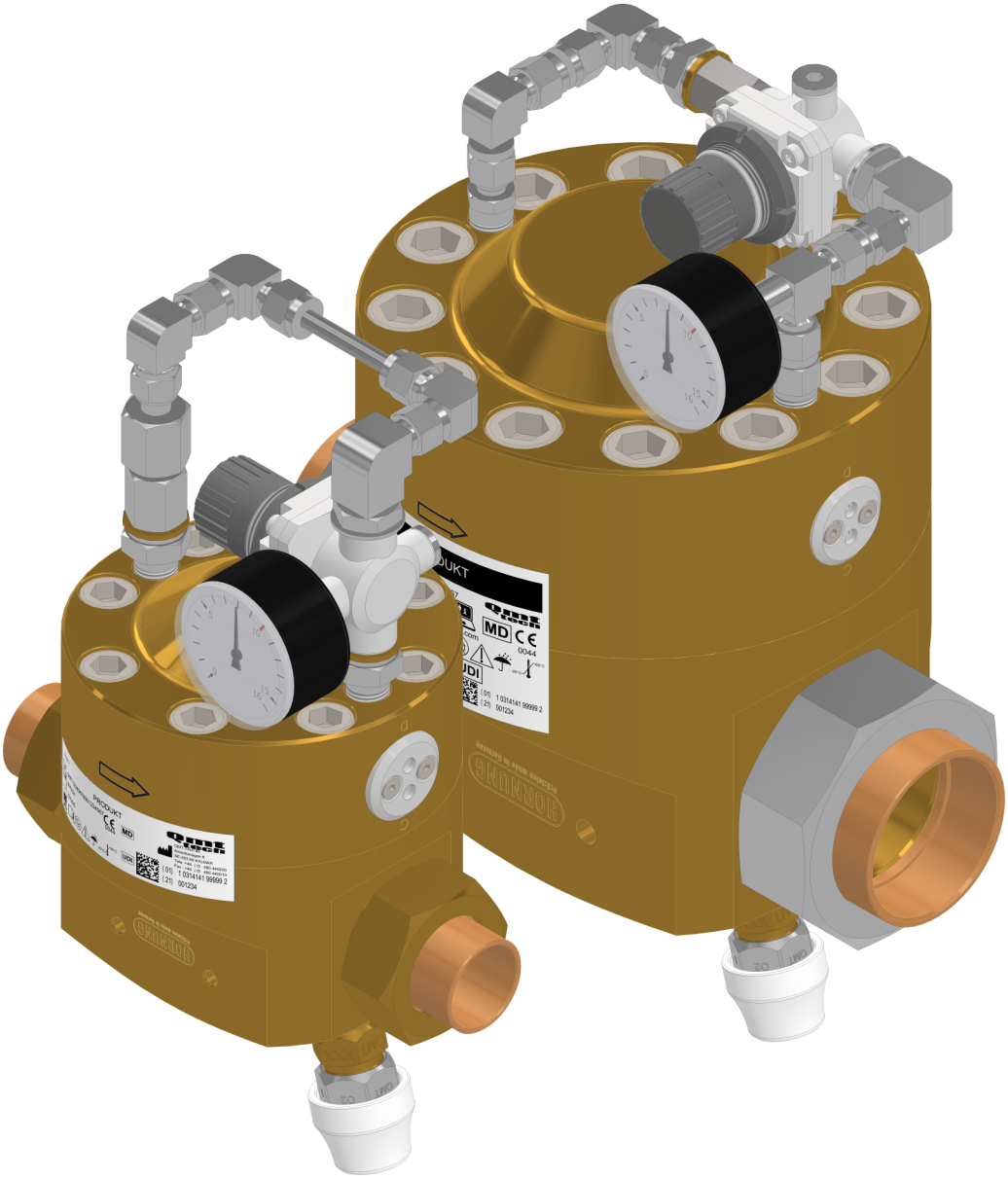
INSTRUCTION FOR USE

Powersaver



Thank you for choosing Pressure Regulator Powersaver from QMT-Tech ab.

