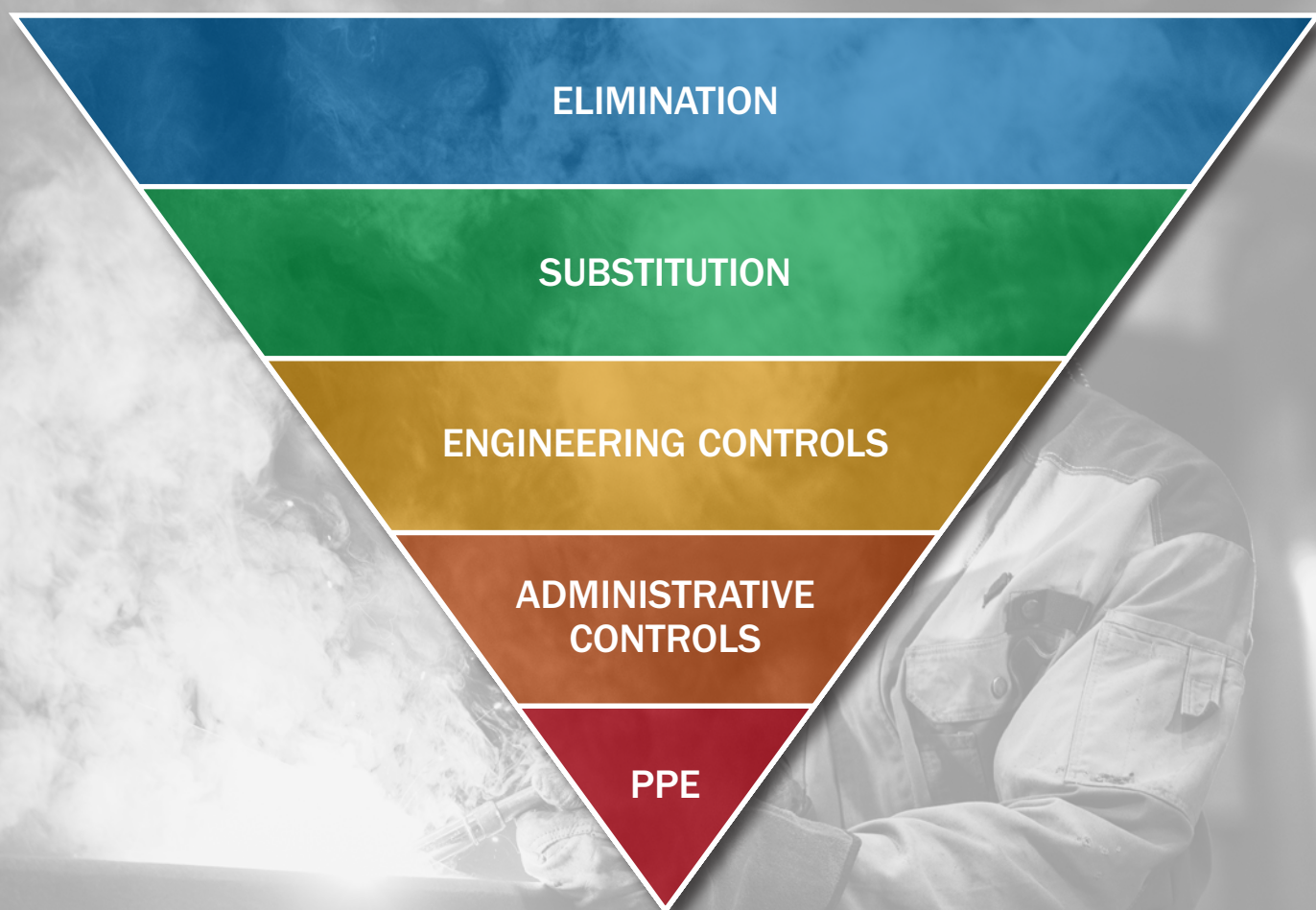




Welding Fume - Engineering Controls Portable Local Exhaust Ventilation Systems

Work Health and Safety (WHS) Regulations

The WHS Regulation requires duty holders to work through the hierarchy of control measures when managing the reduction of exposure to welding fume in the workplace. The hierarchy of control ranks the control measures from the highest level of protection and reliability to the lowest.



