Operating Instructions

1. Intended use

Pressure limiting valves for compressed air, gases or fluids for reducing briefly occurring pressure surges or to prevent an impermissible high pressure increase in the system.
Pressure limiting valves cannot be used as flow rate regulating elements or stop valves.
The pressure limiting valves of the series **10BP** are a type of compact spring-loaded pressure limiter.

The general function of a pressure limiter is described in the following film. Animation film pressure limiter

2. Information on the usage instructions

Any handling of the device is under the condition that these usage instructions are understood and followed. The device is intended only for the application described.

2.1 Symbols

This symbol points out special information or mandatory or prohibited actions to prevent damage. These instructions serve the purpose of **occupational safety!**

This symbol is placed next to important instructions, for observing regulations or if there is a risk of material damage.

3. Safety

3.1 Safety information

Do not endanger yourself or others. Read the following safety information before you install, operate or repair fixtures.
They serve to avoid danger to persons and the plant. The handling of technical gases – in particular flammable, self-igniting or toxic gases – requires expertise, the observation of these usage instructions and special safety measures. Additionally, any relevant regulations and guidelines must be observed. (see 3.2)

Use the fixtures only as intended (see section "Intended use"). The same is valid for the medium used with them: Improper usage can damage the system or even lead to injuries which could be fatal.

Employ gas monitoring devices if you are handling dangerous gases. These monitoring products detect leaks and warn personnel.

Wear respirator mask, safety goggles as well as safety gloves if you work with toxic gases and ensure good ventilation. Make sure that exhaust openings cannot be plugged up and that toxic gases can be exhausted on fixtures and plants accordingly with venting valves. Some gases can displace oxygen from the air and cause suffocation. Make sure you have good ventilation when using such gases. It is quite recommendable to install detectors that emit an alarm in case of a lack of oxygen at the workplace.

10BP Pressure limiting valve
Oils and greases must never be used on gas regulating systems. They can ignite easily and react violently with some pressurised gases. **In special cases, lubricants can be used that are suited then for the respective application.** Implementing AirCom pressure limiting valves in oxygen applications is only permitted with appropriately marked devices.

Special safety information for pressure limiting valves.
If devices are connected to the pressure limiting valve, the setting of the pressure limiting valve needs to ensure that no dangerous pressure can build up. The medium discharging from the outlet of the pressure limiting valve has to be carried away in a defined manner.
When changing the type of gas, the pressure limiting valve should be purged sufficiently with inert gas.

3.2 Regulations and guidelines

The following regulations and guidelines must be observed in Germany on a case-by-case basis:

- Standards of prevention
- Operating working materials
- Guidelines for laboratories
- Ordinance on Industrial Safety and Health
- Data sheet "Dangerous substances"

4. Installation

4.1 Transport and packaging

When the pressure limiting valves are delivered, please check for possible transport damage or defects. The connection openings of the pressure limiting valves may be closed for transport by caps to prevent dirt particles from entering. Do not remove the caps until just before installation. In case of a later disassembly, the connection openings need to be closed again before being put into storage or being transported. This can also be done provisionally by a strip of adhesive tape that is taped over the opening.
The transport of the pressure limiting valve (e.g. sending to customer service) may be done only in a suitable sturdy package.

4.2 Preparation

• Turn the adjusting screw (hand wheel, spindle, hexagon) on the pressure limiting valve anticlockwise until the range spring is completely relaxed.
• Connect pressure limiting valve – connection threads have to match.
• To ensure the pressure limiting valve is in perfect working condition, all lines needs to be purged prior to installation. Deposits and other foreign objects can cause damage to the valve seat, and thus interfere with the regulating function or make it impossible. No lubricants may be used during installation. The pressure limiting valve may soil and there is a risk of burning out if oxygen or nitrous oxide is used.

10BP Pressure limiting valve
The pressure limiting valve has to be installed in the line in such a way that the medium flows in the direction of the arrows stamped/adhered onto the housing (IN to OUT). Internal filters are only for the protection against possible soiling during the installation. It is recommended to use external input pressure filters. All gaseous media should be free of moisture to prevent icing of the pressure limiting valve at high flow rates.

