



Operating Manual

AirMaXX® SL

SCBA Basic Apparatus

αalpha series
make sense technology



Order N°. 10075782/15



The Safety Company

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Switzerland

Product of Germany

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1. Safety Regulations

1.1. Correct Use

The MSA AirMaXX SL (hereinafter referred to as compressed air breathing apparatus) is a self-contained breathing apparatus operating independently of the ambient air.

In combination with a certified facepiece (full face mask) the device protects the wearer against inhalation of hazardous substances and mixtures, harmful biological agents and oxygen deficiency.

Breathable air is supplied to the user from (a) compressed air cylinder(s) via a pressure reducer, a demand controlled dosage assembly (see Instruction Manual for the Lung Governed Demand Valve) and a facepiece (see Instruction Manual for the Facepiece). The exhalation air is released directly into the ambient atmosphere.

It is imperative that this operating manual be read and observed when using the compressed air breathing apparatus. 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 this 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.



Danger!

This compressed air breathing apparatus is a pure gas protection device. It is not suitable for underwater diving.

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.

2. Description

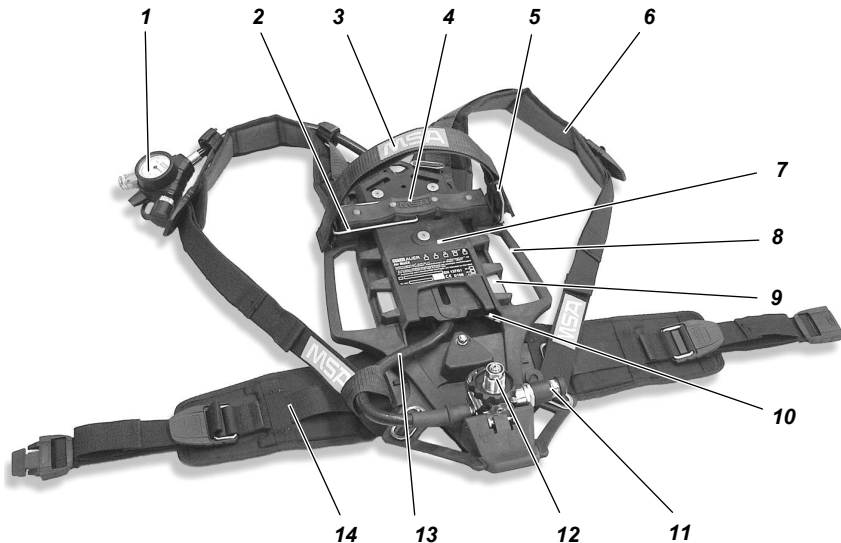


Fig. 1 AirMaxx SL compressed air breathing apparatus

- | | | | |
|---|--------------------------|----|------------------------------|
| 1 | Manifold | 8 | Handle |
| 2 | Cylinder separator | 9 | Catch clip |
| 3 | Cylinder retaining strap | 10 | Push lock |
| 4 | Cylinder support | 11 | Quick-Fill coupling (Option) |
| 5 | Tension clamp | 12 | Pressure reducer |
| 6 | Shoulder strap | 13 | Single line |
| 7 | Back plate | 14 | Hip belt |

2.1. Standard Model (AirMaXX SL)

The two-piece back plate of the compressed air breathing apparatus is adjustable to three different lengths and should be adjusted to the user's height. The single line passes through the sliding upper part from the pressure reducer to the manifold.

The carrying belts and the hip belt are adjustable in length. The hip belt is fixed to the back plate elastically. It will automatically return to the horizontal position on installation.

One or two compressed air cylinders can be placed in the cylinder support. The cylinder retaining strap is freely adjustable and after inserting the compressed air cylinder(s), it is tightened and secured using the tension clamp.

2.1.1. Pressure Reducer

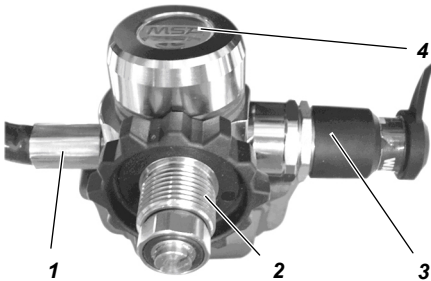


Fig. 2 Pressure reducer

- 1 Single line connection
- 2 Compressed air cylinder connection
- 3 Quick-Fill coupling (not for standard model)
- 4 Lead seal

The pressure reducer is mounted in the lower area of the back plate (→ Fig. 2). On the pressure reducer, there is a relief valve and the single line for connecting the manifold. The pressure reducer reduces the cylinder pressure to approx. 7 bar and the relief valve activates on non-permitted pressure rise to prevent damage insuring the continued supply of breathable air.

2.1.2. Manifold

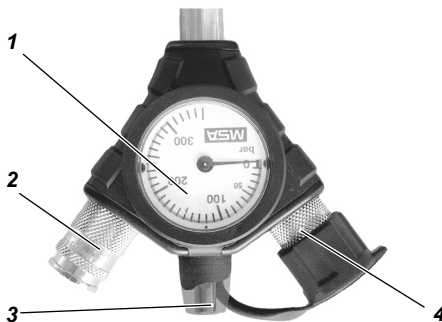


Fig. 3 Manifold

- 1 Pressure gauge
- 2 Lung governed demand valve coupling
- 3 Warning device (signal whistle)
- 4 Second connection

The manifold (→ Fig. 3) is connected at the end of the single line. It consists of the pressure gauge (1), the coupling for the lung governed demand valve (2) as well as an acoustic warning device (3) (signal whistle). It triggers a continuous warning signal when the cylinder pressure drops below 55 ± 5 bar. The second connection (4) connects a second lung governed demand valve (e.g. rescue kit).

2.1.3. SingleLine SCOUT

See additional manual SingleLine SCOUT.

2.2. Model AirMaXX SL-CLICK

The difference between this model and the standard model is the modified pressure reducer, the constituent part of the *alphaCLICK 2* coupling system. It is also available as the standard model and in the SL-M, SL-Q and eXXtreme SL versions.



Fig. 4 Pressure reducer

1 *alphaCLICK 2* coupling

alphaCLICK 2 permits the easy, quick and safe connection of the compressed air cylinders to the pressure reducer. Time-consuming screwing-on of the cylinder is no longer required since the cylinder is simply slotted into the pressure reducer.

alphaCLICK 2 is safer than the usual standard connection:

- *alphaCLICK 2* cannot be disconnected when the system is pressurised.
- Two steps are required to disconnect it: the cylinder can only be removed when the safety ring has been turned through 20 degrees and pushed back.
- *alphaCLICK 2* has no built-in flow restrictor.
- Moreover, *alphaCLICK 2* has a flat face design which keeps the components clean and operative.

alphaCLICK 2 fits all standard breathable air valve threads [EN 144-2].

alphaCLICK 2 is only available for 300 bar.