While the highest levels of controls (elimination and substitution) within the 'hierarchy of control' give the highest level of protection and reliability in many industries, they are often not practicable or possible when it comes to welding fume.

Even when you can mitigate risk through the higher controls, if there is welding to be done, welding fume will be present.

As a result, we see that in the welding industry, the highest levels of control can often only mitigate the risks associated with welding fume, making the introduction of product controls essential.

Engineering Controls - Local Exhaust Ventilation

The first product controls that we come across when navigating the hierarchy of control are located within the 'engineering controls' category. The most common form of engineering control to minimise exposure to welding fume is Local Exhaust Ventilation (LEV).

LEV can assist in reducing exposure to welding fume and other airborne contaminants, not only for the welder, but also for those who work near welding operations. This is the key difference between LEV and Personal Protective Equipment (PPE). PPE protects the welder, while LEV can protect the welder and reduce the spread of fume throughout the workplace, protecting workers in close proximity to the welders.

There are three main LEV options within the welding industry:

1) Fixed Hooded Capture

A key advantage of fixed systems is that they can deal with a large quantity of welding fume, making them ideal for heavy fume environments. A limitation of these systems is that they do not follow the welder as they move.

Positioning is critical. If the welder moves away from the capture point, these systems are ineffective: they won't offer protection to the welder or control the spread of fume throughout the workplace.

If the welder is too close to the capture point, the extraction flow can affect the shielding gas, leading to porosity and poor weld quality. These systems can be a good control for heavy fume environments, where the welder remains positioned correctly, relative to the capture point.



2) Portable Hooded Capture

Portable systems can be a more economical option when compared to fixed installations and in many situations can offer more flexibility as requirements change over time. They can be carried or rolled around the workplace and positioned where required, and are ideal for situations where the welder moves around the workspace.

However, like fixed installations, once they are positioned, they do not follow the welder as they move.

Portable systems can be a good control for most welding applications, where the welder does not move away from the extraction point.



3) On-Gun Fume Extraction

On-Gun fume extraction is the only product control solution that removes welding fume from the environment and follows the welder as they move (unlike fixed and portable solutions), making it an extremely practical welding fume control solution.

Recent technological advancements have also meant that on-gun torches can now be the same size and weight as normal welding guns and deliver high capture rates (up to 98%), while leaving the shielding gas completely unaffected.



Do you need help controlling welding fume in the workplace?

AWS (Apex Welding Safety) is the sole agent for the 3M™ Speedglas™ range of welding helmets with integrated respiratory protection, the Nederman range of portable fume extraction systems, the Bomaksan range of fixed and portable local exhaust ventilation systems, and the Translas on-gun welding fume extraction range.

As a result, AWS are extremely well placed to help you control welding fume in your workplace, based on your specific environment and local challenges.



ELIMINATION & SUBSTITUTION

- Occupational Hygienists
- Fume Monitoring
- Practical Guidance



ENGINEERING CONTROLS

- On Gun Fume Extraction
- Portable Local Exhaust Ventilation
- Fixed Local Exhaust Ventilation



ADMINISTRATIVE CONTROLS

- Practical Guide to Welding Fume Control
- SPATA: Speedglas Powered Air Training Academy
- Student Powered Air Program



PERSONAL PROTECTIVE EQUIPMENT

- Welding Helmets: Respiratory & Non-Respiratory
- Eye, Face, Head, Hearing, Respiratory Protection
- Hand Protection

Our Extensive Range of Welding Fume Controls



Translas On-Gun Fume Extraction

AWS has teamed up with Translas, Dutch on-gun fume extraction specialist, to launch an industry first: a range of lightweight, manoeuvrable, and ergonomic extraction guns that capture up to 98% of welding fume, while leaving the shielding gas completely unaffected.

