SIEMENS

Motion Control Drives

SINAMICS Converters for Single-Axis Drives

SINAMICS G115D
Distributed Drive System

Catalog
News
D 31.2 N

Edition
March
2021

siemens.com/sinamics-g115d

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Related catalogs

Motion Control Drives D 31.1
SINAMICS Inverters for Single-Axis Drives
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E86060-K5531-A111-A1-7600

Motion Control Drives D 31.2
SINAMICS Inverters for Single-Axis Drives
Distributed Inverters

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and worm geared motors

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Motion Control System PM 21
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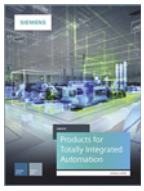
SIMATIC ST 70
Products for
Totally Integrated Automation

PDF (E86060-K4670-A101-B7-7600)



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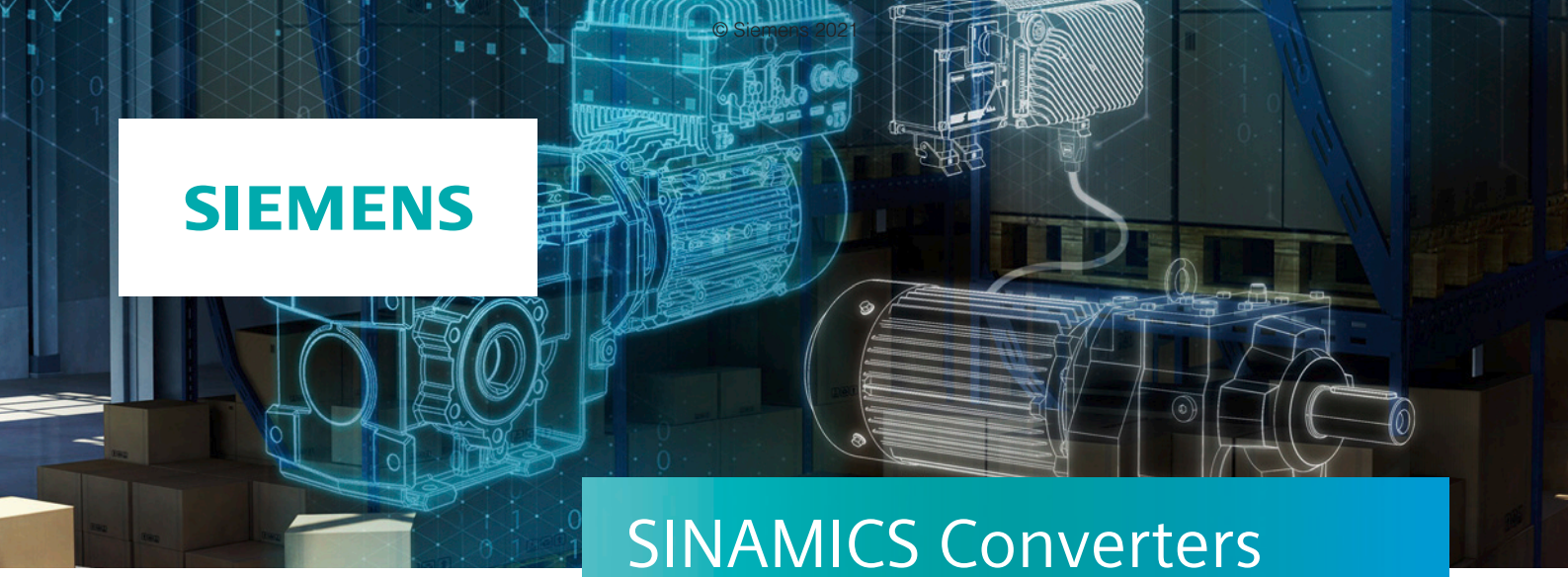

SIEMENS

SINAMICS Converters for Single-Axis Drives

SINAMICS G115D Distributed Drive System

Catalog News D 31.2 N · March 2021

Dear customer,

We are pleased to present you with the new Catalog News D 31.2 N · March 2021. The News Catalog is a supplement to Catalog D 31.2 · 2018 and provides a comprehensive overview of the new SINAMICS G115D distributed drive system.

The SINAMICS G115D distributed drive system was developed for the conveyor technology sector with a focus on the intralogistics and airport industries as well as simple, horizontal applications in the automotive and food and beverage industries.

The products listed in this catalog are also included in the Industry Mall. Please contact your local Siemens office for additional information.

Up-to-date information about SINAMICS G115D is available on the internet at:
www.siemens.com/sinamics-g115d

You can access our Industry Mall on the internet at
www.siemens.com/industrymall

Your personal contact will be glad to receive your suggestions and recommendations for improvement.
You can find your representative in our Personal Contact database at:
www.siemens.com/automation-contact

We hope that you will often enjoy using Catalog News D 31.2 N · March 2021 as a selection and ordering reference document and wish you every success with our products and solutions.

With kind regards,

Frank Golüke
Vice President
General Motion Control
Siemens AG, Digital Industries, Motion Control

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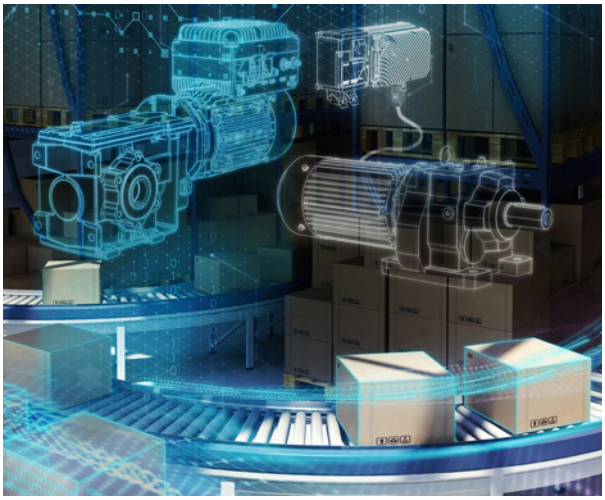
SINAMICS Converters for Single-Axis Drives

SINAMICS G115D Distributed Drive System

Motion Control Drives



Catalog D 31.2 N · March 2021

Supersedes:
Order Overview D 31.2 N · December 2020

Refer to the Industry Mall for current updates of this catalog:
www.siemens.com/industrymall

Please contact your local Siemens branch.

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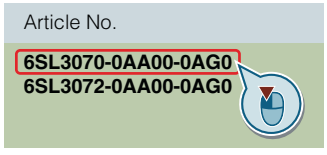
Click on an Article No. in the catalog PDF to call it up in the Industry Mall and to obtain all the information.



Or directly on the internet, e.g.
www.siemens.com/product?6SL3070-0AA00-0AG0

The products and systems described in this catalog are manufactured/distributed under application of a certified quality management system in accordance with EN ISO 9001. The certificate is recognized by all IQNet countries.

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Digital Enterprise

The building blocks that ensure everything works together perfectly in the digital enterprise

Digitalization is already changing all areas of life and existing business models. It is placing greater pressure on industry while at the same time creating new business opportunities. Today, thanks to scalable solutions from Siemens, companies can already become a digital enterprise and ensure their competitiveness.

Industry faces tremendous challenges

Reduce time-to-market

Today manufacturers have to bring products to market at an ever-increasing pace despite the growing complexity of these products. In the past, a major manufacturer would push aside a small one, but now it is a fast manufacturer that overtakes a slow one.

Boost flexibility

Consumers want customized products, but at a price they would pay for a mass-produced item. That only works if production is more flexible than ever before.

Improve quality

To ensure a high level of quality while meeting legal requirements, companies have to establish closed quality loops and enable the traceability of products.

Boost efficiency

Today the product itself needs to be sustainable and environmentally friendly, while energy efficiency in production has become a competitive advantage.

Increase security

Increasing networking escalates the threat to production facilities of cyberattacks. Today more than ever, companies need suitable security measures.

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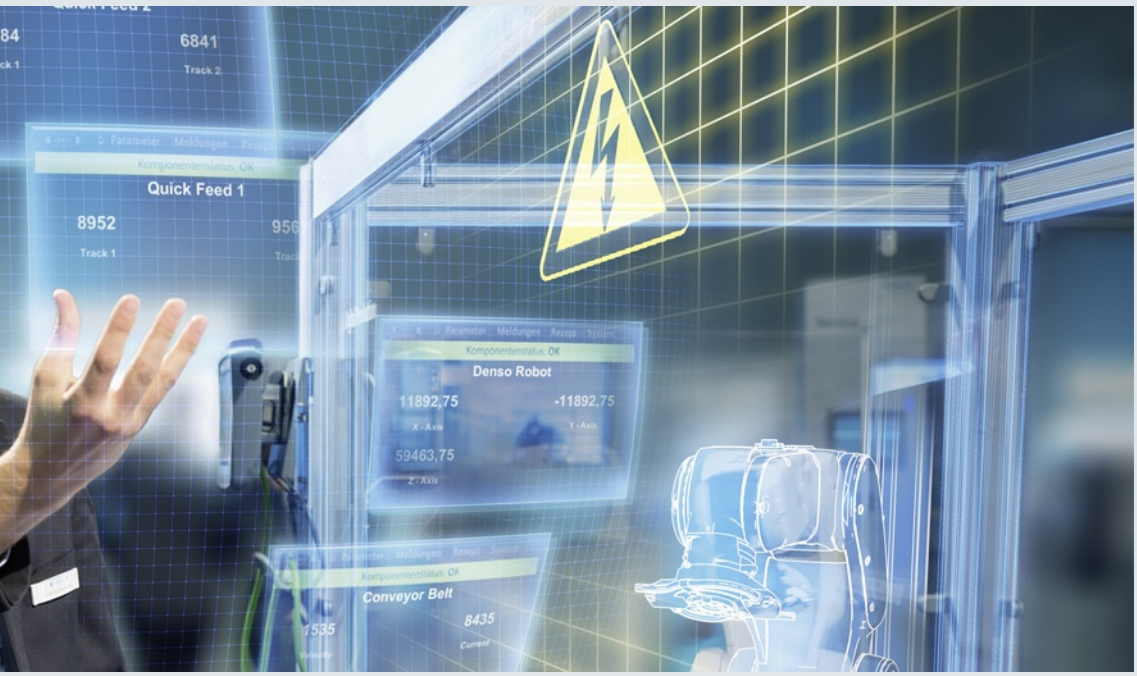

The digital enterprise has already become a reality

To fully benefit from all the advantages of digitalization, companies first have to achieve complete consistency of their data. Fully digitally integrated business processes, including those of suppliers, can help to create a digital representation of the entire value chain. This requires

- the integration of industrial software and automation,
- expansion of the communication networks,
- security in automation,
- and the use of business-specific industrial services.

MindSphere

The cloud-based open IoT operating system from Siemens

With MindSphere, Siemens offers a cost-effective and scalable cloud platform as a service (PaaS) for the development of applications. The platform, designed as an open operating system for the Internet of Things, makes it possible to improve the efficiency of plants by collecting and analyzing large volumes of production data.

Totally Integrated Automation (TIA)

Where digitalization becomes reality

Totally Integrated Automation (TIA) ensures the seamless transition from the virtual to the real world. It already encompasses all the necessary conditions for transforming the benefits of digitalization into true added value. The data that will form the digital twin for actual production is generated from a common base.

Digital Plant
Learn more about the digital enterprise for the process industry
www.siemens.com/digitalplant

Digital Enterprise Suite
Learn more about the digital enterprise for the discrete industry
www.siemens.com/digital-enterprise-suite

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Integrated Drive Systems

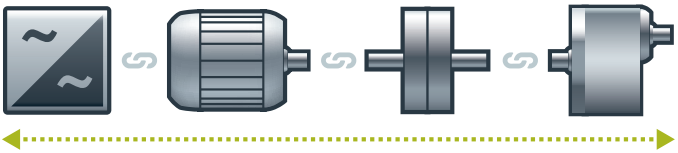
Faster on the market and in the black with Integrated Drive Systems

Integrated Drive Systems are Siemens' trendsetting answer to the high degree of complexity that characterizes drive and automation technology today. The world's only true one-stop solution for entire drive systems is characterized in particular by its threefold integration: Horizontal, vertical, and lifecycle integration ensure that every drive system component fits seamlessly into the whole system, into any automation environment, and even into the entire lifecycle of a plant.

The outcome is an optimal workflow – from engineering all the way to service that entails more productivity, increased efficiency, and better availability. That's how Integrated Drive Systems reduce time to market and time to profit.

Horizontal integration

Integrated drive portfolio: The core elements of a fully integrated drive portfolio are frequency converters, motors, couplings, and gear units. At Siemens, they're all available from a single source. Perfectly integrated, perfectly interacting. For all power and performance classes. As standard solutions or fully customized. No other player in the market can offer a comparable portfolio. Moreover, all Siemens drive components are perfectly matched, so they are optimally interacting.



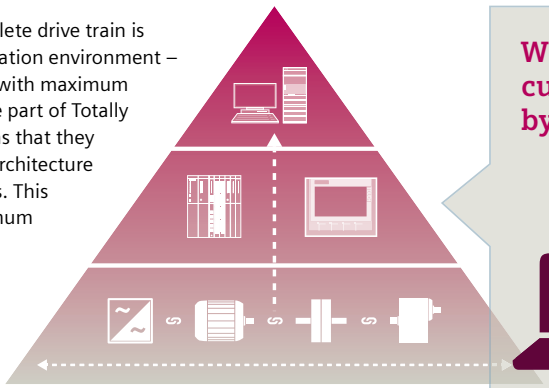
You can boost the availability of your application or plant to up to

99 %*

*e.g., conveyor application

Vertical integration

Thanks to **vertical integration**, the complete drive train is seamlessly integrated in the entire automation environment – an important prerequisite for production with maximum value added. Integrated Drive Systems are part of Totally Integrated Automation (TIA), which means that they are perfectly embedded into the system architecture of the entire industrial production process. This enables optimal processes through maximum communication and control.



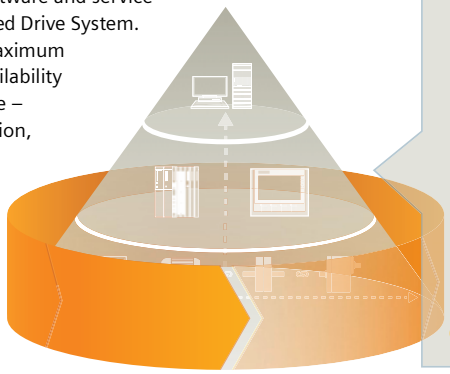
With TIA Portal you can cut your engineering time by up to

30 %

Lifecycle integration

Lifecycle integration adds the factor of time: Software and service are available for the entire lifecycle of an Integrated Drive System. That way, important optimization potential for maximum productivity, increased efficiency, and highest availability can be leveraged throughout the system's lifecycle – from planning, design, and engineering to operation, maintenance, and all the way even to modernization.

With Integrated Drive Systems, assets become important success factors. They ensure shorter time to market, maximum productivity and efficiency in operation, and shorter time to profit.



With Integrated Drive Systems you can reduce your maintenance costs by up to

15 %

www.siemens.com/ids

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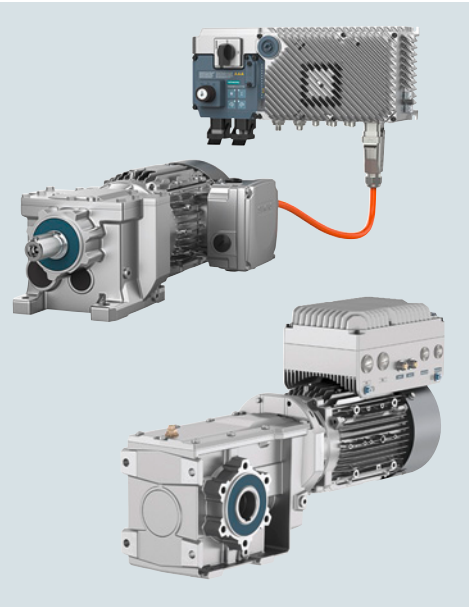
SINAMICS G115D distributed drive system
0.37 kW to 7.5 kW



SINAMICS G115D
distributed drive system
7/2 Application
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7.1/1 System overview
7.2/1 Wall-mounted
7.3/1 Motor-mounted
7.4/1 Supplementary components

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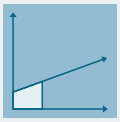
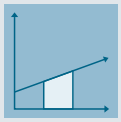
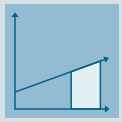
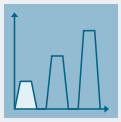
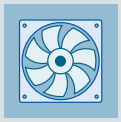
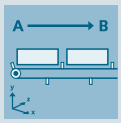
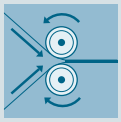
SINAMICS G115D distributed drive system
0.37 kW to 7.5 kW

Introduction

Application

Use	Requirements for torque accuracy/speed accuracy/position accuracy/coordination of axes/functionality					
	Continuous motion			Non-continuous motion		
	Basic	Medium	High	Basic	Medium	High
						
Pumping, ventilating, compressing	Centrifugal pumps Radial / axial fans Compressors	Centrifugal pumps Radial / axial fans Compressors	Eccentric screw pumps	Hydraulic pumps Metering pumps	Hydraulic pumps Metering pumps	Descaling pumps Hydraulic pumps
	V20 G120C G120X	G120X G130/G150 G180 [1] DCM	S120	G120	S110	S120
Moving 	Conveyor belts Roller conveyors Chain conveyors	Conveyor belts Roller conveyors Chain conveyors Lifting/lowering devices Elevators Escalators/moving walkways Indoor cranes Marine drives Cable railways	Elevators Container cranes Mining hoists Excavators for open-cast mining Test bays	Acceleration con-veyors Storage and retrieval machines	Acceleration con-veyors Storage and retrieval machines Cross cutters Reel changers	Storage and retrieval machines Robotics Pick & place Rotary indexing tables Cross cutters Roll feeds Engagers/ disengagers
	V20 **G115D** G120C ET 200pro FC-2 [2]	G120 G120D G130/G150 G180 [1]	S120 S150 DCM	V90 G120 G120D	S110 S210 DCM	S120 S210 DCM
Processing 	Mills Mixers Kneaders Crushers Agitators Centrifuges	Mills Mixers Kneaders Crushers Agitators Centrifuges Extruders Rotary furnaces	Extruders Winders/unwinders Lead/follower drives Calenders Main press drives Printing machines	Tubular bagging machines Single-axis motion control such as • Position profiles • Path profiles	Tubular bagging machines Single-axis motion control such as • Position profiles • Path profiles	Servo presses Rolling mill drives Multi-axis motion control such as • Multi-axis positioning • Cams • Interpolations
	V20 G120C	G120 G130/G150 G180 [1]	S120 S150 DCM	V90 G120	S110 S210	S120 S210 DCM
Machining	Main drives for • Turning • Milling • Drilling	Main drives for • Drilling • Sawing	Main drives for • Turning • Milling • Drilling • Gear cutting • Grinding	Axis drives for • Turning • Milling • Drilling	Axis drives for • Drilling • Sawing	Axis drives for • Turning • Milling • Drilling • Lasering • Gear cutting • Grinding • Nibbling and punching
	S110	S110 S120	S120	S110	S110 S120	S120

The SINAMICS G115D distributed drive system meets all the requirements that system manufacturers place on drives for applications in conveyor technology with a focus on the intralogistics and airport industries as well as for simple, horizontal applications in the automotive and food and beverage industries.

The converter is supplied as with degree of protection up to IP66 and sets standards in terms of efficiency – from the installation phase to commissioning and all the way to handling.
The SINAMICS G115D drive system is the first choice for users who want to move conveyed material quickly and efficiently.

Practical application examples and descriptions are available on the internet at
www.siemens.com/sinamics-applications
www.siemens.com/conveyor-technology

More information

You may also be interested in these frequency converters:

- With enhanced functionality, with positioning function in IP65 degree of protection ⇒ SINAMICS G120D
- More performance for the control cabinet in IP20 degree of protection ⇒ SINAMICS G120, SINAMICS G120C
- With positioning function in the control cabinet in IP20 degree of protection ⇒ SINAMICS G120

[1] Industry-specific converters.

[2] Information on the SIMATIC ET 200pro FC-2 frequency converter is available at:
www.siemens.com/et200pro-fc

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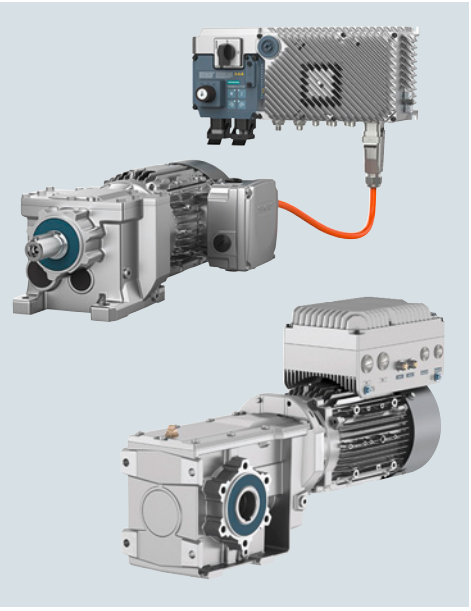
SINAMICS G115D distributed drive system • System overview
0.37 kW to 7.5 kW



7.1/2 SINAMICS G115D distributed drive system

7.1/2 SINAMICS G115D distributed drive system
7.1/5 SINAMICS G115D distributed converters wall-mounted
7.1/6 SIMOGEAR geared motors for/with SINAMICS G115D wall-mounted/ motor-mounted
7.1/6 Structure of the Article No.
7.1/8 Orientation
7.1/10 SIMOGEAR geared motors for SINAMICS G115D wall-mounted
7.1/10 Motor type asynchronous motors IE2/IE3
7.1/12 Motor type synchronous reluctance motors IE4
7.1/14 SIMOGEAR geared motors with SINAMICS G115D motor-mounted
7.1/14 Motor type asynchronous motors IE2/IE3
7.1/15 Motor type synchronous reluctance motors IE4
7.1/16 Converter options
7.1/17 Supplementary system components and spare parts for SINAMICS G115D

7.1/18 Configuring guide

7.1/18 Determining the drive data
7.1/20 Configuring a gearbox
7.1/29 Configuring a brake

To select the helical geared motor, parallel shaft geared motor, bevel geared motor and helical worm geared motor, see "Gearbox selection" or "Dimensional drawings" in the Industry Mall at:
www.siemens.com/sinamics-g115d/gear-selection-wall-mounted
or
www.siemens.com/sinamics-g115d/gear-selection-motor-mounted

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Overview

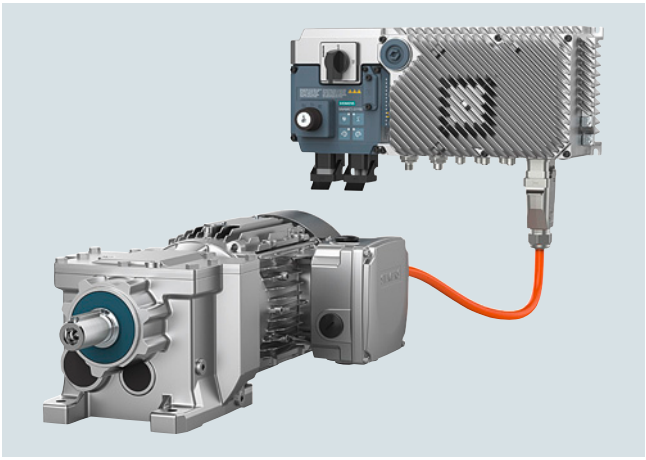
The SINAMICS G115D distributed drive system provides fully preconfigured and ready-to-connect solutions in a modular concept that includes the converter, motor and gearbox.

The converter supports three-phase asynchronous motors with efficiency class IE3 or high-efficiency synchronous reluctance motors with efficiency class IE4.

It meets all requirements for horizontal conveyor system applications – from simple speed control to sophisticated encoderless vector control. Integrated functions such as fast/slow speed switchover, Quick Stop and limit position disconnector make the SINAMICS G115D particularly suitable for applications in conveyor systems.

For applications that require safety technology, the SINAMICS G115D offers the integrated STO (Safe Torque Off) function, which can be implemented without additional external components.
The SINAMICS G115D distributed drive system is available wall-mounted and motor-mounted.

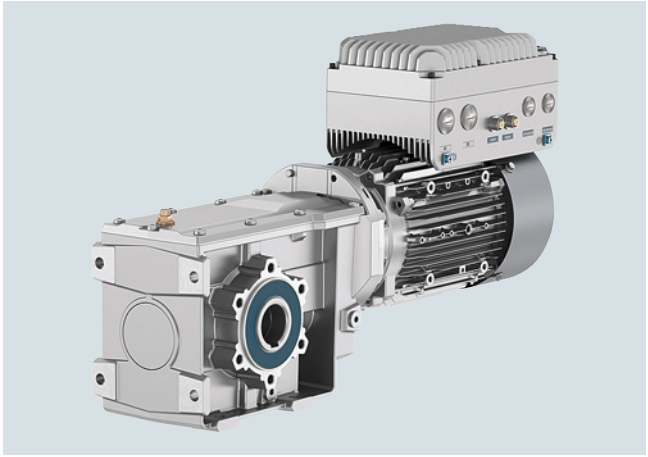
SINAMICS G115D distributed drive system, wall-mounted



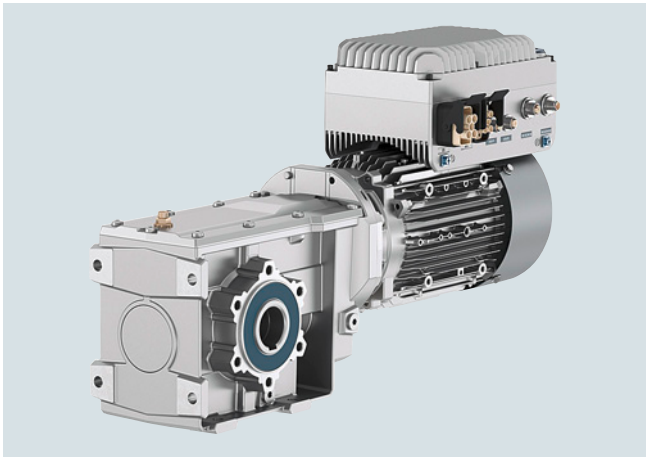
Example: SINAMICS G115D distributed drive system, wall-mounted, PROFINET, version with plug-in connection, FSA, 1.5 kW

The wall-mounted converter with its different versions (frame sizes FSA to FSC) in a performance range from 0.37 kW to 7.5 kW is suitable for a large number of different applications. Thanks to the compact design with degree of protection IP65 (plug-in connection) or IP66 (cable gland), it can be seamlessly integrated into the system.

SINAMICS G115D distributed drive system, motor-mounted



Example: SINAMICS G115D distributed drive system, motor-mounted, PROFINET, version with cable gland, FSA, 1.5 kW, SIMOGEAR motor LE 90, gearbox B49, hollow shaft



Example: SINAMICS G115D distributed drive system, motor-mounted, PROFINET, version with plug-in connection, FSA, 1.5 kW, SIMOGEAR motor LE 90, gearbox B49, hollow shaft

The motor-mounted converter with its different versions (frame sizes FSA and FSB) in a performance range from 0.37 kW to 4 kW is suitable for a large number of different applications. Thanks to its compact design with degree of protection up to IP65, it can be seamlessly integrated into the system.

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Overview

Perfect combination with SIMATIC controllers and PROFINET

Integration via PROFINET communication with PROFIsafe, AS-Interface, EtherNet/IP into a higher-level control system is very easy thanks to full TIA Portal integration, which provides a tool as well as an operating and data management concept. In addition, an optional web server module is available with the web server module SINAMICS G120 Smart Access (SAM) – a WLAN-based web server solution for simple and fast wireless setup with tablets or smartphones during commissioning and for diagnostics.

The SINAMICS G115D distributed drive system is ready for digitalization. All operating data can be transferred to the MindSphere cloud solution. The MindSphere application "Analyze MyDrives" facilitates the process evaluation of operating data, with the possibility of adaptation to individual customer requirements. This simplifies the recording and evaluation of the operating conditions of the drive system.

Reasons for using the SINAMICS G115D distributed drive system

- User-friendly modular solution – pre-configured and ready for connection
- Versatile, robust and reliable system
- New design for quick and easy installation, cabling and commissioning
- The wall-mounted and motor-mounted variants use the same platform
- No control cabinet required, thanks to the installation on the machine less space required and lower cooling requirements
- Long cables between the converters and the motors can be avoided (thus less power loss, reduced interference emissions, and lower costs for shielded cables and additional filters)
- Supports asynchronous motors and high-efficiency synchronous reluctance motors according to efficiency class IE4
- Worldwide use of the SIMOGEAR 2KJ8 geared motors independent of the line voltage
- Temperature range from -30 °C to 55 °C (suitable for installation in deep-freeze applications)
- Integrated safety, STO (Safe Torque Off) via fail-safe digital input F-DI or PROFIsafe
- Perfectly prepared for digitalization thanks to various communications interfaces and integration of the AMD (Analyze MyDrives) application into the Totally Integrated Automation (TIA)
- Special properties for the intralogistics market (e.g. repair switches, local remote control, Safety Integrated, conveyor technology functions)

The family of distributed drive systems at Siemens

Siemens offers an innovative portfolio of frequency converters for optimal implementation in distributed drive solutions. The strengths of the individual members of the converter family allow easy adaptation to the most diverse application requirements:

- Identical connection systems
- User-friendly commissioning and configuration tools

Products from the family of distributed drives:

- SINAMICS G115D distributed drive system (wall and motor-mounted)
- SINAMICS G120D frequency converters
- SIMATIC ET 200pro FC-2 frequency converters
- SIRIUS M200D motor starters

Hardware configuration

The SINAMICS G115D distributed drive system is available as a wall-mounted and motor-mounted version, with degree of protection IP65/66.

The performance range for the wall-mounted version, for ranges from 0.37 kW to 7.5 kW and in the motor-mounted version, for ranges from 0.37 kW to 4 kW.

The converter is configurable regarding fieldbus communication (without, AS-Interface or PROFINET / EtherNet/IP) and connection method (cable gland or plug-in connection). Furthermore, the wall-mounted version can be configured with a repair switch, local remote control and the control voltage of the motor holding brake.

State-of-the-art IGBT technology with pulse width modulation (PWM) is used for extremely reliable and flexible motor operation. The closed-loop control electronics control and monitor the power electronics and the connected motor in several different control modes that can be selected.

The sensors of the conveyor element can be connected to the digital inputs of the converter. These signals can be transmitted to the higher-level control for further processing via PROFINET, EtherNet/IP or AS-Interface.

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Overview

Safety Integrated

The SINAMICS G115D distributed drive systems are already equipped with the Safety Integrated Function STO (Safe Torque Off), with certification according to IEC 61508 SIL 2 as well as EN ISO 13849-1 PL d and Category 3. This can be activated either via the PROFIsafe communication protocol or via the fail-safe digital input F-DI.

Drive Technology Configurator (DT Configurator)

The Drive Technology Configurator (DT Configurator) helps you configure the optimum drive technology products for a number of applications – starting with gearboxes, motors, converters as well as the associated options and components and ending with controllers, software licenses and connection systems.

The DT Configurator can be used on the internet without requiring any installation. The DT Configurator can be found in the Siemens Industry Mall at the following address:
www.siemens.com/dt-configurator

SINAMICS Startdrive commissioning tool

SINAMICS Startdrive is a tool integrated into the TIA Portal for configuring, commissioning and diagnostics of the SINAMICS converter family. SINAMICS Startdrive (V16 update 4 and higher) can be used to implement converter tasks with most of the SINAMICS G and SINAMICS S converter series. The commissioning tool has been optimized in terms of simplicity, ease of use, and consistent use of the benefits of the TIA Portal to provide a uniform working environment for PLC, HMI and drives.

The SINAMICS Startdrive Basic commissioning tool is available for free on the internet at
www.siemens.com/startdrive

Drive dimensioning of the SINAMICS G115D distributed drive system with the TIA Selection Tool

The SINAMICS G115D distributed drive system is easily configured with the TIA Selection Tool under the Drive Dimensioning plug-in. It provides support when selecting the hardware and firmware components necessary to implement a drive task. The plug-in encompasses the configuration of the entire drive system and allows the handling of individual drives.

- Intuitive user interface, menu-based operation and help
- Configuration of the SINAMICS G115D distributed drive system
- Adjustable load cycles and various mechanical systems integrated
- Interface to the TIA Portal and Industry Mall

The TIA Selection Tool is available for free on the internet at
http://www.siemens.com/tia-selection-tool-standalone

SIMARIS planning tools for plants with SINAMICS drives (available soon)

Electrical planning: Even easier with software!

Electrical planning for power distribution in non-residential and industrial buildings has never been more complex. To ensure you, as a specialist planner, have the best hand when it comes to electrical planning with SINAMICS drives, we provide support with the following efficient software tools:

- SIMARIS design for dimensioning
- SIMARIS project for calculating the space requirements of the distribution boards

Extended warranty

For SINAMICS G115D, Siemens offers an extended warranty of up to 4 years:

- 18-month standard warranty
- Optional extension via **Service Protect**
  - Free for the first 6 months after registering the product at: https://myregistration.siemens.com
  - With costs for 1 or 2 additional years for wall-mounted and motor-mounted versions (complete system with converter and geared motor)

You can find more information at:
https://support.industry.siemens.com/cs/ww/en/sc/4842

More information

Compact Operating Instructions are supplied in hard copy form in German, English and Chinese with every SINAMICS G115D.

To select the helical geared motor, parallel shaft geared motor, bevel geared motor and helical worm geared motor, see "Gearbox selection" or "Dimensional drawings" in the Industry Mall at:
www.siemens.com/sinamics-g115d/gear-selection-wall-mounted
or
www.siemens.com/sinamics-g115d/gear-selection-motor-mounted

The latest technical documentation (catalogs, dimensional drawings, certificates, manuals and operating instructions) as well as further technical specifications are available on the internet at:
www.siemens.com/sinamics-g115d/documentation

and in the Drive Technology Configurator (DT Configurator)
www.siemens.com/sinamics-g115d/configuration

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Selection and ordering data

SINAMICS G115D distributed converters wall-mounted · 380 ... 480 V 3 AC

Rated power [1]		Rated output current I_N [2]	Rated input current [3]	Frame size	SINAMICS G115D wall-mounted Degree of protection IP65/IP66/UL Type 4X with integrated line filter class A according to EN 55011
400 V kW	480 V hp	at 400 V A	at 400 V A		Data position in Article No. 1 2 3 4 5 6 7 - 8 9 10 11 12 - 13 14 15 16
380 ... 480 V 3 AC · Rated pulse frequency 4 kHz · Input frequency 45 ... 66 Hz					
0.37	0.5	1.3	1.23	FSA	**6 S L 3 5 2 ■ - ■ X ■ ■ 0 - 3 A ■ 0**
0.55	0.75	1.7	1.58	FSA	**6 S L 3 5 2 ■ - ■ X ■ ■ 0 - 5 A ■ 0**
0.75	1	2.2	1.99	FSA	**6 S L 3 5 2 ■ - ■ X ■ ■ 0 - 7 A ■ 0**
1.1	1.5	3.1	2.69	FSA	**6 S L 3 5 2 ■ - ■ X ■ ■ 1 - 1 A ■ 0**
1.5	2	4.1	3.48	FSA	**6 S L 3 5 2 ■ - ■ X ■ ■ 1 - 5 A ■ 0**
2.2	3	5.9	5.18	FSB	**6 S L 3 5 2 ■ - ■ X ■ ■ 2 - 2 A ■ 0**
3.0	4	7.7	6.76	FSB	**6 S L 3 5 2 ■ - ■ X ■ ■ 3 - 0 A ■ 0**
4.0	5	10.2	8.95	FSB	**6 S L 3 5 2 ■ - ■ X ■ ■ 4 - 0 A ■ 0**
5.5	7.5	13.2	11.88	FSC	**6 S L 3 5 2 ■ - ■ X ■ ■ 5 - 5 A ■ 0**
7.5	10	19	17.11	FSC	**6 S L 3 5 2 ■ - ■ X ■ ■ 7 - 5 A ■ 0**

Article No. supplements

Brake control									
180 V DC (independent of the line voltage) *)								**0**	
380 ... 480 V AC (such as line voltage)								**1**	
Operating options									
Without operating option *)							**0**		
Repair switch							**1**		
Local remote control							**2**		
Repair switch and local remote control							**3**		
Connection type	Fieldbus communication	I/O	Motor	380 ... 480 V AC	24 V DC				
Cable gland with daisy chain	without	Cable gland *)						**A**	**0**
		Cable gland			Power supply unit integrated			**H**	**0**
	M12	Cable gland *)						**A**	**2**
		M12	Cable gland					**A**	**6**
		Cable gland			Power supply unit integrated			**H**	**2**
		M12	Cable gland		Power supply unit integrated			**H**	**6**
Plug-in connection without daisy chain	M12	M12	Q8/0	Q4/2	7/8" [5]			**B**	**0**
					Power M12 [6]			**B**	**4**
				Quickon [4]	Power M12 [5]			**C**	**0**
				MQ15 [4]	Power M12 [5]			**D**	**0**
				Q4/2	Power supply unit integrated			**K**	**0**
				Quickon [4]	Power supply unit integrated			**L**	**0**
				MQ15 [4]	Power supply unit integrated			**M**	**0**
Plug-in connection with daisy chain	M12	M12	Q8/0	2 × Q4/2	2 × 7/8" *) [5]			**E**	**0**
					2 × Power M12 [6]			**E**	**4**
					Power supply unit integrated			**N**	**0**
Fieldbus communication									
AS-Interface									**A**
Without fieldbus communication									**B**
PROFINET, EtherNet/IP									**F**

* If you select "Brake voltage 180 V DC" and "Without operating option" in combination with one of the connection types **A0**, **A2** or **E0**, the delivery time will change from "**standard delivery time**" to "**delivery ex stock**".

[1] Rated power based on the rated output current I_N.
The rated output current I_N is based on the duty cycle for high overload (HO).

[2] The rated output current I_N is based on the duty cycle for high overload (HO). These current values apply at 400 V and are specified on the rating plate of the converter.

[3] The input current depends on the motor load and line impedance.
The input currents apply for a load at rated power for a line impedance corresponding to u_K = 4 %.
The current values are specified on the rating plate of the converter.

[4] Not suitable for UL applications (FSA and FSB). Not available for FSC.

[5] Plug-in connector with fieldbus communication AS-Interface not available.

[6] Version with fieldbus communication AS-Interface cannot be ordered.

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Selection and ordering data

SIMOGEAR geared motors for/with SINAMICS G115D wall-mounted/motor-mounted • Structure of the Article No.

SIMOGEAR 2KJ8 geared motors

Data position in Article No.

1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	-	Z
2	K	J	8	■	■	■	-	■	■	■	■	■	-	■	■	■	■		

Article No. supplements

	5	6	7	8	9	10	11	12	13	14	15	16
Gearbox type, gearbox designation												
Helical gearbox E, 1-stage	**0**											
Helical gearbox Z, 2-stage	**1**											
Helical gearbox D, 3-stage	**2**											
Parallel shaft gearbox FZ, 2-stage	**3**											
Parallel shaft gearbox FD, 3-stage	**4**											
Bevel gearbox B/K, 2/3-stage	**5**											
Helical worm gearbox C, 2-stage	**6**											
Gearbox size												
See „Gearbox selection“ in the Ordering data section in the Industry Mall www.siemens.com/sinamics-g115d/gear-selection-wall-mounted www.siemens.com/sinamics-g115d/gear-selection-motor-mounted and in the Drive Technology Configurator (DT Configurator): www.siemens.com/sinamics-g115d/configuration		**0** **1** **4**	**0** **...** **8**									
Motor type acc. to CE/UL/CCC/KC/EAC												
Asynchronous motor				**2**								
Synchronous reluctance motor				**4**								
Motor shaft height												
Shaft height 71					**C**							
Shaft height 80					**E**							
Shaft height 90					**G**							
Shaft height 100					**J**							
Shaft height 112					**L**							
Shaft height 132					**N**							
Motor rated power												
Rated power 1						**A** **B** **C**						
Rated power 2						**F** **G** **H**						
Rated power 3						**N**						
Motor temperature sensor												
Without							**0**					
Pt1000							**1**					
Motor brake												
Without								**0**				
With (brake voltage 180 V DC)								**1**				
Mounting type / control range												
Wall-mounted / control range 1:5									**0**			
Wall-mounted / control range 1:10									**1**			
Wall-mounted / control range 1:8.7									**2**			
Motor-mounted / control range 1:5									**3**			
Motor-mounted / control range 1:10									**4**			
Motor-mounted / control range 1:8.7									**5**			
Converter fieldbus communication												
Geared motor for SINAMICS G115D wall-mounted										**A**		
Without fieldbus communication, cable gland										**B**		
Without fieldbus communication, plug-in connection										**C**		
AS-Interface, cable gland										**D**		
AS-Interface, plug-in connection										**E**		
PROFINET, EtherNet/IP, cable gland										**F**		
PROFINET, EtherNet/IP, plug-in connection										**G**		
Gearbox ratio												
See „Gearbox selection“ in the Ordering data section in the Industry Mall www.siemens.com/sinamics-g115d/gear-selection-wall-mounted www.siemens.com/sinamics-g115d/gear-selection-motor-mounted and in the Drive Technology Configurator (DT Configurator): www.siemens.com/sinamics-g115d/configuration											**A** **...** **X**	**1** **...** **2**

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Selection and ordering data

SIMOGEAR geared motors for/with SINAMICS G115D wall-mounted/motor-mounted • Structure of the Article No.

	SIMOGEAR 2KJ8 geared motors	
	Data position in Article No.	
	1 2 3 4 5 6 7 - 8 9 10 11 12 - 13 14 15 16 - Z	
	2 K J 8 . . . - . . . . . - . . . . - Z	
Options with -Z and order code		
Mounting position		
Standard		
M1		**D 0 1**
M2		**D 0 2**
M3		**D 0 3**
M4		**D 0 4**
M5		**D 0 5**
M6		**D 0 6**
Permitted deviation from the mounting position		**D 0 9**
Universal mounting position output side A (DE)		
M1-A		**D 1 1**
M2-A		**D 1 2**
M3-A		**D 1 3**
M4-A		**D 1 4**
M5-A		**D 1 5**
M6-A		**D 1 6**
Universal mounting position output side B (NDE)		
M1-B		**D 2 1**
M2-B		**D 2 2**
M3-B		**D 2 3**
M4-B		**D 2 4**
M5-B		**D 2 5**
M6-B		**D 2 6**

Standard options for mandatory selection (e.g. the shaft designs) are displayed in the DT Configurator.
For commissioning in the TIA Portal, the selection of the mounting position (e.g. order code **D01**) is important for the specification of the direction of rotation of the output shaft.

For more information and order codes see section Options.

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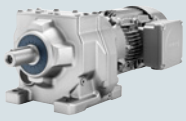
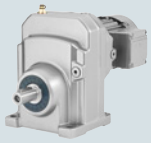
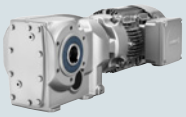
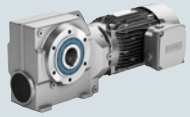
Selection and ordering data

SIMOGEAR is the generation of geared motors from Siemens. The SIMOGEAR gearboxes are available as helical, parallel shaft, bevel, and helical worm geared motors.

SIMOGEAR geared motors					
					
Helical gearbox Z and D	**Helical gearbox E**	**Parallel shaft gearbox FZ and FD**	**Bevel gearbox B**	**Bevel gearbox K**	**Helical worm gearbox C**
Sizes					
Z19 ... Z89 (2-stage) D19 ... D89 (3-stage)	E39 ... E89 (1-stage)	FZ29 ... FZ89 (2-stage) FD29 ... FD89 (3-stage)	B19 ... B49 (2-stage)	K39 ... K89 (3-stage)	C29 ... C89 (2-stage)
Maximum input torque					
12 Nm ... 2 110 Nm	9.8 Nm ... 245 Nm	25 Nm ... 2 270 Nm	7.7 Nm ... 560 Nm	40 Nm ... 2 010 Nm	14 Nm ... 1 680 Nm
Gearbox ratio					
3.4 ... 60.97 (2-stage) 39.34 ... 330.23 (3-stage)	1.29 ... 9.7	3.57... 65.21 (2-stage) 46.36 ... 357 (3-stage)	3.47 ... 59.28	5.17 ... 244.25	6.2 ... 363
Maximum motor power for the SINAMICS G115D distributed drive system wall-mounted					
7.5 kW	7.5 kW	7.5 kW	7.5 kW	7.5 kW	7.5 kW
Maximum motor power for the SINAMICS G115D distributed drive system motor-mounted					
4 kW	4 kW	4 kW	4 kW	4 kW	4 kW

Type designation of the SIMOGEAR gearboxes

The type designation is a meaningful name for SIMOGEAR geared motors. It provides information about the fundamental design of the geared motor and about its main technical features.

Example of gearbox type designation:		F	D	A	F	S	89
Gearbox type	Helical gearbox	-					
	Parallel shaft gearbox	F					
	Bevel gearbox, 2-stage	B					
	Bevel gearbox, 3-stage	K					
	Helical worm gearbox	C					
Stage	1-stage (for helical gearbox only)		E				
	2-stage		Z				
	3-stage		D				
Type							
Shaft	Solid shaft			-			
	Hollow shaft			A			
Mounting	Foot-mounted design				-		
	Foot/flange-mounted design				B		
	Flange-mounted design				F		
	Housing flange design				Z		
	Torque arm				D		
Connection	Feather key / without feather key					-	
	Shrink disk					S	
	Splined shaft					T	
Gearbox size	Helical gearbox, 1-stage						39 ... 89
	Helical gearbox, 2/3-stage						19 ... 89
	Parallel shaft gearbox, 2/3-stage						29 ... 89
	Bevel gearbox, 2-stage						19 ... 49
	Bevel gearbox, 3-stage						39 ... 89
	Helical worm gearbox, 2-stage						29 ... 89

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Selection and ordering data

Type designation of the motors for the SINAMICS G115D distributed drive system

Example of motor type designation with the SINAMICS G115D distributed drive system:			LE	80	M	A	4	S	-	G	007	M	-	IO	-	HA
Motor																
Motor type	Three-phase motor	Aluminum housing	**LE**													
Motor frame size	Specified acc. to EN 50347			**71...132**												
Overall length	Overall length specified acc. to EN 50347				**S, L, M**											
	Packet length / power value					**A, B, C**										
Number of poles	4-pole						**4**									
Efficiency class	IE2 (High Efficiency)							**E**								
	IE3 (Premium Efficiency)							**P**								
	IE4 (Super Premium Efficiency) synchronous reluctance motors							**S**								
SINAMICS G115D distributed drive system																
SINAMICS G115D	Distributed converter									**G**						
	Converter rated power	0.37 kW									**003**					
		0.55 kW									**005**					
		0.75 kW									**007**					
		1.1 kW									**011**					
		1.5 kW									**015**					
		2.2 kW									**022**					
		3 kW									**030**					
		4 kW									**040**					
		5.5 kW									**055**					
		7.5 kW									**075**					
	Converter mounting type	Wall-mounted										**W**				
		Motor-mounted										**M**				
	Fieldbus communication	Without fieldbus communication												**IO**		
		AS-Interface												**ASi**		
		PROFINET, EtherNet/IP												**PN**		
Options																
Motor brake	DC brake															**L**
	Enclosed brake															**G**
	Manual brake release															**H**
	Manual brake release with locking mechanism															**HA**
Canopy	With canopy															**W**

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Selection and ordering data

SIMOGEAR geared motors for SINAMICS G115D wall-mounted · Motor type asynchronous motors IE2/IE3 -> Configuration converter (see right page)

P_N kW	T_N Nm	Motor Asynchronous motor	Efficiency class	cos ϕ	λ	Article No. (Article No. supplements ➞ see below)
Control range 1:5 / Motor speed range 300 ... 1 500 rpm						
0.37	2.36	LE71MB4E	IE2	0.74	0.58	**2KJ8 ■■■ -2CF ■■ -0A ■■ -Z**
0.55	3.50	LE80MA4E	IE2	0.76	0.64	**2KJ8 ■■■ -2EA ■■ -0A ■■ -Z**
0.75	4.77	LE80MB4P	IE3	0.76	0.61	**2KJ8 ■■■ -2EG ■■ -0A ■■ -Z**
1.1	7.00	LE90S4P	IE3	0.79	0.65	**2KJ8 ■■■ -2GB ■■ -0A ■■ -Z**
1.5	9.55	LE90L4P	IE3 [1]	0.82	0.68	**2KJ8 ■■■ -2GF ■■ -0A ■■ -Z**
2.2	14.00	LE100LA4P	IE3	0.82	0.70	**2KJ8 ■■■ -2JB ■■ -0A ■■ -Z**
3.0	19.10	LE100LB4P	IE3	0.83	0.70	**2KJ8 ■■■ -2JG ■■ -0A ■■ -Z**
4.0	25.46	LE112MC4P	IE3	0.83	0.70	**2KJ8 ■■■ -2LB ■■ -0A ■■ -Z**
5.5	35.00	LE132S4P	IE3 [1]	0.84	0.72	**2KJ8 ■■■ -2NA ■■ -0A ■■ -Z**
7.5	47.75	LE132M4P	IE3 [1]	0.84	0.71	**2KJ8 ■■■ -2NF ■■ -0A ■■ -Z**
Control range 1:10 / Motor speed range 300 ... 3 000 rpm						
0.55	1.75	LE71MB4E	IE2	0.68	0.54	**2KJ8 ■■■ -2CF ■■ -1A ■■ -Z**
0.75	2.36	LE80MA4E	IE2	0.70	0.57	**2KJ8 ■■■ -2EA ■■ -1A ■■ -Z**
1.1	3.50	LE80MB4P	IE3	0.73	0.57	**2KJ8 ■■■ -2EG ■■ -1A ■■ -Z**
1.5	4.77	LE90S4P	IE3	0.75	0.62	**2KJ8 ■■■ -2GB ■■ -1A ■■ -Z**
2.2	7.00	LE90L4P	IE3 [1]	0.79	0.67	**2KJ8 ■■■ -2GF ■■ -1A ■■ -Z**
3.0	9.55	LE100LA4P	IE3	0.80	0.69	**2KJ8 ■■■ -2JB ■■ -1A ■■ -Z**
4.0	12.73	LE100LB4P	IE3	0.80	0.69	**2KJ8 ■■■ -2JG ■■ -1A ■■ -Z**
5.5	17.50	LE112MC4P	IE3	0.81	0.70	**2KJ8 ■■■ -2LB ■■ -1A ■■ -Z**
7.5	available soon	LE132S4P	IE3 [1]	available soon	available soon	**2KJ8 ■■■ -2NA ■■ -1A ■■ -Z**
Control range 1:8.7 / Motor speed range 300 ... 2 610 rpm						
0.64	2.36	LE71MB4E	IE2	0.67	0.54	**2KJ8 ■■■ -2CF ■■ -2A ■■ -Z**
0.95	3.50	LE80MA4E	IE2	0.70	0.58	**2KJ8 ■■■ -2EA ■■ -2A ■■ -Z**
1.30	4.77	LE80MB4P	IE3	0.73	0.60	**2KJ8 ■■■ -2EG ■■ -2A ■■ -Z**
1.90	7.00	LE90S4P	IE3	0.76	0.63	**2KJ8 ■■■ -2GB ■■ -2A ■■ -Z**
2.60	9.55	LE90L4P	IE3 [1]	0.79	0.67	**2KJ8 ■■■ -2GF ■■ -2A ■■ -Z**
3.81	14.00	LE100LA4P	IE3	0.82	0.70	**2KJ8 ■■■ -2JB ■■ -2A ■■ -Z**
5.20	19.10	LE100LB4P	IE3	0.81	0.68	**2KJ8 ■■■ -2JG ■■ -2A ■■ -Z**
6.93	25.46	LE112MC4P	IE3	0.81	0.69	**2KJ8 ■■■ -2LB ■■ -2A ■■ -Z**

Article No. supplements

Gearbox type

Helical gearbox E, 1-stage	0
Helical gearbox Z, 2-stage	1
Helical gearbox D, 3-stage	2
Parallel shaft gearbox FZ, 2-stage	3
Parallel shaft gearbox FD, 3-stage	4
Bevel gearbox B/K, 2/3-stage	5
Helical worm gearbox C, 2-stage	6

Gearbox size

See „Gearbox selection“ in the Ordering data section in the Industry Mall
www.siemens.com/sinamics-g115d/gear-selection-wall-mounted
and in the Drive Technology Configurator (DT Configurator):
www.siemens.com/sinamics-g115d/configuration

01	0 1
...	...
48	4 8

Motor temperature sensor

without	0
Pt1000	1

Motor brake

without	0
with (brake voltage 180 V DC)	1

Geared motor transmission ratio

See „Gearbox selection“ in the Ordering data section in the Industry Mall
www.siemens.com/sinamics-g115d/gear-selection-wall-mounted
and in the Drive Technology Configurator (DT Configurator):
www.siemens.com/sinamics-g115d/configuration

A1	A1
...	...
X2	X2

Special versions — Order codes

Necessary ordering data: . . .+. . .+. . .+. . .

- Mounting position (order codes **D01**... **D26**) for the specification of the direction of rotation of the output shaft
- Configuration of the output shaft (order codes **H31**... **H67**)
- Configuration of the mounting type (order codes **H71**... **H76**)

Selection of the special versions, see the Drive Technology Configurator (DT Configurator):
www.siemens.com/sinamics-g115d/configuration

[1] The asynchronous motor for the SIMOGEAR geared motors (designed for 50 Hz operation) fulfills the class IE3 according to IEC 60034-30-1: 2014.

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SINAMICS G115D converters wall-mounted -> (Configuration with motor type synchronous reluctance motors, see next double page)

P_N kW	hp	Rated input current A	Rated output current I_N A	Converter size (frame size)	Article No.
Control range 1:5 / Motor speed range 300 ... 1 500 rpm					
0.37	0.50	1.23	1.3	FSA	**6SL3520 - ■ X ■ ■ 0-3A ■ 0**
0.55	0.75	1.58	1.7	FSA	**6SL3520 - ■ X ■ ■ 0-5A ■ 0**
0.75	1.0	1.99	2.2	FSA	**6SL3520 - ■ X ■ ■ 0-7A ■ 0**
1.1	1.5	2.69	3.1	FSA	**6SL3520 - ■ X ■ ■ 1-1A ■ 0**
1.5	2.0	3.48	4.1	FSA	**6SL3520 - ■ X ■ ■ 1-5A ■ 0**
2.2	3.0	5.18	5.9	FSB	**6SL3520 - ■ X ■ ■ 2-2A ■ 0**
3.0	4.0	6.76	7.7	FSB	**6SL3520 - ■ X ■ ■ 3-0A ■ 0**
4.0	5.0	8.95	10.2	FSB	**6SL3520 - ■ X ■ ■ 4-0A ■ 0**
5.5	7.5	11.88	13.2	FSC	**6SL3520 - ■ X ■ ■ 5-5A ■ 0**
7.5	10	17.11	19	FSC	**6SL3520 - ■ X ■ ■ 7-5A ■ 0**
Control range 1:10 / Motor speed range 300 ... 3 000 rpm					
0.55	0.75	1.58	1.7	FSA	**6SL3520 - ■ X ■ ■ 0-5A ■ 0**
0.75	1.0	1.99	2.2	FSA	**6SL3520 - ■ X ■ ■ 0-7A ■ 0**
1.1	1.5	2.69	3.1	FSA	**6SL3520 - ■ X ■ ■ 1-1A ■ 0**
1.5	2.0	3.48	4.1	FSA	**6SL3520 - ■ X ■ ■ 1-5A ■ 0**
2.2	3.0	5.18	5.9	FSB	**6SL3520 - ■ X ■ ■ 2-2A ■ 0**
3.0	4.0	6.76	7.7	FSB	**6SL3520 - ■ X ■ ■ 3-0A ■ 0**
4.0	5.0	8.95	10.2	FSB	**6SL3520 - ■ X ■ ■ 4-0A ■ 0**
5.5	7.5	11.88	13.2	FSC	**6SL3520 - ■ X ■ ■ 5-5A ■ 0**
7.5	10	17.11	19	FSC	**6SL3520 - ■ X ■ ■ 7-5A ■ 0**
Control range 1:8.7 / Motor speed range 300 ... 2 610 rpm					
0.75	1.0	1.99	2.2	FSA	**6SL3520 - ■ X ■ ■ 0-7A ■ 0**
1.1	1.5	2.69	3.1	FSA	**6SL3520 - ■ X ■ ■ 1-1A ■ 0**
1.5	2.0	3.48	4.1	FSA	**6SL3520 - ■ X ■ ■ 1-5A ■ 0**
2.2	3.0	5.18	5.9	FSB	**6SL3520 - ■ X ■ ■ 2-2A ■ 0**
3.0	4.0	6.76	7.7	FSB	**6SL3520 - ■ X ■ ■ 3-0A ■ 0**
4.0	5.0	8.95	10.2	FSB	**6SL3520 - ■ X ■ ■ 4-0A ■ 0**
5.5	7.5	11.88	13.2	FSC	**6SL3520 - ■ X ■ ■ 5-5A ■ 0**
7.5	10	17.11	19	FSC	**6SL3520 - ■ X ■ ■ 7-5A ■ 0**

Article No. supplements

Operating options

Without operating option *)	**0**
Repair switch	**1**
Local remote control	**2**
Repair switch and local remote control	**3**

Connection type	Fieldbus communication	I/O	Motor	380 ... 480 V AC	24 V DC	
Cable gland with daisy chain	without	Cable gland *)				**A 0**
		Cable gland			Power supply integrated	**H 0**
	M12	Cable gland *)				**A 2**
		M12	Cable gland			**A 6**
		Cable gland			Power supply integrated	**H 2**
		M12	Cable gland		Power supply integrated	**H 6**
Plug-in connection without daisy chain	M12	M12	Q8/0	Q4/2	7/8" [2]	**B 0**
					Power M12 [3]	**B 4**
				Quickon [1]	Power M12 [2]	**C 0**
				MQ15 [1]	Power M12 [2]	**D 0**
				Q4/2	Power supply integrated	**K 0**
				Quickon [1]	Power supply integrated	**L 0**
				MQ15 [1]	Power supply integrated	**M 0**
Plug-in connection with daisy chain	M12	M12	Q8/0	2 × Q4/2	2 × 7/8" *) [2]	**E 0**
					2 × Power M12 [3]	**E 4**
					Power supply integrated	**N 0**

Converter fieldbus communication

AS-Interface	**A**
Without fieldbus communication	**B**
PROFINET, EtherNet/IP	**F**

* If you select "Without operating option" in combination with one of the connection types **A0**, **A2** or **E0**, the delivery time will change from "**standard delivery time**" to "**delivery ex stock**".

