Accumulators

Bladder Accumulators

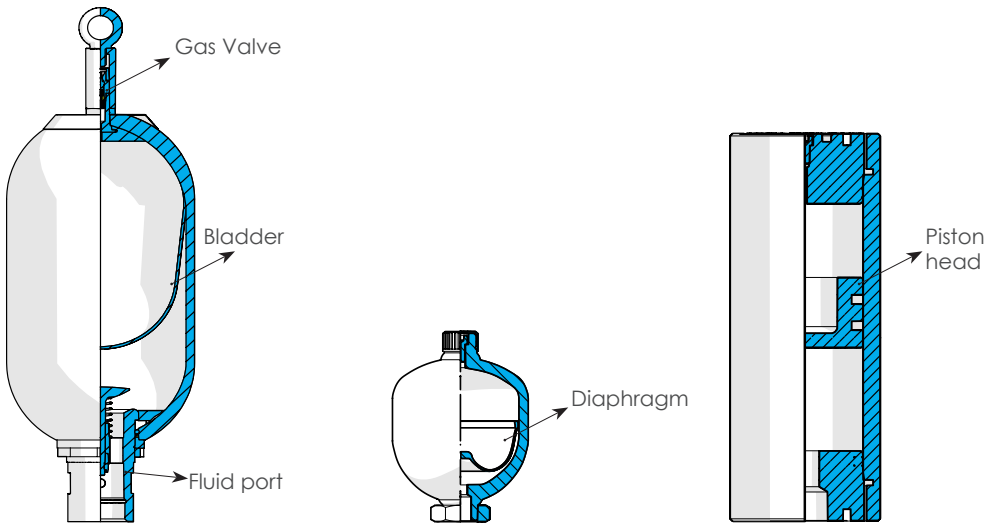
Diaphragm Accumulators

Piston Accumulators

What is an Accumulator?

Accumulators, also known as hydraulic accumulators, are devices that store energy to absorb pressure surges or shock pressures to protect hydraulic equipment or to supply momentary hydraulic pressure to the hydraulic device without the operation of the hydraulic pump. Depending on the configuration purpose of the hydraulic system, accumulators are an essential device that is widely used. Typically, accumulators are classified into bladder-type accumulators, diaphragm-type accumulators, and piston-type accumulators based on their design.

Types and structures of accumulators



Bladder accumulator　　Diaphragm accumulator　　Piston accumulator

An accumulator is typically made up of a separation element between the compressible gas part and the operating fluid. In a bladder accumulator, a flexible and elastic rubber bladder performs the separation function, and the material of the bladder is also determined by the type of operating fluid. Similarly, in a diaphragm accumulator, a flexible and elastic rubber diaphragm performs the separation function, and the material is also determined by the type of operating fluid. A piston accumulator is a product that moves freely inside the shell, and the piston performs the separation function. The material used for sealing the piston is important, and the material of the sealing is selected according to the type of use.

Bladder accumulators are widely used in general industrial hydraulic systems, and diaphragm bladders are used in small-capacity hydraulic systems, especially in mobile systems. Piston accumulators have no capacity limitations and are mainly applied to systems that require high discharge rates and high-speed operation.

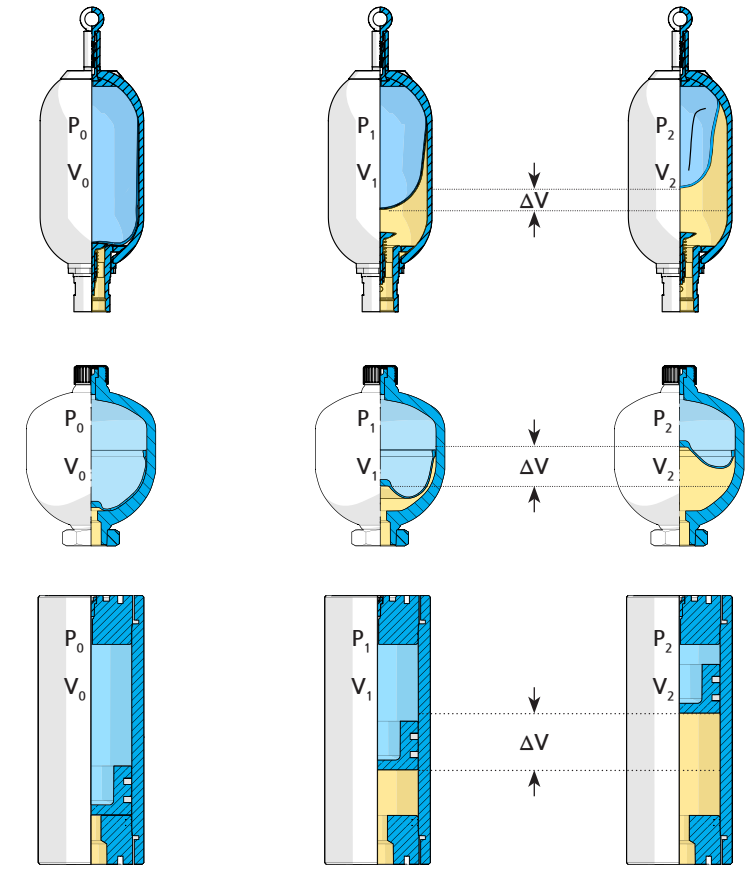
Operating principle of accumulator

As we've already seen in the definition and structure of accumulators, they can absorb, store, and release pressure between the compressible gas charge and the operating fluid pressure. Let's take a closer look at the basic operating principles of bladder, diaphragm, and piston accumulators. Prior to applying accumulators to a hydraulic system, they must be charged with nitrogen to meet the specified pre-charge condition. Although bladder, diaphragm, and piston accumulators all require pre-charging, the pre-charge conditions for each type are different as follows:

Bladder-type: $P_2/4 \leq P_0 \leq k \times P_1$　　* k: energy storage 80~90%

Diaphragm-type: $P_2/4 \leq P_0 \leq k \times P_1$　　absorbing pressure fluctuations 60~65%

