



Comfortable
Protection
for Safer Welding

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 have persistently collected user insights and comments from around the world to inspire us to create premium performance welding protection.

Comfort is key

The more comfortable you are in your protective gear, the more you want to keep it in position, providing you more continuous protection from workplace hazards. In our development process we often consult international experts in ergonomics and anatomy to ensure that we would produce the most comfortable and protective solution for the professional welder.

Welder's tell us what's optimum

The new Speedglas 9100 welding 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!



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Welding's future – the healthy generation

Time and again, welding rises to the challenges presented by modern ambitions: high-pressure pipelines and vessels, supertankers, deep-sea submarines, race cars, skyscrapers and spacecraft... to name just a few examples. But the shortage of skilled welders is a continual problem for the industry.

Many workers consider welding hot, dirty, and potentially dangerous. Welding supervisors need to seriously review the work environment and ask themselves:

“Will my shop attract and keep the best welders?”

And welders need to ask themselves: “How can I protect my health?”

It's never too late

Our society is becoming ever more health-conscious, as science becomes better able to explain the cause-and-effect of diseases and ailments. Conditions that used to be considered as “acceptable” (metal fume fever, arc eye etc.) are now being questioned by many welders.

This new class of welders greatly appreciates the complete eye and face protection of ADF (auto-darkening filter) welding shields. And they also know that personal respiratory protection is designed to provide breathable quality air. So less energy is expended on simply breathing, and more energy can go into their welding. Even hours after work they feel much more invigorated.





In general it is the responsibility of the employer to identify any hazards that are to be found in the working environment and to provide the workers with adequate protection.

There are no second chances when it comes to your eyes

The human eye, face and respiratory system are by nature soft and vulnerable, particularly in the harsh, gritty world of electric arc welding. Many welding and cutting procedures emit dangerous light radiation. The most likely eye injuries from UV/IR radiation are retinal burns and flash burns to the cornea. These high intensity light injuries are preventable when the proper protection is worn and used appropriately.

Injuries from welding fumes are insidious

After you find your ideal eye and face protection, you can still be subject to the headaches, the sore throats, and the general fatigue that only seems to lessen when you're on holiday. All welding fumes contain pollutants and the injuries they can cause are insidious. Illnesses due to welding fumes take many weeks, months and sometimes years to become apparent.

The welder's right to be protected

It is important to choose the right kind of protection

The level of pollution is determined by the welding method, amperage and ventilation in the workplace. Comprehensive information about regulations, legislation, limits etc. is often specific to each country. The choice of protective equipment is often made after consultation between employers and users. Always contact your Safety Engineer, company health representative or other experts if there are any doubts or unclear points regarding pollution of the working environment or choice of product.

In the US alone, an average of \$300 million is spent per year on costs associated with eye injuries, including medical expenses, workers' compensation, and lost production time. In three of every five eye injury cases, the worker was not wearing any type of eye protection.

Source: Summit Training Source, Inc. in an article published by "Health & Safety International", July 2003.



Immediate symptoms from exposure to welding fumes

- Eye and skin irritation
- Nausea
- Headache
- Dizziness
- Metal fume fever

Chronic insidious, injuries on

- Respiratory tract and lungs
(including lung cancer)
- The central nervous system
(Parkinson's Disease etc)

Did you know?

- 100 years after the invention of the arc shield, eye injuries continue to be one of the most common acute injuries suffered by welders.
- Welders run a 40% greater risk than other professional groups of being affected by lung cancer because of their working environment.*
- Welders who smoke need more respiratory protection than non-smokers.**
- In some municipalities, authorities have set their own air quality standards for the city at large. By comparison, the standards for welding environments can be up to 100 times lower (that is, worse than) the city's standards. What does this mean for the welder? Well, take for example the OEL (Occupational Exposure Limit) for zinc oxide, which is 5 mg/m³. Even if you're within this OEL, you inhale up to 11 grams of zinc oxide every year.***

* US Department of Health & Human Services (NIOSH) Pub. No. 88-110p iii. ** Spring 1997 (Vol.12#1) issue of Liaison, The newsletter of the Occupational and Environmental Medical Association of Canada. *** Under normal working conditions the respiratory rate is about 20 litres of air/minute. Over a working year (100%), a welder breathes in about 2300 m³ of air. Under working conditions with 5 mg/m³ of welding particles in the air, a welder breathes in 11 grams of particles/year.



Eye & Face Protection

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How ADF's work



Before:

With the shield in the safe down position, the welder has a clear view through the welding filter. Both hands are free and the electrode can be precisely positioned.



During:

Within 0,1 milliseconds of the arc strike, the filter has switched to the dark state.



After:

The filter automatically returns to the clear state after welding is complete, allowing for immediate and safe inspection of the weld pool, as well as preparation for the next weld.

Eye protection that increases your performance

The key to remember with Speedglas Auto Darkening Welding Filters (or ADFs) is consistency. They enable constant, comfortable vision to welders. They provide constant protection from ultraviolet and infrared (UV/IR) radiation. And they consistently auto-switch from clear to dark, and back again, in just the way the welder wants.

Awkward made easier

Speedglas welding filters also eliminate the neck-strain of “shield flipping” while greatly increasing the accuracy of electrode placement. This, in turn, reduces the need for grinding and rework. In addition, welders can get into tight, cramped spaces with their eye and face protection already in place. Their constant, clear view makes even extremely awkward welds a lot easier.

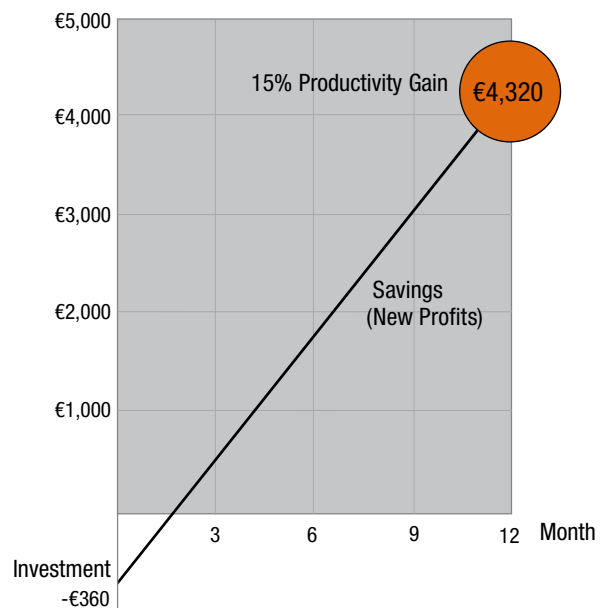
How fast does a Speedglas welding shield pay for itself?

If profitability is defined in terms of protection, one day is enough. But while “protection” sometimes can be difficult to measure, efficiency and weld quality are much easier to gauge. Studies show that welders can increase efficiency substantially when using Speedglas ADFs. Not only can welders work faster when they can always see, but they move more efficiently, placing electrodes more precisely. Most “bad weld starts” can be eliminated. Fewer bad welds mean less grinding and higher overall quality levels.

For example:

Productivity gains are, of course, dependent on the application. A welder doing lots of tack welds will have much greater productivity gains than a welder doing long seam welds. With that said, this example uses a conservative 15% gain in productivity.

If a welder is paid €18 per hour, the welding shield will pay for itself in two months. In one year, the productivity gain will be €4.320 in savings (also known as new profits).



A quick guide to our Auto-Darkening Welding Filters

Speedglas auto-darkening welding filter was one of the first of its type on the market, bringing a new standard to eye protection and comfort for welders. Today there is a great family of Speedglas welding shields, each model with its specific series of welding filters.

Before you select a model, ask yourself:

- How will I use my ADF?
- Do I occasionally change welding process/shade no?
- This is a long-term investment: A variable welding filter offers more flexible features for new working conditions.



Filter Guide

There are a few parameters that affects the performance of an auto-darkening welding filter like type of welding machine, working environments etc. The table below is a general guide

to all our various models due to detector function based solely on welding applications. For more detailed information, please see the following pages.

	Speedglas 9100XX	Speedglas 9100X	Speedglas 9100V	Speedglas SL	Speedglas 9002X	Speedglas 9002V	Speedglas 9002D	Speedglas 100V	Speedglas 100S
Dark state	Shade 5, 8, 9-13 (variable)	Shade 5, 8, 9-13 (variable)	Shade 5, 8, 9-13 (variable)	Shade 8-12 (variable)	Shade 9-13 (variable)	Shade 9-13 (variable)	Shade 9/11 (dual)	Shade 8-12 (variable)	Shade 10 or 11 (single)
MMAW (Electrode)	Optimized	Optimized	Optimized	Optimized	Optimized	Optimized	Optimized	Optimized	Optimized
MIG/MAG	Optimized	Optimized	Optimized	Optimized	Optimized	Optimized	Optimized	Optimized	Optimized
TIG (>20A)	Optimized	Optimized	Optimized	Optimized	Optimized	Optimized	Suitable	Suitable	Not Recommended
TIG (1A-20A)	Optimized	Optimized	Optimized	Suitable	Suitable	Suitable	Not Recommended	Not Recommended	Not Recommended
Plasma (welding and cutting)	Optimized	Optimized	Optimized	Suitable	Suitable	Suitable	Not Recommended	Not Recommended	Not Recommended
Risk for hidden arc	Optimized	Optimized	Optimized	Suitable	Suitable	Suitable	Not Recommended	Not Recommended	Not Recommended
Tack welding	Optimized	Optimized	Optimized	Suitable	Suitable	Suitable	Suitable	Suitable	Suitable
Grinding	Optimized	Optimized	Optimized	Not Recommended	Suitable	Suitable	Suitable	Suitable	Suitable

Please note: Regarding Speedglas welding shields and visors for grinding applications, please read recommendations on page 31. Recommendations of shade numbers according to EN 379:2003, see table on page 28.

3M™ Speedglas™ 9100 Welding Shield - a new era of welding comfort

The comfort of the new Speedglas 9100 shield is the result of extensive research and development processes. 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. We also made the shield deeper and wider, providing greater coverage of ears, neck and sides of the head.

Designed for ultimate protection

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.

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.



Better optics, bigger views

The new auto-darkening filter models 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 filter!

By selecting just the right setting for each task, the welder reduces eye strain and improves the quality of every weld. 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.

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.

- 30% larger than any other Speedglas welding filter (9100XX filter)!
- Seven variable dark shades (5, 8, 9 -13), including shades for gas welding, micro-plasma, and low-amp TIG.
- Adjustable sensitivity of arc detection.
- Patented tack welding comfort mode.
- Exclusive, patented shade 5 SideWindows option.





A head suspension that shapes to 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.

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.

Reducing the possibility of neck strain

We reduced the static and dynamic loads on the neck 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.

Technical Data - Ordering information	Speedglas 9100V Welding Filter	Speedglas 9100X Welding Filter	Speedglas 9100XX Welding Filter
Approvals Eye protection Face protection	Conforms to EN 379 EN 175	Conforms to EN 379 EN 175	Conforms to EN 379 EN 175
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 type	Lithium 3 Volt	Lithium 3 Volt	Lithium 3 Volt
Battery lifetime	2 800 hours	2 500 hours	2 000 hours
Ordering information Speedglas 9100 welding shield (incl 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)

For auto-darkening welding filters there are four parts of the classification: optical class/diffusion of light/transmittance and as option angle dependences.
Note: Regarding Speedglas welding shields and visors for grinding applications, please read recommendations on page 31.

3M™ Speedglas™ SL Welding Shield

At 360 Grams,
our Super Lightweight champ...

The Speedglas SL welding shield is made from a strong lightweight material with excellent protection. Unlike other materials that can absorb moisture and become heavy, the Speedglas SL shield is non-absorbent, so it retains its performance in high humidity.

The headband design uses a pattern of holes for breathability and better conformity to the welder's head. It also accommodates smaller head sizes; its full range is from 50 cm to 64 cm.



reddot design award
winner 2007



product
design
award

2008

Lighter, but with all the performance

Using new liquid crystal designs and manufacturing techniques, we are able to make the Speedglas SL auto-darkening welding filter much lighter than our other models, but with the same outstanding optical quality and switching performance.

- For most arc welding processes – such as MMA, MIG/MAG, TIG and plasma welding.
- Variable (8-12) dark shade.
- Four sensitivity settings.
- Auto ON and OFF.

Technical Data - Ordering information	Speedglas SL Welding Filter
Approvals Eye protection Face protection	Conforms to EN 379 EN175
Classification	1 / 1 / 1 / 2
Switching time, light-dark	0,1 ms (+23°C)
Switching time, dark-light	User-adjustable 60 – 250 ms
UV / IR protection	Shade 12 (permanent)
Viewing area	42 x 93 mm
Light state	Shade 3
Dark state	Shade 8 – 12 (variable)
Weight (incl welding filter)	360 g
Battery type	Lithium 3 Volt
Solar cell	No
Battery life time	1 500 hours
Ordering information Speedglas SL shield incl. welding filter	Part no. 70 11 20

For auto-darkening welding filters there are four parts of the classification: optical class/diffusion of light/transmittance and as option angle dependences.

Note: Regarding Speedglas welding shields and visors for grinding applications, please read recommendations on page 31.





3M™ Speedglas™ 100 Welding Shield

High-end features, low-end price

The easy-to-use Speedglas 100 is the ideal “first” auto-darkening shield for hobby welders, farmers, DIY types, and maintenance or construction workers who weld infrequently but can benefit from the ability to always clearly see with their welding protection in place. Apart from the black/silver shield there are a number of graphic shields available - all with a specific identity.

Single or Variable Shade Filter

The Speedglas 100S-10 and 100S-11 filters have single dark shades of 10 and 11, respectively, and a light shade of 3. The Speedglas 100V filter has five user-selectable dark shades, from shade 8 to shade 12, and a light shade of 3.

- For most arc welding processes – such as MMA, MIG/MAG and many TIG applications.
- Single (10 or 11) shade or variable dark shade (8-12).
- Three sensitivity settings (100V).



Technical Data - Ordering information	Speedglas 100S-10 Welding Filter	Speedglas 100S-11 Welding Filter	Speedglas 100V Welding Filter
Approvals Eye protection Face protection	Conforms to EN 379 EN 175	Conforms to EN 379 EN 175	Conforms to EN 379 EN 175
Classification	1 / 2 / 2 / 3	1 / 2 / 2 / 3	1 / 2 / 2 / 3
Switching time, light-dark	0,1 ms (+23°C)	0,1 ms (+23°C)	0,1 ms (+23°C)
Delay (Switching time dark-light)	150 ms	200 ms	100 - 250 ms
UV / IR protection	Shade 12 (permanent)	Shade 12 (permanent)	Shade 12 (permanent)
Viewing area	44 x 93 mm	44 x 93 mm	44 x 93 mm
Light state	Shade 3	Shade 3	Shade 3
Dark state	Shade 10 (single)	Shade 11 (single)	Shade 8-12 (variable)
Battery lifetime	1 500 hours	1 500 hours	1 500 hours
Battery type	Lithium 3 Volt	Lithium 3 Volt	Lithium 3 Volt
Ordering information Speedglas 100 (black) shield incl. welding filter	Part no. 75 11 10	Part no. 75 11 11	Part no. 75 11 20

For auto-darkening welding filters there are four parts of the classification: optical class/diffusion of light/transmittance and as option angle dependences.
Note: Regarding Speedglas welding shields and visors for grinding applications, please read recommendations on page 31.

