

# GETRIEBEBAU NORD

Member of the NORD DRIVESYSTEMS Group

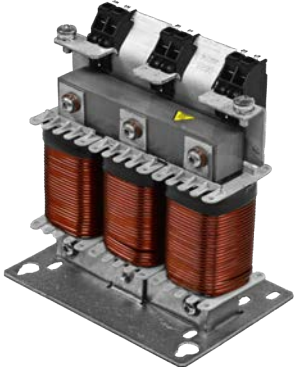
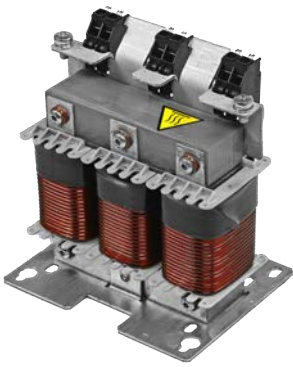





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## Motor chokes for NORDAC PRO SK 5xxP

1~ 230 V AC / 3~ 400 V AC

SK CO5-500/002-C 276 992 002	SK CO5-500/006-C 276 992 006	SK CO5-500/012-C 276 992 012
		

SK CO5-500/024-C 276 992 024	SK CO5-500/046-C 276 992 046
	

### Field of use

Frequency inverters have been developed for operation in industrial environments. For long motor cables, it may be necessary to implement an optional motor choke if required by the system and/or the application. A motor choke should be used for motor cable lengths from >30 m (shielded) or >100 m (unshielded). These chokes must be matched to the power range of the frequency inverter and the mains supply. The motor chokes are rated for a pulse frequency of 3 to 6 kHz and an output frequency of 0 to 120 Hz.

Technical Information / Datasheet	SK CO5-xxx/xxx-C			
Motor choke	TI 276992xxx	1.0	1822	en

### Benefits

Using an adaptive motor choke results in

- reduction of high-frequency harmonic content
- improvement of the insulation strength and the service life of the motor windings
- positive influence on the electromagnetic compatibility / EMC characteristics
- improvement of the device protection

### Application

The motor choke is connected downstream of the frequency inverter and connected with the motor. These motor chokes are UL-certified and should always be installed in the control cabinet due to their protection class (IP00). Adaptive connection occurs with a motor connection cable to be supplied and with screw terminals at the motor choke and at the frequency inverter.

### Overview

1~ 230 V AC / 3~ 400 V AC

Product type	Part number	Rated current [A]	Inductance [mH]	Mains voltage [V]
SK CO5-500/002-C	276 992 002	2.5	3 x 3.68	200 ... 240 ± 10 % 380 ... 480 -20 % / +10 %
SK CO5-500/006-C	276 992 006	6.0	3 x 1.54	
SK CO5-500/012-C	276 992 012	12.5	3 x 0.74	
SK CO5-500/024-C	276 992 024	24.0	3 x 0.383	
SK CO5-500/046-C	276 992 046	46.0	3 x 0.2	

### Copyright notice

As an integral component of the device described here, this document must be provided to all users in a suitable form.

Any editing or amendment or other utilisation of the Technical Information manual is prohibited.

## Hazard and safety notes

### **DANGER!**

#### **Danger of electric shock**

The frequency inverter continues to carry hazardous voltages for up to 5 minutes after it was switched off.

- Work must not be carried out unless the device has been disconnected from the voltage and at least 5 minutes have elapsed since the mains was switched off!
- 

### **CAUTION**

#### **Danger of burns**

The module and all other metal components can heat up to temperatures above 70 °C.


- Sufficient cooling time must be allowed for when working on the components in order to avoid injuries (local burns) to parts of the body coming into contact with the components.
  - In order to avoid damage to neighbouring objects, sufficient clearance must be maintained during installation.
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### **NOTICE**

#### **Validity of this document**

This document is only valid in combination with the operating instructions for the relevant frequency inverter. Safe commissioning of this module and the frequency inverter depends on the availability of this information.

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For further information, please refer to the manual  BU 0600 (see "Further documentation [www.nord.com](http://www.nord.com)").

