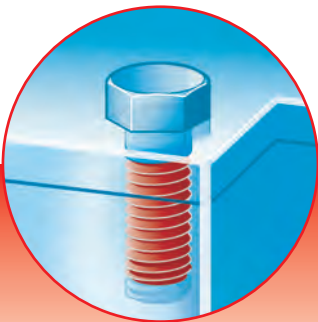


Threadlocking Adhesives

Locking of Threaded Fasteners



Why use a Loctite® Threadlocker?

Loctite® threadlocking products prevent self-loosening and secure any threaded fastener against vibration and shock loads. They are easy-flowing liquids or semi-solid adhesives which completely fill the gaps between mating threads. When used to assemble threaded fasteners, Loctite® Threadlockers permanently secure threaded assemblies and eliminate fretting corrosion by creating a unitised assembly.

Loctite® Threadlockers are much superior to traditional mechanical locking methods:

- Mechanical devices, e.g. split pins, tab washers: Only used to prevent the loss of nuts and bolts
- Friction devices: add to absolute elasticity and/or increase friction; but will not ensure permanent threadlocking under dynamic loads
- Locking devices, like tooth flanged and ribbed flanged bolts, nuts and washers: They prevent self-loosening, but are expensive and need larger flange-bearing surfaces; and they may damage the surfaces.

Loctite® Threadlockers are single-component liquid and semi-solid adhesives. They cure at room temperature to a hard solid thermoset plastic when applied between steel, aluminium, brass and most other metal surfaces. They cure in the absence of air. The adhesive completely fills the gaps between mating threads to lock threads and joints.

Advantages of Loctite® Threadlockers as compared to traditional mechanical locking devices:

- Prevent unwanted movement, loosening, leaks, and corrosion
- Resist vibration
- Single-component – clean and easy to apply
- Can be used on all sizes of fasteners – reduces inventory costs
- Seal threads – allow through-hole tapping

Choose the right Loctite® Threadlocker for your application:

Loctite® Threadlockers are available in varying viscosities and strengths and can be used for a wide range of applications.

Low Strength:

Removable with standard hand tools, good for adjustment screws, calibration screws, meters and gauges, for thread size up to M80.

Medium Strength:

Removable with hand tools, but more difficult to disassemble; good for machine tools and presses, pumps and compressors, mounting bolts, gear boxes, for thread size up to M80.



Surface Preparation

Correct surface preparation is the most important factor to assure the total success of any adhesive performance.

- Degrease, clean and dry threads prior to applying the adhesive – use Loctite® 7063 (see Cleaning on page 102)
- If the parts were in contact with aqueous washing solutions or cutting fluids which leave a protective layer on the surface, wash with hot water
- If the adhesive is applied below 5°C, pre-treatment with Loctite® 7240 or Loctite® 7649 is advised (see Surface Preparation on page 124)
- For locking of plastic fasteners: see Instant Adhesives on pages 32-39



Dispensing Equipment

Loctite® products are used for a wide variety of threadlocking applications. For some jobs it is sufficient to dispense adhesives and sealants manually from the bottle or cartridge onto the surfaces to be joined. In other cases, however, more precise hand-held or stationary automated dispensing is required. Loctite® dispensing equipment is specially designed to make application and use of our products fast, precise, clean and economical:

Semi-Automatic Dispensing Equipment

Loctite® 97009 / 97121 / 97201

Loctite® Semi-Automatic Dispensing Equipment combines a controller and reservoir into a single unit for valve dispensing of many Loctite® Threadlockers. Provides digital timing control, empty and end-of-cycle signal. Pinch Valve suitable for stationary or hand-held mode. The reservoirs are large enough to accept up to 2kg bottles, and units can be equipped with low level sensing.



97009 / 97121 / 97201

Hand-Held Applicator

Loctite® 98414 Peristaltic Hand Pump, 50ml bottle

Loctite® 97001 Peristaltic Hand Pump, 250ml bottle

These hand-held applicators mount easily on any anaerobic Loctite® 50ml or 250ml bottle, converting the bottle into a portable dispenser. They are designed to dispense at any angle in drop sizes from 0.01 to 0.4ml, without leaks or product waste (suitable for viscosities up to 30,000 mPa·s).



97001 / 98414

For information on semi- or fully automated dispensing equipment, available valves, spare parts, accessories and dispensing tips, please refer to page 142 or the Loctite® Equipment Sourcebook.

