MSA
The Safety Company

Operating Manual

M1 Modular SCBA System

Order No.: 10195758/05

MSAsafety.com

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

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Contents

1 Safety Regulations

1.1 Correct Use

The M1 Modular SCBA System – referred to hereafter also as device – is a pressure-demand self-contained breathing apparatus (SCBA) operating independent of the ambient air for use in firefighting and/or in atmospheres immediately dangerous to life or health.

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 according to EN 12021 is supplied to the user from a compressed air cylinder via a pressure reducer, a lung governed demand valve and a facepiece. The exhalation air is released directly into the ambient atmosphere.

When fitted with twin cylinders, the breathing apparatus might exceed the weight limit specified in EN 137:2006.

⚠ DANGER!

This device is a pure gas protection device. It is not suitable for underwater diving.

Failure to follow this warning will result in serious personal injury or death.

⚠ WARNING!

Only trained individuals should be allowed to use the device after ensuring sufficient knowledge on donning and general use of the device.

Failure to follow this warning can result in serious personal injury or death.

⚠ WARNING!

Read this manual carefully before using the device. The device will perform as designed only if it is used and maintained in accordance with the manufacturer's instructions. Otherwise, it could fail to perform as designed and persons who rely on this device for their safety could sustain serious personal injury or death.

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.

Failure to follow these warnings can result in serious personal injury or death.

1.2 Liability Information

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

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

1.3 Safety and Precautionary Measures

- The device is approved beyond the specifications of EN 137:2006, for the temperature range between -40 °C and +60 °C as type 2 device (application for fire fighting). If the certification of the breathing connection has a different (lower) temperature range, this must be taken into account accordingly. For detailed information, see chapter 10 .
- The device may be used in potentially explosive atmospheres according to the class stated in chapter 10.1 .
- The ATEX class of any other equipment used together with this device has to be regarded as well. The lowest class sets the limit.
- If the device is used in an explosive atmosphere, dissipative clothes and footwear must be used in conjunction with dissipative grounds. When used in explosive atmospheres there must be direct contact between the head harness of the mask and the head. Do not use head coverings (e.g.fire hoods) under the head harness.

- Compatibility with other types of Personal Protective Equipment (PPE) worn during use of the device (e. g. clothing and helmets) has to be ensured according to Directive 89/656/EC.
- Use of the device in a vicinity that generates strong electrostatic charges in explosive atmospheres is not allowed.
- Do not expose the device to any substances that will or might attack any part of the SCBA, causing the SCBA to not perform as designed and approved.

Only use breathable air quality in accordance with EN 12021 and other applicable national regulations.

1.4 Contact Information

In the event of a product concern, contact the local MSA authorized repair center or distributor, they will provide the necessary information to MSA for issue resolution. To report any serious concerns or to inquire about the products, go to MSAsafety.com for information on the local MSA authorized repair center or distributor.

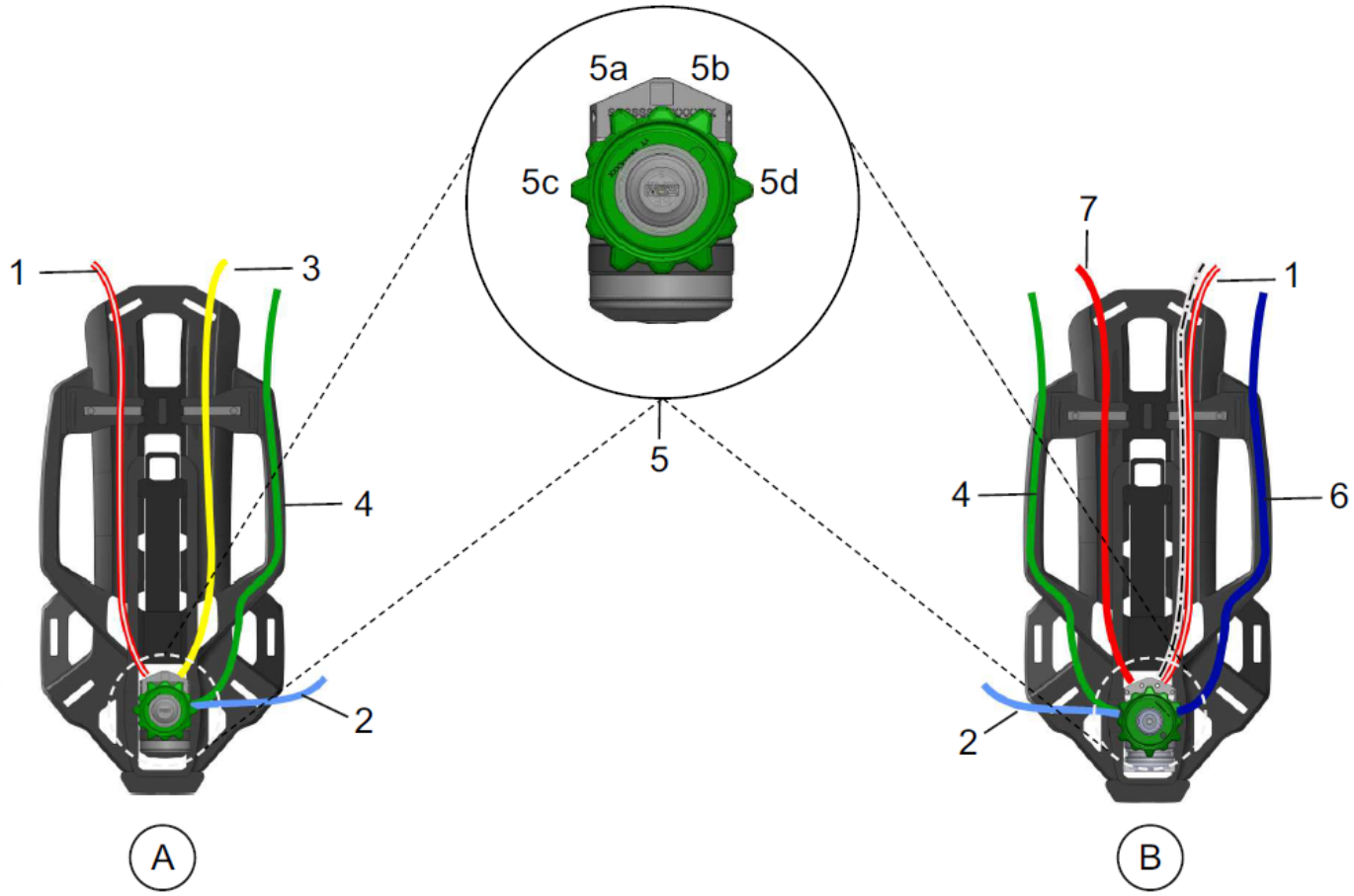
2 Description

The M1 SCBA is a pressure-demand self-contained open circuit breathing apparatus (SCBA) operating independent of the ambient air for use in atmospheres immediately dangerous to life or health.

Breathable air is supplied to the user from a compressed air cylinder via a pressure reducer, a lung governed demand valve (LGDV) according to EN 137:2006 and a full face mask according to EN 136:1998 (see operating manuals of lung governed demand valve and full face mask). The exhalation air is released directly into the ambient atmosphere.

The M1 SCBA can be configured via an ATO code with SingleLine, classic pneumatic or fixed pneumatic. The fixed pneumatic does not include an integrated medium pressure coupling to easily disconnect the LGDV from the pressure reducer. The following overview shows all options for the SingleLine and classic configuration:

Figure 1 Overview of SingleLine configuration (left) and classic configuration (right)