[1] Not suitable for UL applications (FSA and FSB). Not available for FSC.

[2] Plug-in connector with fieldbus communication AS-Interface not available.

[3] Version with fieldbus communication AS-Interface cannot be ordered.

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Selection and ordering data

SIMOGEAR geared motors for SINAMICS G115D wall-mounted · Motor type synchronous reluctance motors IE4 -> Configuration converter (s. right page)

P_N kW	T_N Nm	Motor Synchronous reluctance motor	Efficiency class	cos ϕ	Article No. (Article No. supplements ➞see below)
Control range 1:5 / Motor speed range 300 ... 1 500 rpm					
0.55	3.50	LE80MA4S	IE4	0.64	**2KJ8 ■■■ -4EC ■■ -0A ■■ -Z**
0.75	4.77	LE80MB4S	IE4	0.63	**2KJ8 ■■■ -4EH ■■ -0A ■■ -Z**
1.1	7.00	LE90S4S	IE4	0.66	**2KJ8 ■■■ -4GC ■■ -0A ■■ -Z**
1.5	9.55	LE90L4S	IE4	0.65	**2KJ8 ■■■ -4GH ■■ -0A ■■ -Z**
2.2	14.00	LE112MA4S	IE4	0.69	**2KJ8 ■■■ -4LC ■■ -0A ■■ -Z**
3.0	19.10	LE112MB4S	IE4	0.69	**2KJ8 ■■■ -4LH ■■ -0A ■■ -Z**
4.0	25.46	LE112MC4S	IE4	0.70	**2KJ8 ■■■ -4LN ■■ -0A ■■ -Z**
Control range 1:10 / Motor speed range 300 ... 3 000 rpm					
0.75	2.36	LE80MA4S	IE4	0.59	**2KJ8 ■■■ -4EC ■■ -1A ■■ -Z**
1.1	3.50	LE80MB4S	IE4	0.61	**2KJ8 ■■■ -4EH ■■ -1A ■■ -Z**
1.5	4.77	LE90S4S	IE4	0.62	**2KJ8 ■■■ -4GC ■■ -1A ■■ -Z**
2.2	7.00	LE90L4S	IE4	0.64	**2KJ8 ■■■ -4GH ■■ -1A ■■ -Z**
3.0	9.55	LE112MA4S	IE4	0.66	**2KJ8 ■■■ -4LC ■■ -1A ■■ -Z**
4.0	12.73	LE112MB4S	IE4	0.67	**2KJ8 ■■■ -4LH ■■ -1A ■■ -Z**
Control range 1:8.7 / Motor speed range 300 ... 2 610 rpm					
0.95	3.50	LE80MA4S	IE4	0.61	**2KJ8 ■■■ -4EC ■■ -2A ■■ -Z**
1.30	4.77	LE80MB4S	IE4	0.61	**2KJ8 ■■■ -4EH ■■ -2A ■■ -Z**
1.90	7.00	LE90S4S	IE4	0.64	**2KJ8 ■■■ -4GC ■■ -2A ■■ -Z**
2.60	9.55	LE90L4S	IE4	0.64	**2KJ8 ■■■ -4GH ■■ -2A ■■ -Z**
3.81	14.00	LE112MA4S	IE4	0.68	**2KJ8 ■■■ -4LC ■■ -2A ■■ -Z**

Article No. supplements

Gearbox type

Helical gearbox E, 1-stage	**0**
Helical gearbox Z, 2-stage	**1**
Helical gearbox D, 3-stage	**2**
Parallel shaft gearbox FZ, 2-stage	**3**
Parallel shaft gearbox FD, 3-stage	**4**
Bevel gearbox B/K, 2/3-stage	**5**
Helical worm gearbox C, 2-stage	**6**

Gearbox size

See „Gearbox selection“ in the Ordering data section in the Industry Mall
www.siemens.com/sinamics-g115d/gear-selection-wall-mounted
and in the Drive Technology Configurator (DT Configurator):
www.siemens.com/sinamics-g115d/configuration

	0 0
	1 ...
	4 8

Motor temperature sensor	without	**0**
	Pt1000	**1**
Motor brake	without	**0**
	with (brake voltage 180 V DC)	**1**

Geared motor transmission ratio

See „Gearbox selection“ in the Ordering data section in the Industry Mall
www.siemens.com/sinamics-g115d/gear-selection-wall-mounted
and in the Drive Technology Configurator (DT Configurator):
www.siemens.com/sinamics-g115d/configuration

	A1
	...
	X2

Special versions — Order codes

Necessary ordering data: . . .+. . .+. . .+. . .

- Mounting position (order codes **D01**... **D26**) for the specification of the direction of rotation of the output shaft
- Configuration of the output shaft (order codes **H31**... **H67**)
- Configuration of the mounting type (order codes **H71**... **H76**)

Selection of the special versions, see the Drive Technology Configurator (DT Configurator):
www.siemens.com/sinamics-g115d/configuration

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SINAMICS G115D converters wall-mounted -> (Configuration with motor type asynchronous motors, see preceding double page)

P_N kW	hp	Rated input current A	Rated output current I_N A	Converter size (frame size)	Article No.
Control range 1:5 / Motor speed range 300 ... 1 500 rpm					
0.55	0.75	1.58	1.7	FSA	**6SL3520 - ■ X ■ ■ 0-5A ■ 0**
0.75	1.0	1.99	2.2	FSA	**6SL3520 - ■ X ■ ■ 0-7A ■ 0**
1.1	1.5	2.69	3.1	FSA	**6SL3520 - ■ X ■ ■ 1-1A ■ 0**
1.5	2.0	3.48	4.1	FSA	**6SL3520 - ■ X ■ ■ 1-5A ■ 0**
2.2	3.0	5.18	5.9	FSB	**6SL3520 - ■ X ■ ■ 2-2A ■ 0**
3.0	4.0	6.76	7.7	FSB	**6SL3520 - ■ X ■ ■ 3-0A ■ 0**
4.0	5.0	8.95	10.2	FSB	**6SL3520 - ■ X ■ ■ 4-0A ■ 0**
Control range 1:10 / Motor speed range 300 ... 3 000 rpm					
0.75	1.0	1.99	2.2	FSA	**6SL3520 - ■ X ■ ■ 0-7A ■ 0**
1.1	1.5	2.69	3.1	FSA	**6SL3520 - ■ X ■ ■ 1-1A ■ 0**
1.5	2.0	3.48	4.1	FSA	**6SL3520 - ■ X ■ ■ 1-5A ■ 0**
2.2	3.0	5.18	5.9	FSB	**6SL3520 - ■ X ■ ■ 2-2A ■ 0**
3.0	4.0	6.76	7.7	FSB	**6SL3520 - ■ X ■ ■ 3-0A ■ 0**
4.0	5.0	8.95	10.2	FSB	**6SL3520 - ■ X ■ ■ 4-0A ■ 0**
Control range 1:8.7 / Motor speed range 300 ... 2 610 rpm					
1.1	1.5	2.69	3.1	FSA	**6SL3520 - ■ X ■ ■ 1-1A ■ 0**
1.5	2.0	3.48	4.1	FSA	**6SL3520 - ■ X ■ ■ 1-5A ■ 0**
2.2	3.0	5.18	5.9	FSB	**6SL3520 - ■ X ■ ■ 2-2A ■ 0**
3.0	4.0	6.76	7.7	FSB	**6SL3520 - ■ X ■ ■ 3-0A ■ 0**
4.0	5.0	8.95	10.2	FSB	**6SL3520 - ■ X ■ ■ 4-0A ■ 0**

Article No. supplements

Operating options

Without operating option *)	**0**
Repair switch	**1**
Local remote control	**2**
Repair switch and local remote control	**3**

Connection type	Fieldbus communication	I/O	Motor	380 ... 480 V AC	24 V DC	
Cable gland with daisy chain	without	Cable gland *)				**A 0**
		Cable gland			Power supply integrated	**H 0**
	M12	Cable gland *)				**A 2**
		M12	Cable gland			**A 6**
		Cable gland			Power supply integrated	**H 2**
		M12	Cable gland		Power supply integrated	**H 6**
Plug-in connection without daisy chain	M12	M12	Q8/0	Q4/2	7/8" [2]	**B 0**
					Power M12 [3]	**B 4**
				Quickon [1]	Power M12 [2]	**C 0**
				MQ15 [1]	Power M12 [2]	**D 0**
				Q4/2	Power supply integrated	**K 0**
				Quickon [1]	Power supply integrated	**L 0**
				MQ15 [1]	Power supply integrated	**M 0**
Plug-in connection with daisy chain	M12	M12	Q8/0	2 × Q4/2	2 × 7/8" *) [2]	**E 0**
					2 × Power M12 [3]	**E 4**
					Power supply integrated	**N 0**

Fieldbus communication

AS-Interface	**A**
Without fieldbus communication	**B**
PROFINET, EtherNet/IP	**F**

* If you select "Without operating option" in combination with one of the connection types **A0**, **A2** or **E0**, the delivery time will change from "**standard delivery time**" to "**delivery ex stock**".

[1] Not suitable for UL applications (FSA and FSB). Not available for FSC.

[2] Plug-in connector with fieldbus communication AS-Interface not available.

[3] Version with fieldbus communication AS-Interface cannot be ordered.

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Selection and ordering data

SIMOGEAR geared motors with SINAMICS G115D motor-mounted · Motor type asynchronous motors IE2/IE3
-> Configuration motor type synchronous reluctance motors (see right page)

P_N kW	T_N Nm	I_N A	$\cos\phi$ Nm	λ	Motor size Asynchronous motor	Efficiency class	Converter size (frame size)	Article No. (Article No. supplements ➞see below)
Control range 1:5 / Motor speed range 300 ... 1 500 rpm								
0.37	2.36	0.97	0.74	0.58	LE71MB4E	IE2	FSA	**2KJ8 ■■■ -2CF ■■ -3 ■ ■■ -Z**
0.55	3.50	1.29	0.76	0.64	LE80MA4E	IE2	FSA	**2KJ8 ■■■ -2EA ■■ -3 ■ ■■ -Z**
0.75	4.77	1.64	0.76	0.61	LE80MB4P	IE3	FSA	**2KJ8 ■■■ -2EG ■■ -3 ■ ■■ -Z**
1.1	7.00	2.30	0.79	0.65	LE90S4P	IE3	FSA	**2KJ8 ■■■ -2GB ■■ -3 ■ ■■ -Z**
1.5	9.55	3.00	0.82	0.68	LE90L4P	IE3 [1]	FSA	**2KJ8 ■■■ -2GF ■■ -3 ■ ■■ -Z**
2.2	14.00	4.66	0.82	0.70	LE100LA4P	IE3	FSB	**2KJ8 ■■■ -2JB ■■ -3 ■ ■■ -Z**
3.0	19.10	6.31	0.83	0.70	LE100LB4P	IE3	FSB	**2KJ8 ■■■ -2JG ■■ -3 ■ ■■ -Z**
4.0	25.00	8.09	0.83	0.70	LE112MC4P	IE3	FSB	**2KJ8 ■■■ -2LB ■■ -3 ■ ■■ -Z**
Control range 1:10 / Motor speed range 300 ... 3 000 rpm								
0.55	1.75	1.29	0.68	0.54	LE71MB4E	IE2	FSA	**2KJ8 ■■■ -2CF ■■ -4 ■ ■■ -Z**
0.75	2.36	1.67	0.70	0.57	LE80MA4E	IE2	FSA	**2KJ8 ■■■ -2EA ■■ -4 ■ ■■ -Z**
1.1	3.50	2.34	0.73	0.57	LE80MB4P	IE3	FSA	**2KJ8 ■■■ -2EG ■■ -4 ■ ■■ -Z**
1.5	4.77	2.93	0.75	0.62	LE90S4P	IE3	FSA	**2KJ8 ■■■ -2GB ■■ -4 ■ ■■ -Z**
2.2	7.00	4.14	0.79	0.67	LE90L4P	IE3 [1]	FSB	**2KJ8 ■■■ -2GF ■■ -4 ■ ■■ -Z**
3.0	9.55	6.47	0.80	0.69	LE100LA4P	IE3	FSB	**2KJ8 ■■■ -2JB ■■ -4 ■ ■■ -Z**
4.0	12.73	8.29	0.80	0.69	LE100LB4P	IE3	FSB	**2KJ8 ■■■ -2JG ■■ -4 ■ ■■ -Z**
Control range 1:8.7 / Motor speed range 300 ... 2 610 rpm								
0.64	2.36	1.49	0.67	0.54	LE71MB4E	IE2	FSA	**2KJ8 ■■■ -2CF ■■ -5 ■ ■■ -Z**
0.95	3.50	2.08	0.70	0.58	LE80MA4E	IE2	FSA	**2KJ8 ■■■ -2EA ■■ -5 ■ ■■ -Z**
1.30	4.77	2.73	0.73	0.60	LE80MB4P	IE3	FSA	**2KJ8 ■■■ -2EG ■■ -5 ■ ■■ -Z**
1.90	7.00	3.62	0.76	0.63	LE90S4P	IE3	FSB	**2KJ8 ■■■ -2GB ■■ -5 ■ ■■ -Z**
2.60	9.55	4.82	0.79	0.67	LE90L4P	IE3 [1]	FSB	**2KJ8 ■■■ -2GF ■■ -5 ■ ■■ -Z**
3.81	14.00	8.14	0.82	0.70	LE100LA4P	IE3	FSB	**2KJ8 ■■■ -2JB ■■ -5 ■ ■■ -Z**

| Article No. supplements | | | | | | | |

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Selection and ordering data

SIMOGEAR geared motors with SINAMICS G115D motor-mounted · Motor type synchronous reluctance motors IE4
-> Configuration motor type asynchronous motors (see left page)

P_N kW	T_N Nm	I_N A	*cos* ϕ Nm	Motor size Synchronous reluctance motor	Efficiency class	Converter size (frame size)	Article No. (Article No. supplements ➞see below)
Control range 1:5 / Motor speed range 300 ... 1 500 rpm							
0.55	3.50	1.64	0.635	LE80MA4S	IE4	FSA	**2KJ8 ■ ■ ■ -4EC ■ ■ -3 ■ ■■ -Z**
0.75	4.77	2.02	0.634	LE80MB4S	IE4	FSA	**2KJ8 ■ ■ ■ -4EH ■ ■ -3 ■ ■■ -Z**
1.1	7.00	2.15	0.661	LE90S4S	IE4	FSA	**2KJ8 ■ ■ ■ -4GC ■ ■ -3 ■ ■■ -Z**
1.5	9.55	2.83	0.653	LE90L4S	IE4	FSA	**2KJ8 ■ ■ ■ -4GH ■ ■ -3 ■ ■■ -Z**
2.2	14.00	4.37	0.687	LE112MA4S	IE4	FSB	**2KJ8 ■ ■ ■ -4LC ■ ■ -3 ■ ■■ -Z**
3.0	19.10	5.80	0.691	LE112MB4S	IE4	FSB	**2KJ8 ■ ■ ■ -4LH ■ ■ -3 ■ ■■ -Z**
4.0	25.46	7.01	0.702	LE112MC4S	IE4	FSB	**2KJ8 ■ ■ ■ -4LN ■ ■ -3 ■ ■■ -Z**
Control range 1:10 / Motor speed range 300 ... 3 000 rpm							
0.75	2.36	1.77	0.586	LE80MA4S	IE4	FSA	**2KJ8 ■ ■ ■ -4EC ■ ■ -4 ■ ■■ -Z**
1.1	3.50	2.20	0.606	LE80MB4S	IE4	FSA	**2KJ8 ■ ■ ■ -4EH ■ ■ -4 ■ ■■ -Z**
1.5	4.77	2.73	0.622	LE90S4S	IE4	FSA	**2KJ8 ■ ■ ■ -4GC ■ ■ -4 ■ ■■ -Z**
2.2	7.00	4.24	0.635	LE90L4S	IE4	FSB	**2KJ8 ■ ■ ■ -4GH ■ ■ -4 ■ ■■ -Z**
3.0	9.55	5.13	0.662	LE112MA4S	IE4	FSB	**2KJ8 ■ ■ ■ -4LC ■ ■ -4 ■ ■■ -Z**
4.0	12.73	6.71	0.674	LE112MB4S	IE4	FSB	**2KJ8 ■ ■ ■ -4LH ■ ■ -4 ■ ■■ -Z**
Control range 1:8.7 / Motor speed range 300 ... 2 610 rpm							
0.95	3.50	1.94	0.611	LE80MA4S	IE4	FSA	**2KJ8 ■ ■ ■ -4EC ■ ■ -5 ■ ■■ -Z**
1.30	4.77	2.39	0.613	LE80MB4S	IE4	FSA	**2KJ8 ■ ■ ■ -4EH ■ ■ -5 ■ ■■ -Z**
1.91	7.00	3.37	0.644	LE90S4S	IE4	FSB	**2KJ8 ■ ■ ■ -4GC ■ ■ -5 ■ ■■ -Z**
2.60	9.55	4.87	0.637	LE90L4S	IE4	FSB	**2KJ8 ■ ■ ■ -4GH ■ ■ -5 ■ ■■ -Z**
3.81	14.00	6.32	0.676	LE112MA4S	IE4	FSB	**2KJ8 ■ ■ ■ -4LC ■ ■ -5 ■ ■■ -Z**

Article No. supplements												
Gearbox type												
Helical gearbox E, 1-stage	**0**											
Helical gearbox Z, 2-stage	**1**											
Helical gearbox D, 3-stage	**2**											
Parallel shaft gearbox FZ, 2-stage	**3**											
Parallel shaft gearbox FD, 3-stage	**4**											
Bevel gearbox B/K, 2/3-stage	**5**											
Helical worm gearbox C, 2-stage	**6**											
Gearbox size												
See „Gearbox selection“ in the Ordering data section in the Industry Mall www.siemens.com/sinamics-g115d/gear-selection-motor-mounted and in the Drive Technology Configurator (DT Configurator): www.siemens.com/sinamics-g115d/configuration		**0** **1** ... **4**	**0** ... **8**									
Motor temperature sensor	without				**0**							
	Pt1000				**1**							
Motor brake	without					**0**						
	with (brake voltage 180 V DC)					**1**						
Converter fieldbus communication												
Without fieldbus communication, cable gland							**B**					
Without fieldbus communication, plug-in connection							**C**					
AS-Interface, cable gland							**D**					
AS-Interface, plug-in connection							**E**					
PROFINET, EtherNet/IP, cable gland							**F**					
PROFINET, EtherNet/IP, plug-in connection							**G**					
Geared motor transmission ratio								**A1** ... **X2**				
See „Gearbox selection“ in the Ordering data section in the Industry Mall www.siemens.com/sinamics-g115d/gear-selection-motor-mounted and in the Drive Technology Configurator (DT Configurator): www.siemens.com/sinamics-g115d/configuration												
Special versions												Order codes
Necessary ordering data: • Mounting position (order codes **D01**... **D26**) for the specification of the direction of rotation of the output shaft • Configuration of the output shaft (order codes **H31**... **H67**) • Configuration of the mounting type (order codes **H71**... **H76**) • Configuration of the connection type of the converter (order codes **V01**... **V81**). Selection of the special versions, see the Drive Technology Configurator (DT Configurator): www.siemens.com/sinamics-g115d/configuration												. . .+. . .+. . .+. . .

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Options

Various connection types as well as connection sides can be selected for the converter fieldbus communications, as shown in the following table.

Connection types	Fieldbus communication	I/O	380 ... 480 V AC	24 V DC	Connection side (from the point of view of the motor shaft)	14th position of the Article No. 2KJ8 . . . - . . . . . - ■ . . .-Z	Additional identification code -Z with order code Order code
Without fieldbus communication (I/O Control)							
Cable gland with daisy chain	without	Cable gland			left	2KJ8 . . . - . . . . . - **B** . . .	**V01**
					right [2]	2KJ8 . . . - . . . . . - **B** . . .	**V06**
Plug-in connection without daisy chain	without	M12	Q4/2	7/8"	left	2KJ8 . . . - . . . . . - **C** . . .	**V10**
					right	2KJ8 . . . - . . . . . - **C** . . .	**V11**
				Power M12	left	2KJ8 . . . - . . . . . - **C** . . .	**V12**
					right	2KJ8 . . . - . . . . . - **C** . . .	**V13**
			Quickon [1]	Power M12	left	2KJ8 . . . - . . . . . - **C** . . .	**V14**
					right	2KJ8 . . . - . . . . . - **C** . . .	**V15**
			MQ15 [1]	Power M12	left	2KJ8 . . . - . . . . . - **C** . . .	**V16**
					right	2KJ8 . . . - . . . . . - **C** . . .	**V17**
Plug-in connection with daisy chain	without	M12	2 x Q4/2	2 x 7/8"	left	2KJ8 . . . - . . . . . - **C** . . .	**V20**
					right	2KJ8 . . . - . . . . . - **C** . . .	**V21**
				2 x Power M12	left	2KJ8 . . . - . . . . . - **C** . . .	**V22**
					right	2KJ8 . . . - . . . . . - **C** . . .	**V23**
AS-Interface							
Cable gland with daisy chain	M12	Cable gland		- [3]	left	2KJ8 . . . - . . . . . - **D** . . .	**V02**
					right	2KJ8 . . . - . . . . . - **D** . . .	**V03**
		M12	Cable gland	- [3]	left	2KJ8 . . . - . . . . . - **D** . . .	**V04**
					right	2KJ8 . . . - . . . . . - **D** . . .	**V05**
Plug-in connection without daisy chain	M12	M12	Q4/2	- [3]	left	2KJ8 . . . - . . . . . - **E** . . .	**V10**
					right	2KJ8 . . . - . . . . . - **E** . . .	**V11**
			Quickon [1]	- [3]	left	2KJ8 . . . - . . . . . - **E** . . .	**V14**
					right	2KJ8 . . . - . . . . . - **E** . . .	**V15**
			MQ15 [1]	- [3]	left	2KJ8 . . . - . . . . . - **E** . . .	**V16**
					right	2KJ8 . . . - . . . . . - **E** . . .	**V17**
Plug-in connection with daisy chain	M12	M12	2 x Q4/2	- [3]	left	2KJ8 . . . - . . . . . - **E** . . .	**V20**
					right	2KJ8 . . . - . . . . . - **E** . . .	**V21**
PROFINET, EtherNet/IP							
Cable gland with daisy chain	M12	Cable gland			left	2KJ8 . . . - . . . . . - **F** . . .	**V02**
					right	2KJ8 . . . - . . . . . - **F** . . .	**V03**
		M12	Cable gland		left	2KJ8 . . . - . . . . . - **F** . . .	**V04**
					right	2KJ8 . . . - . . . . . - **F** . . .	**V05**
Plug-in connection without daisy chain	M12	M12	Q4/2	7/8"	left	2KJ8 . . . - . . . . . - **G** . . .	**V10**
					right	2KJ8 . . . - . . . . . - **G** . . .	**V11**
				Power M12	left	2KJ8 . . . - . . . . . - **G** . . .	**V12**
					right	2KJ8 . . . - . . . . . - **G** . . .	**V13**
			Quickon [1]	Power M12	left	2KJ8 . . . - . . . . . - **G** . . .	**V14**
					right	2KJ8 . . . - . . . . . - **G** . . .	**V15**
			MQ15 [1]	Power M12	left	2KJ8 . . . - . . . . . - **G** . . .	**V16**
					right	2KJ8 . . . - . . . . . - **G** . . .	**V17**
Plug-in connection with daisy chain	M12	M12	2 x Q4/2	2 x 7/8"	left	2KJ8 . . . - . . . . . - **G** . . .	**V20**
					right	2KJ8 . . . - . . . . . - **G** . . .	**V21**
				2 x Power M12	left	2KJ8 . . . - . . . . . - **G** . . .	**V22**
					right	2KJ8 . . . - . . . . . - **G** . . .	**V23**

Supplementary system components for the SINAMICS G115D distributed drive system, motor-mounted

Supplementary system components	Additional identification code -Z with order code 2KJ8 . . . - . . . . . - . . . .-Z	Order code
Integrated power supply unit for 24 V DC power supply		**V70**
SINAMICS SD memory card (512 MB empty)		**V80**
SINAMICS SD memory card (512 MB + firmware V4.7 SP13)		**V81**

[1] Not suitable for UL applications.

[2] The cable gland with daisy chain with connection side right (order code **V06**) can only be selected with integrated power supply unit for 24 V DC power supply (order code **V70**).

[3] The 24 V DC power supply is provided via the M12 plug-in connector for fieldbus communication.

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Selection and ordering data

Supplementary system components for SINAMICS G115D

Description	Article No.
Fuses	
• 10 A for FSA	**3NA3803**
• 16 A for FSB	**3NA3805**
• 32 A for FSC	**3NA3812**
External braking resistors Continuous braking power	
• 200 W for FSA	**6SL3501-1BE32-0AA0**
• 240 W for FSA	**6SL3501-1BE32-4AA0**
• 480 W for FSA	**6SL3501-1BE34-8AA0**
• 200 W for FSB	**6SL3501-1BE32-0BA0**
• 240 W for FSB	**6SL3501-1BE32-4BA0**
• 600 W for FSB	**6SL3501-1BE36-0BA0**
• 600 W for FSC	**6SL3501-1BE36-0CA0**
• 1200 W for FSC	**6SL3501-1BE41-2CA0**
SINAMICS SD memory card	
• 512 MB, empty	**6SL3054-4AG00-2AA0**
• 512 MB + firmware V4.7 SP13	**6SL3054-7TG00-2BA0**
SINAMICS G120 Smart Access Web server module for wireless commissioning, operation and diagnostics using a smartphone, tablet, or laptop	**6SL3255-0AA00-5AA0**
Interface kit for web server module SINAMICS G120 Smart Access	**6SL3555-0XA00-0AA0**
MindConnect IOT2040 to connect to the Cloud MindSphere via PN with up to 30 data points per second	**9AC2112-0AA00-1YA2**
MindConnect Nano to connect to the Cloud MindSphere via PN with up to 250 data points per second	**9AC2112-8BA12-0KA1**
PC converter connection kit 2 USB cable (3 m (9.84 ft) long)	**6SL3255-0AA00-2CA0**
Installation kit	
• for SINAMICS G115D wall-mounted	**6SL3566-2GW00-0GA0**
• for SINAMICS G115D motor-mounted	**6SL3566-2GM00-0GA0**
Cover kit for outputs 380 ... 480 V AC and 24 V DC (7/8" and M12)	**6SL3566-2GA00-0GA0**

Connecting cables

An overview of all available accessories (e.g. plugs and cables) can be found under the following link:
www.siemens.com/distributeddrives-supplementaryproducts

PROFINET connecting cable	
IE connecting cable M12-180/M12-180 axial outlet	
• 0.3 m (0.98 ft)	**6XV1870-8AE30**
• 0.5 m (1.64 ft)	**6XV1870-8AE50**
• 1 m (3.28 ft)	**6XV1870-8AH10**
• 1.5 m (4.92 ft)	**6XV1870-8AH15**
• 2 m (6.56 ft)	**6XV1870-8AH20**
• 3 m (9.84 ft)	**6XV1870-8AH30**
• 5 m (16.41 ft)	**6XV1870-8AH50**
• 10 m (32.81 ft)	**6XV1870-8AN10**
• 15 m (49 ft)	**6XV1870-8AN15**
PROFINET connecting cable	
IE connecting cable M12-180/IE FC RJ45 plug 145 axial outlet	
• 2 m (6.56 ft)	**6XV1871-5TH20**
• 3 m (9.84 ft)	**6XV1871-5TH30**
• 5 m (16.41 ft)	**6XV1871-5TH50**
• 10 m (32.81 ft)	**6XV1871-5TN10**
• 15 m (49 ft)	**6XV1871-5TN15**
PROFINET connectors	
IE M12 plug PRO axial outlet	
• 1 unit	**6GK1901-0DB20-6AA0**
• 8 units	**6GK1901-0DB20-6AA8**
AS-Interface M12 branch	**3RK1901-2NR20**

Description	Article No.
Connecting cables/plug-in connectors for 24 V DC power supply	
7/8" plug-in connector axial outlet	
• Pin insert (OUT)	**6GK1905-0FA00**
• Female contact insert (IN)	**6GK1905-0FB00**
Connecting cables/plug-in connectors for 24 V DC power supply	
7/8" plug-in cable axial outlet	
• 0.3 m (0.98 ft)	**6XV1822-5BE30**
• 0.5 m (1.64 ft)	**6XV1822-5BE50**
• 1 m (3.28 ft)	**6XV1822-5BH10**
• 1.5 m (4.92 ft)	**6XV1822-5BH15**
• 2 m (6.56 ft)	**6XV1822-5BH20**
• 3 m (9.84 ft)	**6XV1822-5BH30**
• 5 m (16.41 ft)	**6XV1822-5BH50**
• 10 m (32.81 ft)	**6XV1822-5BN10**
• 15 m (49 ft)	**6XV1822-5BN15**
Plug-in connectors for digital inputs and digital outputs	**6ES7194-6KA00-0XA0**
Y cable for distributed I/Os for dual connection of I/Os using single cables, 5-pole, M12, 200 mm (7.87 in)	
Connecting cable pre-assembled at one end to connect to the line supply	
• 1.5 m (4.92 ft)	**3RK1911-0DB13**
• 5 m (16.41 ft)	**3RK1911-0DB33**
Connector set for energy supply	
• 2,5 mm^2	**3RK1911-2BE50**
• 4 mm^2	**3RK1911-2BE10**
• 6 mm^2	**3RK1911-2BE30**
Quickon system connector for connections for 380 ... 480 V AC	
• Quickon nut	**6SL3566-4NA00-0GA0**
• Quickon connector	**6SL3566-4MA00-0GA0**
Connector insert for power loop-through	
• 2,5 mm^2	**3RK1911-2BF50**
• 4 mm^2	**3RK1911-2BF10**

Training case

SINAMICS G115D training case SINAMICS G115D distributed drive system, motor-mounted, PROFINET, FSA, 0.37 kW, SIMOGEAR motor LE 71, gearbox Z29 incl. SIMATIC S7-1200F and MindConnect IoT 2040 gateway	**6AG1067-1AA38-0AA0**

Spare parts for SINAMICS G115D

Description	Article No.
Electronic Modules	
• FSA, 0.37 kW	**6SL3500-0XE50-3■A0**
• FSA, 0.55 kW	**6SL3500-0XE50-5■A0**
• FSA, 0.75 kW	**6SL3500-0XE50-7■A0**
• FSA, 1.1 kW	**6SL3500-0XE51-1■A0**
• FSA, 1.5 kW	**6SL3500-0XE51-5■A0**
• FSB, 2.2 kW	**6SL3500-0XE52-2■A0**
• FSB, 3 kW	**6SL3500-0XE53-0■A0**
• FSB, 4 kW	**6SL3500-0XE54-0■A0**
• FSC, 5.5 kW	**6SL3500-0XE55-5■A0**
• FSC, 7.5 kW	**6SL3500-0XE57-5■A0**
Fieldbus communication	
• AS-Interface	**A**
• Without fieldbus communication	**B**
• PROFINET, EtherNet/IP	**F**
Spare parts kit	
• for SINAMICS G115D wall-mounted	**6SL3500-0XK51-0AA0**
• for SINAMICS G115D motor-mounted	**6SL3500-0XK50-0AA0**
Replacement fan for SINAMICS G115D wall-mounted	**6SL3500-0XF51-0AA0**

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Overview

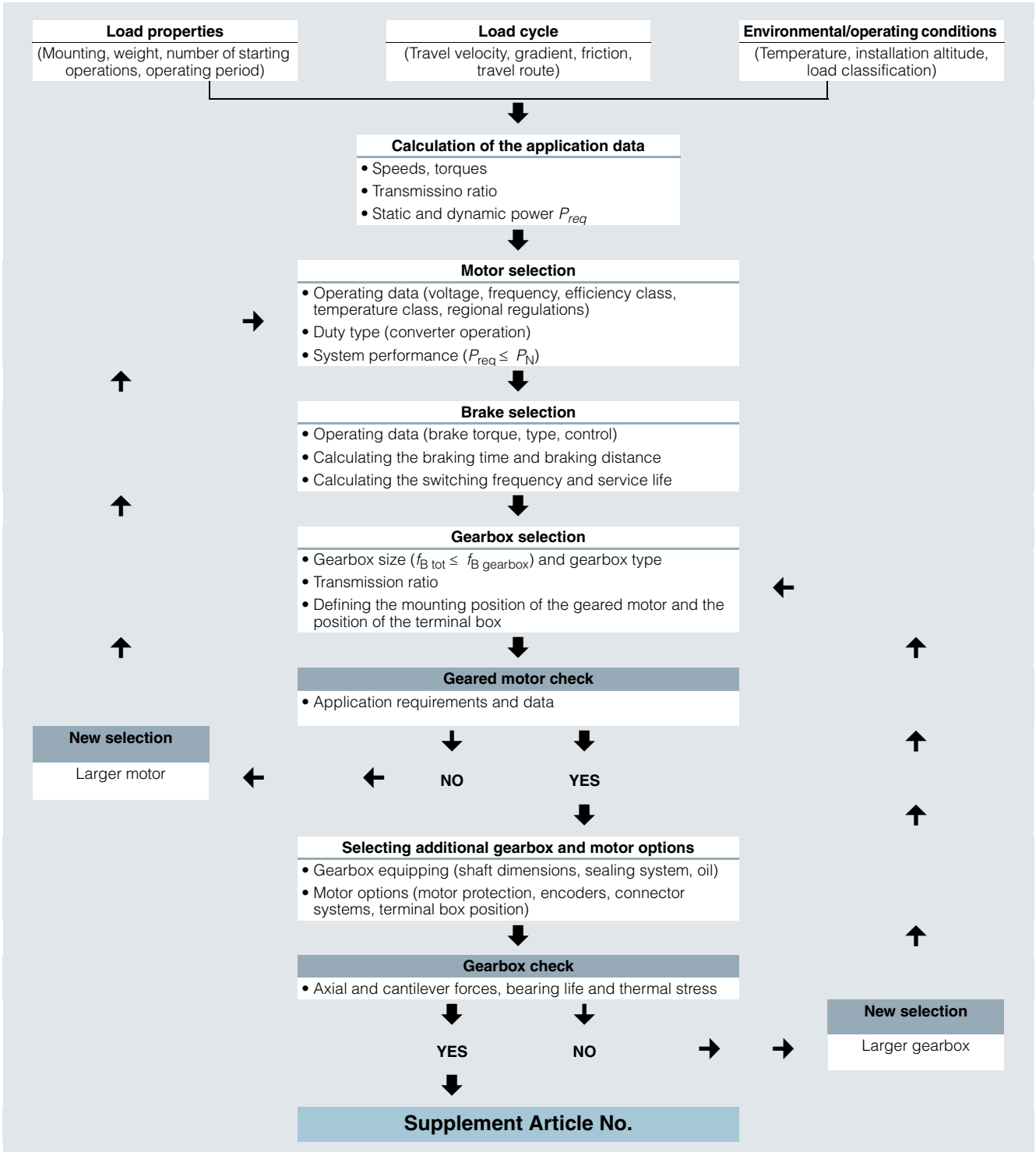
General configuring notes are provided for the standard versions in this catalog.

SIMOGEAR geared motors permit individual solutions to be created for a wide range of drive applications. In order to select the correct drive, initially specific data for the application must be known or determined.

For drives operating under special conditions, e.g. frequent reversing, short-time or intermittent duty, abnormal temperatures, reversal braking, extreme cantilever forces at the gearbox output shaft, etc. please contact your Siemens contact person with all of your technical questions.

You will find additional information on our internet site at www.siemens.com/geared-motors

The flow diagram illustrates the process for selecting and dimensioning a geared motor using a traction drive as an example. However, the specific requirements and boundary conditions associated with the application in question must always be taken into account.



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Overview

Supplement Article No.

↓

Converter operation

- Selection of the power unit according to the base-load current
- Selection of the power unit according to the overload current
- Static and dynamic power

↓

DC link components

- Selection of a braking resistor for occurring regenerative energy

↓

Cables

- Power cables with and without connection option

↓

Done

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Overview

Standards

DIN/ISO	
DIN 743	Output shafts
ISO 281, ISO 76	Bearings
DIN 7190	Press-fit connection
DIN 6892	Parallel key connection
DIN 3990	Cylindrical gear toothing
DIN 3991	Bevel gear toothing
DIN 3996	Worm gear toothing

Calculation to AGMA available on request.

Gearbox efficiency

The efficiency of the gearbox is determined in part by the gear teeth, the rolling bearing friction, and the shaft seal friction.

Helical, parallel shaft and bevel gearboxes

SIMOGEAR helical, parallel shaft, and bevel geared motors have a very high efficiency. Generally, efficiencies of 96 % (2-stage) and 94 % (3-stage) can be assumed. These gearbox types can be operated with energy-efficient motors to create an excellent solution.

Helical worm gearboxes

The first stage of the helical worm gearbox is designed as a helical stage. With the optimally tuned transmission ratios of the worm stage, the best possible overall efficiency is achieved, which is considerably higher than that of worm gearboxes alone.

Precise efficiency data can be found in the tables in chapter "Helical worm gearboxes".

Owing to the high degrees of efficiency, the SIMOGEAR helical worm gearboxes are not self-locking.

- Running-in period

  The tooth flanks on new helical worm gearboxes will not yet be fully smoothed, meaning that the friction angle will be greater and efficiency lower during the running-in period. The higher the transmission ratio, the more pronounced the effect.

  The running-in process should take approximately 24 hours of operation at full load. In most cases, the catalog values will then be reached.

Efficiency optimization

As a result of the large range of transmission ratios, in many cases, instead of a 3-stage gearbox, a 2-stage SIMOGEAR gearbox can be used.

This means that the efficiency is improved by approximately 2 % when compared to conventional drives.

Further, the efficiency can be improved by optimizing the mounting position and the input speed.

Splashing losses

For certain gearbox constructions, the first stage can be completely immersed in the gearbox oil. In the case of large gearboxes with a high input speed, particularly with vertical mounting positions, this may lead to increased splashing losses, which cannot be neglected.

If you wish to use gearboxes such as these, then please contact Siemens. If at all possible, you should choose horizontal types of construction in order to keep splashing losses to a minimum.

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Overview

Service factor

The service factor f_B is a safety factor for the gearboxes that takes the operating conditions of the drive into account.

The following applies to selecting a suitable drive:

$f_B \geq f_{Breq}$

The gearbox size or rated gearbox torque and the resulting service factor are not standardized and depend on the manufacturer.

Service factor (f_B)

The service factor is calculated from the drive data you selected and can be obtained from the DT Configurator.

Determining the required service factor (f_{Breq})

In standard operation, i.e. with a uniform load provided by the driven machine, small masses to be accelerated, and a low number of switching operations, the service factor of $f_{Breq} = 1$ can be selected.

For operating conditions that deviate from this, the required service factor must be calculated with the following formulas.

- For helical, parallel shaft and bevel gearboxes

$f_{Breq} = f_{B1} \cdot f_{BT}$

- For helical worm gearboxes

$f_{Breq} = f_{B1} \cdot f_{B2} \cdot f_{BT}$

Determining the service factor driven machine (f_{B1})

The service factor of the driven machine f_{B1} is determined from the load classification, switching frequency, and operating period per day.

- Load groups of driven machines

Load classification	**Mass acceleration factor (m_{BF})**	**Driven machine** (examples)
I Almost shock-free	≤ 0.3	Electric generators, belt conveyors, apron conveyors, screw conveyors, lightweight elevators, electric hoists, machine tool feed drives, turbo blowers, centrifugal compressors, mixers and agitators when mixing materials with uniform density
II Moderate shock loads	≤ 3	Machine tool main drives, heavy elevators, slewing gear, cranes, shaft ventilators, mixers and agitators when mixing materials with non-uniform densities, reciprocating pumps with multiple cylinders, metering pumps
III Heavy shock loads	≤ 10	Punching presses, shears, rubber kneaders, machinery used in rolling mills and the iron and steel industry, mechanical shovels, heavy centrifuges, heavyweight metering pumps, rotary drilling rigs, briquetting presses, pug mills

Mass acceleration factor (m_{BF})

The mass acceleration factor m_{BF} is calculated as follows:

$$m_{BF} = \frac{J_X}{(J_{mot} + J_B)}$$

All external moments of inertia are moments of inertia of the driven machine and the gearbox, which are to be reduced to the motor speed.

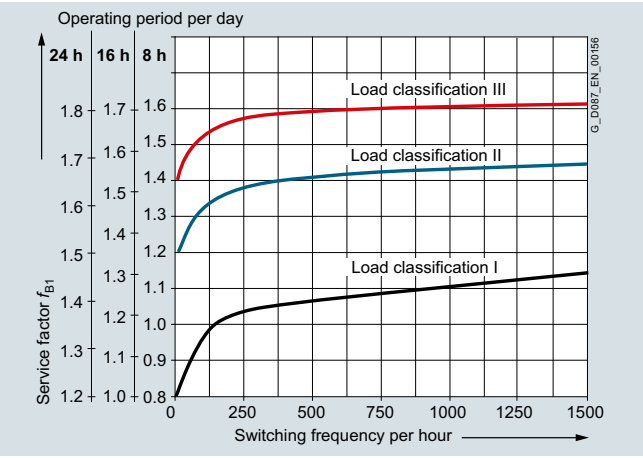
The calculation is made using the following formula:

$$J_X = J_2 \cdot \left(\frac{n_2}{n_1}\right)^2 = \frac{J_2}{(i)^2}$$

In most cases the relatively insignificant moment of inertia of the gearbox can be ignored.
The mass acceleration factor m_{BF} is calculated as follows with reference to the gearbox and the adapter:

$$m_{BF} = \frac{J_X + J_G + J_{AD}}{(J_{mot} + J_B)}$$

Code	Description	Unit
f_B	Service factor	-
f_{B1}	Service factor driven machine	-
f_{B2}	Service factor short-time duty	-
f_{Breq}	Required service factor	-
f_{BT}	Service factor ambient temperature	-
i	Transmission ratio	-
J_2	Moment of inertia of the load referred to the output speed of the gearbox	kgm²
J_{AD}	Moment of inertia of the adapter referred to the input speed	kgm²
J_B	Moment of inertia of the brake	kgm²
J_G	Moment of inertia of the gearbox referred to the input speed	kgm²
J_{mot}	Moment of inertia of the motor	kgm²
J_X	Moment of inertia of the load referred to the input speed	kgm²
m_{BF}	Mass acceleration factor	-
n_1	Input speed of the gearbox	rpm
n_2	Output speed of the gearbox	rpm



Service factor f_{B1}

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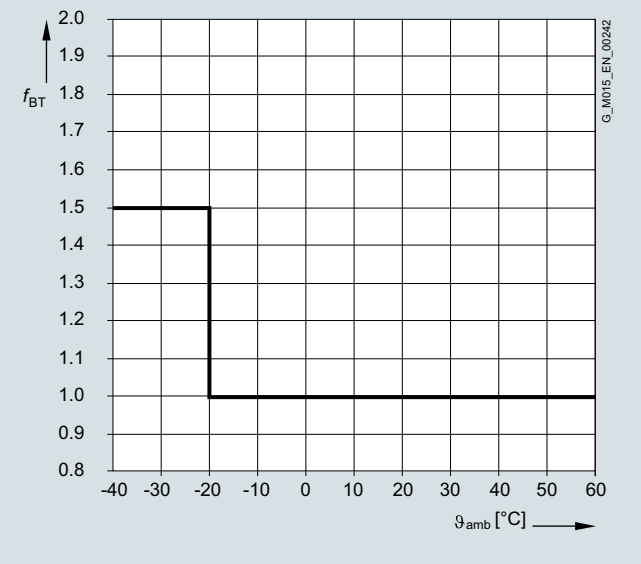
Overview

Determining the service factor ambient temperature (f_{BT})

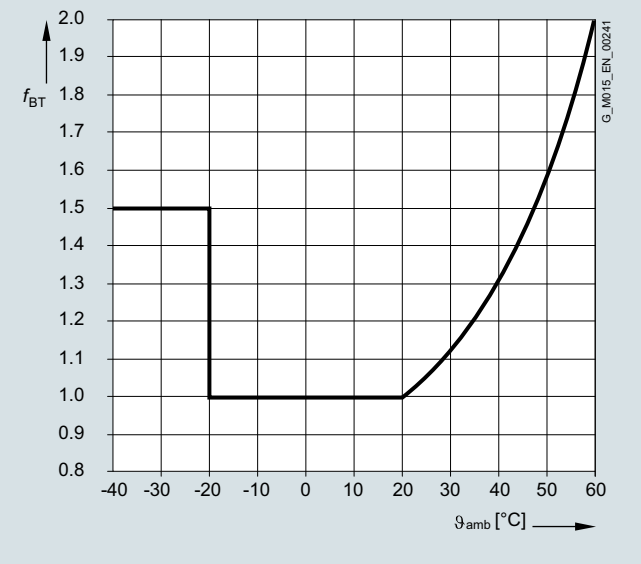
If the drive warms up to an operating temperature above -20 °C at max. 70 % load, f_{BT} =1 can be set.

- For helical, parallel shaft and bevel gearboxes



Service factor ambient temperature

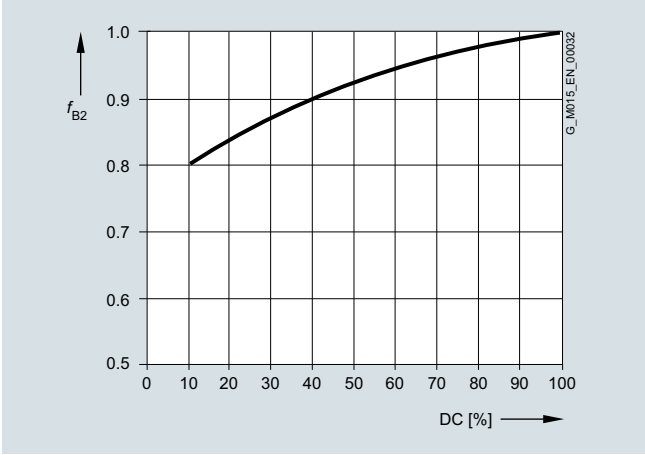
- For helical worm gearboxes



Service factor ambient temperature for helical worm gearboxes

Determining the service factor short-time duty (f_{B2})

- For helical worm gearboxes



Service factor short-time duty

Note:

When selecting and dimensioning drives with the following special application conditions, please contact Siemens.

- Frequent reversing
- Short time and intermittent operation
- Abnormal temperatures
- Reversal braking
- Extreme and/or circulating radial forces at the gearbox output shaft
- Fluctuating loads

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Overview

Required torque

Once the load situation (drive data) and the service factor have been clarified, the required output torque can be determined.

$$T_2 = \frac{P_{mot} \cdot 9550}{n_1/(i \cdot \eta)} = \frac{P_{mot} \cdot 9550}{n_2} \cdot \eta$$

Code	Description	Unit
η	Gearbox efficiency	%
i	Transmission ratio	-
n_1	Input speed of the gearbox	rpm
n_2	Output speed of the gearbox	rpm
P_{mot}	Motor power	kW
T_2	Required output torque of the driven machine	Nm

Input speed

For converter operation, the gearboxes are driven at variable speeds.
When configuring the system, we recommend that the maximum input speed in continuous operation is maintained, wherever possible, at 1 500 rpm.

At higher motor speeds above 1 500 rpm you will generally experience higher than average noise levels and a lower than average bearing service life. This depends to a large extent on the transmission ratio and gearbox size in question. Furthermore, higher speeds additionally influence the thermal properties and service intervals of the gearbox.

Direction of rotation

All geared motors are connected as standard so that the motor rotates in the clockwise direction.

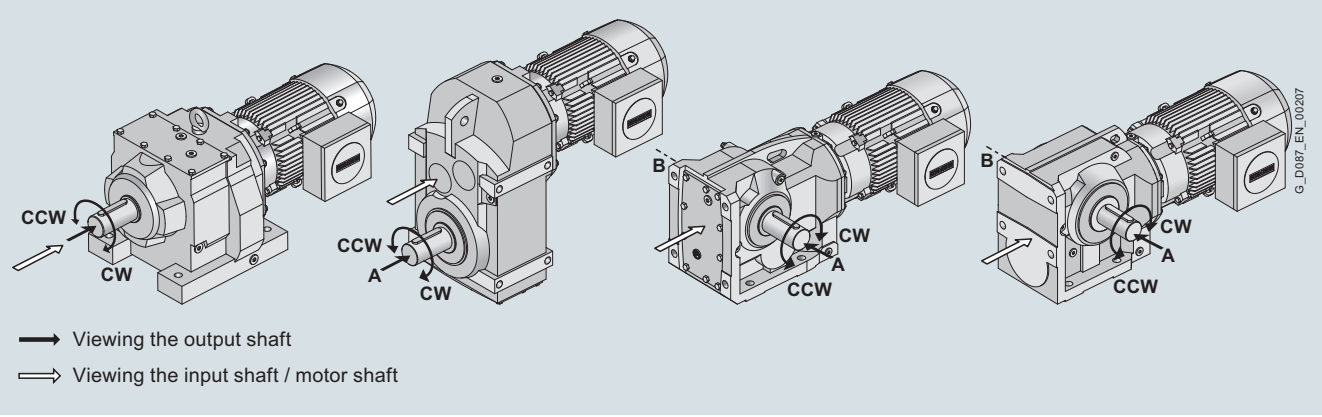
The direction of rotation, which is taken into account in the converter parameterization, depends on the gearbox type, number of gearbox stages and output side.

Note:

For bevel gearboxes B and K and helical worm gearboxes C, the direction of rotation must be specified when viewing the DE (A) or NDE (B).

Direction of rotation, input to output

Gearbox type	Size	Gearbox stages	Output side	Direction of rotation	
				Input shaft	Output shaft
Z	19 … 89	2	-	CW	CW
D	19 … 89	3	-	CW	CCW
FZ	29 … 89	2	-	CW	CW
FD	29 … 89	3	-	CW	CCW
B	19 … 49	2	A	CW	CW
			B	CW	CCW
K	39 … 89	3	A	CW	CCW
			B	CW	CCW
C	29 … 89	2	A	CW	CW
			B	CW	CCW



Definition of the direction of rotation

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Overview

Gearbox fastening

Gearboxes and geared motors are normally secured by bolts of grade 8.8.

When the largest possible motor frame size is attached to the gearbox and with a higher load classification, elevated levels of vibration and/or smaller service factors, further measures need to be taken for flange-mounted designs of gearboxes and geared motors.

Recommended bolt quality for DZ/ZZ and DF/ZF:

Helical gearboxes DZ/ZZ and DF/ZF with the smallest available output flanges must be bolted to the mounting surface with bolts of grade 10.9 (see table).

Gearbox type		Flange	Strength class of bolt/nut
DZ/ZZ29	DF/ZF29	A120	10.9 [1]
DZ/ZZ39	DF/ZF39	A120	10.9 [1]
DZ/ZZ49	DF/ZF49	A140	10.9
DZ/ZZ59	DF/ZF59	A160	10.9
DZ/ZZ69	DF/ZF69	A200	10.9
DZ/ZZ79	DF/ZF79	A250	10.9
DZ/ZZ89	DF/ZF89	A300	10.9

Recommended bolt quality for FF/FAF and KF/KAF:

Parallel shaft gearboxes FF/FAF and bevel gearboxes KF/KAF in combination with larger motors must be bolted to the mounting surface with bolts of grade 10.9 (see table).

Gearbox type		Flange	Motor frame size						
			63	71	80	90	100	112	132
FF/FAF39	KF/KAF39	A160	8.8	8.8	8.8	10.9	10.9		
FF/FAF49	KF/KAF49	A200	8.8	8.8	8.8	8.8	10.9	10.9	
FF/FAF69	KF/KAF69	A250	8.8	8.8	8.8	8.8	8.8	8.8	10.9
FF/FAF79	KF/KAF79	A250	8.8	8.8	8.8	8.8	8.8	8.8	10.9
FF/FAF89	KF/KAF89	A300		8.8	8.8	8.8	8.8	10.9	10.9

We recommend that you consider the following possibilities:

- Selection of a larger output flange
- Use of bolts of grade 10.9
- Use of an anaerobic adhesive to improve the friction lock between the gearbox and the mounting surface

[1] Use suitable washers underneath the bolt head.

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Overview

Shaft load and bearing service life

Available radial force

The radial forces either come from the driven machine (mixer, hoisting gear) or they are caused by the transmission elements.

The available radial force F_{Ravail} at the output shaft is obtained as follows:

- The required geared motor output torque T_2
- Average diameter of the mounted transmission element d_0
- Transmission element type, e.g. chain wheel

The transmission element type determines the additional factor C (see table).

The ambient temperature determines the additional factor T.

$$F_{Ravail} = 2000 \cdot \frac{T_2}{d_0} \cdot C \cdot T$$

Additional factor C for the transmission element type

Transmission element	Explanation	Additional factor *C*
Gear wheel	> 17 teeth	1.00
	≤ 17 teeth	1.15
Chain wheel	≥ 20 teeth	1.00
	14 ... 19 teeth	1.25
	≤ 13 teeth	1.40
Toothed belts	Preloading force	1.50
V-belts	Preloading force	2.00
Flat belts	Preloading force	2.50
Agitator/mixer	Rotating radial force	2.50

Additional factor T for ambient temperature

Temperature range	Low-temperature factor *T*
-20 °C ... +60 °C	1.0
-21 °C ... -40 °C	1.5

Permissible radial force

The permissible radial force F_{R2} is determined by the required bearing service life, among other things. The nominal service life L_{h10} is determined in accordance with ISO 281. Normally, calculating the nominal bearing service life is completely adequate.

The bearing service life can be calculated for special operating conditions and in special cases on request, based on the modified service life L_{na}.

The selection tables specify the permissible radial force F_{R2} for the output shafts of foot-mounted gearboxes with solid shaft "1" (For further information and order codes see Gearbox options). These table values refer to the force application point at the center of the shaft extension and are minimum values, which apply under the most unfavorable conditions (force application angle, mounting position, direction of rotation).

If the values in the table are not sufficient, or if other gearbox designs are being used, please contact Siemens.

Permissible axial force

If no radial force is present, then max. 50 % of the permissible radial force can be applied as a permissible axial force F_{ax} (tension or compression).

Higher permissible radial and axial forces

The permissible radial force load can be increased, taking the force application angle α and the direction of rotation into account. Installing reinforced bearings also means that higher loads are permitted on the output shaft.

If higher radial or axial forces or combined loads comprising radial and axial forces occur, then please contact Siemens.

Note:

Bevel gearboxes B and K and helical worm gearboxes C in type of construction M1 with foot mounting on the face side:
A maximum of 50 % of the radial force F_{R2} specified in the tables is permissible.

Helical geared motors ZB and DB in foot/flange-mounted designs:
When transmitting torque through the flange surface, a maximum of 50 % of the radial force F_{R2} specified in the tables is permissible.

