

NEW PRODUCT LAUNCHED!



 **Speedglas™**  
Welding Safety

# 3M™ Speedglas™ Welding Helmets Respiratory

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# Why 3M™ Speedglas™?

## The #1 brand in welders' PPE

Trust in a brand can't be built overnight. It takes years to become known and even longer to be trusted. In 1981, over 40 years ago, Speedglas™ released the first ever auto-darkening welding helmet and has consistently set the benchmark ever since.

While other products and brands have come and gone, the 3M™ Speedglas™ brand, guided by welders, has continued to drive innovation and lead from the front.

Made in Sweden, Speedglas is the brand of choice for professional welders and remains the world's leading brand of personal protective equipment for welders.

View the range of 3M™ Speedglas™ respiratory welding helmets below.



## 3M™ Speedglas™ Heavy-Duty Flip-Up Welding Helmet G5-01



- Heavy duty flip-up welding helmet with 170 x 104mm grinding visor
- Advanced helmet air duct system for climate control
- Optional task light and Bluetooth® connectivity
- Configurable extra head and neck coverage
- Adflo PAPR supplies at least 50 times cleaner air (RMPF = 50)
- 12 hour Adflo PAPR battery run time with rapid charge
- Choose between G5-01VC lens or G5-01TW lens.

**G5-01VC** Shades 3/5, 8-14





**G5-01TW** Shades 2.5/5, 8-13

### Shade range

G5-01VC: Shades 3/5, 8-14

G5-01TW: Shades 2.5/5, 8-13

### Viewing area

73 x 109mm

### Page Number

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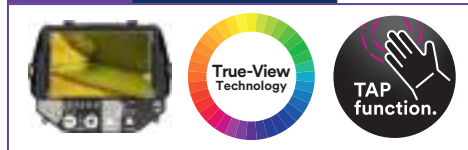
**NEW** 3M™ Speedglas™ Fixed-Front Welding Helmet G5-03 Pro Air

- NEW TAP Technology: Tap to access weld, cut, and grind settings
- Advanced helmet air duct system for climate control
- Shade 5 SideWindows enhance peripheral vision
- Optional task light and Bluetooth® connectivity
- Configurable extra head and neck coverage
- Adflo PAPR supplies at least 50 times cleaner air (RMPF = 50)
- 12 hour Adflo PAPR battery run time with rapid charge
- Choose between G5-03VC, G5-03TW, and G5-03NC lens.

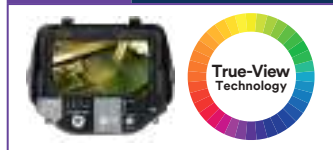
G5-03VC Shades 3/5, 8-14



G5-03TW Shades 2.5/5, 8-13



G5-03NC Shades 3/5, 8-12



Shade range

G5-03VC: Shades 3/5, 8-14
G5-03TW: Shades 2.5/5, 8-13
G5-03NC: Shades 3/5, 8-12

Viewing area

G5-03VC/TW: 73 x 109mm
G5-03NC: 55 x 107mm

Page Number

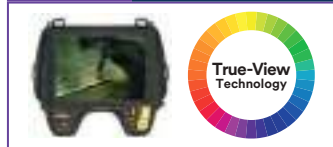
Page 6-7



3M™ Speedglas™ Welding & Safety Helmet 9100 MP Air

- Integrated safety helmet offers fully compliant head protection
- Flip-up welding helmet with 170 x 100mm clear grinding visor
- Shade 5 SideWindows enhance peripheral vision
- Optional earmuff attachment
- Adflo PAPR supplies at least 50 times cleaner air (RMPF = 50)
- 8 or 12 hour Adflo PAPR battery run time with rapid charge.

9100XXI Shades 3/5, 8-13



Shade range

Shades 3/5, 8-13
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Viewing area

73 x 107mm
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Page Number

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3M™ Adflo™ Powered Air Purifying Respirator

The award-winning Adflo is the welder's PAPR of choice.

see page 10-11



Supplied Air Respiratory Protection

Speedglas respiratory welding helmets can also be used with the 3M Versaflo Supplied Air Regulator V-500E.

see page 12-13



Technical Data Information

Compare the 3M™ Speedglas™ Respiratory Welding Helmet Range by technical feature.

see page 14-17

# Take Control

Based on extensive input from welders working at high amperages who need to grind frequently, the 3M™ Speedglas™ Heavy-Duty Welding Helmet G5-01 is created to be adaptable to an individual's needs and situation.

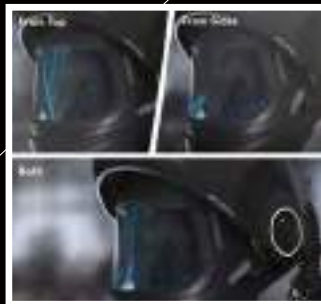
**Flip-Up Grinding Visor**



**Heavy-Duty Protection**



**Climate Control**



**Configurable Coverage**



**Optional Task Light**



**Bluetooth® Connectivity**



3M™ Speedglas™ G5-01 with Heavy-Duty Adflo™ PAPR

# Built for Heavy-Duty Welders



Extra-large 73 x 109mm viewing area with Speedglas™ True-View optics and Auto-On technology.

