RE 50171
Edition: 2024-03
Replaces: 2020-08

rexroth
A Bosch Company

Bladder-type accumulator

Type HAB


HAB10-330_d

- Component series 6X
- Nominal volume 1 ... 50 liters
- Maximum operating pressure 350 bar

CE

Features

- Hydro-pneumatic accumulators for use in stationary machinery and systems
- Use:
  - Energy storage in intermittent operation systems
  - Energy reserve for emergencies
  - Compensation of leakage losses
  - Impact and vibration absorption
  - Volume compensation in case of pressure and temperature change
- Approval:
  - according to PED 2014/68/EU
  - according to NR13

Contents

Ordering code

01	02		03		04		05	06	07		08	09	10	11	12		13	14
HAB		–		–	6X	/				–			1	1	1	–		

Device designation

01	Bladder-type accumulator		**HAB**

Nominal volume

02		**1**	**2.5**	**4**	**6**	**10**	**20**	**24**	**32**	**50**	

Maximum operating pressure

03	350 bar	●	●	●	●						**350**
	330 bar	o	o	o	o	●	●	●	●	●	**330**
	50 bar			o							**50**
	30 bar				o						**30**
	20 bar					o					**20**
	10 bar						o				**10**

Component series

04	60 ... 69 (unchanged installation and connection dimensions)		**6X**

Pre-filling pressure

05	0 bar	●	●	●	●	●	●	●	●	●	**0**
	> 0 bar	o	o	o	o	o	o	o	o	o	

Dimension of hydraulic fluid connection

06	G3/4" pipe thread	●									**G05**
	G1 1/4" pipe thread		●	●	●						**G07**
	G2" pipe thread					●	●	●	●	●	**G09**
	2" SAE flange (high-pressure series)					o	o	o	o	o	**S19**

Type of mounting of hydraulic fluid connection

07	Pipe thread with radial sealing surface	●	●	●	●	●	●	●	●	●	**G**
	Flange mounting with axial sealing surface					o	o	o	o	o	**F**

Dimension of gas port

08	Gas valve ISO 4570 8V1	●	●	●	●	●	●	●	●	●	**2**
	Gas valve 5/8"-18 UNF	o	o	o	o	o	o	o	o	o	**3**

Accumulator bladder material

09	NBR	●	●	●	●	●	●	●	●	●	**N**
	TNBR	o	o	o	o	o	o	o	o	o	**T**
	ECO			o		o			o		**E**
	FKM				o	o	o		o	o	**F**

Material of reservoir

10	Steel		**1**

Surface of tank inside

11	Without coating		**1**

Material of hydraulic fluid connection

12	Steel		**1**

●	Preferred program
o	Delivery range
	On request

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Ordering code

01	02		03		04		05	06	07		08	09	10	11	12		13	14
HAB		–		–	**6X**	/				–			**1**	**1**	**1**	–		

Nominal volume

02		**1**	**2.5**	**4**	**6**	**10**	**20**	**24**	**32**	**50**	

Approval

13	PED 2014/68/EU	EU		●	●	●	●	●	●	●	●	**CE**
	PED 2014/68/EU + National Requirement 13	EU + Brazil			o	o	o	o	o	o	o	**CE+NO13**

Additional details

14	Further details in the plain text, e.g. special versions	*

●	Preferred program
o	Delivery range
	On request

HAB-6X preferred types

Type	Material no.
HAB1-350-6X/0G05G-2N111-BA	R901435300
HAB2.5-350-6X/0G07G-2N111-CE	R901435301
HAB4-350-6X/0G07G-2N111-CE	R901435302
HAB6-350-6X/0G07G-2N111-CE	R901435303
HAB10-330-6X/0G09G-2N111-CE	R901435304
HAB20-330-6X/0G09G-2N111-CE	R901435305
HAB24-330-6X/0G09G-2N111-CE	R901435306
HAB32-330-6X/0G09G-2N111-CE	R901435307
HAB50-330-6X/0G09G-2N111-CE	R901435308

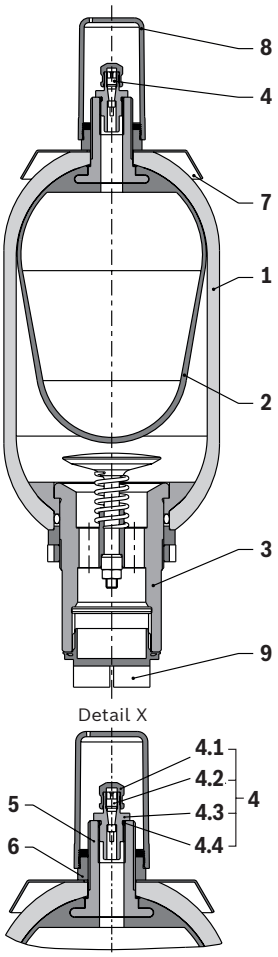
Function, section

General information

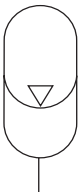
Hydro-pneumatic accumulators are hydrostatic devices capable of storing a certain amount of energy in order to release it to the hydraulic system when needed.
Fluids only possess low compressibility; however, gases are highly compressible. The working principle of all gas-loaded hydro-pneumatic accumulators is based on this difference.
The difference between bladder and diaphragm type accumulators lies in the type of separator element.
Hydro-pneumatic accumulators essentially consist of a fluid section and a gas section with a gas-tight separator element. The fluid section has a connection to the hydraulic circuit.
If a higher liquid pressure is applied to a specific quantity of pressurized gas, the gas volume decreases as the liquid pressure increases, with the gas pressure increasing with the liquid pressure.
If the pressure of the fluid decreases, the fluid is pushed back into the hydraulic system by the expanding gas until the pressure is balanced again.

Bladder-type accumulator

Bladder-type accumulators consist of a seamless cylindrical pressure container (1) made of high-strength steel.
An elastic bladder (2) mounted inside the container separates the accumulator into a gas side and a fluid side.
Via the gas valve (4), the bladder is filled with nitrogen up to the intended gas filling pressure $\mathbf{p}_0$.
The oil valve (3) located inside the hydraulic fluid connection of the bladder-type accumulator closes if the pressure on the gas side is higher than on the fluid side. This prevents the bladder from entering the oil channel and being destroyed.
When the minimum operating pressure is reached, a small fluid volume (approx. 10% of the nominal volume of the hydro-pneumatic accumulator) should remain between the bladder and the oil valve in order to prevent the bladder from hitting the valve during each expansion process.
The gas valve (4) consists of a sealing cap (4.1), gas valve insert (4.2), gas prefill valve body (4.3) and O-ring (4.4). These parts can be replaced individually.
The name plate (7) includes the technical data and features of the hydro-pneumatic accumulator.



Symbol



1 Tank
2 Bladder
3 Oil valve
4 Gas valve
5 Gas valve support
6 Nut
7 Name plate
8 Cover cap
9 Oil valve protective cap

Technical data
(Please consult us for applications outside these values!)

