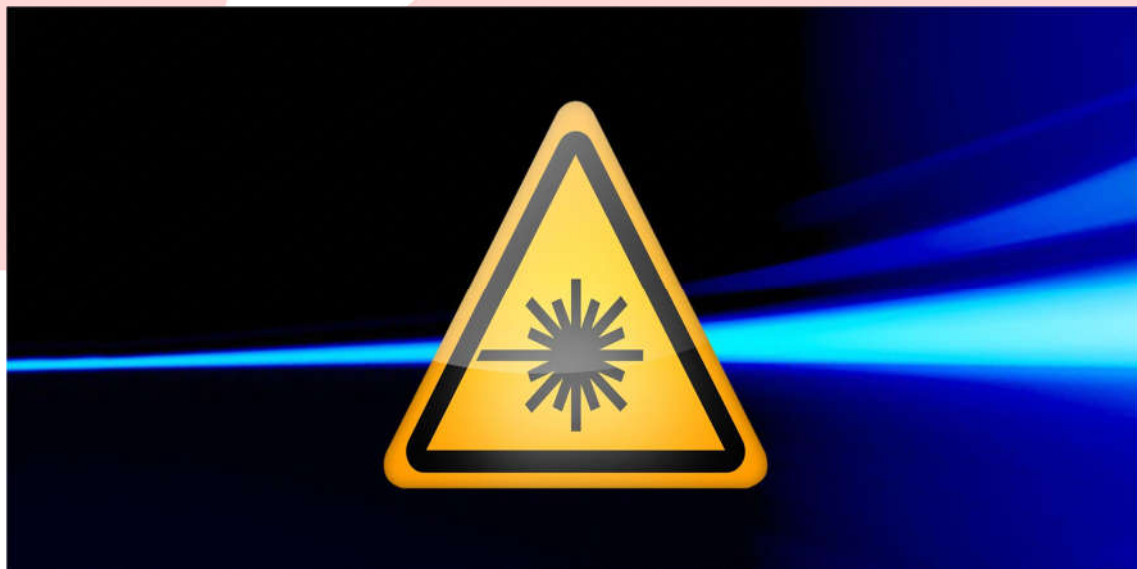


Laser welding Safety goggles for Fiber laser handheld laser welding machines



Laser Protective Eyewear



**Be careful when buying laser safety goggles,
especially for laser welding!**

Laser Safety Filters – How do they work?

Laser safety eyewear and windows work by blocking specific wavelength ranges of light. The level of blocking is quantified by the Optical Density (OD) of the filter, but it cannot be considered alone. Absorbing blocked light can cause damage to the filter material or frame.

Therefore under European standard EN207:2017 you should look at the LB rating which ensures that a material must last at least 5 seconds for a continuous wave laser, or 50 pulses for a pulsed laser.

The LB rating is on the same scale as OD, but takes precedence over it. The LB rating tells you the maximum OD of the filter that is suitable for the specific type of laser.

What Is OD Value (Optical Density)

Optical transmission is generally indicated by transmittance (%). It is commonly expressed in percentage, and indicated by logarithm. That is the OD value (optical density).

Optical density (OD) is the attenuation rate of incident light that passes through the optical filter, in this case laser protective eyewear. The larger the OD value, the larger the attenuation rate of incident light, so thus providing higher protective function. Optical density (OD) and damage threshold must be high enough to prevent damage to the eyes from direct beam exposure.

All our models use reinforced material for lenses, providing high visible light transmittance, and offers improved visibility and permeability of light. The used lens-material also offer excellent chemical resistance.

Absorbance is a quantitative measure expressed as a logarithmic ratio between the radiation falling upon a material and the radiation transmitted through a material.

- Example: for an O.D. of 6+, it should have an attenuating factor of 1.000.000 times ($1 + 6 \times 0$). That is saying 1000W of optical power should only let through 1 mw at most of radiation. This is of course if you accidentally looked right into the beam, which you shouldn't. However, it will save your eyesight if it does happen.
- A more reasonable case is taking a reflection of the laser beam from a surface of two Watt and then only transmitting 0.002mw of radiation to your eye.

All our glasses have an OD of +6 or +7 (green) or optional +8(orange). This means the laser light is reduced minimal 1.000.000, or 10.000.000 or 100.000.000 times.

Ex: 1000 Watt laser light in the infrared becomes 0.1 mW with OD7+ protection! Which is 10 times under the limit of the safety level for your eyes.