Configurable extra protection options to suit your specific needs.

Lens reacts down to an industry-leading 1 amp.

Adjust the amount and direction of the airflow inside your helmet with Climate Control.

Bluetooth® connectivity enables control of your welding lens settings directly from your smart phone.

Smooth flip-up function reveals largest ever Speedglas clear grinding visor (170x104 mm).

Removable flip-up component reduces overall helmet weight by 35% for extended non-welding applications.

Compliant with Australian and New Zealand Standard AS/NZS1337.1 for high impact eye and face protection.

Optional helmet-mounted task light provides hours of powerful lighting for work in poorly lit spaces.



## CHOOSE YOUR SPEEDGLAS G5-01 WELDING LENS

### Speedglas G5-01VC Welding Lens (73 x 109mm)

- **Variable Colour Technology**  
Choose between natural, cool, or warm colour tones.
- **Extra Dark Shade 14**  
For high amperage welding (shades 3/5, 8-14).



### Speedglas G5-01TW Welding Lens (73 x 109mm)

- **Ultra Bright Light State 2.5**  
Enhances benefits of True-View (shades 2.5/5, 8-13).
- **Tack Welding Mode (Intermediate Shade 5)**  
Minimises eye strain during dark-light transition.



**Part Number**

617830

617820

**Description**

3M™ Speedglas™ G5-01VC Welding Helmet with Heavy-Duty Adflo™ PAPR

3M™ Speedglas™ G5-01TW Welding Helmet with Heavy-Duty Adflo™ PAPR

**NEW** 3M™ Speedglas™ G5-03 Pro Air Welding Helmet Series

# Built To Adapt

Designed for the professional welder, the 3M™ Speedglas™ Welding Helmet G5-03 Pro Air is highly versatile to ensure you don't have to compromise on function, performance, or safety.

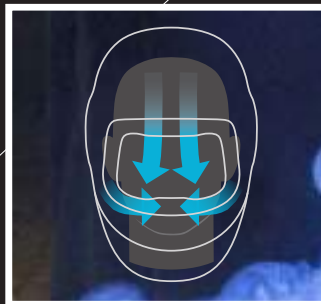
New TAP Technology



Peripheral SideWindows



Climate Control



Configurable Coverage



Optional Task Light



Bluetooth® Connectivity



3M™ Speedglas™ G5-03 Pro Air with Heavy-Duty Adflo™ PAPR

# Upgrade your performance



Extra-large 73 x 109mm viewing area with Speedglas™ True-View optics and Auto-On technology.

SideWindows: Shade 5 windows enhance your peripheral vision to widen your overall field of view.

Adjust the amount and direction of the airflow inside your helmet with Climate Control.

Compliant with Australian and New Zealand Standard AS/NZS1337.1 for high impact eye and face protection.

Configurable head and neck protection to suit your specific needs.



**NEW TAP function** enables easy switching between grind, cut, and weld modes by simply tapping the side of your welding helmet.\*

Lens reacts down to an industry-leading 1 amp.

Bluetooth® connectivity enables control of your welding lens settings directly from your smart phone.\*



Optional helmet-mounted task light provides hours of powerful lighting for work in poorly lit spaces.

\* Not available with G5-03NC

## CHOOSE YOUR SPEEDGLAS G5-03 WELDING LENS

### Speedglas G5-03VC Welding Lens (73 x 109mm)

- **Variable Colour Technology**  
Choose between natural, cool, or warm colour tones.
- **Extra Dark Shade 14**  
For high amperage welding (shades 3/5, 8-14).



### Speedglas G5-03TW Welding Lens (73 x 109mm)

- **Ultra Bright Light State 2.5**  
Enhances benefits of True-View (shades 2.5/5, 8-13).
- **Tack Welding Mode (Intermediate Shade 5)**  
Minimises eye strain during dark-light transition.



### Speedglas G5-03NC Welding Lens (55 x 107mm)

- **Shades 3/5, 8-12**  
Signature Speedglas optical quality.
- **Grind & Cut Mode**  
Shade 3 grind mode and shade 5 cut mode.



#### Part Number

637730  
637720  
637710

#### Description

3M™ Speedglas™ G5-03VC Pro Air Welding Helmet with Heavy-Duty Adflo™ PAPR  
3M™ Speedglas™ G5-03TW Pro Air Welding Helmet with Heavy-Duty Adflo™ PAPR  
3M™ Speedglas™ G5-03NC Pro Air Welding Helmet with Heavy-Duty Adflo™ PAPR

# Multi-Protection

Combining eye, head, face, hearing and respiratory protection, this highly integrated welding and safety helmet will enable you to carry out your welding with absolute comfort and confidence!

