

Intelligent Drive Systems, Worldwide Services

# VERSATILE FREQUENCY INVERTER FOR CONTROL CABINET APPLICATIONS



EN

**NORDAC PRO**

**FREQUENCY INVERTER SK 500E**



**DRIVESYSTEMS**

# The all-rounder product family **NORDAC PRO**

Introduction



Product overview



Functions



Accessories



Technical Data

The NORDAC PRO frequency inverter family from NORD Drivesystems is available for motors with rated powers of 0.25 - 160 kW. With its very compact design it is perfect for space-saving installation in control cabinets.

Features available across the entire product line are as much a part of the basic configuration as the separately configurable PID or the process controller. These include:

- Sensorless current vector control which ensures constant speeds in case of fluctuating loads and very high torques during start-up,
- 200% overload reserve which provides greater operational safety in cranes and lifting gear applications,
- Operation of asynchronous and synchronous motors,
- An integrated brake chopper for 4-quadrant operation,
- An integrated mains filter serving as the basis for optimal EMC performance

These controllers independently carry out the control tasks in your application.

The range is supplied with either with an integrated

24 V power supply unit or with a separate connection for the control board supply. The advantage of externally powered devices is that access to parameter data and communication through any bus interfaces are possible even when the power is switched off. Moreover, an evacuation run controlled from the inverter itself can be performed, and this constitutes an enormous boost in safety for lifting gear and similar security critical drive applications.

The SK 51xE and SK 53xE models support the Safe Stop function pursuant to EN 13849-1 (up to the maximum safety category 4, stop category 0 and 1). In addition, the SK 53xE version equipped with the built-in POSICON function makes it perfectly suitable for all types of positioning tasks (relative and absolute).

As standard, an integrated PLC on all models starting from the SK 520E allows simple and free programming of drive-related functions in accordance with IEC 61131.

In addition, the top model SK 540E/SK 545E features a universal encoder interface which allows the connection of SSI or EnDat encoders. The frequency inverters maintain uniform dimensions even with the different functional configurations.



## Basic configuration

- Sensorless current vector control (ISD control) for high control quality and fast reaction times
- Brake management, electromechanical holding brake
- Brake chopper to divert generated energy to a braking resistor
- RS 232 diagnostic interface
- 4 switchable parameter sets for flexible use of parameter settings (e.g. switching between drive units with different motor data)
- All common drive functions such as acceleration/braking on a ramp
- Parameters pre-set with standard values, hence immediately ready for use
- Scalable display values
- Stator resistance measurement to ensure optimal controller characteristics

## Optional

- Interfaces for many bus systems
- Various control options (switches, potentiometers or parameterisation units)
- Variants with functional safety (Safe Stop (STO, SS1))  
**Available for SK 510E and from 230 V and above**
- Variants with incremental encoder interface for speed feedback (servo mode)  
**Available for SK 520E and above**
- Variants with PLC functionality  
**Available for SK 520E and above**
- POSICON variants with positioning function (relative and absolute)  
**Available for SK 530E and above**
- Universal encoder interface  
**Available for SK 540E and above**



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# NORD ELECTRONIC DRIVE SYSTEMS

## Centralised and decentralised drive electronics

### NORDAC FREQUENCY INVERTERS

#### Advantages

- Scalable functionality – flexible configuration and function
- Market-leading torques for all drive applications
- Simple commissioning and operation

#### Functions

- High precision regulation with current vector control
- Compatible with all common bus systems
- 4-quadrant operation
- PLC functionality for tasks close to the drive unit
- Energy-saving function for partial load operation
- Control and parameterisation tools and simple parameter structure
- Integrated mains filter for compliance with EMC regulations
- Operation of asynchronous and synchronous motors
- Control and closed-loop regulation
- POSICON – integrated positioning mode and synchronisation
- STO and SS1 – integrated functional safety
- Integrated brake rectifier for motor brake control

### NORDAC PRO SK 500E



The frequency inverter for all drive applications: large power range and capability of extension of functionality with plug-in option modules. Heat removal is optimised thanks to the variable cooling concept.

#### Frequency inverter

- Power range up to 160 kW
- Control cabinet installation
- IP20

### NORDAC FLEX SK 200E



Decentralised drive unit with versatile installation possibilities Scalable functionality and flexible configuration. Simple installation and maintenance through extensive plug-in capability and simple parameter transfer via EEPROM memory.

#### Frequency inverter

- Power range up to 22 kW
- Wall or motor mounting
- IP55, IP66

### NORDAC BASE SK 180E



Economical decentralised version for simple drive applications. Low installation costs as well as robust design for simple installation outside of the control cabinet.

#### Frequency inverter

- Power range up to 2.2 kW
- Wall or motor mounting
- IP55, IP66, IP69K

### NORDAC START SK 135E



Decentralised, wear-free electronic motor starter for all types of soft starting. With integrated motor protection and reversing function for flexible integration into the system.

#### Motor starter

- Power range up to 7.5 kW
- Wall or motor mounting
- IP55, IP66, IP69K

### Frequency inverter

- Power range up to 7.5 kW
- Field installation
- IP55, IP65

The field distribution system for flexible, decentralised installation. Flexible configuration and function - freely configurable according to requirements and the application. Available as frequency inverters and motor starters. Fast commissioning through high level of plug-in capability. Simple servicing of the system through integrated maintenance switch and local manual control facility.



**NORDAC LINK**  
SK 250E

### Motor starter

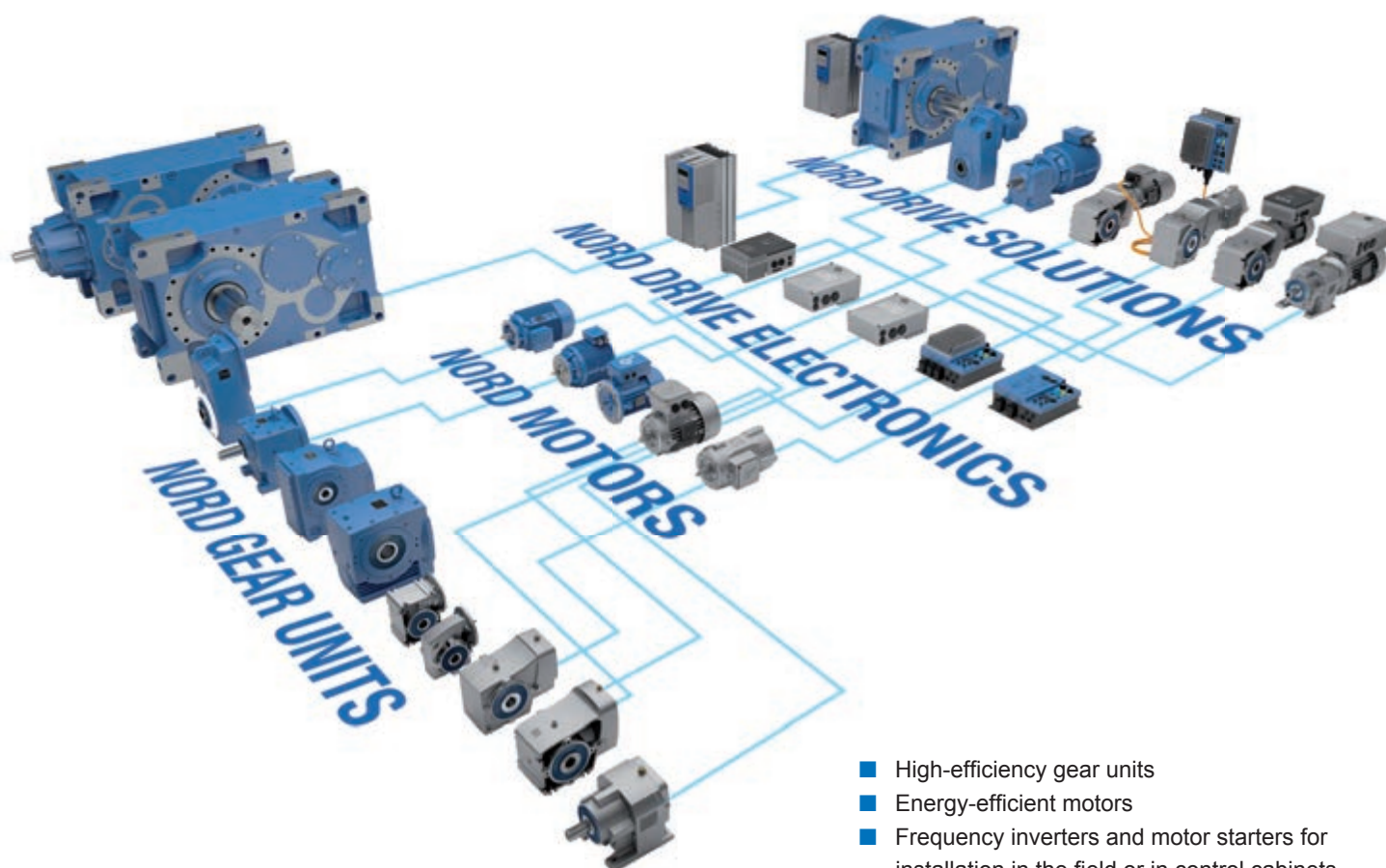
- Power range up to 3 kW
- Field installation
- IP65



