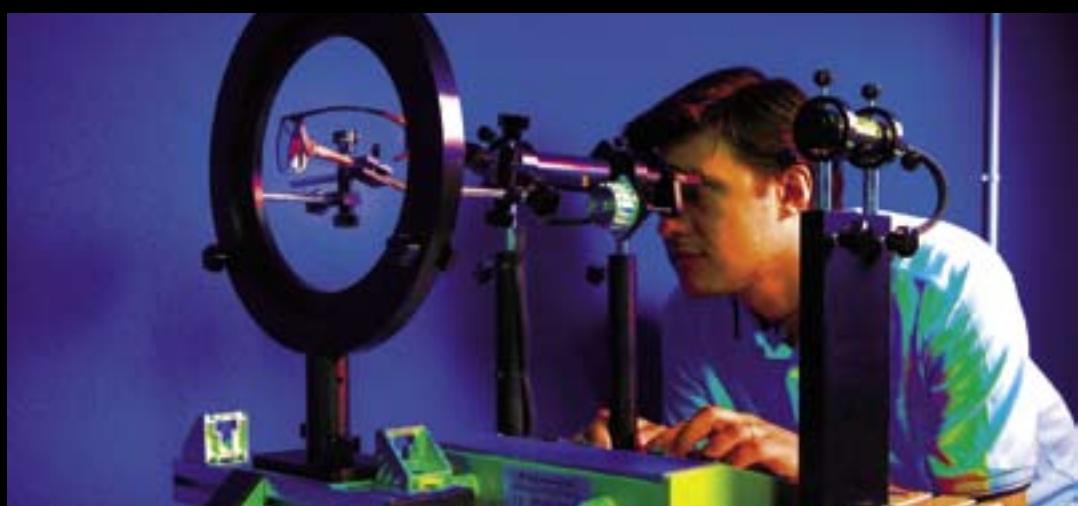
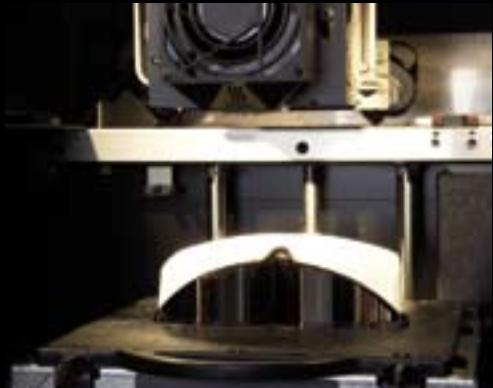




LASER SAFETY EYEWEAR





Univet, **a modern and qualified Company, designs, develops, produces and distributes industrial, medical and laser safety eyewear together with magnification systems for the surgical and the dental sector.** Safety, precision and quality are the result of strictly made-in-Italy research, cutting-edge technology and many controls the whole supply line undergoes.

Equipped with a valued **Research & Development Department** and a **high-tech Production**, Univet is the only Company in the world that can offer complete lines of magnification systems and safety eyewear in so different fields (industrial, medical and laser). The interaction among these sectors encourages the evolution of products to original and innovative solutions, always meeting market requests.

Moreover, the thorough ergonomic study of frames is combined with extreme care about design for a fresh conception of safety-eyewear comfort and style.

Innovatory, up-to-date and internationally recognized, Univet is a Company in constant growth, supported by adequate distribution networks and qualified personnel.

From the over 3,000-m² productive seat in Northern Italy products are distributed all over the world, **renewing every time Italian leadership in quality and research.**

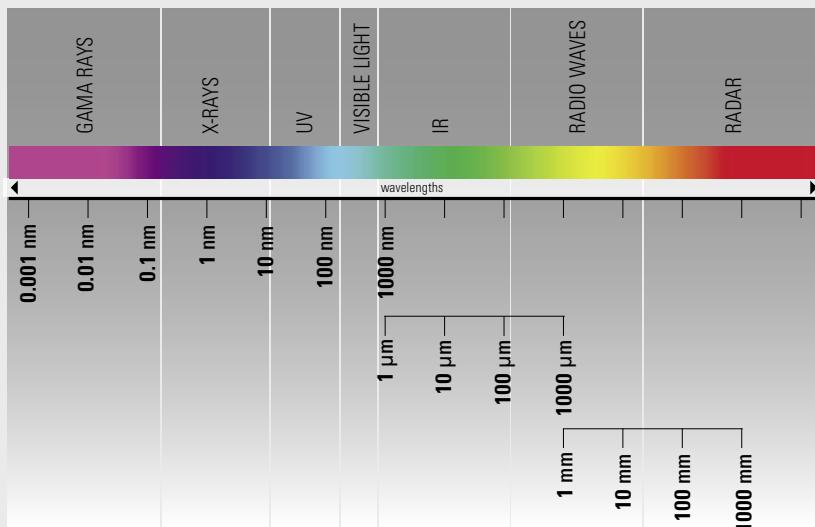


Univet is certified ISO 9001: 2008.

LASER SAFETY GUIDE

The word **laser** originated as an acronym for **light amplification by stimulated emission of radiation**.

The word light in this phrase is used in the broader sense, referring to electromagnetic radiation of any frequency between 150 nm up to 11000 nm, not just that in the visible spectrum.

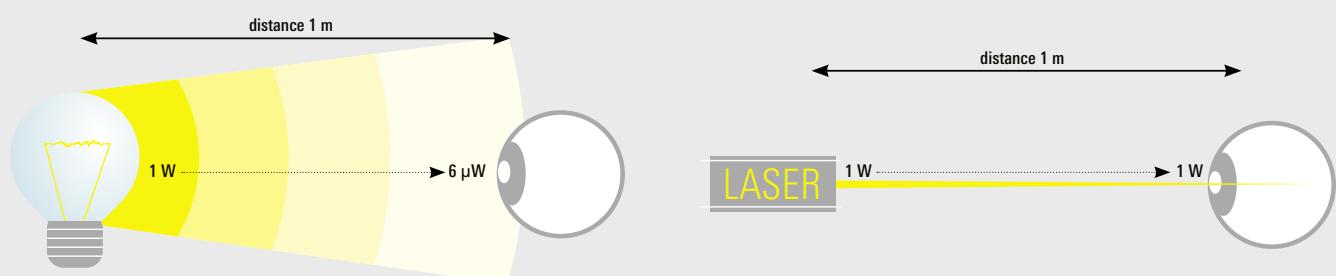


Regular light has many colours, or wavelengths, mixed together, creating white light; the light waves spread out as they travel.

Instead laser light:

- **has all of the waves in phase with one another (spatial coherence);**
- **since the waves are parallel stays in a tight beam for long distances (collimation);**
- **is always a single colour because the waves have the same length (monochromaticity).**

In most cases, a laser emits light in the form of a laser beam. This means that the light dominantly propagates in a certain direction, typically with most of the optical power concentrated to a small area. This characteristic combined with spatial coherence i.e. a fixed phase relationship between the electric field values at different locations, has as result that the power of laser is independent of the distance to the radiation source.





The most recent classification norms (EN60825-1) have catalogued lasers into several hazard classes, depending on the Accessible Emission Limits. AELs are defined as the exposure levels which are inherently safe for the eye; the classification scheme is a measure of the laser system to produce injuries to the personnel.

Class	Concept	Comment
1	The radiation emitted by this laser is not dangerous	No need for protection equipment
1M	Eye safe when used without optical instruments, may not be safe when optical instruments are used	No need for protection equipment, if used without optical instruments
2	Eye safe by aversion responses including the blink reflex.	No need for protection equipment
2M	The light that can hit the eye has the values of a class 2 laser, depending on a divergent or widened beam, it may not be safe when optical instruments are used	No need for protection equipment, if used without optical instruments
3R	The radiation from this laser exceeds the MPE values (MPE: maximum permissible exposure). The radiation is max. 5 x AELs of class 1 (invisible) or 5 x of class 2 (visible). The risk is slightly lower than that of class 3B	Dangerous to the eyes, safety glasses are recommended
3B	Old class 3B without 3R. The view into the laser is dangerous. Diffuse reflections are not considered as dangerous.	Dangerous to the eyes, safety glasses are obligatory
4	Old class 4 Even scattered radiation can be dangerous, also danger of fire and danger to the skin	Personal safety equipment is necessary (glasses, screens)

LASER SAFETY GUIDE

Laser safety regulations have the purpose of defining the necessary guidelines to every operator working with lasers. Most of the existing norms are for the major part intended to deal with eye protection, being this the most critical organ in relation to laser injury.

The current European norm – EN 60825 – requires that laser safety eyewear provide sufficient optical density to reduce the power of a given laser to equal to or less than the listed Maximum Permissible Exposure levels (MPE).

EN 207 contains the specifications that eye protection equipment shall have to be safe for the laser operator: requirements related to optical density (OD) and to stability to laser radiation.

Duration of test for filters and eye protectors against laser radiation. Reference EN 207				
Testing conditions for laser type	Typical laser type		Pulse length (s)	Number of pulses
D	continuous wave laser		10	1
I	pulsed laser		10^{-4} to 10^{-1}	100
R	Q Switched pulsed laser		10^{-9} to 10^{-7}	100
M	mode-locked pulsed laser		< 10^{-9}	100

According to this norm, protection due to optical density alone is not sufficient when the material of the eyewear cannot withstand a direct hit. Filter and frame must be able to resist a direct hit from the laser for which they have been selected for at least 10 seconds (CW) or 100 pulses (pulsed mode).

Scale number	Maximum spectral transmittance for laser wavelength $\tau(\lambda)$	Power and energy density (E, H) for testing the protective effort and stability to laser radiation in the wavelength range								
		180 nm to 315 nm			>315 nm to 1400 nm			>1400 nm to 1000 μm		
		D $>3 \cdot 10^{-4}$	I, R 10^{-9} to $3 \cdot 10^{-4}$	M $<10^{-9}$	D $>5 \cdot 10^{-4}$	I, R 10^{-9} to $5 \cdot 10^{-4}$	M $<10^{-9}$	D $>0,1$	I, R 10^{-9} to 0,1	M $<10^{-9}$
E _D W/m ²	H _{I/R} J/m ²	E _M W/m ²	E _D W/m ²	H _{I/R} J/m ²	H _M J/m ²	E _D W/m ²	H _{I/R} J/m ²	E _M W/m ²		
L1	10^{-1}	0,01	$3 \cdot 10^2$	$3 \cdot 10^{11}$	10^2	0,05	$1,5 \cdot 10^{-3}$	10^4	10^3	10^{12}
L2	10^{-2}	0,1	$3 \cdot 10^3$	$3 \cdot 10^{12}$	10^3	0,5	$1,5 \cdot 10^{-2}$	10^5	10^4	10^{13}
L3	10^{-3}	1	$3 \cdot 10^4$	$3 \cdot 10^{13}$	10^4	5	0,15	10^6	10^5	10^{14}
L4	10^{-4}	10	$3 \cdot 10^5$	$3 \cdot 10^{14}$	10^5	50	1,5	10^7	10^6	10^{15}
L5	10^{-5}	100	$3 \cdot 10^6$	$3 \cdot 10^{15}$	10^6	$5 \cdot 10^2$	15	10^8	10^7	10^{16}
L6	10^{-6}	10^3	$3 \cdot 10^7$	$3 \cdot 10^{16}$	10^7	$5 \cdot 10^3$	$1,5 \cdot 10^2$	10^9	10^8	10^{17}
L7	10^{-7}	10^4	$3 \cdot 10^8$	$3 \cdot 10^{17}$	10^8	$5 \cdot 10^4$	$1,5 \cdot 10^3$	10^{10}	10^9	10^{18}
L8	10^{-8}	10^5	$3 \cdot 10^9$	$3 \cdot 10^{18}$	10^9	$5 \cdot 10^5$	$1,5 \cdot 10^4$	10^{11}	10^{10}	10^{19}
L9	10^{-9}	10^6	$3 \cdot 10^{10}$	$3 \cdot 10^{19}$	10^{10}	$5 \cdot 10^6$	$1,5 \cdot 10^5$	10^{12}	10^{11}	10^{20}
L10	10^{-10}	10^7	$3 \cdot 10^{11}$	$3 \cdot 10^{20}$	10^{11}	$5 \cdot 10^7$	$1,5 \cdot 10^6$	10^{13}	10^{12}	10^{21}

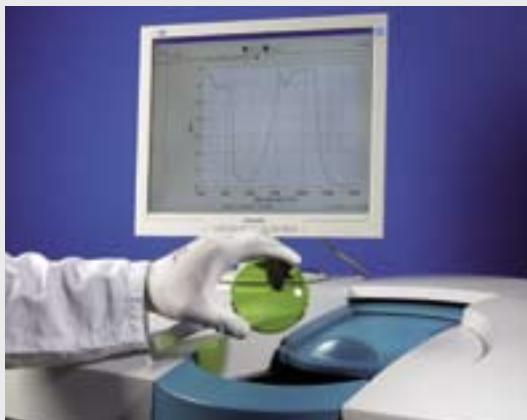
D = continuous wave laser, I = pulsed laser, R = Q switched pulsed laser (short pulses), M = mode-locked pulsed laser (ultra short pulses).
Reference: EN207



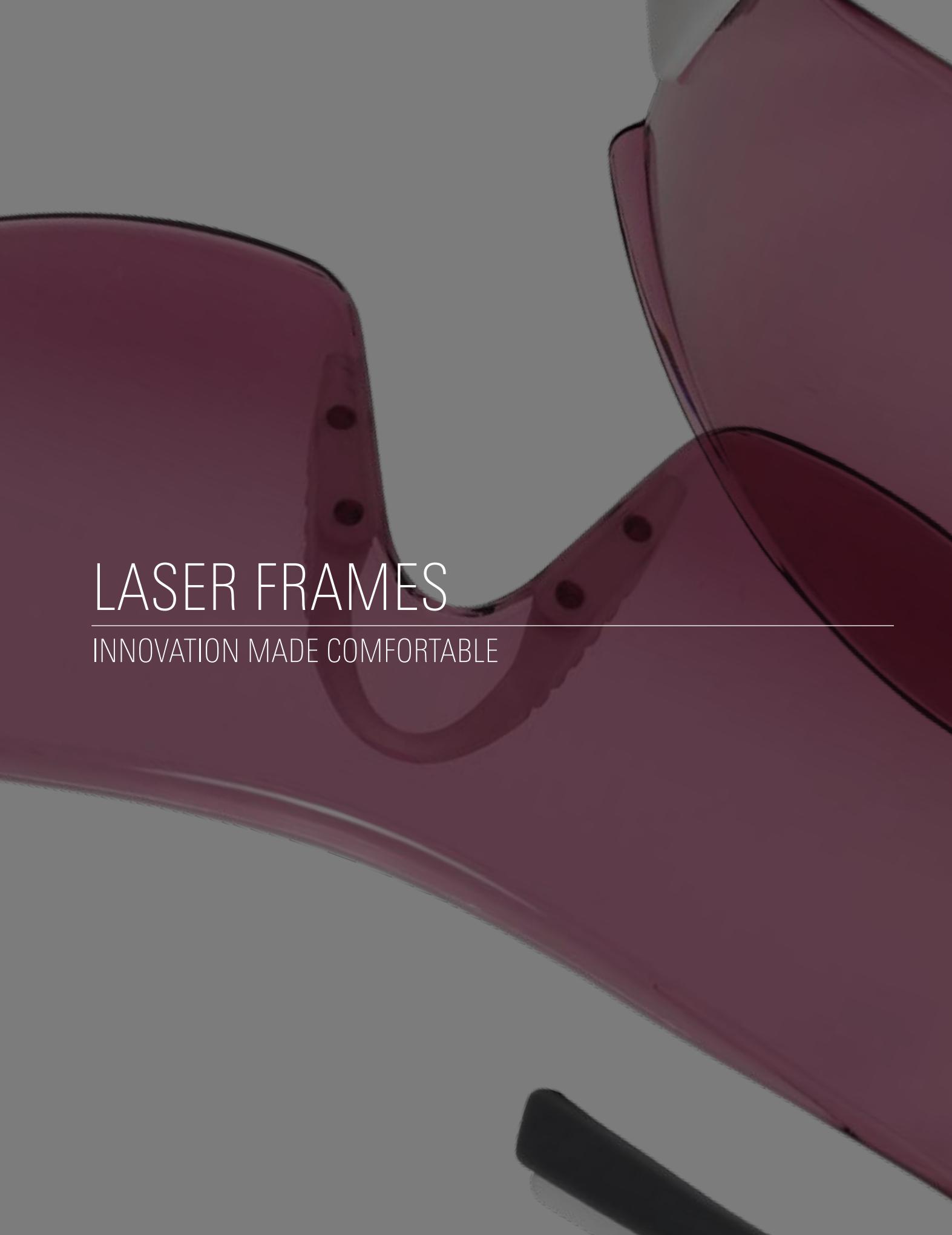
Scale Number Acc. to EN 208	CW lasers and pulsed lasers with pulse length of $>2 \cdot 10^{-4}$ s Max. laser power in W	Pulsed lasers with a pulse length $>10^{-9}$ to 10^{-4} s Max. Pulse energy in J
R1	0.01 W	$2 \cdot 10^{-6}$
R2	0.1 W	$2 \cdot 10^{-5}$
R3	1 W	$2 \cdot 10^{-4}$
R4	10 W	$2 \cdot 10^{-3}$
R5	100 W	$2 \cdot 10^{-2}$

Reference: EN208

EN 208 refers to glasses for laser alignment: these glasses allow the user to see the beam spot while aligning the laser. Alignment glasses must be able to limit the incident power to the power of a class II laser and to withstand a direct hit.

