STÖBER

3 POSIDYN SDS 5000 servo inverter

Table of contents

SDS

ID 442711_en.01 02/2016

ID 442711_en.01 02/2016

3.1 Overview

SDS 5000 servo inverter for control of synchronous servo motors

- Control of rotary synchronous and asynchronous motors
- Nominal output current: 1.7 A – 60 A (clock frequency 8 kHz)
- 250 % overload capacity
- Power range: 0.75 kW to 45 kW
- Communication via PROFIBUS DP, PROFINET, CANopen, EtherCAT
- Isochronic system bus (IGB) for parameterization and multi-axis applications
- Encoder interfaces EnDat 2.1/2.2 digital, SSI, incremental (HTL/TTL) or resolver
- Digital and analog inputs and outputs
- Automatic motor parameterization from the electronic motor rating plate
- Integrated brake chopper
- Brake management for two 24 V holding brakes
- Integrated line filter
- Motor temperature evaluation via PTC or KTY
- Standard applications with speed, torque, positioning and master/slave functionality
- Programming based on IEC 61131-3 with CFC for creating applications
- Safe Torque Off and Safe Stop 1 safety functions in accordance with DIN EN ISO 13849-1 and DIN EN 61800-5-2
- Fast commissioning with POSITool software
- Convenient control unit consisting of plain text display and keyboard
- Removable data storage Paramodule for commissioning and service
- Secured remote maintenance concept

POSIDYN® SDS 5000

ID 442711_en.01 02/2016

The 5th generation STOBER inverters

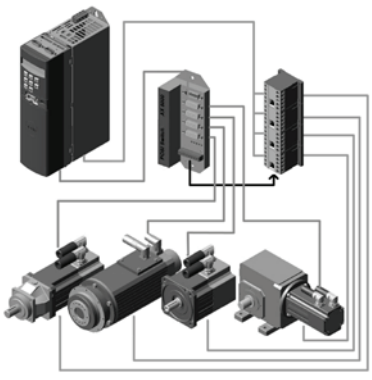
The 5th generation series of STOBER inverters work entirely digitally as modular inverter systems for operating rotary synchronous and asynchronous motors. It includes product types for direct operation on a one or three-phase network in a voltage range from 200 VAC to 528 VAC. An EMC line filter is integrated. EnDat 2.1/2.2 digital, SSI and Incremental (HTL/TTL) are available as encoder interfaces in the standard version. Resolver evaluation is possible as an option. STOBER synchronous servo motors are designed for operation preferably with encoder EnDat 2.1/2.2 digital. The highest control quality can be achieved with these encoder systems. Motor parameterization can be derived automatically from the electronic motor rating plate. The inverter can be adapted to the requirements of individual applications using different option modules. The ASP 5001 safety module makes it possible to implement the Safe Torque Off (STO) and Safe Stop 1 (SS1) safety functions in accordance with DIN EN ISO 13849-1 and DIN EN 61800-5-2 for safety-relevant applications. The communication modules are used to connect to a control unit using PROFIBUS DP, PROFINET, CANopen or EtherCAT fieldbuses. Terminal modules offer the option of connecting analog and binary signals as well as additional encoder signals. A plain text display and the keyboard simplify diagnostics if a fault is present and enable fast access to parameters. The removable data storage Paramodule can be used to transfer all application-relevant data from one inverter to another.

POSIDYN SDS 5000

POSIDRIVE MDS 5000

Sequential axis switching with POSISwitch AX 5000

With the POSISwitch AX 5000 accessory, up to four synchronous servo motors can be operated on one inverter sequentially with absolute value encoder EnDat 2.1/2.2 digital. The POSISwitch AX 5000 module is used to switch absolute value encoder signals and control signals for brake and motor line switching. Entirely digital encoder signals with EnDat protocol allow for easy switching with EMC immunity.



Integrated bus (IGB) for performance, convenience and safety

POSIDYN 5000 SD6 servo inverters have two interfaces for the integrated bus in the standard version. The integrated bus is used for easy project planning via Ethernet and isochronic data exchange for the following functions:

- Multi-axis synchronization between the servo inverters (IGB motion bus)
- Internet connection for remote maintenance of individual and multiple inverters
- Direct connection between servo inverter and PC

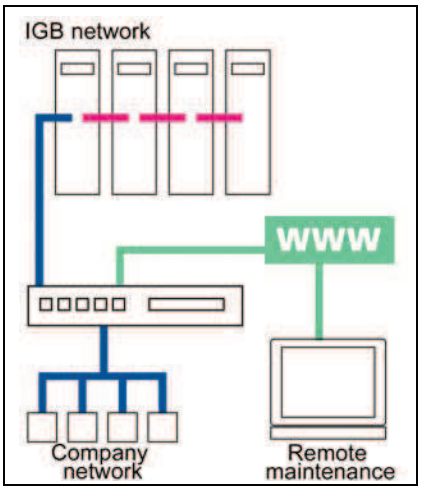
ID 442711_en.01 02/2016

IGB motion bus

The IGB motion bus allows for cyclic, isochronic data exchange between multiple POSIDYN SDS 5000 units integrated into the IGB network. In addition to transferring guide values for master/slave operation, any other data items can also be exchanged, for example tailor-made applications.

STOBER remote maintenance concept

STOBER remote maintenance using the POSITool software can be used to perform all processes and sequence just as for on-site service operations. The concept guides users through a controlled and protected procedure. This ensures that the responsible employee on the customer side is at the machine on site to pay attention to special features and personal safety. On the other end, the remote maintenance specialist is ensured that he is communicating with a responsible employee on site who is controlling the situation on the machine.



STOBER remote maintenance can be used to perform all processes and sequence just as for on-site service operations.

Brake management

The POSIDYN SDS 5000 servo inverter can control one or two 24 V brake systems with the optional BRS 5001 brake module. Brake management provides the following functions for both brake systems:

- Cyclic brake test
- grind brake

Optionally available: brake module BRS 5001

Modular application software

Depending on the need, different standard applications can be loaded onto STOBER 5th generation inverters with the PoSITool commissioning software. Programming based on IEC 61131-3 can also be used with CFC to create new applications or expand existing ones. The inverter operating system is multi-axis capable. It supports up to four axes with separate application and parameter ranges.

Standard applications:

Velocity mode

- **Fast reference value**

  Simple speed application for lean applications. The speed reference value and torque limiting can be assigned via analog inputs and also digitally.

Torque and velocity mode

- **Comfort reference value**

  Expanded torque and speed reference value application. Reference values and limits can be assigned with the fast reference value and also using fixed values, motor potentiometers and other functions.

- **Technology controller**

  PID controller for torque or speed controlled applications.

Positioning mode

- **Command positioning, synchronous command positioning**

  High-performance positioning application with a command interface based on PLCopen. The data for a motion task including target position, velocity and acceleration are transferred together via fieldbus to the inverter, which then processes them independently. The functional scope is rounded out by an electrical cam, motion block switching point and Posi-Latch.
- **Motion block positioning**

  Extensive positioning application with up to 256 motion blocks based on PLCopen. The motion blocks can be selected individually via fieldbus or with binary inputs. They can also be started chained. The functional scope is rounded out by an electrical cam, motion block switching point and Posi-Latch.

Tailor-made application:

- **Electronic cam disk with PLCopen interface**

  The electronic cam disk application makes it possible to implement complex motion tasks such as
  - Flying saw
  - Synchronizer (clock in/clock out)
  - Cross cutter
  - Welding bar/embossing stamp
  - Print mark control

  These applications can be implemented quickly and easily using the readily understandable free graphical programming based on IEC 61131-3 CFC. This also allows for customer-specific adaptations for special system features. Function blocks based on PLCopen Motion Control are available for this purpose for trained users.

POSITool

The 5th generation of POSITool project planning and commissioning software has all the functions needed for efficient use of inverters in single and multi-axis applications.

ID 442711_en.01 02/2016

Removable Data Storage Paramodule

Removable data storage for fast series commissioning by copying and easy service when replacing devices.

User training

STOBER offers a multi-level seminar program that focuses essentially on application programming of the MC6 Motion Controller and SD6 or SDS 5000 drive controller.

SDS 5000 Basic

Training content: system overview, assembly and commissioning of the drive controller. Use of communication and terminal modules. Parameterization, commissioning and diagnostics using the integrated display and via software. Practical exercises for the training system.

SDS 5000 Advanced

Training content: basics of controller optimization and safety technology. Connection to a higher-level control unit and configuration of the drive train. Practical exercises for the training structure.

SDS 5000 Expert

Training content: special knowledge for regulating, safety and control technology. Creating and expanding free graphical programming within the drive controller. Practical exercises for the training structure.

