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Safe Way for
better Safety

Chartered Techno Services

ADDRESS:- 'A' BLOCK , 'D' WING, 1ST FLOOR, BHARAT BAZAR, API CORNER, CHIKALTHANA, AURANGABAD- 431 006.

SOP FOR TESTING OF PRESSURE VESSELS / LIFTING EQUIPMENTS

* External inspection and ultrasonic testing

The testing is done as per Rule 65 of Maharashtra Factories Rules every six monthly.

For ultrasonic testing, the surface is cleaned at 4-5 places on shell & dish and the thickness is taken by Ultrasonic thickness gauge.

This thickness is compared with the original thickness given by manufacturer, for any corrosion and is calculated for Safe working pressure as per norms provided.

External inspection is done for examination of overall condition of the Pressure vessel and for proper functioning of Pressure Gauge, Safety Valves, Drain valve and other fittings.

The required Certificate as per Factories Act is issued.

* Hydraulic Testing

Hydraulic testing of any pressure vessel / Pipe line is carried out as per Rule 65 of Maharashtra Factories Rules once in every 2 years. This test is to ensure safety of any pressure vessel in operation.

To carryout this test first Pr vessel is isolated from regular operation. Its Safety valve is removed and plug is fitted on the vessel.

After plugging all the required openings, water is filled and pressure is applied by connecting the Hydraulic pump with calibrated Pressure Gauge.

After attaining required water pressure, Hammer Test is carried out to check the integrity of the vessel.

The vessel is kept for 10 minutes (IS 2825- 8.4.2.2) to see whether pressure is sustained or not. During this period all weld joints, fittings, pressure gauge, valves etc are also checked.

After successful test, the pressure is released, all the water is drained & flushed and the equipment is reconnected for operation.

The required Certificate as per Factories Act is issued.

* Safety Valves

The testing of Safety Valve is done for its proper functioning preferably once in every two year or as per recommendations.

First Safety valve is removed from the vessel and cleaned properly.

Water pressure is applied from the inlet up to the required pressure.

In case the valve does not operate at this pressure, the valve pressure is reset at required pressure.

In case of malfunctioning it is recommended to replace the Safety Valve.

After completing the test the valve is refitted, and certificate issued.

* LIFTING EQUIPMENTS

All Lifting machines, Chain, rope, tackles etc. are tested as per Section 29 of Fact. Act. & MFR rule 64 enclosed.

CHECK LIST FOR

1) EOT CRANES / ELECTRIC HOIST :-

- 1) Wire Rope Check
- 2) Limit Switch
- 3) Break / Load Test -1.25% extra
- 4) Pendant Switch
- 5) Pendant Cable
- 6) Hook Safety Lock

2) FORK LIFT / HYDRAULIC STACKER / CHAIN BLOCK :-

- 1) Driver Licence
- 2) Reverse Horn
- 3) Break / Load Test – 1.5% Extra
- 4) Head Light
- 5) Tier Condition
- 6) Hydraulic Lifter

12. In case of a jacketted vessel in which heat is transmitted by any means causing pressure rise in the vessel, the heat input in the jacket shall be so controlled by a suitable device as not to allow the SWP of the vessel being exceeded. Rule 65 (3) (iv)

6. As per the Act “Thorough examination by a competent person is to be carried out at least once in every period of 12 Months.”

SOP FOR HYDRAULIC TESTING OF AIR RECEIVER

- 1) Ensure that respective Air Receiver is in off position.
- 2) Drain all the water/Oil through drain valve.
- 3) Discharge all the air and ensure zero pressure in tank
- 4) Remove all the pressure gauges, safety valves safety switches etc from the receiver and plug them.
- 5) Open the man hole and clean from inside and carryout visual inspection for crack etc (If possible) and close the man hole after inspection.
- 6) Remove inlet and outlet connection of the equipment.
- 7) Provide Blind flanges at inlet and outlet connection.
- 8) Connect Hydraulic pump connection to any suitable point may be through drain valve.
- 9) Ensure that pressure gauge used is properly calibrated.
- 10) Operate Hydraulic pump to insert water inside the tank and give pressure upto 1.5 times the safe working pressure.
- 11) Keep the tank with pressurized water for 10 minits.
- 12) Carryout hammer test and observe any pressure drop and record it.
(it should be within acceptable limits.)
- 13) Release the pressurized water and drain properly.
- 14) Check safety valve for opening at correct pressure.
- 15) Connect pressure gauge, safety valve & fitting back in position.
- 16) Connect inlet and outlet connection.
- 17) Start the respective supply and check the leakages at flanges, joints rectify the same if any.
- 18) Drain the left over water inside the tank.
- 19) Authorized external agency shall submit the certificate having all details in required form.