



EcoGlass, a.s.

More than glass !

26.9.2023

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www.ecoglass.cz

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Who we are

- EcoGlass is 100% Czech family owned company based on the best quality and tradition of Czech glassmakers.
- Established in 1991, financially stable company working without bank credits.
- EcoGlass is backed by in-house developed and patented technologies and strong knowledge on glass behavior and technology.
- We manufacture, sell and distribute high quality glass products, we are not low-end supplier.



What we do

- Manufacturing

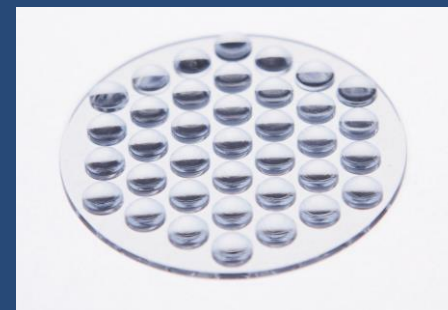
- Aspherical and spherical fire polished lenses and mirrors
- Glass optics for LED applications
- Glass parts for optoelectronics
- Decorative glass parts
- Optics for solar applications

- Glass research

- Colored glass composition design
- Measurement and evaluation of color
- Software for glass technology
- Optical design

- Trade

- Crystal chandelier parts





What we offer

Process knowledge

Glass technology

Strong customer support

Lens design

Tooling, prototyping, serial deliveries

Experience

Flexibility

Stability



Manufacturing plant

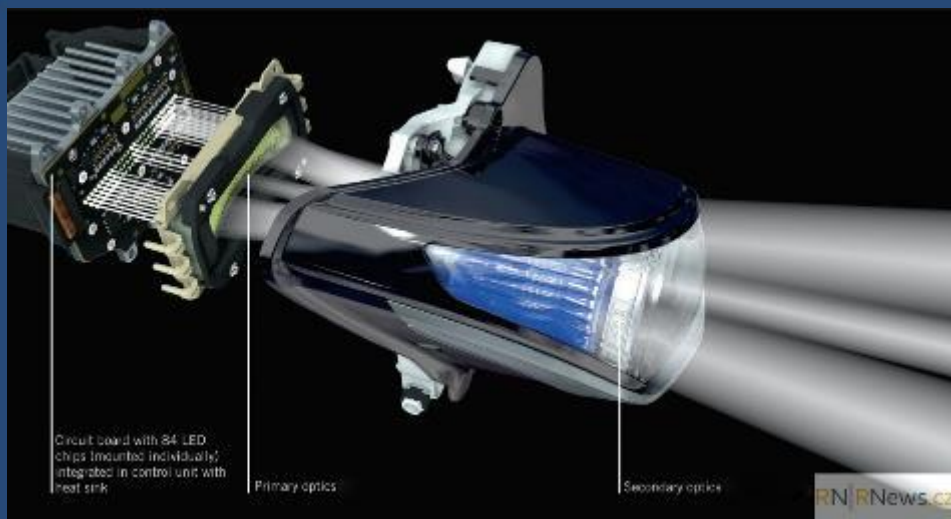
- 3000 m2 with about 60 employees
- Space available for new or additional technology investments





Product portfolio

- Primary and secondary optics of headlamps





Product portfolio

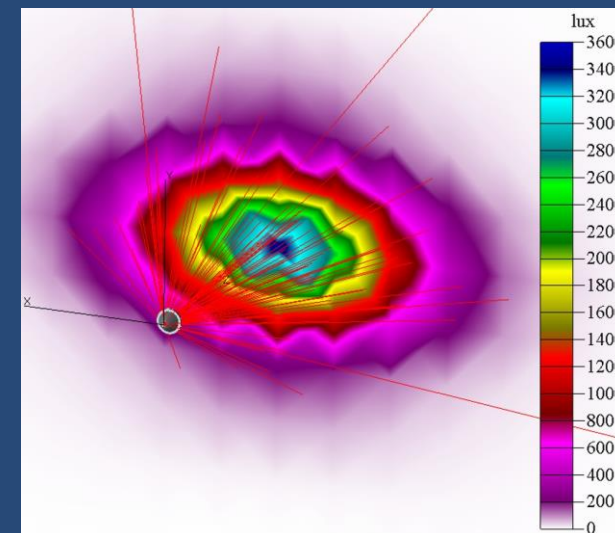
- Highly efficient LED glass lenses





Train headlights and signal lights

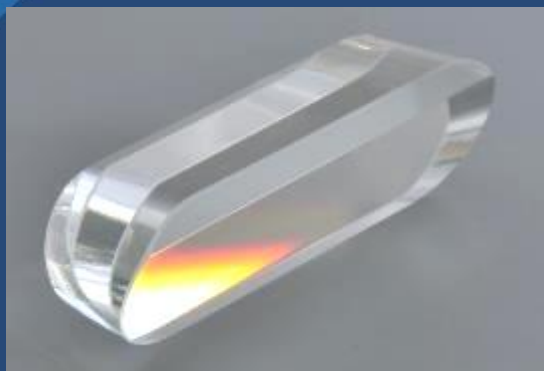
- Train headlights – EG recently designed optics for two customers for train headlights
- Signal lights – EG designed optical system with 3 optical components for signal lights





