

**SIEMENS**

*Ingenuity for life*



Engineered with TIA Portal

# SIPLUS extreme: Durable and robust

Automation and drive technology  
for extreme ambient conditions

[siemens.com/siplus-extreme](https://www.siemens.com/siplus-extreme)

# Extremely dependable: SIPLUS extreme

From SIMATIC, LOGO! and SITOP to SIRIUS, SINAMICS and SIMOTION, Siemens offers automation and drive systems that meet every requirement of the manufacturing and process industries: optimally coordinated, standard components that have been proven to be successful millions of times over and work together efficiently thanks to common standards. They form the technological basis of our family of coated SIPLUS extreme products – reliable even under harshest conditions.



## Why SIPLUS extreme?

SIPLUS extreme products are standard components that are more resistant to mechanical loads, chemical and biological substances, condensation and temperature fluctuations. The SIPLUS extreme technology protects your products against resulting corrosion, dendrite and whisker formation and other harmful deposits, thereby preventing faults and downtimes. The expansion of the temperature range to  $-40\text{ °C}$  and  $+70\text{ °C}$  allows SIPLUS extreme products to be used even where the standard is no longer sufficient.

SIPLUS extreme covers a wide range of products:

- Controllers
- Distributed IO
- HMI devices
- Components for industrial communication
- Components for industrial switching systems
- Drive systems
- Power supplies

## The coating process

Simple protective coatings are not enough. Instead, cleaning processes, material selection and coating technologies have to be coordinated so that they work together optimally. SIPLUS extreme conformal coating ensures the permanent cover of all components and solder joints, which is not the case with a simple coating. Thanks to our special, high-quality coating and optimized processes, our products achieve maximum values in environmental tests.

For more information about SIPLUS extreme:  
[siemens.com/siplus-extreme](https://www.siemens.com/siplus-extreme)

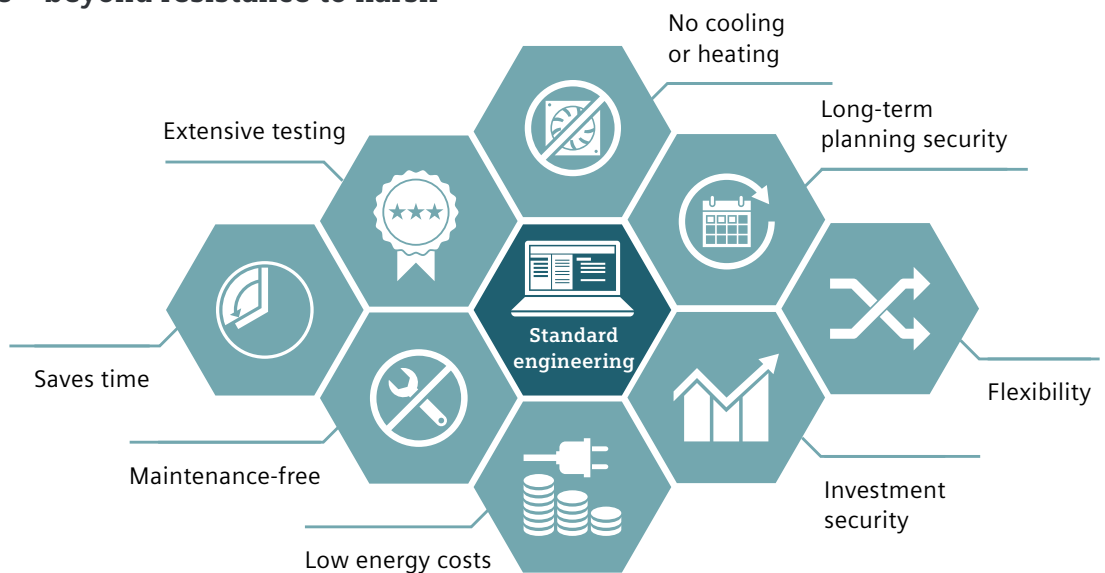
## System benefits at a glance

SIPLUS extreme upgrades the advanced automation and drive components from Siemens.

- **Dependability**  
No maintenance, thanks to extensive testing of SIPLUS extreme.
- **Energy efficiency**  
No additional heating/cooling is necessary, reducing energy costs and increasing climate protection.
- **Standard engineering**  
Consistent data storage, thanks to seamless integration into the TIA Portal Engineering Framework.
- **Certification**  
Extensively tested for toxic gases, sand and dust, biological substances in a test lab accredited in Germany, or certified by the TÜV technical inspection association for fail-safe applications.



