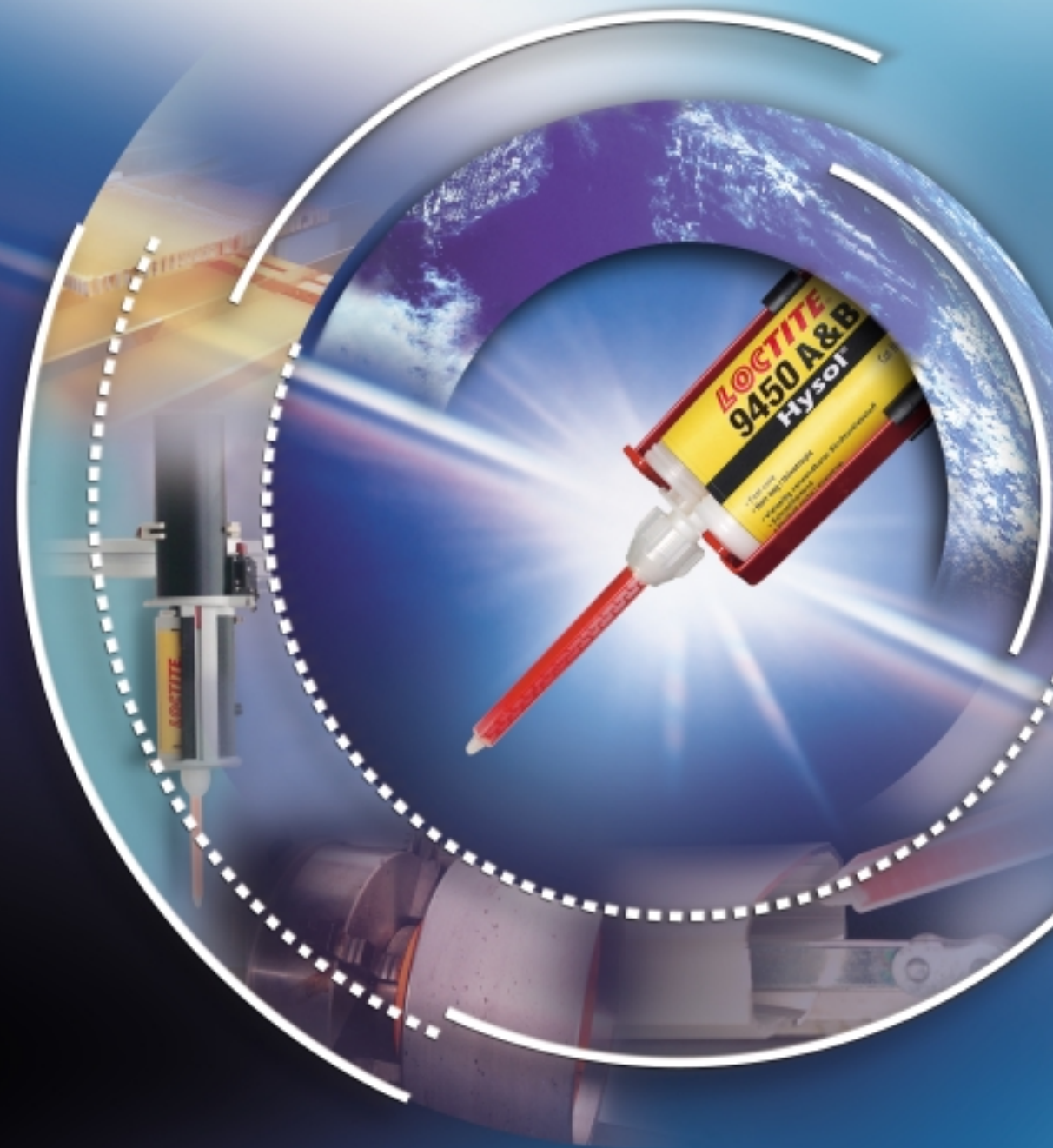


LOCTITE®

**Structural
Bonding Solutions**

Hysol®



Advanced Solutions

For almost 50 years, Henkel Loctite has been at the cutting edge in the development of adhesive technologies and manufacturing processes.

During this time its chemists, technologists and application engineers have built up unparalleled knowledge and experience of every bonding challenge.

This wealth of information has established Henkel Loctite as a worldwide speciality chemical company and market leader in high-performance adhesives, sealants, coatings and related chemicals. Loctite® celebrates its 50th anniversary in 2003, and since the original development of a unique anaerobic technology, Henkel Loctite innovations have become vital components in many of the machines and products that are at the core of everyday life. The company operates in markets as diverse as electronics, automotive, aerospace, biomedical and many manufacturing industries.

Henkel Loctite offers much more than outstanding products, it provides solutions to many of industry's biggest challenges.

Whether it is by reducing assembly costs, providing design and application assistance or increasing the reliability of a process, Henkel Loctite is dedicated to earning and keeping the trust of its customers.

Over many years, the Henkel Loctite technology base has been greatly expanded with the acquisition of the Resin Technology Group, Dexter, Multicore and Power Devices. With the addition of Hysol® to its product family, Henkel Loctite has developed a broad range of unique epoxy adhesives, which together with its commitment to quality and service, have made it the single source for all engineering adhesives.

The Loctite® Hysol® range comprises one and two component epoxies that offer improved clarity, less odour, better flow, higher strength and greater durability than competitive products. They are approved and specified by engineers and designers worldwide for a wide range of bonding applications, from aerospace to the electronics industry, from maintenance to original equipment manufacturers. Close attention to environmental issues means they can be shipped and used in markets worldwide without compromising performance.

The strength of the Loctite® Hysol® product range is in its ability to bond many substrates including metals, glass, ceramic, wood and most plastics.

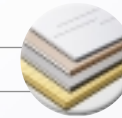
They cure rapidly at room or raised temperatures and are ideal for automated production processes to replace welding and riveting with a corrosion free, reduced stress joint.



Making the Right Choice

This comprehensive guide is designed to make it easy for you to select the right Loctite® Hysol® Epoxy adhesive for a variety of applications. Simply select suitable adhesives for bonding particular substrates and compare the characteristics of different products using the technical data. Choose the compatible dispensing equipment for your pack size and see the product list for ordering information.

4



Substrate Selector Guide

for an initial product recommendation

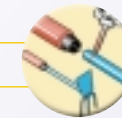
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Application Selector Guide

to meet your individual requirements

6



Loctite® Hysol®

General purpose Epoxies

8



Loctite® Hysol®

Five-minute Epoxies

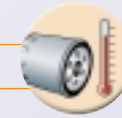
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Loctite® Hysol®

Toughened Epoxies

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Loctite® Hysol®

High temperature Epoxies

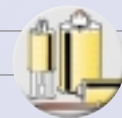
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Loctite® Hysol®

Metal-filled Epoxies

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Convenient Packaging

detailed information about pack sizes

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Dispensing Equipment Guide

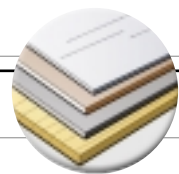
select the compatible dispensing solution

21



Complete Product List

including ordering information



Substrate Selector Guide for an initial product recommendation

Loctite® Hysol® Epoxy adhesives bond a wide range of substrates.

Simply use the table to select the best adhesive for your application. Each adhesive is colour coded to its product group. Refer to the following pages for product description and typical properties of the recommended adhesive.