Product portfolio

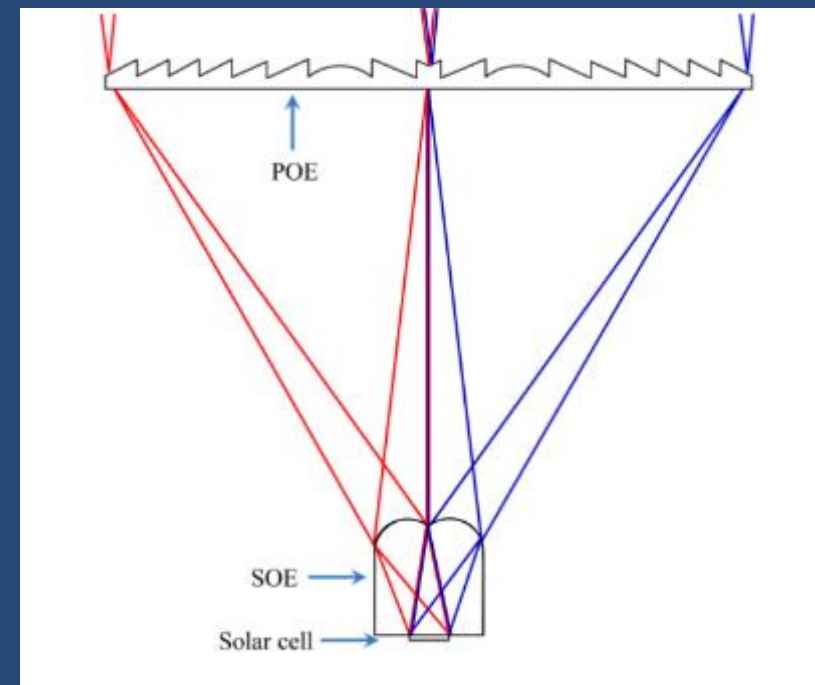
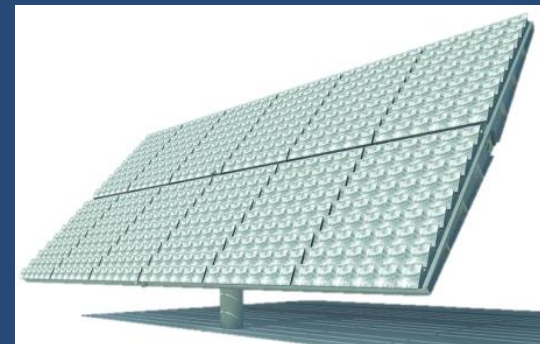
- Prisms (airfield lighting components)





Product portfolio

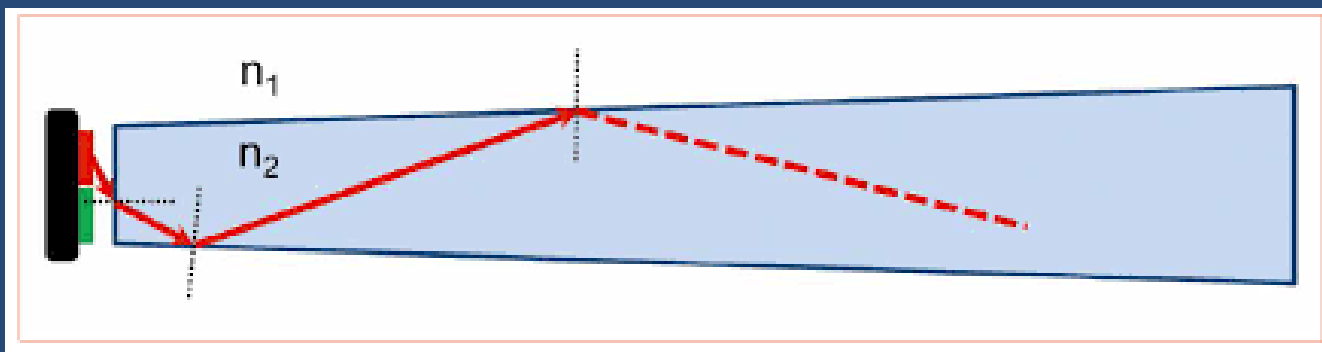
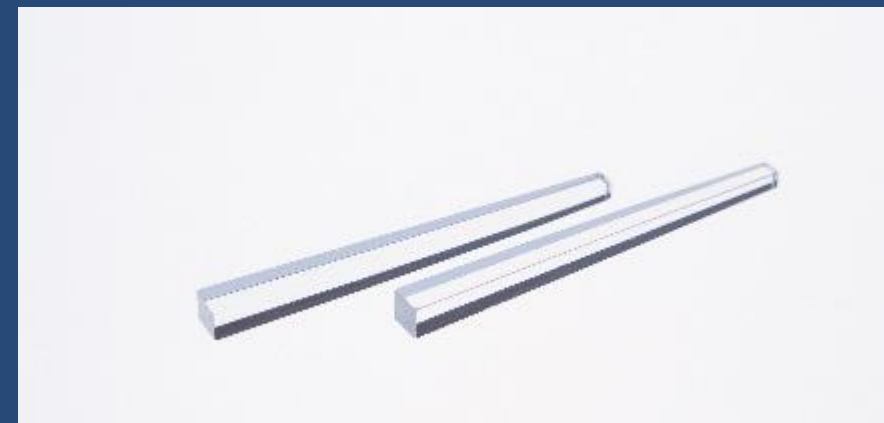
- Optics for solar applications (SOE for CPV)





