



# ***ADE Diaphragm Accumulators***

*For working pressures up to 250 bar*

*Catalogue HY07-1248/UK  
February 2005*



**Why Use a Diaphragm Accumulator?**

Liquids are practically incompressible and therefore cannot be used directly for storing energy. Hydro-pneumatic accumulators use the differing compressibility of liquid and gaseous media to enable energy to be stored in liquids under pressure. The upper section of the diaphragm accumulator body contains pressurized gas, isolated from the lower section by a flexible diaphragm. The lower section is connected to the hydraulic system. While system pressure exceeds gas pressure, fluid flows into the accumulator body; when system pressure falls below gas pressure, fluid is discharged back into the hydraulic system, maintaining system pressure and supplementing pump delivery.

Parker's hydro-pneumatic diaphragm accumulators enhance the efficiency of a hydraulic system. Their simple, compact, design ensures dependable performance and long service life in a wide range of industrial and mobile applications.

**ADE Series diaphragm accumulators must only be used with a Group 2 fluid. Their use is strictly prohibited with a Group 1 fluid.**

Parker's diaphragm accumulators are designed, manufactured and tested to the highest standards. Parker Hannifin does not accept any responsibility for damage to persons or property, or for any consequences, eg: loss of operation, resulting from failure to observe the operating instructions contained in bulletin HY07-1248-T.

**European Pressure Equipment Directive**

ADE Series accumulators are subjected to conformity assessment procedures in accordance with the European Directive 97/23/EC for pressure equipment. Models with a capacity greater than 1 litre carry the CE mark, while those with a volume up to and including 1 litre are designed and manufactured according to sound engineering practice (SEP).

**Features and Benefits****1 Shell**

The shell is manufactured from high strength alloy steel. The non-repairable, electron-beam welded construction reduces weight and size, simplifying location and installation.

**2 Diaphragm Retaining Ring**

The flexible diaphragm is retained by a steel ring, permanently secured during assembly to ensure a gas-tight seal.

**3 Diaphragm**

The diaphragm provides excellent gas and fluid separation. ADE accumulators are offered with diaphragms in nitrile (NBR) or epichlorohydrine (ECO) compounds; both are suitable for use with mineral oil compounds, while ECO diaphragms provide exceptional low temperature performance for demanding mobile applications.

**4 Diaphragm Safety Button**

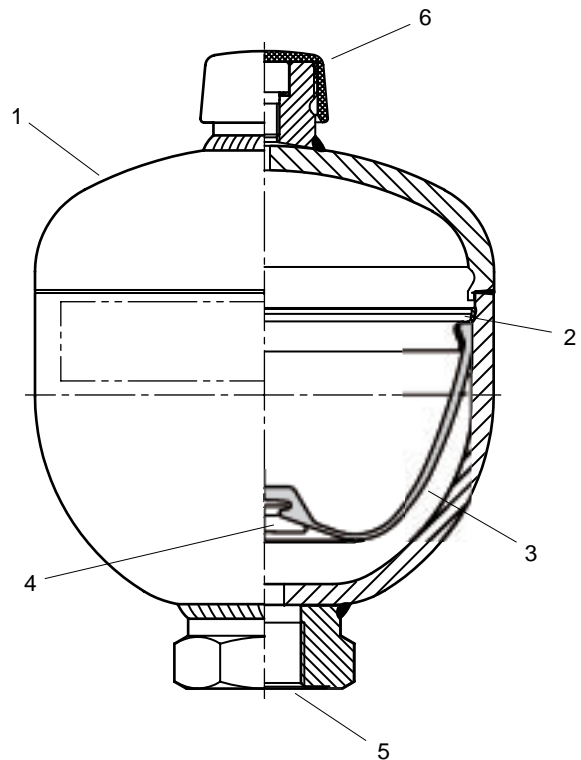
The moulded diaphragm incorporates a 'button' which closes the fluid port when the accumulator is fully discharged, preventing damage which would result from extrusion of the diaphragm into the port.

**5 Fluid Port**

BSPP port threads are supplied as standard, with other thread forms available to special order – please consult your Parker sales office.

**6 Gas Port**

The gas port is sealed with a screwed plug, machined to allow the safe release of pressure prior to end-of-life disposal. An external thread enables a Parker UCA charging and gauging kit to be fitted, permitting quick and easy checking and adjustment of the nitrogen pre-charge pressure.