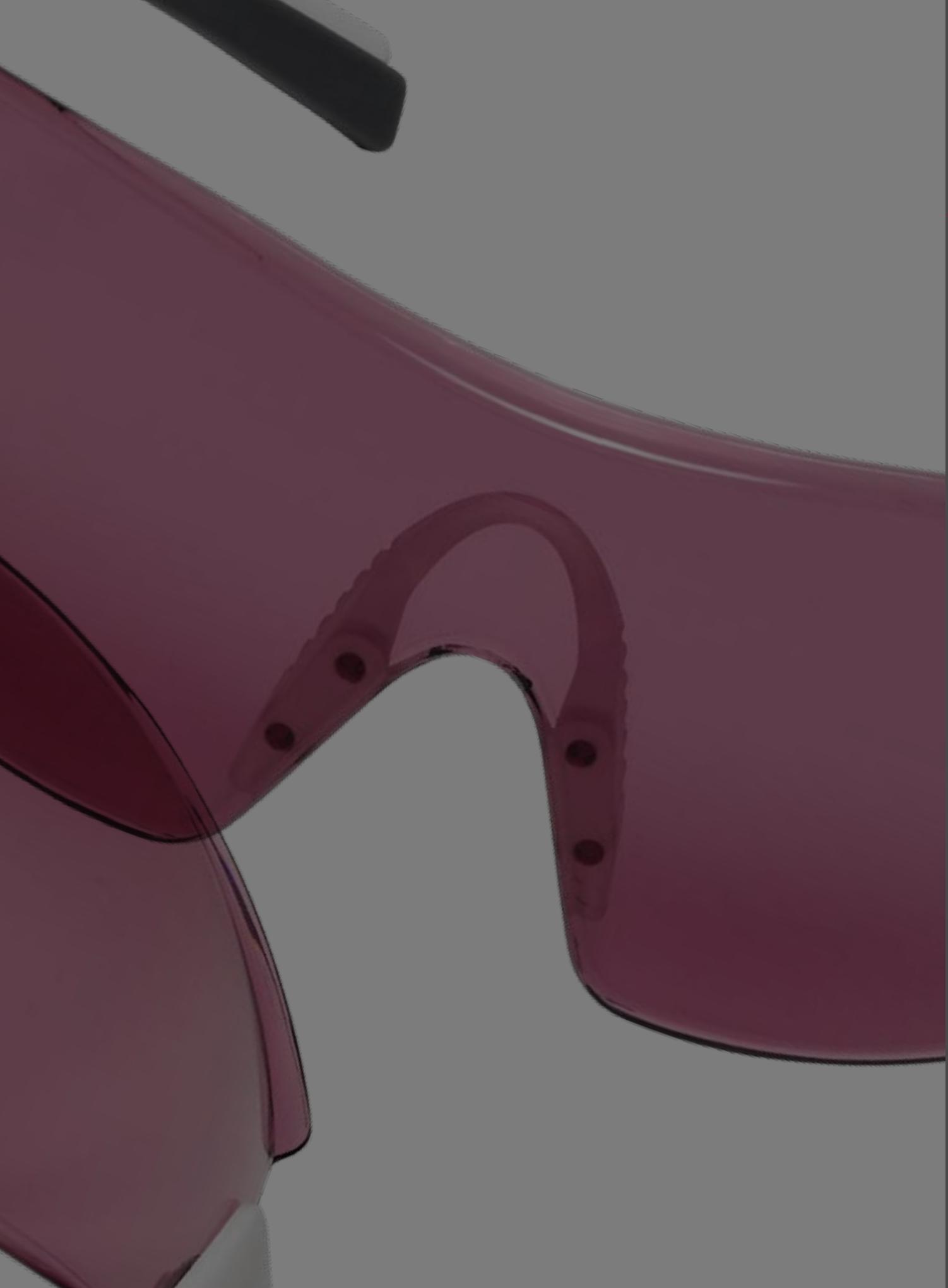


With the introduction of the new line of products UNIVET has put extensive R&D in laser sector for application and usage, combining them with long-term experience in planning and producing safety eyewear. The result is a range of high-tech products, that guarantees maximum protection and reliability without forgetting style and comfort.



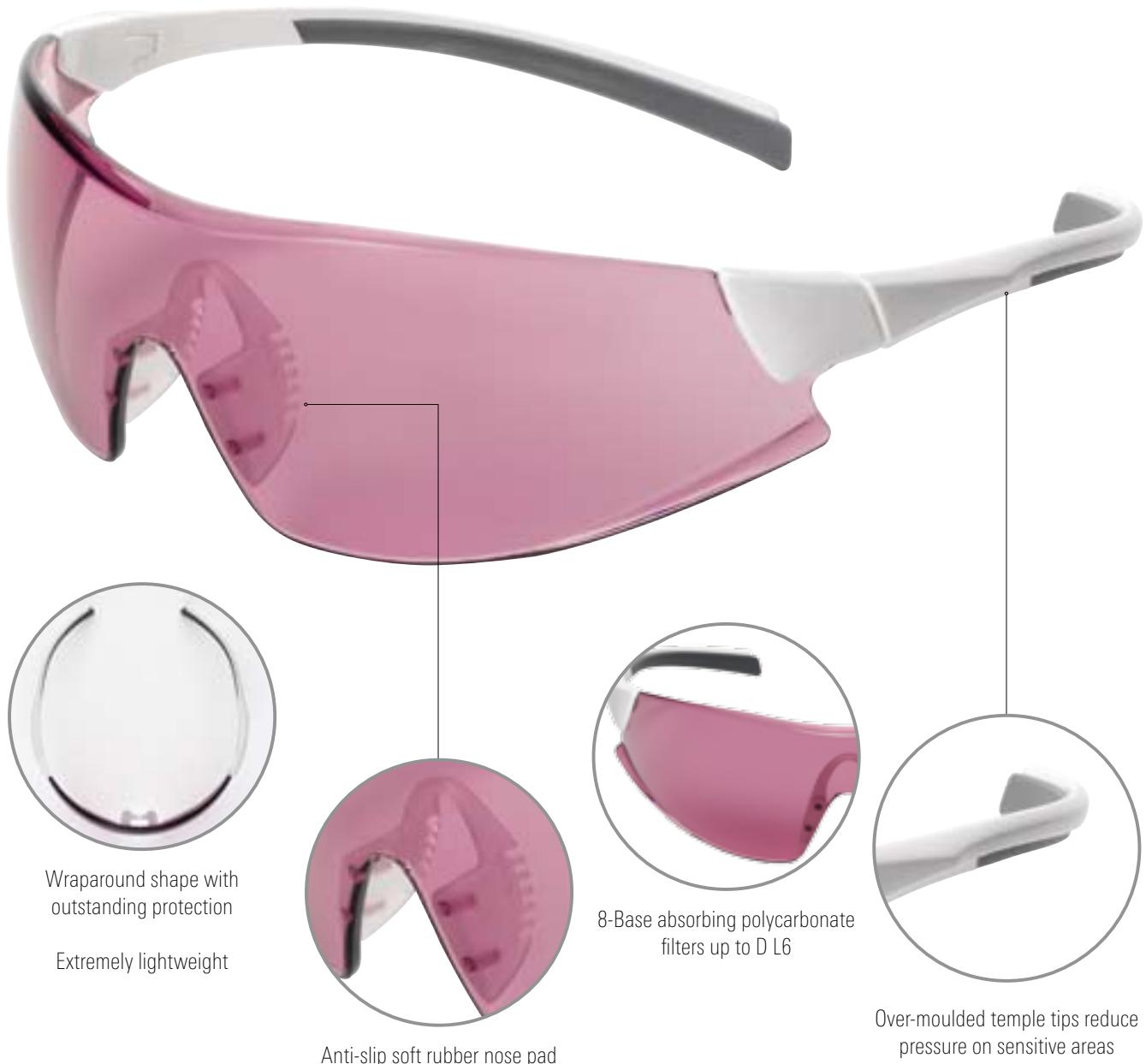
LASER FRAMES

INNOVATION MADE COMFORTABLE



546

UNIVET MASTERPIECE



Frame: white/grey

559

PROTECTION AT ITS BEST



Overspec thanks to the interchangeable nose pad



High protection 2mm aluminium shield



Adjustable nose pad with metal core

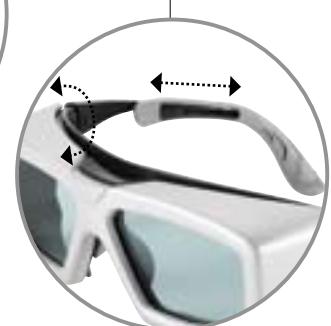


Ergonomic wraparound temples fit perfectly on user face



Asian fitting

Interchangeable nose pad kit included in package



Fully adjustable temples in length and inclination

561

ESSENTIAL SPORTING STYLE



Frame: white/grey

562

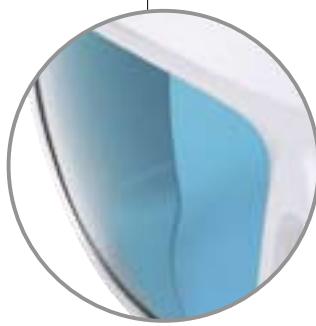
100% OVERSPEC



Universal overspec on
every prescription glasses

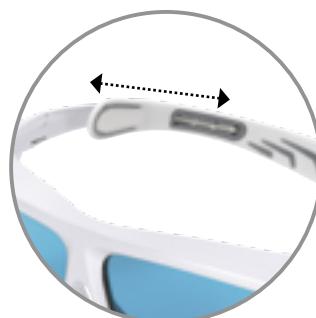


6-Base absorbing polycarbonate
and glass filters



Wide field of vision

Asian fitting



Adjustable temples

Ergonomic wraparound temples fit
perfectly on user face

563

STATE-OF-THE-ART STYLE AND TECHNOLOGY



Metal insert to increase
frame protection

Ultimate fit

Absorbing polycarbonate 8 base filters
up to D L6

Adjustable temples

Ergonomic wraparound
temples fit perfectly on user face

Frame: white/grey

531

THE FOUNDATION OF LASER PROTECTION



Frame: black/grey

539

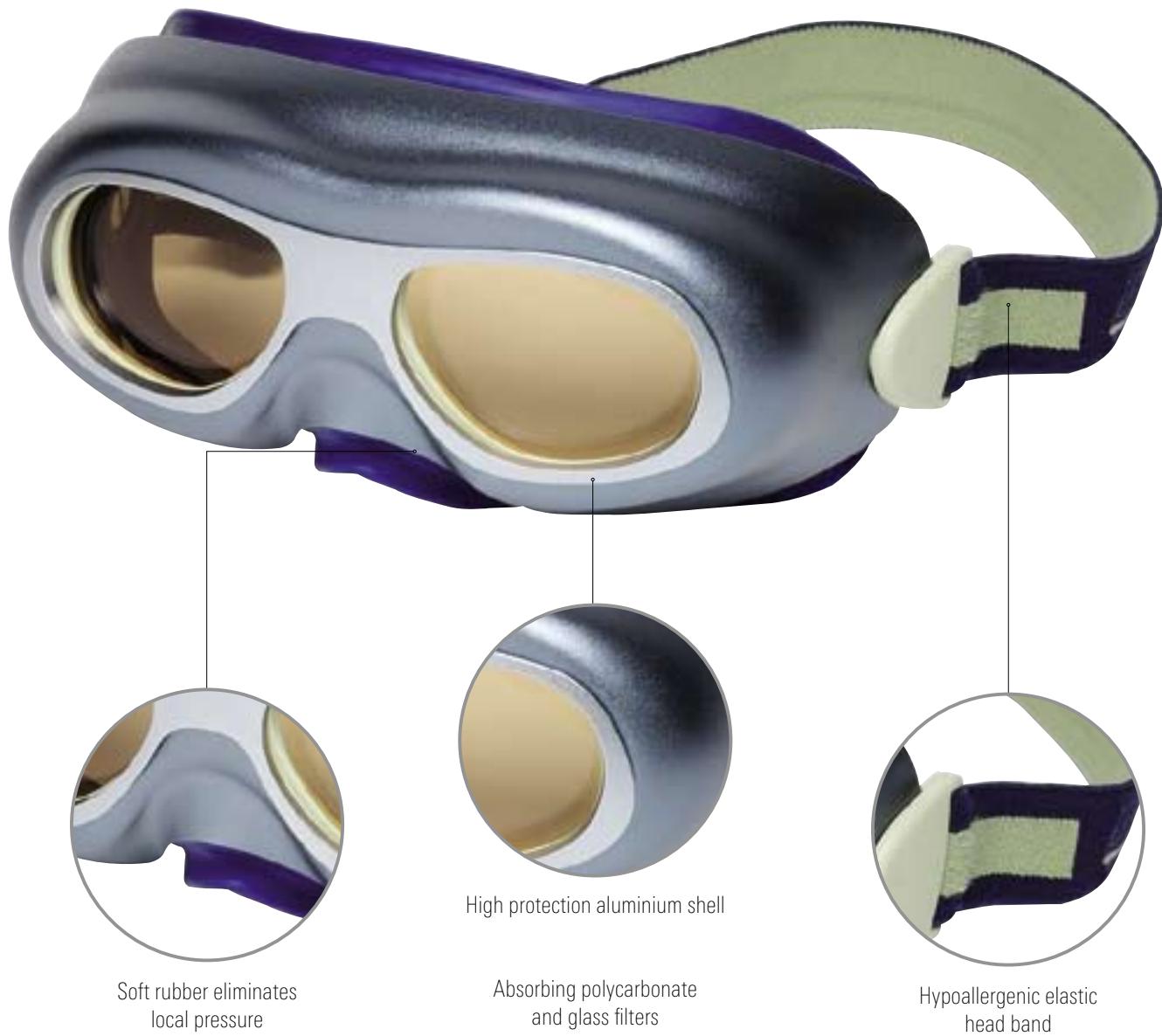
BASIC COMFORT



● **Frame:** black/grey

615

WIDE LASER DEFENCE



Frame: metal gray with elastic head band



LASER FILTERS

ULTIMATE TECHNOLOGY FOR YOUR PROTECTION

The unique characteristics of laser radiation make it dangerous especially for eyes. Therefore protective glasses and filters that match the wavelength and power of the specific source of laser radiation are needed. Univet develops and furnishes a complete range of laser filters including absorbing plastics or glass ones and reflective technology as well as combinations of these technologies to design the best laser protection for all users.

Absorbing filters are made of materials studied in order to block light of a defined wavelength range of the spectrum; they absorb laser radiation dangerous for the eye and transform it to heat, when laser beam hits the filter. Plastic and glass can be used for the production of absorbing filters to create a customized eyewear specific to an application or a source, each material does have technical and functional specifications, advantage and disadvantage.

Interferential filters base themselves on the physical phenomenon of interference, reflecting different wavelength laser emissions; depending on the wavelength of the light, radiation is partly reflected on each single layer composing the filter. This high-tech glass filter is made of several layers superficially covered with a metallic coating. Whereas the blocking range of interference filters depends mostly on the design of the layer structure, the blocking range of commonly used absorbing filters depends on the characteristics of the substrate.

Technical parameters of filters

Optical density is the attenuation of light that passes through an optical filter, the higher the OD value, the higher the attenuation; it expresses the laser power/energy exiting the filter as a fraction of the power/energy entering into it. Moreover, it's important that optical density will also remain stable in case of a direct laser hit on the filter.

Wearing laser safety eyewear that block some wavelengths of the spectrum, even from the light visible region, will alter the user perception of the environment. Attenuation of the light and block of some wavelengths make the environment darker or change the colour perception. Therefore two more parameters of laser filters are the visible light transmission (VLT) and the colour vision: being the first the attenuation of light by a filter in the visible spectrum and the second the distortion of colour.



