**DRIVING NEXT GENERATION APPLICATIONS**

# SINAMICS
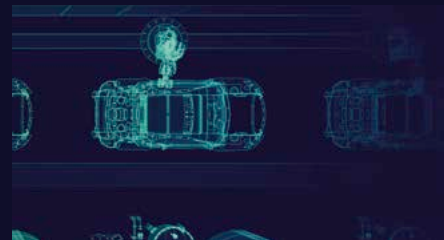# Variable frequency drives

**siemens.com/sinamics**

**SIEMENS**

# Into the digital and sustainable future – **driving next generation applications**

How can you make production more efficient? Accelerate your digital transformation? And become more sustainable?
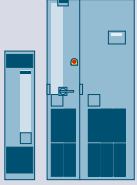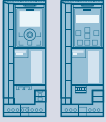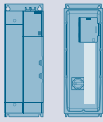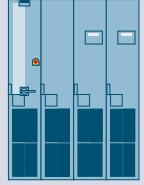
The answer is our SINAMICS variable frequency drives. They are energy efficient, offer the versatility you need for any application, and drive your digital transformation by providing the data to continuously improve production efficiency and sustainability. Our drives offer you integrated safety and security features, efficient engineering and software tools as well as comprehensive lifecycle services. In other words: Everything you need to address the next generation of applications – today and tomorrow.

**Next Generation**

# Contents

Low vo

| Standard performance converters | | | | Industry specific converters | | High performance converters | | |
|---|---|---|---|---|---|---|---|---|
| V20 | G120C | G120 | G130 / G150 | G120X | G180 | G220 / G220 Clean Power | S120 | |
| 0.12 – 30 kW | 0.55 – 132 kW | 0.55 – 250 kW | 75 – 2.700 kW | 0.75 – 630 kW | 2.2 – 6.600 kW | 0.55 – 55 kW | 0.55 – 5.700 kW | |

# The SINAMICS family
**for all power & performance classes**

Always the optimum version for every application, power rating and requirement: The wide range of SINAMICS drives has the precise solution you require for your application.

Scan this code for more information about SINAMICS variable frequency drives family

| ...oltage | | Servo converters | | | Distributed converters | | DC-DC converters |
|---|---|---|---|---|---|---|---|
| S150 | DCM (DC) | SIMATIC MICRO-DRIVE | V90 / S200 | S210 | S120M | G115D / G120D | DCP |
| 75 – 1.200 kW | 6 kW – 30 MW | 0.1 – 1 kW | 0.05 – 7 kW | 0.1 – 7 kW | 0.33 – 1.1 kW | 0.37 – 7.5 kW | 30 / 120 / 250 kW |

## EFFIC![I]ENT

Implement energy-efficient applications easily, quickly, and safely with efficient motion control.

• Sustainable Drive Systems

• Efficient Motion Control solutions

• Drive System Services

## VERSA*TILE*

Drives equipped with tailored safety features to ensure optimal machine safety in a wide range of industrial applications.

• Safety and Security Integrated

• Drive applications

• Drives for any industry

## FUTURE-PR✓OF

Efficient engineering, powerful software tools, and cloud and edge connectivity for greater transparency.

• Digitalization in drive technology

• Efficient drive engineering

• Drive Software for all applications

# SINAMICS –
## the perfect fit for any industry

### Food & beverage

With SINAMICS drives we provide the food and beverage industry with drive solutions that allow them to meet individual customer requirements quickly, flexibly and with the highest quality. The drives also ensure that all processes are energy efficient and reliable.

### Chemicals

Applications in the chemical industry demand rugged, reliable and safe equipment, and of course this also applies to the drives. The SINAMICS family offers extensive safety functions and a high degree of protection, which makes it the ideal fit for harsh environments.

### Pharma

The pharmaceutical industry evolves at a rapid pace and it requires drive systems that can keep up. Thanks to their modular design, SINAMICS drives can be easily adapted to address requirements. Their high energy efficiency also gives users that all-important competitive edge.

### HVAC

With their industry-specific integrated software features e.g. for fan applications in HVAC systems / building automation SINAMICS drives are the perfect fit for these domains.

### Oil & Gas / Hydrogen

High levels of efficiency and safety are crucial in the oil & gas and hydrogen industries SINAMICS variable frequency drives fully comply with both requirements. Security Integrated ensures system availability and Safety Integrated functions keep people and machines safe.

### Automotive & Battery

The shift to e-mobility is fundamentally changing the automotive industry. By using a SINAMICS digital twin battery manufacturers and machine builders can speed up their time to market and satisfy the massively growing demand.

We offer solutions to meet current and future challenges in motion control. Thanks to comprehensive features and an innovative design, the SINAMICS family can be deployed in any industry, for example:

### Cranes

Cranes play an important role in many industries where the fast and precise handling of large and heavy goods is mandatory to enable optimal throughput and logistics. SINAMICS drive technology addresses each and every crane tasks.

### Water & Waste Water

Requirements in the areas of drinking water, waste water, and desalination vary widely. This is where the SINAMICS family comes into its own offering a selection of perfectly tailored solutions that ensure maximum efficiency and sustainability.

### Intralogistics

Increasing inventory turnover rates, small order quantities with fast delivery times and the increasing need to save energy and drive sustainability. We can help you master all these challenges with reliable SINAMICS drive technology.

### Marine

Driven by a strict decarbonization agenda, the disruptive trend of Green Shipping is shaping the future of the industry in an unprecedented way. SINAMICS drives and the consequential capture, analysis and evaluation of the wealth of data available in operation open up new dimensions regarding reliability and energy efficiency and in turn, environmentally-compatible operation.

### Pulp & Paper

The pulp & paper industry is facing an evolving market, strict climate goals, and new energy challenges. This means that plants must be smarter, more sustainable and more efficient than ever before. SINAMICS drives have the functions and performance to future-proof your business.

### Metals

The global metals industry is under-going radical transformation primarily driven by the urgent need to decar-bonize the various processes. This increases operational efficiency and production flexibility to adapt to changing market dynamics. SINAMICS drives represent the perfect fit for all applications in the metals domain, complemented by a digitalization portfolio and is your ideal and depend-able partner to create a smart, efficient & sustainable production environment.

# Variable frequency drives **for every drive application**
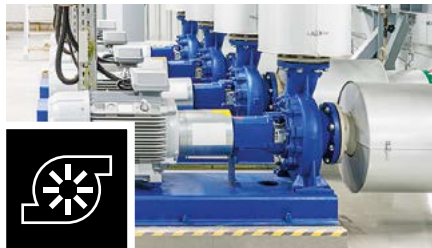
**Pumping/ventilating/compressing**

SINAMICS supports the continuous and energy-efficient operation of pumps, fans and compressors – that either run continuously or require a high dynamic performance. The advantages include especially flow control, short response times – and the avoidance of damaging vibration levels and cavitation.

↗ **SINAMICS V20**
↗ **SINAMICS G130 / G150**
↗ **SINAMICS G180**
↗ **SINAMICS G120X**
↗ **SINAMICS G220**
↗ **SINAMICS DCM**

**Moving**

Energy-efficient and rugged solutions for basic conveyor technology involving roller or chain conveyors, hoisting gear and elevators. Additionally, these solutions address the needs of storage and retrieval machines that demand a high dynamic performance. And always with Safety Integrated onboard.

↗ **SINAMICS G120C**
↗ **SINAMICS G130/G150**
↗ **SINAMICS G220**
↗ **SINAMICS S150**
↗ **SINAMICS DCM**
↗ **SINAMICS G115D**
↗ **SINAMICS G120D**
↗ **SINAMICS S120**
↗ **SINAMICS S200**
↗ **SINAMICS S210**
↗ **SINAMICS DCP**

Depending on the actual power rating and functionality,
the following drives are available, for example:

↗ **STANDARD PERFORMANCE CONVERTERS**

↗ **INDUSTRY SPECIFIC CONVERTERS**

↗ **HIGH PERFORMANCE CONVERTERS**

↗ **DISTRIBUTED CONVERTERS**

↗ **SERVO CONVERTERS**

↗ **DC-DC CONVERTER**

## Positioning

When high dynamic performance and
precision are demanded: SINAMICS
ensures that individual axes are
precisely positioned and allows several
axes to be interpolated in a coordinated
fashion – for example, as required in
complex robotic or handling applica-
tions.

↗ **SINAMICS G120**
↗ **SINAMICS G220**
↗ **SINAMICS G120D**
↗ **SINAMICS S120**
↗ **SINAMICS S200**
↗ **SINAMICS S210**
↗ **SINAMICS DCP**

## Processing

SINAMICS is the ideal solution for
continuous processes demanding high
speed and torque precision, for
instance, for extruders, centrifuges,
agitators and all types of production
machines. With isochronous communi-
cation and Safety Integrated they are
predestined to address high-end motion
control applications.

↗ **SINAMICS G120**
↗ **SINAMICS G150**
↗ **SINAMICS G220**
↗ **SINAMICS S150**
↗ **SINAMICS DCM**
↗ **SINAMICS V90**
↗ **SINAMICS S120**
↗ **SINAMICS S200**
↗ **SINAMICS S210**

## Machining

Whether high-speed spindles or feed
and auxiliary axes for turning, milling,
drilling and sawing: SINAMICS is the
perfect drive for all machining applica-
tions. Fast adaptability and minimum
equipping times play a decisive role
when it comes to achieving high levels
of productivity.

↗ **SINAMICS S120**

# Efficient drive systems –
## Go for sustainability

Electric drive systems consume 70% of the overall energy used in industry – therefore representing an enormous energy saving potential. You can optimize your processes and enter into a new dimension of efficiency with the latest drive systems and digital drive train solutions.

The best way to really optimize your drive systems effectively: with a holistic, consequentially digital strategy. Together, we can draw-up the optimum solution for your plant or system. We can support you with the latest drive technology which complies with the standards of today and tomorrow. The energy efficiency features of our SINAMICS drives unlock further energy saving potential. With digital solutions, we transform the data from your drives into a truly valuable resource – which with Predictive Maintenance Services, significantly boosts productivity and efficiency. With Siemens as partner, you secure the know-how that you require to increase the productivity of your drives –

combining higher energy efficiency and productivity and at the same time saving valuable resources. Now is the time to take action. With SINAMICS drives, the possibilities are endless.

Go for drive system optimization! The key to improving drive efficiency is to optimize the entire system. Highly specialized motors and drives, intelligent sensors and analytic tools allow you to optimally harmonize and coordinate your processes and drive systems. Further, with a digital twin of your drive system, you can optimize your maintenance and energy management – slashing your energy consumption by up to 60 percent and making your operations more sustainable.

