



CUSTOM LED OPTICS  
- putting light where you need it

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Create Real USPs  
for your Product



Maximise  
Efficiencies

## CUSTOM LED OPTICS

light where you want it

LED technology is more efficient than ever before - so why use an inferior optic that doesn't work with your fantastic LED solution?

With a custom LED optic from Forge, you get an optic designed and manufactured for optimal performance with your LED product.



Minimise Costs



Meet Industry  
Requirements



Streamline your  
Production



## CUSTOM LED OPTICS - APPLICATIONS

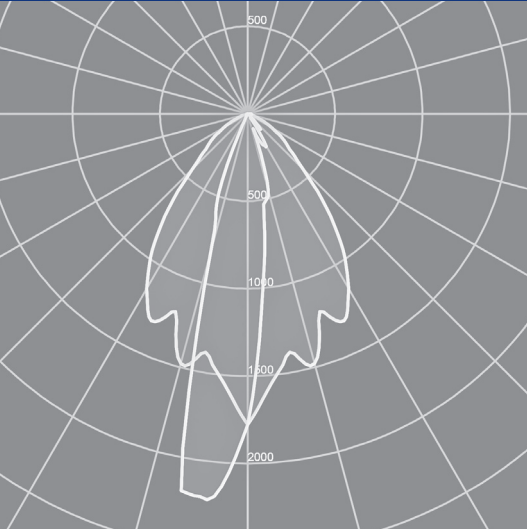
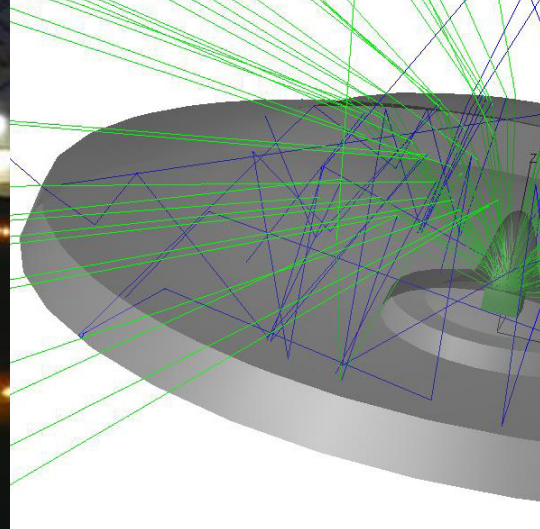
You can benefit from incorporating a custom optic into your LED solution. From Belisha beacons to bridges, helipads to horticulture and streetlights to spotlights, a custom optic from Forge will make the most of your lumens and can be fully integrated into your complete solution.



## AEROSPACE

What?  
Precision glass optic

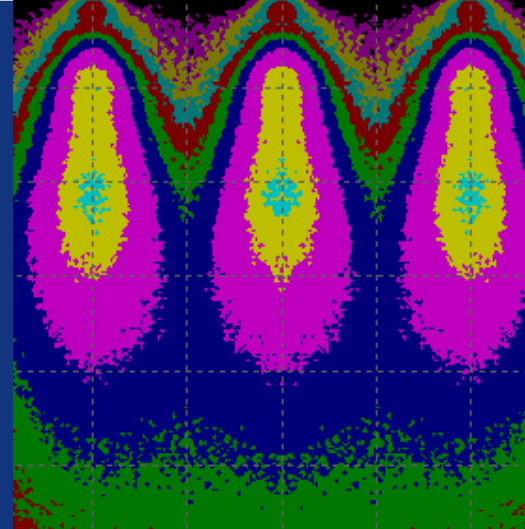
Benefits?  
Excellent transmission that handles thermal shocks, tested to CAP437 standards



## HIGHWAYS

What?  
Ultra clear, UV stabilised polycarbonate optic, with LED PCB

Benefits?  
Meets stringent industry standards



## COMMERCIAL LIGHTING

What?  
PMMA optic with LED PCBA

Benefits?  
Fits existing luminaire, wide and narrow beam options, improved LOR, superb uniformity



## HORTICULTURE

What?  
Metallised PMMA reflector

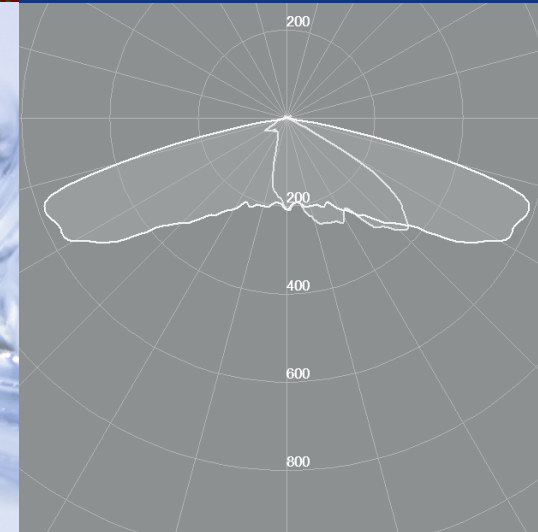
Benefits?  
Light focused on the growing area, PPFd targets achieved, greater TIR, no need for additional reflectors



## ARCHITECTURAL LIGHTING

What?  
UV stabilised polycarbonate optic, complete assembly including FR4 PCBA

Benefits?  
IK10 and IP66 ratings, symmetric and asymmetric beam patterns



## STREETLIGHTING

What?  
Ultra-efficient PMMA multi-array optic supplied with IMS PCBA.

