

Installation kit

For AGT – Technical information

Norsk representant
Flow Design Bureau AS

www.fdb.no | info@fdb.no

AGT_Installation_kit_Technical_information

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2 PREFACE

2.1 About this manual

This manual provided detailed information about Installation kit installation and general use of the systems using MC monitoring's matching accessories and software.

2.2 Who should use this manual?

The manual is intended for use by qualified installation personnel (e.g. mechanical and electrical fitters).

NOTE:
Any person involved in the installation of MC-monitoring equipment is assumed to have the necessary technical training in electronics and/or mechanical engineering (professional certificate/diploma, or equivalent) to enable the person to install the equipment in a safe and correct manner.

2.3 Respect the instructions!

The procedures described in this manual should be strictly applied to ensure the Installation kit and associated hardware are mounted correctly, and thus function as intended. The user should respect general safety procedures as well as general and specific machine constructor guidelines and instructions.

2.4 Limitation of this document

Not all mounting and connecting possibilities are described in this manual. Nevertheless, several specific configurations are described in detail. These can often be adapted for your own specific application. When in doubt, contact MC-monitoring so that an optimum measurement solution can be found.

3 SAFETY

The following symbols are used in this manual where appropriate:



The WARNING safety symbol
THIS INTRODUCES DIRECTIVES, PROCEDURES OR PRECAUTIONARY MEASURES WHICH MUST BE EXECUTED OR FOLLOWED. FAILURE TO OBEY A WARNING CAN RESULT IN INJURY TO THE OPERATOR OR THIRD PARTIES.



The CAUTION safety symbol
This draws the operator's attention to information, directives or procedures which must be executed or followed. Failure to obey a caution can result in damage to equipment.



The ELECTROSTATIC SENSITIVE DEVICE symbol

This indicates that the device or system being handled can be damaged by electrostatic discharges.
Refer to Handling Precautions for Electrostatic Sensitive Devices.

3.1 Handling Precautions for Electrostatic Sensitive Devices

Certain devices used in electronic equipment can be damaged by electrostatic discharges resulting from built-up static electricity. Because of this, special precautions must be taken to minimize or eliminate the possibility of these electrostatic discharges occurring.



Read the following recommendations carefully before handling electronic circuits, printed circuit boards or modules containing electronic components.

- Before handling electronic circuits, discharge the static electricity from your body by touching and momentarily holding a grounded metal object (e.g. a pipe or cabinet).
- Avoid the build-up of static electricity on your body by not wearing synthetic clothing material, as these tend to generate and store static electric charges. Cotton or cotton blend materials are preferred because they do not store static electric charges.
- Do not handle electronic circuits unless it is absolutely necessary. Only hold modules by their front panel handles.
- Do not touch printed circuit boards, their connectors or their components with conductive devices or with your hands.
- Put the electronic circuit, printed circuit board or module containing electronic components into an antistatic protective bag immediately after removing it from the system rack.

4 Technical description

4.1 Loctite 330 and activator 7386 (according to EU or US standard)

Technical Data Sheet

LOCTITE® 330™

December 2009

PRODUCT DESCRIPTION

LOCTITE® 330™ provides the following product characteristics:

Technology	Acrylic
Chemical Type	Urethane methacrylate ester
Appearance (uncured)	Slightly cloudy, colorless to pale yellow liquid[LMS]
Components	One component - requires no mixing
Viscosity	High
Cure	With activator
Application	Bonding

LOCTITE® 330™ is a general purpose adhesive that is used to bond metal, wood, ferrite, ceramic and plastic materials. Applications include tool handles, appliances, sporting goods and decorative trim.

NSF International

Registered to NSF Category P1 for use as a sealant where there is no possibilty of food contact in and around food processing areas. **Note:** This is a regional approval. Please contact your local Technical Service Center for more information and clarification.