ID 442711_en.01 02/2016

3.2 Technical data

Formula symbol	Unit	Explanation
f	**Hz**	**Frequency**
f_{2PU}	Hz	Output frequency of the drive controller power board
$f_{PWM,PU}$	Hz	Internal pulse clock frequency of the drive controller power board
I	**A**	**Current**
I_0	A	Standstill current: RMS value of the line-to-line current with standstill torque M_0 generated (tolerance ±5 %)
$I_{1N,PU}$	A	Nominal input current of the drive controller power board
I_{2maxPU}	A	Maximum output current of the drive controller power board
$I_{2N,PU}$	A	Nominal output current of the drive controller power board
$I_{N,MOT}$	A	Nominal motor current
M	Nm	**Torque**
M_0	Nm	Standstill torque: the torque the motor is able to deliver long term at a speed of 10 rpm (tolerance ±5 %)
M_N	Nm	Nominal torque: the maximum torque of a motor in S1 mode at nominal speed n_N (tolerance ±5 %).
n	**rpm**	**Speed**
n_N	rpm	Nominal speed: the speed for which the nominal torque M_N is specified
P	**W**	**Power**
P_{maxRB}	W	Maximum power at the external braking resistor
$P_{V,CU}$	W	Power loss of the drive controller control board
$P_{V,PU}$	W	Power loss of the drive controller power board
R	**Ω**	**Resistance**
R_{2minRB}	Ω	Minimum resistance of the external braking resistor
R_{intRB}	Ω	Resistance of the internal braking resistor
ϑ	**°C**	**Temperature**
$\vartheta_{amb,max}$	°C	Maximum surrounding temperature
τ_{th}	s	Thermal time constant
R	**V**	**Voltage**
U_{1PU}	V	Input voltage of the drive controller power board
U_{2PU}	V	Output voltage of the drive controller power board
U_{max}	V	Maximum voltage
U_{maxPU}	V	Maximum voltage of the drive controller power board
U_{offCH}	V	Off limit of the brake chopper
U_{onCH}	V	On limit of the brake chopper
		Other
K_{EM}	V/rpm	Voltage constant: peak value of the induced motor voltage at a speed of 1000 rpm and a winding temperature $\Delta\vartheta$ = 100 K (tolerance ±10 %)

ID 442711_en.01 02/2016

3.2.1 Type designation

Sample code

SDS	**5**	**075**	**A**

Explanation

Code	Designation	Design
SDS	Series	
5	Generation	5th Generation
075	Power	075 = 7.5 kW
– **A**	Hardware variants	No identification: up to HW 199 A: HW 200 and above

3.2.2 Sizes

The SDS 5000 series includes the following types and sizes:

Type	Size
SDS 5007A	Size 0
SDS 5008A	Size 0
SDS 5015A	Size 0
SDS 5040A	Size 1
SDS 5075A	Size 1
SDS 5110A	Size 2
SDS 5150A	Size 2
SDS 5220A	Size 3
SDS 5370A	Size 3
SDS 5450A	Size 3

3.2.3 Electrical Data

3.2.3.1 Size 0: SDS 5007A to SDS 5015A

Type	SDS 5007A	SDS 5008A	SDS 5015A
ID no.	55428	55429	55430
Recommended motor rating	0.75 kW	0.75 kW	1.5 kW
U_{1PU}	1 × 230 V +20 % / -40 % 50/60 Hz	3 × 400 V, +32 % / -50 %, 50 Hz 3 × 480 V, +10 % / -58 %, 60 Hz	
$I_{1N,PU}$	1 × 5.9 A	3 × 2.2 A	3 × 4 A
f_{2PU}	0 – 700 Hz		
U_{2PU}	0 to 230 V	0 to 400 V	

Operation with synchronous servo motor

$I_{2N,PU}$	3 × 3 A	3 × 1.7 A	3 × 3.4 A
I_{2maxPU}	250 % for 2 s; 200 % for 5 s		
$f_{PWM,PU}$	8 kHz[a)]		

a) Clock frequency adjustable from 4 to 16 kHz, see section 3.2.3.5 Derating.

Operation with asynchronous motor

$I_{2N,PU}$	3 × 4 A	3 × 2.3 A	3 × 4.5 A
I_{2maxPU}	180 % for 5 s; 150 % for 30 s		
$f_{PWM,PU}$	4 kHz[a)]		

a) Clock frequency adjustable from 4 to 16 kHz, see section 3.2.3.5 Derating.

$P_{V,PU}$ ($I_2 = I_N$)	80 W	65 W	90 W
$P_{V,CU}$ ($I_2 = 0$ A)[a)]	Max. 30 W		
U_{maxPU}	440 V	830 V	
U_{onCH}	400 V – 420 V	780 V – 800 V	
U_{offCH}	360 V – 380 V	740 V – 760 V	
R_{2minRB}	100 Ω	100 Ω	
P_{maxRB}	1.8 kW	6.4 kW	

a) Depending on the option modules and encoders connected.

ID 442711_en.01 02/2016

3.2.3.2 Size 1: SDS 5040A to SDS 5075A

Type	SDS 5040A	SDS 5075A
ID no.	55431	55432
Recommended motor rating	4.0 kW	7.5 kW
U_{1PU}	3 × 400 V, +32 % / -50 %, 50 Hz 3 × 480 V, +10 % / -58 %, 60 Hz	
$I_{1N,PU}$	3 × 9.3 A	3 × 15.8 A
f_{2PU}	0 – 700 Hz	
U_{2PU}	0 – 400 V	

Operation with synchronous servo motor

$I_{2N,PU}$	3 × 6 A	3 × 10 A
I_{2maxPU}	250 % for 2 s; 200 % for 5 s	
$f_{PWM,PU}$	8 kHz[a)]	

a) Clock frequency adjustable from 4 to 16 kHz, see section 3.2.3.5 Derating.

Operation with asynchronous motor

$I_{2N,PU}$	3 × 10 A	3 × 16 A
I_{2maxPU}	180 % for 5 s; 150 % for 30 s	
$f_{PWM,PU}$	4 kHz[a)]	

a) Clock frequency adjustable from 4 to 16 kHz, see section 3.2.3.5 Derating.

$P_{V,PU}$ ($I_2 = I_N$)	170 W	200 W
$P_{V,CU}$ ($I_2 = 0$ A)[a)]	Max. 30 W	
U_{maxPU}	830 V	
U_{onCH}	780 V – 800 V	
U_{offCH}	740 V – 760 V	
R_{2minRB}	47 Ω	47 Ω
P_{maxRB}	13.6 kW	13.6 kW

a) Depending on the option modules and encoders connected.

3.2.3.3 Size 2: SDS 5110A and SDS 5150A

Type	SDS 5110A	SDS 5150A
ID no.	55433	55434
Recommended motor rating	11 kW	15 kW
U_{1PU}	3 × 400 V, +32 % / -50 %, 50 Hz 3 × 480 V, +10 % / -58 %, 60 Hz	
$I_{1N,PU}$	3 × 24.5 A	3 × 32.6 A
f_{2PU}	0 – 700 Hz	
U_{2PU}	0 – 400 V	

Operation with synchronous servo motor

$I_{2N,PU}$	3 × 14 A	3 × 20 A
I_{2maxPU}	250 % for 2 s; 200 % for 5 s	
$f_{PWM,PU}$	8 kHz[a)]	

a) Clock frequency adjustable from 4 to 16 kHz, see section 3.2.3.5 Derating.

Operation with asynchronous motor

$I_{2N,PU}$	3 × 22 A	3 × 32 A
I_{2maxPU}	180 % for 5 s; 150 % for 30 s	
$f_{PWM,PU}$	4 kHz[a)]	

a) Clock frequency adjustable from 4 to 16 kHz, see section 3.2.3.5 Derating.

$P_{V,PU}$ ($I_2 = I_N$)	220 W	280 W
$P_{V,CU}$ (I_2 = 0 A)[a)]	Max. 30 W	
U_{maxPU}	830 V	
U_{onCH}	780 V – 800 V	
U_{offCH}	740 V – 760 V	
R_{2minRB}	22 Ω	
P_{maxRB}	29.1 kW	

a) Depending on the option modules and encoders connected.

ID 442711_en.01 02/2016

3.2.3.4 Size 3: SDS 5220A to SDS 5450A

Type	SDS 5220A	SDS 5370A	SDS 5450A
ID no.	55435	55436	55437
Recommended motor rating	22 kW	37 kW	45 kW
U_{1PU}	3 × 400 V, +32 % / -50 %, 50 Hz 3 × 480 V, +10 % / -58 %, 60 Hz		
$I_{1N,PU}$	3 × 37 A	3 × 62 A	3 × 76 A
f_{2PU}	0 – 700 Hz		
U_{2PU}	0 – 400 V		

Operation with synchronous servo motor

$I_{2N,PU}$	3 × 30 A	3 × 50 A	3 × 60 A
I_{2maxPU}	250 % for 2 s; 200 % for 5 s		
$f_{PWM,PU}$	8 kHz[a)]		

a) Clock frequency adjustable from 4 to 16 kHz, see section 3.2.3.5 Derating.

