Kisling

ergo.® High-Performance Structural Adhesives

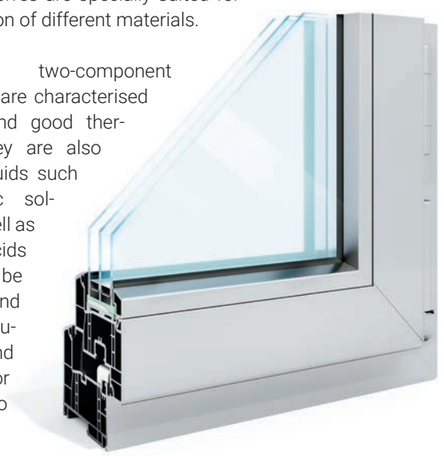
Reliable adhesive bonding of components under high mechanical stress. The complete solutions for all challenging applications.

Structural adhesives

COMPLETE SOLUTIONS FOR CHALLENGING APPLICATIONS.

Structural adhesives are a safe alternative to traditional joining techniques such as welding, riveting and screwing. And with good reason: The load can be distributed over the entire adhesive surface to prevent tension peaks and notch effects in full-surface applications. The even stress distribution thus increases the torsional rigidity of the construction. Structural adhesives are specially suited for high-strength adhesion of different materials.

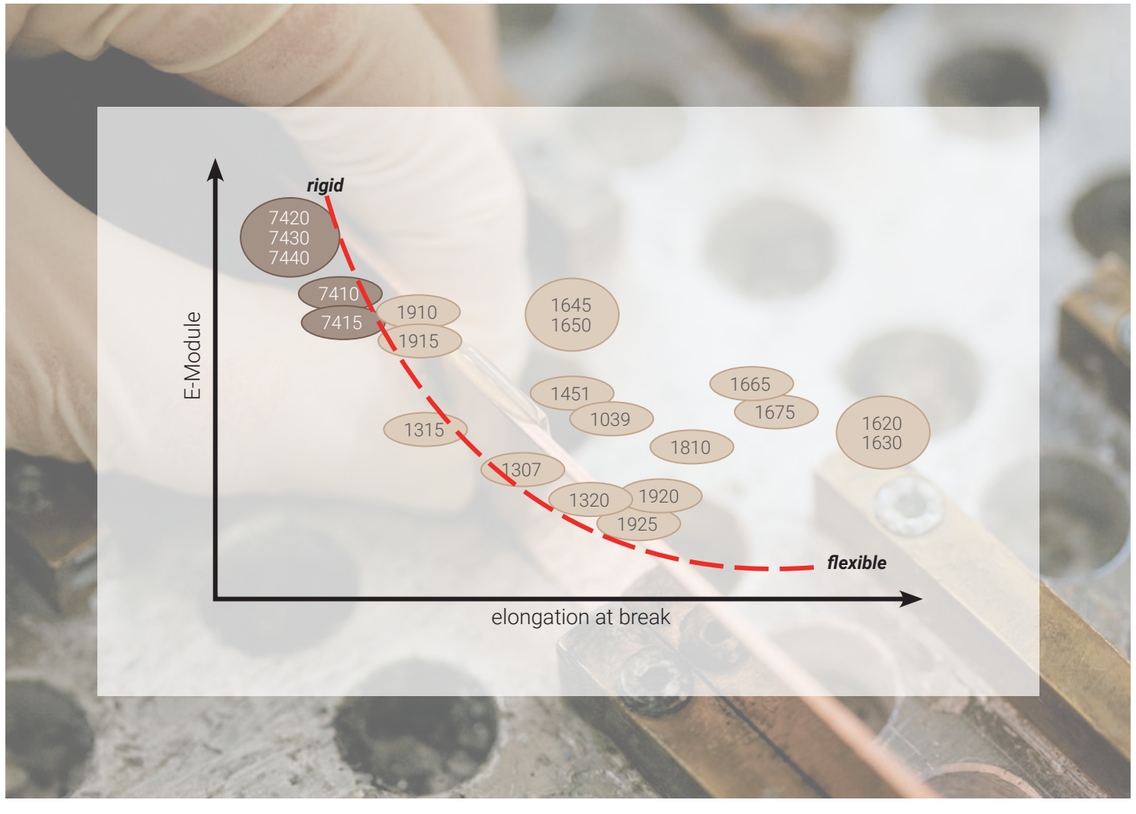
The advanced two-component structural adhesives are characterised by high strength and good thermal resistance. They are also resistant against liquids such as water, aliphatic solvents, oils, fats, as well as diluted inorganic acids and alkalis. They can be processed easily and safely with manual mixing guns and static mixing tubes or simply integrated into automated dosing processes.



