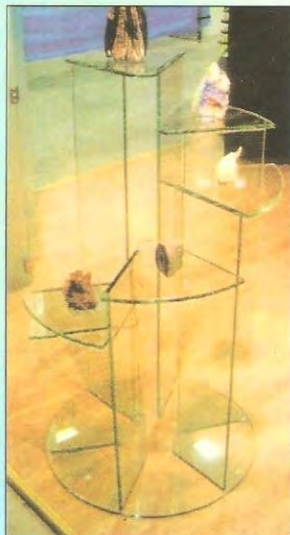
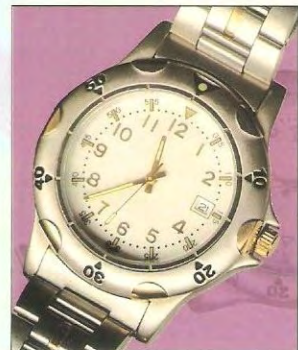
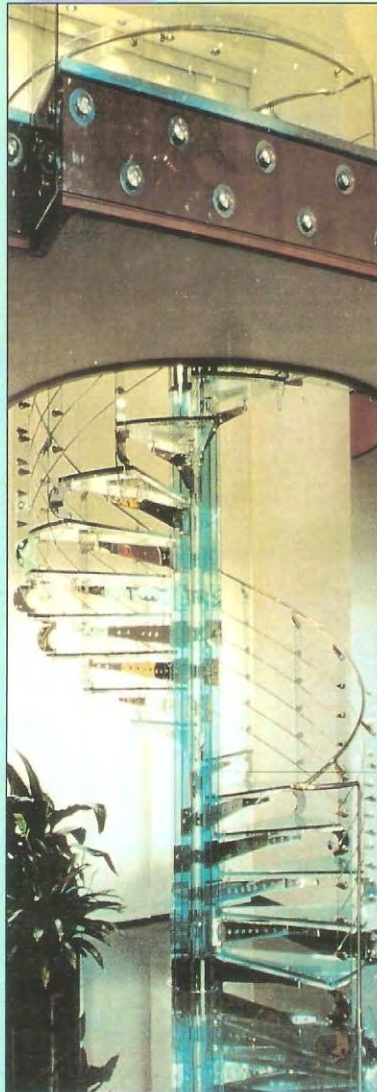




# UV AND VISIBLE LIGHT CURING ADHESIVES



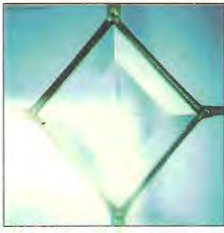
**REACT2LITE**®



**BRITELITE**



# THE PRODUCT RANGE UV AND VISIBLE LIGHT CURE



## REACT2LITE®

React2Lite® - General purpose UV's semi-structural bonders.

React2Lite® comprises a full range of UV bonding solutions for the assembly of glass, metals and plastics.

Popular grades include our semi rigid ST3222, ST3500 and ST3349 FLEX.



## CONSTRUCT® UV STRUCTURAL

Construct® - High strength UV's ridged structural bonders.

Construct® comes in a range of viscosities from 1000cps - Very fluid to near gel products CST3100, and CST3580 are most popular.



## BRITE LITE

Brite Lite® - Visible light bonders. Structural, semi structural and flexible.

Brite Lite® are now very popular for glass bevel bonding (LV1 Flex and MV2) also suitable for general purpose repairs and industrial applications not needing UV light.



Demand Cure - Primer assist. 2 part bonders - UV and primer.

Demand Cure® are popular with parts where one substrate is not capable of light transmission, such as metals on dark coloured glass. ST1326 is very popular.



Instruct® - Dual and multi cure UV/activator and or heat assisted.

Instruct® are a range of special grades combining controlled cure, with a range of tailor made products. These products find applications world wide in electronics and high technology industries.



Impruvise® - Decorative finishes. Coloured, reflective, fluorescent,

Impruvise® - As the name suggests you can include colours, fluorescent effects and additives to produce decorative finishes.