Operation with asynchronous motor

$I_{2N,PU}$	3 × 44 A	3 × 70 A	3 × 85 A
I_{2maxPU}	180 % for 5 s; 150 % for 30 s		
$f_{PWM,PU}$	4 kHz[a)]		

a) Clock frequency adjustable from 4 to 16 kHz, see section 3.2.3.5 Derating.

$P_{V,PU}$ ($I_2 = I_N$)	About 350 W	About 600 W	About 1000 W
$P_{V,CU}$ ($I_2 = 0$ A)[a)]	Max. 55 W		
U_{maxPU}	830 V		
U_{onCH}	780 V – 800 V		
U_{offCH}	740 V – 760 V		
R_{intRB}	30 Ω (PTC resistance; 100 W; max. 1 kW for 1 s; τ = 40 s)		
R_{2minRB}	15 Ω		
P_{maxRB}	42 kW		

a) Depending on the option modules and encoders connected.

3.2.3.5 Derating

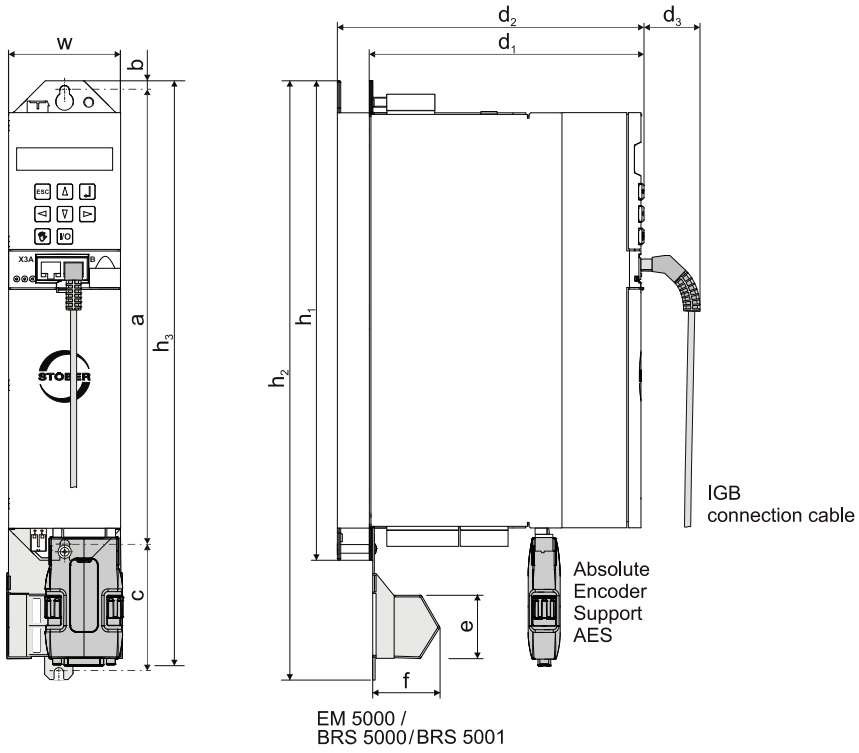
Based on the switching frequency $f_{PWM,PU}$, the following values of the output currents $I_{2N,PU}$ result. Remember that only 8 kHz and 16 kHz can be set for control type servo.

Output current $I_{2N,PU}$

Switching frequency	4 kHz	8 kHz	16 kHz
SDS 5007A	4.0 A	3.0 A	2.0 A
SDS 5008A	2.3 A	1.7 A	1.2 A
SDS 5015A	4.5 A	3.4 A	2.2 A
SDS 5040A	10.0 A	6.0 A	3.3 A
SDS 5075A	16.0 A	10.0 A	5.7 A
SDS 5110A	22.0 A	14.0 A	8.1 A
SDS 5150A	32.0 A	20.0 A	11.4 A
SDS 5220A	44.0 A	30.0 A	18.3 A
SDS 5370A	70.0 A	50.0 A	31.8 A
SDS 5450A	85.0 A	60.0 A	37.8 A

3.2.4 Dimensions

3.2.4.1 Size 0 to 2: SDS 5007A to SDS 5150A



Dimensions [mm]			Size 0	Size 1	Size 2
Inverter	Height	h_1	300		
		h_2	360[a] / 373[b]		
		h_3 [c]	365		
	Width	w	70		105
	Depth	d_1	175	260	260
		d_2 [d]	193	278	278
		d_3	40		
EMC shroud	Height	e	37.5[e] / 44[f]		
	Depth	f	40		
Fastening holes	Vertical distance to upper edge	b	6		
	Vertical distance	a	283+2		
	Vertical distance	c[g]	79		

a) h_2 = height incl. EMC shroud EM 5000 or brake module BRS 5000

b) h_2 = height incl. brake module BRS 5001

c) h_3 = Height incl. AES

d) d_2 = Depth including brake resistor RB 5000

e) e = height of EMC shroud EM 5000 or brake module BRS 5000

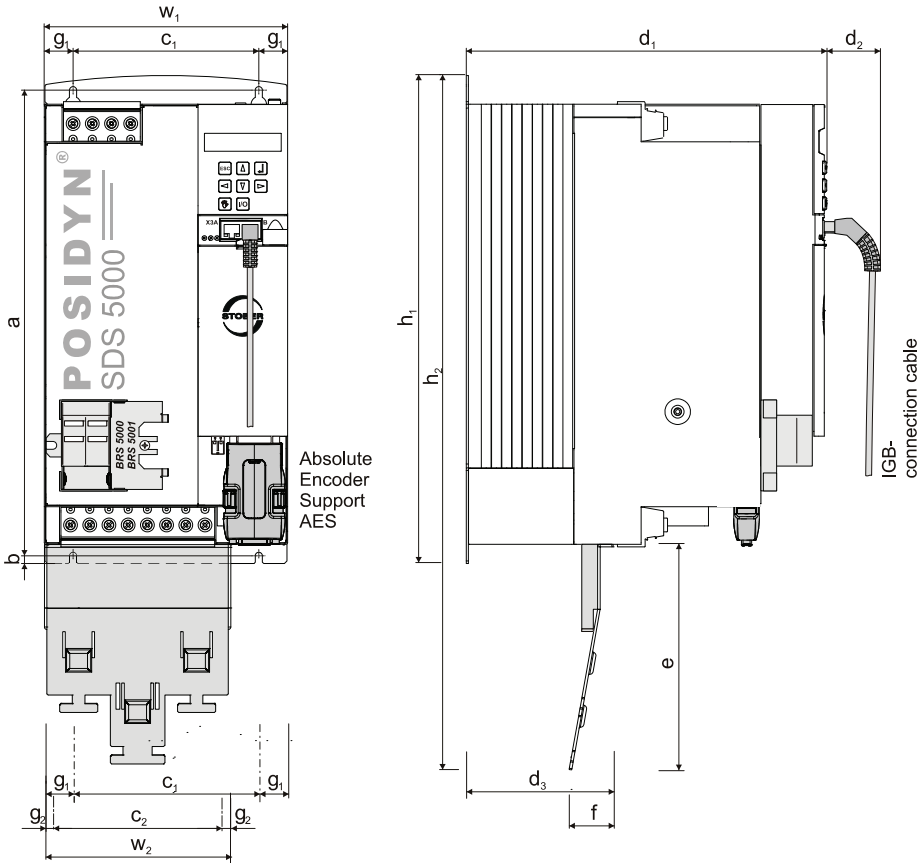
f) e = height of brake module BRS 5001

g) c = vertical distance with brake module BRS 5001

Min. clearance [mm]	Up	Down	On the side
Size 0 – Size 2	100	100	5
... with EMC shroud	100	120	5
Size 3	100	100	5
... with EMC shroud	100	220	5

ID 442711_en.01 02/2016

3.2.4.2 Size 3: SDS 5220A to SDS 5450A



Dimensions [mm]			Size 3
Inverter	Height	h_1	382.5
		h_2 a)	540
	Width	w_1	190
	Depth	d_1	276
		d_2	40
EMC shroud	Height	e	174
	Width	w_2	147
	Depth	f	34
	Depth	d_3	113
Fastening holes	Vertical distance	a	365+2
	Vertical distance to bottom edge	b	6
	Horizontal distance	c_1 b)	150+0.2/-0.2
	Horizontal distance from the side edge	g_1 c)	20
	Horizontal distance	c_2 d)	132
	Horizontal distance from the side edge	g_2 e)	7.5

a) h_2 = height incl. EMC shroud EM6A3

b) c_1 = horizontal distance from the fastening holes of the inverter

c) g_1 = horizontal distance from the side edge of the inverter

d) c_2 = horizontal distance from the fastening holes of the EMC shroud EM6A3

e) g_2 = horizontal distance from the side edge of the EMC shroud EM6A3

Min. clearance [mm]	Up	Down	On the side
Size 0 – Size 2	100	100	5
... with EMC shroud	100	120	5
Size 3	100	100	5
... with EMC shroud	100	220	5

