

# Accumulator stations

## Type ABSBG

**RE 50135**

Edition: 2016-07

Replaces: 01.15



H7860\_d

- ▶ Component series 1X
- ▶ With diaphragm type accumulator according to data sheet 50150

### Features

- ▶ Accumulator station with shut-off block
- ▶ Diaphragm type accumulator
- ▶ Shut-off block with integrated shut-off valve, safety valve (type-examination tested) and drain valve
- ▶ Drain valve can be operated manually or electrically
- ▶ Glycerin-filled pressure gauge with red indication of the maximum admissible operating pressure on the dial
- ▶ Console for weld or screw connection
- ▶ Assembly prepared for external equipotential bonding

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**Ordering code**

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15				
ABSBG	-	1X	/	M		N	-		/				G24	V	/	K	6	

01	Accumulator station (with diaphragm type accumulator according to directive 2014/68/EU)	<b>ABSBG</b>
02	Component series 10 to 19 (10 to 19: unchanged installation and connection dimensions)	<b>1X</b>

**Hydraulic accumulator**

03	<b>Design</b>	
	Diaphragm type accumulator according to data sheet 50150	<b>M</b>

**Accumulator volume in liters (design)**

04	<b>Diaphragm type accumulator</b>	
	0.7 liters	<b>0.7</b>
	1.4 liters	<b>1.4</b>
	2.0 liters	<b>2.0</b>
	2.8 liters	<b>2.8</b>
	3.5 liters	<b>3.5</b>

**Bladder/diaphragm material**

05	e.g. Acrylonitrile-butadiene rubber (NBR)	<b>N</b>
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**Country acceptance for hydraulic accumulator**

06	Short symbol for country acceptance in Europe, Russia and China from the manufacturer's type key e.g.	
	Acceptance according to 2014/68/EU	<b>CE</b>
	Acceptance according to SELO (China)	<b>88/CHN</b>
	Acceptance according to GOST (Russia)	<b>71/GOST</b>
	Operating instructions	<b>BA</b>

**Accumulator shut-off block according to data sheet 50131**

07	ABZSS 10 pressure relief valve 6E	<b>10</b>
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**Unloading**

08	manual and electro-magnetic	<b>E</b>
	manual	<b>M</b>

**Set pressure at the pressure relief valve**

09	100 bar	<b>100</b>
	140 bar	<b>140</b>
	210 bar	<b>210</b>
	330 bar	<b>330</b>

**Voltage type**

10	Direct voltage 24 V	<b>G24</b>
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**Seal material**

11	FKM	<b>V</b>
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**Mounting construction kit**

12	Mounting using assembly kit K (console K)	<b>K</b>
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**ABZMM pressure gauge according to data sheet 50205**

13	DN63	<b>6</b>
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**Ordering code**

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15					
ABSBG	-	1X	/	M		N	-		/				G24	V	/	K	6		

**Pressure gauge scale**

14	bar/MPa	<b>M</b>
	bar/psi	<b>P</b>

**Accumulator manufacturer**

15	Bosch Rexroth	<b>DC</b>
	Parker Olaer	<b>OL</b>

**Order example:****ABSBG-1X/M0,7N-CE/10E140G24V/K6MDC**

**Technical data**

(For applications outside these parameters, please consult us!)

<b>Accumulator</b>		
Design		Diaphragm type accumulator
Installation position		Any, preferably with the fluid connection socket at the bottom
Ambient temperature range	°C	–15 ... +65
Line connection		Screw-in thread
Hydraulic fluid		Hydraulic oil according to DIN 51524; other liquids on request
Hydraulic fluid temperature range (others on request)	°C	–10 ... +80 (NBR diaphragm) –35 ... +80 (ECO diaphragm)
Acceptance specification for the accumulator	CE/BA	Acceptance according to 2014/68/EU or the operating instructions
	China	SELO
	Russia	GOST

