

SBO Series

Description

HYDAC diaphragm accumulators utilize the compressibility of a gas (nitrogen) in storing hydraulic energy. The gas is required because fluids are practically incompressible and thus, can not store energy by themselves. The diaphragm is utilized to separate the gas and the fluid sides of the accumulator.

The diaphragm accumulator functions by drawing in fluid from the hydraulic circuit when the pressure increases and thus, compresses the gas. It returns this energy to the circuit as the pressure decreases by the expansion of the gas.

A poppet is incorporated into the diaphragm to prevent its extrusion through the fluid port.

HYDAC manufactures two types of diaphragm accumulators:

- Welded (non-repairable)
- Threaded (repairable)

These have been successfully applied to both industrial and mobile applications for energy storage, maintaining pressure, leakage compensation, and vehicle hydraulic systems (e.g. brake and suspension).

Construction

Both types of diaphragm accumulators have the same basic construction. The difference is in the shell. The welded version has a shell that is electron-beam welded, and therefore cannot be repaired. The threaded type has a shell made up of two halves (top and bottom) which are held together by a threaded locking ring.

Diaphragm Materials

Not all fluids are compatible with every elastomer at all temperatures. Therefore, HYDAC offers the following choice of elastomers:

- NBR (Standard Nitrile)
- IIR (Butyl)
- LT-NBR (Low Temperature Nitrile)
- FPM (Fluorelastomer)
- ECO (Epichlorohydrin)
- Others (available upon request)

To determine which material is appropriate . . . **Always Refer To Fluid Manufacturer's Recommendation.**

Corrosion Protection

For use with certain aggressive or corrosive fluids, or in a corrosive environment, HYDAC offers protective coatings and corrosive resistant materials (i.e. stainless steel) for the accumulator parts that come in contact with the fluid, or are exposed to the hostile environment.

Mounting Position

Diaphragm accumulators by design may be mounted in any position. In systems where contamination is a problem, we recommend a vertical mount with fluid port oriented downward.





Diaphragm Accumulators

SBO Series (Continued)

System Mounting

HYDAC diaphragm accumulators are designed to be screwed directly onto the system. We also recommend the use of our mounting components to minimize risk of failure due to system vibrations.

Applications

Some common applications of diaphragm accumulators are:

- Agricultural Machinery and Equipment
- Mining Machinery and Equipment
- Forestry Equipment
- Mobile and Construction Equipment
- Machine Tools
- Off-Road Equipment

Non-Repairable Welded Diaphragm Accumulator Specs

Series	Eff. Gas Volume (in ³)	Max. Working Pressure (psi)	Weight (lbs.)	Diameter (Inches)	Inlet (SAE)	Flow (gpm)
SBO 250	5	3600	1.5	2.52	9/16-18 UNF	10
SBO 210	10	2600 ⁽¹⁾ 3000	1.8	2.91	9/16-18 UNF	10
SBO 210	20	2400 ⁽¹⁾ 3000	2.9	3.66	3/4-16 UNF	25
SBO 210	30	3000	3.7	4.13	3/4-16 UNF	25
SBO 330	36	4700	7.3	4.53	3/4-16 UNF	25
SBO 210	45	2000 ⁽¹⁾ 3000	6.2	4.76	3/4-16 UNF	25
SBO 330	45	4700	8.9	4.96	3/4-16 UNF	25
SBO 200	60	3000	7.9	5.35	3/4-16 UNF	25
SBO 140	85	2000	8.6	5.71	3/4-16 UNF	25
SBO 210	85	3000	11.9	5.91	3/4-16 UNF	25
SBO 330	85	4700	16.6	6.10	3/4-16 UNF	25
SBO 100	120	1500 ⁽¹⁾ 1500	8.8	6.30	1 1/16-12 UNF	40
SBO 210	120	3000	14.6	6.57	1 1/16-12 UNF	40
SBO 330	120	4700	17.7	6.77	1 1/16-12 UNF	40
SBO 210	170	3000	18.0	6.57	1 1/16-12 UNF	40
SBO 250	230	3000	24.6	6.69	1 1/16-12 UNF	40
SBO 330	230	4700	30.6	6.77	1 1/16-12 UNF	40

1) Stainless steel version for chemical, water, and oil service.

Repairable Threaded Diaphragm Accumulator Specs

Series	Eff. Gas Volume (in ³)	Max. Working Pressure (psi)	Weight (lbs.)	Diameter (Inches)	Inlet (SAE)	Flow (gpm)
SBO 500	6	7200	4.2	3.74	3/4-16	25
SBO 500	15	5000 ⁽¹⁾ 7200	8.6	4.53	3/4-16	25
SBO 750	15	8700 ⁽¹⁾ 10,000	19.8	6.02	3/4-16	25
SBO 450	36	3600 ⁽¹⁾ 4700	12.6	5.51	3/4-16	25
SBO 210	80	3000	18.7	6.69	3/4-16	25
SBO 400	80	5800	24.7	7.91	3/4-16	25
SBO 250	120	2600 ⁽¹⁾ 3600	25.1	7.91	1 1/16-12	40

1) Only available in stainless steel construction.