laservision

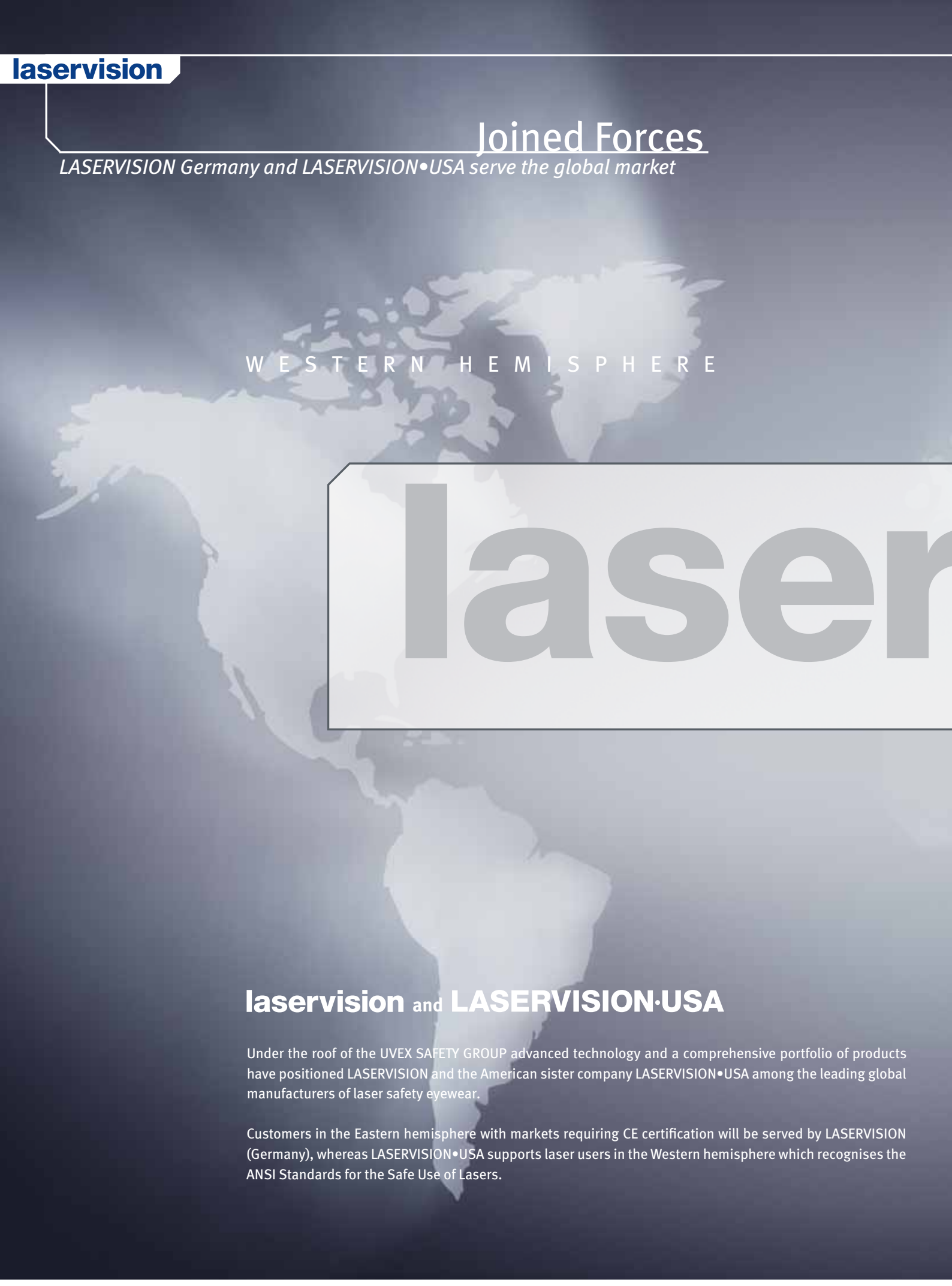
WE PROTECT YOUR EYES

Laser Safety Products

Edition 20

Joined Forces

LASERVISION Germany and LASERVISION•USA serve the global market



laservision and LASERVISION·USA

Under the roof of the UVEX SAFETY GROUP advanced technology and a comprehensive portfolio of products have positioned LASERVISION and the American sister company LASERVISION•USA among the leading global manufacturers of laser safety eyewear.