Filter and frame coding

Every eyewear is a unique component according to Univet policy. The marking code is expressly intended to characterize the combination of the two items, to accomplish the norm requirements. A code is permanently marked on every filter and frame combination and brings information about the entire product.

Markings on the eye-protectors – EN207

EN207 requires that the filter must withstand 10-second impact from a continuous-wave laser, or 100 pulses from a pulsed laser, with predefined levels of energy/density, with no loss of protection.

Filters that meet these requirements are marked with the appropriate protection level L, in relation to the wavelengths against which protection is provided, as indicated in the example below:

1000-1100	D	L6	U	S	CE
------------------	----------	-----------	----------	----------	-----------

- 1000-1100: Wavelength (or wavelength interval) in nm against which the filter provides protection
 D: Laser type [D: Continuous wave - I: Pulsed – R: Giant Pulsed – M: coupled mode pulsed]
 L6: Scale number (protection level)
 U: Manufacturer ID (Univet)
 S: Mechanical resistance symbol (where applicable)
 CE: Conformity to directive CE 89/686/CEE

Markings on the eye-protectors - EN208

Filters certified in compliance with EN208 enable reduction of the visible laser beam (from 400nm to 700nm) influencing the power levels of a class II laser (<1mW for a continuum laser). In this case, the preventive reflex reactions, including the eyelid reflex, contribute to protecting the eye.

Filters that meet these requirements are marked as indicated in the example below:

1W	2·10⁻⁴J	532	R3	U	S	CE
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- 1W: Maximum laser power
 2·10⁻⁴ J: Maximum pulse power
 532: Wavelength (or wavelength interval) in nm against which the filter provides protection
 R3: Scale number (protection level)
 U: Manufacturer ID (Univet)
 S: Mechanical resistance symbol (where applicable)
 CE: Conformity to directive CE 89/686/CEE

D: FILTERS AND PROTECTION LEVELS FOR CONTINUOUS WAVE OPERATION

Protection level	Wavelength					
	190-315 nm	315-600 nm	600-800 nm	800-1400 nm	1400-3300 nm	3300-10600 nm
DL9	UL-2001 - 190-310 nm					
	UL-2004 - 190-275 nm					
	UL-2005 - 190-285 nm					
	UL-2006 - 190-315 nm					
	UL-2007 - 190-300 nm					
	UL-2009 - 190-315 nm					
	UL-3004 - 180-315 nm					
DL8	UL-2002 - 190-315 nm	UL-3002 - 515-532 nm		UL-3001 - 1025-1070 nm		
		UL-3004 - 515-532 nm		UL-3003 - 800-815 nm		
				UL-3003 - 1025-1070 nm		
				UL-3004 - 1025-1070 nm		
DL7	UL-1009 - 180-315 nm			UL-2011 - 875-1400 nm		
	UL-1011 - 190-315 nm					
	UL-1016 - 180-315 nm					
	UL-1021 - 180-315 nm					
DL6	UL-1007 - 190-315 nm	UL-1009 - 315-534 nm		UL-1005 - 800-825 nm		
	UL-1010 - 190-315 nm			UL-1005 - 885-1075 nm		
	UL-1012 - 190-315 nm					
	UL-1015 - 190-315 nm	UL-1016 - 315-534 nm	UL-1022 - 686-725 nm	UL-1016 - 945-1070 nm		
	UL-1017 - 190-275 nm	UL-1020 - 576-595 nm		UL-1022 - 755-1115 nm		
		UL-1021 - 315-465 nm			UL-1024 - 990-1065 nm	
					UL-2005 - 865-1400 nm	
					UL-2011 - 845-1400 nm	
DL5	UL-1002 - 190-315 nm					UL-2011 - 10600 nm
	UL-1003 - 190-315 nm			UL-1003 - 805-1100 nm		UL-2012 - 10600 nm
	UL-1005 - 190-315 nm	UL-1005 - 315-435 nm		UL-1005 - 785-1085 nm		
	UL-1008 - 190-315 nm			UL-1008 - 750-858 nm		
	UL-1014 - 190-315 nm	UL-1009 - 315-536 nm	UL-1012 - 615-715 nm			
				UL-1012 - 825-1400 nm		
		UL-1015 - 315-380 nm	UL-1015 - 689-719 nm			
				UL-1015 - 785-875 nm		
		UL-1016 - 315-536 nm			UL-1016 - 905-1080 nm	
		UL-1020 - 574-596 nm		UL-1022 - 682-1125 nm		
		UL-1021 - 315-500 nm			UL-1024 - 945-1070 nm	
				UL-2001 - 670-1360 nm		
		UL-2002 - 315-540 nm			UL-2004 - 905-1400 nm	
		UL-2006 - 315-580 nm			UL-2005 - 840-1400 nm	
				UL-2007 - 720-1210 nm		
		UL-2009 - 315-590 nm			UL-2011 - 820-1400 nm	

D: FILTERS AND PROTECTION LEVELS FOR CONTINUOUS WAVE OPERATION

Protection level	Wavelength					
	190-315 nm	315-600 nm	600-800 nm	800-1400 nm	1400-3300 nm	3300-10600 nm
DL4		UL-1002 - 315-375 nm		UL-1003 - 775-1105 nm	UL-2011 - 2060-2200 nm	UL-1001 - 10600 nm
				UL-1005 - 770-1100 nm	UL-2011 - 2750-2950 nm	UL-2005 - 10600 nm
		UL-1007 - 315-375 nm	UL-1007 - 620-665 nm		UL-3004 - 2940 nm	
		UL-1008 - 315-380 nm		UL-1008 - 745-865 nm		
		UL-1009 - 315-540 nm				
		UL-1010 - 315-375 nm	UL-1010 - 610-725 nm			
		UL-1011 - 315-380 nm		UL-1011 - 625-845 nm		
		UL-1012 - 315-450 nm	UL-1012 - 605-725 nm			
				UL-1012 - 795-1400 nm		
		UL-1014 - 315-380 nm	UL-1014 - 685-725 nm			
		UL-1016 - 315-538 nm	UL-1015 - 685-722 nm	UL-1016 - 850-1090 nm		
		UL-1020 - 570-598 nm	UL-1015 - 775-900 nm			
		UL-1021 - 315-515 nm		UL-1022 - 670-1135 nm		
				UL-1024 - 880-1080 nm		
				UL-2001 - 655-1400 nm		
		UL-2002 - 315-545 nm		UL-2004 - 870-1400 nm		
		UL-2006 - 315-585 nm			UL-2005 - 810-3300 nm	
				UL-2007 - 700-1275 nm		
		UL-2009 - 315-593 nm		UL-2011 - 800-1400 nm		
DL3		UL-1009 - 315-543 nm		UL-1003 - 745-1120 nm		UL-1002 - 10600 nm
				UL-1005 - 745-1115 nm		UL-1003 - 10600 nm
			UL-1007 - 600-670 nm			UL-1005 - 10600 nm
				UL-1008 - 735-870 nm		
			UL-1010 - 595-730 nm			
				UL-1011 - 610-860 nm		
				UL-1012 - 595-1850 nm		
				UL-1014 - 675-735 nm		
				UL-1015 - 625-730 nm		
				UL-1015 - 755-920 nm		
		UL-1016 - 315-541 nm		UL-1016 - 800-1105 nm		UL-1016 - 10600 nm
		UL-1017 - 315-535 nm	UL-1017 - 585-604 nm			
				UL-1022 - 630-1150 nm		
		UL-1020 - 560-600 nm		UL-1024 - 815-1095 nm	UL-2001 - 2780-3300 nm	
		UL-1021 - 315-525 nm			UL-2001 - 640-1525 nm	
		UL-2002 - 315-550 nm			UL-2004 - 825-3300 nm	UL-2004 - 10600 nm
		UL-2006 - 315-590 nm		UL-2005 - 780-1400 nm		
				UL-2007 - 685-1350 nm		
		UL-2009 - 315-595 nm				

I: FILTERS AND PROTECTION LEVELS FOR PULSED OPERATION > 100 ns

Pro- tection level	Wavelength					
	190-315 nm	315-600 nm	600-800 nm	800-1400 nm	1400-3300 nm	3300-10600 nm
IL9		UL-3002 - 515-532 nm		UL-3001 - 1025-1070 nm		
		UL-3004 - 515-532 nm		UL-3003 - 800-815 nm		
				UL-3003 - 1025-1070 nm		
				UL-3004 - 1025-1070 nm		
IL8				UL-2005 - 915-1400 nm		
IL7		UL-2002 - 315-534 nm		UL-1003 - 900-1075 nm		
		UL-2006 - 315-565 nm		UL-2001 - 694-1300 nm		
		UL-2009 - 315-585 nm		UL-2004 - 985-1400 nm		
				UL-2005 - 890-1400 nm		
			UL-2007 - 750-1100 nm			
				UL-2011 - 875-1400 nm		
IL6		UL-1009 - 315-534 nm		UL-1003 - 850-1085 nm		
				UL-1005 - 800-825 nm		
				UL-1005 - 885-1075 nm		
			UL-1008 - 755-852 nm			
			UL-1012 - 645-710 nm	UL-1012 - 855-1400 nm		
		UL-1016 - 315-534 nm		UL-1016 - 945-1070 nm		
		UL-1020 - 576-595 nm	UL-1022 - 686-725 nm	UL-1022 - 755-1115 nm		
		UL-1021 - 315-465 nm		UL-1024 - 990-1065 nm		
			UL-2001 - 685-1345 nm			
		UL-2002 - 315-538 nm		UL-2004 - 945-1400 nm		
		UL-2006 - 315-575 nm		UL-2005 - 865-1400 nm		
		UL-2009 - 315-588 nm	UL-2007 - 740-1160 nm			
				UL-2011 - 845-1400 nm		
IL5	UL-3004 - 190-315 nm	UL-1002 - 315-375 nm		UL-1003 - 805-1100 nm		UL-2011 - 10600 nm
		UL-1005 - 315-435 nm		UL-1005 - 785-1085 nm		UL-2012 - 10600 nm
		UL-1007 - 315-375 nm	UL-1007 - 625-660 nm			
		UL-1008 - 315-380 nm		UL-1008 - 750-858 nm		
		UL-1009 - 315-536 nm				
		UL-1010 - 315-375 nm	UL-1010 - 625-710 nm			
		UL-1011 - 315-380 nm		UL-1011 - 635-840 nm		
		UL-1012 - 315-450 nm	UL-1012 - 615-715 nm	UL-1012 - 825-1400 nm		
		UL-1014 - 315-380 nm	UL-1014 - 690-715 nm			
		UL-1015 - 315-380 nm	UL-1015 - 689-719 nm			
			UL-1015 - 785-875 nm			
		UL-1016 - 315-536 nm		UL-1016 - 905-1080 nm		
		UL-1020 - 574-596 nm		UL-1022 - 682-1125 nm		
		UL-1021 - 315-500 nm		UL-1024 - 945-1070 nm		
			UL-2001 - 670-1360 nm			
		UL-2002 - 315-540 nm		UL-2004 - 905-1400 nm		
		UL-2006 - 315-580 nm	UL-2007 - 720-1210 nm	UL-2005 - 840-1400 nm		
		UL-2009 - 315-590 nm		UL-2011 - 820-1400 nm		

I: FILTERS AND PROTECTION LEVELS FOR PULSED OPERATION > 100 ns

Protection level	Wavelength					
	190-315 nm	315-600 nm	600-800 nm	800-1400 nm	1400-3300 nm	3300-10600 nm
IL4	UL-1009 - 180-315 nm	UL-1009 - 315-540 nm		UL-1003 - 775-1105 nm	UL-2011 - 2060-2200 nm	UL-1001 - 10600 nm
	UL-1016 - 180-315 nm			UL-1005 - 770-1100 nm	UL-2011 - 2750-2950 nm	UL-2005 - 10600 nm
	UL-1021 - 180-315 nm		UL-1007 - 620-665 nm		UL-3004 - 2940 nm	
	UL-2001 - 190-310 nm			UL-1008 - 745-865 nm		
			UL-1010 - 610-725 nm			
	UL-2004 - 190-275 nm			UL-1011 - 625-845 nm		
	UL-2005 - 190-285 nm		UL-1012 - 605-725 nm			
	UL-2006 - 190-315 nm			UL-1012 - 795-1400 nm		
	UL-2007 - 190-300 nm		UL-1014 - 685-725 nm			
	UL-2009 - 190-315 nm		UL-1015 - 685-722 nm			
			UL-1015 - 775-900 nm			
		UL-1016 - 315-538 nm		UL-1016 - 850-1090 nm		
		UL-1020 - 570-598 nm	UL-1022 - 670-1135 nm			
		UL-1021 - 315-515 nm		UL-1024 - 880-1080 nm		
			UL-2001 - 655-1400 nm			
IL3	UL-1002 - 190-315 nm	UL-1009 - 315-543 nm		UL-1003 - 745-1120 nm	UL-2001 - 2780-3300 nm	UL-1002 - 10600 nm
	UL-1003 - 190-315 nm			UL-1005 - 745-1115 nm		UL-1003 - 10600 nm
	UL-1005 - 190-315 nm		UL-1007 - 600-670 nm			UL-1005 - 10600 nm
	UL-1007 - 190-315 nm			UL-1008 - 735-870 nm		
	UL-1008 - 190-315 nm		UL-1010 - 595-730 nm			
	UL-1010 - 190-315 nm			UL-1011 - 610-860 nm		
	UL-1011 - 190-315 nm			UL-1012 - 595-1850 nm		
	UL-1012 - 190-315 nm		UL-1014 - 675-735 nm			
	UL-1014 - 190-315 nm		UL-1015 - 625-730 nm			
	UL-1015 - 190-315 nm			UL-1015 - 755-920 nm		
	UL-1017 - 190-275 nm	UL-1016 - 315-541 nm		UL-1016 - 800-1105 nm		UL-1016 - 10600 nm
		UL-1017 - 315-535 nm	UL-1017 - 585-604 nm			
		UL-1020 - 560-600 nm	UL-1022 - 630-1150 nm			
		UL-1021 - 315-525 nm		UL-1024 - 815-1095 nm		
	UL-2002 - 190-315 nm	UL-2002 - 315-550 nm		UL-2001 - 640-1525 nm		
		UL-2006 - 315-590 nm	UL-2005 - 780-1400 nm	UL-2004 - 825-3300 nm	UL-2004 - 10600 nm	
		UL-2009 - 315-595 nm	UL-2007 - 685-1350 nm			

R: FILTERS AND PROTECTION LEVELS FOR Q-SWITCHED OPERATION 10⁻⁹-10⁻⁷ s

Pro-tection level	Wavelength					
	190-315 nm	315-600 nm	600-800 nm	800-1400 nm	1400-3300 nm	3300-10600 nm
RL9		UL-3002 - 515-532 nm		UL-3001 - 1025-1070 nm		
		UL-3004 - 515-532 nm		UL-3003 - 800-815 nm		
				UL-3003 - 1025-1070 nm		
				UL-3004 - 1025-1070 nm		
RL8						
RL7		UL-2002 - 315-534 nm		UL-1003 - 900-1075 nm		
		UL-2006 - 315-565 nm		UL-2001 - 694-1300 nm		
		UL-2009 - 315-585 nm		UL-2004 - 985-1400 nm		
				UL-2005 - 890-1400 nm		
			UL-2007 - 750-1100 nm			
				UL-2011 - 875-1400 nm		
RL6		UL-1009 - 315-534 nm		UL-1003 - 850-1085 nm		
		UL-1016 - 315-534 nm		UL-1005 - 800-825 nm		
		UL-1020 - 576-595 nm		UL-1005 - 885-1075 nm		
		UL-1021 - 315-465 nm		UL-1008 - 755-852 nm		
		UL-2002 - 315-538 nm	UL-1012 - 645-710 nm	UL-1012 - 855-1400 nm		
		UL-2006 - 315-575 nm		UL-1016 - 945-1070 nm		
		UL-2009 - 315-588 nm	UL-1022 - 685-725 nm	UL-1022 - 755-1115 nm		
				UL-1024 - 990-1065 nm		
				UL-2001 - 685-1345 nm		
				UL-2004 - 945-1400 nm		
				UL-2005 - 865-1400 nm		
			UL-2007 - 740-1160 nm			
				UL-2011 - 845-1400 nm		
RL5	UL-3004 - 180-315 nm	UL-1002 - 315-375 nm		UL-1003 - 805-1100 nm		
		UL-1005 - 315-435 nm		UL-1005 - 785-1085 nm		
		UL-1007 - 315-375 nm				
		UL-1008 - 315-380 nm		UL-1008 - 750-858 nm		
		UL-1009 - 315-536 nm				
		UL-1010 - 315-375 nm				
		UL-1011 - 315-380 nm		UL-2007 - 720-1210 nm		
		UL-1012 - 315-450 nm	UL-1012 - 615-715 nm	UL-1012 - 825-1400 nm		
		UL-1014 - 315-380 nm				
		UL-1015 - 315-380 nm	UL-1015 - 689-719 nm			
				UL-1015 - 785-875 nm		
		UL-1016 - 315-536 nm		UL-1016 - 905-1080 nm		
		UL-1020 - 574-596 nm		UL-1022 - 682-1125 nm		
		UL-1021 - 315-500 nm		UL-1024 - 945-1070 nm		
				UL-2001 - 670-1360 nm		
		UL-2002 - 315-540 nm		UL-2004 - 905-1400 nm		
		UL-2006 - 315-580 nm		UL-2005 - 840-1400 nm		
		UL-2009 - 315-590 nm				
				UL-2011 - 820-1400 nm		

