Performance and Comfort go hand in hand

Respiratory protection

Not even the best protective equipment will be used all day if it’s not comfortable. 3M™ Speedglas™ Welding products are always designed with user comfort and performance in mind.

Obviously, good general ventilation is required for all working environments. To capture welding fumes, local exhaust ventilation and “on-gun, fume-extractors” are typically used.

In addition to local exhaust ventilation, welders often require respiratory protective equipment to further reduce exposure to contaminants.

- A general guide to respiratory protection
- 3M™ Speedglas™ 9100 Air / FX Air Powered & Supplied Air Respirators
- Care and Maintenance
A general guide to respiratory protection

Welding generates harmful airborne particles and gases known to cause short and long term health problems for welders. Respiratory Protective Equipment (RPE) may be used to help reduce exposure to these hazards.

Two types of RPE are used to protect welders:

<table>
<thead>
<tr>
<th>Filtering devices</th>
<th>Supplied air devices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reusable Respirators</td>
<td>7500 with P2 filters</td>
</tr>
<tr>
<td>Disposable Respirators</td>
<td>Fresh-air C with Speedglas welding shields</td>
</tr>
<tr>
<td>Powered Respirators</td>
<td>7500 with P3 filters</td>
</tr>
<tr>
<td>Air Regulator</td>
<td>Adflo with Speedglas welding shields</td>
</tr>
</tbody>
</table>

Ventilation of the work area is important to help reduce the airborne concentration of contaminants and to ensure that the oxygen in the air is maintained at a safe level. Oxygen deficiency (i.e. <19.5% oxygen) can occur when welding in poorly ventilated areas or confined spaces. 3M do not offer RPE for use in oxygen deficient atmospheres.

The protection offered by RPE depends on the type of device and, if applicable, the filters fitted to it.

The levels of protection of 3M RPE for welders are listed in the table below. The Assigned Protection Factor (APF) for the equipment is published by the Health and Safety Executive in its book HSG-53. An APF of 20 indicates equipment that, when used properly, will reduce exposure by a factor of 20.

<table>
<thead>
<tr>
<th>Model</th>
<th>Filtering devices</th>
<th>Supplied air device</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>9925/9928</td>
<td>7500 with P2 filters</td>
</tr>
<tr>
<td>Type</td>
<td>Disposable Respirator</td>
<td>Reusable Respirator</td>
</tr>
<tr>
<td>APF</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Additional protection</td>
<td>Ozone up to 10xWEL* and nuisance level** organic vapours</td>
<td>Options available for Ozone up to 10xWEL* and nuisance level** gases/ vapours</td>
</tr>
</tbody>
</table>

*WEL = Workplace Exposure Limit  **Nuisance level = below WEL  †APF of 40 with 9100FX Air, APF of 20 with 9100 Air
Filtering devices

Welders requiring respiratory protection need particle filters to capture metal fumes. In addition they may need gas and vapor filters depending on the type of work and the hazards generated. Harmful gases and vapours may be generated by ultraviolet light from the arc reacting with the air or by the burning of coatings or contamination on the metal.

Filtering devices can be either disposable or reusable:
Disposable respirators - e.g. 3M™ 9925/9928
Reusable half face masks - e.g. 3M™ 7500
Reusable powered respirators - e.g. 3M™ Adflo

The options for gas and vapour filters are:

<table>
<thead>
<tr>
<th>Filter type</th>
<th>A</th>
<th>B</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Organic vapours, boiling point &gt;65°C with good warning properties (taste and smell)</td>
<td>Inorganic gases/vapours with good warning properties (taste and smell)</td>
<td>Acid gases with good warning properties (taste and smell)</td>
</tr>
<tr>
<td>Examples</td>
<td>Many common solvents, degreasants and thinners</td>
<td>Chlorine</td>
<td>Hydrogen chloride</td>
</tr>
</tbody>
</table>

Note: Not all gases and vapours can be captured by filters. Check at www.3M.co.uk/selectrespirator

Supplied air devices

3M™ Fresh-air C protects welders by feeding breathable quality air from a compressor into a 3M™ Speedglas™ welding shield. It may be used when a supplied air device is preferred to a filtering device or against gases or vapours that cannot be filtered.

3M Air Quality Testing Service

The COSHH Regulations require that the air provided to supplied air devices should be of breathable quality and of sufficient, constant flow and pressure to provide adequate protection.

The 3M Air Quality Engineers will:
▶ test the air at several positions
▶ suggest measures and give sound advice if the air does not meet requirements
▶ issue a certificate should the air meet requirements for Breathable Quality Air

For more details see page 22
3M™ Speedglas™ 9100 Welding Systems

Improved Respiratory Protection - TH3

The New 3M™ Speedglas™ 9100 FX Air Welding Shields offer the highest respiratory protection - TH3 and excellent vision in the flip-up mode. It readily connects to 2 different air delivery units:

- 3M™ Adflo™ Powered Air Turbo
- 3M™ Fresh-Air C Supplied Air Regulator

The exclusive “stackable” configuration of the Adflo turbo unit means that the gas filter can be stacked onto the particle filter for additional protection from specific organic, inorganic and acidic gases and vapours.

Features and Benefits:

An Adaptable System

- With the right type of filter, Adflo effectively protects against both particles and gases – all in one system. The filters can be replaced selectively: you don’t need to change all filters at the same time

Filter Indicator

- As soon as you turn on your Adflo powered air respirator a display indicates the status of the particle filter

Airflow

- For hot humid jobs the user can increase the airflow from 170 l/min to 200 l/min

Main Systems Part Numbers

- 54 66 05 : 9100FX Shield with 9100V ADF and Adflo
- 54 66 15 : 9100FX Shield with 9100X ADF and Adflo
- 54 66 25 : 9100FX Shield with 9100XX ADF and Adflo
- 56 66 05 : 9100 Shield with 9100V ADF and Adflo
- 56 66 15 : 9100 Shield with 9100X ADF and Adflo
- 56 66 25 : 9100 Shield with 9100XX ADF and Adflo

Also available:

3M™ Speedglas™ 9100 Air Welding System

Assigned protection factor 20

Common Consumables:

- 83 71 00 : Adflo Particle Filter
- 83 60 10 : Adflo Prefilter (pck 5)
- 83 72 42 : Adflo Gas Filter A1B1E1
- 83 71 10 : Odour Filter, Holder & Pad
- 83 71 20 : Replacement Odour Filter Pad
- 83 60 00 : Spark Arrestor
- 83 40 16 : Self-Adjusting Breathing Tube
- 83 40 17 : Heavy Duty Breathing Tube