

Multi-function valve
PENTABLOC
Operating instructions



Read the operating manual!

The user is responsible for installation and operation related mistakes!

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1 Notes for the Reader

This operating manual contains information and rules of conduct to ensure the safe and intended operation of the product.

Observe the following principles:

- Read the entire operating manual prior to commissioning the product.
- Ensure that everyone who works with the product has read the operating manual and complies with the instructions that they contain.
- Keep the operating manual throughout the service life of the product.
- Pass on the operating manual to any subsequent owner of the product.

1.1 General non-discrimination

In this operating manual, only the male gender is used where grammar allows gender allocation. The purpose of this is to make the text easy to read. Men and women are always referred to equally. We would like to ask female readers for understanding of this text simplification.

1.2 Explanation of the signal words

Different signal words in combination with warning signs are used in this operating manual. Signal words illustrate the gravity of possible injuries if the risk is ignored:

Signal word	Meaning
DANGER	Refers to imminent danger. Ignoring this sign may lead to death or the most serious injuries.
WARNING	Refers to a potentially hazardous situation. Failure to follow this instruction may lead to death or severe injuries.
CAUTION	Refers to a potentially hazardous situation. Failure to follow this instruction may lead to minor injury or damage to property.
NOTE	Refers to a danger which, if ignored, may lead to risk to the machine and its function.

Table 1: Explanation of the signal words

1.3 Explanation of the warning signs

Warning signs represent the type and source of a danger:




Warning sign	Type of danger
	General danger zone
	Danger of caustic or other burns
	Danger of damage or functional influences

Table 2: Explanation of the warning signs

1.4 Identification of warnings

Warnings are intended to help you recognise risks and avoid negative consequences.

This is how warnings are identified:

Warning sign	SIGNAL WORD
Description of danger. Consequences if ignored. ⇒ The arrow signals a safety precaution to be taken to eliminate the danger.	

1.5 Instruction for action identification

This is how pre-conditions for action are identified:

- ✓ Pre-condition for action which must be met before taking action.

This is how instructions for action are identified:


- ➔ Separate step with no follow-up action.
- 1. First step in a series of steps.
- 2. Second step in a series of steps.
 - ▶ Result of the above action.
- ✓ **Action completed, aim achieved.**


2 General

2.1 General warnings

The following warnings are intended to help you to eliminate the dangers that can arise while handling the product. Risk prevention measures always apply regardless of any specific action.

Safety instructions warning against risks arising from specific activities or situations can be found in the respective sub-chapters.

	WARNING
Danger from unsuitable materials <p>The materials of the dosing pump and hydraulic parts of the system must be suitable for the dosing medium that is used. Should this not be the case, the dosing media may leak.</p> <ul style="list-style-type: none"> ⇒ Make sure that the materials you are using are suitable for the dosing medium. ⇒ Make sure that the lubricants, adhesives, sealants, etc. that you use are suitable for the dosing medium. ⇒ Wear appropriate personal protective equipment, especially for the protection of eyes and skin. 	

	CAUTION
Danger when changing the dosing medium! <p>Changing the dosing media can provoke unexpected reactions, damage to property and injury.</p> <ul style="list-style-type: none"> ⇒ Clean the dosing pump and the system parts in contact with the media thoroughly before changing the dosing medium. 	

2.2 Hazards due to non-compliance with the safety instructions

Failure to follow the safety instructions may endanger not only persons, but also the environment and the device.

The specific consequences can be:

- danger for individuals through dangerous dosing media,
- danger to the environment caused leaking from the system.

2.3 Personal protective equipment

Based on the degree of risk posed by the dosing medium and the type of work you are carrying out, you must use corresponding protective equipment. Read the Accident Prevention Regulations and the Safety Data Sheets to the dosing media find out what protective equipment you need.

You will require the minimum of the following personal protective equipment:




Personal protective equipment required	
	Protective goggles
	Protective clothing
	Protective gloves

Table 3: Personal protective equipment required

Wear the following personal protective equipment when performing the following tasks:

- Installation,
- Shut-down,
- Maintenance work.

2.4 Personnel qualification

2.4.1 Specialist staff

Thanks to their professional training, knowledge, experience and knowledge of the relevant specifications, specialist staff are able to perform the job allocated to them and recognise and/or eliminate any possible dangers by themselves.