**NORDAC LINK**  
SK 155E

# NORD DRIVESYSTEMS

## Complete drive solutions from a single source



- High-efficiency gear units
- Energy-efficient motors
- Frequency inverters and motor starters for installation in the field or in control cabinets

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# The inner values are what counts

## Extensive basic equipment

Introduction



### Load monitor

- Monitoring of load torque depending on the output frequency
- Individual adaptation of load monitoring to protect the system from overload in certain frequency ranges

Available in all devices

Product overview



### Energy-saving function

- Maximum efficiency in partial load operation
- Reduced operating costs due to energy savings of up to 60%
- Simple adjustment

Available in all devices

Functions



### Lifting gear functions

- High-precision current vector control for rapid and precise load pickup
- Integrated brake chopper to divert generated energy to a braking resistor (braking resistor optional)
- Brake management for optimum control of an electromechanical holding brake for wear-free brake actuation

Available in all devices

Technical Data



### Process controller/PID controller

- Feedback and evaluation of actual values for implementation of a closed-loop control circuit (e.g. flow or dancer control)
- P, I and D component can be set separately

Available in all devices





### Master/slave operation

- Control of one or more slave inverters by a master inverter
- Communication via USS or CANopen with control word and setpoint values

Available in all devices



Introduction

### Evacuation runs

- Evacuation run possible if the main supply fails
- Emergency operation with low DC voltage from UPS (e.g. battery) possible

Available in all SK 5x5E



Product overview

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### Encoder feedback (servo mode)

- High-precision speed regulation
- Highest possible acceleration due to direct feedback of the actual speed characteristics to the frequency inverter and therefore also:
  - Full torque down to standstill (speed 0)
  - Digital speed controller with wide range of settings

Available in all devices



Accessories

### Link circuit coupling

Intermediate circuit via terminals for all device versions

- Energy-saving effect with balanced motor and generator operation
- Elimination of braking resistors possible

Available in all devices



Technical Data



# The inner values are what counts

## Extensive basic equipment

Introduction



### User friendliness

- Easy adaptation to communication systems via snap-on technology units
- Quick and simple diagnostics via easily visible LED indicators
- Technology units available for display, operation and parameterisation
  - Clear display by large LCD screen in 14 languages (optional)
  - Simple operation and parameterisation through logical parameter structure and intuitive layout of control elements
  - Variants for control cabinet installation

### Available in all devices

### Safety

The SK 500E has a comprehensive safety concept for all drive components

### Motor, gear unit and application

- Thermal motor protection TF (PTC),  $I^2t$
- Short-circuit/earth fault monitoring
- Phase error and magnetisation monitoring
- Speed, rotational direction and slip monitoring during encoder feedback
- Load monitoring and limitation
- Error management with storage of malfunctions and their ancillary conditions, error statistics

### Frequency inverter

- Temperature monitoring
- Short-circuit/earth fault/current monitoring
- Overvoltage/undervoltage and phase monitoring

### Peripherals

- Communication monitoring via integrated watchdogs
- Parameterisable inputs to assess sensor signals

### Environment

- RoHS compliance
- High EMC due to integrated mains filter (C1 up to 5 m cable length for devices up to 7.5 kW, C2 up to 20 m cable length, shielded)

### Operational safety due to real and large overload reserves

- 200% rated load, 3.5 s/150% rated load, 60 s

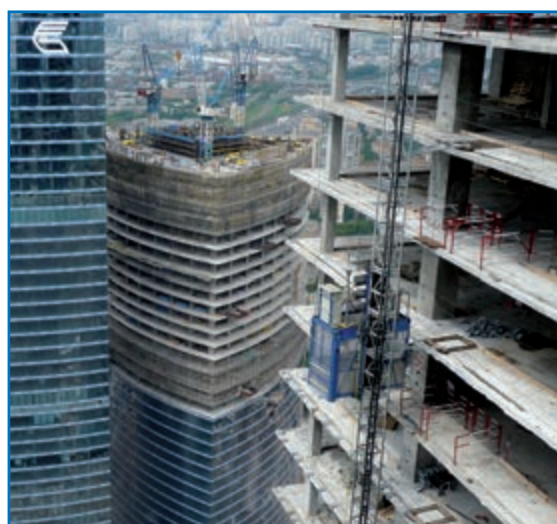
### Available in all devices

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# If required

## Safe Stop STO and SS1

### Safe stop

Personnel safety and high machine availability are the focus in system operations. After a safety circuit is actuated by opening a safety cover or door, it must be ensured that no rotating system components can lead to accidents at work.

With a motor controlled by a NORD frequency inverter, this is implemented by a safe impulse block, which provides protection against the motor restarting in compliance with the standard.

This safe block includes voltage supply to the circuit breaker by means of a safety switching device. The frequency inverter is therefore immediately ready to be switched on without re-initialisation after the safety circuit is closed.

### Standards

- DIN EN ISO 13849-1: Performance Level e
- DIN EN 61508: SIL 3
- DIN EN 60204-1: Stop function
- DIN EN 61800-5-2: Safety functions

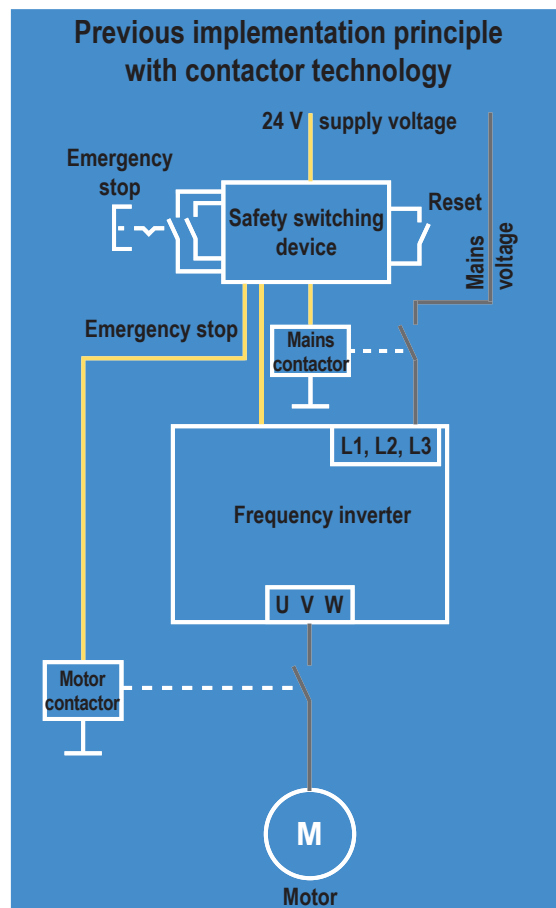
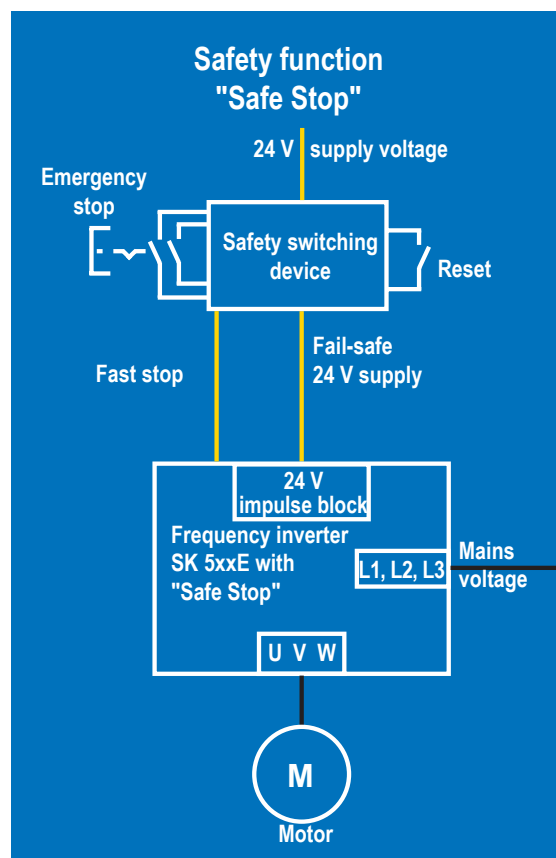
### Applications

- Rotating machine tools (e.g. milling machines)
- Closed moving systems with safety doors

### Advantages at a glance

- Certified by TÜV NORD
- Safe Torque Off (STO)
- Safe Stop 1 (SS1)
- High availability through continuous online operation
- Elimination of contactor components
- No initialisation delays
- Long service life due to electronic switching (no electromechanical contacts)
- Low-cost solution with compact device

Available for SK 510E and above, apart from SK 520E not for 115 V devices



# When extreme precision is needed

## Positioning with POSICON



### POSICON

Frequency inverters with integrated POSICON functionality are able to determine the actual position of the drive unit via appropriate interfaces. Incremental encoder inputs (TTL/HTL) or absolute encoders are available as interfaces via CANopen (from SK 540E and above, sine wave encoders, SSI, BISS, EnDat 2.1 and Hiperface are also available). In addition to conventional point-to-point positioning (absolute positioning), POSICON also provides the facility for relative positioning of endless axes as well as various technology functions (rotating platform "with travel optimisation", synchronous operation and flying saw).

