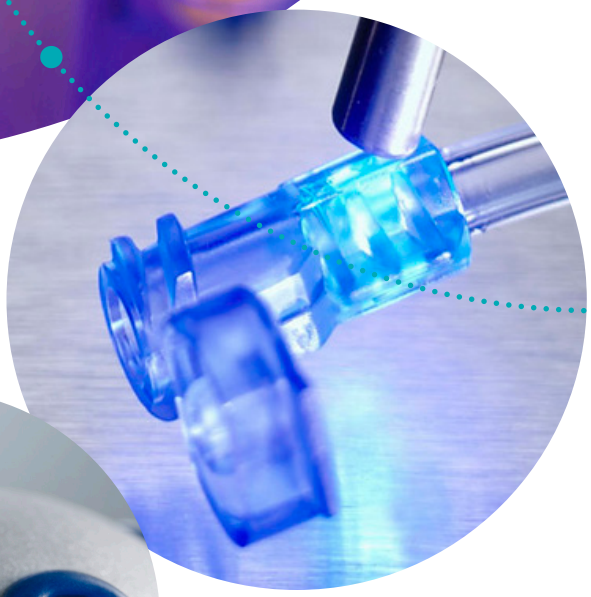
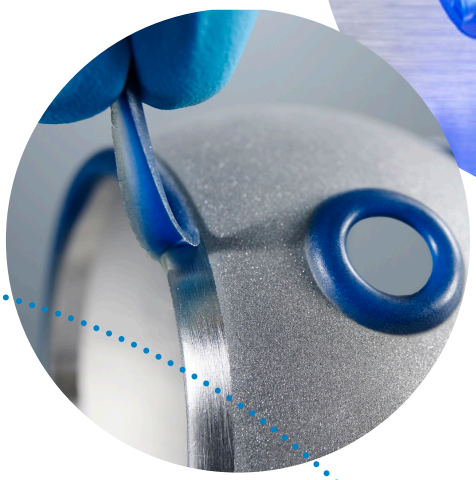
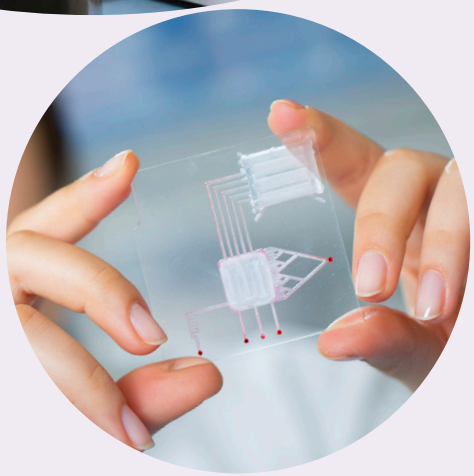




MD® ADHESIVES FOR MEDICAL DEVICE ASSEMBLY

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.

NEEDLES | TUBE SETS | CATHETERS | RESPIRATORY MASKS | RESERVOIRS | WEARABLE DEVICES

About Our Products

Since pioneering light-cure technology over 40 years ago, Dymax has continued to develop innovative ways to optimize disposable medical device assembly. We understand the demands of the medical device market and are ready to assist you with every step of the product development process including adhesive selection, dispensing options, curing recommendations, bio-compatibility testing, component design, and process validation. We are continually developing new technologies to help you build safer, better quality products that increase your manufacturing efficiency, and deliver the best possible outcomes.

Our Commitment to Greener, Safer Manufacturing

Dymax is committed to green manufacturing that reduces environmental impact, conserves energy, and provides greater worker safety. Over the last 40 years, our light-curable materials and curing equipment have become the industry standard for fast, environmentally conscious assembly. Dymax products are readily replacing technologies that contain hazardous ingredients, produce waste, or require higher amounts of energy to process.

- Eco-friendly, one-component materials
- Materials with no added solvents for improved worker and user safety
- Fast curing products and equipment designed for less energy consumption
- Dymax meets global statutory and regulatory requirements

MD® Adhesives

Dymax MD® Adhesives are specially formulated for disposable medical device assembly and used in a variety of applications including catheter, syringe, anesthesia mask, reservoir, tube set, and medical electronics assembly.*

Our adhesives help optimize assembly speeds enabling faster processing, greater output, and in-line inspection of bond lines. Our adhesives contain no added solvents and are RoHS-compliant with many meeting USP Class VI and/or ISO 10993 bio-compatibility standards.

* MD® adhesives are intended for use in short-term (<29 days) or single-use disposable-device applications only. Dymax does not authorize their use in long-term implant applications. In all cases, it's the user's responsibility to determine and validate the suitability of these adhesives in the intended medical device.

Compatible sterilization methods include gamma irradiation and ethylene oxide. Sterilization by autoclaving may be limited to certain applications. It remains the user's obligation to ascertain the effect of sterilization on the cured adhesive.

Multipurpose Adhesives

Dymax 1000-series adhesives contain no added solvents and cure within seconds upon exposure to UV and visible light, permitting bonding of UV-inhibited and tinted plastics. Many 1100-series adhesives are formulated with patented Dymax fluorescing technology, causing them to glow brightly when exposed to a low-intensity "black light". This technology enhances the functionality of automated vision equipment for high-speed, high-volume production.

Product	Unique Product Feature	Recommended Substrates	Viscosity, cP	Rheology	Durometer Hardness	Tensile Break, MPa [psi]	Elongation at Break, %	Modulus of Elasticity, MPa [psi]	Fluorescing*
1040-M	Autoclave Resistant Material for Bonding, Potting, & Encapsulating	ABS, PCTG, PMMA, SS	750	Newtonian	D60	18.6 [2,700]	8	668.8 [97,000]	No
1072-M-Z	Flexible, Moisture-Resistant Plastic Bonder	COC, COP, ABS, PC, PMMA, PVC	1,075	Newtonian	A70	3 [440]	540	10.3 [1,500]	No
1128A-M	Impact-Resistant Adhesive with Secondary Heat Cure	SS, AL, NiTi, ABS, PC, PMMA, GL	600	Newtonian	D80	30 [4,300]	13	640 [93,000]	Blue
1162-M-Z	Blue Fluorescing Plastic & Metal Bonder	ABS, PC, PVC, SS	200	Newtonian	D75	11 [1,600]	110	958.4 [139,000]	Blue
1172-M-UR-Z	Flexible Plastic Bonder with Ultra-Red Technology	COC, COP, PS, PU, PVC	1,050	Newtonian	D25	3 [430]	525	6.6 [960]	Ultra-Red®
1181-M	Blue Fluorescing Adhesive for Plastics and Metals	ABS, PC, PCTG, PS, SS	5,750	Newtonian	D80	56 [8,100]	17	900 [130,000]	Blue
1202-M-SC	Flexible Adhesive; See-Cure Technology	ABS, PC, PCTG, PETG, PVC	200	Newtonian	D55	11 [1,600]	230	100 [15,000]	No
1209-M-UR-SC-Z	Self-Leveling Adhesive; Encompass® Technology	SEBS, PVC, PC, ABS	1,750	Newtonian	D73	12.4 [1,800]	145	490 [71,200]	Ultra-Red®
1405M-T-UR-SC-Z	Adhesive for Plastics & Metal; Encompass Technology	ABS, PC, PCTG, PETG, PMMA, SAN	8,500	Thixotropic	D75	20 [2,900]	160	855 [124,000]	Ultra-Red
1120-M-UR	LED UV Curable Plastic Bonder with Ultra-Red® Fluorescing	ABS, PC, PVC, SAN	250	Newtonian	D70	12 [1,800]	22	151 [22,000]	Ultra-Red®
1121-M	LED UV Curable, Blue Fluorescing Plastic Bonder	ABS, PC, PU, PVC, BPA-Free Copolyester	450	Newtonian	D65	15.8 [2,300]	225	175.8 [25,500]	Blue
1128A-M-VT	Adhesive for Plastics & Metal with Secondary Heat Cure	SS. AL, NiTi, PC, PMMA, GL	11,000	Thixotropic	D75	33 [4,800]	3.4	621 [90,100]	Blue
1161-M	Multi-Purpose Plastic & Metal Bonder	ABS, PC, PCTG, SAN, TPU, SS	300	Newtonian	D70	17 [2,500]	120	300 [44,000]	Blue
1180-M-T	Flexible, General Purpose Adhesive	SS, PC, PS, PU, PVC, ABS	6,000	Thixotropic	D70	19 [28,000]	70	413 [60,000]	Blue
1187-M-GEL	Flexible, Moisture-Resistant Plastic Bonder	PC, PU, PVC, TPU	24,000	Thixotropic	D50	16 [2,400]	200	64 [9,400]	Blue
1187-M-SV01	Flexible, Moisture-Resistant Plastic Bonder	ABS, PC, PU, PVC	6,500	Thixotropic	D55	17 [2,400]	170	170 [25,000]	Blue
1204-M-SC	Flexible, Low Shrinkage Bonder; See-Cure Technology	PCTG, PETG, PVC	12,000	Newtonian	A65	4 [600]	270	3 [370]	No

