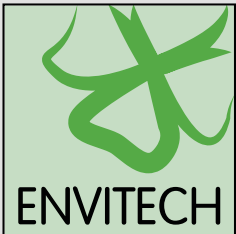


MSV 2023

International Engineering Fair



International Fair for Transport and Logistics



International Fair for Environmental Protection Technologies

The key marks will be

- Industry 4.0 and a digital factory
- Circular economy

October 10–13, 2023
Brno – Czech Republic

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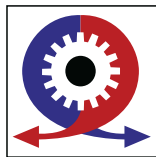
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NOMENCLATURE

INDUSTRY 4.0 AND DIGITAL FACTORY – across all MSV industries



CIRCULAR ECONOMY



**64th International
Engineering Fair**

MSV 2023

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MINING, METALLURGICAL, CERAMIC AND GLASS ENGINEERING

Mining, boring and dressing equipment	1.2.3.11	Special machines for rolling mills
1.1.1 Machines and instruments for geological prospecting	1.2.3.12	Handling machines for rolling and preparation plants
1.1.2 Instruments for geophysical prospecting	1.2.3.13	Accessories of rolling and treatment mills
1.1.3 Machines and equipment for mining	1.2.3.14	Auxiliary equipment for rolling mills
1.1.4 Mining equipment for underground mines	1.2.3.15	Thin-walled profile production lines
1.1.5 Machines for open-cast mining	1.2.3.99	Rolling mill and drawing plant equipment – other
1.1.6 Machines and equipment for coal and ore dressing, accessories	1.2.4	Equipment for the production of non-ferrous metals
1.1.7 Machines and equipment for crude oil and natural gas exploitation	1.2.5	Heat treatment of metals
1.1.8 Machines and equipment for stone, sand and clay excavation	1.2.5.1	Accessories of equipment for heat treatment of metals
1.1.9 Machines for mineral raw material processing	1.2.5.2	Hardening technology
1.1.10 Fuel transport equipment	1.2.5.3	Annealing technology
1.1.11 Storing equipment and tanks for fuels	1.2.5.4	Tempering technology
1.1.12 Control systems of extraction machines	1.2.5.5	Nitriding technology
1.1.80 Measuring instruments for mining, boring and dressing equipment	1.2.5.6	Carburizing technology
1.1.87 CAD, CAM, CIM in mining processes and equipment	1.2.5.99	Heat treatment of metals – other
1.1.88 Consultancy in mining processes and equipment	1.2.6	Industrial furnaces for metal processing
1.1.89 Engineering and design service for metal production and processing	1.2.6.1	Accessories for industrial furnaces
1.1.90 Service and repairs of mining, dressing and boring equipment	1.2.6.2	Industrial chamber furnaces for metal processing
1.1.91 Refurbished mining, boring and dressing equipment	1.2.6.3	Continuous furnaces for metal processing
1.1.92 Technologies for mining processes	1.2.6.4	Vacuum, crucible, combustion, bell and other furnaces
1.1.93 Implementation of complete mining, boring and preparation equipment plants	1.2.6.5	Electric furnaces for metal processing
1.1.99 Mining, boring and dressing equipment – other	1.2.6.6	Gas furnaces for metal processing
1.2.1 Metal production and processing equipment – metallurgical equipment	1.2.6.6.1	Gas burners for metal heat treatment furnaces
<i>Pig iron production</i>	1.2.6.7	Metal heat treatment equipment including controlled atmosphere
1.2.1.1 Accessories of pig iron production equipment	1.2.6.8	Vacuum furnaces for metal processing
1.2.1.2 Blast furnaces	1.2.6.9	Melting furnaces for metal processing
1.2.1.3 Gas cleaning equipment	1.2.6.10	Soldering furnaces
1.2.1.4 Auxiliary equipment for blast furnaces	1.2.6.11	Plasma furnaces for metal processing
1.2.1.5 Coking plant equipment	1.2.6.12	Fireclay brick formpieces for industrial furnaces
1.2.1.6 Linings and refractory material for metallurgical production	1.2.6.99	Furnaces and equipment for metal processing – other
1.2.1.7 Slag products	1.2.7	Induction heating equipment for metals
1.2.1.99 Machines and equipment for pig iron production – other	1.2.7.1	High frequency generators for induction heating
1.2.2 Steel works equipment	1.2.95	Heat treatment of metal components to order
1.2.2.1 Steel production equipment, furnaces, converters	1.2.99	Metal production and processing equipment – other
1.2.2.2 Converter steel works	Machines and equipment for the ceramic and glass industries	
1.2.2.3 Continuous casting steel works	1.3.1	Hot processing technologies
1.2.2.4 Automatic lines for casting production	1.3.1.1	Components and accessories of drying equipment for the ceramic and glass industries
1.2.2.5 Electric steel production equipment	1.3.1.2	Firing kilns
1.2.2.6 Additives and alloying additions	1.3.1.3	Firing tools
1.2.2.7 Special ceramics for continuous steel casting	1.3.1.4	Kiln burners and heating systems
1.2.2.8 Scrap treatment and processing equipment	1.3.1.5	Kiln carriages and transport systems
1.2.2.8.1 Hydraulic shears for scrap processing	1.3.1.6	Refractory materials
1.2.2.9 Auxiliary equipment for steel works	1.3.1.7	Monitoring and control instruments for firing technologies
1.2.2.99 Steel works equipment – other	1.3.1.8	Technical equipment for the neutralization of environmentally undesirable substances
1.2.3 Rolling mill and drawing plant equipment	1.3.1.9	Machines for hot processing technologies – other
1.2.3.1 Hot rolling mills	1.3.2	Technologies for the ceramic industry – other
1.2.3.2 Cold rolling mills	1.3.2.1	Raw material dressing in the ceramic industry
1.2.3.2.1 Rolls for cold rolling	1.3.2.2	Mass preparation in the ceramic industry
1.2.3.3 Blooming mills	1.3.2.3	Technology for mass moulding in the ceramic industry
1.2.3.4 Rolling mill drives	1.3.2.4	Handling and transport technologies in the ceramic industry
1.2.3.5 Conveyers for rolling mills	1.3.2.5	Surface treatment of ceramic industry products
1.2.3.6 Separating and cutting machines for metallurgical production	1.3.2.6	Machines and equipment for the processing of ceramics
1.2.3.7 Tube rolling and drawing mills	1.3.2.7	Saws and grinding, milling and drilling machines for ceramics
1.2.3.8 Tube treatment machines and tube insulation	1.3.2.8	Materials for the production of moulds in the ceramic industry
1.2.3.9 Wire-drawing machines for rolling and drawing mills	1.3.3	Machines and equipment for the glass industry
1.2.3.10 Spooling equipment for rolling and drawing mills	1.3.3.1	Hot processing technologies – glass melting
	1.3.3.2	Burner systems for the glass industry
	1.3.3.3	Glass moulding



MINING, METALLURGICAL, CERAMIC AND GLASS ENGINEERING

- 1.3.3.4 *Glass cooling technology*
- 1.3.3.5 *Special equipment and materials for the glass industry*
- 1.3.3.6 *Technologies for the glass industry – other*
- 1.3.87 *CAD, CAM, CIM for the glass and ceramic production*

- 1.3.99 *Machines and equipment for the ceramic and glass industry – other*

- 1.4 *Machines and equipment for powder metallurgy technologies*

MATERIALS AND COMPONENTS FOR MECHANICAL ENGINEERING

Metallurgical semi-products and products of metals

2.1.1 *Basic metallurgical semi-products*

- 2.1.1.1 Ingots
- 2.1.1.2 Billets
- 2.1.1.3 Blooms, slabs
- 2.1.1.4 Continuous casts
- 2.1.1.5 Slag

2.1.2 *Hot rolled steel*

- 2.1.2.1 Hot extruded steel
- 2.1.2.2 Bar steels and profiles

2.1.3 *Steel sheets*

- 2.1.3.1 Hot rolled sheets
- 2.1.3.2 Cold rolled sheets
- 2.1.3.3 Zinc-coated steel sheets
- 2.1.3.4 Tinned steel sheets
- 2.1.3.5 Sheets, sections and strips of corrosion-proof steels
- 2.1.3.6 Abrasion-resistant sheet metal
- 2.1.3.7 High-strength sheet metal
- 2.1.3.8 Surface finished steel sheets
- 2.1.3.9 Perforated steel sheets
- 2.1.3.10 Bands, strips
- 2.1.3.11 Profiled sheets and strips
- 2.1.3.12 Isotropic sheets and strips for electric engineering
- 2.1.3.13 Anisotropic sheets and strips for electric engineering
- 2.1.3.14 Steel foils
- 2.1.3.99 Steel sheets – other

2.1.4 *Steel pipes, tubes, elbows, closed sections*

- 2.1.4.1 Seamless steel tubes and pipes
 - 2.1.4.1.1 Seamless corrosion-proof tubes and pipes
- 2.1.4.2 Welded steel tubes and pipes
 - 2.1.4.2.1 Welded corrosion-proof tubes and pipes
- 2.1.4.3 Centrifugally cast tubes and pipes
- 2.1.4.4 Thick-walled steel tubes and pipes
- 2.1.4.5 Thin-walled steel tubes and pipes
 - 2.1.4.5.1 Precision thin-walled steel welded tubes and pipes
 - 2.1.4.5.2 Thin-walled corrosion-proof tubes
- 2.1.4.6 Surface finished tubes
- 2.1.4.7 Tube sleeves, couplings, elbows
- 2.1.4.99 Steel tubes and pipes – other

2.1.5 *Cold rolled steel*

- 2.1.5.1 Cold extruded steel
- 2.1.5.2 Cold profiled steel

2.1.6 *Drawn steels*

- 2.1.6.1 Cold drawn steel
- 2.1.6.2 Hot drawn steel

2.1.7 *Forged steels*

2.1.8 *High-grade steels*

- 2.1.8.1 Tool steels
- 2.1.8.2 High-speed steels
- 2.1.8.3 Refractory steels
- 2.1.8.4 Corrosion-proof steels
- 2.1.8.5 High-alloy steels

2.1.8.6 *Special steels*

- 2.1.8.6.1 Steels for low temperatures

2.1.9 *Peeled steel*

2.1.10

- 2.1.10.1 *Steel wires*
Corrosion-proof wires

2.1.11 *Rails*

Forgings, pressed parts

- 2.2.1 Pressed, drawn and stamped parts
- 2.2.2 *Open die forgings*
 - 2.2.2.1 Open die forgings of steel
 - 2.2.2.2 Open die forgings of non-ferrous metals

2.2.3 *Drop forgings*

- 2.2.3.1 Drop forgings of steel
- 2.2.3.2 Drop forgings of non-ferrous metals

2.2.4 *Upset pieces*

2.2.5 *Extruded pieces*

2.2.6 *Metal pressed pieces*

- 2.2.6.1 Cold pressed parts of sheet
- 2.2.6.2 Hot pressed parts of sheet

- 2.2.99 Forgings, pressed parts – other

2.4 *Metal workpieces*

- 2.4.1 Fine metal workpieces
- 2.4.2 Turned, milled, drilled and threaded components

2.5 *Special elements – metal semi-products*

Non-ferrous metals and semi-products of non-ferrous metals

- 2.6.1 Non-ferrous metals and alloys

2.6.2 *Semi-products of non-ferrous metals*

- 2.6.2.1 *Semi-products of aluminium and aluminium alloys*
 - 2.6.2.1.1 Aluminium sheets, strips
 - 2.6.2.1.2 Aluminium foils
 - 2.6.2.1.3 Aluminium pipes and rods
 - 2.6.2.1.4 Aluminium wires
 - 2.6.2.1.5 Aluminium sections
 - 2.6.2.1.6 Aluminium foam
 - 2.6.2.1.7 Aluminium bodies for central heating

- 2.6.2.2 Sheets, rods, tubes and wires of copper

- 2.6.2.3 Sheets, rods, tubes and wires of brass

- 2.6.2.4 Semi-products of bronze

- 2.6.2.5 Semi-products of titanium

- 2.6.2.6 Semi-products of nickel alloys

- 2.6.2.7 Semi-products of magnesium alloys

- 2.6.2.8 Semi-products of lead alloys

- 2.6.2.9 Semi-products of precious metals alloys

2.6.3 *Thermal bimetals*

2.6.99 *Non-ferrous metals and semi-products of non-ferrous metals – other*

2.7 *Metal powders and powder metallurgy products*

2.8 *Products of sintered carbides*

- 2.8.1 Sinter pressed pieces

Some metal elements and components for mechanical engineering

2.9.1 *Connecting materials*

- 2.9.1.1 Screws

- 2.9.1.2 Nuts

- 2.9.1.2.1 Pressing and riveting nuts

- 2.9.1.3 Washers



MATERIALS AND COMPONENTS FOR MECHANICAL ENGINEERING

2.9.1.4	Retaining rings	2.9.11.3	Armoured hose sets for product transport
2.9.1.5	Screws		
2.9.1.6	Rivets	2.9.12	Chains
2.9.1.7	Bolts	2.9.13	Disk and other wheels
2.9.1.8	Clips	2.9.14	Piston rings
2.9.1.99	Connecting materials – other	2.9.15	Distance rings
2.9.2	Forgings	2.9.16	Pins
2.9.3	Clamps / grips	2.9.17	Draw bars
		2.9.18	Connecting rods
		2.9.19	Crankshafts
2.9.4	Springs		
2.9.4.1	Coiled springs	2.9.20	Absorbers
2.9.4.2	Telescopic springs	2.9.20.1	Hydraulic absorbers
2.9.4.3	Gas cylinders		
2.9.4.4	Polyurethane springs	2.9.99	Metal elements and components of general use – other
2.9.5	Expanded metal		
2.9.6	Gas struts	Seals	
		2.13.1	Metal seals
2.9.7	Wire products	2.13.2	Plastic seals
2.9.7.1	Wire nettings	2.13.2.1	Polymer-type sealing systems
2.9.7.2	Steel ropes		
		2.13.3	Rubber seals
2.9.7.3	Wire nets	2.13.4	Cork seals
2.9.7.3.1	Welded mesh / nets	2.13.5	Asbestos seals
		2.13.6	Asbestos-free seals
2.9.7.4	Wire fabrics		
2.9.7.5	Bent wire components	2.13.7	Graphite seals
2.9.7.6	Brushes with steel wires	2.13.7.1	Graphite films and boards for sealing technology
2.9.7.99	Wire products – other		
2.9.8	Steel structures	2.13.8	Shaped seals
2.9.8.1	Components and structures (sub-supplies)	2.13.9	Self-adhesive seals
2.9.8.2	Heavy structures (sub-supplies)	2.13.10	Shaft seal rings
		2.13.11	Flange seals
2.9.8.3	Welded structures	2.13.12	Flat seals with metal reinforcements
2.9.8.3.1	Welded pieces	2.13.13	Bearing seals
2.9.8.4	Poles	2.13.14	Rotary seals
2.9.8.4.1	Lighting towers	2.13.14.1	Seals for rotary shafts
2.9.8.5	Steel structures for waterworks (weirs, lock chambers)	2.13.15	O-rings
2.9.8.6	Railway, road and pipeline steel bridges	2.13.16	Seal strips
2.9.8.7	Steel containers, silos	2.13.17	Sealing cords
2.9.8.8	Steel gates, doors, barriers	2.13.18	Sealing sleeves
2.9.8.9	Steel pallets	2.13.19	Universal sealing systems
2.9.8.10	Hot galvanized steel structures	2.13.99	Seals – other
2.9.8.11	Assembly of steel structures		
2.9.8.99	Steel structures – other	Glass and glass products	
2.9.9	Tube structures	2.14.1	Technical glass
2.9.9.1	Metal pipelines and tubes	2.14.2	Optical glass, prisms, lenses
2.9.9.2	Fittings	2.14.3	Illumination glass
2.9.9.2.1	Fittings for joining by pressing in	2.14.4	Glass tubes
		2.14.5	Glass components for industry
2.9.9.3	Flanges for tube structures	2.14.6	Glass fibres
2.9.9.4	Coils, corrugated pipes	2.14.6.1	Glass fibre products
2.9.9.99	Tube products – other		
		2.14.99	Glass products – other
2.9.10	Apparatus, vessels, tanks	2.15	Porcelain and technical ceramics
2.9.10.1	Steel bottles	2.15.1	Engineering ceramics
		2.15.2	Cutting ceramics
2.9.10.2	Pressure apparatus and vessels	2.15.3	Fibre-reinforced industrial ceramics
2.9.10.2.1	Pressure apparatuses and vessels	2.15.4	Ceramic fibres
2.9.10.2.2	Valves for pressure vessel safety	2.15.5	Ceramics for electronic components
		2.15.6	Ceramic components
2.9.10.3	Non-pressure apparatuses and vessels	2.15.7	Porcelain components
2.9.10.4	Storage tanks	2.15.99	Technical ceramics – other
2.9.11	Metal hoses	2.16	Carbon components
2.9.11.1	Connecting and fixing elements of metal hoses		
2.9.11.2	Flexible hoses of high-grade steel		

2.18	Technical fabrics	2.41.4.5	High-speed gearboxes
2.18.1	Fabric dilatation compensators	2.41.4.6	Gearboxes with stepless gear change
2.19	Ebonite products and semi-products	2.41.4.7	High performance gearboxes
2.20	Paper products for industrial use	2.41.4.8	Gearboxes for lifting equipment
		2.41.4.99	Mechanical gearboxes – other
2.21	Crystal-based products	2.41.5	Combined mechanical gearboxes
2.21.1	Sapphire products and semi-products	2.41.6	Hydraulic gearboxes
2.22	Permanent magnets	2.41.7	Variable speed gearboxes
2.23	Marking devices for lettering and marking	2.41.8	Automatic gearboxes
2.23.1	Self-adhesive materials	2.41.9	Turbogears
2.23.2	Marking of industrial components by imprinting	2.41.10	Cam transmission mechanisms
		2.41.11	Special gearboxes
		2.41.99	Gears – other
2.24	Face labels	Clutches	
2.24.1	Aluminium, anodized and photolayer face labels	2.42.1	Components for clutches
2.24.2	Enamelled sheet metal plates and labels	2.42.2	Rigid clutches
2.25	Covers, closures	2.42.3	Flexible clutches
2.25.1	Folded covering bellows	2.42.4	Friction clutches
2.25.2	Telescopic guards	2.42.5	Centrifugal clutches
2.25.3	Roller guards	2.42.6	Safety clutches
2.26	Modular systems for the manufacture of single-purpose machines	2.42.7	Controlled overload clutches
2.26.1	Cabins for machine operation	2.42.8	Starting couplings
2.27	Work protection aids for industrial use	2.42.9	Idling couplings
2.28	Textile cleaning agents	2.42.10	Claw couplings
2.29	Workshop equipment, industrial furniture	2.42.11	Hydraulic clutches and accessories
2.29.1	Vaults	2.42.12	Electromagnetic clutches
2.29.2	Workbenches	2.42.13	Shaft couplings
2.29.3	Metal kit boxes	2.42.14	Turboclutches
2.29.4	Mats for industrial operation	2.42.15	Pneumatic clutches
2.29.5	Ergonomic work chairs	2.42.99	Clutches – other
2.30	Manufacture of prototypes, model design (Rapid Prototyping)	Brakes and brake systems	
2.30.1	Prototype production by means of stereolithography	2.43.1	Brake accessories
2.30.2	Prototype production by means of casting in silicon moulds	2.43.2	Disk brakes
2.30.3	3D printers for prototyping	2.43.3	Multi-plate brakes
		2.43.4	Drum brakes
		2.43.5	Spring brakes
		2.43.6	Hydraulic brakes
		2.43.7	Magnetic brakes
		2.43.8	Eddy-current brakes
		2.43.9	Safety brakes
		2.43.10	Electromagnetic brakes
		2.43.11	Brake systems
		2.43.99	Brakes – other
Sliding and antifriction bearings and their accessories		2.44	Final drives and accessories
2.40.1	Components and accessories of antifriction bearings	Lubrication technology	
2.40.1.1	Bearing bodies	2.45.1	Lubrication devices
2.40.2	Sintered slide bearings	2.45.2	Components for lubrication devices
2.40.3	Ball bearings	2.45.3	Central lubrication technology
2.40.4	Roller bearings	2.45.4	Filters for lubrication technology
2.40.5	Needle bearings	2.45.99	Lubrication technology – other
2.40.6	Joint bearings	2.87	CAD, CAM, CIM for bearings and gears
2.40.7	Tapered roller bearings	2.88	Consultancy for bearings and gears
2.40.8	Antifriction spherical-roller bearings	2.89	Engineering and design services in the field of production of bearings and gears
2.40.9	Sliding bearings	2.90	Service and repairs of bearings and gears
2.40.10	Self-lubricating bearings	2.90.1	Diagnostics of bearings and gears
2.40.11	Special bearings	2.90.2	Spare parts for bearings and gears
2.40.12	Bearing lubrication devices	2.90.3	Reconstruction and refurbishment of bearings, gears and couplings
2.40.99	Bearings – other	2.91	Assembly of machines and equipment
Gears		2.92	Engineering of the assembly, servicing and repairs of technological equipment
2.41.1	Components for gears	2.99	Materials and components for mechanical engineering – other
2.41.2	Gear wheels for gearings		
2.41.3	Gear rods – ridges		
Mechanical gearboxes			
2.41.4.1	Gearboxes with spur gear wheels		
2.41.4.2	Gearboxes with bevel gear wheels		
2.41.4.3	Worm gearboxes		
2.41.4.4	Epicyclic gearboxes		



DRIVES, HYDRAULICS AND PNEUMATICS, COOLING TECHNOLOGY AND AIR-CONDITIONING

Drives

- 3.1.1 Converters for drives
- 3.1.2 Rotational electric motors**
- 3.1.2.1 Electric motors with integrated gear box
- 3.1.3 Stepping motors
- 3.1.4 Linear motors
- 3.1.5 Hydraulic devices for drives
- 3.1.6 Pneumatic equipment for drives

3.2 Linear moving units

- 3.2.1 Linear drives and feeds
- 3.2.1.1 Linear guides
- 3.2.1.2 Ball screws

3.3 Adjustable systems

Belt and chain drives

- 3.4.1 Accessories of belt and chain drives
- 3.4.1.1 Pulley blocks
- 3.4.1.2 Indented belts
- 3.4.1.3 V-belts
- 3.4.1.4 Flat belts
- 3.4.1.5 Driving chains
- 3.4.1.5.1 Roller chains
- 3.4.1.5.2 Sleeve-type chains
- 3.4.1.6 Chain wheels

3.5 Shafts for drives

- 3.5.1 Propeller shaft
- 3.5.1.1 Cardan joints
- 3.5.1.2 Homokinetic joints
- 3.5.2 Flexible shafts

3.6 High frequency spindles

Hydraulic elements and systems

3.10.1 Components of hydraulic elements

- 3.10.1.1 Hydraulic valves
- 3.10.1.2 Seals for hydraulics
- 3.10.1.3 Connecting elements for hydraulics
- 3.10.1.4 Hydraulic heads

3.10.2 Hydraulic generators

3.10.3 Hydraulic motors

- 3.10.3.1 High-torque low-speed hydraulic motors
- 3.10.3.2 Hydrodynamic torque converters
- 3.10.3.3 Hydrodynamic couplings
- 3.10.3.4 Hydrodynamic retarders

3.10.4 Hydraulic turbines

- 3.10.5 Hydraulic sets
- 3.10.6 Hydrostatic gearboxes
- 3.10.7 Hydraulic clutches

3.10.8 Hydraulic control elements

- 3.10.9 Hydraulic pressure switches
- 3.10.10 Hydraulic liquid tanks

3.10.11 Hydraulic hoses with union nuts

- 3.10.11.1 Low-pressure hydraulic hoses
- 3.10.11.2 High-pressure hydraulic hoses
- 3.10.11.3 Hose clamps for hydraulics

3.10.11.4 Hydraulic hose terminals

- 3.10.12 Hydraulic flow distributors
- 3.10.13 Hydraulic filters
- 3.10.14 Pumps for hydraulics
- 3.10.15 Hydraulic fans
- 3.10.16 Pressure gauges for hydraulics
- 3.10.17 Hydraulic control systems**
- 3.10.18 Tests of hydraulic elements
- 3.10.19 Educational systems for hydraulics
- 3.10.20 Hydraulic and telescopic cylinders
- 3.10.21 Hydraulics – proportional technology**
- 3.10.22 Manufacture of hydraulic sets and systems on request
- 3.10.99 Hydraulic elements – other

3.15 Fans and compressors for air-condition equipment

Compressors and industrial vacuum pumps

- 3.20.1 Components for compressors and vacuum pumps
- 3.20.2 Piston compressors
- 3.20.3 Rotary compressors

- 3.20.4 Screw compressors
- 3.20.4.1 Oil-lubricated screw compressors
- 3.20.4.2 Oil-free screw compressors

- 3.20.5 Diaphragm compressors
- 3.20.6 High-pressure compressors
- 3.20.7 Turbo-compressors
- 3.20.8 Mobile compressors
- 3.20.9 Compressors for cooling equipment
- 3.20.10 Oil-free air compressors
- 3.20.11 Lubricated air compressors
- 3.20.12 Compressors for technical gases
- 3.20.13 Industrial vacuum pumps
- 3.20.14 Booster compressors
- 3.20.15 Hydro-pneumatic accumulators
- 3.20.16 Blowers
- 3.20.17 Equipment for the drying, treatment and filtration of compressed gas

3.20.18 Condensate cleaners for oil compressors

- 3.20.19 Control devices for compressors**
- 3.20.99 Compressors and industrial vacuum pumps – other

Pneumatic elements

- 3.21.1 Components for pneumatic elements and devices
- 3.21.2 Pneumatic motors
- 3.21.3 Air pressure and flow control elements
- 3.21.4 Pneumatic pressure valves
- 3.21.5 Pneumatic closing valves
- 3.21.6 Pneumatic flow valves
- 3.21.7 Rapid vent valves
- 3.21.8 Pneumatic safety valves
- 3.21.9 Pneumatic control, throttle valves
- 3.21.10 Pneumatic special valves
- 3.21.11 Pneumatic working units
- 3.21.12 Pressure converters
- 3.21.13 Air treatment devices
- 3.21.14 Pneumatic distributors
- 3.21.15 Pneumatic cleaners and separators
- 3.21.16 Pneumatic filters
- 3.21.17 Pneumatic gearboxes
- 3.21.18 Pneumatic clutches
- 3.21.19 Pneumatic control systems
- 3.21.20 Pneumatic cylinders
- 3.21.21 Micro-pneumatic components and systems
- 3.21.99 Pneumatic elements – other

Cooling and freezing equipment for industry

- 3.22.1 Small cooling machines and equipment
- 3.22.2 Freezing equipment for skating rings
- 3.22.3 Flake ice machines
- 3.22.4 Special cooling and freezing equipment



- 3.22.5 Industrial fluid coolers
- 3.22.6 Evaporating condensers
- 3.22.7 Cooling towers
- 3.22.8 Control and regulation instruments for cooling equipment
- 3.22.9 Components and accessories of cooling equipment
- 3.22.99 Cooling and freezing equipment for industry – other