Scan this code for more information about efficient drive systems

**Next Generation**

The next generation of SINAMICS variable frequency drives supports a sustainable future in every phase of its lifecycle. Design, engineering and operational phases supported by space-saving design, efficient engineering tools, digital twin and energy-saving functions. SINAMICS drives with flexible hardware and software solutions are the key elements of an efficient drive system. For example with the Clean Power technology version of SINAMICS G220, the integrated Active Infeed Unit keeps harmonics to a minimum (THDi < 5%). This also reduces energy losses in the system.

# **Motion**
## beyond expectations
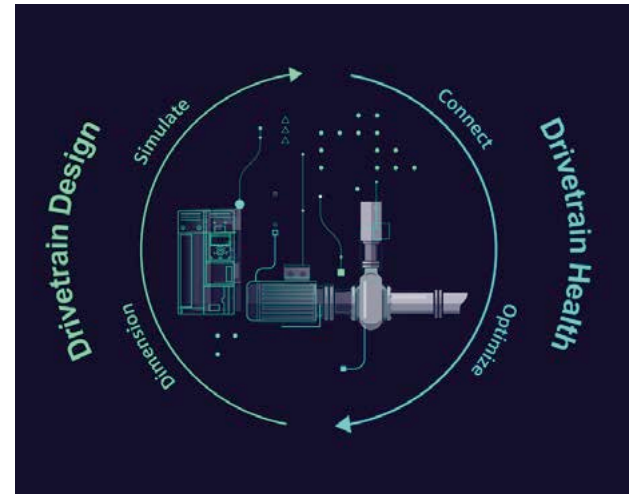


Drives move the industries. But how can they make them more efficient, more reliable and more sustainable – and exceed all expectations while they are doing it? Our answer: Siemens Xcelerator for Digital Drivetrain.

### Digital solutions for Drivetrain Design and Drivetrain Health

Combine the real and the digital worlds to reach the next level of efficiency and sustainability in your drivetrain value chain: with suitable digital solutions for drivetrain design and drivetrain health.

### Drivetrain Design:
Simplify and shorten the engineering steps to get faster and more efficiently from concept to the commissioned drivetrain.

### Drivetrain Health:
Reduce total cost of ownership for your equipment and machine park – energy, maintenance, downtime.

### Digitalization along the drivetrain value chain

### Dimension
Accurate in motion: Dimension your motors, gearboxes, and complete drivetrains digitally with greater precision – for greater reliability and energy efficiency.

### Simulate
Faster in motion: Add the Digital Twin of the drivetrain to your machine simulation to speed up your design and engineering phases and to accelerate your time to market!

### Connect
Data in motion: Acquire high-quality raw data and connect your entire drivetrains or machines to cloud or on-premise platforms – for a consistent and secure data flow.

### Optimize
Better in motion: Analyze and visualize drivetrain and machine data in digital solutions and apps to identify optimization potentials and concrete actionable measures how to tap it.

### Highlights

- **Drive technology as entry point into digitalization**

- **Transparency along the complete drive train**

- **Virtualization, engineering tools, connectivity and analytics**

- **Cloud and Edge solutions**

- **Identification and implementation of optimization measures**

- **Development of new business and service models**

**Next Generation**

Real Digital Twin of the the next generation of SINAMICS drives is available in DriveSim Engineer with functional and logical parts of the real firmware for even easier simulation of the drive response in engineering and commissioning phases before hardware is available.

Scan this code for more information about Siemens Xcelerator for Digital Drivetrain

# SINAMICS Drive Software
# The right function for every application

The SINAMICS Drive Software ensures that our SINAMICS variable frequency drives operate smoothly and reliably. It offers comprehensive functionality, is easily expandable and enables the greatest possible flexibility for a wide range of applications.

### Easily expandable

The SINAMICS Software package comes with functionality to address many applications. However, the scope of performance can be further expanded using additional SINAMICS Drive Software options. These options allow the use of special added value or expansion functions.

### Greatest flexibility

SINAMICS Drive Software options can be easily ordered together with SINAMICS drives. Additionally, SINAMICS Drive Software options can be tested free of charge for a limited period and then purchased later.

### Comprehensive functionality

**SINAMICS Drive Software** enables highly accurate and dynamic control of different types of motors, and it offers functions for the following:

- **Digitalization**

- **Safety Integrated**

- **Security Integrated**

- **Motor control**

- **Technology**

- **Energy efficiency**

- **Efficient engineering**

- **Application specific features**

**Next Generation**

The next generation of SINAMICS variable frequency drives offers an integrated web-server with innovated functions for easy engineering and supporting data exchange with Startdrive. No additional devices or separate software is required.

Scan this code for more information about SINAMICS Drive Software
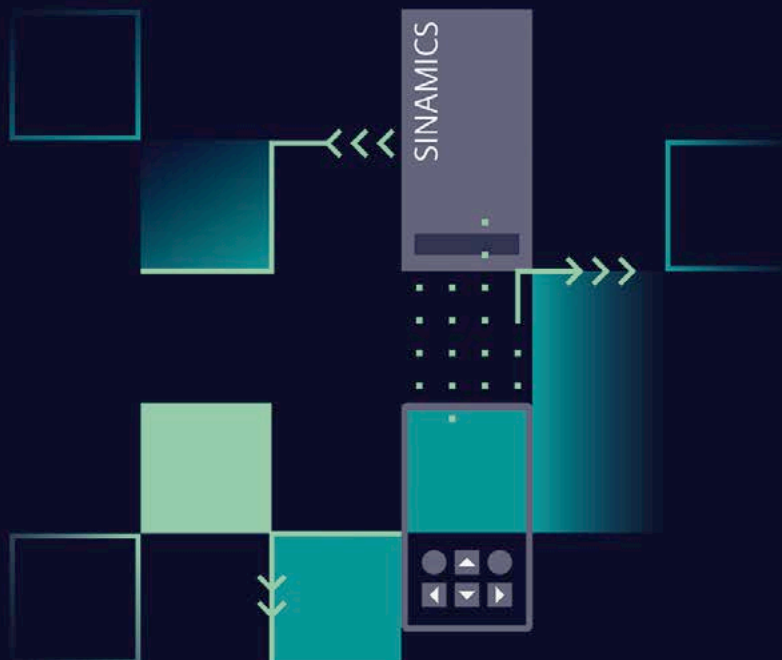
# Efficient engineering
## over the complete lifecycle

### Selection tools:

Our **SINAMICS Selector App** guides you to the right converter.

**Siemens Product Configurator (SPC)** helps you configure your drive and mechanical system.

**TIA Selection Tool (TST)** for simple drive engineering. Starting from your application, the tool supports you step-by-step when defining the mechanical system and when selecting and dimensioning drives, motors and gearboxes.
In addition to engineering results such as characteristics, technical data, installation drawings and dimension drawings, SIZER for Siemens Drives also calculates the performance and the load-dependent energy usage.

**Simulation and virtualization with the Digital Twin**
Add the Digital Twin of the drivetrain to your machine simulation – speed up your design and engineering phase, while improving machine quality and robustness! DriveSim Designer and DriveSim Engineer are the ultimate solutions for designing, commissioning and optimizing your drive train system.

### Commissioning tools:

The **TIA Portal** includes SINAMICS Startdrive to intuitively integrate SINAMICS drives into automation landscapes. Perfect interaction between SINAMICS drives and SIMATIC controllers: The same operating concept, reduction of interfaces and the high level of user-friendliness make it possible to quickly integrate SINAMICS converters into the automation landscape and commission them using the TIA Portal.

The **integrated webserver** – simplicity revisited The webserver enables easy commissioning, operation and diagnostics, all of which are aligned to the actual drive functionality, with no additional software required. The parameter masks are already integrated in the drive. The device is directly accessed using the web browser with the web address of the device, for instance from a laptop.

Scan this code for more information about the engineering tools

# Safety Integrated –
simply safe,
twice as efficient

## Highlights

- **Certified system solution in compliance with the applicable standards**
- **Lower system costs due to fewer components and lower wiring costs**
- **Faster commissioning/ maintenance**
- **Higher productivity through shorter downtimes**

With Safety Integrated in SINAMICS drives, you are not only selecting a safe technical solution, but you also benefit from perfect support relating to all safety issues. This starts with the seamless integration of safety technology in efficient motion control systems. This certified system offers valuable support in the workflow, such as engineering in the TIA Portal.

With the safety acceptance test integrated in the TIA-Portal/Startdrive, you can now validate the correct safety parameterization –and the safety activation test supports you when it comes to validating complete safety control circuits – extending from the sensor to the actuator.

Safety Integrated allows you to eliminate electromechanical components. For you, this means that you require less space in your control cabinet, and you can reduce your costs when it comes to stocking spare parts and maintenance. Further, there is no wear as shutdown is realized purely electronically. Even when safety functions respond, the drive remains connected to the line supply – and can still be fully diagnosed.

Customized safety concepts with Safety Integrated can be very easily implemented based on the safety-related communications via PROFIsafe. You benefit from higher productivity with minimized downtimes.

**Next Generation**

The next generation of SINAMICS drives is part of one Safety Integrated software platform with a common look and feel and functional response. The Safety Integrated functions in our drives are now certified according IEC 61800-5-SIL 3 and ISO 13849-1 Cat. 4 and PL e.

Scan this code for more information about safety integrated

# Security Integrated –
heightened data security for industrial plants and systems

With the new Security Integrated functions we are hardening SINAMICS drives and therefore also your machines against external cyber attacks.

**Highlight**

- **Keep systems and data safe with Security Integrated**

**Next Generation**

The next generation of SINAMICS drives offers increased resilience to cyber-attacks with the Security Integrated concept.

Scan this code for more information about industrial cybersecurity

# Efficient Motion Control –
Time for other perspectives!

Industry is demanding more and more complex motion control solutions and robots. To meet these demands, machine builders must compensate the shortage of skilled workers, become more flexible in the face of increasing complexity, and ensure the safety of operators and machines. But how? With solutions for efficient motion control. Turn challenges into success!

**Benefit from efficient motion control in automation**

FLEXIBILITY

Increase your flexibility in motion control projects with modular, standardized, and user-friendly engineering and operation.

>>>> SPEED >>>>

Accelerate the time to market of your machines through parallelization and virtualization of work routines.

SUSTAINABILITY

Test and validate applications in a virtual environment without hardware or physical prototypes.

## S⬛FETY

Ensure maximum machine and operator safety while maintaining productivity and flexibility.