Built-In Hard Hat



Flip-Up Grinding Visor



True-View Optics



Award-Winning PAPR



Optional Earmuffs



Available with 12 Hour Heavy-Duty PAPR





# Five levels of welding protection

Compliant with Australian and New Zealand Standard AS/NZS1337.1 for high impact eye and face protection.

Lens reacts down to an industry-leading 1 amp.

Extra-large 73 x 107mm viewing area with Speedglas™ True-View and Auto-On technology.

Smooth flip-up function with curved 170x100 mm clear protective visor, increasing your peripheral vision to 180°.



Safety helmet is made from heat-resistant polycarbonate and conforms to Australian and New Zealand Standard AS/NZS1801 for head protection.



Designed from inception to accept 3M™ Peltor™ H31 Earmuffs (Class 4).

SideWindows: Shade 5 windows enhance your peripheral vision to widen your overall field of view.

An innovative quick-release attachment enables one-handed breathing tube connection and release.

## CHOOSE YOUR SPEEDGLAS 9100 MP AIR POWERED AIR SYSTEM

### 3M Adflo Powered Air Respirator

- **8 Hour Battery**  
Provides 8 hours of continuous respiratory protection against a range of particles, vapours, and gases (with the right filters).
- **Rapid Charge**  
Charges from 0-80% in 1 hour (4.5 hours to full capacity).



### 3M Adflo Heavy-Duty Powered Air Respirator

- **12 Hour Battery**  
Provides 12 hours of continuous respiratory protection against a range of particles, vapours, and gases (with the right filters).
- **Rapid Charge**  
Charges from 0-80% in 1 hour (5.5 hours to full capacity).



**Part Number**  
577726  
577726HD

**Description**  
3M Speedglas Welding Helmet 9100 MP Air with Adflo™ PAPR (8 hour battery)  
3M Speedglas Welding Helmet 9100 MP Air with Heavy-Duty Adflo™ PAPR (12 hour battery)

# Mobile and adaptable respiratory protection

## 3M™ Adflo™ Powered Air Purifying Respirator (PAPR)

As one of the most popular respirators of its kind in the world, the Adflo™ Powered Air Purifying Respirator is designed to provide a constant nominal airflow rate of 170/200 litres per minute, regardless of the battery's charge or the particle loading of the filter.

With its slim profile, the Adflo respirator offers excellent lightweight, adaptable and easy-to-use respiratory protection.

An optional heavy duty backpack designed for welding applications is now available to provide improved comfort and balance.



**NEW**

Part Number	Description
954015HD	Heavy Duty PAPR Backpack

### Industry leading protection

Since its launch, the 3M™ Adflo™ powered air respirator has become synonymous with welders' respiratory protection. The system is designed to meet the specific needs of welders.

### Lightweight with Rapid Charge

The new Li-ion Adflo respirator is over 15% lighter<sup>^</sup> than the older style version with Ni-MH (black) battery. The lightweight battery charges up to 80% capacity in approximately an hour.

### Filtered air to breathe

Constant, clean air flows directly into your breathing zone. Choose between 170 litres per minute or 200 litres per minute (for hot, humid jobs) with the push of a button.

### Adaptable filtration

With the right type of filter, the Adflo powered air respirator effectively protects against a range of gases, vapours and particles.

### You only have one set of lungs

The Adflo respirator complies with Australian and New Zealand Standard AS/NZS 1716 for powered air respirators and offers a Required Minimum Protection Factor (RMPF) of 50 for mechanically and thermally generated particles.

### Heavy Duty Battery

An Adflo PAPR keeps you protected during long shifts. The Speedglas G5-01 & G5-03 Pro Air come standard with the heavy duty Adflo battery, which can offer up to 12 hours continuous protection.

<sup>^</sup> When compared to the previous Adflo PAPR system that featured a nickel metal hydride battery.

# Effective Respiratory Protection for the Welder

Without effective protection, welders are exposed to a known carcinogen - welding fume.

However, by law, it is the employer's responsibility to reduce welding fume exposure to as low as reasonably practicable.

The results of a 2022 scientific study\* have shown that a welding helmet with an integrated powered air purifying respirator can provide the welder with extremely effective respiratory protection.

Based on the results of the study, a Welding Helmet with integrated PAPR was the most effective method in protecting the welder from welding fume.

Technical Data	3M™ Adflo™ Powered Air Respirator
Approvals Respiratory Protection	Conforms to AS/NZS1716
Required Minimum Protection Factor (RMPF) <sup>1)</sup>	50
Airflow Standard Airflow Plus	170 litres/minute 200 litres/minute
Battery: Charging time	Li-ion with rapid charge (0-80% in an hour) <sup>2)</sup> 4.5 hours (standard), 5.5 hours (heavy duty)
<b>Operating hours</b>	<b>8 hours (standard) or 12 hours (heavy duty)</b>
<small>Gas and odour filters are available as an optional extra.            1) For mechanically and thermally generated particles.            2) Standard battery will be 80% charged (6.4 hours run time) in approximately one hour.            Heavy duty battery will be 80% charged (9.6 hours run time) in approximately one hour.</small>	



\* Read more about the study here!