3M™ Speedglas™ 9000 ProTop Welding Shield

A combination of safety helmet, welding shield, and auto-darkening filter, especially designed for welders working in areas with overhead hazards, such as cranes, protruding beams and moving machinery. The key to the Speedglas ProTop system is the exclusive pivot mechanism that connects the welding shield to the safety helmet. Traditional welding safety helmets create a heavy forward center-of gravity when the shield is raised; as a result, the user feels off-balance, and the leveraged weight puts additional strain on neck muscles.

- Available with Speedglas 9002 Series welding filters, variable shade 9-13 or dual shade 9/11.
- Speedglas SideWindows option.
- Patented exhaust vents.



3M™ Speedglas™ 9000 FlexView Welding Shield



The Speedglas FlexView welding shield has a big, 120 x 90 mm clear visor that is ideal for precision weld preparation under low light conditions. The users simply lift up the spring-mounted welding filter assembly when welding is finished. The spring holds the auto-darkening filter securely on top of the shield, giving the welder a big, clear view behind the FlexView visor.

- Available with Speedglas 9002 Series welding filters, variable shade 9-13 or dual shade 9/11.
- Speedglas SideWindows option.
- Patented exhaust vents.

3M™ Speedglas™ 9000 Welding Shield



The Speedglas 9000 shield is available as a complete system with Speedglas 9002D welding filter. Previous variable shade models (9002V/9002X) are now replaced by the Speedglas 9100 series welding shield and filters.

- Available as complete shield with Speedglas 9002D welding filter, shade 9/11 (dual). The 9002V and 9002X filters can still be ordered as spares.
- Speedglas SideWindows option.
- Patented exhaust vents.

Technical Data - Ordering information	Speedglas 9002X Welding Filter	Speedglas 9002V Welding Filter	Speedglas 9002D Welding Filter
Approvals Eye protection Face protection	Conforms to EN 379 EN 175	Conforms to EN 379 EN175	Conforms to EN 379 EN 175
Classification	1 / 1 / 2	1 / 1 / 1	1 / 2 / 2
Switching time, light-dark	0,1 ms (+23°C)	0,1 ms (+23°C)	0,4 ms (+23°C)
Switching time dark-light	User-adjustable 60 – 500 ms	User-adjustable 60 – 500 ms	User-adjustable 100 – 200 ms
UV / IR protection	Shade 13 (permanent)	Shade 13 (permanent)	Shade 13 (permanent)
Viewing area	55 x 107 mm	42 x 93 mm	42 x 93 mm
Light state	Shade 3	Shade 3	Shade 3
Dark state	Shade 9 – 13 (variable)	Shade 9 – 13 (variable)	Shade 9/11 (dual)
Fail / Safe state	Shade 5 – 6	Shade 5 – 6	Shade 5 – 6
Solar cell	Yes	No	No
Battery life time	3 000 hours	1 500 hours	1 500 hours
Battery type	Lithium 3 Volt	Lithium 3 Volt	Lithium 3 Volt
Ordering information Speedglas 9000 shield, incl welding filter	Replaced by Speedglas 9100 shield	Replaced by Speedglas 9100 shield	Part no. 40 11 40 (without SideWindows) 40 18 40 (with SideWindows)
Ordering information Speedglas 9000 FlexView shield, incl welding filter	Part no. 44 18 80 (with SideWindows)	Part no. 44 18 70 (with SideWindows)	Part no. 40 00 40 (welding filter) 44 18 00 (welding shield)
Ordering information Speedglas 9000 ProTop shield, incl welding filter	Part no. 48 38 80 (with SideWindows)	Part no. 48 38 70 (with SideWindows)	Part no. 40 00 40 (welding filter) 48 38 00 (welding shield)

For auto-darkening welding filters there are four parts of the classification: optical class/diffusion of light/transmittance and as option angle dependences.

Note: Regarding Speedglas welding shields and visors for grinding applications, please read recommendations on page 31.

Care and maintenance of welding shields and filters

Every day welding sparks, heat, fumes and normal wear-and-tear grind away at your protection equipment. Therefore, we designed all Speedglas products with ease of maintenance in mind. All replacement parts can be installed by hand, without tools. For maximum safety and comfort, make it a regular habit to check and change the following items at intervals recommended below.



Component	Typically replaced	Notes
Outer protection plate	Once a week	Replace anytime the plates becomes deeply pitted, scratched or too dirty to clean with soft cloth or lens paper.
Inner protection plate	Once a month	Regularly clean with a soft cloth and replace if any pits or scratches occur.
FlexView protective plate	Every two weeks	Replace more often if visibility is reduced.
Sweatband	Once a month	Replace more often if sweatband becomes unhygienic.

Important information

Note that higher-than-normal levels of pollutants, heat, and sparks will require more frequent replacement of components. Above information assumes minimum 4 hours usage per day. Ordering information for each series of welding shield can be found in section parts list.



Respiratory Protection

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Personal protection for welders

Obviously, good general ventilation is required for all working environments. To contain welding fumes, the two most common methods are local exhaust ventilation and “on-gun, fume-extractors.” It can be hard and time consuming to use this kind of equipment so that you get the correct protection. All fume extractors can, regrettably, also remove valuable shielding gases, tempting the welder to turn down the ventilation.

Given the potential limitations of ventilation systems, it may be necessary to use personal respiratory protection to complement the exhaust systems to reduce exposure to contaminants to the lowest achievable level.



The multiple benefits of personal respiratory protection

- Products provide nominal protection factor up to 50
- Improved worker comfort: a cool, refreshing atmosphere within the helmet
- Integrated protection

How many grams of fume particles do you ingest every year?

To protect welders, safety authorities in each country have set Occupational Exposure Limits (OELs) for specific fume pollutants. Unfortunately, these “upper limits” may still expose the everyday welder to certain levels of contamination. For example, if the combined OELs for a work area are 5 mg/m^3 or higher, you could inhale 11 grams or more of welding particles every year.*

Protection factors indicates pollutant reduction

The EN standards specifies the minimum performance requirements a product must meet. Respirators are also classified by the protection factor they provide. The protection factor of the respirator indicates how much the pollutant is reduced (or filtered from the air) before it reaches the user.

For example:

A manufacturer of galvanised fences measures 30 mg/m^3 of zinc oxide in the workplace air. The Occupational Exposure Limit (OEL) is only 5 mg/m^3 . The airborne zinc oxide exposure to the welder, therefore, must be reduced by at least a factor of 6 (30 mg/m^3 divided by $6 = 5 \text{ mg/m}^3$). A respirator with a minimum protection factor of 10 is required.

*) Under normal working conditions the respiratory rate is about 20 litres of air/minute. Over a working year (100%), a welder inhales about $2\,300 \text{ m}^3$ of air. Under working conditions with 5 mg/m^3 of welding particles in the air, a welder inhales 11 grams of particles/year.

A general guide to respiratory protection


















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

How to use this guide:

Identify the material to be welded and the welding process to be used. The concentration level of the pollutants are affected

by the ventilation conditions in the workplace. Choose the appropriate description of the working environment to determine the most suitable type of respiratory protection*.

- P** Powered air respirator with particle filter, page 19.
A B E Powered air respirator with ABE gas filter, page 19.
C Compressed air respirator, page 23.

Material to be welded	Welding method	Ventilation conditions of your working environment				Classified as IDLH
		Good environment, with forced ventilation	Limited ventilation	Restricted space		
Aluminium	MIG 	P	P / P + A B E	C	Powered and compressed air respirators must never be used in atmospheres Immediately Dangerous to Life or Health (IDLH). Always consult your Safety Engineer.	
	TIG 	P	P / P + A B E	C		
	STICK WELDING 	P	P / P + A B E	C		
Stainless steel	MIG 	P	P / P + A B E	C		
	TIG 	P	P / P + A B E	C		
	STICK WELDING 	P	P / P + A B E	C		
	PLASMA (Welding and Cutting)	P	P + A B E / C	C		
Steel not coated or painted	MIG/MAG 	P	P	C		
	STICK WELDING 	P	P	C		
	PLASMA (Welding and Cutting)	P	P / C	C		
Steel painted (lead based paints)	MIG/MAG 	P	P	C		
	STICK WELDING 	P	P	C		
	PLASMA (Welding and Cutting)	P	P / C	C		
Steel galvanised	MIG/MAG 	P	P	C		
	STICK WELDING 	P	P	C		
	PLASMA (Welding and Cutting)	P	P / C	C		
Steel painted and/or isolated with 2-component paint systems or polyurethane (risk for isocyanate)	MIG/MAG 	C	C	C		
	STICK WELDING 	C	C	C		
	PLASMA (Welding and Cutting)	C	C	C		
Material cleaned with trichloroethylene	MIG 	C	C	C		
	TIG 	C	C	C		
	STICK WELDING 	C	C	C		
	PLASMA (Welding and Cutting)	C	C	C		

*) 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

Remarks

H = The chemical can be absorbed through the skin.

K = The chemical can be cancer-inducing.

S = The chemical can be a sensitizer.

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.

- 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 Speedglas or ClearVisor with Adflo particle filter will reduce ozone exposure (for further information please contact 3M Technical service at your local 3M office)
- 3) Chemical constituents of the welding fume with very low Occupational Exposure Limits can pose special hazards and are sometimes best protected against by use of the Compressed Air Respiratory System. If in doubt always seek professional advice from your Safety Engineer.

Occupational Exposure Limits (OELs) are given in the individual countries national safety requirements.

Get information for the UK on www.hse.gov.uk

Suggested Filter Type

Chemical	Particle	Gas	Compressed Air	Remarks
Aluminium	P			
Argon			Comp. Air	1)
Beryllium	P		Comp. Air	K, S 3)
Bromine		B		
Cadmium	P			K
Carbon Dioxide			Comp. Air	
Carbon Monoxide			Comp. Air	
Chlorine		B		H
Chlorine Dioxide		B		
Chromium Hexavalent	P			K
Chromium Trivalent	P			
Copper	P			
Fluorides	P			
Fluorine			Comp. Air	
Helium			Comp. Air	1)
Isocyanates			Comp. Air	S
Hydrogen Chloride		B	Comp. Air	3)
Hydrogen Cyanide		B	Comp. Air	H3)
Hydrogen Fluoride		B	Comp. Air	3)
Hydrogen Sulphide		B		
Iron Oxide	P			
Lead	P			
Magnesium	P			
Manganese	P			
Nickel	P			S
Nitrogen Dioxide			Comp. Air	
Nitric Oxide			Comp. Air	
Ozone	P	ABE		2)
Phosgene			Comp. Air	3)
Phosphine			Comp. Air	
Silicon Dioxide	P			
Sulphur Dioxide		E		
Trichloroethylene		A		K
Vanadium Oxide	P			
White Spirit		A		
Zinc	P			
Zinc Chloride	P			
Zinc Oxide	P			

3M™ Speedglas™ Welding Shields with Powered Air Respirator

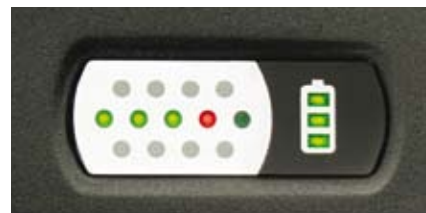
The Adflo powered air respirator is specially designed for welders using the Speedglas 9000 series welding shields. Its smart, compact design is made to suit welders and their specific working conditions. All Speedglas shields for the Adflo respirator are fitted with the Speedglas SideWindows as standard, in order to enable good peripheral visibility – an important factor for both comfort and safety.

An adaptable system that saves money

In effect, it is two systems in one, allowing increased user flexibility to adapt to changing welding applications. 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.

Goes into tight spaces

The Adflo respiratory system has no external batteries, no battery cables, and no sharp corners. Its slim profile is designed to go into tight spaces. It is one of the most ergonomically-perfect powered air respirator available to welders!



Filter Indicator

As soon as you turn on your Adflo powered air respirator a display indicates the status of the particle filter. Green light means that the unit is working normally. Red light indicates that filter is clogging up. As an extra security feature an audible alarm sounds when the filter is so clogged that the airflow level cannot be maintained. If this alarm is ignored the unit automatically turns off.



Technical Data

3M™ Adflo™ Powered Air Respirator

Approval

Respiratory protection	EN 12 941 (TH 2)
Eye & Face protection	
Speedglas 9000 welding shield	EN 175, EN 379, EN 397*)
Speedglas FlexView welding shield	EN 166, EN 175, EN 379, EN 397*)
ClearVisor (polycarbonate visor)	EN 166
Visor (shaded visor), Acetate	EN 166

Nominal protection factor (NPF) **)

50

Filter

Particle filter	P (SL)
Gas filter	A1B1E1 or A2
Odour filter	Reduces odours

Airflow

Nominal	170 l/min
Airflow Plus	200 l/min

Weight

Speedglas 9000 welding shield***)	750 g
Speedglas FlexView welding shield***)	820 g
ClearVisor (polycarbonate visor)	515 g
Adflo respirator (incl particle filter and standard battery)	1 160 g

Battery

Charging time	NIMH 4 hours
---------------	-----------------

Noise level dB (A)

max 75 dB

Belt

Leather, 75 – 150 cm

Temperature range

Use	-5 °C to + 55 °C
Storage	-20 °C to + 55 °C

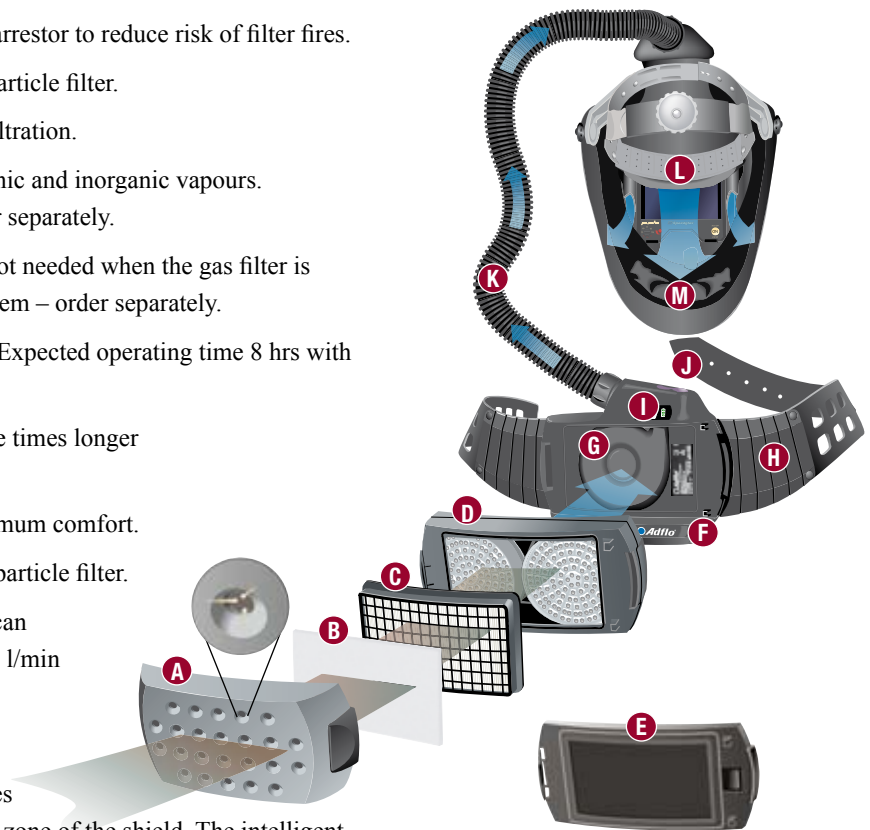
*) Safety helmet option.