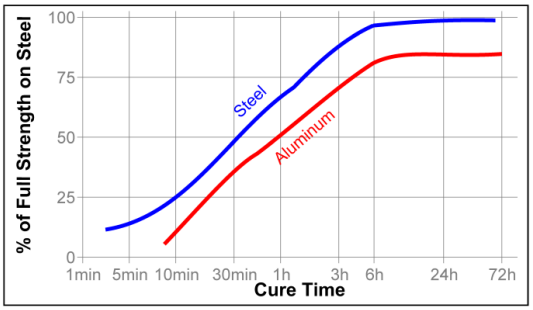
TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C	1.05
Flash Point - See MSDS	
Viscosity, Brookfield - RVT, 25 °C, mPa·s (cP):	
Spindle 7, speed 20 rpm	45,000 to 90,000[LMS]
Viscosity, EN 12092 - SV, 25 °C, after 180 s, mPa·s (cP):	
Shear rate 20 s^{-1}	30,000 to 70,000

TYPICAL CURING PERFORMANCE

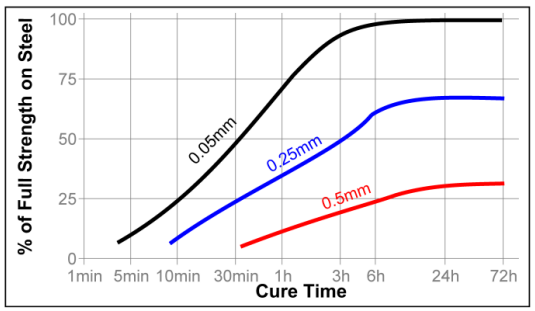
Cure Speed vs. Substrate

The rate of cure will depend on the substrate used. The graph below shows the shear strength developed with time on grit blasted steel lap shears and tested according to ISO 4587. (Activator 7387™ applied to one surface).



Cure Speed vs. Bond Gap

The rate of cure will depend on the bondline gap. The following graph shows the shear strength developed with time on grit blasted steel lap shears at different controlled gaps and tested according to ISO 4587. (Activator 7387™ applied to one surface)



TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties:

Coefficient of Thermal Expansion, ISO 11359-2, K^{-1}	8×10^{-6}
Coefficient of Thermal Conductivity, ISO 8302, W/(m·K)	0.1
Specific Heat, kJ/(kg·K)	0.3

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

After 24 hours @ 22 °C, Activator 7387™ on 1 side

Lap Shear Strength, ISO 4587:		
Mild steel (grit blasted)	N/mm² (psi)	15 to 30 (2,175 to 4,350)
Tensile Strength, ISO 6922:		
Mild steel (grit blasted)	N/mm² (psi)	12 to 22 (1,740 to 3,190)

After 24 hours @ 22 °C, Activator 7387™ or 7386™ on 2 sides

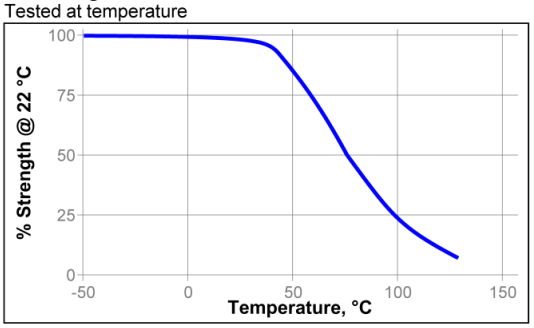
Tensile Strength, ISO 6922:		
Mild steel (grit blasted)	N/mm² (psi)	≥16.5[LMS] (≥2,390)

TYPICAL ENVIRONMENTAL RESISTANCE

Cured for 1 week @ 22 °C, Activator 7387™ on 1 side
Lap Shear Strength, ISO 4587:
Mild steel (grit blasted):
0.25 mm gap

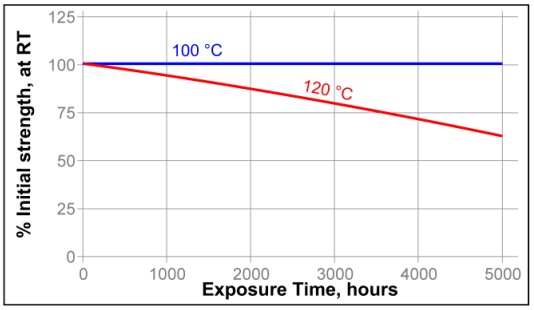
Hot Strength

Tested at temperature



Heat Aging

Aged at temperature indicated and tested @ 22 °C



Chemical/Solvent Resistance

Aged under conditions indicated and tested @ 22 °C.

