

# Bosch Rexroth HAB32-330-6X/0G09G-2N111-CE bladder accumulator

Manufacturer: Bosch Rexroth  
Manufacturer part number / published order designation: R901435307  
Published model: HAB32-330-6X/0G09G-2N111-CE

## About this compilation

Prepared by Hydmaster from selected manufacturer documentation. Original technical pages follow without cropped drawings, rewritten data or altered units. This cover and index are Hydmaster editorial material, not a manufacturer-issued exact-execution datasheet.

Coverage: selected pages relevant to the identified size and configuration. Other options or neighbouring models retained on an original page apply only where explicitly identified.

## Execution notes and conditions

Actual delivered gas precharge and usable hydraulic oil volume are not inferred from nominal capacity or the factory ordering-code prefix.

No installation-specific PED, country certification, mobile-use release or complete accumulator-station rating assigned.

Mounting collars, support console, charging equipment and safety/shut-off block are separately selected; inclusion is not inferred.

Dimension tolerances, vessel weight and gas-valve internal cap threads remain in the original drawing rather than being promoted as exact delivery geometry.

## Source-page index

Source page numbers below are physical pages of each complete original PDF. The original printed page labels and technical content remain unchanged. Compiled page numbers count this cover/index.

### Source A: Bosch Rexroth Hab Re50171 2024 Salhydro Original

| Original pages | Compiled pages | Relevant content                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1-10           | 2-11           | Manufacturer HAB series 6X overview and document edition; Actual 32 L / 330 bar / NBR configuration, fluid connection G09G and gas port form 2; Manufacturer preferred material-number table and approval-code context; no installation certification inferred; Bladder, oil valve and gas-valve operating section and function; Exact volume column: effective gas volume, permissible flow and pressure fluctuation; NBR fluid/temperature restrictions; Gas-charge and pressure-ratio definitions, nitrogen purity and operation; Useful oil volume versus nominal volume; isothermal/adiabatic equations and real-gas correction conditions; Required isothermal sizing diagrams and their gas-filling-pressure domains; Required adiabatic sizing diagrams and their gas-filling-pressure domains; Matching 32 L threaded G mounting row and gas valve form 2 drawing; flange F and other sizes contextual |
| 21             | 12             | Stationary-use scope, secure mounting, mobile-application restrictions and separately selected safety equipment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

## Bladder-type accumulator

### Type HAB



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



#### 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

|                                |           |
|--------------------------------|-----------|
| Features                       | 1         |
| Ordering code                  | 2, 3      |
| Function, section              | 4         |
| Technical data                 | 5         |
| Application, mode of operation | 6         |
| Calculation                    | 6, 7      |
| Characteristic curves          | 8, 9      |
| Dimensions                     | 10        |
| Accessories                    | 11 ... 18 |
| Spare parts                    | 19, 20    |
| Important notes                | 21        |
| Safety equipment               | 21        |
| Further information            | 22        |

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 | ○ | ○ | ○ | ○ | ● | ● | ● | ● | ● |  | 330 |
|    | 50 bar  |   |   | ○ |   |   |   |   |   |   |  | 50  |
|    | 30 bar  |   |   |   | ○ |   |   |   |   |   |  | 30  |
|    | 20 bar  |   |   |   |   | ○ |   |   |   |   |  | 20  |
|    | 10 bar  |   |   |   |   |   | ○ |   |   |   |  | 10  |

Component series

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

Pre-filling pressure

|    |         |   |   |   |   |   |   |   |   |   |   |
|----|---------|---|---|---|---|---|---|---|---|---|---|
| 05 | 0 bar   | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0 |
|    | > 0 bar | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |   |

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) |   |   |   |   | ○ | ○ | ○ | ○ | ○ | S19 |

Type of mounting of hydraulic fluid connection

|    |                                            |   |   |   |   |   |   |   |   |   |   |
|----|--------------------------------------------|---|---|---|---|---|---|---|---|---|---|
| 07 | Pipe thread with radial sealing surface    | ● | ● | ● | ● | ● | ● | ● | ● | ● | G |
|    | Flange mounting with axial sealing surface |   |   |   |   | ○ | ○ | ○ | ○ | ○ | F |

Dimension of gas port

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

Accumulator bladder material

|    |      |   |   |   |   |   |   |   |   |   |   |
|----|------|---|---|---|---|---|---|---|---|---|---|
| 09 | NBR  | ● | ● | ● | ● | ● | ● | ● | ● | ● | N |
|    | TNBR | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | T |
|    | ECO  |   |   | ○ |   | ○ |   |   | ○ |   | E |
|    | FKM  |   |   |   | ○ | ○ | ○ |   | ○ | ○ | 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 |
| ○ | Delivery range    |
|   | On request        |

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 +<br>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.

