



**B.eng**  
*the light makers*

**AUTOMOTIVE**  
OPTICAL LIGHTING SYSTEMS



[www.bengsrl.it](http://www.bengsrl.it)

EN 09/2018



## Our History

B.eng s.r.l. was born in Italy in 2004 as a CAD and product design company in Automotive Lighting area.

In tune with the evolution of CAD design method, B.eng s.r.l. is continuously updating its own process, using sophisticated 3D drawing programs and maintaining a high quality standard with affordable prices.

The Company has grown during the years of activity symbiotically with its Customers in order to be ready to respond to all their needs, becoming a modern and flexible structure, able to solve various problems in various industrial areas.

The Know-how acquired by the owners in 40 years of experience in Automotive area, added to a close cooperation with Customer, allows B.eng to be able to design, develop and realize the following simple and complex lighting devices, tooling for their realization, dedicated prototypes and production of small complete and homologated series for a niche market.

## Our Quality

### ISO 9001:2015 CERTIFICATION

Being constantly at the research of Customer satisfaction and the improvement both towards inside the company and outside, B.eng has started from a long time ago the way for the implementation of a Certified Quality System.

The internal technical regulations are not limited to perceive the minimum requirements of legislation but they extend in various areas in which it is important to work according to precise and international standards.

This certification is a further significant milestone for a dynamic and innovative company as B.eng s.r.l. is, especially considering our purpose to continue the way towards a continuous improvement of efficiency and competitiveness UNI EN ISO 9001:2015 is the reference regulation for the certification of the systems for quality management. It allows the companies to demonstrate their capacity to supply products and services compliant to contractual requirements, through a management system set up according a model based on processes which highlights the centrality of the Customer and the attention to the continuous improvement

## Giovannino Bearzi

### **The President of company**



“It is now 40 years that i work in automotive field and for 13 of these years i was chief of my own Company. These experience allows me to know very deeply this domain. I collaborate with the greatest part of Vehicle and motorcycle Constructors. I know Customers' needs and i try, with my Company to make the best to satisfy their expectations in technical, qualitative and





(QR Code • Download Certificate ISO)

 Your lighting specialist for:

AUTOMOTIVE 




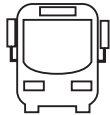
MOTORCYCLE 




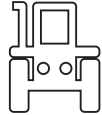
TRUCKS 



BUS 



TRACTORS 





## Our Services

### **Small series production**

We can offer a great variety of solutions for small series production, guarantying a high degree of customization

### **2D & 3D Cad Design**

B.eng s.r.l. is a multidisciplinary center where skilled and experienced technicians and designers work, since the initial phases, in close contact with the Customer

### **Product development and research**

From idea to industrialization. The strength of our company is the development of complete "Turnkey" projects

### **Complete optical studies**


From feasibility studies to the design of optics for LED and traditional sources, efficiency theoretic calculation, angular distribution

### **Thermal studies and Simulations**

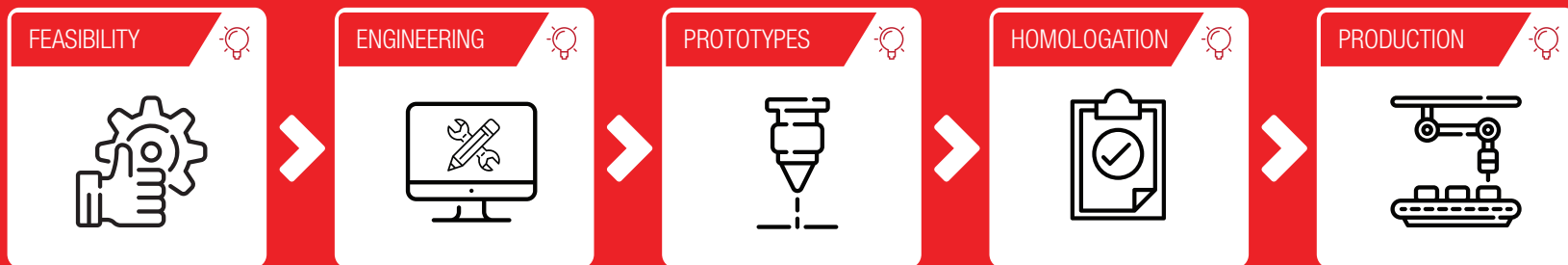
The purpose of thermal studies is to understand the answer and the performance of a structure