Piston-type: $P_2/10 \leq P_0 \leq k \times P_1$　　absorbing shock 60~65%



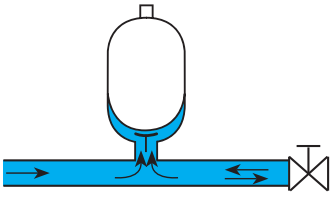
Pre-charge state **Min. Operating state** **Max. Operating state**

P_0	N_2 Pre-charge pressure
P_1	Minimum operating pressure
P_2	Maximum operating pressure
V_0	Pre-charge N_2 capacity
V_1	N_2 capacity at minimum operating pressure
V_2	N_2 capacity at maximum operating pressure
ΔV	V_1-V_2 Amount of stored or operating fluid

Applications

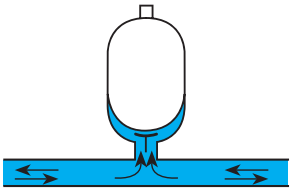
1. Shock Dampening

When valves are quickly opened and closed, hydraulic shock waves can occur in the hydraulic system. Such shocks can cause noise, damage to system components, and early failure of hoses, fittings, and other components. Using a compressor in such situations can remove shocks from the hydraulic system and protect the hydraulic system safely.



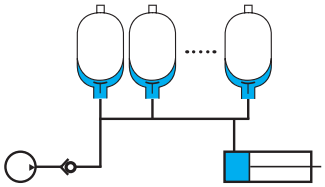
2. Pulsation Dampening

An accumulator can alleviate the shock and pulsation caused by the pump, protect the hydraulic system from static and vibration, and can also be used to eliminate noise.



3. Energy Storage

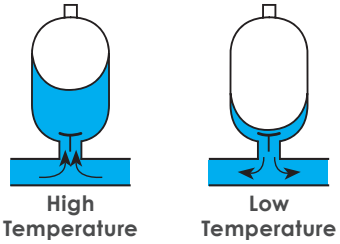
An accumulator stores some of the fluid discharged from the hydraulic pump, and when the actuator requires a flow rate that exceeds the intermittent pump discharge capacity, the fluid can be immediately discharged. Using this principle, the size of the pump in the hydraulic system can be reduced, and heat exchangers or electrical capacity applied to the system can be reduced, resulting in energy savings of more than 20%.



4. Volume Compensation

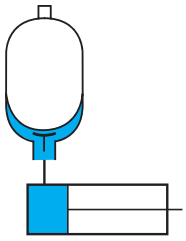
Temperature Compensation

In a closed hydraulic system, the volume of the fluid contracts as the system temperature decreases and expands as it increases. If this expansion of fluid volume is large enough, it can damage the system components. In such cases, using an accumulator can absorb the volume of fluid expansion and protect the system.



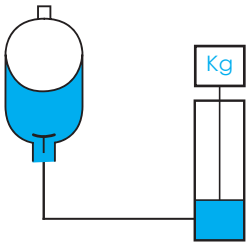
Leakage Compensation

An accumulator can also be used to replenish lost fluid due to leakage, low temperature, and other changes in fluid volume in a hydraulic system. This allows for the maintenance of a consistent system pressure.



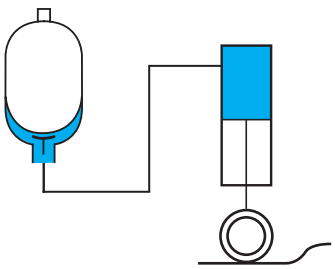
5. Counter Balance

As the weight increases, the accumulator absorbs the additional load, causing the gas volume to compress and balance out with the weight of the heavy item.



6. Shock Absorption

When a car runs over bumps or gaps, an accumulator absorbs the shocks that are passed from the wheel to the vehicle body.



Fluid and Material Compatibility

The compatibility of the fluid and the bladder material in an accumulator has a significant impact on the product's performance. The following information can serve as a reference for selecting the appropriate material based on the type of fluid.

Compatibility rating	Classification
1	Excellent
2	Good
3	Not good
4	Bad

Compound	Mineral oil	Unleaded gasoline	Glycol mixed water	Phosphate ester
N28	2	3	2	4
N33	1	3	2	4
N40	1	2	2	4
NH1	1	2	2	4
ECO	1	2	2	4
EP1	4	4	1	1
IIR	4	4	1	2
FKM	1	1	1	4

HBA Series

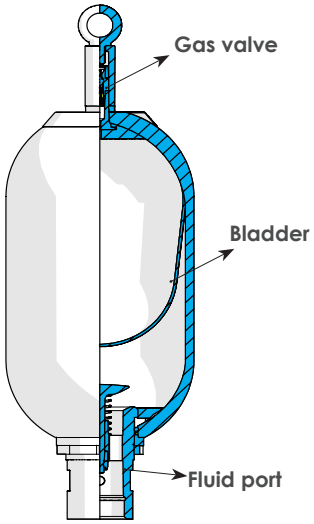
Bladder Accumulators

Features

Permanent Gauge

- Applied world-renowned bladder
- Applied patent registered HydroLync's gas valve
- 'Ready-to-use' design for permanent gauge
- Applied eyebolt cap with improved ease of handle

Quick Overview



HydroLync HBA - HydroLync bladder type accumulator - is designed for high-pressure hydraulic systems. Using nitrogen as the compression medium, HBA provides an efficient and stable solution for storing energy or absorbing pulsations in piping lines. The HBA series consists of a fluid section and a bladder separation element made of special rubber material.

The fluid section works by applying pressure to the bladder of the accumulator connected to the hydraulic circuit as the pressure in the hydraulic circuit increases. The nitrogen-charged bladder contracts, and when the pressure in the circuit decreases, the contracted nitrogen expands and discharges the stored energy through the fluid into the circuit. This principle helps to absorb the energy generated in the circuit and to protect the safety of the components, enabling stable operation of the circuit.

The HBA series comes with a fluid port and a gas valve as standard, and SAE fluid port and flow control options are also available.

HydroLync goes through a strict quality testing process to ensure stable quality and performance of the bladder, and provides products that are suitable for customer's operating conditions.

The table below shows the types of bladder compounds that are determined based on the customer's hydraulic system environment.

