



Operating Manual

AutoMaXX - Series

Negative and Positive Pressure Lung Governed Demand Valve



Order No.: D4085399/05



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1. Safety regulations

1.1. Correct use

The AutoMaXX is a lung governed demand valve for a compressed air breathing apparatus or compressed airline breathing apparatus. It is connected between compressed air supply and full face mask and controls the inhaled and exhaled air.

The lung governed demand valve series are only permitted for specific system components (exact allocation → Chap. 6).



Warning!

The AutoMaXX is not an independent breathing apparatus. It must be used exclusively mounted on a full face mask.

The AutoMaXX is not suitable for underwater diving.

It is imperative that this operating manual be read and observed when using the AutoMaXX. In particular, the safety instructions, as well as the information for the use and operation of the apparatus, must be carefully read and observed. Furthermore, the national regulations applicable in the user's country must be taken into account for a safe use.

Alternative use, or use outside these specifications will be considered as non-compliance. This also applies especially to unauthorised alterations to the apparatus and to commissioning work that has not been carried out by MSA or authorised persons.



Danger!

This product supports life and health. Inappropriate use, maintenance or servicing may affect the function of the device and thereby seriously compromise the user's life.

Before use, the product operability must be verified. The product must not be used, if the function test is unsuccessful, it is damaged, a competent servicing/maintenance has not been made, genuine MSA spare parts have not been used.

1.2. Liability information

MSA accepts no liability in cases where the product has been used inappropriately or not as intended. The selection and use of the product are the exclusive responsibility of the individual operator.

Product liability claims, warranties also as guarantees made by MSA with respect to the product are voided, if it is not used, serviced or maintained in accordance with the instructions in this manual.

1.3. Series

This manual applies to the following lung governed demand valves from the AutoMaXX series:

Name of lung governed demand valve	Medium pressure line	Special feature
AutoMaXX-AE, Lung Governed Demand Valve, threaded connection M45X3	Silicon line 650	
AutoMaXX-AE-G, Lung Governed Demand Valve, threaded connection M45X3, Rubber line	Rubber line 650	
AutoMaXX-AE-SHORT, Lung Governed Demand Valve, threaded connection M45X3	Silicon line 500	
AutoMaXX-AS, Lung Governed Demand Valve, plug-in connection	Silicon line 650	
AutoMaXX-AS-B, Lung Governed Demand Valve, plug-in connection BYPASS	Silicon line 650	with bypass
AutoMaXX-AS-B-G, Lung Governed Demand Valve, plug-in connection BYPASS	Rubber line 650	with bypass
AutoMaXX-AS-C, Lung Governed Demand Valve, plug-in / threaded connection M45X3	Silicon line 650	Combination plug-in/M45x3
AutoMaXX-AS-C-G, Lung Governed Demand Valve, plug-in / threaded connection M45X3, Rubber line	Rubber line 650	Combination plug-in/M45x3
AutoMaXX-AS-G, Lung Governed Demand Valve, plug-in connection, Rubber line	Rubber line 650	
AutoMaXX-AS-MicroMaXX	Rubber line 1100	Long line, small plug-in nipple, only for MicroMaXX
AutoMaXX-AS-SHORT Lung Governed Demand Valve, plug-in connection	Silicon line 500	
AutoMaXX-N, Lung Governed Demand Valve, threaded connection RD40X1/7	Silicon line 650	
AutoMaXX-N-G, Lung Governed Demand Valve, threaded connection RD40X1/7, Rubber line	Rubber line 650	
AutoMaXX-N-MicroMaXX	Rubber line 1100	Long line, small plug-in nipple, only for MicroMaXX
AutoMaXX-NR, Lung Governed Demand Valve, for RESCUE Set	Rubber line 1500	
AutoMaXX-N-SHORT, Lung Governed Demand Valve, threaded connection RD40X1/7	Silicon line 500	

Explanations on model designation

AS:	Positive pressure, plug-in connection, suitable for full face masks PS-MaXX (non-PS!)
AE:	Positive pressure, thread connection M45x3 according to DIN EN 148-3, suitable for full face masks -PF
AS-C:	Positive pressure, offers the options AS and AE as combination, suitable for full face masks-PF
N:	Negative pressure, round thread RD 40 according to DIN EN 148-1, suitable for round thread full face masks
G:	Rubber medium pressure line (instead of silicon)
B:	Bypass for constant air flow
R:	Rescue set (component of rescue set)

2. Description



The components shown here can vary in form and appearance from the picture depending on the AutoMaXX version.

