

The nomenclature is divided into two sections:

PAGES 27-30

**microtechnology subcontracting** (stamping, bar turning, machining, tools and dies, etc.)

PAGES 31-34

**production technology** (machine construction, sales),  
**industrial supplies and service providers** (trading)

## Microtechnology subcontracting

### Precision engineering

#### # KNOW-HOW

1A0005	High precision mechanical engineering
1A0010	Micromechanical engineering
1A0015	Very high precision micromechanical engineering

### Stamping, cutting, forming, tools and dies

#### # STAMPED PARTS

1A0105	Fine stamping
1A0110	Water-jet cut parts
1A0115	Laser-cut parts
1A0120	Chemically cut parts
1A0125	Precision stamped parts
1A0130	Stamped and assembled parts
1A0135	Parts cut by wire EDM
1A0140	Stamped, bent or cambered parts
1A0145	Parts stamped on a single tool
1A0150	Parts stamped on a punching machine
1A0155	Stamped springs

#### # FORMED PARTS

1A0205	Precision tube bending
1A0210	Microtubes
1A0215	Composite parts
1A0220	Deep-drawn parts
1A0225	Drawn parts
1A0230	Forged parts
1A0235	Formed parts with treatment or post-treatment
1A0240	Parts formed on a single tool
1A0245	Parts formed on a bending press
1A0250	Sintered parts
1A0255	Hydroformed parts
1A0260	Roll-formed parts
1A0265	Parts produced from multi-slide tools
1A0270	Cold-formed springs
1A0275	Cold heading

#### # TOOLS AND DIES (STAMPING)

1A0305	Progressive dies for stamping and cambering
1A0310	Progressive dies for deep drawing
1A0315	Multi-slide tools
1A0320	Fine stamping tools
1A0325	Punching, notching tools
1A0330	Second operation tools (stamping, bending, ...)
1A0335	Multifunctional tools (stamping, bending, tapping, assembly, etc.)
1A0340	Compound dies
1A0345	Transfer dies

### Injection, duplicate-moulding, tools

#### # KNOW-HOW

1B0005	Small parts injection
1B0010	Precision injection
1B0015	Microinjection

#### # INJECTION

1B0105	Ceramic parts injection
1B0110	Metal parts injection
1B0115	Plastic parts injection

#### # MOULDINGS AND DUPLICATE-MOULDINGS

1B0205	Technical ceramic mouldings
1B0210	Elastomer mouldings
1B0215	Plastic mouldings
1B0220	Metal and alloy mouldings
1B0225	Low-pressure plastic moulding
1B0230	Two-component polymer and plastic mouldings
1B0235	Plastic duplicate-mouldings
1B0240	Thermoformed parts

#### # TOOLS (MOULDS)

1B0305	Duplicate-moulding mould
1B0310	Thermoplastic material mould
1B0315	Metal injection mould
1B0320	Mould for high-speed prototyping
1B0325	Thermoforming mould
1B0330	Prototype mould

# Nomenclature (2/8)

## Machining, micro-machining, bar turning

### # KNOW-HOW

1C0005	Precision bar turning
1C0010	Micromachining
1C0015	High precision micromachining
1C0020	Precision machining

### # MACHINING

1C0105	Sharpening
1C0110	Boring
1C0115	Deburring, polishing
1C0120	Milling
1C0125	Drilling, tapping
1C0130	Grinding
1C0135	Slitting
1C0140	Lapping
1C0145	Laser welding
1C0150	Trimming
1C0155	Turning
1C0160	Chemical machining
1C0165	Hard material machining
1C0170	Wire EDM
1C0175	Die sinking EDM
1C0180	Water-jet machining
1C0185	Laser machining
1C0190	Very high speed machining
1C0195	Ultrasonic machining

### # MICROMACHINING

1C0205	Micromilling
1C0210	Laser micromachining
1C0215	Jet micromachining: water, sand, etc.
1C0220	Ultrasonic micromachining
1C0225	Precise Electrochemical Machining (PECM)

### # MICROMANUFACTURING

1C0305	Micromanufacturing through chemical, silicon, quartz etching, etc.
1C0310	Micromanufacturing through plasma etching
1C0315	Micromanufacturing through LIGA technology