Loctite® Hysol®	3421 A&B	3423 A&B	9481 A&B	9483 A&B	9484 A&B	9489 A&B	9533	3430 A&B	9455 A&B	3422 A&B	9450 A&B	3450 A&B	3435 A&B	3463 A&B	3425 A&B	9466 A&B	9463 A&B	9461 A&B	9464 A&B	9514	9491 A&B	9492 A&B	9502	9509	9493 A&B	9496 A&B
Steel	++	++	+	+	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	+	+	++	++	+	+
Stainless Steel	++	++	+	+	+	++	++	++	++	++	++	++	++	++	++	++	++	+	++	++	+	+	++	++	+	+
Zinc Dichromate Steel	++	++	+	++	++	++	++	+	+	++	++	++	++	++	+	+	++	+	++	++	+	+	++	++	+	+
Hot Dipped Galvanised Steel	++	++	+	++	++	++	+	+	+	++	++	++	++	++	+	+	++	+	++	++	+	+	++	++	+	+
Aluminium	++	++	+	++	++	++	+	++	++	+	++	++	++	++	++	++	++	+	++	++	+	+	++	++	+	+
Copper	++	++	+	+	+	+	+	++	++	+	++	++	++	++	++	++	++	+	++	++			++	++	+	+
Brass	++	++	+	+	+	+	+	++	++	+	++	++	++	++	++	++	++	+	++	++			++	++	+	+
Thermoplastics	+		+	+	+	+	+	+	+	+	+	+	+	+	+	++	++	++	++	++	+	+			++	+
Thermoset Plastics	+		+	+	++	++	+	+	+	+	+	+	+	+	+	++	+	+	++	++					+	+
GRP / SMC Composites	+	+	+	+	+	++	++	+	+	+	+	+	+	+	+	++	++	++	++	++	+	+	+	++	+	+
Rubbers	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+						
Glass	++		++	+	+	+	+	++	++	+	+	+	+	+	++	+	+	+	++	++						
Ceramic	++	+	++	+	+	+	+	+	+	+	+	+	+	+	+	+	+	++	++	++	++	++	++	++	+	+
Masonry	++	+	+	+	+	+	+	+	+	+	+	+	+	+	++	+	+	+	+	+	+	+			+	
Wood	++	+	+					+	+	++	+	+	+	+	++	+	+	+	+	+					+	

++ Highly recommended
+ Recommended

• Thermoplastics:
ABS, Acrylic, PA, PC, PVC, SAN
• Thermoset Plastics:
DAP, Epoxy, Phenolic, Polyester
• Rubbers:
Butyl, EPDM, Natural, Neoprene,
Nitrile, SBR

General purpose Epoxies
Page 6

Five-minute Epoxies
Page 8

Toughened Epoxies
Page 10

High temperature Epoxies
Page 12

Henkel Loctite recommends that the selected product for your specific application is evaluated to determine suitability.

If you require additional information or advice, the Henkel Loctite Technical Centre has engineers, chemists and technical personnel trained to provide on site design and engineering support, application testing, validation and integration of dispensing and cure systems, in addition to maintenance and stress assessment.

The Loctite® Hysol® range is part of an extensive range of high-performance adhesives and sealants designed for industrial use. This includes Anaerobic, Cyanoacrylate, Light Curing and specialised Silicone adhesives. For more information on the complete range of products please contact your local Henkel Loctite office or visit the web site at:

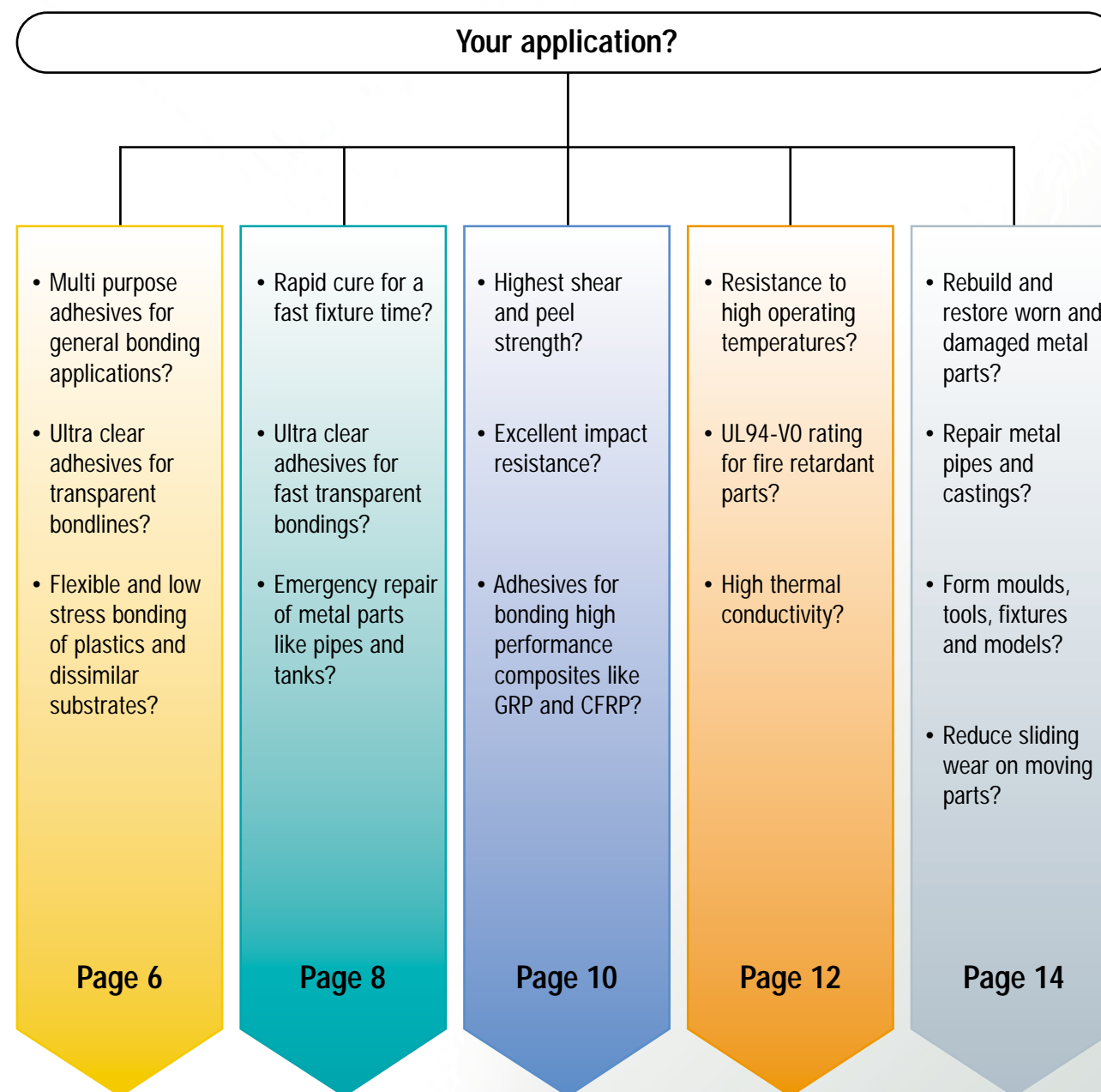


Application Selector Guide to meet your individual requirements



Loctite® Hysol® Epoxy adhesives for a variety of applications

General purpose epoxies are suitable for a wide range of general and flexible bonding applications. Five-minute epoxies are fast curing and ideal for multi-purpose use or metal repair where a rapid cure is required. Toughened epoxies offer exceptional strength and impact resistance, while High temperature epoxies are designed for use up to 180 °C. For the repair of worn or damaged parts, Metal-filled epoxies provide the perfect solution. The range also includes ultra clear products for bonding transparent substrates, adhesives with an extended working life for large areas as well as paste adhesives for gap filling and vertical applications.



