TWO-COMPONENTS

TWO-COMPONENTS: THE TECHNICAL CHOICE FOR STRUCTURAL BONDINGS

- POLYURETHANICS
- METHYL-METHACRYLATES (FLEXIBLE)
- METHYL-METHACRYLATES (RIGID)
- EPOXY

MASTIKOL®

TOTALE ADESIONE ALL'INNOVAZIONE

TWO-COMPONENTS

INTRODUCTION

In the dynamic world of design and engineering, professionals face daily challenges in improving both projects and production processes. Responding to this need, Mastikol presents an innovative range of adhesive solutions. These solutions allow customers to create products with creativity, efficiency, and effectiveness. Covering a wide variety of applications and substrates, Mastikol adhesives are versatile and offer tailor-made solutions to optimize the assembly process.

Mastikol provides its technical expertise to support customers in selecting the most suitable solution for developing bonding projects—from the prototype stage to the creation of the first components, all the way to mass production. We support customers through a detailed application study, recreating adhesive joints exactly as desired and testing the mechanical performance of the solution best suited to their process.

MASTIKOL®
TOTALE ADESIONE ALL INNOVAZIONE

POLYURETHANIC SEMI-STRUCTURAL ADHESIVES

A complete and unique range of two-component polyurethane adhesives for any assembly and sealing operation with controlled reaction time. The Mastikol polyurethane series is divided into two main families: rigid products (MK 10-xx) and flexible products (MK 15-xx). The final application will determine the choice between these two ways of achieving the polymerized joint. Reaction times cover any production cycle, from 30 seconds up to 2 hours of available setting time. The typical poly-addition reaction of these products can be accelerated by heat.

Mastikol two-component polyurethanes can be pure and free of filler materials or enhanced with specific compounds to promote particular adhesive properties. These products are compatible with a wide variety of substrates, even dissimilar ones, such as wood, glass, metals, composites, and various thermoplastics. They feature a low exothermic reaction, which is important where thin substrates could be affected by exothermic peaks above 100°C.

Used in industry for structural assemblies, bodywork repairs, and bonding of insulating panels in the commercial vehicle outfitting sector. They do not require special surface preparation and allow handling of assemblies immediately after the setting time.

MK 10-05

MK 10-12

MK 10-16

MK 10-25

MK 10-28

MK 10-30

MK 10-31

MK 10-50

MK 10-70

MK 10-03

MK 10-04

MK 15-06

MK 15-23

MK 15-87

POLYURETHANIC RIGID ADHESIVES (MK 10 SERIES)

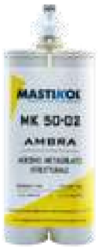
	MK 10-70	MK 10-03	MK 10-50	MK 10-04	MK 10-05	MK 10-12	MK 10-16	MK 10-28	MK 10-30	MK 10-31	MK 10-25
MIX RATIO	100:16	1:1									
COLOUR	Black	Grey	Light Blue		Black – Translucid – Transparent						
OPEN TIME @ 23°C	30 ÷ 40 min	3 ÷ 10 min	50 ÷ 55 min	1 min	5 min	45 sec	20 min	5 min	7 min	40 min	4 ÷ 6 min
FIX TIME @ 23°C	40 ÷ 70 min	12 ÷ 18 min	60 ÷ 65 min	5 min	15 min	3 min	60 min	15 min	50 min	100 min	12 ÷ 16 min
MIXED (A+B) VISCOSITY (cps)	1000 ± 500	50.000 ± 1000							1000 ± 500		15.000 ± 500
SHORE D HARDNESS	35 ÷ 45	54 ÷ 73		80 ± 2		60 ± 2	80 ± 2	75 ± 2	84 ± 2		55 ± 2
MINIMUM GAP FILL (mm)	0,50 ± 0,25	1,00 ± 0,50	0,50 ± 0,25								
MAXIMUM GAP FILL (mm)	4,00 ± 0,25	8,00 ± 0,50	4,00 ± 0,25	6,00 ± 0,25							4,00 ± 0,25
TENSILE STRENGTH (MPa)	4 ÷ 8	15 ÷ 17	7 ÷ 12	20 ÷ 22							17 ÷ 20
OPERATING TEMPERATURE (°C)	- 40 / +155	- 40 / +130		- 40 / +100							- 40 / +130
TENSILE ELONGATION	15 ÷ 20 %	45 ± 8 %	45 ± 5 %	15 ± 5 %		30 ± 5 %	15 ± 5 %				80 ± 2 %

