

MTD1

Moulds, Tools and Decorative



Tractor seat moulds

The photograph shows the mould, a PVC cover and the finished seat. The mould is free standing and made entirely from zinc. PVC and ABS covers have been made in these moulds and integral skinned materials have also been used. These are production moulds.

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Moulds, Tools and Decorative



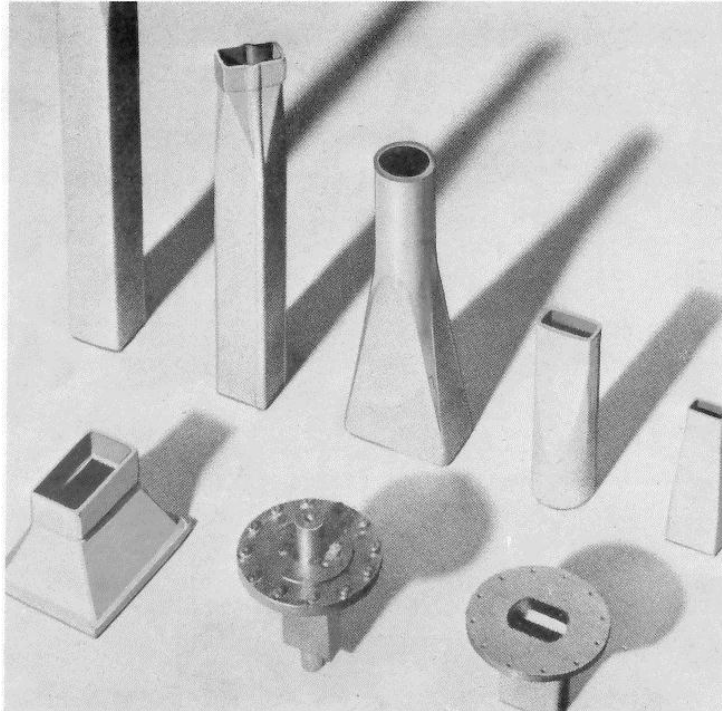
One off Aerodynamic Fabrication

The aerodynamic wedge shaped nose of the British Rail Advanced Passenger Train Experimental Unit provides a unique example of the versatility of metal spraying as a mould making process.

The design specification called for the wedge shaped nose panel to be fabricated in G.R.P. but to have a metal sprayed aluminium silicon surface. A timber and plaster former was produced and the aluminium silicon sprayed into the former cavity after the appropriate release agent had been applied, the GRP was then laid up on the sprayed metal and built up to the required thickness; the whole unit was then lifted from the former ready for final trimming and finishing

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Moulds, Tools and Decorative



Radio Wave Guides

Radio Micro Wave Guides provide a good example of the way in which metal spraying can be used to produce strong lightweight components of complex shape and with difficult accurate internal contours. Accuracy is absolutely critical as a number of signals are being carried simultaneously and the internal surfaces of the guide must reflect the individual signals otherwise radio telephonic communication would not be possible. Plessey Radar, Chelton Forming Ltd., and the UK Government's Underwater Weapons Establishment have developed this technique using Metallisation Equipment. A high quality mould in stainless steel, brass or aluminium is used for more complex shapes a soluble mandrel is preferred. Especially low melting alloys are used to spray the initial inner surface producing a surface accuracy of ± 25 microns (0.001"). This deposit needs to be between 0.25 – 0.5mm (0.010" - 0.020") in thickness and is then backed up with sprayed zinc or brass or G.R.P as reinforcement.

Finished components produced by this process have a tensile strength approaching that of a casting produced in the same metal. Strength to weight ratios can be as high as four times that of mild steel. Whilst the process is particularly suitable for prototype development it is also equally applicable to batch production

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Moulds, Tools and Decorative



Metal Finishes onto
MDF/Plaster Board and Glass





Application Data Sheets

Using the Metalspray process finishes of Copper, Bronze , Brass, Aluminium, Steel have been developed to bond to a variety of substrates including Glass, Plastic, Timber, Steel , MDF Board, Masonry, Plaster. Typical applications include Sculptured pieces, lift interiors, Shop fronts and Fit outs, Corporate furniture etc.

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Moulds, Tools and Decorative

Metallisation Protecting Film Industry Sets

Arcspray equipment is being used to protect film industry sets from damage during filming.

The polystyrene props were first cut to shape and then metal sprayed with zinc and steel to strengthen them and make them less prone to dents during movement around the set. Metallisation customer and founder of The CNC Factory Ltd, Ed Hladio, has been contracted to create columns, walls and a 3D topographical map for a recent film.



Ed says: "When I work with film sets I regularly have to repair and patch up props due to damage caused while they are moved around, or through contact with actors and filming equipment. For many months now I have been experimenting with metal spraying on all sorts of surfaces, including apples and wood. So, when it came to creating the new film sets it made perfect sense to me to metal spray the polystyrene shapes to give them strength and protection."

The 3D map, created for a film, needs to be strong enough to take the weight of the actors who will be walking upon it during filming. This strength and durability is provided by the metal sprayed finish.

The reason metal spraying works so well for polystyrene is that the molten particles created during the Arcspray process hold only a small amount of heat energy. This heat dissipates very quickly when it comes into contact with the large surface of the polystyrene. During the Arcspray process the raw materials, a pair of metal wires, are melted by an electric arc. The molten material, in this case zinc and steel, is atomised by a cone of compressed air and propelled towards the polystyrene. This spray solidifies when it hits the surface of the work piece to form a dense coating making metal spraying the perfect solution for protecting items made from polystyrene.



