

RAIL COACH FACTORY, KAPURTHALA		
Draft Specification No.	Description	Covering Page (Total 12 pages attached)
Mech/M&P/3700/GM/16 Rev.- 01	Industrial Vacuum Cleaner	

Designation	Signature	Level
SSE/M&P		Prepared
AWM/M&P		Reviewed
Dy.CPE-II		Agreed
CWE/Fur.		Approved
CPE		

S.no.	Issue/ Rev	Changes
1.	Clause no. 6.5- Added	Firm required to submit QAP (Quality Assurance Plan) alongwith bid for the inspection of equipment at manufacturer premises.
2.	Annexure-I Clause no. 1.2- a cleaning forward speed of 7 km/hr (min.) and reverse speed of 4 Km/hr (min.) on metal road/concrete.	a cleaning forward speed of 4 to 7 km/hr (min.) depending upon the dust load on metal/concrete road.
3.	Clause no. 2.7.1- It shall be made of Proxy Steel wire material	It shall be made of Proxy Steel wire/ synthetic fiber bristles/PPL material
4.	Clause No. 2.41.1- front wheel drive	front/rear wheel drive
5.	Annexure-I ( Schedule-I)	
6.	Clause No. 1.6 Fuel Consumption-2 liters/hr (max.)	3 liters/hr (max.)
7.	Clause No. 4.4 Main Broom Diameter-250-300 mm	250-400 mm
8.	Clause No. 8.1 Filter Cleaning System- Electro-mechanical	Electro-mechanical/Compressed Air purging system

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## 1.0 IMPORTANT INSTRUCTIONS TO TENDERERS FOR FILLING TECHNICAL BID

- 1.1 Bidders are required to give clause wise comments on the technical specifications, confirming compliance/non-compliance with details of deviations if any along with their effect on the performance. Back references to be avoided, offers are likely to be ignored in case of non-compliance of these instructions for furnishing the information.
- 1.2 Unless otherwise stated, latest alterations/ revisions of specifications/ standards/ drawings shall be applicable. In respect of safety, energy efficiency and environmental standards relevant to the machine, the machine manufacturers shall ensure compliance with international (CE/ISO/DIN/JIS/IEC)/National standards (IS) (wherever applicable).
- 1.3 Tenderers should offer and quote for all the specified concomitant accessories, as these are considered essential for commissioning and utilization of the machine. Even if bidder does not recommend the purchase any of these accessories, the price must be quoted for comparison purposes and their recommendation/suggestion indicated in the offer.
- 1.4 Tenderers should also quote for optional accessories, spares and consumable spares as asked in the specifications.
- 1.5 In case, any item is required in sets, please specify nos./pieces per set. This is essential for proper technical evaluation of the offer. Offers received without this may be considered as incomplete and liable to be rejected.
- 1.6 The bidder should quote only for the specified make of sub-assemblies and equipment wherever specified. Makes of sub-systems other than the specified ones will normally not be acceptable. In case, some other make is quoted, specific reasons for the same including its features/advantages over specified makes must be brought out in the offer.
- 1.7 In case there is a contradiction in any information provided (some parametric values given in the specification and those given in the brochure or some other document enclosed by the tenderer), unless specifically mentioned in the deviation cum confirmation statement the values as given in the specification shall be taken as confirmed by the tenderer and offer evaluated accordingly.
- 1.8 The Purchaser may accept internationally accepted alternative specifications which ensure equal or higher quality than the specifications mentioned in the Technical Specification. However, the decision of the Purchaser in this regard shall be final.
- 1.9 Purchaser reserves the right to verify the details submitted by the bidder by actual site visits.
- 1.10 Other terms & condition of the contract will be as per Indian Railway Standard conditions of contract.
- 1.11 Tenderer not submitting the requisite information may note that his offer is liable to be ignored.

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## 2.0 PURPOSE

Industrial Vacuum Cleaner is required for fast cleaning of large indoor factory at most economical costs. The equipments shall be capable of sweeping and scrubbing respectively flat, horizontal, smooth or moderately rough, even and obstacle free floors in civil and industrial premises.

