

Copper and its applications

Industrial Products

Innovative product development
Products for the automotive industry
Copper in modern communications equipment
Components for smelting and casting technology
Electronics and copper
Copper tubes in air-conditioning

Building Products

Building products made of copper and brass
Copper- influential in architecture

OUR MODERN WORLD IS INCONCEIVABLE WITHOUT COPPER. POWER SUPPLY, AIR-CONDITIONING AND REFRIGERATION TECHNOLOGY, TRANSPORTATION, TELECOMMUNICATIONS AND ELECTRONICS ARE TAKEN FOR GRANTED IN TODAY'S WORLD. THEIR HIGH STANDARD OWES MUCH TO THE CONSISTENT USE OF COPPER.

Copper processing and refining have always played an important role in the history of our civilisation and industries. On the long journey from the first simple tool to the copper electrode and on to today's high - tech applications, key sectors of industry have been created which use the clear advantages of copper to good effect in their products. The following pages will provide an insight into the numerous areas of application of KME products in today's highly technical world.

Innovative product development

THANKS TO ITS QUALITIES, TODAY COPPER IS ONE OF THE MOST USED METALS.

BOTH IN ITS PURE FORM AND IN MANY INNOVATIVE ALLOYS, THROUGH SOPHISTICATED PROCESSING METHODS, IT STANDS AT THE CENTRE OF OUR ACTIVITIES.

An essential factor in KME's successful business development is its intensive and on-going research and development.

Our objective is to develop products which meet the ever increasing requirements of our highly technical world. Superconductors, for example, allow energy to be conducted practically loss-free, and are used particularly in research equipment, in physical/technical laboratories and in magnetic resonance tomography in medical diagnostics.

Both HERA, the particle accelerator of Deutsches Elektronen Synchrotron in Hamburg, and CERN in Geneva are fitted, for example, with a special cable made of niobium-titanium, an alloy which KME uses in the manufacture of superconductive cables and wires.

KME supplies copper for various solar collector components. In co-operation with the solar industry, OSNASOL was developed by KME. This tube bundle makes connecting solar equipment easier. The system comprises two copper pipes for heat and cold conduction, each separately and optimally insulated. A temperature detector can be connected to an integrated cable.

These are examples which demonstrate our on-going innovative efforts.

Products for the automotive industry

THE DEMAND FOR MORE AMENITIES IN MOTOR VEHICLES IS GROWING. THE INCREASING USE OF ELECTRONICS IN CARS HAS LED TO A MORE THAN THREEFOLD INCREASE IN THE AVERAGE AMOUNT OF COPPER PER VEHICLE.

An electrical and electronic components in motor vehicles require copper rolled products for plug-type connectors, cable lugs, connector blocks, relays and driving motors. Discerning motor vehicle manufacturers use copper-nickel alloy tube for their brake pipes.

The high corrosion resistance and ideal machinability of these pipes meet the increased requirements for safety as well as for production optimisation in the automotive industry.

Brass components are used in the manufacture of nozzles, bearings and mechanical components, for example in automatic transmissions and ABS braking systems.

Automobile production itself also uses our highly-developed products of the highest quality: ELBRODUR are special copper materials used in the manufacture of welding tips, which, among other things, find application in industrial robots in the automotive industry.

Copper in modern communications equipment

GLOBALISATION AND COMMUNICATIONS INFLUENCE EACH OTHER. THE DEVELOPMENT OF MODERN PRODUCTS IN ORDER TO INTENSIFY AND FACILITATE COMMUNICATIONS REQUIRES COMPONENTS MADE OF COPPER OF THE HIGHEST RELIABILITY.

Modern communication by cellular phone, radio and television has become inconceivable without using a large number of cables.

KME copper tube forms the “soul” of the so-called high frequency coaxial cable, which is used in the telecommunications. Transmitting masts for mobile telecommunications are fitted with these HF coaxial cables.

In order to ensure low loss transmission from transmitter to antenna mast and from the antenna to the receiver, inner and outer conductors made from tube, manufactured from high conductivity types of copper, are used.

Copper cable strip of the highest quality and high-alloy strip with specially treated surfaces from the Rolled Products Division are also found in all modern communications equipment. They are used for plug-type connectors, PCBs and cable shielding.

Components for smelting and casting technology

WHEREVER STEEL AND NON-FERROUS METALS ARE PROCESSED USING CONTINUOUS CASTING, KME MOULDS ARE USED IN EVERY POSSIBLE DESIGN, INCLUDING THE NECESSARY ACCESSORIES, OF COURSE, MAINTENANCE ALSO FORMS A PART OF OUR SERVICE.

The range of casting moulds supplied by KME includes dies, crucibles for arc furnaces and wheels for casting wire.

Technical efficiency is greatly dependent on the quality of current-carrying components.

