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

ACP Series - Crimped Piston Accumulators

0.02 to 8 Litres, up to 275 bar

Parker OLAER

ENGINEERING YOUR SUCCESS.

Description

Piston Accumulator designed for Mobile applications up to 38 litres, 150mm bore and 275 bar. The ACP piston accumulator offers long, reliable service life and due to its compact & cost effective design it is ideally suited for the mobile market.

The ACP piston accumulators incorporate a patented crimped design that provides high-strength coupling of caps to steel tube plus superior fatigue life. High grade carbon steel tube and end cap material allows heat to dissipate effectively and is micro-finished for extended seal life. The ACP series is a good alternative to a diaphragm accumulator as it is can provide enhanced nitrogen gas retention and has a compact and lightweight design.

Although these accumulators are offered in standard capacities, the steel shell design affords an easy way to “custom” manufacture an accumulator to meet the exact capacity for any customer application.

ACP piston accumulators are available in two versions; Rechargeable or Tamperproof. Rechargeable models allow the user to monitor and regulate the gas pre-charge to suit different operating conditions. Tamperproof, sealed-for-life versions of the ACP are pre-charged on assembly to customer specification and are completely maintenance free.

Parker Olaer have developed very sophisticated simulation software to optimize sizing recommendations for hydraulic accumulators. You can download the accumulator sizing software from www.Parker.com/acde.

Features/Benefits

- **The ACP piston accumulator is manufactured to EU Pressure Equipment Directive 2014/68/EU – and can be used in any European Union or EEA country without additional certification.**
- **The high-strength crimped construction provides long, reliable service life and its small piston seal area minimizes permeability. The piston design also prevents sudden accumulator failure.**
- **The ACP piston accumulator is available in a wide range of lengths and bore sizes and allows installation to be adapted to available space. Custom sizes are available for unique applications. Rechargeable and ‘tamperproof’ versions are available with (for customer charging) or without the gas valve.**
- **A wide range of port types and sizes are available. SAE straight thread are fitted as standard. BSPP is a standard option.**
- **The lightweight piston design allows fast response to reduce shock in rapid cycling applications.**
- **Parker’s piston accumulators are compatible with a wide variety of fluids. Standard accumulators (with nitrile seals) may be used with petroleum-based industrial oils or water-based flame resistant fluids. Optional seals compatible with most industrial fluids are available with temperature ranges from -40°C to 160°C.**
- **High burst test safety factor.**

Markets

- **Mobile**
- **Construction Equipment**
- **Material Handling Equipment**
- **Renewable Energy**
- **Agricultural Machinery**

Applications

Ideal for mobile and construction equipment

Fork lifts and cherry pickers

- pressure spike damping

Transportation vehicles

- suspension and braking systems

Construction and Mining

- suspension and load stabilising systems, emergency back-up steering, braking and pilot circuits

Turbine Engines

- maintaining oil pressure for lubrication

Machine Tools

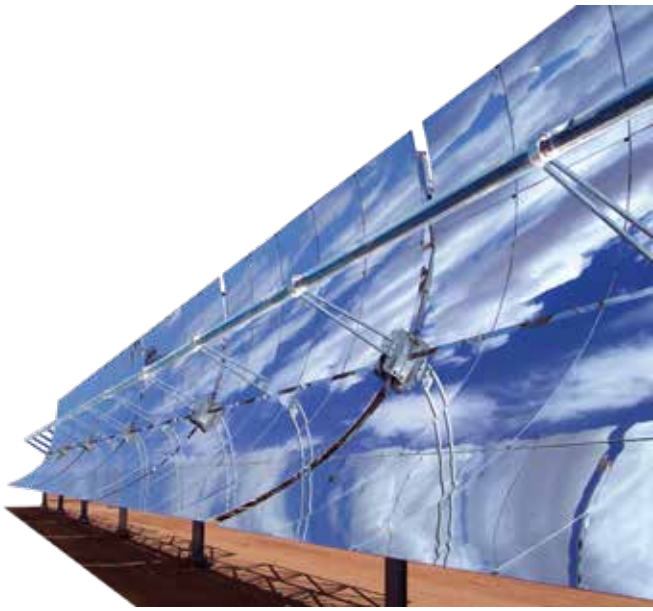
- energy saving

Hydrostatic Drives

- shock absorption when changing direction

Assembly Automation

- reducing noise and smoothing pump pulsations



Renewable Energy (Wind and Solar)