## 3.0 DESCRIPTION AND SCOPE OF SUPPLY

- 3.1 The scope of supply covers manufacture, supply, commissioning and prove out of Industrial Vacuum Cleaner as per specifications in Annexure-I along with all standard accessories, lights, tools, instruments and tools etc. normally supplied for proper operation even though not specifically mentioned herein.
- 3.2 The supply shall also include all equipments and accessories which the manufacturer considers essential to make the equipment fully functional when installed and put into operation.
- 3.3 Other concomitant accessories/ equipment which the manufacturer considers essential to make the machine fully operational when installed and commissioned with requirement of utilities, etc if any, should be clearly indicated by tenderer in the offer.
- 3.4 The total value of the offer will be calculated on.
  - i. The cost of the basic machine.
  - ii. Cost of the concomitant accessories according to tenderer specification.
  - iii. Cost of any other accessory treated as concomitant accessory.
  - iv. Application duties and taxes, insurance, freight and installation and Commissioning charges.
- 3.5 Technical experts of the manufacturer during commissioning of machine will fully and adequately train the operators/ maintenance staff nominated by the consignee.

## 4.0 ELIGIBILITY CRITERIA

- 4.1 The tenderer shall have established quality control system and organization to ensure adequate control at all stages of the manufacturing process.
- 4.2 The tenderer shall provide a performance statement giving a list of major supplies to Indian Railways giving details of the order no. and date and the quantity supplied and whether the supply was made within the delivery schedule. Such period shall be reckoned from the date of opening of tender. Tenderer should also provide the prove out test certificate of his supply/supplies. All above documents shall be uploaded along with the offer.
- 4.3 Only OEM of equipment or their authorized dealers can only participate in the tender and shall submit Authorization certificate along with the offer.

## 5.0 OPTIONAL ACCESSORIES

Any other accessory, which is in the opinion of the tenderer can contribute to higher production rates, should be indicated and quoted separately mentioning prices of each accessory.

## 6.0 INSPECTION OF EQUIPMENT & TESTING AT MANUFACTURERS WORK

- 6.1 Manufacturers must have suitable facilities at their works for carrying out various performance tests on the equipment. The tenderer should clearly confirm that all the facilities exists and shall be made available to the inspecting authority.
- 6.2 Inspecting agency will verify all above parameters indicated in the specification before granting commissioning certificate.
- 6.3 Operation of all safety devices and overall operations of electrical systems shall be tested at firm's premises for satisfactory performance.

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6.4 Any precaution & extra care intended in the use of the equipment should be explicitly informed.

6.5 Firm is required to submit QAP (Quality Assurance Plan) alongwith bid for the inspection of equipment at manufacturer premises.

#### **7.0 INSTALLATION, COMMISSIONING AND PROVING TESTS**

7.1 The contractor or his agent would be required to carry out a joint check at the consignee's end, along with the consignee, before unpacking is done, to avoid subsequent complaints regarding short shipment/transit damages. It is necessary that this joint inspection be done immediately on receipt of the machine by consignee to avoid commissioning delays due to shortages/transit damages.

7.2 Installation of the machine would be done under the supervision / direction of firm engineers. The contractor shall arrange commissioning of machine after installation is done. Adequate number of teams of technical experts will be made available so that the commissioning delays are eliminated. Such personnel will be required to be present as soon as the machine has been received.

7.3 The contractor or his agent shall commission the machine within 15 days from the date of receipt of machine.

7.4 The machine performance shall be demonstrated to the full satisfaction of consignee at the consignee's works specifically with respect to Productivity and Fuel Consumption (as per Schedule-I)

7.5 If an assembly/sub-assembly requires to be taken back to the manufacturer's premises for repairs/replacement either before commissioning or during warranty, the manufacturer or his agent would be required to submit a Bank Guarantee.

