

5.1 Technical Characteristics

Working pressures PS:	up to 375 bar (others on request)
Test pressures PT:	1,43 x PS
Minimum working temperature:	-20 °C
Maximum working temperature:	+120 °C (150 °C on request)
Nominal capacity:	up to 300 litres
Bores:	60,100,180,250,350

5.2 Materials

Accumulator Body: Low carbon steel, EN 10216-3TC type P335N, seamless tube, internally lapped with a maximum roughness of Ra 0,2. Stainless steel AISI 316L on request.

Gas side end cap: Low carbon steel. Stainless steel on request.

Oil side end cap: Low carbon steel. Stainless steel on request.

Piston: Aluminum EN AW-2011

For protective coating consult our Technical Service.

Gasket: Standard P (Perbunan- NBR)

On request V (Viton or other compounds)

Anti-extrusion and guide rings: PTFE

Gas Valve: Low carbon steel with 5/8 UNF fitting and coated in white zinc chromate.

5.3 Tests and Certification

- CE (PED) the accumulators serried AP are designed and homologated to use group 2 fluids (Not hazardous) in conformance with EUROPEAN DIRECTIVE 97/23/EC.

To use group 1 fluids consult our technical service.

The accumulators are pressure vessels and as such are subject to national government regulations in ever country they are installed.

For all the **European Countries**, design, construction and accumulator test must be done according to the Directive of pressure equipment 97/23/EC.

EPE ITALIANA, also in virtue of quality system used EN ISO 9001:2000, works according to **modules H and H1** of total quality guarantee and design control issued by the Notify Body. The above mentioned directive includes the pressure equipment that exceed 0,5 bar. So all the accumulators are involved in this directive even though it provides different procedures of test and certification.

Concerning this, keep in mind that accumulators **up to 1 litre volume included**, even if it is manufactured according to the Directive 97/23/EC, are not marked EC and are not provided with the conformity declaration.

For volumes **higher than 1 litre** each accumulator after the test is marked with the mark **CE** followed by the number that identify the Notify Body.

For these accumulators, both high pressure and low pressure, the documentation necessary includes the conformity declaration and the manual's operator.

- **ATEX.** EPE ITALIANA can supply the series of accumulators in accordance to directive **ATEX 94/9/CE** (attachment VIII) and to the harmonized norm EN, 13463-1, relative to not electric equipment for uses in environment with atmosphere potentially explosive that are included into the classification **ATEX CE  12GcT4**.

As well EPE ITALIANA provides other tests and certification for countries in which the CE norm is not accepted:

- **GOST -R** for Russia
- **ML (ex SQL)** for China
- **RINA** for use on ships
- **BS-L Lloyds register** for construction of ships
- **ASME** for the United States, Canada, South Africa etc.
- For other countries in which specific test are not required, the accumulator are however always manufactured according to the European norm, but supplied without CE markings and with a factory test certificate.

Relative documentation is supplied in an envelope attached to the goods.

The strict EPE quality standard and relative test, guarantee a safe operation of these accumulators (the operator must thoroughly familiarize himself with the operational and maintenance manual). The accumulators are pressure vessels and must be tested to the national government regulations in every country they are installed.

5.4 Velocity

The range of EPE accumulators allows to choose 2 diameter bores for the same capacity, the choice, as well as being economic, it is influenced by available installation space and the amount of oil required in operation of the time cycle. In fact, it is necessary to ensure that the piston **velocity does not exceed 2 meters for second**. For higher speeds consult our Technical Service.

Even the fluid flow must be chosen in relation to the acceptable loses, however the **velocity of the fluid is not to exceed 10m for second**. In the case where piston accumulator is connected to additional bottles, the tubing and connectors are to be chosen so as not to allow the **gas flow at a velocity in excess of 30m for second**.

5.5 Filtration

As with al oleodynamic components, even the accumulators, to guarantee a longer working life, it is necessary that the fluid under pressure does not contain contaminants such as metal particles, water etc. As much as the fluid may be pure it must conform to ISO4406 norm and the quality of the filters must conform to appropriate ISO standard. The grade of filtration is dependent on the components of the system and the application. The minimum grade request for hydraulic systems is equivalent to class 19/15, ISO 4406 which is 25 micron with B_≥75 ISO 4572.

5.6 Pre-charge

The EPE accumulators with the gas side connectors complete with pre-charge valve (V), if not otherwise requested during ordering, are supplied with a pre-charge of nitrogen at 30 bar.

CAUTION: Use only nitrogen NOT oxygen or compressed air (Danger of explosion)

5.7 Order code

AP 10 P 375 C 100 G 4 V ... - 8 - ...

Series
Piston accumulator = **AP**

Capacity
Nominal capacity in litres fluid side:
diam. 60 = **0.1 - 0.25 - 0.8 - 1**
diam. 100 = **1-1.5-2-2.5-3-4-5-6-8-10**
diam. 180 = **6-8-10-15-20-25-30-40-50-60-80**
diam. 250 = **30-40-50-60-80-100-120-150-180**
diam. 350 = **100-120-150-180-200-250-300**
Other capacity on request.

