

Adhesives and Bonding Tools

To obtain good measurement results, the strain gage must be bonded firmly to the measuring object. Thus, it is important to select an adhesive suitable for the materials of both the object being measured and the gage base, as well as for the measuring conditions.



Strain Gages

Outline

Lead-wire cable

General

Waterproof

Concrete

Composite material
PCB
Plastics

Ultra-small strain
High temp.
Low temp.

High elongation

Non-magneto
resistive

Hydrogen gas
Bending

With protector
Embedded

Crack

Adhesive
Coating agent

Custom-
designed

Models	CC-33A	CC-35	CC-36	EP-270		EP-340	EP-34B	EP-370	PC-600	PI-32
Types	Instantaneous adhesive cured at normal temperature	Instantaneous adhesive cured at normal temperature	Instantaneous adhesive cured at normal temperature	Cured at normal temperature		Cured at normal temperature or by heating	Cured at normal temperature or by heating	Cured by normal temperature + heating	Cured by heating	Cured by heating
Operating Temperature (°C)	-196 to 120 (Regular temperature: 20 to 80)	-30 to 120 (Regular temperature: 20 to 80)	-30 to 100 (Regular temperature: 20 to 80)	-269 to 30		-55 to 150	-55 to 200	Normal temp. to 50	-269 to 250	-269 to 350
Major Applicable Materials	<ul style="list-style-type: none"> Metals (Steel, stainless steel, copper, aluminum alloys A1050, A2024, etc.) Plastics (Acrylate, PVC, nylon, etc.) Composite materials (CFRP, GFRP, PCB, etc.) Rubber 	<ul style="list-style-type: none"> Concrete Mortar Wood 	<ul style="list-style-type: none"> Metals (Steel, stainless steel, copper, aluminum alloys A1050, A2024, A7075, magnesium alloy, etc.) Plastics (Acrylate, PVC, nylon, polypropylene, etc.) Composite materials (CFRP, GFRP, PCB, etc.) Concrete Mortar Wood Rubber 	<ul style="list-style-type: none"> Metals (Steel, stainless steel, aluminum alloy, etc.) 		<ul style="list-style-type: none"> Metals (Steel, stainless steel, aluminum alloy, etc.) 	<ul style="list-style-type: none"> Metals (Steel, stainless steel, copper, aluminum alloy, etc.) Plastics (Acrylate, PVC, etc.) Composite materials (CFRP, GFRP, PCB, etc.) 	<ul style="list-style-type: none"> Metals (Steel, stainless steel, copper, aluminum alloy, etc.) Plastics (Acrylate, PVC, etc.) 	<ul style="list-style-type: none"> Metals (Steel, stainless steel, copper, aluminum alloy, etc.) 	<ul style="list-style-type: none"> Metals (Steel, stainless steel, copper, aluminum alloy, etc.)
Curing Requirements	<ul style="list-style-type: none"> Apply finger pressure (100 to 300 kPa) for 15 to 60 seconds. (Then, leave the gage for 1 hour.) *The finger pressure application time differs depending on temperature and humidity conditions. The lower the temperature and humidity, the longer the finger pressure application time required. 	<ul style="list-style-type: none"> Apply finger pressure (100 to 300 kPa) for 30 to 180 seconds. (After curing, leave the gage for 1 hour or more.) *The finger pressure application time differs depending on temperature and humidity conditions. The lower the temperature and humidity, the longer the finger pressure application time required. 	<ul style="list-style-type: none"> Apply finger pressure (100 to 300 kPa) for 30 to 60 seconds. (After curing, leave the gage for 1 hour or more.) *The finger pressure application time differs depending on temperature and humidity conditions. The lower the temperature and humidity, the longer the finger pressure application time required. 	<ul style="list-style-type: none"> Apply pressure (50 ± 20 kPa) for 24 hours at approx. 25°C. 		