7.6 In case the entire machine has to be taken back, a Bank Guarantee would have to be submitted. The Bank Guarantee should be of adequate value so as to cover the cost of the assembly/sub-assembly/paid up cost of the machine.

#### **8.0 TECHNICAL LITERATURE**

8.1 One copy of the printed illustrative catalogue showing technical features of the machine and its elements must be enclosed with each copy of the bid.

8.2 The successful tenderer will have to furnish, for each machine 4 copies of spare parts catalogue giving the part list number of each component with exploded views and assembly drawings of major assemblies, maintenance manual, safety manual, trouble shooting guide, operational manual of the machine and all electrical circuit diagrams to the consignee directly within the period of supply. The bidders should provide a list of literature, they will supply along with the machine. The technical literature shall be provided for complete machine including imported and indigenously purchased components/sub-assemblies.

#### **9.0 SPECIAL FEATURES**

Special features incorporated in the equipment, if any, shall be indicated separately by the tenderer, clearly indicating advantages of the features.

#### **10.0 MAKE**

10.1 The supplier shall clearly mention whether the system quoted is Indian make or imported. If Indian make, the tender should be accompanied by duly sanctioned factory license & relevant documents & also produce records of installation & satisfactory after sales service performance of their equipment from at least one govt. Institution of similar or large size for duration at least 3 Years duration.

10.2 If imported item, the OEM firm should be registered for operations in India for a minimum period of last 3 years. In case this is not so, the dealer should be authorized regional supplier & service provider for the last 3 years. He should also produce installation & satisfactory after

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- sales service record of duration at least last 3 years from at least one govt. Institution for a system of similar or larger size. Further the tender should be accompanied by authorization certificate from OEM.
- 10.3 The supplier shall furnish the complete details of Model No. Make & Manufacturer's details/ address, Country and authorization details of Dealership.
- 11.0 DEVIATIONS:**  
The tenderer should clearly certify that the machine offered fully meets the specification various design features incorporated in the machine to fulfil different technical performance requirements should be fully explained in the offer. However, minor deviations from this specification, which do not affect or in any way interfere with the stipulated performance standards, or would result in improved safety/reliability or would reduce recurring maintenance/operating cost of the machine, can be considered for acceptance.
- 12.0 SERVICING FACILITIES**
- 12.1 Service facility in Punjab, Address and contract details including phone and fax no. to be provided. The facility should have the necessary equipments recommended by the manufacture to carry out preventive maintenance test as per guideline provided in the service / maintenance manual. Firm should provide list of equipment available for providing calibrations and routine maintenance support as per manufacturer.
- 12.2 Supplier will undertake for service repairs & replacement of any needed part as & when needed.
- 12.3 Maintenance contract to be quoted after the expiry of maintenance period quoted above with details of scheduled visits, part covered under contract & cost of parts not covered as well.
- 12.4 The tenderer shall clearly spell out in the offer about the facility available with him or his agent/dealer for providing adequate after sales service in Punjab during warranty period.
- 12.5 The contractor shall give a comprehensive spare part list with OEM details and price for all the sub systems.
- 12.6 The tenderer/contractor shall provide list of spares, consumables required for maintenance for 5 years after completion of warranty period as per annexure A.
- 12.7 Tenderer shall provide expected life for the components of the system and provide the maintenance schedule required for 10years for as per annexure -A
- 12.8 Total up time of the system should be at least 90%. Up time shall be counted in following manner:-
- A) Total breakdown of less than 8 hours shall be ignored for the purpose of this calculation.
- B) Penalty may be imposed if the down time is more than 10% without any valid reasons. The levy of token penalty as deemed fit based on the merit of the case may also be considered.
- 12.9 Tenderer shall provide the service charges /per day/per man for deputing service engineer on the machine on requirement separately for Indian and Foreign engineer.
- 13.0 WARRANTY**
- 13.1 As per IRS conditions or as quoted by the tenderer whichever is later.
- 13.2 Warranty period for part or machine shall be extended after completion of warranty period by the duration under which the part or machine remains under breakdown during warranty.
- 14.0 SCHEDULE OF ANNUAL MAINTENANCE CONTRACT (AMC) FOR PERIOD OF 5 YEARS AFTER COMPLETION OF WARRANTY PERIOD**
- 14.1 Tenderer shall provide proposal for 5 year Annual Preventive Maintenance schedule to be executed after completion of warranty period in the format as per annexure-B.
- 14.2 The firm shall maintain the machine in good working condition during the contract period and shall correct the fault or failures, repair or replace the worn or defective parts/equipment during