***) The nominal protection factor based on laboratory-measured performance data according to European Standards. The protection factor is assigned by local authorities in each European country and can therefore be different for different countries.

****) With Speedglas 9002V welding filter installed.



- A. Filter cover:** holds user-replaceable spark arrestor to reduce risk of filter fires.
- B. Prefilter:** increases the service life of the particle filter.
- C. Particle filter:** high efficiency particulate filtration.
- D. Gas filter:** (A1B1E1 or A2) filters off organic and inorganic vapours.
Not included in a complete system – order separately.
- E. Odour filter:** removes unpleasant smells (not needed when the gas filter is installed). Not included in a complete system – order separately.
- F. NiMH battery:** fully charges in four hours. Expected operating time 8 hrs with particle filter.
- G. Brushless motor:** with an average life three times longer than conventional motors.
- H. Ergonomic leather belt:** designed for maximum comfort.
- I. Filter Indicator:** indicates the status of the particle filter.
- J. Airflow Plus:** for hot, humid jobs, the user can increase the airflow from 170 l/min to 200 l/min with the push of a button.
- K. Breathing tube:** fits all Speedglas models.
- L. Exclusive airflow pattern:** evenly distributes filtered air throughout the entire breathing zone of the shield. The intelligent turbo unit keeps the airflow rate at a constant, preset level.
- M. Soft, flexible face seal:** creates a positive pressure environment within the shield, keeping the surrounding pollutants at bay.



All part numbers please see page 39.



Speedglas FlexView welding shield with Adflo respiratory protection

Welding shield with auto-darkening filter and a 120x90 mm clear visor for weld preparations. Excellent for low-light conditions and continuous eye, face and respiratory protection.

Part no*:

- welding shield incl complete Adflo respiratory system

44 66 80 with Speedglas 9002X welding filter, variable shade 9–13.

44 66 70 with Speedglas 9002V welding filter, variable shade 9–13.

44 66 00 without welding filter.

44 68 80 safety helmet option with Speedglas 9002X welding filter, variable shade 9–13.

44 68 70 safety helmet option with Speedglas 9002V welding filter, variable shade 9–13

44 68 00 safety helmet option without welding filter.

* For gas protection add any of these part numbers to your order: 83 72 42 for gas filter A1B1E1, or 83 75 42 for gas filter A2.

Note: regarding Speedglas welding shields for grinding applications, for further information see page 31.



Speedglas 9000 welding shield with Adflo respiratory protection

Welding shield with auto-darkening filter. Award-winning, ergonomic welder protection with optimal mobility and ease-of-use.

Part no*:

- welding shield incl complete Adflo respiratory system:

46 66 80 with Speedglas 9002X welding filter, variable shade 9–13.

46 66 70 with Speedglas 9002V welding filter, variable shade 9–13.

46 66 00 without welding filter

47 66 80 safety helmet option with Speedglas 9002X welding filter, variable shade 9–13.

47 66 70 safety helmet option with Speedglas 9002V welding filter, variable shade 9–13.

47 66 00 safety helmet option without welding filter.



Speedglas Constant welding shield with Adflo respiratory protection

For welders not currently in need of the advantages of an auto-darkening welding filter, the Speedglas FlexView with Adflo is also available with a conventional shade 11 welding filter.

Part no*:

- welding shield incl complete Adflo respiratory system:

44 38 00 with Speedglas Constant welding shield.

44 40 00 with Speedglas Constant welding shield and safety helmet.



Protective visors with Adflo respiratory protection

For non-welding manufacturing processes requiring eye, face and respiratory protection the Adflo respirator is also available as a system with a clear or shaded protective visor.

Part no*:

- visor incl complete Adflo respiratory system:

89 90 20 with visor in polycarbonate.

89 90 21 with visor in acetate (solvent resistant).

89 90 25 with visor in acetate, shade 5.

*For gas protection add any of these part numbers to your order: 83 72 42 for gas filter A1B1E1, or 83 75 42 for gas filter A2.

Note: regarding Speedglas welding shields for grinding applications, for further information see page 31.

3M™ Speedglas™ Welding Shields with Compressed Air Respirator



For highly-contaminated welding environments, you need the Fresh-air C (Compressed air) respiratory system with a nominal protection factor of 200. The lightweight, belt-mounted regulator allows the user to adjust the airflow from 160 to 300 litres per minute, making Fresh-air C ideal for hot and strenuous work.

Connects to air hoses

The belt-mounted regulator connects to an approved air hose with a quick release connector system. The airline supply must be air of breathable quality meeting the requirement of EN12021.

Oil mist or water vapour in the airline or non-toxic unpleasant odours may be removed with an air cleaning station, such as the ACU1 and ACU-2 filtration systems.

Respirator standards

The Fresh-air C system conforms to European standard EN 270 for compressed air respirators.

Note: Fresh-air C cannot be used if the atmosphere has been classified as Immediately Dangerous to Life or Health (IDLH).

Technical Data

3M™ Fresh-air™ C Compressed Air Respirator

Approval		Weight	
Respiratory protection	EN 270	Speedglas 9000 welding shield ^{***)}	715 g
Eye & Face protection		Speedglas FlexView welding shield ^{***)}	820 g
Speedglas 9000 welding shield	EN 175, EN 379, EN 397 ^{*)}	ClearVisor (polycarbonate visor)	510 g
Speedglas FlexView welding shield	EN 166, EN 175, EN 379, EN 397 ^{*)}	Fresh-air C control valve	370 g
ClearVisor (polycarbonate visor)	EN 166		
Visor (shaded visor)	EN 166	Noise level dB (A)	max 75 dB
Nominal protection factor (NPF) ^{**)}	200	Comfort belt	Polypropylene / 78 – 150 cm
Air flow nominal	160 – 300 l/min	Temperature range	
Air pressure	4 – 10 bar	Use	-5°C to + 50°C
Air quality	Breathable compressed air conforming to EN 12021	Storage	-20°C to + 50°C

^{*)} Safety helmet option.

^{**)} The nominal protection factor based on laboratory-measured performance data according to European Standards. The protection factor is assigned by local authorities in each European country and can therefore be different for different countries.

^{***)} With Speedglas 9002V welding filter installed.

3M™ Speedglas™ Compressed Air System



Welding shield with Fresh-air C control valve. Several alternatives on next page.



Compressed Air Supply Tube

85 41 10 Approved Compressed Air Supply tube 10 m green. Other lengths according to quotation.



Regulator panel

ACU-01 (wall mounted)
ACU-02 (stand alone)



Speedglas FlexView welding shield with Fresh-air C

Welding shield with auto-darkening filter and a 120 x 90 mm clear visor for weld preparations. Excellent for low-light conditions and continuous eye, face and respiratory protection.

Part no:

- welding shield incl complete Fresh-air C system

44 88 80 with Speedglas 9002X welding filter, variable shade 9-13.

44 88 70 with Speedglas 9002V welding filter, variable shade 9-13.

44 88 00 without welding filter.

44 89 00 with safety helmet option, without welding filter (welding filter 40 00 70 or 40 00 80 needs to be ordered separately).

Note: regarding Speedglas welding shields for grinding applications, for further information see page 31.



Speedglas 9000 welding shield with Fresh-air C

Welding shield with auto-darkening filter. Award-winning, ergonomic welder protection for highly contaminated environments.

Part no:

- welding shield incl complete Fresh-air C system:

46 88 80 with Speedglas 9002X welding filter, variable shade 9–13.

46 88 70 with Speedglas 9002V welding filter, variable shade 9–13.

46 88 00 without welding filter

47 88 00 safety helmet option without welding filter (welding filter 40 00 70 or 40 00 80 needs to be ordered separately).



Speedglas Constant welding shield with Fresh-air C

For welders not currently in need of the advantages of an auto-darkening welding filter, the Speedglas FlexView with Fresh-air C is also available with a conventional shade 11 welding filter.

Part no:

- welding shield incl complete Fresh-air C system:

44 88 00 with welding shield, excl welding filter.

44 89 00 with safety helmet option, excl welding filter.

44 30 00 Conventional fixed shade 11 welding filter.



Protective visors with Fresh-air C

For non-welding manufacturing processes requiring eye, face and respiratory protection the Fresh-air C respirator is also available as a system with a clear or shaded protective visor.

Part no:

- visor incl complete Fresh-air C system:

89 91 00 with visor in polycarbonate.

89 91 01 with visor in acetate (solvent resistant).

89 91 05 with visor in shade 5.

Care & Maintenance of Respiratory systems

For optimum performance and comfort, the user should develop a daily habit of checking all components of the respiratory system. The following table is our suggested maintenance schedule for typical industrial environments.

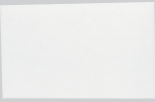






It's important to maintain the face seal

The thin, pliant face seal prevents the ingress of contaminated air. If the face seal is damaged there is great risk that contaminated air will get inside the helmet. A face seal in good working order is, therefore, essential at all times.

Do not clean the particle filter!

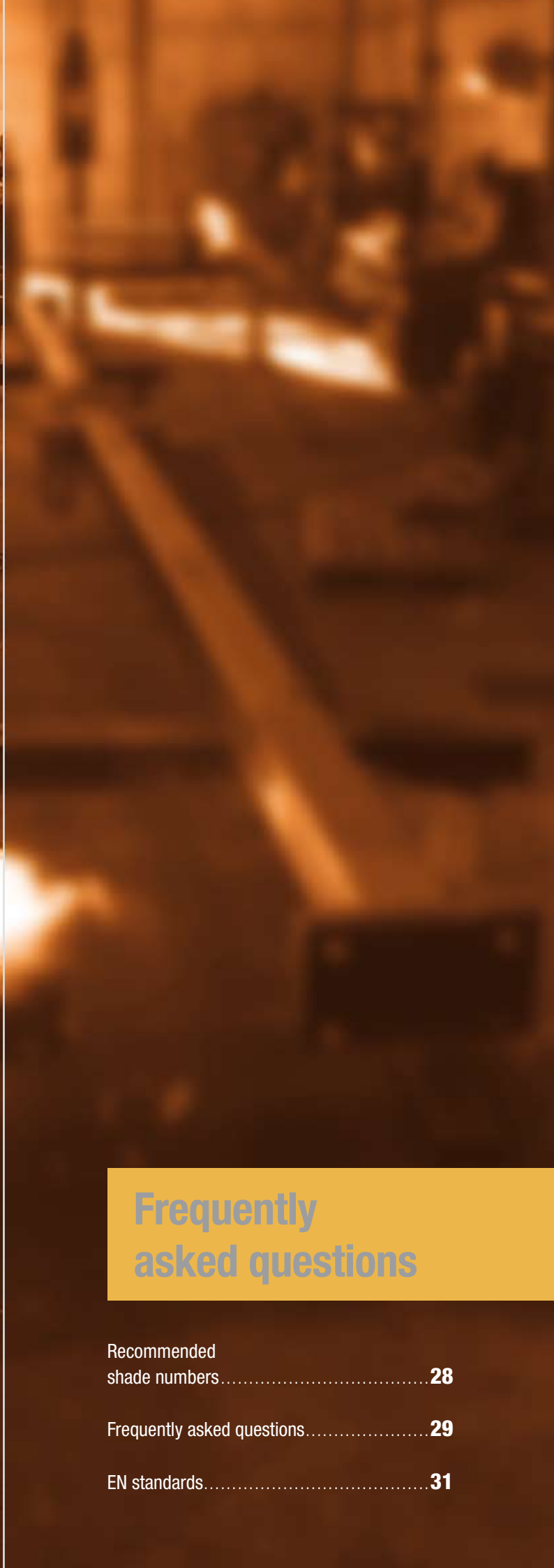
The Adflo particle filter indicator will help to see when the particle filter is clogged and needs to be changed. If the battery operating time becomes too short, or if the airflow is blocked, this usually indicates that the particle filter needs to be replaced.

The particle filter cannot be cleaned! Do not attempt to remove contaminants using a compressed air line as this will damage the functioning of the filter and automatically invalidate the warranty of the respirator.

Component	Typically replaced	Notes/ordering information
Prefilter 	Once a week	Regular replacement of the prefilter extends the life of the particle filter and decreases running costs. Part no. 83 60 10
Particle filter 	At least every month	Replace when particle filter indicator becomes red, whenever the battery operating time becomes too short or when "fully loaded" filter triggers low airflow alarm. Part no. 83 70 10
Gas filter 	At least every 3 or 4 weeks	Immediately replace the gas filter any time you can smell odours while wearing the system. Part no. 83 72 42 (A1B1E1), 83 75 42 (A2)
Odour filter (Adflo) 	Any time you smell unpleasant odours	Odour filter is not required if gas filter is used. Part no. 83 71 10 Odour filter, 83 71 20 Odour filter pad.
Spark arrestor (Adflo) 	As needed	Replace if deformed and no longer fitting well. Part no. 83 60 00
Breathing tube 	If damaged, deformed or leaking any air	To extend the life of breathing tube, use a tube cover or heavy-duty rubber breathing tube. Part no. 83 40 00 (standard breathing tube), 83 40 03 (breathing tube cover), 83 40 05 (breathing tube in rubber)
Face seal 	At least every 2 months	In really dirty environments, replace earlier if unhygienic. Part no. 43 40 01 (for welding shield), 43 40 05 (for welding shield with safety helmet), 80 40 05 (for protective visor)

Important information

Note that higher-than-normal levels of pollutants, heat, and sparks will require more frequent replacement of components. Chart assumes minimum 4 hours usage per day.



