

Installation and maintenance guide

DAVtech

PRESSURE REDUCER DAT 096

0 - MAX. 7BAR



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1 INTRODUZIONE

1 INTRODUCTION

1.1 The manual

The user guide is the document that accompanies the valve from the time of its construction and throughout the period of use, it is therefore an integral part of the valve. It requires reading the manual before taking any action involving the valve. The manual must be readily available for use by staff and maintenance of the valve. The user and the attendant use are required to know the contents of this manual.

Reproduction of any part of this manual, in any form, without the express written permission of DAV Tech. The text and illustrations in this manual are not binding, the DAV tech reserves the right, at any time and without notice, the right to make any changes to improve the product or for reasons of character manufacturing or commercial.

1.2 Warranty

The warranty is valid for a period of 12 months from the date of commissioning and no later than 15 months from the date delivery. The interventions carried out during the warranty period does not extend in any way the validity period of the guarantee. The seller is not liable for defects caused by normal wear of parts which by their nature are subject to wear.

1.3 Goods receiving

The original configuration of the component must never be changed.

Upon receipt of the goods, check that:

- The packaging is intact
- The exact correspondence of the material ordered.

2 TECHNICAL DESCRIPTION

Operation of the pressure reducer

DAT 096 pressure regulators are used for manual adjustment of fluid pressure.

They are available in pressure ranges of 0 - 7 bar, 0 - 25 bar and 0 - 50 bar. These regulators are made of stainless steel. In this way they are suitable for most fluids f.i. glues, adhesives, colors, varnishes, release agents, oils.

The diaphragm is made of Viton®, resp. the material of the diaphragm on the side is made of PTFE. The diaphragm of the 0 - 50 bar regulator is also made of a special fabric. The valve balls are made of ceramic.

Technical specification

Model	DAT 096
Diaphragm	Viton® / PTFE
Gasket material:	Viton®
Inlet pressure	0 - 7 bar = max. 40 bar 0 - 25 bar = max. 40 bar 0 - 50 bar = max. 70 bar
Manometer:	Stainless steel ø 63mm
Connections:	1/2"
Material:	Stainless steel

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2 INSTRUCTIONS FOR THE USER

2.1 Purpose of the document

These instructions

- > are intended as an important source of information and reference material for personnel to install and operate the product.
- > describe how to work, assemble and maintain the product.
- > provide important advice for handling the product safely and efficiently.

2.2 Explanation of symbols

Important information, such as safety instructions, are identified by corresponding symbols. It is essential to follow these guidelines to prevent accidents and damage to the product.



WARNING! Risk of injury!

This symbol identifies all the safety instructions contained in these instructions for use. Failure to observe them carries a risk of injury or death. Carefully observe these work safety instructions and pay particular attention when you see this symbol.



IMPORTANT! This symbol identifies all the safety instructions contained in these instructions for use, which must be observed as otherwise damage and/or malfunction of the device could occur.



NOTE! The warning symbol draws your attention to useful tips and other information contained in these operating instructions. All of this information must be observed in the interest of effective operation of the device.

2.3 Intended use

The material pressure regulators have been manufactured according to the EC directive in line with the latest state of the art and recognized rules of engineering.

However, its use can present risks for the life and physical integrity of the user or third parties, or it can damage the machine or cause other damage.

Material pressure regulators are used in connection with one or more consumers for the continuous application of fluids. Under no circumstances should aggressive materials such as acids, alkalis, detergents, etc. be used. Consult the manufacturer if in doubt as to the suitability for use of a particular material.



IMPORTANT!

Use the material pressure regulator only for its intended purpose and under absolutely safe operating conditions! This is the only way to ensure operational safety!

2.4 Reasonably foreseeable misuse

**WARNING! Risk of injury!**

Using the material pressure regulator in a different way than intended can lead to serious damage!

Their use other than or in excess of the intended use is considered improper use!

