 inch and having STORZ couplings with a non-return valve. |
| Tank Drainage | Under the tank knee reservoir and 2 inches with Spherical |
| Valve. Overflow | Bluff Pipe for the air and extra water inside the tank. |
| Level Indicator | A digital Water Level Indicator will be available on the Control Panel. |

## 4. FOAM TANK

| | |
|---|---|
| Capacity / Material | 200 liters / AISI 304 Stainless Steel coupled to water tank and suitable for A and B type foam (excluding protein based foams) |
| Filling | 4 inch filling valve on top of the tank also for cleaning purpose |
| Cleaning | 2 inch spherical valve for draining. |
| Level Indicator | A digital Foam Level Indicator will be available on the Control Panel. |

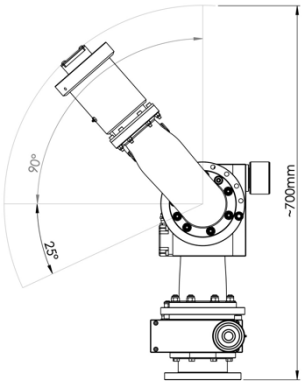
## 5.FIRE PUMP

| | |
|---|---|
| Make / Model | CINAR 3000 N |
| Type | Centrifugal |
| Driven Type | PTO |
| Material | Body & Fan will be manufactured from light alloy aluminum and the pump shaft will be manufactured from Stainless Steel. Cnr pump can operate with salty sea water |
| Capacity | 3000 lpm at 10 bar 3000lt/pm 40 bar 250lt/pm |
| Outlets | 2 units 2-inch spherical type outlets with STORZ couplings<br>2 units 1.5 inch spherical type outlets with STORZ couplings |
| Suction | 1 unit 4 inch suction nozzle with STORZ coupling. CNR pump has a capability to suck water from 7 m geographical depth. Automatic suction system is coupled to pump. |

| | |
|---|---|
| Pump Location | The pump will be mounted in the rear part of chassis but the outlets will be at the rear compartment. It will be accessible from the rear door. |
| Control Panel | The pump will be mounted on necessary location and the outlets will be at the rear compartment. It will be accessible from the rear door. The PTO can be engaged from the driver cabin. The Control Panel is isolated from the water. The following buttons are available on the control panel; |

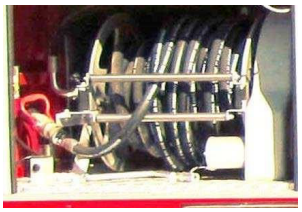
- Normal Pressure Indicator
- RPM gauge
- Vacuum switch on-off bottoms.
- Emergency Stop Button
- Illumination button for night operation

## 6. WATER/FOAM MONITOR



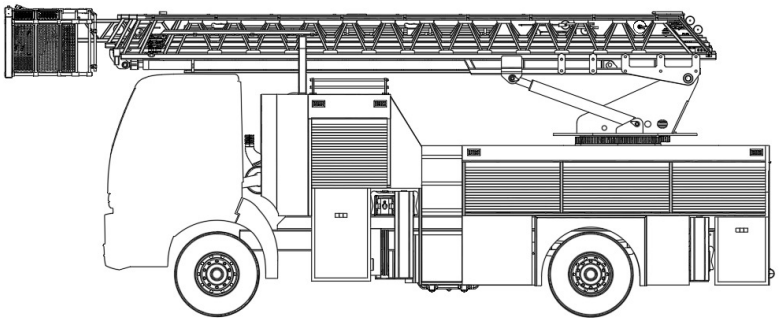

- Make / Model CINAR 1200 lpm electric water monitor
- -25 +90 degree vertical operation
- 340-degree rotation angle
- 1200-3500 LT/min adjustable flow
- Vertical and horizontal adjustable rotation angles according to the need
- 24V DC operating voltage
- Remote control
- Manual control in case of electrical failure
- Jet-fog feature and foam crusher nozzle
- Aluminum body, bronze coupling parts

## 7. HOSE REEL



| | |
|---|---|
| Make / Model | CINAR first intervention hose reel Quantity 1 unit. |
| Location | At rear left or rear right side of the vehicle |
| Type | Made of aluminum molding, resistant to high pressure. |
| Hose | 1 inch x 30m, unbreakable and uncrushable |
| Nozzle | Jetting/Spraying Nozzle with hand grip |
| Rewinding | Manual |