POLYURETHANIC FLEXIBLE ADHESIVES (MK 15 SERIES)

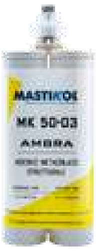
	MK 15-06	MK 15-34	MK 15-85	MK 15-87	MK 15-23
MIX RATIO	1:1				
COLOUR	Black - Translucid				
OPEN TIME @ 23°C	1 min	45 sec	15 min	5 min	40 min
FIX TIME @ 23°C	5 min	3 min	60 min	15 min	150 min
MIXED (A+B) VISCOSITY	30.000 ± 500 cps	2.000 ± 500 cps	50.000 ± 500 cps	30.000 ± 500 cps	50.000 ± 500 cps
SHORE A HARDNESS	85 ± 2	25 ± 2	85 ± 2		
MINIMUM GAP FILL (mm)	0,5 ± 0,25				
MAXIMUM GAP FILL (mm)	6,00 ± 0,25	3,00 ± 0,25	6,00 ± 0,25		
TENSILE STRENGTH (MPa)	6 ÷ 8				
OPERATING TEMPERATURE (°C)	- 40°C / + 85				
TENSILE ELONGATION	190 ± 5 %	250 ± 5 %	190 ± 5 %		

METHYL-METHACRYLATE STRUCTURAL ADHESIVES

Mastikol structural adhesives based on methyl methacrylate (MMA) offer an innovative solution for bonding metals, plastics, and composites. Our MMAs are developed to address bonding challenges in various sectors: marine, wind power, transportation, rail, and industrial. Structural adhesives join substrates to form load-bearing structures with shear strength greater than 10 MPa. MMA adhesives combine strength, toughness, and flexibility, offering working times from 5 to 120 minutes.Curing takes place in a controlled manner at room temperature through an exothermic reaction. These adhesives require less surface preparation than epoxy-based structural adhesives and do not need to be brought to high temperatures to complete the reaction quickly. They ensure greater durability and uniform stress distribution compared to mechanical fasteners, providing the best compromise between strength and toughness. Mastikol MMA solutions are divided into two categories: rigid (MK 50-xx) and flexible (MK 30-xx), each with different performance characteristics. The rigid 1:1 range reaches a strength of 30–35 MPa, while the flexible 10:1 range offers elongation up to 100%.



MK 50-02



MK 50-03

MK 50-04

MK 50-05

MK 50-06

MK 50-13

MK 32-95

MK 40-00

MK 60-10

MK 30-05

MK 30-07

MK 30-10

MK 20-70

MK 230-HV

MK 30-15

MK 30-17

RIGID METHYL-METHACRYLATE ADHESIVES

	MK 50-01	MK 50-02	MK 50-03	MK 50-05	MK 50-04	MK 50-06	MK 50-13	MK 32-95	MK 40-00	MK 60-10
MIX RATIO	1:1									10:1
COLOUR	Transparent	Black – Amber						Grey	White	Upon request
VISCOSITY (cps)	10.000 ÷ 12.000 (A+B)	A 60.000 ÷ 130.000 B 80.000 ÷ 200.000						A 5.000 ± 500 B 5.000 ± 500	A 30.000 ÷ 60.000 B 80.000 ÷ 100.000	A 20.000 ÷ 35.000 B 10.000 ÷ 15.000
OPEN TIME @ 23 °C	01 ÷ 02 min	02 ÷ 06 min	02 ÷ 06 min	04 ÷ 07 min		05 ÷ 10 min	12 ÷ 19 min	02 ÷ 03 min	04 ÷ 08 min	08 ÷ 13 min
FIX TIME @ 23 °C	04 ÷ 05 min	06 ÷ 10 min	06 ÷ 10 min	12 ÷ 15 min	15 ÷ 20 min	13 ÷ 22 min	35 ÷ 45 min	04 ÷ 06 min	40 ÷ 60 min	20 ÷ 30 min
MINIMUM GAP FILL (mm)	0,75 ± 0,50									
MAXIMUM GAP FILL (mm)	2,50 ± 0,50	8,00 ± 0,50						2,50 ± 0,25	5,00 ± 0,50	0,75 ± 0,50
TENSILE STRENGTH	25 ÷ 30 MPa		30 ÷ 35 MPa		25 ÷ 30 MPa			15 ÷ 25 MPa	10 ÷ 15 MPa	27 MPa*
TENSILE ELONGATION	15 ÷ 20 %	6 ÷ 10 %	2 ÷ 6 %		10 ÷ 30 %			2 ÷ 6 %	-----	-----
TENSILE MODULUS (MPa)	-----	1.200 ÷ 1.700			1.400 ÷ 1.900	1.200 ÷ 1.700		-----	-----	-----
OPERATING TEMPERATURE	- 55 / + 125 °C	- 40 / + 120 °C			- 40 / + 100 °C	- 40 / + 120 °C		- 40 / + 125 °C	- 40 / + 100 °C	- 55 / + 120 °C
APPLICATIONS	Structural bonding of transparent thermoplastics (PC, PMMA) in the advertising display sector.	Structural adhesion of a wide variety of substrates (metals, including galvanized, composites, fibre-reinforced thermoplastics, and thermosets) without special surface preparation, offering the best compromise between toughness, strength, and ease of use. A broad selection of working times and corresponding setting times makes this series the best adhesive for various structural bonding applications. Their thixotropy allows application even on vertical surfaces.						Self-levelling acrylic adhesive designed for the structural bonding of ferrite and specific metal alloys.	Structural adhesive for the permanent bonding of low-surface-energy plastics (PP, PE, PET, POM, PTFE...)	Two-component structural adhesive, based on methyl methacrylate, designed for bonding solid surfaces such as natural stone, marble, granite, and quartz