For damages resulting from improper use:

- > the operator is solely responsible.
- > the manufacturer assumes no liability.

**NOTE!**

Never use aggressive media such as acids, alkalis, detergents, chemicals, poisons, highly flammable substances or gases or the like. The regulator must not be used for media with solid content. Consult the manufacturer if you are in any doubt as to the suitability of a material for your use.

2.4.1 Modifications or Changes

**NOTE!**

Unauthorized modifications or changes void any liability or warranty on the part of the manufacturer.

**IMPORTANT!**

Do not make any changes or additions without consulting the manufacturer and obtaining written agreement!

2.4.2 Spare parts, wearing parts and auxiliary materials

**IMPORTANT!**

The use of spare and wearing parts from third-party manufacturers can present risks. Only use original parts or parts approved by the manufacturer!

**IMPORTANT!**

The manufacturer assumes no liability for damage resulting from the use of spare parts, wearing parts or auxiliary materials not approved by the manufacturer!

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2.5 Risks associated with using the product

During use, there is a possible risk of:

- > injuries to the life and physical integrity of the operator or third parties.
- > damage to the product itself.
- > other damage.



NOTE!

Knowledge of the safety and user instructions contained in this manual is the basis for safe and trouble-free operation.



IMPORTANT!

The operating instructions must always be kept at the place of use! The instructions for use must always be freely accessible to operators, service personnel, etc.

In addition, the following should be observed:

- General and local regulations on accident prevention and environmental protection.

The following risks in particular must be taken into consideration:



WARNING! Risk of injury!

Danger due to the emission of high pressure liquids from the device. Always wear personal protective equipment when working on the device!



WARNING! Danger due to hydraulic energy!

Hydraulic energies can cause serious injuries. If a component is damaged, high pressure materials can escape and cause injury and damage!

Therefore:

- > Before starting work on the system, always depressurize the device.
- > Do not remove safety devices or deactivate them through modifications.
- > Do not set pressures higher than the values specified in the instructions for use.

2.6 Residual risks



WARNING! Danger!

Be aware that there is a possibility of residual mechanical and hydraulic energy.

**WARNING! Danger!**

In addition to the precautions recommended by the manufacturer, the operator must take adequate measures to protect himself from the risks deriving from residual energy. Personnel must be trained on the risks and countermeasures to be adopted.

**WARNING! Danger!**

Danger due to pressurized media. Installation, maintenance, troubleshooting, cleaning of the device, etc. should only be performed when the device is not pressurized.

**WARNING! Danger of burns!**

All components of the material pressure vessel can become hot during operation. Wear suitable protective clothing (gloves, etc.)

**Imperative!**

The personal protective equipment listed here must be worn when working on or with the product.

2.7 Obligations of the operator

The operator is obliged to allow the use of the product only to persons who:

- > know the fundamental rules relating to workplace safety and accident prevention.
- > have been trained on how to work with the product
- > have read and understood these instructions.

The operator must also identify any other dangers that may arise from the special working conditions at the place of use of the product by carrying out a risk assessment in accordance with Article 3 of the Ordinance on Occupational Safety and Health (Betriebssicherheitsverordnung). In connection with the risk assessment, operating instructions according to §9 Occupational Safety and Health Ordinance must be prepared, which bring together all further instructions and safety instructions.

The operator will also make the necessary protective devices available to the personnel. A list of the required personal protective equipment can be found in chapter 2.9.

**NOTE!**

The requirements of the EC directive on the use of work equipment 2009/104/EC must be met.

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2.8 Obligations of the operator



IMPORTANT! Only authorized, trained and instructed specialist personnel are authorized to handle the product.

All the people who are called to work on the product are obliged, before starting work:

- > observe the basic rules relating to safety in the workplace and accident prevention.
- > to read and understand the safety chapter and the safety instructions contained in this manual.
- > wear personal protective equipment according to chapter 2.9.



NOTE!

Please contact the product manufacturer if you have any unanswered questions!