Positive pressure lung governed demand valve

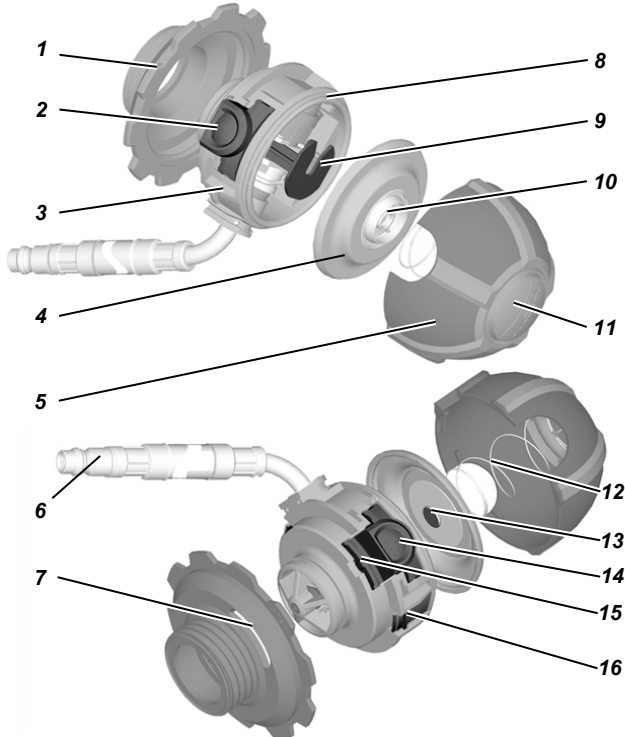


Fig. 1 Exploded view – Positive pressure lung governed demand valve (Example AutoMaXX-AE)

- | | |
|--------------------------------|-----------------------------------|
| 1 Handwheel (only AE and AS-C) | 9 Diaphragm fork |
| 2 Red operating button | 10 Marking: Year of manufacturing |
| 3 Housing | 11 Flush button |
| 4 Diaphragm | 12 Positive pressure spring |
| 5 Protective cap | 13 Diaphragm mushroom |
| 6 Plug-in nipple | 14 Black operating button |
| 7 Handwheel opening | 15 Safety clamp (silver, only AE) |
| 8 Diaphragm groove | 16 Snap-on hook |