By means of the standard POSICON position memory and features such as "teach in", "approach reference point", "reset position", "offset position", "target window positioning" and "S-ramp", the frequency inverter can carry out fully independent positioning control. The tasks for the external control are therefore reduced to the starting pulse and communication of the target position (via digital I/O or at the field bus level). The frequency inverter can even undertake monitoring of the positioning process and reporting of the operating status.

#### Applications

- Lifting gear/shelf storage and retrieval devices with approach to precise positions
- Running gear of material conveyors/portal cranes with synchronous function of all driven axes
- Rotating table functions for tool magazines on machines
- Flying saw: coupling and parallel movement of a positioning axis relative to a moving object

Available for SK 530E and above

### PLC

In most cases the frequency inverter is controlled by means of an overriding PLC. However, the use of an external PLC requires additional space, installation effort and costs in order to implement communication between the PLC and the participants (e.g. frequency inverters). In many systems with relatively simple drive functions, the expense required soon becomes unacceptable.

This is where the frequency inverter comes into its own. Its integrated IL-based PLC functionality (based on IEC 61131-3) is specially designed for drive functions. With a computational performance of approx. 200 IL commands per ms and a total of 1280 commands in the program, this control unit can undertake many tasks in the field of the frequency inverter. Inverter inputs or information from a connected field bus can be monitored, evaluated and further processed into appropriate setpoint values for the frequency inverter. Visualisation of system statuses and the input of special customer parameters is possible by means of optional equipment (ParameterBox, NORD CON software).

#### Applications

- Regulation/control of one or more devices by the frequency inverter

Available for SK 520E and above

# Versatile and sustainable

## The frequency inverter with servo genes

### HTL/TTL incremental encoder connection

Up-to-date motor speed feedback is needed for high-precision speed control (closed-loop). This is realised using an incremental rotary encoder mounted on the motor shaft and directly connected to the frequency inverter.

Available for SK 520E and above

### CANopen absolute encoder connection

For positioning tasks a suitable absolute encoder can be connected directly to the CANopen interface of the frequency inverter.

Available for SK 511E and above

### Universal encoder interface

The universal encoder interface enables the connection of various encoder systems to the frequency inverter. This absolute encoder interface is especially important for the operation of synchronous motors.

In addition to SSI encoders and BISS encoders (a further development of the SSI encoder), EnDat encoders with profile 2.1 and Hiperface encoders can also be evaluated.

Available for SK 540E and above

HTL

TTL

CANopen

BISS  
INTERFACE

HIPERFACE<sup>®</sup>  
by SICK | STEGMANN

EnDat 2.1

SSI  
SYNCHRON SERVOLESS INTERFACE

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# Stay cool

## Alternative cooling systems for our small ones

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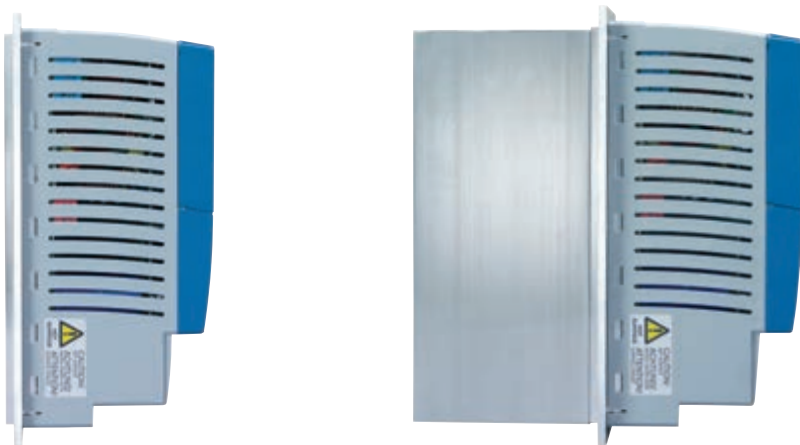
Technical Data



### Alternative "Cold Plate" cooling systems and external heat sink technology

In the Cold-Plate variant, the standard heat sink is replaced by a flat cooling flange. To transfer the heat from the frequency inverter, the flange is mounted on a surface cooled by, say, water, air or oil. Important advantages here are the reduction in installation depth of devices by approx. 35 mm to 119 mm and improved heat dissipation. With the external heat sink technology, a ribbed heat sink is supplied as an optional module and mounted on the Cold-Plate unit. The frequency inverter is installed in the control cabinet with the heat sink located outside the cabinet so that a large part of the heat to be dissipated is transferred there. This reduces the internal temperature of the cabinet and so air conditioners and fans can be correspondingly smaller or completely omitted.

### Cold-Plate external heat sink technology



**Optionally available:**  
**External heat sink technology:**  
for all devices up to size 2, 2.2 kW  
**Cold-Plate technology:**  
for all devices up to size 4, 7.5 kW

# Discussion with experts

## NORD CON software inclusive

### NORD CON software

NORD CON is the free operating software for controlling, parameterisation and diagnostics of all NORD frequency inverters.

#### Control

A virtual control unit, analogous to a SimpleBox (optional control and parameterisation unit), enables the display of operating values, parameterisation and the control of a connected frequency inverter.

#### Parameterisation

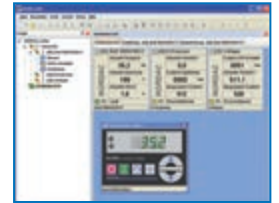
By means of a convenient overview the user can view and adjust each available parameter. By means of an appropriate printing option, parameter lists are generated in printed form either completely or only with the values which deviate from the factory settings. The finished data sets can be saved on a PC/laptop and archived for future use or sent by e-mail.

#### Diagnostics

The NORD CON oscilloscope function is an extremely useful instrument for the optimum adjustment of drive systems. By means of line graphs, all drive characteristics (current, torque, etc.) can be recorded and analysed. On the basis of the results, fine tuning of the ideal parameter settings of the relevant drive unit is possible.

### Programming the PLC (SK 520E or higher)

A PLC editor is available for creating, editing and managing a PLC program. The PLC programs can also be tested (debugged) with this editor and communicated to the frequency inverter.



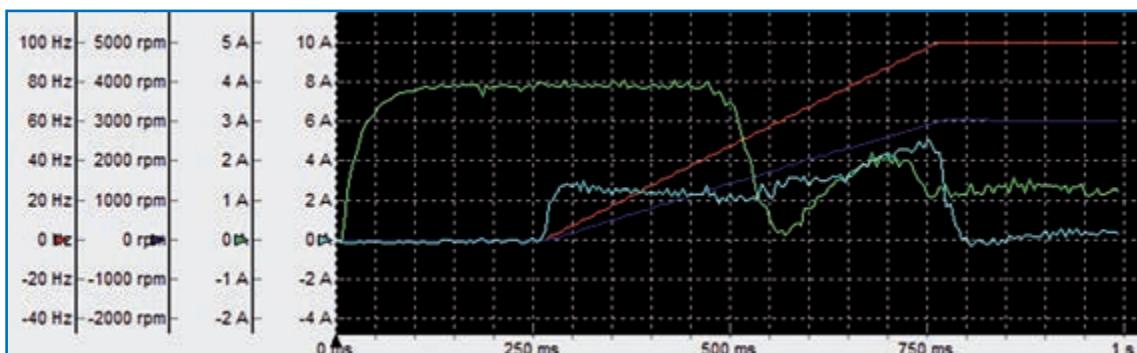
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# The entire team

## All device versions at a glance

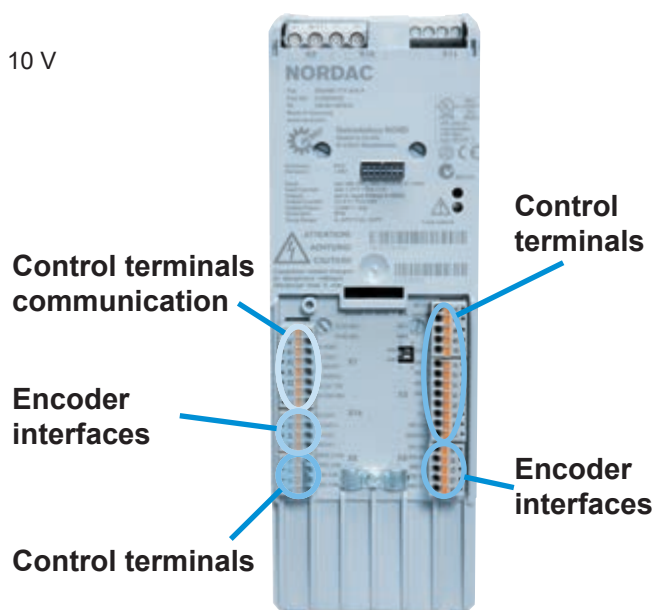
		SK 500E	SK 510E	SK 511E	SK 520E	SK 530E	SK 535E	SK 540E	SK 545E	SK 515E	SK 535E	SK 545E		
		Size 1-4							Size 5-11					
Introduction	Sensorless current vector control (ISD control)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	Brake management for mechanical holding brake	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	Brake chopper (brake resistor optional)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	RS 232 PC diagnostic interface	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	4 switchable parameter sets	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	Product overview	All normal drive functions	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
		Parameters pre-set with standard values	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
		Scalable display values	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
		Stator resistance measurement	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
		Automatic flux optimisation (energy saving function).	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
		Line filter class C2, up to 5 m motor cable class C1 up to size 4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
		Functions	Monitoring functions	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
			Load monitor	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
			Link circuit coupling	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
			Lifting gear functionality	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Process controller/PID controller			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Synchronous motor operation (PMSM)			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Accessories			Cold plate up to size 4, External heat sink technology up to size 2	○	○	○	○	○	○	○	○			
			All common field bus systems	○	○	○	○	○	○	○	○	○	○	○
			Safe Stop function (STO, SS1) (not for 115 V devices)		✓	✓		✓	✓	✓	✓	✓	✓	✓
	CANopen on board				✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Evacuation runs							✓		✓	✓	✓	✓	
	Technical Data		Incremental encoder input (servo mode)				✓	✓	✓	✓	✓		✓	✓
			POSICON					✓	✓	✓	✓		✓	✓
			Internal 24 V power supply unit to supply the control board	✓	✓	✓	✓	✓		✓		✓	✓	✓
			External 24 V supply for the control board						✓		✓	✓	✓	✓
		Automatic switching between external and internal 24 V control voltage									✓	✓	✓	
		PLC functionality				✓	✓	✓	✓	✓		✓	✓	
		Universal encoder interface							✓	✓			✓	

