

RAIL COACH FACTORY, KAPURTHALA		
Specification No.	Description	Covering Page
Mech/M&P/3400/GM/10 Rev.- NIL	Direct Part Marking Machine (Laser Based)	

Designation	Name	Signature	Date	Level
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Issue/ Rev	Changes	Date

RAIL COACH FACTORY, KAPURTHALA			
Specification No.	Description	Page No.	Date
Mech/M&P/3400/GM/10 Rev.- NIL	Direct Part Marking Machine (Laser Based)	1 of 10	07.08.2020

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 standards and environmental standards relevant to the machine, the machine manufacturers shall ensure compliance with international (CE/ISO/DIN/JIS)/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. Tenderers should also quote for optional accessories, spares and consumable spares as asked in the specifications.
- 1.4 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.
- 1.5 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.
- 1.6 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.
- 1.7 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.
- 1.8 Purchaser reserves the right to verify the details submitted by the bidder by actual site visits.
- 1.9 Other terms & condition of the contract will be as per Indian Railway Standard conditions of contract.

RAIL COACH FACTORY, KAPURTHALA			
Specification No.	Description	Page No.	Date
Mech/M&P/3400/GM/10 Rev.- NIL	Direct Part Marking Machine (Laser Based)	2 of 10	07.08.2020

2.0 PURPOSE

Direct Part Marking Machine (Laser Based) with AIDC technology (Automatic Identification and data capture Technology) as per standard GS1 with optical codes while in static condition on coach is required for marking of coaches and coach components in Bogie Shop as per white paper issued by CRIS to enable Traceability and tracking of the coach through life cycle.

3.0 DESCRIPTION AND SCOPE OF SUPPLY

3.1 The scope of supply covers design, manufacture, supply, installation and commissioning of Direct Part Marking Machine (Laser Based) as per Major Parameter details in Schedule-I. 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.

3.2 The total value of the offer will be calculated on.

- i. The cost of the basic machine and accessories inclusive with laptop, MS enclosure, cooling unit, UPS and MS column as specified in Schedule-I.
- ii. Cost of the concomitant accessories according to tenderer specification.
- iii. Application duties and taxes, insurance, freight and installation and Commissioning charges.

4.0 GENERAL FEATURES

4.1 The Machine should be versatile, integerable laser marking solution (Head and controller separate).

4.2 The machine should have interface for immediate diagnostic, easy update by USB, Ethernet or remote control operations.

4.3 The machine should have flexibility in connectivity i.e it should send and receive all data, interact with PLC's and dynamically display current operations and should have dedicated input or output to manage the machine and automate operations.

4.4 Fiber laser features for Marking machine package should consist of :

- A Gavanometric scan head (Marking Head).
- A flat area focusing lens for a marking field 110x110mm
- A visible Laser diode for adjustments and positioning.
- Fiber and optical head, connection cables (minimum 2.8 m) to be included.
- Windows based marking software. The software can be used to operate the machine workstation or to setup and load jobs for integrated operation under PLC control.
- An integration and up-keep manual that explains the installation, use and maintenance of the machine to be provided.

4.5 Necessary interface for data transfer from DPM machine to the IT server shall be provided by the OEM.

5.0 ESSENTIAL CHARACTERISTICS AND TECHINCAL PARAMETERS.

5.1 The machine shall be able to mark flat and radial parts of coach components.

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RAIL COACH FACTORY, KAPURTHALA			
Specification No.	Description	Page No.	Date
Mech/M&P/3400/GM/10 Rev.- NIL	Direct Part Marking Machine (Laser Based)	3 of 10	07.08.2020

- 5.2 The machine shall be able to mark alphanumeric data and 2D code.
- 5.3 The size of character to be shall be kept such that the overall marking data should get accommodated in 110x110 mm marking area.
- 5.4 The machine shall be accompanied with windows based marking software which can be used to operate the machine as a workstation or to setup and load jobs for integrated operation under PLC control.
- 5.5 It shall have an inbuilt I/O for communication integration allowing communication with Programmable Logic Controller.
- 5.6 The electronic control unit should be air cooled.
- 5.7 An integration and upkeep manual should be provided with the machine to explain the installation, use and maintenance of the machine.

6.0 CONCOMITANT ACCESSORIES

- 6.1 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.
- 6.2 Any other accessory, which in the opinion of the tenderer can contribute to higher performance, should be indicated and quoted separately.
- 6.3 A maintenance tool kit containing hand tools is required to cover all the fasteners of all sub-assemblies of the vehicle.