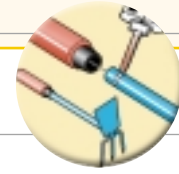
General purpose Epoxies

Five-minute Epoxies

Toughened Epoxies

High temperature Epoxies

Metal-filled Epoxies



Loctite® Hysol®

General purpose Epoxies



Your application	General bonding		Clear bonding		Flexible bonding			
	Medium viscosity	Non-sag paste	Light paste	Flowable	Medium working life	Extended working life	Heat curing	
	3421 A&B	3423 A&B	9481 A&B	9483 A&B	9484 A&B	9489 A&B	9533	
Solution	3421 A&B	3423 A&B	9481 A&B	9483 A&B	9484 A&B	9489 A&B	9533	
Description:	2K-Epoxy	2K-Epoxy	2K-Epoxy	2K-Epoxy	2K-Epoxy	2K-Epoxy	1K-Epoxy	
Mix ratio by volume:	1:1	1:1	2.7:1 (2:1)	2:1	1:1	1:1	Heat cure	
Mix ratio by weight:	100:90	100:70	100:33	100:46	100:85	100:85	Heat cure	
Working life:	180 min.	70 min.	60 min.	30 min.	40 min.	90 min.	15 min. ^①	
Fixture time:	240 min.	180 min.	300 min.	210 min.	180 min.	300 min.	120 min. ^②	
Colour:	Clear amber	Grey	Clear	Ultra clear	Grey	Grey	Dark grey	
Viscosity:	40 Pa.s	300 Pa.s	50 Pa.s	9.0 Pa.s	70 Pa.s	45 Pa.s	220 Pa.s	
Shear strength (GBMS):	23 N/mm ²	17 N/mm ²	19 N/mm ²	23 N/mm ²	25 N/mm ²	22 N/mm ²	22 N/mm ²	
Peel strength (GBMS):	2.5 N/mm	2.7 N/mm	1.0 N/mm	1.5 N/mm	1.3 N/mm	2.0 N/mm	1.2 N/mm	
Operating temperature:	up to 100 °C	up to 100 °C	up to 80 °C	up to 100 °C	up to 100 °C	up to 100 °C	up to 120 °C	
Pack sizes:	50 ml Dual Cartridge 200 ml Dual Cartridge 400 ml Dual Cartridge 1 kg Cans 20 kg Pails	50 ml Dual Cartridge 200 ml Dual Cartridge 400 ml Dual Cartridge 1 kg Cans 20 kg Pails	50 ml Dual Cartridge 400 ml Dual Cartridge 1 kg Cans 20 kg Pails (9481 A) 17 kg Pails (9481 B)	50 ml Dual Cartridge 400 ml Dual Cartridge 1 kg Cans 20 kg Pails	50 ml Dual Cartridge 400 ml Dual Cartridge 1 kg Cans 20 kg Pails	50 ml Dual Cartridge 400 ml Dual Cartridge 1 kg Cans 20 kg Pails	50 ml Dual Cartridge 400 ml Dual Cartridge 1 kg Cans 20 kg Pails	30 ml Syringe 300 ml Cartridge 1 kg Cartridge

① Gel time @ 80 °C
② Cure time @ 80 °C

Loctite® Hysol® 3421 A&B

- Medium viscosity
- Extended working life
- Excellent humidity resistance

Loctite® Hysol® 3421 A&B is a general purpose, 2K-Epoxy adhesive, for bonding large surfaces which require a long open time. Ideal for bonding water-pipes, boat interiors and laminating surf boards.

Loctite® Hysol® 3423 A&B

- Non-sag paste
- Medium working life
- Excellent chemical resistance

Loctite® Hysol® 3423 A&B is a general purpose, 2K-Epoxy adhesive, suitable for gap filling and vertical applications. Ideal for bonding metal parts and components.

Loctite® Hysol® 9481 A&B

- Light paste
- Optical clarity
- Multi purpose

Loctite® Hysol® 9481 A&B is a general purpose, 2K-Epoxy adhesive, suitable for a wide variety of substrates including metals, ceramic, glass and most plastics. Ideal for bonding fibre optics and printed circuit boards.

Loctite® Hysol® 9483 A&B

- Flowable
- Ultra clear
- Low moisture absorption

Loctite® Hysol® 9483 A&B is a general purpose, 2K-Epoxy adhesive, suitable for bonding and potting where optical clarity and high strength are required. Ideal for bonding decorative panels and displays.

Loctite® Hysol® 9484 A&B

- Medium working life
- Flexible (Elongation: ~ 20 %)
- High impact resistance

Loctite® Hysol® 9484 A&B is a general purpose, 2K-Epoxy adhesive, suitable for low stress and high impact resistant bonding. Ideal for bonding dissimilar substrates like GRP, SMC and composite elements.

Loctite® Hysol® 9489 A&B

- Extended working life
- Flexible (Elongation: ~ 60 %)
- High impact resistance

Loctite® Hysol® 9489 A&B is a general purpose, 2K-Epoxy adhesive, suitable for low stress and high impact resistant bonding of large surfaces. Ideal for bonding dissimilar substrates like GRP, SMC and composite elements.

Loctite® Hysol® 9533

- Low temperature curing
- Low shrinkage
- Flexible

Loctite® Hysol® 9533 is a general purpose, 1K-Epoxy adhesive, suitable for a wide variety of substrates including metals, ceramic, glass and most plastics. Suitable for heat curing at low temperatures.



Loctite® Hysol® Five-minute Epoxies



Your application	Multi purpose				Metal repair		
	Toughened	Flowable	Medium viscosity	Gap filling	Steel filled	Aluminium filled	Kneadable stick
	3430 A&B	9455 A&B	3422 A&B	9450 A&B	3450 A&B	3455 A&B*	3463 A&B
Description:	2K-Epoxy	2K-Epoxy	2K-Epoxy	2K-Epoxy	2K-Epoxy	2K-Epoxy	2K-Epoxy
Mix ratio by volume:	1:1	1:1	1:1	1:1	1:1	1:1	1:1
Mix ratio by weight:	100:100	100:105	100:100	100:92	100:105	100:106	100:100
Working life:	4 min.	3 min.	3 min.	4 min.	4 min.	4 min.	3 min.
Fixture time:	12 min.	15 min.	7 min.	13 min.	12 min.	12 min.	10 min.
Colour:	Ultra clear	Ultra clear	Pale yellow	Translucent	Grey	Grey	Dark grey
Viscosity:	25 Pa.s	3.2 Pa.s	50 Pa.s	200 Pa.s	35 Pa.s	100 Pa.s	Putty
Shear strength (GBMS):	20 N/mm ²	16 N/mm ²	18 N/mm ²	23 N/mm ²	21 N/mm ²	17 N/mm ²	6.8 N/mm ²
Peel strength (GBMS):	1.5 N/mm	1.8 N/mm	< 1 N/mm	< 1 N/mm	1.5 N/mm	1.5 N/mm	< 1 N/mm
Operating temperature:	up to 80 °C	up to 80 °C	up to 80 °C	up to 80 °C	up to 100 °C	up to 100 °C	up to 100 °C
Pack sizes:	24 ml Twin Syringe 50 ml Dual Cartridge 200 ml Dual Cartridge 1 kg Cans	24 ml Twin Syringe 50 ml Dual Cartridge 200 ml Dual Cartridge 1 kg Cans	50 ml Dual Cartridge 200 ml Dual Cartridge	50 ml Dual Cartridge 200 ml Dual Cartridge 1 kg Cans	25 ml Twin Syringe	24 ml Twin Syringe	50 g Stick 114 g Stick

* Only on request

Loctite® Hysol® 3430 A&B

- Medium viscosity
- Ultra clear
- Toughened

Loctite® Hysol® 3430 A&B is a five-minute, 2K-Epoxy adhesive, suitable for applications requiring an optically clear bond line. Ideal for bonding glass, decorative panels and displays and general DIY applications.