R: FILTERS AND PROTECTION LEVELS FOR Q-SWITCHED OPERATION 10⁻⁹-10⁻⁷ s

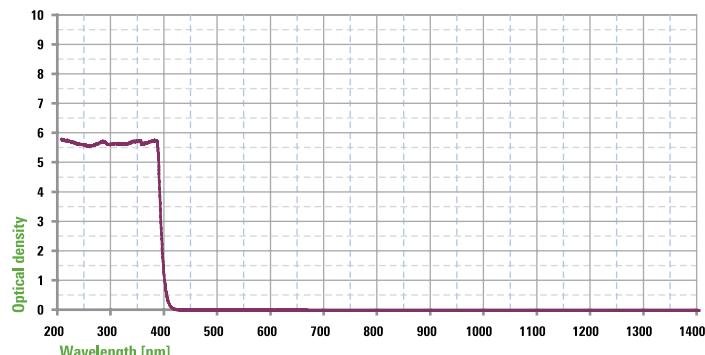
Protection level	Wavelength					
	190-315 nm	315-600 nm	600-800 nm	800-1400 nm	1400-3300 nm	3300-10600 nm
RL4	UL-1009 - 180-315 nm	UL-1009 - 315-540 nm		UL-1003 - 775-1105 nm		
	UL-1016 - 180-315 nm			UL-1005 - 770-1100 nm		
	UL-1021 - 180-315 nm			UL-1008 - 745-865 nm		
	UL-2001 - 190-310 nm		UL-1012 - 605-725 nm			
	UL-2004 - 190-275 nm			UL-1012 - 795-1400 nm		
	UL-2005 - 190-285 nm		UL-1015 - 685-722 nm			
	UL-2006 - 190-315 nm			UL-1015 - 775-900 nm		
	UL-2007 - 190-300 nm	UL-1016 - 315-538 nm		UL-1016 - 850-1090 nm		
	UL-2009 - 190-315 nm	UL-1020 - 570-598 nm	UL-1022 - 670-1135 nm			
		UL-1021 - 315-515 nm		UL-1024 - 880-1080 nm		
			UL-2001 - 655-1400 nm			
		UL-2002 - 315-545 nm		UL-2004 - 870-1400 nm		
		UL-2006 - 315-585 nm	UL-2007 - 700-1275 nm			
		UL-2009 - 315-593 nm		UL-2011 - 800-1400 nm		
RL3	UL-1002 - 190-315 nm	UL-1009 - 315-543 nm		UL-1003 - 745-1120 nm		
	UL-1003 - 190-315 nm			UL-1005 - 745-1115 nm		
	UL-1005 - 190-315 nm			UL-1008 - 735-870 nm		
	UL-1007 - 190-315 nm		UL-1012 - 595-1400 nm			
	UL-1008 - 190-315 nm		UL-1015 - 625-730 nm			
	UL-1010 - 190-315 nm			UL-1015 - 755-920 nm		
	UL-1011 - 190-315 nm	UL-1016 - 315-541 nm		UL-1016 - 800-1105 nm		
	UL-1012 - 190-315 nm		UL-1017 - 585-604 nm			
	UL-1014 - 190-315 nm	UL-1017 - 315-535 nm	UL-1022 - 630-1150 nm			
	UL-1015 - 190-315 nm	UL-1020 - 560-600 nm		UL-1024 - 815-1095 nm		
	UL-1017 - 190-275 nm	UL-1021 - 315-525 nm	UL-2001 - 640-1400 nm			
	UL-2002 - 190-315 nm			UL-2004 - 825-1400 nm		
		UL-2002 - 315-550 nm	UL-2005 - 780-1400 nm			
		UL-2006 - 315-590 nm	UL-2007 - 685-1350 nm			
		UL-2009 - 315-595 nm				

M: FILTERS AND PROTECTION LEVELS FOR MODE-LOCKED LASERS < 1 ns

Protection level	Wavelength					
	190-315 nm	315-600 nm	600-800 nm	800-1400 nm	1400-3300 nm	3300-10600 nm
ML9		UL-3002 - 515-532 nm		UL-3001 - 1025-1070 nm		
		UL-3004 - 515-532 nm		UL-3003 - 1025-1070 nm		
				UL-3004 - 1025-1070 nm		
ML8						
ML7				UL-2011 - 1000-1400 nm		
ML6		UL-1009 - 315-534 nm		UL-1005 - 1000-1075 nm		
		UL-1016 - 315-534 nm		UL-1016 - 960-1065 nm		
				UL-1024 - 990-1065 nm		
ML5		UL-1009 - 315-536 nm				
		UL-1016 - 315-536 nm				
ML4		UL-1009 - 315-538 nm				
		UL-1016 - 315-538 nm				
ML3		UL-1009 - 315-541 nm				
		UL-1016 - 315-541 nm				

Filter code: UL-1001

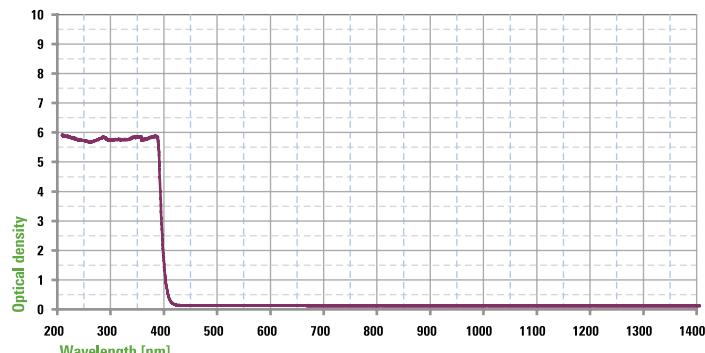
Filter	Full protection
Colour	Clear
Material	Polycarbonate
Technology	Absorbing filter
VLT	90%
Alignement laser wavelength (T%>10%)	400-780



Wavelength	OD	Protection level	531	539	561	561 Asian fitting	562	615	616
10600	7	DI L4						615.00.A.300	

Filter code: UL-1002

Filter	Full protection
Colour	Clear
Material	Polycarbonate
Technology	Absorbing filter
VLT	92%
Alignement laser wavelength (T%>10%)	400-780

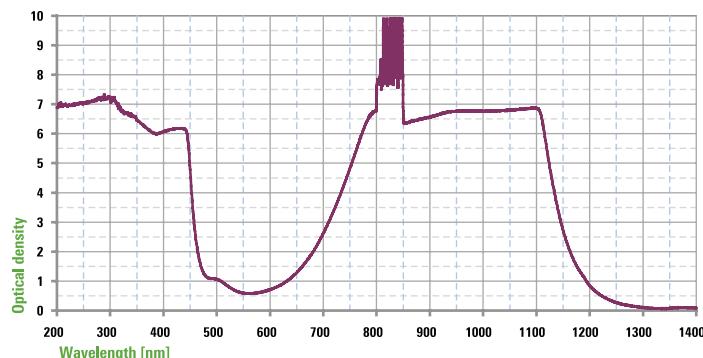


Wavelength	OD	Protection level	531	539	561	561 Asian fitting	562	615	616
			531.00.0.304	539.00.0.304	561L.00.00.304	561L.0F.00.304	562L.00.00.304	615.00.A.304	
190	315	5	D L5 + IR L3	D L5 + IR L3	D L5 + IR L3				
315	375	5	D L4 + IR L5	D L4 + IR L5	D L4 + IR L5				
10600	3	DI L3	DI L3	DI L3	DI L3	DI L3	DI L3	DI L3	
Wavelength	OD	Protection level	546	563					
			546L.00.10.550	563L.00.00.450					
10600	4	DI L3	DI L3	DI L3					

POLYCARBONATE FILTERS

Filter code: UL-1003

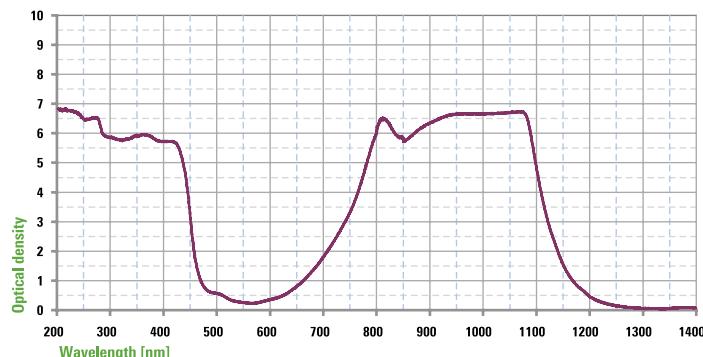
Filter	Full protection
Colour	Green
Material	Polycarbonate
Technology	Absorbing filter
VLT	30%
Alignment laser wavelength (T%>10%)	470-650



Wavelength		OD	Protection level	531	539	561	561 Asian fitting	562	615	616
				531.00.0.305	539.00.0.305	561L.00.00.305	561L.0F.00.305	562L.00.00.305	615.00.A.305	
190	315	5	D L5 + IR L3	D L5 + IR L3	D L5 + IR L3	D L5 + IR L3	D L5 + IR L3	D L5 + IR L3	D L5 + IR L3	
745	1120	3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	
775	1105	4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	
805	1100	5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	
850	1085	6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	
900	1075	7	D L5 + IR L7	D L5 + IR L7	D L5 + IR L7	D L5 + IR L7	D L5 + IR L7	D L5 + IR L7	D L5 + IR L7	
10600		3	DI L3	DI L3	DI L3	DI L3	DI L3	DI L3	DI L3	

Filter code: UL-1005

Filter	Full protection
Colour	Green
Material	Polycarbonate
Technology	Absorbing filter
VLT	45%
Alignment laser wavelength (T%>10%)	470-650

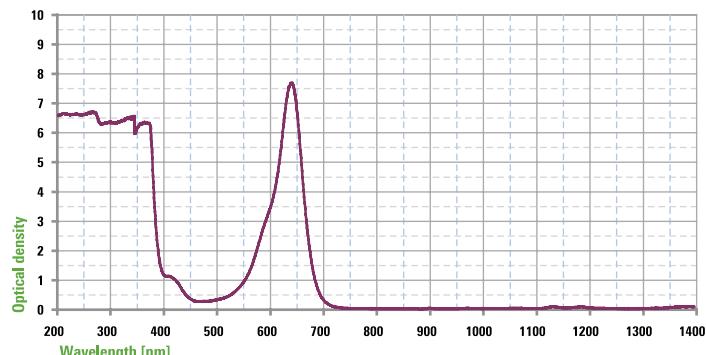


Wavelength		OD	Protection level	531	539	561	561 Asian fitting	562	615	616	
				531.00.0.309	539.00.0.309	561L.00.00.309	561L.0F.00.309	562L.00.00.309	615.00.A.309		
190	315	5	D L5 + IR L3	D L5 + IR L3	D L5 + IR L3	D L5 + IR L3	D L5 + IR L3	D L5 + IR L3	D L5 + IR L3		
315	435	5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5		
755	1110	3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3		
780	1100	4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4		
795	1085	5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5		
930	1075	6	DIR L6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	DIR L6		
10600		6	DI L3	DI L3	DI L3	DI L3	DI L3	DI L3	DI L3		
Wavelength		OD	Protection level	546	563						
				546L.00.10.551	563L.00.00.451						
745	1115	3	DIR L3	DIR L3	DIR L3						
770	1100	4	DIR L4	DIR L4	DIR L4						
785	1085	5	DIR L5	DIR L5	DIR L5						
800	825	6	DIR L6	DIR L6	DIR L6						
885	1000	6	DIR L6	DIR L6	DIR L6						
1000	1075	6	DIRM L6	DIRM L6	DIRM L6						

POLYCARBONATE FILTERS

Filter code: UL-1007

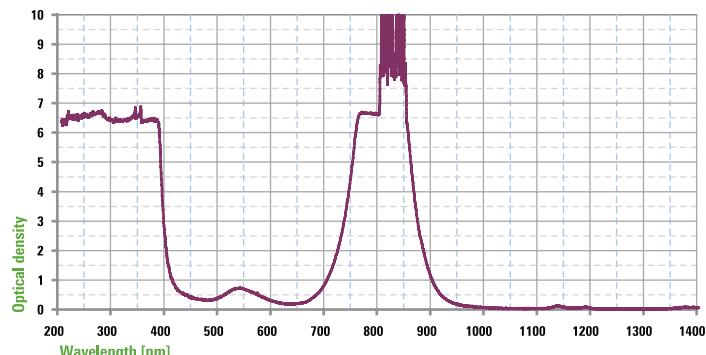
Filter	Full protection
Colour	Blue
Material	Polycarbonate
Technology	Absorbing filter
VLT	20%
Alignement laser wavelength (T%>10%)	425-555



Wavelength	OD	Protection level	531	539	561	561 Asian fitting	562	615	616
			531.00.0.311	539.00.0.311	561L.00.00.311	561L.0F.00.311	562L.00.00.311	615.00.A.311	
190	315	6	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	
315	375	6	D L4 + IR L5	D L4 + IR L5	D L4 + IR L5	D L4 + IR L5	D L4 + IR L5	D L4 + IR L5	
600	670	3	DI L3	DI L3	DI L3	DI L3	DI L3	DI L3	
620	665	4	DI L4	DI L4	DI L4	DI L4	DI L4	DI L4	
625	660	5	D L4 + I L5	D L4 + I L5	D L4 + I L5	D L4 + I L5	D L4 + I L5	D L4 + I L5	

Filter code: UL-1008

Filter	Full protection
Colour	Pink
Material	Polycarbonate
Technology	Absorbing filter
VLT	40%
Alignement laser wavelength (T%>10%)	410-695



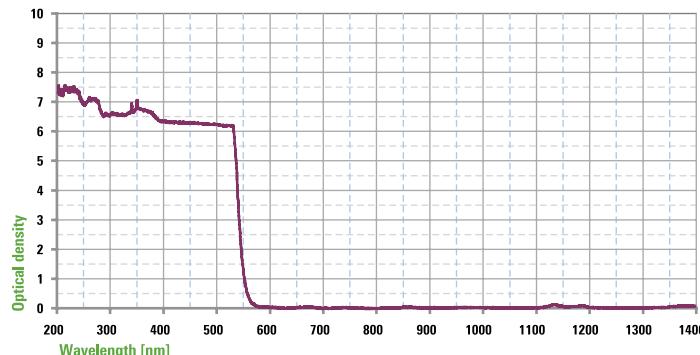
Wavelength	OD	Protection level	531	539	561	561 Asian fitting	562	615	616
			531.00.0.312	539.00.0.312	561L.00.00.312	561L.0F.00.312	562L.00.00.312	615.00.A.312	
190	315	5	D L5 + IR L3	D L5 + IR L3	D L5 + IR L3	D L5 + IR L3	D L5 + IR L3	D L5 + IR L3	
315	380	5	D L4 + IR L5	D L4 + IR L5	D L4 + IR L5	D L4 + IR L5	D L4 + IR L5	D L4 + IR L5	
740	865	3	DI L3	DI L3	DI L3	DI L3	DI L3	DI L3	
750	860	4	DI L4	DI L4	DI L4	DI L4	DI L4	DI L4	
755	850	5	DI L5	DI L5	DI L5	DI L5	DI L5	DI L5	
770	845	6	D L5 + I L6	D L5 + I L6	D L5 + I L6	D L5 + I L6	D L5 + I L6	D L5 + I L6	

Wavelength	OD	Protection level	546	563
			546L.00.10.552	563L.00.00.452
755	852	6	D L5 + IR L6	D L5 + IR L6
750	858	5	DIR L5	DIR L5
745	865	4	DIR L4	DIR L4
735	870	3	DIR L3	DIR L3