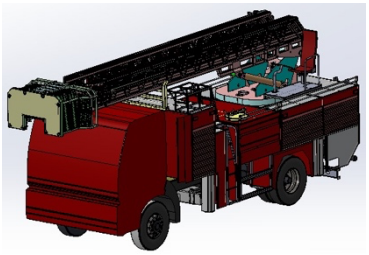
## 8. HYDRAULIC LADDER

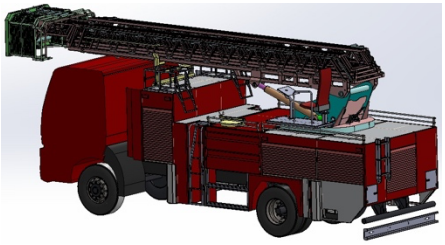


- There will be a hydraulic ladder on the vehicle superstructure with a basket base of 30 meters at an angle of 750 and a working height of 32 meters. The ladder will be able to rotate 3600 horizontally and work vertically between -10; +750 as much as the body allows.
- The ladder will be made of at least 4 stages. The ladder profile length will be at least 7.5 meters. The profiles will be solid and will definitely not be added.
- The ladder will be able to be opened in three stages, the second stage with a double-acting piston, the third and fourth stages with a rope system, it will be lifted with double-acting pistons and the rotation movement will be provided by a hydro motor.
- The profiles used in the ladder will be solid. Ladder slides will definitely not be made of sheet metal or NPU material. The bearings will also be made from the front and sides.
- The quality of the ladder carrier profiles will be at least St 52 material.
- The stairs will be wide enough to allow a person to enter and exit easily and the side rails will be of sufficient height for safe operation.
- The ladder set will be lifted from 0° to 75° in a maximum of 45 seconds, lowered from 75° to 0° in a maximum of 45 seconds, rotated to 90 degrees in a maximum of 45 seconds, and extended to full length (32 meters at 75 degrees) in a maximum of 75 seconds.
- The ladder set will be capable of lifting to 75 degrees, extending to full length and rotating to 90 degrees at the same time and the three movements to be performed simultaneously (lifted from 0 degrees to 75 degrees, rotated

to 90 degrees and reaching a working height of 32 meters) will be performed in a maximum of 75 seconds.
- The ladder ropes will be at least 8 mm thick and there will be 2 opening ropes at the bottom and 2 retraction ropes on the side of the ladder.
- There will be an upward deflection on the ladder, thus preventing downward deflection when the ladder opens at low angles.
- The control of the ladder movements will be made from the main control panel located on the side of the rotating turret. The control system will be with a proportional electric current controlled valve.
- The main control panel will consist of a comfortable seat where the operator can sit and the ladder movements integrated into the armrests of the seat will be made with control levers and joysticks.
- In case of any malfunction that may occur in the vehicle engine and the ladder electrical system, an emergency control system will be equipped that can perform all ladder movements manually.
- In order to ensure balancing, there will be 4 hydraulic legs that open horizontally and vertically, and the hydraulic legs will touch the ground with movable jointed shoes. The retaining legs will open at least 1200 mm outward. The control used in the retaining legs will be proportional with electric current control. The vehicle foot controls will be controlled from the rear of the vehicle. The controls will be joystick controlled. 4 shoes will be provided under the legs to increase the stepping width when necessary. The shoes will be stored on the vehicle in an easily accessible place as close as possible to each foot.
- The opening of the feet will be designed to be opened separately as the right and left sides or 2 feet at the same time. The pressing system will be able to press 4 feet at the same time and will be automatic balancing.
- There will be an automatic balancing system on the feet.
- At the end of the stairs; there will be a 3-person, automatic balancing system, monitored work basket with a carrying capacity of at least 250 kg to 400 kg and the water installation will be made with telescopic pipes to the basket monitor. The water inlet will be in the rear bumper area.
- The basket to be used will be manufactured from aluminum material.
- When the basket is not in use, it will be folded towards the stairs.
- There will be a ladder basket balancing system. The basket will be parallel to the ground in every position.
- There will be a portable stretcher placement system in the basket.
- 1 stretcher will be provided with the vehicle.
- In the work basket located at the end of the hydraulic stairs; It will be made of aluminum alloy casting material, there will be 1 electric monitor with a water processing capacity of at least 1200 liters/minute at 8 to 10 bar pressure, the water throwing distance will be at least 40 meters and the foam throwing distance will be at least 30 meters. The monitor will be able to rotate horizontally from the basket to the extent that it allows use, will have a movement of at least 450 up and at least 300 down, will have an opening and closing valve, a jetting and fogging head to send water in a collective and dispersed manner. The monitor will be usable from the basket and with a remote control. In order to give water from the basket with an extension hose, there will be an additional water outlet with a closing valve and Storz C fitting on the monitor.
- Water will be provided to the ladder from the bottom of the vehicle to the basket via telescopic pipes. The pipes will be made of stainless material. Sealing will be provided with felts at the joints.
- There will be one color camera on the ladder basket. The camera will be mounted on the front of the basket and will carry the video images to the sunlight-readable, colored, at least 7-inch LCD screen on the main control panel. The screen will be used as a single screen to display the video image. The camera will be able to operate between -20/+50 degrees Celsius at least in the IP 68 standard.
- There will be an automatic oil pressure adjustment system that will pump the necessary oil to the hydraulic system at the same level at different rotation speeds of the vehicle engine and prevent unnecessary heating of the hydraulic system.
- The hydraulic system to be created for ladder movements will consist of an oil tank, hydraulic pump, oil cooling system and hydraulic installation.
- The oil tank capacity will be selected as 1.5 times the total system capacity, and there will be a ventilated tank cover, a level indicator with a thermometer, and suction and return filters.
- The hydraulic pump will be driven by the PTO connected to the vehicle transmission.
- All elements used in the hydraulic installation; It will be resistant to at least 50% more pressure than the working pressure, and there will be safety lock valves on the pistons and in the system.
- There will be a hydraulic unit system operating with an external engine for rescue purposes in case of vehicle malfunctions. The system will get its movement from the generator in the vehicle.

