

3M™ Speedglas™ 9100 Welding Helmet

 **Speedglas™**



Optimum Comfort  
and Protection

**3M**



# Helping to Protect Welders for Generations





# Responding to feedback from welders for over 25 years...

In 1981 we turned the world of welding on its head by introducing the first commercially-viable auto-darkening welding filter. 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 helmet deeper and wider, providing greater coverage of ears, neck and sides of the head.

### **"The helmet must be comfortable to wear."**

We've totally changed the interface between the welder's head and the helmet's suspension system, eliminating pressure points, optimizing its center of gravity, and adding multiple adjustment options.

### **"The welding helmet must be reliable."**

The Speedglas 9100 helmet and auto-darkening filters are based on our more than 25 years of expertise in developing and producing extraordinarily reliable and durable equipment for highly-discriminating professional welders.

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



# “Fits just the way I want it to”

The comfort of the Speedglas™ 9100 helmet is the result of extensive research and development processes. We consulted with international experts in ergonomics and anatomy to ensure that we would produce the most comfortable and protective welding helmet ever.

## “This changes how I experience welding”

Professional welders marvel at the stability and balance of the helmet in all positions - up, down or anywhere in between, the new pivot location keeps leveraged forces to a minimum. With our new patented head suspension we avoid pressure on vulnerable nerves, arteries and acupressure points; areas that might cause pain or discomfort if they are set under pressure for a period of time.

## “So many more options!”

Welders are delighted to see all the filter options: A grinding shade 3. Gas welding shade 5. Micro-plasma welding shade 8. Arc welding shades 9 through 13. Sensitivity settings for normal welding to low-amp inverter TIG welding, and even low-sensitivity setting for when other welders are working nearby. More versatility, greater optimization... and more user satisfaction.



The new head suspension system provides for several adjustment combinations, so the welder can ‘fit’ the helmet to his personal preferences and comfort settings.

\*These quotes are comments from welders during product field evaluations.









# Designed for ultimate comfort

Safety is our ultimate directive; all features must inevitably enhance the user's protection. Even our improved comfort designs are ultimately rooted in safety: a helmet can only work when the user wants to continually wear it. By enhancing the helmet's performance at all levels, we have made the most appealing - and compelling - professional welding helmet within the Speedglas™ range.

## Great tools let you concentrate

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

The helmet is made from a lightweight, but durable material that meets the mechanical strength requirements of EN 175 level "B" and ANSI Z87.1-2003.

An auto-darkening welding filter with superior optical performance enables constant, comfortable vision.

Ultraviolet (UV) and infrared (IR) radiation protection in all states, even if battery is depleted.

Heat reflecting silver front.

Increased coverage for lower neck from heat and welding sparks. Also available: flame-resistant Tecaweld™ protector for extended neck and ear coverage. See page 14 for more details.

Increased coverage for ear and side of neck.

SideWindows: Exclusive, patented shade 5 filters that widen your field of vision. SideWindows enable you to be more aware of nearby moving machinery, tools and other peripheral hazards. The helmet is available with or without SideWindows; welders can also use removable cover plates for when peripheral vision would be distracting.



# A head suspension that conforms to your head

The outside of the human head is lined with nerves and arteries. Applying pressure to some of these locations can make a person feel fatigued.

Working with medical experts, we mapped out the vulnerable areas of the head and avoided them with our new head suspension design. Then, we created a design that better cradles the head. As a result, you do not need to tighten the headband as much as you do on conventional headbands to firmly hold the helmet on your head.

## 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 likely you are to keep it in position, providing you more continuous eye and face protection from workplace hazards.

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

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

The back portion of the headband is self-adjusting and swivels to fit different head shapes. When wearing a cap backwards you simply turn the back portion upside-down for a better fit.

Four settings let you determine the distance between your face and the helmet. Allows you to keep the helmet as close as possible to your face for a great view and reduced loads on your neck muscles.

The headband can also be manually tightened to your personnel preference. The smooth ratchet mechanism allows for precise tightening control.

Small, Medium or Large?  
You can adjust the width of the head suspension to your own head size – from size 6.25 to 8 (50 to 64 cm).

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

We've lowered the center of gravity to be just above your ears! This makes the helmet 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.





# Reducing strain on the neck

Feedback from professional welders lead us to research ways to further reduce the possibility of neck strain. Our answer was: reduce strain on the neck by reducing the static and dynamic loads. From a helmet design standpoint, that means keeping the helmet as close as possible to the head. By lowering the pivot point to just above your ears, the helmet stays as close as possible to the top of your head when in the up position. In essence, we've shortened the length of the 'lever' to help reduce forces on your neck muscles.

## Improved helmet angle adjustment and pivot action

For optimum vision and comfort, the helmet's view angle can be adjusted (to handle workpieces at different heights) without losing the close-to-face fit of the helmet. You can now adjust the helmet angle while wearing the helmet. The helmet also has a smoother up-and-down pivot action that gently 'locks' in the up position - a light pull lowers the helmet.