Customers in the Eastern hemisphere with markets requiring CE certification will be served by LASERVISION (Germany), whereas LASERVISION•USA supports laser users in the Western hemisphere which recognises the ANSI Standards for the Safe Use of Lasers.

Under the logo “laservision” and the claim „WE PROTECT YOUR EYES“ leading edge laser protection technology for all laser safety product ranges and accessories is being globally developed, produced and distributed according to the relevant standards.

LASERVISION

More than 30 Years Experience in Laser Safety

Already 30 years ago the company Rupp+Hubrach has built safety goggles against laser radiation. In 1987, LASERVISION was founded as a joint venture between UVEX ARBEITSSCHUTZ GMBH and Rupp+Hubrach and became with more than 30 employees a wholly-owned subsidiary of the UVEX ARBEITSSCHUTZ GMBH in 2004. Today LASERVISION and LASERVISION•USA are worldwide well positioned among the leading manufacturers of laser safety eyewear and related safety products. The synergy inherent in a partnership between the protective work equipment manufacturer and the laser safety eyewear specialist brings significant benefit to all laser safety customers.

By actively engaging with various national and international standardisation institutes for laser safety regulations (international level: ISO/TC94/SC6 – Occupational Eye-Protection; European level: TC85 – Eye-Protection Equipment; national level: Normenausschuss Feinmechanik und Optik NaFuO/AA Augenschutz), LASERVISION has become a competent partner in laser safety. In addition LASERVISION participates in international research projects for laser safety (e.g. SAFEST, VELP). A close cooperation with scientific research institutes in Germany and Europe has been established and allows the transfer of knowledge gained in this work to LASERVISION's own products. Due to this cooperation customers of LASERVISION always benefit from the state of the art in science and technology.

LASERVISION

Advanced Laser Protection Technology

Rapid advancement of laser technology across a broad spectrum of applications is making laser safety more important now than ever before. New laser applications in medicine, defence, research and industry present unique safety challenges for safety and personal protection.

Target and claim of LASERVISION is to offer worldwide the best laser protection for each laser application according to the standards. Our own product and market focussed research and development ensures in close cooperation with leading glass suppliers, plastic and absorbing dye producers a continuously improved product development.

Based on our long lasting experience LASERVISION is able to offer all users of laser technology tailor-made top products for personal and large area laser protection. We therefore make an important contribution to the personal working protection in the century of optics and lasers.

Quality philosophy

LASERVISION glasses are manufactured, tested and approved according to the European regulations. Legal requirements for laser safety eyewear as part of personal protection do require a single laser test for CE certification. CE marked LASERVISION glasses do not only guarantee the required minimum optical density, but also guarantee a defined 'lifetime' of the filter of at least 10 seconds (cw) or 100 pulses (pulsed lasers) under standardised test conditions for the specified laser.

In addition to the mandatory CE marking LASERVISION voluntarily makes most of its standard products subject to the repeated inspection process "tested safety - GS" by an independent institute (for example DIN CERTCO in cooperation with the Bayerisches Laserzentrum BLZ) in order to be able to guarantee a permanent quality. In these tests of frames and filters the test house always applies the latest knowledge in laser technology. Only products that are tested and certified according to these rules carry the logo of the test house, i.e. the "DIN" logo, for compliance in the marking. Additionally the test house includes the production process and LASERVISION's local quality management system into their testing.

In addition to the ISO 9001:2000 certification LASERVISION owns therefore an additional certificate for its Quality Management System (QS-System) based on the DIN CERTCO certification programme for eye protection. This programme focuses on subjects especially important for the legally regulated area of laser safety. The QS-certificate is based on the requirements of the EU-directive 89/686/EWG, the 8. Verordnung zum Gerätesicherheitsgesetz (8. GSGV) and the DIN CERTCO certification programme.