In the past, on-gun fume extraction has been too heavy, too bulky, and impacted the shielding gas... Not anymore.

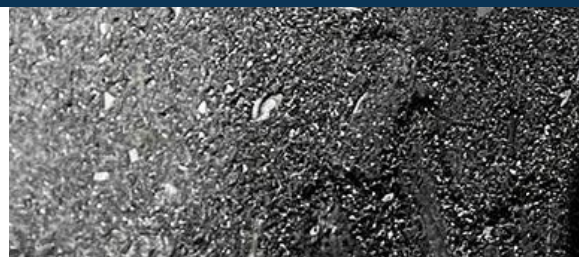
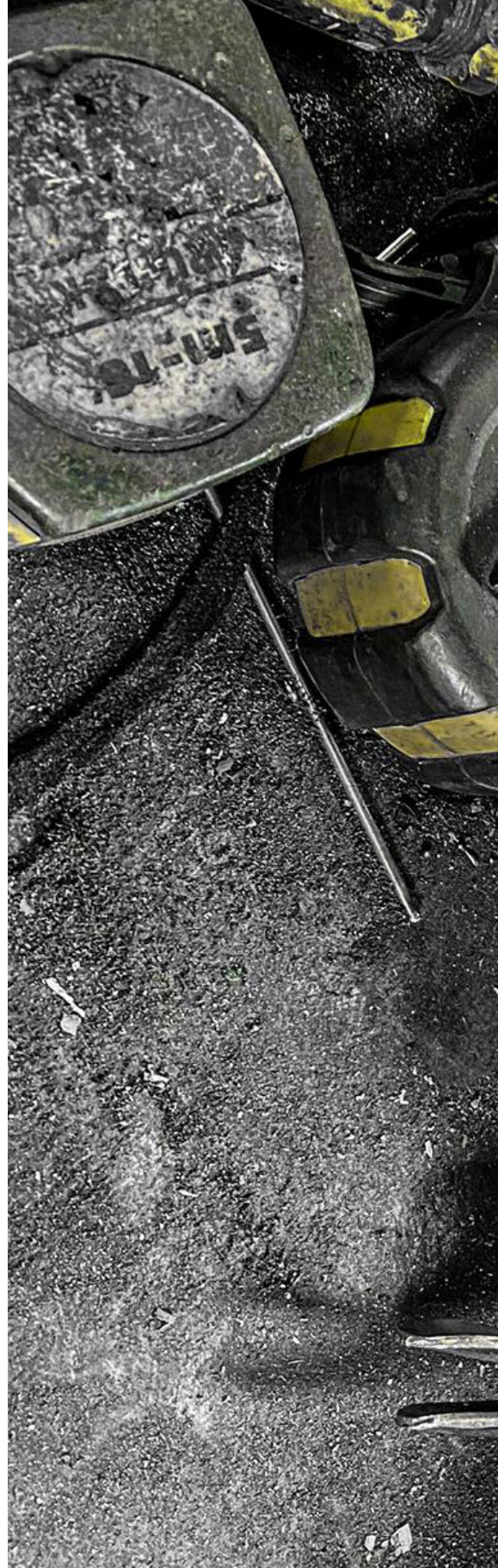
- Up to 98% capture efficiency
- 100% duty cycle
- Leaves shielding gas completely unaffected
- Automatic self-cleaning
- Automatic start and stop
- Available for all amp ranges - 250, 400, 500 guns
- Single and dual systems available
- Ergonomic and super lightweight
- Reduces consumable and PPE costs
- Reduces workplace cleaning costs.