Loctite® Hysol® 9455 A&B

- Flowable
- Ultra clear
- Flexible (Elongation: ~ 80 %)

Loctite® Hysol® 9455 A&B is a five-minute, 2K-Epoxy adhesive, with an optically clear bond line and high impact resistance. Ideal for bonding and potting of optical components like sensors and lenses.

Loctite® Hysol® 3422 A&B

- Medium viscosity
- Fast curing
- High strength

Loctite® Hysol® 3422 A&B is a five-minute, 2K-Epoxy adhesive, suitable for a wide variety of substrates including metals, ceramic, glass and most plastics. Ideal for fast metal assemblies with a subsequent paint bake cycle.

Loctite® Hysol® 9450 A&B

- Non-sag paste
- Translucent
- Fast curing

Loctite® Hysol® 9450 A&B is a five-minute, 2K-Epoxy adhesive, suitable for a wide variety of substrates including metals, ceramic, glass and most plastics. Ideal for gap filling and vertical applications.

Loctite® Hysol® 3450 A&B

- Medium viscosity
- Steel filled
- High strength

Loctite® Hysol® 3450 A&B is a five-minute, 2K-Epoxy adhesive, suitable for gap repairing and filling. Ideal for bonding and filling damaged components.

Loctite® Hysol® 3455 A&B

- Non-sag paste
- Aluminium filled
- High strength

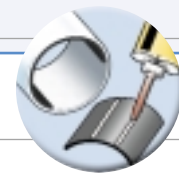
Loctite® Hysol® 3455 A&B is a five-minute, 2K-Epoxy adhesive, suitable for repairing and rebuilding worn metal parts.

Loctite® Hysol® 3463 A&B Metal Magic Steel™ Stick

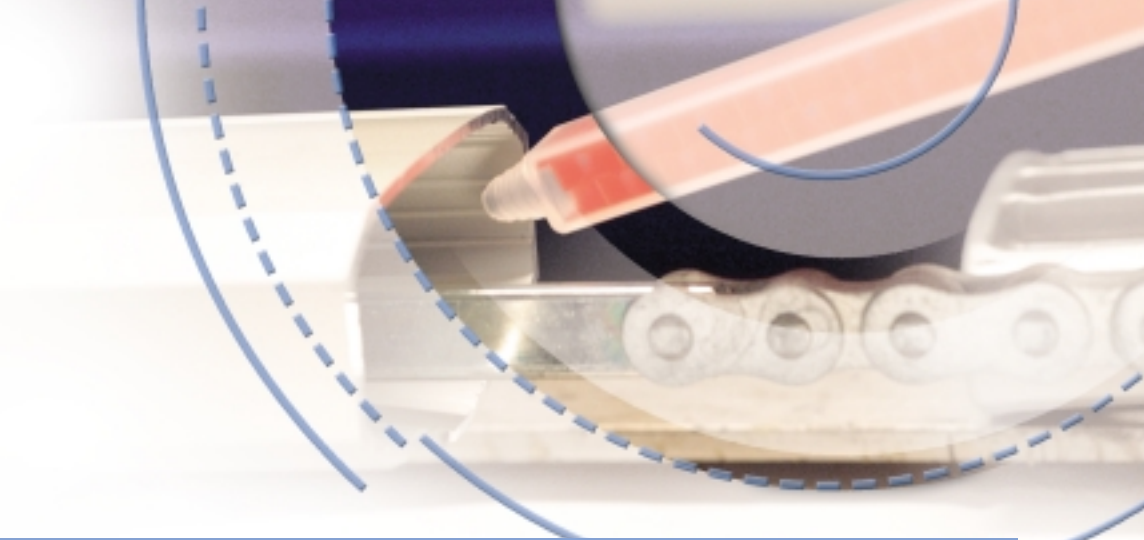
- Steel filled kneadable stick
- Cures under water
- NSF approved (for potable water)

Loctite® Hysol® 3463 A&B Metal Magic Steel™ Stick is a rapid cure, 2K-Epoxy adhesive, suitable for emergency metal repairs. Ideal for sealing leaking tanks and pipes, filling oversized bolt holes, smoothing welds and repairing small cracks in castings.





Loctite® Hysol® Toughened Epoxies



Your application	Solution					
	Extended working life			Medium working life		Heat curing
	Gap filling	Multi purpose	Flowable	Gap filling	Fast cure	Induction curable
Solution	3425 A&B	9466 A&B	9463 A&B	9461 A&B	9464 A&B	9514
Description:	2K-Epoxy	2K-Epoxy	2K-Epoxy	2K-Epoxy	2K-Epoxy	1K-Epoxy
Mix ratio by volume:	1:1	2:1	4:1	1:1	1:1	Heat cure
Mix ratio by weight:	100 : 100	100 : 50	100 : 23	100 : 100	100 : 100	Heat cure
Working life:	120 min.	60 min.	60 min.	40 min.	20 min.	5 min. ^①
Fixture time:	240 min.	180 min.	300 min.	240 min.	180 min.	30 min. ^②
Colour:	Off-white	Off-white	Off-white	Grey	Grey	Grey
Viscosity:	1,000 Pa.s	30 Pa.s	12 Pa.s	270 Pa.s	270 Pa.s	1,480 Pa.s
Shear strength (GBMS):	28 N/mm ²	37 N/mm ²	25 N/mm ²	24 N/mm ²	22 N/mm ²	46 N/mm ²
Peel strength (GBMS):	2.0 N/mm	8.0 N/mm	10.5 N/mm	10.0 N/mm	10.5 N/mm	9.5 N/mm
Operating temperature:	up to 120 °C	up to 120 °C	up to 100 °C	up to 100 °C	up to 100 °C	up to 180 °C
Pack sizes:	50 ml Dual Cartridge 200 ml Dual Cartridge 400 ml Dual Cartridge 1 kg Cans 20 kg Pails	50 ml Dual Cartridge 400 ml Dual Cartridge 1 kg Cans 20 kg Pails (9466 A) 17 kg Pails (9466 B)	160 g Tube Kit 1 kg Cans 20 kg Pails	50 ml Dual Cartridge 400 ml Dual Cartridge 1 kg Cans 20 kg Pails	50 ml Dual Cartridge 400 ml Dual Cartridge 1 kg Cans 20 kg Pails	30 ml Syringe 300 ml Cartridge 1 kg Cartridge

① Gel time @ 120 °C
② Cure time @ 120 °C

Loctite® Hysol® 3425 A&B

- Non-sag paste
- Extended working life
- Excellent resistance

Loctite® Hysol® 3425 A&B is a toughened, 2K-Epoxy adhesive, for bonding large surfaces requiring a long open time. Ideal for gap filling and vertical bonding of metals and rigid plastics.

Loctite® Hysol® 9466 A&B

- Medium viscosity
- Low density
- High strength

Loctite® Hysol® 9466 A&B is a toughened, 2K-Epoxy adhesive, suitable for multi purpose applications requiring long open time and high bonding strength. Ideal for a wide variety of substrates like metals, ceramic and most plastics.

Loctite® Hysol® 9463 A&B

- Low viscosity
- High peel and shear strength
- Excellent low temperature properties

Loctite® Hysol® 9463 A&B is a toughened, 2K-Epoxy adhesive, suitable for applications requiring extremely high peel strength. Ideal for bonding dissimilar substrates like GRP, SMC and composites.