*and introducing*



UV Weld - Speciality bonders for plastics and multi material combination.

UV Weld are plastics capable and produce high quality finishes for suitability in use with medical devices.

To compliment the range we offer speciality surface conditioners, cleaners and equipment. Such as Envirolast®, Reflection® and others.



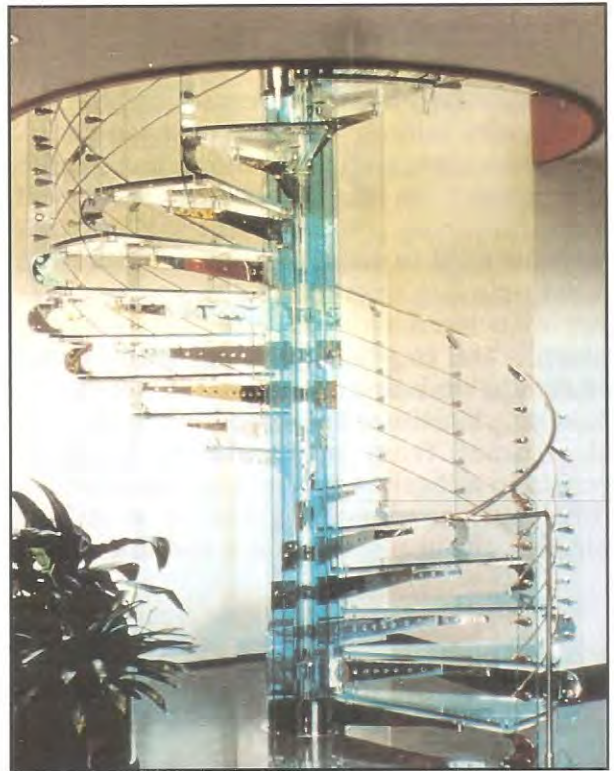
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## **INTRODUCTION**

Aesthetically correct designs are possible allowing the full visual appeal of glass to be brought to the mass manufacturing field of this new emerging technology.

Visible light one and two component UV reactive adhesives can produce superior structural integrity in the assembly, allowing design freedom and controlled speed of cure.

Applications vary as far afield as decorative visuals to laminated sheets, or bonded as staircases and tables to glass stem bonding, arts and crafts, jewellery, trophies design, flat glass, bevels, figurines or simply as far as your imagination will take you.



Other information is available from our sales desk. These cover application equipment, cross referencing products, technical data and material data sheets.

Our Technical department also custom formulate special adhesives which include dry to touch UV's, coloured UV's and other activation systems to suit very specific needs.

## **CONTENTS**

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- P2 THE UV REVOLUTION**
- P3 THE UV CURING PROCESS**
- P4 GLASS BEVEL BONDING**
- P5 CONSTRUCT® UV**
- P6 BRITE LITE®**
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- P12 X REFERENCE CHART**



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## NEW TECHNOLOGY

UV technology has been revolutionising the electronics industry for the past ten years. This new emerging technology has gained acceptance in many diverse areas of manufacturing. For example UV systems are now used to cure inks and varnishes on label printing overcoating the print. UVs are also used to coat and finish wood, plastics etc. to give toughness with clarity of finish, resisting abrasion, solvents etc. New applications are found every day in electronics, from encapsulation to photo resists to adhesives for optical components, fibre optics, glass to glass, to metal or plastics, the applications are endless.

## HOW DO UV FORMULATIONS WORK?

UV energy of sufficient intensity and of specific wavelength, for example (365nm), emit photons that can push certain molecules into a reactive state. The molecules, known as photo-initiators set off a reaction in the liquid or paste linking oligomers/monomers together in a process known as Polymerisation, changing it into a solid state.

