MSA
The Safety Company

Operating Manual

3S Full Face Mask – Negative Pressure

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Contents

1 Safety Regulations 4
1.1 Correct Use 4
1.2 Liability Information 4

2 Description 5
2.1 Mask Versions 6
2.2 Marking/Certification 6
Marking 6
Certification 7

3 Use 9
3.1 Donning the Mask 9
3.2 Leak Check 10
3.3 Removing the Mask 10

4 Cleaning, Disinfection 11
4.1 Cleaning/Disinfection with a Washing Machine 11
4.2 Cleaning/Disinfection with an Ultrasonic Cleaner 11
4.3 Cleaning by Hand 11
4.4 Disinfection by Hand 12

5 Maintenance 12
5.1 Maintenance Instructions 12
5.2 Maintenance Intervals 12
5.3 Maintenance of the Exhalation Valve 13
5.4 Replacing the Speech Diaphragm 13
5.5 Tightness Test of the Mask 13
5.6 Visual Test and Function Test 14

6 Safekeeping and Storage 14

7 Ordering Information 15
7.1 Exploded View 15
7.2 Full Face Mask 16
7.3 Accessories 16
7.4 Replacement Parts 17

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1 Safety Regulations

1.1 Correct Use

Series 3S Full Face Mask with standard thread connection according to EN 148-1 are not complete respiratory protective devices by themselves, but serve as facepieces [EN 136 CL3+] for use with respiratory filters, compressed air breathing apparatus, fresh air hose breathing apparatus and compressed air line breathing apparatus.

The mask as part of a respiratory protective device ensures an appropriately tight fit of the user's face against the ambient atmosphere.

It is imperative that this operating manual be read and observed when using the device. In particular, the safety instructions, as well as the information for the use and operation of the device, 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.

WARNING!

This product is supporting 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.

Alternative use, or use outside this specification will be considered as non-compliance. This also applies especially to unauthorized alterations to the product and to commissioning work that has not been carried out by MSA or authorized persons.

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.

Changes and modifications not expressly approved by the manufacturer will void the user's authority to operate the equipment.

2 Description

The face blank is made of a special soft rubber compound and assures a snug, comfortable fit and a tight seal. The face blank is also available in yellow silicone. Some versions of the mask are also available in small size.

The inhalation air flows from the connector of the mask past the inhalation valve to the inside of the lens [thus keeping the lens largely fog-free] and then through the check valves into the nose cup.

The exhalation air passes through the exhalation valve directly to the ambient air.

Fig. 1 Overview full face mask

1	*Face blank*	*5*	*Connector with inhalation valve*
2	*Head strap*	*6*	*Exhalation valve*
3	*Buckle*	*7*	*Carrying strap*
4	*Lens*		

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2.1 Mask Versions

MSA 3S	• Standard version with polycarbonate lens
MSA 3S small	• as standard version, small size
MSA 3S-V	• as standard version, with polycarbonate lens with silicate coating
MSA 3S-Vg	• as standard version, with Triplex [laminated] glass
MSA 3S-EZ	• as standard version, special Nomex harness
MSA 3S-Transponder	• as standard version, with transponder
MSA 3S-Si	• as standard version, face blank, inner mask and harness made from silicone
MSA 3S-V-Si	• as standard version, with polycarbonate lens with silicate coating, face blank, inner mask and harness made from silicone

2.2 Marking/Certification

Marking

The mask is marked on the outer face blank as shown in Fig. 2:

Fig. 2 Marking of mask body

1 Mask Version

2 Part Number

3 Marking [date code, serial number]

4 CE-marking with notified body number
[DEKRA EXAM, Zertifizierungsstelle Dinnendahlstr. 9, 44809 Bochum]

5 ***X****: ATEX classification A, B or C according to the Lens typ.*

6 EN standard, class

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Certification

Mask with Lenses from Polycarbonate with Silicate Coating

The masks according to chapter

comply with the following directives, standards or standardised documents:

Directive 2014/34/EU [ATEX]	:	BVS 05 ATEX H 027 X
		for masks I M1 II 1 G IIA T6 -40 °C ≤ Ta ≤ +60 °C II 1 D
Directive 89/686/EC or Regulation (EU) 2016/425, respectively	:	EN 136 CL3+ 0158
DEKRA EXAM GmbH, Dinnendahlstr. 9, 44809 Bochum, Germany, Notified body number: 0158		

