**Modifications:**

**Last date for submission of tender forms :16-03-09 upto 4:30pm.**

**Opening of Bids: 16-03-09 at 5.00pm**

**List and technical specifications of equipment and vehicles :**

1. [*Name of the Equipment and Vehicles and their numbers in the table below*]

| Sl. no. | List of tools, equipments and vehicles | Quantity *(in nos.)* |
|---|---|---|
| 1 | Dumper Placers(Euro-III) | 5 |
| 2 | 14 cum Compactors | 2 |
| 3 | Auto Tippers (Hydraulic) | 168 |
| 4 | 4.5 cum Containers | 66 |
| 5 | 4 compartmented 4.5 cum Containers | 130 |

2. **Technical specifications for Equipment and Vehicles:**

**AUTO TIPPERS (with 2 compartment container)**

Application and broad specifications of the equipment: The equipment shall be well maneuverable, diesel fuel 3 wheel auto chassis equipped with tipping hopper / container of capacity one cubic meter and above which can be tipped using a hydraulic arrangement. Hydraulic pumping system shall be using power from the vehicles engine . The maximum height of the top of the container shall not be more than 1.675 m and the minimum height of tipping shall be 1.45 m and be adequate for direct transfer to a secondary container of 3 & 4.5 cum capacity which are already placed in the areas for collection of biodegradable waste. The vehicle should be suitable for moving in narrow lanes.

A. TYPE: Diesel fuel 3-wheeler auto tipper with a tipping container of capacity 1 to 1.2 cubic meter and above and a net payload of 400 kg or above (excluding weight of hopper).

B. CHASSIS: Of standard make, with four - stroke engine oil cooled, fuelled by diesel with peak output level of 8 BHP or more. The vehicle shall be with reverse gear.

C. CABIN: Factory made with provision for seating driver only.

D. HOPPER / CONTAINER: Capacity one cubic meter and above made of a) side aluminum, base of MS or b) UV resistant fiberglass. Shall be provided metal top cover with suitable bolting arrangement. In case Hopper is of fiber glass, the same shall be provided with fibre top with suitable bolting arrangement. 2 compartment provision is to be made in the container for collection of biodegradable waste and non-biodegradable waste.

E. TIPPING ARRANGEMENT: To be provided with twin jack hydraulically operated with conveniently located controls. The power for hydraulic arrangement will be from engine. Tipping height should be 1.45 m above the ground level. (The supplier should collect the specifications of 3.0 & 4.5 cum containers which are already placed in the wards and design the tipping height specification in such a way to unload the collected waste to the containers accordingly.The pump capacity shall be a minimum of 2.30 LPM (liter per minute) @ 1500 RPM with an operational pressure of 160 bars (2300 psi). The hydraulic system shall be provided with a suitable directional control valve for engaging / disengaging and locking / unlocking of bucket. The tipping arrangement shall be provided with a single stabilizer wherever required.

F. PAINTING: Superior quality to ensure long lasting structure suitable for use for handling raw garbage under corrosive operations. Color shade optional from standard colors offered by the Supplier.or will be intimated to the supplier at the time of issuing purchase order.

G. OPTIONAL/ STANDARD EQUIPMENT/ FEATURES:
- Standard tool kit for each machine.
- Spare tyre and jack.
- Vehicle's manual/cd's

The supplier shall make arrangement for registration & insurance of the vehicle. The fees for the registration & insurance shall be reimbursed by the ULB.

Details can be seen in the drawing attached.

**TWIN CONTAINER DUMPER PLACER**

The equipment shall be dumper placer vehicle suitable for loading, transporting, discharging 2 numbers of 3 cum or 4.5-cum containers in combinations specified below. The containers may hold municipal waste may also be used for debris, construction waste or silt subject to live load specifications. The equipment shall be mounted on a reputed chassis and be rugged and durable.

The Dumper Placer unit would consist of a MS platform on which two containers of 3 cum or 4.5 cum will be placed with two pair of steel boom arms linked through a tie rod. This boom arms move towards and away from the left hand side of the chassis for loading and unloading the container. The two boom arms should be able to lift and unload them by tipping. Hydraulically actuated cylinders operate the arms. For tipping purpose suitable chains and hooks are provided.