General											
Nominal volume	V_{nom}	l	1	2.5	4	6	10	20	24	32	50
Weight		kg	7	10	16.5	20	32	53	61	85	123
Design			Bladder-type accumulator								
Installation position			Bottom hydraulic fluid connection, others on request								
Type of mounting			With clamping collars and console								
Hydraulic fluid connection			Screw-in thread or flange connection								
Surface			Primed, blue color (RAL 5010)								

Hydraulic										
Nominal volume	V_{nom}	l	1	2.5	4	6	10	20	24	32	50
Effective gas volume	V_{eff}	l	1.0	2.4	3.7	5.9	9.2	18.1	24.5	33.4	48.7
Maximum admissible flow	q_{max}	l/min	240	450			900				
Max. operating pressure	p_{max}	bar	330								
Durable within pressure fluctuation range	Δpdyn = p2 - p1	bar	200				125				
Max. operating pressure	p_{max}	bar	350								
Durable within pressure fluctuation range	Δpdyn = p2 - p1	bar	200								
Max. operating pressure	p_{max}	bar			50	30	20	10			
Durable within pressure fluctuation range	Δpdyn = p2 - p1	bar			36	21	14	7			
Operating pressures and useful volume			See calculations on pages 6 ... 9								

Pneumatic			
Charging gas			Nitrogen, at least cleanliness class 4.0, N_2 = 99.99 vol.%
Gas filling pressure (at 20 °C room temperature)	p_0	bar	$p_0 \leqq 0.8 \cdot p_{max}$

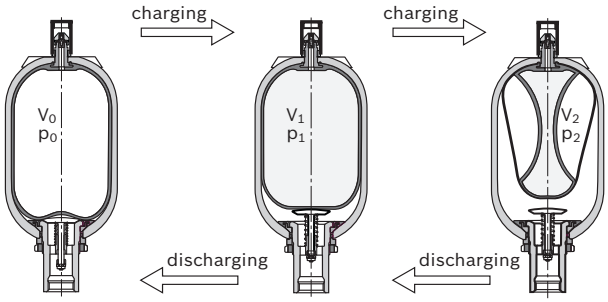
Hydraulic fluid		Classification	Accumulator bladder material	Standards	Data sheet
Mineral oils		HLP, HLPD, HVLP, HVLPD	NBR, ECO, TNBR	DIN 51524	90220
Special fluids	▶ Environmentally compatible	HETG	FKM	ISO 15380	90221
		HEES			
		HEPG			
	▶ Water-free, flame-resistant	HFDU	FKM	ISO 12922	90222
		HFDR			
	▶ Containing water, flame-resistant	HFC	NBR, TNBR	ISO 12922	90223

Further information on the hydraulic fluids:		
Temperature range (others on request)	°C	NBR: −15 ... +80 (acrylonitrile-butadiene rubber, 33% acrylonitrile) FKM: −20 ... +80 (fluorocarbon rubber) TNBR: −30 ... +80 (acrylonitrile-butadiene rubber, 28% acrylonitrile) ECO: −32 ... +80 (epichlorohydrin rubber)
Maximum admissible degree of contamination of the hydraulic fluid, cleanliness class according to ISO 4406 (c)		Class 20/18/15

Application, mode of operation

Applications
Various applications exist for hydro-pneumatic accumulators:
- Energy storage in order to save pump drive power in intermittent operation systems.
- Energy reserve for emergencies, e.g. upon failure of the hydraulic pump.
- Compensation of leakage losses.
- Impact and vibration absorption in case of periodic vibrations.
- Volume compensation in case of pressure and temperature changes.

Mode of operation
Fluids are almost incompressible and therefore cannot store pressure energy. Hydro-pneumatic accumulators use the compressibility of a gas for fluid storage.
Use only nitrogen with a minimum cleanliness class of 4.0!
N_2 = 99.99 vol.%



Calculation

Pressures
For calculating an accumulator, the following pressures play a respective role:

$\mathbf{p}_0$	Gas filling pressure at room temperature and drained fluid chamber
$\mathbf{p}_0$ (**t**)	Gas filling pressure at operating temperature
$\mathbf{p}_0$ ($\mathbf{t}_{max}$)	Gas filling pressure at maximum operating temperature
$\mathbf{p}_1$	Minimum operating over pressure
$\mathbf{p}_2$	Maximum operating over pressure

In order to achieve the best possible utilization of the accumulator volume as well as a long life cycle, compliance with the following values is recommended:
$\mathbf{p}_0$ ($\mathbf{t}_{max}$) ~ 0.9 × $\mathbf{p}_1$ (1)

The highest hydraulic pressure should not exceed four times the filling pressure, as otherwise too much stress will be put on the elasticity of the bladder, resulting in too great a compression change with strong gas heating:
$\mathbf{p}_2 \leqq 4 \times \mathbf{p}_0$ (2)

The smaller the difference between $\mathbf{p}_1$ and $\mathbf{p}_2$, the longer the life cycle of the accumulator bladder. However, the operating ratio of the maximum accumulator capacity will also be reduced accordingly.

Calculation

Oil volume

The pressures $\mathbf{p_0}$ ... $\mathbf{p_2}$ result in the gas volumes $\mathbf{V_0}$ ...$\mathbf{V_2}$. Here $\mathbf{V_0}$ is also the nominal volume of the accumulator. The available oil volume $\Delta\mathbf{V}$ corresponds to the difference between the gas volumes $\mathbf{V_1}$ and $\mathbf{V_2}$:

$\Delta\mathbf{V} \leqq \mathbf{V_1} - \mathbf{V_2}$ (3)

The gas volume variable within a pressure differential is determined by the following equations:

- For an isothermal state change of gases, i.e. when the change of the gas cushion happens so slowly as to leave sufficient time for a complete heat exchange between the nitrogen and its environment, therefore keeping the temperature constant, the following applies:
  $p_0 \times V_0 = p_1 \times V_1 = p_2 \times V_2$ (4.1)

- For an adiabatic state change, i.e. a quick change of the gas cushion accompanied by a temperature change of the nitrogen, the following applies:
  $p_0 \times V_0^{\chi} = p_1 \times V_1^{\chi} = p_2 \times V_2^{\chi}$ (4.2)

χ = ratio of the specific heat of the gas (adiabatic exponent), for nitrogen = 1.4

In practice, state changes rather follow adiabatic laws. Often charging is isothermal and discharging is adiabatic. Considering the equations (1) and (2), $\Delta\mathbf{V}$ is between 50% and 70% of the nominal accumulator volume. The following applies as a guiding principle:

$\mathbf{V_0} = 1.5 \ldots 3 \times \Delta\mathbf{V}$ (5)

Calculation diagram

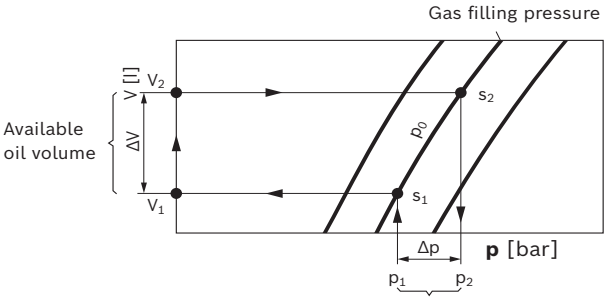
For graphic determination, the formulas (4.1) and (4.2) are converted into diagrams on pages 8 and 9. Depending on the task, the available oil volume, the accumulator size or the pressures can be determined.