Your new Pressure Regulator is an advanced medical device with high-quality components and features for safe operation and high performance.

Read the information for use before installation, commissioning and use so that you are well informed about how it is installed, commissioned and used safely.

Information on use is supplemented with instructions on installation, operation and maintenance for a long and trouble-free use.

We wish you a long, safe and trouble-free use.

This manual describes the Pressure Regulator's functions for safe installation, commissioning and use.

The information for use should be read and understood by all intended users.

The following symbols are used in the user manual:

Warning

Note, important information

Read the instruction for use

Digital copy can be downloaded from qmt3.com

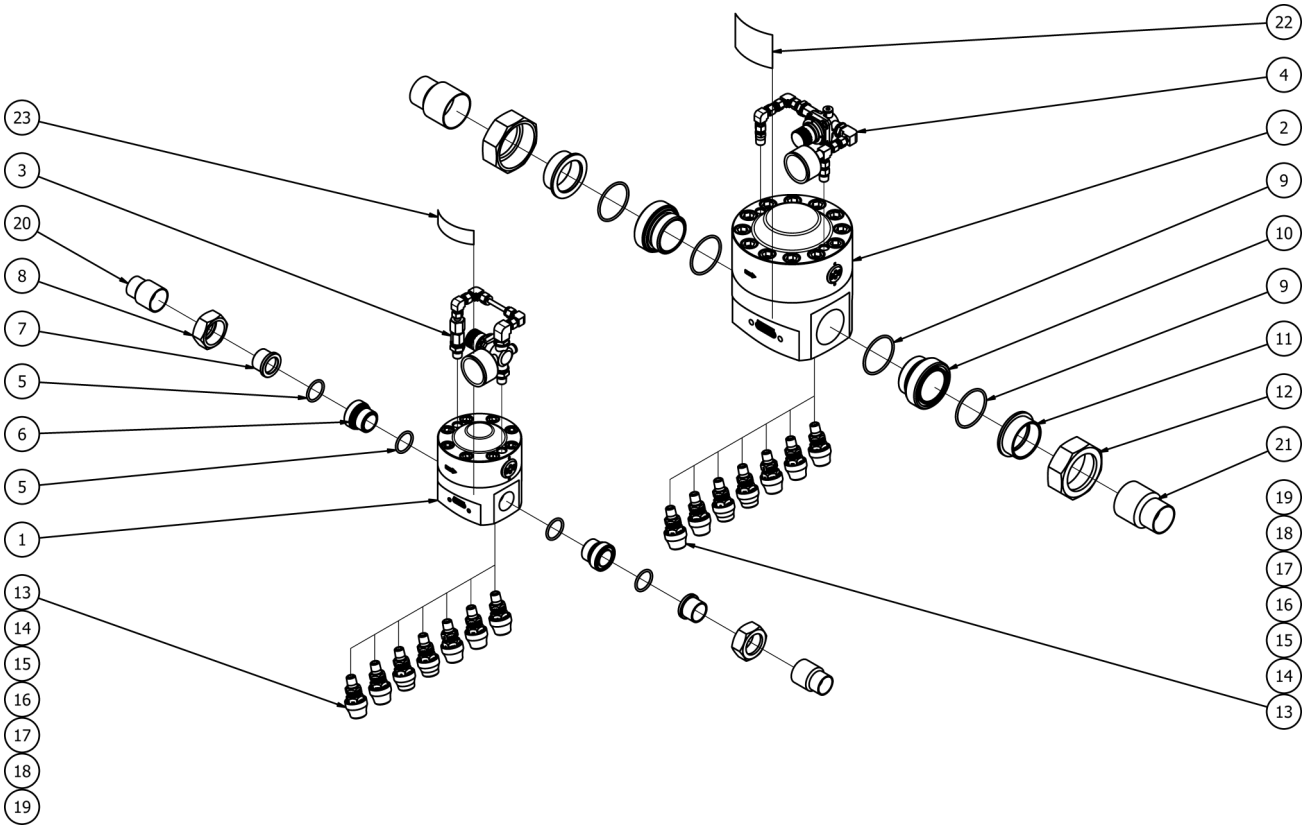
Intended Use:
The pressure regulator is used to reduce a higher inlet pressure to a lower outlet pressure.