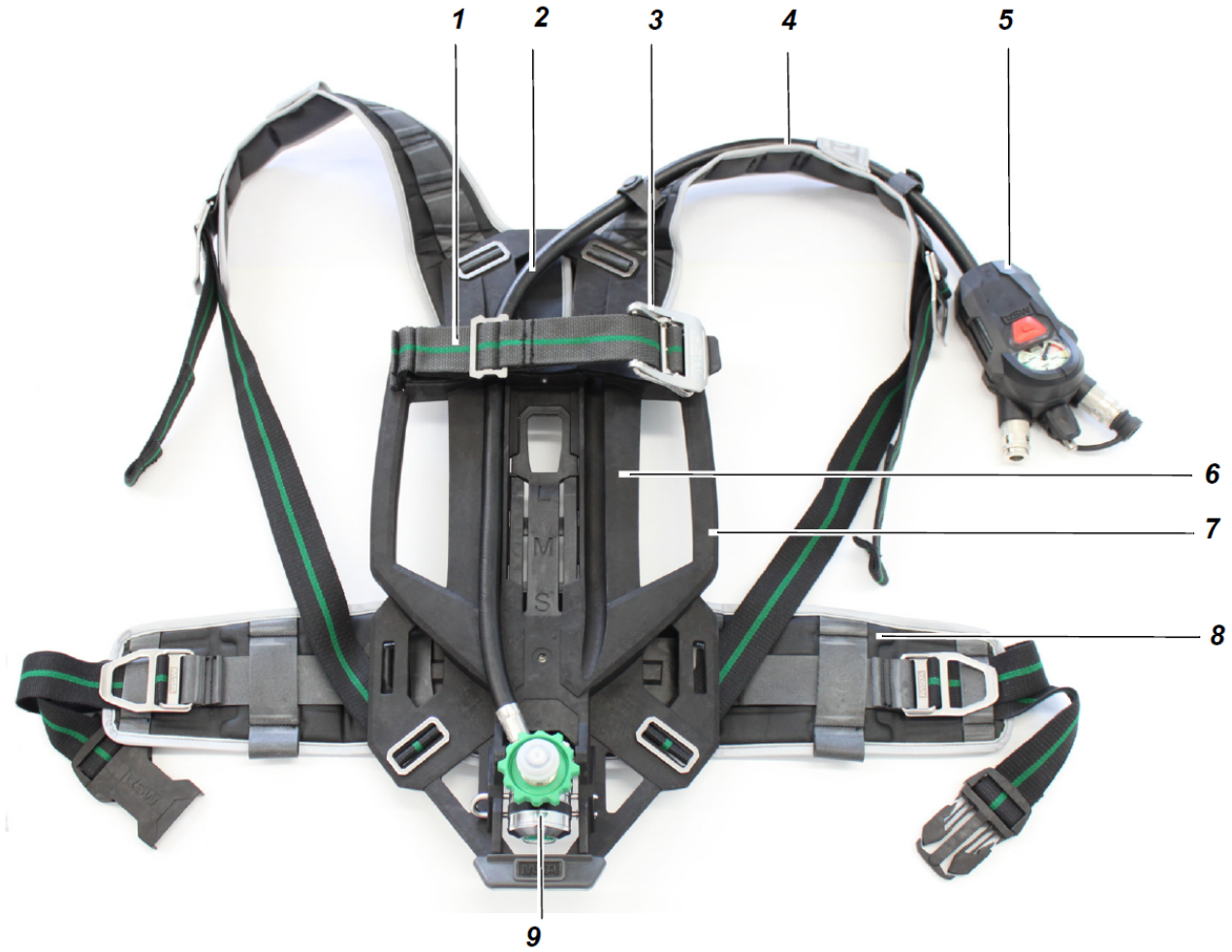
A	***SingleLine configuration***	***B***	***Classic configuration***
1	*SingleLine and warning signal*	*1*	*Front warning signal line and medium pressure coupling with SingleLine manifold or warning signal on pressure reducer*
2	Air cascade connection**	*2*	*Air cascade connection (option)*, **
3	*QuickFill*	*4*	*Rescue line**
4	*Rescue line*	*5*	*Pressure reducer*
5	*Pressure reducer*	*5a/b*	*SingleLine ports (medium pressure and high pressure)*
5a/b	*SingleLine ports (medium pressure and high pressure)*	*5c/d*	*Medium pressure ports (only)*
5c/d	*Medium pressure ports (only)*	*6*	*Main medium pressure line**
		7	*High-pressure line*

* *In case of air cascade connection option, rescue line must be removed if warning signal is in use*

** *For air cascade applications, use hose with non-return nipple*

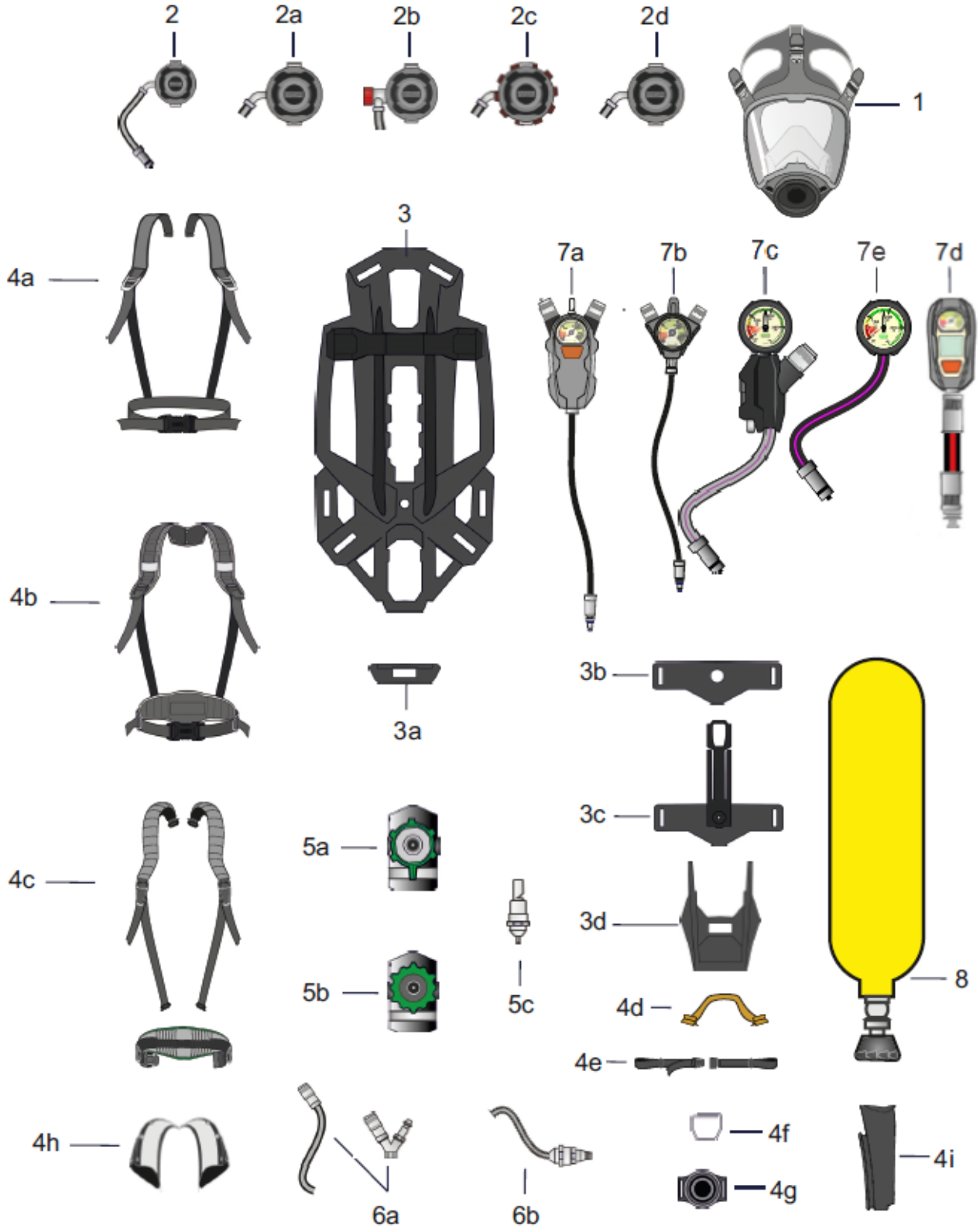
Mirroring of displayed options is possible. A maximum of three medium pressure couplings is allowed.

Figure 2 Example of M1 SCBA with SingleLine



1	*Cylinder strap*	*6*	*Backplate*
2	*SingleLine*	*7*	*Handle*
3	*Cylinder buckle*	*8*	*Hip belt*
4	*Shoulder strap*	*9*	*Pressure reducer*
5	*Manifold (here SingleLine SCOUT)*		

Figure 3 System Overview (schematic representation)



1	*Mask*		***Harness Accessories***
2	*Lung governed demand valve (LGDV)*	*4d*	*Rescue handle*
2a	*LGDV AS (Push-to-connect)*	*4g*	*LGDV retainer*
2b	*LGDV AS-B (Push-to-connect with bypass)*	*4h*	*Tunnel (eXXtreme harness)*
2c	*LGDV AE (M 45x3)*	*4i*	*Entanglement protection*
2d	*LGDV ESA*	*5a*	*Pressure reducer with alphaCLICK 2*
3	*Backplate*	*5b*	*Pressure reducer with handwheel*
	Backplate Accessories		***Pneumatic Options***
3a	*Bumper*	*5c*	*Warning signal with adapter*
3b	*Swivel only attachment for hip belt*	*6a*	*Buddy breather*
3c	*Swivel and height adjustment attachment for hip belt*	*6b*	*QuickFill*
3d	*Valve protection*	*7a*	*SingleLine SCOUT*
4a	*Basic harness*	*7b*	*Combination gauge*
4b	*Advanced harness*	*7c*	*Standard SingleLine gauge*
4c	*eXXtreme harness*	*7d*	*Control module*
	Harness Accessories	*7e*	*Classic gauge*
4d	*Rescue handle*	*8*	*Cylinder*
4e	*Chest strap*		
4f	*Attachment point*		

The backplate consists of an ergonomically designed plate of antistatic plastic with handles for easy transport of the apparatus. The pressure reducer is located in the lower section of the backplate. On the upper part of the backplate, a cylinder support is attached with integrated hose retainer. The shoulder straps and the hip belt are adjustable in length.

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

The structure of the compressed air breathing apparatus is based on a modular design. This allows the user to configure the compressed air breathing apparatus from the modules available to match his specific requirements.