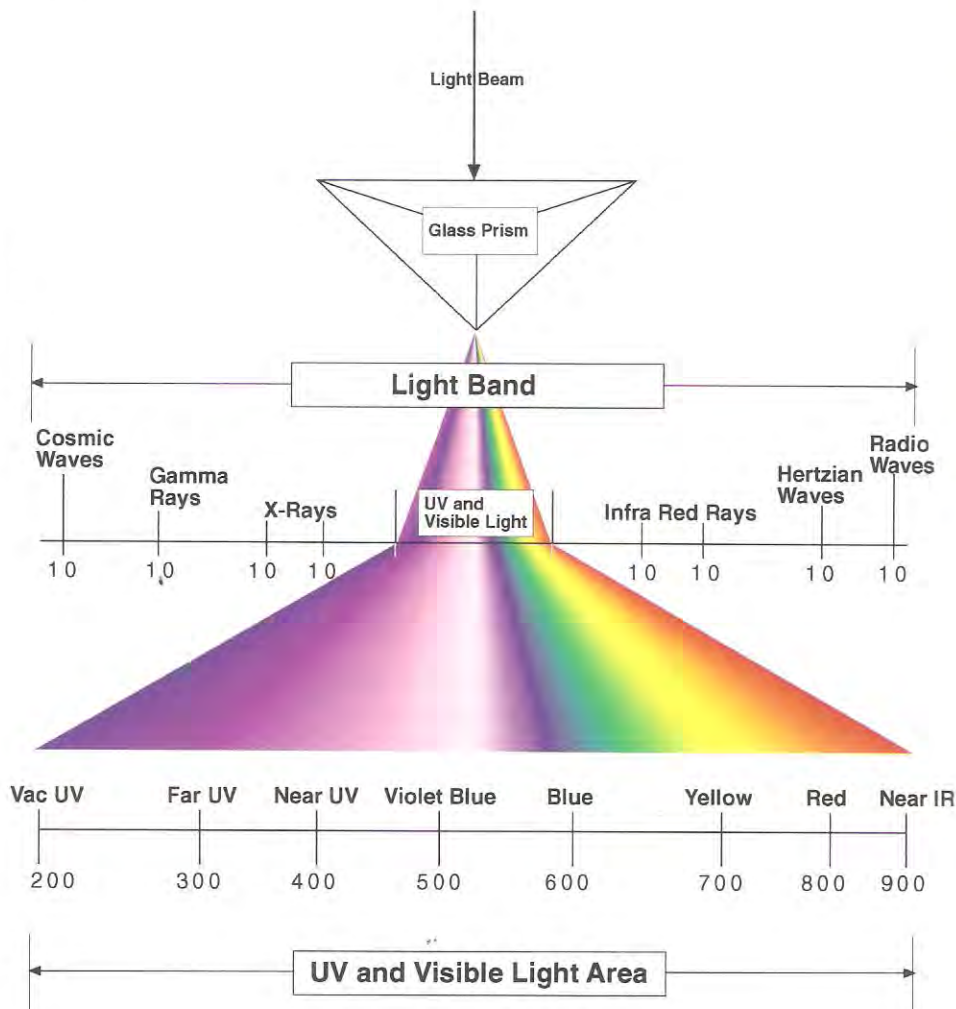
Depending on applications, one can formulate to specific needs, these products being variable in cure time, depth of cure and by formulation choice. They can be thin or paste-like exhibiting rubbery to rigid structures when cured.

## BUT WHAT IS UV?

UV (Ultra Violet) is a form of electromagnetic radiation with a shorter wavelength than that of X-rays. UV occurs naturally in sunlight, it is the part that causes tanning or sunburn and creates vitamin D3 in the skin. However, this UV emission from the sun is a much lower intensity than the cure systems that activate UV products.

The diagram of the light spectrum should assist in putting things in perspective.

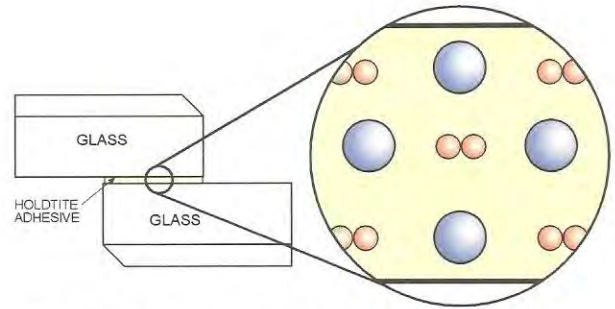
Most UV Adhesive Cure Systems are designed to polymerise in the 365nm (Nanometres) band and intensity of the cycle can mean a cure in fraction of a second to tens of seconds instead of hours.



