SIEMENS

Cell-based innovation. Proven reliability.

SINAMICS PERFECT HARMONY medium-voltage variable frequency drive

siemens.com/sinamics-perfect-harmony

Answers for industry.



PERFECT HARMONY joins the SINAMICS family of innovative drives

Expanded drive line offers reliable solutions for any application

At Siemens, innovation has always been both a core mission and an ongoing source of momentum. For more than half a century, Siemens has been developing, manufacturing and installing medium-voltage drives to meet a wide range of evolving industry needs. The resulting solutions have consistently raised the bar on reliability, efficiency and customer satisfaction – and now they have culminated in the unique cell-based topology of the PERFECT HARMONY drive.

SINAMICS, the world's largest family of precision-engineered frequency converters, is a testament to Siemens' tradition of excellence. Based on innovative engineering concepts and a wealth of motor and topology expertise, SINAMICS drives provide cost-effective, energy-efficient solutions with a broad range of power and performance. From flow control and processing to lifting, moving and complex motion control, SINAMICS has the flexibility to support every application. The benefits offered by the SINAMICS drive family are further strengthened by the addition of Siemens ROBICON PERFECT HARMONY drives. Renamed SINAMICS PERFECT HARMONY, these cell-based drives incorporate technology that stems from a deep understanding of not just mediumvoltage drives, but also the industries that employ them. The combination of SINAMICS technology and PERFECT HARMONY cell-based topology results in a solution that maximizes productivity while protecting your process.

Siemens has spent more than 17 years designing and refining the 50+ patented technologies that make up the SINAMICS PERFECT HARMONY drive's modular topology. As part of Siemens' Totally Integrated Automation concept, the cell-based drive allows for unsurpassed reliability and outstanding data management and communication at the automation level. It's the No.1 selling cell-based drive worldwide – with 10,000+ installations – because it's trusted more than any other when it comes to demanding applications.



The most comprehensive drive family available today

SINAMICS offers a unique range of power and performance for every application

A drive solution for every application

The SINAMICS PERFECT HARMONY drive draws on Siemens' extensive experience with a wide range of industry applications to deliver the most versatile variable frequency drive available today. From pumps and fans to compressors and extruders, any application can be paired or retrofitted with a SINAMICS PERFECT HARMONY drive to optimize process improvement.

A long-term commitment to customer satisfaction

When you purchase a SINAMICS PERFECT HARMONY drive, you get personalized service from planning through commissioning and beyond. Siemens stands behind every drive it produces with an unwavering commitment to quality and customer satisfaction. By adding PERFECT HARMONY to the SINAMICS drive family and investing more than \$25 million in SINAMICS PERFECT HARMONY manufacturing, Siemens has established a solid foundation for ongoing product support and innovation. You can rest assured that as your industry continues to grow and change, Siemens and SINAMICS will help keep you ahead of the curve.

Close-at-hand expertise

Siemens operates a global network of drive manufacturing facilities to ensure you are never far from the support you need. This global approach to engineering helps maintain regional manufacturing standards and allows burgeoning local market needs to shape ongoing research and development. Siemens drive manufacturing is global so that it can keep its drive solutions local. SINAMICS global factory locations:

- Shanghai, China
- Nuremberg, Germany
- New Kensington, USA
- Jundiai, Brazil
- Nashik, India







2001 1969 1970 1994 1996 1998 2001

Siemens SINAMICS introduces the first variablespeed, mediumvoltage drive system.

... becomes the global market leader in cycloconverters. ... revolutionizes mediumvoltage drives with cell-based topology. ... pioneers the use of highvoltage IGBTs for mediumvoltage converters.

... integrates Advanced Cell Bypass. ... adds Next Generation Control with Fast Cell Bypass.

Evolving to meet tomorrow's challenges today

SINAMICS evolved out of the industry's growing need for cost-effective, applicationtailored drive options. In 1969, Siemens introduced its first variable-speed, mediumvoltage drive system with DC link converters and within a year became the global market leader in cycloconverters. It seemed that industry leadership was a natural fit for Siemens' innovations right from the start.

When PERFECT HARMONY was introduced in 1994, it was the world's first IGBT-based medium-voltage drive. Many more firsts were still to come as the technology evolved to meet both industry demands and inevitable regulation changes. Siemens anticipated these changes and planned ahead to address them before they arose. Siemens believed then, as now, that continued innovation is the only way to ensure optimal reliability for its customers' critical applications.

