



S.E.A. Full Face Mask



User Instructions

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S.E.A. Full Face Mask, Natural Rubber	Model No. FN
S.E.A. Full Face Mask, Silicone Rubber	Model No. FS
S.E.A. Full Face Mask, Chloroprene Rubber	Model No. FC
S.E.A. Full Face Mask, Procomp	Model No. FP

1. DESCRIPTION

The S.E.A. full face mask is a panorama full view mask. It is designed to protect the respiratory system and face against hazardous gases and particles while offering a wide field of vision.

The mask may be used with gas, particulate or combined filters. It can also be used with supplied air. The mask has a polymer film speech diaphragm with minimal sound absorption.

The S.E.A. full face mask conforms to EN 136 (Europe) and AS/NZS 1716:2003 (Australia/NZ). It is resistant to flame.

Filtration media may be of one of two types:

- Threaded type with 40 mm thread conforming to EN 148-1
- Clip-in type (Australia and New Zealand only), to be fitted to the adapter supplied with the mask, which is then screwed into the mask

Filtration media are selected according to the types of hazards present.

2. LIMITATIONS ON USE

1. When used as a filtering device the respirator must not be used where the environment and contaminants are unknown. In case of doubt, self-contained respirators which function independently of the atmosphere must be used.
2. When used as a filtering device the respirator must not be used in restricted spaces (e.g. cisterns, tunnels) because of the risk of oxygen deficiency or presence of heavy oxygen-displacing gases (e.g. carbon dioxide).
3. When used as a filtering device the respirator may be used only if the oxygen content of the air is 18 -23 vol.% (minimum USA 19,5%). An oxygen analysis instrument is recommended for measuring the oxygen content.
4. Gas filters do not protect against particles. Similarly, particulate filters do not provide protection against gases or vapours. Select gas and particulate filters according to the hazards present. In case of doubt, use combined filters.
5. Normal filtering devices do not protect against certain gases such as CO (carbon monoxide), CO₂ (carbon dioxide) and N₂ (nitrogen).
6. S.E.A. recommends that filters be changed after single use if they have been used against radioactive agents, micro-organisms (virus, bacteria, fungi and spores).
7. Do not use the respirator if the face seal of the mask is obstructed by the user's beard, hair or spectacle frames. With the S.E.A. full face mask one can use special spectacles (see spare part FSF-T).
8. When the respirator is used in explosive atmospheres, please follow the instructions given for such areas.
9. The weight of filter used with a full face mask shall not exceed 500 g.
10. Gas filters and combination filters have a limited service life that is dependent on type and concentration of contaminants, work load, breathing patterns, ambient humidity and other factors.
11. Gas filters shall be replaced when the user begins to sense odour, taste or irritation. Filters used against detrimental gases that do not display any significant indications, require special procedures for the duration of use and correct usage, and may be covered by special regulations.
12. Operating temperature range -30 to +50°C.

3. FILTRATION MEDIA

Selection of filtration media – USA only

For correct selection of filtration media, refer to the NIOSH approval label supplied with the equipment.

Selection of filtration media – Australia and New Zealand only

For correct selection of filtration media, refer to AS/NZS 1715 *Selection, use and maintenance of respiratory protective devices*.

S.E.A. full face masks are approved for use with the following filters, using either the SR 280 or TA1 filter adapter:

Filter model no.	Type/Class
SR 210/310	P3
SR 217	A1
SR 218-2	A2
SR 218-5	A2
SR 294	ABE2
SR 295	K2
SR 299-2	ABEK1-HgP3
SR 297	ABEK1
SR 315	ABE1
SR 316	K1
SR 298	AX
SR 510	P3

S.E.A. full face masks are also approved for use with the SR 307 supplied-air regulator in conjunction with SR 280 or TA1 filter adapter and S.E.A. range of breathing air-lines in lengths from 5 to 90 m; up to 3 hoses may be coupled together to a total length of 90 m. Minimum air-line diameter is 9.5 mm.

4. FACEPIECE FITTING

A good facepiece fit is essential to ensure protection when using the respirator. It is essential to test facepiece fit before issuing a respirator to a user.

A user must pass a Quantitative Fit Test (QNFT) before being assigned a respirator.

Quantitative Fit Test

A Quantitative Fit Test (QNFT) gives a numerical measure of facepiece fit.

The user wears a respirator in a test atmosphere while an instrument compares the concentration of the challenge agent in the test atmosphere with that inside the facepiece. The test atmosphere may be air contaminated with an aerosol, vapour or gas. With some instruments ambient air can be used.