Mask with Lenses from Polycarbonate

The masks according to chapter 2.1

comply with the following directives, standards or standardised documents:

Directive 2014/34/EU [ATEX]	:	BVS 05 ATEX H 027 X
		for masks I M1 II 1 G IIA T6 -40 °C ≤ Ta ≤ +60 °C II 1 D
		I M1 II 1 G IIB T6 -40 °C ≤ Ta ≤ +60 °C II 1 D
Directive 89/686/EC or Regulation (EU) 2016/425, respectively	:	EN 136 CL3+ 0158
DEKRA EXAM GmbH, Dinnendahlstr. 9, 44809 Bochum, Germany, Notified body number: 0158		

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Mask with Lenses from Triplex [laminated] Glass

The masks according to chapter 2.1

comply with the following directives, standards or standardised documents:

Directive 2014/34/EU [ATEX]	:	BVS 05 ATEX H 027 X	
			for masks I M1 II 1 G IIA T6 -40 °C ≤ Ta ≤ +60 °C II 1 D
			I M1 II 1 G IIB T6 -40 °C ≤ Ta ≤ +60 °C II 1 D
			I M1 II 1 G IIC T6 -40 °C ≤ Ta ≤ +60 °C II 1 D
Directive 89/686/EC or Regulation (EU) 2016/425, respectively	:		EN 136 CL3+ 0158
DEKRA EXAM GmbH, Dinnendahlstr. 9, 44809 Bochum, Germany, Notified body number: 0158			

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

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3 Use

The mask is either carried using the harness in front of the chest or in the mask container.

In order to protect the inside of the mask from dirt, the harness hook is engaged in the front buckle when the mask is held in front of the chest.

WARNING!

Ensure that the top of the mask seal **only** lies on the user's forehead. Hair should not be between the mask's seal and the user's skin.

The mask could otherwise leak. This danger also exists for instance for mask wearers with beards or deep scars in the sealing area.

3.1 Donning the Mask

WARNING!

In order to guarantee a proper fit for those wearing glasses, the 3S Full Face Mask spectacle kit **must** be worn since ordinary glasses **cannot** be worn under the mask.

(1) Spread the harness with both hands.

(2) Position the chin into the chin cup.

(3) Pull the head straps over your head.

Whilst doing so, ensure that the harness is sitting correctly and not twisted.

(4) If necessary adjust mask and tighten the straps in order as shown firmly and evenly.

When tightening the head straps ensure that the correct sequence is followed [Figure Pos. 1 - 3, for EZ harness Pos. 1].

When using the EZ harness if necessary readjust the head plate by pulling the loop at the back of the head.

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3.2 Leak Check

In order to check the mask-to-face tightness a leak test must be performed before each use.

(1) Seal the mask connector or the inlet opening side of an attached filter with the ball of your hand.

(2) Test tightness by inhaling and exhaling. Whilst doing so:
when inhaling there must be negative pressure, no inflowing air should be noticeable.

(3) If necessary retighten the straps.
If the leak test fails the mask must not be used.

3.3 Removing the Mask

(1) Loosen the head harness, press the buckles forwards using your thumbs.

Do not grip the mask by the exhalation valve!

(2) Grip the mask by the connector and pull off backwards over your head.

4 Cleaning, Disinfection

The cleaning and disinfection of the masks is performed in accordance with the cleaning intervals → chapter 5.2.

There are three possible kinds of cleaning:

- Using a washing machine
  - disk washing type (Meiko)
  - tumbling type (Miele)
- Using an ultrasonic cleaner
- Cleaning by hand.

WARNING!

Do not use cleaning products containing hydrocarbons or solvents [e.g. nitro-thinner].

Cleaned parts must not be dried in radiant heat [sun, radiators]. When using a drying cabinet, the temperature must not exceed +60°C.

Perform a tightness test after every cleaning, disinfection and maintenance or after every exchange of parts.

4.1 Cleaning/Disinfection with a Washing Machine

Follow the washing agent's user instructions on this CD/DVD.

(1) After cleaning check the two screws for the lens ring. Retighten the screws hand-tight if necessary.

