

PORTABLE FLUE GAS ANALYSER

| | Details | Vendors Remark |
|------|---|----------------|
| 1 | The "VENDOR TO CONFIRM/SPECIFY" column of this format shall be filled in by the Vendor and submitted along with the offer. Inadequate / incomplete or ambiguous information against any of the clauses of the Specifications/ Requirements shall be treated as non-compliance. | |
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| 4 | Vendor has to submit technical data sheets/documents of the model offered or a catalogue showing the product profile of the vendor. | |
| | SCOPE: SUPPLY & JOB PROVING OF PORTABLE FLUE GAS ANALYSER COMPLYING WITH SPECIFICATIONS AS BELOW: | |
| | SI. NO. CFFP/BHEL, HARIDWAR REQUIREMENT | |
| 1 | Scope: Scope covers the Supply & Job Proving of one no. portable type Flue gas analyser suitable for Flue gas Analysis in Natural Gas fired Heat Treatment and Reheating Furnaces, with all necessary accessories required for measurement of parameter mentioned in CI No.-2 of this specification. | |
| 2 | Objective: For analysis of different parameters as mentioned below. The range of measurement given below are minimum. Equipment having better measurement range will also be acceptable. | |
| 2.1 | O ₂ : 0-21% | |
| 2.2 | CO : 0-5000 ppm (H ₂ compensated) | |
| 2.3 | NO : 0-4000 ppm | |
| 2.4 | NO ₂ 0-500 ppm | |
| 2.5 | SO ₂ 0-4000 ppm | |
| 2.6 | CO ₂ 0-20% NDIR | |
| 2.7 | Hydrocarbons(100-5000ppm) | |
| 2.8 | Excess air | |
| 2.9 | Combustion Efficiency : 0-100% | |
| 2.10 | Flue gas temperature | |
| 2.11 | Air Temperature | |
| 2.12 | Draught and Differential Pressure | |
| 2.13 | Stack gas velocity measurement | |
| | 3 Measurement Conditions | |
| 3.1 | Fuel Type -Natural gas | |
| 3.2 | Ambiant air temperature-(0-45 ^o c) | |
| 3.3 | Relative Humidity 20-80% | |
| 3.4 | Pressure -atmospheric | |

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| 3.5 | FLue gas temperature- upto 1350 ⁰ c | |
| 4 Essential Accessories/ provisions :- | | |
| 4.1 | 1m long sampling probe with 3m hose. | |
| 4.2 | 1m long S type pitot tube | |
| 4.3 | Fresh air purging by in-built dilution pump at the time of each sampling | |
| 4.4 | Chargable battery(4-6 hrs of continuous operation) and a charger operating on 220volt (+10%) @ 50Hz | |
| 4.5 | P.C software,USB connectivity compatible with personal computers (operating on windows platform)for data logging,graphing and reporting | |
| 4.6 | long term monitoring and data logging with a minimum of 500 test in | |
| 4.7 | Carrying bag | |
| 4.8 | Dust filter element (pack of 10 elements) | |
| 4.9 | Moisture free element (pack of 10 elements) | |
| 4.10 | Should have appropriate sensors and provision for measuring the parameteres as stated in clause 2.1 to 2.13. | |
| 4.11 | Condensation trap with mounting arrangement on device | |
| 4.12 | Instrument weight should be less than 8 kg | |
| 4.13 | internal pump suction capcity must be minimum 200 mbar or more | |
| General Requirements : | | |
| 5 Documentation and manuals | | |
| 5.1 | Two sets of documents (In soft and hard copy both) for detailed operation, maintenance manual of equipment and other accessories to be provided in English language only. | |
| 5.2 | Caliberation certificate must be provided along with instrument. | |
| 6 Job proving of the instrument | | |
| 6.1 | The supplier should take full responsibility for carrying-out the job proving of instrument and all its accessories at BHEL free of cost. All capabilities of the instrument will have to be demonstrated to the satisfaction of the user. Training for handling and operation of the equipment should be provided to the user free of cost. | |
| 7 Acceptance Norms | | |
| 7.1 | 10 successful sampling at CFFP BHEL haridwar. | |
| 8 Warranty : | | |
| 8.1 | The supplier shall provide full warranty for at least two year from the date of job proving. If instrument remains out of order or starts malfunctioning the supplier shall be intimated of the same and the problem should be rectified within two weeks of getting intimated otherwise, the warranty period shall be extended for the corresponding breakdown period . | |

