



aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



Bladder Accumulators

EHV from 250 to 690 bar

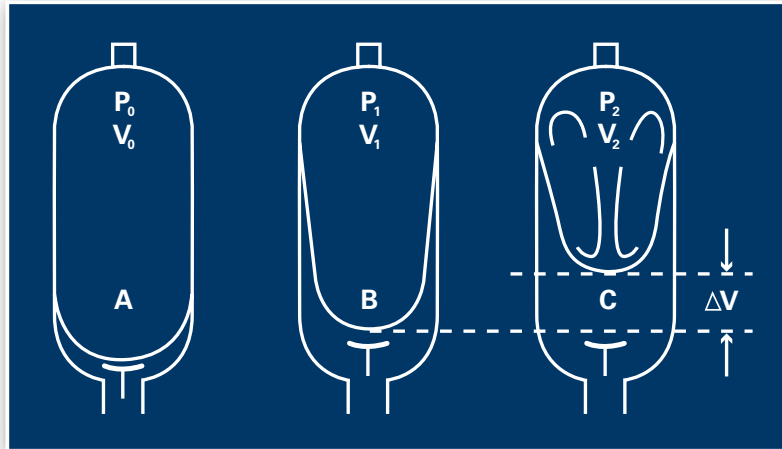


ENGINEERING YOUR SUCCESS.

Main Features

Operation principle

Operation of the Parker Olaer gas loaded bladder accumulator is based on the considerable difference in compressibility between a gas and a liquid, enabling a large quantity of energy to be stored in an extremely compact form. This enables a liquid under pressure to be accumulated, stored and recovered at any time. Its special design allows the bladder (the strategic component) to compress the gas and usually form into three lobes in order for the accumulator to store, then to deliver the fluid under pressure, as required.



| | |
|---|--|
| V0 = Nitrogen capacity of the accumulator | P0 = Initial preload of the accumulator |
| V1 = Gas volume at the minimum hydraulic pressure | P1 = Gas pressure at the minimum hydraulic pressure |
| V2 = Gas volume at the maximum hydraulic pressure | P2 = Gas pressure at the maximum hydraulic pressure |
| ΔV = Returned and/or stored volume of working fluid between P1 & P2 | |

A - Bladder in the precharge position, which means that it is only filled with nitrogen. The anti-extrusion system closes the hydraulic orifice and prevents the destruction of the bladder.

Maximum pressure differential (P2/P0) : 4:1

B - Position at the minimum operating pressure ; there must be a certain amount of fluid between the bladder and the hydraulic orifice, such that the anti-extrusion system does not close the hydraulic orifice. Thus, P0 must always be < P1.

C - Position at the maximum operating pressure. The volume difference ΔV between the minimum and maximum positions of the operating pressures represents the working fluid quantity.

Your Benefits

- To increase your production rates thanks to large instantaneous flow rates that only accumulators can provide.
- Some spare power available at any time.
 Example : EHV 50-330/90 Average flow : 650 L/min
- Maximum pressure available: 320 Bar
 Minimum pressure available: 250 Bar
 Average power = Average flow x Average pressure/600 = 308 kW
- The accumulator's ability to run independently reduces the installation cost while reducing your equipment running cost.
- With an accumulator in compliance with the European Standard, your Parker Olaer accumulator is suitable for use in more than 35 countries making it boundary friendly.

- Various bladder materials available which are compatible with a range of fluids and temperatures.
- Anti-extrusion system; fluidport assembly for high pressure.

Taking into account the different needs of various applications, Parker Olaer offers different protections external and/or internal: Bare metal, nickel plating, epoxy paint, PTFE, Rilsan® and phenolic coating.

This extensive range enables us to offer accumulators operating from - 50 to +150 °C with pressures of up to 690 Bar and capacities of up to 57 litres.

As the market leader in bladder type accumulators, Parker Olaer has participated in the development of the EN 14359:2006 standard, which specifies the material, design, manufacturing, fatigue tests, safety devices and documentation (including the instruction manual), for pressure accumulators and gas bottles for hydraulic applications.

Technical Characteristics

The accumulator comprises a pressure vessel including a valve steme device, a rubber bladder and a fluid port assembly.

- Shell material options include alloyed steel, stainless steel, aluminium, titanium and composites.

How to size?

Parker Olaer has developed very sophisticated simulation software to optimize accumulator sizing recommendations. The behaviour of accumulators used in applications such as pulsation dampening, surge alleviation, thermal expansion and energy storage can be simulated. Our software can be downloaded from our website www.parker.com/acde. You may also contact your local Parker Olaer office for sizing assistance.

The graph is useful to estimate the size of an accumulator used to store or deliver a specific volume of liquid within a given pressure range. These curves are the graphic representation of an adiabatic* cycle (fast cycling rate - $N = 1.4$ perfect gas assumption) or isothermal* cycle for an accumulator working at 20°C with a precharge $P_0 = 0,9 P_1$.

They do not take into consideration the real gas compression correction factor, the real adiabatic coefficient and the polytropic rate of the application. Depending on the application data, the influence of these factors may be significant, and require that some calculations adjustments be made. The Parker Olaer simulation software takes all these factors into account.

Sizing of an accumulator to be installed in the following example conditions:

P_2 : Maximum available pressure : 210 Bar

P_1 : Minimum working pressure : 100 Bar

P_0 : Nitrogen precharge : 90 Bar

ΔV : Volume to be stored : 14L

Condition : Isothermal (No temperature variation)

A/Compression ration $\alpha = P_2/P_1 = 210/100 = 2,1$

B/From the value 2,1 on the α axis, draw a vertical line that intersects the isothermal reference curve in A.

C/From the value 14 on the ΔV axis, draw a vertical line. The intersection point of this line with the horizontal line meeting A indicates a required accumulator size of 32 L.

Calculation of the volume drawn off from an accumulator.

Accumulator size = 12 L

$P_2 = 185$ Bar; $P_1 = 100$ Bar;

$P_0 = 90$ Bar; Adiabatic condition

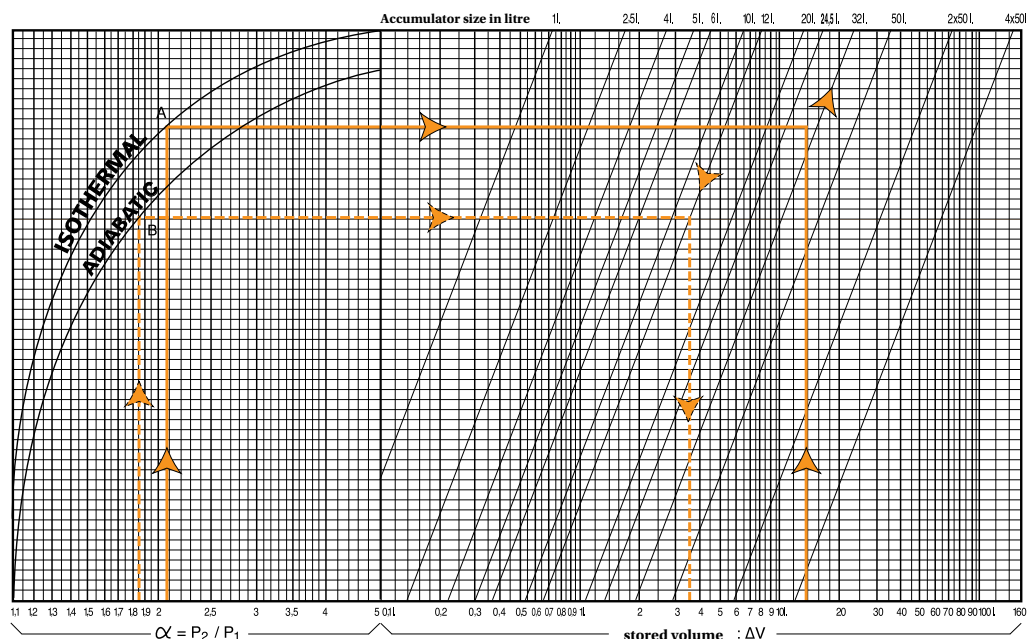
$\alpha = P_2/P_1 = 185/100 = 1,85$

ΔV : 3,5 litres

***Reminder**

Isothermal: The transformation is said to be isothermal when the compression or expansion of the gas occurs at a rate slow enough to allow a good thermal exchange, allowing the gas to remain at constant temperature.

