B Product categories Tube 2020

2.0

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1 Manufacturing machinery for metallic tubes and pipes

1.1	Lines for the production of the starting material
1.1.1	Continuous casting lines
1.1.2	Ingot casting lines
1.1.3	Other casting lines
1.2	Lines for the production of seamless tubes and pipes
1.2.1	Lines for the preliminary stage
1.2.1.1	Piercing presses
1.2.1.2	Piercing mills
1.2.1.3	Forging lines
1.2.1.4	Sintering lines
1.2.2	Lines for the production of the final product
1.2.2.1	Centrifugal casting lines
1.2.2.2	Tube extrusion presses
1.2.2.3	Push benches
1.2.2.4	Drawing presses
1.2.2.5	Mandrel mills
1.2.2.6	Plug rolling mills
1.2.2.7	Pilger rolling mills
1.2.2.8	Other hot forming lines
1.2.2.9	Fretz-Moon welding lines
1.2.3	Machines for downstream cold forming
1.2.3.1	Cold pilger rolling mills
1.2.3.2	Cold drawing lines
1.2.3.3	Cold rolling lines
1.2.3.4	Other forming lines
1.2.3.5	Accessories such as pointing systems
1.2.3.6	Sintering lines
1.2.3.7	Smoothing and polishing mills
1.3	Lines for the production of welded tubes and pipes
1.3.1	Lines for the preliminary stage
1.3.1.1	Strip rolling mills / sheet metal rolling mills
1.3.2	Lines for finished products
1.3.2.1	Machines for welding preparation
1.3.2.1.1	Edge milling machines
1.3.2.1.2	Roller cages
1.3.2.1.3	Presses (for U, O or C profiles)
1.3.2.1.4	Three-roll bending machines
1.3.2.1.5	Fixing devices to centre tubes for welding
1.3.2.2	Welding lines
1.3.2.2.1	Longitudinal seam welding lines
1.3.2.2.2	Spiral tube welding lines (for spiral welds)
1.3.2.2.3	Butt welding lines
1.3.2.2.4	Other tube welding lines
1.3.2.2.5	Coil and welding equipment
1.3.3	Machines for downstream cold forming
1.3.3.1	Cold rolling lines
1.3.3.2	Cold pilger rolling mills
1.3.3.3	Cold drawing lines
1.3.3.4	Pointing systems
1.3.3.5	Push and draw benches
1.3.3.6	Other forming lines
1.4	Lines for the production of folded tubes and pipes
1.4.1	Lines for the preliminary stage
1.4.1.1	Strip rolling mills / sheet metal rolling mills
1.4.1.2	Strip shaving equipment for aluminised or galvanised skelp
1.4.2	Machines for the downstream cold forming
1.4.2.1	Tube folding machines