Product portfolio

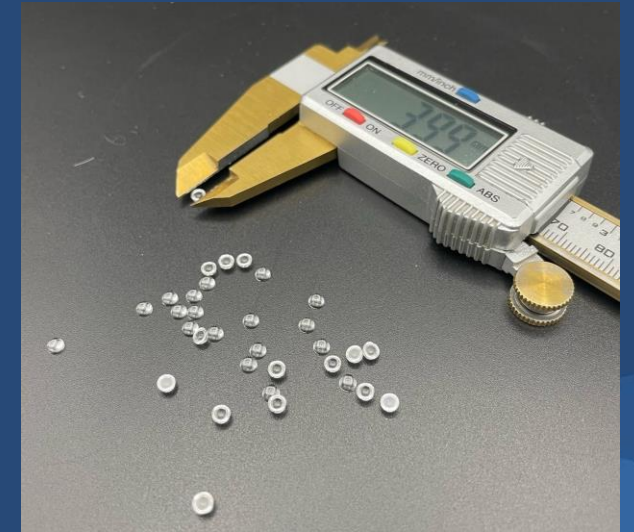
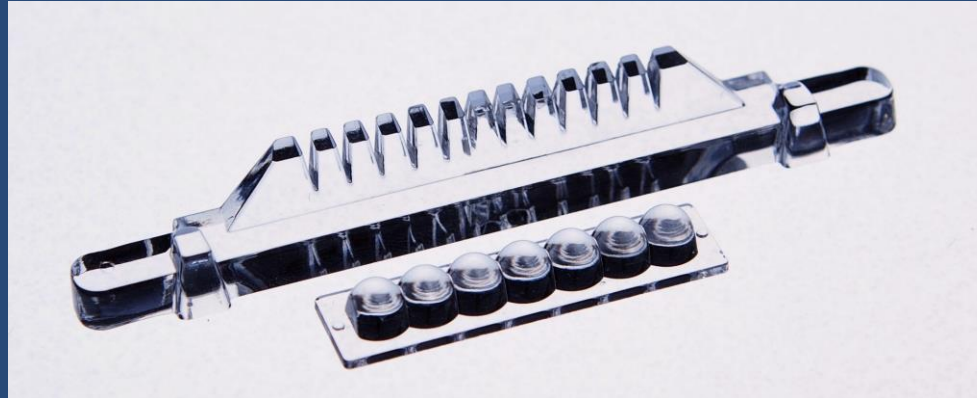
- Light guides





Product portfolio

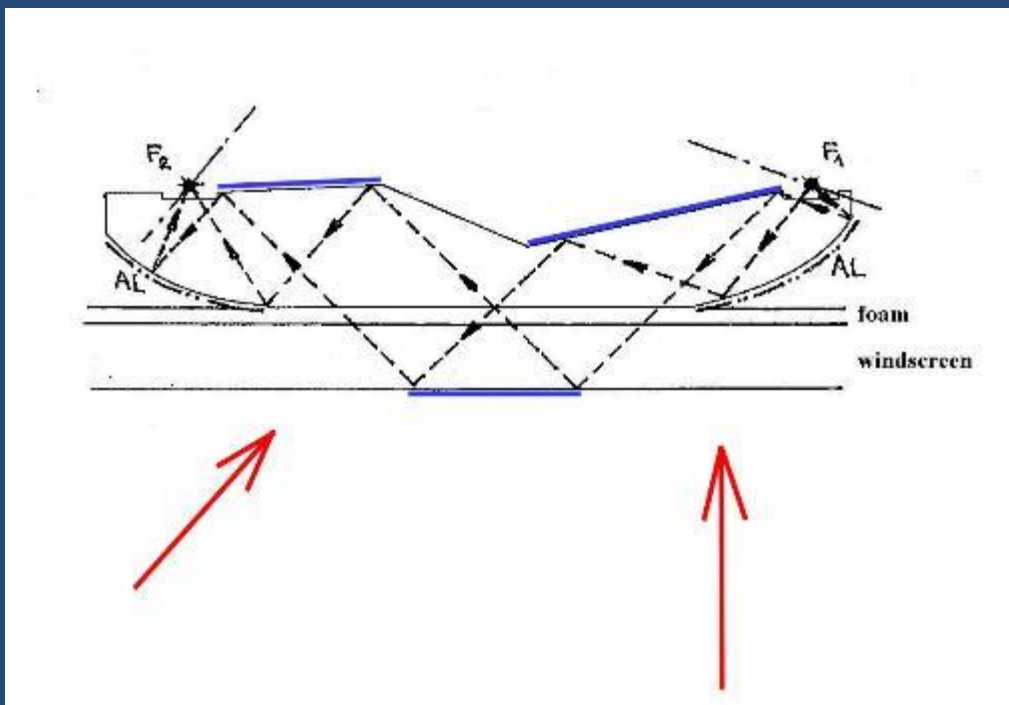
- Lens arrays
- primary optics for LED (size from 3mm in dia)





