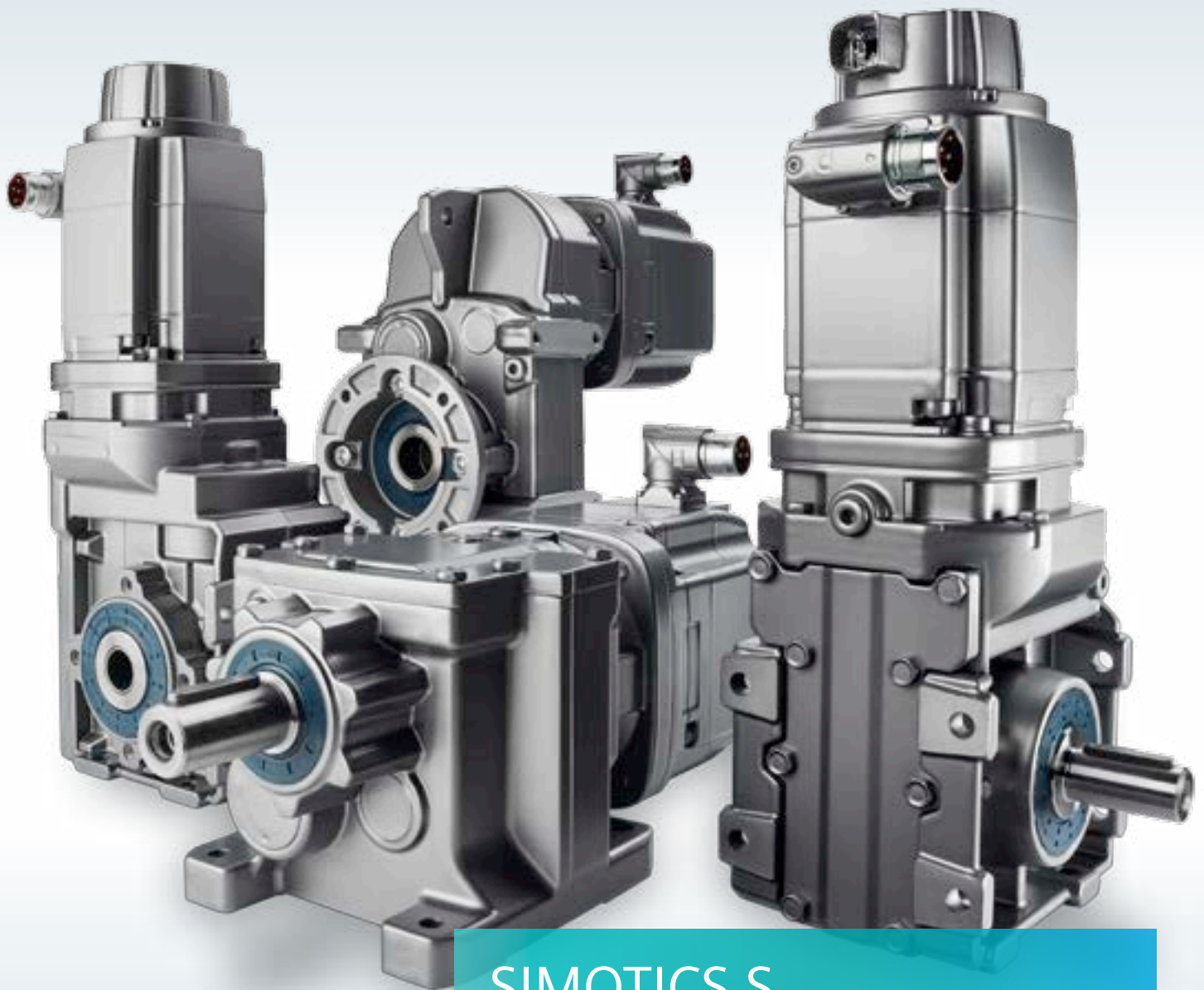


**SIEMENS**  
*Ingenuity for life*



## SIMOTICS S servo geared motors

Just as precise as your  
motion control application

[siemens.com/servo-geared-motors](https://www.siemens.com/servo-geared-motors)