With its ergo.® (meth)acrylate and epoxy resin structural adhesives, Kisling offers a range of products with very different property profiles:

Our structural adhesive range under our ergo.® brand includes:

- No-Mix structural adhesives with the shortest curing times and excellent adhesive results
- (Meth)acrylate structural adhesives for fast and high-performance adhesion of plastics, glass, metals, ceramic and ferritic materials, as well as neodymium alloys
- Epoxy resin structural adhesives for high-strength, ageing-resistant bonding of highly stressed components



About Kisling

SECURE JOINTS FOR THE MOST DEMANDING APPLICATION

Kisling is one of the leading manufacturers of adhesives and sealants. Our international sales and distributor network supplies some 3500 customers in the industry (OEM and supplier industries) and specialist retail with innovative, high-quality products.

With many years of experience in developing and manufacturing custom adhesives, Kisling is the right partner for every application. You too can benefit from our professional application consulting and service. Find out more at www.kisling.com.

CUSTOM PRODUCT DEVELOPMENT

Kisling works in a technical partnership with its customers for product development. Our chemists and process engineers support you in selecting the appropriate adhesives for your requirements and adapting these to your processes. Where necessary, we can develop adhesive and sealant solutions on a custom basis and support you in the introduction of new products. At the centre is the security and long-term reliability of the adhesive bonds.

The ergo.® brand from Kisling represents outstanding solutions and unrivalled service and quality.

Structural adhesives

FOR THE ULTIMATE ADHESIVE CONNECTIONS

The structural adhesives of the ergo.® brand are distinguished by their excellent impact resistance and outstanding adhesion to various materials. They can be used in all kinds of applications requiring permanent bonding of metals, plastics and composites. Structural adhesives are among the most widely used adhesives in the industry thanks to their outstanding mechanical properties, excellent thermal and climatic shock resistance and ability to adhere to a wide variety of substrates.

Tensile strengths of up to 40 N/mm² are possible with structural adhesives.

TYPICAL APPLICATIONS FOR STRUCTURAL ADHESIVES

ELECTRIC MOTOR CONSTRUCTION

High strength and durable connection of components under dynamic stress

- Bonding magnets or onto magnets
- Wire laying

ELECTRICAL ENGINEERING AND ELECTRONICS

High abrasion resistance and fast curing for serial production

- Bonding of electrical coils
- Bonding of device housing
- Potting of plugs and sensors

AUTOMOTIVE ENGINEERING

High resistance against fatigue

- Adhesion of device housing and components under stress
- Joining of plastics with metal frames
- Repairing cracks and leaks

LOUDSPEAKER CONSTRUCTION

Fatigue-resistant bonding

- Bonding passivated steel with ferrite
- Bonding plastics with metal
- Joining of elastomers, impregnated boards