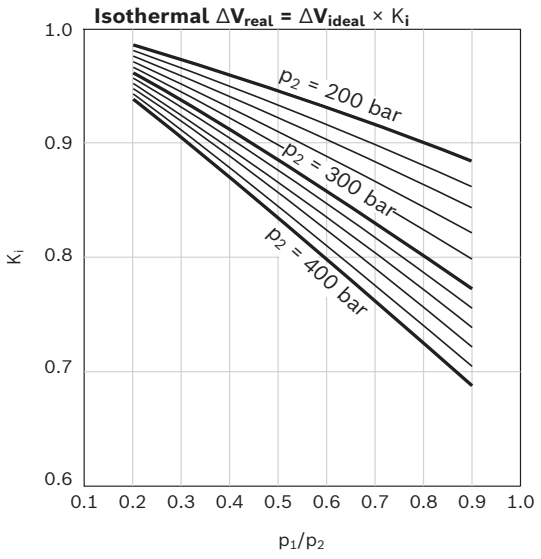
Correction factor K_i and K_a

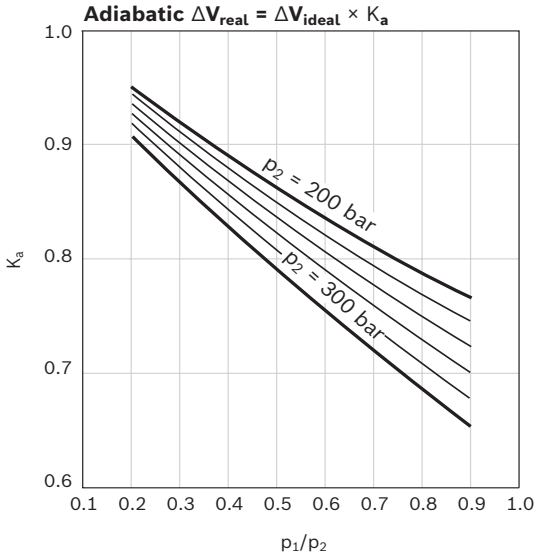
The equations (4.1) and (4.2) apply to ideal gases only. The behavior of real gases, however, will show considerable variation at operating pressures above 200 bar which will have to be accounted for by correction factors. These can be taken from the following diagrams. The correction factors by which the ideal sampling volume $\Delta\mathbf{V}$ is to be multiplied lie within a range of 0.6 ... 1.

Application of calculation diagrams

(see page 8 ... 9)







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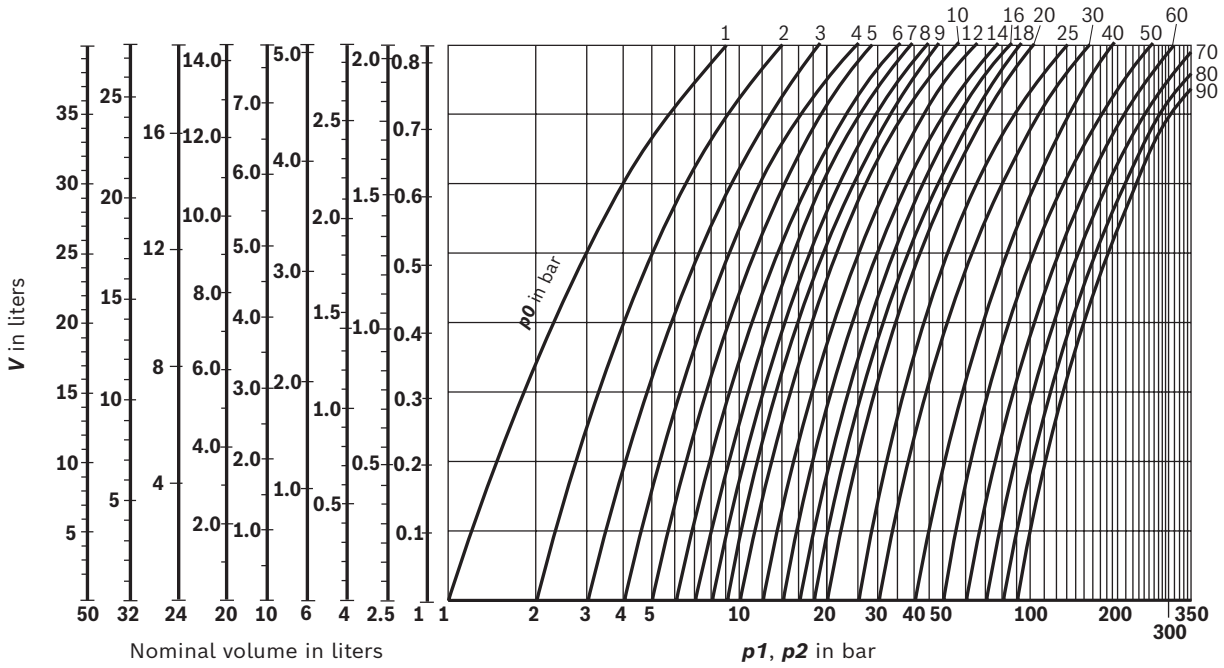
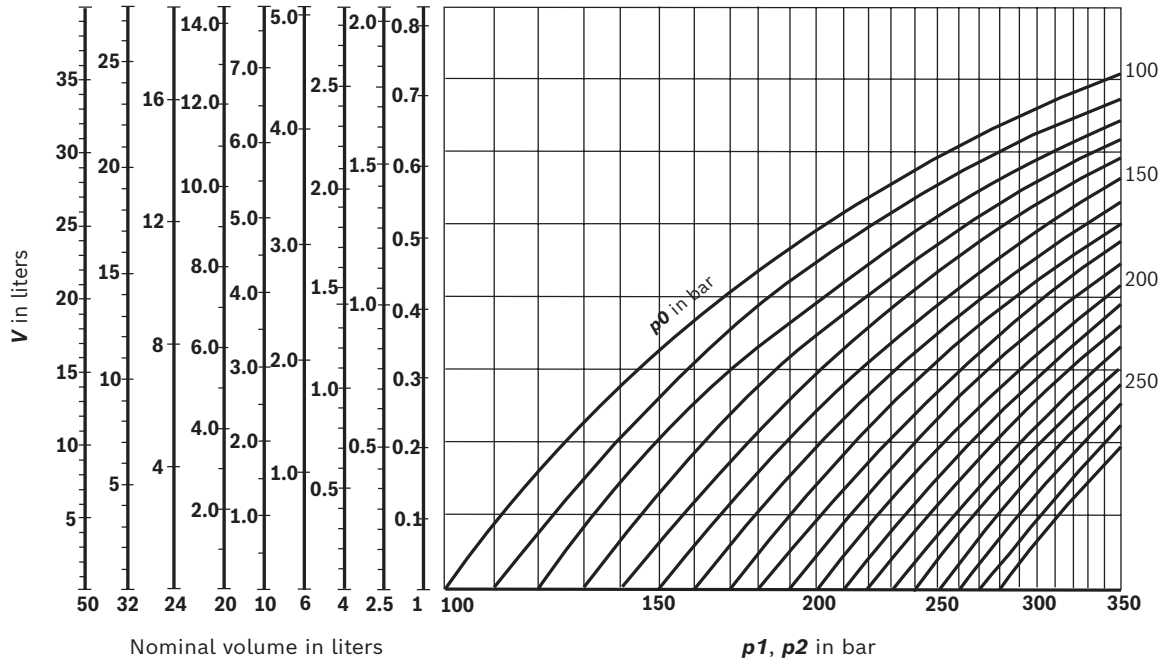
Characteristic curves