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- the normal working hours of shop where the equipment has been installed. Unserviceable parts/equipment need to be replaced at no extra cost with brand new parts/equivalent or superior specification.
- 14.3 The firm shall respond by deputing service personal to oral / telephonic/ or other modes of intimation for repair and maintenance of the said machines within 2 hours.
- 14.4 The firm shall ensure that the machine is in proper working condition, to the full capacity, after repair and maintenance.
- 14.5 To have a timely supply of spares during AMC, the contractor shall furnish a total list of spares which should contain list of spares that shall be arranged by the firm, both chargeable, duly mentioning the charge against each item, and spares which shall be non-chargeable, and list of spares to be held by RCF.
- 14.6 The contractor shall clearly list-out the list of consumables required for day-to-day operation of the machine. It shall be the scope of RCF to arrange the consumables once the completion certificate is issued for the retrofitted machine.
- 14.7 The tenderer/contractor shall provide suitable standby when repairs exceeds 2 hours. When any equipment is taken for repair to the tenderer/contractor's premises suitable standby equipment should be provided.
- 14.8 Besides attending the breakdown calls, the firm shall attend to the corrective and preventive maintenance of the machines once in a month.
- 14.9 The AMC is valid for five years from the date of completion of the warranty period. No freight is admissible.
- 14.10 During the AMC period, whatever equipment is defective shall be handed over to RCF. During completion of the AMC period the machines should be handed over in full working condition to its full capacity.
- 14.11 The firm should maintain a register duly indicating the nature of defects and repair attended and got signed by RCF authority. Preventive maintenance schedule should be made. The schedule should be made in such a way that more than one machine should not be attended on the same day. A copy of the schedule should be given to RCF at the beginning of the AMC and the schedule should be strictly followed and on carrying out the preventive maintenance the same should be entered in the register and got signed by RCF authority.
- 14.12 AMC charges shall be paid quarterly as one quarter of the total AMC charges applicable for that year on submission of bills duly certified by the engineers in charge with regard to the satisfactory execution of AMC during the period for which the bill is claimed. Duties & taxes as applicable at the time of payment shall be deducted at source.

#### 15.0 PAYMENT TERMS

80 % on receipt of machine and balance 20% after successful commissioning of machine and submission of Bank guarantee equivalent to 10% of P.O value valid up to the warranty period of the machine.

#### 16.0 DOCUMENTS TO BE UPLOADED FOR TECHNICAL EVALUATION

Following documents must be submitted by the tenderer along with the offer:

1. Clause wise comments on technical specification
2. Documentary evidence of previous supplies to other Railways
3. Authorisation certificate of OEM in case of Authorised dealer
4. Detailed list of spares covered under warranty.
5. Details asked as per Annexure A and Annexure-B.
6. Details of deviations from specification if any as per Annexure-C
7. QAP as per clause no. 6.5 above.

Tenderer not submitting the above information may note that his offer is liable to be ignored.

