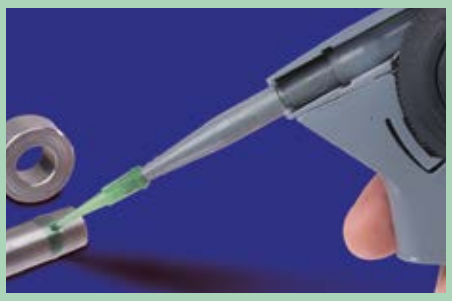





Retaining

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WHY USE A LOCTITE® RETAINING COMPOUND?

LOCTITE® Retaining Compounds secure bearings, bushes and cylindrical parts into housings or onto shafts. They achieve maximum load transmission capability and uniform stress distribution and eliminate fretting corrosion. Applied as a liquid, they form 100% contact between mating metal surfaces, eliminating the need for expensive replacement parts, time consuming machining or the use of mechanical methods.

LOCTITE® RETAINING COMPOUNDS FILL THE INNER SPACE BETWEEN COMPONENTS AND CURE TO FORM A STRONG PRECISION ASSEMBLY.

LOCTITE® Retaining Compounds are superior to conventional assembly methods, including:

- Pins, key/keyway assemblies: These have uneven distribution of mass, an imbalance that can lead to vibration at high speeds.
- Splines: They cause high stresses due to the "notch effect" that occurs. Splines can also result in high machining costs and backlash between drive and overrun.
- Clamp rings, press fits, shrink fits, and taper fits: They rely on friction alone to transmit torque; therefore, they are limited by material, surfaces and design. Close tolerances are needed to obtain specific load capacities, leading to higher production costs. Interference fitting creates stresses in the components that can lead to failure, particularly when combined with operational stresses.
- Welding and soldering: Only compatible metals can be joined, and the parts can be distorted by the high temperatures required. Heating of the material can lead to residual stresses and structural degradation and distortion. Disassembly can also be difficult or impossible.

ADVANTAGES OF LOCTITE® RETAINING COMPOUNDS AS COMPARED TO CONVENTIONAL ASSEMBLY METHODS:

- High-strength products can carry high loads
- Fill all voids to prevent corrosion and fretting
- 100% contact – load and stress is distributed evenly over the joint

ADVANTAGES OF LOCTITE® RETAINING COMPOUNDS IN COMBINATION WITH SHRINK FITS OR PRESS FITS:

- Higher load transmission and performance with existing design and geometry solutions
- Equal performance by lower interference/ lighter construction

Henkel Adhesive and Sealant Product Specialists are available to assist you with new product designs, or to help you re-engineer an existing application for improved performance and cost savings. They can also set up testing of your parts at the Henkel Customer Engineering Center. For application assistance, call 1-800-LOCTITE (562-8483); *within Canada, call 1-800-263-5043;* or, contact us through the web at www.henkelna.com/loctite.

STRAIGHT FROM *The Source*







LOCTITE® adhesive mounting of cylindrical parts has distinct advantages over mechanical assembly alone. Using LOCTITE® retaining compounds allows a manufacturer to use slip-fitted parts with relaxed machining tolerances. LOCTITE® retaining compounds can reduce the size and weight of an assembly, reduce the number of components needed, and ultimately save money by reducing the overall manufacturing cost.

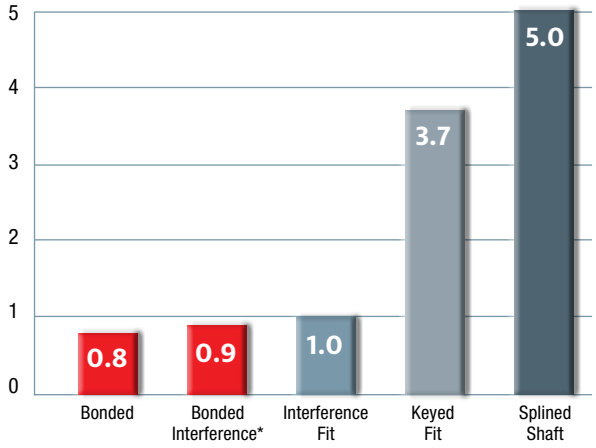
COST BENEFITS

- Reduce or eliminate expensive machining operations
- Eliminate some surface finishing requirements
- Prolong equipment life through better fatigue and corrosion resistance
- Fill gaps so machining tolerances can be widened
- Help lower overall assembly and maintenance costs
- Simplify assemblies by reducing use of circlips, keys, dowels or threads
- Can eliminate the need for mechanical retainers
- Minimize machine downtime ensuring an earlier return to service

