

A male technician wearing yellow safety glasses and red work gloves is focused on working on a silver, cylindrical motor component on a workbench. The background shows a dimly lit industrial factory setting with overhead lights and a yellow safety pillar.

INNOMOTICS

A Siemens Business

Low-voltage motors.

The benchmark for reliability and sustainability.



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Innomotics low-voltage motors. Genuine top performers.

Our low-voltage motors deliver what they promise: maximum reliability and impressive sustainability every operating hour, every day. We have the right motors for traditional industries and for those that are just getting started – and of course the right services. In short, everything you need to drive you forward.

Find out for yourself.

Extremely reliable –

even under the harshest conditions.

Our Innomotics low-voltage motors keep your plants and processes running, in both normal industrial environments and in the harsh process industries. They're as indifferent to heat, cold, dust, dirt, moisture, vibration, and jolts as they are to chemically aggressive atmospheres and salty sea air. Extra options and industry-specific versions like CHEMSTAR for oil, gas, and chemicals offer you everything you need for maximum safety: for example, when there's a risk of explosion or fast corrosion.

Flexibly standardized:

The user-friendly platform concept.

All Innomotics low-voltage motors are based on a consistent, end-to-end technology platform. In engineering, this gives us new options and reduces your outlay every step of the way, from simplified selection and planning to plant integration, commissioning, service, and spare part management – with maximum flexibility thanks to their modular design.

Easy to integrate:

High power density saves space.

Unique power density in the same frame size. Permanent magnet technology reduces motor size while retaining the same power, even when up to two more shaft heights are added! That's optimal when there's a limited installation space and surface. For a motor that's overall easier to operate.

Maximum availability –

thanks to a sophisticated service network.

If only indestructability were possible. At Innomotics, availability begins with quality and is sustained by service. We've established efficient Innomotics service around the world strategically located near you, with repair centers in our factories and certified workshops in over 20 countries – for spare parts and repairs, for retrofits and modernizations, and for customized service packages. Our service is your gain!

Certified quality –

for worldwide use in all industries.

Innomotics low-voltage motors aren't just technologically ideal for your requirements, they also have all the relevant national, international, and industry-specific certificates for the IEC, EISA, and NEMA regions, including CE, UKCA, UL-S, CSA-S, and CEL. Industry-specific certificates include VIK for chemicals, IOGP for the oil and gas industry, and BV, DNV, GL, LR, KR, ABS, and RINA for marine industries. Naturally, we also provide explosion-proof versions with ATEX, IECEx, CCC Ex, UKCA Ex, EACEx, and PESO certification.



The carbon footprint. The measure of a sustainable motor.

The sustainability of our motors is reflected in their high efficiency, an average of six percent energy savings, and their CO₂-neutral production. In addition to pure cost benefits, their efficiency also supports the competitiveness of new, sustainable industries like hydrogen production, battery production, wind power, and CO₂ capture.



Greater cost-efficiency

and sustainability.

We went beyond what the standards require because we know that it benefits you. That's why the Innomotics motors based on different technologies not only conform to the highest efficiency classes like Super Premium Efficiency (IE4) and Ultra Premium Efficiency (IE5) – they sometimes even exceed them. And even though since July 2023 the standard has only required IE4 for motors with up to six poles and with power outputs from 75 to 200 kW, Innomotics offers standard asynchronous motors in Super Premium Efficiency Class IE4 from 2.2 to 1,000 kW, including in an eight-pole version.

For extremely high efficiency in even the part-load range, Innomotics IE4 and IE5 Reluctance motors are the motors of choice. The Innomotics Permanent Magnet motors' efficiency exceeds IE5 requirements and reduces losses by about 25 percent compared with conventional IE4 motors, with an especially high power factor close to 1. Permanent Magnet motors also reduce carbon emissions between the beginning of production and delivery by 45 percent compared with standard asynchronous motors in efficiency class IE4.

SinaSave: Determine your potential savings

quickly, easily, and precisely.

SinaSave is a Web tool that's intuitive to use and provides answers to important questions before you invest in a super- or ultra-efficient motor. Does it pay to replace your existing motors with new motors in a higher efficiency class? How soon will there be a return on your investment, and how high are the annual savings that you can enter on the "credit side" after amortization? What about your specific application? What's the better motor technology choice?

Green hydrogen.