Featured Product

* U.S. Patents 6,080,450 & 7,892,386

SC See-Cure (Patented Color-Change Technology)

UR Ultra-Red® (Patented Fluorescing Technology)

VT Very Thick

SV Special Viscosity

Z TPO Free

Substrate Bonding Guide

Many Dymax 1000-series adhesives are ISO 10993 approved. They are ideal for bonding a wide variety of substrates found in reservoirs and housings, respiratory devices, needles and syringes, transducers, tube sets and fittings, wearable devices, and other medical disposables.

PRODUCT	ABS acrylonitrile-butadiene-styrene	CAP cellulose acetate propionate	COP/COC cyclo olefin polymer/copolymer: Tritan*	GL glass: borosillicate, quartz, mica	NiTi nickel titanium	PA polyamide	PC polycarbonate	PEBA polyether block amide	PEEK polyetheretherketone	PEI polyetherimide	PET poly(ethylene terephthalate)	PETG poly(ethylene terephthalate)glycol	PI polyimide	PMMA poly(methyl methacrylate)	PP polypropylene	PS polystyrene	PSU polysulfone	PU polyurethane	PVC poly(vinyl chloride)	SAN styrene-acrylonitrile	TPU thermoplastic polyurethane	SS stainless steel
1040-M	●	❍		●			●						❍	●		●				●	❍	
1072-M-Z	●		●	❍		●	●	●		●	●	●	❍	●		●	●	❍	●	●	●	●
1128A-M	●			●	●	❍	●	❍		●				●		●	❍	●		●		●
1162-M-Z	●			●			●				●				❍	●			●			●
1172-M-UR-Z	●		●	●		●	●	●		❍	●	●	●	●		●	●	●	●	●	●	●
1181-M	●						●			●						●		❍	●	●		●
1202-M-SC	●					❍	●	❍	●	❍	❍	●		●		●		❍	●		❍	●
1209-M-UR-SC-Z	●						●			●		●				●			●	●	●	
1405M-T-UR-SC-Z	●					❍	●			●	●	●	❍	●		●		●	❍	●	❍	●
1120-M-UR	●	●					●												●	●		
1121-M	●						●		❍	❍	❍	●		●		❍		●	●	●	●	
1128A-M-VT	●			●	●	❍	●	❍		●				●		●	❍	●		●		●
1161-M	●	●				❍	●				●	●	❍	●	❍	●		❍	❍	●	●	●
1180-M-T	●			●		●	●			●		●				●		●	●	●		❍
1187-M-GEL	●						●				❍	❍				●		●	●	●	●	
1187-M-SV01	●						●				●			❍		●		●	●			
1204-M-SC	●						●			❍	●	●	●	❍		❍	●	❍	●	●	❍	

● Recommended adhesive

❍ Limited applications

ST Requires surface treatment (e.g., plasma, corona treatment, etc.)

Individual Product Data Sheets (PDS) list complete test data, with copies of test reports available upon request.

Adhesives for Catheter Assembly

These single-component adhesives provide excellent adhesion, a high degree of flexibility, and fast light cures for consistent, low stress catheter assembly. CTH products also provide excellent moisture and humidity resistance and are available with patented fluorescing technology, making in-line inspection easy.

Product	Unique Product Feature	Recommended Substrates	Viscosity, cP	Rheology	Durometer Hardness	Tensile Break, MPa [psi]	Elongation at Break, %	Modulus of Elasticity, MPa [psi]	Fluorescing*
203A-CTH-F	Catheter & Guidewire Adhesive with Secondary Heat-Cure Capability	SS, NiTi, ABS, PC, PU	600	Newtonian	D80	30 [4,300]	13	640 [93,000]	Blue
204-CTH-F-Z	Flexible Adhesive	PC, PVC, PU, ABS, PET, PEBA	600	Newtonian	D58	15.2 [2,200]	194	282.7 [41,000]	Blue
209-CTH	Multipurpose Adhesive for Plastics & Metals	PC, PCTG, PET, NiTi	300	Newtonian	D70	17 [2,500]	120	300 [44,000]	Blue
211-CTH-SC-Z	LED UV Curable Adhesive; See-Cure Technology	ABS, PC, PU, PVC	400	Newtonian	D70	14 [2,050]	124	680 [98,000]	No
215-CTH-SV01-UR-SC	LED UV Curable; Excellent Adhesion to Nylon 12 & PEBA; Encompass Technology	PA, PEBA, PET, TPU	1,100	Thixotropic	D53	11.7 [1,700]	300	410 [60,000]	Ultra-Red®
203A-CTH-F-T	Catheter & Guidewire Adhesive with Secondary Heat-Cure Capability	SS, NiTi, PC, ABS, PU	3,250	Thixotropic	D80	26 [3,800]	2.6	630 [92,000]	Blue
203A-CTH-F-VT		SS, NiTi, PC, ABS, PU	11,000	Thixotropic	D80	28 [4,100]	8	550 [80,000]	Blue
203-CTH-F-VLV		SS, NiTi, PC, ABS, PU	55	Thixotropic	D85	32 [4,600]	7	640 [93,000]	Blue
215-CTH-UR-SC	LED UV Curable; Excellent Adhesion to Nylon 12 & PEBA; Encompass Technology	PA, PEBA, PET, TPU	18,000	Thixotropic	D55	15.1 [2,200]	360	165 [24,000]	Ultra-Red®
215-CTH-LV-UR-SC		PA, PEBA, PET, TPU	350	Newtonian	D53	11 [1,600]	300	117 [17,000]	Ultra-Red®
215-CTH-T-UR-SC		PA, PEBA, PET, TPU	6,000	Thixotropic	D50	11.7 [1,700]	260	154 [22,400]	Ultra-Red®
250-CTH	UV and/or Heat Cure Cationic Epoxy; Extremely Low Shrinkage	ABS, PC, PETG, PS, PU, GL	52,500	Thixotropic	D90	51.7 [7,500]	2	1,425 [260,800]	No

SV Special Viscosity
T Thick
VT Very Thick
VLV Very Low Viscosity

Z TPO Free
SC See-Cure (Patented Color-Change Technology)
UR Ultra-Red® (Patented Fluorescing Technology)

Featured Product
* U.S. Patents 6,080,450 & 7,892,386

Substrate Bonding Guide

Dymax CTH-series adhesives are formulated to meet the unique assembly challenges associated with the newest catheter materials, including Nylon 12 and PEBA.