Loctite® Hysol® 9461 A&B

- Non-sag paste
- Heat accelerated (4 min. @ 120 °C)
- High peel strength

Loctite® Hysol® 9461 A&B is a toughened, 2K-Epoxy adhesive, suitable for applications requiring gap filling and high peel strength. Ideal for bonding dissimilar substrates like GRP, SMC and composites.

Loctite® Hysol® 9464 A&B

- Non-sag paste
- Heat accelerated (4 min. @ 120 °C)
- Fast handling strength

Loctite® Hysol® 9464 A&B is a toughened, 2K-Epoxy adhesive, suitable for applications requiring fast cure and high peel strength. Ideal for bonding dissimilar substrates like GRP, SMC and composites.

Loctite® Hysol® 9514

- Suitable for induction curing
- High shear and peel strength
- High temperature resistant (180 °C)

Loctite® Hysol® 9514 is a toughened, 1K-Epoxy adhesive, suitable for gap filling bonding and resistance to high operating temperatures. Ideal for toughened applications like filter and magnet bonding.



Your application

Room temperature curing

Heat curing

Fire retardant

Thermally conductive

Gap filling

Multi purpose

Gap filling

Multi purpose

FR rating: UL94-V0

Potting

Solution

9491 A&B

9492 A&B

9502

9509

9493 A&B

9496 A&B

Description:	2K-Epoxy	2K-Epoxy	1K-Epoxy	1K-Epoxy	2K-Epoxy	2K-Epoxy
Mix ratio by volume:	2.5:1	2:1	Heat cure	Heat cure	4:1	6:1
Mix ratio by weight:	100:44	100:50	Heat cure	Heat cure	100:18	100:7
Working life:	15 min.	15 min.	5 min. ^①	5 min. ^①	2 hrs	2 hrs
Fixture time:	75 min.	75 min.	30 min. ^②	30 min. ^②	8 hrs	8 hrs
Colour:	White	White	Dark grey	Off-white	White	Black
Viscosity:	200 Pa.s	30 Pa.s	250 Pa.s	40 Pa.s	700 mPa.s	2.5 Pa.s
Shear strength (GBMS):	17 N/mm ²	20 N/mm ²	35 N/mm ²	29 N/mm ²	20 N/mm ²	17 N/mm ²
Shear strength @ 120 °C (GBMS):	5.1 N/mm ²	4.2 N/mm ²	19 N/mm ²	25 N/mm ²	2.1 N/mm ²	6.8 N/mm ²
Operating temperature:	up to 180 °C	up to 180 °C	up to 180 °C	up to 180 °C	up to 100 °C	up to 150 °C
Pack sizes:	1 kg Cans 20 kg Pails	50 ml Dual Cartridge 400 ml Dual Cartridge	30 ml Syringe 300 ml Cartridge 1 kg Cartridge	30 ml Syringe 300 ml Cartridge 1 kg Cartridge	200 g Tube Kit 1 kg Cans 20 kg Pails	200 g Tube Kit 1 kg Cans 20 kg Pails

① Gel time @ 120 °C
② Cure time @ 120 °C

Loctite® Hysol® 9491 A&B

- Non-sag paste
- Very low outgas
- High temperature resistant (180 °C)

Loctite® Hysol® 9491 A&B is a high operating temperature resistant, 2K-Epoxy adhesive, with excellent gap filling and suitable for a wide variety of substrates. Ideal for bonding electronic components and photo-stencils.

Loctite® Hysol® 9492 A&B

- Medium viscosity
- Very low outgas
- High temperature resistant (180 °C)

Loctite® Hysol® 9492 A&B is a high operating temperature resistant, 2K-Epoxy adhesive, suitable for multi purpose applications. Ideal for bonding electronic components and photo-stencils.

Loctite® Hysol® 9502

- Non-sag paste
- High strength
- High temperature resistant (180 °C)

Loctite® Hysol® 9502 is a high operating temperature resistant, 1K-Epoxy adhesive, with excellent gap filling suitable for a wide variety of substrates. Ideal for bonding magnets, oil filters and under-bonnet parts.

Loctite® Hysol® 9509

- Self-leveling
- Roller coatable
- High temperature resistant (180 °C)

Loctite® Hysol® 9509 is a high operating temperature resistant, 1K-Epoxy adhesive, suitable for multi purpose applications. Ideal for bonding magnets, oil filters and under-bonnet parts.

Loctite® Hysol® 9493 A&B

- Low viscosity
- Low shrinkage
- Fire retardant

Loctite® Hysol® 9493 A&B is a UL94-V0 rated, versatile 2K-Epoxy adhesive, for potting and casting fire retardant components.

Loctite® Hysol® 9496 A&B

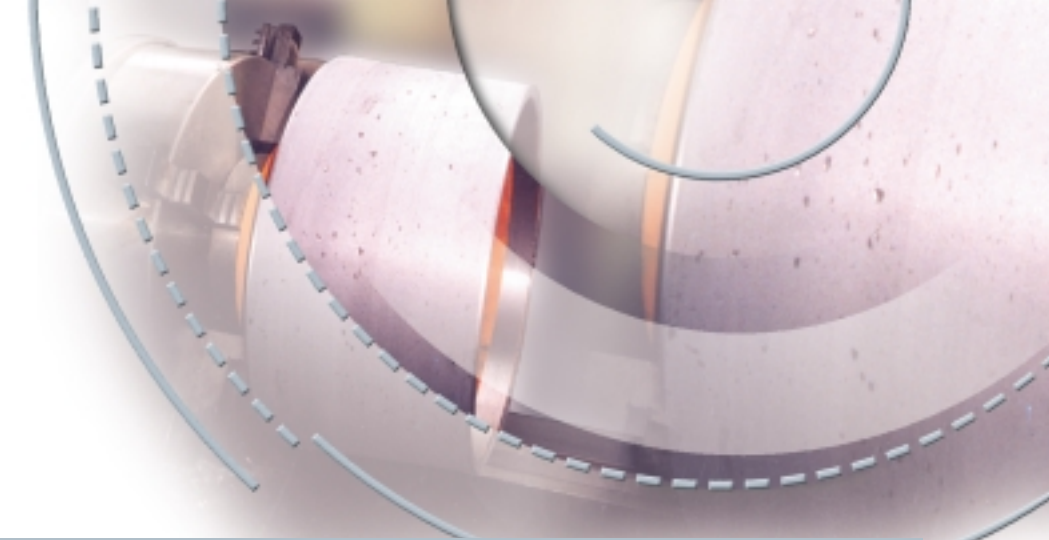
- Flowable
- Low shrinkage
- High thermal conductivity (~ 1.7 W/m·K)

Loctite® Hysol® 9496 A&B is a thermally conductive, 2K-Epoxy adhesive, for low stress applications. Ideal for potting electronic components.