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## ANNEXURE-I

### 1. PURPOSE FOR WHICH REQUIRED AND CAPABILITY

- 1.1 The vehicle shall be capable of exclusively carrying out road and/or industrial cleaning operations, to collect dust, debris, paper, leaves, etc.
- 1.2 It shall be capable of having a cleaning forward speed of 4 to 7 km/hr (min.) depending upon the dust load on metal/concrete road.
- 1.3 It shall be capable of Simple and efficient disposal of collected dirt and debris. It shall enable overhead dumping of collected dirt and debris directly into refuse containers. Control for overhead dumping shall be operated from driver's seat.
- 1.4 The equipment shall be designed for minimal wear and maintenance. Further it should be compact in size, capable of working in narrow lanes/aisles.
- 1.5 The equipment shall be capable of working under severe working conditions of Railway workshops and municipal areas, parks etc. involving rough, uneven, ballasted and dusty roads, rough handling and heavy duty demands round the clock.
- 1.6 It shall work satisfactorily in hot humid and dusty atmosphere. Temperature variation may be from - 10 deg C to +40 Deg C. Humidity (without condensate) may be 30% to 95%.
- 1.7 At cleaning sites, the vacuum sweeper shall be capable of overcoming the various side obstructions in the path of swiveling side brushes.
- 1.8 The equipment shall be of the latest model incorporating the latest design and construction features and shall be of standard make under the production of the manufacturer. The equipment shall be of proven performance.

### 2. GENERAL FEATURES

- 2.1 The vehicle shall be capable of sufficing the requirement of productivity as mentioned in Schedule-I.
- 2.2 **Engine:**
  - 2.2.1 The engine shall be water cooled Diesel Engine. It shall be equipped with governor, electric starter, heavy duty air cleaner, full flow oil filter, and alternator and exhaust gas purifier. Engine shall be of Lombardini/Escorts/ M&M or similar. The engine shall be atleast BS-IV compliant.
  - 2.2.2 It shall be of reputed make and of adequate horse power, having adjustable speed irrespective of load by means of variable speed governor should be provided.
  - 2.2.3 It shall also be capable of continuous working of minimum 5 hours without overheating in Indian conditions. Complete technical details of the engine should be furnished by the tenderer along with the offer which shall include type of diesel engine, make, H.P, rpm no. of cylinders, type of cooling and starting system.
  - 2.2.4 The vehicle shall be equipped with fuel tank capacity of min. 15 liters with gauge and the vehicle shall also have fuel consumption of max. 2 liters/hr.
- 2.3 **Drive:**
  - 2.3.1 The drive shall be reliable and capable of Easy control for the driver to achieve infinitely variable forward and reverse travel.
  - 2.3.2 Driving and sweeping operations shall be independent of each other through separate operation circuits. Bidders to specify type of drive provided and details of drive control.
- 2.4 **Operation:**

The controls shall have instant forward and reverse drive by single foot pedal control, electric control for drive of main broom, elevator, side brush control of hopper dump, foot brake and hand brake as mentioned in Schedule-I. Filter shaker and vacuum shut off shall also be provided. Ignition lock, lights, chock and throttle shall be within easy reach of driver. All controls for starting forward and reverse travel, braking brush driving, variable engine speed governor and levers for dumping shall be conveniently located within driver's reach.

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**2.5 Brakes:**

The vehicle shall be equipped with the provision of Mechanical type Service and parking Brakes. The operating brake system shall be reliable and easy to maintain.

**2.6 Sweeping Width:**

The equipment shall be supplied with Side Brushes. Sweeping width with 2 (Two) side brushes shall be at least 1600mm.

**2.7 Brush:**

**2.7.1 Main Broom:** Main Broom shall be rotary type and height should be easily and infinitely adjustable to the working conditions and degree of bristle wear without need of removing. The Brush assembly should be easily maintainable. It shall be made of Proxy Steel wire/synthetic fiber bristles/PPL material and shall be hydraulically driven with details as mentioned in Schedule-I. Make and Life of Broom shall be specified by the bidder.

**2.7.2 Side Brush:** Side Brush shall be disc type with synthetic fiber bristles/PPL material. The design and construction of Side Brush shall be such that it shall be capable of bypassing obstructions in its path. Side Brush shall be hydraulically driven with constant rpm type with details as mentioned in Schedule-I. Make and Life of Brush shall be specified by the bidder.

**2.8 Wheels:**

The vehicle shall be provided with heavy duty industrial solid cushion tyres.

