

<b>1. Semiconductor and display manufacturing</b>	01.1 01.2 01.3 01.4 01.5 01.6	Wafer front-end processing Wafer back-end processing Display manufacturing Clean-room technology Measurement, detection and control systems Process control software
<b>2. Photovoltaic manufacturing</b>	02.1 02.2 02.3	Materials Production equipment Manufacturing services for photovoltaic production
<b>3. micronano-production</b>	03.1 03.2 03.3 03.4 03.5 03.6 03.7 03.8	Materials/substances Production Equipment Biometrical subsystems for micro technology Test and measurement equipment for microtechnology Sample-handling systems for micro technology Organic and printed electronics, polytronics Microtechnology applications Nanotechnology/nanomanufacturing
<b>4. PCB and other circuit-carrier manufacturing</b>	04.01 04.02 04.03 04.04 04.05 04.06 04.07 04.08 04.09 04.10 04.11 04.12	Base materials Circuit-printing tools and photomasters Tools and accessories for PCB processing Generating circuit structure Chemical processing of PCBs Heat treatment, drying Solder-resist technology Legend printing Clean-room technology MID production PCB handling Process control software for PCB production
<b>5. Component mount technology</b>	05.1 05.2 05.3 05.4	Component preparation Component mount techniques, component mounting Production Handling technology
<b>6. Soldering technology</b>	06.1 06.2 06.3 06.4 06.5 06.6 06.7	Solders and soldering aids Paste application systems Coating equipment Soldering units Soldering facilities Soldering accessories Gluing, dispensing
<b>7. Hybrid-component manufacturing</b>	07.1 07.2 07.3 07.4 07.5 07.6 07.7 07.8 07.9 07.10	Tooling and mouldmaking Tools, tool equipment Assembly and handling technology, periphery Stamping Shaping Surface-finishing equipment, refinement Injection molding for plastics Metal/plastic composite technologies Process and quality control/ Automation Used machines, systems, plants
<b>8. Technologies in cable processing</b>	08.1 08.2 08.3 08.4 08.5 08.6 08.7	Cable and wire processing Tools for wiring Cable-processing equipment Others Cable-protection devices Processing equipment for cable-protection devices Technology for detachable connections
<b>9. Coilware manufacturing</b>	09.1 09.2	Materials for coilware Tools for coilware
<b>10. Test and measurement, quality assurance</b>	10.1 10.2 10.3 10.4 10.5 10.6 10.7	Visual inspection, image processing Materials testing Measurement technology for non-electrical parameters Measurement technology for electrical parameters Test and measurement systems Conveyors, handling systems, test adapters Laboratory/test station equipment

## 11. Materials processing

11.1	Mechanical processing other than PCB
11.2	Thermal Processing
11.3	Welding
11.4	Chemical and electroplate processing
11.5	Fastening, connecting
11.6	Machining equipment, miscellaneous
11.7	Laser materials processing systems
11.8	System periphery for laser-based manufacturing
11.9	Manufacturing of lumped components

## 12. Product finishing

12.1	Repair and rework
12.2	Programming equipment, memory components
12.3	Protective coating and potting
12.4	Hybrids
12.5	Housings
12.6	Electronic protective devices (EMC/ESD)

## 13. Production logistics and material-flow technology

13.1	Information acquisition
13.2	Purchasing
13.3	Merchandise management systems
13.4	Logistics management
13.5	Material-flow control and software
13.6	Transportation and conveyor technology
13.7	Storage technology and commissioning systems
13.8	Packaging technology
13.9	Complete solutions and turnkey systems for logistics

## 14. Electronic Manufacturing Services (EMS)

14.1	EMS for component/chip carrier manufacturing
14.2	EMS for component assembly and device manufacturing
14.3	Development-related services

## 15. Production subsystems

15.1	Assembly and handling technology
15.2	Drive technology
15.3	Software and fab-controlling systems

## 16. Production materials, equipment, environmental technology

16.1	Preliminary products and semi-finished goods, metallic
16.2	Preliminary products and semi-finished goods, non-metallic
16.3	Process materials
16.4	Plant equipment
16.5	Decontamination, cleaning, disposal (environmental management)
16.6	Recirculation systems, supply, recycling

## 17. Services

17.1	Information provision
17.2	Production services
17.3	Brainware
17.4	Other services

# 1. Semiconductor and display manufacturing

<b>01.1</b>	<b>Wafer front-end processing</b>	01.1.4.2.14	Planar magnetrons for sputtering	01.2.1.13	Micropositioning
<b>01.1.1</b>	<b>Wafers and substrates</b>	01.1.4.2.15	Plasma coating systems	01.2.1.14	Positioning systems, miscellaneous
<b>01.1.1.1</b>	<b>Materials</b>	01.1.4.2.16	Plasma polymerization units	01.2.1.15	Chip-handling equipment, miscellaneous
01.1.1.1.1	Thin-film substrates (glass/ceramic)	01.1.4.2.17	Vacuum coating equipment	<b>01.2.2</b>	<b>Bonding</b>
01.1.1.1.2	Semiconductor semi-finished parts, miscellaneous	01.1.4.2.18	Vacuum components	01.2.2.1	Pre-contacting processes
01.1.1.1.3	Wafers made of semiconductor material	01.1.4.2.19	Evaporator inserts	<b>01.2.2.2</b>	<b>Chip carriers</b>
01.1.1.1.4	Glass wafers	01.1.4.2.20	Thin-film production equipment, miscellaneous	01.2.2.2.1	Leadless chip carriers (LLCC)
01.1.1.1.5	Ceramic substrates	01.1.4.2.21	Epitaxial reactors	01.2.2.2.2	Chip carriers, with leads (LCC)
01.1.1.1.6	Accessories made of special materials	01.1.4.2.22	Sputter deposition equipment	01.2.2.2.3	Semi-finished CC goods (metal/plastic)
01.1.1.1.7	Ceramic foils	<b>01.1.5</b>	<b>Etching equipment</b>	01.2.2.2.4	CC manipulation equipment
01.1.1.1.7	Process gases	01.1.5.1	Ion-etching equipment	01.2.2.2.5	Plastic-chip carriers (PCC)
<b>01.1.1.2</b>	<b>Production equipment</b>	01.1.5.2	Wet-etching equipment	01.2.2.2.6	Ceramic-chip carriers (including LTCC configurations)
<b>01.1.1.2.1</b>	<b>Crystal growing systems</b>	01.1.5.3	Etching plasma generators	<b>01.2.2.3</b>	<b>Connection tools</b>
01.1.1.2.1.1	Melt growth	01.1.5.4	Spray etchers	01.2.2.3.1	Connection terminals (lead frames)
01.1.1.2.1.2	Gas-phase growth	01.1.5.5	Plasma-, sputter-etching equipment	01.2.2.3.2	Connection-soldering modules
01.1.1.2.1.3	Flux growth	01.1.5.6	Etching equipment, miscellaneous	<b>01.2.2.4</b>	<b>Internal connections</b>
01.1.1.2.1.4	Tempering ovens	<b>01.1.6</b>	<b>Drying equipment</b>	01.2.2.4.1	Bonding wires/tapes
01.1.1.2.2	Wafer saws	01.1.6.1	Continuous dryers	01.2.2.4.2	Die bonders
01.1.1.2.3	Polishing tools	01.1.6.2	UV dryers, thin-film	01.2.2.4.3	Flip-chip bonders
01.1.1.2.4	Other tools for wafer processing	01.1.6.3	IR dryers	01.2.2.4.4	Bonders, miscellaneous
<b>01.1.2</b>	<b>Mask and artwork generation</b>	01.1.6.4	Vacuum dryers, thin-film	<b>01.2.2.5</b>	<b>Tools</b>
01.1.2.1	Mask blanks	01.1.6.5	Thin-film dryers, miscellaneous	01.2.2.5.1	Ultrasonic bonders
<b>01.1.2.2</b>	<b>Resist-coating systems</b>	<b>01.1.7</b>	<b>Equipment for mechanical machining</b>	01.2.2.5.2	Contacting equipment, miscellaneous
01.1.2.2.1	Spin-coating equipment (resist)	01.1.7.1	Polishing devices/machines for semiconductor technology	01.2.2.5.3	Welding equipment for microconnections
01.1.2.2.2	Mask production equipment, miscellaneous	01.1.7.2	Scribers and automatic scribers	01.2.2.5.4	Resistance soldering/welding equipment
<b>01.1.2.3</b>	<b>Beam sources for exposure equipment</b>	01.1.7.3	Lapping equipment	01.2.2.5.5	Bonding tools, miscellaneous
01.1.2.3.1	Lasers for exposure equipment	01.1.7.4	Separating/trimming/scrubbing lasers	<b>01.2.3</b>	<b>Chip packaging</b>
01.1.2.3.2	UV exposure light sources	01.1.7.5	Wafer pretreatment equipment	<b>01.2.3.1</b>	<b>Housings</b>
01.1.2.3.3	Ion-beam sources	01.1.7.6	Tumblers, wafer	01.2.3.1.1	Housing covers
01.1.2.3.4	Radiation sources for exposures, miscellaneous	01.1.7.7	Protective coating strippers, wafer	01.2.3.1.2	Housings/housing parts for components/assemblies, miscellaneous
<b>01.1.2.4</b>	<b>Mask handling</b>	01.1.7.7	Wafer-cleaning systems	01.2.3.1.3	Ceramic component housings
01.1.2.4.1	Mask manipulation systems	01.1.7.9	Wafer saws	01.2.3.1.4	TO housings/sockets
01.1.2.4.2	Mask inspection equipment	01.1.7.10	Wafer separation equipment	<b>01.2.3.2</b>	<b>Caps and encapsulations</b>
01.1.2.4.3	Mask repair stations	<b>01.1.7</b>	<b>Manufacturing and machining equipment, miscellaneous</b>	01.2.3.2.1	Protective component caps
<b>01.1.3</b>	<b>Lithography, substrate/wafer processing</b>	01.1.8.1	Plasma equipment, miscellaneous	01.2.3.2.2	Glass, passivation/encapsulation
<b>01.1.3.1</b>	<b>Lithography equipment</b>	01.1.8.2	Spray process machines, miscellaneous	01.2.3.2.3	Encapsulation equipment, miscellaneous
01.1.3.1.1	Microolithography equipment	01.1.8.3	Stripping systems	01.2.3.2.4	Chip carrier encapsulations
01.1.3.1.2	Contact exposure equipment	01.1.8.4	Substrate-cleaning systems	01.2.3.2.5	DIL encapsulations
01.1.3.1.3	Full-field projection systems	01.1.8.5	Wafer washers	01.2.3.2.6	Flat-pack encapsulations
01.1.3.1.4	Optical steppers	01.1.8.6	Semiconductor technology process equipment, miscellaneous	01.2.3.2.7	Ball-grid array packages
01.1.3.1.5	Laser writing equipment	<b>01.1.9</b>	<b>Wafer/substrate handling</b>	01.2.3.2.7	Potting compounds, encapsulations
<b>01.1.3.2</b>	<b>Lithography materials</b>	01.1.9.1	CTC wafer-handling equipment	01.2.3.2.9	QFP encapsulations
01.1.3.2.1	Resists	01.1.9.2	Wafer-cassetting equipment	01.2.3.2.10	PGA encapsulations
01.1.3.2.2	AR coatings	01.1.9.3	Wafer storage/shipping containers	01.2.3.2.11	Special component encapsulations, miscellaneous
01.1.3.2.3	HMDS	01.1.9.4	Wafer mounters	01.2.3.2.12	Encapsulation materials, miscellaneous
01.1.3.2.4	Developers	01.1.9.5	Wafer/tape laminators/de-laminators	<b>01.2.3.3</b>	<b>Coating</b>
<b>01.1.4</b>	<b>Thin-film generation</b>	01.1.9.6	Wafer transfer systems	01.2.3.3.1	Dip-coating equipment for protective component coatings
<b>01.1.4.1</b>	<b>Materials</b>	01.1.9.7	Manipulators, wafer/chip	01.2.3.3.2	UV-permeable chip coatings
01.1.4.1.1	Epitaxial materials	01.1.9.7	Module combinations, substrate handling	<b>01.2.3.3.3</b>	<b>Impregnating machines for components</b>
01.1.4.1.2	Process materials, thin-film technology, miscellaneous	01.1.9.9	Substrate carriers	01.2.3.3.3.1	Impregnating machines for metal
01.1.4.1.3	Vapor deposition materials	01.1.9.10	Wafer/substrate handling systems, miscellaneous	01.2.3.3.3.2	Vacuum pressure impregnating machines
01.1.4.1.4	Strippers	<b>01.2</b>	<b>Wafer back-end processing</b>	01.2.3.3.3.3	Atmospheric pressure impregnating machines
01.1.4.1.5	Sputter targets	<b>01.2.1</b>	<b>Chip handling</b>	01.2.3.3.3.4	Impregnating machines for laboratory and special applications
01.1.4.1.6	Lapping, polishing and grinding agents	01.2.1.1	Component handlers	<b>01.2.3.4</b>	<b>Potting equipment</b>
01.1.4.1.7	Process chemicals, semiconductor technology, miscellaneous	01.2.1.2	Production-line feeder systems	01.2.3.4.1	Continuous automatic extruders
<b>01.1.4.2</b>	<b>Production equipment</b>	01.2.1.3	Component-handling machines, specialized	01.2.3.4.2	Potting mixing/dosing equipment
01.1.4.2.1	Diffusion ovens	01.2.1.4	Die sorters	<b>01.2.3.4.3</b>	<b>Potting systems</b>
01.1.4.2.2	Diffusion tubes	01.2.1.5	Sorting equipment for components	01.2.3.4.3.1	Vacuum potting systems
01.1.4.2.3	Dosing devices	01.2.1.6	Lifter modules	01.2.3.4.3.2	Atmospheric potting systems
01.1.4.2.4	Heat treatment equipment for microstructuring, miscellaneous	01.2.1.7	Frog-leg modules	01.2.3.4.3.3	R&D and specialized potting systems
01.1.4.2.5	Heater beds	01.2.1.9	Piezo actuators	01.2.3.4.3.4	Automatic pressure gelation (APG)
01.1.4.2.6	Low-temperature equipment	01.2.1.10	Process carriers	01.2.3.5	Additional potting equipment
01.1.4.2.7	Ion implantation equipment	01.2.1.11	Transport carriers		
01.1.4.2.7	Cathode sputter equipment	01.2.1.12	Micromanipulators		
01.1.4.2.9	CVD equipment				
01.1.4.2.10	Electron-beam deposition equipment				
01.1.4.2.11	High-vacuum evaporation equipment				
01.1.4.2.12	Ion-beam coating equipment				
01.1.4.2.13	Oxidation equipment				

