3M Science. Applied to Life.™

We've forever changed the way welders see

3M™ Speedglas™ Welding Helmet Series 9100XXi

Speedglas™

3M™ Speedglas™ Welding Helmet Series 9100XXi

"Step up to Speedglas"

High-performing people need high-performing products

The Speedglas™ Welding Helmet Series 9100XXi includes six welding helmet models offering many options including flip-up welding shields, safety helmets and respiratory systems. If you haven't experienced these innovations in welding protection, call AWS on +61 (0) 2 9439 0111 or visit **www.awsi.com.au** to book a free hands-on demonstration with your local Speedglas specialist.

- Largest viewing area available with peripheral SideWindows*
- True-View technology for colour and contrast
- Market leading optical quality with Auto-On
- Shades 3/5, 8, 9-13 and multiple modes for all welding applications
- Industry leading arc detection down to 1 amp
- Made in Sweden with superior comfort, balance and stability.

*The Speedglas Welding Lens 9100XXi combined with the peripheral Speedglas SideWindows gives the largest viewing area amongst auto-darkening welding helmets available at the time of printing.

True-View Technology

Still seeing green?

Imagine what more realistic-looking colours and details could do for you:

- Provide better control of your weld puddle – with a view that appears lighter, brighter, and more realistic.
- Help you focus on your welding set-up, welding technique and inspection of just-completed welds.
- Give you a clearer view of coloured welding machine controls – even with your helmet in the safe, down position.

Literally see the difference!

Sample competitor lens in shade 3

9100XXi and 9002NC lens in shade 3

The view seems lighter and less green – I can see colours far better! Even in the dark state, I see contours better.

Veteran Welder

Set-and-Forget

The 9100XXi features external controls – enabling convenient, 'gloves-on' movement between grinding and two customised welding settings with the press of a button. For example, you can switch between low-amp TIG, high-amp MIG and grinding settings with the touch of a convenient external button.

Increased vision

Peripheral SideWindows offer a wider view, allowing you to see previously hidden peripheral hazards. Combine this with True-View optical clarity and you have a more complete view of your weld pool, set-up and surrounding environment.

Versatility at your fingertips

Weld, Cut, Grind, Hidden Arc, Outdoor, Passive and Tack - all with the highest possible optical classification.

Toowoomba Welding Supplies

3M™ Speedglas™ Welding Helmet 9100XXi

High-performance and comfort

True-View Technology

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

SideWindows: Shade 5 windows widen your field of vision to give you the largest viewing area on the market.[1)]

Heat reflecting silver front with an external button for grind and welding memory settings.

Extended-length, flame-resistant head, neck and ear protection available as accessories.

High comfort head harness with two crown straps for optimum balance.

Speedglas™ Welding Lens 9100XXi with True-View for crisp colour and contrast.

Lens reacts down to an industry-leading 1 amp.

Auto-On and equipped with the all-important centre sensor for TIG welding.

Increased coverage for ears and neck.

Magnifying lens holder: allows for precise lens placement.

Exhaust vents: direct your exhaled air downward to prevent fogging of your welding lens.

A class of its own

Protecting your eyes and face from radiation, heat and sparks – while providing a precise view of your work – makes your Speedglas welding helmet 9100 one of your most important welding tools.

With True-View optics, Auto-On plus grinding and memory modes, experience the 9100XXi difference!

Part No	Description
50 18 26	3M Speedglas Welding Helmet 9100XXi.