PRODUCT	ABS acrylonitrile-butadiene-styrene	CAP cellulose acetate propionate	PA polyamide (nylon 6/6)	PA polyamide (nylon 12)	PC polycarbonate	PEBA polyether block amide	PEI polyetherimide	PET poly(ethylene tere-phthalate)	PETG poly(ethylene terephthalate)glycol	PI polyimide	PPO poly(phenylene oxide)	PS polystyrene	PSU polysulfone	PU polyurethane	PVC poly(vinyl chloride)	SAN styrene-acrylonitrile	SIL silicone	TPU thermoplastic polyurethane	NiTi nickel titanium	PL platinum	SS stainless steel
203A-CTH-F	•		❍		•	❍	•					•	❍	•		•			•		•
204-CTH-F-Z	•				•	❍		❍		•		•		•	•						
209-CTH	•	•	❍	❍	•	❍		•	•	❍		•		❍	❍	•			•		•
211-CTH-SC-Z	•	•	•		•							•		•	•	•		•	•		
215-CTH-SV01-UR-SC	•		•	•	•	•	•	•	•	❍	❍	•	•	•	•	❍		•			
203A-CTH-F-T	•		❍		•	❍	•					•	❍	•		•	Please contact Dymax Application Engineering for assistance.		•		•
203A-CTH-F-VT	•		❍		•	❍	•					•	❍	•		•			•		•
203-CTH-F-VLV	•		❍		•	❍	•					•	❍	•		•			•		•
215-CTH-UR-SC	•		•	•	•	•	•	•	•	❍	❍	•	•	•	•	❍		•			
215-CTH-LV-UR-SC	•		•	•	•	•	•	•	•	❍	❍	•	•	•	•	❍		•			
215-CTH-T-UR-SC	•		•	•	•	•	•	•	•	❍	❍	•	•	•	•	❍		•			
250-CTH	•	•	❍		•	❍	•	❍	•	❍		•		•	•	•					

- • Recommended adhesive
- ❍ Limited applications
- **ST** Requires surface treatment (e.g., plasma, corona treatment, etc.)

Individual Product Data Sheets (PDS) list complete test data, with copies of test reports available upon request.

Adhesives for Needle Assembly

Dymax MD® adhesives are ideal for automated high-speed needle assembly lines that incorporate immediate in-line testing and packaging. These single-component adhesives cure rapidly upon exposure to the proper combination of high-intensity visible and long wave UV light. The ability to cure with visible light allows for bonding of UV-blocking or heavily tinted plastics. Their fluorescing properties enhance the performance of automated sensing and vision systems, allow for easy detection of adhesive coverage and volume, and lead to higher production yields and improved quality assurance.

Product	Unique Product Feature	Recommended Substrates	Viscosity, cP	Rheology	Durometer Hardness	Tensile Break, MPa [psi]	Elongation at Break, %	Modulus of Elasticity, MPa [psi]	Fluorescing*
1045-M	LED UV Curable Adhesive for Prefilled Syringes & Injection Devices	ABS, Glass, PC, SS	475	Newtonian	D78	23.4 [3,400]	20	1861.6 [270,000]	No
1405M-T-UR-SC-Z	LED UV Curable Plastic & Metal Bonder; Encompass Technology	ABS, PC, PMMA, SAN, SS	8,500	Thixotropic	D75	20 [2,900]	160	855 [124,000]	Ultra-Red
1406-M	LED UV Curable Adhesive for Small Gauge Needles	PP, PE, SS	150	Newtonian	D70	15 [2,200]	120	419 [60,800]	Blue
1401-M-UR	LED UV Curable Adhesive for High-Speed Needle Bonding	ABS, PC, PMMA, PS, SS	2,800	Thixotropic	D70	22 [3,300]	200	284 [41,300]	Ultra-Red
1404-M-UR	Low Wicking, LED UV Curable Plastic & Metal Bonder	PC, PS, SS	6,000	Thixotropic	D65	23 [3,400]	150	447 [65,000]	Ultra-Red
1405-M-UR-SC	LED UV Curable Plastic & Metal Bonder; Encompass Technology	ABS, PC, PMMA, SAN, SS	150	Newtonian	D70	18.6 [2,700]	150	397 [57,600]	Ultra-Red
1501-M-UR	LED UV Curable Bonder for Lightly Colored, Opaque, or Translucent Substrates	ABS, PC, SAN, SS	275	Newtonian	D75	17.9 [2,600]	80	427.5 [62,000]	Ultra-Red

T Thick

Z TPO Free

SC See-Cure (Patented Color-Change Technology)

UR Ultra-Red® (Patented Fluorescing Technology)

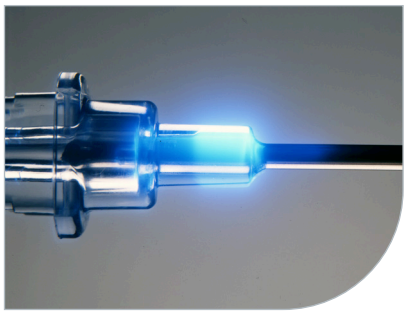
Featured Product

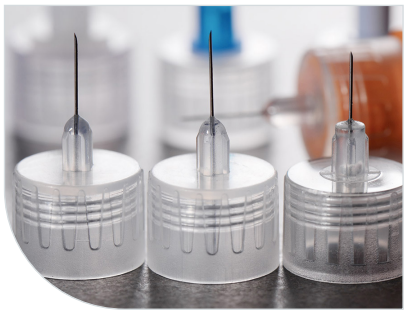
* U.S. Patents 6,080,450 & 7,892,386

Substrate Bonding Guide

All MD® needle-bonding adhesives are ISO 10993. Typical applications include bonding cannulas to hubs in various hypodermic and biopsy needles, syringes, and winged infusion sets made from multiple plastics, metals, and glass.

PRODUCT	**ABS** acrylonitrile-butadiene-styrene	**PC** polycarbonate	**PE** polyethylene	**PMMA** poly(methyl meth-acrylate)	**PP** polypropylene	PS polystyrene	PU polyurethane	**GL** glass: borosilicate, quartz, mica	**SS** stainless steel
1045-M	•	•		❍			•	•	•
1405M-T-UR-SC-Z	•	•		•	ST	•	•		•
1406-M	•	•	•	❍	ST	•			•
1401-M-UR	•	•		•	ST	•		❍	•
1404-M-UR	•	•		❍	ST	•			•
1405-M-UR-SC	•	•		•	ST	•	•		•
1501-M-UR	•	•			ST				•





- • Recommended adhesive
- ❍ Limited applications
- **ST** Requires surface treatment (e.g., plasma, corona treatment, etc.)

Individual Product Data Sheets (PDS) list complete test data, with copies of test reports available upon request.

