



3M

 **Speedglas™**
Welding Safety

**3M™ Speedglas™
Welding Helmet 9100 Air
with Adflo™ PAPR**

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.

The Speedglas 9100 Air is a fixed front respiratory welding helmet that features market-leading optics and award-winning protection in a lightweight headtop.



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Welding Fume Is Serious. Action Is Required.

The important point to understand is that while the risk posed by welding fume is serious, keeping yourself safe can be straightforward.

The 2017 IARC reclassification of welding fume as ‘carcinogenic to humans’ simply confirmed what was already known – welding fume is extremely bad for health and workplaces must protect their workers. Excessive exposure to welding fume can cause multiple types of cancer, including lung, larynx, and urinary tract.

‘Welders present, on average, a 43% increased risk of lung cancer when compared with those who have never welded or been exposed to welding fume’¹. ‘This increased risk of lung cancer is regardless of the type of steel welded, the welding process and independent of exposure to smoking’¹. Precedent for workers’ compensation based on a link between welding fume and cancer was established in the Australian courts back in 2014, opening the door for future compensation claims.

Aside from cancer, welding fume can also cause serious long-term health effects like lung function

Simple Takeaway

**Welding fume is serious,
action is required.**

abnormalities, including bronchial asthma, chronic obstructive pulmonary disease (COPD), pneumoconiosis and other pulmonary fibrosis, as well as stomach ulcers, kidney damage and nervous system damage.

Recognising welding fume as carcinogenic and the other associated health risks should encourage all employers of welders to review their risk assessments and revise their control measures.

Welding fume is serious, action is required.

Keeping yourself safe can be straightforward

'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'² and are mandatory within many businesses.

The **3M™ Speedglas™ 9100XXi Air Welding Helmet with Adflo™ PAPR** (part no. 507726) offers welders completely clear and uninhibited views of their workpiece and surroundings while maintaining their desired level of respiratory protection with no breathing resistance.

The powered air respirator goes where the welder goes, allowing unrestricted movement around the workplace with clear vision, comfort, and uninterrupted eye, face and respiratory protection.



How Are Welding Respirators Rated?

Respirators in Australia and New Zealand are rated according to the standard AS/NZS 1716:2012.

This includes the assignment of a Required Minimum Protection Factor (RMPF), which indicates the level to which the respirator protects its wearer from surrounding pollutants if properly worn.

The Adflo PAPR has a RMPF of 50, meaning the respirator will supply a minimum 50 times cleaner air than the welder would otherwise be breathing unprotected.

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.



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
<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>	

Award-winning protection

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

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 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 respirator effectively protects against a range of gases, vapours and particles.

You only have one set of lungs

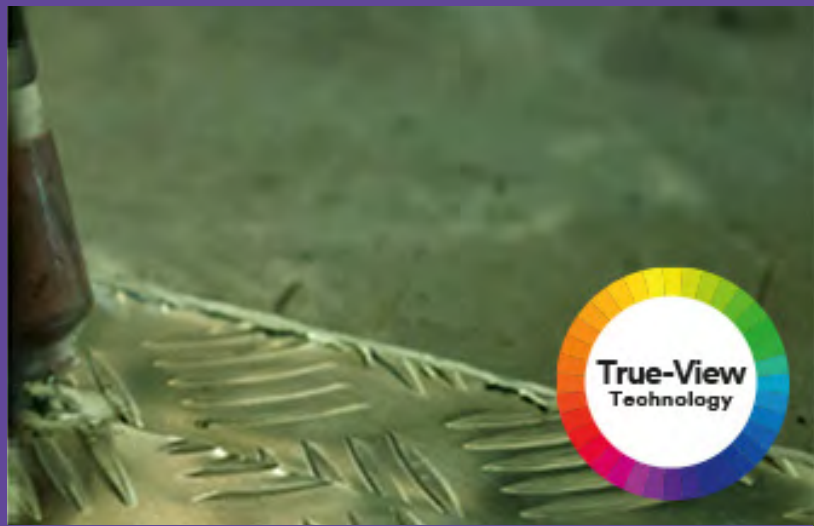
The Adflo respirator complies with Australian and New Zealand Standard AS/NZS1716 for powered air respirators and offers a Required Minimum Protection Factor (RMPF) of 50 for mechanically and thermally generated particles.

Built to last

Choose either the standard 8 hour battery or a heavy-duty Adflo battery, which can offer up to 12 hours continuous protection.