The lowered center of gravity makes the helmet feel more balanced and stable in all positions-up, down, or anywhere in between. Because the helmet is more balanced, you do not need to tighten the headband as much, further increasing your wearing comfort!



# Keeping you cooler with less fogging

Very often welders who keep their helmet in the down position for prolonged periods of time complain of discomfort from stale air and reduced vision from humidity inside the helmet.

## A patented design

We have improved our patented 'breathability' design to more efficiently direct exhaled air out of the helmet. The result is reduced fogging of the welding filter and reduced build-up of heat, moisture and stale air within the helmet.



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

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

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

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 helmet) for either focused or full-viewing. There is also a helmet option available without SideWindows lenses.

The helmet design is compatible with most 3M™ Maintenance-Free Respirators that provide protection against hazardous welding particles.





# Superior optics, bigger views and more features

The Speedglas™ 9100 Welding Filters continue our tradition of outstanding optical quality, including extremely uniform shading and minimal distortion across the entire filter 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 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 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 filters features three models – normal, large and extra-large.

The extra large Speedglas 9100XX filter is 30% larger than any other Speedglas filter!

The helmet 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 new magnifying lens holder, on the inside face of the welding helmet, makes lens installation easier and more adjustable.

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

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 filter switches to the normal light state (shade 3). The comfort mode may help 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 ANSI Z87.1-2003 and CSA Z94.3-2007 for eye and face protection..

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 filter.



If versatility is what you want from a welding helmet, then Speedglas 9100 is the helmet for you. It is designed to work in most welding situations and applications.



Technical Data	3M™ Speedglas™ 9100V Filter	3M™ Speedglas™ 9100X Filter	3M™ Speedglas™ 9100XX Filter
			
Viewing area	1.8 x 3.7 in. (45 x 93 mm)	2.1 x 4.2 in. (54 x 107 mm)	2.8 x 4.2 in. (73 x 107 mm)
Battery life (2 x CR-2032)	2800 hours	2500 hours	2000 hours
Solar assist	Yes	Yes	No
Weight complete assembly, standard	18.0 oz (510 g)	18.3 oz (520 g)	19.2 oz (545 g)
Weight complete assembly, with SideWindows	18.9 oz (535 g)	19.2 oz (545 g)	20.1 oz (570 g)
Dark state	Shade 5, 8, 9 – 13 (variable)		
Light state	Shade 3		
Switching speed	0.1 ms (+23°C)		
Special modes	Grind, tack, lock-in		
Sensitivity modes	5 levels		
TIG rating	> 1 Amp		
Number of sensors	3		
Delay (recovery)	Adjustable 40 - 1300 ms		
Temperature range	23° F to 131°F (-5°C to 55°C)		
Standards compliance	ANSI Z87.1-2003, CSA Z94.3-2007		
Warranty	2 years		
Head sizes	6 ¼ to 8 (50-64 cm)		
Material Helmet Silver front and ADF housing Head suspension SideWindows Protection plates TecaWeld™ Fabric	PPA Nylon Nylon, PP, PE, TPE Polycarbonate Polycarbonate 75% Cotton, 25% Kevlar®		
TecaWeld™ is a trademark of TenCate. Kevlar® is a trademark of Dupont.			

# Accessories for expanded comfort and protection

## Magnifying lens

New holder provides a more precise and adjustable lens attachment on the inside surface of the welding filter.

## 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 helmet in the up position.



## Head protection

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

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

Other accessories from 3M		Description	Product
<b>3M™ 1310 Banded Hearing Protector</b>		Great alternative for employees who need intermittent hearing protection. Recommended for moderate noise.	1310
<b>3M™ 7500 Series Half Facepiece</b>		The 3M 7500 series half facepiece has set a new standard in introducing the highest levels of comfort to half mask respirators. With the 3M 2000 series particle filters, the 3M 7500 half mask fits comfortably inside the Speedglas 9100 helmet.	7501 - small 7502 - medium 7503 - large
<b>3M™ 6000 Series Half Facepiece</b>		The 3M 6000 series half facepiece are economical, low-maintenance, simple to handle and extremely lightweight. With the 3M 2000 series filters, the mask fits comfortably inside the Speedglas 9100 helmet.	6100 - small 6200 - medium 6300 - large
<b>3M™ 2091 and 2097 Particulate Filters</b>		The 2091 and 2097 series filters offer P100 class protection and the 2097 offers additional nuisance level protection against organic vapors* and ozone **. Both filters are compatible to 3M 7500 and 6000 Series half facepiece.	2091 2097
<b>3M™ 8515 Particulate Welding Respirator</b>		The 8515 is designed to help provide comfortable, reliable worker protection for applications such as welding, soldering, cutting, grinding, and sanding. The 3M™ Cool Flow™ Exhalation Valve offers easy exhalation for cooler, dry comfort.	8515