FIBRE-REINFORCED PLASTICS

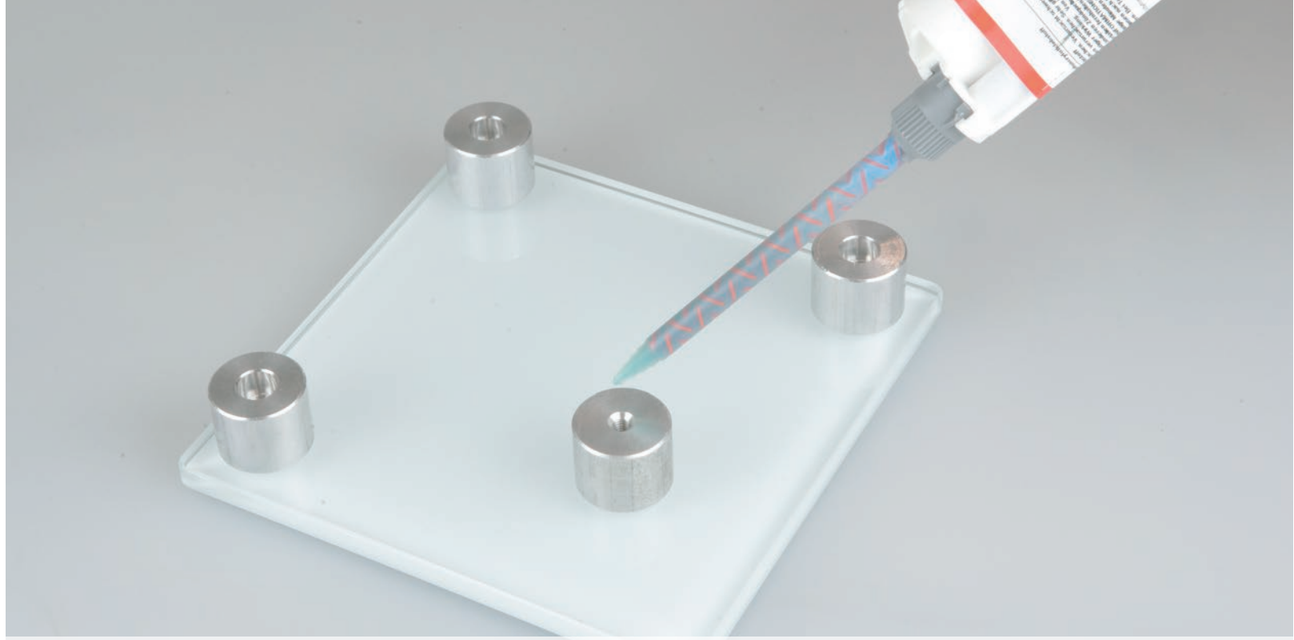
High resistance against torsion, vibration and temperature changes

- Bonding of honeycomb constructions
- Bonding of metallic connecting elements (Bigheads)
- Attaching or bonding clips and cable guides

MAINTENANCE, SERVICING

Fatigue-resistant, composite and metal bonding, mechanically reworkable

- Any type of repairs
- Repairing cracks in the engine housing
- Reinforcing and sealing of welding



THE RIGHT ADHESIVE FOR ANY MATERIAL PAIR

WHAT WOULD YOU LIKE TO BOND?

	NoMix (Meth)acrylate structural adhesives	2K methacrylate structural adhesives	2K epoxy resin structural adhesives
Metal-Metal	ergo.® 1039, 1451	ergo.® 1620, 1630, 1645, 1650, 1665, 1675, 1810, 1910, 1915, 1920, 1925, 1307, 1315, 1320	ergo.® 7410, 7415, 7420, 7430, 7440
Metal-Plastic		ergo.® 1620, 1630, 1645, 1650, 1665, 1675, 920, 1925	
Plastic-Plastic		ergo.® 1620, 1630, 1645, 1650, 1665, 1675	
Glass-Metal	ergo.® 1039, 1451	ergo.® 1307, 1810, 1920	ergo.® 7410, 7415, 7420, 7430, 7440
Wood, honeycomb structures, fabric		ergo.® 1910, 1915, 1307, 1315, 1320	ergo.® 7410, 7415, 7420, 7430, 7440
CFRP		ergo.® 1645, 1650, 1665, 1675, 1910, 1915	ergo.® 7410, 7415, 7420, 7430, 7440
Special properties	• 2K adhesive for separate application of components • Very fast strength build-up • Very high strength • High fatigue strength and shock resistance • Ease of finishing • High temperature resistance	• Easy, safe processing • Not susceptible to mixing errors • Very fast strength build-up • High toughness and peel strength • Rapid curing at room temperature	• Large-area processing possible thanks to long open times • Good weather resistance • High rigidity (E module) • High strength on metallic substrates and composites

2K high-performance (meth)acrylate and epoxy resin adhesives

FAST. STRONG. LOW ODOUR.