All components operate together in a coordinated fashion:

# SIMOTICS S servo geared motors

Whether cyclic motion in packaging machines, positioning for storage and retrieval machines or path control in machine tools – these motion sequences have one thing in common: They must be extremely precise with a high dynamic performance. Our servo geared motors are predestined for these types of applications. They combine the advantages of our SIMOTICS servo motors with a high dynamic performance and standard industrial gearboxes. In use, they set themselves apart as a result of their high smooth running properties and compact design.

## Diverse portfolio

Our portfolio includes a comprehensive range of induction and synchronous servo motors up to linear and precision torque motors with a high dynamic response to address all types of motion control applications.

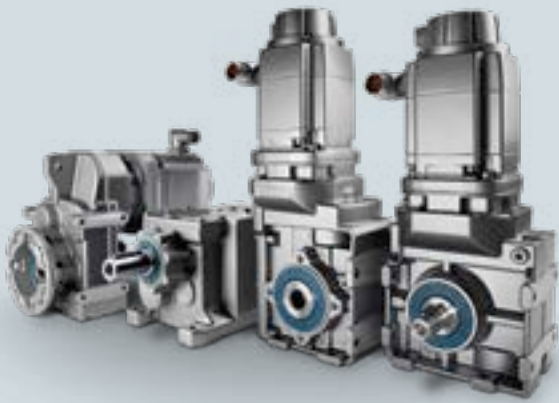
Our well-proven SIMOTICS S synchronous servo motors are available with factory equipped standard and planetary gearboxes (S-1FK7 and S-1FT7). A wide range of applications can be addressed as a result of the speed and torque ranges, precision and dynamic performance as well as also compactness and mounting options.

## Always teamed up perfectly

Our new series of SIMOTICS S-1FG1 servo geared motors sport additional advantages: The series is attractive as a result of the seamless and finely-scaled portfolio. Whether teamed up with helical, bevel, parallel shaft or helical worm gearboxes, the different versions and mounting positions mean that there is always the optimum solution for each and every motion control application. You profit from our seamless system approach:

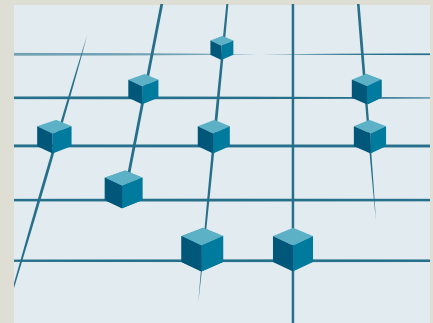
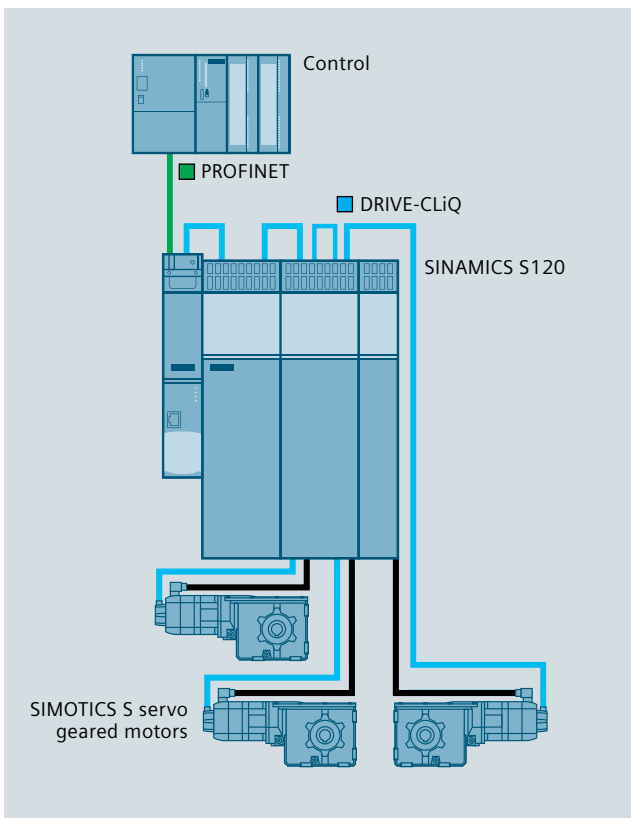
With servo geared motors, converters and control systems, we have all of the components for your drive train and automation from a single source.