Over the last five decades, Siemens has continued to grow and refine medium-voltage drive technology to serve an even greater number of industries. From Advanced Cell Bypass to parallel drive operation, each innovation continues to anticipate customers' changing needs while improving reliability and plant availability.









2003 2005

... produces the highest-rated high-speed drive (LCI) for an LNG compressor. ... acquires PERFECT HARMONY technology.

... rolls out parallel drive operation. ... implements permanentmagnet motor control.

2007

... adds highavailability liquid-cooled drive. ... adds 10 kVoutput voltage drive to lineup. ... reaches 10,000 drives installed worldwide.

5

SINAMICS has the optimal drive for every application

The world's largest family of drive solutions at a glance

With SINAMICS, Siemens offers a range of solutions that optimally comply with high requirements in the low-voltage, medium-voltage and DC-voltage ranges. The complete drive family accommodates all performance levels and sets itself apart with its unparalleled flexibility, functionality and efficiency. Industry demands increasingly require flexible, scalable drive solutions that are not just safe and efficient, but also application-specific. That's why, for the past 50 years, Siemens has been using proven technology to continually improve the versatility, reliability and energy efficiency of its SINAMICS drives. Today, the drive family offers a full portfolio of solutions that – depending on the application – can reduce power costs by 20 to 70 percent while increasing your productivity and sharpening your competitive edge.

	Low voltage AC										
Basic Performance	General Performance										
SINAMICS V20	SINAMICS G120C	SINAMICS G120P/G120P Cabinet	SINAMICS G120	SINAMICS G110D/G120D/G110M	SINAMICS G130/G150	SINAMICS G180	SINAMICS S110				
V/f control	V/f control vector control witho	out encode	V/f control vector control with and without encoder	V/f control (G110D), sensorless vector control (G120D/ G110M)	V/f control vector control with and without encoder	Servo control					
0.12-15 kW	0.55–18.5 kW	0.37–400 kW	0.37–250 kW	0.37–7.5 kW	75–2,700 kW	2.2-6,600 kW	0.12-90 kW				
Pumps, fans, compressors, conveyor belts, mixers, mills, spinning machines, textile machines	Pumps, fans, compressors, conveyor belts, mixers, mills, extruders	Pumps, fans, compressors	Pumps, fans, compressors, conveyor belts, mixers, mills, extruders, single- axis positioning applications in plant and machinery construction	Conveyor technology, single-axis positi- oning applications (G120D)	Pumps, fans, compressors, conveyor belts, mixers, mills, extruders	Sector-specific for pumps, fans, compressors, conveyor belts, extruders, mixers, mills, kneaders, centrifuges, separators	Single-axis positioning applications in plant and machinery construction				

Engineering Tools:

*Exception: V20 – does not require an engineering tool; G180 is commissioned using the IMS software (Inverter Management Software)

The SINAMICS drive family spans a wide range of power ratings – from 0.12 kW to 85 MW – and includes both low- and medium-voltage options for a high degree of flexibility with other drive system components. It also accommodates all voltage classes from 200 V to 11 kV, motor speeds from 10 to 15,000 rpm, and all levels of dynamic response and performance. And whether you need a single-motor drive or a multi-motor system, all SINAMICS drives are harmonized and coordinated accordingly.

No matter which drive task is involved, SINAMICS always offers the optimal safety-integrated solution. And now, with SINAMICS PERFECT HARMONY cell-based drives added to the lineup, finding a drive that meets your application's specific needs is simpler than ever.



		DC voltage	Medium voltage AC							
High Performance		For basic and demanding applications	For applications with high power ratings	Perfect harmony between perfor- mance, process and technology						
SINAMICS S120	SINAMICS SINAMICS S120 S150		SINAMICS GL150/GM150/SM150/SL150	SINAMICS PERFECT HARMONY GH180						
V/f control vector control with and without encoder servo control with and without encoderr		Closed-loop speed control torque control	V/f control / vector control	V/f control / vector control with and without encoder						
0.12–5,700 kW	75–1,200 kW	6 kW-30 MW	0.8–85 MW	0.15–14.2 MW						
Production machines (packaging, textile and printing machines, paper machines, plastics machines), machine tools, plants, process lines and rolling mills	Test stands, crosscutters, centrifuges	Rolling mill drives, wire drawing machines, extruders and kneaders, cable railways and ski lifts, test stand drives	Pumps, fans, compressors, mixers, extruders, mills, rolling lines, mine hoist drives, excavators, test stands, ships' drives, conveyor belts, blast furnace blowers	Pumps, fans, compressors, mills, crushers, conveyor systems, retrofit projects						
DT Configurator – selection and configuration										