## Additive manufacturing

1C0405	Ceramic part printing
1C0410	Metal part printing
1C0415	Polymer part printing
1C0420	Part printing (other materials)

## Treatment and post-treatment

### # KNOW-HOW

1D0005	Surface treatment
1D0010	Post-treatment

### # MATERIALS TREATMENT

1D0105	Anodising
1D0110	Chrome-plating
1D0115	Vacuum deposition
1D0120	Dressing
1D0125	Electroplating
1D0130	Etching
1D0135	3D etching
1D0140	Microsandblasting, sandblasting
1D0145	Painting
1D0150	Mechanical-chemical polishing
1D0155	Polishing, lapping
1D0160	Hard coating
1D0165	Screen-printing / Pad printing
1D0170	Electrolytic processing
1D0175	Galvanic treatment
1D0180	Heat treatment
1D0185	Salt bath heat treatment
1D0190	Heat-chemical treatment

## Packaging, micro-connector technology, interfacing, assembly, printed circuits

### # KNOW-HOW

1E0005	Assembly of electronic components
1E0010	Connector and/or microconnector technology
1E0015	Board and/or microelectronic circuit interfacing
1E0020	Microelectronics

### # MICROCONNECTORS

1E0105	Optical microconnectors: with cables and boards
1E0110	Microconnectors for cables
1E0115	Microconnectors for specific PCBs

### # INTERFACING

1E0205	Dedicated interfacing boards
--------	------------------------------

### # ASSEMBLY METHODS

1E0305	Bonding
1E0310	Sealing
1E0315	Welding of electronic components

### # PRINTED CIRCUITS

1E0405	Printed Circuits
--------	------------------

## # MICROELECTRONIC HOUSINGS

1E0505	Ceramic housings for microelectronics
1E0510	Metal housings for microelectronics
1E0515	Plastic housings (resin, polymer, etc.) for microelectronics

## # TESTS

1E0605	Integrated circuit and electronic component test
--------	--

## Smart electronic and opto-electronic circuits

1F0005	Smart electronic and/or opto-electronic circuits
1F0105	Demand-function electronic cards and circuits
1F0110	Display control circuits
1F0115	Transmitter, receiver control circuits
1F0120	Printing control circuits
1F0125	Hybrid circuits
1F0130	Integrated circuits
1F0135	Laser diodes
1F0140	Opto-electronic and optomechanical interfacing
1F0145	Micro lenses and components dedicated to specific applications
1F0150	Multi-component modules

## Circuit prototyping

1G0005	Prototyping of actuators, sensors, dedicated displays
1G0010	Hybrid or integrated circuit prototyping
1G0015	Microsensor prototyping
1G0020	Optical and/or electronic microcircuit prototyping
1G0025	Subassembly prototyping
1G0030	Prototyping for the encapsulation of components and subassemblies

## Microactuators, microsensors and microdisplays

### # MICROACTUATORS AND MICROMOTORS

1H0005	Microactuators
1H0110	Piezoelectric microactuators
1H0115	Microswitches
1H0120	Micromotors
1H0125	DC and AC micromotors
1H0130	Electrostatic micromotors
1H0135	Magnetic micromotors
1H0140	Step micromotors
1H0145	Piezoelectric micromotors

## # MICROSENSORS

1H0205	Microsensors - smart sensors
1H0305	Displacement, speed and position microsensors
1H0310	Force, acceleration and pressure microsensors
1H0315	Temperature, luminosity, hygrometry and calorimetry microsensors, etc.
1H0320	Microsensors and integrated dedicated processing circuits

## # MICRODISPLAYS

1H0405	Microdisplays
--------	---------------

## Robotics and automation (design, production)

1I0005	Automation - Maintenance, monitoring, production follow-up, control
1I0010	Automation - Safety
1I0015	Automated systems
1I0020	Assembly lines
1I0025	Production lines
1I0030	Transfer lines
1I0035	Microrobotics
1I0040	Feed and selection stations
1I0045	Continuous inspection stations
1I0050	Part sorting, automatic feed by bowl feeder
1I0055	Robotic integrator
1I0060	Robotic programming

## Design, development, and INTEGRATED production engineering of micromechanical and/or microelectronic modules and microsystems

1J0005	Design, development and INTEGRATED production engineering of micromechanical modules and microsystems
1J0010	Design, development and INTEGRATED production engineering of microelectronic modules and microsystems

