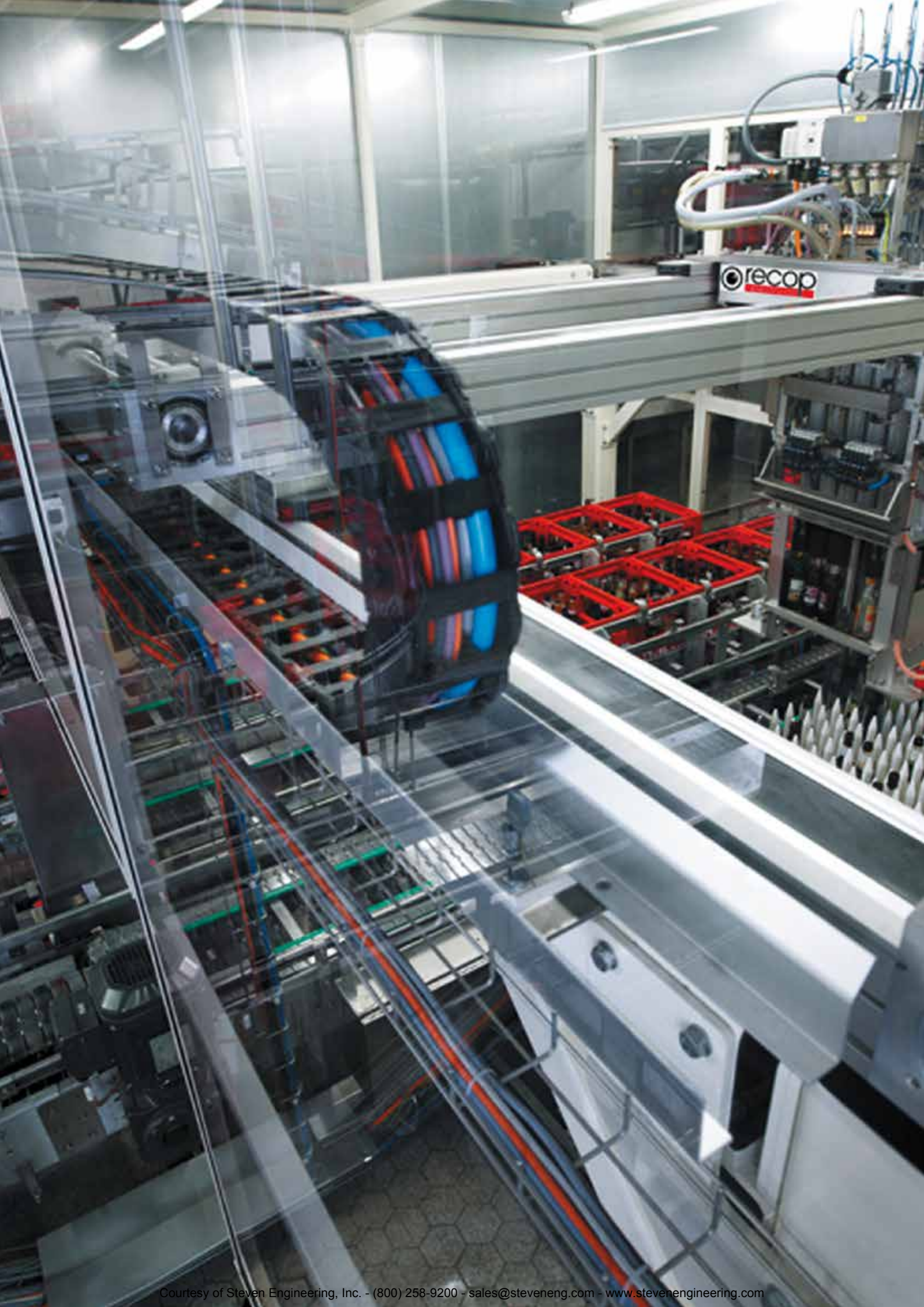


# Lexium™ 23 Plus Motion control

Catalog  
2013



**Schneider**  
Electric™



**Lexium™ 23 Plus servo drives**

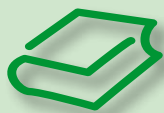
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**BCH servo motors**

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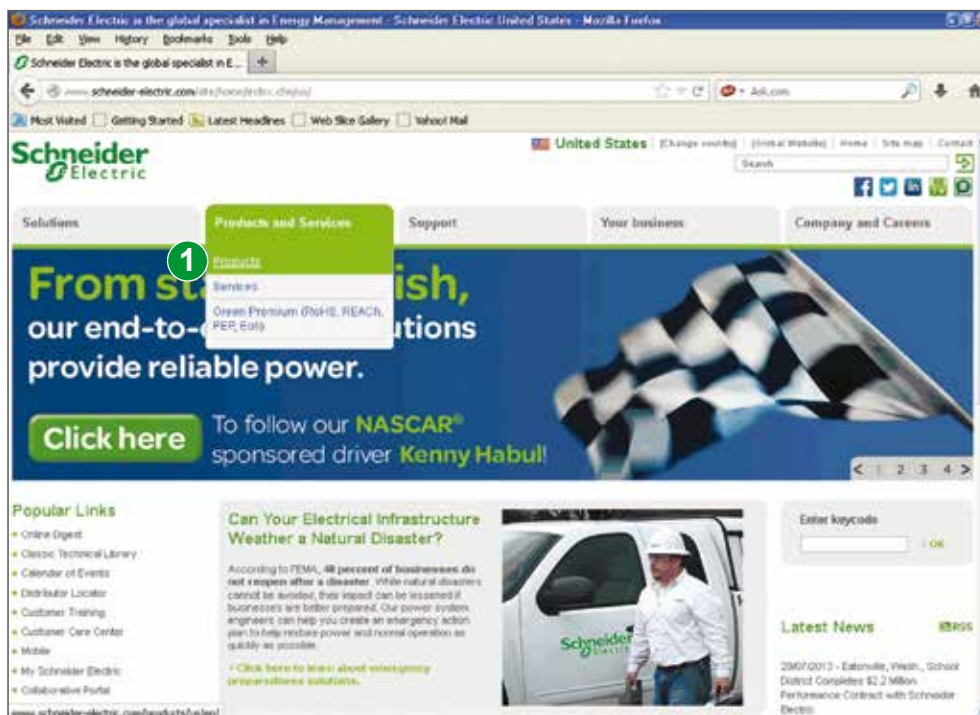
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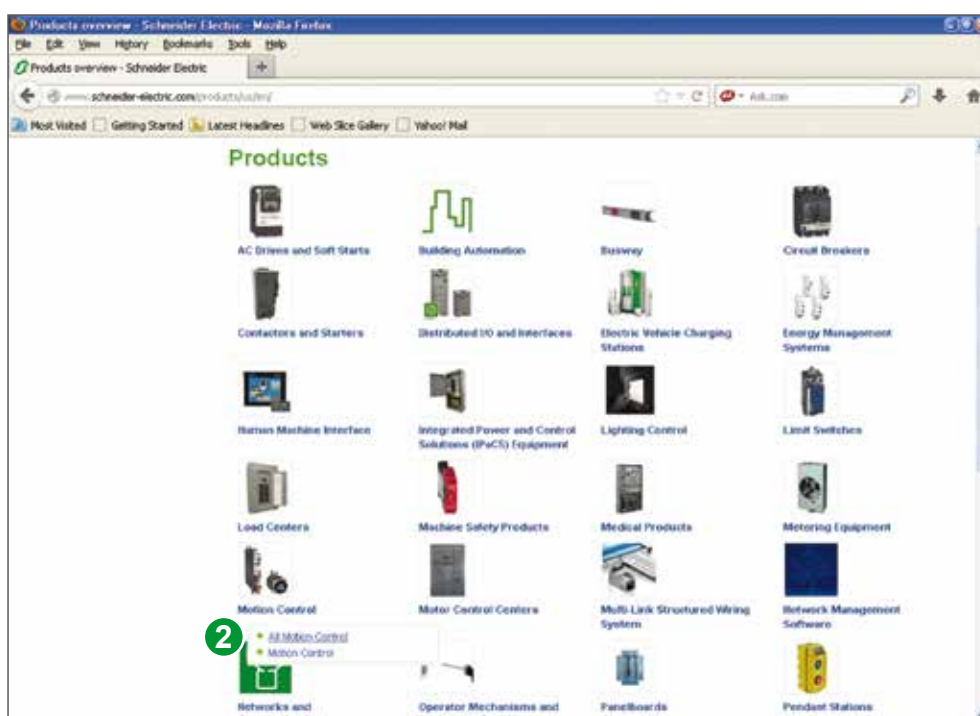