Negative pressure lung governed demand valve

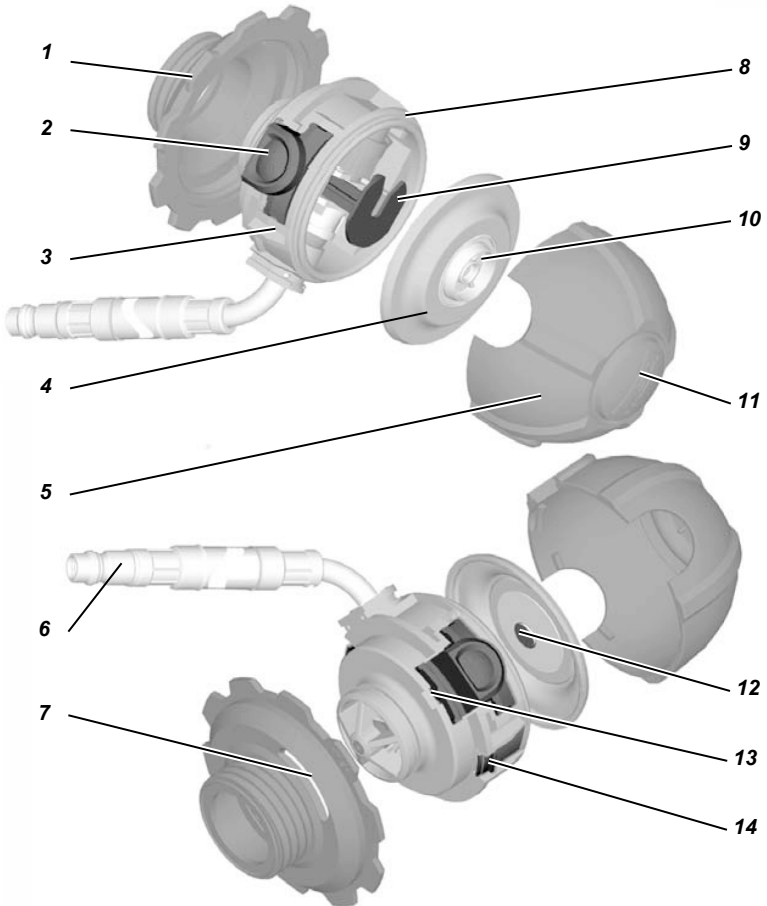


Fig. 2 Exploded view – Negative pressure lung governed demand valve (AutoMaXX-N)

- | | | | |
|---|-------------------|----|--------------------------------|
| 1 | Handwheel | 8 | Diaphragm groove |
| 2 | Operating button | 9 | Diaphragm fork |
| 3 | Housing | 10 | Marking: Year of manufacturing |
| 4 | Diaphragm | 11 | Flush button |
| 5 | Protective cap | 12 | Diaphragm mushroom |
| 6 | Plug-in nipple | 13 | Safety clamp (silver) |
| 7 | Handwheel opening | 14 | Snap-on hook |

3. Operation

3.1. Preparing the device

**Warning!**

The lung governed demand valve may only be put into use in a fully maintained and tested condition. If malfunctions or defects are noticed prior to use, do not use the lung governed demand valve under any circumstances.

Get the apparatus checked and repaired by an authorised service centre.

Switching off the device (only Positive pressure lung governed demand valve)

Before connecting the device to medium pressure, in order to prevent accidental air delivery, push the red operating button to switch off the AutoMaXX.

**For AutoMaXX-AS / AutoMaXX-AS-C:**

If a handwheel / connection adapter is provided, ensure that it is screwed into the mask so that the AutoMaXX can be plugged in.

3.2. Connecting the AutoMaXX

- (1) Insert plug-in nipple of AutoMaXX into the coupling of the medium pressure line until it distinctly snaps into place.
- (2) Don full face mask and perform tightness check (palm test) (→ Mask operating manual).
- (3) Open cylinder valve(s) fully.
- (4) Screw AutoMaXX into the mask (AutoMaXX-AE, AutoMaXX-N) or insert it into the adapter of the mask until it distinctly snaps into place (AutoMaXX-AS).

Support during donning

The AutoMaXX must be attached to the mask and inspected by a second person.

3.3. Putting the AutoMaXX into operation (only Positive pressure lung governed demand valve)

To activate, inhale once forcefully or push flush button.

**Warning!**

When using the flush button or bypass, the compressed air consumption increases.

3.4. Switching off the AutoMaXX (only positive pressure lung governed demand valve)

To switch off, push operating button until stopper.

3.5. Removing the AutoMaXX

For AutoMaXX-AE and AutoMaXX-N:

- (1) Switch off AutoMaXX-AE by pushing the red operating button.
- (2) Unscrew handwheel and separate AutoMaXX from the mask.
- (3) Uncouple medium pressure line:
Push the plug-in nipple into the coupling of the medium pressure line forcefully and pull back the coupling sleeve at the same time.

For AutoMaXX-AS and AutoMaXX-AS-C:

- (1) Press both operating buttons simultaneously and separate AutoMaXX from the mask.
Alternative for AutoMaXX-AS-C: Unscrew handwheel.
- (2) Remove medium pressure line:
Push the plug-in nipple into the coupling of the medium pressure line forcefully and pull back the coupling sleeve at the same time.

3.6. Bypass system (only for AutoMaXX-AS)

A bypass system is available for the AutoMaXX-AS.

It is a safety system that supplies the user with continuously flowing air independent of the lung governed demand valve. By turning the red handwheel, the bypass is opened and can be set individually.



Warning!

When using the bypass, the compressed air consumption increases.

3.7. Additional function



Warning!

When using the flush button, the compressed air consumption increases.



