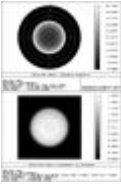
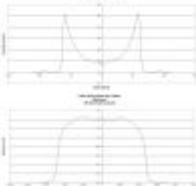
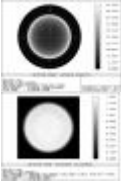
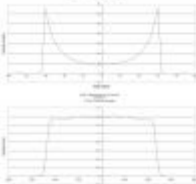

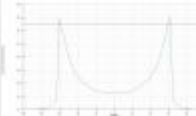




20.0MM BUBBLE 120 BUBBLE

Status Production
Part no. 10403
Drawing no. 60521
Type Bubble
Pieces 1
Diameter 20.0
Beam Bubble 120
Flange No
Files [Customer drawing \(PDF\)](#)
[Customer 3D model \(.igs\)](#)



LEDs & Performances	Eff.	FWHM	Cd/lm	Spot	Cross-section	Files
Lumileds Luxeon Rebel Cool White	94.0%	120	0.1			10403_120deg_bubbleOptic_rebel_14-12-2009.IES
Cree XP-E XLamp® White	94.0%	120	0.1			10403_120deg_bubbleOptic_cree-xpe_14-12-2009.IES
Lumileds ES Luxeon Rebel Cool White	93.6%	120	0.7			_10403_2 120 deg bubble _ ES _Lu22_I0_P0_X0_Y0.ies
Cree XP-G XLamp® White	93.3%	120	0.7			_10403 120 deg bubble _ XP-G _Cr05_I0_P0_X0_Y0.ies

Carclo Technical Plastics endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct and up to date information, Carclo suggest using the Opticselect tool on our website <http://www.carclo-optics.com>.
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General Instruction & Optics & Holders

Handling instructions

- Do not handle or install lenses without wearing gloves, skin oils may damage the lens or the light transmission.
- Clean lenses with a mild soap and water and dry with a clean soft cloth.
- Do not use any commercial solvents on lenses.
- Mount holders with low Odour epoxies and allow time for them to out gas to stop lenses fogging.

Disclaimer & Optics & Holders

Please note that flow lines, weld lines, surface scratches and small black or white inclusions within the lenses are acceptable if the optical performance of the lens is within the specification described below:

For all optics except Rippled and Frosted;

- FWHM = Datasheet Value +/-10%.

For all Rippled and Frosted Optics;

- FWHM = Datasheet Value +/-20%

For all Optics;

- Efficiency = Datasheet Value +infinity / -10%

The yellowing / browning of polycarbonate lenses and holders can occur due to the natural ageing process and exposure to heat and UV and as such is not covered by Carclo's warranty.

General Instruction & Taped Holders

Click here to view the 3M Technical Data Sheet

- When assembling the pre-taped holder onto the mating surface, the application must be made straight and square, so that the tape bonds consistently with the mating surface. Assemble at an angle of 90 degrees to the surface to be bonded. Firming application pressure and moderate heat, from 100°F (38°C) to 130°F (54°C), will assist the adhesive in penetrating the mating surface. Humidity and temperature fluctuations will weaken it's adhesive.
- To obtain optimum adhesion, the bonding surfaces must be clean, dry, free from grease and dirt and must be well unified.
- Some typical surface cleaning solvents are isopropyl alcohol or heptane. *
Ideal tape application temperature range is 70°F to 100°F (21°C to 38°C). Initial tape application to surfaces at temperatures below 50°F (10°C) is not recommended because the adhesive becomes too firm to adhere readily. However, once properly applied, low temperature holding is generally satisfactory.
- * If cleaning of PCB or LED surfaces is required, please follow strictly this is important to note as cleaning in some circumstances can damage components should not be cleaned using any chemical solvents.
- * Carefully read and follow the manufacturer's precautions and may not be compliant with the rules of certain Air Quality Management

During assembly the optic when placed on the PCB should be firmly held for 1-5 seconds to ensure the best possible bond. The tape will reach its final strength in 72 hours, dependent on the material and ambient conditions.

We request that the customer ensures (and fully tests) the suitability and sufficiency of the bond in his product. For example, mechanical stress, vibration and holes on the surface of the circuit board can weaken the strength of the tape.

Disclaimer & Taped Holders

Shelf Life & There is 1 year expected shelf life from the date of purchase direct from Carclo.

All Carclo lenses supplied with tape use the same high strength double-coated tape (unless otherwise mentioned in the datasheet). This tape is specifically selected for this application.

These tapes generally work well together with PCBs and LEDs on the market. The customer must take the necessary measures to ensure complete compatibility with their particular application, product, PCB, LED and/or other components.

Testing and verifying of the adhesives and their combinations is the responsibility of the customer.

The customer is solely responsible for evaluating the application of double sided tape to Carclo Holders and the adhesion of double sided tape holders to Carclo Technical Plastics 103 Buckingham Ave, Slough, Berkshire, SL1 4PF ENGLAND
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determine whether such double-sided tape is fit for a particular purpose and suitable for the users method of application. The selection of double-sided tape in the adhesion of double sided tape holders is not covered by Carclo's warranty.

Carclo cannot take responsibility for the results obtained by others whose methods we cannot control. It is always the customer's responsibility to determine the adhesive's suitability for their product and to take precautions for protection of property and persons against any hazards that may be involved in the handling and use of adhesives. Carclo disclaims all warranties, including warranties of merchantability or suitability for a particular purpose, arising from use of any adhesive product. Carclo disclaims any liability for consequential or incidental damages of any kind, including lost profits.

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