ETNA INDUSTRIE

PISTON ACCUMULATORS

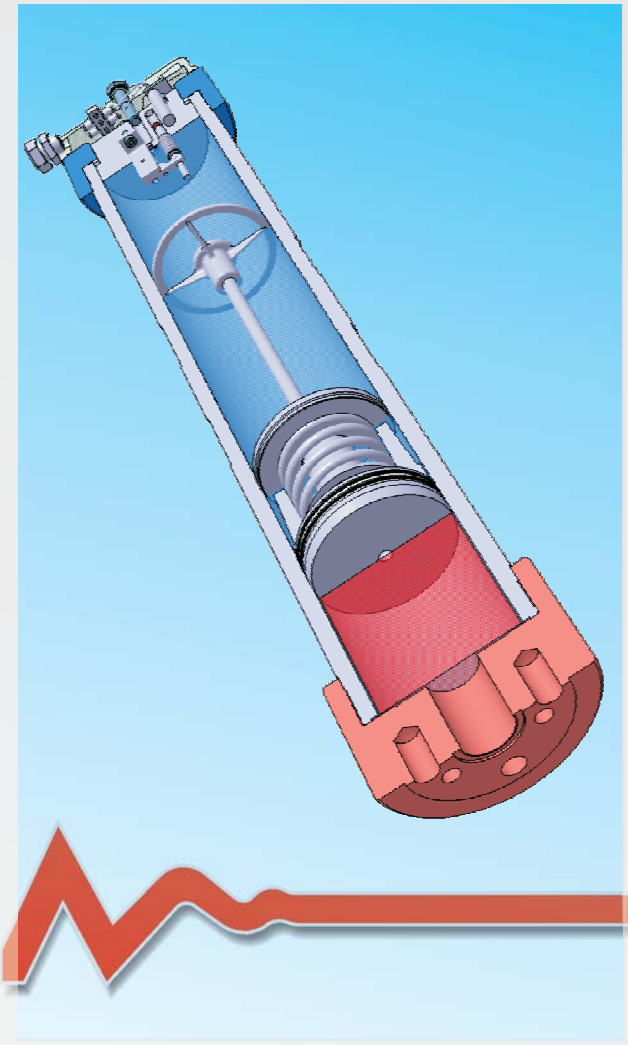
Description and operation

Description and operation of a piston accumulator

In a container being first filled with nitrogen, the fluid which is introduced by pumping overcharges the nitrogen being acting as a spring. A tight piston separates nitrogen from fluid. This last one is then restituted, more or less quickly, depending on the conditions of use. The accumulator is a steel cylinder. Its internal face is lapped.

Both cylinder ends are closed with machined caps that receive the corresponding fittings for introducing gas during pre charging and for connection to the hydraulic circuit.

The separation between nitrogen and fluid is ensured via a free piston being equipped with suitable seals in order to ensure the tightness.



Tightness between cylinder and end caps

The tightness of the end caps is ensured via an O-ring on which the pressure is directly exerting. Tightening the seal is therefore proportional to the pressure.

Tightness between nitrogen and fluid

The free piston is equipped with an elastomeric gasket set which is compressed onto the cylinder walls via a spring.

Advantages of ETNA accumulators

No risk of nitrogen transfer to the fluid. This phenomenon which may involve the pump to be drained may more especially occur with diaphragm or bladder technology.

No risk as well of pre-charging loss involved by a porosity or ageing of the seals. Actually, our system of self-compensated gasket offers only an extremely reduced elastomer area being in contact with fluids.

The highly simple gasket enables having, for each fluid type, a suitable seals quality achieving the required chemical and mechanical resistance features.

The fixing system (screwing system) enables disassembling the accumulator and replacing the seals (refurbishment in our premises).

Available options

- Positions sensor (2 points).
- Pre-charging loss sensor.

Applications

Piston accumulators can be used under extreme severe working conditions, more particularly:

- Within high temperatures ranges (-40°C / +75°C).
- With operating pressures above 300 bar.
- High stress in acceleration & deceleration of the product.
- High volumetric ratios
- High and reproducible restitution speeds.

Installation and conditions for use (*refer to Manual P.242 for additional information*)

Accumulators are supplied with nitrogen pre-charged, at a pressure being specified by the customer.

Accumulators comply with the European Directive concerning equipments under pressure, PED 97/23 CE. The points hereafter should be particularly respected:

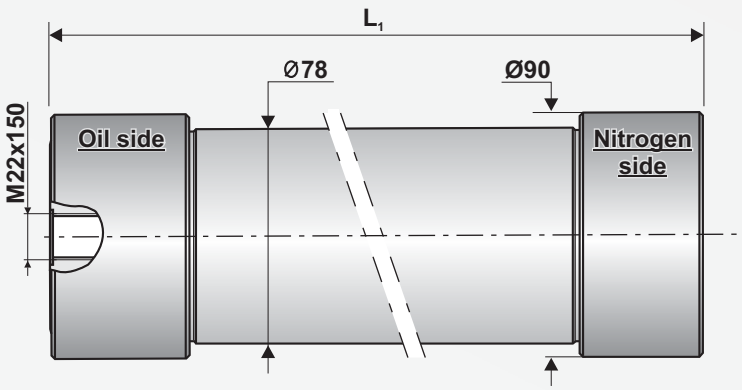
- The maximum operating pressure shall not be exceeded.
- The accumulator must be protected by a safety valve.
- Accumulators shall be neither drilled nor welded nor modified.