Isothermal state changes p_0 = 1 ... 90 bar



Isothermal state changes p_0 = 100 ... 280 bar



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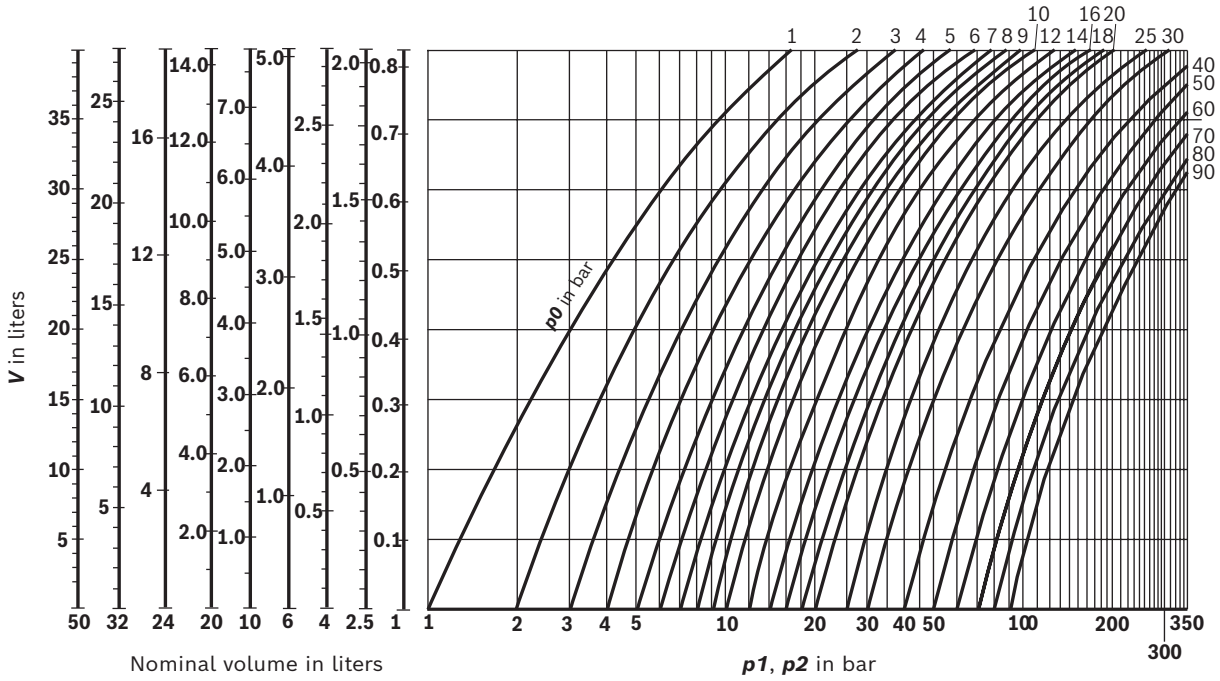
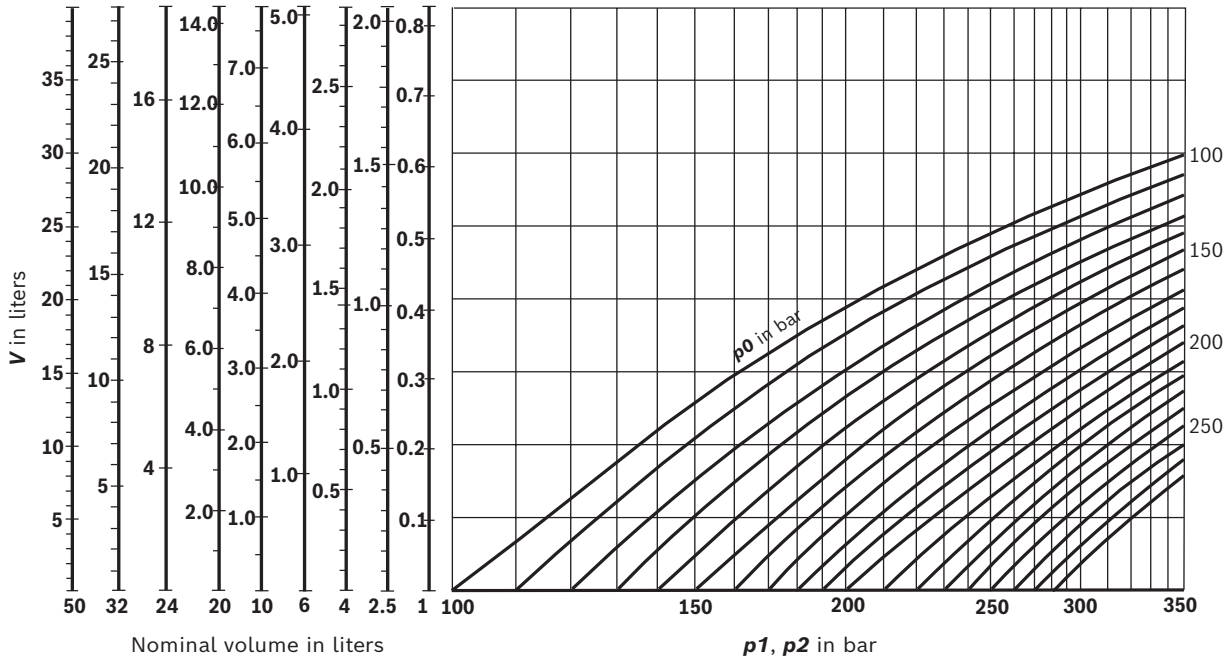
Characteristic curves

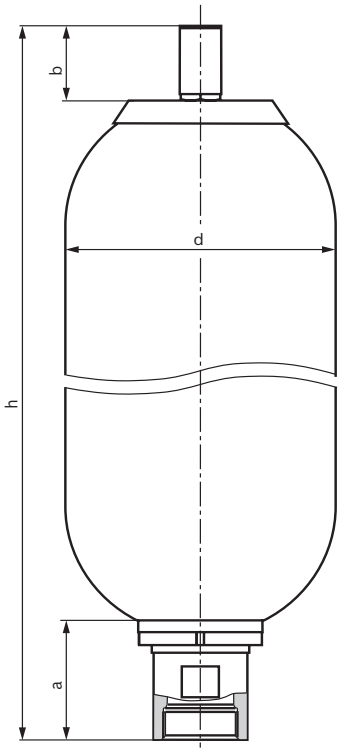
Adiabatic state changes p_0 = 1 ... 90 bar



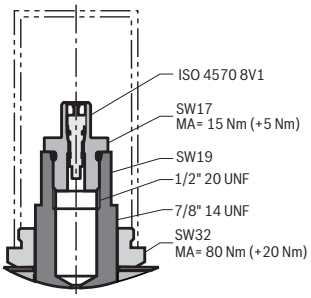
Adiabatic state changes p_0 = 100 ... 280 bar



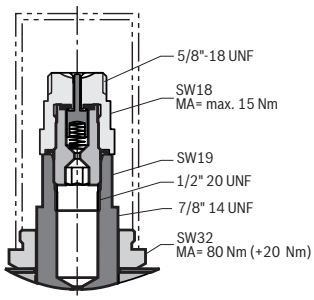
Dimensions
(dimensions in mm)



