

Piston Type Accumulator PTA



Picture Courtesy of the Petroleum Engineering Department
at the Colorado School of Mines, Golden, CO USA



Transfer Vessels and Accumulators

The Leutert floating piston vessels are used for various applications, such as PVT experiments, catalysis, polymerization, petroleum flooding experiments, hydrogenations, and other reactor studies.

Description

Fluids are practically incompressible and cannot therefore store pressure energy. The compressibility of a gas is utilized in hydro-pneumatic accumulators for storing fluids. Leutert piston type accumulators are designed based on this principle, using nitrogen as the compressible medium.

In an experiment where multiple fluids or phases are to be injected in sequence, a series of accumulators are installed and only one metering pump is required for injection into the system. The vessels also protect the metering pumps from aggressive and corrosive liquids.

The two end caps of the Leutert piston type accumulator are sealed with double o-ring seals and back-up rings. The piston has a single O-ring seal and a slider ring and is designed to minimize friction and reduce pressure load. 1/4" NPT female port threads are machined into the end caps of the 10,000 psi cylinders, and 7/16" NPT female port threads into the 15,000 psi cylinders. Both end caps are held in place by strong circlips. The design allows easy assembly and disassembly of the vessel for cleaning and inspection. Valve protectors on both ends assure safe handling and transportation. An aluminum transportation box is available.

Applications

- Liquid or gas storage and transportation
- Liquid or gas sampling
- Metering of liquids or gases into test systems
- Isolation of corrosive fluids from metering pumps
- Supercritical carbon dioxide studies, PVT studies
- Petroleum core flooding experiments
- Corrosive environments, pulse dampening

Technical Specifications

Volume	: 700 cm ³ , other on request
Weight	: 35.3 lbs (16 kg)
Material	: stainless steel, resistant to H ₂ S and CO ₂ , other on request
Material o-rings	: Viton, others on request
Operating pressure	: 10,000 psi (690 bar) standard, other on request
Operating temperature	: -4 °F to 300 °F (-20 °C to 150 °C), other on request
Liquid port, gas port	: up to 10,000 psi: 1/4" NPT female up to 15,000 psi: 7/16" NPT female
Certificates	: up to 10,000 psi: TPED & Hydrostatic Certificate up to 15,000 psi: Hydrostatic Certificate, PED on request

Design