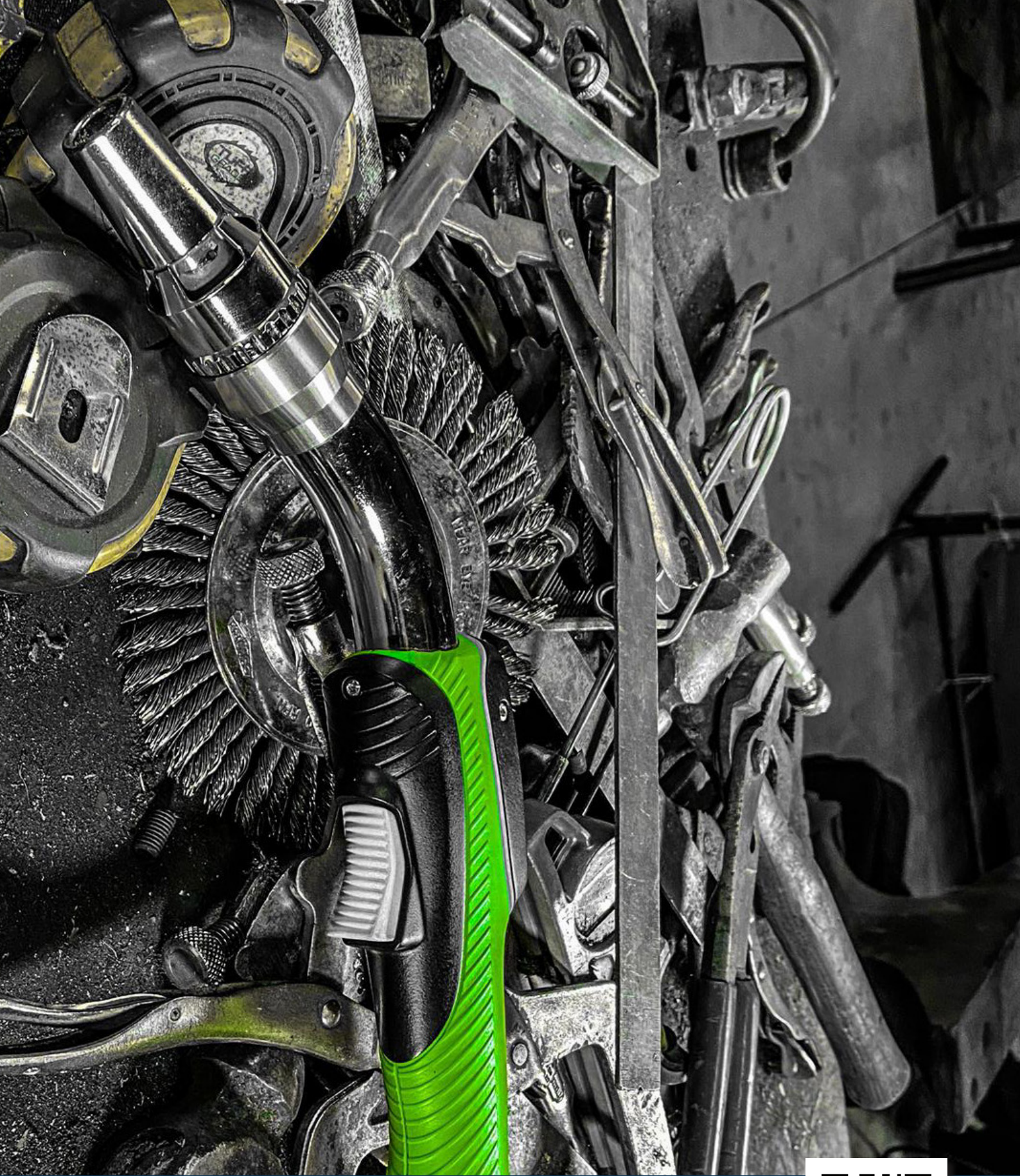


Kits include everything you need to get started with on-gun fume extraction!