In addition LASERVISION is constantly monitoring its production and product quality according to strongest internal standards. For this purpose, LASERVISION runs an internal test lab with a great variety of different measurement systems and optical metrology devices like spectral photometers, laser measuring stations and additional equipment to test the optical effects or the dispersion of optical filters and many more. So LASERVISION is able to ensure its high quality even between the legally required official tests.

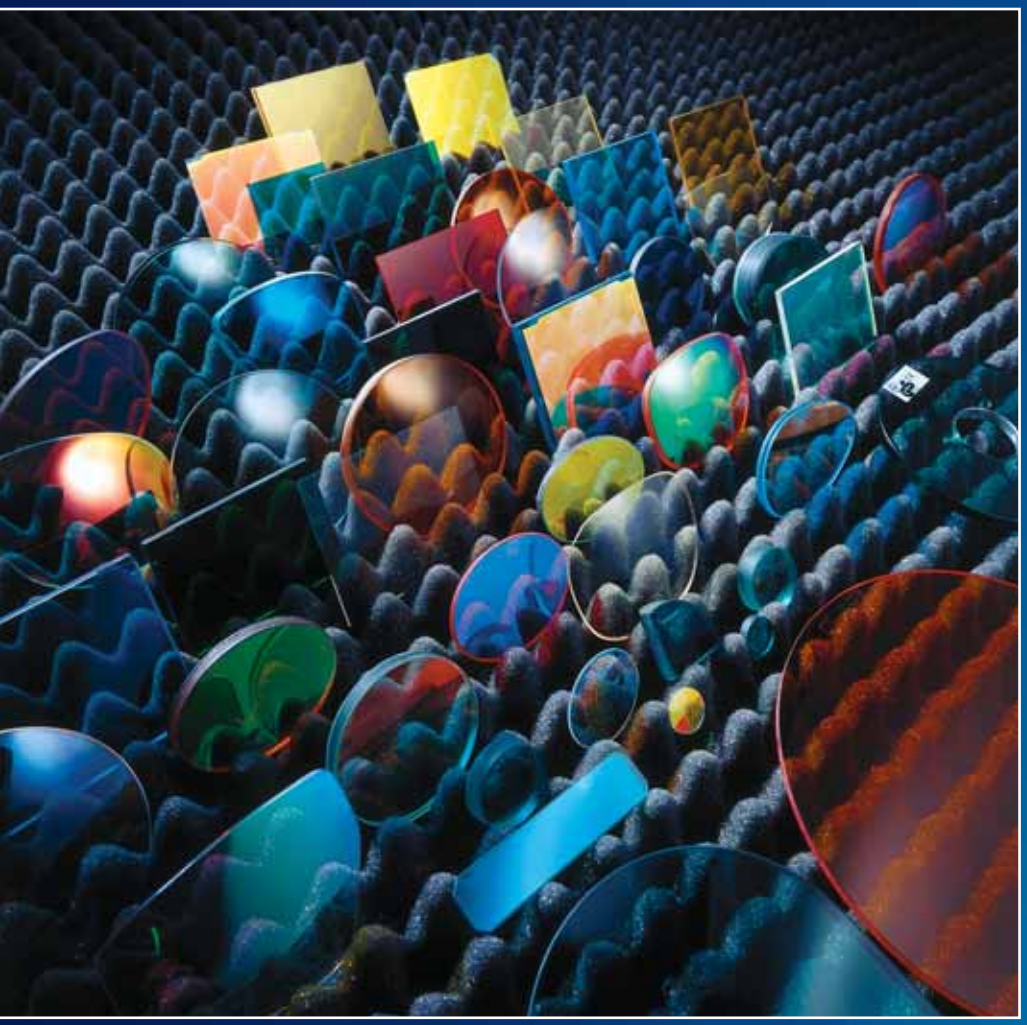
LASERVISION is able to trace back the fabrication of its products. Since several years LASERVISION glass products are marked with serial numbers. Therefore the company can trace back information on each product from the date of sale, to production and even back to the glass melt batch for the glasses. From 2004 onward even plastic glasses can be traced back to production lots.