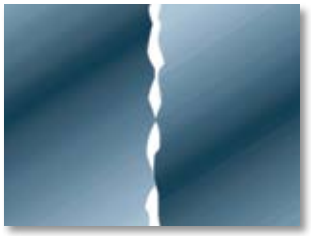
PERFORMANCE BENEFITS

- Increase assembly reliability
- Produce more accurate, rigid assemblies
- Eliminate backlash in keys and splines
- Prevent small diameter shaft distortion
- Increase strength of heavy press fits
- Eliminate fretting corrosion
- Seal against environmental corrosion
- Eliminate high assembly stresses
- Reduce variations in load transmission
- Allow dissimilar materials to be assembled more easily

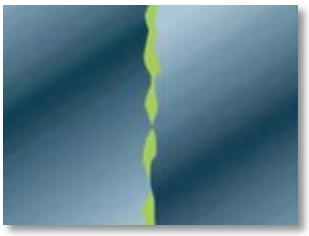
RELATIVE PRODUCTION COSTS



Cost is always an essential part of the selection process. When LOCTITE® Retaining Compounds are used, considerable cost benefits result.



Typical interference fit has 30% metal-to-metal contact.



LOCTITE® Retaining Compounds fill air voids, resulting in unitized, more reliable assembly.

* Bonded Interference takes advantage of wider tolerances and relaxed surface roughness.

Retaining Compounds



Your Application

- Increase the shear strength of cylindrical, non-threaded assemblies
- An industry standard for assembling press- and slip-fitted parts
- Fill the "inner space" between components and cure to form a strong precision assembly
- Formulated in a variety of viscosities, gap fills, flexibility and strength characteristics
- Can be applied with automated process equipment or dispensed manually

IS THE ASSEMBLY BADLY WORN?

No – Gaps to 0.010 in. (0.25 mm)

What Strength is Required?

High

What Service Temperature is Required?

Up to 355°F (180°C)

Gap 0.006 in. (0.15 mm)

Gap 0.010 in. (0.25 mm)

Up to 450°F (230°C)

Solution

	648™ Retaining Compound	638™ Retaining Compound	620™ Retaining Compound
Strength Required	High	High	High
Shear Strength	3,900 psi	4,500 psi	3,800 psi
Clearance	Up to 0.006 in. (0.15 mm)	Up to 0.010 in. (0.25 mm)	Up to 0.008 in. (0.20 mm)
Temperature Resistance	355°F (180°C)	355°F (180°C)	450°F (230°C)
Cure Time (Setup/Full Strength)	3 min. / 24 hrs.	4 min. / 24 hrs.	60 min. / 24 hrs.
Recommended Activator	Not Required	Not Required	7088™, 7649™, 7471™

Product Description

LOCTITE® 648™ Retaining Compound

General Purpose/High Strength/ Rapid Cure

Best performance for clearance or interference fit parts. Excellent performance for dynamic, axial and radial loads. Bonds through contaminants including oils, cutting and corrosion protection fluids. Cures on metals without an activator. Globally available product.
NSF/ANSI 61-Certified

P/N	Package Size
1844659	0.5 ml capsule
1835922	10 ml bottle
1835920	50 ml bottle
1835918	250 ml bottle
1835917	1 liter bottle

LOCTITE® 638™ Retaining Compound

Slip Fit/High Strength

Recommended for slip fit parts with larger gaps. Excellent performance for dynamic, axial and radial loads. Bonds through contaminants including oils, cutting and corrosion protection fluids. Cures on metals without an activator. Globally available product.
NSF P1-Certified

P/N	Package Size
1835937	10 ml bottle
1835936	50 ml bottle
1835925	250 ml bottle
1835924	1 liter bottle

LOCTITE® 620™ Retaining Compound

Slip Fit/High Temperature

Recommended for high temperature retaining of parts with a clearance or interference fit, i.e., retaining bushings, bearings, seals, fans and liners. Requires heat cure to achieve temperature resistance.
ABS Approved.