Adiabatic: The transformation is said to be adiabatic when the cycle is quick and does not allow a temperature exchange with the ambient media.



Basic sizing chart for accumulator used in energy storage.

Technical Characteristics

EHV Range from 0.2 to 10 Litres

Range 350 bar

| Type | Effective Gas vol. Litres | Work pressure (PS) bar | Max Flow Rate l/min | Weight in kg | Clamps x (quantity) | O-ring + anti-extrusion ring | Support bracket | Fixation assembly | Dimensions in mm | | | | | | | |
|-------------------|------------------------------|---------------------------|------------------------|-----------------|------------------------|---------------------------------|--------------------|----------------------|--------------------|----|----|-----------|------|----|------------------|-----------------|
| | | | | | | | | | A max height | B | C | øD max | ød | øE | F on flats | G connection |
| EHV 0,2 - 350/00* | 0.17 | 350 | 120 | 2.5 | A 56x1 | consult page 10 | - | - | 268 | 38 | 24 | 58 | 16 | 39 | 24 | G 1/2" |
| EHV 0,5 - 350/00* | 0.60 | 350 | 240 | 3 | E 95x1 | | - | - | 259 | 54 | 28 | 91 | 16 | 50 | 32 | G 3/4" |
| EHV 1 - 350/00* | 1 | 350 | 240 | 6 | E 114x1 | | CE 89 | - | 330 | 54 | 66 | 116 | 22.5 | 50 | 32 | G 3/4" |
| EHV 1,6 - 350/90 | 1.6 | 350 | 240 | 8 | E 114x1 | | CE 89 | - | 442 | 54 | 66 | 116 | 22.5 | 50 | 32 | G 3/4" |
| EHV 2,5 - 350/90 | 2.4 | 350 | 450 | 11 | E 114x2 | | CE 89 | - | 549 | 66 | 66 | 116 | 22.5 | 68 | 50 | G 1 1/4" |
| EHV 4 - 350/90 | 3.7 | 350 | 450 | 15 | E 168x1 | | CE 108 | EF1 | 434 | 65 | 66 | 170 | 22.5 | 68 | 50 | G 1 1/4" |
| EHV 5 - 350/90 | 5 | 350 | 450 | 17 | E 114x2 | | CE 89 | - | 898 | 66 | 66 | 115 | 22.5 | 68 | 50 | G 1 1/4" |
| EHV 6 - 350/90 | 6 | 350 | 450 | 20 | E 168x1 | | CE 108 | EF1 | 560 | 65 | 66 | 170 | 22.5 | 68 | 50 | G 1 1/4" |
| EHV 10 - 350/90 | 10 | 350 | 450 | 31 | E 168x2 | | CE 108 | EF1 | 825 | 65 | 66 | 170 | 22.5 | 68 | 50 | G 1 1/4" |

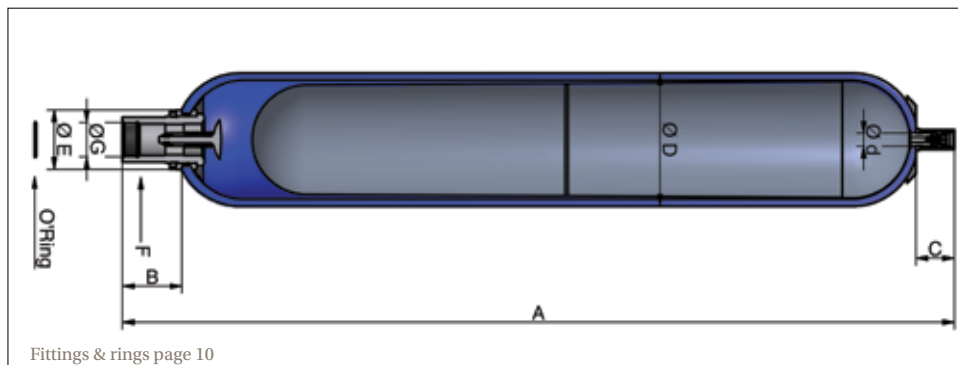
* According to the PED, article 3.3

Range 690 bar

| Type | Effective Gas vol. Litres | Work pressure (PS) bar | Max Flow Rate l/min | Weight in kg | Clamps x (quantity) | O-ring + anti-extrusion ring | Support bracket | Dimensions in mm | | | | | | | |
|------------------|------------------------------|---------------------------|------------------------|-----------------|------------------------|---------------------------------|--------------------|--------------------|----|----|-----------|------|----|------------------|-------------------|
| | | | | | | | | A max height | B | C | øD max | ød | øE | F on flats | G connection** |
| EHV 1 - 690/90* | 1.1 | 690 | 360 | 8.9 | E 114x1 | consult page 10 | CE 89 | 376 | 68 | 69 | 122 | 22.5 | 68 | 45 | G 1" |
| EHV 2,5 - 690/90 | 2.4 | 690 | 360 | 15 | E 114x2 | | CE 89 | 551 | 68 | 69 | 122 | 22.5 | 68 | 45 | G 1" |
| EHV 5 - 690/90 | 5 | 690 | 360 | 29 | E 114x2 | | CE 89 | 900 | 68 | 69 | 122 | 22.5 | 68 | 45 | G 1" |

* According to the PED, article 3.3

**With the special adaptor



For alternative gas valves, see page 8.

Above dimensions are in mm and are subject to manufacturing tolerances.

EHV Range from 10 to 50 Litres

Range 330 bar

| Type | Effective Gas vol. Litres | Work pressure (PS) bar | Max Flow Rate l/min | Weight in kg | Clamps x (quantity) | O-ring + anti-extrusion ring | Support bracket | Fixation assembly | Dimensions in mm | | | | | | | |
|-------------------|------------------------------|---------------------------|------------------------|-----------------|------------------------|------------------------------------|--------------------|----------------------|--------------------|-----|----|-----------|------|-----|------------------|-----------------|
| | | | | | | | | | A max height | B | C | øD max | ød | øE | F on flats | G connection |
| EHV 10 - 330/90 | 9.2 | 330 | 900 | 31 | D 226x2 | consult page 10 | CE 159A | EF2 | 587 | 103 | 66 | 226 | 22.5 | 101 | 70 | G 2" |
| EHV 12 - 330/90 | 11 | 330 | 900 | 36 | D 226x2 | | CE 159A | EF2 | 687 | 103 | 66 | 226 | 22.5 | 101 | 70 | G 2" |
| EHV 20 - 330/90 | 17.8 | 330 | 900 | 49 | D 226x2 | | CE 159A | EF2 | 897 | 103 | 66 | 226 | 22.5 | 101 | 70 | G 2" |
| EHV 24.5 - 330/90 | 22.5 | 330 | 900 | 56 | D 226x2 | | CE 159A | EF2 | 1032 | 103 | 66 | 226 | 22.5 | 101 | 70 | G 2" |
| EHV 32 - 330/90 | 32 | 330 | 900 | 81 | D 226x2 | | CE 159A | EF3 | 1420 | 103 | 66 | 226 | 22.5 | 101 | 70 | G 2" |
| EHV 42 - 330/90 | 42 | 330 | 900 | 87 | D 226x2 | | CE 159A | EF3 | 1562 | 103 | 66 | 226 | 22.5 | 101 | 70 | G 2" |
| EHV 50 - 330/90 | 48.5 | 330 | 900 | 110 | D 226x2 | | CE 159A | EF3 | 1936 | 103 | 66 | 226 | 22.5 | 101 | 70 | G 2" |
| EHV 57 - 330/90 | 53 | 330 | 900 | 116 | D 226x2 | | CE 159A | EF3 | 1936 | 103 | 66 | 226 | 50 | 101 | 70 | G 2" |