2 Processing machinery for metallic tubes and pipes

2.1	Machinery for mechanical processing
2.1.1	Tube straightening machines
2.1.2	Tube cutting machines
2.1.2.1	Tube sawing machines
2.1.2.2	High-speed flying shears for tubes
2.1.2.3	Laser cutting lines for tubes
2.1.2.4	Water jet cutting lines for tubes
2.1.2.5	Flame cutting lines for tubes
2.1.3	Deburring machines for tubes
2.1.3.1	Inside and outside scarfing systems for longitudinally welded tubes
2.1.4	Tube upsetting machines
2.1.5	Tube expanding machines
2.1.6	Tube end beading machines
2.1.7	Lines for blanking / stamping / punching of tubes
2.1.8	Tube piercing machines
2.1.9	Tube profiling machines
2.1.10	Tube grooving machines
2.1.11	Tube turning machines
2.1.12	Tube drilling machines
2.1.13	Tube thread cutting machines
2.1.14	Tube chamfering / bevelling machines
2.1.15	Tube slotting machines
2.1.16	Tube scoring machines
2.1.17	Tube welding machines
2.1.17.1	High-frequency welding equipment
2.1.17.2	Induction welding equipment
2.1.17.3	Resistance welding equipment
2.1.17.4	Inert gas welding equipment (TIG, ERW, MIG)
2.1.17.5	Soldering equipment
2.1.17.6	Forming gas chamber system for localised flooding with forming gas when welding pipes of stainless steel
2.1.18	Tube compressing machines
2.1.19	Rib-attaching machines for tubes
2.1.20	Other machines for tube processing
2.2	Tube forming lines
2.2.1	Tube bending machines
2.2.2	Tube end forming machines
2.2.3	Hydroforming lines
2.2.4	Other tube forming lines
2.3	Tube machining centers
2.3.1	Laser processing centers for tubes
2.4	Machinery for the heat treatment of tubes
2.4.1	Pre-heating and re-heating systems for tubes
2.4.1.1	Drying and heating furnaces
2.4.2	Annealing lines for tubes
2.4.3	Induction annealing systems for tubes
2.4.4	Partial heating systems for tubes
2.4.5	Systems for soft annealing, tempering
2.4.6	Systems for hardening, soft annealing, tempering
2.4.7	Melting furnaces
2.4.8	Sintering plants
2.5	Machinery for the surface treatment of tubes
2.5.1	Tube descaling lines
2.5.2	Brushing lines for tubes
2.5.3	Tube pickling lines

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2.5.4	Cleaning lines for tubes
2.5.5	Peeling machines for tubes
2.5.6	Grinding machines for tubes
2.5.6.1	Other grinding machines
2.5.7	Polishing machines for tubes
2.5.8	Lapping machines for tubes
2.5.9	Honing machines for tubes
2.5.10	Coating lines for tubes
2.5.11	Galvanic coating lines for tubes
2.5.12	Lines for surface preparation for the adhesion of printing inks, varnishes and glues
2.5.13	Machines for electropolishing
2.6	Insulating lines for tubes
2.7	Marking and labelling systems for the tube and pipe industry
2.8	Machinery for additive manufacturing (3D printing)
2.9	Second-hand machines for the tube industry
2.10	Spare and wear parts for the tube industry
2.11	Handling systems, feeding systems and logistics for the tube and pipe industry
2.11.1	Coiling and decoiling systems
2.11.1.1	for flexible ducts
2.11.1.2	for rigid ducts
2.11.2	Accumulators
2.11.2.1	Horizontal strip accumulators
2.11.3	Tube separating machines
2.11.4	Packing / packaging machines for the tube industry
2.11.4.1	Bundling and tying-off machines for tubes
2.11.4.2	Strapping machines for tubes
2.11.4.3	Packaging materials for tubes and tube products
2.11.5	Conveyor systems for the tube industry
2.11.5.1	Robot technology for the tube industry
2.11.6	Warehouse systems, storage systems for tubes
2.11.6.1	Storing (automatic, mechanical)
2.11.7	Machines for counting, weighing and sorting
2.11.8	Other handling and packaging systems
2.11.9	Stock automation
2.12	Repair and rehabilitation measures
2.12.1	Tubes and pipes
2.12.2	Welding seams in the construction of bulk storage tanks
2.12.3	Special machines and fittings
2.12.4	Inside and outside cleaning
2.13	Profile Machinery
2.13.1	Profile bending machines
2.13.2	Profile roll forming machines
2.13.3	Profile working machines
2.13.4	Profile cutting machines
2.13.5	Profile end forming machines

3 Tools, auxiliary materials and agents for the manufacturing and processing of metallic tubes and pipes

3.1	Tools
3.1.1	Rolling tools
3.1.2	Drawing tools
3.1.3	Forming tools and mandrels
3.1.4	Brushes
3.1.5	Saw blades
3.1.6	Grinding wheels and polishing wheels
3.1.7	Thread rolling tools
3.1.8	Machines for the processing of rolling tools, pressing tools and drawing tools
3.1.9	Tools for cutting and deburring
3.1.10	Sawblade grinding machines
3.1.11	Other
3.2	Agents
3.2.1	Pickling agents
3.2.2	Cleaning agents
3.2.3	Drawing agents
3.2.4	Lubricants
3.2.5	Other chemicals
3.2.6	Fuel gases and shielding gases
3.2.7	Materials for welding and brazing/soldering

