

Solutions for LED Assembly



Henkel.

Improving your designs, understanding your challenges

PROVEN SOLUTIONS FOR ALL YOUR NEEDS - TODAY AND TOMORROW



Manufacturers face daily challenges to reduce costs, improve efficiency, and increase innovation, to name just a few. While there are many adhesive suppliers to choose from, they're not all created equal. You need a supplier with a broad product portfolio, a global footprint, and the engineering and application know-how to solve your challenges. You also need a partner who can help you maintain your high quality while developing advanced new products.

Henkel, the leading solutions provider for adhesives, sealants and functional coatings worldwide, offers much more than quality adhesives. With our history and experience in the industry, our experts can help you find ways to optimize your manufacturing processes and drive down costs. We can help you reduce weight, increase durability and enhance the reliability of your equipment. And we're continually developing innovations to help you succeed in the future.

Let us show you the value Henkel offers.

Applications for LED Assembly

Bonding and Sealing

- Realise your desired design through virtually invisble joining of components and adhesives for all types of material combinations, including plastics.
- Increase luminaire quality and life span:
 - Good water resistance
 - Ingress protection
 - Reliable adhesion
 - Cope with vibrations
- Optimise manufacturing process:
 - Manage gaps and thermal expansion
 - Optimise line speed through fast cure and automation

Potting - General and Transparent

- Increase luminaire quality and life span by protecting electronic components from humidity and impact
- Protect LED modules through ultra-clear transparent potting:
- Increase lumen output
- Long term UV stable and low yellowing
- Reduce need for sealed diffusers and additional manufacturing steps
- Flexible cure time to match your manufacturing process and low shrinkage

Thermal Management

- Increase life span of LED modules by reducing operating temperature
- Removable solutions to allow maintenance
- Thermally conductive adhesives to combine fixing and thermal management in one manufacturing step

Low Pressure Moulding - General and Transparent

- Increase luminaire quality and life span: protecting electronic components from humidity and impact
- Optimise your manufacturing process: overmoulded parts are ready for the next process step in less than 1 minute
 - no curing time required
- Directly overmould PCBs and in many cases elimate need for additional housing for components
- Improve your sustainability footprint: low pressure moulding adhesives are made of renewable raw materials



Roadway and Parking Lot Lighting

Thread	llocking	General Bon	ding
Loctite® Product	Description	Loctite [®] Product	Description
243™ 246™ 263™	Medium strength, primerless Medium strength, high temp.	E-30CL [™] E-90FL [™] H3151 [™]	2-part, clear, epoxy adhesive 2-part, flexible, epoxy adhesive High viscosity structural
263 [™] 290 [™]	High strength, primerless Wicking grade threadlocker	401 [™]	adhesive Surface insensitive instant adhesive
	To PUC	UK 1366 B10™	
6		Thermal Ma	nagement
		Loctite [®] Product	Description
	1		Silicone grease I-part acrylic adhesive

Potting			
Loctite® Product	Description		
E-30CL™	2-part, clear, epoxy adhesive		
E-30HV™	High strength potting &		
	bonding epoxy		
5620 ™	2-part, ultra-clear, silicone		

Lens Bonding & Sealing

Loctite® Product	Description
5510 ™	One-component elastomeric sealant
Superflex®	One-component RTV sealant
5050 ™	UV cure silicone adhesive and sealant
5600 ™	2-part, fast cure, silicone adhesive and sealant
E-30CL™	2-part, clear, epoxy adhesive
MS930™	General purpose sealing adhesive



Industrial and Commercial Lighting

Loctite [®] Product	Description		Potting	
E-30CL™ E-90FL™	2-part, clear, epoxy adhesive 2-part, flexible, epoxy adhesive		Loctite [®] Product	Description
H3151™	High viscosity structural adhesive	0	E-30CL [™] 5620 [™]	2-part, clear, epoxy adhesiv 2-part, ultra-clear, silicone
401™	Surface insensitive instant adhesive			
UK 1366 B1O™	2-part, flexible, polyurethane adhesive			lanagement
E-30HV™	High strength potting &		Loctite® Product	Description
	bonding epoxy		SI 100™	Silicone grease
MS930™	General purpose sealing adhesive		384 ™	1-part acrylic adhesive