### Optimum interaction

When developing SIMOTICS S-1FG1 servo geared motors, special emphasis was placed on the optimum coordination with our SINAMICS S120 drive systems. Motors, converters and commissioning tools are optimally coordinated and harmonized with one another. The system can be quickly commissioned as a result of the electronic type plate and the fact that the motors are connected via the DRIVE-CLiQ system interface. Prefabricated MOTION-CONNECT signal and power cables mean that the components can be simply and perfectly connected with one another.



### Embedded in Totally Integrated Automation

Together with SINAMICS converters, SIMOTICS servo geared motors are an integral component of Totally Integrated Automation. This means: They can be seamlessly integrated into the drive and automation landscape. From planning, commissioning, operation and maintenance up to expanding automation systems, the TIA Portal reduces engineering time and costs. This results in security of investment and, in turn, a sustainable improvement in the competitiveness.

The optimum gearbox for every motion control task:

# SIMOTICS S-1FG1

The four gearbox versions of the SIMOTICS S-1FG1 series and the finely scaled ratios mean that you have the optimum drive regarding type construction and power rating for every application. Depending on the gearbox type and size, helical, parallel shaft, bevel and helical worm gearboxes are available with up to 25 transmission ratios. Based on the particular rotor version, motors can be selected for standard (CT) or for dynamic (HD) load cycles.



## Can address a wide range of applications

The servo geared motors have a high efficiency and low torsional play – and are ideally suited for applications such as palletizers, storage and retrieval machines with lifting, travel and fork drives, dosing pumps as well as actuator drives. The pinion inserted in the motor shaft with a low diameter – inherent to the principle – allows a high ratio in the first gearbox stage. As a consequence, in the limit range, a two-stage gearbox can be used instead of a three-stage one. This results in an efficiency of up to 2% better – as well as a lower temperature rise.

## An overview of the advantages

- Seamless and integrated series of gearboxes for standard and servo geared motors
- Finely scaled ratios across the board
- Extremely compact as the gearbox is directly mounted onto the motor
- Especially for two-stage gearboxes, a wide range of ratios with good efficiency is possible as a result of the plug-on pinion on the motor shaft.
- Low backlash
- Smooth running and quiet operation
- Rugged and maintenance-free
- Suitable for continuous and cyclic operation with changing torques and speeds



	Helical geared motor 2-stage (Z) 3-stage (D)	Parallel shaft geared motor 2-stage (FZ) 3 stage (FD)	Bevel geared motor 2-stage (B) 3-stage (K)	Helical worm geared motor 2-stage (C)
Servo geared motors				
Designation	Z29 ... Z129 D29 ... D129	FZ29 ... FZ129 FD29 ... FD149	B29 ... B49 K39 ... K149	C29 ... C89
Frame sizes	9	8	3 (B) 9 (K)	5
Speed range <sup>*)</sup> [rpm]	72 ... 1,279 (Z) 12 ... 114 (D)	63 ... 1,218 (FZ) 11 ... 97 (FD)	75 ... 1,254 (B) 18 ... 870 (K)	44 ... 726 (C)
Max. output torque [Nm]	14 ... 5,200 (Z) 146 ... 5,000 (D)	17 ... 5,140 (FZ) 163 ... 5,010 (FD)	15 ... 465 (B) 24 ... 8,160 (K)	46 ... 1,480 (C)
Range of transmission ratios	3.4 ... 62.5 (Z) 39.3 ... 373 (D)	3.6 ... 70.7 (FZ) 46.4 ... 413 (FD)	3.5 ... 59.3 (B) 5.2 ... 244.3 (K)	6.2 ... 102.5 (C)
Mechanical options (selection)	<ul style="list-style-type: none"> <li>• (Higher rating) holding brake</li> <li>• Spring-actuated brake (only shaft heights 80/100) with increased brake work for each braking operation in comparison to a holding brake and high overall brake work</li> <li>• Version with reduced backlash</li> <li>• Radially reinforced output shaft bearings</li> <li>• Various shaft options and gearbox flange diameters</li> <li>• Shaft sealing rings for a longer service life and/or increased levels of environmental stress</li> <li>• Mineral and synthetic oils can be selected</li> <li>• Connector position can be selected</li> <li>• Primer, topcoat and color</li> <li>• Version for increased resistance to chemicals</li> </ul>			

