

3M Occupational Health & Environmental Safety Division  
Powered and Supplied Air Respirators & Welding Products



# Work in a World of Comfort

Volume 2



# 3M™ Powered & Supplied Air (P&SA) Respirators



## 3M™ Powered Air Purifying Respirators (PAPRs)

A PAPR is a powered air respirator system that uses a fan to deliver filtered air into a hood, helmet or full facepiece. There are many different PAPR configurations available. Depending on the working environments, select the PAPR style that best meets your needs.

Powered air systems also provide head, eye and face protection. They are available as face-mounted, helmet-mounted and belt-mounted configurations. PAPR systems include a headpiece, often a breathing tube, motor-blower unit, filters, cartridges and a battery.



## 3M™ Supplied Air Respirators (SARs)

3M™ Supplied Air Respirators are designed to deliver clean air to the worker. The air\* can be supplied from a high pressure compressor, low-pressure pumps, or cylinders (bottled air). This clean, breathable air can be delivered to hoods, helmets, full facepieces, half facepieces and loose-fitting facepieces.

Supplied Air Respirators offer many advantages over traditional respiratory protection such as:

- Cooling or heating incoming air
- Fit testing only required on tight-fitting facepieces
- Low maintenance

Supplied Air Systems are a good way to increase comfort, productivity and protection.

\*It is the employer's responsibility to ensure that the compressed air used with any supplied air system meets the requirements for at least Grade-D breathing air per the Compressed Gas Association Commodity Specification G-7.1-1997 in the U.S.

# 3M™ Powered Air Respirators (PAPRs)



## 3M™ Jupiter™ Turbo Unit

### Flexibility

The 3M™ Jupiter™ turbo unit can be used with 10 different headtops with only 1 connection system. This makes it unique and versatile; with the correct headtop and breathing tube, it can be made suitable for many applications including the following types of work:

- Pharmaceutical
- Laboratory
- Agricultural
- Light industrial
- Welding
- Grinding
- Spraying
- Handling fibreglass
- Utilities
- Work in chemical environments
- Hazardous environments\*
- Engineering\*
- Mining
- Foundry work
- Work in tight spaces
- General maintenance



\*Intrinsically Safety System Available

QRS, 3M's new quick-release connection system, allows the 3M™ Jupiter™ turbo units to interface with a modular range of 10 headtops.



3M Decon Belt, allow user to undergo decon shower with the system.



Smooth shape allows easy cleaning.

A filter cover prevents damage or sparks entering the filter body, and allows shower decontamination.

Rechargeable, integrated, lightweight NiMH battery.

Unique half-turn attachment, ensuring a safer connection (i.e. no confusion between filter types).

Intelligent sensor - Visible and audible alarm for low battery and low flow.



# 3M Modular Approach



## Truly Modular

All 3M Headtops will connect to all 3M Modular Air Delivery Units via the new 3M BT-Series Breathing Tubes. This modular approach greatly simplifies the equipment selection process. 3M BT-series breathing tubes all feature the innovative 3M™

Quick Release Swivel (QRS) breathing tube connection. The QRS connects quickly and swivels to minimise loops and kinks in the breathing tube and enables one-handed connection and release

### 3M™ S-Series Headtops



3M™ Headcover S-133



3M™ Headcover S-333G



3M™ Hood S-433



3M™ Hood S-533



3M™ Hood S-655



3M™ Hood S-657



3M™ Hood S-757

### 400 SERIES : Grinding, Sanding, Handling, Fibre Glass, Painting



HT-401\*

- HT-401 (with acetate visor) ideal for the paint-spray, working with glass-fibre/resins or other applications where the balance of chemical resistance and eye impact protection (low energy; EN166: F) is required
- Optional hood covers hair and neck
- Visor overlays maintain the clear-view



HT-402\*

- HT-402 (with polycarbonate visor) ideal for grinding, sanding, or other applications requiring medium impact eye protection (EN166:B)
- Optional hood covers hair and neck
- Visor overlays maintain the clear-view

### 800 SERIES : Heavy Industrial Engineering



HT-820\*

- Dark red helmet shell
- For use in areas where there is a risk of the head colliding with hard, stationary objects
- Self-positioning facesal
- Balanced design with the multi-adjustable head cradle
- Internal airduct for most comfortable and effective airflow
- Easy to dismantle, reassemble and maintain
- Supplied as standard with polycarbonate visor; optional acetate replacement
- Optional chin-strap