Go online to [www.schneider-electric.com](http://www.schneider-electric.com) for information about Lexium™ products listed in this catalog, including:

- 1 Go to: [www.schneider-electric.com](http://www.schneider-electric.com) and select **“Products”** on the “Products and Services” tab.



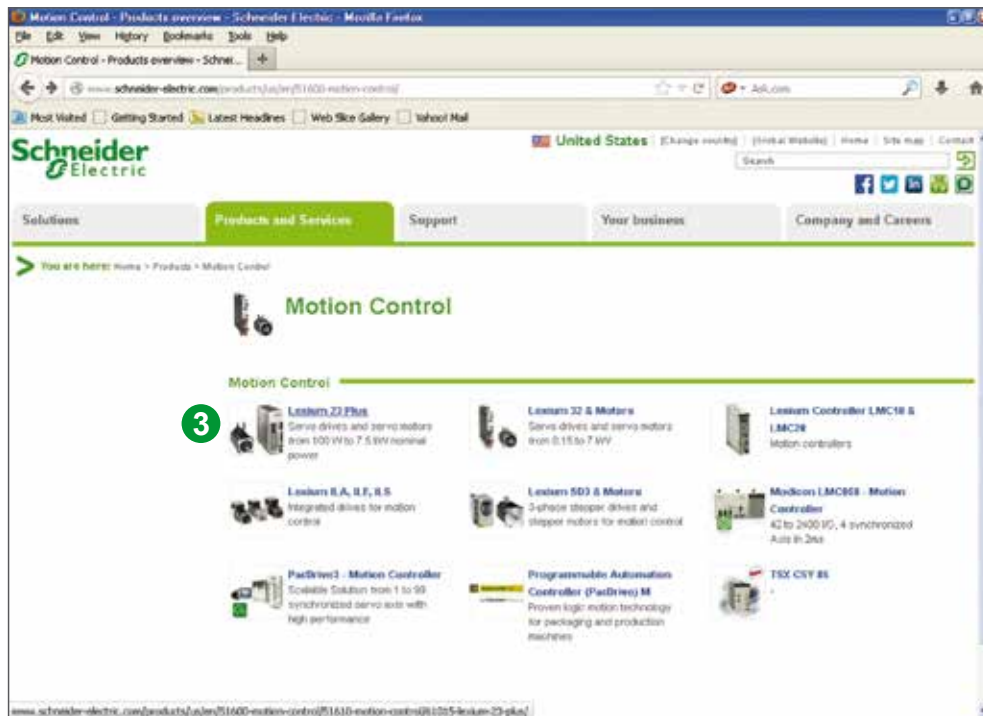
- 2 On the “Products” page, find the “Motion Control” icon and select **“All Motion Control”**.



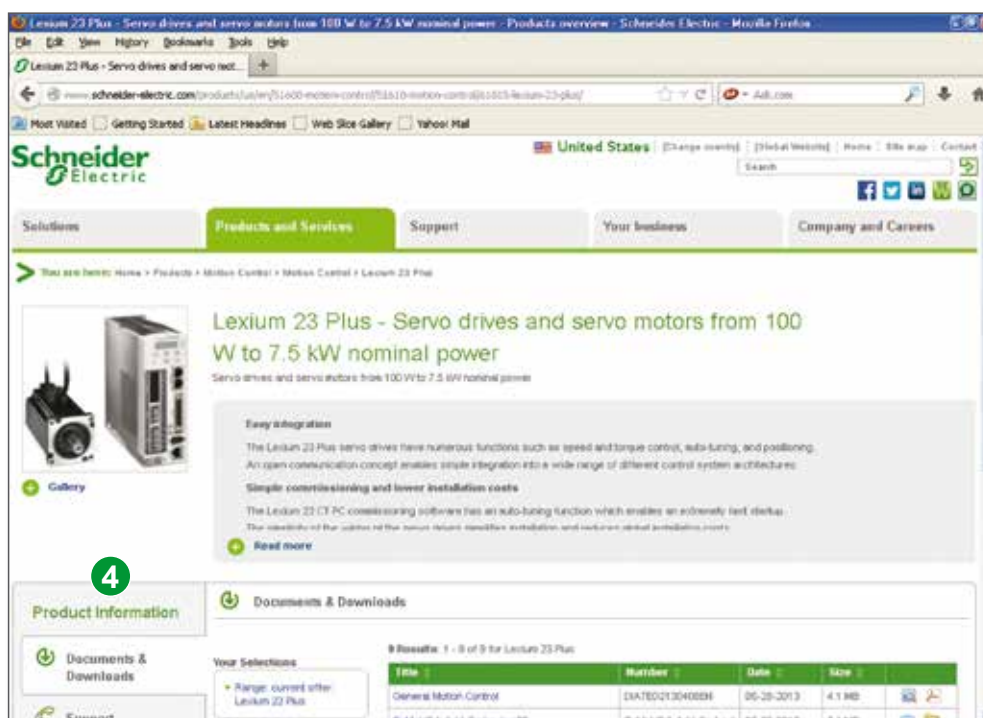
> Specifications > Dimensions > References  
> Curves > Links to user guides and CAD files



3 On the “Motion Control” page, select “Lexium 23 Plus”.



4 Explore the Lexium 23 Plus product page, including the “Product Information” tabs: “Documents & Downloads” and “Support”.



