



*Protecting you for
life's best moments.*

Positive Pressure Respiratory Protection - FAQ



Positive Pressure systems are widely used to protect individuals against airborne contaminants in various hazardous work environments. There are several different types under the European EN and American NIOSH standards.

■ **EN 12941 - PAPR with Loose Fitting**

Powered filtering devices incorporating a helmet or a hood.

■ **EN 12942 - PAPR with Tight Fitting**

Powered assisted filtering devices including half mask, full face mask or quarter mask.

■ **EN 14594 - Supplied Air**

Respiratory Protection Device - Continual flow compressed air line breathing apparatus.

■ **42 CFR Part 84**

Respiratory Protective device meeting the requirements of Title 42, Code of Federal Regulations, Part 84 (42 CFR 84).

In the first two examples above, air is supplied and filtered via a motorised fan, usually situated on the waist, back, neck or even mounted as part of the head unit. The third option sees the respirator supplied via compressed air.

In USA, the respiratory devices are regulated under 42 CFR Part 84 that describes requirement for all types, including PAPR and Supplied Air categories, similar to those used in Europe.



ISO Mandatory Circle Sign: Wear Air Line Respirator Symbol

Am I subject to face fit testing?

In the UK, the HSE states that only one form of Respiratory Device removes the need for face fit testing - a loose fitting hood or helmet..

www.hse.gov.uk page 3:

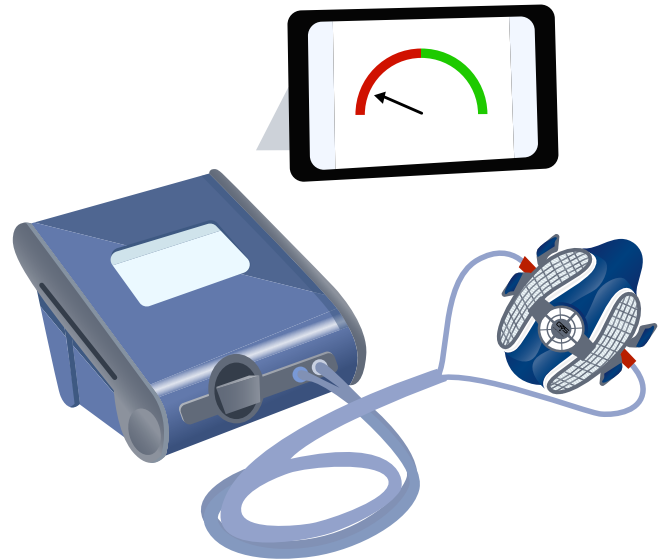
“Powered or constant-flow airline BA RPE with loose-fitting hoods or helmets **DO NOT** require a face fit test. Tight-fitting powered or constant-flow airline BA RPE under positive pressure **STILL** requires fit testing as studies have shown that during heavy exertion, inward leakage is possible.”

While the direction is similar in the United States:

www.cdc.gov

Do Powered Air-Purifying Respirators (PAPRs) require Fit Testing?

The answer to this question depends on the type of facepiece that the respirator has. Any facepieces that form a tight seal to the wearer’s face, e.g., half-masks and full facepieces, **MUST BE** fit tested. Loose-fitting PAPRs, in which the hood or helmet is designed to form only a partial seal with the wearer’s face or hoods which seal loosely around the wearer’s neck or shoulders, **DO NOT** require fit testing.



Do I need to be clean shaven?

Reading the Manufacturer instructions for any product is required to understand the specific needs of the respirator, but it is common sense that any obstruction of the seal that can potentially create a leak needs to be considered, **even for loose fitting PAPR and SAR.**

In some cases facial hair may need to be removed so as not to impair the seal of the respirator. Failure to create a suitable seal and maintain positive pressure inside the respirator may increase the risk of contamination from the environment around you.



What is the APF (Assigned Protection Factor?)

The Assigned Protection Factor is a way to compare protection levels of different types of respirators and the theoretical toxicity reduction they provide. These are different in certain countries as they originate from different regulatory bodies and local authorities, but are eventually sharing the same objective. These classes can help you determine the type of respirators you want to utilise. We have given the negative pressure items as a comparison, as they are the most frequently used.

European Assigned Protection Factors

Standard	Description	Class	ASSIGNED PROTECTIVE FACTORS USED IN SOME COUNTRIES					
			FI	DK	IT	SE	GB	FRA
EN 149	Disposable half mask	FF P1	4	4	4	4	4	
		FF P2	10	10	10	10	10	
		FF P3	20	30	30	20	20	10
EN 140 EN 143 EN 14387	Reusable half mask	P1	4	4	4	4	4	
		P2	10	10	10	10	10	
		P3	20	30	30	20	20	10
		Gas		30	30		10	
		Gas P3		30			10	10
EN 136 EN 143 EN 14387	Full face mask	P1	4	4	4	4	4	
		P2	15	15	15	15	10	
		P3	500	400	400	500	40	30
		Gas	500	400	400	500	20	
		Gas P3		400			20	30
EN 12941	PAPR with hood or helmet	TH1	5	5	5	5	10	
		TH2	20	20	20	20	20	
		TH3	200	100	200	200	40	40
EN 12942	PAPR with half mask or full face mask	TM1	10	10	10	10	10	
		TM2	100	100	100	100	20	
		TM3	1000	500	400	1000	40	60
EN 14594	RPE with continuous flow compressed air line breathing apparatus	4A / 4B						250

