



Operating Manual

3S Full Face Mask – Positive Pressure



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The Safety Company

MSA Europe GmbH
Schlüsselstrasse 12
8645 Rapperswil-Jona
Switzerland
info.ch@MSAsafety.com
www.MSAsafety.com

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1 Safety Regulations

1.1 Correct Use

Series 3S Full Face Mask with positive pressure connection according to EN 148-3 or special manufacturer type 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.

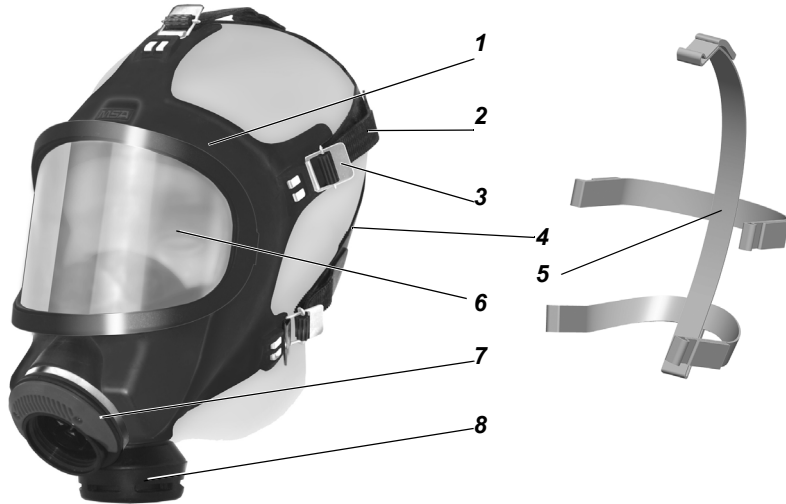


Fig. 1 Overview full face mask

- | | | | |
|---|----------------|---|---------------------------------|
| 1 | Face blank | 5 | Industrial harness |
| 2 | Head strap | 6 | Lens |
| 3 | Buckle | 7 | Connector with inhalation valve |
| 4 | Rubber harness | 8 | Exhalation valve |

2.1 Mask Versions

Standard Thread Connector M45 x 3

- 3S-PF
 - Standard version with polycarbonate lens
- 3S-PF-Vg
 - as standard version, with Triplex [laminated] glass
- 3S-PF-Si
 - as standard version, face blank, inner mask and harness made from silicone
- 3S-PF-Vg-Si
 - as standard version, face blank, inner mask and harness made from silicone, with Triplex [laminated] glass

MSA Plug-in Connector

- 3S-PS
 - Standard version with polycarbonate lens
- 3S-PS-Vg
 - as standard version, with Triplex [laminated] glass
- 3S-PS-Si
 - as standard version, face blank, inner mask and harness made from silicone
- 3S-PS-Vg-Si
 - as standard version, face blank, inner mask and harness made from silicone, with Triplex [laminated] glass

AutoMaXX Plug-in Connector

- 3S-PS-MaXX
 - Standard version with polycarbonate lens
- 3S-PS-MaXX-Si
 - as standard version, face blank, inner mask and harness made from silicone

ESA Plug-in Connector

- 3S-PF-ESA
 - Standard version with polycarbonate lens
- 3S-PF-ESA-Si
 - as standard version, face blank, inner mask and harness made from silicone
- 3S-PF-ESA-Vg
 - as standard version, with Triplex [laminated] glass
- 3S-PF-ESA-Vg-Si
 - as standard version, face blank, inner mask and harness made from silicone, with Triplex [laminated] glass

Special Versions for using until -40°C

Standard Thread Connector M45 x 3

- 3S-PF-IH Basic
 - as standard version, with basic industrial harness, polycarbonate lens with silicate coating
- 3S-PF-IH Basic small
 - as standard version, with small size face blank, basic industrial harness, polycarbonate lens with silicate coating

MSA Plug-in Connector

- 3S-PS-IH Basic
 - as standard version, with basic industrial harness, polycarbonate lens with silicate coating
- 3S-PS-IH Basic small
 - as standard version, with small size face blank, basic industrial harness, polycarbonate lens with silicate coating
- 3S-PS-V-MaXX (CIS)
 - as standard version, with polycarbonate lens with silicate coating
- 3S-PS-V-MaXX small (CIS)
 - as standard version, with small size face blank, polycarbonate lens with silicate coating