Faster time to market, increasing functionality and complexity, and demands for safety and sustainability are major challenges for machine builders. Efficient motion control helps you build innovative machines faster and without costly prototyping, so you can more easily meet your customers' needs.

Scan this code for more information about Efficient Motion Control and ways to make motion control more efficient.

# Cutting edge services –
## to continuously improve your production environment

### Highlights

- **Increase efficiency:**
  Increase the overall efficiency of your plant, become more resource-efficient and sustainable, and improve quality with our service portfolio.

- **Reduce costs:**
  Our services help you minimize unplanned downtime, better plan service intervals, and cut overall maintenance costs.

- **Increase availability:**
  Digital services make fault analysis easier and speed up troubleshooting, which helps you increase the availability of your plant.

- **Save energy:**
  Increased production efficiency allows you to save energy, reduce $CO_2$ emissions, and boost overall plant sustainability.

- **Gain flexibility:**
  Use our services to make your plant production systems and processes more flexible and open to new technologies.

- **Reduce time to market:**
  Speed up your products' time to market with increased availability and fewer plant shutdowns.

### Digital Enterprise Services

Our services cover the complete life-cycle of the SINAMICS product family. We support you in achieving more efficient production, leveraging the opportunities provided by digitalization and at the same time reducing the total cost of ownership.

You benefit from spare part and repair services specific to your plant or system, as well as global support provided by our experienced service experts. This support is available locally, remotely, online, by telephone or through individual training courses.

With both traditional and digital service portfolios for motion control, we support you in your digital transformation journey while also addressing your strategic targets such as environmentally friendly production, resource efficiency and much more.

### Optimized service contracts

With an individual service contract, you can ensure that every component of your SINAMICS drive solution is checked, maintained and overhauled at precisely the right point in time. And, of course, replaced if necessary.

In addition, we can now offer customized maintenance packages, configured to optimally address your SINAMICS drive requirements through the *Siemens Industry Mall*.

### Retrofit for Drive Systems

The latest SINAMICS technology is the perfect replacement for discontinued SIMOVERT MASTERDRIVES and MICROMASTER drives. We recommend replacing aging products. With Retrofit for Drives Systems you secure the availability of spare parts and critical product know-how, thus avoiding plant downtimes. This results in increased availability and total efficiency of the machines in your plant. Digital Enterprise Services is ready to support you in your migration strategy and plan your retrofit projects.

#### Service Protect

We offer a 6 month free-of-charge extended warranty for SINAMICS drives.

Furthermore, you have the option of warranty cover your SINAMICS drive for up to seven and a half years, therefore guaranteeing continuous availability over the complete product lifecycle.

For more information and to find the Service Protect options available for your product, go to *Service Protect*

Service Protect can also be added to your order using the *Siemens Product Configurator SPC*

Scan this code for more information about drive system services

# SINAMICS
# low voltage converters
## Powerful and flexible

↗ **STANDARD PERFORMANCE CONVERTERS**

↗ **INDUSTRY SPECIFIC CONVERTERS**

↗ **HIGH PERFORMANCE CONVERTERS**

↗ **DISTRIBUTED CONVERTERS**

# SINAMICS V20

## Simple. Rugged. Efficient.

### Highlights

- The perfect solution for basic applications
- Easy to install
- Easy to use

### Applications

Pumping/Ventilating/Compressing

Moving

Processing

| | |
|---|---|
| **Format** | Built-in unit (compact) |
| **Drive concept** | AC/AC |
| **Degree of protection** | IP20/UL open type |
| **Supply voltage/ power kW (hp)** | |
| **1AC 200 ... 240 V** | 0.12 ... 3 kW (0.16 ... 4 hp) |
| **3AC 380 ... 480 V** | 0.37 ... 30 kW (0.5 ... 40 hp) |
| **Energy recovery** | No |
| **Control modes** | V/f (linear, square law, FCC, ECO) |
| **Ambient temperature** | −10 °C to 40 °C without derating/to 60 °C with derating |
| **Line filter** | With integrated line filter for environments according to IEC 61800-3 Category C3/C2/C1 |
| | Without integrated line filter for environments according to IEC 61800-3 Category C4 |
| **Braking chopper** | External braking chopper, except for frame size FSD/FSE 3AC with integrated braking chopper |
| **Safety functions** | No |
| **Communications** | USS/Modbus RTU |
| **TIA Portal connected** | No |
| **Commissioning tools** | V20 BOP, V20 Smart Access Module |
| **Digitalization tools** | TIA Selection Tool |
| **Controllers** | SIMATIC S7-1200/SIMATIC S7-1500 |
| **Sustainable concept** | The Environmental Product Declaration (EPD) for SINAMICS V20 provides transparency on the product's environmental footprint throughout its life cycle. See _**EPD SINAMICS V20**_ for details. |
| **Recommended motors** | Innomotics GP/SD[1] (standard induction motors, aluminum/cast iron), Innomotics SG[1] (geared motors) |

[1] Please find the right motors from our product partner Innomotics.com

# SINAMICS G120C

## Versatile. User friendly. Compact.

| | |
|---|---|
| **Format** | Built-in unit (compact) |
| **Drive concept** | AC/AC |
| **Degree of protection** | IP20/UL open type |
| **Supply voltage/ power kW (hp)** | |
| **3AC 380 ... 480 V** | 0.55 ... 132 kW (0.75 ... 150 hp) |
| **Energy recovery** | No |
| **Control modes** | V/f (linear, square law, FCC, ECO), sensorless vector control (SLVC) |
| **Ambient temperature** | –10 °C to 40 °C without derating/to 60 °C with derating |
| **Line filter** | With integrated line filter for environments according to IEC 61800-3 Category C3/C2 |
| | Without integrated line filter for environments according to IEC 61800-3 Category C4 |
| **Braking chopper** | Integrated braking chopper |
| **Safety functions** | STO |
| **Communications** | Frame size FSAA 0.55 kW to FSC 18.5 kW available with PROFINET, PROFIBUS DP, EtherNet/IP, USS/Modbus RTU |
| | Frame size FSD 22 kW to FSF 132 kW available with PROFINET , EtherNet/IP |
| **TIA Portal connected** | Yes |
| **Commissioning tools** | BOP-2, IOP-2, G120 Smart Access Module, SINAMICS Startdrive |
| **Digitalization tools** | Drive Connector SINAMICS, Drivetrain Analyzer Edge, DriveSim Designer, TIA Selection Tool, SPC, SINAMICS Startdrive |
| **Controllers** | SIMATIC S7-1200 / S7-1500, SIMATIC ET200 |
| **Sustainable concept** | Environmental product declaration (EPD) provides transparency of the product environmental footprint for SINAMICS G120C in its entire lifecycle. For details please refer to *EPD SINAMICS G120C* |
| **Recommended motors** | Innomotics GP/SD[1] (standard induction motors, aluminum/cast iron) |
| | Innomotics SG[1] (geared motors) |

[1] Please find the right motors from our product partner Innomotics.com

## Highlights

- Compact for simple installation in the smallest space
- Simple commissioning and operator control
- Perfect integration in the automation environment
- Integrated safety technology

## Applications

| Pumping/ Ventilating/ Compress-ing | Moving | Processing |
|---|---|---|

# SINAMICS G120

## Multifunctional. Combinable. Safety Integrated.

**Highlights**

- High degree of flexibility and combinability
- Higher-level, standard safety concept
- Wide range of power ratings

**Applications**

Pumping/ Ventilating/ Compress- ing

Moving

Processing

Positioning

**Modular design**

+ + =

| | |
|---|---|
| **Format** | Built-in unit (modular) Power Module, Control Unit, commissioning options |
| **Drive concept** | AC/AC |
| **Degree of protection** | IP20/UL open type |
| **Supply voltage/ power kW (hp)** | |
| 1AC/3AC 200 ... 240 V | 0.55 ... 4 kW (0.75 ... 5 hp), Power Module PM240-2 |
| 3AC 200 ... 240 V | 5.5 ... 55 kW (7.5 ... 60 hp), Power Module PM240-2 |
| 3AC 380 ... 480 V | 0.55 ... 250 kW (0.75 ... 400 hp), Power Module PM240-2 |
| 3AC 380 ... 480 V | 7.5 ... 90 kW (10 ... 125 hp), Power Module PM250 |
| 3AC 500 ... 690 V | 11 ... 250 kW (10 ... 250 hp at 600 V), PM240-2 |
| **Control Unit** | Control Unit CU230P-2, CU240E-2, CU240E-2 F, CU250S-2 |
| **Energy recovery** | In conjunction with PM250 Power Modules |
| **Control modes** | V/f (linear, square law, FCC, ECO), vector control with and without encoder (VC, SLVC) |
| **Ambient temperature** | −10 °C to 40 °C without derating/to 60 °C with derating |
| **Line filter** | With integrated line filter for environments according to IEC 61800-3 Category C3/C2 |
| | Without integrated line filter for environments according to IEC 61800-3 Category C4 |
| **Braking chopper** | Integrated braking chopper for PM240-2 Power Modules |
| **Safety functions** | STO, SS1, SBC, SLS, SDI, SSM |
| **Communications** | PROFINET, PROFIBUS DP, EtherNet/IP, USS/Modbus RTU, CANopen, PROFIsafe |
| **TIA Portal connected** | Yes |
| **Commissioning tools** | BOP-2, IOP-2, G120 Smart Access Module, SINAMICS Startdrive |
| **Digitalization tools** | Drivetrain Analyzer Cloud, Drive Connector SINAMICS, Drivetrain Analyzer Edge, DriveSim Designer, TIA Selection Tool, SPC, SINAMICS Startdrive |
| **Controllers** | SIMATIC ET200, SIMATIC S7-1200/SIMATIC S7-1500, SIMATIC PCS 7 |
| **Recommended motors** | SIMOTICS M 1PH8 main motors |
| | Innomotics DP 1PH8[1] |
| | Innomotics GP/SD[1] (standard induction motors, synchronous-reluctance motors aluminum/cast iron) |
| | Innomotics SG[1] (geared motors) |
| | Innomotics TN[1] (trans-standard motors) |
| | Innomotics XP[1] (explosion-protected motors) |

