



Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT/ MATERIALS MANAGEMENT

An ISO 9001
Company

ENQUIRY	Phone: +91 431 257 76 53 Fax : +91 431 252 07 19 Email : skaruna@bheltry.co.in Web : www.bhel.com
NOTICE INVITING TENDER	

TWO PART BID	Enquiry Number: 2621200070	Enquiry Date: 03.07.2012	Due date for submission of quotation: 03.08.2012
Tender to be submitted in two parts.			

You are requested to quote the Enquiry number date and due date in all your correspondence. This is only a request for quotation and not an order.

Please note that under any circumstances both delayed offer and late offers will not be considered. Hence vendors are requested to ensure that the offer is reaching physically our office before 14.00 hrs on the Date of tender opening.

Item	Description	Quantity	Delivery (Item required at BHEL on)
10	Design, Fabrication and Supply of Fire Tender as per the technical specification, general guidelines instructions & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	01 Set	21.01.2013

Important points to be taken care during submission of offer

1. Checklist to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.
2. Subsequent to the hosting of this Enquiry, any corrigendum to the Enquiry that may be hosted in the BHEL Web-site shall be viewed by the vendors regularly to know the details of corrigendum. In case if any vendor without seeing the corrigendum quoted as per original Enquiry and intimate that they have wrongly quoted will not be considered and rejected. However as per the appropriate Policy of BHEL action will be taken on them in this regard.

BHEL's General guidelines / instructions (refer MM/CE/GT/001) including bank guarantee formats and list of consortium banks, commercial terms check-list can be downloaded from BHEL web site <http://www.bhel.com> or from the Government tender website <http://tenders.gov.in> (public sector units > Bharat Heavy Electricals Limited page) under Enquiry referred above.

Tenders should reach us before 14:00 hours on the due date
Tenders will be opened at 14:30 hours on the due date
Tenders would be opened in presence of the tenderers who have submitted their offers and who may like to be present

Yours faithfully,
For BHARAT HEAVY ELECTRICALS LIMITED


Sr. Manager / MM / Capital Equipment

S. KARUNANIDHY
Sr. Manager
Capital Equipment
BHEL. TRICHY-620 014

Technical Specification for Fire Tender

Qualifying criteria:

1. Atleast 5 years having experience in manufacturing of Crash Fire Tender.
2. Customers list
3. Performance certificate

Design, Fabrication and Supply of FIRE TENDER to the following specification:

Application: Operation of FireTender Services.

SPECIFICATION FOR FIRE TENDER:

General

Water tank-3500 ltrs

Foam-450 lit

Pump – rear mounted driven thro' PTO

Water delivery-2250 lit/min at 7.0 Kgf/cm² not less than 3000 lit/min at 9Kgf/cm₂

Water foam delivery-3900 Litr/min thro monitor and 2 side line at 7Kgf/cm²

Deliveryof foam employself-aspirating system

Pump proportionator have 5 positions select or valve

Hose reel be provided

Supplementary CO₂ be provided

Towing hook as per IS 8298 latest edition at rear side

Material selection and treatment

Fabrication material lightness with strength and durability

Timber shall not to be used

Water ways, foamcompound ways shall be corrosion resistant material
Pipelines, jointsflanges and all metal parts exposed to atmosphere be hot dipped and galvanized Pipes and pressure parts withstand 2 times the maximum working pressure

Design and Construction

Super structure designed on modular concept with easy accessibility for maintenance and repairs at sub assembly and lubrication points.

Water tank

Water tank mounted on chassis capable of carrying 3500 litres, welded construction with SS sheet bottom and the side 5mm baffles not less than3.15mm

Baffled in both side to avoid surge while accelerating, cornering and breaking.
Tank mounted on appliances at the center of gravity.

4 nos of Folding type lifting eye on the shell of the tank for lifting the tank

Man hole in 45 cm dia on the top of the tank fitted with removable strainer

Drain cock and pipe in 75 mm dia and taken down to a point below the chassis with ground clearance

Over flow pipe in 100 mm dia

2 filling pipe for hydrant connection in 63 mm dia with male and female coupling with strainer

Water level indicator in acrylic tube

Plumbing

Self-filling of water tank directly from the pump thro 50 mm pipe

Plumbing between tank and pump shall have clear water way not less than 100 mm throughout with brass wire screen filter

Plumbing between pump and hose reel have clear way not less than 25 mm through out

One isolating butterfly valve of 125 mm ID between pump and outside suction hose

Direction for cock valve open/close shall be clearly marked

Priming of surface for water tank

Within 4 hrs of sand blasting of steel may be given primer coat before clearance of hydro testing or after fabrication

Epoxy treatment of 25 microns inside and outside consist of two coats before two coats of primer

Primer touch up will be done on cut edges, burnt, weld.