To flush out smoke and gases from the mask, push the flush button.

4. Care and maintenance

4.1. Maintenance instructions

The product should be regularly checked and serviced by specialists. Inspection and service records must be maintained. Always use original parts from MSA.

Repairs and maintenance must be carried out by authorised service centres or by MSA. Changes to devices or components are not permitted and could result in loss of approved status.

Rubber parts are subject to ageing and must be inspected and replaced at regular intervals.

Do not use organic solvents like thinner, alcohol, white spirit or petrol.

4.2. Maintenance intervals



MSA recommends the following maintenance intervals. If needed and by considering the usage, tasks may be at even shorter intervals than indicated.

Observe national laws and regulations!

If in any doubt, ask your local MSA contact person.

Component	Work to be Performed	After use	Annually	Every 3 years	Every 9 years ¹⁾
AutoMaXX	Cleaning and Disinfection	X		X	
	Sight, function and tightness check	X ²⁾	X		
	Diaphragm replacement			X	
	Overhaul				X

1) For compressed air breathing apparatus that are frequently used, we recommend a complete overhaul after approx. 540 hours. (This corresponds to 1080 uses with a usage duration of 30 minutes.)

2) Visual test of diaphragm only after use in aggressive media or under extreme conditions, function and tightness test always.

4.3. Cleaning / Disinfection



Warning!

While cleaning make sure that no fluids penetrate the AutoMaXX through the medium pressure line. Fluids can damage the components on the inside.

- (1) Switch off AutoMaXX (only positive pressure lung governed demand valve).
- (2) Lock medium pressure line with seal cap or connect to the medium pressure.
- (3) Pre-cleaning
 - Clean device on the outside. Ensure that no dirt penetrates the inside.
- (4) Cleaning
 - Clean AutoMaXX in the wash basin and rinse with plenty of water.
- (5) Use disinfectant as specified in the operating manual.
 - Disinfect device and rinse with lots of clean water.

After cleaning / disinfection

- (1) Connect switched off (positive pressure) AutoMaXX to the medium pressure.
- (2) Push flush button, fully blow out the moisture for at least 20 s.
- (3) Uncouple from medium pressure.
- (4) Only positive pressure lung governed demand valve:
 - Switch on with flush button.
- (5) Dry apparatus completely in a drying cabinet at max. 60°C.

4.4. Testing and replacing the diaphragm

Disassembly

- (1) Uncouple AutoMaXX from the medium pressure line.
- (2) Pull off AutoMaXX protective cap as follows:

For AutoMaXX-AS and AutoMaXX-AS-C

- With one hand push and hold down both operating buttons, with the other hand push together both snap-on hooks and push off the protective cap.

For AutoMaXX-AE

- Turn handwheel until the safety clamp below the black operating button is visible through the handwheel opening.



Fig. 3 Housing

1 Safety clamp (silver)

(only AutoMaXX-AE and AutoMaXX-N)

- Push in safety clamp with a screwdriver, simultaneously push both operating buttons and pull off handwheel.



Danger!

If you do not follow accurately this procedure above, you may deteriorate the clamp and it might not be able to keep the handwheel and demand valve connected in a situation when the demand valve is pulled.

Slide on handwheel until stopper still holding down both operating buttons.

- With one hand push and hold down both operating buttons, with the other hand push together both snap-on hooks and push off the protective cap.

For AutoMaXX-N

- Turn handwheel until the safety clamp below an operating button is visible through the handwheel opening.
- Push in safety clamp with a screwdriver, simultaneously push both operating buttons and pull off handwheel.



Danger!

If you do not follow accurately this procedure above, you may deteriorate the clamp and it might not be able to keep the handwheel and demand valve connected in a situation when the demand valve is pulled.

Slide on handwheel until stopper still holding down both operating buttons.

- With one hand push and hold down both operating buttons, with the other hand push together both snap-on hooks and push off the protective cap.

- (3) Remove diaphragm edge from the diaphragm groove in the housing.
- (4) Roll up diaphragm until the slot in the diaphragm fork is visible.
- (5) Pull out the diaphragm from the diaphragm fork in slot direction.
- (6) Slightly stretch diaphragm surface and check against light for damage such as tears; if needed, replace.

