

3.5.1 TECHNICAL DATA

MAX OPERATING PRESSURE (PS): 4000 PSI

PRESSURE TEST (PT): 1.5 x PS

NOMINAL CAPACITIES: 1/4 - 1 - 2.5 - 5 - 10 - 15 gallons

WORKING TEMPERATURE: -40 ÷ +200 °F (-40 ÷ +93 °C)

COMPRESSION RATIO (Po : P2): max. 1 : 4

FLUID VISCOSITY RANGE: 10 ÷ 400 cSt

RECOMMENDED VISCOSITY: 36 cSt

FLUID CONTAMINATION DEGREE:
class 21/19/16 according to ISO 4406/99

BODY MATERIAL:

- carbon steel shell (SA 372 grade E class 70)
 painted with rust inhibitor RAL 8012
- nickel coating 25 - 40 µ
- internal and external coating with RILSAN th. 0.6 mm

VALVES MATERIAL:

- phosphated or galvanized carbon steel in compliance with Directive 2002/95/EC (RoHS) to resist to corrosion
- stainless steel AISI 316L
- nickel coating 25-40 µ

BLADDER MATERIAL:

- **P** = Nitrile rubber (NBR)
- **F** = Low temp. nitrile rubber
- **H** = Nitrile for hydrocarbons
- **K** = Hydrogenated nitrile (HNBR)
- **B** = Butyl (IIR)
- **E** = Ethylene-propylene (EPDM)
- **N** = Chloroprene (Neoprene)
- **Y** = Epichlorohydrin (ECO)
- **V** = Fluorocarbon (FPM)

See Table 3.5c and/or Chapter 1.5

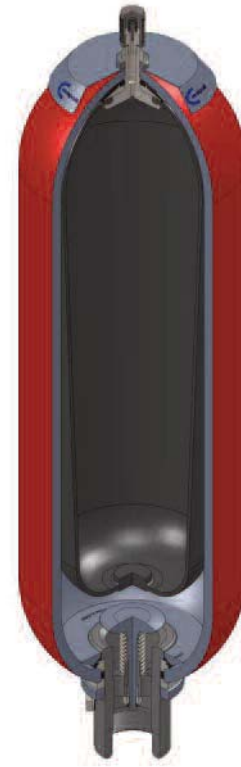
FILLING VALVE CONNECTION:

- 5/8"-UNF std
- 7/8" UNF
- 1/4" BSP

FLUID PORT CONNECTION: see Table 3.5dc - 3.5df - 3.5eb - 3.5ec

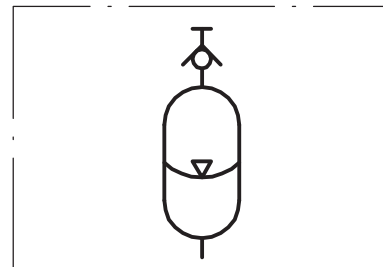
FLOW RATE: see Table 3.5db

WEIGHT: see Table 3.5db - 3.5df



3.5a

3.5.2 HYDRAULIC SYMBOL



3.5b

3.5.6 BLADDER-TEMPERATURE-LIQUID COMPATIBILITY

When selecting the accumulator variant, pay attention to the following non-binding notes with regard to hydraulic fluid, bladder material and the permissive temperature range. (see Section 1.5)