P/N	Package Size
62005	0.5 ml bottle
62015	10 ml bottle
62040	50 ml bottle
62070	250 ml bottle
62085	1 liter bottle





		Yes – Gaps up to 0.020 in. (0.5 mm) with Activator
	Medium	
	641™ Retaining Compound	**660™ Retaining Compound**
	Medium	High
	1,700 psi	3,335 psi
	Up to 0.006 in. (0.15 mm)	Up to 0.020 in. (0.50 mm)
	300°F (150°C)	300°F (150°C)
	20 min. / 24 hrs.	20 min. / 24 hrs.
	7088™, 7649™, 7471™	7088™, 7649™, 7471™

LOCTITE® 641™ Retaining Compound

A controlled-strength retaining compound that is ideal for cylindrical parts that require disassembly.
CFIA Approved.

P/N	Package Size
28802	10 ml tube
21458	50 ml tube

LOCTITE® 660™ Retaining Compound

Used for repairing worn coaxial parts without remachining; enables reuse of worn bearing seats, keys, splines, tapers, or for retaining shims.
CFIA Approved.

P/N	Package Size
66010	6 ml tube
66040	50 ml tube

GET THE MOST FROM LOCTITE® RETAINING COMPOUNDS

From single repairs to daily production line use, these guidelines will help you maximize the benefits of using LOCTITE® Retaining Compounds:

Surface Cleanliness: Optimal performance is achieved when parts are clean and free of grease, oil, rust preventative or other contaminants. LOCTITE® ODC Free Cleaner & Degreaser is one of the recommended cleaners that will effectively remove contaminants without leaving a residue. LOCTITE® Retaining Compounds 638™, 648™ and 680™ are oil tolerant. They are robust enough to bond through contaminants including oils, and cutting and corrosion protecting fluids.

Cure Process: LOCTITE® Retaining Compounds have an anaerobic cure system. Anaerobic means it cures in the absence of air and in the presence of metal ions. This is why the resin remains liquid until it is confined between metal parts. Cure speed is usually faster on active metals than inactive metals because active have more metal ions.

Activators accelerate cure time. Activators are often used to assemble inactive metal parts, cold parts or for large gaps. Loctite® 648™, 638™ and 680™ are primerless, meaning they cure rapidly without activators for most applications.



INACTIVE METALS (PRIMERS RECOMMENDED)	
PLATED PARTS	SILVER
ANODIZED ALUMINUM (ALODINE®, IRIDITE™)	GOLD
TITANIUM	ZINC
STAINLESS STEEL	PURE ALUMINUM†
GALVANIZED STEEL	CADMIUM
MAGNETITE STEEL	MAGNESIUM
INCONEL™	NATURAL OR CHEMICAL BLACK OXIDE
NICKEL	
ACTIVE METALS (PRIMERS OPTIONAL)	
IRON	BRONZE
PLAIN STEEL	MANGANESE
COPPER	MONEL™
BRASS	KOVAR™

Application Process: Use an application method that ensures the bond-line is filled. Excess material should be avoided because it could migrate. Several proven methods to control the amount applied, ranging from manual to automated:

- Roll bearing on a synthetic sponge saturated with LOCTITE® Retaining Compound to apply a consistent thin film.
- Manually apply LOCTITE® Retaining Compound with a LOCTITE® Hand Pump. Each squeeze of the trigger dispenses a metered amount of adhesive to the parts prior to assembly.
- Use the LOCTITE® Semiautomatic applicator to dispense a metered amount of adhesive to a predefined dispoint point.
- Use the LOCTITE® RotoSpray™ applicator to automatically dispense a precise band of adhesive to the bore of a circular component.

The LOCTITE® RotoSpray™ applicator automatically dispenses a perfect bead of retaining compound within the bore of circular components.

† Pure aluminum is an inactive metal. Alloys of aluminum containing copper are considered active metals.