Fixing must be done by fastening collars **onto ends, not onto the tube**.

As for any hydraulic system, the accumulator shall be protected against impurities penetration using an efficient fluid filtering (minimum recommended threshold: 40 to 50 microns). Please refer to the standards ISO 4406 or NAS 1638 referring to the required cleanliness level.

Arrangement of accumulators

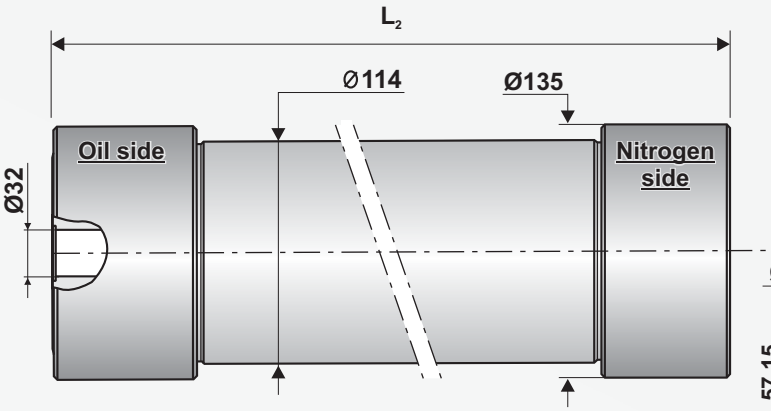
$Ø_{int.}$62 mm accumulator



	Mini	Maxi
V ℓ	0.6	3.6
L_1 mm	307	1301
P bar	--	400

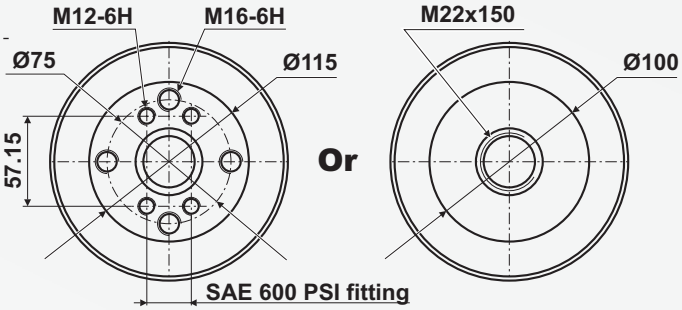
CE

$Ø_{int.}$92 mm accumulator

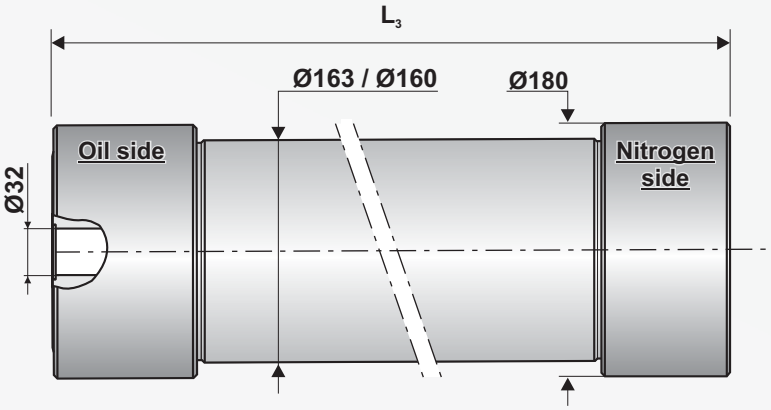


	Mini	Maxi
V ℓ	2.8	9
L_2 mm	600	1535
P bar	--	400

CE

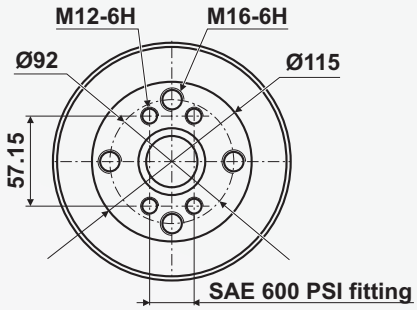


$Ø_{int.}$128.6 mm / 140 mm* accumulator



	Ø128,6		Ø140*	
	Mini	Maxi	Mini	Maxi
V ℓ	9	15	6	25
L_3 mm	883	1345	620	1860
P bar	--	400	--	300

CE



(*) : CE pending

Would you not be able to find out the desired product in our range, we then propose you designing the product that will meet your expectations. Please forward us your specifications and requirements...

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