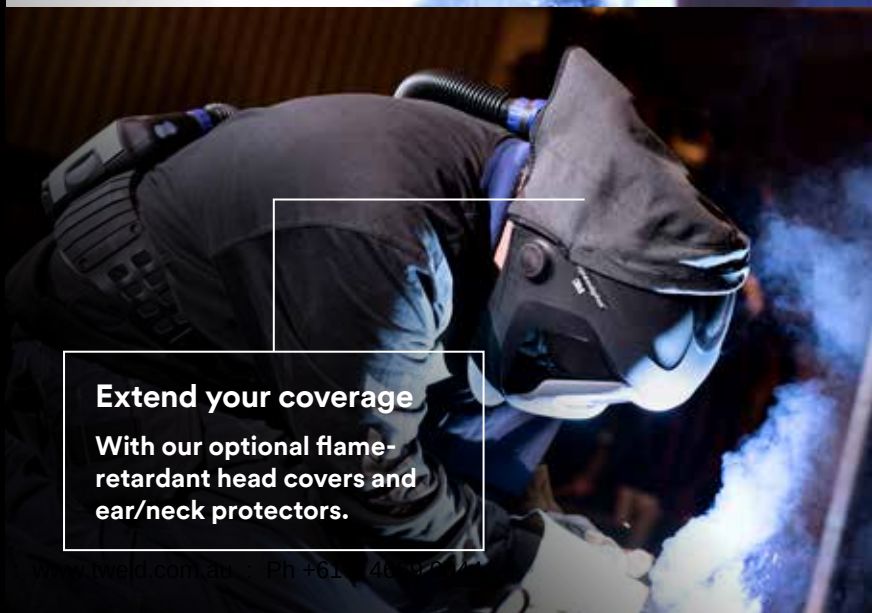
1) The Speedglas Welding Lens 9100XXi combined with the peripheral Speedglas SideWindows gives the largest viewing area amongst auto-darkening welding helmets available at the time of printing.

Seamless switching

Easily switch between grind mode and two preset welding memory modes with the push of an external button and no need to break your positive pressure respiratory protection seal.

Protection you can count on

Choose from powered or supplied air breathing options - whatever suits you best. Our highly adaptable systems offer excellent protection against a wide range of particulates, gases and vapours.



Extend your coverage

With our optional flame-retardant head covers and ear/neck protectors.

3M™ Speedglas™ Welding Helmet 9100XXi Air

Clean, comfortable protection

True-View Technology

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

Speedglas™ Welding Lens 9100XXi with Auto-On and True-View for crisp colour and contrast.

Heat reflecting silver front with an external button for grind and welding memory settings.

The all-new face seal follows the contours of both the helmet and your face.

The air duct is an integral part of the helmet, providing a refreshing flow of air across the entire breathing zone of the helmet.

High comfort head harness with two crown straps for optimum balance.

SideWindows: Shade 5 windows widen your field of vision to give you the largest viewing area on the market.[1)]

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

Middle airflow channel to keep your welding lens fog free.

Two side channels deliver a smooth flow of fresh air directly to the breathing zone.

Revolutionary airflow

Experience all of the benefits of the Speedglas 9100XXi helmet in combination with either the 3M™ Adflo™ powered air respirator or 3M™ Versaflo™ supplied air regulator V-500E.

Part No	Description
50 77 26	3M Speedglas Welding Helmet 9100XXi Air with Adflo™ powered air respirator.
507726HD	3M Speedglas Welding Helmet 9100XXi Air with Heavy Duty Adflo powered air respirator.
50 88 26	3M Speedglas Welding Helmet 9100XXi Air with V-500E supplied air regulator.

1) The Speedglas Welding Lens 9100XXi combined with the peripheral Speedglas SideWindows gives the largest viewing area amongst auto-darkening welding helmets available at the time of printing.

Well-balanced design

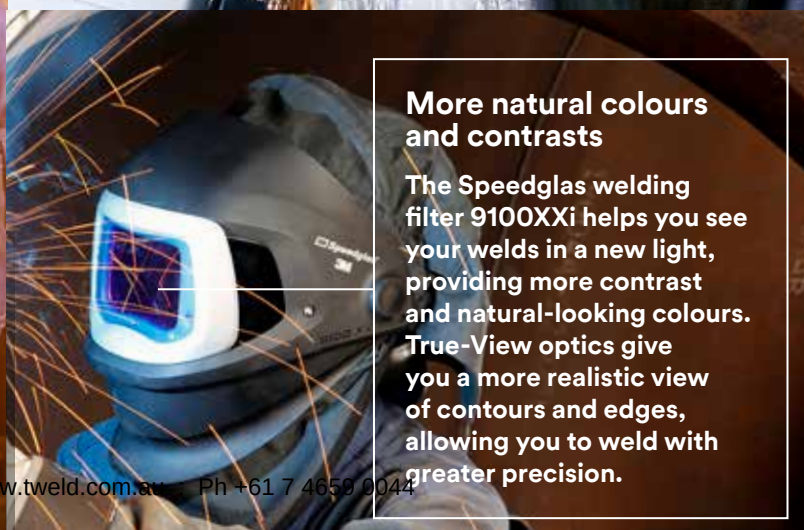
The 9100 FX is balanced in both ergonomics and functionality. A welding helmet and grinding visor that sits perfectly balanced for all-day wear.