High Strength:

Very difficult to disassemble with standard hand tools; may require localised heat for removal. Good for permanent assemblies on heavy equipment, studs, motor and pump mounts, for thread size up M80.

Wicking:

Very difficult to disassemble with standard hand tools; may require localised heat for removal. For preassembled fasteners, instrumentation or carburettor screws.

Non-liquids (semi-solid):

Medium and high strength semi-solid Threadlocker Sticks that can be used on thread size up to M50.



Threadlocking Adhesives

Product table

Are the metal parts already assembled?

Solution

Size of thread

Functional strength after¹

Breakaway torque M10 bolts

Service temperature range

Pack sizes

Equipment²

Handy Hints:

- Degrease, clean and dry surfaces prior to applying the adhesive – use Loctite® 7063 (see Cleaning on page 102)
- If the adhesive is applied below 5°C, pre-treatment with Loctite® 7240 or Loctite® 7649 is advised (see Surface Preparation on page 124)
- For plastic part(s) please refer to Instant Adhesives on pages 32-39

Yes

Wicking grade

Medium/High

Low

Liquid

Liquid

Loctite®
290

Loctite®
222

Up to M80

Up to M80

3 h

6 h

10 Nm

6 Nm

-55 to +150°C

-55 to +150°C

10ml, 50ml, 250ml, 2lt

10ml, 50ml, 250ml

97001, 98414, 97009, 97121,
97201

97001, 98414



Loctite® 290

- Ideal for locking preassembled fasteners, e.g. instrumentation screws, electrical connectors and set screws

Loctite® 222

- Ideal for low-strength threadlocking of adjusting screws, countersunk head screws and set screws
- Good on low strength metals which could break during disassembly, e.g. aluminium or brass

P1 NSF Reg. No.: 123002

¹ Typical value at 22°C

² For detailed information see pages 142-151

No

What strength do you require?

Medium

High

Liquid

Liquid

Liquid

Liquid

**Loctite®
243**

**Loctite®
2400**

**Loctite®
270**

**Loctite®
2700**

Up to M80

Up to M80

Up to M80

Up to M80

2 h

2 h

3 h

3 h

26 Nm

20 Nm

33 Nm

20 Nm

-55 to +180°C

-55 to +150°C

-55 to +180°C

-55 to +150°C

10ml, 50ml, 250ml, 2lt

50ml, 250ml

10ml, 50ml, 250ml, 2lt

50ml, 250ml

97001, 98414, 97009, 97121,
97201

97001, 98414

97001, 98414, 97009, 97121,
97201

97001, 98414



Loctite® 243

- Works on all metals, including passive substrates (e.g. stainless steel, aluminium, plated surfaces)
- Proven to tolerate slight contaminations of industrial oils, e.g. engine oils, corrosion prevention oils and cutting fluids
- Prevents loosening on vibrating parts, e.g. pumps, gear boxes or presses
- Permits disassembly with hand tools for servicing

P1 NSF Reg. No.: 123000

Loctite® 2400

- Leading in health and safety
- No hazard symbols, risk or safety phrases
- “White” Material Safety Data Sheet – no entries in sections 2, 3, 15 and 16 of MSDS acc. to (EC) No. 1907/2006 – ISO 11014-1
- Excellent chemical and thermal resistance of cured product
- To be used where regular disassembly with hand tools for servicing is required

**WRAS Approval (BS 6920):
1104507**

Loctite® 270

- Suitable for all metal fasteners, including stainless steel, aluminium, plated surfaces and chrome-free coatings
- Tolerates slight contaminations of industrial oils, e.g. engine oils, corrosion prevention oils, cutting fluids
- Ideal for permanently locking studs on engine blocks and pump housings
- To be used if regular removal for maintenance is not required

P1 NSF Reg. No.: 123006

Loctite® 2700

- Leading in health and safety
- No hazard symbols, risk or safety phrases.
- “White” Material Safety Data Sheet – no entries in sections 2, 3, 15 and 16 of MSDS acc. to (EC) No. 1907/2006 – ISO 11014-1
- Excellent chemical and thermal resistance of cured product
- For applications where disassembly is not required