White Paper  
**The Effectiveness of Welding Fume Product Controls: A Scientific Study**  
[www.apexweldingsafety.com.au/welding-safety-white-papers](http://www.apexweldingsafety.com.au/welding-safety-white-papers)



**PLUS:** New Scientific Study reveals PAPR is highly effective in protecting the welder from exposure to toxic ozone!  
**Download the brochure to learn more!**



# Supplied air may be required in restricted spaces

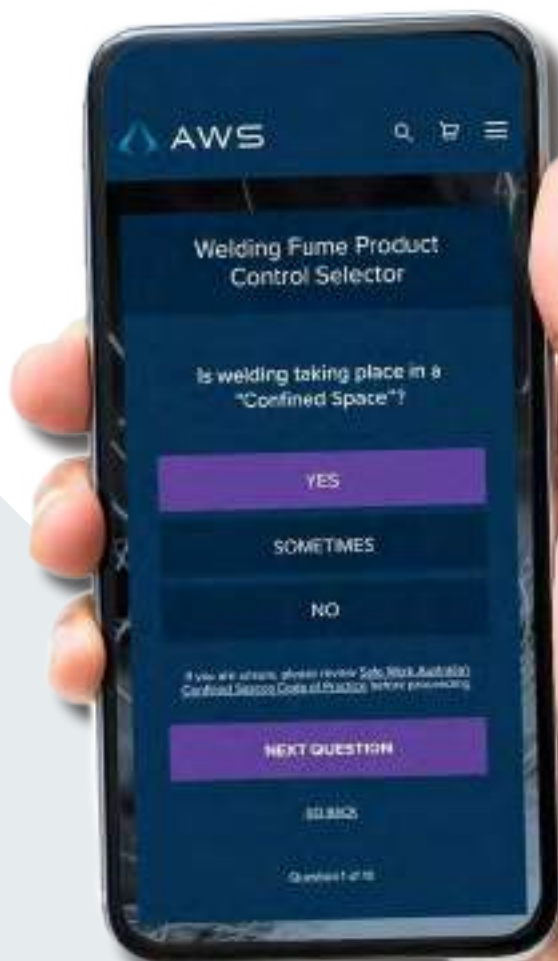
A Welding Helmet with Supplied Air draws air from a compressor via a breathing air filtration system to effectively reduce exposure to welding fume. As such, it can serve as a suitable welding fume product control in restricted spaces.

If welding is taking place in a 'Confined Space', as defined by Safe Work Australia's Confined Spaces Code of Practice, protection against welding fume is only one of the issues that needs to be considered. Confined Spaces are a multifactorial issue, and there should be a suitably trained and knowledgeable person doing the assessment and design of a safe system for any confined space entry.

Powered and supplied air respirators must never be used in atmospheres Immediately Dangerous to Life or Health (IDLH). Consequently, you should always consult your Safety Engineer or Occupational Hygienist.

For further information on the requirements for supplied air systems, please contact AWS at [www.apexweldingsafety.com.au](http://www.apexweldingsafety.com.au)

And if you're looking for further guidance on selecting an effective product control approach for your workplace, use the **Welding Fume Product Control Selector** below!



**NEW**



Scan to use the  
**Welding Fume  
Product Control  
Selector!**

# Light on your belt and heavy on protection

A constant flow of clean, filtered air makes the 3M™ Versaflo™ Supplied Air Regulator V-500E ideal for working in hot and humid conditions when used in combination with the 3M™ Speedglas™ Respiratory Welding Helmet range:

Lightweight belt-mounted regulator (514g).

NEW Quick-Release mechanism smoothly connects to a breathing air filtration system.

Compliant with Australian and New Zealand Standard AS/NZS1716 for respiratory protection.



Adjustable air flow settings of 170/305 litres per minute.

Maximum noise level of 65dB, the equivalent of a typical conversation.

Required Minimum Protection Factor (RMPF) of 100+.