Lens	Bond	ing &	2 Seal	ing

Loctite [®] Product	Description
5510 ™	One-component elastomeric sealant
Superflex®	One-component RTV sealant
5050 ™	UV cure silicone adhesive and sealant
5600 ™	2-part, fast cure, silicone adhesive and sealant
E-30CL [™]	2-part, clear, epoxy adhesive
MS930™	General purpose sealing adhesive



Consumer / Residential Lighting

Conoral	Bonding
General	Domunig

Loctite [®] Product	Description
E-30CL™	2-part, clear, epoxy adhesive
E-90FL™	2-part, flexible, epoxy adhesive
H3151™	High viscosity structural
	adhesive
401 [™]	Surface insensitive instant
	adhesive
UK 1366 B10™	2-part, flexible, polyurethane
	adhesive
415 ™	High viscosity instant adhesive
HVHT™	High viscosity high
	temperature instant adhesive

Potting		
Loctite® Product	Description	
E-30CL™	2-part, clear, epoxy adhesive	
E-30HV™	High strength potting &	
	bonding epoxy	
5620 ™	2-part, ultra-clear, silicone	

Thermal Management

Loctite® Product	Description
SI 100™	Silicone grease
384 ™	1-part acrylic adhesive

adhesive

adhesive

High viscosity high

2-part, flexible, polyurethane

temperature instant adhesive

UK 1366 B10™

HVHT[™]



Architectural Lighting

Witching grade threadlocker Lens Bonding & Sealing Difficitie Description Stoportial One-component elastomeric sealant Soportial 2-part, fast cure, silicone adhesive and sealant E-30cL TM 2-part, clear, epoxy adhesive Potting E-30cL TM 2-part, clear, epoxy adhesive E-30cL TM 2-part, clear, epoxy adhesive Potting Lensel Bonding epoxy 2-part, ultra-clear, silicone 2-part, fictore, silicone 2-part, fictore, epoxy adhesive High viscosity structural adhesive Start = 500L TM High strength potting & bonding epoxy 2-part, ultra-clear, silicone 2-part, letta, epoxy adhesive High viscosity structural adhesive	Threadloc	king 🗧	ĪĪ.	
Z46 TM High strength, primeries Wicking grade threadlocker Medium strength, high temp. High strength, primeries Wicking grade threadlocker Lens Bonding & Sealing Medium strength is the strength of the stren	Loctite® Product Des	cription		
Bigh strength, primerless Wicking grade threadlocker Lens Bonding & Sealing oddle*// Description S510 TM One-component elastomeric sealant UV cure silicone adhesive and sealant Thermal Management 5500 TM One-component RTV sealant UV cure silicone adhesive and sealant Thermal Management 5500 TM 2-part, fast cure, silicone adhesive and sealant Si 100 TM Silicone grease 2-part, clear, epoxy adhesive Si 100 TM Silicone grease Sa4 TM Potting E-30CL TM 2-part, clear, epoxy adhesive E-30CL TM 2-part, fasting & bonding epoxy E-30HV TM High strength potting & bonding epoxy High strength potting & bonding epoxy 2-part, ultra-clear, silicone	243™ Me	edium strength, primerless	-	
290 TM Wicking grade threadlocker Lens Bonding & Sealing Use component elastomeric sealant Sportler* One-component elastomeric sealant Sobo TM One-component RTV sealant UV cure silicone adhesive and sealant Thermal Management E-30CL TM Operatione adhesive and sealant Silicone grease 1-part acrylic adhesive E-30CL TM Description Silicone grease 1-part acrylic adhesive Potting E-30CL TM Description E-30HV TM High strength potting & bonding epoxy 2-part, letar, silicone Description E-30HV TM High strength potting & bonding epoxy 2-part, ultra-clear, silicone Description E-30CL TM			- 2-1	
Lens Bonding & Sealing Uvcide* Description 5510 TM One-component elastomeric sealant Superflex* One-component RTV sealant UV cure silicone adhesive and sealant UV cure silicone adhesive and sealant 5600 TM 2-part, fast cure, silicone adhesive and sealant 2-part, clear, epoxy adhesive Silicone grease 1-part acrylic adhesive Silicone grease Silicone grease 2-part, clear, epoxy adhesive Potting E-30CL TM Uvcide* Description E-30HV TM High strength potting & bonding epoxy 2-part, ultra-clear, silicone 5602T ^M Pescription E-30HV TM High strength potting & bonding epoxy 2-part, ultra-clear, silicone	-			y
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Potting I-part acrylic adhesive Loctite® Description E-30HV TM High strength potting & bonding epoxy 5620 TM 2-part, ultra-clear, silicone		and sealant		
Potting General Bonding Loctite® Description E-30HV TM High strength potting & bonding epoxy 5620 TM 2-part, ultra-clear, silicone	E-30CL™	2-part, clear, epoxy adhesive		_
Potting Description Loctite® Product Description E-30HV TM High strength potting & bonding epoxy 5620 TM 2-part, ultra-clear, silicone			3841	1-part acrylic adhesive
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Product Description E-30HV TM High strength potting & bonding epoxy 5620 TM 2-part, ultra-clear, silicone	Potting			onding
E-30HV™ High strength potting & bonding epoxy 2-part, ultra-clear, silicone 2-part, ultra-clear, silicone 2-part, ultra-clear, silicone 2-part, ultra-clear, silicone	Loctite®		Loctite [®] Product	Description
bonding epoxy 2-part, ultra-clear, silicone H3151™ High viscosity structural adhesive	Product		E-30CL TM	
5620™ 2-part, ultra-clear, silicone adhesive		High strength potting &		2-part, flexible, epoxy adhesiv
adhesive	E-30HV™			
		bonding epoxy	H3151™	