01.2.3.5.1	Bearings and conveyor equipment for cast resins				
01.2.3.5.2	Additional potting equipment, miscellaneous	01.3.2.4.2	Sputtering equipment for PDPs	01.4.3.1	Wet-process workbenches
01.2.3.6	Drying and hardening systems	01.3.2.4.3	Sputtering equipment for OLEDs	01.4.3.2	Clean-room mats
<b>01.2.3.7</b>	<b>Encapsulations and encapsulation equipment, miscellaneous</b>	01.3.2.4.4	Sputtering equipment for other display related applications	01.4.3.3	Clean-room ovens
01.2.3.7.1	Epoxy-processing equipment	<b>01.3.2.5</b>	<b>Laser-annealing systems</b>	01.4.3.4	Clean-room dryers
01.2.3.7.2	Sealants	<b>01.3.2.6</b>	<b>Substrate processing for displays, miscellaneous</b>	01.4.3.5	Clean-room vacuum cleaners
01.2.3.7.3	Molding presses	<b>01.3.3</b>	<b>Panel processing</b>	01.4.3.6	Clean-room shelving/transport aids
01.2.3.7.4	Molding tools	01.3.3.1	Alignment layer deposition	01.4.3.7	Clean-room cabinets, nitrogen-rinsed
01.2.3.7.5	Multi-chip module-compatible enclosures	<b>01.3.3.2</b>	<b>Printers</b>	01.4.3.7	Clean-room robotics equipment
01.2.3.7.6	Encapsulations, miscellaneous	01.3.3.2.1	Screen printers	01.4.3.9	Clean-room notice boards
01.2.3.7.7	Encapsulation equipment, miscellaneous	01.3.3.2.2	Inkjet printers	01.4.3.10	Clean-room tunnels
		01.3.3.2.3	Flexo printers	01.4.3.11	Clean-room consumables
<b>01.3</b>	<b>Display manufacturing</b>	01.3.3.2.4	Printers OLED	01.4.3.12	Clean-room packaging
<b>01.3.1</b>	<b>Substrate processing for displays</b>	01.3.3.3	Spacer spray systems	01.4.3.13	Electrostatic control equipment
01.3.1.1	Glass polishing machines	01.3.3.4	Bonding systems for displays	01.4.3.14	Clean-room accessories, miscellaneous
01.3.1.2	Aligners, exposer systems for displays	01.3.3.5	Display separation equipment	01.4.3.15	Clean-room fluid-handling aids
		01.3.3.6	Liquid cristal injection systems	01.4.3.16	Clean-room fittings, miscellaneous
		01.3.3.7	Devices for applying polarizers		
		01.3.3.9	Devices for applying/aligning color filters	<b>01.4.4</b>	<b>Clean-room equipment for personnel</b>
<b>01.3.2</b>	<b>Materials, parts</b>		Panel processing, miscellaneous	01.4.4.1	Air shower cabins, personnel
01.3.2.1	Substrate materials	<b>01.4</b>	<b>Clean-room technology</b>	01.4.4.2	Clean-room clothing
01.3.2.2	Spacers for displays	<b>01.4.1</b>	<b>Clean rooms</b>	01.4.4.3	Clean-room air locks
01.3.2.3	Liquid crystals	01.4.1.1	Clean rooms, built-in	01.4.4.4	Automatic shoe sole cleaners
01.3.2.4	Phosphors	01.4.1.2	Manual-work areas, sealed	01.4.4.5	Electrostatic control aids
01.3.2.5	Functional organic materials	01.4.1.3	Clean-room boxes, incl. walk-in	01.4.4.6	Clean-room equipment, miscellaneous
01.3.2.6	Photomasks	01.4.1.4	Clean hoods		
01.3.2.7	Target materials	01.4.1.5	Flow boxes	<b>01.5</b>	<b>Measurement, detection and control systems</b>
01.3.2.7	Color filters	01.4.1.6	Laminar flow equipment	01.5.1	Monitoring and control units for clean-room technology
01.3.2.9	Image masks	01.4.1.7	Dust-free workstations	01.5.2	Monitoring systems, process-specific
01.3.2.10	Functional films, laminates	01.4.1.7	Vacuum boxes	01.5.3	Guidance technology equipment, miscellaneous
01.3.2.11	Resins, adhesives	<b>01.4.2</b>	<b>Clean-room maintenance and control</b>	01.5.4	Positioning controllers
01.3.2.12	Materials, parts, miscellaneous	01.4.2.1	Clean-room filter elements	01.5.5	Control equipment, miscellaneous, application-specific
<b>01.3.2.3</b>	<b>CVD equipment</b>	01.4.2.2	Particle-monitoring equipment	<b>01.6</b>	<b>Process control software</b>
01.3.2.3.1	CVD equipment for TFTs	01.4.2.3	Ionization systems		
01.3.2.3.2	CVD equipment for PDPs	01.4.2.4	Air ionization equipment, ozone-free		
01.3.2.3.3	CVD equipment for OLEDs	01.4.2.5	Deionizers		
01.3.2.3.4	CVD equipment for other applications	01.4.2.6	Particle-free valves		
<b>01.3.2.4</b>	<b>Sputtering equipment for displays</b>	01.4.2.7	Flow visualization (clean rooms)		
01.3.2.4.1	Sputtering equipment for TFT	01.4.2.7	Valves for clean-room technology		

## 2. Photovoltaic manufacturing

<b>02.1</b>	<b>Materials</b>	02.2.1.1.4	Wafer saws	02.2.1.4.3	Automation, assembly and handling equipment
02.1.1	Inorganic semiconductors	02.2.1.1.5	Wafer cleaning	02.2.1.4.4	Laser processing equipment (sawing, drilling, edge isolation, marking, ...)
02.1.2	Organic semiconductors	02.2.1.1.6	Wafer grinding and polishing equipment	02.2.1.4.5	Surface processing equipment / priming / conditioning / resin coating
02.1.3	Crucibles and materials for ingot production	02.2.1.1.7	Wafer inspection	02.2.1.4.6	Vacuum technology
02.1.4	Materials for wafer saws, polishing and grinding materials	02.2.1.1.8	Wafer production equipment, miscellaneous	02.2.1.4.7	Software / Control / MES
02.1.5	Process gases	<b>02.2.1.2</b>	<b>Cell production</b>	02.2.1.4.8	Measurement tools / process control / environmental monitoring
02.1.6	Process chemicals	02.2.1.2.1	Wafer texturing	<b>02.2.2</b>	<b>Equipment for thin-film module production</b>
02.1.7	Sputter targets	02.2.1.2.2	Diffusion furnaces	02.2.2.1	Substrate loading / unloading equipment
02.1.8	Materials for evaporation and CVD	02.2.1.2.3	Etching equipment (wet etch, laser)	02.2.2.2	Substrate cutting equipment
02.1.9	Materials for deposition, miscellaneous	02.2.1.2.4	Deposition equipment (PECVD, Sputtering)	02.2.2.3	Substrate testing
02.1.10	Solder pastes	02.2.1.2.5	Printers for front and backside contacts	02.2.2.4	Storage equipment
02.1.11	Carriers	02.2.1.2.6	Drying furnaces / Fast-firing furnaces	02.2.2.5	Cleaning equipment
02.1.12	Ribbons	02.2.1.2.7	Cell characteristics evaluation tools / sorters	<b>02.2.2.6</b>	<b>Deposition equipment (CVD, PVD)</b>
02.1.13	Frames	02.2.1.2.8	Equipment for cell production, miscellaneous	02.2.2.6.1	Deposition equipment for silicon-based thin-film modules
02.1.14	Foils, laminates for encapsulation / modular technology	<b>02.2.1.3</b>	<b>Module production</b>	02.2.2.6.2	Deposition equipment for Cl(G)S-based modules
02.1.15	Substrates (glass, polymer films, ...) for thin-film technology	02.2.1.3.1	Glass cleaning	02.2.2.6.3	Deposition equipment for CdTe-based modules
02.1.16	Materials for crystalline photovoltaic production, miscellaneous	02.2.1.3.2	Tabbers / Stringers / Soldering ovens	02.2.2.7	Surface processing equipment / Priming / Conditioning / Resin coating
02.1.17	Materials for thin film production, miscellaneous	02.2.1.3.3	Laminators	02.2.2.8	Laser processing equipment (sawing, drilling, edge isolation, marking, ...)
02.1.18	Materials for production of innovative solar cells, miscellaneous	02.2.1.3.4	Framing units	02.2.2.10	Mechanical structuring equipment
<b>02.2</b>	<b>Production equipment</b>	02.2.1.3.5	Solar simulators		
<b>02.2.1</b>	<b>Equipment for wafer-based photovoltaics</b>	02.2.1.3.6	Module test / Quality inspection		
02.2.1.1	Ingot and wafer production	02.2.1.3.7	Packaging stations		
02.2.1.1.1	Crystal growing equipment	02.2.1.3.8	Equipment for module production, miscellaneous		
02.2.1.1.2	Ingot casting equipment	<b>02.2.1.4</b>	<b>Equipment for crystalline photovoltaics, miscellaneous</b>		
02.2.1.1.3	Ingot production processes, miscellaneous	02.2.1.4.1	Storage equipment		
		02.2.1.4.2	Loaders / Unloaders		

02.2.2.11	Soldering equipment	02.2.2.19	Equipment for thin-film production, miscellaneous	<b>02.3</b>	<b>Equipment for manufacturing photovoltaic modules</b>
02.2.2.12	Solar-Simulators	<b>02.2.3</b>	<b>Equipment for new generation solar cells</b>	02.3.1	Waste-gas abatement / Waste-water treatment
02.2.2.13	Module test / Quality inspection	02.2.3.1	Equipment for organic solar cells	02.3.2	Turnkey solutions
02.2.2.14	Packaging stations	02.2.3.2	Equipment for dye-sensitized solar cells	02.3.3	Facility management
02.2.2.15	Automation and handling equipment	02.2.3.3	Equipment for other novel solar concepts	02.3.4	Factory design and commissioning
02.2.2.16	Vacuum technology			02.3.5	Clean room and factory logistics
02.2.2.17	Software / Control / MES				
02.2.2.18	Measurement tools / process control / environmental monitoring				

### 3. micronano-production

<b>03.1</b>	<b>Materials/substances</b>	03.2.3.11	Electroforming	03.2.8.2	Micro motors
03.1.1	Substrate materials for microtechnology	03.2.3.12	Polymeric embossing	03.2.8.3	Micro gears
03.1.2	Nanomaterials	03.2.3.13	Embossing of ceramic materials	03.2.8.4	Micro positionings
03.1.3	Supraconductors	03.2.3.14	Embossing, miscellaneous	<b>03.3</b>	<b>Biometrical subsystems for microtechnology</b>
03.1.4	Materials for micro/nano technology, miscellaneous	03.2.3.15	Spark erosion, micromechanical	<b>03.4</b>	<b>Test, measurement and adaptation equipment for microtechnology</b>
<b>03.2</b>	<b>Production equipment</b>	<b>03.2.4</b>	<b>Tool and mould making</b>	<b>03.5</b>	<b>Sample-handling systems for microtechnology</b>
<b>03.2.1</b>	<b>Mask and artwork generation</b>	03.2.4.1	Micro tools	<b>03.6</b>	<b>Organic and printed electronics, polytronics</b>
<b>03.2.1.1</b>	<b>CA mask generation</b>	03.2.4.2	Prototype/sample manufacturing	03.6.1	Materials for polymer circuits
03.2.1.1.1	Graphics workstations (including computer-aided equipment)	03.2.4.3	Rapid prototyping	<b>03.6.2</b>	<b>Production technology</b>
03.2.1.1.2	Image modification equipment	03.2.4.4	Rapid tooling	03.6.2.1	Print technology
03.2.1.1.3	Design equipment, microlithography	<b>03.2.5</b>	<b>Micromachining and ultra-precision manufacturing</b>	03.6.2.2	System integration
03.2.1.1.4	Mask aligners	03.2.5.1	Micro tools	03.6.2.3	Roll-to-roll process
03.2.1.2	Resist-coating systems	03.2.5.2	Micro milling machines	03.6.2.4	Full polymer electronics, miscellaneous, production-specific
03.2.1.2.1	Spin-coating equipment (resist)	03.2.5.3	Drills for micromechanics	03.6.2.5	Partial polymer electronics (polytronics), miscellaneous, production-specific
03.2.1.2.2	Mask production equipment, miscellaneous	03.2.5.4	Saws, micromechanical	<b>03.6.3</b>	<b>Applications</b>
<b>03.2.1.3</b>	<b>Exposure tools</b>	03.2.5.5	Grinders, micromechanical	03.6.3.1	Sensors
03.2.1.3.1	Pattern generators	03.2.5.6	Welding equipment for micro-connections	03.6.3.2	Active and passive components
03.2.1.3.2	Laser writing equipment	03.2.5.7	Saw blades for microtechnology	03.6.3.3	RFID labels
03.2.1.3.3	Electron-beam writers	03.2.5.8	Lasers for microtechnology materials	03.6.3.4	Full polymer electronics, miscellaneous, application-specific
03.2.1.3.4	Re-exposure equipment	03.2.5.9	Ultrasonic machines	03.6.3.5	Partial polymer electronics (polytronics), miscellaneous, application-specific
03.2.1.3.5	Ion-beam recorders	03.2.5.10	Micro-optic production machines	<b>03.7</b>	<b>Microtechnology applications</b>
03.2.1.3.6	Exposure equipment, miscellaneous	03.2.5.11	Production machines for micro hot stamping	03.7.1	Micro manufacturing, precision technology
03.2.1.3.7	CA systems for exposure equipment	03.2.5.12	Production machines for micro injection molding	03.7.2	RFID label manufacturing
<b>03.2.1.4</b>	<b>Mask handling</b>	03.2.5.13	Production machines for micro system technology, miscellaneous	03.7.3	Lab-on-Chip
03.2.1.4.1	Mask manipulation systems	03.2.5.14	Micro reaction systems	03.7.4	Domotics
03.2.1.4.2	Mask inspection equipment	03.2.5.15	Microdosing systems	03.7.5	Applications, other
03.2.1.4.3	Mask repair stations	03.2.5.16	Production tools for microsystem technology, miscellaneous	<b>03.8</b>	<b>Nanotechnology / Nano-manufacturing</b>
03.2.1.4.4	Masks	<b>03.2.6</b>	<b>Bonding</b>	03.8.1	Nanochemistry, -materials, -substances
<b>03.2.2</b>	<b>Lithography, substrate processing</b>	03.2.6.1	Substrate bonding	03.8.2	Nano tools, Nano analysis
03.2.2.1	Microlithography equipment	03.2.6.2	Anodic bonding	03.8.3	Nanomanufacturing
03.2.2.2	Contact-printing equipment	03.2.6.3	Fusion bonding	03.8.4	Nanoelements/Nanosystems
03.2.2.3	Laser writing equipment	03.2.6.4	Glass reflow bonding	<b>03.8.5</b>	<b>Nanotechnology applications</b>
03.2.2.4	E-beam writers	03.2.6.5	Adhesive bonding	03.8.5.1	Nanoelectronics
03.2.2.5	Ion-beam writers	03.2.6.6	Eutectic bonding	03.8.5.2	Nanooptics
03.2.2.6	X-ray steppers	<b>03.2.7</b>	<b>Micro-assembly</b>	03.8.5.3	Nanoautomotive
<b>03.2.3</b>	<b>Production technology for microsystems</b>	03.2.7.1	Component mount techniques	03.8.5.4	Nanobiotechnology
03.2.3.1	Photo lithography	03.2.7.2	Component mounting in microsystems		
03.2.3.2	Double-sided lithography	03.2.7.3	Micro technology mounting & assembly systems		
03.2.3.3	X-ray lithography systems	03.2.7.4	Joining and interconnection techniques		
03.2.3.4	Deep UV lithography systems	03.2.7.5	Integration techniques		
03.2.3.5	Thin film technology	03.2.7.6	Microgrippers		
03.2.3.6	Epitaxy	03.2.7.7	Micro filters		
03.2.3.7	Etching techniques	03.2.7.8	Microrobotics		
03.2.3.8	RIE (reactive ion etching)	03.2.7.9	Nanorobotics		
03.2.3.9	Laser ablation systems	<b>03.2.8</b>	<b>Microdrive technology</b>		
03.2.3.10	Doping techniques	03.2.8.1	Piezo-electric actuators		

