RAIL COACH FACTORY, KAPURTHALA
SPECIFICATIONS FOR GENERATION DRIVE
Specification No. Mech/M&P/3000/GM/21

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) (where 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.

2.0 DESCRIPTION

Generation Drive for Alternator testing on Railway passenger Coaches

3.0 SCOPE

3.1 The scope of this specification covers design, Supply, installation, commissioning, testing and proving out of Generation Drive for Alternator testing on Railway passenger Coaches .

3.2 Enclosure: Supply of enclosure for control panel shall be of MS sheet 1.2 mm thickness, Painted with gray colour powder coating and should have reputed make (Rittal etc) . It should withstand degree of protection IP24. Electrical Control panel Should have arrangement for Panel AC for cooling the Generation drive and associate Printed circuit boards.

3.3 Control panel should be designed to control two AC induction motors at variable speeds.

3.4 Cabling from control panel to motors should have H connector or Square connector.

4.0 STANDARD

The manufacturing , testing and commissioning of Generation drive should be in accordance with latest Indian Standards.

5.0 TECHNICAL SPECIFICATIONS

5.1 This specifications covers supply, installation, commissioning and testing of Generation drive on turnkey basis for testing of power generation of Railways"s alternator. 02 numbers bogie mounted 25 KW alternators of AC self generation coaches are to be tested individually and also simultaneously for generation on Pit of finishing shop of RCF by giving drive from the proposed generation drive.

5.2 Drive: Enclosure shall have two adjustable frequency , constant torque , 3 Phase Powerflex 753 AC drives of Allen Bradley make , with Embedded I/O, Air Cooled, AC Input with Precharge, no DC Terminals, Open Type, 140 Amps, 75kW ND, 55kW HD, 400 VAC, 3 PH, Frame 6, Filtered, , DB Transistor and with HIM (Human Interface Machine).

5.3 Two numbers 3 phase induction motors of following details are available in RCF. Interfacing of drive with these motors and parameters optimization for commissioning of drive will be carried out by the firm.

3 Phase Induction Motor
415 Volt +/- 10% , 37 KW/50 HP,
Current 67 Amp, frequency- 50 Hz,
RPM- 1475
Make : Kirloskar

5.4 There should be facility to run both the motors synchronously.

5.5 Following switches /indicators should be provided on the electrical panels of drives.

a) Run
b) Potentiometer to control speed from 0-1500 RPM
c) ON/OFF switches
d) Digital speedometer from 0-1500 rpm
e) Emergency switch
f) Reverse/Forward toggle switches.

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g) Synchronising switch-gear to run both drives/motors.
h) Isolator switch/MCCB (Moulded Case Circuit Breaker) to ON/OFF the main supply

5.6 Overload protection at input and output of the drive with thermal overload relay of proper rating should be provided.

5.7 A voltmeter and ammeter should be provided for indicating Voltage and current essentially with selector switches so that unbalances can be checked.

5.8 Protection should be provided for overloading, single phasing, under voltage, no voltage, short circuit etc.

5.9 Arrangement should be provided for direction of rotation in CW/CCW directions. Control equipment shall be mounted in drip proof enclosures. Enclosures shall be so designed as to give adequate protection against ingress of water, dust, oil, coolant or chips etc. All electricals shall be installed that they are readily accessible when covers are opened. Hinged covers shall be interlocked with the machine control to prevent operation when cover is open.

5.10 The electrical equipment shall comply with the requirement of Indian electricity act and rules

5.11 All the terminals shall be clearly, neatly and indelibly marked to correspond with the wiring diagram for easily identification.

5.12 Semiconductor and other components used in Generation drive and electrical panel shall be of industrial grade with minimum operating temperature range -25°C to + 85°C.

5.13 All connections shall be made through crimped eyelets and shall be number with PVC cable marker rings/ inkjet printing on cables corresponding to the numbers/letters shown in the schematic wiring diagram. Soldering shall be used only where use of crimped eyelets is not possible.

5.14 All wiring shall be neatly secured in position by bunching /strapping & adequately supported. Where wires pass through any part of metal panel or cover, the hole through which they pass shall be provided with rubber grommets.

5.15 Fluke 376 True rms AC/DC clamp meter of Fluke make with 18 – inch iflex flexible current probe,TL75 test leads, soft carrying case and two alkaline batteries should be supplied with generation drive for the measurement of current and voltage on drive.

5.16 All the Pushbuttons, indicator lamps,Power contactors , MCB, MCCB etc should be of reputed make (Schneider, Klockner moeller, Siemens, ABB).