[1] Please find the right motors from our product partner Innomotics.com

Scan this code for more information about SINAMICS G120

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# SINAMICS G130/G150

## Multifunctional. User friendly. Rugged.

| | |
|---|---|
| **Format** | G130: Built-in unit (modular)<br>G150: Cabinet unit |
| **Drive concept** | AC/AC |
| **Degree of protection** | G130: IP00 / IP20<br>G150: IP20<br>Optional: IP21, IP23, IP43, IP54 |
| **Supply voltage/<br>power kW (hp)** | |
| **3AC 380 ... 480 V** | 110 ... 560 kW    (150 ... 800 hp)    (G130)<br>110 ... 900 kW    (150 ... 800 hp)    (G150) |
| **3AC 500 ... 600 V** | 110 ... 560 kW    (150 ... 800 hp)    (G130)<br>110 ... 1000 kW    (150 ... 800 hp)    (G150) |
| **3AC 660 ... 690 V** | 75 ... 800 kW    (85 ... 810 hp)    (G130)<br>75 ... 2700 kW    (85 ... 810 hp)    (G150) |
| **Energy recovery** | No |
| **Control modes** | Sensorless vector control or V/f control |
| **Ambient temperature** | 0 °C to 40 °C without derating/to 55 °C with derating |
| **Line filter** | With integrated line filter for environments according<br>to IEC 61800-3 Category C3/C2 (optional) |
| **Braking chopper** | G130: System component Braking Module<br>G150: Braking Module optional |
| **Safety functions** | STO, SS1, SBC, SLS, SDI, SSM, SBT |
| **Communications** | PROFINET, PROFIBUS DP, EtherNet/IP, USS, PROFIsafe |
| **TIA Portal connected** | Yes |
| **Commissioning tools** | AOP30, SINAMICS Startdrive |
| **Digitalization tools** | TIA Selection Tool – Sizer Plug In, DriveSim Designer,<br>DriveSim Engineer, Drive Connector SINAMICS,<br>Drivetrain Analyzer, SIPLUS CMS |
| **Controllers** | SIMATIC ET200, SIMATIC S7-1500, SIMATIC PCS 7 |
| **Recommended motors** | Innomotics GP/SD[1] (standard induction motors<br>aluminum/cast iron) |
| | Innomotics TN[1] (trans-standard motors) |
| | Innomotics HT[1]<br>(low-speed permanent magnet synchronous motors) |

[1] Please find the right motors from our product partner Innomotics.com

### Highlights

- **Applications: Pumps, fans, compressors, extruders, mixers, mills etc.**
- **Service-friendly thanks to device modules that are easy to access**
- **100% line supply voltage at the motor without any secondary effects**
- **When required, with integrated line harmonics filter and du/dt filter**

### Applications

Pumping/
Ventilating/
Compress-
ing

Moving

Processing

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# SINAMICS G180

## Multifunctional. Industry specific. Seamless across the system.

### Highlights

- Industry specific features such as du/dt filter and PTC evaluation
- Applications: Pumps, fans, extruders, compressors – also in hazardous zones
- Voltage levels: 400 V/500 V/690 V
- Line side: 6 to 24 pulse or LHF (Line Filter)
- ATEX-certified for motors in hazardous zones

### Applications

Pumping/
Ventilating/
Compress-
ing

Moving

Processing

| | |
|---|---|
| **Format** | Built-in unit (compact)<br>Cabinet unit, Cabinet Systems |
| **Drive concept** | AC/AC |
| **Degree of protection** | Compact devices: IP20 (optional IP21) |
| | Cabinet units/systems: IP21 (higher degrees of protection up to IP54 optional)/with water cooling, IP54 |
| **Supply voltage/ power kW (hp)** | |
| **3AC 380 ... 480 V** | 2.2 ... 200 kW, compact device; 250 ... 630 kW, cabinet unit |
| **3AC 480 ... 500 V** | 2.2 ... 160 kW, compact device; 250 ... 800 kW, cabinet unit |
| **3AC 500 ... 690 V** | 7.5 ... 200 kW, compact device; 250 ... 6600 kW, cabinet unit |
| **Energy recovery** | No |
| **Control modes** | V/f (linear, square law)<br>Vector control with and without encoder (SLVC)<br>Field-oriented control (FOC) with encoder and certification for explosion protection |
| **Ambient temperature** | 0 to 40 °C |
| **Line filter** | Compact devices: with integrated line filter for environments according to IEC 61800-3 Category C2/C1 (optional) |
| | Cabinet units: with integrated line filter for environments according to IEC 61800-3 Category C3 |
| | Compact devices, cabinet units for IT line systems: with integrated line filter for environments according to IEC 61800-3 Category C4 |
| **Braking chopper** | Yes |
| **Safety functions** | STO, ATEX-certified PTC thermistor input for explosion-protected motors |
| **Communications** | PROFIBUS DP, EtherNet/IP, Modbus TCP/IP, Modbus RTU, CANopen: PROFINET |
| **TIA Portal connected** | No |
| **Commissioning tools** | IMS |
| **Controllers** | SIMATIC ET200/SIMATIC S7-1500, SIMATIC PCS 7 |
| **Recommended motors** | Innomotics GP/SD[1] (standard induction motors aluminum/cast iron) |
| | Innomotics TN[1] (trans-standard motors) |
| | Innomotics XP[1] (explosion-protected motors) |

[1] Please find the right from our product partner Innomotics.com

Scan this code for more information about SINAMICS G180

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# SINAMICS G120X

## Flexible. Combinable. Application specific.

| | |
|---|---|
| **Format** | Built-in unit (compact) |
| **Drive concept** | AC/AC |
| **Degree of protection** | IP20, UL open type, IP21 (roof top kit) |
| **Supply voltage/ power kW (hp)** | |
| **3AC 200 ... 240 V** | 0.75 ... 55 kW / 1 ... 75 hp |
| **3AC 380 ... 480 V** | 0.75 ... 560 kW / 1 ... 700 hp |
| **3AC 500 ... 690 V** | 3 ... 630 kW / 4 ... 700 hp |
| **Energy recovery** | No |
| **Control modes** | V/f (linear, square law, FCC, ECO), sensorless vector control (SLVC) |
| **Ambient temperature** | −20 °C to 45 °C (60 °C with derating)[1] |
| **Line filter** | According to IEC 61800-3, with integrated line filter for environments Category C3/C2; optional C1 with external filter B |
| **Braking chopper** | No |
| **Safety functions** | STO SIL3 HW via terminals |
| **Communications** | PROFINET, PROFIBUS, EtherNet / IP, Modbus RTU, USS, BACnet MS / TP, Wi-Fi via SINAMICS G120 Smart Access Module, SD card for parameter cloning |
| **TIA Portal connected** | via GSD file |
| **Commissioning tools** | BOP-2, IOP-2, G120 Smart Access Module, SIMATIC PCS7 and SIMATIC PDM |
| **Digitalization tools** | Drivetrain Analyzer Edge, DriveSim Designer, TIA Selection Tool, SPC, TIA Portal Add-in(with GSD file), Drive Connector SINAMICS, Drive System Services |
| **Controllers** | SIMATIC S7-1500/1200/400, Desigo PX |
| **Recommended motors** | Innomotics[2] Reluctance motors |
| | Innomotics GP/SD[2] (standard induction motors with aluminum/cast iron enclosures) |
| | Innomotics DP[2] (smoke extraction motors) |

[1] The maximum temperature for Profinet converters is 55 °C
[2] Please find the right motors from our product partner Innomotics.com

## Highlights

- **The infrastructure drive for pump/fan applications in water/waste-water industries and building automation**
- **Seamless range of power ratings available in 9 frame sizes extending from 0.75 – 630 kW**
- **Simple selection and ordering using just one order number – and immediately ready to run**
- **Impressively efficient with specific industry and energy efficiency functions**

## Applications

Pumping/ Ventilating/ Compressing

# SINAMICS G220

## Efficient. Secure. Future proof.

### Highlights

- Efficient energy consumption with Clean Power technology (THDi < 5%) and optimal high-efficiency motor control.
- Efficient engineering via an integrated web server and Startdrive (TIA Portal).
- Secure technology with Safety and Security integrated functions, S2 redundancy, 3C3 coating, and IP55 / UL Type 12.

### Applications

Pumping/ Ventilating/ Compressing

Moving

Processing

Positioning

**Next Generation**

**Siemens EcoTech**

| | SINAMICS G220 IP20 | SINAMICS G220 IP55 |
|---|---|---|
| **Format** | Built in Unit (compact) | |
| **Drive concept** | AC/AC | |
| **Degree of protection** | IP20 / UL open type | IP55 / UL type 12 |
| **Supply voltage/ power kW (hp)** | | |
| **3AC 200 ... 240 V** | 0.55 ... 30 kW (0.75 – 40 hp) | 1.1 ... 30 kW (1.5 – 40 hp) |
| **3AC 380 ... 500 V** | 1.1 ... 55 kW (1.5 – 75 hp) | 1.1 ... 55 kW (1.5 – 75 hp) |
| **3AC 525 ... 690 V** | 3 ... 55 kW (4 – 75 hp) | 3 ... 55 kW (4 – 75 hp) |
| **Energy recovery** | No | |
| **Control modes** | U/f, FCC, ECO, Vector control (speed) w/ and w/o encoder; Vector control (torque) w/ and w/o encoder, Torque control w/o encoder[1] | |
| **Ambient temperature** | −20 °C to 60 °C > 45 °C with reduction | −20 °C to 50 °C > 40 °C with reduction |
| **Line filter** | With integrated line filter for environments according to EN 61800-3 Category C2, integrated DC reactor, Category C3 (690 V) | |
| **Braking chopper** | Yes, integrated braking unit as standard | |
| **Safety functions** | Standard: STO, SS1, SMT (requires option module SMT) Extended: SS1, SLS, SDI, SSM Certified according IEC 61800-5- up to SIL 3 and ISO 13849-1 Cat. 4 and PL e via terminals and PROFIsafe | |
| **Security functions** | User Management & Access Control (UMAC), Drive Data Encryption (DDE) | |
| **Communications** | PROFINET (RT / IRT, MRP, MRPD & S2 Redundancy), Modbus TCP/IP, EtherNet/IP, PROFIsafe, PROFIenergy | |
| **TIA Portal connected** | Yes | |
| **Commissioning tools** | Web server, SINAMICS Startdrive, SINAMICS SDI Standard, SINAMICS SDI Pro 5.5" | |
| **Digitalization tools** | Drivetrain Analyzer Edge (available soon), DriveSim Designer, DriveSim Engineer, SIZER, TIA Selection Tool, SPC | |
| | TIA Portal / SINAMICS Startdrive, Drive Connector SINAMICS (available soon), IIoT option module, Drive System Service | |
| **Controllers** | SIMATIC S7-1200/S7-1500, SIMATIC ET200 S7-1500/1200/400, | |
| **Sustainable concept** | Environmental product declaration (EPD) provides transparency of the product environmental footprint for SINAMICS G220 in its entire lifecycle. For details please refer to following link *EPD SINAMICS G220* *SIEMENS EcoTech Profile (SEP)* | |
| **Recommended motors** | Induction motors, synchronous reluctance motors, permanent Magnet motor[2] | |