7.0 SPARES

- 7.1 The tenderer should furnish details of spares covered under warranty.
- 7.2 List of important spare parts and accessories with their part number and costing.
- 7.3 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.
- 7.4 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 authorised stockists.
- 7.5 List of recommended consumables for two years shall be quoted separately.
- 7.6 Useful life estimated/expected for each equipment and its sub assembly should be indicated by the tenderers

8.0 COMMISSIONING AND PROVING OUT :-

- 8.1 The Successful tenderer shall have to commission the machine within 15 days from the date of receipt of machine at RCF,Kapurthala.
- 8.2 The successful tenderer shall have to prove out the performance of the machine for the marking of coach components or at different metal surfaces as provided by the consignee at RCF premises to the entire satisfaction of the consignee.
- 8.3 The supplier should take full responsibility of commissioning the unit & training of the Intended user.
- 8.4 User shall also be trained in using day to day maintenance & cleaning of unit.

RAIL COACH FACTORY, KAPURTHALA			
Specification No.	Description	Page No.	Date
Mech/M&P/3400/GM/10 Rev.- NIL	Direct Part Marking Machine (Laser Based)	4 of 10	07.08.2020

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

9.0 ELIGIBILITY CRITERIA

9.1 The tenderer shall be registered on IREPS website (www.ireps.gov.in) to participate in the tendering process.

9.2 The tenderer shall have established quality control system and organization to ensure adequate control at all stages of the manufacturing process.

9.3 The tenderer shall provide a performance statement giving a list of major supplies of same/similar equipments effected in last 5 years to the reputed organizations 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.

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

10.0 TECHNICAL LITERATURE

10.1 One copy of the printed illustrative catalogue showing isometric view/sketch & features of the machine and its elements must be enclosed with each copy of the bid.

10.2 The successful tenderer will have to furnish for each machine 02 copies of spare parts catalogue giving the part list number of each component with exploded views and assembly drawings, maintenance manual, trouble shooting guide, operational manual of the machine.

10.3 Document in the service / technical manual. Firm shall also provide time within which all service calls shall be attended.

11.0 SPECIAL FEATURES

Special features incorporated into the machine, if any shall be indicated separately by the tenderer, clearly indicating the advantage of these features.

12.0 MAKE

12.1 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.

12.2 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 authorised regional supplier & service provide for the late 3 years. He should also produce installation & satisfactory after 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 authorisation certificate from OEM.

RAIL COACH FACTORY, KAPURTHALA				
Specification No.	Description	Page No.	Date	
Mech/M&P/3400/GM/10 Rev.- NIL	Direct Part Marking Machine (Laser Based)	5 of 10	07.08.2020	

- 12.3 The supplier shall furnish the complete details of Model No. Make & Manufacturer's details/ address, Country and authorization details of Dealership.
- 12.4 The firm shall provide the calibration certificate of National / International Traceability along with validity of at least two years.

13.0 WARRANTY & SERVICING FACILITIES

- 13.1 The complete system shall be under warranty for 24 months from the date of commissioning.
- 13.2 The supplier shall provide free support at site for duration of six months post successful installation and commissioning. This includes swapping of defective/malfunctioning parts of the system at the installed location itself without having to move any item to laboratory/supplier's premises.
- 13.3 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.
- 13.4 Supplier will undertake for service repairs & replacement of any needed part as & when needed.
- 13.5 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.
- 13.6 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.
- 13.7 The tenderer shall also indicate the service organization located at various places in India and availability of trained staff, maintenance spares etc.
- 13.8 The contractor shall give a comprehensive spare part list with OEM details and price for all the sub systems.
- 13.9 The tenderer/contractor shall provide list of spares, consumables required for maintenance for 5 years after completion of warranty period
- 13.10 For maintenance during warranty following criteria shall be considered.
- A) Service engineer of the supplier shall be available for attending to the system faults during first 07 days after successful commissioning of equipments during 09.00 - 17.00 hrs on all working days including Saturdays.
 - B) Service engineers shall visit RCF on quarterly basis thereafter till the end of warranty/extended warranty period for Preventive Maintenance at least for one full day at a time.
 - C) In case of any breakdown affecting the performance of the system completely or partly, firm shall depute its service engineer as soon as and when informed by any suitable means like Fax, SMS or email possible after receiving such call.

RAIL COACH FACTORY, KAPURTHALA			
Specification No.	Description	Page No.	Date
Mech/M&P/3400/GM/10 Rev.- NIL	Direct Part Marking Machine (Laser Based)	6 of 10	07.08.2020

D) Breakdown period shall be calculated from 8 hours after it's reporting to the firm upto the time it is attended. If intimation to the firm is delayed from Railway's side, then the breakdown period calculation will start from the time by which it is reported to the firm.