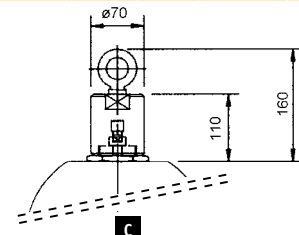
Range 480 bar

| Type | Effective Gas vol. Litres | Work pressure (PS) bar | Max Flow Rate l/min | Weight in kg | Clamps x (quantity) | O-ring + anti-extrusion ring | Support bracket | Fixation assembly | Dimensions in mm | | | | | | | |
|-----------------|------------------------------|---------------------------|------------------------|-----------------|------------------------|------------------------------------|--------------------|----------------------|--------------------|-----|----|-----------|------|-----|------------------|-----------------|
| | | | | | | | | | A max height | B | C | øD max | ød | øE | F on flats | G connection |
| EHV 10 - 480/90 | 9.2 | 480 | 900 | 33 | D 226x2 | consult page 10 | CE 159A | EF2 | 593 | 103 | 74 | 228 | 22.5 | 101 | 70 | G 2" |
| EHV 12 - 480/90 | 11 | 480 | 900 | 43 | D 226x2 | | CE 159A | EF2 | 693 | 103 | 74 | 228 | 22.5 | 101 | 70 | G 2" |
| EHV 20 - 480/90 | 17.8 | 480 | 900 | 63 | D 226x2 | | CE 159A | EF2 | 903 | 103 | 74 | 228 | 22.5 | 101 | 70 | G 2" |
| EHV 32 - 480/90 | 32 | 480 | 900 | 97 | D 226x2 | | CE 159A | EF3 | 1428 | 103 | 74 | 228 | 22.5 | 101 | 70 | G 2" |
| EHV 50 - 480/90 | 48.5 | 480 | 900 | 132 | D 226x2 | | CE 159A | EF3 | 1967 | 103 | 99 | 228 | 51 | 101 | 70 | G 2" |

Range 690 bar

| Type | Effective Gas vol. Litres | Work pressure (PS) bar | Max Flow Rate l/min | Weight in kg | Clamps x (quantity) | O-ring + anti-extrusion ring | Support bracket | Dimensions in mm | | | | | | |
|-----------------|------------------------------|---------------------------|------------------------|-----------------|------------------------|------------------------------------|--------------------|--------------------|----|-----------|------------|-----|------------------|-------------------|
| | | | | | | | | A max height | B | øD max | ød Stem | øE | F on flats | G connection * |
| EHV 12 - 690/90 | 11 | 690 | 900 | 97 | 11060x2 | consult page 10 | 11061 | 682 | 84 | 267 | 50 | 110 | 77 | G 2" |
| EHV 20 - 690/90 | 16.5 | 690 | 900 | 134 | 11060x2 | | 11061 | 872 | 84 | 267 | 50 | 110 | 77 | G 2" |
| EHV 37 - 690/90 | 33.4 | 690 | 900 | 227 | 11060x2 | | 11061 | 1417 | 84 | 267 | 50 | 110 | 77 | G 2" |
| EHV 54 - 690/90 | 53 | 690 | 900 | 318 | 11060x2 | | 11061 | 1932 | 84 | 267 | 50 | 110 | 77 | G 2" |

* Requires a special adaptor



Above dimensions are in mm and are subject to manufacturing tolerances.

Flanged Connection

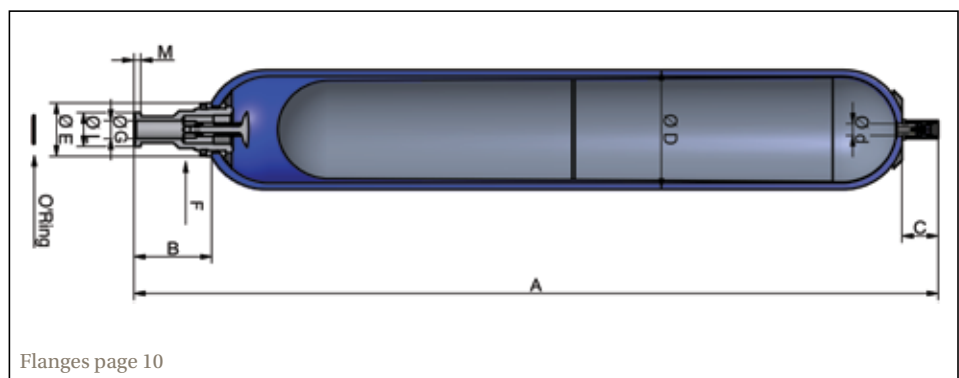
EHV Range from 2.5 to 10 Litres

Range 350 bar

| Type | Effective Gas vol. Litres | Work pressure (PS) bar | Max Flow Rate l/min | Max Weight in kg | Clamps x (quantity) | Connection (norme ISO 6162) | Support bracket | Fixation assembly | Kit of flange (page 10) | Dimensions in mm | | | | | | | | | |
|-------------------|------------------------------|---------------------------|------------------------|---------------------|------------------------|--------------------------------|--------------------|----------------------|----------------------------|--------------------|-----|----|-----------|------|----|------------------|----|------|-----|
| | | | | | | | | | | A max height | B | C | øD max | ød | øE | F on flats | øG | øL | M |
| EHVF 2,5 - 350/90 | 2.4 | 350 | 450 | 11 | E 114x2 | 1" SAE 6000 PSI | CE 89 | EF4 | BR 400-25 | 595 | 111 | 66 | 116 | 22.5 | 68 | 50 | 22 | 47.9 | 9.5 |
| EHVF 4 - 350/90 | 3.7 | 350 | 450 | 15 | E 168x2 | | CE 108 | EF1 | BR 400-25 | 480 | 110 | 66 | 170 | 22.5 | 68 | 50 | 22 | 47.9 | 9.5 |
| EHVF 5 - 350/90 | 5 | 350 | 450 | 17 | E 114x2 | | CE 89 | EF4 | BR 400-25 | 944 | 111 | 66 | 116 | 22.5 | 68 | 50 | 22 | 47.9 | 9.5 |
| EHVF 6 - 350/90 | 6 | 350 | 450 | 20 | E 168x2 | | CE 108 | EF1 | BR 400-25 | 606 | 110 | 66 | 170 | 22.5 | 68 | 50 | 22 | 47.9 | 9.5 |
| EHVF 10 - 350/90 | 10 | 350 | 450 | 31 | E 168x2 | | CE 108 | EF1 | BR 400-25 | 871 | 110 | 66 | 170 | 22.5 | 68 | 50 | 22 | 47.9 | 9.5 |