The wide range of 2K adhesives based on (meth)acrylate from ergo.® allows the user to select the perfectly suitable product. The products differ in odour, flammability, pot life, strength build-up after the start of curing, as well as surface dryness and surface hardness, which allows reworking by grinding or machining processes.

The table is sorted in ascending order of initial strength

Product	Adhesive chemistry	Eigenschaften	Initial strength *	Pot life	Mixing ratio	Low odour and high flash point	Metals			Duroplast/ composite plastics		Thermoplastics					Other Substrate			Viscosity	Elongation at break	Tensile strength	Tensile shear strength	Temperature application range	Packaging sizes
							Steel, stainless steel	Aluminium	Copper, brass	GFRP	CFRP	PVC	PA	ABS, ASA, SAN	PC	PMMA	Glass	Ceramic	Wood	Brookfield RVT	DIN 53504 S2	DIN 53504 S2	Alu/Alu (DIN EN 1465)		
Unit			Min.	Min.																mPas	%	N/mm²	N/mm²	°C	
ergo.® 1451/ergo.® 1093	Urethane acrylate	• No-Mix system • medium viscosity / elasticised • Glass- Metal Set	~15 s	n.a.	n.a.		●●●	●●●	●●●	–	–	–	–	–	–	–	●●●	●●	–	Gel	n.a.	n.a.	>18	-55 to +120	50 g / 10 ml
ergo.® 1470/ergo.® 1471	Methacrylate	• No-Mix system • low viscosity / capillary flow properties • high strength	10-20 s	n.a.	n.a.		●●●	●●●	●●	–	–	–	–	–	–	–	–	–	–	thin	n.a.	n.a.	>18	-60 to +180	1 kg
ergo.® 1039/ergo.® 1090	Urethane acrylate	• No-Mix system • medium viscosity / flexible • high peel & impact resistance	~30 s	n.a.	n.a.		●●●	●●●	●●	–	–	–	–	–	–	–	●●●	●●	–	Gel	n.a.	n.a.	>15	-55 to +150	50 g/10 ml 300 g/ 50 ml
ergo.® 1315	Methacrylate	• medium viscosity • very fast • high strength, impact resistant	5-6	1-2	1:1		●●●	●●●	●●●	●●	●●	●	–	●●	●	●●	●●	●●	●●	~6500	~20	~21	>20	-40 to +150	50 ml
ergo.® 1320	Methacrylate	• black • medium viscosity • fast, high strength, impact resistant	5-6	2-3	1:1		●●●	●●●	●●●	●●	●●	●	–	●●	●	●●	●●	●●	●●	~5000	~20	~21	>20	-40 to +130	50 ml
ergo.® 1675	Methacrylate	• paste-like, stable • excellent plastic adhesion • very fast strength build-up	5-7	2-3	10:1		●●●	●●●	●●	●●●	●●●	●●●	–	●●●	●●●	●●●	●	●	●●	~100000 tx	~75	~15	>18	-55 to +120	50 ml
ergo.® 7415	Epoxy resin	• paste-like • fast-curing • medium strength	~6	3	1:1	high flash point	●●●	●●	●●	●	●	●	●	●	●	●	●●●	●●●	●●	paste-like	n.a.	n.a.	~13	-60 to +100	50 ml
ergo.® 1920	Methacrylate	• unsusceptible to mixing errors • spacer for optimum adhesive gap • low shrinkage	~7	7	1:1		●●●	●●●	●●	●●	●●	●●	●●	●●●	●●	●●	●●	●●	●●	~20000 tx	~10	n.a.	>18	-40 to +110	50 ml 200 ml
ergo.® 7410	Epoxy resin	• medium viscosity, self-levelling • fast-curing • medium strength	~7	3	1:1	high flash point	●●●	●●	●●	●●	●●	●	●	●	●	●	●●●	●●●	●●	~ 9500	n.a.	~40	~13	-60 to +100	50 ml 200 ml
