

DAP

WATER PRESSURE TESTING MACHINE

Date: APRIL, 2021

CUSTOMER

ORDNANCE FACTORY AMBAJHARI

NAGPUR- 440021 (INDIA)

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INDEX

- **DAP SUBMISSION STATUS**
- **OBJECTIVE**
- **SCOPE OF ORDNANCE FACTORY**
- **NEOMETRIX SCOPE & SUPPLY**
- **DAP GENERAL POINTS**
- **MACHINE SPECIFICATION**
- **LIST OF BOUGHTOUT ITEM**
- **LAYOUT OF MACHINE**
- **CONTROLS**

SUBMISSION STATUS

S. NO.	DATE	REMARK	REV.
01	10/03/21	DAP Submission Initial	00

OBJECTIVE

- ❖ To provide the Water Pressure Testing Machine with Loading/Unloading for component in tooled- up condition for the components as per drawing no. SM-377A SM-848B & SM-770

SCOPE OF ORDNANCE FACTORY

- ❖ Site cleaning where supplied item will be installed.
- ❖ Trial components
- ❖ Supply: $415 \pm 10\%$, V AC, with neutral & ground, 3 phase 50 Hz 30 m copper wire.
- ❖ Earthling connected to main panel.
- ❖ Main incoming supply cable for control panel.
- ❖ Pneumatic Air Supply at 5 bar
- ❖ Material handing 10 ton
- ❖ Other Utilities & consumables.

NEOMETRIX SCOPE AND SUPPLY

WATER PRESSURE TESTING MACHINE (1 NO.)

<u>S.R No</u>	<u>Description</u>	<u>Qty.</u>
1.	<u>Jib Boom Type Wire Rope Hoist Crane for Loading & Unloading</u>	02
2.	In feed Conveyor	01
3.	Output Conveyor	01
4.	Handling ROBOT with Hydraulic Gripper	01
5.	Robot pedestal	01
6.	Robot dress pack	01
7.	Robot fencing	01
8.	Robot teach pendent	01
9.	Rotary Index Table (Four Station)	01
10.	Pressing Station	01
11.	Sealing Cum Pressure Testing Cylinder	01
12.	Measuring Device during Pressure Testing	01
13.	Recording Device with Kiosk for storing the Measured Data	01
14.	Hydraulic Intensifier	02

15.	Hydraulic Power Unit	01
16.	Plate type heat exchanger	01
17.	Water Filtration Tank (Bottom)	01
18.	Water Filling Tank (Top)	01
19.	Water Filling & Pumping system	01
20.	Centralized Lubrication System	01
21.	PLC Program Loader with original software with cable	01
22.	PLC Program loaded	01
23.	Operator Panel with HMI	01
24.	Main PLC Control Panel	01
25.	Industrial laptop	01
26.	Foundation at Site	
27.	Programming & interfacing	
28.	Installation & Commissioning	
29.	Training (3 – 4days)	

SPARES SUPPLY

<u>S.R No</u>	<u>Description</u>	<u>Make</u>
	<u>Mechanical spares</u>	
1.	Direction valve seal kit	Standard
2.	<u>Relief valve seal kit</u>	Standard
3.	<u>Service tool includes 150 ratchet attach tool box incliding allenkey,spanners &box spanners</u>	Stanley/beta
4.	<u>Digital multimeter</u>	Fluke/Megger
	<u>Hydrualic spares</u>	
5.	<u>One pump & valve of each type</u>	Standard
6.	High pressure hoses	Standard
7.	Piston	neometrix
8.	Coupling for pump & motor	Standard
9.	Pressure gauge	Polyhydron/orion/wika/ atos/scoda/hydac/telemecanique
	Electrical & Electronics spares	
10.	Pressure switch	Wika/polyhydraon/telemecanique

		/vogel/hydac/parker/ifm/scoda/atos
11.	Limit switch	Balluff/IFM/P&F/Omron/Festo
12.	Proximity sensor	Balluff/IFM/P&F/Omron/Festo
13.	Reed switch	Balluff/IFM/P&F/Omron/Festo
14.	Solenoid valves with coil	<u>Rexroth/Vickers/Eaton/Parker</u>
15.	Relays PCB	<u>Finder/omron/Oen/GE/L&T/Pilz</u> <u>/phoenix/allen bradley</u>
16.	SMPS	Phoenix/ifm/siemens
17.	Pressure indicator	Polyhydron/orion/wika/ atos/scoda/hydac/telemecanique
18.	Deformation measurement probe with indicator	Marposs/renishaw/sony
19.	PLC power supply	Siemens
20.	PLC CPU	Siemens
21.	Input and output Module	Pilz/phoenix/elobau/schmersal
22.	HMI	Siemens
23.	VFD	Siemens/abb/ Schneider
24.	Gear motors	Siemens/abb/schiender
25.	Induction motor	Siemens/abb/cg/weg/kirloskar