Loctite® Hysol® Metal-filled Epoxies



Your application	Steel		Aluminium			Metallic pieces under friction
	Putty	Pourable	Fast cure	Multi purpose	High temperature resistant	Wear resistant
	3471 A&B* Metal Set S1	3472 A&B* Metal Set S2	3473 A&B* Metal Set S3	3475 A&B* Metal Set A1	3479 A&B* Metal Set HTA	3474 A&B* Metal Set M
Description:	2K-Epoxy	2K-Epoxy	2K-Epoxy	2K-Epoxy	2K-Epoxy	2K-Epoxy
Mix ratio by volume:	1:1	1:1	1:1	1:1	1:1	1:1
Mix ratio by weight:	100 : 100	100 : 100	100 : 100	100 : 100	100 : 100	100 : 100
Working life:	45 min.	45 min.	6 min.	45 min.	40 min.	45 min.
Fixture time:	180 min.	180 min.	15 min.	180 min.	150 min.	180 min.
Colour:	Grey	Grey	Grey	Grey	Grey	Grey
Viscosity:	Putty	Liquid	Putty	Putty	Putty	Putty
Shear strength (GBMS):	20 N/mm ²	25 N/mm ²	20 N/mm ²	20 N/mm ²	20 N/mm ²	20 N/mm ²
Compressive strength:	70 N/mm ²	70 N/mm ²	60 N/mm ²	70 N/mm ²	90 N/mm ²	70 N/mm ²
Operating temperature:	up to 120 °C	up to 120 °C	up to 120 °C	up to 120 °C	up to 190 °C	up to 120 °C
Pack sizes:	500 g Tub Kit	500 g Tub Kit	500 g Tub Kit	500 g Tub Kit	500 g Tub Kit	500 g Tub Kit

* Only on request

Loctite® Hysol® 3471 A&B Metal Set S1

- Steel putty
- Low shrinkage on cure (0.1 %)
- Temperature resistant (120 °C)

Loctite® Hysol® 3471 A&B is a steel filled, 2K-Epoxy adhesive, for repairing and rebuilding worn metal parts. Ideal for repairing pipes and castings as well as cracks in housings and machine parts. Making of moulds, models, tools and fixtures.

Loctite® Hysol® 3472 A&B Metal Set S2

- Steel liquid
- Low shrinkage on cure (0.1 %)
- Temperature resistant (120 °C)

Loctite® Hysol® 3472 A&B is a pourable steel filled, 2K-Epoxy adhesive, for repairing and rebuilding worn metal parts. Ideal for repairing pipes and castings as well as cracks in housings and machine parts. Making of moulds, models, tools and fixtures.

Loctite® Hysol® 3473 A&B Metal Set S3

- Steel putty
- Fast curing
- Temperature resistant (120 °C)

Loctite® Hysol® 3473 A&B is a steel filled, 2K-Epoxy adhesive, for emergency repairing and rebuilding worn metal parts. Ideal for repairing pipes and castings as well as cracks in housings and machine parts. Making of moulds, models, tools and fixtures.

Loctite® Hysol® 3475 A&B Metal Set A1

- Aluminium putty
- Low shrinkage on cure (0.1 %)
- Temperature resistant (120 °C)

Loctite® Hysol® 3475 A&B is an aluminium filled, 2K-Epoxy adhesive, for repairing and rebuilding worn metal parts. Ideal for repairing castings and cracks in housings and machine parts. Making of moulds, models, tools and fixtures.

Loctite® Hysol® 3479 A&B Metal Set HTA

- Aluminium putty
- Low shrinkage on cure (0.2 %)
- High temperature resistant (190 °C)

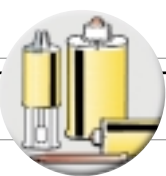
Loctite® Hysol® 3479 A&B is an aluminium filled, 2K-Epoxy adhesive, for repairing and rebuilding worn metal parts in high operating temperature applications. Ideal for repairing castings and cracks in housings and machine parts.

Loctite® Hysol® 3474 A&B Metal Set M

- Self-lubricating
- High wear resistant
- Temperature resistant (120 °C)

Loctite® Hysol® 3474 A&B is a mineral filled, 2K-Epoxy adhesive, which forms a self-lubricating surface to reduce sliding wear on moving parts. Ideal for metallic surfaces under friction.





Convenient Packaging

detailed information about pack sizes

Loctite® Hysol® 2K-Epoxyes

To reduce wastage and control costs, two-component products are available in easy-to-use 50, 200 and 400 ml dual cartridges with square mix-nozzles, designed for use with Henkel Loctite manual and pneumatic dispensers. These compact mixers offer the highest mixing efficiency as well as the lowest waste and pressure drop.

Two-component epoxyes are also available in 1 and 20 kg packs for high volume applications.

Some special products for emergency repairs and maintenance applications are packed in manual mix twin syringes, tube kits or tub kits.



Loctite® Hysol® 1K-Epoxyes

All one-component products are packed in convenient 30 ml syringes as well as 300 ml and 1 kg cartridges, designed for use with the Henkel Loctite handheld applicators and automatic systems.



Dispensing Equipment Guide

select the compatible dispensing solution



To speed production and provide accurate and consistent application, Henkel Loctite offers a complete range of dispensing equipment for the automated application of adhesive products. The range includes simple hand-operated dispensers, through to fully automated systems and a broad range of accessories. The engineers and technicians at Henkel Loctite have the expertise and experience to develop products and equipment, design prototypes, carry out testing and evaluation, in addition to on-site consultation and support.

Handheld Applicators

These ergonomically designed applicators are for the fast, precise, clean and economic dispensing of epoxy adhesives from their original packages. Whether manual or pneumatic, they reduce waste and minimise operator contact. The selection of a Loctite® handheld applicator is based on product type, package configuration and process requirements.

Automatic Systems

An analysis of your production process will determine the most cost effective dispensing system and application method for your current requirements. However, if you are planning to update your production process, Henkel Loctite can demonstrate the benefits of installing a flexible system that can grow with your changing needs.

Conversion Kits for 50 ml Dual Cartridges

Conversion Kits for 50 ml Dual Cartridges to use with standard 310 ml Caulking Handguns.

Available for:

- 50 ml Dual Cartridges 1:1 (97956)
- 50 ml Dual Cartridges 2:1 (97957)

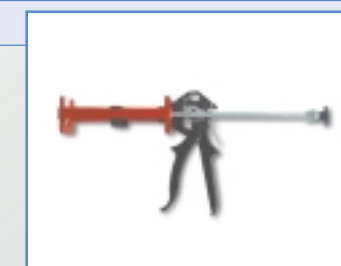


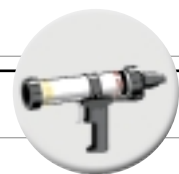
Manual Handguns for 2K-Products

Handheld manually operated applicators provide a cost effective method to apply a product accurately with minimal waste.

Available for:

- 200 ml Dual Cartridges 1:1 (97041)
- 400 ml Dual Cartridges 1:1 (32185)





Dispensing Equipment Guide

select the compatible dispensing solution



Manual Handguns for 2K-Products

Handheld manually operated applicators provide a convenient method to apply product accurately with minimal waste.

Available for:

- 50 ml Dual Cartridges 1:1 & 2:1 (96001)
- 200 ml Dual Cartridges 1:1 & 2:1 (96003)
- 400 ml Dual Cartridges 1:1 & 2:1 (983438)



Pneumatic Handguns for 2K-Products

Handheld pneumatically powered applicators which provide a convenient method to apply a product accurately with minimal waste.

Available for:

- 50 ml Dual Cartridges 1:1 & 2:1 (97042)
- 200 ml Dual Cartridges 1:1 & 2:1 (983437)
- 400 ml Dual Cartridges 1:1 & 2:1 (983439)



Cartridge Pushers for 2K-Products

Pneumatically powered ram systems, designed for automatic applications.

Available as:

- 50 ml Dual Cartridges 1:1 & 2:1 (97042-CP)
- 200 ml Dual Cartridges 1:1 & 2:1 (983437-CP)
- 400 ml Dual Cartridges 1:1 & 2:1 (983439-CP)



Reservoir Systems for 1 kg Cans

Pneumatically powered reservoir systems for 1 kg Tubs and Jerry Cans, designed for semi-automatic and robotic applications.

