

# **SPECIFICATIONS FOR WATER BOWSERS**

**Revised on 02.09.2017**

## TABLE OF CONTENTS

1.0	Water Bowsers (8000L)	6be-2
2.0	Water Bowsers (6000L) – For Isolated Areas	6be-7
3.0	Tractor Trailor Mounted Water Bowser (3000L)	6be-11

## **1.0 Water Bowsers (8000L)**

### **1.1 The water bowser shall meet the following requirements:**

- 1 An 8,000 Liters capacity tank suitable for carrying drinking water to be mounted on a suitable truck chassis.
- 2 Pumping equipment comprising of a pump having the capacity of 6000 GPH at a total head of 60 feet driven by P.T.O or separate engine driven pump with suction and delivery hoses & necessary stainless steel valves.

### **1.2 Chassis & Cab**

- 1 All steel, forward/semi-forward control cab and be factory manufactured.
- 2 Shall have protected for corrosion for seven years.
- 3 Heavy duty frame with cross members.
- 4 Right hand driven.
- 5 Fitted with heavy duty front and rear axle.
- 6 Fitted with two (02) large external rear view mirror.
- 7 Air or power assisted hydraulic brakes on all wheels.
- 8 Mechanical parking brakes.
- 9 Power assisted steering.
- 10 Large Windshield for Visibility.
- 11 ELR (Emergency Locking Retraction) Lap shoulder Belts for driver and Co-Driver.
- 12 Side Impact beams in both doors.
- 13 Maximum gradability (tan  $\theta$ ) % should be greater than 30
- 14 Shall

### **1.3 Engine**

- 1 04/06 Cylinder four stroke water cooled natural aspirating (Non turbo)Diesel Engine with sufficient power (Should be more than 140 Kw)to carry 8000 liters load with a speed of more than 70 Km/hr. Replacement elements for air, fuel and oil filters.
- 2 Direct injection.
- 3 200 liters or more capacity fuel tank.

### **1.4 Transmission**

- 1 Heavy duty hydraulic control dry single plate clutch with cushioning spring.
- 2 Synchromesh gear box with 05 forward 1 reverse speed
- 3 Power take-off for the pump if required.

## 1.5 Instrument Panel

Instrument panel shall include the following;

- 1 Speedometer
- 2 Odometer
- 3 Trip counter
- 4 Warning lamp for low oil pressure, hand brake,
- 5 Battery charging
- 6 Fuel gauge
- 7 Coolant temperature gauge
- 8 Radio and cassette player

## 1.6 Electrical System

- 1 24V direct starting system complete with heavy duty batteries
- 2 Alternator
- 3 All standard lighting to meet motor traffic regulations of Sri Lanka.
- 4 Direction indicators in front and rear

## 1.7 Suspension

- 1 Front - Semi Elliptical alloy steel leaf springs shackle type with double acting hydraulic telescopic shock absorbers.
- 2 Rear - Semi Elliptical alloy steel leaf springs shackle type.

## 1.8 Wheels and Brakes

- 1 Single front wheels
- 2 Dual rear wheels
- 3 Spare wheel mounted on a carrier.
- 4 Should have service , auxiliary and parking brake system

## 1.9 Construction of Tank Unit

- 1 The tank capacity shall 8,000 Liters used for drinking water.
- 2 The tank is to be of elliptical section with dished ends and internal baffle plates.
- 3 The tank shall be of all stainless steel welded with stainless steel plates of minimum thickness of 3 mm with 2B finish. Grade of stainless steel used for construction of tanks shall be suitable for carrying chlorinated (RCL 0.8 )portable drinking water. All the other fabrication parts including **tank mounting runners**

**on the chassey** shall also be done with suitable stainless steel having appropriate thickness.

- 4 Details of the grade of stainless steel used for the construction shall be submitted with the bid with the proof for its suitability for drinking water.
- 5 The tank compartment shall have a minimum 150 mm, diameter filing port cover fitted with quick locking device.
- 6 The compartment shall have manhole(s) at top, of minimum diameter 400 mm. with hugged cover fitted with quick locking device top enable inspection and cleaning of the tank.
- 7 The compartment shall have a bottom drain plug. The rear compartment shall have a valve of a diameter which enables to fit a water sprinkler attachment.
- 8 Built in lockable compartments for hoses and tools shall be incorporated.
- 9 The tank is to have catwalks at the sides and top with stainless steel ladder access.
- 10 The operation controls and valves shall be well placed for easy operation and clearly marked.
- 11 The unit shall comply with international safety regulations.
- 12 Two (02) nos. 04 meter lengths of acid resistant suction hoses with fittings shall be provided.
- 13 The unit shall be complete in all respects, installed and tested prior to handing over to the buyer. One extra discharge hose of 10m length with fittings shall be provided.

