

TECHNICAL SPECIFICATION FOR DC IMPULSE MPI EQUIPMENT

ANNEXURE - C TO TENDER BAP/CAR/2014-15/OT-14

BRIEF DESCRIPTION:

Portable DC Impulse Magnetic Particle Inspection (MPI) Equipment is required for Testing of machined/welded components using dry and wet method on various components at different locations. The machine should have demagnetization facility.

TECHNICAL SPECIFICATION

| SL.NO | Description | BHEL REQUIREMENT | BHEL | Vendor's comment |
|------------------------------------|--|---|-------------------|------------------|
| 1.0 Purpose | | | | |
| 1.1 | Purpose | This equipment is required to test components by DC Impulse Magnetic Particle Testing technique using dry and wet method with demagnetization facility. | Vendor to confirm | |
| 1.2 | Jobs to be analyzed | Machined/welded components of fans like main shafts, blade shafts, cast iron/steel profile blades (all these are forged/cast machined components) welded Impellers etc. | Vendor to note | |
| 2.0 Principle of operation | | | | |
| 2.1 | Principle of operation | Magnetisation by DC Impulse method, defects observation by flux leakage. | Vendor to confirm | |
| 3.0 Technical Specification | | | | |
| 3.1 | The equipment shall be of portable type. | Vendor to submit Equipment model along with catalogue. | Vendor to submit | |
| 3.2 | Power Source | The equipment shall be operated in 230 V / 50 Hz AC power supply | Vendor to confirm | |
| 3.3 | Electric Circuit | Dual Electric Circuit – alternating magnetization of part in two directions. | Vendor to confirm | |
| 3.4 | Rated Power | 1250 VA (Ipprox..) | Vendor to specify | |
| 3.5 | Service / Duty Cycle | 50% | Vendor to specify | |

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| 3.6 | Testing Current requirement | 500 A – 8000 A | Vendor to confirm | |
| 3.7 | Field Strength | 10 A/cm – 80 A/cm | Vendor to confirm | |
| 3.8 | Pulse Frequency | Vendor to submit details | Vendor to submit | |
| 3.9 | No. of pulses | Vendor to submit details | Vendor to submit | |
| 3.10 | Demagnetization | Vendor to submit details | Vendor to submit | |
| 3.11 | Cycle time for demagnetization in seconds | Vendor to submit details | Vendor to submit | |
| 3.12 | Contact Testing Voltage | As per standard | Vendor to specify | |
| 3.13 | Weight of the Machine | Vendor to specify | Vendor to specify | |
| 3.14 | Size of the Machine | Length x Breadth x Width (L X B X W) | Vendor to specify | |
| 3.15 | Job to be Tested | As per Table 1 | Vendor to confirm | |
| 4.0 Essential Accessories to be supplied along with the machine | | | | |
| 4.1 | UV Lamp with superimposed flood light integrated power supply | 1 No. Min UV Intensity 100 W/m ² in Daylight | Vendor to confirm | |
| 4.2 | 5 Metre long test cable min 95 mm ² with Magnetic connectors. | 4 Nos. | Vendor to confirm | |
| 4.3 | 10 m long test cable min 95 mm ² with DINSE connectors. | 2 Nos. | Vendor to confirm | |
| 4.4 | Field Measuring Device with capability to measure DC Impulse current and field strength. | 1 No. | Vendor to confirm | |
| 4.5 | Equipment carrier with four wheels for easy movement and provision to hold all accessories and cables without damage. | 1 No. | Vendor to confirm | |
| 5.0 SAFETY | | | | |
| 5.1 | Safety of operation | Machine should have adequate and reliable safety interlocks / devices to avoid damage to the machine, work piece | Vendor to confirm and supply the details. | |

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| 6.0 | List of spares recommended | and the operator due to the malfunctioning or mistakes. Vendor has to provide the list of recommended spares. | Vendor to quote price for spares separately | |
| 7.0 | Service manual | Five copies of service / Instrument manual in English language to be supplied. | Vendor to confirm | |
| 8.0 | Pre dispatch Inspection | The equipment shall be tested for its performance by the supplier and offered to BHEL for inspection at their works prior to dispatch. | Vendor to confirm | |
| 9.0 Installation & Commissioning | | | | |
| 9.1 | Installation, Commissioning & Prove out | Commissioning & Prove out of the machine at BHEL, Ranipet is by the supplier | Vendor to confirm | |
| 10.0 Training | | | | |
| 10.1 | Training on operation & maintenance | Vendor to provide training on operation and maintenance of the machine. | Vendor to confirm | |
| 11.0 Guarantee | | | | |
| 11.1 | Guarantee | Vendor to provide 24 months Guarantee for the machine from the date of commissioning. | Vendor to confirm | |
| 11.2 | Annual Maintenance Contract | Vendor to indicate whether Annual Maintenance services can be provided on contract after the guarantee period is completed. | Vendor to specify Yes / No | |
| 12.0 QUALIFYING REQUIREMENTS | | | | |
| 12.1 | | The bidder / vendor (OEM) shall have a minimum of five years continuous experience in the design, manufacture and supply of "Portable DC Impulse MPI Equipment". Vendor may indicate the actual number of years of experience in the field. | Vendor to submit | |
| 12.2 | | Only those vendors (OEMs), who have supplied and commissioned at least | Vendor to submit details | |