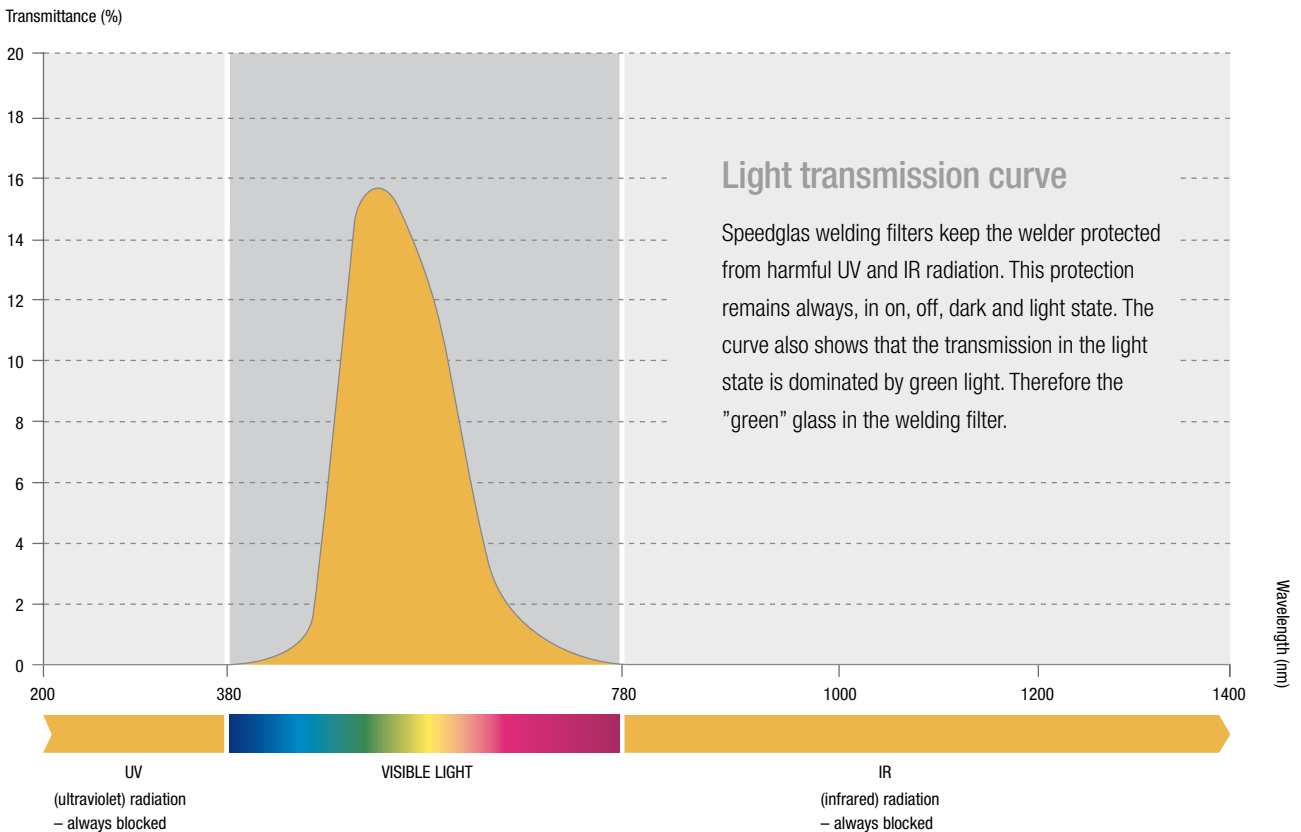
Frequently asked questions

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Recommended shade numbers according to EN 379:2003

Welding process	Current in amperes A																				
	1.5	6	10	15	30	40	60	70	100	125	150	175	200	225	250	300	350	400	450	500	600
MMAW (covered electrodes)	8						9	10	11	12			13			14					
MAG	8							9	10	11			12			13			14		
TIG	8			9			10	11			12		13								
MIG									9	10	11		12		13	14					
MIG with light alloys										10	11		12		13		14				
Air-arc gouging	10										11	12		13		14		15			
Plasma jet cutting									9	10	11	12		13							
Microplasma arc welding	4	5	6		7	8	9	10	11		12										

The table recommends best dark shade of welding filter for various working applications. According to the conditions of use, the next greater or the next smaller scale number can be used.



Frequently asked questions about welding fumes

1) Which respirator do I need when welding stainless steel?

When welding stainless steel with MIG or MMAW, the welding fumes often contains particles of chromium and nickel, of which chromium is the more toxic. A powered air respirator with particle filter offers you excellent protection in this application. TIG welding does not usually emit much welding fume but creates large quantities of ozone gas: read more under point 6. Plasma cutting and plasma welding give rise to high temperatures, which can emit damaging oxides of nitrogen: read more under point 7.

2) Do I really need respiratory protection when welding ordinary steel?

Although welding fumes from normal steel is not one of the more hazardous types, it is far from good for your health. Among other things, it contains particles of iron oxide, which can cause siderosis (chronic inflammation of the lungs). When welding with MIG/MAG and stick, there are heavy fume emissions, meaning that both a respirator and good ventilation in the workplace are necessary. When welding ordinary steel, a powered air respirator with particle filter is recommended.

3) What sort of respirator is needed when welding surface-treated material?

When welding surface-treated material, a number of hazardous pollutants can be released. When welding galvanised steel, zinc oxide particles are released. These can cause zinc ague, also known as fume fever. If you weld painted material you should be especially careful, as many paints can give off very hazardous air pollutants. When welding galvanised steel or material painted with lead primer, it is recommended that you use a powered air respirator with particle filter. In combination with an odour filter it will also minimise unpleasant odours. If the material is painted with two component paint or insulated with polyurethane, you should always contact a Safety Engineer. There is a large risk that you will be exposed to isocyanates, which are very hazardous to inhale and difficult to detect. In these cases it is recommended that a compressed air respirator is used.

4) What respiratory protection do I need in restricted areas?

If you are welding in restricted or semi-ventilated areas – where there is a potential for build up of higher levels of contaminant and/or a reduction in oxygen levels – a



compressed air respirator is suggested, regardless of welding method. With a compressed air respirator, providing breathable quality air, you can be confident of getting sufficient oxygen, as well as high levels of protection against gas and particulate contaminants. Powered or compressed air respirators are never to be used in atmospheres immediately dangerous to life or health (IDLH). Always ask a Safety Engineer if you are unsure!

5) Does shielding gases and alloyed electrodes affect my working environment?

When welding with MIG and TIG, the noble gases argon and helium are used as shielding gases. Neither argon nor helium is considered hazardous, but they can displace oxygen in unventilated areas. In such cases, a compressed air respirator is required. When welding with MAG, carbon dioxide, or a mixture of carbon dioxide and a noble gas, is used as a shielding gas. Since parts of the shielding gas can be converted into carbon monoxide when the gas reaches the air, large quantities of carbon monoxide can form around the welding arc. Carbon monoxide cannot be filtered away. If the ventilation is bad, the oxygen level must be checked and a compressed air respirator used. Alloyed electrodes are common when welding with MAG. The alloys often contain manganese or silicates. This means that large quantities of manganese oxide and silicates are diffused into the surrounding air when you are welding. A powered air respirator with particle filter usually offers sufficient protection against alloy particles.

6) When does ozone form?

When welding aluminium not only are particles of aluminium oxide produced but ozone gas is formed by the action of the UV radiation from the arc breaking down molecular oxygen. Ozone is also produced when welding stainless steel with TIG. Eventually ozone will be converted back to oxygen, a process that is speeded up when the ozone comes into contact with solid surfaces.

Ozone cannot be filtered from the atmosphere but relies on being converted back to oxygen. At low ozone concentrations the use of a powered air respirator with particulate filter reduces the amount of ozone reaching the welder. This is achieved by the fact that the particle filter (because of its large surface area) and the connecting tube to the welding shield help to catalyse the conversion of ozone back to normal oxygen. At higher concentrations the inclusion of a gas filter would add an additional large surface of carbon granules on which a further reduction of ozone takes place.

7) What are nitrogen gases?

Nitrogen dioxide and nitric oxide are examples of nitrogen gases that are formed when you weld with high amperage and high temperatures. Nitrous gases are formed by a reaction in the air between nitrogen and oxygen and are hazardous to inhale in high concentrations, e.g. when welding in confined, poorly ventilated areas. It is recommended that a compressed air respirator is used in such cases.



CE approvals and European Standards



In European, all personal protective equipment (PPE) must be CE marked and in compliance with the PPE Directive 89/686/EEC before they can be placed on the market. The PPE must also be in compliance with applicable harmonized standards that ensure that the basic safety requirements in the PPE Directive are met.

European Classification of Eye- and Face Protection

Classification of eye- and face protection is made according to the standards EN166, EN169, EN175 and EN379. In EN166 and EN175 mechanical strength is classified as; increased robustness (S), resistance to high speed particles (F, B). If the PPE meets the requirements at extremes of temperature (-5°C to +55°C), the marking is completed with the letter T. In addition there are classifications regarding field of use: “9” for protection against splashes of molten metals and penetration of hot solids, “3” for protection against liquids (droplets or splashes) and “8” for protection of electric arc due to a short circuit in electrical equipment.

For the standards EN166 and EN379 optical clarity of the welding filter or face shield are classified from 1 to 3, where 1 is the best. For conventional welding filters and visors there is only one classification of optical class. For auto-darkening welding filters there are four parts of the classification: optical class/diffusion of light/variation on transmittance/angel dependence (optional).

Grinding and Mechanical strength

Speedglas 9100 Series welding shield is approved regarding mechanical strength to EN175 level “B”. Speedglas 9000 welding shields with SideWindows are approved to EN175 level “F”. 3M therefore suggests that when SideWindows is required the Speedglas 9100 welding shield is to be used for protection against particles in grinding applications.

You can find the classification for our products in the technical data table next to the product presentations. For more details on European Standards or to purchase copies of European Standards contact your National Standards Institute.

Classification of mechanical strength

Class S	Increased robustness (drop ball test 5,1 m/s).
Class F	Resistance to high speed particles at low energy impact (45 m/s).
Class B	Resistance to high speed particles at medium energy impact (120 m/s).
Class T	The letter “T” indicates that the test for resistance to high speed particle was conducted at extremes of temperature (-5°and +55°C) (optional).

Note: Products classified in class B are not made to give total protection under all possible circumstances, e.g. when using grinding wheels/grinding machines.

European Standards for Powered Air Respirators

The European standard for a complete powered air filtering device incorporating a face shield or visor is EN12941 (replaces EN146:1991). There is no separate classification for particle filters (P) in the standard EN12941, the particle filter is part of the system classification. Standard EN12941 defines three classes of performance (TH1, TH2 and TH3). The numbers define the level of performance (inward leakage) within the classification. Inward leakage for classification TH1 is maximum 10%, for TH2 maximum 2% and for TH3 maximum 0.2%. When a respirator is fitted with a gas filter letters and colour codes describes what type of gases the filter media provides protection (eg A for organic, B for inorganic, E for acidic gases) as defined by the standard EN12941. The capacity requirements of gas filters are only for powered

air filtering devices and tested at the air flow of the unit.

For example one of the gas filters of the Adflo turbo unit is classified A1B1E1. The numbers describe the filter capacity: “1” for low capacity, “2” for medium capacity and “3” for high capacity.

European Standards for Compressed Air Respirators

Speedglas compressed air respirator incorporating a face shield or visor, are approved against EN 270 that confirm a inward leakage of less than 0,5%. The apparatus is not self contained and the airline supply must be air of breathable quality meeting the requirements in EN 12021. The maximum approved length of the compressed airline is 50 meters.

Personal respiratory protection		Product	Classification*)
EN 12 941 TH2	Powered particle filtering devices incorporating helmets or hoods.	Adflo respirator turbo unit with Speedglas welding shields Adflo respirator turbo unit with ClearVisor (polycarbonate/acetate) or Visor (shade 5)	TH2 TH2
EN 270	Compressed air line breathing apparatus incorporating hood.	Fresh-air C compressed air line with Speedglas welding shields Fresh-air C compressed air line with ClearVisor (polycarbonate/acetate) or Visor (shade 5)	No classification Inward Leakage less then 0,5%.
Eye and face protection		Product	Classification**)
EN166	Personal eye protection – Specifications.	ClearVisor (polycarbonate) Speedglas FlexView welding shield ClearVisor (acetate) Visor (shade 5)	1.B.3.9 1.F 1.F.3 5 1.F.3
EN 175	Personal protection – Equipment for eye and face protection during welding and allied process.	Speedglas 9100 welding shield Speedglas 9000 welding shield***) Speedglas 9000 ProTop welding shield***) Speedglas 100 welding shield Speedglas 9000 FlexView welding shield, without SideWindows Speedglas 9000 FlexView welding shield, with SideWindows Speedglas SL welding shield	B B B B B F F
EN 379	Personal eye protection – Automatic welding filters.	Speedglas 9100 series welding filters Speedglas 9000 series welding filters Speedglas 9002 series welding filters Speedglas 100 series welding filters Speedglas SL welding filter	See technical data table for ADF's
Head protection		Product	Classification
EN 397	Industrial safety helmet	Speedglas 9000 welding shield with safety helmet****) Speedglas FlexView welding shield with safety helmet****) Speedglas ProTop welding shield	N/A N/A N/A

*) The standard classification might differ depending on the headtop used in the system. **) Personal eye protection is classified of optical clarity and mechanical strength.

) The welding shields with SideWindows option are approved EN 175 level F. *) Safety helmet option for respiratory systems.



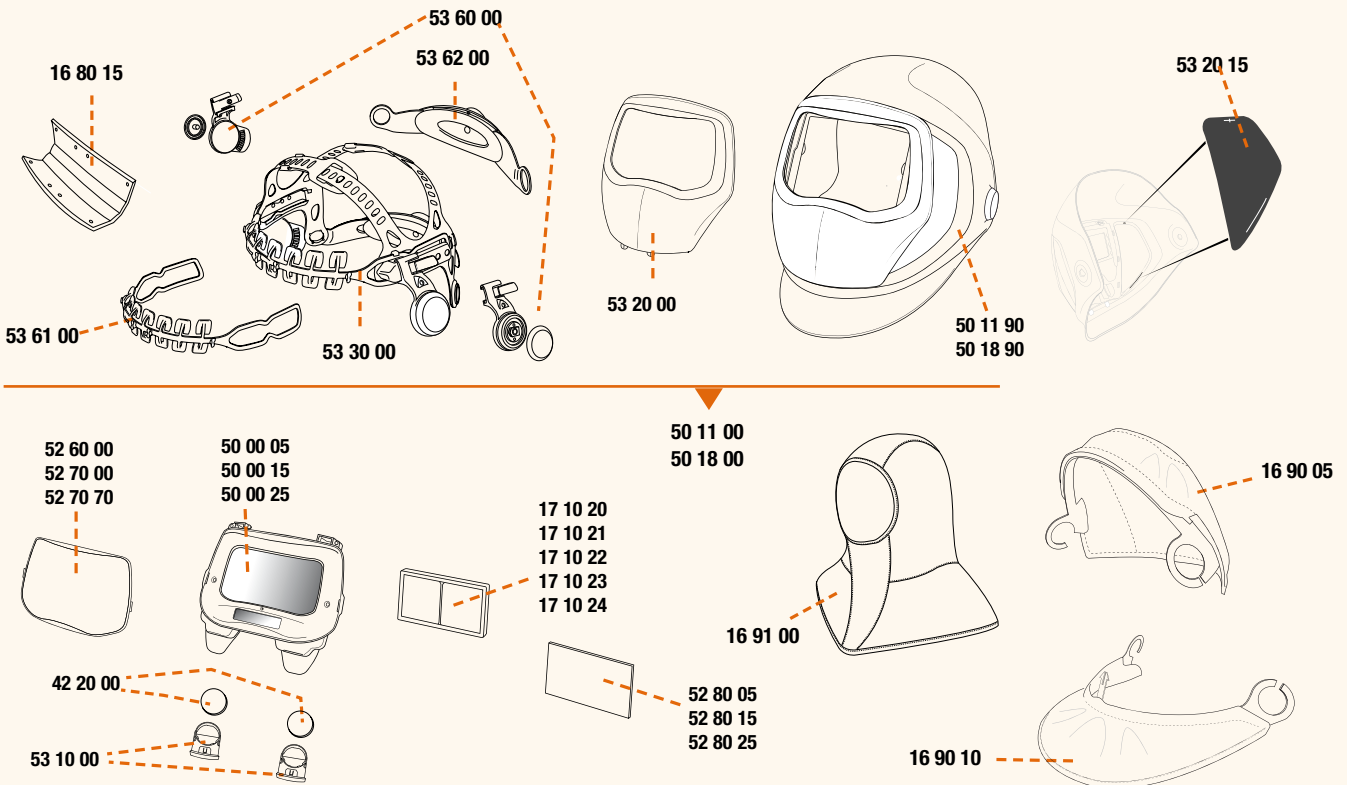
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3M™ Speedglas™ 9100 Welding Shield



Part no.	Description	Part no.	Description	Part no.	Description
50 11 05	Welding shield without SideWindows, with Speedglas 9100V filter, variable shade 5, 8, 9-13.	50 11 25	Welding shield without SideWindows, with Speedglas 9100XX filter, variable shade 5, 8, 9-13.	50 18 15	Welding shield with SideWindows, with Speedglas 9100X filter, variable shade 5, 8, 9-13.
50 11 15	Welding shield without SideWindows, with Speedglas 9100X filter, variable shade 5, 8, 9-13.	50 18 05	Welding shield with SideWindows, with Speedglas 9100V filter, variable shade 5, 8, 9-13.	50 18 25	Welding shield with SideWindows, with Speedglas 9100XX filter, variable shade 5, 8, 9-13.



