



Operating Manual

3S-H Mask – Positive Pressure

Mask/Helmet Combination 3S-H/F1



Order No.: 10110542/05



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1 Safety Regulations

1.1 Correct Use

The mask/helmet combination series 3S-H/F1 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 in accordance with DIN 58610 [EN 443 and EN 136 CL3+ with the exception of selection 7.11] 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.

The helmet as part of the whole protective device ensures the protection of the upper half of the head mainly against the effects of impact, penetration, heat and flames during firefighting.

The masks can only be used in conjunction with following MSA GALLET helmets:

- F1SF [EN 443:2008]
- F1E [EN 443:2008]
- Gallet F1 XF [EN 443:2008]

The instructions for use for the helmets have to be regarded.

The mask/helmet combination series 3S-H/F2 X-TREM 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 in accordance with DIN 58610 [EN 136 CL3+ with the exception of selection 7.11].



WARNING!

The helmet type F2 X-TREM is not certificated according to EN 443. Therefore this helmet in combination with the mask must not be used for firefighting in buildings and structures.

The mask/helmet combination provides the function of head protection and respiratory protection in one system.



WARNING!

According to the European directive 89/656/EEG it has to be verified before first use of the mask that a correct size has been chosen [proper tight fit], that the mask can be worn in combination with other protective equipment [for example a protective jacket], that it is a correct choice for the conditions at the particular place of use and that it fulfils the ergonomic requirements.

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. 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 mask/helmet combination

- | | | | |
|---|--------------|---|---------------------------------|
| 1 | Helmet Visor | 4 | Adapter with tightening strap |
| 2 | Helmet | 5 | Connector with inhalation valve |
| 3 | Lens | 6 | Exhalation valve |

2.1 Mask Versions

Standard Thread Connector M45 x 3

- 3S-H-PF • Standard version with polycarbonate lens
- 3S-H-PF small • as standard version, small size
- 3S-H-PF-Vg • as standard version, with Triplex [laminated] glass

MSA Plug-in Connector

- 3S-H-PS • Standard version with polycarbonate lens
- 3S-H-PS small • as standard version, small size
- 3S-H-PS-Vg • as standard version, with Triplex [laminated] glass

AutoMaXX Plug-in Connector

- 3S-H-PS-MaXX • Standard version with polycarbonate lens
- 3S-H-PS-MaXX small • as standard version, small size

ESA Plug-in Connector

- 3S-H-PF-ESA-F1 • Standard version with polycarbonate lens
- 3S-H-PF-ESA-F1 small • as standard version, small size
- 3S-H-PF-ESA-Vg-F1 • as standard version, with Triplex [laminated] glass

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

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
for helmets F1SF and F1E:	
	I M1
	II 1 G IIA T6 -40 °C ≤ Ta ≤ +60 °C
	II 1 D
	in the helmet colours orange or fluorescent, with front plate fluorescent, orange, white, blue, yellow, red or black
The mask/helmet combination with F2 X-TREM helmets are not tested for use in explosive atmospheres.	
for masks	
Directive 89/686/EC or Regulation (EU) 2016/425, : respectively	EN 136 CL3+
	with the exception of Section 7.11
	for mask/helmet combinations
	DIN 58610:2006
	for helmets
	see operating manual helmet
	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
for helmets F1SF and F1E:	
	I M1
	II 1 G IIA T6 -40 °C ≤ Ta ≤ +60 °C II 1 D
in the helmet colours orange or fluorescent, with front plate fluorescent, orange, white, blue, yellow, red or black	
 The mask/helmet combination with F2 X-TREM helmets are not tested for use in explosive atmospheres.	
for masks	
Directive 89/686/EC or Regulation (EU) 2016/425, respectively	EN 136 CL3+
	with the exception of Section 7.11
	for mask/helmet combinations
	DIN 58610:2006
	for helmets
see operating manual helmet	
	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.



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.



WARNING!

