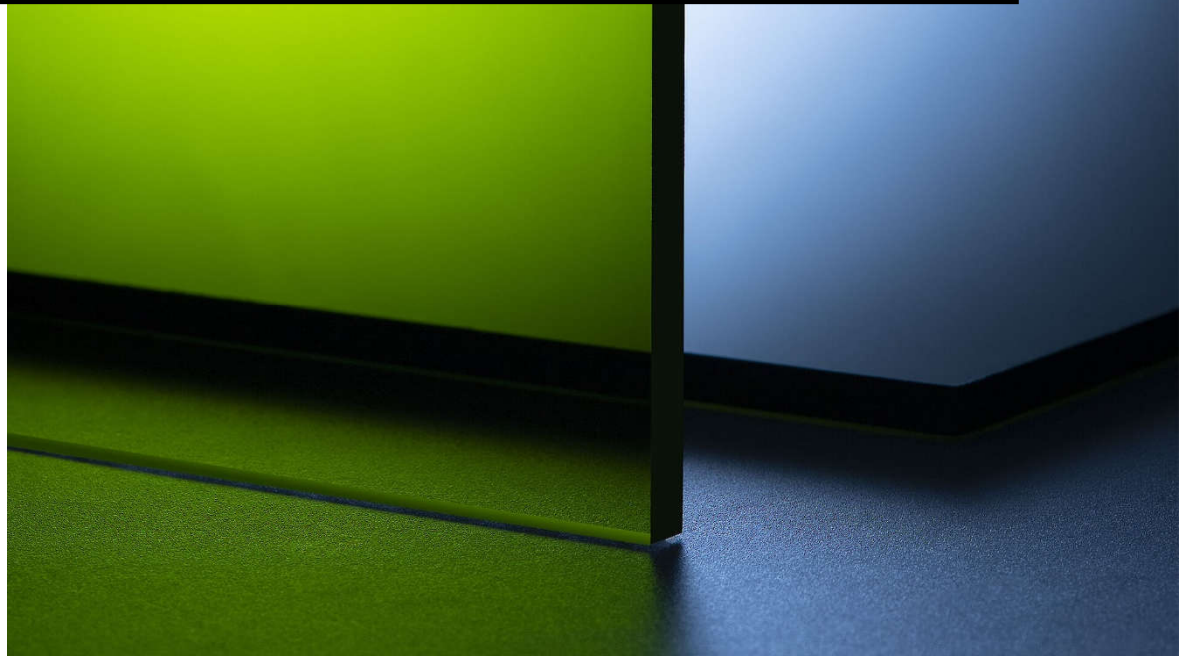


2024

# PHOTONSAFE® LASER PROTECTION



Offered by

Lasermach

1/6/2024

# PhotonSafe® Laser protection

The Lasermach Safety team is proud to provide a high-quality laser Protection equipment.



The basic standard for laser welding protection DIN EN 60825-1:2008 (**and not** DIN EN 12254: 2012-04) demands that lasers need to be safely operated under all predictable conditions. That means, that the accessible laser radiation must be below the maximum permissible exposure for eye and skin. According to the machine building regulation 2006/42/EG laser protection windows, foil, walls, curtains and enclosures are considered as safety components.

## *Laser Safety: The Ugly Truth About Laser Radiation Exposure*

In the time that it takes to blink an eye, laser radiation damage to the eye may have already occurred. Unprotected exposure to lasers can result in the development of cataracts or even a corneal burn, which can result in vision loss. If you are working with or around lasers, it is very important to understand the consequences of laser radiation exposure.

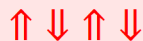
## *POTENTIAL HAZARDS of Laser Welding*

Laser protection class 4 applies to all our manual laser welding equipment when in operation. Different measures are therefore required on the customer side to ensure laser safety, such as:

- the appropriate training of employees,
- wearing special Personal protective equipment (PPE)
- setting up a separate laser safety area

## *Which laser protection standard is accepted for handheld Laser Welding?*

Standard IEC 60825-4 is the only accepted standard for laser welding or laser cleaning protection



**DIN EN 12254:2012-04 is NOT an accepted norm for handheld Laser Welding or cleaning**

Standard DIN EN 12254:2012-04 applies to laser radiation up to a maximum mean power of 100 Watt or single pulse energy of 30 J.