Range 330 bar

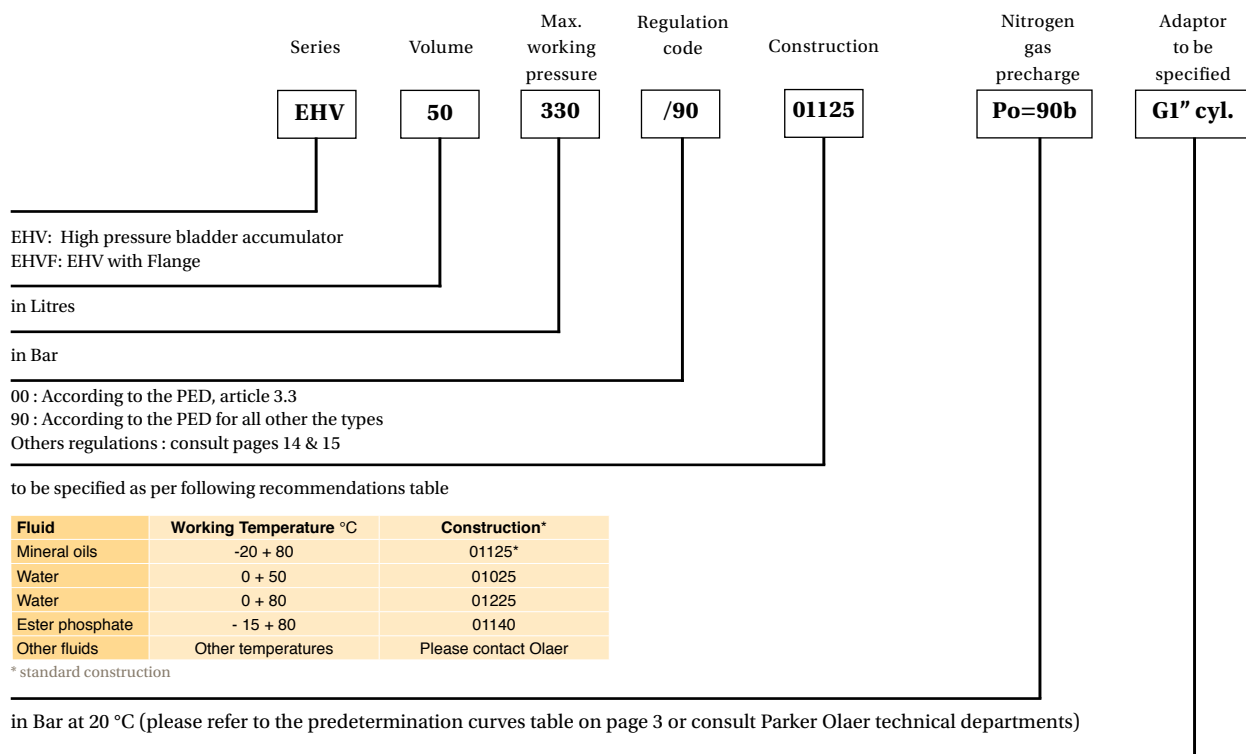
| Type | Effective Gas vol. Litres | Work pressure (PS) bar | Max Flow Rate l/min | Max Weight in kg | Clamps x (quantity) | Connection (norme ISO 6162) | Support bracket | Fixation assembly | Kit of flange (page 10) | Dimensions in mm | | | | | | | | | |
|--------------------|------------------------------|---------------------------|------------------------|---------------------|------------------------|--------------------------------|--------------------|----------------------|----------------------------|--------------------|-----|----|-----------|------|-----|------------------|----|------|------|
| | | | | | | | | | | A max height | B | C | øD max | ød | øE | F on flats | øG | øL | M |
| EHVF 10 - 330/90 | 9.2 | 330 | 900 | 31 | D 226x2 | 1 1/2" SAE 6000 PSI | CE 159A | EF2 | BR 400-38 | 627 | 143 | 66 | 226 | 22.5 | 101 | 70 | 34 | 63.8 | 12.5 |
| EHVF 12 - 330/90 | 11 | 330 | 900 | 36 | D 226x2 | | CE 159A | EF2 | BR 400-38 | 727 | 143 | 66 | 226 | 22.5 | 101 | 70 | 34 | 63.8 | 12.5 |
| EHVF 20 - 330/90 | 17.8 | 330 | 900 | 49 | D 226x2 | | CE 159A | EF2 | BR 400-38 | 937 | 143 | 66 | 226 | 22.5 | 101 | 70 | 34 | 63.8 | 12.5 |
| EHVF 24.5 - 330/90 | 22.5 | 330 | 900 | 56 | D 226x2 | | CE 159A | EF2 | BR 400-38 | 1072 | 143 | 66 | 226 | 22.5 | 101 | 70 | 34 | 63.8 | 12.5 |
| EHVF 32 - 330/90 | 32 | 330 | 900 | 81 | D 226x2 | | CE 159A | EF3 | BR 400-38 | 1460 | 143 | 66 | 226 | 22.5 | 101 | 70 | 34 | 63.8 | 12.5 |
| EHVF 42 - 330/90 | 42 | 330 | 900 | 87 | D 226x2 | | CE 159A | EF3 | BR 400-38 | 1602 | 143 | 66 | 226 | 22.5 | 101 | 70 | 34 | 63.8 | 12.5 |
| EHVF 50 - 330/90 | 48.5 | 330 | 900 | 110 | D 226x2 | | CE 159A | EF3 | BR 400-38 | 1976 | 143 | 66 | 226 | 22.5 | 101 | 70 | 34 | 63.8 | 12.5 |
| EHVF 57 - 330/90 | 53 | 330 | 900 | 116 | D 226x2 | | CE 159A | EF3 | BR 400-38 | 2072 | 143 | 66 | 226 | 22.5 | 101 | 70 | 34 | 63.8 | 12.5 |



For alternative gas valves, see page 8.

Above dimensions are in mm and are subject to manufacturing tolerances.

How to order?



blind: with blank adaptor or without adaptor (refer to dimension I in table on page 10 and specify reduction size).

Ordering an accumulator

Please indicate type for accessories as per tables on page 4 to 7, and for peripheral materials as per table on pages 8 and 9.

Safety Blocks

Are designed to incorporate in a single compact block a variety of functions necessary for the correct operation of a hydraulic system fitted with accumulators. This includes manual and/or electrical drain, isolation, flow control and pressure relief.

Channel cross section : 10 mm (DI 10 block), 16 mm (DI 16 block), 20 mm (DI 20 block), 24 mm (DI 24 block), 32 mm (DI 32 block), 50 mm (DI 50 block). Maximum working pressure : 330 to 690 Bar depending on models. According with the fluids of group II (PED). Options for ATEX compliant blocks construction carbon steel or stainless steel.

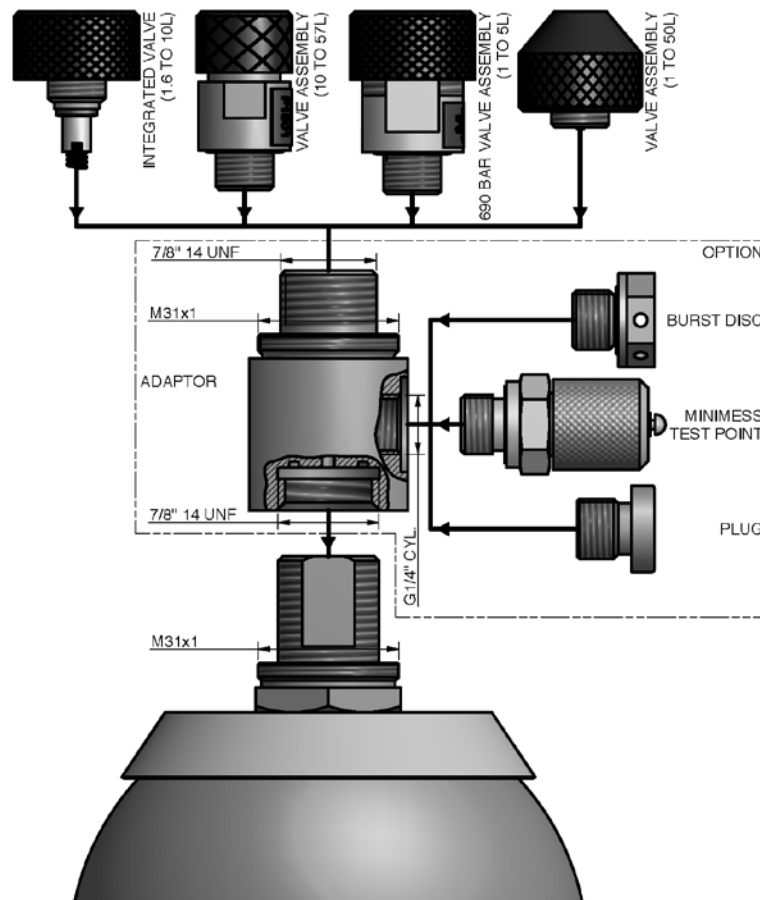


Bursting Discs

Parker Olaer bursting discs are available for most accumulators. For the EHV range of accumulators, we use a specially designed adaptor, available in carbon steel or stainless steel.

Burst discs are a safety device which releases the gas pressure independent of the pressure being caused by a fire or a failure of other safety equipment in the system.