- Braking systems for wind turbines

Main Features

Actual Bore Sizes & Maximum Flow Rates

Bore Size	Actual Bore Size		Max. Recommended Flow Rate*
mm	in	mm	l/m
40	1.50	38.20	209
50	2.02	51.44	380
80	3.00	76.20	834
100	4.03	102.4	1504

*Note: Based on 120 in/sec maximum piston speed, port & fitting size will become limiting factors for most applications.

Bore Size, Pressures & Temperature Range

Bore Size (mm)	Max. Working Pressure (bar)	Volume (Litres)		*Maximum Working Temperature Range °C
		Min	Max	
40	260	0.02	0.75	-20°C to +150°C
50	275	0.08	2	-20°C to +150°C Material to -40°C available on request
80	275	0.25	8	
100	275	0.7	12	

*Maximum working temperature range could be limited to sealing system used (see temperature range below)

Materials

- Shell - Carbon Steel
- Caps - Carbon Steel
- Pistons - Aluminium
- Gas Valve Body - Carbon Steel
- Gas Valve Cap - Carbon Steel
- Piston Glide Rings - PTFE
- Piston & End Seals - Various polymers
- Piston Seal Backups - PTFE

Rechargeable or 'Tamperproof' Designs

ACP Series accumulators are available in two versions. Rechargeable models allow the user to monitor and regulate the gas pre-charge to suit different operating conditions, and feature a Schrader-type gas valve cartridge to ISO 4570 8V1. Tamperproof, sealed-for-life versions of the ACP are pre-charged on assembly to customer specification and are completely maintenance-free.

Seals, Fluids and Temperature Ranges

Code	ACP Seals	"Min Temp"	"Max Temp"	"Fluid Classification"	"Fluid Type"	Maximum Velocity (m/s)
K	"NBR (Nitrile)"	-29°C	74°C	"HFB-HFC HM-HV"	"Mineral Oils & Water Glycols"	4 m/s
H	"HNBR (Hydrogenated Nitrile)"	-32°C	150°C	"HFB-HFC HM-HV"	"Mineral Oils & Water Glycols"	4 m/s
E	"FPM (Fluorocarbon elastomer)"	-23°C	121°C	"HFB HM-HV"	"Synthetic Oils"	4 m/s
D	"EPDM (Ethylene Propylene)"	-40°C	121°C	HFD	"Ester Fluids"	4 m/s
Q	"LT-NBR (Low Temperature Nitrile)"	-45°C	71°C	HM-HV	"Mineral Oils"	4 m/s
X	"Low Friction T Seal Consult Parker ACDE"	-43°C	121°C	HM-HV	"Mineral Oils & Water Glycols"	4 m/s
S	"Special Consult Parker ACDE"			TBA	TBA	4 m/s

Features and Benefits

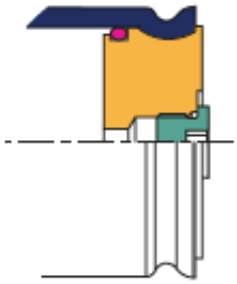
Lightweight Piston

The ACP Series feature a dished, lightweight aluminium piston deep-walled for stability in the bore.

- High efficiency - fast response times
- Reduced system shock in rapid cycling applications
- Extra gas capacity

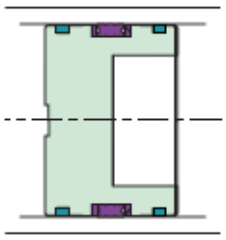
Rugged Construction

ACP Series accumulators feature high strength, compact, steel shell and caps, permanently joined and sealed by a revolutionary crimping process.