POLYCARBONATE FILTERS

Filter code: UL-1009

Filter	Full protection
Colour	Orange
Material	Polycarbonate
Technology	Absorbing filter
VLT	40%
Alignement laser wavelength (T%>10%)	560-780

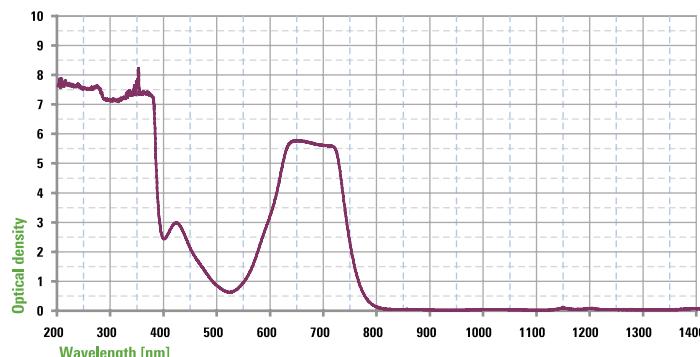


Wavelength	OD	Protection level	531	539	561	561 Asian fitting	562	615	616
			531.00.0.313	539.00.0.313	561L.00.00.313	561L.0F.00.313	562L.00.00.313	615.00.A.313	
190	315	5	D L5 + IR L3	D L5 + IR L3	D L5 + IR L3	D L5 + IR L3	D L5 + IR L3	D L5 + IR L3	
315	543	3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	
315	540	4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	
315	535	5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	

Wavelength	OD	Protection level	546	563
			546L.00.10.553	563L.00.00.453
180	315	7	D L7 + IR L4	D L7 + IR L4
315	534	6	DIRM L6	DIRM L6
315	536	5	DIRM L5	DIRM L5
315	538	4	DIRM L4	DIRM L4
315	541	3	DIRM L3	DIRM L3

Filter code: UL-1010

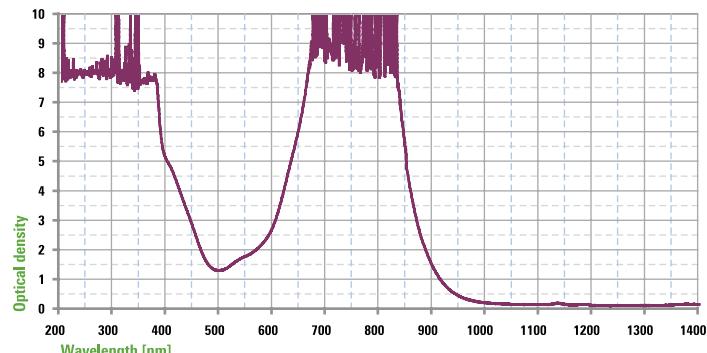
Filter	Full protection
Colour	Green
Material	Polycarbonate
Technology	Absorbing filter
VLT	8%
Alignement laser wavelength (T%>10%)	490-555



Wavelength	OD	Protection level	531	539	561	561 Asian fitting	562	615	616
			531.00.0.314	539.00.0.314	561L.00.00.314	561L.0F.00.314	562L.00.00.314	615.00.A.314	
190	315	6	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	
315	375	6	D L4 + IR L5	D L4 + IR L5	D L4 + IR L5	D L4 + IR L5	D L4 + IR L5	D L4 + IR L5	
595	730	3	DI L3	DI L3	DI L3	DI L3	DI L3	DI L3	
610	725	4	DI L4	DI L4	DI L4	DI L4	DI L4	DI L4	
625	710	5	D L4 + I L5	D L4 + I L5	D L4 + I L5	D L4 + I L5	D L4 + I L5	D L4 + I L5	

Filter code: UL-1011

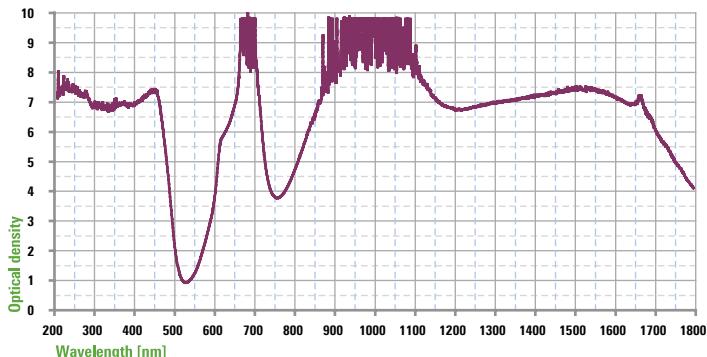
Filter	Full protection
Colour	Dark Green
Material	Polycarbonate
Technology	Absorbing filter
VLT	2%
Alignement laser wavelength (T%>10%)	-



Wavelength		OD	Protection level	531	539	561	561 Asian fitting	562	615	616
				531.00.0.315	539.00.0.315	561L.00.00.315	561L.0F.00.315	562L.00.00.315	615.00.A.315	
190	315	7	D L7 + IR L3	D L7 + IR L3	D L7 + IR L3	D L7 + IR L3	D L7 + IR L3	D L7 + IR L3	D L7 + IR L3	
315	380	7	D L4 + IR L5	D L4 + IR L5	D L4 + IR L5	D L4 + IR L5	D L4 + IR L5	D L4 + IR L5	D L4 + IR L5	
610	860	3	DI L3	DI L3	DI L3	DI L3	DI L3	DI L3	DI L3	
625	845	4	DI L4	DI L4	DI L4	DI L4	DI L4	DI L4	DI L4	
635	840	5	D L4 + I L5	D L4 + I L5	D L4 + I L5	D L4 + I L5	D L4 + I L5	D L4 + I L5	D L4 + I L5	

Filter code: UL-1012

Filter	Full protection
Colour	Dark Green
Material	Polycarbonate
Technology	Absorbing filter
VLT	4%
Alignement laser wavelength (T%>10%)	510-540

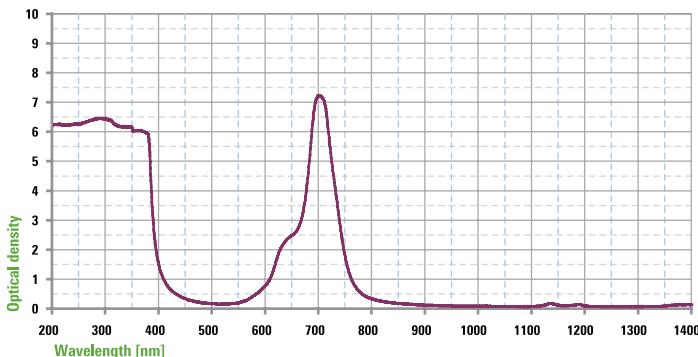


Wavelength		OD	Protection level	531	539	561	561 Asian fitting	562	615	616
				531.00.0.316	539.00.0.316	561L.00.00.316	561L.0F.00.316	562L.00.00.316	615.00.A.316	
190	315	6	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	
315	450	6	D L4 + IR L5	D L4 + IR L5	D L4 + IR L5	D L4 + IR L5	D L4 + IR L5	D L4 + IR L5	D L4 + IR L5	
595	1400	3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	
605	725	4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	
615	715	5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	
645	710	6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	
795	1400	4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	
825	1400	5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	
855	1400	6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	
1400	1850	3	DI L3	DI L3	DI L3	DI L3	DI L3	DI L3	DI L3	

POLYCARBONATE FILTERS

Filter code: UL-1014

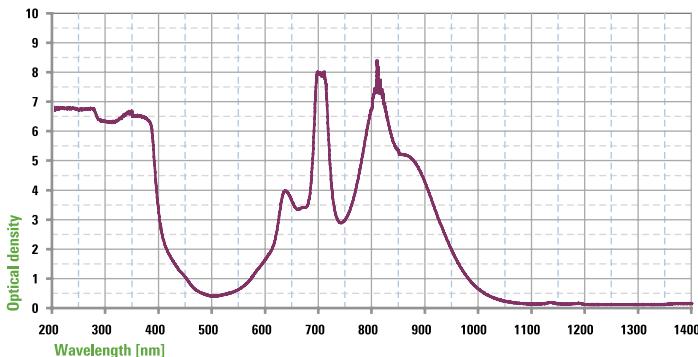
Filter	Full protection
Colour	Green
Material	Polycarbonate
Technology	Absorbing filter
VLT	45%
Alignment laser wavelength (T%>10%)	415-610



Wavelength	OD	Protection level	531	539	561	561 Asian fitting	562	615	616
			531.00.0.319	539.00.0.319	561.00.00.319	561L.0F.00.319	562L.00.00.319	615.00.A.319	
190	315	5	D L5 + IR L3	D L5 + IR L3	D L5 + IR L3	D L5 + IR L3	D L5 + IR L3	D L5 + IR L3	
315	380	5	D L4 + IR L5	D L4 + IR L5	D L4 + IR L5	D L4 + IR L5	D L4 + IR L5	D L4 + IR L5	
675	735	3	DI L3	DI L3	DI L3	DI L3	DI L3	DI L3	
685	725	4	DI L4	DI L4	DI L4	DI L4	DI L4	DI L4	
690	715	5	D L4 + I L5	D L4 + I L5	D L4 + I L5	D L4 + I L5	D L4 + I L5	D L4 + I L5	

Filter code: UL-1015

Filter	Full protection
Colour	Dark green
Material	Polycarbonate
Technology	Absorbing filter
VLT	20%
Alignment laser wavelength (T%>10%)	450-580

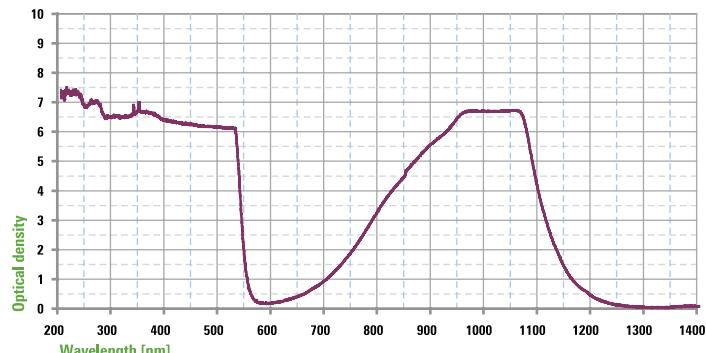


Wavelength	OD	Protection level	531	539	561	561 Asian fitting	562	615	616
			531.00.0.326	539.00.0.326	561.00.00.326	561L.0F.00.326	562L.00.00.326	615.00.A.326	
190	315	6	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	
315	380	6	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	
625	730	3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	
685	722	4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	
689	719	5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	
755	920	3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	
775	900	4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	
785	875	5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	

POLYCARBONATE FILTERS

Filter code: UL-1016

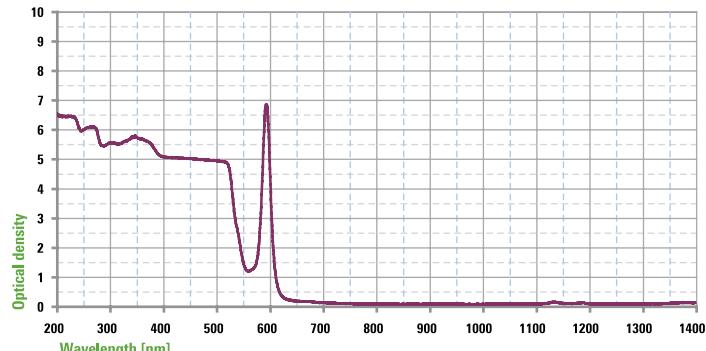
Filter	Full protection
Colour	Dark orange
Material	Polycarbonate
Technology	Absorbing filter
VLT	25%
Alignement laser wavelength (T%>10%)	555-695



Wavelength		OD	Protection level	531	539	561	561 Asian fitting	562	615	616
				531.00.0.329	539.00.0.329	561L.00.00.329	561L.0F.00.329	562L.00.00.329	615.00.A.329	
190	315	6	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	
315	532	6	DIR L6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	DIR L6	
800	1105	3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	
850	1090	4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	
905	1080	5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	
945	1070	6	DIR L6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	DIR L6	
10600		6	DI L3	DI L3	DI L3	DI L3	DI L3	DI L3	DI L3	
Wavelength		OD	Protection level	546	563					
				546L.00.10.554	563L.00.00.454					
180	315	7	D L7 + IR L4	D L7 + IR L4	D L7 + IR L4					
315	534	6	DIRM L6	DIRM L6	DIRM L6					
315	536	5	DIRM L5	DIRM L5	DIRM L5					
315	538	4	DIRM L4	DIRM L4	DIRM L4					
315	541	3	DIRM L3	DIRM L3	DIRM L3					
960	1065	6	DIRM L6	DIRM L6	DIRM L6					
910	1075	5	DIR L5	DIR L5	DIR L5					
850	1085	4	DIR L4	DIR L4	DIR L4					
800	1100	3	DIR L3	DIR L3	DIR L3					

Filter code: UL-1017

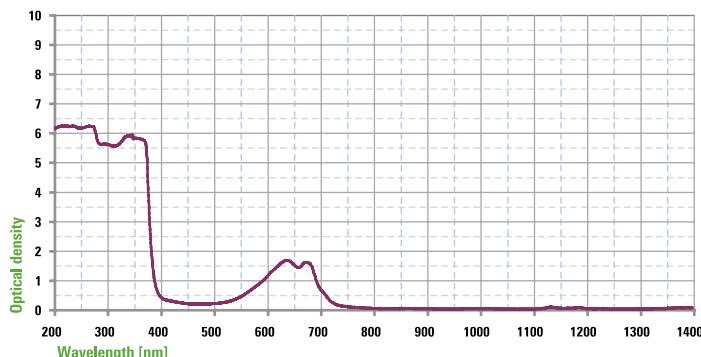
Filter	Full protection
Colour	Red
Material	Polycarbonate
Technology	Absorbing filter
VLT	7%
Alignement laser wavelength (T%>10%)	670-780



Wavelength		OD	Protection level	531	539	561	561 Asian fitting	562	615	616
				531.00.0.336	539.00.0.336	561L.00.00.336	561L.0F.00.336	562L.00.00.336	615.00.A.336	
190	275	6	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	
315	535	3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	
585	604	3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	

Filter code: UL-1018

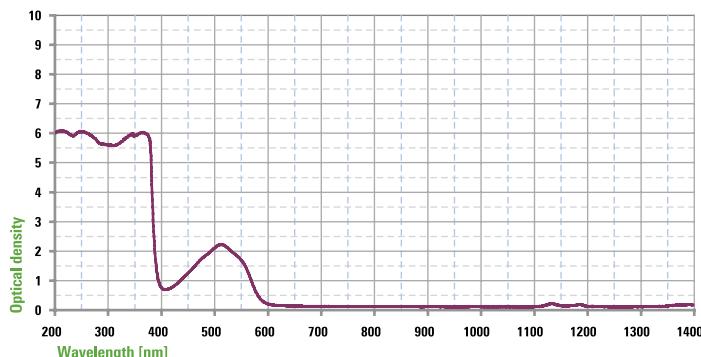
Filter	Alignement protection
Colour	Light blue
Material	Polycarbonate
Technology	Absorbing filter
VLT	32%



Wavelength	OD	Protection level	531	539	561	561 Asian fitting	562	615	616
			531.00.0.301	539.00.0.301	561L.00.00.301	561L.0F.00.301	562L.00.00.301	615.00.A.301	
590	695	1	0.01 W 2E-6 J 590-695 R1						

Filter code: UL-1019

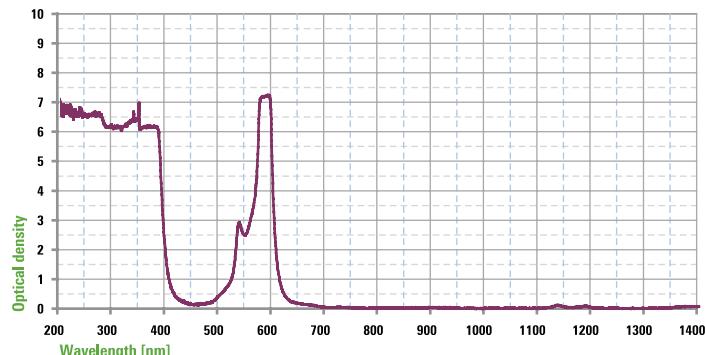
Filter	Alignement protection
Colour	Pink
Material	Polycarbonate
Technology	Absorbing filter
VLT	22%