- Variables for defining shaft load and bearing service life

Code	Description	Unit
α	Force application angle	°
a	Gearbox constant	kNmm
b, d, l, y, z	Gearbox constants	mm
C	Additional factor to calculate the radial force	-
d_0	Average diameter of the mounted transmission element	mm
F_{ax}	Permissible axial force	N
F_x	Permissible radial force from out of center force application point	N
F_{xperm1}	Permissible radial force, limited by the bearing service life, at a distance of x from the shaft shoulder	N
F_{xperm2}	Permissible radial force, limited by the shaft strength, at a distance of x from the shaft shoulder	N
F_{Ravail}	Available radial force from the mounted transmission element	N
F_{R2}	Permissible radial force at the center of shaft extension (l/2)	N
L_{h10}	Nominal service life	h
L_{na}	Modified service life	h
T	Additional factor for ambient temperature	-
T_2	Geared motor output torque	Nm
x	Distance from the shaft shoulder up to the point where force is applied	mm

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Overview

Definition of the point of application of radial and axial forces

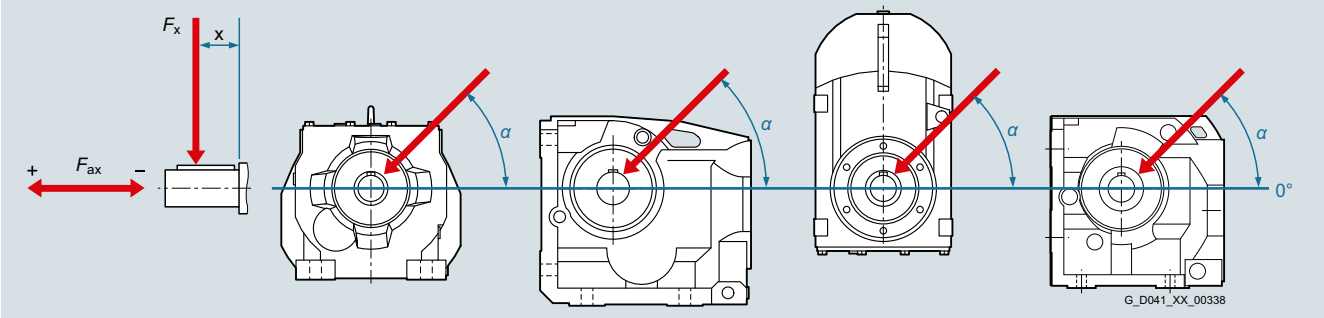

Diagram showing force application point

Radial force conversion for out of center force application point

If the force is not applied at the center of the shaft extension, the permissible radial force must be calculated using the following formula.

The lower value of F_{xperm1} (bearing service life) and F_{xperm2} (strength) is the permissible radial force. The calculation is applicable without axial force.

Permissible radial force according to the bearing service life

$$F_{xperm1} = F_{R2} \cdot \frac{y}{(z + x)}$$

Permissible radial force according to the shaft strength

$$F_{xperm2} = \frac{a}{(b + x)}$$

- Gearbox constants for calculating the radial force

Gearbox size	Constants					
	y	z	a	b	d	l
	mm	mm	kNmm	mm	mm	mm
Helical gearboxes Z and D						
19	91	71	52.8	12	20	40
29	104	79	137	12	25	50
39	116	91	109	0	25	50
49	138	108	260	15	30	60
59	143.5	108.5	414	19	35	70
69	169	134	385	0	35	70
79	172.5	132.5	536	0	40	80
89	212.5	162.5	929	0	50	100
Helical gearboxes E						
39	99.5	79.5	60	0	20	40
49	119.0	94.0	100	0	25	50
69	139.6	109.6	183	0	30	60
89	154.4	114.4	320	0	40	80
Parallel shaft gearboxes F						
29	108.5	83.5	159	0	25	50
39	123.5	98.5	146	0	25	50
49	154.5	124.5	239	0	30	60
69	175	140	378	0	35	70
79	191	151	544	0	40	80
89	226	176	884	0	50	100

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Overview

- Gearbox constants for calculating the radial force

Gearbox size	Constants					
	y	z	a	b	d	l
	mm	mm	kNmm	mm	mm	mm
Bevel gearboxes B						
19	97.5	77.5	38	0	20	40
29	117	97	83	0	20	40
39	143.5	113.5	209	0	30	60
49	175	140	392	0	35	70
Bevel gearboxes K						
39	123.5	98.5	152	0	25	50
49	154.5	124.5	235	0	30	60
69	175	140	378	0	35	70
79	191	151	556	0	40	80
89	226	176	916	0	50	100
Helical worm gearboxes C						
29	117.5	97.5	84	0	20	40
39	123.5	98.5	157	0	25	50
49	154.5	124.5	236	0	30	60
69	171.5	136.5	410	0	35	70
89	220.0	175.0	736	0	45	90

Permissible torque for SIMOLOC assembly system

It is important to note that the maximum permissible torque is dependent on the selected machine shaft diameter.

Diameter of customer's shaft	Max. permissible torque T2					
	Nm					
	29	**39**	**49**	**69**	**79**	**89**
Metric shafts						
20	115					
25	150	205				
30		290	375			
35			480	460	840	
40				600	1 000	1 110
50						1 750
Imperial shafts						
0.75"	100					
1"	150	205				
1.1875"		290	375			
1.25"		290	415			
1.375"			480	460	840	
1.4375"			480	500	915	
1.5"				545	1 000	
1.625"				600	1 000	1 180
1.75"						1 375
1.9375"						1 680
2"						1 750

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Overview

Additional moments of inertia

The motor moment of inertia with standard fan is specified in the motor selection lists.

Motor protection

Temperature-dependent protective devices are integrated in the motor winding and can be implemented as **temperature sensors** (Pt1000).

The rated response temperatures of the protective devices depend on the thermal class of the motors.

Degrees of protection

The motors are supplied in IP55 to standard IEC 60034-5. They can be installed in dusty or humid environments. The motors are suitable for operation in tropical climates. Guide value below 60 % relative air humidity for a coolant temperature of +40 °C.

Other requirements on request.

First digit	Brief description	Second digit	Brief description
4	The motor is protected against solid objects larger than 1 mm.	**4**	The motor is protected against water splashed from all sides.
5	The motor is protected against dust.	**5**	The motor is protected against strong jets of water.
6	The machine is dust-tight.	**6**	The motor is protected against "heavy seas" or powerful jets of water.
		7	The motor is protected against immersion.
		8	The motor is protected against long periods of immersion under pressure.

The first digit of the degree of protection indicates the degree to which an enclosure provides protection against contact and the ingress of foreign bodies.

The second digit indicates the protection that an enclosure offers regarding the ingress of water.

Increased corrosion protection as well as additional protective measures for the winding (protection against moisture and acid, corrosion protection in the motor) can support the selected degree of protection.

The degree of protection only refers to the motor. When selecting higher degrees of protection, the equipment on the gearbox side should be taken into account (seals, vents).

Cooling and ventilation

When the geared motor is mounted and the air intake is restricted, you must ensure that a minimum clearance is maintained between the fan cover and the wall and that the cooling air is not immediately drawn in again.

Further, it must be guaranteed that the cooling air flow to the gearbox is not obstructed. As a consequence, the gearbox operating temperature can be further reduced.

Bearing system

The bearing service life of motors with horizontal mounting is 40 000 hours if there is no additional axial loading at the coupling output and 20 000 hours when utilized according to the maximum admissible load. This assumes that the motor is operated at 50 Hz. The nominal bearing service life is reduced for converter operation at higher frequencies.

In order to achieve the calculated lifetime in continuous operation, the admissible vibration values (measured at end shield) must be determined according to evaluation zones A and B stipulated in ISO 10816. If higher vibration velocities occur in operation, special measures must be taken.

Please contact Siemens in this regard.

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Overview

The brakes can be used as holding brakes. A holding brake is suitable for holding masses and loads at a fixed position.

The brakes are designed as fail-safe spring-operated brakes. When the brake is mounted, it increases the length of the motor. The dimensions are shown in the dimensional drawings.
The spring-operated disk brakes are suitable for a standard ambient temperature range of -20 to +40 °C.
Optionally also possible for -20 to +55 °C with order code **K94** or for -30 to +40 °C with order code **K97**.

Variables

Code	Description	Unit
f_{br}	Braking torque correction factor	-
J_{AD}	Moment of inertia of the adapter	kgm²
J_B	Moment of inertia of the brake	kgm²
J_G	Moment of inertia of the gearbox	kgm²
J_{mot}	Moment of inertia of the motor	kgm²
J_X	Moment of inertia of the load referred to the motor shaft	kgm²
k	Factor for taking into account operating conditions	-
L_N	Service life of the brake lining until the maximum air gap is reached	h
n_{br}	Braking speed	rpm
η	Efficiency	%
Q_{perm}	Permissible operating energy	J
s_{br}	Braking distance	m
t_1	Brake application time	ms
t_{br}	Braking time	s
T_{2br}	Rated braking torque of the brake (dynamic after 100 rpm) in accordance with DIN VDE 0580	Nm
T_{4br}	Rated holding torque of the brake in accordance with DIN VDE 0580	Nm
T_x	Reduced load torque on the motor shaft	Nm
v	Travel velocity	m/s
W_1	Friction energy per braking operation	J
W_{tot}	Friction energy until the brake lining is replaced	MJ
W_V	Friction energy until the brake is readjusted	MJ
Z	Switching frequency	1/h

Determining the braking torque

The braking torque must be selected in accordance with the particular drive application.
The following criteria are decisive when it comes to making the selection:

- Static safety
- Required braking time
- Permissible brake delay
- Possible braking distance
- Brake wear

The braking torque is determined using the safety factor k, which can be selected in the range from 1.0 to 2.5. As a general rule of thumb, the factor for horizontal motion is approx. 1.0 to 1.5 and for vertical motion approx. 2.0 to 2.5. However, the precise braking torque depends to a large extent on the particular operating conditions.

The rated braking torque is referred to a speed of n = 100 rpm and decreases with increasing motor speed. When calculating the braking torque, this is taken into account using the correction factor f_{br}. This means that the rated braking torque is applicable for most braking operations for converter operation.

For line operation, braking is directly from the motor speed. In addition, for vertical conveyors, the increased speed when moving downwards must be taken into account.

$$T_{br} > T_x \cdot k \cdot f_{br}$$

Braking torques as a function of the speed and permissible speed limits

The braking torque available decreases with increasing motor speed.

The maximum permissible speeds, which the emergency stops can be executed from, should be considered as guide values and must be checked for the specific operating conditions.

The maximum permissible friction energy depends on the switching frequency. Increased wear can be expected when the brakes are used for emergency stops.

Braking energy per braking operation

The braking energy W per braking operation comprises the energy of the moments of inertia to be braked and the energy which must be applied in order to brake against a load torque.

T_x is positive if the load torque is working against the braking torque (horizontal motion, upward vertical motion).

T_x is negative if it supports the brake (downward vertical motion).

The permissible operating energy Q_{perm} must be checked against the relevant switching frequency. This is of particular importance for emergency-stop circuits.

$$W_1 = \frac{T_{2br}}{T_{2br} \pm T_x \cdot \eta} \cdot \frac{(J_G + J_{AD} + J_{mot} + J_x + J_B \cdot \eta) \cdot n_{br}^2}{182.5}$$

$$W_1 < Q_{perm}$$

Service life of the brake lining

The service life of the brake lining L_N until the air gap has to be readjusted depends on various factors. The main influencing factors include the masses to be braked, the motor speed, the switching frequency, and, therefore, the temperature at the friction surfaces.

This means it is not possible to specify a value for the friction energy until readjustment that is valid for all operating conditions. However, a wear calculation can be made according to the friction energy, so that the service life can be defined in normal operation.

Brake service life

The brake lining is subject to wear as a result of friction. As a consequence, the air gap increases and the brake application time lengthens.

Service life of the brake lining

$$L_N = \frac{W_V}{W_1 \cdot Z}$$

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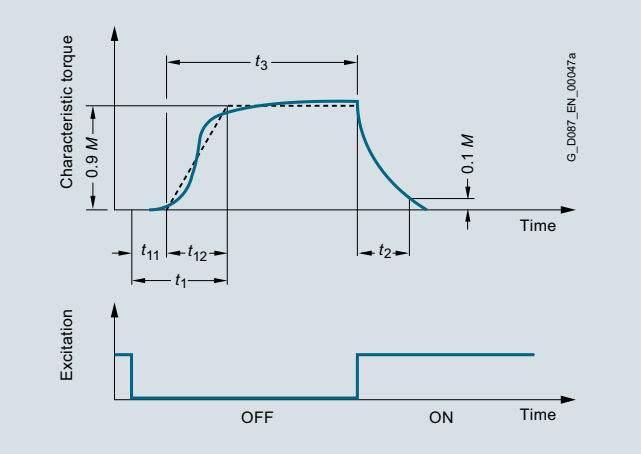
Overview

Brake control

Definition of operating times (VDI 2241)



Brake switching times

Switching times:

t_1	Brake application time
t_2	Disconnection time
t_3	Slipping time
t_{11}	Response time
t_{12}	Rise time

Brake switching time

The total time it takes the motor to come to a standstill comprises the following times:

- Brake application time t_1
- Braking time t_{br}

The first is the time it takes the brake to reach 90 % of its braking torque. This time may be circuit- and control-dependent.
The braking time is determined as follows:

$$t_{br} = \frac{(J_G + J_{AD} + J_{mot} + J_B + J_x \cdot \eta) \cdot n_{br}}{9.55 \cdot (T_{2br} \pm T_x \cdot \eta)}$$

If T_x supports the braking operation, T_x is positive; otherwise it is negative.

Braking distance

Braking distance s_{br} is the distance traveled by the driven machine during braking time t_{br} and application time t_1.

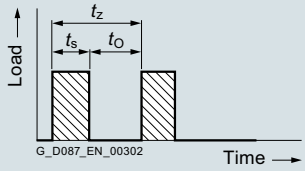
The formula below applies to horizontal motion and upward vertical motion.

$$s_{br} = v \cdot \left(\frac{t_1}{1000} + 0.5 \cdot t_{br}\right)$$

Relative duty cycle

The relative duty cycle *DC* is the ratio between the load duration and the cyclic duration. The cyclic duration is the sum of the ON times (operational periods) and the no-voltage periods.

$$DC = \frac{t_s}{t_s + t_O} \cdot 100$$



Relative duty cycle

Code	Description	Unit
DC	Relative duty cycle	%
t_s	Closing time (duty cycle)	s
t_O	Open time (off-load factor)	s
t_z	Cycle time (duty cycle time)	s

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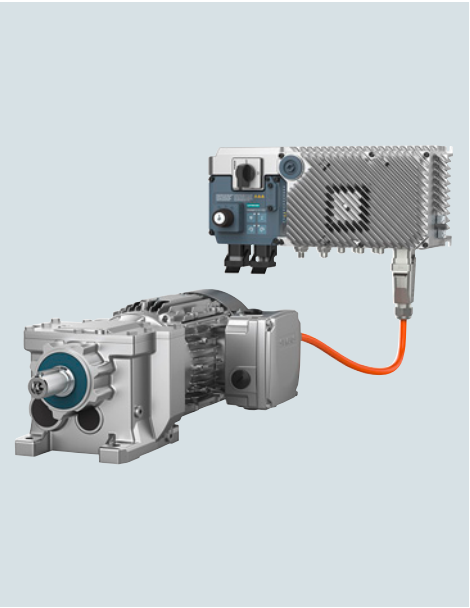
SINAMICS G115D distributed drive system • Wall-mounted
0.37 kW to 7.5 kW



7.2/2 SINAMICS G115D distributed drive system wall-mounted

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7.2/15 Characteristic curves

7.2/16 SIMOGEAR geared motors for SINAMICS G115D wall-mounted

Selection and ordering data

7.2/16 Structure of the Article No.
7.2/18 Orientation
7.2/20 Motor type asynchronous motors IE2/IE3
7.2/22 Motor type synchronous reluctance motors IE4
7.2/24 Additional information for the basic configuration
7.2/26 Supplementary system components and spare parts for SINAMICS G115D wall-mounted

Options

7.2/27 Motor options
7.2/39 Gearbox options
7.2/52 General options

To select the helical geared motor, parallel shaft geared motor, bevel geared motor and helical worm geared motor, see "Gearbox selection" or "Dimensional drawings" in the Industry Mall at:
www.siemens.com/sinamics-g115d/gear-selection-wall-mounted

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Overview

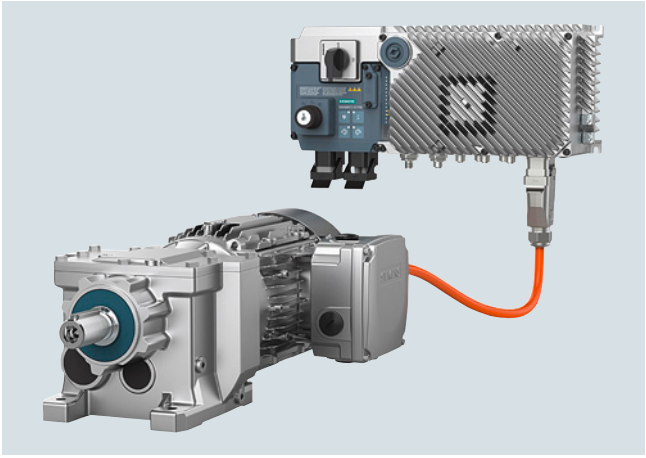
The SINAMICS G115D distributed drive system provides fully preconfigured and ready-to-connect solutions in a modular concept that includes the converter, motor and gearbox.

The wall-mounted converter with different unit versions (frame sizes FSA to FSC) in a performance range from 0.37 kW to 7.5 kW is suitable for a large number of different applications. The converter supports three-phase asynchronous motors with efficiency class up to IE3 or high-efficiency synchronous reluctance motors with efficiency class IE4.

It meets all requirements for horizontal conveyor system applications – from simple speed control to sophisticated encoderless vector control. Thanks to the compact design with degree of protection IP65 (plug-in connection) or IP66 (cable gland), it can be seamlessly integrated into the system.

The integrated conveyor technology functions make the SINAMICS G115D particularly suitable for applications in conveyor systems.

For applications that require safety technology, the SINAMICS G115D offers the integrated STO (Safe Torque Off) function, which can be implemented without additional external components.



Example: SINAMICS G115D distributed drive system, wall-mounted, PROFINET, version with plug-in connection, FSA, 1.5 kW, local remote control with key-operated switch and repair switch

Perfect combination with SIMATIC controllers and PROFINET

Integration via PROFINET communication with PROFIsafe, AS-Interface, EtherNet/IP into a higher-level control system is very easy thanks to full TIA Portal integration, which provides a tool as well as an operating and data management concept. In addition, an optional web server module is available with the web server module SINAMICS G120 Smart Access (SAM) – a WLAN-based web server solution for simple and fast wireless setup with tablets or smartphones during commissioning and for diagnostics.

The SINAMICS G115D distributed drive system is ready for digitalization. All operating data can be transferred to the MindSphere cloud solution. The MindSphere application "Analyze MyDrives" facilitates the process evaluation of operating data, with the possibility of adaptation to individual customer requirements. This simplifies the recording and evaluation of the operating conditions of the drive system.

Reasons for using the SINAMICS G115D distributed drive system

- User-friendly modular solution – pre-configured and ready for connection
- Versatile, robust and reliable system
- New design for quick and easy installation, cabling and commissioning
- The wall-mounted and motor-mounted variants use the same platform
- No control cabinet required, thanks to the installation on the machine less space required and lower cooling requirements
- Long cables between the converters and the motors can be avoided (thus less power loss, reduced interference emissions, and lower costs for shielded cables and additional filters)
- Supports asynchronous motors and high-efficiency synchronous reluctance motors according to efficiency class IE4
- Worldwide use of the SIMOGEAR 2KJ8 geared motors independent of the line voltage
- Temperature range from -30 °C to 55 °C (suitable for installation in deep-freeze applications)
- Integrated safety, STO (Safe Torque Off) via fail-safe digital input F-DI or PROFIsafe
- Perfectly prepared for digitalization thanks to various communications interfaces and integration of the AMD (Analyze MyDrives) application into the Totally Integrated Automation (TIA)
- Special properties for the intralogistics market (e.g. repair switches, local remote control, Safety Integrated, conveyor technology functions)

The family of distributed drive systems at Siemens

Siemens offers an innovative portfolio of frequency converters for optimal implementation in distributed drive solutions. The strengths of the individual members of the converter family allow easy adaptation to the most diverse application requirements:

- Identical connection systems
- User-friendly commissioning and configuration tools

Products from the family of distributed drives:

- SINAMICS G115D distributed drive system (wall and motor-mounted)
- SINAMICS G120D frequency converters
- SIMATIC ET 200pro FC-2 frequency converters
- SIRIUS M200D motor starters

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Overview

Hardware configuration

The SINAMICS G115D distributed drive system is available as a wall-mounted and motor-mounted version, with degree of protection IP65/66.
The performance range for the wall-mounted version, for ranges from 0.37 kW to 7.5 kW and in the motor-mounted version, for ranges from 0.37 kW to 4 kW.
The converter is configurable regarding fieldbus communication (without, AS-Interface or PROFINET / EtherNet/IP) and connection method (cable gland or plug-in connection). Furthermore, the wall-mounted version can be configured with a repair switch, local remote control and the control voltage of the motor holding brake.

State-of-the-art IGBT technology with pulse width modulation (PWM) is used for extremely reliable and flexible motor operation. The closed-loop control electronics control and monitor the power electronics and the connected motor in several different control modes that can be selected.

The sensors of the conveyor element can be connected to the digital inputs of the converter. These signals can be transmitted to the higher-level control for further processing via PROFINET, EtherNet/IP or AS-Interface.

Safety Integrated

The SINAMICS G115D distributed drive systems are already equipped with the Safety Integrated Function STO (Safe Torque Off), with certification according to IEC 61508 SIL 2 as well as EN ISO 13849-1 PL d and Category 3. This can be activated either via the PROFIsafe communication protocol or via the fail-safe digital input F-DI.

Benefits

Fast commissioning

- Pre-assembled and pre-commissioned system with SIMOGEAR
- Loop-through of 24 V DC and 380 to 480 V 3 AC and communication – no T distributors necessary
- Internal braking resistors – typical applications can be implemented without external braking resistors
- Robust with degree of protection IP65/66, ambient temperature from -30 °C to 55 °C
- Quick and easy commissioning options:
  - via local DIP switches and potentiometers
  - via web server module SINAMICS G120 Smart Access (SAM) with web server and WLAN connection for using a smartphone or tablet in just a few steps
  - via TIA Portal with SINAMICS Startdrive for the use of a PC
- Wiring of the drive system either via screw connections or via plug connectors. Communication (PROFINET, EtherNet/IP or AS-Interface) generally via plug connectors
- Local diagnostics with LEDs
- Uploading, backup and cloning of the parameters with SINAMICS SD memory card

Full functionality

- Integrated communication: PROFINET, EtherNet/IP and AS-Interface
- Integrated Safety Functions (STO locally via fail-safe digital input F-DI or via PROFIsafe communication protocol)
- Inputs/outputs can be used as distributed I/O of the PLC
- Basic PLC functions and additional functions for conveyor technology:
  - Horizontal conveyors: fast/slow, Quick Stop, 1 or 2 directions
  - Rotary table: fast/slow, Quick Stop, 2 or 3 positions and limit trip
  - Corner transfer conveyors lift drive: fast/slow, Quick Stop and limit trip
  - Traversing carriage: fast/slow, Quick Stop and limit trip

Efficient engineering

- Full integration in Totally Integrated Automation, Totally Integrated Automation Portal and Integrated Drive System
- Intuitive selection tools
  - Drive Technology Configurator (DTC)
  - TIA Selection Tool (TST)
- SINAMICS Startdrive as part of the TIA Portal offers complete integration for intuitive parameterization
- Automatic diagnostics in combination with SIMATIC control

Flexible commissioning functions

- Integrated conveyor technology functions
  - Quick Stop function for fast reaction times for the sensors, e.g. roller conveyors, belt conveyors
  - Limit switch function, e.g. for rotary table, corner transfer unit
- Graphical commissioning of the conveyor technology functions in just a few steps
- Integrated inputs/outputs with variable assignment
- Use of the same software tool (SINAMICS Startdrive) as for all SINAMICS drives

Extended warranty

For SINAMICS G115D, Siemens offers an extended warranty of up to 4 years:

- 18-month standard warranty
- Optional extension via **Service Protect**
  - Free for the first 6 months after registering the product at: https://myregistration.siemens.com
  - With costs for 1 or 2 additional years for wall-mounted and motor-mounted versions (complete system with converter and geared motor)

You can find more information at:
https://support.industry.siemens.com/cs/ww/en/sc/4842

Application

The SINAMICS G115D distributed drive system is ideally suited for horizontal conveyor applications, e.g.:

- Roller, belt and chain conveyors
- Simple rotary tables
- Simple transverse shuttles

Reliable operation in harsh environments

The SINAMICS G115D distributed drive system is suitable for use in harsh environments

- Degree of protection IP65 (plug-in connector) or IP66 (cable gland)
- Use in ambient temperatures from -30 °C to 55 °C
- Coated PCBs for increased resistance to humidity and dust (Class 3C2), operation according to EN 60721-3-3

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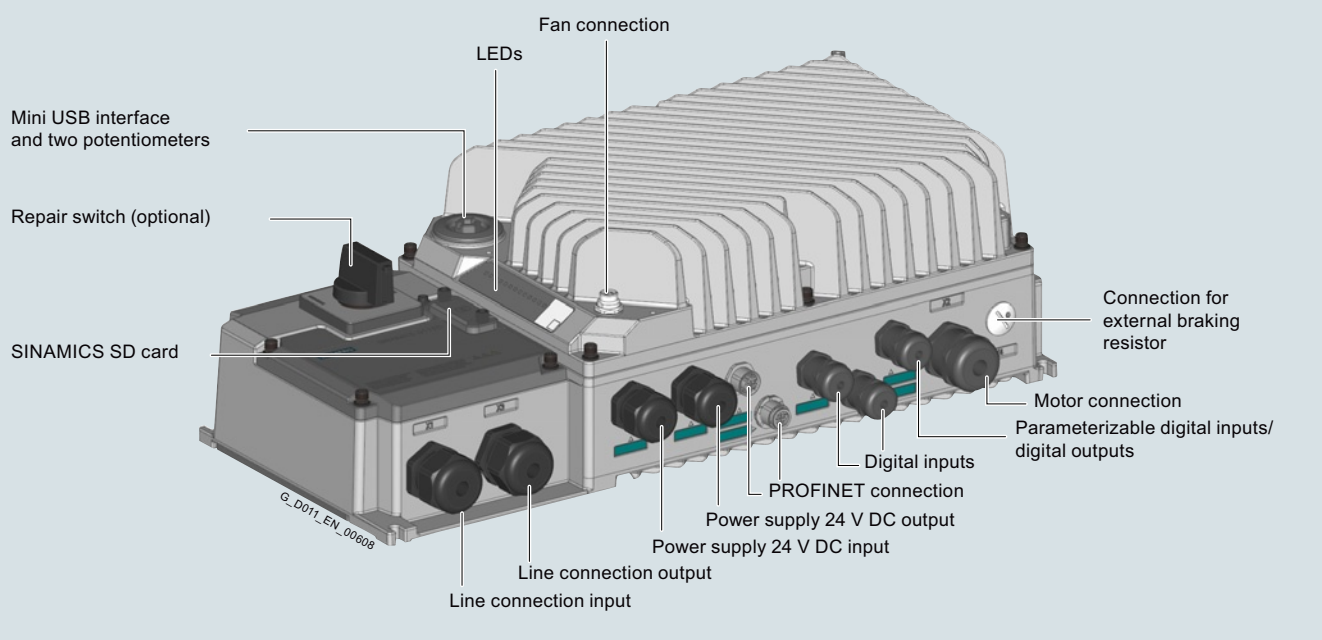
Design

The converter is configurable regarding fieldbus communication (without, AS-Interface or PROFINET / EtherNet/IP) and connection system (cable gland or plug-in connection).

Furthermore, the wall-mounted version can be configured with a repair switch, local remote control and the control voltage of the motor holding brake.



Example: SINAMICS G115D, wall-mounted, version with cable gland connection system and optional repair switch

Repair switch

The wall-mounted converter is available as a version with an integrated repair switch. The repair switch isolates the SINAMICS G115D distributed drive system on the line side from the line supply. It can be secured against reconnection.

Local remote control with key-operated switch

Master control can be toggled between automatic mode (PLC) and local remote mode using the local remote control. This can also be used to switch off the converter and acknowledge pending faults. Additional functions include switching over between continuous and jog mode, starting the motor including direction of rotation and deactivating the Quick Stop in the manual mode.

24 V DC power supply

The SINAMICS G115D converter is available as a version with an integrated 24 V DC power supply. If this is switched off in a version with the integrated repair switch, the 24 V DC power supply continues to remain active.

Brake control

As standard, brake control with 180 V DC (independent of the line voltage) is integrated. An optional brake control with 380 V to 480 V AC (same as the line voltage) can be selected.

Supplementary system components

SINAMICS SD memory card

The parameter settings of the converter and the firmware can be stored on the optional SINAMICS SD memory card. When service is required, the data are automatically downloaded from the memory card in the converter and the system is ready for use again without further interventions.

External braking resistors

Regenerative energy is converted to heat via the internal braking resistor integrated as standard. Optional external braking resistors are available for higher regenerative energy.

Installation kit

An installation kit with cable glands for the line supply (X1/X3), the motor (X2), the 24 V DC power supply (X01/X02) and the digital inputs/digital outputs (X07/X08/X05) can be ordered for the connection.

Cover kit

The cover kit is used to protect the unused connector plugs for line supply, loop-through (X3) and 24 V DC loop-through (X02).

Connecting cables for communication

Flexible plug-in cables to transfer data between the PROFINET/Industrial Ethernet stations or AS-Interface stations, as well as for 24 V DC power supply.

Connecting cables for line supply, power loop-through and power bus distribution

Connector sets to connect to the line supply and the outgoing motor feeder are available as accessories as well as pre-assembled motor cables for connection to the motor.

PC converter connection kit 2 (mini USB interface cable) for communication with a PC

For controlling and commissioning a converter directly from a PC if the appropriate software (commissioning tool SINAMICS Startdrive V16 update 4 and higher) is installed.

SINAMICS G120 Smart Access (SAM) web server module

Smart Access for the SINAMICS G115D distributed drive system with web server for easy commissioning and diagnostics via WLAN with a smartphone or tablet in just a few steps.

Interface kit for SINAMICS G120 Smart Access (SAM) web server module

With the interface kit, the SINAMICS G120 Smart Access web server module can be connected to the SINAMICS G115D converter.

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Design

SINAMICS G115D training case

The SINAMICS G115D training case is a convincing demonstration system thanks to its compact design. It is suitable for direct customer presentations as well as for testing in the technical department. The functions of SINAMICS G115D in combination with a SIMOGEAR geared motor can be demonstrated and tested quickly and easily with this case.

Spare parts

Electronic Modules

The entire drive electronics is located in the Electronic Module. Thus, in most service cases only this module must be replaced. If a converter fails, this replacement can be performed easily and quickly.

Spare parts kit

A spare parts kit is available, which contains small parts such as seals, cover caps and screws.

Replacement fan

A replacement fan is available, which consists of a pre-assembled unit comprising cover, fan and screws.

Function

Technology functions

Specific functions for conveyor technology:

- Integrated communication: PROFINET / EtherNet/IP or AS-Interface
  Furthermore, the “Without fieldbus communication (I/O Control)” version is available.
- Integrated Safety Functions (STO locally via fail-safe digital input F-DI or via PROFIsafe communication protocol)
- Inputs/outputs can be used as distributed I/O of the PLC
- Basic PLC functions and additional functions for conveyor technology:
  - Chain and belt conveyors: fast/slow, Quick Stop, 1 or 2 directions
  - Rotary table: fast/slow, Quick Stop, 2 or 3 positions and limit trip
  - Corner transfer conveyors lift drive: fast/slow, Quick Stop and limit trip
  - Traversing carriage: fast/slow, Quick Stop and limit trip

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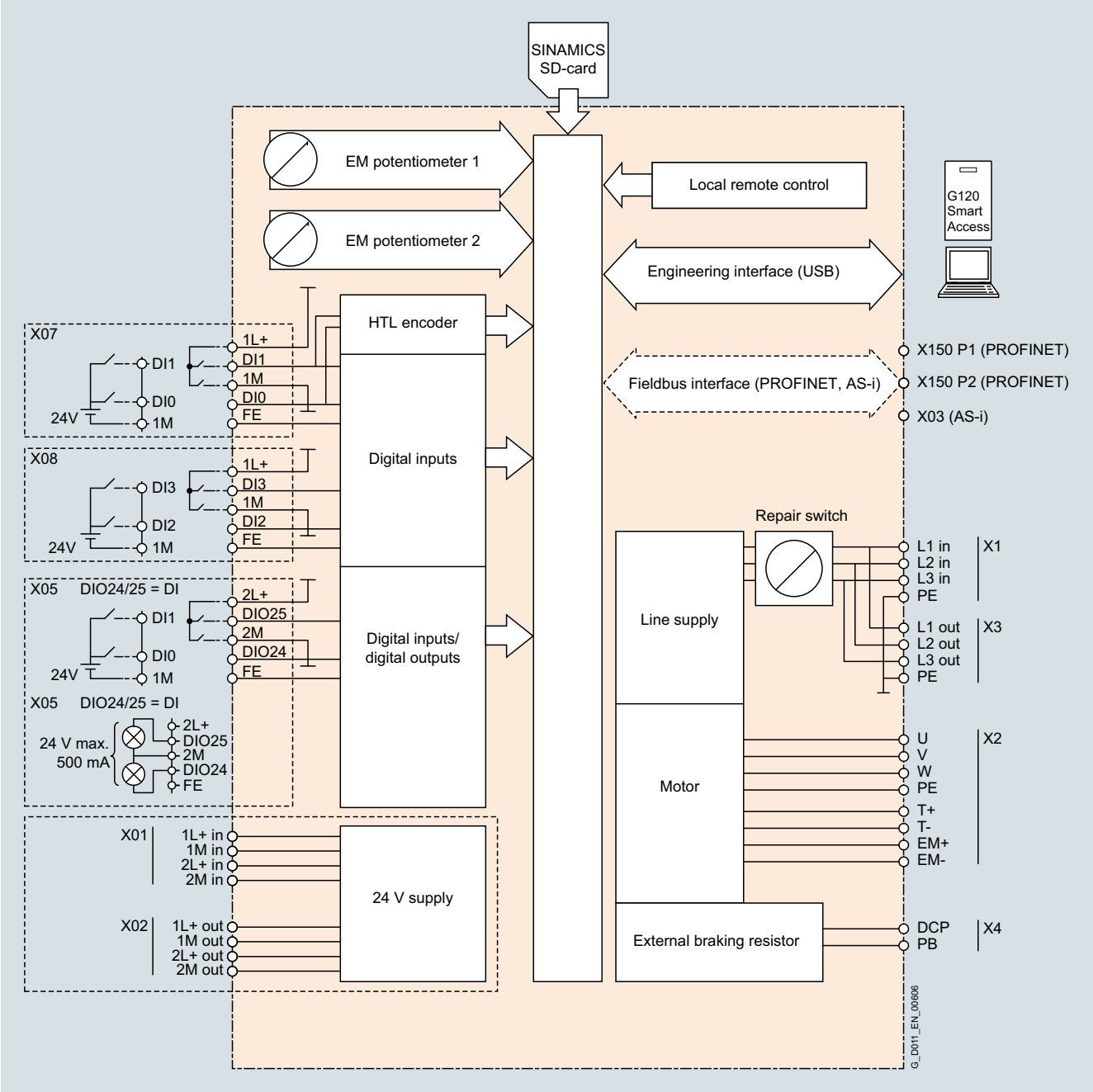
Integration



Connection example for SINAMICS G115D, wall-mounted

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Configuration

The following configuring tools and engineering tools are available for the SINAMICS G115D:

Drive Technology Configurator (DT Configurator)

The Drive Technology Configurator (DT Configurator) helps you configure the optimum drive technology products for a number of applications – starting with gearboxes, motors, converters as well as the associated options and components and ending with controllers, software licenses and connection systems. The DT Configurator can be used on the internet without requiring any installation. The DT Configurator can be found in the Siemens Industry Mall at the following address:
www.siemens.com/dt-configurator

SINAMICS Startdrive commissioning tool (V16 update 4 and higher)

SINAMICS Startdrive is a tool integrated into the TIA Portal for configuring, commissioning and diagnostics of the SINAMICS converter family. SINAMICS Startdrive (V16 update 4 and higher) can be used for implementing drive tasks with most of the SINAMICS G and SINAMICS S converter series. The commissioning tool has been optimized in terms of simplicity, ease of use, and consistent use of the benefits of the TIA Portal to provide a uniform working environment for PLC, HMI and drives.

The SINAMICS Startdrive commissioning tool is available for free on the internet at:
www.siemens.com/startdrive

Drive dimensioning of the SINAMICS G115D distributed drive system with the TIA Selection Tool

The SINAMICS G115D distributed drive system is easily configured with the TIA Selection Tool under the Drive Dimensioning plug-in. It provides support when selecting the hardware and firmware components necessary to implement a drive task. The plug-in encompasses the configuration of the entire drive system and allows the handling of individual drives.

- Intuitive user interface, menu-based operation and help
- Configuration of the SINAMICS G115D distributed drive system
- Adjustable load cycles and various mechanical systems integrated
- Interface to the TIA Portal and Industry Mall

The TIA Selection Tool is available for free on the internet at
www.siemens.com/tia-selection-tool-standalone

SIMARIS planning tools for plants with SINAMICS drives (available soon)

Electrical planning: Even easier with software!

Electrical planning for power distribution in non-residential and industrial buildings has never been more complex. To ensure you, as a specialist planner, have the best hand when it comes to electrical planning with SINAMICS drives, we provide support with the following efficient software tools:

- SIMARIS design for dimensioning
- SIMARIS project for calculating the space requirements of the distribution boards

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Technical specifications

General technical specifications	SINAMICS G115D distributed converters	SIMOGEAR geared motors for SINAMICS G115D wall-mounted
Mechanical specifications		
Vibration and shock load		
• Transport according to EN 60721-3-2: 1997	Class 1M2	–
• Operation according to EN 60721-3-3: 1995	Class 3M2	–
Maximum permissible vibration and shock load	–	ISO 20816-1 Zone A
Ambient conditions		
Protection class According to EN 61800-5-1	Class III (PELV)	Class III (PELV)
Touch protection According to EN 61800-5-1	Class I (with protective bonding circuit)	Class I (with protective bonding circuit)
Degree of protection The degree of protection according to IEC 60034-5 (EN 60034-5) only refers to the motor.	IP65 (for plug-in connection) IP66 (for cable gland) UL type 4X	IP55 IP56 [1], IP65, when selecting these higher degrees of protection, the gearbox side should be taken into account (seals, vents). UL TEFC
Permissible ambient or coolant temperature (air) during operation	-30 ... +40 °C (-22 ... 104 °F) without derating Frame size FSA: >40 ... 50 °C (104 ... 122 °F) see derating characteristics Frame sizes FSB and FSC: >40 ... 55 °C (104 ... 131 °F) see derating characteristics	-30 ... +40 °C (-22 ... 104 °F) without derating >40 ... 55 °C (104 ... 131 °F) see derating characteristics
Relative air humidity	<95 % at 40 °C (104 °F), condensation and icing up not permissible	<60 % at 40 °C (104 °F), condensation and icing up not permissible
Environmental class/ harmful chemical substances Operation acc. to EN 60721-3-3	Class 3C2	Class 3C2
Degree of pollution According to EN 61800-5-1	2	2
Permissible noise limits According to EN 60034-9: 2008-01	–	Limit values for the motors on the converter are undershot. By increasing the clock frequency on the converter, the motor noises can also be reduced.
Certification for fail-safe versions		
• According to EN ISO 13849-1	Category 3	–
• According to IEC 61508	SIL 2	–
• According to EN ISO 13849-1	PL d	–
• PFH according to IEC 61800-5-2	$<50 \times 10^{-9}$	–
• PFD according to IEC 61508	$<50 \times 10^{-5}$	–
• Duration of assignment T1	20 years	–
Standards		
Compliance with standards [2]	UL 61800-5-1 (UL list number E355661), CE, RCM, EAC, KC	UL 1004-1 and UL 1004-6 CSA-C22.2 No. 100 CE, EAC
CE marking, according to	Low Voltage Directive 2014/35/EU	Machinery Directive 2006/42/EC EMC Directive 2014/30/EU RoHS Directive 2011/65/EU
EMC Directive		
• Frame sizes FSA to FSC with integrated line filter	Category C2 according to EN 61800-3 (corresponds to class A according to EN 55011)	–

More information

Compact Operating Instructions are supplied in hard copy form in German, English and Chinese with every SINAMICS G115D.

To select the helical geared motor, parallel shaft geared motor, bevel geared motor and helical worm geared motor, see "Gearbox selection" or "Dimensional drawings" in the Industry Mall at: www.siemens.com/sinamics-g115d/gear-selection-wall-mounted

The latest technical documentation (catalogs, dimensional drawings, certificates, manuals and operating instructions) as well as further technical specifications are available on the internet at:
www.siemens.com/sinamics-g115d/documentation

and in the Drive Technology Configurator (DT Configurator):
www.siemens.com/sinamics-g115d/configuration

[1] No brake and no 10 or 12- pole plug possible.

[2] The SINAMICS G115D drive system does not fall in the area of validity of the China Compulsory Certification (CCC).

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Selection and ordering data

SINAMICS G115D distributed converters wall-mounted · 380 ... 480 V 3 AC

Rated power [1]		Rated output current I_N [2]	Rated input current [3]	Frame size	SINAMICS G115D wall-mounted Degree of protection IP65/IP66/UL Type 4X with integrated line filter class A according to EN 55011
400 V kW	480 V hp	at 400 V A	at 400 V A		Data position in Article No. 1 2 3 4 5 6 7 - 8 9 10 11 12 - 13 14 15 16
380 ... 480 V 3 AC · Rated pulse frequency 4 kHz · Input frequency 45 ... 66 Hz					
0.37	0.5	1.3	1.23	FSA	**6 S L 3 5 2 ■ - ■ X ■ ■ 0 - 3 A ■ 0**
0.55	0.75	1.7	1.58	FSA	**6 S L 3 5 2 ■ - ■ X ■ ■ 0 - 5 A ■ 0**
0.75	1	2.2	1.99	FSA	**6 S L 3 5 2 ■ - ■ X ■ ■ 0 - 7 A ■ 0**
1.1	1.5	3.1	2.69	FSA	**6 S L 3 5 2 ■ - ■ X ■ ■ 1 - 1 A ■ 0**
1.5	2	4.1	3.48	FSA	**6 S L 3 5 2 ■ - ■ X ■ ■ 1 - 5 A ■ 0**
2.2	3	5.9	5.18	FSB	**6 S L 3 5 2 ■ - ■ X ■ ■ 2 - 2 A ■ 0**
3.0	4	7.7	6.76	FSB	**6 S L 3 5 2 ■ - ■ X ■ ■ 3 - 0 A ■ 0**
4.0	5	10.2	8.95	FSB	**6 S L 3 5 2 ■ - ■ X ■ ■ 4 - 0 A ■ 0**
5.5	7.5	13.2	11.88	FSC	**6 S L 3 5 2 ■ - ■ X ■ ■ 5 - 5 A ■ 0**
7.5	10	19	17.11	FSC	**6 S L 3 5 2 ■ - ■ X ■ ■ 7 - 5 A ■ 0**

Article No. supplements

Brake control									
180 V DC (independent of the line voltage) *)								**0**	
380 ... 480 V AC (such as line voltage)								**1**	
Operating options									
Without operating option *)							**0**		
Repair switch							**1**		
Local remote control							**2**		
Repair switch and local remote control							**3**		
Connection type	Fieldbus communication	I/O	Motor	380 ... 480 V AC	24 V DC				
Cable gland with daisy chain	without	Cable gland *)						**A**	**0**
		Cable gland			Power supply unit integrated			**H**	**0**
	M12	Cable gland *)						**A**	**2**
		M12	Cable gland					**A**	**6**
		Cable gland			Power supply unit integrated			**H**	**2**
		M12	Cable gland		Power supply unit integrated			**H**	**6**
Plug-in connection without daisy chain	M12	M12	Q8/0	Q4/2	7/8" [5]			**B**	**0**
					Power M12 [6]			**B**	**4**
				Quickon [4]	Power M12 [5]			**C**	**0**
				MQ15 [4]	Power M12 [5]			**D**	**0**
				Q4/2	Power supply unit integrated			**K**	**0**
				Quickon [4]	Power supply unit integrated			**L**	**0**
				MQ15 [4]	Power supply unit integrated			**M**	**0**
Plug-in connection with daisy chain	M12	M12	Q8/0	2 × Q4/2	2 × 7/8" *) [5]			**E**	**0**
					2 × Power M12 [6]			**E**	**4**
					Power supply unit integrated			**N**	**0**
Fieldbus communication									
AS-Interface									**A**
Without fieldbus communication									**B**
PROFINET, EtherNet/IP									**F**

* If you select "Brake voltage 180 V DC" and "Without operating option" in combination with one of the connection types **A0**, **A2** or **E0**, the delivery time will change from "**standard delivery time**" to "**delivery ex stock**".

[1] Rated power based on the rated output current I_N.
The rated output current I_N is based on the duty cycle for high overload (HO).

[2] The rated output current I_N is based on the duty cycle for high overload (HO). These current values apply at 400 V and are specified on the rating plate of the converter.

[3] The input current depends on the motor load and line impedance.
The input currents apply for a load at rated power for a line impedance corresponding to u_K = 4 %.
The current values are specified on the rating plate of the converter.

[4] Not suitable for UL applications (FSA and FSB). Not available for FSC.

[5] Plug-in connector with fieldbus communication AS-Interface not available.

[6] Version with fieldbus communication AS-Interface cannot be ordered.

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Technical specifications

Converters - General technical specifications	
Line voltage	380 V (-10 %) ... 480 V (+10 %) 3 AC
Line supply requirements Short-circuit power ratio R_{SC}	u_K < 4 % (R_{SC} > 25)
Input frequency	45 ... 66 Hz
Output frequency	
• Control mode V/f	0 ... 550 Hz
• Control mode Vector	0 ... 240 Hz
Pulse frequency	4 kHz (standard); 4 ... 16 Hz (in steps of 2 kHz) see derating data
Power factor	0.8 ... 0.91
Converter efficiency	96 ... 98 %
Output voltage, max. as % of input voltage	87 ... 95 %
Overload capability	
• High overload (HO)	2 × rated output current for 3 s, followed by 1.5 × rated output current for 57 s, over a cycle time of 300 s
Electromagnetic compatibility	Integrated line filter category C2 according to EN 61800-3 (corresponds to class A according to EN 55011)
Possible braking methods	• Dynamic brake with internal braking resistors • Dynamic brake with external braking resistors R_{min} = 200 Ω (for FSA), R_{min} = 80 Ω (for FSB), R_{min} = 40 Ω (for FSC) • Electromechanical (EM) brake: - 180 V DC (independent of the line voltage, max. output current 0.8 A) Disconnection on the DC side permits short brake application times. - 380 ... 480 V AC (such as line voltage, max. output current 1 A)
Degree of protection	IP65 (for plug-in connection) IP66 (for cable gland) UL type 4X

Converters - General technical specifications	
Operating temperature	-30 ... +40 °C (-22 ... 104 °F) without derating
• Frame size FSA	>40 ... 50 °C (104 ... 122 °F) see derating characteristics
• Frame sizes FSB and FSC	>40 ... 55 °C (104 ... 131 °F) see derating characteristics
Storage temperature	-40 ... +70 °C (-40 ... +158 °F)
Permissible mounting positions	All Derating for specific mounting positions, see operating instruction on the internet at: www.siemens.com/sinamics-g115d/documentation
Relative air humidity	<95 % RH, condensation not permissible
Cooling	
• 0.37 ... 1.5 kW	Natural cooling
• 2.2 ... 7.5 kW	External cooling with mounted fan
Installation altitude	Up to 1000 m (3281 ft) above sea level without derating Over 1000 m (3281 ft) to 4000 m (13124 ft) see derating data
Short Circuit Current Rating (SCCR) [1]	65 kA
Protection functions	• Undervoltage • Phase failure detection • Overvoltage • Overload • Ground fault • Short-circuit • Stall protection • Motor blocking protection • Motor overtemperature • Converter overtemperature • Parameter locking
Compliance with standards	UL 61800-5-1 (UL list number E355661), CE, RCM, EAC, KCC
CE marking, according to	Low Voltage Directive 2014/35/EU Filtered variants also: EMC Directive 2014/30/EU

[1] Applies to industrial control cabinet installations according to NEC Article 409 or UL 508A.

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Technical specifications

Converter 6SL352 . - . X . . . -	I/O . AB0	AS-Interface . AA0	PROFINET, EtherNet/IP . AF0
Electrical specifications			
Operating voltage	External 24 V DC		
Current consumption (from the 24 V DC supply)			
• With Power Module frame size FSA	250 mA	290 mA	290 mA
• With Power Module frame size FSB with fan	510 mA	550 mA	550 mA
• With Power Module frame size FSC with fan	540 mA	580 mA	580 mA
Interfaces			
Digital inputs (not isolated)	4 programmable, PNP, SIMATIC compatible		
• Optional for safe inputs, parameterizable	2 DI = 1F-DI		
• Optionally usable as encoder inputs	2, for connection of an HTL encoder (A and B track)		
• Conductor cross-section (only for version with cable gland)	0.25 ... 0.34 mm^2 (24 ... 22 AWG) with end sleeves		
Digital outputs	2, switchable DI/DO		
• Optional for safe inputs, parameterizable	–		
• Conductor cross-section (only for version with cable gland)	0.25 ... 0.34 mm^2 (24 ... 22 AWG) with end sleeves		
Bus interface			
Motor temperature sensor	1 input, sensors that can be connected: PTC, KTY, bimetal or Pt1000	1 input, sensors that can be connected: PTC, KTY, bimetal or Pt1000	1 input, sensors that can be connected: PTC, KTY, bimetal or Pt1000
Control of a mechanical motor brake	✓	✓	✓
Slot for SINAMICS SD memory card	✓	✓	✓
Commissioning interface			
• PROFINET	–	–	✓
• Mini-USB	✓	✓	✓
Safety functions			
Integrated safety functions acc. to IEC 61508 SIL 2 and EN ISO 13849-1 PL d and Category 3	Safe Torque Off (STO)		
• F-DI	✓	✓	✓
• PROFIsafe	–	–	✓ (not with EtherNet/IP)
Open-loop/closed-loop control methods			
V/f linear/quadratic/parameterizable	✓		
V/f with flux current control (FCC)	✓		
Vector control, sensorless	✓		
Torque control, sensorless	✓		

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Technical specifications

Converter 6SL352 . - . X . . . -	I/O . AB0	AS-Interface . AA0	PROFINET, EtherNet/IP . AF0
Software functions			
Fixed frequencies	✓		
Signal interconnection with BICO technology	✓		
Automatic restart after line supply failure or operating fault	✓		
Slip compensation	✓		
Free function blocks (FFB) for logical and arithmetic operations	✓		
Ramp smoothing	✓		
4 selectable drive data sets	✓		
4 selectable command data sets (CDS) (manual/auto)	✓		
Flying restart	✓		
JOG	✓		
Cyclic recording of ramp-up and ramp-down	–	✓	✓
Technology controller (PID)	✓		
Conveyor technology functions	–	✓	✓
Thermal motor protection	✓		
Thermal converter protection	✓		
Setpoint input	✓		
Motor identification	✓		
Motor holding brake	✓		
Mechanical specifications and ambient conditions			
Degree of protection	IP65/IP66/UL type 4X		
Operating temperature • Frame size FSA • Frame sizes FSB and FSC	-30 ... +40 °C (-22 ... 104 °F) without derating >40 ... 50 °C (104 ... 122 °F) see derating characteristics >40 ... 55 °C (104 ... 131 °F) see derating characteristics		
Storage temperature	-40 ... +70 °C (-40 ... 158 °F)		
Relative air humidity	<95 % RH, condensation not permissible		

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Technical specifications

Line voltage 380 ... 480 V 3 AC		**SINAMICS G115D distributed converters**				
6SL352 . -		**. X . . 0-3A . 0**	**. X . . 0-5A . 0**	**. X . . 0-7A . 0**	**. X . . 1-1A . 0**	**. X . . 1-5A . 0**
Rated output current I_N [1]	A	1.3	1.7	2.2	3.1	4.1
Maximum output current I_{max}	A	2.6	3.4	4.4	6.2	8.2
Rated power	kW	0.37	0.55	0.75	1.1	1.5
Rated pulse frequency	kHz	4	4	4	4	4
Efficiency η according to IEC 61800-9-2		95.90	96.66	97.00	97.39	97.57
Power loss [2] according to IEC 61800-9-2 at rated output current	kW	0.034	0.038	0.043	0.054	0.067
Internal braking resistor						
• Continuous braking power P_{DB} (ambient temperature ≤40 °C (104 °F))	W	10	10	10	10	10
• Peak power P_{max} (cycle time 12 s within 120 s (corresponds to 10 % on-load factor)) (ambient temperature ≤40 °C (104 °F)	W	100	100	100	100	100
Rated input current [3]	A	1.23	1.58	1.99	2.69	3.48
Line supply connection U1/L1, V1/L2, W1/L3, PE						
• Conductor cross-section	mm^2	1.5 ... 6 14 ... 9 AWG	1.5 ... 6 14 ... 9 AWG	1.5 ... 6 14 ... 9 AWG	1.5 ... 6 14 ... 9 AWG	1.5 ... 6 14 ... 9 AWG
PE connection (external connection)						
• Conductor cross-section (recommended)	mm^2	10	10	10	10	10
Motor connection						
• Conductor cross-section						
- U2, V2, W2, PE	mm^2	2.5 ... 4 13 ... 12 AWG	2.5 ... 4 13 ... 12 AWG	2.5 ... 4 13 ... 12 AWG	2.5 ... 4 13 ... 12 AWG	2.5 ... 4 13 ... 12 AWG
- Motor brake	mm^2	0.75 ... 4 18 ... 12 AWG	0.75 ... 4 18 ... 12 AWG	0.75 ... 4 18 ... 12 AWG	0.75 ... 4 18 ... 12 AWG	0.75 ... 4 18 ... 12 AWG
- Temperature sensor	mm^2	0.75 ... 1.5 18 ... 16 AWG	0.75 ... 1.5 18 ... 16 AWG	0.75 ... 1.5 18 ... 16 AWG	0.75 ... 1.5 18 ... 16 AWG	0.75 ... 1.5 18 ... 16 AWG
Degree of protection		IP65/IP66/UL type 4X	IP65/IP66/UL type 4X	IP65/IP66/UL type 4X	IP65/IP66/UL type 4X	IP65/IP66/UL type 4X
Frame size		FSA	FSA	FSA	FSA	FSA
Dimensions						
• Width	mm (in)	380 (14.96)	380 (14.96)	380 (14.96)	380 (14.96)	380 (14.96)
• Height	mm (in)	156 (6.14)	156 (6.14)	156 (6.14)	156 (6.14)	156 (6.14)
• Depth	mm (in)	129 (5.08)	129 (5.08)	129 (5.08)	129 (5.08)	129 (5.08)
Weight, approx.	kg (lb)	5.6 (12.35)	5.6 (12.35)	5.6 (12.35)	5.6 (12.35)	5.6 (12.35)

[1] The rated output current I_N is based on the duty cycle for high overload (HO).

[2] Typical values. More information can be found on the internet at https://support.industry.siemens.com/cs/document/94059311

[3] The input current depends on the motor load and line impedance. The input currents apply for load at rated power for a line impedance corresponding to u_K = 4%.

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Technical specifications

Line voltage 380 ... 480 V 3 AC		SINAMICS G115D distributed converters				
6SL352 . -		. X . . 2-2A . 0	. X . . 3-0A . 0	. X . . 4-0A . 0	. X . . 5-5A . 0	. X . . 7-5A . 0
Rated output current I_N [1]	A	5.9	7.7	10.2	13.2	19
Maximum output current I_{max}	A	11.8	15.4	20.4	26.4	38
Rated power	kW	2.2	3	4	5.5	7.5
Rated pulse frequency	kHz	4	4	4	4	4
Efficiency η according to IEC 61800-9-2		97.61	97.61	97.51	98.07	98.06
Power loss [2] according to IEC 61800-9-2 at rated output current	kW	0.096	0.126	0.173	0.171	0.246
Internal braking resistor						
• Continuous braking power P_{DB} (ambient temperature ≤40 °C (104 °F))	W	10	10	10	20	20
• Peak power P_{max} (cycle time 12 s within 120 s (corresponds to 10 % on-load factor)) (ambient temperature ≤40 °C (104 °F))	W	100	100	100	200	200
Rated input current [3]	A	5.18	6.76	8.95	11.88	17.11
Line supply connection U1/L1, V1/L2, W1/L3, PE						
• Conductor cross-section	mm^2	2.5 ... 6 13 ... 9 AWG	2.5 ... 6 13 ... 9 AWG	2.5 ... 6 13 ... 9 AWG	4 ... 6 11 ... 9 AWG	4 ... 6 11 ... 9 AWG
PE connection (external connection)						
• Conductor cross-section (recommended)	mm^2	10	10	10	10	10
Motor connection						
• Conductor cross-section						
- U2, V2, W2, PE	mm^2	2.5 ... 4 13 ... 12 AWG	2.5 ... 4 13 ... 12 AWG	2.5 ... 4 13 ... 12 AWG	4 12 AWG	4 12 AWG
- Motor brake	mm^2	0.75 ... 4 18 ... 12 AWG	0.75 ... 4 18 ... 12 AWG	0.75 ... 4 18 ... 12 AWG	0.75 ... 4 18 ... 12 AWG	0.75 ... 4 18 ... 12 AWG
- Temperature sensor	mm^2	0.75 ... 1.5 18 ... 16 AWG	0.75 ... 1.5 18 ... 16 AWG	0.75 ... 1.5 18 ... 16 AWG	0.75 ... 1.5 18 ... 16 AWG	0.75 ... 1.5 18 ... 16 AWG
Degree of protection		IP65/IP66/UL type 4X	IP65/IP66/UL type 4X	IP65/IP66/UL type 4X	IP65/IP66/UL type 4X	IP65/IP66/UL type 4X
Frame size		FSB	FSB	FSB	FSC	FSC
Dimensions						
• Width	mm (in)	425 (16.73)	425 (16.73)	425 (16.73)	425 (16.73)	425 (16.73)
• Height	mm (in)	180 (7.09)	180 (7.09)	180 (7.09)	180 (7.09)	180 (7.09)
• Depth	mm (in)	169 (6.65)	169 (6.65)	169 (6.65)	169 (6.65)	169 (6.65)
Weight, approx.	kg (lb)	11.1 (24.47)	11.1 (24.47)	11.1 (24.47)	11.6 (25.57)	11.6 (25.57)

[1] The rated output current I_N is based on the duty cycle for high overload (HO).

