

**EN Product Information**

Elan-tech®

AS 70/AW 70                      100:50

**Cartridges Kit ADH 70.70**

**2-components self-extinguishing, thermal conductive, epoxy adhesive.**

**Listed system UL 94 V-0 and UL 94 HB**

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<b>Structural adhesive</b>	Resin	Hardener	Mixing ratio by weight
	<b>AS 70</b>	<b>AW 70</b>	<b>100:50</b>
<b>Cartridges kit</b>	<b>ADH 70.70</b>		Mixing ratio by volume
			<b>100:50</b>

**Application:** Thermal-conductive structural adhesive for metals and ceramic materials. Bonding/sealing of tools that need heat dissipation.

**Processing:** Manual application by brush, by spatula or with mixing/dispensing devices.

**Description:** Two components filled epoxy system with abrasive fillers. Thixotropic. Solvent free. Self-extinguishing according to UL 94 V-0 on 5,5 mm thickness and according to UL 94 HB on 1,6 mm thickness. Excellent adhesive properties on all types of metals. Very good chemical resistance to engine oil and gasoline, acids and bases. High thermal conductivity. High thermal resistance. The best characteristics are obtained after stabilization of the product at 60-70°C. The resin and the hardener have contrasting colours to make easy the control of the mixing. The system is RoHS compliant (European directive 2002/95/EC) and the new RoHS Directive 2011/65/EU (RoHS 2) entered into force on 21 July 2011 and requires Member States to transpose the provisions into their respective national laws by 2 January 2013.

**SYSTEM SPECIFICATIONS**

**Resin**

Viscosity at:	25°C	IO-10-50 (ISO3219)	mPas	200.000	400.000
Density at:	25°C	IO-10-51 (ASTM D 1475)	g/ml	2,20	2,26

**Hardener**

Viscosity at:	25°C	IO-10-50 (ISO3219)	mPas	300.000	600.000
Density at:	25°C	IO-10-51 (ASTM D 1475)	g/ml	1,98	2,14

**TYPICAL SYSTEM CHARACTERISTICS**

**Processing Data**

Colour resin				White
Colour hardener				Black
Mixing ratio by weight		for 100 g resin	g	100:50
Mixing ratio by volume		for 100 ml resin	ml	100:50

Pot life	25°C (75mm;500ml)	IO-10-53 (*)	min	35	50
Exothermic peak	25°C (75mm;500ml)	IO-10-53 (*)	°C	50	70
Initial mixture viscosity at:	25°C	IO-10-50 (ISO3219)	mPas	400.000	550.000
	60°C		mPas	160.000	220.000
Gelation time	15°C (1mm)	IO-10-73 (*)	min	120	140
	25°C (1mm)		min	70	80
	40°C (1mm)		min	40	50
	60°C (1mm)		min	20	25
	80°C (1mm)		min	7	15
Setting time	25°C (0,1 mm)	(*)	min	100 - 140	
	40°C (0,1 mm)			50 - 60	
	60°C (0,1 mm)			25 - 35	

Suggested curing cycles (\*\*) 3 h RT + 6 h 80°C

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### TYPICAL CURED SYSTEM PROPERTIES

Properties determined on specimens cured: 3 h RT + 6 h 80°C

				Grey	
Colour				2,20	2,24
Density 25°C		IO-10-54 (ASTM D 792)	g/ml	2,20	2,24
Hardness 25°C		IO-10-58 (ASTM D 2240)	Shore D/15	87	91
Glass transition (Tg)	2 days RT	IO-10-69 (ASTM D 3418)	°C	50	60
	3 h RT + 6 h 80°C		°C	80	90
Max recommended operating temperature		IEC 60085 (***)	°C	155	
Shear strength by tension:					
- Inox steel AISI 316 cured 2gg RT (tested RT)		IO-10-80 (ASTM D 1002)	MPa	12	18
- Inox steel AISI 316 cured 3hRT+6h80°C (tested RT)			MPa	18	23
- Inox steel AISI 316 cured 3hRT+6h80°C (tested 80°C)			MPa	13	17
- Aluminium cured 2gg RT (tested RT)			MPa	10	14
- Aluminium cured 3hRT + 6h80°C (tested RT)			MPa	12	16
- Aluminium cured 3hRT + 6h80°C (tested 80°C)			MPa	10	14

IO-00-00 = ELANTAS Europe's test method. The corresponding international method is indicated whenever possible.

nd = not determined na = not applicable RT = TA = laboratory room temperature (23±2°C)

Conversion units: 1 mPas = 1 cPs 1MN/m2 = 10 kg/cm2 = 1 MPa

(\*) for larger quantities pot life is shorter and exothermic peak increases

(\*\*) the brackets mean optionality

(\*\*\*) The maximum operating temperature is given on the basis of laboratory information available being it function of the curing conditions used and of the type of coupled materials. For further possible information see post-curing paragraph.

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**Instructions:** Prepare the surfaces to be bonded by removing moisture, dust, dirt and loose parts. For metals is normally enough a mechanical abrasion or sand blasting followed by degreasing with acetone. When gluing composite parts it is not required any specific surface treating other cleaning with acetone. In case of plastic substrate it is important to check its solvent resistance before cleaning. Generally is suggested a light sanding followed by cleaning with alcohol. Plasma or corona treatment will improve adhesion and consequently bonding strength: it's recommended in case of specific needs. Add the appropriate amount of hardener into the resin and mix carefully using a slow speed stirrer or by hand with a spatula. Apply the adhesive in a homogeneous thickness maintaining a uniform contact pressure on the joint. Before setting, the adhesive is moisture and carbon dioxide: once applied cover the joined parts as soon as possible or, better, hot cure if possible. Further general information are available in the brochure "Elantech Adhesive & Sealants".

**Curing/Post-curing:** Post curing is always advisable for RT curing systems in order to stabilize the component and to reach the best properties. It is necessary when the component works at a high temperature.

**Storage:** Epoxy resins and their hardeners can be stored for two years in the original sealed containers stored in a cool, dry place. The hardeners are moisture sensitive therefore it is good practice to close the vessel immediately after each use.

**Handling precautions:** Refer to the safety data sheet and comply with regulations relating to industrial health and waste disposal.

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The information given in this publication is based on the present state of our technical knowledge but buyers and users should make their own assessments of our products under their own application conditions.

**Cartridges Kit ADH 70.70****ELECTRICAL AND THERMAL CHARACTERISTICS OF THE FINAL SYSTEM****Determined properties on standard tests cured: 3 h RT + 6 h 80°C**

<b>Test</b>	<b>Method</b>	<b>U.M.</b>	<b>AS70/AW70</b>
Dielectric constant	IO-10-59 (ASTM D 150)		3,7 – 4,2
Loss factor	IO-10-59 (ASTM D 150)	$\cdot 10^{-3}$	30 - 40
Volume resistivity	IO-10-60 (ASTM D 257)	Ohm $\cdot$ cm	$1 - 4 \cdot 10^{15}$
Dielectric strength	IO-10-61 (ASTM D 149)	KV/mm	20 - 22
Thermal conductivity	IO-10-87 (ASTM C518)	W/(m $^{\circ}$ K)	1,40 - 1,45