Compound	Name	Features
N28	Low ACN content nitrile	Low temperature
N33	Medium ACN content nitrile	Standard material
N40	High ACN content nitrile	Gasoline (excluding leaded) and high temperature
NH1	HNBR	Superior performance to NBR at extreme high and low temperatures.
ECO	Hydrin	Standard Hydrin
EP1	EPDM	Phosphate ester media
IIR	Butyl	Standard Butyl
FKM	VITON ®	Dupont de Nemours standard Fluorocarbon

The gas valve and permanent gauge developed through HydroLync's research effectively address the chronic problem of nitrogen gas leakage. In addition, their compatibility with the permanent gauge maximizes user convenience.

Ordering Code

Example: HB A ☐ 10 - 330 - TF - STS - B05 - GL

1 2 3 4 5 6 7, 8 9

1	Type Code
Code	**Types**
A	Bottom repairable type (Standard)
AS	Stainless type (Contact sales team)
TA	Top repairable type (Contact sales team)
HFA	High flow type (Contact sales team)

2	Material for bladder	
Code	**Material**	**Temp. Range**
	NBR - Nitrile (standard)	-20~90 °C
ECO	Hydrin	-32~115 °C
N28	Nitrile for low temp.	-28~80 °C
N40	Nitrile for high temp.	-5~105 °C
NH1	For extreme conditions	-45~130 °C
EP1	EPDM	-40~120 °C
IIR	Butyl	-15~120 °C
FKM	VITON	-10~140 °C

3	Volume
Code	**Volume**
1	1 Liter / 0.25 Gallon
2.5	2.5 Liter / 0.7 Gallon
4	4 Liter / 1 Gallon
6	6 Liter / 1.5 Gallon
10	10 Liter / 2.5 Gallon
20	20 Liter / 5 Gallon
24.5	24.5 Liter / 6.5 Gallon
32	32 Liter / 10 Gallon
42	42 Liter / 11 Gallon
50	50 Liter /14 Gallon
57	57 Liter / 15 Gallon
80	80 Liter / 21 Gallon
125	125 Liter / 33 Gallon
160	160 Liter /42 Gallon

4	Pressure
Code	**Pressure**
350	1L ~ 6L 350 bar (Standard)
330	10L ~ 57L 330 bar (Standard)
315	80L ~ 160L 315 bar (Standard)

5	Shell coating
Code	**Coating**
	Standard for mineral oil
TF	Teflon for water
Other	Contact sales team for special coating

6	Material for Shell and Fluid Port
Code	**Material**
	34CrMo4(Shell); Carbon Steel (Standard)
STS	Stainless Steel 304
Other	Contact sales team

*** The stainless steel shell is determined according to the customer's request.**

7	Bushing			
Volume	**Code**	**Line Connection**		**Port Connection**
1~6L	**B02**	PT	3/4"	G1 1/4"
	B03		1"	G1 1/4"
	B14		1/2"	G1 1/4"
	B08	PF(G)	3/4"	G1 1/4"
	B09		1"	G1 1/4"
10~57L	**B04**	PT	1/2"	G2"
	B05		3/4"	G2"
	B06		1"	G2"
	B07		1 1/4"	G2"
	B15		1 1/2"	G2"
	B10	PF(G)	1/2"	G2"
	B11		3/4"	G2"
	B12		1"	G2"
	B13		1 1/4"	G2"
	B19		1 1/2"	G2"

8	Flange			
Vol.	**Type**	**Code**	**Inner. Dia.**	**Port**
1~6L	110x110	**R4**	29	G1 1/4"
10~57L	110x110	**R10**	35	G2"
	3000psi	**S34**	34	G2"
	3000psi	**S35**	43	G2"
	6000psi	**S64**	34	G2"
	6000psi	**S65**	43	G2"

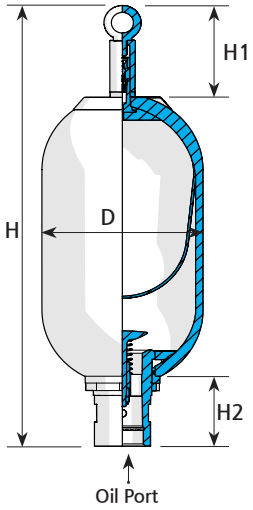
*** Material: Carbon steel(Standard), STS 316**

9	Certification
Code	
	No certificate (Standard)
	ASME, ABS, CE, KR GL NK, DNV, BV, LR
	Contact sales team

Notice:

The required pre-charge pressure for gas filling must be specified separately when placing an order.

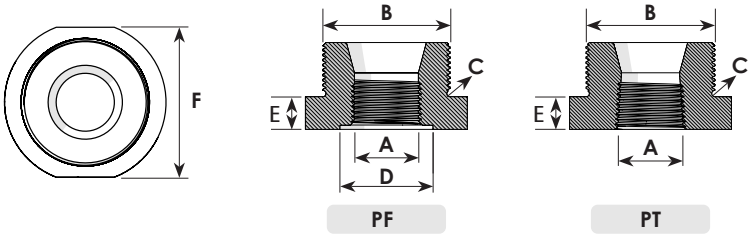
Dimensions

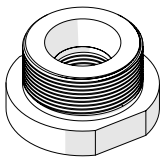


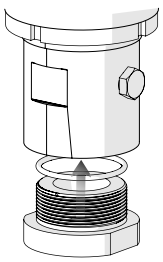
Volume (L)	Pressure (bar)	STEM	øD	Oil Port	H (±12.5)	H1 (±2)	H2 (±3)	Weight	Max. Flow rate (L/sec)
1	350	External: Ø7/8"-14UNF 1A Internal: Ø1/2"-20UNF 2B	114	G1 1/4	345.5	78	65.5	5	7.95
2.5	350		114	G1 1/4	554.5	78	65.5	10	7.95
4	350		168	G1 1/4	430.7	78	65.5	14	7.95
6	350		168	G1 1/4	563.0	78	65.5	20	7.95
10	330		219	G2	644.7	135	102.2	39	18
20	330		219	G2	947.7	135	102.2	58	18
24.5	330		219	G2	1,084.7	135	102.2	74	18
32	330		219	G2	1,472.7	135	102.2	92	18
42	330		219	G2	1,612.7	135	102.2	114	18
50	330		219	G2	1,987.7	135	102.2	124	18
57	330		219	G2	2,067.7	135	102.2	150	18