2.1 Full Face Mask

The M1 SCBA can be used with the G1 Facepiece, 3S and Ultra Elite full face mask. For more information, see relevant operating manual.

Figure 4 G1 Facepiece

2.2 Pneumatics

2.2.1 Pressure Reducer

The pressure reducer reduces the cylinder pressure to medium pressure, which will be further reduced by the LGDV to a pressure that is respirable by the user. The pressure reducer incorporates a fail safe design which ensures air flow to the user in the event of a malfunction within the pressure reducer.

The pressure reducer incorporates a medium pressure relief valve, and a cylinder connector with a sinter filter to capture particulates that may be in the air stream.

The pressure reducer is marked with a serial number, a material number, a QR code, the CE marking and the month and year of manufacture (MM/YY).

For the non-electronic configuration, the pressure reducer can be connected to a manifold containing a pressure gauge (showing the cylinder pressure), a warning whistle for low pressure alarm and a connector for the LGDV (SL configuration). The pressure reducer can also be connected to a high pressure hose with standard pressure gauge and a separate medium pressure hose with LGDV (classic configuration). The warning whistle for low pressure alarm can be directly connected at the pressure reducer or equipped with a hose to the upper end of the backplate. For the electronic configuration, the pressure reducer is connected to the SingleLine SCOUT.

Figure 5 Pressure reducer

Primary Low Pressure Warning Device

The primary low pressure warning device is an acoustic warning device (signal whistle). It triggers a continuous warning signal when the cylinder pressure drops below 55 ± 5 bar.

Depending on pneumatics, the low pressure warning device can be located at the M1 pressure reducer next to the cylinder, connected to a hose on the upper back of the user (Figure 6) or within a SingleLine (SL) manifold (Figure 7).

Figure 6 Warning whistle with signal line at pressure reducer

Figure 7 Example of SL manifold

1 Warning signal

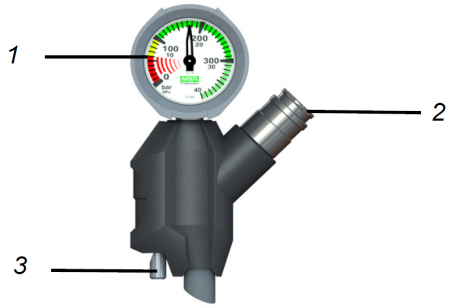
2.2.2 Manifolds

Non-Electronic Configuration

Figure 8 Combination gauge

1	*Pressure gauge*	*3*	*Warning signal*
2	*Second connection (optional)*	*4*	*Lung governed demand valve coupling*

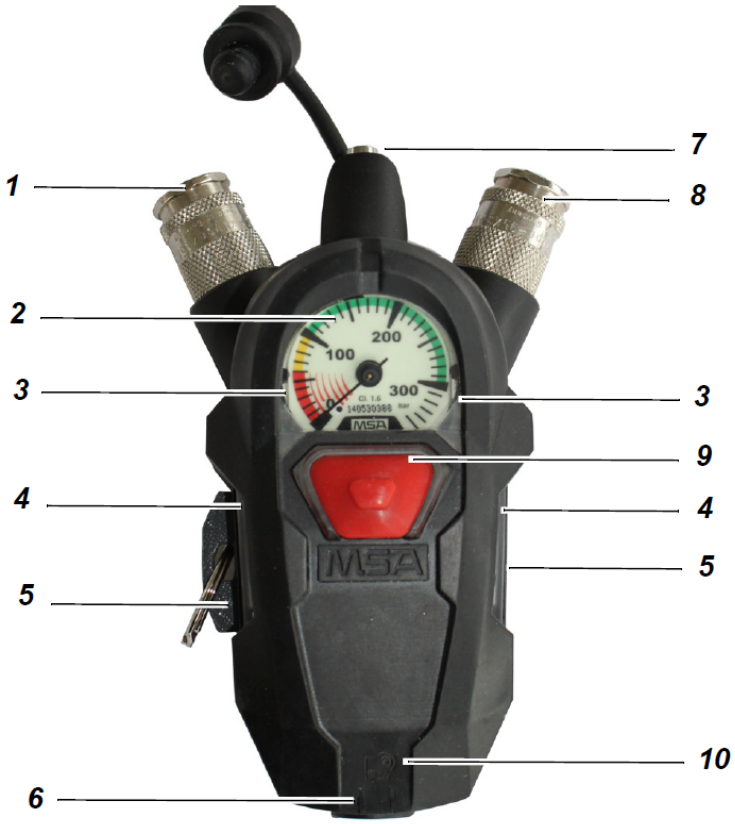
Figure 9 Standard SingleLine gauge



1	*Pressure gauge*	*3*	*Warning signal*
2	*Lung governed demand valve coupling*		

Electronic Configuration

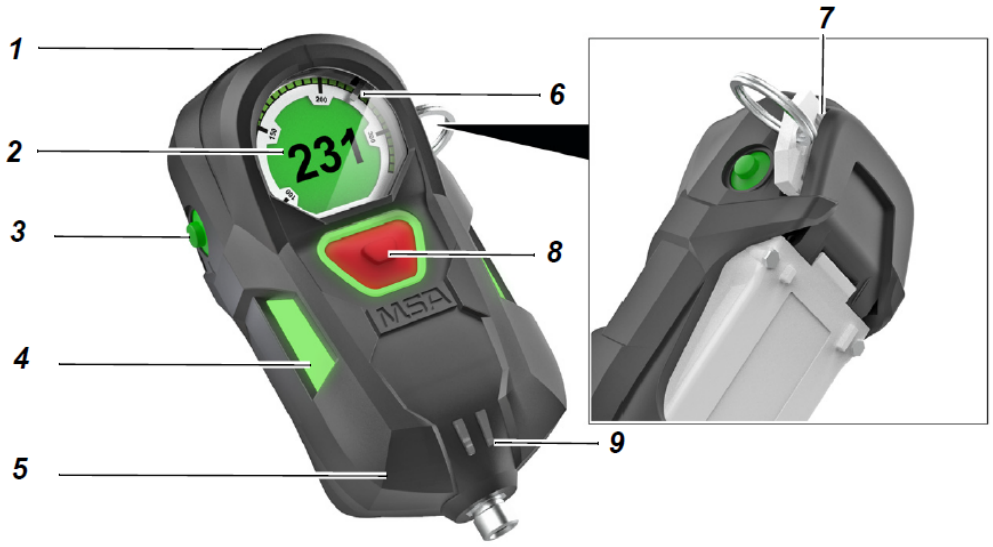
Figure 10 Overview SingleLine SCOUT



1	*Second connection (optional)*	6	*Battery life indication*
2	*Pressure gauge*	7	*Warning device (warning signal)*
3	*Pressure gauge lightning*	8	*Lung governed demand valve coupling*
4	*Buddy lights*	9	*Alarm button*
5	*Sound channel & safety key holder with safety key (left)*	10	*RFID transponder location*

For more information, see SingleLine SCOUT operating manual.

Figure 11 Overview M1 Control Module



1	*RFID Reader*	*6*	*Mechanical gauge with needle*
2	*Integrated display*	*7*	*Piezo sound generator and safety key port (accessible from both sides)*
3	*Mode button (on both sides)*	*8*	*Alarm button*
4	*Buddy lights (on both sides)*	*9*	*Battery state LEDs*
5	*Rubber boot*		

For more information, see M1 Control Module operating manual.

2.2.3 Lung Governed Demand Valve (LGDV)

The M1 SCBA can be used with the following lung governed demand valves:

Figure 12 M1-AE LGDV M45x3

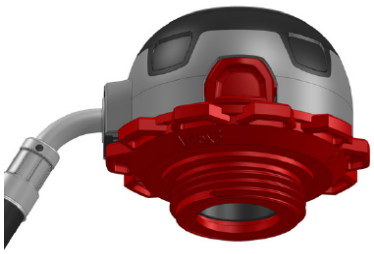


Figure 13 M1-AS LGDV

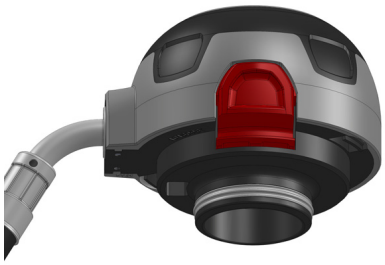
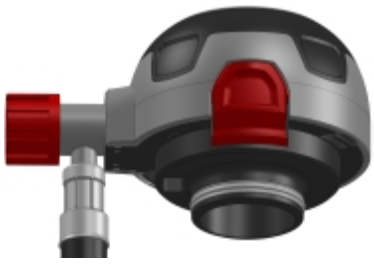


Figure 14 M1-ESA LGDV

Figure 15 M1-AS-B LGDV



For more information, see LGDV operating manual.

2.2.4 Cylinders

MSA recommends to equip the cylinder valve with an excess flow valve.

The cylinder stores high pressure air which will be reduced to provide the user with breathable air. Cylinders are available in multiple sizes. The cylinder valve provides the user the ability to supply the pressure to the rest of the system. The cylinder valve has a handwheel for opening and closing the valve and a threaded high pressure connection according to EN 144.