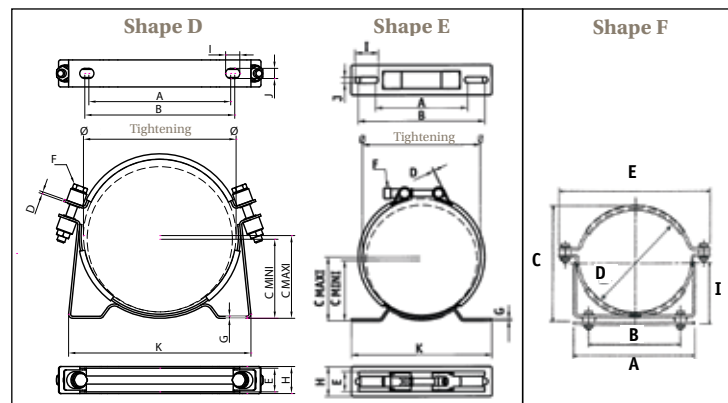
This is a secondary safety device, and it should be set higher than the normal hydraulic safety devices in the system.



Accessories

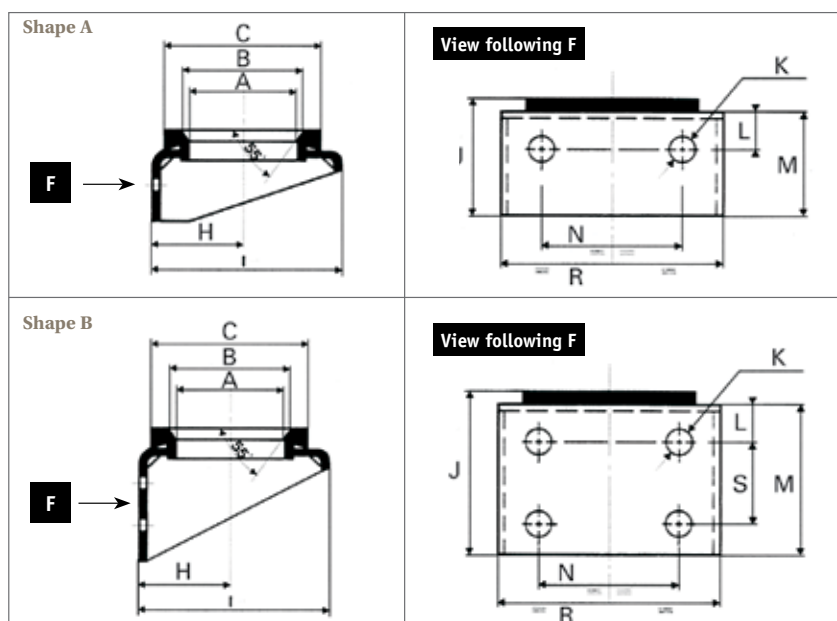
Clamps

| Type | Shape | Recommended tightening min/ max mm diameter | Dimensions in mm | | | | | | | | | | | Recommended tightening torque N.m. | |
|-------|-------|--|------------------|-----|------|-------|-----|-----|--------|---|----|----|----|------------------------------------|------|
| | | | A | B | C | | D | E | F | G | H | I | J | | K |
| A 56 | E | 54/56 | 92 | 102 | 36 | 36 | 3 | 37 | M10x80 | 3 | 31 | 14 | 9 | 134 | 7 |
| E 95 | E | 87/97 | 88 | 140 | 61.5 | 66.5 | 1.5 | 28 | M8x75 | 3 | 40 | 35 | 9 | 155 | 7 |
| E 114 | E | 112/124 | 88 | 140 | 73 | 78 | 1.5 | 28 | M8x75 | 3 | 40 | 35 | 9 | 155 | 7 |
| E 168 | E | 166/176 | 137 | 189 | 92 | 96 | 1.7 | 30 | M10x80 | 3 | 45 | 35 | 9 | 210 | 10.5 |
| D226 | D | 219/226 | 210 | 222 | 119 | 122.5 | 3 | 35 | M12x80 | 3 | 40 | 21 | 15 | 270 | 11 |
| F260 | F | 260 | 260 | 195 | 263 | - | 260 | 295 | - | - | - | - | - | 295 | - |



Support Brackets

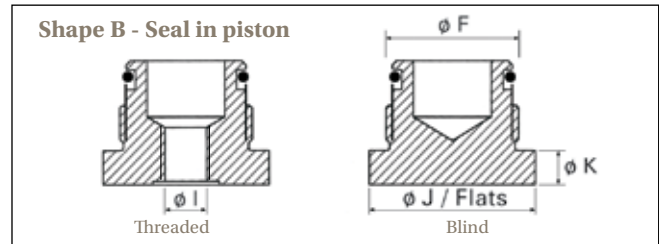
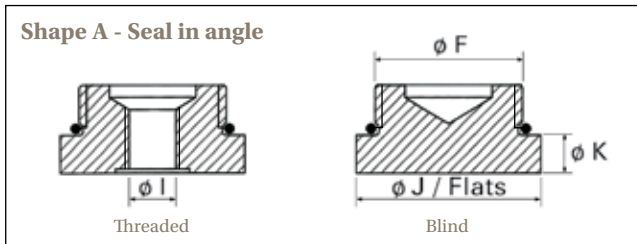
| Type | Shape | A | B | C | H | I | J | K | L | M | N | R | S | Weight |
|----------|-------|-----|-----|-----|-----|-----|-----|----|----|-----|-----|-----|-----|--------|
| CE 89 | A | 89 | 101 | 125 | 73 | 140 | 75 | 13 | 25 | 60 | 75 | 130 | - | 0.8 |
| CE 108 | A | 108 | 120 | 150 | 92 | 175 | 95 | 17 | 25 | 80 | 160 | 210 | - | 1.5 |
| CE 159A | B | 159 | 170 | 200 | 123 | 235 | 115 | 17 | 25 | 100 | 200 | 260 | 40 | 2.9 |
| CE 11061 | B | - | - | - | 137 | 250 | 206 | 17 | 45 | 191 | 108 | 216 | 111 | 6 |



Above dimensions are in mm and are subject to manufacturing tolerances.

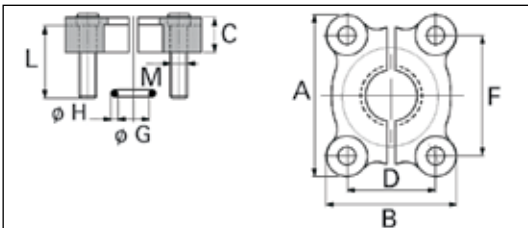
Fittings EHV

| Accumulator model | Connection of accumulator ø F gas cyl. | Connection of fitting ø l gas cyl. | Shape | J/Flats | K | O-Ring & Back-up ring |
|----------------------------------|---|---------------------------------------|-------|---------|----|----------------------------|
| EHV 0.5 & 1 & 1.6 Litres 350 Bar | 3/4" | 3/8" | A/B | - | 8 | A.O-Ring 21.3 x 2.4 |
| | | Blind | A/B | 32 | | B. O-Ring 16.9 x 2.7 |
| EHV 2.5 to 10 Litres 350 Bar | 1 1/4" | 3/4" | A/B | | 10 | A. O-Ring 36.2 x 3 |
| | | Blind | A/B | 50 | | B. O-Ring 30 x 3 |
| EHV 0.2 Litres 350 Bar | 1/2" | 1/4" | A | | 8 | O-Ring 18 x 2 |
| | | Blind | A | 27 | | |
| EHV 1 to 5 Litres 690 Bar | 1" | 1/2" | B | | 10 | A. BU R 22 x 28 x 0.69 x 2 |
| | | Blind | B | 41 | | B. O-Ring 21.3 x 3.6 |
| EHV 10 to 50 Litres 330/480 Bar | 2" | 1" | A/B | | 13 | A. O-Ring 54 x 3 |
| | | Blind | A/B | 65 | | B. O-Ring 48 x 3 |
| EHV 10 to 50 Litres 690 Bar | 2" | 1" | B | | 15 | O-Ring 43.82 x 5.33 |
| | | Blind | B | 65 | | BU R 45 x 54 x 0.85 x 2 |



These accessories are designed to perfectly fit Parker Olaer accumulators. They meet the latest regulations and are compliant with the CETOP standard.

