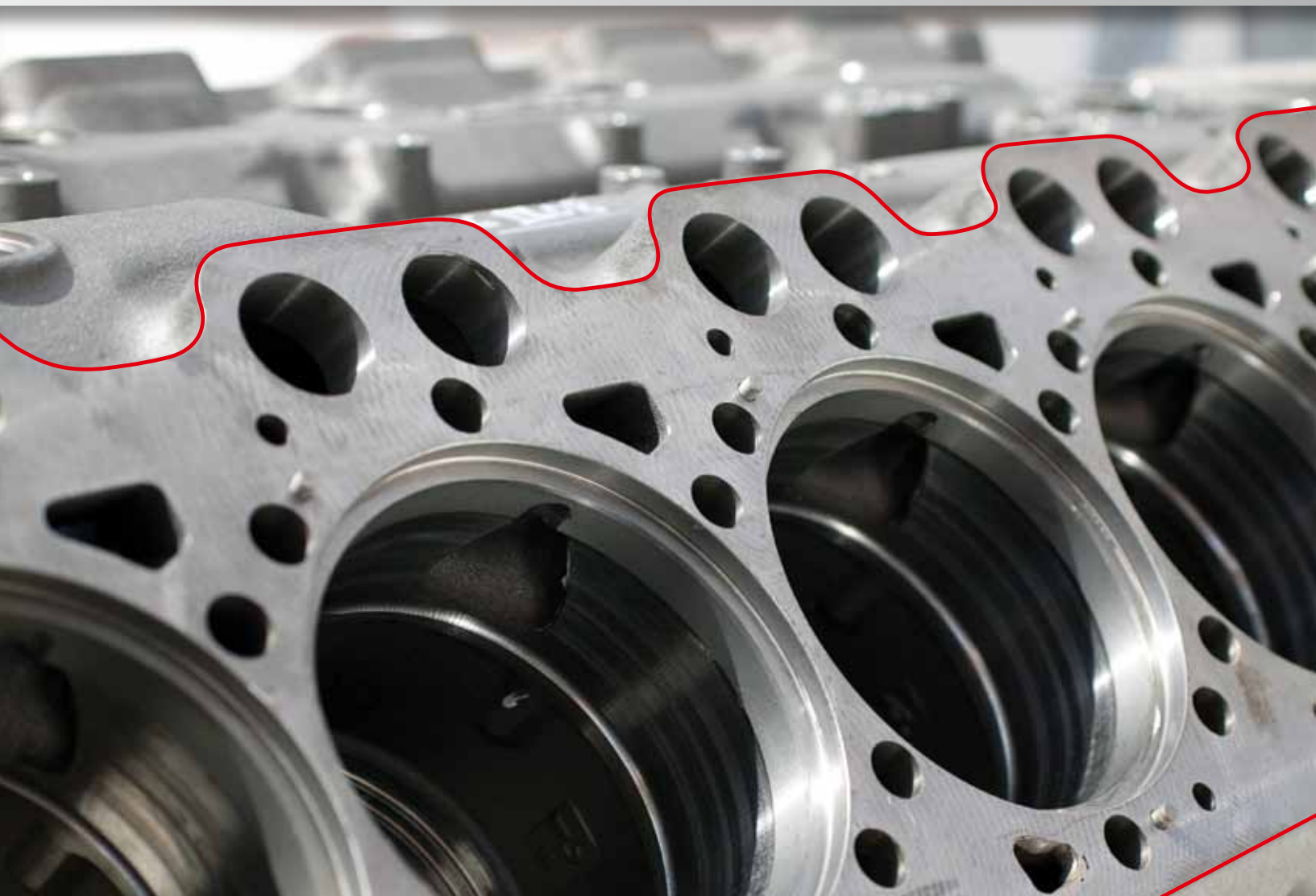


LOCTITE
BONDERITE

The Finest Art of Recycling

Remanufacturing Reference Guide



Excellence is our Passion



Innovative Solutions for the Remanufacturing Industry's Biggest Challenges



As a global leader in surface treatment, adhesives, sealants and metalworking lubricant technologies, Henkel Corporation offers products and engineering services that can make you more competitive in the demanding business of engine and transmission remanufacturing.

Our R&D scientists and application engineers have perfected a wide range of products for every step of the remanufacturing cycle, including market-leading solutions for:

- **Cleaning**
- **Remachining**
- **Reassembly**

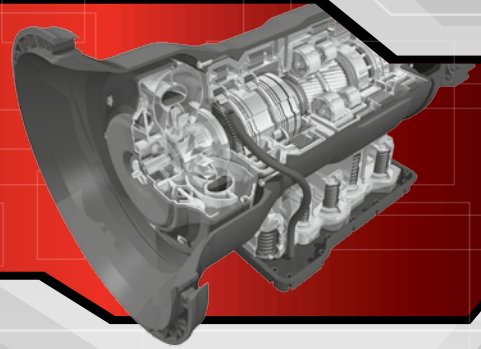
Henkel products are designed to improve finished goods reliability, reduce operating costs, and return engines and transmissions to service faster than ever before. Through our customer partnerships, we continue to pioneer new technologies and earn the trust of the many valued remanufacturing customers we serve.

Whether you would like a consultation regarding our products' performance or a complete turnkey process design, Henkel can provide the cost-effective solutions that will meet – or exceed – all your specific requirements.

Contents

Cleaning	4-9
Remachining	10-11
Reassembly	12-18
Index	19
Additional Resources.....	19

REMANUFACTURING



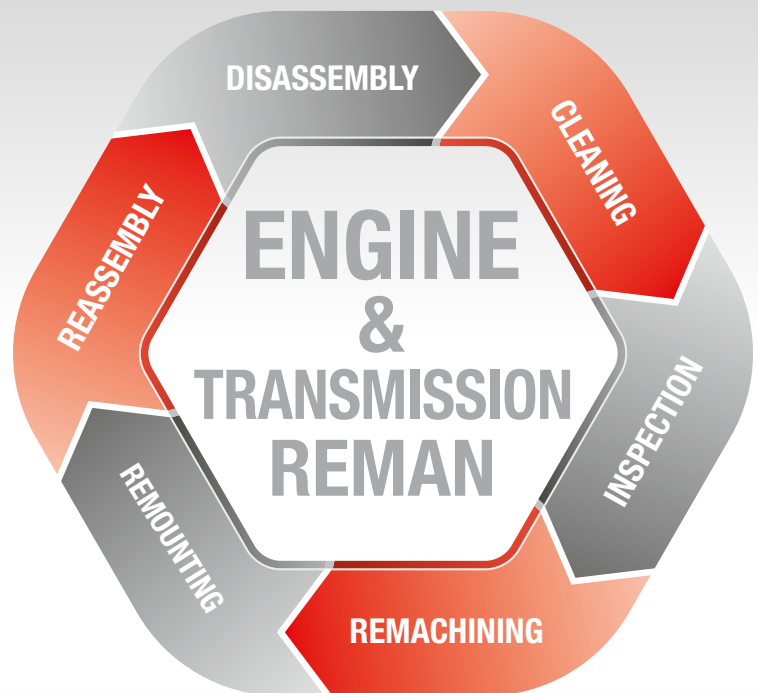
Remanufacturing involves a number of operational steps, beginning with the complete disassembly of the core product (for example, the engine, transmission or valve).