5.17 Firm should be supplied the following essential spares for the maintenance of Generation drive.
a) Main Control Board , Part no: R1MCBPF53, Qty 01 no
b) Human interface Machine , Part No: 20 HIM A6, Qty 01 No

5.18 **Programming and data storage Unit:** Programming unit for trouble shooting and downloading the software should be supplied with Generation drive. Technical specification for programming unit is as given below.

a) Processor : 4th Gen Intel Core i7-4710MQ processor (6MB Cache, up to 3.5GHz w/ Turbo Boost)
b) Operating System: Windows 8.1 Single Language (64Bit) English
c) Microsoft Office 2013: Microsoft Office Trial (Multi-Language)

d) Security Software : Loaded with 01 year Anti virus software
e) Memory : 8GB DDR3L 1600MHz (2 x 4G)
f) Hard Drive : 1TB/7200 RPM
g) Video Card : NVIDIA GeForce GTX 765M with 2GB GDDR5
h) Optical Drive : Slot-Loading 8x Super Multi Drive (DVD±R/RW)
i) Display : 14.0 inch (355.6 mm) WLED FHD (1920 x 1080) IPS Anti-Glare Display
j) Wireless : 802.11ac Dual Band 2x2 AC Wi Fi +Bluetooth 4.0
k) Primary Battery : Primary 6-cell 69W/HR
l) Power : 6-cell Lithium Ion (69 wHr)
m) Power Adapter: 150W A/C Adapter
n) Make: HP, Dell
o) Miscellaneous :
   i) Programming and storage device should be supplied with one USB hard disk capacity 1TB
   ii) Programming and storage device should be Supplied with all the essential software including window 8.1 software (64 Bits), Anti Virus, Microsoft office 2013, drivers , Generation drive data, software for uploading the drive parameters, Recovery data software in CD's/DVD's.
   iii) Should be Supplied with 04 Numbers data storage USB dive, Capacity 16 GB
   iv) Should be supplied with Carrying Bag for the protection of Programming Device.
   v) Programming device should be equipped with RS 232 Port for data communication from device to Drive and vice versa. RS232 data cable should also be supplied with Programming unit.
   vi) Facility should be provided to scan and print the fault diagnosis report on A4 size with EPSON 565 model or equivalent (ink jet printer).

6.0 INFORMATION TO BE FURNISHED BY THE TENDERER

At the time of submission of tender, the tenderer should furnished the following information.:

i) Technical details of the Generation drive regarding overall dimension, capacity, construction features, maneuverability etc. along-with necessary drawings.
ii) Any other information which in the opinion of the tenderer is important for the consideration by the purchaser.
iii) The tenderer should separately explain the special features, if any, of the equipment offered by him.

7.0 COMMISSIONING & PROVING OUT

The tenderer shall arrange commissioning and proving out the Generation Drive at site of RCF, Kapurthala (Punjab), and after successful commissioning will demonstrate the performance of the equipment to the staff of RCF, Kapurthala at consignee's premises.

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8.0 TRAINING

The firm shall provide proper training for the staff of RCF for a period of three days after successful installation of the drive. The total of three employees nominated by RCF shall be trained thoroughly in the field of operation, maintennace and software/parameters uploading on the drive.

9.0 SERVICING FACILITIES

The tenderer will clearly spell out in the offer the facility available with him or his agent/dealer for providing adequate after sales service in Punjab during warranty period. The tenderer will also indicate the service organization located at various places in India and availability of trained staff, maintenance spares etc. All spares required for the maintenance should be made available to the consignee from warehouses in India for a period of **12 months** from the date of commissioning of equipment at ultimate destination. After warranty period, the manufacturer or his agent/dealer shall agree to provide service support for trouble shooting and obtaining spare parts. The manufacturer shall submit certificate of the equipment for it satisfactory performance for **12 months** from the date of commissioning. During the warranty period, any defect should be repaired free of cost.

10.0 TECHNICAL LITERATURE

One copy of printed illustrative catalogue showing various features of equipment and its elements must be enclosed with tender bid. Supplier shall furnish four sets of operating manual, maintenance manual, Electrical-wiring diagram, Electronics circuit diagram, drive programming manual and spare parts list with part number with the equipment and one soft copy containing all the manuals.

11.0 REFERENCES

The tenderer should furnish a statement giving a list of supplies made by him in the last 5 years along with the purchaser's names and addresses, order number, date and quantity supplied and their performance certificates and whether the supplies were made within the delivery period.

12.0 SPECIAL FEATURES:

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

13.0 SPARES AND CONSUMABLES (Optional):-

13.1 List of recommended spares for 2 years normal maintenance to cover the complete range of mechanical and electrical Equipment should be separately quoted.

13.2 List of recommended consumables for two years shall be quoted separately.

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13.3 Two years maintenance spares / consumables are also required along with spares.

14.0 DEVIATIONS:

The tenderer should clearly certify that the machine offered fully meets the specification various design features incorporated in the machine to fulfill 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 WARRANTY

The warranty condition of contract will be as per IRS conditions.

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