Can green hydrogen be made greener? Yes, with our highly efficient Innomotics low-voltage motors from 0.09 to 1,000 kW. They have all the certificates relevant for the hydrogen industry and can be operated direct on line and with any converters. This means that they can efficiently operate any number of pumps, fans, and compressors in the low- or medium-performance range in main and auxiliary processes, including operating with explosion protection.

For plant sections where hydrogen-filled atmospheres (Zone 1, Gas Group IIC) are frequently present, and depending on the drive task, the maximum explosion protection provided by Innomotics XP motors in an explosion-proof enclosure with Ex db eb IIC or Ex db IIC protection are the optimal solutions. In areas less subject to explosion hazards –for example, around heat exchangers – Innomotics XP with more protection for Explosion Protection Zone 2, Ex ec IIC, is sufficient. For areas of the plant where there are no explosion hazards, the best option is the rugged, high-efficiency cast-iron motors in the Innomotics SD series.

Carbon capture, battery production,

and wind farms.

Our ultra-efficient motor solutions are ideal for making these industrial processes more sustainable in order to combat global warming. With our standard asynchronous motors (IE4) and our Reluctance and Permanent Magnet motors (IE5), numerous pumps, blowers, and compressors can be operated in an extremely energy-saving mode for mixing and material-handling applications in the main and auxiliary processes. For explosion hazards due to fine dust, you can count on our high-efficiency motors with dust explosion protection. When Innomotics motors are used as pitch and yaw drives in wind energy plants, blades and nacelles are optimally equipped for the current wind conditions. Both onshore and offshore, they always ensure the highest possible energy output, and in the future they'll also be the backbone of green hydrogen production.

Innomotics GP General Purpose motors.

**Lightweight, flexible,
and highly efficient.**

The Innomotics GP (General Purpose) low-voltage motors from Innomotics are highly efficient, small, and thanks to their aluminum enclosure, extremely lightweight. They're suitable for a variety of standard drive tasks and excel in both industrial environments and infrastructure.

The motors' design and architecture ensure maximum flexibility and minimum operating and installation effort. Their extremely low weight makes them ideal for applications in pumps, fans, and compressors.

Highlights

- Exceptionally lightweight thanks to the aluminum enclosure
- Designed for maximum flexibility and minimum installation effort
- Highly efficient – also available in Super Premium Efficiency IE4 version



Technical overview

Technology	Asynchronous
Enclosure material	Aluminum
Rated power	0.09 – 45 kW
Shaft height	63 – 200 mm
Number of poles	2, 4, 6, 8
Speed range	Up to 6,000 rpm
Torque range	0.61 – 294 Nm
Rated voltage	200 – 690 V
Converter operation without filter	Up to 480 V
Temperature class	F/B (DOL), F/F (VFD)
Ambient temperature	-40 to +60° C
Designs	B3, V1, B35, V5, V6 (more on request)
Cooling method	IC411, IC416, IC418
Degree of protection	IP55, IP56, IP65, IP66
Explosion protection	–
Efficiency class	IE3, IE4
Recommended converters	SINAMICS G120, G120X, G220, S120
	Our partner Siemens AG has the right solution for you: www.siemens.com/sinamics
Certificates	CE, UL-S, CSA-S, UKCA, VIK, CEL, KEMCO, marine, railway
Direct motor configuration using SPC tool	https://mall.industry.siemens.com/ spice/cloudcm/dashboard

Typical areas of application:

- Heating
- Ventilation
- Air-conditioning
- Water/wastewater
- Food & beverage
- Battery production



Innomotics SD Severe Duty motors.

**Reliable, highly efficient output
up to 1,000 kW.**

The Innomotics SD (Severe Duty) motors are our high-efficiency low-voltage motors with a rugged cast-iron enclosure. They're as ideally suited to normal industrial conditions as they are to harsh industrial environments.

These motors are exceedingly reliable machines that also have many uses in extreme conditions and can be custom-adapted to specific applications. They're super-compact and stand out for their ease of handling and extremely high efficiency. Super Premium Efficiency IE4 in the standard version ensures both economical and sustainable operation.