All the core components are first cleaned to remove any residual paint, rust, dirt, grease, oils, carbon buildup, coking and other contaminants. Each component is then thoroughly inspected and the company determines (a) if it can be salvaged and reused as is, or (b) if it requires rework to be returned to proper working condition, or (c) if it is sufficiently worn or is obsolete and must be replaced with a new component.

All salvaged, refurbished, and new core components are finally reassembled to create a remanufactured product whose performance is equal to that of a brand new product. From a customer's perspective, a remanufactured product is expected to match current factory specifications, meet or exceed the original expected lifetime, and may even need to comply with the latest engineering specifications and environmental requirements.

Henkel is proud to help so many remanufacturers to be more successful and to continue to grow their businesses. With our broad product and technology portfolio, we can offer cleaners to degrease, de-rust, and strip paint; lubricants and coolants to refurbish worn parts; and adhesives and sealants to reassemble core parts to like-new condition.

Our professional R&D and engineering staff can also customize formulations and design more efficient processes that deliver optimum results both on the production line and on the bottom line.



“Remanufacturing is the process of restoring a non-functional, discarded or traded-in product [at the end of its life] to like-new condition.”

Robert T. Lund
Professor, Boston University,
and industry expert



CLEANING

Solutions for Removing Dirt, Grease, Machine Oil, Metal Chips, Paint, Rust and other Tough Soils

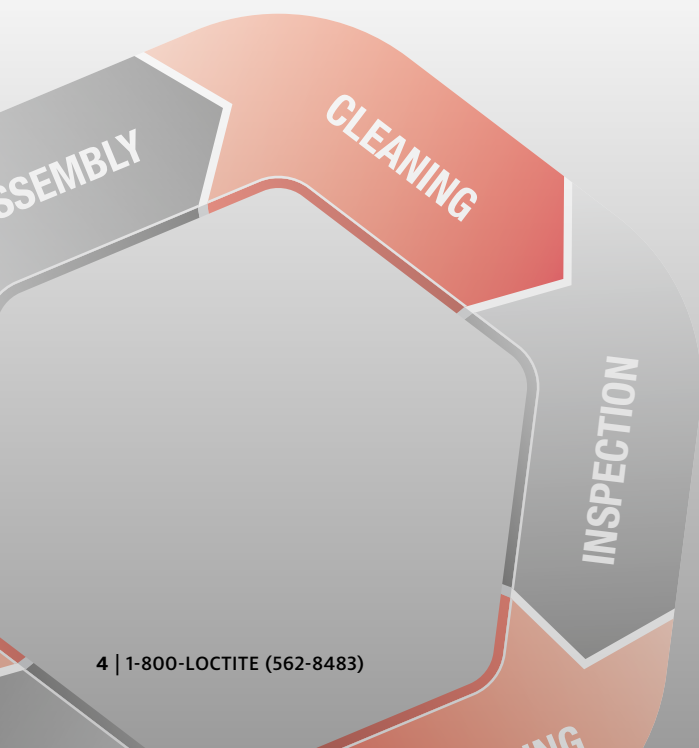


Henkel has been the world's foremost supplier of state-of-the-art metal pretreatment technologies for steel, iron, light metals, and plastics. Henkel sets high standards for cleaning, corrosion protection, paint adhesion, and environmental safety.

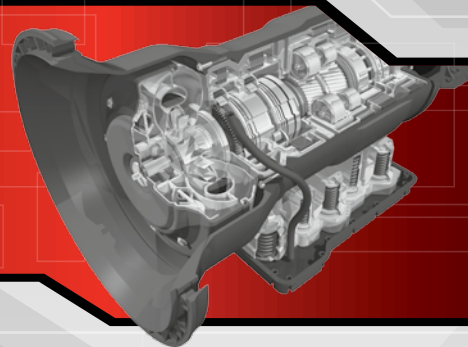
Registered as a trademark in 1946, **Alodine®** is a series of conversion coatings for aluminum and light metal substrates that improve paint adhesion and provide corrosion protection. These coatings include both metal pretreatments and post rinses.

Bonderite® has been well established in the automotive and metalworking industries as a brand for conversion coating processes and chemistries to improve paint adhesion, corrosion protection and wear resistance to ferrous-based alloys, mixed metal alloys and plastic surfaces. The products that make up the **Bonderite®** brand include: process line chemistries; cleaners; pretreatment chemistries, including activators and conditioners; conversion coating chemistries; post-treatment chemistries, including rinses and passivation; as well as auxiliary products, such as toners, additives, accelerators and neutralizers.

Our **P3®** cleaners are for metallic and nonmetallic surfaces, fouling prevention and corrosion protection, together with disinfection of water and use with wastewater treatments. These products are designed for use in low- and high-temperature applications at different pH ranges (acid, neutral and alkaline), and in high-pressure applications, depending on customer conditions.



CLEANING



Liquid Alkaline Cleaners

PRODUCTS	ORDER ITEM NUMBER	CONTAINER SIZE	APPLICATION			SUBSTRATE		ETCH	TEMPERATURE	BUILDERS				INTER-STAGE PROTECTION
			LIQUID	SPRAY	IMMERSION	STEEL/ HEAVY DUTY	MULTI-METAL *	HEAVY ETCH ON AL & ZN	OPERATING TEMP.	SODIUM	POTASSIUM	PHOSPHATE	GLUCONATE	
PARCO® CLEANER 319™	596645	5 gallon	✓	✓	✓		✓	✓	120°F to 180°F		✓	✓	✓	
	593897	55 gallon	✓	✓	✓		✓	✓	120°F to 180°F		✓	✓	✓	
PARCO® CLEANER 305™	670363	5 gallon	✓	✓	✓		✓	✓	100°F to 140°F		✓	✓	✓	
	593947	55 gallon	✓	✓	✓		✓	✓	100°F to 140°F		✓	✓	✓	
PARCO® CLEANER 1520 A/S™	594224 (Part A)	290 kg drum	✓	✓	✓	✓	✓		110°F to 140°F	✓	✓	✓		
	595313 (Part S)	204 kg drum	✓	✓	✓	✓	✓		110°F to 140°F					
PARCO® CLEANER 319MM™	772258	5 gallon	✓	✓	✓		✓		110°F to 160°F	✓	✓		✓	✓
	594588	55 gallon	✓	✓	✓		✓		110°F to 160°F	✓	✓		✓	✓
TURCO® RIDOLINE® 53™	790176	4 kg bottle			✓		✓		140°F to 160°F	✓	✓	✓		
	594633	215 kg drum			✓		✓		140°F to 160°F	✓	✓	✓		
PARCO® CLEANER 338™	593946	55 gallon		✓	✓	✓	✓	✓	140°F to 180°F	✓		✓	✓	
PARCO® CLEANER 907™	772075	5 gallon	✓		✓	✓		✓	140°F to 170°F	✓	✓	✓	✓	
	594608	55 gallon	✓		✓	✓		✓	140°F to 170°F	✓	✓	✓	✓	
PARCO® CLEANER 2192™	771826	4 kg can		✓		✓			140°F to 180°F	✓		✓		
	771825	23 kg drum		✓		✓			140°F to 180°F	✓		✓		
	593938	215 kg drum		✓		✓			140°F to 180°F	✓		✓		