It only is allowed for qualified electricians to install and commission the module. An electrician is a person who, because of their technical training and experience, has sufficient knowledge relating to

- switching on, switching off, isolating, earthing and marking power circuits and devices,
- proper maintenance and use of protective devices in accordance with defined safety standards.

## Standards and approvals


All chokes of the SK CO5 series comply with the standards and directives listed below.

Approval	Directive	Applied standards	Certificates	Label
CE (European Union)	Low Voltage 2014/35/EU	EN 60529+A1+A2+AC EN 61800-3 EN 61800-5-1 EN 61800-9-1 EN 61800-9-2 EN 63000	C310601	
	EMC 2014/30/EU			
	RoHS 2011/65/EU			
	Delegated Directive (EU) 2015/863			
	Ecodesign 2009/125/EC			
	Regulation (EU) Ecodesign 2019/1781			
DIN	Special requirements and tests on small chokes	EN 61558-1 +AC + A1 EN 61558-2-20		
UK		BS EN 61558-2-20		
SI/T	RoHS 11363-2006			
UL (USA)	UL 506	E103521		
CSA (Canada)	CSA 22.2, No. 18 2018	E219022		
cURus (USA / Canada)	UL 508, No. 18 2018			

## Assignment to frequency inverters

### Information

The chokes provided by the NORD DRIVESYSTEMS Group are directly tailored to the individual NORDAC PRO series.

For further information, please refer to the manual  BU 0600 (see "Further documentation [www.nord.com](http://www.nord.com)").

**Technical Data**
*General*

<b>Protection class</b>	IP 00
<b>Ambient temperature [°C]</b>	-10 to +40
<b>Climate class</b> (EN 60068-1)	25/085/21
<b>Humidity</b> (average rel. humidity 85 %)	3K3
<b>Operating mode</b>	Continuous operation
<b>Vibration resistance</b> (IEC/EN 60721-3-2)	Transport 2M2
<b>Degree of contamination</b> (EN 61800-5-1)	2
<b>Winding material</b>	CU
<b>Parallel connection</b>	No

*Electrical*

<b>Voltage drop [V]</b> (AC)	2.9
<b>Rated frequency [Hz]</b>	0 – 120
<b>Inductance tolerance [%]</b>	±10
<b>Switching frequency [kHz]</b>	4 - 6

Product type	Data					
	Rated voltage [V] (AC)	Rated current [A]	Inductance [mH]	Short circuit voltage uK [%]	Power loss [W]	Test voltage <sup>1)</sup> [V] (AC)
<b>SK CO5-500/002-C</b>	3 x 400	2.5	3 x 3.68	1.25	9.0	2500
<b>SK CO5-500/006-C</b>	3 x 400	6.0	3 x 1.54	1.25	19.0	2500
<b>SK CO5-500/012-C</b>	3 x 400	12.5	3 x 0.74	1.25	36.0	2500
<b>SK CO5-500/024-C</b>	3 x 400	24.0	3 x 0.383	1.25	11.5	4000
<b>SK CO5-500/046-C</b>	3 x 400	46.0	3 x 0.20	1.25	23.3	4000

1) Test duration 2 seconds

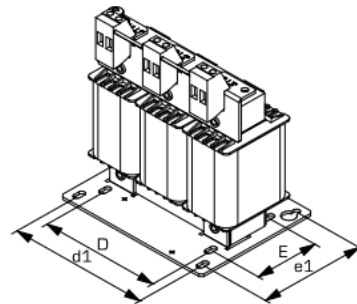
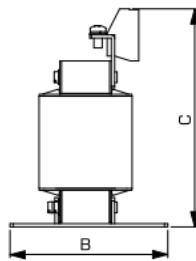
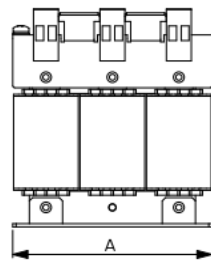
Data	Temperature class (VDE)	Temperature class [°C] (UL)	No. of phases	Typical winding resistance [mΩ]
Product type				
<b>SK CO5-500/002-C</b>	F	Class 155	3	78.0
<b>SK CO5-500/006-C</b>	F	Class 155	3	32.5
<b>SK CO5-500/012-C</b>	F	Class 155	3	12.4
<b>SK CO5-500/024-C</b>	F	Class 155	3	4.7
<b>SK CO5-500/046-C</b>	F	Class 155	3	4.4