2.2.5 alphaCLICK 2

Optionally, an alphaCLICK 2 quick connection is available. In this case, the pressure reducer is equipped with the male part of the coupling. The female part (alphaCLICK 2 cylinder adapter) is screwed into the cylinder valve.

2.2.6 Medium Pressure Lines

The compressed air breathing apparatus can be equipped with additional connections for medium pressure:

- Medium pressure line with one coupling (used as main medium pressure line in classic configuration and rescue hose)
- Rescue line with buddy breather and flushing function
- Medium pressure line with Y-piece to connect one main LGDV and one LGDV for rescue operations (used in classic configuration instead of medium pressure line with one coupling)
- External medium pressure line (cascade hose on the hip belt with non-return valve)

2.2.7 High Pressure Lines

QuickFill

The QuickFill coupling can be used to recharge the cylinder in extraordinary situations while it is attached to the SCBA. The coupling can only be used for filling the cylinder(s) of the SCBA. The SCBA itself cannot be used for filling other devices.

Figure 16 QuickFill

The QuickFill coupling is a male QuickFill inlet for use by Rapid Intervention Teams for emergency filling operations. The system also includes an automatically resetting pressure relief valve.

2.2.8 "Clean Connect" Rescue Line Connection Option K2

“Clean Connect” Rescue Line

When the air supply is insufficient, users can connect two SCBAs with the "Clean Connect" rescue line connection to supply one another with air that is mostly free of contaminants.

The "Clean Connect" rescue line connection consists of a Y-piece with a coupling and a non-return nipple which prevents an unhindered airflow. The coupling and the non-return nipple flush out existing contaminated ambient air before the coupling system is closed. When connecting two rescue line connections, a pin inside the coupling opens the nipple of the second line to flush out contaminated air. The risk of breathing contaminated ambient air is minimized.

Two rescue lines with "Clean Connect" connections can be connected and add up to about one meter length.

Standard Couplings and Nipples without Pin

Standard nipple
(LGDV connection)

Standard coupling
(SingleLine gauge, SingleLine Scout)

Standard coupling
(standard rescue line)

Use of “Clean Connect” Rescue Line Nipple with Standard Couplings without Pin

Standard couplings do not include a pin and cannot be used with a "Clean Connect" rescue line nipple. Due to different pressure ratios of the two SCBAs the air supply can be interrupted.

Use of “Clean Connect” Rescue Line Coupling with Standard Nipple

Standard nipples can be used with a "Clean Connect" rescue line coupling without any interference of the air supply, but the flush function is not included.

The LGDV nipple is compatible with the "Clean Connect" coupling and standard rescue line coupling. In the event of insufficient air supply, the LGDV can be disconnected from the medium pressure line and connected to the rescue line coupling of another SCBA if two incompatible rescue systems are used.

2.2.9 Accessories

The following pneumatics accessory is available:

- RespiHOOD

2.3 Harness and Carrier Assembly

The harness and carrier assembly consists of:

- Backplate (carrying the pressure reducer)
- Cylinder support to hold the cylinder and hoses
- Shoulder pads
- Adjustable pull straps
- Hip belt
- LGDV retainer (optional)

2.3.1 Harness Configurations

The harness is available in three versions:

- Basic - The basic harness (with plastic or metal buckles available) does not include any padding and can only be used together with the basic hip belt.

Figure 17 Basic harness

- Advanced - The advanced harness (with plastic or metal buckles available) includes an additional padding.

Figure 18 Advanced harness

- eXXtreme - The eXXtreme harness (with metal buckles) includes an additional padding and a strong basic layer for high temperature environment (e.g. high heat training).

Figure 19 eXXtreme harness

- eXXtreme tunnel - The eXXtreme harness can be equipped with an additional tunnel to protect the harness and the hoses against high temperature and flames (e.g. high heat training).

Figure 20 eXXtreme harness tunnel (left and right, for eXXtreme harness only)

2.3.2 Backplate Adjustment Options

The backplate offers three options:

- Basic option - This option provides a fixed position. It is a non-swivel unit that provides a lower profile and light weight option for the user.
- Swivel option - This option provides a swivel feature to allow it to move with the user and to keep it in the center of the back of the user.
- Height adjustment and swivel option - The backplate with height adjustment and swivel option provides the user three positions for ideal comfort. The hip belt position can be adjusted by hand. This option also provides a swivel feature to allow it to move with the user.

Figure 21 Basic

Figure 22 Swivel

Figure 23 Height adjustment and swivel

2.3.3 Cylinder Strap (Cylinder Configuration)

There are cylinder straps of different lengths for securing one or two compressed air cylinders with metal or plastic buckles. The twin cylinder option does include a metal bracket to separate the cylinders for better retention.

Figure 24 Single cylinder strap

Figure 25 Twin cylinder strap

2.3.4 Accessories

The following accessories for the harness and carrier assembly are available:

- Chest strap - The chest strap prevents shoulder straps from sliding from the shoulders.
- Attachment points for accessories - MSA recommends a maximum attachment capacity of 5 kg.
- alphaBELT - The alphaBELT is a fall protection accessory (see operating manual of alphaBELT).
- Rescue handle - The rescue handle is used in rescue operations to pull the non-moving wearer of the SCBA out of a dangerous zone.
- Bumper - The bumper prevents the device from being damaged in the event that it is put down heavily.

- Valve protection - The valve protection prevents the cylinder valve from being damaged.
- Entanglement Protection - The Entanglement Protection prevents objects from threading in between the backplate and the compressed air cylinder.

3 Visual Inspections

For inspection intervals of the device see chapter 8.1 . Conduct a visual inspection upon receipt.

WARNING!

- Do NOT examine the SCBA before it is decontaminated, cleaned, and disinfected if there is a risk of exposure to hazardous contaminants. Obey the applicable decontamination procedures, clean and disinfect the SCBA first, then examine it.
- If the SCBA shows signs of internal moisture, damage, deterioration, or any of the conditions listed in the Visual Inspections section, remove the SCBA from service and return it to an MSA trained and certified repair technician.
- Never substitute, modify, add, or omit parts. Use only exact replacement parts in the configuration as specified by MSA.

Failure to follow these warnings can result in serious personal injury or death.

WARNING!

If the SCBA shows any of the conditions listed in the Visual Inspections section, remove the SCBA from service. Make sure an MSA trained and certified repair technician corrects the unsatisfactory condition before returning the SCBA to service.

Failure to follow this warning can result in serious personal injury or death.

WARNING!

Never substitute, modify, add, or omit parts. Use only exact replacement parts in the configuration as specified by MSA.

Failure to follow this warning can result in serious personal injury or death.

All Components

1. Inspect all components for deterioration, dirt, moisture, cracks, debris, tears, holes, stickiness, signs of heat or chemical related damage or other visible signs of damage.
2. Inspect all straps (shoulder straps, pull straps, hip belt, waist straps, full face mask head harness) for tears, cuts, wear, abrasion, missing buckles or straps.
3. Perform all component specific inspections listed below.

3.1 Cylinder

1. Check the test date on the cylinder approval sticker located on the cylinder neck or on the cylinder label.
    a. Observe national regulations for inspection intervals.

Make sure that the cylinder in use is approved as part of the MSA M1 SCBA system and fulfills all requirements to be in operation according to the cylinder manual and relevant national regulations.

4 Functional Tests

⚠ WARNING!

If the SCBA does not operate correctly for all functional tests, remove the SCBA from service. Make sure an MSA trained and certified repair technician corrects the unsatisfactory condition before returning the SCBA to service.

Failure to follow this warning can result in serious personal injury or death.

If the SCBA has passed the visual inspection successfully, conduct the functional tests.

If any part of the SCBA fails the functional test, do not use the SCBA and return the device to a certified repair technician.

NOTE: The functional checks must be conducted with a full cylinder. Before starting the tests, check the pressure gauge on the cylinder valve to verify that the cylinder is full.

4.1 Tightness Check of the Pressure Reducer

1. Connect compressed air cylinder (see chapter 7.2).
2. Open cylinder valve and check operating pressure on pressure gauge.

   The pressure value must read minimum 270 bar for 300 bar cylinders.
3. Close cylinder valve.

   After 60 seconds the pressure drop in the pressure gauge must not exceed 10 bar.
4. Check warning device:
   a. Connect LGDV.
   b. Pressurize the system by opening the cylinder valve.
   c. Close the cylinder valve.
   d. Observe the pressure gauge.
   e. Activate flushing mode of lung governed demand valve, releasing all air pressure.

      Warning must sound at 55 bar ± 5 bar for a 300 bar system.

5 Donning

⚠ WARNING!