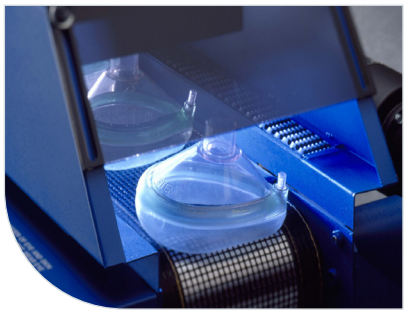
Adhesives for Respiratory Devices

Dymax MSK UV/Visible light-curable adhesives are formulated for bonding respiratory devices such as anesthesia masks, resuscitator bags, and breathing circuits. On-demand bonding at line speeds greater than 20 feet per minute (6.1 meters per minute) is possible, providing increased through-put without additional labor or line expansion. Some MSK adhesives are formulated to fluoresce blue or red upon exposure to low-intensity "black" light, making them ideally suited for in-line inspection. Dymax respiratory-device adhesives are easily dispensed by syringe, dipping well, screen print, or spray and are compatible with gamma, EtO, and E-Beam sterilization.

Product	Unique Product Feature	Recommended Substrates	Viscosity, cP	Rheology	Durometer Hardness	Tensile Break, MPa [psi]	Elongation at Break, %	Modulus of Elasticity, MPa [psi]	Fluorescing*
108-MSK	Fast, Tack-Free Adhesive	PC, PS, PVC, SAN	600	Newtonian	D75	25 [3,700]	70	388 [56,400]	Blue
104-MSK-GEL	Flexible, General Purpose Adhesive	PCTG, PETG, PU, PVC, SAN	23,500	Thixotropic	D60	19 [2,750]	205	147 [21,370]	No
111-MSK	Flexible, Moisture-Resistant Adhesive	ABS, PC, PS, PU, PVC, SEBS	250	Newtonian	D55	6.9 [1,000]	400	99 [14,500]	Blue

Featured Product

* U.S. Patents 6,080,450 & 7,892,386



Substrate Bonding Guide

Dymax MSK-series adhesives contain no added solvents and are ISO 10993-5 Cytotoxicity approved. They form strong, flexible bonds to a variety of substrates used in the assembly of respiratory devices, including highly plasticized plastics.

PRODUCT	**ABS** acrylonitrile-butadiene-styrene	**PC** polycarbonate	**PET** poly(ethylene terephthalate)	**PETG** poly(ethylene terephthalate)glycol	**PI** polyimide	**PMMA** poly(methyl methacrylate)	**PS** polystyrene	**PU** polyurethane	**PVC** poly(vinyl chloride)	**SAN** styrene-acrylonitrile	**SEBS** styrene-ethylene/butylene-styrene	**Silicone** (platinum cured)
108-MSK	❍	•		•		•	•	•	•	•		Please contact Dymax Application Engineering for assistance.
104-MSK-GEL		•	❍	•	❍		❍	•	•	•		
111-MSK	•	•				•	•	•	•		•	

- • Recommended adhesive
- ❍ Limited applications
- **ST** Requires surface treatment (e.g., plasma, corona treatment, etc.)

Individual Product Data Sheets (PDS) list complete test data, with copies of test reports available upon request.

Materials for Medical Electronics

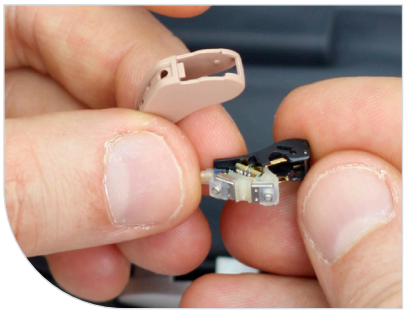
Dymax light-curable materials for electronic medical devices are ideal for sealing, conformal coating, or encapsulating electronic circuit boards and components. They provide superior protection and are formulated with innovative features like secondary heat-cure for shadowed areas and patented fluorescing technology to meet the unique assembly challenges associated with medical electronics assembly. LED-curable and colored grades are also available.

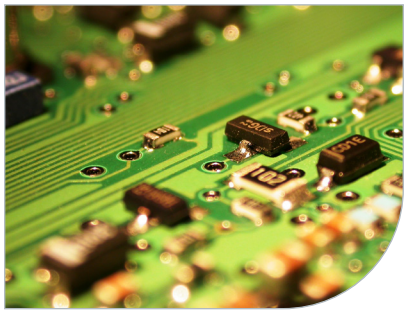
Product	Unique Product Feature	Recommended Substrates	Viscosity, cP	Rheology	Durometer Hardness	Tensile Break, MPa [psi]	Elongation at Break, %	Modulus of Elasticity, MPa [psi]	Fluorescing*
1072-M-Z	Flexible, Moisture-Resistant Plastic Bonder	COC, COP, ABS, PC, PMMA, PVC	1,075	Newtonian	A70	3 [440]	540	10.3 [1,500]	No
1172-M-UR-Z	Flexible Plastic Bonder with Ultra-Red Technology	COC, COP, PS, PU, PVC	1,050	Newtonian	D25	3 [430]	525	6.6 [960]	Ultra-Red®
1181-M	Fast, LED-Curable Adhesive for Bonding & Potting	ABS, PC, PCTG, PS, SS	5,750	Newtonian	D80	56 [8,100]	17	900 [130,000]	Blue
1184-M-B	Blue-Black, Low Gloss Conformal Coating with Secondary Heat-Cure	PI, PS, SAN, PCB	6,000	Thixotropic	D80	55 [8,000]	7	840 [122,000]	No
1184-M-T-R	Red Adhesive with Secondary Heat Cure	PI, PS, SAN, PCB	4,000	Thixotropic	D80	60 [8,600]	5	970 [140,000]	No
1901-M	LED UV Curable Coating with Secondary Heat-Cure	Flexible PCB, Rigid PCB	3,000	Newtonian	A67	2 [290]	45	3 [480]	No

B Blue
R Red
T Thick

Z TPO Free
UR Ultra-Red® (Patented Fluorescing Technology)

Featured Product
* U.S. Patents 6,080,450 & 7,892,386





Substrate Bonding Guide

Dymax light-curable materials for medical electronic devices have excellent adhesion to a variety of substrates.

PRODUCT	**ABS** acrylonitrile-butadiene-styrene	**COP/COC** cyclo olefin polymer/copolymer	**GL** glass: borosillicate, quartz, mica	**PA** polyamide	**PC** polycarbonate	**PEBA** polyether block amide	**PEI** polyetherimide	**PET** poly(ethylene terephthalate)	**PETG** poly(ethylene terephthalate) glycol	**PI** polyimide	**PMMA** poly(methyl methacrylate)	**PS** polystyrene	**PSU** polysulfone	**PU** polyurethane	**PVC** poly(vinyl chloride)	**SAN** styrene-acrylonitrile	**TPU** thermoplastic polyurethane	**SS** stainless steel	**PCB** printed circuit board
1072-M-Z	●	●	❍	●	●	●	●	●	●	❍	●	●	●	❍	●	●	●	●	
1172-M-UR-Z	●	●	●	●	●	●	❍	●	●	●	●	●	●	●	●	●	●	●	
1181-M	●				●		●					●		❍	●	●		●	
1184-M-B	●		❍	●	●		●	●		●	●	●			●	●	●	●	●
1184-M-T-R	●		❍	●	●		●	●		●	●	●			●	●	●	●	●
1901-M				❍					❍			●			❍		●		●

- ● Recommended adhesive
- ❍ Limited applications
- **ST** Requires surface treatment (e.g., plasma, corona treatment, etc.)

Individual Product Data Sheets (PDS) list complete test data, with copies of test reports available upon request.

Maskants for Orthopaedics & Surgical Tools

SpeedMask® light-curable maskants provide superior surface protection of orthopaedic implants, surgical instruments, and medical devices during aggressive surface finishing processes. They cure in seconds upon exposure to UV/Visible light and replace traditional masking materials such as tapes, lacquers, waxes, boots, and caps. SpeedMask® maskants are easily applied by syringe or through dipping, spraying, or screen printing, and are available in peelable or burn-off grades that leave component surfaces residue free.