Wavelength	OD	Protection level	531	539	561	561 Asian fitting	562	615	616
			531.00.0.307	539.00.0.307	561L.00.00.307	561L.0F.00.307	562L.00.00.307	615.00.A.307	
440	500	1	0.01 W 2E-6 J 440-500 R1						
500	530	2	0.1 W 2E-5 J 500-530 R2						
530	570	1	0.01 W 2E-6 J 530-570 R1						

■ Filter code: UL-1020

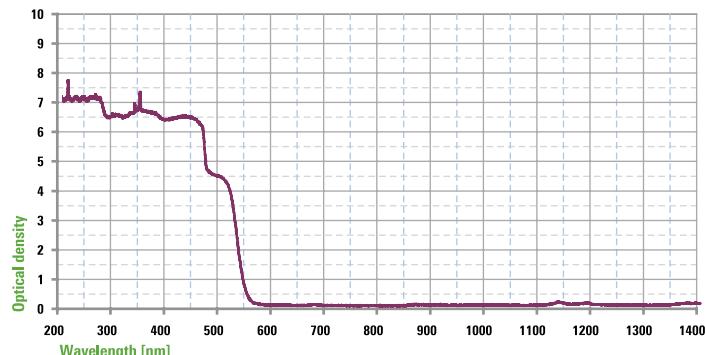
Filter	Full protection
Colour	Purple
Material	Polycarbonate
Technology	Absorbing filter
VLT	12%
Alignement laser wavelength (T%>10%)	406-520 613-780



Wavelength	OD	Protection level	546	563
			546L.00.10.555	563L.00.00.455
560	600	3	DIR L3	DIR L3
570	598	4	DIR L4	DIR L4
574	596	5	DIR L5	DIR L5
576	595	6	DIR L6	DIR L6

■ Filter code: UL-1021

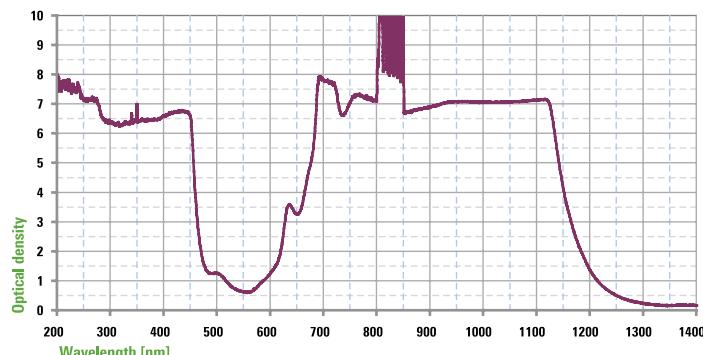
Filter	Full protection
Colour	Light orange
Material	Polycarbonate
Technology	Absorbing filter
VLT	48%
Alignement laser wavelength (T%>10%)	540-780



Wavelength	OD	Protection level	546	563
			546L.00.10.557	563L.00.00.457
180	315	7	D L7 + IR L4	D L7 + IR L4
315	465	6	DIR L6	DIR L6
315	500	5	DIR L5	DIR L5
315	515	4	DIR L4	DIR L4
315	525	3	DIR L3	DIR L3

Filter code: UL-1022

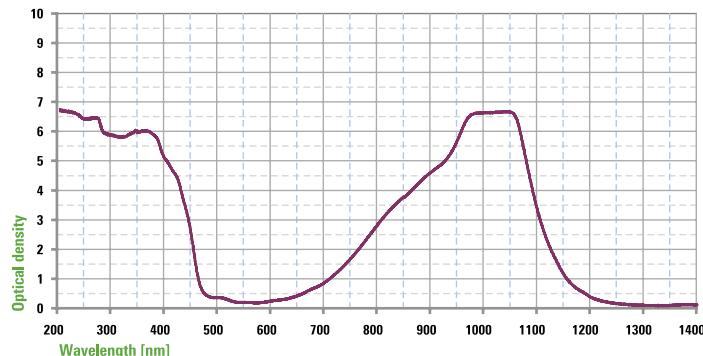
Filter	Full protection
Colour	Green
Material	Polycarbonate
Technology	Absorbing filter
VLT	16%
Alignement laser wavelength (T%>10%)	516-585



Wavelength	OD	Protection level	546	563
			546L.00.10.559	563L.00.00.459
630	1150	3	DIR L3	DIR L3
670	1135	4	DIR L4	DIR L4
682	1125	5	DIR L5	DIR L5
686	725	6	DIR L6	DIR L6
755	1115	6	DIR L6	DIR L6

Filter code: UL-1024

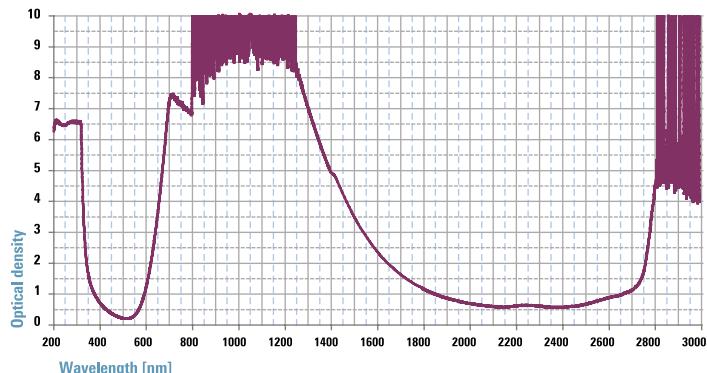
Filter	Full protection
Colour	Light green
Material	Polycarbonate
Technology	Absorbing filter
VLT	60%
Alignement laser wavelength (T%>10%)	465-708



Wavelength	OD	Protection level	531	539	561	561 Asian fitting	562	615	616
			531.00.0.345	539.00.0.345	561.00.00.345	561.0F.00.345	562.00.00.345	615.00.A.345	
815	1095	3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	
880	1080	4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	
945	1070	5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	
990	1065	6	DIR M L6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	DIR L6	

Filter code: UL-2001

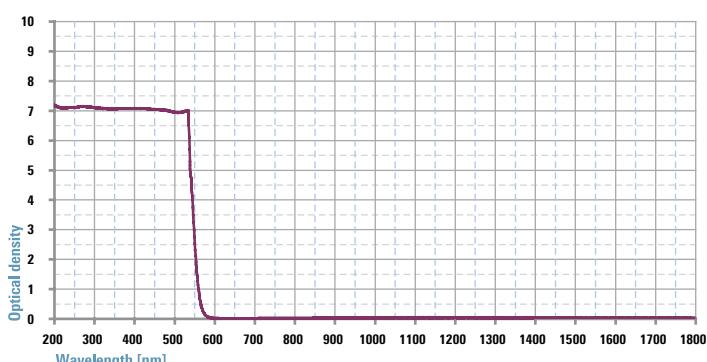
Filter	Full protection		
Colour	Green		
Material	Glass		
Technology	Absorbing filter		
VLT	40%		
Alignment laser wavelength (T%>10%)	380-590		



Wavelength	OD	Protection level	531	539	615	616
			531.00.0.003		615.00.A.003	616.00.0.003
190	310	10	D L9 + IR L4	D L8 + IR L3		D L9 + IR L4
640	1400	3	DIR L3	DIR L3		DIR L3
655	1400	4	DIR L4	DIR L4		DIR L4
670	1360	5	DIR L5	DIR L5		DIR L5
685	1345	6	D L5 + IR L6	D L5 + IR L6		D L5 + IR L6
694	1300	7	D L5 + IR L7	D L5 + IR L7		D L5 + IR L7
1400	1525	3	DI L3	DI L3		DI L3
2780	3300	3	DI L3	DI L3		DI L3
Wavelength	OD	Protection level	561	561 Asian fitting	562	
			561L.00.00.201	561L.0F.00.201	562L.00.00.201	
650	1200	3	DIR L3	DIR L3	DIR L3	
670	1200	4	DIR L4	DIR L4	DIR L4	
685	1200	5	DIR L5	DIR L5	DIR L5	
700	1200	6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	
720	1200	7	D L5 + IL7 + RL6	D L5 + IL7 + RL6	D L5 + IL7 + RL6	

Filter code: UL-2002

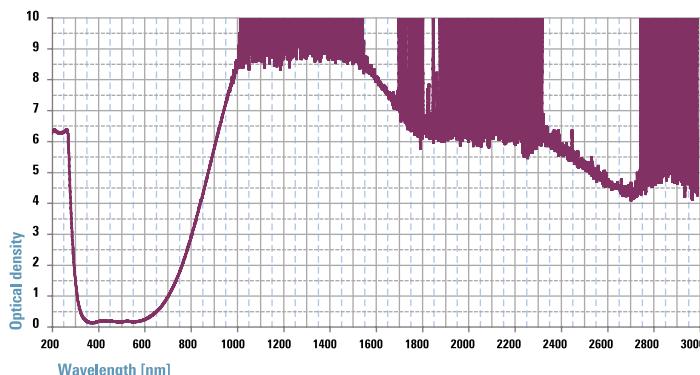
Filter	Full protection		
Colour	Orange		
Material	Glass		
Technology	Absorbing filter		
VLT	25%		
Alignment laser wavelength (T%>10%)	565-780		



Wavelength	OD	Protection level	531	539	561	561 Asian fitting	562	615	616
			531.00.0.004					615.00.A.004	616.00.0.004
190	315	10	D L8 + IR L3	D L8 + IR L3				D L8 + IR L3	D L8 + IR L3
315	550	3	DIR L3	DIR L3				DIR L3	DIR L3
315	545	4	DIR L4	DIR L4				DIR L4	DIR L4
315	540	5	DIR L5	DIR L5				DIR L5	DIR L5
315	538	6	D L5 + IR L6	D L5 + IR L6				D L5 + IR L6	D L5 + IR L6
315	534	7	D L5 + IR L7	D L5 + IR L7				D L5 + IR L7	D L5 + IR L7

Filter code: UL-2004

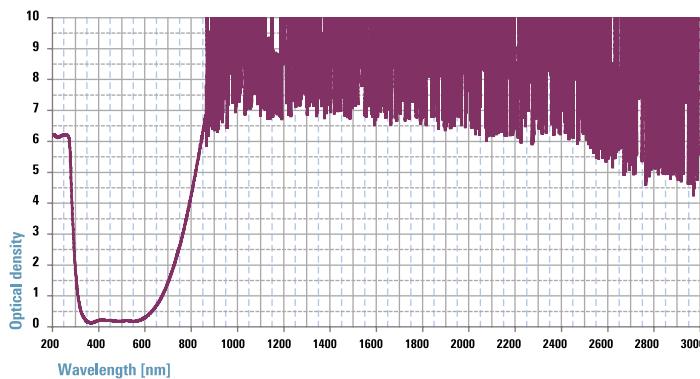
Filter	Full protection
Colour	Aqua
Material	Glass
Technology	Absorbing filter
VLT	70%
Alignement laser wavelength (T%>10%)	380-720



Wavelength	OD	Protection level	531	539	561	561 Asian fitting	562	615	616
			531.00.0.008		561L.00.00.200	561L.0F.00.200	562L.00.00.200	615.00.A.008	
190	275	10	D L9 + IR L4	D L8 + IR L3	D L8 + IR L3	D L8 + IR L3	D L8 + IR L3	D L9 + IR L4	
825	1400	3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	
870	1400	4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	
905	1400	5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	
945	1400	6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	D L5 + IR L6	
985	1400	7	D L5 + IR L7	D L5 + IR L7	D L5 + IR L7	D L5 + IR L7	D L5 + IR L7	D L5 + IR L7	
1400	3300	4	DI L3	DI L3	DI L3	DI L3	DI L3	DI L3	
10600	4	DI L3	DI L3		DI L3	DI L3	DI L3	DI L3	

Filter code: UL-2005

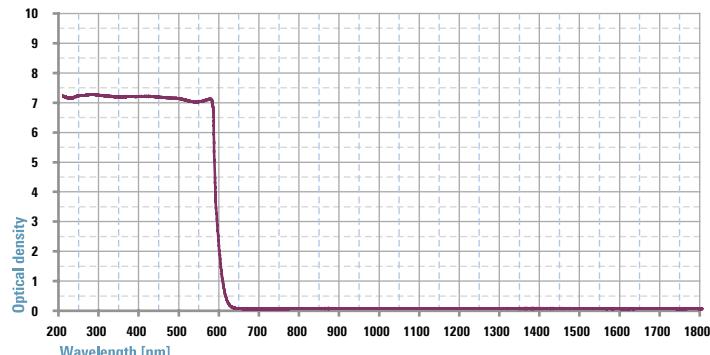
Filter	Full protection
Colour	Aqua
Material	Glass
Technology	Absorbing filter
VLT	62%
Alignement laser wavelength (T%>10%)	380-740



Wavelength	OD	Protection level	531	539	561	561 Asian fitting	562	615	616
								615.00.A.010	
190	285	10	D L9 + IR L4					D L9 + IR L4	
780	1400	3	DIR L3					DIR L3	
810	1400	4	DIR L4					DIR L4	
840	1400	5	DIR L5					DIR L5	
865	1400	6	DIR L6					DIR L6	
890	1400	7	D L6 + IR L7					D L6 + IR L7	
915	1400	8	D L6 + I L8 + R L7					D L6 + I L8 + R L7	
1400	3300	6	DI L4					DI L4	
10600	5	DI L4						DI L4	

Filter code: UL-2006

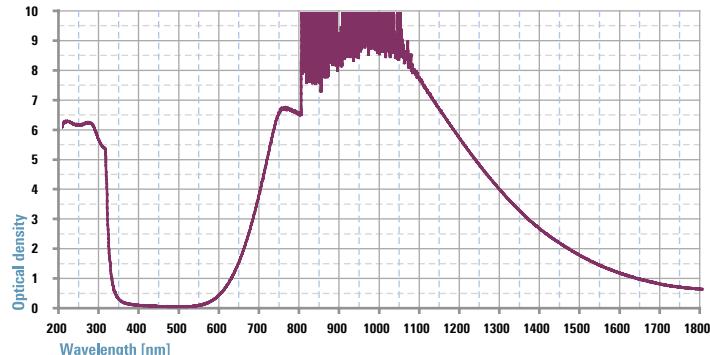
Filter	Full protection		
Colour	Dark red		
Material	Glass		
Technology	Absorbing filter		
VLT	10%		
Alignement laser wavelength (T%>10%)	605-780		



Wavelength	OD	Protection level	531	539	561	561 Asian fitting	562	615	616
			531.00.0.012					615.00.A.012	
190	315	10	D L9 + IR L4	D L8 + IR L3				D L9 + IR L4	
315	590	3	DIR L3	DIR L3				DIR L3	
315	585	4	DIR L4	DIR L4				DIR L4	
315	580	5	DIR L5	DIR L5				DIR L5	
315	575	6	D L5 + IR L6	D L5 + IR L6				D L5 + IR L6	
315	565	7	D L5 + IR L7	D L5 + IR L7				D L5 + IR L7	

Filter code: UL-2007

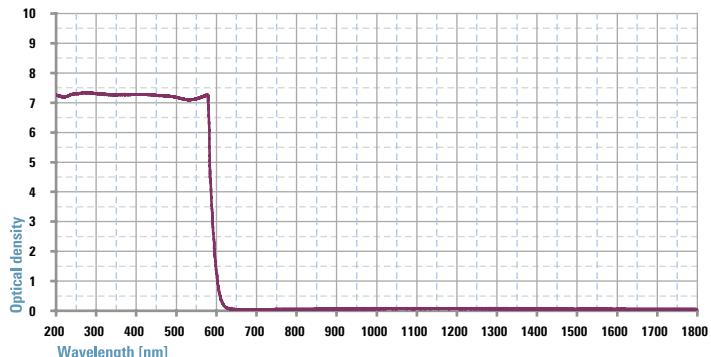
Filter	Full protection		
Colour	Light blue		
Material	Glass		
Technology	Absorbing filter		
VLT	70%		
Alignement laser wavelength (T%>10%)	380-630		



Wavelength	OD	Protection level	531	539	615	616
			531.00.0.013		615.00.A.013	616.00.0.013
190	300	10	D L9 + IR L4	D L8 + IR L3	D L9 + IR L4	D L9 + IR L4
685	1350	3	DIR L3	DIR L3	DIR L3	DIR L3
700	1275	4	DIR L4	DIR L4	DIR L4	DIR L4
720	1210	5	DIR L5	DIR L5	DIR L5	DIR L5
740	1160	6	D L5 + IR L6			
750	1100	7	D L5 + IR L7			