### **Support for Homologation**

During development phase, we follow the reference regulations for each product and we support the Customer during homologation phase



# 💡 From the idea to the production



MECHANICS

OPTICS

HARDWARE

THERMAL

ESTHETICAL

FUNCTIONAL

PRE SERIE

RULES STUDYING

DOCUMENTATION

ECE

SAE

TOOLS

COMPONENTS

TREATMENTS

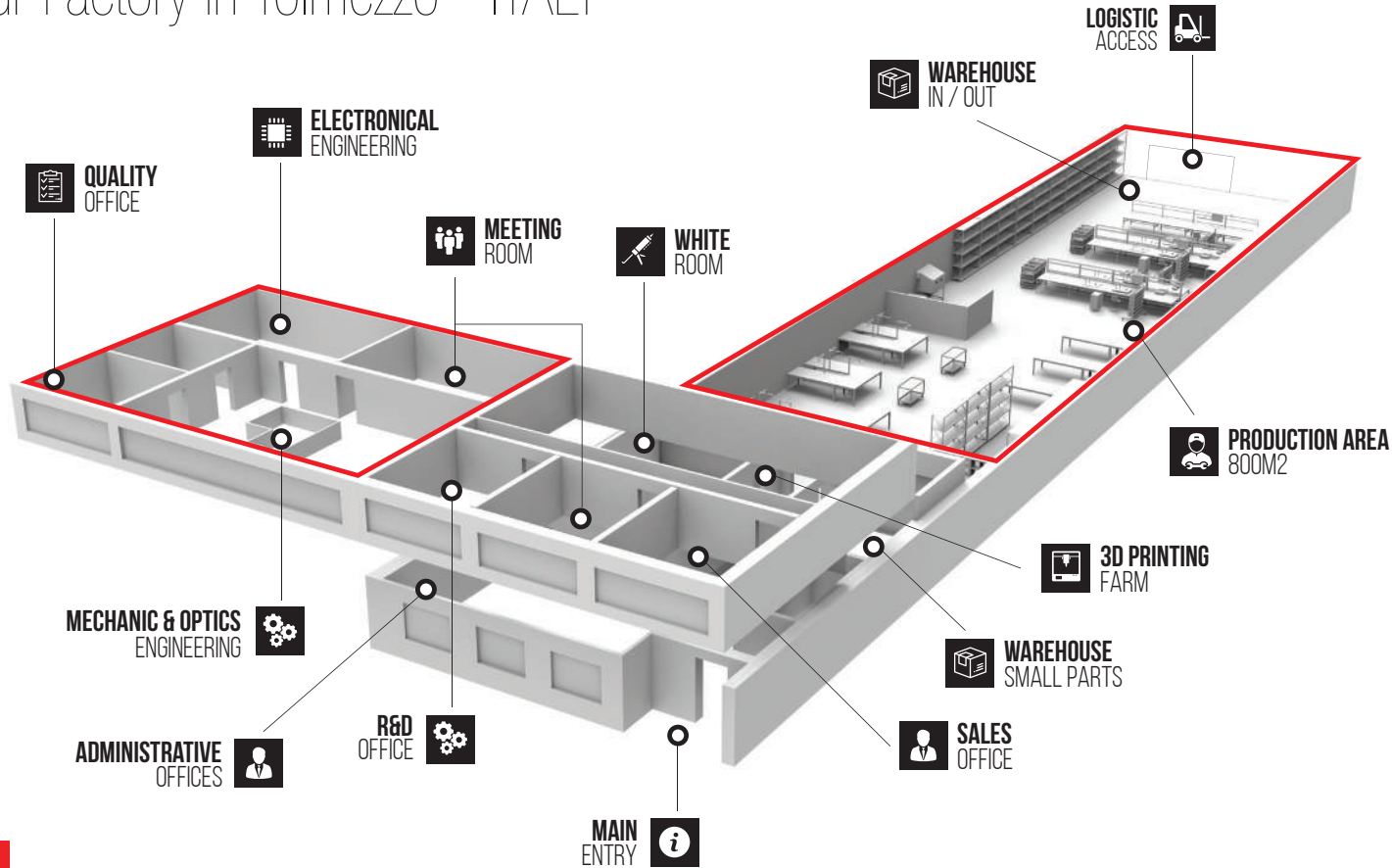
ASSEMBLY

TESTING





# Our Factory in Tolmezzo - ITALY



**PRODUCTION AREA**  
**800M<sup>2</sup>**

**OFFICES**  
**400M<sup>2</sup>**

= **RESTRICTED ACCESS**









CERTIFICATION  
**ISO 9001:2015**  
Reg. nr. 14112-A



*"Quality means  
doing it right  
when no one is  
looking"*

## Why do our customer chose us?

### **Bearzi Engineering is a robust Company with a lot of experience,**

Created in 2004 by Mr. Giovannino Bearzi after having worked in Automotive field for 30 years

### **We offer turnkey projects**

We follow the Customer from feasibility studies until prototype realization.

### **Support and assistance at 360°**

We are always side by side with our Customer to Vehicle constructor in order to offer a best service.

### **We develop customized optical systems, according to style requirements**

We design, optimize and simulate every kind of optical system. We are specialized in Led area.

### **Design and production of small series**

We developed and produced head lamps of Ferrari Special Cars

### **Qualified technicians and leading development software**

The use of Catia and Lucid Shape allows us the complete integration with Customer data.







***ENGINEERING***

Scuderia Cameron Glickenhaus SCG 003S • Full LED Head Lamps