4.3 Operating

The desired upstream pressure is set by turning the adjusting screw (hand wheel, spindle, hexagon). Turning clockwise increases the upstream pressure, turning anticlockwise reduces the upstream pressure.
The general function of a pressure limiting valve is described in the following film.

Animation film pressure limiter

Fine adjustments should always be made in the direction of upstream pressure increase in order to reach the

precise setting point. These pressure limiting valves function with all media that are compatible with the specified materials.

The pressure limiting valves may only be operated within the values specified in the technical specifications. An operation outside of the permitted values can overload and damage the seals.

Warning:
With some devices, "overtightening" the adjusting screw (hand wheel, spindle, hexagon) can lead to a much higher upstream pressure than the maximum factory-specified value.
Operating a pressure limiting valve with a much higher pressure than the factory-specified upstream pressure can have the following consequences:

• If the setting spring is compressed to a value near the block length, it will show a greatly changed characteristic curve with a negative effect on the regulating function of the pressure limiting valve (e.g. incomplete opening of the regulating valve, indicated by a creeping delayed rise or fall of the upstream pressure).
• The internal parts will be subjected to loads beyond their design limits which might deform them permanently.
Damages due to an excessively high setting of the upstream pressure are excluded from any warranty.

4.4 Shutting down

- Close inlet.
- Consume remaining medium completely or drain completely.
- Turn the hand wheel anticlockwise until the pressure range spring is completely relaxed.

5. Maintenance

Do not carry out any maintenance/repair on fixtures that are under pressure!

Repair and maintenance may only be carried out by trained technicians! Under normal operating conditions, an inspection is recommended every 6 months during which the device is inspected for external damage and the function is checked. If operating conditions are unusually excessive, shorter maintenance intervals may be necessary.

5.1 Troubleshooting
1. Problem: After adjusting the pressure limiting valve, the upstream pressure continues to rise even without any turns to the adjusting screw (hand wheel, spindle, hexagon).
Possible cause: The valve seat is soiled or the diaphragm or the piston is damaged. Measure: The valve seat, diaphragm or the piston needs to be cleaned or replaced.

2. Leakages around or at the spring cap or permanent discharging at the output.
Possible cause:
    1. The spring cap needs to be retightened.
    2. 2. There is dirt or there are scratches on the valve tappet / diaphragm / piston.

Measure: Replace the diaphragm / piston or the tappet (repair kit)

5.3 Spare parts
Only original spare parts may be used for repairs. Replacements are to be carried out only by trained personnel. You can find spare parts at www.aircom.net

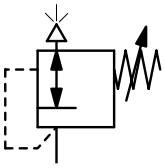
5.4 Repairs

Defective devices can be sent in to AirCom Pneumatic GmbH. After a thorough inspection, a cost estimate is created with results of the inspection.

Pressure limiting valves that are not used with compressed air or neutral gases need to be cleaned or purged with inert gas before they are sent in. Additionally the medium used as well as a fault description needs to be listed in the cover letter.

PRECISION BACK PRESSURE REGULATOR OF ADVANCED ACCURACY, UP TO 35 BAR 10BP

Description	The back pressure regulator is a high-flow, high-precision pneumatic relief valve with adjustable setpoint. It provides protection against overpressure in the downstream section of pneumatic systems. A convoluted diaphragm provides the sensitivity for venting to the atmosphere in response to the slightest upstream change.
Media	compressed air or non-corrosive gases
Overpressure	max. 21 bar up to pressure range of 14 bar, max. 35 bar beyond
Adjustment	by handwheel with locknut
Gauge port	¼″ NPT on both sides of the body, screw plugs supplied
Mounting position	any
Temperature range	0 °C to 90 °C / 32 °F to 194 °F, for appropriately conditioned compressed air down to -40 °C / -40 °F
Material	Body: aluminium die-cast Elastomer: NBR/Buna-N, optionally FKM Inner valve: stainless steel and brass