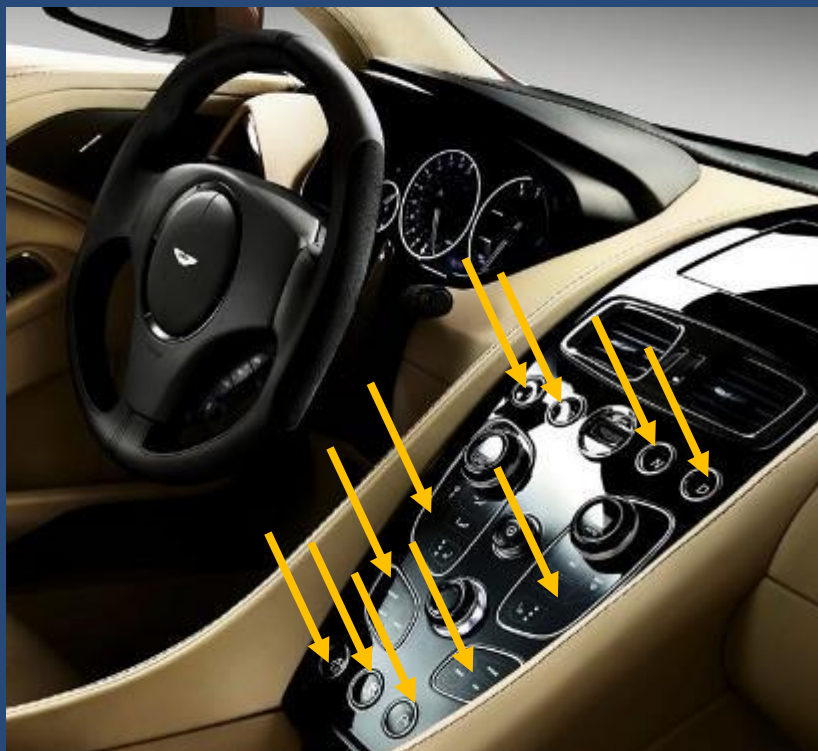
Product portfolio

- Opto-electronic (rain sensor – patented)



Product portfolio

- Decorative glass parts (buttons for car interior)





Interior „crystal parts“

- Molded surface not polished





Product portfolio



- Glass Optics for LED Traffic Information Displays





Product portfolio

Security system using coated optics

Use of a special software enables recalculation of an image from coated convex lens surface to panoramic image of a room – only one non-movable camera enables view of the whole room



Picture before treatment



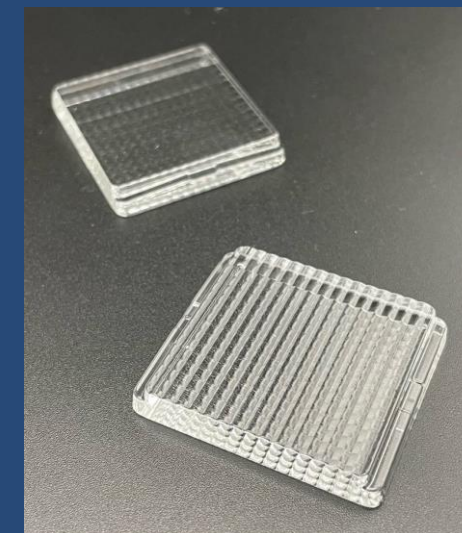
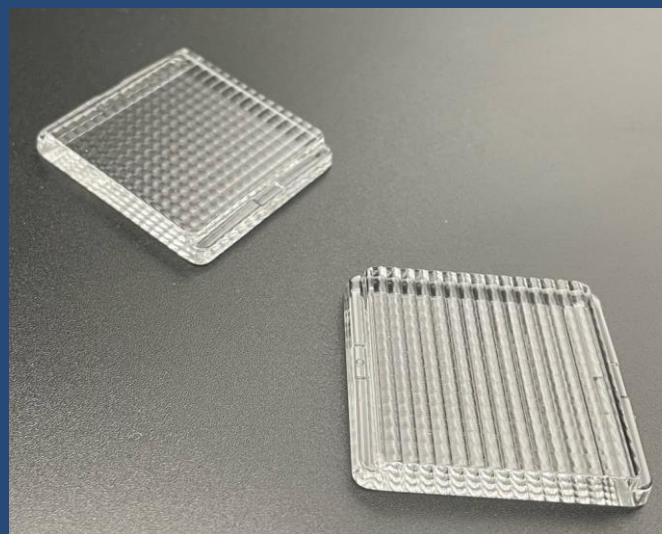
Picture after treatment