[2] Typical values. More information can be found on the internet at https://support.industry.siemens.com/cs/document/94059311

[3] The input current depends on the motor load and line impedance. The input currents apply for load at rated power for a line impedance corresponding to u_K = 4%.

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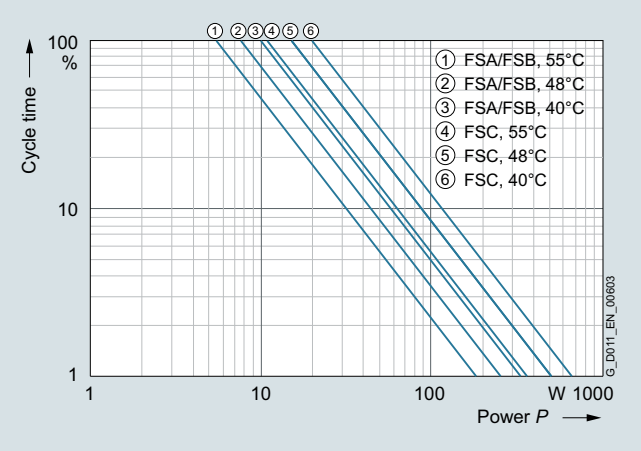
Characteristic curves



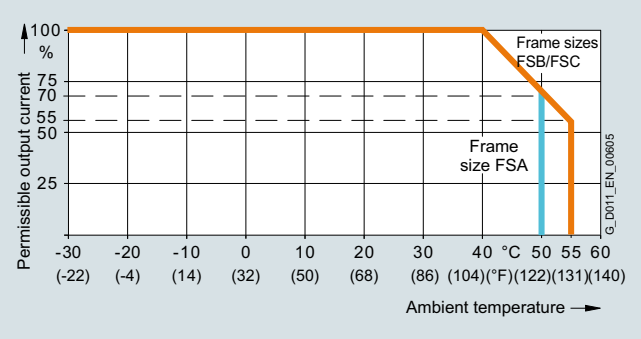
SINAMICS G115D, internal braking resistor, cycle time in relation to a cycle of up to 120 s

Derating data

Pulse frequency

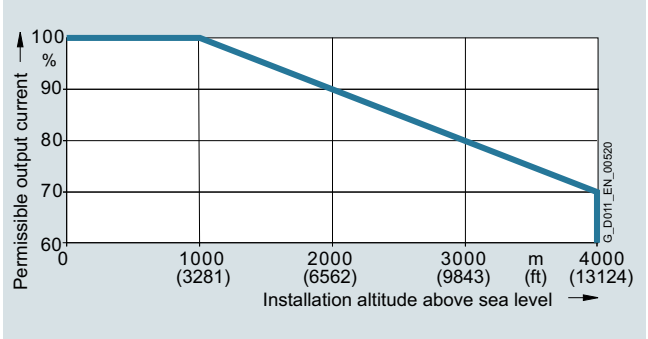
Rated power at 400 V 3 AC		Rated output current in A for a pulse frequency of						
kW	hp	4 kHz	6 kHz	8 kHz	10 kHz	12 kHz	14 kHz	16 kHz
0.37	0.5	1.3	1.11	0.91	0.78	0.65	0.59	0.52
0.55	0.75	1.7	1.45	1.19	1.02	0.85	0.77	0.68
0.75	1	2.2	1.87	1.54	1.32	1.1	0.99	0.88
1.1	1.5	3.1	2.64	2.17	1.86	1.55	1.4	1.24
1.5	2	4.1	3.49	2.87	2.46	2.05	1.85	1.64
2.2	3	5.9	5.02	4.13	3.54	2.95	2.66	2.36
3	4	7.7	6.55	5.39	4.62	3.85	3.47	3.08
4	5	10.2	8.67	7.14	6.12	5.1	4.59	4.08
5.5	7.5	13.2	11.22	9.24	7.92	6.6	5.94	5.28
7.5	10	19	16.15	13.3	11.4	9.5	8.55	7.6

Ambient temperature



Permissible output current as a function of the ambient temperature

Installation altitude



Permissible output current as a function of the installation altitude

No derating necessary at the permissible input voltage depending on the installation altitude.

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SIMOGEAR geared motors for SINAMICS G115D wall-mounted • Structure of the Article No.

Selection and ordering data

SIMOGEAR geared motors for SINAMICS G115D wall-mounted • Structure of the Article No.

SIMOGEAR 2KJ8 geared motors

Data position in Article No.

1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	-	Z
2	K	J	8	■	■	■	-	■	■	■	■	■	-	■	■	■	■		

Article No. supplements

Gearbox type, gearbox designation	
Helical gearbox E, 1-stage	**0**
Helical gearbox Z, 2-stage	**1**
Helical gearbox D, 3-stage	**2**
Parallel shaft gearbox FZ, 2-stage	**3**
Parallel shaft gearbox FD, 3-stage	**4**
Bevel gearbox B/K, 2/3-stage	**5**
Helical worm gearbox C, 2-stage	**6**
Gearbox size	
See „Gearbox selection“ in the Ordering data section in the Industry Mall www.siemens.com/sinamics-g115d/gear-selection-wall-mounted and in the Drive Technology Configurator (DT Configurator): www.siemens.com/sinamics-g115d/configuration	**01** **...** **14** **08**
Motor type acc. to CE/UL/CCC/KC/EAC	
Asynchronous motor	**2**
Synchronous reluctance motor	**4**
Motor shaft height	
Shaft height 71	**C**
Shaft height 80	**E**
Shaft height 90	**G**
Shaft height 100	**J**
Shaft height 112	**L**
Shaft height 132	**N**
Motor rated power	
Rated power 1	**A**
	B
	C
Rated power 2	**F**
	G
	H
Rated power 3	**N**
Motor temperature sensor	
Without	**0**
Pt1000	**1**
Motor brake	
Without	**0**
With (brake voltage 180 V DC)	**1**
Mounting type / control range	
Wall-mounted / control range 1:5	**0**
Wall-mounted / control range 1:10	**1**
Wall-mounted / control range 1:8.7	**2**
Converter fieldbus communication	
Geared motor for SINAMICS G115D wall-mounted	**A**
Without fieldbus communication, cable gland	**B**
Without fieldbus communication, plug-in connection	**C**
AS-Interface, cable gland	**D**
AS-Interface, plug-in connection	**E**
PROFINET, EtherNet/IP, cable gland	**F**
PROFINET, EtherNet/IP, plug-in connection	**G**
Gearbox ratio	
See „Gearbox selection“ in the Ordering data section in the Industry Mall www.siemens.com/sinamics-g115d/gear-selection-wall-mounted and in the Drive Technology Configurator (DT Configurator): www.siemens.com/sinamics-g115d/configuration	**A** **...** **X** **1** **...** **2**

Selection and ordering data

SIMOGEAR geared motors for SINAMICS G115D wall-mounted • Structure of the Article No.

	SIMOGEAR 2KJ8 geared motors
Data position in Article No.	1 2 3 4 5 6 7 - 8 9 10 11 12 - 13 14 15 16 - Z
	2 K J 8 . . . - . . . . . - . . . . - Z
Options with -Z and order code	
Mounting position	
Standard	
M1	**D 0 1**
M2	**D 0 2**
M3	**D 0 3**
M4	**D 0 4**
M5	**D 0 5**
M6	**D 0 6**
Permitted deviation from the mounting position	**D 0 9**
Universal mounting position output side A (DE)	
M1-A	**D 1 1**
M2-A	**D 1 2**
M3-A	**D 1 3**
M4-A	**D 1 4**
M5-A	**D 1 5**
M6-A	**D 1 6**
Universal mounting position output side B (NDE)	
M1-B	**D 2 1**
M2-B	**D 2 2**
M3-B	**D 2 3**
M4-B	**D y 0.6DG (D) TJ E**

Standard options for mandatory selection (e.g. the shaft designs) are displayed in the DT Configurator.
For commissioning in the TIA Portal, the selection of the mounting position (e.g. order code **D01**) is important for the specification of the direction of rotation of the output shaft.

For more information and order codes see section Options.

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Options

Mounting type	Mounting position	Additional identification code **-Z** with order code 2KJ8 . . . - . . . . . - . . . . **-Z**	Order code
Helical gearboxes and parallel shaft gearboxes			
Foot-mounted design	M1		**D01**
Flange-mounted design	M2		**D02**
Housing flange design	M3		**D03**
	M4		**D04**
	M5		**D05**
	M6		**D06**
Bevel gearboxes and helical worm gearboxes			
	Output side A		
Foot-mounted design	M1-A		**D11**
Flange-mounted design	M2-A		**D12**
Housing flange design	M3-A		**D13**
	M4-A		**D14**
	M5-A		**D15**
	M6-A		**D16**
	Output side B		
Foot-mounted design	M1-B		**D21**
Flange-mounted design	M2-B		**D22**
Housing flange design	M3-B		**D23**
	M4-B		**D24**
	M5-B		**D25**
	M6-B		**D26**

Explanation of the symbols used to represent mounting positions

Symbol	
Oil valves	
	Venting
	Oil drain
	Oil level checking screw

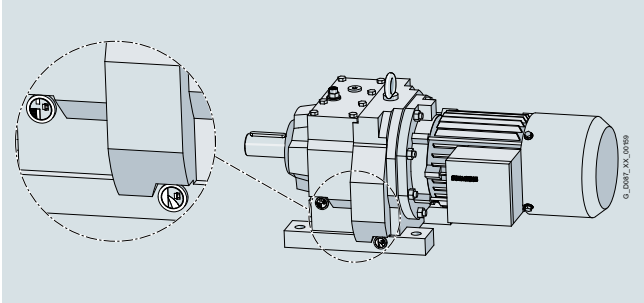
Note:

The Drive Technology Configurator (DT Configurator) can be used to configure SIMOGEAR geared motors.

The DT Configurator can be used on the internet without requiring any installation.

The DT Configurator can be found in the Industry Mall at the following address:
www.siemens.com/dt-configurator

For the selected mounting position, the 3D images show the exact position of the oil valves.



Dimensional drawing from DT Configurator with details

Mounting types

Design	Possible for						Additional identification code **-Z** with order code	
	D, Z	E	F	B	K	C	2KJ8 . . . - . . . . . - . . . . **-Z**	Order code
Foot-mounted design	✓	✓	✓	✓	✓	✓		**-**
Foot/flange-mounted design	✓[1)]	-	-	-	-	-		**H71**
Flange-mounted design (A type)	✓	✓	✓	✓	✓	✓		**H74**
Housing flange (C type)	✓	✓	✓	✓	✓	✓		**H76**
Shaft-mounted design (torque arm)	-	-	✓	✓	✓	✓		**H72**

[1)] Only for sizes 29 to 89

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Options

Flange-mounted designs
The flange-mounted designs are available with different diameters.

Gearbox type	Flange diameter mm								Additional identification code **-Z** with order code	Order code
Helical gearboxes ZF, 2-stage and DF, 3-stage										
Gearbox size	**19**	**29**	**39**	**49**	**59**	**69**	**79**	**89**	2KJ81. . - . . . . . - . . . .**-Z** 2KJ82. . - . . . . . - . . . .**-Z**	
	120	120	120							**H02**
	140	140		140						**H03**
	160	160	160	160	160					**H04**
			200	200	200	200				**H05**
					250	250	250			**H06**
							300	300		**H07**
							350	350		**H08**
								450		**H09**
Helical gearboxes ZB, 2-stage and DB, 3-stage										
Gearbox size	**29**	**39**	**49**	**59**	**69**	**79**	**89**		2KJ81. . - . . . . . - . . . .**-Z** 2KJ82. . - . . . . . - . . . .**-Z**	
	120	120								**H02**
			140							**H03**
			160	160						**H04**
					200					**H05**
						250				**H06**
							300			**H07**
Helical gearboxes EF, 1-stage										
Gearbox size	**39**		**49**		**69**		**89**		2KJ80. . - . . . . . - . . . .**-Z**	
	120									**H02**
	140									**H03**
	160		160							**H04**
	200		200		200					**H05**
			250		250		250			**H06**
							300			**H07**
							350			**H08**
Parallel shaft gearboxes F..F										
Gearbox size	**29**	**39**	**49**		**69**	**79**	**89**		2KJ83. . - . . . . . - . . . .**-Z** 2KJ84. . - . . . . . - . . . .**-Z**	
	120									**H02**
	160	160								**H04**
			200							**H05**
					250	250				**H06**
							300			**H07**
Bevel gearboxes B.F										
Gearbox size	**19**		**29**		**39**		**49**		2KJ85. . - . . . . . - . . . .**-Z**	
	120		120							**H02**
			160		160					**H04**
					200		200			**H05**
Bevel gearboxes K.F										
Gearbox size	**39**		**49**		**69**		**79**	**89**	2KJ85. . - . . . . . - . . . .**-Z**	
	160									**H04**
			200							**H05**
					250		250			**H06**
								300		**H07**
										H10
Helical worm gearboxes C.F										
Gearbox size	**29**		**39**		**49**		**69**	**89**	2KJ86. . - . . . . . - . . . .**-Z**	
	120									**H02**
	160		160							**H04**
					200		200			**H05**
								250		**H06**

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Options

Parallel shaft gearboxes F.AD. in a shaft-mounted design

The rubber buffers (supplied loose) are used to flexibly support the gearbox on the housing plate provided.

When mounting, the rubber buffers must be pretensioned to the dimension specified in the dimensional drawing.

The elastomer used for support is manufactured out of natural rubber 70° ± 5 Shore A. The rubber buffers are suitable for all mounting positions and can withstand temperatures of between -40 and +60 °C.

The dimensions of the torque arm can be seen in the dimensional drawings.

Mounting type	Additional identification code **-Z** with order code	
	2KJ83 . . - . . . . . - . . . .**-Z** 2KJ84 . . - . . . . . - . . . .**-Z**	Order code
Shaft-mounted design		**H72**

Bevel gearboxes KAD. in a shaft-mounted design

The torque arm of bevel gearboxes K is mounted on the underside of the housing. The rubber buffers are used to flexibly support the gearbox on the torque arm.

The elastomer used for support is manufactured out of natural rubber 60° Shore A. The rubber elastic buffers are suitable for all mounting positions and can withstand temperatures of between -40 and +60 °C.

The dimensions of the torque arm can be seen in the dimensional drawings.

Mounting type	Additional identification code **-Z** with order code	
	2KJ85 . . - . . . . . - . . . .**-Z**	Order code
Shaft-mounted design		**H72**

Bevel gearboxes BAD. in a shaft-mounted design

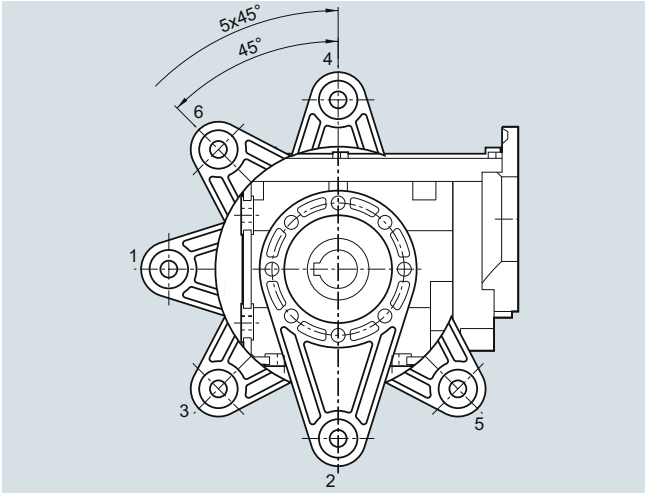
The torque arm can be screwed to the gearbox housing at various positions.

When ordered, the torque arm is supplied loose.

Mounting type	Additional identification code **-Z** with order code	
	2KJ85 . . - . . . . . - . . . .**-Z**	Order code
Shaft-mounted design		**H72**

- Shaft-mounted design for sizes 19 and 29

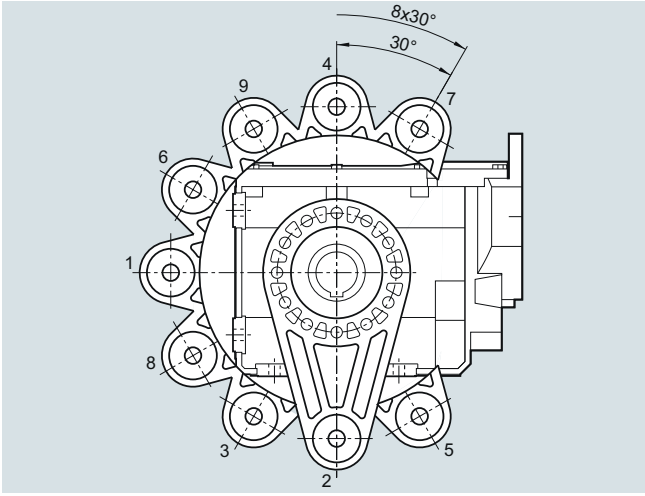
  The elastomer used for support is manufactured out of natural rubber 90° Shore A. The rubber elastic buffers are suitable for all mounting positions and can withstand temperatures of between -30 and +60 °C.



Bevel gearboxes BAD, sizes 19 and 29

- Shaft-mounted design for sizes 39 and 49

  The elastomer used for support is manufactured out of natural rubber 60° Shore A. The rubber elastic buffers are suitable for all mounting positions and can withstand temperatures of between -40 and +60 °C.



Bevel gearboxes BAD, sizes 39 and 49

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Options

Helical worm gearboxes CAD. in a shaft-mounted design

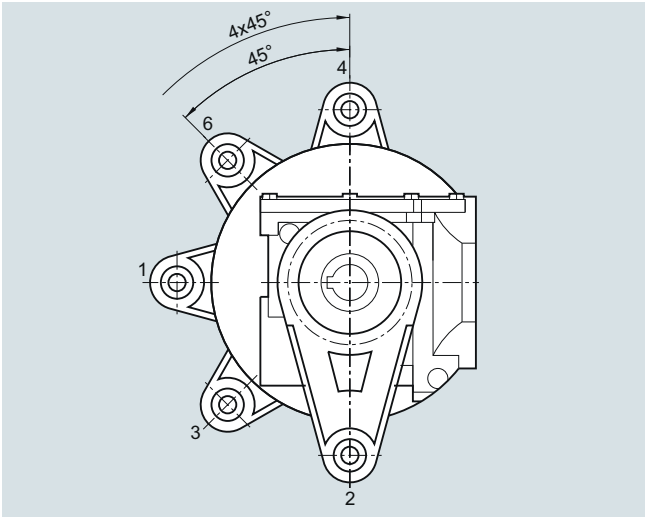
The torque arm can be screwed to the gearbox housing at various positions.

When ordered, the torque arm is supplied loose.

Mounting type	Additional identification code **-Z** with order code	
	2KJ86 . . - . . . . . - . . . .**-Z**	Order code
Shaft-mounted design		**H72**

- Shaft-mounted design for size 29

  The elastomer used for support is manufactured out of natural rubber 90° Shore A. The rubber elastic buffers are suitable for all mounting positions and can withstand temperatures of between -30 and +60 °C.

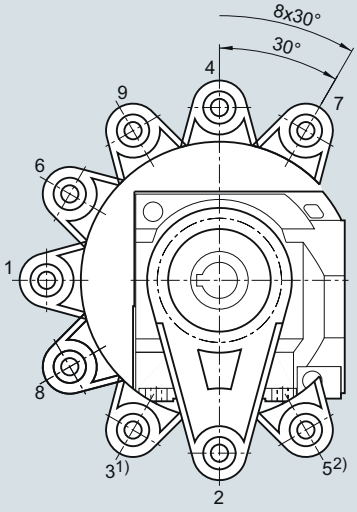


Helical worm gearboxes CAD, size 29

- Shaft-mounted design for sizes 39 to 89

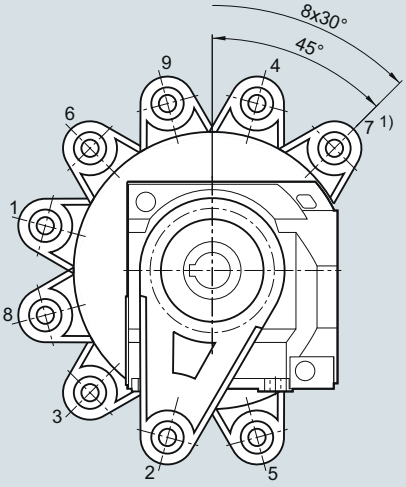
  The elastomer used for support is manufactured out of natural rubber 60° Shore A. The rubber elastic buffers are suitable for all mounting positions and can withstand temperatures of between -40 and +60 °C.

Shaft-mounted design	Additional identification code **-Z** with order code	
	2KJ86 . . - . . . . . - . . . .**-Z**	Order code
Figure 1		**G09**
Figure 2		**G10**



1) Position not possible for sizes CAD.39 and CAD.69
2) Position not possible for size CAD.39

Helical worm gearboxes CAD, Figure 1, sizes 39 to 89



1) Position not possible for size CAD.39 and CAD.49

Helical worm gearboxes CAD, Figure 2, sizes 39 to 89

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Options

Shaft design

Shaft design	Dimensions mm						Ambient temperature range	Additional identification code **-Z** with order code	
Helical gearboxes Z and D									
Gearbox size	**19**	**29**	**39**	**49**	**59**	**69**		2KJ81. . - . . . . . - . . . .**-Z** 2KJ82. . - . . . . . - . . . .**-Z**	Order code
Solid shaft	V20 x 40	V25 x 50	V25 x 50	V30 x 60	V35 x 70	V35 x 70	-40 ... +60 °C		**H31**
	V16 x 28				V30 x 60				**H32**
	V16 x 40		V30 x 60		V40 x 80				**H33**
Solid shaft without feather key	VG20 x 40	VG25 x 50	VG25 x 50	VG30 x 60	VG35 x 70	VG35 x 70			**H40**
Solid shaft, inches	V0.75" x 1.57"	V1" x 1.97"	V1" x 1.97"	V1.25" x 2.36"	V1.375" x 2.76"	V1.375" x 2.76"			**H66**
Gearbox size	**79**	**89**						2KJ81. . - . . . . . - . . . .**-Z** 2KJ82. . - . . . . . - . . . .**-Z**	
Solid shaft	V40 x 80	V50 x 100					-40 ... +60 °C		**H31**
	V35 x 70								**H32**
	V50 x 100	V60 x 120							**H33**
Solid shaft without feather key [1]	VG40 x 80	VG50 x 100							**H40**
Solid shaft, inches	V1.625" x 3.15"	V2.125" x 3.94"							**H66**
Helical gearboxes E									
Gearbox size	**39**	**49**	**69**	**89**				2KJ80. . - . . . . . - . . . .**-Z**	
Solid shaft	V20 x 40	V25 x 50	V30 x 60	V40 x 80			-40 ... +60 °C		**H31**
Solid shaft, inches	V0.75" x 1.57"	V1" x 1.97"	V1.25" x 2.36"	V1.625" x 3.15"					**H66**
Parallel shaft gearboxes F									
Gearbox size	**29**	**39**	**49**	**69**	**79**	**89**		2KJ83. . - . . . . . - . . . .**-Z** 2KJ84. . - . . . . . - . . . .**-Z**	
Solid shaft	V25 x 50	V25 x 50	V30 x 60	V35 x 70	V40 x 80	V50 x 100	-40 ... +60 °C		**H31**
		V35 x 70	V40 x 80		V50 x 100				**H33**
Solid shaft without feather key [1]	VG25 x 50	VG25 x 50	VG30 x 60	VG35 x 70	VG40 x 80	VG50 x 100			**H40**
Solid shaft, both ends [1][3]		VD25 x 50	VD30 x 60	VD35 x 70	VD40 x 80	VD50 x 100			**H64**
Solid shaft, both ends without feather key [1][3]			VDG30 x 60	VDG35 x 70	VDG40 x 80	VDG50 x 100			**H65**
Solid shaft, inches	V1" x 1.97"	V1"x1.97"	V1.25" x 2.36"	V1.375" x 2.76"	V1.625" x 3.15"	V2" x 3.94"			**H66**
Hollow shaft	H25	H30	H35	H40	H40	H50			**H35**
		H25	H30						**H36**
Hollow shaft, inches	H1"	H1.25"	H1.375"	H1.5"	H1.5"	H2"			**H67**
Hollow shaft with shrink disk	HS25	HS30	HS35	HS40	HS40	HS50			**H50**
SIMOLOC assembly system, metric	HF25	HF30	HF35	HF40	HF40	HF50	-20 ... +60 °C		**H53**
	HF20	HF25	HF30	HF35	HF35	HF40			**H54**
SIMOLOC assembly system, imperial dimensions	HF1.0"	HF1.25"	HF1.375"	HF1.5"	HF1.5"	HF2.0"			**H55**
	HF0.75"	HF1.1875"	HF1.4375"	HF1.625"	HF1.625"	HF1.9375"			**H56**
		HF1.0"	HF1.25"	HF1.4375"	HF1.4375"	HF1.75"			**H57**
		-	HF1.1875"	HF1.375"	HF1.375"	HF1.625"			**H58**
Splined hollow shaft		N30	N35	N35	N45	N50	-40 ... +60 °C		**H61**
Bevel gearboxes B									
Gearbox size	**19**	**29**	**39**	**49**				2KJ85. . - . . . . . - . . . .**-Z**	
Solid shaft	V20 x 40	V20 x 40	V30 x 60	V35 x 70			-40 ... +60 °C		**H31**
Solid shaft without feather key	VG20 x 40	VG20 x 40	VG30 x 60	VG35 x 70					**H40**
Solid shaft, both ends [2]	VD20 x 40	VD20 x 40	VD30 x 60	VD35 x 70					**H64**
Solid shaft, inches	V0.75" x 1.57"	V0.75" x 1.57"	V1" x 1.97"	V1.375" x 2.76"					**H66**
Hollow shaft	H20	H20	H30	H40					**H35**
		H25	H35	H35					**H36**
			H40						**H37**
Hollow shaft, inches	H0.75"	H0.75"	H1.25"	H1.5"					**H67**

[1] Can only be selected in conjunction with foot-mounted or housing flange design.

[2] Can only be selected in conjunction with foot-mounted design.

[3] Restricted motor sizes in conjunction with shaft extensions at both ends; for precise dimensioning, use the functionality of the DT Configurator.

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Shaft design	Dimensions mm					Ambient temperature range	Additional identification code -Z with order code	Order code
Bevel gearboxes B								
Gearbox size	**19**	**29**	**39**	**49**			2KJ85. . - . . . . . - . . . .**-Z**	
Hollow shaft with shrink disk	HS20	HS20	HS35	HS40		-40 ... +60 °C		**H50**
SIMOLOC assembly system, metric		HF25	HF30	HF35		-20 ... +60 °C		**H53**
		HF20	HF25	HF30				**H54**
				HF40				**H60**
SIMOLOC assembly system, imperial dimensions		HF1.0"	HF1.25"	HF1.375"				**H55**
		HF0.75"	HF1.1875"	HF1.4375"				**H56**
			HF1.0"	HF1.25"				**H57**
				HF1.1875"				**H58**
				HF1.625"				**H59**
Bevel gearboxes K								
Gearbox size	**39**	**49**	**69**	**79**	**89**		2KJ85. . - . . . . . - . . . .**-Z**	
Solid shaft	V25 x 50	V30 x 60	V35 x 70	V40 x 80	V50 x 100	-40 ... +60 °C		**H31**
	V35 x 70	V40 x 80		V50 x 100				**H33**
Solid shaft without feather key	VG25 x 50	VG30 x 60	VG35 x 70	VG40 x 80	VG50 x 100			**H40**
Solid shaft, both ends [1]	VD25 x 50	VD30 x 60	VD35 x 70	VD40 x 80	VD50 x 100			**H64**
Solid shaft, both ends without feather key [1]		VDG30 x 60	VDG35 x 70	VDG40 x 80	VDG50 x 100			**H65**
Solid shaft, inches	V1" x 1.97"	V1.25" x 2.36"	V1.375" x 2.76"	V1.625" x 3.15"	V2" x 3.94"			**H66**
Hollow shaft	H30	H35	H40	H40	H50			**H35**
	H25	H30						**H36**
Hollow shaft, inches	H1.25"	H1.375"	H1.5"	H1.5"	H2"			**H67**
Hollow shaft with shrink disk	HS30	HS35	HS40	HS40	HS50			**H50**
SIMOLOC assembly system, metric	HF30	HF35	HF40	HF40	HF50	-20 ... +60 °C		**H53**
	HF25	HF30	HF35	HF35	HF40			**H54**
SIMOLOC assembly system, imperial dimensions	HF1.25"	HF1.375"	HF1.5"	HF1.5"	HF2.0"			**H55**
	HF1.1875"	HF1.4375"	HF1.625"	HF1.625"	HF1.9375"			**H56**
	HF1.0"	HF1.25"	HF1.4375"	HF1.4375"	HF1.75"			**H57**
		HF1.1875"	HF1.375"	HF1.375"	HF1.625"			**H58**
Splined hollow shaft	N30	N35	N35	N45	N50	-40 ... +60 °C		**H61**
Helical worm gearboxes C								
Gearbox size	**29**	**39**	**49**	**69**	**89**		2KJ86. . - . . . . . - . . . .**-Z**	
Solid shaft	V20 x 40	V25 x 50	V30 x 60	V35 x 70	V45 x 90	-40 ... +60 °C		**H31**
				V40 x 80 [1]	V50 x 100 [1]			**H32**
		V35 x 70 [1]	V40 x 80 [1]	V50 x 100 [1]	V70 x 140 [1]			**H33**
Solid shaft without feather key	VG20 x 40	VG25 x 50	VG30 x 60	VG35 x 70	VG45 x 90			**H40**
Solid shaft, both ends [2]	VD20 x 40	VD25 x 50	VD30 x 60	VD35 x 70	VD45 x 90			**H64**
Solid shaft, inches	V0.75" x 1.57"	V1" x 1.97"	V1.25" x 2.36"	V1.375" x 2.76"	V1.75" x 3.54"			**H66**
Hollow shaft	H20	H25	H30	H40	H50			**H35**
		H30	H35	H45	H60			**H36**
Hollow shaft, inches	H0.75"	H1.25"	H1.375"	H1.5"	H2"			**H67**
Hollow shaft with shrink disk	HS20	HS30	HS35	HS40	HS50			**H50**
				HS50	HS60			**H52**
SIMOLOC assembly system, metric	HF25	HF30	HF35	HF40	HF50	-20 ... +60 °C		**H53**
	HF20	HF25	HF30	HF35	HF40			**H54**
SIMOLOC assembly system, imperial dimensions	HF1.0"	HF1.25"	HF1.375"	HF1.5"	HF2.0"			**H55**
	HF0.75"	HF1.1875"	HF1.4375"	HF1.625"	HF1.9375"			**H56**
		HF1.0"	HF1.25"	HF1.4375"	HF1.75"			**H57**
			HF1.1875"	HF1.375"	HF1.625"			**H58**

[1] Can only be selected in conjunction with foot-mounted or housing flange design.

[2] Can only be selected in conjunction with foot-mounted design.

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Options

Hollow shaft cover

- Sealing cap

  The bore of the hollow shaft is sealed using a plastic sealing cap.

  Gearboxes in size 39 and larger with hollow shaft and shrink disk have a rotating protective cap.

  The dimensions of the rotating protective cap can be seen in the dimensional drawings provided in the gearbox chapters.

  For safety reasons, stationary protective covers may be required.

- Protective cover

  For sizes 19 to 89, a stationary protective cover for the hollow shaft or hollow shaft with shrink disk versions can be selected.

  The dimensions of the protective cover can be seen in the separate dimensional drawing provided in the gearbox chapters.

Hollow shaft cover	Additional identification code **-Z** with order code	
	2KJ8 . . . - . . . . . - . . . **-Z**	Order code
Protective cover		**G60**

Reinforced output shaft bearings

The gearboxes can be supplied with the standard design or with a reinforced output shaft bearing design. The reinforced bearings allow higher radial and combined forces (radial and axial) to be absorbed.

Design	**Possible for**								Additional identification code **-Z** with order code	Order code
Helical gearboxes Z and D										
Gearbox size	**19**	**29**	**39**	**49**	**59**	**69**	**79**	**89**	2KJ81 . . - . . . . . - . . . **-Z** 2KJ82 . . - . . . . . - . . . **-Z**	
Radially reinforced output shaft bearings						✓	✓	✓		**G20**
Parallel shaft gearboxes F										
Gearbox size	**29**	**39**	**49**	**69**	**79**	**89**			2KJ83 . . - . . . . . - . . . **-Z** 2KJ84 . . - . . . . . - . . . **-Z**	
Radially reinforced output shaft bearings			✓[1]	✓	✓	✓				**G20**
Bevel gearboxes K										
Gearbox size	**39**	**49**	**69**	**79**	**89**				2KJ85 . . - . . . . . - . . . **-Z**	
Radially reinforced output shaft bearings		✓[1]	✓	✓	✓					**G20**

[1] Not possible for flange-mounted design with solid shaft (gearbox type FZF, FDF, KF).

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Options

Lubrication and sealing

Gearboxes can be used for different applications. The following lubricants and sealing systems can be selected to ensure an optimum configuration.

The temperature rise of the gearbox during operation increases the oil sump temperature. In selecting the oil, pay attention to the upper limit of the recommended oil sump temperature.

Note:

- For ambient conditions with a high air humidity and salt-laden air, we recommend that only mineral or PAO oils are used.
- For gearboxes with CLP ISO PG oils for applications in the USA, the approval must be checked. Alternatively, a different type of oil must be used (e.g. CLP ISO PAO oil).

Lubrication

The gearboxes are initially filled at the factory with a high-quality lubricant. Lubricants permitted for the various gearbox types and applications are listed in the lubricant table.

Other oils from various lubricant manufacturers that have been approved by Siemens AG can be found on the internet in the Service and Support pages in the List of approved and recommended gear lubricants T 7300:

https://support.industry.siemens.com/cs/document/44231658

Oil quantities

The lubricant quantity depends on the gearbox type, size and mounting position. The corresponding oil quantities are specified in the operating instructions and on the rating plate of the geared motor.

Sealing

The standard models of gearbox are supplied with high-quality radial shaft sealing rings with dust protection lips. This sealing design is reliable for a wide range of applications.

Special application areas and environmental conditions require special radial shaft sealing rings and materials, which are coordinated with the particular gearbox oil and environment. This coordinated sealing system results in a high reliability and availability of the plant.

When compared to standard sealing systems, the maintenance intervals can be extended. This therefore reduces maintenance costs.

Selection of lubricant

Application	**Oil type**	**Permissible oil sump temperature range in operation**	Additional identification code **-Z** with order code		**Ambient temperature range**		
					Standard	**Extended**	
					[°C]	[°C]	[°C]
	Designation acc. to DIN 51502	[°C]	2KJ8 . . . - . . . . . - . . . .**-Z**	Order code	**-**	**K97**	**K94**
Helical gearboxes Z, D and E, parallel shaft gearboxes F and bevel gearboxes K							
					-15 … +40	**-30 … +40**	**-20 … +55**
Standard	CLP ISO VG220	-15 … +80		**K06**	✓		
	CLP ISO PAO VG220	-30 … +100		**K12**	✓	✓	✓ 1)
	CLP ISO PAO VG68	-40 … +60		**K13**		✓	
	CLP ISO PG VG460	-25 … +110		**K08**	✓		✓
	CLP ISO PG VG220	-25 … +110		**K07**	✓		✓
Foodstuff area	CLP ISO H1 VG460	-25 … +100		**K11**	✓		✓ 1)
	CLP ISO H1 VG100	-30 … +90		**K14**	✓	✓	✓ 1)
Biodegradable oil	CLP ISO E VG220	-20 … +100		**K10**	✓		✓ 1)
Bevel gearboxes B and helical worm gearboxes C							
					-15 … +40	**-30 … +40**	**-20 … +55**
Standard	CLP ISO PG VG220	-25 … +110		**K07**	✓		✓
	CLP ISO PAO VG220	-30 … +100		**K12**	✓	✓	✓ 1)
	CLP ISO PAO VG460	-25 … +110		**K16**	✓		✓
	CLP ISO PAO VG68	-40 … +60		**K13**		✓	
	CLP ISO PG VG460	-25 … +110		**K08**	✓		✓
Foodstuff area	CLP ISO H1 VG460	-25 … +100		**K11**	✓		✓ 1)
	CLP ISO H1 VG100	-30 … +90		**K14**	✓		✓ 1)

CLP = mineral oil
CLP PG = polyglycol oil
E = Ester oil, organic oil (bio oil / risk of water pollution, class WGK1)
PAO = Poly-alpha-olefin oil
CLP H1 = physiologically safe oil (USDA-H1 approval)

1) Observe the thermal load.

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Options

Rolling bearing greases for gearboxes and motors

The rolling bearings of gearboxes and motors are lubricated in the factory with a rolling bearing grease that is coordinated with the selected application area. The quantity of grease between the rolling elements and the space in front of the bearing depends on the operating conditions and the gearbox mounting position. For operation in the selected application areas, it is not necessary to relubricate the rolling bearings.

We recommend that the grease filling of the rolling bearings is also changed when the oil or shaft sealing rings are replaced.

Other greases supplied by different lubricant manufacturers that have been approved by Siemens AG are specified in the List of approved and recommended gearbox lubricants T 7300.

Sealing system

- Overview

Output shaft sealing	**Description**	**Ambient condition**	Additional identification code **-Z** with order code	
			2KJ8 . . . - . . . . . - . . . . **-Z**	Order code
Normal environmental stress				
Standard seal	High-quality NBR radial shaft sealing ring with dust protection lip.	Environment with low dust and pollution levels with low moisture.		**-**
Longer service life				
Seal with longer service life	The radial shaft sealing ring with protective lip is designed with an additional seal on the internal gearbox side. The sealing system has a high degree of reliability due to its resistance to impurities in the oil.	Environment with low dust and pollution levels with low moisture.		**G23**
Longer service life and increased environmental stress				
Seal for increased environmental stress	This seal is equipped with an additional fiber disk. In addition to the longer service life, it also provides increased protection against higher environmental stress as a result of dust and dirt deposits. As a consequence, the sealing system has a high degree of reliability. For additional environmental stress, e.g. water jets or significant levels of pollution as a result of production materials, please contact your local Siemens office.	Environments with increased pollution and dust levels as well as low moisture. Typical applications: Production areas with increased pollution and dust, such as wood chips, dusts or granulate as well as occasional spray water.		**G24**
High temperature-resistant				
Seal for high temperatures	High-quality FKM radial shaft sealing ring with dust protection lip.	Environment with low dust and pollution levels with low moisture.		**G25**

- Selection of seal

Seal	**Permissible oil sump temperature range in operation**	Additional identification code **-Z** with order code		**Ambient temperature range**		
				Standard	**Extended**	
	[°C]	2KJ8. . . - . . . . . - . . . . **-Z**	Order code	[°C] **-**	[°C] **K97**	[°C] **K94**
Helical gearboxes Z, D and E, parallel shaft gearboxes F and bevel gearboxes K						
				-15 … +40	**-30 … +40**	**-20 … +55**
Standard seal	-40 … +80		**-**	✓	✓	✓
Seal for a longer service life	-40 … +100		**G23**	✓	✓	✓
Seal for increased environmental stress	-40 … +80		**G24** [1]	✓	✓	✓
Seal, high temperature-resistant	-25 … +110		**G25**	✓	-	✓
Bevel gearboxes B and helical worm gearboxes C						
				-15 … +40	**-30 … +40**	**-20 … +55**
Standard	-40 … +80		**-**	✓	✓	✓
Seal for a longer service life	-40 … +100		**G23** [2]	✓	✓	✓
Seal for increased environmental stress	-40 … +80		**G24** [1] [2]	✓	-	✓
Seal, high temperature-resistant	-25 … +110		**G25**	✓	-	✓

[1] Not admissible in conjunction with food oils and biodegradable oils.

[2] Not possible with bevel gearbox B19.

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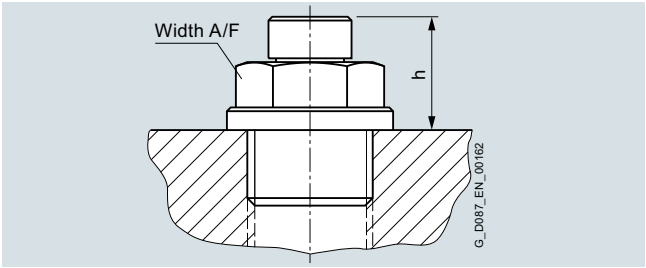
Options

Venting and oil level control

Pressure breather valve

Gearboxes from size 39 are supplied with an installed pressure breather valve; this is suitable for both indoor and outdoor use. Gearbox sizes 19 and 29 can be operated in mounting positions M1, M3, M5, and M6 without requiring a pressure breather valve. For mounting positions M2 and M4, they are equipped with a pressure breather valve.
A stainless-steel version of the pressure breather valve is also available for use in special ambient conditions.

Venting	Additional identification code **-Z** with order code	
	2KJ8. . . - . . . . . - . . . .**-Z**	Order code
Pressure breather valve		**G45**
Pressure breather valve stainless steel		**G49**



Pressure breather valve

- Technical data

Size	Width across flats Width A/F	Thread	Dimension h mm
Helical gearboxes Z and D			
19 … 39	12	G 1/8 A	15
49 … 79	13	G 1/4 A	15
89	17	G 3/8 A	15
Helical gearboxes E			
39	12	G 1/8 A	15
49 … 69	13	G 1/4 A	15
89	17	G 3/8 A	15
Parallel shaft gearboxes F			
29, 39	12	G 1/8 A	15
49 … 79	13	G 1/4 A	15
89	17	G 3/8 A	15
Bevel gearboxes B			
19 … 39	12	G 1/8 A	15
49	13	G 1/4 A	15
Bevel gearboxes K			
39	12	G 1/8 A	15
49 … 89	13	G 1/4 A	15
Helical worm gearboxes C			
29, 39	12	G 1/8 A	15
49 … 89	13	G 1/4 A	15

Oil drain

- Magnetic oil drain screw
  For gearboxes from size 39, a magnetic oil drain screw is available that is inserted in the oil drain hole. This serves to collect any metal particles in the gearbox oil.

Oil drain	Additional identification code **-Z** with order code	
	2KJ8. . . - . . . . . - . . . .**-Z**	Order code
Magnetic oil drain screw		**G53**

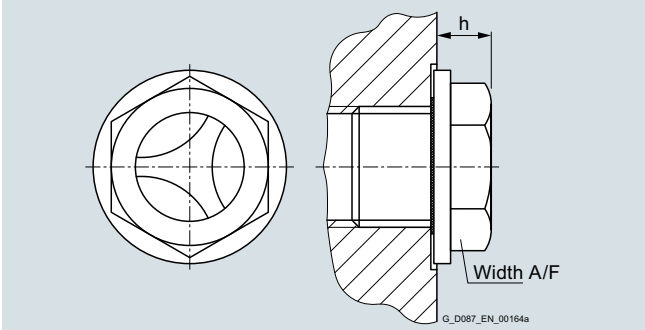
- Oil drain valve
  For gearboxes from size 39, an oil drain valve is available in either a straight or angled design. The oil drain valve is supplied complete with screw plug as a kit.

Oil drain	Additional identification code **-Z** with order code	
	2KJ8. . . - . . . . . - . . . .**-Z**	Order code
Oil drain valve, straight		**G53**
Oil drain valve, angled		**G55**

Oil level checking screw

For gearboxes from size 49, the oil level is checked using the oil level checking screw. The oil sight glass is available with a reflector for visual monitoring.
The oil sight glass on both sides is also available for the bevel gearbox and helical worm gearbox in mounting position M2 and M4.

Oil level checking screw	Additional identification code **-Z** with order code	
	2KJ8. . . - . . . . . - . . . .**-Z**	Order code
Oil sight glass with reflector		**G34**
Oil sight glass with reflector on both sides		**G35**



Oil sight glass with reflector

- Technical data

Size	Width across flats Width A/F	Thread	Dimension h mm
Helical gearboxes Z and D			
49 … 79	16	G 1/4 A	10
89	19	G 3/8 A	9
Helical gearboxes E			
49 … 69	16	G 1/4 A	10
89	19	G 3/8 A	9
Parallel shaft gearboxes F			
49 … 79	16	G 1/4 A	10
89	19	G 3/8 A	9
Bevel gearboxes B			
49	16	G 1/4 A	10
Bevel gearboxes K			
49 … 89	16	G 1/4 A	10
Helical worm gearboxes C			
49 … 89	16	G 1/4 A	10

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Options

Oil expansion unit

The oil expansion unit increases the expansion space for the lubricant. For certain types of construction and at high operating temperatures, this avoids that lubricant escapes.

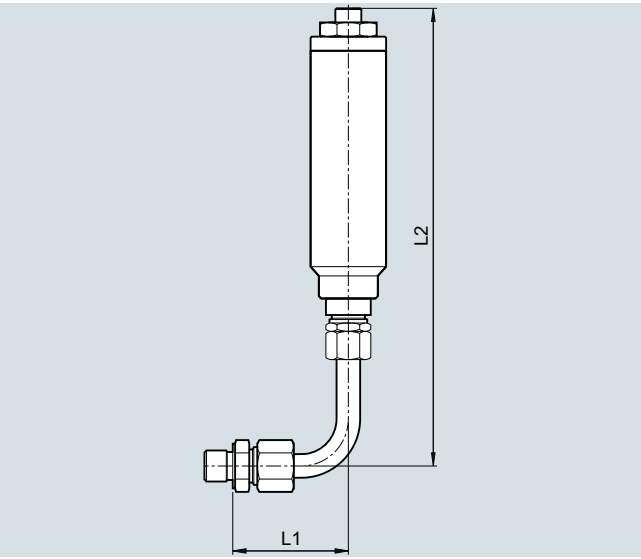
The expansion unit is supplied as a mounting kit, and can be mounted onto the geared motor vertically or at an angle.

The oil expansion unit can be used at the following ambient temperatures:

- Oil expansion unit type 1 -40 to +120 °C

For different ambient temperatures, please contact Siemens.

Venting	Additional identification code **-Z** with order code	
	2KJ8. . . - . . . . . - . . . . **-Z**	Order code
Oil expansion unit		**G47**



Oil expansion unit type 1

- Technical data

Size	Motor frame size	Width across flats Width A/F	Thread	Dimension L1 mm	Dimension L2 mm
Helical gearboxes Z and D					
39	71 ... 90	17/19	G1/8A	49	194
	100			71	172
49 ... 69	71 ... 112	19/19	G1/4A	49	194
	132			71	172
79	80 ... 90	19/19	G1/4A	49	194
	100 ... 132			71	172
89	100 ... 132	22/19	G3/8A	49	194
Helical gearboxes E					
39	71 ... 90	17/19	G1/8A	49	194
	100 ... 112			71	172
49	71 ... 112	19/19	G1/4A	49	194
	132			71	172
69	71 ... 90	19/19	G1/4A	49	194
	100 ... 112			71	172
	132			99	194
89	100 ... 132	22/19	G3/8A	49	194
Parallel shaft gearboxes F					
39	71 ... 90	17/19	G1/8A	49	194
	100 ... 112			71	172
49 ... 69	71 ... 112	19/19	G1/4A	49	194
	132			71	172
79	80 ... 90	19/19	G1/4A	49	194
	100 ... 132			71	172
89	100 ... 132	22/19	G3/8A	49	194
Bevel gearboxes B					
29	71 ... 90	17/19	G1/8A	49	194
	100			71	172
39	71 ... 90	17/19	G1/8A	49	194
	100 ... 112			71	172
49	71 ... 112	19/19	G1/4A	49	194
	132			71	172
Bevel gearboxes K					
39	71 ... 90	17/19	G1/8A	49	194
	100 ... 112			71	172
49	71 ... 112	19/19	G1/4A	49	194
69	71 ... 112	19/19	G1/4A	49	194
	132			71	172
79	71 ... 90	19/19	G1/4A	49	194
	100 ... 132			71	172
89	80 ...90	19/19	G1/4A	49	194
	100 ... 132			71	172
Helical worm gearboxes C					
39	71 ... 90	17/19	G1/8A	49	194
	100			71	172
49 ... 69	71 ... 112	19/19	G1/4A	49	194
	132			71	172
89	80 ... 112	19/19	G1/4A	49	194
	132			71	172

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Options

Special versions

Reduced-backlash version

Gearboxes with reduced backlash are required to perform high-precision positioning tasks and to achieve a high level of control quality. A minimal torsional backlash also has a favorable effect on torque spikes during startup and on load switching in the drive train. With this version, all machine elements in the gearbox that are in the power flow are designed with reduced backlash. As a result, this version also has the option "Shrink-glued output gearwheel".

To ensure that the entire driven machine can be designed with minimum possible backlash, it is advisable to select the solution with integral motor mounting (without adapter), output shafts with shrink disk connection or with smooth shafts (without feather key). In this case, only backlash-free power transmission elements should be used.

The specified torsional backlash in minutes of the angle [’] is based on the maximum rotation angle of the output shaft (no load, max. 1 % of rated output torque) with stationary input shaft.

For the exact values, refer to the torque tables. If no values are specified in the tables, this means that a reduced-backlash version is not available for the specific version.

The dimensions of the reduced-backlash gearboxes are identical to those of the standard versions.

Special version	Additional identification code **-Z** with order code	
	2KJ8. . . - . . . . . - . . . .**-Z**	Order code
Reduced-backlash version [1]		**G99**

Shrink-glued output gearwheel

The gearbox output stage is subjected to particular high levels of mechanical stress during rigorous reversing duty or acceleration of high mass moments of inertia. The shrink-glued output gearwheel option ensures the load-bearing capacity of the shaft/hub connection in the event of dynamic load.

Special version	Additional identification code **-Z** with order code	
	2KJ8. . . - . . . . . - . . . .**-Z**	Order code
Shrink-glued output gearwheel [1]		**G97**

[1] Cannot be selected for helical worm gearboxes.

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Options

Surface treatment and preservation

To protect the geared motors against corrosion and external influences, five high-quality paint systems are available in various colors.

The corrosion protection system is designed in accordance with the corrosivity categories of EN ISO 12944-2.

Geared motors, frame size 49 and higher, are painted in RAL 7016 (anthracite gray) to corrosivity category C1 as standard. This ensures that they are protected against corrosion for indoor use.

Geared motors, frame sizes 19 to 39 with an aluminum housing are supplied unpainted as standard.

The shaft extensions and bare surfaces are treated with corrosion protection for 6 months.

The converters of the SINAMICS G115D system are made of high quality aluminum (EN AC 44300) with good corrosion resistance and are not painted.

Note:

Corrosivity category C1 is not suitable for ambient temperatures under -20 °C.

Surface pretreatment

For especially demanding applications, the drives can also be pretreated in order to ensure an optimum paint finish even in areas that are hidden or difficult to access.

Surface pretreatment	Additional identification code **-Z** with order code	
	2KJ8. . . - . . . . . - . . . .**-Z**	Order code
Special pretreatment		**L19**

Corrosivity category	**Paint system**			**Description**	Additional identification code **-Z** with order code	
	Base coat	Intermediate coat	Top coat		2KJ8. . . - . . . . . - . . . .**-Z**	Order code
Surface protection						
Aluminum gearbox housing[1]						
Unpainted (standard)	-	-	-	• Indoor installation • Heated buildings with neutral atmospheres • Resistant to greases, conditionally resistant to mineral oils, aliphatic solvents • Standard paint		**L00**
C1 Normal environmental stress	-	-	1-component hydro paint			**L02**
Cast iron gearbox housing[2]						
C1 Normal environmental stress	-	-	1-component hydro paint	• Indoor installation • Heated buildings with neutral atmospheres • Resistant to greases, conditionally resistant to mineral oils, aliphatic solvents • Standard paint		**L02**
All geared motors						
C2 Low environmental stress	2-component epoxy zinc phosphate	-	2-component polyurethane	• Indoor and outdoor installation • Unheated buildings with condensation, production areas with low humidity, e.g. warehouses and sports facilities • Atmospheres with little pollution, rural areas		**L03**
C3 Average environmental stress	2-component epoxy zinc phosphate	-	2-component polyurethane	• Indoor and outdoor installation • Production areas with high humidity and some air pollution, e.g. food production areas, dairies, laundries and breweries • Urban and industrial atmospheres, moderate contamination from sulfur dioxide, coastal areas with low salt levels		**L04**
C4 High environmental stress	2-component epoxy zinc phosphate	-	2-component polyurethane	• Indoor and outdoor installation • Chemical plants, swimming pools, wastewater treatment plants, electroplating shops, and boathouses above seawater • Industrial areas and coastal areas with moderate salt levels		**L20**

[1] Helical gearboxes D/Z19 to D/Z39, parallel shaft gearboxes F29 and bevel gearboxes B29 and B39

[2] The bevel gearbox B49 is supplied painted.

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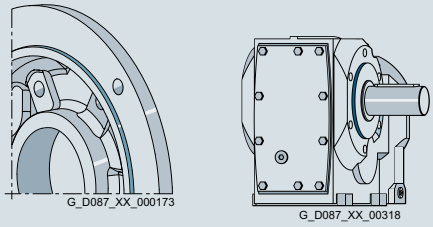
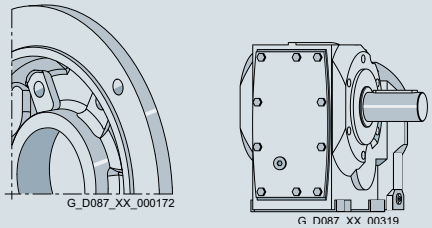
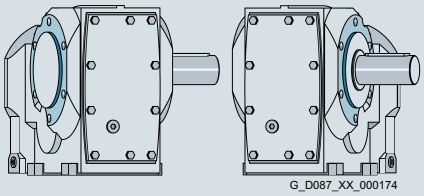
Options

Corrosivity category	Paint system			Description	Additional identification code **-Z** with order code	
	Base coat	Intermediate coat	Top coat		2KJ8. . . - . . . . . - . . . .**-Z**	Order code
Surface protection						
C5 Very high environmental stress	2-component epoxy zinc phosphate	2-component epoxy zinc phosphate	2-component polyurethane	• Indoor and outdoor installation • Buildings/areas with almost constant condensation and high degrees of pollution, e.g. malt factories and aseptic areas • Industrial areas with high humidity and aggressive atmosphere, coastal areas and offshore environments with high salt levels		**L05**
Primer				**Ability to be painted**		
C2 G	2-component polyurethane	-	-	• 2-component polyurethane paint, 2-component epoxy paint and acid-hardening paint, 2-component acrylic paint		**L01**
C4 G	2-component epoxy zinc phosphate	-	-	• 2-component polyurethane paint, 2-component epoxy paint and acid-hardening paint, 2-component acrylic paint		**L09**
Unpainted	-	-	-	• Plastic paint, synthetic resin paint, oil paint, 2-component polyurethane paint, 2-component epoxy paint		**L00**

Painting flange surfaces

For flange-mounted or housing flange designs, the flange surface and centering are not painted at the selected output end. The versions listed in the table can be optionally selected.

Design	Figure Surfaces marked blue are not painted	Possible for	Additional identification code **-Z** with order code 2KJ8. . . - . . . . . - . . . .**-Z**	Order code
Centering not painted		• Flange-mounted design • Housing flange design		**L11**
Flange completely painted		• Flange-mounted design • Housing flange design		**L12**
Centering flange not painted on both sides		• Housing flange design for bevel gearbox and helical worm gearbox		**L27**

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Options

Colors

In addition to anthracite gray (RAL 7016), you can select from other standard colors.

RAL color	Designation	Color, example	Additional identification code **-Z** with order code	
			2KJ8. . . - . . . . . - . . . . **-Z**	Order code
RAL 7016	Anthracite gray (standard)			**L75**
RAL 5015	Sky blue			**L50**
RAL 7030	Stone gray			**L55**
RAL 7031	Blue gray			**L53**
RAL 7012	Basalt gray			**L83**

You can find additional colors in the DT Configurator.

Note

For light colors in corrosivity category C1 we recommend selection of surface treatment in the corrosivity category one level higher to ensure adequate and uniform coloring for the geared motor.

Preservation

All gearboxes and geared motors are preserved as standard for 6 months.

Long-term preservation up to 36 months

If the gearboxes are stored for longer than 6 months, then we recommend the "Long-term preservation" option. A VCI corrosion inhibitor (volatile corrosion inhibitor) is added to the gearbox oil.