# DESIGN AND DEVELOPMENT



## Multicad systems to interface in the best way

Cad engineering systems have no secrets for our technical office. Our role is to translate Customer needs in concrete projects. To use Multicad seats means to "speak" a great variety of languages: IGES, STEP, DWG, DXF and all 2D and 3D formats. In case of necessity we have also external partners who can collaborate with us and with whom we can exchange our ideas.

**ENGINEERING**



B.eng s.r.l. is a multi – disciplinal center in which professional and qualified technicians and designers work, from initial phases in close contact with the Customer.

The engineering activities made are connected to traditional field of design (preliminary and definitive design process and productive feasibility) using technologies and qualitative standards required by the market.

The skills gained in design field, allow us to be operative in industrialization and optimization of the product because we can supply feasibility studies according to productive processes, 3D models and 2D drawings of a project, the definition of materials and alternative processes,

the dimensioning of components according to stresses thanks to sophisticated software of analysis of finite elements.

During all the design process, B.eng has developed a co-design system, which allow the interaction of the various design aspects like CAE, FEM ect...

**This integrated method has the advantage of reduced development timing and increasing product final quality with the consequent reduction of production costs on Customer side.**



**We use  
CATIA systems**

Dassault Systèmes Pioneer Brand is World's leading solution for product design and innovation. Worldwide, various companies in various fields have chosen the functionality of CATIA

products' virtual design in order to ensure their products Real success. CATIA offers its solutions from the biggest OEM to medium and small companies.