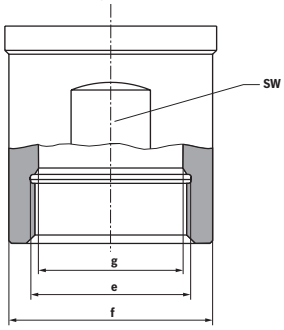
Gas port form "2"
Gas valve ISO 4570 8V1



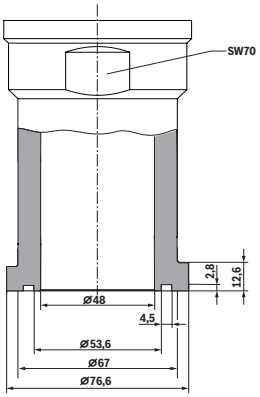
Gas port form "3"
Gas valve 5/8"-18 UNF



Type of mounting "G"
Pipe thread with radial sealing surface



Type of mounting "F"
Flange mounting with axial sealing surface



Type of mounting G

Nominal volume [l]	Port size	h	d	a	b	e	f	g	i	j	SW
1	G05	337.5±17	Ø114±1.14	65±3	71.5±3	G 3/4"	Ø52.4	Ø23H7	-	-	50
2.5	G07	541.5±21	Ø114±1.14	65±3	71.5±3	G 1 1/4"	Ø52.4	Ø36H8	-	-	50
4	G07	421.5±21	Ø168±1.68	65±3	71.5±3	G 1 1/4"	Ø52.4	Ø36H8	-	-	50
6	G07	552.5±17	Ø168±1.68	65±3	71.5±3	G 1 1/4"	Ø52.4	Ø36H8	-	-	50
10	G09	575±16	Ø219±2.19	101.5±3	71.5±3	G2"	Ø76	Ø54H7	-	-	70
20	G09	885±16	Ø219±2.19	101.5±3	71.5±3	G2"	Ø76	Ø54H7	-	-	70
24	G09	1020±16	Ø219±2.19	101.5±3	71.5±3	G2"	Ø76	Ø54H7	-	-	70
32	G09	1405±16	Ø219±2.19	101.5±3	71.5±3	G2"	Ø76	Ø54H7	-	-	70
50	G09	1920±16	Ø219±2.19	101.5±3	71.5±3	G2"	Ø76	Ø54H7	-	-	70

Type of mounting F

Nominal volume [l]	Port size	h	d	a	b	O-ring
10	S19	609.5±16	Ø219±2.19	136±3	71.5±3	56.74 x 3.53
20	S19	919.5±16	Ø219±2.19	136±3	71.5±3	56.74 x 3.53
24	S19	1054.5±16	Ø219±2.19	136±3	71.5±3	56.74 x 3.53
32	S19	1439.5±16	Ø219±2.19	136±3	71.5±3	56.74 x 3.53
50	S19	1954.5±16	Ø219±2.19	136±3	71.5±3	56.74 x 3.53

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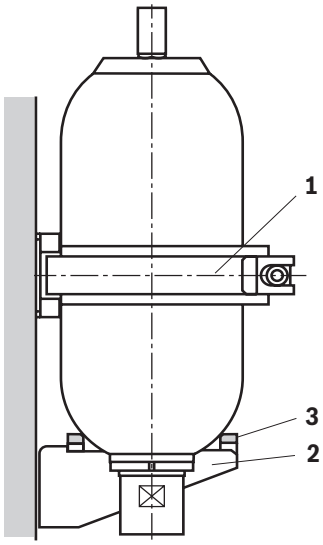
Accessories
(dimensions in mm)

HAB mounting elements

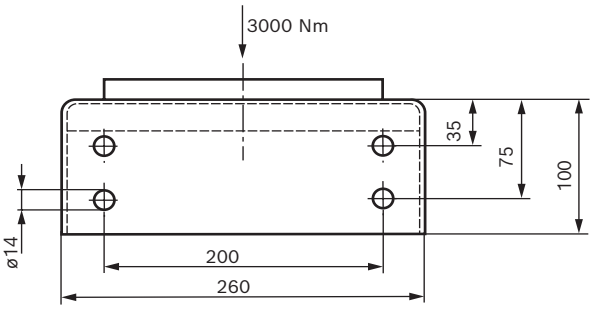


Denomination	Material number	Nominal volume in liters				
		1 ... 2.5	4 ... 6	10	20 ... 32	50
Mounting clamp 110-120 MM	1531316021	2				
Mounting clamp 160-170 MM	1531316022		1			
Mounting clamp 214-224 MM	1531316023			1	2	
Mounting clamp 216-222 MM	R901446479					2
Console	1531334008			1	1	1
Rubber support ring	1530221042			1	1	1

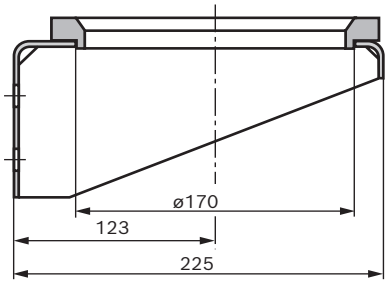
1 Clamp
2 Console
3 Rubber support ring

Console and rubber support ring

Console (material number: 1531334008)

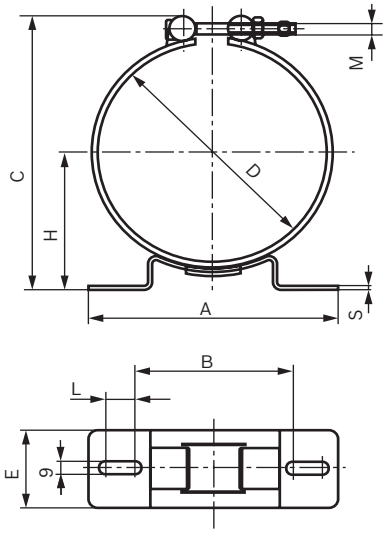


Rubber support ring (material number: 1530221042)

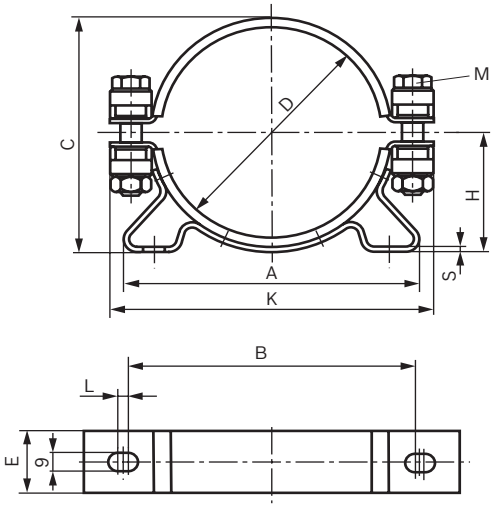


Accessories: Mounting clamps (dimensions in mm)