# Lexium™ 23 Plus

## Motion control

### Servo drives



Packaging application



Woodworking application



Textile application

### Introduction

The Lexium™ 23 Plus product offer features a range of servo drives and a range of BCH servo motors. There are a large number of possible combinations to suit the requirements of motion control applications, and to optimize the performance of the installation.

The servo drives cover a wide range of power ratings from 0.1 kW to 7.5 kW, with two types of power supply:

- 200 to 255 V single-phase, 0.1 kW to 1.5 kW
- 170 to 255 V three-phase, 0.1 kW to 7.5 kW

BCH motors provide a nominal torque range of 0.3 N•m to 48 N•m and a nominal speed range of 1000 rpm and 3000 rpm, depending on the model.

They are suitable for a wide variety of applications due to the four levels of inertia offered (see page 16).

### High performance

When used with BCH servo motors and with the addition of options and accessories, Lexium 23 Plus servo drives provide a complete, high performance system, designed in particular for installations equipped with simple machines. See page 10.

### Compact size

The compact dimensions of Lexium 23 Plus servo drives enable them to fit very easily into small spaces, reducing the size of the installation and the cost of the equipment.

### Simple commissioning

Commissioning is simple with the Lexium 23 CT PC commissioning software which has an auto-tuning function enabling fast start-up. The simplicity of the wiring of Lexium 23 Plus servo drives also makes installation easier, and saves time – reducing installation costs.

### Flexibility

Lexium 23 Plus servo drives have digital and analog I/O as standard, and one of the following communication interfaces, depending on the model:

- Interface for CANopen™/CANmotion™ machine bus (**LXM 23A**)
- Pulse/direction (P/D) interface (**LXM 23D**)

These servo drives incorporate numerous functions, including auto-tuning, position, speed, and torque control (see page 9).

This open communication concept enables integration into numerous different control system architectures.

### Applications

- Material handling (conveying, palletizers, warehousing)
- Assembly (clamping)
- Printing
- Packaging
- Winding and unwinding
- Machine tools (multi-axis machines, cutting machines)
- Material Working (milling machines, gluing machines, grinding machines)



# Lexium™ 23 Plus

## Motion control

### Servo drives



Lexium 23A Plus servo drives with control via CANopen/CANmotion machine bus

#### Lexium™ 23 Plus servo drive product range

##### Configuration

These drives can be configured via the integrated graphic display terminal, or using the Lexium 23 CT PC commissioning software.

##### Control

##### Control via CANopen machine bus: Lexium 23A servo drive

The Lexium 23A servo drive features a CANopen™/CANmotion™ machine bus control interface.

It also has numerous I/O:

- 2 inputs for high performance position capture
- 8 digital inputs
- 4 digital outputs
- 2 analog inputs
- 2 analog outputs

It has a closed loop current regulation function (sampling time 62.5 μs), and is compatible with PLCopen function blocks which offer applications such as flying shear and rotary knife.



Lexium 23D Plus servo drives with control via I/O

##### Control via I/O: Lexium 23D servo drive

The Lexium 23D drive can be used in standalone operations, with no axis controller (control via digital I/O).

It can also be used with an axis controller, allowing it to be incorporated in numerous architectures.

The Lexium 23D provides, for example, the following features:

- Creation of position registers up to 8 positions
- Switching between the speed/position/torque parameters

It has a closed loop current regulation function (sampling time 62.5 μs).

The Lexium 23D also has a pulse/direction interface (up to 4 ms) as well as numerous I/O:

- 8 digital inputs
- 4 digital outputs
- 2 analog inputs
- 2 analog outputs

# Lexium™ 23 Plus

## Motion control

### Servo drives



Commissioning using Lexium 23 CT PC software

### Lexium™ 23 CT PC commissioning software: for rapid commissioning and easy configuration

Commissioning time for Lexium 23 Plus servo drives is considerably reduced using Lexium 23 CT PC software, also used for commissioning, parameter setting, diagnostics, and maintenance.

This software can also be used to install Lexium 23 Plus servo drives in existing installations, keeping downtime to a minimum.

### Functions

Lexium 23 CT PC software includes the following functions:

- Auto-tuning
- Manual tuning
- Entry and display of parameters
- Oscilloscope function
- Fault diagnostics

### Auto-tuning

The auto-tuning function can be activated with the Lexium 23 CT PC software in two ways:

- Theoretical parameter setting: to calculate the gain parameters according to conditions selected by the user.
- Dynamic parameter setting: for optimum control, calculating the gain parameters in real time, according to the behavior of the machine.

### Entry and display of parameters

The Lexium 23 CT PC software can be used to configure all the functions of a given operating mode.

The user interface enables quick, easy navigation, with the parameters displayed on a single graphic screen, giving the experienced user a great deal of flexibility.

### Frequency analysis (FFT)

The frequency analysis, based on the Fast Fourier Transform (FFT) algorithm, is used to diagnose noise and vibration in machines.

To carry out the FFT analysis, the motor records the behavior of the axis in terms of current and speed. Once the movement has been executed, the Lexium 23 CT PC commissioning software analyzes the resonance peaks and displays them on the oscilloscope screen.

It is possible to enter the gain as a numerical value, a variable or an expression in the gain parameter field.

Filters can be applied to reduce resonance.

### Oscilloscope function

The Lexium 23 CT PC commissioning software provides an Oscilloscope function which can be used in two ways:

- Realtime mode: to monitor the evolution of a value measured in real time
- Precision mode: to capture a precise moment of the application This function records all the information before displaying it, which enables very precise information to be obtained and very fine tuning to be done.

### Required configuration

Lexium 23 CT PC software runs on a PC with the Microsoft Windows® 2000/XP/Vista operating systems. The servo drive is commissioned via the RS 232 serial link interface.

### Downloading

Lexium 23 CT PC commissioning software can be downloaded free of charge from the Schneider Electric website at: [www.schneider-electric.com](http://www.schneider-electric.com).



# Lexium™ 23 Plus

## Motion control

### Servo drives

#### Main functions

Lexium™ 23 Plus servo drives feature multiple functions, enabling them to be used in a wide range of motion control applications.

#### Main functions of Lexium 23 Plus servo drives

- Automatic recognition of the motor
- Filtering
- Reduction of resonance
- Low pass filter for attenuation of high frequency disturbance
- Command smoothing
- Monitoring functions
- Status monitoring, I/O monitoring
- Fault log, fault reset
- Monitoring of closed loop control

#### Tuning functions

- Manual mode (JOG) for position and speed
- Auto-tuning: This function is used to optimize application performance

#### Operating modes for the Lexium 23D version (activation/setting parameters of functions via the digital I/O)

##### Position control

In this mode position and speed control are carried out via a pulse train sent by an axis controller, such as a PLC, a motion controller or a numerical controller.

This mode is particularly suitable for the following applications:

- Material handling
- Cutting to length
- Packaging

##### Speed control

In this mode the Lexium 23 Plus servo drive is controlled with an axis controller with analog output. It is suitable for any application requiring high-performance speed control.

This mode is particularly suitable for the following applications:

- Winding
- Unwinding

##### Current regulation

Current regulation is required in applications in which servo motor torque control is crucial.