2.9 Personal protective equipment



Safety glasses!

(to protect the eyes from airborne objects and fluids)



Safety shoes!

(to protect the feet from injury caused by a falling material pressure regulator)



Protective gloves!

(to protect the skin from rubbing, abrasions, aggressive materials, punctures and deep wounds on the hands)



NOTE!

The use of personal protective equipment depends on the environment in which the device is used and the medium used. For this reason, also observe the risk assessment of the workplace prepared by the operator.

2.10 Liability and Warranty

We have taken into consideration our existing experience and achievements in providing all information and instructions for the operation, maintenance and cleaning of the product to the best of our knowledge.

We reserve the right to make technical changes in the interest of improving the product described in these operating instructions.

Translations are also provided to the best of our knowledge. We cannot accept responsibility for translation errors. The German version of the operating instructions is authoritative.

Descriptions and illustrations may differ from the product supplied. Drawings and diagrams are not to scale.

It is forbidden to pass on these operating instructions to third parties and this will lead to liability for damages.

2.10.1 Warranty

A warranty with the following scope is provided for this product:

All parts which are unusable or whose suitability for use is severely impaired within 24 months for one shift, 12 months for two shifts and 6 months for three shifts from delivery to the buyer due to this delivery - especially faulty design and defects in materials and workmanship - will be repaired or a replacement provided at our option free of charge.

The guarantee takes the form of the replacement or repair of the product or individual parts of the same, at our discretion. We shall bear any expenses incurred herein (transport, toll, labor or material costs), unless the expenses increase because the device was subsequently moved to a location other than the customer's premises. These extra charges are the responsibility of the customer/buyer.

We make no warranty for damages caused solely or in part by the following:

improper or improper use, incorrect installation and/or commissioning, natural wear, incorrect handling and/or maintenance, unsuitable coating substances, substitute materials and/or chemical, electrical and/or physical effects, unless we are responsible.

This declaration does not affect your statutory rights or contractual rights arising from our general terms and conditions.

2.10.2 Wear parts, lifetime warranty

Wear parts are all parts that come into direct contact with the material being processed and/or are subject to wear due to their function. Such parts are excluded from the warranty and from claims for defects insofar as they are based on wear. Replacement of a part does not extend the warranty period of the product.

3 DESCRIPTION

3.1 Risks associated with using the product

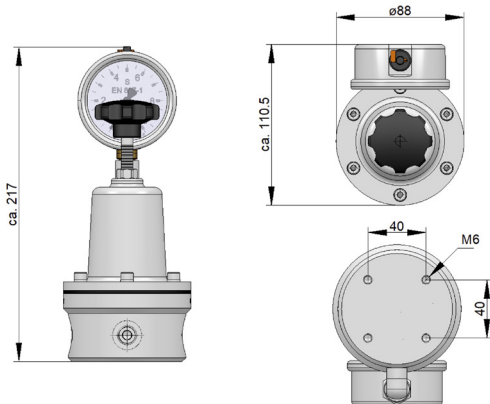
The manual pressure regulator 0 - max. 7 bar is used to regulate the pressures in the material lines. A star grip adjustment spindle is located on top of the device. Screwing it in manually pre-tensions a pressure spring, which activates a tappet in the lower part of the device which, in turn, pushes a ceramic ball out of its sealing seat. This frees up the flow of material. The controlled pressure of the material is now set on the outlet side. Unscrewing the regulating rod releases the pressure spring tension and closes the sealing seat.

3.2 Parameters (technical data)

Type	DAT 096
Dimensions in mm (approx)	dia. 88 x 220
Total weight in kg (approx)	3
Diameter 88 x 220	1/2"
max. material inlet pressure	40 bar
max. material outlet pressure	7 bar

We reserve the right to make technical changes!