### 4. PCB and other circuit-carrier manufacturing

<b>04.1</b>	<b>Base materials</b>	04.1.3.2	Composite laminates/prepregs, copper-coated	04.1.3.9	Flexible base materials
<b>04.1.1</b>	<b>Strips</b>	04.1.3.3	Epoxy/glass laminates/prepregs, copper-coated	04.1.3.10	Photo-laminated base materials
04.1.1.1	Cu and Cu alloy strips	04.1.3.4	Cyanide ester laminates/prepregs	04.1.3.11	Base materials, special-purpose
04.1.1.2	Conducting strips	04.1.3.5	Polyamide/glass laminates/prepregs	04.1.3.12	Laminates, miscellaneous
<b>04.1.2</b>	<b>Foils</b>	04.1.3.6	PTFE/glass laminates	<b>04.1.4</b>	<b>Substrates</b>
04.1.2.1	Cu/Al/Cu sandwich foil sets	04.1.3.7	Metal-core composite laminates	04.1.4.1	Ceramic substrates
04.1.2.2	Cu foils for base materials	04.1.3.8	Uncoated laminates	04.1.4.2	Metal substrates (including enameled)
04.1.2.3	Separating foils			<b>04.1.5</b>	<b>Equipment and tools for base material manufacturing</b>
<b>04.1.3</b>	<b>Laminates</b>				
04.1.3.1	Paper laminates, copper-coated				

04.1.5.1	Laminators for ML materials, automatic	04.4.1.2.4	Squeegees	04.5.5.2	Chemical tin deposition
04.1.5.2	Lamination presses	04.4.1.2.5	Screen-printing materials, miscellaneous	04.5.5.3	Chemical gold/silver deposition
04.1.5.3	Vacuum-lamination presses	<b>04.4.1.3</b>	<b>Screen-printing equipment</b>	04.5.5.4	Chemical palladium
04.1.5.4	Lamination presses	04.4.1.3.1	Thick-film printers	04.5.5.5	Cu antioxidation coatings
04.1.5.5	Rollers for laminators	04.4.1.3.2	Manual screen-printing units	04.5.5.6	Copper passivation
04.1.5.6	Lamination registration equipment, ML	04.4.1.3.3	Screen printers	04.5.5.7	Passivation, miscellaneous
04.1.5.7	Multilayer production equipment, miscellaneous	04.4.1.3.4	Hybrid printers	<b>04.5.6</b>	<b>De-coating equipment</b>
04.1.5.8	Lamination aids	04.4.1.3.5	Screen-printing aids, miscellaneous	04.5.6.1	Screen-stripping equipment
04.1.5.9	LTCC equipment (ML/SL)	<b>04.4.1.4</b>	<b>Etch resist</b>	04.5.6.2	Dry-film removers
04.1.5.10	Miscellaneous circuit-carrier production tools	<b>04.4.2</b>	<b>Photoprinting</b>	04.5.6.3	Photo-laminate stripping equipment
<b>04.2</b>	<b>Circuit-printing tools and photomasters</b>	<b>04.4.2.1</b>	<b>Lacquer-coating systems</b>	04.5.6.4	Solder mask stripping equipment
<b>04.2.1</b>	<b>Foto circuit print</b>	04.4.2.1.1	Liquid photo resists	04.5.6.5	Tin stripping equipment
<b>04.2.1.1</b>	<b>Materials</b>	<b>04.4.2.1.2</b>	<b>Coating equipment</b>	04.5.6.6	Film-stripping equipment, miscellaneous
04.2.1.1.1	Photochemicals	04.4.2.1.2.1	Roller coaters	<b>04.5.7</b>	<b>PCB cleaning</b>
04.2.1.1.2	Films/photo papers	04.4.2.1.2.2	Curtain-coating systems	04.5.7.1	ML inner-layer cleaning
04.2.1.1.3	Photographic materials, miscellaneous	04.4.2.1.2.3	Spray-coating systems	04.5.7.2	PCB hole cleaning (de-smearing)
<b>04.2.1.2</b>	<b>Exposure equipment</b>	04.4.2.1.2.4	InkJet direct imaging	04.5.7.3	Rinse-processing equipment
04.2.1.2.1	Photographic tools	04.4.2.1.2.5	Coating systems, miscellaneous	04.5.7.4	Post-cleaning systems for PCBs
04.2.1.2.2	Spotlight equipment	<b>04.4.2.1.3</b>	<b>Auxiliary equipment for lacquer-coating systems</b>	04.5.7.5	Plasma cleaning
04.2.1.2.3	UV exposure equipment	04.4.2.1.3.1	Screen-printing loading/unloading equipment	<b>04.6</b>	<b>Heat treatment, drying</b>
04.2.1.2.4	UV cold-light exposure systems	04.4.2.1.3.2	Triple-roller presses, screen-printing	<b>04.6.1</b>	<b>Heat treatment</b>
04.2.1.2.5	UV post-polymerization equipment	04.4.2.1.3.3	Hybrid-technology paste systems	04.6.1.1	Continuous heaters
04.2.1.2.6	Laser direct imaging (LDI) systems	04.4.2.1.3.4	Circuit-printing registration systems	04.6.1.2	Conveyor belt ovens
04.2.1.2.7	Exposure equipment, miscellaneous	<b>04.4.2.2</b>	<b>Dry resists</b>	04.6.1.3	Burn-in ovens
<b>04.2.2</b>	<b>Template fabrication</b>	04.4.2.2.1	Dry film resists	04.6.1.4	Heating equipment, miscellaneous
<b>04.2.2.1</b>	<b>Hard-copy equipment</b>	04.4.2.2.2	Roller-coating systems	04.6.1.5	High-temperature ovens
04.2.2.1.1	Photo-plotters	04.4.2.2.3	Vacuum-coating systems	04.6.1.6	IR treatment equipment
04.2.2.1.2	Template printers	04.4.2.2.4	Coating equipment, miscellaneous	04.6.1.7	Microwave ovens
04.2.2.1.3	Reprographic/copying equipment	04.4.2.2.5	Dry-resist laminators	04.6.1.8	Mirror-focus ovens
04.2.2.1.4	Registration machines for film originals	<b>04.4.2.3</b>	<b>Exposure systems</b>	04.6.1.9	Radiation sources for heat treatment
04.2.2.1.5	PCB scanners	04.4.2.3.1	UV-exposure systems	04.6.1.10	Solar simulators for process work
04.2.2.1.6	Fine-line imaging equipment	04.4.2.3.2	UV-exposure systems, automatic	04.6.1.11	Heat cabinets
04.2.2.1.7	Copiers/copying aids, miscellaneous	04.4.2.3.3	Circuit-printing registration systems	04.6.1.12	Heat treatment, miscellaneous
<b>04.2.2.2</b>	<b>Template production</b>	04.4.2.3.4	Direct imaging systems	<b>04.6.2</b>	<b>Drying</b>
04.2.2.2.1	Screen stencils	04.4.2.3.5	Laser imaging systems	04.6.2.1	Squeeze dryers
04.2.2.2.2	Screen-print masks	04.4.2.3.6	Auxiliary equipment for exposure systems	04.6.2.2	Thick-film dryers
04.2.2.2.3	Screen-printing inspection units	04.4.2.3.7	Exposure systems, miscellaneous	04.6.2.3	Hot-air drying/curing units
04.2.2.2.4	Template production lasers	<b>04.4.2.4</b>	<b>Developing equipment</b>	04.6.2.4	Air dryers
04.2.2.2.5	Template production tools, miscellaneous	04.4.2.4.1	Developing machines	04.6.2.5	Screen-drying cabinets
04.2.2.2.6	Metal templates	04.4.2.4.2	Distillation systems	04.6.2.6	Bench-top dryers
04.2.2.2.7	Coating equipment, mask	04.4.2.4.3	Foil-peeling equipment	04.6.2.7	Drying chambers
04.2.2.2.8	Template production, miscellaneous	04.4.2.4.4	Auxiliary equipment for developers	04.6.2.8	Drying valves
<b>04.3</b>	<b>Tools, machines and accessories for PCB processing</b>	<b>04.4.3</b>	<b>PCB production by mechanical processing</b>	04.6.2.9	Dryers, solder-resist masks
04.3.1	Drilling machines for PCBs	04.4.3.1	Circuit diagram creation with milling cutter plotters	04.6.2.10	Dryers, miscellaneous
04.3.2	Drills for PCBs	04.4.3.2	Microstructuring with diamond tools	<b>04.7</b>	<b>Solder-resist technology</b>
04.3.3	Laser drills for microvias	<b>04.4.4</b>	<b>PCB production by other direct processing</b>	04.7.1	Solder-resist masks
04.3.4	Milling machines for PCBs	04.4.4.1	Direct circuit diagram creation with laser plotters	04.7.2	Solder-resist lacquers
04.3.5	Milling cutters for PCBs	04.4.4.2	Direct circuit diagram creation	04.7.3	InkJet solder Mask application
04.3.6	Drilling aids for PCB	<b>04.5</b>	<b>Chemical processing of PCBs</b>	<b>04.8</b>	<b>Legend printing</b>
04.3.7	Press tools	<b>04.5.1</b>	<b>Chemicals for etching</b>	04.8.1	InkJet legend printing
04.3.8	Cutting tools	04.5.1.1	Etching materials	04.8.2	Screen-printing
04.3.9	Special tools for PCB processing	04.5.1.2	Etching resists	<b>04.9</b>	<b>Clean-room technology</b>
04.3.10	Via-hole filler materials	04.5.1.3	Etching-technology aids	<b>04.9.1</b>	<b>Clean rooms</b>
<b>04.3.11</b>	<b>Panel separation machines</b>	04.5.1.4	Chemical processing materials (non-chipping), miscellaneous	04.9.1.1	Clean rooms, built-in
04.3.11.1	Mechanical PCB separators	<b>04.5.2</b>	<b>Machines for etching</b>	04.9.1.2	Clean-room boxes, incl. walk-in
04.3.11.2	Laser PCB separators	04.5.2.1	Small-scale etching units for PCBs	04.9.1.3	Flow boxes
04.3.12	Tools, miscellaneous	04.5.2.2	Etching equipment/machines	04.9.1.4	Laminar flow equipment
<b>04.4</b>	<b>Generating circuit structure</b>	04.5.2.3	Continuous etching lines	04.9.1.5	Dust-free workstations
<b>04.4.1</b>	<b>PCB production by screen printing</b>	04.5.2.4	Machines for etching, pickling and other chemical processing, miscellaneous	<b>04.9.2</b>	<b>Clean-room maintenance and control</b>
<b>04.4.1.1</b>	<b>Thick film</b>	<b>04.5.3</b>	<b>Through-plating</b>	04.9.2.1	Particle-monitoring equipment
04.4.1.1.1	Thick-film pastes	<b>04.5.4</b>	<b>Via-hole plugging</b>	04.9.2.2	Ionization systems
04.4.1.1.2	Dielectric pastes	04.5.4.1	Via-hole plugging machines	04.9.2.3	Deionizers
04.4.1.1.3	Circuit pastes	04.5.4.2	Via-hole plugging inks	<b>04.9.3</b>	<b>Clean-room equipment</b>
04.4.1.1.4	No-clean pastes	<b>04.5.5</b>	<b>Final surfaces for PCBs</b>	04.9.3.1	Clean-room mats
04.4.1.1.5	Resistance pastes	04.5.5.1	Hot-air galvanizing equipment	04.9.3.2	Clean-room ovens
<b>04.4.1.2</b>	<b>Screen-printing materials</b>			04.9.3.3	Clean-room dryers
04.4.1.2.1	Screen frames			04.9.3.4	Clean-room vacuum cleaners
04.4.1.2.2	Screen mesh			04.9.3.5	Clean-room shelving/transport aids
04.4.1.2.3	Screen-printing aids			04.9.3.6	Clean-room handling equipment
				04.9.3.7	Clean-room consumables
				04.9.3.8	Clean-room fittings, miscellaneous
				<b>04.9.4</b>	<b>Clean-room equipment for personnel</b>
				04.9.4.1	Clean-room clothing
				04.9.4.2	Clean-room air locks
				04.9.4.3	Clean-room equipment for personnel, miscellaneous

<b>04.10</b>	<b>MID production</b>	04.10.4.2	MID laser ablation	<b>04.11</b>	<b>PCB handling</b>
<b>04.10.1</b>	<b>Materials for MID production</b>	04.10.4.3	MID laser imaging	04.11.1	Automatic loaders/unloaders for PCBs
04.10.1.1	Plastic granulates for MID production	04.10.4.4	MID laser activation LDS	04.11.2	Stacking devices for PCBs
04.10.1.2	Plastic foils for MID production	04.10.4.5	MID primer technology	04.11.3	PCB-separating equipment
04.10.1.3	Hot-embossing foils for MID production	<b>04.10.5</b>	<b>MID Assembly</b>	04.11.4	PCB-handling aids, miscellaneous
<b>04.10.2</b>	<b>Injection molding</b>	04.10.5.1	MID media application	<b>04.12</b>	<b>Process control software for PCB production</b>
04.10.2.1	Single-component injection molding	04.10.5.2	3D mounting	04.12.1	Gerber data processing programs
04.10.2.2	Two-component injection molding	04.10.5.3	MID connection technology	04.12.2	Drill data processing programs
04.10.2.3	In-mold labeling	<b>04.10.6</b>	<b>Forming of artificial material</b>	04.12.3	Grind data processing programs
04.10.2.4	Injection molds	<b>04.10.6.1</b>	<b>Tools and machines</b>	04.12.4	PCB data generation systems
<b>04.10.3</b>	<b>Metallization</b>	04.10.6.1.1	Injection-molding metering equipment	04.12.5	Check data processing programs
04.10.3.1	Chemical electroplating	04.10.6.1.2	Injection-molding machines	04.12.6	Software for printing tools, miscellaneous
04.10.3.2	Hot-embossing processes for PCB manufacture	04.10.6.1.3	Plastic-welding equipment		
04.10.3.3	Physical vapor deposition (PVD)	04.10.6.1.4	Molded interconnect devices		
<b>04.10.4</b>	<b>MID Structuring</b>	04.10.6.1.5	Structuring design equipment, 3D		
04.10.4.1	MID photostructuring	04.10.6.1.6	Injection-molding machines for permanent magnets embedded in plastics		