Available as:

- Single Reservoir (97108)
- Reservoir with integrated Controller (97008)



Dispensing Equipment Guide

select the compatible dispensing solution

Pump Systems for 20 kg Pails

Pneumatically powered pump systems, designed for robotic applications.

Available for:

- 20 kg Pails (on request)
- 20 kg Jerry Cans (on request)



Dispense Valves for 2K-Products

Dispense valves which are designed for semi-automatic and robotic applications in conjunction with a double reservoir or pump system.

Available as:

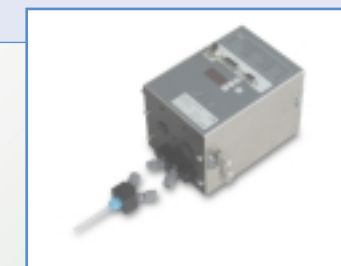
- Handheld (on request)
- Robotic (on request)



Twin Dispenser for 2K-Products

Volumetric mix dispenser, designed for semi-automatic and robotic applications in conjunction with a double reservoir or pump system.

- Max. 10 ml 1:1 (97640)



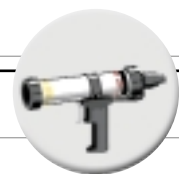
Manual Handguns for 1K-Products

Handheld, manually operated applicators, which provide a cost effective method to apply a product accurately with minimal waste.

Available for:

- 30 ml Syringes (98026)
- 300 ml Cartridges (97040)





Dispensing Equipment Guide

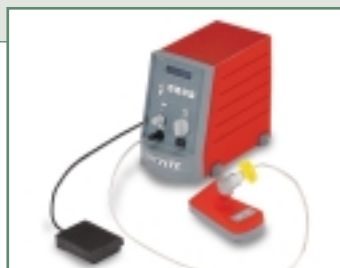
select the compatible dispensing solution

Complete Product List

including ordering information



Syringe Dispensers for 1K-Products



Pneumatically powered systems for 30 ml Syringes, designed for semi-automatic applications.

Available as:

- Analogue System (97005)
- Digital System (97006)

Pneumatic Handguns for 1K-Products

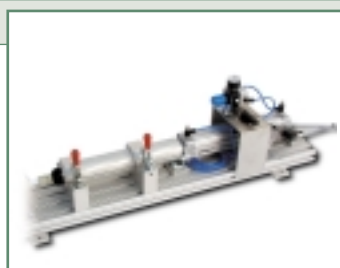


Handheld, pneumatically powered applicators, which provide a convenient method to apply a product accurately with minimal waste.

Available for:

- 300 ml Cartridges (97002)
- 1 kg Cartridges (97043)

Cartridge Pushers for 1K-Products



Pneumatically powered systems, designed for automatic applications.

Available for:

- 300 ml Cartridges (97110 & 97631)
- 1 kg Cartridges (97632)

Dispense Valves for 1K-Products



Pneumatically powered dispense valves, designed for semi-automatic and robotic applications in conjunction with a cartridge pusher.

Available as:

- Handheld (97112)
- Robotic (97114)

Product	Description	Pack Size	PK	Order-No.	Page
3421 A&B	General purpose 2K-Epoxy	50 ml Dual Cartridge	10		6
		200 ml Dual Cartridge	10		
		400 ml Dual Cartridge	10		
3421 A	3421 Resin	1 kg Tub	4		6
		20 kg Pail	1		
3421 B	3421 Hardener	1 kg Tub	4		6
		20 kg Pail	1		
3422 A&B	Five-minute 2K-Epoxy	50 ml Dual Cartridge	10		8
		200 ml Dual Cartridge	10		
3423 A&B	General purpose 2K-Epoxy	50 ml Dual Cartridge	10		6
		200 ml Dual Cartridge	10		
		400 ml Dual Cartridge	10		
3423 A	3423 Resin	1 kg Tub	4		6
		20 kg Pail	1		
3423 B	3423 Hardener	1 kg Tub	4		6
		20 kg Pail	1		
3425 A&B	Toughened 2K-Epoxy	50 ml Dual Cartridge	10		10
		200 ml Dual Cartridge	10		
		400 ml Dual Cartridge	10		
3425 A	3425 Resin	1 kg Tub	4		10
		20 kg Pail	1		
3425 B	3425 Hardener	1 kg Tub	4		10
		20 kg Pail	1		
3430 A&B	Five-minute 2K-Epoxy	24 ml Twin Syringe	12		8
		50 ml Dual Cartridge	10		
		200 ml Dual Cartridge	10		
3430 A	3430 Resin	1 kg Tub	4		8
3430 B	3430 Hardener	1 kg Tub	4		8
3450 A&B	Five-minute 2K-Epoxy	25 ml Twin Syringe	12		9
3455 A&B	Five-minute 2K-Epoxy	24 ml Twin Syringe	12		9
3463 A&B	Metal Magic Steel™ Stick	50 g Stick	24		9
		114 g Stick	24		
3471 A&B	Metal-filled 2K-Epoxy	500 g Tub Kit	10		14
3472 A&B	Metal-filled 2K-Epoxy	500 g Tub Kit	10		14
3473 A&B	Metal-filled 2K-Epoxy	500 g Tub Kit	10		15
3474 A&B	Metal-filled 2K-Epoxy	500 g Tub Kit	10		15
3475 A&B	Metal-filled 2K-Epoxy	500 g Tub Kit	10		15
3479 A&B	Metal-filled 2K-Epoxy	500 g Tub Kit	10		15
9450 A&B	Five-minute 2K-Epoxy	50 ml Dual Cartridge	10		9
		200 ml Dual Cartridge	10		
9450 A	9450 Resin	1 kg Tub	4		9
9450 B	9450 Hardener	1 kg Tub	4		9
9455 A&B	Five-minute 2K-Epoxy	24 ml Twin Syringe	10		8
		50 ml Dual Cartridge	10		
		200 ml Dual Cartridge	10		
9455 A	9455 Resin	1 kg Jerry Can	4		8
9455 B	9455 Hardener	1 kg Jerry Can	4		8
9461 A&B	Toughened 2K-Epoxy	50 ml Dual Cartridge	10		11
		400 ml Dual Cartridge	10		
9461 A	9461 Resin	1 kg Tub	4		11
		20 kg Pail	1		
9461 B	9461 Hardener	1 kg Tub	4		11
		20 kg Pail	1		
9463 A&B	Toughened 2K-Epoxy	160 g Tube Kit	10		11
9463 A	9463 Resin	1 kg Tub	4		11
		20 kg Pail	1		
9463 B	9463 Hardener	1 kg Jerry Can	4		11
		20 kg Jerry Can	1		
9464 A&B	Toughened 2K-Epoxy	50 ml Dual Cartridge	10		11
		400 ml Dual Cartridge	10		
9464 A	9464 Resin	1 kg Tub	4		11
		20 kg Pail	1		
9464 B	9464 Hardener	1 kg Tub	4		11
		20 kg Pail	1		