Continuous protection

Easy switching between welding and grinding means there is no need to remove your helmet - you're always protected.

Expand your view

A quick lift of the front cover and you get a big, 170×100 mm, clear view – perfect for precision grinding, even in low light conditions.



More natural colours and contrasts

The Speedglas welding filter 9100XXi helps you see your welds in a new light, providing more contrast and natural-looking colours. True-View optics give you a more realistic view of contours and edges, allowing you to weld with greater precision.

Toowoomba Welding Supplies : www.tweld.com.au : Ph +61 7 4659 0044

3M™ Speedglas™ Welding Helmet 9100XXi FX

Flip up to grind with a large clear view

True-View Technology

Speedglas™ Welding Lens 9100XXi with Auto-On and True-View for crisp colour and contrast.

High comfort head harness with two crown straps for optimum balance.

Smooth flip-up function with curved 170×100 mm clear grinding visor.

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.

The entire helmet can also be locked in the perfectly balanced, up, parked position.

SideWindows: Shade 5 windows widen your field of vision to give you the largest viewing area on the market.[1)]

Exhaust vents to assist in removing exhaled air.

Additional spark and spatter resistant head, neck and ear covers are available as accessories.

The perfect combination

A flip-up combination of an auto-darkening welding helmet and clear protective visor gives you a perfectly balanced and highly functional helmet for comfortable, all-day use.

Seamlessly switch between welding and grinding!

Part No	Description
54 18 26	3M Speedglas Welding Helmet 9100XXi FX.

1) The Speedglas Welding Lens 9100XXi combined with the peripheral Speedglas SideWindows gives the largest viewing area amongst auto-darkening welding helmets available at the time of printing.

3M™ Speedglas™ Welding Helmet 9100XXi FX Air

Comfortable all shift long

Versatile protection and long-lasting comfort. The 9100 FX Air helmet easily connects to either our powered or supplied air respirators.

Stay protected

A face seal which shapes to your face maintains a positive pressure seal, meaning you breathe in only fresh, filtered air.

Effortless grinding

A large flip-up 170 ×100 mm clear grinding visor gives you an increased viewing area for improved accuracy and inspection of just completed welds. The flip-up function also allows you to keep your respiratory protection in place at all times - meaning you stay protected, no matter the application.

See your welds in a new light

The True-View lens allows you to see your welds and set-up in more colour and detail.

Toowoomba Welding Supplies : www.tweld.com.au : Ph +61 7 4659 0044

3M™ Speedglas™ Welding Helmet 9100XXi FX Air

Flip-up welding helmet with respiratory protection

Speedglas™ Welding Lens 9100XXi with Auto-On and True-View for crisp colour and contrast.

High comfort head harness with two crown straps for optimum balance.

Smooth flip-up function with curved 170 × 100 mm clear grinding visor.

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.

The breathing tube is attached to the head harness instead of the helmet for improved comfort and balance.

SideWindows: Shade 5 windows widen your field of vision to give you the largest viewing area on the market.[1)]

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

Air is supplied directly to the breathing zone, for a higher level of protection.

A diffuser evenly distributes the air flow for maximum user comfort.

Respiratory protection - your way

Choose between the 3M™ Adflo™ powered air respirator or the 3M™ Versaflo™ supplied air regulator V-500E - both of which are compatible with the Speedglas 9100 FX Air.

Part No	Description
54 77 26	3M Speedglas Welding Helmet 9100XXi FX Air with Adflo™ powered air respirator.
547726HD	3M Speedglas Welding Helmet 9100XXi FX Air with Heavy Duty Adflo powered air respirator.
54 88 26	3M Speedglas Welding Helmet 9100XXi FX Air with V-500E supplied air regulator.

1) The Speedglas Welding Lens 9100XXi combined with the peripheral Speedglas SideWindows gives the largest viewing area amongst auto-darkening welding helmets available at the time of printing.

See more of your work

Peripheral SideWindows give you shade 5 viewing with conventional shade 13 UV/IR protection.

Your hearing matters

Safety helmet is designed for use with 3M Peltor Class 5 earmuffs - giving you constant, high-level hearing protection.

Adaptable head protection

A Quick-Release rail allows you to easily attach or remove your 9100 QR welding helmet, while keeping your safety helmet on.