- Before entering the hazardous area, the device must be put on.
- Before entering the hazardous area, check the M1 electronic devices for mechanical damage.
- If the SCBA does not function properly as described in this section, the SCBA must be removed from service and must be checked and corrected for proper operation by an MSA trained or certified repair person before using.
- The full face mask may not seal properly with your face if you have a beard, gross sideburns or similar physical characteristics. An improper facial seal may allow contaminants to leak into the full face mask, reducing or eliminating respiratory protection. Do not use this device if such conditions exist.
- The full face mask seal must be checked before each use.
- A nosecup must be installed in the full face mask.
- In order to guarantee a proper fit for those wearing glasses, a spectacle kit **must** be worn since ordinary glasses **cannot** be worn under the full face mask.
- Never remove the full face mask except in a safe, non-hazardous, non-toxic atmosphere.
- Users must wear suitable protective clothing and precautions must be taken so that the device is not exposed to atmospheres that may be harmful to it.

Failure to follow these warnings can result in serious personal injury or death.

5.1 Preparation

The device must have passed all visual inspections and functional tests (see previous chapters) before use.

1. Ensure that the cylinder is fully pressurized.
2. Check cylinder connection:

Threaded connect:

✓ Check that the handwheel is hand-tight (no tools).

alphaCLICK 2 (Quick connect):

✓ Ensure secure connection by pulling on quick connect coupling.

3. Pull on the cylinder strap assembly to ensure the cylinder strap is attached securely.
4. Fully extend the shoulder straps and the hip belt.

5. Adjust height of the hip belt (if height adjustment is available):
    a. Pull the lever on the backplate and push up or down depending on the adjustment needed.
    b. Release the tab and pull up or down to ensure the hip belt is locked in.

5.2 SCBA Donning Procedure

1. Slide the right arm through the right shoulder strap.

2. Slide the left arm through the left shoulder strap.
    a. Check correct orientation of shoulder straps.

3. Bend forward slightly; resting the carrier on the back. Pull down shoulder straps to pre-tighten SCBA.

4. Fasten the hip belt and pull forward on the waist strap pull tabs to tighten for a snug fit (advanced harness). For basic harness, pull sidewards on the waist strap pull tabs to tighten.
    a. Most of the SCBA weight should be carried on the hip.

5. Stand up straight. Pull down on the shoulder strap pull tabs to tighten straps. Adjust the hip belt if necessary.
6. Fasten chest strap (if used).

7. Grab the LGDV and push the side buttons to release the LGDV from the LGDV retainer.
8. Make sure the LGDV is switched off before opening the cylinder valve.

9. Reach behind and fully open the cylinder valve(s).

⚠ WARNING!

During system pressurization, listen for the sound of hissing or popping. If you hear hissing or popping, remove the SCBA from service, and return it to an MSA trained and certified repair technician.

Failure to follow this warning can result in serious personal injury or death.

⚠ WARNING!

If the primary low-pressure warning device does not alarm, remove the SCBA from service. Make sure an MSA trained and certified repair technician corrects the unsatisfactory condition before returning the SCBA to service.

Failure to follow this warning can result in serious personal injury or death.

1. Grasp the LGDV and insert it into the full face mask by pushing inward.
   Local regulations are to be followed.

2. Check proper engagement by pulling on the LGDV to ensure that the LGDV is securely attached to full face mask.

⚠ WARNING!

DO NOT use the SCBA unless the LGDV is connected properly. A LGDV that is not installed correctly can separate from the full face mask unexpectedly.

Failure to follow this warning can result in serious personal injury or death.

3. Inhale sharply to start the air flow.

NOTE: If the SCBA passes all tests, it is ready for use. These tests must be performed every time before entering a hazardous atmosphere. If the SCBA fails to meet any of the tests, the condition(s) must be corrected before using the SCBA.

6 During Use

⚠ WARNING!

Before use, the product operability must be verified. The product must not be used if:

- the function test is unsuccessful,
- the product is damaged,
- proper servicing/maintenance has not been made or
- genuine MSA spare parts have not been used.

Take into account the following factors which may affect the duration or the service life:

- the degree of physical activity of the user;
- the physical condition of the user;
- the degree that the user's breathing rate is increased by excitement, fear, or other emotional factors;
- the degree of training or experience which the user has had with this or similar equipment;
- whether or not the cylinder is fully charged;
- the condition of the SCBA.

Leave a contaminated area immediately if:

- Breathing becomes difficult
- Dizziness or other distress occurs
- You taste or smell the contaminant
- You experience nose or throat irritation
- SCBA not functioning according to the instructions or training.

DO NOT use the carrier and harness assembly as a vertical raising or lowering device.
Do NOT use this product as a self-contained underwater breathing apparatus. This will result in a rapid loss of air which could result in serious injury or loss of life.
Return to a safe atmosphere immediately if discoloration, crazing, blistering, cracking, or other deterioration of the full face mask lens material or other components of the SCBA is observed.
As high temperatures may occur during firefighting operations, each SCBA should be subjected to a detailed visual and functional test after every use in order to identify any potential adverse effects on its use.

Failure to follow these warnings can result in serious personal injury or death.

Periodically check the pressure indicated on a chest mounted pressure indicator during use.

When the needle on the pressure indicator reaches the red zone on the gauge face, the primary low pressure warning device alarms.

The primary low pressure warning device indicates when cylinder pressure drops below these approximate values:

- 55 bar ± 5 bar for a 300 bar system

Immediately return to a non-hazardous atmosphere if:

- SCBA free-flows (provides air when not inhaling).
- Low pressure warning device sounds.
- When the pressure warning device indicates 35% cylinder pressure, immediately return to a non-hazardous atmosphere.

- If the air flow in the SCBA is reduced: Immediately keep purge pressed. Immediately return to a non-hazardous atmosphere.

6.1 Cold Weather Operation

Moisture can cause problems in the SCBA if it freezes. However, moisture can cause freezing problems even if the surrounding air is above freezing. Air flowing from the cylinder through the pressure reducer and LGDV drops from cylinder pressure to close to atmospheric pressure very quickly. This causes the air to expand and creates a cooling effect. Although the surrounding temperature may be warmer than 0°C, the temperature inside the LGDV and pressure reducer may be lower.

1. Any water inside could turn to ice and restrict airflow. To keep moisture from entering the full face mask mounted LGDV and pressure reducer, keep the LGDV in the LGDV retainer when not in use.
2. When the SCBA is away from heat, water spray can freeze on the LGDV and pressure reducer surface. Ice can build up and bind the side buttons. Before entering or re-entering a hazardous atmosphere, ensure the LGDV side buttons and pressure reducer are ice-free and operating properly.
3. Moisture can enter through the cylinder valve or coupling nut when cylinders are replaced on the SCBA. When replacing cylinders, ensure moisture or contamination does not enter the system. Remove any ice from these fittings.
4. Wipe the pressure reducer threads and cylinder valve threads before installing a new cylinder. Water can contaminate the system and freeze.
5. When cleaning the SCBA, ensure water does not enter the LGDV and pressure reducer.
6. Thoroughly dry the full face mask and full face mask mounted LGDV after cleaning and disinfecting.
7. Ensure that the QuickFill protection cap (if available) is in place before storing the SCBA.

7 After Use

7.1 Removing the SCBA

1. Push both LGDV buttons at the same time.

2. Pull the LGDV out of full face mask.

3. Close the cylinder valve(s) fully.

4. Press the purge button to release system pressure.

5. Stow the LGDV in the LGDV retainer when it is not in use.

6. To remove the carrier and harness, press both buttons of the hip belt buckle.
7. Disconnect the chest strap buckle by pressing both buttons at the same time (if used).

8. To loosen the shoulder straps, lift the pull tabs and push them out and away from the body.

9. Slip the left arm out of the shoulder strap first, then remove the harness.

NOTE: Be sure to replace the cylinder with a fully charged one. Complete Inspection, Decontamination, Cleaning and Disinfecting Procedures outlined in the specific manuals. Ensure that the complete SCBA is clean and dry. Ensure that full face mask head harness straps and harness adjustment straps are fully extended. Place the complete SCBA in the storage case or suitable storage location so that it can be easily reached for emergency use. (See storage instructions.) In situations where users share the SCBA, the LGDV must be cleaned and disinfected using a disinfectant to prevent cross contamination between users.

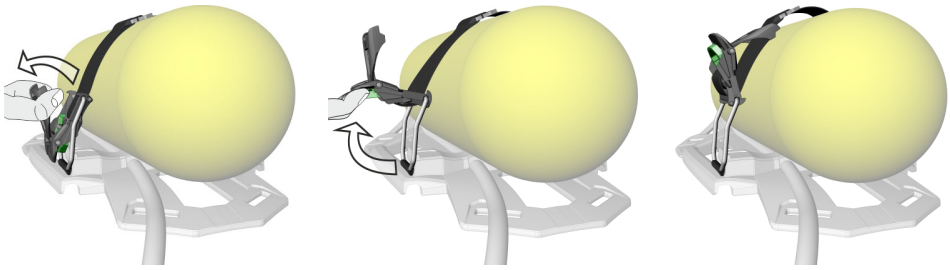
7.2 Changing the Cylinder

Removing the Cylinder(s)

1. Lay the backplate of the SCBA horizontal with cylinder(s) facing up.
2. Ensure there is no pressure in the system before replacing a cylinder.
    a. Close the cylinder valve(s).
    b. Press the purge button of the LGDV until air no longer discharges.