		% of initial strength	
Environment	**°C**	**350 h**	**720 h**
Acetone	22	10	10
Motor oil (MIL-L-46152)	87	90	66
Unleaded gasoline	22	20	20
Phosphate ester	87	93	75
Water/glycol 50/50	87	60	60

GENERAL INFORMATION

This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be selected as a sealant for chlorine or other strong oxidizing materials

For safe handling information on this product, consult the Material Safety Data Sheet (MSDS).

Where aqueous washing systems are used to clean the surfaces before bonding, it is important to check for compatibility of the washing solution with the adhesive. In some cases these aqueous washes can affect the cure and performance of the adhesive.

Directions for use:

1. For best performance bond surfaces should be clean and free from grease.
2. To ensure a fast and reliable cure, Activator 7387™ or 7386™ should be applied to one of the bond surfaces and the adhesive to the other surface. Parts should be assembled within 15 minutes.
3. The recommended bondline gap is 0.1 mm. Where bond gaps are large (up to a maximum of 0.5 mm), or faster cure speed is required, Activator 7387™ or 7386™ should be applied to both surfaces. Parts should be assembled immediately (within 1 minute).
4. Excess adhesive can be wiped away with organic solvent.
5. Bond should be held clamped until adhesive has fixtured.
6. Product should be allowed to develop full strength before subjecting to any service loads (typically 24 to 72 hours after assembly, depending on bond gap, materials and ambient conditions).

Loctite Material Specification[LMS]

LMS dated March 11, 1996. Test reports for each batch are available for the indicated properties. LMS test reports include selected QC test parameters considered appropriate to specifications for customer use. Additionally, comprehensive controls are in place to assure product quality and consistency. Special customer specification requirements may be coordinated through Henkel Quality.

Storage

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.
Optimal Storage: 8 °C to 21 °C. Storage below 8 °C or greater than 28 °C can adversely affect product properties
Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel Corporation cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Technical Service Center or Customer Service Representative.

Conversions

(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
µm / 25.4 = mil
N x 0.225 = lb
N/mm x 5.71 = lb/in
N/mm² x 145 = psi
MPa x 145 = psi
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = cP

Henkel Americas
+860.571.5100

Henkel Europe
+49.89.320800.1800

Henkel Asia Pacific
+86.21.2891.8863

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Note

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Reference 1.2

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+860.571.5100

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+49.89.320800.1800

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+86.21.2891.8863

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4.2 Dow Corning Adhesive /Sealants RTV Silicon Rubber 3145

Product Information
Electronics

DOW CORNING

Dow Corning® 3145 RTV MIL-A-46146 Adhesive Sealant - Clear

FEATURES

- Non-flowing
- Room temperature cure
- High tensile/tear strength and elongation
- MIL-A-46146 Group II

BENEFITS

- No mixing required
- Room temperature cure, no ovens required
- Faster in-line processing with optional heat acceleration
- Can be considered for uses with Mil Spec requirements

COMPOSITION

- One-part
- Polydimethylsiloxane adhesive

Clear, non-flowing adhesive with high tensile strength and elongation, MIL-A-46146 Group II tested

APPLICATIONS

Suitable for:

- Sealing openings in modules and housings
- Assembly of components on printed wiring board(PWB)
- Sealing in and around wired and electrical leads

TYPICAL PROPERTIES

Specification Writers: These values are not intended for use in preparing specifications. Please contact your local Dow Corning sales office or your Global Dow Corning Connection before writing specifications on this product.