<b>hydraulic, diaphragm type accumulator</b>								
Nominal volume	$V_{\text{rated}}$	l	0.7	1.4	2.0	2.8	3.5	
Effective gas volume	$V_{\text{eff}}$	l	0.75	1.4	1.95	2.7	3.5	
Maximum flow	$q_{\text{max}}$	l/min	40	40	60	60	60	
Maximum operating pressure	$p_{\text{max}}$	bar	350	350	350	350	350	
Max. adm. pressure fluctuation range	$\Delta p_{\text{dyn}}$	bar	130	130	130	130	130	

<b>pneumatic</b>		
Charging gas		Nitrogen, cleanliness class 4.0, $N_2$ = 99.99 vol. %
Gas filling pressure	$p_0$	bar 2 (Exception: diaphragm type accumulators with SELO acceptance are not prestressed)

## Technical data

(For applications outside these parameters, please consult us!)

Shut-off block		
Seal material		FKM seals (NBR seals on request)
Operating temperature range	°C	-15 ... +80
Maximum operating pressure	bar	350
Block material		Steel
Direct operated pressure relief valve		DBDS...K1X/...VB or DBDS...K1X/...E according to data sheet 25402
Cartridge seat valve		KSDER1PB/HN9V according to data sheet 18136-20
Protection class according to VDE 0470-1 – version "K4" (DIN EN 60529), DIN 40050-9		IP 65 with mating connector mounted and locked
Voltage type	V	24 (in case of electro-magnetic unloading "E")
Maximum admissible degree of contamination of the hydraulic fluid; Cleanliness class according to ISO 4406 (c)		Class 20/18/15

Hydraulic fluid	Classification	Suitable sealing materials	Standards
Mineral oils	HL, HLP	NBR, FKM	DIN 51524
Bio-degradable	– insoluble in water	HETG	VDMA 24568
		HEES	
	– soluble in water	HEPG	VDMA 24568

### Important information on hydraulic fluids!

- For more information and data on the use of other hydraulic fluids, please refer to data sheet 90220 or contact us!
- There may be limitations regarding the technical valve data (temperature, pressure range, life cycle, maintenance intervals, etc.)!
- The flash point of the hydraulic fluid used must be 40 K higher than the maximum solenoid surface temperature.

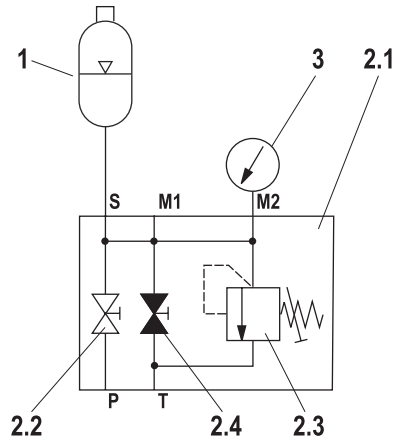
- **Flame-resistant – containing water:** The maximum pressure differential per control edge is 50 bar. Pressure pre-loading at the tank port > 20% of the pressure differential; otherwise, increased cavitation. The pressure peaks should not exceed the maximum operating pressures!
- **Bio-degradable:** When using bio-degradable hydraulic fluids that are zinc-solving, zinc may accumulate in the fluid (700 mg zinc per pole tube).

Pressure gauge		
Size	bar	63
Pressure gauge		Glycerin
Double scale		bar/MPa

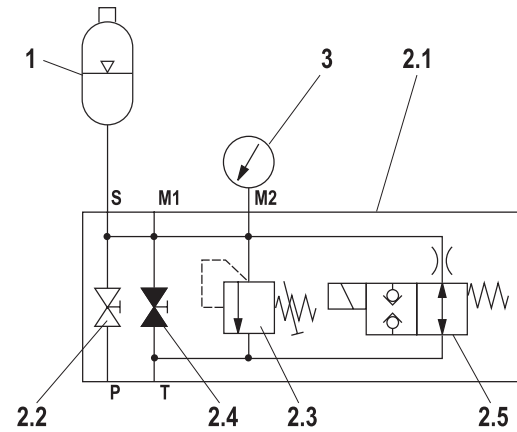
Surface treatment
All steel components and components without protective coating are coated prior to installation (minimum corrosion protection time of 12 h in salt spray test). Then, the devices, components and the piping are installed. All components, assemblies, controls, pipes, fittings and standard parts keep the supplied surface protection and are not additionally coated. The corrosion protection is determined by the least protected element in the assembly.