Product	Unique Product Feature	Viscosity, cP	Rheology	Durometer Hardness	Tensile Break, MPa [psi]	Elongation at Break, %	Modulus of Elasticity, MPa [psi]	10993-5 Cytotoxicity Approved	Fluorescing*
726-SC	Heat-Resistant Maskant with See-Cure Technology	52,000	Thixotropic	D40	6.8 [980]	160	3.9 [560]	Yes	No
730-BT	Chemical-Resistant Blue Mask	22,000	Thixotropic	D35	4.8 [700]	300	3.4 [500]	Yes	No
750	Pink, Heat-Resistant Mask	30,000	Thixotropic	A50	3.6 [530]	140	2.5 [370]	Yes	No
750-SC	Heat-Resistant Mask with See-Cure Technology	30,000	Thixotropic	A85	4.5 [659]	124	29 [4,250]	Yes	No
7602	Blue Fluorescing Mask with Color Change on Cure	26,000	Thixotropic	A76	6 [872]	185	60.4 [8,757]	Yes	Blue
724	Easy Peel Surface Treatment Mask	70,000	Thixotropic	D40	5.4 [780]	200	2.7 [390]	Yes	No
728-G	High-Visibility Green Mask	25,000	Thixotropic	D55	15.5 [2,242]	265	55 [8,024]	Yes	No
731-REV-A	Trimmable, Yellow Fluorescing Mask	18,000	Thixotropic	D55	20 [2,950]	300	28 [4,200]	Yes	Yellow
733-G-REV-A	High-Visibility Green Mask	25,000	Thixotropic	D50	22.3 [3,238]	294	193 [27,960]	Yes	No
734-BT	Chemical-Resistant Blue Mask	24,000	Thixotropic	D25	5 [731]	235	35 [5,044]	Yes	No

G Green

BT Blue

SC See-Cure (Patented Color-Change Technology)

Featured Product

* U.S. Patents 6,080,450 & 7,892,386

Process Guide

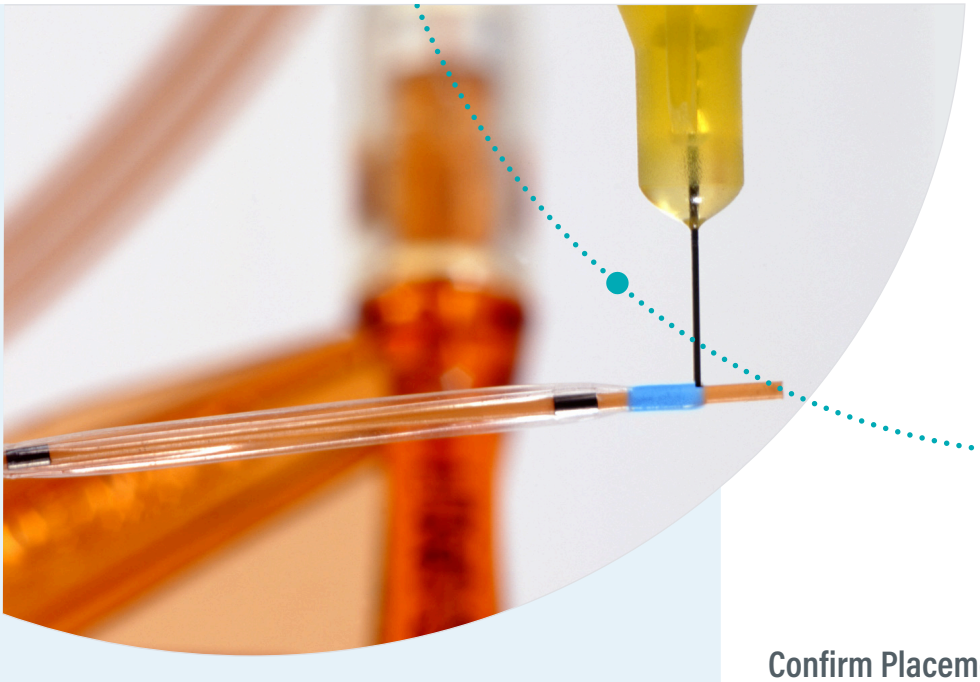
SpeedMask® maskants provide excellent surface protection during aggressive finishing processes including sand blasting, acid stripping, anodizing, machining, and more.

		Chemical Processes			Coatings			Media Finishing			Manufacturing Aids		
Product	Removal Options	Anodizing	Plating	Acid Stripping	Air Plasma Spray	Painting & Powder Coatings	Thermal Barrier Coatings	Grit Blasting	Shot Peening	Vibratory Finishing	Machining	Buffing/Polishing	Laser Drilling
726-SC	Peelable		●		●	●		●	●				
730-BT	Peelable or Incineration	●	●					●	●				
750	Peelable or Incineration				●			●		●	●		
750-SC	Peelable or Incineration	●	●		●			●					
7602	Peelable or Incineration	●	●	●				●					
724	Incineration					●		●	●				
728-G	Peelable or Incineration		●	●				●	●	●	●	●	
731-REV-A	Peelable or Incineration	●	●				●	●	●	●			
733-G-REV-A	Peelable or Incineration				●		●	●	●				
734-BT	Peelable or Incineration	●	●	●	●			●	●	●		●	

● Recommended adhesive

❍ Limited applications

Individual Product Data Sheets (PDS) list complete test data, with copies of test reports available upon request.



Adhesive Innovations

As an innovator in the adhesive and coating industries, Dymax strives to create new technologies that help manufacturers increase process efficiency, productivity, and throughput while decreasing costs and inventory. Through the years, our dedication to innovation has resulted in over 30 oligomer, adhesive, and equipment patents and numerous awards for our innovative technologies and service.

Our R&D experts are always striving to create new technologies that will help manufacturers improve their processes and minimize risk. Our current portfolio of technologies provide a variety of benefits including easier bond line inspection and cure confirmation for better quality control, faster cures for quicker processing, and curing in shadowed areas to eliminate concerns about uncured material.

Confirm Placement & Cure - Patented See-Cure Technology

Dymax adhesives with See-Cure technology feature built-in cure validation, allowing easy visual confirmation without specialized equipment. Initially bright blue for enhanced visibility during application, the adhesive turns colorless after curing under light, ensuring complete cure and enhancing manufacturing safety.

Speed up Production with Faster Cures - LED Light-Curing Technology

Dymax offers LED light-curable adhesives designed for optimal performance with its LED curing systems. With fast to ultra-fast cure speeds, these adhesives suit diverse assembly needs. Compatible curing equipment includes spot lamps, flood lamps, and conveyors for various process requirements.

Enhance Bond-Line Inspection - Fluorescing Technology

Adhesives formulated with Dymax Ultra-Red® are colorless until exposed to low-intensity UV light (360–380 nm). At taht point they fluoresce bright red—ideal for use with plastics that naturally fluoresce blue. Unlike blue fluorescing products, Ultra-Red® doesn't absorb the same wavelengths as those used to cure the adhesive, enabling faster, deeper cures. This patented, exclusive compound produces a unique, traceable energy peak for product identification. Dymax also offers products that fluoresce blue under low-intensity "black" light (365 nm) for easy in-line inspection of bond lines.

Enhance Bond-Line Inspection & Confirm Cure - Encompass® Technology

Dymax adhesives formulated with Encompass® technology incorporate Dymax exclusive Ultra-Red fluorescing and See-Cure color-change technologies into one light-curable product. As a result, manufacturers gain efficiencies from rapid on-demand curing with easy cure confirmation and post-cure bond-line inspection.