4.2 Cleaning/Disinfection with an Ultrasonic Cleaner

When cleaning/disinfecting with an ultrasonic cleaner please follow the cleaning agent's user instructions on this CD/DVD.

4.3 Cleaning by Hand

(1) Remove inhalation and exhalation valve discs.
(2) Unbutton the nose cup.
(3) Unscrew the speaking diaphragm with the special tool.
(4) Clean mask using lukewarm water and mild cleaning agent EW 80 and thoroughly rinse in running water.
(5) Disinfect the mask after cleaning. Removed components must be separately cleaned and disinfected.
(6) Dry mask and components and reassemble mask in reverse order.
(7) Perform a tightness test [→ chapter 5.5].

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4.4 Disinfection by Hand

Clean the mask before disinfecting.

Use a disinfectant according to the user instructions on this CD/DVD.

(1) Disassemble and clean the mask (see chapter 4.3).
(2) Disinfect the mask using recommended disinfectant. Please observe the user instruction for the disinfectant.
(3) Thoroughly rinse mask in running water.
(4) Dry mask and components and reassemble mask in reverse order.
(5) Perform a tightness test (see chapter 5.5).

5 Maintenance

5.1 Maintenance Instructions

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.

MSA recommends the following maintenance intervals. If necessary 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.

5.2 Maintenance Intervals

Work to be Performed	Maximal Intervals					
	Before use	After Use	6-monthly	Two years	Four years	Six years
Cleaning and Disinfection*)		X		X*)		
Visual, Functional and Tightness Check **)		X	X**)			
Replacement of the exhalation valve disc					X	
Replacement of the Speech Diaphragm						X
User check	X					

*) For a 2-year interval cleaned and disinfected masks have to be stored airtight. Otherwise masks should be cleaned and disinfected at least semi-annually. After each cleaning and disinfection the facepiece must be checked.

**) For airtightly packed facepieces, which are not exposed to increased climatic and mechanical stress [for example transport on vehicles], this interval can be extended to 2 years.

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5.3 Maintenance of the Exhalation Valve

The year of manufacture is located on the valve disc.

In case of a leak remove the exhalation valve disc and replace it with a new one as follows:

(1) Remove the protective housing.
(2) Remove the exhalation valve disc or
(3) remove exhalation valve. For this purpose unscrew the threaded socket from the mask inside with the special tool.
(4) Replace the defective components.
(5) Reassemble the parts in reverse order.
(6) Perform a tightness test [→ chapter 5.5].

WARNING!

The air vents of the protective housing are turned to the front side. After maintenance the protective housing must be fitted in the same position.

5.4 Replacing the Speech Diaphragm

The year of manufacture is located on the speech diaphragm.

(1) Unbutton the nose cup.
(2) Unscrew the threaded socket from the mask inside with the special tool.
(3) Remove the speech diaphragm.
(4) Assemble the new speech diaphragm with the gasket towards the connector.
(5) Perform a tightness test [→ chapter 5.5].

5.5 Tightness Test of the Mask

The testing of the masks for tightness is performed using an applicable MSA test device in accordance with the relevant operating manual.

(1) Fit mask tight onto the test instrument.
(2) Generate a negative pressure of 10 mbar.
(3) Measure the pressure change after 1 min.

The mask including the exhalation valve meets the requirements if for a moistened exhalation valve and a negative pressure generated inside the mask the pressure change does not exceed 1 mbar in a minute.

Leaking masks must not be used.

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5.6 Visual Test and Function Test

Visual Test

(1) Inspect the mask for possible damages like for example deformations, stickings or cracks. Valve discs, especially exhalation valve discs, are crucial functional elements of the mask.

(2) Defective or damaged parts have to be replaced immediately.

Functional Test

After assembling the mask the mobile parts, especially the valve discs, have to be tested for unrestricted mobility.

6 Safekeeping and Storage

WARNING!

In order to avoid damage to or the deformation of the masks keep no additional loose objects in the mask container.

For the safekeeping of the mask the mask container should be used. This also applies to masks with installed filters, except CO and NO filters.

MSA rubber products are protected by an anti-aging agent that can become visible as a light coating. This coating is harmless and can be removed during cleaning.

To ensure a long life for rubber components, keep them in a cool, dry place that is protected from ultraviolet radiation, according to ISO 2230:2002, Rubber Products – Guidelines for Storage.

