Introduction

Applications of the SINAMICS drive family

Applications

SINAMICS is the new family of Siemens drives designed for machine and plant engineering applications. SINAMICS offers solutions for all drive tasks:

- Simple pump and fan applications in the process industry
- Applied single drives in centrifuges, presses, extruders, elevators, as well as conveyor and transport systems
- Drive line-ups in textile, plastic film, and paper machines, as well as in rolling mill plants
- Highly dynamic servo drives for machine tools, as well as packaging and printing machines

Versions

Depending on the application, the SINAMICS range offers the ideal variant for any drive task.

- SINAMICS S handles complex drive tasks with synchronous and asynchronous (induction) motors and fulfills stringent requirements regarding
  - dynamics and accuracy,
  - integration of extensive technological functions in the drive control system
- SINAMICS G is designed for standard applications with asynchronous (induction) motors. These applications have less stringent requirements regarding the dynamics and accuracy of the motor speed.

Platform concept and Totally Integrated Automation

All SINAMICS versions are based on a platform concept. Common hardware and software components, as well as standardized tools for design, configuration and commissioning tasks ensure high-level integration across all components. SINAMICS handles a wide variety of drive tasks without system gaps. The different SINAMICS versions can be easily combined with each other.

SINAMICS is a part of the Siemens “Totally Integrated Automation” concept. Integrated SINAMICS systems covering configuration, data storage, and communication at automation level ensure low-maintenance solutions with the SIMOTION, SINUMERIK and SIMATIC control systems.

SINAMICS as part of the Siemens modular automation system

Quality in accordance with EN ISO 9001

SINAMICS conforms to the most exacting quality requirements. Comprehensive quality assurance measures in all development and production processes ensure a consistently high level of quality.

Of course, our quality assurance system is certified by an independent authority in accordance with EN ISO 9001.

Suitable for global use

SINAMICS meets the requirements of relevant international standards and regulations – from the EN standards and IEC standards to UL and cULus regulations.

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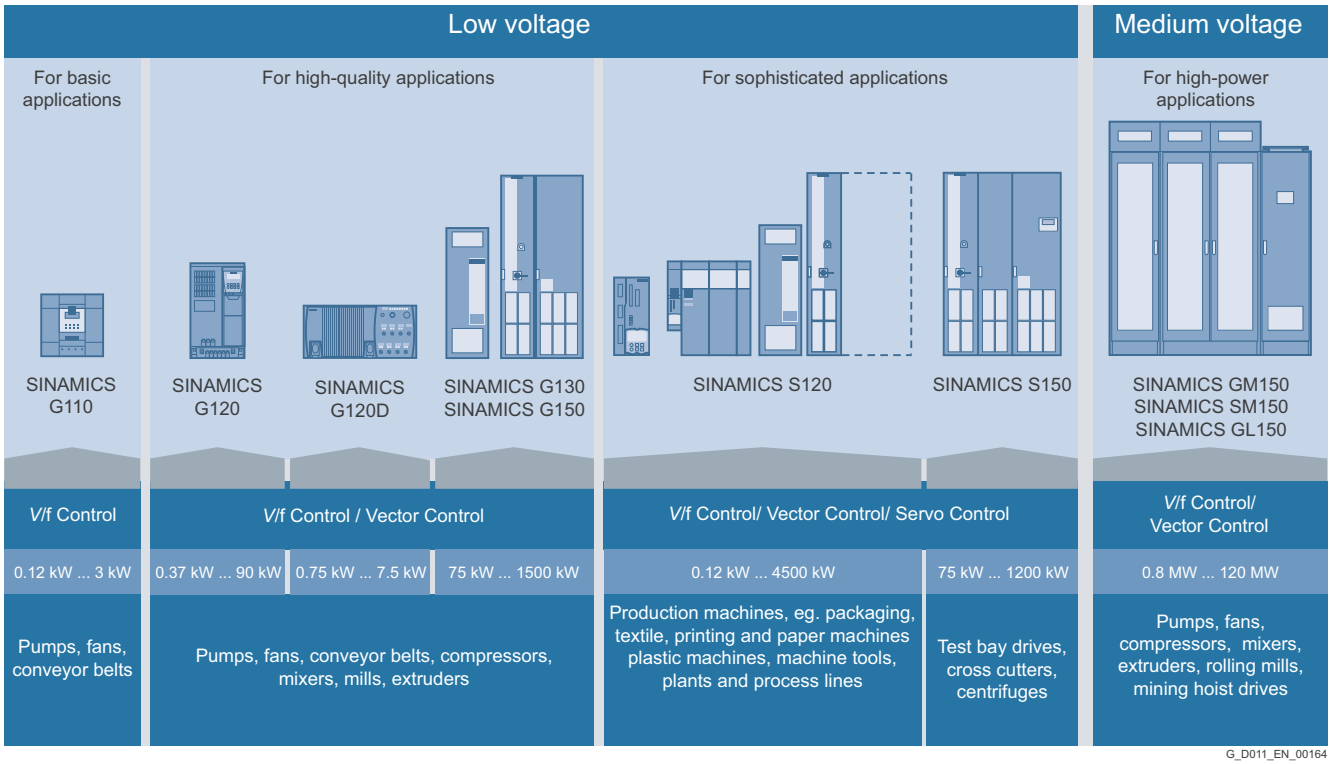
The SINAMICS drive family