Until commissioning, it is not permissible that the gearbox is opened, as otherwise the VCI corrosion inhibitor will vaporize. The oil level must be checked before commissioning. Corrosion protection is also applied to the flange contact surfaces and shaft extensions. We recommend that the gearbox is stored in the appropriate mounting position.

Storage conditions

Geared motors, stored in dry, dust-free and evenly tempered rooms do not require any special packaging.

In all other areas, the units must be packaged in foil with desiccant and moisture indicator. If required, protection must be provided against mold and insects. The storage location must be vibration- and shock-free. The storage conditions must be regularly checked.

Preservation	Additional identification code **-Z** with order code	
	2KJ8. . . - . . . . . - . . . . **-Z**	Order code
Long-term preservation up to 36 months		**K17**

For information about storage and commissioning please refer to the operating instructions.

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Options

Rating plate

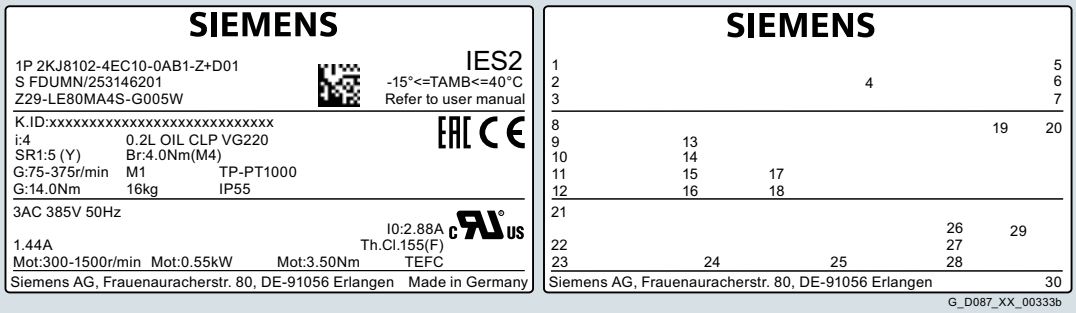
The rating plates on the gearboxes and geared motors are normally manufactured out of coated aluminum foil. They are covered with a special masking film which ensures permanent resistance to UV radiation and media of all kinds (oils, greases, salt water, cleaning agents, etc.).

The adhesive and the material ensure firm adhesion and long-term legibility within the operating temperature range from -40 to +155 °C.

For geared motors, the rating plate is attached to a stainless steel plate on the motor.

For specific designs, additional rating plates are attached to the motor.

Geared motors



Example, rating plate on helical geared motor

General data

1	Article No., Dxx - Order code for mounting position (Required identification code)
2	Factory ID (FID)
3	Type designation
4	Data matrix code
5	IES class (in accordance with IEC 61800-9-2)
6	Ambient temperature
7	Reference to operating instructions
8	Customer ID
9	Transmission ratio i
10	Speed range SR
11	Gearbox output speed range [rpm]
12	Rated output torque of the geared motor [Nm]
13	Oil quantity [l], oil type, oil viscosity ISO VG class according to DIN 51519 / ISO 3448
14	M4 braking torque [nm], cyclic duration factor
15	Mounting position
16	Weight m [kg]
17	Thermal motor protection
18	Degree of protection acc. to IEC 60034-5
19	EAC approval logo
20	CE approval logo

When ordering a replacement/spare part, always specify the factory ID (serial No.)

21	Input phase number and rated voltage
22	Rated current [A]
23	Rated speed range of motor [rpm]
24	Rated power [kW]
25	Rated torque [Nm]
26	Stall current I0
27	Temperature class Th. Cl.
28	Ventilation type
29	cURus approval
30	Manufacturer's address and country of origin

[1] The customer-specific data are used to specify the customer ID/ serial number. The following data are not permissible:
- Technical specifications for the geared motor (e.g. ambient temperature, voltage data, etc.)
- Details of Siemens Article No. (MLFB)
- Unlawful texts

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Options

Second rating plate

For the geared motors, an additional rating plate can be supplied loose.

When requested, the second rating plate can be attached to the motor.

Second rating plate	Additional identification code **-Z** with order code	
	2KJ8. . . - . . . . . - . . . **-Z**	Order code
Second rating plate, supplied loose		**K41**
Second rating plate, attached		**K68**

Safety instruction sheet and operating instructions

The geared motors are shipped with a multi-language safety instruction sheet for each delivery batch.

One set of operating instructions is enclosed for each geared motor using the following ordering option.

Enclosed operating instructions in the following language	Additional identification code **-Z** with order code	
	2KJ8. . . - . . . . . - . . . **-Z**	Order code
German		**W21**
English		**W22**
Chinese		**W23**

The operating instructions include the following documents:

- Replacement part drawings and lists
- Installation instructions
- Declaration of incorporation of partly completed machinery according to the EC Machinery Directive 2006/42/EC (gearboxes)
- EC Declaration of Conformity according to Directive 2014/35/EU (motors)

The latest versions of the operating instructions, the declaration of incorporation and the declarations of conformity are available in the Industry Online Support:
https://support.industry.siemens.com/cs/ww/en/ps/13424/man

Extension of the liability for defects

For our SIMOGEAR geared motors, we give you the option of extending existing liabilities for defects beyond the standard period of liability.

The standard liability for defects period, as listed in our standard conditions for the supply of services and products, is 18 months.

It is possible to select the extended period of liability for defects in connection with all of the geared motors and their options listed here in the catalog.

Extension of the liability for defects	Additional identification code **-Z** with order code	
	2KJ8. . . - . . . . . - . . . **-Z**	Order code
Extension of the liability for defects period by 12 months		**W80**
Extension of the liability for defects period by 24 months		**W82**

Test certificates

On request, the following documents are available by email:

Additional documentation	**The following is checked:**	Additional identification code **-Z** with order code	
		2KJ8. . . - . . . . . - . . . **-Z**	Order code
Declaration of compliance with the order EN 10024-2.1 and factory test report EN 10204-2.2, geared motor	-		On request
Factory test report EN 10204-2.2 for material	-		On request
Acceptance test certificate EN 10204-3.1 for the motor	• Winding resistance • No-load current of the 3 phases • Power loss for no-load operation • High-voltage test • No-load speed		**W10**
Acceptance test certificate EN 10204-3.1 for gearboxes	• Output shaft diameter • Input shaft diameter (for gearboxes with adapter A only) • No-load speed • Noise (subjective assessment)		**W11**
Acceptance test certificate EN 10204-3.1 for paint finish	• Paint film thickness		**W12**

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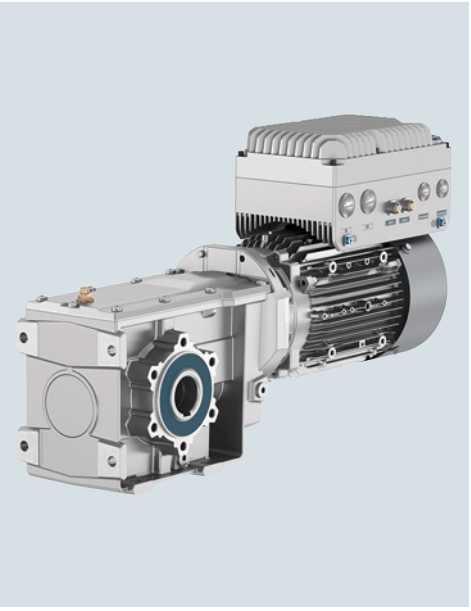

7.3/2 Distributed drive system SINAMICS G115D motor-mounted
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7.3/3 Benefits
7.3/4 Application
7.3/5 Design
7.3/6 Function
7.3/7 Integration
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7.3/9 Technical specifications
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To select the helical geared motor, parallel shaft geared motor, bevel geared motor and helical worm geared motor, see "Gearbox selection" or "Dimensional drawings" in the Industry Mall at:
www.siemens.com/sinamics-g115d/gear-selection-motor-mounted

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Overview

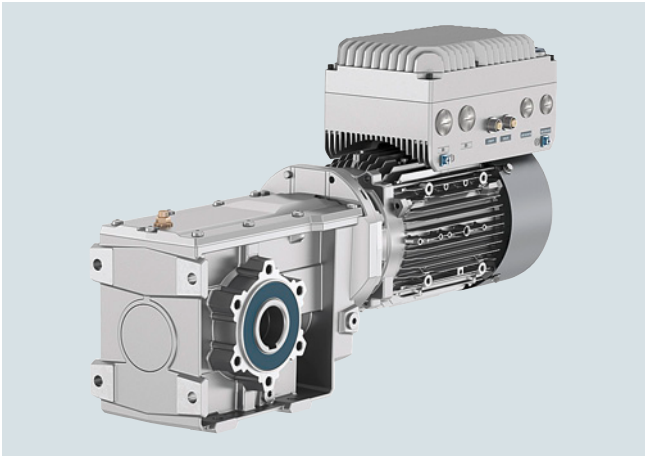
The SINAMICS G115D distributed drive system provides fully preconfigured and ready-to-connect solutions in a modular concept that includes the converter, motor and gearbox.

The motor-mounted converter with different unit versions (frame sizes FSA and FSB) in a performance range from 0.37 kW to 4 kW is suitable for a large number of different applications. This converter supports three-phase asynchronous motors with efficiency class up to IE3 or high-efficiency synchronous reluctance motors with efficiency class IE4.

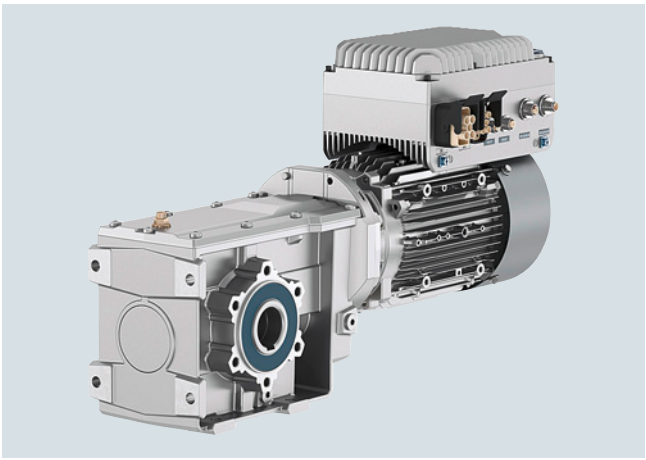
It meets all requirements for horizontal conveyor system applications – from simple speed control to sophisticated encoderless vector control. Thanks to its compact design with degree of protection IP65, it can be seamlessly integrated into the system.

The integrated conveyor technology functions make the SINAMICS G115D particularly suitable for applications in conveyor systems.

For applications that require safety technology, the SINAMICS G115D offers the integrated STO (Safe Torque Off) function, which can be implemented without additional external components.



Example: SINAMICS G115D distributed drive system, motor-mounted, PROFINET, version with cable gland, FSA, 1.5 kW, SIMOGEAR motor LE 90, gearbox B49, hollow shaft



Example: SINAMICS G115D distributed drive system, motor-mounted, PROFINET, version with plug-in connection, FSA, 1.5 kW, SIMOGEAR motor LE 90, gearbox B49, hollow shaft

Perfect combination with SIMATIC controllers and PROFINET

Integration via PROFINET communication with PROFIsafe, AS-Interface, EtherNet/IP into a higher-level control system is very easy thanks to full TIA Portal integration, which provides a tool as well as an operating and data management concept. In addition, an optional web server module is available with the web server module SINAMICS G120 Smart Access (SAM) – a WLAN-based web server solution for simple and fast wireless setup with tablets or smartphones during commissioning and for diagnostics.

The SINAMICS G115D distributed drive system is ready for digitalization. All operating data can be transferred to the MindSphere cloud solution. The MindSphere application "Analyze MyDrives" facilitates the process evaluation of operating data, with the possibility of adaptation to individual customer requirements. This simplifies the recording and evaluation of the operating conditions of the drive system.

Reasons for using the SINAMICS G115D distributed drive system

- User-friendly modular solution – pre-configured and ready for connection
- Versatile, robust and reliable system
- New design for quick and easy installation, cabling and commissioning
- The wall-mounted and motor-mounted variants use the same platform
- No control cabinet required, thanks to the installation on the machine less space required and lower cooling requirements
- Long cables between the converters and the motors can be avoided (thus less power loss, reduced interference emissions, and lower costs for shielded cables and additional filters)
- Supports asynchronous motors and high-efficiency synchronous reluctance motors according to efficiency class IE4
- Worldwide use of the SIMOGEAR 2KJ8 geared motors independent of the line voltage
- Temperature range from -30 °C to 55 °C (suitable for installation in deep-freeze applications)
- Integrated safety, STO (Safe Torque Off) via fail-safe digital input F-DI or PROFIsafe
- Perfectly prepared for digitalization thanks to various communications interfaces and integration of the AMD (Analyze MyDrives) application into Totally Integrated Automation (TIA)
- Special properties for the intralogistics market (e.g. Safety Integrated, conveyor technology functions)

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Overview

The family of distributed drive systems at Siemens

Siemens offers an innovative portfolio of frequency converters for optimal implementation in distributed drive solutions. The strengths of the individual members of the converter family allow easy adaptation to the most diverse application requirements:

- Identical connection systems
- User-friendly commissioning and configuration tools

Products from the family of distributed drives:

- SINAMICS G115D distributed drive system (wall and motor-mounted)
- SINAMICS G120D frequency converters
- SIMATIC ET 200pro FC-2 frequency converters
- SIRIUS M200D motor starters

Hardware configuration

The SINAMICS G115D distributed drive system is available as a wall-mounted and motor-mounted version, with degree of protection IP65/66.
The performance range for the wall-mounted version, for ranges from 0.37 kW to 7.5 kW and in the motor-mounted version, for ranges from 0.37 kW to 4 kW.
The converter is configurable regarding fieldbus communication (without, AS-Interface or PROFINET / EtherNet/IP) and connection method (cable gland or plug-in connection). Furthermore, the wall-mounted version can be configured with a repair switch, local remote control and the control voltage of the motor holding brake.

State-of-the-art IGBT technology with pulse width modulation (PWM) is used for extremely reliable and flexible motor operation. The closed-loop control electronics control and monitor the power electronics and the connected motor in several different control modes that can be selected.

The sensors of the conveyor element can be connected to the digital inputs of the converter. These signals can be transmitted to the higher-level control for further processing via PROFINET, EtherNet/IP or AS-Interface.

Safety Integrated

The SINAMICS G115D distributed drive systems are already equipped with the Safety Integrated Function STO (Safe Torque Off), with certification according to IEC 61508 SIL 2 as well as EN ISO 13849-1 PL d and Category 3. This can be activated either via the PROFIsafe communication protocol or via the fail-safe digital input F-DI.

Benefits

Fast commissioning

- Pre-assembled and pre-commissioned system with SIMOGEAR
- Connection from three sides possible (version with cable gland)
- Loop-through of 24 V DC and 380 V to 480 V 3 AC and communication – no T distributors necessary
- Internal braking resistors – typical applications can be implemented without external braking resistors
- Robust with degree of protection IP65, ambient temperature from -30 °C to 55 °C
- Quick and easy commissioning options:
  - via local DIP switches and potentiometers
  - via web server module SINAMICS G120 Smart Access (SAM) with web server and WLAN connection for using a smartphone or tablet in just a few steps
  - via TIA Portal with SINAMICS Startdrive for the use of a PC
- Wiring of the drive system either via screw connections or via plug connectors. Communication (PROFINET, EtherNet/IP or AS-Interface) generally via plug connectors
- Local diagnostics with LEDs
- Uploading, backup and cloning of the parameters with SINAMICS SD memory card

Full functionality

- Integrated communication: PROFINET / EtherNet/IP and AS-Interface
- Integrated Safety Functions (STO locally via fail-safe digital input F-DI or via PROFIsafe communication protocol)
- Basic PLC functions and additional functions for conveyor technology:
  - Horizontal conveyors: fast/slow, Quick Stop, 1 or 2 directions
  - Rotary table: fast/slow, Quick Stop, 2 or 3 positions and limit trip
  - Corner transfer conveyors lift drive: fast/slow, Quick Stop and limit trip
  - Traversing carriage: fast/slow, Quick Stop and limit trip
- Inputs/outputs can be used as distributed I/O for the PLC

Efficient engineering

- Full integration in Totally Integrated Automation, Totally Integrated Automation Portal and Integrated Drive System
- Intuitive selection tools
  - Drive Technology Configurator (DTC)
  - TIA Selection Tool (TST)
- SINAMICS Startdrive as part of the TIA Portal offers complete integration for intuitive parameterization
- Automatic diagnostics in combination with SIMATIC control

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SINAMICS G115D distributed drive system motor-mounted

Benefits

Flexible commissioning functions

- Integrated conveyor technology functions:
  - Quick Stop function for fast reaction times for the sensors, e.g. roller conveyors, belt conveyors
  - Limit switch function, e.g. for rotary table, corner transfer unit
- Graphical commissioning of the conveyor technology functions in just a few steps
- Integrated inputs/outputs with variable assignment
- Use of the same software tool (SINAMICS Startdrive) as for all SINAMICS drives

Extended warranty

For SINAMICS G115D, Siemens offers an extended warranty of up to 4 years:

- 18-month standard warranty
- Optional extension via **Service Protect**
  - Free for the first 6 months after registering the product at: https://myregistration.siemens.com
  - With costs for 1 or 2 additional years for wall-mounted and motor-mounted versions (complete system with converter and geared motor)

You can find more information at:
https://support.industry.siemens.com/cs/ww/en/sc/4842

Application

The SINAMICS G115D distributed drive system is ideally suited for horizontal conveyor applications, e.g.:

- Roller, belt and chain conveyors
- Simple rotary tables
- Simple transverse shuttles

Reliable operation in harsh environments

The SINAMICS G115D distributed drive system is suitable for use in harsh environments

- Degree of protection up to IP65
- Use in ambient temperatures from -30 °C to 55 °C
- Coated PCBs for increased resistance to humidity and dust (Class 3C2), operation according to EN 60721-3-3

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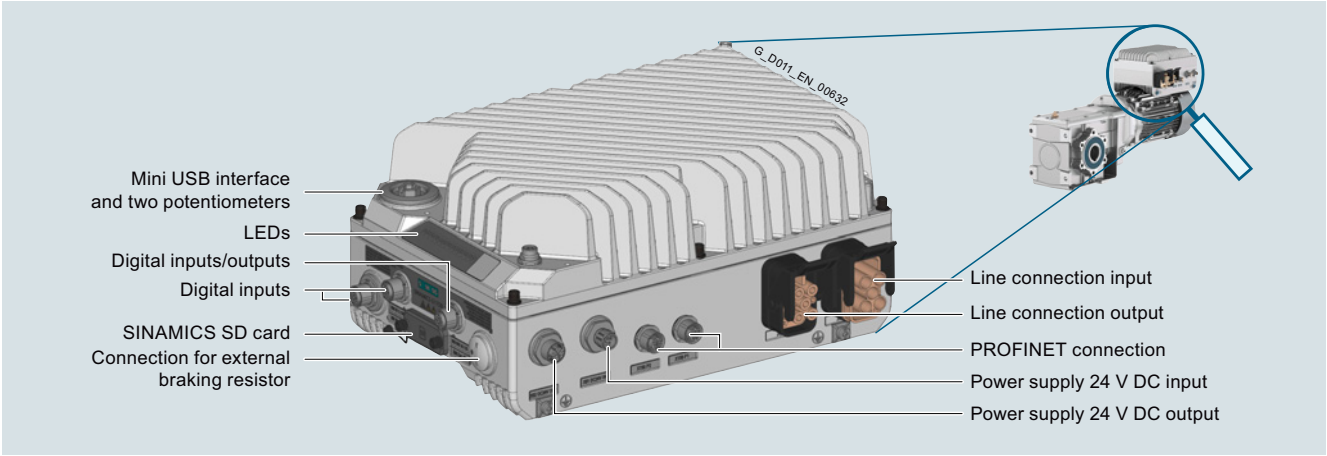
Design

The converter is configurable regarding fieldbus communication (without, AS-Interface or PROFINET / EtherNet/IP) and connection system (cable gland or plug-in connection).



Example: SINAMICS G115D, motor-mounted, version with plug-in connection system

24 V DC power supply

The SINAMICS G115D converter is available as a version with an integrated 24 V DC power supply.

SINAMICS SD memory card

The parameter settings of the converter and the firmware can be stored on the optional SINAMICS SD memory card. When service is required, the data are automatically downloaded from the memory card in the converter and the system is ready for use again without further interventions.

Supplementary system components

External braking resistors

Regenerative energy is converted to heat via the internal braking resistor integrated as standard. Optional external braking resistors are available for higher regenerative energy.

Installation kit

An installation kit with cable glands for the line supply (X1/X3), the 24 V DC power supply (X01/X02) and the digital inputs/digital outputs (X07/X08/X05) can be ordered for the connection.

Cover kit

The cover kit is used to protect the unused connector plugs for line supply, loop-through (X3) and 24 V DC loop-through (X02).

Connecting cables for communication

Flexible plug-in cables to transfer data between the PROFINET/Industrial Ethernet stations or AS-Interface stations, as well as for 24 V DC power supply.

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Design

Connecting cables for line supply, power loop-through and power bus distribution

Connector sets as well as pre-assembled cables for the line supply can be ordered as accessories.

PC converter connection kit 2 (mini USB interface cable) for communication with a PC

For controlling and commissioning a converter directly from a PC if the appropriate software (commissioning tool SINAMICS Startdrive V16 update 4 and higher) is installed.

SINAMICS G120 Smart Access (SAM) web server module

Smart Access for the SINAMICS G115D distributed drive system with web server for easy commissioning and diagnostics via WLAN with a smartphone or tablet in just a few steps.

Interface kit for SINAMICS G120 Smart Access (SAM) web server module

With the interface kit, the SINAMICS G120 Smart Access web server module can be connected to the SINAMICS G115D converter.

SINAMICS G115D training case

The SINAMICS G115D training case is a convincing demonstration system thanks to its compact design. It is suitable for direct customer presentations as well as for testing in the technical department. The functions of SINAMICS G115D in combination with a SIMOGEAR geared motor can be demonstrated and tested quickly and easily with this case.

Spare parts

Electronic Modules

The entire drive electronics is located in the Electronic Module. Thus, in most service cases only this module must be replaced. If a converter fails, this replacement can be performed easily and quickly.

Spare parts kit

A spare parts kit is available, which contains small parts such as seals, cover caps and screws.

Function

Technology functions

Specific functions for conveyor technology:

- Integrated communication: PROFINET / EtherNet/IP or AS-Interface
  Furthermore, the “Without fieldbus communication (I/O Control)” version is available.
- Integrated Safety Functions
  (STO locally via fail-safe digital input F-DI or via PROFIsafe communication protocol)
- Inputs/outputs can be used as distributed I/O of the PLC
- Basic PLC functions and additional functions for conveyor technology:
  - Chain and belt conveyors: fast/slow, Quick Stop, 1 or 2 directions
  - Rotary table: fast/slow, Quick Stop, 2 or 3 positions and limit trip
  - Corner transfer conveyors lift drive: fast/slow, Quick Stop and limit trip
  - Traversing carriage: fast/slow, Quick Stop and limit trip

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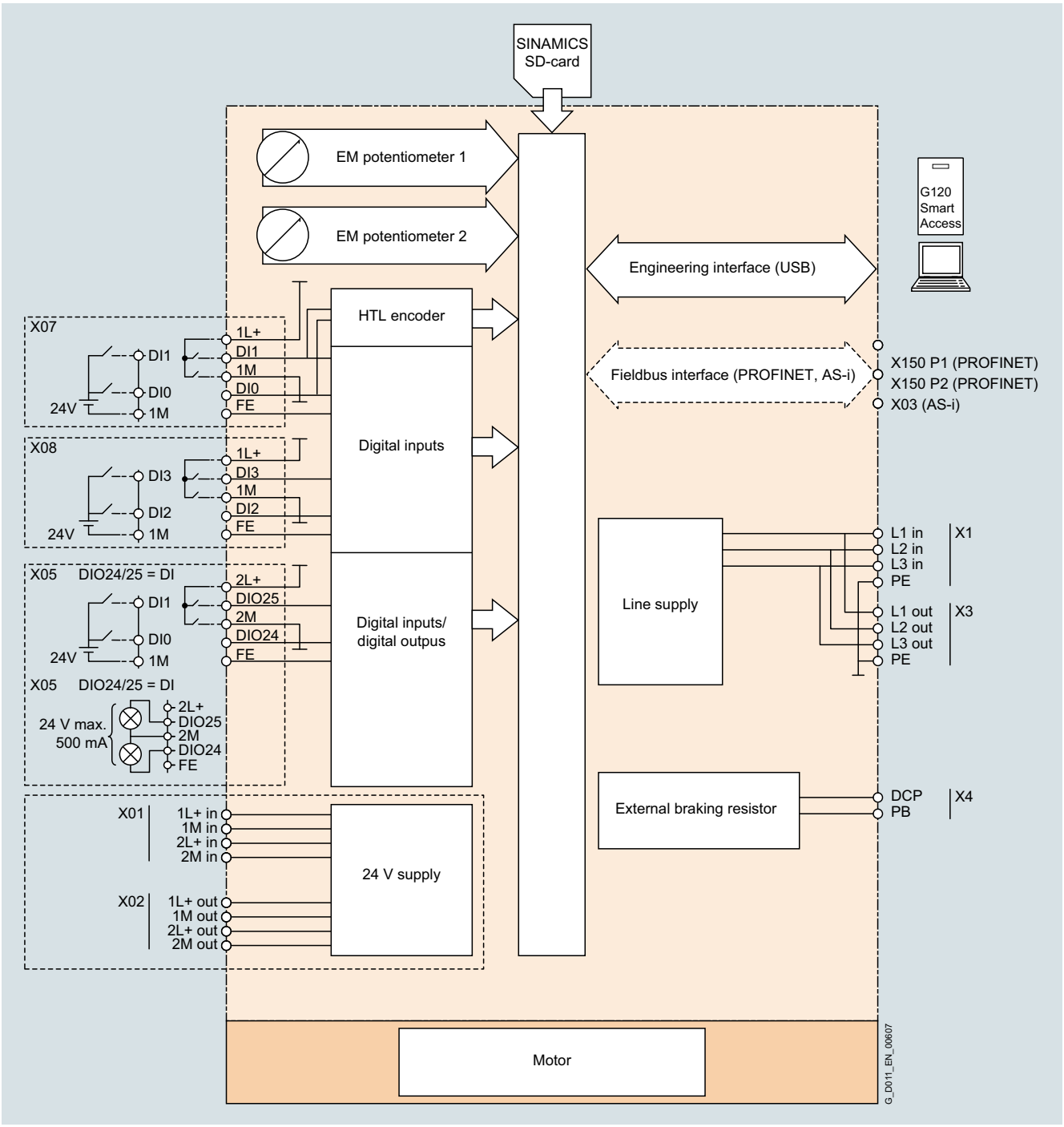
Integration



Connection example for SINAMICS G115D, motor-mounted

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Configuration

The following configuring tools and engineering tools are available for the SINAMICS G115D:

Drive Technology Configurator (DT Configurator)

The Drive Technology Configurator (DT Configurator) helps you configure the optimum drive technology products for a number of applications – starting with gearboxes, motors, converters as well as the associated options and components and ending with controllers, software licenses and connection systems. The DT Configurator can be used on the internet without requiring any installation. The DT Configurator can be found in the Siemens Industry Mall at the following address:
www.siemens.com/dt-configurator

SINAMICS Startdrive commissioning tool (V16 update 4 and higher)

SINAMICS Startdrive is a tool integrated into the TIA Portal for configuring, commissioning and diagnostics of the SINAMICS converter family. SINAMICS Startdrive (V16 update 4 and higher) can be used for implementing drive tasks with most of the SINAMICS G and SINAMICS S converter series. The commissioning tool has been optimized in terms of simplicity, ease of use, and consistent use of the benefits of the TIA Portal to provide a uniform working environment for PLC, HMI and drives.

The SINAMICS Startdrive commissioning tool is available for free on the internet at:
www.siemens.com/startdrive

Drive dimensioning of the SINAMICS G115D distributed drive system with the TIA Selection Tool

The SINAMICS G115D distributed drive system is easily configured with the TIA Selection Tool under the Drive Dimensioning plug-in. It provides support when selecting the hardware and firmware components necessary to implement a drive task. The plug-in encompasses the configuration of the entire drive system and allows the handling of individual drives.

- Intuitive user interface, menu-based operation and help
- Configuration of the SINAMICS G115D distributed drive system
- Adjustable load cycles and various mechanical systems integrated
- Interface to the TIA Portal and Industry Mall

The TIA Selection Tool is available for free on the internet at
www.siemens.com/tia-selection-tool-standalone

SIMARIS planning tools for plants with SINAMICS drives (available soon)

Electrical planning: Even easier with software!

Electrical planning for power distribution in non-residential and industrial buildings has never been more complex. To ensure you, as a specialist planner, have the best hand when it comes to electrical planning with SINAMICS drives, we provide support with the following efficient software tools:

- SIMARIS design for dimensioning
- SIMARIS project for calculating the space requirements of the distribution boards

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Technical specifications

SIMOGEAR geared motors with SINAMICS G115D motor-mounted - General technical specifications	
Mechanical specifications	
Maximum permissible vibration and shock load	ISO 20816-1 Zone A
Ambient conditions	
Protection class According to EN 61800-5-1	Class III (PELV) for protective extra low voltage circuit
Touch protection According to EN 61800-5-1	Class I (with protective bonding circuit)
Degree of protection The degree of protection according to IEC 60034-5 (EN 60034-5) only refers to the motor.	IP55 IP65, when selecting this higher degree of protection, the gearbox side should be taken into account (seals, vents) UL TEFC
Permissible ambient or coolant temperature (air) during operation	-30 ... +40 °C (-22 ... 104 °F) without derating >40 ... 55 °C (104 ... 131 °F) see derating characteristics
Air humidity	<60 % at 40 °C (104 °F), condensation and icing up not permissible
Environmental class/harmful chemical substances Operation acc. to EN 60721-3-3	Class 3C2
Degree of pollution According to EN 61800-5-1	2
Permissible noise limits According to EN 60034-9: 2008-01	Limit values for the motors on the converter are undershot. By increasing the clock frequency on the converter, the motor noises can also be reduced.
Standards	
Compliance with standards [1]	UL 1004-1 and UL 1004-6 CSA-C22.2 No. 100 (E224884) The converters supplied with the motors in accordance with UL 61800-5-1 and CSA C22.2 No. 274 CE, EAC, KC
CE marking, according to	Machinery Directive 2006/42/EC EMC Directive 2014/30/EU RoHS Directive 2011/65/EU

Converters - General technical specifications	
Line voltage	380 V (-10 %) ... 480 V (+10 %) 3 AC
Line supply requirements Short-circuit power ratio R_{SC}	u_K < 4 % (R_{SC} > 25)
Input frequency	45 ... 66 Hz
Output frequency	
• Control mode V/f	0 ... 550 Hz
• Control mode Vector	0 ... 240 Hz
Pulse frequency	4 kHz (standard); 4 ... 16 Hz (in steps of 2 kHz) see derating data
Power factor	0.73 ... 0.91
Converter efficiency	>97 %
Output voltage, max. as % of input voltage	87 ... 95 %
Overload capability	
• High overload (HO)	2 × rated output current for 3 s, followed by 1.5 × rated output current for 57 s, over a cycle time of 300 s
Electromagnetic compatibility	Integrated line filter category C2 according to EN 61800-3 (corresponds to class A according to EN 55011)
Possible braking methods	Dynamic brake with internal braking resistors Dynamic brake with external braking resistors R_{min} = 200 Ω (for FSA), R_{min} = 80 Ω (for FSB) DC brake Integrated brake control supplies the DC supply voltage of the brake Disconnection on the DC side permits short brake application time (max. output current 0.8 A)
Degree of protection	IP65
Operating temperature	-30 ... +40 °C (-22 ... 104 °F) without derating >40 ... 55 °C (104 ... 131 °F) see derating characteristics
Storage temperature	-40 ... +70 °C (-40 ... +158 °F)
Permissible mounting positions	All
Relative air humidity	<60 % at 40 °C (104 °F), condensation and icing up not permissible
Cooling	External cooling with motor fan
Installation altitude	Up to 1000 m (3281 ft) above sea level without derating Over 1000 m (3281 ft) see derating data
Short Circuit Current Rating (SCCR) [2]	65 kA
Protection functions	• Undervoltage • Phase failure detection • Overvoltage • Overload • Ground fault • Short-circuit • Stall protection • Motor blocking protection • Motor overtemperature • Converter overtemperature • Parameter locking
Compliance with standards	UL 61800-5-1 (UL list number E355661), CE, EAC, KC
CE marking, according to	Low Voltage Directive 2014/35/EU Filtered variants also: EMC Directive 2014/30/EU

[1] The SINAMICS G115D drive system does not fall in the area of validity of the China Compulsory Certification (CCC).

[2] Applies to industrial control cabinet installations to NEC Article 409 or UL 508A.

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Technical specifications

Converter	I/O	AS-Interface	PROFINET, EtherNet/IP
Electrical specifications			
Operating voltage	External 24 V DC		
Current consumption (from the 24 V DC supply)			
• With Power Module frame size FSA	250 mA	290 mA	290 mA
• With Power Module frame size FSB	250 mA	290 mA	290 mA
Interfaces			
Digital inputs (not isolated)	4 programmable, PNP, SIMATIC compatible		
• Optional for safe inputs, parameterizable	2 DI = 1F-DI		
• Optionally usable as encoder inputs	2, for connection of an HTL encoder (A and B track)		
• Conductor cross-section (only for version with cable gland)	0.25 ... 0.34 mm^2 (24 ... 22 AWG) with end sleeves		
Digital outputs	2, switchable DI/DO		
• Optional for safe inputs, parameterizable	–		
• Conductor cross-section (only for version with cable gland)	0.25 ... 0.34 mm^2 (24 ... 22 AWG) with end sleeves		
Bus interface			
Motor temperature sensor	1 input, sensors that can be connected: Pt1000	1 input, sensors that can be connected: Pt1000	1 input, sensors that can be connected: Pt1000
Control of a mechanical motor brake	✓	✓	✓
Slot for SINAMICS SD memory card	✓	✓	✓
Commissioning interface			
• PROFINET	–	–	✓
• Mini-USB	✓	✓	✓
Safety functions			
Integrated safety functions acc. to IEC 61508 SIL 2 and EN ISO 13849-1 PL d and Category 3	Safe Torque Off (STO)		
• F-DI	✓	✓	✓
• PROFIsafe	–	–	✓ (not with EtherNet/IP)
Open-loop/closed-loop control methods			
V/f linear/quadratic/parameterizable	✓		
V/f with flux current control (FCC)	✓		
Vector control, sensorless	✓		
Torque control, sensorless	✓		
Software functions			
Fixed frequencies	✓		
Signal interconnection with BICO technology	✓		
Automatic restart after line supply failure or operating fault	✓		
Slip compensation	✓		
Free function blocks (FFB) for logical and arithmetic operations	✓		
Ramp smoothing	✓		
4 selectable drive data sets	✓		
4 selectable command data sets (CDS) (manual/auto)	✓		
Flying restart	✓		
JOG	✓		
Cyclic recording of ramp-up and ramp-down	–	✓	✓
Technology controller (PID)	✓		
Conveyor technology functions	–	✓	✓

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Technical specifications

Converter	I/O	AS-Interface	PROFINET, EtherNet/IP
Software functions			
Thermal motor protection	✓		
Thermal converter protection	✓		
Setpoint input	✓		
Motor identification	✓		
Motor holding brake	✓		
Mechanical specifications and ambient conditions			
Degree of protection	IP65/IP66/UL type 4X		
Operating temperature	-30 ... +40 °C (-22 ... 104 °F) without derating >40 ... 55 °C (104 ... 131 °F) see derating characteristics		
Storage temperature	-40 ... +70 °C (-40 ... 158 °F)		
Relative air humidity	<95 % RH, condensation not permissible		

Line voltage 380 ... 480 V 3 AC		**SIMOGEAR geared motors with SINAMICS G115D motor-mounted**				
2KJ8 . . . -		**2CF . . -3 . . .**	**2EA . . -3 . . .**	**2EG . . -3 . . .**	**2GB . . -3 . . .**	**2GF . . -3 . . .**
Rated power for control range 1:5	kW	0.37	0.55	0.75	1.1	1.5
Rated pulse frequency	kHz	4	4	4	4	4
Efficiency η according to IEC 61800-9-2		97.42	97.76	97.90	98.04	98.08
Power loss [1] according to IEC 61800-9-2 at rated output current	kW	0.020	0.024	0.029	0.038	0.049
Internal braking resistor						
• Continuous braking power P_{DB} (ambient temperature ≤40 °C (104 °F))	W	10	10	10	10	10
• Peak power P_{max} (cycle time 12 s within 120 s (corresponds to 10 % on-load factor)) (ambient temperature ≤40 °C (104 °F))	W	100	100	100	100	100
Rated input current [2]	A	1.08	1.47	1.79	2.43	3.18
Line supply connection U1/L1, V1/L2, W1/L3, PE						
• Conductor cross-section	mm^2	1.5 ... 4 14 ... 12 AWG	1.5 ... 4 14 ... 12 AWG	1.5 ... 4 14 ... 12 AWG	1.5 ... 4 14 ... 12 AWG	1.5 ... 4 14 ... 12 AWG
PE connection (external connection)						
• Conductor cross-section (recommended)	mm^2	10	10	10	10	10
Degree of protection		up to IP65	up to IP65	up to IP65	up to IP65	up to IP65
Converter frame size		FSA	FSA	FSA	FSA	FSA
Dimensions and weight		See “Gearbox selection” or “Dimensional drawings” of the helical geared motors, parallel shaft geared motors, bevel geared motors and helical worm geared motors in the Industry Mall at: www.siemens.com/sinamics-g115d/gear-selection-motor-mounted				

[1] Typical values. More information can be found on the internet at https://support.industry.siemens.com/cs/document/94059311

[2] The input current depends on the motor load and line impedance. The input currents apply for load at rated power for a line impedance corresponding to u_K = 4%.

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Technical specifications

Line voltage 380 ... 480 V 3 AC		SIMOGEAR geared motors with SINAMICS G115D motor-mounted		
2KJ8 . . . -		**2JB . . -3 . . .**	**2JG . . -3 . . .**	**2LB . . -3 . . .**
Rated power for control range 1:5	kW	2.2	3	4
Rated pulse frequency	kHz	4	4	4
Efficiency η according to IEC 61800-9-2		98.21	98.22	98.18
Power loss [1] according to IEC 61800-9-2 at rated output current	kW	0.064	0.086	0.115
Internal braking resistor				
• Continuous braking power P_{DB} (ambient temperature ≤40 °C (104 °F))	W	10	10	10
• Peak power P_{max} (cycle time 12 s within 120 s (corresponds to 10 % on-load factor)) (ambient temperature ≤40 °C (104 °F))	W	100	100	100
Rated input current [2]	A	4.65	6.23	8.16
Line supply connection U1/L1, V1/L2, W1/L3, PE				
• Conductor cross-section	mm^2	2.5 ... 4 13 ... 12 AWG	2.5 ... 4 13 ... 12 AWG	2.5 ... 4 13 ... 12 AWG
PE connection (external connection)				
• Conductor cross-section (recommended)	mm^2	10	10	10
Degree of protection		up to IP65	up to IP65	up to IP65
Converter frame size		FSB	FSB	FSB
Dimensions and weight		See “Gearbox selection” or “Dimensional drawings” of the helical geared motors, parallel shaft geared motors, bevel geared motors and helical worm geared motors in the Industry Mall at: www.siemens.com/sinamics-g115d/gear-selection-motor-mounted		

[1] Typical values. More information can be found on the internet at https://support.industry.siemens.com/cs/document/94059311

[2] The input current depends on the motor load and line impedance. The input currents apply for load at rated power for a line impedance corresponding to u_K = 4%.

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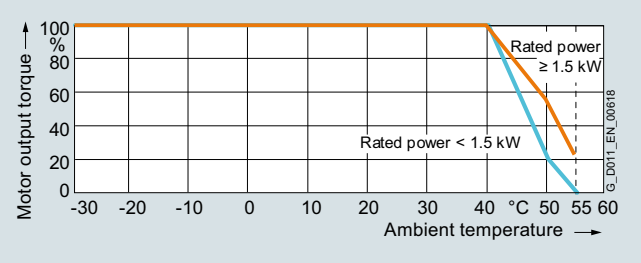
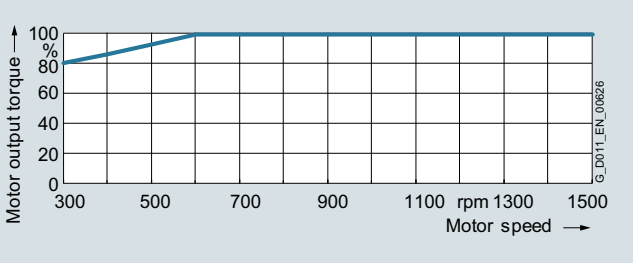
Characteristic curves

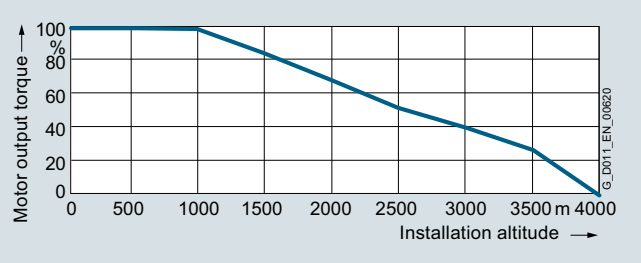
Derating SIMOGEAR geared motors with asynchronous motors IE2/IE3



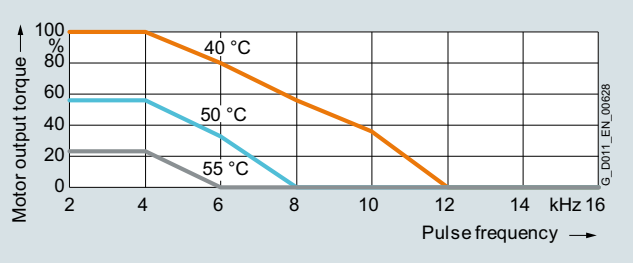
Derating of the torque as a function of the ambient temperature



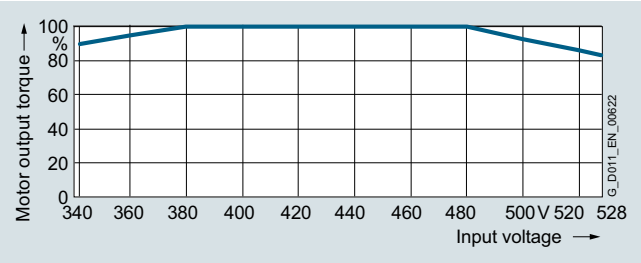
Derating of the torque as a function of the motor speed, without daisy chain



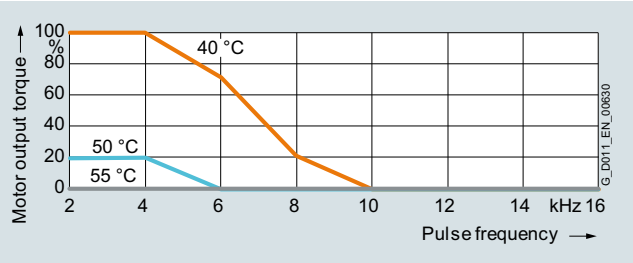
Derating of the torque as a function of the installation altitude



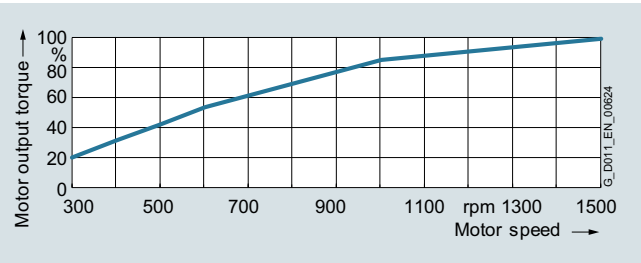
Derating of the torque as a function of the pulse frequency (rated power ≥ 1.5 kW)



Derating of the torque as a function of the input voltage



Derating of the torque as a function of the pulse frequency (rated power < 1.5 kW)



Derating of the torque as a function of the motor speed, with daisy chain

7 3

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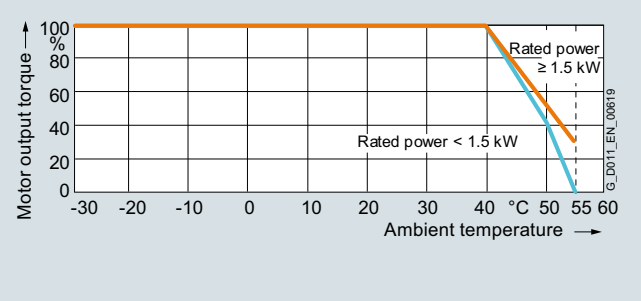
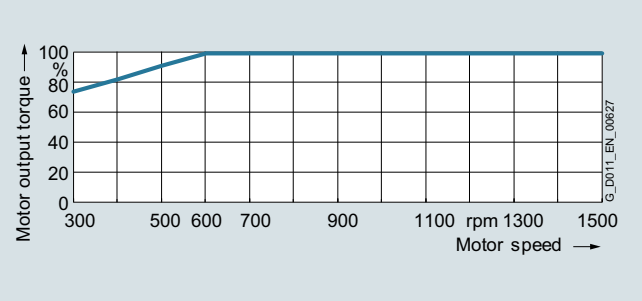
Characteristic curves

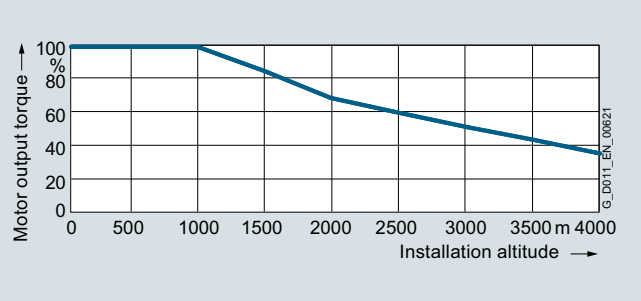
Derating SIMOGEAR geared motors with synchronous reluctance motors IE4



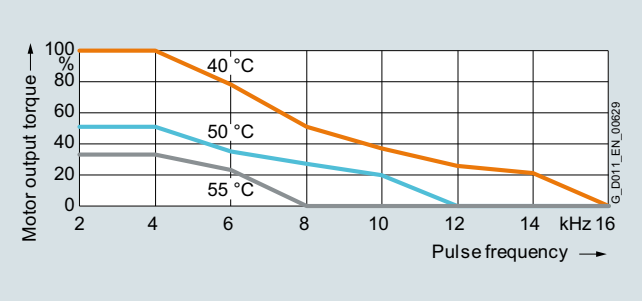
Derating of the torque as a function of the ambient temperature



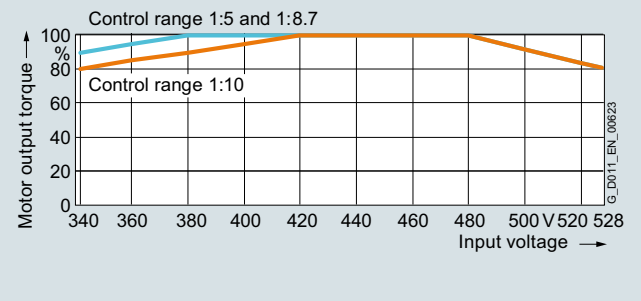
Derating of the torque as a function of the motor speed, without daisy chain



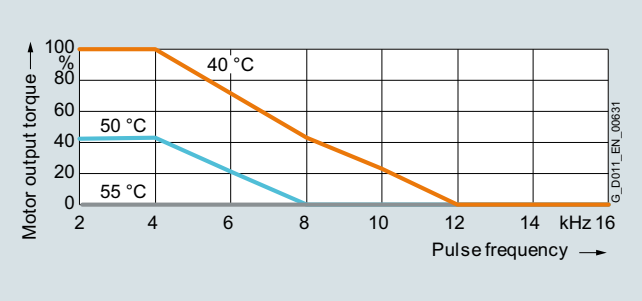
Derating of the torque as a function of the installation altitude



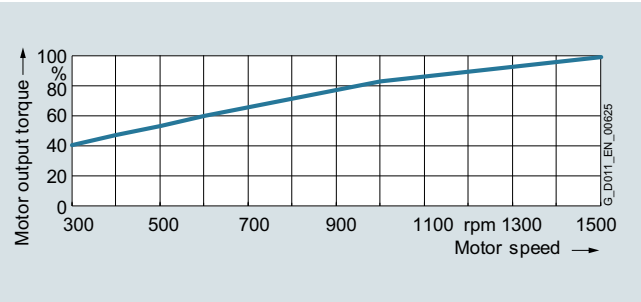
Derating of the torque as a function of the pulse frequency (rated power ≥ 1.5 kW)



Derating of the torque as a function of the input voltage



Derating of the torque as a function of the pulse frequency (rated power < 1.5 kW)



Derating of the torque as a function of the motor speed, with daisy chain

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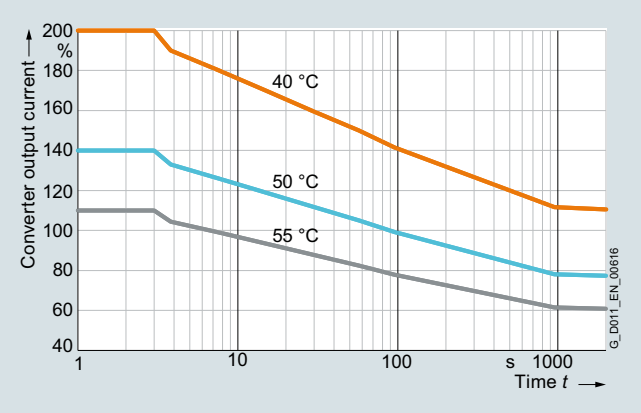
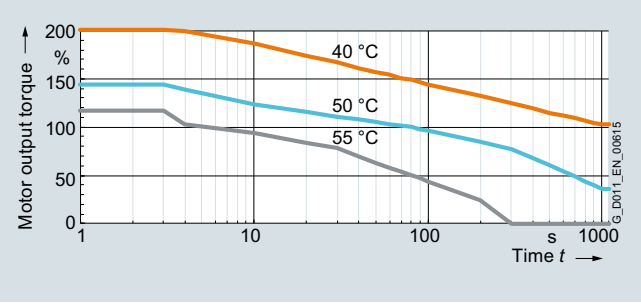
Characteristic curves

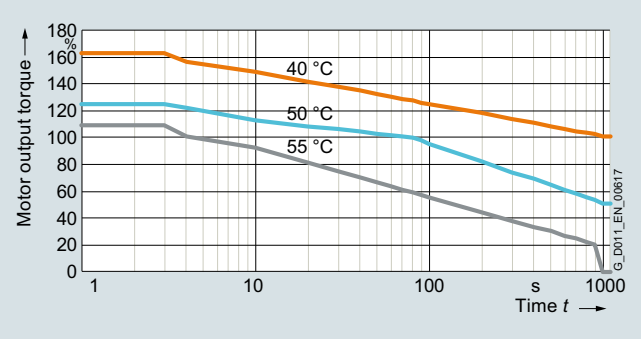
Permissible converter overload



I^2t overload capacity converter output current



I^2t overload capacity torque SIMOGEAR geared motors with asynchronous motors IE2/IE3



I^2t overload capacity torque SIMOGEAR geared motors with synchronous reluctance motors IE4

More information

Compact Operating Instructions are supplied in hard copy form in German, English and Chinese with every SINAMICS G115D.

To select the helical geared motor, parallel shaft geared motor, bevel geared motor and helical worm geared motor, see "Gearbox selection" or "Dimensional drawings" in the Industry Mall at:
www.siemens.com/sinamics-g115d/gear-selection-motor-mounted

The latest technical documentation (catalogs, dimensional drawings, certificates, manuals and operating instructions) as well as further technical specifications are available on the internet at:
www.siemens.com/sinamics-g115d/documentation

and in the Drive Technology Configurator (DT Configurator):
www.siemens.com/sinamics-g115d/configuration

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Selection and ordering data

SIMOGEAR geared motors with SINAMICS G115D motor-mounted • Structure of the Article No.

SIMOGEAR 2KJ8 geared motors

Data position in Article No.

1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	-	Z
2	K	J	8	■	■	■	-	■	■	■	■	■	-	■	■	■	■		

Article No. supplements

	5	6	7	8	9	10	11	12	13	14	15	16
Gearbox type, gearbox designation												
Helical gearbox E, 1-stage	0											
Helical gearbox Z, 2-stage	1											
Helical gearbox D, 3-stage	2											
Parallel shaft gearbox FZ, 2-stage	3											
Parallel shaft gearbox FD, 3-stage	4											
Bevel gearbox B/K, 2/3-stage	5											
Helical worm gearbox C, 2-stage	6											
Gearbox size												
See „Gearbox selection“ in the Ordering data section in the Industry Mall www.siemens.com/sinamics-g115d/gear-selection-motor-mounted and in the Drive Technology Configurator (DT Configurator): www.siemens.com/sinamics-g115d/configuration		0 1 4	0 ... 8									
Motor type acc. to CE/UL/CCC/KC/EAC												
Asynchronous motor				2								
Synchronous reluctance motor				4								
Motor shaft height												
Shaft height 71					C							
Shaft height 80					E							
Shaft height 90					G							
Shaft height 100					J							
Shaft height 112					L							
Shaft height 132					N							
Motor rated power												
Rated power 1						A						
						B						
						C						
Rated power 2						F						
						G						
						H						
Rated power 3						N						
Motor temperature sensor												
Without							0					
Pt1000							1					
Motor brake												
Without								0				
With (brake voltage 180 V DC)								1				
Mounting type / control range												
Motor-mounted / control range 1:5									3			
Motor-mounted / control range 1:10									4			
Motor-mounted / control range 1:8.7									5			
Converter fieldbus communication												
Without fieldbus communication, cable gland										B		
Without fieldbus communication, plug-in connection										C		
AS-Interface, cable gland										D		
AS-Interface, plug-in connection										E		
PROFINET, EtherNet/IP, cable gland										F		
PROFINET, EtherNet/IP, plug-in connection										G		
Gearbox ratio												
See „Gearbox selection“ in the Ordering data section in the Industry Mall www.siemens.com/sinamics-g115d/gear-selection-motor-mounted and in the Drive Technology Configurator (DT Configurator): www.siemens.com/sinamics-g115d/configuration											A ... X	1 ... 2

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Selection and ordering data

SIMOGEAR geared motors with SINAMICS G115D motor-mounted • Structure of the Article No.

	SIMOGEAR 2KJ8 geared motors	
	Data position in Article No.	
	1 2 3 4 5 6 7 - 8 9 10 11 12 - 13 14 15 16 - Z	
	2 K J 8 . . . - . . . . . - . . . . - Z	
Options with -Z and order code		
Mounting position		
Standard		
M1		**D 0 1**
M2		**D 0 2**
M3		**D 0 3**
M4		**D 0 4**
M5		**D 0 5**
M6		**D 0 6**
Permitted deviation from the mounting position		**D 0 9**
Universal mounting position output side A (DE)		
M1-A		**D 1 1**
M2-A		**D 1 2**
M3-A		**D 1 3**
M4-A		**D 1 4**
M5-A		**D 1 5**
M6-A		**D 1 6**
Universal mounting position output side B (NDE)		
M1-B		**D 2 1**
M2-B		**D 2 2**
M3-B		**D 2 3**
M4-B		**D 2 4**
M5-B		**D 2 5**
M6-B		**D 2 6**

Standard options for mandatory selection (e.g. the shaft designs) are displayed in the DT Configurator.
For commissioning in the TIA Portal, the selection of the mounting position (e.g. order code **D01**) is important for the specification of the direction of rotation of the output shaft.

For more information and order codes see section Options.

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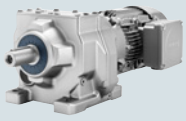
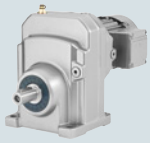
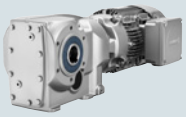
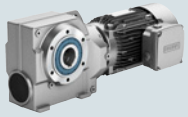
Selection and ordering data

SIMOGEAR is the generation of geared motors from Siemens. The SIMOGEAR gearboxes are available as helical, parallel shaft, bevel, and helical worm geared motors.

SIMOGEAR geared motors					
					
Helical gearbox Z and D	**Helical gearbox E**	**Parallel shaft gearbox FZ and FD**	**Bevel gearbox B**	**Bevel gearbox K**	**Helical worm gearbox C**
Sizes					
Z19 ... Z89 (2-stage) D19 ... D89 (3-stage)	E39 ... E89 (1-stage)	FZ29 ... FZ89 (2-stage) FD29 ... FD89 (3-stage)	B19 ... B49 (2-stage)	K39 ... K89 (3-stage)	C29 ... C89 (2-stage)
Maximum input torque					
12 Nm ... 2 110 Nm	9.8 Nm ... 245 Nm	25 Nm ... 2 270 Nm	7.7 Nm ... 560 Nm	40 Nm ... 2 010 Nm	14 Nm ... 1 680 Nm
Gearbox ratio					
3.4 ... 60.97 (2-stage) 39.34 ... 330.23 (3-stage)	1.29 ... 9.7	3.57... 65.21 (2-stage) 46.36 ... 357 (3-stage)	3.47 ... 59.28	5.17 ... 244.25	6.2 ... 363
Maximum motor power for the SINAMICS G115D distributed drive system motor-mounted					
4 kW	4 kW	4 kW	4 kW	4 kW	4 kW

Type designation of the SIMOGEAR gearboxes

The type designation is a meaningful name for SIMOGEAR geared motors. It provides information about the fundamental design of the geared motor and about its main technical features.