Highlights

- Extremely reliable, even in the harsh environmental conditions of the process industries
- Energy-saving thanks to their extremely high efficiency class IE4 (Super Premium Efficiency) from 2.2 to 1,000 kW, meaning that they far exceed the rigorous legal requirements
- Much more flexible to use thanks to application-specific versions
- Internationally and regionally certified for worldwide use
- Grid and converter operation up to 690 V without filters

Technical overview

Technology	Asynchronous
Enclosure material	Cast-iron
Rated power	0.09 – 1,000 kW
Shaft height	71 – 450 mm
Number of poles	2, 4, 6, 8
Speed range	Up to 6,000 rpm
Torque range	1.3 – 8,100 Nm
Rated voltage	200 – 690 V
Converter operation without filter	Up to 480 V
Temperature class	F/B (DOL), F/F (VFD)
Ambient temperature	-40 to +60° C
Designs	B3, V1, B5, B35, V5, V6, ...
Cooling method	IC411, IC416, IC418
Degree of protection	IP55, IP56, IP65, IP66
Explosion protection	–
Efficiency class	IE3, IE4 (as standard from 2.2 to 1,000 kW)
Recommended converters	SINAMICS G120, G120X, G220, G130, G150, S120, S150
	Our partner Siemens AG has the right solution for you: www.siemens.com/sinamics
Certificates	CE, UL-S, CSA-S, UKCA, VIK, CEL, KEMCO, marine
Direct motor configuration using SPC tool	https://mall.industry.siemens.com/ spice/cloudcm/dashboard

Typical areas of application:

- Water/wastewater
- Steel
- Mining
- Cement
- Paper
- Power plant engineering
- Shipbuilding
- Chemicals
- Oil & Gas
- Battery production



Innomotics XP Explosion Proof motors.

Efficiency and explosion protection all in one.

Maximum safety and efficiency are the priorities of the explosion-proof Innomotics XP motors from Innomotics. The portfolio is complete with all conceivable applications for potentially explosive environments. These motors are impressive for their extremely long service life and absolute reliability under the most extreme conditions. They're also incredibly user-friendly, from their selection and ordering to engineering, integration, commissioning, operation, and service.

The portfolio also includes industry-specific versions and certificates as well as double protection (gas and/or dust environment, not hybrid) to meet extraordinary demands.

Highlights

- Complete range of explosion-proof motors up to 1,000 kW, with all types of protection from gas and dust: Ex db, Ex db eb, Ex eb or Ex ec, Ex tb, Ex tc
- Extreme user-friendliness thanks to a standardized technology platform and tools
- Reliable and efficient even under extreme conditions
- Industry-specific CHEMSTAR version for oil, gas, and chemicals
- Certificates: ATEX, IECEx, CCC Ex, UKCA Ex, EACEx, PESO, VIK, IOGP, and all the key marine certificates
- Ideal for growing markets like LNG and green hydrogen

Technical overview

Technology	Asynchronous
Enclosure material	Aluminum and cast-iron
Rated power	0.09 – 1,000 kW
Shaft height	63 – 450 mm
Number of poles	2, 4, 6, 8
Speed range	Up to 6,000 rpm
Torque range	0.61 – 8,090 Nm
Rated voltage	200 – 690 V
Converter operation without filter	Up to 480 V
Temperature class	F/B (DOL), F/F (VFD)
Ambient temperature	-40 to +60° C
Designs	B3, V1, B35, V5, V6 (more on request)
Cooling method	IC411, IC416, IC418
Degree of protection	IP55, IP56, IP65, IP66
Explosion protection	Ex db, Ex db eb, Ex eb or Ex ec, Ex tb, Ex tc
Efficiency class	IE3, IE4 (for Zone 2 – Ex ec, tb, tc)
Recommended converters	SINAMICS G180, G220, G130, G150, S120, S150