[1] Possible with synchronous reluctance motors and SINAMICS Motor Control Extended software option

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| SINAMICS G220<br>Clean Power IP20 | SINAMICS G220<br>Clean Power IP55 |
|---|---|
| | |
| IP20 / UL open type | IP55 / UL type 12 |
| | |
| – | – |
| 7.5 … 55 kW (10 – 75 hp) | 7.5 … 55 kW (10 – 75 hp) |
| – | – |
| | |
| | |
| −20 °C to 60 °C<br>> 45 °C with reduction | −20 °C to 50 °C<br>> 40 °C with reduction |
| With integrated line filter for environments according to EN 61800-3 Category C2, integrated active infeed unit THD(i) < 5% | |

[2] Please find the right motors from our product partner Innomotics.com
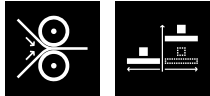
# SINAMICS S120

## Universal. Precise. Safety Integrated.

### Highlights

- Modular system for high performance
- High degree of scalability, flexibility, combinability
- SINAMICS S120 Chassis and SINAMICS S120 Cabinet Modules can ordered in air and liquid cooled versions

### Applications

Processing

Positioning

Machining

Moving

| | SINAMICS S120 High-performance application | SINAMICS S120 High-performance application |
|---|---|---|
| **Format** | Built-in unit blocksize (modular) | Built-in unit booksize (modular) |
| **Structure** | Control Unit + Power Module | Control Unit + Infeed + Motor Module |
| **Drive concept** | AC/AC | DC/AC |
| **Degree of protection** | IP20 | IP20 |
| **Supply voltage/ power kW (hp)** | | |
| **1/3AC 200 ... 240 V** | 0.55 ... 4 kW (0.75 ... 5 hp at 240 V) | – |
| **3AC 200 ... 240 V** | 5.5 ... 55 kW (7.5 ... 60 hp at 240 V) | – |
| **3AC 380 ... 480 V** | 0.55 ... 250 kW (0.75 ... 400 hp at 480 V) | 1.6 ... 107 kW (1.5 ... 150 hp at 400 V) |
| **3AC 500 ... 690 V** | 11 ... 250 kW (10 ... 400 hp at 600 V) | – |
| **Energy recovery** | No | Yes, depending on the infeed |
| **Control modes** | V/f control, vector control with/without encoder Servo control with encoder | |
| **Ambient temperature** | 0 °C to 40 °C without derating/to 55 °C with derating | |
| **Line filter** | With integrated line filter for environments according to IEC 61800-3 Category C3/C2 | With integrated line filter for environments according to IEC 61800-3 Category C3/C2 (optional) |
| | Without line filter for environments according to IEC 61800-3 Category C4 | Without line filter for environments according to IEC 61800-3 Category C4 |
| **Braking chopper** | Integrated braking chopper for PM240-2 Power Modules | Yes (optional) |
| **Safety functions** | STO, SS1, SBC, SOS, SS2, SLS, SSM, SDI, SLP, SP, SBT, SLA, SCA | |
| **Communications** | PROFINET, PROFIBUS DP, EtherNet/IP (CU320-2), USS, CANopen (CU320-2), Modbus TCP, PROFIsafe | |
| **TIA Portal connected** | Yes | |
| **Commissioning tools** | SINAMICS Startdrive, STARTER, SCOUT, Webserver | |
| **Digitalization tools** | Drivetrain Analyzer Edge, Drivetrain Analyzer Cloud, DriveSim Designer, Drive Connector SINAMICS, TIA Selection Tool, SPC, TIA Portal / SINAMICS Startdrive, Drive System Services | |
| **Controllers** | SIMATIC, SINUMERIK, SIMATIC DC | |
| **Recommended motors** | Motors for Motion Control, SIMOTICS S, M, L, T Innomotics GP, SD, XP, DP[1] | |

[1] Please find the right motors from our product partner Innomotics.com

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| SINAMICS S120<br>High-performance application | SINAMICS S120 CM<br>High-performance application |
|---|---|
| Built-in unit chassis (modular) | Cabinet unit |
| Control Unit + Infeed +<br>Motor Module | Control Unit + Infeed +<br>Motor Module |
| DC/AC | DC/AC |
| IP00 / IP20 | IP20, optional: IP21, IP23, IP43, IP54, IP55 |
| –<br><br>–<br><br>110 ... 3040 kW<br>(150 ... 4370 hp at 460 V)<br>75 ... 5700 kW<br>(75 ... 5700 hp at 575 V) | –<br>–<br><br>4.8 ... 3040 kW<br>(5 ...4370 hp at 460 V)<br>75 ... 5700 kW<br>(75 ... 5700 hp at 575 V) |
| Yes, depending on the infeed | Yes, depending on the infeed |

| | |
|---|---|
| With integrated line filter for environments according to IEC 61800-3 Category C3/C2 (optional)<br><br>Without line filter for environments according to IEC 61800-3 Category C4 | With integrated line filter for environments according to IEC 61800-3 Category C3/C2 (optional)<br>Without line filter for environments according to IEC 61800-3 Category C4 |
| Yes (optional) | Yes (optional) |

| | |
|---|---|
| Motors for Motion Control, SIMOTICS M | |
| Innomotics SD, XP, DP, TN, HT[1] | |

# SINAMICS S150

Multifunctional. Precise. Capable of energy recovery.
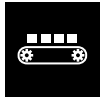


## Highlights

- Modular system for high performance
- High degree of scalability, flexibility, combinability

## Applications



Processing   Moving   Positioning

| | |
|---|---|
| **Format** | Cabinet unit |
| **Drive concept** | AC/AC |
| **Degree of protection** | IP20, optional: IP21, IP23, IP43, IP54 |
| **Supply voltage/ power kW (hp)** | |
| **3AC 380 ... 480 V** | 110 ... 800 kW (150 ... 1150 hp) |
| **3AC 500 ... 690 V** | 75 ... 1200 kW (75 ... 1250 hp) |
| **Energy recovery** | Yes |
| **Control modes** | V/f control<br>Vector control with and without encoder<br>Servo control with and without encoder |
| **Ambient temperature** | 0 °C to 40 °C without derating/to 50 °C with derating |
| **Line filter** | With integrated line filter for environments according to IEC 61800-3 Category C3/C2 |
| | Without line filter for environments according to IEC 61800-3 Category C4 |
| **Braking chopper** | Yes (optional) |
| **Safety functions** | STO, SS1, SBC, SOS, SS2, SLS, SSM, SDI, SLP, SP, SBT, SLA, SCA |
| **Communications** | PROFINET, PROFIBUS DP, EtherNet/IP, USS, CANopen, Modbus TCP, PROFIsafe |
| **TIA Portal connected** | Yes |
| **Commissioning tools** | SINAMICS Startdrive, STARTER, Webserver, AOP30 |
| **Digitalization tools** | Drivetrain Analyzer Edge, Drivetrain Analyzer Cloud, DriveSim Designer, Drive Connector SINAMICS TIA Selection Tool, SPC |
| | TIA Portal / SINAMICS Startdrive, Drive System Services |
| **Controllers** | SIMATIC |
| **Recommended motors** | Motors for Motion Control, SIMOTICS M |
| | Innomotics SD, XP, DP, TN, HT[1] |

[1] Please find the right motors from our product partner Innomotics.com



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# SINAMICS DCM

Universal. Scalable. Rugged.

| | |
|---|---|
| **Format** | Built-in unit |
| **Drive concept** | AC/DC |
| **Degree of protection** | IP00 / IP20 |
| **Supply voltage/ power kW (hp)** | |
| **1AC 50 ... 230 V** | 1.61 ... 362 kW (2.16 ... 485 hp) |
| **1AC 50 ... 400 V** | 2.81 ... 653 kW (3.77 ... 876 hp) |
| **1AC 50 ... 480 V** | 3.37 ... 310 kW (4.52 ... 416 hp) |
| **1AC 50 ... 575 V** | 16.1 ... 863 kW (21.6 ... 1160 hp) |
| **3AC 10 ... 50 V** | 0.16 ... 183 kW (0.21 ... 245 hp) |
| **3AC 50 ... 400 V** | 6.3 ... 1460 kW (8.4 ... 1950 hp) |
| **3AC 50 ... 480 V** | 6.3 ... 690 kW (8.4 ... 925 hp) |
| **3AC 50 ... 575 V** | 35 ... 1930 kW (47 ... 2590 hp) |
| **3AC 100 ... 690 V** | 551 ... 2160 kW (739 ... 2900 hp) |
| **3AC 100 ... 830 V** | 831 ... 1900 kW (1110 ... 2550 hp) |
| **3AC 100 ... 950 V** | 2200 ... 2500 kW (2950 ... 3350 hp) |
| **Energy recovery** | Yes |
| **Control modes** | Speed control, torque control, closed-loop EMF control (operation without tachometer), field weakening control |
| **Ambient temperature** | 0 °C to 45 °C without derating for armature currents ≤ 125 A |
| | 0 °C to 40 °C without derating for armature currents ≥ 210 A |
| | Up to 55 °C with derating |
| **Line filter** | With additional line filter for environments according to IEC 61800-3 Category C2 |
| | Without additional line filter for environments according to IEC 61800-3 Category C3, C4 |
| **Safety functions** | STO, SS1 |
| **Communications** | PROFINET, PROFIBUS DP, USS, EtherNet/IP, Modbus TCP |
| **TIA Portal connected** | Yes |
| **Commissioning tools** | BOP, AOP30, SCOUT, STARTER |
| **Controllers** | SIMATIC, SIMATIC PCS 7 |
| **Recommended motors** | Suitable for all DC motors |

## Highlights

- For simple and favorably-priced plant and system modernization
- Flexible expandability regarding both functionality and performance
- High power rating in a compact design
- High reliability of all components

## Applications

Moving    Processing    Pumping/ Ventilating/ Compressing

Scan this code for more information about SINAMICS DCM

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# SINAMICS G115D

## Versatile. Rugged. Distributed.

## Highlights

- User friendly, modular solution with a new design for easy wiring, commissioning and service incl. dedicated features for conveyor technology
- Out-of-the-box concept for easy handling, fast set up and an extremely simple to operate design for applications with horizontal motion