3.3 Dimensions



3.6 Structure and links

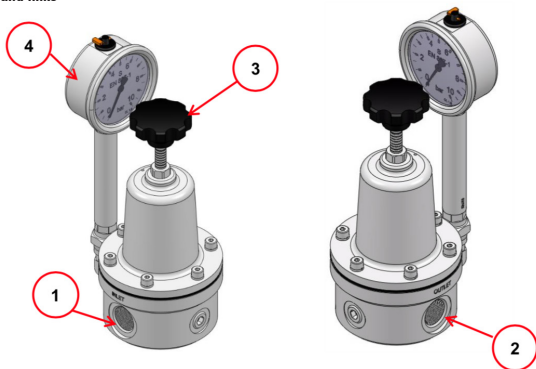


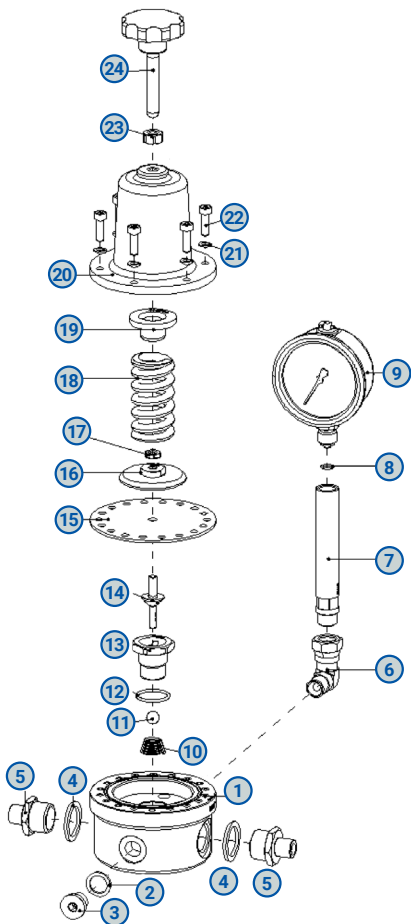
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Nr.	Description
1	Material inlet
2	Material outlet
3	Material return flow regulator (clockwise increases the pressure - counterclockwise decreases the pressure)
4	Manometer (output side pressure)

! **IMPORTANT!** If the seat/seat ball system is dirty or worn, it is possible that the pressure on the outlet side will exceed the preset pressure. If a pressure gauge whose maximum pressure is lower than the inlet pressure is installed, the pressure gauge may be damaged if the sealing seat is not replaced/cleaned in a timely manner.

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3.5 Spare parts DAT 096



3.6 Spare parts list DAT 096

Ref.	Description	Q.ty	Code
1	MAIN BODY	1	510148
2	COPPER SEALING RING	1	640057
3	SCREW CAP	1	220155
4	SHAPED GASKET INLET / OUTLET	2	640154
5.1	NIPPLEX INLET / OUTLET 1/2"-1/2"	2	220194
5.2	NIPPLEX INLET / OUTLET 3/8"-1/2"	2	220240
6	90° FITTING	1	221509
7	PRESSURE GAUGE TUBE	1	855702
8	O-RING	1	640019
9	PRESSURE GAUGE 0-10 BAR	1	450032
10	CONICAL SPRING	1	820058
11.1	SPHERE / BALL, CERAMIC (VERSION: STAINLESS STEEL / CERAMIC - KG)	1	650016
11.2	SPHERE / BALL, CERAMIC (VERSION: CARBIDE / CERAMIC - KG)	1	650020
12	O-RING	1	640038
13.1	SEALING SEAT (VERSION: STAINLESS STEEL SEALING SEAT)	1	810029
13.2	SEALING SEAT (VERSION: CARBIDE SEALING SEAT)	1	810218
14.1	VALVE TAPPET (VERSION: STAINLESS STEEL SEALING SEAT)	1	320166
14.2	VALVE TAPPET (VERSION: CARBIDE SEALING SEAT)	1	321012
15	DIAPHRAGM	1	640181
16	LOWER DIAPHRAGM COUNTER BEARING	1	930041
17	HEXAGONAL NUT	1	410007
18	PRESSURE SPRING	1	820056
19	UPPER DIAPHRAGM COUNTER BEARING	1	930040
20	LOCK HOUSING	1	510107
21	SPRING WASHER	6	620024
22	SCREW	6	610944
23	STAR GRIP NUT	1	410063
24	STAR GRIP	1	610138

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4 INSTALLATION



WARNING! Risk of injury!