BUS

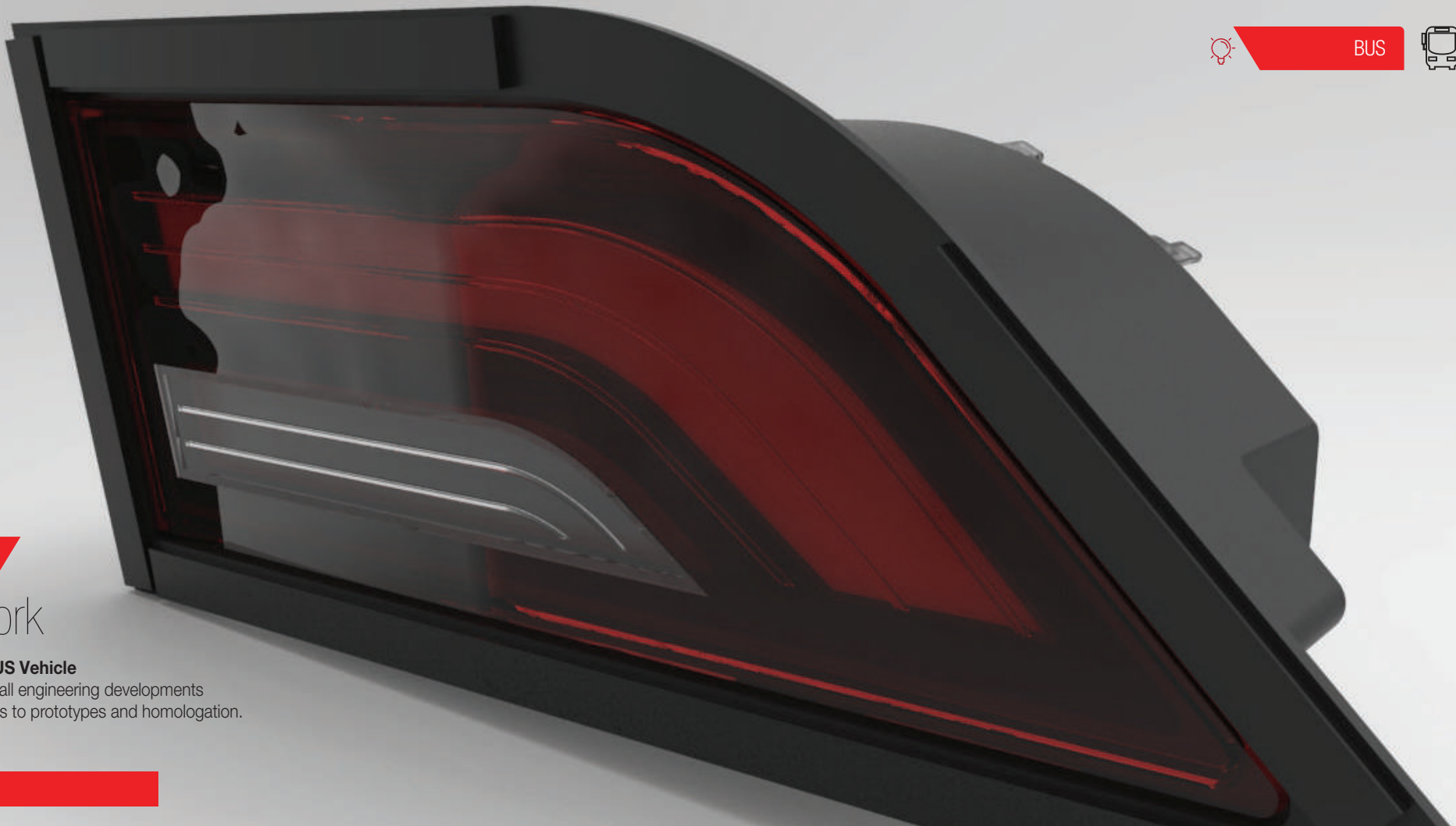


ENGINEERING

## recent work

### REAR LAMP for BUS Vehicle

Our company follow all engineering developments from feasibility studies to prototypes and homologation.





## LED LIGHTING SPECIALIST

Nowadays the necessity to obtain a good 3D design is very important because it allows to include in one element a bigger quantity of information than in a 2D project.

It is an important tool for those who want to develop modern and competitive projects.

The 3D approach is incredibly beneficial because it allows focusing on the modeling of objects, on the results to reach and on overall characteristics, whereas to concentrate on a single particular.

The result obtained through a good 3D design will include files and information, which will keep the object always updated in every element and will allow to follow its evolution after every modification. Everything is automatically updated and every modification is immediately visible because it is reported on the project.

In this way it is possible to reduce design costs, operative mistakes, lacks of time for assistance requests and dead times in general.

From the idea to Industrialization

In an ever-changing market, the capacity to innovate will be more and more important. From the beginning, **our company invested in R&D field with the purpose to preserve our know-how and to progress our technological knowledge.**

Our R&D department is not an autonomous sector separated from the rest of the company but, at the contrary, in order to be efficient and to work for engineering and production department, it follows their same direction and it interfaces in the study of technological solutions to be applied and in the prevention and resolution of any issues.

This allows us to obtain the maximum optimization of the resources we have at our disposal.

**From the idea to industrialization.** This is the strength of our company, the development of complete "Turnkey" projects. The company, which works on commissions, as a first step defines the project with the Customer according to preliminary indications.

Then, after a deep analysis of Regulations applied on the device, our internal designers completely develop the product, from prototype phase to homologation and qualification.



# Customization of Optical Systems

Our company, offers expert level personnel, including optical and mechanical designers. This diverse team works together to design, prototype, and fabricate superior optical components and assemblies.

The optic is made of all those components, which have to collect, divert and create the light in order to obtain an efficient lighting source.