Standard auto-darkening welding lens



Speedglas 9100XXi welding lens with True-View optics

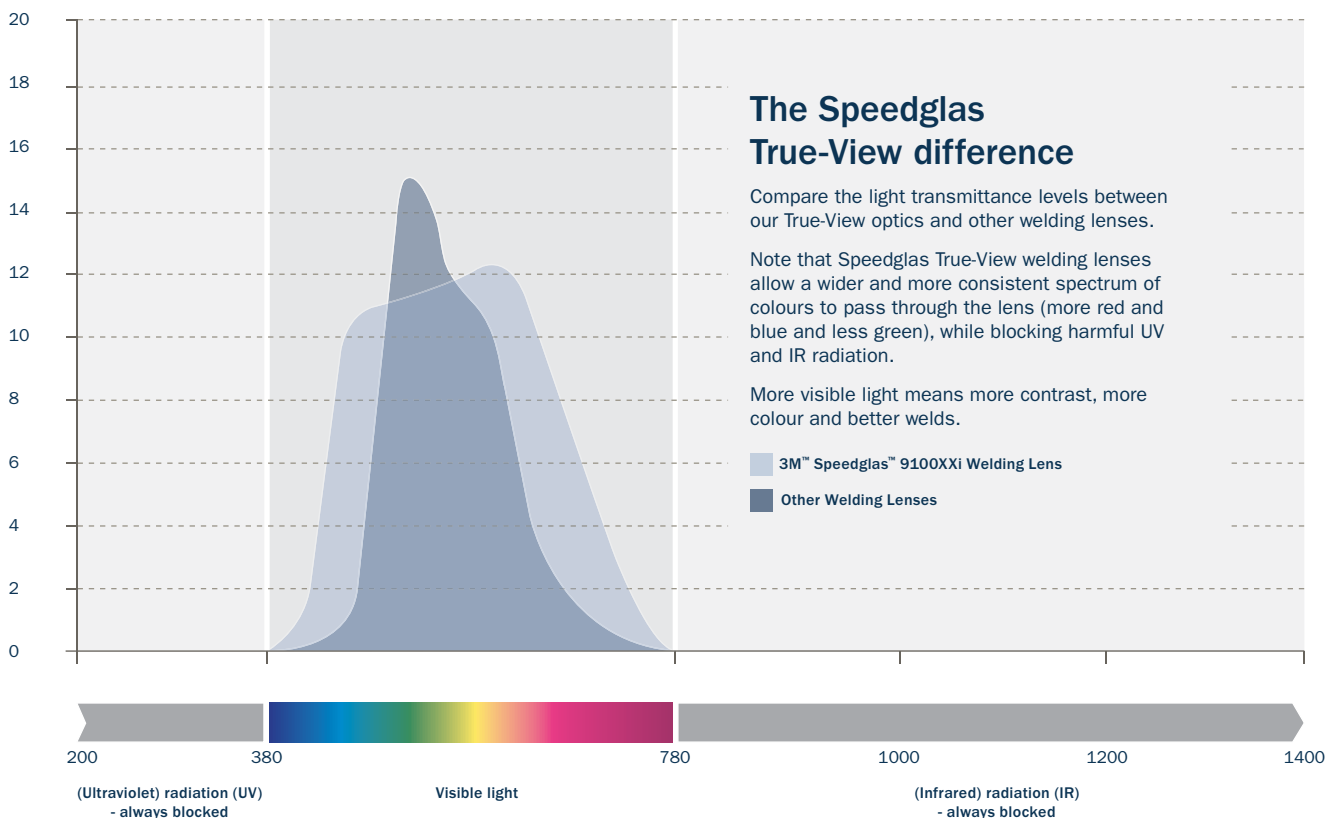
A more natural light state

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

- 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



Transmittance (%)





Shade 5 Peripheral SideWindows

Welding Lens with Auto On Technology

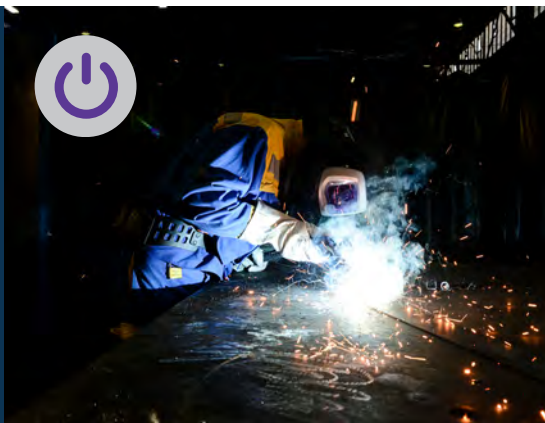
Photo Sensors detect arcs ≥ 1 Amp



Enjoy enhanced peripheral vision

Speedglas SideWindows give you excellent peripheral vision as you weld.

Previously hidden peripheral hazards such as beams, obstacles, and other workers are now visible through two shade 5 side lenses (with conventional shade 13 UV/IR protection).



Grab and go welding

Now with Auto-On technology, your welding helmet is instantly ready to weld the second an arc is struck.

What's more, the lens will automatically be programmed to your last used welding setting - so you can pick up right where you left off.