Accessories and spare parts Speedglas 9100 Welding Shield

Part no.	Description	Part no.	Description	Part no.	Description
16 80 15	Comfort sweatband, pkg of 3.	50 11 90	Speedglas 9100 shield without SideWindows without headband	52 80 25	Inner protection plate for Speedglas 9100XX, pkg of 5. Plate marking 117x77.
16 90 05	Head protection, black TecaWeld.	50 18 00	Speedglas 9100 shield, with SideWindows with headband	53 10 00	Battery holder, pkg of 2
16 90 10	Neck protection, black TecaWeld.	50 18 90*	Speedglas 9100 shield, with SideWindows without headband	53 20 00	Heat reflecting silver front
16 91 00	Hood, black/grey TecaWeld.	52 60 00	Outer protection plate standard, pkg of 10.	53 20 15*	SideWindows cover plate (sticker), 2 pairs.
17 10 20	Magnifying lens 1.0.	52 70 00	Outer protection plate extra scratch resistant, pkg of 10.	53 30 00	Speedglas 9100 headband including assembly parts.
17 10 21	Magnifying lens 1.5.	52 70 70	Outer protection plate heat resistant pkg of 10.	53 60 00	Pivot mechanism, left and right.
17 10 22	Magnifying lens 2.0.	52 80 05	Inner protection plate for Speedglas 9100V filter, pkg of 5. Plate marking 117x50.	53 61 00	Headband front part.
17 10 23	Magnifying lens 2.5.	52 80 15	Inner protection plate for Speedglas 9100X, pkg of 5. Plate marking 117x61.	53 62 00	Headband back part.
17 10 24	Magnifying lens 3.0.				
42 20 00	Battery, pkg of 2.				
50 00 05	Speedglas 9100V welding filter, variable shade 5, 8, 9-13				
50 00 15	Speedglas 9100X welding filter, variable shade 5, 8, 9-13				
50 00 25	Speedglas 9100XX welding filter, variable shade 5, 8, 9-13				
50 11 00	Speedglas 9100 shield without SideWindows with headband				

*) Please use part no. 50 18 90 when new SideWindows are required.

Featured accessories

Every welder is different, and each day a welder's tasks can change. As owner of a 3M welding shield or visor, you have a variety of accessories available to maximize your protection and comfort. A new generation of additional coverage made from the flame-resistant Tecaweld™ cloth, which helps protect from molten metal, sparks and flames.

Tecaweld cloth (a blend of 75% cotton and 25% Kevlar™ fibres) is tested against flamespread EN 533 (index 3/5*92C), Impact of molten metal drops EN 470-1 clause 6.2, Molten iron splash EN 531 clause 6.6 (classification E1).

Speedglas 9000 Series



Speedglas 9100 Series



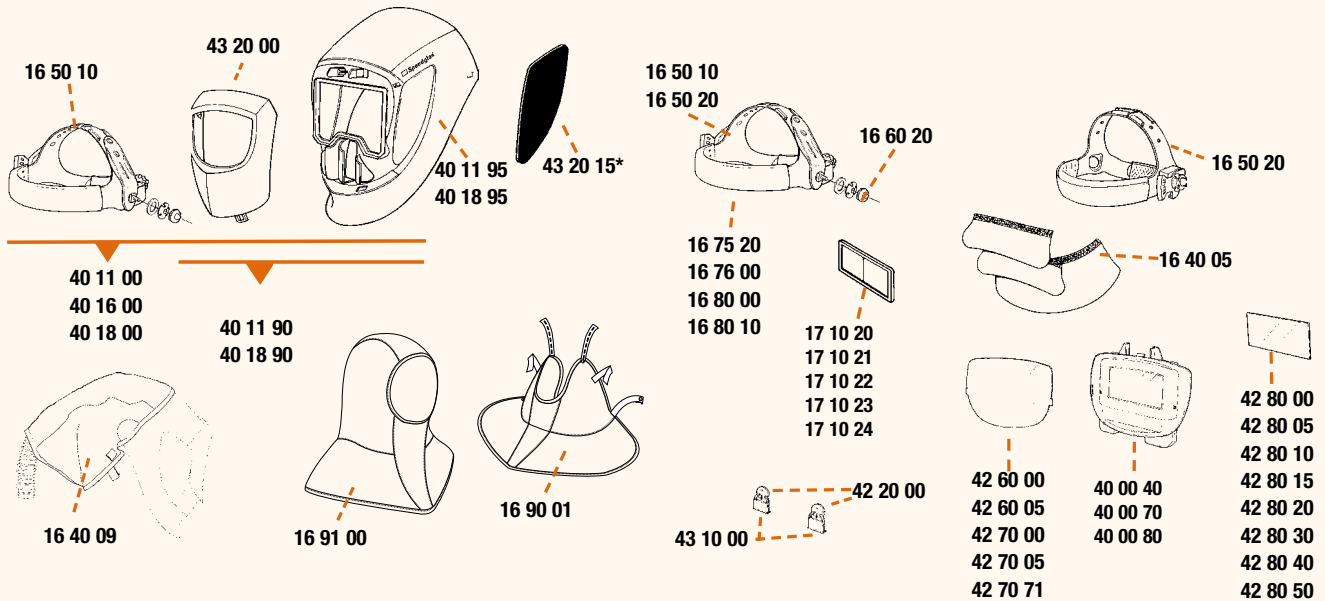
Ordering information Additional coverage	Speedglas 9100 Welding Shield	Speedglas 9000 Welding Shields
Head protection Colour	Part No 16 90 05 Black	Part No 16 40 09 Black/grey
Neck protection Colour	Part No 16 90 10 Black	Part No 16 90 01 Black/grey
Hood Colour	Part No 16 91 00 Black/grey	
Welding cap Colour	Part No 95 44 10 Black/grey	

A complete list of accessories can be found in section Parts List.
TecaWeld™ is a trademark of TenCate. Kevlar™ is a trademark of Dupont.

3M™ Speedglas™ 9000 Welding Shield



Part no.	Description	Part no.	Description	Part no.	Description
40 11 40	Welding shield, with Speedglas 9002D filter, shade 9/11.	40 16 70	Welding shield with headband 1 UL, SideWindows and Speedglas 9002V filter, shade 9–13.	40 18 40	Welding shield with SideWindows and Speedglas 9002D filter, shade 9/11.
40 11 70	Welding shield, with Speedglas 9002V filter, shade 9–13.	40 16 80	Welding shield with headband 1 UL, SideWindows and Speedglas 9002X filter, shade 9–13.	40 18 70	Welding shield with SideWindows and Speedglas 9002V filter, shade 9–13.
40 11 80	Welding shield, with Speedglas 9002X filter, shade 9–13.			40 18 80	Welding shield with SideWindows and Speedglas 9002X filter, shade 9–13.



Accessories and spare parts Speedglas 9000 Welding Shield

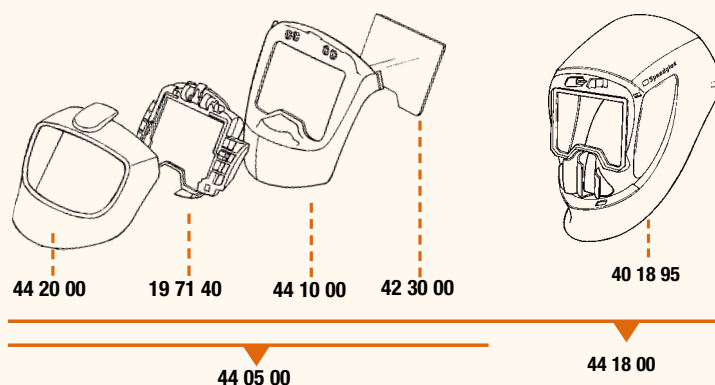
Part no.	Description	Part no.	Description	Part no.	Description
16 40 05	Ear and neck protection in leather (3 parts).	40 11 90	Welding shield (excl. headband), without SideWindows.	42 80 10	Inner protection plate (53x103 mm) Speedglas 9002X/9000XF, pkg of 5. Plate marking 42 02 10.
16 40 09	Head protection, black/grey Teca Weld, big.	40 11 95	Inner welding shield, without SideWindows.	42 80 15	42 80 10, pkg of 200.
16 50 10	Headband with mounting details.	40 16 00	Speedglas 9000 welding shield, with headband 1 UL and SideWindows	42 80 20	Inner protection plate +1 Shade number Speedglas 9002D/9002V, pkg of 5.
16 50 20	Headband 1 UL with mounting details.	40 18 00	Speedglas 9000 welding shield, with SideWindows.	42 80 30	Inner protection plate +1 Shade number Speedglas 9002X/9000XF, pkg of 5.
16 60 20	Mounting details for headband.	40 18 90	Welding shield (excl. headband), with SideWindows.	42 80 40	Inner protection plate +2 Shade number Speedglas 9002D/9002V, pkg of 5.
16 75 20	Sweatband towelling, pkg of 2.	40 18 95*	Inner welding shield with SideWindows.	42 80 50	Inner protection plate +2 Shade number Speedglas 9002X/9000XF, pkg of 5.
16 76 00	Sweatband towelling, pkg of 20.	42 20 00	Battery, pkg of 2.	43 10 00	Battery cover, pkg of 2.
16 80 00	Sweatband, leather.	42 60 00	Outer protection plate, standard, pkg of 10. Plate marking 42 01 50.	43 20 00	Heatreflecting front, silver.
16 80 10	Sweatband, fleece.	42 60 05	42 60 00, pkg of 200.	43 20 15*	SideWindows cover plate (sticker), 5 pairs.
16 90 01	Neck protection, black/grey TecaWeld.	42 70 00	Outer protection plate scratch resistant, pkg of 10. Plate marking 42 01 00	83 00 05	Accessory kit 9002V, incl 3 pcs outer protection plates, 2 pcs inside protection plates, 1 sweatband (fleece)
16 91 00	Hood black/grey TecaWeld.	42 70 05	42 70 00, pkg of 200.	83 00 06	Accessory kit 9002X, incl 3 pcs outer protection plates, 2 pcs inside protection plates, 1 sweatband (fleece)
17 10 20	Magnifying lens 1.0.	42 70 71	Outer protection plate heat resistant, pkg of 10. Plate marking 42 01 70.		
17 10 21	Magnifying lens 1.5.	42 80 00	Inner protection plate (42x91 mm) for Speedglas 9002D/9002V, pkg of 5. Plate marking 42 02 00.		
17 10 22	Magnifying lens 2.0.	42 80 05	42 80 00, pkg of 200.		
17 10 23	Magnifying lens 2.5.	42 80 10	42 80 00, pkg of 200.		
17 10 24	Magnifying lens 3.0.				
40 00 40	Speedglas 9002D welding filter, dual shade 9/11.				
40 00 70	Speedglas 9002V welding filter, variable shade 9 – 13.				
40 00 80	Speedglas 9002X welding filter, variable shade 9 – 13.				
40 11 00	Speedglas 9000 welding shield, without SideWindows.				

*) Please use part no. 40 18 95 when new SideWindows are required.



3M™ Speedglas™ 9000 FlexView Welding Shield

Part no.	Description
44 18 70	Welding shield with SideWindows and Speedglas 9002V filter, variable shade 9–13.
44 18 80	Welding shield with SideWindows and Speedglas 9002X filter, variable shade 9–13.



Accessories and spare parts Speedglas 9000 FlexView Welding Shield

Part no.	Description	Part no.	Description	Part no.	Description
19 71 40	Welding filter holder.	42 30 00	Protective visor 120x90 mm, pkg of 10.	44 18 00	Welding shield with SideWindows, without welding filter.
19 71 41	FlexView locking wedge kit (holder welding filter).	44 05 00	Speedglas FlexView Conversion Kit.	44 20 00	Heatreflecting front, silver.
40 18 95	Inner welding shield with SideWindows.	44 10 00	Middle shield, black.		

