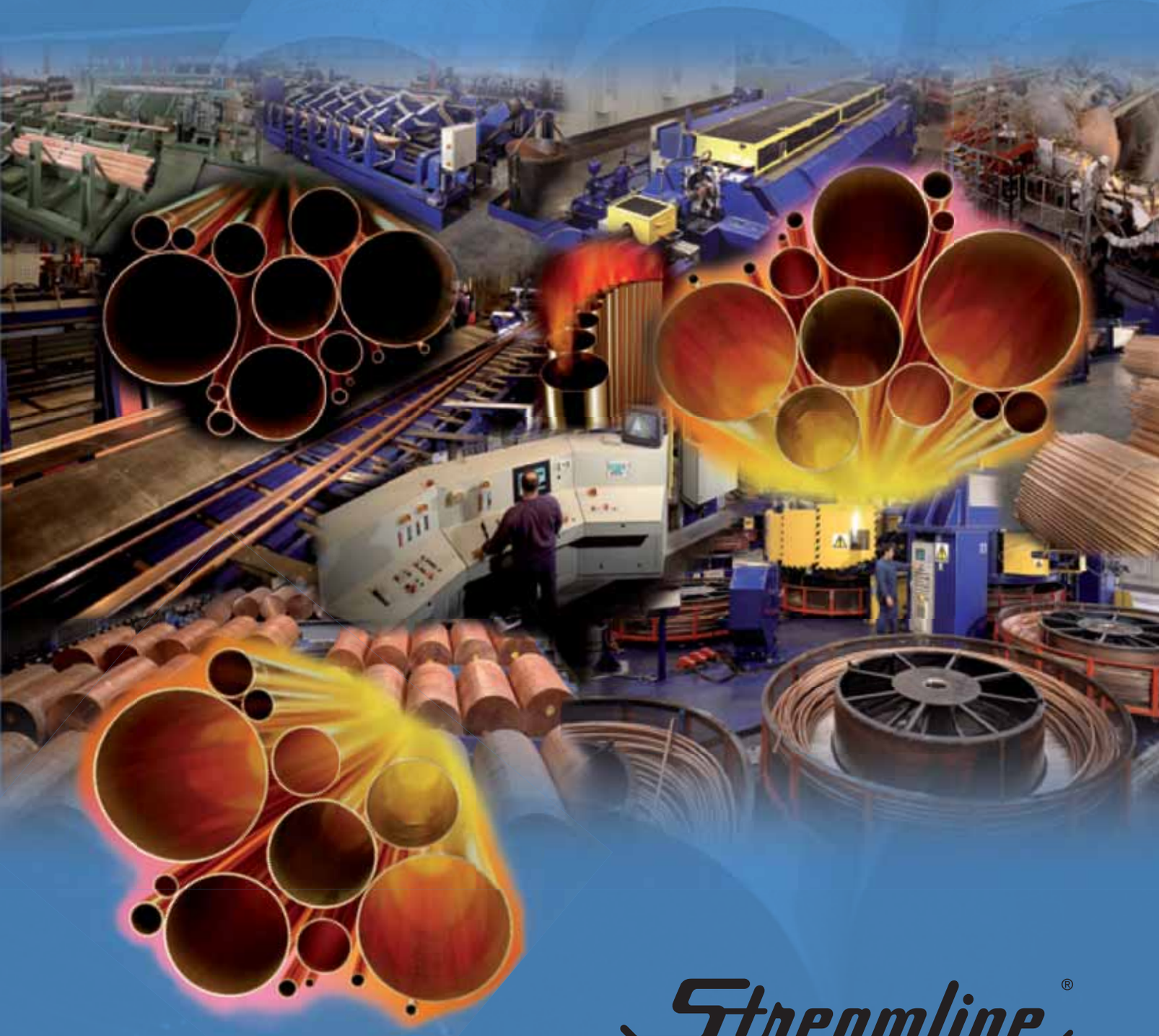
Wednesbury®



Streamline®



Copper - First Choice for Plumbing and Heating Systems



Durable

Copper has a long useful life. Being both corrosion resistant and mechanically strong copper can resist decay from internal attack and can withstand physical damage in service.



Lightweight

Thin-wall drawn copper tubes are convenient to distribute and offer excellent working pressure capabilities.



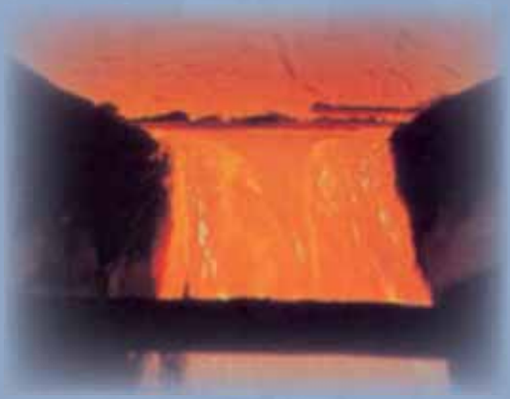
Malleable

Copper is convenient to manipulate at the manufacturing stage being suitable for casting, forging, extrusion and drawing. It is suitable for installation using brazed, soldered or mechanical connections.



