

STRIP[®]
TINNING
AUTOMOTIVE



Automotive Electrical & Injection Moulding Specialists

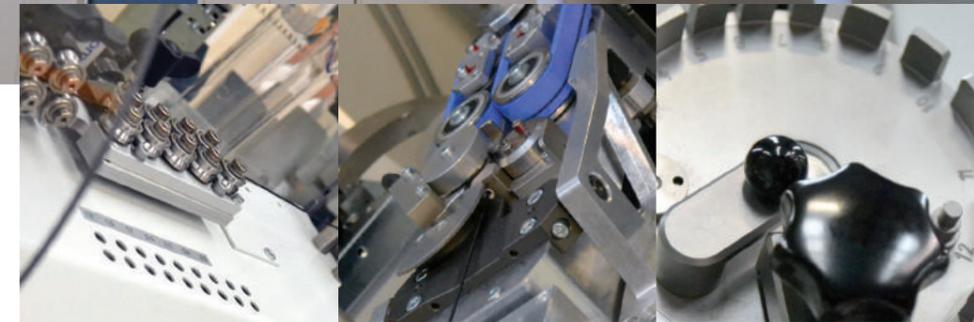
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We are committed to driving down costs of automotive heated glazing parts, multi-function brackets and all cabled connectors achieved via continuous investment in research, training, innovation, automation and globalised manufacturing.

Our Ethos



Established in 1957, and with locations in the UK, China and Turkey, Strip Tinning is the market leader for electrical materials (Busbar, Tungsten Wire, Connectors and Preforms) for the Automotive Glazing Industry, and is also a specialist manufacturer of Automotive Plastic Mouldings.

We have made several additions to our production equipment in recent years, including a state-of-the-art cut-strip crimper specially adapted for antennae connectors to allow for exceptionally small loops, and a solder preform applicator, which combines high quality output with high throughput, and a new 160T injection moulding press with high efficiency and quality controls.

This ensures that our electrical connector materials and plastic components are produced to close manufacturing tolerances with a high quality finish.

We are the only manufacturer in our field certified to international quality standards: ISO 14001, ISO 9001, OHSAS 18001, and ISO TS16949.



Automotive Busbar Products

Busbar is used to provide a continuous electrical connection around the perimeter of the glass, between the connector and the heating element



Strip Tinning has been producing non-ferrous materials with a range of alloy solder coatings for over 50 years, since the company began in 1957.

Solder Busbar

Solder Busbar is used for the majority of the world's front-heated windscreen production. The solder coating provides two benefits; firstly, a robust soldering process occurs within the tungsten wire application. Secondly, the solder provides excellent corrosion resistance for the underlying copper.

Adhesive Busbar

For a cleaner, solder-free alternative, we also offer a range of Adhesive Busbars.

This option removes the need for the first layer to be soldered onto the PVB mat – it can be simply set in place and bonded to the mat by means of a pressure – sensitive **normal adhesive**. A transferable non-contact tape liner protects the surface of the Busbar until it is used.

For the second layer of the "busbar sandwich", after the tungsten wires have been added, we recommend using busbar with **conductive adhesive** which enables the electric current to flow in a similar way to Solder Busbar, without the risk of solder splash.

We have also pioneered the development of **lead-free** and **Low Melt Busbar** in partnership with the key global glass producers. **Low Melt Busbar** uses specialist coatings which melt within the autoclave process, adding value to the operation.

Preformed Busbar



Preformed Busbar is specifically manufactured to customer dictated designs and shapes, therefore it is immediately usable within the glass manufacturing process, requiring no shaping or folding like other busbars.

Manual shaping and folding increases the thickness of the busbar, which can cause the glass to crack during lamination. These are primarily used around sharp corners or around sensors.



Preforms generally range from 50 up to 100 microns thickness dependant on customer requirements and are available in various coatings.