2.2.1. *alphaCLICK 2* Coupling 300 bar

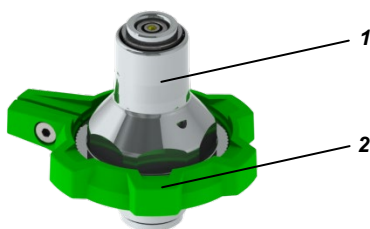


Fig. 5 *alphaCLICK 2* coupling 300 bar

- 1 *alphaCLICK 2* coupling 300 bar
- 2 Indicator ring with arrow

2.2.2. *alphaCLICK 2* Cylinder Adaptor 300 bar

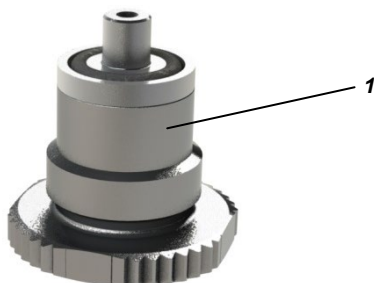


Fig. 6 *alphaCLICK 2* cylinder adaptor 300 bar

- 1 *alphaCLICK 2* cylinder adaptor 300 bar



The cylinder adaptor has to be screwed into a cylinder valve with a specific torque of 20-30 Nm.

2.2.3. Model AirMaXX SL-M

Besides the standard unit fittings, this model also comes with a built-in short range transmitter (*alphaMITTER*). This is assembled on the back plate of the compressed air breathing apparatus and connected via an additional line to the pressure reducer.

It is also available as the standard model and in the SL-Q and eXXtreme SL versions.

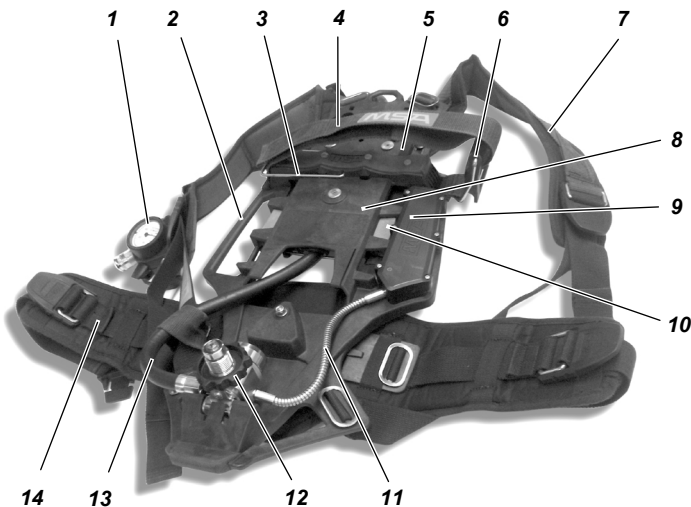


Fig. 7 Model AirMaxx SL-M

- | | | | |
|---|--------------------------|----|----------------------|
| 1 | Manifold | 8 | Back plate |
| 2 | Handle | 9 | alphaMITTER (Option) |
| 3 | Cylinder separator | 10 | Catch clip |
| 4 | Cylinder retaining strap | 11 | High pressure line |
| 5 | Cylinder support | 12 | Pressure reducer |
| 6 | Tension clamp | 13 | Single line |
| 7 | Shoulder strap | 14 | Hip belt |

As soon as the system is pressurised it automatically starts to search for a partner to transfer data to.

The *alphaMITTER* measures the high pressure of the compressed air cylinder(s) and transmits this every 2 seconds via short range radio to the *alphaSCOUT* / *alphaSCOUT TM*.

For detailed information on the *alphaMITTER* see the operating manual for the "alpha personal network".

2.3. Models AirMaXX SL-3C and AirMaXX SL-3N

The versions AirMaXX SL-3C and AirMaXX SL-3N differ from the standard version in that they have an additional medium pressure connection.

They are available as the standard model and in the SL-Q and eXXtreme SL versions.



Fig. 8 SCBA Basic Apparatus AirMaXX SL with additional medium pressure connection

1 Additional medium pressure connection

2 Coupling/Nipple

The version AirMaXX SL-3C is equipped with a coupling and the version AirMaXX SL-3N is equipped with a nipple and an integrated non-return valve. The version AirMaXX SL-3C is prepared for the connection of the following equipment:

- Rescue set (mask with lung governed demand valve)
- Rescue equipment e.g. Respihood
- Compressed air tubing equipment with or without automatic change-over valve

and for use in a protective overall including decontamination process.

The version AirMaXX SL-3N is prepared for the connection of the following equipment:

- Compressed air tubing equipment without automatic change-over valve

and for use in a protective overall including decontamination process.

2.4. Model AirMaXX SL-Q

Besides the standard unit fittings, this model also comes with a high pressure safety coupling (→ Pos. 3 in Fig. 2). It is then possible to fill 300 bar compressed air cylinder(s) whilst the compressed air breathing apparatus is in use.



Warning!

On compressed air breathing apparatus with Quick-Fill couplings, the use of 200 bar compressed air cylinders is not possible.

2.5. Model AirMaXX eXXtreme SL

This model is essentially distinguished from the standard model by a heatproof harness, chrome-plated buckles and protecting channels for the lines on the shoulder straps.

It is also available as the standard model and in the SL-Q and SL-M versions.

2.6. Technical Data

High pressure	:	200 bar resp. 300 bar
Medium pressure	:	5 bar to 9 bar
Operating	:	-30°C to +60°C
Weight (approx.)	:	3.7 kg
Dimensions	:	Length 575 mm Width 300 mm Height 135 mm
Approvals	:	The compressed air breathing apparatus conforms to Directive 89/686 EEC or Regulation (EU) 2016/425, respectively, and Directive 2014/34/EU. It is a container unit with compressed air in accordance with EN 137.



DEKRA EXAM GmbH, Dinnendahlstr. 9,
44809 Bochum (Germany), Notified
Body Number: 0158.



ATEX
BVS 05 ATEX H 027 X
IM1
II 1 G IIC T6 -30 °C ≤ Ta ≤ +60 °C
II 1 D

The product complies with "Technical Regulation on Safety of Maritime Transport" (TP 620) of the Russian Federation.

OKP code: 641830 "Fire fighter Equipment - self-contained breathing apparatus operated on compressed air."

Dispose in accordance with the recommendations of the ship manufacturer together with the vessel, in accordance with a unique technological process, taking into consideration MANUFACTURER PRODUCT DECLARATION, see appendix.



