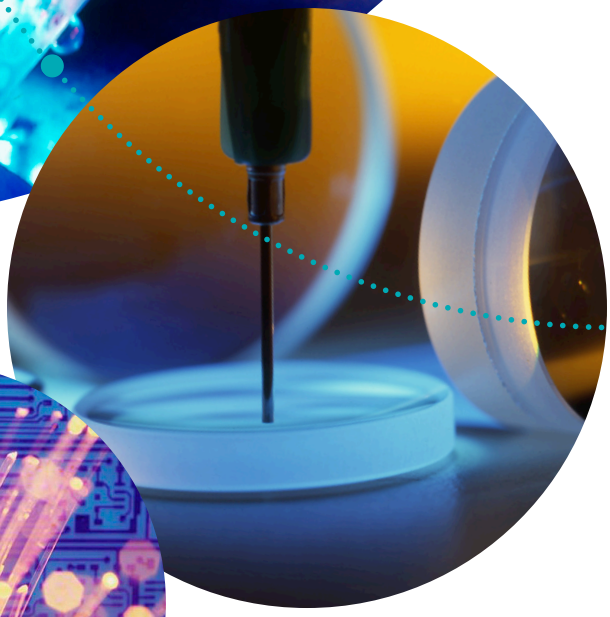
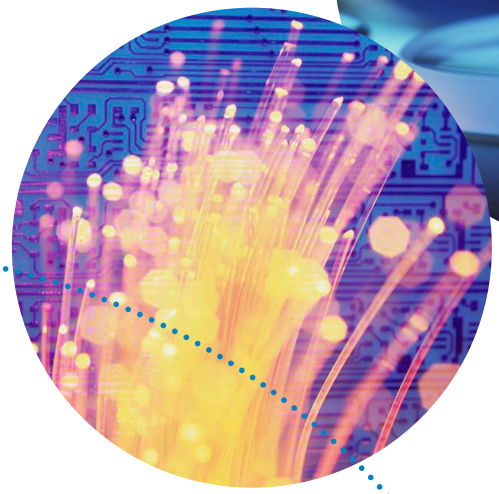




LIGHT-CURABLE ADHESIVES FOR LENS AND FIBER OPTIC BONDING

DYMAX®

Only Dymax offers expert knowledge of light-cure technology, along with a full array of light-cure products. Dymax is committed to developing a true collaborative partnership — applying our extensive process knowledge to your specific application challenges.

We create custom solutions to ensure that chemistry and equipment work seamlessly together with maximum efficiency. Our application engineering team works side-by-side with our customers, providing assistance with formulation, testing, evaluation, and pre-production trials. We also offer an extensive inventory of curing equipment, manual and automated dispensing systems to help you achieve a more efficient, cost-effective manufacturing process.

About Our Products

Dymax Corporation is an ISO 9001 registered manufacturer of light-curable adhesives, coatings, maskants, oligomers, light-curing equipment, and fluid dispense systems that work together to optimize assembly processes. Dymax products provide design, research, and manufacturing engineers value-added tools to dramatically improve manufacturing efficiency and lower costs.

Dymax offers a complete line of high-performance light-curable adhesives and light-curing equipment for optical applications for the industrial, commercial, medical, military, aerospace, and electro-optical markets. Over 40 years of experience in this industry has led to a superior product line of adhesives, applicators, and UV light-curing sources.

Dymax high-strength, low-stress, OP-Series optical assembly adhesives cure in seconds upon exposure to UV/Visible light. Dymax optical adhesives are single component, low outgassing, low shrinkage, and have gap-filling capabilities. High-performance fiber optic adhesives minimize movement of parts during cure. These product require room temperature 10-32°C (50-90°F) storage.

OP-Series Products

Product	Description	Shrinkage	Refractive Index (Cured)	Viscosity, cP	Durometer Hardness*
OP-81-LS	Off white/opaque epoxy; UV/visible light cure or LED curable; low temp heat cure that can be used as the sole cure mechanism or secondary for shadow areas; low shrinkage; low CTE	1.50% Volumetric	N/A	60,000	D90
OP-24-REV-B	Clear; Multi-Cure® (UV/light/heat/activator); tack and bond with UV, heat, or activator where light won't reach; lens mounting	0.39% Linear	1.50	800	D80
OP-29	Clear; UV light cure; flexible; resists yellowing; low stress; good for doublet bonding, lens mounting, or fiber optic splicing	0.79% Linear	1.50	2,500	D60
OP-29-GEL	Clear; UV light cure; flexible; resists yellowing; low stress; gel viscosity for minimum movement after dispense; good for doublet bonding, lens mounting, or fiber optic splicing	0.79% Linear	1.50	20,000	D65
OP-60	Opaque; low shrinkage; low outgassing; low CTE; good for precise positioning of lenses, prisms, and other optical components	0.80% Linear	N/A	150.000	D80

