

Overview of product groups

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|---|---|
| 1 Assembly and handling technology | 6 Sensor technology |
| 2 Robotics | 7 Control systems technology and industrial communications |
| 2.1 Industrial robots | 8 Safety and security technology |
| 2.2 Professional service robotics | 9 Supply technology |
| 3 Machine vision | 10 Software and cloud computing |
| 4 Positioning systems | 11 Services and service providers |
| 5 Drive technology | 12 Research and technology |

Product groups

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| 1 Assembly and handling technology | 1.3 Equipment for storage | 1.6.6 Conveyor section profiles |
| | 1.3.1 Storage boxes | 1.6.7 Slide rails |
| 1.1 Assembly stations and systems | 1.3.2 Hoppers | 1.6.8 Lateral guides |
| 1.1.1 Assembly stations and systems, linear transfer | 1.3.3 Magazines | 1.6.9 Leg sets |
| 1.1.2 Assembly stations and systems, rotary transfer | 1.3.4 Pallet systems and palletizing units | 1.6.10 Return unit stations |
| 1.1.3 Assembly systems (continuous motion) | 1.4 Equipment for organizing, sorting and feeding | 1.6.11 Curves |
| 1.1.4 Modular assembly platforms | 1.4.1 Separating equipment | 1.6.12 Dividers |
| 1.1.5 Assembly stations, manually feeded | 1.4.2 Disentangling equipment (seperators) | 1.6.13 Backstops |
| 1.1.6 Assembly systems for pliable parts | 1.4.3 Sorting equipment | 1.6.14 Workpiece carriers orientation |
| 1.2 Assembly systems for specific fields of application | 1.4.4 Vibrating feeders, rotary | 1.6.15 Lift transverse units |
| 1.2.1 Assembly systems for medical/pharmaceutical applications | 1.4.5 Vibrating feeders, linear | 1.6.16 Transportation controls |
| 1.2.2 Assembly systems for food industry applications | 1.4.6 Step feeders | 1.6.17 Identification and data-storage systems |
| 1.2.3 Assembly systems for explosive areas | 1.4.7 Hopper elevators (Steep feeders) | 1.7 Equipment for fastening and joining |
| 1.2.4 Assembly systems for ESD areas | 1.4.8 Centrifugal feeders | 1.7.1 Screw driving units, manually operated |
| 1.2.5 Assembly systems for electrical engineering and electronics | 1.4.9 Flexible feeding systems | 1.7.2 Screw driving units, automatically operated |
| 1.2.6 Assembly systems for clean-rooms | 1.5 Equipment for linking and transport | 1.7.3 Screw driving units, stationary |
| 1.2.7 Assembly systems for micro technology | 1.5.1 Chain conveyors | 1.7.4 Rivetting units |
| 1.2.8 Packaging machines | 1.5.2 Belt conveyors | 1.7.5 Presses, manual |
| 1.2.9 Systems for the production of springs | 1.5.3 Magnetic monorail systems (linear motors) | 1.7.6 Presses, electrical |
| 1.2.10 Assembly systems for the production of photovoltaics | 1.5.4 Roller conveyors | 1.7.7 Presses, pneumatic |
| 1.2.11 Assembly systems for composites | 1.5.5 Rotary indexing tables | 1.7.8 Presses, hydropneumatic |
| 1.2.12 Assembly systems for battery production | 1.5.6 Belt feed unit | 1.7.9 Presses, hydraulic |
| | 1.5.7 Workpiece carrier systems | 1.7.10 Punching units |
| | 1.5.8 Elevators | 1.7.11 Welding units |
| | 1.5.9 Lifting and tilting units | 1.7.12 Soldering units |
| | 1.5.10 Vacuum lifting devices | 1.7.13 Dosing, gluing, application, coating and sealing units |
| | 1.6 Components for linking and transportation equipment | 1.7.14 Tox/Clinching units |
| | 1.6.1 Chains | 1.8 Equipment for marking |
| | 1.6.2 Belts | 1.8.1 Printing systems |
| | 1.6.3 Rollers/wheels | 1.8.2 Embossing and engraving systems |
| | 1.6.4 Workpiece carriers | 1.8.3 Laser marking systems |
| | 1.6.5 Drives | 1.8.4 Labeling systems |