Neutral Cleaners

PRODUCTS	ORDER ITEM NUMBER	CONTAINER SIZE	ORGANIC	OIL SPLITTING	BORATES	PHOSPHATES	OPERATING TEMP.	SPRAY	IMMERSION	FERROUS	ALUMINUM**	COPPER
P3-NEUTRACARE® 5175™	1265826	5 gallon	✓	✓	✓	✓	120°F to 160°F	✓	✓	✓		
	1265623	55 gallon	✓	✓	✓	✓	120°F to 160°F	✓	✓	✓		
P3-NEUTRACARE® 5088™	597978	5 gallon	✓	✓			120°F to 160°F	✓	✓	✓	✓	
	593241	55 gallon	✓	✓			120°F to 160°F	✓	✓	✓	✓	
P3-NEUTRACARE® 5220-1™	595321	5 gallon	✓	✓	✓	✓	120°F to 160°F	✓	✓	✓	✓	✓
	594241	55 gallon	✓	✓	✓	✓	120°F to 160°F	✓	✓	✓	✓	✓

Acid Pickles

PRODUCTS	ORDER ITEM NUMBER	CONTAINER SIZE	APPLICATION					CONTENTS	
			LIQUID	SPRAY	IMMERSION	STEEL/ HEAVY DUTY	OPERATING TEMP.	PHOSPHORIC ACID	SULFURIC ACID
DEOXIDINE® 182A™	772225	5 gallon	✓	✓	✓	✓	Ambient to 180°F	✓	
	594282	55 gallon	✓	✓	✓	✓	Ambient to 180°F	✓	
DEOXIDINE® 182B™	772293	5 gallon	✓	✓	✓	✓	Ambient to 180°F	✓	
	596557	55 gallon	✓	✓	✓	✓	Ambient to 180°F	✓	
DEOXIDINE® NP 7200™	1481477	5 gallon	✓	✓	✓	✓	Ambient to 140°F		✓
	1481476	55 gallon	✓	✓	✓	✓	Ambient to 140°F		✓

* Steel, zinc, aluminum. ** Individual alloys should be tested prior to recommendation.



CLEANING

Alkaline Paint Strippers (Bases)

PRODUCTS	ORDER ITEM NUMBER	CONTAINER SIZE	APPLICATION		SUBSTRATE		TEMPERATURE
			IMMERSION	SPRAY	STEEL	ALUMINUM	OPERATING TEMPERATURE
P3® HOT STRIPPER 50™	897780	5 gallon	✓	✓	✓		200°F to 240°F
	594431	55 gallon	✓	✓	✓		200°F to 240°F
RIDOLINE® RM 20™	1614412	5 gallon	✓	✓	✓		140°F to 210°F
	1614411	55 gallon	✓	✓	✓		140°F to 210°F

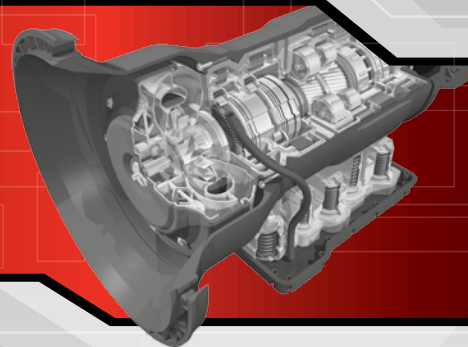
Non-Alkaline Paint Strippers

PRODUCTS	ORDER ITEM NUMBER	CONTAINER SIZE	APPLICATION		SUBSTRATE		TEMPERATURE
			IMMERSION	SPRAY	STEEL	ALUMINUM	OPERATING TEMPERATURE
TURCO® 5668-L™	596959	55 gallon	✓		✓	✓	160°F to 180°F
TURCO® 6776™ THIN	874894	5 gallon	✓		✓	✓	70°F to 130°F
	597019	55 gallon	✓		✓	✓	70°F to 130°F

Paint Stripper Additives

PRODUCTS	ORDER ITEM NUMBER	CONTAINER SIZE	APPLICATION		SUBSTRATE		TEMPERATURE
			IMMERSION	SPRAY	STEEL	ALUMINUM	OPERATING TEMPERATURE
P3® HOT STRIPPER 15™ ADDITIVE	967452	5 gallon	✓	✓	✓	✓	140°F to 240°F
	594246	55 gallon	✓	✓	✓	✓	140°F to 240°F
P3® HOT STRIPPER 19™ ADDITIVE	772409	5 gallon	✓	✓	✓	✓	140°F to 240°F
	772408	55 gallon	✓	✓	✓	✓	140°F to 240°F
P3-TENSOPON™ 0683™	1562049	5 gallon	✓	✓	✓	✓	140°F to 240°F
	1562048	55 gallon	✓	✓	✓	✓	140°F to 240°F

CLEANING



Alkaline De-Rusters

PRODUCTS	ORDER ITEM NUMBER	CONTAINER SIZE	TYPICAL DILUTION	TEMPERATURE RANGE	APPLICATION		METALS		
					SPRAY	IMMERSION	STEEL	CAST IRON	NON-FERROUS**
75 DQ™	596006	5 gallon	15% - 20%	180°F to 210°F		✓	✓	✓	
	594360	55 gallon	15% - 20%	180°F to 210°F		✓	✓	✓	
TURCO® FERLON®	595784	55 gallon	1.5 - 2 lb./gal.	180°F to 210°F		✓	✓	✓	✓

Neutral De-Rusters

PRODUCTS	ORDER ITEM NUMBER	CONTAINER SIZE	TYPICAL DILUTION	TEMPERATURE RANGE	APPLICATION		METALS		
					SPRAY	IMMERSION	STEEL	CAST IRON	NON-FERROUS**
DR-238G™	596606	5 gallon	5% - 20%	Ambient to 120°F		✓	✓	✓	
	594291	55 gallon	5% - 20%	Ambient to 120°F		✓	✓	✓	

Rust Preventatives

PRODUCTS	ORDER ITEM NUMBER	CONTAINER SIZE	STORAGE LIFE	% SOLIDS	TYPICAL DILUTION	TYPICAL STORAGE TIME*	APPLICATION		FILM			METALS		
							SPRAY	IMMERSION	WAX	OIL	FLUID	STEEL	CAST IRON	NON-FERROUS**
P3® PREVOX™ 505™	596698	5 gallon	Short-term	45	3% - 20%	4 weeks	✓	✓			✓	✓	✓	
	594827	55 gallon	Short-term	45	3% - 20%	4 weeks	✓	✓			✓	✓	✓	
P3® PREVOX™ 4232™	595511	5 gallon	Short-term	35	3% - 20%	4 weeks	✓	✓			✓	✓	✓	✓
	594762	55 gallon	Short-term	35	3% - 20%	4 weeks	✓	✓			✓	✓	✓	✓
P3® PREVOX™ 5800™	772736	5 gallon	Extended	99	3% - 20%	3 months	✓	✓		✓		✓	✓	✓
	772735	55 gallon	Extended	99	3% - 20%	3 months	✓	✓		✓		✓	✓	✓
P3® PREVOX™ 6767™	593229	5 gallon	Extended	100	3% - 20%	3 months	✓	✓		✓		✓	✓	✓
	595793	55 gallon	Extended	100	3% - 20%	3 months	✓	✓		✓		✓	✓	✓
P3® PREVOX™ 4141™	879525	5 gallon	Extended	10	100%	6 months	✓	✓	✓			✓	✓	✓
	879524	55 gallon	Extended	10	100%	6 months	✓	✓	✓			✓	✓	✓

* Typical storage time will vary, depending upon concentration, environmental conditions and storage.