LASERVISION – Business is people

The key to the success of LASERVISION is people. For us the solution of your laser safety problem is the daily focus of our work. Our dedicated and motivated employees are responsible for achieving the exceptional levels of innovation, service and quality for which LASERVISION is well known. With effective teamwork and committed leadership we will continue to provide effective laser safety solutions for our customers worldwide. In partnership with our customers the people of LASERVISION will continue to lead the world in laser protection – this is what you can rely on.

Technology

Competence in Laser Safety



Laser safety goggles based on coated or absorptive plastic or glass filters are the core business of LASERVISION. We have long lasting experience in all relevant fields of laser safety technology. Our internal quality management ensures the compliance with all safety rules and standards. Additionally LASERVISION undergoes regular inspections by independent certification institutes.

Plastic Absorption Filters

Absorbing materials are the common standard in order to block light of a defined wavelength area from the spectrum. As basic material amorphous polymers with special absorber dyes are mostly used. Absorption means that the light energy of the wavelength for which the filter is designed for is transformed to heat, when the beam hits the filter. Therefore it is necessary to select the filter material carefully for thermal stability.

In order to meet the requirements of its customers from all fields and to be able to offer high quality and norm consistent acrylic laser safety products even for new applications LASERVISION is in close cooperation with its partners continuously developing, producing and testing new materials and absorber colours. Raw materials for several products are processed in house and produced in the appropriate manner. An extensive quality control ensures the compliance of our high standards. At the same time an intensive design development takes place in order to continuously improve wearing comfort and features of our eyewear.

Absorbing plastic filters are available as plan and in most cases also as curved filters or shields with different base curves in order to improve the field of view. In addition to the use as laser safety eyewear plastic absorbing filters are also used as large area cabin windows.

Highlights

- Different wavelength and wavelength ranges
- High protection levels with pulsed lasers
- Economical
- Lightweight
- Different frames and shields
- Available as cabin window

Glass Absorption Filters

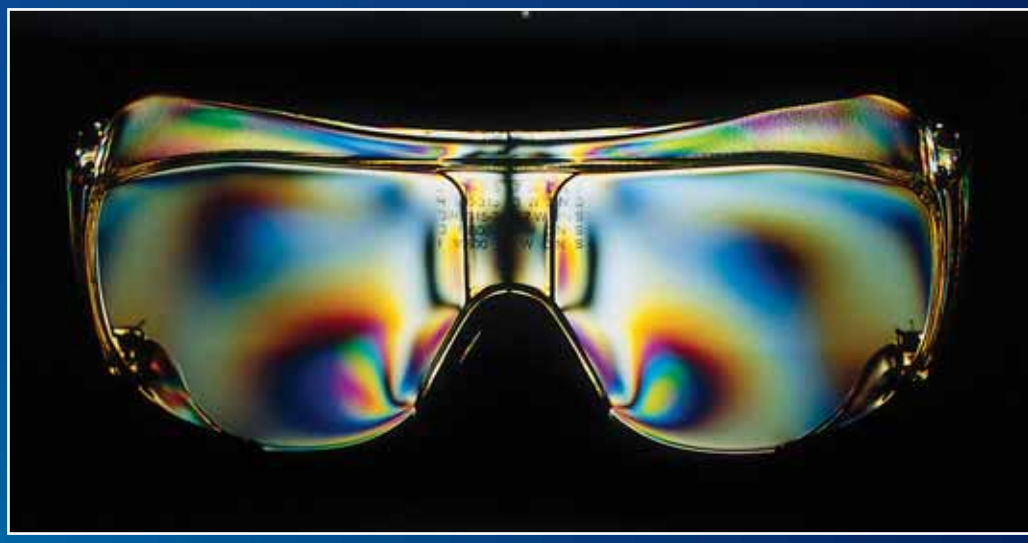
Each of the different materials used for absorption filters, plastics and glass, does have advantages and disadvantages with respect to protection and comfort. Glass filters are clearly superior to plastic filters in terms of thermal stability of the filter material itself. Therefore they are especially suitable for continuous lasers (cw operation) of medium to high power.