3. Hinge down the securing bracket (see Figure 26).
4. Hinge up cylinder buckle at cylinder strap and thus loosen the strap.

Figure 26



5. Disconnect the cylinder(s):

Threaded connection:

- Unthread handwheel from cylinder valve assembly and/or T-piece.

alphaCLICK 2 connection:

- Turn the handwheel on the coupling side first clockwise, when the stop is reached, push downwards in the direction of the pressure reducer.
- The cylinder adapter releases from the alphaCLICK 2 coupling.

When exchanging compressed air cylinders of the same diameter, only the cylinder buckle needs to be opened.

6. Lift cylinder(s) at the valve and pull out of cylinder strap.
7. Close high pressure connection cylinder valve(s) with protection cap (not required for alphaCLICK 2).

Attaching One Cylinder

1. Lay the backplate of the SCBA horizontal with cylinder side facing up.
2. Slide the fully charged cylinder into the carrier.
3. Open cylinder buckle on the cylinder strap eliminating any tension and extend the strap using the slider (if necessary).
4. Push compressed air cylinder through the cylinder strap with the cylinder valve toward the pressure reducer, so that it lies on the cylinder cradle.

Threaded connection:

- Thread cylinder valve to the pressure reducer, if necessary, bring the SCBA with valve up into a vertical position.

alphaCLICK 2 connection:

- Align the compressed air cylinder with the alphaCLICK 2 axially to the coupling and fit on the alphaCLICK 2 coupling.
- Close the coupling by pushing together using a light force.

CAUTION!

Never push the coupling system together using excessive force.

Failure to follow this caution can result in minor or moderate injury.

5. Tighten cylinder strap by pulling the free end.

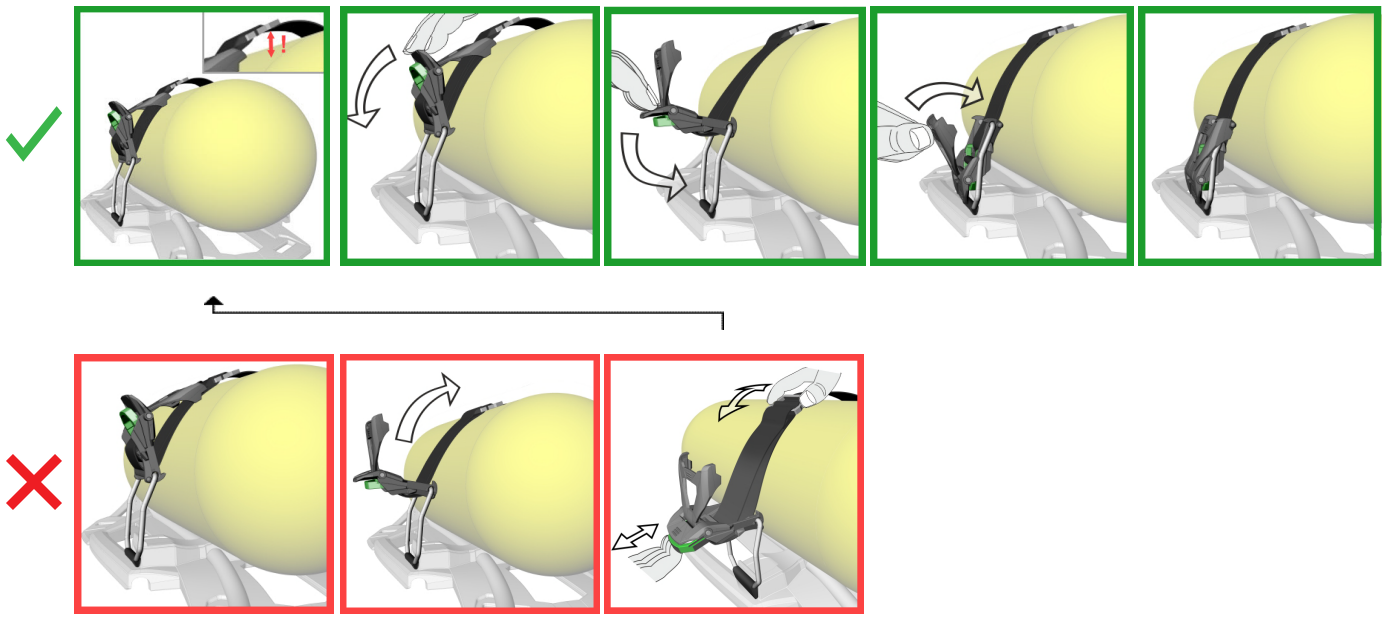
6. Check position of compressed air cylinder, retighten if necessary.

NOTICE

Damage can occur when using excessive force to close the cylinder buckle and the SCBA might not be ready for use.

- Do not overtighten the cylinder strap.

Figure 27



7. Hinge cylinder buckle down until it catches (see Figure 27).

   If strap tension is too high during hinging of the cylinder buckle, re-adjust the strap length at the cylinder buckle. If the strap tension is too low, re-adjust the strap length at the cylinder buckle.

8. Hinge up the securing bracket until it catches.
9. Fasten end of the cylinder strap by moving the small slider.
10. Briefly open cylinder valve and check for escaping air, retighten if necessary.
11. To check that the cylinder is secure, place one hand on the backplate and grab the cylinder valve with the other hand. Try to pull the cylinder and valve down and out away from the carrier. Make sure that the strap holds the cylinder securely in the carrier.

NOTE: If the cylinder feels loose, check that the latch engages with the proper slot on the strap. Ensure that the latch is fully tightened. Do not use the SCBA if the cylinder is not held securely in the carrier.

12. Align the handwheel assembly to the cylinder valve.

Threaded connection:

- Before installing the threaded handwheel, check that the O-ring inside the handwheel coupling nut is present, clean and free of damage. If the O-ring is damaged, it must be replaced before the SCBA is used.
- Thread the handwheel onto the cylinder threads. The handwheel should be hand-tight (no tools).

alphaCLICK 2 connection:

- Before installing check that the male and female end of the coupling are clean and free of damage. Ensure the adapter on the cylinder valve is tight (torque 20 to 30 Nm).
- If necessary, thread the alphaCLICK 2 cylinder adapter with a specific torque of 20 to 30 Nm into the cylinder valve.

- Push the alphaCLICK 2 connect coupling onto the cylinder valve adapter until an audible snap is heard. The handgrip will rapidly rotate approx. 45° counter clockwise indicating that the valve is connected to the pressure regulator.
- Grab the handwheel firmly and pull on it to ensure the handwheel is fully attached.

Attaching Two Cylinders

⚠ CAUTION!

Never push the coupling system together using excessive force.

Failure to follow this caution can result in minor or moderate injury.

1. Open cylinder buckle on the cylinder strap eliminating any tension and extend the strap using the sliders (if necessary).
2. Push one compressed air cylinder through the cylinder strap with the cylinder valve toward the T-piece, so that it lies on one of the outer supports.
3. Thread the cylinder valve onto the T-piece.
4. Push a second compressed air cylinder through the cylinder strap so that the cylinder valve points to the T-piece and lies on the outer supports.
5. Thread the second cylinder valve onto the T-piece.
   - Before installing the threaded handwheels, check that the O-rings inside the handwheel coupling nut on the pressure reducer and the T-piece are present, clean and free of damage. If the O-rings are damaged, they must be replaced before the SCBA is used.
   - Thread the handwheels onto the cylinder threads and T-piece. The handwheels should be hand-tight (no tools).
6. Align the compressed air cylinders with the T-piece and retighten handwheels if necessary.
7. Tighten cylinder strap by pulling the free end.
8. Check position of compressed air cylinders, retighten if necessary.
9. Hinge cylinder buckle down until it catches.

   If strap tension is too high during hinging of the cylinder buckle, re-adjust the strap length at the cylinder buckle. If the strap tension is too low, re-adjust the strap length at the cylinder buckle.
10. Hinge up the securing bracket until it catches.
11. Fasten end of the cylinder strap by moving the small slider.
12. Briefly open cylinder valves and check for escaping air, retighten if necessary.
13. To check that the cylinders are secure, place one hand on the backplate and grab the cylinder valves with the other hand. Try to pull the cylinders and valves down and out away from the carrier. Make sure that the strap holds the cylinders securely in the carrier.

NOTE: If the cylinders feel loose, check that the latch engages with the proper slot on the strap. Ensure that the latch is fully tightened. Do not use the SCBA if the cylinders are not held securely in the carrier.

8 Maintenance

This device should be regularly checked and serviced by trained 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 will result in loss of approval.

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

Inspect the entire device after it is cleaned and disinfected.

⚠ WARNING!

If the device does not meet any of the following inspections, it must be removed from service.

Failure to follow this warning can result in serious personal injury or death.

⚠ WARNING!

Take care not to damage the device during carriage or transport.

Failure to follow this warning can result in serious personal injury or death.

MSA recommends the following maintenance intervals. If necessary and considering the usage, intervals may be shorter than indicated.

