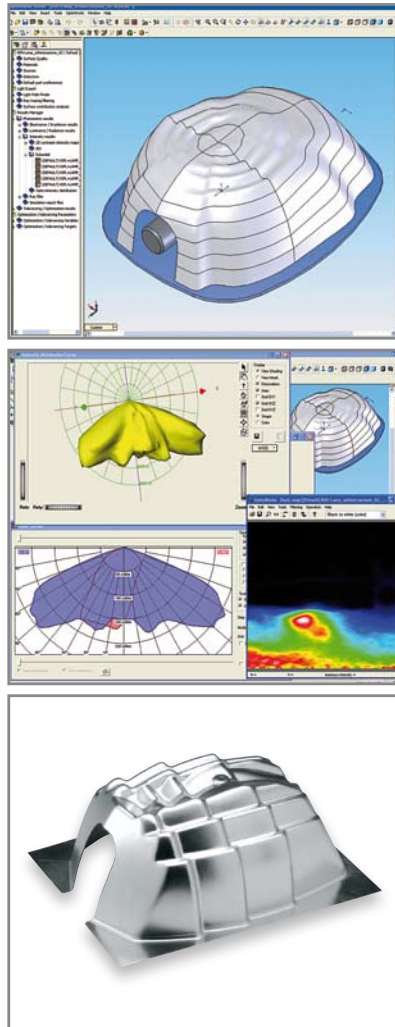


IRP



Integrated Reflector Program



Reflectors development

Almeco lighting reflectors division is dedicated to the production of aluminium reflectors for the street, industrial and urban lighting sectors.

IRP (Integrated Reflector Program) links Almeco's 50 year experience in manufacturing anodized aluminium reflectors with the design and simulation capabilities to offer a full range of activities from concept to production matching customers' needs in developing a new reflector.

Starting from the customer's requests and after defining the lighting specifications of the reflector, a virtual CAD model is developed and the photometric characteristics are simulated with the added ability to explore the effect of the different Almeco surface finishes.

Almeco has developed a technology that allows actual production of prototypes in aluminium with the same final properties as the reflector from series production; which gives the possibility to perform photometric, thermal, structural and dimensional controls before making the final tooling.

The customers' benefits from IRP are:

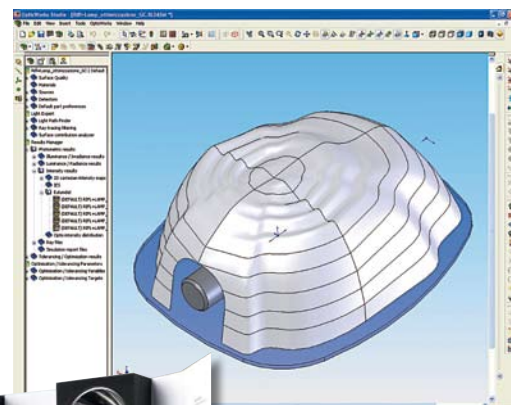
- Confidence in the results
- Rapid prototyping of aluminium reflectors
- Reduction of designing risks
- Optimisation of investment

Almeco protects the intellectual and design property throughout, guaranteeing the confidentiality of the developed product.

Development The indications/needs of the customer are verified by the technical staff who define the geometrical features of the reflector and develop a virtual model.

Simulation The simulation and graphic modelling software (OptisWorks) and the data libraries reproducing the reflectance characteristics of Almeco's standard finishes, allow to study and analyse the lighting equipment photometric behaviour in a virtual manner, with a high degree of reliability and realism.

Prototyping Almeco technology allows an aluminium reflector prototype to be produced in a few weeks. It is possible to obtain equivalent photometry to that measured from the final product. The customer receives four prototypes in the standard finishes: Superbrite, Brite, Softlite and Matt-lite.



Led application

Almeco's ALP development has arisen from the increasing demand in the market for energy efficient lighting using LED technology. ALP expands Almeco's existing competence in the study and development of reflectors for traditional light sources such as sodium metal halide and halogen lamps, making available to clients the whole process of creating reflectors, including LED sources.

To obtain the maximum advantage from LED lamps we recommend combining their inherent efficiency with a reflector material having over 98% reflectance from our VEGA product range.

