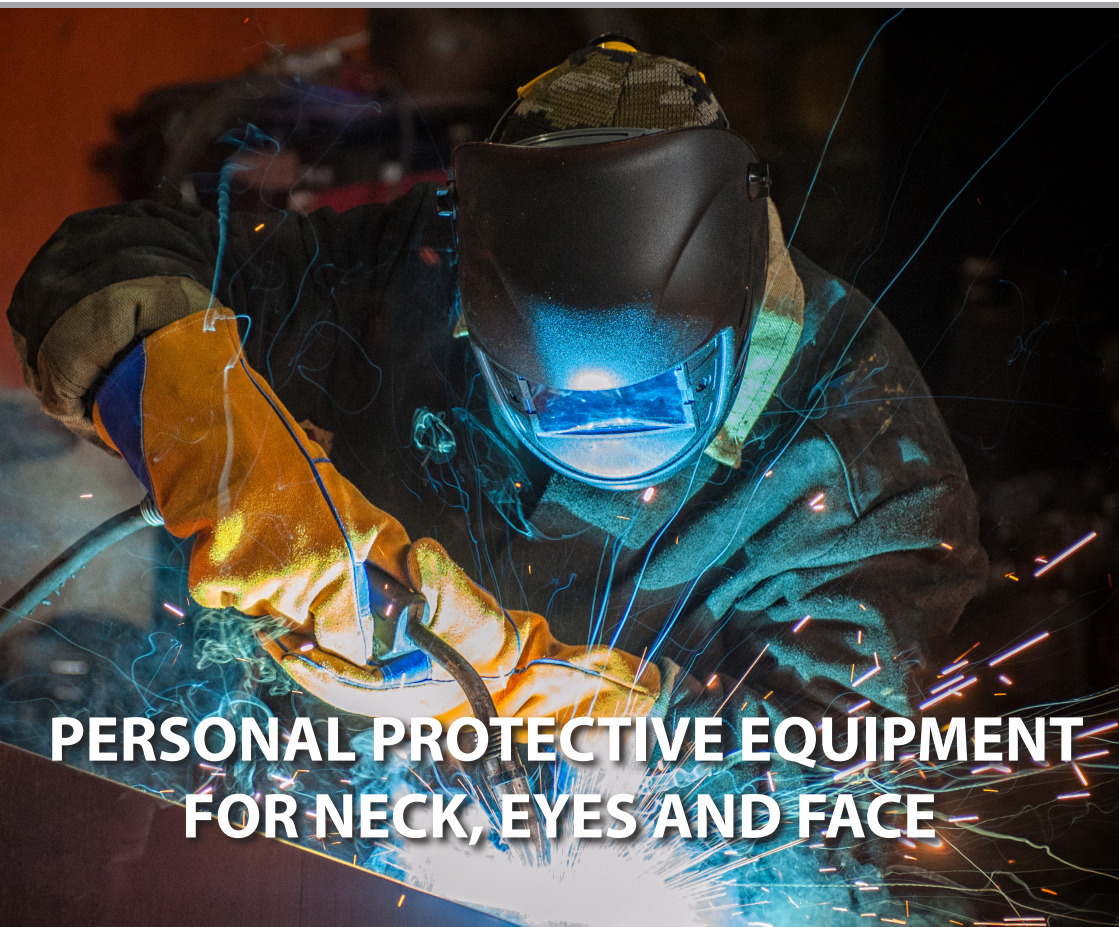




**CROATIAN INSTITUTE FOR HEALTH
PROTECTION AND SAFETY AT WORK**



PERSONAL PROTECTIVE EQUIPMENT FOR NECK, EYES AND FACE

**Series of Flyers
Education for Better Health Protection
and Safety at Work**

USE OF PERSONAL PROTECTIVE EQUIPMENT FOR NECK, EYES AND FACE



- neck protection against ionizing radiation
- eyes and whole face protection against mechanical and chemical hazards and hazardous radiations (UV, IR)

TYPES OF PPE



LEAD COLLARS



**< SAFETY GLASSES
SAFETY GOGGLES >**



SHIELDS






NECK PROTECTION AGAINST IONIZING RADIATION

COLLARS

- made of lead upholstered with gum layer
- new materials – reduced lead share or non lead material



COLLAR EFFICIENCY (apsorption of ionizing radiation in %)

INTENSITY OF DIRECT RADIATION	COLLAR TYPE		
	LEAD COLLAR	REDUCED LEAD SHARE	NON LEAD MATERIAL
			
80 kVp	98,2 %	98,4 %	98,8 %
100 kVp	96,0 %	96,3 %	96,7 %
120 kVp	95,1 %	95,4 %	94,1 %
130 kVp	92,0 %	95,0 %	93,5 %

Collar requirements are defined by norm EN 61331-3:

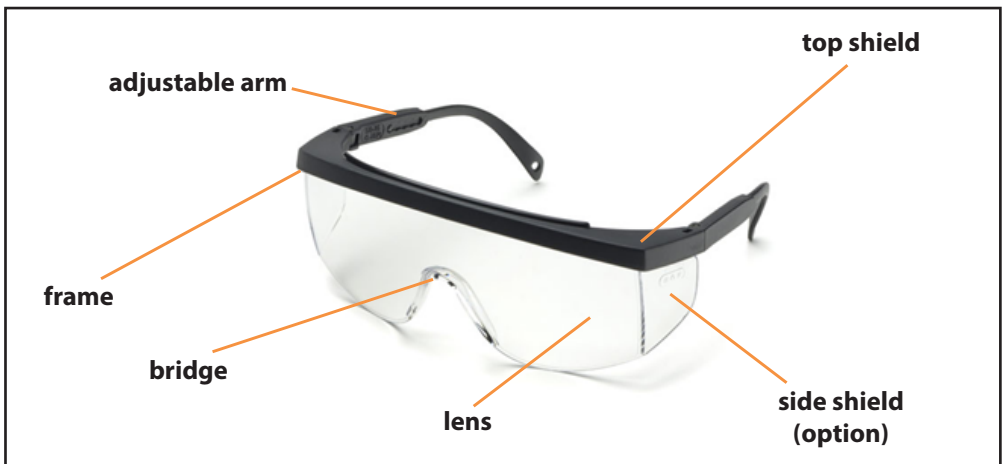
- mark of ionizing radiation absorption percentage
- manufacturer
- requirements for integrated material

EYE PROTECTION

SAFETY GLASSES

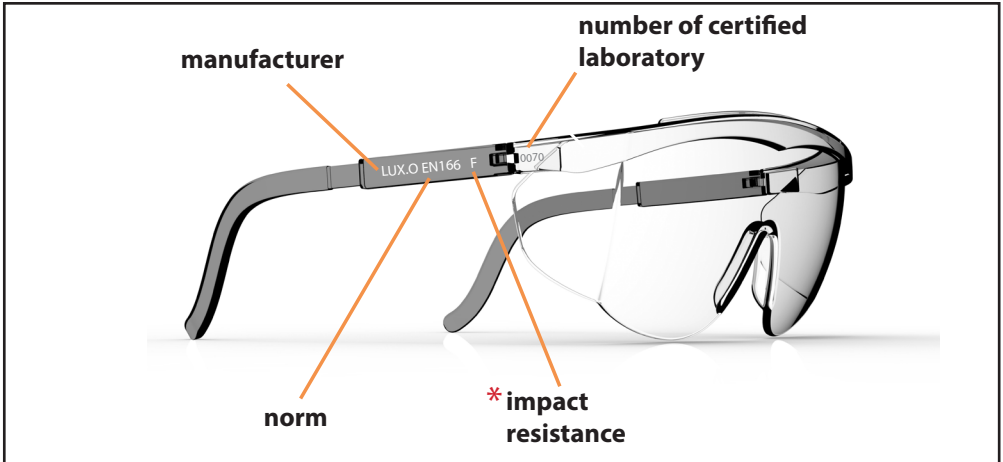


MAIN PARTS



MARKING

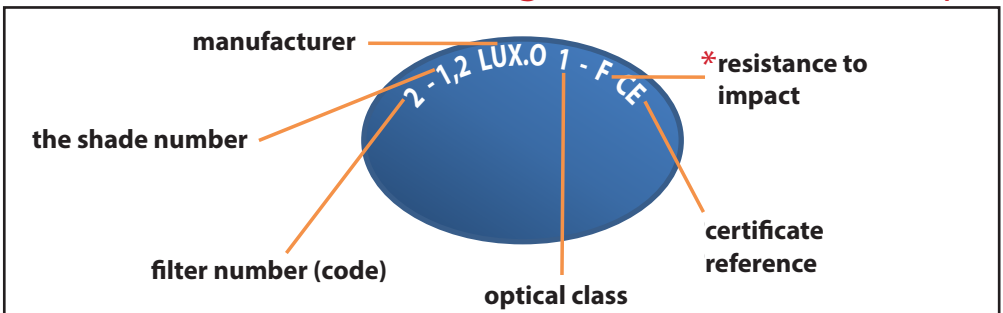
marks on the frame according to norm EN166 - example



*

S	Increased resistance (test with free falling ball of 44 g, $v = 12$ m/s)
F	Resistance to particles of low energy impact (hit of steel ball of 0,88 g, $v = 45$ m/s)
B	Resistance to particles of medium energy impact (hit of steel ball of 0,88 g, $v = 120$ m/s) - applicable only with safety goggles

marks on the lenses according to norm EN 166 - example



types of eye lenses

- **mineral eye lenses** - made of glass (tempered, untempered, laminated)
- **organic eye lenses** - made of synthetic mass (polycarbonate, polyacetate, transparent PVC)

