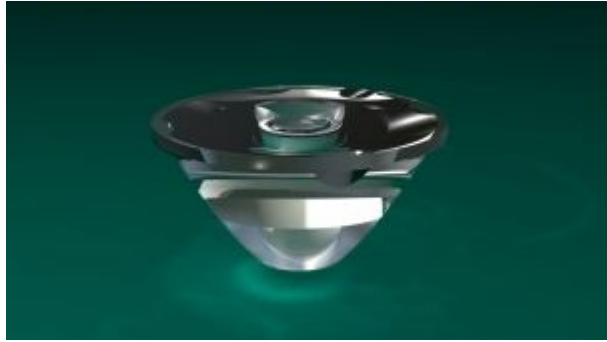

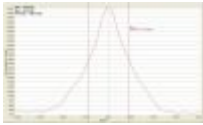









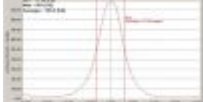

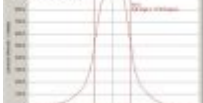

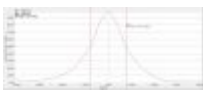



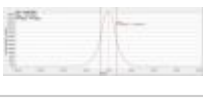



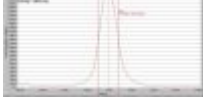

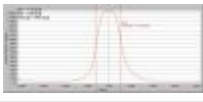
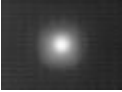
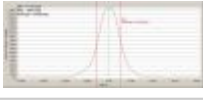





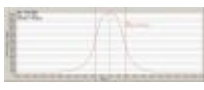

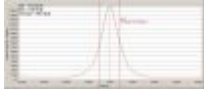



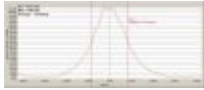
## 20.0MM NARROW SPOT TIR

<b>Status</b>	Production
<b>Part no.</b>	10003
<b>Drawing no.</b>	60318
<b>Product type</b>	Optic
<b>Type</b>	TIR
<b>Pieces</b>	1
<b>Diameter</b>	20.0
<b>Height</b>	9.90
<b>Beam</b>	Narrow Spot
<b>Flange</b>	Yes
<b>Files</b>	Customer 3D model (.igs) Customer drawing (PDF)



LEDs & Performances	Eff.	FWHM	Cd/lm	Spot	Cross-section	Files
Cree XP-G XLamp White	87.9%	12.4	16.7			10003_cree_xpg_white_250408.ies
Cree MX-6 XLamp White	90.2%	15	8.5			10003_cree_MX6_white_250408.ies
SSC Z1 Z - Power White	87.1%	17.6	6.4			10003_Seoul_Z1_white_250408.ies
Osram Plus W5AM Dragon Cool White	88.2%	7.75	28.7			10003_Osram_Dragon_PLus_CoolWhite_250408.Idt 10003_Osram_Dragon_PLus_CoolWhite_250408.ies
Osram SSL 80 degree Oslon Ultra White	86.1%	7.2	33.8			10003_Oslon_wht_250408.ies 10003_Oslon_wht_250408.Idt
Nichia NCSL 119-H3 Top Emitting Warm White	88.8%	8.6	27.3			10003_Nichia_119_WarmWhite_250408.ies
SSC Z5 Z - Power Cool White	88.0%	7.8	35.4			10003_Seoul_Z5_white_250408.ies
LedEngin 3W White	86.8%	11.0	10.0			10003_LedEngin_3W_white_250408.ies
LedEngin 5W White	85.7%	11.3	9.9			10003_LedEngin_5W_white_250408.ies