Hygienic

Copper is antimicrobial - it naturally inhibits the growth of harmful pathogens including bacteria, mould, algae and fungi.



Recyclable

Copper waste can be efficiently recycled at the production stages and is 100% recoverable at the end of life of a building or system.

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Copper Tube manufacture at Bilston, UK

There has been a copper mill at the current site for over 60 years and Wednesbury (formerly known as Mueller Europe) is the only manufacturer of copper tube 100% produced in the UK. During this time the vast majority of output has been for plumbing and heating systems.

The site was acquired by Mueller Industries in 1997, since when US$60million has been invested. The result is one of the most modern plants in the world shipping copper tube to more than 30 countries.

Production Process



Casting of Billets

50,000 tonnes of copper are cast into billets at Bilston every year. The raw material is a combination of cathode (electrolytically pure to 99.90%) and a proportion of controlled scrap.



Extrusion

Billets are heated to 900 °C in a gas furnace and loaded into a 4,000 tonne press. An 80m long hollow shell is extruded under water as the basis for the drawing processes which follow.



Drawing

The shell proceeds through the plant in an automated basket handling system and follows a carefully controlled sequence of reduction processes through to the final dimensions and temper. A single billet yields over a kilometre of 15mm plumbing tube in a single length.



Finishing

The automatic finishing lines at Bilston complete the manufacturing process. Hard tube is straightened from the handling basket, whereas half-hard tube is annealed and given a final finishing draw. Finally the tube is eddy-current tested, plastic-coated if required, marked, cut to length and bundled. Tube to be supplied in the soft-coiled form is processed down a separate, dedicated finishing line.



Distribution

Finished tube is stored in the 3,043 sq m² warehouse for shipping in line with customer requirements.

Technical Data

Quality Standards

Wednesbury manufacture their copper tube to the exacting requirements of BS EN1057. The tube is rigorously tested, at regular intervals, by the British Standards Institution to ensure conformity. In recognition of the confidence in their product quality, Wednesbury have earned the right to stamp the Kitemark on their copper tubes.

They also hold the approvals for many European national and international standards, including Finland, France, Germany, Hungary, Ireland, the Netherlands, Poland, Slovakia, Spain and Sweden.

In addition, Wednesbury have achieved Registered Firm Status to ISO 9001:2008. This system ensures that all aspects of the company's activities meet the highest standard. Therefore customers buying from Mueller Europe can be sure they are buying a quality product, from a quality company.

Mechanical Properties

Seamless copper tube to the specification EN 1057 is produced at Wednesbury's Bilston factory and supplied in soft, half-hard and hard condition, offering a choice of mechanical properties to meet customer requirements. A softer tube offers improved malleability but lower ultimate strength. The different properties are achieved by a carefully controlled sequence of drawing and annealing cycles during production.

Environmental Standards

Wednesbury manufacture copper plumbing tube but they do it more efficiently. In addition to investing $US60 million in 'state of the art' energy efficient production facilities, they have put systems and practices in place to reduce waste and minimise their impact on the environment. As a result, they are accredited with Environmental Management Approval to ISO 14001:2004. No other manufacturer supplying copper plumbing tube holds this approval.

CONDITION	**MARKING** *per EN 1057*	**Outside Diameter** *range mm*	**Hardness** *HVS*	**Elongation** *Min %*	**Tensile Strength** *Rm Mpa Min*
Soft	R 220	15mm to 28mm	40 to 70	40	220
1/2 Hard	R 250	15mm to 54mm	75 to 100	30	250
Hard	R 290	15mm to 159mm	min 100	3	290

Chemical Composition

The tube is manufactured from phosphorus deoxidised (non arsenical) copper alloy CW024A.

The melting point of copper is 1083°C and it has a density of 8.9 gm/cc.

Dimensions

Data sheets are available, in the back flap of this brochure, providing details of the nominal diameters, wall thicknesses, safe working pressure and weights for the various tubes offered

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Copper Tube Applications

Copper tubes are used most often in

- Hot & cold water supply
- Waste water drainage
- Water filled heating systems with radiators or convectors
- Gas service for heating and cooking
- Oil service for heating

Copper tubes are also suitable for use commercially in

- Chilled water distribution and refrigeration
- Sprinkler systems for fire protection
- Air conditioning
- Steam
- Medical gases
- Pneumatics
- Hydraulics
- Waste water

In each case care should be taken to assess the environment and duty of the system in terms of pressure and temperature variations, possible chemical attack from the external conditions or the fluid carried.