KME develops, plans, produces and installs systems made of high conductivity copper materials for the supply of power to many industrial plants and facilities.

KME equips electric furnaces with high-tension tube, water-cooled high-tension cables and forged contact jaws.

Cooling staves made of copper are used in blast furnace construction as interior linings.

Electrolysis plants and coating lines are equipped by KME with busbars, conductor tubes, expansion joints and water-cooled high-tension cables.

Electronics and copper

BECAUSE OF ITS EXCELLENT CONDUCTIVITY COPPER IS THE MOST IMPORTANT MATERIAL IN THE ELECTRICAL AND ELECTRONICS INDUSTRIES.

For the manufacture of components such as PCBs, microprocessors, transformer coils, plug-type connectors, terminal strips, plugs and sockets, the metal is rolled, punched and moulded. Copper products are also used in household appliances.

In many areas of electrical engineering and electronics, components are used which are manufactured from bright strip made of copper, brass, bronze, nickel silver and special alloys with various surface qualities.

In addition to bright strip, tin-plated strip made of copper materials is used. It offers the possibility of manufacturing highly complex components very economically. In the production of miniaturised components, both ultra-thin strip and profiled strip are used in particular.

The production of strip with threaded surfaces for the electrical industry sets high standards for the product divisions.

Our copper materials are approved throughout the world for use in electronics by all key manufacturers of plug-type connectors. They are used in European, Asian and American punching operations.

Copper tubes in air-conditioning

WORKING AND LIVING CONDITIONS HAVE BEEN OPTIMISED THROUGH AIR-CONDITIONING TECHNOLOGY. IN THE COURSE OF THIS DEVELOPMENT TOTALLY NEW POSSIBILITIES FOR INDUSTRY HAVE BEEN OPENED UP.

Technological progress in refrigeration and air-conditioning would have been inconceivable without the development of special copper tube.

In co-operation with the refrigeration and air-conditioning industry, KME has launched numerous innovative, application-oriented, special products on the market.

With the development of the internally-ribbed CROSSFIN tubes for condensers and METOFIN tubes for evaporators, KME offers the unique opportunity of using application-specific, optimal performance tubes for heat exchangers. This enables the production of smaller, very quiet and economically operating refrigeration and air-conditioning systems.

Plain ended tube, in accordance with the CUPROCLIMA standard is used worldwide by refrigeration and air-conditioning plant manufacturers, and has become the leading standard when it comes to internal purity for refrigeration and air-conditioning applications. CIPS tubes for refrigeration and air-conditioning systems and for the transport of industrial and medical grade gases form another example of application-oriented special solutions.

Air-conditioning, however, is increasingly taking place by means other than air exchange.

Particularly in office construction, the trend is towards using radiation processes to cool spaces. In this field, KME has developed ceiling elements for cooling and copper tube which can also be used for space heating in winter months.

Building products made of copper and brass

COPPER AND BRASS ARE BOTH MATERIALS WHICH ARE OF GREAT IMPORTANCE FOR BUILDING, ENGINEERING AND INTERIOR FINISHING.

The use of copper tube in domestic installations enjoys a long tradition, handling copper is one of the important principles of both traditional and modern domestic installation technology. Over 60% of all homes in Europe have copper pipes.

WICU and SANCO are KME brand products. They have been tried and tested over many decades. Hot and cold drinking water, heating water, gas, liquid gas and oil are transported safely, our floor heating performs reliably.

As design materials, brass and bronze are used to decorate buildings, particularly interiors. Under the ARKITA brand, KME manufactures flat strip, sections and systems with a large range of colours and surfaces. They are used in the manufacture of door and window frames, the decoration of flooring, walls and furniture as well as the design of reception areas, lifts and display windows.

Brass rods and sections are also essential for building engineering and plumbing installations. Fittings, valves and mountings are made from brass products because of their excellent turning and drilling qualities.

Copper – Influential in architecture

FOR GENERATIONS COPPER HAS BEEN USED IN THE DESIGN OF ROOFS AND FACADES. BESIDES THE AESTHETIC ASPECTS, CONSIDERATIONS OF ECONOMY AND THE DESIRE FOR NATURAL, ENVIRONMENT-FRIENDLY MATERIALS LEAD TO THE CHOICE OF COPPER.

The durability of copper, its appeal and its good processing qualities have made it an important component in discerning architecture, particularly where it also takes its duty to future generations seriously.

TECU is a copper brand used in the manufacture of roofs and facades, including roof drainage, wall edges and sealings. TECU is the only copper throughout the world which is available in four different surface finishes – as TECU Classic (bright copper surface), as TECU Oxid (dark brown), TECU Patina (green patina) and TECU Zinn (matt grey tin-plated). This variety opens up design possibilities for architects, contractors and builders which extend far beyond the original potential of copper as a material.