Type F1



Type F2



Denomination		Dimensions										Material number
		A	B	C	D	E	H	K	L	M	S	
Mounting clamp 110-120 MM	F1	135	96	150	110-120	50	64-69	–	6	M8	3	1531316021
Mounting clamp 160-170 MM	F1	237	147	200	160-170	50	90-95	–	35	M8	4	1531316022
Mounting clamp 214-224 MM	F1	237	147	254	214-224	50	120-125	–	35	M8	4	1531316023
Mounting clamp 216-222 MM	F2	254	212	233	216-222	30	121.5-124.5	278	4	M12	3	R901446479

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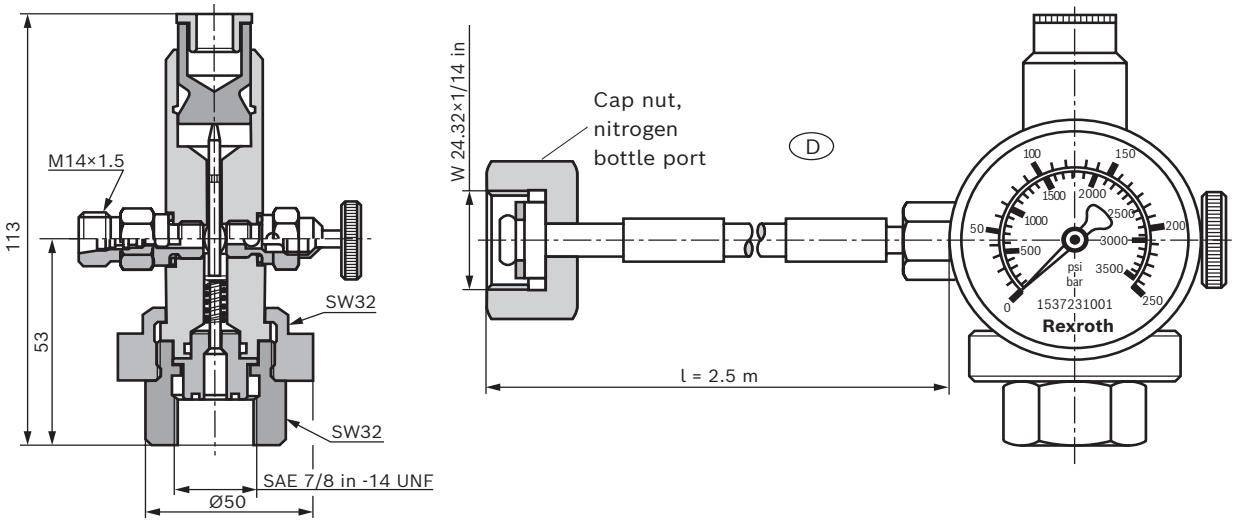
Accessories: Charging and test device (dimensions in mm)

Complete charging and test device	**Material number**
For bladder-type accumulators (HAB)	0538103011
For bladder-type and diaphragm accumulators (HAB/HAD)	0538103014
Spare parts – charging and test device	**Material number**
Suitcase (without contents)	R901079781
Charging and test valve HAB	0538C03005
Charging and test valve HAD	0538C03006
Pressure gauge 0 to 250 bar	1537231001
Hose l = 2.5 m with nitrogen bottle port (D)	1530A12005
Additional accessories	**Material number**
Pressure gauge 0 ... 25 bar	R900033955
Pressure gauge 0 ... 60 bar	1537231002
Pressure gauge 0 ... 400 bar	1537231005
Hose l = 5 m with nitrogen bottle port (D)	1530712006

Dimensions – charging and test valve HAB (material number 0538C03005)

Valve body with check valve, drain valve, pressure gauge connection and gas hose connection



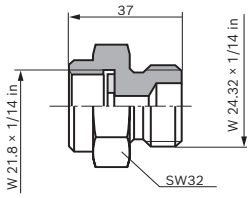
☞ **Notes:**
An installation space of 200 mm must be provided above the gas valve of the accumulator for use of the charging and test device.

The maximum operating pressure of 300 bar must not be exceeded.

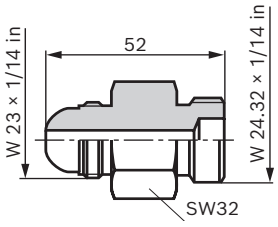
For respective adapters, see page 14 and 15.

Accessories: adapter for nitrogen bottle to cap nut
(dimensions in mm)

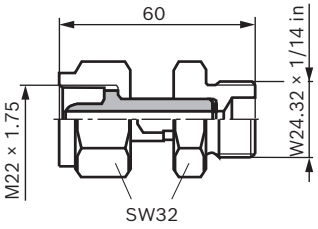
Material number: 1533391010



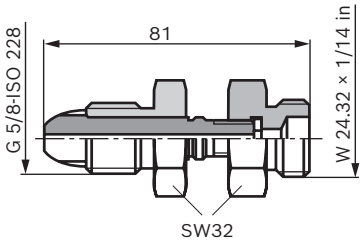
Material number: 1533391013



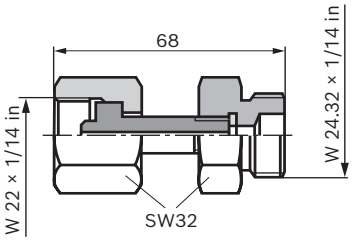
Material number: R900034782



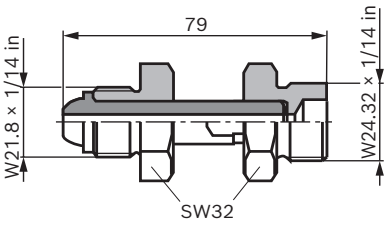
Material number: 1533391011



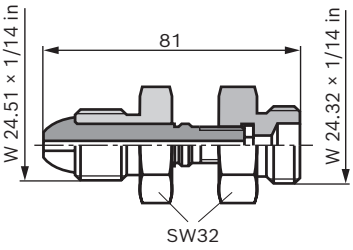
Material number: R900216133



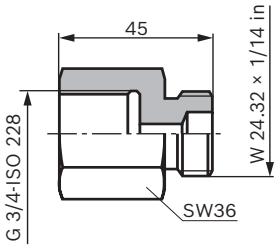
Material number: R900708208



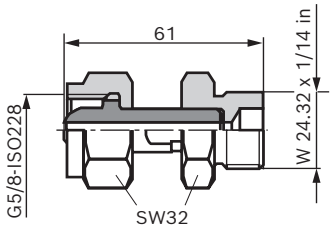
Material number: 1533A91012



Material number: 1533391015



Material number: R901070776

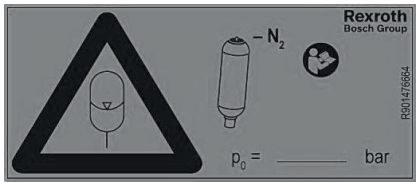


Accessories: adapter for nitrogen bottle to cap nut (dimensions in mm)

Country [1]	Material number								
	1533391010	1533391011	1533A91012	1533391013	R900216133	1533391015	R900034782	R900708208	R901070776
Brazil		x							
Bulgaria		X							
China									X
France	X								
Greece		X							
United Kingdom		X							
India		X							
Indonesia		X							
Italy								X	
Japan					X				
Canada			X						
North Korea				X					
South Korea				X					
Malaysia		X							
Mexico	X								
Pakistan		X							
Romania	X								
Russia						X			
Spain		X							
Saudi Arabia	X								
Singapore		X							
Taiwan							X		
Turkey		X							
USA			X						
Gabon	X								

[1] Other countries upon request

Accessories: Warning sign [1]

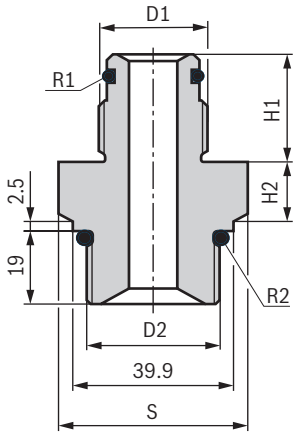


Warning sign	Material number
▶ For HAB1-HAB2.5 bladder-type accumulators Size: 100 mm x 45 mm Color: yellow	R901476664
▶ For HAB4-HAB50 bladder-type accumulators Size: 200 mm x 90 mm Color: yellow	R901440344

[1] The warning sign can be ordered in lot sizes of 100 or more.