Code letter	Polymer	ISO	Temperature range (°C)	Some of the liquids compatible with the polymer
P	Standard nitrile (Perburan)	NBR	-20 ÷ +80	Aliphatic hydrocarbons (propane, butane, gasoline, oils, mineral greases, diesel fuel, fuel oil, kerosene), mineral greases and oils, HFA - HFB - HFC fluids, many dilute acids, alkalis, saline solutions, water, water glycol.
F	Low temperature nitrile	NBR	-40 ÷ +70	The same as with standard nitrile + a number of different types of Freon. (This contains less acrylonitrile than the standard and is therefore more suitable for low temperatures, but its chemical resistance is slightly lower).
H	Nitrile for hydrocarbons	NBR	-10 ÷ +90	Regular and premium grade slightly aromatic gasoline (and all the liquids for standard nitrile).
K	Hydrogenated nitrile	HNBR	-30 ÷ +130	The same as with standard nitrile but with excellent performance at high and low temperatures.
B	Butyl	IIR	-30 ÷ +100	Hot water up to 100°C, glycol-based brake fluids, many acids and bases, salt solutions, polar solvents such as alcohols, ketones and esters, polyglycol-based hydraulic fluids (HFC fluids) and bases of esters of phosphoric acid (HFD-R fluids), silicone oils and greases, Skydol 500 and 7000, resistance to ozone, aging and weathering.
E	Ethylene-Propylene	EPDM	-30 ÷ +100	Hot water up to 100°C, glycol-based brake fluids, many organic and inorganic acids, detergents, solutions of sodium and potassium, phosphate ester-based hydraulic fluids, (HFD-R), silicone oils and greases, many polar solvents (alcohol, ketones, esters), Skydol 500 and 7000, resistance to ozone, aging and weathering.
N	Chloroprene (Neoprene)	CR	-30 ÷ +100	Mineral oils of paraffin, silicone oils and greases, water and aqueous solutions, refrigerants (ammonia, carbon dioxide, Freon), naphthenic mineral oils, low molecular aliphatic hydrocarbons (propane, butane, fuel), brake fluids based on glycol, better resistance to ozone, weathering and aging compared to NBR rubber.
Y	Epichloridrin	ECO	-30 ÷ +110	Mineral oils and greases, aliphatic hydrocarbons (propane, butane and gasoline), silicone oils and greases, water at room temperature, resistance to ozone, aging and weathering.
V	Fluorocarbon	FPM	-10 ÷ +150	Mineral oils and greases, non-flammable fluids of HFD group, silicone oils and greases, animal and vegetable oils and greases, aliphatic hydrocarbons (gasoline, butane, propane, natural gas), aromatics hydrocarbons (benzene, toluene), chlorinated hydrocarbons (Tetrachloroethylene, carbon tetrachloride), fuel (regular, super and containing methanol), excellent resistance to ozone, weathering and aging.

For other hydraulic fluid and/or temperatures, please consult us.

3.5c

3.5.7 ORDER CODE

1	2	3	4	5	6	7-8	9	10	11	12	13	14	15	16	
ASA	15	P	4000	C	R	P5	V4	-	7	-	C	0	C	0	R250 / 435

1	Series
Bladder accumulator with ASME U-STAMP = ASA	

2	Nominal capacity (gallons)
1/4 gal (0.95 lt) = 1/4	
1 gal (3.78 lt) = 1	
2.5 gal (9.46 lt) = 2.5	
5 gal (18.93 lt) = 5	
10 gal (37.85 lt) = 10	
15 gal (56.78 lt) = 15	

3	Bladder material
Nitrile rubber (NBR) = P	
Nitrile for low temp. = F	
Nitril for hydrocarbons = H	
Hydrogenated nitrile (HNBR) = K	
Butyl (IIR) = B	
Ethylene-propylene (EPDM) = E	
Chloroprene (Neoprene) = N	
Epichlorohydrin (ECO) = Y	
Fluorocarbon (FPM) = V	

4	Max working pressure (PS)
4000 PSI (275 bar) = 4000	
(3000 only for the version with connection L or other pressure related to connections B or U)	

5	Body material
Carbon steel = C	
Nickel coated carbon steel 25 μ = N	
Nickel coated carbon steel 40 μ = M	
Stainless steel = X	
Rilsan coating = V	

6	Fluid port connection
See the table on front page	

7-8	Dimension of the connection fluid or 7+8 table
See the table on front page	

16	Precharge pressure (bar)
Standard 435 PSI = 0 ÷ 3600 PSI (30 bar)	

15	Other variants
See the table on front page	

14	Variants of gas side
Standard = 0	
Only cap in stainless steel = 1	
Brass nameplate = 2	
Other numbers/variants to be requested EPE	

13	Gas valve material
Carbon steel = C	
Nickel coated carbon steel 25 μ = N	
Nickel coated carbon steel 40 μ = M	
Stainless steel = X	

12	Variants of fluid side
Standard = 0	
Adapter in stainless steel (R) = 1	
Button and spring in stainless steel = 2	
Other numbers/variants to be requested EPE	

11	Fluid valve material
Carbon steel = C	
Nickel coated carbon steel 25 μ = N	
Nickel coated carbon steel 40 μ = M	
Stainless steel = X	