** Individual alloys should be tested prior to recommendation.



CLEANING

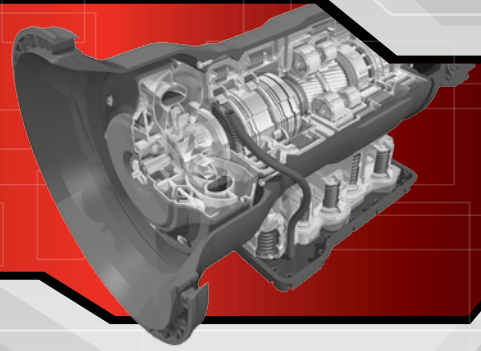
Maintenance Cleaners

PRODUCTS	ORDER ITEM NUMBER	CONTAINER SIZE	APPLICATION		CONCENTRATION (% BY VOLUME)	OPERATING TEMPERATURE	PHOSPHATE-FREE
			SPRAY	LIQUID			
PARCO® MAINTENANCE CLEANER 2235™	597788	5 gallon		✓	0.5% - 50%	Ambient	✓
	594792	55 gallon		✓	0.5% - 50%	Ambient	✓
PARCO® CLEANER 220WB™	772337	5 gallon	✓	✓	3% - 5%	Ambient	
	598064	55 gallon	✓	✓	3% - 5%	Ambient	
P3® GRATO™ 3000™	1371210	5 gallon	✓	✓	3% - 5%	Ambient	✓
	1290334	55 gallon	✓	✓	3% - 5%	Ambient	✓
P3® GRATO™ 14™ MARINE (US) CLEANER	611375	55 gallon	✓	✓	3% - 50%	Ambient to 175°F	
P3® GRATO™ 50™ MARINE (US) CLEANER	611514	55 gallon	✓	✓	1% - 5%	70°F to 120°F	

Spray Wand Cleaners and Coaters

PRODUCTS	ORDER ITEM NUMBER	CONTAINER SIZE	APPLICATION				SUBSTRATE					
			SPRAY	LIQUID	IMMERSION	SPRAY WAND	STEEL	MULTI-METAL	ORGANIC	FLUORIDE	SURFACTANT	OPERATING TEMPERATURE
PARCO® SPRAY WAND 101™	772110	5 gallon	✓	✓		✓	✓		✓		✓	120°F to 190°F
	594296	55 gallon	✓	✓		✓	✓		✓		✓	120°F to 190°F
PARCO® SPRAY WAND 200™	772101	5 gallon	✓	✓		✓	✓	✓	✓	✓	✓	130°F to 190°F
	594643	55 gallon	✓	✓		✓	✓	✓	✓	✓	✓	130°F to 190°F
PARCO® SPRAY WAND 330™	772145	5 gallon	✓	✓		✓		Al only		✓	✓	Ambient to 120°F
	595382	55 gallon	✓	✓		✓		Al only		✓	✓	Ambient to 120°F
GALVAPREP® 5™	595488	55 gallon		✓		Brush on		Galvanized				Ambient to 120°F
METALPREP® 79™ (Used with GALVAPREP® 5™)	594305	5 gallon	✓	✓	✓	✓		Galvanized				Ambient to 120°F
	598920	55 gallon	✓	✓	✓	✓		Galvanized				Ambient to 120°F
ALUMIPREP™ 33™	592770	55 gallon	✓	✓	✓	✓		Al only		✓		Ambient to 120°F

CLEANING



Cleaner and Treatment Wipes

PRODUCTS	ORDER ITEM NUMBER	CONTAINER SIZE	STEEL	ZINC	ALUMINUM	MAGNESIUM	CRYSTAL TYPE	TEMPERATURE RANGE	REACTIVE	DRY-IN-PLACE	NON-CHLORINE	MILITARY APPROVALS	GENERAL SOIL CLEANUP	VOCs OR HAP's
BONDERITE® 1455-W™ WIPES	1545630	Case of 6	✓	✓			Nano	Ambient	✓	✓	✓			< 1 %
ALODINE® 5700™ WIPES	869854	Case of 250			✓	✓	Nano	Ambient	✓	✓	✓			< 1 %
PARCOSOL® 263™ WIPES	598224	Case of 600	✓	✓	✓	✓	Cleaner	Ambient	✓	✓	✓		✓	None
ALODINE® 871™ TOUCH-N-PREP® WIPES	1014570	Case of 6					Nano	Ambient	✓	✓		✓		< 1 %
AUTOPREP® PRETREATMENT WIPES	1545630	Case of 6	✓	✓			Nano	Ambient	✓					< 1 %

Prep-N-Cote®

Prep-N-Cote®			APPLICATION				SUBSTRATE					
PRODUCTS	ORDER ITEM NUMBER	CONTAINER SIZE	SPRAY	LIQUID	IMMERSION	SPRAY WAND	STEEL	MULTI-METAL	ORGANIC	FLUORIDE	SURFACTANT	OPERATING TEMPERATURE
PERP-N-COTE® 500LT™	771987	5 gallon	✓	✓	✓	✓	✓				✓	70°F to 140°F
	593944	55 gallon	✓	✓	✓	✓	✓				✓	70°F to 140°F
PREP-N-COTE® 700™	772086	5 gallon	✓	✓	✓	✓	✓	✓	✓	✓	✓	110°F to 150°F
	594268	55 gallon	✓	✓	✓	✓	✓	✓	✓	✓	✓	110°F to 150°F

Nanoceramic Pretreatments

PRODUCTS	ORDER ITEM NUMBER	CONTAINER SIZE	SPRAY	IMMERSION	STEEL	ZINC	ALUMINUM	MAGNESIUM	TEMPERATURE RANGE	REACTIVE	NON-CHROME
BONDERITE® NT-1™	772427	5 gallon	✓	✓	✓	✓	✓		55°F to 100°F	✓	✓
	611359	55 gallon	✓	✓	✓	✓	✓		55°F to 100°F	✓	✓
BONDERITE® 7400™	599060	5 gallon	✓	✓	✓	✓	✓		Ambient	✓	✓
	597816	55 gallon	✓	✓	✓	✓	✓		Ambient	✓	✓
ALODINE® 5700™	595996	5 gallon	✓	✓			✓	✓	70°F to 100°F	✓	✓
	592968	15 gallon	✓	✓			✓	✓	70°F to 100°F	✓	✓
	594136	55 gallon	✓	✓			✓	✓	70°F to 100°F	✓	✓