7 Ordering Information

7.1 Exploded View

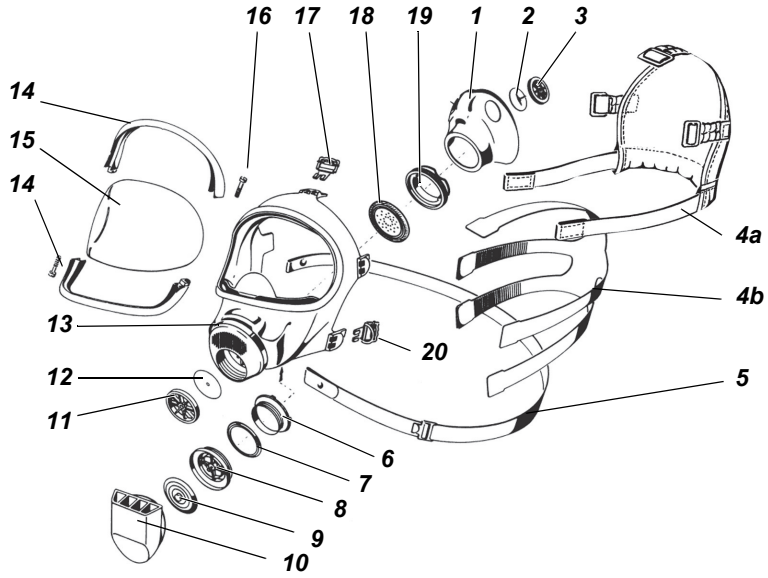

Fig. 3 Full face mask exploded view

1	Nose cup [without valves]	11	Inhalation valve seat
2	Nose cup valve disc	12	Inhalation valve disc
3	Nose cup valve seat	13	Connector
4a	Head harness EZ	14	Lens ring
4b	Head harness	15	Lens
5	Carrying strap	16	Screw for lens ring
6	Threaded ring	17	Buckle with hook
7	Slide ring	18	Speech diaphragm
8	Exhalation valve housing	19	Threaded ring
9	Exhalation valve disc	20	Buckle with hook and D-ring
10	Protective housing		

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7.2 Full Face Mask

Description	Article No.
3S	D2055000
3S – small	D2055779
3S – V	D2055772
3S – Vg	D2055774
3S – silicone	D2055718
3S – V silicone	D2055769
3S – EZ	D2055767
3S – Transponder	10013877

7.3 Accessories

Description	Article No.
3 S spectacles [plastic frame]	D2055954
3 S spectacles [metal frame]	D2055811
Special tool [for replacing exhalation valve and speech diaphragm]	D2055038
Cover lens, adhesive [package of 10]	D2055706
Exhalation valve closure	D5135047
Mask hanger [package of 4]	D2055753
Mask tightness test kit [for more MSA testing instruments refer to www.MSAsafety.com]	D6063705

7.4 Replacement Parts

Description	Article No.
Maintenance Set [inhalation valve, exhalation valve, valve seat, 2 nose cup valve discs]	D2055999
Nose Cup, without valves [rubber]	D2055025-SP
Nose Cup, without valves [silicone]	D2055213-SP
Lens [polycarbonate, package of 10]	10080822
Lens [polycarbonate with silicate coating]	D2055757
Lens [laminated glass]	D2055730
Lens ring, assembly	D2055746
Screw for lens ring [package of 10]	D2055996
Clamp [package of 10]	10095118
Clamp for 3S-small [package of 10]	D0013834-SP
Speech diaphragm [package of 2]	D2055708
Nose cup valve seat [package of 10]	10096173
Nose cup valve disc [package of 20]	D2055731
Threaded ring [exhalation valve]	D2055011-SP
Inhalation valve disc [package of 20]	D2056714
Inhalation valve seat [package of 5]	D2055725
Exhalation valve, assembly:	D5135927
Protective housing [package of 4]	10096172
Slide ring [package of 4]	10096058
Exhalation valve disc [package of 10]	D5135912
Exhalation valve housing	D5135702
Threaded ring	D5135041-SP
Head harness [rubber] [package of 10]	10102911
Head harness [silicone]	D2055219-SP
Buckle with hook [package of 10]	10096406
Buckle with hook and D-ring [package of 10]	10096408
Carrying strap, assembly	D2055707-SP

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

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