Observe national laws and regulations!

In case of doubt, ask your local MSA contact person.

8.1 Maintenance Intervals

Component	Work to be performed	Before use	After use	Annually	Every 120 months*
M1	Cleaning		X	X	
	Visual, function and tightness check	X	X	X	
	Overhaul				X or after 600 hours of active use**
alphaCLICK 2 coupling	Cleaning		X		
	Lubricate			X***	
	Check by user	X			

* Applicable national regulations must be observed (e.g. GFPA German Fire Protection Association directive 0840, attachment 2).

** For SCBA apparatus that are frequently used, MSA recommends a complete overhaul after approx. 600 hours.

For example, this corresponds to 1200 applications with a duration of 30 minutes.

*** Lubricate alphaCLICK 2 coupling every 500 coupling cycles or when necessary.
See “Maintenance alphaCLICK 2 high pressure coupling”.

8.2 Cleaning and Disinfection

Follow Cleaning and Disinfection Guidelines - M1 Modular SCBA System - Order No. 10203757 on MSAsafety.com

9 Safekeeping and Storage

9.1 Storage

⚠ WARNING!

DO NOT drop the cylinder or bump the valve knob. An unsecured cylinder can become an airborne projectile under its own pressure if the valve is opened even slightly.

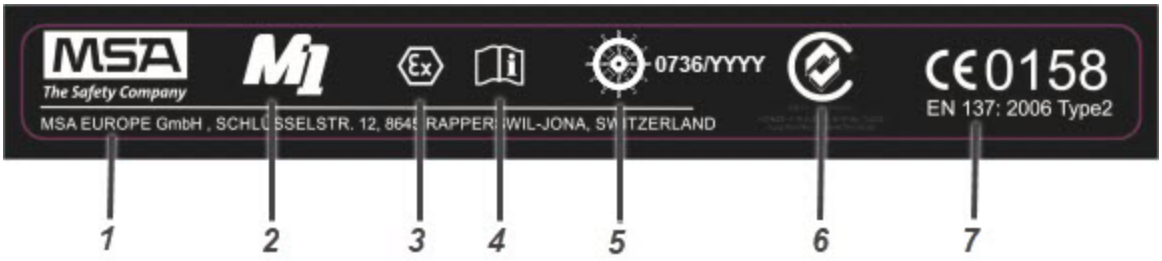
Failure to follow this warning can result in serious personal injury or death.

- Do not store the SCBA or spare cylinders within or near an area where the SCBA can or might be exposed to any substances and ambient conditions that will or might attack any part of the SCBA, causing the SCBA to not perform as designed and approved.
- Prior to storing the SCBA in a jumpseat, ensure there is no interference between the SCBA and the seat. Ensure the SCBA and cylinder can be removed easily without damaging the components.
- Do not store the SCBA for extended periods with the batteries installed in the electronic components (if available) if the SCBA is not intended for service. If the SCBA is in service, ensure that the batteries in the electronic components (if available) have an adequate charge.
- Do not store the SCBA with an empty or partially filled cylinder. Always install a fully-charged cylinder so that the SCBA is ready for use.
- Ensure the entire SCBA is clean and dry.
- Ensure the SCBA harness and full face mask head harness adjustment straps are fully extended. Place the complete SCBA in the storage case or suitable storage location so it can be easily reached for emergency use.
- For prolonged storage of the SCBA, remove the batteries from all electronic components (if available) and housings to prevent battery corrosion. Store the units in a cool, dry place.

10 Marking/Certification

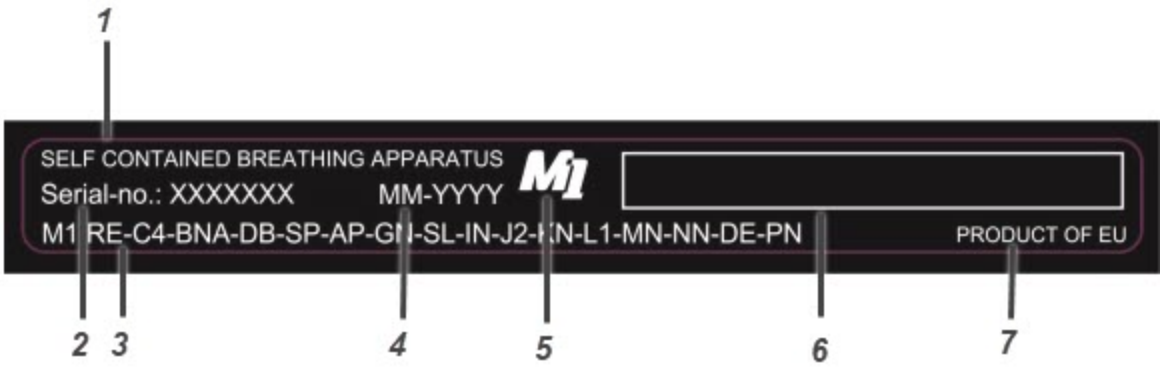
10.1 Marking

Figure 28 Type label, approval (exemplary)



1 *Address of manufacturer*
2 *Model*
3 *Explosion protection symbol*
4 *Manual symbol*
5 *Wheel mark for MED series with ATO code M7*
6 *BSI marking*
7 *CE / UKCA marking / approvals (as applicable)*

Figure 29 Type label, product



1 *Product group*
2 *Serial number*
3 *ATO code (example)*
4 *Month - year of manufacture*
5 *Model*
6 *Empty field*
7 *Location of production*

10.2 Certification

Approvals	The compressed air breathing apparatus conforms to the Regulation (EU) 2016/425, Directive 2014/34/EU and PPE Regulation (EU) 2016/425 as retained in UK Law and amended. It is a self-contained open circuit compressed air breathing apparatus in accordance with harmonized/designated standard EN 137:2006, type 2, for the extended temperature range from -40 °C to +60 °C. The function of the electronic components were not assessed for the certification in accordance with Regulation (EU) 2016/425, because even in case of a complete failure of all electronic components, the respiratory protection provided by MSA M1 remains unchanged.
CE 0158	
Notified body	DEKRA Testing and Certification GmbH, Dinnendahlstr. 9, 44809 Bochum, Germany
PRODUCT CERTIFICATION BSI Certified Product	AS/NZS 1716:2012 Lic: BMP No 713832 Australian/New Zealand Standards
	BSI Group ANZ Pty Ltd, Suite 2, Level 7, 15 Talavera Road, Macquarie Park, NSW 2113
0736	
	2014/90/EU amended by (EU) 2021/1158
Notified body	BG Verkehr, Dienststelle Schiffssicherheit, Brandstwiete 1, 20457 Hamburg, Germany
UK CA 0086	
Approved body for product certification and site surveillance	BSI Assurance UK Ltd, Kitemark Court, Davy Avenue, Knowlhill, Milton Keynes, MK5 8PP, United Kingdom

When using the SCBA in the area of the MED, a refractory lifeline approved by the MED must be used mandatorily.

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

10.3 Use in Explosive Atmospheres

The device fulfills the requirements of the following ATEX categories, unless it contains components as listed below. In this case the lowest category applies.

Ex	II 1G IIC II 1D IIIC

ATO	Description	ATEX
Backplate		
ABB	alphaBelt Basic	II 2G IIB, II 1D IIIC

ATO	Description	ATEX
ABP	alphaBelt Pro	II 2G IIB, II 1D IIIC
ABS	alphaBelt Pro (swivel)	II 2G IIB, II 1D IIIC
Harness		
EM	eXXtreme harness	II 1G IIA, II 1D IIIC
Pneumatic Addons		
IQ	QuickFill	II 2G IIB, II 1D IIIC
AQ	alphaCLICK 2 and QuickFill	II 2G IIB, II 1D IIIC
Manifold Options		
J4	SingleLine SCOUT	II 1G Ex ia IIC T4 Ga, no dust
J5	SingleLine SCOUT one coupling	II 1G Ex ia IIC T4 Ga, no dust
JC	Control Module	II 1G Ex ia IIC T4 Ga, no dust
JR	Control Module radio	II 1G Ex ia IIC T4 Ga, no dust

Full face mask: see operating manual for Full Face Mask and Mask/Helmet Combination.

The ATEX class of any other equipment used together with this device has to be regarded as well. The lowest class sets the limit.

10.4 CBRN

The following ATO-configurations fulfill the requirements of BS 8468-1:2006.

Respiratory protective devices for use against chemical, biological, radiological and nuclear (CBRN) agents - Part 1: positive pressure, self contained, open-circuit breathing apparatus – Specification. Only use the listed components for CBRN applications.