DI Configurator – selection and configurati

SIZER – simple planning and engineering

STARTER and Startdrive – fast commissioning, optimization and diagnostic*



The advantages of cell-based technology

Every element of a SINAMICS PERFECT HARMONY cell-based drive is engineered to maximize productivity and protect your process in a way that other drives can't. Its modularity allows for a scalable solution that achieves near-100 percent reliability and 99.99 percent availability, which means greater productivity and a significantly reduced total cost of ownership over the drive's life cycle. A cost-effective series cell configuration allows it to withstand failures that would overwhelm conventional drives and shut down the plant process. And only SINAMICS PERFECT HARMONY cell-based drives include the reliability and efficiency of clean power input, high-quality output, and cell bypass and redundancy.

Cell bypass and redundancy

Scalability is only one of the advantages of using multiple cells to create medium-voltage output. This type of configuration also promotes reliability through cell redundancy, preventing the process from being interrupted if one or more cells fail. Together with cell redundancy, cell bypass offers additional security by isolating a failed cell and placing it in bypass to keep the power output constant. Failed cells can be changed out later in 30 minutes or less.

Cell-based drives are:

- Highly reliable
 Fault-tolerant with cell redundancy and cell bypass
- Energy-efficient Increased process control with improved throughput and reduced energy waste
- Line-friendly
 No harmonic voltage or current distortion; near-unity power factor
- Motor-friendly No harmonic heating and no insulation stress
- Load-friendly No significant torque pulsations



Clean power input

SINAMICS PERFECT HARMONY drives meet the most stringent IEEE-519-1992 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; it also protects other online equipment from harmonic disturbances. Depending on the configuration, input waveform equivalents can range from 18-pulse up to a 48-pulse rectifier, resulting in less than 3 percent total voltage distortion and less than 5 percent total current distortion.

High-guality output

No drive offers a higher guality waveform output than the SINAMICS PERFECT HARMONY. Its cell-based design 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. Together with the drive's inherently low harmonic content, these features extend motor life by protecting the motor insulation and preventing motor bearing failure.

Environmental tolerance

Only SINAMICS PERFECT HARMONY drives are engineered to operate reliably in environments with temperatures ranging from -40° C to 50° C. What's more, the liquid-cooled unit's liquid-to-air single cooling loop can tolerate environments from -40° C to 40° C without derating or the use of chillers. Our secondary liquid-to-liquid cooling loop can accept water from an ocean, lake or stream at temperatures ranging up to 45° C. SINAMICS PERFECT HARMONY drives also can be provided in an integral external enclosure that allows them to withstand the harshest outdoor weather conditions, from tropical environments to the open deck of an ocean platform. No other general purpose, air- or liquid-cooled drive can tolerate such a broad range of extreme conditions.

Clean Power



Power Quality Output



Output waveforms at 100% speed



Output waveforms at 50% speed



SINAMICS PERFECT HARMONY GH180 drives

Reliability, patented technologies, and high-quality input and output power have made the SINAMICS PERFECT HARMONY GH180 the drive of choice for medium-voltage, variable-speed applications. Siemens designed the SINAMICS PERFECT HARMONY GH180 drives in both liquidcooled and compact air-cooled configurations to provide maximum versatility, efficiency and process availability for the most demanding applications. With these drives, reliability is paramount – as evidenced by the incorporation of 50+ patented technologies proven to increase the dependability of critical processes.

During operation, Advanced Cell Bypass technology enables SINAMICS PERFECT HARMONY drives to bypass failed cells so that the drive remains operational, power stays constant and production is maximized. You'll also find that cell replacement is guicker due to the reduced cell weight, front-accessible bolted connection and custom-designed cell lifter. With these features in place, cell replacement takes less than 30 minutes. Should a disturbance occur, our Process-Tolerant Protection Strategy (ProToPS[™]) will provide a hierarchical system of warnings that allow ample time for your operator to evaluate the issue and respond appropriately to avoid system shutdown.

As with all SINAMICS PERFECT HARMONY drives, these drives also include synchronous transfer technology to protect equipment from excessive torque transients. This closed-transfer approach is used to soft-start multiple motors, pumps or compressors placed in a series and efficiently transfer them across the line without overstressing the power grid.