ID 442711_en.01 02/2016

3.2.5 Other product features

Protection class of the device	IP20
Protection class of the control cabinet	IP54
Radio interference suppression	EN 61800-3, interference emission class C3
Overvoltage category	III to EN 61800-5-1
Surrounding temperature	0 °C – +45 °C with nominal data; Up to 55 °C with decrease in power 2.5 %/K
Storage/transport temperature	-20 °C – +70 °C; maximum change: 20 K/h
Relative humidity	Relative humidity 85 %, non-condensing
Installation altitude	Up to 1,000 m above sea level without restrictions; 1000 to 2000 m above sea level with decrease in power 1.5 %/100 m
Pollution degree	2 as per EN 50178
Ventilated	Installed fan
Vibration (operation)	5 Hz ≤ f ≤ 9 Hz: 0.35 mm 9 Hz ≤ f ≤ 200 Hz: 1 m/s^2
Vibration (transport)	5 Hz ≤ f ≤ 9 Hz: 3.5 mm 9 Hz ≤ f ≤ 200 Hz: 10 m/s^2 200 Hz ≤ f ≤ 500 Hz: 15 m/s^2

ID 442711_en.01 02/2016

3.3 Inverter/motor combinations

EZ synchronous servo motor (n_N = 2000 rpm) – SDS 5000 / MDS 5000

						5007A	5008A	5015A	5040A	5075A	5110A	5150A	5220A	5370A	5450A
	K_{EM} [V/1000 rpm]	M_N [Nm]	$I_{N,MOT}$ [A]	M_0 [Nm]	I_0 [A]	$I_{2N,PU}$= 3 A	$I_{2N,PU}$= 1,7 A	$I_{2N,PU}$= 3,4 A	$I_{2N,PU}$= 6 A	$I_{2N,PU}$= 10 A	$I_{2N,PU}$= 14 A	$I_{2N,PU}$= 20 A	$I_{2N,PU}$= 30 A	$I_{2N,PU}$= 50 A	$I_{2N,PU}$= 60 A
Convection cooling of IC 410										$I_{2N,PU}$ / I_0					
EZ805U	142	43.7	25.9	66.1	37.9									1.3	1.6
Forced ventilated IC 416										$I_{2N,PU}$ / I_0					
EZ805B	142	77.2	45.2	94	53.9										1.1
Water cooling										$I_{2N,PU}$ / I_0					
EZ805W	142	72.1	42.1	90.1	51.9										1.2

EZ synchronous servo motor (n_N = 3000 rpm) – SDS 5000 / MDS 5000

						5007A	5008A	5015A	5040A	5075A	5110A	5150A	5220A	5370A	5450A
	K_{EM} [V/1000 rpm]	M_N [Nm]	$I_{N,MOT}$ [A]	M_0 [Nm]	I_0 [A]	$I_{2N,PU}$= 3 A	$I_{2N,PU}$= 1,7 A	$I_{2N,PU}$= 3,4 A	$I_{2N,PU}$= 6 A	$I_{2N,PU}$= 10 A	$I_{2N,PU}$= 14 A	$I_{2N,PU}$= 20 A	$I_{2N,PU}$= 30 A	$I_{2N,PU}$= 50 A	$I_{2N,PU}$= 60 A
Convection cooling of IC 410										$I_{2N,PU}$ / I_0					
EZ301U	40	0.93	1.99	0.95	2.02	1.5		1.7							
EZ302U	86	1.59	1.6	1.68	1.67		1.0	2.0							
EZ303U	109	2.07	1.63	2.19	1.71		1.0	2.0							
EZ401U	96	2.8	2.74	3	2.88			1.2							
EZ402U	94	4.7	4.4	5.2	4.8				1.3						
EZ404U	116	6.9	5.8	8.6	6.6					1.5					
EZ501U	97	4.3	3.74	4.7	4				1.5						
EZ502U	121	7.4	5.46	8	5.76				1.0	1.7					
EZ503U	119	9.7	6.9	11.1	7.67					1.3	1.8				
EZ505U	141	13.5	8.8	16	10					1.0	1.4	2.0			
EZ701U	95	7.4	7.2	8.3	8					1.3	1.8				
EZ702U	133	12	8.2	14.4	9.6					1.0	1.5				
EZ703U	122	16.5	11.4	20.8	14						1.0	1.4			
EZ705U	140	21.3	14.2	30.2	19.5							1.0	1.5		
EZ802U	136	22.3	13.9	37.1	22.3								1.3		
EZ803U	131	26.6	17.7	48.2	31.1									1.6	1.9
Forced ventilated IC 416										$I_{2N,PU}$ / I_0					
EZ401B	96	3.4	3.4	3.7	3.6				1.7						
EZ402B	94	5.9	5.5	6.3	5.8				1.0	1.7					
EZ404B	116	10.2	8.2	11.2	8.7					1.1	1.6				
EZ501B	97	5.4	4.7	5.8	5				1.2	2.0					
EZ502B	121	10.3	7.8	11.2	8.16					1.2	1.7				
EZ503B	119	14.4	10.9	15.9	11.8						1.2	1.7			
EZ505B	141	20.2	13.7	23.4	14.7						1.0	1.4			
EZ701B	95	9.7	9.5	10.5	10					1.0	1.4	2.0			
EZ702B	133	16.6	11.8	19.3	12.9						1.1	1.6			
EZ703B	122	24	18.2	28	20							1.0	1.5		
EZ705B	140	33.8	22.9	41.8	26.5								1.1	1.9	
EZ802B	136	34.3	26.5	47.9	28.9								1.0	1.7	
EZ803B	131	49	35.9	66.7	42.3									1.2	1.4

Water cooling																
										$I_{2N,PU} / I_0$						
EZ401W	96	3.3	3.7	3.55	3.9				1.5							
EZ402W	94	5.85	5.5	6.35	6				1.0	1.7						
EZ404W	116	10.4	8.3	11.3	8.9					1.1	1.6					
EZ501W	97	5.4	4.75	5.65	4.85				1.2							
EZ502W	121	10.2	7.7	11	7.85					1.3	1.8					
EZ503W	119	13.5	10.2	15.2	11.3						1.2	1.8				
EZ505W	141	17.9	11.4	21.5	13.1						1.1	1.5				
EZ701W	95	10.2	9.95	10.4	10						1.4	2.0				
EZ702W	133	17.1	12.2	19.3	13.1						1.1	1.5				
EZ703W	122	22.5	17	27.5	19.6							1.0	1.5			
EZ705W	140	30.3	20.5	39.4	25.4								1.2	2.0		
EZ802W	136	32.2	26.6	48.9	29.6								1.0	1.7		
EZ803W	131	46.7	34.1	65.7	41.7									1.2	1.4	

EZ synchronous servo motor (n_N = 4500 rpm) – SDS 5000 / MDS 5000

						5007A	**5008A**	**5015A**	**5040A**	**5075A**	**5110A**	**5150A**	**5220A**	**5370A**	**5450A**
	K_{EM} [V/1000 rpm]	M_N [Nm]	$I_{N,MOT}$ [A]	M_0 [Nm]	I_0 [A]	$I_{2N,PU}$= 3 A	$I_{2N,PU}$= 1,7 A	$I_{2N,PU}$= 3,4 A	$I_{2N,PU}$= 6 A	$I_{2N,PU}$= 10 A	$I_{2N,PU}$= 14 A	$I_{2N,PU}$= 20 A	$I_{2N,PU}$= 30 A	$I_{2N,PU}$= 50 A	$I_{2N,PU}$= 60 A
Convection cooling of IC 410										$I_{2N,PU} / I_0$					
EZ505U	103	9.5	8.94	15.3	13.4						1.0	1.5			
EZ703U	99	12.1	11.5	20	17.8							1.1	1.7		
EZ705U	106	16.4	14.8	30	25.2								1.2	2.0	
EZ802U	90	10.5	11.2	34.5	33.3									1.5	1.8
Forced ventilated IC 416										$I_{2N,PU} / I_0$					
EZ505B	103	16.4	16.4	22	19.4							1.0	1.5		
EZ703B	99	19.8	20.3	27.2	24.2								1.2		
EZ705B	106	27.7	25.4	39.4	32.8									1.5	1.8
EZ802B	90	30.6	30.5	47.4	45.1									1.1	1.3
Water cooling										$I_{2N,PU} / I_0$					
EZ505W	103	14.2	13	20.2	17.2							1.2	1.7		
EZ703W	99	19.1	18.1	26.7	23.7								1.3		
EZ705W	106	24.1	22	37.2	31.6									1.6	1.9
EZ802W	90	30.7	30.3	46.9	44.6									1.1	1.3