2.4.2 Personnel tasks

In the table below you can check what qualifications are the pre-condition for the respective tasks. Only people with appropriate qualifications are allowed to perform these tasks!

Qualification	Activities
Specialist staff	<ul style="list-style-type: none"> ■ Installation ■ Operating ■ Maintenance

Table 4: Personnel qualification

3 Intended use

The Multi-function valve PENTABLOC includes various functions and fulfils the following tasks:

- The pressure retaining function to optimise dosing accuracy.
- The anti-siphon function avoids undesired siphoning.
- The safety function protects the dosing pump and the connected system against excess pressure.
- Option for pressure-relief in the delivery line by returning the medium to the supply tank.
- Dosing control from a bouncing ball in a transparent viewing tube.

Intended purpose

The Multi-function valve PENTABLOC ensures the exactness of dosing pumps with fluctuating back pressure, especially in the area with a pressure of 0 to c. 1 bar. When dosing in unpressurised systems, the inertia of the accelerated fluid leads to overdosing. As such, the dosing pumps must be protected against too high a level of pressure, in order to be able to dose the exact quantity.

4 Product description

4.1 Scope of delivery

Please compare the delivery note with the scope of delivery. The following items are part of the scope of delivery:

- Multifunctional valve PENTABLOC
- Return hose

4.2 Design

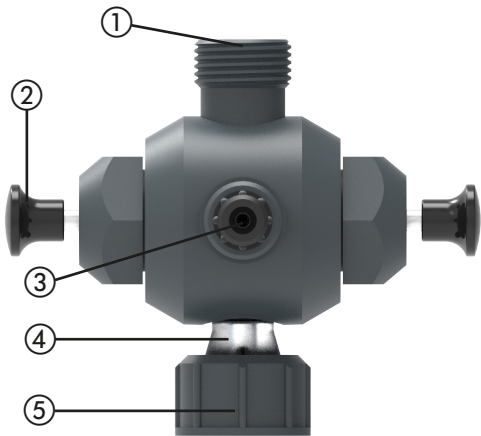


Fig. 1: Design

Item	Description
1	Connection to injection nozzle (output)
2	Handles
3	Output to return
4	Dosing display (only with PVC and PMMA)
5	Connection to the dosing pump (input)

Table 5: Position numbers

4.3 Functions

4.3.1 Pressure retaining function

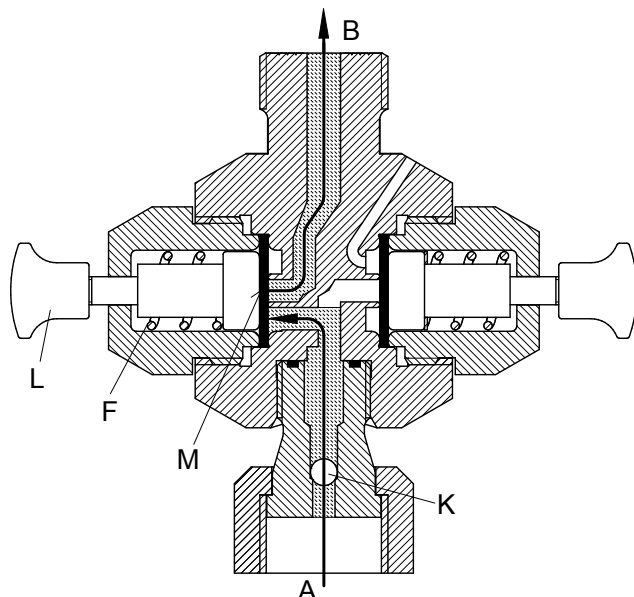


Fig. 2: Function of the back-pressure valve

The back-pressure function is achieved when a medium entering at input (A) presses against the diaphragm (M). The spring (F) of the left-hand grip (L) is moved from a pressure of c. 1.5 or 3 bar. The medium can flow to output (B).

The intermittent media flow entering the dosing pump causes the ball (K) to jump visibly.