3.23 Driers

Industrial fittings

- 3.30.1 Components and accessories for fittings
 - 3.30.1.1 Actuators for fittings and valves
 - 3.30.1.1.1 Electric actuators for fittings and valves
 - 3.30.1.1.2 Pneumatic actuators for fittings and valves
 - 3.30.1.1.3 Hydraulic actuators for fittings and valves
 - 3.30.1.1.4 Manual actuators for fittings and valves
 - 3.30.1.2 Hardware and software for the control of fittings
- 3.30.2 Hydraulic valves
- 3.30.3 Closing and check valves
- 3.30.4 Safety valves
- 3.30.5 Control valves
- 3.30.6 Pressure reducing valves
- 3.30.7 Control servovalves
- 3.30.8 Electromagnetic valves
- 3.30.9 Thermostatic valves
- 3.30.10 Ball cocks
- 3.30.11 Cocks – other
- 3.30.12 Gate valves
- 3.30.13 Flaps
 - 3.30.13.1 Non-return flap valves
 - 3.30.13.2 Closing flaps
 - 3.30.13.3 Control flaps
- 3.30.14 Fittings for the chemical industry
- 3.30.15 Fittings for power engineering
- 3.30.16 Fittings for vacuum technology
- 3.30.17 Fittings for aggressive materials
- 3.30.18 Fittings for abrasive materials
- 3.30.19 Fittings for flammable and explosive materials
- 3.30.20 Fittings for thin flowing materials
- 3.30.21 Fittings for waste and sludge water
- 3.30.22 Fittings for long distance water distributions
- 3.30.23 Plastic fittings
- 3.30.24 Plastic coated fittings
- 3.30.25 Corrosion-proof fittings
- 3.30.26 Coaxial fittings
- 3.30.27 Mixing fittings
- 3.30.28 Special fittings
- 3.30.99 Industrial fittings – other

Industrial pipelines, tanks

- 3.31.1 Components for pipelines
 - 3.31.1.1 Flanges
 - 3.31.1.2 Shaped pieces
 - 3.31.1.3 Elbows
 - 3.31.1.4 T-pieces
 - 3.31.1.5 Blinders
- 3.31.2 Shock absorbers for pipelines
- 3.31.3 Pipeline seating and suspensions
- 3.31.4 Centre drilling and ballooning sets for pipelines
- 3.31.5 Chemical and physical effect resistant lined pipelines
- 3.31.6 Pipelines with continual indication of leakage of transported materials
- 3.31.7 Cisterns

- 3.32 Jets, nozzles
 - 3.32.1 Air nozzles
 - 3.32.2 Nozzles for liquids
 - 3.32.3 Low pressure jets
 - 3.32.4 High pressure jets

Pumps

- 3.40.1 Components and accessories for pumps
- 3.40.2 Pumps for nuclear power engineering
- 3.40.3 Pumps for classical power engineering
- 3.40.4 Pumps for high pressures and temperatures

3.40.5 Pumps for chemical engineering

- 3.40.5.1 Pumps for acids and lyes
- 3.40.5.2 Petrochemical pumps
- 3.40.5.3 Pumps for flammable and explosive materials
- 3.40.5.4 Ammonia pumps for cooling circuits

3.40.6 Pumps for the food industry

- 3.40.6.1 Pumps for thin flowing materials
- 3.40.6.2 Pumps for sugar factories

- 3.40.7 Pumps for mines
- 3.40.8 Sludge pumps
- 3.40.9 Pumps for mechanical engineering
- 3.40.10 Pumps for water management
- 3.40.11 Drainage pumps
- 3.40.12 Waste water pumps
- 3.40.13 Waste water pumping cranes
- 3.40.14 Pumps for agriculture
- 3.40.15 Irrigation technology
- 3.40.16 Potable water pumps

3.40.17 Industrial pumps

- 3.40.17.1 Pumps for the textile industry
- 3.40.17.2 Pumps for cement production
- 3.40.17.3 Pumps for the paper industry
- 3.40.17.4 Oil pumps for industrial equipment

3.40.18 Pumps for small-scale consumers

- 3.40.18.1 Plastic pumps
- 3.40.18.2 Hose pumps
- 3.40.18.3 Manual pumps
- 3.40.18.4 Barrel pumps

3.40.19 High-pressure pumps

3.40.20 Pumps for solid materials

3.40.21 Pumps for abrasive materials

3.40.22 Pumps for fluid gases

3.40.23 Submersible pumps

- 3.40.23.1 Submersible pumps for borings

3.40.24 Controlled volume pumps

- 3.40.25 Self-priming pumps
- 3.40.26 Heating-system pumps
- 3.40.99 Pumps – other

3.50 Diluting devices

3.77 CAD, CAM, CIM for drives, hydraulics, air-conditioning and compressor technology

3.78 Consultancy on drives, hydraulics, air-conditioning and compressor technology

3.79 Engineering and design of drives, hydraulics, air-conditioning and compression technology

3.80 Service and repairs of drives, hydraulics, compressor technology, air-conditioning and cooling devices

- 3.80.1 Refurbished drives, hydraulic systems, HVAC and cooling units, driers
- 3.80.2 Spare parts of drives, hydraulics for air-conditioning and compressor equipment



DRIVES, HYDRAULICS AND PNEUMATICS, COOLING TECHNOLOGY AND AIR-CONDITIONING

- 3.80.3 Reconstruction and upgrading of drives, air-conditioning and compressor equipment hydraulics
- 3.81 Re-worked drives, hydraulic systems, HVAC and cooling units, driers
- 3.82 Technology for drives, hydraulics, air-conditioning, cooling equipment and driers
- 3.83 Implementation of complete air conditioning, cooling equipment and driers plants
- 3.90 CAD, CAM, CIM for fittings, pumps, water management and irrigation technology
- 3.99 Water management equipment and irrigation technology – other

POWER ENGINEERING AND HEAVY-CURRENT ELECTRICAL ENGINEERING

**Conventional and nuclear power engineering, heating plants****Primary sources for the power industry**

- 6.1.1 Brown coal
- 6.1.2 Bituminous coal
- 6.1.3 Briquettes
- 6.1.4 Coke
- 6.1.5 Natural gas
- 6.1.6 Fuel oils
- 6.1.7 Fuel cells for nuclear power plants
- 6.1.99 Primary sources for the power industry – other

Industrial boilers and their accessories

- 6.2.1 Components and accessories of industrial boilers
- 6.2.2 Industrial boilers
- 6.2.3 **Industrial steam boilers**
- 6.2.4 Steam generators
- 6.2.5 Tanks and pipelines for industrial boilers
- 6.2.6 Boiler burners

Equipment for heat energy generation

- 6.3.1 Components of equipment for heat energy generation

6.3.2 Furnaces

- 6.3.2.1 Grate furnaces
- 6.3.2.2 Dry pulverized coal furnaces
- 6.3.2.3 Fluidizing furnaces

6.3.3 Equipment for chemical water treatment in the power industry**6.3.4 Equipment for thermal water treatment in the power industry****6.3.5 Feed water preheaters****6.3.6 Gas preheaters****6.3.7 Boiler plants****6.3.8 Heating plants****6.3.9 Waste incinerating plants****6.3.10 Exchangers, exchanger stations**

- 6.3.10.1 Heat exchangers
- 6.3.10.2 Exchanger stations

6.3.11 Machines and equipment for fuel handling**6.3.99 Equipment for thermal energy generation – other****Turbines**

- 6.4.1 Components and accessories of turbines
- 6.4.2 Steam turbines
- 6.4.3 Expansion turbines
- 6.4.4 Combustion turbines
- 6.4.5 Gas turbines
- 6.4.99 Turbines – other

6.5. Nuclear technology

- 6.5.1 Components of nuclear equipment
- 6.5.99 Nuclear technology – other

Complete power plants

- 6.6.1 Steam power plants
- 6.6.2 Combined systems: power and district heating plant

6.6.3 Thermal power plants

- 6.6.3.1 Thermal power plants firing solid fuels
- 6.6.3.2 Thermal power plants firing liquid fuels
- 6.6.3.3 Thermal power plants firing gas
- 6.6.3.4 Combined cycle power plants
- 6.6.3.5 Thermal power plants – incineration plants
- 6.6.3.6 Nuclear power plants

Combustion engines

- 6.7.1 Elements of combustion engines
- 6.7.2 Oil engines, Diesel engines

- 6.7.3 Petrol engines
- 6.7.4 Double-fuel motors
- 6.7.5 Gas engines
- 6.7.99 Combustion engines – other

6.8 Electric power sets (motor-generator back-up sources)**6.9 Equipment for utilization of thermal power from thermal engines and turbines**

- 6.9.1 Cogeneration units

6.10 Information and control technologies for the power industry**6.11 Equipment for sulphur and NOx reduction in flue gases****6.12 Auxiliary power plant equipment****6.13 Water treatment plants in power stations****6.14 Steam turbine condensers****6.15 Steam condensate separators****6.16 Equipment for electrical power distribution****6.17 Gas industry equipment****6.17.1 Gas regulating, measuring and safety fittings**

- 6.17.2 Compressors and turbo-compressors designed for natural gas treatment and gas distribution systems

6.17.3 Gas regulation station**6.18 Equipment for thermal power distribution****6.19 Heat insulating materials for power equipment****6.20 Heating equipment**

- 6.20.1 Components for heating equipment
- 6.20.2 Heating components
- 6.20.3 Gas radiant heating for industrial applications

6.21 Recuperation units, recuperators**6.22 Equipment, systems and aids for provision of safety in nuclear plants****6.23 CAD, CAM, CIM in the power industry****6.24 Consultancy in the power industry****6.25 Engineering and design services in the field of power industry equipment****6.26 Service and repairs of power industry equipment****6.26.1 Diagnostics of power industry equipment**

- 6.26.2 Spare parts for power industry equipment and machines
- 6.26.3 Turn-key general repairs of power industry equipment

6.27 Refurbishment and modernization of power industry equipment**6.28 Civil and erection works for power industry****6.29 Oil tank cleaning****6.30 Technology for classic and nuclear power industry and heating plants**

- 6.30.1 Technological projects for classic and nuclear power industry and heating plants
- 6.30.2 Transfer of technologies for classic and nuclear power industry and heating plants
- 6.30.3 Technology supplies for classic and nuclear power industry and heating plants

6.31 Execution of investment projects for classic and nuclear power industry and district heating plants**6.32 Manufacturers of electric power, gas and heat****6.33 Distributors of electric power, gas and heat****6.34 Classical and nuclear power industry and heating plants – other****Alternative power sources**

- 6.35.1 Machines and equipment for production of pressed biofuels (pellets, briquets)
- 6.35.2 Biomass fired boilers



POWER ENGINEERING AND HEAVY-CURRENT ELECTRICAL ENGINEERING

- 6.35.3 Biomass fired boiler plants, heating plants
- 6.35.4 Solar heating systems
- 6.35.5 Photovoltaic electric power sources
- 6.35.6 Hydro-electric power plants
- 6.35.7 Wind power plants and their accessories
- 6.35.8 Heat pumps and their accessories
- 6.35.9 Power industry equipment for biogas utilization
- 6.35.10 Equipment and accessories for geothermal energy utilization
- 6.35.11 Waste heat utilization, recovery
- 6.35.12 Biofuels
- 6.35.13 Hybrid drives
- 6.35.14 Fuel cells using hydrogen, natural gas, alcohol for power generation
- 6.35.15 Electrical power distribution grids of Smart Grids type**
- 6.35.16 Services, consultancy, financing in alternative power sources field
- 6.35.17 Institutions focused on renewable power sources field
- 6.35.99 Alternative power sources – other

Trading in energies, in CO₂ emissions

- 6.36.1 Trading in energies
- 6.36.2 Trading in CO₂ emissions

Heavy-current electrical engineering

Cables and conductors

- 6.40.1 High and very high voltage cables
- 6.40.2 Power cables
- 6.40.3 Flame retarding cables
- 6.40.4 Earth cables
- 6.40.5 Self-supporting cables
- 6.40.6 Flexible cables for machine control
- 6.40.7 Connecting cables for instruments
- 6.40.8 Cable couplers, eyes
- 6.40.9 Cable connectors
- 6.40.10 Cable terminals
- 6.40.11 Heavy current installation lines
- 6.40.12 Leads for electrotechnical windings
- 6.40.13 Insulated conductors
- 6.40.14 Earthing materials
- 6.40.15 Cable lines (stands, supports, lines, trays, troughs)
- 6.40.16 Fastening materials for cables and conductors
- 6.40.17 Cable coils
- 6.40.18 Superconductors
- 6.40.19 Heating resistance materials
- 6.40.20 Cable marking systems**
- 6.40.21 Tools and equipment for working with cables and conductors
- 6.40.98 Complete production programme of cables, conductors and accessories
- 6.40.99 Cables and conductors – other**

Electrotechnical insulators and insulants

- 6.41.1 Porcelain insulators
- 6.41.2 El. wiring and assembly porcelain
- 6.41.3 Ceramic components for el. engineering – other
- 6.41.4 Electrotechnical insulants (excluding ceramic)
- 6.41.5 Insulating tubes for high voltage technology
- 6.41.99 Electrotechnical insulators and insulants – other

6.42 Power capacitors

6.43 Electrochemical power supplies

- 6.43.1 Batteries, electrochemical cells**
- 6.43.2 Accumulators**
- 6.43.3 Accumulator charging systems**
- 6.43.99 Electrochemical power supplies – other

Electric light sources

- 6.44.1 Lamps**
- 6.44.1.1 Tungsten-halogen lamps
- 6.44.1.2 LED lamps

- 6.44.2 *Fluorescent tubes*
- 6.44.3 Discharge lamps**
- 6.44.99 *Electric light sources – other*

Lighting fittings

- 6.45.1 Outdoor lighting fittings
- 6.45.2 Lighting fittings for dangerous and demanding environments
- 6.45.3 Searchlights and headlights
- 6.45.99 Lighting fittings – other

Transducers, rectifiers and other electrotechnical elements

- 6.47.1 *Heavy-current power electronics (diodes, transistors, thyristors)*

Accessories of transducers, rectifiers, switches

- 6.47.2.1 Transducers
- 6.47.2.2 Rectifiers
- 6.47.2.3 Stabilizers
- 6.47.2.4 Current inverters
- 6.47.2.5 Electric current converters
- 6.47.2.6 Frequency converters
- 6.47.2.7 DC voltage converters
- 6.47.2.8 Electric current switches and controllers

6.48 Uninterruptible power supplies

Electric current switchboards

- 6.49.1 Parts of switchboards
- 6.49.2 LV switchboards
- 6.49.3 HV switchboards**
- 6.49.4 Compensation switchboards
- 6.49.5 I+C switchboards**
- 6.49.6 Cable switching cabinets
- 6.49.7 Universal switchgear cubicles
- 6.49.8 Switchboards to order
- 6.49.9 Distribution boards

6.50 Plugs and adapter plugs

LV connecting and switching instruments

- 6.51.2 LV switches
- 6.51.3 LV contactors and circuit breakers
- 6.51.4 Fuses
- 6.51.5 Starters
- 6.51.6 Rheostats
- 6.51.7 LV electromagnets
- 6.51.8 Command devices**

6.52 Power switching devices

Transformers

- 6.53.1 LV transformers
- 6.53.2 HV transformers
- 6.53.3 VHV transformers
- 6.53.4 Capacitive voltage transformers
- 6.53.5 Regulating (variable-voltage) transformers**
- 6.53.6 Measuring transformers**
- 6.53.7 Switches for transformers**
- 6.53.8 Components and accessories of transformers
- 6.53.9 Choke coils
- 6.53.10 Service and repairs of HV and VHV transformers
- 6.53.11 Kiosk (concrete) transformer stations

6.54 Electric HV and VHV instruments

- 6.54.1 HV and VHV switches
- 6.54.2 HV contactors
- 6.54.3 HV and VHV lightning arresters
- 6.54.4 HV and VHV disconnectors
- 6.54.5 HV vacuum circuit breakers

6.54.6	Protective and safety aids for HV technology	6.60.8	Industrial sockets and plugs
6.54.7	Static electricity protection equipment	6.60.9	Connecting wiring material
6.54.8	Earthing systems		
Electric motors		6.61	Measuring transducers for heavy electrical engineering
6.55.1	Components for electric motors	6.62	Interference suppression filters
6.55.2	Synchronous electric motors	6.63	Electromagnets for mechanical engineering
6.55.3	Asynchronous electric motors	6.64	Electric instruments for explosive environments
6.55.3.1	Asynchronous electric motors up to 1 kW	6.65	Electrotechnical tools for heavy electrical engineering
6.55.3.2	Asynchronous electric motors in the range of 1 kW to 100 kW	6.66	Protective aids for work on electric devices
6.55.3.3	Asynchronous electric motors of more than 100 kW	6.67	Lightning rods, lightning stroke protection systems
6.55.3.4	Low-voltage asynchronous motors	6.68	Control systems for power plants, substations and transformer stations
6.55.3.5	High-voltage asynchronous motors	6.77	CAD, CAM, CIM in heavy-current electrical engineering
6.55.3.6	Asynchronous brakes	6.78	Consultancy in heavy-current electrical engineering
		6.79	Engineering and design services in heavy-current electrical engineering
6.55.3.7	Starters for asynchronous motors	6.80	Service and repairs of machines and equipment in heavy-current electrical engineering
6.55.3.7.1	Soft starters		
6.55.4	Commutator electric motors		
6.55.5	DC electric motors		
6.55.5.1	DC electric motors up to 1 kW		
6.55.5.2	DC electric motors of more than 1 kW		
6.55.5.3	Brushless DC el. motors		
6.55.6	Stepping electric motors, micromotors		
6.55.7	Piezomotors		
6.55.8	Small gear motors		
6.55.9	Linear electric motors		
6.55.10	Servomotors DC		
6.55.11	Servomotors AC		
6.55.12	Electric motors for special purposes		
6.55.12.1	Electric motors for explosive environments		
6.55.12.2	Electric motors designed for operation in extreme temperatures		
6.55.13	Custom-made electric motors		
6.55.14	Repairs of electric motors		
6.55.99	Electric motors – other		
6.56	Rotary power supplies		
6.56.1	Alternators		
6.56.2	Synchronous generators		
6.56.3	Power factor compensators		
6.56.4	Dynamos		
6.56.99	Rotary power supplies – other		
6.57	Dynamometers		
Electric industrial heating			
6.58.1	Components for thermal electric equipment		
6.58.2	Electric arc and resistance furnaces		
6.58.3	Induction furnaces		
6.58.4	Dielectric equipment		
6.58.5	HF heating		
6.58.6	Microwave heating		
6.58.7	Infra-red heating		
6.58.8	Special electric heating		
6.58.9	Heating cables		
6.58.10	Induction heating equipment		
6.59	Electric rotary drives		
Wiring material			
6.60.1	House switches and sockets		
6.60.2	Mounting boxes		
6.60.3	Terminal boards		
6.60.4	Electronic controllers and devices		
6.60.5	Support and fixing materials		
6.60.6	Plastic and metal cable terminals		
6.60.7	Cable protectors		



MSV 2023

ELECTRONICS, AUTOMATION AND MEASURING TECHNOLOGY

Machines and equipment for the electrical industry	7.2.1.5	Optical cables
	7.2.1.6	Assembled cables for transmission technology
	7.2.1.99	Conductors – other
7.1.1	7.2.2	Passive electrical components
7.1.2	7.2.2.1	Resistors for electronics
7.1.3	7.2.2.2	Potentiometers for electronics
7.1.4	7.2.2.3	Capacitors for electronics
	7.2.2.4	Coils for electronics
7.1.5	7.2.2.5	Piezo-electric crystal elements
7.1.6	7.2.2.6	Ferrite cores
7.1.7	7.2.2.7	SMD passive elements
	7.2.2.99	Passive electronic elements – other
7.1.8	7.2.3	Instrument batteries and accumulators
7.1.9		
7.1.10	7.2.4	Semiconductor elements
7.1.11	7.2.4.1	Diodes
7.1.12	7.2.4.99	Semiconductor elements – other
7.1.13	7.2.5	Analogue integrated circuits
	7.2.6	Digital integrated circuits
7.1.14	7.2.7	IGBT modules
7.1.14.1	7.2.8	Hybrid circuits
	7.2.9	Electronic components other than semiconductor ones – other
7.1.15	7.2.10	Optic and optoelectronic elements
7.1.16	7.2.10.1	Miniature bulbs
	7.2.10.2	Visualizing elements, indicators
7.1.17	7.2.10.3	LED displays
7.1.17.1	7.2.10.4	LCD displays
7.1.17.2	7.2.10.5	Laser displays
7.1.17.3	7.2.10.6	Plasma displays
	7.2.10.7	Fluorescent displays
7.1.18	7.2.10.8	Solar cells
7.1.19	7.2.10.9	Connecting optical elements
7.1.20	7.2.10.10	Optical signal processing elements
7.1.21	7.2.10.11	Optoelectronic equipment
7.1.22	7.2.10.12	CCD elements
7.1.23	7.2.10.13	Laser equipment
7.1.24	7.2.10.14	SMD optic and optoelectronic elements
7.1.25	7.2.10.99	Optic and optoelectronic elements – other
7.1.26	7.2.11	Converters
7.1.27	7.2.12	Amplifiers
7.1.28	7.2.13	DC/DC converters
7.1.29	7.2.14	Vacuum elements (electron tubes, cathode ray tubes, other)
7.1.30	7.2.15	Mechanical components for electronics
	7.2.15.1	Flat conductor connectors
7.1.87	7.2.15.2	Interface connectors
7.1.88	7.2.15.3	Internal interconnecting components (printed circuits)
7.1.89	7.2.15.4	Connectors for PCB
	7.2.15.5	Connectors for optical waveguides
7.1.90	7.2.15.6	Mechanical elements of electronic structures (cabinets, coolers)
7.1.90.1	7.2.15.7	Cables, conductors for electronics
7.1.90.2	7.2.15.8	Electromechanical elements (motors, switches)
7.1.90.3	7.2.15.9	Rotary switches
	7.2.15.10	Push-buttons
7.1.91	7.2.15.11	Microswitches
7.1.92	7.2.15.12	Keys
	7.2.15.13	Film keyboards
7.1.99	7.2.15.14	Safety and security elements
	7.2.15.15	Elements for power supplies (ferrite cores, transformers)
	7.2.15.16	Transmitters, communication transformers
	7.2.15.17	Toroidal transformers
	7.2.15.18	Instrument transformers
	7.2.15.19	Relays for electronics (SMD relays, relay sockets)
	7.2.15.20	Magnets for electronics
	7.2.15.99	Mechanical components for electronics and parts – others
Electronic components and elements		
7.2.1	7.2.1.1	Conductors
	7.2.1.2	Communication cables
	7.2.1.3	Connecting wires and twisted conductors
	7.2.1.4	Conductors and fine wires for windings
		Conduit lines

7.2.16	<i>Piezoelectric sensors, controllers</i>	7.5.1.22	<i>Industrial information and control networks and their components</i>
7.2.17	<i>Power sources for electronics</i>	7.5.1.22.1	LAN and WAN networks
7.2.87	<i>CAD, CAM, CIM for electronic components and elements</i>	7.5.1.22.2	Wireless LAN networks
7.2.88	<i>Consultancy for electronic components and elements</i>	7.5.1.23	<i>Operation systems for technology process control</i>
7.2.89	<i>Engineering and design services in the field of electronic components and elements</i>	7.5.1.24	<i>Developing systems and programs for process simulation</i>
7.2.90	<i>Production of made-to-order printed circuit boards</i>	7.5.1.25	<i>Programs for technological process control</i>
7.2.99	<i>Electronic components and elements – other</i>	7.5.1.26	<i>Programs for process visualization</i>
Studio and broadcasting technology		7.5.1.27	<i>Remote computer management systems</i>
7.3.1	Components and accessories of transmitters	7.5.1.28	<i>Data Warehousing / Data Mining – for industrial data</i>
7.3.1.1	Generator and broadcasting electronic elements	7.5.1.99	Components for automation and control technology equipment – other
7.3.1.2	Antenna arrays	7.5.2	<i>Transducers of electric and non-electric variables</i>
7.3.1.3	Cables and lines for broadcasting technology	7.5.2.1	Intelligent sensor systems
7.3.2	Broadcasting, telegraph and communication transmitters	7.5.2.2	Incremental and absolute encoders
7.3.3	Television transmitters	7.5.3	<i>Counters for regulation</i>
7.3.4	Radio networks	7.5.4	<i>Remote checking and control</i>
7.3.5	Mobile radio-telecommunication equipment	7.5.4.1	Remote electric measurement / control
7.3.6	Relay links	7.5.4.2	Automatic central checking / control
7.3.7	Radar equipment	7.5.4.3	Telephone controlled devices
7.3.8	Broadcasting studio technology	7.5.4.4	Radio systems for remote control of industrial technology
7.3.9	Call and telephone dispatcher systems	7.5.4.5	<i>GSM / GPRS based data networks</i>
7.3.10	<i>Television studio technology</i>	7.5.4.5.1	Communication modules for GSM / GPRS
7.3.11	<i>Cable television (cables, other components)</i>	7.5.5	<i>Electric and electromagnetic controllers</i>
7.3.12	<i>Closed-circuit television</i>	7.5.5.1	Magnetic controllers
7.3.13	<i>Satellite television technology</i>	7.5.5.2	Hydraulic controllers
7.3.14	<i>Direction finders</i>	7.5.5.3	Pneumatic controllers
7.3.15	<i>GPS</i>	7.5.5.4	Electronic controllers
7.3.16	<i>Remote control wireless systems</i>	7.5.5.5	PID controllers
7.3.17	<i>Measuring instruments for broadcasting technology</i>	7.5.5.6	Control systems with fuzzy logic
7.3.99	<i>Broadcasting equipment – other</i>	7.5.5.7	Programmable logic controllers (PLC)
Instruments for automatic regulation and control		7.5.5.8	Interconnection of programmable logic controller with master computer
7.5.1	Components for equipment for automation and control	7.5.5.9	Control systems PCC (Programmable Computer Controller)
7.5.1.1	Process microprocessors, microcontrollers	7.5.5.10	Optimizing systems
7.5.1.2	Processor and memory modules	7.5.6	<i>Controllers and power elements</i>
7.5.1.3	Signal processors	7.5.6.1	Servomotors (pneumatic, integrated)
7.5.1.4	RAM/ROM disc memories	7.5.6.2	Power units (actuators)
7.5.1.5	Communication modules, I/O modules – cards	7.5.6.3	Selsyns
7.5.1.6	Industrial bus-bar systems	7.5.6.4	Power amplifiers
7.5.1.7	Chassis, control technology cabinets	7.5.6.5	Relays
7.5.1.8	Industrial control computers	7.5.6.6	Switches for control
7.5.1.8.1	Minipanel PC	7.5.7	<i>Control rooms</i>
7.5.1.8.2	Single-board control computers	7.5.7.1	Operation consoles for technology control
7.5.1.8.3	Network servers for industrial sites	7.5.8	<i>Control and measuring systems</i>
7.5.1.8.4	Industrial data collection PC	7.5.8.1	Control and measuring systems for company power engineering
7.5.1.8.5	Notebooks suitable for industrial sites	7.5.9	<i>Systems for automatic production process control</i>
7.5.1.9	Monitors	7.5.9.1	Systems for automatic thermal process and air-conditioning control
7.5.1.10	Panel and large-size alphanumeric displays	7.5.9.2	Systems for automatic technological process control in mechanical engineering
7.5.1.11	Visualization panels for machine monitoring	7.5.9.3	Systems for automatic technological process control in chemical industry
7.5.1.12	Joysticks and trackballs for industrial sites	7.5.9.4	Systems for automatic technological process control in power engineering
7.5.1.13	Industrial terminals	7.5.9.99	<i>Systems for automatic technological process control in other industrial branches</i>
7.5.1.14	Industrial keyboards	7.5.10	Automatic control systems for railway transport
7.5.1.15	Projection and presentation equipment for control rooms	7.5.11	Automatic control systems for air service
7.5.1.16	Computer printers for industrial sites		
7.5.1.17	Power supplies		
7.5.1.18	Output and interconnecting cables, connectors		
7.5.1.19	Measuring peripherals for PC		
7.5.1.20	Computer cards for industrial control computers		
7.5.1.21	UPS for control, automation and regulation technology		