The QNFT protocol must be in accordance with appropriate government regulations.

Facepiece fit testing has a number of aims:

- To assess the suitability of the respirator for each person for use in real situations.
Due to natural variations in human facial features, no one size or style of full facepiece can be guaranteed to fit everyone. A QNFT, properly conducted, can be used to determine if the respirator is suitable for each user.
- If the respirator is found to be unsuitable, to determine if the same respirator fitted with the Full Face Mask Insert (SEA-FI) is suitable.
The Full Face Mask Insert is an adhesive-backed foam strip, inserted behind the face seal, intended to accommodate unusual facial features or small faces. Once again, a QNFT must be performed to determine if this configuration is suitable for each user.
- To train each user in the correct donning technique that will ensure a good facial fit during future use.
It is extremely important that the donning technique learned by each user during the QNFT is employed in all future use, where fit testing will not normally be available. In particular, the head harness tension used to pass the QNFT should be appropriate for extended use in real situations; if excessive harness tension is needed to pass, the respirator should be considered unsuitable, and should not be used by that person.

NOTE: The FP, FS, FC and FN industrial APRs, FP-C CBRN APR, SE40 CBRN PAPR and SE400 industrial PAPRs are all identical in terms of facepiece fit. Fit tests performed with any of these facepieces are valid for any of the others.

QNFT Procedure

The recommended method for performing the QNFT is with the S.E.A. Fit Test Adapter (FTA1). Alternatively, a modified test facepiece may be used. Both methods are described below.

To prepare for a QNFT using the Fit Test Adapter FTA1:

1. Attach the FTA1 to the facepiece and attach a P100/P3 particulate filter, following the user instructions provided with the FTA1
2. Don the respirator in accordance with section *Donning Procedure*

To prepare for a QNFT using a test facepiece:

1. Attach a P100/P3 particulate filter to the test facepiece. The test facepiece should be leak tested by a suitable method prior to use
2. Don the respirator in accordance with section *Donning Procedure*

To perform a QNFT:

1. Prepare and don the respirator using one of the methods described above
2. An assistant should inspect the fit of the respirator. Check for significant gaps between the rim of the facepiece and the user's face. If significant gaps are visible, consider fitting the Full Face Mask Insert (SEA-FI). Doff the facepiece, fit the Insert in accordance with its user instructions, and don the facepiece as before.
3. Enter the test atmosphere (if required) and connect the test instrument's sampling tube to the sampling port on the FTA1 or test facepiece
4. Perform an appropriate QNFT exercise sequence and determine the fit factor
 - i. If the desired fit factor is achieved, the respirator should be considered suitable for the user. No further testing is required
 - ii. If the desired fit factor is not achieved, an observer should check that the respirator is correctly assembled, and properly fitted in accordance with section *Donning Procedure* step 8. The user should check head harness tension and adjust if necessary. Go to step 5 below
 - iii. If during step ii above the observer detects fitting problems which cannot be overcome by adjustment – in particular, visible gaps between sealing rim and the user's face – the Full Face Mask Insert (SEA-FI) may provide a solution. Doff the facepiece, fit the Insert in accordance with its user instructions, and don the facepiece as before. Go to step 5 below
5. Repeat the QNFT and determine the fit factor
 - o If the desired fit factor is achieved, the respirator in the configuration tested – with or without Insert as appropriate – should be considered suitable for the user. No further testing is required
 - o If the desired fit factor is again not achieved, the respirator should be considered unsuitable and should not be used by that person

NOTE: Some "trial and error" is acceptable when carrying out facepiece fit testing. Sound judgement by experienced personnel is essential when assessing the suitability or otherwise of a respirator. Remember that the donning and adjustment method used during testing must be appropriate for subsequent use in real situations.