Explore one of the safest and most effective welding fume control methods
Learn more about Translas On-Gun Fume Extraction here!





Want to see Translas on-gun fume extraction for yourself?
Watch a side by side comparison (On vs. Off) here!



Portable and Fixed Hooded Capture Fume Extraction

AWS has teamed up with the world's leading brands in Local Exhaust Ventilation – Nederman and Bomaksan – to launch a range of portable LEV systems designed specifically for the welding industry.

This range has been hand-picked to cater for all common welding processes – view the range below:

● YES ● OK ● Not Recommended



Specification	AWS Welding Fume Protection System 150	Bomaksan MINI	AWS Welding Fume Protection System 900	Bomaksan MONO
Wire Suitability	0.9 - 1.0mm wire	0.9 - 1.2mm wire	0.9 - 1.2mm wire	0.9 - 1.2mm wire
Occasional TIG	●	●	●	●
Regular TIG	●	●	●	●
Continuous TIG	●	●	●	●
Occasional MMA	●	●	●	●
Regular MMA	●	●	●	●
Continuous MMA	●	●	●	●
Occasional MIG	●	●	●	●
Regular MIG	●	●	●	●
Continuous MIG	●	●	●	●
Occasional Flux Cored	●	●	●	●
Regular Flux Cored	●	●	●	●
Continuous Flux Cored	●	●	●	●
Number of Nozzles/Arms	1	1	1	1
Length of Arms or Hose (m)	2.5	3	3	3
Filter Efficiency	>99% (E12 Class)	99.97% (H13 HEPA Class)	>99% (E12 Class)	>95% (F9) or 99.99% (H13 HEPA Class) ¹
Filter Type	Disposable	Disposable	Cleanable	Cleanable
Filter Surface (m ²)	5.3	13	12	18 or 10 ¹
Airflow (m ³ /h)	150	900	500 - 900	1200
Number of Filters	1	3	1	1
Fume Tray Volume (l)	N/A	N/A	10	16
Working Hour Counter	No	Yes	No	Yes
Filter Sensor & Indicator	Yes	Yes	No	Yes
Fan Rotation Direction Indicator	No	Yes	No	Yes
Weight (without arm)	16kg	105.5kg	150kg	170kg
Dimensions (H x W x D)	410 x 230 x 830 mm	1100 x 700 x 600 mm	1200 x 665 x 780 mm	1210 x 660 x 805 mm
Power Voltage (V) / Phases	230 / 1	230 / 1	230 / 1	400 / 3
Noise Level (dB(A))	73	72	72	72
Warranty	1 year	2 years	1 year	2 years
Compliance	CE Certified	CE Certified	CE Certified	CE Certified

Powered Air Purifying Respiratory Protection

It is recommended that respiratory PPE is always worn in combination with LEV. In relation to the hierarchy of controls, PPE is often referred to as the last resort. When it comes to welding, suitable PPE must always be worn.

Welding helmets with integrated powered air purifying respirators (PAPR) are the most widely used form of respiratory protection amongst welders in Australia and New Zealand and are mandatory within many businesses.¹

They have a Required Minimum Protection Factor (RMPF) of 50, meaning that they supply breathing air a minimum 50 times cleaner than the welder would otherwise be breathing unprotected and can also protect the welders' eyes and face from radiation and high velocity particles.

3M™ Speedglas™ have just launched many new innovations in welding helmet technology. Organise an on-site demo to see the latest in Powered Air Purifying Technology from 3M Speedglas.



Pictured: 3M™ Speedglas™ G5-01TW Welding Helmet with 3M™ Adflo™ Powered Air Purifying Respirator (PAPR)



Looking for a welding helmet with integrated respiratory protection?
View the Speedglas Powered Air range here!



Want to learn more about respiratory welding helmets with PAPR?
Watch a video on the Speedglas portfolio here!





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References

1. 2020 Welding Fume and Respiratory Protection Survey, AWS