ELECTRONICS, AUTOMATION AND MEASURING TECHNOLOGY

7.5.12	Measuring and automation equipment for support and distribution	7.12.8	Production management
7.5.13	GIS (Graphic Information Systems) for utility lines administration	7.12.8.1	Operative workshop planning and management
		7.12.8.2	APS (Advanced Planning System) systems for advanced production planning and scheduling
7.5.14	Data collecting and processing equipment for control computers	7.12.9	Quality monitoring, CAQ (Computer Aided Quality) systems
7.5.14.1	Bar code readers	7.12.10	Norms setting
7.5.14.2	RFID technologies	7.12.11	Technology
		7.12.12	Service and maintenance
		7.12.13	Statistics and analysis for top management
7.5.15	Image processing systems	7.12.14	Information tracing and utilization for management
7.5.15.1	Robot vision for 2D images	7.12.15	Decision-support systems
7.5.15.2	Robot vision for 3D images	7.12.16	Business Intelligence (Data Warehousing/Data Mining)
		7.12.17	CRM (Customer Relationship Management) systems
7.5.16	<i>Data distribution technology in buildings</i>	7.12.18	Marketing
7.5.17	<i>Redundant control systems with high reliability</i>	7.12.19	Company processes modelling and optimizing (Workflow, Reengineering)
7.5.18	<i>Explosion-proof components and systems for control, automation and regulation equipment</i>		HelpDesk tools supporting business applications
7.5.99	Instruments and equipment for automatic control – other	7.12.20	HelpDesk tools supporting business applications
		7.12.99	General software for business management – other
Warning and safety equipment		Software for offices and institutions	
7.6.1	Railway, air and road warning and safety equipment	7.13.1	Electronic mail
7.6.2	Mining safety equipment	7.13.2	Team work support software
7.6.3	Monitoring and warning systems for danger	7.13.3	Document processing
7.6.4	Fault reporting systems	7.13.4	Document archiving
7.6.99	Warning and safety equipment – other	7.13.5	Office automation support software
		7.13.6	DMS systems (Document Management System) for control and management of structured and unstructured documents
Supervising and control equipment		7.13.99	Software for offices and institutions – other
7.7.1	Access checking	System integration, complex solution of ERP systems	
7.7.1.1	Light barriers and other photoelectric devices	7.14.1	Systems for complete document administration, flow management and storage (Workflow)
7.7.1.2	Access systems with magnetic and chip cards	7.14.2	PLM systems for complex product lifecycle management
7.7.2	Personnel and luggage checking equipment	7.14.3	Integrated business system for companies
7.7.3	TV monitoring equipment	7.14.4	Comprehensive production plant management system
7.8	Fire, gas detecting systems	7.14.5	Comprehensive non-production plant management system
7.9	Antifire and antiexplosion safety equipment in industrial plants	7.14.6	Comprehensive management system for budget and publicly funded organizations
7.9.1	Fire safety systems for machine-tools and forming machines	7.14.7	Comprehensive management system for production and business concerns
7.9.2	Spray booth fire safety systems	7.14.8	Comprehensive management for holding companies
Systems for detecting robberies, danger, entry of unauthorized persons		7.14.9	Company management network system
7.10.1	Systems with central security board	7.14.10	Modular system of business management
		7.14.11	Comprehensive information system for crisis management
7.10.2	Electric and photoelectric supervision systems	7.14.99	System integration, complex solution of ERP – other
7.10.2.1	CCD camera systems	7.15	System integration in the sector of industrial information, measuring and control systems
7.10.2.2	Broken glass detectors	7.15.1	Made-to-order development of software and hardware in the field of automation
7.10.3	IR supervision systems	7.16	Training machines and equipment
7.10.4	Ultrasonic supervision systems	7.17	CAD, CAM, CIM in control, automation and regulation technology
7.10.5	Microwave supervision systems	7.18	Consultancy in control, automation and regulation technology
7.10.6	Laser and radar supervision systems	7.19	Engineering design services in the field of control, automation and regulation technology
7.10.7	Seismic sensor systems (geophones)	7.20	Service and repairs of equipment and instruments in control, automation and regulation technology
7.11	Industrial robots and their assemblies	7.20.1	Diagnostics of control, automation and regulation technology
7.11.1	Micro-positioning systems	7.20.2	Spare parts for control, automation and regulation technology
7.11.2	Robotic cells	7.20.3	Refurbishment and upgrading of control, automation and regulation technology
7.11.3	Turn-key integrated solutions of robotized production processes	7.29	Elements and systems in control, regulation and automation technology
General software for business management			
7.12.1	Tangible and intangible property records		
7.12.2	Invoicing		
7.12.3	Book-keeping		
7.12.4	Human resources		
7.12.5	Wages and salaries		
7.12.6	Software supporting development of new industrial products		
7.12.7	Technical preparation for production		

Scales and weighing technology	7.34.99	Equipment and measuring instruments for electric variables – other
7.31.1 Components and parts of scales		
7.31.2 Weighbridge		
7.31.3 Belt conveyer scales	7.35	Universal power supplies
7.31.4 Crane scales	7.35.1	Universal supplies of stabilized voltage
7.31.5 Dosing scales	7.35.2	Universal supplies of stabilized current
7.31.6 Sack and filling scales		
7.31.7 Electronic balances and weighing	7.36	High voltage power supplies
7.31.8 Laboratory balances	7.37	Calibration standards for electrical engineering technology
Time measuring instruments		Sensors for picking up mechanical variables
7.32.1 Electric and electronic clocks		
7.32.2 Checking clocks	7.38.1	Sensors for picking up mechanical
7.32.3 Timers	7.38.1.1	Pressure sensors
7.32.4 Time control displays	7.38.1.2	Pressure difference sensors
7.32.5 Special purpose time measuring instruments	7.38.1.3	Speed sensors
7.32.6 Operation hour counters	7.38.1.4	Acceleration sensors
	7.38.1.5	Load sensors
	7.38.1.6	Position sensors
	7.38.1.7	Path sensors including gyroscopic systems
	7.38.1.8	Length, distance sensors
	7.38.1.9	Shift / feed sensors
	7.38.1.10	Thickness sensors
	7.38.1.11	Angle sensors
	7.38.1.12	Revolution sensors
	7.38.1.13	Sensors of speed, velocity, acceleration
	7.38.1.14	Fluid flow sensors
	7.38.1.15	Gas flow sensors
	7.38.1.16	Fluid level sensors
	7.38.1.17	Fluid level measured value sensors
	7.38.1.18	Surface quality evaluating sensors
	7.38.1.19	Force sensors
	7.38.1.20	Sensors of force, strain, deformation and bending
	7.38.1.21	Vibration sensors
	7.38.1.22	Torque sensors
	7.38.1.99	Sensors for picking up mechanical quantities – other
	7.38.2	Sensors for picking up electric quantities and parameters
	7.38.3	Sensors for picking up acoustic quantities and parameters
	7.38.4	Sensors for picking up optical quantities and parameters
	7.38.4.1	Optical sensors
	7.38.4.2	Optoelectronic sensors
	7.38.4.3	Sensors of light signal parameters in glass fibres
	7.38.4.4	Picture sensors
	7.38.4.5	Colour sensors
	7.38.4.99	Sensors for picking up optical quantities and parameters – other
	7.38.5	Temperature and thermal power sensors
	7.38.5.1	Contactless temperature sensors
	7.38.5.2	Thermal power sensors
	7.38.6	Sensors for picking up magnetic quantities and parameters
	7.38.6.1	Sensors for measuring of magnetic quantities
	7.38.6.2	Magnetic field detectors
	7.38.6.3	Sensors of magnetic field parameters
	7.38.7	Humidity sensors
	7.38.7.1	Absolute humidity sensors
	7.38.7.2	Relative humidity sensors
	7.38.7.3	Liquid leak detectors
	7.38.8	Sensors for picking up chemical quantities and parameters
		Measuring instruments of physical quantities
	7.39.1	Measuring instruments for length, angle, thread
	7.39.1.1	Length meters
	7.39.1.2	Angle meters
	7.39.1.3	Thread gauges
	7.39.1.4	Geometric shape measuring devices
	7.39.1.5	Position meters
	7.39.1.6	Electronic levels
Optomechanical instruments		
7.33.1 Components for optomechanical instruments		
7.33.2 Microscopes and accessories		
7.33.3 Geodetic and cartographic instruments		
7.33.4 Photogrammetric instruments and accessories		
7.33.5 Telescopes, magnifiers		
7.33.6 Astronomic instruments		
7.33.7 Optomechanical spectral analysers		
7.33.8 Fibre optics		
7.33.9 Industrial endoscopes		
7.33.10 Profile projectors		
7.33.99 Optomechanical instruments – other		
Instruments for measuring of electric variables		
7.34.1 Multimeters		
7.34.2 Ammeters		
7.34.3 Digital avometers (multimeters)		
7.34.4 Voltmeters		
7.34.5 Voltage testers		
7.34.6 Charging meters		
7.34.7 R-L-C-Z meters		
7.34.8 Conductance meters		
7.34.9 Universal analyzers of analog and digital LF systems		
7.34.9.1 Universal measuring instruments		
7.34.10 Instruments for measuring of voltage, current, resistance and output for HV		
7.34.11 Switchboard measuring instruments		
7.34.12 Oscilloscopes		
7.34.13 Electric meters		
7.34.14 Measuring bridges		
7.34.15 Measuring photoelectric instruments		
7.34.16 Measuring amplifiers		
7.34.17 Measuring transducers		
7.34.18 Harmonic distortion analyzers		
7.34.19 Spectral analyzers of electric signals		
7.34.20 Signal analyzers		
7.34.21 Electric network analyzers		
7.34.22 Local network cable analyzers		
7.34.23 Phase meters		
7.34.24 Attenuation level meters		
7.34.25 Noise meters		
7.34.26 Digital channel testers		
7.34.27 HF power meters		
7.34.28 Electronic component testers		
7.34.29 Digital integrated circuit testers		
7.34.30 Logic analyzers		
7.34.31 Data interface analyzers		
7.34.32 Computer cards for PC logic analyzer		
7.34.33 Counters		
7.34.34 Electromagnetic compatibility test units (EMC)		
7.34.35 Electronic generators		



ELECTRONICS, AUTOMATION AND MEASURING TECHNOLOGY

7.39.1.7	Laser levelling instruments	7.39.19	<i>Detectors of underground supply lines</i>
7.39.1.8	Equipment for contactless size measurements	7.39.20	<i>X-ray and nuclear radiation measuring instruments</i>
7.39.2	<i>Velocity meters</i>	7.39.21	<i>Viscosity meters</i>
7.39.3	<i>Acceleration meters</i>	7.39.22	<i>Surface tension and contact angle meters</i>
7.39.4	<i>Flow meters</i>	7.39.23	<i>Systems and instruments for physical quantity calibration</i>
7.39.4.1	Flow meters for liquids	7.39.24	<i>Testing and calibration measuring instruments and standards for physical quantities</i>
7.39.4.2	Water meters for cold water	7.39.99	<i>Measuring instruments for other physical parameters</i>
7.39.4.3	Water meters for hot water	Measuring instruments for chemical quantities	
7.39.4.4	Gas flow meters	7.40.1	<i>Measuring instruments for pH, redox potential and conductance</i>
7.39.4.5	Gas meters (diaphragm, turbine)	7.40.2	<i>Measuring instruments and analyzers of harmful gases</i>
7.39.5	<i>Measuring instruments of phenomenon abundance</i>	7.40.3	<i>Oxygen meters</i>
7.39.5.1	Pulse counters with and without preselection	7.40.4	<i>Stationary and portable detectors of flammable gases</i>
7.39.6	<i>Speed indicators</i>	7.40.5	<i>Exhaust gas analyzers</i>
7.39.7	<i>Temperature meters</i>	7.40.6	<i>Gas analysis and monitoring instruments</i>
7.39.7.1	Digital temperature meters	7.40.7	<i>Measuring instruments and analyzers of toxic substances</i>
7.39.7.2	Contactless temperature meters	7.40.8	<i>Ion meters</i>
7.39.7.3	Pyrometers, infrapyrometers	7.40.9	<i>Devices for fast chemical analysis</i>
7.39.7.4	Temperature meters with thermocouples	7.40.99	<i>Instruments for measurements of chemical quantities – other</i>
7.39.7.5	Resistance thermometers	7.41	<i>Laser measuring instruments</i>
7.39.7.6	Measured temperature recorders	Measuring systems and instruments	
7.39.7.7	Pointer thermometers	7.42.1	<i>Measuring instruments for meteorology</i>
7.39.8	<i>Thermal power and output meters</i>		<i>Measuring instruments for mechanical engineering</i>
7.39.8.1	Industrial temperature monitoring systems	7.42.2.1	<i>Gauges for mechanical engineering</i>
7.39.8.2	Cameras for infra-red thermography	7.42.2.2	<i>Micrometers</i>
7.39.8.3	Instruments for thermal analysis	7.42.2.3	<i>Inside micrometers</i>
7.39.8.4	Calorimeters	7.42.2.4	<i>Coordinate measuring devices and accessories</i>
7.39.8.5	Heat meters	7.42.2.4.1	<i>3D coordinate measuring devices and elements</i>
7.39.9	<i>Optical measuring instruments</i>	7.42.2.5	<i>Measuring instruments for bearings</i>
7.39.9.1	UV and IR radiation meters	7.42.2.6	<i>Measuring instruments for gear wheels</i>
7.39.9.2	Measuring instruments for optical waveguides	7.42.2.7	<i>Balancing machines</i>
7.39.9.3	Luxmeters	7.42.2.8	<i>Operational balancing machines</i>
7.39.9.4	Optoelectronic measuring instruments	7.42.2.9	<i>Diagnostics of gears and bearings</i>
7.39.9.5	Color meters	7.42.2.10	<i>Vibration diagnostics</i>
7.39.9.6	Gloss meters	7.42.2.11	<i>Monitoring of rotary machine condition</i>
7.39.9.7	Optical sources with defined characteristics	7.42.2.12	<i>Surface roughness and roundness measuring devices</i>
7.39.10	<i>Force measuring instruments</i>	7.42.2.13	<i>Instruments for destructive and non-destructive testing of weld joint</i>
7.39.11	<i>Pressure measuring instruments</i>	7.42.3	<i>Measuring instruments for civil engineering</i>
7.39.11.1	Gas pressure measuring instruments	7.42.4	<i>Measuring instruments for agriculture</i>
7.39.11.1.1	Vacuum meters	7.42.5	<i>Measuring devices for plastics and rubbers</i>
7.39.11.2	Liquid pressure meters	7.42.5.1	<i>Rheometers for measurements of rheological plastics properties</i>
7.39.11.3	Dynamic pressure meters	7.42.5.2	<i>Viscometers for plastics and rubbers</i>
7.39.12	<i>Mass, thickness, area meters</i>	7.42.5.3	<i>Plastometers</i>
7.39.12.1	Equipment for continuous mix density measurements	7.42.6	<i>Testing and calibration instruments and systems</i>
7.39.12.2	Filling level sensors, liquid level sensors	7.42.7	<i>Measuring instruments for metrology</i>
7.39.13	<i>Measuring instruments and analyzers of vibrations</i>	7.42.8	<i>Universal modular measuring devices with replaceable pickups</i>
7.39.14	<i>Acoustic measuring instruments</i>	7.42.9	<i>Automatic samplers</i>
7.39.14.1	Noise dosimeters	7.42.99	<i>Measuring instruments and systems for other branches</i>
7.39.14.2	Sound level meters	Laboratory and scientific instruments	
7.39.14.3	Noise monitoring instruments	7.43.1	<i>Laboratory glass</i>
7.39.14.4	Hydroacoustic instruments	7.43.2	<i>Laboratory china</i>
7.39.14.5	Ultrasonic measuring instruments	7.43.3	<i>Pipettes and liquid dosing devices</i>
7.39.15	<i>Filling level and surface height measuring instruments</i>	7.43.3.1	<i>Titration</i>
7.39.16	<i>Torque measuring instruments</i>	7.43.4	<i>Laboratory thermometers</i>
7.39.17	<i>Moisture measuring instruments</i>	7.43.5	<i>Laboratory driers</i>
7.39.18	<i>Measuring instruments of magnetic quantities</i>	7.43.6	<i>Laboratory cooling equipment</i>
7.39.18.1	<i>Metal detectors</i>		



ELECTRONICS, AUTOMATION AND MEASURING TECHNOLOGY

7.46.4	Telemetric systems
7.46.5	Cables for measuring and laboratory devices
7.46.6	Measuring modules
7.46.7	Measuring PC cards
7.46.8	Software for data measuring and analysis
7.46.9	Measuring systems with data collection
7.46.99	Components of PC-based measuring system – other
7.47	Recording instruments
7.48	Electronic picture processing in measurements
7.48.1	Cameras for picture scanning
7.48.1.1	High-speed cameras
7.48.2	Laser scanning devices
7.48.3	Technologies for digital picture archiving and analysis in measurements
7.80	Complete turnkey laboratory equipment
7.83	Technical drawing instruments and special drawing tools
7.88	Consultancy in measuring and laboratory technology
7.89	Engineering and design services in measuring and laboratory technology
7.90	Service and repairs of instruments for measuring and laboratory technology
7.91	Reworked laboratory and measuring technology
7.92	Materials testing services
7.94	X-Ray inspections
7.99	Instruments and equipment for measuring and laboratory technology – other



INTERNATIONAL FAIR FOR ENVIRONMENTAL PROTECTION TECHNOLOGIES

Air-conditioning equipment

- 8.1.1 Components for air-conditioning equipment**
- 8.1.1.1 Air pipelines
- 8.1.1.2 Pneumatic haulage equipment
- 8.1.1.3 Air distribution equipment
- 8.1.2 Fans and accessories**
- 8.1.2.1 Axial fans
- 8.1.2.2 Radial fans
- 8.1.2.99 Fans – other
- 8.1.3 Air and gas dedusting equipment**
- 8.1.3.1 Centrifugal dust separators
- 8.1.3.2 Accessories for air and gas dedusting equipment
- 8.1.3.3 Air cleaners
- 8.1.4 Solid particle separators**
- 8.1.4.1 Electrostatic separators
- 8.1.5 Solid particle filters**
- 8.1.5.1 Filtration textiles
- 8.1.5.2 Cloth filters
- 8.1.6 Exhaust and flue gas cleaning equipment**
- 8.1.7 Heat exchangers for air-conditioning**
- 8.1.7.1 Heat recycling exchangers
- 8.1.8 Air-conditioning equipment for clean rooms**
- 8.1.8.1 Ventilation equipment
- 8.1.8.2 Air heating
- 8.1.8.3 Exhausters
- 8.1.8.4 Industrial air cleaning systems for machine-tools, forming machines and production rooms
- 8.1.9 Equipment for separation of polluted gaseous substances from air and combustion products**
- 8.1.9.1 Absorptive equipment for the purification of pollutant-loaded air
- 8.1.9.2 Adsorptive equipment for the purification of pollutant-loaded air
- 8.1.9.3 Biological equipment for the removal of waste substances from pollutant-loaded air
- 8.1.9.4 Catalytic incineration equipment for pollutant-loaded air purity
- 8.1.9.5 Thermal equipment for pollutant-loaded air purity
- 8.1.9.6 Condensation equipment for pollutant-loaded air purity
- 8.1.9.7 Dust recycling equipment for working rooms
- 8.1.9.8 Oil and emulsion fog exhausting equipment
- 8.1.9.99 Equipment for separation of polluted gaseous substances from air and combustion products – other
- 8.1.10 Equipment for desulphurization and denitrification of combustion products**
- 8.1.11 Combustion product treatment plants for communal and industrial waste incinerators**
- 8.1.12 Chimneys and accessories thereof**
- 8.1.13 Breathing apparatuses and respirators**
- 8.1.14 Air-conditioning equipment**
- 8.1.14.1 Air-conditioning units
- 8.1.14.2 Equipment for creating certain climatic conditions
- 8.1.14.3 Air moisteners and demoisteners
- 8.1.15 Gas media driers**
- 8.1.16 Solenoid and pneumatic controlled valves for flow control**
- 8.1.17 Aerating equipment**
- 8.1.45 Consultancy in air purity protection**
- 8.1.46 Air purity planning**
- 8.1.47 Reconstruction and upgrading of equipment for air treatment**
- 8.1.48 Maintenance and repairs of pollutant-loaded air cleaning equipment**
- 8.1.99 Air-conditioning equipment – other**

8.2 Pumping stations**Technologies for the treatment of drinking, service and technological water**

- 8.3.1 Design of water treatment plants**
- 8.3.2 Water treatment plant sedimentation and filtration units**
- 8.3.3 Aeration equipment for water treatment plants**
- 8.3.4 Flocculation equipment for water treatment plants**
- 8.3.5 Filters for the removal of mechanical impurities during water treatment**
- 8.3.6 Screens and sieves for water treatment plants**
- 8.3.7 Centrifugal impurity separators**
- 8.3.8 Chemical and physical water treatment**
- 8.3.8.1 Dosing equipment for water treatment plants**
- 8.3.8.2 Equipment for the elimination of iron and manganese during water treatment
- 8.3.8.3 Water softening and demineralization equipment
- 8.3.8.4 Water desalting equipment
- 8.3.8.5 Water decarbonization equipment
- 8.3.8.6 Water dechlorination equipment
- 8.3.8.7 Filters for the elimination of unpleasant water odours and flavours
- 8.3.8.8 Equipment for the elimination of radon from water
- 8.3.8.9 Equipment for membrane separation processes
- 8.3.8.9.1 Microfiltration
- 8.3.8.9.2 Ultrafiltration
- 8.3.8.9.3 Reverse osmosis
- 8.3.8.10 Ionex systems for water treatment plants
- 8.3.8.11 Equipment for water disinfection in treatment plants
- 8.3.8.12 Magnetic water treatment
- 8.3.8.13 Degasifying equipment
- 8.3.8.99 Chemical and physical water treatment – other
- 8.3.9 Treatment of household water**
- 8.3.9.1 Household water treatment filters
- 8.3.10 Auxiliary equipment and accessories for water treatment plants**
- 8.3.11 Turn-key water treatment plants**
- 8.3.12 Production of clean and ultra-clean water**
- 8.3.99 Technology for the treatment of drinking, service and technological waters – other**
- 8.4 Water reservoirs, tanks**
- Technology for sewage water treatment plants**
- 8.5.1 Design of sewage water treatment plants**
- 8.5.2 Equipment for mechanical clarification of sewage water**
- 8.5.2.6 Filters, filtration equipment for sewage water treatment plants
- 8.5.2.99 Equipment for mechanical clarification of sewage water – other
- 8.5.3 Equipment for biological purification of waste waters**
- 8.5.3.1 Aerobic equipment for the purification of sewage waters (aeration, biodisc)
- 8.5.3.2 Nitrification and denitrification equipment
- 8.5.3.3 Equipment for removing phosphorus from sewage waters
- 8.5.3.4 Biologically active filters
- 8.5.3.5 Biodegradation of crude oil substances and their derivatives in sewage waters
- 8.5.3.6 Anaerobic plants for the purification of sewage waters
- 8.5.3.99 Equipment for biological purification of sewage waters – other
- 8.5.4 Chemical and physical purification of sewage waters**
- 8.5.4.1 Flotation and flocculation units
- 8.5.4.2 Absorption and adsorption equipment for the purification of sewage waters



INTERNATIONAL FAIR FOR ENVIRONMENTAL PROTECTION TECHNOLOGIES

8.5.4.3	Separators of crude oil substances	8.20.2.8	Waste presses
8.5.4.3.1	Separators of oils, emulsions, diluents	8.20.2.8.1	Waste baling presses
8.5.4.4	Microfiltration and ultra-filtration units for sewage water treatment plants	8.20.2.99	Machines and equipment for waste treatment – other
8.5.4.5	Units for electrical dialysis	8.20.3	Recovery of raw materials from waste, recycling
8.5.4.6	Reverse osmosis units for the purification of sewage waters	8.20.3.1	Recycling of metal-containing waste
8.5.4.7	Plants with ion exchangers for the purification of sewage waters	8.20.3.2	Recycling of electrotechnical scrap
8.5.4.8	Equipment for disinfection and oxidation of sewage waters	8.20.3.3	Recycling of used cars
8.5.4.9	Thermal equipment for the purification of sewage waters	8.20.3.4	Recycling of used cooling equipment and refrigerators
8.5.4.99	Chemical and physical sewage water purification – other	8.20.3.5	Recycling of plastic waste
		8.20.3.6	Recycling of textile waste
8.5.5	Equipment for sewage sludge processing	8.20.3.7	Recycling of used tyres, rubber
8.5.5.1	Bioreactors	8.20.3.8	Recycling of used glass
8.5.5.2	Digestion tanks	8.20.3.9	Recycling of used paper
8.5.5.3	Gas holders for sludge gas	8.20.3.10	Recycling of building debris
8.5.5.4	Equipment for sludge thickening and dewatering	8.20.3.11	Processing of waste from the food industry into animal feed
8.5.5.5	Biogas engines	8.20.3.12	Recycling of pollutant loaded air and gases
8.5.5.6	Equipment for the production of sewage sludge granulation products	8.20.3.13	Recycling of liquid waste
8.5.5.7	Sludge management	8.20.4	Composting lines
8.5.5.8	Transportation and storage of sludge	8.20.5	Fermentation plants
8.5.5.99	Equipment for the processing of sewage – other		
8.6	Pumps, blowers, agitators for water management	8.20.6	Thermal processing of waste
8.7	Power plants for water management	8.20.6.1	Communal waste incinerators
8.8	Construction components for water management	8.20.6.2	Industrial waste incinerators
8.9	Chemical products for water treatment and purification	8.20.6.3	Hospital waste incinerators
		8.20.6.4	Equipment for pyrolysis
Sewage water treatment plants		8.20.7	Waste storage
8.10.1	Communal sewage treatment plants	8.20.7.1	Engineering and geological investigation
8.10.2	Industrial sewage water treatment plants	8.20.7.2	Design of dumping sites
8.10.3	Complete deliveries of sewage treatment plants	8.20.7.3	Geotextiles
8.11	Sewerage networks and sewers	8.20.7.4	Insulation and sealing films and materials for dumping sites
8.12	Water reservoirs for water accumulation	8.20.7.5	Tubes for degasification and drainage of dumping sites
8.13	Advisory service for water purity protection	8.20.7.6	Biogas stations
8.14	Reconstruction and upgrading of unsuitable sewage water treatment plants	8.20.7.7	Weighing equipment for dumping sites
8.15	Service and repair of water treatment and sewage plants equipment	8.20.7.8	Monitoring systems for dumping sites
8.16	Technology for the reduction of technological water consumption	8.20.7.9	Trenchless drainage of existing dumping sites
		8.20.7.10	Operation of dumping sites
Waste processing and utilization		8.20.8	Elimination of waste by solidification
8.20.1	Collection and transportation of waste	8.20.9	Elimination of waste by biodegradation
8.20.1.1	Waste bins	8.20.10	Hazardous waste elimination technology
8.20.1.2	Containers for the collection of communal waste	8.20.11	Advisory service for waste disposal
8.20.1.3	Containers for the collection of industrial waste	8.20.12	Elaboration of waste management studies
8.20.1.4	Containers and barrels for the collection of hazardous waste	8.20.13	Transportation of hazardous waste and substances
8.20.1.5	Silos and industrial tanks for waste	8.20.14	Comprehensive solutions in waste disposal
8.20.1.6	Hospital waste bins	8.20.15	Complex waste management by own staff to order
8.20.1.7	Mobile and ecological toilets	8.20.16	Reduction of waste production
8.20.1.8	Equipment for waste compaction and compression		
8.20.1.9	Waste loading and handling equipment	8.20.99	Waste processing and utilization – other
8.20.1.10	Transport equipment for waste transportation	8.21	Soil and landscape protection
8.20.1.11	Complete programme for storing and handling of hazardous materials		
8.20.1.99	Equipment for the collection and transportation of waste – other	Environment-friendly technologies for and industry	
8.20.2	Machines and equipment for waste treatment	8.22.1	Alternative power sources
8.20.2.1	High-pressure water cutting and demolition systems	8.22.2	Energy-saving devices and technologies
8.20.2.2	Hydraulic shears	8.22.3	Packaging engineering and materials harmless for the environment
8.20.2.3	Cutting mills	8.22.4	Environment-sound chemicals
8.20.2.4	Waste crushers	8.22.5	Waste free technologies
8.20.2.5	Bulk transport conveyers and waste feeders	8.22.99	Environment-friendly technologies for industry other
8.20.2.6	Waste-storage bins		
8.20.2.7	Waste sorting plants	Removal of old environmental burden and consequences of ecological disasters	
		8.25.1	Equipment for the detection of contaminants in soil and soil air
		8.25.2	Equipment for the detection of contaminants in water
		8.25.3	Hydrogeological research for the detection of bedrock contamination