A large number of LASERVISION glass filters are available also in a curved shape (base curve 2 or 6). These particular laborious filters provide a very good field of view and high wearing comfort, whereas lamination with neutral glass ensures increased thermal stability and break resistance as especially needed with larger cabin windows.

Based on its 20 years of history LASERVISION has broad experience in the field of glass processing for laser safety eyewear since many years. Our worldwide partners are well known suppliers of raw glass and specialists in glass processing since years. Lamination of different glass types or filter materials allows LASERVISION to produce and to offer customised protection filters with individually designed protection ranges for different wavelength with short lead times. We manufacture several hundred custom filters each year.

Highlights

- Highest optical densities
- Combination filters for different wavelength
- More than 6000 custom filter records
- Different frame styles
- Only filter approved for ultrafast protection
- Splinter protection by lamination
- Available as cabin windows



Reflective or Interference filter

The much more advanced but technically more complicated technology used from LASERVISION to create filters of high optical density is the coating of the substrate with dielectric interference layers. By special design of the layer sequences and by suitable choice of the coating materials, multiple coating layers are applied to a substrate. The layers are vapour deposited in high vacuum condition and have to be applied with an accuracy of a few nanometers. Depending on the wavelength of the light, radiation is partly reflected on each single layer and interferes. For the so called blocking laser wavelength, a constructive multiple reflection is achieved and the filter reflects nearly the entire laser light.

Compared to absorbing filters reflective coatings have many advantages. Because in case of a laser hit most of the laser energy is reflected from the filter, the protection is highly independent from the chosen substrate. Therefore it is possible to achieve with this technology even with plastic filters high protection levels, which have been available in the past only with glass filter technology. Due to the long standing experience and research in the field of coating technology LASERVISION is able to produce these coatings on glass as well as on acrylic substrate in its own coating facility.

Whereas the blocking range of commonly used absorption filters depends on the characteristics of the substrate, the blocking range of interference filters depends mostly on the design of the layer structure. As a result nearly all light (with exception of the blocked wavelength) passes the filter without attenuation. Therefore, compared to any absorbing filter in the visible, LASERVISION's coated filters have a much better colour vision and higher visible light transmission. This is especially important for medical applications.

In combination with absorbing filters this offers LASERVISION a nearly unlimited number of variations to protect for all possible wavelengths.

Highlights

- Highest optical densities
- Combination with plastic and glass substrates
- Best colour vision and highest daylight transmission
- Available with different frame styles
- Break-proof though special substrates
- Scratch resistant through special coatings
- Low weight and high comfort

Frames

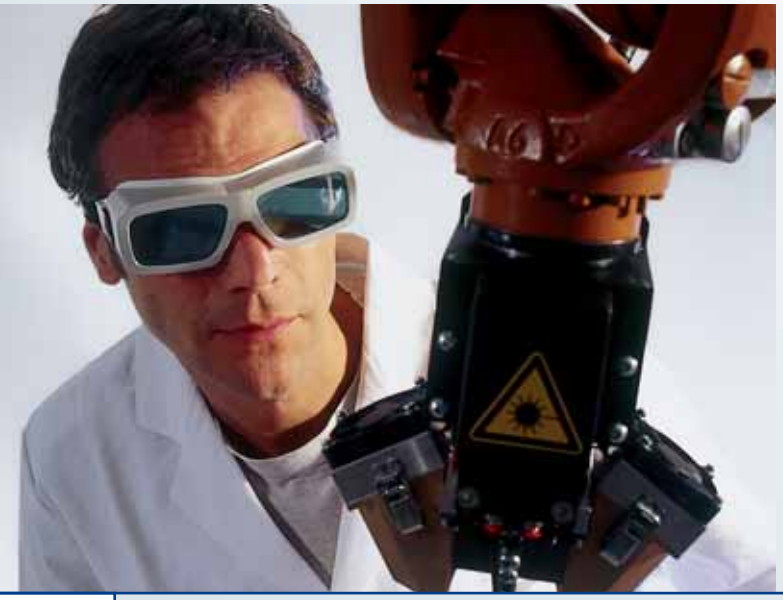
ALL STAR (L-02K)