## Applications

Moving

| Format | Motor mounted | Wall mounted |
|---|---|---|
| **Drive concept** | AC/AC | |
| **Degree of protection** | IP55 (limited by geared motor) or optional IP65/UL approval corresponding to the geared motor (compact system) | IP65 (connector version) or IP66 (cable gland version)/ UL type 4X |
| **Supply voltage/ power kW (hp)** | | |
| **3AC 380 ... 480 V** | 0.37 ... 4 kW / 0.5 – 5 HP <br><br> FSA up to 1.5 kW, FSB up to 4 kW | 0.37 ... 7.5 kW / 0.5 ... 10 HP <br><br> FSA up to 1.5 kW, FSB up to 4 kW, FSC up to 7.5 kW |
| **Energy recovery** | No | |
| **Control modes** | U/f, FCC, ECO, SLVC (sensorless vector control) | |
| **Ambient temperature** | −30 to 40 °C/to 55 °C (> 40 °C with derating) | |
| **Line filter** | With integrated line filter for environments according to IEC 61800-3 Category C2[1] | |
| **Braking chopper** | Integrated brake resistor as standard, optional external brake resistor | |
| **Safety functions** | STO according to SIL2/Pld, via F-DI and/or PROFIsafe, SLS as a licensed option with no additional HW | |
| **Communications** | PROFINET/Ethernet IP, AS-i or I/O controlled, PROFIsafe | |
| **TIA Portal connected** | Yes, complete drive system | |
| **Commissioning tools** | SINAMICS Startdrive, G120 Smart Access Module | |
| **Digitalization tools** | TIA Portal / SINAMICS Startdrive, Tia Selection Tool, SPC, DriveSim Designer, Drive Connector SINAMICS, Drivetrain Analyzer Edge, Drivetrain Analyzer Cloud | |
| **Controllers** | SIMATIC S7-1200/S7-1500, SIMATIC ET200 | |
| **Recommended motors** | Innomotics SG (geared motors)[2] | |

[1] Removal of functional grounding (IT system) possible

[2] The motor mounted version is offered only with geared motor as a complete drive system.

Please find the right motors from our product partner Innomotics.com

Scan this code for more information about SINAMICS G115D

# Innovative system solutions for horizontal motion applications

# SINAMICS G120D

## Multifunctional. Rugged. Distributed.

### Highlights

- Integrated safety functions and positioning functionality
- Simple commissioning using prompted para-meterizing software
- High degree of protection

### Applications

Moving    Positioning

| | |
|---|---|
| **Format** | Distributed compact device |
| **Drive concept** | AC/AC |
| **Degree of protection** | IP65/UL Type 3 |
| **Supply voltage/ power kW (hp)** | |
| **3AC 380 ... 500 V** | 0.75 ... 7.5 kW (1 ... 10 hp) |
| **Energy recovery** | Yes |
| **Control modes** | V/f (linear, square law, FCC, ECO), vector control with and without encoder (VC, SLVC) |
| **Ambient temperature** | –10 °C to 40 °C without derating/to 60 °C with derating |
| **Line filter** | With integrated line filter for environments according to IEC 61800-3 Category C3/C2 |
| **Braking chopper** | No |
| **Safety functions** | STO, SS1, SLS, SDI, SSM |
| **Communications** | PROFINET/Ethernet IP, PROFIBUS, PROFIsafe |
| **TIA Portal connected** | Yes |
| **Commissioning tools** | IOP-2 Handheld, SINAMICS Startdrive |
| **Digitalization tools** | TIA Portal / SINAMICS Startdrive, Tia Selection Tool, SPC, DriveSim Designer, Drive Connector SINAMICS, Drivetrain Analyzer Edge |
| **Controllers** | SIMATIC S7-1200/SIMATIC S7-1500, SIMATIC ET200 |
| **Recommended motors** | Innomotics GP/SD[1] (standard induction motors, synchronous-reluctance motors aluminum/cast iron) |
| | Innomotics SG[1] (geared motors) |

[1] Please find the right motors from our product partner Innomotics.com

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# SINAMICS
## servo converters
Precise and with a high
dynamic performance

↗ **SERVO CONVERTERS**

# SINAMICS V90

## Simple. Precise. System based.

### Highlights

- Optimized servo performance thanks to One-Button Tuning and real time auto tuning
- Complete and simple to operate solution for motion control applications
- Together with a SIMATIC controller, a strong team in the TIA Portal

### Applications

Processing   Positioning   Moving

| | |
|---|---|
| **Format** | Built-in unit (compact) |
| **Drive concept** | AC/AC |
| **Degree of protection** | Drives: IP20 |
| | Motor: IP65 |
| **Supply voltage/ power kW (hp)** | |
| **1AC / 3AC 200 ... 240 V** | 0.10 ... 0.75 kW (0.07 ... 1.02 hp) |
| | 1.0 ... 2 kW (0.7 ... 2.7 hp) |
| **3AC 200 ... 240 V** | 0.40 ... 7 kW (0.54 ... 10 hp) |
| **3AC 380 ... 480 V** | |
| **Energy recovery** | – |
| **Control modes** | Servo control with encoder |
| **Ambient temperature** | 0 °C to 45 °C without derating/to 55 °C with derating |
| **Line filter** | With external line filter for environments according to IEC 61800-3 Category C2 |
| **Braking chopper** | Integrated braking chopper for all frame sizes and max. motor power ≥ 0.2 kW |
| **Safety functions** | STO via terminal |
| **Communications** | Pulse/direction interface, USS/Modbus RTU, PROFINET |
| **TIA Portal connected** | Yes, via the Hardware Support Package |
| **Commissioning tools** | SINAMICS V-ASSISTANT |
| **Digitalization tools** | TIA Portal Add-in, DriveSim Designer, TIA Selection Tool, SPC |
| **Controllers** | SIMATIC S7-1200/SIMATIC S7-1500/T |
| **Recommended motors** | Motors for Motion Control, SIMOTICS S-1FL6 |

Scan this code for more information about SINAMICS V90

**siemens.com/product-configurator**

# SINAMICS S200/ S200 Basic

## Performance optimized. Easy to use. Fit for future.

| | |
|---|---|
| **Format** | Built-in unit (compact) |
| **Drive concept** | AC/AC |
| **Degree of protection** | Drives: IP20 |
| | Motors: IP54/IP65 |
| **Supply voltage/ power kW (hp)** | |
| **1/3AC 200 ... 240 V** | 0.1 ... 1.0 kW (0.14 ... 1.34 hp) |
| **3AC 380 ... 480 V** | 0.2 ~ 7.0 kW (0.27...9.4 hp)[1] |
| **Energy recovery** | – |
| **Control modes** | Servo control with encoder |
| **Ambient temperature** | 0 to 40 °C without derating |
| | 40 ~ 60 °C with derating |
| **Line filter** | With external line filter for environments according to IEC 61800-3 Category C2 |
| **Braking chopper** | S200: all have an integrated braking resistor (>0.1 kW) |
| | S200 Basic: integrated braking resistor (>0.4 kW) |
| **Safety functions** | STO, SS1-t via terminal (Certified according IEC 61800-5- up to SIL 3 and ISO 13849-1 Kat. 4 and PL e) [1] |
| **Security functions** | User Management & Access Control (UMAC, Integrity and authenticity check) |
| **Communications** | Pulse train interface, Modbus RTU, PROFINET |
| **TIA Portal connected** | Full integration |
| **Commissioning tools** | Webserver / SINAMICS Startdrive |
| **Digitalization tools** | DriveSim Designer, TIA Selection Tool, SPC |
| | TIA Portal/ SINAMICS Startdrive, SINAMICS Webserver, SIOS App |
| **Controllers** | SIMATIC S7-1200, SIMATIC S7-1500/T, ET200 SP Open controller |
| **Sustainable concept** | Environmental product declaration (EPD) provides transparency of the product environmental footprint for SINAMICS S200 in its entire lifecycle. For details please refer to following link ***EPD SINAMICS S200*** |
| | ***SIEMENS EcoTech Profile (SEP)*** |
| **Recommended motors** | Motors for Motion Control, SIMOTICS S-1FL2 |

[1] Not available for S200 Basic

### Highlights

- Optimized dynamic performance enabled by fast system response and high overload capacity
- Reduced space requirement thanks to compact design
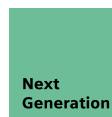- Easy engineering using Webserver, Startdrive

### Applications
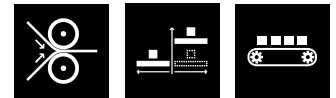
Processing   Positioning   Moving

**Next Generation**

**Siemens EcoTech**

# SINAMICS S210

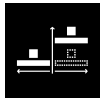## Versatile. Precise. Safety Integrated.

### Highlights

- **Easy installation with One Cable Connection (OCC) and easy comissioning with One Button Tuning**
- **Basic and Extended Safety Integrated functionality via PROFIsafe**
- **SIMOTICS S-1FK2, S-1FT2 and S-1FS-2 motors for increased performance**

### Applications

Processing    Positioning    Moving

**Next Generation**

**Siemens EcoTech**

| | |
|---|---|
| **Format** | Built-in unit (compact) |
| **Drive concept** | AC/AC |
| **Degree of protection** | IP20 |
| **Supply voltage/ power kW (hp)** | |
| **1AC 200 ... 240 V** | 0.1 ... 0.75 kW (0.14 ... 1.02 hp) |
| **3AC 200 ... 480 V** | 0.4 ... 7 kW (0.54 ... 9.5 hp) |
| **Energy recovery** | No, but DC coupling optional for 3AC devices |
| **Control modes** | Servo control with encoder, 2nd encoder possible[1] |
| **Ambient temperature** | 0 °C to 50 °C (32 °F to 122 °F) |
| **Line filter** | 1AC devices with integrated line filter for environments according to IEC 61800-3 Category 2 and Category C3 3AC devices with integrated line filter for environments according to IEC 61800-3 Category C3, Category C2 and longer cable lengths with optional, external line filter |
| **Braking chopper** | Integrated braking resistor, external resistors optional |
| **Safety functions** | Safety: SIL3 certified according IEC 61800-5 and PLe/Cat.4 according ISO 13849-1 for the new SINAMICS S210 (V.6). SIL2 certified according IEC 61800-5, PLd/Cat. 3 according ISO 13849-1 for current SINAMICS S210 (< = V.5) |
| **Security functions** | User Management & Access Control (UMAC, Integrity and authenticity check)[1] |
| **Communications** | PROFINET, PROFIdrive, PROFIsafe, PROFIenergy, EtherNet/IP[1] |
| **TIA Portal connected** | Full integration |
| **Commissioning tools** | Webserver, SINAMICS Startdrive |
| **Digitalization tools** | DriveSim Designer, DriveSim Engineer[1], TIA Selection Tool, SPC, TIA Portal with SINAMICS Startdrive |
| **Controllers** | SIMATIC S7-1500, SIMATIC S7-1500 with T-CPU, SIMATIC ET 200 SP Open Controller |
| **Sustainable concept** | Environmental product declaration (EPD) provides transparency of the product environmental footprint for SIMOTICS S-1FT2 and S-1FK2 motors in its entire lifecycle. For details please refer to following link *EPD SIMOTICS S-1FT2* and *EPD SIMOTICS S-1FK2* *SIEMENS EcoTech Profile (SEP) for S-1FT2 motor* |
| **Recommended motors** | SIMOTICS S-1FK2 servo motor optional as servo planetary geared motors with coaxial ECO planetary gearbox SIMOTICS S-1FT2 servo motor optional as servo planetary geared motors with coaxial and angular ECO planetary gearbox SIMOTICS S-1FS2 Hygienic Design servo motor |