The SINAMICS drive family

Tailored to the respective areas of application, SINAMICS is divided into the following family members:

Low-voltage drives (line supply < 1000 V)

- **SINAMICS G110** – the versatile drive for low power ranges
- **SINAMICS G120** – the modular single drive for low to medium power ranges
- **SINAMICS G120D** – the distributed single drive with high degree of protection for design without control cabinet
- **SINAMICS G130** and **SINAMICS G150** – the universal drive solution for high-power single drives
- **SINAMICS S120** – the flexible, modular drive system for complex tasks
- **SINAMICS S150** – the sophisticated drive solution for high-performance single drives

Medium-voltage drives (line supply > 1000 V)

- **SINAMICS GM150** – the universal drive solution for single drives
- **SINAMICS SM150** – the sophisticated drive solution for single and multi-motor drives
- **SINAMICS GL150** – the drive solution for synchronous motors up to 100 MW

The SINAMICS range is characterized by the following system features:

- uniform functionality based on a single platform concept
- standardized engineering
- high degree of flexibility and combination
- wide power range
- designed for global use
- SINAMICS Safety Integrated
- greater efficiency and effectivity
- multiple communications options to higher-level controls
- Totally Integrated Automation

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The members of the SINAMICS drive family

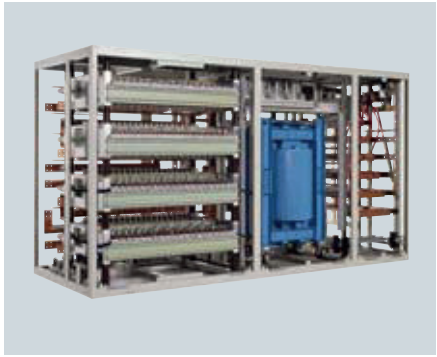
SINAMICS Low-voltage inverter

SINAMICS G110	SINAMICS G120	SINAMICS G120D
		
The versatile drive for low power ranges	*The modular single drive for low to medium power ranges*	*The distributed single drive with a high degree of protection for a design without control cabinet*
Main applications		
• Machines and plants for industrial and commercial applications	• Machines and plants for industrial and commercial applications (mechanical engineering, automotive, textiles, chemicals, printing, steel)	• Machines and plants in the process and production industry, particularly for automotive applications; also suitable for high-performance applications, e.g. in airports and in the food processing industry and luxury food processing industry (dry part)
Application examples		
• Pumps and fans • Auxiliary drives • Conveyor belts • Billboards • Door/gate operating mechanisms • Centrifuges	• Pumps and fans • Compressors • Conveyor belts	• Conveyor belts • Electric suspension monorails in the logistics of distribution
Highlights		
• Compact • Flexible adaptation to different applications • Simple, fast commissioning • Clear terminal layout • Optimum interaction with SIMATIC and LOGO!	• Modular • Flexible expansion capability • Simple, fast commissioning • Regenerative feedback • Innovative cooling concept • Optimum interaction with SIMOTION and SIMATIC • SINAMICS Safety Integrated	• Flat design with uniform drilling dimensions (constant footprint) with degree of protection IP65 • Modular • Flexible expansion capability • Simple, fast commissioning • Regenerative feedback • Optimum interaction with SIMOTION and SIMATIC • SINAMICS Safety Integrated
Catalog D 11.1	**Catalog D 11.1**	**Catalog D 11.1**