Cable Connectors for Glass

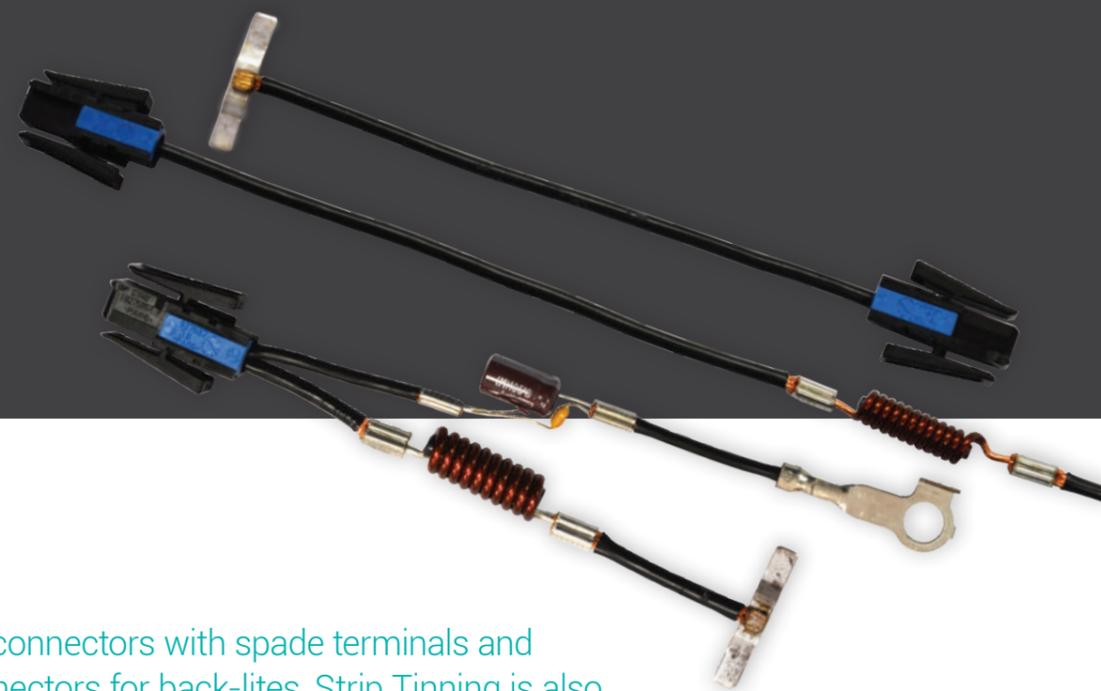
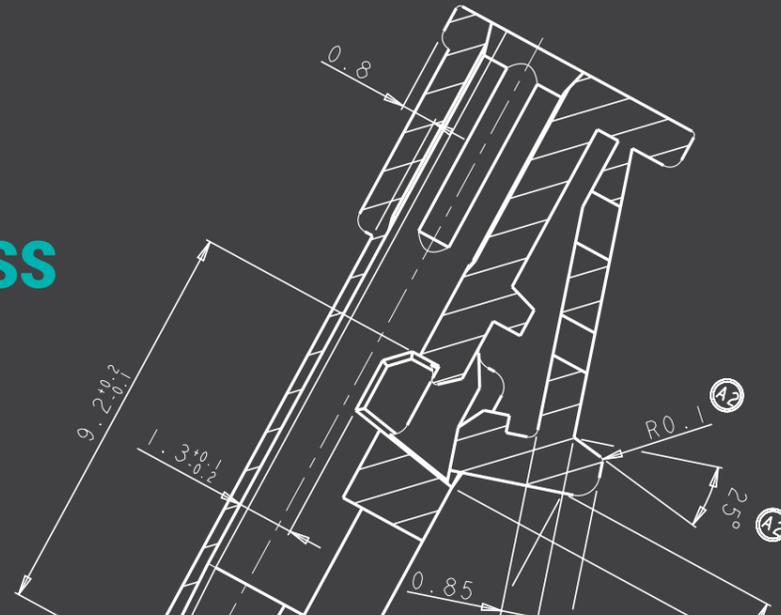
Keeping you connected with our range of bespoke and cost-effective solutions



Antennae connectors are becoming an ever increasing product within the automotive glazing market, and Strip Tinning Automotive has a range for each individual need.