Flanges Kits EHV



| Type | A | B | C | D | F | ø G | ø H | L | M |
|-----------|-----|----|----|-------|-------|-------|------|----|-----|
| BR 400-25 | 81 | 70 | 24 | 27.75 | 57.15 | 32.92 | 3.53 | 40 | M12 |
| BR 400-38 | 113 | 95 | 30 | 36.5 | 79.4 | 47.22 | 3.53 | 50 | M16 |

These flanges are conforming following to ISO 6162.

Fixation Mounting Frames

| Type | A | B | C | D | E | F | G | H | J |
|--------|------|------|-----|-----|-----|-----|-----|-----|----|
| EF1* | 670 | 570 | 225 | 92 | 96 | 340 | 370 | 270 | 50 |
| EF2** | 670 | 570 | 285 | 123 | 115 | 340 | 370 | 270 | 50 |
| EF3*** | 1405 | 1300 | 285 | 123 | 115 | 340 | 370 | 270 | 55 |

* For Accumulators Volume 4 & 6 & 10L ** For Accumulators Volume 10 UP TO 24.5L
 *** For Accumulators Volume 32 UP TO 57L

Installed accumulator rack

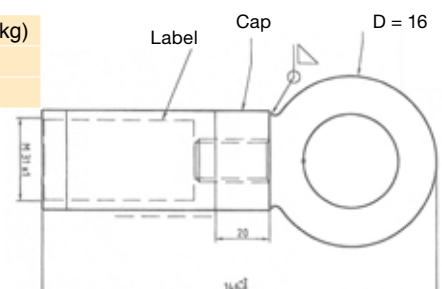
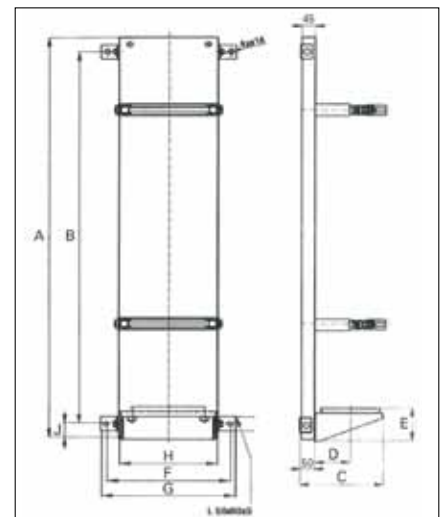
Parker Olaer design and manufacture modular compact assemblies. For any request, please refer to Parker Olaer technical services.

Lifting Eye

Following EC regulation for Parker Olaer accumulators (Directive Machine 2006/42/CE)

| Type | Volume Accumulators | ø D | Mounting | A | Weight (kg) |
|--------|---------------------|-----|-------------------------------|-----|-------------|
| 109127 | 1 to 60 Litres | 22 | Nut of protection cap M31 x 1 | 146 | 0,65 |
| 090988 | 10 to 54 Litres | 50 | On valve stem M50 x 1.5 | | 2,05 |

*Maximum load following the drawing see the sticker



Above dimensions are in mm and are subject to manufacturing tolerances.

Accessories

The charging sets are an indispensable instrument for the verification, pressurization and nitrogen bleeding of most of the hydraulic accumulators available on the market. To use this unit, it is screwed on the gas charging valve of the accumulator and connected via a high pressure hose to the nitrogen source, equipped with a pressure regulator. If only the nitrogen pressure is to be controlled or reduced, this hose is not necessary.

An Olaer pressure regulator – sold separately. It is mandatory to install a pressure regulator between the bottle or any nitrogen source and the charging set.



Model VG3

The standard set is delivered in a storage case containing the following:

- pressure gauge with standardized graduations in bar
- vent valve
- 3 connection adaptors for charging valves. (7/8" – 5/8" – 8V1).
- High pressure hose, 2.5 m length, in standard, maximum working pressure 400 Bar. This hose is fitted at each end with a female swivel coupling G 1/4" BSP for connecting to the inflation port. It can be connected to a commercial nitrogen bottles, in this case add an adaptor on one end view model in the country. For the other destinations consult Parker Olaer.
- Operating instruction french/english version

Note: On request, the following options are available :

- Pressure gauge with different scale divisions : 63 mm with glycerol bath back end G1/4" BSP equipped with direct gear for minimess connection. To scale divisions 0-10,0-60,0-100,0-400, with accuracy class 1.6%.
- High pressure hose of different length with adaptors for nitrogen bottles from various countries are available (specify country)

Maximum working pressure: limited by the maximum operating pressure of the accumulator charging set pressure. Pressure limited of the installed hydraulic system to 400 bar in any case.



Model VGU

The standard set is delivered in a storage case containing the following:

- VGU universal tester and pressurizer (end M28 x 1.50).
- Pressure gauge kit from 0 to 25 bar.
- Pressure gauge kit from 0 to 250 bar.
- Connection adaptors for inflation valves (7/8" – 5/8" – 8V1 - M28 x 1.50).
- High pressure hose, 2.5 m long, for connecting to a nitrogen source.
- Hexagon socket screw key 6mm.
- Jackets of replacement joints.
- Operating instruction in French, English, German.

Note: On request, the following options are available:

- Pressure gauge kits with different scale divisions: 63mm with glycerol bath back end G1/4" cyl. equipped with direct gear for Minimess connection. Scale divisions 0-10, 0-60, 0-100, 0-400, with accuracy class 1.6%.
- High pressure hose of different length with adaptors for nitrogen bottles from various countries (specify country), at each end with a female swivel coupling G1/4" for connecting to the inflation port.

Maximum working pressure: limited by the maximum operating pressure of the installed hydraulic system limited to 400 bar in any case.



Installation

Position: Preferably vertical (liquid connection downwards) to horizontal, depending upon application. If the accumulator is installed in any position other than vertical with fluid port down, contact Parker Olaer. The accumulator could have reduced volumetric efficiency and Parker Olaer can help you to take these factors into account.

Mounting: A 200mm clearance is required above the accumulator to allow for gas charging. Each accumulator is delivered with a user instructions leaflet. Ensure that the pipes connected directly or indirectly to the accumulator are not subjected to any abnormal force, Ensure that the accumulator cannot move, or minimize any movement that may occur as a result of broken connections. Parker Olaer clamps and brackets are designed for this purpose (and can be supplied as optional extras). The accumulator must not be subjected to any stress or load, in particular from the structure with which it is associated. Contact Parker Olaer in case of mounting on the movable structures.

IT IS STRICTLY FORBIDDEN TO

- Weld, screw or rivet anything onto the accumulator body.
- Operate in any way that may alter the mechanical properties of the accumulator.
- Use the accumulator for construction purposes. (No stress or loading)
- To modify the accumulator without prior approval from the manufacturer.

GAS FILLING

For safety reasons, use only pure nitrogen, minimum 99.8% volume. In most of the cases the pre-charge pressure is between 0,9 P1 and 0,25 P2. Your local Parker Olaer office can calculate the correct pre-charge pressure for your application. Parker Olaer offers a range of devices for checking nitrogen pressure as well as pre-charging accumulators. Please note that various adaptors are required to interface with different accumulator filling valves and nitrogen (N2) cylinder connections throughout the world.

The part number defines the accumulator and the material construction. Information contained on the labeling/ manufacturer's plate:

- Olaer logo
- Product description

- Date or year of manufacture
- Reference information of the accumulator
- Allowable temperature range of the accumulator

Additional information on certain models:

- Warning messages and safety instructions ("Danger", "Use nitrogen only" or similar message)
- Maximum inflation pressure P0 max in bar
- Allowable pressure amplitude P max in bar
- Fluid group (1 or 2 according to the Directive 97/23/EC)
- Total dry mass in kilogram

Maximum allowable operating pressure

The maximum pressure (PS) is indicated on the accumulator. Check that the maximum allowable pressure is greater than that of the hydraulic system. For any other pressure, you will have to contact Parker Olaer.