Property	Unit	Result
One or Two-Part	-	One
Color	-	Clear
Extrusion Rate	g/min	78.6
Flow Rate - Slump	in	0.092
Specific Gravity (Cured)	-	1.10
Tack-Free Time at 25 ºC	minutes	63.8
NVC (Non Volatile Content)	%	96.9
Tensile Strength	psi	864
Elongation	%	626
Tensile Modulus	psi	138
Tear Strength (Die B)	ppi	223
Durometer Shore A	-	45.6
Unprimed Adhesion - Lap Shear to Aluminum	psi MPa N/cm2	1900 13.1 131
Dielectric Strength	volts/mil	485
Volume Resistivity	ohm*cm	4.4 E+14
Dielectric Constant at 100 Hz	-	2.83
Dielectric Constant at 100 kHz	-	2.83
Dissipation Factor at 100 Hz	-	0.0005
Dissipation Factor at 100 kHz	-	<0.0002
Mil Specification	NA	MIL-A-46146 Group II

DESCRIPTION

Dow Corning® brand one-part moisture cure adhesives are generally cured at room temperature and in an environment of 30 to 80 percent relative humidity eliminating the need for curing ovens and the associated costs of energy and capital. Greater than 90 percent of full physical properties should be attained within 24 to 72 hours and varies according to product. Faster manufacturing throughput can be achieved since the adhesive and component can be handled in much shorter times of about 10 to 120 minutes, depending on the adhesive selected and the amount applied. These adhesives are not typically used in highly confined spaces or where a deep section cure is required as they generally cure from the exposed surface inward at a rate of 0.25 inch per seven days. Cure progresses from the outer exposed surface and is dependent on the moisture in the air. Working time is generally a few minutes to an hour for these products until a surface skin begins to form. Mild heat below 60 °C (140 °F) may be used to increase through-put by accelerating the cure. *Dow Corning* brand adhesives retain their original physical and electrical properties over a broad range of operating conditions which enhance the reliability of and service life of electronic devices.

APPLICATION METHODS

- Automated or manual needle dispense

PACKAGING INFORMATION

Multiple packaging sizes are available for this product. Please contact your local distributor or Dow Corning representative for information on packaging size and availability.

USABLE LIFE AND STORAGE

For best results, *Dow Corning* adhesives should be stored at or below the storage temperature listed on the product label. Special precautions must be taken to prevent moisture from contacting these materials. Containers should be kept tightly closed with head or air space minimized. Partially filled containers should be purged with dry air or other gases, such as nitrogen. The product should be stored in its original packaging with the cover tightly attached to avoid any contamination. Store in accordance with any special instructions listed on the product label. The product should be used by its Use Before date as indicated on the product label.

PREPARING SURFACES

All surfaces should be thoroughly cleaned and/or degreased with *Dow Corning*® brand OS Fluids, naphtha, mineral spirits, methyl ethyl ketone (MEK) or other suitable solvent. Solvents such as acetone or isopropyl alcohol (IPA) do not tend to remove oils well, and any oils remaining on the surface may interfere with adhesion. Light surface abrasion is recommended whenever possible, because it promotes good cleaning and increases the surface area for bonding. A final surface wipe with acetone or IPA is also useful. Some cleaning techniques may provide better results than others; users should determine the best techniques for their particular applications.

SUBSTRATE TESTING

Due to the wide variety of substrate types and differences in substrate surface conditions, general statements on adhesion and bond strength are impossible. To ensure maximum bond strength on a particular substrate, cohesive failure of the product in a lap shear or similar test is needed to ensure compatibility of the adhesive with the substrate being considered. Also, this test can be used to determine minimum cure time or to detect the presence of surface contaminants such as mold release agents, oils, greases and oxide films.