## 9. SECURITY MEASURES





- In case of a collapse under the stepping feet or if the foot does not touch the solid ground, the opening of the ladder will be prevented. It will be able to make a retracting movement but will not be able to make a forward movement.
- The ladder will be able to move up and down between +75 and -10 degrees at the points allowed by the chassis and cabin, and will be able to move 360 degrees right and left infinitely.
- The ladder will be prevented from hitting the cabin in any way.
- The control of the ladder movements can be made from the control panel on the side of the Avantra tower or from the control panel in the basket with proportional joystick levers.
- There will be approach sensors in front, on the side and under the basket to prevent it from hitting any part of the basket. In this way, the basket will be prevented from hitting. In addition, the sensors will give audible and visual warnings.
- There will be a system on the ladder that will prevent hitting the cup.
- There will be an angle and height sensor on the ladder.
- There will be a colored LCD screen on the main control panel and on the basket that the operator can easily see. This LCD screen will show the ladder working angle, ladder height, ladder turning angle, weight on the basket, and the position of the support legs. The LCD screen will be at least IP65 protection class. There will be a dead man pedal on the ladder control points to which the systems that allow ladder movements are connected.
- The ladder operation will be limited depending on the amount of leg opening.
- The ladder operation will be limited depending on the amount of weight in the basket.
- When the weight in the basket reaches the maximum level, it will give an audible or visual warning. After a certain distance, its movements will allow operation within the safe zone.
- There should be a handheld radio for audible communication between the basket and the main control panel.
- There will be an automatic balancing system on the basket.
- There will be an oil cooling system in the system to operate the system safely during long-term operations.
- There will be a 220V electrical outlet on the basket.
- There will be 2 LED type projectors in the basket.
- There will be a sensor system that shows when the ladder is in the parking position. From the moment the ladder leaves the parking position and starts working, it will not be possible to intervene or operate the legs from the outside.
- There will be a warning system in case the legs where the ladder will be placed are aligned. In this way, it can be easily placed in its place.
- There will be an automatic parking system in the ladder. In this way, the ladder will be able to park in its place automatically by pressing a single button within the safety limits.

## 10. ACCESSORIES

1 unit 3 section 9 m aluminum portable ladder
1 unit – 4” 3m Suction Hose with STORZ couplings.
2 units – 2.5” 20m quality Fire Hoses with STORZ couplings. 2 units – 2” 20m quality Fire Hoses with STORZ couplings.
1 unit 4” Suction Strainer.
2 units straight flow shut off valve branch-pipe nozzle 1 units ABC coupling spanner

## 11. ELECTRICAL INSTALLATION

2 or 4 different siren system
Lockers illumination
On two sides, front and rear of the vehicle there will be flashing warning lights
2 unit rotating beacons fixed in front and 1 in rear of the vehicle
The electrical system of the fire equipment will be separated from the chassis' electrical system; the electrical system of the fire equipment is reinforced by a special fuse system and all the electrical system is isolated from water.
Radio pre-equipment

## 12.PAINTING

After finishing production all surfaces except shutters will be painted Fire-Red (RAL 3000). Tank interior will be coated two layers of epoxy.

## 13.DOCUMENTS / MANUAL

1 set of Workshop Manual, Spare Parts Catalogue, Operation & Maintenance Booklet will be provided

## 14. WARRANTY

The Fire Truck has 5-(five)-year warranty starting from Factory Acceptance, against any kind of laboring mistakes as long as maintenance and user manual carried out properly. Fire pump has 3 year warranty.

## 15. SPARE PARTS

PROCOMPACTOR/CINAR guarantees to supply spare parts for 10-(ten)-years operation period. The spare parts that will be supplied by PROCOMPACTOR / CINAR

## 16. INSPECTION AND TRAINING

Factory Acceptance Tests will be held at CINAR Factory in Konya.
This offer includes training at manufacturer factory for at least 2 operators of buyer. Training duration and content will be decided with the buyer after agreement