[1] only for the new SINAMICS S210 (> = V.6.3)

Scan this code for more information about SINAMICS S210

# The new SINAMICS S210 servo drive.
# More features, more possibilities.
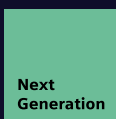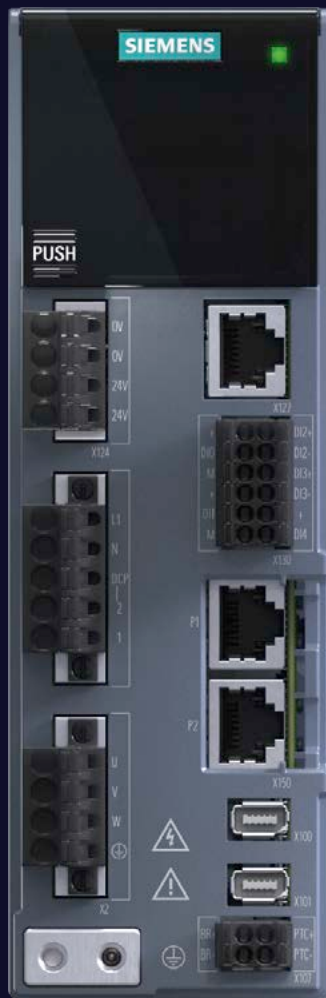
# SINAMICS S120

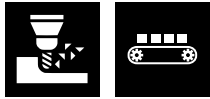## Universal. Precise. Safety Integrated.
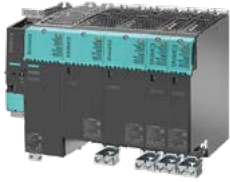
### Highlights

- Modular system for high performance
- High degree of scalability, flexibility, combinability

### Applications

Processing    Positioning

Machining    Moving

| | | SINAMICS S120<br>Servo drive converter | SINAMICS S120<br>Servo drive converter |
|---|---|---|---|
| **Format** | | Built-in unit blocksize (modular) | Built-in unit booksize (modular) |
| **Structure** | | Control Unit + Power Module | Control Unit + Infeed + Motor Module |
| **Drive concept** | | AC/AC | DC/AC |
| **Degree of protection** | | IP20, optional IP43 | IP20 |
| **Supply voltage/ power kW (hp)** | | | |
| **1AC 200 ... 240 V** | | – | – |
| **3AC 200 ... 240 V** | | – | – |
| **3AC 380 ... 480 V** | | 110 ... 250 kW (150 ... 400 hp at 460 V) | 1.6 ... 107 kW (1.5 ... 150 hp at 400 V) |
| **3AC 500 ... 690 V** | | – | – |
| **Energy recovery** | | No | Yes, depending on the infeed |
| **Control modes** | | V/f control, vector control with/without encoder Servo control with encoder | |
| **Ambient temperature** | | 0 °C to 40 °C without derating/to 55 °C with derating | |
| **Line filter** | | With integrated line filter for environments according to IEC 61800-3 Category C3/C2 | With integrated line filter for environments according to IEC 61800-3 Category C3/C2 (optional) |
| | | Without line filter for environments according to IEC 61800-3 Category C4 | Without line filter for environments according to IEC 61800-3 Category C4 |
| **Safety functions** | | STO, SS1, SBC, SOS, SS2, SLS, SSM, SDI, SLP, SP, SBT, SLA, SCA | |
| **Communications** | | PROFINET, PROFIBUS DP, EtherNet/IP (CU320-2), USS, CANopen (CU320-2), Modbus TCP, PROFIsafe | |
| **TIA Portal connected** | | Yes | |
| **Commissioning tools** | | SINAMICS Startdrive, SCOUT, Webserver, Starter | |
| **Digitalization tools** | | Drivetrain Analyzer Edge, Drivetrain Analyzer Cloud, DriveSim Designer, Drive Connector SINAMICS, TIA Selection Tool, SPC | |
| | | TIA Portal / SINAMICS Startdrive, Drive System Services | |
| **Controllers** | | SIMATIC, SIMATIC DC, SINUMERIK | |
| **Recommended motors** | | Motors for Motion Control, SIMOTICS S, M, L, T | Motors for Motion Control, SIMOTICS S, M, L, T |
| | | Innomotics[1] SD, XP, DP, TN, HT | Innomotics[1] GP, SD, XP, DP |

[1] Please find the right motors from our product partner Innomotics.com

Scan this code for
more information
about
SINAMICS S120

**siemens.com/product-configurator**



**SINAMICS S120M**

| **SINAMICS S120**<br>**Servo drive converter** | **SINAMICS S120 M**<br>**Servo drive converter** |
|---|---|
| Built-in unit chassis (modular) | Distributed multi-axis system |
| Control Unit + Infeed +<br>Motor Module | Control Unit + Infeed +<br>Motor Module combined with motor |
| DC/AC | DC/AC |
| IP00/IP20 | IP65 |
| | |
| – | – |
| – | – |
| 110 ... 3040 kW<br>(150 ... 4370 hp at 460 V) | 0.33 ... 1.1 kW |
| 75 ... 5700 kW<br>(75 ... 5700 hp at 575 V) | – |
| Yes, depending on the infeed | Yes, depending on the infeed |
| | Servo control with encoder |

| | |
|---|---|
| With integrated line filter for environments according to IEC 61800-3 Category C3/C2 (optional) | With integrated line filter for environments according to IEC 61800-3 Category C3/C2 (optional) |
| Without line filter for environments according to IEC 61800-3 Category C4 | Without line filter for environments according to IEC 61800-3 Category C4 |

| | |
|---|---|
| Motors for Motion Control,<br>SIMOTICS S, M, L, T | Motors for Motion Control,<br>SIMOTICS S |
| Innomotics[1] SD, XP, DP, TN, HT | |

SINAMICS S200.
Servo on! Move beyond.

Next
Generation
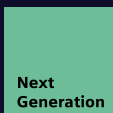
# SINAMICS
# DC-DC converters
Optimal performance for
industrial applications

↗ DC-DC CONVERTER

The compact DC-DC
converter SINAMICS DCP.

# SINAMICS DCP

## Reliable. Combinable. Versatile.

| | |
|---|---|
| **Format** | Built-in unit |
| **Drive concept** | DC – DC |
| **Degree of protection** | IP20: SINAMICS DCP 30 kW |
| | IP00: SINAMICS DCP 120 kW and DCP 250 kW |
| **Operating voltage range side 1** | 0 – 1000 V DC (DCP 30 kW and DCP 120 kW) |
| | 0 – 1220 V DC (DCP 250 kW) |
| **Operating voltage range side 2** | 0 – 1000 V DC (DCP 30 kW and DCP 120 kW) |
| | 0 – 1220 V DC (DCP 250 kW) |
| **Rated current** | DCP 30 kW: 50 A at 600 V DC (40 hp) |
| | DCP 120 kW: 200 A at 600 V DC (161 hp) |
| | DCP 250 kW: 250 A at 1000 V DC (335 hp) |
| **Input capacitance** | DCP 30 kW: 40 µF (on both sides) |
| | DCP 120 kW: 1200 µF (on both sides) |
| | DCP 250 kW: 800 µF (on both sides) |
| **Inductance of the energy storage** | DCP 30 kW: 700 µH |
| | DCP 120 kW: 500 µH |
| | DCP 250 kW: 500 µH |
| **DC electronics power supply** | 24 V |
| | DCP 30 kW: current consumption: 5 A at 24 V |
| | DCP 120 kW: current consumption: 20 A at 24 V |
| | DCP 250 kW: current consumption: 20 A at 24 V |
| **Maximum power loss** | 5800 W DCP 250 kW |
| | 2800 W DCP 120 kW |
| | 800 W DCP 30 kW |
| **Fans** | DCP 120 kW / 250 kW: temperature controlled |
| **Control modes** | Voltage control, current control |
| **Ambient operating temperature** | 0 °C to +40 °C (up to +55 °C with derating) |
| **Communications** | PROFINET, PROFIBUS DP, EtherNet/IP, Modbus TCP |
| **TIA Portal connected** | Yes |
| **Commissioning tools** | BOP, Starter |
| **Controllers** | Internal |

## Highlights

- Ready-to-go equipment
- Attaching storage system to S120 drive train system
- Fit the future