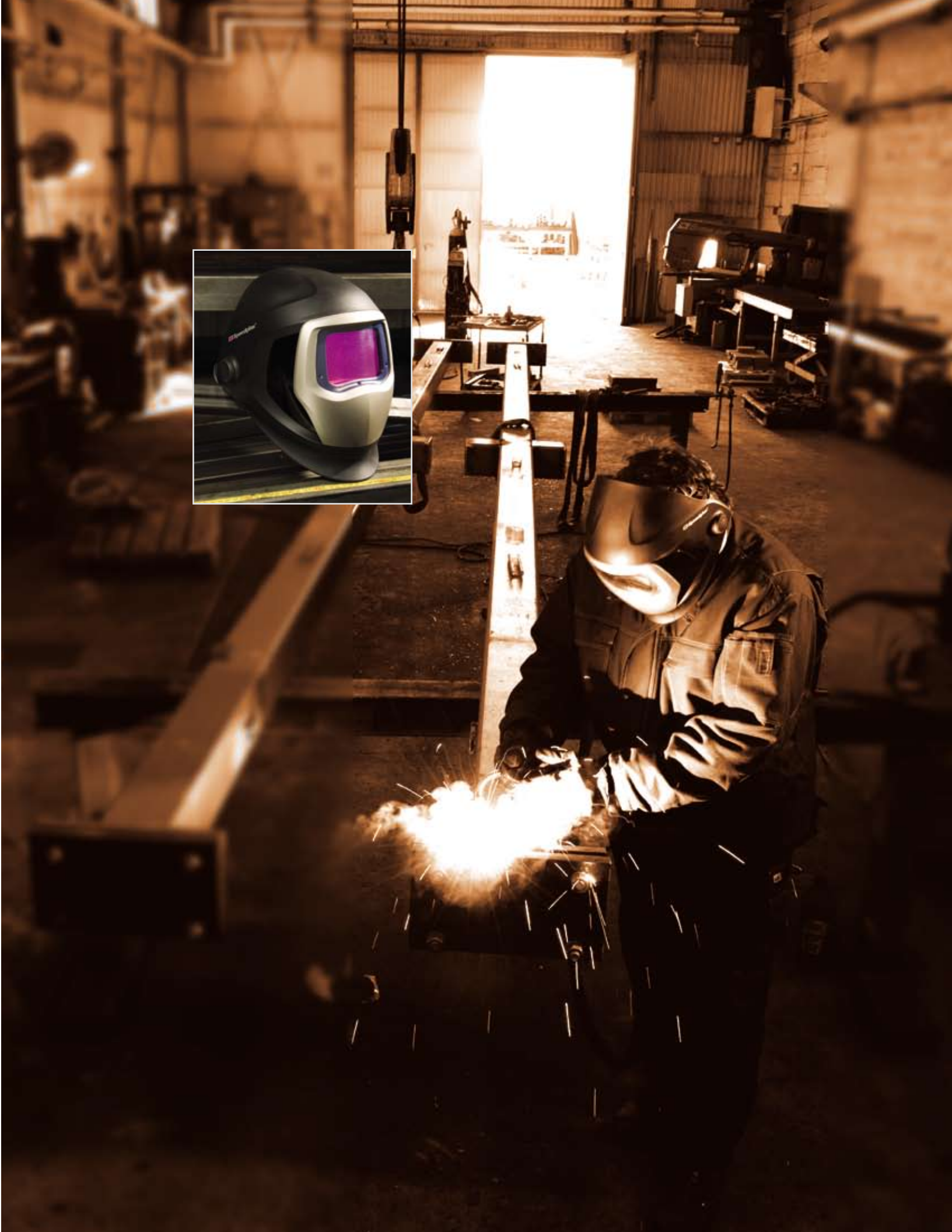
Welding can create a variety of harmful fumes and gases. When engineering controls are impractical, respirators may be required to help reduce exposures to these airborne welding contaminants. WARNING: These respirators help reduce exposure to certain airborne contaminants. Misuse may result in sickness or death.

For proper use, see User Instructions in package, supervisor, or contact 3M OH&ESD Technical Service at 1-800-243-4630. In Canada, call 1-800-267-4414.

\* Nuisance level refers to concentrations below current OSHA PELs.

\*\* 3M recommended for ozone protection up to 10 times the OSHA PEL. Note: this product is not NIOSH approved for ozone protection.





Speedglas™ is the world's leading brand of welding helmets and is a vital part of 3M's diverse range of personal protective equipment.

Just as hundreds of thousands of users rely on the Speedglas brand for their best welding performance, 3M relies on welders' feedback for its future product innovations.



Visit us at [www.speedglas.com](http://www.speedglas.com).

**⚠ WARNING Welding Products**

These welding safety products must be used only by qualified persons trained in their use and maintenance and only in strict accordance with and adherence to the detailed instructions and precautionary statements provided in the instruction manual which accompanies each product. **Failure to comply with these instructions could result in sickness, serious bodily injury or loss of life.**

For proper use of these products read *User Instructions* and warnings on the package. Any questions concerning proper use should be directed to your supervisor, on-site training specialist, industrial hygienist or 3M Occupational Health and Environmental Safety Division (OH&ESD) Technical Service in the U.S.A. at 1-800-243-4630. In Canada, call 1-800-267-4414.



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