## Symbols

**Accumulator station with manually operated drain valve**



**Accumulator station with electro-mechanically operated drain valve**



- 1** Hydraulic accumulator
- 2.1** Accumulator shut-off block with:
- 2.2** System shut-off cock
- 2.3** Pressure relief valve (type-examination tested)
- 2.4** Manual unloading
- 2.5** Electro-magnetic unloading (only version E)
- 3** Pressure gauge with red indication of the maximum admissible operating pressure

## Spare parts and accessories

- ▶ Diaphragm type accumulator with CE/BA acceptance according to data sheet 50150
- ▶ Shut-off block manual/electrical according to data sheet 50131
- ▶ Pressure gauge according to data sheet 50205
- ▶ Warning sign according to RNI 17506-001

Consoles contained in the assembly kit are intended for mounting by means of screws and nuts or for welding to suitable frames or design components.

## Standard program including preferred types: Accumulator stations

Standard program including preferred types with manually operated drain valve (other versions on request)									
Accumulator type	Nominal volume in liters	Relief pressure in bar	Shut-off block DN	$\sim qv_{max}$ DBDS in l/min	Description	CE/BA acceptances			
						Material no.	Weight in kg	MKZ <sup>1)</sup>	Type of mounting
Diaphragm type accumulator	0.7	100	10	25	ABSBG-1X/M 0,7N-BA /10M100 V/K6M DC	R901301879	11	A3	K
		140	10	52	ABSBG-1X/M 0,7N-BA /10M140 V/K6M DC	R901301881	11	A3	