Lidar applications

Required optics

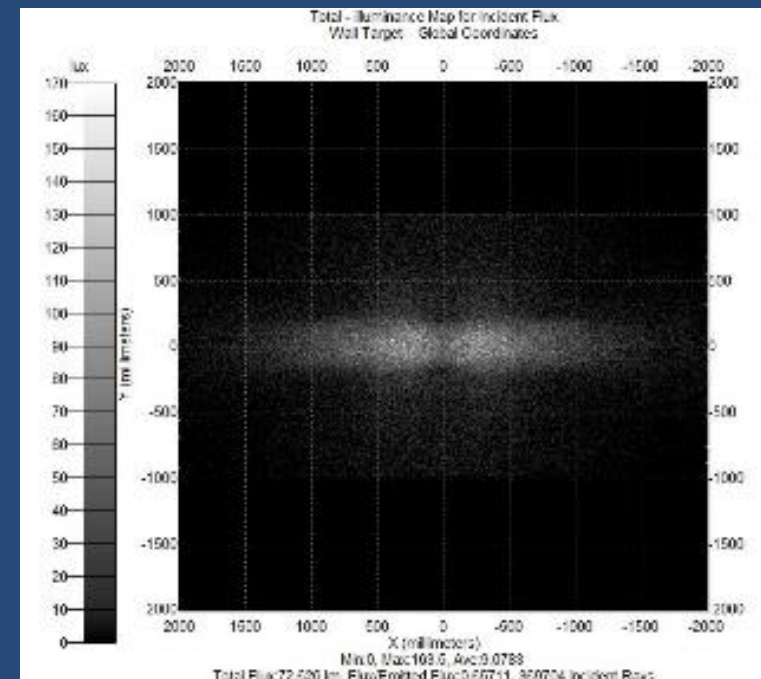
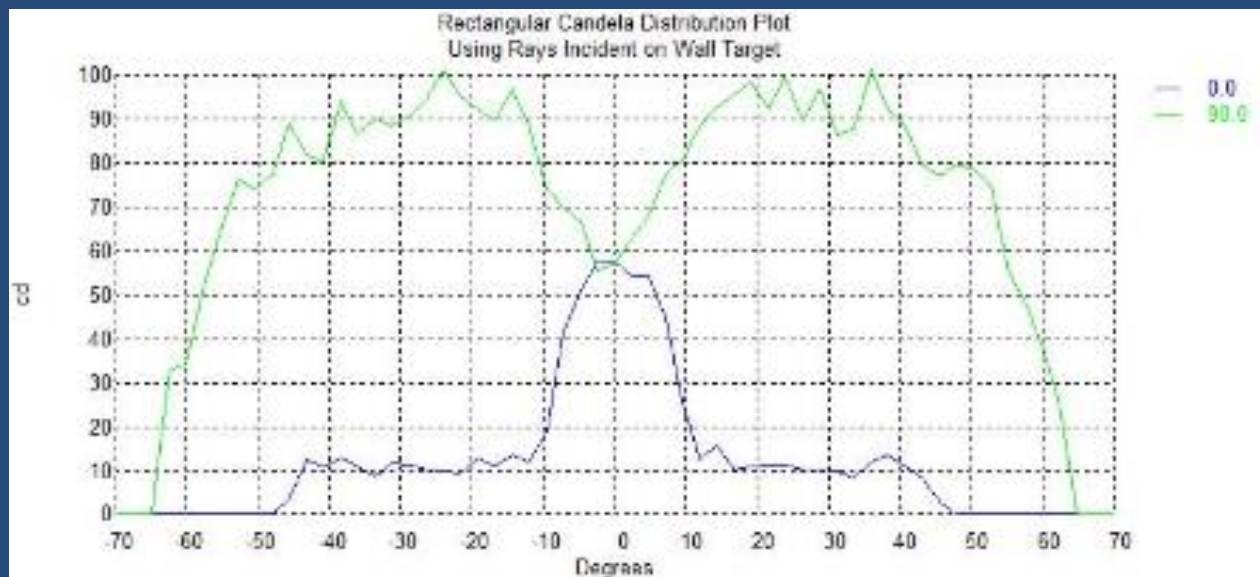
Molded x polished