STL produces several variations of antennae connectors including connectors used for radio, TV and GPRS signals, which allow for signals to be transmitted from the back-lite to the electronics of the vehicle. Antennae connectors can be produced using a range of MQS-sockets and 1-3 cables as specified by the project. Small loops can also be added as is often characterised by these connectors. We offer a full range of solder alloys to accompany the antennae connector.

Heating connectors are used for side windows, windshields and back-lites. Heating connectors can be produced in any design or shape as requested by the customer, from single wires to complex connectors using bespoke solder ends, ferrite coils and capacitors. Strip Tinning always develops the connectors in collaboration with the customer in order to ensure the optimum part for the project and optimum quality.



In addition to connectors with spade terminals and antennae connectors for back-lites, Strip Tinning is also providing an expanding range of other cabled connectors for side windows, front windshields and back-lites.

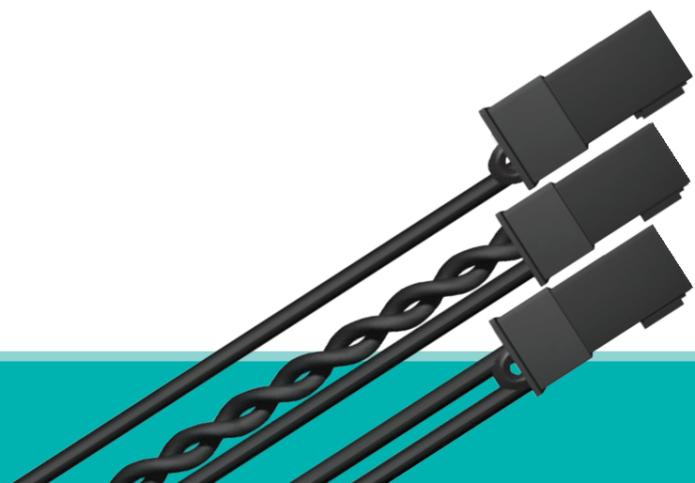
These connectors can be produced in any design or shape, as requested by the customer, from single wires to complex connectors using bespoke solder ends, ferrite coils and capacitors.

Strip Tinning always develops the connectors in collaboration with the customer in order to ensure the optimum part is provided with optimum quality.

"We partner with leading ferrite coil and capacitor manufacturers in order to produce connectors which are able to target the frequency required by the customer in order to reduce interference."



Here is our latest "Komax" connector crimp and assembly machine, ready to produce your back-lite and antennae cable connectors



(T-Pieces)

Back-Lite Rigid Connectors

T-pieces are used on back-lites, or rear windscreens, and on side windows as heating connectors



T-Pieces can be produced in any design or shape as requested by the customer and can be produced from plain copper, tinned copper or silver plated material.

Some designs can also include heat-shrink tubing and other materials for added insulation, as well as solder preforms applied to the footings of the solder bridge.

They are becoming an ever-increasing product within the automotive glazing market. Strip Tinning produces several variations, as shown above. These include T-Pieces with special lead-free solders to comply with the latest EC Legislation regarding lead-free solders for any new automobile models manufactured from January 2016.

Flexible Flat Connectors

These are used to provide insulated connection between the vehicle wiring loom and the Strip Tinning copper busbar sandwich within the laminated glass



The connector components are:

1. A base of tinned copper with dimensions able to carry the required operating current without exceeding recommended maximum temperatures (as specified by the customer).
2. A black polyimide insulating film to prevent corrosion.
3. An adhesive patch with two purposes – to act as a water barrier and prevent moisture ingress into the laminate between the connector and glass surface; and to secure the connector to glass surface.
4. Connectors can be made either with a rigid spade available in plain/tinned/silvered copper, or cable with a specific terminal crimped as requested by the customer.
5. Often an over-moulding is employed to enable waterproofing of the component.