Toowoomba Welding Supplies : www.tweld.com.au : Ph +61 7 4659 0044

3M™ Speedglas™ Welding Helmet 9100XXi QR

Quick-Release welding and safety helmet

True-View Technology

Even with a gloved hand, you can easily attach or remove the 3M™ Speedglas™ Welding Helmet 9100 QR.

The Quick Release Rail allows you to attach the Speedglas auto-darkening welding helmet 9100 QR to most types of safety helmets.

Designed from inception to accommodate 3M™ Peltor™ Earmuffs (Class 5).

Lens reacts down to an industry-leading 1 amp.

Speedglas™ Welding Lens 9100XXi with Auto-On and True-View for crisp colour and contrast.

SideWindows: Shade 5 windows widen your field of vision to give you the largest viewing area on the market.[1)]

Exhaled air is channeled out via side exhaust vents.

Simply squeeze to attach or remove your welding helmet - even with gloved hands.

Flexibility is key

Attach or remove your welding helmet as you need it - or keep it raised in the parked position in between use. The parked position creates a low centre of gravity, maintains a low profile and reduces the load on the neck.

Combined with the Speedglas 9100XXi welding lens, you get flexible, world-class welding protection.

Part No	Description
50 36 26	3M Speedglas Welding Helmet 9100XXi QR.

1) The Speedglas Welding Lens 9100XXi combined with the peripheral Speedglas SideWindows gives the largest viewing area amongst auto-darkening welding helmets available at the time of printing.

Weld with confidence

Head, eye, face, hearing and respiratory – we've seamlessly integrated five levels of welder protection into one easy-to-use system.

See more of your work

A large (170×100 mm) curved protective visor with excellent views up, down, and side-to-side.

Extend coverage

All-new shroud covers the welder's neck and shoulders, as well as the upper chest and back.

Flexible protection

Available with powered or supplied air respiratory protection.

Toowoomba Welding Supplies : www.[illegible]ld.com.au : Ph +61 7 4659 0044

3M™ Speedglas™ Welding Helmet 9100XXi MP Air

Multiple levels of protection

True-View Technology

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.

Speedglas™ Welding Lens 9100XXi with Auto-On and True-View for crisp colour and contrast.

Smooth flip-up function with curved 170×100 mm clear protective visor, increasing your peripheral vision to 170°.

The 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 widen your field of vision to give you the largest viewing area on the market.[1)]

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

5 levels of welding protection

Combined eye, head, face, hearing and respiratory protection. This highly integrated, comfortable welding and safety helmet 9100 MP can be used with the 3M™ Adflo™ powered air respirator or the 3M™ Versaflo™ supplied air regulator V-500E.

Part No	Description
57 77 26	3M Speedglas Welding Helmet 9100XXi MP Air with Adflo™ powered air respirator.
577726HD	3M Speedglas Welding Helmet 9100XXi MP Air with Heavy Duty Adflo powered air respirator.
57 88 26	3M Speedglas Welding Helmet 9100XXi MP Air with V-500E supplied air regulator.

1) The Speedglas Welding Lens 9100XXi combined with the peripheral Speedglas SideWindows gives the largest viewing area amongst auto-darkening welding helmets available at the time of printing.

3M™ Adflo™ Powered Air Purifying Respirator

Mobile and adaptable respiratory protection

As one of the most popular respirators of its kind in the world, the Adflo™ Powered Air Respirator is designed to provide welders 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.

NEW Heavy Duty Adflo Available

The respirator built for welders

Since its launch, the 3M™ Adflo™ powered air respirator has become synonymous with welders respiratory protection. The award-winning Adflo respirator is designed to meet your specific welding needs.

Upgraded features

The new Li-ion Adflo respirator is over 15% lighter and has one hour rapid charge. A self-adjusting quick-release breathing tube allows for simple one handed connection and release.

Clean air as you weld

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 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/NZS1716 for powered air respirators and offers a Required Minimum Protection Factor (RMPF) of 50 for mechanically and thermally generated particles.

