

8. Repairs

- 8.1 Repairs may only be carried out in authorized workshops by expert persons (Ask your local dealer for further information!).
- 8.2 Only original spare parts may be used to guarantee the proper function and safety.
- 8.3 In case of unauthorized repairs or use of non-original spare parts, any form of liability for resulting damages will expire as well as the manufacturer's warranty
- 8.4 After being repaired, the pressure control panel must be checked with respect to proper function, leak-tightness and cleanness of the gas-wetted surfaces. When the system is being used again, a sufficient purging operation must be carried out first with inert gas (e.g. nitrogen).
- 8.5 The device should be checked once a year by the manufacturer for function and operation safety.
- 8.6 The annual control of the flashback arrestors of the tapping points, located downstream of the pressure controller, is required by law. The proof thereof has to be given by the user.

Instruction Manual

Pressure control panel for Acetylen
BT 2000-AC

spectrotec

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1.1 Application

Pressure control panels are central supply systems for the supply of acetylene to one or more tapping points. Pressure control panels are available in different configurations:

- pressure control panels for connecting one cylinder
- pressure control panels for connecting 2 to 6 cylinders (cylinders can be shut off individually)

The gas cylinder pressure (approx. 18 bar at 20°C) is reduced to an as constant as possible outlet pressure (max. 1.5 bar) by the pressure regulator.

On the pressure control panels a manual quick-acting shut-off valve (ball valve) is installed upstream of the pressure regulator. A flashback arrestor is installed downstream of the the pressure regulator.

The pressure regulator is equipped with a relief valve. Downstream of the pressure regulator a safety valve is installed. Therefore the line pressure of the downstream pipe is limited to max. 1.5 bar.

In the pipeline downstream of the pressure control panel a line shut-off valve must be installed. This line shut-off valve may be obsolete if the tapping points are located directly after the pressure control panel. The content of the gas cylinders may be monitored by the installation of contact gauges in combination with a low gas contents alarm box.

The system has to be used according to this instruction for use and especially the safety instructions!

Remarks

The materials used and the manufacturing processes involved accord with the intended application.

This pressure control panel complies with the latest technical standards, regulations and requirements, particularly the regulations for the use of acetylene.

The components are manufactured with utmost care in special workshops and clean conditions, and are subject to a permanent quality control during the manufacturing process.

Each complete system and its components are subject to a functional and leak test and therefore guarantee the well-known Messer quality.

1.2 Preamble

1.2.1 Systems with compulsory examination

Acetylene supply systems must be subject to examinations. Smaller systems (supply from up to 6 cylinders at the same time) may be examined by the user.

Security devices according to TRAC207 are type tested.

1.2.2 Type testing references

High pressure hose with cylinder connection

Acc. to DIN 477 no.3 and non-return valve

BAM - 0283 Pp3a

Ball valve

82 D HK 05272 BAM

Pressure regulator

06 BAM 0193

Flashback arrestor

BAM 0781

Safety valve

06D SV 57 675

Automatic quick-action shut-off valve (optional)

BAM 1481

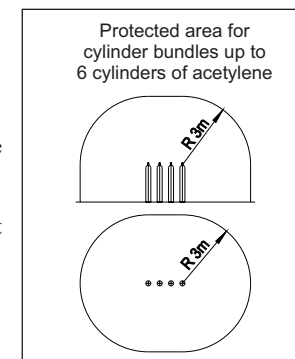
1.3. Technical data

SPECTROTEC	BT 2000
Inlet pressure P_v:	up to 25 bar
Outlet pressure P_n:	up to 1,5 bar
Flowrate Q:	approx. 0,5 m ³ /h per gas cylinder in continuous, 1 m ³ /h in short time
Gas cylinder connection:	shackle DIN477, No. 3*
Outlet flashback arrestor:	welding connection G ½" LH n. DIN/EN560, for steel pipe 16x1,8 mm
Materials:	
Body:	brass
Diaphragm:	EPDM
Seat valve	EPDM
Mounting plate:	steel, zinc plated
Weight:	
BT 2000-1:	4,7 kg
BT 2000-2:	8,3 kg
Shut-off unit:	3,6 kg
Extension:	1 kg

* different connections possible according to country specific norms.

7. Operation, maintenance and storage

- 7.1 Pressure control panels must be protected from damage at all times.
- 7.2 Protected area
Within this area welding, handling of fire, red-hot materials, open light (naked flames) as well as smoking are strictly prohibited. All flammable or explosive materials must not be present.
- 7.3 The setting of the relief valve (4) on the pressure regulator (7) and on the safety valve (5) must not be altered.
- 7.4 Check if the connection seals on the high pressure hose (3), on sealing surfaces and pressure gauges are in perfect condition.



Check all joints for leaks at regular intervals with a foaming agent.

- 7.5 The system must be shut down as described in chapter 6 in the event of malfunctions

- 7.6 General conditions for transport and storage

Transport and storage:

-30°C up to +60°C

Atmospheric conditions:

rel. humidity:

50 % at 40°C

90 % at 20°C

Environment: Ambient air to be free of unusual amounts of dust, acids, corrosive gases or such substances as smoke, vapour, oil vapour etc.

Note: The use of pressure control panels in severe weather conditions, especially in coastal regions or aboard of ships, as well as in conditions involving vibration or impacts will impair their functional reliability and should be avoided

Conditions varying from those described above may be agreed upon between manufacturer and user.

