



Respiratory Protection

European Standards - an overview

Disposable Respirators EN149: 1991 revised to EN149: 2001

How has it changed?

Under EN149: 1991 disposable particulate respirators fell into one of five categories, under the revised EN149: 2001 legislation the S (Solids) and SL (Solids & Liquids) classifications have been combined to give three categories, please see the table below:

EN149: 1991	EN149: 2001
FFP1	FFP1
FFP2S FFP2SL	FFP2
FFP3S FFP3SL	FFP3

Other significant changes include

- ▶ All respirators will now have to meet both the solid and liquid filter performance requirements.
Solids tested by Sodium Chloride
Liquids tested by Paraffin Oil
- ▶ The year reference in addition to the standard number, **EN149: 2001** is to be printed onto the respirator. Note: products meeting the previous version of the standard are marked **EN149** only.
- ▶ FFP3 respirators to be used for more than one shift must now not only have cleanable face seals, but must also have passed the Dolomite test for clogging - indicated by the letter 'D' printed on the mask, previously only required on FFP1 & FFP2 respirators.

I'm Currently using an FFP mask certified to EN149: 1991 - What do I need to do?

Many workplaces where disposable respirators are used only need to provide protection against solid particles i.e. 'S' level protection against dusts, fumes and water-based aerosols. Masks certified to EN149: 1991 will continue to be legally certified and can be used as before. You will find a number of manufacturers will offer products classified under both EN specifications. As you look through the section on disposable masks you will see that we have grouped all FFP1s, 2s & 3s together whatever the brand so that you can see all the options that are available for a particular level of protection in one place.

Filtering Respirators - Limitations on their use

If you are considering the use of a filtering respirator (one that does not have air supplied from an independent source) then there are limitations on their use that should be noted.

WARNING - DO NOT USE any Filtering Respirator

- ▶ In oxygen deficient atmospheres i.e. less than 19.5% by volume at sea level
- ▶ In poorly ventilated areas or in confined spaces
- ▶ In atmospheres where the concentration of Toxic Contaminants is unknown or is Immediately Dangerous to Life or Health (IDLH)
- ▶ For Fire Fighting, Sand Blasting or for protection against Gas or Vapour contaminants with poor warning properties i.e. odour, taste or irritation
- ▶ At concentrations of substance greater than those for which the respirator is marked or permitted by COSHH or other applicable regulations
- ▶ Where chemicals are likely to 'desorb'. In such cases, filters must only be used once then immediately discarded

Filtering Respirators - Maintenance, what the law says

COSHH regulations require that all 'filtering' respirators be thoroughly examined at least **once a month (specifically 28 days)**, if in regular use. For filtering respirators used only occasionally, for short periods, against dusts or fumes of relatively low toxicity, longer intervals between examinations may be suitable, but must **not exceed 3 months**. The result of these examinations must then be noted on the Maintenance Record Card for the individual's mask. These records should be kept for a period of five years.





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European Standards - *an overview*

Half Mask Respirators EN 141, 143 & EN371

EN140 is the European standard that covers the technical specifications for both Half & Quarter masks. A half mask is defined as covering the nose, mouth and chin, and a quarter mask as covering only the nose and mouth. Both types of mask usually have their face pieces manufactured from natural or synthetic based rubber allowing the mask the flexibility to fit the contours of the face.

Half masks can come with a variety of different types of filter conforming to various standards:

EN141 Gas filters to remove specified Gases & Vapours or combined filters for removing solids, and /or liquid particles and specified gases and vapours. Each of the types of filters has three Classes, Class 1, Class 2, & Class 3.

EN143 Covers particle filters and these are classified according to their filtering efficiency. Here again there are three classes of filter P1, P2 & P3. P1 filters are intended for use against solid particles only, P2 and P3 filters are subdivided according to their ability to remove both solid and liquid particles or solid particles only.

EN371 Deals specifically with AX filters. AX filters are designed for use against certain low boiling organic compounds. The filters are classified in only one type and class, AX.

The maximum weight of filters that is allowed under the standards is 300 grams.

Full Face Respirators EN 136, EN141, EN143 & EN371

EN136 is the European standard that covers the technical specifications for Full Face Masks. A full face respirator is defined as covering the eyes, nose, mouth and chin. The masks can be manufactured in natural rubber, EPDM or silicone rubber.

There are three classes of Full Face Masks:

- Class 1** *Light duty and low maintenance*
- Class 2** *General duty, with maintainable parts*
- Class 3** *Heavy duty fire fighters*

Full Face respirators masks can come with a variety of different types of filter conforming to various standards:

EN141 Gas filters to remove specified Gases & Vapours or combined filters for removing solids, and /or liquid particles and specified gases and vapours. Each of the types of filters have three Classes, Class 1, Class 2, & Class 3.

EN143 Covers particle filters and these are classified according to their filtering efficiency. Here again there are three classes of filter P1, P2 & P3. P1 filters are intended for use against solid particles only, P2 and P3 filters are subdivided according to their ability to remove both solid and liquid particles or solid particles only.

EN371 Deals specifically with AX filters. AX filters are designed for use against certain low boiling organic compounds. The filters are classified in only one type and class, AX.

The maximum weight of filters that is allowed under the standards is 500 grams.





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Powered Air Respirators EN 146 (rev) & EN12941

There are two core European Standards covering the operation and technical specifications for Powered Air respirators, these are prEN146 (rev) and EN12941.

In brief, prEN146 (rev) describes (a) the main components that make up the powered respiratory device: a helmet or hood, covering at least the face (eyes, nose, mouth & chin), a power operated fan (turbo unit) and one or more filters, (b) the respirator's operation: the fan should provide a flow of filtered ambient air to the wearer in excess of the wearer's demand, with the exhaled air being discharged outside the respirator by exhalation valves or other outlets and (c) the classifications of respirator: powered respirators are classified into three categories depending on the levels of protection they offer the wearer: THP1, THP2 & THP3. (TH = Turbo Hood or Helmet)

In addition to the requirements set out in prEN146 (rev), EN12941 requires a compulsory low flow warning device to be incorporated within a respirator system; see descriptive text for the Jupiter Turbo unit as an example of this approval.*

** not required for EN12941 TH1 devices*

Airline Fed Respirators EN 270 & EN1835

As with Powered Air there are two core standards covering the technical specifications of Airline fed respirators, these are EN270 and EN1835.

In overview the two standards describe (a) the main components that make up an airline fed respiratory system: a helmet or hood that is not self-contained and covers at least the face (eyes, nose, mouth & chin), and is supplied with breathable quality air from a source of compressed air, (b) the respirator's operation: an adjustable continuous flow valve (regulator) which may be carried by the wearer [and must incorporate a low flow warning device], provides a flow of air to the wearer in excess of the wearer's demand, with the exhaled air being discharged outside the respirator by exhalation valves or other outlets and (c) the classifications of respirator: airline fed respirators classified under EN270 have just one class; under EN1835 there are three classes: LDH1, LDH2 & LDH3 (LHD = Light Duty Hose - the protection afforded by the system as a whole denotes the class)

Additionally the standards also set out the maximum permissible length of airline that should attach the valve (regulator) to the air source, under EN270 this is 30 metres and under EN1835 it is 10 metres.