

OIL ACCUMULATOR SYSTEM Val-Matic Specification

1 Scope

1.1 This specification covers the design, manufacture, and testing of oil accumulator systems suitable for oil pressures up to 125 psig service.

1.2 The oil accumulator system shall supply sufficient oil between 60 and 125 psig to operate the designated hydraulic cylinder actuated valves through three valve strokes (close, open, and close) after power failure.

2. Standards, Approvals, and Verification

2.1 The supplier shall have a quality management system that is certified to ISO 9001 by an accredited, certifying body.

3 Design

3.1 The oil accumulator system shall automatically supply pressurized hydraulic oil from a vertical air-over-oil cylindrical pressure tank. Tandem motor driven oil pumps shall deliver oil to the pressure tank from a fabricated oil sump tank. Tandem air compressors shall provide compressed air to the top of the pressure tank. The pressure tank, sump tank and electrical control cabinet shall be piped and mounted to a fabricated steel floor skid with lifting holes.

3.2 The pressure tank shall meet ASME Code for Unfired Pressure Vessels requirements and be code stamped. The pressure tank shall be equipped with a relief valve, level gauge, float switch, drain, and a cleanout hole.

3.3 The oil pumps shall be sized to pump the usable oil volume in less than 15 minutes. The oil pumps shall be provided with relief valves, isolation valves, and suction filters.

3.4 The sump tank shall be sized to receive the oil stored in the pressure tank. It shall be equipped with a level gauge, a low level float switch, a drain valve, and a screened fill cover.

3.5 The compressors shall be sized to recharge the pressure tank in less than 15 minutes. The air compressors shall be equipped with relief valves, isolation valves, and an outlet filter with automatic drain.

3.6 The electrical controls shall automatically start the oil pumps when the pressure drops below 120 psig and stop the oil pumps when the proper oil level is reached. The controls shall then start an air compressor if the pressure is below 120 psig.

3.7 The piping shall include the necessary isolation valves, check valves, filters, and gauges sized to assure minimum pressure loss at the emergency cylinder flow rate. The supply and drain connections shall be sized for a maximum fluid velocity of 8 ft/sec at the emergency cylinder flow rate.

3.8 The electrical panel shall be provided to control the operation of the oil pumps and air compressors in alternating lead/lag circuits and include a main circuit breaker, motor circuit breakers, motor starters, a control transformer, alarm reset button, Hand/Off/Auto switch, transformer-type pilot lights, plug-in control relays with LED indication, terminal strip, 6 in. diameter pressure gauge, and control pressure switches. Alarm lights, contacts, and reset buttons shall be provided for low oil level and low pressure conditions.

3.9 Oil pump and air compressor motors shall be suitable for 3 Phase, 230 VAC 60 Hz power and of TEFC construction.

4 Materials

4.1 The system shall be designed for petroleum-based hydraulic oil with a viscosity of 90 SUS at 100°F.

4.2 Piping between the hydraulic components shall be steel pipe or tubing. Pneumatic piping shall be brass or copper pipe or tubing.

4.3 The electrical panel shall be NEMA 12 and constructed of 14-gauge stainless steel with Square-D Class 9001 pilot lights and control switches.

4.4 All exposed carbon steel surfaces shall be painted with an industrial rust resistant primer and water and oil resistant industrial enamel.

5 Manufacture

5.1 The accumulator shall be filled to the normal operating level with oil, and tested to verify leak tightness, proper function, and oil levels.

5.2 In preparation for shipment, the unit shall be drained, and all openings shall be plugged. As-built schematics and wiring diagrams shall be enclosed in the electrical panel.

5.3 Oil accumulator systems shall be Series OA as manufactured by Val-Matic Valve & Mfg. Corp., Elmhurst, IL USA or approved equal.

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VALVE AND MANUFACTURING CORP.

DRWG. NO.

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