Type Approval Certificate of Russian
Maritime Register of Shipping

The Declaration of Conformity can be found under the following link:
<https://MSAsafety.com/DoC>

3. Using the Compressed Air Breathing Apparatus



Warning!

The compressed air breathing apparatus 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 compressed air breathing apparatus under any circumstances.

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

3.1. Prior to the First Use

Prior to the first use, the apparatus must be prepared for the number and types of compressed air cylinders. Afterwards, when changing compressed air cylinders (without attached bumpers) that have the same diameter, the closed loop of the tension strap is increased or again tightened by opening or closing the tension clamp. A re-adjustment of the length of the tension strap and a loosening of the Velcro closure then is no longer required.

- (1) Before installing the threaded handwheel, check that the O-ring inside the handwheel high pressure socket is present and free of damage. If the O-ring is damaged, it must be replaced before the SCBA is used.
- (2) Thread the handwheel into the cylinder thread. The handwheel should be hand-tight (no tools should be used).

3.2. Connecting One Compressed Air Cylinder



Fig. 9 SCBA apparatus with one compressed air cylinder

3.2.1. Pressure Reducer with Screw Coupling

3.2.1.1. Preparing the Apparatus for Use with One Compressed Air Cylinder

- (1) Hinge down the cylinder separator that is in the middle of the cylinder support into a horizontal position until it catches.
- (2) If necessary, disconnect T-piece from high pressure socket of pressure reducer.

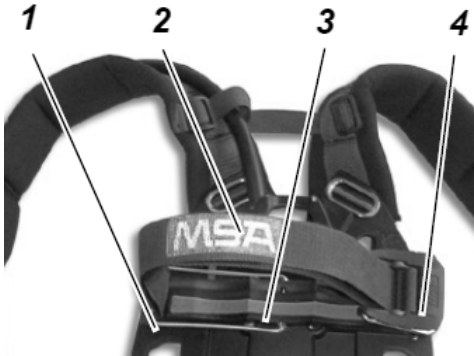


Fig. 10 Compressed air breathing apparatus – details

- | | | | |
|---|--------------------------|---|------------------|
| 1 | Cylinder separator | 3 | Cylinder support |
| 2 | Cylinder retaining strap | 4 | Tension clamp |

3.2.1.2. Connecting One Compressed Air Cylinder

- (1) Place compressed air breathing apparatus horizontally so that the back face is uppermost (→ Fig. 10).
- (2) Bring cylinder separator (1) into a horizontal position opposite the tension clamp (4) until it catches.
- (3) Check gasket on pressure reducer high pressure socket for proper condition.
- (4) Open tension clamp on cylinder strap eliminating any tension by extending the strap to full length pulling the small bar at the tension clamp (→ Fig. 11).

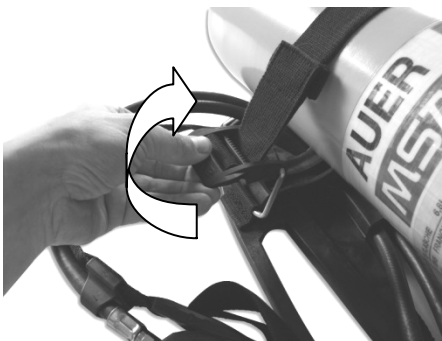


Fig. 11 Opening the tension clamp

- (5) Push compressed air cylinder through the cylinder strap (2) with the cylinder valve toward the pressure reducer, so that it lies on the central support (3).
- (6) Screw cylinder valve onto pressure reducer, if necessary, bring the compressed air breathing apparatus with valve up into a vertical position.

- (7) Put the SCBA back into the horizontal position. Check that the cylinder is laying on the central support (3).
- (8) Tighten cylinder strap (2) gently by pulling the free end.



Attention!

Do not overtighten the cylinder strap! Damage can occur when using excessive force to close the tension clamp and the SCBA might not be ready for use.

The final fastening tension will be achieved when closing the tension clamp.

- (9) Check position of compressed air cylinder, retighten if necessary.
- (10) Hinge tension clamp gently and completely down over the centre until it catches.
- (11) If push force/tension is too high during hinging of the tension clamp, re-adjust the strap length at the tension clamp. If the strap tension is too low, re-adjust the strap length at the tension clamp (→ Fig. 12).

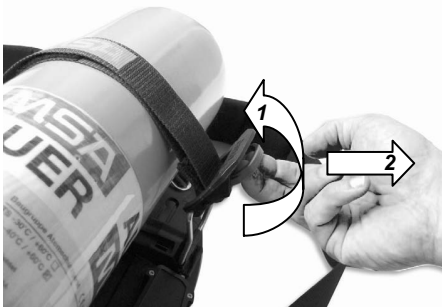


Fig. 12 Readjusting the strap length at the tension clamp

- (12) Fasten end of the cylinder retaining strap onto Velcro strip.
- (13) Briefly open cylinder valve and check for escaping air, retighten if necessary.

3.2.2. Pressure Reducer with *alphaCLICK 2*

3.2.2.1. Installing Quick Connect Adaptor to Cylinder

- (1) Use only a fully charged cylinder and inspect the internal coupling of the cylinder valve to ensure it is not damaged and free of dirt and debris.
 - The screw coupling of the cylinder valve must be undamaged and free from dirt and debris.
 - If the cylinder valve is damaged, remove from service and return it to a MSA trained or certified repair technician.

- (2) Inspect the external couplings of the cylinder adaptor and the nipple of the male connector on the pressure reducer to ensure they are not damaged and free of dirt and debris.
 - Ensure that the O-ring is installed on the cylinder adaptor and it is undamaged and free of dirt and debris.
- (3) Thread the adaptor with a specific torque of 20-30 Nm into the cylinder valve.
- (4) Before installing, ensure there is no dirt or debris on either the male or female end of the coupling. Ensure the adaptor on the cylinder valve is tight.
- (5) Push the quick connect coupling (using light force) onto the male adaptor of the pressure reducer until an audible snap is heard. The handwheel will rapidly rotate approx. 45° counter-clockwise indicating that the valve is connected to the pressure reducer.
- (6) Grasp the handwheel firmly and pull on it to ensure the handwheel is fully attached.

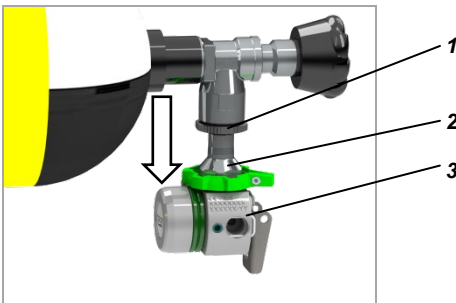


Fig. 13 Compressed air cylinder with alphaCLICK 2

- 1 Compressed air cylinder with alphaCLICK 2 cylinder adaptor
- 2 alphaCLICK 2 coupling
- 3 Pressure reducer

3.2.2.2. Connecting One Compressed Air Cylinder

- (1) If necessary, screw the *alphaCLICK 2* cylinder adaptor with a specific torque of 20-30 Nm into the cylinder valve.
- (2) Place compressed air breathing apparatus horizontally so that the back face is uppermost (→ Fig. 10).
- (3) Bring cylinder separator (1) into a horizontal position opposite the tension clamp (4) until it catches.