## PhotonSafe® Laser protection

# 1. PhotonSafe® Laser Safety Film - Anti-laser film - Laser Protection Window Foil – Laser Protection window film



Make your window a truly safe window that is both laser and shock resistant. Our laser protective removable window films can be used on your laser welding rooms windows to protect external persons from the glare of the welding lasers. It is made of super wear-resistant PET protective film and multilayer film compounded with nano wave-absorbing material with specific wavelength by special process. This specific wavelength nano-absorbing material adopts the composite absorption principle (absorption + reflection), which overcomes the problem that the film is difficult to achieve high OD value. The product has excellent characteristics of wear resistance and aging resistance and is upgraded providing a higher laser barrier rate and has now even stronger optical performance indicators provides protection from laser radiation of wavelength 780-3000nm by absorbing and reflecting. It is wearable,

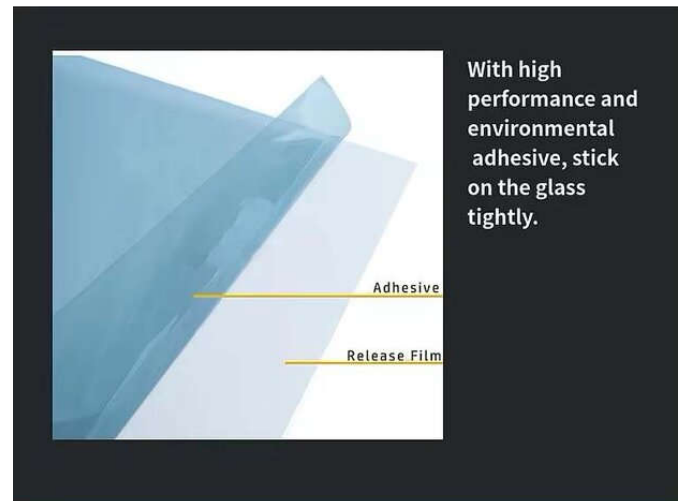
scratch-resistant, explosion-proof and easy to clean.

## *Easy installing windows film for laser light reduction*

If Double-sided application, it will double the protection factor (increased OD). This protective film can be cut at any size or shape and attached on any material surface, and can also be used as single, double or multi-layer to provide high level of optical density. It is simple, fast mounting and reliable adhesion. It is as simple as mounting a car film. Large laser protective window can be easily realized.

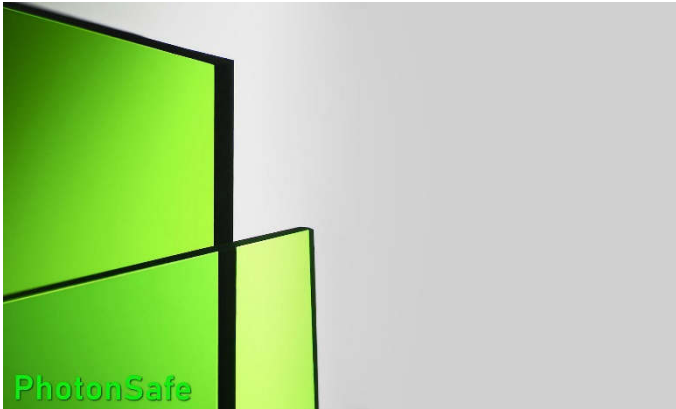
## Highlights PhotonSafe® Laser protection film

- OD4 (LB3) protection level for 950~1600 nm wavelength
- VLT approx. 58%
- Sold in linear metres - width approx. 1,500 mm
- Thickness : 125µm
- 3ply = Film made of 3 different layers
- Appearance: Transparent, light blue
- Adhesive: Pressure sensitive adhesive
- Good colour vision
- Additional UV protection



	Referentie	Price € ex VAT
PhotonSafe Laser welding protection Window Film	LLSE-WPF-HU0001	€/lm
Width 1,5 m price per running meter		€ 225,1

## 2. PhotonSafe® Laser Protecting Windows



With our PhotonSafe laser protection windows, you are opting for a high-quality and affordable solution for your laser welding protection. They are provided with high level of protection from laser radiation and high optical density(OD) and high visible light transmittance(VLT) and are fully compliant with CE standards, and meet the threshold of European market.

### Laser Filter Windows - Laser Safety Viewing Windows - Laser Filter Windows

Laser viewing windows enable you to see inside an enclosure while stopping the laser radiation from coming out, thus providing protection with the minimum of inconvenience. These viewing windows are specific build and adapted for Laser welding and laser cleaning applications.