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PORTABLE ANEMOMETER

| | NOTE:- | Vendors Remarks |
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| | SCOPE: SUPPLY & JOB PROVING OF PORTABLE ANEMOMETER COMPLYING WITH SPECIFICATIONS AS BELOW: | |
| Sl. NO. | CFFP/BHEL,HARDWAR REQUIREMENT | |
| 1 | Scope: Scope covers the supply & job proving of one no.portable type Anemometer suitable for industrial application with necessary accessories required for measurement of air velocity and air flow (in combustion air blowers innstalled with reheating and heat treatment furnaces) as per conditions of clause no 3 of this specification. | |
| 2 | Objective: For calculation of air intake (velocity and volume of flow)of different kind of combustion air blowers. | |
| 3 | Measurement Conditions | |
| 3.1 | Ambiant air temperature- (0-50 ⁰ c) | |
| 3.2 | velocity range- 0.3-20 m/sec | |
| 3.3 | Accuracy- ±3% | |
| 3.4 | Resolution- 0.01m/sec | |
| 4 | Essential Accessories/ provisions :- | |
| 4.1 | Integral vane (100 mm) | |
| 4.2 | 20 point averaging charactoristics for min/max readings | |
| 4.3 | Flow rate | |
| 4.4 | Chargable battery(4-6 hrs of continuous operation) and a charger operating on 220volt (+-10%) @ 50Hz | |
| 4.5 | Built in P.C interface compatible with personal computers (operating on windows platform)for data logging,graphing and reporting | |
| 4.6 | long term monitoring and data logging with a minimum of 500 tests. | |
| | General Requirements : | |
| 5 | Documentation and manuals | |
| 5.1 | Two sets of documents (in soft and hard copy both) for detailed operation and maintenance manuals of equipment and other accessories to be provided in English language only. | |
| 5.2 | Caliberation certificate must be provided along with instrument. | |
| 6 | Installation of instrument | |

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PORTABLE ANEMOMETER

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| 6.1 | The supplier should take full responsibility for carry-out the job proving of instrument and all its accessories at BHEL free of cost. All capabilities of the instrument will have to be demonstrated to the satisfaction of the user. Training for handling and operation of the equipment should be provided to the user free of cost. | |
| 7 | Acceptance Norms | |
| 7.1 | 25 successful sampling at CFFP BHEL haridwar. | |
| 8 | Guarantee : | |
| 8.1 | The supplier shall provide full warranty for at least one year from the date of job proving. | |

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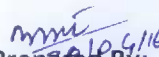
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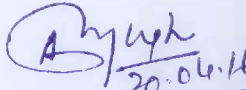
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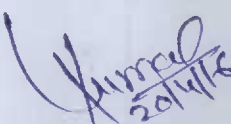
Differential Pressure Meter/Digital Manometer

Date-01/04/16

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| | SCOPE: SUPPLY & JOB PROVING OF PORTABLE DIFFERENTIAL PRESSURE METER COMPLYING WITH SPECIFICATIONS AS BELOW: | |
| Sl. NO. | CFFP/BHEL,HARDWAR REQUIREMENT | |
| 1 | Scope: Scope covers Supply & Job Proving of one no.portable type Differential pressure meter suitable for industrial application with all necessary auxiliary accessories as per following specification. Any Item which is not covered in the specification but essentially required for DP measurement across the orifice shall also be covered in the scope of supply. | |
| 2 | Objective: For measurement of Differential Pressure (DP) across an orifice to finally measure Air and Natural Gas flow rate in Gas burners for proper adjustment of Air and Natural Gas ratio. | |
| 3 | Measurement Conditions | |
| 3.1 | Fluid (media for which D.P is to be checked)= Air/Natural gas | |
| 3.2 | Ambiant air temperature/R.H = (0-45 ⁰ c)/ 20-80% | |
| 3.3 | Pressure - 0-200 mbar | |
| 3.4 | accuracy $\pm 3\%$ | |
| 3.5 | Repeatability $\pm 2\%$ | |
| 4 | Essential Accessories/ provisions :- | |
| 4.1 | Instrument should be capable of measuring D.P across an orifice as mentioned in clause 2 of this document. | |
| 4.2 | Chargable battery(min. 4-6 hrs of continuous operation) and a charger operating on 220volt (+-10%) @ 50Hz | |
| 4.3 | overrange indication and should have inbuilt calibration protocol(adjustable zero value facility) | |


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Differential Pressure Meter/Digital Manometer

Date-01/04/16

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|----------|--|--|
| 4.4 | High grade ABS plastic body which is dust and water proof to IP67, BS-EN-60529 and IEC 539. | |
| 4.5 | Carrying case for instrument and associated accessories . | |
| 4.6 | Data logging for a minimum of 100 tests | |
| | General Requirements : | |
| 5 | Documentation and manuals | |
| 5.1 | Two sets of documents (in soft and hard copy both) for detailed operation, maintenance and servicing manuals of equipment and other accessories to be provided in English language only. | |
| 5.2 | Calibration certificate must be provided along with instrument. | |
| 6 | Job proving of instrument | |
| 6.1 | The supplier should take full responsibility for carrying-out the job proving of instrument and all its accessories at BHEL free of cost. All capabilities of the instrument will have to be demonstrated to the satisfaction of the user. Training for handling and operation of the equipment should be provided to the user free of cost. | |
| 7 | Acceptance Norms | |
| 7.1 | Minimum 10 successful sampling at CFFP BHEL haridwar. | |
| 8 | Guarantee : | |
| 8.1 | The supplier shall provide full warranty for at least two year from the date of job proving. If instrument remains out of order or starts malfunctioning the supplier shall be intimated of the same and the problem should be rectified within two weeks of getting intimated otherwise, the warranty period shall be extended for the corresponding breakdown period . | |

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