ADHESION

Dow Corning adhesives are specially formulated to provide unprimed adhesion to many reactive metals, ceramics and glass, as well as to selected laminates, resins and plastics. However, good adhesion cannot be expected on non-reactive metal substrates or non-reactive plastic surfaces such as *Teflon*®, polyethylene or polypropylene. Special surface treatments such as chemical etching or plasma treatment can sometimes provide a reactive surface and promote adhesion to these types of substrates. *Dow Corning*® brand Primers can be used to increase the chemical activity on difficult substrates. Poor adhesion may be experienced on plastic or rubber substrates that are highly plasticized, because the mobile plasticizers act as release agents. Small-scale laboratory evaluation of all substrates is recommended before production trials are made.

USEFUL TEMPERATURE RANGES

For most uses, silicone adhesives should be operational over a temperature range of -45 to 200 °C (-49 to 392 °F) for long periods of time. However, at both the low- and high temperature ends of the spectrum, behavior of the materials and performance in particular applications can become more complex and require additional considerations. For low-temperature performance, thermal cycling to conditions such as -55 °C (-67 °F) may be possible, but performance should be verified for your parts or assemblies. Factors that may influence performance are configuration and stress sensitivity of components, cooling rates and hold times, and prior temperature history. At the high-temperature end, the durability of the cured silicone elastomer is time and temperature dependent. As expected, the higher the temperature, the shorter the time the material will remain useable.

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2012, December 07
Form No. 11-3215-01

SOLVENT EXPOSURE

The silicone adhesive discussed in this literature is intended only to survive splash or intermittent exposures. It is not suited for continuous solvent or fuel exposure. Testing should be done to confirm performance of the adhesives under these conditions.

HANDLING PRECAUTIONS

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND MATERIAL SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE MATERIAL SAFETY DATA SHEET IS AVAILABLE ON THE DOW CORNING WEB SITE AT DOW CORNING.COM, OR FROM YOUR DOW CORNING SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CORNING CUSTOMER SERVICE.

LIMITATIONS

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

HEALTH AND ENVIRONMENTAL INFORMATION

To support Customers in their product safety needs, Dow Corning has an extensive Product Stewardship organization and a team of Product Safety and Regulatory Compliance (PS&RC) specialists available in each area.

For further information, please see our web site, dowcorning.com or consult your local Dow Corning representative.

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5 Revision history

Date	Description	Author	Approved
30.11.2015	Original issue	DCl	MFr
21.02.2018	New revision system	DCl	MFr
15.06.2018	Add important notice, preface and safety instructions	DCl	SKu

6 MC-monitoring logos caption

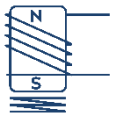
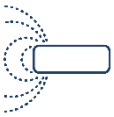
Applications:

 Hydrogenerators	 Gearless millsdrives	 Turbogenerators
 Windturbines	 Pumps, fans, cooling tower, …	 Gas and steam turbines

Monitoring solutions:

 Airgap monitoring	 Runner clearance monitoring	 Endwinding monitoring	 Roller bearing monitoring
 Shaft & bearing vibration	 Axial thrust position monitoring	 Magnetic flux monitoring	 Partial discharge monitoring

Sensors:

 Fiberoptic sensors	 Airgap transducers	 Magnetic field transducers	 Partial discharge couplers
 Proximity probes	 Piezoeletric sensors	 Linearized velocity sensors	 Eddy current probes

Acquisition systems:

Rhino PMS-300	Falcon MMS-400	Eagle Smart series	Orca CMS-500
PMS-300	MMS-400	PPT-380	CMS-500

Return Merchandise Authorization (RMA) request form

Customer information

Company name: _____

Contact name: _____

Address: _____

_____

_____

_____

Email: _____

Phone: _____

Date: _____

MC-monitoring contact person: _____

Item detail

Item P/N: _____

Item description: _____

Quantity to return: _____

Invoice/Ship. document nr.: _____

Issue description

Please, fill in the form and send it by mail to: info@mc-monitoring.com. We will send you back a sales order return document including your RMA number.

Important: *No goods will be accepted without an RMA nr. delivered by MC-monitoring SA, even under warranty.*

For further information, please contact MC-monitoring by email (info@mc-monitoring.com) or phone (+41 58 411 54 00).