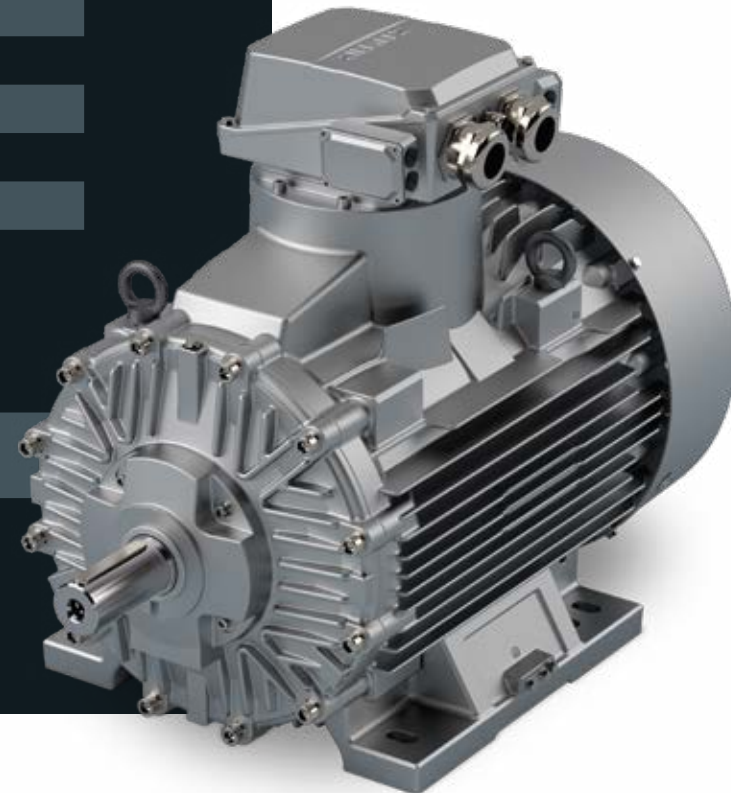
Our partner Siemens AG
has the right solution for you:
www.siemens.com/sinamics

Certificates	ATEX, IECEx, CCC Ex, UKCA Ex, EACEx, PESO, VIK, IOGP
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Direct motor configuration using SPC tool	https://mall.industry.siemens.com/ spice/cloudcm/dashboard
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Typical areas of application:

- Oil & Gas
- Chemicals
- H₂
- Shipbuilding
- Food & beverage
- Battery production



Innomotics DP Definite Purpose motors.

The motors you need for your sector.

Just as Innomotics exceeds the standards, our Innomotics DP (Definite Purpose) sector motors exceed the standard program. They offer the perfect solution for addressing the specific requirements of every industry. As a full-line supplier with many years of experience, we have a precise understanding of the drive technology requirements of every sector. This includes our ongoing search for innovative solutions that will help ourselves and our customers achieve optimal cost effectiveness and the highest degrees of energy efficiency.

Highlights

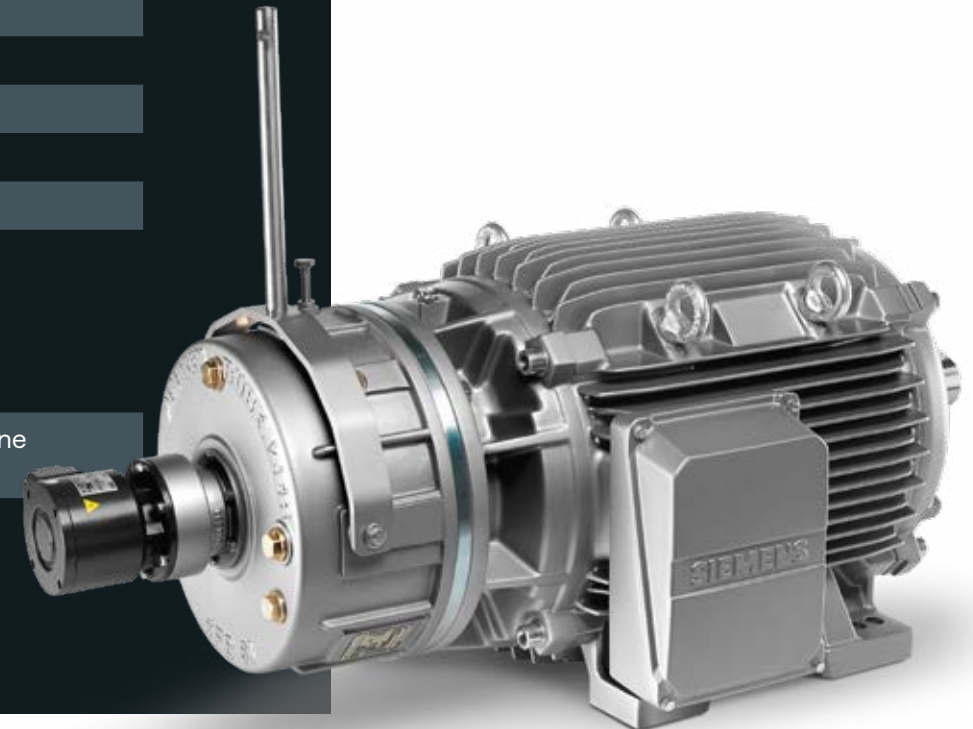
- Optimal motor solutions that meet the specific requirements of your sector
- Expansion options based on specific standards and provisions
- Application-specific electrical designs
- Design modifications for required degrees of protection, mounted components, materials, dimensions, stress levels, and more