10	Testing and certification
ASME U-STAMP (ASME VIII div.1 appendix 22) = 7	

9	Connection gas side
Standard filling valve 5/8" UNF thread = V	
Standard filling valve with 5/8" UNF thread in stainless steel = VX	
Without filling valve (thread hole M12x1.5) = V0	
Brass filling valve 1/4" BSP = V2	
Filling valve 7/8" UNF = V4	

Special variants upon request

6	Fluid port connection
	For ASA 1/4÷15 gallons BSP ISO 228 with chamfer for OR (std) = A
	For ASA 1÷15 gallons Metric = M
	For ASA 1/4÷15 gallons NPT-F = P
	For ASA 1÷15 gallons internal thread SAE = S
	For ASA 1÷15 gallons adapter for flange SAE 3000 Psi = L
	For ASA 1÷15 gallons adapter for flange SAE 6000 Psi = H
	For ASA 1/4÷15 gallons flange ANSI = B
	For ASA 1/4÷15 gallons flange UNI = B
	For ASA 1/4÷15 gallons square flange = Q
	For ASA 1/4÷15 gallons adapter * = R
	* assembled on the fluid valve connection type A

15	Other variants
	Adapter + Burst disc set at xxx bar = Rxxx (see Section 8.2)
	Adapter + Safety valve, type VS224TX set at xxx bar = Gxxx
	Adapter + Needle Valve of 1/4" BSP = EG2
	Adapter + Stainless steel needle Valve of 1/4" BSP = EG2X
	Adapter + Excluding device with with full scale pressure gauge of xxx bar = EMxxx
	Adapter + Excluding device of 90° with full scale pressure gauge of xxx bar = ELMxxx
	Flushing with degree of contamination ≤ x = Fx
	75-80 μ thick. polyurethane paint with colour to be specified = Wxxx
	Off-shore paint with colour to be specified = Zxxx
	NORSOK System 1 paint with colour to be specified = K1
	NORSOK System 7 paint with colour to be specified = K7
	other variants upon request

7	Dimension of the fluid connection
	For the type of connection:
	A (1/4 gallon) 1" 1/4 = 7 (2.5 ÷15 gallons) 2" = 9
	M (1/4 gallon) 40x1.5 = 40/1.5 (2.5 ÷15 gallons) 50x1.5 = 50/1.5
	P (1/4 gallon) 1" 1/4 = 7 (2.5 ÷15 gallons) 2" = 9
	S (1/4 gallon) 1" 5/8 12UN = 1 5/8-12 (2.5 ÷15 gallons) 1" 7/8 12UN = 1 7/8-12
	L (1/4 gallon) 1" 1/4 SAE3000 = 7 (Pmax = 3000) (2.5 ÷15 gallons) 1" 1/2 SAE 3000 = 8 (Pmax = 3000) 2" SAE 3000 = 9
	H (1/4 gallon) 1" 1/4 SAE6000 = 7 (2,5 ÷15 gallons) 1" 1/2 SAE 6000 = 8 2" SAE 6000 = 9
	B = DIMENSION/RATING
	Former. 1" ANSI 600 = 1/600 (Pmax =600)
	U = DN/PN
	Former. DN50 PN100 = 50/1450 (Pmax =1450)
	Q (1/4 gallon) 1" 1/4 = 7 (2.5 ÷15 gallons) 2" = 9
	R Blind = 0
	R internal thread = G*
	BSP ISO 228 = P*
	NPT-F = P*
	BSPT = N*
	SAE = S*
	Metric = M*
	*Variant in table 8

