

Understanding Breathing Air Systems

To understand breathing air, you **MUST** first understand the various types of NIOSH approved respirators available for use in the workplace.



All respirators are classified as either **Negative Pressure** or **Positive Pressure** Respirators.



Negative Pressure Disposable Mask Respirator

The respirator wearer must inhale through the mask - approved for dusts, mists, vapors and fumes.

**Not approved for use in IDLH atmospheres
(Immediately Dangerous to Life or Health)**

Negative Pressure Disposable Cartridge Respirator

This style of respirator has replaceable cartridges or filters and comes in half mask or full face. Powered Air Purifying Respirators (PAPR) are a type of cartridge filtering respirator with a battery powered blower. They are approved for use where a filter cartridge is approved for the contaminant.

Note: Users must be fit tested to assure a proper face seal is achieved.

Not approved for use in IDLH atmospheres



Positive Pressure (Type-C or CE) Airline Respirator - Constant Flow Hood Style

All constant flow respirators supply air continuously to maintain positive pressure inside the face piece or hood.

All airline respirators are classified by NIOSH as Type-C or Type-CE (approved for sandblasting).

Hood Style airline respirators are required by NIOSH to flow 6-15 cfm air flow per person.

Hoods are available in low pressure style for use with ambient air pumps, requiring 3-15 psi.

High pressure hoods, 25-110 psi, would require Grade-D breathing air provided by a Breather Box®.

Note: No fit test is required with a hood style respirator.

Not approved for use in IDLH atmospheres



Positive Pressure (Type-C) Airline Respirator - Constant Flow Style

Positive Pressure respirators are available in half mask or full face and are required by NIOSH to flow 4-15 cfm per mask, and available in low pressure style for ambient air pumps, requiring 3-15 psi. High pressure style, 25-110 psi, would require Grade-D breathing air provided by a Breather Box®. Constant flow respirators provide higher protection factors than air-purifying negative pressure respirators and are not recommended for use with high pressure bottled air systems due to their high air consumption.

Not approved for use in IDLH atmospheres



Positive Pressure (Type-C) Airline Respirator - Pressure Demand Style

Pressure Demand (PD) respirators supply air "on demand" and maintain a minimum positive pressure in the face piece at all times. PD respirators are required by NIOSH to flow 4-15 cfm to the mask like a constant flow style respirator. Pressure demand respirators provide a high protection factor and can be used on high pressure cylinder air or low pressure filtration systems such as a Breather Box®.

All PD respirators operate between 60-110 psi and require the use of Grade-D breathing air provided by a Breather Box® or Grade-E cylinder air.

A PD respirator supplied with a five minute escape cylinder is approved for use in IDLH atmospheres