Intended User:
Installation - Installer / Pipe fitter
Daily Use - Hospital Operations Technician
Maintenance - Technicians from QMT-Tech or other technicians authorized for the task by QMT-Tech ab.

Target group:
Not limited as the medical gases are used in all places of the hospital.

Indications:
Non-specific as the medical gases are used in all places of the hospital.

Contra indications:
Non-specific as the medical gases are used in all places of the hospital.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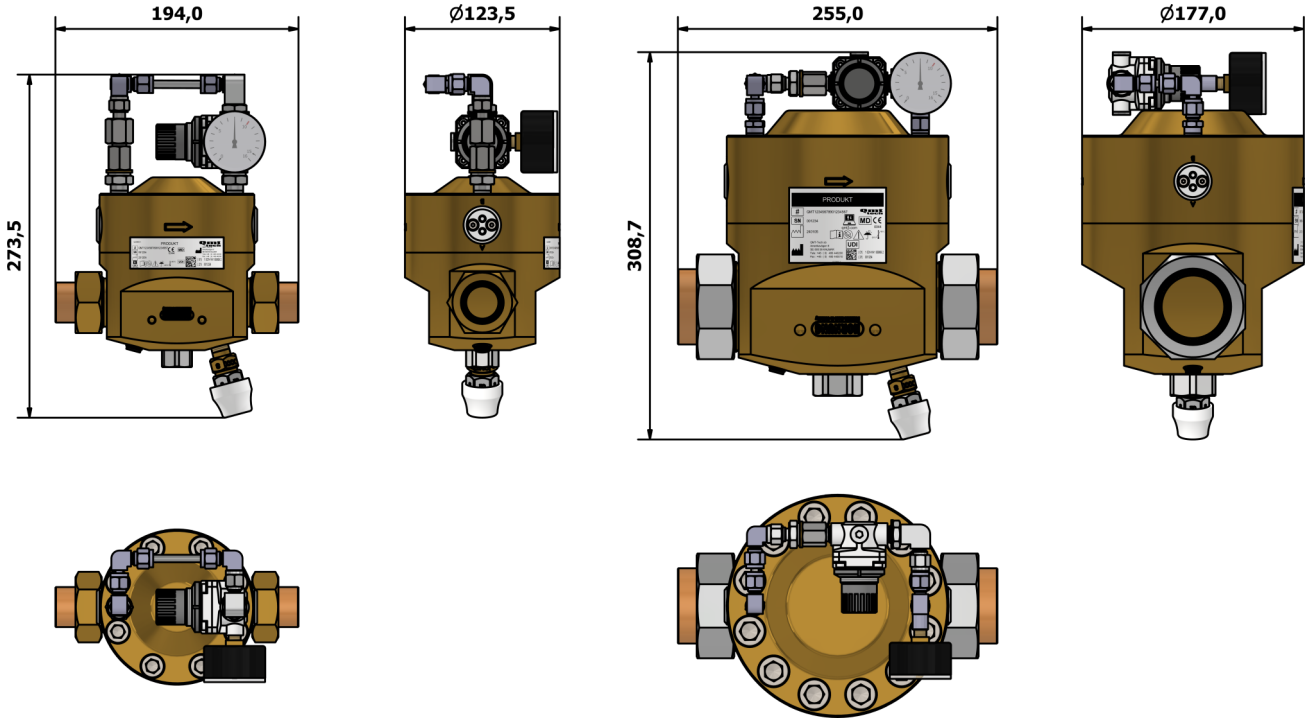
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255,0
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Ø177,0

1	Pressure regulator Powersaver D1”
2	Pressure regulator Powersaver D2”
3	Pilot Regulator 1” MK2
4	Pilot Regulator 2” MK2
5	O-ring 29,2x3,0
6	28 Thread connector
7	28 Brazing connector
8	28 Coupling Nut
9	O-ring 57,0x3,0
10	54 Thread connector
11	54 Brazing connector
12	54 Coupling Nut
13	Terminal unit O2
14	Terminal unit N2O
15	Terminal unit AIR
16	Terminal unit AIR for surgical tools
17	Terminal unit CO2
18	Terminal unit N2
19	Terminal unit Argon
20	35x28 Reduction sleeve
21	54x42 Reduction sleeve
22	UDI-label 1”
23	UDI-label 2”

NOTE! The equipment listed above may vary depending on the area of use and the options chosen.