		210	10	52	ABSBG-1X/M 0,7N-BA /10M210 V/K6M DC	R901280011	11	A3	
		330	10	52	ABSBG-1X/M 0,7N-BA /10M330 V/K6M DC	R901280012	11	A3	
	1.4	100	10	25	ABSBG-1X/M 1,4N-CE /10M100 V/K6M DC	R901301884	14	A3	K
		140	10	52	ABSBG-1X/M 1,4N-CE /10M140 V/K6M DC	R901280013	14	A2	
		210	10	52	ABSBG-1X/M 1,4N-CE /10M210 V/K6M DC	R901301885	14	A3	
		330	10	52	ABSBG-1X/M 1,4N-CE /10M330 V/K6M DC	R901280014	14	A3	
	2	100	10	25	ABSBG-1X/M 2,0N-CE /10M100 V/K6M DC	R901280015	16	A3	K
		140	10	52	ABSBG-1X/M 2,0N-CE /10M140 V/K6M DC	R901301889	16	A3	
		210	10	52	ABSBG-1X/M 2,0N-CE /10M210 V/K6M DC	R901301890	16	A3	
		330	10	52	ABSBG-1X/M 2,0N-CE /10M330 V/K6M DC	R901280016	16	A3	
	2.8	100	10	25	ABSBG-1X/M 2,8N-CE /10M100 V/K6M DC	R901301893	21	A3	K
		140	10	52	ABSBG-1X/M 2,8N-CE /10M140 V/K6M DC	R901301894	21	A3	
		210	10	52	ABSBG-1X/M 2,8N-CE /10M210 V/K6M DC	R901301895	21	A3	
		330	10	52	ABSBG-1X/M 2,8N-CE /10M330 V/K6M DC	R901280017	21	A3	
	3.5	100	10	25	ABSBG-1X/M 3,5N-CE /10M100 V/K6M DC	R901301900	24	A3	K
		140	10	52	ABSBG-1X/M 3,5N-CE /10M140 V/K6M DC	R901301901	24	A3	
		210	10	52	ABSBG-1X/M 3,5N-CE /10M210 V/K6M DC	R901301902	24	A3	
		330	10	52	ABSBG-1X/M 3,5N-CE /10M330 V/K6M DC	R901280018	24	A3	
								MKZ <sup>1)</sup>	Type of mounting
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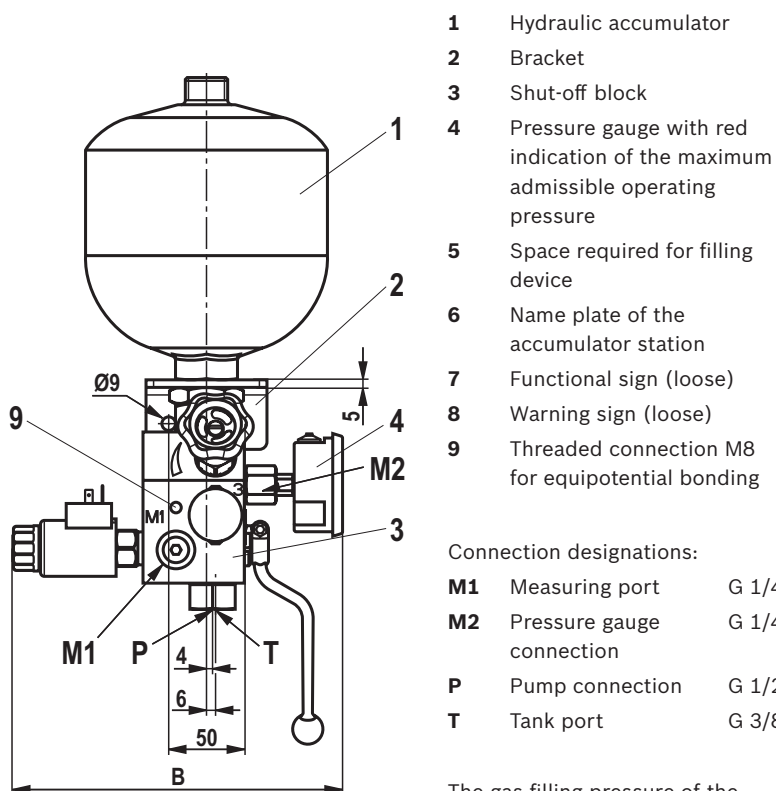
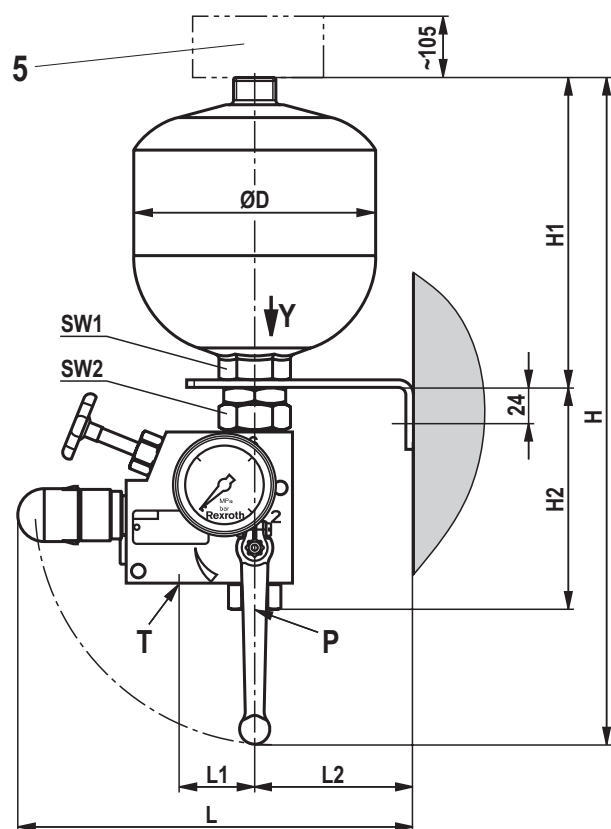
<sup>1)</sup> MKZ = material mark; A2 = preferred delivery range; A3 = standard delivery range