INTERNATIONAL FAIR FOR ENVIRONMENTAL PROTECTION TECHNOLOGIES



8.25.4	<i>Elimination of contaminants from geological environment</i>	8.50.2.8	Projects of ecological business management systems
8.25.5	<i>Cleaning of soils</i>	8.50.2.9	Consultancy in the introduction of ISO 14000 Standards
8.25.6	<i>Maintenance and recultivation of old landfills</i>	8.50.2.10	Advisory service for environmental legislation
8.25.7	<i>Removal of contaminants from ground and underground waters</i>	8.50.2.11	Legal representation
8.25.8	<i>Maintenance of chemical plants</i>	8.50.2.12	Patents, licences, know-how in environmental protection
8.25.9	<i>Maintenance of contaminated industrial zones</i>	8.50.2.13	Product certification complying with environmental protection
8.25.10	<i>Elimination of waste generated in the process of reclamation</i>	8.50.2.14	Assessment of environmental damages
8.25.11	<i>Elimination of organic contamination</i>	8.50.2.15	Financing of environmental projects
8.25.12	<i>Equipment for signalling ecological disasters</i>		
8.25.13	<i>Equipment preventing emergency leakage of contaminants</i>		
8.25.14	<i>Protective clothes and aids for work with hazardous and toxic substances</i>		
8.25.15	<i>Advisory service for old environmental burden and ecological incidents</i>		
8.25.16	<i>Decontamination projects</i>		
8.25.99	<i>Removal of old environmental burden and consequences of ecological incidents – other</i>		
Noise reduction			
8.30.1	<i>Soundproof insulation materials</i>		
8.30.2	<i>Sound protection absorption walls and panels</i>		
8.30.3	<i>Sound protection booths, sheaths, walls, barriers</i>		
8.30.4	<i>Sound mufflers</i>		
8.30.5	<i>Impact and vibration suppressors</i>		
8.30.6	<i>Soundproof windows</i>		
8.30.7	<i>Design of sound protection measures</i>		
8.30.99	<i>Noise reduction – other</i>		
Instrumentation for environment control			
8.33.1	Control and regulating systems for environmental technology		
8.33.2	Instrumentation for air and flue gas analysis		
8.33.3	Equipment for ionizing radiation measurements		
8.33.4	Instrumentation for noise and vibration measurements		
8.33.5	Instrumentation for soil analysis		
8.33.6	Monitoring in the environmental sector		
8.33.7	Accredited test laboratories		
8.33.8	Production of measuring devices for the environmental sector to order		
8.33.9	Complex equipment of laboratories		
8.33.10	Hardware and software for environmental protection		
8.33.11	Communication engineering for data transmission		
8.33.99	Instrumentation for environment control other		
Machines for industrial cleaning and washing			
8.40.1	<i>Cleaning machines</i>		
8.40.2	<i>Baling presses for waste separation and handling</i>		
8.40.3	<i>Industrial cleaning machines</i>		
8.40.3.1	High-pressure cleaning equipment		
8.40.3.2	Ultrasonic washing equipment		
8.40.3.3	Industrial washing tables		
8.40.3.4	Industrial vacuum cleaners		
8.40.4	<i>Sweeping and floor washing machines</i>		
8.40.5	<i>Machines for the cleaning of roads and airports</i>		
8.40.99	<i>Machines for industrial cleaning and washing – other</i>		
Literature, services, research, environmental organizations			
8.50.1	<i>Literature and periodicals on the environment</i>		
Environmental services			
8.50.2.1	Elaboration of environmental audits		
8.50.2.2	Energy audit elaboration		
8.50.2.3	Risk analysis		
8.50.2.4	Investigation of environmental burden		
8.50.2.5	Dispersion studies		
8.50.2.6	Assessment of project impact on the environment		
8.50.2.7	Expert opinions for the State Environmental Fund		
		8.50.2.8	Projects of ecological business management systems
		8.50.2.9	Consultancy in the introduction of ISO 14000 Standards
		8.50.2.10	Advisory service for environmental legislation
		8.50.2.11	Legal representation
		8.50.2.12	Patents, licences, know-how in environmental protection
		8.50.2.13	Product certification complying with environmental protection
		8.50.2.14	Assessment of environmental damages
		8.50.2.15	Financing of environmental projects
		8.50.3	Environment monitoring
		8.50.4	Accredited testing laboratories for the environment
		8.50.4.1	Accredited soil and waste analyses
		8.50.4.2	Accredited water analyses
		8.50.4.3	Accredited analyses of emissions and air pollution
		8.50.5	Environment research
		8.50.6	Environmental organisations
		8.50.99	Literature, services, research, environmental organisations – other
		Circular economy	
		8.60.1	Recycling of water, nutrients and energy contained in it
		8.60.2	Recirculation of water in enterprises
		8.60.3	Application of greywater in construction
		8.60.4	Rain water management systems
		8.60.5	Energy self-sufficient systems for households
		8.60.6	New energy sources
		8.60.7	Biogas stations of a new generation
		8.60.8	Circular economy systems for civil engineering
		8.60.9	New building materials
		8.60.10	Circular economy systems for waste management
		8.60.11	Innovative sorting systems
		8.60.12	New waste recycling technologies
		8.60.13	Materials from waste in general
		8.60.14	Materials from waste flows
		8.60.15	Products from secondary raw materials
		8.60.16	Digital technologies in circular economy
		8.60.17	Smart systems for effective source usage control
		8.60.18	Refurbishment and repair systems
		8.60.19	Circular economy services
		8.60.20	Consultancy in the field of circular economy
		8.60.21	Rent of systems and equipment in circular economy
		8.60.22	Circular economy research and development
		8.60.23	Other circular economy



RESEARCH, DEVELOPMENT, TRANSFER OF TECHNOLOGIES, FINANCIAL AND OTHER SERVICES

Science and research

- 9.1.1 Basic and applied research**
- 9.1.1.1 Research in the field of raw materials and power resources
- 9.1.1.2 Research in the field of materials
- 9.1.1.3 Research in the field of nanotechnologies
- 9.1.1.4 Research in the field of physics
- 9.1.1.5 Research in the field of nuclear engineering
- 9.1.1.6 Research in the field of electrical engineering
- 9.1.1.7 Research in the field of information processing and communication
- 9.1.1.8 Research in the field of industrial automation**
- 9.1.1.9 Research in the field of machine and equipment design
- 9.1.1.10 Research in the field of traffic and transport
- 9.1.1.11 Research in the field of economics and management

- 9.1.1.99 Basic and applied research in other technical fields

Economic, financial, advertising and other services, institutions

- 9.2.1 Banks and financial institutions
- 9.2.2 Financial consulting
- 9.2.3 Organizational, economic and entrepreneurial consultancy
- 9.2.4 Financing
- 9.2.5 Leasing
- 9.2.6 Insurance
- 9.2.7 Export consultancy
- 9.2.8 Searching of business contacts abroad
- 9.2.9 Assessment of company's financial standing
- 9.2.10 Securing import – export
- 9.2.11 Representation of foreign companies
- 9.2.12 Evaluation of patents, patent representation
- 9.2.13 Know-how
- 9.2.14 Licensing
- 9.2.15 Trade marks
- 9.2.16 Standards
- 9.2.17 Product certification

- 9.2.18 Quality certification
- 9.2.18.1 Consultancy in the field of introduction of ISO 9 000 and ISO 14 000 Standards

- 9.2.19 Take-over tests
- 9.2.20 Product and package design

- 9.2.21 Marketing**
- 9.2.21.1 Market research
- 9.2.21.2 Market information
- 9.2.21.3 Addresses of prospective customers
- 9.2.21.4 Information data banks
- 9.2.21.5 Direct mailing

- Advertising and publicity services**
- 9.2.22.1 Advertising articles and gifts
- 9.2.22.2 Advertising services abroad
- 9.2.22.3 Advertising printed matter
- 9.2.22.4 Internet-based advertising services

- 9.2.23 Publishing houses**
- 9.2.23.1 Specialist newspapers and journals
- 9.2.23.2 Specialist publications

- 9.2.24 Technical information**
- 9.2.25 Seminars and special training**
- 9.2.26 Support of trading and export**

- 9.2.27 Engineering services**
- 9.2.27.1 Product development

- 9.2.28 Technical services**
- 9.2.29 Testing**
- 9.2.30 Quality control**

- 9.2.31 Operation and equipment control**
- 9.2.32 FM (Facility Management) services**

Organisations, institutions

- 9.2.33.1 State authorities, governmental institutions

- 9.2.33.2 Non-governmental institutions
- 9.2.33.2.1 Chambers of commerce
- 9.2.33.2.2 Interest unions, interest associations

- 9.2.33.3 Multinational institutions
- 9.2.33.3.1 European institutions
- 9.2.33.3.2 Cooperation and assistance programmes

9.2.34 Schools

9.2.99 Services – other

Offer of industrial real estates and localities, regional development

- 9.3.1 Land planning**
- 9.3.2 Programmes for regional development**
- 9.3.3 Presentation of development and investment plans**
- 9.3.4 Technology parks, business centres, free trade areas**
- 9.3.5 Offer of development localities for industrial construction**
- 9.3.6 Offer of industrial real estates**
- 9.3.7 Demand for investors**
- 9.3.8 Financial institutions, project financing, services**
- 9.3.99 Business and investment activities – other**

10.1	Ships	Transport and lift trucks
10.1.1	Parts and accessories for ships	10.6.1 Truck parts
		10.6.2 Hand trucks
10.2	Aircraft and aero instruments	
10.2.1	Airplane parts and accessories	10.6.3 Battery trucks
10.2.2	Aviation instruments	10.6.3.1 Batteries and accessories for battery trucks
10.2.3	Security aircraft technology	
10.2.4	Airport equipment	10.6.4 Gas-operated trucks
		10.6.5 I.C. engine equipped trucks
		10.6.6 Driverless trucks, induction trucks
Rail vehicles		
10.3.1	Parts and accessories for rail vehicles	10.6.7 Attachments for transport trucks
10.3.1.1	Remote control of locomotives	10.6.7.1 Attachments for high-lift trucks
10.3.2	Locomotives	10.6.99 Transport and lift trucks – other
10.3.3	Carriages	10.7 Lifts
10.3.4	Special carriages	
10.3.5	Undercarriages	Transport equipment
10.3.6	Tramways	10.8.1 Parts and accessories of transport equipment
10.3.90	Overhauls, upgrading and reconstructions of rail vehicles	10.8.1.1 Conveyer parts and accessories
10.3.91	Turnouts and superstructures	
Cranes		Conveyers for loose materials transport
10.4.1	Parts and accessories for cranes	10.8.2.1 Band conveyers
10.4.1.1	Remote control of cranes	10.8.2.2 Worm conveyers
10.4.1.2	Binding ropes, eyes and hooks	10.8.2.3 Vibratory conveyers
10.4.1.3	Crane tracks	10.8.2.4 Chain/Redler conveyers
10.4.1.4	Suspension equipment	10.8.2.5 Bucket elevators
10.4.2	Bridge cranes	10.8.2.99 Conveyers for loose materials transport – other
10.4.3	Crane wagons	
10.4.4	Tower cranes	10.8.3 Conveyers for lump materials transport
10.4.5	Full-portal gantry cranes	10.8.3.1 Roller conveyers
10.4.6	Pillar and mast cranes	10.8.3.2 Wheel conveyers
10.4.7	Truck cranes	10.8.3.3 Ball conveyers
10.4.8	Jib cranes	10.8.3.4 Overhead conveyers incl. overhead grooves
10.4.9	Bracket cranes	10.8.3.99 Conveyers for lump materials transport – other
10.4.10	Erecting cranes	
10.4.11	Grab cranes	10.8.4 Pneumatic transport
10.4.12	Telescopic cranes	10.8.99 Transport equipment – other
10.4.13	Cable cranes	
10.4.14	Rotary cranes	10.9 Rope conveyers
10.4.15	Metallurgical industrial cranes	
10.4.16	Cranes for works on electrical lines	Handling equipment
10.4.17	Cranes for harbours and shipyards	10.10.1 Equipment for loading and unloading lump materials
10.4.90	Overhauls, upgrading and reconstructions of cranes	10.10.1.1 Arm loaders
10.4.99	Cranes – other	10.10.1.2 Hydraulic arms
Lifting mechanisms		10.10.2 Equipment for loading and unloading loose materials
10.5.1	Pulley blocks	10.10.3 Transport means
10.5.1.1	Rope pulley blocks	10.10.3.1 Pallets
10.5.1.2	Chain pulley blocks	10.10.3.2 Pallet superstructures
10.5.2	Jacks	10.10.3.3 Storing cases
10.5.3	Pneumatic lifting mechanisms	10.10.3.4 Crates
10.5.4	Hydraulic lifting mechanisms	10.10.3.5 Rolltainers
10.5.4.1	Hydraulic jacks	10.10.3.6 Containers incl. ISO
10.5.5	Lifting platforms and ramps	10.10.3.7 Containers for the transport of liquids
10.5.6	Lifting electromagnets	10.10.3.8 Omnitainers
10.5.7	Permanent lifting magnets	10.10.3.9 Cistern semi-trailers
10.5.8	Hand-operated lifting equipment	10.10.3.99 Transport means – other
10.5.9	Load grasping equipment	
10.5.10	Winches	10.10.4 Storing and disassembling machines
10.5.11	Vacuum gripping and hoisting devices	10.10.4.1 Palletizing and depalletizing machines
10.5.99	Lifting mechanisms – other	10.10.4.2 Stacking and destacking equipment
		10.10.4.9 Storing and disassembling machines – other
		10.10.5 Machines for adjusting handling equipment
		10.10.5.1 Bundling equipment



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10.10.5.2	Strapping equipment	10.15.7	Parking systems
10.10.5.2.1	Strappings	10.15.7.1	Automated parking houses
10.10.5.3	Binding equipment	10.15.8	Warehouse fire and explosion security
10.10.5.3.1	Chain, textile and rope binding means	10.15.99	Storing technology and operation equipment – other
10.10.5.4	Baling presses	10.16	Industrial gates, bolts, automatic and turnstile doors
10.10.5.5	Handling equipment contour checking devices	10.16.1	Gate packings and screens
10.10.5.9	Machines for adjusting handling equipment – other	10.17	CAD, CAM, CIM in transport, handling and assembly technology
10.10.6	Single purpose and municipal vehicles with superstructures	10.18	Engineering and design services in transport, handling and assembly technology
	Handling aids	Service and repairs in transport, handling and assembly technology	
10.10.7.1	Hand clamps	10.19.1	Diagnostics in transport, handling and assembly technology
10.10.7.2	Vacuum, magnetic suction equipment	10.19.2	Spare parts for transport, handling and assembly technology
10.10.7.3	Crowbars	10.19.2.1	Travelling wheels and rollers
10.10.7.4	Slide rails incl. wagon slide rails	10.19.2.2	Tyres for transport and handling equipment
10.10.7.5	Displacing rollers	10.19.3	Reconstructions and upgrading in transport, handling and assembly technology
10.10.7.6	Rolling undercarriages	10.20	Refurbished transport, handling and assembly technology
10.10.7.7	Lifting wheels	10.21	Technologies for transport, handling and assembly technology
10.10.7.8	Stands	10.21.1	Technological projects for transport, handling and assembly technology
10.10.7.9	Steps	10.21.2	Technological supplies for transport, handling and assembly technology
10.10.7.10	Ladders	10.22	Execution of investment units for transport, handling and assembly technology
10.10.7.99	Handling aids – other	Packaging materials and packages, packaging machines for the industry	
10.10.8	Automated handling systems	10.23.1	Materials for the production of packages
10.10.9	Container-type transport systems	10.23.2	Packages for industrial packaging
10.10.99	Handling equipment – other	10.23.2.1	Anticorrosive paper
10.11	Scaffolds	10.23.3	Packing machines and equipment
10.11.1	Mobile scaffolds	10.23.3.1	Barrier film packaging machines
10.12	Working, safety and evacuation technology for work at heights	10.23.3.2	Machines for container forming, filling and sealing
	Assembly machines and equipment	10.23.3.3	Group packaging machines
10.13.1	Accessories for assembly machines	10.23.4	Marking machines and equipment for packaging
10.13.2	Assembly machines	10.23.5	Turn-key packaging solutions
10.13.3	Assembly lines	10.23.6	Custom-made packaging
10.13.3.1	Benches for assembly lines	10.23.9	Packaging materials and packages, packaging machines for the industry – other
10.13.4	Unit-construction assembly lines	Services by carriers and forwarding agents	
10.13.5	Assembly controls	10.24.1	Domestic freight traffic
10.13.6	Assembly riveting machines	10.24.2	International freight traffic
10.13.7	Automatic and control instruments for assembly machines and equipment	10.24.3	Special loads transport
10.13.99	Assembly machines and equipment – other	10.24.3.1	Transport of heavy and oversize loads
10.14	Assembly and handling robots for industrial production	10.24.3.2	Transport of dangerous loads based on ADR
10.14.1	Robot peripherals and accessories	10.24.4	Tubular transport
	Storing technology and operation equipment	10.24.5	City logistics
10.15.1	Shelves	10.24.6	Storage rooms and storing services
10.15.1.1	Pallet shelves	10.24.7	Packing of transport consignments
10.15.1.2	Rack shelves	10.24.8	Forwarding services
10.15.1.3	Bracket shelves	10.24.9	Collecting services
10.15.1.4	Paternoster shelves	10.24.10	Loading and securing services in transport
10.15.1.5	Pull-out shelves for long materials	10.24.11	Customs services
10.15.1.6	Mobile shelves	10.24.12	Express transport of lump consignments
10.15.1.7	Library, archives and office shelves		
10.15.1.8	Storing and wardrobe systems		
10.15.2	S/R machines (storage and retrieval machines)		
10.15.3	Storage tanks		
10.15.4	Balance for logistics and transport		
10.15.5	Ramps and bridges		
10.15.6	Automated storing systems		



10.24.99	Services by carriers and forwarding agents – other	10.28.4	Consultancy in customs affairs
Freight terminals		10.28.5	Consultancy in dangerous loads transport
10.25.1	Airports	10.28.6	Drivers' training
10.25.2	Harbours	10.28.7	Services for railway engineering
10.25.3	Container transshipment terminal	10.28.8	Consultancy in organizing assembly lines
10.25.4	Logistic (distribution) centers, areals	10.28.9	Logistic system audit
10.25.4.1	Logistic providers	10.28.10	Training, education and requalification in logistics and transport
Services in transport		10.28.11	Customer solutions of storing equipment
10.26.1	Services for truck crews abroad	10.28.12	Design of logistic systems
10.26.2	Insurance in transport	10.28.13	Reengineering of logistic systems
10.26.3	Postal services	10.28.14	Outsourcing of logistic systems
10.26.4	Providing permits for special load transport abroad	10.28.15	Turnkey supplies of logistic systems
10.26.5	Banking services in transport	10.28.16	Finance and insurance in logistics and transport
10.26.99	Services in transport – other	10.28.17	Information and service equipment for passengers' transport
		10.28.18	Security services in storage and transport
		10.28.99	Literature, consultancy, training, service in transport and logistics – other
Telematics, communication, information and control systems in logistics		10.29	Research and development in logistics and transport
10.27.1	Printing, labelling and marking equipment	10.30	Organizations, associations, unions for logistics and transport
10.27.1.1	Bar code printers		
10.27.2	Data collecting equipment		
10.27.2.1	Data collecting terminals		
10.27.3	Communication equipment for storage rooms and logistics		
10.27.4	Identification equipment and systems		
10.27.4.1	Bar code based identification equipment and systems		
10.27.4.2	RFID based identification equipment and systems		
10.27.4.3	RTLS (Real Time Location Systems) and their accessories		
10.27.5	Dashboard PCs and their peripherals		
10.27.6	GPS (Global Positioning System)		
10.27.7	Navigation systems		
10.27.8	Systems for tracing vehicle movement		
10.27.9	Satellite systems for truck traffic control		
10.27.10	Geographic information systems (GIS)		
10.27.11	Software for transport, storage and materials handling		
10.27.11.1	Application software for transport and forwarding		
10.27.11.2	Application software for provisioning		
10.27.11.2.1	Software for controlling material and commodity flows		
10.27.11.3	Application software for managing storage rooms		
10.27.11.4	WMS (Warehouse Management Systems) for real time management		
10.27.11.9	Software for transport, storage and materials handling – other		
10.27.12	Software for label printing		
10.27.13	Software for enterprise resource planning – ERP		
10.27.13.1	Software for Business Intelligence (BI)		
10.27.13.2	Software for supply chain management – SCM		
10.27.13.3	Software for customer relationship management – CRM		
10.27.13.4	Software for order flow management and for production automation		
10.27.99	Telematics, communication, information and control systems for logistics – other		
Literature, consultancy, training, service in transport and logistics			
10.28.1	Professional literature and periodicals for transport and logistics		
10.28.2	Technical information in logistics		
10.28.3	Consultancy in transport and distribution		



METAL–WORKING AND FORMING MACHINES, TOOLS

MACHINE-TOOLS

11.1.1

Lathes

- 11.1.1.1 Bench lathes
- 11.1.1.2 Production lathes (for lot production)
- 11.1.1.3 Universal centre lathes
- 11.1.1.4 Multi-tool production lathes
- 11.1.1.5 Vertical turning lathes
- 11.1.1.6 Copying lathes
- 11.1.1.7 Short-bed lathes (second operation lathes)
- 11.1.1.8 Facing lathes with tailstock
- 11.1.1.9 Facing lathes with bench
- 11.1.1.10 Cutting-off lathes
- 11.1.1.11 Watchmakers' lathes
- 11.1.1.12 Precision bench lathes
- 11.1.1.13 Relieving lathes
- 11.1.1.14 Oval turning lathes
- 11.1.1.15 Wheel set lathes
- 11.1.1.16 Wheelset tyre profiling lathes
- 11.1.1.17 Axle turning lathes
- 11.1.1.18 Axle journal turning and roller burnishing lathes
- 11.1.1.19 Crankshaft turning lathes
- 11.1.1.20 Camshaft turning lathes
- 11.1.1.21 Piston lathes
- 11.1.1.22 Roll turning lathes
- 11.1.1.23 Bar turning and peeling machines
- 11.1.1.99 Lathes – other

11.1.2

Automatic lathes

- 11.1.2.1 Single-spindle universal automatic lathes
- 11.1.2.2 Single-spindle chucking automatic lathes
- 11.1.2.3 Single-spindle bar automatic lathes
- 11.1.2.4 Multi-spindle chucking automatic lathes
- 11.1.2.5 Multi-spindle bar automatic lathes
- 11.1.2.6 Lathes with driven tool
- 11.1.2.7 Vertical turning automatic lathes
- 11.1.2.8 High-speed automatic lathes
- 11.1.2.9 Automatic multioperational lathes with tool magazine (turning centres)
- 11.1.2.99 Automatic lathes – other

11.1.3

Drilling machines

- 11.1.3.1 Bench type drilling machines
- 11.1.3.2 Pillar type drilling machines
- 11.1.3.3 Column type drilling machines
- 11.1.3.4 Gang drilling machines
- 11.1.3.5 Multi-spindle drilling machines
- 11.1.3.6 Radial drilling machines
- 11.1.3.7 Precision coordinate drilling machines
- 11.1.3.8 Deep hole drilling and boring machines
- 11.1.3.9 Turret head drilling machines
- 11.1.3.10 Horizontal drilling machines
- 11.1.3.11 Automatic multioperational drilling machines with tool magazine (drilling centres)
- 11.1.3.99 Drilling machines – other

11.1.4

Boring machines

- 11.1.4.1 Fine boring machines, horizontal
- 11.1.4.2 Fine boring machines, vertical
- 11.1.4.3 Bed type boring and milling machines, fixed column
- 11.1.4.4 Bed type boring and milling machines, moving column
- 11.1.4.5 Boring and milling machines, gantry type
- 11.1.4.6 Jig boring machines (coordinate boring and milling machines)
- 11.1.4.7 Cylinder block reboring machines
- 11.1.4.99 Boring machines – other

11.1.5

Milling machines

- 11.1.5.1 Horizontal knee-type milling machines
- 11.1.5.2 Vertical knee-type milling machines
- 11.1.5.3 Universal knee-type milling machines
- 11.1.5.4 Horizontal bed type milling machines

11.1.5.5

Vertical bed type milling machines

- 11.1.5.6 Universal bed type milling machines
- 11.1.5.7 Multi-head bed type milling machines
- 11.1.5.8 Copying milling machines
- 11.1.5.9 Circular able milling machines
- 11.1.5.10 Drum type milling machines
- 11.1.5.11 Die-sinking machines
- 11.1.5.12 Universal tool milling machines
- 11.1.5.13 Milling and boring machines
- 11.1.5.14 Universal milling and boring machines
- 11.1.5.15 Machining centres
- 11.1.5.16 Bench hand-controlled knee-type milling machines
- 11.1.5.17 Open-side gantry milling machines
- 11.1.5.18 Slot and keyway milling machines
- 11.1.5.19 Crankshaft and camshaft milling machines
- 11.1.5.20 Chamfering and pointing milling machines
- 11.1.5.21 Engraving machines
- 11.1.5.99 Milling machines – other

11.1.6

Gear cutting and finishing machines

- 11.1.6.1 Gear hobbing machines
- 11.1.6.2 Rack milling machines
- 11.1.6.3 Gear shaping machines
- 11.1.6.4 Bevel gear hobbing and shaping machines
- 11.1.6.5 Gear rolling machines
- 11.1.6.6 Gear grinding machines
- 11.1.6.7 Gear shaving machines
- 11.1.6.8 Gear polishing and lapping machines
- 11.1.6.9 Gear tooth rounding and deburring machines
- 11.1.6.10 Automatic multioperational gear cutting machines with tool magazine (gear cutting centres)
- 11.1.6.99 Gear cutting machines – other