A. TYPE: Pay load (inclusive of weight of lifting arrangement, containers and MSW) excluding weight of vehicle of over 4000 kg and 6000 kg for the 2 x 3 cum, 2 x 4.5 cum containers respectively. (The specifications of the Containers 3.0cum & 4.5 cum capacity respectively which are already purchased and placed in the wards)

B. CHASSIS: Would be of a standard make with company built cabin with all standard fittings and control panel. Chassis should be able to carry a net pay load of 7000 kg and suitable for 2 numbers of 4.5 cum or combination of 3 cum and 4.5 cum containers. Stabilizer legs to be provided on the left side of chassis to ensure proper load distribution and safety during operation.

C. LIFTING AND UNLOADING INCLUDING THE FRAME AND CHAINS: Dumper Placer shall be hydraulically operated and designed for a net payload given above with a tipping angle of 70 degrees. One set of guides shall be provided for smooth entry of container while loading it on bed platform. Stoppers would be provided on platform to prevent movement during transport. In the 6000 kg net pay load truck chains and lifting hooks shall be provided to lift either 4.5 cum or 3 cum containers.

D. HYDRAULIC SYSTEM: Direct engine driven hydraulic pumps with tank mounted so as to ensure constant oil flow. Equipped with easily visible level read-out gauge and replaceable filter cartridge elements. Cylinder, central valve, pump and hoses of reputed Indian or foreign make and proven performance. Maximum operating pressure 140 bars.

E. CONTROL PANEL: A control panel will be provided and located conveniently. All gauges levers and switches required for operation of the unit shall be grouped in the control panel.

F. TYRES: Heavy-duty steel radials.

G. PAINTING: Superior quality to ensure long lasting structure suitable for use for handling raw garbage under corrosive conditions. Color shade optional from standard colors offered by the Supplier.

H. OPTIONAL/ STANDARD EQUIPMENT/ FEATURES:

- Standard tool kit for each machine.
- Spare tyre and jack.

The supplier shall make arrangement for registration & insurance of the vehicle. The fees for the registration & insurance shall be reimbursed by the ULB.

## A 14 cum CAPACITY, REAR END LOADER COMPACTOR WITH DUMPER PLACER ARMS

The compactor should consists of the following main components:

a) A container body of 14 Cu. M. capacity.
b) An ejector plate with multi stage (3 or more stage) double acting hydraulic cylinders.
c) A tailgate body with two numbers of double acting cylinder for raise/opening the Tailgate.
d) A compacting unit consisting of a pair of double acting hydraulic cylinders each for both the carrier plate and packer plate. ( i.e. 4 numbers of cylinders)

e)4.5 cum container lifter with Dumper Placer Arms at the rear end, with two numbers of double acting hydraulic cylinders.
f) Hydraulic pump driven by vehicle PTO or direct drive by vehicle gear box depending on vehicle construction.

**EQUIPMENT GENERAL ARRANGEMENT:**

The skid mounted container body is of 14 CuM in volume and of rectangular cross section, fabricated from steel – as per IS 1079/IS 2062 standards, in which is housed an ejector plate located at the end of the container near the drivers cabin. To the other end of the container body is hung the complete tailgate assembly, which houses the compacting unit and the bin lifter.

**HYDRAULIC COMPONENT OF COMPACTION SYSTEM:**

- A hydraulic pump that can be either shaft or P. T. O. rear mounted on the gearbox.
- A hydraulic oil tank with a capacity of about 100 -160 liters, equipped with a suction strainer, a return line filter and a level indicator.
- A two-bank direction control valve placed at the front part of the body behind the driver's cabin enables the lifting of the tailgate and movement of the ejector plate.
- Further a three-bank direction control valve fitted on the tailgate body enables the moment of the Carrier Plate, Packer Plate and the bin lifter.
- Rigid hydraulic tubing and flexible hoses correctly sized reduce loading losses, over heating and noise when operating at maximum loads as per KSPCB norms.
- The above design features ensures a high compaction ratio to achieved maximum payload utilization, minimum cycle time and silent operation.