- Effective heat dissipation prevents fluid and seal degradation
- Superior fatigue life
- Micro-finished for extended seal life

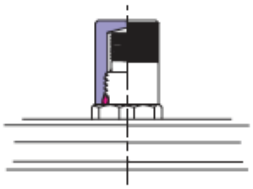
Effective, Durable Sealing



50mm bore models feature Parker's unique, patented five bladed V-O-ring piston seal. The 40mm model combines an elastomeric seal with a low friction PTFE piston ring. All models employ PTFE bearing rings to eliminate metal-to-metal contact between the tube and piston.

- Dependable, full pressure storage of hydraulic energy
- Effective separation of fluid and gas for long service intervals
- Reduced wear for extended service life
- Safe in operation - cannot suffer catastrophic failure

Protective Steel Gas Cap

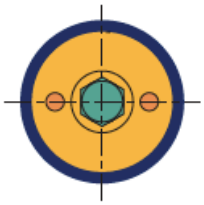


Models fitted with a gas valve are supplied with a protective steel cap. Tamperproof versions are fitted with a threaded plug which provides progressive release of pre-charge pressure prior to safe disposal.

- Steel cap reduces the risk of damage from external impact
- Security - cap provides a secondary seal

Spanner Holes

To permit easy installation on hydraulic manifolds, or in areas where mounting space is restricted, spanner holes are provided on all models.



External Coasting

- Standard Black Paint according to AES-20
- Optional Nickel-plating
- Other options available upon request

Cleanliness & Flushing

- Maximum ISO Code Cleanliness Acceptable
- ISO 4406 18/16/13
- Customised flushing is available upon request

Approvals

Approvals	ACP04*	ACP05	ACP08	ACP10
PED 2014/68/EU		•	•	•
CRN		•	•	•
AS 1210		•	•	•

* ACP04 is manufactured in accordance with article 3.3 of PED

Capacity

ACP04

Code	Model	Volume (Litres)
002	04	0.02
008	04	0.08
016	04	0.16
050	04	0.5
075	04	0.75

ACP05

008	05	0.08
016	05	0.16
032	05	0.32
050	05	0.50
075	05	0.75
100	05	0.95
125	05	1.25
150	05	1.50
175	05	1.75
200	05	2.00

ACP08

Code	Model	Volume (Litres)
025	08	0.25
050	08	0.50
100	08	1.00
150	08	1.50
200	08	2.00
250	08	2.50
300	08	3.00
400	08	4.00
500	08	5.00
600	08	6.00
700	08	7.00
800	08	8.00

ACP10

070	10	0.70
100	10	1.00
150	10	1.50
200	10	2.00
300	10	3.00
400	10	4.00
500	10	5.00
1000	10	10.00
1100	10	11.00
1200	10	12.00

ACP15

Code	Model	Volume (Litres)
300	15	3.00
400	15	4.00
500	15	5.00
600	15	6.00
700	15	7.00
800	15	8.00
4000	15	40.00

Fluid Ports

Port Type	Code	ACP04	ACP05	ACP08	ACP10	ACP15
SAE6 Female	TB	•	•	•	•	•
SAE8 Female	TC		•	•	•	•
SAE10 Female	TI		•	•	•	•
SAE12 Female	TD			·	·	·
SAE16 Female	TE			•	•	•
SAE12 Male	AD	•	•	•	•	•
SAE16 Male	AE		•	•	•	•
G1/4	RH	•	•	•	•	•
G3/8	RA	•	•	•	•	•
G1/2	RB	•	•	•	•	•
G3/4	RC		•	•	•	•
G 1	RD		•	•	•	•
G 1 1/2	RE					•
G3/4 Male	LC			•	•	•
G 1 Male	LD			•	•	•
G 1 1/2 Male	LE					•
M14 x 1.5 Female	GA	•	•	•	•	•
M18 x 1.5 Female	GB	•	•	•	•	•
M22 x 1.5 Female	GC		•	•	•	•
M18 x 1.5 Male	HB	•	•	•	•	•
M22 x 1.5 Male	HC	•	•	•	•	•