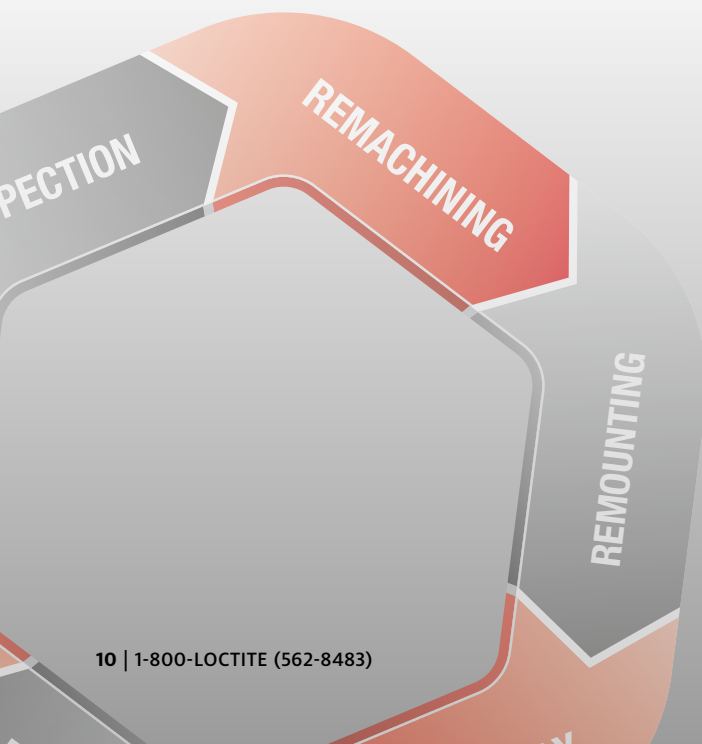
REMACHINING

Machining Lubricants and Coolants from the World Leader in Metalworking Technologies

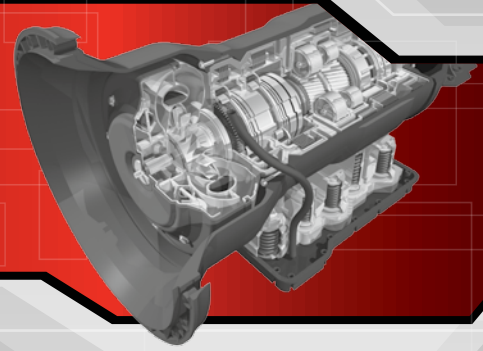


Henkel offers a full line of metalworking fluids designed to extend tool life, reduce waste, improve quality, and increase throughput. From straight oils to synthetics, our products for metal forming, metal removal and rust prevention contain necessary additives that meet the needs of light- to heavy-duty industry applications.

Multan® branded products have been synonymous with metal removal and forming lubricants. From liquids to pastes, these water-miscible and non-water-miscible products are used in manual and automated application systems. **Multan®** branded products are available in fully synthetic, semi-synthetic, soluble or straight oil formulations.



REMACHINING



Metal Removal

PRODUCTS	ORDER ITEM NUMBER	CONTAINER WEIGHT (kg)	CONTAINER SIZE	CONCENTRATE COLOR	RUST-FREE CONC. (%) – CAST IRON	VISCOSITY - H2O SOLUBLES (cP), OILS (SUS @ 100°F)	OIL CONTENT RANGE (%)	TYPICAL CONCENTRATION	SUBSTRATES				
									STEEL	CAST IRON	ALUMINUM*	YELLOW (COPPER/BRASS)	PHOSPHOROUS ADDITIVE
MULTAN® 9103™	593832	20	Pail	Blue	3	N/A	0	5% - 10%	✓	✓			
	596262	213	Drum										
MULTAN® B-400™	706695	18	Pail	Amber	N/A	N/A	N/A	5% - 10%	✓	✓	✓	✓	
	677532	197	Drum										
MULTAN® 2140™	594451	18	Pail	Amber	N/A	160	50 - 55	5% - 10%	✓	✓	✓		
	593822	191	Drum										
MULTAN® CR 67™	594463	14	Pail	Amber	N/A	85	90 - 95	100%	✓	✓	✓	✓	✓
	594274	177	Drum										

Metal Forming

PRODUCTS	ORDER ITEM NUMBER	CONTAINER WEIGHT (kg)	CONTAINER SIZE	CONCENTRATE COLOR	VISCOSITY - H2O SOLUBLES (cP), OILS (SUS @ 100°F)	TYPICAL CONCENTRATION	SUBSTRATES					EP ADDITIVES	
							STEEL	ALUMINUM*	YELLOW (COPPER/BRASS)	GALVANIZED/ ZINC ALLOY	STAINLESS STEEL	CHLORINE	SULPHUR
MULTAN® F 750™	595446	18	Pail	Yellow	120	20% - 100%	✓	✓	✓	✓	✓		
	596044	209	Drum										
MULTAN® F 927 KW™	595294	19	Pail	Amber	N/A	10% - 100%	✓	✓	✓	✓	✓	✓	
	594263	204	Drum										
MULTAN® PL 298™	928486	15	Pail	Amber	250	100%	✓	✓	✓	✓	✓		✓
	928485	181	Drum										

* Individual alloys should be tested prior to recommendation.





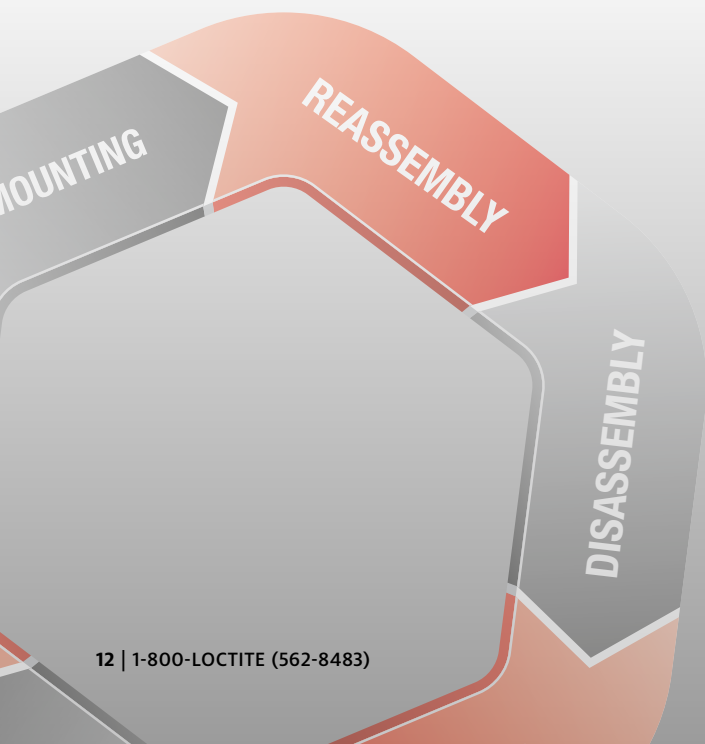
REASSEMBLY

**Bond It. Fix It. Lock It. Seal It. Secure It.
Do It All with Loctite® Products.**

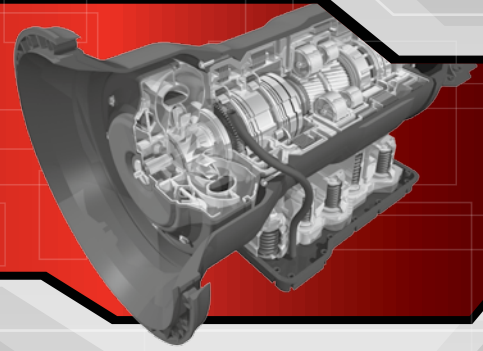


Henkel Corporation's familiar **Loctite®** brand represents the most complete line of high performance adhesives, sealants, and dispensing/curing systems available anywhere from a single supplier for the past 60 years. Depended upon to hold complex machinery together, **Loctite®** products are used to build everything from automobiles to dishwashers to tractors – and to the trucks that deliver them. **Loctite®** products make these machines and inner assemblies less expensive, more reliable and longer lasting.

