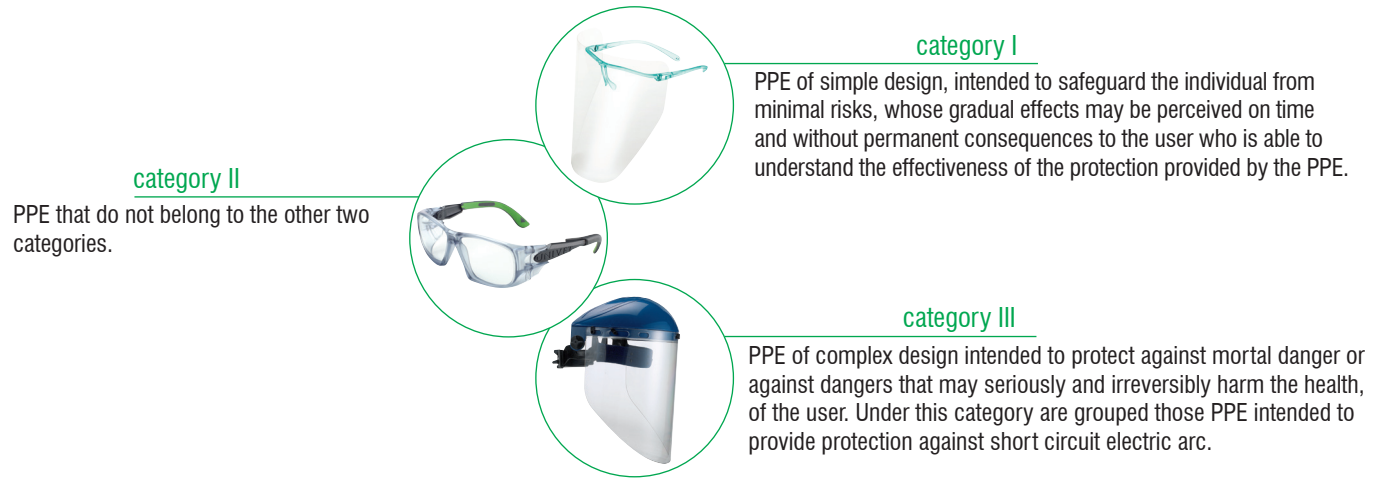


EUROPEAN STANDARD ON PERSONAL EYE PROTECTION

On the basis of 89/686/EEC Directive, Personal Protective Equipment (PPE) shall mean any device or appliance designed to be worn or held by an individual to protect himself against one or more health and safety hazards, as well as any accessory or ensemble designed so as to be a component of a personal protective equipment.

Personal Protective Equipment (PPE) are divided into three categories:



SPECTACLE

EXAMPLE OF MARKING IDENTIFICATION ON THE LENS

2-3	U	1	FT	KN	CE
Scale number (code number - shade number)*	Manufacturer (Univet)	Optical Class	Mechanical resistance	Optional requirement	

* The scale number for welding filters is only represented by the shade number

EXAMPLE OF MARKING IDENTIFICATION ON THE FRAME

U	EN166		FT		CE
Manufacturer (Univet)	Standard re.	Field of use (where applicable)	Symbol for mechanical strength	Where applicable a symbol intended to identify that the article is aimed at small size head	Where applicable highest ocular scale number compatible with the frame

GOGGLE

EXAMPLE OF MARKING IDENTIFICATION ON THE LENS

2C-1.2	U	1	BT	9	KN	0068	CE
Scale number (code number - shade number)*	Manufacturer (Univet)	Optical Class	Mechanical resistance	Field of use	Optional requirement	Number identifying the Notified Body only for PPE belonging to Cat. III	

* The scale number for welding filters is only represented by the shade number

EXAMPLE OF MARKING IDENTIFICATION ON THE FRAME

U	EN166	3 4 5 9	BT	2C-1.2	0068	CE
Manufacturer (Univet)	Standard re.	Fields of use	Mechanical resistance	Filterer compatible with the frame	Number identifying the Notified Body for PPE belonging to Cat. III	

PPE belonging to category II and III shall be tested and certified by an officially recognized European Notified Body.