Maximum allowable operating temperature

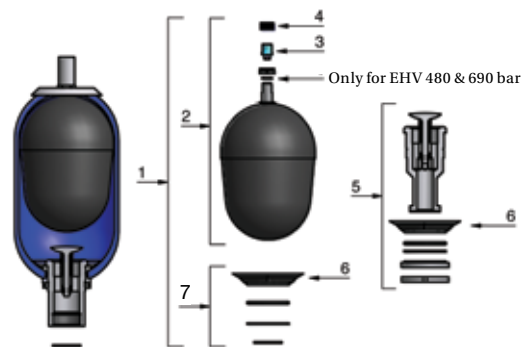
The temperature range (TS) is indicated on the accumulator. Check that the allowable temperature range covers the operating temperatures (environment and hydraulic fluid temperatures). For any other temperature, you will have to contact Parker Olaer.

Maintenance

Any intervention, maintenance, repair must be carried out by a qualified and trained personnel.

| Item | Spare parts |
|------|---------------------|
| 1 | Spare Parts Kit |
| 2* | Bladder assembly |
| 3* | Gas valve |
| 4 | Valve cap |
| 5 | Fluid port assembly |
| 6* | Anti extrusion ring |
| 7* | Seal kit |

* These parts are supplied as a kit with instructions.



Regulations

Codification Table

| Destination | Regulation | Parker Olaer Regulation Code | Comments | | |
|-----------------|--------------------------|------------------------------|--|--|-------------|
| Europe | CE | 90 | - | Approval is based on the directive PED 97/23/CE rules. The CE marking will be apposed on the product for Pressure Vessel risk category >= I. | |
| USA | ASME | 15 | Based on ASME VIII div 1 without appendix 22 | This regulation is based on the design code ASME VIII div 1. The Appendix 22 defines special requirements for the case of integrally forged pressure vessels. | |
| | | 48 | Based on ASME VIII div 1 with appendix 22 | | |
| China | SELO | 88 | Based on CE | This regulation is only applicable for pressure vessels which maximum working pressure ≥ 0.1 MPa and maximum working pressure (Mpa) X volume (L) ≤ 2.5 MPa.L. | |
| Canada | CRN | 92 | Based on ASME VIII div 1 app 22 | Approval is based on ASME VIII div 1 design code. Others countries as example Alaska require a CRN registration. Also, each province and territoire of Canada has its own CRN rules, So, thank you to indicate the concerned province for quotation. | |
| Australia | AS1210 | 83 | Based on CE | Australian regulation is applicable for pressure vessels which maximum working pressure (MPa) X volume (internal volume in L) ≥ 30 Mpa.L in size. | |
| | | 91 | Based on ASME VIII div 1 app 22 | | |
| Japan | JIS | 95 | Based on ASME VIII div 1 app 22 | Approval is based on ASME VIII div 1 design code (version 1998) and taking into account specific corrosion allowance value. JIS is applicable only for pressure vessels which internal diameter is higher than six inches. | |
| Brasil | NR13 | AA | Based on CE (AD-2000) | NR13 regulation is only applicable for pressure vessels which maximum working pressure (KPa) x internal volume (m3) ≥ 8 . Also, technical documentation packaging must be established and joined to the equipment. A special marking has to be done on the pressure vessel according to NR13 requirements. | |
| | | AE | Based on ASME VIII div 1 app 22 | | |
| | | AM | Based on CE (EN14359) | | |
| Russia | GOST R | 71 | Based on CE | Certificate (CTR) must be established and joined to the equipment for delivery. Technical passport could be established if customer requires it. | |
| | | AU | Based on ASME VIII div 1 app 22 | | |
| Marine-Offshore | DNV | 24 | Based on CE | The marine and offshore applications have to respect some kind of classifications associated to third party (Notified body). This classification is often decided by the owner of the installation. All classification companies give almost the same approval process (design and manufacturing assessment). So, to see in details if the scope of these several marine approvals are compatible with your application, please contact PARKER OLAER for accurate quotation. | |
| | BUREAU VERITAS MARINE | 11 | | | |
| | ABS | 41 | | | |
| | LLOYDS REGISTER SHIPPING | 10 | | | |
| | GERMANISHER LLOYDS | 73 | | | - |
| | RINA | 26 | | | Based on CE |
| | DRILLING SYSTEMS | - | - | | |
| France | NUCLEAR | 90 | - | Approval is based on RCCM design code and dedicated only to France market. For other countries out of France, ASME III div 1 is more recognized for nuclear plant activities. | |
| Europe & Asia | NUCLEAR | AZ | Based on ASME III div 1 | Approval is based on ASME III division 1, mainly on subsection NC for components class 2. | |

* For these specific regulations (and/or) if your destination is not mentioned in this table, please contact PARKER OLAER for further information.

Multi-Regulations codification examples*

| Codification | Regulation |
|--------------|--------------|
| 90 EX | CE+ATEX |
| 94 | CE+ASME |
| 88 | CE+SELO |
| 86 | CE+ASME+SELO |

How to include the correct regulation in your order?

Accu denomination example:

EHV 20-330 /XX

* For other regulations, please contact directly PARKER OLAER.

Approvals

This table is giving an indication of approval availability for the range of products. Availability is to be confirmed for each approval, in particular the pressure rating and the allowable working temperatures. Other options can be offered on request.

| Designation | EUROPE | | | | USA | | CHINA | | CANADA | | AUSTRALIA | |
|------------------|------------------|------------------|---------|-----------------------------------|-----------------|---|-------|-----------------------------------|--------|---|------------|-----------------------------------|
| | /90 | /90 | /90 | Max. Working Pressure (PS) bar | /15 /48 | Max. Working Pressure (PS) Psi (bar) | /88 | Max. Working Pressure (PS) bar | /92 | Max. Working Pressure (PS) Psi (bar) | /83 /91 | Max. Working Pressure (PS) bar |
| Approvals | CE Fluid Group 2 | CE Fluid Group 1 | ATEX EX | | ASME VIII div 1 | | SELO | | CRN | | ASI210 | |
| Models | | | | | | | | | | | | |
| EHV 0,5 L | x | x | x | 350 | | | x | 350 | | | | |
| EHV 1 to 5 L | x | x | x | 300 | | | x | 300 | | | | |
| EHV 1 to 5 L | x | x | x | 350 | | | x | 350 | | | On request | 350 |
| EHV 1 to 5 L | x | x | x | 690 | | | x | 690 | | | | |
| EHV 2.5 to 5 L | x | x | x | 120 | | | x | 120 | | | | |
| EHV 4 - 6 - 10 L | x | x | x | 210 | | | x | 210 | | | | |
| EHV 4 - 6 - 10 L | x | x | x | 350 | On request | 4000 (276 Bar) | x | 350 | | | On request | 320 |
| EHV 4 to 60 L | | | | | On request | 5000 (345 Bar) | | | | | | |
| EHV 4 to 60 L | | | | | On request | 6000 (413 Bar) | | | | | | |
| EHV 10 to 42 L | | | | | On request | 3000 (207 Bar) | | | x | 3000 (207 Bar) | | |
| EHV 10 to 42 L | | | | | On request | 3600 (248 Bar) | | | x | 3600 (248 Bar) | | |
| EHV 10 to 42 L | | | | | On request | 4000 (276 Bar) | | | x | 4000 (276 Bar) | | |
| EHV 10 to 50 L | x | x | x | 690 | | | x | 690 | | | | |
| EHV 10 to 57 L | | | | | On request | 3600 (248 Bar) | | | | | On request | 248 |
| EHV 10 to 57 L | | | | | On request | 4000 (276 Bar) | | | | | On request | 276 |
| EHV 10 to 57 L | x | x | | 480 | | | x | 480 | | | On request | 400 |
| EHV 10 to 60 L | x | x | x | 300 | On request | 3000 (207 Bar) | x | 300 | | | | |
| EHV 10 to 60 L | x | x | x | 330 | On request | 3600 (248 Bar) | x | 330 | | | | |
| EHV 10 to 60 L | x | x | x | 480 | | | x | 480 | | | | |
| EHV 50 to 57L | | | | | On request | 3000 (207 Bar) | | | x | 3000 (207 Bar) | | |
| EHV 50 to 57 L | | | | | On request | 3600 (248 Bar) | | | x | 3600 (248 Bar) | | |
| EHV 50 to 57 L | | | | | On request | 4000 (276 Bar) | | | x | 4000 (276 Bar) | | |
| EHV 100 to 200 L | x | x | | 300 | | | x | 300 | | | | |
| EHVF 2.5 to 10 L | x | x | | 350 | | | x | 350 | | | | |
| EHVF 10 to 50 L | x | x | | 250 | | | x | 250 | | | | |
| EHVF 10 to 50 L | x | x | | 330 | | | x | 330 | | | | |