## Consulting in design, development and production engineering of micromechanical and/or microelectronic modules and microsystems

1K0005	Consulting in design, development and integrated production engineering of micromechanical modules and microsystems
1K0010	Consulting in design, development and integrated production engineering of microelectronic modules and microsystems

## Engineering, research and transfer of microtechnology

### # RESEARCH AND TRANSFER

- 1L0005 Research and transfer of microtechnology in submillimetric expertise
- 1L0010 Research and transfer of microtechnology in submicronic expertise

### # ENGINEERING

- 1L0105 Engineering: simulation (mechanical, electronic)
- 1L0110 Engineering: methods
- 1L0115 Engineering R&D

## Metrology - measurement - inspection

- 1M0005 Design, manufacture of measuring instruments
- 1M0010 Certified metrology laboratories
- 1M0015 Certified testing laboratories
- 1M0020 Metrology laboratories
- 1M0025 Optical measurement
- 1M0030 Metrology, calibration services
- 1M0035 Metrology, (dimensional) calibration services
- 1M0040 Metrology, (electricity-magnetism) calibration services
- 1M0045 Metrology, (temperature) calibration services
- 1M0050 Optical recognition (camera inspection)

## Industrial services

- 1M0105 Consulting and expert assessment
- 1M0110 Quality, inspection
- 1M0115 Material testing
- 1M0120 Coating testing
- 1M0125 Wear and corrosion testing
- 1M0130 Mechanical tests (hardness, tensile strength, etc.)
- 1M0135 Non-destructive tests (ultrasound, X-rays, etc.)
- 1M0140 Production engineering (machinery)
- 1M0145 Data processing (software)
- 1M0150 Industrial maintenance
- 1M0155 Submicronic expertise services
- 1M0160 Submillimetric expertise services
- 1M0165 Patents, trademarks and licences

## Nanotechnologies

- 1N0005 Equipment and processes for nanotechnology
- 1N0010 Nanoinstrumentation and nanometrology
- 1N0015 Nanomaterials and nanostructuring
- 1N0020 Micro- and nanocomponents

## Production technology, industrial supplies and service providers

### Machines and equipment

#### # CONVENTIONAL MACHINE TOOLS WITH CUTTING TOOLS

2A0005	Turning centres (turning and milling)
2A0010	Machining centres (with exchange of dies)
2A0015	Numerically controlled milling machines
2A0020	Knee and column milling machines (horizontal or vertical)
2A0025	Copy milling machines
2A0030	Tool milling machines
2A0035	Tapping machines
2A0040	PCB machining machines
2A0045	Drilling machines
2A0050	Sawing machines
2A0055	Numerically controlled milling machines
2A0060	Turning lathes
2A0065	Tool milling machines
2A0070	Parallel turning and threading lathes
2A0075	Machining units (drilling, milling, trimming, sawing)
2A0080	Gear hobbing machines

#### # CONVENTIONAL ABRASION MACHINE TOOLS

2B0005	Drill bit grinding machines
2B0010	Milling tool grinding machines
2B0015	Lathe tool grinding machines
2B0020	Universal grinding machines
2B0025	Abrasion polishing and deburring machines (vibration tumbling)
2B0030	Abrasion polishing machines
2B0035	Numerically controlled grinding machines
2B0040	Cylindrical grinding machines
2B0045	Surface grinding machines
2B0050	Cylindrical lapping machines
2B0055	Lapping machines
2B0060	Polishing machines

#### # NON-CONVENTIONAL METAL REMOVING MACHINES

2C0005	Laser marking machines
2C0010	Etching machining machines
2C0015	Continuous laser machining machines
2C0020	Pulse laser machining machines
2C0025	Wire EDM machines
2C0030	EDM machines with tool magazines
2C0035	Die sinking EDM machines
2C0040	High precision abrasive waterjet cutting machines