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- 1.9 Test systems**
 - 1.9.1 Test equipment for materials, components and structures
 - 1.9.2 Test equipment for functional and durability testing
 - 1.9.3 Test equipment for electronics
 - 1.9.4 Weighing devices
 - 1.9.5 Measuring devices
 - 1.10 Basis and construction elements**
 - 1.10.1 Levelling elements
 - 1.10.2 Profiles
 - 1.10.3 Connections
 - 1.10.4 Joints
 - 1.10.5 Surface elements
 - 1.11 Manual workplace systems**
 - 1.11.1 Manual handling manipulators
 - 1.11.2 Assembly cells
 - 1.11.3 Individual assembly work places
 - 1.11.4 Assembly tools
 - 1.11.5 Assembly assistance systems
 - 1.12 Workplace equipment**
 - 1.12.1 Assembly tables
 - 1.12.2 Work table accessories
 - 1.12.3 Supply of materials
 - 1.12.4 On-hand information
 - 1.12.5 Lights
 - 1.12.6 Chairs
 - 1.13 Packaging units**
 - 1.14 Surface Treatment**
 - 1.14.1 3D laser polishing and microstructuring
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- 2 Robotics**
 - 2.1 Industrial robots**
 - 2.1.1 Industrial robots, listed by type of construction**
 - 2.1.1.1 Linear robots, gantry robots
 - 2.1.1.2 Horizontally articulated robots (SCARA-robots)
 - 2.1.1.3 Vertically articulated robots
 - 2.1.1.4 Articulated robots
 - 2.1.1.5 Parallel link robots (e.g. linapods, tripods, hexapods)
 - 2.1.1.6 Industrial robots, special design
 - 2.1.1.7 Micro robots
 - 2.1.2 Components for robot systems**
 - 2.1.2.1 Jigs and fixtures
 - 2.1.2.2 Tool changing systems
 - 2.1.2.3 Robot measurement systems
 - 2.1.2.4 Peripherals for painting and coating
 - 2.1.2.5 Peripherals for dosing, gluing, application, coating and sealing
 - 2.1.2.6 Peripherals for spot welding
 - 2.1.2.7 Peripherals for arc welding
 - 2.1.2.8 Peripherals for processing applications
 - 2.1.2.9 Peripherals for cutting
 - 2.1.2.10 Peripherals for laser applications
 - 2.1.2.11 Peripherals for clean-rooms
 - 2.1.3 Industrial robots for specific fields of application**
 - 2.1.3.1 Industrial robots for painting and coating
 - 2.1.3.2 Industrial robots for sealing and gluing
 - 2.1.3.3 Industrial robots for spot welding
 - 2.1.3.4 Industrial robots for arc welding
 - 2.1.3.5 Industrial robots for processing
 - 2.1.3.6 Industrial robots for cutting
 - 2.1.3.7 Industrial robots for laser applications
 - 2.1.3.8 Industrial robots for assembling
 - 2.1.3.9 Industrial robots for measuring and testing
 - 2.1.3.10 Industrial robots for palettizing
 - 2.1.3.11 Industrial robots for pick & place and packaging
 - 2.1.3.12 Industrial robots for loading/unloading presses
 - 2.1.3.13 Industrial robots for loading/unloading die cast machines
 - 2.1.3.14 Industrial robots for loading/unloading injection moulding machines
 - 2.1.3.15 Industrial robots for loading/unloading machine tools
 - 2.1.3.16 Industrial robots for other material handling tasks
 - 2.1.3.17 Industrial robots for electrical engineering and electronics
 - 2.1.3.18 Industrial robots for food industry applications
 - 2.1.3.19 Industrial robots for clean-rooms
 - 2.1.3.20 Industrial robots for laboratories
 - 2.1.3.21 Industrial robots for micro technology applications
 - 2.1.3.22 Industrial robots for use in hostile environments
 - 2.1.3.23 Industrial robots for research and training
 - 2.1.3.24 Industrial robots for the production of photovoltaics
 - 2.1.3.25 Industrial robots for the production of composites
 - 2.1.3.26 Industrial robots for battery production
 - 2.1.4 Industrial robots for human-robot collaboration**
 - 2.2 Professional service robotics**
 - 2.2.1 Service Robots for professional use**
 - 2.2.1.1 Field robotics
 - 2.2.1.2 Cleaning robots
 - 2.2.1.3 Inspection systems
 - 2.2.1.4 Construction and demolition robots
 - 2.2.1.5 Logistic systems
 - 2.2.1.6 Medical robotics
 - 2.2.1.7 Service robots for safety, rescue and security applications
 - 2.2.1.8 Underwater systems
 - 2.2.1.9 Mobile platforms in general use
 - 2.2.1.10 Public relation robots
 - 2.2.1.11 Other service robots for professional use
 - 2.2.1.12 Humanoid robots
 - 2.2.2 Key technologies and components for service robotics**
 - 2.2.2.1 Perception
 - 2.2.2.2 Navigation
 - 2.2.2.3 Manipulation
 - 2.2.2.4 Human-machine interaction