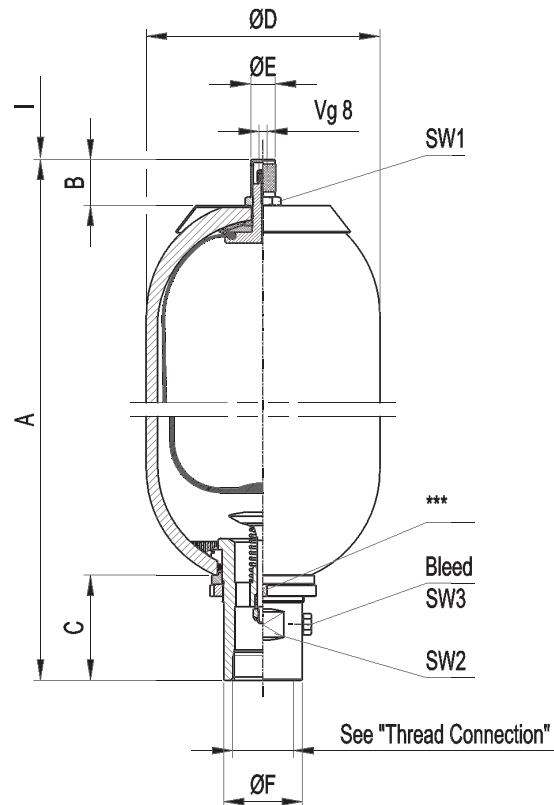
8	Dimension		
1/8"	= 1	3/4"	= 5
1/4"	= 2	1"	= 6
3/8"	= 3	1" 1/4"	= 7
1/2"	= 4	1" 1/2"	= 8

Dimension in inch - No.of pitch for inch

Diameter/pitch

Special variants upon request

3.5.9 DIMENSIONS



3.5da

Acc. type ASA in carbon steel	Nominal gas volume gallons	Effective gas volume litres	Working pressure bar	Max.diff. pressure P2-P1 psi	Flow rate l/min	Max.comp. ratio P0/P2	A mm	B mm	C mm	Ø D mm	Ø E mm	Ø F mm	I mm	SW 1 mm	SW 2 mm	SW 3 mm	Bleed	Acc. dry weight kg
ASA 1/4	1/4	1	4000	1450	300	1:4	272 ± 5	26	52	114	20	36	140	24	32	4*	M5	5.2
ASA 1	1	3,5	4000	1450	600	1:4	391 ± 10	47	65	168	25	53	140	32	50	4*	M5	13
ASA 2,5	2,5	9,1	4000	1450	1000	1:4	544 ± 10	47	101	229	25	77	140	32	70	19**	1/4" BSP	37
ASA 5	5	18,2	4000	1450	1000	1:4	848 ± 10	47	101	229	25	77	140	32	70	19**	1/4" BSP	58
ASA 10	10	33,5	4000	1450	1000	1:4	1382 ± 10	47	101	229	25	77	140	32	70	19**	1/4" BSP	96
ASA 15	15	50	4000	1450	1000	1:4	1903 ± 10	47	101	229	25	77	140	32	70	19**	1/4" BSP	133

* Allen wrench

** Ex. wrench

*** see chapter 3.5.12.2 table 3.5ab

3.5db

* The maximum differential pressure is the maximum allowable difference between the maximum pressure and the minimum working pressure (P2-P1) to have an infinite life cycle of the accumulator (greater than 2,000,000 cycles).