Luminus Devices SST-50 White	86.0%	18	5.5			10003_Luminus_SST50_White_250408.ies
Everlight Shuen Warm White	87.2%	12	17.5			10003_Shuen_wwht_250408.ies
Everlight Shuen Cool White	87.7%	11.1	16.7			10003_Shuen_cwht_250408.ies
Avago Jade Cool White	90.1%	11.3	12.0			10003_Avago_Jade_cool white_250408.ies
Lumileds C Luxeon Cool White	86.2%	5.8	58.4			10003_Luxeon C_white_250408.ies
SSC P4 White	86.2%	12.8	11.4			10003_Seoul_New_P4_Pure_White_250408.ies
Cree XM-L XLamp White	87.4%	17.3	8.6			10003_Cree_XM-L_white_31-01-11.ies
Cree XM-L - EZW XLamp Warm White	86.9%	15.0	6.4			10003_Cree_XM-L - EZW_warm white_200511.ies
Cree XP-C XLamp White	86.3%	5.1	64.0			10003_Cree_XP-C_white_270611.ies
Osram SSL 150 degree Oslon Neutral White	87.0%	7.1	37.4			10003_Oslon_150_neutral white_280711.ies
SSC Z5P Z - Power Pure White	85.8%	9.3	27.0			10003_Z5P_pure white_280911.ies
Cree XB-D XLamp Warm White	87.2%	9.3	27.7			10003_CREE_XBD_160212BB.ies
Cree XT-E XLamp Cool White	88.2%	11.7	19.0			10003_CREE_XTE_160212.ies
SSC Z5M Z - Power White	%	10.84	19.6			10003_SeoulZ5M_warm white_020712.ies
Cree XPG-Gen2 XLamp Warm White	%	11.3	20.5			10003_XPG_Gen2_180712.ies

Samsung 3535 White	86.9%	10.8	21.4			10003_Samsung 3535_cool white_081111.ies
SSC P4 version 8 Pure White	87.0%	9	18.9			10003_SSC P4 Version 8_Se24_10363 holder_051012.ies
Nichia 219 Warm White	%	12	17.3			20mm_10003_Nichia 219_120213.ies
Stanley 1N White	%	17.1	7.6			10003 Plain Tight_Stanley 1N_270912.ies

Related Holders & LEDs	Avago Jade Cool White	Cree MX-6 XLamp White	Cree XB-D XLamp White	Cree XM-L FW White	Cree XM-L Lamp White	Cree XP-C Lamp White	Cree XP-G Lamp White	Cree XP-G Lamp White	Everlight Shue Cool White	Everlight Shue Warm White	Everlight 3W Cool White	Everlight 5W Cool White	Lumileds Engin Luxed Cool White	Lumileds Engin Luxed Warm White	Nichia 299 SST-70 Warm White	Nichia 119-H Top Warm White	Osram Plus Dragon Cool White	Osram SSL 150 Neutral White	Osram SSL 80 Ultra White	Samsung 535 White	SSC P4 Version 8 Pure White	SSC P4 White	SSC Z1 Z- Power White	SSC Z5 Z- Power Cool White	SSC Z5M Z- Power White	SSC Z5 Z- Power White		
10035 20.0mm Round - Flat Bottom Black																					✓	✓						
10148 20.0mm Round - Flat Bottom Black																	✓											
10148-TS 20.0mm Round - Flat Bottom Black																	✓											
10149 20.0mm Round - Flat Bottom Clear																	✓											
10149-TS 20.0mm Round - Flat Bottom Clear																	✓											
10150 20.0mm Round - Flat Bottom White																	✓											
10150-TS 20.0mm Round - Flat Bottom White																	✓											
10273 50.0mm Triple - Locator Pins White																							✓					
10276 50.0mm Triple - Locator Pins White																								✓				
10283 50.0mm Triple - Locator Pins White																								✓				
10286 50.0mm Triple - Locator Pins White																								✓				
10293 50.0mm Triple - Locator Pins Black																								✓				
10296 50.0mm Triple - Locator Pins Black																								✓				
10303 50.0mm Triple - Locator Pins Black																								✓				
10306 50.0mm Round - Flat Bottom Black																								✓				
10363 20.0mm Round - Flat Bottom Black																								✓				
10363-TS 20.0mm Round - Flat Bottom Black																								✓				
10364 20.0mm Round - Flat Bottom White																								✓				
10364-TS 20.0mm Round - Flat Bottom White																								✓				
10365 20.0mm Round - Flat Bottom Clear																								✓				
10365-TS 20.0mm Round - Flat Bottom Clear																								✓				
10630 20.0mm Round - Locator Pins White																										✓		
10631 20.0mm Round - Locator Pins White	✓										✓					✓												
10632 20.0mm Round - Locator Pins White					✓			✓	✓				✓					✓	✓									✓
10633 20.0mm Round - Locator Pins White		✓		✓																								
10634 20.0mm Round - Locator Pins White						✓																						
10637 20.0mm Round - Locator Pins White		✓																										
10650 20.0mm Round - Locator Pins White																										✓		
10651 20.0mm Round - Locator Pins White	✓										✓					✓												
10652 20.0mm Round - Locator Pins White					✓			✓	✓				✓					✓	✓									✓
10653 20.0mm Round - Locator Pins White		✓		✓																								