Many **Loctite®** products are already specified in production by the world's leading original equipment manufacturers in every industry and every region around the world. Whatever your adhesive or sealant needs may be – threadlocking, thread sealing, retaining, gasketing, lubricating or repairing – chances are **Loctite®** has the product solution that is right for your application and budget. In addition, Henkel provides conjoint research and development, unmatched customer service, expert technical support, professional product training, and outstanding field sales assistance.



REASSEMBLY



Loctite® Rigid Assembly Gasketing Product Properties Chart

PRODUCTS	ORDER ITEM NUMBER	PACKAGE TYPE/SIZE	COLOR	TYPICAL USE	GAP FILL (INCHES)	CURED STATE	VISCOSITY (cP)	TEMPERATURE RANGE	CURE SPEED	RECOMMENDED PRIMER	SPECIFIC GRAVITY	AGENCY APPROVALS
LOCTITE® 510™ FLANGE SEALANT	51031 51041 51074	50 ml tube 250 ml tube 300 ml cartridge	Red	High temp. applications, excellent solvent resistance	Unprimed – 0.010 Primed – 0.020	Rigid	188,000/ 500,000 Thixotropic	-65°F to 400°F (-54°C to 204°C)	Unprimed – 4 to 24 hrs. Primed – 30 min. to 4 hrs.	7088™, 7471™ or 7649™	1.16	N/A
LOCTITE® 518™ FLANGE SEALANT	22424 51831 51845	300 ml syringe kit 50 ml tube 300 ml cartridge	Red	For all metals, including aluminum flanges	Unprimed – 0.010 Primed – 0.050	Flexible	800,000/ 3,750,000 Thixotropic	-65°F to 300°F (-54°C to 149°C)	Unprimed – 4 to 24 hrs. Primed – 30 min. to 4 hrs.	7088™, 7471™ or 7649™	1.13	NSF/ANSI 61, CFIA Listed

Loctite® Sealing/Dressing for Existing Gasket Properties Chart

PRODUCTS	ORDER ITEM NUMBER	PACKAGE TYPE/SIZE	COLOR	TYPICAL USE	CONSISTENCY	VISCOSITY (cP)	TEMPERATURE RANGE	CURE SPEED	OIL RESISTANCE	AGENCY APPROVALS
LOCTITE® 534™ HI-TACK GASKET DRESSING	39156	19 g stick	Purple	Vertical, repositionable	Semisolid	N/A	-65°F to 300°F (-54°C to 149°C)	5 minutes to set	Oil resistant	N/A

Loctite® Gasketing Properties Chart

PRODUCTS	ORDER ITEM NUMBER	PACKAGE TYPE/SIZE	COLOR	CONSISTENCY	OIL RESISTANCE	TEMPERATURE RANGE (INTERMITTENT)	SEALING TIME	AGENCY APPROVALS
LOCTITE® 587™ BLUE, HIGH PERFORMANCE RTV SILICONE GASKET MAKER	58730 58775 58791 40462	70 ml tube 300 ml cartridge 50 lb. pail 190 ml can	Blue	Paste	Increased oil resistance	-75°F to 500°F (-59°C to 260°C)	Tack-free – 30 min. Full strength – 24 hrs.	NSF P1, CFIA Listed, ABS
LOCTITE® 5900™	20166	300 ml cartridge	Black	Paste	Oil/water resistant	-65°F to 500°F (-54°C to 260°C)	Tack-free – 30 min. Full strength – 24 hrs.	NSF P1, CFIA Listed
LOCTITE® 5699™ GREY, HIGH PERFORMANCE RTV SILICONE GASKET MAKER	135275 135270 230074 229770 756302	70 ml tube 300 ml cartridge 50 lb. pail 550 lb. drum 190 ml can	Grey	Paste	Increased oil resistance	-75°F to 625°F (-59°C to 329°C)	Tack-free – 30 min. Full strength – 24 hrs.w	CFIA Listed
LOCTITE® 5810A™	39211 39210	300 ml. cartridge 50 lb. pail	Black	Paste	Excellent oil resistance	-40°F to 300°F (-40°C to 150°C)	Tack-free – 190 min.	N/A



REASSEMBLY

Loctite® General-Purpose Threadlocker Properties Chart

KEY FEATURES		PRODUCT	TYPICAL USE	ORDER ITEM NUMBER	PACKAGE TYPE & SIZE	COLOR	VISCOSITY** (cP)	TORQUE*** IN.-LBS. (Break/Prevail)	TEMPERATURE RANGE	CURE SPEED (STEEL AT 25°C)	AGENCY APPROVALS
Low Strength	Small Fasteners	LOCTITE® 222™ THREADLOCKER	Small screws under 1/4"	21463 21464	10 ml bottle 50 ml bottle	Purple	1,200 / 5,000 Thixotropic	53 / 30	-65°F to 300°F	Fixture – 20 min. Full – 24 hrs.	N/A
	General-Purpose	LOCTITE® 243™ BLUE THREADLOCKER	1/4" to 3/4" bolts with light oil contamination	1329467 1329505 1330333	50 ml bottle 250 ml bottle 1 liter bottle	Blue	1,300 / 3,000 Thixotropic	230 / 40	-65°F to 360°F	Fixture – 10 min. Full – 24 hrs.	NSF/ANSI 61, CFIA Listed
Medium Strength	Semisolid Stick	LOCTITE® 248™ BLUE THREADLOCKER	1/4" to 3/4" bolts, overhead, pre-dispensed, hard-to-reach areas	37684 37087	9 g stick 19 g stick	Blue	Semisolid	110* / 43	-65°F to 300°F	Fixture – 5 min. Full – 24 hrs.	CFIA Listed
	Tape	LOCTITE® QUICKTAPE® 249™ BLUE THREADLOCKER TAPE	1/4" to 3/4" bolts, overhead, pre-dispensed, hard-to-reach areas	1372603	260" roll	Blue	Tape	74 / 47	-65°F to 300°F	Fixture – 30 min. Full – 24 hrs.	CFIA Listed
High Strength	General-Purpose	LOCTITE® 263™ RED THREADLOCKER	Primerless, high strength	1330585 1330335 1330334	50 ml bottle 250 ml bottle 1 liter bottle	Red	400 / 600	290 / 290*	-65°F to 360°F	Fixture – 10 min. Full – 24 hrs.	NSF/ANSI 61, CFIA Listed
	Semisolid Stick	LOCTITE® 268™ THREADLOCKER – HIGH STRENGTH	Up to 3/4" bolts, overhead, pre-dispensed, hard-to-reach areas	37685 37686	9 g stick 19 g stick	Red	Semisolid	220* / 34	-65°F to 300°F	Fixture – 5 min. Full – 24 hrs.	CFIA Listed
Wicking Grade	General-Purpose	LOCTITE® 290™ THREADLOCKER	Medium/high strength, wicking grade for preassembled parts and weld sealing	29031 29041 29043	50 ml bottle 250 ml bottle 1 liter bottle	Green	25 / 55	90 / 260	-65°F to 300°F	Fixture – 20 min. Full – 24 hrs.	MIL-S-46163A for existing designs, ASTM D-5363†, NSF/ANSI 61, NSF P1, CFIA Listed