The ALL STAR laser safety goggle is characterised by an unique versatility and flexibility and is the new top-model. Designed as the follower of the ECO-goggle it has been significantly improved in all points. The development of the All STAR reflects the long lasting experience and history of LASERVISION with laser safety eyewear.

The All STAR features a highly efficient outside reinforcement, as primarily shown on the SPLIT SHIELD frame. This guarantees highest protection levels as well as additional mechanical protection, when put face forward on the table. The reinforcement is available in two colours – blue and silver.

Special designed reinforcement frames allow factory mounting of welding flips for industrial laser welding or cutting applications or of binocular magnifiers for medical applications. The design of the mounting adapter ensures a stable fit and optimal behaviour of these extensions. The mounting principle of the reinforcement allows the integration of standard and custom filters of up to 12 mm thickness.

In order to ensure a long time wearing comfort even with such thick filters, LASERVISION is offering different wearing options. Due to the universal DUOFLEX adapter the ALL STAR can be combined with a flexible head strap, cold malleable temples or the unique head support system. In addition the ALL STAR allows to flip-in a Rx insert for prescription lenses.



Highlights

- Absorbing and reflecting glass and plastic flat filters up to 12mm thickness
- Protection levels up to DI L8/R L9 315-1400nm
- Shade-Flip and Binocular magnifier as factory option
- Rx insert for prescription glasses
- Multi adjustable DUOFLEX temples as standard
- Head strap, Head support system or temple set as option

Frames

VISION (L-05)

The VISION frame with curved filters (base curve 6) is the most popular LASERVISION spectacle for glass and plastic filters. The frame features a very good fit and lots of individual adjustments. The internal metal lamination (enforced version) guarantees long life time and high protection levels without any restriction of wearing comfort.

Highlights

- Filter with base curve 6 for good field of view
- Highest protection levels as DIR L9 315–1400 nm
- Absorbing and reflecting glass filters
- Absorbing and reflecting plastic filters
- Multiple adjustable Duoflex temples
- Standard (L-05) and enforced version (L-05K)
- Head strap or malleable temples as option

PROTECTOR (L-08)

The PROTECTOR goggle from LASERVISION can be worn over corrective glasses and is characterised by highest protection levels and a stress-free wearing comfort. Through the broad flexible head strap and an effective air ventilation the goggle is usable for longer periods also.

Highlights

- Highest protection levels as DIR L8 315–1400/ ML10 (700–900 nm)
- Absorbing and coated flat glass or custom filters
- Broad adjustable head strap
- Standard (L-08) and enforced version (L-08K)
- Suitable as OTG (over the glasses)
- Additional Anti-Fog insert as option

ECO (L-07)

The ECO spectacle from LASERVISION is a very small frame with high protection levels. The frame offers the opportunity to use a “snap-in” corrective Rx insert. The DUOFLEX temples offer a lot of individual adjustments to the user.

Highlights

- Highest protection levels such as DI L8/R L9 315–1400nm/ M L10 (700–900 nm)
- Absorbing and coated flat glass or custom filters
- Multiple adjustable Duoflex temples
- Standard (L-07) and enforced version (L-07K)
- Head strap or malleable temples as option
- Combination with Rx insert for corrective glasses

Frames

EXCITE (880/881)

The brand new EXCITE frame has been designed as an alternative solution to the best selling LAMBDA ONE for users demanding even more comfort, much better fit and more adjustments and options. This is the right frame if impressive visual appearance paired with highest wearing comfort and large cover area is of highest priority.