**COLLECTION & DISPOSAL OF GARBAGE:**

Collection of garbage shall be done by emptying / unloading the garbage into the hopper of the compactor from the containers. These containers can be emptied hydraulically by the container lifter or even emptied manually as the hopper is easily accessible. The compacting process is carried out in stages as described below:

- The packer plate which initially is at a closed position parallel to the floor of the body opens hydraulically.
- Due to the actuation of the carrier plate hydraulic cylinders, the carrier plate comes down and the packer plate shuts the hopper.
- The garbage from the hopper is swept by the packer plate and pulled into the container body by the reverse actuation of the carrier plate cylinder.
- The garbage is compacted against the ejector plate as the carrier plate ascends. The ejector plate's hydraulic circuit enables the plate to adjust its position automatically depending upon the pressure exerted on it, until it reaches the end of the stroke of its multi stage double acting cylinder.
- The tailgate is to be mechanical unlocked and the entire assembly is hydraulically lifted using the two double acting cylinders.
- The ejector plate unloads the compressed garbage within the container body by pushing the garbage out of the body, with its double acting, multi stage hydraulic cylinder.
- This system facilitates easy and quick unloading with assured machine stability during discharge.

## TECHNICAL CHARACTERISTICS:

### HYDRAULIC SYSTEM:

**Hydraulic Pump**

| | | |
|---|---|---|
| Type | : | Gear or Gerotor type |
| Location | : | Rear end of the Gear Box / independent propeller shaft |
| Pump speed | : | min 1200 -1800 RPM |
| Capacity | : | 22GPM |

**Hydraulic Cylinder Rams**

Eight nos. of double acting single stage and 1 No. of double acting multistage cylinders with all ends cushioned to be provided. Body material of these cylinders is of ST-52 and seals of reputed ISO-9000 manufacturer are used. Cylinders are manufactured by a ISO-9001/9002 certified company and documentary evidences are attached, confirming the same.

**Oil Tank**

| | | |
|---|---|---|
| Capacity | : | min 100 liter's. |
| Steel | : | min 3 mm, steel as per IS - 1079 |
| Filter | : | min 25 Microns |
| Suction | : | min 125 Microns |

### EJECTOR:

| | | |
|---|---|---|
| Steel | : | min 2 mm thick as per IS - 1079 |
| Pad | : | min 8 Nos. of rolled angles. |
| Hydraulic Cylinder | : | Multi – stage double effect with both ends cushioned |

### CONTAINER BODY:

| | | |
|---|---|---|
| Volume | : | 14 CUM |
| Steel | : | 3 mm thick as per IS – 1079/2062 |
| Thickness | : | * floor 4 mm<br>* Sides / Frame min2.5 mm<br>* Roof 2 mm<br>* Rear crossbar 5 mm |
| Hopper bottom | : | 6 mm IS-2062 |
| Hopper Capacity | : | min 2 Cu. M |
| Hopper Loading Height | : | min 1 Mtrs. (approx. from ground) |

Leachate tank in stainless steel construction of min 400 lts capacity to be provided

Leachate release valves to be provided

**CONTAINER LIFTER WITH DUMPER PLACER ARMS:**

Container Lifter with Dumper Placer Arms shall be provided along with the compactor. This container lifter should be capable of lifting skips of 3.5 $m^3$ to 4.5 $m^3$.

The two Dumper Placer Arms are to be linked through a tie rod, that moves about the hinged axis located at the rear end of tailgate to load and unload the skip. The reverse does the loading and unloading of the skip and forward movements of the hydraulic cylinders linked to the dumper placer arms. One hydraulic cylinder is to be provided on each side of the tailgate. Control lever for operation is to be installed at a convenient position such that the working of hydraulic cylinders can be controlled safely. A safety valve is provided in the system to avoid sudden descent of container lifter in a case of failure of hydraulic pressure.

