

TECHNICAL SPECIFICATIONS AND OTHER ALLIED REQUIREMENTS

Sl. No.	Description of items	Quantity
PUR/53/DMSE/CK/E/2020-21		
01.	Performance and endurance test rig Knapsack sprayer (Hand pump) sprayer as per BIS standard	01 No.
02.	Performance and endurance test rig for foot and rocker sprayer as per BIS Standard	01 No.
03.	Strap drop and tank impact test rig as per BIS Standard	01 No.
04.	Test rig for Fatigue on Compression Sprayer as per BIS Standard	01 No.
05.	Test Rig for Trigger Type cut off device as per BIS Standard	01 No.
06.	Spray Launce pressure test rig as per BIS Standard	01 No.
07.	Reciprocating Pump test bench as per BIS Standard	01 No.
08.	Test Setup of Mist Blower	01 No.
09.	Leakage Test setup for delivery line	01 No.
10.	Spray Pump Test Rig for Centrifugal Pump	01 No.
11.	Test Rigs for Knob Type Cut Off Device Durability, As per IS 3652:1995	01 No.
12.	Spray Patternator as per BIS Test codes	01 No.
13.	:Macro Droplet Measurement System	01 No.
	Detailed Specification As Per Annexure- I	

1. INSTALLATION, COMMISSIONING AND TRAINING

1.1. Required

2. WARRANTY

2.1. One Year from satisfactory installation and acceptance.

Note: Evaluation: L-1 on overall lowest price basis. GST @5% on research purpose.

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1. End use:

The entire sprayer test set up will be installed at CSIR-CMERI, Mahatma Gandhi Rd, opposite NIT, City Centre, Durgapur, and West Bengal 713209. It will be used to check the quality of sprayers (as per the guidelines mentioned in BIS standard) while they are under developmental phase.

2. Detailed specification:

Item 1: Performance and endurance test rig Knapsack sprayer (Hand pump) sprayer as per BIS standard

- Item should comply with IS 3906:1995

The Unit Comprises of

- Pressure gauge accumulator, suction & discharge pipe, measuring cylinder capacity 1 litre mounted on platform with discharge valve at bottom to re-circulate water in to testing pump tank, 1/2 HP gear motor for constant stroke speed, attaching arrangement, digital stroke measurement system, sprayer pump, pressure gauge, power supply: 3 Phase, 440 V

Item 2: Performance and endurance test rig for foot and rocker sprayer as per BIS Standard

- Item should comply with IS 3652:1995 (Foot Sprayer) & IS 3062:1995 (Rocker Sprayer)

The Unit Comprises of

- Foot or rocker pump, pressure gauge accumulator, suction pipe & discharge pipe, 1/2 HP gear motor for constant stroke speed, hand valve arrangement for changing pump, sump tank size: 450 x 300 x 300mm approx. & measuring cylinder capacity 1 litre mounted on platform with discharge valve at bottom to re-circulate water to sump tank, stop clock, digital counter for stroke measurement, power supply: 3 Phase 440 V

Item 3: Strap drop and tank impact test rig as per BIS Standard

- Item should comply with IS 10134:1994.

The Unit Comprises of

- Double acting pneumatic cylinder's 2 nos., cantilever assembly, belt assembly, drop test tank assembly 800 W x 1200 L x 650mm H approx., limit switch, pressure gauge, flow control valve, electro pneumatic solenoid valve air compressor etc.

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Annexure-I

Item 04: Test rig for Fatigue on Compression Sprayer as per BIS Standard

- Item should comply with IS 10134:1994, IS 1970: 1995

The Unit Comprises of

- air compressor with air filter, solenoid valve, three way valve, limit switch, pneumatic cylinder, digital PLC counter for stroke measurement, no. of cycle counting with time off & time on timer, pressure gauge, three separate line for three nozzles with one knapsack pump, power supply: 3 Phase, 440 V

Item 05: Test Rig for Trigger Type cut off device as per BIS Standard

- Item should comply with IS 3652:1995

The Unit Comprises of

- Air compressor, sump tank size : 300 x 300 x 300 mm approx, pragmatic cylinder, digital PLC counter for stroke measurement, no. of cycle counting with time off & time on timer, pressure regulator, pressure gauge, limit switch, spray nozzle, STP pump with pipe assembly, power supply: 3 Phase, 440 V

Item 06: Spray Lance pressure test rig as per BIS Standard

- Item should comply with IS 3652:1995

The Unit Comprises of

- 1 HP HTP pump, sump tank size : 300 x 300 x 300 mm approx, 3 phase 1500 rpm motor with starter, pressure gauge, sum tank, hand valve, power supply: 3 Phase, 440 V

Item 07: Reciprocating Pump test bench as per BIS Standard

- Item should comply with IS 11745:1986

The Unit Comprises of

- Reciprocating pump of 1 HP single phase 1500 rpm with 4A dimmer stat, vacuum gauge, pressure gauge, recirculation type unit, measuring tank of size: 500 x 400 x 400mm with FRP coated, M.S. sum tank 900 x 600 x 600mm, power supply: 230 V, 50 Hz single phase.

Item 08: Test Setup of Mist Blower

It should comprise of

- Round type duct, pitot tube, U tube manometer, blower switch, 3/4 HP centrifugal blower, orifice meter, power supply: 230 V, 50 Hz single phase.