11.1.7

Screwing and threading machines

11.1.8

Planing, shaping, slotting and broaching machines

- 11.1.8.1 Planing machines with other operation options
- 11.1.8.2 Horizontal shaping machines
- 11.1.8.3 Vertical shaping machines
- 11.1.8.4 Plate edge planing machines
- 11.1.8.5 Copy shaping machines
- 11.1.8.6 Keyseating, broaching and slotting machines
- 11.1.8.7 Planing and shaping machines – other
- 11.1.8.8 Internal broaching machines
- 11.1.8.9 Surface broaching machines
- 11.1.8.10 Transfer broaching machines
- 11.1.8.11 Broaching machines
- 11.1.8.12 Planing, shaping and broaching machines
- 11.1.8.99 Planing, shaping, slotting and broaching machines – other

11.1.9

Sawing, filing and abrasive cutting-off machines

- 11.1.9.1 Band sawing machines
- 11.1.9.2 Hack sawing machines
- 11.1.9.3 Circular sawing machines
- 11.1.9.4 Cutting-off machines, with abrasive discs
- 11.1.9.5 Friction sawing machines
- 11.1.9.6 Filing machines
- 11.1.9.7 Automatic cutting lines
- 11.1.9.99 Sawing, filing and abrasive cutting-off machines – other

11.1.10

Grinding machines

- 11.1.10.1 Horizontal spindle surface-grinding machines
- 11.1.10.2 Vertical spindle surface-grinding machines
- 11.1.10.3 Universal spindle surface-grinding machines (with adjustable wheelhead)
- 11.1.10.4 Horizontal surface-grinding machines with rotary table
- 11.1.10.5 Vertical surface-grinding machines with rotary table
- 11.1.10.6 Plain cylindrical grinding machines
- 11.1.10.7 Production plain cylindrical grinding machines with possible recess grinding (for lot production)
- 11.1.10.8 Internal grinding machines
- 11.1.10.9 Universal grinding machines



METAL–WORKING AND FORMING MACHINES, TOOLS

11.1.10.10	Centreless grinding machines	11.1.14.12	Polishing machines – other
11.1.10.11	Copying grinding machines	11.1.14.13	Electromechanical deburring machines
11.1.10.12	High speed grinding machines	11.1.14.14	Thermal deburring machines
11.1.10.13	Abrasive band grinding machines	11.1.14.15	Ultrasonic polishing machines
11.1.10.14	Double-spindle surface-grinding machines		
11.1.10.15	Jig grinding machines	11.1.15	Special production machines and modular units
11.1.10.16	Automatic grinding machines with tool magazine (grinding centres)	11.1.15.1	Special production machines with rotating tools
11.1.11	Special purpose grinding machines	11.1.15.2	Rotary indexing table machines
11.1.11.1	Electrolytic grinding machines	11.1.15.3	Positioning units with rotary table and drum
11.1.11.2	Superfinishing grinding machines	11.1.15.4	Transfer lines
11.1.11.3	Profile grinding machines	11.1.15.5	Special production machines – other
11.1.11.4	Cylindrical grinding machines	11.1.15.6	Turning units
11.1.11.5	Oval grinding machines	11.1.15.7	Drilling units
11.1.11.6	Polygon grinding machines	11.1.15.8	Milling units
11.1.11.7	Spline shaft grinding machines	11.1.15.9	Special modular units – other
11.1.11.8	Calliper gauge grinding machines (surfaces, parallelity)	11.1.15.10	Finishing machines – centring and end facing
11.1.11.9	Centre hole grinding machines	11.1.16	Electroerosion machine tools
11.1.11.10	Slideway grinding machines	11.1.16.1	Electrochemical machine tools
11.1.11.11	Cam grinding machines	11.1.16.2	Electrolytic machine tools
11.1.11.12	Camshaft grinding machines		
11.1.11.13	Crankshaft grinding machines	11.1.16.3	Spark erosion machine tools
11.1.11.14	Valve grinding machines	11.1.16.3.1	Spark erosion sinking machines
11.1.11.15	Piston grinding machines	11.1.16.3.2	Spark erosion cutting machines
11.1.11.16	Axle journal grinding machines	11.1.16.3.3	Spark erosion boring machines
11.1.11.17	Roller bearing race grinding machines	11.1.17	Laser machine tools
11.1.11.18	Grinding machines with flexible shaft	11.1.17.1	Laser tube and profile processing machine tools
11.1.11.99	Grinding machines special – other	11.1.17.2	Laser metal sheet processing machine tools
		11.1.17.3	Laser cutting machines
11.1.12	Tool grinding and sharpening machines	11.1.18	Machine tools with parallel kinematic structure
11.1.12.1	Universal tool and cutter grinding machines	11.1.19	Micro-machine tools
11.1.12.2	Single point cutting tool sharpening machines		
11.1.12.3	Carbide tool sharpening machines	11.1.99	Machine tools – other
11.1.12.4	Broaching tool sharpening machines		
11.1.12.5	Twist drill sharpening machines	Forming machines	
11.1.12.6	Cutter and reamer sharpening machines	11.2.1	Mechanical presses
11.1.12.7	Sharpening machines for saw blades	11.2.1.1	Open gap non-inclinable eccentric presses
11.1.12.8	Gear cutting tool sharpening machines	11.2.1.2	Inclinable eccentric presses
11.1.12.9	Tap grinding machines	11.2.1.3	Straight sided presses
11.1.12.10	Tool sharpening and lapping machines	11.2.1.4	Two-point crank presses
11.1.12.11	Threading die and chaser grinding machines	11.2.1.5	Toggle lever presses
11.1.12.12	Milling head sharpening machines	11.2.1.6	Crank presses
11.1.12.13	Shear blade and machine knife sharpening machines	11.2.1.7	Transfer presses
11.1.12.14	Swing-frame grinding machines	11.2.1.8	Mechanical table presses
11.1.12.99	Tool grinding and sharpening machines – other	11.2.1.9	High-duty mechanical presses with automatic feed
11.1.13	Abrasives	11.2.1.10	Friction screw presses
11.1.13.1	Bonded abrasives	11.2.1.11	Fly presses
11.1.13.2	Coated abrasives	11.2.1.12	Mechanical column presses
11.1.13.3	Grinding and polishing pastes	11.2.1.13	Embossing/stamping presses
11.1.13.4	Abrasive products with diamond	11.2.1.14	Gearing drawing presses
		11.2.1.15	Hand lever presses
11.1.13.5	Grinding and polishing wheels, discs and belts	11.2.1.16	Wide frame crank drawing presses
11.1.13.5.1	Flexible grinders	11.2.1.17	Four-point drawing presses
		11.2.1.18	Turntable mechanical presses
11.1.13.6	Synthetic diamond powder	11.2.1.19	Calibrating presses
11.1.13.7	Superfinishing materials	11.2.1.20	Fine blanking presses
11.1.13.8	Blast media	11.2.1.99	Special purpose mechanical presses – other
11.1.13.99	Grinding tools and accessories – other	11.2.2	Hydraulic presses
11.1.14	Honing, lapping, polishing and deburring machines	11.2.2.1	Double-action presses
11.1.14.1	Honing machines	11.2.2.2	Double- and four-column hydraulic presses
11.1.14.2	Cylinder honing machines	11.2.2.3	Wide frame drawing presses
11.1.14.3	Surface lapping and cylindrical lapping machines	11.2.2.4	Hydraulic transfer presses
11.1.14.4	Lapping machines – other	11.2.2.5	Hydraulic table presses
11.1.14.5	Polishing machines, abrasive belt	11.2.2.6	Straight double sided presses
11.1.14.6	Polishing machines, abrasive disc	11.2.2.7	Open gap presses
11.1.14.7	Centreless polishing machines	11.2.2.8	Embossing/stamping hydraulic presses
11.1.14.8	Double ended grinding and polishing machines	11.2.2.9	Turntable hydraulic presses
11.1.14.9	Grinding, polishing and tumbling barrels	11.2.2.10	Stretch forming presses
11.1.14.10	Grinding vibrators		
11.1.14.11	Deburring machines		



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METAL–WORKING AND FORMING MACHINES, TOOLS

- 11.2.2.11 Die spotting presses
- 11.2.2.12 Fine blanking presses
- 11.2.2.13 Special purpose hydraulic presses
- 11.2.2.14 Deep-drawing presses
- 11.2.2.15 Pneumatic and hydropneumatic presses
- 11.2.3 Presses for special applications**
- 11.2.3.1 Trimming presses
- 11.2.3.2 Coining presses
- 11.2.3.3 Powder compacting presses
- 11.2.3.4 Calibrating presses for special applications
- 11.2.3.5 Scrap baling and briquetting presses
- 11.2.3.6 Flanging presses
- 11.2.3.7 Stamping presses
- 11.2.3.8 Bending and straightening presses
- 11.2.4 Forging machines and hammers**
- 11.2.4.1 Hammers
- 11.2.4.2 Forging machines and presses
- 11.2.4.3 Automatic transfer forging machines
- 11.2.4.99 Forging machines – other
- 11.2.5 Bar, section and tube working machines**
- 11.2.5.1 Straightening machines
- 11.2.5.2 Bar and section bending machines
- 11.2.5.3 Bending machines for reinforcing bars
- 11.2.5.4 Roller finishing and deep rolling machines
- 11.2.5.5 Section roll bending machines
- 11.2.5.6 Ring rolling machines
- 11.2.5.7 Tube forming, welding and cutting-off machines
- 11.2.5.8 Tube bending machines
- 11.2.5.9 Tube reducing and flaring machines
- 11.2.5.10 Tube finishing machines
- 11.2.5.11 Automatic transfer bar, profile and tube forming lines
- 11.2.5.99 Bar, section and tube working machines – other
- 11.2.6 Wire forming machines**
- 11.2.6.1 Wire drawing machines
- 11.2.6.2 Wire straightening and cutting-off machines
- 11.2.6.3 Wire bending machines
- 11.2.6.4 Spring coiling machines and devices
- 11.2.6.5 Chain making machines
- 11.2.6.6 Wire netting and weaving machines
- 11.2.6.7 Threading, screwing and bolt rolling machines
- 11.2.6.8 Rope and cable making machines
- 11.2.6.9 Nail making machines
- 11.2.6.99 Wire forming machines – other
- 11.2.7 Bolt, screw, nut and rivet making machines**
- 11.2.7.1 Hot and cold pressing machines for bolts and screws
- 11.2.7.2 Bolt shears
- 11.2.7.3 Bolt and screw chamfering machines
- 11.2.7.4 Nut presses
- 11.2.7.5 Nut tapping machines
- 11.2.7.6 Screw and bolt threading machines
- 11.2.7.7 Thread, screw and bolt rolling machines
- 11.2.7.8 Screw head turning and slotting machines
- 11.2.7.9 Bolt, nut and rivet deburring (trimming) machines
- 11.2.7.10 Wood screw making machines
- 11.2.7.11 Multistation-Partformer
- 11.2.7.99 Bolt, screw, nut and rivet making machines – others
- 11.2.8 Sheet working machines, laser based equipment**
- 11.2.8.1 Sheet metal machining centers, incl. laser based machines or plasma units
- 11.2.8.2 Nibbling machines
- 11.2.8.3 Strip levelling and cutting-off machines
- 11.2.8.4 Cutting-to-length and slitting lines
- 11.2.8.5 Sheet-straightening machines
- 11.2.8.6 Sheet forming machines
- 11.2.8.7 Sheet metal forming machines
- 11.2.8.8 Spinning machines
- 11.2.8.9 Swing-arm bending machines
- 11.2.8.10 Mechanical press brakes
- 11.2.8.11 Hydraulic press brakes
- 11.2.8.12 Sheet bending rolls
- 11.2.8.13 Knurling, flanging, ribbing and curling machines
- 11.2.8.14 Seaming machines
- 11.2.8.15 Marking machines
- 11.2.8.16 Can making machines
- 11.2.8.17 Riveting machines
- 11.2.8.18 Winding devices
- 11.2.8.19 Pressure compression and joining machines and tools
- 11.2.8.99 Sheet and strip working machines – other
- 11.2.9 Shears, press dies, blanking machines**
- 11.2.9.1 Metal forming centres for punching and pressing
- 11.2.9.2 Mechanically driven table shears
- 11.2.9.3 Hydraulically driven table shears
- 11.2.9.4 Circular shears
- 11.2.9.5 Gang slitting and circular tool shears
- 11.2.9.6 Combined curve-cutting and nibbling machines
- 11.2.9.7 Universal shearing and punching (and/or notching) machines
- 11.2.9.8 Concrete reinforcing bar cutters
- 11.2.9.9 Notching machines
- 11.2.9.10 Nibbling machines
- 11.2.9.11 Punching presses
- 11.2.9.99 Shearing, nibbling, notching and punching machines – other
- 11.2.10 Micro-forming machines**
- 11.2.99 Forming machines – other**
- Machines for unconventional and special machining and forming technologies**
- 11.3.1 Rapid prototyping devices
- 11.3.2 Ultrasonic machine tools
- 11.3.3 Water jet cutting machines
- 11.3.4 Electron beam working machines
- 11.3.5 Plasma beam working machines
- 11.3.6 Machines for unconventional machining – other
- 11.3.7 Laminating (sandwiching) machines and equipment for composites
- 11.3.8 Die casting machines
- 11.3.9 Longitudinal and circular dividing machines
- 11.3.10 Finishing (make-up) machines
- 11.3.11 Embossing, stamping and marking equipment
- 11.3.12 Laser lettering machines
- 11.3.13 Coating machines
- 11.3.99 Machines for unconventional and special machining and forming technologies – other**



QUALITY CONTROL IN METAL-WORKING AND FORMING SECTOR

11.4.1 Measuring and checking instruments for machining and forming

- 11.4.1.1 Length measuring instruments
- 11.4.1.2 Angle and inclination measuring instruments
- 11.4.1.3 Vibration measuring instruments
- 11.4.1.4 Speed measuring instruments
- 11.4.1.5 Surface quality measuring instruments
- 11.4.1.6 Layer thickness measuring instruments
- 11.4.1.7 Noise level measuring instruments
- 11.4.1.8 Temperature measuring instruments for machining and forming
- 11.4.1.9 Force and torque measuring instruments
- 11.4.1.10 Clamping force measuring instruments
- 11.4.1.11 Pressure measuring instruments for machining and forming
- 11.4.1.12 Profile and shape measuring instruments
- 11.4.1.13 Thread measuring instruments
- 11.4.1.14 Circularity measuring instruments
- 11.4.1.15 Gauges and meters for machining and forming
- 11.4.1.16 Measuring and testing devices, machining and forming standards
- 11.4.1.17 Mechanical precision measuring instruments for machining and forming
- 11.4.1.18 Optical precision measuring instruments for machining and forming
- 11.4.1.19 Electric precision measuring instruments for machining and forming
- 11.4.1.20 Electronic precision measuring instruments for machining and forming
- 11.4.1.21 Pneumatic precision measuring instruments for machining and forming
- 11.4.1.22 Laser measuring instruments for machining and forming
- 11.4.1.23 Measured value transducers for machining and forming
- 11.4.1.24 Measured value amplifiers for machining and forming
- 11.4.1.25 Measuring tables for machining and forming
- 11.4.1.26 Digital read out systems
- 11.4.1.27 Breakage and wear detection systems
- 11.4.1.28 Measuring microscopes for machining and forming
- 11.4.1.29 Surface plates and flatness testing equipment

11.4.2 Measuring machines

- 11.4.2.1 Measuring and marking machines
- 11.4.2.2 Computerized measuring machines for machining and forming sector
- 11.4.2.3 Tool setting devices
- 11.4.2.4 Hob testing instruments
- 11.4.2.5 Gear testing equipment
- 11.4.2.6 Sorting machines and equipment
- 11.4.2.7 Measuring robots
- 11.4.2.8 Measuring machines for lot production in machining and forming sector
- 11.4.2.9 Measuring projectors
- 11.4.2.10 Coordinate and multicoordinate measuring machines
- 11.4.2.11 Systems for 3D scanning
- 11.4.2.12 Measuring machine accessories

11.4.3 Testing machines for machining and forming sector

- 11.4.3.1 Testing machines for tension, compression, bending and other features
- 11.4.3.2 Tension testing machines
- 11.4.3.3 Pendulum impact testing machines
- 11.4.3.4 Drop hammers for material testing
- 11.4.3.5 Hardness testing machines and devices
- 11.4.3.6 Spring testing machines
- 11.4.3.7 Material fatigue testing machines (tension, compression, bending)
- 11.4.3.8 Torsion testing machines
- 11.4.3.9 Deep-drawing testers
- 11.4.3.10 Machines and devices for non-destructive material testing
- 11.4.3.11 Gear testing machines
- 11.4.3.12 Balancing machines for machining and forming

- 11.4.3.13 Electronic balancing equipment for machining and forming
- 11.4.3.14 Ultrasonic testing machines for machining and forming
- 11.4.3.15 Power test benches for machining and forming
- 11.4.3.16 Surface testing machines for machining and forming
- 11.4.3.17 Stereomicroscopes
- 11.4.3.18 Eddy current testers
- 11.4.3.99 Testing machines for machining and forming sector – other

11.4.4 Image data processing in machining and forming sector

- 11.4.4.1 Image processing systems in machining and forming sector
- 11.4.4.2 Video systems and endoscopes
- 11.4.4.3 Sensor systems for image and signal pattern recognition for machining and forming sector
- 11.4.4.4 Visual geometry measuring devices
- 11.4.4.5 Measuring microscopes with digital image processing

11.4.5 Quality assurance software in machining and forming sector

- 11.4.5.1 Software for acquisition of measured electrical data in machining and forming sector
- 11.4.5.2 Software for acquisition of measured non-electrical data in machining and forming sector
- 11.4.5.3 Software for processing and evaluation of measured data in machining and forming sector
- 11.4.5.4 Diagnostic systems for machining and forming sector
- 11.4.5.5 Quality assurance software in machining and forming sector
- 11.4.5.6 Software for failure mode and effects analysis (FMEA) applications
- 11.4.5.7 Software for technological data acquisition in machining and forming sector
- 11.4.5.8 Software for operating data acquisition in machining and forming sector
- 11.4.5.9 Quality information and control systems in machining and forming sector
- 11.4.5.10 Software for testing equipment supervision and management in machining and forming sector
- 11.4.5.11 Software for test scheduling and test data evaluation in machining and forming sector

11.4.99 Quality control for machining and forming sector – other



METAL–WORKING AND FORMING MACHINES, TOOLS

FLEXIBLE MANUFACTURING SYSTEMS (FMS)

11.5.1	Computer systems and peripherals for flexible manufacturing systems
11.5.1.1	FMS data processing systems
11.5.1.2	Turnkey computer systems for flexible manufacturing systems
11.5.1.3	CAD workstations
11.5.1.4	Servers for flexible manufacturing systems
11.5.1.5	Data network elements for flexible manufacturing systems
11.5.1.6	Communication adapters
11.5.1.7	Operator workplaces for flexible manufacturing systems
11.5.1.8	Input devices for flexible manufacturing systems
11.5.1.9	Interactive terminals for flexible manufacturing systems
11.5.1.10	Digitizers, tablets for flexible manufacturing systems
11.5.1.11	Scanners for flexible manufacturing systems
11.5.1.12	Plotters for flexible manufacturing systems
11.5.1.13	Printers for flexible manufacturing systems
11.5.1.14	NC-programming systems
11.5.1.99	Computer systems and peripheral units for flexible manufacturing systems – other
11.5.2	Software for flexible manufacturing systems
11.5.2.1	CAD/CAM systems for machine tools and metal forming machines
11.5.2.1.1	CAD/CAM systems for machine tools
11.5.2.1.2	CAD/CAM systems for metal forming machines
11.5.2.2	Software for TPV and PDM (Product Data Management)
11.5.2.3	Software for CNC control
11.5.2.4	Software for PLC control
11.5.2.5	Software for calculation of stress analysis, dynamic design and heat balance by the finite-element method
11.5.2.6	Software for electrical design
11.5.2.7	Software for production planning and management in flexible manufacturing systems
11.5.2.8	Software for flexible assembling systems
11.5.2.9	Software for operating data processing in flexible manufacturing systems
11.5.2.10	Software for capacity and production date scheduling in flexible manufacturing systems
11.5.2.11	Software for stock management
11.5.2.12	Software for warehousing and material management
11.5.2.13	Software for material database
11.5.2.14	Software for industrial robots in flexible manufacturing systems
11.5.2.15	Software for simulation calculations in flexible manufacturing systems
11.5.2.16	Software for warehousing and conveyor systems in flexible manufacturing systems
11.5.2.99	Software for flexible manufacturing systems – other
11.5.3	Control and drive systems
11.5.3.1	CNC control systems
11.5.3.2	Programmable logic controllers (PLC)
11.5.3.3	Programming systems for CNC training
11.5.3.4	Axis position measuring systems
11.5.3.5	Robot controllers in flexible manufacturing systems
11.5.3.6	Feed drives in flexible manufacturing systems
11.5.3.7	Main drives in flexible manufacturing systems
11.5.3.7.1	Servo drives for machine tools and metal forming+C2034 machines
11.5.3.8	Actuators
11.5.3.9	Heavy-duty electronics for machine tool and metal working machine control and drives
11.5.3.99	Control and drives – other

11.5.4	Electrical and electronic equipment for machine tools and metal forming machines
11.5.4.1	Electric motors for machine tools and forming machines
11.5.4.2	Generators
11.5.4.3	Converters
11.5.4.4	Rectifiers for electrical and electronic equipment of machine tools and metal forming machines
11.5.4.5	Electric, electronic and magnetic switching and control gear
11.5.4.6	Electric and electronic measuring and counting devices
11.5.4.7	Electric and electronic detecting, measuring, testing and protecting devices
11.5.4.8	Electric and electronic C1797 components and assemblies in flexible manufacturing systems
11.5.4.9	Piezoelectric motors, controllers, systems in flexible manufacturing systems
11.5.4.10	Optoelectronic parts for laser machine tools
11.5.4.11	Power electronics, closed-loop electronic systems in flexible manufacturing systems
11.5.4.12	Flexible energy supplies
11.5.4.13	Flexible control and power-supply cables for flexible manufacturing systems
11.5.4.14	Electric control panels and cubicles in flexible manufacturing systems
11.5.4.15	Electrical equipment for induction heating plants
11.5.4.99	Electric and electronic equipment for machine tools and metal forming machines – other
11.5.5	Assembling and industrial robots in flexible manufacturing systems
11.5.5.1	Flexible assembling systems
11.5.5.2	Individual assembling workplaces
11.5.5.3	Assembling equipment and automatic machines
11.5.5.4	Assembling lines in flexible manufacturing systems
11.5.5.5	Modular units for assembling systems
11.5.5.6	Handling equipment for warehousing, input and delivery of workpieces, semi-products in flexible manufacturing systems
11.5.5.7	Handling equipment for aligning and positioning of workpieces
11.5.5.8	Feeding equipment for machine tools
11.5.5.9	Gripping tools and automatic fixtures
11.5.5.10	Exchangeable devices for robot grippers
11.5.5.11	Manipulators in flexible manufacturing systems
11.5.5.12	Industrial robots in flexible manufacturing systems
11.5.5.13	Working tools for industrial robots
11.5.5.99	Manipulators, feeding and sorting equipment – other
11.5.6	Automation of warehousing and transportation for machining and forming
11.5.6.1	Conveying systems for machining and forming
11.5.6.2	Conveyers for workpieces for machining and forming
11.5.6.3	Driverless ground conveyors for machining and forming
11.5.6.4	Driverless warehouse conveyors for machining and forming
11.5.6.5	Components to interlink separate production stages
11.5.6.6	Magazines for workpieces, pressed pieces and semi-products
11.5.6.7	Warehousing systems for machining and forming
11.5.6.8	Palletizing systems of workpieces and tools
11.5.6.9	Warehousing systems of workpieces and tools
11.5.6.10	Palletizing systems for machining and forming
11.5.6.11	Warehousing equipment for manufacturing plants for machining and forming
11.5.6.12	Metal chip crushers in flexible manufacturing systems
11.5.6.13	Chip conveyors for flexible manufacturing systems
11.5.6.14	Chip deoiling equipment
11.5.99	Flexible manufacturing systems – other

METAL-WORKING AND FORMING MACHINES, TOOLS

PRECISION TOOLS

11.6.1 *Machining tools*

- 11.6.1.1 Reamers
- 11.6.1.2 Boring bars
- 11.6.1.3 Tool bits
- 11.6.1.4 Broaching tools
- 11.6.1.5 Gear tools
- 11.6.1.6 Threading dies
- 11.6.1.7 Threading tools, cutting
- 11.6.1.8 Milling cutters and gear shaping cutters, disc-type
- 11.6.1.9 Countersinks and core drills
- 11.6.1.10 Circular saw blades, incl. metal carbide discs and tips
- 11.6.1.11 Metal hacksaw blades
- 11.6.1.12 Metal band saw blades
- 11.6.1.13 Inserted tooth saw blades
- 11.6.1.14 Cylindrical saws, slitting saws
- 11.6.1.15 Cutting ceramics inserts
- 11.6.1.16 Carbide tipped tools and cutting tips
- 11.6.1.17 Twist drills and center drills
- 11.6.1.18 Spade drills
- 11.6.1.19 Step drills
- 11.6.1.20 Gun drills
- 11.6.1.21 Boring tools
- 11.6.1.22 Fine boring tools
- 11.6.1.23 Turning tools and tool holders
- 11.6.1.24 Diamond tools, diamond paste, industrial diamonds
- 11.6.1.25 Dressing tools
- 11.6.1.26 Shaving cutters, deburring tools
- 11.6.1.27 Planing and shaping tools
- 11.6.1.28 Honing, lapping and polishing tools
- 11.6.1.29 Cutting tools, coated
- 11.6.1.30 Cutting tools with integrated code
- 11.6.1.31 Power tools
- 11.6.1.32 Graphite materials for EDM – Electro discharge machining
- 11.6.1.33 Electrodes, cutting wires, consumables for electro discharge machine tools
- 11.6.1.34 Special tools for machining
- 11.6.1.35 Tool care products for machining
- 11.6.1.99 Tools for machining – other

11.6.2 *Forming tools*

- 11.6.2.1 Cutting tools
- 11.6.2.2 Shear knives, machine knives
- 11.6.2.3 Blanking and punching dies
- 11.6.2.4 Forming dies
- 11.6.2.5 Stamping dies, embossing dies
- 11.6.2.6 Markers
- 11.6.2.7 Punches
- 11.6.2.8 Knurling tools
- 11.6.2.9 Thread rolling dies
- 11.6.2.10 Thread cutting tools (forming)
- 11.6.2.10.1 Heads for thread cold rolling
- 11.6.2.11 Roller burnishing tools, smoothing and straining tools
- 11.6.2.12 Drawing dies
- 11.6.2.13 Die blocks
- 11.6.2.14 Deep drawing dies
- 11.6.2.15 Forming tools coated
- 11.6.2.16 Quick-action fixtures for press tools
- 11.6.2.17 Press tool changing systems
- 11.6.2.18 Special tools for forming
- 11.6.2.19 Die-casting dies
- 11.6.2.20 Guide racks
- 11.6.2.21 Standardized parts for forming tools and moulds (punching, stamping tools, posts, sleeves)
- 11.6.2.22 Wedge units
- 11.6.2.99 Forming tools – other