### In High Tech plastics: Cost-effective, lightweight protection in large sizes for high power lasers and strong reflections from high power lasers

This PhotonSafe® Laser safety windows are designed and manufactured to absorb specially laser welding laser waves, to provide safe working condition to laser welding users. The safety windows are made of PMMA and absorbing dyes. Windows are not considered to be PPE and can be marked with their



optical density only, but as a Lasermach

standard, most of our materials do have a certification acc. to the standard EN 207:2009+AC: 2011(updated to EN 207: 2017) & EN167, in accordance with (EU) 2016/425 PPE and acc. DIN EN 60825-4 and indicate OD + LB ratings. We are able to supply any of these filters in custom sizes up to the largest size available (typically 1280 x 1000 mm - 640x1000mm - 500x640mm - 320x500mm).

Custom-cutting, punching, chamfering, marking and anti-static are available. The windows have no optical distortion and are not easy to scratch.

Protective window green OD+7	Referentie	Price € ex VAT
PhotonSafe Laser welding protection Window OD 7+ 940-1100nm		€/piece
Window 1280x1000x5mm	LLSE-LPW-HE128100	€ 1.822,0
Window 1280x500x5mm	LLSE-LPW-HE128050	€ 945,0
Window 1000x640x5mm	LLSE-LPW-HE100050	€ 945,0
Window 1000x426x5mm	LLSE-LPW-HE100042	€ 630,0
window 640x500x5mm	LLSE-LPW-HE064050	€ 480,0



# 3. PhotonSafe® Laser Protecting Curtains

## Laser welding curtains - Certified Laser Curtains

Laser welding curtains and barriers or panels play a crucial role in creating a safe working environment when using lasers for welding or lasers for other applications. Laser welding curtains are designed to block or attenuate the laser radiation, preventing it from escaping the designated work area and reducing the risk of accidental exposure to personnel. They are an important component of an overall laser safety program, which includes proper training, the use of personal protective equipment (such as laser welding safety glasses), and adherence to established safety protocols.



### *Size and Configuration:*

Laser welding curtains come in various sizes and configurations to suit different work areas and applications. They can be hung from ceiling tracks or mounted on frames to create a protective barrier around the laser welding station.

Our laser welding panels can be daisy-chained together on wheels enabling you to move the panels around as you need. The panels are connected by one foot and one and half foot dividers enabling you to create corners and folds as needed. The panel systems can act in a very similar way to a shower curtain with the additive feature of being

mobile.

Before implementing laser welding curtains, panels or barriers it's important to consult with a laser welding safety expert and follow the guidelines provided by regulatory authorities to ensure the curtains and barriers effectively mitigate the risks associated with laser radiation and welders flash to the area in question.

### Protection values according to EN 60825-4

Standard IEC 60825-4 is the only accepted standard for laser welding or laser cleaning protection curtains or protection screens



DIN EN 12254:2012-04 : This standard applies to supervised screens for installations in working places at which laser radiation up to a maximum mean power of 100 W or single pulse energy of 30 J .

DIN EN 12254:2012-04 is NOT an accepted norm for Laser Welding

### Laser Laser Safety Curtain Weld-Curtain

The laser safety Welding curtain is suitable for delimiting laser welding areas to block direct scattered light from the welding laser. Standard widths to 1,5 m with heights of 2,0m 2,2m 2,70 m Can be manufactured to exact dimensions. Several curtains can be firmly connected with Velcro or zipper so that, for example, a rectangular work area can be delimited. Suitable rail systems for mounting the curtain directly to the ceiling or suspended from a high ceiling with vertical rods are optionally available..

- CE certified according to the standard EN 60825-4
- Flame retardant (M2 protection level to NFP 92-503)
- Material: Both sides black
- Thickness 1.4 mm
- Curtain weight: 1.7 kg/m<sup>2</sup>
- Surface easy to clean
- Eyelets (diameter 10 mm, standard spacing 230/240 mm) and metal hooks on the top edge
- Matching curtain track or frame available
- Attachment of additional screens possible (to cover the gap between the rail and the upper edge of the curtain)
- Attachment of Velcro or zipper possible
- Connection with interlock system possible (optional)
- 



Please note that the curtain material only protects shortly against direct laser light from laser welding and is intended for stray light from the laser when using a hand-held laser welding device. It is necessary for the laser protection officer in your company to confirm as part of a risk assessment that the maximum permissible radiation levels of the curtain are not being reached or exceeded. Scattered radiation, which can escape upwards, downwards or sideways, must be evaluated by the laser safety officer with regard to maximum permissible radiation levels depending on the on-site situation. Additional laser protection measures may be required.