Product Selector for the Lighting Industry

Including results according to Cree XLamp Chemical Compatibility test method

Bonding and	Clear Bonding						Clear Bonding & Sealing	
Sealing	Instant ha	Fast UV cure				High strength	Flexible	
	Toughened	Low blooming	Glass ,	[/] metal	Glass / m	netal	Multiple substrates	Good adhesion on plastics
	LOCTITE [®] 435	LOCTITE [®] 460		те [®] АА 94	LOCTITE 3081		LOCTITE [®] EA E-30CL	TEROSON [®] SI 113
Technical Data	1K Instant Adhesive	1K Instant Adhesive	1K A	crylic	1K Acry	/lic	2К Ероху	1K Alkoxy Silicone
Pot Life / Skin Formation Time	-	-	Inde	finite	Indefin	ite	2 min	11 min
Tensile Strength	30 N/mm²	30 N/mm²	23 N	/mm²	22 N/m	IM ²	55 N/mm²	2.5 N/mm ²
Final Cure Time	Few hours	Few hours	Few m	inutes	Few min	utes	24 hours	-
	Polyolefin Bonding	Translucent Bo & Sealing	0	Black,	Black, White, Grey Bondin		g & Sealing	White Bonding & Sealing
	70 min handling strength	Fast UV cu	re	1K Moisture cure			Fast	Fast
	LOCTITE [®] AA 3038	LOCTITE [®] SI <u>s</u>	5088	TEROSON	® MS 939	TERO:	SON [®] MS 9399	LOCTITE [®] SI 5616
Technical Data	2K Acrylic	1K Alkoxy Sili	cone	one 1K Silane Modified Polymer			lane Modified Polymer	2k Alkoxy Silicone
Pot Life / Skin Formation Time	4 min	11 min	10 min		2	20-30 min	5 min	
Tensile Strength	13 N/mm²	1 N/mm²	3 N/mm²			3 N/mm²	1 N/mm²	
Final Cure Time	Few days	72 hours	1 week			1 week	Few days	
2 Potting		Potting					Transparen	t Potting
	Up to 80°C	Up to 180°C		Up to 120°C		ι	Jp to 150°C	Up to 120°C
	Flexible cure time	Fast cure	High strength			95% light ansmission*	Transparent & high strength	
	LOCTITE [®] CR 6127 / CR 4300	LOCTITE [®] SI	5611	LOCTI E-30		LOC	TITE® SI 5700	LOCTITE [®] EA E-30Cl
Technical Data	2K Polyurethane	2K Alkoxy Sili	icone	2K E	роху	2K	Polyaddition Silicone	2К Ероху
Viscosity	2.6 Pa s	3-10 Pa s	5	40	Pa s		6-7 Pa s	10 Pa s
Pot Life	2-90 min	6 min		30	min		25 min	2 min
Shore Hardness	A 80-90	A 50		D	85		A 39	D 85