5. PREPARATION FOR USE

1. Before use, check the following:
 - Condition and intactness of facepiece and other rubber parts
 - Head Harness condition and elasticity
 - Visor condition and cleanliness
 - Speech diaphragm is in place
 - Exhalation valve is in place and the exhalation valve cover is properly fastened. Note that when using the S.E.A. SmallTalk with the respirator, the exhalation valve cover is replaced with the exhalation valve cover containing the microphone. Ensure that this is properly fastened. Refer to the user instructions for the SmallTalk for more details
 - Inhalation and exhalation valves are functioning properly
 - Nose cup is properly positioned behind the face seal chin pocket
2. Attach corrective lens holder accessory (spectacle frame), if required.
3. Check that the filtration media:
 - is the correct type for the contaminant(s)
 - is approved for use with the respirator
 - original packaging is sealed
 - expiry date has not been exceeded
 - has been stored and inspected according to the inspection regime set out by your respirator program
4. Remove filtration media from bag and remove seals (if applicable) located at inlet and/or outlet.
5. Check that the inhalation valve disc (Figure 9.1, item 11) and inhalation valve seat (Figure 9.1, item 9) are properly installed at filtration media connector.
6. Fit the filtration media to the center of the facepiece, threading clockwise until tight. For correct tightness:
 - a) Hold the respirator in one hand and place the thread of the filtration media into the connector.
 - b) With one finger, **gently** spin the filtration media in a clockwise direction until you feel it slow down and nearly stop on the gasket. Turn the filtration media 1/6 (or 60^o) of a turn. The filtration media is now considered “tight”.



WARNING

Failure to verify that the filtration media is properly threaded into the facepiece may result in little or no respiratory protection.

6. DONNING PROCEDURE

The user must be familiar with and practise the donning and doffing procedures prior to respirator use.

WARNING

Men should be clean-shaven and should not have facial hair such as beards or large sideburns. Facial hair can seriously compromise the face seal and result in reduced protection.

NOTE: Before donning a respirator for the first time, perform a facepiece fit test per section *Facepiece Fitting*. S.E.A. recommends that each new (unused) respirator be tested for facepiece fit even if the user is experienced with the respirator.

NOTE: Users who have been approved to use the respirator only with Full Face Mask Insert (SEA-FI) should check that the insert is correctly fitted and is in good condition prior to donning.

NOTE: Users should be well hydrated before donning and using the respirator.

1. Visually inspect the respirator for completeness, correct assembly and lack of damage, per section *Preparation for Use*.
2. Put the facepiece neck strap over your neck.
3. Fully loosen the head harness straps.
4. Clear all hair away from your face. A thin elasticised head band may be used, provided it is kept clear of the face seal.
5. Holding the facepiece in one hand and the head harness in the other, place your chin in the cup of the facepiece.



6. Pull the head harness over and down the back of your head and stroke it down. Clear any hair away from the face seal.
7. Tighten the head harness straps in pairs by pulling the free ends backwards. Start with the neck straps (1), followed by the temple straps (2) and finally the forehead strap (3).



8. Check that the face seal touches the skin all around, especially under the chin cup and at the temples. Try moving the mask to verify that there is no slippage.

The straps should be tightened firmly enough to prevent movement on the face during use, but should not be overly tight. Excessive tightness may lead to increasing discomfort during use. Check once again that there is no hair under the face seal.

9. Perform a **User Seal Check** * as follows:
 - Block the air inlet to the filtration media with the palm of the hand or by fitting **S.E.A. fit test disc** (part no. FF-T-DISC) to the filtration media, held in place by **prefilter holder** (part number PFH-T)
 - Inhale slowly and hold breath momentarily
 - The facepiece should be drawn slightly to the face by the suction. No leakage should be evident at the face seal.



10. If any leakage is evident, correct immediately by re-stroking head harness to the back and retighten neck, temple, and forehead straps. The straps should be tightened firmly enough to prevent movement on the face during use, but should not be overly tight. Excessive tightness may lead to increasing discomfort during use. Check once again that there is no hair under the face seal.
11. Don any outer protective clothing as required. You are now ready to enter a contaminated area.

* **NOTE:** The User Seal Check is a simple check for gross leakage prior to use. It is not a substitute for a quantitative fit test (QNFT).

Buddy check

When entering a contaminated area in groups of two or more, it is good practice to perform a "buddy check". Pairs of users should visually inspect – but should not adjust – each other's mask, checking for correct positioning, strap tightness, absence of hair in the face seal, correct fitment of accessories, etc.

WARNING

If the facepiece has been properly donned and adjusted, detection of contaminant odour or taste, or irritation of eye, nose or throat during use may indicate exhaustion of the filtration media. **Return to fresh air immediately without removing the respirator, check facepiece fit and replace filtration media.** Used filtration media should be disposed of properly in accordance with state and/or local guidelines for disposal of contaminated material.

7. DOFFING PROCEDURE

WARNING

Before removing the respirator, decontamination may be necessary, depending on the contaminant(s). Follow a decontamination procedure appropriate to the contaminant(s).