Filter code: UL-2009

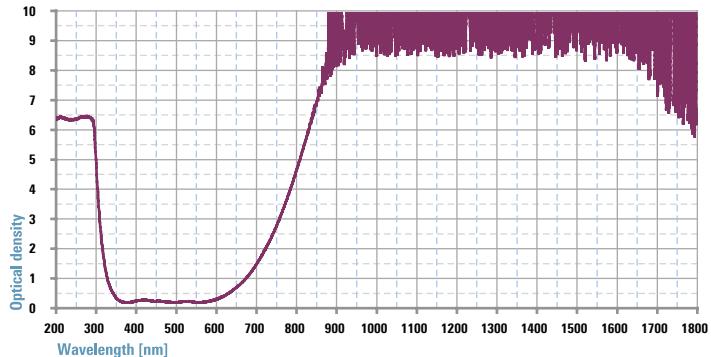
Filter	Full protection
Colour	Dark red
Material	Glass
Technology	Absorbing filter
VLT	8%
Alignement laser wavelength (T%>10%)	605-780



Wavelength	OD	Protection level	531	539	561	561 Asian fitting	562	615	616
			531.00.0.017					615.00.A.017	
190	315	10	D L9 + IR L4	D L8 + IR L3				D L9 + IR L4	
315	595	3	DIR L3	DIR L3				DIR L3	
315	593	4	DIR L4	DIR L4				DIR L4	
315	590	5	DIR L5	DIR L5				DIR L5	
315	588	6	D L5 + IR L6	D L5 + IR L6				D L5 + IR L6	
315	585	7	D L5 + IR L7	D L5 + IR L7				D L5 + IR L7	

Filter code: UL-2011

Filter	Full protection
Colour	Aqua
Material	Glass
Technology	Absorbing filter
VLT	60%
Alignement laser wavelength (T%>10%)	335-670

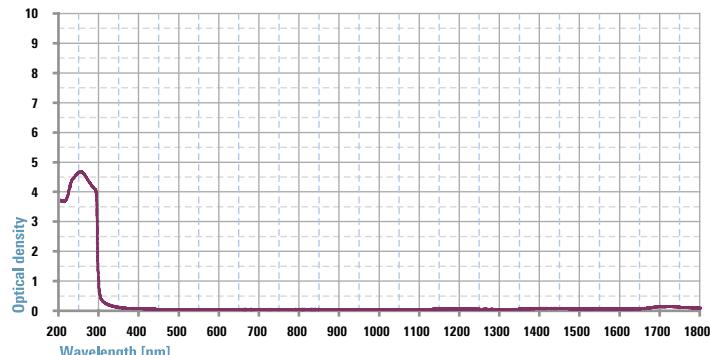


Wavelength	OD	Protection level	559
			559L.00.00.019
800	1400	4	DIR L4
820	1400	5	DIR L5
845	1400	6	DIR L6
875	1000	7	DIR L7
1000	1400	7	DIR M L7
2060	2200	4	DI L4
2750	2950	4	DI L4
10600	5	DI L5	DI L5

Filter code: UL-2012

Filter	Full protection		
Colour	Clear		
Material	Glass		
Technology	Absorbing filter		
VLT	92%		
Alignment laser wavelength (T%>10%)	380-780		

Wavelength	OD	Protection level	559
			559L.00.00.020
10600	5	DL L5	DL L5

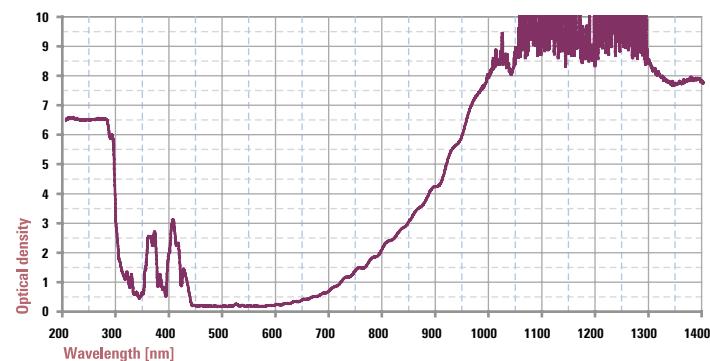


Filter code: UL-3001

Filter	Full protection		
Colour	Aqua		
Material	Glass		
Technology	Interferential filter		
VLT	70%		
Alignment laser wavelength (T%>10%)	430-720		

Wavelength	OD	Protection level	559
			559L.00.00.100
1025	1070	9	DL8 + IRM L9
			DL8 + IRM L9

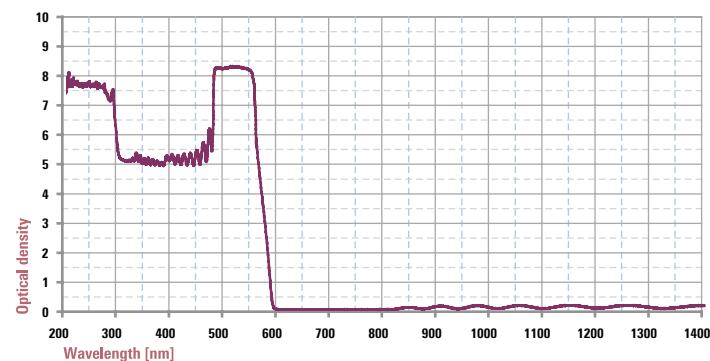
INTERFERENTIAL FILTERS



Filter code: UL-3002

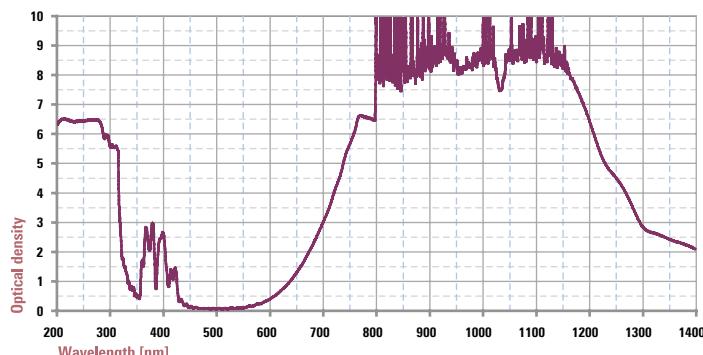
Filter	Full protection		
Colour	Orange		
Material	Glass		
Technology	Interferential filter		
VLT	20%		
Alignment laser wavelength (T%>10%)	587-780		

Wavelength	OD	Protection level	559
			559L.00.00.101
515	532	9	DL8 + IRM L9
			DL8 + IRM L9



Filter code: UL-3003

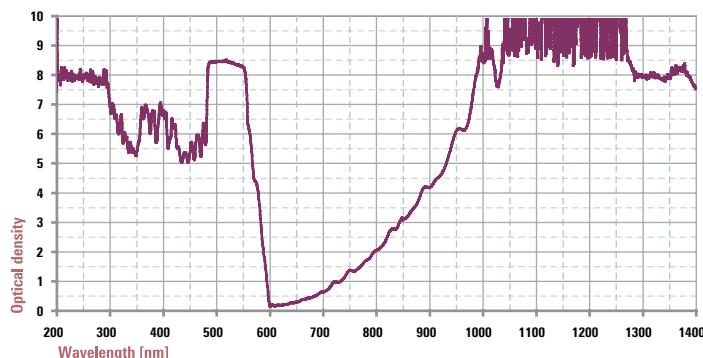
Filter	Full protection
Colour	Light blue
Material	Glass
Technology	Interferential filter
VLT	67%
Alignement laser wavelength (T%>10%)	605-780



Wavelength	OD	Protection level	559
			559L.00.00.102
800	815	9	D L8 + IR L9
1025	1070	9	D L8 + IRM L9

Filter code: UL-3004

Filter	Full protection
Colour	Dark orange
Material	Glass
Technology	Interferential filter
VLT	18%
Alignement laser wavelength (T%>10%)	596-720



Wavelength	OD	Protection level	559
			559L.00.00.103
180	315	9	D L9 + IR L5
515	532	9	D L8 + IRM L9
1025	1070	9	D L8 + IRM L9
2940	4	DI L4	DI L4

LASER WINDOWS

SAFE SOLUTIONS FOR EVERY APPLICATION

Laser windows, used mainly in industrial field, are composed of the same base material as our eyewear line. The filters are specific, developed for the more common laser machines; in the catalogue they are available in different sizes, but they can be customized upon request.

They are absorption filters, made both in glass, with high absorption capacity and good visible light transmission and in plastic, ultra-light and impact resistant but with a lower optical density.

LASER GLASS WINDOWS

Available sizes

- A4 210 mm x 297 mm
- 50 mm x 100 mm
- 80 mm x 160 mm
- 100 mm x 185 mm
- 100 mm x 200 mm
- 130 mm x 160 mm
- 160 mm x 160 mm
- 100 mm x 187 mm
- 200 mm x 200 mm
- 200 mm x 300 mm

LASER PLASTIC WINDOWS

Available sizes

- A4 210 mm x 297 mm
- 100 mm x 200 mm
- 200 mm x 200 mm
- 297 mm x 210 mm
- 200 mm x 300 mm
- 450 mm x 300 mm
- 450 mm x 600 mm
- 914 mm x 609 mm
- 914 mm x 1219 mm

Custom sizes are available upon request.

WINDOWS

D: FILTERS AND PROTECTION LEVELS FOR CONTINUOUS WAVE OPERATION

Pro-t tection level	Wavelength					
	190-315 nm	315-600 nm	600-800 nm	800-1400 nm	1400-3300 nm	3300-10600 nm
DL9	709 - 190-275 nm					
	706_GL - 180-315 nm					
DL8						
DL7				709 - 910-1400 nm		
				706_BL - 1064 nm		
				706_AL - 1064 nm		
DL6	708_EK - 190-315 nm	708_EK - 315-350 nm		709 - 880-1400 nm		
		706_GL - 315-532 nm		706_BL - 980-1400 nm		
				708_EK - 855-1070 nm		
DL5		708_EK - 315-420 nm		709 - 850-3300 nm		709 - 10600 nm
				706_BL - 905-980 nm	706_BL - 2100 nm	706_BL - 10600 nm
				708_EK - 815-1080 nm	706_BL - 2940 nm	706_AL - 10600 nm
DL4		708_FK - 315-540 nm		706_AL - 980-1050 nm	706_BL - 1400-2200 nm	708_BZ - 10600 nm
		708_GK - 315-540 nm		708_EK - 800-1090 nm	706_BL - 2800-3000 nm	
				708_FK - 850-1070 nm	706_AL - 1400-2200 nm	
DL3		708_FK - 315-545 nm		708_EK - 775-1105 nm		
		708_GK - 315-545 nm		708_FK - 810-1085 nm		

OPTICAL DENSITIES

Pro-t tection level	Wavelength					
	190-315 nm	315-600 nm	600-800 nm	800-1400 nm	1400-3300 nm	3300-10600 nm
OD 10	709 - 190-275 nm					
OD 9	706_GL - 180-315 nm				706_GL - 1064 nm	
OD 8				709 - 940-1400 nm		
OD 7		706_GL - 315-532 nm		709 - 910-1400 nm		
				706_BL - 1050-1400 nm		
				706_AL - 1064 nm		
OD 6	708_EK - 190-315 nm	708_EK - 315-420 nm		709 - 880-3300 nm		709 - 10600 nm
				706_BL - 980-1050 nm		706_BL - 10600 nm
				708_EK - 855-1070 nm		706_AL - 10600 nm
OD 5				709 - 850-1400 nm	706_BL - 1400-2200 nm	
				706_BL - 905-980 nm	706_BL - 2800-3000 nm	
				708_EK - 815-1080 nm	706_AL - 1400-2200 nm	
OD 4		708_FK - 315-540 nm		706_AL - 980-1050 nm		708_BZ - 10600 nm
		708_GK - 315-540 nm		708_EK - 800-1090 nm		
				708_FK - 850-1070 nm		
OD 3		708_FK - 315-545 nm		708_EK - 775-1105 nm		
		708_GK - 315-545 nm		708_FK - 810-1085 nm		

I: FILTERS AND PROTECTION LEVELS FOR PULSED OPERATION > 100 ns

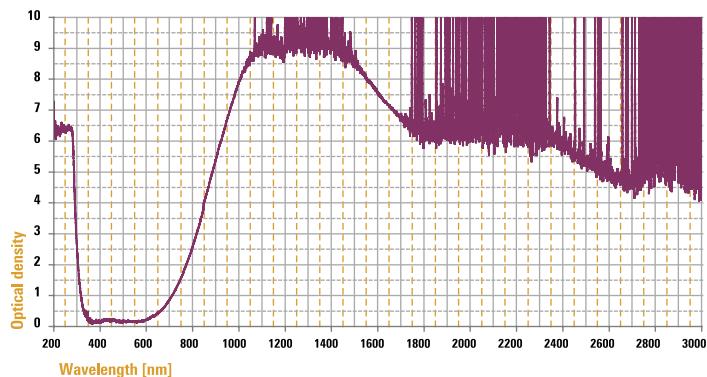
Protection level	Wavelength					
	190-315 nm	315-600 nm	600-800 nm	800-1400 nm	1400-3300 nm	3300-10600 nm
IL9				706_BL - 1064 nm		
IL8				709 - 940-1400 nm		
IL7				709 - 910-1400 nm		
				706_BL - 1050-1400 nm		
				706_AL - 1064 nm		
IL6		708_EK - 315-350 nm		709 - 880-1400 nm		706_BL - 10600 nm
				706_BL - 980-1050 nm		706_AL - 10600 nm
				708_EK - 855-1070 nm		
IL5		708_EK - 315-420 nm		709 - 850-3300 nm		709 - 10600 nm
		706_GL - 315-532 nm		706_BL - 905-980 nm	706_AL - 1400-2200 nm	
				708_EK - 815-1080 nm	706_BL - 2100 nm	
					706_BL - 1400-2200 nm	
					706_BL - 2800-3000 nm	
IL4	709 - 190-275 nm	708_FK - 315-540 nm		706_AL - 980-1050 nm		708_BZ - 10600 nm
	706_GL - 180-315 nm	708_GK - 315-540 nm		708_EK - 800-1090 nm		
				708_FK - 850-1070 nm		
IL3	708_EK - 190-315nm	708_FK - 315-545 nm		708_EK - 775-1105 nm		
		708_GK - 315-545 nm		708_FK - 810-1085 nm		

R: FILTERS AND PROTECTION LEVELS FOR Q-SWITCHED OPERATION 10⁻⁹-10⁻⁷ s

Protection level	Wavelength					
	190-315 nm	315-600 nm	600-800 nm	800-1400 nm	1400-3300 nm	3300-10600 nm
RL9				706_BL - 1064 nm		
RL8						
RL7				709 - 910-1400 nm		
				706_BL - 1050-1400 nm		
				706_AL - 1064 nm		
RL6		708_EK - 315-350 nm		709 - 880-1400 nm		
				708_EK - 855-1070 nm		
RL5		708_EK - 315-420 nm		709 - 850-1400 nm		
				708_EK - 815-1080 nm		
RL4	709 - 190-275 nm	708_FK - 315-540 nm		708_EK - 800-1090 nm		
		708_GK - 315-540 nm		708_FK - 850-1070 nm		
RL3	708_EK - 190-315 nm	708_FK - 315-545 nm		708_EK - 775-1105 nm		
		708_GK - 315-545 nm		708_FK - 810-1085 nm		

Filter code: 706.XX.00.00 AL

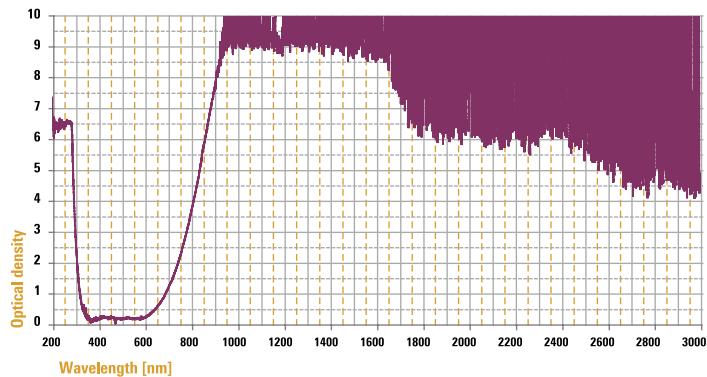
Filter	Full protection
Colour	Aqua
Material	Glass
Technology	Absorbing filter
VLT	68%
Alignement laser wavelength (T%>10%)	380-700



Wavelength	OD	Protection level	A4 210x297	50x100	80x160	100x185	100x200	130x160	160x160	100x187	200x200	200x300
					706.00.00.00 AL					706.04.00.00 AL	706.01.00.00 AL	
980	1050	4	DI L4		DI L4				DI L4	DI L4		
1064		7	DIR L7		DIR L7				DIR L7	DIR L7		
1400	2200	5	D L4 + I L5		D L4 + I L5				D L4 + I L5	D L4 + I L5		
10600	6	D L5 + I L6		D L5 + I L6				D L5 + I L6	D L5 + I L6			

