Science. Applied to Life.™

Technical Data | July 2026

3M™ Polycarbonate Carrier 3000 R Series

- 3000YPR
- 3000YBR
- 3000XPR
- 3000XBR
- 3000UPR
- 3000UBR
- 3000NBR
- 3000BDR
- 3000UPRK
- 3000UBRK
- 3000NBRK
- 3000BDRK
- 3000UPRW
- 3000UBRW

Product description

3M™ Polycarbonate Carrier 3000 R series is designed for packaging and transporting thinner electrical and electronic devices with total thickness ≤ 0.21 mm in tape and reel.

3M carrier 3000 R series features small pocket open radius design with tight pocket tolerances to allow better part capture, to improve component registration and to help reduce thinner component tilting or migration issues. A smaller pocket hole capability is also available for vacuum designs to help enhance thin and small component stability during taping application.

3M carrier 3000YBR, 3000XBR, 3000UBR, 3000BDR, 3000UBRK, 3000BDRK and 3000UBRW are recommended for cleanroom compatible applications.

Construction

Embossed, heat-resistant, polycarbonate sheet.

Product format

3M carrier 3000YPR, 3000XPR, 3000UPR, 3000NBR, 3000UPRK, 3000NBRK and 3000UPRW are available as a continuous, splice-free carrier in level winding format on 330 mm (13") up to 560 mm (22") plastic or recyclable cardboard reels. 3M carrier 3000YBR, 3000XBR, 3000UBR, 3000BDR, 3000UBRK, 3000BDRK and 3000UBRW are available on plastic reels.

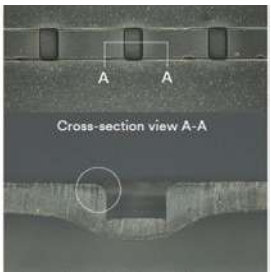
Planetary winding format is also available upon request. Reel capacity will typically be from 30 to 2,000 meters, depending upon the pocket depth, pitch and winding format.



3M™ Polycarbonate Carrier 3000 R Series available in 8 mm, 12 mm, 16 mm and 24 mm wide in different pocket sizes to accommodate a variety of thin packages needs.



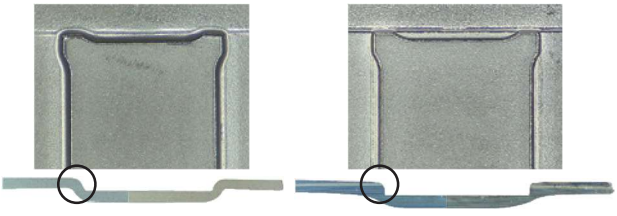
3M™ Polycarbonate Ultra Precision Carrier 3000UP or 3000UB, 8 mm carrier for component size 0603 mm



3M™ Polycarbonate Carrier 3000UPR or 3000UBR, 8 mm carrier with improved pocket opening radius for component size 0603 mm

3M™ Polycarbonate Carrier 3000 or 3M™ Polycarbonate Precision Carrier 3000BD, 12 mm carrier with standard pocket opening radius

3M™ Polycarbonate Carrier 3000NBR or 3000BDR, 12 mm carrier with improved pocket opening radius



3M™ Polycarbonate Carrier 3000 R Series, either in 8 mm, 12 mm, 16 mm or 24 mm wide indicate sharper pocket opening.

3M™ Polycarbonate Carrier 3000 R series

Product features

3M carrier R series incorporates features that are ideal for thin and/or ultra small components.

1) Small pocket opening radius help minimize component tilting and helps prevent components from slipping out of the pocket. Three levels of open radius (RA) spec have been established to address different application needs: include RA≤0.10 mm, RA≤0.12 mm and RA≤0.15 mm (see table below).
2) Tight pocket dimension tolerance for Ao, Bo and Ko, including: ± 0.05 mm, ± 0.03 mm, ± 0.02 mm and ±0.015 mm, combined with small sidewall draft angles, can enable better component fit within the pocket.
3) Flat pocket bottom helps reduce component rotation, tilting, and flipping occurrences for improved throughput.
4) A unique raised platform design helps reduce headspace between carrier and cover tape and also helps minimize component migration.
5) 3M™ Polycarbonate Carrier 3000YBR, 3000XBR, 3000UBR, 3000BDR, 3000UBRK, 3000BDRK and 3000UBRW, available in a cleanroom compatible format, are cleaned and packaged in a cleanroom environment for protection from particle contamination. Each level-winding or planetary reel is sealed individually into a static shielding bag for protection.