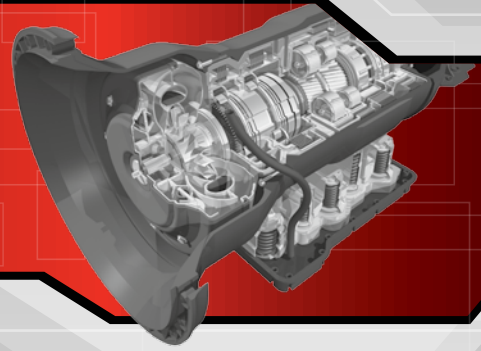
* Break loose value.

** Brookfield RVT spindle 3.20 RPM/25 RPM.

*** M10 steel nuts and bolts.

† For new designs.

REASSEMBLY



Loctite® Specialty Threadlocker Properties Chart

	KEY FEATURES	PRODUCT	TYPICAL USE	ITEM NUMBER	PACKAGE TYPE & SIZE	COLOR	VISCOSITY* (cP)	TORQUE** IN.-LBS. (Break/Prevail)	TEMPERATURE RANGE	CURE SPEED (STEEL AT 25°C)	AGENCY APPROVALS
High Strength	High Temperature	LOCTITE® 272™ THREADLOCKER	High temperature applications	27240 27270 27285	50 ml bottle 250 ml bottle 1 liter bottle	Red	9,500	200 / 220	-65°F to 450°F	Fixture – 1 hr. Full – 24 hrs.	CFIA Listed
	Enhanced Health & Safety	LOCTITE® 2700 NA™ RED THREADLOCKER	High strength	1526123 1526565	50 ml bottle 250 ml bottle	Red	5,000 Thixotropic	300 / 265	-65°F to 300°F	Fixture – 5 min. Full – 24 hrs.	N/A
Medium Strength	Enhanced Health & Safety	LOCTITE® 2400 NA™ BLUE THREADLOCKER	General-purpose	1526121 1526122	50 ml bottle 250 ml bottle	Blue	3,070 Thixotropic	160 / 20	-65°F to 300°F	Fixture – 5 min. Full – 24 hrs.	N/A

* Brookfield RVT spindle 3.20 RPM/25 RPM.

** M10 steel nuts and bolts.



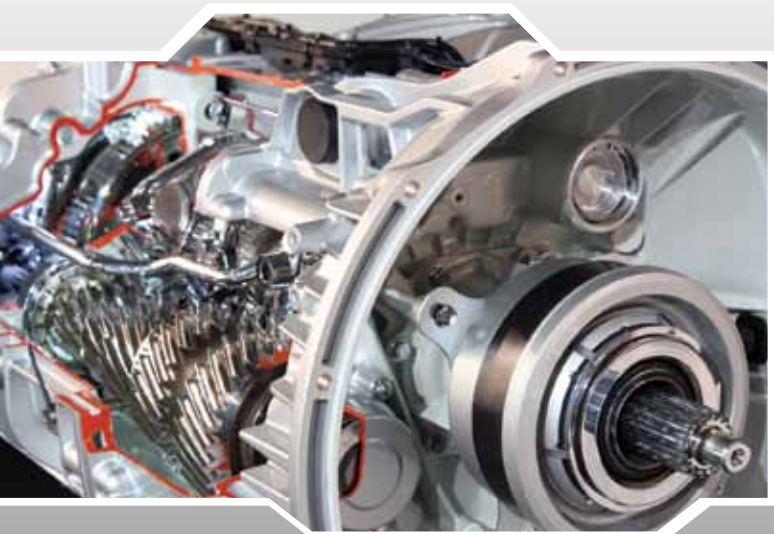


REASSEMBLY

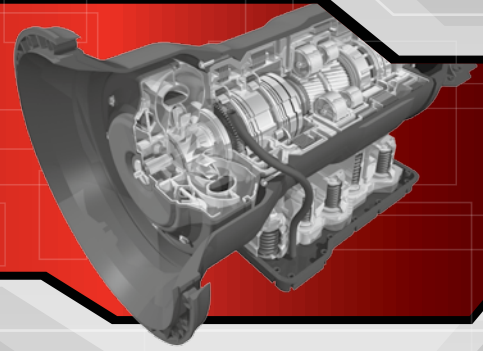
Loctite® Retaining Compound Properties Chart

PRODUCT	ORDER 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	SPECIFIC GRAVITY	AGENCY APPROVALS
LOCTITE® 540™ RETAINING COMPOUND	54041	250 ml tube	Cup/core plug adhesive sealant	Blue	N/A	7,000 to 12,000	2,030	-65°F to 300°F (-54°C to 149°C)	N/A	7649™ or 7471™	N/A	N/A
LOCTITE® 603™ RETAINING COMPOUND	21441 21442	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™	1.10	N/A
LOCTITE® 620™ RETAINING COMPOUND	62040 62070 62085	50 ml bottle 250 ml bottle 1 liter bottle	For high temperature applications	Green	0.015 in.	8,500	3,800	-65°F to 450°F (-54°C to 232°C)	Fixture – 1 hr. Full – 24 hrs.	7088™, 7649™ or 7471™	1.16	CFIA Listed, ABS
LOCTITE® 648™ RETAINING COMPOUND	21444 21445	50 ml bottle 250 ml bottle	Fast fixturing for close-fitting parts, high strength for stainless steel	Green	0.006 in.	500	3,900	-65°F to 300°F (-54°C to 149°C)	Fixture – 5 min. Full – 24 hrs.	7088™, 7649™ or 7471™	1.13	N/A
LOCTITE® 660™ RETAINING COMPOUND	66040	50 ml tube	For repair of worn machinery parts	Silver	0.020 in.	250,000/ 1,500,000 Thixotropic	3,335	-65°F to 300°F (-54°C to 149°C)	Fixture – 20 min. Full – 24 hrs.	7088™, 7649™ or 7471™	1.13	CFIA Listed
LOCTITE® 668™	39148	19 g stick	Bonding of cylindrical fitting parts	Green	0.005 in.	Semisolid	2,610	-65°F to 400°F (-54°C to 204°C)	Fixture – 30 min. Full – 72 hrs.	7649™ or 7471™	1.1228	N/A

*Varies with substrates.