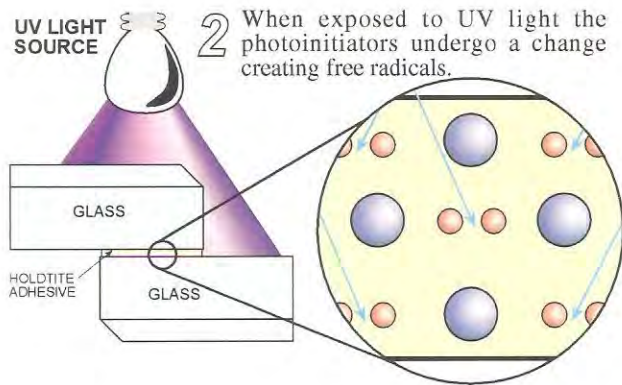
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### POLYMERISATION

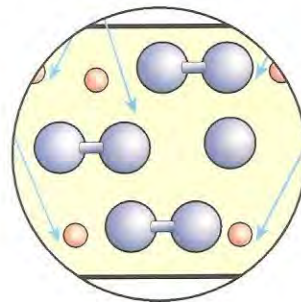
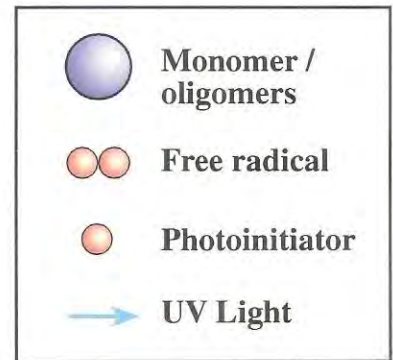
The cure time of these adhesives is dependant upon the dose (intensity) and the light wavelength of the UV light. Photoinitiators are activated by the UV radiation. The polymerisation initiated requires precise matching of product and UV light source. The free radicals created start the polymerisation (see illustration). Holdtite UV light systems are designed to match requirements of Holdtite adhesives.



1 Before exposure to UV light the adhesive stays in a liquid state because the monomers and photoinitiators will not react with each other.

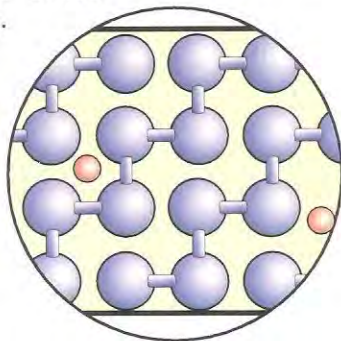


2 When exposed to UV light the photoinitiators undergo a change creating free radicals.



3 Free radicals and oligomers / monomers react to create polymer chains.

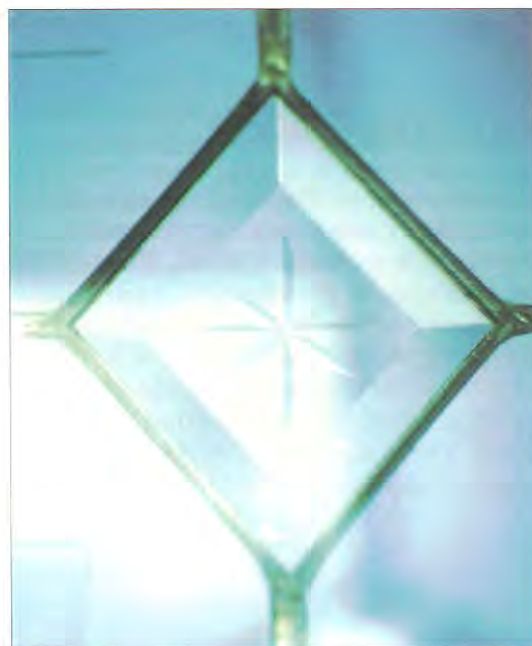
4 In the cured state these chains become cross linked networks.