A		B		C	
M1 BA Configuration		**M1 Standard**		**M1 Backplate**	
RE	Set with removable LGDV	**X**	CE EN 137 (-40 °C) (CBRN)	**CNN**	No selection
FI	Set with fixed LGDV	**C**	CE EN 137 (-40 °C) UK (CBRN)	**BNA**	Backplate non adj
				BSO	Backplate swivel
				BSH	Backplate swivel height adj
				ABB	alphaBelt Basic
				ABP	alphaBelt Pro
				ABS	alphaBelt Pro - swivel

D		E		F	
M1 Backplate Addons		**M1 Cylinder Band**		**M1 Harness**	
DN	No addons	**SP**	Single band plastic buckle	**BP**	Basic harness plastic buckle
DB	Bumper	**TP**	Twin band plastic buckle	**BM**	Basic harness metal buckle
DV	Valve protection	**SM**	Single band metal buckle	**AP**	Adv harness plastic buckle
DR	Rescue handle	**TM**	Twin band metal buckle	**AM**	Adv harness metal buckle

D		E		F	
M1 Backplate Addons		**M1 Cylinder Band**		**M1 Harness**	
DA	Entangle protection			**EM**	Ext harness metal buckle
BR	DB-DR				
VR	DV-DR				
ER	DA-DR				
EB	DA-DB				
EV	DA-DV				
EW	DA-DB-DR				
EX	DA-DV-DR				

G		H		I	
M1 Harness Addons		**M1 Pneumatic System**		**M1 Pneumatic Addons**	
GN	No addons	**SL**	Single line pneumatics	**IN**	No addons
GC	Chest strap	**C1**	Classic pneumatics	**IA**	alphaClick
GA	Attachment points	**C2**	Classic whistle line	**IQ**	QuickFill
CA	GC-GA	**C3**	Classic front whistle	**AQ**	IA-IQ
GT	Tunnels				
CT	GC-GT				
TA	GT-GA				
GX	GC-GT-GA				

J		K		L	
M1 Manifold Options		**M1 Additional Connection**		**M1 LGDV**	
J1	SL gauge-whistle-coupling	**KN**	No selection	**L1**	M1-AS LGDV, short
J2	SL combi gauge	**K1**	MP-CPL 600 shoulder	**L2**	M1-AS LGDV, long
J3	SL combi gauge one coupling	**K2**	MP-CPL 600 shoulder-flush	**L3**	M1-AS LGDV, fix
J4	SL SCOUT	**K3**	MP-nipple-casc con.	**L4**	M1-AE LGDV M45x3, short
J5	SL SCOUT one coupling	**M3**	2 MP-CPL 600 Shoulder-Y-Piece	**L5**	M1-AE LGDV M45x3, long
J6	SL gauge-whistle-fix			**L6**	M1-AE LGDV M45x3, fix
JC	Control module			**L7**	M1-ESA LGDV, short
JR	Control module radio			**L8**	M1-ESA LGDV, long
JG	Classic gauge			**L9**	M1-AS-B LGDV, short
				L0	M1-AS-B LGDV, long

M		N		P	
M1 LGDV Addons		**M1 Accessories**		**M1 Customer Label**	
MN	No addons	**NN**	No addons	**PN**	No Label

M		N	P
M1 LGDV Addons		M1 Accessories	M1 Customer Label
HS	LGDV retainer-AS		
HE	LGDV retainer-AE-ESA-N		
HA	LGDV retainer-AE		

O					
M1 Language Manual					
ON	None	**FI**	Finnish	**PT**	Portuguese
BG	Bulgarian	**FR**	French	**RO**	Romanian
CS	Czech	**HU**	Hungarian	**RU**	Russian
DA	Danish	**IT**	Italian	**SK**	Slovakian
DE	German	**KK**	Kazakh	**SV**	Swedish
EL	Greek	**NL**	Dutch	**TR**	Turkish
EN	English	**NO**	Norwegian	**UK**	Ukrainian
ES	Spanish	**PL**	Polish		

Full Face Mask:

For CBRN application the G1 Facepiece and G1 Mask/Helmet combinations can be used. See Operating Manual G1 Facepiece or Operating Manual G1 Facepiece and Operating Manual G1-H Mask – Positive Pressure, respectively, for applicable ATO configurations.

Cylinders:

All cylinders with valves marked VTI or CZ can be used, including 2-cylinder systems with T-piece.

Cleaning and Disinfection:

Depending on the contaminant special procedures for cleaning may be necessary.

11 Ordering Information

For this product, order numbers have been replaced by an ATO (Assemble To Order) code.

Example:

A device marked with the ATO Code

RE-C4-BSO-DN-SP-AP-GN-C1-IN-J2-KN-L2-HS-NN-DE-PN

is a M1 SCBA in the following configuration:

- Version with removable LGDV (RE)
- according EN137 (C4)
- with a backplate with swivel (BSO)
- without additional backplate accessories (DN)
- with single cylinder strap with plastic buckle (SP)
- with advanced harness with plastic buckles (AP)
- without additional harness accessories (GN)
- with classic pneumatics (C1)
- without additional pneumatic accessories (IN)
- with combination gauge (J2)
- without additional connections (KN)
- with M1-AS LGDV, long (L2)
- with LGDV retainer-AS (HS)
- without accessories (NN)
- with German manual (DE)
- without customer label (PN)

A		**B**		**C**	
M1 BA Configuration		**M1 Standard**		**M1 Backplate**	
RE	Set with removable LGDV	**BN**	No selection	**CNN**	No selection
FI	Set with fixed LGDV	**C4**	CE EN 137 (-40 °C)	**BNA**	Backplate non adj
WO	Set without LGDV	**X4**	CE EN 137 (-40 °C) (CBRN)	**BSO**	Backplate swivel
LO	M1 LGDV only	**C5**	CE EN 137 (-40 °C) UK (CBRN)	**BSH**	Backplate swivel height adj
		C6	AS/NZS 1716 (-40 °C) AUS	**ABB**	alphaBelt Basic
		G4	EAC (-40 °C)	**ABP**	alphaBelt Pro
				ABS	alphaBelt Pro - swivel

D		**E**		**F**	
M1 Backplate Addons		**M1 Cylinder Band**		**M1 Harness**	
DN	No addons	**EN**	No selection	**FN**	No selection
DB	Bumper	**SP**	Single band plastic buckle	**BP**	Basic harness plastic buckle

D		E		F	
M1 Backplate Addons		**M1 Cylinder Band**		**M1 Harness**	
DV	Valve protection	**TP**	Twin band plastic buckle	**BM**	Basic harness metal buckle
DR	Rescue handle	**SM**	Single band metal buckle	**AP**	Adv harness plastic buckle
DA	Entangle protection	**TM**	Twin band metal buckle	**AM**	Adv harness metal buckle
BR	DB-DR			**EM**	Ext harness metal buckle
VR	DV-DR				
ER	DA-DR				
EB	DA-DB				
EV	DA-DV				
EW	DA-DB-DR				
EX	DA-DV-DR				

G		H		I	
M1 Harness Addons		**M1 Pneumatic System**		**M1 Pneumatic Addons**	
GN	No addons	**HN**	No selection	**IN**	No addons
GC	Chest strap	**SL**	Single line pneumatics	**IA**	alphaClick
GA	Attachment points	**C1**	Classic pneumatics	**IQ**	QuickFill
CA	GC-GA	**C2**	Classic whistle line	**AQ**	IA-IQ
GT	Tunnels	**C3**	Classic front whistle		
CT	GC-GT				
TA	GT-GA				
GX	GC-GT-GA				

J		K		L	
M1 Manifold Options		**M1 Additional Connection**		**M1 LGDV**	
JN	No selection	**KN**	No selection	**LN**	No selection
J1	SL gauge-whistle-coupling	**K1**	MP-CPL 600 shoulder	**L1**	M1-AS LGDV, short
J2	SL combi gauge	**K2**	MP-CPL 600 shoulder-flush	**L2**	M1-AS LGDV, long
J3	SL combi gauge one coupling	**K3**	MP-nipple-casc con.	**L3**	M1-AS LGDV, fix
J4	SL SCOUT	**M3**	2 MP-CPL 600 Shoulder-Y-Piece	**L4**	M1-AE LGDV M45x3, short
J5	SL SCOUT one coupling			**L5**	M1-AE LGDV M45x3, long
J6	SL gauge-whistle-fix			**L6**	M1-AE LGDV M45x3, fix
JC	Control module			**L7**	M1-ESA LGDV, short
JR	Control module radio			**L8**	M1-ESA LGDV, long
JG	Classic gauge			**L9**	M1-AS-B LGDV, short
				L0	M1-AS-B LGDV, long

M		N		P	
M1 LGDV Addons		**M1 Accessories**		**M1 Customer Label**	
MN	No addons	**NN**	No addons	**PN**	No Label
HS	LGDV retainer-AS	**NH**	Respi Hood		
HE	LGDV retainer-AE-ESA-N				
HA	LGDV retainer-AE				

O					
M1 Language Manual					
ON	None	**FI**	Finnish	**PT**	Portuguese
BG	Bulgarian	**FR**	French	**RO**	Romanian
CS	Czech	**HU**	Hungarian	**RU**	Russian
DA	Danish	**IT**	Italian	**SK**	Slovakian
DE	German	**KK**	Kazakh	**SV**	Swedish
EL	Greek	**NL**	Dutch	**TR**	Turkish
EN	English	**NO**	Norwegian	**UK**	Ukrainian
ES	Spanish	**PL**	Polish		

MSA
The Safety Company

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