4 Tubes, pipes, tube products and tube accessories

4.1	Seamless tubes made of ferrous metals
4.1.1	Seamless tubes made of cast iron
4.1.2	Seamless tubes made of steel
4.1.2.1	Seamless tubes made of stainless steel
4.1.2.2	Seamless tubes made of ferritic stainless steel
4.1.2.3	Seamless tubes made of austenitic stainless steel
4.1.2.4	Seamless tubes made of duplex steel
4.1.2.5	Seamless tubes made of other steel grades
4.1.2.6	Coated seamless steel tubes
4.2	Seamless tubes made of non-ferrous metals
4.2.1	Seamless tubes made of aluminium and aluminium alloys
4.2.2	Seamless tubes made of copper and copper alloys (such as brass or bronze)
4.2.3	Seamless tubes made of nickel alloys
4.2.4	Seamless tubes made of titanium alloys
4.2.5	Seamless tubes made of other non-ferrous metals and alloys
4.2.6	Coated seamless tubes made of non-ferrous metals
4.3	Welded tubes made of steel
4.3.1	Welded tubes made of stainless steel
4.3.2	Welded tubes made of ferritic stainless steel
4.3.3	Welded tubes made of austenitic stainless steel
4.3.4	Welded tubes made of duplex steel
4.3.5	Welded tubes made of other steels grades
4.3.6	Coated welded steel tubes
4.4	Welded tubes made of non-ferrous metals
4.5	Spiral ducts
4.6	Other metallic tubes
4.6.1	Bimetallic tubes
4.6.2	Plastic-clad tubes
4.6.3	Tubes made from low carbon steel
4.6.4	Tubes made from high carbon steel
4.6.5	Other alloyed steel tubes