Product groups (Continuation)

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- 3 Machine vision**
 - 3.1 Measuring systems for machine vision**
 - 3.2 Components for machine vision**
 - 3.2.1 Image capture hardware
 - 3.2.2 Optics and illuminations
 - 3.2.3 Image sensors
 - 3.2.4 Optical sensors
 - 3.2.5 Cameras
 - 3.2.6 High speed cameras
 - 3.2.7 Infra-red cameras
 - 3.2.8 Processors and computer components
 - 3.2.9 Intelligent cameras
 - 3.2.10 Vision sensors
 - 3.2.11 Software
 - 3.3 Machine vision systems for specific fields of application**
 - 3.3.1 Measuring and comparing 2D and 3D
 - 3.3.2 Security systems
 - 3.3.3 Recognition of the shape and the position
 - 3.3.4 Identification systems and components
 - 3.3.5 Surface inspection and texture analysis
 - 3.3.6 X-ray inspection
 - 3.3.7 Completeness check
 - 3.3.8 Color inspection
 - 3.3.9 Quality inspection
 - 3.3.10 Optical code reading for 1D-codes/bar-codes and 2D-codes
 - 3.3.11 Optical character recognition (OCR)
 - 3.4 Embedded vision systems**
 - 3.5 Augmented reality systems**
- 4 Positioning systems**
 - 4.1 Modules**
 - 4.1.1 Rotation modules, swivel units
 - 4.1.2 Linear modules
- 4.2 Grippers**
 - 4.2.1 Grippers, electrical
 - 4.2.2 Grippers, pneumatic
 - 4.2.3 Grippers, hydraulic
 - 4.2.4 2-finger parallel grippers
 - 4.2.5 3-finger centric grippers
 - 4.2.6 Suction grippers
 - 4.2.7 Foil gripper systems
 - 4.2.8 Needle grippers
 - 4.2.9 Adhesion grippers
 - 4.2.10 Revolving grippers
 - 4.2.11 Micro-grippers
 - 4.2.12 Carbon grippers
- 4.3 Clamping devices**
 - 4.3.1 Clamping devices, manual
 - 4.3.2 Clamping devices, pneumatic
 - 4.3.3 Clamping devices, electrical
 - 4.3.4 Clamping devices, hydraulic
- 4.4 Stop devices**
 - 4.4.1 Stop devices, mechanical
 - 4.4.2 Stop devices, electrical
 - 4.4.3 Stop devices, pneumatic
 - 4.4.4 Stop devices, hydraulic
 - 4.4.5 Stop devices, magnetic
- 4.5 Positioning systems, pneumatic**
- 4.6 Feed units, pneumatic**
- 4.7 Stroke feed units, pneumatic**
- 4.8 micro-positioning systems**
- 5 Drive technology**
 - 5.1 Bearings**
 - 5.1.1 Ball bearings
 - 5.1.2 Roller bearings
 - 5.1.3 Needle roller bearings
 - 5.1.4 Plain bearings
 - 5.1.5 Air bearings (radial)
 - 5.1.6 Magnetic bearings
 - 5.2 Linear guides**
 - 5.2.1 Sliding guides
 - 5.2.2 Cam roller guides
 - 5.2.3 Linear ball bearing guides
 - 5.2.4 Profiled rail guides
 - 5.2.5 Cage rail guides
 - 5.2.6 Telescopic rail guides
 - 5.2.7 Air bearings (axial)
- 5.3 Linear motion drive elements and systems**
 - 5.3.1 Acme screw drives
 - 5.3.2 Ball screw drives
 - 5.3.3 Roller screw drives
 - 5.3.4 Gear rack drives
 - 5.3.5 Toothed belt drives
 - 5.3.6 Linear motors
 - 5.3.7 Chain drives
 - 5.3.8 Accessories for linear motion drives elements
 - 5.3.9 Worm gear screw jacks
- 5.4 Numeric controlled rotation axes**
 - 5.4.1 Rotation axes, pneumatical driven
 - 5.4.2 Rotation axes, electric driven
 - 5.4.3 Rotation axes, electric driven with gear
 - 5.4.4 Rotation axes, electric driven without gear
- 5.5 Numeric controlled linear axes**
 - 5.5.1 Linear axes, pneumatic driven
 - 5.5.2 Linear axes, electric driven with toothed belt drives
 - 5.5.3 Linear axes, electric driven with leadscrew drives
 - 5.5.4 Linear axes, electric driven with gear rack drives
 - 5.5.5 Linear axes, electric driven with linear motors
- 5.6 Gears**
 - 5.6.1 Spur gear units
 - 5.6.2 Bevel gear units
 - 5.6.3 Worm gear units
 - 5.6.4 Planetary gear units
 - 5.6.5 Variable speed drives
 - 5.6.6 Precision gear units
- 5.7 Industrial motors, motor controls, motor protection devices**
 - 5.7.1 3-phase Motors
 - 5.7.2 Direct current motors
 - 5.7.3 Energy-saving motors