ACP Series: How to order

Series	Type	Model	Type of Construction	Options	Capacity	Working Pressure	Design Number	Seal Type	Port Size	Pre-Charge
AC	P	04	E	A	008	R	2	K	RA	/ 010

AC Series Accumulator

Code	Type
P	Piston
G	Gas bottle

Code	Bore Size (nominal)
04	40 mm
05	50 mm
08	80 mm
10	100 mm
15	150 mm

Code	Approval Type
E	To PED 2014/68/EU- For use in Europe
A	No approvals - not for European use

Code	Valve Options
A	Gas valve - Standard
D	Steel plug - Sealed unit
M	Gas Valve - Mil Spec SS
	Leave blank if no gas valve required

Please see Capacity table on page 114

Code	Maximum Working Pressure
R	260 bar (40 mm bore only)
E	275 bar (50, 80 and 100 mm bore only)

Code	Port
1	SAE port
2	BSPP port
3	Special
4	Metric port

Code	Service/Fluid
D	Phosphate-esters Low temperatures
E	Fluoreslatomer High Temperatures
K	Nitrile Standard
H	Hydrogenated nitrile xtended temperature range
S	Special

Please see Fluid Port table on page 114

Code	Pre-Charge (for example)
010	10 bar
020	20 bar
030	30 bar

ACP Series 275 bar(260 bar), 0.02 to 40 Litres

ACP - Crimped Piston Accumulators **with Gas Valve (code A)**

Standard version (Carbon Steel shell/seal NBR) compatible with mineral oils (2).

According to PED 2014/68/EU, EN 14359, Fluid Group 2 (3).

Product , Part numbers, Accessories

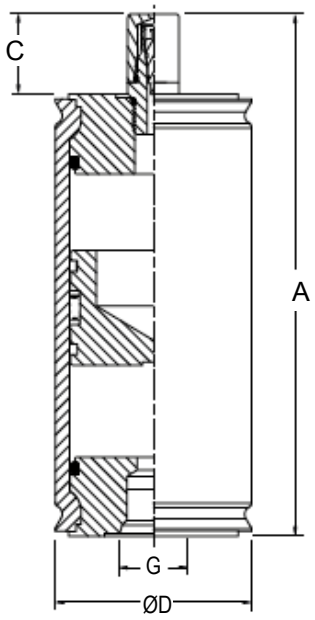
Part number	Effective gas Volume (Litres)	Max. Working Pressure (PS)bar	Max Flow Rate l/mn***	Weight (Kg)	A	C	øD	ø Bore (Nominal)	G (BSPP) Female	G (BSPP) Male
ACP04AA002R2K*	0.02	260	209	0.6	104	25.4	44.5	40	G3/8	G3/4
ACP04AA008R2K*	0.08	260	209	0.7	157	25.4	44.5	40	G3/8	G3/4
ACP04AA016R2K*	0.16	260	209	1	227	25.4	44.5	40	G3/8	G3/4
ACP04AA032R2K*	0.32	260	209	1.4	367	25.4	44.5	40	G3/8	G3/4
ACP04AA050R2KRB*	0.50	260	209	1.9	525	25.4	44.5	40	G3/8	G3/4
ACP04AA075R2K*	0.75	260	209	2.5	743	25.4	44.5	40	G3/8	G3/4
ACP05EA008E2K**	0.08	275	380	1.5	140	25.4	60.5	50	G3/4	G1
ACP05EA016E2K**	0.16	275	380	1.8	179	25.4	60.5	50	G3/4	G1
ACP05EA032E2K**	0.32	275	380	2.3	256	25.4	60.5	50	G3/4	G1
ACP05EA050E2K**	0.50	275	380	2.8	343	25.4	60.5	50	G3/4	G1
ACP05EA075E2K**	0.75	275	380	3.5	463	25.4	60.5	50	G3/4	G1
ACP05EA100E2K**	0.95	275	380	4.1	583	25.4	60.5	50	G3/4	G1
ACP05EA125E2K	1.25	275	380	5	704	25.4	60.5	50	G3/4	G1
ACP05EA150E2K	1.50	275	380	5.7	824	25.4	60.5	50	G3/4	G1
ACP05EA175E2K	1.75	275	380	6.5	944	25.4	60.5	50	G3/4	G1
ACP05EA200E2K	2.00	275	380	7.2	1065	25.4	60.5	50	G3/4	G1
ACP08EA025E2K	0.25	275	834	4.8	183	25.4	90.4	80	G3/4	G1
ACP08EA032E2K	0.32	275	834	5	198	25.4	90.4	80	G3/4	G1
ACP08EA050E2K	0.50	275	834	5.6	238	25.4	90.4	80	G3/4	G1
ACP08EA100E2K	0.95	275	834	7	336	25.4	90.4	80	G3/4	G1
ACP08EA150E2K	1.50	275	834	8.8	457	25.4	90.4	80	G3/4	G1
ACP08EA200E2K	2.00	275	834	10.4	566	25.4	90.4	80	G3/4	G1
ACP08EA250E2K	2.50	275	834	12	676	25.4	90.4	80	G3/4	G1
ACP08EA300E2K	3.00	275	834	13.6	786	25.4	90.4	80	G3/4	G1
ACP08EA400E2K	4.00	275	834	16.8	1005	25.4	90.4	80	G3/4	G1
ACP08EA500E2K	5.00	275	834	20	1225	25.4	90.4	80	G3/4	G1
ACP08EA600E2K	6.00	275	834	23.2	1445	25.4	90.4	80	G3/4	G1
ACP08EA700E2K	7.00	275	834	26.4	1664	25.4	90.4	80	G3/4	G1
ACP08EA800E2K	8.00	275	834	29.5	1883	25.4	90.4	80	G3/4	G1