## Customization of optical systems on demand

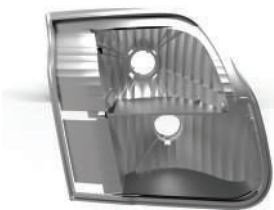
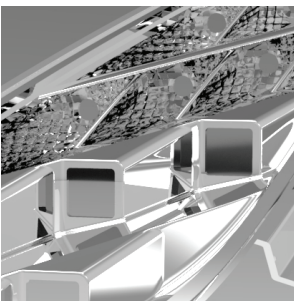
- **Primary Optics:** Fixed directly on Led
- **Secondary optics:** Assembled directly on or around the Led
- **Tertiary Optics:** Formed by external devices



Calculations



Simulations



## LUCID SHAPE

The LucidShape product family provides a complete set of design, simulation and analysis tools for the development of automotive forward, rear and exterior lighting.

Backed by cutting-edge, proprietary algorithms to calculate optical surfaces optimized for automotive applications, LucidShape empowers designers to develop, verify, visualize and deliver high-quality designs while reducing product development time.

Our company is specialized in design and manufacturing of customizable light guide solutions with expert optical engineering team. The light guides are available only with customized designs that are optimized to specific customer requirements.

## Development method of Optical Systems

### **Realization of CAD 3D model on Customer surfaces**

Rapidity, professionalism and quality are our strength.

### **Application of material properties and surfaces**

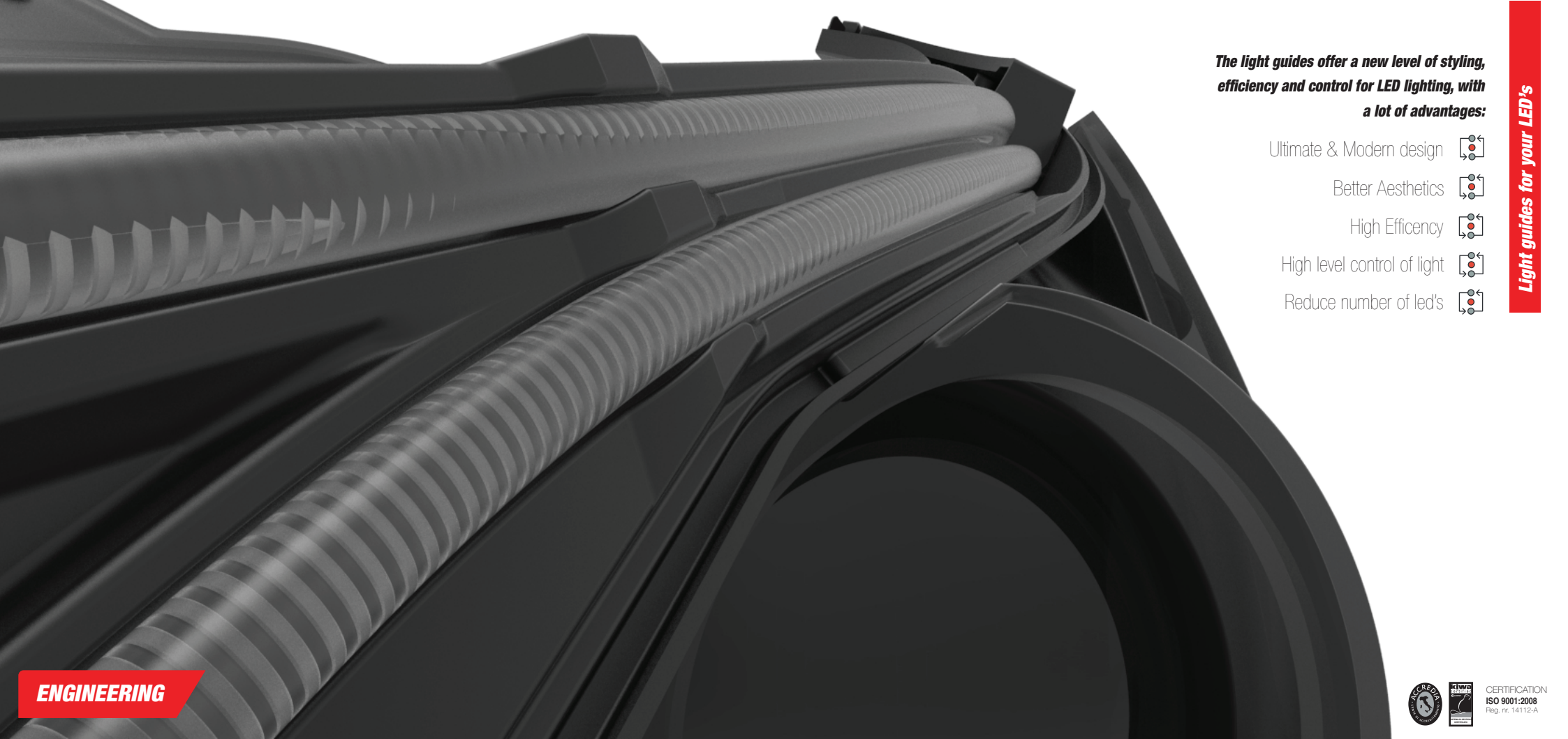
Our software allows a complete adaptability of materials.