ID 442711_en.01 02/2016

EZ synchronous servo motor (n_N = 6000 rpm) – SDS 5000 / MDS 5000

						5007A	5008A	5015A	5040A	5075A	5110A	5150A	5220A	5370A	5450A
	K_{EM} [V/1000 rpm]	M_N [Nm]	$I_{N,MOT}$ [A]	M_0 [Nm]	I_0 [A]	$I_{2N,PU}$= 3 A	$I_{2N,PU}$= 1,7 A	$I_{2N,PU}$= 3,4 A	$I_{2N,PU}$= 6 A	$I_{2N,PU}$= 10 A	$I_{2N,PU}$= 14 A	$I_{2N,PU}$= 20 A	$I_{2N,PU}$= 30 A	$I_{2N,PU}$= 50 A	$I_{2N,PU}$= 60 A
Convection cooling of IC 410										$I_{2N,PU}$ / I_0					
EZ301U	40	0.89	1.93	0.95	2.02			1.7							
EZ302U	42	1.5	3.18	1.68	3.48				1.7						
EZ303U	55	1.96	3.17	2.25	3.55				1.7						
EZ401U	47	2.3	4.56	2.8	5.36				1.1	1.9					
EZ402U	60	3.5	5.65	4.9	7.43					1.3	1.9				
EZ404U	78	5.8	7.18	8.4	9.78					1.0	1.4	2.0			
EZ501U	68	3.4	4.77	4.4	5.8				1.0	1.7	2.4				
EZ502U	72	5.2	7.35	7.8	9.8					1.0	1.4	2.0			
EZ503U	84	6.2	7.64	10.6	11.6						1.2	1.7			
EZ701U	76	5.2	6.68	7.9	9.38					1.1	1.5				
EZ702U	82	7.2	8.96	14.3	16.5							1.2	1.8		
Forced ventilated IC 416										$I_{2N,PU}$ / I_0					
EZ401B	47	2.9	5.62	3.5	6.83					1.5	2.0				
EZ402B	60	5.1	7.88	6.4	9.34					1.1	1.5				
EZ404B	78	8	9.98	10.5	12						1.2	1.7			
EZ501B	68	4.5	6.7	5.7	7.5					1.3	1.9				
EZ502B	72	8.2	11.4	10.5	13.4						1.0	1.5			
EZ503B	84	10.4	13.5	14.8	15.9							1.3	1.9		
EZ701B	76	7.5	10.6	10.2	12.4						1.1	1.6			
EZ702B	82	12.5	16.7	19.3	22.1								1.4		
Water cooling										$I_{2N,PU}$ / I_0					
EZ401W	47	2.55	5.2	3.35	6.95					1.4	2.0				
EZ402W	60	5	8	6.45	9.7					1.0	1.4				
EZ404W	78	7.7	10.5	10.6	12.3						1.1	1.6			
EZ501W	68	4.3	6.4	5.55	7.25					1.4	1.9				
EZ502W	72	8.1	11.2	10.3	12.9						1.1	1.6			
EZ503W	84	9.95	12.6	14.2	15.2							1.3	2.0		
EZ701W	76	7	10.2	10.4	12.7						1.1	1.6			
EZ702W	82	12	17.5	19.3	22.5								1.3		

EZHD synchronous servo motor with hollow shaft and direct drive (n_N = 3000 rpm) – SDS 5000 / MDS 5000

						5007A	5008A	5015A	5040A	5075A	5110A	5150A	5220A	5370A	5450A
	K_{EM} [V/1000 rpm]	M_N [Nm]	$I_{N,MOT}$ [A]	M_0 [Nm]	I_0 [A]	$I_{2N,PU}$= 3 A	$I_{2N,PU}$= 1,7 A	$I_{2N,PU}$= 3,4 A	$I_{2N,PU}$= 6 A	$I_{2N,PU}$= 10 A	$I_{2N,PU}$= 14 A	$I_{2N,PU}$= 20 A	$I_{2N,PU}$= 30 A	$I_{2N,PU}$= 50 A	$I_{2N,PU}$= 60 A
Convection cooling of IC 410											$I_{2N,PU}$ / I_0				
EZHD0411U	96	1.9	2.36	2.6	2.89	1.0		1.2							
EZHD0412U	94	4.2	4.29	5.1	4.94				1.2						
EZHD0414U	116	7.7	6.3	8.5	6.88					1.5					
EZHD0511U	97	3	3.32	4.1	4.06				1.5						
EZHD0512U	121	7.1	5.59	7.8	6.13					1.6					
EZHD0513U	119	8.3	7.04	10.9	8.76					1.1	1.6				
EZHD0515U	141	14	9.46	16.4	11						1.3	1.8			
EZHD0711U	95	7.3	7.53	7.9	7.98					1.3	1.8				
EZHD0712U	133	11.6	8.18	14.4	9.99					1.0	1.4				
EZHD0713U	122	17.8	13.4	20.4	15.1							1.3	2.0		
EZHD0715U	140	24.6	17.2	31.1	21.1								1.4		

EZHP synchronous servo motor with hollow shaft and attached planetary gear unit (n_N = 3000 rpm) – SDS 5000 / MDS 5000

						5007A	5008A	5015A	5040A	5075A	5110A	5150A	5220A	5370A	5450A
	K_{EM} [V/1000 rpm]	M_N [Nm]	$I_{N,MOT}$ [A]	M_0 [Nm]	I_0 [A]	$I_{2N,PU}$= 3 A	$I_{2N,PU}$= 1,7 A	$I_{2N,PU}$= 3,4 A	$I_{2N,PU}$= 6 A	$I_{2N,PU}$= 10 A	$I_{2N,PU}$= 14 A	$I_{2N,PU}$= 20 A	$I_{2N,PU}$= 30 A	$I_{2N,PU}$= 50 A	$I_{2N,PU}$= 60 A
Convection cooling of IC 410										$I_{2N,PU}$ / I_0					
EZHP_511U	97	3	3.32	4.1	4.06				1.5						
EZHP_512U	121	7.1	5.59	7.8	6.13					1.6					
EZHP_513U	119	8.3	7.04	10.9	8.76					1.1	1.6				
EZHP_515U	141	14	9.46	16.4	11						1.3	1.8			
EZHP_711U	95	7.3	7.53	7.9	7.98					1.3	1.8				
EZHP_712U	133	11.6	8.18	14.4	9.99					1.0	1.4				
EZHP_713U	122	17.8	13.4	20.4	15.1							1.3	2.0		
EZHP_715U	140	24.8	17.2	31.1	21.1								1.4		
Water cooling										$I_{2N,PU}$ / I_0					
EZHP_511W	97	4.1	4.5	4.8	4.79				1.3						
EZHP_512W	121	8.3	6.54	9	7.07					1.4	2.0				
EZHP_513W	119	9.7	8.23	12.3	9.89					1.0	1.4				
EZHP_515W	141	16.2	11	18.6	12.5						1.1	1.6			
EZHP_711W	95	8.3	8.58	9.1	9.18					1.1	1.5				
EZHP_712W	133	13.6	9.6	16.6	11.5						1.2	1.7			
EZHP_713W	122	20.8	15.7	23.7	17.5							1.1	1.7		
EZHP_715W	140	29	20.3	35.7	24.2								1.2		

EZS synchronous servo motor for screw drive (driven threaded spindle) (n_N = 3000 rpm) – SDS 5000 / MDS 5000

						5007A	5008A	5015A	5040A	5075A	5110A	5150A	5220A	5370A	5450A
	K_{EM} [V/1000 rpm]	M_N [Nm]	$I_{N,MOT}$ [A]	M_0 [Nm]	I_0 [A]	$I_{2N,PU}$= 3 A	$I_{2N,PU}$= 1,7 A	$I_{2N,PU}$= 3,4 A	$I_{2N,PU}$= 6 A	$I_{2N,PU}$= 10 A	$I_{2N,PU}$= 14 A	$I_{2N,PU}$= 20 A	$I_{2N,PU}$= 30 A	$I_{2N,PU}$= 50 A	$I_{2N,PU}$= 60 A
Convection cooling of IC 410										$I_{2N,PU}$ / I_0					
EZS501U	97	3.85	3.65	4.3	3.95				1.5						
EZS502U	121	6.9	5.3	7.55	5.7				1.1	1.8					
EZS503U	119	9.1	6.7	10.7	7.6					1.3	1.8				
EZS701U	95	6.65	6.8	7.65	7.7					1.3	1.8				
EZS702U	133	11	7.75	13.5	9.25					1.1	1.5				
EZS703U	122	15.3	10.8	19.7	13.5						1.0	1.5			
Forced ventilated IC 416										$I_{2N,PU}$ / I_0					
EZS501B	97	5.1	4.7	5.45	5				1.2	2.0					
EZS502B	121	10	7.8	10.9	8.16					1.2	1.7				
EZS503B	119	14.1	10.9	15.6	11.8						1.2	1.7			
EZS701B	95	9.35	9.5	10.2	10					1.0	1.4	2.0			
EZS702B	133	16.3	11.8	19	12.9						1.1	1.6			
EZS703B	122	23.7	18.2	27.7	20							1.0	1.5		
Water cooling										$I_{2N,PU}$ / I_0					
EZS501W	97	5.1	4.75	5.3	4.85				1.2						
EZS502W	121	9.9	7.7	10.7	7.85					1.3	1.8				
EZS503W	119	13.2	10.2	14.9	11.3						1.2	1.8			
EZS701W	95	9.85	9.95	10	10					1.0	1.4	2.0			
EZS702W	133	16.8	12.2	18.9	13.1						1.1	1.5			
EZS703W	122	22.1	17	27.1	19.6							1.0	1.5		