## 5. Component mount technology

<b>05.1</b>	<b>Component preparation</b>	05.2.3.1	BGA mounting equipment	05.4.3.1.1	Articulated robots
05.1.1	Tin-plating equipment for component connections	05.2.3.2	Flip-chip assembly systems	05.4.3.1.2	Industrial robots, miscellaneous
05.1.2	Bending equipment for component connections	05.2.3.3	Waffle pack dispensers	05.4.3.1.3	Frog-leg robots
05.1.3	Trimmers for component preparation	05.2.3.4	Component mounting systems, specialized, miscellaneous	05.4.3.1.4	Coordinate-type robots
05.1.4	DIL component aligners	<b>05.3</b>	<b>Production</b>	05.4.3.1.5	Gantry-type robots
05.1.5	Component separation equipment	05.3.1	Mounting lines	05.4.3.1.6	Robotics accessories
05.1.6	Component preparation aids, miscellaneous	05.3.2	Mounting cells	05.4.3.1.7	Swiveling-arm robots
05.1.7	Bondability testers	05.3.3	Production lines for assembly, component placement, connections, etc.	05.4.3.1.8	TAB feeders
<b>05.2</b>	<b>Component mount techniques, component mounting</b>	05.3.4	Robot cells for linking	<b>05.4.3.2</b>	<b>Handling systems for material supply, storage and logistics</b>
<b>05.2.1</b>	<b>Manual component insertion</b>	<b>05.4</b>	<b>Handling technology</b>	05.4.3.2.1	Assembly-handling equipment
05.2.1.1	Equipment for manual component insertion	<b>05.4.1</b>	<b>Material supply systems</b>	05.4.3.2.2	Automatic loaders/unloaders for assemblies
05.2.1.2	Position pattern display equipment	05.4.1.1	Vibration conveyors	05.4.3.2.3	Part manipulation equipment, miscellaneous
05.2.1.3	Clinching tools for insertions	05.4.1.2	Clamping/fixing systems	05.4.3.2.4	Guidance parts/systems
<b>05.2.2</b>	<b>Automatic component mounting</b>	05.4.1.3	Loading/unloading equipment for machines/workstations	05.4.3.2.5	Systematizing equipment
05.2.2.1	Surface mount equipment	05.4.1.4	Parts transfer systems	05.4.3.2.6	Handling equipment, miscellaneous
05.2.2.2	Mounting systems, through hole components	05.4.1.5	Bulk material feeder modules (component)	05.4.3.2.7	Inert-gas storage
05.2.2.3	Semi-automatic mounting equipment	05.4.1.6	Rotary timing systems	<b>05.4.4</b>	<b>Control technology</b>
05.2.2.4	Pick-and-place machines for special components	05.4.1.7	Storage systems (handling)	05.4.4.1	Measurement, detection and control systems
05.2.2.5	Automatic mounting equipment for spatial chip carriers	05.4.1.8	Linking/transfer equipment, miscellaneous	05.4.4.2	Detection units/systems
05.2.2.6	Pin insertion machines	05.4.1.9	Part manipulation equipment, miscellaneous	05.4.4.3	Monitoring systems, process-specific
05.2.2.7	Accessories for mounting equipment	<b>05.4.2</b>	<b>Automation</b>	05.4.4.4	Plant security units/systems
05.2.2.8	Mounting machines, miscellaneous	05.4.2.1	Assembly-handling equipment	05.4.4.5	Measurement, detection and control systems, miscellaneous
<b>05.2.3</b>	<b>Component mounting systems, specialized</b>	05.4.2.2	Automatic loaders/unloaders for assemblies	05.4.4.6	Positioning controllers
		05.4.2.3	Automation bus systems	05.4.4.7	Guidance technology equipment, miscellaneous
		05.4.2.4	Process automation equipment, miscellaneous	05.4.4.8	Control equipment, miscellaneous, application-specific
		05.4.2.5	Automation software	<b>05.4.5</b>	<b>Process control software</b>
		<b>05.4.3</b>	<b>Robots and handling systems for material supply, storage and logistics</b>	05.4.5.1	Visualizing software
		<b>05.4.3.1</b>	<b>Robots</b>	05.4.5.2	Process control software
				05.4.5.3	PPS systems
				05.4.5.4	Material flow control
				05.4.5.5	Process software, miscellaneous

## 6. Soldering technology

<b>06.1</b>	<b>Solders and soldering aids</b>	<b>06.3</b>	<b>Coating equipment</b>	06.5.2	Vapor-phase soldering machines
06.1.1	Solders, leaded	06.3.1	Flux application equipment	06.5.3	Laser soldering systems
06.1.2	Solders, unleaded	06.3.2	Tin-plating equipment	06.5.4	Light soldering systems
06.1.3	Soldering pastes, leaded	06.3.3	Micro-flame equipment	06.5.5	Wave soldering machines
06.1.4	Soldering pastes, unleaded	06.3.4	Coating equipment, miscellaneous	06.5.6	Flux-free soldering equipment
06.1.5	Flux for soldering	<b>06.4</b>	<b>Soldering units</b>	06.5.7	Selective soldering systems
06.1.6	Soldered connection parts	06.4.1	Soldering irons and workstations	06.5.8	Robotic soldering equipment
06.1.7	Inert gas, cleaning gases	06.4.2	Hot-air soldering units	06.5.9	Vacuum soldering ovens
06.1.8	Soldering aids, miscellaneous	06.4.3	Impulse soldering units	06.5.10	Induction soldering equipment
<b>06.2</b>	<b>Paste application systems</b>	06.4.4	Inert-gas manual-soldering workstations	06.5.11	Resistance soldering systems
06.2.1	Dispensers for soldering pastes	06.4.5	Soldering units, miscellaneous	06.5.12	Dip soldering equipment
06.2.2	Screen-printing systems	<b>06.5</b>	<b>Soldering facilities</b>	06.5.13	Heat-staking machines
06.2.3	Applicators, miscellaneous	06.5.1	Reflow soldering machines	06.5.14	Soldering systems, miscellaneous
06.2.4	Solder-paste printing templates	<b>06.6</b>	<b>Soldering accessories</b>	06.6.1	Soldering frames, masks
06.2.5	Solder-paste application templates				

06.6.2	Soldering-frame cleaning systems	06.7.1.1	SMD adhesives	06.7.2.2	Automatic dispensers
06.6.3	Inert-gas technology	06.7.1.2	Acrylic/epoxy adhesives	06.7.2.3	Ultra-small quantity dispensers
06.6.4	Preheating modules for soldering lines	06.7.1.3	Hot-melt adhesives	06.7.2.4	Multi-component dosage equipment
06.6.5	Soldering-tip cleaning units	06.7.1.4	Adhesives, anisotropic	06.7.2.5	Adhesive tape dispensers
06.6.6	Reflow equipment	06.7.1.5	Adhesives, electrically conductive	06.7.2.6	Adhesive curing lines
06.6.7	Soldering-vapor extractors	06.7.1.6	Adhesives, heat-conducting	06.7.2.7	Hot-sealing presses, adhesives
06.6.8	Soldering tips	06.7.1.7	Adhesive parts, preformed	06.7.2.8	Templates for applying SMD adhesives
06.6.9	Soldering accessories, miscellaneous	06.7.1.8	Heat-conducting pastes	06.7.2.9	Heat-seal bonders
<b>06.7</b>	<b>Gluing, dispensing</b>	06.7.1.9	Adhesive tapes	06.7.2.10	Adhesive-processing equipment, miscellaneous
<b>06.7.1</b>	<b>Adhesives and auxiliary materials</b>	06.7.1.10	Insulated adhesive tapes		
		06.7.1.11	Adhesives, miscellaneous		
		<b>06.7.2</b>	<b>Equipment for processing and applying adhesives</b>		
		06.7.2.1	Adhesive dispensers		

## 7. Hybrid-component manufacturing

<b>07.01</b>	<b>Tooling and mouldmaking</b>	<b>07.4</b>	<b>Stamping</b>	07.8.3	Outserts (part surrounds injected plastic)
07.1.1	Die making, tool making	07.4.1	Presses	07.8.4	Integrated manufacturing techniques
07.1.2	Pattern making and prototype	07.4.2	Stamping presses	07.8.5	Metal/plastic composite technologies, miscellaneous
07.1.3	Rapid prototyping	07.4.3	Stamping machines and systems	<b>07.9</b>	<b>Process and quality control/Automation</b>
07.1.4	Rapid tooling	07.4.4	Service-provider-stamping	07.09.1	Automation solutions for metal/plastic composites
07.1.5	Tooling and mouldmaking, miscellaneous	07.4.5	Equipment, spare parts and accessories for stamping, miscellaneous	07.09.2	Production data-acquisition (PDA) systems
<b>07.2</b>	<b>Tools, tool equipment</b>	<b>07.5</b>	<b>Shaping</b>	07.09.3	Coordinate measuring technology and devices
07.2.1	Erosion machines and systems	07.5.1	Bending machines and systems	07.09.4	Light barriers
07.2.2	Follow-on assembly tools	07.5.2	Lathes	07.09.5	Machine data-acquisition (MDA) systems
07.2.3	Standards for stamping and shaping tools	07.5.3	Roll bending machines	07.09.6	Manufacturing execution systems (MES)
07.2.4	Press tools	07.5.4	Special-purpose machines	07.09.7	Measuring, testing and inspection equipment
07.2.5	Cutting tools	07.5.5	Service-provider-shaping	07.09.8	Compression force control systems
07.2.6	Injection moulding tools	07.5.6	Equipment, spare parts and accessories for shaping, miscellaneous	07.09.9	Process measuring technology
07.2.7	Stamping tools	<b>07.6</b>	<b>Surface-finishing equipment, refinement</b>	07.09.10	Process control and automation
07.2.8	Deep-drawing tools	07.6.1	Etching machines and systems	07.09.11	Process monitoring
07.2.9	Separating tools	07.6.2	Coating machines and systems	07.09.12	Traceability equipment
07.2.10	Tool-handling and tool-fastening systems	07.6.3	Electroplating machines and systems	07.09.13	Sensors
07.2.11	Bending tools	07.6.4	Marking systems and equipment	07.09.14	Regulation and control equipment
07.2.12	Tool-clamping devices	07.6.5	Polishing machines and systems	07.09.15	Tool-safety equipment
07.2.13	Tools, miscellaneous	07.6.6	Cleaning machines and systems	07.09.16	Tool monitoring
<b>07.3</b>	<b>Assembly and handling technology, periphery</b>	07.6.7	Grinding machines and systems	07.09.17	Equipment, spare parts and accessories for process and quality control miscellaneous
07.3.1	Substances and strip stocks	07.6.8	Service-providers - surface technology	<b>07.10</b>	<b>Used machines, systems, plants</b>
07.3.2	Reeling/ unreeling machines	07.6.9	Equipment, spare parts and accessories for surface treatment and refinement, miscellaneous	07.10.1	Plants
07.3.3	Destacking systems	<b>07.7</b>	<b>Injection molding for plastics</b>	07.10.2	Machines
07.3.4	Strip position control systems	07.07.1	Processing machines and systems	07.10.3	Systems
07.3.5	Strip-storage systems	07.07.2	Extruders	07.10.4	Used machines, systems and plants, miscellaneous
07.3.6	Strip-straightening machine	07.07.3	Cooling equipment		
07.3.7	Strip-lubricating systems	07.07.4	Injection molding machines and systems		
07.3.8	Strip welding machines	07.07.5	Service-providers - injection molding		
07.3.9	Container filling systems	07.07.6	Equipment, spare parts and accessories for injection molding for plastics, miscellaneous		
07.3.10	Oiling systems	<b>07.8</b>	<b>Metal/plastic composite technologies</b>		
07.3.11	Removal systems	07.8.1	Assemblies (mounted in plastic)		
07.3.12	Feeders, feed technology	07.8.2	Inserts (plastic injection around inserted part)		
07.3.13	Conveyor systems				
07.3.14	Reels				
07.3.15	Hot runners				
07.3.16	Plastic feeder systems				
07.3.17	Cooling equipment and systems				
07.3.18	Assembly equipment and systems				
07.3.19	Robots				
07.3.20	Cleaning equipment				
07.3.21	Lubricating equipment and systems				
07.3.22	Equipment, spare parts and accessories for assembly and handling technology and periphery, miscellaneous				

## 8. Technologies in cable processing

<b>08.1</b>	<b>Cable and wire processing</b>	08.1.8	Cable-assembly systems	<b>08.2</b>	<b>Tools for wiring</b>
08.1.1	Sheath-stripping equipment	08.1.9	Cable and wire processing aids, miscellaneous	08.2.1	Wire-crimping units
08.1.2	Insulation-stripping equipment	08.1.10	Cable-assembly equipment	08.2.2	Cable-harness production equipment
08.1.3	Wire-trimming equipment	08.1.11	Winding tools (wire strands)	08.2.3	Ultrasonic welders for cable harnesses
08.1.4	Wire croppers for low-profile undersides	<b>08.1.12</b>	<b>Thermal treatment</b>	08.2.4	Resistance welders for wire harnesses
08.1.5	Wire-bending units	08.1.12.1	Stress relieve annealing	08.2.5	Cable strippers
08.1.6	Wire-coding units	08.1.12.2	Surface finishing/coating		
08.1.7	Cable-winding equipment	08.1.12.3	Other		