Comprehensive details are provided in documentation and CDs by the Copper Development Association. For assistance contact your Wednesbury Export representative or follow the links available from www.wednesburytube.com



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Installing Copper Tube

Bending half-hard Copper Tube – unlike hard-temper copper tubes, which are not meant to be bent, half-hard copper tubes can be bent with ease on bending machines or with internal springs.
Jointing – copper tubes are suitable for connecting by means of capillary, compression or press fittings to EN 1254, silver brazing, bronze or autogenous welding.

Mueller Protec and Protec 2000: plastic coated copper tube

Wednesbury manufacture a range of plastic-coated copper tubes for use when copper tube is to be buried in a potentially aggressive environment. Building materials such as concrete and insulation materials can contain chemicals which are potentially corrosive to plain copper tube. Therefore, where copper tube is buried, it must be protected to ensure its longevity in service.

Protec

Protec is the brand name for copper tube with a plain polyethylene coating, which has been extruded tightly onto the outer surface of the copper tube. This coating protects the copper against aggressive environments and is colour coded to identify the service:

YELLOW OCHRE for GAS services
GREEN or BLUE for POTABLE WATER
WHITE for CENTRAL HEATING

Protec 2000

Protec 2000 is the brand name for copper tube with a polyethylene coating, the inner surface of which is castellated to provide air gaps, which run the length of the tube. In addition to protecting the copper tube against external corrosion, the air gaps on Protec 2000 form a thermal barrier to reduce surface temperature, transmitted noise and condensation levels, together with a reduction in heat loss when buried. It is available in white only.

Installing Protec and Protec 2000

When jointing plastic-coated copper tubes, make slits in the plastic and fold it back to reveal the copper. Protect both ends of the plastic by wrapping them with a damp cloth. Make the joint then return the plastic to its original position. Any breach in the plastics cover must be made good to ensure that the protective properties are maintained. Therefore, after making the joint, the last 25mm of intact plastic covering, either side of the joint, together with any bare copper tube (and fitting), should be carefully and completely spirally wrapped with a self-adhesive polyethylene or p.v.c. waterproof tape in order to ensure continuous protection.

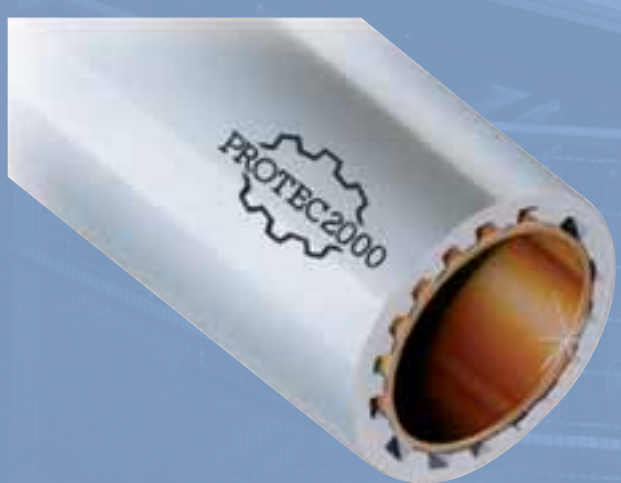
Where Protec 2000 tubes are used, moisture should be prevented from entering the channels in the plastic coating where the plastic ends. The best way to do this is by the wrapping with self-adhesive plastic tape over the last 25mm of intact plastic covering, and at least a similar area of immediately adjacent bare copper pipe.

Protec and Protec 2000 copper tubes are available ex-stock in standard UK half-hard sizes to EN 1057. Other sizes, tempers and wall-thicknesses can be made to order.

Instead of using copper tubes bearing a protective plastic-coating, some installers prefer to protect copper tube by spirally wrapping the whole length with an impervious tape. However, this is a poorer substitute to installing Protec and Protec 2000 tubes, as it is impossible to guarantee that there will be no ingress of corrosive agents.

Degreased Copper Tubes

Wednesbury supply a range of copper tubes suitable for Oxygen and Medical Gas purposes. Please contact Wednesbury for details.





Marking, Identification & Ordering

Wednesbury copper tubes are marked with the brand name 'Wednesbury Streamline', tube diameter and nominal wall thickness, relevant standard reference and code representing date of manufacture.

When ordering it is important to clearly specify the following and take note of the declared packaging or bundling specification.

a) Tube type and relevant standard
b) Outside diameter and nominal wall thickness
c) Condition
d) Form & length
e) Quantity required

Example 1

a) Copper tube to EN 1057 Black Label Plain
b) Dia 15mm x 0.7mm wall
c) R250 HALF HARD
d) Straight lengths of 5.8m each
e) 11,600 metres

Example 2

a) Copper tube to EN 1057 White Label Green Protec
b) Dia 22mm x 1.2mm wall
c) R220 SOFT
d) Coils of 20m each
e) 10,000 metres





www.wednesburytube.com

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