This mode is particularly suitable for the following applications:

- Printing
- Winding

##### Parameter switching

This function enables switching among three sets of parameters:

- Speed/position
- Speed/torque
- Torque/position

This function is specifically for machines with numerous manufacturing modes.

##### Other functions

- Speed limiting
- Torque limiting
- Encoder simulation (ESIM): control of speed, torque, or frequency

#### Operating modes for the Lexium 23A version (activation/setting parameters of functions via the CANopen™ machine bus)

The following operating modes are available:

- Homing (in accordance with functional profile CiA DSP 402)
- Point-to-point mode (in accordance with functional profile CiA DSP 402)
- Position gear mode
- Sync (cyclic)

For details of all the functions integrated in Lexium 23 Plus servo drives, please consult the Schneider Electric website at: [www.schneider-electric.com](http://www.schneider-electric.com).

# Lexium™ 23 Plus

## Motion control

### Servo drives

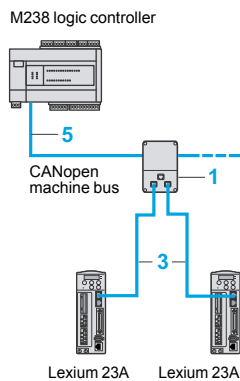
BCH servo motor/Lexium™ 23 Plus servo drive combinations								
Motor		Servo drive				Combination		Motor inertia type
Power indicated on rating plate	Inertia (without brake)	Nominal torque	Maximum peak torque	Maximum speed	Nominal speed	Servo drive	Servo motor	
kW	kgcm²	N•m	N•m	rpm	rpm			
Supply voltage, single-phase: 200 to 255 V or three-phase: 170 to 255 V 50/60 Hz								
0.1	0.037	0.32	0.96	5000	3000	LXM23●U01M3X	BCH0401O●2●1C	Ultra low
0.2	0.177	0.64	1.92	5000	3000	LXM23●U02M3X	BCH0601O●2●1C	Ultra low
0.3	8.17	2.86	8.59	2000	1000	LXM23●U04M3X	BCH1301M●2●1C	Medium
0.4	0.277	1.27	3.82	5000	3000	LXM23●U04M3X	BCH0602O●2●1C	Ultra low
0.4	0.68	1.27	3.82	5000	3000	LXM23●U04M3X	BCH0801O●2●1C	Low
0.6	8.41	5.73	17.19	2000	1000	LXM23●U07M3X	BCH1302M●2●1C	Medium
0.75	1.13	2.39	7.16	5000	3000	LXM23●U07M3X	BCH0802O●2●1C	Low
0.9	11.18	8.59	25.78	2000	1000	LXM23●U10M3X	BCH1303M●2●1C	Medium
1	2.65	3.18	9.54	5000	3000	LXM23●U10M3X	BCH1001O●2●1C	Low
1	11.18	4.77	14.32	3000	2000	LXM23●U10M3X	BCH1302N●2●1C	Medium
1.5	11.18	7.16	21.48	3000	2000	LXM23●U15M3X	BCH1303N●2●1C	Medium
Three-phase supply voltage: 170 to 255 V 50/60 Hz								
2	4.45	6.37	19.11	5000	3000	LXM23●U20M3X	BCH1002O●2●1C	Low
2	14.59	9.55	26.65	3000	2000	LXM23●U20M3X	BCH1304N●2●1C	Medium
2	34.58	9.55	26.65	3000	2000	LXM23●U20M3X	BCH1801N●2●1C	High
3	54.95	14.32	42.96	3000	2000	LXM23●U30M3X	BCH1802N●2●1C	High
3	54.95	19.1	57.29	3000	1500	LXM23●U30M3X	BCH1802M●2●1C	High
3.5	54.8	16.71	50.31	3000	2000	LXM23●U45M3X	BCH1803N●2●1C	High
4.5	77.75	28.65	71.62	3000	1500	LXM23●U45M3X	BCH1803M●2●1C	High
5.5	99.78	35.01	87.53	3000	1500	LXM23●U55M3X	BCH1804M●2●1C	High
7.5	142.7	47.74	119.36	3000	1500	LXM23●U75M3X	BCH1805M●2●1C	High

Type code												
<b>Example</b>												
Servo drive				L	X	M	2	3	A	U	0	1
LXM = Lexium servo drive				L	X	M	2	3	A	U	0	1
Drive type				L	X	M	2	3	A	U	0	1
23 = standard				L	X	M	2	3	A	U	0	1
Interface				L	X	M	2	3	A	U	0	1
A = CANopen™ machine bus				L	X	M	2	3	A	U	0	1
D = pulse/direction interface				L	X	M	2	3	A	U	0	1
Power				L	X	M	2	3	A	U	0	1
U01 = 0.1 kW				L	X	M	2	3	A	U	0	1
U02 = 0.2 kW				L	X	M	2	3	A	U	0	1
U04 = 0.4 kW				L	X	M	2	3	A	U	0	1
U07 = 0.75 kW				L	X	M	2	3	A	U	0	1
U10 = 1 kW				L	X	M	2	3	A	U	0	1
U15 = 1.5 kW				L	X	M	2	3	A	U	0	1
U20 = 2 kW				L	X	M	2	3	A	U	0	1
U30 = 3 kW				L	X	M	2	3	A	U	0	1
U45 = 4.5 kW				L	X	M	2	3	A	U	0	1
U55 = 5.5 kW				L	X	M	2	3	A	U	0	1
U75 = 7.5 kW				L	X	M	2	3	A	U	0	1
Supply voltage				L	X	M	2	3	A	U	0	1
M3X = 200 to 240 V ~				L	X	M	2	3	A	U	0	1
single-phase or three-phase				L	X	M	2	3	A	U	0	1
<b>Dimensions (overall in mm)</b>												
Servo drives												
LXM 23												
●U01M3X ●U02M3X ●U04M3X ●U07M3X ●U10M3X ●U15M3X ●U20M3X ●U30M3X ●U45M3X ●U55M3X ●U75M3X												
W x H	60 x 162		85 x 162		114 x 225		110 x 245		123 x 245		136 x 245	
D	146		180		195		205		216.5			

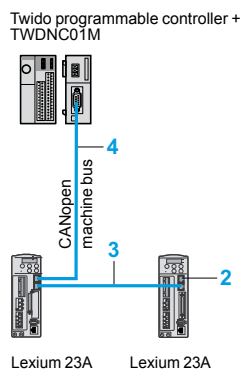
# Lexium™ 23 Plus

## Motion control

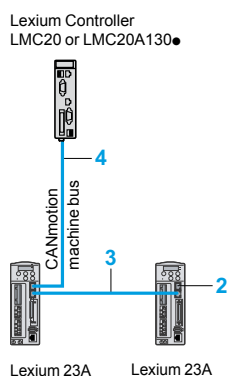
### Connection accessories



Example of architecture with control by M238 logic controller



Example of architecture with control by Twido programmable controller



Example of architecture with control by LMC Lexium Controller

#### CANopen™ and CANmotion™ machine bus for Lexium™ 23 Plus servo drives

Lexium 23 Plus servo drives can be connected directly to CANopen machine bus using an RJ45 connector. To simplify daisy chain connection, each servo drive is equipped with two RJ45 connectors.