26.	LED indicating lamp	Siemens/abb/l&t
	Special spares	
<u>1</u>	Special sealing –cum testing head with complete sealing arrangement for hollow body Dr No SM-377A	
<u>2</u>	Special sealing –cum testing head with complete sealing arrangement for hollow body Dr No SM-848B	
<u>3</u>	Special sealing –cum testing head with complete sealing arrangement for hollow body Dr No SM-770	
<u>4</u>	Location cups	Neometrix
<u>5</u>	Accessories of handling automation & handling robot, expansion & deformation measurement system, suitable work holding fixtures	Neometrix

STANDARD MAKE OF SUPPLY

<u>S.R No</u>	<u>Description</u>	<u>Make</u>
<u>1</u>	<u>Jib Boom Type Wire Rope</u> <u>Hoist Crane for Loading &</u> <u>Unloading</u>	NEOMETRIX
<u>2</u>	In feed Conveyor	NEOMETRIX
<u>3</u>	Output Conveyor	NEOMETRIX
<u>4</u>	Rotary Index Table (Four Station)	NEOMETRIX
<u>5</u>	Top & Bottom Beam Type Structure	NEOMETRIX
<u>6</u>	Sealing Cum Pressure Testing Cylinder	NEOMETRIX
<u>7</u>	Pressure Cylinder	NEOMETRIX
<u>8</u>	Expansion & permanent deformation Measuring Device during Pressure Testing	Marposs/renishaw/sony
<u>9</u>	Recording Device for storing	Marposs/renishaw/sony

	the Measured Data	
<u>10</u>	Hydraulic Intensifier	NEOMETRIX
<u>11</u>	Power Pack	NEOMETRIX
<u>12</u>	Water tank	NEOMETRIX
<u>13</u>	Coolant tank	NEOMETRIX
<u>14</u>	Water Filtration & Pumping system	NEOMETRIX
<u>15</u>	Centralized Lubrication System	NEOMETRIX
<u>16</u>	Spare Filter	NEOMETRIX
<u>17</u>	<u>Spare Hydraulic Seal for all the Cylinders</u>	NEOMETRIX
<u>18</u>	Spare Set of grippers for the Hoist for each type of component	NEOMETRIX
<u>19</u>	Spare Location Cups for Placing of Hollow Body	NEOMETRIX
<u>20</u>	Service Tool & Maintenance Kit 150 pcs ratchet attachment tool box	STANELY/BETA
<u>21</u>	PLC Program Loader with	Siemens

	original software with cable	
<u>22</u>	PLC Program loaded	Siemens
<u>23</u>	Operator Panel with HMI	Siemens
<u>24</u>	Main PLC Control Panel	Siemens
<u>25</u>	Robot	ABB/KUKA/FANUC
<u>26</u>	Robot pedestal	ABB/KUKA/FANUC
<u>27</u>	Robot dress pack	ABB/KUKA/FANUC
<u>28</u>	Robot fencing	NEOMETRIX
<u>29</u>	Robot teach pendent	ABB/KUKA/FANUC
<u>30</u>	Industrial laptop	Dell/Ibm/Hp
<u>31</u>	Electric motor	Siemens/abb/cg/weg/kirloskar/flender/Eecon Incase of gear motor
<u>32</u>	COUPLING FOR PUMP AND MOTOR	Standard
<u>33</u>	Different type electronic sensor	Standard
<u>34</u>	Pressure gauge(digital & analog)	Polyhydron/orion/wika/atos/scoda/hydac/telemecanique
<u>35</u>	LED lamp	Siemens/abb/l&t
<u>36</u>	Programming & interfacing	ABB/KUKA/FANUC

<u>37</u>	Digital multi meter	Fluke/Megger
<u>38</u>	Plate type heat exchanger	Tranter/Alfalevel
<u>39</u>	VFD motor (conveyor)	Siemens/Schneider/abb
<u>40</u>	<u>Limit switches, Proximity switches, Reid switches, limit, magnetic switches</u>	Balluff/IFM/P&F/Omron/Festo
<u>41</u>	<u>Linear scale</u>	Balluff/Heidenhain
<u>42</u>	<u>Pressure switches & pressure transducer</u>	Wika/polyhydraon/telemecanique /vogel/hydac/parker/ifm/scoda/atos
<u>43</u>	<u>Safety modules /Relay modules</u>	Pilz/Elobau/phoenix/schmersal
<u>44</u>	<u>Solenoids & proportional control valve</u>	<u>Rexroth/Vickers/Eaton/Parker</u>
<u>45</u>	<u>Photo/optical/sensors and laser sensor</u>	<u>Hydac/p&f/Balluff/Sick/carlZeiss /Leuze</u>
<u>46</u>	<u>Relays</u>	<u>Finder/omron/Oen/GE/L&T/Pilz /phoenix/allen bradley</u>
<u>47</u>	<u>All switchgear, electric contractors ,overload,mcb,mccb,mpcb,</u>	<u>Siemens/havells/L&T/abb/ GE/schneider telemecanique</u>