In contrast to the LAMBDA ONE the EXCITE frame features two discrete plastic laser protection filters. The large base curve of factor 8 (BC 8) of these filters provides an impressive large field of view without any restrictions. The filter-frame technology offers the possibility of two basically different wearing options. As the main alternative the EXCITE frame is even available in a temple-free version. This modification is especially suitable for certain medical applications or harsh environments. If the EXCITE frame is ordered with the elastic strap (part # 881.) the temples are factory replaced by the strap. To preserve the exceptional high wearing comfort in this case the EXCITE frame is upgraded with a special sub frame which is soft padded on the inner side of the spectacle. Integrated air vents care for a fog free function. Both frames will be available with nearly all plastic absorber filters from LASERVISION. Please inquire.

EXCITE is the right choice for all users expecting more than laser safety!

Highlights

- Lightweight frame with two discrete filters
- Filters with base curve 8 (BC 8) for perfect, unrestricted view
- EXCITE with adjustable temples (inclination)
- With flexible strap and cushion sub frame as option
- Absorbing plastic filters for many wavelength and wavelength combinations
- Economical all plastic frame

Frames

SPLIT SHIELD (L-09)

The SPLIT SHIELD frame is characterised by a patent pending and extreme light weight and robust external reinforcement. Due to the slightly curved filters (base curve 2) the SPLIT SHIELD has a broad field of view. In combination with coated, transparent plastic filters the spectacle features a unique colour view and highest daylight transmission. The special design of the frame protects the coating against scratches when put down face forward. The SPLIT SHIELD can be worn over corrective glasses.

Highlights

- Filter with base curve 2 for broad field of view
- Reflecting and absorbing plastic filters
- Multiple adjustable Duoflex temples
- Head strap or malleable temples as option
- Patent pending external reinforcement
- Especially suitable for corrective glasses

LAMBDA ONE (700)

Designed especially for plastic laser protection, the full-wrap style of the LAMBDA ONE shield provides an unobstructed field of vision. It is available with a great variety of LASERVISION's absorbing filters. The LAMBDA ONE is characterised by low weight and a very good fit for nearly every user.

Highlights

- Low weight with very good fit
- Absorbing plastic filters for many wavelength and wavelength combinations
- Suitable as patient and children goggle in medical applications
- Economical all plastic frame

SKYLINE (620)

The SKYLINE frame from LASERVISION is an all plastic OTG laser protection goggle and therefore the alternative solution to the LAMBDA ONE for all wearer of corrective glasses. As with the LAMBDA ONE the single shield offers a broad field of vision. All absorbing filters from the LAMBDA ONE are available in the SKYLINE frame also. The low weight of the nearly nonbreakable goggle ensures a comfortable fit.

Highlights

- OTG for nearly all corrective glasses
- Absorbing plastic filters for many wavelength and wavelength combinations
- Very good field of vision
- Low weight
- Cord for fixation included
- Economical all plastic frame

Special Frames

ATHLETIC

The ATHLETIC spectacle is available with two different filters and is intended to be used with high power LEDs and other high brightness, non-coherent light sources. The smooth, nearly flat characteristic of the transmission curve ensures a pleasant work. Additionally both filters feature blocking of the infrared and the ultraviolet spectral range.

Highlights

- Filters with base curve 8
- Available with two attenuation levels: 16 % transmission (Shade 3) and 2 % (Shade 5) resp.
- Comfortable, light fit
- Low weight
- Good coverage reduces exposure to stray light

PG ONE (00P)

Especially for medical laser applications LASERVISION offers a new, unique patients goggle. The PG ONE is characterised by a comfortable fit and the ability to sterilisation. Therefore it is possible to remove the filters without any tool from the soft frame. We offer a lot of different glass and plastic absorbing filters and an additional metal version. The frame has been designed in close cooperation with medical laser manufacturers. The patent pending frame material possesses very high protection levels.