When fitting the compressed air cylinder on the coupling of the pressure reducer, it may tip down. In this case, support the pressure reducer with your hand.

- (4) Open tension clamp on the cylinder strap eliminating any tension by extending the strap to full length pulling the small bar at the tension clamp (→ Fig. 11).
- (5) Push compressed air cylinder through the cylinder strap (2) with the cylinder valve toward the pressure reducer so that it lies on the central support (3).
- (6) Align the compressed air cylinder with the *alphaCLICK 2* axially to the coupling and fit on the *alphaCLICK 2* coupling.



Attention!

Never push the coupling system together using excessive force.

- (7) Close the coupling by pushing together using a "small amount" of force and checking that the arrow of the indicator ring is vertically aligned with the back plate.
- (8) Tighten cylinder strap gently by pulling the free end.



Attention!

Do not overtighten the cylinder strap! Damage can occur when using excessive force to close the tension clamp and the SCBA might not be ready for use.

The final fastening tension will be achieved when closing the tension clamp.

- (9) Check position of compressed air cylinder, re-position if necessary.
- (10) Hinge tension clamp (4) gently and completely down over the centre until it catches.
- (11) If push force/tension is too high during hinging of the tension clamp, re-adjust the strap length at the tension clamp. If the strap tension is too low, re-adjust the strap length at the tension clamp (→ Fig. 12).
- (12) Fasten end of the cylinder retaining strap onto Velcro strip.
- (13) Briefly open cylinder valve and check for escaping air, retighten if necessary.

3.3. Connecting Two Compressed Air Cylinders

3.3.1. Pressure Reducer with Screw Coupling



Fig. 14 SCBA apparatus with twin compressed air cylinders

3.3.1.1. Preparing the Apparatus for Use with Two Compressed Air Cylinders

- (1) Hinge up the cylinder separator to a vertical position in the middle of the cylinder support until it catches.
- (2) Connect T-piece to high pressure socket of pressure reducer.

3.3.1.2. Connecting Two Compressed Air Cylinders

- (1) Place compressed air breathing apparatus horizontally so that the back face is uppermost (→ Fig. 10).
- (2) Hinge cylinder separator (1) into a vertical position until it catches.
- (3) If there is no T-piece connected to the pressure reducer, check gaskets on pressure reducer and T-piece and screw in T-piece loosely.
- (4) Open tension clamp on cylinder strap eliminating any tension by extending the strap to full length pulling the small bar at the tension clamp (→ Fig. 12).
- (5) Push one compressed air cylinder through the cylinder retaining strap so that the cylinder valve points to the T-piece, and lies on one of the outer supports.
- (6) Loosely screw the cylinder valve onto the T-piece.
- (7) Push a second compressed air cylinder through the cylinder retaining strap so that the cylinder valve points to the T-piece and lies on the outer support.
- (8) Loosely screw the second cylinder valve onto the T-piece.



With right-angled T-piece, align the compressed air cylinders by hinging the pressure reducer and pulling the cylinders together (see Operating Manual for T-pieces).

- (9) Tighten all three high pressure connection handwheels.

- (10) Briefly open cylinder valves and check for escaping air, retighten if necessary.
- (11) Tighten cylinder strap gently by pulling the free end.



Attention!

Do not overtighten the cylinder strap! Damage can occur when using excessive force to close the tension clamp and the SCBA might not be ready for use.

The final fastening tension will be achieved when closing the tension clamp.

- (12) Hinge tension clamp down until it catches.
- (13) If push force/tension is too high during hinging of the tension clamp, re-adjust the strap length at the tension clamp. If the strap tension is too low, re-adjust the strap length at the tension clamp (→ Fig. 12).
- (14) Fasten end of the cylinder retaining strap onto Velcro strip.
- (15) Check that compressed air cylinders are held securely, retighten if necessary.

3.3.2. Pressure Reducer with *alphaCLICK 2*

- (1) If necessary, screw the *alphaCLICK 2* cylinder adaptor with a specific torque of 20-30 Nm into in the T-piece.
- (2) Place compressed air breathing apparatus horizontally so that the back face is uppermost (→ Fig. 10).
- (3) Hinge cylinder separator (2) into a vertical position until it catches.
- (4) Open tension clamp on cylinder strap eliminating any tension by extending the strap to full length pulling the small bar at the tension clamp (→ Fig. 12).
- (5) Push one compressed air cylinder through the cylinder retaining strap so that the cylinder valve points to the T-piece, and lies on one of the outer supports.
- (6) Screw the cylinder valve onto the T-piece.
- (7) Push a second compressed air cylinder through the cylinder retaining strap so that the cylinder valve points to the T-piece, and lies on the outer support.
- (8) Screw the second cylinder valve onto the T-piece.



When fitting the T-piece with *alphaCLICK 2* on the coupling of the pressure reducer it may tip down.

In this case, support the pressure reducer with your hand.

- (9) Align the T-piece with the *alphaCLICK 2* axially to the coupling and fit on the *alphaCLICK 2* coupling.



Attention!

Never push the coupling system together using excessive force.

- (10) Close the coupling by pushing together using a "small amount" of force and checking that the arrow of the indicator ring is vertically aligned with the back plate.
- (11) Proceed as described from (11) to (14) for pressure reducer with screw coupling.

3.4. Adjusting the Back Plate

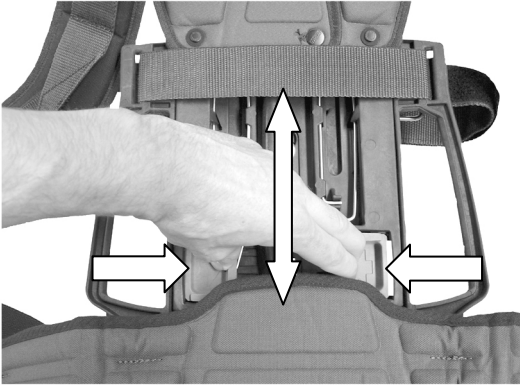


Fig. 15 Adjusting the back plate

Operate catches clips on the inside of the back plate in direction of arrow and push adjusting plate up or down to desired position and let catches engage.