Siemens optimized the SINAMICS PERFECT HARMONY GH180's fully integrated variable frequency drive systems for easy access to all components so drive maintenance is simplified and downtime is limited. Each drive includes an integrated isolation transformer, power electronics, controls and a cooling system that can tolerate temperatures from -40° C to 50° C. Designed for longevity, the drive's cabinets are constructed to meet the most stringent industrial requirements and withstand the harshest weather conditions.



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 the waveform remain virtually unchanged.

Process-Tolerant Protection Strategy (ProToPS™)

With a proven record of 99.99% process uptime, ProToPS[™] protects your process from faulty sensors or data. Unlike typical systems that simply trip the drive and automatically shut down the system due to a malfunction, ProToPS[™] offers a proactive control strategy for applications where failure avoidance is critical.

Technical Data at a Glance

Efficiency

- Typical power converter efficiency: 99%
- Typical total drive system efficiency: 97%

Input transformer

- Air-cooled: aluminum or copper windings, forced-air cooling
- Liquid-cooled: copper windings, liquid-cooled

Line supply connection

- Input voltage and voltage tolerance:
 2.3 to 13.8 kV, ±10%
- Input frequency: 50 or 60 Hz, ±5%
- Input power factor:
 ≥ 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

Output dv/dt

 1,000–3,000 V/µs (dependent on model)

Output torque

 Rated torque (2-quadrant) available from 10 to 167 Hz

Control

Vector Control (NXGII series)

Input current harmonics

- ≤ 5% TDD (total demand distortion)
 Meets or exceeds
- IEEE-519-1992

Ride-through

 Minimum of 5 cycles after loss of input MV without tripping

Output frequency and drift

0.5 to 330 Hz, ± 0.5%

Output voltage harmonics (THDi)