** Flow rate measured using mineral oil with viscosity of 36 cSt at 50°C and $\Delta P = 5$ bar

3.5.9.1 STANDARD THREAD CONNECTIONS

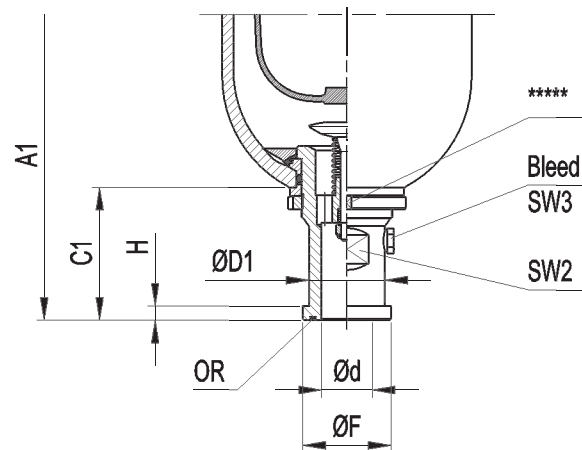
Dimensions	Connection Type	Accumulator type	Complete spare valve order code	Ød	ØD mm	ØF mm	H mm
	A BSP ISO 228 with chamfer for OR	ASA 0,2	-	-	-	-	-
		ASA 0,7	V 2023-A5-**/*	3/4" BSP	28,8	36	19
		ASA 1	V 2024-A5-**/*				
		ASA 1,5					
		ASA 3	V 2025-A7-**/*	1" 1/4 BSP	46	53	25
		ASA 5	V 2044-A7-**/*				
		ASA 10 ÷ 55	V 2064-A9- **/*	2" BSP	63,35	77	28
	G BSP ISO 228	ASA 0,2	V 2004-G4-**/*	1/2" BSP	-	26	15
		ASA 0,7	-	-	-	-	-
		ASA 1	-	-	-	-	-
		ASA 1,5	-	-	-	-	-
		ASA 3	-	-	-	-	-
		ASA 5	-	-	-	-	-
		ASA 10 ÷ 55	-	-	-	-	-
	M Metric	ASA 0,2	-	-	-	-	
		ASA 0,7					
		ASA 1					
		ASA 1,5	V 2025-M40x1.5-**/*	M40x1,5	-	53	25
		ASA 3					
		ASA 5	V 2044-M40/1.5-**/*				
		ASA 10 ÷ 55	V 2064-M50/1.5-**/*	M50x1,5	-	77	28
	P NPT-F	ASA 0,2	-	-	-	-	
		ASA 0,7	V 2023-P5-**/*	3/4" NPT-F	-	36	Thread plug gage
		ASA 1	V 2024-P5-**/*				
		ASA 1,5					
		ASA 3	V 2025-P7-**/*	1" 1/4 NPT-F	-	53	
		ASA 5	V 2044-P7-**/*				
		ASA 10 ÷ 55	V 2064-A9- **/*	2" NPT-F	-	77	
	S SAE thread	ASA 0,2	-	-	-	-	
		ASA 0,7	V 2023-S1 /16-12-**/*	1" 1/16 12 UN	29,16	36	19
		ASA 1	V 2024-S1 /16-12-**/*				
		ASA 1,5	V 2025-S1 5/8-12-**/*	1" 5/8 12 UN	43,5	53	23
		ASA 3					
		ASA 5	V 2044-S1 5/8-12-**/*				
		ASA 10 ÷ 55	V 2064-S1 7/8-12-**/*	1" 7/8 12 UN	49,84	77	26

* Gasket material

** Component material

3.5dc

3.5.9.2 ADAPTER FOR FLANGE SAE 3000/6000 PSI (L/H)



3.5de

Acc. type ASA in carbon steel	Dim.	A1 mm	C1 mm	SW2 mm	SW3 mm	Bleed	Ød mm	SAE 3000 (L)				SAE6000 (H)				OR (Included)	Acc. dry weight kg
								Spare valve order code	ØD1 mm	ØF mm	H mm	Spare valve order code	ØD1 mm	ØF mm	H mm		
ASA 1/4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ASA 1	1"	493 ± 10	100	38	4***	M5	31	-	-	-	-	V 2044-H6-***	38	47,6	9,5	0010R4131-*	13
	1 1/4"	482 ± 10	89					V 2044-L7-***	43	50,8	8	V 2044-H7-***	44	53,3	10,3	0010R4150-*	
ASA 2.5	1 1/2"	583 ± 10	115	42	19****	1/4"	32	V 2064-L8-***	50	60,3	8	V 2064-H8-***	51	63,5	12,5	0010R4187-*	37
	2"							V 2064-L9-***	62	71,5	9,5	V 2064-H9-***	67	77,6		0010R4225-*	
ASA 5	1 1/2"	733 ± 10	115	42	19****	1/4"	32	V 2064-L8-***	50	60,3	8	V 2064-H8-***	51	63,5	12,5	0010R4187-*	58
	2"							V 2064-L9-***	62	71,5	9,5	V 2064-H9-***	67	77,6		0010R4225-*	
ASA 10	1 1/2"	893 ± 10	115	42	19****	1/4"	32	V 2064-L8-***	50	60,3	8	V 2064-H8-***	51	63,5	12,5	0010R4187-*	96
	2"							V 2064-L9-***	62	71,5	9,5	V 2064-H9-***	67	77,6		0010R4225-*	
ASA 15	1 1/2"	1058 ± 15	115	42	19****	1/4"	32	V 2064-L8-***	50	60,3	8	V 2064-H8-***	51	63,5	12,5	0010R4187-*	133
	2"							V 2064-L9-***	62	71,5	9,5	V 2064-H9-***	67	77,6		0010R4225-*	

* Gasket material

** Component material

*** Allen wrench

**** Ex. Wrench

***** see chapter 3.5.12.2 table 3.5ab

3.5df