3M™ Speedglas™ 9000 ProTop Welding Shield

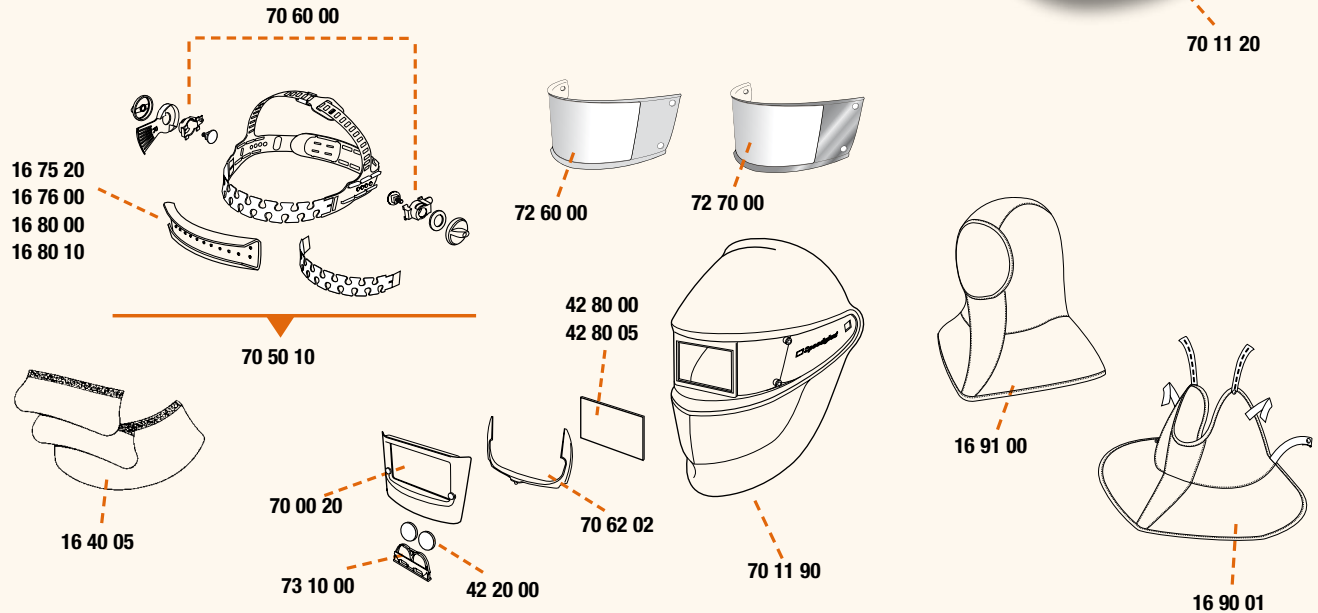
Part no.	Description
48 38 70	Welding shield with SideWindows and Speedglas 9002V filter, shade 9–13.
48 38 80	Welding shield with SideWindows and Speedglas 9002X filter, shade 9–13.



Accessories and spare parts Speedglas 9000 ProTop Welding Shield

Part no.	Description	Part no.	Description	Part no.	Description
16 75 50	Sweatband (2 pcs).	48 21 00	Speedglas welding shield, adapted for safety helmet Tuffmaster II, without SideWindows.	48 31 00	Speedglas ProTop welding shield with safety helmet, without SideWindows.
19 67 05	Safety helmet, white – other colours upon request.	48 28 00	Speedglas welding shield, adapted for safety helmet Tuffmaster II, with SideWindows.	48 38 00	Speedglas ProTop welding shield with safety helmet, and SideWindows.
19 70 00	Ear protectors.				
19 71 30	Safety helmet assembly parts.				
19 71 31	Welding shield mechanism parts.				

3M™ Speedglas™ SL Welding Shield



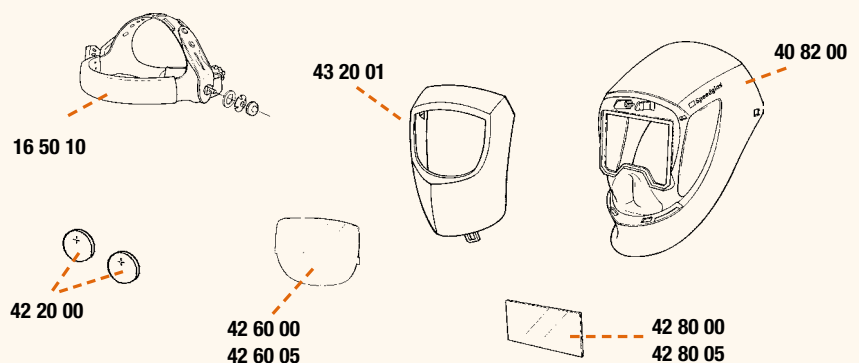
Accessories and spare parts

Part no.	Description	Part no.	Description	Part no.	Description
16 40 05	Ear and neck protection in leather (3 parts).	42 20 00	Battery, pkg of 2.	70 50 10	Headband with mounting details.
16 75 20	Sweatband, towelling, purple, pkg of 2.	42 80 00	Inner protection plate (42 x 91 mm), pkg of 5. Plate marking 42 02 00.	70 60 00	Mounting details for headband.
16 76 00	Sweatband, towelling, pkg of 20.	42 80 05	42 80 00, pkg of 200.	70 62 02	ADF locking frame, pkg of 2.
16 80 00	Sweatband, leather.	70 00 20	Speedglas SL welding filter, variable shade 8-12.	72 60 00	Outer protection plate, standard, pkg of 5. Plate marking 030226.
16 80 10	Sweatband, fleece, brown.	70 11 20	Speedglas SL welding shield, variable shade 8-12.	72 70 00	Outer protection plate, scratch resistant, pkg of 5. Plate marking 030248.
16 90 01	Neck protection black/grey TecaWeld.	70 11 90	Welding shield only (excl. headband).	73 10 00	Battery cover.
16 91 00	Hood black/grey TecaWeld.				

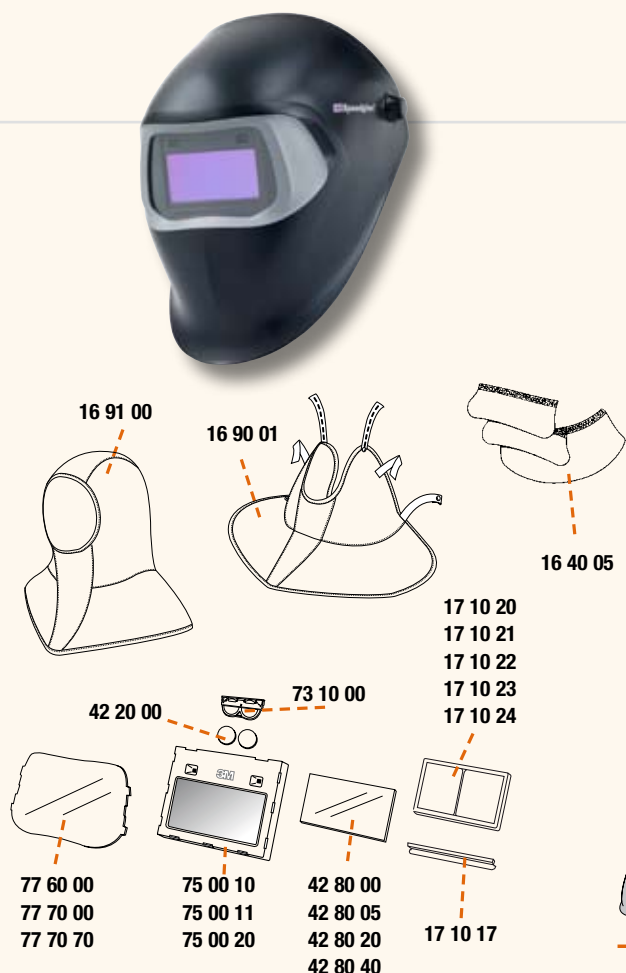
Speedglas™ Utility Welding Shield

Spare parts

Part no.	Description
16 50 10	Headband with mounting details
40 82 00	Inner welding shield.
42 20 00	Battery pkg of 2.
42 60 00	Outer protection plate standard, pkg of 10. Plate marking 42 01 50.
42 60 05	42 60 00, pkg of 200.
42 80 00	Inner protection plate, pkg of 5. Plate marking 42 02 00.
42 80 05	42 80 00, pkg of 200.
43 20 01	Front, black.

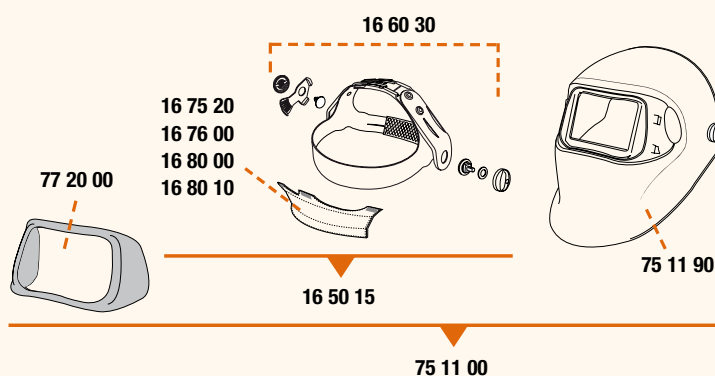


3M™ Speedglas™ 100 Welding Shield



Part no. Description

75 11 10	Welding shield with Speedglas 100S-10 welding filter, single shade 10.
75 11 11	Welding shield with Speedglas 100S-11 welding filter, single shade 11.
75 11 20	Welding shield with Speedglas 100V welding filter, variable shade 8-12.



75 11 00

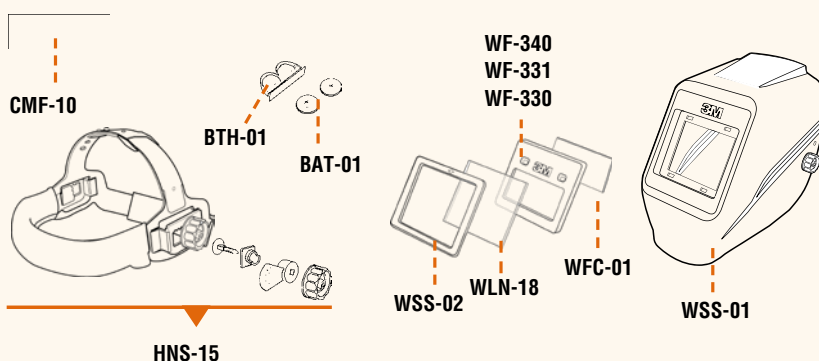
Accessories and spare parts Speedglas 100 Welding Shield

Part no.	Description	Part no.	Description	Part no.	Description
16 40 05	Ear and neck protection in leather (3 parts)	17 10 23	Magnifying lens 2.5	75 00 20	Speedglas 100V welding filter, variable shade 8-12
16 50 15	Headband with assembly parts	17 10 24	Magnifying lens 3.0	75 11 00	Welding shield without welding filter with headband
16 60 30	Assembly parts for headband	42 20 00	Battery, pkg of 2	75 11 90	Welding shield without welding filter and headband
16 75 20	Sweatband, towelling, purple, pkg of 2	42 80 00	Inner protection plate, pkg of 5. Plate marking 42 02 00	77 20 00	Speedglas 100 silver front frame
16 76 00	Sweatband, towelling, purple, pkg of 20	42 80 05	42 80 00, pkg of 200	77 60 00	Outer protection plate, standard, pkg of 10
16 80 00	Sweatband, leather	42 80 20	Inner protection plate, +1 shade, pkg of 5	77 70 00	Outer protection plate, scratch resistant, pkg of 10
16 80 10	Sweatband, fleece	42 80 40	Inner protection plate, +2 shade, pkg of 5	77 70 70	Outer protection plate, heat resistant, pkg of 10
16 90 01	Neck protection, black/grey TecaWeld	73 10 00	Battery cover		
16 91 00	Hood black/grey TecaWeld	75 00 10	Speedglas 100S-10 welding filter, single shade 10		
17 10 17	Holder for magnifier	75 00 11	Speedglas 100S-11 welding filter, single shade 11		
17 10 20	Magnifying lens 1.0				
17 10 21	Magnifying lens 1.5				
17 10 22	Magnifying lens 2.0				

3M™ WS-300 Series Welding Shield

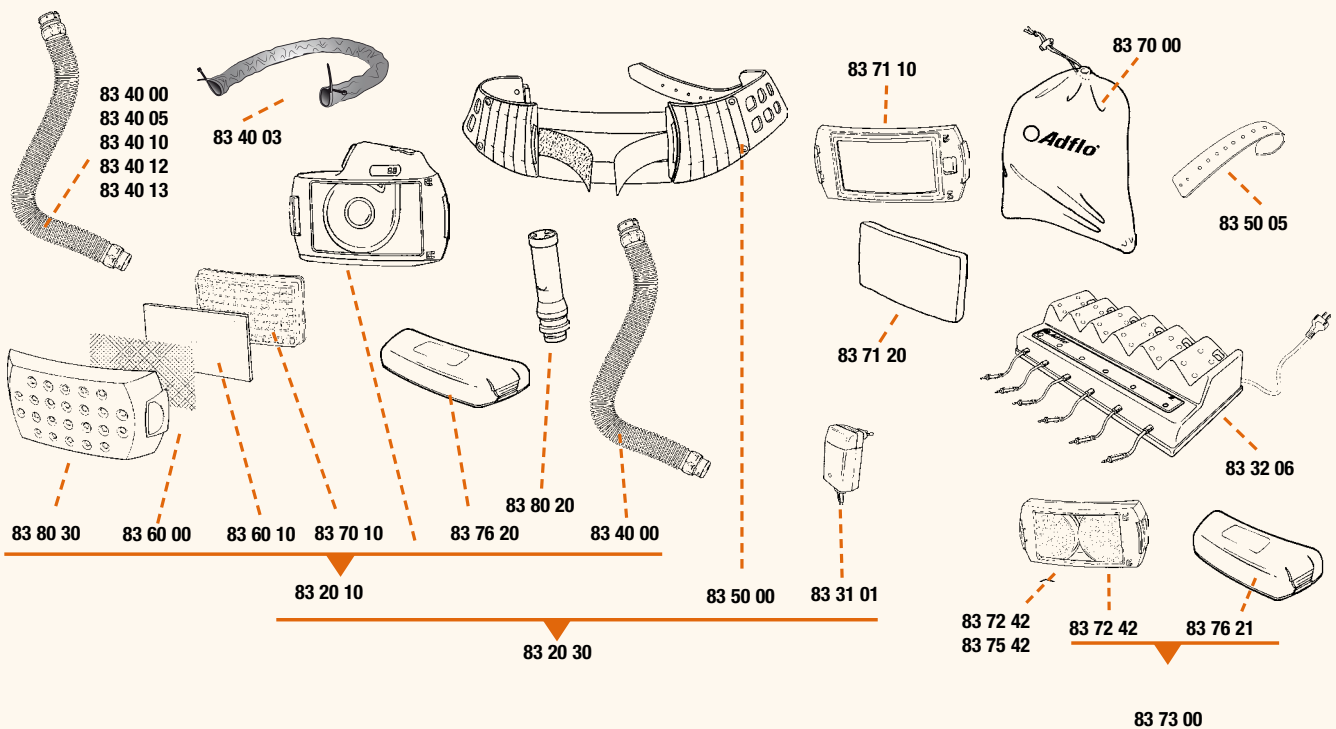
Part no. Description

BAT-01	Welding filter batteries, pkg of 2.
BTH-01	Welding filter battery holder.
CMF-10	Comfort band for head band, pkg of 2.
HNS-15	Head band, pivot knob kit and comfort band.
WF-330	3M welding filter, fixed shade 10.
WF-331	3M welding filter, fixed shade 11.
WF-340	3M welding filter, variable shade 10-12.
WFC-01	Inner protection plate, pkg of 5.
WLN-18	Outer protection plate, pkg of 10.
WSS-01	Welding shield without filter.
WSS-02	Welding filter retainer, pkg of 2.