Visible Light Transmission ("VLT") in Relations to Laser Safety Glasses

Most eyewear offer protection from specific wavelengths, and allow other wavelengths in the visible light spectrum to pass through for unhindered vision.

Visible Light Transmission (VLT) is the amount of light that can pass through the lens of a pair of glass. With increase in VLT, more color passes through the lens. It is important to note that the diversity of visible light being let through should also be a factor one should consider while shopping for glasses and goggles.

Green material = Visible Light Transmission minimal 60%

Orange Material = Visible Light Transmission minimal 35%

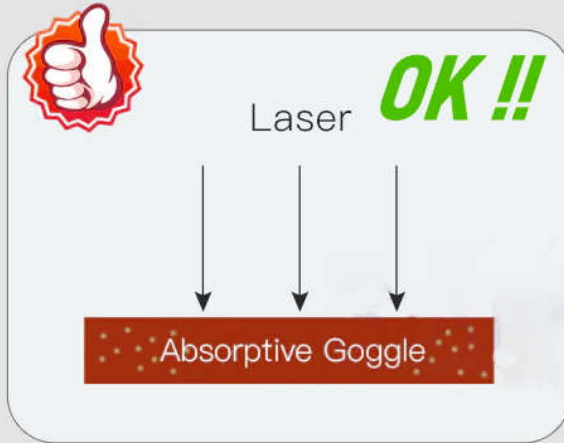
Optical Density (OD value)	Transmittance	Attenuation Rate	Protective Function
0	100%	0	 Weak High
1	10%	1/10	
2	1%	1/100	
3	0.1%	1/1000	
4	0.01%	1/10000	
5	0.001%	1/100000	
6	0.0001%	1/1000000	
7	0.00001%	1/10000000	
8	0.000001%	1/100000000	
9	0.0000001%	1/1000000000	
10	0.00000001%	1/10000000000	

**WE ONLY SUPPLY LASER LIGHT ABSORBING PROTECTION GOGGLES, FULLY ABSORBING THRU THE FULL THICKNESS OF THE LENS MATERIAL
NO COATED VERSIONS WHICH ARE NOT SUITABLE FOR LASER LIGHT**

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Absorption & Reflection

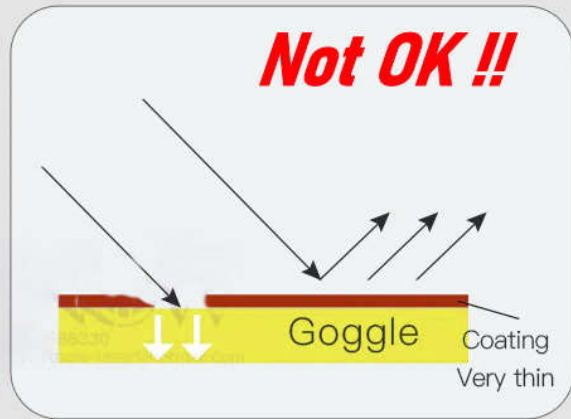
Difference



Absorption

Adding laser absorber into lens material

More durable



Reflection

Surface coating is very easy to scratch.

Scratched area loses its protective effect.

Take care to make sure you purchase high quality laser goggles whenever using lasers or laser devices. Be sure that you can see the red pointer during the welding!! Always make sure you wear your goggles as well as everyone else in the room to keep the dangers of stray radiation at bay!

Attention

- Do not directly look into the laser beam through laser protective eyewear.
- Do not irradiate the laser beam directly at laser protective eyewear because it may damage the eyewear.
- Do not use with incompatible lasers or wavelengths. (Even if laser names are the same, their wavelengths might be different.)
- Do not take off laser protective eyewear during work.
- Do not use as protective eyewear for welding.
- Complete absorption type eyewear (like for normal welding) is not protective equipments that completely absorb laser light. (Refer to the absorption characteristic graph.)

- Cease use of eyewear that is damaged or once it has received high laser energy.



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MODEL 01



Model 1

white+OD8/white+OD7/Black+OD7

This model offers improved fitting functions including angle adjustment for the gap with the face and flexible temples

Light and compact two-lens type is easy to wear and remove.

This model features a highly protective cover frame and wide temples.



Model 1 - maximal adjustable

Available in:

- green – protection range 190-450 & 800-1100nm O.D 7+ in White or black frame VLT 60%
- Orange – Protection Range 190-540 O.D 3+ 800-1100nm O.D 8 in White Frame VLT 55%

MODEL 05



This is our second most popular frame and is our best option for lightweight free moving and can be easily used under a face shield. When welding with a face shield, several welders forget sometimes to put the screen down, when its only for a short time, therefor its better to wear continously a lightweight protection goggle that protects you all time.