**3M Speedglas Heavy Duty Welding Helmet G5-01 with V-500E supplied air regulator**

Part Number: 618830 (VC) / 618820 (TW)



**3M Speedglas Welding Helmet G5-03 Pro Air with V-500E supplied air regulator**

Part Number: 638830 (VC) / 638820 (TW)



**3M Speedglas Welding & Safety Helmet 9100XXi MP Air with V-500E supplied air regulator**

Part Number: 578826

# 3M™ Speedglas™ Welding Helmets



Specification	3M™ Speedglas™ Welding Helmet G5-01VC  Powered Air: 61 78 30 Supplied Air: 61 88 30	3M™ Speedglas™ Welding Helmet G5-01TW  Powered Air: 61 78 20 Supplied Air: 61 88 20	3M™ Speedglas™ Welding Helmet G5-03VC Pro Air  Powered Air: 63 77 30 Supplied Air: 63 88 30
MMAW (electrode)	✓	✓	✓
MIG/MAG	✓	✓	✓
TIG (>1A)	✓	✓	✓
Plasma (welding and cutting)	✓	✓	✓
Hidden Arc	✓	✓	✓
Tack welding	✓	✓	✓
Grinding (welding lens)	Clear Visor	Clear Visor	TAP Technology (shade 3)
Grinding (clear visor)	170 x 104 mm	170 x 104 mm	No
Viewing area (welding lens)	73 x 109 mm	73 x 109 mm	73 x 109 mm
Battery lifetime	1 500 – 2 000 hours	1 500 – 2 000 hours	1 500 – 2 000 hours
Variable Colour Technology	Yes	No	Yes
Dark state	Shades 5, 8-14	Shades 5, 8-13	Shades 5, 8-14
Light state	Shade 3 (with True-View)	Shade 2.5 (with True-View)	Shade 3 (with True-View)
UV/IR Protection	Shade 14 (permanent)	Shade 13 (permanent)	Shade 14 (permanent)
Switching time, light-dark	0.1 ms (+23° C)	0.1 ms (+23° C)	0.1 ms (+23° C)
Delay (switching time, dark-light)	50-1300 ms	50-1300 ms	50-1300 ms
Two step recovery	Yes (Shade 7)	Yes (Shade 5)	Yes (Shade 7)
SideWindows	No	No	Yes
Memory modes	Yes (via mobile app)	Yes (via mobile app)	Yes (via mobile app)
Climate flow control	Yes	Yes	Yes
Bluetooth® connectivity	Yes	Yes	Yes
Optional task light	Yes	Yes	Yes
Standards Compliance			
Respiratory protection	AS/NZS1716	AS/NZS1716	AS/NZS1716
Eye protection	AS/NZS1338.1	AS/NZS1338.1	AS/NZS1338.1
Face protection	AS/NZS1337.1	AS/NZS1337.1	AS/NZS1337.1
Head protection			
Optional hearing protection			
Required Minimum Protection Factor (RMPF) <sup>1)</sup>			
Powered Air - Adflo	50	50	50
Supplied Air - V-500E	100+	100+	100+

1) For mechanically and thermally generated particles



3M™ Speedglas™ Welding Helmet G5-03TW Pro Air Powered Air: 63 77 20 Supplied Air: 63 88 20	3M™ Speedglas™ Welding Helmet G5-03NC Pro Air Powered Air: 63 77 10	3M™ Speedglas™ Welding & Safety Helmet 9100XXi MP Air Powered Air: 57 77 26 / 57 77 26 HD Supplied Air: 57 88 26
✓	✓	✓
✓	✓	✓
✓	✓	✓
✓	✓	✓
✓	✓	✓
✓	✓	✓
✓	✓	✓
TAP Technology (shade 2.5)	Yes (shade 3)	Clear Visor
No	No	170 x 100 mm
73 x 109 mm	55 x 107 mm	73 x 107 mm
1 500 – 2 000 hours	2 500 hours	1 800 hours
No	No	No
Shades 5, 8-13	Shades 5, 8-12	Shades 5, 8-13
Shade 2.5 (with True-View)	Shade 3 (with True-View)	Shade 3 (with True-View)
Shade 13 (permanent)	Shade 12 (permanent)	Shade 13 (permanent)
0.1 ms (+23° C)	0.1 ms (+23° C)	0.1 ms (+23° C)
50-1300 ms	50-470 ms	40-800 ms
Yes (Shade 5)	No	No
Yes	Yes	Yes
Yes (via mobile app)	No	No
Yes	Yes	No
Yes	No	No
Yes	Yes	No
AS/NZS1716 AS/NZS1338.1 AS/NZS1337.1	AS/NZS1716 AS/NZS1338.1 AS/NZS1337.1	AS/NZS1716 AS/NZS1338.1 AS/NZS1337.1 AS/NZS1801 AS/NZS1270
50 100+	50	50 100+

## Welding Helmet Selector Tool

If you're still unsure about which helmet best suits your needs, try our Welding Helmet Selector Tool or contact AWS!






















[www.apexweldingsafety.com.au/welding-helmet-selector](http://www.apexweldingsafety.com.au/welding-helmet-selector)



## A practical guide to respiratory protection based on material, process, and environment.

- P = Powered air purifying respirator.  
P+A = Powered air purifying respirator with a A1 gas filter installed.  
P+ODOUR = Powered air purifying respirator with an odour filter installed.  
S = Supplied air via regulator and filtration unit.