Part number	**Effective gas Volume** (Litres)	**Max. Working Pressure** (PS) bar	**Max Flow Rate** l/mn***	**Weight (Kg)**	A	C	øD	ø Bore (Nominal)	G (BSPP) Female	G (BSPP) Male
ACP10EA075E2K	0.70	275	1504	10.8	236	25.4	120.9	100	G1	G1
ACP10EA100E2K	0.95	275	1504	11.6	266	25.4	120.9	100	G1	G1
ACP10EA150E2K	1.50	275	1504	13.3	356	25.4	120.9	100	G1	G1
ACP10EA200E2K	2.00	275	1504	14.8	394	25.4	120.9	100	G1	G1
ACP10EA300E2K	3.00	275	1504	17.9	538	25.4	120.9	100	G1	G1
ACP10EA400E2K	4.00	275	1504	21	637	25.4	120.9	100	G1	G1
ACP10EA500E2K	5.00	275	1504	24.1	758	25.4	120.9	100	G1	G1
ACP10EA600E2K	6.00	275	1504	27.1	880	25.4	120.9	100	G1	G1
ACP10EA800E2K	8.00	275	1504	33.3	1123	25.4	120.9	100	G1	G1
ACP10EA1000E2K	10.00	275	1504	39.5	1365	25.4	120.9	100	G1	G1
ACP10EA1100E2K	11.00	275	1504	42.5	1488	25.4	120.9	100	G1	G1
ACP10EA1200E2K	12.00	275	1504	45.6	1633	25.4	120.9	100	G1	G1
ACP15EA300E1	3.00	275	3100	25.9	371	28.6	174.6	150	G1	G1
ACP15EA400E1	4.00	275	3100	29.2	430	28.6	174.6	150	G1	G1
ACP15EA500E1	5.00	275	3100	32.4	489	28.6	174.6	150	G1	G1
ACP15EA600E1	6.00	275	3100	35.7	548	28.6	174.6	150	G1	G1
ACP15EA700E1	7.00	275	3100	38.9	607	28.6	174.6	150	G1	G1
ACP15EA800E1	8.00	275	3100	42.2	665	28.6	174.6	150	G1	G1
ACP15EA4000E1	40.00	275	3100	146.1	2437	28.6	174.6	150	G1	G1

* No approvals - not for European use

** According PED 2014/68/EU Article 4.3

***Note : based on 120 in/sec maximum piston speed, port&fitting size will become limiting factors for most applications



ACP Series 275 bar(260 bar) , 0.02 to 40 Litres

ACP - Crimped Piston Accumulators without Gas Valve (code D) and Seals nitrile

Standard version (Carbon Steel shell/seal NBR) compatible with mineral oils (2).