Cure in Shadows - Multi-Cure® Light/Heat Cure Technology

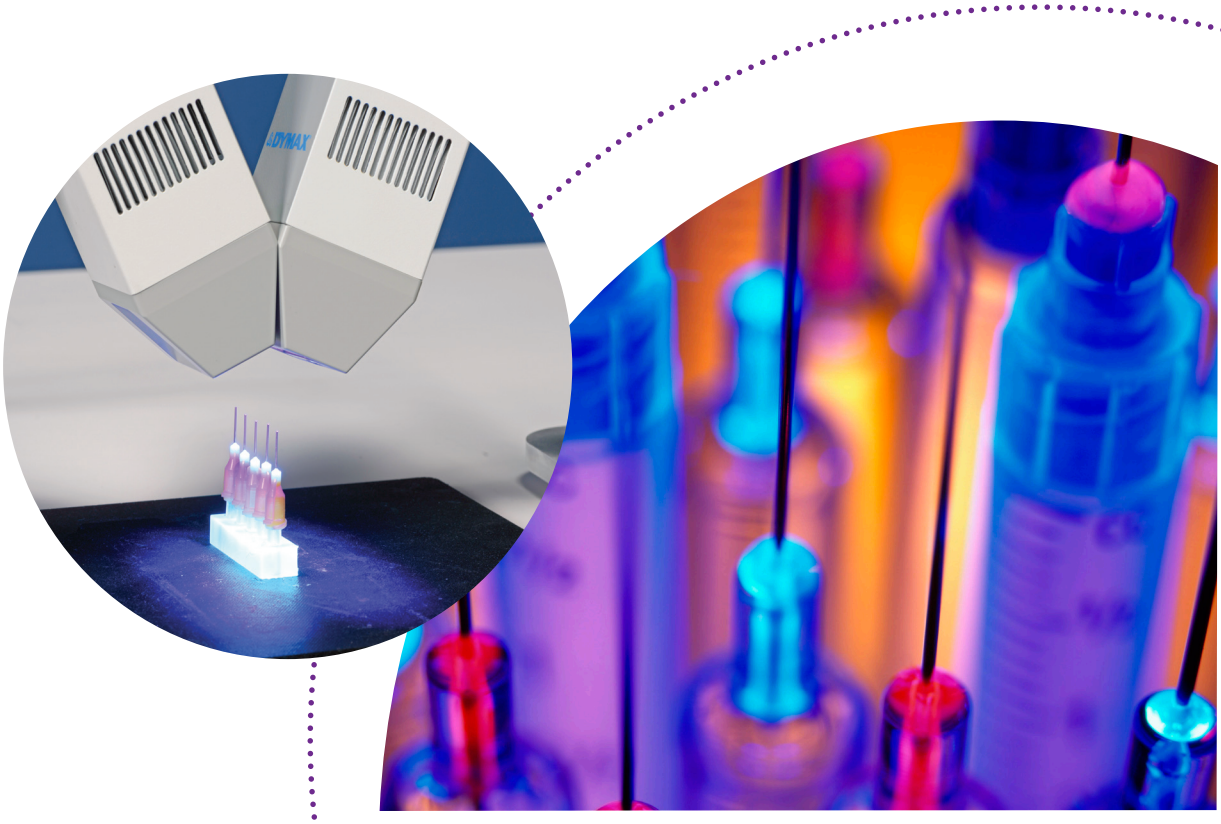
Multi-Cure adhesives and coatings combine the high-speed cure of UV or UV/Visible light with secondary cure mechanisms that enhance polymerization. Secondary cure mechanisms, which include moisture, thermal, or activator cure, are useful when light can only reach a portion of the bond line, or when tacking a part prior to final cure to allow easier handling and transport during the manufacturing process.

No Light Needed, Cures in Darkness - HLC™ Adhesives

Dymax patented HLC™ adhesives combine the best attributes of anionic and free radical chemistries into one. HLC™ adhesives exhibit the exceptional physical and performance properties of Dymax standard light-curable materials and the rapid on-contact cure of anionics. The incorporation of contact curing allows these adhesives to be used with a larger range of substrates and provides curing in dark areas not reachable by light.

TPO-Free Adhesives

Dymax offers a line of TPO-free light-curable adhesives. Formulated without Trimethylbenzoyl Diphenylphosphine Oxide (TPO), these products offer the same trusted performance and reliability customers expect from Dymax while supporting long-term product planning.



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.

We offer a complete line of conventional and LED light-curing equipment including spot, flood, and conveyor systems, as well as radiometers for measuring light intensity. Our equipment can be configured as stand-alone units or integrated into existing manufacturing assembly lines for fast processing.

BlueWave® MX-Series Systems

BlueWave MX-Series curing systems feature all the benefits of LED-curing technology in smaller, more versatile units. These systems are uniquely designed to offer higher, more consistent curing intensity than traditional spot or flood curing systems. They are comprised of a power supply, a controller with an easy-to-use control interface, and an emitter. Emitters are available in three models, the MX-150 (spot), MX-250 (flood), and MX-275 (line) as well as in three different curing wavelengths, 365, 385, and 405 nm.

BlueWave® 200

The BlueWave 200 spot-curing lamp delivers UV and visible energy (300-450 nm) for curing adhesives, coatings, and encapsulants. The lamp uses a patented intensity adjustment feature that allows users to deliver the optimized level of energy for their application requirements. The system contains an integral shutter which can be actuated by a foot pedal or PLC making it ideal for both manual and automated processes.

BlueWave® AX-550

The BlueWave AX-550 combines a controller, emitter, and power supply into a compact, all-in-one LED flood-curing system. Eliminating the need for a large, traditional–style controller and bulky cables, this unit has a greatly reduced footprint and is easily integrated into automated processes.

The system features a large 5" x 5" (12.5 x 12.5 cm) curing area, which is controlled by an user interface with push-button controls or through a PLC interface. Dymax offers the system with three different wavelength emitters (365, 385, and 405 nm), which are field-upgradeable by customers so they can switch to another wavelength easily if needed.

BlueWave® QX4®

The BlueWave QX4 spot-cure system consists of a controller and up to four LED heads. LED heads are available in 365, 385, and 405 nm and can be outfitted with 3-, 5-, or 8-mm diameter focusing lenses. The system offers maximum curing flexibility to users. Each head can be individually programmed for intensity and cycle times. Individual exposure times and intensity settings can be set in 1% increments for each LED head allowing for a completely customized spot-cure process.