SINAMICS Low-voltage inverters

SINAMICS G130/SINAMICS G150	SINAMICS S120	SINAMICS S150
		
The universal drive solution for high-power single drives without regenerative feedback	***The flexible modular drive system for complex drive tasks***	***The sophisticated drive solution for high-performance single drives***
Main applications		
• Machines and plants in the process and production industry, water/waste, power stations, oil and gas, petrochemicals, chemical raw materials, paper, cement, stone, steel	• Machines and plants for industrial applications (packaging, plastics, textile, printing, wood, glass, ceramics, presses, paper, lifting equipment, semiconductors, automated assembly and testing equipment, handling, machine tools)	• Machines and plants in the process and production industry, food, beverages and tobacco, automotive and steel industry, mining/open-cast mining, shipbuilding, lifting equipment, conveyors
Application examples		
• Pumps and fans • Compressors • Extruders and mixers • Mills	• Motion Control applications (positioning, synchronous operation) • Numeric Control, interpolated motion control • Converting • Technological applications	• Test bay drives • Centrifuges • Elevators and cranes • Cross cutters and shears • Conveyor belts • Presses • Cable winches
Highlights		
• Space-saving • Low-noise • Simple and fast commissioning • SINAMICS G130: modular components • SINAMICS G150: ready-to-connect cabinet unit • Optimum interaction with SIMATIC	• For universal use • Flexible and modular • Scalable in terms of power, function, number of axes, performance • Simple, fast commissioning, auto-configuration • Innovative, future-oriented system architecture • Scaled infeed/regenerative feedback concept • Wide range of motors • Optimum interaction with SIMOTION, SIMATIC and SINUMERIK • SINAMICS Safety Integrated	• Four-quadrant operation as standard • High control accuracy and dynamic response • Almost no line harmonic distortions; THD acc. to IEEE 519 is widely undercut • Tolerant to fluctuations in line voltage • Possibility of power factor compensation • Simple, fast commissioning • Ready-to-connect cabinet unit • Optimum interaction with SIMATIC
Catalog D 11	**Catalog PM 21**	**Catalog D 21.3**

The members of the SINAMICS drive family

SINAMICS Medium-voltage inverters		
SINAMICS GM150	**SINAMICS SM150**	**SINAMICS GL150**
		
The drive solution for variable-speed drives	***The drive solution for high-performance variable-speed single and multi-motor drives***	***The drive solution for synchronous machines up to 100 MW***
Main applications		
• Machines and plants in the process industry	• Machines and plants e.g. steel manufacture and mining	• Machines and plants in the process industry, particularly in the petrol, gas and petrochemical sector
Application examples		
• Pumps and fans • Compressors • Extruders and mixers • Mills • Marine drives	• Roller mills • Skips • Test bay drives • Conveyors	• Compressors • Pumps and fans • Extruders and kneaders • Marine drives • Steel furnace
Highlights		
• Space-saving • Simple and fast commissioning • Ready-to-connect cabinet unit • Optimum interaction with SIMATIC	• Four-quadrant operation as standard • High-efficiency and motor-friendly operation • High level of control accuracy and dynamic response • Almost no line harmonic distorsions • Possibility of reactive power compensation • Simple and fast commissioning • Ready-to-connect cabinet unit • Optimum interaction with SIMATIC	• Compact design and high power density • Simple operator control and monitoring • Extreme operational reliability and almost maintenance-free • All-digital transvector regulation • Two directions of rotation by switching the spin box • Can be inserted seamlessly into superior automation systems
Catalog D 12	**Catalog D 12**	**–**