HT-840\*

- Dark green helmet shell
- Self-positioning facesal
- Balanced design with the multi-adjustable head cradle
- Internal airduct for most comfortable and effective airflow
- Easy to dismantle, reassemble and maintain
- Supplied as standard with polycarbonate visor; optional acetate replacement
- Optional chin-strap

### 3M™ Breathing Tube



Lightweight Polyurethane Breathing Tube



Rugged Chemical Resistant Rubber Breathing Tube

### 3M™ Air Delivery Units



The 3M™ Jupiter™ Air Delivery Unit



The 3M™ Vortex/Vortemp Air Cooling/Heating Regulator



HT-880\*

- Dark green helmet shell
- Comfortable elasticated neck seal
- Balanced design with multi-adjustable head cradle
- Internal airduct for most comfortable and effective airflow
- Easy to dismantle, reassemble and maintain
- Supplied as standard with polycarbonate visor; optional acetate replacement
- Optional Cordura™ shroud instead of Tyvek™
- Optional chin-strap



## Four Steps to the Right Respirator

**1 Identify the Hazards** – Dust, metal fume, gas, vapour, etc.

**2 Assess the Risk** – Assess the hazard levels against safety standards and consider additional protection – skin and eye

**3 Select the right Respirator** – Powered or Supplied Air

### 3.1 Choose your Headtop

- Choose among a wide selection of headtops to meet the requirements of your workplace, from lightweight hoods to industrial helmets, that provide not only respiratory protection, but also eye and face protection, head protection, and optionally, hearing protection.

### 3.2 Choose your Air Delivery Unit

- To handle the contaminant situation at your particular workplace, you have the choice between two filtering powered air systems and three supplied air regulators. You also need to choose the right filters for the contaminant situation when using powered air systems.

### 3.3 Choose your Breathing Tube

- The breathing tube reliably connects the headtop to the air delivery unit, ensuring an unrestricted flow of breathing air. To meet the high respiratory performance requirements, the S-Series headtops connect to all air delivery units via the new BT-Series breathing tubes. Additional breathing tubes are available that are compatible with the 3M™ HT-100, HT-400, HT-600, HT-700 and HT-800 Series modular headtops.

### 3.4 Choose accessories (if required)

- 3M offers a comprehensive range of modular system accessories to make it easier to customise the system to suit individual needs. If required choose among the accessories.

**4 Train in fitting and use** – To optimise respiratory protection



## 3M™ Jupiter™ Parts



**TYPE OF BATTERY & CHARGER :**  
3M™ BATTERY PACK (8-HOUR, 3 PIN) WITH CHARGER



### TYPE OF FILTER & CARTRIDGES :

- P3 Filters (Particulates)
- A2P3 Cartridge (OV/ Particulates)
- K1P3 Cartridge (AM/ Particulates)
- A1B1E1P3 Cartridge (OV/ Inorganic/AG/Particulates)
- A2B1E1K1P3 Cartridge (OV/Inorganic/AG/AM/ Particulates)



## 3M™ L-Series Headgear Loose-Fitting & Helmets



One of the most popular styles of positive pressure respirators is the loose-fitting facepiece. It combines excellent respiratory protection with limited hard hat protection, secondary eye and face protection and comfort. This style of headgear allows the wearer to keep his beard and not require fit-testing. The helmet options are available for general purpose or welding.

### Features & Benefits

#### Helmets

- Liftable face shield
- Rugged outer shell
- Many shroud options
- Adjustable ratchet
- Helmets can be converted for general purpose or welding

#### Loose-Fitting Facepieces

- Liftable lens
- Hard hat options
- Can be worn with glasses
- No fit-testing required
- Excellent vision
- No breathing resistance

### Suggested Applications

- Chipping
- Grinding
- Spray painting
- Welding
- Loading
- Bagging

#### WARNING

These respirators help reduce exposure to certain airborne contaminants. Misuse may result in sickness or death. Before use, the wearer must read and understand the User Instructions provided as part of the product packaging. Call 3M OH&ES Division Technical Service for more information.

#### Important

Before using these respirators, you must determine the following:

1. The type of contaminant(s) for which the respirator is being selected.
2. The concentration level of contaminant(s).
3. Whether the respirator can be properly fitted on the wearer's face.

