

A large, industrial-grade Siemens SINAMICS GH180 Air-Cooled Drive is shown from a low-angle perspective. The drive is a tall, grey metal cabinet with multiple black ventilation grilles. On the front panel, there is a control interface with a small screen, several buttons, and a red emergency stop button. A Siemens logo and the SINAMICS brand name are visible on the side of the cabinet. The background is a plain, light-colored wall.

**SIEMENS**

*Ingenuity for life*

# The Perfect Fit

Introducing the Next Generation  
of SINAMICS PERFECT HARMONY  
GH180 Air-Cooled Drive

[usa.siemens.com/perfectharmony](http://usa.siemens.com/perfectharmony)

# When reliability is all you have room for.

When it comes to improving throughput, increasing efficiency and standardizing solutions, operating conditions will never be perfect – but at least your drives can be. Whether square footage is at a premium or downtime is not an option, reliability is something you can't stand to spare. Siemens developed a drive to fit virtually anywhere — perfectly.

## A highly efficient solution for low power applications

The new SINAMICS PERFECT HARMONY GH180 air-cooled drive delivers optimal power and protection in a simpler, more compact package than ever.

Siemens power cell design allows for less maintenance and greater availability. And when combined with up to 90% savings on cable costs, the result is a significantly lower total cost of ownership over the drive's lifecycle. No other

drive offers the savings and reliability that the SINAMICS PERFECT HARMONY GH180 does, making it the ideal solution for low power applications — especially those requiring cable lengths over 200 feet. Now you can retrofit your medium-voltage soft starter systems to achieve improved efficiency and process control.



## SINAMICS PERFECT HARMONY GH180 is:

- **Highly Reliable**  
Provides fault tolerance via Advanced Cell Bypass
- **Energy-Efficient**  
Increases process control to improve throughput and reduce energy waste
- **Line-Friendly**  
Achieves a near-unity power factor by eliminating harmonic voltage and current distortion
- **Motor-Friendly**  
Eliminates harmonic heating and insulation stress
- **Load-Friendly**  
Eliminates significant torque pulsations
- **Process-Focused**  
Prevents system shutdown by proactively warning the operator of any issues

# A drive that's sized for what's essential.

## Compact Footprint

Upgrade your drive without giving up critical space. The SINAMICS PERFECT HARMONY GH180 drive fits easily into retrofits and other applications where space is at a premium.

## Fast & Simple Commissioning

The SINAMICS Perfect Harmony GH180 drive offers a simplified system, with enhanced serviceability and reduced commissioning. In some instances commissioning time is as little as 1-2 days!

## Low Voltage Compatibility

The SINAMICS Perfect Harmony GH180 drive supports 480V or 600V input voltages up to 400A - making this drive ideal for new or retrofit applications.

## Significant Savings

With the SINAMICS PERFECT HARMONY GH180 drive, you will realize tremendous savings on cables and conduit. Savings on installation and lifetime operating costs will also be realized, thanks to infrequent maintenance needs.

## Ease of Use

The SINAMICS PERFECT HARMONY drive features enhancements including the Siemens SIMATIC HMI, low weight power cells, front access blowers and new louver design to provide users with unparalleled ease of use.

## Energy Efficiency

SINAMICS PERFECT HARMONY drives offer up to 96.5% energy efficiency through the speed range.

## Compatible with Any Motor Type

SINAMICS Perfect Harmony GH180 drives are compatible with any motor type including induction, synchronous, permanent magnet, and round rotor motors.





# The Perfect Solution for Imperfect Conditions

As the demand for power and raw materials continues to grow, U.S. manufacturers are faced with an increasing number of operational challenges. For some, it's the remote location of their plants; others have harsh environments to consider. But although operating conditions are never perfect, your process has to be — because in today's competitive market, downtime is not an option. That's why there's SINAMICS Perfect Harmony.

Every element of the new SINAMICS Perfect Harmony GH180 drive is engineered to maximize productivity and protect your process in a way that other drives can't. Designed in compact air-cooled configurations, the next generation SINAMICS Perfect Harmony drives deliver superior versatility, efficiency and process availability for the most demanding applications.

And because reliability is a paramount concern for today's manufacturers, Siemens equipped the SINAMICS Perfect Harmony drive with 50+ patented technologies proven to increase the dependability of critical processes. The drive's modularity provides a scalable solution that achieves near-100 percent reliability and 99.99 percent availability, resulting in a significantly reduced total cost of ownership over the drive's lifecycle. A series cell configuration even allows the drive to withstand failures that would overwhelm conventional drives and shut down the plant process.

#### Unparalleled Benefits:

- Impressive potential 3 year pay back on fan and pump applications
- Up to 4% improved efficiency on low power applications when compared to high-low-high solutions
- Incredible flexibility to suit virtually any application
- Fast lead time to meet even the most demanding schedules



# Superior reliability, perfected for small spaces.

## Advanced Cell Bypass

In less than a quarter of a second, the SINAMICS PERFECT HARMONY GH180 drive can bypass multiple failed cells to maintain a balanced output voltage. With one cell in bypass, the drive still produces sufficient voltage to allow the process to continue uninterrupted, and the quality of the voltage and waveform remain virtually unchanged.

## Clean Power Input

SINAMICS Perfect Harmony drives meet the most stringent IEEE 519-2014 requirements for voltage and current harmonic distortion. An integrated sinusoidal converter not only eliminates the need for harmonic filters, power factor correction capacitors or extra bus capacity, but also protects other online equipment from harmonic disturbances.