Technical Data	3M™ Adflo™ Powered Air Respirator
Approvals Respiratory Protection	Conforms to AS/NZS1716
Required Minimum Protection Factor (RMPF)[1]	50
Airflow Standard Airflow Plus	 170 litres/minute 200 litres/minute
Battery: Charging time	Li-ion with rapid charge (0-80% in an hour)[2] 4.5 hours (standard), 5.5 hours (heavy duty)
Operating hours	8 hours (standard) or 12 hours (heavy duty)
Weight Respirator	 960 grams
Noise level dB	Max 75 dB
Belt	Leather 75-115cm

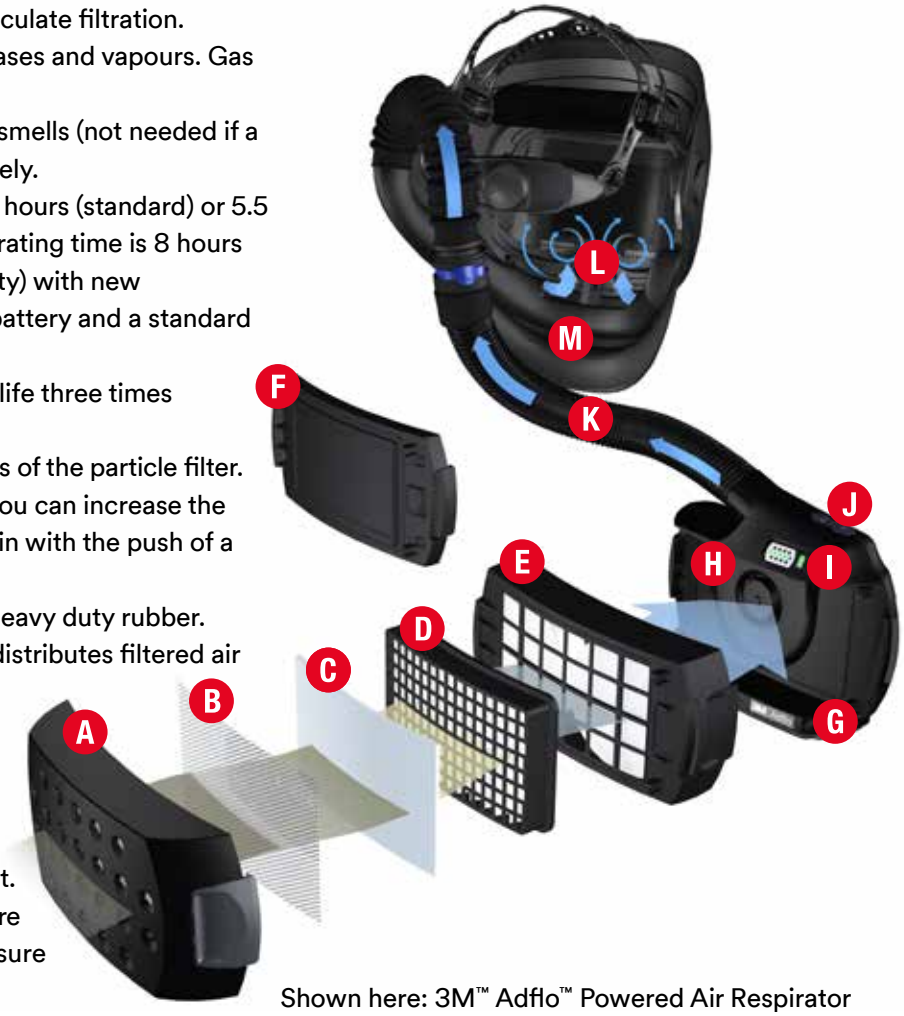
Gas and odour filters are available as an optional extra.
1) For mechanically and thermally generated particles.
2) Standard battery will be 80% charged (6.4 hours run time) in approximately one hour. Heavy duty battery will be 80% charged (9.6 hours run time) in approximately one hour.

Part No	Description
83 77 30	3M Adflo powered air respirator - standard.
83 77 31	3M Adflo powered air respirator - heavy duty.

Cooler, cleaner and more comfortable welding

With the right type of filter, the Adflo respirator helps effectively protect you against both particles and gases – all in one system. And you can selectively replace either the particle or the gas filter as needed: you don't need to change both filters at the same time.