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5.7.4	Geared electric motors	6.5	Sensors for distance and thickness	7.5	Freely programmable controls (FPCs)
5.7.5	Servo drives			7.6	Industrial PCs
5.7.6	Stepping motors	6.5.1	Distance and thickness sensors, optical	7.7	BUS systems
5.7.7	Frequency converters	6.5.2	Distance and thickness sensors, inductive	7.8	Bus terminals
5.7.8	Servo-drive control units	6.5.3	Multi-layer measuring sensors	7.9	Components for fieldbus systems
5.7.9	Motor protection devices	6.5.4	Distance and thickness sensors, ultrasonic	7.10	Valve islands
5.7.10	Micro motors	6.5.5	Distance and thickness sensors, capacitive	7.11	Servo controller
5.8	Special drives	6.5.6	Distance and thickness sensors, magnetic	7.12	CPU-cards
5.8.1	Pneumatic motors	6.6	Force torque sensors	7.13	Power supply units
5.8.2	Cylinders, electromechanical	6.7	Optoelectronic sensors	7.14	Display and operating equipment
5.8.3	Cylinders, pneumatic	6.7.1	Throughbeam photoelectric sensors	7.15	Electrical components for controls
5.8.4	Pressure transformers, pneumatic	6.7.2	Retro-reflective photoelectric sensors	7.16	Industrial enclosures and control cabinets
5.8.5	Air-oil actuators, pneumatic	6.7.3	Diffuse reflection light scanner	7.17	Transmitting data via wireless or mobile communications
5.8.6	Lifting columns, electromechanical	6.7.4	Diffuse reflection light scanner with background suppression	7.18	Optical data transmission
5.8.7	Lifting elements, electromechanical	6.7.5	Fiber sensors	7.19	Wireless data transmission
5.8.8	Chain guides, electromechanical	6.7.6	Mark sensors	7.20	Remote maintenance and diagnostic systems
5.8.9	Linear lifting magnets	6.7.7	Color sensors	7.21	Machine-to-machine communications (M2M)
5.8.10	Linear interlocking magnets	6.7.8	Luminescence scanner	7.22	Human-machine interfaces (HMI)
5.8.11	Swing drives, electromechanical	6.7.9	Photoelectric fork sensors	7.23	Virtual reality systems for industrial applications
5.8.12	Accessories for electromechanical actuators	6.7.10	Light-grills		
5.9	Multiple systems	6.7.11	Optical windows	8	Safety and security technology
6	Sensor technology	6.8	Ultrasonic sensors	8.1	Mechanical and electro-mechanical safety devices
6.1	Proximity switches	6.8.1	Ultrasonic through beam barrier	8.1.1	Guards
6.1.1	Proximity switches, inductive	6.8.2	Ultrasonic reflection barrier	8.1.2	Doors and gates
6.1.2	Proximity switches, capacitive	6.8.3	Ultrasonic sensors	8.1.3	Anti-collision systems
6.1.3	Cylinder position switches	6.9	Identification sensors (RFID)	8.1.4	Overload protection equipment
6.2	Rotary encoders	6.10	Micro-sensors	8.1.5	Shock absorbers
6.2.1	Rotary encoders, absolute	6.11	Pneumatic measuring apparatus	8.1.6	Bellows
6.2.2	Rotary encoders, incremental	6.12	Pressure switches, pneumatic	8.2	Safety-related control systems
6.3	Mechanical limit switches	6.14	Accessories	8.3	Safety-related sensor technology
6.3.1	Single limit switches	7	Control systems technology and industrial communications	8.4	Safety-related communications technology
6.3.2	Multiple limit switches			8.5	Safety-related drive systems
6.4	Linear displacement transducers	7.1	Controls, electronic	8.6	Security-related hardware for the networked factory
6.4.1	Optical linear displacement transducers	7.2	Controls, mechanical (cam-controlled)	8.7	Software solutions for security management and security monitoring
6.4.2	Inductive linear displacement transducers	7.3	Controls, pneumatic	8.8	IT security and monitoring services
6.4.3	Magnetostrictive linear displacement transducers	7.4	CNC-control systems		
6.4.4	Potentiometric linear displacement transducers				
6.4.5	Magnetic linear displacement transducers				
6.4.6	LVDT				