Technical overview

Technology	Asynchronous/synchronous
Enclosure material	Aluminum/cast-iron
Rated power	2.2 – 372 kW
Shaft height	63 – 200 mm
Number of poles	2, 4, 6, 8
Speed range	Up to 6,000 rpm
Torque range	2.5 – 3,990 Nm
Rated voltage	200 – 690 V
Converter operation without filter	Up to 480 V
Temperature class	F/B (DOL), F/F (VFD)
Ambient temperature	-40 to +60° C
Designs	B3, V1, B35, V5, V6 (more on request)
Cooling method	IC411, IC416, IC418
Degree of protection	IP55, IP56, IP65, IP66
Explosion protection	–
Efficiency class	IE3, IE4
Recommended converters	SINAMICS G120, G120X, G220, S120
	Our partner Siemens AG has the right solution for you: www.siemens.com/sinamics
Certificates	CE, UL-S, CSA-S, UKCA, VIK, CEL, KEMCO, marine (more on request)
Direct motor configuration using SPC tool	https://mall.industry.siemens.com/ spice/cloudcm/dashboard

Typical areas of application:

- Ships and offshore
- Work and transport roller tables
- Steel and metal
- Harbor cranes
- Customer-specific motors customized for special applications



Innomotics Synchronous Reluctance motors.

Fast and efficient.

The Innomotics Reluctance motors are the answer to growing requirements for efficient drive systems in industrial processes. Just at the point where the technological options of conventional asynchronous technology have largely been exhausted, Innomotics Reluctance motors now offer new approaches to improving efficiency – not only at the rated operating point but also in the part-load range.

Thanks to their design, Reluctance motors have a low intrinsic moment of inertia that enables high control dynamics and speed stability, and this is how they contribute to energy savings and shorter cycles.

The Innomotics Reluctance motors create brand-new possibilities, especially in conjunction with appropriate converters.

Highlights

- High control dynamics thanks to a low intrinsic moment of inertia
- High overload capability of 20 percent for rugged, reliable operation
- Maximum efficiency, even in the part-load range: IE4 (Super Premium Efficiency) or IE5 (Ultra Premium Efficiency)
- High speed stability in encoderless operation
- High overload capability (rugged and reliable)
- High power density

Technical overview

Technology	Synchronous reluctance
Enclosure material	Aluminum (Innomotics GP) or cast-iron (Innomotics SD)
Rated power	0.55 – 90 kW
Shaft height	80 – 225 mm
Number of poles	4
Speed range	Up to 4,500 rpm
Torque range	3.5 – 191 Nm
Rated voltage	380 – 440 V (line voltage 400 – 480 V)
Converter operation without filter	Up to 480 V
Temperature class	F/B (VFD)
Ambient temperature	-40 to +60° C
Designs	B3, V1, B35, V5, V6 (more on request)
Cooling method	IC411, IC416, IC418
Degree of protection	IP55, IP56, IP65, IP66
Explosion protection	–
Efficiency class	IE4, IE5
Recommended converters	SINAMICS G120, G120X, G220, S120
	Our partner Siemens AG has the right solution for you: www.siemens.com/sinamics
Certificates	CE, UL-S, CSA-S, UKCA, KEMCO
Direct motor configuration using SPC tool	https://mall.industry.siemens.com/ spice/cloudcm/dashboard

Typical areas of application:

- Heating
- Ventilation
- Air-conditioning
- Water/wastewater
- Food & beverage
- Battery production



Innomotics Permanent Magnet motors.

Get ready for a real boost.

Innomotics Permanent Magnet motors boost both your success and your sustainability. They don't just comply with the Ultra Premium Efficiency class IE5, they exceed it. Their losses are reduced by an additional 25 percent compared with conventional energy-saving motors. You'll benefit from incomparably high efficiency – ideal for a quadratic increase in load torque and constant torque applications.