4. Start-up

- 4.1 Before starting work read this manual thoroughly and observe it accordingly.
- 4.2 Check, if the pressure control panel is labeled for the relevant gas type.
- 4.3 Release the pressure regulator by turning the handwheel all the way anti-clockwise.
- 4.4 Close ball valve (8).
- 4.5 Place the full gas cylinders in front of the gas cylinder bracket and secure against falling. Remove the gas cylinder cap. Check the connection threads, connection faces and seals of the connection. Make sure that the connection hose is not damaged. Replace damaged or worn seals.
- 4.6 Gradually open the gas cylinder valve
- 4.7 Gradually open ball valve (8).
- 4.8 Turn the pressure regulator handwheel clockwise until the desired outlet pressure value is achieved. The adjustment has been limited to 1.5 bar. The stop must not be removed or altered!
- 4.9 Gradually open the main isolation valve of the pipeline system so that the pressure is built up slowly in the line downstream. Then fully open the main isolation valve. The tapping point can now be opened. Check and if necessary re-adjust the pressure at the pressure regulator (7).

5. Changing cylinders

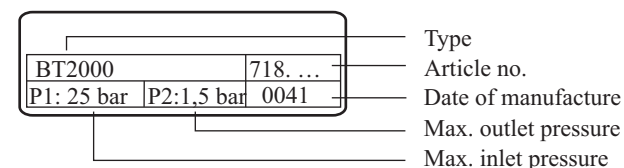
- 5.1 Close the gas cylinder valve.
- 5.2 Close ball valve(8).
- 5.3 Screw off the connecting bow on the gas cylinder valve. Screw on the gas cylinder cap. Undo the belt or chain of the gas cylinder bracket. Remove the gas cylinder.
- 5.4 Proceed with chapter 4.

6. Shut-down

- 6.1 Close all gas cylinder valves.
- 6.2 Close ball valve(8).
- 6.3 Depressurise the pressure regulator completely by turning the pressure regulator handwheel anti-clockwise. (inlet and outlet pressure gauges show 0 bar).
- 6.4 Close the main isolation valve.
For starting up the pressure control panel again refer to chapter 4.

1.4. Labelling

On the mounting plate of the pressure control panel a type plate is attached with the following data:



Test label

All pressure control panels are subject to a functional and leak test. After the test procedure a test label is attached to the back of the mounting plate of each pressure control panel.

RK 11
geprüft / tested / testé

2. Safety instructions

2.1 Handling of flammable/fuel gases

The handling of acetylene requires expertise; the operating instructions and the applicable regulations have to be strictly observed.

It is mandatory that the operators are suitably trained and receive regular instructions regarding the safety regulations for the use of this system, of the handling of flammable gases and pressure vessels for compressed gas. These instructions have to be repeated annually. Improper handling and/or use of the system can result in risk of injury to the operators and other persons as well as damage to the system and its environment.

These operating instructions must be available to the operators at all times.

2.2 Size of bundle and performance

The withdrawal per acetylene cylinder should not exceed 500 sl/h per gas cylinder in continuous use. This will prevent solvent being drawn out of the acetylene cylinders. For short periods of time the withdrawal may reach peak values of up to 1000 sl/h.

2.3 Gas type specific design

The pressure control panel is only to be used for acetylene. An alternate use for other gases is not permitted. The connection of adaptor pieces to the cylinder connection is also prohibited. The construction materials and sealing materials designed for the gas type “acetylene” only.

2.4 The resistance of the materials

The resistance of the materials is only assured for the use with dry gas and dry-purged lines and fittings. The service life may be impaired by incorrect installation, leaking connections or inadequate purging.

2.5 Standards, rules, instruction manuals

For the installation and operation of acetylene cylinder bundles several regulations and instructions must be observed (these may vary depending on the country specific standards, regulations and laws):

2.5.1 Rules for prevention of accidents

- BGV A1 (VBG1) "General regulations"

2.5.2 Laws, directions, technical rules

- Directions for acetylene with technical regulations for acetylene (TRAC), e.g. TRAC 204, 206, 207 etc.
- Regulations for the prevention of explosions Ex RL
- Regulations for the prevention of dangers of ignition by electrostatic charges.
- Installation of electric devices in hazardous locations. VDE 0170/DIN 57 165
- Code of practise for the prevention of explosions of acetylene cylinders.

3. Installation

- 3.1 The installation must be carried out by competent, suitably trained personnel who are instructed in the relevant safety procedures. Training and instruction should be repeated at regular intervals.
- 3.2 All parts of the pressure control panel have been tested for function and leak tightness. All openings are covered. The required seals and labels are part of the delivery. The parts will be delivered pre-assembled as much as possible.
- 3.3 Secure mounting plate (1), extension (3) and cylinder bracket to the wall with screws provided
- 3.4 The waste gas pipe on the relief valve of the pressure regulator (4) can be connected with a "Ermeto"-fitting e.g. GE 8-LL/1/8 NPT (for pipe OD 8 mm)
The waste gas pipe on the safety valve SV73 (pos.5) may be connected either to the gland 14x2 by welding or with a "Ermeto"-fitting "G".

Important direction:

Piping for acetylene must not consist of copper or alloys of more than 70% of copper. This is valid for the pipe system to the tapping points as well as waste gas pipes mentioned in chapter 3.4

Steel pipes according to TRAC 204 point 4 are permitted.

- 3.5 Position the cylinders in front of the brackets and secure with safety chain or -belt.
- 3.6 Check if cylinder valve connections, threads, hose connectors and sealings are without damage (briefly purge using compressed dry air if necessary).
If any damage should be found the pipe must not be connected.
- 3.7 Connect pressure control panel and gas cylinder by high-pressure hose.
- 3.8 Test for leak-tightness
After the installation has been completed, the whole system must be checked for leak-tightness before start-up.
- 3.9 Tests before the first start-up
 - Equipment/accessories
 - Location of installation (protected area, hazardous area, floor)
 - Solidity of installation
 - Documents about performed tests and proofs of testing of materials.