All respirator instructions, warnings and use and time limitations must be read and understood by the wearer before use.

Breathing Tube



L-122 Breathing Tube

Air Comfort Device



V-300 Air Regulating Valve Assembly



V-100 Vortex™ Cooling Assembly



V-200 Vortemp™ Heating Assembly



V-400 Low Pressure Connector Assembly

Supplied Air Hose



W-9435 3/8" High Pressure Hose (25,50, or 100ft.)



W-2929 3/8" High Pressure Hose (25,50, or 100ft.)



W-3020 1/2" High Pressure Hose (25,50, or 100ft.)

Portable Air Purification Panels



256-02-00 (50 cfm) with CO Filtration and Monitor



256-02-01 (100 cfm) with CO Monitor



W-2806 (50 cfm) without CO Monitor



W-2808 CO Monitor Retrofit Kit Available

# 3M™ V-Series Combinations



## 3M™ L-Series Headgear Loose-Fitting & Helmets

### NEW S-SERIES ADDITIONS

#### Integrated Suspension



Part #	Description
S-133S	White, S/M
S-133L	White, M/L
S-133SB	Blue, S/M
S-133LB	Blue, M/L
S-333S	High Durability, S/M
S-333L	High Durability, M/L



Part #	Description
S-433S	White, S/M
S-433L	White, M/L
S-533S	High Durability, S/M
S-533L	High Durability, M/L

#### Premium Suspension

Part #	Description
S-655	Hood assembly w/inner collar
S-657	Hood assembly w/inner shroud
S-757	Painter's hood assembly w/inner shroud
S-855	Sealed seam hood assembly w/inner collar
S-857	Sealed seam hood assembly w/inner shroud



H-412



H-612



H-115



GVP-122

#### QRS Connection



BT-20S\* / 37309  
Small/Medium



BT-20L\* / 37310  
Medium/Large

#### New Features:

- Rigid visor design
- Comfortably fits more users
- Easy adjustment



V-199\* Adapter  
37069

\* One V-199 Adapter is included with each BT-20 Breathing Tube

#### GVP Powered Air Purifying Respirators

##### NiCd Battery



GVP-1 - Standard Belt  
GVP-1U - Urethane Belt  
GVP-CB - Comfort Belt

##### NiMH Battery



GVP-1NiMH - Standard Belt  
GVP-1UNiMH - Urethane Belt  
GVP-CBNiMH - Comfort Belt

#### Cartridges/Filters

##### Part # Description

GVP-401	Organic Vapor (OV)
GVP-402	Chlorine/Hydrogen Chloride/Sulfur Dioxide/Chlorine Dioxide/Hydrogen Fluoride (AG)
GVP-403	Organic Vapor/Chlorine/Hydrogen Chloride/Sulfur Dioxide/Chlorine Dioxide/Hydrogen Fluoride/Hydrogen Sulfide (OV/AG)
GVP-404	Ammonia/Methylamine (AM/MA)
GVP-405	Formaldehyde (FM)
GVP-440	High Efficiency Particulate (HE)
GVP-441	Organic Vapor/HE (OV/HE)
GVP-442	Chlorine/Hydrogen Chloride/Sulfur Dioxide/Chlorine Dioxide/Hydrogen Fluoride/HE (AG/HE)
GVP-443	Organic Vapor/Chlorine/Hydrogen Chloride/Sulfur Dioxide/Chlorine Dioxide/Hydrogen Fluoride/Hydrogen Sulfide/HE (OV/AG/HE)
GVP-444	Ammonia/Methylamine/HE (AM/MA/HE)
GVP-445	Formaldehyde/HE (FM/HE)

#### V-Series Supplied Air Valves\*\*



V-100 / 37018



V-200



V-300 / 37019



V-400 / 37020



W-9435

25 ft. – 07010, 50 ft. – 07011  
100 ft. – 07012  
3/8" High Pressure Hose



W-2929

3/8" High Pressure Hose (25,50, or 100ft.)