The tank shall be connected to the pump and hose reel and control valve with any of the operation Hydrant to tank, hydrant to reel, tank to pump to reel, hydrant pump reel to adopter 100 mm X 63 mm, pump to tank.

First aid hose reel

Hose reel be mounted at the rear side of the appliance

Hose reel with 60 mtrs length of size dia 19 mm single piece hose tubing terminating in a shut off nozzle with dia 6mm outlet and bevel gear type to prevent over run of reel

Pump

Preferably in accordance with EN 1028 (latest) 1&2 norms or equivalent - Firex / VAS Make. (Vendor to specify)

Two stage pump be mounted at the rear side of the appliance

Centrifugal type pump conforming to IS 5120 latest edition easy accessible to the impeller

Pump shaft in SS and supported by anti-friction bearing, mechanical carbon seal self-adjusting type shall be provided.

Impeller neck ring shall be made of copper alloy, gun metal drain plug shall be provided

Impeller dynamically balanced and no leakage from pump casing, hydraulic pressure subjected to 1.5 times the shut of pressure and twice the rated pressure

Gun metal suction eye for 100 mm dia suction hose connection with internal strainer and gun metal blank cap fastened with SS chain

Two delivery valves at the panel 63 mm dia delivery hose coupling and gun metal blank cap with screwed type quick closing clack valve in standard hose connection

Pump shall be coupled with prime mover thro PTO unit

PTO having a ratio of 1:1.27 having control lever in driver's cabin with lock device. PTO shall be provided with oil level indicator and cooling circuit

The pump shall be designed to give out put 4000 litre /min at 7 Kgf/cm²

Engine revolution not to exceed 2400 rev/min when the pump is delivering its rated output at 7kgf/cm² and 9 kgf/cm²

Primer

Lifting water at least from 7 m depth not less than rate 30 cm/sec

Primer of reciprocating made by gunmetal

Provision for limit the speed of engine when prime is engaged.

when pump is primed auto disengage primer to be provided.

Cooling system

In addition to radiator cooling inter cooler tank made of 1.5 mm thick brass sheet for indirect cooling system while continuous stationed running of the engine

Gauge for cooling water and glow lamp for lubricating to be provided

Cooling water from PTO and additional cooling tank be connected thro GI pipe

Minimum 5 mtr length flexible rubber hose shall be connected to the open end for discharge of waste cooling water

Engine cooling water shall be thermostatically controlled

The oil in the sump shall be prevented from overheating

Gauge for cooling water and glow lamp for lubricant system shall be provided

The cooling water outlet from PTO and additional cooling tank brought back nearer to the pump discharge

Foam tank

A compound tank of 450 ltr capacity mounted on the chassis, shall be separated for removal and replacement

Construct with SS sheet and rigid type as per AISI 304 latest edition

Thickness shall be 2.5 mm on all area

Manhole of 450 mm dia on top with SS strainer, marked foam covered with aluminium casting plate

Fitted with 2 lifting eye placed diagonally

Sharp edged puncturing device to be provided for puncturing foam compound drum

Foam tank fitted with removal sump and drain valve

Foam draw tube fitted with gauge strainer with mesh

Provide automatic venting of the foam compound tank

Draw tube length connected to foam compound tank as short as possible, for easily dismantling, cleaning and thorough flushing.