Filter code: 706.XX.00.00 BL

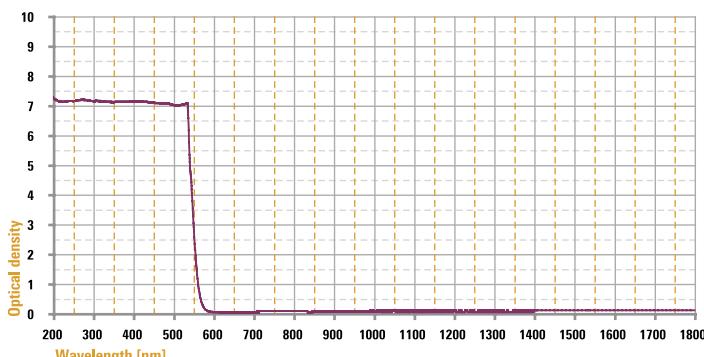
Filter	Full protection
Colour	Aqua
Material	Glass
Technology	Absorbing filter
VLT	62%
Alignement laser wavelength (T%>10%)	380-700



Wavelength	OD	Protection level	A4 210x297	50x100	80x160	100x185	100x200	130x160	160x160	100x187	200x200	200x300
										706.01.00.00 BL		
905	980	5	DI L5							DI L5		
980	1050	6	DI L6							DI L6		
1050	1400	7	D L6 + IR L7							D L6 + IR L7		
1064		9	D L7 + IR L9							D L7 + IR L9		
1400	2200	5	D L4 + I L5							D L4 + I L5		
2100		5	DI L5							DI L5		
2800	3000	5	D L4 + I L5							D L4 + I L5		
2940		5	DI L5							DI L5		
10600	6	D L5 + I L6								D L5 + I L6		

Filter code: 706.XX.00.00 GL

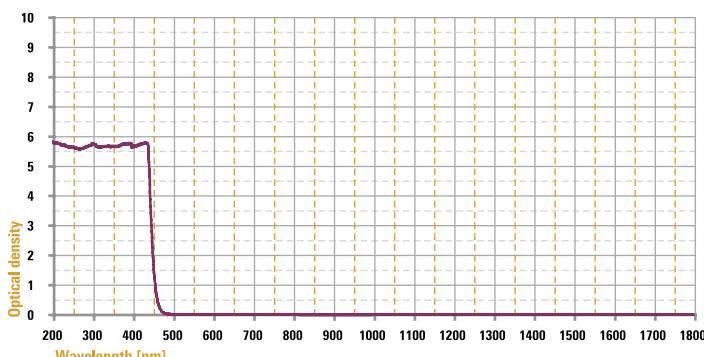
Filter	Full protection
Colour	Orange
Material	Glass
Technology	Absorbing filter
VLT	25%
Alignment laser wavelength (T%>10%)	565-781



Wavelength	OD	Protection level	A4 210x297	50x100	80x160	100x185	100x200	130x160	160x160	100x187	200x200	200x300
180	315	9	D L9 + I L4			706.05.00.00 GL				706.01.00.00 GL		
315	532	7	D L6 + I L7			D L9 + I L4				D L9 + I L4		
					D L6 + I L7					D L6 + I L7		

Filter code: 708.00.00.XX BZ

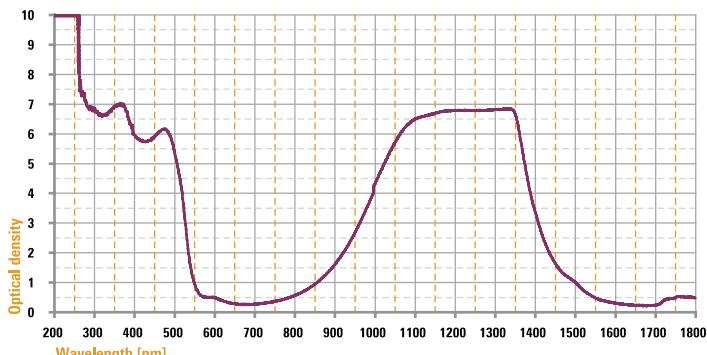
Filter	Full protection
Colour	Clear
Material	Polycarbonate
Technology	Absorbing filter
VLT	90%
Alignment laser wavelength (T%>10%)	380-780



Wavelength	OD	Protection level	100x200	200x200	297x210	200x300	450x300	450x600	914x609	914x1219
			708.000.004 BZ	708.000.005 BZ	708.000.048 BZ	708.000.006 BZ	708.000.009 BZ	708.000.010 BZ	708.000.000 BZ	
10600	4	DI L4	DI L4	DI L4	DI L4	DI L4	DI L4	DI L4	DI L4	DI L4

Filter code: 708.00.10.XX EK

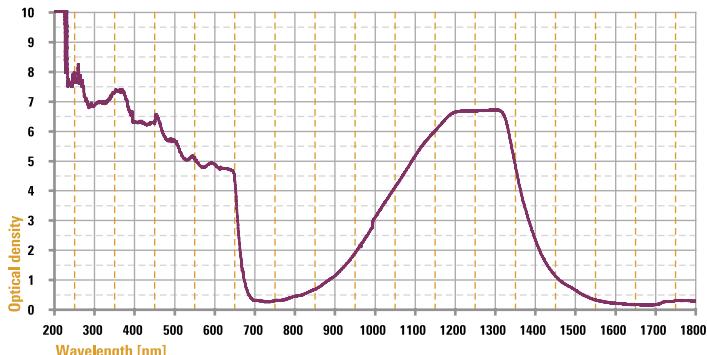
Filter	Full protection
Colour	Green
Material	Acrylic
Technology	Absorbing filter
VLT	55%
Alignement laser wavelength (T%>10%)	465-700



Wavelength			OD	Protection level	100x200	200x200	297x210	200x300	450x300	450x600	914x609	914x1219
					708.001.004 EK	708.001.005 EK	708.001.048 EK	708.001.006 EK	708.001.009 EK	708.001.010 EK		708.001.000 EK
190	315	6	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3	D L6 + IR L3		D L6 + IR L3
315	350	6	DIR L6	DIR L6	DIR L6	DIR L6	DIR L6	DIR L6	DIR L6	DIR L6		DIR L6
315	420	5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5		DIR L5
775	1105	3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3		DIR L3
800	1090	4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4		DIR L4
815	1080	5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5	DIR L5		DIR L5
855	1070	6	DIR L6	DIR L6	DIR L6	DIR L6	DIR L6	DIR L6	DIR L6	DIR L6		DIR L6

Filter code: 708.00.10.XX FK

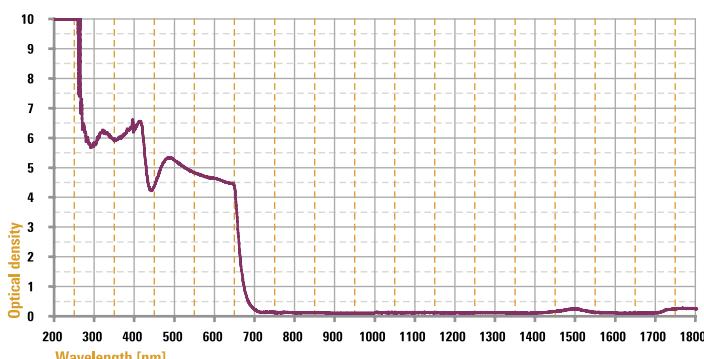
Filter	Full protection
Colour	Orange
Material	Acrylic
Technology	Absorbing filter
VLT	30%
Alignement laser wavelength (T%>10%)	560-725



Wavelength			OD	Protection level	100x200	200x200	297x210	200x300	450x300	450x600	914x609	914x1219
					708.001.004 FK	708.001.005 FK	708.001.048 FK	708.001.006 FK	708.001.009 FK	708.001.010 FK	708.001.000 FK	
315	545	3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3		DIR L3
315	540	4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4		DIR L4
810	1085	3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3	DIR L3		DIR L3
850	1070	4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4	DIR L4		DIR L4

Filter code: 708.00.10.XX GK

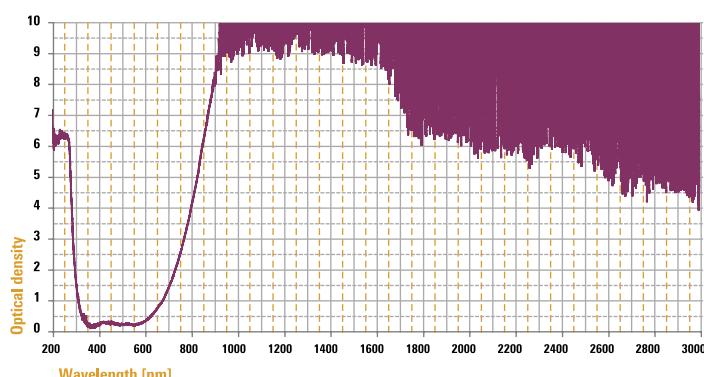
Filter	Full protection
Colour	Orange
Material	Acrylic
Technology	Absorbing filter
VLT	35%
Alignment laser wavelength (T%>10%)	555-780



Wavelength	OD	Protection level	100x200	200x200	297x210	200x300	450x300	450x600	914x609	914x1219
			708.001.004 GK	708.001.005 GK	708.001.048 GK	708.001.006 GK	708.001.009 GK	708.001.010 GK	708.001.000 GK	
315	545	3	DIR L3							
315	540	4	DIR L4							

Filter code: 709.00.0.XXX

Filter	Full protection
Colour	Aqua
Material	Glass
Technology	Absorbing filter
VLT	65%
Alignment laser wavelength (T%>10%)	380-695



Wavelength	OD	Protection level	A4 210x297	50x100	80x160	100x185	100x200	130x160	160x160	100x187	200x200	200x300
				709.00.0.001		709.00.0.003	709.00.0.004		709.00.0.002	709.00.0.007		
190	275	10	D L9 + IR L4		D L9 + IR L4		D L9 + IR L4		D L9 + IR L4	D L9 + IR L4		
850	1400	5	DIR L5		DIR L5		DIR L5	DIR L5	DIR L5	DIR L5		
880	1400	6	DIR L6		DIR L6		DIR L6	DIR L6	DIR L6	DIR L6		
910	1400	7	DIR L7		DIR L7		DIR L7	DIR L7	DIR L7	DIR L7		
940	1400	8	D L7 + I L8 + R L7		D L7 + I L8 + R L7		D L7 + I L8 + R L7					
1400	3300	6	DI L5		DI L5		DI L5	DI L5	DI L5	DI L5		
10600	6	DI L5		DI L5		DI L5	DI L5		DI L5	DI L5		



IPL

BRIGHT PROTECTION

UNIVET proposes specific items for patients and operators working with **IPL (Intense Pulsed Light)**; these products are ideal for medical field, especially in outpatient and cosmetic sectors, being the high intensity flash lamp therapy used mainly for hair removal or treatment of liver or sun spots. Safety eyewear for IPL systems needs to be certified according only to working protection standards and must protect the user against the bright light flash.

A selection of frames has been settled to carry this type of lens: all the models are extremely light and comfortable, with optimum lateral protection.

Among this dedicated line UNIVET Research & Development department has designed Amber IPL, a specific spectacle developed from prEN50415 norm, which fixes the protections that should be adopted by operators working with this source of light.

511 IPL



511.03.03.IPL
Frame: black
Lens: green shade 3

- Ultra-light anallergic frame (only 30 gr)
- Regulation of temples length
- Built-in side shields

520 IPL



520.11.00.30IPL
Frame: green
Lens: green shade 3

- Single optically-controlled polycarbonate lens
- Side venting
- Can be worn over prescription glasses



520.11.00.50IPL
Frame: green
Lens: green shade 5

546 IPL



546.03.00.50IPL
Frame: black/yellow
Lens: green shade 5

- Wraparound design offers outstanding protection
- Soft components around sensitive areas guarantee high comfort
- Lightweight and modern



546.03.23.30IPL
Frame: black/green
Lens: green shade 3

5X3 IPL



5X3.03.33.09IPL
Frame: black/orange
Lens: amber

- Over mould technology for reduced slip-fit and high comfort
- Soft, flexible nose fingers



5X3.03.22.30IPL
Frame: black/green
Lens: green shade 3



5X3.03.33.50IPL
Frame: black/yellow
Lens: green shade 5

Available in Amber IPL,
a new version developed
according to prEN50415 standard

PATIENT CARE

PROVIDING SUITABLE PROTECTION

616

616.00.0.00 blind version

- Adjustable nose pad and cord
- Shell soft face-foam interchangeable
- Can be sterilized by autoclave
- Available with laser filters or blind windows

616.00.00.KIT Spare foam kit (90 pcs.)



617

617.00.0.00

- Made of lightweight alloy
- Cord with slider
- Easily cleaned surfaces
- Can be sterilized by autoclave



LASER LOUPES

COMBINED TECHNOLOGIES IN DEFENCE OF YOUR EYES

UNIVET **Laser Loupes combines an high quality magnification system with laser safety eyewear** to guarantee to operators, especially of medical and dental field, optimal performances and protection in a single made-in-Italy product.

The flip-up magnification system is available both in prismatic version mounted on headband (magnification 3.5x and 4.5x) and in Galilean version mounted on a light and ergonomic eyewear (2.5x). Filter on the telescope are made of the highest quality glass to afford superior optical clarity and resolution and are available for the most popular laser wavelengths used in the dental and medical industry.

In combination with headband various models of UNIVET laser safety eyewear can be used; each spectacle has specific technical features joint with comfort and style peculiarities.

546 LASER FLIP-UP

High definition optics
with laser filter

Terminal tips with
over-mould technology
for reduced pressure on
sensitive areas

Absorbing polycarbonate
8 base filters up to D L6
protection

Magnification system
2.5x



LASER PRISMATIC HEAD BAND

High definition optics
with laser filter

Flip-up prismatic system

Height and
circumference regulation

Magnification systems
available 3.5x, 4.5x



MOD. 561



MOD. 562



MOD. 563

possible combinations with headband:

ACCESSORIES



Safety glass neck
cord in black cotton
Cod. 023345



Safety glass neck cord
with Univet logo
Cod. 3PA227



Microfibre case
Cod. 2300072



Black case with zip and logo
Cod. 3AT028



Black case with zip and logo
Cod. 3AT029



Univet cloth
Cod. 3PA225



Anti-fog cleaner
Cod. 3QL001

• Display



Univet corner
6 positions for eyewear,
2 for goggles
cod. 2314000



Univet display
4 positions for eyewear,
1 for goggle
cod. 2315000

• PRO LEVEL
Software for protection level calculation



COMMUNICATION

- Company profile



- Products catalogue



Surgical loups

Laser Safety Eyewear

Medical Safety Eyewear

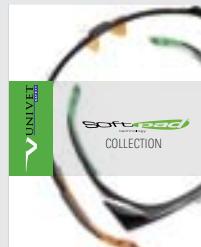
Safety Eyewear



Surgical Loups



Safety New Products



SoftPad® Collection

- Web site - www.univet.it





DATA REQUIRED TO DEFINE FILTER AND PROTECTION LEVEL

Date _____

Customer _____

Address/Street _____

Number _____

Postal Code _____

Town _____

County _____

Country _____

Note _____

In case you already know wavelength range and protection level required write them here

1 LASER TYPE _____

WAVELENGTH (nm) _____

PRODUCER _____

MODEL/TYPE _____

EN 207 PROTECTIVE filter



CONTINUOUS source

Power (Watt) _____

Beam/dimensions (mm) _____

Divergence (degrees, radians, NA) _____



PULSED source

Power (Watt) _____

Pulse duration (ns-ms) _____

Pulse energy (joule) _____

Frequency (Hz-Khz) _____

Beam/dimensions (mm) _____

Divergence (degrees, radians, NA) _____

EN 208 ALIGNEMENT filter



ALIGNEMENT source

Power (mW) _____

2 LASER TYPE _____

WAVELENGTH (nm) _____

PRODUCER _____

MODEL/TYPE _____

EN 207 PROTECTIVE filter



CONTINUOUS source

Power (Watt) _____

Beam/dimensions (mm) _____

Divergence (degrees, radians, NA) _____



PULSED source

Power (Watt) _____

Pulse duration (ns-ms) _____

Pulse energy (joule) _____

Frequency (Hz-Khz) _____

Beam/dimensions (mm) _____

Divergence (degrees, radians, NA) _____

EN 208 ALIGNEMENT filter



ALIGNEMENT source

Power (mW) _____

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