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4.6.6	Duplex and nickel base alloy pipes and tubes
4.6.7	Sintered tubes
4.6.8	Precision tubes
4.6.9	Threaded tubes (seamless, welded, mediumweight, heavy)
4.6.10	Galvanized and clad tubes (Zn, Cu, Sn etc.)
4.6.11	Anodized tubes
4.6.12	Coated tubes
4.6.13	Surface-treated tubes
4.6.14	Formed tubes
4.6.15	Tubes (rolled, insulated, plastic-coated)
4.6.16	Rectified and chromium plated bars and tubes
4.6.17	Bored and grinted mirror finish tubes for hydraulic application
4.6.18	Extruded tubes
4.6.19	Pilger tubes
4.6.20	Hydro-formed tubes
4.7	Tubes made of non-metallic materials
4.7.1	Tubes made of polymers
4.7.1.1	Tubes made of ABS
4.7.1.2	Tubes made of nylon
4.7.1.3	Tubes made of PB
4.7.1.4	Tubes made of PE, XLPE, PE-X, HD-PE, MD-PE, LD-PE
4.7.1.5	Tubes made of PP, PP-R
4.7.1.6	Tubes made of PTFE
4.7.1.7	Tubes made of PVC / PVC tubes
4.7.1.8	Tubes made of other polymers
4.7.2	Tubes made of composite materials
4.7.2.1	Carbon fibre tubes
4.7.2.2	Fibreglass tubes
4.7.2.3	Glass Fiber Reinforced Epoxy
4.7.3	Tubes made of glass / glass tubes
4.7.4	Tubes made of concrete / concrete tubes
4.7.5	Tubes made of ceramic / ceramic tubes
4.7.6	Tubes made of earthenware
4.7.7	Tubes made of other materials
4.8	Delivery form
4.8.1	In straight lengths
4.8.2	In coils
4.9	Tubes in relation to the application
4.9.1	Installation pipes and tubes
4.9.1.1	Drainage tubes
4.9.1.2	Installation tubes for discharge systems
4.9.1.3	Installation tubes for water, oil, gas or steam lines
4.9.1.4	Installation tubes for solids transportation (powdered and free-flowing substances)
4.9.1.5	Installation tubes for heat exchange and transfer systems
4.9.1.6	Installation tubes for chemical plants
4.9.1.7	Installation tubes for nuclear power plants
4.9.1.8	Installation tubes for mechanical engineering (hydraulics, pneumatics)
4.9.1.9	Installation tubes for engine manufacturing
4.9.1.10	Installation tubes for vehicle construction (automobiles, motorcycles, bicycles, trailers)
4.9.1.11	Installation tubes for shipbuilding
4.9.1.12	Installation tubes for aircraft construction
4.9.1.13	Installation tubes for railway engineering
4.9.1.14	Installation tubes for other applications
4.9.1.15	Installation tubes for drilling technology
4.9.2	Structural tubes (hollow profiles)
4.9.2.1	Structural tubes for steel construction
4.9.2.2	Structural tubes for apparatus and plant engineering
4.9.2.3	Structural tubes for the construction industry (scaffolding, stands, towers, railings)
4.9.2.4	Structural tubes for masts (tubular masts, lighting systems, ladders)
4.9.2.5	Structural tubes for vehicle construction (automobiles, motorcycles, bicycles, trailers)
4.9.2.6	Structural tubes for shipbuilding
4.9.2.7	Structural tubes for aircraft construction
4.9.2.8	Structural tubes for railway engineering
4.9.2.9	Structural tubes for furniture
4.9.2.10	Structural tubes for musical instruments
4.9.2.11	Structural tubes for other applications
4.9.2.12	Structural tubes for the chemical sector (acid-resistant tubes etc.)
4.9.3	Tubes for other applications
4.9.3.1	Tubes for measuring technology
4.9.3.2	Blast tubes (steel production, oxygen tubes)
4.10	Tube products
4.10.1	Tube bends / tube elbows
4.10.2	Flanges
4.10.3	Tailored tubes
4.10.4	Other tube products
4.11	Tube accessories
4.11.1	Connecting pieces for tubes
4.11.2	Closures / protection caps for tubes
4.11.3	Thread protectors for tubes
4.11.4	Seals for tubes
4.11.5	Fittings for tubes
4.11.6	Mountings (brackets) for tubes
4.11.7	Vibration damping elements for tubes
4.11.8	Tube repair elements
4.11.9	Sockets for tubes
4.11.10	Clamping rings for tubes
4.11.11	Accessories for closures (screws etc.)
4.12	Profil
4.12.1	Iron and steel profiles
4.12.2	Stainless steel profiles
4.12.3	Non-ferrous profiles
4.12.4	Alloys Profiles

5 Testing technology, sensor technology and quality assurance for the tube and pipe industry

5.1	Materials testing
5.1.1	Equipment for destructive materials testing
5.1.2	Equipment for non-destructive materials testing
5.1.3	Hardness testers
5.1.4	Others
5.2	Process testing and sensor technology
5.2.1	Temperature measuring equipment
5.2.2	Length and speed measurement
5.2.3	Testing machines for rolls
5.2.4	Sensors and actuators for tube processing machines
5.2.5	Automatic control units
5.2.6	Sensor evaluation systems (see also 7.1)

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5.3	Product testing
5.3.1	Optical testing systems and endoscopes for tubes
5.3.2	Laser beam testing equipment
5.3.3	Eddy current and magnetic powder testing equipment
5.3.4	Ultrasonic test equipment
5.3.5	X-ray inspection equipment
5.3.6	Thermographic testing equipment
5.3.7	Diameter measuring devices
5.3.8	Profile and geometry testing equipment
5.3.9	Concentricity testing equipment
5.3.10	Ovality testing equipment
5.3.11	Leakage testing equipment
5.3.12	Corrosion testing devices
5.3.13	Creep, vibration and fatigue strength testing equipment
5.3.14	Hydrostatic tube testing equipment
5.3.15	Analytical equipment
5.3.16	Others
5.3.17	Gauges