Material to be welded	Welding method	Ventilation conditions of your working environment		
		Environment with good ventilation /extraction.	Environment with limited ventilation /extraction -----> increasing exposure.	Restricted space* <small>Note: this respiratory protection solution may not be suitable for Confined Spaces as defined in AS2865.</small>
Aluminium	GMAW 	<span style="border: 1px solid black; padding: 2px;">P</span>	<span style="border: 1px solid black; padding: 2px;">P</span> or <span style="border: 1px solid black; padding: 2px;">P+A</span>	<span style="border: 1px solid black; padding: 2px;">S</span>
	TIG 	<span style="border: 1px solid black; padding: 2px;">P</span>	<span style="border: 1px solid black; padding: 2px;">P</span> or <span style="border: 1px solid black; padding: 2px;">P+A</span>	<span style="border: 1px solid black; padding: 2px;">S</span>
	PLASMA (cutting and gouging) 	<span style="border: 1px solid black; padding: 2px;">P</span>	<span style="border: 1px solid black; padding: 2px;">P</span> or <span style="border: 1px solid black; padding: 2px;">P+A</span>	<span style="border: 1px solid black; padding: 2px;">S</span>
Stainless steel	GMAW/FCAW/SAW 	<span style="border: 1px solid black; padding: 2px;">P</span>	<span style="border: 1px solid black; padding: 2px;">P</span> or <span style="border: 1px solid black; padding: 2px;">P+A</span>	<span style="border: 1px solid black; padding: 2px;">S</span>
	TIG 	<span style="border: 1px solid black; padding: 2px;">P</span>	<span style="border: 1px solid black; padding: 2px;">P</span> or <span style="border: 1px solid black; padding: 2px;">P+A</span>	<span style="border: 1px solid black; padding: 2px;">S</span>
	MMA (stick) 	<span style="border: 1px solid black; padding: 2px;">P</span>	<span style="border: 1px solid black; padding: 2px;">P</span> or <span style="border: 1px solid black; padding: 2px;">P+A</span>	<span style="border: 1px solid black; padding: 2px;">S</span>
	PLASMA (cutting and gouging) 	<span style="border: 1px solid black; padding: 2px;">P</span>	<span style="border: 1px solid black; padding: 2px;">P+A</span> or <span style="border: 1px solid black; padding: 2px;">S</span>	<span style="border: 1px solid black; padding: 2px;">S</span>
Steel not coated or painted	GMAW/FCAW/SAW 	<span style="border: 1px solid black; padding: 2px;">P</span>	<span style="border: 1px solid black; padding: 2px;">P</span>	<span style="border: 1px solid black; padding: 2px;">S</span>
	MMA (stick) 	<span style="border: 1px solid black; padding: 2px;">P</span>	<span style="border: 1px solid black; padding: 2px;">P</span>	<span style="border: 1px solid black; padding: 2px;">S</span>
	PLASMA (cutting and gouging) 	<span style="border: 1px solid black; padding: 2px;">P</span>	<span style="border: 1px solid black; padding: 2px;">P</span> or <span style="border: 1px solid black; padding: 2px;">S</span>	<span style="border: 1px solid black; padding: 2px;">S</span>
Steel (lead based paints / oil and grease present)	GMAW/FCAW/SAW 	<span style="border: 1px solid black; padding: 2px;">P</span>	<span style="border: 1px solid black; padding: 2px;">P</span> or <span style="border: 1px solid black; padding: 2px;">P+ODOUR</span>	<span style="border: 1px solid black; padding: 2px;">S</span>
	MMA (stick) 	<span style="border: 1px solid black; padding: 2px;">P</span>	<span style="border: 1px solid black; padding: 2px;">P</span> or <span style="border: 1px solid black; padding: 2px;">P+ODOUR</span>	<span style="border: 1px solid black; padding: 2px;">S</span>
	PLASMA (cutting and gouging) 	<span style="border: 1px solid black; padding: 2px;">P</span>	<span style="border: 1px solid black; padding: 2px;">P</span> or <span style="border: 1px solid black; padding: 2px;">S</span>	<span style="border: 1px solid black; padding: 2px;">S</span>
Steel galvanised	GMAW/FCAW/SAW 	<span style="border: 1px solid black; padding: 2px;">P</span>	<span style="border: 1px solid black; padding: 2px;">P</span> or <span style="border: 1px solid black; padding: 2px;">P+ODOUR</span>	<span style="border: 1px solid black; padding: 2px;">S</span>
	MMA (stick) 	<span style="border: 1px solid black; padding: 2px;">P</span>	<span style="border: 1px solid black; padding: 2px;">P</span> or <span style="border: 1px solid black; padding: 2px;">P+ODOUR</span>	<span style="border: 1px solid black; padding: 2px;">S</span>
	PLASMA (cutting and gouging) 	<span style="border: 1px solid black; padding: 2px;">P</span>	<span style="border: 1px solid black; padding: 2px;">P</span> or <span style="border: 1px solid black; padding: 2px;">S</span>	<span style="border: 1px solid black; padding: 2px;">S</span>
Steel coated with 2-component paints or insulated with 2-part polyurethanes (risk of isocyanates)	GMAW/FCAW/SAW 	<span style="border: 1px solid black; padding: 2px;">P</span>	<span style="border: 1px solid black; padding: 2px;">P+A</span> or <span style="border: 1px solid black; padding: 2px;">S</span>	<span style="border: 1px solid black; padding: 2px;">S</span>
	MMA (stick) 	<span style="border: 1px solid black; padding: 2px;">P</span>	<span style="border: 1px solid black; padding: 2px;">P+A</span> or <span style="border: 1px solid black; padding: 2px;">S</span>	<span style="border: 1px solid black; padding: 2px;">S</span>
	PLASMA (cutting and gouging) 	<span style="border: 1px solid black; padding: 2px;">P</span>	<span style="border: 1px solid black; padding: 2px;">P+A</span> or <span style="border: 1px solid black; padding: 2px;">S</span>	<span style="border: 1px solid black; padding: 2px;">S</span>