Between 2.0 to 2.5%

Regenerative (4Q) operation

- Air-cooled: 2Q only
- Liquid-cooled: 4Q available as option

SINAMICS PERFECT HARMONY GH180 drive specifications

No. of cells	Output current	Type rating			Xfmr [KVA]	Cooling method			Width*		Depth*		Article No. (MLFB)***	
		kVA	kW						inch					
Motor vol	tage—3.3	kV			1									
9	40	225	189	254	300	Forced-air	102	2,591	66	1,677	42	1,067	6SR4[]02-0[]A33-0[][]0	
9	70	400	331	444	450	Forced-air	102	2,591	66	1,677	42	1,067	6SR4[]02-0[]B34-5[][]0	
9	100	570	473	635	700	Forced-air	102	2,591	66	1,677	42	1,067	6SR4[]02-0[]C37-0[][]0	
9	140	800	662	888	900	Forced-air	102	2,591	66	1,677	42	1,067	6SR4[]02-0[]D38-7[][]0	
9	200	1,140	970	1,301	1,500	Forced-air	119.5	3,036	82	2,083	45	1,143	6SR4[]02-0[]E41-5[][]0	
9	260	1,485	1,261	1,691	1,750	Forced-air	119.5	3,036	82	2,083	45	1,143	6SR4[]02-0[]F41-7[][]0	
9	315	1,800	1,527	2,047	2,250	Forced-air	117	2,972	172	4,369	50	1,270	6SR3[]02-1[]G42-2[][]0	
9	375	2,140	1,818	2,437	2,500	Forced-air	118	2,998	188	4,776	50	1,270	6SR3[]02-1[]H42-5[][]0	
9	500	2,855	2,424	3,250	3,500	Forced-air	118	2,998	188	4,776	50	1,270	6SR3[]02-1[]J43-5[][]0	
9	660	3,080	2,611	3,500	3,500	Forced-air	118	2,998	188	4,776	50	1,270	6SR3202-1[]K43-5[][]0	
9	880	5,025	4,271	5,726	6,000	Liquid	114	2,896	370	9,398	66	1,677	6SR3252-0[]B46-0[][]0	
9	1,250	7,140	6,067	8,133	8,500	Liquid	115	2,921	378	9,602	66	1,677	6SR3252-0[]C48-5[][]0	
Motor voltage — 4.16 kV														
9	40	275	229	307	400	Forced-air	102	2,591	66	1,677	42	1,067	6SR4[]02-0[]A34-0[][]0	
9	70	480	401	538	600	Forced-air	102	2,591	66	1,677	42	1,067	6SR4[]02-0[]B36-0[][]0	
9	100	690	573	769	800	Forced-air	102	2,591	66	1,677	42	1,067	6SR4[]02-0[]C38-0[][]0	
9	140	965	802	1,076	1,100	Forced-air	102	2,591	66	1,677	42	1,067	6SR4[]02-0[]D41-1[][]0	
9	200	1,385	1,175	1,576	1,750	Forced-air	120	3,036	82	2,083	45	1,143	6SR4[]02-0[]E41-7[][]0	
9	260	1,800	1,528	2,049	2,250	Forced-air	120	3,036	82	2,083	45	1,143	6SR4[]02-0[]F42-2[][]0	
12	315	2,265	1,925	2,581	3,000	Forced-air	118	2,998	208	5,284	50	1,270	6SR3[]02-3[]G43-0[][]0	
12	375	2,700	2,292	3,073	3,500	Forced-air	118	2,998	208	5,284	50	1,270	6SR3[]02-3[]H43-5[][]0	
12	500	3,600	3,056	4,097	5,000	Forced-air	120	3,048	232	5,893	50	1,270	6SR3[]02-3[]J45-0[][]0	
12	660	4,755	4,034	5,408	6,000	Forced-air	120	3,048	232	5,893	50	1,270	6SR3[]02-3[]K46-0[][]0	
12	720	5,185	4,401	5,900	6,000	Forced-air	120	3,048	232	5,893	50	1,270	6SR3[]02-3[]L46-0[][]0	
9	880	6,095	5,177	6,940	7,000	Liquid	114	2,896	370	9,398	66	1,677	6SR3252-0[]B47-0[][]0	
9	1,250	8,660	7,354	9,858	10,000	Liquid	115	2,921	378	9,602	66	1,677	6SR3252-0[]C52-0[][]0	
Motor vo	ltage—4.6	/4.8 kV												
12	40	330	275	369	400	Forced-air	118	2,998	114	2,896	45	1,143	6SR4[]02-1[]A34-0[][]0	
12	70	580	481	645	700	Forced-air	118	2,998	114	2,896	45	1,143	6SR4[]02-1[]B37-0[][]0	
12	100	830	688	923	1,000	Forced-air	118	2,998	114	2,896	45	1,143	6SR4[]02-1[]C41-0[][]0	
12	140	1,160	963	1,291	1,500	Forced-air	118	2,998	114	2,896	45	1,143	6SR4[]02-1[]D41-5[][]0	
12	200	1,660	1,411	1,892	2,000	Forced-air	118	2,998	114	2,896	45	1,143	6SR4[]02-1[]E42-0[][]0	
12	260	2,160	1,834	2,459	2,500	Forced-air	118	2,998	114	2,896	45	1,143	6SR4[]02-1[]F42-5[][]0	
12	315	2,615	2,222	2,979	3,000	Forced-air	118	2,998	208	5,284	50	1,270	6SR3[]02-3[]G43-0[][]0	
12	375	3,115	2,645	3,546	4,000	Forced-air	118	2,998	208	5,284	50	1,270	6SR3[]02-3[]H44-0[][]0	
12	500	4,155	3,526	4,727	5,000	Forced-air	120	3,048	232	5,893	50	1,270	6SR3[]02-3[]J45-0[][]0	
12	660	5,240	4,443	5,956	6,000	Forced-air	120	3,048	232	5,893	50	1,270	6SR3[]02-3[]K46-0[][]0	
12	880	7,315	6,213	8,329	8,500	Liquid	115	2,921	406	10,313	66	1,677	6SR3252-1[]B48-5[][]0	
12	1,250	10,390	8,825	11,830	12,000	Liquid	115	2,921	412	10,469	70	1,778	6SR3252-1[]C52-4[][]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.

SINAMICS PERFECT HARMONY GH180 drive specifications, cont.

