



Speedglas™ SL Welding Shield

Data Sheet



Description:

The 3M™ Speedglas SL Welding shield (part no 70 11 20) is designed to fit welders who demand, low weight and optimum comfort

- Suitable for most welding applications up to shade 12 in the dark state.
- Easy to operate and maintain.
- Five user selectable dark shades 8, 9, 10, 11 and 12.
- Four user selectable levels of sensitivity ensure reliable arc detection.
- Excellent visibility in light state, shade 3, for easy welding preparation and after treatment.
- Auto ON and OFF function.
- Multiple adjustments for highest comfort.
- Can be used together with 3M Maintenance Free Respirators for welding eg. 9925 and 9928.

Applications:

The Speedglas SL Welding Shield is designed for most welding processes. Specifically for MMA, MIG/MAG and TIG welding where the shade range 8-12 is recommended.

Approvals:

The Speedglas SL welding shield and welding filter are approved as an Eye and Face protection system. The system meets the Basic Safety Requirements under Article 11A of European Directive 89/686/EEC, PPE Directive, and requirements in the European standards (mentioned below) and are thus CE marked.

The Speedglas SL system was examined at the design stage by: DIN Certco Gesellschaft für Konformitätsbewertung mbH, eye protection and personal protection equipment, Gartenstrasse 133, DE-73430 Aalen, GERMANY. (Notified Body number 0196)

The Speedglas SL welding filter, is in conformity with the provisions of Council Directive 89/336/EEC, EMC Directive, and requirements in the European Standards (see section Additional standards).

The product was examined at the design stage by an accredited laboratory.

Standards:

Speedglas SL:	Standards:	Class:
Welding Filter	EN 379	1/1/1/2
Outer protection plate	EN 166	1FT
Inner protection plate	EN 166	1S
Welding shield	EN 175	F

Auto-Darkening Welding Filter

EN 379:2003 Personal eye-protection – Automatic welding filters.

Protection Plate. Clear Safety Lens

EN 166:2001 Personal eye-protection – Specifications.

Welding Shield

EN 175:1997 Personal eye-protection – Equipment for eye and face protection during welding and allied process.

Optical class

EN 166

1 Optical class

EN 379

1/2/2/3Pos 1	Optical class
1/2/2/3Pos 2	Diffusion of light class
1/2/2/3Pos 3	Variation of luminous transmittance class
1/2/2/3Pos 4	Angle dependence of luminous transmittance class (option)

Mechanical Strength

EN 166, EN 175

No symbol	Minimum robustness
S	Increased robustness
F	Low energy impact (45 m/s)
B	Medium energy impact (120 m/s)
T	Tested at extremes of temperature (-5°C and +55°C)

Additional standards:

EN 169:2002 Personal eye-protection – Filters for welding and related techniques – Transmittance requirements and recommended use

EN 61000-6-3:2001 Electromagnetic compatibility (EMC) – Part 6-3: Generic standards – Emission standard for residential, commercial and light-industrial environments

EN 61000-6-2:2001 Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity for Industrial environments

Materials:

Protection plates: Polycarbonate

Plastics: PPA, PA, PBT

Optical Part: LC-Elements, Glass, Polarizers

Electronics: Printed Circuit Board assembly

Batteries: Lithium 3V Type CR2032

Spare parts and accessories:

Outer protection plate:

Standard (frosted)	72 60 00 (5 pcs)
Scratch resistant (painted)	72 70 00 (5 pcs)

Inner protection plate:

42 x 91 mm	42 80 00 (5 pcs)
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Batteries:

3V Lithium type CR2032	42 20 00 (2 pcs)
Battery holder	73 10 00

Welding shield

Without Headband	70 11 90
Headband incl assembly parts	70 50 10
Assembly parts for Headband	70 60 00

Welding filter

Speedglas SL ADF 3/8-12	70 00 20
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Use Limitations:

The Speedglas SL welding shield is not suitable for laser welding or laser cutting. The welding shield is excellent for all positions except heavy duty overhead cutting/welding operation due to the risk of molten metal.

Technical specifications:

Weight:	360 g (incl. welding shield)
Headband:	Multiple adjusting possibilities Head: Size 50-64 (two changeable forehead parts) Shield: distance from face and angle adjustment.
Viewing area:	42 x 93 mm
UV/IR protection:	According to shade number 12 (permanent)
Switching time light-dark:	0,1 ms (+23°C)
Opening time dark-light:	Shade number 8: 60 ms Shade number 9: 100 ms Shade number 10: 150 ms Shade number 11: 200 ms Shade number 12: 250 ms
Light state:	Shade number 3
Dark state:	Shade number 8, 9, 10,11 and 12
Fail/Safe (Off) state:	Shade number 3
Battery type:	2 x CR2032 (Lithium 3 Volt)
Battery life time:	1500 hour (typical)
Range of temperature	
Use:	-5°C to +55°C
Storage:	-30°C to +70 °C

User instructions:

On/Off

The Speedglas SL welding filter automatically switches on and off.

Selection of Shade Number setting **SHADE**

Five different Shade Number settings are available in the dark State 8, 9, 10, 11 and 12. In order to see which Shade Number the welding filter is currently set to, momentarily press the Shade button. To reselect another Shade Number, press the Shade button again while the LED is flashing, and then keep pressing the button to increment the flashing LED to the correct Shade Number.

Setting of detector Sensitivity function **SENSITIVITY**

Setting the performance of the photo detector system (which responds to the light from the welding arc) is made with the Sensitivity button. In order to see which position the welding filter is currently set to, momentarily press the Sensitivity button. To select another setting, press the Sensitivity button again while the LED is flashing, and continue to press until the LED shows the desired setting.

Position 1 Least sensitive setting. Used if there is disturbing light from other welders in the vicinity.

Position 2 Normal position. Used for most types of welding indoors and outdoors.

Position 3 Position for welding with low current or where the welding arc becomes stable. (eg TIG welding at low amps)

Position 4 Extreme photo detector sensitivity. Suitable for very low current welding or pipe welding where part of the arc is obscured from view.

Finding the right setting of detector

In order to find a suitable sensitivity setting for the detector, start with the setting, before welding, in Position 2. This is a normal position that functions in the majority of situations. If the filter does not darken during welding as desired, raise the sensitivity to Position 3 or 4 until a definite shift to dark position takes place. Should a too high sensitivity be selected, it is possible that the filter remains in the dark position after welding is complete due to surrounding light. Should this arise, make an adjustment to a less sensitive setting where the welding filter both darkens or lightens as desired. If the welding filter functions well in Position 2, but darkens due to another welding process being in progress in the vicinity, select Position 1.

Low battery indicator

The "low battery" indicator flashes repeatedly when the battery should be replaced.

Note!

The welding filter will not go to dark position in applications where there is no welding light at all visible for the photo detector system.

Note!

Other light sources with fast flashing light eg warning lights can make the photo detector react and make the filter darken/lighten with the same frequency as the flashing light source.

Note!

The battery should be replaced when the low battery indicator flashes or shade and sensitivity LED's do not flash when the buttons are pushed.

Recommended shade numbers according to EN 379:2003

Welding process	Current in amperes																				
	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		14				
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								
	1.5	6	10	15	30	40	60	70	100	125	150	175	200	225	250	300	350	400	450	500	600

▲ 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.

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