3M™ Polycarbonate Carrier 3000 R series -1/2

Product	3000 YPR	3000 YBR	3000 XPR	3000 XBR	3000 UPR	3000 UBR	3000 NBR	3000 BDR
Carrier width / Pitch	Width: 8 mm Default pitch: 4 mm						Width: 12/16/24 mm	
Pocket tolerance (Ao, Bo, Ko)	± 0.015 mm		± 0.02 mm		± 0.03 mm		±0.05 mm	
Clean room compatible	No	Clean room	No	Clean room	No	Clean room	No	Clean room
Raised platform design	Required		Required		Default		Default	
Pocket opening radius	RA <= 0.10 mm				RA <= 0.12 mm			

3M™ Polycarbonate Carrier 3000 R series -2/2

Product	3000 UPRK	3000 UBRK	3000 NBRK	3000 BDRK	3000 UPRW	3000 UBRW
Carrier width / Pitch	Width: 8 mm Default pitch: 4 mm		Width: 12 mm		Width: 8 mm Default pitch: 4 mm	
Pocket tolerance (Ao, Bo, Ko)	± 0.03 mm		±0.05 mm		± 0.03 mm	
Clean room compatible	No	Clean room	No	Clean room	No	Clean room
Raised platform design	Default		Default		Default	
Pocket opening radius	RA <= 0.15 mm				0.10 mm < RA <= 0.17 mm	

3M™ Polycarbonate Carrier 3000 R series

Typical mechanical properties – shrinkage

3M™ Polycarbonate Carrier 3000 R series exhibits shrinkage of less than 0.1% for P_0-10, even after 24 hours exposure at 85°C (185°F). This compares favorably to the EIA-481-F Standard which stipulates that the P_0-10, or ten-pitch tolerance, maintain a dimension of 40.0 mm ± 0.2 mm, an implied tolerance of ± 0.5%. Carrier shrinkage may result in problems with feeding, pocket position and, in the case of the pocket dimensions, parts sticking in the pockets. The extent of shrinkage in cold-formed polystyrene carrier pockets can be rapidly accelerated by exposure to elevated temperature, but will depend upon the duration of exposure and the maximum temperature reached.

3M Carrier P_0-10 shrinkage after 24 hours

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Temperature	3M™ Polycarbonate Carrier 3000 R series	Typical Polystyrene
52°C (126°F), 95%RH	<0.1%	<0.5%
85°C (185°F)	<0.1%	<0.5%

Electrical properties

The electrical and triboelectric properties of 3M carrier 3000 R series help provide protection of static-sensitive components through an effective balance between the electrostatic shielding and electrostatic decay properties of the carrier. 3M carrier 3000 R series exhibits a nominal surface resistance of 1.0E4 Ω ≤ Rs < 1.0E11 Ω, which aligns to ANSI/ESD S541 standard. The products can dissipate charges accumulated due to triboelectric effects and is appropriate for packaging electrostatically sensitive chips.

Camber

3M carrier 3000 R series products meet the EIA-481-F Standard for camber which is not greater than 1 mm in 250 lineal millimeters in a planetary format. For 3M carrier in a level winding format, camber will not be greater than 2 mm in 250 lineal millimeters.

Recyclability

3M carrier 3000 R series is carbon-filled thermoplastic polymer film which can potentially be recycled after use. Check your local laws and regulations regarding recyclability in your area.

Cover tape recommendations

Thin chip devices require extreme care during the de-taping process to help prevent components from bouncing out of the carrier pocket or sticking to the cover tape. Therefore, 3M™ Pressure Sensitive Adhesive Cover Tapes are recommended. 3M™ Static Dissipative Heat Activated Adhesive Cover Tapes are also suggested. However, the end user must determine which recommended/suggested product is suitable for their intended application.

3M™ Polycarbonate Carrier 3000 R series

Typical physical properties and performance characteristics

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes. Final product specifications and testing methods will be outlined in the product's Certificate of Analysis (COA) that is provided once the product is approved by 3M for general commercialization and development work is completed.

Description	Type	Units	Typical Performance	Test Notes	Test Method
Material Description	Type Max, usable temperature	 °C (°F)	Polycarbonate 125 (257)	1	
Physical Properties	Tensile strength (yield) Tensile strength (break) Impact strength Camber (planetary format) Camber (level winding format) Optical	MPa (Kpsi) MPa (Kpsi) J/m (Ft-lb/in) mm (in) mm (in) %	57.2 (8.3) 57.2 (8.3) >70 (1.32) ≤1.0 (0.039) ≤2.0 (0.079) Opaque	2 2 3 4 4 5	ASTM-D638 ASTM-D638 ASTM-D256 EIA-481-F EIA-481-F ASTM-D1003
Electrical Properties	Resistance Static decay	Ohms Second	1.0×10^6 0.01	6 7	ANSI/ESD S541 3M test method
Chemical Properties	Extractable ionics (Cl^-, NO_3^-, SO_4^{2-}, Na^+, K^+, Ca^{2+})	ppm	<5	8	3M test method
Product Format	Reel type Reel hub inside diameter Pockets per reel Length	Material mm (in) Count m	Reinforced cardboard or plastic 76.2 (3.0) Varies per pitch Varies per K_0 & T_1		