Provision for external source to draw foam compound thro a pick up tube

Provide hand operated foam transfer pump made of gun metal capacity of 20 lit/min with SS plumbing and ball valve fitted in a locker

Pick up tube connection at pump control panel

Foam compound proportionator

Foam level indicator marked with 1/4, 1/2, 3/4 and full on S S plate

Foam indicator protected with aluminium bracket sheet 1 mm thick

Pump proportionator fitted between suction and delivery of the pump, it comprise of an induct and select valve have 5 parts

Calibrated the intake of the foam at the rate of 3 %

Provide " Off position " select for use of water tender

Foam monitor

Mounted manually operated Foam monitor on the roof locker behind the cabin Traversing 360 degree on horizontal and 60 degree vertical elevation from horizontal

Self-aspirating type flow at 1400 lit /min at 9kgf/cm² and expansion not less than 8 times and aggregate discharge not less than 16800 lit /min

Foam discharge distance not less than 40 mtr at 9 kgf/cm² pressures

Monitor assembly fabricated with light bronze alloy with locking arrangement in vertical angular position/telescopic stay rod/stand for holding monitor

Hand lines

2 hand lines be provided either side of appliance at rear in locker and kept in flaked condition

Foam making branch pipes fitted with spray / jet attachment with hand control Capable of delivering of water foam not less than 450 lits/min at 8 times expansion ratio at 7 kgf/cm² and thro 20 mtrs when both are simultaneously used

Id of hose hand lines 70 mm dia length of 30 mtrs RRL/non percolating

Control of Hand line outlet shall be ball valve type with standard hose connection

Supplementary Extinguishing agent

2 sets of 2x22.5 kg CO² supplementary fire extinguishers shall be provided with accessories and standard fixation and forged grip valve, discharge nozzle ,applicator tube discharge with wheel valve and hose reel also 2 nos of DCP Fire extinguisher of 75 Kgs with discharge hose and horn to be provided. Above each item will be mounted on lockers.

Instruments and Control

Rear pump operating control will be

Pressure gauge glycerin filled calibrated from 0 to 17.5 kg/cm²

Compound gauge glycerin filled calibrated as 0to 7 kgf/cm² and vacuum 0 to -1 kgf/cm²

Engine throttle control

Foam select valve

Control valve for auxiliary foam connection

Ball valve /butterfly valve for tank to pump

Valve for engine cooling
Foam tank to induct and pump to induct isolating ball valve
Valve for hose reel control
Valve for direct filling of tank
Ball valve for monitor operation
Two 63 mm diamale instantaneous hydrant connections to be fitted with return valve with strainer. A ball valve fitted before NRV
Suction inlet of pump with isolating valve control
Two 63 mm diafemale instantaneous delivery outlets of pump with wheel type quick closing clack valve
Control for flushing out the foam making equipment and its plumbing
Glow lamp for engine lubricating system
Temperature gauge for engine radiator
Engine rpm meter on dashboard in drivers cabin
Pump hour meter
Ball valves shall be in SS
Caution plate in drivers cabin write up with PUMP ON/HAND BRAKE ON in red colour

Body work

Double compartment for driver and leader in front and crew of five in rear
Afford maximum possible vision for the crew and adequate ventilation
2 hinged doors on both side ready access to driver and crew opened to outward
Have locks with double catch striking plate
Non slip step and grab rails coated with plastic be provided for driver and crew for get in and out
Seats made with 100 mm thick foam cushion and back rest in 50 mm thick.
Hinges are heavy duty - 3 nos for crew cabin and 2 for driver cabin doors
Driver seat shall be adjustable in front and back as well as up and down
Glass of window door have winding type regulator and have splinter proof safety type
2 nos sun visors be provided on each side
Rear view mirror in bigger size on both sides
Provision to hold entire set of breathing apparatus to wear while on movement

Stowage

Cab and lockers in composite construction with rigid, reinforcement, and kept as light weight

32x32x1.6 mmsqr pipe grade A of IS used for super structure with zinc passivated coated thickness 18 to 20 microns after cleaning surface

16 gauge Aluminum sheets for exterior paneling work for all over

2mmAluminum chequered sheet for all locker, cabin floor, top of cabin roof.

Quality of aluminum as per IS 737 latest edition.

Lockers shall accommodate with stowage of all equipment and suitable clamp and quick release type.

Shadow marking for indicating location of equipment and articles

Locker will provide with automatic lighting arrangements with master switch

Lockers easy accessible from ground to a man of average height (1.67mtr)

The doors of the locker have efficient flush fitting spring loaded locks

The locker facilitated to carry 4 nos of 100 mm dia x 2.5 m long suction hose on the port side of the vehicle.

The grab rails on both side of the top of appliance will 25.4 mm ODx1.6 mm thick and 200 mm high.