Hydraulic energies can cause serious injuries. If a component is damaged, high pressure materials can escape and cause injury and damage!

The material pressure regulator can be installed in any position.

Screw the material pressure regulator tight and tight!

For screw connection of the material pressure regulator, there are four M6 threads located under the device.

To avoid damage to connected devices on the outlet side, a safety valve can be integrated into the hose, which allows any pressure exceeding the permissible level to safely escape.

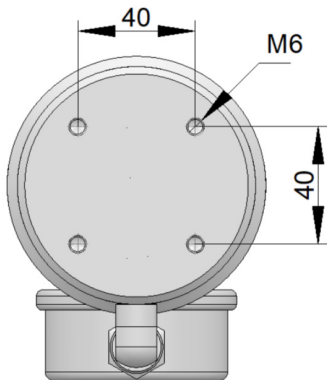


Fig. 4/1

4.1 Hose installation / Pipe installation

How the pipe or various hoses are installed depends on the size of the pipe and the type of connections.



WARNING! Risk of injury due to material pressure!

Only qualified personnel may work on the material pressure regulator in compliance with the safety regulations.

When working on the material pressure regulator, be sure to:

- > Depressurise the regulator before starting work
- > Do not remove or disable safety devices.
- > Do not set pressures higher than the maximum allowed values.
- > Install all hoses securely so that the pressure lines cannot be damaged by moving parts of the machine or system.
- > Do not start the material pressure regulator until the work is finished.



IMPORTANT!

Only supply cables, lines, hoses and screw connections may be used which are designed and constructed in accordance with the applicable regulations. They must be designed to withstand the thermal, chemical and mechanical stresses expected during operation.

4.2 Installation instructions

**WARNING! Risk of injury!**

To avoid personal injury and/or property damage, it is essential to observe the following when installing the device.

The device must be installed in a machine or plant in such a way that dangers such as:

- > the leakage of high pressure fluids
- > electricity
- > malfunctions of the device, machine or system
- > failure or malfunction of the system control
- > loud noises or interference with the acoustic signals

nearby. To protect people working on the device, machine or system, effective safety devices and warning signs must be provided. Furthermore, the relevant safety instructions must be integrated into the operating/installation instructions of the machine or system.

4.3 Commissioning

**WARNING! Risk of injury!**

Only trained and qualified personnel may put the machine or system into operation in accordance with the safety and accident prevention regulations.

Observe the following before putting the machine or system into operation:

- > Make sure that there are no tools or other foreign bodies inside the machine or system.
- > Check that the device and all other parts are secure.
- > Check that all electrical, hydraulic and pneumatic connections are on the correct ports and are secure.
- > Check that the set pressures correspond to the nominal and connection values of the device.
- > Check the functioning of the safety devices.

1. Turn on the power.
2. Activate the material flow.
3. Start the device manually.
4. Verify that the device works and works properly.
5. Verify that the device is within all specified set value ranges.

Once it is ascertained that the device works perfectly, the device can be used in compliance with all accident prevention regulations.

5 OPERATION

5.1 General and safety instructions for operation

In normal operation the material pressure regulator requires no operating personnel. To avoid failures, the function of the material pressure regulator must be checked regularly by qualified inspectors.

Regular monitoring of the outlet pressure will prevent damage to devices connected to the outlet side caused by overpressure.



IMPORTANT!

In the event of malfunctions or irregularities, switch off the material pressure regulator immediately.