11.6.3

- 11.6.3.1 Standard fixture parts and clamping elements
- 11.6.3.2 Control elements for jigs and machines
- 11.6.3.3 Collet chucks
- 11.6.3.4 Machine vices
- 11.6.3.5 Drill chucks
- 11.6.3.6 Manual chucks for grinding machines
- 11.6.3.7 Power chucks for grinding machines
- 11.6.3.8 Lathe chucks, hand operated
- 11.6.3.9 Lathe chucks, power operated
- 11.6.3.10 Centers, carriers for lathes
- 11.6.3.11 Expanding mandrels
- 11.6.3.12 Magnetic chucks
- 11.6.3.13 Milling arbors
- 11.6.3.14 Sleeves
- 11.6.3.15 Dividing fixing heads
- 11.6.3.16 Magnetic fixing plates
- 11.6.3.17 Vacuum fixing plates
- 11.6.3.18 Fixture plates
- 11.6.3.19 Rotary holders
- 11.6.3.20 Tool holders
- 11.6.3.21 Rotary tables, also NC-controlled
- 11.6.3.22 Cross slide tables, also NC-controlled
- 11.6.3.23 Chucking tools with code
- 11.6.3.24 Chucking systems, incl. modular
- 11.6.3.99 Clamping tools – other

Chucking tools

11.6.4

- 11.6.4.1 Tool systems, modular
- 11.6.4.2 Tool turrets
- 11.6.4.3 Tool changers and magazines
- 11.6.4.4 Tool management software
- 11.6.4.5 Multi-spindle heads
- 11.6.4.6 Boring and facing heads
- 11.6.4.7 Turret heads
- 11.6.4.8 Slotting heads
- 11.6.4.9 Inserted blade milling cutters
- 11.6.4.10 Toolholder with coupleable drive
- 11.6.4.11 Copying devices
- 11.6.4.12 Relieving devices
- 11.6.4.13 Grinding wheel trueing, dressing and forming devices
- 11.6.4.14 Threading devices
- 11.6.4.15 Milling devices
- 11.6.4.16 Boring devices
- 11.6.4.17 Grinding devices
- 11.6.4.18 Tool identification systems
- 11.6.4.19 Tool breakage identification devices
- 11.6.4.20 Tool measuring and setting units
- 11.6.4.21 Tool maintenance systems
- 11.6.4.22 Spherical turning attachments
- 11.6.4.99 Tool systems – other

Tool systems

11.6.99

Precision tools – other



METAL–WORKING AND FORMING MACHINES, TOOLS

ACCESSORIES FOR METAL-WORKING AND FORMING

- 11.7.1 Lubrication and cooling of metal-working and forming machines**
 - 11.7.1.1 Lubricating oils and consumables for metal-working and forming machines
 - 11.7.1.2 Coolants and lubricants
 - 11.7.1.3 Central lubricating systems
 - 11.7.1.4 Oiling and greasing systems
 - 11.7.1.5 Cooling systems
 - 11.7.1.6 Separators for coolants and lubricants, filters, centrifuges
 - 11.7.1.7 Metal cleaning and deoiling devices
 - 11.7.1.8 Spraying attachment for forging machines
 - 11.7.1.9 Cask cleaning equipment
 - 11.7.1.10 Coolant hoses
- 11.7.2 Waste disposal in machining and forming sector**
 - 11.7.2.1 Air purity protection systems and components
 - 11.7.2.2 Exhaust systems in machining and forming sector
 - 11.7.2.3 Dust collection equipment, filtering systems, filters
 - 11.7.2.4 Wastewater treatment equipment and components in machining and forming sector
 - 11.7.2.5 Water treatment equipment and components in machining and forming sector
 - 11.7.2.6 Emulsion recovery equipment
 - 11.7.2.7 Processing of coolants and lubricants
 - 11.7.2.8 Oil separation, oil mist separation
 - 11.7.2.9 Waste oil collecting tanks
 - 11.7.2.10 Filtration, ultrafiltration
 - 11.7.2.11 Chip breakers
 - 11.7.2.12 Chip conveyors
 - 11.7.2.13 Chip briquetting presses
 - 11.7.2.14 Oil recovery equipment (chip separators)
 - 11.7.2.15 Tipping containers for chip removal
 - 11.7.2.16 Industrial dust collectors for cleaning of machines
 - 11.7.2.17 Process water treatment for superfinishing systems
- 11.7.3 Mechanical components and accessories for construction of machine-tools and forming machines**
 - 11.7.3.1 Fittings for machine tools and metal forming machines
 - 11.7.3.2 Seals / gaskets for machine tools and metal forming machines
 - 11.7.3.3 Flexible washers, levelling components
 - 11.7.3.4 Springs for machine tools and metal forming machines
 - 11.7.3.5 Drive components for machine tools and metal forming machines
 - 11.7.3.6 Gear units for machine tools and metal forming machines
 - 11.7.3.7 Infinitely variable speed gears for machine tools and metal forming machines
 - 11.7.3.8 Reducing gears for machine tools and metal forming machines
 - 11.7.3.9 Couplings for machine tools and metal forming machines
 - 11.7.3.10 Friction couplings for machine tools and metal forming machines
 - 11.7.3.11 Brakes for machine tools and metal forming machines
 - 11.7.3.12 Plain and antifriction bearings for machine tools and metal forming machines
 - 11.7.3.13 Linear lines for machine tools and metal forming machines
 - 11.7.3.14 Ball and roller slides, pneumatic slides
 - 11.7.3.15 Ball screws and nuts
 - 11.7.3.16 Machine elements for machine tools and metal forming machines
 - 11.7.3.17 Hydraulic power units, pumps, motors, cylinders, drives, assemblies
 - 11.7.3.18 Hydraulic control engineering for machine tools and metal forming machines
 - 11.7.3.19 High pressure lines and hoses, flexible tubing
 - 11.7.3.20 Fittings, connections for machine tools and metal forming machines
 - 11.7.3.21 High-pressure pumps and their accessories for water-jet cutting machines

- 11.7.3.22 Pneumatic drives, control engineering, components for machine tools and metal forming machines
- 11.7.3.23 Compressors for machine tools and metal forming machines
- 11.7.3.24 Compressed air conditioning unit
- 11.7.3.25 Small electric hoists, conveyance rollers
- 11.7.3.26 Pneumatic and oil pneumatic jacks
- 11.7.3.27 Winding and unwinding devices
- 11.7.3.28 Bar magazines and feeders
- 11.7.3.29 Sheet metal containers and loaders
- 11.7.3.30 Grinding spindles
- 11.7.3.31 High frequency spindles for machine-tools
- 11.7.3.32 Main spindles for turning, milling, drilling and boring machines
- 11.7.3.33 Guide way wipers for machine tools
- 11.7.3.34 Columns, beds and parts of machines by polymerized concrete
- 11.7.3.35 Machine lighting
- 11.7.3.36 Personal protective equipment
- 11.7.3.37 Protective devices
- 11.7.3.38 Guards for machine-tools, slideways and lead screws
- 11.7.3.39 Safety and protective equipment for machine tools and metal forming machines
- 11.7.3.40 Antiskid mats for machines
- 11.7.3.41 Tool cabinets for machine tools
- 11.7.3.42 Equipment of workshops for metal-working and forming sector
- 11.7.99 Accessories for metal working and forming – other**

METAL–WORKING AND FORMING MACHINES, TOOLS

SERVICE AND REPAIRS OF MACHINE-TOOLS AND FORMING MACHINES, REWORKED MACHINES

- 11.8.1 Spare parts for machine tools
- 11.8.2 Spare parts for forming machines
- 11.8.3 General overhauls of machine tools and forming machines**
 - 11.8.3.1 General overhauls of machine tools
 - 11.8.3.2 General overhauls of metal forming machines
- 11.8.4 Redesign and upgrading of machine tools and metal forming machines**
 - 11.8.4.1 Upgrading of el. equipment of machine tools and metal forming machines
 - 11.8.4.2 Upgrading of peripheral units for NC and CNC machines
 - 11.8.4.3 Redesign and upgrading of machine tools
 - 11.8.4.4 Redesign and upgrading of metal forming machines
- 11.8.5 Reworked machine tools
- 11.8.6 Reworked metal forming machines
- 11.8.99 Service and repairs of metal working and forming machines, reworked machines – other**

Hand-operated tools

- 11.9.1 Pneumatic hand-operated tools**
 - 11.9.1.1 Hand-operated pneumatic drills
 - 11.9.1.2 Hand-operated pneumatic thread-cutting machines
 - 11.9.1.3 Hand-operated pneumatic nut runners and screwdrivers
 - 11.9.1.4 Hand-operated pneumatic grinding machines, angle grinders and polishing machines
 - 11.9.1.5 Hand-operated pneumatic shears
 - 11.9.1.6 Manual pneumatic rivet guns
 - 11.9.1.99 Hand-operated pneumatic tools and accessories – other
- 11.9.2 Electric hand-operated tools, incl. cordless programme**
 - 11.9.2.1 Hand-operated electric drills and hammers
 - 11.9.2.2 Hand-operated electric grinders, angle grinders and polishing machines
 - 11.9.2.3 Hand-operated electric saws, shears and milling machines
 - 11.9.2.4 Hand-operated electric nut runners, screwdrivers and threading machines
 - 11.9.2.5 Hand-operated electric staplers
 - 11.9.2.6 Manual electric rivet guns
 - 11.9.2.7 Microtools
 - 11.9.2.99 Hand-operated electric tools and sets – other
- 11.9.3 Hand-operated hydraulic tools**
- 11.9.4 Hand-operated tools driven by internal combustion engine**
- 11.9.5 Mobile and suspension hand-operated tools**
- 11.9.99 Hand-operated tools and parts – others**

Manual non-mechanized tools

- 11.10.1 Hand hammers
- 11.10.2 Pliers, alligator wrenches
- 11.10.3 Manual deburring tools, files
- 11.10.4 Chisels, axes
- 11.10.5 Screwdrivers
- 11.10.6 Wrenches, torque wrenches
- 11.10.7 Hand cutting tools
- 11.10.8 Vices
- 11.10.9 Clamps (cramps)
- 11.10.10 Pullers/removers
- 11.10.11 Hand-operated jacks
- 11.10.12 Cases and bags for tools
- 11.10.99 Manual non-mechanized tools – other**

INSTITUTIONS, LITERATURE AND SERVICES IN METAL-WORKING AND FORMING SECTOR

- 11.11.1 Associations, organizations in metal-working and forming sector
- 11.11.2 Technical publishing houses, literature, specialized periodicals
- 11.11.3 Consultancy in the field of machine tools and metal-forming machines**
- 11.11.4 Engineering and design services in the field of machine tools and metal-forming machines**
 - 11.11.4.1 Engineering and design services in the field of machine tools
 - 11.11.4.2 Engineering and design services in the field of metal-forming machines
- 11.11.5 Technologies for metal working and forming**
- 11.11.6 Custom manufacture of single-purpose machine tools and metal forming machines**
 - 11.11.6.1 Custom manufacture of single-purpose machine tools
 - 11.11.6.2 Custom manufacture of single-purpose metal forming machines
- 11.11.7 Execution of investments in the field of metal working and forming**
- 11.11.8 Business services in the field of machine tools and metal forming machines**
- 11.11.9 Leasing of metal working and forming machines**
- 11.11.10 Custom coating of metal cutting and forming tools**
- 11.11.11 Custom tool renovation and reconditioning**
 - 11.11.11.1 Compression mould refurbishment
- 11.11.12 Reverse engineering services**
- 11.11.13 Custom rapid prototyping**
- 11.11.14 Offer of production capacities in the metal-working and forming sector**
 - 11.11.14.1 Custom material cutting
 - 11.11.14.2 Custom sheet-metal processing
 - 11.11.14.3 Custom metal-working manufacturing
- 11.11.14.4 Offer of production capacities in the metal working sector**
 - 11.11.14.4.1 Custom CNC machining
 - 11.11.14.4.2 Custom high-speed (HSC) machining
 - 11.11.14.4.3 Custom machining of hard-to-work materials
 - 11.11.14.4.4 Custom laser marking, lettering, engraving
 - 11.11.14.4.5 Custom piece polishing
- 11.11.14.5 Offer of production capacities in the metal forming sector
- 11.11.99 Services in the sector of metal working and forming – other**
- 11.99 Metal working and forming machines, manual tools, others**



FOUNDRY INDUSTRY

CHARGE RAW MATERIALS FOR FOUNDRIES

- 12.1.1 **Pig irons**
- 12.1.2 **Nonferrous metals, their alloys and master alloys**
- 12.1.3 **Waste metal (scrap)**
- 12.1.4 **Deoxidizing additives**

- 12.1.5 **Alloying additives**
 - 12.1.5.1 Ferroalloys
- 12.1.6 **Lag-forming additives**
- 12.1.7 **Foundry coke**
- 12.1.99 **Charge raw materials for foundries – other**

- 12.2 **EQUIPMENT OF MELTING PLANTS**
 - 12.2.1 **Equipment of cast iron melting plants**
 - 12.2.2 **Equipment of steel melting plants**
 - 12.2.3 **Equipment of nonferrous metals metal plants**

REFRACTORY MATERIALS

- 12.3.1 **Non-shaped refractory materials**
- 12.3.2 **Shaped refractory materials, shaped pieces**
- 12.3.3 **Ceramic filters, sieves for the foundry industry**
- 12.3.4 **Melting and holding crucibles of furnaces and ladles**
- 12.3.5 **Chemical raw materials and additives for manufacturing refractory products**
- 12.3.99 **Refractory materials – other**

12.4 TECHNICAL GASES FOR FOUNDRY INDUSTRY

PATTERN MAKING EQUIPMENT

- 12.5.1 **Pattern making equipment (patterns, core boxes, sweep patterns)**
 - 12.5.1.1 Pattern making equipment from wood
 - 12.5.1.2 Pattern making equipment from plastics, resin
 - 12.5.1.3 Pattern making equipment from metal
 - 12.5.1.4 Pattern making equipment from wax
 - 12.5.1.99 Pattern making equipment (patterns, core boxes, sweep patterns) – other
- 12.5.2 **Machines and aids for manufacturing pattern making equipment**
- 12.5.3 **Manufacturing patterns with the help of Rapid Prototyping System**
- 12.5.4 **Materials for manufacturing pattern making equipment**

MATERIALS FOR MOULDING AND CORE MIXTURES

- 12.6.1 **Grog**
- 12.6.2 **Binders**
 - 12.6.2.1 Inorganic binders
 - 12.6.2.2 Organic binders
- 12.6.3 **Additives into sand and core mixtures**
- 12.6.4 **Sand and core mixtures**
- 12.7 **EQUIPMENT FOR TREATMENT OF SAND AND CORE MIXTURES**
 - 12.7.1 **Equipment for treatment of binding mixtures**
 - 12.7.2 **Equipment for treatment of non-binding mixtures**
 - 12.7.3 **Equipment for sand mixtures reclamation**
 - 12.7.3.1 Magnets, separators and metal detectors for foundry industry
- 12.8 **Runner and gate technology**

EQUIPMENT OF MOULDING SHOPS AND CORE SHOPS

- 12.9.1 **Equipment of moulding shops**
 - 12.9.1.1 Machines for bentonite mixture moulding in flasks
 - 12.9.1.2 Automatic moulding lines with flasks and their accessories
 - 12.9.1.3 Automatic flaskless moulding lines and their accessories
 - 12.9.1.4 Sand-aerators, sand-aerating lines and their accessories
 - 12.9.1.5 Machines and equipment for self-hardening technology processes

- 12.9.1.6 Equipment for manufacturing shell moulds
- 12.9.1.7 Equipment for vacuum hardening of moulds (V-process)
- 12.9.1.8 Equipment mould manufacturing without binder with wax patterns
- 12.9.1.99 Equipment of moulding shops and their accessories – other

- 12.9.2 **Equipment of core shops**
 - 12.9.2.1 Shooting machines
 - 12.9.2.2 Equipment for core shooting from self-setting mixtures
 - 12.9.2.3 Equipment for thermohardening of cores
 - 12.9.2.4 Equipment for manufacturing Cold Box cores
 - 12.9.2.5 Automated lines and their accessories for core manufacturing
 - 12.9.2.99 Equipment of core shops and their accessories – other

- 12.9.3 **Driers, drying chambers**
- 12.9.4 **Aids, auxiliary tools for moulding shops and core shops**
- 12.9.5 **Auxiliary materials and accessories for risers**

FOUNDRY MELTING AND HOLDING FURNACES

- 12.10.1 **Foundry fuel-heated furnaces**
- 12.10.2 **Foundry electric furnaces**
 - 12.10.2.1 Foundry induction crucible and channel-type furnaces (low and mid frequency)
 - 12.10.2.2 Foundry arc furnaces
 - 12.10.2.3 Foundry resistance furnaces

- 12.10.3 **Foundry vacuum furnaces**
- 12.10.4 **Foundry plasma furnaces**
- 12.10.5 **Foundry electron-beam furnaces**

- 12.10.6 **Accessories of foundry furnaces**
 - 12.10.6.1 Fuel burners
 - 12.10.6.2 Coils for induction furnaces

- 12.10.99 **Foundry melting and holding furnaces – other**

CASTING MACHINES AND EQUIPMENT, ACCESSORIES

- 12.11.1 **Casting machines and equipment**
 - 12.11.1.1 Pouring ladles
 - 12.11.1.2 Machines and equipment for tipping and gravity casting
 - 12.11.1.3 Machines and equipment for low-pressure casting
 - 12.11.1.4 Metal die casting machines
 - 12.11.1.5 Pressure die casting machines
 - 12.11.1.6 Centrifugal metal casting machines and accessories
 - 12.11.1.7 Automated casting equipment
 - 12.11.1.99 Casting machines and equipment – other

- 12.11.2 **Permanent moulds**
 - 12.11.2.1 Permanent moulds made of metal
 - 12.11.2.2 Permanent moulds made of ceramic materials
 - 12.11.2.99 Permanent moulds made of other materials

- 12.11.3 **Auxiliary materials and accessories for casting machines and equipment**
 - 12.11.3.1 Tools for casting machines and equipment
 - 12.11.3.2 Chemicals for casting and casting machines
 - 12.11.3.3 Malleablizing equipment for pressure die casting moulds

- 12.11.99 **Casting machines and equipment, accessories – other**

12.12 EQUIPMENT AND AIDS FOR CASTING KNOCK-OUT FROM MOULDS

- 12.13 **EQUIPMENT AND ACCESSORIES FOR FINISHING RAW CASTINGS**
 - 12.13.1 **Equipment and accessories for surface cleaning of castings**
 - 12.13.2 **Gating and feeding system separator equipment and accessories**
 - 12.13.3 **Equipment and accessories for finishing of castings**

FOUNDRY INDUSTRY



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12.14	EQUIPMENT AND MATERIALS FOR WELDING, CUTTING AND REPAIRS OF CASTINGS	12.24.4	Engineering and design services in area of the foundry industry
12.15	EQUIPMENT AND MATERIALS FOR TREATMENT AND MACHINING OF CASTINGS	12.24.5	Service and repairs of machines and equipment in the foundry industry
12.16	AIR CONDITIONING FOR FOUNDRIES	12.24.6	Refurbishment and modernization of machines and equipment in the foundry industry
12.17	TRANSPORT AND STORAGE EQUIPMENT FOR THE FOUNDRY INDUSTRY	12.24.7	Overhauled machines and equipment for the foundry industry
12.18	ROBOTS, MANIPULATORS, HANDLING EQUIPMENT AND THEIR ACCESSORIES FOR THE FOUNDRY INDUSTRY	12.24.8	Manufacturing of prototype and single-purpose equipment for the foundry industry
12.19	CONTROL AND REGULATION TECHNOLOGY FOR THE FOUNDRY INDUSTRY	12.24.9	Technology for the foundry industry
12.20	MEASURING AND TESTING TECHNOLOGY FOR THE FOUNDRY INDUSTRY	12.24.10	Execution of investment projects for the foundry industry
12.21	COMPUTER EQUIPMENT, CONTROL, CALCULATIONS, SIMULATION	12.24.11	Professional literature, periodicals in area of the foundry industry
12.21.1	CAD, CAM, CIM FOR THE FOUNDRY INDUSTRY	12.24.12	Institutions and organizations in area of the foundry industry
12.22	ENVIRONMENT PROTECTION AND WASTE DISPOSAL IN THE FOUNDRY INDUSTRY WASTE	12.24.13	Vocation schools in area of the foundry industry
		12.24.14	Professional courses and education in area of the foundry industry
CASTINGS		12.24.99	Research, services, literature, institutions for foundry industry
12.23.1	Cast iron castings		
12.23.1.1	Grey cast iron castings		
12.23.1.2	Nodular cast iron castings		
12.23.1.3	Malleable cast iron castings		
12.23.1.4	Compacted graphite cast iron castings		
12.23.1.5	White cast iron castings		
12.23.1.6	Hardened cast iron castings		
12.23.1.7	Alloyed cast iron castings		
12.23.2	Steel castings		
12.23.2.1	Carbon steel castings		
12.23.2.2	Alloy steel castings		
12.23.3	Nonferrous metal and alloy castings		
12.23.3.1	Aluminium alloy castings		
12.23.3.2	Magnesium alloy castings		
12.23.3.3	Copper alloy castings		
12.23.3.4	Zinc alloy castings		
12.23.3.99	Castings of other nonferrous metals and alloys		
12.23.4	Castings for selected branches of industry and end consumption		
12.23.4.1	Castings for the automotive industry		
12.23.4.2	Castings for agricultural machines		
12.23.4.3	Castings for general engineering		
12.23.4.4	Castings for the chemical and petrochemical industries		
12.23.4.5	Castings for the food processing industry		
12.23.4.6	Castings for building industry		
12.23.4.7	Castings for power engineering		
12.23.4.8	Castings for electrical engineering, aviation, medical equipment		
12.23.4.9	Castings for domestic appliances, garden machinery, hobby		
12.23.4.10	Art castings, statues, statuettes, decorative objects		
12.23.4.99	Castings for selected branches of industry and end consumption – other		
12.23.99	Castings – other		
	RESEARCH, SERVICES, INSTITUTIONS, LITERATURE IN AREA OF THE FOUNDRY INDUSTRY		
12.24.1	Research in area of the foundry industry		
12.24.2	Offer of manufacturing capacities in area of the foundry industry		
12.24.2.1	Manufacturing patterns to order		
12.24.2.2	Manufacturing cores to order		
12.24.2.3	Manufacturing moulds to order		
12.24.2.4	Manufacturing castings to order		
12.24.3	Consultancy in area of the foundry industry		



WELDING

<p>13.1 FLAME WELDING, SURFACING AND OXYGEN CUTTING MACHINERY AND EQUIPMENT</p> <p>13.2 ARC-WELDING, SURFACING AND CUTTING MACHINERY AND EQUIPMENT</p> <p>13.2.1 Hand-operated welding, surfacing and cutting machinery and equipment</p> <p>13.2.2 Machinery and equipment for gas shielded electric arc welding and surfacing (MIG, MAG)</p> <p>13.2.3 Inert gas-shielded arc welding and surfacing machinery and equipment by using nonconsumable electrode (WIG or TIG)</p> <p>13.2.4 Submerged-arc welding and surfacing machinery and equipment</p> <p>13.2.99 Machinery and equipment for welding, surfacing and arc cutting, others</p> <p>13.3 THERMAL SPRAY MACHINERY AND EQUIPMENT</p> <p>13.3.99 Thermal spray machinery and equipment, others</p> <p>13.4 RESISTANCE-WELDING MACHINERY AND EQUIPMENT</p> <p>13.4.1 Machinery and equipment for spot welding</p> <p>13.4.2 Seam welding machinery and equipment</p> <p>13.4.3 Machines and equipment for resistance projection welding</p> <p>13.4.4 Contact and flash welding machinery and equipment</p> <p>13.4.5 Fused-slag welding machinery and equipment</p> <p>13.4.99 Resistance welding machinery and equipment, others</p> <p>13.5 MACHINERY AND EQUIPMENT FOR PRESSURE WELDING (FRICTION, DIFFUSION, COLD, ULTRASOUND WELDING)</p> <p>MACHINERY AND EQUIPMENT FOR OTHER METHODS OF WELDING, CUTTING AND SOLDERING</p> <p>13.6.1 Equipment for aluminothermic welding</p> <p>13.6.2 Plasma welding machinery and equipment</p> <p>13.6.3 Laser-beam welding machinery and equipment</p> <p>13.6.4 Electron-beam welding machinery and equipment</p> <p>13.6.5 Stud welding machinery and equipment</p> <p>13.6.6 Root-penetration welding machinery and equipment</p> <p>13.6.7 Machinery and equipment for welding plastics</p> <p>13.6.8 Soldering machinery and equipment</p> <p>13.6.9 Machinery and equipment for special methods of cutting</p> <p>13.6.10 Machinery and equipment for plasma cutting</p> <p>13.6.99 Machinery and equipment for other methods of welding, surfacing, cutting and soldering, others</p> <p>ADDITIONAL AND AUXILIARY MATERIALS</p> <p>13.7.1 Welding and cutting electrodes</p> <p>13.7.2 Welding wires, tube electrodes, strips and rods</p> <p>13.7.3 Solders</p> <p>13.7.4 Fluxes for welding and soldering</p> <p>13.7.5 Gases for welding, cutting and soldering</p> <p>13.7.6 Agents for pickling and passivating alloyed corrosion-proof steel welds</p> <p>13.7.7 Liquids, oils and sprays for welding and soldering</p> <p>13.7.99 Consumables and auxiliary materials, others</p>	<p>13.9.1 Exhaust and filtration equipment for welding areas</p> <p>13.9.2 Work protection aids (masks, goggles, working and protective garments, etc.)</p> <p>13.9.3 Tools, fixtures and elements of machinery and equipment for welding and related technologies (pneumatic, hydraulic elements, etc.)</p> <p>13.9.4 Machinery and equipment for treating welded structures (vibration treatment, thermal treatment, etc.)</p> <p>13.9.5 Defectoscopic technology for destructive and non-destructive weld tests</p> <p>13.9.6 Driers of consumables in welding areas</p> <p>13.9.99 Other elements, machines and consumables for welding, others</p> <p>13.10 METAL BONDING MACHINES</p> <p>13.11 WELDED STRUCTURES, SUB-SUPPLIES OF WELDED PARTS</p> <p>13.11.1 Weldments</p> <p>RESEARCH, SERVICES AND INSTITUTIONS IN WELDING, CUTTING, SOLDERING AND METAL BONDING</p> <p>13.12.1 Research in welding, cutting, soldering and metal bonding</p> <p>13.12.2 Offers of manufacturing facilities in the areas of welding, cutting, soldering and metal bonding</p> <p>13.12.3 Consulting in welding, cutting, soldering and metal bonding</p> <p>13.12.4 Engineering and design services in welding, cutting, soldering and metal bonding</p> <p>13.12.5 Welding, cutting, soldering and metal bonding machines and equipment service and repair</p> <p>13.12.6 Refurbished machines and equipment for welding, cutting, soldering and metal bonding</p> <p>13.12.7 Manufacture of prototype and single-purpose equipment for welding, cutting, soldering and metal bonding</p> <p>13.12.8 Technologies for welding, cutting, soldering and metal bonding</p> <p>13.12.9 Execution of investment projects for welding, cutting, soldering and metal bonding</p> <p>13.12.10 Specialist literature, publications in the areas of welding, cutting, soldering and metal bonding</p> <p>13.12.11 Institutions and organisations in the areas of welding, cutting, soldering and metal bonding</p> <p>13.12.12 Vocational schools in the areas of welding, cutting, soldering and metal bonding</p> <p>13.12.13 Specialist courses and training in the areas of welding, cutting, soldering and metal bonding</p> <p>13.12.99 Research, services and institutions in welding, cutting, soldering, and metal bonding – other</p>
<p>13.8 ROBOTS, MANIPULATORS AND ACCESSORIES FOR WELDING TECHNOLOGIES</p> <p>13.8.1 Welding robots</p> <p>13.8.2 Single-purpose welding, material separating and positioning manipulators</p> <p>13.8.3 Control, measurement, management and sensor systems, additional systems and subsystems</p> <p>13.8.4 Hardware and software for welding technologies</p>	