UVCS Conveyor Systems

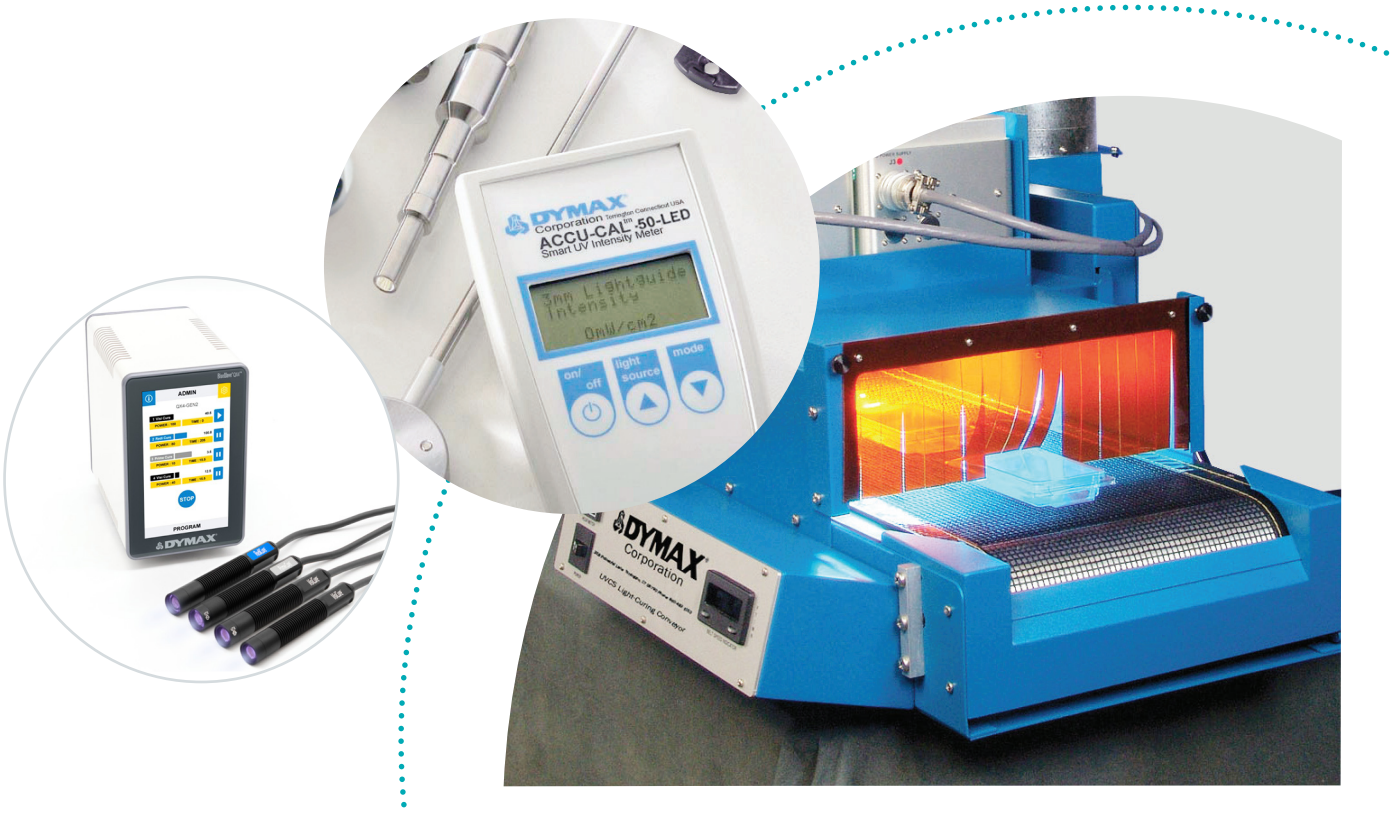
Dymax conveyor systems use high-intensity light sources for fast curing of adhesives, coatings, inks, and encapsulants. UVCS bench-top conveyors can be outfitted with up to four UV or LED flood lamps, or for higher energy requirements, can be configured with microwave-driven light sources. All configurations have adjustable belt speeds of 1 to 32 feet per minute, and adjustable lamp-to-belt distance to address a variety of application requirements. When combined, the UVCS conveyors' consistent intensity, fast curing, and adjustable line speeds create an optimized UV-curing process that enables high throughput.

ACCU-CAL™ Radiometers

ACCU-CAL™ radiometers allow operators to monitor, document, and maintain a reliable light-curing process, while ensuring the system is providing the intensity and dosage levels required for successful curing. A radiometer can signal an operator to replace a curing system's degrading bulb, reflector, or lightguide to help prevent incomplete cures from happening. ACCU-CAL™ radiometers can also measure the intensity of stray or reflected energy and confirm that operators are properly shielded from light exposure.

SD-100 Digital Syringe Dispenser

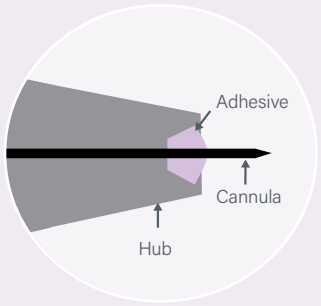
The SD-100 digital syringe dispenser accurately dispenses low-to-high viscosity materials from a syringe. Operators are able to quickly and easily set up the system for the deposit size needed by utilizing the digital timer control and adjustable pressure gauge. The digital timer has a range of 0.01 to 9999 seconds giving the operator precise control over fluid dispense, and the adjustable vacuum suck-back results in clean, drip-free shut-off of materials. This dispensing system replaces manual syringe dispensers and squeeze bottles, reducing operator fatigue. It's ideal for use as an operator work station and can also be integrated into an automated process. The SD-100, a portable light-weight unit with a space-saving footprint, is compatible with a variety of syringe sizes from 3 to 55 cc.



Reference Tables

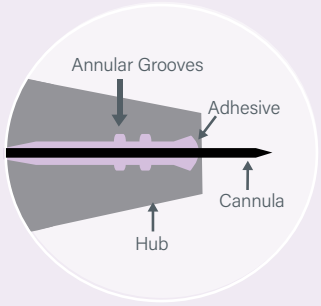
Joint Design

An adhesive should be chosen according to the needs of the application and joint design.



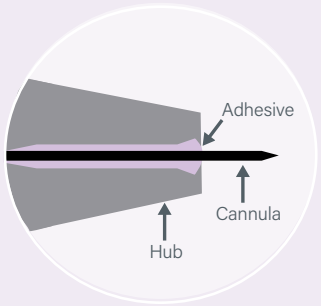
Well Configuration

A hub that is flared at the distal end is described as a "well" configuration. Filling the well with adhesive secures the needle in place. In many cases the hubs are opaque but can be cured from above so UV light is not required to pass through the plastic. In the "well" design, adhesion to both the hub substrate and cannula are of critical importance. The well in this configuration is usually large enough to permit using mid-range viscosities.



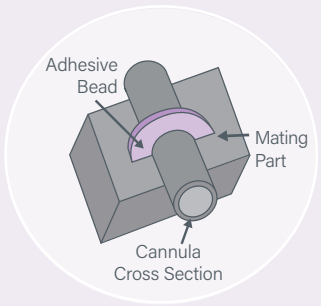
Mechanical Lock

A hub can be molded with annular grooves in its inside diameter. The annular rings are typically 0.005" to 0.008" (0.127-0.2 mm) deep per side subject to molding limitations. This allows the cured adhesive to form a mechanical lock, substantially increasing pullout strength. Adhesives will form a structural bond with the stainless steel cannula and lock in place with the added groove feature. With this design, a low- to medium-viscosity adhesive is used to wick between the stainless steel cannula and hub forming a mechanical lock.



Cylindrical Hub

The close-fitting cannula-to-hub design is commonly encountered in medical disposable syringes. A cylindrical hub that is closely fit to the cannula requires a low-wicking-grade-viscosity adhesive. It is also critical to choose an adhesive that has superior bond strength to both substrates. Recommended gap: 0.002"-0.004" (0.05-0.1 mm) per side.



Bridge Bonding

The cannula can be attached to the mating part by bridge bonding, which entails placing an adhesive bead over the top of the cannula. This design overcomes the problem of getting light into a shadowed area for the purpose of curing the adhesive.

Viscosity

When choosing a viscosity, consideration should be given to how the adhesive must flow (or not flow) on the part after the adhesive is applied. Part geometry, process design, and assembly speed and method should all be considered when selecting viscosity. Viscosity is a material's resistance to flow. Low-viscosity adhesives flow more readily than high-viscosity adhesives. Thixotropic gels flow very slowly and are recommended when adhesive flow on a part after dispensing must be minimal.