PhotonSafe Pro Safety Curtain	PhotonSafe Pro Curtain	Model	Type	dimensions	reference	Euro
	Hanging	Model C-Pro	1520-CP	1500 x 2000	LLSECUR-CP150200	€ 1.153,4
	only curtain		1525-CP	1500 x 2500	LLSECUR-CP150250	€ 1.441,7
			1527-CP	1500 x 2700	LLSECUR-CP150300	€ 1.557,5
EN60825/IEC60825/GB7247	Ceiling - Hanging	Model H-Pro	1520-HP	1500 x 2000	LLSECUR-HP150200	€ 1.338,2
PEL = 5,43 MW/m <sup>2</sup>	Included track kit		1525-HP	1500 x 2500	LLSECUR-HP150250	€ 1.626,5
<b>PEL = 543,4 W/cm<sup>2</sup></b>			1527-HP	1500 x 2700	LLSECUR-HP150300	€ 1.739,9
1070 nm - T= 100Sec						
r = 2,509 mm=> D=5,0mm	Wall mounted-Hanging	Model W-Pro	1520-WP	1500 x 2000	LLSECUR-WP150200	€ 1.338,2
	Included track kit		1525-WP	1500 x 2500	LLSECUR-WP150250	€ 1.626,5
<b>photonSafe defender pro</b>			1527-WP	1500 x 2700	LLSECUR-WP150300	€ 1.739,9
	Hanging on freestanding frame	Model F-Pro	1520-FP	1500 x 2135	LLSECUR-FP150213	€ 1.330,8
	included alu frame and swivel casters		1525-FP	1500 x 2635	LLSECUR-FP150263	€ 1.663,5
			1527-FP	1500 x 2835	LLSECUR-FP150283	€ 1.796,6
other dimensions on demand						
view window can be installed as option						

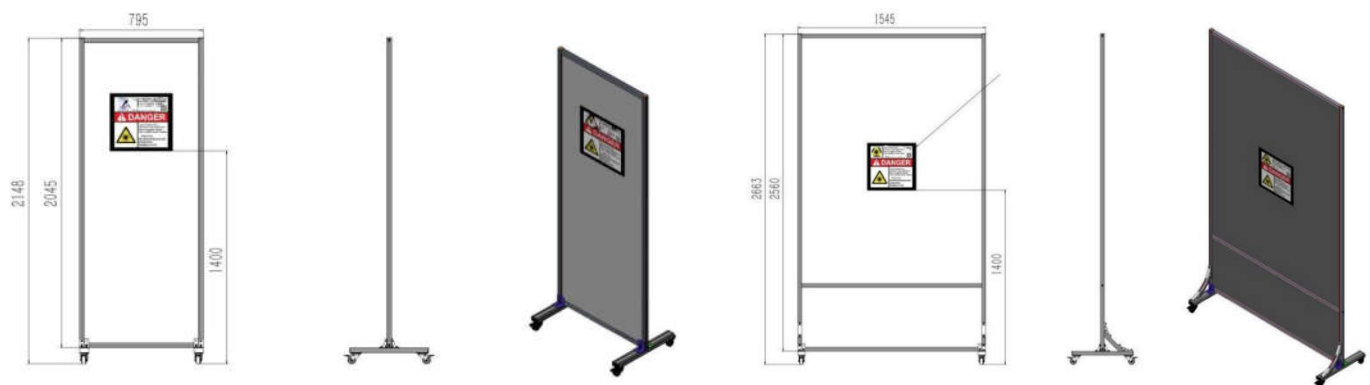
## 4. PhotonSafe® Laser Protecting Barriers



### Laser welding panels - Certified Laser barriers - Laser Blocking Screens - Laser Welding Safety Screens - Laser Welding Screens

To protect personnel from Laser Welding Machines Laser beams (Class 4 and Class 3B lasers) it is imperative to have comprehensive laser safety protection in place. Laser radiation must be prevented from escaping from manufacturing facilities using certified equipment.