*D = Rigid / A = Elastic / OO = Soft

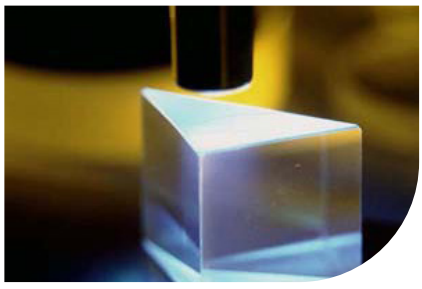
Diode Curing

Lens Bonding

Product	Tg, Glass Transition Temperature °C (By DMA)	Tensile Bar Strength ASTM D638			Adhesion			
		Tensile, psi [MPa]	Modulus of Elasticity, psi [MPa]	Elongation	Ceramic	Glass	Metal	Plastic
OP-81-LS	153 u	45 [6,600]	1,600 [230,600]	2%	❍	❍	•	•
OP-24-REV-B	79 u	5,200 [36]	320,000 [2,206]	35%		•	•	•
OP-29	64 u	3,000 [22]	34,000 [234]	110%		•	•	❍
OP-29-GEL	56 u	3,500 [24]	30,000 [200]	80%		•	•	❍
OP-60	114 u	4,900 [34]	146,250 [1,008]	2.4%	•	•	•	•

u = UV-only cure • Recommended ❍ Limited applications

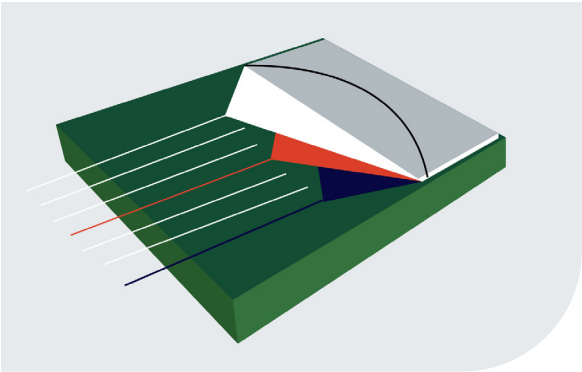
Lens Laminating



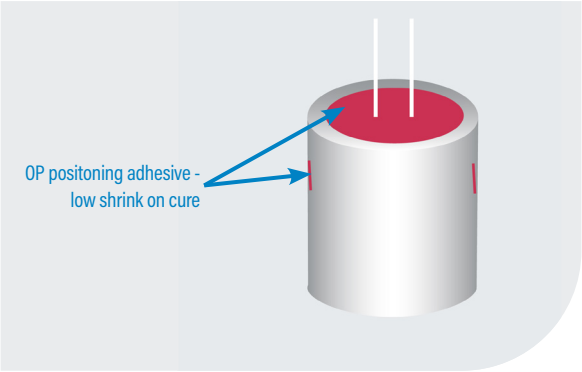
Prism Curing

Applications

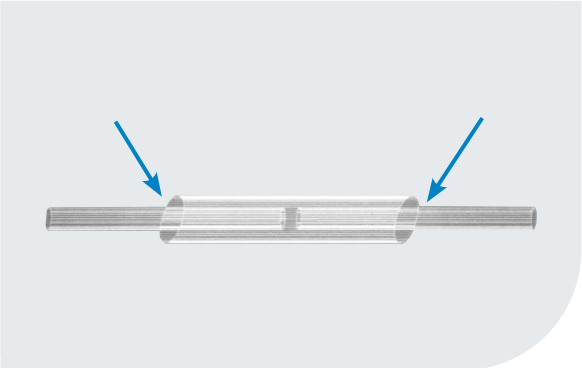
- Diode Assembly
- Lens Bonding
- Lens Laminating
- Prism Curing
- VCSEL Potting
- Fiber Optic Bonding
- Lens Positioning
- LiDAR Assembly
- Camera Module Bonding



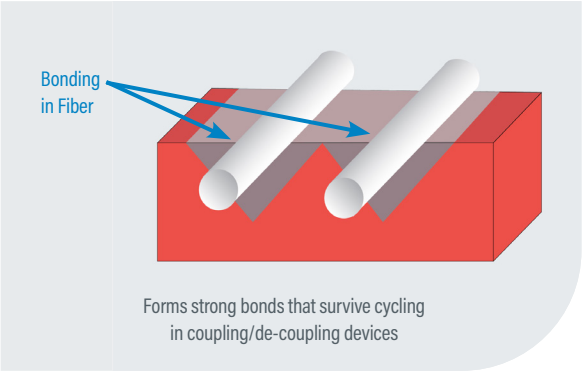
Wavelength Division Multiplexing Bonding Fibers and Diffraction Gratings



Positioning Laser Diodes (VCSEL's)



Fiber Optic Through Ferrule or Fiber Pigtailing



Fiber Optic "V" Grove Bond

Dispensing & Curing Equipment

Dymax dispensing and light-curing systems are perfectly matched to our adhesives' chemistry. Our field-proven dispense solutions are designed to fit many adhesive dispensing applications and include various automatic and manual dispense systems, spray valves, and related components for seamless integration into your assembly process. CE marked equipment is available.