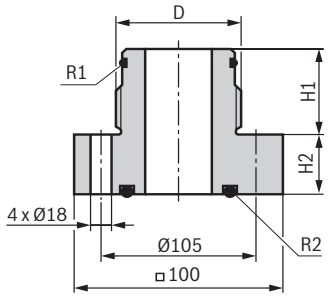
Accessories: accumulator adapter (dimensions in mm)

Adapter to metric male thread



Nominal volume [l]	According to ISO 228		Dimensions [mm]			Order number complete with seal rings R1 and R2
	D1	D2	H1	H2	S	
1	G3/4	M33 × 2	28	15.5	SW41	R900862699
2.5 ... 6	G1 1/4	M33 × 2	37	16.5	SW46	R900862700
10 ... 50	G2	M33 × 2	43	20.5	SW65	R900862701

Adapter for flange connection

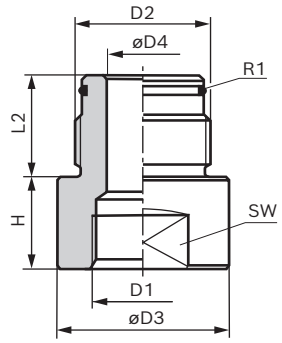


Nominal volume [l]	According to ISO 228	Dimensions [mm]		Order number complete with seal rings R1 and R2
	D	H1	H2	
10 ... 50	G2	44	29	R901518464

Accessories: accumulator adapter (dimensions in mm)

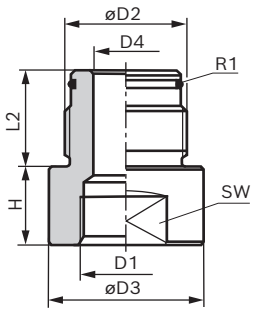
Adapter for metric internal thread

(HAB..–1X to HAB..–4X and –6X)



Nominal volume [l]	According to ISO 228		According to ISO 228		Dimensions [mm]					Material number complete with seal ring R1
	D2	M_A [Nm]	D1	M_A [Nm]	H	L2	ØD3	ØD4	SW	
1	G3/4	180^{+18}	M30 × 1.5	180^{+18}	32	28	46	12	41	R901252863
2.5 ... 6	G1 1/4	450^{+45}	M40 × 1.5	400^{+40}	43	37	60	20	55	R901252864
10 ... 50	G2	500^{+50}	M50 × 1.5	450^{+45}	41	44	78	32	70	R901252865

Adapter for reducing pipe connection



Nominal volume [l]	According to ISO 228		According to ISO 228		Dimensions [mm]					Material number complete with seal ring R1
	D2	M_A [Nm]	D1	M_A [Nm]	H	L2	ØD3	ØD4	SW	
1	G3/4	180^{+18}	G3/8	70^{+7}	8	28	38	12	32	R901252880
2.5 ... 6	G1 1/4	450^{+45}	G1/2	115^{+12}	8	37	60	24	55	R901252884
	G1 1/4	450^{+45}	G3/4	180^{+18}	8	37	60	24	55	R901252881
10 ... 50	G2	500^{+50}	G1/2	115^{+12}	20	44	75	30	65	R901252885
	G2	500^{+50}	G3/4	180^{+18}	20	44	75	30	65	R901252882
	G2	500^{+50}	G1	310^{+31}	20	44	75	30	65	1533C45045
	G2	500^{+50}	G1 1/2	450^{+45}	40	44	75	32	65	R901252883

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Accessories: pressure monitoring

1 Adapter with G1/4 port for pressure gauge, bursting disk or sensor

R901564420	Adapter HAB-6X gas-side BG

2 Pressure gauge for G1/4 port

1537231002	Pressure gauge 0 ... 60 bar
1537231001	Pressure gauge 0 ... 250 bar
1537231005	Pressure gauge 0 ... 400 bar

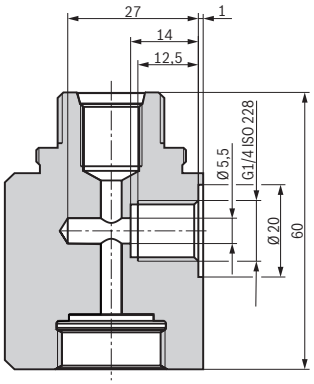
3 Bursting discs for G1/4 port

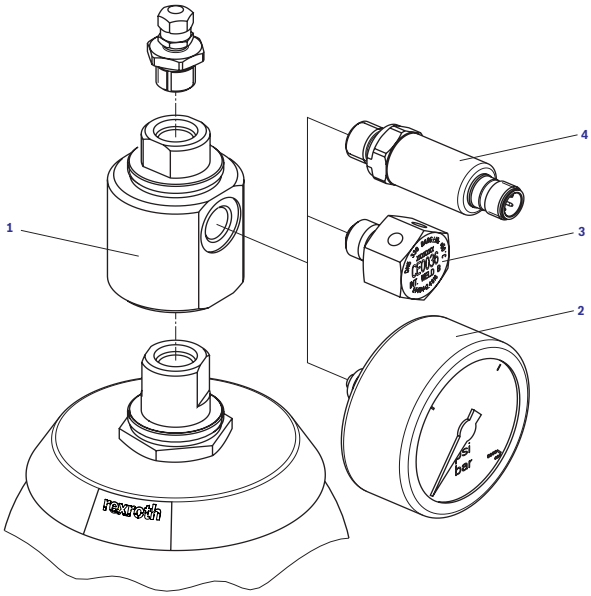
R901476100	Bursting disk G1/4 Bursting pressure 300 bar Operating pressure 240 bar
R901480366	Bursting disk G1/4 Bursting pressure 330 bar Operating pressure 265 bar

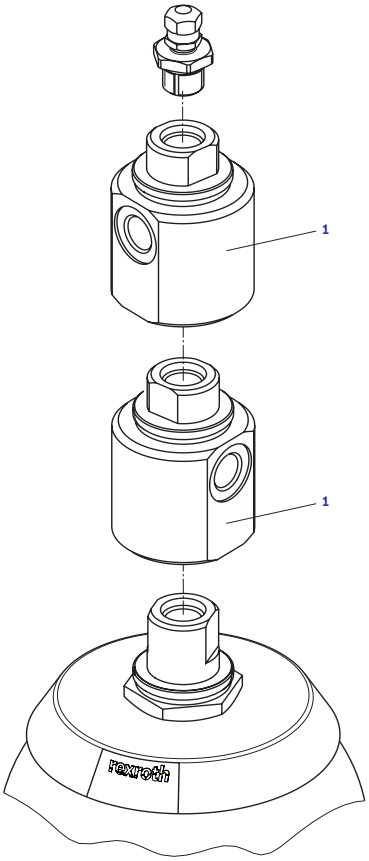
4 Sensor HM20 for G1/4 port

according to data sheet 30272

Adapter section:





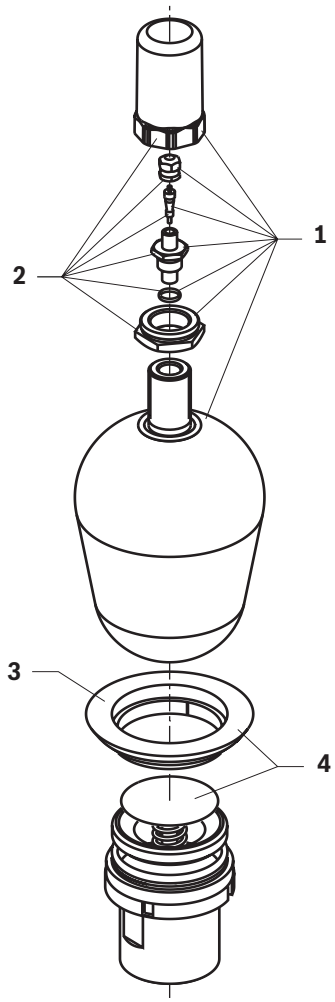


Option:

Notice!
Adapter is stackable

Bosch Rexroth AG, RE 50171, edition: 2024-03

Spare parts



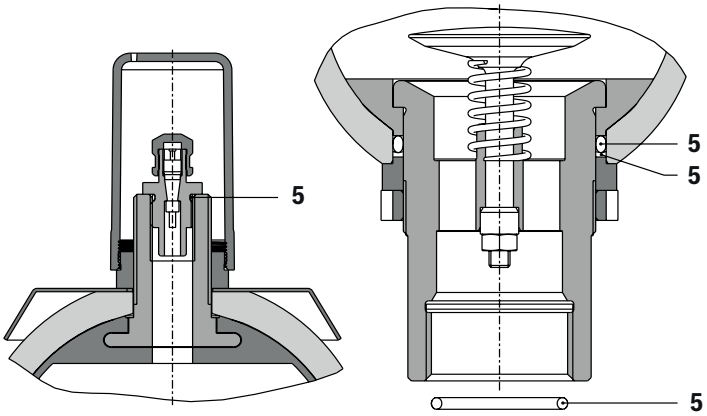
V_{nom} [l]	Pos. 1 Spare bladder with gas valve form "2" and seal kit [1] Material number			
	NBR	**TNBR**	**for NBR and ECO**	**for FKM**
1	R901437540	R901545030	–	–
2.5	R901437541	R901545031		
4	R901437542	R901545032	R901438234	
6	R901437543	R901545033	–	
10	R901437544	R901545034	R901438235	R901438240
20	R901437545	R901545035	–	R901438241
24	R901437546	R901545036		–
32	R901437547	R901545037	R901438236	R901438242
50	R901437548	R901545038	–	R901438243

V_{nom} [l]	Pos. 2 Gas valve Material number		Pos. 3 Holding ring Material number	
	Form "2" ISO 4570 8V1	**Form "3"** 5/8"-18 UNF	**for NBR and ECO**	**for FKM**
1	R901438300	R901531340	R901438280	–
2.5				
4				
6				
10			R901438281	R901438291
20				
24				
32				
50				

V_{nom} [l]	Pos. 4 Oil valve kit for NBR and ECO Material number	
	Type of mounting "G"	**Type of mounting "F"**
1	–	–
2.5		
4	R901438270	–
6		
10	R901438271	R901586130
20		
24		
32		
50		

[1] Spare bladder with gas valve form "3" and seal kit on request.

Spare parts
(dimensions in mm)



V_{nom} [l]	Pos. 5 Seal kit Material number	
	for NBR and ECO	**for FKM**
1	R901441920	–
2.5	R901441921	
4		
6		
10	R901441922	R901441923
20		
24		
32		
50		

Important notes

Intended use
Rexroth type HAB..-6X bladder-type accumulators are intended for the set-up of hydraulic drive systems in stationary machine and plant construction.
In mobile applications or applications in which acceleration forces are applied to the bladder-type accumulator during intended use, its use is permitted only following release by the competent Rexroth product manager. Please contact technical sales for this.
Rexroth bladder-type accumulators type HAB..-6X are not intended for private use.

Project planning information
Bladder-type accumulators must be safely and permanently fastened to the machine or system using mounting elements. The fastening is intended to keep the hydraulic fluid connection free of tension. In particular, no tension forces or static or dynamic inertia forces should be applied to the hydraulic fluid connection.
Thermal expansion of the supporting structure and vibrations originating from the environment should be considered in the selection of suitable mounting points.

Safety instructions for hydraulic accumulators
For bladder-type accumulators type HAB..-6X, operating instructions 50171-B must be observed. Compliance is the sole responsibility of the machine end-user.
General information for hydro-pneumatic accumulators in hydraulic system can be found in ISO 4413.

Keep all documents included in the delivery in a safe place; they will be required by the expert in recurring tests.

Legal provisions
Hydro-pneumatic accumulators are pressure vessels and subject to the application of national provisions and/or regulations valid at the place of installation.
In Germany, the Ordinance on Industrial Safety and Health (BetrSichV) applies.
Special regulations are to be observed in shipbuilding, aircraft construction, mining, etc.

Authorized persons
According to Ordinance on Industrial Safety and Health (BetrSichV), only authorized persons may carry out tests. Authorized persons are such persons having obtained the required expert knowledge through professional training, experience and recent professional activity.

Safety equipment

☞ **Notice:**
Hydro-pneumatic accumulators must be secured against operation outside of the admissible limits according to Pressure Equipment Directive 2014/68/EU.

In order not to exceed the maximum operating pressure, Bosch Rexroth recommends the use of an accumulator shut-off block type ABZSS according to data sheet 50131.

Further information

Operating instructions valid for HAB1 ... HAB50

Language	Operating instructions
German	RD50171-B
English	RE50171-B
French	RF50171-B
Spanish	RS50171-B
Italian	RI50171-B
Chinese	RC50171-B
Russian	R-RS50171-B
Norwegian	R-NO50171-B
Polish	R-PL50171-B
Czech	R-CZ50171-B
Romanian	R-RU50171-B
Hungarian	RU50171-B
Portuguese	RP50171-B
Swedish	R-SK50171-B
Finnish	R-SF50171-B
Turkish	RT50171-B

CE Declarations of Conformity
In German, English, French

Type	Document number
HAB1-...-60/...BA	–
HAB2.5-...-60/...CE	RA56313069
HAB4-...-60/...CE HAB6-...-60/...CE	RA56313070
HAB10-...-60/...CE HAB20-...-60/...CE HAB24-...-60/...CE HAB32-...-60/...CE HAB50-...-60/...CE	RA56313071

- Accumulator shut-off block: Data sheet 50131
- Information on available spare parts:

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