2D0005  
2D0010

2D0015  
2D0020  
2D0025  
2D0030  
2D0035  
2D0040  
2D0045  
2D0050  
2D0055  
2D0060  
2D0065  
2D0070

2E0005  
2E0010  
2E0015  
2E0020  
2E0105

2E0205  
2E0210  
2E0215  
2E0220  
2E0225

2F0005  
2F0105  
2F0110  
2F0115  
2F0120  
2F0125  
2F0130  
2F0135  
2F0140  
2F0145

#### # MACHINE TOOLS FOR SHEET METAL WORKING

Automatic sheet working lines
Shearing lines (automatic and numerically controlled shearing)
Punching lines
Sheet planishing machines
Slitting machines
Numerically controlled punching machines
High-speed presses
Arch frame or column type presses
Open-front presses
Drawing presses (hydraulic)
Drawing presses (mechanical)
Wire and strip bending presses
Pneumatic and hydro-pneumatic presses
Punching units

#### # MACHINE TOOLS FOR INJECTION

Plastic injection presses
Injection presses for metals under pressure
Thermocompression presses
Low-pressure injection systems
Accessories for injection machines

#### # ADDITIVE MANUFACTURING EQUIPMENT

Polymer 3D printers
Metal 3D printers
Multi-material 3D printers
Hybrid machines (material removal and addition)
Accessories for additive manufacturing

#### # SPECIAL MACHINES FOR AUTOMATION AND ASSEMBLY

Special machines for automation and assembly
Flexible assembly cells
Wire-guided trucks
Conveyors
Gluing machines
Welding machines
Screwdriving machines
Assembly machines
Automatic assembly machines
Assembly micromachines

## # ROBOTS, TRANSFERS

2F0150	Industrial robots
2F0155	Mobile robotics (AGVs)
2F0160	Cobots
2F0165	Spindles for robots
2F0170	Free transfers
2F0175	Linear transfers
2F0180	Rotary transfers

## # MEASURING AND INSPECTING MACHINES, INSTRUMENTS AND EQUIPMENT

2G0005	Measuring and inspecting machines, instruments and equipment
2G0105	Optical alignment
2G0110	Temperature measurement equipment
2G0115	Dimensional metrology equipment
2G0120	Electrical / electronic / magnetic metrology equipment
2G0125	Testing systems
2G0130	Dimension visualisation equipment
2G0135	Three-dimensional measuring machines
2G0140	Non-destructive testing machines and equipment
2G0145	Profile projectors and optical measuring machines

## # MATERIALS TREATMENT EQUIPMENT

2H0005	Thermo-chemical treatment machines and equipment (ovens)
2H0010	Surface treatment machines
2I0005	Electrolysis baths
2I0010	Cleaning machines (pickling, degreasing)
2I0015	Plasma cleaning
2I0020	Dust removal - antistatic
2I0025	Ultrasonic cleaning

## # OTHER EQUIPMENT

2J0005	Soundproofing booths and equipment
2J0010	Air compressors
2J0015	Equipment for workstation environment
2J0020	Equipment for the environment and water treatment
2J0025	Centrifuges for parts, chips, stamping liquid
2J0030	Machines and materials for packing and packaging
2J0035	Induction heating machine or equipment

## Trading and industrial supplies

### # ACCESSORIES FOR TOOLS (STAMPING/MOULDING)

2K0005	Accessories for tools (stamping)
2K0010	Accessories for tools (moulding)
2K0105	Accessories for column type units: punches, dies, etc.
2K0110	Units with plain columns and plates
2K0115	Standard components for moulds
2K0120	Standard components for stamping/forming tools
2K0125	SMED systems
2K0130	Tool measuring and counting systems
2K0135	Guiding systems for tools and moulds
2K0140	Tapping units
2K0145	Automatic insertion and/or crimping units
2K0150	Cylinders, springs

### # COMPONENTS AND MODULES

#### - Micromechanical components and modules -

2L0005	Micromechanical components and modules
2L0105	Clamping units
2L0110	Standard components (screws, pins, etc.)
2L0115	Counting systems
2L0120	Special screwing systems
2L0125	Guiding elements
2L0130	Fasteners and Fastone
2L0135	Programmiers
2L0140	Springs
2L0145	Bearings

#### - Microelectronic components and modules -

2L0205	Microelectronic components and modules
2L0305	Electronic actuators
2L0310	Electronic sensors
2L0315	Printed Circuits
2L0320	Electronic connectors
2L0325	Brazing/soldering equipment
2L0330	Micromotors
2L0335	Microswitches
2L0340	Monitors
2L0345	Electrical motors
2L0350	Relays
2L0355	Electric sequencers