Standard program including preferred types: Accumulator stations

Standard program including preferred types with electrically operated drain valve (other versions on request)									
Accumulator type	Nominal volume in liters	Relief pressure in bar	Shut-off block DN	$\sim qv_{max}$ DBDS in l/min	Description	CE/BA acceptances			
						Material no.	Weight in kg	MKZ <sup>1)</sup>	Type of mounting
Diaphragm type accumulator	0.7	100	10	25	ABSBG-1X/M 0,7N-BA /10E100G 24V/K6M DC	R901301882	11	A3	K
		140	10	52	ABSBG-1X/M 0,7N-BA /10E140G 24V/K6M DC	R901301883	11	A3	
		210	10	52	ABSBG-1X/M 0,7N-BA /10E210G 24V/K6M DC	R901280001	12	A3	
		330	10	52	ABSBG-1X/M 0,7N-BA /10E330G 24V/K6M DC	R901280002	11	A3	
	1.4	100	10	25	ABSBG-1X/M 1,4N-CE /10E100G 24V/K6M DC	R901301886	14	A3	K
		140	10	52	ABSBG-1X/M 1,4N-CE /10E140G 24V/K6M DC	R901280003	14	A2	
		210	10	52	ABSBG-1X/M 1,4N-CE /10E210G 24V/K6M DC	R901301887	14	A3	
		330	10	52	ABSBG-1X/M 1,4N-CE /10E330G 24V/K6M DC	R901280004	14	A3	
	2.0	100	10	25	ABSBG-1X/M 2,0N-CE /10E100G 24V/K6M DC	R901280005	16	A3	K
		140	10	52	ABSBG-1X/M 2,0N-CE /10E140G 24V/K6M DC	R901301891	17	A3	
		210	10	52	ABSBG-1X/M 2,0N-CE /10E210G 24V/K6M DC	R901301892	17	A3	
		330	10	52	ABSBG-1X/M 2,0N-CE /10E330G 24V/K6M DC	R901280006	16	A3	
	2.8	100	10	25	ABSBG-1X/M 2,8N-CE /10E100G 24V/K6M DC	R901301896	22	A3	K
		140	10	52	ABSBG-1X/M 2,8N-CE /10E140G 24V/K6M DC	R901301898	22	A3	
		210	10	52	ABSBG-1X/M 2,8N-CE /10E210G 24V/K6M DC	R901301899	22	A3	
		330	10	52	ABSBG-1X/M 2,8N-CE /10E330G 24V/K6M DC	R901280007	22	A3	
	3.5	100	10	25	ABSBG-1X/M 3,5N-CE /10E100G 24V/K6M DC	R901301903	24	A3	K
		140	10	52	ABSBG-1X/M 3,5N-CE /10E140G 24V/K6M DC	R901301904	24	A3	
		210	10	52	ABSBG-1X/M 3,5N-CE /10E210G 24V/K6M DC	R901301905	25	A3	
		330	10	52	ABSBG-1X/M 3,5N-CE /10E330G 24V/K6M DC	R901280008	24	A3	

1) MKZ = material mark: A2 = preferred delivery range; A3 = standard delivery range