Benefits?  
Meets highway specifications, increased pole spacing, IK10



## MATERIALS

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Material selection is a crucial part of our custom optic design and manufacturing process. The demands of your application, and in some cases the intricacies of the final design, drive the material selection.



## HOW WE DO IT

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With a proven process that we take complete control of, we put light where you need it. Tell us what you want, and we'll make it happen.

## #1 SCOPE OUT

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You tell us what you really want. We establish your targets, understand your application and get to work.

## #2 DESIGN

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The mechanical and photometric design is completed using the latest CAD & Raytrace software. This includes visualisation tools to render graphics of the planned light performance.



## BOROSILICATE GLASS

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- Excellent transmission
- Handles thermal shocks well
- Scratch resistant
- Offers more refractive index choices

Ideal for:-  
Exterior applications, ATEX applications

## POLYCARBONATE

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- Good impact resistance
- Choice of grades available
- High refractive index

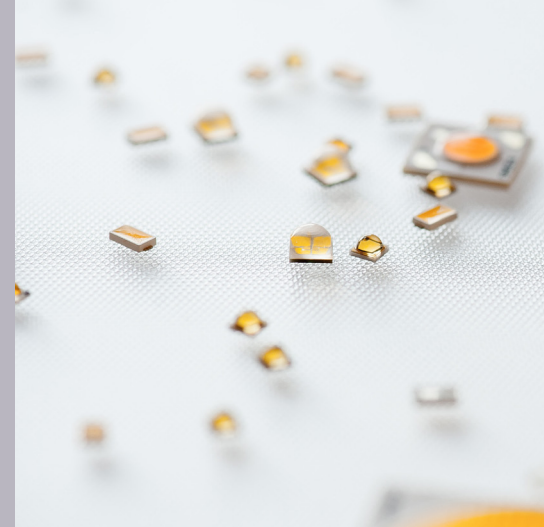
Ideal for:-  
Interior use and when space is tight



## #3 PROTOTYPING

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We can quickly model printed prototypes to check fit and proof concept. We then move to prototype tooling and initial production representative prototypes.



## PMMA

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- Hard-wearing
- Scratch resistant
- Good transmission

Ideal for:-  
Larger lenses and lower operating temperatures



## SILICONE

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- Bends light well
- Stable at high temperatures
- Good chemical resistance

Ideal for:-  
Outdoor use and horticulture applications

## #4 TESTING

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We test to make sure that the manufactured optic does what we say it will. All tests are done in-house by our engineers with our goniophotometer. We then go full throttle into hard tooling.

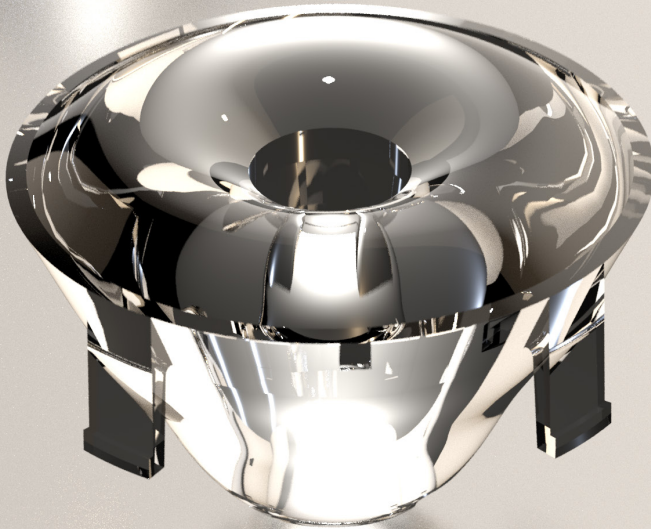
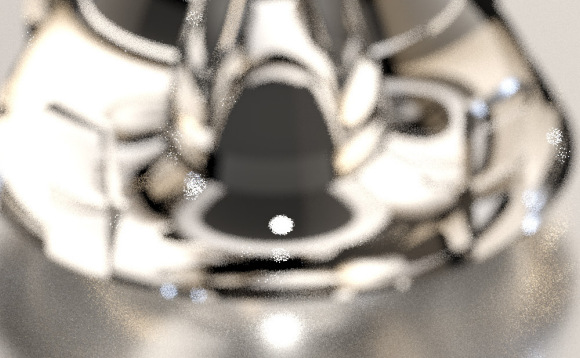


## #5 PRODUCTION

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We push the button on volume production. We'll then complete any additional testing and provide you with all the information you require to launch your fantastic product.





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