SURFACE TECHNOLOGY

EQUIPMENT FOR CLEANING AND TREATMENT OF SURFACES

- 14.1.1 Tumbling machines**
- 14.1.2 Blasting machines**
 - 14.1.2.1 High-pressure water jet blasting machines
- 14.1.3 Brush machines**
 - 14.2.3.1 Equipment for electrolytic oxidation of aluminium
- 14.1.4 Degreasing and cleaning equipment**
 - 14.1.4.1 Degreasing and cleaning equipment using organic solutions
 - 14.1.4.2 Degreasing and cleaning equipment using aqueous solutions
 - 14.1.4.3 Vacuum degreasing plants
 - 14.1.4.4 Rust-removing equipment
 - 14.1.4.5 Laser equipment for cleaning
 - 14.1.4.6 Ultrasound equipment for cleaning
 - 14.1.4.7 Micro-organism based cleaning and degreasing equipment
 - 14.1.4.99 Degreasing and cleaning equipment, other
- 14.1.5 Pickling plants**
- 14.1.6 Passivating plants**
- 14.1.7 Phosphatizing plants**
- 14.1.8 Chromating plants**
- 14.1.9 Varnish layer stripping and devarnishing plants**
- 14.1.10 Agents and consumables for surface cleaning and treatment equipment**
 - 14.1.10.1 Abrasive media for tumblers and blasting machines
 - 14.1.10.2 Cleaning and degreasing agents
 - 14.1.10.3 Rust removers
 - 14.1.10.4 Varnish removers
 - 14.1.10.5 Antirust agents
 - 14.1.10.6 Pickling agents
 - 14.1.10.7 Chromating and phosphatizing agents
 - 14.1.10.99 Agents and consumables for surface cleaning and treatment equipment, other
- 14.1.99 Surface cleaning and treatment equipment, other**

ELECTROPLATING EQUIPMENT

- 14.2.1 Electroplating equipment**
- 14.2.2 Equipment for galvanic cleaning and polishing**
- 14.2.3 Equipment for electrolytic oxidation and colouring**
- 14.2.4 Equipment for electroforming**
- 14.2.5 Electric etching equipment**
- 14.2.6 Electroplating systems for printed boards**
- 14.2.7 Strip galvanizing equipment**
- 14.2.8 Galvanizing lines**
- 14.2.9 Equipment for electroless (chemical) plating**
- 14.2.10 Attachments and accessories for electroplating equipment**
 - 14.2.10.1 Electric current sources for electroplating equipment
 - 14.2.10.2 Control and regulation devices for electroplating equipment
 - 14.2.10.3 Containers for electroplating
 - 14.2.10.4 Bath heaters for electrodeposition
 - 14.2.10.5 Baskets for electroplated products
 - 14.2.10.6 Centrifuge drums for electroplating equipment
 - 14.2.10.7 Filtering equipment for electroplating equipment
 - 14.2.10.8 Recycling equipment for electroplating
 - 14.2.10.99 Accessories for electroplating equipment, other
- 14.2.11 Anodes for electroplating equipment**
- 14.2.12 Chemicals for electroplating technology**
- 14.2.99 Electroplating equipment, other**

LACQUERING SYSTEMS, ENAMELLING SYSTEMS, PLASTIC COATING SYSTEMS

- 14.3.1 Equipment for pneumatic spraying of coating materials**
- 14.3.2 Equipment for high-pressure spraying of coating materials**
- 14.3.3 Equipment for spraying of heated coating materials**
- 14.3.4 Equipment for dip coating**
- 14.3.5 Equipment for glazing**
- 14.3.6 Drum coating machines**
- 14.3.7 Roller coating equipment**
- 14.3.8 Electrostatic wet coating equipment**
- 14.3.9 Powder coating equipment**
 - 14.3.9.1 Spray guns for electrostatic powder coating
 - 14.3.9.2 Baking kilns for powder coating materials and their accessories
- 14.3.10 Equipment for electrophoretic coating**
- 14.3.11 Booths for lacquering, drying and coat baking**
 - 14.3.11.1 Fire protection for lacquering boots
 - 14.3.11.2 IR radiation baking of coating materials
 - 14.3.11.3 Induction baking of coating materials
 - 14.3.11.4 UV radiation curing of coating materials
 - 14.3.11.5 Electron-beam curing of coating materials
- 14.3.12 Equipment for enamelling**
- 14.3.13 Equipment for surface coating with plastics and rubber**
- 14.3.14 Conveyors for lacquering equipment**
- 14.3.15 Robots, manipulators and accessories for surface treatment**
- 14.3.16 Compressors and pumps for lacquering equipment**
- 14.3.17 Coating materials and putties**
 - 14.3.17.1 Synthetic coating materials
 - 14.3.17.2 Oil coating materials
 - 14.3.17.3 Bitumen coating materials
 - 14.3.17.4 Acrylate coating materials
 - 14.3.17.5 Acrylurethane coating materials
 - 14.3.17.6 Epoxy resin coating materials
 - 14.3.17.7 Epoxy ester coating materials
 - 14.3.17.8 Epoxy acrylate coating materials
 - 14.3.17.9 Polyurethane coating materials
 - 14.3.17.10 Water-soluble paints
 - 14.3.17.11 Powder coating materials
 - 14.3.17.12 Thinners and solvents
 - 14.3.17.13 Putties for surface finishing
 - 14.3.17.14 Masking materials for lacquering plants
 - 14.3.17.99 Coating materials and putties, other
- 14.3.18 Nano-varnishes**
- 14.3.19 Dyestuffs, pigments**
- 14.3.20 Enamels**
- 14.3.21 Foil for product surface finish**

EQUIPMENT FOR CHEMICAL AND HEAT METAL TREATMENT

- 14.4.1 Equipment for diffusion saturation of steel surface**
 - 14.4.1.1 Case hardening equipment
 - 14.4.1.2 Nitriding equipment
 - 14.4.1.3 Nitrocarburizing equipment
 - 14.4.1.4 Equipment for carbonitriding
 - 14.4.1.5 Equipment for sulpho-nitriding
 - 14.4.1.6 Equipment for boriding
 - 14.4.1.7 Equipment for alitizing



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SURFACE TECHNOLOGY

<p>14.4.2 Furnaces for chemical and thermal treatment of surfaces and their accessories</p> <p>14.4.3 Solid, liquid and gaseous substances for chemical and thermal treatment of surfaces</p> <p>14.4.99 Equipment for chemical and thermal treatment of surfaces, other</p> <p>LASER AND PLASMA COATING TECHNOLOGIES</p> <p>14.5.1 Laser coating technologies</p> <p>14.5.2 Physical Vapour Deposition (PVD) plants</p> <p>14.5.3 Chemical Vapour Deposition (CVD) plants</p> <p>14.5.4 Plasma technologies for ion beam coating</p> <p>14.5.5 Vacuum components and accessories for laser and plasma coating technologies</p> <p>14.5.99 Laser and plasma coating technologies, other</p> <p>14.6 EQUIPMENT FOR THERMAL SPRAYING</p> <p>14.6.1 Flame metal spraying equipment</p> <p>14.6.2 Arc metal spraying equipment</p> <p>14.6.3 Plasma metal spraying equipment</p> <p>14.6.99 Plants for thermal spraying, other</p> <p>SPECIAL SYSTEMS FOR SURFACE TREATMENT</p> <p>14.7.1 Thermal surface treatment systems</p> <p>14.7.1.1 Annealing plants</p> <p>14.7.1.2 Hardening and tempering plants</p> <p>14.7.1.3 Annealing, hardening and tempering furnaces and their accessories</p> <p>14.7.1.4 Hardening baths and materials</p> <p>14.7.2 Browning and black-finishing plants</p> <p>14.7.3 Equipment for metal spraying</p> <p>14.7.4 Hot galvanization plants</p> <p>14.7.5 Hot-dip tinning plants</p> <p>14.7.6 Polishing, grinding and lapping equipment and accessories</p> <p>14.7.7 Non-thermal surface hardening systems</p> <p>14.7.8 Tampon printing, silkscreen printing</p> <p>14.7.9 Industrial surface marking systems</p> <p>14.7.9.1 Equipment for electro-chemical marking</p> <p>14.7.9.2 Micro-impact marking machines</p> <p>14.7.9.3 Equipment for surface marking by film application</p> <p>14.7.9.4 Self-adhesive materials</p> <p>14.7.9.5 Scribing and engraving machines and equipment</p> <p>14.7.9.5.1 Laser marking and scribing machines</p> <p>14.7.9.6 Marking printers</p> <p>14.7.9.7 Labelling devices</p> <p>14.7.9.8 Embossing dies</p> <p>14.7.9.9 Embossing guns</p> <p>14.7.9.10 Embossing presses</p> <p>14.7.9.99 Industrial equipment for surface marking, other</p> <p>14.7.99 Special surface treatment systems, other</p> <p>ENVIRONMENTAL PROTECTION SYSTEMS FOR SURFACE TREATMENT TECHNOLOGIES</p> <p>14.8.1 Water treatment plants for surface technology</p> <p>14.8.2 Waste water treatment plants for surface technologies</p> <p>14.8.3 Waste gas cleaning plants for surface treatment technology</p> <p>14.8.4 Surface treatment waste disposal</p> <p>14.8.5 Consultancy in environmental protection systems for surface treatment technologies</p> <p>14.8.99 Environmental protection systems for surface treatment technologies, other</p>	<p>COMPUTER, MEASURING AND TESTING DEVICES FOR SURFACE TREATMENT</p> <p>14.9.1 Computer management systems for surface treatment enterprises</p> <p>14.9.2 Software for support of quality assurance and management (CAQ)</p> <p>14.9.3 CAD, CAM and CIM for surface treatment</p> <p>14.9.4 Regulation and control equipment for surface treatment technologies</p> <p>14.9.5 Measuring and testing devices for surface treatment applications</p> <p>14.9.5.1 Nano-technologies testing and measuring instruments</p> <p>14.9.99 Computer, measuring and testing devices for surface treatment, other</p> <p>RESEARCH, SERVICES AND INSTITUTIONS IN SURFACE TREATMENT SECTOR</p> <p>14.10.1 Research in surface treatment technologies</p> <p>14.10.2 Offers of production facilities in surface treatment sector</p> <p>14.10.2.1 Custom cleaning and pre-treatment of surfaces</p> <p>14.10.2.2 Custom electroplating</p> <p>14.10.2.3 Custom heat treatment of metals</p> <p>14.10.2.3.1 Customized quenching and annealing</p> <p>14.10.2.4 Custom chemical and heat treatment of metals</p> <p>14.10.2.5 Custom technical coating applications</p> <p>14.10.2.5.1 Custom PVD and CVD coating of tools</p> <p>14.10.2.6 Custom lacquering</p> <p>14.10.2.7 Custom hexabasic chromium free corrosion protection</p> <p>14.10.2.8 Custom metal spraying of surfaces</p> <p>14.10.2.9 Customized hot galvanizing</p> <p>14.10.2.10 Customized thermal coating</p> <p>14.10.2.11 Customized cladding</p> <p>14.10.2.12 Custom application of plastic coatings</p> <p>14.10.2.12.1 Custom fluoroplastic coating</p> <p>14.10.3 Consultancy in surface treatment technologies</p> <p>14.10.4 Surface treatment engineering and design services</p> <p>14.10.5 Service and repair of machines and equipment for surface treatment applications</p> <p>14.10.6 Refurbished machines and equipment for surface treatment</p> <p>14.10.7 Manufacture of prototype and single-purpose equipment for surface treatment</p> <p>14.10.8 Surface treatment technologies</p> <p>14.10.8.1 Surface treatment technology projects</p> <p>14.10.8.2 Technological supplies for the surface treatment industry</p> <p>14.10.9 Execution of investment projects in surface treatment sector</p> <p>14.10.10 Financial services and leasing in surface treatment sector</p> <p>14.10.11 Technical literature and publications for surface treatment applications</p> <p>14.10.12 Institutions and organisations in surface treatment sector</p> <p>14.10.13 Vocational training schools specializing in surface treatment systems</p> <p>14.10.14 Specialist courses and education in surface treatment systems</p> <p>14.10.99 Research, services, institutions in surface treatment sector, other</p>
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PLASTICS, RUBBER, COMPOSITES

POLYMERS – RAW MATERIALS AND AUXILIARIES

15.1.1 Thermoplastics

15.1.1.1 Polyolefins

- 15.1.1.1.1 Polyethylenes (PE)
- 15.1.1.1.1.1 Ultra low density polyethylenes (ULDPE)
- 15.1.1.1.1.2 Low density polyethylenes (LDPE)
- 15.1.1.1.1.3 Linear low density polyethylenes (LLDPE)
- 15.1.1.1.1.4 Medium-density polyethylenes (MDPE)
- 15.1.1.1.1.5 High-density polyethylenes (HDPE)
- 15.1.1.1.1.6 High molecular weight high-density polyethylenes (HMW-HDPE)
- 15.1.1.1.1.7 Ultra-high molecular weight high-density polyethylenes (UHMW-HDPE)
- 15.1.1.1.1.8 Modified PE, copolymers, degradable types
- 15.1.1.1.1.99 Polyethylenes, other

- 15.1.1.1.2 Polypropylenes (PP)
- 15.1.1.1.3 Polybutene (PB) and polyisobutylene (PIB)
- 15.1.1.1.99 Polyolefins – other

- 15.1.1.2 Polystyrene plastics
- 15.1.1.2.1 Polystyrene (PS)
- 15.1.1.2.2 Expandable polystyrene (EPS)
- 15.1.1.2.3 Rigid polystyrene (S/B, HIPS)
- 15.1.1.2.4 Styrene-acrylonitrile copolymers (SAN)
- 15.1.1.2.5 Acrylonitrile-butadiene-styrene (ABS)
- 15.1.1.2.99 Styrene copolymers, multipolymers and blends – other

- 15.1.1.3 Vinyl chloride plastics

- 15.1.1.4 Fluoroplastics
- 15.1.1.4.1 Polytetrafluorethylene (PTFE)
- 15.1.1.4.99 Fluoroplastics, other

- 15.1.1.5 Acrylates
- 15.1.1.5.1 Polymethylmetacrylate (PMMA)
- 15.1.1.5.2 Copolymers and acrylate blends

- 15.1.1.6 Polyoxymethylene (POM)

- 15.1.1.7 Polyamides (PA)
- 15.1.1.7.1 Polyamides PA 6
- 15.1.1.7.2 Polyamides PA 66
- 15.1.1.7.3 Polyamides PA 11
- 15.1.1.7.4 Polyamides PA 12
- 15.1.1.7.5 Polyamides PA 46, 610, 612
- 15.1.1.7.6 Polyamides – other types
- 15.1.1.7.7 Aromatic polyamides (polyarylamides)
- 15.1.1.7.8 Copolymers and polyamide alloys

- 15.1.1.8 Polyarylesters
- 15.1.1.8.1 Polycarbonates (PC)
- 15.1.1.8.2 Copolymers and polyarylester blends
- 15.1.1.8.3 Polyethylen terephthalate (PETP, PET)
- 15.1.1.8.4 Polybutylene terephthalate (PBTP)
- 15.1.1.8.5 Polyarylates (PAR, PEC)

- 15.1.1.9 Polysulfides
- 15.1.1.9.1 Polyphenylene sulfide (PPS)

- 15.1.1.10 Polysulfones
- 15.1.1.11 Thermoplastic polyimides (PI)
- 15.1.1.12 Liquid crystal polymers (LCP)
- 15.1.1.13 Polyphenylene oxides (POP, PPE) and their blends
- 15.1.1.14 Polyetheretherketone (PEEK)
- 15.1.1.15 Cellulose derivatives
- 15.1.1.16 Highly heat-resistant thermoplastics

15.1.1.99 Thermoplastics, other

15.1.2 Thermoplastic elastomers (TPE)

15.1.3 Thermosetting plastics

- 15.1.3.1 Phenol moulding compounds (PF)
- 15.1.3.2 Aminoplastic moulding compounds
- 15.1.3.3 Polyester resins unsaturated (UP)
- 15.1.3.4 Epoxy resins (EP)
- 15.1.3.5 Highly heat-resistant thermosetting plastics
- 15.1.3.99 Thermosetting plastics – other

15.1.4 Polyurethanes (PUR)

- 15.1.4.1 Unextended polyurethanes
- 15.1.4.2 PUR flexible foam systems
- 15.1.4.3 PUR rigid foam systems
- 15.1.4.4 PUR integral foam systems
- 15.1.4.5 Polyurethane elastomers
- 15.1.4.99 Polyurethanes (PUR) – other

15.1.5 Rubbers and vulcanized rubbers

15.1.6 Polymer materials for manufacture of coating materials

- 15.1.6.1 Polymers for manufacture of transparent lacquers
- 15.1.6.2 Polymers for manufacture of pigmented paints and enamels

15.1.7 Polymer materials for manufacture of adhesives

15.1.8 Polymers and fillers for manufacture of cements

- 15.1.8.1 Polymers for manufacture of thermoplastic cements

15.1.9 Additives and fillers for processing of plastics and rubber blends

- 15.1.9.1 Additives and fillers for processing of plastics
- 15.1.9.1.1 Dyestuffs, pigments for plastics
- 15.1.9.1.2 Dyestuffs and additives for plastics in the form of concentrates (masterbatches)
- 15.1.9.1.3 Fillers
- 15.1.9.1.4 Plasticizers
- 15.1.9.1.5 Stabilizers (thermo-oxidation, etc.)
- 15.1.9.1.6 Antistatic agents
- 15.1.9.1.7 Flame retarding agents
- 15.1.9.1.8 Crosslinking agents
- 15.1.9.1.9 Nucleating agents
- 15.1.9.1.10 Agents facilitating preparation of polymer blends (compatibilizers)
- 15.1.9.1.11 Blowing agents
- 15.1.9.1.12 Dispersing agents
- 15.1.9.1.13 Not genuine solvents
- 15.1.9.1.14 Lubricants, waxes for processing of plastics
- 15.1.9.1.15 Separating agents
- 15.1.9.1.99 Additives and fillers for processing of plastics – other

- 15.1.9.2 Additives and fillers for processing of rubber blends

15.1.10 Biopolymers

15.1.11 Synthetic polymer-based ion exchange resins

15.1.99 Polymers – raw materials and additives – other

MACHINES AND EQUIPMENT FOR PROCESSING OF PLASTICS AND RUBBERS

15.2.1 Machines for treatment of polymer materials

- 15.2.1.1 Mixing and kneading machines
- 15.2.1.2 Crushing machines
- 15.2.1.3 Filtration systems
- 15.2.1.4 Machines for manufacture of plastics and rubbers mixtures
- 15.2.1.99 Machines for treatment of polymer materials – other



PLASTICS, RUBBER, COMPOSITES

15.2.2	Calenders – rolling machines	15.2.14.10	Digital scales
15.2.2.1	Machines and lines for production of plastic sheets and floorings	15.2.14.11	Equipment for separation of gate and culls from castings
15.2.3	Extruders – extruding machines for plastic and rubber blends	15.2.14.12	Robots and handling devices for plastics and rubber processing machines
15.2.3.1	Extruders for plastic materials	15.2.14.13	Systems for automatic mould changing
15.2.3.1.1	Machines and lines for production of boards, sheets, pipes and sections of thermoplastics	15.2.14.14	Belt conveyors for mouldings
15.2.3.2	Extruders for rubber industry	15.2.14.99	Ancillary machines and equipment for plastics and rubber industries – other
15.2.3.2.1	Extruding equipment for rubber	15.2.15	Dying units for plastic materials
15.2.4	Moulding machines for thermosetting plastics and rubber	15.2.16	Equipment for intake and treatment of air and other gases for technological purposes
15.2.4.1	Injection moulding machines for thermosetting plastics and rubber blends	15.2.17	Deflashing machines for plastic and rubber components
15.2.4.2	Multibank presses for manufacture of laminated materials	15.2.18	Plastics thermoforming machines
15.2.5	Injection moulding machines	15.2.19	Machines and fixtures for welding of plastics
15.2.5.1	Hydraulic injection moulding machines	15.2.19.1	Machines for welding plastic sheets
15.2.5.2	Hybrid (electrical and hydraulic) injection moulding machines	15.2.20	Machines for chip working of plastics
15.2.5.3	Electrical injection moulding machines	15.2.21	Machines and equipment for finishing operations
15.2.5.4	Multi-colour and multi-component injection moulding machines	15.2.22	Machines, equipment and materials for finishing, decorating, printing and marking plastic and rubbers products
15.2.5.5	Injection moulding machines for thermosetting plastics	15.2.23	Equipment and technologies for Rapid Prototyping, Rapid Tooling and Room Temperature Vulcanization
15.2.5.6	Injection moulding machines for technical rubber articles	15.2.24	Process control equipment of machines for plastics and rubber industries
15.2.5.7	Injection moulding machines with pressurized inert gas	15.2.25	Parts and components of machines for plastics and rubber industries
15.2.5.8	Power injection moulding (PIM) machines	15.2.25.1	Screws
15.2.5.99	Injection moulding machines – other	15.2.25.2	Hydraulic and pneumatic rollers
15.2.6	Machinery for manufacture of foamed materials and processing of reactive resins	15.2.25.3	Rollers for calenders
15.2.7	Curing presses	15.2.25.4	Pumps for plastics and rubber processing machines
15.2.8	Machines for manufacture of tyres	15.2.25.5	Nozzles
15.2.9	Machines for manufacture of rubber hoses	15.2.25.6	Heating elements
15.2.10	Blow moulding machines for manufacture of hollow articles	15.2.25.7	Machine blades
15.2.10.1	Extruding blow moulding machines	15.2.25.8	Clutches
15.2.10.2	Injection blow moulding machines	15.2.25.9	Electric motors and drives
15.2.11	Casting machines and equipment for liquid polymer processing	15.2.25.99	Parts and components of machines for plastics and rubber industries, other
15.2.12	Equipment for plastic or rubber coating	15.2.26	Equipment for neutralization and use of static electricity in manufacture
15.2.13	Moulds, tools and jigs	15.2.99	Machines and equipment for processing of plastics and rubber, other
15.2.13.1	Injection moulds	COMPOSITE MATERIALS	
15.2.13.2	Blow moulds	15.3.1	Composite reinforcements
15.2.13.3	Compression moulds	15.3.1.1	Reinforcing fibres
15.2.13.4	Moulds, tools and jigs for extruders	15.3.1.1.1	Glass fibres
15.2.13.5	Standardized parts for moulds, tools and jigs	15.3.1.1.1.1	Glass rovings
15.2.13.6	Heated injection systems	15.3.1.1.1.2	Textile glass fabric
15.2.13.7	Hot air-channel systems	15.3.1.1.1.3	Textile glass mats
15.2.13.99	Moulds, tools and jigs, other	15.3.1.1.99	Reinforcing fibres, other
15.2.14	Ancillary machines and equipment for plastics and rubber industries	15.3.1.99	Composite reinforcements, other
15.2.14.1	Silos and their accessories	15.3.2	Materials for polymer matrices
15.2.14.2	Granulate driers	15.3.3	Machines and equipment for manufacture of prepregs
15.2.14.3	Conveyors	15.3.4	Technologies, machines and equipment for manufacture of thermosetting matrix fibre composites
15.2.14.4	Metal separators	15.3.4.1	Hot pressing technologies (BMC or DMC)
15.2.14.5	Granulate suction equipment	15.3.4.2	Manual wet coating
15.2.14.6	Dosing equipment	15.3.4.3	Winding technologies (rovings, fabric strips)
15.2.14.7	Heating technology		
15.2.14.8	Cooling technology		
15.2.14.9	Flow meters		



15.3.4.4	Resin Transfer Moulding (RTM) technologies	15.4.2.25	Linings and panelling of plants, equipment for transport and storage of bulk and abrasive materials
15.3.4.5	Vacuum Assisted RTM (VARTM) technologies	15.4.2.26	Masts
15.3.4.6	Seeman Composite Resin Infusion Moulding Process (SCRIMP) technologies	15.4.2.27	Sound protecting, thermal and waterproofing parts, panels and fillings
15.3.4.7	Pultrusion technologies	15.4.2.28	Facade lining and decorative panels, roofing
15.3.4.8	Sheet Moulding Composed (SMC) technologies	15.4.2.29	Electric insulation boards and components
15.3.4.99	Technologies, machines and equipment for manufacture of thermosetting matrix fibre composites, other	15.4.2.30	Oversize and small boxes, covers and lids
15.3.5	Technologies, machines and equipment for manufacture of thermosetting matrix fibre composites	15.4.2.31	Fillets, furniture strips and components
15.3.6	Technology of particle composites with polymer matrix	15.4.2.32	Sacks, bags
15.3.7	Technology of composites with metal matrix	15.4.2.33	Cups, mugs, plates, trays and kitchen utensils
15.3.8	Technology of composites with ceramic matrix	15.4.2.34	Floor coverings, industrial carpets
15.3.9	Nanocomposites	15.4.2.35	Synthetical leather, plastic coated paper or textile products
		15.4.2.36	Protective and safety aids
		15.4.2.99	Plastic products, other
15.3.10	Semi-finished composite products	15.4.3	Plastic constructional units
15.3.10.1	Composite structural sections, rods, pipes, boards	15.4.3.1	Injection moulded plastic constructional units
15.3.10.2	Composite panels with sandwich core	15.4.3.2	Pressed plastic constructional units
15.3.11	Composite products	15.4.3.3	Blown plastic constructional units
15.3.11.1	Glass-fibre reinforced plastic products	15.4.3.4	Structural parts of thermoformed plastics
15.3.99	Composites, other	15.4.3.5	Expanded plastic structural parts
		15.4.3.6	Structural parts of polycarbonates
		15.4.3.7	Polyamide structural parts
		15.4.3.8	Polyoxymethylene structural parts
		15.4.3.9	Structural parts with inserts
		15.4.3.10	Reinforced structural parts
		15.4.3.11	Plastic machined structural parts
		15.4.3.12	Sliding and wear-resistant structural parts
		15.4.3.99	Plastic constructional units, other
		15.4.4	Plastic parts and products for selected industries and end users
SEMI-FINISHED AND FINISHED PLASTIC PRODUCTS		15.4.4.1	Plastic parts and products for mechanical engineering
15.4.1	Semi-finished plastic products	15.4.4.2	Plastic parts and products for transport
15.4.1.1	Films, sheets, strips, bands	15.4.4.3	Plastic parts and products for the automotive industry
15.4.1.2	Blocks, boards	15.4.4.3.1	Motor vehicle components for interior fittings
15.4.1.3	Sections	15.4.4.3.2	Motor vehicle components for exterior fittings
15.4.1.4	Rods	15.4.4.3.3	Plastic parts for vehicle driving sets
15.4.1.5	Fibres, lines, strings	15.4.4.4	Plastic parts and products for power engineering
15.4.1.6	Pipes, hoses	15.4.4.5	Plastic parts and products for the building industry
15.4.1.7	Semi-finished plastic castings	15.4.4.6	Plastic parts and products for the environment protection
15.4.1.99	Semi-finished plastic products, other	15.4.4.7	Plastic parts and products for agriculture
15.4.2	Plastic products	15.4.4.8	Plastic parts and products for the food industry
15.4.2.1	Bearings and parts thereof	15.4.4.9	Plastic parts and products for the printing and packaging industries
15.4.2.2	Gears	15.4.4.10	Plastic parts and products for electrical engineering
15.4.2.3	Shaft couplings	15.4.4.11	Plastic parts and products for electronics
15.4.2.4	Springs and flexible elements	15.4.4.12	Plastic parts and products for information and communication technologies and office machinery
15.4.2.5	Sealings, bellows	15.4.4.13	Plastic parts and products for health services
15.4.2.6	Conveyer belts	15.4.4.14	Plastic parts and products for the textile and clothing industries
15.4.2.7	Conveyer chains, chains tensioners	15.4.4.15	Plastic parts and products for the furniture-making industry
15.4.2.8	Conveyer and driving belts	15.4.4.16	Plastic parts and products for home appliances, households
15.4.2.9	Conveyer rollers, conveyer worms	15.4.4.17	Plastic parts and products for school and office supplies
15.4.2.10	Energy chains	15.4.4.18	Plastic parts and products for garden, garden appliances
15.4.2.11	Pipes	15.4.4.19	Plastic parts and products for games, hobbies, sports, leisure time
15.4.2.12	Tubes, drainage parts	15.4.4.20	Plastic parts and products for advertising, promotional items
15.4.2.13	Hoses	15.4.4.99	Plastic parts and products for other selected industries and end users
15.4.2.14	Fittings, quick couplers		
15.4.2.15	Pumps		
15.4.2.16	Castor wheels, rollers, pulleys, sheaves		
15.4.2.17	Assembling elements		
15.4.2.17.1	Joining elements – screws, nuts, rivets, pins		
15.4.2.17.2	Leveling elements – distance columns, articulated supporting feet, leveling screws		
15.4.2.17.3	Protective elements – caps, plugs, blinds, sleeves, closures		
15.4.2.17.4	Fastening elements – wall clips, clamps, wall holder sleeves, fixing strips, assembly strappings, dowels, hinges		
15.4.2.18	Operating elements – handles, hand rails, balls, wheels, levers, star handles		
15.4.2.19	Large tanks, silos, containers		
15.4.2.20	Vessels, barrels, canisters, bottles		
15.4.2.21	Pallets, crates, containers, cases, boxes, packs, trays		
15.4.2.22	Ropes, cords, binding straps		
15.4.2.23	Filters		
15.4.2.24	Mesh screens		