✓ available as standard

○ optional

		SK 500E	SK 510E	SK 511E	SK 520E	SK 530E	SK 535E	SK 540E	SK 545E	SK 515E	SK 535E	SK 545E
		Size 1-4							Size 5-11			
Control terminals	DIN	5	5	5	7	7	7	5-7 <sup>1</sup>	5-7 <sup>1</sup>	5	7	6-8 <sup>1</sup>
	DOUT	0	0	0	2	2	2	3-1 <sup>1</sup>	3-1 <sup>1</sup>	0	2	3-1 <sup>1</sup>
	Transmitting relay <sup>2</sup> (... 230 VAC, 2 A)	2	2	2	2	2	2	2	2	2	2	2
	AIN <sup>3</sup>	2	2	2	2	2	2	2	2	2	2	2
	AOUT <sup>3</sup>	1	1	1	1	1	1	1	1	1	1	1
	Temperature sensor (PTC)	1 <sup>4</sup>	1 <sup>4</sup>	1 <sup>4</sup>	1 <sup>4</sup>	1 <sup>4</sup>	1 <sup>4</sup>	1	1	1	1	1
Encoder interfaces	TTL RS422				✓	✓	✓	✓	✓		✓	✓
	HTL <sup>4</sup>				✓	✓	✓	✓	✓		✓	✓
	SIN/COS							✓	✓			✓
	SSI							✓	✓			✓
	BISS							✓	✓			✓
	Hiperface							✓	✓			✓
	Endat 2.1							✓	✓			✓
	CANopen					✓	✓	✓	✓		✓	✓
Communication	CAN/CANopen RJ45			2	2	2	2	2	2	2	2	2
	RS 485/RS232 RJ12	1	1	1	1	1	1	1	1	1	1	1
	RS 485 clamp terminal				1	1	1	1	1		1	1
	Modbus RTU							✓	✓			✓

- <sup>1</sup> 2 digital IOs optionally parameterisable as DIN or DOUT
- <sup>2</sup> with DOUT functions parameterisable
- <sup>3</sup> AIN/AOUT can also be used for digital signals  
AIN: 0(2) – 10 V, 0(4) – 20 mA, size 5 and above additionally ± 10 V
- <sup>4</sup> Function parameterisable through a digital input



# Can be found everywhere

## NORD drive technology in industry

**NORD**, with its drive units and control technology, is represented in many sectors of industry. Depending on the application, the functions which are required range from simple speed control up to technological and safety functions such as Safe Stop, positioning and "flying saw".

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### Sectors



Waste water technology



Mining and quarrying



Material handling



Pump industry



Stage equipment



Construction



Airport technology



Printing



Food industry



Steel industry



Cement industry

### Applications



Lifting gear  
Cranes



Bucket conveyors



Portal cranes  
Bridge trolleys



Small appliances  
Pumps  
Cooling circuits



Lifts  
Storage and retrieval  
equipment



Tool magazines  
Distribution equipment  
Sorting equipment



Fans  
Ventilators



Conveyor belts  
Material conveyors



Bottling plants



Crushers  
Mixers  
Disintegrators



# Accessory specification



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# Would you like anything else?

Introduction



Each frequency inverter has a slot for the installation of an SK TU3- type technology unit.

You can choose between operation and parameterisation modules or interfaces for field bus systems.

Installation of the modules is thereby quick and easy.

Product overview



## Operation and parameterisation

Optional modules with up to 14 languages for displaying status and operational indications, parameterisation and operation of the frequency inverter. Apart from variants for direct mounting on the device or installation in a control cabinet door, there are also handheld versions available.

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Functions

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## Interfaces for field bus systems

The frequency inverter is integrated into a field bus system (classic or Ethernet-based) through a suitable interface in the form of as SK TU3- type technology unit. . This is fitted directly on the technology unit slot on the device.

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Technical Data



## Line filter

Line filters are generally used to reduce the emission of electromagnetic interference. NORDAC *PRO* series frequency inverters are equipped with an integrated class C2 (max. 20 m shielded motor cable) or class C1 (size 1-4, max. 5 m shielded motor cable) line filter.

Various adaptive line filters are available for longer cable lengths or to improve interference suppression.

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## Line chokes/DC link reactors

SK 515E and SK 535E devices in sizes 1-4 need an external 24 V control voltage supply. This can be implemented by a control voltage which is provided by the customer. As standard all other devices have an integrated power supply unit. Devices above size 5 can be powered by an external 24 V control voltage as well as by the integrated power supply unit (automatic switchover).

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## Motor chokes

The frequency inverter is designed for integration into the motor. Alternatively, the frequency inverter and its optional modules can be installed separately from each other in the vicinity of the motor with a wall mounting kit.

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## Braking resistors

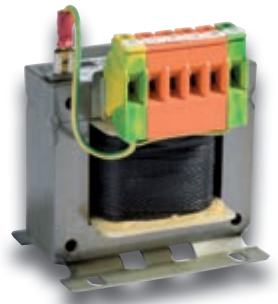
The integrated brake chopper enables direct connection of a braking resistor. With a braking resistor it is possible to brake dynamically and to dissipate excess energy.

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## Other accessories

The range of accessories is rounded off, for example, by modules that adapt the device to special regulations for different countries.

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# Interfaces for operation and parameterisation

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Type	Designation	Material number
Control and parameterisation software	NORD CON	–
ParameterBox	SK TU3-PAR	275 900 100
	SK PAR-3E	275 281 414
Simple Control Box	SK TU3-CTR	275 900 090
	SK CSX-3E	275 281 413
	SK CSX-0	275 900 095
PotentiometerBox	SK TU3-POT	275 900 110



**SK TU3-PAR**



**SK PAR-3E**



**SK TU3-CTR**



**SK CSX-3E**



**SK CSX-0**



**SK TU3-POT**

Control cabinet installation	Mounted on the device	Description	Remarks
		–	–
–	✓	Suitable for control and parameterisation, LCD screen (illuminated), plain text display in 14 languages, memory for 5 device data sets, convenient control keypad.	This module occupies the optional slot on the frequency inverter. Therefore, an SK TU3 type bus interface can not be simultaneously installed and run on the device.
✓	–	Suitable for control and parameterisation, LCD display screen (illuminated), plain text display in 14 languages, direct control of up to 5 devices, memory for 5 device data sets, convenient control keypad, for installation in a control cabinet door.	Connection for data exchange with NORD CON on a PC via RS232 (USB 2.0), including 1 m connection cable, 4.5 ... 30 V DC/1.3 W Supply e.g. directly via the frequency inverter
–	✓	Suitable for control and parameterisation, 4-digit, 7-segment display, convenient control keypad.	This module occupies the optional slot on the frequency inverter. Therefore, an SK TU3 type bus interface can not be simultaneously installed and run on the device.
✓	–	Suitable for control and parameterisation, 4-digit, 7-segment display, direct control of a device, convenient control keypad.	Electrical data: 4.5 ... 30 V DC/1.3 W, Supply e. g. directly via the frequency inverter
–	✓	Suitable for control and parameterisation, 4-digit, 7-segment display, direct control of a device, one-button operation.	The module is connected to the RJ 12 interface of the frequency inverter and does not occupy the optional slot for SK TU3 modules. Simultaneous control of a bus interface is therefore possible.
–	✓	Suitable for control, potentiometer 0 ... 100% .	