<sup>\*)</sup> Speed range at the gearbox output.

Values for orientation, as the reference speed – depending on the selected motor – is the maximum gearbox input speed.

Everything revolves around the highest precision:

# SIMOTICS S with planetary gearbox

Servo motors with planetary gearbox are the optimum choice, especially where there are high demands on the precision and dynamic performance, as is the case for positioning and adjusting axes. They are used where mounting space is restricted and where the lowest geared motor weight is required.



Three different versions are available:

- **LP+ planetary gearboxes**, mounted on SIMOTICS S-1FK7 motors with ratios of 5 or 10.
- **SP+ planetary gearboxes**, mounted on SIMOTICS S-1FK7 or S-1FT7 motors set themselves apart as a result of an especially low backlash and finely-scaled gearbox ratios extending from 4 to 50.
- **SIMOTICS S-1FK7-DYA compact geared motors** are the geared motor solutions that take up the least space with ratios of 5 or 10.
- For all versions, the encoder options available for SIMOTICS S-1FT7 or S-1FK7 can be selected.

With this spectrum, even the most demanding positioning tasks can be addressed with the highest degree of precision. And the compact design especially comes into play where space is restricted.

## An overview of the advantages

- Extremely low moment of inertia; therefore extremely short accelerating times
- Rugged and maintenance-friendly
- Suitable for continuous operation and cyclic operation with alternating loads
- Torsionally stiff
- Very low backlash
- Extremely compact, therefore especially suitable where space is restricted
- Any mounting position without speed/torque reduction



User-friendly tools:

# Engineering and configuring were never simpler

The optimum solution step-by-step: Our DT-Configurator and SIZER engineering tool make it simple to select and dimension the servo geared motor that precisely addresses your application.



DT Configurator



SIZER for Siemens Drives engineering tool

## Drive Technology Configurator

You can simply configure a servo geared motor for your specific application using the DT-Configurator. You simply enter for example the gearbox type, mounting position, S1 values or maximum values for speed and torque, and all options are selected with interactive dialog. The documentation required is output, either after configuring the servo geared motor, or entering the order number. 2-D and 3-D diagrams, data in all of the usual formats as well as data sheets and operating instructions are output. The geared motors can also be directly ordered through the Industry Mall.

You can get more information about the DT-Configurator at: [siemens.com/dt-configurator](http://siemens.com/dt-configurator)

## SIZER engineering tool

Servo geared motors are simply and reliably engineered using the SIZER engineering tool. Navigated using menus, SIZER leads you to the optimum geared motor, based on the mechanical and process data of the application. In addition to the electrical motor data, SIZER also supplies all of the CAD data to simply integrate these servo geared motors into the machine itself. Using SIZER, the complete drive system, including the options and accessories (for example, switchgear and connection systems) can be configured.

The thermal utilization of the servo geared motors can also be calculated. The tool calculates the line harmonics and compares these with permissible values laid down in the applicable standards. Further, the energy consumption can also be determined. In addition, characteristics, documentation, design drawings, CAD data for documentation of the design results and a parts list that can be exported to SAP are provided.

You can get more information about SIZER at: [siemens.com/sizer](http://siemens.com/sizer)

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