6 Environmental technologies and resource efficiency for the tube and pipe industry

6.1	Cooling and cleaning systems for operational equipment
6.2	Filtration systems and filters for operational equipment
6.3	Water treatment plants for the tube industry
6.4	Air exhaust systems for the tube industry
6.5	Storage systems for chemicals
6.6	Processing systems for chemicals
6.7	Recycling systems for chemicals
6.8	Disposal systems for chemicals

7 Software for the tube and pipe industry

7.1	Software for the design of tubes and tube products
7.2	Software for the design of piping systems
7.3	Simulation systems for the tube industry
7.4	Production Data Acquisition (PDA) systems
7.5	Enterprise Resource Planning (ERP) systems
7.6	Manufacturing Execution Systems (MES)
7.7	Tube Bending software
7.8	Other software

8 Trade with tubes and pipes

8.1	Steel tubes
8.1.1	Seamless steel tubes and steel tube products
8.1.2	Welded steel tubes and steel tube products
8.1.3	Cold drawn steel tubes
8.2	Tubes made of non-ferrous metals
8.2.1	Seamless tubes and tube products made of non-ferrous metals
8.2.2	Welded tubes and tube products made of non-ferrous metals
8.2.3	Cold drawn tubes made of non-ferrous metals
8.3	Tubes made of polymers
8.4	Tubes made of composite materials
8.5	Glass tubes
8.6	Ceramic tubes
8.7	Tubes made of earthenware
8.8	Concrete tubes
8.9	Tubes made of other materials

9 Special area pipeline and OCTG technology (OCTG – Oil Country Tubular Goods)

9.1	Construction of OCTG plants and pipelines
9.1.1	Machinery and equipment
9.1.2	Welding systems for pipelines
9.2	Maintenance of OCTG plants and pipelines
9.2.1	Equipment condition monitoring
9.2.2	Leak searching / detection systems
9.3	Components for OCTG plants and pipelines
9.3.1	Drill pipes
9.3.2	Casings
9.3.3	Tubings
9.3.4	Fittings
9.3.5	Valves
9.4	Corrosion protection for pipelines
9.4.1	Coating technology
9.4.2	Surface coatings
9.4.3	Cathodic corrosion protection
9.4.4	Anodic corrosion protection
9.5	Reconditioning of pipelines
9.6	Services for OCTG plants and pipelines
9.6.1	Planning and design of OCTG and pipeline systems
9.6.2	Coating services
9.7	Software for OCTG plants and pipelines
9.7.1	Software for the design of OCTG and pipeline systems
9.7.2	Software for the monitoring of OCTG and pipeline systems

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9.7.3	Software for Production Data Acquisition (PDA) systems of OCTG plants and pipeline systems, and evaluation
9.7.4	Simulation software for OCTG plants and pipeline systems

10 Special area PT – Plastic Tube

10.1	Competence area: utility supply (buildings and infrastructure)
10.2	Competence area: waste water disposal (buildings and infrastructure)
10.3	Competence area: building services
10.4	Competence area: industrial tubes and pipes

11 Services for the tube and pipe industry

11.1	Management consulting
11.2	Technical consulting
11.3	Industry 4.0: Consulting and solutions
11.4	Market, technology and competition monitoring
11.5	Patent information
11.6	Testing laboratories
11.7	Certifications
11.8	Design of tubes
11.9	Planning of piping systems
11.10	Paid work on tubes such as bending or coating
11.11	Repair and renovation of tube systems
11.12	Others
11.13	Education and training
11.14	Research and teaching
11.15	Specialist literature / publishing houses
11.16	Associations