Our services

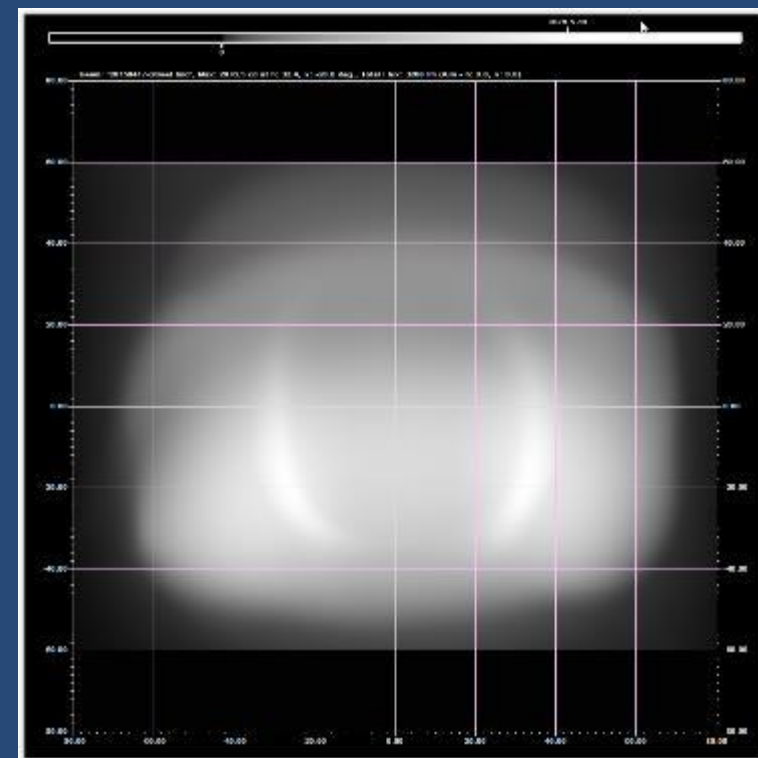
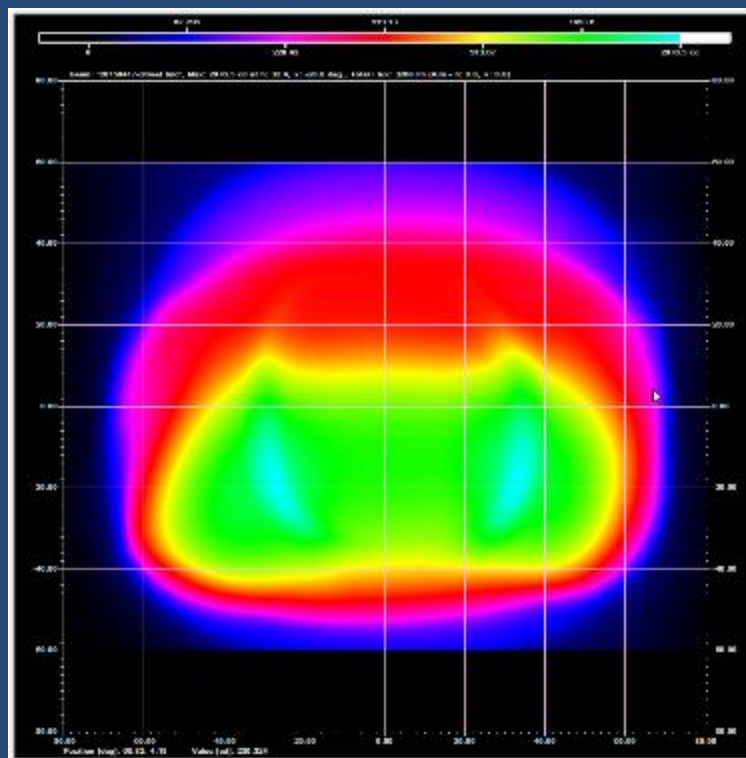
- Optical design and simulations for lighting applications
 - TracePro, OpticsLab 5.96, ProSource 10





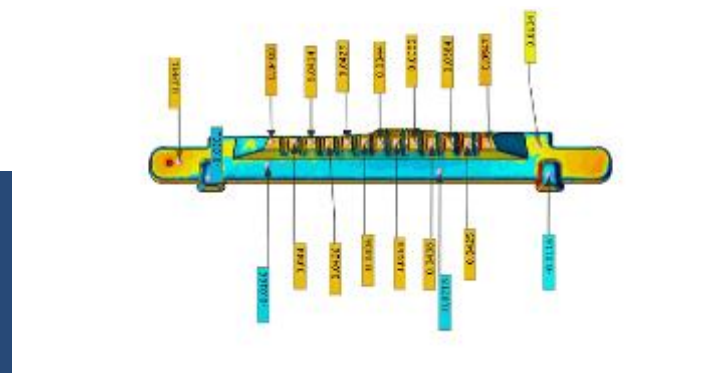
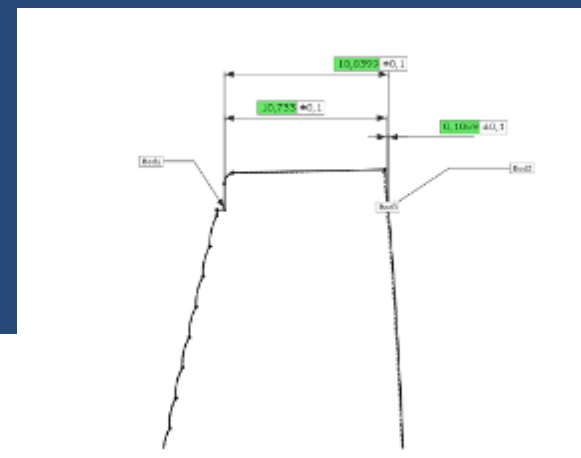
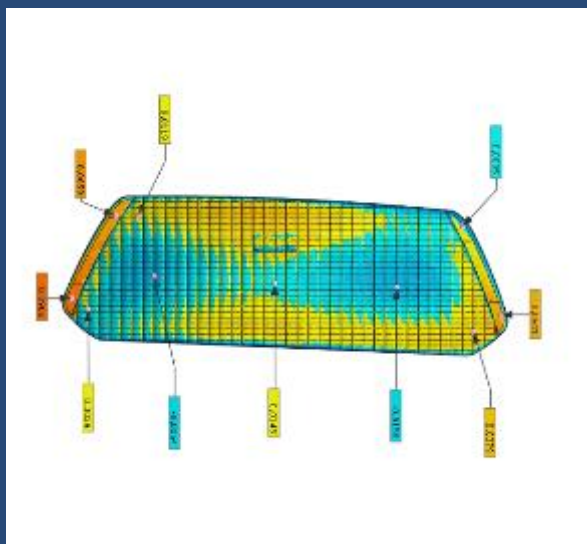
Our services