Product certification which demonstrate compliance to the requirements set by PPE directive 89/686/EEC might be based on the following European standards:

EN166 – Personal eye-protection specifications

EN175 – Equipment for eye and face protection during welding and allied processes

EN166 recalls additional standards which further specify requirements as a function of PPE typology and of their fields of use:

EN165 – Vocabulary

EN167 – Optical test methods

EN168 – Non-optical test methods

EN169 – Filter for welding and related techniques

EN170 – Ultra-violet (UV) filters

EN171 – Infra-red (IR) filters

EN172 – Sunglare filters for industrial use

EN1731 – Mesh eye and face protectors

EN379 – Specification for automatic welding filters

SCALE NUMBER (CODE NUMBER - SHADE NUMBER)

Code Number		Shade number and typical lens colours		VLT range
2	Ultraviolet (UV)	1.2	Clear	100% - 74.4%
2C	UV with good colour recognition	1.7	In/Out, yellow, clear mirrored, UVR	58.1% - 43.2%
4	Infra-red (IR)	2.5	Brown, smoke	29.1% - 17.8%
5	Sunglare filter without infra-red specification	3.1	G15, smoke mirrored	17.8% - 8.0%
6	Sunglare filter with infra-red specification	3,4,5,...11	Welding	-

Welding products do not require a code number

OPTICAL CLASS

	Spherical refractive power m ⁻¹	Astigmatic refractive power m ⁻¹	Difference in prismatic refractive power cm/m		
			horizontal base out	horizontal base in	vertical
1	± 0.06	0.06	0.75	0.25	0.25
2	± 0.12	0.12	1.00	0.25	0.25
3	+0.12 / -0.25	0.25	1.00	0.25	0.25

PROTECTION AGAINST HIGH SPEED PARTICLES

Mechanical resistance	Impact level	Impact speed	Diameter	Grams	Spectacles	Goggles	Face shields
A (T)	High energy impact	190 m/s	ø 6 mm	0,86 gr			•
B (T)	Medium energy impact	120 m/s			•	•	
F (T)	Low energy impact	45 m/s			•	•	•
S	Increased robustness	5,1 m/s	ø 22 mm	43 gr	•	•	•

(T) if the impact letter (F, B or A) is followed by the letter T, then the eyewear protects against impact at extreme temperatures (-5°/ +55°C)

OPTIONAL REQUIREMENTS - ADDITIONAL MARKINGS ON LENSES, VISORS AND OCULARS

8	Symbol for protection against short circuit electric arc
9	Symbol for protection against molten metals and hot solids
K	Resistance to surface damage by fine particles
N	Resistance to fogging of oculars
T	Protection against high speed particles at extreme temperatures (-5°/+55° C)
H	Frame suitable for small size head
R	Enhanced reflectance in the infra-red
∇	Symbol for replacement ocular

FIELDS OF USE - ADDITIONAL MARKINGS WHICH CAN BE FOUND ON FRAME

SYMBOL	DESIGNATION	DESCRIPTION OF THE FIELD OF USE	SPECTACLES	GOGGLES	FACE SHIELD
No symbol	Basic use	Unspecified mechanical hazards and hazards arising from ultraviolet, visible, infra-red and sun radiation	•	•	•
3	Liquids	Liquids (droplets or splashes)		•	•
4	Large dust particles	Dust with a particle size > 5 µm		•	
5	Gas and fine dust particles	Gases, vapours, sprays, smoke and dust with a particle size < 5 µm		•	
8	Short circuit electric arc	Electrical arc due to a short circuit in electrical equipment			•
9	Molten metals and hot solids	Splashes of molten metals and penetration of hot solids		•	•

AMERICAN STANDARD FOR PERSONAL EYE PROTECTION DEVICES

SPECTACLE

EXAMPLE OF MARKING IDENTIFICATION ON THE LENS

U+U6

Lens mark

U = Manufacturer's logo
 + identify an impact rated article
 U6 = scale number

EXAMPLE OF MARKING IDENTIFICATION ON THE FRAME

UZ87+

Marking on the front piece

Z87+

Marking on at least one temple

U= Manufacturer's logo
 Z87 + identify an impact rated article

MEANING OF MARKING ACCORDING TO ANSI/ISEA Z87.1-2015 IN RESPECT OF FILTER PERFORMANCE

1 st CHARACTER	DESCRIPTION	EXAMPLE
U	Protection against ultraviolet radiations	U4
W	Protection against radiations produced during welding (welding filters)	W2.5
L	Protection against radiations in the visible spectrum	L1.7
R	Protection against infra-red radiations	R2.5
S	Special purpose filters	S
2 nd CHARACTER	DESCRIPTION	EXAMPLE
Number	Number which varies in respect to the attenuation provided by the filter	2.5

GOGGLE

EXAMPLE OF MARKING IDENTIFICATION OF A PPE WHERE LENS AND FRAME FORM A SINGLE UNIT (NO REPLACEABLE COMPONENTS)

UZ87+U6R2

Mark applied on lens or on frame

U= Manufacturer's logo
 Z87 + identify an impact rated article
 U6 = scale number referred to a filter providing UV protection
 R2 = scale number referred to a filter providing IR protection

MARKING REFERENCES TIED TO SPECIFIC FIELDS OF USE, ACCORDING TO ANSI/ISEA Z87.1-2015

D3	Protection from drops/splashes
D4	Protection from dust
D5	Protection from fine dust