#### **1.10 Water Pump**

- 1 Mounted on the truck, pump should be driven by a power take off or separate engine Suction height 20" delivery height 60" capacity of 6000 GPH.

#### **1.11 Note of Body Fitment**

1. No metal to metal contact between the body sub frame and the vehicle frame shall occur.
- 2 Body holding down bolts shall be of the type which positively secures the body sub frame to the vehicle frame without their behind any welding to the vehicle frame.
- 3 The body shall not be fixed to the vehicle frame so as to prevent flexing of the frame.
- 4 Any metal clamp around the frame shall have balata being or equivalent to prevent metal contract.

- 5 In the case of open frames the frame shall be supported internally at such point by a treated hardwood block.

### **1.12 Welding**

- 1 All welds are to be of good standard and to cover the full lengths of the body joint.
- 2 Where distortion is liable to occur the weld may alternate from side to side of the joint with gaps not exceeding 50% of the length of the joint on either side.

### **1.13 Fuel Consumption**

Minimum fuel consumption and respective speeds to be indicated.

### **1.14 Spares**

Spares recommended by manufacturer for 2 years running repairs shall be given including following:

1. Air Cleaner elements - 02 Sets
2. Fuel filter coarse/fine - 02 Sets
3. Oil filters - 02 Sets
4. Brake/clutch system repair kit - 02 Sets each

### **1.15 Technical Literature**

- 1 All technical literature pertaining to specifications and engine performance curves shall be submitted along with the offer.
2. Successful Tenderer shall provide following catalogues and hand-books. Drivers Manual for each vehicle.

**1.16** Warranty certificate against premature malfunctioning of vehicle ,accessories and tank ( if fabricated locally) during first 100,000 kms or Two year period whichever occurs first.

**1.17** Water Bowsers shall be registered in the name of the NWSDB by the supplier and cost shall be included in the Bid price.

## **2.0 Water Bowsers (6000L) – For Isolated Areas**

### **2.1 The water bower shall meet the following requirements:**

- 1 An 6,000 Liters capacity tank suitable for carrying drinking water to be mounted on a suitable truck chassis.
- 2 Pumping equipment comprising of a pump having the capacity of 6000 GPH at a total head of 60 feet driven by P.T.O or separate engine driven pump with suction and delivery hoses & necessary stainless steel valves.

### **2.2 Chassis & Cab**

- 1 All steel, forward/semi-forward control cab and be factory manufactured.
- 2 Shall have protected for corrosion for seven years.
- 3 Heavy duty frame with cross members.
- 4 Right hand driven.
- 5 Fitted with heavy duty front and rear axle.
- 6 Fitted with two (02) large external rear view mirror.
- 7 Air or power assisted hydraulic brakes on all wheels.
- 8 Mechanical parking brakes.
- 9 Power assisted steering.
- 10 Large Windshield for Visibility.
- 11 ELR (Emergency Locking Retraction) Lap shoulder Belts for driver and Co-Driver.
- 12 Side Impact beams in both doors.
- 13 Maximum gradability (tan Ø) % should be greater than 30

### **2.3 Engines**

- 1 04/06 Cylinder four stroke water cooled natural aspirating Diesel Engine with sufficient power to carry 6000L of water and to achieve a speed of more than 70KM/hr. with the load.
- 2 Engine Power shall be more than 115 kw
- 3 Replacement elements for air, fuel and oil filters.
- 4 Direct injection.
- 5 160 liters or more capacity fuel tank.

### **2.4 Transmission**

- 1 Heavy duty hydraulic control dry single plate clutch with cushioning spring.
- 2 Synchronesh gear box with 05 forward 1 reverse speed
- 3 Power take-off for the pump if required.

## 2.5 Instrument Panel

Instrument panel shall include the following;

- 1 Speedometer
- 2 Odometer
- 3 Trip counter
- 3 Warning lamp for low oil pressure, hand brake,
- 4 Battery charging
- 5 Fuel gauge
- 6 Coolant temperature gauge
- 7 Radio and cassette player

## 2.6 Electrical System

- 1 24V direct starting system complete with heavy duty batteries
- 2 Alternator
- 3 All standard lighting to meet motor traffic regulations of Sri Lanka.
- 4 Direction indicators in front and rear

## 2.7 Suspension

- 1 Front - Semi Elliptical alloy steel leaf springs shackle type with double acting hydraulic telescopic shock absorbers.
- 2 Rear - Semi Elliptical alloy steel leaf springs shackle type.

## 2.8 Wheels and Brakes

- 1 Single front wheels
- 2 Dual rear wheels
- 3 Spare wheel mounted on a carrier.
- 4 Should have service, auxiliary and parking brake system.