*** Please contact the sales manager or distributor for the 80, 125, and 160-liter models.**

Bushing



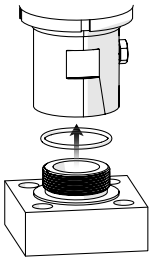


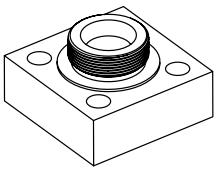


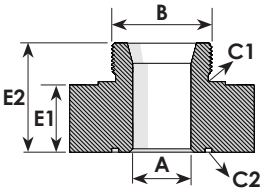
Volume	Code		A	B	C	D	E	F
1~6L	B02	PT	3/4"	G1 1/4"	Ø36.2x3.0	-	15	46
	B03		1"	G1 1/4"	Ø36.2x3.0	-	15	46
	B14		1/2"	G1 1/4"	Ø36.2x3.0	-	15	46
	B08	PF(G)	3/4"	G1 1/4"	Ø36.2x3.0	35	15	46
	B09		1"	G1 1/4"	Ø36.2x3.0	44	28	46
10~57L	B04	PT	1/2"	G2"	G55	-	15	70
	B05		3/4"	G2"	G55	-	15	70
	B06		1"	G2"	G55	-	15	70
	B07		1 1/4"	G2"	G55	-	15	70
	B15		1 1/2"	G2"	G55	-	15	70
	B10	PF(G)	1/2"	G2"	G55	28	15	70
	B11		3/4"	G2"	G55	34	15	70
	B12		1"	G2"	G55	42	15	70
	B13		1 1/4"	G2"	G55	47	15	70
	B19		1 1/2"	G2"	G55	51	15	70

*** A 1L fluid port only uses a 3/4" plug.**

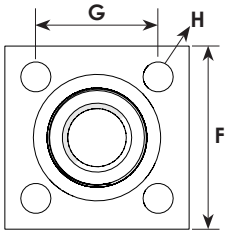
Flange







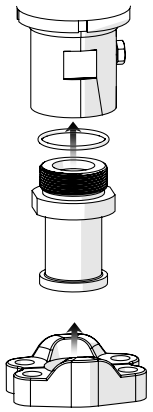
Standard

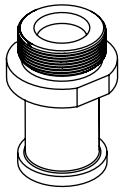


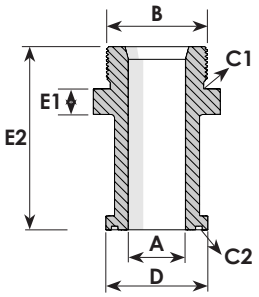
Standard

Volume	Type	Code	A	B	C1	C2	D	E1	E2	F	G	H
1~6L	110x110	R4	29	G1 1/4"	G55	G55	-	40	64	110	73	Ø18
10~57L	110x110	R10	35	G2"	G55	G55	-	40	64	110	73	Ø18

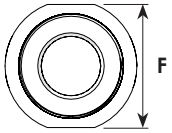
*** For other options, please inquire with the sales manager or distribution company.**







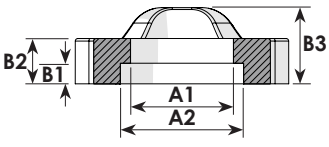
SAE

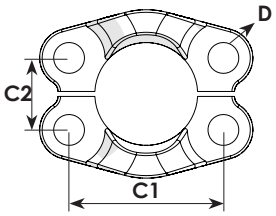


SAE

Volume	Type	Code	A	B	C1	C2	D	E1	E2	F	G	H
10~57L	3000psi	S34	34	G2"	G55	G55	60.3	15	104	70	-	-
	3000psi	S35	43	G2"	G55	P55	71.4	15	105.5	70	-	-
	6000psi	S64	34	G2"	G55	G55	63.5	15	108.5	70	-	-
	6000psi	S65	43	G2"	G55	P55	79.4	15	108.5	70	-	-

*** For other options, please inquire with the sales manager or distribution company.**





Type			A1	A2	B1	B2	B3	C1	C2	D
3000psi	40A	1 1/2"	50.8	61.1	7.5	16	25	69.85	35.72	Ø11.8
3000psi	50A	2"	62.75	72.25	9	16	26	77.77	42.88	Ø13.3
6000psi	40A	1 1/2"	51.6	64.3	12.1	30	43	79.38	36.52	Ø17
6000psi	50A	2"	67.6	80.2	12.1	37	52	96.82	44.46	Ø21

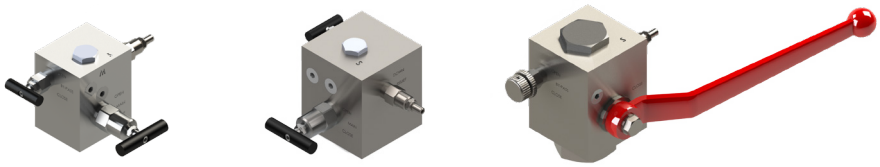
*** For other options, please inquire with the sales manager or distribution company.**

Part name


Protection Cap
Gas Valve
Stem Nut
Name Plate
Shell
Bladder
Anti-extrusion Ring
O-Ring
Backup Ring
Fluid Port
Spacer
Lock nut

