

3M™ Speedglas™ 9100 Welding Shield

 **Speedglas™**



Optimum Comfort,
Trusted Protection

3M



**We meet the challenge
of welders worldwide**

Welders tell us what's optimum

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 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 suspension system, eliminating pressure points, optimizing its center of gravity, and adding multiple adjustment options.

"The welding shield must be reliable."

The Speedglas 9100 shield 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 shield – we hope you will enjoy the results!



”Fits just the way I want it to”

The comfort of the Speedglas™ 9100 shield 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 shield ever.

”This changes how I experience welding”

Professional welders marvel at the stability and balance of the shield 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 shield to his personal preferences and comfort settings.





Speedglas

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Designed for ultimate protection

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 shield can only work when the user wants to continually wear it. By enhancing the shield's performance at all levels, we have made the most appealing - and compelling - professional welding shield within the Speedglas™ range.

Great tools let you concentrate

Precision welding is demanding, but with the Speedglas 9100 shield 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 shield might soon be considered your most important welding tool.

The shield 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 at all times, in all states.

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

A head suspension 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 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 shield 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 you want 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 shield 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 twin 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.

Four settings let you determine the distance between your face and the shield. Allows you to keep the shield 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 50 to 64.

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

We've lowered the center 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.



Reducing the possibility of neck strain

Feedback from professional welders lead us to research ways to further reduce the possibility of neck strain. Our answer was: reduce the static and dynamic loads on the neck. From a shield design standpoint, that means keeping the shield as close as possible to the head. By lowering the pivot point to just above your ears, the shield 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 shield angle adjustment and pivot action

For optimum vision and comfort viewing angle through the welding filter can be adjusted (to handle workpieces at different heights) without loosing the close-to-face fit of the shield. You can now adjust the shield angle while wearing the shield. The shield also has a smoother up-and-down pivot action that gently "locks" in the up position - a light pull lowers the shield.

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



Keeps you cool and fog-free

Very often 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 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 filter 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 get a tighter fit, that helps to lock out fog-producing moisture.

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

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

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 lens.





Better optics, bigger views

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 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 filters features three models – normal, large and extra-large. The extra large Speedglas 9100XX filter is 30% larger than any other Speedglas filter!

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. In the new welding filter design, with holders for magnifying lens inside the shield, attaching the lens is easier and the fit is more accurate.

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). Which 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 European Standard 379 for eye protection for welders, as well as other national standards (USA, Canadian, Australian - to name a few).

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 shield then Speedglas 9100 is the shield for you. It is designed to work in most welding situations and applications.



Technical Data/ Ordering Information	3M™ Speedglas™ 9100V Filter	3M™ Speedglas™ 9100X Filter	3M™ Speedglas™ 9100XX Filter
			
Approvals Eye protection	Conforms to EN 379	Conforms to EN 379	Conforms to EN 379
Classification	1 / 1 / 1 / 2	1 / 1 / 1 / 2	1 / 1 / 1 / 2
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 3M™ Speedglas™ 9100 Welding Shield, including welding filter	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)

Accessories for expanded comfort and protection



Magnifying lens

New holder provides a more precise lens attachment on the inside surface of the 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 shield in the up position.





Part No 16 90 10.