The communication function provides access to the servo drive's configuration, adjustment, control, and monitoring functions.

When used with a Lexium Motion Controller, the CANmotion bus can be used to control motion for applications with up to eight Lexium 23 Plus servo drives.

#### Connection accessories (1)

Description	Use	Item no.	Reference	Weight kg
<b>IP 20 CANopen tap</b> 2 RJ45 ports	Tap-off from trunk cable for RJ45 cabling	1	VW3CANTAP2	0.480
<b>Line terminator</b> 120 Ω (equipped with 1 RJ45 connector)	Connection to the RJ45 connector	2	TCSCAR013M120	0.009

#### Cordsets and cables (1)

Description	Use		Item no.	Length m	Reference	Weight kg
	From	To				
<b>CANopen cordsets</b> equipped with 2 RJ45 connectors	VW3CANTAP2 junction box	LXM23A servo drive	3	0.3	<b>VW3CANCARR03</b>	0.320
	LXM23A servo drive			1	<b>VW3CANCARR1</b>	0.500
<b>CANopen cordsets</b> equipped with one 9-way female SUB-D connector with integrated line terminator and one RJ45 connector	Twido programmable controller Lexium motion controller LMC20, LMC20A130●	LXM23A servo drive	4	1	<b>VW3M3805R010</b>	—
				3	<b>VW3M3805R030</b>	—
<b>CANopen cables</b> Standard cables, CE marking Low smoke, zero halogen Flame retardant (IEC 60332-1)	PLC	VW3CANTAP2 junction box	5	50	<b>TSXCANCA50</b>	4.930
				100	<b>TSXCANCA100</b>	8.800
				300	<b>TSXCANCA300</b>	24.560
<b>CANopen cables</b> UL certification, CE marking Flame retardant (IEC 60332-2)	PLC	VW3CANTAP2 junction box	5	50	<b>TSXCANCB50</b>	3.580
				100	<b>TSXCANCB100</b>	7.840
				300	<b>TSXCANCB300</b>	21.870
<b>CANopen cables</b> Cables for harsh environments (2) or mobile installations, CE marking Low smoke, zero halogen Flame retardant (IEC 60332-1)	PLC	VW3CANTAP2 junction box	5	50	<b>TSXCANCD50</b>	3.510
				100	<b>TSXCANCD100</b>	7.770
				300	<b>TSXCANCD300</b>	21.700

(1) For other CANopen machine bus connection accessories, please consult our website [www.schneider-electric.com](http://www.schneider-electric.com).

(2) Harsh environment:

- Resistance to hydrocarbons, industrial oils, detergents, solder splashes
- Relative humidity up to 100%
- Saline atmosphere
- Significant temperature variations
- Operating temperature between - 10° C and + 70° C



# Lexium™ 23 Plus Motion control

Option: braking resistors for servo drives

## Introduction

### Internal braking resistor

A braking resistor is built into the servo drive to absorb braking energy. If the DC bus voltage in the servo drive exceeds a specified value, this braking resistor is activated, enabling maximum braking torque. The restored energy is converted into heat by this braking resistor.

### External braking resistor

When the servo motor has to be braked frequently, an external braking resistor must be used to dissipate the excess braking energy. In this case, the internal braking resistor must be deactivated.

The servo drive monitors the power dissipated in the external braking resistor, with a degree of protection of IP21. Several external braking resistors can be connected in parallel.

## Applications

Machines with high inertia, driving loads, and machines with fast cycles.

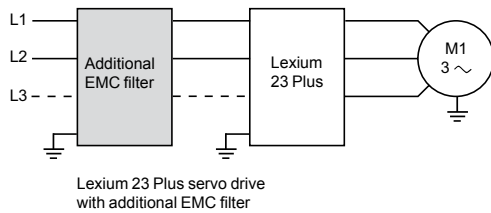
## References

Ohmic value	Continuous power <i>PP<sub>r</sub></i>	Peak energy (220 V) <i>EP<sub>k</sub></i>	Reference	Weight
Ω	W	Ws		kg
40	400	4000	VW3M7111	0.930
20	1000	4000	VW3M7112	2.800

**Note:** The total continuous power dissipated in the external braking resistor(s) must be less than or equal to the nominal power of the Lexium 23 Plus servo drive (see page 10).

# Lexium™ 23 Plus Motion control

Option: additional EMC input filters for  
servo drives



## Additional EMC input filters

### Applications

Combined with Lexium™ 23 Plus servo drives, additional EMC input filters can be used to meet more stringent requirements. This Lexium 23/additional EMC filters combination is designed to reduce conducted emissions on the line supply below the limits of standard IEC/EN 61800-3 edition 2, category C2 or C3 (EMC immunity and conducted and radiated EMC emissions).

Additional EMC filters have tapped holes for mounting in an enclosure.

### Use according to the type of line supply

EMC filters can only be used on TN (neutral connection) and TT (neutral to ground) type systems.

Lexium 23 Plus servo drives cannot be used on IT (isolated or impedance grounded neutral) systems. Standard IEC/EN 61800-3, appendix D2.1, states that on IT systems, filters can cause permanent insulation monitors to operate in a random manner.

In addition, the effectiveness of additional filters on this type of system depends on the type of impedance between neutral and ground, and therefore cannot be predicted.

If a machine has to be installed on an IT system, an isolation transformer must be inserted in order to re-create a TT system on the secondary side.



Additional EMC filter VW3A31401

## References

For servo drive	Maximum servo motor shielded cable length conforming to		Reference	Weight
	EN 55011 class A Gr1	EN 55011 class A Gr2		
	IEC/EN 61800-3 category C2 (1) in environment 1	IEC/EN 61800-3 category C3 (1) in environment 2		
	m	m		kg
<b>Single-phase supply voltage</b>				
LXM23●U01M3X LXM23●U02M3X LXM23●U04M3X	—	—	VW3A31401	0.600
LXM23●U07M3X LXM23●U10M3X LXM23●U15M3X	—	—	VW3A31403	0.775
<b>Three-phase supply voltage</b>				
LXM23●U07M3X LXM23●U10M3X LXM23●U15M3X LXM23●U20M3X LXM23●U30M3X	20	40	VW3A31404	0.900
LXM23●U45M3X LXM23●U55M3X	20	40	VW3A31406	1.350
LXM23●U75M3X	20	40	VW3A31407	3.150

(1) Standard IEC/EN 61800-3: EMC immunity and conducted and radiated EMC emissions:  
- Category C2 in environment 1: restricted distribution, for domestic use, sale conditional on the competence of the user and the distributor in the reduction of current harmonics.  
- Category C3 in environment 2: industrial premises.

# Lexium™ 23 Plus

## Motion control

### Motor starters



GV2L14  
+  
LC1D09  
+  
LXM23AU04M3X

#### Applications

The combinations listed below can be used to create a complete motor starter unit comprised of: a circuit breaker, a contactor, and a Lexium™ 23 Plus servo drive.