A Filter cover: holds the spark arrestor and filters.
B Spark arrestor.
C Pre-filter: increases the service life of the particle filter.
D Particle filter: high efficiency particulate filtration.
E Gas filter: (A1) captures organic gases and vapours. Gas filters sold separately.
F Odour filter: removes unpleasant smells (not needed if a gas filter is installed); sold separately.
G Li-ion battery: fully charges in 4.5 hours (standard) or 5.5 hours (heavy duty). Expected operating time is 8 hours (standard) and 12 hours (heavy duty) with new particle filter, new fully-charged battery and a standard flow level.
H Brushless motor: with an average life three times longer than conventional motors.
I Filter indicator: indicates the status of the particle filter.
J Airflow Plus: for hot, humid jobs you can increase the airflow from 170 l/min to 200 l/min with the push of a button.
K Breathing tube: self-adjusting or heavy duty rubber.
L Exclusive airflow pattern: evenly distributes filtered air throughout the entire breathing zone of the helmet. The intelligent turbo unit keeps the airflow rate at a constant, preset level. A diffuser spreads out the airflow pattern for your maximum comfort.
M Soft, flexible face seal (removed here for clarity): creates a positive pressure environment within the helmet, keeping the surrounding pollutants at bay.



Shown here: 3M™ Adflo™ Powered Air Respirator with 3M™ Speedglas™ Welding Helmet 9100 FX Air.

Already have an Adflo PAPR system?

Get the most out of your helmet and Adflo system! Download your own personalised Care & Maintenance poster. Learn handy tips to prolong the life of your gear and receive a full parts breakdown of both the Adflo system and your Speedglas welding helmet.

Visit **www.awsi.com.au/care-maintenance**

3M™ Versaflo™ Supplied Air Regulator V-500E

Light on your belt & heavy on protection

The balanced, belt-mounted V–500E supplied air regulator allows you to adjust the airflow between 170 litres per minute to 305 litres per minute.

A constant flow of clean, filtered air makes the V-500E regulator ideal for working in hot and humid conditions when used in combination with the 3M™ Speedglas™ welding helmet 9100 Air, 3M™ Speedglas™ welding helmet 9100 FX Air and 3M™ Speedglas™ welding helmet 9100 MP Air.

Connects to breathable air hoses

The V-500E regulator connects to an approved breathable air hose with a new quick-release connection. The supplied air must be of breathable quality meeting the performance standards of AS/NZS1716. A range of breathing air filtration systems are available to remove oil, water vapour or non-toxic, unpleasant odours.

Innovative & quiet

The Versaflo regulator V-500E features a low flow warning whistle and a silencer that reduces the regulator's noise level to less than 65 dBA - the equivalent of a typical conversation. The V-500E unit can be positioned on the belt to suit both left and right handed users and a swivelling bayonet connector allows the breathing hose to move freely to the most comfortable position.

Respiratory standards

The Versaflo regulator V-500E complies with Australian and New Zealand standards AS/NZS1716 for supplied air respirators and delivers a Required Minimum Protection Factor (RMPF) of 100+.

Technical Data	3M™ Versaflo™ SAR V-500E
Approvals Respiratory Protection	Conforms to AS/NZS1716
Required Minimum Protection Factor (RMPF)	100+
Airflow Nominal Pressure Range Maximum Pressure	 170-305 litres/minute 3.5-8 bar 10 bar
Weight	514 grams
Noise level dB	Max 65 dB
Feeder Hose	Conforming to AS/NZS1716
Inlet and auxiliary port	1/4 inch BSP thread

Part No	Description
85 20 17	3M Versaflo V-500E regulator with belt.

3M™ Speedglas™ Upgrade Kits

Time for an upgrade?

Upgrade your respiratory headtop

For existing 3M™ Adflo™ PAPR customers looking to upgrade their headtop. Kit comes complete with the Speedglas™ 9100XXi lens, breathing tube, welding helmet and free carry bag. Choose from the configurations below:

3M™ Speedglas™ Welding Helmet 9100XXi Air Upgrade Kit

Part No	Description
50 90 26	3M Speedglas 9100XXi Air Upgrade Kit. Includes helmet, welding lens, QRS hose and carry bag.

3M™ Speedglas™ Welding Helmet 9100XXi FX Air Upgrade Kit

Part No	Description
54 90 26	3M Speedglas 9100XXi FX Air Upgrade Kit. Includes helmet, welding lens, QRS hose and carry bag.

3M™ Speedglas™ Welding Helmet 9100XXi MP Air Upgrade Kit

Part No	Description
57 90 26	3M Speedglas 9100XXi MP Air Upgrade Kit. Includes helmet, welding lens, QRS hose and carry bag.