ID 442711_en.01 02/2016

EZM synchronous servo motor for screw drive (driven spindle nut) (n_N = 3000 rpm) – SDS 5000 / MDS 5000

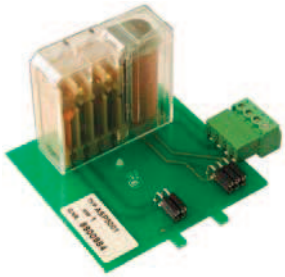
						5007A	5008A	5015A	5040A	5075A	5110A	5150A	5220A	5370A	5450A
	K_{EM} [V/1000 rpm]	M_N [Nm]	$I_{N,MOT}$ [A]	M_0 [Nm]	I_0 [A]	$I_{2N,PU}$= 3 A	$I_{2N,PU}$= 1,7 A	$I_{2N,PU}$= 3,4 A	$I_{2N,PU}$= 6 A	$I_{2N,PU}$= 10 A	$I_{2N,PU}$= 14 A	$I_{2N,PU}$= 20 A	$I_{2N,PU}$= 30 A	$I_{2N,PU}$= 50 A	$I_{2N,PU}$= 60 A
Convection cooling of IC 410											$I_{2N,PU}$ / I_0				
EZM511U	97	3.65	3.55	4.25	4				1.5						
EZM512U	121	6.6	5.2	7.55	5.75				1.0	1.7					
EZM513U	119	8.8	6.55	10.6	7.6					1.3	1.8				
EZM711U	95	6.35	6.6	7.3	7.4					1.4	1.9				
EZM712U	133	10.6	7.5	13	8.9					1.1	1.6				
EZM713U	122	14.7	10.4	18.9	13						1.1	1.5			
Water cooling											$I_{2N,PU}$ / I_0				
EZM511W	97	4.95	4.75	5.2	4.85				1.2						
EZM512W	121	9.75	7.7	10.6	7.85					1.3	1.8				
EZM513W	119	13.1	10.2	14.8	11.3						1.2	1.8			
EZM711W	95	9.8	9.95	10	10					1.0	1.4	2.0			
EZM712W	133	16.7	12.2	18.8	13.1						1.1	1.5			
EZM713W	122	22	17	27.1	19.6							1.0	1.5		

3.4 Accessories

3.4.1 Safety technology

ASP 5001 – Safe Torque Off

Available with the standard version.



Option module for implementation of integrated safety function Safe Torque Off (STO).
The ASP 5001 may only be installed by STÖBER ANTRIEBSTECHNIK GmbH & Co. KG!
The ASP 5001 must be ordered with the basic device.

3.4.2 Terminal modules

I/O terminal module standard SEA 5001

ID no. 49576

Terminals:
- 2 analog inputs
- 2 analog outputs
- 5 binary inputs
- 2 binary outputs

I/O terminal module extended XEA 5001

ID no. 49015

Terminals:
- 3 analog inputs
- 2 analog outputs
- 13 binary inputs
- 10 binary outputs

Encoder / interfaces:
- TTL incremental encoder (simulation and evaluation)
- Pulse train (simulation and evaluation)
- SSI encoder (simulation and evaluation)

SSI/TTL connection cable X120

ID no. 49482

For connection of the SSI interface X120 to the XEA 5001, 0.3 m in length.

ID 442711_en.01 02/2016

I/O terminal module resolver REA 5001
ID no. 49854

Terminals:
- 2 analog inputs
- 2 analog outputs
- 5 binary inputs
- 2 binary outputs

Encoder / interfaces:
- Resolver
- EnDat 2.1 sin/cos encoder
- TTL incremental encoder (simulation and evaluation)
- SSI encoder (simulation and evaluation)
- SSI encoder (simulation and evaluation)
- Pulse train (simulation and evaluation)

Resolver cables that were connected to an POSIDYN SDS 4000 can be connected via the resolver adapter (9-pin to 15-pin) included in the scope of delivery to terminal X140 of REA 5001.

3.4.3 Communication

IGB connecting cable

To connect the interface X3 A or X3 B on the inverter front for IGB, CAT5e, magenta, connector angled at 45°.

The following versions are available:

ID no. 49855: 0.4 m.
ID no. 49856: 2 m.

PC connecting cable
ID no. 49857

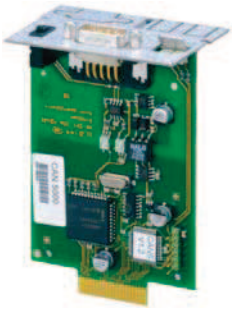
To connect the X3 A or X3 B interface to PC, CAT5e, blue, 5m.

Hi-speed USB 2.0 Ethernet adapter
ID no. 49940

Adapter for connecting Ethernet to a USB connection.

Fieldbus module CANopen DS-301 CAN 5000

ID no. 44574



Accessory part for connecting CAN bus.

Fieldbus module PROFIBUS DP-V1 DP 5000

ID no. 44575

Accessory module for connecting PROFIBUS DP-V1.

Fieldbus module EtherCAT ECS 5000

ID no. 49014

Accessory part for connecting EtherCAT (CANopen over EtherCAT).

EtherCAT cable

EtherNet patch cable, CAT5e, yellow.

The following versions are available:

ID no. 49313: approx. 0.2 m.
ID no. 49314: approx. 0.35 m.

Fieldbus module PROFINET PN 5000

ID no. 53893

Accessory part for connecting PROFINET.

ID 442711_en.01 02/2016

3.4.4 Braking resistors

3.4.4.1 FZMU, FZZMU

Braking resistor – inverter assignment

Type	FZMU 400x65			FZZMU 400x65		
ID no.	49010	55445	55446	53895	55447	55448
SDS 5007A	X	—	—	—	—	—
SDS 5008A	X	—	—	—	—	—
SDS 5015A	X	—	—	—	—	—
SDS 5040A	—	—	—	X	—	—
SDS 5075A	—	—	—	X	—	—
SDS 5110A	—	X	—	—	X	—
SDS 5150A	—	X	—	—	X	—
SDS 5220A	—	—	X	—	—	X
SDS 5370A	—	—	X	—	—	X
SDS 5450A	—	—	X	—	—	X

The internal connections are wired with heat-resistant, silicon-insulated strands of wire on terminals. Also ensure a heat-resistant and stress-resistance design for the connection!

Conductor cross-section

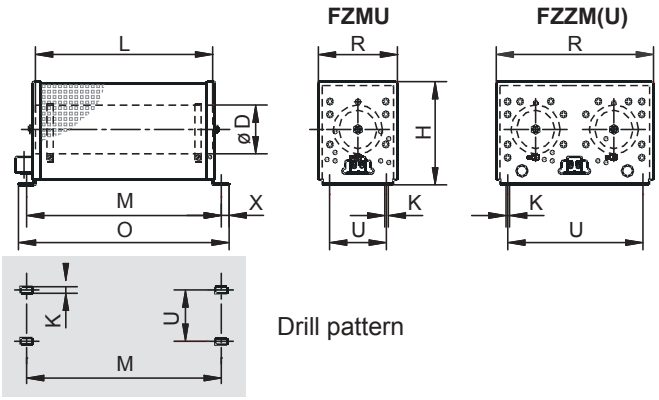
Connection type	Conductor cross-section [mm²]
Rigid	0.5 – 4.0
Flexible with cable end sleeve	0.5 – 2.5

Properties

Type	FZMU 400x65			FZZMU 400x65		
ID no.	49010	55445	55446	53895	55447	55448
Resistance [Ω]	100	22	15	47	22	15
Power [W]	600			1200		
Therm. time const. τ_{th} [s]	40			40		
Pulse power for < 1 s [kW]	18			36		
U_{max} [V]	848			848		
Weight [kg]	Approx. 2.2			Approx. 4.2		
Protection class	IP20			IP20		
Test marks	c UL us			c UL us		

Dimensions [mm]

Type	FZMU 400x65			FZZMU 400x65		
ID no.	49010	55445	55446	53895	55447	55448
L x D	400 × 65			400 × 65		
H	120			120		
K	6.5 × 12			6.5 × 12		
M	430			426		
O	485			450		
R	92			185		
R	64			150		
X	10			10		



Drill pattern

3.4.4.2 GVADU, GBADU

Braking resistor – inverter assignment

Type	GVADU 210x20	GBADU 265x30	GBADU 405x30	GBADU 335x30	GBADU 265x30
ID no.	**55441**	**55442**	**55499**	**55443**	**55444**
SDS 5007A	X	X	X	—	—
SDS 5008A	X	X	X	—	—
SDS 5015A	X	X	X	—	—
SDS 5040A	X	X	X	X	—
SDS 5075A	—	—	—	X	—
SDS 5110A	—	—	—	—	X
SDS 5150A	—	—	—	—	X
SDS 5220A	—	—	—	—	X
SDS 5370A	—	—	—	—	X
SDS 5450A	—	—	—	—	X