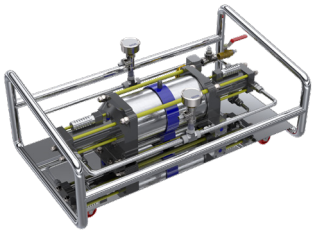
Accessories

Safety blocks



Installation parts

N_2 charging booster



N_2 charging kit

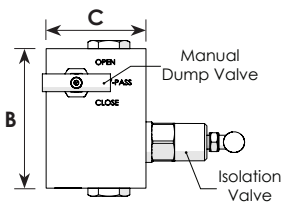
Bladder kit

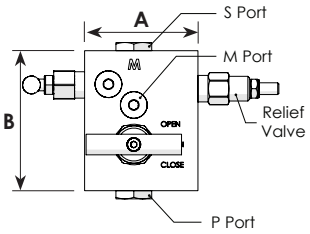
Features

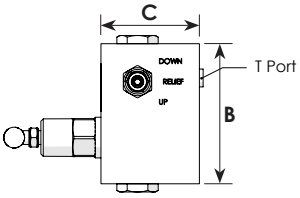
Gas Charging Kit

- **Accessories are essential products for maintenance.**
- **All accessories incorporate HydroLync's technology and know-how.**
- **Ease of use will be increased by using accessories.**

Safety and Shut-off block

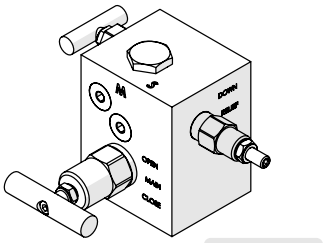






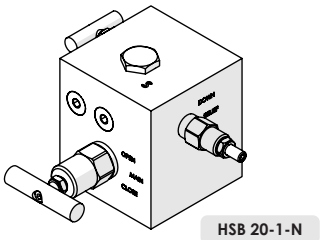
Model	S Port Accumulator	P Port Process	T Port Tank	M Port Gauge	A	B	C
HSB 12-1-N	G 1/2"	G 1/2"	G 1/4"	G 1/4"	76	94	66
HSB 20-1-N	G 3/4"	G 3/4"	G 1/4"	G 1/4"	89	100	89
HSB 32-1-N	G1 1/4"	G1 1/4"	G 1/4"	G 1/4"	88	115	88

Specification

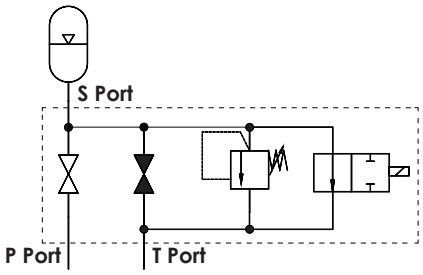


HSB 12-1-N

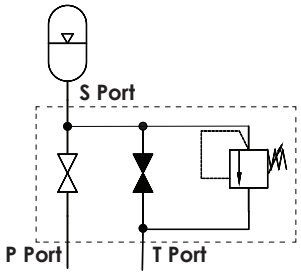
- **Max. Working pressure:** 350 bar
- **Material:** Carbon Steel
- **Seal:** NBR (standard), VITON (option)
- **Working range:** Solenoid -10 ~ 60 °C / Manual -10 ~ 80 °C
  DC 24V / AC 110, 220V
- **Connection:** G threads (BSP) to BS2779 1986
- **Others:** Pressure relief valve for protection
  Manual tank dump valve (standard)
  Solenoid tank dump valve (option)



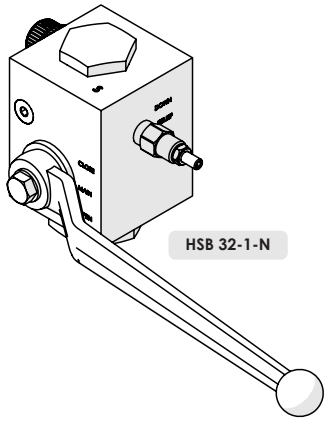
HSB 20-1-N



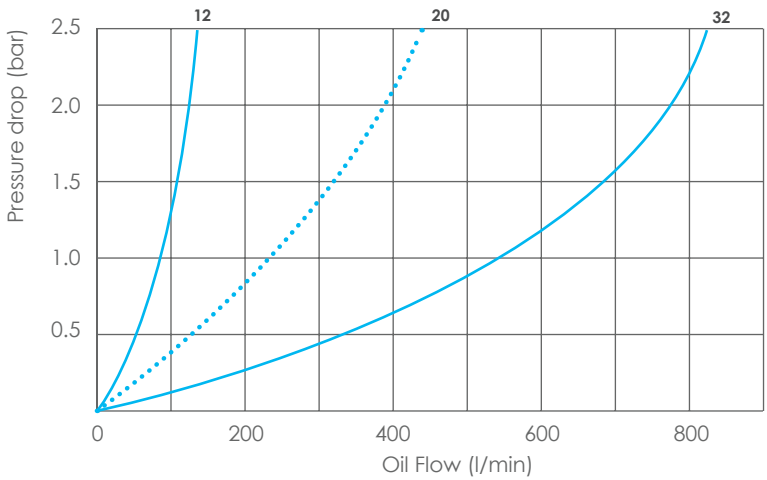
Manual and electric operation



Manual operation



HSB 32-1-N



Ordering code

Example : HSB - 20 - 1 - N - 24

1 2 3 4

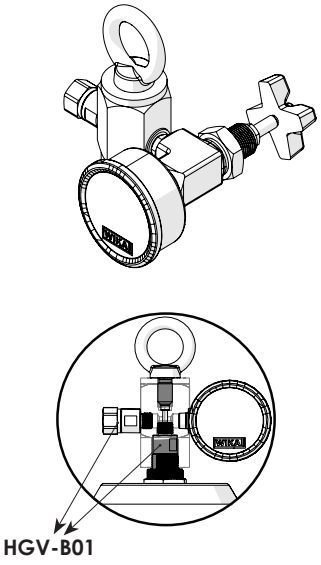
1	Size	
Code	**Size**	**P, S Port**
12	12mm	1/2"
20	20mm	3/4"
32	32mm	1 1/4"

2	Tank Valve
Code	**Type**
1	Manual
2	Manual & Electrical

3	Seal Material
Code	**Material**
N	Nitrile
V	FKM(VITON)

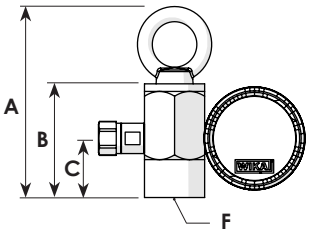
4	Solenoid Power
Code	**Power**
	None (Standard)
24	DC 24V
110	AC 110V
220	AC 220V

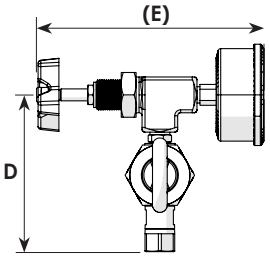
Permanent Gauge APG-L01



- **Material:** Carbon Steel - Zinc plated
- **Feature:** The "Ready-to-use" design of the APG with the HGV-B01 gas valve allows for immediate use without the inconvenience of nitrogen gas release, gas valve removal, or adapter use.