Application Data Sheets



One of the alternatives to metal spraying is to fill or coat the surface of the polystyrene shapes with hard setting resins. This process is very messy, takes time to cure and requires additional work in sanding the surface to acquire the appropriate finish. With the tight timescales Ed has to work to, metal spraying provides the most efficient and effective solution.



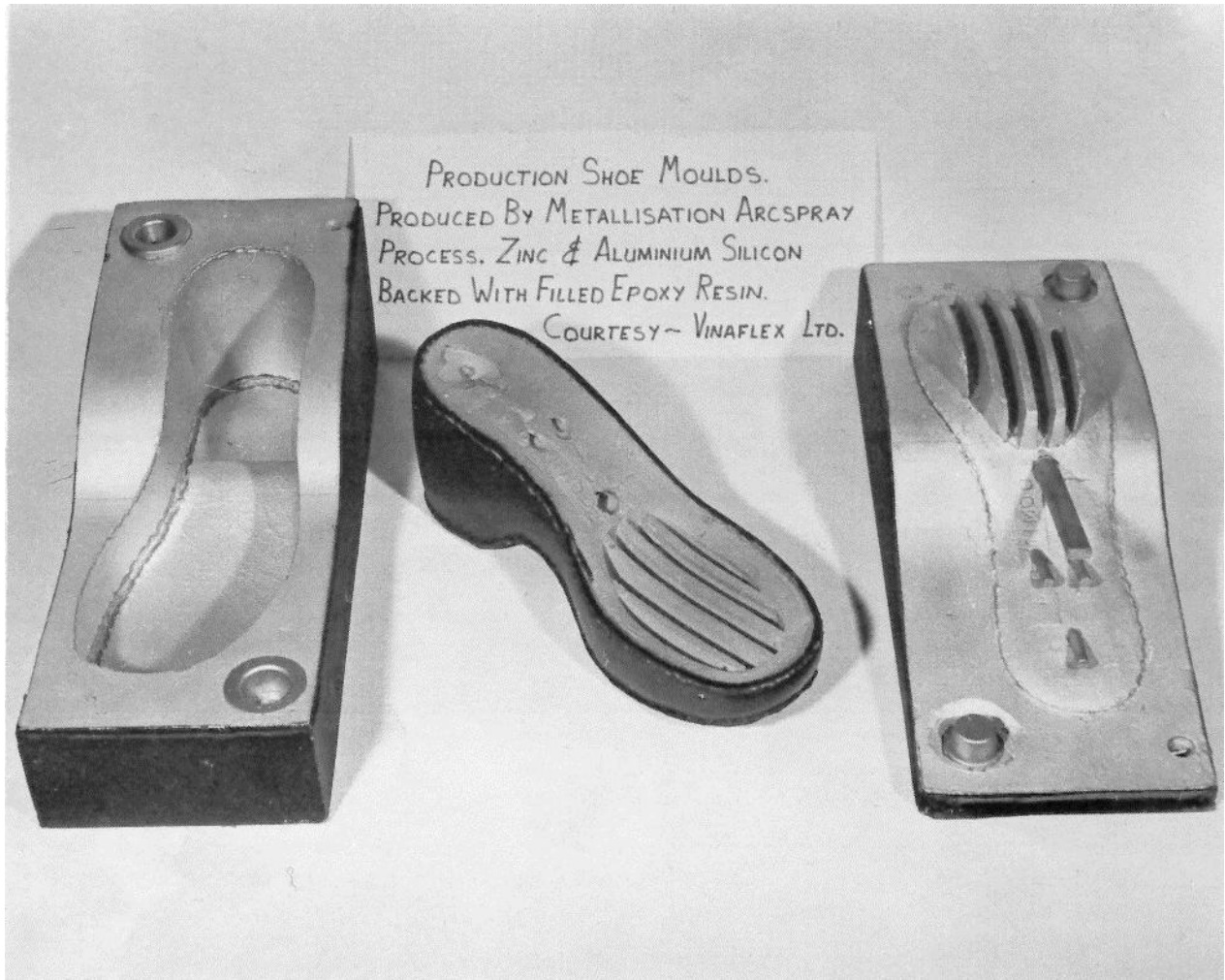
Ed has previously metal sprayed polystyrene for other film scenes. These include cutting 'books' out of polystyrene for a library scene. The books were then metal sprayed for durability and painted to look like a row of books. He is currently experimenting with different coloured metals and materials to enable him to offer a range of finishes to his clients. He is also looking at post spraying techniques, such as polishing and acid ageing, to expand the range of finishes available and to increase the durability offered by metal spraying polystyrene. Ed has also used the Arc140 system to spray metals on to boat moulds and to produce rotational moulds.

Ed continues: "People think of metal spraying as simply an engineering process. But I have shown that it has a much more creative use if you think outside the box. The most exciting thing is that no one expected me to do this. I love being challenged and looking for ways to create film sets and props that are durable but realistic. It's all great fun."

As well as being used on polystyrene, metal spraying can also be used to spray fibreglass and carbon fibre mouldings for decorative purposes.

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Moulds, Tools and Decorative



Shoe moulds

Production shoe moulds for the manufacture of polyurethane shoe soles have been in use for many years now. The great advantages over the conventional mould manufacturing methods are that the speed of producing a mould has greatly improved, the cost has been reduced and the quality of the detailed definition produced is far superior to any other method of production.