American Assigned Protection Factors



Half mask/Dust mask
APF=10
Needs to be fit tested



Half mask (Elastomeric)
APF=10
Needs to be fit tested



Full facepiece (Elastomeric)
APF=50
Needs to be fit tested



Loose-Fitting Powered
Air-Purifying Respirator
(PAPR)
APF= 25



Hood Powered
Air-Purifying Respirator
(PAPR)
APF= 25

Table I: Assigned Protection Factors⁵

Type of Respirator ^{1,2}	Quarter mask	Half mask	Full facepiece	Helmet/Hood	Loose-fitting facepiece
1. Air-Purifying Respirator	5	10 ³	50	-	-
2. Powered Air-Purifying Respirator (PAPR)	-	50	1,000	25/1,000 ⁴	25
3. Supplied-Air Respirator (SAR) or Airline Respirator					
• Demand mode	-	10	50	-	-
• Continuous flow mode	-	50	1,000	25/1,000 ⁴	25
• Pressure-demand or other positive-pressure mode	-	50	1,000	-	-
4. Self-Contained Breathing Apparatus (SCBA)					
• Demand mode	-	10	50	50	-
• Pressure-demand or other positive-pressure mode (e.g., open/closed circuit)	-	-	10,000	10,000	-

Notes:

¹Employers may select respirators assigned for use in higher workplace concentrations of a hazardous substance for use at lower concentrations of that substance, or when required respirator use is independent of concentration.

²The assigned protection factors in Table I are only effective when the employer implements a continuing, effective respirator program as required by this section (29 CFR 1910.134), including training, fit testing, maintenance, and use requirements.

³This APF category includes filtering facepieces, and half masks with elastomeric facepieces.

⁴The employer must have evidence provided by the respirator manufacturer that testing of these respirators demonstrates performance at a level of protection of 1,000 or greater to receive an APF of 1,000. This level of performance can best be demonstrated by performing a WPF or SWPF study or equivalent testing. Absent such testing, all other PAPRs and SARs with helmets/hoods are to be treated as loose-fitting facepiece respirators, and receive an APF of 25.

⁵These APFs do not apply to respirators used solely for escape. For escape respirators used in association with specific substances covered by 29 CFR 1910 subpart Z, employers must refer to the appropriate substance-specific standards in that subpart. Escape respirators for other IDLH atmospheres are specified by 29 CFR 1910.134(d)(2)(ii).

Do I need training?

Yes! Every manufacturer of Positive Pressure systems has particular design characteristics and it is important to spend the right time assembling the equipment as well as learning how to maintain and clean it. For all respiratory products it is necessary to appoint someone who will train and guide wearers – this could be a colleague or a specialist contractor.

When do I need to check my respirator?

In some countries like Germany or the UK, it is part of the regulation that each PAPR needs to be checked once a year, to ensure that functions such as the airflow are still performing as originally supplied. It is also common sense to train your EHS team and perform these checks regularly.

Can I share the respirator?

While headpieces should be assigned and thus not shared, there is nothing to prevent fan units being shared, where shift work occurs, as long as there is sufficient time to recharge the battery, or exchange a flat battery for a fully charged one. This can be an important financial consideration when selecting a PAPR system for you and your team.

What is my responsibility?

As an employer you are responsible to make the best possible protection available for the job. As a user it is your responsibility to read and follow instruction on using and maintain the equipment. But most of all, you are responsible to protect yourself and wear the respirator correctly at all times required.

Do I need to have a medical evaluation before using a positive pressure respirator?

Using a respirator may place a physiological burden on employees that varies with the type of respirator worn, the job and workplace conditions in which the respirator is used, and the medical status of the employee, as people who have underlying medical conditions may put themselves at risk if they work while wearing one. OSHA states the requirements for the USA, under [1910.134](#), which specifies that a medical evaluation is required before any employee can wear a respirator which is inclusive of positive pressure systems.

Check this video link: www.osha.gov

Different countries and regions can have their own local requirements, for example in places like Germany, where there are medical rules (G26) concerning respirators that are making mandatory medical evaluation, no physical fitness test is necessary for devices weighing under 3 kg without breathing resistance, escape devices or self-rescuers. This includes products such as hose breathing apparatus or powered-air-purifying respirators with a hood or helmet with which breathing air can flow freely.

Sources

Guidance on respiratory protective equipment (RPE) fit testing (INDG479) (UK)

www.hse.gov.uk

OSHA (USA)

www.osha.gov

OSHA medical evaluation

[1910.134](#)

DHHS (NIOSH) Publication No. 2018-129, Filtering out Confusion

www.cdc.gov

CDC Fit Tests FAQ

www.cdc.gov

Code of Federal Regulation

[42 CFR Part 84](#)

INRS - Les appareils de protection respiratoires, choix et utilisation (FRANCE)

www.inrs.fr

German respirator protection law (Ordinance on Preventive Occupational Health Care)

gesetze-im-internet.de

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