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PLASTICS, RUBBER, COMPOSITES

- 15.4.5 Semi-finished and finished products made of polyurethane elastomers**
- 15.4.5.1 Boards, blocks
 - 15.4.5.2 Sections
 - 15.4.5.3 Bellows, sleeves, covers, rings
 - 15.4.5.4 Dilatation compensators
 - 15.4.5.5 PU elastomers including metal inserts
 - 15.4.5.6 Shaft seal rings
 - 15.4.5.7 Seals
 - 15.4.5.8 Vibration dampers
 - 15.4.5.9 Silentblocks
 - 15.4.5.10 Shaped products
 - 15.4.5.11 Casts
 - 15.4.5.12 Glass fiber reinforced polyurethane
 - 15.4.5.13 Wheels
 - 15.4.5.14 Solid tyre wheels
 - 15.4.5.15 Polyurethane coated rollers
 - 15.4.5.99 Semi-finished and finished products made of polyurethane elastomers other

SEMI-FINISHED AND FINISHED RUBBER-BASED PRODUCTS

- 15.5.1 Rubber boards, blocks
- 15.5.2 Rubber sections
- 15.5.3 Rubber fibres, ropes
- 15.5.4 Rubber hoses
- 15.5.5 Rubber flooring
- 15.5.6 Rubber V-belts, indented belts
- 15.5.7 Rubber conveyor belts
- 15.5.8 Rubber bellows, sleeves, covers, rings
- 15.5.9 Rubber dilatation compensators
- 15.5.10 Rubber-metal
- 15.5.11 Shaft seal rings
- 15.5.12 Rubber seals
- 15.5.13 Rubber vibration dampers
- 15.5.14 Silentblocks
- 15.5.15 Shaped rubber products
- 15.5.16 Rubber textile products
- 15.5.17 Rubber wheels
- 15.5.18 Cellular rubber products
- 15.5.19 Tyres and tubes
- 15.5.20 Rubber containers and bags
- 15.5.21 Rubber-coated cylinders
- 15.5.22 Articles produced by dipping
- 15.5.23 Ebonite products
- 15.5.98 Rubber components for automotive applications of all kinds
- 15.5.99 Rubber semi-finished and finished products, other

MACHINES AND EQUIPMENT FOR RECYCLING AND USE OF PLASTIC AND RUBBER WASTE MATERIALS

- 15.6.1 Mills and crushers for plastic waste
- 15.6.1.1 Cryogenic mills and crushers for plastic and rubber waste
- 15.6.1.2 Tyre crushers
- 15.6.2 Machines, equipment and technologies for separation of contaminating materials from plastic and rubber waste
- 15.6.3 Technologies, machines and equipment for chemical and thermal recycling of waste polymer materials
- 15.6.4 Solid waste processing lines (plastics, cables, tyres)
- 15.6.5 Plastic re-granulates and waste (HDPE, LDPE, PP, PS, PVC, PUR)
- 15.6.6 Recycled elastomer materials
- 15.6.7 Consultancy in recycling and use of plastic and rubber waste materials
- 15.6.99 Machines and equipment for recycling and use of plastic and rubber waste materials – other

COMPUTER, TESTING AND MEASURING TECHNOLOGIES FOR PLASTICS AND RUBBERS

- 15.7.1 Control systems for plastics and rubber enterprises
- 15.7.2 Statistical Process Control (SPC) systems for long-term monitoring of production processes and quality
- 15.7.3 CAD, CAM and CIM for plastics and rubber plants
- 15.7.3.1 CAD systems for injection processes analysis and optimization
- 15.7.3.2 Regulation system for melt flow in the mould
- 15.7.4 Development software for designers
- 15.7.5 Pick-up sensors of dimensions, pressure, temperature and forces in plastics and rubber processing machines
- 15.7.6 Measuring equipment for length, thickness and surface geometry of plastic components
- 15.7.6.1 Systems for 2D and 3D scanning of complex shapes
- 15.7.7 Rheometers, plastometers, viscosimeters
- 15.7.8 Temperature measuring instruments for manufacture and processing of plastics and rubbers
- 15.7.9 Thermomechanical analysers
- 15.7.10 Measuring instruments of optical properties of plastics and rubbers
- 15.7.11 Multiparameter measuring stations
- 15.7.12 Material thermostability testers
- 15.7.13 Testers of mechanical and dynamic ruggedness of materials
- 15.7.99 Computer, testing and measuring technologies for plastics and rubbers, other

RESEARCH, SERVICES AND INSTITUTIONS IN PLASTICS AND RUBBERS

- 15.8.1 Research in plastics and rubbers
- 15.8.2 Custom plastic and rubber components manufacture
- 15.8.2.1 Custom plastic components manufacture
- 15.8.2.2 Custom rubber components manufacture
- 15.8.2.3 Custom adjustments and assembly of components
- 15.8.3 Consultancy in plastics and rubber manufacturing
- 15.8.4 Engineering and design services for plastics and rubber manufacturing
- 15.8.5 Service and repairs of machines for plastics and rubber industries
- 15.8.5.1 Spare parts for machines for plastics and rubber industries
- 15.8.5.2 Renovation of moulds, screws, chambers and cylinders
- 15.8.5.3 Turnkey systems of general overhauls of machines for plastics and rubber industries
- 15.8.5.4 Reconstruction and modernisation of machines for plastics and rubber industries
- 15.8.6 Refurbished machines for plastics and rubber industries
- 15.8.7 Manufacture of prototype and single-purpose equipment for plastics and rubber industries
- 15.8.8 Technologies for plastics and rubber industries
- 15.8.8.1 Technology projects for plastics and rubber industries
- 15.8.8.2 Technology supplies to plastics and rubber industries
- 15.8.9 Execution of investment projects in plastics and rubber industries
- 15.8.10 Financial services, leasing for plastics and rubber industries
- 15.8.11 Technical literature and publications for plastics and rubber industries

PLASTICS, RUBBER, COMPOSITES



- 15.8.12 Institutions and organisations in plastics and rubber industries
- 15.8.13 Vocational training schools for plastics and rubber industries
- 15.8.14 Vocational training courses and education for plastics and rubber industries
- 15.8.99 Research, services, institutions in plastics and rubbers sector, other



CHEMICALS FOR ENGINEERING

Equipment for the chemical industry

- 16.1.1 Tanks, vessels, pressure vessels for the chemical industry
- 16.1.2 Columns
- 16.1.3 Filters for chemical production
 - 16.1.3.1 Filters for liquid materials
 - 16.1.3.2 Filters for gaseous materials
 - 16.1.3.3 Filters with automatic cleaning of filter partition
 - 16.1.3.4 Equipment for diaphragm technology, ultrafiltration and nanofiltration
- 16.1.4 Filtration systems for the chemical industry
 - 16.1.4.1 Filtration systems for plastic and rubber melts
 - 16.1.4.2 Filtration systems for the production of synthetic fibres
 - 16.1.4.3 Filtration systems for plastic melt recycling
- 16.1.5 Mixing and kneading machines
- 16.1.6 Crushers
- 16.1.7 Mills for the chemical industry
 - 16.1.7.1 Colloid mills
 - 16.1.7.2 Pulverizers
 - 16.1.7.3 Screens for the chemical industry
- 16.1.8 Separators
- 16.1.9 Air separators and screening machines
- 16.1.10 Dedusting equipment
- 16.1.11 Centrifuges
- 16.1.12 Evaporators, evaporating equipment
 - 16.1.12.1 Vacuum evaporators
- 16.1.13 Homogenizers
- 16.1.14 Decanters
- 16.1.15 Crystallization equipment
- 16.1.16 Cleaning equipment for chemical engineering
- 16.1.17 Heat exchangers for chemical engineering
- 16.1.18 Industrial furnaces for chemical production
- 16.1.19 Dosing equipment for chemical engineering
- 16.1.20 Transport equipment for chemical plants
- 16.1.21 Silos
- 16.1.22 Synthetic fibre production equipment
- 16.1.23 Biochemical and biotechnological equipment
- 16.1.24 Process gas distribution
- 16.1.25 Process burners
- 16.1.26 Exhausting and dedusting equipment for the chemical industry
- 16.1.99 Equipment for the chemical industry – other

Machines and accessories for the chemical industry

- 16.2.1 Components and accessories for the chemical industry
- 16.2.2 Equipment for the petrochemical industry
- 16.2.3 Equipment for coal and tar processing
- 16.2.4 Natural gas processing equipment
- 16.2.5 Inorganic production equipment
- 16.2.6 Organic production equipment
- 16.2.7 Macromolecular material production
- 16.2.8 Coating substance production equipment
- 16.2.9 Agrochemical production equipment
- 16.2.10 Synthetic fibre production equipment
- 16.2.11 Explosive production equipment
- 16.2.12 Equipment for pharmaceutical production
- 16.2.13 Granulate production machines
- 16.2.14 Machines for the production of soap and cleaning agents
- 16.2.15 Machines for cosmetic production
- 16.2.16 Cream, solution, suspension and emulsion processing equipment
- 16.2.17 Stearin, glycerol and candle production equipment
- 16.2.18 Equipment for the production and storing of technical gases

- 16.2.99 Machines for other chemical branches

Lubricants, oils

- 16.3.1 Lubricating greases for industry
- 16.3.2 Lubricating oils for industry
- 16.3.3 Oils for industrial transmissions
- 16.3.4 Hydraulic oils
- 16.3.5 Oils for rolling
- 16.3.6 Oils, emulsions, pastes for corrosion protection
- 16.3.7 Cooling lubricants and liquids
- 16.3.8 Working emulsions and cutting oils
- 16.3.9 Additives for lubricants
- 16.3.10 Environmental lubricants
- 16.3.11 Oils for the food industry
- 16.3.99 Lubricants and oils – other

- 16.4 Mineral oil regeneration equipment**
- 16.5 Corrosion and wear protection pastes**
- 16.6 Sprays for metal surface finishing**

- 16.7 Coating compositions**
 - 16.7.1 Synthetic coating compositions
 - 16.7.2 Water soluble coating compositions
 - 16.7.3 Powder paints

- 16.8 Colours, pigments**
- 16.9 Enamels**
- 16.10 Cements**
- 16.11 Adhesives**
- 16.12 Adhesive tapes and films**

- 16.13 Gases**
 - 16.13.1 Pure and rare gases and their mixtures
 - 16.13.2 Technical gases in liquid and gaseous phase

- 16.14 Active carbon, charcoal, soot**

Chemicals for industrial production

- 16.15.1 Chemicals for mechanical engineering
 - 16.15.1.1 Solvents, thinners
 - 16.15.1.2 Varnish / lacquer removers
 - 16.15.1.3 Degreasing and cleaning liquids
 - 16.15.1.4 Corrosion inhibitors
 - 16.15.1.5 Moulding equipment
 - 16.15.1.6 Heat-carrying media
 - 16.15.1.7 Chemicals for chemical and heat processing of iron and steel
 - 16.15.1.8 Treatment salts for light metals
 - 16.15.1.9 Chemicals for electroplating
 - 16.15.1.10 Mordants for metals
 - 16.15.1.11 Antifoaming agents
 - 16.15.1.12 Emulsifiers
 - 16.15.1.13 Additive concentrates
 - 16.15.1.14 Technical fungicides
 - 16.15.1.99 Chemicals for mechanical engineering – other
- 16.15.2 Chemicals for the petrochemical industry
- 16.15.3 Chemicals for the rubber industry
- 16.15.4 Chemicals for the pharmaceutical and cosmetic industries
- 16.15.5 Chemicals for industrial water treatment plants
- 16.15.6 Chemicals for the textile industry
- 16.15.7 Chemicals for the electric engineering industry
- 16.15.98 Washing and cleaning agents for industrial site cleaning
- 16.15.99 Chemicals for other industrial production branches

- 16.16 Industrial explosives**
- 16.17 CAD, CAM, CIM for chemical plants**
- 16.18 Consultancy for chemical production**
- 16.19 Engineering and design services for chemical production**



16.20 Service and repairs of machines for the chemical industry

16.20.1 Diagnostics of machines for the chemical industry

16.21 Re-worked machines for the chemical industry

16.22 Technologies for the chemical industry

16.22.1 Technology projects for the chemical industry

16.99 Chemistry for engineering others



INDUSTRY 4.0 AND DIGITAL (SMART) FACTORY – INTEGRATED PROCESSES AND IT SOLUTIONS

Systems for additive manufacturing		17.2.5	Internet solutions for industrial applications
17.1.1	Additive manufacturing systems	17.2.5.1	Internet solutions for automation
17.1.1.1	Additive manufacturing systems, 3D printers with 3DP technologies	17.2.5.2	On-line monitoring systems
17.1.1.2	Additive manufacturing systems, 3D printers with fused deposition modelling (FDM), thermal extrusion printing	17.2.5.3	Web-based solutions for automation systems
17.1.1.3	Additive manufacturing systems, 3D printers with laminating technologies, laminated object modelling, LOM for non-metals	17.2.5.4	Other internet solutions for industrial applications
17.1.1.4	Additive manufacturing systems, 3D printers with multijet modelling (MJM)	17.2.6	Multimedia software for industrial applications
17.1.1.5	Additive manufacturing systems, 3D printers with selective laser melting, SLM for metals	17.2.6.1	Multimedia technical product documentation systems
17.1.1.6	Additive manufacturing systems, 3D printers with selective laser sintering, SLS for non-metals	17.2.6.2	Multimedia virtual product development systems
17.1.1.7	Additive manufacturing systems, 3D printers with stereolithography, SLA, STL	17.2.7	Operating systems for industrial IT
17.1.1.8	Other additive manufacturing systems, 3D printers for non-metals	17.2.8	Extension of operating systems and system control software for industrial IT
17.1.2	Industry applications for additive manufacturing with non-metals	17.2.8.1	Computer security software and network security software
17.1.3	Supplementary systems and services for additive manufacturing with non-metals	17.2.8.2	OPC controllers, OPC servers, software for industrial IT, OPC UA
17.1.3.1	3D digitisation systems for adaptive manufacturing	17.2.8.3	Other operating system extensions for industrial IT
17.1.3.2	3D graphics software and 3D modelling software for additive manufacturing	17.2.8.4	Software for computer data backup
17.1.3.3	3D modelling for additive manufacturing	17.2.8.5	Software for computer management, maintenance and installation
17.1.3.4	3D scanners, 3D laser scanners for additive manufacturing	17.2.9	Other basic software and system-oriented industrial software
17.1.3.5	3D visualization of models (services)	17.2.10	Systems and software for public resource processing
17.1.3.6	Development and manufacture of 3D printing monofilaments	17.2.11	Software for application development for industrial IT, development tools
17.1.3.7	Other supplementary systems and services for additive manufacturing with non-metals	17.2.11.1	Application development systems for CNC controls
Basic software and software solutions		17.2.11.2	Application development systems for embedded systems
17.2.1	Communication software and network software for industrial IT	17.2.11.3	Application development systems for mobile, industrial applications
17.2.2	Data management software for industrial IT	17.2.11.4	Application development systems for process control systems, visualization systems
17.2.2.1	Database systems	17.2.11.5	Application development systems for robot controls
17.2.2.2	Knowledge management systems	17.2.11.6	Application development systems for Soft-PLC systems
17.2.2.3	Other data management software for industrial IT	17.2.11.7	Application development systems using C++, C, Basic
17.2.3	Expert, diagnostic and simulation systems	17.2.11.8	Application development systems with Java
17.2.3.1	Cognitive computing systems for production technologies and production processes	17.2.11.9	Application development systems, expert systems, diagnosis systems, artificial intelligence systems
17.2.3.2	Expert systems and artificial intelligence	17.2.11.10	PLC programming systems, application development systems for automation equipment
17.2.3.3	General simulation software for robotic applications	17.2.11.11	Other software for application development for industrial IT, development tools
17.2.3.4	PLC simulation software (programmable logic controls)	17.2.12	Videoconferencing systems
17.2.3.5	Real time oriented interactive simulation in industrial applications	17.2.13	Virtual reality systems for industrial applications
17.2.3.6	Simulation software for assembly technologies, handling systems and hydraulic and pneumatic systems	17.2.13.1	General virtual reality in automation technology
17.2.3.7	Simulation software for design, optimization and operation in production	17.2.13.2	Smart glasses
17.2.3.8	Simulation systems for material flow optimisation and production layout	17.2.13.3	Virtual prototyping systems
17.2.3.9	Software for fuzzy logic systems and fuzzy control in industrial applications	17.2.13.4	Virtual reality in production planning
17.2.3.10	Systems and software for remote diagnosis systems for machines and installations	17.2.13.5	Virtual reality in robotics
17.2.3.11	Tools for simulation and offline programming of industrial robots	17.2.13.6	Virtual reality software for industrial applications
17.2.3.12	Other expert systems, diagnosis systems and simulation systems	17.2.13.7	Other virtual reality systems for industrial applications
17.2.4	Image processing software	17.2.14	Visualization systems
17.2.4.1	Future-oriented image processing software technologies	17.2.14.1	Visualization systems in industrial applications
17.2.4.2	Image processing development systems	17.2.14.2	Software for operating stations (man/machine interface)
17.2.4.3	Software for identification systems	17.2.14.3	Systems for Operating and Observing
17.2.4.4	Software for pattern recognition, image analysis, image processing	17.2.14.4	Visualization software
17.2.4.5	Software tools for image processing	17.2.14.5	Visualization systems (man-to-process communication)
		17.2.15	Voice processing systems
		17.2.16	Automation software solutions
		17.2.17	Software and solutions for specific industrial branches
		17.2.18	Specific software and specific solutions
		17.2.18.1	Application software for quality assurance and quality control / CAQ
		17.2.18.2	Application software for vertical IT integration
		17.2.18.3	Product life cycle management, PLM software and solutions
		17.2.18.3.1	CAD software and solutions for product data generation

17.2.18.3.2	Complete product life cycle management, PLM systems and solutions	17.2.18.10	Software and solutions for production, production data management and CAM
17.2.18.3.3	Software and solutions for computer equipment, CAE, technical computations and simulation	17.2.18.10.1	Computer systems for production, CAM solutions
17.2.18.3.4	Software and solutions for experiments, prototyping and development	17.2.18.10.2	Information management systems
17.2.18.3.5	Software and solutions for media management, media databases	17.2.18.10.3	Production systems, MES
17.2.18.3.6	Software and solutions for product requirement management	17.2.18.10.4	Software and solutions for machine monitoring and machine control
17.2.18.3.7	Software and solutions for production planning, product planning	17.2.18.10.5	Software and solutions for production management systems
17.2.18.3.8	Software and solutions for technical documentation	17.2.18.10.6	Software and solutions for production systems, control production stations
17.2.18.3.9	Software and solutions for product data provision and management (PDM, EDM)	17.2.18.10.7	Software and solutions for production data acquisition, collection of data from the plant, FDC, MDA
17.2.18.3.10	Software and solutions for total life cycle management, TLM	17.2.18.10.8	Software and solutions for production data management
		17.2.18.10.9	Software and solutions for production management
17.2.18.4	Software and solutions for business analysis, big data, intelligent data for the industry	17.2.18.11	Software and solutions for job allocations, material management and logistics
17.2.18.4.1	Software and solutions for big data, intelligent data for the industry	17.2.18.11.1	Advanced planning solutions (APS)
17.2.18.4.2	Software and solutions for business analysis, intelligent data for the industry	17.2.18.11.2	Software and solutions for logistics management
17.2.18.4.3	Software and solutions for data storages and data acquisition for the industry	17.2.18.11.3	Software and solutions for distribution and shipment
17.2.18.4.4	Other software and solutions for business analysis, big data for the industry	17.2.18.11.4	Software and solutions for electronic notice boards, automatic material inventory management
		17.2.18.11.5	Software and solutions for material flow management and material flow optimisation
17.2.18.5	Software and solutions for CRM, distribution and marketing	17.2.18.11.6	Software and solutions for material management
17.2.18.5.1	Application software customer relations management, CRM and technical sales	17.2.18.11.7	Software and solutions for material consumption management and optimisation
17.2.18.5.2	Application software for technical sales	17.2.18.11.8	Software and solutions for warehouse management
17.2.18.5.3	eCommerce and eBusiness solutions	17.2.18.11.9	Software and solutions for supplier chain management (SCM)
17.2.18.5.4	Software and solutions for marketing, eMarketing, mobile marketing	17.2.18.11.10	Software and solutions for transport, traffic logistics
17.2.18.5.5	Software and solutions for distribution	17.2.18.11.11	Other software and solutions for job allocation, material management and logistics
17.2.18.6	Software and solutions for customer service and support		
17.2.18.7	Software and solutions for production planning		
17.2.18.7.1	Software and solutions for enterprise resource planning, ERP and production planning, PPC		
17.2.18.7.2	Software and solutions for enterprise resource planning, ERP and order processing		
17.2.18.7.3	Software and solutions for production and planning integrated control		
17.2.18.7.4	Software and solutions for production and control planning, PPC		
17.2.18.7.5	Software and solutions for production planning / computer planning, CAP		
17.2.18.8	Software and solutions for maintenance and repairs		
17.2.18.8.1	MPS, maintenance systems		
17.2.18.8.2	Software and solutions for maintenance management		
17.2.18.8.3	Software for maintenance in the industry		
17.2.18.8.4	Other software and solutions for maintenance and repairs		
17.2.18.9	Software and solutions for management and business activities		
17.2.18.9.1	Software and solutions for asset management		
17.2.18.9.2	Content management software		
17.2.18.9.3	Document management systems (DMS)		
17.2.18.9.4	Software for personnel working hours management		
17.2.18.9.5	Software and solutions for business process optimisation and business process control		
17.2.18.9.6	Software and solutions for company management, organisation and control		
17.2.18.9.7	Software and solutions for human resources, personnel management		
17.2.18.9.8	Software and solutions for project management		
17.2.18.9.9	Software and solutions for risk management		
17.2.18.9.10	Software for the calculation of production costs		
17.2.18.9.11	Systems for workflow		
17.2.18.9.12	Other software and solutions for administration and commercial sector		
		17.3.1	Cloud & industrial IT services, digital factory services
		17.3.1.1	Cloud services, IT services and outsourcing
		17.3.1.2	Applications and hosting systems
			Application service provision (ASP) for the industry
		17.3.1.3	Industrial cloud services
		17.3.1.3.1	Cloud services for condition monitoring, predictive maintenance
		17.3.1.3.2	Cloud services for mobile sensor systems
		17.3.1.3.3	Infrastructure as a Service, SaaS, for industrial applications
		17.3.1.3.4	Other cloud services for industrial applications
		17.3.1.3.5	Platform as a Service, PaaS, for industrial applications
		17.3.1.3.6	Software as a Service, SaaS, for industrial applications
		17.3.1.4	IT and network services (outsourcing)
		17.3.1.5	Enterprise process outsourcing
		17.3.1.6	IT and outsourcing consulting
		17.3.1.7	Controlled services for industrial applications
		17.3.1.8	Shop floor services and solutions
		17.3.1.9	Attendance and maintenance software
		17.3.2	Automation software development
		17.3.2.1	Development of customer-specific control modules
		17.3.2.2	PLC development and programming
		17.3.2.3	Other customary automation software
		17.3.3	Industrial engineering services
		17.3.3.1	Application programming and engineering for automation in factories
		17.3.3.2	Documentation services
		17.3.3.3	Other industrial engineering services
		17.3.3.4	Production planning and control simulation
		17.3.3.5	Software consulting
		17.3.4	Internet services for automation and industrial use
		17.3.4.1	Internet portals for industrial software and engineering
		17.3.4.2	Other internet services for automation and industrial use
		17.3.4.3	Services for on-line marketplaces (industrial software and engineering)



INDUSTRY 4.0 AND DIGITAL (SMART) FACTORY – INTEGRATED PROCESSES AND IT SOLUTIONS

17.3.5	Organisations and associations for industrial software, digital factories
17.3.6	Other digital factory services
Internet systems for the industry and industrial automation	
17.4.1	General intelligent components
17.4.2	Components, Internet of Things systems, IoT in industrial applications
17.4.3	Cyber physical systems in industrial applications
17.4.4	Industrial internet solutions, industrial internet systems
17.4.5	Integrated industrial solutions
17.4.6	Other Industry 4.0 based industrial and internet solutions
17.4.7	Software solutions for the Industry 4.0 and the Internet of Things, Industrial Internet of Things (IIoT)
Automated production systems usable for the Smart Factory	
17.5.1	Production planning and automatic control systems related to ERP systems
17.5.2	Automatic customer requirement processing systems
17.5.3	Automatic input material and raw material storage systems
17.5.4	Automatic tool storage systems
17.5.5	Other automatic storage systems
17.5.6	Automatic systems for in-house transport of semi-products and products
17.5.7	Automatic handling systems
17.5.7.1	Handling robots with image analysis skills
17.5.7.2	Robotic systems for technology and machine tool operators
17.5.7.3	Other robotic systems
17.5.8	Automatic control and measuring stations integratable in technological processes
17.5.9	Machines and equipment used in automatic facilities
17.5.10	Automatic monitoring and evaluation systems
17.5.11	Industry-specific automation software solutions
17.5.11.1	Automation software solutions for general industrial applications
17.5.11.2	Automation software solutions for general mechanical engineering
17.5.11.3	Automation software solutions for measuring technologies and control technologies
17.5.11.4	Automation software solutions for other branch-specific applications
17.5.11.5	Automation software solutions for the design of other vehicles
17.5.11.6	Automation software solutions for the automotive industry
17.5.11.7	Automation software solutions for civil engineering
17.5.11.8	Automation software solutions for the electrical engineering industry, electronic industry
17.5.11.9	Automation software solutions for the metal producing and metal working industry
17.5.11.10	Automation software solutions for the packaging industry
17.5.11.11	Automation software solutions for the printing industry