

An Introduction to Fit Testing

What is Fit Testing?

Fit Testing is a method for checking that a tight fitting facepiece matches an individual's facial features and can provide an adequate seal to the wearer's face.

What is the reason for Fit Testing?

The performance of tight-fitting facepieces depends on achieving a **good contact between the wearer's skin and the face seal of the facepiece**. As people come in all sorts of shapes and sizes it is unlikely that one particular type, or size of RPE facepiece, will fit everyone. Inadequate fit will significantly reduce the protection provided to the wearer. Any reduction in protection can put the RPE wearer's life in danger or may lead to immediate or long-term ill health.

What are the legal requirements for Fit Testing?

The **COSHH** Regulations reg.7(1), The **CLAW** Regulations reg.6(1), The **CAW** Regulations reg.10(1)(a) place the duty on the employer to prevent the exposure of their employees to hazardous substances; where prevention of exposure is not reasonably practicable, the employer must reduce it to the lowest concentration reasonably practicable by means other than the use of RPE.

If, despite the use of suitable control measures (i.e. other than RPE) adequate control of exposure cannot be achieved, employers must provide suitable RPE (COSHH Regulations reg.7(3)(c), CLAW Regulations reg.6(3)(c), CAW Regulations reg.10(4)). The RPE provided must reduce the exposure to a concentration that is as low as reasonably practicable, and in any case below any applicable exposure or control limits.

The ACOPS 1, 2, 3, 4 supporting the COSHH, CLAW and CAW Regulations recommend that the initial selection of tight fitting facepieces should include a fit test. This is to ensure that the selected RPE has the potential to provide adequate protection for the wearer (L5 para 148, L27 para 79, L28 para 81 and L132 para 133). The circumstances where repeat fit testing is needed are referred to in L5 para 149, L27 para 80, L28 para 82 and L132 para 134.

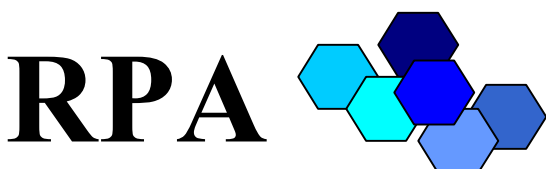
The employer must have documented evidence of the characteristics of the RPE to be used (CAW reg.7(3)(d)). Similar requirements are described in COSHH reg.6(4), and CLAW reg.5(4). These requirements are there to ensure that the RPE provided is suitable. The evidence to support the suitability will include fit test reports for facepieces with tight-fitting face seals. Fit test records should be retained by the employer and must be kept available for inspection on request.

What is a tight-fitting facepiece?

Tight-fitting facepieces are

- **Filtering Facepieces (disposable masks)**
- **Half Masks**
- **Full-Face Masks**

Visors, helmets, hoods and blouses are loose fitting devices.



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Do loose fitting facepieces require fit testing?

No. Loose fitting devices are less dependent on a tight fit to the wearer's face and therefore do not require fit testing. However, a loose fitting facepiece requires the correct size to ensure the wearer achieves an adequate protection.

When is a repeat Fit Test required?

A repeat Fit Test will be required if the wearer:

- a) loses or gains weight
 - b) undergoes any substantial dental work
 - c) develops any facial changes (scars, moles, etc) around the face seal area.
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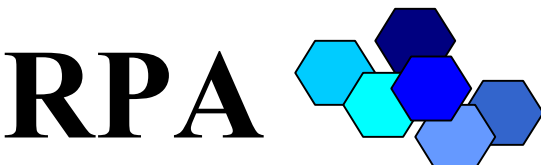
What is the output of a fit test?

The main output of a fit test is a report which will state whether the fit test was a pass or a fail. Some service providers may call this a 'certificate'.

Who can conduct Fit Testing?

RPE fit testing should only be conducted by a competent person. To be competent the person should have adequate knowledge, and have received adequate instruction and training in the following areas:

- selection of adequate and suitable RPE
- examination of RPE and the ability to identify poorly maintained facepieces
- ability to correctly fit a facepiece and perform pre-use fit checks
- ability to recognise a poor fitting facepiece
- the purpose and applicability of fit testing; the differences between, and the appropriate use of, quantitative and qualitative fit testing methods
- the purpose of the fit test exercises
- preparation of facepieces for fit testing
- how to carry out diagnostic checks on the facepiece and the fit test equipment
- capabilities and limitations of the fit test equipment
- how to perform a correct fit test with the chosen method
- be aware of and know how to prevent and correct problems during fit testing
- interpretation of fit test results;
- an understanding of the differences between fit factor, workplace protection factor, assigned protection factor and nominal protection factors
- HSE Regulations and the Approved Codes of Practice relating to fit testing.



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Is a pre-use fit check the same as the facepiece fit test?