ergo.® 1665	Methacrylate	• paste-like, stable • very good bonding • high flexural fatigue strength	8-13	3-6	10:1	no	●●●	●●●	●●	●●●	●●●	●●●	–	●●●	●●●	●●●	●	●	●●	~100000 tx	~75	~15	>19	-55 to +120	50 ml 490 ml
ergo.® 1307	Methacrylate	• UL-94 HB • medium viscosity • fast, high strength, impact resistant	~10	2-5	1:1		●●●	●●●	●●●	●●	●●	●	●	●●	●	●●	●●	●●	●●	~5000	~20	~21	>20	-40 to +130	50 ml
ergo.® 1810	Methacrylate	• thixotropic • very impact resistant • exceptional metal bonding	~10	3-5	1:1		●●●	●●●	●●●	●	–	–	–	–	–	–	●●	●●	–	~5000 tx	~50	n.a.	>25	-40 to +150	50 ml
ergo.® 1910	Methacrylate	• medium viscosity, self-levelling • fast, impact resistant • high temperature resistance	~10	2-3	1:1	no	●●●	●●●	●●●	●●	●●	●●	–	●●	●●	●●	●●	●●	●●	~6500	~8	~36	>20	-50 to +180	50 ml
ergo.® 1915	Methacrylate	• medium viscosity, thixotropic • fast, impact resistant • high strength	~10	2-3	1:1	no	●●●	●●●	●●●	●●	●●	●●	–	●●	●●	●●	●●	●●	●●	~15000 tx	~8	~36	>20	-50 to +150	50 ml
ergo.® 1620	Methacrylate	• paste-like, stable • gap-filling capability of up to 2 mm • high toughness	~15	2	10:1	no	●●●	●●●	●●	●●	●●	●●	–	●●●	●●	●●	●●	●●●	●	~100000 tx	~160	~10	>16	-40 to +100	50 ml 490 m
ergo.® 1645	Methacrylate	• paste-like, stable • universally applicable • excellent tensile strength	~15	7	10:1	no	●●●	●●●	●●	●●●	●●●	●●●	–	●●●	●●●	●●●	●	●●●	●	~100000 tx	~30	~15	>20	-40 to +100	50 ml 490 ml
ergo.® 1925	Methacrylate	• unsusceptible to mixing errors / long processing times • spacer for optimum adhesive gap • low shrinkage	~20	20	1:1		●●●	●●●	●●	●●	●●	●●	●●	●●●	●●	●●	●●	●●	●●	~20000 tx	~10	n.a.	>19	-40 to +110	50 ml
ergo.® 1630	Methacrylate	• paste-like, stable • large processing window • high toughness	~45	20	10:1	no	●●●	●●●	●●	●●	●●	●●	–	●●●	●●	●●	●●	●●●	●	~100000 tx	~160	~10	>16	-40 to +100	50 ml 490 ml
ergo.® 1650	Methacrylate	• paste-like, stable • large processing window • universally applicable	~45	20	10:1	no	●●●	●●●	●●	●●●	●●●	●●●	–	●●●	●●●	●●●	●	●●●	●	~100000 tx	~30	~15	>20	-40 to +100	50 ml 490 ml
ergo.® 7440	Epoxy resin	• paste-like, stable • long processing time • high strength / high temperature resistance	3.5 h	60-80	2:1		●●●	●●●	●●	●●●	●●●	●	●	●	●	●	●●●	●●●	●●	paste-like	n.a.	n.a.	~20	-40 to +140	50 ml
ergo.® 7430	Epoxy resin	• paste-like, stable • long processing time • high strength	4 h	40-50	1:1		●●●	●●●	●●	●●●	●●	●	●	●	●	●	●●●	●●●	●●	paste-like	n.a.	n.a.	~23	-60 to +100	50 ml 200 ml
ergo.® 7420	Epoxy resin	• high viscosity • long processing time • high strength	7 h	100	1:1		●●●	●●●	●●	●●●	●●	●	●	●	●	●	●●●	●●●	●●	~ 42500	n.a.	n.a.	>25	-60 to +100	50 ml 200 ml

* Time to reach an initial strength of >1N/mm²

What you can expect from ergo.® adhesives

FOUR COMPELLING ADVANTAGES

FAST STRENGTH BUILD-UP
- Short waiting time for further processing
- Comparatively fast curing of the bond
- Bonding can be fully subjected to load quickly