The patented product, Patent number: 10-210742.





Type	A	B	C	D	E	F
B	136	85	39	105	153	7/8" 14UNF 1A
T	151	100	57	105	153	7/8" 14UNF 1A
M	128	77	37	120	153	M50 x 1.5

Ordering code

Example: APG - 250 - D - B

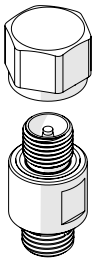
1 2 3

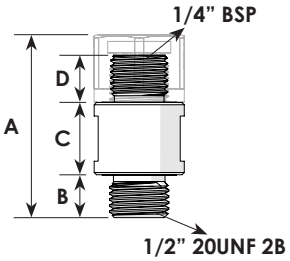
1	Max. Working pressure
Code	**Pressure**
250	250 bar (Standard)
25	25 bar
60	60 bar
100	100 bar
400	400 bar

2	Gauge type
Code	**Type**
D	D type (Standard)
A	A type

3	Connection
Code	**Thread**
1	7/8" 14UNF 1A
2	7/8" 14UNF 1A
3	M50 x 1.5

Gas valve HGV-B01





- **Material:** Stainless Steel / SUS303
- **Features:** 1) Applied leak-Free Sealing Technology
  2) Improved Compatibility

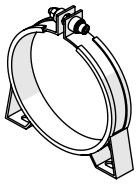
The patented product. Patent number: 10-210742.

A	B	C	D
40.5	9.5	16	10.5

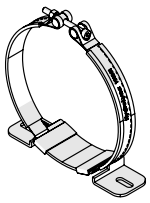
Ordering code

HGV-B01

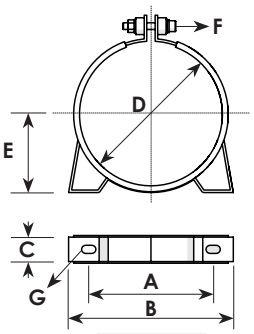
Clamp band ACB



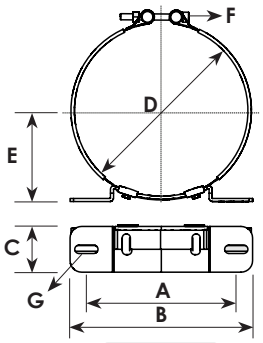
Type A



Type B



Type A



Type B

Volume	Type	A	B	C	D	E	F	G
1~2.5L	B	109	136	30	114	66	M8x55	10x17
4~6L	A	148	191	30	168	93	M8x55	10x17
10~57L	B	193	235	60	223	117	M8x80	11x30

- **Material:** Carbon Steel (Zinc plated) / Stainless Steel

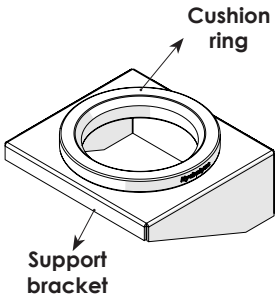
Ordering code

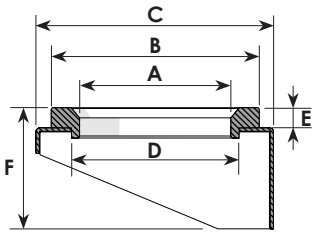
Example: ACB - [A] - [114]

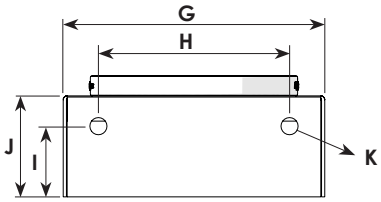
1 2

	1 Specification		
	Code	Inner size	Applicable model
2	B	114 mm	1~2.5L
	A	168 mm	4~6L
	B	223 mm	10~57L

Support Bracket ASB







Volume	A	B	C	D	E	F	G	H	I	J	K
1~2.5L	70	92	138	79	7	69	175	100	30	60	Ø13
4~6L	108	136	175	128	15	95	210	160	55	80	Ø17
10~57L	150	206	235	166	20	120	260	190	70	100	Ø17

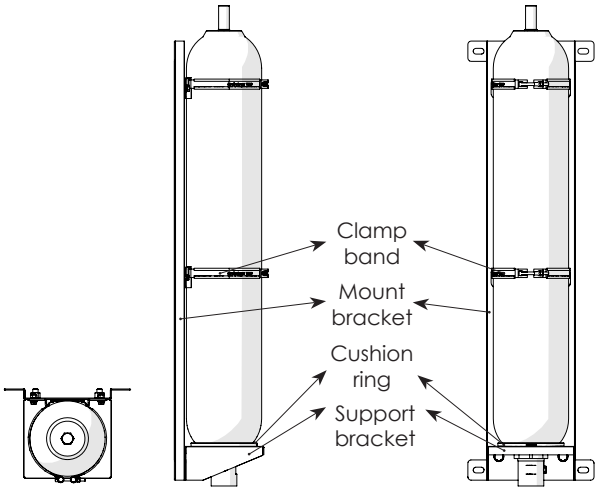
- **Material:** Carbon Steel (Zinc plated)