ST Mouldings

An increasing number of car and trucks are now fitted with ST Mouldings as standard



With state-of-the-art moulding equipment, and a robust clamping system we unite reliable technology with a high degree of modularity.



Strip Tinning are the supplier of choice for:

- Emblems
- Mirror Button Holders
- Multi-Purpose Brackets
- Special Projects

An increasing number of car and truck models are now fitted with these mouldings, especially multi-purpose brackets, as standard. The moulding machines can be easily adapted to your product requirements, and ensure that the brackets are produced to close manufacturing tolerances combined with a high quality finish.

“Due to our strong links and influence in the automotive supply chain, we are able to offer the best available materials for these critical automotive components.”

Tungsten Wire

Tungsten Wire is an essential material for manufacture of electrically wired heated windscreens



It is used as the near-invisible heating element within the glass viewing area, and is the obvious choice due to excellent tensile strength (even at very high temperatures) and good corrosion resistance.

Type of Tungsten Wire	Black (W) Type – Black with graphite coating
Diameter	According to customer request – Range of sizes available
Ohms tolerance	+/- 3% throughout the whole coil of black Tungsten Wire

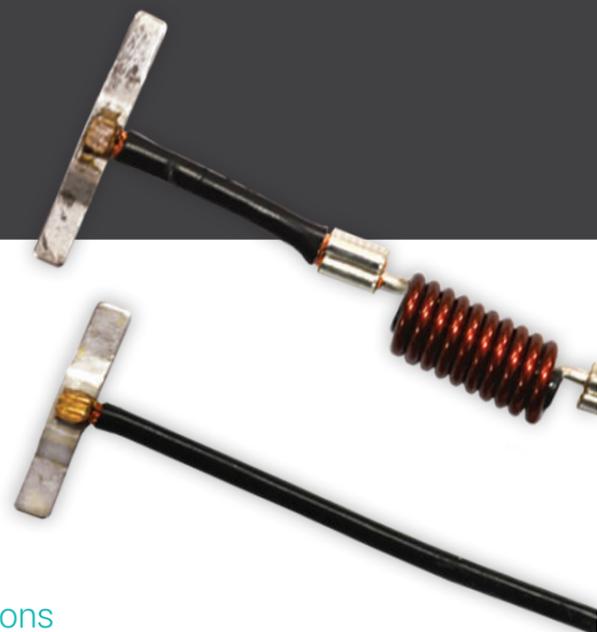
Most high volume automotive customers will use wires with around 20 Microns diameter. However, various in-field demands can mean different diameters are needed, and a wide range is available.

Our customers wind the 20 µm Tungsten Wire vertically or horizontally on to their PVB sheet. The wires are then sandwiched at the top and bottom of the PVB between two lengths of the Strip Tinning busbar.

The completed PVB sheet is positioned between the two glass sheets that make up the laminate, and the busbar is completely hidden behind the screen's black edging – now this material composite is ready for the autoclave.

Solder Bridges & Pb-Free Legislation

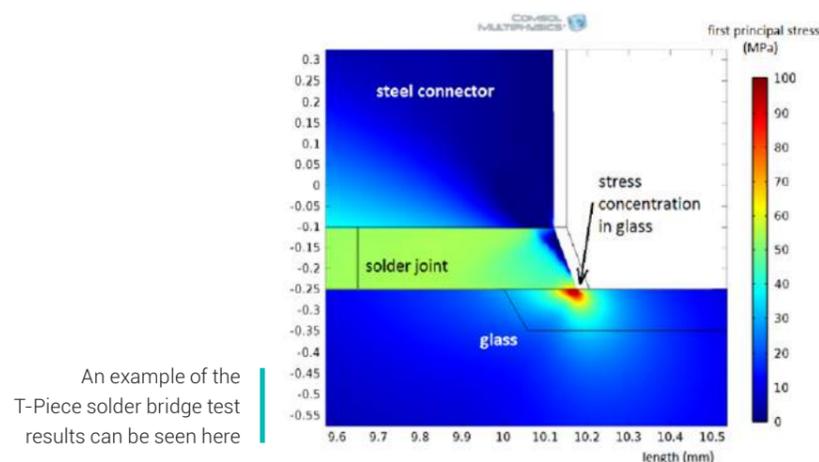
EC environmental regulations now demand lead-free solder to be used with back-lite connectors for new automobile models