Dymax adhesives are available in a variety of viscosities. The identifiers appear as suffixes on product names as follows:

VLV = Very Low Viscosity
LV = Low Viscosity
T = Thick
VT = Very Thick
GEL = Gel

Standard viscosity products do not have a suffix.

Typical Centipoise (cP/MPa)	Typical Reference Liquids at 20°C
1	Water
10	Kerosene
110	SAE 10 Oil
200	Maple Syrup
440	SAE 30 Oil
1,100	Castor Oil
3,000	Honey
10,000	Molasses
18,000	Chocolate Syrup
65,000	Vaseline
100,000	Sour Cream
200,000	Peanut Butter
1,500,000	Shortening

LV Low Viscosity
Newtonian

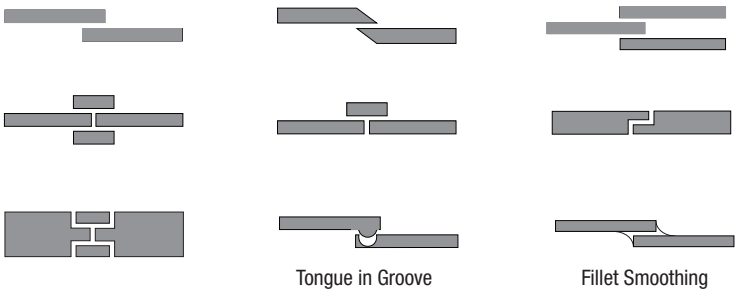
T Viscosity
Slightly Thixotropic

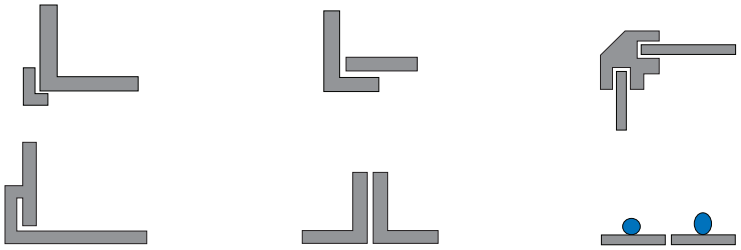
VT Viscosity
Thixotropic

GEL Viscosity
Highly Thixotropic

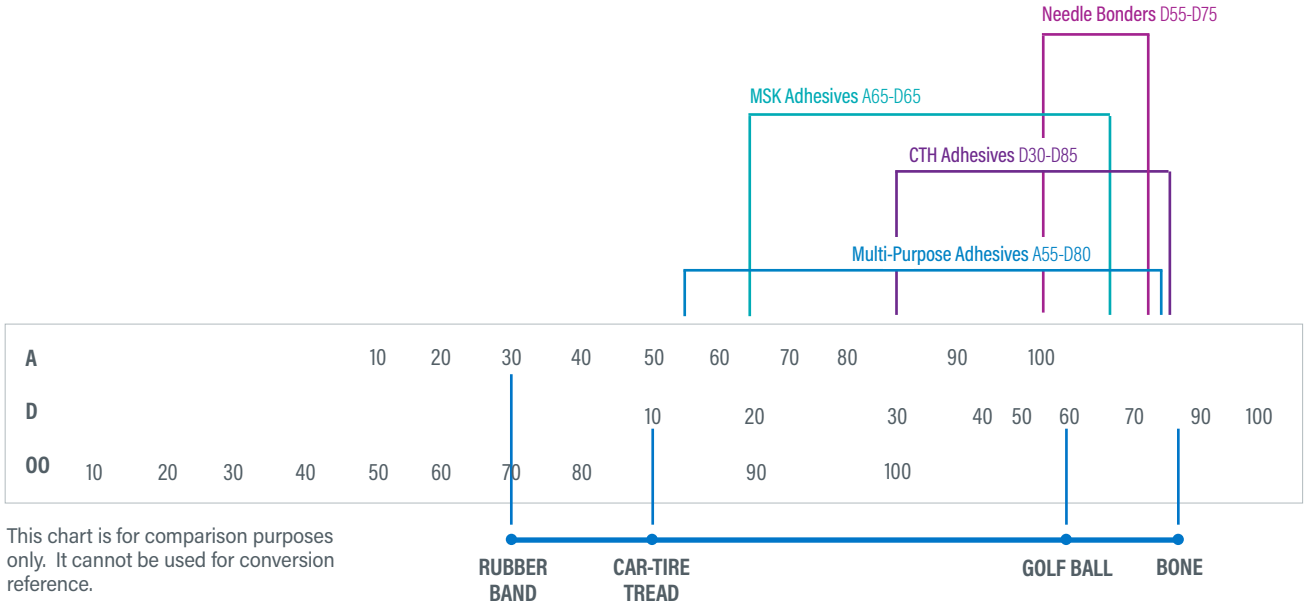
Dots

Volume of a dot is 1/2 the volume of a sphere $V=.2618D^3$						
Volume (ul)	0.10	0.51	0.05	0.01	00.0	25.0
Volume (mL)	0.0001	0.00050	0.0010	0.0050	0.0100	0.025
Diameter (mm)	0.73	1.241	0.56	2.673	0.37	4.57
Diameter (in)	0.0290	0.0490	0.0610	0.1030	0.1330	0.180

Avoid butt joints: Cleavage or asymmetric-type forces can result in part failure	Suggested alternatives: (Recommended bond gaps: 0.002" - 0.006" [0.05 -0.15 mm])
	

Avoid corner butt joints: Cleavage-type forces can result in part failure	Suggested alternatives: (Recommended bond gaps: 0.002" - 0.006" [0.05 -0.15 mm])
	

Hardness



This chart is for comparison purposes only. It cannot be used for conversion reference.

Production Throughput Planner

1 Piece Every...	Minute	Hour	*Day (8 hours)	*Week (40 hours)	*Month (21 days)	*Year (50 weeks)
0.5 second	120	7,200	57,600	288,000	1,209,600	14,400,000
1 second	60	3,600	28,800	144,000	604,800	7,200,000
5 seconds	12	720	5,760	28,800	120,960	1,440,000
10 seconds	6	360	2,880	14,400	60,480	720,000
30 seconds	2	120	960	4,800	20,160	240,000
1 minute	1	60	480	2,400	10,080	120,000
5 minutes	-	12	96	480	2,016	24,000
10 minutes	-	6	48	240	1,008	12,000
30 minutes	-	2	16	80	336	4,000
1 hour	-	1	8	40	168	2,000

*Based on 8-hour shifts.

Estimating Usage

Bond-Line Gap or Coating Thickness	Theoretical Area Covered by 1 Liter of Adhesive or Coating
0.002" (51 µm)	30,500 in^2 (212 ft^2) (19.7 m^2)
0.005" (127 µm)	12,200 in^2 (84.7 ft^2) (7.88 m^2)
0.010" (254 µm)	6,100 in^2 (42.4 ft^2) (3.94 m^2)
0.015" (381 µm)	4,070 in^2 (28.3 ft^2) (2.63 m^2)

Bead Size	Theoretical Usage (Length per Liter)
1/32" (.79 mm)	66,300 in (1,684 m)
1/16" (1.6 mm)	16,600 in (422 m)
3/32" (2.4 mm)	7,400 in (188 m)
1/8" (3.2 mm)	4,100 in (104 m)
3/16" (4.8 mm)	1,900 in (48 m)
1/4" (6.4 mm)	1,000 in (25.4 m)

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SG015DA 8/12/2026