Upgrade your 9100 welding lens to True-View

For existing 3M™ Speedglas™ 9100 welding helmet customers looking to upgrade to the Speedglas 9100XXi welding lens.

Part no:
50 01 26 Speedglas 9100XXi lens and silver cover upgrade kit[1)]
50 00 26 Speedglas 9100XXi lens only

Upgrade to a lighter Adflo battery with rapid charge

For existing 3M™ Adflo™ PAPR customers looking to upgrade to Rapid Charge and a 40% lighter battery. Kit comes complete with the new Adflo ithium-ion battery and rapid charger.

Part no:
83 76 30C Standard lithium-ion battery with rapid charger
83 76 31C Heavy duty lithium-ion battery with rapid charger

1) The Speedglas 9100XXi lens and silver cover upgrade kit gives the user access to grind and memory modes and is only compatible with Speedglas 9100, 9100 QR and 9100 Air welding helmets.

An overview of metals, welding processes and respirator selection

3M™ Speedglas™ offers a wide range of personal respiratory protection, providing unequalled comfort and protection in the toughest conditions.

The following is a general outline of the type of 3M™ Respiratory Protection that may be appropriate for your welding applications.

How to use this guide:

Identify the material to be welded and the welding process to be used. The concentration levels of the pollutants are affected by the ventilation conditions in the workplace. Choose the appropriate description of the working environment to determine a suitable type of respiratory protection.[1)]

P = Powered air respirator with particle filter (P).

P + A = Particle and gas filtration via powered air respirator with both a high efficiency particulate filter (P) and an A1 gas filter installed.

S = Supplied air via regulator and filtration unit.

Material to be welded	Welding method	Ventilation conditions of your working environment			
		Good environment, with forced ventilation	Limited ventilation	Restricted space - Note: Not suitable for Confined Spaces as defined by AS2865.	Classified as IDLH
Aluminium	MIG	P	P / P + A	S	Powered and supplied air respirators must never be used in atmospheres Immediately Dangerous to Life or Health (IDLH). Always consult your Safety Engineer or Occupational Hygienist.
	TIG	P	P / P + A	S	
	MMA (stick)	P	P / P + A	S	
Stainless steel	MIG	P	P / P + A	S	
	TIG	P	P / P + A	S	
	MMA (stick)	P	P / P + A	S	
	PLASMA (Welding and Cutting)	P	P + A / S	S	
Steel not coated or painted	MIG/MAG	P	P	S	
	MMA (stick)	P	P	S	
	PLASMA (Welding and Cutting)	P	P / S	S	
Steel painted (lead based paints)	MIG/MAG	P	P	S	
	MMA (stick)	P	P	S	
	PLASMA (Welding and Cutting)	P	P / S	S	
Steel galvanised	MIG/MAG	P	P	S	
	MMA (stick)	P	P	S	
	PLASMA (Welding and Cutting)	P	P / S	S	
Steel coated with 2-component paints or insulated with 2-part polyurethanes (risk of isocyanates)	MIG/MAG	P	S	S	
	MMA (stick)	P	S	S	
	PLASMA (Welding and Cutting)	P	S	S	
Material cleaned with trichloroethylene	MIG	S	S	S	
	TIG	S	S	S	
	MMA (stick)	S	S	S	
	PLASMA (Welding and Cutting)	S	S	S	

1) 3M accepts no liability for the incorrect choice of respiratory protective equipment. This chart is only an outline. It is designed to help focus on the most appropriate respirators in the 3M range for particular applications. It should not be used as the only means of selecting a respirator. Details regarding performance and limitations are set out on the respirator packaging and user instructions.

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.

1. 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.
2. Ozone is not readily filtered by absorption type filters. However, ozone reverts back to normal oxygen upon contact with solid surfaces. The use of a Speedglas Welding Helmet or Protective Visor with the Adflo Respirator (particle filtration) will reduce ozone exposure. (For further information please contact AWS).
3. 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.

Occupational Exposure Limits (OELs) are given in each individual country's national safety requirements.

Suggested Filter Type				
Chemical	Particle	Gas	Supplied Air	Remarks
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			

Hazards of Welding Fume

What is welding fume?

Welding fume is basically microscopic particles of hot metal and gases that are small enough and buoyant enough to be released from the welding arc and rise in a cloud of metal fume. This fume is then able to be inhaled by the welder and others in close proximity to the source.