Retaining Compounds





LOCTITE® Retaining Compound Properties Chart

	LOCTITE® PRODUCT	ITEM NUMBER	PACKAGE TYPE & SIZE	TYPICAL USE	COLOR	MAXIMUM GAP FILL (DIAMETER-INCHES)	VISCOSITY (cP)	SHEAR STRENGTH STEEL/STEEL* (psi)	TEMPERATURE RANGE	CURE SPEED*	RECOMMENDED PRIMER	AGENCY APPROVALS
CLOSE-FITTING PARTS	603™	21440 21441 21442	10 ml bottle 50 ml bottle 250 ml bottle	For close-fitting parts with light contamination	Green	0.005 in.	125	3,770	-65°F to 300°F (-54°C to 149°C)	Fixture – 10 min. Full – 24 hrs.	7088™, 7649™ or 7471™	N/A
	609™	60905 60921 60931 60941 60943	0.5 ml capsule 10 ml bottle 50 ml bottle 250 ml bottle 1 liter bottle	Augments press fit parts	Green	0.006 in. (0.15 mm)	125	2,300 (minimum)	-65°F to 300°F (-54°C to 150°C)	Fixture – 10 min. Full – 24 hrs.	7088™, 7649™ or 7471™	MIL-R-46082B for existing designs, ASTM D-5363**, CFIA
	648™	1844659 1835922 1835920 1835918 1835917	0.5 ml capsule 10 ml bottle 50 ml bottle 250 ml bottle 1 liter bottle	High strength, primerless, oil tolerant, general purpose	Green	0.006 in. (0.15 mm)	500	3,900	-65°F to 355°F (-54°C to 180°C)	Fixture – 3 min. Full – 24 hrs.	Not required	NSF/ANSI 61, CFIA
LOOSE-FITTING PARTS	638™	1835937 1835936 1835925 1835924	10 ml bottle 50 ml bottle 250 ml bottle 1 liter bottle	High strength, primerless, oil tolerant, for slip-fitted parts	Green	0.010 in. (0.25 mm)	2,500	4,500	-65°F to 355°F (-54°C to 180°C)	Fixture – 4 min. Full – 24 hrs.	Not required	NSF P1, CFIA
	680™	1835212 1835205 1835201 1835196 1835206	0.5 ml capsule 10 ml bottle 50 ml bottle 250 ml bottle 1 liter bottle	High strength, primerless, oil tolerant, for slip-fitted parts	Green	0.015 in. 0.38 mm	1,250	4,000	-65°F to 355°F (-54°C to 180°C)	Fixture – 4 min. Full – 24 hrs.	Not required	NSF/ANSI 61, ABS, CFIA
HIGH TEMPERATURE	620™	62005 62015 62040 62070 62085	0.5 ml capsule 10 ml bottle 50 ml bottle 250 ml bottle 1 liter bottle	For high temperature applications	Green	0.008 in. 0.2 mm	8,500	3,800	-65°F to 450°F (-54°C to 230°C)	Fixture – 1 hr. Full – 24 hrs.	7088™, 7649™ or 7471™	CFIA, ABS
MEDIUM STRENGTH	641™	28802 21458	10 ml bottle 50 ml bottle	Medium strength for easier disassembly	Yellow	0.008 in. 0.2 mm	525/1,950 Thixotropic	1,700	-65°F to 300°F (-54°C to 150°C)	Fixture – 20 min. Full – 24 hrs.	7088™, 7649™ or 7471™	CFIA
MACHINERY REPAIR	660™	66010 66040	6 ml tube 50 ml tube	For repair of worn machinery parts	Silver	0.020 in. 0.5 mm	250,000/ 1,500,000 Thixotropic	3,335	-65°F to 300°F (-54°C to 150°C)	Fixture – 20 min. Full – 24 hrs.	7088™, 7649™ or 7471™	CFIA
SLOW OR UV CURE	232™	18607 27863	1 liter bottle 250 ml bottle	Slow cure for heavy press fit	Brown	0.015 in. 0.38 mm	5,000	1,350* (2 hrs. heat cure)	-65°F to 300°F (-54°C to 150°C)	Fixture – 1 hr. Full – 24 hrs.	7088™, 7649™ or 7471™	N/A
	640™	135520 135521 209764	50 ml bottle 250 ml bottle 1 liter bottle	Slow cure for long assembly time	Green	0.004 in. 0.1 mm	600	3,200	-65°F to 350°F (-54°C to 175°C)	Fixture – 1 hr. Full – 24 hrs.	7649™ or 7471™	Mil-R-46082B, ASTM D-5363
	661™	234921 234925	250 ml bottle 1 liter bottle	UV light cures exposed adhesive	Yellow	0.006 in. 0.15 mm	500	2,175	-65°F to 350°F (-54°C to 175°C)	Fixture – 4 min. Full – 24 hrs.	7649™ or 7471™	N/A

ITEMS IN RED = *Source's* PICK or NEW

= Indicates Worldwide Availability

* Varies with substrates.
** For new designs.