Industry-leading arc detection

The photo sensors on the Speedglas 9100XXi welding lens are capable of detecting an arc down to 1 Amp - leading the market in terms of sensitivity.

This includes a central sensor that is ideal for precision TIG welding applications where both hands are required, as it eliminates the possibility of the welder's hands obstructing the sensors.



External grind and memory modes

With a press of the external button, you have activated grind mode. Press it again and you're back ready to weld. This ensures you won't need to remove your face protection or break the positive pressure respiratory seal at any point.

What's more, memory mode allows you to pre-set your most popular welding settings and seamlessly switch between different applications at the touch of a button while maintaining your respiratory protection.



Customise your welding comfort

The head harness designed for a tailored fit

With the Speedglas 9100 head harness, we've carefully avoided sensitive areas of the head while giving you a highly adjustable and comfortable fit. It provides multiple adjustment combinations so you can customise your head harness to your personal preferences and comfort setting.

Ergonomic fit

Adjust the shield's distance from your face. Fits head sizes 500 to 640 mm.

Stability

Smooth ratchet for precise tightening.

Adapt to your position

Adjust the helmet's tilt-angle while wearing the helmet on your head.



Shape to your head

Two adjustable crown straps for better weight distribution and balance.

Less pressure

Self-adjusting 'twin pads' contour to your head.

Low riding comfort

Adjust the helmet's parked position (left side) and drop friction (right side).