## Applications

Moving   Positioning

Scan this code for more information about SINAMICS DCP

# SINAMICS family – an overview

| Low voltage AC | Supply voltage | Power (kW) | Power (hp) |
|---|---|---|---|
| SINAMICS V20 | 1AC 200 ... 240 V<br>3AC 380 ... 480 V | 0.12 ... 3 kW<br>0.37 ... 30 kW | 0.16 ... 4 hp<br>0.5 ... 40 hp |
| SINAMICS G120C | 3AC 380 ... 480 V | 0.55 ... 132 kW | 0.75 ... 150 hp |
| SINAMICS G120 | 1AC / 3AC 200 ... 240 V<br>3AC 200 ... 240 V<br>3AC 380 ... 480 V<br>3AC 380 ... 480 V<br>3AC 500 ... 690 V | 0.55 ... 4 kW<br>5.5 ... 55 kW<br>0.55 ... 250 kW<br>7.5 ... 90 kW<br>11 ... 250 kW | 0.75 ... 5 hp, PM240-2<br>7.5 ... 60 hp, PM240-2<br>0.75 ... 400 hp, PM240-2<br>10 ... 125 hp, PM250<br>10 ... 250 hp at 600 V, PM240-2 |
| SINAMICS G130/G150 | 3AC 380 ... 480 V<br>3AC 500 ... 600 V<br>3AC 660 ... 690 V | 110 ... 560 kW<br>110 ... 560 kW<br>75 ... 800 kW | 150 ... 800 hp<br>150 ... 800 hp<br>85 ... 810 hp |
| SINAMICS G120X | 3AC 200 ... 240 V<br>3AC 380 ... 480 V<br>3AC 500 ... 690 V | 0.75 ... 55 kW<br>0.75 ... 560 kW<br>3 kW ... 630 kW | 1 ... 75 hp<br>1 ... 700 hp<br>4 ... 700 hp |
| SINAMICS G180 | 3AC 380 ... 500 V | 400 V: 2.2 kW ... 630 kW<br>500 V: 2.2 kW ... 800 kW<br>690 V: 7.5 kW ... 6700 kW | 3 ... 857 hp<br>3 ... 1088 hp<br>8 ... 9110 hp |
| SINAMICS G220 | 3AC 200 ... 240 V<br><br>3AC 380 ... 500 V<br><br><br><br>3AC 525 ... 690 V | 0.55 ... 30 kW (IP20)<br>1.1 ... 30 kW (IP55)<br>1.1 ... 55 kW (IP20)<br>1.1 ... 55 kW (IP55)<br>7.5 ... 55 kW (IP20) Clean Power<br>7.5 ... 55 kW (IP55) Clean Power<br>3 ... 55 kW (IP20)<br>3 ... 55 kW (IP55) | 0.75 ... 40 hp<br>1.5 ... 40 hp<br>1.5 ... 75 hp<br>1.5 ... 75 hp<br>10 ... 75 hp<br>10 ... 75 hp<br>4 ... 75 hp<br>4 ... 75 hp |
| SINAMICS S120 | 3AC 380 ... 480 V<br><br><br><br>3AC 500 ... 690 V | 400 V: 1.6 ... 107 kW<br>460 V: 110 ... 250 kW<br>460 V: 110 ... 3040 kW<br>480 V: 0.55 ... 250 kW<br>600 V: 11 ... 250 kW<br>575 V: 75 ... 5700 kW | 1.5 ... 150 hp<br>150 ... 400 hp<br>150 ... 4370 hp<br>0.75 ... 400 hp<br>10 ... 400 hp<br>75 ... 5700 hp |
| SINAMICS S150 | 3AC 380 ... 480 V<br>3AC 500 ... 690 V | 110 ... 800 kW<br>75 ... 1200 kW | 150 ... 1150 hp<br>75 ... 1250 hp |
| SINAMICS DCM (DC) | 1AC 50 ... 230 V<br>1AC 50 ... 400 V<br>1AC 50 ... 480 V<br>1AC 50 ... 575 V<br>3AC 10 ... 50 V<br>3AC 50 ... 400 V<br>3AC 50 ... 480 V<br>3AC 50 ... 575 V<br>3AC 100 ... 690 V<br>3AC 100 ... 830 V<br>3AC 100 ... 950 V | 1.61 ... 362 kW<br>2.81 ... 653 kW<br>3.37 ... 310 kW<br>16.1 ... 863 kW<br>0.16 ... 183 kW<br>6.3 ... 1460 kW<br>6.3 ... 690 kW<br>35 ... 1930 kW<br>551 ... 2160 kW<br>831 ... 1900 kW<br>2200 ... 2500 kW | 2.16 ... 485 hp<br>3.77 ... 876 hp<br>4.52 ... 416 hp<br>21.6 ... 1160 hp<br>0.21 ... 245 hp<br>8.4 ... 1950 hp<br>8.4 ... 925 hp<br>47 ... 2590 hp<br>739 ... 2900 hp<br>1110 ... 2550 hp<br>2950 ... 3350 hp |
| SINAMICS V90 | 1AC / 3AC 200 ... 240 V<br>3AC 200 ... 240 V<br>3AC 380 ... 480 V | 0.1 ... 0.75 kW<br>1 ... 2 kW<br>0.4 ... 7 kW | 0.07 ... 1.02 hp<br>0.7 ... 2.7 hp<br>0.54 ... 10 hp |
| SINAMICS S200 | 1/3AC 200 ... 240 V<br>3AC 380 ... 480 V | 0.1 ... 1.0 kW<br>0.2 ... 7.0 kW | 0.14...1.34 hp<br>0.27...9.4 hp[1] |
| SINAMICS S210 | 1AC 200 ... 240 V<br>3AC 200 ... 480 V | 0.1 ... 0.75 kW<br>0.4 ... 7 kW | 0.14 ... 1.02 hp<br>0.54 ... 9.5 hp |
| SINAMICS S120 | 3AC 380 ... 480 V<br><br><br><br>3AC 500 ... 690 V | 0.55 ... 132 kW<br>110 ... 250 kW<br>1.6 ... 107 kW<br>110 ... 3040 kW<br>75 ... 5700 kW | 0.5 ... 150 hp<br>150 ... 340 hp<br>2 ... 145 hp<br>150 ... 4133 hp<br>75 ... 5700 hp |
| SINAMICS S120M | 3AC 380 ... 480 V | 0.33 ... 1.55 kW | 0.45 ... 2 hp |
| SINAMICS G115D | 3AC 380 ... 480 V | 0.37 ... 4 kW motor mounted<br>0.37 ... 7.5 kW wall mounted | 0.5 ... 5 hp<br>0.5 ... 10 hp |
| SINAMICS G120D | 3AC 380 ... 500 V | 0.75 ... 7.5 kW | 1 ... 10 hp |

| DC-DC converters | Supply voltage | Power (kW) | Power (hp) |
|---|---|---|---|
| SINAMICS DCP | 50 A at 600 V DC<br>(DCP 30 kW) | 30 kW (DCP 30 kW) | 40 hp (DCP 30 kW) |
| | 200 A ... 600 V DC<br>(DCP at kW) | 120 kW (DCP 120 kW) | 161 hp (DCP 120 kW) |
| | 250 A at 1000 V DC<br>(DCP 250 kW | 250 kW (DCP 250 kW) | 335 (DCP 250 kW) |

| Communication | Commissioning tools | Safety functions |
|---|---|---|
| USS/Modbus RTU | V20 BOP, V20 Smart Access Module | No |
| PROFINET, PROFIBUS DP, EtherNet/IP, USS/Modbus RTU, PROFIsafe | BOP-2, IOP-2, G120 Smart Access Module, SINAMICS Startdrive | STO |
| PROFINET, PROFIBUS DP, EtherNet/IP, USS/Modbus RTU, CANopen, PROFIsafe | BOP-2, IOP-2, G120 Smart Access Module, SINAMICS Startdrive | STO, SS1, SBC, SLS, SDI, SSM |
| PROFINET, PROFIBUS DP, EtherNet/IP, USS, CANopen, PROFIsafe | AOP30, SINAMICS Startdrive | STO, SS1, SBC, SLS, SDI, SSM, SBT |
| PROFINET, PROFIBUS DP, EtherNet/IP, USS/Modbus RTU/ BACNet/FLN1 | BOP-2, IOP-2, G120 Smart Access Module | STO |
| PROFIBUS DP, EtherNet/IP, Modbus TCP/IP, Modbus RTU, CANopen, on request: PROFINET | IMS (Inverter Management Software) | STO, ATEX-certified PTC thermistor input for explosion-protected motors |
| PROFINET (RT/IRT, MRP, MRPD & S2 Redundancy), Modbus TCP/IP, EtherNet/IP , PROFIsafe, PROFIenergy | Web server, SINAMICS Startdrive, SINAMICS SDI Standard, SINAMICS SDI Pro 5.5" | Standard: STO, SS1, SMT (requires option module SMT) Extended: SS1, SLS, SDI, SSM |
| PROFINET, PROFIBUS DP, EtherNet/IP (CU320-2), USS, CANopen (CU320-2), Modbus TCP, PROFIsafe | SINAMICS Startdrive, Starter, Scout, Web server | STO, SS1, SBC, SOS, SS2, SLS, SSM, SDI, SLP, SP, SCA, SLA, SBT |
| PROFINET, PROFIBUS DP, EtherNet/IP, USS, CANopen, PROFIsafe | SINAMICS Startdrive, integrated Web server | STO, SS1, SBC, SOS, SS2, SLS, SSM, SDI, SLP, SP, SCA, SLA, SBT |
| PROFINET, PROFIBUS DP, USS, EtherNet/IP, Modbus TCP | BOP, AOP30, SCOUT, STARTER | STO, SS1 |
| Pulse/direction interface, USS/Modbus RTU, PROFINET | SINAMICS V-ASSISTANT, TIA Portal HSP | STO |
| Pulse train interface, Modbus RTU (available soon), PROFINET | Web server, SINAMICS Startdrive | STO, SS1-t (available soon) via terminal (Certified according IEC 61800-5- up to SIL 3 and ISO 13849-1 Cat. 4 and PL e)[1] |
| OCC (One Cable Connection) PROFINET, PROFIdrive, PROFIsafe, PROFIenergy | Web server, SINAMICS Startdrive | STO, SS1, SBC, SOS, SS2, SLS, SSM, SDI, SLA, SBT (new SINAMICS S210: Certified according IEC 61800-5- up to SIL 3 and ISO 13849-1 Cat. 4 and PL e) |
| PROFINET, PROFIBUS DP, EtherNet/IP (CU320-2), USS, CANopen (CU320-2), Modbus TCP, PROFIsafe | Web server, SINAMICS Startdrive, Starter, Scout | STO, SS1, SBC, SOS, SS2, SLS, SSM, SDI, SLP, SP, SCA, SLA, SBT |
| PROFINET, PROFIBUS DP, EtherNet/IP2, USS, CANopen | SINAMICS Startdrive, Starter | STO, SS1, SBC, SOS, SS2, SLS, SSM, SDI, SLP, SP, SCA, SLA, SBT |
| PROFINET/Ethernet IP, AS-i or I/O controlled | SINAMICS Startdrive, SINAMICS G120 Smart Access Module | STO, SLS as a licensed option |
| PROFINET/Ethernet IP, PROFIBUS | IOP-2 Handheld, SINAMICS Startdrive | STO, SS1, SLS, SDI, SSM |
| PROFINET, PROFIBUS DP, EtherNet/IP, Modbus TCP | BOP, Starter | n/a |

[1] Not available for S200 Basic

[2] in progress

# Smart financing
## solutions for industry

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