*Mechanical*

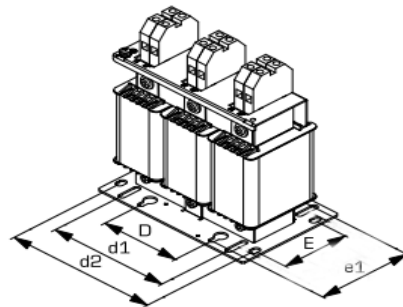
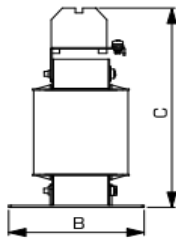
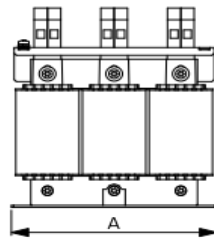
Product type	Dimensioned drawing	Weight [kg]	Fastening screws	Dimensions [mm]							
				Overall dimensions			D	d1	d2	E	e1
				A	B	C <sup>1)</sup>					
SK CO5-500/002-C	①	2.1	M4	120	85	140	90	105	-	39	70
SK CO5-500/006-C	②	2.7	M4	120	95	140	90	105	-	49	80
SK CO5-500/012-C	②	3.6	M5	155	95	165	113	135	-	50	80
SK CO5-500/024-C	②	6.7	M5	185	112	192	90	136	170	67	95
SK CO5-500/046-C	②	10.5	M5	210	125	239	105	156	175	85	108

1) Typical, varies due to air gap inlay

①



②



## Connection data

Product type	Phases (U1, U2, V1, V2, W1, W2)		⊕ (PE)		Mounting Foot bracket
	Screw terminal [mm <sup>2</sup> ]	Tightening torque [Nm]	Screw <sup>1)</sup>	Tightening torque [Nm]	
					SK CO5-500/002-C
SK CO5-500/006-C	4	0.5 – 1.0	M5	3.0	✓
SK CO5-500/012-C	4	0.5 – 1.0	M5	3.0	✓
SK CO5-500/024-C	10	1.2 – 2.0	M5	3.0	✓
SK CO5-500/046-C	35	2.5 – 5.0	M5	3.0	✓

1) 2 PE connections

Data

Phases (U1, U2, V1, V2, W1, W2)

Product type	Phases (U1, U2, V1, V2, W1, W2)			
	Solid / flexible [mm <sup>2</sup> ]	Fine-wire <sup>1)</sup> [mm <sup>2</sup> ]	Insulation stripping length [mm]	AWG
<b>SK CO5-500/002-C</b>	0.2 – 6.0 / 0.2 – 6.0	0.2 – 4.0	9	18 – 14
<b>SK CO5-500/006-C</b>	0.2 – 6.0 / 0.2 – 6.0	0.2 – 4.0	9	22 – 10
<b>SK CO5-500/012-C</b>	0.2 – 6.0 / 0.2 – 6.0	0.2 – 4.0	9	22 – 10
<b>SK CO5-500/024-C</b>	0.2 – 16 / 0.2 – 16	0.2 – 10.0	14	22 – 10
<b>SK CO5-500/046-C</b>	0.2 – 16 / 0.2 – 16	0.2 – 10.0	14	22 – 10

1) With electric wire ferrule



### Installation

The motor choke is mounted directly on the mounting surface (rear wall) of a control cabinet. Appropriate mounting holes are provided for this purpose.



### **i** Information

The motor choke is intended for installation in electrical systems or machines. To protect the motor choke from overheating, it requires sufficient ventilation.

When mounting chokes, heed the information in sections "*Installation position*" and "*Clearances*".