Installation:

1. Connect the inlet fitting into the system inlet pipe, item 7, 11, 20 or 21 depending on connecting pipe size. Don't forget the coupling nut item 8 or 12 depending on connecting pipe size. NOTE! when brazing, shielding gas must be flushed inside the pipes during joining.
2. Connect the outlet fitting into the system outlet pipe, item 7, 11, 20 or 21 depending on connecting pipe size. Don't forget the coupling nut item 8 or 12 depending on connecting pipe size. NOTE! when brazing, shielding gas must be flushed inside the pipes during joining.
3. Fit the pressure regulator into the inlet and outlet connections item 6 or 10 with O-ring item 5 or 9 and tighten the coupling nut item 8 or 12.

Commissioning:

1. Check that the pilot pressure regulator adjustment knob is fully screwed counterclockwise. The screws open counterclockwise and close clockwise using an Allen key.
2. Check that the screw marked A is open, screw marked B is closed, screw marked C is closed and screw marked D is open. Opened screws should first be fully unscrewed and then back about 1/4 turn to clearly indicate open screw.
3. Carefully pressurize the inlet pipe to the intended working pressure.
4. Leak detection of all inlet fittings using an appropriate leak detection method. Examples of leak detection methods are leak detection spray or ultrasonic microphone, etc.
5. Also check that the outlet pressure does not increase. Either on mounted pressure gauge or other pressure measuring equipment connected downstream of the pressure regulator.
6. Turn the adjustment knob slowly clockwise to increase the outlet pressure to the desired operating pressure.
7. Allow the pressure regulator to stabilize, if necessary readjust the pressure on the adjustment knob. Keep in mind that if the pressure is lowered, the screw marked C must temporarily be opened, and the outlet side piping system must release the pressure using the appropriate method before pressure drop can be noted.
8. Leak detection of all inlet fittings using an appropriate leak detection method. Examples of leak detection methods are leak detection spray or ultrasonic microphone, etc.
9. Also check that the outlet pressure does not increase. Either on mounted pressure gauge or other pressure measuring equipment connected downstream of the pressure regulator.
10. Make a note of all the results of the commissioning tests and archive the documents.

- Pressurized gas has a high energy content! Terminate all pressurization if leaks or shape abnormalities are detected.
- When the system is pressurized, no intervention may be performed other than adjusting the set pressure.
- The user is responsible for checking that all connectors are intended for the operating pressures, that the correct function is achieved and that the correct operating pressure is set.

- In accordance with EN ISO 7396-1, appropriately sized safety valve shall be fitted downstream of the pressure regulator.
- Keep in mind that pressure regulators in medical gas systems in accordance with EN ISO 7396-1 can, depending on the application, have requirements to be doubled for maintenance and redundancy.
- In accordance with EN ISO 7396-1, service shut-off valves shall be installed upstream and downstream of a line pressure regulators for emergency and maintenance.
- In accordance with EN ISO 10524-2 a 100 µm filter shall be fitted upstream of the pressure regulator. QMT-Tech ab recommends a filter with max 40 µm pore size installed upstream of the pressure regulator.
- Installation and commissioning must be carried out by a person with the required knowledge.
- Results from installation and commissioning must be documented and saved after the process has been completed. Documents must be available during final system inspection.
- Keep in mind that pipes must be marked with the medical gas it transports according to current regulations.
- It is advisable to install an alarm point downstream of the pressure regulator to monitor the set pressure of the pressure regulator.