Example of gearbox type designation:		**F**	**D**	**A**	**F**	**S**	**89**
Gearbox type	Helical gearbox	**-**					
	Parallel shaft gearbox	**F**					
	Bevel gearbox, 2-stage	**B**					
	Bevel gearbox, 3-stage	**K**					
	Helical worm gearbox	**C**					
Stage	1-stage (for helical gearbox only)		**E**				
	2-stage		**Z**				
	3-stage		**D**				
Type							
Shaft	Solid shaft			**-**			
	Hollow shaft			**A**			
Mounting	Foot-mounted design				**-**		
	Foot/flange-mounted design				**B**		
	Flange-mounted design				**F**		
	Housing flange design				**Z**		
	Torque arm				**D**		
Connection	Feather key / without feather key					**-**	
	Shrink disk					**S**	
	Splined shaft					**T**	
Gearbox size	Helical gearbox, 1-stage						**39 ... 89**
	Helical gearbox, 2/3-stage						**19 ... 89**
	Parallel shaft gearbox, 2/3-stage						**29 ... 89**
	Bevel gearbox, 2-stage						**19 ... 49**
	Bevel gearbox, 3-stage						**39 ... 89**
	Helical worm gearbox, 2-stage						**29 ... 89**

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Selection and ordering data

Type designation of the motors for the SINAMICS G115D distributed drive system motor-mounted

Example of motor type designation with the SINAMICS G115D distributed drive system motor-mounted:			**LE**	**80**	**M**	**A**	**4**	**S**	**-**	**G**	**007**	**M**	**-**	**IO**	**-**	**HA**
Motor																
Motor type	Three-phase motor	Aluminum housing	**LE**													
Motor frame size	Specified acc. to EN 50347			**71...132**												
Overall length	Overall length specified acc. to EN 50347				**S, L, M**											
	Packet length / power value					**A, B, C**										
Number of poles	4-pole						**4**									
Efficiency class	IE2 (High Efficiency)							**E**								
	IE3 (Premium Efficiency)							**P**								
	IE4 (Super Premium Efficiency) synchronous reluctance motors							**S**								
SINAMICS G115D distributed drive system																
SINAMICS G115D	Distributed converter									**G**						
	Converter rated power	0.37 kW									**003**					
		0.55 kW									**005**					
		0.75 kW									**007**					
		1.1 kW									**011**					
		1.5 kW									**015**					
		2.2 kW									**022**					
		3 kW									**030**					
		4 kW									**040**					
	Converter mounting type	Motor-mounted										**M**				
	Fieldbus communication	Without fieldbus communication												**IO**		
		AS-Interface												**ASi**		
		PROFINET, EtherNet/IP												**PN**		
Options																
Motor brake	DC brake															**L**
	Enclosed brake															**G**
	Manual brake release															**H**
	Manual brake release with locking mechanism															**HA**
Canopy	With canopy															**W**

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Selection and ordering data

SIMOGEAR geared motors with SINAMICS G115D motor-mounted · Motor type asynchronous motors IE2/IE3
-> Configuration motor type synchronous reluctance motors (see right page)

P_N kW	T_N Nm	I_N A	$\cos \phi$	λ	Motor size Asynchronous motor	Efficiency class	Converter size (frame size)	Article No. (Article No. supplements ➞see below)
Control range 1:5 / Motor speed range 300 ... 1 500 rpm								
0.37	2.36	0.97	0.74	0.58	LE71MB4E	IE2	FSA	**2KJ8 ■■■ -2CF ■■ -3 ■ ■■ -Z**
0.55	3.50	1.29	0.76	0.64	LE80MA4E	IE2	FSA	**2KJ8 ■■■ -2EA ■■ -3 ■ ■■ -Z**
0.75	4.77	1.64	0.76	0.61	LE80MB4P	IE3	FSA	**2KJ8 ■■■ -2EG ■■ -3 ■ ■■ -Z**
1.1	7.00	2.30	0.79	0.65	LE90S4P	IE3	FSA	**2KJ8 ■■■ -2GB ■■ -3 ■ ■■ -Z**
1.5	9.55	3.00	0.82	0.68	LE90L4P	IE3 [1]	FSA	**2KJ8 ■■■ -2GF ■■ -3 ■ ■■ -Z**
2.2	14.00	4.66	0.82	0.70	LE100LA4P	IE3	FSB	**2KJ8 ■■■ -2JB ■■ -3 ■ ■■ -Z**
3.0	19.10	6.31	0.83	0.70	LE100LB4P	IE3	FSB	**2KJ8 ■■■ -2JG ■■ -3 ■ ■■ -Z**
4.0	25.00	8.09	0.83	0.70	LE112MC4P	IE3	FSB	**2KJ8 ■■■ -2LB ■■ -3 ■ ■■ -Z**
Control range 1:10 / Motor speed range 300 ... 3 000 rpm								
0.55	1.75	1.29	0.68	0.54	LE71MB4E	IE2	FSA	**2KJ8 ■■■ -2CF ■■ -4 ■ ■■ -Z**
0.75	2.36	1.67	0.70	0.57	LE80MA4E	IE2	FSA	**2KJ8 ■■■ -2EA ■■ -4 ■ ■■ -Z**
1.1	3.50	2.34	0.73	0.57	LE80MB4P	IE3	FSA	**2KJ8 ■■■ -2EG ■■ -4 ■ ■■ -Z**
1.5	4.77	2.93	0.75	0.62	LE90S4P	IE3	FSA	**2KJ8 ■■■ -2GB ■■ -4 ■ ■■ -Z**
2.2	7.00	4.14	0.79	0.67	LE90L4P	IE3 [1]	FSB	**2KJ8 ■■■ -2GF ■■ -4 ■ ■■ -Z**
3.0	9.55	6.47	0.80	0.69	LE100LA4P	IE3	FSB	**2KJ8 ■■■ -2JB ■■ -4 ■ ■■ -Z**
4.0	12.73	8.29	0.80	0.69	LE100LB4P	IE3	FSB	**2KJ8 ■■■ -2JG ■■ -4 ■ ■■ -Z**
Control range 1:8.7 / Motor speed range 300 ... 2 610 rpm								
0.64	2.36	1.49	0.67	0.54	LE71MB4E	IE2	FSA	**2KJ8 ■■■ -2CF ■■ -5 ■ ■■ -Z**
0.95	3.50	2.08	0.70	0.58	LE80MA4E	IE2	FSA	**2KJ8 ■■■ -2EA ■■ -5 ■ ■■ -Z**
1.30	4.77	2.73	0.73	0.60	LE80MB4P	IE3	FSA	**2KJ8 ■■■ -2EG ■■ -5 ■ ■■ -Z**
1.90	7.00	3.62	0.76	0.63	LE90S4P	IE3	FSB	**2KJ8 ■■■ -2GB ■■ -5 ■ ■■ -Z**
2.60	9.55	4.82	0.79	0.67	LE90L4P	IE3 [1]	FSB	**2KJ8 ■■■ -2GF ■■ -5 ■ ■■ -Z**
3.81	14.00	8.14	0.82	0.70	LE100LA4P	IE3	FSB	**2KJ8 ■■■ -2JB ■■ -5 ■ ■■ -Z**

Article No. supplements																
Gearbox type																
Helical gearbox E, 1-stage									0							
Helical gearbox Z, 2-stage									1							
Helical gearbox D, 3-stage									2							
Parallel shaft gearbox FZ, 2-stage									3							
Parallel shaft gearbox FD, 3-stage									4							
Bevel gearbox B/K, 2/3-stage									5							
Helical worm gearbox C, 2-stage									6							
Gearbox size																
See „Gearbox selection“ in the Ordering data section in the Industry Mall www.siemens.com/sinamics-g115d/gear-selection-motor-mounted and in the Drive Technology Configurator (DT Configurator): www.siemens.com/sinamics-g115d/configuration										0 1 4	0 ... 8					
Motor temperature sensor	without											0				
	Pt1000											1				
Motor brake	without												0			
	with (brake voltage 180 V DC)												1			
Converter fieldbus communication																
Without fieldbus communication, cable gland														B		
Without fieldbus communication, plug-in connection														C		
AS-Interface, cable gland														D		
AS-Interface, plug-in connection														E		
PROFINET, EtherNet/IP, cable gland														F		
PROFINET, EtherNet/IP, plug-in connection														G		
Geared motor transmission ratio																
See „Gearbox selection“ in the Ordering data section in the Industry Mall www.siemens.com/sinamics-g115d/gear-selection-motor-mounted and in the Drive Technology Configurator (DT Configurator): www.siemens.com/sinamics-g115d/configuration															A1 ... X2	
Special versions																Order codes
Necessary ordering data: • Mounting position (order codes **D01**... **D26**) for the specification of the direction of rotation of the output shaft • Configuration of the output shaft (order codes **H31**... **H67**) • Configuration of the mounting type (order codes **H71**... **H76**) • Configuration of the connection type of the converter (order codes **V01**... **V81**). Selection of the special versions, see the Drive Technology Configurator (DT Configurator): www.siemens.com/sinamics-g115d/configuration																. . .+. . .+. . .+. . .

[1] The asynchronous motor for the SIMOGEAR geared motors (designed for 50 Hz operation) fulfills the class IE3 according to IEC 60034-30-1: 2014.

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Selection and ordering data

SIMOGEAR geared motors with SINAMICS G115D motor-mounted · Motor type synchronous reluctance motors IE4
-> Configuration motor type asynchronous motors (see left page)

P_N kW	T_N Nm	I_N A	*cos* ϕ Nm	Motor size Synchronous reluctance motor	Efficiency class	Converter size (frame size)	Article No. (Article No. supplements ➞see below)
Control range 1:5 / Motor speed range 300 ... 1 500 rpm							
0.55	3.50	1.64	0.635	LE80MA4S	IE4	FSA	**2KJ8 ■ ■ ■ -4EC ■ ■ -3 ■ ■■ -Z**
0.75	4.77	2.02	0.634	LE80MB4S	IE4	FSA	**2KJ8 ■ ■ ■ -4EH ■ ■ -3 ■ ■■ -Z**
1.1	7.00	2.15	0.661	LE90S4S	IE4	FSA	**2KJ8 ■ ■ ■ -4GC ■ ■ -3 ■ ■■ -Z**
1.5	9.55	2.83	0.653	LE90L4S	IE4	FSA	**2KJ8 ■ ■ ■ -4GH ■ ■ -3 ■ ■■ -Z**
2.2	14.00	4.37	0.687	LE112MA4S	IE4	FSB	**2KJ8 ■ ■ ■ -4LC ■ ■ -3 ■ ■■ -Z**
3.0	19.10	5.80	0.691	LE112MB4S	IE4	FSB	**2KJ8 ■ ■ ■ -4LH ■ ■ -3 ■ ■■ -Z**
4.0	25.46	7.01	0.702	LE112MC4S	IE4	FSB	**2KJ8 ■ ■ ■ -4LN ■ ■ -3 ■ ■■ -Z**
Control range 1:10 / Motor speed range 300 ... 3 000 rpm							
0.75	2.36	1.77	0.586	LE80MA4S	IE4	FSA	**2KJ8 ■ ■ ■ -4EC ■ ■ -4 ■ ■■ -Z**
1.1	3.50	2.20	0.606	LE80MB4S	IE4	FSA	**2KJ8 ■ ■ ■ -4EH ■ ■ -4 ■ ■■ -Z**
1.5	4.77	2.73	0.622	LE90S4S	IE4	FSA	**2KJ8 ■ ■ ■ -4GC ■ ■ -4 ■ ■■ -Z**
2.2	7.00	4.24	0.635	LE90L4S	IE4	FSB	**2KJ8 ■ ■ ■ -4GH ■ ■ -4 ■ ■■ -Z**
3.0	9.55	5.13	0.662	LE112MA4S	IE4	FSB	**2KJ8 ■ ■ ■ -4LC ■ ■ -4 ■ ■■ -Z**
4.0	12.73	6.71	0.674	LE112MB4S	IE4	FSB	**2KJ8 ■ ■ ■ -4LH ■ ■ -4 ■ ■■ -Z**
Control range 1:8.7 / Motor speed range 300 ... 2 610 rpm							
0.95	3.50	1.94	0.611	LE80MA4S	IE4	FSA	**2KJ8 ■ ■ ■ -4EC ■ ■ -5 ■ ■■ -Z**
1.30	4.77	2.39	0.613	LE80MB4S	IE4	FSA	**2KJ8 ■ ■ ■ -4EH ■ ■ -5 ■ ■■ -Z**
1.91	7.00	3.37	0.644	LE90S4S	IE4	FSB	**2KJ8 ■ ■ ■ -4GC ■ ■ -5 ■ ■■ -Z**
2.60	9.55	4.87	0.637	LE90L4S	IE4	FSB	**2KJ8 ■ ■ ■ -4GH ■ ■ -5 ■ ■■ -Z**
3.81	14.00	6.32	0.676	LE112MA4S	IE4	FSB	**2KJ8 ■ ■ ■ -4LC ■ ■ -5 ■ ■■ -Z**

Article No. supplements

Gearbox type

Helical gearbox E, 1-stage	**0**
Helical gearbox Z, 2-stage	**1**
Helical gearbox D, 3-stage	**2**
Parallel shaft gearbox FZ, 2-stage	**3**
Parallel shaft gearbox FD, 3-stage	**4**
Bevel gearbox B/K, 2/3-stage	**5**
Helical worm gearbox C, 2-stage	**6**

Gearbox size

See „Gearbox selection“ in the Ordering data section in the Industry Mall
www.siemens.com/sinamics-g115d/gear-selection-motor-mounted
and in the Drive Technology Configurator (DT Configurator):
www.siemens.com/sinamics-g115d/configuration

0 1 ... **0 4** ... **0 8**

Motor temperature sensor	
	without **0**
	Pt1000 **1**

Motor brake	
	without **0**
	with (brake voltage 180 V DC) **1**

Converter fieldbus communication

Without fieldbus communication, cable gland	**B**
Without fieldbus communication, plug-in connection	**C**
AS-Interface, cable gland	**D**
AS-Interface, plug-in connection	**E**
PROFINET, EtherNet/IP, cable gland	**F**
PROFINET, EtherNet/IP, plug-in connection	**G**

Geared motor transmission ratio

See „Gearbox selection“ in the Ordering data section in the Industry Mall
www.siemens.com/sinamics-g115d/gear-selection-motor-mounted
and in the Drive Technology Configurator (DT Configurator):
www.siemens.com/sinamics-g115d/configuration

A1 ... **X2**

Special versions — Order codes . . .+. . .+. . .+. . .

Necessary ordering data:
- Mounting position (order codes **D01**... **D26**) for the specification of the direction of rotation of the output shaft
- Configuration of the output shaft (order codes **H31**... **H67**)
- Configuration of the mounting type (order codes **H71**... **H76**)
- Configuration of the connection type of the converter (order codes **V01**... **V81**).

Selection of the special versions, see the Drive Technology Configurator (DT Configurator): www.siemens.com/sinamics-g115d/configuration

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Selection and ordering data

SIMOGEAR geared motors with SINAMICS G115D motor-mounted · Additional information for the basic configuration

Type	Motor	Rated power P_N	Rated torque T_N	Maximum short-time torque T_{max}	Efficiency η	Efficiency class	Relative starting torque T_{St}/T_N	
					4/4 load	acc. to IEC 60034-30	Standard	Maximum
		kW	Nm	Nm	%		-	-
Control range 1:5 / Motor speed range 300 ... 1 500 rpm								
Motor type asynchronous motors IE2/IE3								
2KJ8 ■■■ -2CF ■■ -3 ■■■ -Z	LE71MB4E	0.37	2.36	4.72	72.70	IE2	1.3	2.0
2KJ8 ■■■ -2EA ■■ -3 ■■■ -Z	LE80MA4E	0.55	3.50	7.00	77.10	IE2	1.3	2.0
2KJ8 ■■■ -2EG ■■ -3 ■■■ -Z	LE80MB4P	0.75	4.77	9.54	82.50	IE3	1.3	2.0
2KJ8 ■■■ -2GB ■■ -3 ■■■ -Z	LE90S4P	1.1	7.00	14.00	84.10	IE3	1.3	2.0
2KJ8 ■■■ -2GF ■■ -3 ■■■ -Z	LE90L4P	1.5	9.55	19.10	85.30	IE3	1.3	2.0
2KJ8 ■■■ -2JB ■■ -3 ■■■ -Z	LE100LA4P	2.2	14.00	28.00	86.70	IE3	1.3	2.0
2KJ8 ■■■ -2JG ■■ -3 ■■■ -Z	LE100LB4P	3.0	19.10	38.20	87.70	IE3	1.3	2.0
2KJ8 ■■■ -2LB ■■ -3 ■■■ -Z	LE112MC4P	4.0	25.46	50.92	88.60	IE3	1.3	2.0
Motor type synchronous reluctance motors IE4								
2KJ8 ■■■ -4EC ■■ -3 ■■■ -Z	LE80MA4S	0.55	3.50	7.00	81.90	IE4	1.3	2.0
2KJ8 ■■■ -4EH ■■ -3 ■■■ -Z	LE80MB4S	0.75	4.77	9.54	84.90	IE4	1.3	2.0
2KJ8 ■■■ -4GC ■■ -3 ■■■ -Z	LE90S4S	1.10	7.00	14.00	85.60	IE4	1.3	2.0
2KJ8 ■■■ -4GH ■■ -3 ■■■ -Z	LE90L4S	1.50	9.55	19.10	86.70	IE4	1.3	2.0
2KJ8 ■■■ -4LC ■■ -3 ■■■ -Z	LE112MA4S	2.20	14.00	28.00	90.00	IE4	1.3	2.0
2KJ8 ■■■ -4LH ■■ -3 ■■■ -Z	LE112MB4S	3.00	19.10	38.20	89.70	IE4	1.3	2.0
2KJ8 ■■■ -4LN ■■ -3 ■■■ -Z	LE112MC4S	4.00	25.46	50.92	90.60	IE4	1.3	2.0
Control range 1:10 / Motor speed range 300 ... 3 000 rpm								
Motor type asynchronous motors IE2/IE3								
2KJ8 ■■■ -2CF ■■ -4 ■■■ -Z	LE71MB4E	0.55	1.75	3.50	72.70	IE2	1.3	2.0
2KJ8 ■■■ -2EA ■■ -4 ■■■ -Z	LE80MA4E	0.75	2.36	4.72	77.10	IE2	1.3	2.0
2KJ8 ■■■ -2EG ■■ -4 ■■■ -Z	LE80MB4P	1.10	3.50	7.00	82.50	IE3	1.3	2.0
2KJ8 ■■■ -2GB ■■ -4 ■■■ -Z	LE90S4P	1.50	4.77	9.54	84.10	IE3	1.3	2.0
2KJ8 ■■■ -2GF ■■ -4 ■■■ -Z	LE90L4P	2.20	7.00	14.00	85.30	IE3	1.3	2.0
2KJ8 ■■■ -2JB ■■ -4 ■■■ -Z	LE100LA4P	3.00	9.55	19.10	86.70	IE3	1.3	2.0
2KJ8 ■■■ -2JG ■■ -4 ■■■ -Z	LE100LB4P	4.00	12.73	25.46	87.70	IE3	1.3	2.0
Motor type synchronous reluctance motors IE4								
2KJ8 ■■■ -4EC ■■ -4 ■■■ -Z	LE80MA4S	0.75	2.36	4.72	81.90	IE4	1.3	2.0
2KJ8 ■■■ -4EH ■■ -4 ■■■ -Z	LE80MB4S	1.10	3.50	7.00	84.90	IE4	1.3	2.0
2KJ8 ■■■ -4GC ■■ -4 ■■■ -Z	LE90S4S	1.50	4.77	9.54	85.60	IE4	1.3	2.0
2KJ8 ■■■ -4GH ■■ -4 ■■■ -Z	LE90L4S	2.20	7.00	14.00	86.70	IE4	1.3	2.0
2KJ8 ■■■ -4LC ■■ -4 ■■■ -Z	LE112MA4S	3.00	9.55	19.10	90.00	IE4	1.3	2.0
2KJ8 ■■■ -4LH ■■ -4 ■■■ -Z	LE112MB4S	4.00	12.73	25.46	89.70	IE4	1.3	2.0
Control range 1:8.7 / Motor speed range 300 ... 2 610 rpm								
Motor type asynchronous motors IE2/IE3								
2KJ8 ■■■ -2CF ■■ -5 ■■■ -Z	LE71MB4E	0.64	2.36	4.72	72.70	IE2	1.3	2.0
2KJ8 ■■■ -2EA ■■ -5 ■■■ -Z	LE80MA4E	0.95	3.50	7.00	77.10	IE2	1.3	2.0
2KJ8 ■■■ -2EG ■■ -5 ■■■ -Z	LE80MB4P	1.30	4.77	9.54	82.50	IE3	1.3	2.0
2KJ8 ■■■ -2GB ■■ -5 ■■■ -Z	LE90S4P	1.90	7.00	14.00	84.10	IE3	1.3	2.0
2KJ8 ■■■ -2GF ■■ -5 ■■■ -Z	LE90L4P	2.60	9.55	19.10	85.30	IE3	1.3	2.0
2KJ8 ■■■ -2JB ■■ -5 ■■■ -Z	LE100LA4P	3.81	14.00	28.00	86.70	IE3	1.3	2.0
Motor type synchronous reluctance motors IE4								
2KJ8 ■■■ -4EC ■■ -5 ■■■ -Z	LE80MA4S	0.95	3.50	7.00	81.90	IE4	1.3	2.0
2KJ8 ■■■ -4EH ■■ -5 ■■■ -Z	LE80MB4S	1.30	4.77	9.54	84.90	IE4	1.3	2.0
2KJ8 ■■■ -4GC ■■ -5 ■■■ -Z	LE90S4S	1.90	7.00	14.00	85.60	IE4	1.3	2.0
2KJ8 ■■■ -4GH ■■ -5 ■■■ -Z	LE90L4S	2.60	9.55	19.10	86.70	IE4	1.3	2.0
2KJ8 ■■■ -4LC ■■ -5 ■■■ -Z	LE112MA4S	3.81	14.00	28.00	90.00	IE4	1.3	2.0

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Selection and ordering data

SIMOGEAR geared motors with SINAMICS G115D motor-mounted · Additional information for the basic configuration

Type	Motor	Holding torque M_{4Br}	Working brake torque M_{2Br}	Maximum switching energy per braking W	Motor moment of inertia J_{mot}		Weight m_{mot}	
					with brake	without brake	with brake	without brake
		Nm	Nm	kJ	10^{-4} kgm²		kg	
Control range 1:5 / Motor speed range 300 ... 1 500 rpm								
Motor type asynchronous motors IE2/IE3								
2KJ8 ■■■ -2CF ■■ -3 ■■■ -Z	LE71MB4E	3.2	4.0	3.0	9.65	9.50	7.85	7.00
2KJ8 ■■■ -2EA ■■ -3 ■■■ -Z	LE80MA4E	4.0	5.0	7.5	17.61	17.00	11.50	10.00
2KJ8 ■■■ -2EG ■■ -3 ■■■ -Z	LE80MB4P	6.4	8.0	7.5	29.61	29.00	15.50	14.00
2KJ8 ■■■ -2GB ■■ -3 ■■■ -Z	LE90S4P	8.0	10.0	12	38.00	36.00	18.60	16.00
2KJ8 ■■■ -2GF ■■ -3 ■■■ -Z	LE90L4P	12.8	16.0	12	51.00	49.00	21.60	19.00
2KJ8 ■■■ -2JB ■■ -3 ■■■ -Z	LE100LA4P	16.0	20.0	12	142.00	140.00	32.60	30.00
2KJ8 ■■■ -2JG ■■ -3 ■■■ -Z	LE100LB4P	25.6	32.0	24	144.50	140.00	33.90	30.00
2KJ8 ■■■ -2LB ■■ -3 ■■■ -Z	LE112MC4P	32.0	40.0	24	174.50	170.00	37.90	34.00
Motor type synchronous reluctance motors IE4								
2KJ8 ■■■ -4EC ■■ -3 ■■■ -Z	LE80MA4S	4.0	5.0	7.5	20.61	20.00	13.50	12.00
2KJ8 ■■■ -4EH ■■ -3 ■■■ -Z	LE80MB4S	6.4	8.0	7.5	26.61	26.00	16.50	15.00
2KJ8 ■■■ -4GC ■■ -3 ■■■ -Z	LE90S4S	8.0	10.0	12	36.00	34.00	20.60	18.00
2KJ8 ■■■ -4GH ■■ -3 ■■■ -Z	LE90L4S	12.8	16.0	12	45.00	43.00	24.60	22.00
2KJ8 ■■■ -4LC ■■ -3 ■■■ -Z	LE112MA4S	18.4	23.0	24	96.50	92.00	37.90	34.00
2KJ8 ■■■ -4LH ■■ -3 ■■■ -Z	LE112MB4S	25.6	32.0	24	96.50	92.00	37.90	34.00
2KJ8 ■■■ -4LN ■■ -3 ■■■ -Z	LE112MC4S	32.0	40.0	24	118.50	114.00	42.90	39.00
Control range 1:10 / Motor speed range 300 ... 3 000 rpm								
Motor type asynchronous motors IE2/IE3								
2KJ8 ■■■ -2CF ■■ -4 ■■■ -Z	LE71MB4E	3.2	4.0	3.0	9.65	9.50	7.85	7.00
2KJ8 ■■■ -2EA ■■ -4 ■■■ -Z	LE80MA4E	4.0	5.0	7.5	17.61	17.00	11.50	10.00
2KJ8 ■■■ -2EG ■■ -4 ■■■ -Z	LE80MB4P	6.4	8.0	7.5	29.61	29.00	15.50	14.00
2KJ8 ■■■ -2GB ■■ -4 ■■■ -Z	LE90S4P	8.0	10.0	12	38.00	36.00	18.60	16.00
2KJ8 ■■■ -2GF ■■ -4 ■■■ -Z	LE90L4P	10.4	13.0	12	51.00	49.00	21.60	19.00
2KJ8 ■■■ -2JB ■■ -4 ■■■ -Z	LE100LA4P	16.0	20.0	12	142.00	140.00	32.60	30.00
2KJ8 ■■■ -2JG ■■ -4 ■■■ -Z	LE100LB4P	25.6	32.0	24	144.50	140.00	33.90	30.00
Motor type synchronous reluctance motors IE4								
2KJ8 ■■■ -4EC ■■ -4 ■■■ -Z	LE80MA4S	4.0	5.0	7.5	20.61	20.00	13.50	12.00
2KJ8 ■■■ -4EH ■■ -4 ■■■ -Z	LE80MB4S	6.4	8.0	7.5	26.61	26.00	16.50	15.00
2KJ8 ■■■ -4GC ■■ -4 ■■■ -Z	LE90S4S	8.0	10.0	12	36.00	34.00	20.60	18.00
2KJ8 ■■■ -4GH ■■ -4 ■■■ -Z	LE90L4S	10.4	13.0	12	45.00	43.00	24.60	22.00
2KJ8 ■■■ -4LC ■■ -4 ■■■ -Z	LE112MA4S	18.4	23.0	24	96.50	92.00	37.90	34.00
2KJ8 ■■■ -4LH ■■ -4 ■■■ -Z	LE112MB4S	25.6	32.0	24	96.50	92.00	37.90	34.00
Control range 1:8.7 / Motor speed range 300 ... 2 610 rpm								
Motor type asynchronous motors IE2/IE3								
2KJ8 ■■■ -2CF ■■ -5 ■■■ -Z	LE71MB4E	3.2	4.0	3.0	9.65	9.50	7.85	7.00
2KJ8 ■■■ -2EA ■■ -5 ■■■ -Z	LE80MA4E	4.0	5.0	7.5	17.61	17.00	11.50	10.00
2KJ8 ■■■ -2EG ■■ -5 ■■■ -Z	LE80MB4P	6.4	8.0	7.5	29.61	29.00	15.50	14.00
2KJ8 ■■■ -2GB ■■ -5 ■■■ -Z	LE90S4P	8.0	10.0	12	38.00	36.00	18.60	16.00
2KJ8 ■■■ -2GF ■■ -5 ■■■ -Z	LE90L4P	12.8	16.0	12	51.00	49.00	21.60	19.00
2KJ8 ■■■ -2JB ■■ -5 ■■■ -Z	LE100LA4P	16.0	20.0	12	142.00	140.00	32.60	30.00
Motor type synchronous reluctance motors IE4								
2KJ8 ■■■ -4EC ■■ -5 ■■■ -Z	LE80MA4S	4.0	5.0	7.5	20.61	20.00	13.50	12.00
2KJ8 ■■■ -4EH ■■ -5 ■■■ -Z	LE80MB4S	6.4	8.0	7.5	26.61	26.00	16.50	15.00
2KJ8 ■■■ -4GC ■■ -5 ■■■ -Z	LE90S4S	8.0	10.0	12	36.00	34.00	20.60	18.00
2KJ8 ■■■ -4GH ■■ -5 ■■■ -Z	LE90L4S	12.8	16.0	12	45.00	43.00	24.60	22.00
2KJ8 ■■■ -4LC ■■ -5 ■■■ -Z	LE112MA4S	18.4	23.0	24	96.50	92.00	37.90	34.00

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Selection and ordering data

Supplementary system components for SINAMICS G115D motor-mounted

Description	Article No.
Fuses	
• 10 A for FSA	**3NA3803**
• 16 A for FSB	**3NA3805**
External braking resistors Continuous braking power	
• 200 W for FSA	**6SL3501-1BE32-0AA0**
• 240 W for FSA	**6SL3501-1BE32-4AA0**
• 480 W for FSA	**6SL3501-1BE34-8AA0**
• 200 W for FSB	**6SL3501-1BE32-0BA0**
• 240 W for FSB	**6SL3501-1BE32-4BA0**
• 600 W for FSB	**6SL3501-1BE36-0BA0**
SINAMICS G120 Smart Access Web server module for wireless commissioning, operation and diagnostics using a smartphone, tablet, or laptop	**6SL3255-0AA00-5AA0**
Interface kit for web server module SINAMICS G120 Smart Access	**6SL3555-0XA00-0AA0**
MindConnect IOT2040 to connect to the Cloud MindSphere via PN with up to 30 data points per second	**9AC2112-0AA00-1YA2**
MindConnect Nano to connect to the Cloud MindSphere via PN with up to 250 data points per second	**9AC2112-8BA12-0KA1**
PC converter connection kit 2 USB cable (3 m (9.84 ft) long)	**6SL3255-0AA00-2CA0**
Installation kit for SINAMICS G115D motor-mounted	**6SL3566-2GM00-0GA0**
Cover kit for outputs 380 ... 480 V AC and 24 V DC (7/8" and M12)	**6SL3566-2GA00-0GA0**

Connecting cables

An overview of all available accessories (e.g. plugs and cables) can be found under the following link:
www.siemens.com/distributeddrives-supplementaryproducts

PROFINET connecting cable	
IE connecting cable M12-180/M12-180 axial outlet	
• 0.3 m (0.98 ft)	**6XV1870-8AE30**
• 0.5 m (1.64 ft)	**6XV1870-8AE50**
• 1 m (3.28 ft)	**6XV1870-8AH10**
• 1.5 m (4.92 ft)	**6XV1870-8AH15**
• 2 m (6.56 ft)	**6XV1870-8AH20**
• 3 m (9.84 ft)	**6XV1870-8AH30**
• 5 m (16.41 ft)	**6XV1870-8AH50**
• 10 m (32.81 ft)	**6XV1870-8AN10**
• 15 m (49 ft)	**6XV1870-8AN15**
PROFINET connecting cable	
IE connecting cable M12-180/IE FC RJ45 plug 145 axial outlet	
• 2 m (6.56 ft)	**6XV1871-5TH20**
• 3 m (9.84 ft)	**6XV1871-5TH30**
• 5 m (16.41 ft)	**6XV1871-5TH50**
• 10 m (32.81 ft)	**6XV1871-5TN10**
• 15 m (49 ft)	**6XV1871-5TN15**
PROFINET connectors	
IE M12 plug PRO axial outlet	
• 1 unit	**6GK1901-0DB20-6AA0**
• 8 units	**6GK1901-0DB20-6AA8**
AS-Interface M12 branch	**3RK1901-2NR20**

Description	Article No.
Connecting cables/plug-in connectors for 24 V DC power supply	
7/8" plug-in connector axial outlet	
• Pin insert (OUT)	**6GK1905-0FA00**
• Female contact insert (IN)	**6GK1905-0FB00**
Connecting cables/plug-in connectors for 24 V DC power supply	
7/8" plug-in cable axial outlet	
• 0.3 m (0.98 ft)	**6XV1822-5BE30**
• 0.5 m (1.64 ft)	**6XV1822-5BE50**
• 1 m (3.28 ft)	**6XV1822-5BH10**
• 1.5 m (4.92 ft)	**6XV1822-5BH15**
• 2 m (6.56 ft)	**6XV1822-5BH20**
• 3 m (9.84 ft)	**6XV1822-5BH30**
• 5 m (16.41 ft)	**6XV1822-5BH50**
• 10 m (32.81 ft)	**6XV1822-5BN10**
• 15 m (49 ft)	**6XV1822-5BN15**
Plug-in connectors for digital inputs and digital outputs	**6ES7194-6KA00-0XA0**
Y cable for distributed I/Os for dual connection of I/Os using single cables, 5-pole, M12, 200 mm (7.87 in)	
Connecting cable pre-assembled at one end to connect to the line supply	
• 1.5 m (4.92 ft)	**3RK1911-0DB13**
• 5 m (16.41 ft)	**3RK1911-0DB33**
Connector set for energy supply	
• 2,5 mm^2	**3RK1911-2BE50**
• 4 mm^2	**3RK1911-2BE10**
• 6 mm^2	**3RK1911-2BE30**
Quickon system connector for connections for 380 ... 480 V AC	
• Quickon nut	**6SL3566-4NA00-0GA0**
• Quickon connector	**6SL3566-4MA00-0GA0**
Connector insert for power loop-through	
• 2,5 mm^2	**3RK1911-2BF50**
• 4 mm^2	**3RK1911-2BF10**

Training case

SINAMICS G115D training case SINAMICS G115D distributed drive system, motor-mounted, PROFINET, FSA, 0.37 kW, SIMOGEAR motor LE 71, gearbox Z29 incl. SIMATIC S7-1200F and MindConnect IoT 2040 gateway	**6AG1067-1AA38-0AA0**

Spare parts for SINAMICS G115D motor-mounted

Description	Article No.
Electronic Modules	
• FSA, 0.37 kW	**6SL3500-0XE50-3■A0**
• FSA, 0.55 kW	**6SL3500-0XE50-5■A0**
• FSA, 0.75 kW	**6SL3500-0XE50-7■A0**
• FSA, 1.1 kW	**6SL3500-0XE51-1■A0**
• FSA, 1.5 kW	**6SL3500-0XE51-5■A0**
• FSB, 2.2 kW	**6SL3500-0XE52-2■A0**
• FSB, 3 kW	**6SL3500-0XE53-0■A0**
• FSB, 4 kW	**6SL3500-0XE54-0■A0**
Fieldbus communication	
• AS-Interface	**A**
• Without fieldbus communication	**B**
• PROFINET, EtherNet/IP	**F**
Spare parts kit for SINAMICS G115D motor-mounted	**6SL3500-0XK50-0AA0**

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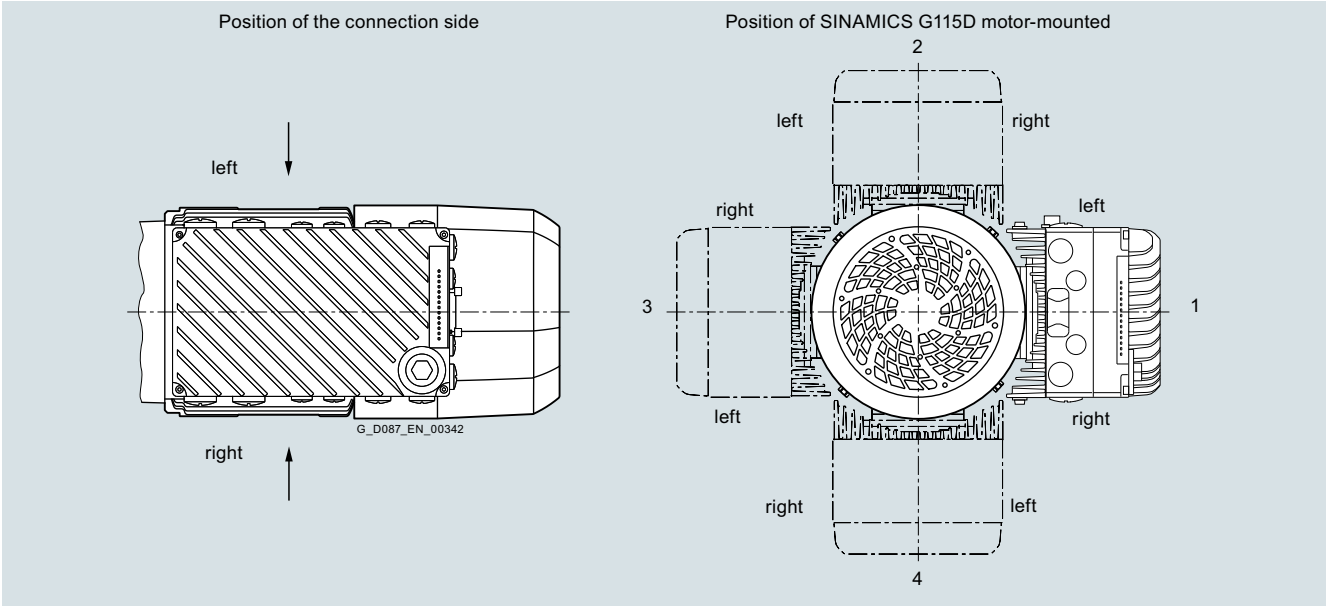
Options

The SINAMICS G115D distributed drive system, motor-mounted can be attached in four different positions. The connection sides left or right are available for the connection types of the converter. Configuration of the converter connection type (Order codes **V01** to **V81**).

Position of the SINAMICS G115D distributed drive system, motor-mounted	Additional identification code **-Z** with order code	
	2KJ8 . . . - . . . . . - . . . . **-Z**	Order code
1		**M55**
2		**M59**
3		**M63**
4		**M67**



Location and position of the SINAMICS G115D distributed drive system, motor-mounted

The SINAMICS G115D distributed drive system, motor-mounted, must not be selected in the same position as that of the output side of the gearbox.

The following positions can be selected with the SINAMICS G115D distributed drive system, motor-mounted and the SIMOGEAR geared motors:

Possible position of the SINAMICS G115D distributed drive system, motor-mounted with SIMOGEAR geared motors

Gearbox type and size	Output side	Motor frame size					
		71	80	90	90	100	112
		Converter size					
		FSA	FSA	FSA	FSB	FSB	FSB
Helical geared motor 2 and 3-stage							
Foot-mounted and housing flange design							
Z./D.19 ... 39	-	No restrictions					
Z./D.49 ... 69	-	123	123	1234	1234	1234	1234
Z./D.79	-	123	1234	1234	1234	1234	1234
Z./D.89	-		2	1234	1234	1234	1234
Flange-mounted design							
ZF/DF19 ... 89	-	No restrictions					
Helical geared motor 1-stage							
E.39 ... 89	-	No restrictions					
Parallel shaft geared motor 2 and 3-stage							
FZ./FD.29 ... 89	-	123	123	123	123	123	123
Bevel geared motor 2-stage							
B.19 ... 49	A	234	234	234	234	234	234
	B	124	124	124	124	124	124

Possible position of the SINAMICS G115D distributed drive system, motor-mounted with SIMOGEAR geared motors

Gearbox type and size	Output side	Motor frame size					
		71	80	90	90	100	112
		Converter size					
		FSA	FSA	FSA	FSB	FSB	FSB
Bevel geared motor 3-stage							
Foot-mounted, housing flange and shaft-mounted design							
K.39	A	234	234	234	234	234	234
	B	124	124	124	124	124	124
K.49	A	234	234	234	234	23	234
	B	124	124	124	124	12	124
K.69 ... 89	A	234	234	234	234	234	234
	B	124	124	124	124	124	124
Flange-mounted design							
K.F39 ... 89	A	234	234	234	234	234	234
	B	124	124	124	124	124	124
Helical worm geared motor 2-stage							
C.29 ... 89	A	234	234	234	234	234	234
	B	124	124	124	124	124	124

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Options

Various connection types as well as connection sides can be selected for the respective fieldbus communications of the converter, as shown in the following table.

Connection types	Fieldbus communication	I/O	380 ... 480 V AC	24 V DC	Connection side (from the perspective of the motor shaft)	14th position of the Article No. 2KJ8 . . . - . . . . . - ■ . . .-Z	Additional identification -Z with order code Order code
Without fieldbus communication (I/O control)							
Cable gland with daisy chain	Without	Cable gland			left	2KJ8 . . . - . . . . . - **B** . . .	**V01**
					right [2]	2KJ8 . . . - . . . . . - **B** . . .	**V06**
Plug-in connection without daisy chain	Without	M12	Q4/2	7/8"	left	2KJ8 . . . - . . . . . - **C** . . .	**V10**
					right	2KJ8 . . . - . . . . . - **C** . . .	**V11**
				Power M12	left	2KJ8 . . . - . . . . . - **C** . . .	**V12**
					right	2KJ8 . . . - . . . . . - **C** . . .	**V13**
			Quickon [1]	Power M12	left	2KJ8 . . . - . . . . . - **C** . . .	**V14**
					right	2KJ8 . . . - . . . . . - **C** . . .	**V15**
			MQ15 [1]	Power M12	left	2KJ8 . . . - . . . . . - **C** . . .	**V16**
					right	2KJ8 . . . - . . . . . - **C** . . .	**V17**
Plug-in connection with daisy chain	Without	M12	2 x Q4/2	2 x 7/8"	left	2KJ8 . . . - . . . . . - **C** . . .	**V20**
					right	2KJ8 . . . - . . . . . - **C** . . .	**V21**
				2 x Power M12	left	2KJ8 . . . - . . . . . - **C** . . .	**V22**
					right	2KJ8 . . . - . . . . . - **C** . . .	**V23**
AS-Interface							
Cable gland with daisy chain	M12	Cable gland		- [3]	left	2KJ8 . . . - . . . . . - **D** . . .	**V02**
					right	2KJ8 . . . - . . . . . - **D** . . .	**V03**
		M12	Cable gland	- [3]	left	2KJ8 . . . - . . . . . - **D** . . .	**V04**
					right	2KJ8 . . . - . . . . . - **D** . . .	**V05**
Plug-in connection without daisy chain	M12	M12	Q4/2	- [3]	left	2KJ8 . . . - . . . . . - **E** . . .	**V10**
					right	2KJ8 . . . - . . . . . - **E** . . .	**V11**
			Quickon [1]	- [3]	left	2KJ8 . . . - . . . . . - **E** . . .	**V14**
					right	2KJ8 . . . - . . . . . - **E** . . .	**V15**
			MQ15 [1]	- [3]	left	2KJ8 . . . - . . . . . - **E** . . .	**V16**
					right	2KJ8 . . . - . . . . . - **E** . . .	**V17**
Plug-in connection with daisy chain	M12	M12	2 x Q4/2	- [3]	left	2KJ8 . . . - . . . . . - **E** . . .	**V20**
					right	2KJ8 . . . - . . . . . - **E** . . .	**V21**
PROFINET, EtherNet/IP							
Cable gland with daisy chain	M12	Cable gland			left	2KJ8 . . . - . . . . . - **F** . . .	**V02**
					right	2KJ8 . . . - . . . . . - **F** . . .	**V03**
		M12	Cable gland		left	2KJ8 . . . - . . . . . - **F** . . .	**V04**
					right	2KJ8 . . . - . . . . . - **F** . . .	**V05**
Plug-in connection without daisy chain	M12	M12	Q4/2	7/8"	left	2KJ8 . . . - . . . . . - **G** . . .	**V10**
					right	2KJ8 . . . - . . . . . - **G** . . .	**V11**
				Power M12	left	2KJ8 . . . - . . . . . - **G** . . .	**V12**
					right	2KJ8 . . . - . . . . . - **G** . . .	**V13**
			Quickon [1]	Power M12	left	2KJ8 . . . - . . . . . - **G** . . .	**V14**
					right	2KJ8 . . . - . . . . . - **G** . . .	**V15**
			MQ15 [1]	Power M12	left	2KJ8 . . . - . . . . . - **G** . . .	**V16**
					right	2KJ8 . . . - . . . . . - **G** . . .	**V17**
Plug-in connection with daisy chain	M12	M12	2 x Q4/2	2 x 7/8"	left	2KJ8 . . . - . . . . . - **G** . . .	**V20**
					right	2KJ8 . . . - . . . . . - **G** . . .	**V21**
				2 x Power M12	left	2KJ8 . . . - . . . . . - **G** . . .	**V22**
					right	2KJ8 . . . - . . . . . - **G** . . .	**V23**

Supplementary system components for the SINAMICS G115D distributed drive system, motor-mounted

Supplementary system components	Additional identification code -Z with order code 2KJ8 . . . - . . . . . - . . . .-Z	Order code
Integrated power supply unit 24 V DC power supply		**V70**
SINAMICS memory card (SD card) (512 MB, empty)		**V80**
SINAMICS memory card (SD card) (512 MB + firmware V4.7 SP13)		**V81**

[1] Not suitable for UL applications.

[2] The cable gland with daisy chain with the connection side to the right (order code **V06**) can only be selected with an integrated power supply unit for a 24 V DC power supply (order code **V70**).

[3] The 24 V DC power supply is established via the M12 plug-in connector for the fieldbus communication.

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Options

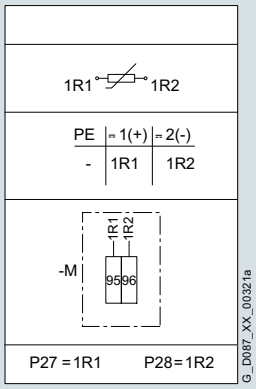
Pt1000 resistance thermometer

The resistance thermometer has a chip for a temperature sensor, the resistance of which changes in relation to temperature according to a series of reproducible basic values. The changes in resistance are transferred as changes in current. At 0 °C, the measurement resistances are adjusted to 1000 Ω for the Pt1000, and correspond to the accuracy class B (i.e. the relationship between resistance and temperature). The limit deviation is ±0.3 °C, and the admissible deviations are defined in EN 60751.

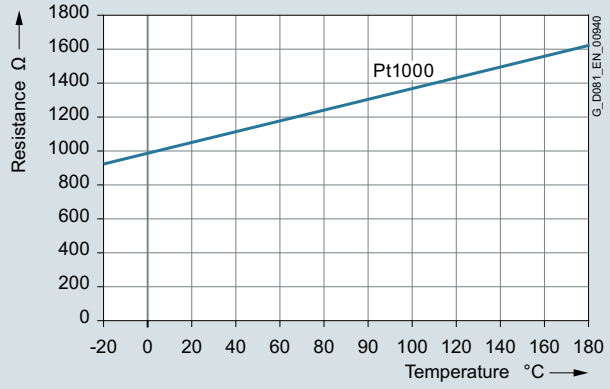
Pure metals undergo larger changes in resistance than alloys and have relatively constant temperature coefficients.

Temperatures for alarm and tripping can be set as required when using converters from Siemens that determine the motor temperature in accordance with the measuring principle described above. With these devices, the measured signal is evaluated directly in the converter. For further details, see Catalog IC 10.

Motor protection	11th position of the Article No.	
	2KJ8 . . . - . .	■ . . - . . . . **-Z**
Without motor protection		**0**
Pt1000 resistance thermometer		**1**



Connection circuit diagram



Pt1000 resistance thermometer characteristic

Degrees of Protection

Note:

The degree of protection only applies to the electrical equipment (motor, brake). Depending on the application area, the applicable measures must be applied to the gearbox.

Available degrees of protection

Degree of protection	Additional identification code **-Z** with order code	
	2KJ8 . . . - . . . . . - . . . . **-Z**	Order code
IP55		**K01**
IP65 (No restrictions)		**K03**

Ventilation

The motors have radial-flow fans, which cool regardless of the direction of rotation of the motor (cooling method IC 411, IEC 60034-6). The air flows from the non-drive end (NDE) to the drive end (DE).

The motor fan can either be a standard fan or metal fan.

Note:

Standard fans made of plastic are not suitable for ambient temperatures under -25 °C. At lower temperatures, a metal fan (option M21) must be used.

Standard fan

As standard, the motors are equipped with a plastic fan. This can be used for the entire standard ambient temperature range.

Metal fan

As an alternative to the standard plastic fans, aluminum fans are available for the motors.

Metal fans are used for specific environmental conditions, e.g.:

- If there are solid or dirt particles, such as wood chips, textile fibers in the cooling air
- Special motor designs for increased ambient temperatures exceeding +60 °C
- At temperatures below -25 °C

Ventilation	Additional identification code **-Z** with order code	
	2KJ8 . . . - . . . . . - . . . . **-Z**	Order code
Metal fan		**M21**

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Options

Increased air humidity/temperature with 30 to 60 g water per m³ of air

The motors in the standard range are designed for up to 30 g water per m³. A design for increased air humidity in the range between 30 and 60 g water per m³ air as a function of the temperature is possible, as shown in the following table.

Relative humidity	**Temperature**						
	+20 °C	+30 °C	+40 °C	+50 °C	+60 °C	+70 °C	+80 °C
10 %	2	3	5	8	13	20	29
15 %	3	5	8	12	19	30	44
20 %	3	6	10	17	26	39	58
25 %	4	8	13	21	32	49	
30 %	5	9	15	25	39	59	
35 %	6	11	18	29	45		
40 %	7	12	20	33	52		
45 %	8	14	23	38	58		
50 %	9	15	26	41			
55 %	10	17	28	46			
60 %	10	19	31	50			
65 %	11	20	33	54			
70 %	12	21	36	58			
75 %	13	23	38				
80 %	14	24	41				
85 %	15	26	43				
90 %	16	27	46				
95 %	16	29	49				

Increased air humidity/temperature with 30 to 60 g water per m³ of air

Winding and insulation	Additional identification code **-Z** with order code	
	2KJ8 . . . - . . . . . - . . . . **-Z**	Order code
Increased air humidity/temperature with 30 to 60 g water per m³ of air		**N54**

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Options

Brake

Design and principle of operation

Single-disk, spring-operated brakes have two friction surfaces. When the brake is in a zero current state, a braking torque is generated using several springs.

The brake is released electromagnetically. When the motor brakes, the rotor which can be axially shifted on the hub or the shaft is pressed via the armature disk against the friction surface by means of the springs. In the braked state, there is a gap between the armature disk and the solenoid assembly.

To release the brake, the solenoid is energized with DC voltage. The resulting magnetic force pulls the armature disk against the spring force on to the solenoid component.

The spring force is then no longer applied to the rotor, which can rotate freely.

Note:

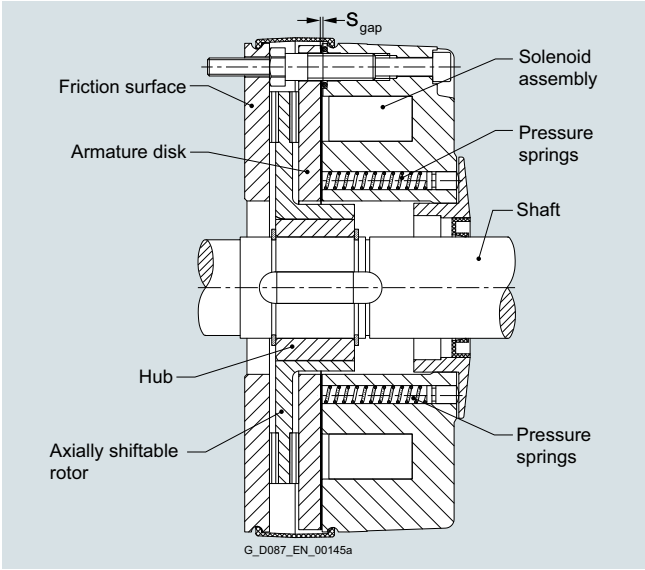
The standard design brakes are not suitable for ambient temperatures below -20 °C. Increased corrosion protection is used, when the motor is used at ambient temperatures of below -20 °C.

For ambient temperatures higher than 45 °C, the brakes must be considered in detail.

The following reduction of the max. permissible duty cycle must be observed during increased ambient temperatures:

Ambient temperature	Max. permissible duty cycle based on 10 min.
-30 °C ... +40 °C	100 %
+55° C	75 %

You will find the configuring notes for the permissible duty cycle on page 7.1/30.



Brake

Selecting the brake

- Brake assignment

Motor frame size	Rated motor power [kW]	Control range	Brakes									
			L4	L8	L8	L16	L16	L16	L16	L32	L32	L32
			Braking torque [Nm]									
			4	5	8	10	13	16	20	23	32	40
Asynchronous motor												
71	0.37	1:5, 1:10, 1:8.7	✓									
80	0.55	1:5, 1:10, 1:8.7		✓								
	0.75	1:5, 1:10, 1:8.7			✓							
90	1.10	1:5, 1:10, 1:8.7				✓						
	1.50	1:5, 1:8.7						✓				
		1:10					✓					
100	2.20	1:5, 1:10, 1:8.7							✓			
	3.00	1:5, 1:10, 1:8.7									✓	
112	4.00	1:5, 1:10, 1:8.7										✓
Synchronous reluctance motor												
80	0.55	1:5, 1:10, 1:8.7		✓								
	0.75	1:5, 1:10, 1:8.7			✓							
90	1.10	1:5, 1:10, 1:8.7				✓						
	1.50	1:5, 1:8.7						✓				
		1:10					✓					
112	2.20	1:5, 1:10, 1:8.7								✓		
	3.00	1:5, 1:10, 1:8.7									✓	
	4.00	1:5, 1:10, 1:8.7										✓

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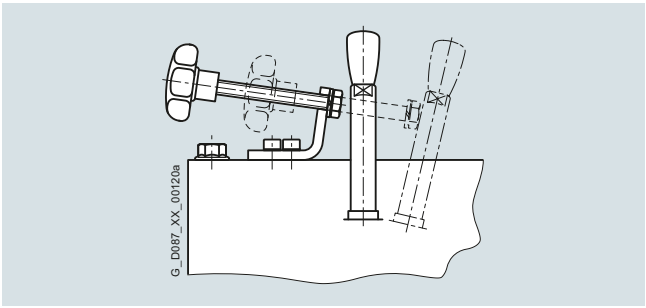
Options

Brake options

Manual brake release

Brakes can be supplied with a manual brake release lever. The manual brake release lever can be used to release the brake at zero current. When the brake has been released, the motor shaft can rotate freely in order to bring the output shaft to a certain position or for use as an emergency release in the event of a power failure, for example.

The manual brake release lever can be fixed in the released position using an additional locking mechanism mounted on the brake.



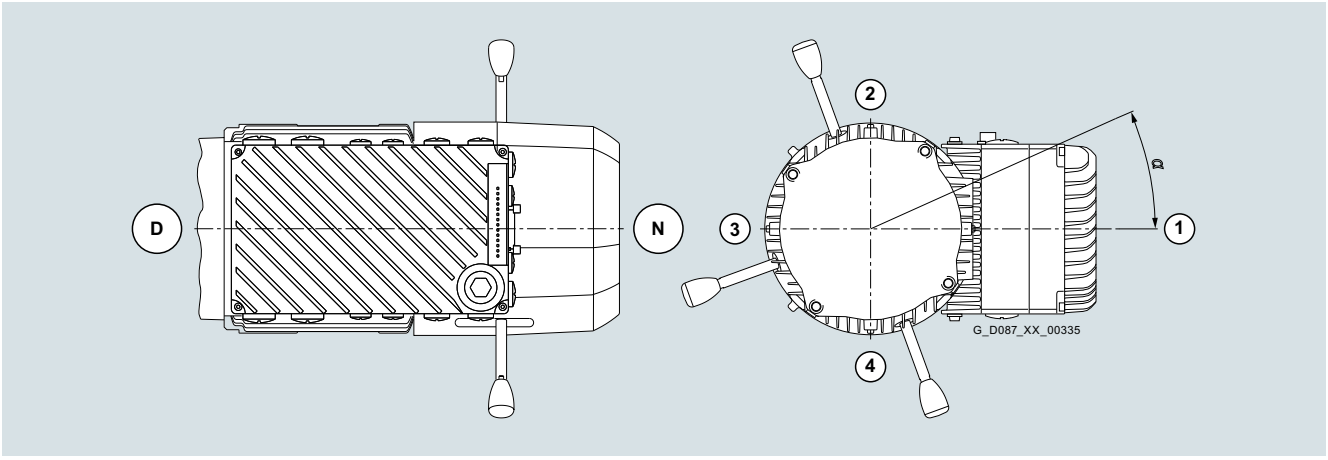
Example of manual brake release lever with locking mechanism for brake

The manual brake release lever can be mounted in various different positions. The position of the manual brake release lever relates to the standard design of the motor. The standard position is "2".