08.2.6	Cable splicing equipment	<b>08.5</b>	<b>Cable-protection devices</b>	08.7.12	Terminals
08.2.7	Wiring machines	08.5.1	Corrugated sheath processing machines	08.7.13	Enameled-wire connectors
08.2.8	Wiring aids			08.7.14	Plugs and sockets
08.2.9	Wrapping guns	08.5.2	Heat shrinkable sleeves	08.7.15	Plug sockets, all types
08.2.10	Coax strippers	08.5.3	Protective devices for cable harnesses, miscellaneous	08.7.16	Plug connectors for office and data technology
08.2.11	Cable ties and guides			08.7.17	Plug connectors for household appliances
08.2.12	Wiring tools, miscellaneous	<b>08.6</b>	<b>Processing equipment for cable-protection devices</b>	08.7.18	Plug connectors for industrial electronics
<b>08.3</b>	<b>Cable-processing equipment</b>	08.6.1	Corrugated sheaths	08.7.19	Plug connectors for automotive electronics
08.3.1	Crimping tools	08.6.2	Corrugated sheaths, slotted	08.7.20	Plug connectors for laboratory/test equipment
08.3.2	Bench-top crimping presses	<b>08.7</b>	<b>Technology for detachable connections</b>	08.7.21	Plug connectors for aerospace
08.3.3	Crimping units/machines, miscellaneous	08.7.1	Connector strips	08.7.22	Plug connectors for telecommunications
08.3.4	Post crimp soldering equipment	08.7.2	Multi-point connectors	08.7.23	Plug connectors for entertainment electronics
08.3.5	IDC tools	08.7.3	Optical-fiber connection systems	08.7.24	Connection technology aids, miscellaneous
08.3.6	Coax stripping tools	08.7.4	Single-conductor connectors	08.7.25	Plug connector parts, miscellaneous
08.3.7	Optical-fiber stripping tools	08.7.5	Ribbon cable connectors	08.7.26	Plug connectors, miscellaneous complete
<b>08.4</b>	<b>Others</b>	08.7.6	Mains plugs		
08.4.1	Contacting units, miscellaneous	08.7.7	Cables with connectors		
08.4.2	Permanent connectors, miscellaneous	08.7.8	Cable terminals		
08.4.3	Control systems for cable-assembly systems	08.7.9	Wire end ferrules		
		08.7.10	Card connectors		
		08.7.11	Crimp connectors and accessories		

## 9. Coilware manufacturing

<b>09.1</b>	<b>Materials for coilware</b>	09.2.5	Manual coil winders	09.2.18	Bobbin winders
09.1.1	Coil cores	09.2.6	Cross winders	09.2.19	Bending tools
09.1.2	Cut and toroidal coil cores	09.2.7	Layer winders	09.2.20	Presses
09.1.3	Enameled wire, copper-, silver-	09.2.8	Linear winders, automatic	09.2.21	Welding machines for metal sheet packages
09.1.4	Transformer production aids, miscellaneous	09.2.9	Modular winding systems	09.2.22	Packeting machines for metal sheet packages
09.1.5	Coil-winding technology materials, miscellaneous	09.2.10	Toroidal coil winders	09.2.23	Coil winders, miscellaneous
<b>09.2</b>	<b>Tools for coilware</b>	09.2.11	Rotary table winders, automatic	09.2.24	Coil-manufacturing aids, miscellaneous
09.2.1	Armature winders	09.2.12	Helical coil winders	09.2.25	Coil-winding technology tools, miscellaneous
09.2.2	Stator coil winders	09.2.13	Welding/soldering equipment for coiled-product connections		
09.2.3	Fine-wire coil winders, automatic	09.2.14	Transfer winding robots		
09.2.4	Coiled-product assembly lines	09.2.15	Coil-winder transfer gear		
		09.2.16	Bench-type coil winders		
		09.2.17	Coil winder controllers		

## 10. Test and measurement, quality assurance

<b>10.1</b>	<b>Visual inspection, image processing</b>	<b>10.1.3</b>	<b>Recognition systems</b>	10.1.5.14	Optical-measurement equipment, miscellaneous
<b>10.1.1</b>	<b>Inspection systems</b>	10.1.3.1	Pattern recognition systems	10.1.5.15	Visual-inspection aids, miscellaneous
10.1.1.1	Solder paste inspection systems	10.1.3.2	Position recognition systems		
10.1.1.2	Flux inspection systems	10.1.3.3	Color recognition systems	<b>10.1.6</b>	<b>Lighting</b>
10.1.1.3	Bump inspection systems	10.1.4.1		10.1.6.1	Microscope lighting
10.1.1.4	Population inspection equipment	10.1.4.2		10.1.6.2	Lighting systems for image/pattern recognition
10.1.1.5	Optical inspection systems	10.1.4.3		10.1.6.3	Video lighting systems
10.1.1.6	Visual surface inspection systems	10.1.4.4		10.1.6.4	Stroboscopes
10.1.1.7	2D/3D inspection systems, miscellaneous	10.1.4.5		10.1.6.5	Equipment for image/pattern recognition and processing, miscellaneous
10.1.1.8	X-ray inspection systems	10.1.4.6		<b>10.2</b>	<b>Materials testing</b>
10.1.1.9	Robot visual systems	10.1.4.7		<b>10.2.1</b>	<b>Material analysis</b>
10.1.1.10	IC lead geometry testers	10.1.4.8		10.2.1.1	Pressure/tension testers
10.1.1.11	Wafer bond inspection systems	10.1.4.9		10.2.1.2	Hardness testers
10.1.1.12	Optical inspection systems, miscellaneous	10.1.4.10		10.2.1.3	Thermal analysis units
10.1.1.13	ML inner-layer inspection systems	10.1.4.11		10.2.1.4	Electrical properties, miscellaneous test equipment for
10.1.1.14	Photomask inspection systems	10.1.4.12		10.2.1.5	Gas analyzers
10.1.1.15	Finish inspection systems for bare boards	10.1.4.13		10.2.1.6	Contamination-monitoring equipment
<b>10.1.2</b>	<b>Image processing</b>	10.1.4.14		10.2.1.7	Diffusion-length mapping equipment
10.1.2.1	Image-processing camera systems	10.1.4.15		10.2.1.8	Wafer characterization equipment
10.1.2.2	Semiconductor cameras (CCD)	09.1.5	<b>Optical equipment and systems</b>	10.2.1.9	Analyzers, miscellaneous
10.1.2.3	Cameras for observation purposes, miscellaneous	10.1.5.1	Magnifying lenses	<b>10.2.2</b>	<b>Surface analysis</b>
10.1.2.4	Registration image systems	10.1.5.2	Scanner equipment	10.2.2.1	Structure width measurement units
10.1.2.5	Self-alignment image systems	10.1.5.3	Mark readers	10.2.2.2	Surface cleanliness testers
10.1.2.6	IR image systems	10.1.5.4	Projectors	10.2.2.3	Flatness testers
10.1.2.7	X-ray image systems	10.1.5.5	Enlargers	10.2.2.4	Mechanical profilometers
10.1.2.8	Image-processing accessories	10.1.5.6	Fiber optics	10.2.2.5	Optical profilometers
10.1.2.9	Image analysis systems, miscellaneous	10.1.5.7	Automated optical-inspection systems (AOI)	10.2.2.6	Peak-to-valley measuring devices
10.1.2.10	Image-processing systems, miscellaneous	10.1.5.8	3D laser measurement systems	10.2.2.7	Surface topography measurement systems
10.1.2.11	Print image control systems	10.1.5.9	Technical endoscopes		
		10.1.5.10	Cross-sectioning systems		
		10.1.5.11	Cross-section inspection systems		
		10.1.5.12	X-ray fluorescence analyzers		
		10.1.5.13	Optical-inspection equipment, miscellaneous		

10.2.2.8	Corrosion-testing equipment	<b>10.4.1</b>	<b>General-purpose measurement equipment</b>	10.4.09.1	Logic generators, word generators
10.2.2.9	Surface test units, miscellaneous			10.4.09.2	Logic testers
<b>10.2.3</b>	<b>Shape analysis</b>	10.4.1.1	Voltmeters	10.4.09.3	Logic analyzers
10.2.3.1	Accuracy-of-fit testers	10.4.1.2	Current meters	10.4.09.4	Digital-measurement equipment, miscellaneous
10.2.3.2	Shape inspection equipment	10.4.1.3	Power meters	<b>10.4.10</b>	<b>Communication test equipment</b>
10.2.3.3	Profilometers	10.4.1.4	Multimeters, voltmeters	10.4.10.1	ISDN analyzers
<b>10.3</b>	<b>Measurement technology for non-electrical parameters</b>	10.4.1.5	Resistance meters	10.4.10.2	Sonet/SDH test equipment
<b>10.3.1</b>	<b>Measurement/testing of geometric magnitudes</b>	10.4.1.6	Capacitance meters	10.4.10.3	ATM analyzers
10.3.1.1	Distance measurement devices	10.4.1.7	Inductivity meters	10.4.10.4	LAN analyzers
10.3.1.2	Angle meters	10.4.1.8	Impedance meters	10.4.10.5	WAN analyzers
10.3.1.3	Film thickness meters	10.4.1.9	Function generators	10.4.10.6	SS#7 signaling testers
10.3.1.4	Drill-hole test units	10.4.1.10	Signal generators	10.4.10.7	PCM/PDH test equipment
<b>10.3.2</b>	<b>Mechanical units</b>	10.4.1.11	Pulse generators	10.4.10.8	CATV measurement equipment
10.3.2.1	Force meters	10.4.1.12	Oscilloscopes, analog	10.4.10.9	TV and radio measurement equipment
10.3.2.2	Pressure measurement equipment	10.4.1.13	Oscilloscopes, digital	<b>10.4.11</b>	<b>Bus test systems</b>
10.3.2.3	Vacuum measurement units	10.4.1.14	Transients recorders	10.4.11.1	CAN-bus test systems
10.3.2.4	Scale equipment	10.4.1.15	Timer/counter equipment	10.4.11.2	USB-bus test systems
10.3.2.5	Torque-measuring equipment	10.4.1.16	Electronic ballasts for measurement purposes	10.4.11.3	PCI-bus test systems
10.3.2.6	Viscosity meters	10.4.1.17	Powerline measurement equipment IEC 1000-3-3	10.4.11.4	Field-bus test systems
10.3.2.7	Bond-strength testers (CAW/COB/COF)	10.4.1.18	Measurement equipment, miscellaneous	<b>10.4.12</b>	<b>Peripheral equipment</b>
10.3.2.8	Shear-strength testers	10.4.1.19	Calibration equipment	10.4.12.1	Laboratory mains equipment
<b>10.3.3</b>	<b>Time and time-dependent parameters</b>	<b>10.4.2</b>	<b>Accessories for general-purpose measurement equipment</b>	10.4.12.2	Measured-variable converters
10.3.3.1	Time counters	10.4.2.1	Test cables	10.4.12.3	Multiplexers for measurement purposes
10.3.3.2	Work measurement	10.4.2.2	Probes	10.4.12.4	Measurement data transmission equipment
10.3.3.3	Speed measurement	10.4.2.3	Accessories, miscellaneous	10.4.12.5	Date loggers
10.3.3.4	RPM measurement	<b>10.4.3</b>	<b>Audio measurement equipment</b>	10.4.12.6	Laboratory instrumentation accessories
10.3.3.5	Flow meters	<b>0.4.4</b>	<b>RF measurement equipment</b>	10.4.12.7	Standards for measurement/testing
10.3.3.6	Acceleration meters	10.4.4.1	Signal generators	10.4.12.8	Measurement data acquisition systems
<b>10.3.4</b>	<b>Thermal units</b>	10.4.4.2	Sweep generators	<b>10.4.13</b>	<b>Protective-measure test devices</b>
10.3.4.1	Temperature meters	10.4.4.3	Noise sources	10.4.13.1	Ground test equipment
10.3.4.2	Temperature profile measurement	10.4.4.4	Power meters	10.4.13.2	Insulation testers
10.3.4.3	Microthermographs, non-contact	10.4.4.5	Frequency counters	10.4.13.3	Short-circuit localization devices
<b>10.3.5</b>	<b>Environmental parameters</b>	10.4.4.6	Spectrum analyzers	10.4.13.4	Safety standards test systems (VDE, UL, TÜV, etc.)
10.3.5.1	Indoor-climate control meters	10.4.4.7	Measuring receivers	10.4.13.5	Induction high-voltage testers
10.3.5.2	Climate control meters	10.4.4.8	Network analyzers, scalar/vector	<b>10.5</b>	<b>Test and measurement systems</b>
10.3.5.3	Climate control sensors	10.4.4.9	Noise figure meters	<b>10.5.1</b>	<b>Measurement systems for component testing</b>
10.3.5.4	Acoustic-noise meters	10.4.4.10	Reflectometers	10.5.1.01	Test systems for passive components
10.3.5.5	Shock vibration meters	10.4.4.11	RF test equipment, miscellaneous	10.5.1.02	Test systems for coilware
<b>10.3.6</b>	<b>Chemical and biological parameters</b>	<b>10.4.5</b>	<b>Microwave measurement equipment</b>	10.5.1.03	Relay testers
10.3.6.1	Strip analyzers for electroplating	<b>10.4.6</b>	<b>Accessories for RF and <math>\mu</math>W measurement equipment</b>	10.5.1.04	Semiconductor test systems
10.3.6.2	pH/redox determination	10.4.6.1	RF measurement cables	10.5.1.05	IC testers, digital
10.3.6.3	O <sub>2</sub> -monitoring systems	10.4.6.2	Measurement bridges	10.5.1.06	IC testers, analog
10.3.6.4	Gas concentration meters	10.4.6.3	Reflection bridges	10.5.1.07	Mixed-signal test systems
10.3.6.5	Ultra-pure water monitors	10.4.6.4	Calibration kits	10.5.1.08	CPU testers
10.3.6.6	Deionized-water monitoring units	10.4.6.5	High-frequency test tips	10.5.1.09	Memory IC testers
10.3.6.7	Particle measurement units for fluids	10.4.6.6	Attenuators, power splitters	10.5.1.10	Semiconductor burn-in test systems
10.3.6.8	Plasma etching monitors	10.4.6.7	Couplers	<b>10.5.2</b>	<b>Test systems for assemblies and hybrids</b>
10.3.6.9	Differential scanning calorimeters	10.4.6.8	Mixers	10.5.2.01	Bare-board testers
<b>10.3.7</b>	<b>Optical parameters</b>	10.4.6.9	Relay multiplexers	10.5.2.02	Through-contact testers
10.3.7.1	Optical signal generators	10.4.6.10	Accessories for RF and $\mu$ W measurement equipment, miscellaneous	10.5.2.03	Substrate testers
10.3.7.2	Optical attenuators	<b>10.4.07</b>	<b>EMI measuring equipment</b>	10.5.2.04	Wiring test units
10.3.7.3	Optical power meters	10.4.07.1	Power amplifiers	10.5.2.05	Wiring harness test units
10.3.7.4	Optical spectrum analyzers	10.4.07.2	Antennas	10.5.2.06	Signature testers
10.3.7.5	Optical time domain reflectometers	10.4.07.3	Measuring receivers	10.5.2.07	In-circuit testers
10.3.7.6	Optical network analyzers	10.4.07.4	Field-strength measurement devices	10.5.2.08	Functional testers
10.3.7.7	Optical polarisation analyzers	10.4.07.5	Magnetic-field measuring equipment	10.5.2.09	Combination testers (in-circuit & function)
10.3.7.8	Optical amplifiers	10.4.07.6	EMC test stand equipment	10.5.2.10	Test systems without adapters
10.3.7.9	Optical multimeters	10.4.07.7	ESD testers	10.5.2.11	Power supply testers
10.3.7.10	Fiber-optic parameter measurement equipment	10.4.07.8	Testing electrical/magnetic properties, other devices for	10.5.2.12	Keyboard testers
10.3.7.11	Dispersion measurement, optical-fiber	<b>10.4.08</b>	<b>Mobile radio measurement equipment</b>	10.5.2.13	Boundary scan testers
10.3.7.12	Luminosity meters	10.4.08.1	Test systems for analog mobile radios	10.5.2.14	Burn-in board testers
10.3.7.13	Fiber-optic measuring equipment, miscellaneous	10.4.08.2	Test systems for digital mobile radios	10.5.2.15	Wafer test systems
10.3.7.14	Spectroscopy equipment	10.4.08.3	Signal generators for digital mobile radio transmission	10.5.2.16	IC testers for curved connections
10.3.7.15	Probe preparation for spectroscopy	10.4.08.4	Analyzers for digital mobile radio transmission	10.5.2.17	TFT array testers
<b>10.3.8</b>	<b>Calibration systems for non-electric systems</b>	10.4.08.5	Geographical radio-coverage analysis systems	<b>10.5.3</b>	<b>Test software</b>
<b>10.3.9</b>	<b>Accessories for non-electric measuring systems</b>	10.4.08.6	Type-approval test systems	10.5.3.1	Simulators
<b>10.4</b>	<b>Measurement technology for electrical parameters</b>	<b>10.4.09</b>	<b>Digital-measurement equipment</b>	10.5.3.2	Measurement technology software
				10.5.3.3	ATE software/postprocessors
				10.5.3.4	Fault-detection software