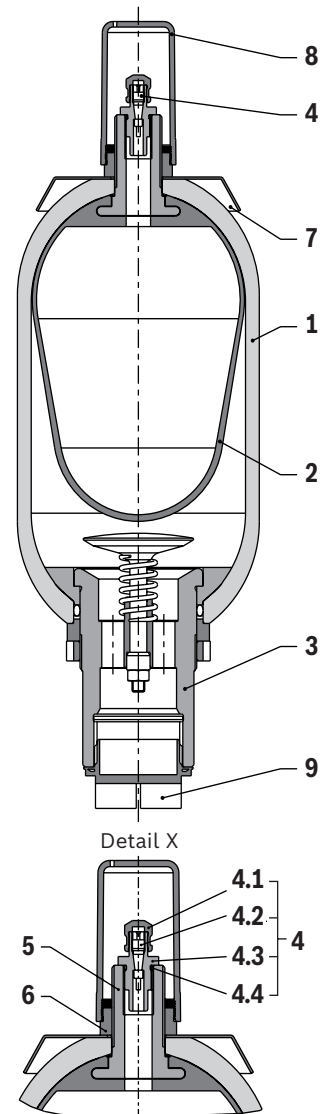
An elastic bladder (2) mounted inside the container separates the accumulator into a gas side and a fluid side. Via the gas valve (4), the bladder is filled with nitrogen up to the intended gas filling pressure  $p_0$ .

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                            | <b>V<sub>nom</sub></b>            | l     | 1                                 | 2.5 | 4   | 6   | 10  | 20   | 24   | 32   | 50   |
| Effective gas volume                      | <b>V<sub>eff</sub></b>            | l     | 1.0                               | 2.4 | 3.7 | 5.9 | 9.2 | 18.1 | 24.5 | 33.4 | 48.7 |
| Maximum admissible flow                   | <b>q<sub>max</sub></b>            | l/min | 240                               | 450 |     |     | 900 |      |      |      |      |
| Max. operating pressure                   | <b>p<sub>max</sub></b>            | bar   | 330                               |     |     |     |     |      |      |      |      |
| Durable within pressure fluctuation range | <b>Δp<sub>dyn</sub> = p2 - p1</b> | bar   | 200                               |     |     |     | 125 |      |      |      |      |
| Max. operating pressure                   | <b>p<sub>max</sub></b>            | bar   | 350                               |     |     |     |     |      |      |      |      |
| Durable within pressure fluctuation range | <b>Δp<sub>dyn</sub> = p2 - p1</b> | bar   | 200                               |     |     |     |     |      |      |      |      |
| Max. operating pressure                   | <b>p<sub>max</sub></b>            | bar   |                                   | 50  | 30  | 20  | 10  |      |      |      |      |
| Durable within pressure fluctuation range | <b>Δp<sub>dyn</sub> = p2 - p1</b> | 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 | $p_0 \leq 0.8 \cdot p_{max}$ |  |  |  |  |  |  |  |  |

| Hydraulic fluid |                                     | Classification         | Accumulator bladder material | Standards | Data sheet |
|-----------------|-------------------------------------|------------------------|------------------------------|-----------|------------|
| Mineral oils    |                                     | HLP, HLPD, HVLP, HVLDP | 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)<br>FKM: -20 ... +80 (fluorocarbon rubber)<br>TNBR: -30 ... +80 (acrylonitrile-butadiene rubber, 28% acrylonitrile)<br>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