REASSEMBLY



Loctite® Liquid Anaerobic Thread Sealant Properties Chart

	PRODUCT	ORDER ITEM NUMBER	PACKAGE TYPE & SIZE	TYPICAL USE	COLOR & APPEARANCE	VISCOSITY (cP)	TEMPERATURE RANGE	PRESSURE RESISTANCE (psi)	RECOMMENDED PRIMER	AGENCY APPROVALS
GENERAL-PURPOSE	LOCTITE® 561™ PIPE SEALANT	37127	19 g stick	General-purpose, portable, overhead	White Paste	Semisolid	-65°F to 300°F	10,000	7088™, 7649™ or 7471™	UL Classified for U.S., CFIA Listed, NSF/ANSI 61
	LOCTITE® 565™ THREAD SEALANT	56531 56541 56571 56543 56566	50 ml tube 250 ml tube 300 ml cartridge 1 liter bottle 10 liter bottle	Controlled strength	White	300,000	-65°F to 300°F	10,000	7088™, 7649™ or 7471™	CSA International, UL Classified for U.S., NSF/ANSI 61, CFIA Listed, ULC Classified for Canada
HIGH TEMPERATURE	LOCTITE® 567™ THREAD SEALANT	56747 56765 33241 56790	50 ml tube 250 ml tube 350 ml brush-top can 1 liter bottle	For stainless steel and all other metal fittings	White	540,000	-65°F to 400°F	10,000	7088™, 7649™ or 7471™	UL Classified for U.S., ABS, CFIA Listed, NSF/ANSI 61, ULC Classified for Canada
HYDRAULIC & PNEUMATIC	LOCTITE® 545™ THREAD SEALANT	54531 54541	50 ml bottle 250 ml bottle	Pneumatic hydraulic sealant, no fillers	Purple	14,000	-65°F to 300°F	10,000	7088™, 7649™ or 7471™	ABS, CFIA Listed

Loctite® Primer Properties Chart

PRODUCT	ORDER ITEM NUMBER	PACKAGE TYPE & SIZE	COLOR	VISCOSITY (cP)	BASE	ON-PART LIFE	DRY TIME	APPLICATION	AGENCY APPROVALS
LOCTITE® 7088™ PRIMER	1069258	17 g stick	Teal	Semisolid	No solvent	30 days	None	Anaerobics	N/A
LOCTITE® 7471™ PRIMER T™	22477 19268	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
LOCTITE® 7649™ PRIMER N™	21347 21348 19266	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



REASSEMBLY

Loctite® ViperLube® Synthetic Lubricant Properties Chart

PRODUCT	ORDER ITEM NUMBER	PACKAGE TYPE & SIZE	TEMPERATURE RESISTANCE	TYPE OF LUBRICANT	VISCOSITY RANGE	FOUR BALL TEST	NLGI RATING	DROP POINT	SPRAY TEST (ASTM B111)	AGENCY APPROVALS
LOCTITE® VIPERLUBE® HIGH PERFORMANCE SYNTHETIC GREASE	36782	14 oz. cartridge	400°F (204°C)	Synthetic hydrocarbon (polyalphaolefin-based)	240 CST*	0.45 mm (ASTM D 2266)	2	500°F (260°C) (ASTM D 556)	Pass	NSF H1, CFIA Listed
	36783	400 g can	continuous							
	36786	10.1 oz. net wt. aerosol	500°F (260°C) intermittent							
	37061	30 lb. pail								
	37710	120 lb. drum								

* CST at 104°F (40°C).

Loctite® Anti-Seize Properties Chart

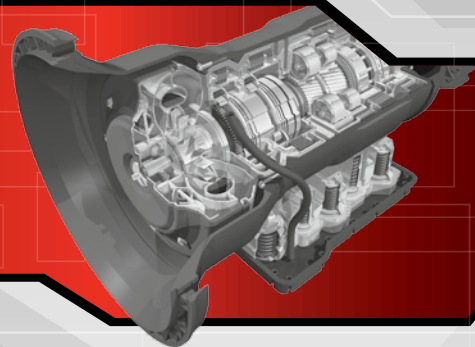
PRODUCT	ORDER ITEM NUMBER	PACKAGE TYPE & SIZE	COLOR	TEMPERATURE RANGE	SOLID LUBRICATING AGENT	TORQUE COEFFICIENT*	METAL-FREE
LOCTITE® C5-A® COPPER ANTI-SEIZE LUBRICANT	51147	8 oz. brush-top can	Copper	-20°F to 1800°F (-29°C to 982°C)	Copper/Graphite	0.16	No
	51007	1 lb. brush-top can					
	37229	20 g stick					
LOCTITE® HEAVY DUTY ANTI-SEIZE	51605	9 oz. brush-top can	Grey	-20°F to 2400°F (-29°C to 1315°C)	Graphite/Calcium fluoride	0.16	Yes
	51606	18 oz. brush-top can					
	41205	20 g stick					

* K value on steel nuts and bolts.

Loctite® Lubricant Properties Chart

PRODUCT	ORDER ITEM NUMBER	PACKAGE TYPE & SIZE	TEMPERATURE RANGE	BASE OIL	VISCOSITY
LOCTITE® FREEZE & RELEASE™	996456	13.52 oz. net wt. aerosol	-4°F to 113°F (-20°C to 45°C)	Mineral oils, Silicone-free	1 cP





Index

CLEANING

Liquid Alkaline Cleaners.....	5
Neutral Cleaners	5
Acid Pickles	5
Alkaline Paint Strippers (Bases).....	6
Non-Alkaline Paint Strippers.....	6
Paint Stripper Additives	6
Alkaline De-Rusters	7
Neutral De-Rusters	7
Rust Preventatives	7
Maintenance Cleaners	8
Spray Wand Cleaners and Coaters	8
Cleaner and Treatment Wipes	9
Prep-N-Cote®	9
Nanoceramic Pretreatments.....	9

REMANUFACTURING

Metal Removal	11
Metal Forming	11

REASSEMBLY

Gasketing Products.....	13
Threadlockers.....	14-15
Retaining Compounds	16
Thread Sealants	17
Primers.....	17
Anti-Seize.....	18
Lubricants	18

For further information about Henkel's products for the remanufacturing industry, please consult the following websites and download the highlighted literature.

Cleaning & Surface Treatment Materials

www.henkelna.com/surfacetreatment

Henkel Surface Treatment Selector Guide, LT-6267



Henkel Surface Treatment Field Guide, LT-6567



Machining Lubricants & Coolants

www.henkelna.com/metalworking

Metalworking Fluids Selector Guide, LT-6266



Reassembly Adhesives & Sealants

www.henkelna.com/loctite

The Adhesive Sourcebook, LT-3355



Maintenance Solutions Guide, LT-3722





U.S.A.

Henkel Corporation

Engineering Adhesives
One Henkel Way
Rocky Hill, Connecticut 06067
Tel: 1.800.LOCTITE (562.8483)
Tel: 860.571.5100
Fax: 860.571.5465

Canada

Henkel Canada Corporation

Engineering Adhesives
2515 Meadowpine Blvd.
Mississauga, Ontario L5N 6C3
Tel: 1.800.263.5043 (*within Canada*)
Tel: 905.814.6511
Fax: 905.814.5391

www.henkelna.com/reman
www.loctite.com