### THE BASIC GRADES

Various approaches have been made to producing these structures and methods employed differ from one manufacturer to the next. Holdtite provide 4 basic grades with specific bonding features and styles of workability (MV), (LV) and Flex and for the new designs we also offer **BRITELITE** bevel bonders grades LV-3, MV2 and HV3 apply. See pages for visible light cure adhesives.

- 1 ST3500** Our original general purpose glass bonder (MV) the viscosity was modified to give a thick but flowable material with very fast response to UV usually within 15-20 seconds dependent on the light intensity of lamps.



- 2 ST3222** A lower Viscosity material (LV) with exceptional bonding power onto glass. This product is low odour grade and has exceptional speed of cure.
- 3 ST3229** As above but with good gap filling capability and excellent viscosity control maintaining cure speed and semi structural strength
- 4 ST3349 Flex** A designer adhesive with optimised response to UV light, allowing the other surface areas to be worked before cure has finalised, with flexibility, sometimes known as easy to remove or peel away residue outside of the bond area



## **CONSTRUCT®** UV STRUCTURAL

**CONSTRUCT® UV'S** are for heavy duty assemblies where rigid structures are being bonded such as towers, boxes, shelves desks etc. **CONSTRUCT® UV'S** are suitable for bonding a wide variety of materials including metal to glass, glass to glass and certain plastics, wood etc.

As different designs require low or high viscosity resins a range of grades is available to meet most production needs.

**LOW VISCOSITY** – UV3110 (100cps). This is a very strong resin based on Urethane (Meth) Acrylates blends exhibiting fast cures within 15 seconds with low intensity light ( $7\text{mw/cm}^2$ ) or shorter cure time with light intensity.

**MEDIUM VISCOSITY** – UV 3588 (6000cps) similar features to the low viscosity grade but with gap filling capability and control of flow for easy dispensing.

**VERY HIGH VISCOSITY** – UV 3886 (20000cps). A clear but viscous material for big parts, good gap fill maintaining high structural strength bonds and 15 seconds fixture.

## **STRUCTURAL BONDERS URETHANE ACRYLATE SYSTEMS**



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**BRITE LITE** combine the best of both UV and new visible light adhesive cures systems. So you can utilise your old system or move to visible light with the confidence of obtaining the usual results. From adhesive grades that have a 10 years proven track record.

**BRITE LITE** works on two levels. The usual 365 UVA waveband and the visible light 425 bands. Cure speeds are fast and the resin systems employed are unchanged from our normal LV, MV and Flex type systems.

The **BRITE LITE** range consists of

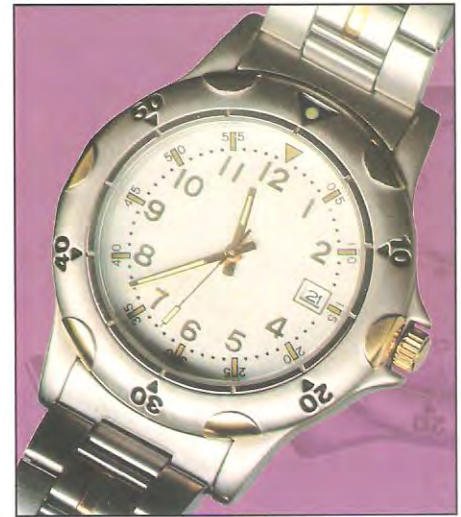
3 LV grades, LV-150cps  
(Flex types) LV2-700cps  
LV3-1200cps

6 MV grades and HV  
Semi Structural

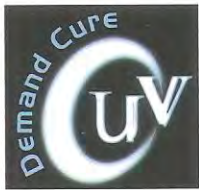
MV2 - 3000cps	HV3 3000cps
MV4 - 4000cps	HV6 6000cps
MV6 - 6000cps	HV12 12000cps

5 UV Structural with high bonding strength

UV 3-125	UV3-3000
UV3-1000	UV3-6000
UV3-2000	UV3-10000







**CURE ON DEMAND  
REACTIVE UV/PRIMER  
ASSIST**  
**For non transmitting surfaces**

DEMAND© CURE Structurals offer a dual cure mechanism to give both UV and Primers assistance on bonding parts that may not light transmit to activate the UV system, such as coloured or UV stabilised parts.