LOCTITE® Activators Chart

	LOCTITE® PRODUCT	ITEM	PACKAGE TYPE & SIZE	COLOR	VISCOSITY (cP)	BASE	ON-PART LIFE	DRY TIME	APPLICATION	AGENCY APPROVALS
ACTIVATORS	7088™ PRIMER	1069258	17 g stick	Teal	Semisolid	No solvent	30 days	None	Anaerobics	CFIA Listed
	7090™ PRIMER	19368 12695	1 fl. oz. bottle 1 liter bottle	Dark Blue	17.5	No solvent	1 hour	None	Anaerobics	N/A
	7471™ PRIMER T™	19267 22477 19268	1.75 fl. oz. bottle 4.5 oz. net wt. aerosol can 1 gallon can	Amber	2	Acetone/ Isopropanol	7 days	30 to 70 seconds	Anaerobics	MIL-S-22473E for existing designs, ASTM D-5363 for new designs, CFIA Listed
	7649™ PRIMER N™	19269 21347 21348 19266	1.75 fl. oz. glass bottle 25 g net wt. aerosol can 4.5 oz. net wt. aerosol can 1 gallon can	Clear/ Green	2	Acetone	30 days	30 to 70 seconds	Anaerobics	MIL-S-22473E for existing designs, ASTM D-5363 for new designs, NSF/ANSI 61, NSF P1, CFIA Listed

= Indicates Worldwide Availability

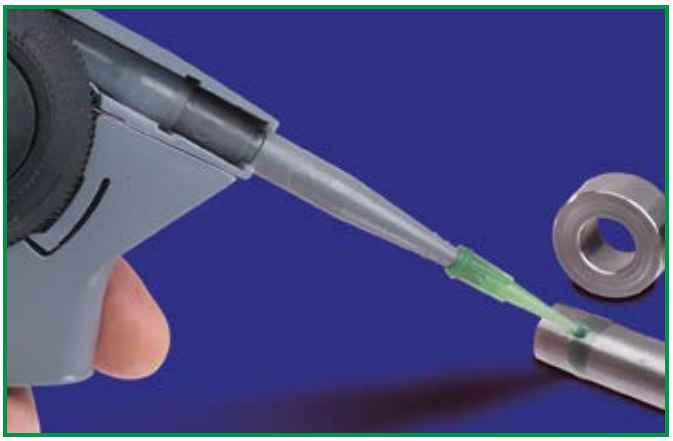
LOCTITE® Cleaner & Degreaser Chart

	LOCTITE® PRODUCT	ITEM	PACKAGE TYPE & SIZE	DRYING TIME	RESIDUE/TINSABILITY	ODOR	AGENCY APPROVALS
	ODC-FREE CLEANER & DEGREASER	22355 20162	15 oz. net wt. aerosol 16 fl. oz. pump spray	Equivalent to the evaporation rate of water. Wiping or blowers will accelerate dry time.	No rinse and no residue	Mild Citrus	NSF K1

Retaining Compound Equipment

YOUR EQUIPMENT *Source*

For more details, see the *LOCTITE® Equipment Sourcebook*, LT-3669, or visit us on the web for additional information, diagrams, products and our full line of equipment at www.equipment.loctite.com.



SEMI/FULLY AUTOMATIC

LOCTITE® PRODUCT	ITEM NUMBER	PRESSURE REGULATION	USED TO DISPENSE	PACKAGE TYPES & SIZES	VISCOSITY RANGE	LOW LEVEL SENSING	CONSUMABLES – DISPENSE ACCESSORIES
PRECISION BORE COATING APPLICATOR							
 LOCTITE® DUAL CHANNEL AUTOMATIC CONTROLLER	97152	1 to 100 psi Viscosity 0 to 3,000 cP	Gel Adhesives, Instant Adhesives, Light Cure/Acrylics, Retaining Compounds, Threadlockers	Depends on Reservoir	Medium to High	Yes	Dispense Tips and Accessories – Pages 176-177