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, Zertifizierungsstelle Dinnendahlstr. 9, 44809 Bochum]
- 5 X: ATEX classification A, B or C according to the Lens typ.
- 6 EN standard, class

Special Versions for using until -40°C

The mask is marked on the outer face blank as shown in Fig. 3:



Fig. 3 Marking of mask body

- | | |
|--------------------------------------|---|
| 1 Part Number | 6 EAC conformity mark |
| 2 Marking [date code, serial number] | 7 CE-marking with notified body number
[DEKRA, Zertifizierungsstelle Dinnendahlstr. 9, 44809 Bochum] |
| 3 Icon "Read the Manual" | 8 Mask Version |
| 4 ATEX certification | |
| 5 GOST Certification Number | |

Certification

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 Testing and Certification GmbH, Dinnendahlstr. 9, 44809 Bochum, Germany, Notified body number: 0158			

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 Testing and Certification GmbH, Dinnendahlstr. 9, 44809 Bochum, Germany, Notified body number: 0158			

Special Versions for using until -40°C
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 13 ATEX H 059 X Rev.1
		I M1	
		II 2G IIA T6 -40 °C ≤ Ta ≤ +60 °C	
		II 3G IIC	
		II 1D	
Directive 89/686/EC or Regulation (EU) 2016/425, respectively		:	 EN 136 CL3 0158
DEKRA Testing and Certification 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>

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.

NOTICE

Do not use an ESA plug-in connector according to EN 148-1 in combination with a standard thread connection for breathing apparatuses with negative pressure. Failure to do so can result in damage to the mask.



When using the mask with respiratory filters, the exhalation resistance of the mask is increased.

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 and IH harness Pos. 1].
- When using the EZ harness if necessary readjust the head plate by pulling the loop at the back of the head.

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].

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	Six years
Cleaning and Disinfection		X	X ¹⁾	X ²⁾	
Visual, Functional and Tightness Check		X	X ¹⁾	X ²⁾	
Replacement of the exhalation valve disc					X
Replacement of the Speech Diaphragm					X
Replacement of the O-ring for connector				X	X ^{***}
User check	X				

- 1) For mobile stocked Facepieces [for example transport on vehicles]. After each cleaning and disinfection the mask must be checked.
- 2) For a 2-year interval cleaned and disinfected masks have to be stored airtight and not mobile. Otherwise masks should be cleaned and disinfected at least semi-annually. After each cleaning and disinfection the mask must be checked.
- ***) Only applicable for PS and PS-ESA

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) Unscrew the threaded socket from the mask inside with the special tool.
- (2) Remove the exhalation valve disc or the complete exhalation valve assembly.
- (3) Replace the defective components.
- (4) Reassemble the parts in reverse order.
- (5) Perform a tightness test [→ chapter 5.5].

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.

Opening Pressure Test of the exhalation valve

The opening pressure of the exhalation valve has to be at least 4.2 mbar, otherwise the mask must not be used.

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 ultra-violet radiation, according to ISO 2230:2002, Rubber Products – Guidelines for Storage.