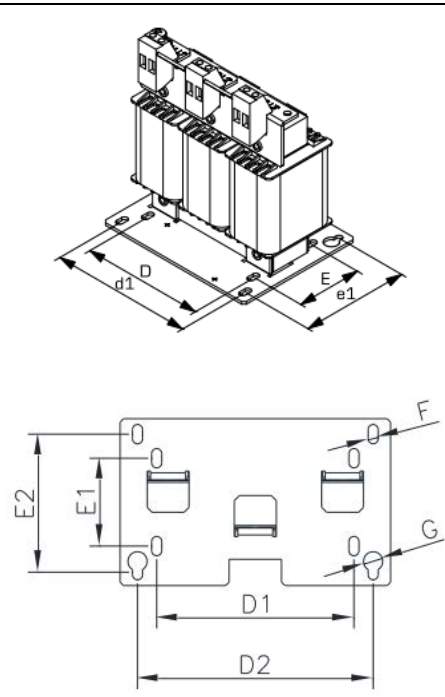
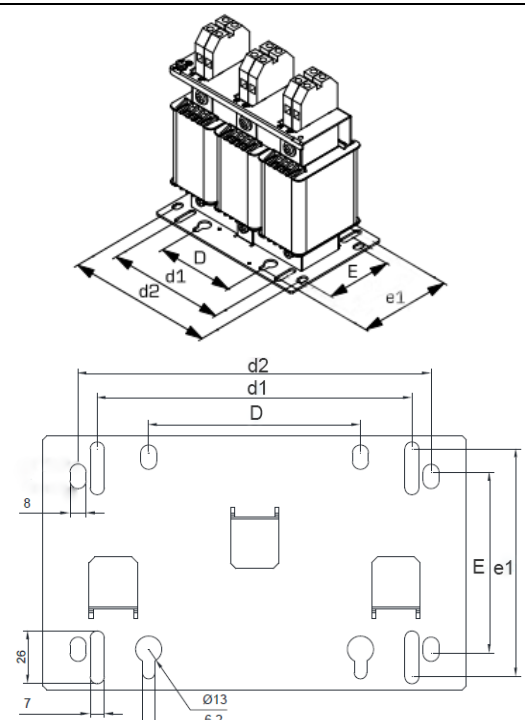
For an EMC-compliant connection of shielded motor cables, the motor choke should be connected to the frequency inverter by means of an optional EMC kit.

Size-dependent SK HE5-EMC-MS-xx EMC kits are available for connection.

For more information, refer to the manual  BU 0600 and the technical information  TI 2752923xx (see "Further documentation [www.nord.com](http://www.nord.com)").

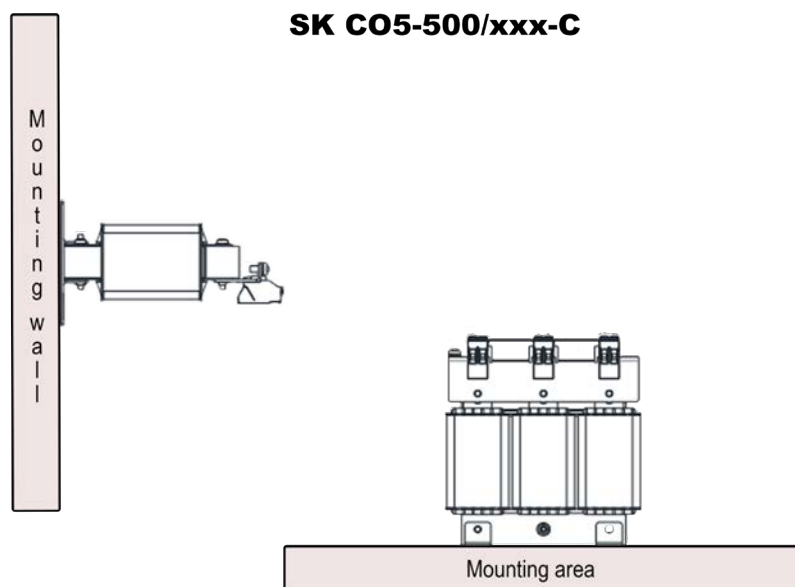
### Installation

Appropriate screws (4 pcs) must be provided for motor choke fastening.