The circuit-breaker provides protection against accidental short-circuits, disconnection and, if necessary, isolation.

The contactor turns on and manages any safety functions, as well as isolating the servo motor on stopping.

The servo drive controls the servo motor, provides protection against short-circuits between the servo drive and the servo motor, and protects the motor cable against overloads. The overload protection is provided by the motor thermal protection of the servo drive.

#### Motor starters for Lexium 23 Plus servo drives

Servo drive		Circuit breaker		Contactor
Reference	Nominal power	Reference	Rating	Reference (1) (2)
	kW		A	
Single-phase supply voltage: 200 to 255 V ~ 50/60 Hz or three-phase supply voltage: 170 to 255 V ~ 50/60 Hz				
LXM23●U01M3X	0.1	GV2L10	6.3	LC1K0610●●
LXM23●U02M3X	0.2	GV2L10	6.3	LC1K0610●●
LXM23●U04M3X	0.4	GV2L14	10	LC1D09●●
LXM23●U07M3X	0.75	GV2L14	10	LC1D09●●
LXM23●U10M3X	1	GV2L16	14	LC1D12●●
LXM23●U15M3X	1.5	GV3L22	25	LC1D18●●
LXM23●U20M3X	2	GV3L32	30	LC1D32●●
LXM23●U30M3X	3	GV3L32	30	LC1D32●●
LXM23●U45M3X	4,5	GV3L65	60	LC1D65●●
LXM23●U55M3X	5,5	GV3L65	60	LC1D65●●
LXM23●U75M3X	7,5	NSE75HC (3)	75	LC1D80●●

(1) Composition of the contactors:

LC1K06: 3 poles + 1 N/O auxiliary contact

LC1D●●: 3 poles + 1 N/O auxiliary contact + 1 N/C auxiliary contact

Please refer to the "Control and protection components" catalog.

(2) Replace ●● with the control circuit voltage reference given in the table below:

	Volts ~	24	48	110	220	230	240
LC1-K	50/60 Hz	B7	E7	F7	M7	P7	U7
	Volts ~	24	48	110	220/230	230	230/240
LC1 D	50 Hz	B5	E5	F5	M5	P5	U5
	60 Hz	B6	E6	F6	M6	—	U6
	50/60 Hz	B7	E7	F7	M7	P7	U7

For other available voltages between 24 V and 660 V, or a DC control circuit, please contact our Customer Care Center.

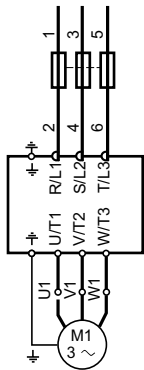
(3) Circuit breaker NSE75HC to be ordered under the reference 35710.



# Lexium™ 23 Plus Motion control

## Motor starters

### Protection using fuses



Motor starter with fuse protection

Protection using class J fuses (UL certification)		
Servo drive	Fuse to be placed upstream	
Reference	Nominal power	
	kW	A
Single-phase supply voltage: 200 to 255 V ~ 50/60 Hz or three-phase supply voltage: 170 to 255 V ~ 50/60 Hz		
LXM23●U01M3X	0.1	5
LXM23●U02M3X	0.2	5
LXM23●U04M3X	0.4	20
LXM23●U07M3X	0.75	20
LXM23●U10M3X	1	25
LXM23●U15M3X	1.5	40
LXM23●U20M3X	2	60
LXM23●U30M3X	3	80
LXM23●U45M3X	4.5	160
LXM23●U55M3X	5.5	160
LXM23●U75M3X	7.5	200

# Lexium™ 23 Plus

## Motion control

### BCH servo motors



BCH servo motor range

#### Introduction

BCH servo motors are synchronous motors.

They are equipped (as standard) with a high resolution (20-bit) incremental encoder, making them ideal for high performance applications such as material working and machine tools.

BCH servo motors are available in six flange sizes: 40 mm, 60 mm, 80 mm, 100 mm, 130 mm, and 180 mm, and are available in a version with holding brake (see opposite page).

With the four types of motor inertia available, ranging from ultra low to high inertia, these servo motors can be used in a wide variety of installations:

■ Ultra low inertia:

Power between 0.1 kW and 0.4 kW. Suitable for electronic equipment and small printing machinery.

■ Low inertia:

Power between 0.4 kW and 2 kW. Suitable for textile and packaging applications.

■ Medium inertia:

Power between 0.3 kW and 3 kW. Suitable for material working and machine tool applications.

■ High inertia:

Power between 2 kW and 7.5 kW. Suitable for metal working and printing applications.

Examples of applications according to motor inertia type:

Type of machine	Inertia			
	Ultra low	Low	Medium	High
Conveyors				
Packaging machines				
Printers				
Loaders/unloaders				
X - Y tables				
Presses				
PCB drilling machines				
Electronic card testers				
Labelling machines				
Knitting and embroidery machines				
Special machines				
Winders/unwinders				

# Lexium™ 23 Plus

## Motion control

### BCH servo motors

Type code												
<b>Example:</b>	<b>B</b>	<b>C</b>	<b>H</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>1</b>	<b>O</b>	<b>0</b>	<b>2</b>	<b>A</b>	<b>1</b> <b>C</b>
<b>Servo motor</b> BCH = three-phase servo motor	<b>B</b>	<b>C</b>	<b>H</b>	0	4	0	1	O	0	2	A	1 C
<b>Flange size</b> 040 = 40 mm 060 = 60 mm 080 = 80 mm 100 = 100 mm 130 = 130 mm 180 = 180 mm	B	C	H	0	4	0	1	O	0	2	A	1 C
<b>Number of motor stacks</b> 1 = 1 stack (all flange sizes) 2 = 2 stacks (with 60, 80, 100, 130, and 180 mm flanges) 3 = 3 stacks (with 130 and 180 mm flanges) 4 = 4 stacks (with 130 and 180 mm flanges) 5 = 5 stacks (with 180 mm flange)	B	C	H	0	4	0	1	O	0	2	A	1 C
<b>Speed type</b> M = slow (1000/1500 rpm), (with 130 and 180 mm flanges) N = medium (2500 rpm), (with 130 and 180 mm flanges) O = fast (3000 rpm), (with 40, 60, 80, and 100 mm flanges)	B	C	H	0	4	0	1	O	0	2	A	1 C
<b>Shaft end</b> 0 = smooth, IP40 degree of protection 1 = keyed, IP40 degree of protection 2 = smooth, IP65 degree of protection 3 = keyed, IP65 degree of protection	B	C	H	0	4	0	1	O	0	2	A	1 C
<b>Integrated encoder</b> 2 = 20-bit high resolution incremental encoder	B	C	H	0	4	0	1	O	0	2	A	1 C
<b>Holding brake</b> A = without brake F = with brake	B	C	H	0	4	0	1	O	0	2	A	1 C
<b>Connection</b> 1 = flying leads (for BCH040 to 080 servo motors) or round connector (for BCH100 to 180 servo motors)	B	C	H	0	4	0	1	O	0	2	A	1 C
<b>Type of mounting</b> C = mechanical	B	C	H	0	4	0	1	O	0	2	A	1 C