* flexural strength (solid surface)

FLEXIBLE METHYL-METHACRYLATE ADHESIVES

	MK 30-05	MK 30-15	MK 30-07	MK 30-10	MK 30-17	MK 230-HV	MK 20-70*
MIX RATIO	10:1						
COLOUR	Black		Black - White			Grey - Green	Grey
VISCOSITY (cps)	A 200.000 – 300.000 B 100.000 – 200.000		A 100.000 – 140.000 B 80.000 – 120.000			A 350.000 ÷ 450.000 80.000 ÷ 140.000	A 400.000 ÷ 800.000 B 25.000 ÷ 70.000
OPEN TIME @ 23 °C	06 ÷ 10 min	15 ÷ 35 min	04 ÷ 10 min	16 ÷ 22 min	25 ÷ 35 min	70 ÷ 100 min	90 ÷ 110 min
FIX TIME @ 23 °C	15 ÷ 25 min	55 ÷ 75 min	10 ÷ 18 min	25 ÷ 35 min	55 ÷ 75 min	200 ÷ 240 min	150 ÷ 180 min
MINIMUM GAP FILL	0,75 ± 0,50 mm						1,00 ± 0,50 mm
MAXIMUM GAP FILL	10,00 ± 0,50 mm		15,00 ± 0,50 mm			40,00 ± 0,50 mm	50,00 ± 0,50 mm
TENSILE STRENGTH	19 ÷ 23 MPa		18 ÷ 22 MPa			20 ÷ 25 MPa	14 ÷ 18 MPa
TENSILE ELONGATION	80 ÷ 100 %					80 ÷ 110 %	80 ÷ 100 %
TENSILE MODULUS (MPa)	500 ÷ 700		600 ÷ 1.000			1.000 ÷ 1.400	800 ÷ 1.100
OPERATING TEMPERATURES	- 40 / + 120 °C (short time > 150°C)		- 40 / + 110 °C			- 40 / + 95 °C	-----
APPLICATIONS	High-performance formulation, capable of withstanding high temperatures and resistant to powder-coating cycles in the automotive sector. Ideal for bonding substrates of different nature, accommodating the thermal expansion of the various materials. Widely approved for bonding pins, fasteners, and cable-pass hooks in the marine industry. Certified R1 according to EN-45545.		MMA range with extremely high flexibility, allowing the bonding of substrates with different coefficients of thermal expansion. They withstand salt-spray aging cycles and offer excellent resistance to fatigue and torsional stress cycles. They deliver strong performance even at high thicknesses and without the need for specific surface preparation.			Formulations with very long workability times and sustained exothermic reaction, designed for bonding large metal-fiberglass structures in the marine and wind-energy sectors. The workability time can be adjusted, in the case of manual mixing, by varying the activator dosage.Their high thixotropy allows for vertical application as well. They require no surface preparation and maintain performance even at thicknesses up to 50 mm.	