No. A pre-use fit check is required every time the facepiece is worn and before entering the hazardous environment. It is needed to determine if the facepiece has been correctly donned before a contaminated work area is entered.

Is there a difference between a Fit Factor (FF) and the Assigned Protection Factor (APF)?

A fit factor is the result of a fit test and only relates to a specific facepiece/wearer combination.

The Assigned Protection Factor (APF) for a specific type and class of RPE is published in BS4275.6 It relates to the likely performance of the whole device when worn correctly and used in accordance with the manufacturer's instruction (which includes the need for a satisfactory fit testing). When selecting an adequate and suitable RPE, for use at work, the assigned protection factor should be used. For more details consult HSG53 or talk to a reputable RPE supplier or manufacturer.

Why do facepieces used with positive pressure breathing apparatus require fit testing?

Studies have shown that during heavy exertion, it is possible for the facepiece pressure to become momentarily negative in relation to the outside atmosphere, potentially resulting in facepiece leakage. The consequences of facepiece leakage for a positive pressure mask can be extremely serious since these types of devices are more likely to be used in extremely hazardous environments; even brief leaks can cause serious exposure.

Wearers also may believe that they can afford to take less care when donning their facepiece when using a breathing apparatus that appears to be highly protective; they may ignore face seal checks and correct strap tensioning because they are relying on airflow to overcome any leaks. Fit testing demonstrates to wearers the need to don the facepiece properly.

How is a power assisted respirator or a breathing apparatus facepiece fit tested?

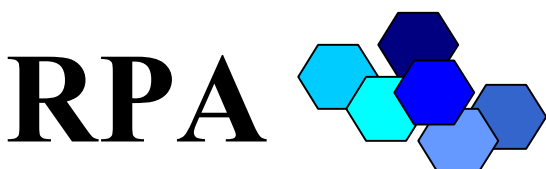
Fit testing of these types of devices is usually carried out by temporarily converting the facepiece into a negative pressure respirator by adapting it to use a P3 filter instead of the usual air supply.

Can a Fit Test be carried out on a wearer who has a beard or stubble?

A fit test should not be conducted if there is any hair growth between the wearer's skin and the facepiece of the mask. Such hair growth includes stubble, beards, moustaches, sideburns or low hairline which crosses the respirator sealing surface.

Why is it necessary for the wearer to exercise during the fit test?

Test exercises generate a physical workload on the wearer that simulate working activities and work rate. This will test the fit of the facepiece better than if the wearer was at rest.

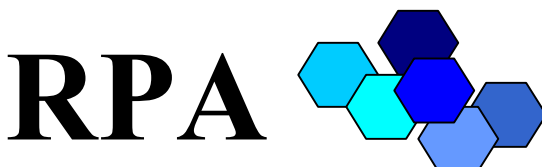


What if the candidate normally wears a hard hat or goggles with their respirator?

If the candidate normally wears other personal protective equipment with their RPE (eg hard hat, goggles, etc) which has the potential to interfere with the seal of the facepiece then they should be worn during the fit test to check their compatibility.

REFERENCES

- 1 L5: The Control of Substances Hazardous to Health Regulations 2002 Approved Code of Practice and Guidance 2002. 4th edition HSE Books ISBN 07176 253 46
 - 2 L132: The Control of Lead at Work Regulations 2002 Approved Code of Practice and Guidance 2002, 4th edition, HSE Books ISBN 0 7176 256 56
 - 3 L27: Work with asbestos which does not normally require a licence (Fourth edition). Control of Asbestos at Work Regulations 2002 Approved Code of Practice and guidance, 4th edition, HSE Books 2002 ISBN 0 7176 2562 1
 - 4 L28: Work with asbestos insulation, asbestos coating and asbestos insulating board (Fourth edition). Control of Asbestos at Work Regulations 2002 Approved Code of Practice and guidance, 4th edition, HSE Books 2002 ISBN 0 7176 2562 X
 - 5 HSG53: The selection, use and maintenance of respiratory protective equipment - a practical guide HSE Books ISBN 0 7176 1537 5
 - 6 BS 4275:1997: Guide to implementing an effective respiratory protective device programme
 - 7 The Personal Protective Equipment Regulations 2002 SI 2002/1144 HMSO 2002 ISBN 0 11 039830 0
 - 8 BS EN12942:2001: Respiratory protective devices: Power assisted filtering devices incorporating full-face facepieces, half facepieces or quarter facepieces Requirements, testing, marking.
 - 9 BS EN149:1992: Specification for filtering half facepieces to protect against particles
 - 10 BS EN 136:1998: Respiratory protective devices: Full face facepiece Requirements, testing, markings
 - 11 BS EN140:1998: Respiratory protective devices: Half facepieces and quarter facepieces - Requirements, testing, markings
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