10654 20.0mm Round - Locator Pins White				✓																
10657 20.0mm Round - Locator Pins White		✓																		
10670 20.0mm Round - Locator Pins White																			✓	
10671 20.0mm Round - Locator Pins White	✓							✓			✓									
10672 20.0mm Round - Locator Pins White				✓				✓	✓		✓		✓		✓	✓				✓
10673 20.0mm Round - Locator Pins White			✓	✓			✓													
10674 20.0mm Round - Locator Pins White					✓										✓					✓
10677 20.0mm Round - Locator Pins White		✓																		
10690 20.0mm Round - Locator Pins Black																				✓
10691 20.0mm Round - Locator Pins Black	✓								✓					✓						
10692 20.0mm Round - Locator Pins Black				✓				✓	✓		✓				✓	✓				✓
10693 20.0mm Round - Locator Pins Black			✓	✓																
10694 20.0mm Round - Locator Pins Black					✓															
10697 20.0mm Round - Locator Pins Black		✓																		
10710 20.0mm Round - Locator Pins Black																				✓
10711 20.0mm Round - Locator Pins Black	✓								✓					✓						
10712 20.0mm Round - Locator Pins Black				✓				✓	✓		✓				✓	✓				✓
10713 20.0mm Round - Locator Pins Black			✓	✓																
10714 20.0mm Round - Locator Pins Black					✓															
10717 20.0mm Round - Locator Pins Black		✓																		
10730 20.0mm Round - Locator Pins Black																				✓
10731 20.0mm Round - Locator Pins Black	✓								✓					✓						
10732 20.0mm Round - Locator Pins Black				✓				✓	✓	✓		✓		✓		✓	✓			✓
10733 20.0mm Round - Locator Pins Black			✓	✓			✓	✓												
10734 20.0mm Round - Locator Pins Black					✓											✓				✓
10737 20.0mm Round - Locator Pins Black		✓																		
12072 20.0mm Round - Flat Bottom Clear																				
12072-TS 20.0mm Round - Flat Bottom Clear																				
12073 20.0mm Round - Flat Bottom Black																				✓
12073-TS 20.0mm Round - Flat Bottom Black																				✓
12074 20.0mm Round - Flat Bottom White																				✓
12074-TS 20.0mm Round - Flat Bottom White																				✓
12075 20.0mm Round - Flat Bottom Clear																				✓
12075-TS 20.0mm Round - Flat Bottom Clear																				✓

47.313.5001.80 with  
47.313.-320.80 20.0mm BJB®  
Black



Carclo Optics 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 optics that have FWHMs of 20 degrees or less, the general tolerance is +/-2 degrees OR the tolerances stated below - whichever is the greater.

#### 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 mating surface. Assembly at an angle might cause an imperfect bond to the mating surface.
- Remember to ascertain the compatibility of the different substrates with the tape, as humidity and temperature fluctuations will weaken its 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. \*
- \* *If cleaning of PCB or LED surfaces is required, please follow strictly the cleaning instructions recommended by your PCB and/or LED manufacturer - this is important to note, as cleaning in some circumstances can damage LEDs or other electronic components on the PCB. Please also note that optical components should not be cleaned using any chemicals - only a micro fibre cloth should be used to remove fingerprints or other traces from handling.*
- \* *Carefully read and follow the manufacturer's precautions and directions for use when working with solvents. These cleaning recommendations may not be compliant with the rules of certain Air Quality Management Districts in California; consult applicable rules before use.*

Bond strength is dependent upon the amount of adhesive-to-surface contact developed. Firm application pressure and moderate heat, from 100°F (38°C) to 130°F (54°C), will assist the adhesive in developing intimate contact with the bonding surface.

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.

Carclo Optics 103 Buckingham Ave, Slough, Berkshire, SL1 4PF ENGLAND.

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

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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 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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