Thanks to their construction, Innomotics Permanent Magnet motors require less material, which makes them much lighter than comparable motors in other designs. How about up to a 200 percent short-time overload across the entire speed range? Or up to 150 percent overspeed? And how would you like a more than 20 percent reduction in carbon dioxide emissions in your Innomotics Permanent Magnet motors' operating phase compared to an IE4 asynchronous motor?

Highlights

- Exceeds Ultra Premium Efficiency class IE5: high energy savings for greater sustainability
- Higher power despite smaller frame size – with a power factor of nearly 1
- Can be flexibly integrated thanks to small dimensions, a high power density, and a low weight
- Top measuring accuracy for temperature-increase monitoring, thanks to Pt1000 or PTC sensors in the standard version
- Achieve higher output power with the same frame size and a high torque at a low speed – for your application's special requirements

Technical overview

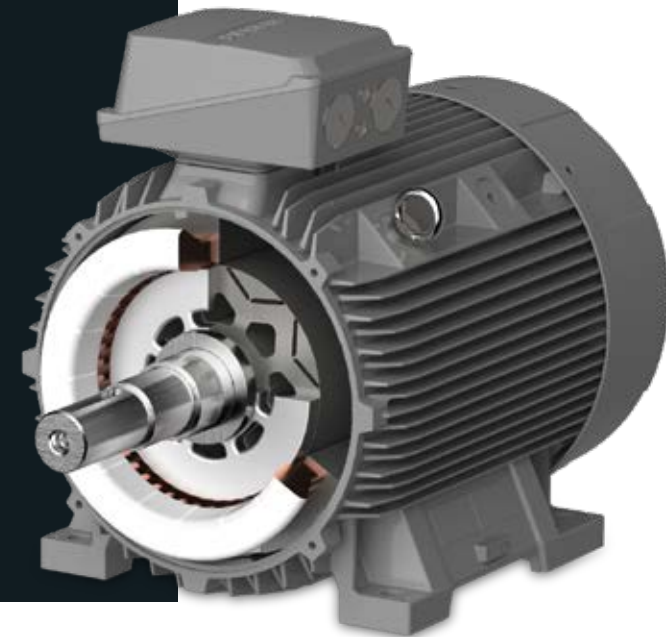
Technology	Synchronous permanent magnet
Enclosure material	Cast-iron
Rated power	0.37 – 22 kW, 90 – 250 kW*
Shaft height	71, 90, 132, 280 mm**
Number of poles	–
Speed range	1,500, 3,000 rpm
Torque range	1.7 – 1,273 Nm
Rated voltage	380 V (line voltage 400 – 480 V)
Converter operation without filter	Up to 480 V
Temperature class	F/B (VFD)
Ambient temperature	-20 to +40° C
Designs	B3, V1, B35, V5, V6 (more on request)
Cooling method	IC411, IC416
Degree of protection	IP55, IP56, IP65, IP66
Explosion protection	–
Efficiency class	IE5
Recommended converters	SINAMICS G220, G120
	Our partner Siemens AG has the right solution for you: www.siemens.com/sinamics
Certificates	CE, UKCA (more on request)
Direct motor configuration using SPC tool	https://mall.industry.siemens.com/ spice/cloudcm/dashboard

* More designs will be added

** More shaft heights will be added

Typical areas of application:

- Pumps
- Fans
- Compressors
- Conveyor belts
- Extruders
- Mixer
- Submersible piston pumps
- Hoists
- Winders
- Saws for wood processing
- Textile machines



Innomotics HT-Direct High Torque motors.

Maximum impact in the smallest space.

Innomotics HT motors are most in demand when you have low space requirements (no gearbox!) and you want efficiency and low lifecycle costs.

Permanent magnet synchronous motors provide high torques at low speeds right at the driven machine. High efficiency and excellent power factors can also be achieved at low speeds, thanks to the permanent magnet rotors. This means maximum economic efficiency with optimal torque in the smallest spaces.