**Parker Hannifin Corporation . . .**

is a world leader in the manufacture of components and systems for motion control. Parker has more than 800 product lines for hydraulic, pneumatic and electro-mechanical applications in some 1200 industrial and aerospace markets. With over 45,000 employees and some 210 manufacturing plants and administrative offices around the world, Parker provides its customers with technical excellence and first class customer service. Parker Hannifin is the world's largest supplier of hydraulic actuators and accumulators for industrial applications.

**Technical Data**

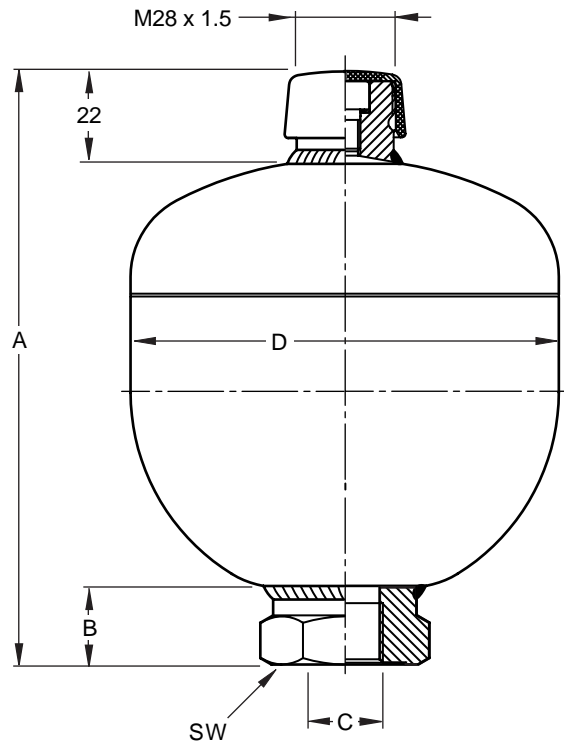
Standard volumes 0.075 – 3.5 litres  
 Operating pressure Up to 250 bar, depending on model  
 Std. temperature range  
 Shell and ports: -30°C to +80°C  
 Nitrile diaphragm/seals: -10°C to +80°C  
 Epichlorohydrine diaphragm/seals: -30°C to +80°C  
 Fluid type Mineral oil (standard compounds)

**Notes (see Table)**

- <sup>1</sup> A minimum liquid volume (10% of gas volume) must be maintained inside the accumulator.
- <sup>2</sup>  $p_1$  is the precharge gas pressure at 20°C.  
 $p_2$  is the maximum working or system pressure.

**Flow Rate**

The maximum values listed in the table only apply in the case of vertical installation (fluid port facing downwards).



**Models, Capacities and Dimensions**

Model	Volume Litres	Max. Operating Pressure Bar	Mass Kg	PED 97/23/CE Category	Max Flow <sup>1</sup> Lpm	Max Pressure Difference Bar	Max Pressure Ratio $p_1/p_2$ <sup>2</sup>	Precharge Pressure $\pm 5$ Bar	A	B	C BSPP	D	SW	Diaphragm Compound
ADE007-25R1A2 ADE007-25R9A2	0.075	250	0.7	–	10	210	1 : 8	60	111	20	G <sup>1/2</sup>	64	32	NBR ECO
ADE016-25R1A2 ADE016-25R9A2	0.16	250	1.0	–		210	1 : 6		75			32		
ADE032-21R1A2 ADE032-21R9A2	0.32	210	1.3	–	40	140	1 : 8	134	22			G <sup>1/2</sup>		93
ADE050-21R1A2 ADE050-21R9A2	0.5	210	2.0	–		175		106		NBR ECO				
ADE075-21R1A2 ADE075-21R9A2	0.75	210	3.7	–		175		122		NBR ECO				
ADE100-21R1A2 ADE100-21R9A2	1.0	210	3.5	–		170		136		NBR ECO				
ADE140-14R1C2 ADE140-14R9C2	1.4	140	4.2	I	60	120	1 : 4	191	21	G <sup>3/4</sup>	147	174	NBR ECO	
ADE140-25R1C2 ADE140-25R9C2	1.4	250	6.0	II		140		155			NBR ECO			
ADE200-25R1C2 ADE200-25R9C2	2.0	250	7.5	II		140		155			NBR ECO			
ADE280-25R1C2 ADE280-25R9C2	2.8	250	10	II		140		174			NBR ECO			
ADE350-25R1C2	3.5	250	11	II	140	140	1 : 4	90	307	G <sup>3/4</sup>	174		NBR	

All dimensions are in millimetres unless otherwise stated.

In line with our policy of continuing product improvement, specifications in this catalogue are subject to change without notice.

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