**2.9 Body and Chassis:**

**2.9.1** The vehicle shall have Chassis made of Steel Material with thickness of 2 to 5 mm.

**2.9.2** The vacuum sweeper shall have an attractive, enclosed body, elegantly painted in attractive color over Epoxy primer resistant to chemicals, chipping and sub-surface rust.

**2.9.3** The body shall be of robust construction suitable for heavy duty industrial and municipal applications. It should have smooth continuous surfaces for easy cleaning.

**2.9.4** The frame of the vehicle shall be sturdy steel frame with removable paneling.

**2.10 Dust Extraction System:**

**2.10.1** The vacuum sweeper shall be capable of collecting the dust and debris from along the edges and corners with the help of swiveling side brushes and bringing it into the path of wide main rotary broom, which in turn will throw the dirt and debris into the hopper. The whirling fine dust shall be collected by the vacuum system to ensure practically dust free cleaning without raising dust. The depression created by the vacuum system shall be as mentioned in Schedule-I.

**2.10.2** Debris to be collected may be in the form of mud, small pieces of bricks, stones, pebbles, tree leaves, etc Bidders to specify size and weight of the debris.

**2.10.3** The filter cartridges provided for fine dust shall be of best quality to ensure long life and good performance. It shall consist of individually replaceable filter elements with a total filter area of atleast 4 m<sup>2</sup>. Filtering capacity shall comply to as mentioned in Schedule-I.

**2.10.4** The machine shall be equipped with industrial grade suitable filter cleaning system. Bidder shall provide details of the same in the offer.

**2.10.5** Dust filtration shall be through suitable size filters and also have a suitable system for ensuring very high level of dust filtration

**2.10.6** The vehicle shall be equipped with hydraulically driven Lifting Flap for bulky debris.

**2.11 Hopper:**

**2.11.1** Hopper to be provided shall be of sturdy construction specifically made up of Steel and capacity 340 litres as specified in Schedule-I.

**2.11.2** Design of vacuum sweeper shall facilitated high level emptying into waste container controlled hydraulically from operator's seat. Dumping Height shall be as mentioned in Schedule-I.

**2.11.3** The emptying height shall be adjustable to suit the heights of refuge containers.

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### 2.12 Road Use:

The vacuum sweeper shall be fully equipped for road use. It should be provided with head lights, parking lights, tail lights, directional lights, 4-way hazard warning lights, electric horn etc. as standard equipment.

### 2.13 Ground Clearance:

The Vacuum sweeper shall ground clearance to be capable of passing over curbs, rails and other obstructions.

### 2.14 Hydraulic System:

2.14.1 The IVS shall be equipped with drive pump with variable flow which drives hydraulic motor on front/rear wheel drive.

2.14.2 The IVS shall be equipped with auxiliary pump which supply oil for main broom, elevator, side broom and hopper dump cylinders. The hydraulic system should be controlled by the electrically controlled hydraulic valves. Bidder to furnish details of the hydraulic system.

### 2.15 Maintainability:

The design of equipment shall ensure that all important equipments and controls are so located as to ensure easy accessibility for normal maintenance and removal form repairs etc. and absolute safety during operations. Grease nipples/oil cups shall be provided to ensure positive lubrication at required locations.

### 2.16 Sound Level:

Sound level shall be 80 dBa approx. At normal operating speed to be measured as per IS: 3028:1998 and the Noise Pollution Rules (Regulation and Control), 2000.

### 2.17 Emission Standards:

The Engine shall comply with pollution emission standards set by Central Government for at least BS-IV vehicles. Bidder shall submit such certificate along with the offer and shall also produce at the time of inspection at firm's premises and prove out at RCF, Kapurthala.

### 2.18 Safety Features:

The vehicle shall be equipped with various safety features such as Emergency Switch, Acoustic Warning system, Auto Stop feature, Horn and Beacon as specified in Schedule-I.