According to PED 2014/68/EU, EN 14359, Fluid Group 2 (3).

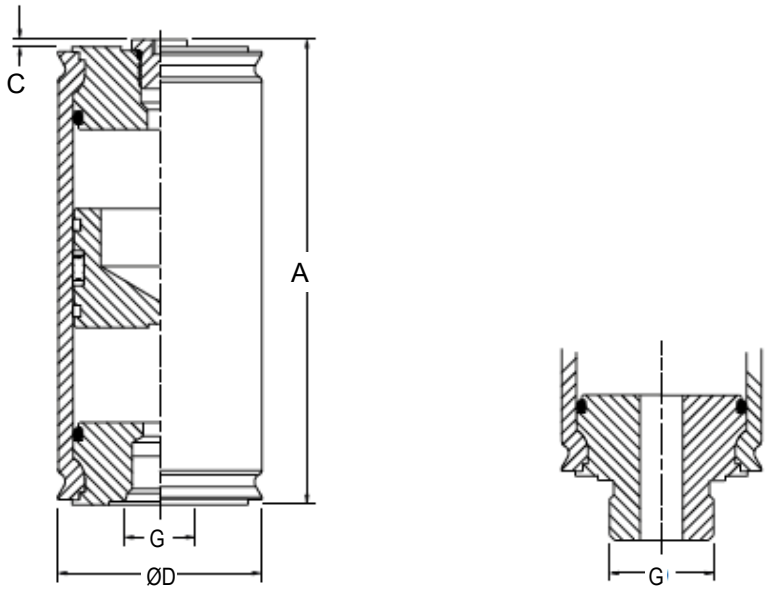
Product , Part numbers, Accessories

Part number	Effective gas Volume (Litres)	Max. Working Pressure (PS) bar	Max Flow Rate l/mn	Weight (Kg)	A	C	øD	ø Bore	G (BSPP) Female	G (BSPP) Male
ACP04AD002R2K*	0.02	260	209	0.5	79	2.0	44.5	40	G3/8	G3/4
ACP04AD008R2K*	0.08	260	209	0.6	132	2.0	44.5	40	G3/8	G3/4
ACP04AD016R2K*	0.16	260	209	0.9	202	2.0	44.5	40	G3/8	G3/4
ACP04AD032R2K*	0.32	260	209	1.3	342	2.0	44.5	40	G3/8	G3/4
ACP04AD050R2K*	0.50	260	209	1.8	500	2.0	44.5	40	G3/8	G3/4
ACP04AD075R2K*	0.75	260	209	2.4	718	2.0	44.5	40	G3/8	G3/4
ACP05ED008E2K**	0.08	275	380	1.4	115	2.0	60.5	50	G3/4	G1
ACP05ED016E2K**	0.16	275	380	1.7	154	2.0	60.5	50	G3/4	G1
ACP05ED032E2K**	0.32	275	380	2.2	231	2.0	60.5	50	G3/4	G1
ACP05ED050E2K**	0.50	275	380	2.7	318	2.0	60.5	50	G3/4	G1
ACP05ED075E2K**	0.75	275	380	3.4	438	2.0	60.5	50	G3/4	G1
ACP05ED100E2K**	0.95	275	380	4	558	2.0	60.5	50	G3/4	G1
ACP05ED125E2K	1.25	275	380	4.9	679	2.0	60.5	50	G3/4	G1
ACP05ED150E2K	1.50	275	380	5.6	799	2.0	60.5	50	G3/4	G1
ACP05ED175E2K	1.75	275	380	6.4	919	2.0	60.5	50	G3/4	G1
ACP05ED200E2K	2.00	275	380	7.1	1040	2.0	60.5	50	G3/4	G1
ACP08ED025E2K	0.25	275	834	4.7	158	2.0	90.4	80	G3/4	G1
ACP08ED032E2K	0.32	275	834	4.9	173	2.0	90.4	80	G3/4	G1
ACP08ED050E2K	0.50	275	834	5.5	213	2.0	90.4	80	G3/4	G1
ACP08ED100E2K	0.95	275	834	6.9	311	2.0	90.4	80	G3/4	G1
ACP08ED150E2K	1.50	275	834	8.7	432	2.0	90.4	80	G3/4	G1
ACP08ED200E2K	2.00	275	834	10.3	541	2.0	90.4	80	G3/4	G1
ACP08ED250E2K	2.50	275	834	11.9	651	2.0	90.4	80	G3/4	G1
ACP08ED300E2K	3.00	275	834	13.5	761	2.0	90.4	80	G3/4	G1
ACP08ED400E2K	4.00	275	834	16.8	980	2.0	90.4	80	G3/4	G1
ACP08ED500E2K	5.00	275	834	19.9	1200	2.0	90.4	80	G3/4	G1
ACP08ED600E2K	6.00	275	834	23.1	1420	2.0	90.4	80	G3/4	G1
ACP08ED700E2K	7.00	275	834	26.3	1639	2.0	90.4	80	G3/4	G1
ACP08ED800E2K	8.00	275	834	29.4	1858	2.0	90.4	80	G3/4	G1