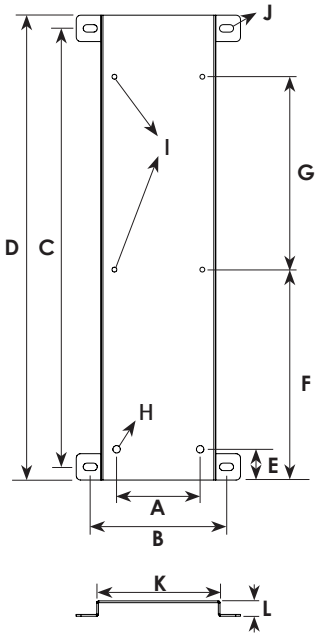
Ordering code

Example: ASB - [A]
1

1 Type	
Code	**Applicable models**
A	1~2.5L
B	4~6L
C	10~57L

Mount bracket AMB



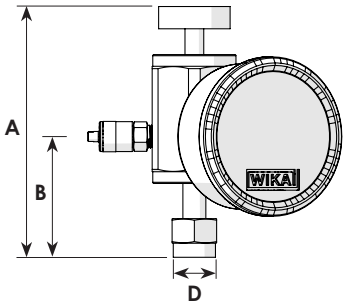


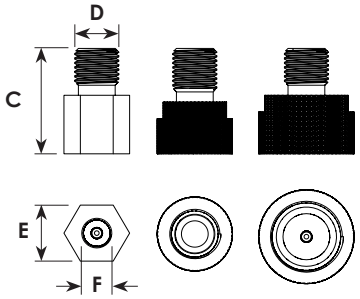
Volume	A	B	C	D	E	F	G	H	I	J	K	L
1L	110	260	190	250	30	170	-	Ø13	Ø10	Ø14	210	30
2.5	110	260	390	450	30	270	-	Ø13	Ø10	Ø14	210	30
4L	148	260	260	320	40	230	-	Ø17	Ø10	Ø14	210	50
6L	148	260	390	450	40	300	-	Ø17	Ø10	Ø14	210	50
10L	200	310	340	400	70	300	-	Ø17	Ø10	17x32	260	30
20/24.5L	200	310	640	700	70	550	-	Ø17	Ø10	17x32	260	30
32/42L	200	310	1090	1150	70	440	500	Ø17	Ø10	17x32	260	30
50/57L	200	310	1440	1500	70	740	560	Ø17	Ø10	17x32	260	30

- **Material:** Carbon Steel (Zinc plated)

N_2 charging kit HCB

- **Material:** Carbon Steel - Zinc plated
- **Features:** 1) Charging hose: Length 2.8m, Maximum operating pressure 210 bar
  2) It offers high compatibility and can support products from other brands





A	B	C	D	E	F
				18.5	5/16"-32UNF
107	51.5	31.5	G 1/4"	22.5	5/8"-18UNF
				28.5	7/8"-14UNF

Ordering code

Examples: HCB [250] - [D] - [5] - [1] - [1]

1 2 3 4 5

1	Pressure gauge
250	250 bar (Standard)
10	10 bar
25	25 bar
60	60 bar
100	100 bar
400	400 bar

2	Gauge type
D	D Type (Standard)
A	A Type

3	Gas valve adopters
	None (Standard)
1	5/16-32UNF
2	5/8-18UNF
3	7/8-14UNF
4	Full Set

4	Charging hose
1	M16 - W22-7/16" 20 UNF 210 bar, 2.8m
2	M16 - W22-7/16" 20 UNF 400 bar, 2.8m
3	3/8" - W22-7/16" 20 UNF 210 bar, 2.8m
4	For customization, please consult with our sales team.

5	Case
1	Hard case (Standard)
2	For customization, please consult with our sales team.

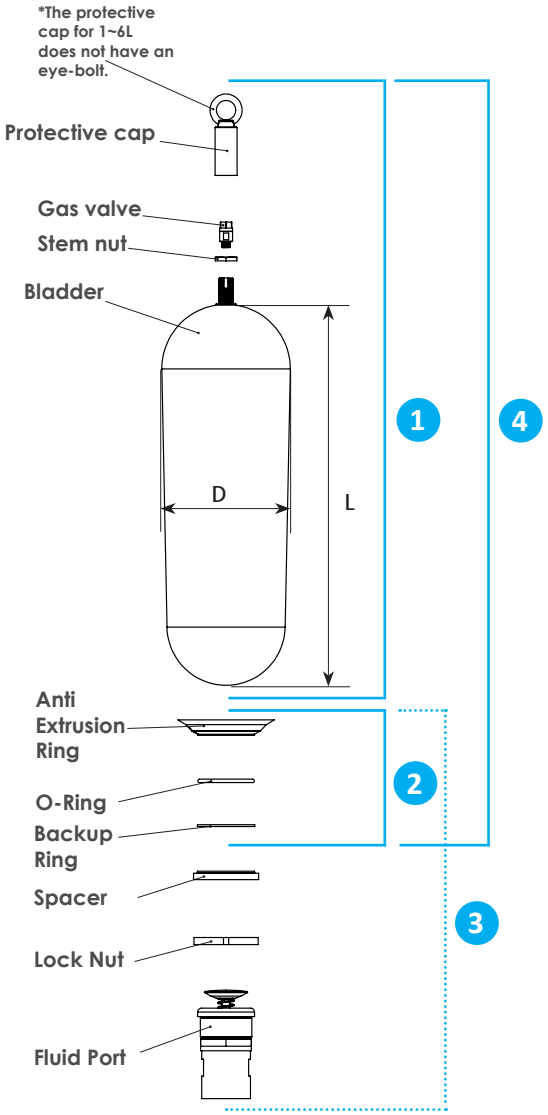
Spare Parts SP

HBA Spare Parts are categorized into four components as follows. Maintenance of HBA products must be conducted by qualified professionals. The parts are divided into 1) Bladder Assembly, 2) Sealing Kit, 3) Fluid Port Assembly, and 4) Bladder Kit. Additionally, individual part supplies are also possible according to the customer's specific requirements.