Welding fume can contain a mixture of airborne gases that may include oxides of nitrogen (NOx), carbon monoxide (CO), carbon dioxide (CO2), ozone (O3) and shielding gases eg argon, helium.

The exact level of risk from the fume will depend on what metals are involved in the work eg iron, aluminium, copper, lead, manganese, chromium, nickel and others. Each of these can have a different toxic effect on the body so exposure needs to be effectively controlled.

What are the health effects?

Welding fume exposure poses a range of short and long term health risks - with breathing problems, kidney issues, nervous system damage, pneumonia and cancer among the more severe effects.

Welding fume now reclassified as 'Carcinogenic to humans'

In early 2017, welding fume was reclassified from IARC classification Group 2B (Possibly carcinogenic to humans) to Group 1 (Carcinogenic to humans). This change was primarily associated with the effects of UV exposure on the skin and eyes and also for lung cancers and limited evidence for kidney cancer from welding fume exposures.

More information

For a closer look at the dangers of welding fume and a strategic approach that can help to reduce exposure, visit **www.awsi.com.au** and download our **Welding Fume White Paper.**

Toowoomba Welding Supplies : www.tweld.com.au : Ph +61 7 4659 0044

What's happening to your health?

What do increased clumsiness, ulcers, and flu symptoms have in common? They - and many more symptoms - might be caused by overexposure to welding fumes.

Potential short-term health effects of certain welding fumes

- Eye, nose and throat irritation.
- Dizziness.
- Nausea.
- Headaches.
- Metal fume fever. Notably, it is more likely to occur after time away from the job (weekends, holidays, etc.)[1)]

Potential long-term health effects of certain welding fumes

- Lung function abnormalities, including bronchial asthma, chronic obstructive pulmonary disease (COPD), pneumoconiosis and other pulmonary fibrosis (chronic beryllium disease, cobalt lung), and lung cancer.[2)]
- Larynx and urinary tract cancers.[3)]
- Certain fumes can lead to stomach ulcers, kidney damage, and nervous system damage.[3)]

When good enough isn't enough

Working within the Australian workplace exposure standards for general welding fume (5 mg/m3), a full-time welder may inhale up to 11 grams of welding fume, a classified carcinogen, every year. How?

11 grams of welding particles

To illustrate a general example: working with an exposure limit of 5 mg/m^3 for general welding fume, a full-time welder may inhale up to 11 grams of welding fume every year.[4)]

Powered air

The Adflo PAPR has a Required Minimum Protection Factor of 50, meaning that the wearer's exposure should be reduced to 1/50th.

1) "Prevalence and association of welding related systemic and respiratory symptoms in welders," Occupational & Environmental Medicine, El-Zein M., Malo J-L., Infante-Rivard C., Gautrin D., 2003;60:655-661.

2) "Welding-Related Respiratory Diseases" article, (translated from) Medycyna Pracy (Occupational Medicine), Wittczak T., Walusiak J., Pałczyński C., 2009;60(3):201-8.

3) "Controlling Hazardous Fumes and Gases during Welding," OSHA Fact Sheet, U.S. Department of Labor, DSG FS-3647, March, 2013.

4) The example is based on a typical respiratory rate of 20 litres of air per minute or 2300 m3 of air per year. The reference used here is the workplace exposure limit for Australia for welding fume when no specific chemical is identified with a workplace exposure limit lower than the general guideline (5mg/m^3).

Ongoing customer support

Welding Helmets

View the complete range of 3M™ Speedglas™ welding helmets in one place.
www.tweld.com.au

Powered Air Purifying Respirators (PAPR)

Explore the range of 3M™ Speedglas™ Welding Helmets with 3M™ Adflo™ PAPR. Filter by features to find your perfect welding respiratory solution.
www.tweld.com.au

Hazards Of Welding Fume

A closer look at the dangers of welding fume and a strategic approach that can help to reduce exposure.
www.tweld.com.au

Connect With Us

ABN 21 060 672 979

TOOWOOMBA WELDING SUPPLIES

Ph: 07 4659 0044
500 Boundary Street, Toowoomba QLD 4350
E: sales@tweld.com.au I www.tweld.com.au

We deliver on time ... EVERYTIME
We are an Australian locally owned family business

3M | Speedglas™ Welding Safety

© 3M 2018 All rights reserved. 3M, Speedglas, Adflo, Versaflo, E-A-R & Peltor are trademarks of 3M.