3M™ Speedglas™ Welding Shield with Adflo™ Respirator

Part no.	Description	Part no.	Description
44 66 00	Speedglas FlexView shield with Adflo, without welding filter.	46 66 00	Speedglas 9000 shield with Adflo, without welding filter.
44 66 70	Speedglas FlexView shield with Adflo, incl Speedglas 9002V welding filter.	46 66 70	Speedglas 9000 shield with Adflo, with Speedglas 9002V welding filter.
44 66 80	Speedglas FlexView shield with Adflo, with Speedglas 9002X welding filter.	46 66 80	Speedglas 9000 shield with Adflo, with Speedglas 9002X welding filter.
44 68 00	Speedglas FlexView shield with Adflo, incl safety helmet without welding filter.	47 66 00	Speedglas 9000 shield with Adflo, incl safety helmet, without welding filter.
44 68 70	Speedglas FlexView shield with Adflo, incl safety helmet with Speedglas 9002V welding filter.	47 66 70	Speedglas 9000 shield with Adflo, incl safety helmet and Speedglas 9002V welding filter.
44 68 80	Speedglas FlexView shield with Adflo, incl safety helmet with Speedglas 9002X welding filter.	47 66 80	Speedglas 9000 shield with Adflo, incl safety helmet and Speedglas 9002X welding filter.



Accessories and spare parts Adflo powered air respirator

Part no.	Description	Part no.	Description	Part no.	Description
83 00 02	Accessory kit: including 2 pcs of sweatband (16 80 10), 10 pcs of outer protection plates (42 60 00), 1 face seal (43 40 01), 5 pcs of prefilter (83 60 10) and 1 particle filter (83 70 10).	83 31 01	Battery charger.	83 70 10	Particle filter P SL.
83 20 10	Adflo unit with breathing tube, air flow indicator, prefilter, spark arrestor, particle filter and battery.	83 32 06	Charge device 6 pos. EU.	83 70 20	Particle filter P SL, pkg of 20.
83 20 30	Adflo unit with breathing tube, air flow indicator, belt, spark arrestor, prefilter, particle filter, battery and battery charger.	83 40 00	Breathing tube (standard).	83 70 80	Particle filter P SL, pkg of 80.
83 20 31	Adflo unit complete as in 83 20 30, but with battery Heavy-Duty.	83 40 03	Breathing tube cover.	83 71 10	Odour filter.
		83 40 05	Breathing tube in rubber.	83 71 20	Odour filter pad.
		83 40 10	Breathing tube +25 cm.	83 72 42	Gas filter A1B1E1.
		83 40 12	Breathing tube double length.	83 73 00	Gas filter kit: A1B1E1 filter and Heavy-Duty battery.
		83 40 13	Breathing tube tripple length.	83 75 42	Gas filter A2.
		83 50 00	Belt.	83 76 20	Battery (standard).
		83 50 05	Front part, belt.	83 76 21	Battery Heavy-Duty.
		83 60 00	Spark arrestor.	83 80 20	Air flow indicator.
		83 60 10	Prefilter, pkg of 5.	83 80 30	Filter cover.
		83 60 80	Prefilter, pkg of 80.		
		83 70 00	Storage bag.		



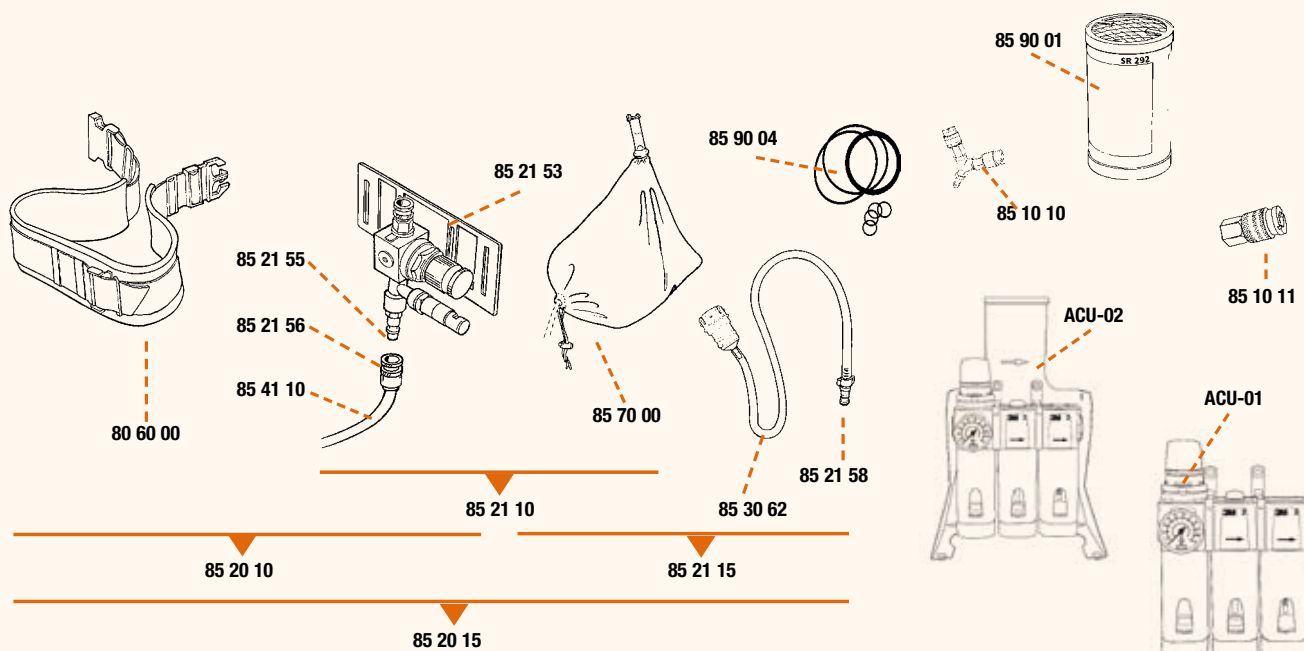
46 88 80



44 88 80

3M™ Speedglas™ Welding Shield with Fresh-air™ C System

Part no.	Description	Part no.	Description
44 88 00	Speedglas 9000 FlexView shield with Fresh-air C, without welding filter.	46 88 00	Speedglas 9000 shield with Fresh-air C, without welding filter.
44 88 70	Speedglas 9000 FlexView shield with Fresh-air C, incl Speedglas 9002V welding filter.	46 88 70	Speedglas 9000 shield with Fresh-air C, incl Speedglas 9002V welding filter.
44 88 80	Speedglas 9000 FlexView shield with Fresh-air C, incl Speedglas 9002X welding filter.	46 88 80	Speedglas 9000 shield with Fresh-air C, incl Speedglas 9002X welding filter.
44 89 00	Speedglas 9000 FlexView shield with Fresh-air C, incl safety helmet, without welding filter.	47 88 00	Speedglas 9000 shield with Fresh-air C, incl safety helmet, without welding filter.



Accessories and spare parts Fresh-air C System

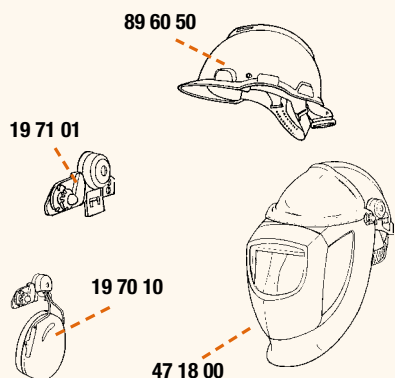
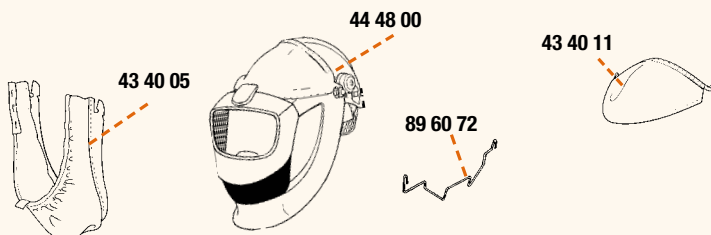
Part no.	Description	Part no.	Description	Part no.	Description
80 60 00	Comfort belt.	85 21 10	Fresh-air C system with variable air flow regulator with low pressure alarm and storage bag.	85 30 62	Breathing tube with nipple (85 21 58).
85 10 10	Y-coupling SR49/SR79.	85 21 15	Fresh-air C system with variable air flow regulator with low pressure alarm, breathing tube and storage bag.	85 41 10	Approved breathing tube 10 m green. Other lengths according to quotation.
85 10 11	Coupling SR49.	85 21 53	Quick connection CEJN 2201/4.	85 70 00	Storage bag.
85 20 10	Variable air flow regulator, low pressure alarm, comfort belt and storage bag.	85 21 55	Nipple regulator CEJN 342.	85 90 01	Filter element 292 SR49/SR79.
85 20 15	Fresh-air C system with variable air flow regulator, low pressure alarm, breathing tube, comfort belt and storage bag.	85 21 56	Quick connection CEJN 342.	85 90 04	Gasket kit SR49/SR79 Housing.
		85 21 58	Nipple breathing tube CEJN 220 1/4.	ACU-01	3M Aircare Filtration system (wall mounted).
				ACU-02	3M Aircare Filtration system (stand alone).

3M™ Speedglas™ Constant Welding Shield



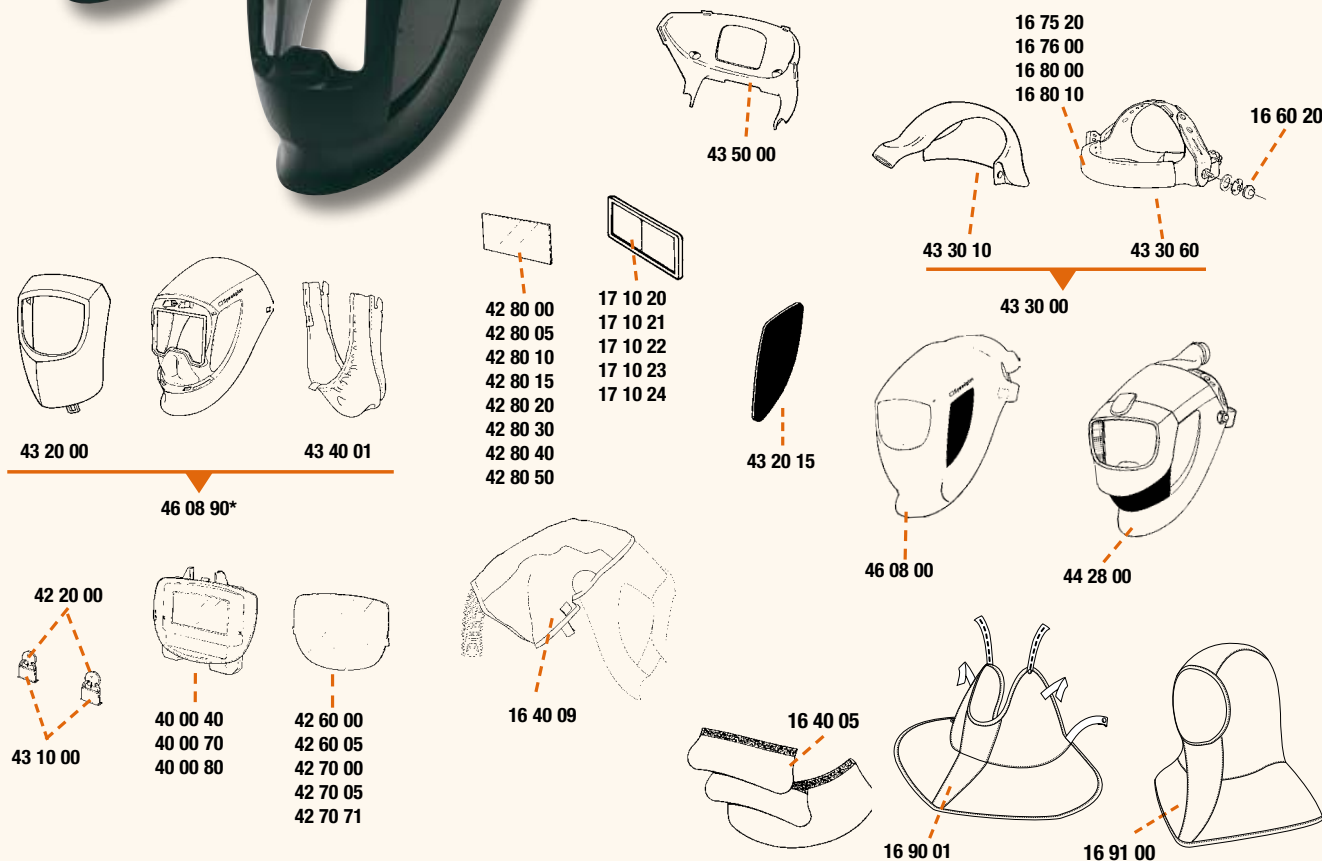
Part no.	Description	Part no.	Description
44 28 91	Speedglas Constant welding shield for respiratory protection with a conventional fixed shade 11 welding filter.	44 48 91	Speedglas Constant welding shield with safety helmet for respiratory protection, with a conventional fixed shade 11 welding filter.
44 30 00	Conventional welding filter fixed shade 11.	44 88 00	Speedglas Constant welding shield with Fresh-air C System, excl welding filter.
44 38 00	Speedglas Constant welding shield with conventional filter fixed shade 11 and Adflo respirator.	44 89 00	Speedglas Constant welding shield with safety helmet excl welding filter with Fresh-air C System.
44 40 00	Speedglas Constant welding shield with safety helmet, conventional filter fixed shade 11 and Adflo respirator.		

3M™ Speedglas™ Shields for respiratory protection with safety helmet



Part no.	Description	Part no.	Description
19 70 10	Ear protectors for safety helmet with mounting details.	47 18 00	Speedglas welding shield for respiratory protection with safety helmet.
19 71 01	Fastening details for safety helmet with mounting details.	89 60 50	Safety helmet with air duct.
43 40 05	Face seal for shield.	89 60 72	Fastening details for face seal.
43 40 11	Helmet seal in leather for Speedglas welding shield with safety helmet.		
44 48 00	Speedglas FlexView welding shield for respiratory protection with safety helmet.		