### **Simulations with data analysis and comparison with regulations**

The study of regulations is very important in order to reach an excellent result.

### **Correction and optimization of model performances**

Sensible reduction of costs with results that reflect reality.



**The light guides offer a new level of styling, efficiency and control for LED lighting, with a lot of advantages:**

- Ultimate & Modern design 
- Better Aesthetics 
- High Efficiency 
- High level control of light 
- Reduce number of led's 

**Light guides for your LED's**

**ENGINEERING**



CERTIFICATION  
ISO 9001:2008  
Reg. nr. 14112-A



# Hardware design

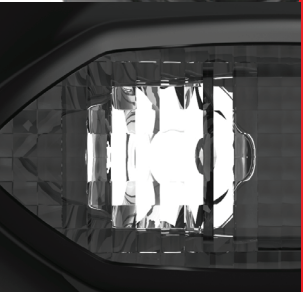
**Our capabilities include planning of new products, prototype s realization, product verification & validation, and product qualification guaranteeing the project compliance to the reference market laws.**

Our team have worked extensively on automotive electronics solutions for lighting and have executed projects in segments like:

- All automotive lighting equipment (Head and Rear Lamps, Internal Lighting, Tail Lighting, Working Lights)
- Hardware and firmware development
- Integration with Car System to manage the lights functions

## Competences

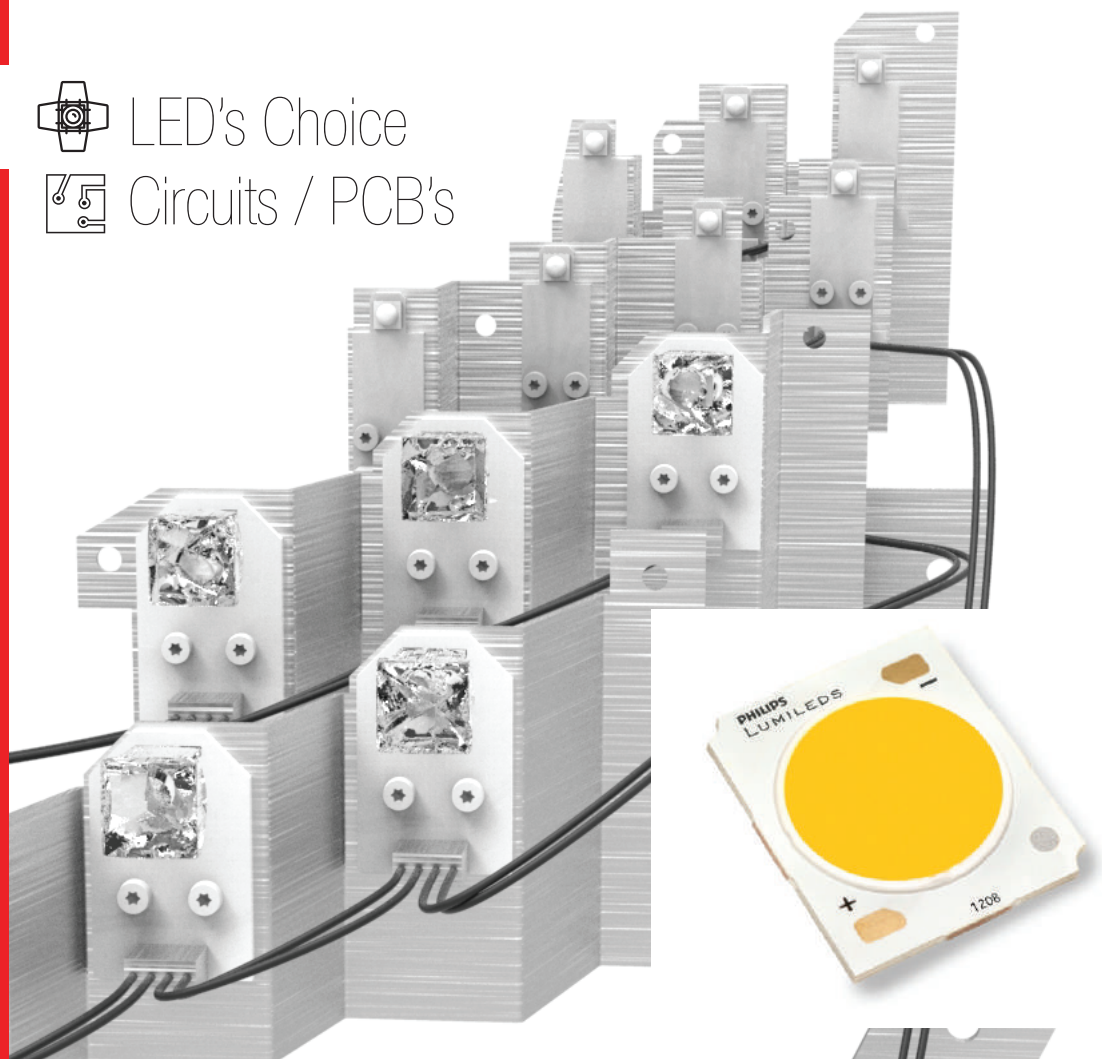
- Electronic design and simulation
- Hardware planning
- Feasibility analysis and engineering support
- Firmware development
- DFMEA, FMEA, Stress Test
- Prototyping and pre-series production