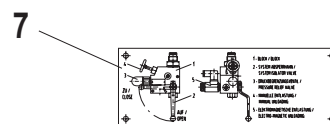
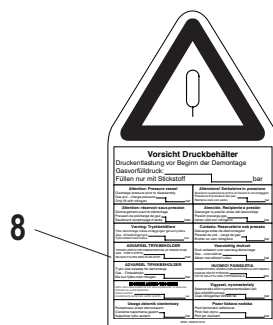
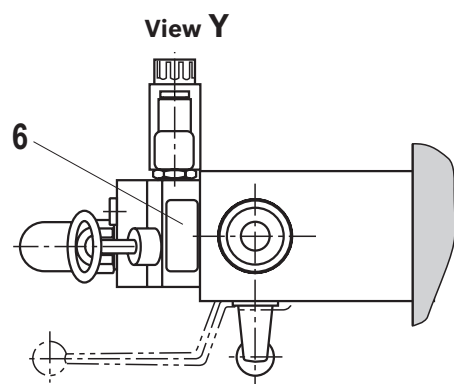
**Dimensions:** Mounting with bracket K (dimensions in mm)**Accumulator station with diaphragm type accumulator 0.7 to 3.5 liters**

- 1 Hydraulic accumulator
- 2 Bracket
- 3 Shut-off block
- 4 Pressure gauge with red indication of the maximum admissible operating pressure
- 5 Space required for filling device
- 6 Name plate of the accumulator station
- 7 Functional sign (loose)
- 8 Warning sign (loose)
- 9 Threaded connection M8 for equipotential bonding

**Connection designations:**

- M1** Measuring port G 1/4
- M2** Pressure gauge connection G 1/4
- P** Pump connection G 1/2
- T** Tank port G 3/8

The gas filling pressure of the accumulators upon delivery is 2 bar.



ABSBG-... assembly kit	ØD	H	H1	H2	L	L1	L2	B	SW1	SW2
M0,7/10	128.5	402.5	171	132.5	262	50	105	217	SW 41	SW 41
M1,4/10	156	427.5	196						SW 50	SW 60
M2,0/10		512.5	281						SW 55	
M2,8/10	180	501.5	270						SW 55	SW 60
M3,5/10		541.5	310							

## Commissioning, maintenance and operating instructions

### General Information

- ▶ Observe the documentation for the machinery.
- ▶ Also observe the documentation pertaining to the other components, assemblies and partly completed machinery, which form part of the complete machinery.
- ▶ Observe the generally applicable, legal or otherwise binding European and national regulations as well as the relevant legislation for your country pertaining to the prevention of accidents and protection of the environment.
- ▶ Operating instructions according to data sheet of the accumulator
- ▶ Depending on the country of installation, national pressure vessel regulations need to be complied with.
- ▶ In the standard, the country acceptance is effected according to BA, CE as well as for China and Russia Other acceptances on request.
- ▶ Please indicate the country of installation in the order.
- ▶ Keep all documents included in the delivery in a safe place; they will be required by the expert in recurring tests.
- ▶ The machine end-user will have sole responsibility for complying with existing provisions.
- ▶ The accumulator stations in this edition are assemblies in the sense of directive 2014/68/EU, article 2, section 6 (Pressure Equipment Directive). However, they are not intended for exclusive commissioning. They are installed as a component of a larger assembly or system.
- ▶ The accumulator stations described here contain the entire equipment which is required for safety reasons according to DIN EN ISO 4413.
- ▶ The accumulator stations must not be modified; otherwise, the operating license according to directive 2014/68/EU will be lost and the dealer and/or manufacturer warranty will be forfeited.
- ▶ The accumulator stations may only be operated within the admissible limit values.
- ▶ Repairs may only be carried out by the manufacturer or their authorized dealers and agencies. Repairs performed by third parties invalidate the approval and release the manufacturer from all claims resulting from an unauthorized intervention.
- ▶ Assembly and maintenance must be implemented by authorized, instructed persons only.

## Commissioning, maintenance and operating instructions

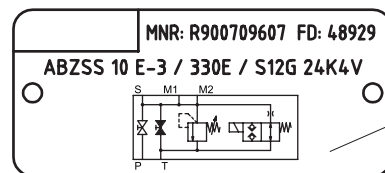
- The accumulator stations are provided with signs:
1. **Name plate** specifying the pressure rating, identifies the device
  2. **Functional sign**, identifies the components and elementary lever positions
  3. **Warning sign**, has to be clearly visible and attached at the device or next to it.