**TAILGATE AND COLLECTION HOPPER:**

| | | |
|---|---|---|
| Sides | : | min 3 mm as per IS-standards |
| Bottom of hopper | : | min 6 mm as per IS-standards |
| Opening | : | By 2 double acting hydraulic cylinders |

**COMPACTION SYSTEM:**

| | | |
|---|---|---|
| Plates | : | A pair of sliding carrier plates, a packer plate and one number of ejector plate. |
| Packer Plates | : | as per IS –.standards |
| Carrier Plates | : | as per IS – standards |
| Ejector Plate | : | as per IS – standards |

**PERFORMANCE:**

| | | |
|---|---|---|
| Compacting Level | : | To achieve terminal garbage density of 600-700 kg/CuM. (According to the type of garbage) |
| Total cycle | : | About 30 seconds (component-wise cycle time (breakup sheet to be furnished to establish a total cycle time) |
| System Operating Pressure | : | 120 bar. |
| Total equipment weight without chassis | : | above 4500 kgs |

**EASE & SAFETY FEATURES:**

- Carrier plate movement and packer plate movement to be continuous and independent of operator intervention.
- Container-lifting mechanism to be fully controllable by the operator at any position.
- A safety valve is to be provided to prevent sudden descent of tailgate in a case of failure in hydraulic pressure.

**SPECIFICATION FOR CHASSIS:**

The Equipment Garbage Compactor should be mounted on the suitable cab chassis with EURO III model fitted with hydraulic pump of 63 lpm . The details of the chassis specification as , GVW of chassis should be not less than 16,000 kgs., H.P. Of the chassis min. 130ps at required rpm., Gear Box : 6 forward & 1 reverse., power steering. , minimum wheel base should be min 4200 mm .

**SPECIFICATION OF 4.5 CUM CONTAINER**

- The 4.5 cum Container shall be designed for use with the skip loader compactor placers as well as the Dumper Placer Arms of 14 cum Garbage compactor.
- It is to be fully fabricated & welded construction made by using 3.15 mm sheet for sidewalls, top and for Bottom. Plate use 5 mm.
- To be sufficiently reinforced with Rolled section at the bottom & sides. Additional stiffening is to be provided at four corners.
- To be provided with 4 nos. Lifting Pins at its sides suitable for lifting by skip Loader as well as by the Dumper Placer Arms.
- Should have 4 nos. bars welded as shown for locking with the Dumper Placer Arms. And has the locking rod at the bottom top enable tipping when used with a skip Loader.
- Have the 4.5 cum storage capacity for garbage.
- Before painting make sand blasting operation inside & outside of the container.
- For corrosion resistance of Container to be coated with 2 coats of red oxide primer on inner and outer sides of the Container, 2 coats of Synthetic Enamel Golden Yellow paint outside & 2 coats of black epoxy paint on the inner side. Resistant proof paint.

Detailed can be seen in the drawing attached.

**3.Earnest Money Deposit (EMD)**

3.1 Each quotation shall be accompanied by EMD as per the below table and to be calculated on the basis of total quantity of equipments/vehicles to be supplied (not on the unit quantity)

| Quotation Value (Rs. lakhs) | Value of EMD (Rupees) |
|---|---|
| Less than 5 | 2.5% of the quotation Value |
| More than 5 but less than 10 | 20,000 |
| More than 10 but less than 20 | 30,000 |
| More than 20 but less than 50 | 50,000 |
| More than 50 but less than 100 | 1,00,000 |
| More than 100 | 1 % of the quotation value |

3.2 The EMD shall be in the form of a crossed demand draft / banker's cheque drawn in favour of Commissioner, Mysore City Corporation, Mysore on any Scheduled Bank, payable at Mysore.

**3 Delivery schedule for the equipment and vehicles**

| Sl. No. | Equipments and vehicles | Time for delivery[1] (days) |
|---|---|---|
| 1 | Dumper Placers(Euro-III) | 30 days |
| 2 | 14 cum Compactors | 30 days |
| 3 | Auto Tippers (Hydraulic) | 30 days |
| 4 | 4.5 cum Containers | 30 days |
| 5 | 4 compartmented 4.5 cum Containers | 30 days |

Delivery location: Mysore City Corporation, Mysore

**4 Payment Terms:**

On receipt of Equipments and Vehicles - 100%

**5 Transit Insurance**

The Supplier is responsible for transit and all other insurances till the equipment and vehicles are delivered at the location mentioned in this Procurement Order.