Characteristics				
Servo motors	Without holding brake		With holding brake	
	W x H x D (1)	Weight	W x H x D (1)	Weight
	mm	kg	mm	kg
BCH0401	40 x 40 x 100.6	0.500	40 x 40 x 136.6	0.800
BCH0601	60 x 60 x 105.5	1.200	60 x 60 x 141.6	1.500
BCH0602	60 x 60 x 130.7	1.600	60 x 60 x 166.8	2.000
BCH0801	80 x 80 x 112.3	2.100	80 x 80 x 152.8	2.900
BCH0802	80 x 80 x 138.3	3.000	80 x 80 x 178	3.800
BCH1001	100 x 100 x 153.5	4.300	100 x 100 x 192.5	4.700
BCH1002	100 x 100 x 199	6.200	100 x 100 x 226	7.200
BCH1301	130 x 130 x 147.5	6.800	130 x 130 x 183.5	8.200
BCH1302	130 x 130 x 147.5	7.000	130 x 130 x 183.5	8.400
BCH1303M	130 x 130 x 163.5	7.500	130 x 130 x 198	8.900
BCH1303N	130 x 130 x 167.5	7.500	130 x 130 x 202	8.900
BCH1304	130 x 130 x 187.5	7.800	130 x 130 x 216	9.200
BCH1801	180 x 180 x 169	13.500	180 x 180 x 203.1	17.500
BCH1802	180 x 180 x 202.1	18.500	180 x 180 x 235.3	22.500
BCH1803N	180 x 180 x 202.1	18.500	180 x 180 x 235.3	22.500
BCH1803M	180 x 180 x 235.3	23.500	180 x 180 x 279.3	29.000
BCH1804M	180 x 180 x 279.7	30.500	180 x 180 x 311.7	36.000
BCH1805M	180 x 180 x 342	37.000	180 x 180 x 376.1	53.000

(1) D: dimensions of the casing (excluding shaft end)

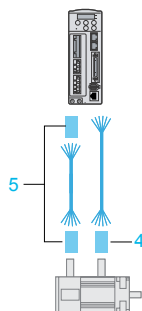
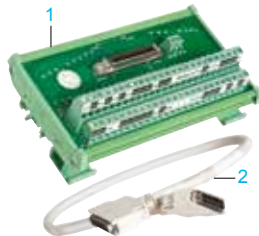


# Lexium™ 23 Plus

## Motion control

### BCH servo motors

### Connection accessories



#### Connection accessories

Designation	Description	Item no.	Reference	Weight kg
Set of 3 terminal blocks	1 terminal block for power supply 1 terminal block for motor power supply 1 terminal block for braking resistor For mounting on drive side	—	VW3M4121	0.500
Connector for I/O interface	For mounting on drive side	—	VW3M4112	0.050
Screw terminal block with 0.5 m cable	For I/O interface For mounting on drive side	1, 2	VW3M4113	0.020
RS 232/USB converter	Equipped with: One USB connector One RJ 45 connector	3	VW3M8131	0.300

#### Connection cable

Designation	Description	Cable length m	Reference	Weight kg
Connection cable for VW3M8131 converter	Equipped with an RJ 45 connector at each end. To connect the VW3M8131 converter to the servo drive.	2	490NTW00002	—

#### Connectors for power cable

Description	For servo motor	Item no.	Reference	Weight kg
Connector for motor without holding brake	BCH0401O●2A1C BCH0601O●2A1C BCH0602O●2A1C BCH0801O●2A1C BCH0802O●2A1C	4	VW3M5111	0.030
Connector for motor with holding brake	BCH0601O●2F1C BCH0602O●2F1C BCH0801O●2F1C BCH0802O●2F1C	4	VW3M5112	0.030
Round connectors for motor with or without holding brake	BCH1001O●2●1C BCH1002O●2●1C BCH1301M●2●1C BCH1301N●2●1C BCH1302M●2●1C BCH1302N●2●1C BCH1303M●2●1C BCH1303N●2●1C BCH1304N●2●1C	4	VW3M5121	0.180
	BCH1801N●2●1C BCH1802M●2●1C BCH1802N●2●1C BCH1803M●2●1C BCH1803N●2●1C	4	VW3M5131	0.180
	BCH1804M●2●1C BCH1805M●2●1C	4	VW3M5141	0.300
Connector for holding brake	BCH1804M●2F1C BCH1805M●2F1C	4	VW3M7151	0.500

#### Connectors for encoder cable

Description	For servo motor	Item no.	Reference	Weight kg
Connector for motor with connection via stripped cable	BCH0401O●2●1C BCH0601O●2●1C BCH0602O●2●1C BCH0801O●2●1C BCH0802O●2●1C	5	VW3M8121	0.800
Connector for motor equipped with a round connector	BCH1001O●2●1C BCH1002O●2●1C BCH1301M●2●1C BCH1301N●2●1C BCH1302M●2●1C BCH1302N●2●1C BCH1303M●2●1C BCH1303N●2●1C BCH1304N●2●1C BCH1801N●2●1C BCH1802M●2●1C BCH1802N●2●1C BCH1803M●2●1C BCH1803N●2●1C BCH1804M●2●1C BCH1805M●2●1C	5	VW3M8122	0.800