LOW ODOUR AND HARDLY FLAMMABLE
- Reduced outgassing
- Significantly reduced health burden
- Reduced fire hazard
- Better indoor air quality

MECHANICAL FINISHING
- Structural adhesives can generally be easily mechanically reworked and also painted over

PRODUCTS OPTIMISED FOR MINI MIXERS (T-MIXERS)
These products are optimised for the use of mini mixers (T-mixers) to increase productivity. T-mixers reduce material loss in the mixer and ensure optimum utilisation of the adhesive.

FIND THE CORRECT DISPENSING GUNS AND MIXERS HERE

	Product	Designation	Mixing ratio	DISPENSING GUNS: 4472101 Dispensing gun, manual / 1:1 & 1:2 / 50 ml	4472105 Dispensing gun, manual / 10:1/ 50 ml	4472111 Dispensing gun, pneumatic / 1:1 & 2:1 / 50 ml	4472200 Dispensing gun, pneumatic / 1:1 & 2:1 / 200 ml	4472300 Dispensing gun, manual / 1:1 & 1:2 / 200 ml	4472320 Dispensing gun, manual / 10:1 / 490 ml	4472321 Dispensing gun, pneumatic / 10:1/ 490 ml	MIXERS: 4472063 T-mixer, B system / 1:1 & 2:1 / 50 ml	4472066 T-mixer+tips, B system / 1:1 & 2:1 / 50 ml	4472007 Helix mixer, B system / 1:1 & 2:1 / 50 ml	4472055 Helix mixer+tips, B system / 1:1 & 2:1 / 50 ml	4472046 Quadro mixer, B system / 1:1 & 2:1 / 50 ml	4472043 Helix mixer, B system / 4:1 & 10:1 / 50 ml	4472047 Quadro mixer, F system / 1:1 & 2:1 / 200 ml	4472058 Helix mixer, F system / 1:1 & 2:1 / 200 ml	4472044 Helix mixer, F system / 10:1 / 490 ml	4472038 MFX mixer, F system / 10:1 / 490 ml
(Methyl) methacrylates	1307.050.DK.E500	Universal structural adhesive, low-odour	1:1	●		●					●	●	●	●	●					
	1315.050.DK.E500	Universal structural adhesive, low-odour, heat-resistant	1:1	●		●					●	●	●	●	●					
	1320.050.DK.E500	Universal structural adhesive, low-odour, elastically tough	1:1	●		●					●	●	●	●	●					
	1620.050.DK.E500	Universal structural adhesive, gap-filling	10:1		●											●				
	1620.490.DK.E500	Universal structural adhesive, gap-filling	10:1						●	●									●	●
	1630.050.DK.E500	Universal structural adhesive, gap-filling	10:1		●											●				
	1630.490.DK.E500	Universal structural adhesive, gap-filling	10:1						●	●									●	●
	1645.050.DK.E500	Universal structural adhesive, gap-filling	10:1		●											●				
	1645.490.DK.E500	Universal structural adhesive, gap-filling	10:1						●	●									●	●
	1650.050.DK.E500	Universal structural adhesive, gap-filling	10:1		●											●				
	1650.490.DK.E500	Universal structural adhesive, gap-filling	10:1						●	●									●	●
	1665.050.DK.E500	Universal structural adhesive, gap-filling	10:1		●											●				
	1675.050.DK.E500	Fast structural adhesive, low-odour	10:1													●				
	1810.050.DK.E500	Metal/ferrite structural adhesive, low-odour	1:1	●		●					●	●	●	●	●					
	1910.050.DK.E500	Metal/ferrite structural adhesive, suitable up to +180 °C	1:1	●		●					●	●	●	●	●					
	1915.050.DK.E500	Structural adhesive, metal/ferrite	1:1	●		●					●	●	●	●	●					
	1920.050.DK.E500	Universal structural adhesive, low-odour	1:1	●		●					●	●	●	●	●					
	1925.050.DK.E500	Universal structural adhesive, low-odour	1:1	●		●					●	●	●	●	●					
Epoxy	7410.050.DK.E500	Epoxy Rapid universal	1:1	●		●						●	●		●					
	7410.200.DK.E500	Epoxy Rapid universal	1:1				●	●										●	●	
	7415.050.DK.E500	Epoxy Rapid universal, drip-proof	1:1	●		●									●					
	7420.050.DK.E500	Epoxy Slow universal	1:1	●		●							●		●					
	7420.200.DK.E500	Epoxy Slow universal	1:1				●	●										●	●	
	7430.050.DK.E500	Epoxy Strong universal	1:1	●		●							●		●					
	7430.200.DK.E500	Epoxy Strong universal	1:1				●	●										●	●	
	7440.050.DK.E500	Epoxy high strength / high temperature-resistance	2:1	●		●							●		●					