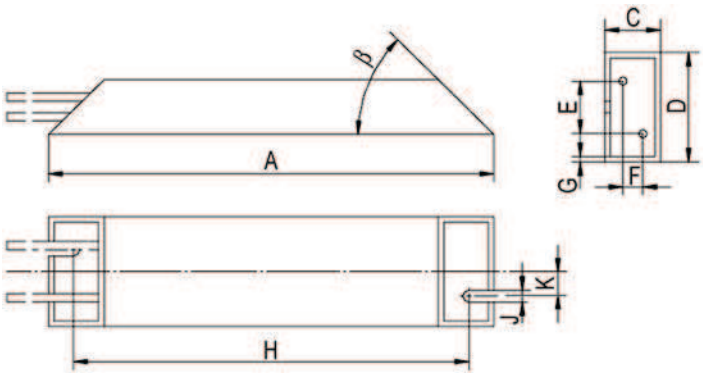
Properties

Type	GVADU 210x20	GBADU 265x30		GBADU 335x30	GBADU 405x30
ID no.	**55441**	**55442**	**55444**	**55443**	**55499**
Resistance [Ω]	100	100	22	47	100
Power [W]	150	300	300	400	500
Therm. time const. τ_{th} [s]	60	60			
Pulse power for < 1 s [kW]	3.3	6.6	6.6	8.8	11
U_{max} [V]	848	848			
Cable design	Radox	FEP			
Cable length [mm]	50	50			
Cable cross-section [AWG]	18/19 (0.82 mm²)	14/19 (1.9 mm²)			
Weight [g]	300	950	950	1200	1450
Protection class	IP54	IP54			
Test marks	c UL us	c UL us			

SDS

Dimensions [mm]

Type	GVADU 210x20	GBADU 265x30		GBADU 335x30	GBADU 405x30
ID no.	55441	55442	55444	55443	55449
A	210	265		335	405
H	192	246		316	386
C	20	30		30	30
D	40	60		60	60
E	18.2	28.8		28.8	28.8
F	6.2	10.8		10.8	10.8
G	2	3		3	3
K	2.5	4		4	4
J	4.3	5.3		5.3	5.3
β	65°	73°		73°	73°



3.4.4.3 FGFKU

Braking resistor – inverter assignment

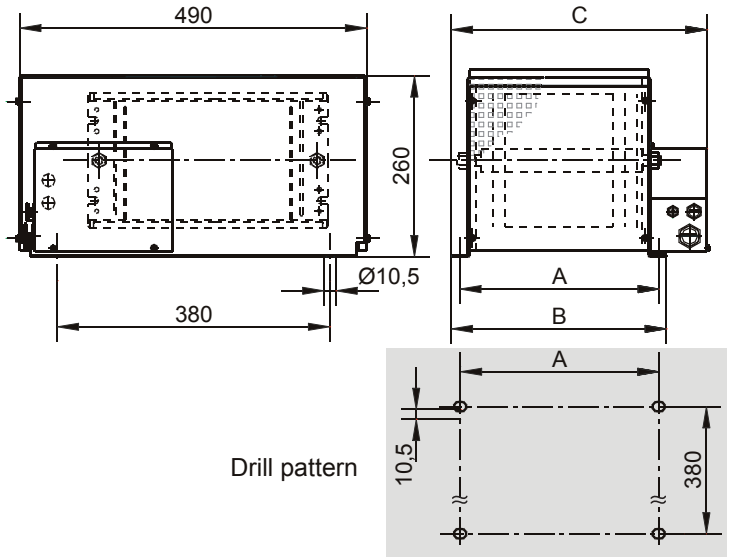
Type	FGFKU			
ID no.	55449	55450	55451	53897
SDS 5110A	X	—	—	—
SDS 5150A	X	—	—	—
SDS 5220A	—	X	X	X
SDS 5370A	—	X	X	X
SDS 5450A	—	X	X	X

Properties

Type	FGFKU			
ID no.	55449	55450	55451	53897
Resistance [Ω]	22	15	15	15
Power [W]	2500		6000	8000
Therm. time const. τ_{th} [s]	30		20	20
Pulse power for < 1 s [kW]	50		120	160
U_{max} [V]	848		848	848
Weight [kg]	Approx. 7.5		12	18
Test marks	c UL us		c UL us	c UL us

Dimensions [mm]

Type	FGFKU		
ID no.	55449 55450	55451	53897
A	270	370	570
B	295	395	595
C	355	455	655



Drill pattern

3.4.4.4 Bottom brake resistor RB 5000

Braking resistor – inverter assignment

Type	RB 5022	RB 5047	RB 5100
ID no.	**45618**	**44966**	**44965**
SDS 5008A	—	—	X
SDS 5015A	—	—	X
SDS 5040A	—	X	X
SDS 5075A	—	X	—
SDS 5110A	X	—	—
SDS 5150A	X	—	—

Properties

Type	RB 5022	RB 5047	RB 5100
ID no.	**45618**	**44966**	**44965**
Resistance [Ω]	22	47	100
Power [W]	100	60	60
Therm. time const. τ_{th} [s]		8	
Pulse power for < 1 s [kW]	1.5	1.0	1.0
U_{max} [V]		800	
Weight [g]	Approx. 640	Approx. 460	Approx. 440
Cable design		Radox	
Cable length [mm]		250	
Cable cross-section [AWG]		18/19 (0.82 mm²)	
Maximum torque for studs [Nm]		5	
Protection class		IP40	
Test marks		c UL us	

Dimensions [mm]

Type	RB 5022	RB 5047	RB 5100
ID no.	**45618**	**44966**	**44965**
Height	300	300	
Width	94	62	
Depth	18	18	
Drilling pattern corresponds to size	2	1	0 and 1

ID 442711_en.01 02/2016

3.4.5 Output derater

Type	TEP3720-0ES41	TEP3820-0CS41	TEP4020-0RS41
ID no.	53188	53189	53190
Voltage range	3 x 0 to 480 V		
Frequency range	0 to 200 Hz		
I_N at 4 kHz	4 A	17.5 A	38 A
I_N at 8 kHz	3.3 A	15.2 A	30.4 A
Max. permitted motor cable length with output derater	100 m		
Max. surrounding temperature $\vartheta_{amb,max}$	40 °C		
Design	Open		
Winding losses	11 W	29 W	61 W
Iron losses	25 W	16 W	33 W
Connections	Screw terminals		
Max. conductor cross-section	10 mm²		
UL Recognized Component (CAN; USA)	Yes		
Test marks	c UL us		

Projecting

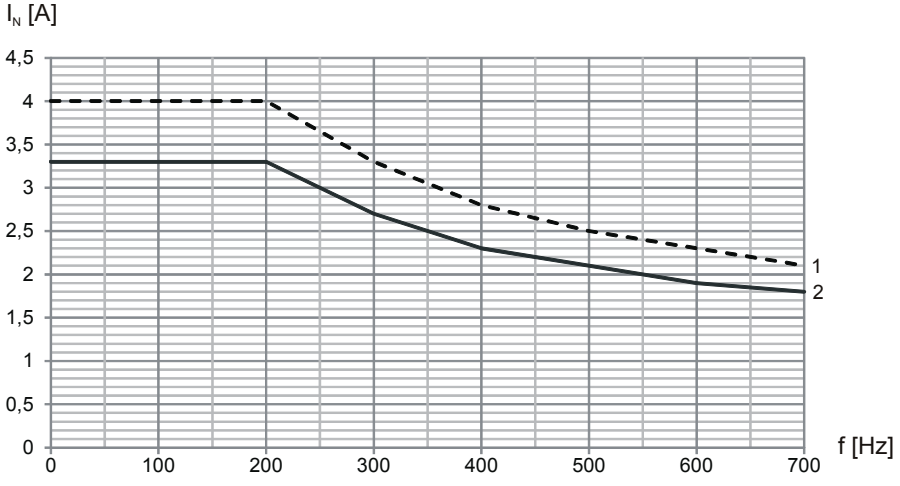
Select the output chokes according to the rated currents of the motor and output chokes. In particular, observe the derating of the output choke for rotary field frequencies higher than 200 Hz.