- 13.11 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 consider as per clause 17 (b) of GCC -201.
- 13.12 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.
- 13.13 Tenderer shall provide list of spares, consumables required for maintenance for 5 years after completion of warranty period as per annexure-A
- 13.14 Tenderer shall provide expected life for the components of the system and provide the maintenance schedule required for 10years for as per annexure -A
- 13.15 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.

14.0 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.

15.0 SCHEDULE OF ANNUAL MAINTENANCE CONTRACT (AMC) FOR PERIOD OF 5 YEARS AFTER COMPLETION OF WARRANTY PERIOD

- 15.1 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.
- 15.2 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 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.
- 15.3 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](#).

RAIL COACH FACTORY, KAPURTHALA			
Specification No.	Description	Page No.	Date
Mech/M&P/3400/GM/10 Rev.- NIL	Direct Part Marking Machine (Laser Based)	7 of 10	07.08.2020

- 15.4 The firm shall ensure that the machine is in proper working condition, to the full capacity, after repair and maintenance.
- 15.5 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.
- 15.6 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.
- 15.7 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.
- 15.8 Besides attending the breakdown calls, the firm shall attend to the corrective and preventive maintenance of the machines once in a month.
- 15.9 The AMC is valid for five years from the date of completion of the warranty period . No freight is admissible.
- 15.10 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.
- 15.11 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.
- 15.12 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.
- 16.0 **PAYMENT TERMS**
80% on receipt of machine and balance 20 % after successful commissioning of machine and also after submission of Bank guarantee equivalent to 10% of P.O value valid up to the warranty period of the machine

RAIL COACH FACTORY, KAPURTHALA			
Specification No.	Description	Page No.	Date
Mech/M&P/3400/GM/10 Rev.- NIL	Direct Part Marking Machine (Laser Based)	8 of 10	07.08.2020

SCHEDULE-I

MAJOR PARAMETERS

S.No.	Description	Requirement
Machine Parameter		
a.	LASER Power	50 w
b.	Marking Speed	10000mm/sec
c.	Beam Diameter	40 µm
d.	Marking Field	110 X 110 mm
e.	Rated Voltage	100-240 V AC/ 50 Hz
f.	Rated Power Consumption	400 W (700 W Max)
g.	IP level (Head)	IP-54 (Dust & splashing water protected)
h.	IP Level (UC)	IP-20
i.	Frequency	60kHz-200kHz
	Character Type	
j.	Font	+60 types of fonts (Fonts optimized for traceability)
k.	Barcode	Code 39/Code 128/Code 93/ code 11/ Code bar/2 of 5/ EAN13/EANB
l.	2D Code	Data Matrix ECC200/QR Code/Micro QR Code/UID
m.	IMAGE Long	LO3 format using Logo editor Max from any format (BMP, DXF, EPS, IGES, JPEG, PNG, TIFF etc)
Interface Specification		
n.	HMI (Human Interface Machine)	Integrated Backlit screen with control panel for Real-Time Supervision, Easy Diagnosis, Software updates, Log files, Memory Backup
o.	Interfaces	Ethernet, Profinet: 8I/8O: Dedicated I/O (Sub D37) : RS 232: USB(x3)
p.	Supported OS for Laser Trace Software	Windows XP, Windows Vista, Windows 7&8
q.	Marking Direction	All direction
Environmental working conditions		
r.	Operating temperature	0 to 50° C
s.	Humidity	10 to 95%
Marking System Accessories		
t.	Column	MS column with manual Height adjustment using handle
u.	Enclosure for Panel	MS fabricated, Powder coated enclosure, suitable to requirement.
v.	Cooling Unit	Panel AC for laser controller.
w.	Laptop	Minimum Core i5, 7 th gen, 8GB RAM and 512 GB Hard disk with USB ports, Ethernet port, MS office, Min. windows 7, CD/DVD Read & write types. A better and latest configuration is preferable.
x.	UPS	2KVA online UPS with isolation transformer
y.	Laser Safety Goggle	02 no.s single filter for work with class IV LASER

RAIL COACH FACTORY, KAPURTHALA				
Specification No.	Description	Page No.	Date	
Mech/M&P/3400/GM/10 Rev.- NIL	Direct Part Marking Machine (Laser Based)	9 of 10	07.08.2020	

Note: Tenderer to furnish following detail of the Direct Part Marking Machine (Laser Based) offered

S.no.	Technical Parameter	Offered by Tenderer

Above mentioned Technical Parameters are minimum requirement, any model having same or better Technical Parameters may be considered.

RAIL COACH FACTORY, KAPURTHALA			
Specification No.	Description	Page No.	Date
Mech/M&P/3400/GM/10 Rev.- NIL	Direct Part Marking Machine (Laser Based)	10 of 10	07.08.2020

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	