INSTRUCTIONS FOR USING STRUCTURAL ADHESIVES

For best adhesion results, surfaces must be free of dust, grease, oils and finger marks. Depending on the material, we recommend the use of a metal or plastic cleaner from Kisling. In all cases, it is recommended to check the suitability and strength of the adhesive.

SURFACE CLEANER

Type	Description	Packaging	Content	Article number
ergo.® 9153	Adhesive remover	Plastic bottle	20 ml	9153.020.H1.E500
ergo.® 9153	Adhesive remover	Plastic bottle	1 l	9153.01L.HK.E500
ergo.® 9153	Adhesive remover	Plastic bottle	20 l	9153.20L.HK.E500
ergo.® 9190	Universal metal cleaner	Aerosol	150 ml	9190.150.SD.E506
ergo.® 9190	Universal metal cleaner	Aerosol	500 ml	9190.500.SD.E506
ergo.® 9190	Universal metal cleaner	Metal canister	5 l	9190.05L.BK.E500
ergo.® 9195	Universal plastics cleaner	Aerosol	150 ml	9195.150.SD.E506
ergo.® 9195	Universal plastics cleaner	Aerosol	500 ml	9195.500.SD.E506
ergo.® 9195	Universal plastics cleaner	Metal canister	5 l	9195.05L.BK.E500

PROCESSING

2K structural adhesives consist of a resin and a hardener, which only form the ready-to-use product after careful, homogeneous mixing. The adhesive is applied directly from the double-chamber cartridge using a dosing gun. Homogenous mixing is carried out using a mixing tube fitted on the double chamber cartridge.

When using a new cartridge, proceed as follows:

1. Push the safety lever of the pistol upwards and pull the piston rod all the way backwards
2. Insert the cartridge into the gun and snap it into place (Fig. 1)
3. Push the piston rod into the cartridge until it stops.
4. Remove the cartridge seal
5. Carefully pull the trigger until the adhesive emerges from both openings. The cartridges are overfilled so that no loss occurs (Fig. 2)
6. Attach the mixing tube and lock it in place either by turning it 90° or by screwing on the union nut (Fig. 3)
7. Before use, press out and discard one mixing tube content (Fig. 4)
8. The adhesive is usually only applied to one component. However, it is also possible to apply on both sides, depending on the application. After the adhesive has been applied, the joining process and any fixing must be carried out under consideration of the pot life
9. If the processing interruptions are shorter than the pot life of the respective product, the same mixing tube can be used again
10. When work is finished or after long interruptions, the mixing tube can be left on the cartridge as a seal
11. Before further processing, remove the old mixing tube and replace it with a new one

For further information, please refer to the technical data sheets.

Application details, technical information and all certificates and specific approvals can be found at www.kisling.com, under the category Quick Links.

Are you a designer or technician and responsible for using adhesives? We would be happy to support you. In Switzerland, you can reach us by telephone on +41 58 272 02 72 or at customerservice@kisling.com. In Germany on +49 8171 99982 30 or at customerservice_de@kising.com.

Our current terms and conditions apply in all cases.
Before the application and handling, always consult the latest technical data sheet and safety data sheet.

KISLING AG – FOR INNOVATION AND QUALITY.
Kisling AG is one of the leading providers and manufacturers of adhesives and sealants.
We would be pleased to advise you on adhesive-related matters.

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