

3M™ Speedglas™ 9100 Welding Shield



Optimum Comfort,
Trusted Protection



In 1981 we turned the world of welding on its head by introducing the first commercially-viable auto-darkening welding lens. Ever since then the Speedglas™ brand and the technology behind it has been the standard to which others aspire.

Continually inspired by welders

For almost three decades now, we have worked closely with welders, safety engineers and ergonomic specialists to constantly improve the performance and comfort of our products. And we've persistently collected user insights and comments from around the world to inspire us to create this, our next generation of welding protection.

Our Voice of Customer studies revealed the following user priorities:

"Coverage is key."

We made the new shield deeper and wider, providing greater coverage of ears, neck and sides of the head.

"The shield must be comfortable to wear."

We've totally changed the interface between the welder's head and the shield's head harness system, eliminating pressure points, optimising its centre of gravity, and adding multiple adjustment options.

"The welding shield must be reliable."

The Speedglas 9100 shield and auto-darkening lenses are based on more than 25 years of expertise in developing and producing extraordinarily reliable and durable equipment for professional welders.

Our sincere thanks to the professional welders that contributed their thoughts and experiences to the development of the Speedglas 9100 shield – we hope you will enjoy the results!

**“We meet
the challenge
of welders
worldwide”**



Safety is our ultimate directive; all features must inevitably enhance the user's protection. Even our improved comfort features are designed with safety in mind. By enhancing the shield's performance at all levels, we have made the ultimate professional welding shield.

Great tools let you concentrate

Precision welding is demanding, but with the Speedglas 9100 shield you can concentrate in safety and in comfort. Protecting your eyes and face from radiation, heat, and sparks - while providing an accurate view of your work area - your Speedglas 9100 shield will soon be considered your most important welding tool.

The shield is made from a lightweight, but incredibly durable material that has a high impact rating and meets standard AS/NZS 1337.

An auto-darkening welding lens with superior optical performance enabling constant, comfortable vision.

Ultraviolet (UV) and infrared (IR) radiation protection at all times, in all states.

Heat reflecting silver front.

Increased coverage from heat and welding sparks for the lower neck. Also available: flame-resistant Tecaweld™ protector for extended head coverage. See page 9 and 10 for more details.



Increased coverage for ear and side of neck.

SideWindows: Increase your peripheral vision by 100%. Exclusive, patented shade 5 lenses that widen your field of vision. SideWindows enable you to be more aware of nearby moving machinery, tools and other peripheral hazards.

The shield is available with or without SideWindows; welders can also use removable cover plates for when peripheral vision would be distracting.

A head harness that shapes to your head

The outside of the human head is lined with nerves, arteries, and acupressure points. Applying pressure to some of these spots actually makes a person feel fatigued.

Working with Western and Chinese medical experts, we mapped out the vulnerable areas of the head and avoided them with our new head harness design. The harness system design self-adjusts to fit the welder's head. As a result, you do not need to tighten the head harness as much as you do on conventional head harnesses.

Less pressure, more comfort

Less pressure on your head means improved comfort that lasts all day long. And the more comfortable you are in your protective gear, the more you want to keep it in position, providing you more continuous eye and face protection from workplace hazards. The revolutionary pivot point keeps the shield as close as possible to the head, reducing the static and dynamic loads on the neck.

Two crown straps gently saddle the top of the head for increased shield stability and better weight distribution. Both straps are adjustable to fit virtually all head shapes and sizes.

The front of the head harness self-adjusts to match your forehead. Pressure is evenly distributed to sets of twin pads to fit the exact shape of your head.

The back portion of the head harness is self-adjusting and swivels to fit different head shapes.

When wearing a cap backwards you simply turn the back portion upside down.

Four settings let you determine the distance between your face and the shield. This allows you to keep the shield as close as possible to your face for an enhanced view and a reduced load on your neck muscles.

The head harness can also be manually tightened to your personal preference. The smooth ratchet mechanism allows for precise tightening control.

Small, Medium or Large?
You can adjust the width of the head harness to your own head size – from size 50 to 64 cm.

A snap adjustment allows you to set the shield at 9 different angles.

We've lowered the centre of gravity to be just above your ears! This makes the shield more stable in both the up and down positions, as well as reducing the leveraged strain on your neck. Large, rubber, overmolded knobs make it easy to select the settings for the up-and-down pivot action, even when wearing gloves.



Welders who keep their shield in the down position for prolonged periods of time complain of discomfort from stale air and reduced vision from humidity fogging up the lens inside the shield.

A patented design

We have improved our patented "breathability" design to

more efficiently direct exhaled air out of the shield with reduced fogging of the welding lens as an effect.

It can also reduce the build-up of heat, moisture, carbon dioxide (CO₂) and stale air within the shield. Welders report feeling more refreshed, energetic and clear-headed all day long.