# Communication interfaces

## Field bus and IO extensions

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Type	Designation	Material number
	SK TU3-IBS	275 900 065
	SK TU3-PBR	275 900 030
	SK TU3-PBR-24V	275 900 160
	SK TU3-CAO	275 900 075
	SK TU3-DEV	275 900 085
	SK TU3-AS1	275 900 170

Type	Designation	Material number
	SK TU3-ECT	275 900 180
	SK TU3-EIP	275 900 150
ETHERNET  <b>POWERLINK</b>	SK TU3-POL	275 900 140
	SK TU3-PNT	275 900 190

Connection	Description	Remarks
2x Sub-D9		Baud rate: 500 kBit/s (2 Mbit/s)
Sub-D9	Interface to connect the frequency inverter to a PROFIBUS DP field bus.	Baud rate: maximum 1.5 MBaud Protocol: DPV 0 Addressing: via parameter
Sub-D9		Baud rate: maximum 12 MBaud Protocol: DPV 0 Addressing: via rotary coding switch or parameter 24 V DC connection: via terminals
Sub-D9	Interface to connect the frequency inverter to a CANopen field bus.	Baud rate: maximum 1 MBaud Protocol: DS 301 and DS 402
5-pole screw terminals	Interface to connect the frequency inverter to a DeviceNet field bus.	Baud rate: maximum 500 kBaud Profile: AC-Drive and NORD-AC
5-pole and 8-pole screw terminals	Interface to connect the frequency inverter to an AS interface field bus.	4 sensors/2 actuators

Connection	Description	Remarks
2 x RJ 45	Interface to connect the frequency inverter to an EtherCAT field bus.	Baud rate: maximum 100 MBaud 24 V DC connection: via terminal Usable as a gateway to control up to a total of 4 frequency inverters.
2 x RJ 45	Interface to connect the frequency inverter to an EtherNet/IP field bus.	Baud rate: maximum 100 MBaud 24 V DC connection: via terminal Usable as a gateway to control up to a total of 8 frequency inverters.
2 x RJ 45	Interface to connect the frequency inverter to a POWERLINK field bus.	Baud rate: maximum 100 MBaud, 24 V DC connection: via terminal Usable as a gateway to control up to a total of 8 frequency inverters.
2 x RJ 45	Interface to connect the frequency inverter to a PROFINET IO field bus.	Baud rate: maximum 100 MBaud, 24 V DC connection: via terminal Usable as a gateway to control up to a total of 8 frequency inverters.

# Line filter

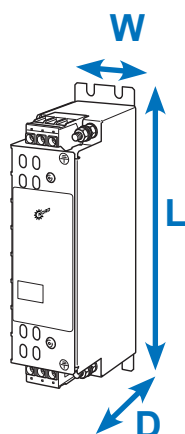
## Improvement of EMC

### General

Line filters are generally used to reduce the emission of electromagnetic interference. SK 500E series frequency inverters are equipped with an integrated class C2 (max. 20 m shielded motor cable) or class C1 (size 1-4, max. 5 m shielded motor cable) line filter. Various adaptive line filters are available for longer cable lengths or to improve interference suppression.

### Chassis line filter, SK HLD (IP20)

The line filters are mounted separately from the frequency inverter. These line filters enable interference suppression Class C1 with max. 25 m shielded motor cable and Class C2 with max. 50 m cable.



Inverter type SK 5xxE ...	Line filter type IP20	Material number	
3~ 230 V	0.25 ... 1.1 kW	SK HLD 110-500/8	278 272 008
	1.5 ... 2.2 kW	SK HLD 110-500/16	278 272 016
	3.0 ... 5.5 kW	SK HLD 110-500/30	278 272 030
	7.5 kW	SK HLD 110-500/42	278 272 042
	11 kW	SK HLD 110-500/75	278 272 075
	15 kW	SK HLD 110-500/100	278 272 100
3~ 400 V	0.55 ... 2.2 kW	SK HLD 110-500/8	278 272 008
	3.0 ... 5.5 kW	SK HLD 110-500/16	278 272 016
	7.5 kW	SK HLD 110-500/30	278 272 030
	11 kW	SK HLD 110-500/42	278 272 042
	15 ... 18.5 kW	SK HLD 110-500/55	278 272 055
	22 kW	SK HLD 110-500/75	278 272 075
	30 kW	SK HLD 110-500/100	278 272 100
	37... 45 kW	SK HLD 110-500/130	278 272 130
	55 kW	SK HLD 110-500/180	278 272 180
	75 ... 90 kW	SK HLD 110-500/250	278 272 250
110 ... 160 kW	Currently in preparation		

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Continuous current [A]	Leakage current <sup>1</sup> [mA]	L [mm]	W [mm]	D [mm]
8	20/190	190	45	75
16	21/205	250	45	75
30	29/280	270	55	95
42	30/290	310	55	95
75	22/210	310	85	135
100	30/290	325	95	150
8	20/190	190	45	75
16	21/205	250	45	75
30	29/280	270	55	95
42	30/290	310	55	95
55	30/290	255	85	95
75	22/210	310	85	135
100	30/290	325	95	150
130	22/210	325	95	150
180	31/300	440	130	181
250	37/355	525	155	220

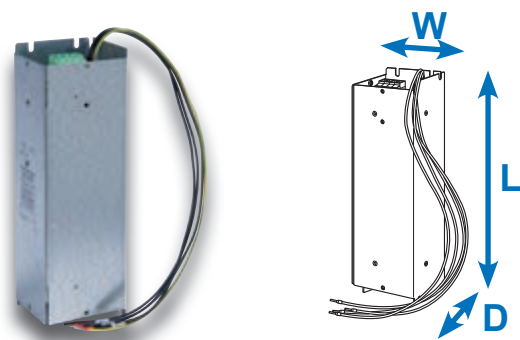
<sup>1</sup> Leakage current 1st value: rated for the maximum permissible fluctuation of input voltage according to IEC 38 + 10%  
 Leakage current 2nd value: calculated at maximum input voltage and failure of 2 phases (typically at 50 Hz)

# Line filter

## Improvement of EMC

### Footprint line filter, combination filter SK NHD (IP20)

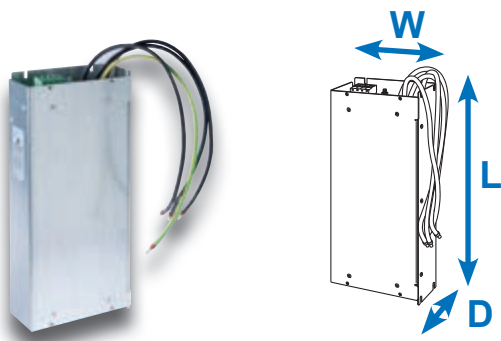
for frequency inverter power of up to 7.5 kW (400 V) are available. The line filter can be mounted flat underneath the frequency inverter. This reduces the space requirement. These combination filters combine the advantages of a line filter and a line choke in a single housing and enable class C1 interference suppression with max. 50 m shielded motor cable and class C2 with max. 100 m cable.



### Footprint line filter, SK LF2 (IP00)

for frequency inverter power of up to 37 kW (400 V) are available. The line filter can be mounted flat underneath the frequency inverter. This reduces the space requirement. These line filters enable class C1 interference suppression with max. 50 m shielded motor cable and class C2 with max. 100 m cable.

This reduces the space requirement. These line filters enable class C1 interference suppression with max. 50 m shielded motor cable and class C2 with max. 100 m cable.



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Inverter type SK 5xxE ...		Line filter type IP20	Material number
3~ 230 V	0.25 ... 0.75 kW	SK NHD-480/6-F	278 273 006
	1.1 ... 2.2 kW	SK NHD-480/10-F	278 273 010
	3.0 ... 4.0 kW	SK NHD-480/16-F	278 273 016
3~ 400 V	0.55 ... 0.75 kW	SK NHD-480/3-F	278 273 003
	1.1 ... 2.2 kW	SK NHD-480/6-F	278 273 006
	3.0 ... 4.0 kW	SK NHD-480/10-F	278 273 010
	5.5 ... 7.5 kW	SK NHD-480/16-F	278 273 016

Inverter type SK 5xxE ...		Line filter type IP00	Material number
3~ 230 V	5.5 ... 7.5 kW	SK LF2-480/45-F	278 273 045
	11 kW	SK LF2-480/66-F	278 273 066
	15 kW	SK LF2-480/105-F	278 273 105
3~ 400 V	0.55 ... 0.75 kW	SK LF2-480/2-F	278 273 002
	1.1 ... 2.2 kW	SK LF2-480/5-F	278 273 005
	3.0 ... 4.0 kW	SK LF2-480/9-F	278 273 009
	5.5 ... 7.5 kW	SK LF2-480/15-F	278 273 015
	11 ... 15 kW	SK LF2-480/45-F	278 273 045
	18.5 ... 22 kW	SK LF2-480/66-F	278 273 066
	30 ... 37 kW	SK LF2-480/105-F	278 273 105

Continuous current [A]	Inductivity [mH]	Leakage current <sup>1</sup> [mA]	L [mm]	W [mm]	D [mm]
5.5	3 x 6.4	1/10	290	88	74
9.5	3 x 3.7	12/120	305	115	98
16	3 x 2.2	12/120	350	140	98
2.3	3 x 15.3	1/10	250	75	60
5.5	3 x 6.4	1/10	290	88	74
9.5	3 x 3.7	12/120	305	115	98
16	3 x 2.2	12/120	350	140	98

Continuous current [A]	Leakage current [mA]	L [mm]	W [mm]	D [mm]
45	12/120	388	164	75
66	12/120	428	182	75
105	22/210	527	210	95
2.3	6.4/61.5	250	75	48
5.5	7.7/74.3	290	88	48
9.5	19.5/187	305	115	54
16	20.2/193	350	115	54
45	12/120	388	164	75
66	12/120	428	182	75
105	22/210	527	210	95

<sup>1</sup> Leakage current 1st value: rated to the maximum permissible fluctuation of input voltage according to IEC 38 + 10%  
 Leakage current 2nd value: calculated at maximum input voltage and failure of 2 phases (typically at 50 Hz)

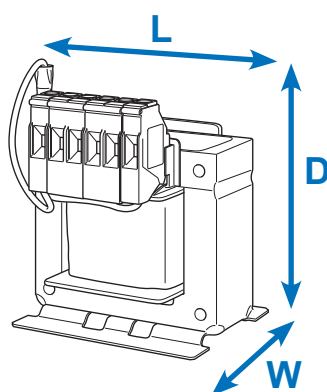
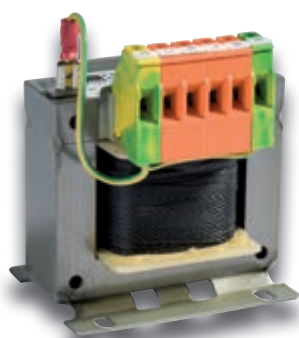
# Line chokes/DC link reactor

## Reduction of harmonic effects on the supply

### General

It may be necessary for some drive systems to use line chokes to reduce dangerous line current peaks. With their use, external line feedback effects are considerably reduced and the proportion of current harmonics is reduced to a minimum. The input current is reduced to approximately the value of the output current.