3.5. Donning the Compressed Air Breathing Apparatus

- (1) Check all components of the compressed air breathing apparatus for defects and malfunctions.
- (2) Don breathing apparatus with shoulder straps fully extended.
- (3) Close hip belt and tighten loose ends **towards the front**.
- (4) Tighten shoulder straps until back plate fits comfortably
- (5) Adjust shoulder straps to achieve a comfortable weight distribution between shoulder straps and hip belt.
- (6) If required, connect lung governed demand valve to medium pressure coupling (see Instruction Manual for Lung Governed Demand Valve).

3.6. Condensed Check Prior to Use

- (1) Open cylinder valve(s) and check pressure on the pressure gauge.
The pressure values must read:

for 300 bar cylinders:	minimum 270 bar
for 200 bar cylinders:	minimum 180 bar
- (2) Close cylinder valve(s) and check pressure gauge.
 - The pressure must not drop more than 10 bar in 60 seconds.
- (3) Carefully activate flushing mode of lung governed demand valve, closing exit port as much as possible.
- (4) Observe the pressure gauge.
 - The warning signal must sound at 55 ± 5 bar.

3.7. Donning the Full Face Mask

- (1) Don facepiece (full face mask) and check facepiece-to-face fit (palm test) (see Instruction Manual of Full Face Mask).
- (2) Open cylinder valve(s) fully.



Warning!

When using two compressed air cylinders, always open the valves of both cylinders. Only then will both cylinders empty uniformly.

- (3) Connect lung governed demand valve to full face mask (see Instruction Manual for Lung Governed Demand Valve)
- (4) The compressed air breathing apparatus is ready for use.

3.8. During Use

- (1) Regularly check tight fit of full mask and lung governed demand valve and retighten if necessary, as well as the air supply on the pressure gauge.
- (2) Leave area immediately if the warning signal sounds.



Independently of the warning signal, an earlier retreat may be required; the retreat start is based on the reading of the pressure gauge.



Danger!

The warning signal sounds when the air supply in the compressed air cylinders is reduced.

In such cases, immediately leave the area, there is danger of air deficiency.

3.9. Use of the Second Connection

- (1) Remove safety cap from medium pressure coupling of Second Connection on the manifold.
- (2) Connect medium pressure line of lung governed demand valve of second user until the coupling audibly catches.

**Warning!**

When rescuing persons with the rescue set via the Second Connection, more air is consumed.

Hence, the service time is considerably reduced. Always keep this in mind when using your apparatus.

3.10. Handling the Warning Device

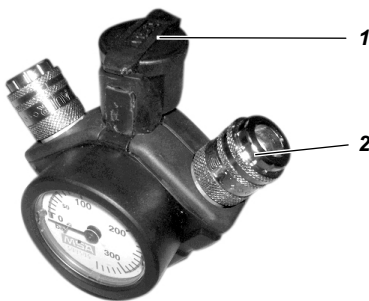


Fig. 16 Manifold

- 1 Warning device with protective cap
- 2 Second connection

After using, it is possible to reduce the volume of the warning device during the decontamination process. This is done by removing the protective cap from the second connection on the manifold and pushing it onto the warning device.

**Warning!**

During duty, damping down the warning signal tone is not permitted.

Remove the protective cap from the warning device again and push it onto the second connection after the SCBA Basic Apparatus has been removed.

3.11. Filling with Quick-Fill



Fig. 17 Fill with Quick-Fill (optional)

1 Quick-Fill coupling

With the Quick-fill function, the compressed air cylinder(s) of the breathing apparatus can be filled during use (see Operating Manual for Quick-Fill).

3.12. Removing the Compressed Air Breathing Apparatus

- (1) Remove lung governed demand valve, or full face mask.
- (2) Close cylinder valve(s).
- (3) Activate flushing mode of lung governed demand valve, releasing all air pressure.
- (4) Open hip belt.
- (5) Extend shoulder straps by lifting the slides.



Danger!

Do not throw off compressed air breathing apparatus. This could damage the valve and the remaining compressed air could escape suddenly.

This could cause fatal injury to you or to any bystanders.

- (6) Remove compressed air breathing apparatus.

3.13. Removing the Compressed Air Cylinders

3.13.1. Pressure Reducer with Screw Coupling

- (1) Place the compressed air breathing apparatus in a horizontal position with the cylinder facing up.
- (2) Hinge up tension clamp at cylinder strap (→ Fig. 11) and thus loosen the strap.



When exchanging compressed air cylinders of the same diameter (without attached bumpers), only the tension clamp needs to be opened.

- (3) Close cylinder valve(s), release air from pneumatic system of the SCBA with lung governed demand valve.
- (4) Unthread cylinder valve(s) from pressure reducer and/or T-piece.



Attention!

Do not remove the compressed air cylinder(s) from the cylinder strap or transport the compressed air cylinder(s) by the handwheel. This could accidentally open the cylinder valve.

- (5) Lift compressed air cylinder(s) at the valve and pull out of cylinder strap.
- (6) Close high pressure connection cylinder valve(s) with protection cap(s).

3.13.2. Pressure Reducer with *alphaCLICK 2*

- (1) Place the compressed air breathing apparatus in a horizontal position with the cylinder facing up.
- (2) Hinge up tension clamp at cylinder strap (→ Fig. 11) and thus loosen the strap.



When exchanging compressed air cylinders of the same diameter (without attached bumpers), only the tension clamp needs to be opened.

- (3) Close cylinder valve(s) and release air from pneumatic system of the SCBA with lung governed demand valve.

- (4) For compressed air cylinders with *alphaCLICK 2* turn the handwheel on the coupling side (arrow 1) in a clockwise direction first (→ Fig. 18) and then, when closed up to the stop, push downwards in the direction of the pressure reducer (arrow 2).

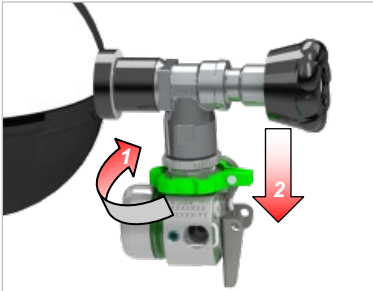


Fig. 18 Removing a cylinder with *alphaCLICK 2*

- The cylinder adaptor releases from the *alphaCLICK 2* coupling.



Attention!

Do not remove the compressed air cylinder(s) from the cylinder strap or transport the compressed air cylinder(s) by the handwheel. This could accidentally open the cylinder valve.

- (5) Lift compressed air cylinder(s) at the valve and pull out of cylinder strap.

4. Maintenance and Care of the SCBA

4.1. Maintenance Instructions

This 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 only by authorised service centres or by MSA. Changes to devices or components are not permitted and could result in loss of approved status.

MSA is liable only for maintenance and repairs carried out by MSA.

Do not use organic solvents such as alcohol, white spirit, petrol etc. When drying / washing, do not exceed the maximum permissible temperature of 60°C.



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.