## 2.9 Construction of Tank Unit

- 1 The tank capacity shall 6000 Liters used for drinking water.
- 2 The tank is to be of elliptical section with dished ends and internal baffle plates.
- 3 The tank shall be of all stainless steel welded with stainless steel plates having minimum thickness of 3 mm with 2B finish. Grade of stainless steel used for construction of tanks shall be suitable for carrying chlorinated (RCL0.8) portable drinking water. All the other fabrication parts including **tank**



**mounting runners on the chassis** shall also be done with suitable stainless steel having appropriate thickness.

- 4 Details of the grade of stainless steel used for the construction shall be submitted with the bid with the proof for its suitability for drinking water.
- 5 The tank compartment shall have a minimum 150 mm, diameter filing port cover fitted with quick locking device.
- 6 The compartment shall have manhole(s) at top, of minimum diameter 400 mm with hugged cover fitted with quick locking device top enable inspection and cleaning of the tank.
- 7 The compartment shall have a bottom drain plug. The rear compartment shall have a valve of a diameter which enables to fit a water sprinkler attachment.
- 8 Built in lockable compartments for hoses and tools shall be incorporated.
- 9 The tank is to have catwalks at the sides and top with stainless steel ladder access.
- 10 The operation controls and valves shall be well placed for easy operation and clearly marked.
- 11 The unit shall comply with international safety regulations.
- 12 Two (02) nos. 04 meter lengths of acid resistant suction hoses with fittings shall be provided.
- 13 The unit shall be complete in all respects, installed and tested prior to handing over to the buyer. One extra discharge hose of 10m length with fittings shall be provided.
- 14 Should have a five years guaranty for the protection of corrosions internally and externally.

## **2.10 Water Pump**

- 1 Mounted on the truck, pump should be driven by a power take off or separate engine Suction height 20" delivery height 60" capacity of 6000 GPH.

## **2.11 Note of Body Fitment**

- 1 No metal to metal contact between the body sub frame and the vehicle frame shall occur.
- 2 Body holding down bolts shall be of the type which positively secures the body sub frame to the vehicle frame without their behind any welding to the vehicle frame.

- 3 The body shall not be fixed to the vehicle frame so as to prevent flexing of the frame.
- 4 Any metal clamp around the frame shall have balata being or equivalent to prevent metal contract.
- 5 In the case of open frames the frame shall be supported internally at such point by a treated hardwood block.

## **2.12 Welding**

- 1 All welds are to be of good standard and to cover the full lengths of the body joint.
- 2 Where distortion is liable to occur the weld may alternate from side to side of the joint with gaps not exceeding 50% of the length of the joint on either side.

## **2.13 Fuel Consumption**

Minimum fuel consumption and respective speeds to be indicated.

## **2.14 Spares**

Spares recommended by manufacturer for 2 years running repairs shall be given including following:

- |                                   |                |
|-----------------------------------|----------------|
| 1. Air Cleaner elements           | - 02 Sets      |
| 2. Fuel filter coarse/fine        | - 02 Sets      |
| 3. Oil filters                    | - 02 Sets      |
| 4. Brake/clutch system repair kit | - 02 Sets each |

## **2.15 Technical Literature**

- 1 All technical literature pertaining to specifications and engine performance curves shall be submitted along with the offer.
- 2 Successful Tenderer shall provide following catalogues and hand-books with Drivers Manual for each vehicle.

**2.16** Warranty certificate against premature malfunctioning of vehicle, accessories and tank (if fabricated locally) during first 100,000 kms or Two year period whichever occurs first.

**2.17** Water Bowers shall be registered in the name of the NWSDB by the supplier and cost shall be included in the Bid price.

### **3.0 TRACTOR TRAILOR MOUNTED WATER BOWSER (3000L)**

#### **3.1 The Trailer mounted water bowser shall meet the following minimum requirements:**

- \* A 3,000 Liters capacity tank suitable for carrying drinking water to be mounted on a suitable trailer chassis.
- \* Pumping equipment comprising of a pump of capacity 2000 GPH at a total head of 60 feet driven by P.T.O or separately diesel driven and suction and delivery hoses & valves.

