



Ultimate
Industrial

EYEWEAR PROTECTION STANDARDS & REGULATIONS 2019

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Our Coating Technologies



No eyewear lens is scratch-proof, but lenses treated with our Armour anti scratch coating provide enhanced levels of scratch resistance with a hard coating for greater durability.



Eyewear treated with our RX-AF Anti-Fog coating help prevent droplets of moisture from building up on the lens, reducing or even eliminating fogging completely.

CE Regulations Involving Safety Eyewear.

Before purchasing protective eyewear it is important to clearly identify the relevant hazards which cannot be removed by other means (eg fitting guards or screens). Most commonly used eyewear falls into a single category covered by EN166. The other common standards cover areas such as infrared protection, ultraviolet, sun glare etc and there are several other standards which cover more specialised applications such as welding. A full list of the standards you are most likely to encounter is listed below.

Common Applicable Standards.

Standard	Detail
EN 166	Basic Standard 'Specifications'.
EN 167	Optical test methods.
EN 168	Test methods other than optical.
EN 169	Welding filters.
EN 170	Ultraviolet filters.
EN 171	Infrared filters.

Standard	Detail
EN 172	Solar protection filters for industrial use.
EN 175	Welding work equipment.
EN 207	Glasses for laser protection.
EN 208	Glasses for laser adjustment.
EN 379	Specification concerning welding filters.





EN166 - Basic Standard Specifications.

This standard covers all the basic requirements for safety eyewear and will be marked on the lens and frame accordingly. If the lens and frame have different markings for the same test it is the lowest result that should be used for determining its suitability for the application.

Property	Details	Frame Marked	Lens Marked	What it means in practice
Optical	Class 1	☐	1	Suitable for continuous use (all UCI eyewear is Class 1)
	Class 2	☐	2	Suitable for intermittent use
	Class 3	☐	3	Suitable for occasional use, but must NOT be worn continuously

In practice only Class 1 optical glasses should be used. Class 2 & 3 are not usually seen in the UK.

Property	Details	Frame Marked	Lens Marked	What it means in practice
Mechanical	Increased Robustness	☐	S	Will resist a 22 mm, 43 g ball travelling at 12 m/s - falling 1.3m. Rarely used on UCI products.
	Low Energy Impact	F	F	Will resist a 6 mm, 0.86 g ball travelling at 45 m/s. This is usually the maximum for safety glasses having side arms.
	Medium Energy Impact	B	B	Will resist a 6 mm, 0.86 g ball travelling at 120 m/s. This is usually the maximum for safety goggles and Industrial visors
	High Energy Impact	A	A	Will resist a 6 mm, 0.86 g ball travelling at 190 m/s. This is usually the maximum for specialist safety visors (polycarbonate).
	Extreme Temperature	T	T	This letter after the impact letter allows use with extreme temperature particles (-5 to +55 °C).

In simple terms glasses are usually rated at F, goggles and visors at B (specialist visors only, A)

Property	Details	Frame Marked	Lens Marked	What it means in practice
Optical Test	Misting / Fogging	☐	N	Resist misting and fogging
	Mechanical Damage	☐	K	Resist surface damage by fine particles, that is anti scratch.

Many glasses may be anti-fog or anti-scratch but not carry the above markings as this is an optional test



Property	Details	Frame Marked	Lens Marked	What it means in practice
Area Of Use	Liquids	3	▣	Offers protection against liquid splashes or droplets.
	Large Dust Particles	4	▣	Offers protection against large dust particles bigger than 5 microns.
	Gases and Fine Dust	5	▣	Offers protection against gases and small dust particles less than 5 microns.
	Electric Arc	▣	8	Offers protection against short circuit electric arc, face shields only.
	Molten Metal	9	9	Offers protection against molten metals and hot solids.

In simple terms direct vent goggles are not tested to any of the above. Indirect vent goggles are usually marked with 3 and/or 4. Gas tight goggles are usually marked with a 5.

It is sometimes necessary to provide filtering eyewear for certain applications to provide additional protection for the user. Typical requirements would be protection against sun glare, infrared or ultraviolet. A brief summary of the more common standards is outlined below.

EN169 - Welding Filters

Property	Details	Frame Marked	Lens Marked	What it means in practice
Welding	Shade of lens	▣	1.2 - 16	Higher is darker, will be the first number on the lens before the makers logo.

A typical marking would be 1.2 on it's own without the code number and hyphen used for none welding filters.

EN170 - Ultraviolet Filters

Property	Details	Frame Marked	Lens Marked	What it means in practice
Ultraviolet	Filter without good colour recognition	▣	2-	A further marking follows the 2- to indicate a shade value between 1.2 & 5
	Filter with good colour recognition	▣	2C (May be shown as 3)	A further marking follows the 3- to indicate a shade value between 1.2 & 5..

A typical marking would be 2-1.2 or 3-2.4 which indicates shades of 1.2 and 2.4 without and with good colour recognition.



EN171 - Infrared Filters

Property	Details	Frame Marked	Lens Marked	What it means in practice
Infrared	Filter	☐	4-	A further marking follows the 4- to indicate a shade value between 1.2 & 10.

A typical marking would be 4-6 which indicates an infrared filter with a shade value of 6

EN172 - Sunglare Filters

Property	Details	Frame Marked	Lens Marked	What it means in practice
Sunglare	Filter without infrared protection	☐	5-	A further marking follows the 5- to indicate a shade value between 1.1 & 4.1
	Filter with infrared protection	☐	6-	A further marking follows the 6- to indicate a shade value between 1.1 & 4.1

A typical marking would be 6-4.1 which indicates a sunglare filter with a shade value of 4.1 with infrared protection.

The markings on the lens and frame are arranged in a specific order to avoid confusion. The standard layout for these markings is shown below for both the lens and frame with an example of a typical set of markings. If the frame and lens markings are different for a particular standard then the lowest of the two values should be used. Further information is included with each product and on request.

Frame Marking

Manufacturers Mark	Standard	Fields of Use	Mechanical Strength
UCI	EN 166	5	B

Lens Marking

Scale Number (Filters Only)	Makers Mark	Optical Class	Mechanical Strength	Fields of Use	Scratch Resistant	Fog Resistant	Radiant Heat
5 - 1.1	UCI	1	B	3	K	N	T



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