Ordering code

Example: SP - 4 - ECO - 10

1 2 3



1	Spare Parts
1	Bladder assembly
2	Seal kit
3	Fluid port assembly
4	Bladder kit

2	Bladder Material	
Code	**Material**	**Temp. Range**
	NBR - Nitrile (Standard)	-20~90 °C
ECO	Hydrin (Contact sales team)	-32~115 °C
N28	Nitrile for low temp. (Contact sales team)	-28~80 °C
N40	Nitrile for high temp. (Contact sales team)	-5~105 °C
NH1	For extreme conditions (Contact sales team)	-45~130 °C
EP1	EPDM (Contact sales team)	-40~120 °C
IIR	Butyl (Contact sales team)	-15~120 °C
FKM	VITON (Contact sales team)	-10~140 °C

3	Volume	Dimension (mm)	
Code	**Volume**	**L**	**D**
1	1 Liter / 0.25 Gallon	149	100
2.5	2.5 Liter / 0.7 Gallon	331	100
4	4 Liter / 1 Gallon	208	150
6	6 Liter / 1.5 Gallon	326	150
10	10 Liter / 2.5 Gallon	286	200
20	20 Liter / 5 Gallon	408	200
24.5	24.5 Liter / 6.5 Gallon	590	200
32	32 Liter / 10 Gallon	732	200
42	42 Liter / 11 Gallon	1,114	200
50	50 Liter /14 Gallon	1,611	200
57	57 Liter / 15 Gallon	1,733	200

O Ring • **Material:** NBR

Model	NOK AS568 Series
1~6L	AS568-227B CO 0354-B0 ø3.53 x 53.57 (inner diameter)
10~57L	AS568-338B CO 0440-B0 ø5.33 x 78.74 (inner diameter)

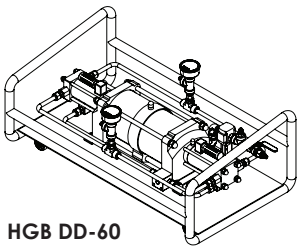
Backup Ring • **Material:** Plastic

Model	
1~6L	2 (Thickness) x 54.9 (inner diameter)
10~57L	2.8 (Thickness) x 80 (inner diameter)

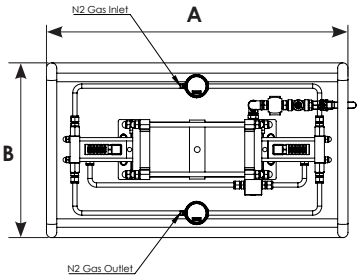
Gas Booster

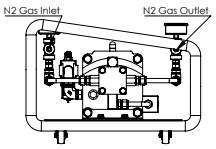
HGB

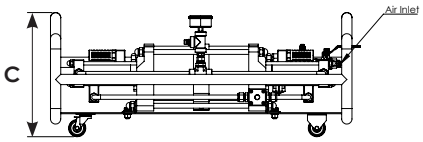
The HGB gas booster provides competitive pricing and excellent performance by focusing solely on its core function of nitrogen filling. It is a compressed air driven type, making it easy to use and highly mobile.



HGB DD-60

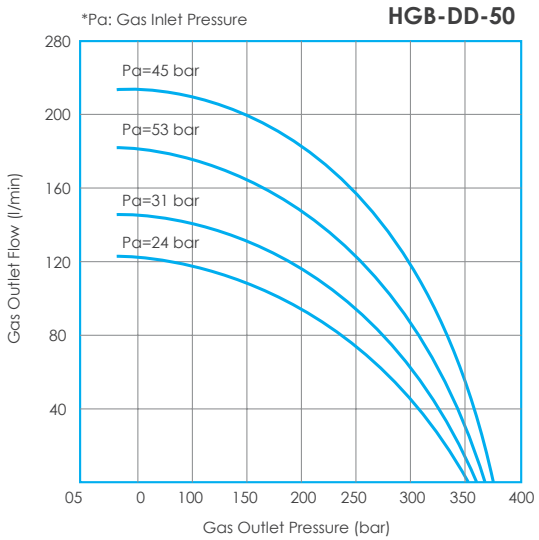


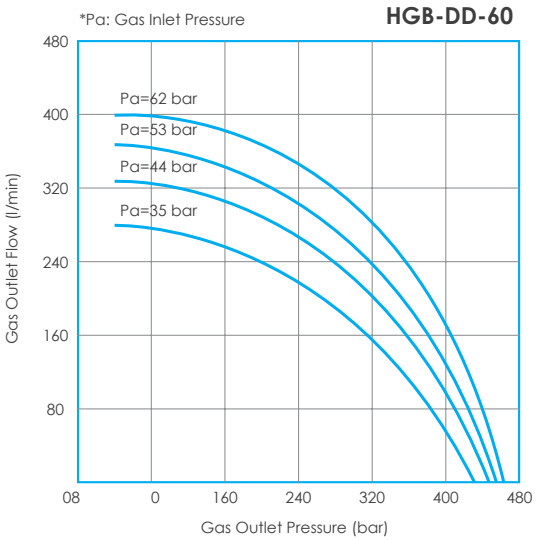




Model	Booster type	A	B	C	Compression Ratio	Max. Pressure	Suction Pressure	Discharge Amount	Weight
						bar	bar	nL/min	Kg
HGB DD-50	Double stage & Double driven	750	510	362	1:50	300	21	1,130	25
HGB DD-50-R		750	510	600	1:50	300	21	1,130	30
HGB DD-60		880	510	362	1:60	360	28	2,050	29
HGB DD-60-R		880	510	600	1:60	360	28	2,050	35

* R : Automatic filling method (equipped with regulators on the air inlet and N2 gas outlet sides)
** The filling discharge rate refers to the discharge rate under no load, which may vary depending on the operating pressure and environmental conditions.





Ordering code

Example: HGB DD - 60 - R
1 2

1	Pressure ratio
50	1:50
60	1:60

2	Type
	Manual (Standard)
R	Automatic

"Engineering Excellence! We are always prepared to promptly address our customers' needs."

Contact us

Republic of Korea
Headquarter

Tel +82 (31) 499 6682 Fax +82 (31) 499 6683 info@hydrolync.com
4, Emtibeui 25-ro 58beon-gil, Siheung-si, Gyeonggi-do, Republic of Korea zip: 15117
경기도 시흥시 엠티브이25로 58번길 4 우편번호: 15117

China

Mobile(Wechat): 138 6170 0580 info@hydrolync.com
240-3, Xidalu, Xinwu District, Wuxi, Jiangsu, China
中国江苏省无锡市新吴区锡达路240-3

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