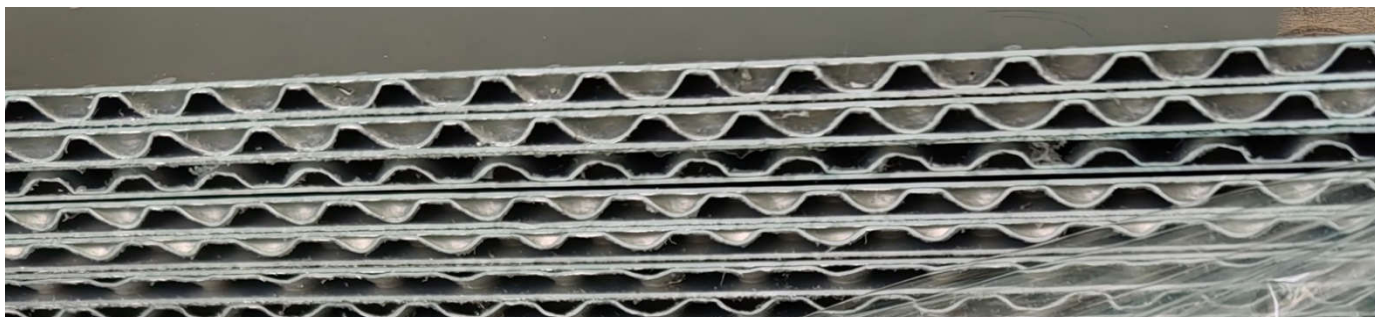
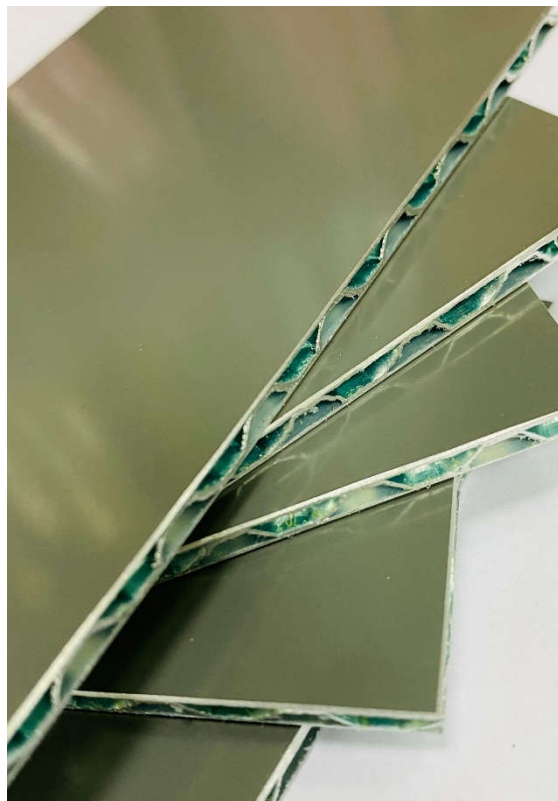
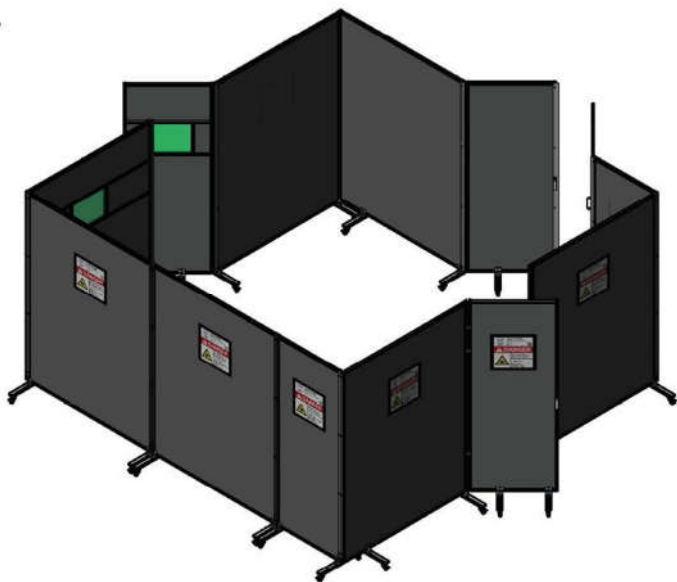
As the rapid growth and wide application of high power laser, PhotonSafe has deeply researched and developed its hit product PhotonSafe Protection screens series, and now launch the renewed barriers to meet laser safety demand of high power laser areas. The upgrading barriers are tested by a third party of authority, according to standards IEC 60825, GB/T 7247 and EN60825-1. In addition, conformity with CMA and CNAS, accreditation system which have been integrated to international mutual recognition, PhotonSafe barriers are compliant with CE standards, and meet the threshold of European market. Furthermore in conformity with many national defense recognitions, PhotonSafe barriers, although developed for laser welding protection, can be widely applied to laser processing, military industrial enterprises, the fields of semiconductor and even medical facilities.