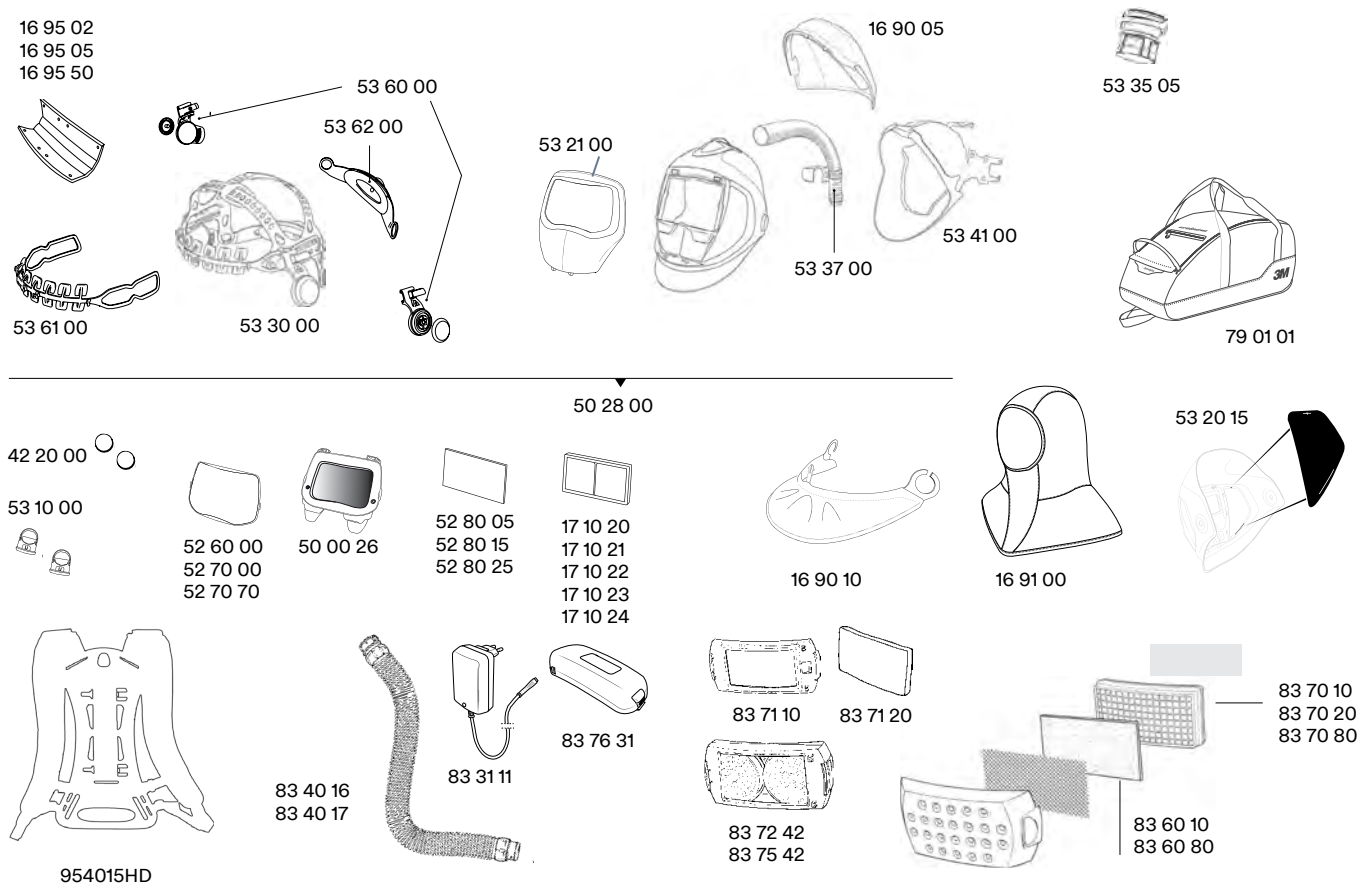
Technical Specifications



Welding Helmet Feature	Speedglas 9100XXi Air Welding Helmet with Adflo PAPR (Part No. 507726)
MMAW (Electrode)	✓
MIG/MAG	✓
TIG (>20A)	✓
TIG (1A-20A)	✓
Plasma (welding and cutting)	✓
Risk of hidden arc	✓
Tack welding	✓
Grinding	✓
Viewing area (welding lens)	73 x 107 mm
External grind mode	Yes
3M™ Speedglas™ True-View Technology	Yes
Battery lifetime	1800 hours
Classification	1/1/1
Dark state	Shade 8-13
Cut mode	Yes shade 5
Light state	Shade 3 with True-View Technology
UV/IR protection	Shade 13 (permanent)
Auto-ON	Yes
Switching time, light -dark	0.1 ms (+23° C)
Memory mode	Yes - 2
Delay (switching time, dark-light)	40 - 800 ms
SideWindows	Yes
Arc detection	≥ 1 Amp
Australian and New Zealand Standard Compliance (AS/NZS) Eye Protection Face Protection Powered Air Respiratory Protection	AS/NZS1338.1 AS/NZS1337.1 (high impact) AS/NZS1716 / RMPF* 50

* Required Minimum Protection Factor (RMPF): for mechanically and thermally generated particles.

Spare parts & consumables



Part No.	Description	Part No.	Description
16 90 05	Head Cover	53 20 15	SideWindows Cover Plate Pk=2
16 90 10	Throat Protection	53 21 00	Front Cover
16 91 00	Head Cape Tecaweld	53 30 00	Head Harness 9100
16 95 02	Sweatband Pk=2	53 35 05	Adaptor Adflo Breathing Tube
16 95 05	Sweatband Pk=5	53 37 00	Air Duct Back Part
16 95 50	Sweatband Pk=50	53 41 00	Face Seal
17 10 20	Lens Magnifying 1.0X	53 60 00	Head Harness Pivot Mechanism 9100
17 10 21	Lens Magnifying 1.5X	53 61 00	Head Harness Front Part 9100
17 10 22	Lens Magnifying 2.0X	53 62 00	Head Harness Back Part 9100
17 10 23	Lens Magnifying 2.5X	79 01 01	Carry Bag Speedglas
17 10 24	Lens Magnifying 3.0X	83 31 11	Adflo Charger
42 20 00	Battery Lithium Pk=2	83 40 16	Quick Release Breathing Tube
50 00 26	Lens Welding 9100XXi Speedglas	83 40 17	Heavy-Duty Rubber Quick Release Breathing Tube
50 28 00	Helmet Welding 9100 Air Exc Lens	83 60 10	Pre-Filter Adflo Pk=5
50 77 00	Speedglas 9100 Air with Adflo, Exc Welding Lens & Bag	83 60 80	Pre-Filter Adflo Pk=80
50 88 00	Speedglas 9100 Air with V-500E, Exc Welding Lens & Bag	83 70 10	Filter Particle PSL Adflo
50 90 26	Speedglas 9100XXi Air Upgrade Kit, Exc Adflo	83 70 20	Filter Particle PSL Adflo Pk=20
52 60 00	Lens Cover Outer Standard Pk=10	83 70 80	Filter Particle PSL Adflo Pk=80
52 70 00	Lens Cover Outer Hard Coated Pk=10	83 71 10	Odour Filter Adflo
52 70 70	Lens Cover Outer High Heat Pk=10	83 71 20	Odour Filter Replacement Pad Adflo
52 80 05	Lens Cover Inner 9100V Pk=5	83 72 42	Nuisance Level Organic Vapour/Acid Gas Filter Adflo
52 80 15	Lens Cover Inner 9100X Pk=5	83 75 42	A1 Gas Filter Adflo
52 80 25	Lens Cover Inner 9100XX/XXi Pk=5	83 76 30	Battery Standard Li-ion Adflo
53 10 00	Holder Battery 9100	954015HD	Heavy Duty PAPR Backpack



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.

As a company that specialises in welding safety equipment, it is our goal to raise awareness on the important issues that welders face.

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

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References

1. 2019 Honaryar MK, Lunn RM, Luce D, et al. Occup Environ Med
2. 2020 Welding Fume and Respiratory Protection Survey, AWS