Highlights

- High protection levels as D L6 IR L7 315–1400 nm
- Flat absorbing glass or plastic filters
- Metal plate/insert as option
- Adjustable flexible head strap
- Sterilisable through removable filters
- Suitable for children

EYEBALL Goggle (00A)

The eyeball goggle consists of two hemispherical aluminium covers connected by a small bar of the same material. The adaptation mechanism ensures a fast adjustment to any face geometry. The EYEBALL goggle is a pure patient goggle and has been developed in cooperation with medical scientists for laser treatment in close proximity to the eyes. The goggle is certified for all laser wavelength.

Highlights

- Highest protection levels as D L6/IR L8 315–1400 nm
- Low weight of only 15 g
- Cord for fixation included

Frame Options

DUOFLEX temples

All frames for glass filters and the SPLIT SHIELD frame are equipped with the proven Duoflex temples. These temples are adjustable in length as well as in inclination. This feature provides an individual adjustment to nearly every head shape. The soft temple ends ensure a stress less wearing comfort.

Highlights

- Adjustable in length and inclination
- Soft ends
- Exchangeable temple ends
- Cord for fixation included
- Exchangeable against head strap, head support system or malleable ends

Head Support System (part no. 040)

For all users which need to carry heavy glass filters for longer periods of time LASERVISION offers the perfect innovative solution. The Head Support System takes over the complete pressure form the nose, the ears and the head caused by conventional holding systems like temples or straps in combination with heavy filters. The secret is the unique design of the Head Support System which spreads the weight of the glasses over a much larger contact area on top and backside of the head. Two rotary adjustment knobs allow an easy fitting to nearly every head shape. The Head Support System fits into all DUOFLEX coupling adapters.

Highlights

- Best ever solution for heavy filters
- Compatible to all DUOFLEX temples
- Comfortable wearing by individual adjustment

Malleable temples and Flexible head strap (part no. 030 and 036)

As an alternative solution for all spectacles equipped with standard DUOFLEX temples LASERVISION offers an elastic head strap or cold malleable temples. The strap is adjustable in length whereas the temples can be bent to match different head sizes. Users who require heavy weight or thick customised glass filters benefit significantly from these options. The closer fit afforded by the flexible head strap gives the user a better feeling of safety and is comfortable to use even over extended periods of time.

Highlights

- Compatible to all DUOFLEX temples
- Exchangeable without tools
- Individual fit and adjustment (#030)
- Adjustable length (#036)

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Frame Options

Anti-Fog Insert (part no. 018.AFS)

Under extreme circumstances, such as hard work in humid environments or working for long periods, the air ventilation of a goggle could not be enough to prevent fogging. The easy to fit Anti-Fog insert is available as an option for all enforced PROTECTOR frames and prevents from fogging. A highly transparent plastic sheet is coated with nanoparticles which absorb humidity and avoid saturation of the air with water vapour. Consequently a deposition of water and therefore fogging of the goggle is impossible. So the insert provides a permanent clear view and ensures a visibly safe and secure feeling for the user.

Highlights

- Usable for all PROTECTOR frames with metal enforcement (L-08K)
- Reliable protection against fogging through nanotechnology
- Long life time
- Easy to mount and virtually no weight
- No restriction of field of view
- No influence on protection levels

Rx Insert for ECO and ALL STAR (part no. Rx7)

For all users which are not able to work with an OTG frame for several reasons LASERVISION offers a Rx insert for prescription glasses. The Rx insert consists of a small metal frame without arms, which can be fitted with corrective lenses by an optician. The insert can be easily clipped in and out. Delivery includes two screws for the frame and a shape model for lens grinding.

Highlights

- Alternative solution for OTG frames
- Individual fit from an optician
- High wearing comfort without “double” temples

Welding Protection Flip / Clip

The flip is factory mounted on a special ALL STAR frame and protects the user from the glare of a laser welding plasma. In dependence of the used laser it is therefore possible to use a laser protection filter with high VLT and to darken the glasses only when needed.

Highlights

- Factory option with ALL STAR
- Stable and reliable flip mechanism
- Available with two transmissions (shade 3 and shade 5)

Frame Options