You can calculate the rotary field frequency for your drive with the following formula:

$$f = n_N \cdot \frac{p}{60}$$

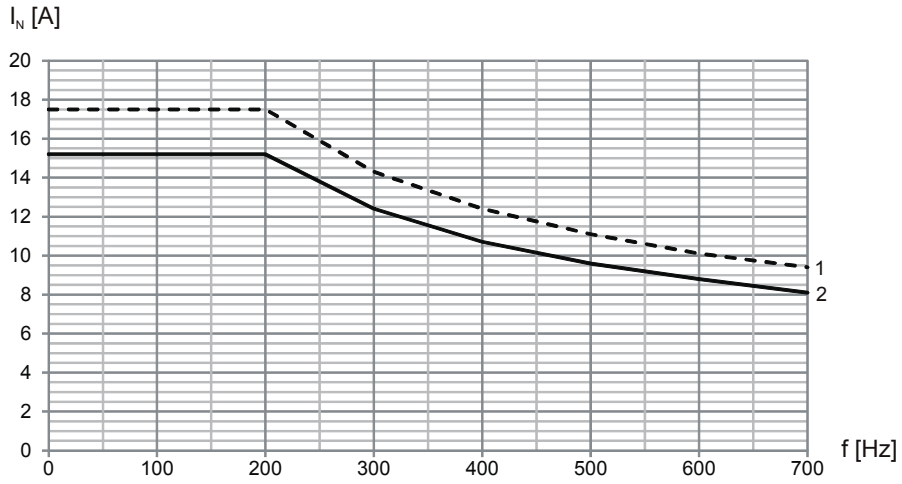
f Rotary field frequency in Hz
n Speed in rpm
p Number of pole pairs
N Nominal value

Derating TEP3720-0ES41



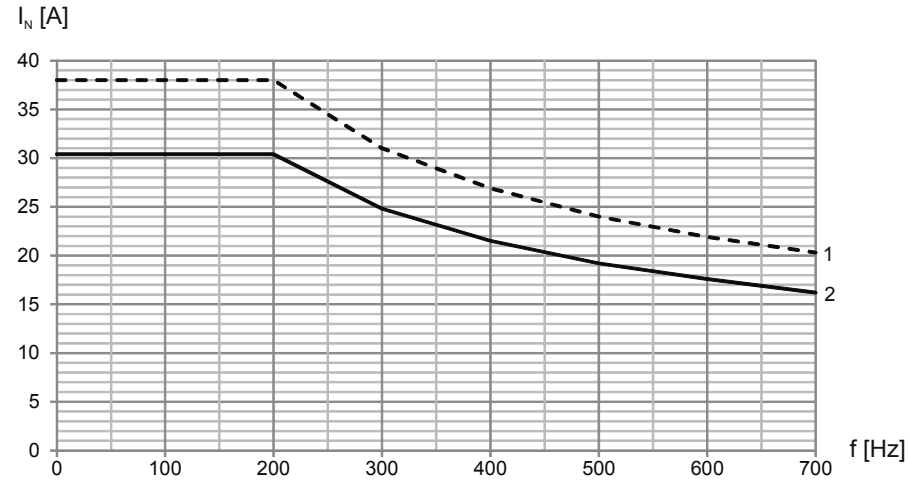
1 Cycle frequency 4 kHz
2 Cycle frequency 8 kHz

Derating TEP3820-0CS41



1 Cycle frequency 4 kHz
2 Cycle frequency 8 kHz

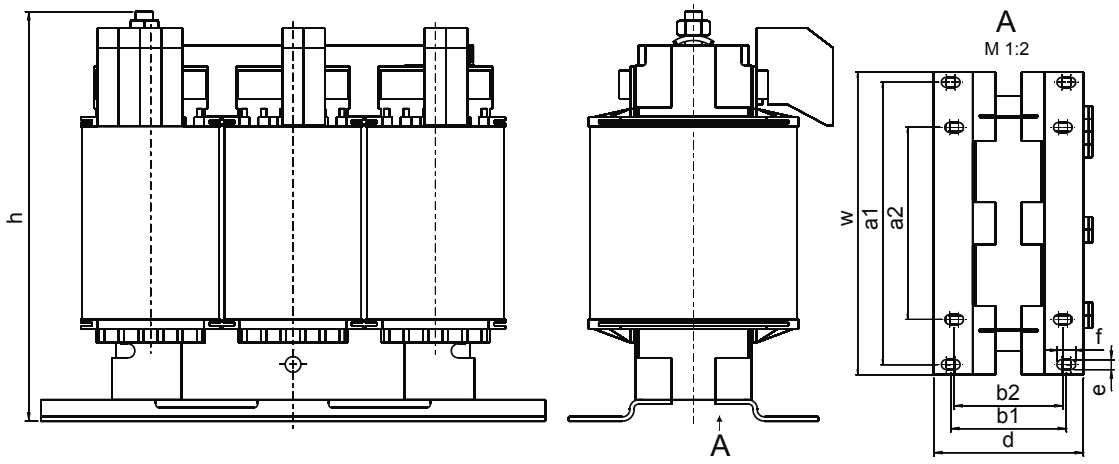
Derating TEP4020-0RS41

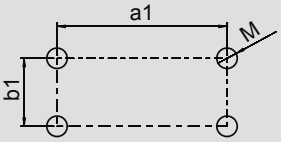


1 Cycle frequency 4 kHz
2 Cycle frequency 8 kHz

Dimensions	TEP3720-0ES41	TEP3820-0CS41	TEP4020-0RS41
Height h [mm]	Max. 153	Max. 153	Max. 180
Width w [mm]	178	178	219
Depth d [mm]	73	88	119
Vertical distance – fastening holes a1 [mm]	166	166	201
Vertical distance – fastening holes a2 [mm]	113	113	136
Horizontal distance – fastening holes b1 [mm]	53	68	89
Horizontal distance – fastening holes b2 [mm]	49	64	76
Drill holes – depth e [mm]	5.8	5.8	7
Drill holes – width f [mm]	11	11	13
Screw connection – M	M5	M5	M6
Weight [kg]	2.9	5.9	8.8

ID 442711_en.01 02/2016





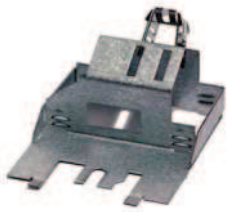
Mounting borings in
acc. to DIN EN 60852-4

3.4.6 Brake module and EMC shroud

Brake module BRS 5001
ID no. 56519

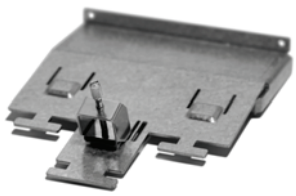
Accessory part for direct control of up to two motor holding brakes (24 V/DC).
Attachable on the basic housing.
Including connection cable for basic device and shield connection terminal for power cable cross-sections of 1 to 10 mm².

EMC shroud EM 5000
ID no. 44959



Accessory part for shield connection of the motor line.
Attachable on the basic housing.
Including shield connection terminal

EMC shroud EM6A3
ID no. 135120



EMC shroud for size 3.
Accessory part for shield connection of the motor line.
Attachable on the basic housing.
Including shield connection terminal for power cable cross-sections of 6 to 25 mm².
If necessary you can also connect the cable shield of the braking resistor and DC link connection on the shroud.
Additional shield connection terminals are available as accessories for this purpose (ID No. 56521).

3.4.7 Axis switcher

4-way axis switcher POSISwitch AX 5000

ID no. 49578

Enables the operation of up to four servo motors on one inverter.

POSISwitch connection cable

Connection between inverter and POSISwitch AX 5000.

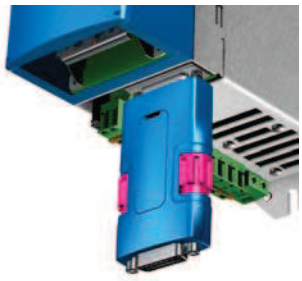
The following versions are available:

ID no. 45405: 0.5 m.
ID no. 45386: 2.5 m.

3.4.8 Battery module for encoder buffering

Absolute Encoder Support AES

ID no. 55452



For buffering the power supply when using the inductive absolute value encoder EnDat 2.2 digital with battery-buffered Multiturn power stage, for example EBI1135, EBI135.
A battery is included.

Replaceable battery AES

ID no. 55453

Replaceable battery for Absolute Encoder Support AES.

ID 442711_en.01 02/2016

3.4.9 Removable data storage

Removable Data Storage Paramodule
Included in the standard design.
ID no. 55464

Memory module for configuration and parameters: 8 MB.

3.4.10 Product CD

Product CD "STOBER ELECTRONICS 5000"
Included in the standard design.
ID no. 441852

The CD-ROM contains the POSITool project configuration and commissioning software, documentation as well as the device description files for the inverter – controller connection.

3.5 Further information

3.5.1 Symbols, identifiers and test symbols

Symbols	
	Grounding symbol according to IEC 60417-5019 (DB:2002-10).

Identification and test symbols	
	**Lead-free identifier for RoHS** Lead-free identifier according to RoHS directive 2011-65-EU.
	**CE mark** Manufacturer's self declaration: The product meets the requirements of EU directives.
	**UL test mark** This product is listed by UL for the USA and Canada. Representative samples of this product have been evaluated by UL and meet the requirements of applicable standards.
	**UL test marks for recognized components** This component or material is recognized by UL. Representative samples of this product have been evaluated by UL and meet applicable requirements.

ID 442711_en.01 02/2016