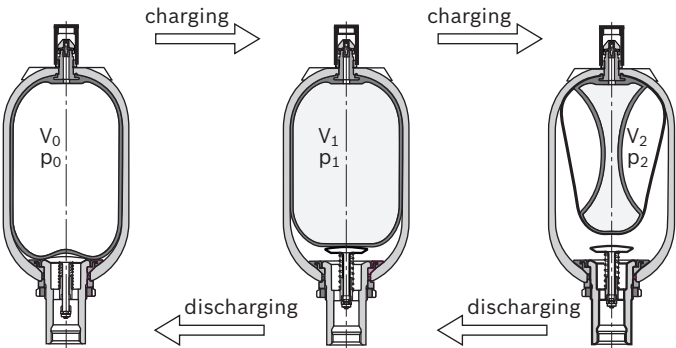
Applications

- 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!

$N_2 = 99.99 \text{ vol.}\%$



Calculation

Pressures

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

|                |                                                                    |
|----------------|--------------------------------------------------------------------|
| $p_0$          | Gas filling pressure at room temperature and drained fluid chamber |
| $p_0(t)$       | Gas filling pressure at operating temperature                      |
| $p_0(t_{max})$ | Gas filling pressure at maximum operating temperature              |
| $p_1$          | Minimum operating over pressure                                    |
| $p_2$          | 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:

$p_0(t_{max}) \sim 0.9 \times p_1$  (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:

$p_2 \leq 4 \times p_0$  (2)

The smaller the difference between  $p_1$  and  $p_2$ , 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  $p_0 \dots p_2$  result in the gas volumes  $V_0 \dots V_2$ . Here  $V_0$  is also the nominal volume of the accumulator. The available oil volume  $\Delta V$  corresponds to the difference between the gas volumes  $V_1$  and  $V_2$ :  

$$\Delta V \leq V_1 - V_2 \quad (3)$$

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:  

$$p_0 \times V_0 = p_1 \times V_1 = p_2 \times V_2 \quad (4.1)$$

- 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:  

$$p_0 \times V_0^\chi = p_1 \times V_1^\chi = p_2 \times V_2^\chi \quad (4.2)$$

$\chi$  = 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),  $\Delta V$  is between 50% and 70% of the nominal accumulator volume. The following applies as a guiding principle:  