This PhotonSafe laser protective screens block all laser light (including high-power and multi-kilowatt laser). Lasermach provide a range of free-standing laser-blocking screens which are designed for use as passive guards to enclose areas where Class 4 lasers are in use either to protect against accidental exposure to the laser beam or

for long term blocking of laser radiation at lower power densities. All Lasermach laser-blocking screens are CE marked and certified to BS EN IEC 60825-4 Safety of Laser Products Part 4: Laser Guards. All of the screens are portable and can be used as simple temporary installations or can be used on a semi-permanent or permanent basis as required.

Our Laser Safety Barriers are Constructed of the patented panel PhotonSafe Laser Shield 4005™ and rigid aluminum frames. Our protection walls are designed for the protection of kilowatt-level laser, especially for high power laser welding, laser cleaning, laser cladding. The PhotonSafe barriers, successfully get patented in 2022. They are the first laser protective barriers with independent intellectual property rights.



PhotonSafe Pro Safety Barrier	PhotonSafe Pro Barrier	Model	Type	dimensions	reference	Sales
EN60825/IEC60825/GB7247						Euro
PEL = 158,0 MW/m <sup>2</sup>	Build on freestanding frame	Model G	0821-G	795 x 2148	LLSE-LPS-G080215	€ 751,5
PEL = 15805,1 W/cm <sup>2</sup>	included base and swivel casters		1521-G	1545 x 2148	LLSE-LPS-G155215	€ 1.503,0
1070 nm	<b>Grey</b>		1526-G	1545 x 2663	LLSE-LPS-G155266	€ 1.878,7
D=1 mm - T= 100Sec	Build on freestanding frame	Model B	0821-B	795 x 2148	LLSE-LPS-B080215	€ 835,0
	included base and swivel casters		1521-B	1545 x 2148	LLSE-LPS-B155215	€ 1.670,0
	<b>Black - Anti Static</b>		1527-B	1545 x 2663	LLSE-LPS-B080266	€ 2.087,4
other dimensions on demand	view window can be installed as option					



# 5. PhotonSafe® Laser Protecting Cabin



PhotonSAFE®: Non Combustable Laser Welding rooms - Laser Safety cabins

The best way to safeguard a class 4 laser environment might be to enclose the whole area on a large scale within a cabin. This kind of cabin solution is frequently used, particularly in the case of laser power ratings in the multi-kW range (as used in laser material processing). It is possible to enclose a laser application locally (for example, on an optical table) or within a room-sized cabin. Extraction systems, as well as associated vent holes, can also be implemented.

The laser safety cabins are designed in a way, that for applications with class 4

lasers, the environment is properly protected and full fills the class 1 conditions according to EN 60825-1 and OStrV.

All materials used are all "non-combustible" as they received all an Euroclass A1 rating under BS EN 13501-1

A1 materials are completely non-combustible while A2 materials have very limited combustibility. While A1 materials have no contribution to fire, A2 materials have limited contribution to fire. Stringent tests must be passed in order for construction products to reach a Class A rating. As above, A1 rated products do not require additional safety tests given they are completely non-combustible. Examples of these materials include aluminium, steel, natural stone, concrete and porcelain.

Lasermach's design allows for easy installation as our lightweight panels with fire ratings Class A1 come in 800-1000-1200 mm width and are assembled on site. Installing this way minimizes the need for riggers and costly equipment needed to install full wall panels.

PhotonSAFE® is the solution for providing an enclosure for light based welding applications, and is available in standard and customized versions. Lighting, bottle securement, fume extraction, power management, and table integration are all features available on the PhotonSAFE welding booth system. Interlock protection is standard on the PhotonSAFE and can be integrated with the Photonweld laser welding (or other brands) machines.