- Photometry measurements and evaluation
 - Goniophotometer Everfine GO-HD5





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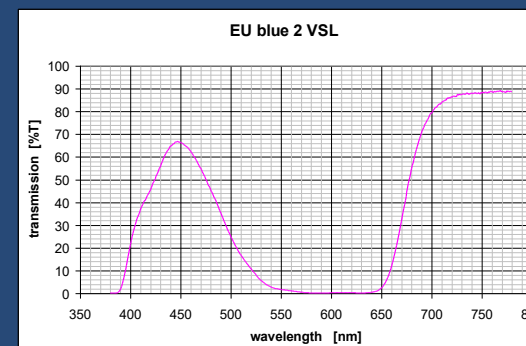




Our services

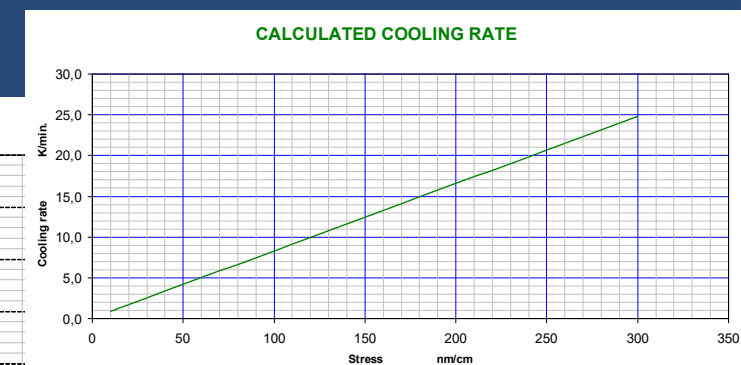
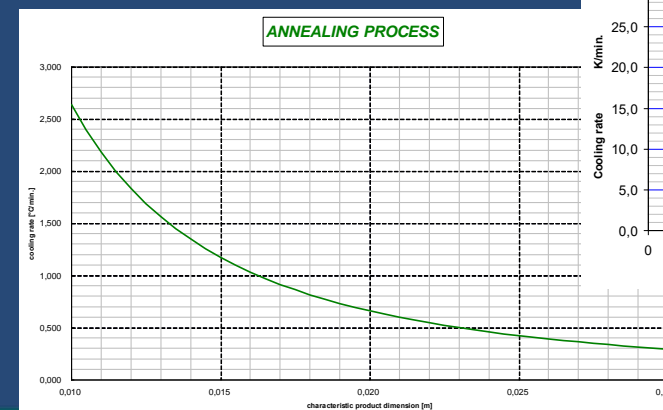
- Transmission/reflection measurement and color evaluation

- Spectrophotometer Unicam PU8735



- Glass technology advisory

- Annealing calculations
- Glass properties calculation
- Glass composition optimization





Research and development

- Fully fire polished lenses produced by EcoGlass according to our Czech patent No. 293 625
- Glass Decolouring Stabilization Czech Rep. No. 278632
- Rain wiper with Optical Sensor Czech Rep. No. 285291
- Optical Part with Combined Czech Rep. No. 1997-7412
- Optical Precipitation Sensor US Patent Appl. No. 20020033459



Company Milestones

- September 1991 – EcoGlass was established
- 1994 – production of gift items and aspherical lenses started
- 1997 – supplies to automotive started
- 2002 – manufacturing capacity increased 3 times
- 2006 – in-house CNC tool-shop and 3D measurement established
- 2007 – mastered in production of aspherical mirror with $\pm 0.015\text{mm}$ precision
- 2008 – automatic process of small lenses developed and installed
- 2010 – in-house optical design for lighting applications



Company Milestones

- 2011 – 3D laser tool engraving installed
- 2012 – new photometric lab equipped with precise goniophotometer for development and customer's service
- 2014 – inspection photometric lab equipped with CCD camera measurement
- 2015 – production facility extended, CNC turning machine installed
- 2017 – optical 3D scanning including reverse engineering for error analysis established
- 2021 – New Company Board – second family generation