As of January 1st 2016, the EC environmental regulations demand that lead-free solder is to be used with back-lite connectors for new automobile models.

For the past 3 years, Strip Tinning has worked in partnership with the University of Birmingham to develop lead-free T-Piece solutions to meet this requirement. Extensive modelling has taken place using FE software "COMSOL Multiphysics", where modelling stresses, joule heating and fluid flow of soldered connectors have been tested.

As a result of this, a steel solder bridge with an acceptable lead-free solder is now available from Strip Tinning for our customers to trial. Please contact us at the address shown on the back page in order to receive more details and samples to test out in your own factory!



An example of the T-Piece solder bridge test results can be seen here

Quality & Controls

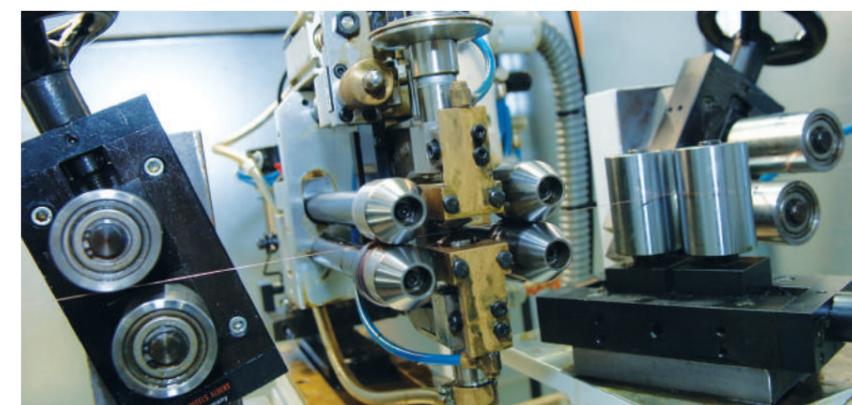
Our state-of-the-art rolling mills, slitters, treatment, and coating lines guarantee our exceptional standards



In-line laser to calculate width measurement



HMI Controls



In-line laser to calculate thickness measurement

We are committed to achieving the very highest levels of environmental management & operational health & safety.

Strip Tinning is supported by quality accreditations such as TS16949:2009, ISO 9001, ISO 14001, and OHSAS 18001.

Research & Innovation

At Strip Tinning, we strive to be the best in our field for Research & Development



To enhance our strong research and development, we have developed strong partnerships with leading experts from local universities, such as the University of Birmingham.

To further our innovation, we have invested in new machinery which produces the next generation of market leading products. We also have KTP and FP7 research projects underway, which keep us at the cutting edge of product development.



THE UNIVERSITY
OF BIRMINGHAM



Knowledge
Transfer
Partnerships

Strip Tinning
association logos



With more than 50 years of experience, Strip Tinning Automotive's clear vision of windscreen technology ensures your vision is clear on the road.

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Strip Tinning Patents

Our products, processes and/or apparatus are protected by the following patents and patent applications:

Low Melt Point Busbars

British Patent No. *GB2518565*
British Patent Applications published as *GB2523276*, *GB2525552*
European Patent Applications published as *EP2894941*

Flexible Connectors

British Patent No. *GB2519685*
European Patent Applications published as *EP2894940*

Adhesive Busbars

British Patent Applications published as *GB2520873*
European Patent Applications published as *EP2925100*

Copper Strip

British Patent Applications published as *GB2524192*
Other applications pending