## 3. CONCOMITANT ACCESSORIES

3.1 The following concomitant Accessories shall be supplied along with each equipment or in addition to the quantity already part of the machine:

- (i) First fill of lubrication and hydraulic oil - as per requirement  
(qty brand name and source of supply of indigenous oils to be indicated)
- (ii) Main Broom - 20 nos.
- (iii) Side Brush - 40 nos.
- (iv) Rubber Flaps - 06 sets
- (v) Operation and service tools (List to be submitted) - 02 sets
- (vi) Tyres - 01 set
- (vii) User Manual and Maintenance Manual(safety manual in specific) -04 nos.

3.2 In addition to above, the tenderer shall supply a list of concomitant accessories, which will be supplied along with the machine. The cost of each listed concomitant accessory should be quoted separately. Wherever for any reason the cost of any concomitant accessory is included in the basic price of the machine the same should be specifically mentioned.

3.3 Any other accessory, which in the opinion of the tenderer can contribute to higher performance, should be indicated and quoted separately.

3.4 A maintenance tool kit containing hand tools is required to cover all the fasteners of all sub-assemblies of the equipment.

## 4. SPARES & CONSUMABLES

4.1 The tenderer should furnish details of spares covered under warranty.

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- 4.2 List of important spare parts and accessories with their part number and costing.
- 4.3 The tenderer should be furnishing the price list of spare parts required for two years normal maintenance of the equipment. Sources of supply of spares used other than that of manufacturer should be furnished by the tenderer.
- 4.4 Bidder shall also quote for following compulsory spares / consumables which shall be considered for commercial evaluation in case of Diesel Operated Ride on Industrial Vacuum Sweeper (01 no.)

	<b>Description</b>	<b>Quantity</b>
a	Hyd. motor for main broom	1 no.
b	Hyd. motor for side brush	1 nos
c	Main hydraulic pump	1 nos
d	Repair kit of hyd. Pump	1 set
e	Repair kit of hyd. Motor	1 set
f	Hydraulic drive motor	1 no.
g	Solid cushion tyres	1 set
h	On /off and starting Switch	5 Nos. each
i	Battery terminal	20 nos
j	Battery Wire	10 sets
k	Yellow Flasher light	5 nos
l	Bulb for every light	5 nos. each
m	Repair kit for main broom motor	1 no.
n	Repair kit for side brush motor	1 no.
o	Main Broom	1 no.
p	Side Brush	2 nos.
q	Rear Flap	1 no.
r	Hopper Flap	1 no.
s	Hydraulic Oil Filter	1 no.
t	Traction Pump Filter	1 no.

Bidders to submit details of item (d) and (e)

- 4.5 List of recommended spares for normal maintenance after expiry of warranty period to till useful life of the equipment and these spares should be readily available in the market with your authorized stockists.
- 4.6 List of recommended consumables for two years shall be quoted separately.
- 4.7 Useful life estimated/expected for each equipment and its sub assembly should be indicated by the bidders.

**Note: Please offer your comments latest by 15.03.2023 on email: [dycpe1.rcf@gmail.com](mailto:dycpe1.rcf@gmail.com) for finalization accordingly failing which it will be assumed that there is no objection on the specification .**

**RAIL COACH FACTORY, KAPURTHALA****CONSIGNEE: Dy.CME/Fur**

<b>Specification No.</b>	<b>Description</b>	<b>Page No.</b>	<b>Date</b>
Mech/M&P/3700/GM/16 Rev.- 01	Industrial Vacuum Cleaner	10 of 12	13.02.2023