## Modular Laser safety cabin

The best way to safeguard a laser environment according to EN 60825-1 and OStrV is to enclose the whole laser area. Especially in the field of laser material processing with laser powers up to the kW range, this is a very common way to proceed. The cabin will then be designed in a way, that the laser area is still accessible.

The laser safety cabins can be equipped with an Interlock Control System. Additionally one or more windows can be integrated to monitor all operations in the cabin. The modular concept of the laser

protection cabins thus offers a very cost-effective and simple way of living around a laser system while fulfilling the international regulations for laser safety. Outside this laser protection cabin, the area can be designated as laser class 1. This ensures a workflow without disruptions and without additional protection requirements.

Properties of the laser safety cabin/enclosure:

- Flexible cabin concept due to modular design
- Fast installation of the laser protection cabin
- Variable design
- Single-shell wall system
- Material: Alu-profiles
- Side walls and roof made out of laser tested and approved material
- Wall segments will be opaquely inserted in the Alu-profiles
- Access via swing-doors, sliding doors, gates or flaps
- Ceiling light (LED modules, 1800 lumen, 230 V, 18 W, neutral white, 4000 K or other)
- Integration for laser safety windows, interlock-control systems, warning signs, extraction systems or cable feedthrough possible

The assembly on side can be offered as an additional option. Furthermore we offer a final expert inspection (survey) of the installed enclosure regarding laser class 1 according to EN 60825-1.

# 6. PhotonSafe® Laser Protecting Clothing



Laser Safety Gloves+

## Certified Laser-Safe Gloves

Laser Protective Performance with 1064nm Laser: Because of the increasing application of high-power handheld laser welding systems, this kind of working protection has become more and more important. The five-finger glove employs breathable technology and features certified resistance of 3.000 kW/m<sup>2</sup> against laser radiation of 1064 nm before exceeding the maximum permissible exposure skin value.

- Suitable for use according to the welding protection standard EN ISO11611
- Suitable for use according to heat and flame protection standard EN ISO 11612
- Tested following laser Standard DIN EN 12254:2012-04

## Laser Safety Apron+

- material: inner special fabric with high temperature resistance of 3000°C + outer aramid fabric
- No Penetration: Power density: 300w/cm<sup>2</sup> (test-power = 83w, beam diameter = 6 mm, distance = 90 mm, for 10 seconds)
- black, free size, length of 1.2m

## Laser Safety gloves+

- material: inner special fabric with high temperature resistance of 3000°C + outer aramid fabric
- No Penetration: Power density: 300w/cm<sup>2</sup> (test-power = 83w, beam diameter = 6 mm, distance=90mm, for 10 seconds)
- black



apron	€ 2.488,9
gloves	€ 300,4

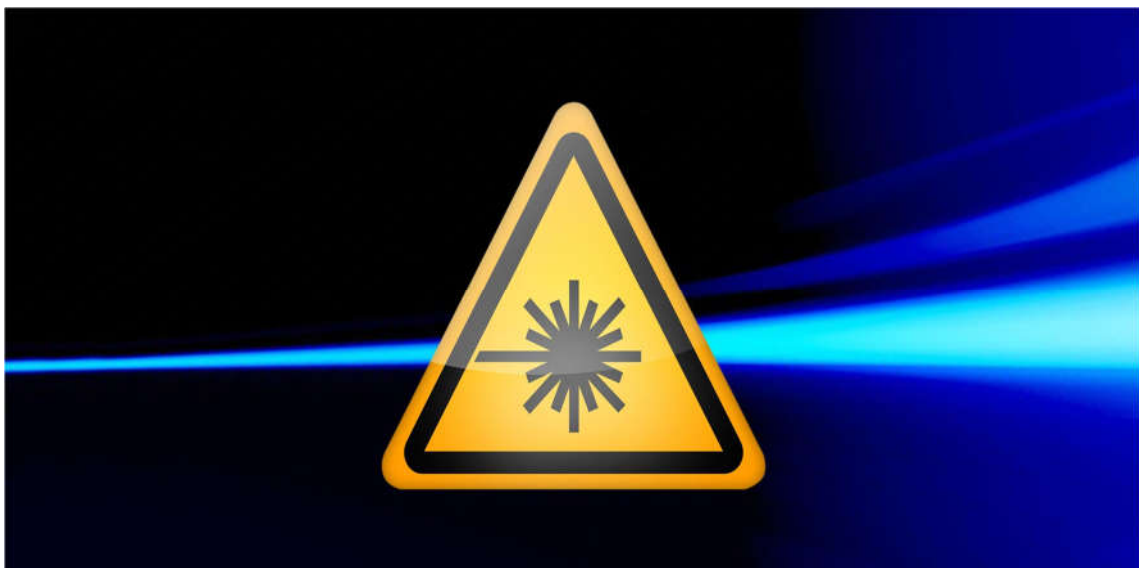
## 7. PhotonSafe® Laser Protecting Glasses, goggles and face screens