No. of cells	Output current	Type rating	Shaft ou	tput**	Xfmr [KVA]	Cooling method			Width*		Depth*		Article No. (MLFB)***	
		kVA												
Motor vo	tage—6.0	kV					1				1	1		
15	40	415	344	462	500	Forced-air	115	2,926	194	4,928	55	1,397	6SR4[]02-2[]A35-0[][]0	
15	70	725	602	807	900	Forced-air	115	2,926	194	4,928	55	1,397	6SR4[]02-2[]B38-7[][]0	
15	100	1,035	860	1,153	1,250	Forced-air	115	2,926	194	4,928	55	1,397	6SR4[]02-2[]C41-2[][]0	
15	140	1,450	1,203	1,613	1,750	Forced-air	115	2,926	194	4,928	55	1,397	6SR4[]02-2[]D41-7[][]0	
15	200	2,075	1,763	2,364	2,500	Forced-air	115	2,926	194	4,928	55	1,397	6SR4[]02-2[]E42-5[][]0	
15	260	2,700	2,292	3,073	3,500	Forced-air	115	2,926	194	4,928	55	1,397	6SR4[]02-2[]F43-5[][]0	
15	315	3,270	2,777	3,723	4,000	Forced-air	120	3,048	248	6,230	54	1,372	6SR3[]02-5[]G44-0[][]0	
15	375	3,895	3,306	4,432	5,000	Forced-air	120	3,048	272	6,909	54	1,372	6SR3[]02-5[]H45-0[][]0	
15	500	5,195	4,408	5,909	6,000	Forced-air	120	3,048	272	6,909	54	1,372	6SR3[]02-5[]J46-0[][]0	
15	660	6,550	5,554	7,446	8,000	Forced-air	128	3,252	272	6,909	54	1,372	6SR3[]02-5[]K48-0[][]0	
18	720	7,040	5,968	8,000	8,000	Forced-air	128	3,252	272	6,909	54	1,372	6SR3[]02-7[]L48-0[][]0	
15	880	9,140	7,766	10,411	11,000	Liquid	115	2,921	439	11,151	70	1,778	6SR3252-2[]B52-2[][]0	
15	1,250	12,990	11,031	14,787	15,000	Liquid	115	2,921	439	11,151	70	1,778	6SR3252-2[]C53-0[][]0	
Motor vo	tage—6.6	kV												
15	40	455	378	507	600	Forced-air	115.2	2,926	194	4,928	55	1,397	6SR4[]02-2[]A36-0[][]0	
15	70	800	662	888	900	Forced-air	115.2	2,926	194	4,928	55	1,397	6SR4[]02-2[]B38-7[][]0	
15	100	1,140	946	1,269	1,500	Forced-air	115.2	2,926	194	4,928	55	1,397	6SR4[]02-2[]C41-5[][]0	
15	140	1,600	1,324	1,775	2,000	Forced-air	115.2	2,926	194	4,928	55	1,397	6SR4[]02-2[]D42-0[][]0	
15	200	2,285	1,939	2,600	3,000	Forced-air	115.2	2,926	194	4,928	55	1,397	6SR4[]02-2[]E43-0[][]0	
15	260	2,970	2,521	3,380	3,500	Forced-air	115.2	2,926	194	4,928	55	1,397	6SR4[]02-2[]F43-5[][]0	
18	315	3,600	3,055	4,096	5,000	Forced-air	120	3,048	272	6,909	54	1,372	6SR3[]02-7[]G45-0[][]0	
18	375	4,285	3,636	4,874	5,000	Forced-air	120	3,048	272	6,909	54	1,372	6SR3[]02-7[]H45-0[][]0	
18	500	5,715	4,849	6,500	7,000	Forced-air	128	3,252	272	6,909	54	1,372	6SR3[]02-7[]J47-0[][]0	
18	660	7,040	5,968	8,000	8,000	Forced-air	128	3,252	272	6,909	54	1,372	6SR3[]02-7[]K48-0[][]0	
15	880	10,055	8,542	11,451	12,000	Liquid	115	2,921	439	11,151	70	1,778	6SR3252-2[]B52-4[][]0	
15	1,250	14,285	12,134	16,266	17,000	Liquid	115	2,921	439	11,151	70	1,778	6SR3252-2[]C53-4[][]0	
Motor vo	tage—6.9	/7.2 kV												
18	315	3,600	3,055	4,096	5,000	Forced-air	120	3,048	272	6,909	54	1,372	6SR3[]02-7[]G45-0[][]0	
18	375	4,285	3,636	4,874	5,000	Forced-air	120	3,048	272	6,909	54	1,372	6SR3[]02-7[]H45-0[][]0	
18	500	5,715	4,849	6,500	7,000	Forced-air	128	3,252	272	6,909	54	1,372	6SR3[]02-7[]J47-0[][]0	
18	660	7,040	5,968	8,000	8,000	Forced-air	128	3,252	272	6,909	54	1,372	6SR3[]02-7[]K48-0[][]0	
18	880	10,970	9,319	12,492	13,000	Liquid	115	2,921	474	12,040	70	1,778	6SR3252-3[]B52-6[][]0	
18	1,250	15,585	13,237	17,744	18,000	Liquid	125	2,921	478	12,142	76	1,931	6SR3252-3[]C53-6[][]0	
Motor voltage—10/11 kV														
24	40	760	630	845	1,000	Forced-air	114	2,896	254	6,438	50	1,270	6SR4502-5[]A41-0[][]0	
24	70	1,330	1,103	1,479	1,500	Forced-air	114	2,896	254	6,438	50	1,270	6SR4502-5[]B41-5[][]0	
24	100	1,905	1,576	2,113	2,250	Forced-air	114	2,896	254	6,438	50	1,270	6SR4502-5[]C42-2[][]0	
24	140	2,665	2,206	2,958	3,000	Forced-air	114	2,896	254	6,438	50	1,270	6SR4502-5[]D43-0[][]0	
24	200	3,810	3,232	4,333	4,500	Forced-air	116	2,947	288	7,300	50	1,270	6SR4502-5[]E44-5[][]0	
24	260	4,950	4,202	5,633	5,750	Forced-air	116	2,947	288	7,300	50	1,270	6SR4502-5[]F45-7[][]0	