Brake options	Additional identification code **-Z** with order code	
	2KJ8 . . . - . . . . . - . . . . **-Z**	Order code
Manual brake release lever		**C02**
Manual brake release lever with locking mechanism		**C03**

Note:

Assembled SINAMICS G115D and manual brake release lever with/without locking mechanism must not be in the same position.



Manual brake release lever position

Manual brake release lever position	**Motor frame size**							Additional identification code **-Z** with order code	
	71	**63**	**71**	**80**	**90**	**100**	**112**	2KJ8 . . . - . . . . . - . . . . **-Z**	Order code
	Angle α								
1	0°	0°	10°	0°	0°	0°	0°		**C26**
2	90°	90°	100°	90°	90°	90°	90°		**C27**
3	180°	180°	190°	180°	180°	180°	180°		**C28**
4	-	270°	280°	270°	270°	270°	270°		**C29**

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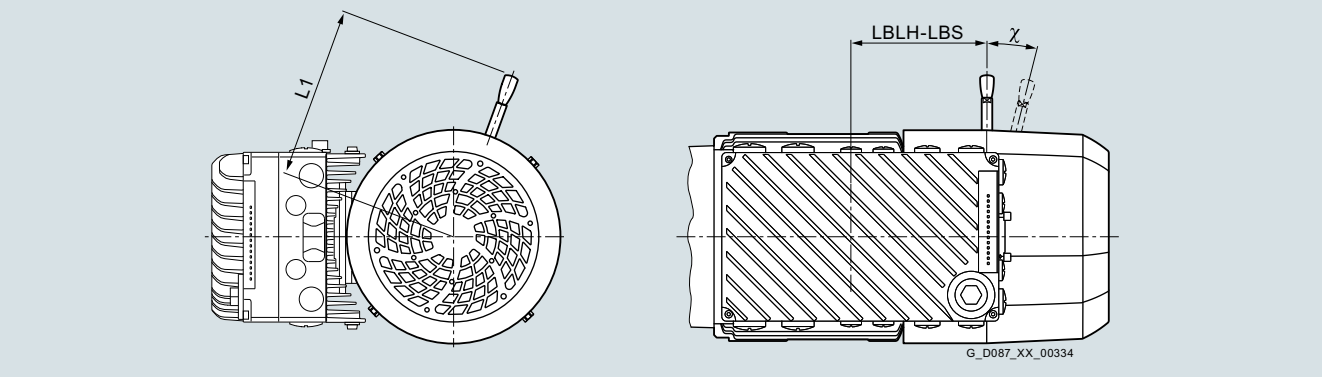
Options

The dimensions of the manual brake release lever depend on the size.



Dimensions, manual brake release lever

Motor frame size	Brake type	Terminal box position	Distance			Angle, manual brake release lever
			Centerline of the motor up to the outermost position of the manual brake release lever		Center of the terminal box up to the center of the manual brake release lever	With the brake released
			Without locking mechanism	With locking mechanism		
			mm	mm	mm	Tolerance +3°
			L1	L1	LBLH-LBS	χ
71	L4	1A, 2A, 3A, 4A	107	127	71.8	12°
80	L8	1A, 2A, 3A, 4A	116	136	97.8	10°
90	L16	1A, 2A, 3A, 4A	132	151	113.9	9°
100	L16	1A, 2A, 3A, 4A	132	151	126.9	9°
	L32	1A, 2A, 3A, 4A	161	161	128.9	10°
112	L32	1A, 2A, 3A, 4A	161	161	128.9	10°

Enclosed brake

The brakes can be supplied as enclosed brakes.

Enclosed brakes include a dust protection ring around the circumference and an integrated shaft sealing ring at the shaft outlet. This prevents the release and penetration of dust, moisture, and other pollution. Other advantages are reduced noise when applying the brake as well as a reduced risk of the rotor freezing on the friction surfaces.

In addition, a condensation drain hole can be incorporated in the dust protection ring for brakes.

The enclosed brake can also be shipped in combination with a manual brake release lever and a manual brake release lever with locking mechanism.

Brake options	Additional identification code **-Z** with order code	
	2KJ8 . . . - . . . . . - . . . . **-Z**	Order code
Enclosed brake		**C01**

Reduced-noise rotor-hub connection

The brakes are supplied with a reduced-noise rotor-hub connection. This reduces rattling noise of the rotor, particularly at low speeds and in converter operation.

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Options

Technical data of the brake[1)]

The opening and closing times are calculated on the basis of the life cycle and total wear of the brake and should be taken into account when the system is configured.

The values stated in parentheses are the values for new brakes calculated according to DIN VDE 0580.

Brake type	Rated holding torque	Rated braking torque	Power consumption	Current consumption	Disconnection time	Application time ($t_1 = t_{11} + t_{12}$)			Maximum operating energy per brake operation	Entire operating energy until the maximum air gap is reached	Weight	Moment of inertia
							Response time	Rise time				
	$T4_{br}$	$T2_{br}$		$I_{br(DC)}$	t_2	t_1	t_{11}	t_{12}	W_{1max}	W_V	m	J_{Br}
	+40 %	-20 %/+20 % (at 100 rpm)	at +20 °C	at 180 V DC	Standard excitation							
	Nm	Nm	W		ms	ms	ms	ms			kg	10^{-4} kgm^2
L4	3.2	4	20	0.112	53 (45)	28 (28)	(15)	(13)	3	36	0.85	0.15
L8/5	4	5	25	0.139	51 (35)	39 (40)	(24)	(16)	7.5	75.6	1.5	0.61
L8	6.4	8	25	0.139	71 (57)	39 (31)	(15)	(16)	7.5	64.8	1.5	0.61
L16/10	8	10	30	0.167	90 (48)	59 (58)	(35)	(23)	12	108	2.6	2
L16/13	10.4	13	30	0.167	97 (60)	53 (50)	(30)	(20)	12	108	2.6	2
L16	12.8	16	30	0.167	118 (76)	45 (47)	(28)	(19)	12	108	2.6	2
L16/20	16	20	30	0.167	123 (93)	42 (38)	(23)	(15)	12	80	2.6	2
L32/23	18.4	23	40	0.223	126 (82)	80 (75)	(40)	(35)	24	260	3.9	4.5
L32	25.6	32	40	0.223	186 (115)	66 (53)	(28)	(25)	24	212	3.9	4.5
L32/40	32	40	40	0.223	189 (140)	60 (45)	(24)	(21)	24	165	3.9	4.5
L80/50	40	50	55	0.306	178 (160)	149 (90)	(42)	(48)	36	396	8.4	15
L80/63	50.4	63	55	0.306	233 (170)	125 (72)	(34)	(38)	36	396	8.4	15

Canopy

Geared motors with a vertical mounting position (motor at the top) can also be fitted with a canopy. The canopy prevents small items from falling into the geared motor; in the case of outdoors installation, its primary function is to serve as a rain canopy.

If the motor is to be used or stored in the open air, we recommend that it is kept under additional cover to protect it from prolonged exposure to direct sunlight, rain, snow, ice, or dust.

Mounted parts and components	Additional identification code **-Z** with order code	
	2KJ8 . . . - . . . . . - . . . . **-Z**	Order code
Canopy		**N22**

Internal motor corrosion protection

The outer surfaces of the geared motors have a high quality paint finish.

For special applications, it may be necessary to apply a protective coating to the inner surfaces of the motor as well.

Designs for special environmental conditions	Additional identification code **-Z** with order code	
	2KJ8 . . . - . . . . . - . . . . **-Z**	Order code
Internal motor corrosion protection		**N41**

1) Values refer to brake in its delivery state.

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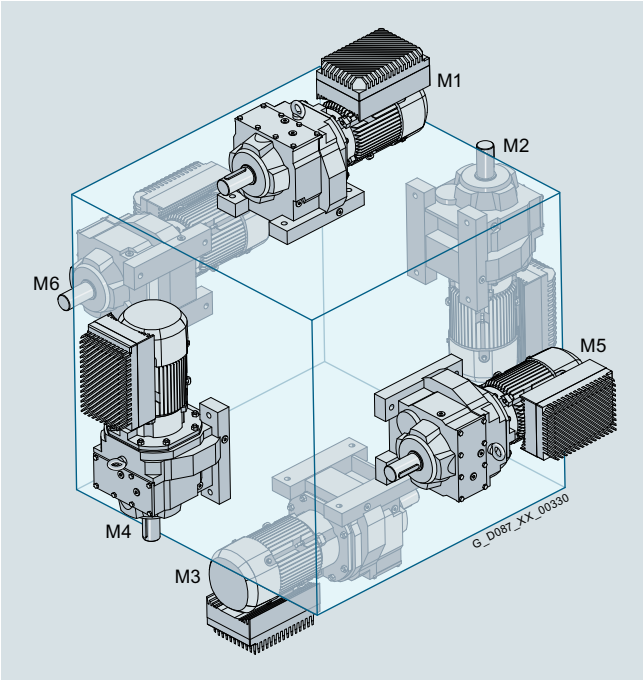
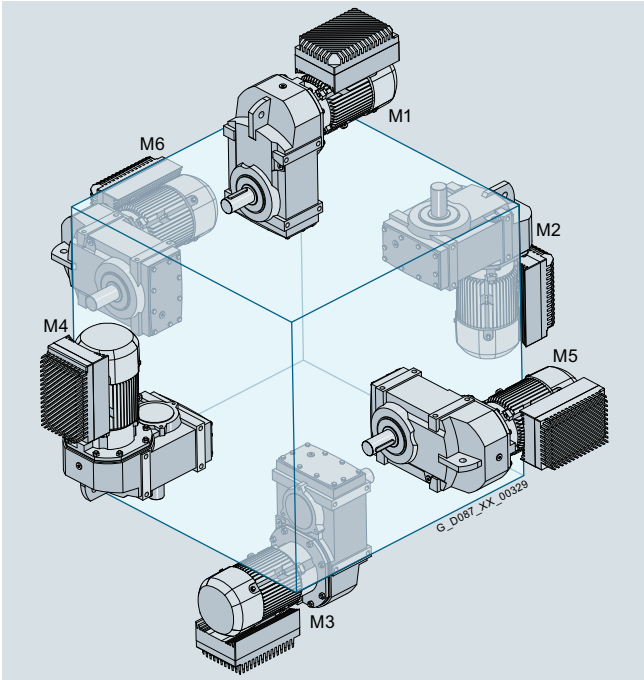
Options

Mounting positions

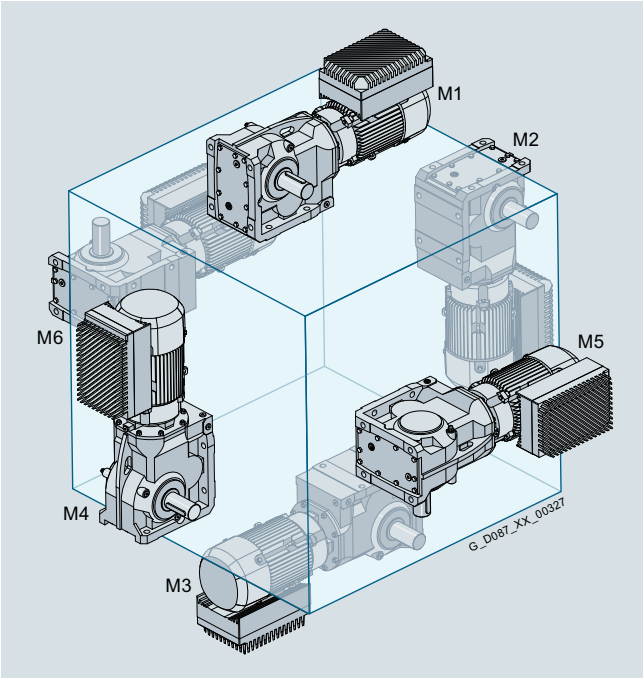
The mounting position must be specified when you place your order to ensure that the gearbox is supplied with the correct quantity of oil.



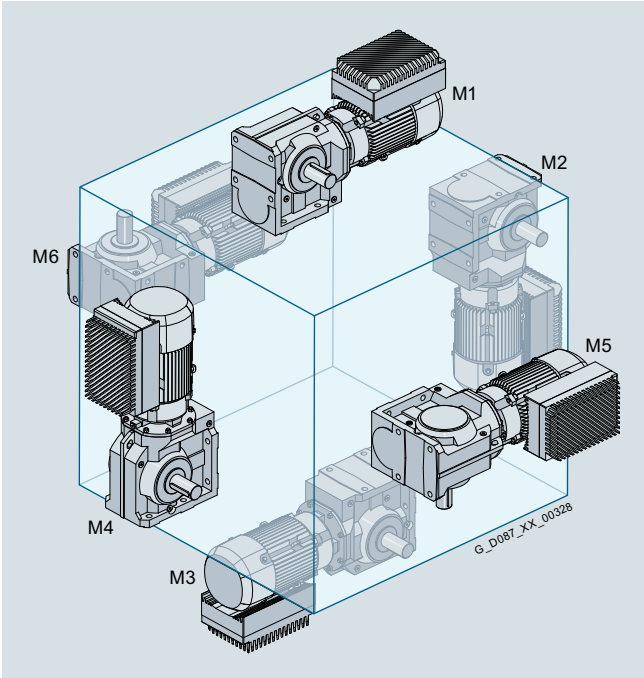
Helical geared motors



Parallel shaft geared motors



Bevel geared motors



Helical worm geared motors

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Options

Mounting type	Mounting position	Additional identification code **-Z** with order code	
		2KJ8 . . . - . . . . . - . . . . **-Z**	Order code
Helical gearboxes and parallel shaft gearboxes			
Foot-mounted design	M1		**D01**
Flange-mounted design	M2		**D02**
Housing flange design	M3		**D03**
	M4		**D04**
	M5		**D05**
	M6		**D06**
Bevel gearboxes and helical worm gearboxes			
	Output side A		
Foot-mounted design	M1-A		**D11**
Flange-mounted design	M2-A		**D12**
Housing flange design	M3-A		**D13**
	M4-A		**D14**
	M5-A		**D15**
	M6-A		**D16**
	Output side B		
Foot-mounted design	M1-B		**D21**
Flange-mounted design	M2-B		**D22**
Housing flange design	M3-B		**D23**
	M4-B		**D24**
	M5-B		**D25**
	M6-B		**D26**

Explanation of the symbols used to represent mounting positions

Symbol	
Oil valves	
	Venting
	Oil drain
	Oil level checking screw

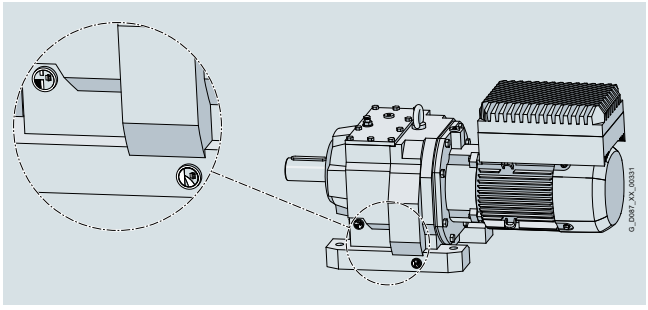
Note:

The Drive Technology Configurator (DT Configurator) can be used to configure SIMOGEAR geared motors.

The DT Configurator can be used on the internet without requiring any installation.

The DT Configurator can be found in the Industry Mall at the following address:
www.siemens.com/dt-configurator

For the selected mounting position, the 3D images show the exact position of the oil valves.



Dimensional drawing from DT Configurator with details

Mounting types

Design	Possible for						Additional identification code **-Z** with order code	
	D, Z	E	F	B	K	C	2KJ8 . . . - . . . . . - . . . . **-Z**	Order code
Foot-mounted design	✓	✓	✓	✓	✓	✓		**-**
Foot/flange-mounted design	✓[1)]	-	-	-	-	-		**H71**
Flange-mounted design (A type)	✓	✓	✓	✓	✓	✓		**H74**
Housing flange (C type)	✓	✓	✓	✓	✓	✓		**H76**
Shaft-mounted design (torque arm)	-	-	✓	✓	✓	✓		**H72**

[1)] Only for sizes 29 to 89.

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Options

Flange-mounted designs
The flange-mounted designs are available with different diameters.

Gearbox type	Flange diameter mm								Additional identification code **-Z** with order code	Order code
Helical gearboxes ZF, 2-stage and DF, 3-stage										
Gearbox size	**19**	**29**	**39**	**49**	**59**	**69**	**79**	**89**	2KJ81. . - . . . . . - . . . . **-Z** 2KJ82. . - . . . . . - . . . . **-Z**	
	120	120	120							**H02**
	140	140		140						**H03**
	160	160	160	160	160					**H04**
			200	200	200	200				**H05**
					250	250	250			**H06**
							300	300		**H07**
							350	350		**H08**
								450		**H09**
Helical gearboxes ZB, 2-stage and DB, 3-stage										
Gearbox size	**29**	**39**	**49**	**59**	**69**	**79**	**89**		2KJ81. . - . . . . . - . . . . **-Z** 2KJ82. . - . . . . . - . . . . **-Z**	
	120	120								**H02**
			140							**H03**
			160	160						**H04**
					200					**H05**
						250				**H06**
							300			**H07**
Helical gearboxes EF, 1-stage										
Gearbox size	**39**		**49**		**69**		**89**		2KJ80. . - . . . . . - . . . . **-Z**	
	120									**H02**
	140									**H03**
	160		160							**H04**
	200		200		200					**H05**
			250		250		250			**H06**
							300			**H07**
							350			**H08**
Parallel shaft gearboxes F..F										
Gearbox size	**29**	**39**	**49**		**69**	**79**	**89**		2KJ83. . - . . . . . - . . . . **-Z** 2KJ84. . - . . . . . - . . . . **-Z**	
	120									**H02**
	160	160								**H04**
			200							**H05**
					250	250				**H06**
							300			**H07**
Bevel gearboxes B.F										
Gearbox size	**19**		**29**		**39**		**49**		2KJ85. . - . . . . . - . . . . **-Z**	
	120		120							**H02**
			160		160					**H04**
					200		200			**H05**
Bevel gearboxes K.F										
Gearbox size	**39**		**49**		**69**	**79**	**89**		2KJ85. . - . . . . . - . . . . **-Z**	
	160									**H04**
			200							**H05**
					250	250				**H06**
							300			**H07**
										H10
Helical worm gearboxes C.F										
Gearbox size	**29**		**39**		**49**	**69**	**89**		2KJ86. . - . . . . . - . . . . **-Z**	
	120									**H02**
	160		160							**H04**
					200	200				**H05**
							250			**H06**

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Options

Parallel shaft gearboxes F.AD. in a shaft-mounted design

The rubber buffers (supplied loose) are used to flexibly support the gearbox on the housing plate provided.

When mounting, the rubber buffers must be pretensioned to the dimension specified in the dimensional drawing.

The elastomer used for support is manufactured out of natural rubber 70° ± 5 Shore A. The rubber buffers are suitable for all mounting positions and can withstand temperatures of between -40 and +60 °C.

The dimensions of the torque arm can be seen in the dimensional drawings.

Mounting type	Additional identification code **-Z** with order code	
	2KJ83 . . - . . . . . - . . . .**-Z** 2KJ84 . . - . . . . . - . . . .**-Z**	Order code
Shaft-mounted design		**H72**

Bevel gearboxes KAD. in a shaft-mounted design

The torque arm of bevel gearboxes K is mounted on the underside of the housing. The rubber buffers are used to flexibly support the gearbox on the torque arm.

The elastomer used for support is manufactured out of natural rubber 60° Shore A. The rubber elastic buffers are suitable for all mounting positions and can withstand temperatures of between -40 and +60 °C.

The dimensions of the torque arm can be seen in the dimensional drawings.

Mounting type	Additional identification code **-Z** with order code	
	2KJ85 . . - . . . . . - . . . .**-Z**	Order code
Shaft-mounted design		**H72**

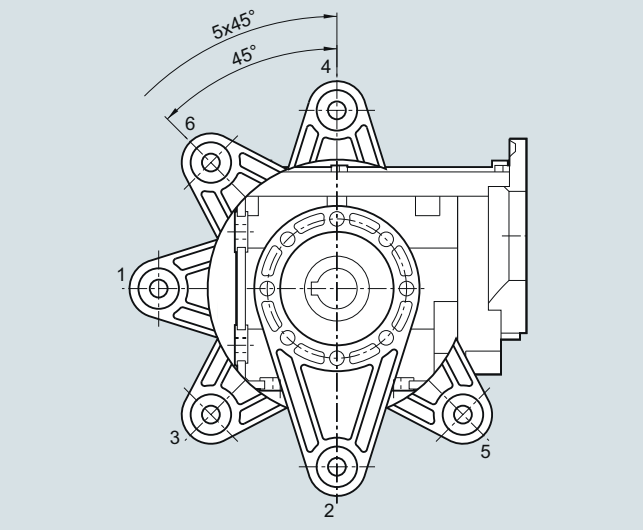
Bevel gearboxes BAD. in a shaft-mounted design

The torque arm can be screwed to the gearbox housing at various positions.

When ordered, the torque arm is supplied loose.

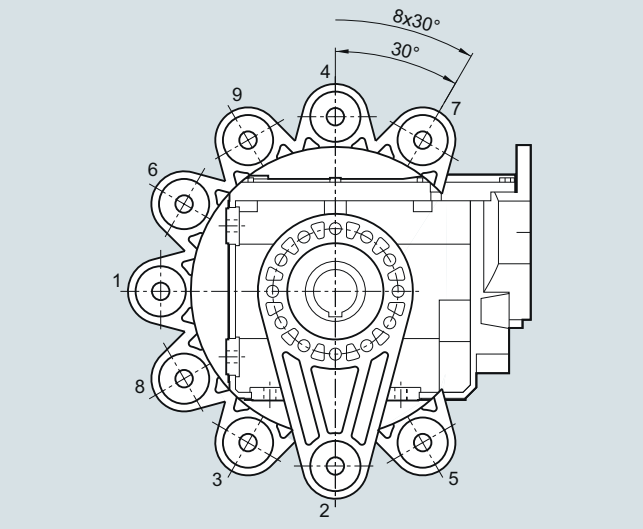
Mounting type	Additional identification code **-Z** with order code	
	2KJ85 . . - . . . . . - . . . .**-Z**	Order code
Shaft-mounted design		**H72**

- Shaft-mounted design for sizes 19 and 29
  The elastomer used for support is manufactured out of natural rubber 90° Shore A. The rubber elastic buffers are suitable for all mounting positions and can withstand temperatures of between -30 and +60 °C.



Bevel gearboxes BAD, sizes 19 and 29

- Shaft-mounted design for sizes 39 and 49
  The elastomer used for support is manufactured out of natural rubber 60° Shore A. The rubber elastic buffers are suitable for all mounting positions and can withstand temperatures of between -40 and +60 °C.



Bevel gearboxes BAD, sizes 39 and 49

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Options

Helical worm gearboxes CAD. in a shaft-mounted design

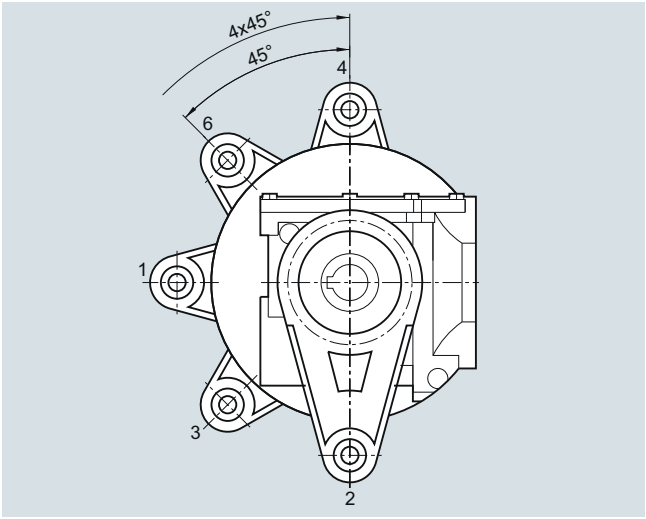
The torque arm can be screwed to the gearbox housing at various positions.

When ordered, the torque arm is supplied loose.

Mounting type	Additional identification code **-Z** with order code	
	2KJ86 . . - . . . . . - . . . . **-Z**	Order code
Shaft-mounted design		**H72**

- Shaft-mounted design for size 29

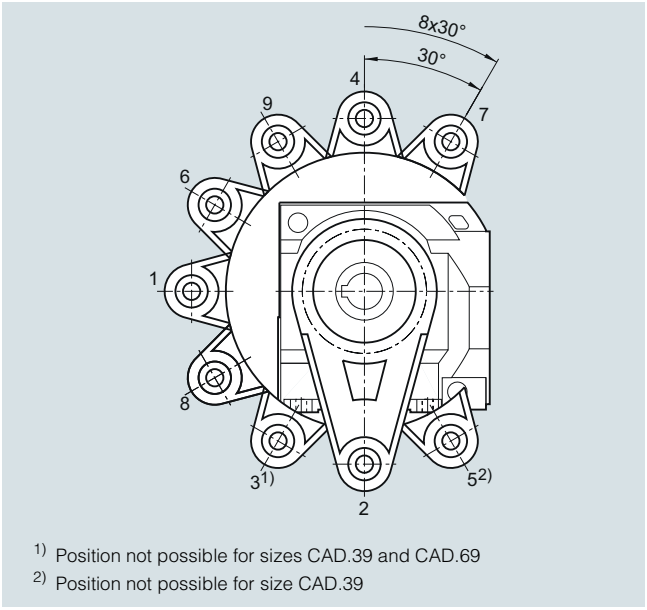
  The elastomer used for support is manufactured out of natural rubber 90° Shore A. The rubber elastic buffers are suitable for all mounting positions and can withstand temperatures of between -30 and +60 °C.



Helical worm gearboxes CAD, size 29

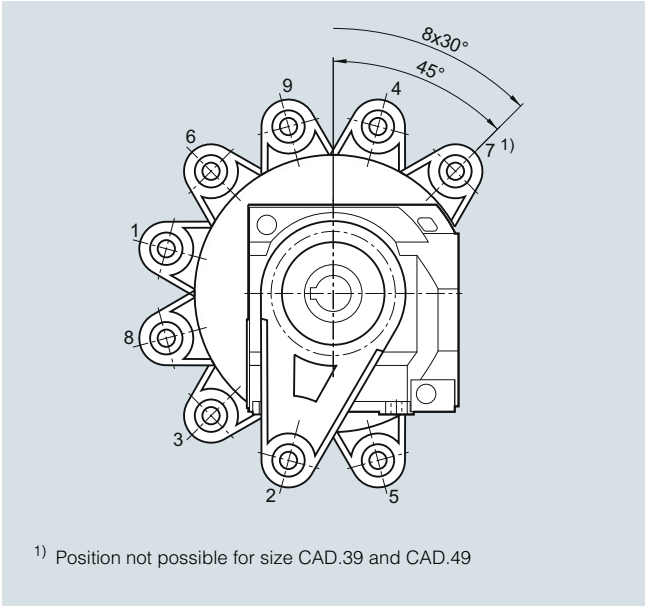
- Shaft-mounted design for sizes 39 to 89
  The elastomer used for support is manufactured out of natural rubber 60° Shore A. The rubber elastic buffers are suitable for all mounting positions and can withstand temperatures of between -40 and +60 °C.

Shaft-mounted design	Additional identification code **-Z** with order code	
	2KJ86 . . - . . . . . - . . . . **-Z**	Order code
Figure 1		**G09**
Figure 2		**G10**



1) Position not possible for sizes CAD.39 and CAD.69
2) Position not possible for size CAD.39

Helical worm gearboxes CAD, Figure 1, sizes 39 to 89



1) Position not possible for size CAD.39 and CAD.49

Helical worm gearboxes CAD, Figure 2, sizes 39 to 89

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Options

Shaft design

Shaft design	Dimensions mm						Ambient temperature range	Additional identification code **-Z** with order code	
Helical gearboxes Z and D									
Gearbox size	**19**	**29**	**39**	**49**	**59**	**69**		2KJ81. . - . . . . . - . . . .**-Z** 2KJ82. . - . . . . . - . . . .**-Z**	Order code
Solid shaft	V20 x 40	V25 x 50	V25 x 50	V30 x 60	V35 x 70	V35 x 70	-40 ... +60 °C		**H31**
	V16 x 28				V30 x 60				**H32**
	V16 x 40		V30 x 60		V40 x 80				**H33**
Solid shaft without feather key	VG20 x 40	VG25 x 50	VG25 x 50	VG30 x 60	VG35 x 70	VG35 x 70			**H40**
Solid shaft, inches	V0.75" x 1.57"	V1" x 1.97"	V1" x 1.97"	V1.25" x 2.36"	V1.375" x 2.76"	V1.375" x 2.76"			**H66**
Gearbox size	**79**	**89**						2KJ81. . - . . . . . - . . . .**-Z** 2KJ82. . - . . . . . - . . . .**-Z**	
Solid shaft	V40 x 80	V50 x 100					-40 ... +60 °C		**H31**
	V35 x 70								**H32**
	V50 x 100	V60 x 120							**H33**
Solid shaft without feather key [1]	VG40 x 80	VG50 x 100							**H40**
Solid shaft, inches	V1.625" x 3.15"	V2.125" x 3.94"							**H66**
Helical gearboxes E									
Gearbox size	**39**	**49**	**69**	**89**				2KJ80. . - . . . . . - . . . .**-Z**	
Solid shaft	V20 x 40	V25 x 50	V30 x 60	V40 x 80			-40 ... +60 °C		**H31**
Solid shaft, inches	V0.75" x 1.57"	V1" x 1.97"	V1.25" x 2.36"	V1.625" x 3.15"					**H66**
Parallel shaft gearboxes F									
Gearbox size	**29**	**39**	**49**	**69**	**79**	**89**		2KJ83. . - . . . . . - . . . .**-Z** 2KJ84. . - . . . . . - . . . .**-Z**	
Solid shaft	V25 x 50	V25 x 50	V30 x 60	V35 x 70	V40 x 80	V50 x 100	-40 ... +60 °C		**H31**
		V35 x 70	V40 x 80		V50 x 100				**H33**
Solid shaft without feather key [1]	VG25 x 50	VG25 x 50	VG30 x 60	VG35 x 70	VG40 x 80	VG50 x 100			**H40**
Solid shaft, both ends [1][3]		VD25 x 50	VD30 x 60	VD35 x 70	VD40 x 80	VD50 x 100			**H64**
Solid shaft, both ends without feather key [1][3]			VDG30 x 60	VDG35 x 70	VDG40 x 80	VDG50 x 100			**H65**
Solid shaft, inches	V1" x 1.97"	V1" x 1.97"	V1.25" x 2.36"	V1.375" x 2.76"	V1.625" x 3.15"	V2" x 3.94"			**H66**
Hollow shaft	H25	H30	H35	H40	H40	H50			**H35**
		H25	H30						**H36**
Hollow shaft, inches	H1"	H1.25"	H1.375"	H1.5"	H1.5"	H2"			**H67**
Hollow shaft with shrink disk	HS25	HS30	HS35	HS40	HS40	HS50			**H50**
SIMOLOC assembly system, metric	HF25	HF30	HF35	HF40	HF40	HF50	-20 ... +60 °C		**H53**
	HF20	HF25	HF30	HF35	HF35	HF40			**H54**
SIMOLOC assembly system, imperial dimensions	HF1.0"	HF1.25"	HF1.375"	HF1.5"	HF1.5"	HF2.0"			**H55**
	HF0.75"	HF1.1875"	HF1.4375"	HF1.625"	HF1.625"	HF1.9375"			**H56**
		HF1.0"	HF1.25"	HF1.4375"	HF1.4375"	HF1.75"			**H57**
		-	HF1.1875"	HF1.375"	HF1.375"	HF1.625"			**H58**
Splined hollow shaft		N30	N35	N35	N45	N50	-40 ... +60 °C		**H61**
Bevel gearbox B									
Gearbox size	**19**	**29**	**39**	**49**				2KJ85. . - . . . . . - . . . .**-Z**	
Solid shaft	V20 x 40	V20 x 40	V30 x 60	V35 x 70			-40 ... +60 °C		**H31**
Solid shaft without feather key	VG20 x 40	VG20 x 40	VG30 x 60	VG35 x 70					**H40**
Solid shaft, both ends [2]	VD20 x 40	VD20 x 40	VD30 x 60	VD35 x 70					**H64**
Solid shaft, inches	V0.75" x 1.57"	V0.75" x 1.57"	V1" x 1.97"	V1.375" x 2.76"					**H66**
Hollow shaft	H20	H20	H30	H40					**H35**
		H25	H35	H35					**H36**
			H40						**H37**
Hollow shaft, inches	H0.75"	H0.75"	H1.25"	H1.5"					**H67**

[1] Can only be selected in conjunction with foot-mounted or housing flange design.
[2] Can only be selected in conjunction with foot-mounted design.
[3] Restricted motor frame sizes in conjunction with shaft extensions at both ends; for precise dimensioning, use the functionality of the DT Configurator.

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Options

Shaft design	Dimensions mm					Ambient temperature range	Additional identification code **-Z** with order code	Order code
Bevel gearboxes B								
Gearbox size	**19**	**29**	**39**	**49**			2KJ85. . - . . . . . - . . . **-Z**	
Hollow shaft with shrink disk	HS20	HS20	HS35	HS40		-40 ... +60 °C		**H50**
SIMOLOC assembly system, metric		HF25	HF30	HF35		-20 ... +60 °C		**H53**
		HF20	HF25	HF30				**H54**
				HF40				**H60**
SIMOLOC assembly system, imperial dimensions		HF1.0"	HF1.25"	HF1.375"				**H55**
		HF0.75"	HF1.1875"	HF1.4375"				**H56**
			HF1.0"	HF1.25"				**H57**
				HF1.1875"				**H58**
				HF1.625"				**H59**
Bevel gearboxes K								
Gearbox size	**39**	**49**	**69**	**79**	**89**		2KJ85. . - . . . . . - . . . **-Z**	
Solid shaft	V25 x 50	V30 x 60	V35 x 70	V40 x 80	V50 x 100	-40 ... +60 °C		**H31**
	V35 x 70	V40 x 80		V50 x 100				**H33**
Solid shaft without feather key	VG25 x 50	VG30 x 60	VG35 x 70	VG40 x 80	VG50 x 100			**H40**
Solid shaft, both ends [1]	VD25 x 50	VD30 x 60	VD35 x 70	VD40 x 80	VD50 x 100			**H64**
Solid shaft, both ends without feather key [1]		VDG30 x 60	VDG35 x 70	VDG40 x 80	VDG50 x 100			**H65**
Solid shaft, inches	V1" x 1.97"	V1.25" x 2.36"	V1.375" x 2.76"	V1.625" x 3.15"	V2" x 3.94"			**H66**
Hollow shaft	H30	H35	H40	H40	H50			**H35**
	H25	H30						**H36**
Hollow shaft, inches	H1.25"	H1.375"	H1.5"	H1.5"	H2"			**H67**
Hollow shaft with shrink disk	HS30	HS35	HS40	HS40	HS50			**H50**
SIMOLOC assembly system, metric	HF30	HF35	HF40	HF40	HF50	-20 ... +60 °C		**H53**
	HF25	HF30	HF35	HF35	HF40			**H54**
SIMOLOC assembly system, imperial dimensions	HF1.25"	HF1.375"	HF1.5"	HF1.5"	HF2.0"			**H55**
	HF1.1875"	HF1.4375"	HF1.625"	HF1.625"	HF1.9375"			**H56**
	HF1.0"	HF1.25"	HF1.4375"	HF1.4375"	HF1.75"			**H57**
		HF1.1875"	HF1.375"	HF1.375"	HF1.625"			**H58**
Splined hollow shaft	N30	N35	N35	N45	N50	-40 ... +60 °C		**H61**
Helical worm gearboxes C								
Gearbox size	**29**	**39**	**49**	**69**	**89**		2KJ86. . - . . . . . - . . . **-Z**	
Solid shaft	V20 x 40	V25 x 50	V30 x 60	V35 x 70	V45 x 90	-40 ... +60 °C		**H31**
				V40 x 80 [1]	V50 x 100 [1]			**H32**
		V35 x 70 [1]	V40 x 80 [1]	V50 x 100 [1]	V70 x 140 [1]			**H33**
Solid shaft without feather key	VG20 x 40	VG25 x 50	VG30 x 60	VG35 x 70	VG45 x 90			**H40**
Solid shaft, both ends [2]	VD20 x 40	VD25 x 50	VD30 x 60	VD35 x 70	VD45 x 90			**H64**
Solid shaft, inches	V0.75" x 1.57"	V1" x 1.97"	V1.25" x 2.36"	V1.375" x 2.76"	V1.75" x 3.54"			**H66**
Hollow shaft	H20	H25	H30	H40	H50			**H35**
		H30	H35	H45	H60			**H36**
Hollow shaft, inches	H0.75"	H1.25"	H1.375"	H1.5"	H2"			**H67**
Hollow shaft with shrink disk	HS20	HS30	HS35	HS40	HS50			**H50**
				HS50	HS60			**H52**
SIMOLOC assembly system, metric	HF25	HF30	HF35	HF40	HF50	-20 ... +60 °C		**H53**
	HF20	HF25	HF30	HF35	HF40			**H54**
SIMOLOC assembly system, imperial dimensions	HF1.0"	HF1.25"	HF1.375"	HF1.5"	HF2.0"			**H55**
	HF0.75"	HF1.1875"	HF1.4375"	HF1.625"	HF1.9375"			**H56**
		HF1.0"	HF1.25"	HF1.4375"	HF1.75"			**H57**
			HF1.1875"	HF1.375"	HF1.625"			**H58**

[1] Can only be selected in conjunction with foot-mounted or housing flange design.

[2] Can only be selected in conjunction with foot-mounted design.

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Options

Hollow shaft cover

- Sealing cap

  The bore of the hollow shaft is sealed using a plastic sealing cap.

  Gearboxes in size 39 and larger with hollow shaft and shrink disk have a rotating protective cap.

  The dimensions of the rotating protective cap can be seen in the dimensional drawings provided in the gearbox chapters.

  For safety reasons, stationary protective covers may be required.

- Protective cover

  For sizes 19 to 89, a stationary protective cover for the hollow shaft or hollow shaft with shrink disk versions can be selected.

  The dimensions of the protective cover can be seen in the separate dimensional drawing provided in the gearbox chapters.

Hollow shaft cover	Additional identification code **-Z** with order code	
	2KJ8. . . - . . . . . - . . . .**-Z**	Order code
Protective cover		**G60**

Reinforced output shaft bearings

The gearboxes can be supplied with the standard design or with a reinforced output shaft bearing design. The reinforced bearings allow higher radial and combined forces (radial and axial) to be absorbed.

Design	**Possible for**								Additional identification code **-Z** with order code	Order code
Helical gearboxes Z and D										
Gearbox size	**19**	**29**	**39**	**49**	**59**	**69**	**79**	**89**	2KJ81 . . - . . . . . - . . . .**-Z** 2KJ82 . . - . . . . . - . . . .**-Z**	
Radially reinforced output shaft bearings						✓	✓	✓		**G20**
Parallel shaft gearboxes F										
Gearbox size	**29**	**39**	**49**	**69**	**79**	**89**			2KJ83 . . - . . . . . - . . . .**-Z** 2KJ84 . . - . . . . . - . . . .**-Z**	
Radially reinforced output shaft bearings			✓[1]	✓	✓	✓				**G20**
Bevel gearboxes K										
Gearbox size	**39**	**49**	**69**	**79**	**89**				2KJ85 . . - . . . . . - . . . .**-Z**	
Radially reinforced output shaft bearings		✓[1]	✓	✓	✓					**G20**

[1] Not possible for flange-mounted design with solid shaft (gearbox type FZF, FDF, KF).

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Options

Lubrication and sealing

Gearboxes can be used for different applications. The following lubricants and sealing systems can be selected to ensure an optimum configuration.

The temperature rise of the gearbox during operation increases the oil sump temperature. In selecting the oil, pay attention to the upper limit of the recommended oil sump temperature.

Note:

- For ambient conditions with a high air humidity and salt-laden air, we recommend that only mineral or PAO oils are used.
- For gearboxes with CLP ISO PG oils for applications in the USA, the approval must be checked. Alternatively, a different type of oil must be used (e.g. CLP ISO PAO oil).

Lubrication

The gearboxes are initially filled at the factory with a high-quality lubricant. Lubricants permitted for the various gearbox types and applications are listed in the lubricant table.

Other oils from various lubricant manufacturers that have been approved by Siemens AG can be found on the internet in the Service and Support pages in the List of approved and recommended gear lubricants T 7300:

https://support.industy.siemens.com/cs/document/44231658

Oil quantities

The lubricant quantity depends on the gearbox type, size and mounting position. The corresponding oil quantities are specified in the operating instructions and on the rating plate of the geared motor.

Sealing

The standard models of gearbox are supplied with high-quality radial shaft sealing rings with dust protection lips. This sealing design is reliable for a wide range of applications.

Special application areas and environmental conditions require special radial shaft sealing rings and materials, which are coordinated with the particular gearbox oil and environment. This coordinated sealing system results in a high reliability and availability of the plant.

When compared to standard sealing systems, the maintenance intervals can be extended. This therefore reduces maintenance costs.

Selection of lubricant

Application	**Oil type**	**Permissible oil sump temperature range in operation**	Additional identification code **-Z** with order code		**Ambient temperature range**		
					Standard	**Extended**	
					[°C]	[°C]	[°C]
	Designation acc. to DIN 51502	[°C]	2KJ8. . . - . . . . . - . . . .**-Z**	Order code	**-**	**K97**	**K94**
Helical gearboxes Z, D and E, parallel shaft gearboxes F and bevel gearboxes K							
					-15 … +40	**-30 … +40**	**-20 … +55**
Standard	CLP ISO VG220	-15 … +80		**K06**	✓		
	CLP ISO PAO VG220	-30 … +100		**K12**	✓	✓	✓ 1)
	CLP ISO PAO VG68	-40 … +60		**K13**		✓	
	CLP ISO PG VG460	-25 … +110		**K08**	✓		✓
	CLP ISO PG VG220	-25 … +110		**K07**	✓		✓
Foodstuff area	CLP ISO H1 VG460	-25 … +100		**K11**	✓		✓ 1)
	CLP ISO H1 VG100	-30 … +90		**K14**	✓	✓	✓ 1)
Biodegradable oil	CLP ISO E VG220	-20 … +100		**K10**	✓		✓ 1)
Bevel gearboxes B and helical worm gearboxes C							
					-15 … +40	**-30 … +40**	**-20 … +55**
Standard	CLP ISO PG VG220	-25 … +110		**K07**	✓		✓
	CLP ISO PAO VG220	-30 … +100		**K12**	✓	✓	✓ 1)
	CLP ISO PAO VG460	-25 … +110		**K16**	✓		✓
	CLP ISO PAO VG68	-40 … +60		**K13**		✓	
	CLP ISO PG VG460	-25 … +110		**K08**	✓		✓
Foodstuff area	CLP ISO H1 VG460	-25 … +100		**K11**	✓		✓ 1)
	CLP ISO H1 VG100	-30 … +90		**K14**	✓		✓ 1)

CLP = mineral oil
CLP PG = polyglycol oil
E = Ester oil, organic oil (bio oil / risk of water pollution, class WGK1)
PAO = Poly-alpha-olefin oil
CLP H1 = physiologically safe oil (USDA-H1 approval)

1) Observe the thermal load.

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Options

Rolling bearing greases for gearboxes and motors

The rolling bearings of gearboxes and motors are lubricated in the factory with a rolling bearing grease that is coordinated with the selected application area. The quantity of grease between the rolling elements and the space in front of the bearing depends on the operating conditions and the gearbox mounting position. For operation in the selected application areas, it is not necessary to relubricate the rolling bearings.

We recommend that the grease filling of the rolling bearings is also changed when the oil or shaft sealing rings are replaced.

Other greases supplied by different lubricant manufacturers that have been approved by Siemens AG are specified in the List of approved and recommended gearbox lubricants T 7300.

Sealing system

- Overview

Output shaft sealing	**Description**	**Ambient condition**	Additional identification code **-Z** with order code	
			2KJ8 . . . - . . . . . - . . . . **-Z**	Order code
Normal environmental stress				
Standard seal	High-quality NBR radial shaft sealing ring with dust protection lip.	Environment with low dust and pollution levels with low moisture.		**-**
Longer service life				
Seal with longer service life	The radial shaft sealing ring with protective lip is designed with an additional seal on the internal gearbox side. The sealing system has a high degree of reliability due to its resistance to impurities in the oil.	Environment with low dust and pollution levels with low moisture.		**G23**
Longer service life and increased environmental stress				
Seal for increased environmental stress	This seal is equipped with an additional fiber disk. In addition to the longer service life, it also provides increased protection against higher environmental stress as a result of dust and dirt deposits. As a consequence, the sealing system has a high degree of reliability. For additional environmental stress, e.g. water jets or significant levels of pollution as a result of production materials, upon request.	Environments with increased pollution and dust levels as well as low moisture. Typical applications: Production areas with increased pollution and dust, such as wood chips, dusts or granulate as well as occasional spray water.		**G24**
High temperature-resistant				
Seal for high temperatures	High-quality FKM radial shaft sealing ring with dust protection lip.	Environment with low dust and pollution levels with low moisture.		**G25**

- Selection of seal

Seal	**Permissible oil sump temperature range in operation**	Additional identification code **-Z** with order code		**Ambient temperature range**		
				Standard	**Extended**	
	[°C]	2KJ8 . . . - . . . . . - . . . . **-Z**	Order code	[°C] **-**	[°C] **K97**	[°C] **K94**
Helical gearboxes Z, D and E, parallel shaft gearboxes F and bevel gearboxes K						
				-15 … +40	**-30 … +40**	**-20 … +55**
Standard seal	-40 … +80		**-**	✓	✓	✓
Seal for a longer service life	-40 … +100		**G23**	✓	✓	✓
Seal for increased environmental stress	-40 … +80		**G24** [1]	✓	✓	✓
Seal, high temperature-resistant	-25 … +110		**G25**	✓	-	✓
Bevel gearboxes B and helical worm gearboxes C						
				-15 … +40	**-30 … +40**	**-20 … +55**
Standard	-40 … +80		**-**	✓	✓	✓
Seal for a longer service life	-40 … +100		**G23** [2]	✓	✓	✓
Seal for increased environmental stress	-40 … +80		**G24** [1] [2]	✓	-	✓
Seal, high temperature-resistant	-25 … +110		**G25**	✓	-	✓

[1] Not admissible in conjunction with food oils and biodegradable oils.

[2] Not possible with bevel gearbox B19.

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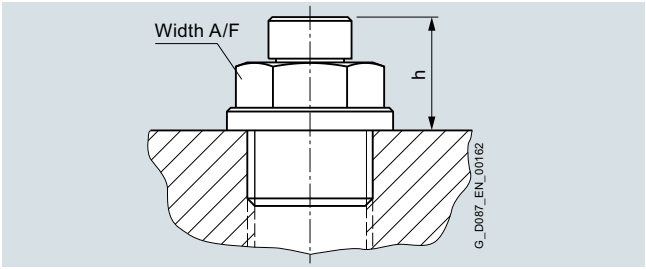
Options

Venting and oil level control

Pressure breather valve

Gearboxes from size 39 are supplied with an installed pressure breather valve; this is suitable for both indoor and outdoor use. Gearbox sizes 19 and 29 can be operated in mounting positions M1, M3, M5, and M6 without requiring a pressure breather valve. For mounting positions M2 and M4, they are equipped with a pressure breather valve.
A stainless-steel version of the pressure breather valve is also available for use in special ambient conditions.

Venting	Additional identification code **-Z** with order code	
	2KJ8 . . . - . . . . . - . . . .**-Z**	Order code
Pressure breather valve		**G45**
Pressure breather valve stainless steel		**G49**



Pressure breather valve

- Technical data

Size	Width across flats Width A/F	Thread	Dimension h mm
Helical gearboxes Z and D			
19 … 39	12	G 1/8 A	15
49 … 79	13	G 1/4 A	15
89	17	G 3/8 A	15
Helical gearboxes E			
39	12	G 1/8 A	15
49 … 69	13	G 1/4 A	15
89	17	G 3/8 A	15
Parallel shaft gearboxes F			
29, 39	12	G 1/8 A	15
49 … 79	13	G 1/4 A	15
89	17	G 3/8 A	15
Bevel gearboxes B			
19 … 39	12	G 1/8 A	15
49	13	G 1/4 A	15
Bevel gearboxes K			
39	12	G 1/8 A	15
49 … 89	13	G 1/4 A	15
Helical worm gearboxes C			
29, 39	12	G 1/8 A	15
49 … 89	13	G 1/4 A	15

Oil drain

- Magnetic oil drain screw
  For gearboxes from size 39, a magnetic oil drain screw is available that is inserted in the oil drain hole. This serves to collect any metal particles in the gearbox oil.

Oil drain	Additional identification code **-Z** with order code	
	2KJ8 . . . - . . . . . - . . . .**-Z**	Order code
Magnetic oil drain screw		**G53**

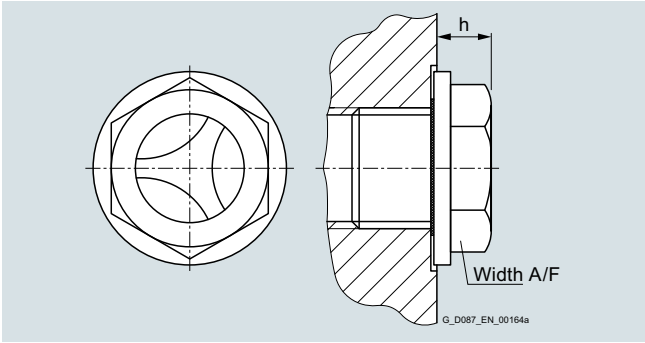
- Oil drain valve
  For gearboxes from size 39, an oil drain valve is available in either a straight or angled design. The oil drain valve is supplied complete with screw plug as a kit.

Oil drain	Additional identification code **-Z** with order code	
	2KJ8 . . . - . . . . . - . . . .**-Z**	Order code
Oil drain valve, straight		**G53**
Oil drain valve, angled		**G55**

Oil level checking screw

For gearboxes from size 49, the oil level is checked using the oil level checking screw. The oil sight glass is available with a reflector for visual monitoring.
The oil sight glass on both sides is also available for the bevel gearbox and helical worm gearbox in mounting position M2 and M4.

Oil level checking screw	Additional identification code **-Z** with order code	
	2KJ8 . . . - . . . . . - . . . .**-Z**	Order code
Oil sight glass with reflector		**G34**
Oil sight glass with reflector on both sides		**G35**



Oil sight glass with reflector

- Technical data

Size	Width across flats Width A/F	Thread	Dimension h mm
Helical gearboxes Z and D			
49 … 79	16	G 1/4 A	10
89	19	G 3/8 A	9
Helical gearboxes E			
49 … 69	16	G 1/4 A	10
89	19	G 3/8 A	9
Parallel shaft gearboxes F			
49 … 79	16	G 1/4 A	10
89	19	G 3/8 A	9
Bevel gearboxes B			
49	16	G 1/4 A	10
Bevel gearboxes K			
49 … 89	16	G 1/4 A	10
Helical worm gearboxes C			
49 … 89	16	G 1/4 A	10

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Options

Oil expansion unit

The oil expansion unit increases the expansion space for the lubricant. For certain types of construction and at high operating temperatures, this avoids that lubricant escapes.

The expansion unit is supplied as a mounting kit, and can be mounted onto the geared motor vertically or at an angle.

- Technical data

Size	Motor frame size	Width across flats	Thread	Dimension L1	Dimension L2
		Width A/F		mm	mm
Helical gearboxes Z and D					
39	71 ... 90	17/19	G1/8A	49	194
	100			71	172
49 ... 69	71 ... 112	19/19	G1/4A	49	194
79	80 ... 90	19/19	G1/4A	49	194
	100 ... 112			71	172
89	100 ... 112	22/19	G3/8A	49	194
Helical gearboxes E					
39	71 ... 90	17/19	G1/8A	49	194
	100 ... 112			71	172
49	71 ... 112	19/19	G1/4A	49	194
69	71 ... 90	19/19	G1/4A	49	194
	100 ... 112			71	172
89	100 ... 112	22/19	G3/8A	49	194
Parallel shaft gearboxes F					
39	71 ... 90	17/19	G1/8A	49	194
	100 ... 112			71	172
49 ... 69	71 ... 112	19/19	G1/4A	49	194
79	80 ... 90	19/19	G1/4A	49	194
	100 ... 112			71	172
89	100 ... 112	22/19	G3/8A	49	194
Bevel gearboxes B					
29	71 ... 90	17/19	G1/8A	49	194
	100			71	172
39	71 ... 90	17/19	G1/8A	49	194
	100 ... 112			71	172
49	71 ... 112	19/19	G1/4A	49	194
Bevel gearboxes K					
39	71 ... 90	17/19	G1/8A	49	194
	100 ... 112			71	172
49 ... 69	71 ... 112	19/19	G1/4A	49	194
79	71 ... 90	19/19	G1/4A	49	194
	100 ... 112			71	172
89	80 ...90	19/19	G1/4A	49	194
	100 ... 112			71	172
Helical worm gearboxes C					
39	71 ... 90	17/19	G1/8A	49	194
	100			71	172
49 ... 69	71 ... 112	19/19	G1/4A	49	194
89	80 ... 112	19/19	G1/4A	49	194

Special versions

Reduced-backlash version

Gearboxes with reduced backlash are required to perform high-precision positioning tasks and to achieve a high level of control quality. A minimal torsional backlash also has a favorable effect on torque spikes during startup and on load switching in the drive train. With this version, all machine elements in the gearbox that are in the power flow are designed with reduced backlash. As a result, this version also has the option "Shrink-glued output gearwheel".

To ensure that the entire driven machine can be designed with minimum possible backlash, it is advisable to select the solution with integral motor mounting (without adapter), output shafts with shrink disk connection or with smooth shafts (without feather key). In this case, only backlash-free power transmission elements should be used.

The specified torsional backlash in minutes of the angle ['] is based on the maximum rotation angle of the output shaft (no load, max. 1 % of rated output torque) with stationary input shaft.

For the exact values, refer to the torque tables. If no values are specified in the tables, this means that a reduced-backlash version is not available for the specific version.

The dimensions of the reduced-backlash gearboxes are identical to those of the standard versions.

Special version	Additional identification code **-Z** with order code	
	2KJ8. . . - . . . . - . . . .**-Z**	Order code
Reduced-backlash version [1]		**G99**

Shrink-glued output gearwheel

The gearbox output stage is subjected to particular high levels of mechanical stress during rigorous reversing duty or acceleration of high mass moments of inertia. The shrink-glued output gearwheel option ensures the load-bearing capacity of the shaft/hub connection in the event of dynamic load.

Special version	Additional identification code **-Z** with order code	
	2KJ8. . . - . . . . - . . . .**-Z**	Order code
Shrink-glued output gearwheel [1]		**G97**

[1] Cannot be selected for helical worm gearboxes.

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Options

Surface treatment and preservation

To protect the geared motors against corrosion and external influences, five high-quality paint systems are available in various colors.

The corrosion protection system is designed in accordance with the corrosivity categories of EN ISO 12944-2.

Geared motors, frame size 49 and higher, are painted in RAL 7016 (anthracite gray) to corrosivity category C1 as standard. This ensures that they are protected against corrosion for indoor use.

Geared motors, frame sizes 19 to 39 with an aluminum housing are supplied unpainted as standard.

The shaft extensions and bare surfaces are treated with corrosion protection for 6 months.

The converters of the SINAMICS G115D system are made of high quality aluminum (EN AC 44300) with good corrosion resistance and are not painted.

Note:

Corrosivity category C1 is not suitable for ambient temperatures under -20 °C.

Surface pretreatment

For especially demanding applications, the drives can also be pretreated in order to ensure an optimum paint finish even in areas that are hidden or difficult to access.