**6 Taxes and duties**

Taxes and duties shall be included in the indicated price.

**7 Insurance and Registration charges**

The quoted rate shall not include the cost of insurance and registration charges. This amount shall be reimbursed by the ULB against submission of proof.

**8 Warranty Period:**

Supplier shall warrant that the supply shall be warranted against faulty materials and workmanship for the equipment and vehicles as indicated in the following table:

| Sl. No. | Equipment and vehicles | Warranty period[2] (months) |
|---|---|---|
| 1 | Dumper Placers(Euro-III) | 12 months |
| 2 | 14 cum Compactors | 12 months |
| 3 | Auto Tippers (Hydraulic) | 12 months |
| 4 | 4.5 cum Containers | 12 months |
| 5 | 4 compartmented 4.5 cum Containers | 12 months |

[1] From the day of award of the Purchase Order

[2] From the day of award of the Purchase Order

## 9 Liquidated damages for delay

0.5 %of the Financial Quotation per one week of delay.

**Qualification Criteria:**

The Supplier should have supplied the minimum number of equipment and vehicles for the equipment and vehicles for which they have offered their financial quotations.

**Table no.1:**

| **Equipment / Vehicle** | **Qualification Criteria** |
|---|---|
| [*Name of the Equipment and Vehicles*] | [N*umbers of the Equipment and Vehicles supplied*] |
| Dumper Placers(Euro-III) | 10 |
| 14 cum Compactors | 5 |
| Auto Tippers (Hydraulic) | 20 |
| 4.5 cum Containers | 40 |
| 4 compartmented 4.5 cum Containers | As per Nurm guidelines, MCC is going for segregation of bio-degradable & non-biodegradable waste at primary level and further segregation of non-biodegradable waste into 4 types., viz glass, plastic, metal & Hazardous waste at the secondary level. The supplier should present one sample of four compartment 4.5 cum container (which can be lifted by Dumper Placer Vehicle)before the technical committee and same would need to be approved by them and after approval , the same could be manufactured for the remaining quantity (nos.) and delivered to MCC. |

The supplier should furnish the details of experience along with the indicated supporting document in the format set out below;

| **Equipment/Vehicle** | **Applied** | **Numbers supplied** | **Proof of Experience** |
|---|---|---|---|
| **(Insert list)** | **Yes/No** | **----------Nos.** | **Copy of Purchase order from the client** |

The Supplier should meet any one of the financial criteria as set out below:

i. The Supplier shall have a Net Worth[3] of double the quotation value quoted by the Supplier in the last two years;

ii. The Supplier shall have Net Cash Accruals[4] of equal to the cost of work quoted by the Supplier in the last two years;

iii. The Supplier shall submit a solvency certificate from a scheduled bank for an amount double the quotation value

The Supplier should provide the financial capability based on its own financial statements. Financial capability of the Supplier's parent company or its subsidiary or any associate company will not be considered for computation of the financial capability of the Bidder.

The Suppliers should furnish the details of experience along with the supporting documents as indicated in the format set out below:

| **Experience Criteria** | | **Supporting Document** |
|---|---|---|
| Financial Capability[5] | • Net worth of Rs. ____ lakhs and Rs. ____ lakhs respectively for the current year (provisional) and last year or for the last two years.<br>• Net Cash Accruals of Rs. ____ lakhs and Rs. ____ lakhs respectively for the current year (provisional) and last year or for the last two years. | • CA certified Net Worth Statement<br>• CA certified Net Cash Accruals calculations |

[3] Net Worth = (Subscribed and Paid-up Equity + Reserves) - (Revaluation reserves + Miscellaneous expenditure not written off)

[4] Net Cash Accruals = (Profit After Tax + Depreciation + Non cash Expenses)

[5] Net Worth and Net Cash Accruals shall be in accordance with the guidelines on the Financial Capability set out in the notification issued by the Public Works Department, Government of Karnataka.