$$V_0 = 1.5 \dots 3 \times \Delta V \quad (5)$$

### Calculation diagram

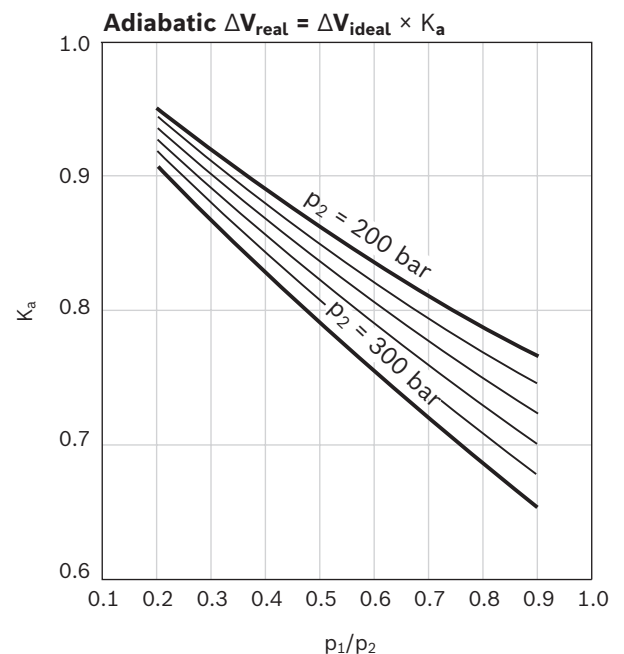
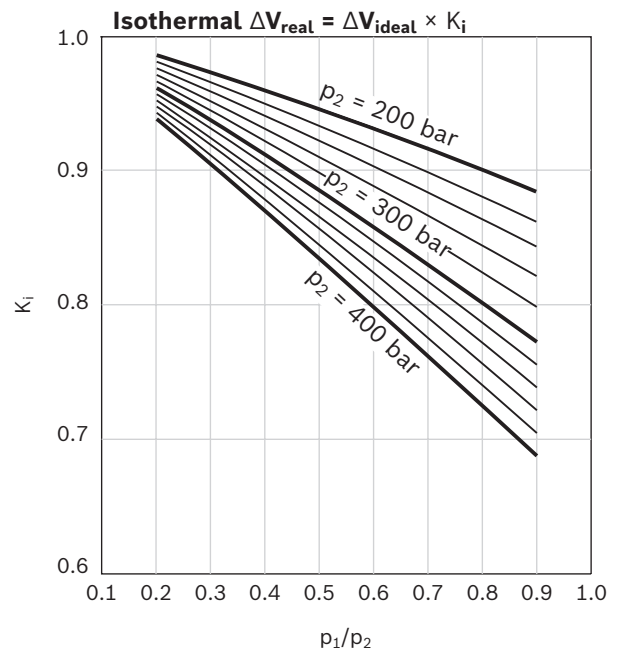
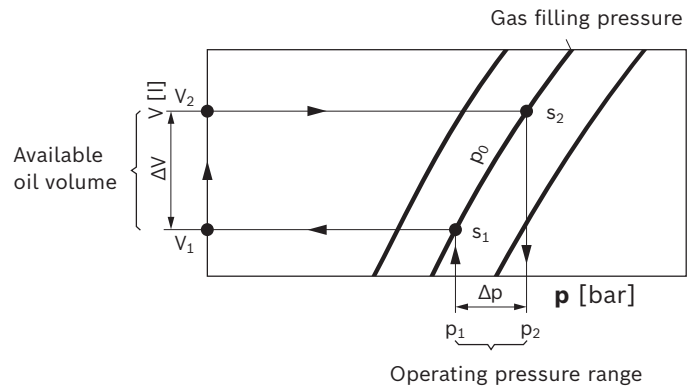
For graphic determination, the formulas (4.1) and (4.2) are converted into diagrams on pages 8 and 9. Depending on the task, the available oil volume, the accumulator size or the pressures can be determined.