In the event that the faults cannot be eliminated (see chap. 6.2 "Faults"), inform the customer service of the manufacturer. Use only trained personnel for regular cleaning.

The product presents the following dangers during operation:



WARNING! Risk of injury!

If used incorrectly, there is a risk that fluids will be sprayed under high pressure.



WARNING! Risk of injury!

The material pressure regulator should never be opened until the pressure has been fully released.



WARNING! Danger of burns!

All components of the material pressure regulator can become hot during operation. Wear suitable protective clothing (gloves, etc.)

5.2 Shutdown

Before switching off the appliance for a long time, the following operations must be carried out in compliance with the safety regulations:

- > Depressurise the connected lines.
- > Unmount Lines
- > Remove material residues from the device.
- > Clean the device inside and out. (Observe chapter 6 "Maintenance and service").

6 MAINTENANCE AND SERVICE

Safety instructions



WARNING! Risk of injury!

Improper use of the material pressure regulator carries the risk of serious personal injury and serious damage. Therefore, maintenance and cleaning work must only be carried out by qualified personnel or personnel specially trained for these tasks (training to be documented)!

Carry out maintenance and cleaning work on the material pressure regulator only when the regulator and the system are pressureless!

WARNING! Danger of burns!

Allow the device to cool down before carrying out any work on the material pressure regulator!

6.1 General and safety instructions for maintenance and service

Cleaning

The material pressure regulator needs to be cleaned if

- > is dirty from use
- > a different material must be used
- > parts subject to wear must be replaced.



IMPORTANT!

Do not use sharp-edged metal tools for external cleaning; use only soft brushes.

Solvents or halogenated cleaners can cause chemical reactions when used on aluminum and galvanized components. This can lead to explosive and chemical reactions! Therefore, only cleaners may be used that do not contain the ingredients mentioned above.

Maintenance

The material pressure regulator must be serviced/checked regularly, as the seals begin to wear out after a certain time and are subject to natural wear. Defective seals can be identified by the fact that air or fluid escapes from the connection points where the seals are mounted.

Make sure that the gasket material used is compatible with the fluid used.

Before starting any maintenance work:

- > Wear personal protective equipment.
- > Depressurise the material pressure regulator.
- > Disconnect the lines.

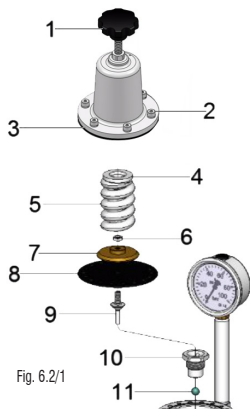


NOTE!

The material pressure regulator should be checked regularly for wear. It is not possible to concretely predict when wear will occur, since this depends on the material being processed and the conditions of use.

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6.2 Replacing the seat and the ball



1. Depressurise all connections and shut off the material supply by disconnecting the lines!
2. Unscrew the adjusting rod (1) until you no longer feel any tension on the compression spring.
3. Undo the Allen screws (2) and unscrew them.
4. Remove the lock housing (3).
5. Remove the compression spring (5) and spring counter bearing (4).
6. Loosen the nut (6) and remove the diaphragm counter bearing (7) and diaphragm (8).
7. Pull the valve tappet (9) out of its sealing seat.
8. Unscrew the O-ring (10) and remove the ball (11). The ball spring located below must remain in its position in the main body (12).
9. Place the new ball on the conical spring and screw in the new seat.
10. Reassemble the device by repeating the same steps in reverse order.
11. Carry out a function test of the device after replacing the seat and the ball!



IMPORTANT!

Always replace the seat (10) and the ball (11) together.



NOTE! When installing seal seats and balls that have already been used, these must first be cleaned of all deposits and material residues. Material residues in the sealing seat can cause leaks in the system, while balls with hardened material residues can damage the sealing seat.

7 DEFECTS

7.1 General and safety rules relating to breakdowns

Mechanical, pneumatic or hydraulic faults must be eliminated by personnel trained and qualified in the relevant field. The manufacturer must be informed of defects which cannot be remedied by the measures described.