	ITEM NUMBER	TYPE	VISCOSITY RANGE	DISPENSE PATTERN	USED TO DISPENSE	STROKE ADJUSTMENT	SUCK-BACK	CONSUMABLES – DISPENSE ACCESSORIES
 LOCTITE® POSITIVE DISPLACEMENT PUMP	983330	Positive Displacement	Low to Medium	Drop	Anaerobic Adhesives	Yes	No	Dispense Tips and Accessories – Pages 176-177
 LOCTITE® ROTOSPRAY™ APPLICATOR	97115	Electric	Low to Medium	Bead	Anaerobic Adhesives	N/A	N/A	Dispense Tips and Accessories – Pages 176-177

DUAL CHANNEL DISPENSING	ITEM NUMBER	PRESSURE REGULATION	USED TO DISPENSE	PACKAGE TYPES & SIZES	VISCOSITY RANGE	LOW LEVEL SENSING	CONSUMABLES – DISPENSE ACCESSORIES
 INTEGRATED SEMI-AUTOMATIC DISPENSER	1390322	0 to 15 psi Viscosity >3,000 cP	Gel Adhesives, Instant Adhesives, Light Cure/Acrylics, Retaining Compounds, Threadlockers	250 ml bottle 1 lb. bottle 1 liter bottle 2 kg bottle 200 g squeeze tube	Low to Medium	Yes	Dispense Tips and Accessories – Pages 176-177
	1390321	0 to 100 psi Viscosity 0 to 3,000 cP			Medium to High	Yes	

	ITEM NUMBER	TYPE	VISCOSITY RANGE	DISPENSE PATTERNS	USED TO DISPENSE	STROKE ADJUSTMENT	SUCK-BACK	CONSUMABLES – DISPENSE ACCESSORIES
 LOCTITE® CYANOACRYLATE DISPENSE VALVE	98013	High Performance Diaphragm	Low to Medium	Drop, Dot, Bead	Instant Adhesives, Retaining Compounds, Threadlockers	Yes	No	Dispense Tips and Accessories – Pages 176-177

HANDHELD

LOCTITE® PRODUCT	ITEM NUMBER	PRESSURE REGULATION	USED TO DISPENSE	PACKAGE TYPES & SIZES	VISCOSITY RANGE	LOW LEVEL SENSING	CONSUMABLES – DISPENSE ACCESSORIES
RESERVOIRS							
 BOND-A-MATIC® 3000 RESERVOIR	982720	0 to 15 psi	Gel Adhesives, Instant Adhesives, Light Cure/Acrylics, Retaining Compounds, Threadlockers	250 ml bottle 1 lb. bottle 1 liter bottle 2 kg bottle 200 g squeeze tube	Low to Medium	Yes	Dispense Tips and Accessories – Pages 176-177
	982726					No	
	982723	0 to 100 psi			Medium to High	Yes	
	982727					No	

BOTTLE DISPENSING	ITEM NUMBER	USED TO DIPENSE	PACKAGE TYPES & SIZES	VISCOSITY RANGE	TYPE	CONSUMABLES – DISPENSE ACCESSORIES
 50 ML AND 250 ML HAND PUMPS	98414 97001	Retaining Compounds, Threadlockers	50 ml bottle 250 ml bottle	Low to Medium	Manual	Dispense Tips and Accessories – Pages 176-177

ITEMS IN RED = *Source's* PICK or NEW

Your Source for Motion Control Robot Dispense Systems. See page 171.

EQUIPMENT FOR PRIMERS

LOCTITE® PRODUCT		ITEM NUMBER	PRESSURE REGULATION	USED TO DISPENSE	PACKAGE TYPES & SIZES	VISCOSITY RANGE	LOW LEVEL SENSING	CONSUMABLES – DISPENSE ACCESSORIES
	SPRAY VALVE CONTROLLER	1406023	0 to 100 psi	Primers, Accelerators, Activators	250 ml bottle 1 lb. bottle 1 liter bottle 2 kg bottle 200 g squeeze tube	Low	No	Use with LOCTITE® Spray Valve 98520

		ITEM NUMBER	TYPE	VISCOSITY RANGE	DISPENSE PATTERNS	USED TO DISPENSE	STROKE ADJUSTMENT	SUCK-BACK	CONSUMABLES – DISPENSE ACCESSORIES
	SPRAY VALVE	98520	Spray Valve	Low	Spray	Primers, Accelerators, Activators	Yes	No	989268 – 0.014 in. Nozzle Kit 989269 – 0.028 in. Nozzle Kit