Test notes

1) Engineering grade resin.
2) Tensile tests are conducted at 23°C (73°F), 50% RH under controlled conditions with a constant rate of jaw separation of 50 mm/minute from an initial separation of 115 mm. Yield strength is the force which produces 5% elongation of the sample. Breaking strength is the ultimate strength for the material at the break point.
3) Impact strength testing utilizes a mandrel to hold a section of the material under test. A weight is allowed to strike the material from a known radius and after the strike, the swing is measured vs free swing and the strength of the material is calculated from the difference.
4) Camber is a measurement of the weave of the material. Measured over a 250 mm length.
5) Optical properties are measured using a BYK-Gardner Haze-Gard Plus Transmission Meter, Model 4725.
6) Resistance tests are conducted at 23°C (73°F), 50% RH under controlled conditions by resistance meter. Resistance is measured at the sealing surface of a typical carrier using the defined test method. Specification tolerance for the products is 1.0E4 Ω ≤ Rs < 1.0E11 Ω.
7) Static decay is measured at carrier tape samples, with an Electrotech Systems Static Decay Meter Model 406-C under room condition.
8) 3M test method was used for the micro-contamination test for 3M carrier tapes.

3M™ Polycarbonate Carrier 3000 R series

Storage conditions and Shelf life

3M™ Polycarbonate carrier 3000 R series should be stored indoors, in its original packaging, in a controlled climate environment, typically at or below 35°C (95°F) and 70% relative humidity. The products must be protected from exposure to direct sunlight. Exposure to elevated humidity reduces the compressive strength of corrugated cardboard containers. The recommended stacking height must be followed to avoid damaging the packaged products. It is recommended that the products be used on a “first-in, first-out” basis.
The shelf life of 3M carrier 3000 R series is five years from the date of manufacture when stored according to the recommended storage conditions.

Certificate of Analysis (COA)

The 3M Certificate of Analysis (COA) for this product is established when the product is manufactured and deemed commercially available from 3M. The COA contains the 3M test methods, specifications limits and test results for the product's performance attributes that the product will be supplied against. Contact your local 3M representative for this product’s COA.

This technical data sheet may contain preliminary data and may not match the COA specification limits and/or test methods that may be used for COA purposes.

Regulatory: For regulatory information about this product, contact your 3M representative.

3M™ Polycarbonate Carrier 3000 R series

Technical Information: The technical information, guidance, and other statements contained in this document or otherwise provided by 3M are based upon records, tests, or experience that 3M believes to be reliable, but the accuracy, completeness, and representative nature of such information is not guaranteed. Such information is intended for people with knowledge and technical skills sufficient to assess and apply their own informed judgment to the information. No license under any 3M or third party intellectual property rights is granted or implied with this information.

Product Use: Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. As a result, customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's application, including conducting a workplace hazard assessment and reviewing all applicable regulations and standards (e.g., OSHA, ANSI, etc.). Failure to properly evaluate, select, and use a 3M product in accordance with all applicable instructions and with appropriate safety equipment, or to meet all applicable safety regulations, may result in injury, sickness, death, and/or harm to property.

Warranty, Limited Remedy, and Disclaimer: Unless a different warranty is specifically stated on the applicable 3M product packaging or product literature (in which case such warranty governs), 3M warrants that each 3M product meets the applicable 3M product specifications on the Certificate of Analysis, which is established when the product is manufactured and deemed commercially available and is provided at the time 3M ships the product. **3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOM, OR USAGE OF TRADE.** If a 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement or repair of the 3M product or refund of the purchase price.

Limitation of Liability: Except for the limited remedy stated above, and except to the extent prohibited by applicable law, 3M will not be liable for any loss or damage arising from or related to the 3M product, whether direct, indirect, special, incidental, or consequential (including, but not limited to, lost profits or business opportunity), regardless of the legal or equitable theory asserted, including, but not limited to, warranty, contract, negligence, or strict liability.

Disclaimer: For industrial use only. Not intended, labeled or packaged for consumer sale or use.

3M

3M Display & Electronics
3M Center, Building 223-3S-32
St. Paul, MN 55144-1000 U.S.A.

Phone 1-800-3M HELPS
Web 3M.com/Electronics

3M is a trademark of 3M Company.
All other trademarks herein are the property of their respective owners.
©3M 2026. All rights reserved.
60-5005-0124-6