**WRAS Approval (BS 6920):
1104508**

Threadlocking Adhesives

Product list

Product	Chemical basis	Colour	Fluorescence	Max. thread size	Service temperature range	Strength	Breakaway torque	Thixotropy
Loctite® 221	Methacrylate	Purple	Yes	M80	-55 to +150°C	Low	8.5 Nm	No
Loctite® 222		Purple	Yes	M80	-55 to +150°C	Low	6 Nm	Yes
Loctite® 241		Blue opaque	Yes	M80	-55 to +150°C	Medium	11.5 Nm	No
Loctite® 242		Blue	Yes	M80	-55 to +150°C	Medium	11.5 Nm	Yes
Loctite® 243		Blue	Yes	M80	-55 to +180°C	Medium	26 Nm	Yes
Loctite® 245		Blue	Yes	M80	-55 to +150°C	Medium	13 Nm	Yes
Loctite® 248 Stick		Blue	Yes	M50	-55 to +150°C	Medium	17 Nm	N.A.
Loctite® 262		Red	Yes	M80	-55 to +150°C	Medium/high	22 Nm	Yes
Loctite® 268 Stick		Red	Yes	M50	-55 to +150°C	High	17 Nm	N.A.
Loctite® 270		Green	Yes	M80	-55 to +180°C	High	33 Nm	No
Loctite® 271		Red	Yes	M80	-55 to +150°C	High	26 Nm	No
Loctite® 272		Red-orange	No	M80	-55 to +200°C	High	23 Nm	Yes
Loctite® 275		Green	Yes	M80	-55 to +150°C	High	25 Nm	Yes
Loctite® 276		Green	Yes	M80	-55 to +150°C	High	60 Nm	No
Loctite® 277		Red	Yes	M80	-55 to +150°C	High	32 Nm	Yes
Loctite® 278		Green	No	M80	-55 to +200°C	High	42 Nm	No
Loctite® 290		Green	Yes	M80	-55 to +150°C	Medium/high	10 Nm	No
Loctite® 2400		Blue	Yes	M80	-55 to +150°C	Medium	20 Nm	Yes
Loctite® 2700		Green	Yes	M80	-55 to +150°C	High	20 Nm	No
Loctite® 2701		Green	Yes	M80	-55 to +150°C	High	38 Nm	No

	Viscosity in mPa·s	Fixture time steel	Fixture time brass	Fixture time stainless steel	Pack sizes	Comments
	100 – 150	25 min.	20 min.	210 min.	250ml	Low strength, low viscosity, small threads
	900 – 1,500	15 min.	8 min.	360 min.	10ml, 50ml, 250ml	Low strength, general purpose
	100 – 150	35 min.	12 min.	240 min.	250ml	Medium strength, low viscosity, small threads
	800 – 1,600	5 min.	15 min.	20 min.	250ml	Medium strength, medium viscosity, general purpose
	1,300 – 3,000	10 min.	5 min.	10 min.	10ml, 50ml, 250ml, 2lt	Medium strength, general purpose, oil tolerant
	5,600 – 10,000	20 min.	12 min.	240 min.	50ml, 250ml	Medium strength, medium viscosity, large threads
	Semi-solid	5 min.	–	20 min.	9g, 19g	Medium strength, positioning: MRO/distribution
	1,200 – 2,400	15 min.	8 min.	180 min.	250ml	Medium/high strength, general purpose
	Semi-solid	5 min.	–	5 min.	19g	High strength, positioning: MRO/distribution
	400 – 600	10 min.	10 min.	150 min.	10ml, 50ml, 250ml, 2lt	High strength, general purpose, oil tolerant
	400 – 600	10 min.	5 min.	15 min.	50ml	High strength, low viscosity
	4,000 – 15,000	40 min.	–	–	50ml, 250ml	High strength, high temperature resistant
	5,000 – 10,000	15 min.	7 min.	180 min.	250ml, 2lt	High viscosity, high strength, large threads
	380 – 620	3 min.	3 min.	5 min.	50ml	High strength, especially for nickel surfaces
	6,000 – 8,000	30 min.	25 min.	270 min.	50ml, 250ml	High viscosity, high strength, large threads
	2,400 – 3,600	20 min.	20 min.	60 min.	50ml, 250ml	High strength, high temperature resistant
	20 – 55	20 min.	20 min.	60 min.	10ml, 50ml, 250ml, 2lt	Medium/high strength, wicking grade
	225 – 475	10 min.	8 min.	10 min.	50ml, 250ml	Medium strength, no labelling, white MSDS
	350 – 550	5 min.	4 min.	5 min.	50ml	High strength, no labelling, white MSDS
	500 – 900	10 min.	4 min.	25 min.	50ml, 250ml, 2lt	High strength, especially for chromated surfaces