4.3.2 Anti-siphon function

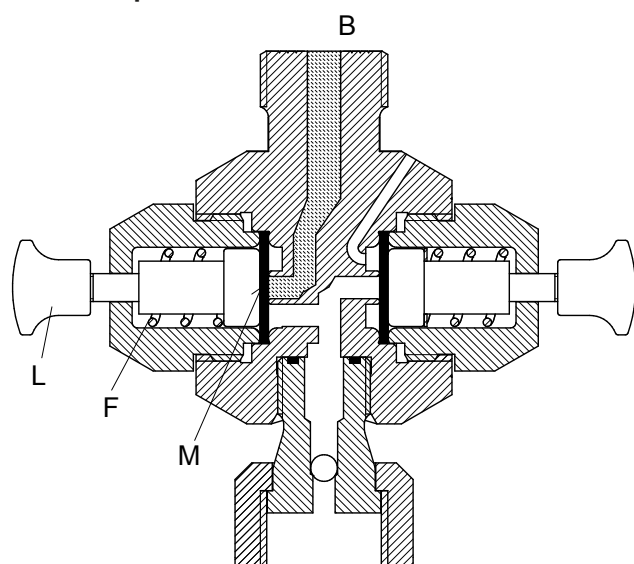


Fig. 3: Function as an anti-siphon valve

The Pentabloc serves as an anti-siphon valve. The design prevents the medium from flowing in an uncontrolled fashion, whether through an operational vacuum or resulting from a siphon effect.

4.3.3 Pressure-relief function

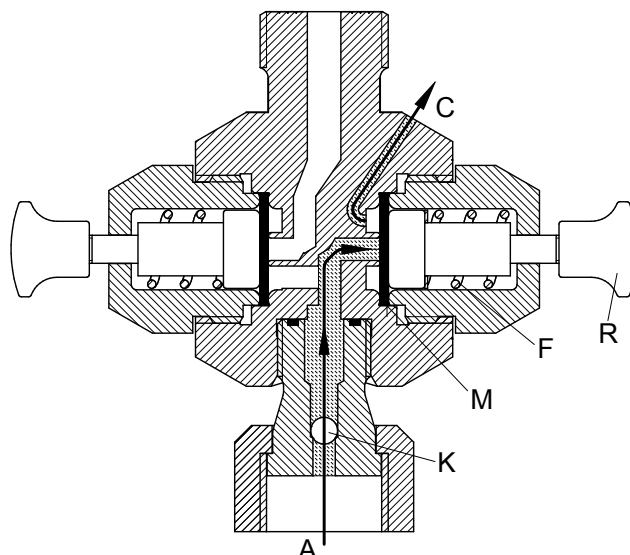


Fig. 4: Function as a pressure-relief valve

The Pentabloc serves as a safety valve, if the system pressure exceeds 5 or 11 bar. In this case, the medium presses against the diaphragm (M) and the spring of the right-hand grip (R) concedes. This medium can flow to the output for the return (C) and is led into the dosing medium container via a return hose.

4.3.4 Pressure relief function

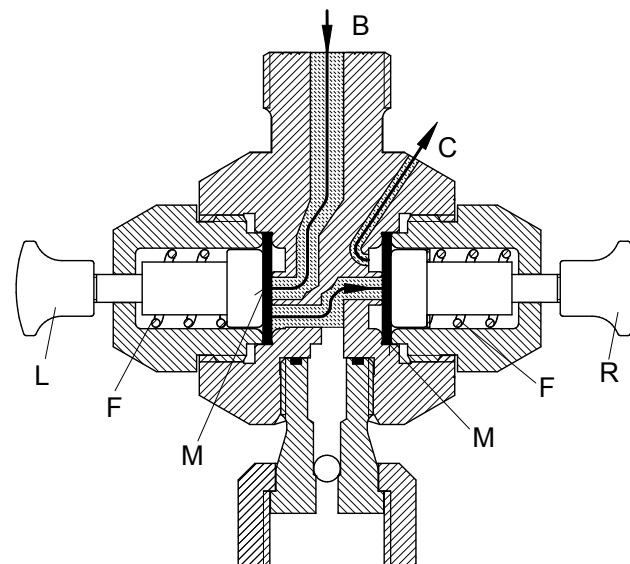


Fig. 5: Function for system pressure relief

The Pentabloc has a function to relieve the piping system when the pump is not working. To do so, pull both handles outwards at the same time. The medium can flow out of the output to the return through a return hose into the dosing medium container.