Usually, the warning sign is in the languages according to the country acceptance. Other languages on request.

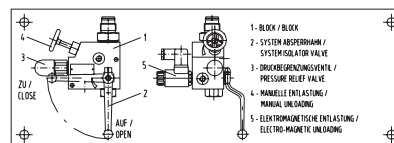
For hydraulic systems with one or several hydraulic accumulators whose warning signs are not visible after installation into the machine, an additional warning sign has to be attached visibly to the system, **3** stating:

**"CAUTION - system contains hydraulic accumulators."**

The circuit diagram has to contain the same notice. With mounting "B" and "K", the warning signs and functional signs are supplied loosely and must be attached to or close to the accumulator station in a clearly visible position. The attachment of the signs must already be considered in the design.





### Example




## Commissioning, maintenance and operating instructions

### Commissioning - Operating instructions according to data sheet of the accumulator!

	<p><b>DANGER</b></p> <p>Do not charge hydraulic accumulators with oxygen or air. Explosion hazard!</p> <ul style="list-style-type: none"> <li>▶ Prior to the initial commissioning, the hydraulic accumulator must be filled with nitrogen of class 4.0, pure (N<sub>2</sub> content 99.99 vol. %). The preset gas pressure necessary for the operation is indicated in the circuit diagrams and operating instructions.</li> <li>▶ Only use suitable filling and testing devices for filling. We recommend using the charging and test devices by Bosch Rexroth according to data sheet 50150.</li> </ul>
	<p><b>WARNING</b></p> <ul style="list-style-type: none"> <li>▶ Risk of injury caused by improper assembly.</li> <li>▶ Hydraulic accumulators are energy stores. They may supply the energy for uncontrolled movements to actuators.</li> <li>▶ Before beginning any repairs, the system must be depressurized on the oil and gas side and protected against unauthorized re-start.</li> <li>▶ Do not carry out welding and soldering works or any mechanical processing at the accumulator tank! Any kind of work at the product invalidates the declaration of conformity and the operating license!             <ul style="list-style-type: none"> <li>– Explosion hazard due to welding and soldering works!</li> <li>– Danger of bursting during and after mechanical processing.</li> </ul> </li> <li>▶ A warning sign is enclosed to the accumulator station. It is to be attached to or close to the accumulator station in a clearly visible position.</li> </ul>

### Maintenance

	<p><b>Attention</b></p> <ul style="list-style-type: none"> <li>▶ In case of damage at the accumulator bladder or diaphragm, the accumulator will lose its function immediately.</li> <li>▶ Loss of the initial gas tension will lead to damage at the accumulator bladder or the accumulator diaphragm if operation of the system is continued nevertheless.</li> <li>▶ Check the initial gas tension in regular intervals.</li> </ul>
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### Legal provisions

- ▶ Hydraulic accumulators are pressure vessels and subject to the application national provisions and/or regulations valid at the place of installation.
- ▶ In Germany, the Ordinance on Industrial Safety and Health (BetrSichV) applies.
- ▶ As a standard, country acceptances are effected according to BA, CE as well as for China and Russia. Other acceptances on request.
- ▶ Special regulations are to be observed in shipbuilding, aircraft construction, mining, etc.
- ▶ Design, production and testing are effected according to the data sheets according to AD 2000. Installation, equipment and operation are controlled by the "Technical rules Pressure vessels" (TRB).

### Note pursuant to the EC Machinery Directive 2006/42/EC, according to annex II part 1, section A, manufacturer's declaration:

- ▶ The assemblies were manufactured in accordance with the harmonized standards DIN EN ISO 4413, DIN EN ISO 12100, EN 983, and EN 60204-1.
- ▶ Commissioning is prohibited until it was confirmed that the machine into which the assemblies are to be integrated complies with the regulations laid down in the EC Directives.