### **Avoiding Eye Damage**

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

**Laser welding Safety goggles for Fiber laser handheld laser welding machines**





# Laser Protective Eyewear

## 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 (OD rate is similar American standard) 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 + 6x0). 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, +7 or +8(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.

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	

## 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.



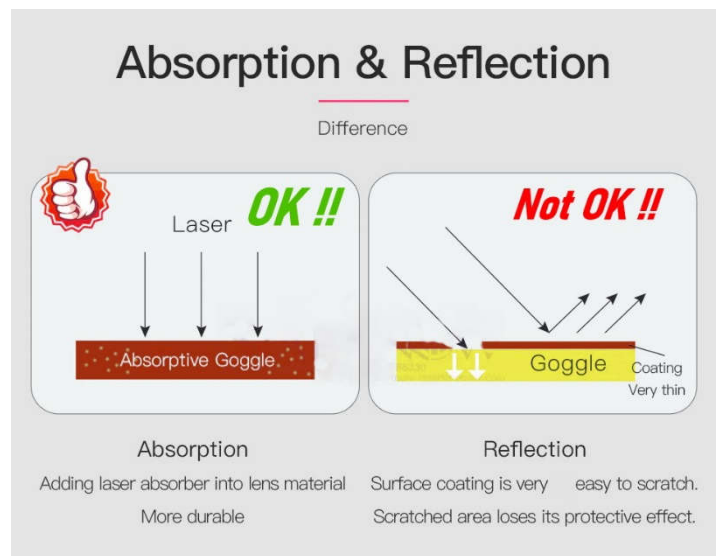
**Visible Light Transmission (VLT)** is the amount of light that can pass through the lens of a pair of glass. With increase in VLT, more color passes through the lens. It is important to note that the diversity of visible light being let through should also be a factor one should consider while shopping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

Green material = Visible Light Transmission minimal 60%

Orange Material = Visible Light Transmission minimal 35%

**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**

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.

# MODEL 01

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.



## 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



continiously 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

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



Model 08 Special for over Prescribed Glasses

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)

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!



Model 10 : full protection in any position

## MODEL 10

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 33-NEW (Special Darker glasses)



**33-Frame Spectacle special darker**

Model 33 includes high comfort and side-protection with still a relative wide view of vision.

### Available in:

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

## MODEL 304-NEW (Special darker glasses)



**304-Frame Spectacle special darker. Fits over most standard smaller prescription glasses. Model 304 includes high comfort and side-protection with still a relative wide view of vision.**





**Adjustable  
side length**

**Prescribed glasses support**

**304: High comfort darker glasses for people with prescribed glasses**



Approved CE Certificate

Meet Standard EN 207:2009 + AC:2011



# 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%.

### [Laser Welding helmet full cover: comfort model](#)

Face Shield full cover - High Comfort (new 2024 - 03) BIG Window size

Super Easy adjustable

Special for laser welding with red pointer visible

Replaceable front protection window





## PhotonSafe® Personal Eyes protection range

Pricing FOT for European market valid from 2024-06									
Goggles	Model 01	Model 05	Model 08	Model 10	Model 11	Model 33	Model 304	face screen/helmet	
Laser 1076nm				Ski-type		Darker glasses	Darker glasses	Laser Welding helmet	
Green	Green OD+7	Green OD+7	Green OD+7	Green OD+7	Green OD+7	Green OD+8	Green OD+8	Green OD8+	
reference	LLSE-PG91-0001G	LLSE-PG91-0005G	LLSE-PG91-0008G	LLSE-PG91-0010G	LLSE-PG91-0011G	LLSE-PGLP-0033G	LLSE-PGLP-0304G	LLSE-PHLP-0001G	
Price	€ 146,70	€ 146,70	€ 146,70	€ 234,10	€ 146,70	€ 150,60	€ 150,60	€ 269,72	
Dark Green									
reference									
Price									
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.

Standard Price list europe