4.2. Maintenance Intervals

4.2.1. Test Intervals for all Countries (except Germany)

Component	Work to be Performed	Before use	After use	Annually	Every 3 years	Every 9 years ¹⁾
Compressed air breathing apparatus complete	Cleaning		X		X	
	Sight, function and tightness check		X	X		
	Check by user ²⁾	X				
Compressed air breathing apparatus without cylinder and lung governed demand valve	Overhaul					X
alphaCLICK 2 coupling	Cleaning		X			
	Lubricate			X ³⁾		
	Check by user	X				
Compressed air cylinder with valve	Filling pressure check	X				
	Technical expert test	See instruction manual for compressed air cylinder. Please observe national rules!				
Lung governed demand valve	See instruction manuals for lung governed demand valve / full face mask. Please observe national rules! ⁴⁾					

¹⁾ For SCBA apparatus that are frequently used, we recommend a complete overhaul after approx. 540 hours. For example, this corresponds to 1080 applications with a duration of 30 minutes.

²⁾ The checks are performed with the respective lung governed demand valves and if required, with the respective full masks.

³⁾ Lubricate *alphaCLICK 2* coupling every 500 coupling cycles at least (see maintenance manual).

⁴⁾ Rubber components are subject to ageing with varying rates according to local conditions and must be checked and replaced at regular intervals.

4.3. Cleaning

4.3.1. Pre-cleaning

- (1) Open cylinder valve(s) of the mounted compressed air cylinder(s) fully.
- (2) Remove rough dirt from breathing apparatus with water hose. Here, we recommend using a mild detergent.
- (3) Close cylinder valve(s), release air from apparatus with lung governed demand valve.

4.3.2. Cleaning, Light Soiling

- (1) Remove compressed air cylinder(s) (→ Section 3.13).
- (2) Clean compressed air breathing apparatus manually using a brush, damp cloth or similar.
- (3) Dry apparatus completely in a drying cabinet at max. 60°C.

4.3.3. Cleaning, Heavy Soiling

- (1) Remove compressed air cylinder(s) (→ Section 3.13).
- (2) Disconnect lung governed demand valve from medium pressure line.
- (3) Open line holder and unbutton shoulder pads.



The carrying and hip belts of the compressed air breathing apparatus are fastened into the back plate with metal buckles. To remove the belts, you must pull the buckles up slightly, tilt them and push them out of the slots in the back plate.

- (4) Slide shoulder pads to lowest position in the lateral guide slots of the slide back plate, tilt the buttons outwards a little and take pads out of guide slots.
- (5) Unbutton shoulder pads and hip belt from back plate.
- (6) Press retaining pin (→ Fig. 20) of the single line downwards at an angle and remove.
- (7) Do the same on the other side of the back plate.
- (8) Remove single line from the guide on the back plate.

- (9) Push out the spindle (3) in the pressure reducer holder (→ Fig. 19).
- (10) Remove pressure reducer from the back plate, **do not** push up the stop spring (2).

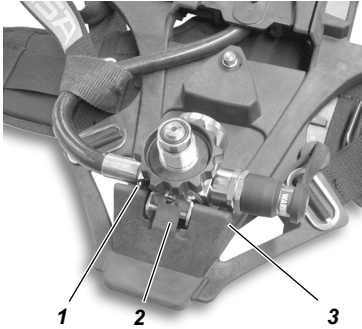


Fig. 19 Remove pressure reducer

- 1 U-Clip
- 2 Catch spring
- 3 Spindle

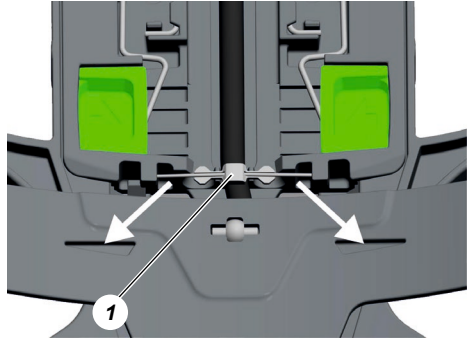


Fig. 20 Remove line

- 1 Stop pin for Single line



U-Clip and hoses are not to be removed after removing the pressure reducer.

- (11) Set slide back plate (→ Section 3.3) to smallest position, push block plate (→ Pos. 10 in Fig. 1) and then push slide plate further and remove.
- (12) Clean back plate with cylinder strap and slide plate at max. 60°C.
- (13) Clean harness in a suitable washing machine at max. 60°C.
- (14) Clean lines, pressure reducer and pressure gauge by hand.



Attention!

Do not allow the internal parts of the pressure reducer to get wet. This can affect the functioning of the pressure reducer.

To clean the pressure reducer seal sets, apply seal caps and apply high or medium pressure of approx. 2 bar.

- (15) Completely dry all compressed air breathing apparatus components in a drying cabinet at max. 60°C.

4.4. Instructions for Assembling the Pressure Reducer

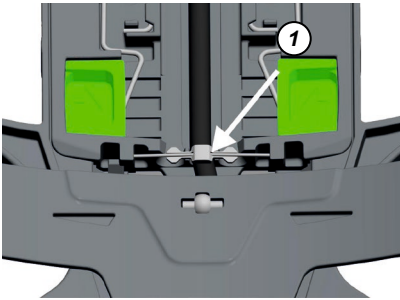


Fig. 21 Back plate (from the rear)

1 Line holder bracket

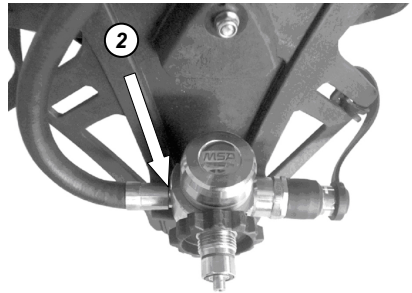


Fig. 22 Pressure reducer

2 Connection on the pressure reducer

When assembling the pressure reducer (regardless of the model) on the back plate, ensure the correct setting of the single line (→ Fig. 21).

The tube length between the stop pin (→ Pos. 1) and pressure reducer (→ Pos. 2) should be 350 mm.

4.5. Visual, Function and Tightness Check

- (1) Visually check the high pressure gaskets (→ Section 4.7).
- (2) Connect compressed air cylinder(s) to back plate (→ Sections 3.2 and 3.3).
- (3) Check all parts of the compressed air breathing apparatus for visible defects or malfunctions, such as incorrectly assembled harness, loose compressed air cylinders, incorrectly fitted lines, etc.
- (4) Open cylinder valve(s) and check operating pressure on pressure gauge.
 - The pressure values must read:

for 300 bar cylinders:	minimum 270 bar
for 200 bar cylinders:	minimum 180 bar
- (5) Close cylinder valves.
 - After 60 seconds the pressure drop in the pressure gauge must not exceed 10 bar.
- (6) Check warning device (signal whistle) (→ Section 4.6).