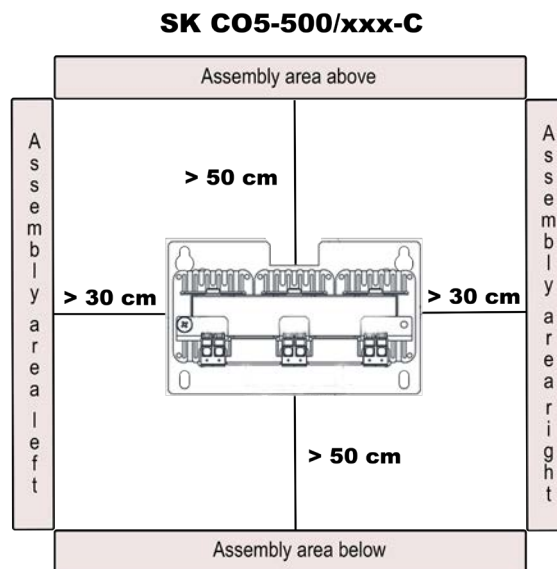
Product type	<b>SK CO5-500/002-C</b> <b>SK CO5-500/006-C</b> <b>SK CO5-500/012-C</b> <b>SK CO5-500/024-C</b> 3~ 400 V	<b>SK CO5-500/046-C</b> 3~ 400 V
	<div style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">1</div>	<div style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">2</div>
Drilling pattern		

For information on fastening, please refer to the technical data in section "Mechanical".

*Installation position*



*Clearances*




### Connection

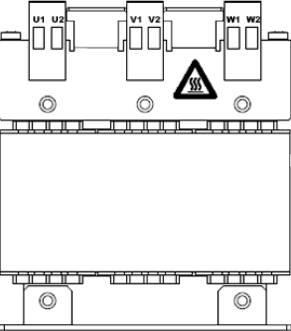

The motor choke must be connected downstream of the frequency inverter. Connect the input to the frequency inverter and the output to the motor.

### Information

The user has to provide the connections cables for the choke.



For further information, please refer to section (see "Technical Data") and the manual  BU 0600 (see "Further documentation [www.nord.com](http://www.nord.com)").


#### Motor choke

Product type	SK CO5-500/002-C SK CO5-500/006-C SK CO5-500/012-C	SK CO5-500/024-C SK CO5-500/046-C
		
Terminal pattern		
	<b>Motor phases</b>	<b>Terminals</b>
<b>Input</b>	U V W	U1 V1 W1
<b>Output</b>	U V W	U2 V2 W2
<b>PE</b>		2 x screws

The tightening torques specified in section "*Mechanical*" must be heeded when connecting the motor choke.


Frequency inverter

Product type	<b>SK 5xxP-xxx-xxx-A</b> Sizes 1 - 5 1~ 230 V / 3~ 400 V	
Terminal pattern	 <p>Illustration shows size 1</p>	
Terminal block X2	<b>Motor phases / connection</b>	<b>Terminals</b>
	U V W	U V W
PE		Terminal