Dispensing Systems

Dymax has developed high-quality, field-proven dispense systems to fit many types of adhesive and fluid dispensing applications. These systems include various automated and manual dispensing valves, spray valves and guns, controllers, material reservoirs, and related components for seamless integration into assembly processes. The systems provide accurate, consistent dispense for a range of low- to high-viscosity fluids. Dispensing systems with adjustable suck-back control and dispensing valves that offer contaminate-free dispensing are available.

Spot Lamps

Spot lamps provide a wide variety of methods to deliver light to a very precise location. They can be used manually by an operator or incorporated into a high-speed automated assembly line. Dymax offers multi-spectrum light-emitting lamps which use high-pressure mercury vapor bulbs, as well as light-emitting diode spot lamps, which use an array of surface-mounted LEDs instead of traditional metal halide or mercury bulbs.

Radiometers

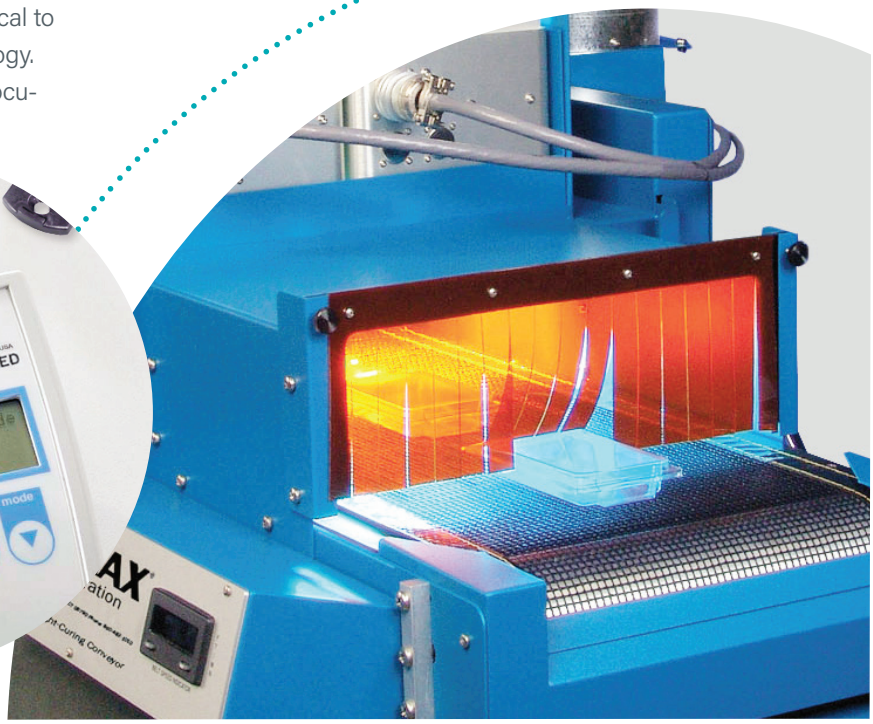
Measurement of the lamp intensity and dosage is critical to the successful implementation of light-curing technology. Dymax radiometers allow operators to monitor and document a light-curing process.

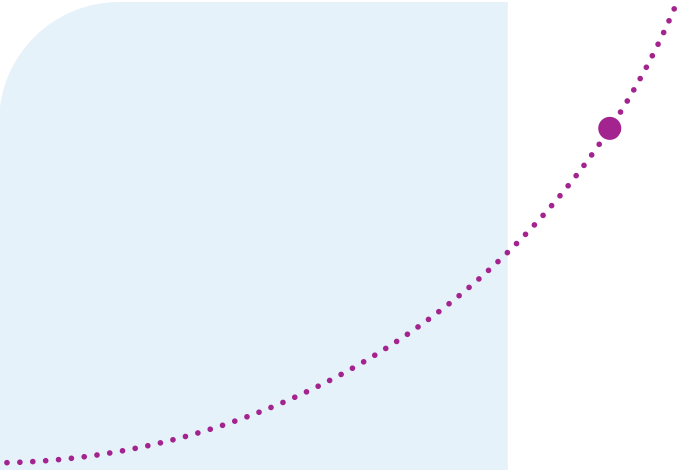
Flood Lamps

Static flood lamp systems are suited for area curing or for curing multiple assemblies. They use moderate- to high-intensity, multi-spectrum UV/Visible light for fast curing. Light-curing flood lamps can be easily integrated into existing manufacturing processes by mounting the lamps above high-speed assembly lines to achieve rapid cures. Shutter assemblies, mounting stands, and shields are available to create a custom curing system.

Conveyor Systems

Conveyor systems consist of a moving belt that passes through a curing tunnel with multi-spectrum lamps mounted from above or on each side for fast curing of parts. These conveyor systems are designed to offer consistent, fast, and safe curing. They can be outfitted with standard metal halide (longwave UV), mercury (shortwave UV), or visible bulbs. Consistent line speed, lamp height, and intensity provide a consistent light-curing process for high throughput.





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