## High-Quality Output

No drive offers a higher-quality waveform output than SINAMICS PERFECT HARMONY. With 21 levels of non-harmonic output voltage, it accommodates any standard motor

without requiring additional output or  $dv/dt$  filters — which can reduce efficiency and reliability — and it provides the lowest peak voltage to the motor windings to help extend motor life.

## Environmental Tolerance

Only SINAMICS Perfect Harmony drives are engineered to operate reliably in environments with ambient temperatures ranging from  $-40^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$ . No other drive can tolerate such a broad range of extreme conditions. An optional PDC allows the drive to withstand even the harshest outdoor conditions, from tropical environments to frozen tundras.



# Technical data at a glance

## Efficiency

- Typical power converter: 99%
- Typical total drive system: 96.5%

## Input Transformer

- Aluminum or copper windings, forced-air cooling

## Line Supply Connection

- Input voltage and voltage tolerance: 380V–7.2 kV,  $\pm 10\%$
- Input frequency: 50 or 60 Hz,  $\pm 5\%$
- Input power factor:  $\geq 0.95$  above 10% load

## Motor-Side Inverter

- Multilevel drive PWM topology
- IGBT power modules

## Motor Control

- Induction motors
- Synchronous motors
- Permanent magnet motors
- Wound rotor motors

## Motor Insulation Requirement

- All standard motor insulations with no filters

## Output Torque

- Rated torque (2Q) available from 10–167 Hz

## Control

- Vector control

## Input Current Harmonics

- $\leq 5\%$  TDD (total demand distortion)
- Meets or exceeds IEEE-519-2014

## Ride-Through

- Minimum of five cycles after loss of input medium voltage
- MV without tripping

## Output Frequency and Drift

- 0.5–330 Hz,  $\pm 0.5\%$

## Output Voltage Harmonics (THDi)

- 2.0%–2.5%

## Enclosure

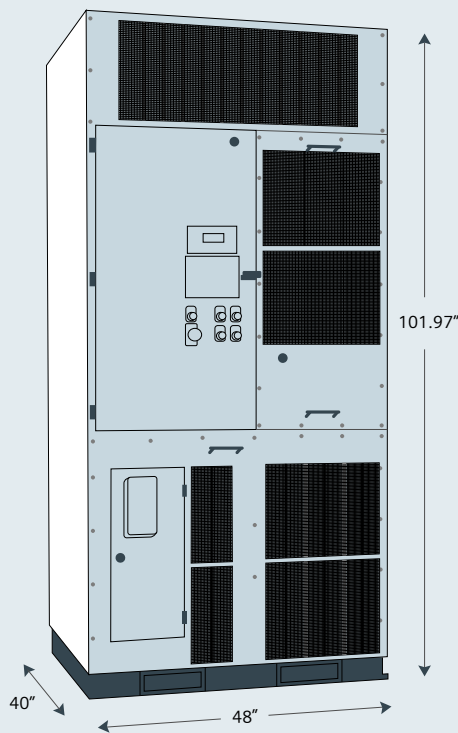
- NEMA 1; IP42 standard



# SINAMICS PERFECT HARMONY GH180 air-cooled drive specifications

Cell Current	No. of Cells	Shaft Output**		Height*		Width*		Depth*		Order Number (MLFB)***
		kW	Hp	in.	mm	in.	mm	in.	mm	
<b>Motor Voltage: 4kV</b>										
40	9	112	150	102	2590	48	1219	40	1016	6SR5202-0_A31-5__0
40	9	149	200	102	2590	48	1219	40	1016	6SR5202-0_A32-0__0
40	9	224	300	102	2590	48	1219	40	1016	6SR5202-0_A33-0__0
70	9	298	400	102	2590	48	1219	40	1016	6SR5202-0_B34-0__0
70	9	336	450	102	2590	48	1219	40	1016	6SR5202-0_B34-5__0
70	9	373	500	102	2590	48	1219	40	1016	6SR5202-0_B35-0__0
70	9	401	538	102	2590	48	1219	40	1016	6SR5202-0_B36-0__0
<b>Motor Voltage: 3.3kV</b>										
40	9	112	150	102	2590	48	1219	40	1016	6SR5202-0_A31-5__0
40	9	149	200	102	2590	48	1219	40	1016	6SR5202-0_A32-0__0
40	9	189	254	102	2590	48	1219	40	1016	6SR5202-0_A35-0__0
70	9	224	300	102	2590	48	1219	40	1016	6SR5202-0_B33-0__0
70	9	298	400	102	2590	48	1219	40	1016	6SR5202-0_B34-0__0
70	9	331	444	102	2590	48	1219	40	1016	6SR5202-0_B35-0__0
<b>Motor Voltage: 2.4kV</b>										
40	9	112	150	102	2590	48	1219	40	1016	6SR5202-6_A31-5__0
40	9	138	184	102	2590	48	1219	40	1016	6SR5202-6_A32-0__0
70	9	149	200	102	2590	48	1219	40	1016	6SR5202-6_B32-0__0
70	9	224	300	102	2590	48	1219	40	1016	6SR5202-6_B33-0__0
70	9	241	323	102	2590	48	1219	40	1016	6SR5202-6_B34-0__0

\* Reflects typical output power; motor type or size may affect actual output power.  
 \*\* Typical output value provided; output power may change based on the type or size of motor.  
 \*\*\* Brackets denote additional digits to be determined based on order detail.



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