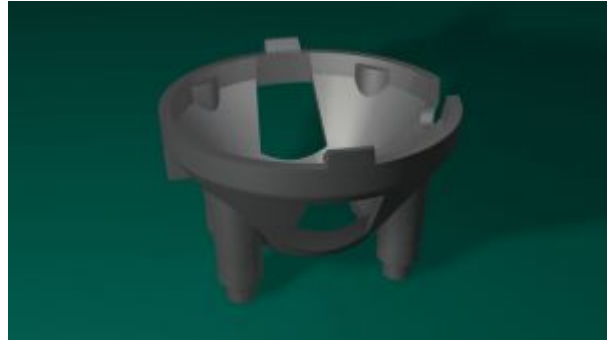


## 20.0MM UNIVERSAL BLACK

<b>Status</b>	Designed
<b>Part no.</b>	10733
<b>Drawing no.</b>	60575
<b>No. of optics</b>	1
<b>No. of legs</b>	4
<b>Pin length</b>	0.8
<b>Related Optics</b>	10194 20.0 mm Frosted Narrow Catadioptic 10195 20.0 mm Frosted Medium Catadioptic 10209 20.0 mm Ripple Wide Catadioptic 10196 20.0 mm Frosted Wide Catadioptic 10197 20.0 mm Elliptical Catadioptic 10198 20.0 mm Elliptical Orthogonal Catadioptic 10356 20.0 mm Fibre Catadioptic 10208 20.0 mm Ripple Medium Catadioptic 10193 20.0 mm Plain Tight Catadioptic 10199 20.0 mm Plain Tight Catadioptic 10200 20.0 mm Frosted Narrow Catadioptic 10210 20.0 mm Ripple Medium Catadioptic 10201 20.0 mm Frosted Medium Catadioptic 10211 20.0 mm Ripple Wide Catadioptic 10202 20.0 mm Frosted Wide Catadioptic 10203 20.0 mm Elliptical Catadioptic 10204 20.0 mm Elliptical Orthogonal Catadioptic 10003 20.0 mm Plain Tight Catadioptic 10138 20.0 mm Frosted Narrow Catadioptic 10003/15 20.0 mm Ripple Medium Catadioptic 10139 20.0 mm Frosted Medium Catadioptic 10003/25 20.0 mm Ripple Wide Catadioptic 10140 20.0 mm Frosted Wide TIR 10003/L25 20.0 mm Elliptical Catadioptic 10192 20.0 mm Elliptical Orthogonal TIR



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>.  
Copyright © Carclo 2010

### 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%

Carclo Optics 103 Buckingham Ave, Slough, Berkshire, SL1 4PF ENGLAND  
Tel: +44 (0)1753 575011 Fax: +44 (0)1753 811359

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 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. \*
- *\* 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.

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 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.

All rights reserved. No part of this publication may be copied, reproduced in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, illustrations not to be removed, without our prior permission. Carclo Optics reserves the right to make changes at any time in order to supply the best products possible.