**Schedule-I****DIESEL OPERATED RIDE ON INDUSTRIAL VACUUM SWEEPER**

<b>Parameters</b>		
<b>1.</b>	<b>Engine Details</b>	
1.1	Displacement and HP	to be quoted by the bidder
1.2	No. of Cylinders	to be quoted by the bidder
1.3	Cooling System	Water
1.4	Fuel	Diesel
1.5	Fuel Tank Capacity	15 L with gauge(min.)
1.6	Fuel Consumption	3 liters/hr (max.)
1.6	Climbing Ability	18% @GVW (min.) 14% while working (min.)
<b>2.</b>	<b>Max. Sweeping speed</b>	Forward- 4.0 to 7.0 Km/hr (min.)
<b>3.</b>	<b>Productivity</b>	7000 m <sup>2</sup> /h(min.) at 7.0 Km/hr
<b>4.</b>	<b>Sweeping Head</b>	
4.1	Sweeping Width with Main Broom	900 mm (min.)
4.2	No. of Disc brushes	2
4.3	Sweeping Width with Side Brushes	1600 mm (min.)
4.4	Main Broom Diameter	250-400 mm
4.5	Main Broom Speed	420 rpm (min.)
4.6	Side Brush Diameter	550 mm (min.)
4.8	Side Brush Speed	90 rpm (min.)
4.9	Transmission	to be quoted by bidder
4.10	Motor	to be quoted by bidder
<b>5.</b>	<b>Hopper</b>	
5.1	Capacity	340 liters (min.)
5.2	Hopper Material	Industrial Grade Steel
5.3	Hopper Emptying System	Hydraulic
5.4	Dumping Height	1350 mm (min.)
<b>6.</b>	<b>Suction System</b>	
6.1	Type of Suction fan	to be quoted by bidder
6.2	Fan Diameter	to be quoted by bidder
6.3	Depression	190 mm of H <sub>2</sub> O (min.)
6.4	Max. air flow	500 m <sup>3</sup> /hr
6.5	Transmission	Hydraulics
<b>7.</b>	<b>Dust Filter</b>	
7.1	Type of filter	to be quoted by bidder

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**RAIL COACH FACTORY, KAPURTHALA**

**CONSIGNEE: Dy.CME/Fur**

<b>Specification No.</b>	<b>Description</b>	<b>Page No.</b>	<b>Date</b>
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7.2	No. of filters	to be quoted by bidder
7.3	Filtering Capacity	3 microns (min.)
7.4	Filtering Surface	4 m <sup>2</sup> (min.)
7.5	Filter Material	Cotton/Polyester/Nylon/PVC/PPL
<b>8.</b>	<b>Filter Shaker</b>	
8.1	Filter Cleaning System	Electro-mechanical/Compressed Air purging system
8.2	Motor Power	100 W (min.)
<b>9.</b>	<b>Wheels</b>	
9.1	Material	Heavy duty industrial solid cushioned tyres
9.2	Turning Radius	1500-3500 mm
<b>10.</b>	<b>Brakes</b>	
10.1	Service and Parking Brake	Yes, Mechanical Braking
10.2	Parking Brake with signal	Yes
<b>11.</b>	<b>Chassis</b>	
11.1	Material and Thickness	Steel/ 2-5mm
11.2	Protection against Impact	Front and Rear Metal Bumper
<b>12.</b>	<b>Safety Systems</b>	
12.1	Emergency Switch	Mounted on the dashboard
12.2	Acoustic Warning	In Backward motion or Turning ON the machine
12.3	Auto Stop	Auto Power off system (operator not seated on)
12.4	Horn	Electric
12.5	Beacon	On the recovery tank
12.6	4-way hazard warning lights	

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RAIL COACH FACTORY, KAPURTHALA			
CONSIGNEE: Dy.CME/Fur			
Specification No.	Description	Page No.	Date
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### **ANNEXURE-A**

Tenderer shall provide list of spares, consumables required for maintenance for 5 years after completion of warranty period as below:

S.N.	ITEM	PART NO.	SERVICE LIFE	PRICE

### **ANNEXURE –B**

Tenderer shall provide proposal for 5 year Annual Preventive Maintenance schedule to be executed after completion of warranty period in the format as below:

S.N.	YEAR	AMC CHARGES
1.	IST YEAR	
2.	IIND YEAR	
3.	IIIRD YEAR	
4.	IVTH YEAR	
5.	VTH YEAR	

### **ANNEXURE –C**

DEVIATION STATEMENT ( IF ANY)

S.N.	Specification Clause No.	Deviation ( If Any)
1.		
2.		
3.		
4.		
5.		

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