* at 2 mm thickness / 550 nm



Low Pressure	Mould around electronics and LEDs with few seconds cure time					
Moulding	White	Black	Grey			
	Technomelt PA 668	Technomelt PA 646	Technomelt PA 651			
Technical Data	Polyamide hotmelt	Polyamide hotmelt	Polyamide hotmelt			
Shore Hardness	A 90	A92	A 92			
Yield Strength	5.5 N/mm²	5 N/mm²	5 N/mm²			
Softening Point	155°C	175°C	170°C			

Henkel is continuously testing adhesives to LED compatibility. For products not listed as compatible, please inquire with our sales specialists in case you wish to use them in direct contact or in proximity to LEDs.

• Approved for direct LED contact according to Cree XLamp Chemical Compatibility test method.

Approved for use in proximity of LEDs according to Cree XLamp Chemical Compatibility test method.

Other Applications and Products

Threadlocking Adhesives : Prevent loosening of threaded parts

ton .	Size of Thread (upto)	Strength	Service Temperature Range (°C)	Products
1111	M10	Low	-55 to 150	LOCTITE [®] 222 Easy Disassembly
	M20	Medium	-55 to 180	LOCTITE [®] 243 The Allrounder
	M36	High	-55 to 150	LOCTITE® 263 High Strength Primerless

Thread Sealants : Seal threads / pipes

	Substrate	Max. Pipe Size (inch)	Service Temperature Range (°C)	Products
	Metal	3/4	-55 to 150	LOCTITE [®] 542 Fine Threads
	Metal	3	-55 to 150	LOCTITE® 577 The Allrounder
	Metal and / or Plastic	4	-55 to 149	LOCTITE [®] 55 Thread Sealing Cord

Gasketing Products : Seal bolted flanges

	Flange Type	Max Gap (mm)	Service Temperature Range (°C)	Products
	Rigid	0.25	-55 to 150	LOCTITE [®] 574 General Purpose
	Rigid	0.25	-55 to 200	LOCTITE [®] 510 High Temperature
123	All Flanges	6.35	-55 to 260	LOCTITE® 587 High Performance RTV Silicone Gasket Maker

Retaining Compounds : Join cylindrical parts

E Fol	Diametrical Clearance (mm)	Handling Strength After (min.)	Service Temperature Range (°C)	Products
Ete	0.1 to 0.25	4	-55 to 180	LOCTITE [®] 638 The Allrounder
200 °	Up to 0.15	3	-55 to 180	LOCTITE [®] 648 High Temperature
Conce In	0.25 to 0.5	15	-55 to 150	LOCTITE® 660 Gap Filling

Instant Adhesives : Fast fixturing of small parts

	Gap Size (mm)	Fixture Time (sec.)	Service Temperature Range (°C)	Products
	< 0.15	3-10	-54 to 120	LOCTITE [®] 401 The Allrounder
	< 0.15	2-15	-54 to 120	LOCTITE® 456 Plastic & Rubber
	< 0.2	30	-54 to 80	LOCTITE® 415 Gap Filling

L@CTITE. BONDERITE. TECHNOMELT. TEROSON. AQUENCE.

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