Part number	Effective gas Volume (Litres)	Max. Working Pressure (PS) bar	Max Flow Rate l/mn	Weight (Kg)	A	C	øD	ø Bore	G (BSPP) Female	G (BSPP) Male
ACP10ED075E2K	0.70	275	1504	10.7	211	2.0	120.9	100	G1	G1
ACP10ED100E2K	0.95	275	1504	11.5	241	2.0	120.9	100	G1	G1
ACP10ED150E2K	1.50	275	1504	13.2	331	2.0	120.9	100	G1	G1
ACP10ED200E2K	2.00	275	1504	14.7	369	2.0	120.9	100	G1	G1
ACP10ED300E2K	3.00	275	1504	17.8	513	2.0	120.9	100	G1	G1
ACP10ED400E2K	4.00	275	1504	20.9	612	2.0	120.9	100	G1	G1
ACP10ED500E2K	5.00	275	1504	24	733	2.0	120.9	100	G1	G1
ACP10ED600E2K	6.00	275	1504	27	855	2.0	120.9	100	G1	G1
ACP10ED800E2K	8.00	275	1504	33.2	1098	2.0	120.9	100	G1	G1
ACP10ED1000E2K	10.00	275	1504	39.4	1340	2.0	120.9	100	G1	G1
ACP10ED1100E2K	11.00	275	1504	42.4	1463	2.0	120.9	100	G1	G1
ACP10ED1200E2K	12.00	275	1504	45.5	1608	2.0	120.9	100	G1	G1
ACP15ED300E1	3.00	275	3100	25.7	350	28.6	174.6	150	G1	G1
ACP15ED400E1	4.00	275	3100	29	409	28.6	174.6	150	G1	G1
ACP15ED500E1	5.00	275	3100	32.2	468	28.6	174.6	150	G1	G1
ACP15ED600E1	6.00	275	3100	35.4	527	28.6	174.6	150	G1	G1
ACP15ED700E1	7.00	275	3100	38.7	586	28.6	174.6	150	G1	G1
ACP15ED800E1	8.00	275	3100	42	645	28.6	174.6	150	G1	G1
ACP15ED4000E1	40.00	275	3100	145.9	2534	28.6	174.6	150	G1	G1

* No approvals - not for European use

** According PED 2014/68/EU Article 4.3



Notes