

USING WIRE FOR ART AND SCULPTURE

WHITE PAPER

This paper takes a look at the uses of wire in art and how different properties can produce a variety of results. It also looks at how wire is being used by successful artists today, providing an overview for students and established artists on what can be achieved with wire.

The uses of wire

Wire used in art and sculpture neatly breaks down into two types: that which is used for the suspension of artworks, and wire that is used in the structure of the sculpture itself.

Structure

Some wires are soft, some wires are hard

The type of wire selected will have a significant bearing on how easy it will be to shape the sculpture and, depending on the design, how well the wire will hold the shape. For art groups and schools experimenting with wire for the first time it may be advisable to work with wire that is easier to bend into shape and requires less force when cutting but it is important to bear in mind that this will not hold its shape in the sculpture as well as hard wire. Imagine, for example, a sculpture of the sun with radiating beams of wire; here it would be necessary to use harder wire to retain the shape over time. Hard wire is more difficult to work and will require a strong pair of cutters but for artists creating work that requires longevity this is likely to be the material required.

Some wires are ferrous, some wires are non-ferrous

Ferrous wire contains iron; if you make a sculpture out of a ferrous wire that has not been plated or

galvanised it will rust. Some artists seek precisely that effect and make their specification accordingly. In contrast, a stainless steel wire will retain its appearance over time. A key property of stainless steel is its resistance to corrosion; the thin oxide layer on the steel's surface, which forms due to the level of chromium (at least 10.5%), effectively causes a protective barrier against corrosive environments. So, although stainless steel contains iron and is therefore ferrous, it will not rust.

Non-ferrous wire can also transform over time, offering another effect for the artist. If you choose to make a sculpture from copper, a non-ferrous

wire, it will eventually turn green, a natural occurrence in the oxidation of copper.

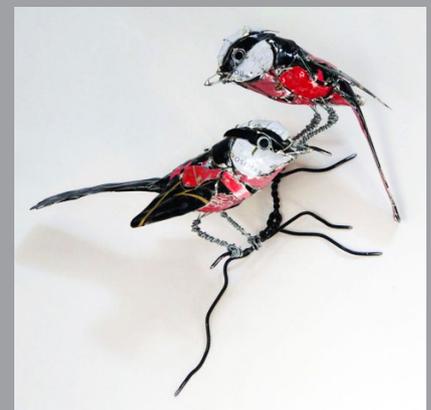
'Wire can be supplied that not only suits load-carrying capacity but is also finished to a style that suits the installation.'

Imagine producing identical sculptures out of these three different wires; each would have the same shape but they would eventually have very different characteristics depending on the metal content.

Structure - A Case Study

British artist Barbara Franc created a stunning display of Great British birds using steel wire at the prestigious Hampton Court Flower Show in 2014. Barbara combines recycled and discarded materials with wire to create a unique variety of sculpted birds and animals. At the Hampton Court Flower Show this included a small flock of life-sized British birds, such as Great Tits, Greenfinches, Kingfishers, Robins, among others.

The armatures for the birds were made with 0.71 mild galvanised steel wire and the twigs that they perch on were prepared with 2mm black annealed mild steel wire. The wire was strong enough to keep the shape of the birds and hold the weight of the recycled decorative materials, while malleable enough for Barbara to easily make ongoing changes to the shape of the three-dimensional sculptures. The mild galvanised wire was also selected for its consistently clean surface; Barbara needed to solder pieces of tin onto the wire armature and this requires clean surfaces for the solder to properly adhere to.



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Suspension - A Case Study

Thomas Heatherwick, a graduate of the Royal College of Art, is one of the most exciting creative practitioners working in the UK today. His most familiar work to date is the Olympic Cauldron, the sculpture that held the Olympic flame during the London 2012 games.

One of the Heatherwick's first commissions was to design a sculpture for The Wellcome Trust, a biomedical research charity based in London. The specific site prescribed for the sculpture was within an eight-storey high atrium space above a pool of water. The concept of the final piece was inspired by the romantic idea of 'Bleigiessen' – or lead casting – a New Year's Eve activity in German-speaking countries in which molten lead is poured into water and the extraordinary shapes that result are used to tell your fortune.

The sculpture consists of 142,000 glass spheres, suspended on 27,000 steel wires, which glow with a constantly shifting rainbow of colours, an effect created through a unique process of sandwiching reflective 'dichroic' film within the glass.



Almost a million metres of high tensile strength wire were used for suspension and Ormiston was commissioned to provide a solution with the strength to support a staggering 15 tonnes of glass above a pool of water that would also provide the required aesthetic appeal.

Durability was critical in terms of minimising degradation, in particular corrosion, while the stability was also an issue, since the studio did not want the spectator to perceive any movement in this monolithic piece.

The Ormiston solution comprised high-tensile stainless steel microcable supplied from stock and special bespoke ferrules were manufactured to specification. The whole structure was also tensioned on spring cables to prevent movement.

'Bleigiessen' proved to be a resounding success for Heatherwick and continues to delight and impress visitors. The piece was later awarded the prestigious Lovells Art and Work Award and remains a permanent and iconic feature of The Wellcome Trust atrium

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Suspension

The most important consideration when hanging a work of art is weight. From a safety point of view it is advisable to hang any object with wire that is specified for several times the weight it is carrying. When hanging lights in public spaces it is typical for the strength of the wire to be specified at four times its capability to suspend the fitting. The same consideration should be applied when hanging artworks.

Having satisfied the weight constraints, you can then consider the visual effect of the suspension wire. Wire can be supplied that not only suits load-carrying capacity but is also finished to a style that suits the installation. For example, a bespoke wire provider can supply an artist with polished, chrome-finished wires and fittings that complement the environment or the artwork



itself; at the other end of the scale, a rugged solution without a polished finish may create an entirely different effect that matches the artist's vision.

An experienced wire provider can also supply security wire. If an

artwork is especially valuable, a bespoke wire provider can make a special heavy-duty tether to prevent it from being stolen. Wires can also be specified to carry a low voltage electrical current to an alarm system.

As well as providing security, this provides strength and conductivity in one wire rather than two, which offers the added benefit of keeping the space surrounding the artwork as clear as possible.

Summary

This paper has offered just some examples of how wire can be specified to create different effects while meeting the physical demands of the installation.

By consulting a specialist in wire you can further explore its properties and specify material that will suit any application, from experimenting in schools to producing high profile commissions.