The tightness of the mask/helmet combination depends on the correct size of the helmet, the adjustment of the adapter with tightening strap [if possible] and the helmet's inner shell.

It is necessary to adjust the helmet's inner shell accurately to your head size.

If the helmet or the inner shell do not fit your head properly, or if the wrong mask size is chosen, there is a risk of leakage.

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 Putting on the Helmet



- (1) Select a helmet suitable for the user's head size.
- (2) Adjust the helmet according to the helmet's operating manual.
- (3) Grip the helmet with both hands with the chinstrap open.
- (4) Pull the helmet from the forehead over the head.
- (5) Close and slightly tighten the chin strap.

3.2 Donning the Mask



WARNING!

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



When fitting the mask in position the chin strap of the helmet must be loose. Remove chin piece if necessary.



- (1) Push helmet backwards onto neck so that the forehead area is not covered.
- (2) Open buckles and pull tightening straps on the belt tongues until the grip tabs of the tightening straps reach the stop [longest setting].
- (3) Attach the helmet adapter to the slots on both sides of the helmet.



- (4) Draw pulling tabs of tightening straps on both sides of the helmet until the mask fits onto the face.
- (5) Push the helmet forward again until fitting comfortably.
- (6) Tighten chin straps and fix their end with Velcro fastener.
- (7) Ensure that the fit of the respiratory mask is checked by a second person.



WARNING!

The chin strap must fit tightly under the chin.

If necessary, remove chin protector.

3.3 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, or try a mask of a different size.
- If the leak test fails the mask must not be used.

3.4 Removing the Mask



- (1) Open buckles on the adapters.
- (2) Pull mask until stopped by the straps.
- (3) Lift both hooks of the helmet adapter to the side and pull them back out of the helmet slots.
- (4) Remove the mask to the front.



Do not grip the mask by the exhalation valve!

- (5) Remove the helmet.

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 of the Helmet

- (1) Clean and disinfect the helmet according to the helmet operating manual.

4.2 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.

4.3 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.

4.4 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].

4.5 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 4.4).
- (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

Devices	Work to be Performed	Maximal Intervals				
		Before use	After Use	6-monthly	Two years	Six years
helmet	See helmet operating manual.					
masks	Cleaning and Disinfection		X	X ¹⁾	X ²⁾	
mask/ helmet combination	Visual, Functional and Tightness Check		X	X ¹⁾	X ²⁾	
	Replacement of the exhalation valve disc					
	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 device.
Use the test plate or test band to fix the mask.
- (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.
- (3) For helmets: refer to the helmet operating manual.

Functional Test

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

5.7 Helmet Maintenance



For detailed information about helmet maintenance refer to the helmet operating manual.