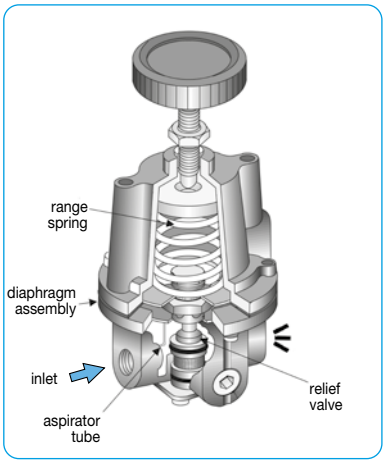
G¼ up to G½, 1200 l/min
10…140 mbar/28 bar

Dimensions A mm	B mm	C mm	Relief capacity l/min*1	Over-pressure max. bar	Connection thread G	Adjustment range bar	Order number	D*
Precision back pressure regulator overpressure max. 21/35 bar							**Model 10BP**	
67	162	19	1200	21	G¼	0.01… 0.14	**10212BPH**	
						0.01… 0.7	**10222BPH**	
						0.01… 2.1	**10232BPH**	
						0.07… 4.1	**10242BPH**	
						0.14… 10	**10262BPH**	
						0.20… 14	**10272BPH**	
67	171	19	1200	35	G¼	0.30… 21	**10282BPH**	
						0.30… 28	**10292BPH**	

Modell 10BP

Special options, add the appropriate letter

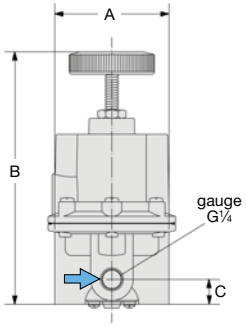
G⅜	connection thread	102.**3**BPH
G½	connection thread, recommended for mbar range	102.**4**BPH
NPT	connection thread	102.2BP
FKM elastomer		102..BP.**J**
no yellow metals	FKM elastomer	102..BP.**X63**
tamper-proof cap	aluminium, adjustment by screwdriver, total height 159 mm	102..BP.**T**



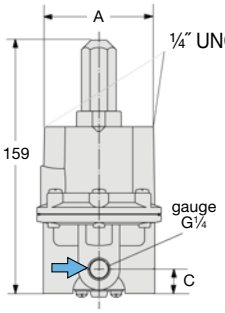
cross section

Accessories, enclosed B*

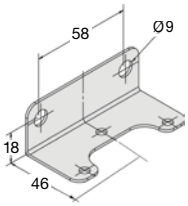
pressure gauge	Ø 50 mm, 0…*2 bar, G¼	**MA5002-..*2**
	Ø 50 mm, 0… 25 bar, G¼	**MA5002-25**
	Ø 50 mm, 0… 60 bar, G¼	**MA5002-60**
	Ø 63 mm, 0…160 mbar, G¼	**MA6302-C2**
mounting bracket	made of steel	**BW00-34**
gauge connector	made of brass, adapter ¼″ NPT - G¼ female	**AM-06**



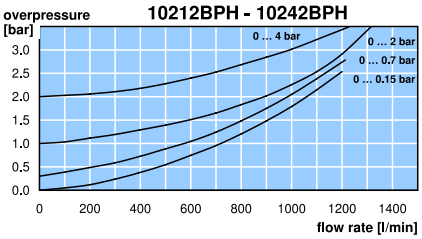
10BP

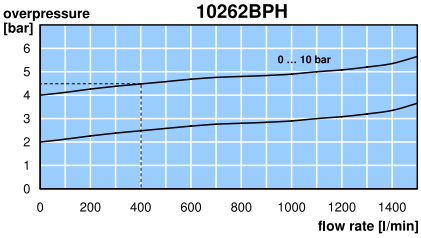


10BP with tamper-proof cap



BW00-34





*1 at 5 bar overpressure and open outlet
*2 **01** = 0…1 bar, **02** = 0…2.5 bar, **06** = 0…6 bar, **10** = 0…10 bar, **16** = 0…16 bar, **25** = 0…25 bar, **60** = 0…60 bar

* Product group

Gauges: see chapter for measuring devices

PDF CAD
www.aircom.net

Order example: 10212BPH