* Styrene-free formulation

EPOXY STRUCTURAL ADHESIVES

A range of rigid, two-component epoxy adhesives designed for enhanced fatigue resistance. Rigid epoxy adhesives offer higher tensile strength for long-term bonding and can join a variety of materials with different surface energies, from metals to wood. They can withstand extreme conditions of heat, cold, and humidity. Reaction times are variable, and packaging is tailored to specific needs. Formulations are also available for applications requiring particular conductivity properties.

MK EP 500

MK EP 500R

MK EP 520

MK EP 600 UN

MK EP 700

MK EPOXY STICK

	MK EP 500	MK EP 500R	MK EP 520	MK EP 600 UN	MK EP 700	MK EPOXY STICK
MIX RATIO	1:1				100:16	Putty Stick
COLOUR	Transparent				Yellow – Blue	Different
MIXED VISCOSITY	29.000 cps	10.000 cps		40.000 cps	A 15.000 ÷ 40.000 cps	
OPEN TIME @ 23 °C	120 ÷ 150 min	03 ÷ 04 min	30 ÷ 40 min	90 min	150 ÷ 250 min	03 ÷ 04 min
FIX TIME @ 23 °C	170 ÷ 200 min	05 ÷ 10 min	240 ÷ 360 min	300 min	360 ÷ 480 min	240 min
MINIMUM GAP FILL	1,00 ± 0,50 mm					
MAXIMUM GAP FILL	4,00 ± 0,50 mm				VOLUMETRIC RESISTIVITY: 7,5-9,0 x 1015 ohm-cm	MAXIMUM GAP FILL: 12,00 ± 0,50 mm
TENSILE STRENGTH	24 ÷ 28 MPa	18 ÷ 20 MPa	23 ÷ 26 MPa	23 ÷ 28 MPa	DIELECTRIC STRENGTH: 200 - 230 KV/cm	COMPRESSION STRENGTH: 80 MPa
TENSILE ELONGATION	2 ÷ 6 %		4 ÷ 10 %		THERMAL CONDUCTIVITY: 1.2 - 1.3 W/mK	-----
SHORE D HARDNESS	75 ÷ 80		81 ÷ 85	75 ÷ 80	80 ÷ 90	75 ÷ 80
OPERATING TEMPERATURE	- 40 / + 75 °C	- 40 / + 80 °C	- 40 / + 105 °C	- 40 / + 75 °C	- 45 / + 180 °C	- 40 / + 150 °C
APPLICATIONS	Range of structural epoxy adhesives, with or without mineral fillers, used for the structural assembly of composites, wood, metal, and thermoplastics. Also suitable for crack filling, potting/casting of electrical components, where protection and thermo-electric conductivity are required.					Epoxy putty for the rapid repair of pipes, bodywork, etc. The stick is kneaded by hand, mixing the two components. An irreversible curing reaction then takes place.

WE MEASURE THE STRENGTH OF YOUR BONDS

Mastikol offers the opportunity to subject samples of your product, assembled with our adhesives, to climatic aging cycles that simulate real operating conditions.

The bond strength measurements, carried out on the original substrates using dynamometric tension tests, will therefore be even more realistic.

In no other sector are the requirements for the materials used as stringent as in the bonding of metals and composite materials; for this reason, every joint line is analysed through a thorough and even more rigorous evaluation.

The cycles can comply with specific reference standards for your sector (ASTM, DIN, or ISO) or be custom-designed based on your needs. Our environmental simulation climatic chambers not only allow material testing with complex temperature profiles ranging from -50°C to +200°C, but also control humidity within a range of 10% to 98% RH. The high series of variation rates enable tests that comply with standards and evaluations under dynamic conditions.

Material verification tasks are mainly carried out by suppliers, who, while producing subcomponents, can rely on Mastikol to provide a faster, professional, and reliable service.

The process for analysing and testing your original materials, bonded with Mastikol products, is structured as follows

1. Verification of substrates, regulations, specifications, and assembly processes.
2. Series of bonded samples according to ASTM, based on our experience and your requirements.
3. Environmental simulation with rapid temperature changes and humidity control (adjustable ramp function and preheating chamber).
4. Programmable anti-condensation protection for samples undergoing aging.
5. Dynamometer tensile testing of samples subjected to thermal cycles (according to ASTM and/or your reference).
6. Analysis of separated surfaces, identifying conditions and values of detachment.
7. Report from internal logger, readable, shareable, with measurement values in an open format.

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