To doff – or remove – the facepiece, proceed as follows:

1. Before removing the respirator, leave the contaminated area and/or be certain that respiratory protection is no longer required.
2. Loosen all head harness straps fully. Do this by lifting the buckles (forward and away from the head) while maintaining head strap tension by pulling the facepiece away from the face or by pulling the head straps backwards.
3. Remove the facepiece by pulling it up and back over the head. Take care not to contaminate the interior of the facepiece during and after doffing.
4. If work period has been completed, clean, inspect and repack the respirator per section *Inspection, Cleaning and Storage*.
5. To resume use of the respirator, replace expended filtration media with new filtration media and repeat the *Donning Procedure*, including the User Seal Check.

8. MAINTENANCE AND STORAGE

WARNING

Failure to properly clean and inspect the facepiece and harness may result in the respirator providing little or no protection.

Cleaning and inspection

After each use, clean and inspect the respirator as follows:

1. Remove the filtration media from the facepiece by turning counterclockwise until unthreaded. Expended filtration media should be disposed of in accordance with state or local guidelines for disposal of contaminated material.
2. Carefully wash the facepiece and harness in a warm water solution (110° F maximum) containing a mild detergent.

NOTE: A soft brush may be used to wash the harnesses and elastomeric portion of the facepiece. Use a soft cloth to wash the visor, inside and out. **Do not use the brush on the plastic visor.**

3. Rinse thoroughly with clean water and shake off excess water.
NOTE: The nose cup (inner mask) is designed to be an integral part of the facepiece assembly and does not need to be disassembled for cleaning and disinfecting. In the event that the nose cup is removed for inspection or cleaning, make certain it is reassembled behind the chin pocket of the face seal.
4. Disinfect the facepiece with a diluted disinfectant and let dry.
5. Examine elastomeric portion of the facepiece for tears, holes, deformation, cracks, stiffening or signs of aging.
6. Examine head straps and harness for breaks, cuts, frays, tears, loss of elasticity and missing or damaged hardware.

7. Examine filtration media gasket and internal thread for damage or wear.
8. Examine the inhalation and exhalation valves and valve seats for cracks or foreign substances which may not allow the valves to close completely. Check that the valves are not distorted or missing.
9. Examine visor for cracks, excessive scratches or other damage.
10. Correct any deficiencies immediately or tag the respirator as in need of repair and remove from service.

NOTE: Use only replacement components as supplied by the S.E.A. Group. See replacement parts section of this instruction.

11. After cleaning and inspection, pack the respirator suitably for short term or long term storage.

Storage

Store the mask away from direct sunlight, grease, moisture (< 75% Humidity) and extreme temperatures (store within the range -10 to 30 deg C). A properly stored, unused mask stays in good condition for a long storage period. The components of the facepiece should not be more than 10 years old.

Maintenance

Table 1 – Maintenance schedule

Component	Work to be Done	Intervals			
		Before Use	After Use	Yearly	Every Five Years
Mask, complete	Cleaning		■	■	■
	Disinfection		■	■	■
	Test for function and leak-tightness		■*)		■
	User seal check	■			
	Replace visor, head harness and other parts		■*)		
Inhalation & Exhalation Valve Discs	Check discs		■	■	
	Replace discs		■*)		■
Connector of the Mask	Check inh. valve seat		■	■	
	Replace inh. valve seat				■
	Verify body inner thread (with gauge)				■
Speech Diaphragm	Check	■	■	■	
	Replace				■

*) When needed

Tests for function and leak-tightness

The respirator should be inspected annually for condition and function. Check that the facepiece body has retained its shape, the head harness is reasonably elastic, the visor and the face seal are undamaged, and that the valve discs and the speech diaphragm's O-ring are in good condition and located properly. Repair any damage.

S.E.A. recommends that the respirator be tested for leak-tightness every five years, at a level equivalent to a protection factor of 2,000.

Replacing the integral visor

Replace visor if damaged, dirty or scratched.

The visor material code is found in the right upper corner of the visor. Material codes:

- F polycarbonate
- () Triplex (chemical resistant laminated glass)

1. Unscrew the screws (crosshead Phillips), loosen the visor frames, and remove the visor (fig. 8.1).
2. Place a new visor in the faceblank groove (see the marking "up/down" on the visor). Align the check marks of the visor and faceblank with each other (fig. 8.2).
3. Press the upper frame into place (fig. 8.3).
4. Bend the mask at the connector to give space for the lower frame under the connector support piece (fig. 8.4). Tighten both screws.
5. Perform a Quantitative Facepiece Test (QNFT). See section 4.