Reflects typical output power; motor type or size may affect actual output power.

*** Brackets denote additional digits to be determined based on order detail

An Integrated Drive System offers up to:

> 98% availability

30% less engineering time needed

15% reduction in maintenance costs



Innovation meets integration

Based on the world's most comprehensive and consistent product range in the field of drive systems, Siemens Integrated Drive Systems are the answer to the increasingly complex demands that drive tech-

nology has to meet.

As part of Siemens Integrated Drive Systems, SINAMICS drives can be combined with a variety of SIMOTICS electric motors for exceptional versatility in both new and retrofit solutions. Relying on a single source for all aspects of a drive system makes specification, purchase, implementation, operation and maintenance faster and easier than ever before. The bottom line is greater reliability, higher efficiency and superior productivity.

Benefits of an Integrated Drive System:

Productivity

- Higher throughput
- Reduced engineering effort
- High degree of flexibility
- Shorter time to market

Reliability

- Improved operating times
- Faster supply of new and
- replacement componentsCondition monitoring
- CAPEX security

Efficiency

- More energy-efficient
- Simplified maintenance
- Better environmental protection
- Reduced OPEX



Drive components:





Reliability, safety and support – built in from the beginning

Innovative technology is what established Siemens as a world-class leader in reliability, but it takes an unwavering dedication to safety and life cycle support to maintain this distinction. SINAMICS PERFECT HARMONY drives are designed for a 20-year lifetime, and Siemens offers the support to match – before, during and after installation. From quoting and commissioning to field service and live call center assistance, experienced medium-voltage drive technicians are available around the clock to personally ensure your drive's continued reliability. Fast-response safety technology integrated into the drive itself helps further limit downtime by allowing you to safely monitor drive speeds and stop a drive without disconnecting the power.

Any variable frequency drive will improve control over your process, but only SINAMICS PERFECT HARMONY drives will optimize the control you have. With 50+ patented technologies proven to increase reliability and reduce energy consumption, SINAMICS PERFECT HARMONY is designed to boost productivity while lowering your total cost of ownership. It's the best-selling drive worldwide because it's the best there is. Improve your process, your production and your bottom line with SINAMICS PERFECT HARMONY.

There's more to it

www.siemens.com/ids

Discover in detail how Integrated Drive Systems boost your competitive edge and improve your time to profit.

Integrated Drive Systems to go: Visit our mobile website.



Follow us on: www.twitter.com/siemensindustry www.youtube.com/siemens

Siemens AG Industry Sector Large Drives P.O. Box 47 43 90025 NUREMBERG GERMANY Subject to change without prior notice Article No.: E20001-A300-P570-X-7600 Dispo 21503 SCHÖ/50344 WS 02142.0 Printed in Germany © Siemens AG 2014 The information provided in this brochure contains merely descriptions or characteristics of performance which in case of actual use do not always apply as described or which may change as a result of further development of the products.

An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract. All product designations may be trademarks or product names of Siemens AG or other supplier companies whose use by third parties for their own purposes could violate the rights of the owners.