Head proection

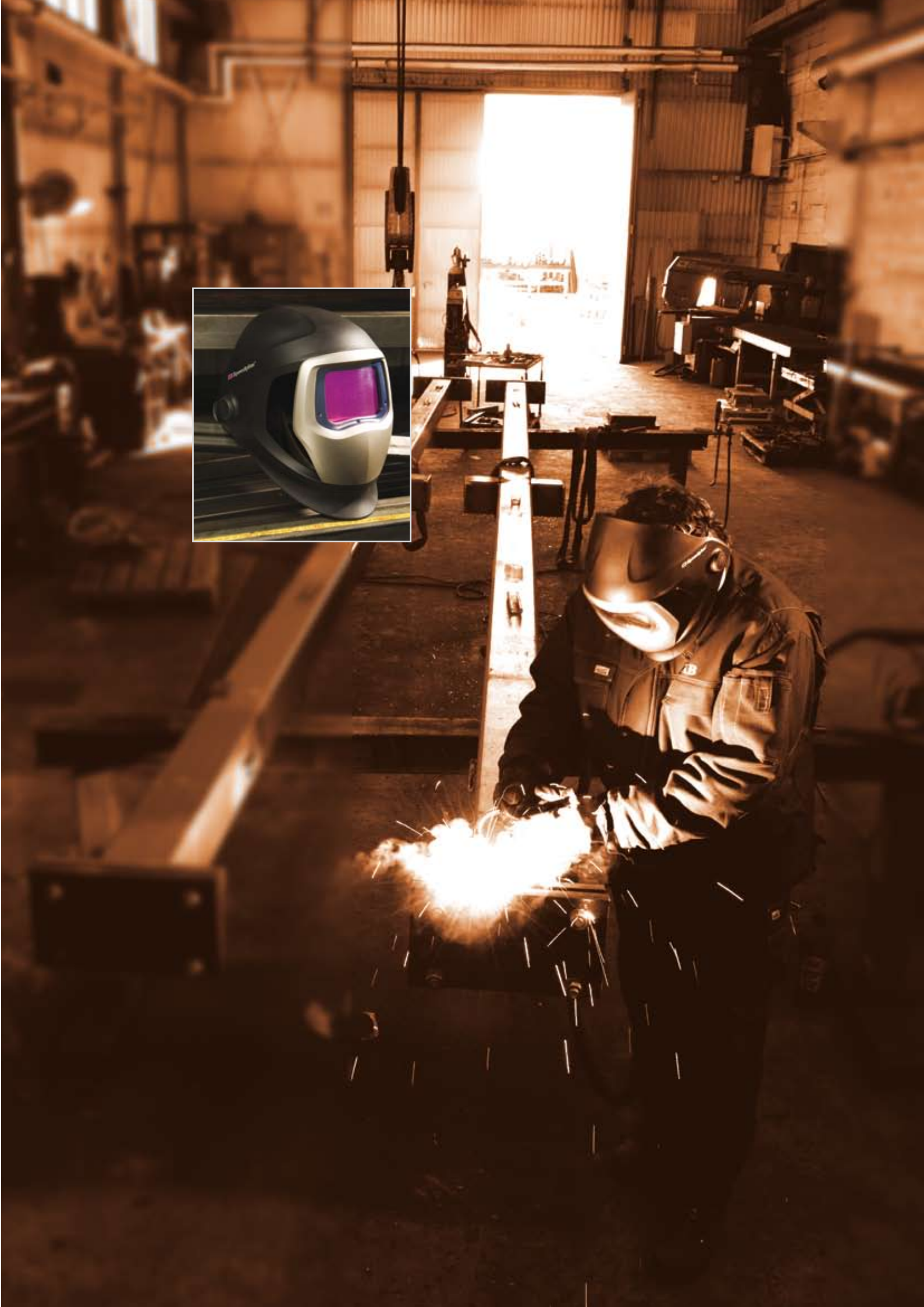
Extended head coverage made from flame-resistant Tecaweld™ (a blend of 75% cotton and 25% Kevlar™ fibers). Simply fasten it on the shield to protect your head from sparks, flames and UV/IR radiation.

Part No 16 90 10.

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

Suggested models of respirators	Description	Approval	Part No
3M™ 4000 Series Respirator 	The 3M 4000 series are a range of ready-to-use, maintenance-free half masks designed for effective and comfortable protection against a combination of many gases, vapours and particulates. For welding protection the 3M 4277 model is approved to protect against ozone when TIG welding stainless steel.	EN 405:2001	4251 - FFA1P2D 4255 - FFA2P3D 4277 - FFABE1P3D 4279 - FFABEK1P3D
3M™ 7500 Series Half mask 	The 3M 7500 series half mask has set a new standard in introducing the highest levels of comfort to half mask respirators. With the 3M 2000 series particle filters it fits comfortably inside the Speedglas 9100 shield.	EN140:1998	7501 - small 7502 - medium 7503 - large
3M™ 2128 and 2138 Series Particle Filters 	The 2128 and 2138 series filters offer particulate protection and additional nuisance level protection against organic vapours and acid gases. Both filters are compatible to 3M 7500 series half masks.	EN143:2000 P2 R EN143:2000 P3 R	2125 - P2 R 2135 - P3 R
3M™ 9900 Series Particle Respirator 	Maintenance-Free Particulate Respirator for protection against fine dust, oil, water-based mists and metal fume. The 3M Cool-Flow Valve reduces heat build up to offer comfortable protection, particularly in hot and humid environments.	EN149:2001, FFP2	9925 9928

The Speedglas 9100 shield design is compatible with most maintenance-free respirators that provide protection against hazardous welding particles. The products selected in chart are the models we can guarantee fits inside the shield and are suggested due to the most frequent particles from welding. Always consult your safety engineer for advise!



Speedglas™ is the world's leading brand of welding shields 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.3M.com....

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