## SIPLUS extreme – beyond resistance to harsh environments



# Extensive testing

To ensure that the SIPLUS extreme products are fully operational even under the harshest ambient conditions, they undergo numerous tests under high-load and corrosive conditions. They are added to the product family only after passing these tests.









Videos about the SIPLUS extreme test methods are available on our website



**NEW: SIPLUS extreme – dependable protection against dendrite and corrosion.** Relative humidity and temperature changes as well as toxic gases can cause condensation, leading to short circuits. Learn all about the resistance of our SIPLUS extreme products online: [siemens.com/siplus-extreme](https://www.siemens.com/siplus-extreme)

## SIPLUS extreme – fully tested

Test area/standard			SIPLUS extreme	Siemens Industrie Standard
	<b>Temperature</b> EN 60068-2-2 EN 60068-2-14	Ambient	-40/-25...+60/+70 °C*	0 °C – 55 / 60 °C
		Operation	-40/-25...+60/+70 °C*	0 °C – 55 / 60 °C
	<b>Condensation</b> EN 60068-2-38	Relative humidity	100% RH + condensation + icing	10 to 95% without condensation
	<b>Salt mist</b> EN 60068-2-52	Tested	Severity 3 offshore area	SL
	<b>Mechanical substances</b> EN 60721-3-3	Class	3S4	3S2 (without sand)
		Suspended matter content	4.0 mg/m <sup>3</sup>	0.2 mg/m <sup>3</sup>
		Precipitation	40 mg/(m <sup>2</sup> *h)	1.5 mg/m <sup>3</sup>
	<b>Chemical substances</b> EN 60721-3-3	Class	3C4	3C2
		Tested substances	SO <sub>2</sub> , H <sub>2</sub> S, Cl, HCl, HF, NH <sub>3</sub> , O <sub>3</sub> , NO <sub>x</sub>	SO <sub>2</sub> , H <sub>2</sub> S at low concentration
	<b>Biological substances</b> EN 60721-3-3	Class	3B2	–
		Tested substances	Mold and fungal spores	SL
	<b>Installation altitude</b>	Height	3000 – 5000 m* 658 – 540 hPa 2000 – 3500 m 795 – 658 hPa	2000 m
		Derating	20 K	SL
	<b>Mechanical load</b> EN 50125-1 *	Vibration	1 g / to 200 Hz	1 g / to 200 Hz
		Shock	15 g / 11 ms	15 g / 11 ms

\* only for certain products



### Control Cabinet for indoor and outdoor use

Applications with SIPLUS extreme operate smoothly under all conditions – without any cooling or heating systems. The field installation for cabinets with SIPLUS extreme products are EN 60721-3-3 conform.