LED's Choice



Circuits / PCB's





## The power of research activity

**Innovation is the power of our solutions and our company is conceived to promote it on sustained basis; to innovate means to be close to research in order to realize solutions fitted to each customer.**

For this reason our Innovation and Technology department also deals with new talents recruiting and partnership with other niche companies of the sector.

Moreover, as a confirmation of our engagement in seeing technology as an instrument to improve life quality, B.eng dedicated a team of specialists to the study of new solutions for lighting of head and rear lamps.

Recently, we create a small team inside the company dedicated to the development of an Oled project. B.eng engaged itself to create, within the next 2 years, a development platform for this kind of product.

 Vocation

 Ethics

 Ambitions



## MADE IN ITALY

**Our products are Made in Italy and are designed and built in our Tolmezzo facilities**

This gives full control of all production stages and ensures maximum reliability and technological efficiency for all our projects.



***PRODUCTION***

# The light makers

B.eng s.r.l. developed, during these years, the capacity to offer to its Customers a service at 360° going from feasibility studies to homologation and production.

**We can offer an elevated range of solution for the production of small series, ensuring a high degree of customization according to final Customer needs.**

This service is required by the constructors who have the necessity to realize a serie of vehicles in "Limited edition" or model of vehicle with low annual production reserved to an Elite market.

Worldwide, there are only a few Companies who can supply this kind of service. Our principal characteristic is that we can support the greatest part of style requirements although the small productive volumes. By analyzing the "special" vehicle market, we can notice that usually there is the use of standard solutions, which are then adapted to the vehicle.

This is the reason why we decided to specialize ourselves in this domain, placing us a single goal: to realize lamps and lighting systems suitable for this kind of vehicles and which can stand out their quality, offering cutting - edge technical solutions and design, including customized optical solutions that we study and simulate directly into our Style department.



## Kind of vehicles

### Super car Vehicles

They are a kind of cars with small dimensions usually for two seater and with two doors, designed to reach the maximum of speed and have a great maneuverability. Super cars can be Spartan or luxurious but they need to have a small weight and brilliant performances.

### Hyper car vehicles

For those who love car and speed, having a sport car is a great dream. This car is the evolution of a super car. This vehicle can exceed a super car performance on all the levels: acceleration, price, rarity, maneuverability look and noise

### ONE OFF vehicles

These are special models of cars built in only one specimen. These are unique pieces realized on demand which can be homologated both for private use both in racetrack and on normal road as for normal vehicles.