Assembly

- (1) Slide diaphragm mushroom of diaphragm into the slot of the diaphragm fork.
- (2) Fit diaphragm edge into the diaphragm groove.
- (3) Slide on protective cap as follows:
 - Push both operating buttons simultaneously and slide on protective cap until it audibly and visibly snaps into place on the snap-on hooks.
- (4) Assemble handwheel as follows:

For AutoMaXX-AE and AuroMaXX-N only

- Push in safety clamp and simultaneously push and hold down both operating buttons.
 - Slide on handwheel until stopper still holding down both operating buttons.
- (5) Perform tightness check and check closing pressure (positive pressure versions) or rather opening pressure (negative pressure versions).

4.5. Visual and function check

- Check for visible faults or defects, e.g. components mounted incorrectly.
- Check all operating functions, e.g. mechanical function test of flush button.

4.6. Tightness check



Check that the AutoMaXX is tight both without medium pressure and with medium pressure.

Without medium pressure

- (1) Switch off AutoMaXX with red operating button (only positive pressure lung governed demand valve).
- (2) Connect AutoMaXX to test device.
 - For positive pressure lung governed demand valve use a connecting adapter.
- (3) Generate positive pressure of +7.5 mbar on test device and hold for 60 s.
 - The pressure change must not exceed 1 mbar in 60 seconds.
- (4) For negative pressure versions additional:
 - Generate negative pressure of -7.5 mbar on test device and hold for 60 s.
 - The pressure change must not exceed 1 mbar in 60 seconds.

With medium pressure

- (1) Switch off AutoMaXX with red operating button (only positive pressure lung governed demand valve).
- (2) Connect medium pressure line to a pressure reducer and open cylinder valve.
- (3) Connect AutoMaXX to test device.
 - For positive pressure lung governed demand valve use a connecting adapter.
- (4) Observe pressure change.
 - The pressure change must not exceed 1 mbar in 60 seconds.

4.7. Checking the closing pressure (only positive pressure lung governed demand valve)

- (1) Switch off AutoMaXX with red operating button and connect to medium pressure.
- (2) Connect to test equipment directly or via test adapter line. Close all lines of the test equipment.

**Warning!**

Use a test adapter line to prevent damage to test equipment not protected against positive pressure. Close the connection between AutoMaXX and test equipment.

- (3) Switch on AutoMaXX by pushing the flush button.
- (4) If used, open test adapter line. Release a volume flow of 5 l/min through test equipment vent.
- (5) Close vent, thereby the static pressure must be less than 3.9 mbar.

4.8. Checking the opening pressure (only negative pressure lung governed demand valve)

- (1) Connect AutoMaXX to the medium pressure.
- (2) Connect AutoMaXX to the test equipment.
- (3) Release a volume flow of 10 l/min through test equipment vent.
- (4) Close vent.
- (5) Slowly generate increasing negative pressure and observe opening pressure.
 - The opening pressure must not exceed -3.5 mbar (negative pressure).

4.9. Overhaul

The overhaul of the AutoMaXX may only be performed by MSA or an authorised service centre.

4.10. Storage

Always store positive pressure lung governed demand valves when switched on. To do this, push flush button.

Store the AutoMaXX with protective cap attached (→ Chap. 7) in a dry, dust-free room at approx. 20 °C.

4.11. Malfunction

In case of malfunctions, the AutoMaXX must be inspected by MSA or trained service personnel.

5. Technical data

Operating pressure : 5 - 8 bar dynamic

Operating pressure for
MicroMaXX series : 5 - 9 bar dynamic

Operating temperature : -30°C to +60°C

Approvals : The device described in this operating manual complies with Directive 89/686 EEC or Regulation (EU) 2016/425, respectively.

Lung governed demand valves of the AutoMaXX series are approved as components of a compressed air breathing apparatus according to Section 6 in compliance with EN 137.