Surface pretreatment	Additional identification code **-Z** with order code	
	2KJ8. . . - . . . . . - . . . . **-Z**	Order code
Special pretreatment		**L19**

Corrosivity category	**Paint system**			**Description**	Additional identification code **-Z** with order code	
	Base coat	Intermediate coat	Top coat		2KJ8. . . - . . . . . - . . . . **-Z**	Order code
Surface protection						
Aluminum gearbox housing[1]						
Unpainted (standard)	-	-	-	• Indoor installation • Heated buildings with neutral atmospheres • Resistant to greases, conditionally resistant to mineral oils, aliphatic solvents • Standard paint		**L00**
C1 Normal environmental stress	-	-	1-component hydro paint			**L02**
Cast iron gearbox housing[2]						
C1 Normal environmental stress	-	-	1-component hydro paint	• Indoor installation • Heated buildings with neutral atmospheres • Resistant to greases, conditionally resistant to mineral oils, aliphatic solvents • Standard paint		**L02**
All geared motors						
C2 Low environmental stress	2-component epoxy zinc phosphate	-	2-component polyurethane	• Indoor and outdoor installation • Unheated buildings with condensation, production areas with low humidity, e.g. warehouses and sports facilities • Atmospheres with little pollution, rural areas		**L03**
C3 Average environmental stress	2-component epoxy zinc phosphate	-	2-component polyurethane	• Indoor and outdoor installation • Production areas with high humidity and some air pollution, e.g. food production areas, dairies, laundries and breweries • Urban and industrial atmospheres, moderate contamination from sulfur dioxide, coastal areas with low salt levels		**L04**
Primer				**Ability to be painted**		
C2 G	2-component polyurethane	-	-	• 2-component polyurethane paint, 2-component epoxy paint and acid-hardening paint, 2-component acrylic paint		**L01**
C4 G	2-component epoxy zinc phosphate	-	-	• 2-component polyurethane paint, 2-component epoxy paint and acid-hardening paint, 2-component acrylic paint		**L09**
Unpainted	-	-	-	• Plastic paint, synthetic resin paint, oil paint, 2-component polyurethane paint, 2-component epoxy paint		**L00**

[1] Helical gearboxes D/Z19 to D/Z39, parallel shaft gearboxes F29 and bevel gearboxes B29 and B39

[2] The bevel gearbox B49 is supplied painted.

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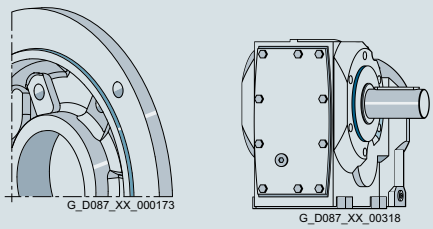
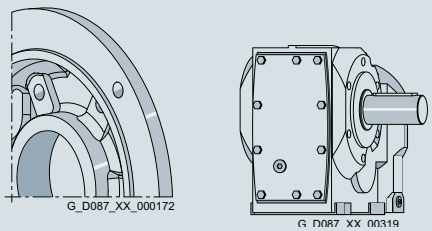
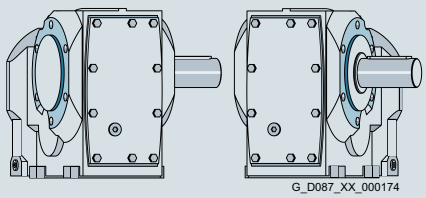
Options

Painting flange surfaces

For flange-mounted or housing flange designs, the flange surface and centering are not painted at the selected output end. The versions listed in the table can be optionally selected.

Design	Figure Surfaces marked blue are not painted	Possible for	Additional identification code **-Z** with order code 2KJ8. . . - . . . . . - . . . .**-Z**	Order code
Centering not painted		• Flange-mounted design • Housing flange design		**L11**
Flange completely painted		• Flange-mounted design • Housing flange design		**L12**
Centering flange not painted on both sides		• Housing flange design for bevel gearbox and helical worm gearbox		**L27**

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Options

Colors

In addition to anthracite gray (RAL 7016), you can select from other standard colors.

RAL color	Designation	Color, example	Additional identification code **-Z** with order code	
			2KJ8 . . . - . . . . . - . . . .**-Z**	Order code
RAL 7016	Anthracite gray (standard)			**L75**
RAL 5015	Sky blue			**L50**
RAL 7030	Stone gray			**L55**
RAL 7031	Blue gray			**L53**
RAL 7012	Basalt gray			**L83**

You can find additional colors in the DT Configurator.

Note

For light colors in corrosivity category C1 we recommend selection of surface treatment in the corrosivity category one level higher to ensure adequate and uniform coloring for the geared motor.

Preservation

All gearboxes and geared motors are preserved as standard for 6 months.

Long-term preservation up to 36 months

If the gearboxes are stored for longer than 6 months, then we recommend the "Long-term preservation" option. A VCI corrosion inhibitor (volatile corrosion inhibitor) is added to the gearbox oil.

Until commissioning, it is not permissible that the gearbox is opened, as otherwise the VCI corrosion inhibitor will vaporize. The oil level must be checked before commissioning. Corrosion protection is also applied to the flange contact surfaces and shaft extensions. We recommend that the gearbox is stored in the appropriate mounting position.

Storage conditions

Geared motors, stored in dry, dust-free and evenly tempered rooms do not require any special packaging.

In all other areas, the units must be packaged in foil with desiccant and moisture indicator. If required, protection must be provided against mold and insects. The storage location must be vibration- and shock-free. The storage conditions must be regularly checked.

Preservation	Additional identification code **-Z** with order code	
	2KJ8 . . . - . . . . . - . . . .**-Z**	Order code
Long-term preservation up to 36 months		**K17**

For information about storage and commissioning please refer to the operating instructions.

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Options

Rating plate

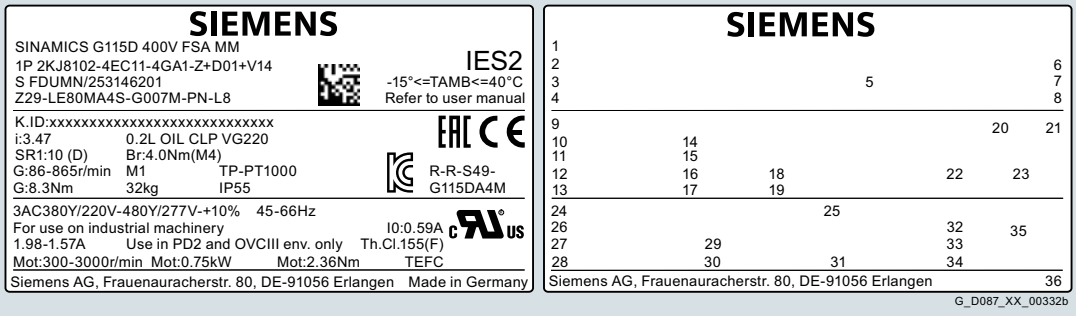
The rating plates on the gearboxes and geared motors are normally manufactured out of coated aluminum foil. They are covered with a special masking film which ensures permanent resistance to UV radiation and media of all kinds (oils, greases, salt water, cleaning agents, etc.).

The adhesive and the material ensure firm adhesion and long-term legibility within the operating temperature range from -40 to +155 °C.

For geared motors, the rating plate is attached to a stainless steel plate on the motor.

For specific designs, additional rating plates are attached to the motor.

Geared motors



Example, rating plate on helical geared motor

General data	
1	Equipment name
2	Article No., Dxx - Order code for mounting position Vxx - Order code for converter options (Required identification code)
3	Factory ID (FID)
4	Type designation
5	Data matrix code
6	IES class (in accordance with IEC 61800-9-2)
7	Permissible ambient temperature
8	Reference to operating instructions
9	Customer ID
10	Transmission ratio i
11	Speed range SR
12	Gearbox output speed range [rpm]
13	Rated output torque of the geared motor [Nm]
14	Oil quantity [l], oil type, oil viscosity ISO VG class according to DIN 51519 / ISO 3448
15	M4 braking torque [nm], cyclic duration factor
16	Mounting position
17	Weight m [kg]
18	Thermal motor protection
19	Degree of protection acc. to IEC 60034-5
20	EAC approval logo
21	CE approval logo

When ordering a replacement/spare part, always specify the factory ID (serial No.)

22	KC approval logo
23	KC registration number
24	Input phase count and input voltage range
25	Input frequency range f [Hz]
26	Specification of rated conditions
27	Rated input current [A]
28	Rated speed range of motor Mot [rpm]
29	Pollution degree and overvoltage category
30	Rated power Mot [kW]
31	Rated torque Mot [Nm]
32	Stall current I0
33	Temperature class Th. Cl.
34	Ventilation type
35	cURus approval logo
36	Manufacturer's address and country of origin

[1] The customer-specific data are used to specify the customer ID/ serial number. The following data are not permissible:
- Technical specifications for the geared motor (e.g. ambient temperature, voltage data, etc.)
- Details of Siemens Article No. (MLFB)
- Unlawful texts

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Options

Second rating plate

For the geared motors, an additional rating plate can be supplied loose.

When requested, the second rating plate can be attached to the motor.

Second rating plate	Additional identification code **-Z** with order code	
	2KJ8 . . . - . . . . . - . . . .**-Z**	Order code
Second rating plate, supplied loose		**K41**
Second rating plate, attached		**K68**

Safety instruction sheet and operating instructions

The geared motors are shipped with a multi-language safety instruction sheet for each delivery batch.

One set of operating instructions is enclosed for each geared motor using the following ordering option.

Enclosed operating instructions in the following language	Additional identification code **-Z** with order code	
	2KJ8 . . . - . . . . . - . . . .**-Z**	Order code
German		**W21**
English		**W22**
Chinese		**W23**

The operating instructions include the following documents:

- Replacement part drawings and lists
- Installation instructions
- Declaration of incorporation of partly completed machinery according to the EC Machinery Directive 2006/42/EC (gearboxes)
- EC Declaration of Conformity according to Directive 2014/35/EU (motors)

The latest versions of the operating instructions, the declaration of incorporation and the declarations of conformity are available in the Industry Online Support:
https://support.industry.siemens.com/cs/ww/en/ps/13424/man

Test certificates

On request, the following documents are available by email:

Additional documentation	**The following is checked:**	Additional identification code **-Z** with order code	
		2KJ8 . . . - . . . . . - . . . .**-Z**	Order code
Declaration of compliance with the order EN 10204-2.1 and factory test report EN 10204-2.2, geared motor	-		On request
Factory test report EN 10204-2.2 for material	-		On request
Acceptance test certificate EN 10204-3.1 for the motor	• Winding resistance • No-load current of the 3 phases • Power loss for no-load operation • High-voltage test • No-load speed		**W10**
Acceptance test certificate EN 10204-3.1 for gearboxes	• Output shaft diameter • Input shaft diameter (for gearboxes with adapter A only) • No-load speed • Noise (subjective assessment)		**W11**
Acceptance test certificate EN 10204-3.1 for paint finish	• Paint film thickness		**W12**

Extension of the liability for defects

For our SIMOGEAR geared motors, we give you the option of extending existing liabilities for defects beyond the standard period of liability.

The standard liability for defects period, as listed in our standard conditions for the supply of services and products, is 18 months.

It is possible to select the extended period of liability for defects in connection with all of the geared motors and their options listed here in the catalog.

Extension of the liability for defects	Additional identification code **-Z** with order code	
	2KJ8 . . . - . . . . . - . . . .**-Z**	Order code
Extension of the liability for defects period by 12 months		**W80**
Extension of the liability for defects period by 24 months		**W82**

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Options

Packaging options

The geared motors are sent in a box as standard.

For countries that cannot be supplied by truck, geared motors up to frame size 89 are shipped in a carton suitable for sea and air freight.

Optionally, the following packaging options can be selected.

Packaging option	Gearbox size	Countries	Minimum order quantity	Additional identification code **-Z** with order code	
				2KJ8 . . . - . . . . . - . . . . **-Z**	Order code
Individual packaging					
Box	19 ... 89	Albania, Austria, Belgium, Bulgaria, Bosnia and Herzegovina, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Great Britain, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Kosovo, Malta, the Netherlands, Poland, Portugal, Romania, Serbia, Republic of Srpska, Sweden, Switzerland, Slovenia, Spain	-		**W40**
Overseas	19 ... 89	Global	-		**W42**
VCI corrosion inhibiting film	19 ... 89	Albania, Austria, Belgium, Bulgaria, Bosnia and Herzegovina, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Great Britain, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Kosovo, Malta, the Netherlands, Poland, Portugal, Romania, Serbia, Republic of Srpska, Sweden, Switzerland, Slovenia, Spain	-		**W47**
Standing open wooden pallet					**W53**
Collective packaging					
Wire-mesh box	19 ... 89	Germany	Gearbox size 19: 20 units Gearbox size 29: 20 units Gearbox size 39: 10 units Gearbox size 49: 6 units Gearbox size 59: 5 units Gearbox size 69: 3 units Gearbox size 79: 3 units Gearbox size 89: 2 units		**W45**
Overseas	19 ... 89	Global	-		**W46**
VCI corrosion inhibiting film	19 ... 89	Albania, Austria, Belgium, Bulgaria, Bosnia and Herzegovina, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Great Britain, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Kosovo, Malta, the Netherlands, Poland, Portugal, Romania, Serbia, Republic of Srpska, Sweden, Switzerland, Slovenia, Spain.	-		**W52**
Neutral Packaging Land Freight	19 ... 89	Albania, Austria, Belgium, Bulgaria, Bosnia and Herzegovina, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Great Britain, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Kosovo, Malta, the Netherlands, Poland, Portugal, Romania, Serbia, Republic of Srpska, Sweden, Switzerland, Slovenia, Spain	-		**W48**
Neutral Packaging Overseas	19 ... 89	Global	-		**W49**

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SINAMICS G115D distributed drive system • Supplementary components 0.37 kW to 7.5 kW

7.4/2 Line-side components
7.4/2 Recommended line-side components

7.4/3 DC link components
7.4/3 External braking resistors

7.4/5 Supplementary system components
7.4/5 Memory cards
7.4/6 SINAMICS G120 Smart Access
7.4/7 Interface kit for SINAMICS G120 Smart Access
7.4/7 PC converter connection kit 2

Installation kits for
7.4/8 • SINAMICS G115D wall-mounted
7.4/8 • SINAMICS G115D motor-mounted
7.4/8 Cover kit
7.4/9 Connection cables
7.4/10 SINAMICS G115D training case

7.4/11 Spare parts
7.4/11 Electronic Modules

Spare parts kits for
7.4/11 • SINAMICS G115D wall-mounted
7.4/11 • SINAMICS G115D motor-mounted
7.4/12 Replacement fans for SINAMICS G115D wall-mounted

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Recommended line-side power components

Overview

The following table lists recommendations for additional line-side components such as fuses.

Note for use in compliance with IEC standards:

3NA3 fuses are recommended for European countries. The values in the table take into account the overload capability of the converter.

Note for use in compliance with UL regulations:

Fuses for use in North America must be UL-certified, Class CC, G, J, CF or T (JDDZ7) fuses with a rated voltage of 480 V AC.

Short Circuit Current Rating (SCCR)
according to UL

Applies to industrial control cabinet installations according to NEC Article 409 or UL 508A.

- SINAMICS G115D: 65 kA

Recommendations on further overcurrent protection devices are available at:
https://support.industry.siemens.com/cs/document/109782635

More information about the listed fuses is available in Catalog LV 10 as well as in the Industry Mall.

SINAMICS G115D wall and motor-mounted	**IEC-compliant**		**UL/CSA-compliant**	
	Fuse		**Fuse type**	
Frame size	Current		Rated voltage 480 V AC	Current
Converter	A	Article No.	Class	A
380 ... 480 V 3 AC				
FSA	10	**3NA3803**	CC, G, J, CF, T (JDDZ7)	10
FSB	16	**3NA3805**	CC, G, J, CF, T (JDDZ7)	15
FSC	32	**3NA3812**	CC, G, J, CF, T (JDDZ7)	35
Group protection	32	**3NA3812**	CC, G, J, CF, T (JDDZ7)	35

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Overview

Regenerative energy is converted to heat via the internal braking resistor integrated as standard. Optional external braking resistors are available for higher regenerative energy.

Selection and ordering data

Description	Suitable for SINAMICS G115D Converter frame size	Continuous braking power P_{DB} W	Article No.
External braking resistor	FSA	200	**6SL3501-1BE32-0AA0**
		240	**6SL3501-1BE32-4AA0**
		480	**6SL3501-1BE34-8AA0**
	FSB	200	**6SL3501-1BE32-0BA0**
		240	**6SL3501-1BE32-4BA0**
		600	**6SL3501-1BE36-0BA0**
	FSC	600	**6SL3501-1BE36-0CA0**
		1200	**6SL3501-1BE41-2CA0**

Technical specifications

Line voltage 380 ... 480 V 3 AC 6SL3501-		**External braking resistor** **1BE32-0AA0**	**1BE32-4AA0**	**1BE34-8AA0**
Resistance	Ω	210	220	200
Continuous braking power P_{DB}	W	200	240	480
Peak power P_{max} (load duration t_a = 12 s with period t = 120 s)	W	1200	1440	2880
Degree of protection		IP65	IP65	IP65
Dimensions				
• Length	mm (in)	320 (12.60)	320 (12.60)	245 (9.65)
• Width	mm (in)	106 (4.17)	106 (4.17)	216 (8.50)
• Depth	mm (in)	64 (2.52)	64 (2.52)	96.5 (3.80)
Weight, approx.	kg (lb)	1.56 (3.44)	2.10 (4.63)	3.89 (8.58)
Suitable for SINAMICS G115D		6SL35..-X..0-3A.0 6SL35..-X..0-5A.0 6SL35..-X..0-7A.0 6SL35..-X..1-1A.0 6SL35..-X..1-5A.0		
• Converter frame size		FSA		

Line voltage 380 ... 480 V 3 AC 6SL3501-		**External braking resistor** **1BE32-0BA0**	**1BE32-4BA0**	**1BE36-0BA0**	**1BE36-0CA0**	**1BE41-2CA0**
Resistance	Ω	160	150	150	81	72
Continuous braking power P_{DB}	W	200	240	600	600	1200
Peak power P_{max} (load duration t_a = 12 s with period t = 120 s)	W	1200	1440	3600	3600	7200
Degree of protection		IP65	IP65	IP65	IP65	IP65
Dimensions						
• Length	mm (in)	320 (12.60)	320 (12.60)	245 (9.65)	245 (9.65)	245 (9.65)
• Width	mm (in)	106 (4.17)	106 (4.17)	227 (8.94)	227 (8.94)	349 (13.74)
• Depth	mm (in)	64 (2.52)	64 (2.52)	96.5 (3.80)	96.5 (3.80)	96.5 (3.80)
Weight, approx.	kg (lb)	1.56 (3.44)	2.10 (4.63)	3.42 (7.54)	3.42 (7.54)	5.47 (12.06)
Suitable for SINAMICS G115D		6SL35..-X..2-2A.0 6SL35..-X..3-0A.0 6SL35..-X..4-0A.0			6SL35..-X..5-5A.0 6SL35..-X..7-5A.0	
• Converter frame size		FSB			FSC	

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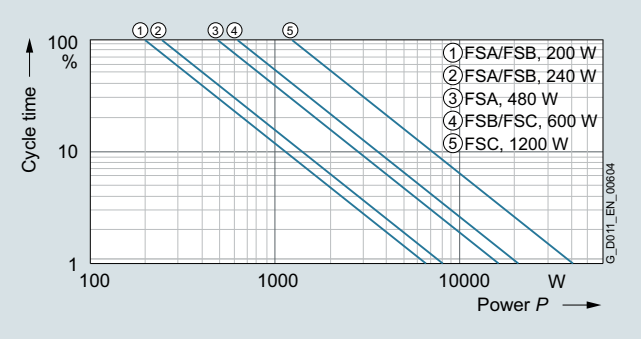
Characteristic curves



SINAMICS G115D, external braking resistor, cycle time in relation to a cycle of up to 120 s (up to 55 °C)

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Overview

SINAMICS SD memory card

The parameter settings of the converter and the firmware can be stored on the optional SINAMICS SD memory card. When service is required, the data are automatically downloaded from the memory card in the converter and the system is ready for use again without further interventions.

- Parameter settings can be written from the memory card to the converter or saved from the converter to the memory card.
- Up to 100 parameter sets can be stored.
- The memory card supports series commissioning without the use of the SINAMICS Startdrive commissioning tool.

Note:

The memory card is optional, but it facilitates converter replacement.

Selection and ordering data

Description	Article No.
SINAMICS SD card 512 MB	**6SL3054-4AG00-2AA0**
Optional firmware memory cards	
SINAMICS SD card 512 MB + firmware V4.7 SP13 (Multicard V4.7 SP13)	**6SL3054-7TG00-2BA0**

For an overview and more information on all available firmware versions, see
https://support.industry.siemens.com/cs/document/67364620

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SINAMICS G120 Smart Access

Overview

SINAMICS G120 Smart Access

It is also easy and convenient to commission and operate the SINAMICS G115D, SINAMICS G120, SINAMICS G120C, SINAMICS G120P and SINAMICS G120X frequency converters of firmware V4.7 SP6 and higher using the web server module SINAMICS G120 Smart Access and a connected smartphone, tablet or laptop.

Benefits

- Wireless commissioning, operation and diagnostics via mobile device or laptop thanks to the optional SINAMICS G120 Smart Access
- Intuitive user interface and commissioning wizard
- Free choice of terminal devices as the web server works with all common web browsers, such as iOS, Android, Windows, Linux and Mac OS

Function

- Commissioning using commissioning wizard
- Setting and saving parameters
- Testing motor in JOG mode
- Monitoring of converter data
- Quick diagnostics
- Saving the settings and restoring to factory settings

Integration

The optional SINAMICS G120 Smart Access is simply plugged onto the converter and is available for the following converters of firmware V4.7 SP6 and higher.

- SINAMICS G115D together with the interface kit for SINAMICS G120 Smart Access
- SINAMICS G120C
- SINAMICS G120 together with the CU230P-2 and CU240E-2 Control Units (without fail-safe versions)
- SINAMICS G120P together with the CU230P-2 Control Units
- SINAMICS G120X

Selection and ordering data

Description	Article No.
SINAMICS G120 Smart Access For wireless commissioning, operation and diagnostics of the following converters using a smartphone, tablet, or laptop • SINAMICS G115D together with the interface kit for SINAMICS G120 Smart Access • SINAMICS G120C • SINAMICS G120 together with the CU230P-2 and CU240E-2 Control Units (without fail-safe versions) • SINAMICS G120P together with the CU230P-2 Control Units • SINAMICS G120X	**6SL3255-0AA00-5AA0**

Technical specifications

	SINAMICS G120 Smart Access **6SL3255-0AA00-5AA0**
Operating system	iOS, Android, Windows, Linux, Mac OS
Languages	Support of six languages: English, French, German, Italian, Spanish, Chinese
Ambient temperature	
• During storage and transport	-40 ... +70 °C (-40 ... +158 °F)
• During operation	0 ... 50 °C (32 ... 122 °F) if the Smart Access is plugged directly into the converter
Air humidity	< 95 %, non-condensing
Degree of protection	Depending on the degree of protection of the converter, max. IP55/UL Type 12 enclosure
Dimensions	
• Width	70 mm (2.76 in)
• Height	108.9 mm (4.29 in)
• Depth	17.3 mm (0.68 in)
Weight, approx.	0.08 kg (0.18 lb)
Compliance with standards	CE, FCC, SRRC, WPC, ANATEL, BTK

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Interface kit for SINAMICS G120 Smart Access

Overview

With the interface kit, the SINAMICS G120 Smart Access web server module can be connected to the SINAMICS G115D converter.

The scope of delivery includes the Interface Module with a connection cable.

For easy mounting, the interface kit can be plugged directly onto the SINAMICS G115D converter using the rubber mount on the back.
Alternatively, the interface kit can be affixed with the magnetic sides on a metallic surface.

Selection and ordering data

Description	Article No.
Interface kit for SINAMICS G120 Smart Access	**6SL3555-0XA00-0AA0**

Technical specifications

	Interface kit for SINAMICS G120 Smart Access **6SL3555-0XA00-0AA0**
Ambient temperature	
• During operation	-10 ... +60 °C (14 ... +140 °F)
Air humidity	< 95 %, non-condensing
Dimensions	
• Width	70 mm (2.76 in)
• Height	62.5 mm (2.46 in)
• Depth	40 mm (1.57 in)
• Length of the connection cable	1 m (3.28 ft)
Weight, approx.	0.19 kg (0.42 lb)

PC converter connection kit 2

Overview

PC converter connection kit 2

For controlling and commissioning a converter directly from a PC if a commissioning tool (e.g. SINAMICS Startdrive) has been installed on the PC. With this, the converter can be

- parameterized (commissioning, optimization)
- monitored (diagnostics)
- controlled (master control via the commissioning tool for test purposes)

A USB cable (3 m/9.84 ft) is included in the scope of delivery.

The PC converter connection kit 2 is compatible with the following Control Units and converters (all communication methods):

- SINAMICS G120C
- SINAMICS G120 Control Units
  - CU230P-2
  - CU240E-2
  - CU250S-2
- SINAMICS G115D
- SINAMICS G120D Control Units
  - CU240D-2
  - CU250D-2

Selection and ordering data

Description	Article No.
PC converter connection kit 2 USB cable (3 m/9.84 ft long) for • SINAMICS G120C • SINAMICS G120 Control Units - CU230P-2 - CU240E-2 - CU250S-2 • SINAMICS G115D • SINAMICS G120D Control Units - CU240D-2 - CU250D-2	**6SL3255-0AA00-2CA0**

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Installation kits for SINAMICS G115D wall-mounted

Overview

An installation kit with cable glands for the line supply (X1/X3), the motor (X2), the 24 V DC power supply (X01/X02) and the digital inputs/digital outputs (X07/X08/X05) can be ordered for the connection.

Selection and ordering data

Description	Article No.
Installation kit for SINAMICS G115D wall-mounted	**6SL3566-2GW00-0GA0**

Installation kits for SINAMICS G115D motor-mounted

Overview

An installation kit with cable glands for the line supply (X1/X3), the 24 V DC power supply (X01/X02) and the digital inputs/ digital outputs (X07/X08/X05) can be ordered for the connection.

Selection and ordering data

Description	Article No.
Installation kit for SINAMICS G115D motor-mounted	**6SL3566-2GM00-0GA0**

Cover kit

Overview

The cover kit is used to protect the unused connector plugs for line supply, loop-through (X3) and 24 V DC loop-through (X02).

Selection and ordering data

Description	Article No.
Cover kit for outputs 380 ... 480 V AC and 24 V DC (7/8" and M12)	**6SL3566-2GA00-0GA0**

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Overview

An overview of all available accessories (e.g. plugs and cables) can be found under the following link:
www.siemens.com/distributeddrives-supplementaryproducts

Connecting cables for communication

PROFINET connecting cables

Flexible plug-in cables and plug-in connectors that can be assembled in the field for transmission of data (up to 100 Mbps) between Industrial Ethernet stations.

Selection and ordering data

Description	Article No.
IE connecting cable M12-180/M12-180 axial outlet Pre-assembled IE FC TP trailing cable GP 2 x 2 PROFINET type C with two 4-pole M12 plugs (4-pole, D-coded), IP65/IP67 degree of protection, UL, plug/plug connector (IN/OUT)	
Length:	
• 0.3 m (0.98 ft)	**6XV1870-8AE30**
• 0.5 m (1.64 ft)	**6XV1870-8AE50**
• 1 m (3.28 ft)	**6XV1870-8AH10**
• 1.5 m (4.92 ft)	**6XV1870-8AH15**
• 2 m (6.56 ft)	**6XV1870-8AH20**
• 3 m (9.84 ft)	**6XV1870-8AH30**
• 5 m (16.4 ft)	**6XV1870-8AH50**
• 10 m (32.8 ft)	**6XV1870-8AN10**
• 15 m (49 ft)	**6XV1870-8AN15**
IE connecting cable M12-180/IE FC RJ45 plug 145 axial outlet Pre-assembled IE FC TP trailing cable GP 2 x 2 (PROFINET type C) with M12 plugs (D-coded) and IE FC RJ45 plug, IP65/IP67 degree of protection	
Length:	
• 2 m (6.56 ft)	**6XV1871-5TH20**
• 3 m (9.84 ft)	**6XV1871-5TH30**
• 5 m (16.4 ft)	**6XV1871-5TH50**
• 10 m (32.8 ft)	**6XV1871-5TN10**
• 15 m (49 ft)	**6XV1871-5TN15**
IE M12 Plug PRO axial outlet For assembly in the field, M12 plug-in connector (D-coded), metal enclosure, UL, fast connection method, plug connector	
• 1 unit	**6GK1901-0DB20-6AA0**
• 8 units	**6GK1901-0DB20-6AA8**

AS-Interface connecting cable

Selection and ordering data

Description	Article No.
AS-Interface M12 branch To connect the AS-Interface and the U_{Aux} cable to an M12 socket, UL	**3RK1901-2NR20**

Connecting cables/plug-in connectors for 24 V DC power supply

Selection and ordering data

Description	Article No.
7/8" plug-in cable axial outlet For 24 V switched and unswitched, pre-assembled with 2 × 7/8" at both ends (axial), 5 × 1.5 mm², 5-pole plug/socket connectors	
Length:	
• 0.3 m (0.98 ft)	**6XV1822-5BE30**
• 0.5 m (1.64 ft)	**6XV1822-5BE50**
• 1 m (3.28 ft)	**6XV1822-5BH10**
• 1.5 m (4.92 ft)	**6XV1822-5BH15**
• 2 m (6.56 ft)	**6XV1822-5BH20**
• 3 m (9.84 ft)	**6XV1822-5BH30**
• 5 m (16.4 ft)	**6XV1822-5BH50**
• 10 m (32.8 ft)	**6XV1822-5BN10**
• 15 m (49 ft)	**6XV1822-5BN15**
7/8" plug-in connector axial outlet 5-pole, B-coded, plastic enclosure, 1 package = 5 units	
• Pin insert (OUT)	**6GK1905-0FA00**
• Female contact insert (IN)	**6GK1905-0FB00**

Plug-in connectors for digital inputs and outputs

Selection and ordering data

Description	Article No.
M12 plug Y cable for distributed I/Os for dual connection of I/Os using single 5-pole M12 cables, 200 mm (7.87 in)	
• Straight	**6ES7194-6KA00-0XA0**

Connecting cables for line supply, power loop-through and power bus distribution

Connecting cables pre-assembled at one end and connector sets to connect to the line supply

Selection and ordering data

Description	Article No.
Connecting cable pre-assembled at one end Power supply cable, open at one end, for Q4/2, angled, 4 × 4 mm²	
• 1.5 m (4.92 ft) long	**3RK1911-0DB13**
• 5 m (16.4 ft) long	**3RK1911-0DB33**
Connector set for the power supply Female contact insert Q4/2, 5 socket contacts, grommet housing, angled outlet including screw connection	
• 2.5 mm²	**3RK1911-2BE50**
• 4 mm²	**3RK1911-2BE10**
• 6 mm²	**3RK1911-2BE30**

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Connecting cables

Overview

Quickon system plug connectors

Selection and ordering data

Description	Article No.
Quickon system plug connectors for connections for 380 ... 480 V AC	
• Quickon nut	**6SL3566-4NA00-0GA0**
• Quickon connector	**6SL3566-4MA00-0GA0**

Connector insert for power loop-through

Selection and ordering data

Description	Article No.
Connector set for power loop-through Pin insert HAN Q4/2, 4 male contacts, grommet housing, angled outlet including screw connection	
• 2.5 mm^2	**3RK1911-2BF50**
• 4 mm^2	**3RK1911-2BF10**

Power bus distribution 400 V in IP65 degree of protection

Selection and ordering data

Not essential (daisy chaining within device); use is optional.

Description	Ordering (see Solution Partner)
Power T clamp connector for 2.5 ... 6 mm^2 With attached 7-pole plug, female contact insert, grommet housing, UL Seals for various cable cross-sections must be ordered separately	Ordered from and supplied by Harting
T clamp connector Completely pre-assembled	Ordered from and supplied by KnorrTec

SINAMICS G115D training case

Overview

The SINAMICS G115D training case is a convincing demonstration system thanks to its compact design. It is suitable for direct customer presentations as well as for testing in the technical department. The functions of SINAMICS G115D in combination with a SIMOGEAR geared motor can be demonstrated and tested quickly and easily with this case.

It contains the following components:

- SINAMICS G115D distributed drive system motor-mounted, PROFINET, frame size FSA, 0.37 kW
- SIMOGEAR motor LE 71 with gearbox Z29
- SIMATIC S7-1200F controller
- MindConnect IoT 2040 gateway

The SINAMICS G115D training case is supplied in the form of a trolley case.

Selection and ordering data

Description	Article No.
SINAMICS G115D training case	**6AG1067-2AA00-0AC1**

Technical specifications

SINAMICS G115D training case	**6AG1067-1AA38-0AA0**
Supply voltage	110 V / 230 V 1 AC
Dimensions	
• Width	630 mm (24.80 in)
• Height	430 mm (16.93 in)
• Depth	480 mm (18.90 in)
Weight, approx.	43.5 kg (95.9 lb)

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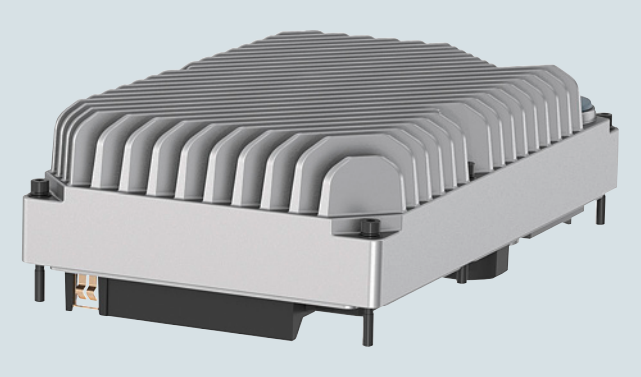
Electronic Modules

Overview



SINAMICS G115D Electronic Module

The Electronic Module must be replaced in case of a permanent malfunction.

For recommissioning, it is advantageous to save the converter settings on the optional SINAMICS SD card or via SINAMICS Startdrive or SINAMICS G120 Smart Access before the replacement.

Selection and ordering data

Description	Article No.	
Electronic Modules		
• FSA, 0.37 kW	**6SL3500-0XE50-3** ■	**A0**
• FSA, 0.55 kW	**6SL3500-0XE50-5** ■	**A0**
• FSA, 0.75 kW	**6SL3500-0XE50-7** ■	**A0**
• FSA, 1.1 kW	**6SL3500-0XE51-1** ■	**A0**
• FSA, 1.5 kW	**6SL3500-0XE51-5** ■	**A0**
• FSB, 2.2 kW	**6SL3500-0XE52-2** ■	**A0**
• FSB, 3 kW	**6SL3500-0XE53-0** ■	**A0**
• FSB, 4 kW	**6SL3500-0XE54-0** ■	**A0**
• FSC, 5.5 kW	**6SL3500-0XE55-5** ■	**A0**
• FSC, 7.5 kW	**6SL3500-0XE57-5** ■	**A0**
Fieldbus communication		↑
• AS-Interface		**A**
• Without fieldbus communication		**B**
• PROFINET, EtherNet/IP		**F**

Spare parts kits for SINAMICS G115D wall-mounted

Overview

A spare parts kit comprising small parts such as replacement seals, cover caps and screws can be ordered.

Selection and ordering data

Description	Article No.
Spare parts kit for SINAMICS G115D wall-mounted comprising replacement seals, cover caps and screws	**6SL3500-0XK51-0AA0**

Spare parts kits for SINAMICS G115D motor-mounted

Overview

A spare parts kit comprising small parts such as replacement seals, cover caps and screws can be ordered.

Selection and ordering data

Description	Article No.
Spare parts kit for SINAMICS G115D motor-mounted comprising replacement seals, cover caps and screws	**6SL3500-0XK50-0AA0**

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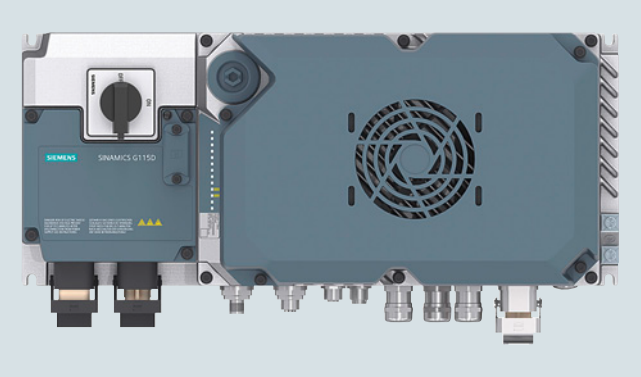
Replacement fans for SINAMICS G115D wall-mounted

Overview



SINAMICS G115D with repair switch and fan

The fans are designed for an extra long service life. Replacement fans can be ordered for special requirements.

Selection and ordering data

Description	Article No.
Replacement fan (pre-mounted unit with cover, fan and screws) for SINAMICS G115D wall-mounted as from 2.2 kW, frame sizes FSB and FSC	**6SL3500-0XF51-0AA0**

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Appendix

15/2 Drive Technology Configurator

15/3 Partners

15/4 Industry Services

15/7 Conditions of sale and delivery

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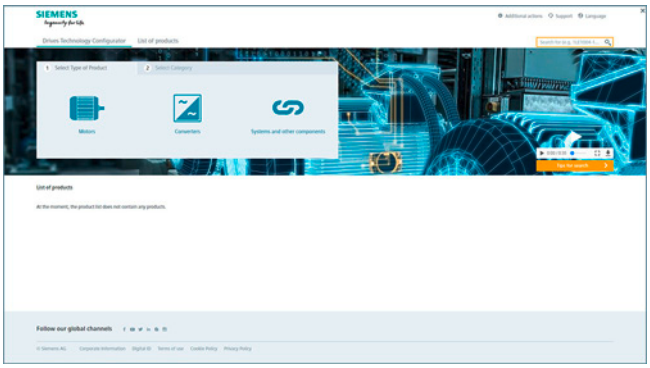
Drive Technology Configurator

Overview

The Drive Technology Configurator (DT Configurator) helps you to configure the optimum drive technology products for your application – starting with gear units, motors, converters as well as the associated options and components and ending with controllers, software licenses and connection systems. Whether with little or detailed knowledge of products: preselected product groups, deliberate navigation through selection menus and direct product selection through entry of the article number support quick, efficient and convenient configuration.

In addition, comprehensive documentation comprising technical data sheets, 2D dimensional drawings/3D CAD models, operating instructions, certificates, etc. can be selected in the DT Configurator. Immediate ordering is possible by simply transferring a parts list to the shopping cart of the Industry Mall.



Drive Technology Configurator for efficient drive configuration with the following functions

- Quick and easy configuration of drive products and associated components – gear units, motors, converters, controllers, connection systems
- Configuration of drive systems for pumps, fans and compressor applications from 1 kW to 2.6 MW
- Retrievable documentation for configured products and components, such as
  - Data sheets in up to 9 languages in PDF or RTF format
  - 2D dimensional drawings/3D CAD models in various formats
  - Terminal box drawing and terminal connection diagram
  - Operating instructions
  - Certificates
  - Start-up calculation for SIMOTICS motors
  - EPLAN macros
- Support with retrofitting in conjunction with Spares On Web (www.siemens.com/sow)
- Ability to order products directly through the Siemens Industry Mall

Access to the Drive Technology Configurator

The Drive Technology Configurator can be called up without registration and without a login:
www.siemens.com/dt-configurator

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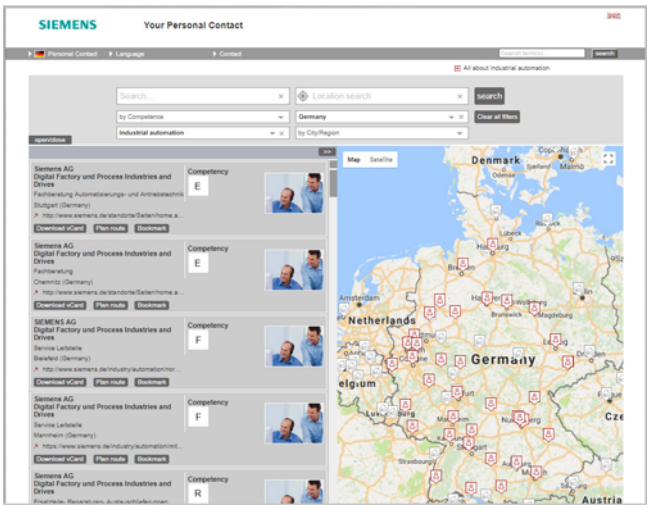
Partners at Siemens



At your service locally, around the globe for consulting, sales, training, service, support, spare parts on the entire portfolio of Digital Industries.

Your partner can be found in our Personal Contacts Database at:
www.siemens.com/automation-contact

You start by selecting

- the required competence,
- products and branches,
- a country and a city

or by a

- location search or free text search.

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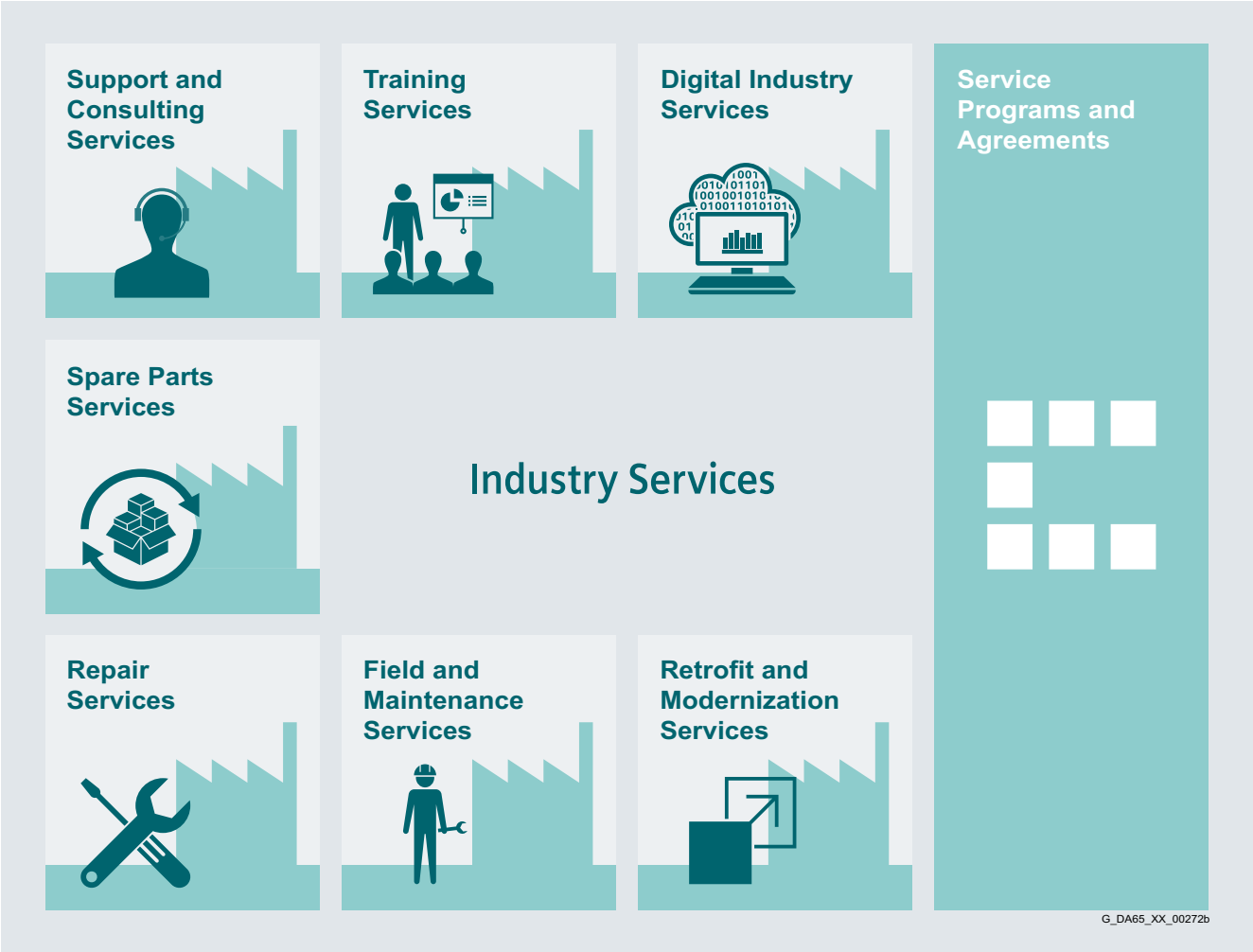
Overview



Keep your business running and shaping your digital future – with Industry Services

Optimizing the productivity of your equipment and operations can be a challenge, especially with constantly changing market conditions. Working with our service experts makes it easier. We understand your industry's unique processes and provide the services needed so that you can better achieve your business goals.

You can count on us to maximize your uptime and minimize your downtime, increasing your operations' productivity and reliability. When your operations have to be changed quickly to meet a new demand or business opportunity, our services give you the flexibility to adapt. Of course, we take care that your production is protected against cyber threats. We assist in keeping your operations as energy and resource efficient as possible and reducing your total cost of ownership. As a trendsetter, we ensure that you can capitalize on the opportunities of digitalization and by applying data analytics to enhance decision making: You can be sure that your plant reaches its full potential and retains this over the longer lifespan.

You can rely on our highly dedicated team of engineers, technicians and specialists to deliver the services you need – safely, professionally and in compliance with all regulations. We are there for you, where you need us, when you need us.

www.siemens.com/industryservices

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Overview

Digital Industry Services

Digital Industry Services make your industrial processes transparent to gain improvements in productivity, asset availability, and energy efficiency.

Production data is generated, filtered and translated with intelligent analytics to enhance decision-making.

This is done whilst taking data security into consideration and with continuous protection against cyber-attack threats.
www.siemens.com/global/en/products/services/industry/digital-industry-services.html

Training Services

From the basics and advanced to specialist skills, SITRAIN courses provide expertise right from the manufacturer – and encompass the entire spectrum of Siemens products and systems for the industry.

Worldworldwide, SITRAIN courses are available wherever you need a training course in more than 170 locations in over 60 countries.
https://support.industry.siemens.com/cs/ww/en/sc/2226

Support and Consulting Services

Industry Online Support site for comprehensive information, application examples, FAQs and support requests.

Technical and Engineering Support for advice and answers for all inquiries about functionality, handling, and fault clearance. The Service Card as prepaid support for value added services such as Priority Call Back or Extended Support offers the clear advantage of quick and easy purchasing.

Information & Consulting Services, e.g. SIMATIC System Audit; clarity about the state and service capability of your automation system or Lifecycle Information Services; transparency on the lifecycle of the products in your plants.
https://support.industry.siemens.com/cs/ww/en/sc/2235

Spare Parts

Spare Parts Services are available worldwide for smooth and fast supply of spare parts – and thus optimal plant availability. Genuine spare parts are available for up to ten years. Logistic experts take care of procurement, transport, custom clearance, storage and order management. Reliable logistics processes ensure that components reach their destination as needed.

Since not all spare parts can be kept in stock at all times, Siemens offers a preventive measure for spare parts provisioning on the customer's premises with optimized **Spare Parts Packages** for individual products, custom-assembled drive components and entire integrated drive trains – including risk consulting.

Asset Optimization Services help you design a strategy for parts supply where your investment and carrying costs are reduced and the risk of obsolescence is avoided.
https://support.industry.siemens.com/cs/ww/en/sc/2110

Repair Services

Repair Services are offered on-site and in regional repair centers for fast restoration of faulty devices' functionality.

Also available are extended repair services, which include additional diagnostic and repair measures, as well as emergency services.
https://support.industry.siemens.com/cs/ww/en/sc/2154

Field and Maintenance Services

Siemens specialists are available globally to provide expert field and maintenance services, including commissioning, functional testing, preventive maintenance and fault clearance.

All services can be included in customized service agreements with defined reaction times or fixed maintenance intervals.
https://support.industry.siemens.com/cs/ww/en/sc/2265

Retrofit and Modernization Services

Provide a cost-effective solution for the expansion of entire plants, optimization of systems or upgrading existing products to the latest technology and software, e.g. migration services for automation systems.

Service experts support projects from planning through commissioning and, if desired over the entire extended lifespan, e.g. Retrofit for Integrated Drive Systems for an extended lifetime of your machines and plants.
https://support.industry.siemens.com/cs/ww/en/sc/2286

Service Programs and Agreements

A technical Service Program or Agreement enables you to easily bundle a wide range of services into a single annual or multi-year agreement.

You pick the services you need to match your unique requirements or fill gaps in your organization's maintenance capabilities.

Programs and agreements can be customized as KPI-based and/or performance-based contracts.
https://support.industry.siemens.com/cs/ww/en/sc/2275

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Overview

Siemens Industry and Online Support with some 1.7 million visitors per month is one of the most popular web services provided by Siemens. It is the central access point for comprehensive technical know-how about products, systems and services for automation and drives applications as well as for process industries.

In connection with the challenges and opportunities related to digitalization you can look forward to continued support with innovative offerings.

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1. General Provisions

By using this catalog you can purchase products (hardware, software and services) described therein from Siemens Aktiengesellschaft subject to the following Terms and Conditions of Sale and Delivery (hereinafter referred to as "T&C"). Please note that the scope, the quality and the conditions for supplies and services, including software products, by any Siemens entity having a registered office outside Germany, shall be subject exclusively to the General Terms and Conditions of the respective Siemens entity. The following T&C apply exclusively for orders placed with Siemens Aktiengesellschaft, Germany.

1.1 For customers with a seat or registered office in European Union

For customers with a seat or registered office in European Union, the following terms and conditions apply subordinate to T&C:

- for products, which include specific terms and conditions in the description text, these specific terms and conditions shall apply and subordinate thereto,
- for stand-alone software products and software products forming a part of a product or project, the "General License Conditions for Software Products for Automation and Drives for Customers with a Seat or registered Office in Germany"[1)] and/or
- for consulting services the “Allgemeine Geschäftsbedingungen für Beratungsleistungen der Division DF – Deutschland” (available only in German) and/or
- for other services, the „Supplementary Terms and Conditions for Services (“BL”)[1)] and/or
- for other supplies the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry"[1)].
  In case such supplies should contain Open Source Software, the conditions of which shall prevail over the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry"[1)], a notice will be contained in the scope of delivery in which the applicable conditions for Open Source Software are specified. This shall apply mutatis mutandis for notices referring to other third party software components.

1.2 For customers with a seat or registered office outside European Union

For customers with a seat or registered office outside European Union, the following terms and conditions apply subordinate to T&C:

- for products, which include specific terms and conditions in the description text, these specific terms and conditions shall apply and subordinate thereto,
- for consulting services the "Standard Terms and Conditions for Consulting Services of the Division DF for Customers with a Seat or Registered Office Outside of Germany"[1)] and/or
- for other services the "International Terms & Conditions for Services"[1)] supplemented by "Software Licensing Conditions"[1)] and/or
- for other supplies of hard- and software the "International Terms & Conditions for Products"[1)] supplemented by "Software Licensing Conditions"[1)]

1.3 For customers with master or framework agreement

To the extent our supplies and/or services offered are covered by an existing master or framework agreement, the terms and conditions of that agreement shall apply instead of T&C.

2. Prices

The prices are in € (Euro) ex point of delivery, exclusive of packaging.

The sales tax (value added tax) is not included in the prices. It shall be charged separately at the respective rate according to the applicable statutory legal regulations.

Prices are subject to change without prior notice. We will charge the prices valid at the time of delivery.

To compensate for variations in the price of raw materials (e.g. silver, copper, aluminum, lead, gold, dysprosium and neodym), surcharges are calculated on a daily basis using the so-called metal factor for products containing these raw materials.
A surcharge for the respective raw material is calculated as a supplement to the price of a product if the basic official price of the raw material in question is exceeded.

The metal factor of a product indicates the basic official price (for those raw materials concerned) as of which the surcharges on the price of the product are applied, and with what method of calculation.

An exact explanation of the metal factor can be downloaded at:

https://mall.industry.siemens.com/legal/ww/en/terms_of_trade_en.pdf

To calculate the surcharge (except in the cases of dysprosium and neodym), the official price from the day prior to that on which the order was received or the release order was effected is used.

To calculate the surcharge applicable to dysprosium and neodym ("rare earths"), the corresponding three-month basic average price in the quarter prior to that in which the order was received or the release order was effected is used with a one-month buffer (details on the calculation can be found in the explanation of the metal factor).

3. Additional Terms and Conditions

The dimensions are in mm. In Germany, according to the German law on units in measuring technology, data in inches apply only to devices for export.

Illustrations are not binding.

Insofar as there are no remarks on the individual pages of this catalog – especially with regard to data, dimensions and weights given – these are subject to change without prior notice.

[1)] The text of the Terms and Conditions of Siemens AG can be downloaded at
https://mall.industry.siemens.com/legal/ww/en/terms_of_trade_en.pdf

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4. Export Regulations

We shall not be obligated to fulfill any agreement if such fulfillment is prevented by any impediments arising out of national or international foreign trade or customs requirements or any embargoes and/or other sanctions.

Export may be subject to license. We shall indicate in the delivery details whether licenses are required under German, European and US export lists.

Our products are controlled by the U.S. Government (when labeled with "ECCN" unequal "N") and authorized for export only to the country of ultimate destination for use by the ultimate consignee or end-user(s) herein identified. They may not be resold, transferred, or otherwise disposed of, to any other country or to any person other than the authorized ultimate consignee or end-user(s), either in their original form or after being incorporated into other items, without first obtaining approval from the U.S. Government or as otherwise authorized by U.S. law and regulations. Products labeled with "AL" unequal "N" are subject to European / national export authorization.

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Products without label, with label "AL:N" / "ECCN:N", or label "AL:9X9999" / "ECCN: 9X9999" may require authorization from responsible authorities depending on the final end-use, or the destination.

If you transfer goods (hardware and/or software and/or technology as well as corresponding documentation, regardless of the mode of provision) delivered by us or works and services (including all kinds of technical support) performed by us to a third party worldwide, you shall comply with all applicable national and international (re-)export control regulations. In any event of such transfer of goods, works and services you shall comply with the (re-) export control regulations of the Federal Republic of Germany, of the European Union and of the United States of America.

Prior to any transfer of goods, works and services provided by us to a third party you shall in particular check and guarantee by appropriate measures that

- there will be no infringement of an embargo imposed by the European Union, by the United States of America and/ or by the United Nations by such transfer, by brokering of contracts concerning those goods, works and services or by provision of other economic resources in connection with those goods, works and services, also considering the limitations of domestic business and prohibitions of by-passing those embargos;
- such goods, works and services are not intended for use in connection with armaments, nuclear technology or weapons, if and to the extent such use is subject to prohibition or authorization, unless required authorization is provided;
- the regulations of all applicable Sanctioned Party Lists of the European Union and the United States of America concerning the trading with entities, persons and organizations listed therein are considered.

If required to enable authorities or us to conduct export control checks, you, upon request by us, shall promptly provide us with all information pertaining to the particular end customer, the particular destination and the particular intended use of goods, works and services provided by us, as well as any export control restrictions existing.

You acknowledge that under the EU embargo regulations against Iran, Syria and Russia respectively the sale of certain listed goods and related services is subject to authorization by the competent export control authorities of the European Union. If (i) the goods or services ordered by you are destined for Iran, Syria or Russia, and (ii) the contract for our supplies and/or services is subject to prior authorization of the competent export control authorities of the European Union, the contract between you and us shall come into force in this respect only upon granting of such authorization.

The products listed in this catalog may be subject to European/German and/or US export regulations. Any export requiring approval is therefore subject to authorization by the relevant authorities.

Errors excepted and subject to change without prior notice.

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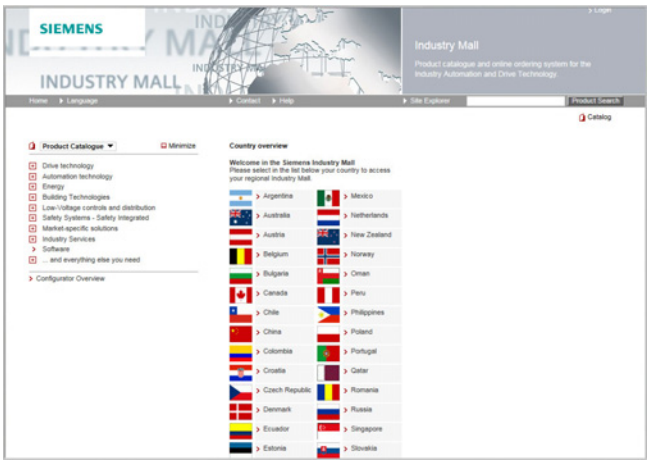
Easy product selection and ordering: Industry Mall



Industry Mall

The Industry Mall is a Siemens AG Internet ordering platform. It provides you with online access to a comprehensive product spectrum that is presented in an informative, well-organized way.

Powerful search functions help you select the required products, while configurators enable you to configure complex product and system components quickly and easily. CAx data are also available for you to use.

Data transfer allows the entire procedure, from selection through ordering to tracking and tracing, to be carried out online. Availability checks, individual customer discounting, and quotation preparation are also possible.

www.siemens.com/industrymall

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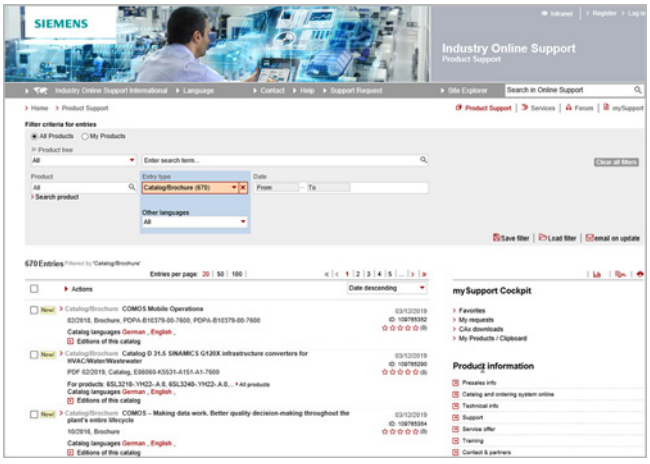

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