3M™ Speedglas™ welding shields for respiratory protection



Accessories and spare parts

Part no.	Description	Part no.	Description	Part no.	Description
16 40 05	Ear and neck protection in leather (3 parts).	42 70 00	Outer protection plate scratch resistant, pkg of 10. Plate marking 42 01 00.	43 10 00	Battery cover, pkg of 2.
16 40 09	Head protection, TecaWeld, big.	42 70 05	42 70 00, pkg of 200.	43 20 00	Heatreflecting, front silver.
16 60 20	Mounting details for headband.	42 70 71	Outer protection plate heat resistant, pkg of 10. Plate marking 42 01 70.	43 20 15*	SideWindows cover plate (sticker), 5 pairs.
16 75 20	Sweatband towelling, pkg of 2.	42 80 00	Inner protection plate (42x91 mm) Speedglas 9002D/9002V, pkg of 5. Plate marking 42 02 00.	43 30 00	Headband with air duct.
16 76 00	Sweatband towelling, pkg of 2.	42 80 05	42 80 00, pkg of 200.	43 30 10	Air duct.
16 80 00	Sweatband, leather.	42 80 10	Inner protection plate (53x103 mm) Speedglas 9002X/9000XF, pkg of 5. Plate marking 42 02 10.	43 30 60	Headband without air duct.
16 80 10	Sweatband, fleece.	42 80 15	42 80 10, pkg of 200.	43 40 01	Face seal.
16 90 01	Neck protection black/grey, TecaWeld.	42 80 20	Inner protection plate +1 Shade number Speedglas9002D/9002V, pkg of 5.	43 50 00	Air spreader.
16 91 00	Hood black/grey TecaWeld.	42 80 30	Inner protection plate +1 Shade number Speedglas 9002X/9000XF, pkg of 5.	44 28 00	Speedglas FlexView welding shield for respiratory protection without welding filter.
17 10 20	Magnifying lens 1.0.	42 80 40	Inner protection plate +2 Shade number Speedglas9002D/9002V, pkg of 5.	46 08 00	Speedglas welding shield for respiratory protection without welding filter.
17 10 21	Magnifying lens 1.5.	42 80 50	Inner protection plate +2 Shade number Speedglas 9002X/9000XF, pkg of 5.	46 08 90*	Speedglas welding shield without headband and airduct.
17 10 22	Magnifying lens 2.0.				
17 10 23	Magnifying lens 2.5.				
17 10 24	Magnifying lens 3.0.				
40 00 40	Speedglas 9002D welding filter, dual shade 9/11.				
40 00 70	Speedglas 9002V welding filter, variable shade 9–13.				
40 00 80	Speedglas 9002X welding filter, variable shade 9–13.				
42 20 00	Battery, pkg of 2.				
42 60 00	Outer protection plate standard, pkg of 10. Plate marking 42 01 50.				
42 60 05	42 60 00, pkg of 200.				

* Please use part no. 46 08 90 to replace the SideWindows.

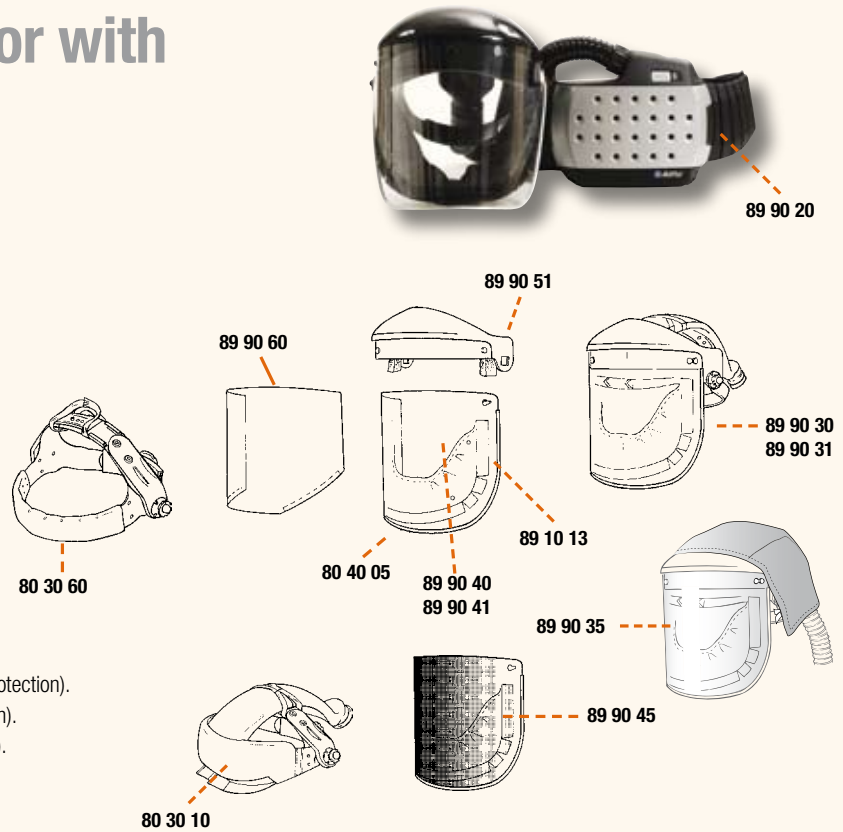
Note, regarding Speedglas welding shields for grinding applications, for further information see page 31.

3M™ Protective visor with Adflo™ respirator

- 89 90 20 with ClearVisor in polycarbonate.
 89 90 21 with ClearVisor in acetate.
 89 90 25 with Visor shade DIN 5.

Accessories and spare parts

Part no.	Description
80 30 10	Headband with air duct.
80 30 60	Headband without air duct.
80 40 05	Face seal.
89 10 13	Velcro face seal, pkg of 2.
89 90 30	Complete ClearVisor, polycarbonate.
89 90 31	Complete ClearVisor, acetate.
89 90 35	Complete visor shade DIN5.
89 90 40	ClearVisor, polycarbonate (excluding brow protection).
89 90 41	ClearVisor, acetate (excluding brow protection).
89 90 45	Visor shade DIN5 (excluding brow protection).
89 90 51	Brow protection.
89 90 60	Protection film, pkg of 5.

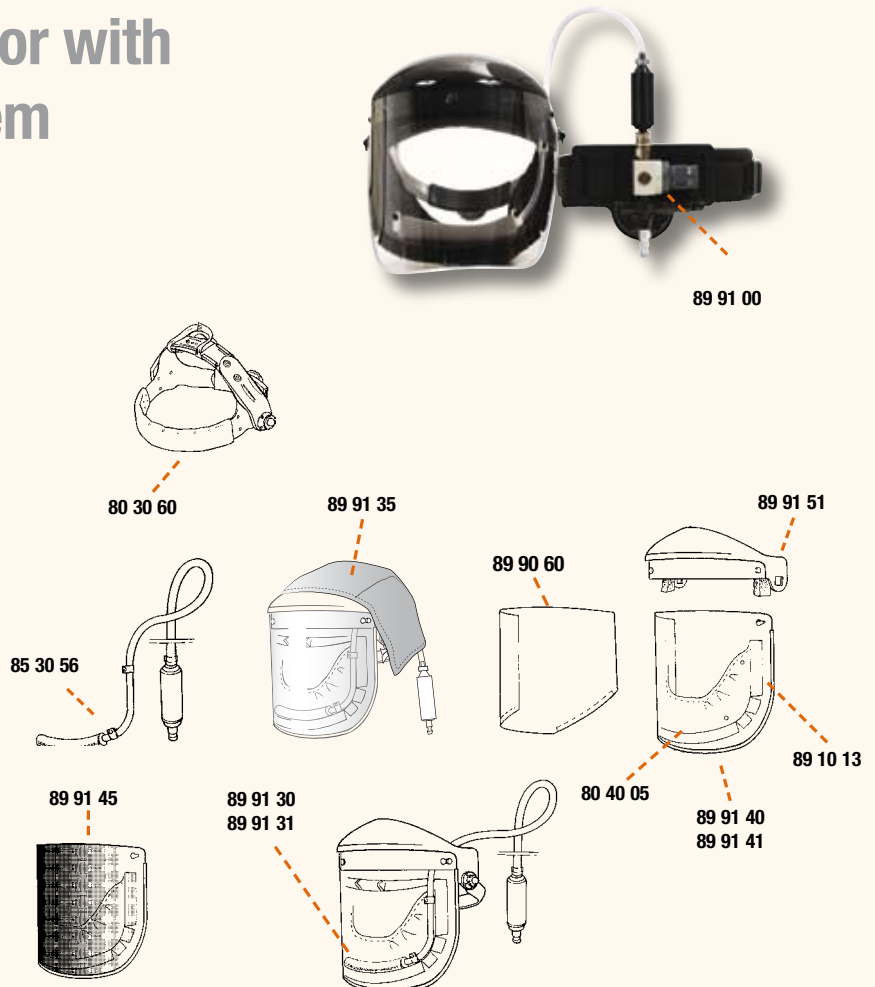


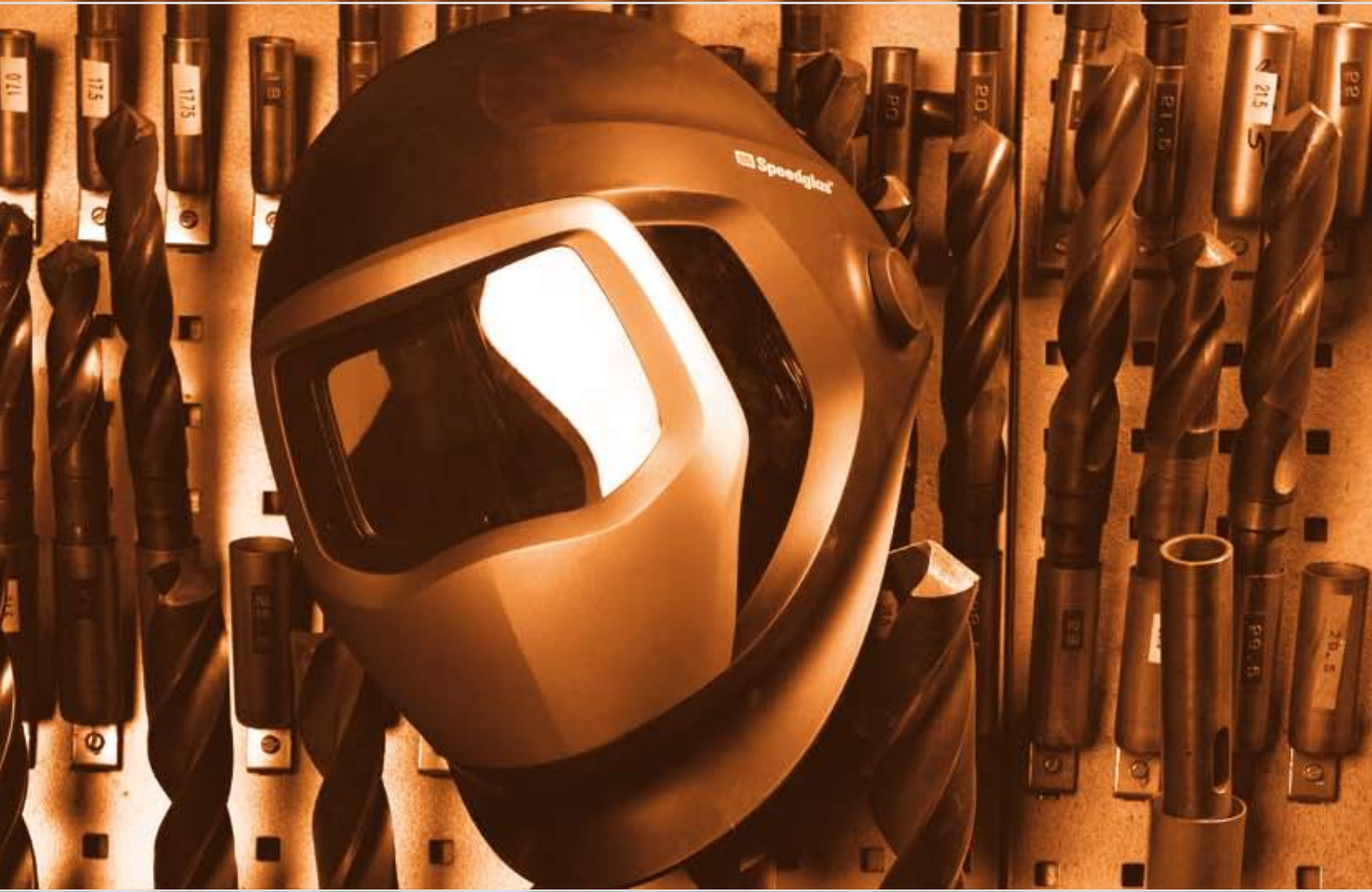
3M™ Protective visor with Fresh-air™ C System

- 89 91 00 with ClearVisor in polycarbonate.
 89 91 01 with ClearVisor in acetate.

Accessories and spare parts

Part no.	Description
80 30 60	Headband without air duct.
80 40 05	Face seal.
85 30 56	Breathing tube with nipple, silencer and fastening details.
89 10 13	Velcro face seal pkg of 2.
89 90 60	Protection film pkg of 5.
89 91 30	Complete ClearVisor polycarbonate.
89 91 31	Complete ClearVisor, acetate.
89 91 35	Complete Visor shade DIN5.
89 91 40	ClearVisor polycarbonate with face seal (excluding brow protection).
89 91 41	ClearVisor acetate with face seal (excluding brow protection).
89 91 45	Visor shade DIN 5 with face seal (excluding brow protection).
89 91 51	Brow protection.





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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, the 7500 half mask 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
3M™ 2790 Series Premium Goggles 	Scratch-resistant lens with anti-fog coating. Can be worn over most prescription spectacles.	EN166	2790 - polycarbonate 2790A - acetate)
3M™ 2800 Series Over-spectacles 	The latest addition of over-spectacles - new stylish, high-end eye protection for industrial applications. Optimum design that allows use as over-spectacles with many prescription glasses	EN166:2001, EN169:2002 and EN 171:2002	2800 - clear lens 2802 - yellow lens 2805 - shade 5 lens
3M™ 2840 Series Safety spectacles 	Combining performance, design and comfort, these new lightweight safety spectacles feature very strong polycarbonate lenses giving reliable protection against lower energy impact.	EN166:2001 and EN169:2002	2840 - clear lens 2841 - smoke lens 2842 - yellow lens 2845 - shade 5 lens
3M™ 1310 Reusable Banded Ear Plugs 	The banded ear plugs are particularly suitable when you need a reliable, comfortable product that is very easy to put on and take off. Can be worn under the chin or behind the head.	EN352-2	1310 - banded plugs 1311 - replacement plugs for 1310.
3M™ 1200 Series Reusable Ear Plugs 	Washable, soft formulation, provides added comfort and increases user acceptance. The finger grip design improves ease of insertion making the plug more convenient. Storage case with belt clip helps keep plugs convenient, clean and protected in between use, saving time and reducing cost	EN352-2	1261 - uncorded 1271 - corded
3M™ 1120 and 1130 Disposable Ear Plugs 	Contoured and articulated design helps make the ear plug more flexible, allowing it to easily conform to the wearers' ear canal enhancing wearer comfort. Very soft, dirt resistant, formulation for lower pressure in ear and improved comfort.	EN352-2	1120 - uncorded 1130 - corded
3M™ 1100 and 1110 Disposable Ear Plugs 	Soft, hypo-allergenic polyurethane foam offers maximum wearer comfort and increases user acceptance. Smooth, dirt-resistant surface for better hygiene, durability and comfort. Tapered design fits most ear canals making the plugs easier to use.	EN352-2	1100 - uncorded 1110 - corded

The products selected in this chart are only a few examples from the wide range of safety equipment from 3M please contact your dealer for a complete catalogue or visit our website for a complete list: www.3M.com.

Please note: spectacles are not appropriate for arc welding, grinding and high temperature environments. Always consult your safety engineer before you select type of respirator.

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