DEKRA EXAM GmbH, Dinnendahlstr. 9,
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number: 0158

6. Approved system components

AutoMaXX-AS; AutoMaXX-AS-B; AutoMaXX-AS-G; AutoMaXX-AS short and AutoMaXX-AS-G short

Compressed air breathing apparatus - Series	Full - face mask - Series
BD 96	3S-PS-MaXX
AirMaXX	Ultra Elite-PS-MaXX
BD Compact -Z	3S-H-PS-MaXX-F1
	Ultra Elite H-PS-MaXX-F1

AutoMaXX-AS-C; AutoMaXX-AS-C-G; AutoMaXX-AS-C short and AutoMaXX-AS-C-G short

Compressed air breathing apparatus - Series	Full - face mask - Series
BD 96	3S-PF
AirMaXX	Ultra Elite-PF
BD Compact -Z	3S-H-PF-F1
	Ultra Elite H-PF-F1

AutoMaXX-AS-MicroMaXX

Compressed air breathing apparatus	Full - face mask - Series
MicroMaXX	3S-PS-MaXX
	Ultra Elite-PS-MaXX

AutoMaXX-AE; AutoMaXX-AE-G; AutoMaXX-AE short and AutoMaXX -AE-G short

Compressed air breathing apparatus - Series	Full - face mask - Series
BD 96	3S-PF
BD AirMaXX	Ultra Elite-PF
BD Compact -Z	3S-H-PF-F1
	Ultra Elite H-PF-F1

**AutoMaXX-N; AutoMaXX-N -G; AutoMaXX-N short
and AutoMaXX-N-G short**

Compressed air breathing apparatus - Series	Full - face mask - Series
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BD 96	3S
BD AirMaXX	Ultra Elite
BD Compact -Z	3S-H-F1
	Ultra Elite-H-F1

AutoMaXX -N- MicroMaXX

Compressed air breathing apparatus	Full - face mask - Series
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MicroMaXX	3S
	Ultra Elite
	Advantage

7. Ordering information

7.1. Positive pressure lung governed demand valves

Description	Part No.
AutoMaXX-AS Plug-in connection; Silicon medium pressure line	10023688
AutoMaXX-AS-G Plug-in connection; Rubber medium pressure line	10036272
AutoMaXX-AS short Plug-in connection; Silicon medium pressure line, short	10043133
AutoMaXX-AS-B with Bypass; Plug-in connection; Silicon medium pressure line	10038296
AutoMaXX-AS-B-G with Bypass; Plug-in connection; Rubber medium pressure line	10038410
AutoMaXX-AS-C, Plug-in connection / M45x3; Silicon medium pressure line	10023689
AutoMaXX-AS-C-G Plug-in connection / M45x3; Rubber medium pressure line	10036273
AutoMaXX-AS-MicroMaXX Plug-in connection; Rubber medium pressure line	10051255
AutoMaXX-AE M45x3; Silicon medium pressure line	10023687
AutoMaXX-AE-G M45x3; Rubber medium pressure line	10036271
AutoMaXX-AE short M45x3; Silicon medium pressure line, short	10070972

7.2. Negative pressure lung governed demand valves

Description	Part No.
AutoMaXX-N Rd40x1/7; Silicon medium pressure line	10023686
AutoMaXX-N-G Rd40x1/7; Rubber medium pressure line	10036274
AutoMaXX-N short Rd40x1/7; Silicon medium pressure line, short	10070760
AutoMaXX-N-MicroMaXX Rd40x1/7; Rubber medium pressure line	10048114
AutoMaXX-NR For rescue kit Rd40x1/7; Rubber medium pressure line 1.5 m	10040603

7.3. Accessories

Description	Part No.
Diaphragm (pack of 5 , replacement)	10032083
Seal cap (protective sleeve for plug-in nipple) (pack of 10)	D4080871
Seal cap for MicroMaXX series (protective sleeve for plug-in nipple, small) (pack of 10)	10060249
Protective cap for AS series	10027738
Protective cap for AE series	D0012961
Protective cap for N series	10053101
Disinfectant 90, 2 l	D2055765
Disinfectant 90, 6 l	D2055766
Connecting adapter for AS series (for test equipment with round thread connection)	10031901
Connecting adapter for AE series; M45x3 (for test equipment with round thread connection)	D4074833
Test adapter line	10034364
Test adapter kit MicroMaXX	10056761

For local MSA contacts, please visit us at **MSAsafety.com**

*Because every life has a **purpose...***