### Correction factor $K_i$ and $K_a$

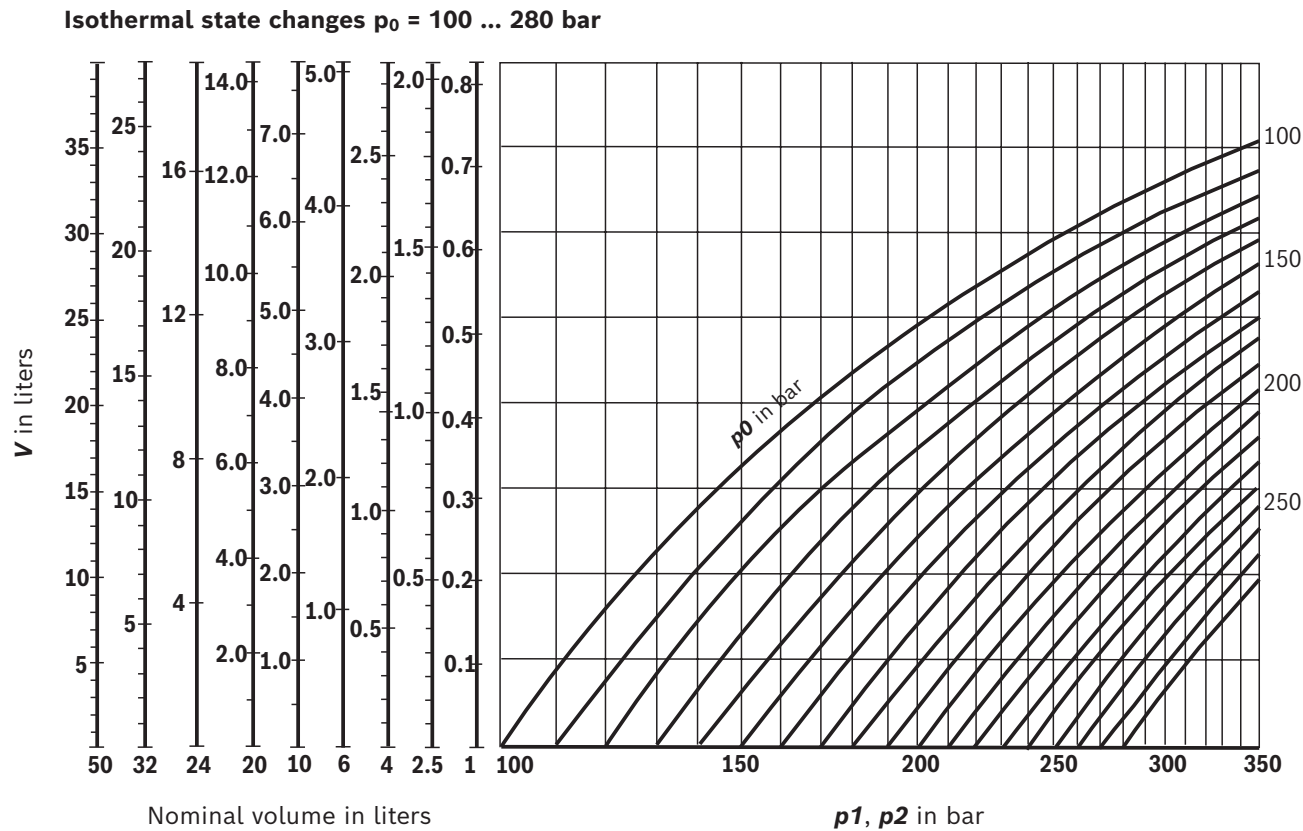
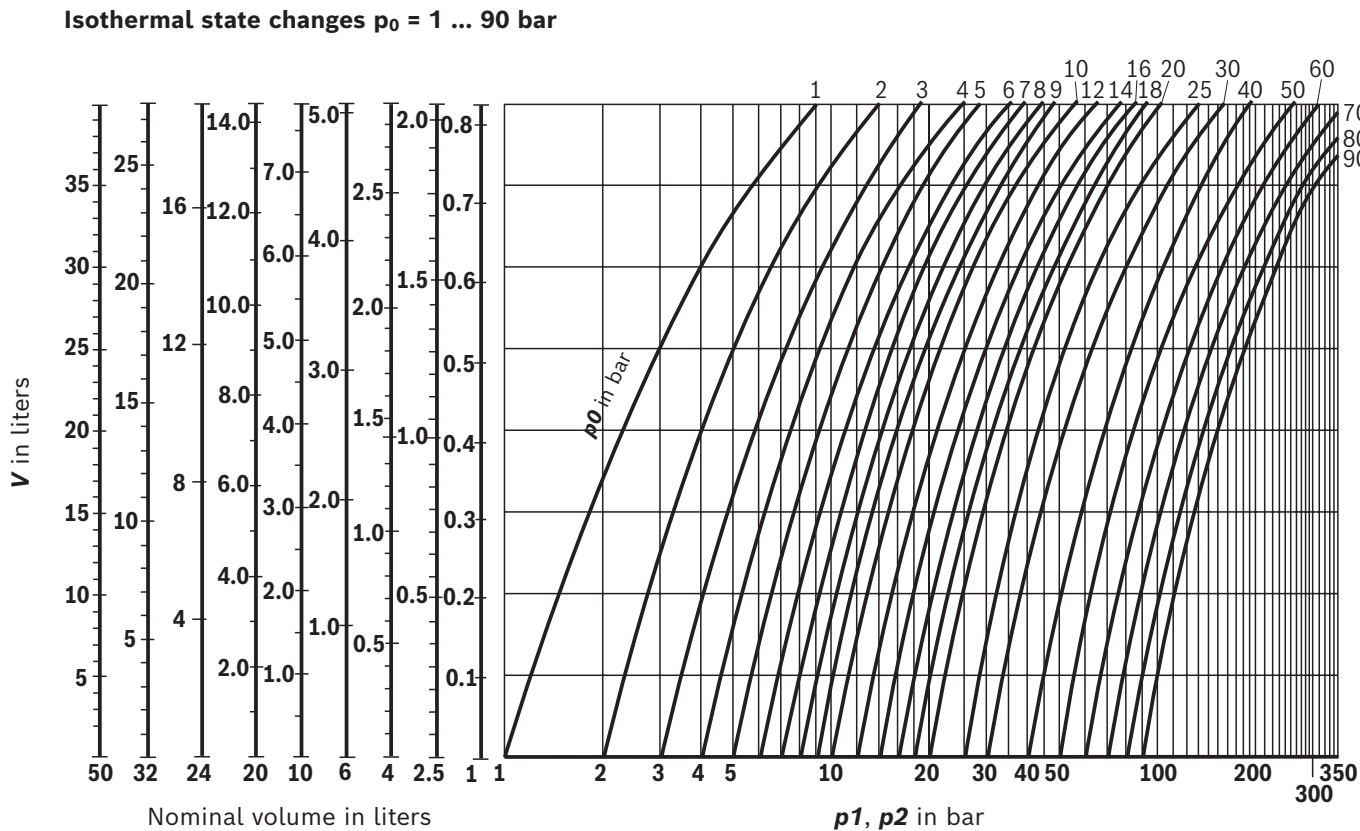
The equations (4.1) and (4.2) apply to ideal gases only. The behavior of real gases, however, will show considerable variation at operating pressures above 200 bar which will have to be accounted for by correction factors. These can be taken from the following diagrams. The correction factors by which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

