

# Turbine Mechanical Equipment - Accumulator Assembly

## Featured Equipment

- Accumulator assembly
- Accumulator support stand
- Pressure vessel
- Safety manifold
- Customer connections



## Introduction

Unlike gases, hydraulic fluids are essentially incompressible. Gas charged accumulators provide a means to store the hydraulic fluid under pressure. Accumulators specifically provide an auxiliary power source by holding supplemental power to be used during peak periods. This allows the use of smaller pumps, motors and reservoirs reducing installation and operating costs. As hydraulic fluid enters the accumulator on the fluid side, the gas above the fluid is compressed. Any tendency for pressure to decrease at the accumulator inlet forces fluid back out into the system.

The accumulators provided with this system use an expandable bladder to separate the oil and gas sides. Bladder type accumulators have the advantage of rapid response during pressure fluctuations because of the lightweight, low inertia, bladder. The accumulator assembly is comprised to two individual bottles, each with an isolation and bleed down valve. Each bottle can be serviced with the unit on-line. A pressure gauge and relief valve are part of the "safety manifold" included with each individual bottle. The pressure gauges display the oil side pressure.

## Accumulator Support Stand

The accumulator support stand is a custom fabricated, welded steel structure designed to accommodate two individual accumulator vessels. Two 1 ½ inch-lifting holes are provided at the top of the stand in the main vertical supports. A drain pan with a ½ inch NPT drain connection is an integral part of the structure.

## Pressure Vessel

The bladder accumulators consist of a welded or forged pressure vessel (shell), a bladder and ports for gas and fluid inlet. The bladder separates the gas and fluid sides. The fluid port includes a spring-loaded valve that opens to allow fluid to enter the bottle, and closes to prevent the bladder from extruding into the fluid port when the oil side is completely discharged. The gas port employs a screw-on cap to protect the gas valve from damage. Charging assemblies can be purchased through Emerson.

## Safety Manifold

Each accumulator bottle has a safety and shut-off block attached to the fluid port. The safety and shut-off block is designed to protect, shut-off and safely discharge hydraulic accumulators.

The block incorporates these features:

- Pressure relief valve
- Pressure gauge
- Shut-off valve
- Manual bleed valve

## Customer Connections

The accumulator assembly has two customer connections at each end of the assembly. The two connections are for “system pressure” (or in the case of a low-pressure accumulator, “system return”) and “drain”. The drain connection is typically an SAE-8, straight thread o-ring female fitting, while the system pressure connection is typically an SAE-20 female fitting. Two sets of connections are provided for flexibility of installation. The connections can be made at either end of the assembly or the accumulator can be mounted “in-line”.

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