10.5.3.5	Fault-detection software with user prompting	<b>10.6</b>	<b>Conveyors, handling systems, test adapters</b>	<b>10.7.1</b>	<b>Environmental and other simulation</b>
<b>10.5.4</b>	<b>Automated test systems for special purposes</b>	<b>10.6.1</b>	<b>Handling</b>	10.7.1.1	Mains interference simulators
<b>10.5.4.1</b>	<b>Optical test</b>	10.6.1.1	SMD handlers for test purposes	10.7.1.2	Solar-simulation equipment for testing
10.5.4.1.1	Optical circuit-board test systems	10.6.1.2	Feeder equipment for component testing	10.7.1.3	Vibration test equipment
10.5.4.1.2	X-ray test systems	10.6.1.3	Component-sorting equipment	10.7.1.4	Test area equipment, miscellaneous specialized
10.5.4.1.3	Automatic solder-paste print inspection equipment	10.6.1.4	In-line handling equipment	<b>10.7.2</b>	<b>Environmental simulation</b>
10.5.4.1.4	Automatic solder-site inspection equipment	10.6.1.5	Wafer probers	10.7.2.1	Temperature and climatic testing cabinets
10.5.4.1.5	Optical display test	10.6.1.6	Fault-location display systems	10.7.2.2	Stress-screening and Shock-test chambers
10.5.4.1.6	Fiber-optic connector geometry testing systems	10.6.1.7	Stamp equipment	10.7.2.3	Test bays and walk-in, open-plan facilities
10.5.4.1.7	Optical test equipment, miscellaneous	10.6.1.8	Board handling systems	10.7.2.4	Environmental simulation aids, miscellaneous
<b>10.5.4.2</b>	<b>Electrical test</b>	10.6.1.9	Handling systems, miscellaneous	<b>10.7.3</b>	<b>Bench-top test and measurement equipment</b>
10.5.4.2.1	High-ohm testers for R and I	<b>10.6.2</b>	<b>Test aids</b>	10.7.3.1	Laboratory measurement aids, electrical
10.5.4.2.2	Automatic high-voltage test equipment	10.6.2.1	Test pins	10.7.3.2	Laboratory measurement aids, non-electrical
10.5.4.2.3	Automatic power-semiconductor test equipment	10.6.2.2	Sample-handling accessories	10.7.3.3	Laboratory measurement accessories, miscellaneous
10.5.4.2.4	Electro-optical function testers	10.6.2.3	Test sockets for components	<b>10.7.4</b>	<b>Process control software</b>
10.5.4.2.5	In-line test stations	10.6.2.4	Probe cards	10.7.4.1	Individual software
10.5.4.2.6	Electrical test systems, miscellaneous	10.6.2.5	Test probe head positioners	10.7.4.2	Software programming
10.5.4.3	Process control	<b>10.6.3</b>	<b>Adapters</b>		
10.5.4.3.1	Solderability testers	10.6.3.1	Hydraulic adapters for unpopulated circuit carriers		
10.5.4.3.2	Reflow profilers	10.6.3.2	Vacuum needle adapters		
10.5.4.3.3	Process control, miscellaneous	10.6.3.3	Pressure foot adapters		
		10.6.3.4	Pneumatic adapters		
		10.6.3.5	Moving-probe test adapters		
		10.6.3.6	Needle cards		
		<b>10.7</b>	<b>Laboratory/test station equipment</b>		

## 11. Materials processing

<b>11.1</b>	<b>Mechanical processing other than PCB</b>	<b>11.2</b>	<b>Thermal treatment</b>	11.4.2.1.2	Tin anodes
<b>11.1.1</b>	<b>Drilling and milling</b>	11.2.1	Drying	11.4.2.1.3	Tin-lead anodes
<b>11.1.1.1</b>	<b>Fit-hole drilling equipment</b>	11.2.2	Curing	11.4.2.1.4	Silver anodes
11.1.1.1.1	Single-spindle drilling machines	11.2.3	Annealing	11.4.2.1.5	Anodes, miscellaneous
11.1.1.1.2	Multi-spindle drilling machines	11.2.4	Microwave heating	<b>11.4.2.2</b>	<b>Materials, miscellaneous</b>
11.1.1.1.3	Special drilling machines	11.2.5	Medium- and high-frequency heating	11.4.2.2.1	Electroplating masking tapes
11.1.1.1.4	Milling machines	<b>11.3</b>	<b>Welding</b>	11.4.2.2.2	Electroplating aids
11.1.1.1.5	Drilling/milling systems (suitable for interconnection)	11.3.1	Spot-welding units	11.4.2.2.3	Integrated PCB-electroplating systems
11.1.1.1.6	3D milling machines	11.3.2	Inert-gas welders	11.4.2.2.4	Anode hangers, anode baskets
11.1.1.1.7	Drilling/milling spindles for PCB processing	11.3.3	Ultrasonic welders for metal	<b>11.4.2.3</b>	<b>Electrolytes</b>
11.1.1.1.8	Plasma drilling equipment	11.3.4	Ultrasonic welders for plastics	11.4.2.3.1	Gilding baths
11.1.1.1.9	CNC processing equipment	11.3.5	Resistance welding equipment	11.4.2.3.2	Nickel baths
11.1.1.1.10	XY tables	11.3.6	HF welding	11.4.2.3.3	Process chemicals, electroplating
11.1.1.1.11	Drilling machines, miscellaneous	11.3.7	Thermocompression welding	11.4.2.3.4	Electroplating chemicals, miscellaneous
<b>11.1.1.12</b>	<b>Cutting, separating</b>	11.3.8	Welding systems, miscellaneous	<b>11.4.2.4</b>	<b>Electroplating machines</b>
11.1.1.2.1	Shears	11.3.9	Shielding gasses for welding	11.4.2.4.1	Electroplating facilities, vertical
11.1.1.2.2	Circular saws	<b>11.4</b>	<b>Chemical and electroplate processing</b>	11.4.2.4.2	Electroplating facilities, horizontal
11.1.1.2.3	Scroll saws	<b>11.4.1</b>	<b>Chemical processing</b>	11.4.2.4.3	Partial/selective electroplating
11.1.1.2.4	Bandsaws	<b>11.4.1.1</b>	<b>Chemicals for etching and pickling</b>	11.4.2.4.4	Precious-metal electroplating
11.1.1.2.5	Crosscut saws	11.4.1.1.1	Etching materials	11.4.2.4.5	Vibro-plating systems
11.1.1.2.6	Saws, miscellaneous	11.4.1.1.2	Pickling solutions	11.4.2.4.6	Plating racks/frames
11.1.1.2.7	Laser cutting machines	11.4.1.1.3	Etching resists	11.4.2.4.7	Drums, electroplating
11.1.1.2.8	Scoring machines	11.4.1.1.4	Etching-technology aids	11.4.2.4.8	Electrical equipment for electroplating
11.1.1.2.9	Parting-off grinders	11.4.1.1.5	Chemical processing materials (non-chipping), miscellaneous	11.4.2.4.9	Galvanic rectifiers
<b>11.1.3</b>	<b>Border machining</b>	<b>11.4.1.2</b>	<b>Machines for etching, pickling and other chemical processing</b>	11.4.2.4.10	Pulse rectifiers
11.1.1.3.1	Deburring equipment, mechanical	11.4.1.2.1	Small-scale etching units	11.4.2.4.11	Heat exchangers, electroplating
11.1.1.3.2	Chamfering machines	11.4.1.2.2	Etching equipment/machines	11.4.2.4.12	Subsystems for electroplating
11.1.1.3.3	Edge-finishing equipment	11.4.1.2.3	Continuous etching lines	11.4.2.4.13	Small electroplating units
11.1.1.3.4	Edge-finishing machines, miscellaneous	11.4.1.2.4	Degreasing, chemical/thermal	11.4.2.4.14	Electroplating equipment, miscellaneous
<b>11.1.4</b>	<b>Surface treatment</b>	11.4.1.2.5	Ultrasonic degreasing	<b>11.5</b>	<b>Fastening, connecting</b>
11.1.1.4.1	Brushing machines	11.4.1.2.6	Deburring, chemical	11.5.1	Connectors, mechanical
11.1.1.4.2	Sandblasting equipment	11.4.1.2.7	De-oxidation equipment	11.5.2	Screwdrivers and screw-driving machines
11.1.1.4.3	Grinders	11.4.1.2.8	Black-oxide equipment	11.5.3	Automatic riveters/screw equipment
11.1.1.4.4	Wet-grinding equipment	11.4.1.2.9	Photochemical processing of thin precision parts	11.5.4	Press-fit insertion equipment
11.1.1.4.5	Polishing equipment and materials	11.4.1.2.10	Machines for etching, pickling and other chemical processing, miscellaneous	11.5.5	Fasteners, miscellaneous
11.1.1.4.6	Equipment for surface treatment, miscellaneous	<b>11.4.1.3</b>	<b>Peripheral equipment</b>	<b>11.6</b>	<b>Machining equipment, miscellaneous</b>
<b>11.1.5</b>	<b>Tools and accessories</b>	11.4.1.3.1	Electric heaters, immersible	11.6.1	Programming workstations for processing machinery
11.1.1.5.1	Drills	11.4.1.3.2	Pretreatment systems, chemical	11.6.2	Blank cutters
11.1.1.5.2	Milling cutters	11.4.1.3.3	Dosage/metering equipment	11.6.3	Machine tools, specialized
11.1.1.5.3	Drilling aids	<b>11.4.2</b>	<b>Galvanic processing</b>		
11.1.1.5.4	Brushes for surface treatment	<b>11.4.2.1</b>	<b>Plate material</b>		
11.1.1.5.5	Grinding discs	11.4.2.1.1	Copper anodes		
11.1.1.5.6	Surface treatment materials, miscellaneous				

<b>11.7</b>	<b>Laser material-processing systems</b>	11.8.5	Control systems	11.9.1.1	Plasticware, process/laboratory
11.7.1	Laser welding systems	11.8.6	Fiber systems	11.9.1.2	Glass-fiber production equipment (fiber optics)
11.7.2	Laser soldering installations	11.8.7	Articulated arms	<b>11.9.2</b>	<b>Tools for component manufacturing</b>
11.7.3	Laser cutting systems	11.8.8	Hardened optics	11.9.2.1	Surface-finishing equipment
11.7.4	Laser drilling systems	11.8.9	Metal laser optics	11.9.2.2	Continuous ovens
11.7.5	Laser marking and lettering systems	11.8.10	Laser working heads and adapters	11.9.2.3	Component-finishing equipment
11.7.6	Laser trimming systems	11.8.11	Laser resonator optics	11.9.2.4	Capacitor-manufacturing equipment
11.7.7	Laser surface processing systems	11.8.12	Beam guidance telescopes	11.9.2.5	Small parts precision manufacturing equipment
11.7.8	Laser micro processing systems	11.8.13	Cutting laser optics	11.9.2.6	Vacuum technology equipment
11.7.9	Laser material processing systems, miscellaneous	11.8.14	Welding optics	11.9.2.7	Laser-processing equipment for components
<b>11.8</b>	<b>System periphery for laser-based manufacturing</b>	11.8.15	Control electronics	11.9.2.8	Drying/curing equipment, miscellaneous
11.8.1	Drive and control engineering	11.8.16	Control software	11.9.2.9	Processing equipment for component manufacture, miscellaneous
11.8.2	Handling equipment	11.8.17	Laser vapor extraction systems		
11.8.3	Laser robots	11.8.18	Laser gases		
11.8.4	Monitoring and recognition systems	11.8.19	System peripherals, miscellaneous		
		<b>11.9</b>	<b>Manufacturing of lumped components</b>		
		<b>11.9.1</b>	<b>Materials for lumped components</b>		