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9	Supply technology	10.1.5	Communications and network software	10.7	System integration and consulting for cloud computing and big data
9.1	Cable and hose carrier systems	10.1.6	Software for field bus systems		
9.2	Cable protection systems	10.1.7	Software for process control systems	11	Services and service providers
9.3	Cable and tube bushings	10.1.8	Software for remote diagnosis		
9.4	Electrical power supply	10.1.9	Programming tools	11.1	Services
9.4.1	Wiring systems, complete	10.1.10	Software for quality inspection and documentation	11.1.1	General contractors, system integrators
9.4.2	Cable and wires	10.2	Software for machine vision	11.1.2	Engineering, consultancy, planning
9.4.3	Cord sets	10.2.1	Machine vision software, general	11.1.3	Feasibility studies
9.4.4	Cable clips	10.2.2	Software tools	11.1.4	Simulations
9.4.5	Connectors	10.2.3	Fuzzy logic software	11.1.5	CAD/CAM services
9.4.6	Connection material, without soldering	10.3	Software and systems for the smart factory	11.1.6	Optimisation of existing systems
9.5	Compressed air supply	10.3.1	Procurement, merchandise management, logistics and supply-chain management (SCM)	11.1.7	Integration in new/existing IT-environments
9.5.1	Maintenance units for compressed air	10.3.2	Enterprise resource planning (ERP) and manufacturing resource planning (MRP)	11.1.8	Programming
9.5.2	Filters for compressed air	10.3.3	Maintenance and repair	11.1.9	Robot calibrations
9.5.3	Pressure regulators	10.3.4	Product lifecycle management (PLM)	11.1.10	Trainings
9.5.4	Lubrications for compressed air	10.3.5	Production data acquisition (PDA), production data management (PDM), manufacturing execution (MES)	11.1.11	Condition monitoring
9.5.5	Compressed air dryer	10.3.6	Advanced planning and scheduling (APS), process simulation and optimization and automated process control (APC)	11.1.12	Predictive maintenance
9.5.6	Tube lines for compressed air	10.3.7	Operating systems and extensions for the smart factory	11.1.13	Retrofit
9.5.7	Hose lines for compressed air	10.4	Smart-factory services	11.1.14	Mechanical, electrical services, etc.
9.5.8	Screwed connections and connections for compressed air	10.4.1	System development and integration	11.1.15	Certifications, safety inspections
9.5.9	Silencers for compressed air	10.4.2	Developing apps, smart-factory software and systems	11.1.16	Services for research and innovation
9.5.10	Sealing devices for compressed air	10.4.4	IT services and outsourcing	11.1.17	Construction of special purpose machinery
9.5.11	Accessories for compressed air	10.5	Cloud computing	11.2	Service providers
9.6	Ventilation technology and extraction systems	10.5.1	Cloud-based infrastructure services (IaaS)	11.2.1	Management consultancies
9.7	Components for ventilation technology and extraction systems	10.5.2	Cloud-based platform services (PaaS)	11.2.2	Banks and financial institutions
9.8	Vacuum technology	10.5.3	Cloud-based software services (SaaS)	11.2.3	Insurance institutions
9.9	Hydraulic supply	10.6	Systems and solutions for Big-data applications	11.2.4	Trade associations and organizations
10	Software and cloud computing	10.6.1	Big-data platforms	11.2.5	Standards committees
10.1	Software for robotics, assembly and handling technology	10.6.2	Big-data software and analytics	11.2.6	Official agencies and authorities
10.1.1	Software for simulation			11.2.7	Universities and universities of applied sciences
10.1.2	Software for robots and plant control systems			11.2.8	Training institutions
10.1.3	Software for process-controlled programming and visualisation			11.2.9	Publishers and publications
10.1.4	Software for numerical control systems				

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- 12 Research and technology**
- 12.1 Research in the field of industrial automation
- 12.2 Research in the field of industrial robotics
- 12.3 Research in the field of service robotics
- 12.4 Research in the field of machine and plant construction
- 12.5 Research in the field of transport and traffic
- 12.6 Research in the field of electrical engineering
- 12.7 Research in the field of information transmission and communications
- 12.8 Research in the field of micro technologies
- 12.9 Research in the field of nanotechnology
- 12.10 Research in the field of optical technologies
- 12.11 Research in the field of medical technology
- 12.12 Energy and environmental research
- 12.13 Material research
- 12.14 Physics research
- 12.15 Composites technology
- 12.16 Battery technology

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