Operating instructions:

1. The pressure regulator does not need any recurring supervision to function.
2. Adjustment of the set pressure may need to be made.
3. Turn the adjustment knob clockwise to increase the pressure and counterclockwise to decrease the pressure. Keep in mind that if the pressure is lowered, the screw marked C must temporarily be opened, and the outlet side piping system must release the pressure using the appropriate method before pressure drop can be noted.
4. After a readjustment, check that the pressure was as expected after the pressure regulator have been allowed to stabilize.
5. Wipe and/or wash the regulator with mild detergent if necessary.

Recurring tests:

1. Check at least quarterly that the outlet pressure matches any connected remote monitoring and/or alarm system.
2. Make a note of the results of the controls and archive them.

- Keep in mind that a pressure regulator's outlet pressure is raised by turning the adjustment knob clockwise and the outlet pressure is lowered by turning the adjustment knob counterclockwise.

- Operation and tests on the medical gas pipeline system must be carried out by a person with the required knowledge.
- Results from tests must be documented and saved after the process has been completed.

Maintenance instruction:

1. Leak check the pressure regulator and its connections at least annually.
2. Check that the pressure regulator can be adjusted both upwards and downwards at least annually. Reset the intended outlet pressure after the function check.
3. Renovation of the pressure regulator must be done at least every 3 years, wear parts such as gaskets and elastomers are then replaced.

Tests:

1. Leak check the pressure regulator and its connections at least annually and after a renovation of the pressure regulator.
2. Functional checks according to clause 2 of the maintenance instructions must be carried out at least annually and after a renovation of the pressure regulator.

- Make sure that the pressure regulator is depressurized before starting renovation.
- Make sure that a renovated pressure regulator is correctly assembled before pressurizing.
- Only original spare parts may be used during renovation as incompatible parts and materials can lead to serious faults and risks.

- Service and maintenance may only be performed by technicians from QMT-Tech ab or technicians accredited by QMT-Tech ab.
- Service and maintenance not performed in accordance with this manual may void any issued warranties.
- Results from tests and maintenance must be documented and saved after the process has been completed.

- Pressurized gas has a high energy content! Interventions in a medical gas pipeline system, such as tightening or loosening components, must not be carried out when the system is pressurized.
- Work on a medical gas pipeline system and its installed components may only be carried out by a person with the required knowledge.
- The medical gases can be fire promoting, suffocating and dissociative.
- The use of shielding gas in a medical gas pipeline systems must be carefully planned and separated from the rest of the system. After brazing / welding and testing are completed, the system shall be flushed with the medical gas (pharmaceutical) that shall be used in the system, to prevent personal injury.
- The pressure regulator must not, neither during installation or operation to be exposed to temperatures exceeding 100°C. Should this happen or suspect that it has happened, the pressure regulator must be replaced and the system decontaminated.
- In the event of a fire or after a fire, the system must be decontaminated in the affected areas.
- Do not install the device if the sealing plugs are removed, as it may be contaminated and unsafe to install in medical gas pipeline systems.

- Work on a medical gas pipeline system and its installed components must be carried out by a person with the required knowledge.
- Results from service, maintenance, renovation and tests must be documented and saved after the process has been completed.

- Read the entire instruction for use so that you are well acquainted with the product before installation, use, service and maintenance.

Article number	Designation	Number
QMT750006MK2	Pilot Regulator 1” MK2	1
QMT750007MK2	Pilot Regulator 2” MK2	1
Q215266	O-ring 29,2x3,0	1
Q208342	28 Brazing connector	1
Q215313	28 Coupling nut	1
Q221471	O-ring 57,0x3,0	1
Q250178	54 Brazing connector	1
Q205045	54 Coupling nut	1
QMT7160RG1NPT	Terminal unit O2, connection 1/4 NPT	1
QMT7160RG2NPT	Terminal unit N2O, connection 1/4 NPT	1
QMT7160RG3NPT	Terminal unit AIR, connection 1/4 NPT	1
QMT7160RG4NPT	Terminal unit Instrument AIR, connection 1/4 NPT	1
QMT7160RG5NPT	Terminal unit CO2, connection 1/4 NPT	1
QMT7160RG8NPT	Terminal unit N2, connection 1/4 NPT	1
QMT7160RG9NPT	Terminal unit Argon, connection 1/4 NPT	1
QMT700690	35x28 Reduction sleeve	1
QMT700704	54x42 Reduction sleeve	1