<ul style="list-style-type: none"> Apply pressure (100 ± 50 kPa) for 24 hours at approx. 25°C or for 2 hours at 80°C. Pressing is possible with tape. 	<ul style="list-style-type: none"> Apply pressure (30 to 50 kPa) for 24 hours at approx. 25°C or for 2 hours at 80°C. Pressing is possible with tape. 	<ul style="list-style-type: none"> Keep at normal temperature for 24 hours and heat it for 5 hours at 80 °C. 	<ul style="list-style-type: none"> Apply pressure (150 to 300 kPa) for 1 hour at 80°C → 2 hours at 130°C → 2 hours at 150°C. 	<ul style="list-style-type: none"> Apply pressure (200 to 500 kPa) for 1 hour at 100°C → 2 hours at 200°C → 2 hours at the operating temperature with the pressure removed. *If it is difficult to heat at 200°C, 2 h at 200°C may be changed to 5 h at 160°C with all other conditions followed.
Category	1 type of cyanoacrylate liquid	1 type of cyanoacrylate liquid	1 type of cyanoacrylate liquid	2 types of epoxy liquid mixed		2 types of epoxy liquid mixed	2 types of epoxy liquid mixed	2 types of epoxy liquid mixed	1 heating type of phenol liquid	1 heating type of polyimide liquid
Capacity	2 g x 1 or 2 g x 5	2 g x 1 or 2 g x 5	2 g x 1 or 2 g x 5	50 g (Main agent: 25 g Curing agent: 25 g)		30 g (Main agent: 6 g x 4 Curing agent: 1.5 g x 4)	30.8 g (Main agent: 5.6 g x 4 Curing agent: 2.1 g x 4)	40 g (Main agent: 30 g Curing agent: 10 g)	100 g	20 g
Features	<ul style="list-style-type: none"> Suitable for bonding general-purpose gages which are used for general stress measurement at normal temperature. Quick curing ensures smooth bonding workability. Enables measurement in approximately 1 hour from bonding. 	<ul style="list-style-type: none"> High viscosity makes it suitable for bonding to porous materials such as lumber and concrete. Suitable for bonding general-purpose gages which are used for general stress measurement at normal temperature. 	<ul style="list-style-type: none"> Suitable for bonding a high-elongation gage (such as KFEM and KFEL) at normal temperature. Suitable for bonding to non-adhesive materials such as aluminum alloy (A7075) and magnesium alloy. High peeling resistance, high impact resistance and less aging deterioration of bonding strength 	<ul style="list-style-type: none"> Suitable for bonding gages for strain measurement at very low temperature. 		<ul style="list-style-type: none"> Suitable for bonding gages for strain measurement at mid temperature. 	<ul style="list-style-type: none"> Suitable for bonding gages for strain measurement at mid temperature and for bonding gages for transducers. 	<ul style="list-style-type: none"> Low viscosity makes it suitable for bonding gages (KFB) in bolts. 	<ul style="list-style-type: none"> Suitable for bonding gages for strain measurement at low, mid and high temperatures and for bonding gages for transducers. 	<ul style="list-style-type: none"> Suitable for bonding gages for strain measurement at high temperature.
Major Applicable Gages	KFGS, KFGT, KFRB, KFVB, KFWWS, KFRPB, KFRS, KFP, KSPB, KSN (Excl. E5), KSPH, KSPLB, KFLB, KFNB, KFSB, KFF, KCH, KV	KFGS, KFGT, KFRB, KC, KFRPB, KFP	KFEM, KFEL, KFGS, KFGT, KFRB, KFWB, KFWWS, KFRPB, KFRS, KFP, KSPB, KSN (Excl. E5), KSPH, KSPLB, KFF, KV	KFLB		KFGS, KFRB, KFVB, KFGT, KFF, KFSB	KFRPB, KFP, KFHB	KFB	KFGS, KFRB, KFHB, KFLB, KFNB	KFU, KFHB

Note: The stated operating temperature range is for the adhesive only, and may differ depending on combinations with gages. When using the adhesives and gages together, read the attached instruction manual carefully.



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