Item 09: Leakage Test ^{setup} for delivery line

- Item should comply with IS 3652:1995

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It comprises of:

- 1 HP HTP pump, 3 phase 1500 rpm motor with starter, pressure gauge, nozzle sprayer assembly, sump tank size : 300 x 300 x 300 mm approx, hand valve, power supply: 3 Phase, 440 Volts AC Supply.

Item 10: Spray Pump Test Rig for Centrifugal Pump

It comprises of:

- Centrifugal pump capacity 1 HP, vacuum gauge at suction line, pressure gauge at discharge line, single phase energy meter, 1 HP AC motor with starter, MS tank of size : 900 x 500 x 600mm with FRP coated, measuring tank of size : 300 x 300 x 300mm with FRP coated, power supply: 230 V, 50 Hz single phase.

Item 11: Test Rigs for Knob Type Cut Off Device Durability (As per IS 3652:1995)

It comprises of:

- mechanical/ electrical cut off arrangement, pressure gauges, device 13 ± 2 cycle per minute and digital PLC counter for stroke measurement, no. of cycle counting with time off & time on timer, HTP pump with pipe assembly, sump tank size : 300 x 300 x 300 mm approx with water circulation arrangement, reciprocating actuating device with electronic provision, power supply: 3 Phase, 440 Volts AC Supply

Item 12: Spray Patternator as per BIS Test codes

- Item should comply with IS 3652:1995, ISO 5682-1:1981

It Consists of:

- M.S. stand for nozzle & pipe assembly with scale for distance measurement between two sprayer, patternator tray, nozzle spray – 2 nos., HTP pump, A.C. 1/3 phase 1500 rpm 1 HP motor, pressure gauge, pressure regulator, measuring cylinders (plastic)/ glass tubes (40 nos.), starter, main switch, tray stand, sprayer assembly, hand valves, tank, V angel test pieces of MS material of size : 1950 x 1200mm, instruction manual, power supply: 3 Phase, 440 Volts AC Supply.

Item 13: Macro Droplet Measurement System

For image analyzing droplet size complete with water sensitive paper pack of 100 no
System consists of the followings:

a. Stereo Microscope for Macro Size Droplet Analysis:

Features:

With LED light for both incident and transmitted illumination, providing even illumination and life expectancy can reach up to 6000 hours

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Annexure-I

Specification:

Optical System Head Observation: Trinocular 45° Interpupillary

Adjustment: 55~75mm, Zoom ratio: 1:7, objective zoom range 0.63-5x, Working Distance: 100mm,

Eyepiece: WF10X/F.N.22 (Pair) with 2x Auxiliary Objective Lens complete with C mount Trinocular Head.

Illumination: LED ring Illuminator (CE approved) high intensity LED ring illuminator 10 W. High Intensity Fluorescent (LED) Ring illuminator consisting of LED lamps to provide shadow less illumination with programmable light control.

b. Digital Camera for Zoom Stereo Microscope:

3.0/5.0 MP USB high performance microscopy camera with live imaging measurement software. sensor size 1/2.5 inch Pixels 2.2micron X 2.2micron Resolution 2048 x 1536V Filter RGB Bayer Lens interface C/CS mount Maximum fps RGB 8 bit Calibration Slide. Image Pickup Device: Aptina MT9T001 CMOS (Color)

Scan Mode: Progressive, Max. Resolution Live: (H×V):3856 x 2764

Sensor Size (Diagonal): 1/2"(6.55mm (H) x 4.92mm (V), Diagonal 8.19mm)

Pixel Size: 10.1μm x 10.1μm, G Sensitivity: 1.0v/lux-sec (550nm), Dynamic Range: 61dB

A/D Converter: 12-bit parallel, 8-bit R.G.B to PC, SN Ratio: 43dB

Spectral Range: 380-650nm (with IR-filter)

Video Format & Frame Rate: 8fps @2048 x 1536, 22fps @1024 x 768, 43fps @680 x 510

c. Software Environment

Operating System Support Microsoft Windows XP / Vista / 7 / 8 (32 & 64 bit) OS X (Mac OS X), Linux

d. PC (Desktop Computer)

CPU: Equal to Intel Core i3 3.2GHz or Higher, Memory: 2GB or More, USB port: USB2.0/USB3.0 High-speed Port, 1 TB, 7200rpm SATA HDD, Display: 17" or Larger, CD-ROM

e. Spray Droplet Analysis Software for measurement of droplet size, shape, segregation of counted objects based on their measurement, data collection in Excel format

3. Scope of supply & incidental services:

The supplied items are required to be installed, commissioned and demonstrated at the buyer's site (i.e. CSIR-CMERI, Durgapur) by factory trained engineer. Maintenance and training manuals should be supplied.

4. Inspection and Tests required:

Signature

Annexure-I

- a) The Director, CSIR-CMERI, Durgapur shall be the final authority to reject full or any part of the supply which is not confirming to the specification and other terms and conditions.
- b) No payment shall be made for rejected stores. Rejected items must be removed by the Bidders at their own cost and replaced within two weeks of the date of rejection immediately.

5. Acceptance test:

As mentioned in Section 4 (Inspection and Tests required) above.

6. Minimum Pre-Qualification Criteria:

- The bidder must be original manufacturer or its authorized dealer.
- The bidder (manufacturer/authorized dealer) should have executed at least ^{Three} ~~three~~ orders containing item no. 12 & 13 and any ~~one~~ ^{five} item from the rest of the tender items successfully to Govt. Institution or Govt. Agency in the past ^{five} years and furnish the copies of PO from the client.

Sub note in margin