It is recommended that a line choke be used at all times for a frequency inverter capacity of 45 kW and above. This will have an additional positive effect on device protection and EMC behaviour. All chokes have protection class IP00 and are UL certified.



### 1~ 230 V

Inverter type SK 5xxE ...	Choke type IP00	Material number
0.25 ... 0.75 kW	SK CI1-230/8-C	278 999 030
1.1 ... 2.2 kW	SK CI1-230/20-C	278 999 040

### 3~ 230 V

Inverter type SK 5xxE ...	Choke type IP00	Material number
0.25 ... 0.75 kW	SK CI1-480/6-C	276 993 006
1.1 ... 1.5 kW	SK CI1-480/11-C	276 993 011
2.2 ... 3.0 kW	SK CI1-480/20-C	276 993 020
4.0 ... 7.5 kW	SK CI1-480/40-C	276 993 040
11 ... 15 kW	SK CI1-480/70-C	276 993 070

### 3~ 400 V

Inverter type SK 5xxE ...	Choke type IP00	Material number
0.55 ... 2.2 kW	SK CI1-480/6-C	276 993 006
3.0 ... 4.0 kW	SK CI1-480/11-C	276 993 011
5.5 ... 7.5 kW	SK CI1-480/20-C	276 993 020
11 ... 15 kW	SK CI1-480/40-C	276 993 040
18.5 ... 30 kW	SK CI1-480/70-C	276 993 070
37 ... 45 kW	SK CI1-480/100-C	276 993 100
55 ... 75 kW	SK CI1-480/160-C	276 993 160
90 kW	SK CI1-480/280-C	276 993 280
110 ... 132 kW	SK CI1-480/350-C	276 993 350
160 kW	not available	

### DC link reactor SK DCL (IP00)

similar to a line reactor, reduces the network loads of a frequency inverter that are inherent to its functional principle. It is connected to easily accessible contacts provided for this purpose in the frequency inverter's intermediate circuit and is available at 45 kW and above (IP00).

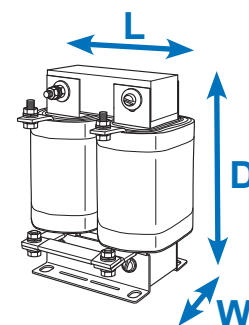
Inverter type SK 5xxE ...	Choke type IP00	Material number
45 ... 55 kW	SK DCL-950/120-C	276 997 120
75 ... 90 kW	SK DCL-950/200-C	276 997 200
110 kW	SK DCL-950/260-C	276 997 260
132 kW	SK DCL-950/320-C	276 997 320
160 kW	SK DCL-950/380-C	276 997 380

Continuous current [A]	Inductivity [mH]	L [mm]	W [mm]	D [mm]
8	2 x 1.0	65	78	89
20	2 x 0.4	90	96	106

Continuous current [A]	Inductivity [mH]	L [mm]	W [mm]	D [mm]
6	3 x 4.88	96	60	117
11	3 x 2.93	120	85	140
20	3 x 1.47	155	110	177
40	3 x 0.73	155	115	172
70	3 x 0.47	185	122	220

Continuous current [A]	Inductivity [mH]	L [mm]	W [mm]	D [mm]
6	3 x 4.88	96	60	117
11	3 x 2.93	120	85	140
20	3 x 1.47	155	110	177
40	3 x 0.73	155	115	172
70	3 x 0.47	185	122	220
100	3 x 0.29	240	148	263
160	3 x 0.18	352	140	268
280	3 x 0.10	352	169	268
350	3 x 0.08	352	169	268

Continuous current [A]	Inductivity [mH]	L x W x D [mm]
120	0.50	148 x 147 x 230
200	0.30	170 x 153 x 260
260	0.25	180 x 174 x 284
320	0.20	180 x 189 x 282
200	0.17	180 x 189 x 282



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# Motor chokes

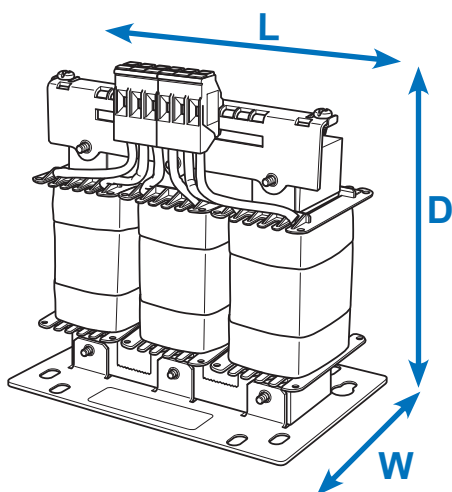
## Improvement of EMC, compensation of cable capacities

### General

Long motor cable lengths (cable capacity) often require the use of additional motor chokes (output chokes) on the frequency inverter output.

In addition, the use of motor chokes have a positive effect on device protection and EMC characteristics.

The specified motor chokes are rated for a pulse frequency of 3 to 6 kHz and an output frequency of 0 to 120 Hz. All chokes have protection class IP00 and are UL certified.



### 3~ 230 V

Inverter type SK 5xxE ...	Choke type IP00	Material number
0.25 ... 0.75 kW	SK CO1-460/4-C	276 996 004
1.1 ... 1.5 kW	SK CO1-460/9-C	276 996 009
2.2 ... 4.0 kW	SK CO1-460/17-C	276 996 017
5.5 ... 7.5 kW	SK CO1-460/33-C	276 996 033
11 ... 15 kW	SK CO1-480/60-C	276 992 060

### 3~ 400 V

Inverter type SK 5xxE ...	Choke type IP00	Material number
0.55 ... 1.5 kW	SK CO1-460/4-C	276 996 004
2.2 ... 4.0 kW	SK CO1-460/9-C	276 996 009
5.5 ... 7.5 kW	SK CO1-460/17-C	276 996 017
11 ... 15 kW	SK CO1-460/33-C	276 996 033
18.5 ... 30 kW	SK CO1-480/60-C	276 992 060
37 ... 45 kW	SK CO1-460/90-C	276 996 090
55 ... 75 kW	SK CO1-460/170-C	276 996 170
90 ... 110 kW	SK CO1-460/240-C	276 996 240
132 ... 160 kW	SK CO1-460/330-C	276 996 330

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Continuous current [A]	Inductivity [mH]	L [mm]	W [mm]	D [mm]
4	3 x 3.5	120	104	140
9	3 x 2.5	155	110	160
17	3 x 1.2	185	102	201
33	3 x 0.6	185	122	201
60	3 x 0.33	185	112	210

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Continuous current [A]	Inductivity [mH]	L [mm]	W [mm]	D [mm]
4	3 x 3.5	120	104	140
9	3 x 2.5	155	110	160
17	3 x 1.2	185	102	201
33	3 x 0.6	185	122	201
60	3 x 0.33	185	112	210
90	3 x 0.22	352	144	325
170	3 x 0.13	412	200	320
240	3 x 0.07	412	225	320
330	3 x 0.03	352	188	268

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# Braking resistors

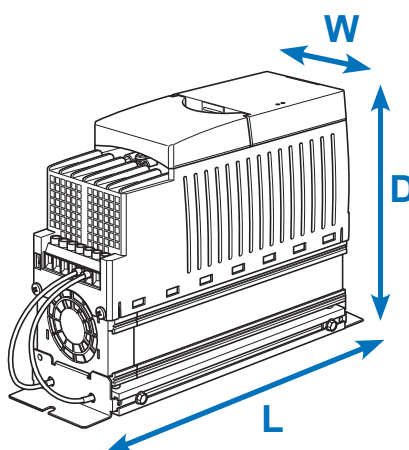
## for dynamic drive behaviour

### Footprint resistors SK BR4 (IP40)

are available in four sizes for frequency inverter capacities of up to 7.5 kW (400 V). This braking resistor can be mounted flat or vertically, next to the frequency inverter. This reduces the space requirement. The specified resistance values are electrically matched to standard applications.