## 12. Product finishing

<b>12.1</b>	<b>Repair and rework</b>	12.4.2	Burn-in ovens	12.5.6.5	Housing seals
<b>12.1.1</b>	<b>Consumables</b>	12.4.3	Laser trimmers	12.5.6.6	Knobs
12.1.1.1	Sprays for electronics	<b>12.5</b>	<b>Housings</b>	12.5.6.7	Rubber and plastic parts for housings
12.1.1.2	Zipper closure encapsulation	<b>12.5.1</b>	<b>System racks</b>	12.5.6.8	Distance assembly fittings
12.1.1.3	Shrink-wrap products	12.5.1.1	19" racks and cabinets	12.5.6.9	Housing cover accessories
12.1.1.4	Protective tubes/sleeves	12.5.1.2	HF-shielded housings	12.5.6.10	Conduits
12.1.1.5	Insulating sleeving	12.5.1.3	control cabinets	12.5.6.11	Filters, air
12.1.1.6	Rework aids	12.5.1.4	Modular systems, metric	12.5.6.12	Accessories for housings, miscellaneous
<b>12.1.2</b>	<b>Repair systems</b>	12.5.1.5	Sheet metal structures	12.5.6.13	Slide bearings
12.1.2.1	Solder removal/resoldering equipment	12.5.1.6	System racks for telecommunications	12.5.6.14	Power distribution components
12.1.2.2	Solder paste systems	<b>12.5.2</b>	<b>Wall-mountable and desktop housings</b>	12.5.6.15	Handles, housing
12.1.2.3	SMT repair workstations	12.5.2.1	19" inserts and housings	12.5.6.16	Heat shields
12.1.2.4	Semi-automated repair workstations	12.5.2.2	19" frames	<b>12.6</b>	<b>Electronic protective devices (EMC/ESD)</b>
12.1.2.5	Laser repair workstations	12.5.2.3	19" accessories	<b>12.6.1</b>	<b>EMC-conducted</b>
12.1.2.6	PCB-repair welding units	12.5.2.4	Console housings	12.6.1.1	EMC-type plug-in connectors
12.1.2.7	Hot-air fans	12.5.2.5	Computer housings	12.6.1.2	EMC leads
12.1.2.8	Repair workstations, miscellaneous	12.5.2.6	Stand-alone housings	12.6.1.3	EMC filters
<b>12.1.3</b>	<b>Hand tools</b>	12.5.2.7	Table-top housings	12.6.1.4	SM EMC suppression filters
12.1.3.1	Insertion hand tools	12.5.2.8	Wall-mountable housings	<b>12.6.2</b>	<b>EMC-radiated</b>
12.1.3.2	Compressed-air hand tools	12.5.2.9	Wall-mountable and desktop housings, miscellaneous	12.6.2.1	Shielding (EMC)
12.1.3.3	Electric hand tools	<b>12.5.3</b>	<b>Small-scale housings</b>	12.6.2.2	Housings with EMC protection
12.1.3.4	Hand tools	12.5.3.1	Sheet metal housings	12.6.2.3	HF seals
12.1.3.5	Special electronics hand tools	12.5.3.2	Plastic housings	12.6.2.4	Metal sealings for housings
<b>12.1.4</b>	<b>Tools, miscellaneous</b>	12.5.3.3	Hand-held housings	12.6.2.5	Polymer seals for housings
12.1.4.1	Glass-fiber cutting units	12.5.3.4	Milling housings	12.6.2.6	Conductive tapes/cloth
12.1.4.2	Pneumatic cutters	12.5.3.5	Mini housings, miscellaneous	<b>12.6.3</b>	<b>EMP protection devices</b>
12.1.4.3	Optical-fiber splicing equipment	<b>12.5.4</b>	<b>Special housings</b>	12.6.3.1	EMP protection elements/modules
12.1.4.4	Special machines	12.5.4.1	Foam shipping inserts	12.6.3.2	NEMP protective equipment
<b>12.2</b>	<b>Programming equipment, memory components</b>	12.5.4.2	Specialized component enclosures	<b>12.6.4</b>	<b>ESD protection devices</b>
<b>12.3</b>	<b>Protective coating and potting</b>	12.5.4.3	Portable cases	12.6.4.1	ESD mats
12.3.1	Protective coating systems	12.5.4.4	Unit housings, miscellaneous	12.6.4.2	ESD floors
12.3.2	Protective coating laminators	12.5.4.5	Special housings, miscellaneous	12.6.4.3	ESD protection devices, miscellaneous
<b>12.3.3</b>	<b>Protective coating agents</b>	<b>12.5.5</b>	<b>Feed-throughs</b>	<b>12.6.5</b>	<b>Protection components, miscellaneous</b>
12.3.3.1	Protective lacquers	12.5.5.1	Feed-throughs, mechanical transmission	12.6.5.1	Suppressor chokes
12.3.3.2	Encapsulating materials	12.5.5.2	Insulated grommets, glass	12.6.5.2	Shielded chokes/converters
12.3.3.3	Protective coatings, miscellaneous	12.5.5.3	Insulated grommets, ceramic	12.6.5.3	Low-voltage protection equipment
<b>12.4</b>	<b>Hybrids</b>	12.5.6.1	<b>Accessories for housings</b>	12.6.5.4	EMC ferrite cores
12.4.1	Systems for processing thick-film pastes	12.5.6.2	Card slots		
		12.5.6.3	Covers		
		12.5.6.4	Front panels for assemblies/devices		
			Front panels, customized		

## 13. Production logistics and material-flow technology

<b>13.1</b>	<b>Information acquisition</b>	13.2.2	Supply-chain management	13.4.1.1	Research in the logistics sector
13.1.1	Demand forecast tools	13.2.3	EDI	13.4.1.2	Professional and trade associations
13.1.2	Real-time communication platforms	<b>13.3</b>	<b>Merchandise management systems</b>	13.4.1.3	Information services and training
13.1.3	Resources for evaluating information quality	<b>13.4</b>	<b>Logistics management</b>	13.4.1.4	Logistics consulting
<b>13.2</b>	<b>Purchasing</b>	<b>13.4.1</b>	<b>Consulting and planning for logistics management</b>	<b>13.4.2</b>	<b>Engineering, development and planning for logistics</b>
13.2.1	e-Commerce	13.4.2.1		13.4.2.1	Planning of material flow
		13.4.2.2		13.4.2.2	Planning of information flow

13.4.2.3	Production planning and control (PPC)	13.5.3.3.4	Readers, reader stations	13.7.2.1	PCB containers
13.4.2.4	Modeling and simulation of logistics systems	13.5.3.3.5	System integration, software	13.7.2.2	PCB cases
13.4.2.5	Developing logistics strategies and concepts	<b>13.5.3.4</b>	<b>Other marking systems</b>	13.7.2.3	PCB cassettes
13.4.2.6	Training	13.5.3.4.1	Contactless marking systems	13.7.2.4	Stencil storage equipment
13.4.2.7	Education for logistics	13.5.3.4.2	PreMark Flaming Systeme	13.7.2.5	Film storage equipment
13.4.2.8	Process optimization	13.5.3.4.3	Coding systems	13.7.2.6	Containers, miscellaneous
13.4.2.9	Quality analysis	13.5.3.4.4	Laser markers	<b>13.7.3</b>	<b>Shelving and storage systems</b>
<b>13.4.3</b>	<b>Documentation and information for logistics</b>	13.5.3.4.5	Identification data carriers	13.7.3.1	Fixed-rack shelving
13.4.3.1	Books on logistics	13.5.3.4.6	Marking inks/dyes	13.7.3.2	Flow shelves
13.4.3.2	Trade journals/magazines for the logistics sector	13.5.3.4.7	Printer systems for PCBs	13.7.3.3	Pallet and high-bay racking systems
13.4.3.3	Publications, miscellaneous	13.5.3.4.8	Labeling equipment and tools, miscellaneous	13.7.3.4	Carrousel storage
<b>13.5</b>	<b>Material-flow control and software</b>	13.5.3.4.9	Inkers	13.7.3.5	Paternoster storage systems
<b>13.5.1</b>	<b>Application software</b>	13.5.3.4.10	Marking equipment and tools, miscellaneous	13.7.3.6	Moveable shelves
13.5.1.1	Warehouse management and control systems	<b>13.5.4</b>	<b>Identification</b>	13.7.3.7	Cantilever-type shelves
13.5.1.2	Commissioning systems	13.5.4.1	Laser scanners	13.7.3.8	Small-parts storage
13.5.1.3	Production logistics systems	13.5.4.2	Contactless identification parts	<b>13.7.4</b>	<b>Order-picking, sorting and distribution technology</b>
13.5.1.4	Software solutions for floor conveyors and hoisting devices	13.5.4.3	Marking/identification software	13.7.4.1	Order-picking shelves
13.5.1.5	Visualization systems for material flow and warehouse logistics	13.5.4.4	Bar-code readers	13.7.4.2	Order-picking carts and equipment
13.5.1.6	Process control software	13.5.4.5	Identification systems, miscellaneous	13.7.4.3	Automatic order-picking systems
<b>13.5.2</b>	<b>Shop information systems</b>	<b>13.6</b>	<b>Transportation and conveyor technology</b>	<b>13.8</b>	<b>Packaging technology</b>
13.5.2.1	ODA equipment and software	13.6.1	Vertical conveyors and lifting equipment	<b>13.8.1</b>	<b>Materials</b>
13.5.2.2	Industrial terminals	<b>13.6.2</b>	<b>Automatic controlled transport vehicles</b>	13.8.1.1	Packaging materials
13.5.2.3	Information-networking systems for CIM	13.6.2.1	Automatic controlled transport - vehicles and trolleys	13.8.1.2	Blister belting strips
13.5.2.4	Communications equipment, miscellaneous	13.6.2.2	Pallet trucks	13.8.1.3	Blister belt cover strips
13.5.2.5	Organizational aids, miscellaneous	13.6.2.3	Driverless transport systems	13.8.1.4	Belt spools for component belting
<b>13.5.3</b>	<b>Marking and identification</b>	13.6.2.4	Shelf control equipment	13.8.1.5	Vacuum shrink-wrapping equipment
<b>13.5.3.1</b>	<b>Printing</b>	13.6.2.5	Automatic controlled transport vehicles, miscellaneous	13.8.1.6	Sheathing/protection aids, miscellaneous
13.5.3.1.1	Printing/marking equipment, miscellaneous	<b>13.6.3</b>	<b>Continuous conveyors</b>	13.8.1.7	Recyclable packaging
13.5.3.1.2	Screen-print lettering tools	13.6.3.1	Band and belt conveyors	13.8.1.8	Cardboard boxes
13.5.3.1.3	Bar-code printer systems	13.6.3.2	Chain conveyors	<b>13.8.2</b>	<b>Packaging technology</b>
13.5.3.1.4	Inkjet marking equipment	13.6.3.3	Roller conveyors	<b>13.8.2.1</b>	<b>Packaging machines for component packaging</b>
13.5.3.1.5	Engraving equipment	13.6.3.4	Continuous conveyors, miscellaneous	13.8.2.1.1	Belting equipment
13.5.3.1.6	Component surface pre-marking equipment	<b>13.6.4</b>	<b>Suspension tracks</b>	13.8.2.1.2	Packaging machines for component packaging
13.5.3.1.7	Tampon printers	13.6.4.1	Manual suspension tracks	13.8.2.2	Packaging machines for equipment packaging
13.5.3.1.8	Laser marking systems for components	13.6.4.2	Electric suspension tracks	<b>13.8.2.3</b>	<b>Machines for compiling load units</b>
13.5.3.1.9	Lettering equipment, miscellaneous	13.6.4.3	Circular conveyor systems	13.8.2.3.1	Film-sealing systems
<b>13.5.3.2</b>	<b>Badges, labels</b>	13.6.4.4	Transport equipment, miscellaneous	13.8.2.3.2	Heat-shrink wrap equipment
13.5.3.2.1	EPRM labels	13.6.4.5	Loading and conveyor aids, miscellaneous	13.8.2.3.3	Stretch-wrap packaging systems
13.5.3.2.2	Roll labels	<b>13.7</b>	<b>Storage technology and commissioning systems</b>	13.8.2.3.4	Strapping systems
13.5.3.2.3	Self-adhesive labels/signs	<b>13.7.1</b>	<b>Pallets, bins and containers</b>	<b>13.8.3</b>	<b>Robots for packaging technology</b>
13.5.3.2.4	Bar-code labels	13.7.1.1	Cassettes and cassetting equipment	13.8.4	<b>Packaging machines, miscellaneous</b>
13.5.3.2.5	Colored aluminum signs	13.7.1.2	Pallets and palletizing systems	<b>13.8.5</b>	<b>Accessories for storage technology</b>
13.5.3.2.6	Metal signs	13.7.1.3	SMD coil-stacking systems	<b>13.8.6</b>	<b>Scales</b>
13.5.3.2.7	Lettering (on labels)	13.7.1.4	Component feed equipment	<b>13.9</b>	<b>Complete solutions and turnkey systems for logistics</b>
<b>13.5.3.3</b>	<b>RFID Systems</b>	13.7.1.5	Commissioning equipment	13.9.1	Planning services for logistics systems
13.5.3.3.1	Transponders, active	13.7.1.6	Warehouse equipment/units, miscellaneous	13.9.2	Consulting for logistics systems
13.5.3.3.2	Transponders, passive	13.7.1.7	Rotary cassettes for components	13.9.3	Delivery of turnkey systems
13.5.3.3.3	Smart label systems	13.7.1.8	Transport containers		
		<b>13.7.2</b>	<b>Containers for PCBs</b>		

## 14. Electronic Manufacturing Services (EMS)

<b>14.1</b>	<b>EMS for component/chip carrier manufacturing</b>	14.1.12	Laser repair of components / sub-assemblies	14.2.04	Screen production services
14.1.01	Layout services	14.1.13	Plating services	14.2.05	Hybrid implementation
14.1.02	Artwork production services	14.1.14	Reflow services	14.2.06	Component insertion
14.1.03	Screen production services	14.1.15	Surface treatment	14.2.07	Bonding bare dies on PCBs
14.1.04	ML lamination/drilling services	14.1.16	Production services for component/chip carrier manufacturing, miscellaneous	14.2.08	Flip chip insertion
14.1.05	Contacting services	<b>14.2</b>	<b>EMS for component assembly and device manufacturing</b>	14.2.09	Component insertion under cleanroom conditions
14.1.06	Coating services	14.2.01	Layout services	14.2.10	Metal machining
14.1.07	Laser engraving	14.2.02	Artwork production services	14.2.11	Manufacturing precision drilling and milling parts
14.1.08	Wire erosion	14.2.03	Solder mask services	14.2.12	Housings
14.1.09	Electrolyte reprocessing			14.2.13	Assembly and device manufacturing
14.1.10	Laser welding			14.2.14	EMD shielding
14.1.11	Laser cutting and singulation of IC carriers				

14.2.15	Coating services	14.2.20	Lacquering subcontractors	14.3.3	Prototype manufacturing equipment
14.2.16	Cabling			14.3.4	Prototype manufacturing, miscellaneous
14.2.17	Labeling	<b>14.3</b>	<b>Development-related services</b>		
14.2.18	Laser marking	14.3.1	Prototype manufacturing PCBs		
14.2.19	Production services for component construction and equipment manufacturing, miscellaneous	14.3.2	Prototype manufacturing housings		

## 15. Production subsystems

<b>15.1</b>	<b>Assembly and handling technology</b>	15.2.1.5	Micromotors	15.2.4.7	Linear systems
15.1.1	Assembly systems, assembly centers	15.2.1.6	Stepper motors	15.2.4.8	Threaded spindle drives
15.1.2	Assembly components and supplies	15.2.1.7	All-current motors	15.2.4.9	Electromotor device parts, miscellaneous
15.1.3	Assembly equipment	15.2.1.8	Linear drives		
15.1.4	Linking and transport equipment	15.2.1.9	Magnetic actuators	<b>15.3</b>	<b>Software and PDA systems</b>
15.1.5	Positioning systems	15.2.1.10	Actuators, miscellaneous	<b>15.3.1</b>	<b>Production</b>
15.1.6	Automatic assemblers	<b>15.2.2</b>	<b>Gears</b>	15.3.1.1	PPC systems
15.1.7	Industrial Robots	15.2.2.1	Geared motors	15.3.1.2	Production-line simulation systems
15.1.8	Service robots	15.2.2.2	Linear gears		
15.1.9	Components for robot systems	15.2.2.3	Gears, miscellaneous	15.3.1.3	Production-documentation generation aids
15.1.10	Robotic assembly lines	<b>15.2.3</b>	<b>Actuators, miscellaneous</b>	15.3.1.4	Quality management systems
15.1.11	Assembly and handling technology, other	15.2.3.1	Translational direct drives	<b>15.3.2</b>	<b>Assemblies for control applications</b>
<b>15.2</b>	<b>Drive technology</b>	15.2.3.2	Resolvers	<b>15.3.3</b>	<b>Regulator assemblies</b>
<b>15.2.1</b>	<b>Motors</b>	15.2.3.3	Pneumatic actuators	<b>15.3.4</b>	<b>Microcomputer subsystems</b>
15.2.1.1	AC motors	15.2.3.4	Positioning drives, miscellaneous	<b>15.3.5</b>	<b>MPC assemblies</b>
15.2.1.2	Brushless motors	<b>15.2.4</b>	<b>Accessories for actuators</b>	<b>15.3.6</b>	<b>Controllers, programmable</b>
15.2.1.3	DC motors	15.2.4.1	Driver PCBs	<b>15.3.7</b>	<b>Controllers, static signal</b>
15.2.1.4	Torque motors	15.2.4.2	Electromotor controllers/regulators		
		15.2.4.3	Roller bearings		
		15.2.4.4	Rail guides		
		15.2.4.5	Ball-bushing guides		
		15.2.4.6	Linear guides		