Manufacturer:	QMT-Tech ab Amerikavägen 6 39354 Kalmar
Basic UDI-DI:	734020610ME
UDI-DI:	7340206100108
Product Name:	Pressure regulator Powersaver
Part number:	QMT78500XXY (Part number key on next page)
Inlet pressure:	Max 110 bar
Outlet pressure:	0-12,0 bar
Flow:	D1” = Cv 3,0 - D2” = Cv 13,7 - se also flowchart below
Material:	Regulator body and bonnet: Brass Valve + Valve seat: Brass Elastomers: EPDM
Cleanliness:	Cleaned in accordance with EN ISO 15001 for Oxygen compatibility
Dimensions:	Se page 6
Weight:	D1” 9,3 kg - D2” 27,2 kg
Storage:	-40 to 150 °C dry indoors
Operating conditions:	-40 to 150 °C dry indoors
Technical lifespan:	20 years provided maintenance is carried out in accordance with this instruction manual

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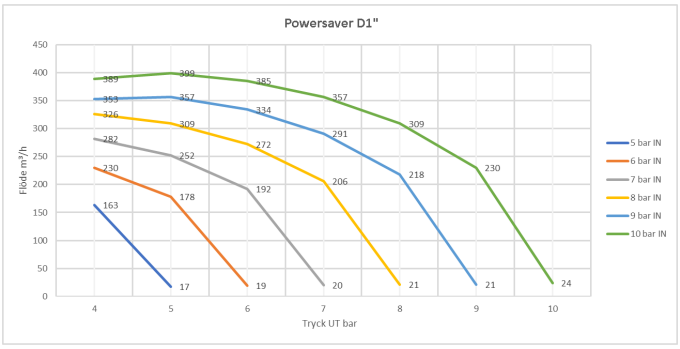

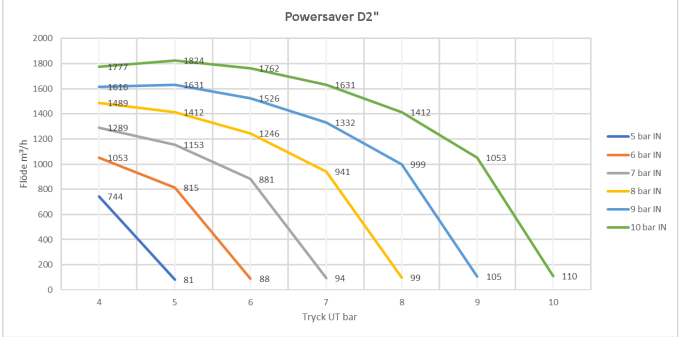

QMT78500XXY

XX = Connection size:
28 - 28 mm
35 - 35 mm
42 - 42 mm
54 - 54 mm

Y = Gas type:
1 - Oxygen [O2]
2 - Nitrous oxide [N2O]
3 - AIR
4 - AIR for surgical tools
5 - Carbon dioxide [CO2]

REGULATORY INFORMATION

Manufacturer:	QMT-Tech ab Amerikavägen 6 39354 Kalmar
SRN:	SE-MF-000007550
Basic UDI-DI:	734020610ME
UDI-DI:	7340206100108
Product name:	Pressure regulator Powersaver
Article number:	QMT78500XXY
EMDN code	Z120309

Meets the requirements of:

MDR 2017/745	Class IIb
EN ISO 7396-1	2016
EN ISO 10524-2	2019

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USED PRODUCT, RECYCLING

- All metals in the unit can be recycled, shall be handed over to an authorized recycling company.
- Rubber gaskets are handed in to an authorized recycling company.
- Teflon gaskets are handed in to an authorized recycling company.
- In normal use, the product is not contaminated by residues that are hazardous to health or the environment.

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