Inverter type SK 5xxE ...		Resistor type IP40	Material number
230 V/115 V	0.25 ... 0.37 kW	SK BR4-240/100	275 991 110
	0.55 ... 0.75 kW	SK BR4-150/100	275 991 115
	1.1 ... 2.2 kW	SK BR4-75/200	275 991 120
	3.0 ... 4.0 kW	SK BR4-35/400	275 991 140
400 V	0.55 ... 0.75 kW	SK BR4-400/100	275 991 210
	1.1 ... 2.2 kW	SK BR4-220/200	275 991 220
	3.0 ... 4.0 kW	SK BR4-100/400	275 991 240
	5.5 ... 7.5 kW	SK BR4-60/600	275 991 260
	Temperature monitoring for BR4 resistors and installation near the inverter		
Temperature monitoring for BR4 resistors and direct installation under the frequency inverter			275 991 200



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Resistor [Ω]	Continuous power [W]	Short-circuit power [kW]*	L [mm]	W [mm]	D [mm]
240	100	2.2	230	88	175
150	100	2.2	230	88	175
75	200	4.4	270	88	175
35	400	8.8	285	98	239
400	100	2.2	230	88	175
220	200	4.4	270	88	175
100	400	8.8	285	98	239
60	600	13.0	330	98	239
Bimetallic switch as opener			Broad braking resistor + 10 mm (on one side) The dimensions apply to the frequency inverter, including the braking resistor		
Bimetallic switch as opener					

\* once within 120 s,  
for a maximum duration of 1.2 s

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# Braking resistors

## for dynamic drive behaviour

### Chassis brake resistors, SK BR2 (IP20)

The resistor elements are integrated into a housing grating and must be connected to the particular frequency inverter via a separate connecting cable.

The braking resistors must be mounted horizontally (apart from SK BR2-xxx/400-C).

A shielded cable which is as short as possible should be used for this purpose.

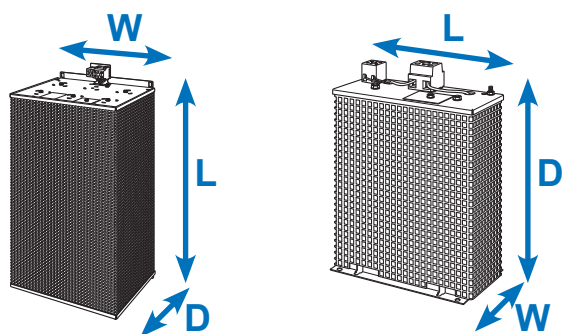
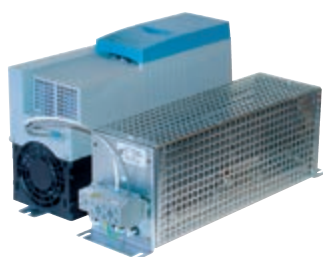
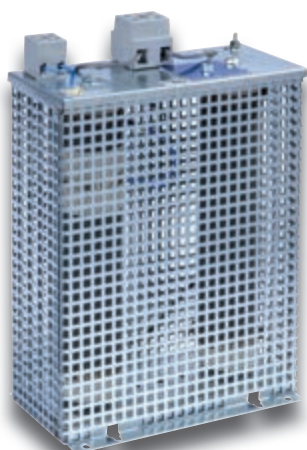
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only SK BR2-xxx/400-C

Inverter type SK 5xxE ...		Resistor type IP20	Material number
230 V	3.0 ... 4.0 kW	SK BR2-35/400-C <sup>1</sup>	278 282 045
	5.5 ... 7.5 kW	SK BR2-22/600-C	278 282 065
	11 kW	SK BR2-12/1500-C	278 282 015
	15 kW	SK BR2-9/2200-C	278 282 122
400 V	3.0 ... 4.0 kW	SK BR2-100/400-C <sup>1</sup>	278 282 040
	5.5 ... 7.5 kW	SK BR2-60/600-C	278 282 060
	11 ... 15 kW	SK BR2-30/1500-C	278 282 150
	18.5 ... 22 kW	SK BR2-22/2200-C	278 282 220
	30 ... 37 kW	SK BR2-12/4000-C	278 282 400
	45 ... 55 kW	SK BR2-8/6000-C	278 282 600
	75 ... 110 kW	SK BR2-6/7500-C	278 282 750
	132 ... 160 kW	SK BR2-3/7500-C	278 282 753
	132 ... 160 kW	SK BR2-3/17000-C	278 282 754
Temperature monitoring for BR2 resistors integrated (2 terminals 4 mm <sup>2</sup> )			

)<sup>1</sup> Type of assembly: vertical

Resistor [Ω]	Continuous power [W]	Short-circuit power [kW]*	L [mm]	W [mm]	D [mm]
35	400	12	178	100	252
22	600	18	385	92	120
12	1500	45	585	185	120
9	2200	66	485	275	120
100	400	12	178	100	252
60	600	18	385	110	120
30	1500	45	585	185	120
22	2200	66	485	275	120
12	4000	120	585	266	210
8	6000	180	395	490	260
6	7500	225	595	490	260
3	7500	225	595	490	260
3	17 000	510	795	490	260
Bimetallic switch as opener					

\* once within 120 s,  
for a maximum duration of 1.2 s

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# NORDAC PRO

## Accessories

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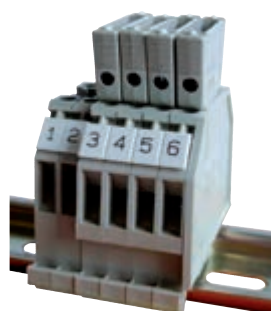
Technical Data

### EMC kit

For the EMC-compliant connection of shielded cables and to produce strain relief.



Size of frequency inverter	EMC kit	Material number
Size 1 and size 2	SK EMC 2-1	275 999 011
Size 3 and size 4	SK EMC 2-2	275 999 021
Size 5	SK EMC 2-3	275 999 031
Size 6	SK EMC 2-4	275 999 041
Size 7	SK EMC 2-5	275 999 051
Size 8 and size 9	SK EMC 2-6	275 999 061
Size 10 and size 11	SK EMC 2-7	275 999 071



### Connection kit HTL encoder WK 4/2/4\*680 OHM

For connection of an HTL encoder to the TTL encoder input of the frequency inverter, top-hat rail mounting.

Material number 278 910 340



### Signal converter +/- 10 V

For connection of a bipolar analogue signal to the unipolar input of a frequency inverter (up to size 4), top-hat rail mounting.

Material number 278 910 320



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### IO expansion SK EBIOE-2

The generous number of standard inputs and outputs on the device can be supplemented using an extension provided for top-hat rail mounting.

Material number 275 900 210

Available for SK 540E and above



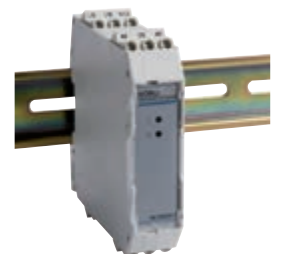
Functions

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### Electronic brake rectifier SK EBGR-1

For the direct control and actuation of an electromechanical holding brake.

Material number 19 140 990



Technical Data

# Frequency inverter NORDAC *PRO* SK 5xxE

## 1~ 110 ... 120 V and 1/3~ 200 ... 240 V

Output frequency	0.0 ... 400.0 Hz
Pulse frequency	3.0 ... 16.0 kHz
Typical overload capacity	150% for 60 s, 200% for 3.5 s
Efficiency of frequency inverter	Size 1 - 4 approx. 95% Size 5 - 7 approx. 97% Size 8 - 11 approx. 98%

Ambient temperature	0°C ... +40°C (S1-100% ED), 0°C ... +50°C (S3-70% ED 10 min)
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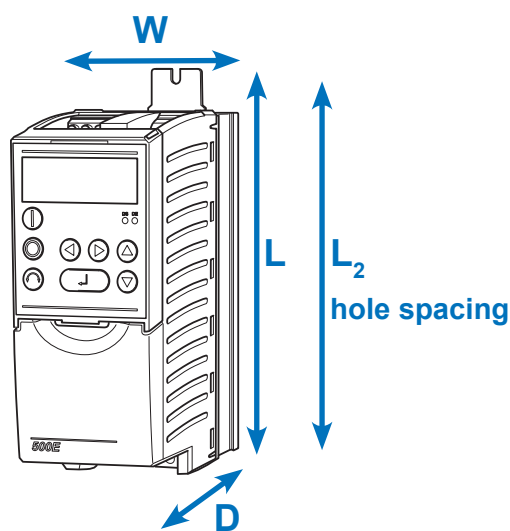
Protection type	IP20
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Regulation and control	Sensorless current vector control (ISD), linear V/f characteristic curve
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Motor temperature monitoring	I <sup>2</sup> t motor PTC/bimetallic switch
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Inverter type SK 5xxE ...	Mains voltage	Output voltage	Motor rated power 230 V [kW]
-250-112-O	1~ 110 ... 120 V, +/- 10%, 47 ... 63 Hz	3~ 0 - 2x mains voltage	0.25
-370-112-O			0.37
-550-112-O			0.55
-750-112-O			0.75
-111-112-O			1.1

Inverter type SK 5xxE ...	Mains voltage	Motor rated power 230 V [kW]
-250-323-A	1/3~ 200 ... 240 V, +/- 10%, 47 ... 63 Hz	0.25
-370-323-A		0.37
-550-323-A		0.55
-750-323-A		0.75
-111-323-A		1.1
-151-323-A	3~ 200 ... 240 V, +/- 10%, 47 ... 63 Hz	1.5
-221-323-A		2.2
-301-323-A		3.0
-401-323-A		4.0
-551-323-A		5.5
-751-323-A		7.5
-112-323-A		11
-152-323-A	15	