This chart has only been provided as an example and is provided as a basic guideline. It should not be used as the only means of selecting a respirator. Powered and supplied air respirators must never be used in atmospheres Immediately Dangerous to Life or Health (IDLH) without emergency breathing device capability (AS/NZS1715). Always consult your Safety Engineer or Occupational Hygienist.

\*A 'restricted space' for the purposes of this document refers to a situation where 1) local exhaust ventilation (LEV) fume extraction is not possible due to a limitation of space, 2) general plant air (dilution) can not effectively reach the welder and 3) the space is not a confined space as defined by AS2865.

# Respiratory filter guide

Code	Type of filter
E	Acid gases.
A	Organic gases, boiling point >65 °C.
AX	Organic gases, boiling point <65 °C.
P	Particle filter.
B	Inorganic gases.

## Remarks

H = The chemical can be absorbed through the skin.

K = The chemical can be cancer-inducing.

S = The chemical can be a sensitiser.

- Argon and helium are inert gases which are not generally absorbed by canister type filters. These gases are not in themselves hazardous but can displace oxygen from the air when present in confined spaces.
- An A1 filter is recommended for applications where ozone exposure needs to be reduced. For more information on ozone, read the latest Ozone Study via the QR code below.
- Chemical constituents of a welding fume with very low Occupational Exposure Limits can pose special hazards and are sometimes best protected against by using a Supplied Air Regulator System. Always ask an appropriately qualified safety professional, such as an Occupational Hygienist for respiratory protection advice if you are unsure.

Scan below to read our Ozone Study & other Welding Safety White Papers!



Suggested Filter Type				
Chemical			Supplied Air	
Aluminium	P			
Argon			Supplied Air	1
Beryllium	P		Supplied Air	K, S 3
Bromine		B		
Cadmium	P			K
Carbon Dioxide			Supplied Air	
Carbon Monoxide			Supplied Air	
Chlorine		B		H
Chlorine Dioxide		B		
Chromium Hexavalent	P			K
Chromium Trivalent	P			
Copper	P			
Fluorides	P			
Fluorine			Supplied Air	
Helium			Supplied Air	1
Isocyanates			Supplied Air	S
Hydrogen Chloride		B	Supplied Air	3
Hydrogen Cyanide		B	Supplied Air	H3
Hydrogen Fluoride		B	Supplied Air	3
Hydrogen Sulphide		B		
Iron Oxide	P			
Lead	P			
Magnesium	P			
Manganese	P			
Nickel	P			K, S
Nitrogen Dioxide			Supplied Air	
Nitric Oxide			Supplied Air	
Ozone	P	A		2
Phosgene			Supplied Air	3
Phosphine			Supplied Air	
Silicon Dioxide	P			
Sulphur Dioxide		E		
Trichloroethylene		A		K
Vanadium Oxide	P			
White Spirit		A		
Zinc	P			
Zinc Chloride	P			
Zinc Oxide	P			

# Bringing it All Together: Practical Guidance

Based on the conclusions of the 2022 welding fume product control study\*, the following product control guidance is offered to reduce welding fume exposure to as low as reasonably practicable when welding using the most common materials (aluminium, steel, stainless steel, galvanised steel etc.) in environments with good ventilation^.

This guidance assumes that all efforts to mitigate risk associated with welding fume through elimination, substitution, and isolation controls have been carried out.

^All guidance is provided to give an example of how to control welding fume and is provided as a basic guideline only. It should not be used as the only means of selecting a respirator or control method. It's always recommended to have a welding fume product control expert visit your premises as onsite variables can impact product control effectiveness (e.g. weld position, and environmental factors).

## Protecting only the welder from welding fume^:

Please be aware that it is an employer's legal responsibility to reduce welding fume exposure to as low as reasonably practicable for all persons, not just the welder. This guidance is only applicable to situations where there are no other people sharing the environment with the welder/s.