W-3020

25 ft. – 07033, 50 ft. – 07034  
100 ft. – 07035  
1/2" Low Pressure Hose



256-02-00†  
(50 cfm) with CO Filtration and Monitor



256-02-01†  
(100 cfm) with CO Monitor



W-2806 / 07006†  
(50 cfm) without CO Monitor



W-2808 / 37027  
CO Monitor Retrofit Kit

\*\*The employer is required to ensure that the compressed air used with any supplied air system meets the requirements for Grade-D breathing air per the Compressed Gas Association Commodity Specification G-7.1-1997. In Canada, refer to CSA Standard Z180.1 for the quality of compressed breathing air.  
† IMPORTANT: These filter and regulated panel products do not produce Grade-D breathing air.



## 3M™ Dual Airline Tight-Fitting Facepieces

Facepieces



**7800S Series**  
Full Facepiece

**6000 Series**  
Full Facepiece

**7500 Series**  
Half Facepiece

**6000 Series**  
Half Facepiece

Adapter Kits

### Standard Kits



**Back-Mounted Adapter Kits**  
**SA-2000** (High Pressure)  
**SA-2000LP** (Low Pressure)

### Combination Kits



**Combination Back-Mounted Adapter Kits**  
**SA-2100** (High Pressure)  
**SA-2100LP** (Low Pressure)



**Front-Mounted Adapter Kits**  
**SA-1000** (High Pressure)  
**SA-1000LP** (Low Pressure)

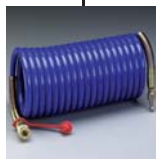


**Combination Front-Mounted Adapter Kits**  
**SA-1100** (High Pressure)  
**SA-1100LP** (Low Pressure)

Supplied Air Hose



**W-9435**  
3/8" High Pressure Hose  
(25, 50, or 100ft.)



**W-2929**  
3/8" High Pressure Hose  
(25, 50, or 100ft.)



**W-3020**  
1/2" Low Pressure Hose  
(25, 50, or 100ft.)

Portable Air Purification Panels



**256-02-00**  
(50 cfm) with  
CO Filtration  
and Monitor



**256-02-01**  
(100 cfm) with  
CO Monitor



**W-2806**  
(50 cfm) without  
CO Monitor



**W-2808**  
CO Monitor Retrofit  
Kit Available

3M offers the wearer tight-fitting half and full facepiece airline respirators that provide superior comfort and convenience. The 3M systems help you work with greater safety and efficiency.

### Features & Benefits

- Front and back mount options
- High or low pressure options
- Three sizes available in four different models
- Check valves that allow for negative or positive pressure use
- Speaking diaphragm options
- Scratch-resistant polycarbonate lenses

### Suggested Applications

- Spray painting
- Welding
- Chemical handling
- Pharmaceuticals
- Abatement
- Maintenance

### WARNING

These respirators help reduce exposure to certain airborne contaminants. Misuse may result in sickness or death. Before use, the wearer must read and understand the User Instructions provided as part of the product packaging. Call 3M OH&ES Division Technical Service for more information.

### Important

Before using these respirators, you must determine the following:

1. The type of contaminant(s) for which the respirator is being selected.
2. The concentration level of contaminant(s).
3. Whether the respirator can be properly fitted on the wearer's face.

All respirator instructions, warnings and use and time limitations must be read and understood by the wearer before use.

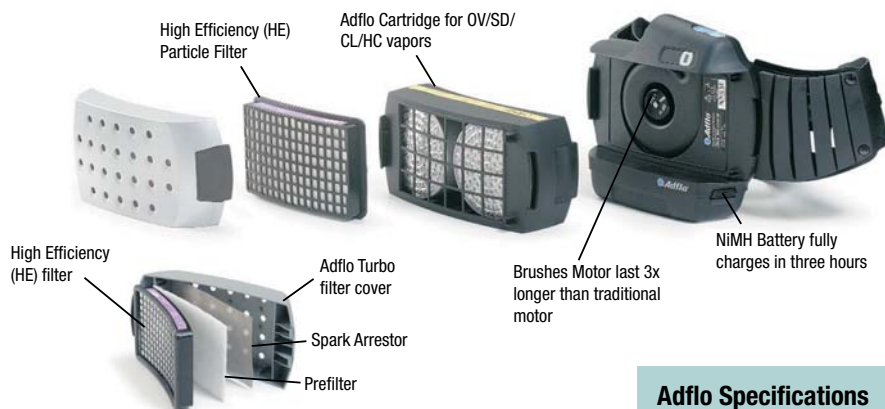


## 3M™ Speedglas™ with Adflo™ (PAPR) - Eye, Face and Respiratory Protection



Are your employees working in exhausting, hard-to-breathe-in environments? Let them try one of our many positive pressure systems for just a couple of hours. That's all it takes to realize how comfortable work can be. Comfort can help lead to more work time.