A patented ventilation solution: exhaust vents direct your exhaled air out of the shield more effectively.

The exhaled air is channelled out via the side exhaust vents.

The inside protection plate now slides in from the side to achieve a tighter fit that helps to lock out fog-producing moisture.

The new inside cover plates quickly attach or detach over the SideWindows (from the inside of the shield) for either focused or full-viewing. There is also a shield option available without SideWindows lenses.

The design of the exhaust vents reduces the likelihood of a foggy welding lens.

The shield design is compatible with most disposable respirators that provide protection against hazardous welding particles.



**“Increase your
viewing area
by 85%”***



*** Speedglas 9100XX lens is 85% larger than the
standard Speedglas 9100V lens (45x93 mm)**

The Speedglas™ 9100 welding lenses continue our tradition of outstanding optical quality, including extremely uniform shading and minimal distortion across the entire lens viewing area.

More options mean more viewer control

There are seven dark shade settings to choose from: shade 5 for gas welding/cutting and shade 8 for micro-plasma and low amp TIG welding as well as variable dark shades of 9 to 13. If needed, you now also have the option to lock-in your shade, including the light state (shade 3) for grinding. A patented comfort mode for tack welding helps to reduce eye fatigue resulting from the eye constantly adjusting to differing light levels.

No compromises needed

By selecting just the right setting for each task, the welder reduces eye strain and improves the quality of every weld. Pick your viewing size: the Speedglas 9100 series welding lenses features three models – normal, large and extra-large. The extra large Speedglas 9100XX lens (73x107 mm) is 85% larger than any other standard sized lens (Speedglas 9100V = 45x93 mm).

The shield option with SideWindows increases your vision even further, enabling you to be more aware of peripheral hazards. All of these options are about user comfort, personal preference, and optimum performance for each specific application.

Magnification made easy. The welding lens design now features a built in magnifying lens holder, meaning that attaching the lens is easier and the fit is more accurate.

The Speedglas 9100 series includes three new auto-darkening lens models that are differentiated by size: the viewing area of the extra large Speedglas 9100XX lens is 73x107 mm, making it 30% larger than any other Speedglas welding lens!

Seven user selectable dark shades: shade 5 for gas welding/cutting, shade 8 for microplasma and low amp TIG welding and shade 9 to 13 for most other types of arc welding.

The "tack welding comfort mode" uses an intermediate light state (shade 5). If a follow-up arc is not struck within two seconds, the welding lens switches to the normal light state (shade 3). The comfort mode helps reduce eye fatigue resulting from the eye constantly needing to adjust to differing light levels during tack welding.



The delay function allows the user to set the dark-to-light switching time.

Conforms to Australian Standards AS/NZS1337 and AS/NZS1338.1 for eye protection for welders.

Sensitivity of arc detection can be adjusted to provide reliable switching for a wide range of arc welding processes, amperages and situations. And you now can "lock-in" any shade: the light shade for grinding or other non-welding activities, or one of the dark shades – to have it function as a passive welding lens.

Accessories for extra comfort and protection

Magnifying lens

New holder provides a more precise lens attachment on the inside surface of the lens.

- Part No: 17 10 20 Magnifying lens 1.0X
- 17 10 21 Magnifying lens 1.5X
- 17 10 22 Magnifying lens 2.0X
- 17 10 23 Magnifying lens 2.5X



Neck protection

Neck protection made from flame-resistant Tecaweld™, helps protect from molten metal, sparks and flames. Completely new construction that does not interfere with your eyes when wearing the shield in the up position.