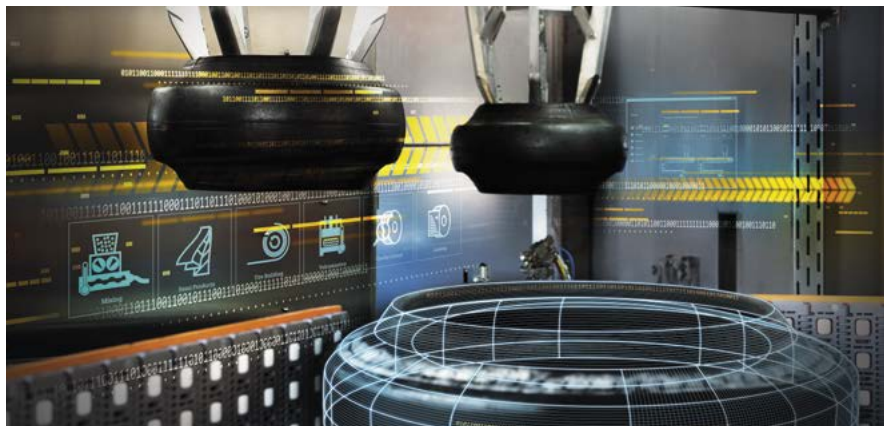
# Fit for use under extreme conditions

## Production automation

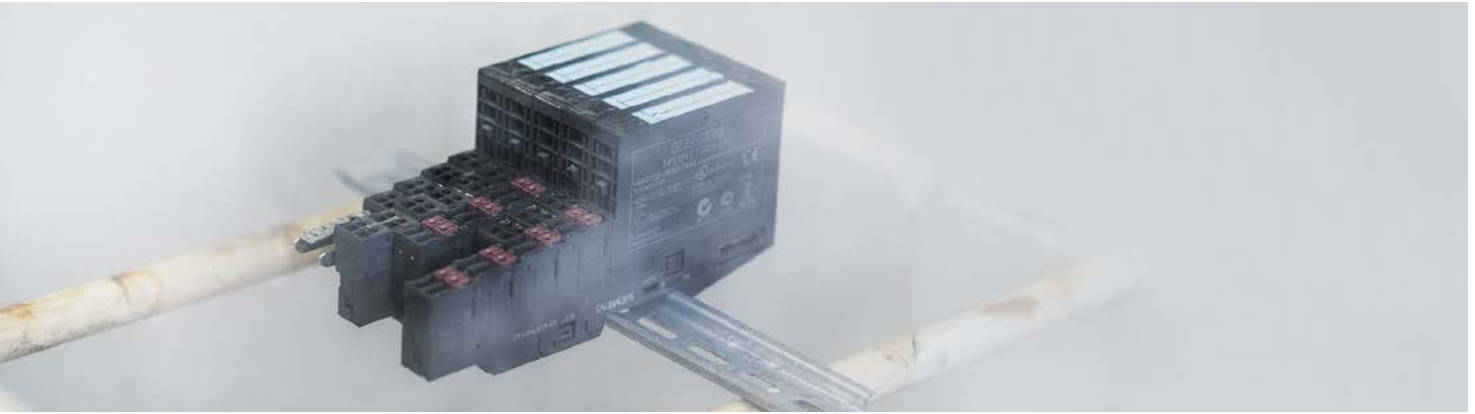
In production automation, SIPLUS extreme components are used for special machinery and other purposes, ranging from meat processing to toxic atmospheres in tire production to cooling logistics.

- Textile machines
- Tires
- Wood processing
- Processing industry
- Logistics
- Food and beverage
- Packaging systems

Many industries require technologies that resist heat and cold, gases and moisture in routine industrial situations and operate reliably and dependable. They all benefit from SIPLUS extreme products, which can be handled just like any standard Siemens product but withstand a lot more stress.



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### Hybrid industries

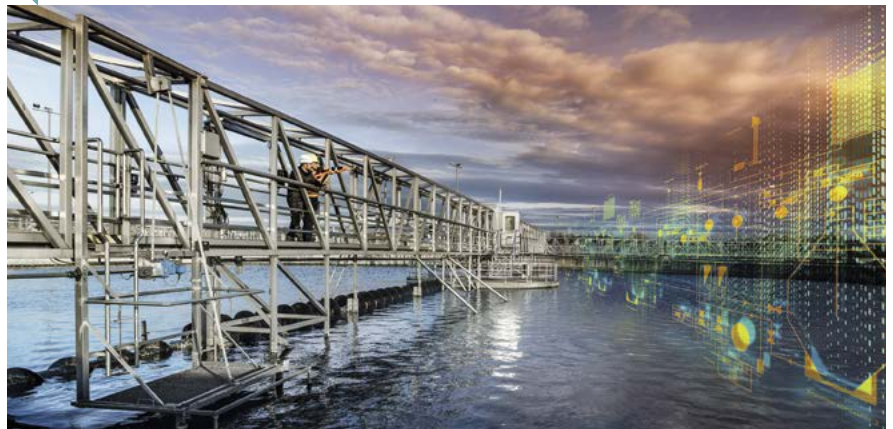
In the hybrid industries, there are many applications in which SIPLUS extreme's weather resistance pays off, such as railway signaling systems and sports and recreation facilities.

- Special vehicles
- Trains
- Cranes
- Tunnels
- Wind power

### Process automation

Process automation makes versatile use of SIPLUS extreme technologies in a wide range of fields. Stand-alone maritime solutions, cooling systems for converters and gas distribution systems all use the many benefits of the coating.

- Minerals
- Water and wastewater
- Oil and gas
- Marine
- Cement
- Seawater desalination
- Mining
- Pulp & paper



**For more information, please visit:**  
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**Learn all about SIPLUS extreme:**

- Videos on test methods for SIPLUS extreme
- Overview of typical industries that use SIPLUS extreme
- Conversion tool that lets you quickly find standard and SIPLUS extreme products

**Want to switch from a standard to a SIPLUS extreme product?  
Use the conversion tool!**

Find out more  
about SIPLUS  
extreme!



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