#### **NOTES:**

- The four wheel tractor should be suitable for tropical use and also confirmed to the Motor Traffic regulations presently forced in Sri Lanka
- The below specifications are the minimum expected
- Deviations from the specifications should state clearly in the offer
- Manufacturers printed specifications should accompany with the offer
- Registration of the vehicle at RMV and fixing number plates, etc. should arrange by the bidder

### **3.2 CHASSIS**

- \* Heavy duty frame with cross members
- \* Fitted with heavy duty axle
- \* Fitted with two (02) large external rear view mirror
- \* Power assisted steering

### **3.3 ENGINE**

- \* 03 Cylinder four stroke, pressurized water cooled, naturally aspirated Diesel Engine with sufficient power (should be more than 48 Hp) to carry 3000 liters of water load
- \* Replacement elements for air, fuel and oil filters
- \* Dry replaceable paper element or air bath type air cleaner
- \* Direct injection
- \* Vertical exhaust type

### **3.4 TRANSMISSION**

- \* Heavy duty dry single plate clutch
- \* Gear box with 08 forward & 02 reverse with low/ high gears
- \* Dry disc mechanical break
- \* Manual operated mechanical parking break

### **3.5 INSTRUMENT PANEL**

Instrument panel shall include the following;

- \* Speedometer
- \* Odometer
- \* Trip counter
- \* Warning lamp for low oil pressure, hand brake,
- \* Battery charging
- \* Fuel gauge
- \* Coolant temperature gauge

### **3.6 ELECTRICAL SYSTEM**

- \* 24/12 V direct starting system complete with heavy duty batteries
- \* Alternator
- \* All standard lighting to meet motor traffic regulations of Sri Lanka.
- \* Direction indicators in front and rear
- \* Swiveling type wide beam light fitted on top of cab for night work.
- \* Audible warning device to operate when reversing.

### **3.7 WHEELS**

- \* Single front wheels& rear wheels
- \* Single trailer wheels

### **3.8 CONSTRUCTION OF TANK UNIT & TRAILER**

- \* The tank capacity shall not be less than 3,000 Liters.
- \* The tank is to be of elliptical section with dished ends and internal baffle plates.
- \* The tank shall be of all steel welded construction with steel plates of minimum thickness of 3 mm
- \* The bowser tank shall be internally protected against corrosion and method of protection is to be clearly indicated.
- \* The tank compartment shall have a minimum 150 mm, diameter filling port cover fitted with quick locking device.
- \* The compartment shall have manhole(s) at top, of minimum diameter 400 mm. with hugged cover fitted with quick locking device top enable inspection and cleaning of the tank,
- \* The compartment shall have a bottom drain plug.
- \* Trailer frame should be constructed with suitable steel having the thickness more than 6mm. firmed with cross bar supports to carry the loaded tank.
- \* Trailer frame should be provided with parking legs to enable to park without the tractor.
- \* Tow bar should be circular type and thickness should not be less than 6mm.
- \* Wheel should be suitable for the loaded tank and the rim should be lock type
- \* Built in lockable compartments for hoses and tools shall be incorporated.
- \* The tank is to have catwalks at the sides and top with steel ladder access.
- \* The operation controls and valves shall be well placed for easy operation and

- clearly marked.
- \* The unit shall comply with international safety regulations.
  - \* Two (02) 04 meter lengths of acid resistant suction hoses with fittings shall be provided.
  - \* The unit shall be complete in all respects, installed and tested prior to handing over to the buyer. One extra discharge hose of 10m length with fittings shall be provided.
  - \* Anti corrosive food grade type paint should apply after sand blasting and surface preparation.
  - \* Food grade type internal coating should apply on the tank surface.

### **3.9 WATER PUMP**

- \* Mounted on the truck, pump should be driven by a power take off or diesel engine driven. Suction height 20' delivery height 40' capacity of 2000 GPH.

### **3.10 NOTE OF BODY FITMENT & TANK**

- \* No metal to metal contact between the body sub frame and the vehicle frame shall occur.
- \* Body holding down bolts shall be of the type which positively secures the body sub frame to the trailer frame without there behind any welding to the trailer frame.
- \* Any metal clamp around the frame shall have balata being used or equivalent to prevent metal contact.
- \* In the case of open frames the frame shall be supported internally at such point by a treated hardwood block.

### **3.11 WELDING**

- \* All welds are to be of good standard and to cover the full lengths of the body joint.
- \* Where distortion is liable to occur the weld may alternate from side to side of the joint with gaps not exceeding 50% of the length of the joint on either side.

### **3.12 FITTINGS & ACCESSORIES**

- \* Manufacturers standard tool kit including an 04 tons (approx.) Hydraulic jack with handle and wheel nut and pipe wrenches shall be provided.

### **3.13 FUEL CONSUMPTION**

Minimum fuel consumption and respective speeds to be indicated

**3.14 TECHNICAL LITERATURE**

- \* All technical literature pertaining to specifications and engine performance curves shall be submitted along with the offer.
- \* Successful Tenderer shall provide following catalogues and hand-books.
  1. Drivers Manual for each vehicle.

**3.15** Warranty certificate against premature malfunctioning of tractor and accessories during first 20,000 kms or one year period whichever occurs first.

**3.16** Registration in the name of the NWSDB shall be done by the tenderer and the cost shall be included in the tender price.