# Lexium™ 23 Plus

## Motion control

### BCH servo motors

### Connection accessories



#### Connection components (continued)

##### Power cordsets

Description	From servo motor	To servo drive	Composition	Length of cable m	Reference	Weight kg
<b>Cordsets equipped with a plastic connector (servo motor end) and one end with flying leads (servo drive end). Without holding brake</b>	BCH0401O●2A1C	LXM23●U01M3X	4 x 0.82 mm <sup>2</sup>	3	VW3M5111R30	0.200
	BCH0601O●2A1C	LXM23●U02M3X		5	VW3M5111R50	0.350
	BCH0602O●2A1C	LXM23●U04M3X				
	BCH0801O●2A1C	LXM23●U04M3X				
	BCH0802O●2A1C	LXM23●U07M3X				
<b>Cordsets equipped with a plastic connector (servo motor end) and one end with flying leads (servo drive end). With holding brake</b>	BCH0401O●2F1C	LXM23●U01M3X	6 x 0.82 mm <sup>2</sup>	3	VW3M5112R30	0.200
	BCH0601O●2F1C	LXM23●U02M3X		5	VW3M5112R50	0.350
	BCH0602O●2F1C	LXM23●U04M3X				
	BCH0801O●2F1C	LXM23●U04M3X				
	BCH0802O●2F1C	LXM23●U07M3X				
<b>Cordsets equipped with a round connector (servo motor end) and one end with flying leads (servo drive end). Without holding brake</b>	BCH1001O●2A1C	LXM23●U10M3X	4 x 1.3 mm <sup>2</sup>	3	VW3M5121R30	0.350
	BCH1301M●2A1C	LXM23●U04M3X		5	VW3M5121R50	0.600
	BCH1301N●2A1C	LXM23●U04M3X				
	BCH1302M●2A1C	LXM23●U07M3X				
	BCH1302N●2A1C	LXM23●U10M3X				
	BCH1303M●2A1C	LXM23●U10M3X				
	BCH1303N●2A1C	LXM23●U15M3X				
	BCH1002O●2A1C	LXM23●U20M3X	4 x 2.1 mm <sup>2</sup>	3	VW3M5122R30	0.450
	BCH1304N●2A1C	LXM23●U20M3X		5	VW3M5122R50	0.750
	BCH1801N●2A1C	LXM23●U20M3X	4 x 3.3 mm <sup>2</sup>	3	VW3M5123R30	0.760
	BCH1802N●2A1C	LXM23●U30M3X		5	VW3M5123R50	1.750
	BCH1802M●2A1C	LXM23●U30M3X				
	BCH1803M●2A1C	LXM23●U45M3X				
	BCH1803N●2A1C	LXM23●U45M3X	4 x 8.4 mm <sup>2</sup>	3	VW3M5124R30	1.000
				5	VW3M5124R50	1.200
<b>Cordsets equipped with a round connector (servo motor end) and one end with flying leads (servo drive end). With holding brake</b>	BCH1001O●2F1C	LXM23●U10M3X	6 x 1.3 mm <sup>2</sup>	3	VW3M5131R30	0.350
	BCH1301M●2F1C	LXM23●U04M3X		5	VW3M5131R50	0.600
	BCH1301N●2F1C	LXM23●U04M3X				
	BCH1302M●2F1C	LXM23●U07M3X				
	BCH1302N●2F1C	LXM23●U10M3X				
	BCH1303M●2F1C	LXM23●U10M3X				
	BCH1303N●2F1C	LXM23●U15M3X				
	BCH1002O●2F1C	LXM23●U20M3X	6 x 2.1 mm <sup>2</sup>	3	VW3M5132R30	0.750
	BCH1304N●2F1C	LXM23●U20M3X		5	VW3M5132R50	1.250
	BCH1801N●2F1C	LXM23●U20M3X	6 x 3.3 mm <sup>2</sup>	3	VW3M5133R30	0.760
	BCH1802M●2F1C	LXM23●U30M3X		5	VW3M5133R50	1.950
	BCH1802N●2F1C	LXM23●U30M3X				
	BCH1803N●2F1C	LXM23●U45M3X				
	BCH1803M●2F1C	LXM23●U45M3X	6 x 8.4 mm <sup>2</sup>	3	VW3M5134R30	—
				5	VW3M5134R50	—

##### Encoder cordsets

<b>Cordsets equipped with a plastic connector at each end</b>	BCH0401O●2●1C	LXM23●U01M3X	10 x 0.13 mm <sup>2</sup>	3	VW3M8121R30	1.000
	BCH0601O●2●1C	LXM23●U01M3X		5	VW3M8121R50	1.200
	BCH0602O●2●1C	LXM23●U04M3X				
	BCH0801O●2●1C	LXM23●U04M3X				
	BCH0802O●2●1C	LXM23●U07M3X				
<b>Cordsets equipped with a round connector (servo motor end) and a plastic connector (servo drive end)</b>	BCH1001O●2●1C	LXM23●U10M3X	10 x 0.13 mm <sup>2</sup>	3	VW3M8122R30	1.000
	BCH1002O●2●1C	LXM23●U20M3X		5	VW3M8122R50	1.200
	BCH1301M●2●1C	LXM23●U04M3X				
	BCH1301N●2●1C	LXM23●U04M3X				
	BCH1302M●2●1C	LXM23●U07M3X				
	BCH1302N●2●1C	LXM23●U10M3X				
	BCH1303M●2●1C	LXM23●U10M3X				
	BCH1303N●2●1C	LXM23●U15M3X				
	BCH1304N●2●1C	LXM23●U20M3X				
	BCH1801N●2●1C	LXM23●U20M3X				
	BCH1802M●2●1C	LXM23●U30M3X				
	BCH1802N●2●1C	LXM23●U30M3X				
	BCH1803M●2●1C	LXM23●U45M3X				
	BCH1803N●2●1C	LXM23●U45M3X				
	BCH1804M●2●1C	LXM23●U75M3X				
	BCH1805M●2●1C	LXM23●U75M3X				



490NTW00002	18	LXM23●U75M3X	10
BCH0401	17	NSE75HC	14
BCH0401O●2●1C	10	VW3A31401	13
BCH0601	17	VW3A31403	13
BCH0601O●2●1C	10	VW3A31404	13
BCH0602	17	VW3A31406	13
BCH0602O●2●1C	10	VW3A31407	13
BCH0801	17	VW3M4112	18
BCH0801O●2●1C	10	VW3M4113	18
BCH0802	17	VW3M4121	18
BCH0802O●2●1C	10	VW3M5111	18
BCH1001	17	VW3M5111R30	19
BCH1001O●2●1C	10	VW3M5111R50	19
BCH1002	17	VW3M5112	18
BCH1002O●2●1C	10	VW3M5112R30	19
BCH1301	17	VW3M5112R50	19
BCH1301M●2●1C	10	VW3M5121	18
BCH1302	17	VW3M5121R30	19
BCH1302M●2●1C	10	VW3M5121R50	19
BCH1302N●2●1C	10	VW3M5122R30	19
BCH1303M	17	VW3M5122R50	19
BCH1303M●2●1C	10	VW3M5123R30	19
BCH1303N	17	VW3M5123R50	19
BCH1303N●2●1C	10	VW3M5124R30	19
BCH1304	17	VW3M5124R50	19
BCH1304N●2●1C	10	VW3M5131	18
BCH1801	17	VW3M5131R30	19
BCH1801N●2●1C	10	VW3M5131R50	19
BCH1802	17	VW3M5132R30	19
BCH1802M●2●1C	10	VW3M5132R50	19
BCH1802N●2●1C	10	VW3M5133R30	19
BCH1803M	17	VW3M5133R50	19
BCH1803M●2●1C	10	VW3M5134R30	19
BCH1803N	17	VW3M5134R50	19
BCH1803N●2●1C	10	VW3M5141	18
BCH1804M	17	VW3M7111	12
BCH1804M●2●1C	10	VW3M7112	12
BCH1805M	17	VW3M7151	18
BCH1805M●2●1C	10	VW3M8121	18
GV2L10	14	VW3M8121R30	19
GV2L14	14	VW3M8121R50	19
GV2L16	14	VW3M8122	18
GV3L22	14	VW3M8122R30	19
GV3L32	14	VW3M8122R50	19
GV3L65	14	VW3M8131	18
LC1D09●●	14		
LC1D12●●	14		
LC1D18●●	14		
LC1D32●●	14		
LC1D65●●	14		
LC1D80●●	14		
LC1K0610●●	14		
LXM23●U01M3X	10		
LXM23●U02M3X	10		
LXM23●U04M3X	10		
LXM23●U07M3X	10		
LXM23●U10M3X	10		
LXM23●U15M3X	10		
LXM23●U20M3X	10		
LXM23●U30M3X	10		
LXM23●U45M3X	10		
LXM23●U55M3X	10		





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