Technical information

- Available glass materials:
 - Soda-lime with $n_D=1.521$
 - Borosilicate with $n_D=1.473$
 - F2 with $n_D=1.620$
 - Special glasses upon request and availability of raw material
- General limitation of product size (may be exceeded in particular cases):
 - By weight: up to 300 grams
 - By maximum dimension: up to 100mm



Technical information

- Tool-shop equipment
 - CNC milling machine
 - CNC turning machine
 - laser engraving of tools and glass
- Quality control and evaluation
 - Tactile and optical 3D scanning
 - Surface roughness measurements
 - Photometric evaluation
- Certificates
 - ISO 9001:2015
 - ISO 14001:2015





Awards



Family company of the year

EcoGlass placed 2nd
in Czech Republic

year 2020



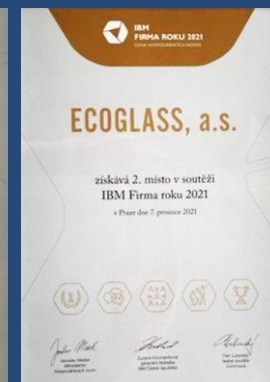


Company of the year

2nd place in
Liberec Region - year 2020

1st place in Liberec Region

2nd place in
nationwide round – year 2021





CZECH LEADER

EcoGlass evaluated as the

„CZECH LEADER“
in the Liberec Region

year 2019





CZECH DIAMONDS

EcoGlass placed 8th
in the Liberec Region
year 2018





DHL - EXPORT AWARD

EcoGlass progressed
to the group of finalists

in Czech Republic

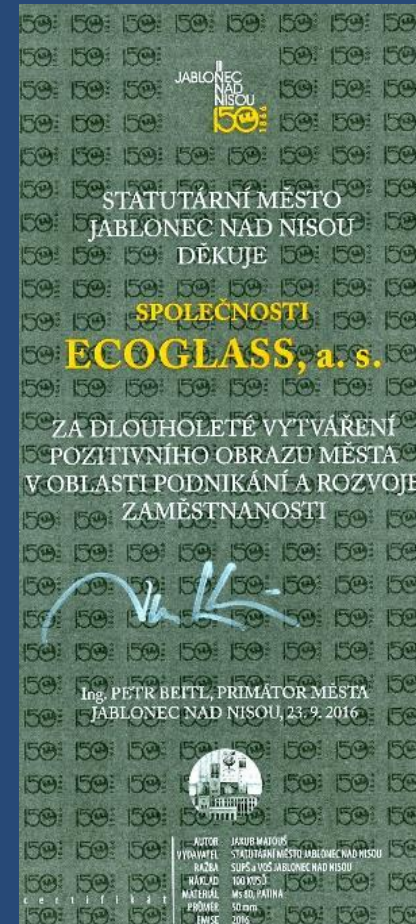
year 2017





GRATIAS TIBI AGO – year 2016

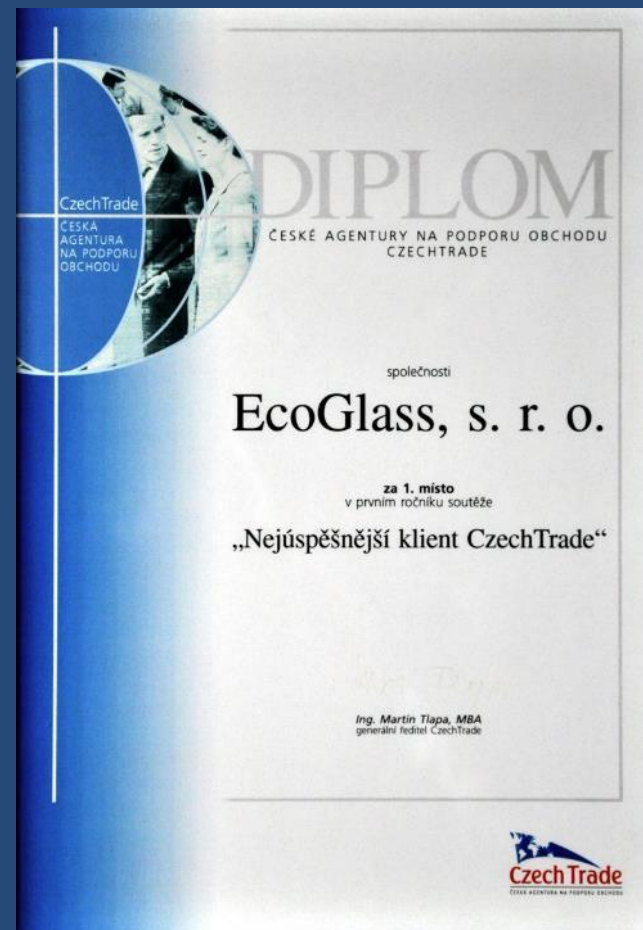
EcoGlass honored by the mayor
of Jablonec nad Nisou
for long term positive influencing
the city business and development.
Received at the 650th anniversary
of the Jablonec nad Nisou and
150th anniversary of
promoting Jablonec as town.





DHL - EXPORT AWARD

EcoGlass evaluated as the
Czech Republic Winner
year 2005





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