4.6. Warning Device Check

- (1) Connect lung governed demand valve to medium pressure line.
- (2) Open cylinder valve(s).
 - The pressure on the pressure gauge must be at least 120 bar.
- (3) Close cylinder valve(s).
- (4) Carefully activate flushing mode of lung governed demand valve (see Instruction Manual for Lung Governed Demand Valve)
- (5) Observe the pressure gauge.
 - The warning signal must sound at 55±5 bar.

4.7. High pressure Gaskets Check

Visually check the sealing ring of the cylinder connector in the pressure reducer. Damaged sealing rings must be replaced.

4.8. Overhaul

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



Attention!

Pressure reducers are completed with a lead seal. Where the lead seal is missing or damaged, it cannot be guaranteed that they are ready for use or that they correspond to the approval status.

Optimal use of the compressed air breathing apparatus is not assured in this case.

4.9. Storage

Store in a dry place, free from dust and dirt, at approx. 20°C. Protect apparatus against direct sunlight.

Secure against tilting, falling down and rolling away. Please, also take into consideration the instructions in the manual for the compressed air cylinders.

4.10. Malfunctions

In case of malfunctions in the compressed air breathing apparatus, it must be checked and repaired by a person or service centre authorised by MSA.

5. Changing/Filling of Compressed Air Cylinders to **alphaCLICK 2**

5.1. Changing of Compressed Air Cylinders to **alphaCLICK 2**

All usual compressed air cylinders with standard valve threads [EN 144-2] can be easily equipped with the **alphaCLICK 2** coupling system.

This makes efficient use when combined with compressed air breathing apparatus of the type AirMaXX SL-CLICK and uses the advantages of the innovative coupling system.

The **alphaCLICK 2** cylinder adaptor is not equipped with a flow restrictor.

For safety, all the compressed air cylinders involved should be fitted with an **alphaCLICK 2** cylinder adaptor.

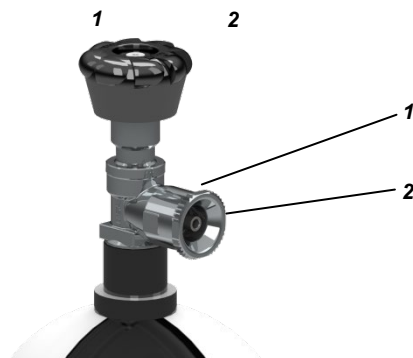


Fig. 23 Changing to **alphaCLICK 2**

- 1 *alphaCLICK 2 cylinder adaptor*
- 2 *Cylinder valve*



Attention!

When changing the compressed air cylinder(s) do not hold on to the handwheel of the cylinder valve.

This could unintentionally open the cylinder valve through which compressed air at high pressure could escape from the cylinder, out of control.

- (1) Check that the cylinder valve is closed.
- (2) Screw the **alphaCLICK 2** cylinder adaptor with a specific torque of 20-30 Nm into the cylinder valve.

5.2. Filling of Compressed Air Cylinders with *alphaCLICK 2*

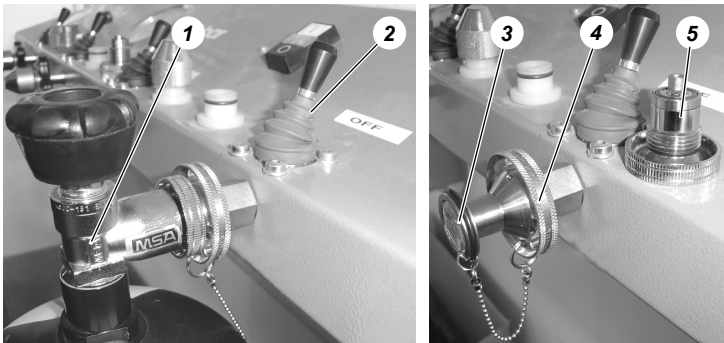


Fig. 24 Filling station for compressed air cylinders with *alphaCLICK 2*

- 1 Compressed air cylinder with *alphaCLICK 2* cylinder adaptor
- 2 Operating lever
- 3 Blind plug
- 4 *alphaCLICK 2* filling coupling
- 5 Cylinder adaptor

With the help of the filling panel, it is possible to fill several compressed air cylinders quickly and safely at the same time. Time-consuming screwing-on of compressed air cylinders is no longer required thanks to *alphaCLICK 2*. The compressed air cylinder is simply plugged into the *alphaCLICK 2* filling coupling of the filling panel.

The compressed air cylinders are filled with the help of an operating lever which has to be operated depending on the design of the filling panel for each individual cylinder or centrally for the station.



Warning!

When filling air cylinder(s) using the filling panel, secure non-used *alphaCLICK 2* filling couplings with a blind plug.

Do not pressurise a non-used *alphaCLICK 2* filling coupling without a blind plug.

This can cause damage to persons and objects.

- (1) Release pressure from the filling panel.
- (2) Remove the blind plug from the *alphaCLICK 2* filling coupling on the filling panel.

- (3) Attach the compressed air cylinder to the *alphaCLICK 2* coupling and open the cylinder valve.

**Attention!**

When being pressurised, cylinder must not be swivelled as this can cause damage to the *alphaCLICK 2* filling coupling.

This is particularly important if a water basin for cooling is used while filling.

- (4) Fill the compressed air cylinder using the operating lever.
- (5) Once the compressed air cylinder has been filled, close the cylinder valve.
- (6) Depressurise the connection between the filling panel and the cylinder.
- (7) Turn the handwheel of the *alphaCLICK 2* filling coupling on the filling panel clockwise first and upon reaching the stop, press in the direction of the filling panel.
 - The cylinder adaptor is released from the *alphaCLICK 2* filling coupling.
- (8) Remove compressed air cylinder from *alphaCLICK 2* filling coupling.
- (9) Secure *alphaCLICK 2* filling coupling with blind plug.

6. Accessories

6.1. Compressed Air Cylinders

**Danger!**

When handling compressed air cylinders, observe the relevant operating manual and the safety instructions specified in it.

Improper handling of compressed air cylinders can have fatal consequences for you and others.

6.1.1. Compressed Air Cylinders

The compressed air breathing apparatus is compatible with a large number of different compressed air cylinders (→ Section 7.3). The MSA compressed air cylinders are made of steel or carbon fibre compound (composite). They are type approved and in accordance with the respective standards.

Applicable national regulations must be observed.

The cylinders must be ordered separately. Protective covers are available for all 6.0 l and 6.8 l composite cylinders. (→ Section 7.4).