Available in:

- green – protection range 190-450 & 800-1100nm O.D 7+ in Black frame only VLT 60%

MODEL 08



Model 08 Special for over Prescribed Glasses

The **08-Frame Fit-over** is our best-selling frame by a decisive margin - it is typically the most economical solution for labs looking to buy laser eyewear that will fit everyone reducing expense for individual-specific protective eyewear. In almost all situations that are not atypical (for e.g.; fitting eyewear underneath a face shield etc.), this frame is highly recommended when the choice is **polycarbonate glasses**.

This is our most popular frame and is our best option for people with prescribed glasses. Great



visibility around. Universal style (large). • Comfortable over prescription frames or alone. • Full field of view.

Available in:

- green – protection range 190-450 & **800-1100nm O.D 7+** no frame – frameless VLT 60%
- Green **darker** – Protection range **850-1300 OD6+ : special for sensible eyes** (for ex welders)



Visual difference between Model 8 and Model 8D

Model 8D is Special developed for ex welders looking into the melting pool like they are use to do. The glass is some darker but the absorption of laser welding light is lower than the standard glasses. Looking in the melting pool is the biggest mistake which is made during laser welding. The light you see is energy losses and you do not see any melting pool as the speed is too high!

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MODEL 10



Model 10 : full protection in any position

This model fits the face snugly, and can be worn over prescription glasses. Appropriate for use when the angle of beam or scattering light cannot be identified. Protects your eyes in any position and to any laserlight from any direction. Full enclosed ski-type protection glasses.



Available in:

- green – protection range 190-450 & 800-1100nm O.D 7+ in Black frame only VLT 60%
- Orange – Protection Range 190-540 O.D 3+ **800-1100nm O.D 8** in White Frame VLT 55%

MODEL 11



Model 11 - good face contact, fits over small prescribed glasses

11-Frame Spectacle fits large heads and faces. Fits over most standard smaller prescription glasses. Model 11 includes high comfort and side-protection with still a relative wide view of vision.



Model 11 good side protection and fitting form

Available in:

- green – protection range 190-450 & 800-1100nm O.D 7+ in White or black frame VLT 60%
- Orange – Protection Range 190-540 O.D 3+ 800-1100nm O.D 8 in White Frame VLT 35%



Product Packaging



Glasses case & Glasses cloth

- Laser Safety Goggles



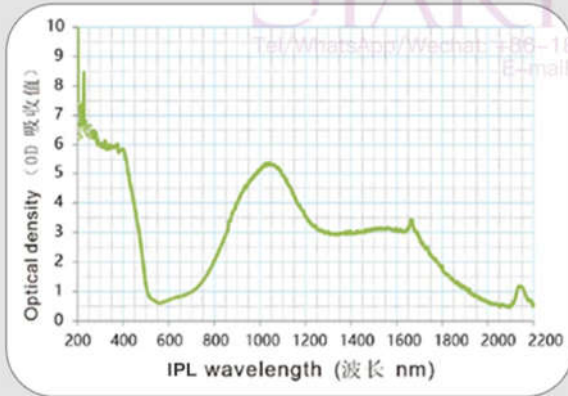
Glasses case

- Laser Protective Eyepatch



Product Certification

CE Certification、High Absorption、Safety



CELAB®
Via Maire snc
04100 Latina
Italy
celab@celab.com

celab

CERTIFICATE

Certificate Number UCN : 802372349925
Job : J2959
Date of Issue : 2019-04-30
Certificate valid up to : 2023-04-29

Brand Name : Sky
Type : Safety goggles
Model N : T2R(600-760&800-1100nm), T3Q(190-540&800-1100nm), T6(190-380&750-860nm), T2(190-440&600-760nm), T5(190-420&650-1300nm), T4Q(190-540&800-1700nm)

Manufacturer : Shenzhen Keyuan CO.,LTD
Address : Floor 4, Bldg B, Ping Lian Fa Technology Park, Dan Zong Road, KengZi Town, Shenzhen, 518122, P.R. China

Standard Used : EN 207:2017

Conclusion :
After inspection of the technical documentation issued by the customer, and in his request, we express our opinion that the product meets the technical requirement of the following directives and standards:
89/686/EEC Personal protective equipment (PPE)

This opinion is only valid for the directive, the equipment and configuration described, in conjunction with the test data detailed above and with compliance with all applicable legal requirement for the product.
The following manufacturer documents was inspected:

Presence of Declaration of conformity template	✓ OK
Presence of test report using standards as indicated in the declaration of conformity	✓ OK
Test report reference : GOTS/Y201712002, GOTS/Y201904018	✓ OK
Presence of CE symbol in the product label	✓ OK
Presence of instruction manual	✓ OK
Use of valid Harmonized standard in the declaration of conformity	✓ OK
Presence of product description in the technical construction file	✓ OK

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Massimiliano Beroldi
General Manager - CELAB
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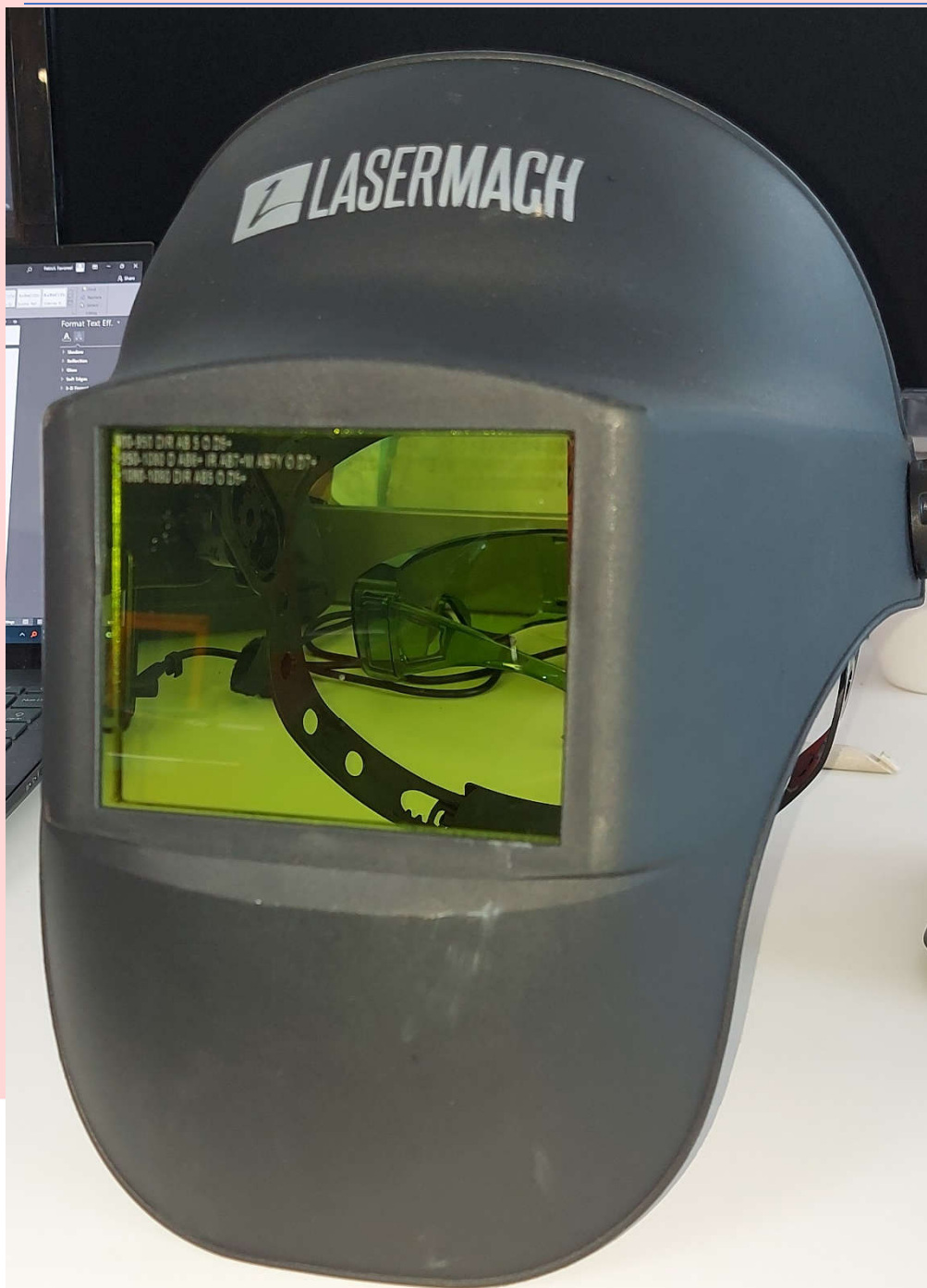
Doc 121 Voluntary Certificate rev 3.31