7 Ordering Information

7.1 Exploded View

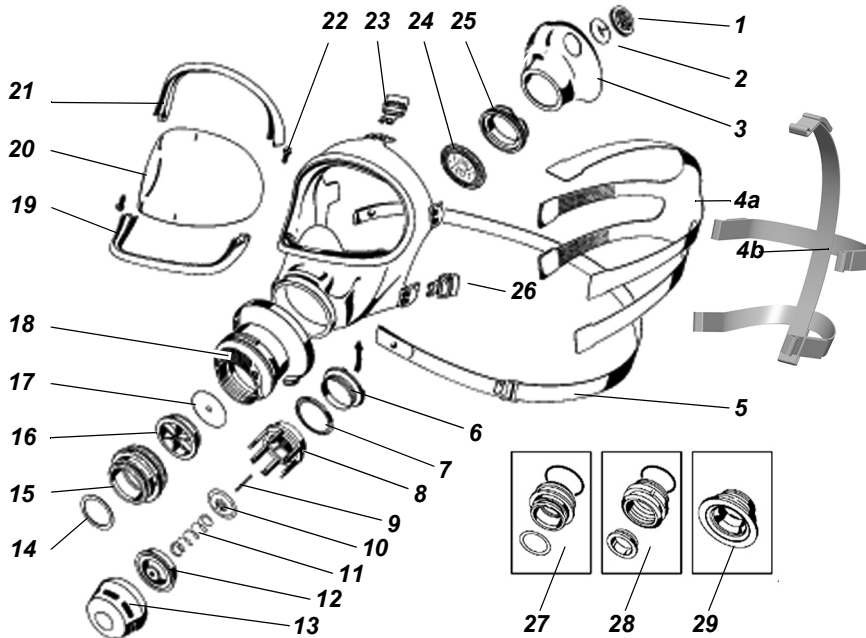


Fig. 4 Full face mask exploded view

- | | | | |
|----|--|----|---------------------------------|
| 1 | Nose cup valve seat | 15 | Plug-in connector ^{*)} |
| 2 | Nose cup valve disc | 16 | Inhalation valve seat |
| 3 | Nose cup [without valves] | 17 | Inhalation valve disc |
| 4a | Rubber harness | 18 | Connector |
| 4b | Industrial harness | 19 | Lens ring |
| 5 | Carrying strap | 20 | Lens |
| 6 | Threaded ring | 21 | Lens ring |
| 7 | Slide ring | 22 | Screw for lens ring |
| 8 | Valve socket | 23 | Buckle with hook |
| 9 | Positioning pin | 24 | Speech diaphragm |
| 10 | Exhalation valve disc | 25 | Threaded ring |
| 11 | Valve spring | 26 | Buckle with hook and D-ring |
| 12 | Valve cap | 27 | 3S-H-ESA series |
| 13 | Valve cover | 28 | 3S-H-PF and -PS series |
| 14 | O-ring for plug-in connector ^{*)} | 29 | 3S-H-MaXX series |

^{*)} only 3S-PS Full Face Mask

7.2 Full Face Mask

Description	Article No.
Standard Thread Connector M45 x 3	
3S-PF	D2055741
3S-PF-Vg	D2055783
3S-PF-Si	D2055763
MSA Plug-in Connector	
3S-PS	D2055751
3S-PS-Vg	D2055785
3S-PS-Si	D2055764
AutoMaXX Plug-in Connector	
3S-PS-MaXX	10031422
3S-PS-MaXX-Si	10031388
ESA Plug-in Connector	
3S-PF-ESA	10031394
3S-PF-ESA-Vg	10033206

Special Versions for using until -40°C

Description	Article No.
Standard Thread Connector M45 x 3	
3S-PF-IH Basic	10152371
3S-PF-IH Basic small	10153913
MSA Plug-in Connector	
3S-PS-IH Basic	10152373
3S-PS-IH Basic small	10153914
3S-PS-V-MaXX (CIS)	10098236
3S-PS-V-MaXX small (CIS)	10153912

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	D4074895
Mask hanger [package of 4]	D2055753
Mask tightness test kit [for more MSA testing instruments refer to www.MSAsafety.com]	D6063705
Leak test adapter M45 x 3	D4074847
Leak test adapter [for quick-connect coupling]	D4074890

7.4 Replacement Parts

Description	Article No.
Nose Cup, without valves [rubber]	D2055025-SP
Nose Cup, without valves [silicone]	D2055213-SP
Lens [polycarbonate, package of 10]	10080822
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 [speech diaphragm]	D2055011-SP
Inhalation valve disc [package of 20]	D2056722
Inhalation valve seat [package of 5]	D2055748
Exhalation valve, assembly:	D4080933
Protective housing	D4080396-SP
Slide ring [package of 4]	10096058
Exhalation valve disc [package of 10]	D2055749
Exhalation valve spring	10095813
Exhalation valve cap	D5135702
Threaded ring [exhalation valve]	D5135041-SP
Valve socket	D4080389-SP
Valve spring	10095813
O-ring for plug-in adapter	D2056736
Guide pin [helmet]	D4080394-SP
Head harness [rubber]	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
Adapter plug-in, assembly	D2056727
Cover	10096409
Screw for cover [package of 10]	D0012475-SP

Replacement Parts for -40°C versions

Description	Article No.
Head harness IH	10153922- SP
Nose cup valve disc, silicone [package of 20]	10104309-SP
Exhalation valve P-500 A (RUS), assembly:	10031131-SP
Exhalation valve cap	10031132-SP