Green & Technology worldwide trend

INNOVATION

ENERGY SAVING

COSTS SAVING



L E D

REFLECTOR

- Street light & urban beautification application
- Flexibility
- Reduction of glare due to optimized light distribution

- Vega LED98
High reflectance
>98%
- Highest efficiency

LENSES

- Plastic
- Fixed and static
- High glare
- Several units

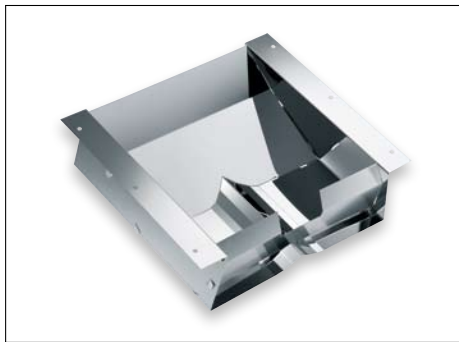


Prototyping fitting for reflectors test

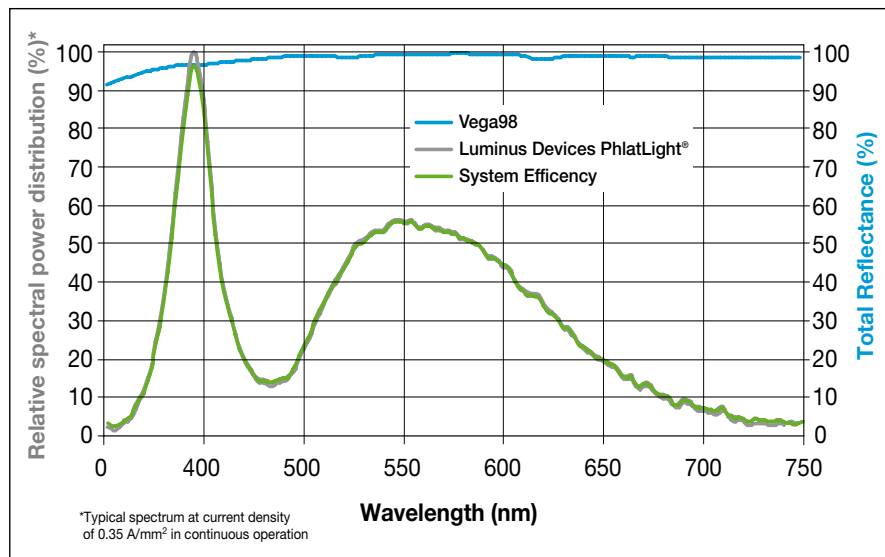
Vega LED98

Thanks to having the highest values of reflectivity across the visible wavelength spectrum **Vega LED98** is the ideal material for LED applications and guarantees maximum total reflection giving the greatest efficiency to the LED system (>98%).

Vega LED98 uniformly reflects virtually all the visible light emitted by the LED.



Vega LED98 reflectors



Relative spectral power distribution of LED(%) Vs Total Reflectance of Vega LED98



ALMECO PRODUCTION

Tooling Department Almecco manufactures its own reflector tooling which then becomes the exclusive property of the customer. Starting with the reflector design or with an optical model, a CAD model of the reflector tool is generated by the Technical Office and sent to the tool-making department, where the deep-drawing and cutting punches and dies and the spinning mandrels or “forms” for the reflectors, are produced.



Deep drawing Deep-drawing is a cold forming process which uses a powerful hydraulic press to bring together male and female press tools which deform the metal into the desired hollow shape



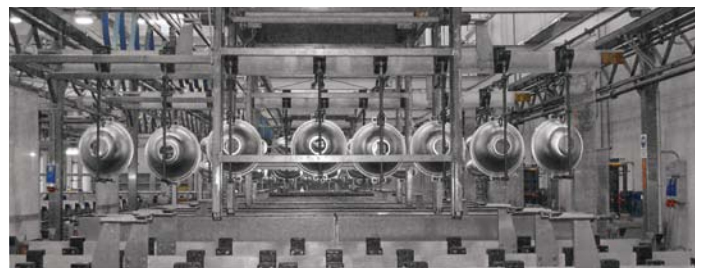
Spinning Symmetrical shapes can be created on special lathes by the process of spinning, which forms a disc metal onto a machined former at high rotational speed.



Blanking With blanking technology, PVD coated Vega aluminum and anodized Aluminum are used and the reflector is made up of assembled components.



Anodizing process Once the mechanical processing is over, the reflector brightening and anodizing process is performed. The operation is carried out by dipping the reflector into an electrochemical treatment bath and makes the Aluminum brighter and more resistant to corrosion.





Milan, Italy - Bernburg, Germany - Munich, Germany
Goncelin, France - Atlanta, USA



Almecco Spa - Via della Liberazione, 15
20098 San Giuliano Milanese (MI) - Italy
Ph.: +39 02.988963.1 - Fax: +39 02.988963.99
info.it@almecogroup.com - www.almecogroup.com