# Nomenclature (7/8)

## - Optical components and modules -

2L0405	Optical components and modules
2L0505	Optical actuators
2L0510	Optical displays
2L0515	Optical benches
2L0520	Optical sensors, receivers, transmitters
2L0525	Encoders
2L0530	Optical fibres
2L0535	Lasers
2L0540	Lenses

## - Pneumatic and hydraulic components and modules -

2L0605	Pneumatic and hydraulic components and modules
2L0705	Actuators
2L0710	Connectors, unions
2L0715	Valves
2L0720	Filters
2L0725	Motors
2L0730	Sequencers
2L0735	Tubes and other accessories
2L0740	Cylinders

## # EQUIPMENT AND TOOLING

### - Machines accessories -

2M0005	Machine accessories
2M0105	Automatic feed systems, distributors for presses and shears
2M0110	Vibration absorbers
2M0115	Gas cleaning equipment / wet vacuum cleaners
2M0120	Automatic loading and unloading arms
2M0125	Automatic loaders, vibration systems
2M0130	Decoilers for wires and strips
2M0135	Single and multiple-spindle tapping systems
2M0140	Feeding and ejection systems
2M0145	Greasing and lubrication systems
2M0150	Protective and safety systems
2M0155	Grinding systems
2M0160	Volumetric metering systems
2M0165	Winding, unwinding, straightening equipment
2M0170	Numerical control equipment
2M0175	Vices
2M0180	Miscellaneous expansion mandrels
2M0185	Machining assemblies and templates
2M0190	Clamps
2M0195	Pneumatic circular tables
2M0200	Dividing tables, indexing tables
2M0205	Icing plates
2M0210	Magnetic tables
2M0215	Points
2M0220	Tool holders
2M0225	Boring, grinding, surfacing heads
2M0230	Drawing and stamping transfer systems
2M0235	Part sorting with bowl feeders

## - Tooling -

2M0305	Cutting tools
2M0405	Diamond files
2M0410	Grinding instruments and abrasive bands
2M0415	Boring tools
2M0420	Threading tools
2M0425	Milling tools
2M0430	Drilling tools
2M0435	Sawing tools
2M0440	Trimming tools
2M0445	Turning tools
2M0450	High-speed machining tools
2M0455	Plastic packaging for cutting tools or mechanical parts

## - EDM accessories -

2M0505	EDM tools
2M0605	Electrodes (for EDM)
2M0610	Wires (for EDM)
2M0615	Parts supports (for EDM)
2M0620	Electrode holding systems (for EDM)
2M0625	Parts transfer systems (for EDM)

## # ROBOTICS AND AUTOMATION PERIPHERALS

2M0705	Robot accessories
2M0710	Accessories for industrial data processing
2M0715	Driving and transfer modules
2M0720	Computers, calculators and PLCs

## Materials and semi-worked products

2N0005	Industrial glues
2N0010	Mouldings, castings, sinterings
2N0015	Composite materials
2N0020	Consumable materials (lubricants, stamping fluid, treatment chemicals, etc.)
2N0025	Low pressure plastics, bi-components
2N0030	Raw materials and semi-worked products for stamping and drawing applications
2N0035	Raw materials and semi-worked products for plastics technology applications
2N0040	Nanomaterials / nanopowders
2N0045	Paints
2N0050	Technical adhesives
2N0055	Raw materials (others)
2N0060	Technical ceramics

## Services to industry

2P0005	Audit, expertise, consulting
2P0010	Communication, marketing
2P0015	Machine diagnostics - vibratory analyses
2P0020	Banking and financial institutions
2P0025	Training
2P0030	Quality / certification
2P0035	Human resources (employment, recruitment, coaching, etc.)
2P0040	Strategy, development, organisation
2P0045	3D printing

## Organisations

2R0005	Public administration and authorities
2R0010	Technology transfer centre
2R0015	Engineering college
2R0020	Business incubator
2R0025	Continuing education institute
2R0030	Research institute
2R0035	Research laboratory
2R0040	Technical high school
2R0045	Industry or consular organisation
2R0050	Competitiveness cluster
2R0055	Business and trade press
2R0060	Business promotion
2R0065	University

## Miscellaneous

2S0005	Clothes / Accessories for clean rooms and other
2S0010	Furniture and industrial workstations