

Maintenance Guidelines for Mechanical and Hydraulic Presses

Mechanical and hydraulic presses are commonly found in the manufacturing and metalworking industry. These machines often run without trouble for extended periods, which can result in necessary preventative maintenance activities being overlooked or greatly exceeding recommended maintenance intervals.

Periodic maintenance, inspection and testing can help keep this equipment operating at optimal levels and help reduce the potential for costly equipment breakdowns. The Travelers Boiler & Machinery Division has developed maintenance guidelines based on industry-accepted standards and many years of experience working with our clients to investigate equipment breakdowns.

Mechanical Presses

Recommended protective devices and features should include:

- Strain gauges or load monitors that alarm or alarm and trip.
- Double blank detectors with an interlock to the actuation circuit to prevent the press from cycling with two or more blanks on the press dies.
- Safety valves on air tanks for overpressure protection.

Implement a scheduled preventative maintenance program. Include the following preventative maintenance guidelines in your program:

- Daily visual press inspections while the press is operating.
- Calibrate load monitors and strain gauges whenever there is a die change. Include written die setting procedures in your maintenance program.
- Maintain lubrication procedures as recommended by the equipment manufacturer.
- Inspect crankshaft bearings, ram gibs, brake, and clutch quarterly.
- Check press alignment annually.
- Implement an inspection program for air tanks and air cylinder balance pistons as recommended by the manufacturer.
- Perform press overhauls as recommended by the manufacturer.
- For presses rated 1,000 tons or greater, conduct annual nondestructive examinations of the tie rods or columns and other highly stressed components. Nondestructive testing methods include ultrasonic, dye penetrant and/or magnetic particle examination. The results of these examinations should be documented for future reference.
- Annual original equipment manufacturer (OEM) service, including crown, slide and bed inspection and measurement. These inspections and measurements should be documented and retained for future reference..

Hydraulic Presses

Recommended protective devices and features:

- Hydraulic oil pressure monitors or gauges in sight of the operator.
- Pressure relief valves installed on hydraulic circuits.
- Strain gauges or load monitors with alarm, or alarm and trip function

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- For hydraulic presses with tie rods, there should be strain gauges for each tie rod with monitoring devices to trip upon excessive, off-center or unbalanced loading (not applicable where the ram or platen slides on the tie rods).

Implement a scheduled preventative maintenance program. Include the following preventative maintenance guidelines in your program:

- Daily visual press inspections while the press is operating.
- Calibrate load monitors and strain gauges whenever there is a die change. Include written die setting procedures in your maintenance program.
- Visually inspect hydraulic cylinders, rams and seals monthly.
- Visually inspect frame and base plate annually.
- Check press alignment annually.
- Visually inspect the foundation, base, bolts, shims and grout annually.
- Annual ultra-sonic examination of tie rods (if installed) using ultrasonic testing to search for cracks in the rebate areas and thread roots on hydraulic presses rated more than 1,000 tons.
- Test and calibrate hydraulic pressure relief valves every 1-5 years, depending on the manufacturer's recommendations.
- Non-destructive examination of rams, cylinders, platens and bolsters every 1-5 years, depending on the manufacturer's recommendations.



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