## 16. Production materials, equipment, environmental technology

<b>16.1</b>	<b>Preliminary products and semi-finished goods, metallic</b>	16.1.6.18	Semi-finished goods in electrical engineering, miscellaneous	<b>16.3.2</b>	<b>Metals</b>
<b>16.1.1</b>	<b>Sheet metal, plates</b>	16.1.6.19	Semi-finished parts, metallic/mineral, miscellaneous	16.3.2.1	Precious metals
16.1.1.1	Strips, metal	<b>16.2</b>	<b>Preliminary products and semi-finished goods, non-metallic</b>	16.3.2.2	Metals/alloys, pure/ultra-pure
16.1.1.2	Laminations and metal foils	<b>16.2.1</b>	<b>Pre-products</b>	16.3.2.3	Metallic powders
16.1.1.3	Colored aluminum sheets	16.2.1.1	Grommets, compound material	16.3.2.4	Memory alloys
<b>16.1.2</b>	<b>Wires</b>	16.2.1.2	Duroplastic molded parts/semi-finished goods	16.3.2.5	Structural mock-ups, metal
16.1.2.1	Wires, bare	16.2.1.3	Plastic preforms (elastomers)	16.3.2.6	Metals, miscellaneous
16.1.2.2	Wires for component connections	16.2.1.4	Semi-finished goods, miscellaneous, organic	<b>16.3.3</b>	<b>Chemicals</b>
16.1.2.3	Copper wires, insulated	16.2.1.5	Resin-bonded molded parts/semi-finished goods	16.3.3.1	Electronics chemicals
16.1.2.4	Silver wires, insulated	16.2.1.6	Piezo-ceramicware	16.3.3.2	Process chemicals, miscellaneous
16.1.2.5	Wires, specialized cross-section	16.2.1.7	Molded glass parts/semi-finished goods	16.3.3.3	Solvents
<b>16.1.3</b>	<b>Springs</b>	16.2.1.8	Resin-bonded fabric	16.3.3.4	Chemicals, miscellaneous
<b>16.1.4</b>	<b>Plastics</b>	16.2.1.9	Plastic semi-finished goods	<b>16.3.4</b>	<b>Insulating materials</b>
16.1.4.1	Granulates	16.2.1.10	Industrial laminates (sheets, rods, tubes)	16.3.4.1	Insulating resins
16.1.4.2	Conductive granulates	16.2.1.11	Thermoplastic molded parts/semi-finished goods	16.3.4.2	Laminating resins
<b>16.1.5</b>	<b>Cables</b>	16.2.1.12	Silicones and silicone parts	16.3.4.3	Impregnation insulating materials
16.1.5.1	Ribbon cables	16.2.1.13	Molded ceramic parts/semi-finished goods, miscellaneous	16.3.4.4	Insulating materials, miscellaneous
16.1.5.2	RF cables	16.2.1.14	Plastic parts, miscellaneous	<b>16.3.5</b>	<b>Plastics</b>
16.1.5.3	Coaxial cables	16.2.1.15	Semi-finished goods in electrical engineering, miscellaneous	16.3.5.1	Elastomers
16.1.5.4	Round cables	<b>16.2.2</b>	<b>Materials, miscellaneous</b>	16.3.5.2	Polyester materials
16.1.5.5	Stranded wires for mains/low frequency	16.2.2.1	Masks (including UV-curable)	16.3.5.3	Polyamides
16.1.5.6	Cables, miscellaneous	16.2.2.2	Sealants	16.3.5.4	Polymer materials, miscellaneous
<b>16.1.6</b>	<b>Semi-finished goods</b>	16.2.2.3	Seals	16.3.5.5	Antistatic PE foam
16.1.6.1	Etched parts	16.2.2.4	Foils, insulating	16.3.5.6	Plastics, miscellaneous
16.1.6.2	Bimetallic parts	<b>16.3</b>	<b>Process materials</b>	<b>16.3.6</b>	<b>Gases</b>
16.1.6.3	Lathed parts	<b>16.3.1</b>	<b>Lacquers</b>	16.3.6.1	CFC substitutes
16.1.6.4	Ferrite parts	16.3.1.1	Photographic laminates (resists)	16.3.6.2	Gases for semiconductor technology
16.1.6.5	Ferroelectric ceramicware	16.3.1.2	Protective lacquers	16.3.6.3	Industrial gases
16.1.6.6	Memory components	16.3.1.3	Solder mask lacquers	16.3.6.4	Gases, miscellaneous
16.1.6.7	Galvanic molded parts	16.3.1.4	Insulating paints/lacquers	<b>16.3.7</b>	<b>Dielectricware</b>
16.1.6.8	Graphite parts, pure/ultra-pure	16.3.1.5	Conductive lacquers	<b>16.3.8</b>	<b>Process materials, miscellaneous</b>
16.1.6.9	Cooling parts			16.3.8.1	Glass powders
16.1.6.10	Laser-cut molded parts			16.3.8.2	Ceramic powders
16.1.6.11	Microstructure preliminary products			16.3.8.3	Crystal materials
16.1.6.12	Metal tubes			16.3.8.4	Compound materials
16.1.6.13	Punch-pressed flexible parts	<b>16.4</b>	<b>Plant equipment</b>		
16.1.6.14	Drawn parts/semi-finished goods	<b>16.4.1</b>	<b>Clothing</b>	16.4.1.1	Antistatic clothing
16.1.6.15	Contact parts/semi-finished goods	16.4.1.1	Clean-room garments	16.4.1.2	Clean-room footwear
16.1.6.16	Molded parts, miscellaneous	16.4.1.3	Furniture		
16.1.6.17	Mechanical components, miscellaneous				

16.4.2.1	Office/lab furniture	16.5.4.2	Degreasing systems	16.6.1.3	Preparation equipment, miscellaneous
16.4.2.2	Vibration-proof tables	16.5.4.3	Sterilization equipment, UV	16.6.1.4	Reprocessing equipment, miscellaneous
16.4.2.3	Lab desks	16.5.4.4	Desalination equipment	<b>16.6.2</b>	<b>Consumables for preparation equipment</b>
16.4.2.4	Stand-up aids	16.5.4.5	Semi-aqueous cleaning systems	16.6.2.1	Filter materials
<b>16.4.3</b>	<b>Equipment</b>	16.5.4.6	Lead-frame cleaning systems	16.6.2.2	Ultra-pure water filtration systems
16.4.3.1	Workstations, specialized	16.5.4.7	Film/surface cleaning units	16.6.2.3	Filtration equipment, miscellaneous
16.4.3.2	Lighting equipment	16.5.4.8	Low-profile component cleaning systems	16.6.2.4	Resist filter systems in recirculation
16.4.3.3	Floor coverings, specialized	16.5.4.9	Plasma-cleaning systems	16.6.2.5	Exhaust gas absorbers
16.4.3.4	Climate control equipment	16.5.4.10	Screen-washing equipment	16.6.2.6	Waste-water treatment chemicals
16.4.3.5	Modular workstation systems	16.5.4.11	Underwipe cleaning	16.6.2.7	Consumables, miscellaneous
16.4.3.6	Monitoring-room equipment	16.5.4.12	Rinsing equipment, specialized	<b>16.6.3</b>	<b>Supply systems</b>
<b>16.4.4</b>	<b>ESD protection</b>	16.5.4.13	Substrate-cleaning equipment	16.6.3.1	Chemical supply/feed systems
16.4.4.1	ESD working environment	16.5.4.14	Reflow cleaning equipment	16.6.3.2	Ultra-pure gas supply systems
16.4.4.2	ESD personnel grounding	16.5.4.15	Workshop-cleaning units/machines	16.6.3.3	Ultra-pure water supply systems
16.4.4.3	ESD floor systems	16.5.4.16	In-line washing stations	16.6.3.4	Rinse-water circulation systems
16.4.4.4	ESD clean-room products	16.5.4.17	Ionizers	16.6.3.5	Gas management systems
16.4.4.5	ESD protection	16.5.4.18	Cleaning equipment, miscellaneous specialized	<b>16.6.4</b>	<b>Exchangers</b>
16.4.4.6	EGB workstation equipment	16.5.4.19	Washing/rinsing equipment, miscellaneous specialized	16.6.4.1	Ion exchangers
16.4.4.7	ESD packaging	16.5.4.20	Ultrasonic cleaning systems	16.6.4.2	Heat exchangers
16.4.4.8	Antistatic products, miscellaneous	<b>16.5.5</b>	<b>Peripheral systems</b>	16.6.4.3	Cooling machines
<b>16.4.5</b>	<b>Work safety equipment</b>	16.5.5.1	Post-treatment equipment, miscellaneous	16.6.4.4	Exchangers, miscellaneous
<b>16.4.6</b>	<b>Plant fittings, miscellaneous</b>	16.5.5.2	Precleaning equipment, miscellaneous	<b>16.6.5</b>	<b>Armatures</b>
16.4.6.1	Power supplies higher than 3 kW	<b>16.5.6</b>	<b>Exhaust disposal</b>	16.6.5.1	Valves, connectors
16.4.6.2	Pressure-control systems	16.5.6.1	Exhaust gas/exhaust extraction equipment	16.6.5.2	Vacuum valves
16.4.6.3	Workshop equipment, miscellaneous	16.5.6.2	Chip/dust extraction equipment	16.6.5.3	Fittings/unions for fluids
16.4.6.4	Protection materials, miscellaneous	16.5.6.3	Waste disposal equipment, miscellaneous	16.6.5.4	Pumps and pumping systems
<b>16.5</b>	<b>Decontamination, cleaning, disposal (environmental management)</b>	16.5.6.4	Environmental protection equipment, miscellaneous	16.6.5.5	Vacuum pumps
16.5.1	Decontamination	<b>16.5.7</b>	<b>Scrapping</b>	16.6.5.6	Leakage test systems
<b>16.5.2</b>	<b>Cleaners</b>	16.5.7.1	Scrap-electronics disassembly equipment	16.6.5.7	Armatures, miscellaneous
16.5.2.1	Cleaning brushes	16.5.7.2	Obsolete electronic parts reprocessing equipment	<b>16.6.6</b>	<b>Cleaning</b>
16.5.2.2	Solvents/cleaners	<b>16.6</b>	<b>Recirculation systems, supply, recycling</b>	16.6.6.1	Process-water purification equipment (recirculation)
16.5.2.3	Defluxers	<b>16.6.1</b>	<b>Preparation equipment</b>	16.6.6.2	Waste-water treatment equipment
16.5.2.4	Template cleaners	16.6.1.1	Waste preparation equipment	16.6.6.3	Etching-solvent reclamation equipment
16.5.2.5	Ultrasonic cleaning equipment	16.6.1.2	Ultra-pure water preparation equipment	16.6.6.4	Cleaning equipment, miscellaneous
16.5.2.6	Cleaning agents, miscellaneous			<b>16.6.7</b>	<b>Recycling</b>
<b>16.5.3</b>	<b>Strippers</b>			16.6.7.1	Metal recycling
16.5.3.1	Photo-laminate strippers			16.6.7.2	Heat recovery systems
16.5.3.2	Solder mask strippers			16.6.7.3	Reclamation equipment, miscellaneous
16.5.3.3	Tin strippers				
16.5.3.4	Strippers, miscellaneous				
<b>16.5.4</b>	<b>Systems</b>				
16.5.4.1	Final-cleaning equipment (before population)				

## 17. Services

<b>17.1</b>	<b>Information provision</b>	<b>17.2.5</b>	<b>Test and measurement services</b>	<b>17.4</b>	<b>Other services</b>
17.1.1	Technical books	17.2.5.1	Test and test design services	17.4.1	Procurement services
17.1.2	Technical journals and periodicals	17.2.5.2	Measurement and calibration services	17.4.2	Software programming
17.1.3	Publications, miscellaneous	17.2.5.3	Acceptance and approval services	17.4.3	Financial services
17.1.4	Databases, incl. online accessible	<b>17.3</b>	<b>Brainware</b>	17.4.4	Parylene coatings
17.1.5	Product-information systems	<b>17.3.1</b>	<b>Consulting</b>	17.4.5	Maintenance services
17.1.6	B2B sales software	17.3.1.1	Research institutes	17.4.6	Repair services
17.1.7	Information, miscellaneous	17.3.1.2	Professional and trade associations	17.4.7	Disposal services
<b>17.2</b>	<b>Production services</b>	17.3.1.3	Information services and training	17.4.8	Assembly parts packaging (product lines)
<b>17.2.1</b>	<b>Production services for semiconductors</b>	17.3.1.4	Consultants, miscellaneous	17.4.9	Packaging of material and liquids
17.2.1.1	Chip bonding	<b>17.3.2</b>	<b>Engineering services</b>	17.4.10	Component database generation
17.2.1.2	Chip packaging	17.3.2.1	Production line optimization	17.4.11	Other services, miscellaneous
17.2.1.3	Contacting services	17.3.2.2	Set-up concepts		
<b>17.2.2</b>	<b>Services for material machining</b>	17.3.2.3	Software tools to support planning operations		
17.2.2.1	Wire erosion	<b>17.3.3</b>	<b>Process optimization</b>		
17.2.2.2	Laser welding/cutting	17.3.3.1	Training		
17.2.2.3	Plating subcontractors	17.3.3.2	Education		
17.2.2.4	Surface treatment	17.3.3.3	Process optimization		
17.2.2.5	Metal machining	17.3.3.4	Quality analysis		
17.2.2.6	Manufacturing precision lathed and milled parts	<b>17.3.4</b>	<b>Sales</b>		
<b>17.2.3</b>	<b>Production services for components</b>	17.3.4.1	Assembly sales		
17.2.3.1	Belting services	17.3.4.2	Equipment sales		
17.2.3.2	Inductive component/coiled-products manufacturing services	17.3.4.3	Used-electronics sales		
17.2.3.3	Testing/adjusting of component connections	17.3.4.4	Electronic-equipment leasing		
<b>17.2.4</b>	<b>Services for cable processing</b>	17.3.4.5	Sales of production services		
17.2.4.1	Cabling	17.3.4.6	Sales, other		