| BRASIL | | RUSSIA | | MARINE - OFFSHORE | | | Designation | |
|-------------|-----------------------------------|------------|-----------------------------------|-------------------|-----------------------|------------------------------------|-----------------------------------|-------------------------|
| /AA /AE /AM | Max. Working Pressure (PS) bar | /71 /AU | Max. Working Pressure (PS) bar | /24 | /11 | /41 | Max. Working Pressure (PS) bar | Approvals Models |
| NRI3 | | GOST R | | DNV Mobile ships | Bureau Veritas Marine | ABS American Bureau of Shipping | | |
| x | 350 | on request | 350 | x | | x | 350 | EHV 0,5L |
| | | | 300 | | | | | EHV 1 to 5 L |
| x | 350 | | 350 | x | x | x | 350 | EHV 1 to 5 L |
| x | 690 | | 690 | | | | | EHV 1 to 5 L |
| x | 120 | | 120 | | | | | EHV 2.5L to 5 L |
| x | 210 | | 210 | | | | | EHV 4 - 6 - 10 L |
| x | 350 | | 350 | x | x | x | 350 | EHV 4 - 6 - 10 L |
| x | 345 | | 345 | | | | | EHV 4 to 60 L |
| x | 413 | | 413 | | | | | EHV 4 to 60 L |
| x | 207 | | 207 | | | | | EHV 10 to 42 L |
| x | 248 | | 248 | | | | | EHV 10 to 42 L |
| x | 276 | | 276 | | | | | EHV 10 to 42 L |
| x | 690 | | 690 | | | | | EHV 10 to 50 L |
| x | 248 | | 248 | | | | | EHV 10 to 57 L |
| x | 276 | | 276 | | | | | EHV 10 to 57 L |
| x | 480 | | 480 | | | | | EHV 10 to 57 L |
| x | 300 | | 300 | | | | | EHV 10 to 60 L |
| x | 330 | | 330 | x | x | x | 330 | EHV 10 to 60 L |
| x | 480 | | 480 | | | | | EHV 10 to 60 L |
| x | 207 | | 207 | | | | | EHV 50 to 57L |
| x | 248 | | 248 | | | | | EHV 50 to 57 L |
| x | 276 | | 276 | | | | | EHV 50 to 57 L |
| x | 300 | | 300 | | | | | EHV 100 to 200 L |
| x | 350 | on request | 350 | | | | | EHVF 2.5 to 10 L |
| x | 250 | | 250 | | | | | EHVF 10 to 50 L |
| x | 330 | | 330 | | | | | EHVF 10 to 50 L |

Parker Worldwide

Europe, Middle East, Africa

AE – United Arab Emirates,
Dubai

Tel: +971 4 8127100
parker.me@parker.com

AT – Austria, Wiener Neustadt

Tel: +43 (0)2622 23501-0
parker.austria@parker.com

AT – Eastern Europe, Wiener
Neustadt

Tel: +43 (0)2622 23501 900
parker.easteurope@parker.com

AZ – Azerbaijan, Baku

Tel: +994 50 22 33 458
parker.azerbaijan@parker.com

BE/LU – Belgium, Nivelles

Tel: +32 (0)67 280 900
parker.belgium@parker.com

BY – Belarus, Minsk

Tel: +375 17 209 9399
parker.belarus@parker.com

CH – Switzerland, Etoy

Tel: +41 (0)21 821 87 00
parker.switzerland@parker.com

CZ – Czech Republic, Klecany

Tel: +420 284 083 111
parker.czechrepublic@parker.com

DE – Germany, Kaarst

Tel: +49 (0)2131 4016 0
parker.germany@parker.com

DK – Denmark, Ballerup

Tel: +45 43 56 04 00
parker.denmark@parker.com

ES – Spain, Madrid

Tel: +34 902 330 001
parker.spain@parker.com

FI – Finland, Vantaa

Tel: +358 (0)20 753 2500
parker.finland@parker.com

FR – France, Contamine s/Arve

Tel: +33 (0)4 50 25 80 25
parker.france@parker.com

GR – Greece, Athens

Tel: +30 210 933 6450
parker.greece@parker.com

HU – Hungary, Budaoers

Tel: +36 23 885 470
parker.hungary@parker.com

IE – Ireland, Dublin

Tel: +353 (0)1 466 6370
parker.ireland@parker.com

IT – Italy, Corsico (MI)

Tel: +39 02 45 19 21
parker.italy@parker.com

KZ – Kazakhstan, Almaty

Tel: +7 7273 561 000
parker.easteurope@parker.com

NL – The Netherlands, Oldenzaal

Tel: +31 (0)541 585 000
parker.nl@parker.com

NO – Norway, Asker

Tel: +47 66 75 34 00
parker.norway@parker.com

PL – Poland, Warsaw

Tel: +48 (0)22 573 24 00
parker.poland@parker.com

PT – Portugal, Leca da Palmeira

Tel: +351 22 999 7360
parker.portugal@parker.com

RO – Romania, Bucharest

Tel: +40 21 252 1382
parker.romania@parker.com

RU – Russia, Moscow

Tel: +7 495 645-2156
parker.russia@parker.com

SE – Sweden, Spånga

Tel: +46 (0)8 59 79 50 00
parker.sweden@parker.com

SK – Slovakia, Banská Bystrica

Tel: +421 484 162 252
parker.slovakia@parker.com

SL – Slovenia, Novo Mesto

Tel: +386 7 337 6650
parker.slovenia@parker.com

TR – Turkey, Istanbul

Tel: +90 216 4997081
parker.turkey@parker.com

UA – Ukraine, Kiev

Tel +380 44 494 2731
parker.ukraine@parker.com

UK – United Kingdom, Warwick

Tel: +44 (0)1926 317 878
parker.uk@parker.com

ZA – South Africa, Kempton Park

Tel: +27 (0)11 961 0700
parker.southafrica@parker.com

North America

CA – Canada, Milton, Ontario

Tel: +1 905 693 3000

US – USA, Cleveland

(industrial)
Tel: +1 216 896 3000

US – USA, Elk Grove Village

(mobile)
Tel: +1 847 258 6200

Asia Pacific

AU – Australia, Castle Hill

Tel: +61 (0)2-9634 7777

CN – China, Shanghai

Tel: +86 21 2899 5000

HK – Hong Kong

Tel: +852 2428 8008

IN – India, Mumbai

Tel: +91 22 6513 7081-85

JP – Japan, Fujisawa

Tel: +81 (0)4 6635 3050

KR – South Korea, Seoul

Tel: +82 2 559 0400

MY – Malaysia, Shah Alam

Tel: +60 3 7849 0800

NZ – New Zealand, Mt Wellington

Tel: +64 9 574 1744

SG – Singapore

Tel: +65 6887 6300

TH – Thailand, Bangkok

Tel: +662 717 8140

TW – Taiwan, Taipei

Tel: +886 2 2298 8987

South America

AR – Argentina, Buenos Aires

Tel: +54 3327 44 4129

BR – Brazil, Cachoeirinha RS

Tel: +55 51 3470 9144

CL – Chile, Santiago

Tel: +56 2 623 1216

MX – Mexico, Apodaca

Tel: +52 81 8156 6000

EMEA Product Information Centre

Free phone: 00 800 27 27 5374

(from AT, BE, CH, CZ, DE, DK, EE, ES, FI, FR, IE, IL,
IS, IT, LU, MT, NL, NO, PL, PT, RU, SE, SK, UK, ZA)

US Product Information Centre

Toll-free number: 1-800-27 27 537

www.parker.com