DISPENSE SYSTEMS

LOCTITE® PRODUCT		ITEM NUMBER	DISPENSE PATTERNS	USED TO DISPENSE	PACKAGE TYPES & SIZES	VISCOSITY RANGE	VACUUM SUCK-BACK	CONSUMABLES – DISPENSE ACCESSORIES
VOLUMETRIC BOTTLE DISPENSING								
	BENCHTOP PERISTALTIC DISPENSER	98548	Dot, Drop, Bead	Instant Adhesives, Light Cure/Acrylics, Retaining Compounds, Threadlockers	Any Bottle	0 to 5,000 cP	Programmable	Dispense Tips & Accessories – Pages 176-177
COMPLETE PRESSURE-TIME BOTTLE DISPENSE SYSTEM								
	BOND-A-MATIC® 3000 DISPENSER 0-15 psi	982719	Dot, Drop, Bead	Gel Adhesives, Instant Adhesives, Light Cure/ Acrylics, Retaining Compounds, Threadlockers	250 ml bottle 1 lb. bottle 1 liter bottle 2 kg bottle 200 g squeeze tube	Low	N/A	Dispense Tips & Accessories – Pages 176-177
	BOND-A-MATIC® 3000 DISPENSER 0-100 psi	982722				Medium to High		

HANDHELD VALVES

LOCTITE® PRODUCT		ITEM NUMBER	TYPE	VISCOSITY RANGE	DISPENSE PATTERNS	USED TO DISPENSE	STROKE ADJUSTMENT	ACTUATION	CONSUMABLES – DISPENSE ACCESSORIES
GENERAL-PURPOSE APPLICATORS									
	LV HAND-HELD APPLICATOR	97130	Pneumatic	Low	Drop, Dot, Bead	Instant Adhesives, Retaining Compounds, Threadlockers	Yes	Foot	Dispense Tips & Accessories – Pages 176-177
GENERAL-PURPOSE APPLICATORS									
	MANUAL HAND-HELD APPLICATOR	97111	Manual	Low to Medium	Drop, Dot, Bead	Light Cure/Acrylics, Retaining Compounds, Threadlockers	Yes	Finger	Dispense Tips & Accessories – Pages 176-177
	PNEUMATIC HAND-HELD APPLICATOR	97112	Pneumatic	Low to Medium	Drop, Dot, Bead	Light Cure/Acrylics, Retaining Compounds, Threadlockers	Yes	Foot	
	PNEUMATIC HAND-HELD APPLICATOR	97116	Pneumatic	Low to Medium	Drop, Dot, Bead	Light Cure/Acrylics, Retaining Compounds, Threadlockers	Yes	Finger	
GENERAL-PURPOSE APPLICATORS									
	VARI-DROP™ APPLICATORS	97131 97132	Pinch Tube	Low to Medium	Drop, Dot, Bead	Instant Adhesives, Retaining Compounds, Threadlockers	Yes	Finger	Dispense Tips & Accessories – Pages 176-177

VALVES & PUMPS

LOCTITE® PRODUCT		ITEM NUMBER	TYPE	VISCOSITY RANGE	DISPENSE PATTERNS	USED TO DISPENSE	STROKE ADJUSTMENT	SUCK-BACK	CONSUMABLES – DISPENSE ACCESSORIES
HIGH PERFORMANCE DIAPHRAGM VALVES									
	LIGHT CURE DISPENSE VALVE	98009	High Performance Diaphragm	Low to Medium	Drop, Dot, Bead	Instant Adhesives, Retaining Compounds, Threadlockers	Yes	No	Dispense Tips and Accessories – Pages 176-177
GENERAL DUTY DIAPHRAGM VALVES									
	DIAPHRAGM VALVE	97135 97136	General Duty Diaphragm	0 to 2,500 cP 2,500 to 5,000 cP	Drop, Dot, Bead	Light Cure/Acrylics, Instant Adhesives, Retaining Compounds, Threadlockers	No	No	Dispense Tips and Accessories – Pages 176-177
HIGH VISCOSITY FLUID AND PASTE VALVES									
	POPPET VALVE	986300	High Viscosity Fluid and Paste	Medium to High	Drop, Bead	Anaerobic Gasketing, Retaining Compounds, Threadlockers	Yes	Yes	Dispense Tips and Accessories – Pages 176-177