

EN

Product Information

Elan-tech®

AS 90 /AW 91

100:45

Cartridges kit ADH 90.91

Thixotropic and resilient epoxy adhesive

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Structural adhesive	Resin AS 90	Hardener AW 91	Mixing ratio by weight 100:45
Cartridges kit	ADH 90.91		Mixing ratio by volume 100:50

Application: Resilient structural bonding of large surfaces. Structural adhesive for nautical applications. Assembly of heterogenous materials, glass, metals, wood, composite materials.

Processing: Spatula application or with mixing/dispensing devices. Room temperature or hot curing. The post-curing by subministration of heat is necessary to achieve the thermal resistance indicated in the data sheet.

Description: Two components modified, thixotropic epoxy system. Solvent free. High peeling resistance. High toughness. Very good thermal shock resistance. Easy mixing ratio 2:1 by volume. The system cured also at lower temperature than 20°C. Sag resistance up to 10 mm in thickness. 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-10-95 (ISO3219)	mPas	350.000	450.000
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Hardener

Viscosity at:	25°C	IO-10-95 (ISO3219)	mPas	85.000	130.000
Pot life	25°C	IO-10-53 (*)	min	20	30

TYPICAL SYSTEM CHARACTERISTICS

Processing Data

Colour resin				Milky
Colour hardener				Orange
Mixing ratio by weight		for 100 g resin	g	100:45
Mixing ratio by volume		for 100 ml resin	ml	100:50
Density	25°C Resin	IO-10-51 (ASTM D 1475)	g/ml	1,16 1,20
Density	25°C Hardener	IO-10-51 (ASTM D 1475)	g/ml	0,97 1,01
Pot life	25°C (40mm;100ml)	IO-10-53 (*)	min	35 45
Exothermic peak	25°C (40mm;100ml)	IO-10-53 (*)	°C	125 140
Initial mixture viscosity at:	25°C	IO-10-50 (ISO3219)	mPas	145.000 225.000
Gelation time	25°C (1mm)	IO-10-88 (ASTM D5895-03)	h	5 6
Setting time	25°C 0,1 mm	(*)	h	6 7
Suggested curing cycles		(**)		5 h 70°C

AS 90 /AW 91

TYPICAL CURED SYSTEM PROPERTIES

Properties determined on specimens cured: 5 h 70°C (Unless otherwise specified)

Colour			Orange	
Density 25°C		IO-10-54 (ASTM D 792)	g/ml	1,09 1,13
Hardness 25°C		IO-10-58 (ASTM D 2240)	Shore D/15	73 77
Glass transition (Tg)	48 hrs 15°C	IO-10-69 (ASTM D 3418)	°C	40 47
	24 hrs RT		°C	40 47
	7 days RT		°C	50 57
	24 hrs RT + 5 hrs 70°C		°C	72 77
Max recommended operating temperature	(***)		°C	80 - 90
Shear strength by tension:				
- Inox steel AISI 316 cured 8hRT (tested RT)		IO-10-80 (ASTM D 1002)	MPa	1,5 2,0
- Inox steel AISI 316 cured 48h15°C (tested RT)			MPa	21,5 26,0
- Inox steel AISI 316 cured 24hRT (tested RT)			MPa	22,0 27,0
- Inox steel AISI 316 cured 7days RT (tested RT)			MPa	24,5 29,5
- Inox steel AISI 316 cured 5h70°C (tested RT)			MPa	25,5 31,0
- Aluminium cured 48h15°C (tested RT)			MPa	19,5 23,5
- Aluminium cured 5h70°C (tested RT)			MPa	24,5 29,5
- Aluminium cured 5h70°C (tested 60°C)			MPa	21,5 26,0
- Aluminium cured 5h70°C (tested 80°C)			MPa	13,5 16,5
Flexural strength		IO-10-66 (ASTM D 790)	MN/m ²	70 80
Strain at break		IO-10-66 (ASTM D 790)	%	4,5 7,5
Flexural elastic modulus		IO-10-66 (ASTM D 790)	MN/m ²	2.000 2.500
Tensile strength		IO-10-63 (ASTM D 638)	MN/m ²	45 55
Elongation at break		IO-10-63 (ASTM D 638)	%	4,5 6,5
Peeling strength:				
- Aluminium 5h 70°C		ASTM D 1876	N/cm	35 43

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.

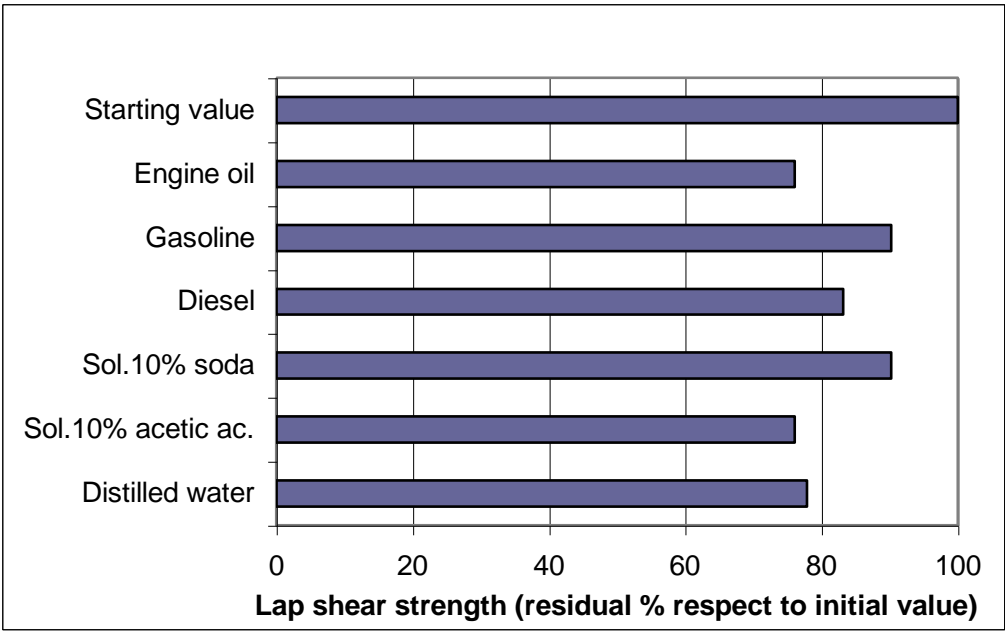
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Instructions:	Prepare the surfaces to be bonded by removing moisture, dust, dirt and loose parts. For metals is normally enough a mechanical abrasion or sand blasting followed by degreasing with acetone. When gluing composite parts it is not required 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 sensitive: 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 resin and its amine based hardener can be stored respectively for three years and 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.

Lap shear strength
after immersion in different liquid media
(ASTM D1002)



Support: stainless steel
Curing cycle: 5h 70°C
The lap shear strength was determined after immersion for 30 days at 23±2 °C.