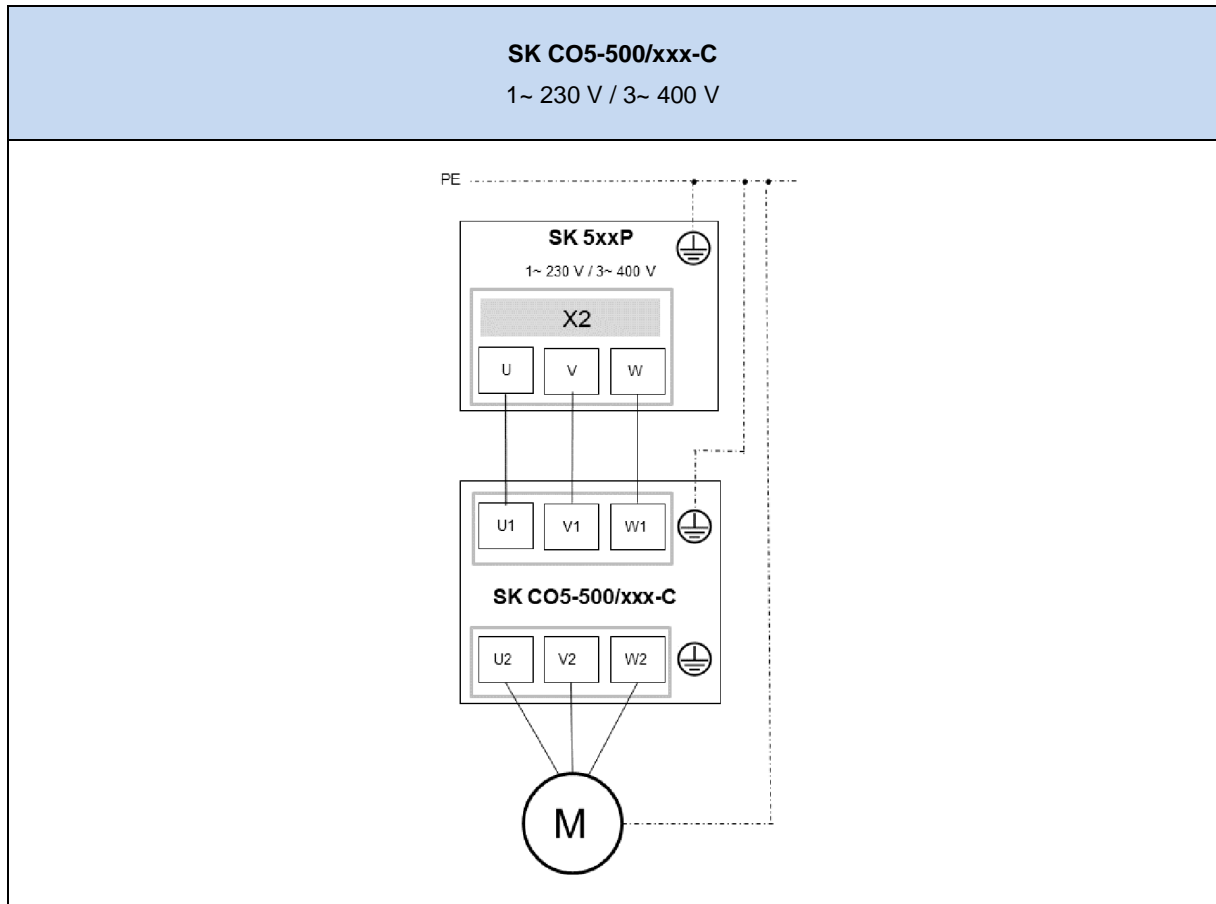
Tightening torques and wiring rules for the connection to the frequency inverter are specified in manual  BU 0600 (see "Further documentation [www.nord.com](http://www.nord.com)").

 **Information**

When mounting and connecting the choke, the user must heed the notes on tools.

For further information, please refer to the manual  BU 0600 (see "Further documentation [www.nord.com](http://www.nord.com)").

**Connection diagram**




## Error message

## Maintenance

In order to ensure proper heat dissipation from the choke body and the connection cables, these must be free from dirt during operation.

Deposits of flammable material must be prevented in order to prevent ignition because the choke surface can heat up.

Cleaning the choke must be carried out with a dry duster on a regular basis when the choke has completely cooled down. The use of detergents for cleaning is generally not permitted. The choke does not contain any serviceable parts.

For further information, please refer to the manual  BU 0600 (see "Further documentation [www.nord.com](http://www.nord.com)").

## Further documentation [www.nord.com](http://www.nord.com)

Document	Designation	Product series
<a href="#">BU 0600</a>	Frequency inverter manual	NORDAC PRO SK 500P
<a href="#">F3060 E3000</a>	Product flyers	NORDAC PRO SK 500P
<a href="#">TI 2752923xx</a>	Technical information EMC kits	SK HE5-EMC-...
<a href="#">TI 80_0011</a>	Information EMC-compliant installation	NORD components

## Further software [www.nord.com](http://www.nord.com)

Software	Designation	Information
ePLAN	Macros	On request
CAD	STEP 3D models	On request

## Certificates [www.nord.com](http://www.nord.com)

Certificate	Designation	Product series
<a href="#">C310601</a>	EU Declaration of Conformity	NORDAC PRO SK 500P
On request	Manufacturer's EAC declaration for chokes	SK CO5-... for frequency inverter SK 500P