Gasket material
Gasket materials: Perbunan = **P**
Viton = **V**
Perbunan, elastomer in nitril rubber nitrilica suitable for working temperatures of -20+80 °C and petroleum based fluid, mineral oil, lubricants, diesel oil, etc.
Viton, elastomer suitable for temperatures -20+120 °C and fluids at high temperatures or synthetic.
Other compounds and temperature on request.

Maximum working pressure
Maximum working pressure in bar:
diam. 60 = **375**
diam. 100 = **375**
diam. 180 = **250 - 375**
diam. 250 = **250 - 350**
diam. 350 = **220 - 350**
The pressure is limited to **210** bar in cases where connection type L is chosen (flange SAE 3000).
Other pressures on request.

Body and flange materials
Carbon steel with a coat of rust inhibitor = **C**
Carbon steel chemically nickel plated th. 25µ = **N**
Stainless steel AISI 316-L = **X**
Other materials and treatment on request.

Nominal internal diameter
Internal diameter in mm = **60 - 100 - 180 - 250 - 350**

Type of connection side
Without connection = **O**
Female thread ISO 228 = **G (standard)**
Female thread NPT F = **P**
Female thread ISO 228 whit chamfer for or = **A**
Holes for flange SAE 3000, metric screw = **L**
Holes for flange SAE 6000, metric screw = **H**
Holes for flange ANSI, metric screw = **B**
Holes for flange UNI = **U**
Holes for flange for special flange = **F**
Female thread metric = **M**
Female thread SAE = **S**
Other connections on request.

Dimension of connection side
For the type of connection: 0 = **O**
G - P - A - L - H : 1/8" = **1**
1/4" = **2**
3/8" = **3**
1/2" = **4 (*)**
3/4" = **5**
1" = **6 (**)**
1 1/4" = **7**
1 1/2" = **8 (***)**
2" = **9**
2 1/2" = **10**
* (standard for int. diam. 60)
** (standard for int. diam. 100)
*** (standard for int. diam. 180-250-350)

B = To be specify **DIMENSION / RATING**
Es. 1" ANSI300 = **1/300**
U = To be specify the **DN / PV**
Es. DN50 PN16 = **50/16**
F = - **To be specify diameter central hole, number, dimension and depth of fixing holes, wheel center and reces of or**
M = To be specify the **DIAMETER / PITCH**
Es. M18x1,5 = **18/1,5**
S = To be specify the **DIAMETER in"-PITCH in"**
Es. (SAE6) 9/16-18 = **9/16-18**

Variant and/or accessories
Electric control of position of piston (last 300 mm gas side = **C.....add n° of magnetic switch.**
Es. n° 2 magnetic switch = **C2**
Electric control of position of piston (last 700 mm gas side = **D.....add n° of magnetic switch.**
Es. n° 2 magnetic switch = **D2**
Transducer of position potentiometric = **TP**
Transducer of position whit out 0-10 V = **T10**
Transducer of position whit out 4-20 mA = **T20**
Exit roadwhit indicator = **Uadd of n° of micro switch.**
Es. n° 3 micro switch = **U3**
Piston in alluminium anodized = **P1**
Piston in carbon steel = **P2**
Piston in stainless steel = **PX**
Piston iwhit seal low friction = **PB**
Special accumulator by design = **Aadd of n° of design.**

Test and certification
Factory testing = **0**
GOST- R = **1**
ML (ex SQL) = **3**
RINA = **4**
BS-LLOYD'S REGISTRER = **5**
GERMANISCHER LLOYD = **6**
ASME = **7**
PED (97/23/CE) = **8**
ATEX (94/9/CE) = **9**
Other to be specified = **10**

In the case of more certification to be indicate the request type spacing of /
Es. certification PED + ATEX = 8/9

Dimension of connections gas side
V = - (Standard pre-charge valve whit 5/8 UNF tread)
VX = -
For the type of connection: □ = **0**
G - P - A - L - H : 1/8" = **1**
1/4" = **2** (standard for diam. int. 60)
3/8" = **3**
1/2" = **4**
3/4" = **5**
1" = **6** (standard for diam. int. 100)
1 1/4" = **7**
1 1/2" = **8** (standard for diam. int. 180-250-350)
2" = **9**
2 1/2" = **10**

B = To be specify **DIMENSION / RATING**
Es. 1" ANSI 300 = **1/300**

U = To be specify the **DN / PN**
Es. DN50 PN16 = **50/16**

F = - **To be specify diameter central hole, number, dimension and depth of fixing holes, wheel center and reces of OR**

M = To be specify the **DIAMETER/PITCH**
Es. M18x1,5 = **18/1,5**

S = To be specify the **DIAMETER "inch"/PITCH "inch"**
Es. (SAE6) 9/16-18 = **9/16-18**

Type of connection gas side
Standard pre-charge valve whit 5/8 UNF tread = **V (standard)**
Standard pre-charge valve whit 5/8 UNF tread in stainless steel = **VX**
Without connection = **O**
Female thread ISO 228 = **G**
Female thread NPT F = **P**
Female thread ISO 2228 whit camfer for OR = **A**
Holes for flange SAE 3000, metric screw = **L**
Holes for flange SAE 6000, metric screw = **H**
Holes for flange ANSI, metric screw = **B**
Holes for flange UNI = **U**
Holes fby design for special flange = **F**
Female thread metric = **M**
Female thread SAE = **S**
Other connections or pre-charge valves on request.