5 Technical data

Description	Value
Housing material	PVC / PP / PVDF / PMMA
Seal material	FPM or CSM / EPDM
Diaphragms	FPM or CSM
Inlet connection	Union nut G 5/8 or G 3/4
Outlet connection	Tap G 5/8 or G 3/4
Opening pressure of the safety valve	5 or 11 bar
Holding pressure	1.5 or 3 bar
Max. ambient temperature	5 - 40 °C (PVC, PMMA) 5 - 50 °C (PP, PVDF)
Max. temperature of the medium	35 °C (PVC, PMMA) 50 °C (PP, PVDF)
Weight	210 g
Application area	Dosing pumps motor up to 45 l/h Solenoid dosing pumps up to 8 l/h
Max. media viscosity	20 mPa · s

Table 6: Technical data

6 Operation

6.1 Installation

Precondition for action:

- ✓ All devices have been deactivated and pressure-free.

Perform the following working steps:

1. Connect the dosing pump connection (pos. 5) to the dosing pump pressure valve and tighten the union nut by hand.
2. Connect an appropriate hose to the connection to the injection nozzle. Do not use the return hose included in the scope of delivery for this purpose! This is not suitable for use in pressure lines.
3. Connect a return hose to the output to the return (pos. 3).

- ✓ **The Multi-function valve was installed successfully.**

6.2 Maintenance intervals

Maintenance work to be carried out	Frequency
Visual inspection	With use, daily
Replace seals	Annually

Table 7: Maintenance intervals

7 Declaration of no objection

Please copy this declaration, stick it to the outside of the packaging and return it with the unit.

Declaration of no objection

Please fill out a separate form for each appliance!

We forward the following device for repairs:

Device and device type:

Part-no.:

Order No.:

Date of delivery:

Reason for repair:

.....

.....

Dosing medium

Description:

Irritating: ☐ Yes ☐ No

Properties:

Corrosive: ☐ Yes ☐ No

We hereby certify, that the product has been cleaned thoroughly inside and outside before returning, that it is free from hazardous material (i.e. chemical, biological, toxic, flammable, and radioactive material) and that the lubricant has been drained.

If the manufacturer finds it necessary to carry out further cleaning work, we accept the charge will be made to us.

We assure that the aforementioned information is correct and complete and that the unit is dispatched according to the legal requirements.

Company / address:

Phone:

.....

Fax:

.....

Email:

Customer No.:

Contact person:

Date, Signature:

8 Warranty claim

Warranty claim

Please copy and send it back with the unit!
If the device breaks down within the period of warranty, please return it in a cleaned condition with the complete warranty claim.

Sender

Company: Phone: Date:

Address:

Contact person:

Manufacturer order no.: Date of delivery:.....

Device type: Serial number:

Nominal capacity / nominal pressure:

Description of fault:.....

.....

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Service conditions of the device

Point of use / system designation:.....

.....

.....

Accessories used (suction line etc.):.....

.....

.....

.....

Commissioning (date):

Duty period (approx. operating hours):

Please describe the specific installation and enclose a simple drawing or picture of the chemical feed system, showing materials of construction, diameters, lengths and heights of suction and discharge lines.

9 Notes to EU conformity

The device falls under the purview of the pressure equipment directive 2014/68/EU.

The values stated below do not exceed the limit values in accordance with article 4, paragraph 1. Therefore, it is designed and manufactured in accordance with valid good engineering practice

This pressure device may not carry a CE marking in accordance with article 4 section 3 and an EC declaration of conformity will not be issued.

Device designation:	Multi-function valve
Type:	PENTABLOC
Pressure stage:	PN16
Nominal diameter:	DN4
Max. temperature:	35 °C or 50 °C
Medium:	Fluid, fluid group 1

The device fulfils all the demands made by the directive(s):
2014/68/EU (Pressure equipment directive)

The following harmonized standards were applied:
DIN EN ISO 12100:2010

Manufacturer and distributor of the device:
Lutz-Jesco GmbH
Am Bostelberge 19
30900 Wedemark, Germany