6.1.2. Valves

The cylinder valves that screw into the cylinders are type approved according to EN 144. The handwheels are protected against impacts. They must be fully open for use. The fail safe cylinder valve can be closed only by additionally pulling the handwheel. This prevents it from closing accidentally.

6.1.3. T-Pieces

The T-pieces allow two compressed air cylinders to be connected to the compressed air breathing apparatus. Depending on the cylinder size, different T-pieces must be used, e.g. the 4l/200 bar steel cylinders require Ø115/200 bar T-piece; the 6l/300 bar or 6.8l/300 bar composite cylinders require the Ø156/300 bar T-piece. T-pieces must be ordered separately (→ Section 7.4)

6.2. Lung Governed Demand Valve / Full Face Mask

The base units of the AirMaXX SL series are provided for use with various MSA lung governed demand valves and full face masks. A list of compatible devices is given under Section 7.2

7. Ordering Information

7.1. Compressed Air Cylinders

Description	Part No.
Compressed Air Breathing Apparatus	
Basic Apparatus AirMaXX SL ATO code (assembly to order)	

7.2. Lung Governed Demand Valve

Description	Part No.
Normal Pressure	
AutoMaXX N	10023686
For facepieces from the 3S, Ultra Elite series	
Positive Pressure Standard Thread Connection M45X3	
AutoMaXX AE	10023687
for full face masks 3S-PF, Ultra Elite-PF and G1 M45x3	
Positive Pressure Plug-in Connection AutoMaXX	
AutoMaXX AS	10023688
For full face masks from the 3S-PS-MaXX, Ultra Elite-PS-MaXX series and G1 PS-MaXX	
Positive Pressure Plug-in Connection ESA	
AutoMaXX ESA	10043464
For facepieces from the 3S-ESA, Ultra Elite-ESA series and G1 PF-ESA	
Further AutoMaXX versions on request	

7.3. Compressed Air Cylinders

Description	Part No.
Compressed Air Cylinders, Steel	
4 litre/200 bar, filled	D5103965
4 litre/200 bar, empty	D5103985
6 litre/300 bar, filled	D5103967
6 litre/300 bar, empty	D5103986
6 litre/300 bar, filled, with flow restrictor	10015960
6 litre/300 bar, filled, with ratchet valve	10024010
Compressed Air Cylinders; Composite	
6 litre/300 bar, filled	D5103947
6 litre/300 bar, empty	D5103976
6.8 litre/300 bar, filled	D5103962
6.8 litre/300 bar, empty	D5103979
6.8 litre/300 bar, filled, with flow restrictor	10015961
6.8 litre/300 bar, filled, with ratchet valve	D5103973
6.8 litre/300 bar, empty, with ratchet valve	D5103980
6,9 l/300 bar, filled	10055167
6,9 l/300 bar, empty	10055168
6,9 l/300 bar, filled, with ratchet valve	10055169
6,9 l/300 bar, empty, with ratchet valve	10055170
6,9 l/300 bar, filled, with flow restrictor	10072889
6,9 l/300 bar, empty, with flow restrictor	10072888

7.4. Accessories

Description	Part No.
T-piece 115/200 bar, for two 4 litre/200 bar cylinders	D4085817
T-piece 156/300, for two 300 bar Composite cylinders	D4075818
Protective cover blue-black for composite cylinders	D4075877
Protective cover yellow for Composite cylinders	D4075878
Quick-Fill line, 1 metre	D4075929
Quick-Fill cylinder adaptor	D4075971
Rescue kit in bag	D4075720
Rescue kit in carry case	D4075723
Rescue grip AirGo/AirMaXX	10152624
Upgrade-kit valve-protection AirGo	10145942
Chest strap	D4075822
Respi-Hood, rescue hood	10045764
Standard medium pressure line	10020783
Protection tunnel BSPP, black, left	10152627-SP
eXXtreme protection tunnel, black, left	10145844
eXXtreme protection tunnel, black, right	10145845
alphaBELT Pro, holding and rescue belt, incl. lanyard	10151246
alphaBELT Basic, positioning belt without lanyard	10151241
alphaBELT Lanyard	10151242
alphaFP basic, standard	10116510
alphaFP basic, large	10117620
alphaFP pro, standard	10116541
alphaFP pro, large	10117573
Small connector loop for SCBA harnesses	10151249
Adaptor quick release buckle to SCBA, 2x	10151248-SP
Tri-Lock steel carabiner	10157585

7.5. Upgrading Options

Description	Part No.
Upgrade Set AirMaXX eXXtreme (complete harness)	10043042
Upgrade Set alpha SL (pressure reducer, distributor and SingleLine in the exchange)	10065798
Upgrade Set alpha SL-Q (pressure reducer with QuickFill, distributor and SingleLine as an exchange)	10065799
Upgrade Set: SL pneumatics & <i>alphaCLICK 2 300 bar</i>	
In case you want to upgrade your AirMaXX with the new SingleLine [SL] pneumatics and <i>alphaCLICK 2</i>	
<i>alpha SL-CLICK</i> upgrade set (incl. <i>alphaCLICK 2</i> coupling set 300 bar, pressure reducer, manifold & SingleLine in exchange for your old SCBA pneumatics)	10076302
Upgrade Set: <i>alphaCLICK 2 300 bar</i>	
In case you want to upgrade your existing MSA pneumatics with <i>alphaCLICK 2</i> .	
<i>alphaCLICK 2</i> coupling set 300 bar (also for use with QuickFill)	10191333
<i>alphaCLICK 2</i> cylinder adaptor / 300 bar (set of 5)	10191310
<i>alphaCLICK 2</i> indicator ring (set of 5)	10191331
SingleLine SCOUT with 2 medium pressure connections - without SingleLine	10183243
SingleLine SCOUT - No pressure line, 1 medium pressure connection	10184951

7.6. Work Shop Accessories

Description	Part No.
Open-ended 19 mm spanner for fitting the <i>alphaCLICK</i> to the pressure reducer (for <i>alphaCLICK</i> 1 st generation only)	10075231
Control pressure gauge up to 400 bar cylinder pressure	D4080929
Control pressure gauge (class 1.0) for pressure gauge check (400 bar)	D5175825
Control pressure gauge (class 0.6) for pressure gauge check (400 bar)	D5175867
Control pressure gauge (class 1.6) medium pressure (10 bar)	D5175860
Control pressure gauge (class 0.6) medium pressure (16 bar)	D5175866
<i>alphaCLICK</i> 2 test gauge (up to 400 bar)	10192641
<i>alphaCLICK</i> 2 filling couplings for filling panels 300 bar (set including coupling 300 bar, blind plug, bushings for M 16 x 1.5 and G1/4 threads and seals)	10191332
Filling panels with <i>alphaCLICK</i> 2	on request
Test case Multitest ND	10073519

Notes

Notes

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

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