### Two Respirators In One!



We've reinvented the powered air-purifying respirator for welders. The result is Speedglas® with Adflo®:

A lightweight, compact, all-in-one system. Its exclusive "stackable" configuration means that the Adflo cartridge can be "stacked" onto the High Efficiency (HE) particulate filter for additional protection against organic, sulfur dioxide, chlorine, and hydrogen chloride vapors. In effect, it's two systems in one, allowing increased user flexibility to adapt to changing welding applications. And you can selectively replace either the particle filter or the Adflo OV/SD/CL/HC cartridge as needed; you don't have to change both filters at the same time!

The Adflo system has no external batteries, no battery cables, and no sharp corners. Its slim profile is designed to go into tight spaces. And it's the most ergonomically perfect PAPR available to welders.

#### Adflo Specifications

Assigned Protection Factor: 25  
 Airflow (nominal): 6+ cfm (170+ lpm) minimum  
 Battery: NiMH  
 HE: up to 12 - 13 hrs/charge  
 HE + OV/SD/CL/HC: up to 5.5 - 6 hrs/charge  
 Battery Charging Time: 3 hours

#### System Weights

Helmet assembly w/ 9000X lens: 1.79 lbs (0.81 kg)  
 Adflo Turbo w/Battery, Breathing Tube & Belt: 4.48 lbs (2.03 kg)  
 OV/SD/CL/HC Cartridge: 1.79 lbs (0.81 kg)  
 Operating Temperatures: 23° to 131°F (-5° to 55°C)  
 Respirator Approval: NIOSH 42 CFR 84



Exclusive "stackable" configuration adapts to changing welding applications.



Environmentally-friendly NiMH battery charges in less than 3 hours with a smart charger that won't ever overcharge.



System Intelligence: Constant Airflow Rate, regardless of battery charge and filter loading. Audible and visual alarms signal low airflow and low battery charge.



Exclusive airflow pattern means perfectly-distributed air throughout the entire breathing zone of the helmet.



The unique belt design has a solid leather front, cut narrow to allow the welder to bend forward easily. Along the welder's sides, the leather becomes wider, with large ventilation holes for maximum breathability. The turbo unit securely attaches to, and is nestled between, the two plastic arms of the belt so the turbo's weight is evenly distributed across the entire lower back and upper hips. The plastic arms are vertically rigid but with pleats so the welder can move and turn with freedom.

### Complete Systems Adflo® Powered Respirator

Complete Speedglas welding helmet or face shield with Adflo powered respirators, air hose, air flow indicator, belt, spark arrestor, prefilter, particle filter, battery and battery charger.

#### Speedglas FlexView with Adflo



Part Number : 44 66 80  
 Welding lens : with Speedglas 9002X shade 9-13

#### Speedglas with Adflo



Part Number : 46 66 80  
 Welding lens : with Speedglas 9002X shade 9-13

#### Speedglas FlexView with safety helmet and Adflo



Part Number : 44 68 80  
 Welding lens : with Speedglas 9002X shade 9-13

#### Speedglas with safety helmet and Adflo



Part Number : 47 66 80  
 Welding lens : with Speedglas 9002X shade 9-13

#### ClearVisor/Visor with Adflo



Part Number : 89 90 20  
 Visor Type : with polycarbonate face shield

Part Number : 89 90 21  
 Visor Type : with acetate face shield





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



### 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 (CO<sub>2</sub>) and stale air within the shield.



### 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.

### 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.

### 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.

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™ Welding Products



## 3M™ Speedglas™ 100 Series Welding Shield

### 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).

### High-end features, low-end price

The easy-to-use Speedglas 100 is the ideal “first” autodarkening 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.

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
Welding shield option - see section parts list	Black shield	Black shield	Black shield + Graphics Edition



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 autodarkening 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 lifts up the springmounted 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 FlexViewvisor.

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





**3M Malaysia Sdn. Bhd.** (7251 V)

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[www.3M.com/occsafety](http://www.3M.com/occsafety)

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