	<u>&ach</u>	
<u>48</u>	<u>Control/Multicore cables</u>	<u>Lapp/Helu/Igus/Siemens</u>
<u>49</u>	<u>Electric hoist</u>	<u>Indef/switch/ingersolrand/demag</u> <u>/eurolift</u>
<u>50</u>	<u>Level sensors & controller</u>	<u>E&H/siemens/abb/cg/honeywell</u>
<u>51</u>	<u>Power panel</u>	Siemens/abb/l&t
<u>52</u>	<u>Control panel</u>	Siemens/abb/l&t
<u>53</u>	<u>Operator panel</u>	Siemens/abb/l&t
<u>54</u>	SMPS POER SUPPLY	IFM/PHOENIX/SIEMENS

Operation Cycle: -

- The operator pushes the push button. The infeed conveyor moves one pitch of the pallet & just below the gripper of the Pick & Place device.
- Robot pick the hollow body and place rotary table vertically position at watering station by help of operator command.
- The water mixed with the suitable rust inhibiting compound is automatically filled inside the cavity of input hollow body according to the internal cavity volume of each body.
- The Rotary Table indexes to 90 degrees & brings the component below the Testing station.
- The Pressure Cylinder from bottom pushes the Hollow body component against the top sealing arrangement of Pressure Testing Head & pressuring up to the specified pressure & time duration with display of pressure & time.
- The measuring sensing device measures before and after the expansion of the Hollow Body component. For any deviation it gives the buzzer indicating component is rejected.
- The Rotary Table indexes to 90 degrees & brings the component the dewatering station and dewatering the cavity by help of Robot .
- For emptying the cavity of Hollow Body Component Servo Motor Rotating Mechanism again tilt the component downward at 45 degrees. The water falls into the collecting tray below.
- Before Placing the component on the Outfeed Conveyor, the component is turned to Horizontal Direction.
- The corrected hollow body is picked by robot and place the outfeed conveyor in horizontal position.
- The operator picks the component from the Outfeed Conveyor with the help of Magnetic Gripper of the Unloading Jib Crane & places on the Pallets provided.
- In corrected hollow body next goes to rejection station by servo mechanism .
- In corrected hollow body pick and place the rejection table by robot .
- This Completes the cycle.

LIST OF BOUGHTOUT ITEMS

1.	PLC Program loaded	Siemens
2.	Operator Panel with HMI	Siemens
3.	Main PLC Control Panel	Siemens
4.	SMPS POWER SUPPLY	IFM/PHOENIX/SIEMENS
5.	Robot	ABB/KUKA/FANUC
6.	Robot pedestal	ABB/KUKA/FANUC
7.	Robot dress pack	ABB/KUKA/FANUC
8.	Robot teach pendent	ABB/KUKA/FANUC
9.	Pump	Standard
10.	Industrial laptop	Dell/Ibm/Hp
11.	Electric motor	Siemens/abb/cg/weg/kirloskar
12.	COUPLING FOR PUMP AND MOTOR	Standard
13.	Pressure gauge(digital & analog)	Siemens/abb/l&t
14.	LED lamp	Siemens/abb/l&t
15.	Programming & interfacing	ABB/KUKA/FANUC
16.	Digital multi meter	Fluke/Megger
17.	Plate type heat exchanger	Tranter/Alfalevel

18.	VFD motor (conveyor)	Siemens/Schneider/abb
19.	<u>Limit switches, Proximity switches, Reid switches, limit ,magenetic switches</u>	Balluff/IFM/P&F/Omron/Festo
20.	<u>Linear scale</u>	Balluff/Heidenhain
21.	<u>Pressure switches & pressure transducer</u>	Wika/polyhydraon/telemechanique /vogel/hydac/parker/ifm/scoda/atos
22.	<u>Safety modules /Relay modules</u>	Pilz/Elobau/phoenix/schmersal
23.	<u>Solenoids & proportional control valve</u>	<u>Rexroth/Vickers/Eaton/Parker</u>
24.	<u>Photo/optical/sensors and laser sensor</u>	<u>Hydac/p&f/Balluff/Sick/carlZeiss</u> <u>/Leuze</u>
25.	<u>Relays</u>	<u>Finder/omron/Oen/GE/L&T/Pilz</u> <u>/phoenix/allen bradley</u>
26.	<u>All switchgear, electric contractors ,overload,mcb,mccb,mpcb,&acb</u>	<u>Siemens/havells/L&T/abb/</u> <u>GE/schiender telemchanique</u>
27.	<u>Control/Multicore cables</u>	<u>Lapp/Helu/Igus/Siemens</u>
28.	<u>Electric hoist</u>	<u>Indef/switch/ingersolrand/demag</u> <u>/eurolift</u>

29.	<u>Level sensors & controller</u>	<u>E&H/siemens/abb/cg/honeywell</u>
30.		
31.		

CRITICALITY OF MACHINE (If Any)

CUSTOMER ACCEPTANCE CRITERIA

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

SPECIFICATION AGREED

**NEOMETRIX REPRESENTATIVE
REPRESENTATIVE**

ORDNANCE

NAME: - 1.
2.

NAME: - 1.
2.

SIGN: - 1.
2.

SIGN: - 1.
2.