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Motor rated power 240 V [hp]	Rated output current rms [A]	Typical input current rms[A]	Weight [kg]	Dimensions L (L <sub>2</sub> ) x W x D [mm]	Size
$\frac{1}{3}$	1.7	8	1.4	186 (220) x 74 x 153	1
$\frac{1}{2}$	2.2	10	1.4		
$\frac{3}{4}$	3.0	13	1.4		
1	4.0	18	1.4		
$1\frac{1}{2}$	5.3	23.5	1.4		

Motor rated power 240 V [hp]	Rated output current rms [A]	Typical input current rms[A]	Weight [kg]	Dimensions L (L <sub>2</sub> ) x W x D [mm]	Size
$\frac{1}{3}$	1.7	3.7/2.4	1.4	186 (220) x 74 x 153	1
$\frac{1}{2}$	2.2	4.8/3.1	1.4		
$\frac{3}{4}$	3.0	6.5/4.2	1.4		
1	4.0	8.7/5.6	1.4		
$1\frac{1}{2}$	5.5	12.0/7.7	1.8	226 (260) x 74 x 153	2
2	7.0	15.2/9.8	1.8		
3	9.5	19.6/13.3	1.8		
4	12.5	17.5	2.7	241 (275) x 98 x 181	3
5	16.0	22.4	2.7		
$7\frac{1}{2}$	22	30.8	8.0	327 (357) x 162 x 224	5
10	28	39.2	8.0		
15	46	64.4	10.3	367 (397) x 180 x 234	6
20	60	84	15.0	456 (485) x 210 x 236	7

# Frequency inverter NORDAC *PRO* SK 5xxE

## 3~ 380 ... 480 V

Introduction

Output frequency	0.0 ... 400.0 Hz
Pulse frequency	3.0 ... 16.0 kHz
Typical overload capacity	150% for 60 s, 200% for 3.5 s
Efficiency of frequency inverter	Size 1 - 4 approx. 95% Size 5 - 7 approx. 97% Size 8 - 11 approx. 98%

Product overview

Ambient temperature	0°C ... +40°C (S1-100% ED), 0°C ... +50°C (S3-70% ED 10 min)
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Protection type	IP20
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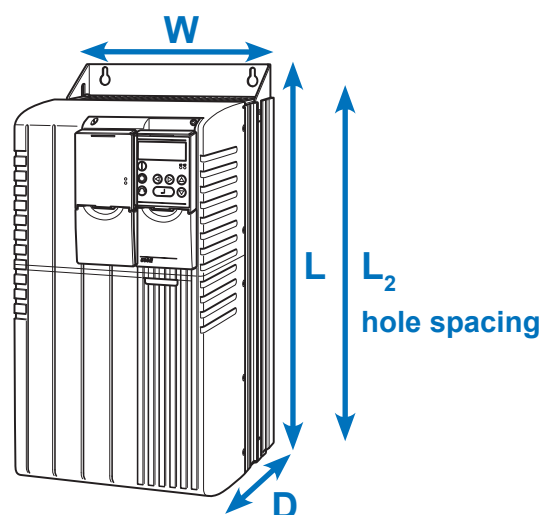
Functions

Regulation and control	Sensorless current vector control (ISD), linear V/f characteristic curve
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Motor temperature monitoring	I <sup>2</sup> t motor PTC/bimetallic switch
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Accessories

Technical Data



Inverter type SK 5xxE ...	Mains voltage	Motor rated power 400 V [kW]
-550-340-A	3~ 380 ... 480 V, -20%/+10%, 47 ... 63 Hz	0.55
-750-340-A		0.75
-111-340-A		1.1
-151-340-A		1.5
-221-340-A		2.2
-301-340-A		3.0
-401-340-A		4.0
-551-340-A		5.5
-751-340-A		7.5
-112-340-A		11.0
-152-340-A		15.0
-182-340-A		18.5
-222-340-A		22.0
-302-340-A		30.0
-372-340-A		37.0
-452-340-A		45.0
-552-340-A	55.0	
-752-340-A	75.0	
-902-340-A	90.0	
-113-340-A	110.0	
-133-340-A	132.0	
-163-340-A*	160.0	

)\* Currently in preparation



Motor rated power 480 V [hp]	Rated output current rms [A]	Typical input current rms[A]	Weight [kg]	Dimensions L (L <sub>2</sub> ) x W x D [mm]	Size
$\frac{3}{4}$	1.7	2.4	1.4	186 (220) x 74 x 153	1
1	2.3	3.2	1.4		
$1\frac{1}{2}$	3.1	4.3	1.8	226 (260) x 74 x 153	2
2	4.0	5.6	1.8		
3	5.5	7.7	1.8		
4	7.5	10.5	2.7	241 (275) x 98 x 181	3
5	9.5	13.3	2.7		
$7\frac{1}{2}$	12.5	17.5	3.1	286 (320) x 98 x 181	4
10	16.0	22.4	3.1		
15	24.0	33.6	8.0	327 (357) x 162 x 224	5
20	31.0	43.4	8.0		
25	38.0	53.2	10.3	367 (397) x 180 x 234	6
30	46.0	64.4	10.3		
40	60.0	84.0	16.0	456 (485) x 210 x 236	7
50	75.0	105.0	16.0		
60	90.0	126.0	20.0	598 (582) x 265 x 286	8
75	110.0	154.0	20.0		
100	150.0	210.0	25.0	636 (620) x 265 x 286	9
125	180.0	252.0	25.0		
150	220.0	308.0	46.0	720 (704) x 395 x 292	10
180	260.0	364.0	49.0		
220	320.0	448.0	52.0	799 (783) x 395 x 292	11

Introduction

Product overview

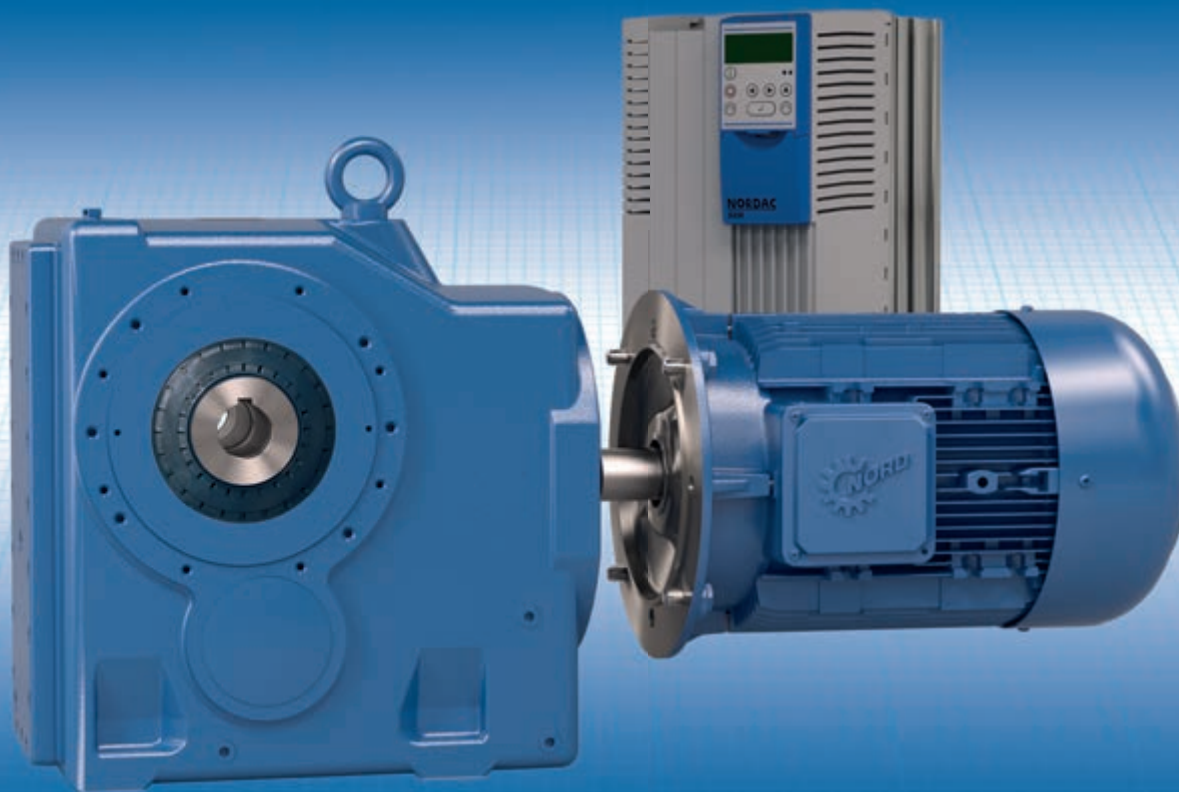
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Gear units



Gear unit production

## Electrical products

Motors



Motor production

## Electronic products

Inverters, motor starters and field distribution systems



Inverter production

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 → for more than 100 industrial sectors

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**Subsidiaries in 36 countries on 5 continents**  
 → provide local component stocks, assembly centres, technical support and customer service.

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Introduction

Product overview

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