Ladder gallows

Shall be provided to carry 10.5 m aluminum extension ladder.Design shall be easy withdrawal by one man and means for locking facility when stowed

Tool kit container

A suitable box to be provided for carrying all normal tools.

An electrical bellto be provided to send signal from pump panel to driver cabin

Foot board

Two foot board at the rear of the appliance

Stability

The appliance when fully equipped and loaded with crew, if the surface on which the appliance stands is tilted to either side should not virtues within 27 degree from the horizontal for which chassis will not be altered.

Articulation

Suspension capability test to be conducted as per approved vendor standard

Workmanship and Finish

Standard of workmanship and finish of all mechanical and other parts will fit correctly

Appliance painted with Fire red colour on the outside and cream colour in cabin and locker

Fire service insignia on both side of appliance in golden and black colour

All switches and gauges identify with embossed/ engraved name plates

Accessories:-

Fire bell

252 mm dia (natural tone carillon) fire bell mounted externally and be operated from driver cabin

Electrical siren of 2 Km range on roof driver cabin be provided

Fog lamp

2 nos of fog lamp mounted on front bumper

Reversing lamp

Twin amber blinker light on head of driving cabin

Traficators

1 set of illuminated with indicating light on instrument panel in driving cabin

Adjustable search light mounted in a convenient position and capable of disconnected and mounted on tripod away from appliance with 30 m TRS cable on a reel mounted

Inspection lamp with bracket protected type of wonder lead with plug provided in control panel in driver cabin

Connection for tail lamp of trailer be provided

Industrial grade trickle battery charger of minimum 6 A provided with 3 pin non-breakable plug/socket to 250 V a/c supply with 10 m main cable with

charging cable connect to battery for charging 24 V battery set. Multi voltage select, red pilot lamp indicate the charge complete, provision for auto cut off , mounted under crew seat

Battery operated PA system of 15 watts output with mike and amplifier, loud speaker in driver's cabin.

Towing hook be provided at rear of appliance to tow a 1 ton trailer

Details of Tools and Equipments:

SL.NO	DESCRIPTION	QUANTITY
01	Round bottom Fire Buckets	20
02	MS stand to hold Fire buckets	05
03	100mm dia Rubber suction hose in 2.5 mtrs length fitted with round threaded male and female couplings, Heavy duty, made of copper alloy of 100 mm size	02
04	RRL Fire delivery hose 63 mm rubber lined in 30 m lengths complete with GM couplings	25
05	Short branch pipes	10
06	Double male adopter	10
07	Double female adopter	10
08	Suction coupling 4" male and female round threaded	06
09	Colleting Breech (Gunmetal)	02
10	Dividing Breech (Gunmetal)	02
11	Safety Gum Boot	12
12	Foldable Stretcher	02
13	Helmet with Al.Bracket	15
14	Rubber gloves	06
15	Manila Rope 30 mtrs 1" dia	02
16	Search lights	03
17	Mega phone	02
18	Full face respirator	03
19	Aluminum ladder (Extendable) 35 feet FIRESCAPE make (trussed type) (Angus type) D/E as per British JCDD Spec.	01

Execution of work and using of materials in regard with fabrication of fire fighting vehicle and its accessories, workmanship, shall be related to standard specification of IS Latest Edition.If any improvement is necessary to be added

with manufacturing of appliance for modular fire fighting vehicle is to be taken care by vendor.

(Vendor to confirm the above specification in point wise)

General Conditions

- 1) Chassis will be free issued at BHEL Trichy Stores of TATA or ASHOK LEYLAND make.
- 2) Service warranty should be indicated in their offer.
- 3) All inclusive rates are considered for finalizing the offer.
- 4) Vendor may indicate in the offer the additional benefits that could be allowed free of cost.
- 5) Vendor should enclose the Technical data sheet for technical evaluation with the offer for their offered items.
- 6) After fabrication, finished Fire Tender shall be delivered at BHEL Stores, Trichy for which the Comprehensive Insurance, Road tax and temporary registration charges etc shall be in vendor's scope.
- 7) Stage inspection is to be indicated and to be processed further at every stage of manufacturing/fabrication based on our inspection.

Note: Tender to be processed in TWO PART system and vendor to quote technical offer and Price bid separately.