# HEAD LAMPS



Function  
Position Lamp



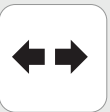
Function  
Lower Beam



Function  
Upper Beam



Function  
Fog Lamp



Function  
Turn Signal



Function  
Tail Lamp



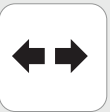
Function  
STOP



Function  
Reverse



Function  
Fog Lamp



Function  
Turn Signal

# REAR LAMPS



## Customized Functions



Function  
Tail Lamp



Function  
Low Beam



Function  
High Beam



Function  
FOG Lamp



Function  
Turn Signal



Internal  
Lights

## Lighting Systems



LED  
Solutions



Bulb  
Solution



Mixed  
Solution



Xenon  
Solution



Bixenon  
Solution

## Lens



ANTIFOG  
Treatment



UV Rays  
Protection  
Treatment



AntiScratch  
Protection  
Treatment

## Aesthetical Components



Metallization  
of Particulates



Embossing  
Particulates



Aesthetical  
Varnishing  
on Lens

## Carbon



Pigmented varnishing  
treatment on carbon



treatment with protective agent  
for polished or opaque finishing





Example of high quality prototypes with CNC technology and varnishing details | • taldesign Automobili Zerouno • Head Lamps FULL LED

# ↻ We can guarantee a full versatility

## Innovative

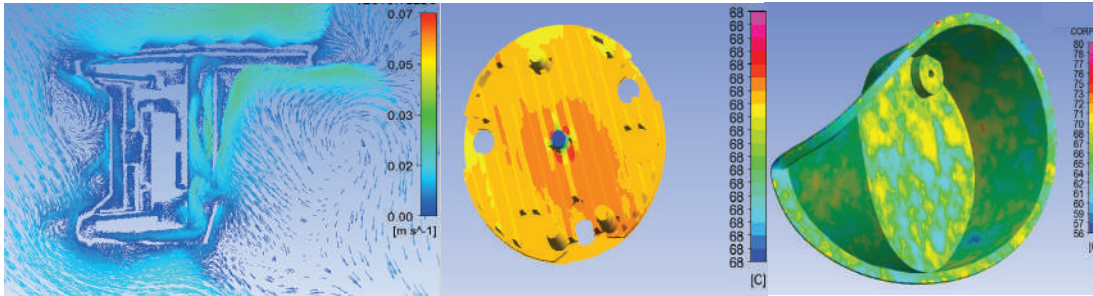
It consists on development and production of a new product, starting from zero and creating all the tools necessary to its realization.

## Adaptive

This means the adaptation of an existing product on a new one. We are able to make aesthetical and structural modifications on an already existing product.

## Through variations

We can make various combinations of the same product, applying various levels of customization also on single pieces. This thing cannot be made during mass production.



**PRODUCTION**

## Know How

### The importance to know how to choose the most suitable technologies.

Thanks to our high experience, even in the domain of the design of thermoplastic molds, we are able to propose a great variety of different solutions, from silicon molds, aluminum or stainless steel molds according to the characteristics required by the final product. For this purpose we can rely on a great range of suppliers with which we work closely and we tested during years of collaboration.

## Thermal Studies

The goal of a thermal study is to understand the answers and the performances of a structure. According to modeling requirements, we can make lots of analysis in order to study the variation of temperature and the effects on structural behavior concerning both the response to stress and the breaking.

Ventilation Analysis

Measurement

Thermal Simulation

Optimization

## **Contact the right people**

For any information and quote,  
this is your reference person



Sales Manager

**UWE MICHAEL BOERNER**

Contacts:

Email: [uwemichael.boerner@bengsrl.it](mailto:uwemichael.boerner@bengsrl.it)

Mobile: +39 334 618 4807

**Linked in**

Language:

Speak: EN DE IT / Write: EN DE IT



**AUTOMOTIVE**  
OPTICAL LIGHTING SYSTEMS



Via degli Artigiani 1 • 33028 Tolmezzo (UD) • IT

VAT ID: IT 02316200308

REA: UD 251616

[www.bengsrl.it](http://www.bengsrl.it)

[info@bengsrl.it](mailto:info@bengsrl.it)

P: 0433 28 90

ISO 9001:2008