**Demand Cure** Systems exhibit very high bond strength, excellent humidity resistance and dual cure. They are fast usually fixturing in about 1 minute for minimum gap size and can be primed by either a fast drying solvent or by a resin system. The product can also be UV cured. The main grades are as follows.

ST1326 UV/AE – using A649 Primer or solventless A64NF system.

ST3222 UV/AE a low viscosity bonder with either A649 or A64NF.

ST3580 UV/AE a high humidity resistant viscous material, slower bond times are found as a result of the higher viscosity of the material.

Envirolast© will help improve the bonding power of all grades but is ideal for use on high humidity applications.



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**TRANSPARENT AND COLOURED GLASS**

Colour combinations and opaque (optically solid) non transmitting glass types can be successfully bonded to give cosmetically clean aesthetic bonds on all types of glass styles with the following products described below.

**1 REACT<sup>2</sup>LITE<sup>®</sup>**

Volume Productivity  
Transparent Bondlines  
Low Irritancy Product  
ST3222 (LV) grade

**2**



Colour Solid, difficult to bond glass. Cure on demand ST1326 dual cure UV and activator.

**3 REACT<sup>2</sup>LITE<sup>®</sup>**

Clear Bondline optional  
UV ST3500 (MV) Medium viscosity

**4**



Structural Bonder  
CST 3400 medium to high viscosity rigid parts bonder.

**5**



Dependant on design/depth of cure. Some Brite Lite adhesives will cure through coloured glass. UV3-125 and UV3-3000.



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## **SPECIAL UV's, SPECIAL CURES AND HI-TECH AEROBIC BONDERS**



### **INSTRUCT' UV STRUCTURALS**

Instruct UV's are speciality bonders designed to offer a triple cure system combining UV, UV/heat, or primer assist. Certain products are also Brite Lite' capable for difficult substrates with UV barrier materials.

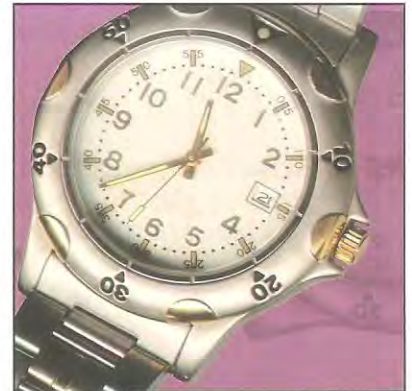
Instruct products come in a wide range of viscosity's (see selector chart).



### **UV WELD**

#### **UV WELD — UV/VISIBLE LIGHT AEROBIC BONDERS**

Speciality Structural for hi-tech application needs such as medical, difficult plastics or poor transmission materials. Consult technical sales advice on what is available.



### **IMPRUVISE' DECORATIVE FINISHES**

Improvise is a response to clients who wish to both bond components but also to create innovative and decorative finishes. These include a spectrum of colours/additives, fluorescent additives, metallic reflective finishes.

The carrying resin can be either structural or semi-structural enabling the introduction of special finishes while UV or visible light cures product structural integrity

Ask for our technical bulletin as this range is under development.

