Technical Datasheet

3M™ Speedglas™ 100 Welding Shield

Description:

The Speedglas 100 Welding Shield:

- Is suitable for most welding applications up to Shade 12 in the dark state.
- Has permanent protection (Shade 12 equivalent) against harmful UV- and IR- radiation, regardless of whether the filter is in the light or dark state or whether the auto-darkening function is operational.
- Is easy to operate and maintain.
- Has five different Shade Number settings in the dark state, 8-12. (Speedglas 100V)
- Has three user selectable levels of detector sensitivity to ensure a reliable arc detection. (Speedglas 100V)
- Has excellent visibility in light state, shade 3, for easy welding preparation and after treatment.
- Has multiple adjustments for highest comfort on Shield, Head band and Welding filter.
- Can be used together with 3M Maintenance Free Respirators for welding.

Applications:

The Speedglas 100 Welding Shield is designed for most welding processes, such as MMA, MIG/MAG, TIG and plasma welding.

Approvals:

The Speedglas 100 has been shown to meet the Basic Safety Requirements under the article 10 of the European Directive 89/686/EEC and is thus CE marked. The product complies with the harmonized European Standards EN 175, EN 166, EN 169 and EN 379. The product was examined at the design state by DIN Certco Prüf- und Zertifierungszentrum (Notified body number 0196)

Standards:

Speedglas 100:	Standards:	Class:
Welding Filter	EN 379	1/2/2/3
Outer protection plate	EN 166	1BT
Inner protection plate	EN 166	1S
Welding shield	EN 175	B

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 processes.

Optical class

EN 166

1	Optical class

EN 379

1/2/2/3	Pos 1	Optical class
1/**2**/2/3	Pos 2	Diffusion of light class.
1/2/**2/3**	Pos 3	Variation of luminous transmittance class.
1/2/2/**3**	Pos 4	Angle dependency class (optional Marking)

Mechanical Strength

EN 166, EN 175

No symbol	Minimum 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: PA
Optical Part: LC-Elements, Glass, Polarizers
Electronics: Printed Circuit Board assembly
Batteries: Lithium 3V Type CR2032

User instructions:

On/Off ON/SHADE

Activate by pressing the ON/SHADE button. The welding filter automatically turns OFF after one hour of inactivity.

Selection of Shade Number setting ON/SHADE

The models Speedglas 100S-10 and Speedglas 100S-11 have a fixed dark shade where no setting is required.
Model Speedglas 100V has selectable dark shade settings. Five different Shade Number settings, 8-12 are available in the dark state. In order to see the current Shade Number setting, momentarily press the ON/SHADE button. To select another Shade Number, press the ON/SHADE button repeatedly while the LED indicators on the display are flashing. Move the flashing LED to the desired Shade Number.
In all welding processes the arc should only be viewed with the recommended dark shade. See table.

Sensitivity SENS

The programming and sensitivity of the photo detector system (which responds to the light from the welding arc) can be adjusted to accommodate a variety of welding methods and workplace conditions. In order to see the current sensitivity setting, momentarily press the SENS button. To select another setting, press the SENS button repeatedly until the LED shows the desired setting.

Position 1 Least sensitive setting. Used if there is interference from other welders arcs 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 with stable welding arcs. (eg TIG welding)

If the filter does not darken during welding as desired, increase the sensitivity until the welding filter switches reliably. Should the sensitivity be set too high, the filter may remain in the dark state after welding is complete due to ambient light. In this case, adjust the sensitivity downward to a setting where the welding filter both darkens and lightens.

Low battery indicator

The batteries should be replaced when the low battery indicator flashes or LEDs do not flash when the buttons are pressed.

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

Use limitations:

The Speedglas 100 welding shield is not suitable for laser welding/cutting or gas welding/cutting. The welding shield is excellent for all positions except heavy duty overhead welding/cutting operations due to the risk of molten metal.

Spare parts and accessories:

Part no. Spare parts	Description
75 11 10	SPEEDGLAS 100 Shield with SPEEDGLAS 100S-10 Auto darkening Welding Filter Single shade 3/10
75 11 11	SPEEDGLAS 100 Shield with SPEEDGLAS 100S-11 Auto darkening Welding Filter Single shade 3/11
75 11 20	SPEEDGLAS 100 Shield with SPEEDGLAS 100V Auto darkening Welding Filter Variable shade 3/8-12
75 11 00	SPEEDGLAS 100 Shield
75 00 10	SPEEDGLAS 100S-10 Auto darkening Welding Filter Single shade 3/10
75 00 11	SPEEDGLAS 100S-11 Auto darkening Welding Filter Single shade 3/11
75 00 20	SPEEDGLAS 100V Auto darkening Welding Filter Variable shade 3/8-12
75 11 90	SPEEDGLAS 100 Shield without headband
77 20 00	SPEEDGLAS 100 Front frame
70 50 10	Headband including assembly parts
70 60 00	Mounting details for Headband
73 10 00	Battery cover

Consumables

77 60 00	SPEEDGLAS 100 Outer protection plate standard pkg of 10
77 70 00	SPEEDGLAS 100 Outer protection plate scratch resistant pkg of 10
77 70 70	SPEEDGLAS 100 Outer protection plate heat resistant pkg of 10
16 75 20	Sweatband in towelling, purple pkg of 2
16 80 10	Sweatband in fleecy cotton, black, pkg of 2
42 80 00	Inner protection plate pkg of 5 plate marking 42 02 00
42 80 20	Inner protection plate +1 shade pkg of 5
42 80 40	Inner protection plate +2 pkg of 5
42 20 00	Battery pkg of 2

Accessories

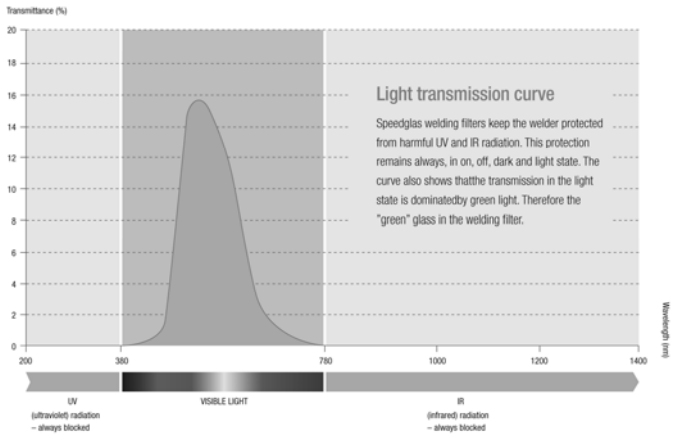
16 40 05	Ear and neck protection in leather (3 parts)
16 90 01	Neck protection in TecaWeld
16 91 00	Hood neck/head in TecaWeld
17 10 17	SPEEDGLAS 100 holder for magnifier
17 10 20	Magnifying Lens 1.0
17 10 21	Magnifying Lens 1.5
17 10 22	Magnifying Lens 2.0
17 10 23	Magnifying Lens 2.5
17 10 24	Magnifying Lens 3.0

Technical specification	
Weight Welding shield (incl welding filter)	465 g
Viewing area	44 x 93 mm
Switching time light-dark	0,1 ms (+23°C)
Opening time dark-light	100 ms – 250 ms
UV / IR protection	According to shade number 12 (permanent)

Technical specification	
Light state	Shade no 3
Dark state	Shade no 8-12
Battery type	2 x CR2032 (Lithium 3 Volt)
Battery lifetime	1500 hours
Operating temperature	-5°C to +55°C
Head sizes	54-64

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			
	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.



3M

Local address