Complete Product List

including ordering information

Complete Product List

including ordering information

Product	Description	Pack Size	PK	Order-No.	Page
9466 A&B	Toughened 2K-Epoxy	50 ml Dual Cartridge	10		10
		400 ml Dual Cartridge	10		
9466 A	9466 Resin	1 kg Tub	4		10
		20 kg Pail	1		
9466 B	9466 Hardener	1 kg Tub	4		10
		17 kg Pail	1		
9481 A&B	General purpose 2K-Epoxy	50 ml Dual Cartridge	10		6
		400 ml Dual Cartridge	10		
9481 A	9481 Resin	1 kg Tub	4		6
		20 kg Pail	1		
9481 B	9481 Hardener	1 kg Tub	4		6
		17 kg Pail	1		
9483 A&B	General purpose 2K-Epoxy	50 ml Dual Cartridge	10		7
		400 ml Dual Cartridge	10		
9483 A	9483 Resin	1 kg Tub	4		7
		20 kg Pail	1		
9483 B	9483 Hardener	1 kg Jerry Can	4		7
		20 kg Jerry Can	1		
9484 A&B	General purpose 2K-Epoxy	50 ml Dual Cartridge	10		7
		400 ml Dual Cartridge	10		
9484 A	9484 Resin	1 kg Tub	4		7
		20 kg Pail	1		
9484 B	9484 Hardener	1 kg Tub	4		7
		20 kg Pail	1		
9489 A&B	General purpose 2K-Epoxy	50 ml Dual Cartridge	10		7
		400 ml Dual Cartridge	10		
9489 A	9489 Resin	1 kg Tub	4		7
		20 kg Pail	1		
9489 B	9489 Hardener	1 kg Tub	4		7
		20 kg Pail	1		
9491 A	9491 Resin	1 kg Tub	4		12
		20 kg Pail	1		
9491 B	9491 Hardener	1 kg Tub	4		12
		20 kg Pail	1		
9492 A&B	High temperature 2K-Epoxy	50 ml Dual Cartridge	10		12
		400 ml Dual Cartridge	10		
9493 A&B	High temperature 2K-Epoxy	200 g Tube Kit	10		13
9493 A	9493 Resin	1 kg Tub	4		13
		20 kg Pail	1		
9493 B	9493 Hardener	1 kg Jerry Can	4		13
		20 kg Jerry Can	1		
9496 A&B	High temperature 2K-Epoxy	200 g Tube Kit	10		13
9496 A	9496 Resin	1 kg Tub	4		13
		20 kg Pail	1		
9496 B	9496 Hardener	1 kg Jerry Can	4		13
		20 kg Jerry Can	1		
9502	High temperature 1K-Epoxy	30 ml Syringe	10		13
		300 ml Cartridge	5		
		1 kg Cartridge	4		
9509	High temperature 1K-Epoxy	30 ml Syringe	10		13
		300 ml Cartridge	5		
		1 kg Cartridge	4		
9514	Toughened 1K-Epoxy	30 ml Syringe	10		11
		300 ml Cartridge	5		
		1 kg Cartridge	4		
9533	General purpose 1K-Epoxy	30 ml Syringe	10		7
		300 ml Cartridge	5		
		1 kg Cartridge	4		

The 50 ml Dual Cartridges are supplied with one Square Mixer per Cartridge.
All 200 and 400 ml Dual Cartridges are supplied with two Square Mixers per Cartridge.

Equipment	Description	PK	Order-No.	Page
32185	Manual Handgun for 400 ml Dual Cartridges 1:1	1		17
96001	Manual Handgun for 50 ml Dual Cartridges 1:1 & 2:1	1		18
96003	Manual Handgun for 200 ml Dual Cartridges 1:1 & 2:1	1		18
97002	Pneumatic Handgun for 300 ml Cartridges	1		20
97005	Analog Dispensing Systems for 30 ml Syringes	1		20
97006	Digital Dispensing System for 30 ml Syringes	1		20
97008	Semi-Automatic Reservoir for 1 kg Tubs & Jerry Cans	1		18
97040	Manual Handgun for 300 ml Cartridges	1		19
97041	Manual Handgun for 200 ml Dual Cartridges 1:1	1		17
97042	Pneumatic Handgun for 50 ml Dual Cartridges 1:1 & 2:1	1		18
97042-CP	Cartridge Pusher for 50 ml Dual Cartridges 1:1 & 2:1	1		18
97043	Pneumatic Handgun for 1 kg Cartridges	1		20
97108	Pneumatic Reservoir for 1 kg Tubs & Jerry Cans	1		18
97110	Cartridge Pusher (Frontloaded) for 300 ml Cartridges	1		20
97112	Handheld Valve for 1K-Epoxy dispensing	1		20
97114	Robotic Valve for 1K-Epoxy dispensing	1		20
97631	Cartridge Pusher (Clampshell) for 300 ml Cartridges	1		20
97632	Cartridge Pusher for 1 kg Cartridges	1		20
97640	Twin Dispenser for 2K-Epoxies	1		19
97956	Conversion Kit for 50 ml Dual Cartridges 1:1	10		17
97957	Conversion Kit for 50 ml Dual Cartridges 2:1	10		17
98026	Manual Handgun for 30 ml Cartridges	1		19
983437	Pneumatic Handgun for 200 ml Dual Cartridges 1:1 & 2:1	1		18
983437-CP	Cartridge Pusher for 200 ml Dual Cartridges 1:1 & 2:1	1		18
983438	Manual Handgun for 400 ml Dual Cartridges 1:1 & 2:1	1		18
983439	Pneumatic Handgun for 400 ml Dual Cartridges 1:1 & 2:1	1		18
983439-CP	Cartridge Pusher for 400 ml Dual Cartridges 1:1 & 2:1	1		18
(on request)	Handheld Valve for 2K-Epoxies	1		19
(on request)	Robotic Valve for 2K-Epoxies	1		19
(on request)	Pump Systems for 20 kg Pails	1		19
(on request)	Pump Systems for 20 kg Jerry Cans	1		19

Accessories	Description	PK	Order-No.
97298	Luer-Lock Needle Adapter for Mixers with Stepped End	10	
984569	Square Mixer 5.3-24 Slip Luer End for 50 ml Dual Cartridges	10	
984570	Square Mixer 7.5-24 Stepped End for 200 & 400 ml Dual Cartridges	10	
97502	S Mixer 5.4-20 Stepped End for Twin Dispenser	25	
97503	S Mixer 6.5-20 Stepped End for Twin Dispenser	25	



LOCTITE® IS EVERYTHING...

Fifty years of success has made Henkel Loctite the world leader in the development and manufacture of high-performance adhesives, sealants and chemical products. Success based on experience, leadership and technical innovation.

The commitment of Henkel Loctite to research and development has resulted in the most technically advanced range of products available today. Products that speed manufacturing processes, reduce costs and improve quality throughout industry. Products for global use that comfortably exceed national and international standards.

This huge product range offers unchallenged performance and consistency for even the most demanding applications in the automotive, microelectronics, aerospace and medical industries.

In today's competitive markets, companies need the capacity and flexibility to respond quickly to new challenges, and the engineers, chemists, technicians and salespeople at Henkel Loctite will work with you to understand and solve your problems. Developing ideas and concepts into real solutions, they combine resources to make advances for the benefit of everyone.

Equally important is a local distributor with the knowledge and capability to quickly and efficiently deliver the right products for your application. Henkel Loctite sets high standards for its distributors and works closely with them to ensure they can supply the products you need – on time, every time.

In over 80 countries worldwide, when a customer demands the ultimate, Loctite® is EVERYTHING.

For more information on the complete range of Henkel Loctite products, please visit www.loctite.com where you can download catalogues, data sheets, technical papers and application examples.

...BECAUSE OF

- **EXPERIENCE & WORLD LEADERSHIP**
- **TECHNOLOGICAL INNOVATION**
- **PRODUCT QUALITY**
- **A WIDE PRODUCT RANGE**
- **HUMAN EFFORT**
- **TEAMWORK WITH THE CUSTOMER**
- **CUSTOM MADE SOLUTIONS**
- **RELIABLE DISTRIBUTION NETWORK**

For detailed product performance information and application guidelines, please refer to Technical Data Sheets or contact Henkel Loctite.

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For additional information visit our Web Site, at:

www.loctite.com



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