8.1



8.2



8.3



8.4

Replacing the exhalation valve disc

1. Pull out the connector lid (fig. 8.5).
2. Separate the disc (grey) from the valve body (pinch on the edge of the disc) (fig. 8.6).
3. Replace the disc. Pull the disc tail through the central hole (fig. 8.7) to the inner side of the mask to secure a good fit.
4. Perform a Quantitative Facepiece Test (QNFT). See section 4.



8.5



8.6



8.7

Replacing the inhalation valve discs

1. Remove the connector lid.
2. Remove the rubber valve seat (by pulling from the tip) (fig. 8.8).
3. Replace the disc (fig. 8.9).
4. Put the valve seat back to the bottom of the valve body. Do not press too tight (the disc comes immobilized) because the disc must be free to move.
5. The valve discs of the inner mask (fig. 8.10) are replaced similarly. Make sure that the rubber edge of the inner mask comes in the valve seat groove.



8.8



8.9



8.10

Replacing the speech diaphragm

1. Bend the head harness over the visor (fig. 8.11).
2. Fold the chin cup inside out, towards yourself (fig. 8.12).
3. Remove the speech diaphragm (fig. 8.13).
4. To make assembly easier, moisten the O-ring with water. Position the tip of the speech diaphragm into the notch of the connector (fig. 8.14 – 8.15) to prevent any leakage. Press the speech diaphragm into place (fig. 8.15). Check that the o-ring has seated properly (fig. 8.16)
5. Fold back the chin cup (fig. 8.17).
6. Perform a Quantitative Facepiece Test (QNFT). See section 4.



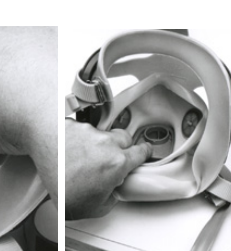
8.11



8.12



8.13



8.14



8.15



8.16



8.17

Replacing the head harness

Thread the rubber bands through the buckles (fig. 8.18).



8.18

9. SPARE PARTS

Item	Description	Part number	Comments
1	Faceblank	-	New mask
2 & 3	Buckle with retainer	FF-B	-
4	Visor options: Polycarbonate (standard) Hard coated polycarbonate Triplex laminated glass	VP VHC VLG	
7	Connector	-	To be assessed by SEA *)
8	Exhalation valve cover	FF-EVC	-
9	Inhalation valve seat	FF-IVS	-
10	Rivet for inhalation valve	FF-IVR	-
13 & 14	Speech diaphragm with o-ring	FF-SD	-
15 & 16	Steel band and buckle	-	To be assessed by SEA *)
17	Inner mask, silicone	-	To be assessed by SEA *)
11,12,18	Valve set, including: Qty 2 inner mask valves Qty 1 inhalation valve Qty 1 exhalation valve	FF-V	-
19 & 20	Inner mask valve seat with rivet	FF-IMVS	-
21	Neck strap assy	FF-NS	-
22	Head harness natural rubber or	FHN	-
23	Support for connector	-	To be assessed by SEA *)
24	Spectacle frame with fasteners	FSF-T	-
-	Visor cover (protective film) 10 per pack	VC	-
-	Foam Insert	SEA-FI	-
-	SmallTalk speaker unit	ST2-F	-
-	Fit Test Adapter	FTA1	-

*) Assessments require the entire mask to be sent to S.E.A. to decide whether the mask is able to be repaired.

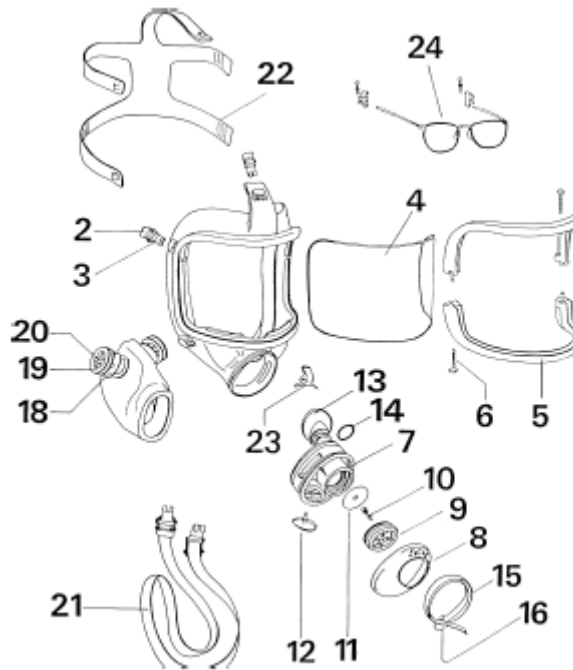


Figure 9.1



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