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

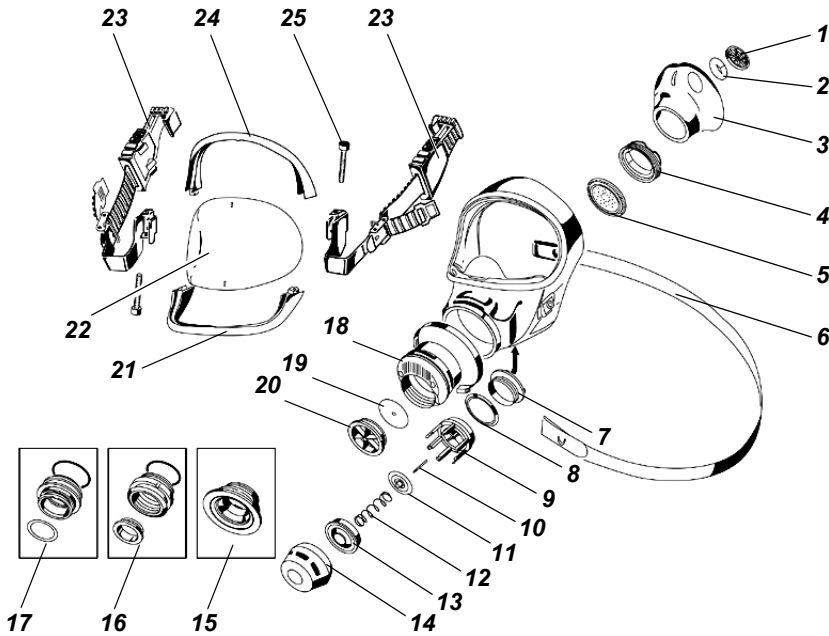


Fig. 3 Mask exploded view

- | | | | |
|----|---------------------------|----|-------------------------------|
| 1 | Nose cup valve seat | 14 | Protective housing |
| 2 | Nose cup valve disc | 15 | 3S-H-MaXX series |
| 3 | Nose cup [without valves] | 16 | 3S-H-PF and -PS series |
| 4 | Retainer ring | 17 | 3S-H-ESA series |
| 5 | Speech diaphragm | 18 | Connector |
| 6 | Carrying strap | 19 | Inhalation valve disc |
| 7 | Threaded ring | 20 | Inhalation valve seat |
| 8 | Slide ring | 21 | Lens ring |
| 9 | Valve socket | 22 | Lens |
| 10 | Positioning pin | 23 | Adapter with tightening strap |
| 11 | Exhalation valve disc | 24 | Lens ring |
| 12 | Valve spring | 25 | Screw for lens ring |
| 13 | Valve cap | | |

7.2 Mask

Description	Article No.
3S-H-PF	10042636
3S-H-PF – small	10044437
3S-H-PF-Vg	10044131
3S-H-PS	10042637
3S-H-PS – small	10044439
3S-H-PS-Vg	10044132
3S-H-PS-MaXX	10042638
3S-H-PS-MaXX – small	10044441
3S-H-PF-ESA	10042639
3S-H-PF-ESA-Vg	10044133
3S-H-PF-ESA – small	10044443

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-SP
Mask hanger [package of 4]	D2055753
Mask tightness test kit [for more MSA testing instruments refer to www.MSAafety.com]	D6063705
Test plate	D6125721
Test band	D6125715
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
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
Carrying strap, assembly	D2055707-SP
Adapter plug-in, assembly	D2056727
Cover	10096409
Screw for cover [package of 10]	D0012475-SP
Helmet adapter set 3S-H-F1	10047133

8 Applicable Helmets

8.1 MSA Gallet F1 Helmets

Helmets	
	Colour of the shell
F1 SF* [EN 443:2008]	
F1 E* [EN 443:2008]	
	red*
	yellow*
	blue*
	black*
	white*
	orange*
	green luminescing*
F1 E [EN 443:2008]	
F1 SF [EN 443:2008]	
	nickel
* The mask/helmet combination with neck curtain for which all helmet components are marked with * comply with directive: vfdb-Richtlinie 0802:04	
Helmets	
	Colour of the shell
Gallet F1 XF [EN 443:2008]	
size M, L	
	all colours
Neck curtain:	
aluminium	
wool (integral)	
nomex	
Lamp:	
Lamp holder (mounted, spare)	
Integrated light module	
Retro-reflective stickers:	
	Grey

8.2 MSA Gallet F2 X-TREM Helmets

Helmets	
	Colour of the shell
INDUSTRY [EN397]	
-unvented shell	
-no chinstrap	
GA3200-BA00	White
Optional:	
2-point chinstrap	
WILDLAND RESCUE [EN12492]	
-Vented shell	
-3-point chinstrap	
GA33xx	White
	Blue
	Yellow
	Black
	Grey
	Orange
	Red
	Green
	Photoluminescent
Optional:	
Retro-reflective stickers (GA3230):	silver, yellow, red, blue or green
TRAFFIC RESCUE [directive 89/686/EC]	
-unvented shell	
-3 point chinstrap	
GA35xx	White
	Blue
	Yellow
	Black
	Orange
	Red
	Photoluminescent
Optional:	
Wool neck curtain (GA3240)	
Retro-reflective stickers (GA3230):	silver, yellow, red, blue or green