Highlights

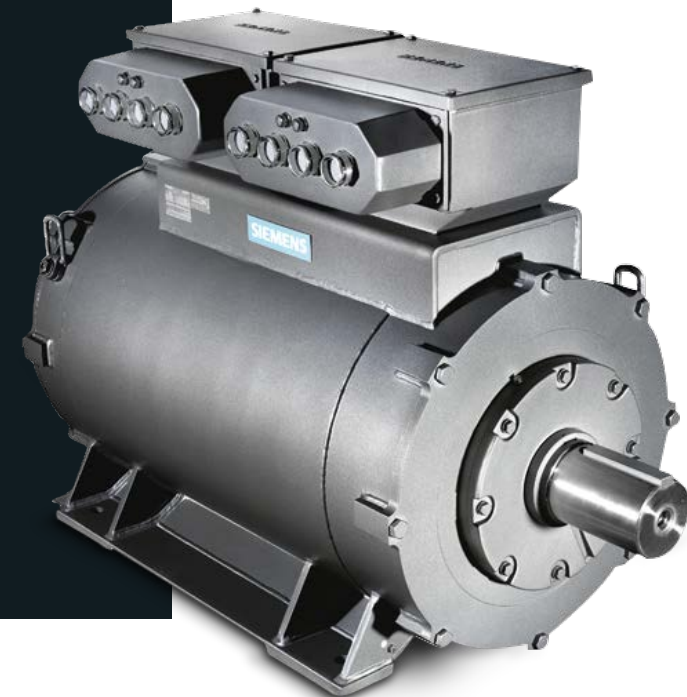
- Additional two to three percent efficiency (without gearbox) saves you about €15,000/year with a 1,000-kW motor and eight hours of operation per day
- Compact, thanks to high pole design and permanent magnet technology
- No gearbox = lower costs for engineering, investment, installation, maintenance, and operation
- Optimally matched to SINAMICS converters for operation with or without encoders
- Nominal bearing life > 60,000 hours
- Environmentally-friendly and energy-saving drive system
- Special customizations

Technical overview

Technology	Synchronous permanent magnet
Enclosure material	Cast-iron
Rated power	150 – 2,100 kW
Shaft height	400/450/500 mm
Number of poles	High-pole
Speed range	200 – 800 rpm
Torque range	6,000 – 42,000 Nm
Rated voltage	400, 460, 690 V
Converter operation without filter	Up to 480 V
Temperature class	F/B (DOL), F/F (VFD)
Ambient temperature	-40 to +60° C
Designs	B3, V1, B35, V5, V6 (more on request)
Cooling method	IC71W (water jacket-cooled), IC416 (rib-cooled with forced ventilation)
Degree of protection	IP55
Explosion protection	–
Efficiency class	IE4
Recommended converters	SINAMICS G120, G120X, G220, S120
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Certificates	CE, UL-S, CSA-S, UKCA, VIK, CEL, KEMCO
Direct motor configuration using SPC tool	https://mall.industry.siemens.com/ spice/cloudcm/dashboard

Typical areas of application:

- Paper
- Shipbuilding
- Mining
- Steel
- Plastics
- Food & beverage
- Chemicals
- Oil & Gas
- Water/wastewater



Innomotics motors.

The perfect fit – whether it's low or high voltage.

Do you need efficient, reliable and flexible motors for industry or infrastructure? Innomotics has the right solution in both low- and high voltage technology, including geared and special motors – with a seamless output range from 0.09 kW, with speeds from several rotations per minute to 16,000 rpm, with torques of up to 40,000 kNm, and with all the necessary voltage classes and types of protection.

Geared motors



Low-voltage motors



High-voltage motors



The fields of application.

A true classic – for standard and new fields of application.

- Water/wastewater
- Chemicals
- Food & beverage
- Lumber mills and wood processing
- Cement
- Pulp and paper industry
- Textile industry
- Steel industry
- Shipbuilding and marine technology
- Oil & Gas
- Power generation and power plant engineering
- Wind farms and solar fields
- Primary industries
- Mining
- Building climate control
- Hydrogen industry with an emphasis on green hydrogen
- Battery production
- Carbon capture

The applications.

- Pumps
- Fans
- Blowers
- Compressors
- Mixers
- Agitators
- Extruders
- Conveyor belts
- Pitch and yaw drives on wind turbines
- Roller tables
- Positioning drives
- Cranes
- Hoists
- Winders
- Saws
- Presses
- Centrifuges

reliable
motion
for a
better
tomor
row

Looking for more information?
Check out these Web sites:

innomotics.com

siemens.com/spc



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