

Laser Protective Eyewears and Lasershields

The protective eyewears and the lasershields are produced from polymer optical glasses and have CE certification as well as USA compliance. We use 12 polymer optical glasses totally (**ARGON, HeNe543, VAPOR, HeNe633, ALEXANDRITE, YLF, FIBER, YAG, HOYLF, YSGG, HeNeIR, CO2**) to cover all the laser lines in the wavelength range between 190nm and 11µm.

For the very high mechanical stability and the wavefront precision of the laser beams one can use silica based inorganic mineral glasses (colour/filter glasses). There are different colour glasses, see www.oxapa.com, but the most suitable glasses for high power laser applications are **C3C21** (blocking of fiber lasers and fundamental (IR) harmonics of lasers based on doped YAG, KYW, KGW, YLF, YAlO₃, GdVO₄, YVO₄ glasses, wavelength range 700-1450nm), and **KC10** (blocking of all higher order harmonics of the above mentioned lasers, wavelength range 190-580nm). The colour glasses **C3C21** and **KC10** are partially transparent for human eye as well as for common pilot diode- or He-Ne-lasers (600-700nm). For blocking of the CO₂-lasers in the wavelength range 9µm-11µm one can use **Borosilicate** glass.

prices (EUR / pc) for standard polished lasershields and protective eyewears

mineral glasses	lasershields size in mm		eyewear
	100x200x3	100x200x7	
KC10	-	350	-
C3C21	-	416	-
Borosilicate	-	166	-
polymer glasses			
ARGON	40	-	76
HeNe543	40	-	-
VAPOR	46	-	120
HeNe633	40	-	-
ALEXANDRITE	46	-	120
YLF	56	-	130
FIBER	56	-	136
YAG	64	-	136
HOYLF	70	-	130
YSGG	56	-	136
HeNeIR	-	-	290
CO2	40	-	80

protective eyewear



lasershields



other glasses and sizes are possible by request

The polymer optical glasses and the mineral glasses used for production of laser protective eyewears and lasershields are systematized in the table below by the optical density (OD) for the wavelengths between 190nm and 11µm. As high the optical density is, as stronger the glass blocks the laser line. The glasses overlap all laser lines in the given wavelength range. They are transparent (at least partially) in the visible range for visual controlling by human eye.

nm	ARGON		VAPOR		ALEXANDRITE		FIBER		HOYLF		HeNeIR		mineral glasses		
	HeNe543		HeNe633		YLF		YAG		YSGG		CO2		KC10	C3C21	Boro-silicate
190	OD>7												OD>7		
270	OD>6												OD>7		
280	OD>5												OD>7		
370	OD>7		OD>5		OD>6		OD>6		OD>7		OD>7		OD>7		
390	190-532		190-580		190-370		190-490		190-400		190-400		190-580		
400	OD>7												OD>7		
420	OD>6												OD>7		
490	OD>5												OD>7		
532	OD>6												OD>7		
580	OD>6												OD>7		
600	580-600												OD>7		
630	OD>6												OD>7		
670	600-690												OD>7		
690	OD>7												OD>7		
730	670-820												OD>7		
740	OD>6												OD>7		
750	730-750												OD>7		
820	OD>6												OD>7		
870	OD>6												OD>7		
900	OD>6												OD>7		
910	820-940												OD>7		
930	750-1070												OD>7		
940	OD>6												OD>7		
1.02µ	910-1070												OD>7		
1.05	OD>6												OD>7		
1.07	1070-1080												OD>7		
1.08	OD>5												OD>6		
1.09	1080-1090												1070-1090		
1.50	OD>6												OD>7		
1.51	1550-1750												OD>6		
1.55	OD>6												OD>7		
1.56	1500-1650												OD>6		
1.65	OD>6												OD>7		
1.66	1550-1750												OD>6		
1.67	OD>4												OD>7		
1.75	1670-1900												OD>6		
1.89	OD>5												OD>7		
1.90	1900-2250												OD>6		
2.24	OD>6												OD>7		
2.25	2250-2480												OD>6		
2.32	OD>6												OD>7		
2.48	OD>5												OD>7		
2.49	2480-2720												OD>6		
2.70	OD>5												OD>7		
2.72	2720-2800												OD>6		
2.73	OD>4												OD>7		
2.79	2720-2800												OD>6		
2.80	OD>5												OD>7		
2.86	2800-2860												OD>6		
2.87	OD>4												OD>7		
2.90	2860-3000												OD>6		
4.00	OD>5												OD>7		
5.20	5200-9000												OD>6		
8.99	OD>5												OD>7		
9.00	9.0-10.6µ												OD>6		
10.60	OD>5												OD>7		
10.61	10.6-11.0µ												9.0-11.0µ		
11.00	OD>5												OD>7		

visible range