### Application of calculation diagrams

(see page 8 ... 9)

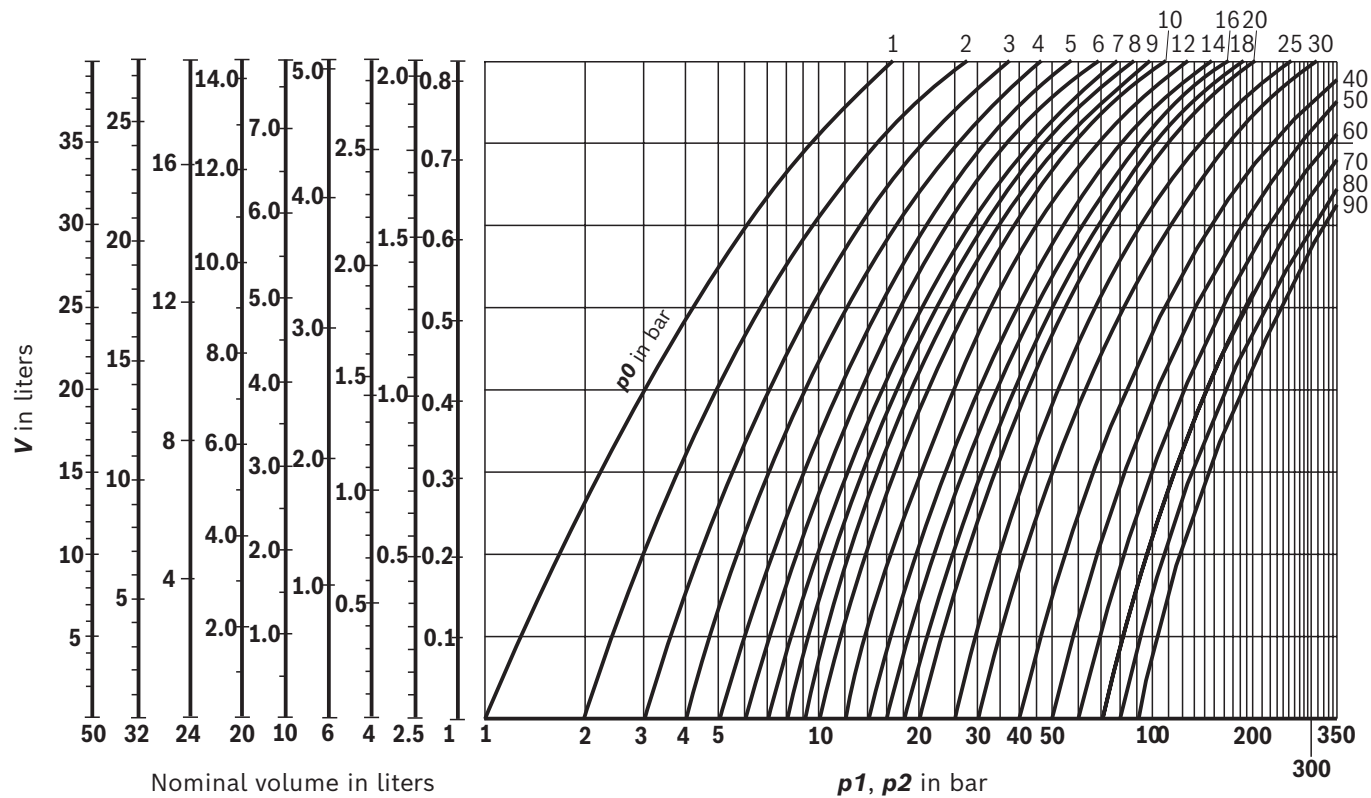


Characteristic curves

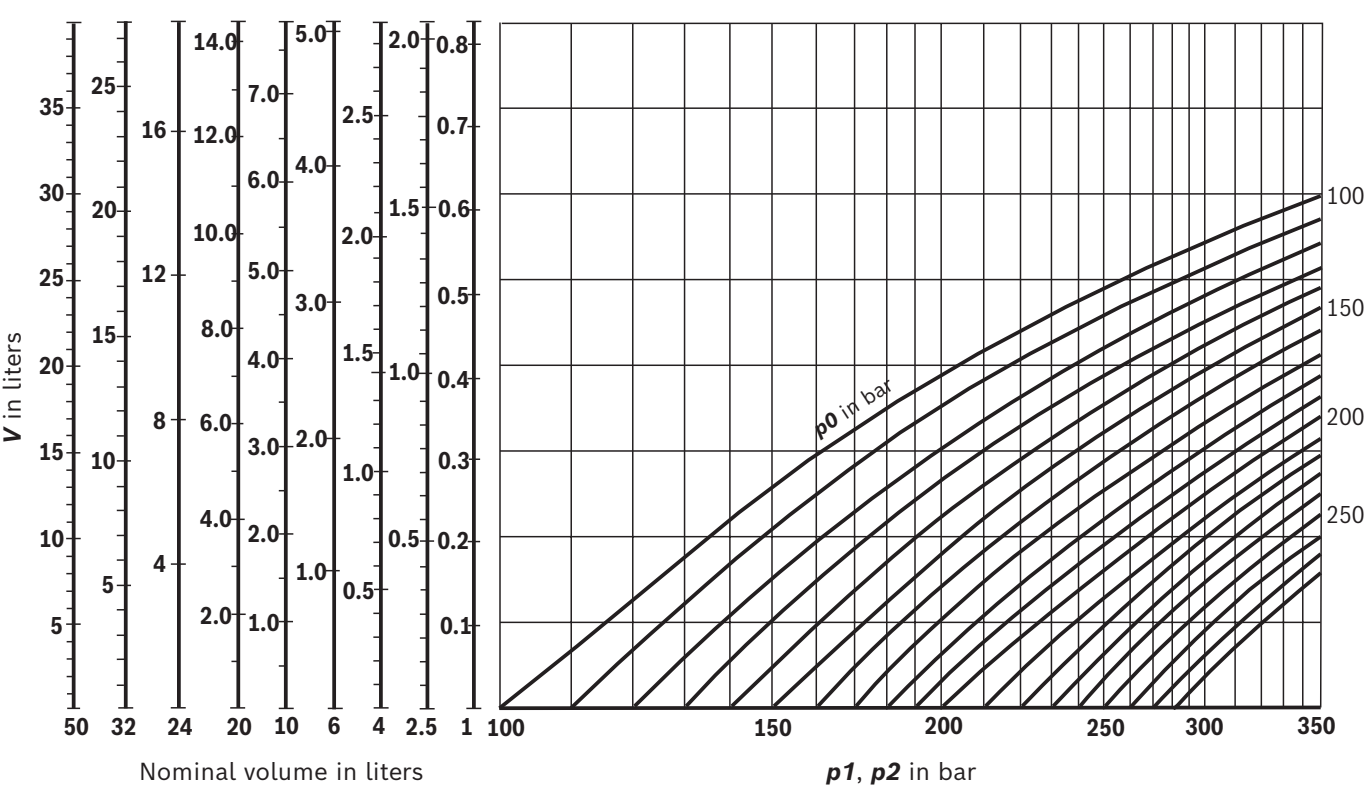


**Characteristic curves**

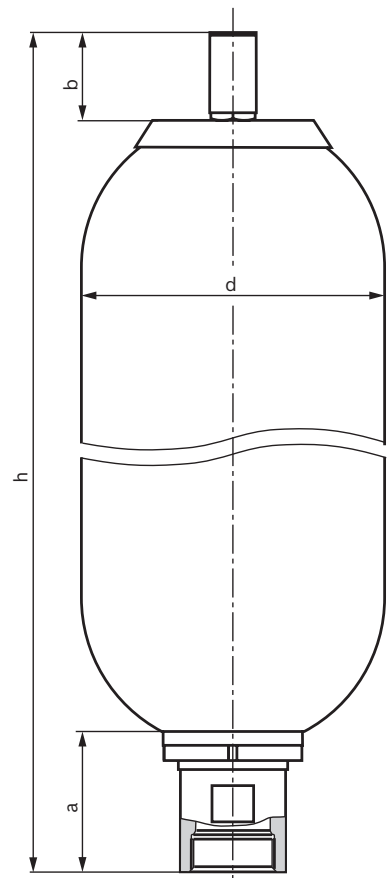
Adiabatic state changes  $p_0 = 1 \dots 90$  bar



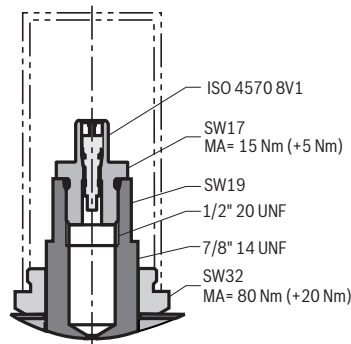
Adiabatic state changes  $p_0 = 100 \dots 280$  bar



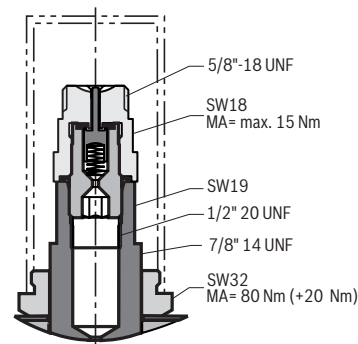
**Dimensions**  
(dimensions in mm)



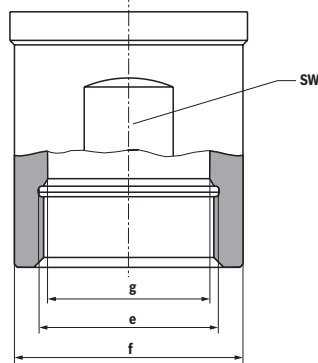
**Gas port form "2"**  
Gas valve ISO 4570 8V1



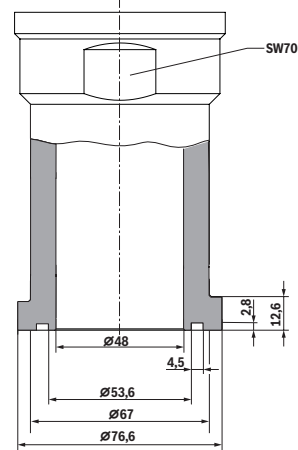
**Gas port form "3"**  
Gas valve 5/8"-18 UNF



**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 <sup>3</sup> / <sub>4</sub> "  | Ø52.4 | Ø23H7 | - | - | 50 |
| 2.5                | G07       | 541.5±21 | Ø114±1.14 | 65±3    | 71.5±3 | G1 <sup>1</sup> / <sub>4</sub> " | Ø52.4 | Ø36H8 | - | - | 50 |
| 4                  | G07       | 421.5±21 | Ø168±1.68 | 65±3    | 71.5±3 | G1 <sup>1</sup> / <sub>4</sub> " | Ø52.4 | Ø36H8 | - | - | 50 |
| 6                  | G07       | 552.5±17 | Ø168±1.68 | 65±3    | 71.5±3 | G1 <sup>1</sup> / <sub>4</sub> " | 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 |

## 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.