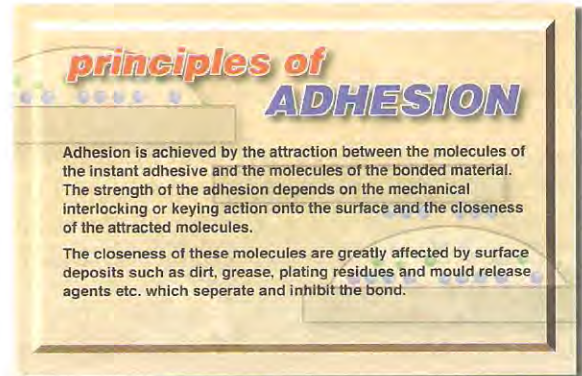


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### BOND PREPERATION

The removal of all types of contamination, such as moisture, oily residues, polishes, or greasy film is paramount in good preparation prior to bonding. Care should be taken to ensure general purpose cleaners do not have additives which could act as a non stick or release agents.

Holdtite formulated Reflect© glass preparation solution will ensure efficient removal of residues while conditioning the area for subsequent bonding.



**1** **Reflect'** is a pre and post cleaning agent bringing glass to a perfect finish based on a blend of surface active ingredients its balanced action will remove contamination and assist preparation.

**2** **Adhere'** reduces surface tension increasing the wetting action of the adhesive, ensuring 100% coverage, stopping spotting, reducing entrapment of bubbles caused by uneven surface tension. A secondary action helps crosslink the adhesive interface.

**3** **Envirolast'** ensures the ultimate moisture resistance at the joint interface inter reacting and coupling with polymerisation during cure. A significant increase to resisting moisture ingress is found as a result of this chemical interaction between the glass surface and the adhesive.



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**CUSTOMISED LAMPS**

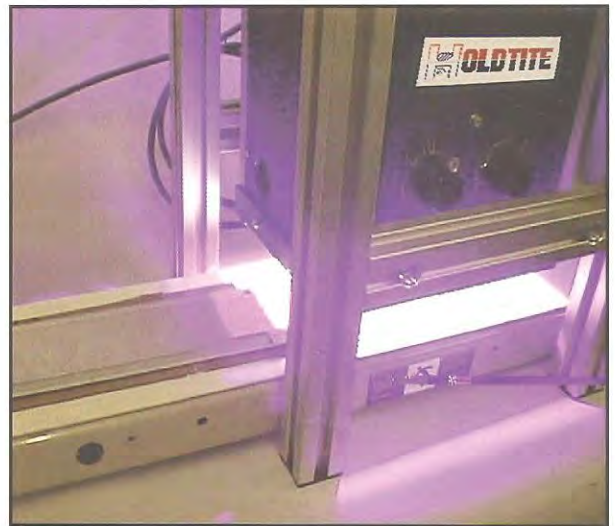
Customised high power UV sources can be provided to suit your application to the simplest of UV light sources such as 12 volt cigarette lighter plug ins. Hand held equipment ranges from the simple 11 watt/ 15-20 second cure wand to the professional hand held UV power units emitting filtered UVA at specific rates of waveband emissions.



**2** 240v/12v windshield cure system for spot cure. Glass screen Mounted cure cycle < 5 minutes.



**4** Hand Held 11 watt/240 volt CE approved wands. Cure Cycle 20-60 seconds small objects bonding.



**1** UV conveyor system custom designed for speed and component handling.



**3** Dayglo Lamp 300watt unfiltered power output must be used with UV glasses.



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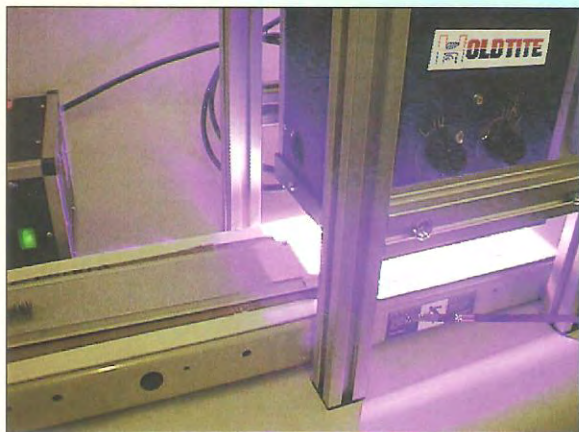
# X REFERENCE CHART TO FOLLOW AT A LATER DATE



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