Approved CE Certificate

Meet Standard EN 207:2009 + AC:2011

LASERMACH

Protection FACE Shield



LASER MACH

Available in:

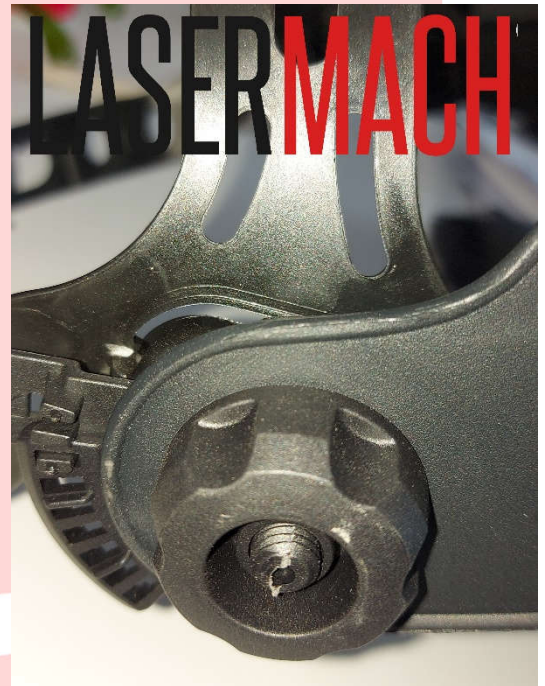
- green – protection range 800-950nm O.D 6+ - 950-1080 OPD+7 1080-1090 OD+5 -VLT 60%



BIG Window size

Super Easy adjustable

Special for laser welding with red pointer visible



Protection FACE Shield/Helmet

NEW Models

Laser welding helmet

The laser protection window type of this protection helmet is made of a dark green absorbing plastic, on a particularly laser-resistant PMMA basis. The laser protection is based on absorption of laser radiation in the material itself. The laser protection window has a daylight transmission of approx. 68% and has sufficient visual brightness and color visibility. To ensure safe use in machines or shielding even with large beam diameters, the laser protection window is certified according to DIN - EN 60825-4 and CE.

For adequate laser safety, please calculate the protection levels required for your laser and compare with the specifications on the Laser pr

The helmet is not designed for direct firing of all laser beams. Please check and discuss this with your laser protection officer.

Compliance: ANSI Z87.1.2020, EN166, AS/NZS1337.1, CSA Z94.3 ,AS/NZS 1067 - ANSI Z136.1, IEC 60825-1, safety standards.

Specification:

Filter material: plastic

Filter technology: Absorption filter

Visual Brightness: Sufficient

Standards: EN 60825

Filter thickness: Approx. 3mm

Color vision: Sufficient

Color: dark green

VLT (approx.): 68%.

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Laser Welding helmet full cover: comfort model

Face Shield full cover - High Comfort (new 2023 - 10)





Protection FACE Shield/Helmet With Steel front cover

**Heavy Duty Laser Welding helmet full cover: comfort model with steel
shield protection cover**

**Heavy Duty Face shield Full cover with Steel protection - High
comfort**



Filter material: plastic
Filter technology: Absorption filter
Standards: EN 60825
Filter thickness: Approx. 3mm
Color: dark green
VLT (approx.): 64%.



Standard Price list europe

Pricing FOT for European market valid from 2023-11									
Goggles	Model 01	Model 05	Model 08	Model 10	Model 11	face screen	face screen/helmet	face screen/helmet + steel	
Laser 1076nm				SKI-type		Basic	Laser Welding helmet	laser welding helmet with steel shield	
Green	Green OD+7	Green OD+7	Green OD+7	Green OD+7	Green OD+7	Green OD7+	Green OD8+	Green OD8+	
reference	LLSE-PG91-0001G	LLSE-PG91-0005G	LLSE-PG91-0008G	LLSE-PG91-0010G	LLSE-PG91-0005G	LLSE-PG91-0100G	LLSE-PGLP-0001G	LLSE-PGLP-0002G	
Price	€ 146,70	€ 146,70	€ 146,70	€ 234,10	€ 146,70	€ 343,60	€ 269,72	€ 340,37	
Dark Green			Model 08 D						
reference			Dark Green OD+6						
Price			LLSE-PG91-0008D						
			€ 146,70						
Orange	Orange OD+8			Orange OD+8	Orange OD+8				
reference	LLSE-PG91-0001B			LLSE-PG91-0010B	LLSE-PG91-0005B				
Price	€ 199,90			€ 299,79	€ 199,90				

The laser protection is based on absorption of the laser radiation in the material itself.