EYE AND FACE PROTECTION

EYE AND FACE SHIELDS

VISOR HOLDER



VISOR



transparent or meshlike



TRANSPARENT SHIELD – for protection from mechanical hazards, chemicals, hazardous IR and UV radiation



MESHLIKE SHIELD – for protection from mechanical hazards

Any type of shield should be accompanied by the following producer's basic information:

- **name and adress of manufacturer**
- **norm (for UV radiation protection the norm is EN 170, for IR radiation EN 171, and for meshlike shields EN 1731)**
- **identification mark of shield model**
- **storage and maintenance procedure**
- **cleaning and disinfection instructions**
- **area of usage with characteristics of protection**
- **instructions for placing and adjusting of particular parts**

EYE AND FACE PROTECTION AT WELDING

WELDING GLASSES AND SHIELDS



Protection of eyes and face from hazardous IR and UV radiation at gass and arc welding

WELDING HAND SHIELDS



Shield mark according to norm EN 175:

- manufacturer
- norm
- area of usage
- CE marks
- mass (weight) (g)

HEAD SHIELDS



- weight up to 500 g
- height up to 350 mm
- width up to 210 mm
- hold by hand (disadvantage)

- weight up to 450 g
- self-standing or combination with helmet
- welder's hands free (advantage)

MAINTENANCE AND CLEANING

- **EYEPIECE** – replacement in case of major crack, clouding or color loss.
- **FRAMES OF GLASSES** – should be undistorted, undamaged and adjustable for proper sealing.
- **HEADBAND** – should enable proper adhesion, and should not skid when tightened to head.
- **CASINGS AND FRAMES OF GOOGLES** – should not be damaged or distorted, and all ventilation slots should be closed.
- **FACE SHIELD** – should not have abrasion marks, stripping signs and/or fine cracks deriving from pressure or heat damage.

Glasses and shields should be cleaned, if necessary, prior to storage, according to the procedures mentioned in the instruction manual.



EFFICIENT PROTECTION OF NECK, EYES AND FACE



CORRECT EQUIPMENT



EDUCATED AND TRAINED WORKER

Image sources:

<https://www.ggsafety.net.au/product/visor-mesh-prochoice-stainless-steel-380mm-x-200mm/>, <http://www.thesafetysupplycompany.co.uk/p/4661995/jpg-helmet-gold-visor-for-high-temperature-helmet-200mm-tall-simple-to-attach-not-for-use-with-chin-guard-3-pg-0200.html>, <http://www.balcohits.com/equipment/hw/other/equipment/hw/landscaping/gardening/>, <http://www.veritec.co.uk/veritec/face-shield-clear-visor.html>, <https://forums.studentdoctor.net/threads/the-ultimate-thyroid-collar-776662/>, <http://www.thyroidcollar.com/thyroid-collars.html>, <https://www.raykatalog.com/radiation-protection-accessories/thyroid-collars/pediatric-thyroid-collars.html>, http://www.nrc.intel.com/300Peltor1242/thyroidcollar_default/main/pc-welding-3-0.jpg, <http://www.worcester.co.uk/product/spectacles/>, https://www.alibaba.com/product-detail/WELDING-HELMET-527735_2087230783.html, <http://imgae.made-in-china.com/29202009878424/Welding-Mask-9703-3-4-03.jpg>, <http://icmweb.com/site-files/icmweb.com/files/archive/icmweb.com/construction/100centETG2.jpg>, <https://cds.mindirect.com/global/images/ProductImages/7259186-21.jpg>, <https://images-na.sai-images.amazon.com/images/I/41og8V9q.jpg>, <http://www.medicalsupplies-equipment.com/company/files/media/images/Loaded/Prescription-Safety-Goggles-1.jpg>, <http://www.directindustry.com/product/de-international-product-338-484634.html>, <http://imgcard.infoday.com/ny/inf/index.php?itemid=79778>, <http://www.hidamar.com/a/the-international-safety-goggles.html>, <https://www.manomano.co.uk/safety-visor/portwest-forestry-combi-protection-kit-hard-hat-face-shield-ear-defenders-2022290/>, http://www.directindustry.com/industrial-manufacturer/face-shield-731315_2.html, <http://www.casotama.fr/store/Visire-grillage-caque-anti-brut-Oxygen-prod12930156.html>, <http://www.watby.com/itm/TTU5-11-Welding-Goggles-Glasses-ARC-MIG-TIG-Gas-Plasma-Cutting-Grits-Steampank-730036414267hasn-tim3atbvl838g4244Acy0h050Df/>, <http://www.amazon.com/Peltor-770733-Variable-Auto-Dark-Helmet-dp/B00812B382/>, <http://www.digialta.com/store/product/51/battery-solar-auto-darkening-welding-helmet/13438222.html>, http://www.bookofthetask.net/safety-workwear/type/gateway-safety-flight-series-eyewear_o, <http://thudailyadvvisor.tk.com/2013/02/safety-specs-or-goggles-picking-the-perfect-ppp/>

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