Part No: 16 90 10

Head protection

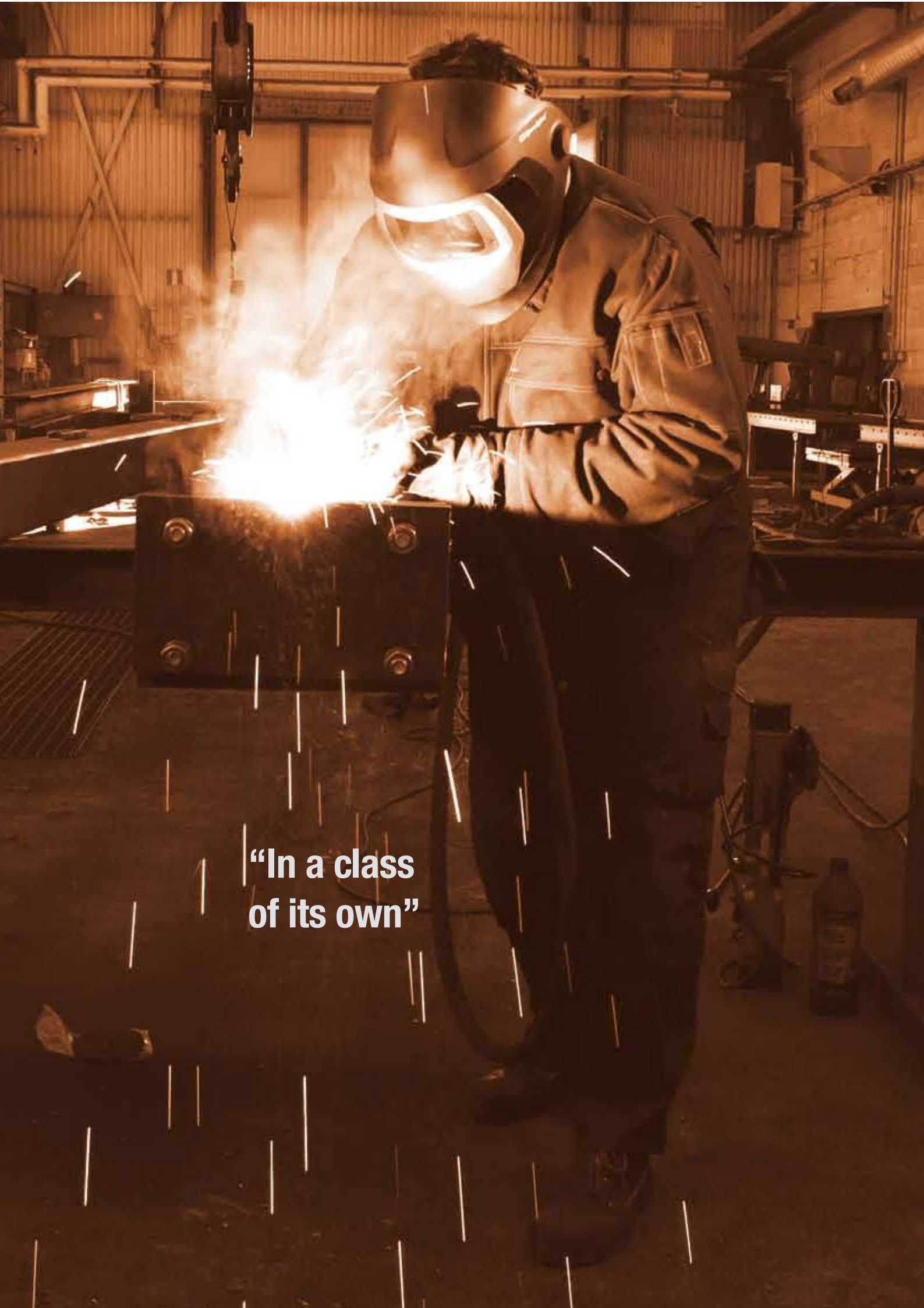
Extended head coverage made from flame-resistant Tecaweld™ (a blend of 75% cotton and 25% Kevlar™ fibres). Simply fasten it on the shield to protect your head from sparks, flames and UV/IR radiation.

Part No: 16 90 05

TecaWeld™ is a trademark of TenCate. Kevlar™ is a trademark of Dupont.

Technical Data/ Ordering Information	3M™ Speedglas™ 9100V	3M™ Speedglas™ 9100X	3M™ Speedglas™ 9100XX
			
Approvals	Conforms to AS/NZS 1337 & 1338.1	Conforms to AS/NZS 1337 & 1338.1	Conforms to AS/NZS 1337 & 1338.1
Eye protection			
Classification*	1 / 1 / 1	1 / 1 / 1	1 / 1 / 1
Switching time, light-dark	0,1 ms (+23°C)	0,1 ms (+23°C)	0,1 ms (+23°C)
Delay (Switching time dark-light)	User-adjustable 40 – 1300 ms	User-adjustable 40 – 1300 ms	User-adjustable 40 – 1300 ms
UV / IR protection	Shade 13 (permanent)	Shade 13 (permanent)	Shade 13 (permanent)
Viewing area	45 x 93 mm	54 x 107 mm	73 x 107 mm
Light state	Shade 3	Shade 3	Shade 3
Dark state	Shade 5, 8, 9 – 13 (variable)	Shade 5, 8, 9 – 13 (variable)	Shade 5, 8, 9 – 13 (variable)
Fail / Safe state	Shade 5	Shade 5	Shade 5
Solar cell	Yes	Yes	No
Battery lifetime	2 800 hours	2 500 hours	2 000 hours
Ordering information	Part No 3M™ Speedglas™ 9100 Welding Shield, including welding lens	Part No 50 11 05 (without SideWindows) 50 18 05 (with SideWindows)	Part No 50 11 15 (without SideWindows) 50 18 15 (with SideWindows)
		Part No 50 11 25 (without SideWindows) 50 18 25 (with SideWindows)	

* European standard classification EN379: Optical class / Diffusion of light class / Variation of luminous transmittance class.



**“In a class
of its own”**