WARNING! Risk of injury!

Improper and incorrect interventions on the material pressure regulator, machine or system lead to serious risks of personal injury and/or damage! Therefore, only trained qualified personnel can correct faults.

Before, during and after all work to eliminate faults, the warnings and safety regulations in chapter 5.2 "Maintenance and repairs" must be observed!

7.2 In case of failure

In the event of a malfunction, the material pressure regulator must be switched off immediately.



WARNING! Risk of injury!

Improper and incorrect interventions on the device, machine or system lead to serious risks of personal injury and/or damage. Therefore, only trained qualified personnel can correct faults.

Before, during and after all troubleshooting work, the warnings and safety regulations in chapter 6 "Maintenance and repairs" must be observed!

7.3 Malfunctions

Defect	Possible Cause	Solution
The pressure on the outlet side increases without actuation of the regulating rod	Seal seat dirty or worn (12.0)	Clean/replace the seat (12.0) and the ball (14.0) In no case should you try to suppress the problem by re-fixing something.
Fluid escapes between the diaphragm and housing or from the bleed port in the lock housing.	Diaphragm (10.0) defective	Replace diaphragm (10.0)

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8 SPARE PARTS AND ACCESSORIES



IMPORTANT!

Only use spare and wear parts approved by the manufacturer!

8.1 Material Links

The material inlet and outlet are connected via the G1/2" internal thread in the main body of the material pressure regulator.

The following add-on parts are used for other thread sizes:

Cod.	Description	Version
220240	Double nipple, stainless steel, 3/8" external thread – 1/2" external thread.	400168

Further connection options available upon request.

9 TRANSPORT, PACKAGING AND STORAGE

9.1 Transportation



Safety shoes! (to protect your feet from injury caused by material pressure regulator falling).

Always transport and store the material pressure regulator with the utmost care:

- > Do not throw or drop the device.
- > Do not place other objects on the material pressure regulator or on the packaging.
- > Protect the material pressure regulator from dirt, moisture, heat and cold.
- > Do not use force when unpacking the device. Do not damage the plastic parts.
- > When storing the material pressure regulator, leave it in its packaging until assembly.

9.2 Transport Inspection

Immediately upon receipt of the device, check that it is complete and has not been damaged in transit.

If you see external damage during transport, do not accept the delivery or only accept it with reservations. Note the extent of the damage on the carrier's transport documentation/delivery note. Make a complaint.

Report hidden defects as soon as they are discovered, as claims for damages can only be made within the applicable time limits.

9.3 Packing

Only environmentally friendly materials are used for the packaging. Therefore, please follow these rules:

- > Separate the different types of packaging material for environmentally friendly disposal.
- > Recycle recyclable materials.
- > Reuse reusable packaging materials.

9.4 Storage

Store the material pressure regulator in its packaging until installation.

The following instructions apply to storage of the material pressure regulator:

- > Store in a dry place. Relative humidity: max. 60%.
- > Do not store outdoors or in an aggressive atmosphere.
- > Protect from direct sunlight. Storage temperature: from 15°C to 25°C.
- > Keep the device away from dust. Avoid mechanical vibration and damage.
- > Do not place other objects underneath or place other parts on top of it.

10 DISPOSAL

Clean the material pressure regulator, if necessary, to ensure that no hazardous residues remain inside. All metal parts of the material pressure regulator can be recycled after being disassembled. All non-metallic parts must be disposed of according to the material of which they are made.

All parts, auxiliary and operating materials of the product:

- > Separated by type.
- > Dispose of in accordance with local regulations and directives.



WARNING!

**Pay particular attention to the manufacturer's instructions for sprays and cleaners.
Carelessly discarded material endangers human health and the environment.**

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We reserve the right to modify at any time, without notice, the specifications, dimensions and weights in this manual.
The illustrations are not binding.