Introduce Welding Helmets with integrated Powered Air Purifying Respirators (PAPR).



Ensure staff are trained in the proper use and maintenance of the PAPR.



Remove surface coatings and look to mitigate risk by using a welding technique that produces less fume or introduce less hazardous materials where possible.



Welders should position themselves to ensure they keep their heads away from the plume where possible and take advantage of any ventilation available.



\* Read more about the study here!

White Paper  
**The Effectiveness of Welding Fume Product Controls: A Scientific Study**  
[www.apexweldingsafety.com.au/welding-safety-white-papers](http://www.apexweldingsafety.com.au/welding-safety-white-papers)



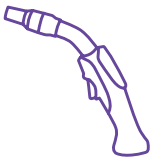
## Protecting the welder and surrounding workers from welding fume<sup>^</sup>:



Introduce a dedicated area for welding away from other workers and restrict access to this area where possible.



Introduce Local Exhaust Ventilation in combination with a Welding Helmet with an integrated Powered Air Purifying Respirator to protect the welder and control the spread of welding fume throughout the environment. If suitable for the application, on-gun fume extraction is an extremely effective and practical engineering LEV welding fume control.



Have staff trained in the proper use and maintenance of the PAPR and LEV system.

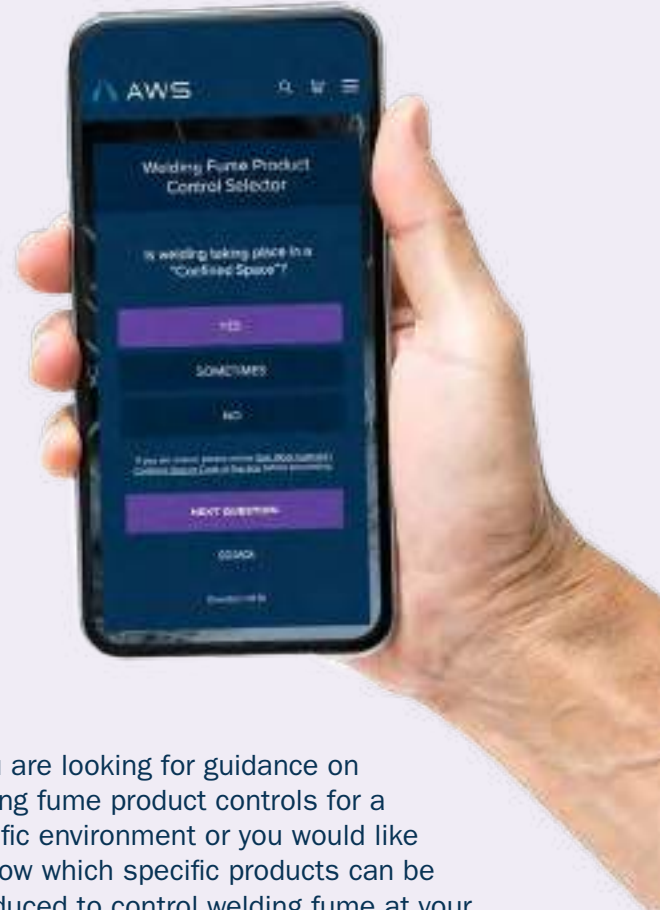


Remove surface coatings and look to mitigate risk by using a welding technique that produces less fume or introduce less hazardous materials where possible.



Welders should position themselves to ensure they keep their heads away from the plume where possible.

## WELDING FUME PRODUCT CONTROL SELECTOR



If you are looking for guidance on welding fume product controls for a specific environment or you would like to know which specific products can be introduced to control welding fume at your workplace – please try the Welding Fume Product Control Selector using the QR code or website link below.

The solutions generated in this selector are based on the results of the Australian independent scientific study that was conducted in 2022 to compare the effectiveness of welding fume product controls.



Scan to use the  
Welding Fume  
Product Control  
Selector!

## About AWS

AWS was established in 1994 and has played a key role in the welding industry ever since.

As an advocate for welders' safety in Australia and New Zealand, AWS has published numerous Welding Safety White Papers, Welding Industry Reports, and Welding Fume Control Frameworks. AWS is a company that specialises in welding safety equipment, and it is our goal to raise awareness on the important issues that welders face.

As the sole agent for the 3M™ Speedglas™ range of welding helmets with integrated respiratory protection, the Plymovent, Bomaksan, and Nederman range of portable local exhaust ventilation fume protection systems, the Translas on-gun welding fume extraction range, the range of Guide welding gloves, and a 3M personal protective equipment wholesaler, AWS are extremely well placed to help businesses understand the different types of product controls that can be introduced into the workplace to better protect welders and those who work in close proximity to welders.

For more information on welding fume monitoring, welding PPE, or welding fume LEV extraction options, please contact AWS.

[www.apexweldingsafety.com.au/welding-safety-white-papers](http://www.apexweldingsafety.com.au/welding-safety-white-papers)



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