

Selection Guide | VLT® FlexMotion™

# Ultimate freedom – one system for **central** and **decentral servo motion** solutions

VLT® Multiaxis Servo Drive MSD 510, VLT® Integrated Servo Drive ISD® 510 and VLT® Decentral Servo Drive DSD 510



**Flexible**

system for modular  
machine architecture

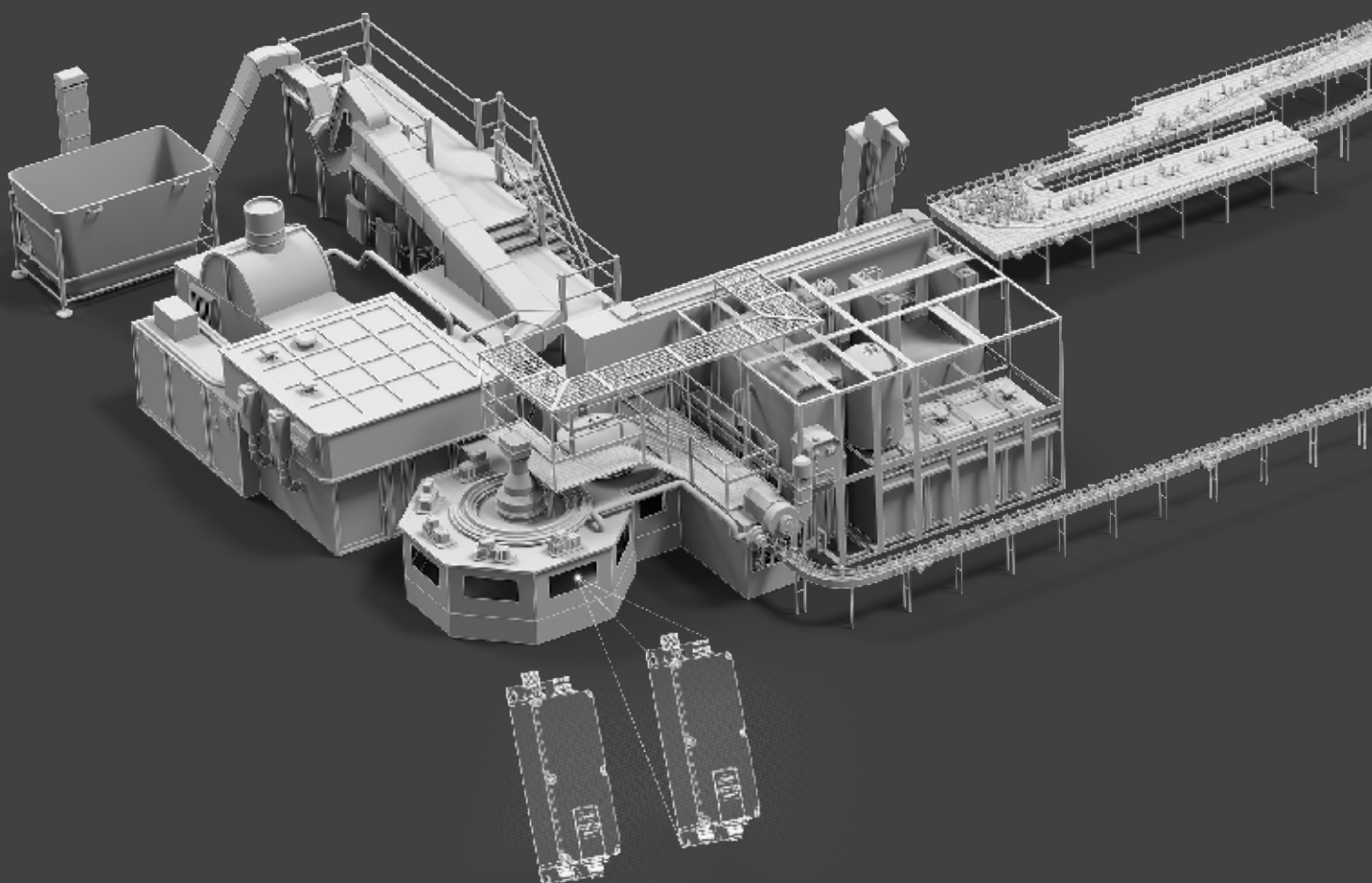
# The **future** of **smart machine design** – it's **flexible**

Are you striving to modularize machine architecture to suit your business?

Then take a look at Danfoss VLT® FlexMotion™. It's a multi-purpose universally compatible servo drive concept, designed to meet the requirements of tomorrow's machine architecture, today. Combine and **scale** the modules to suit your specific needs. That way, its central and decentral modules will allow you to achieve a multitude of functions. **Open** system architecture gives you total freedom to integrate with the motors and PLC you prefer.

Save time and cost thanks to numerous finesses facilitating **fast** installation and commissioning. All designed for absolutely **reliable** operation in demanding environments.

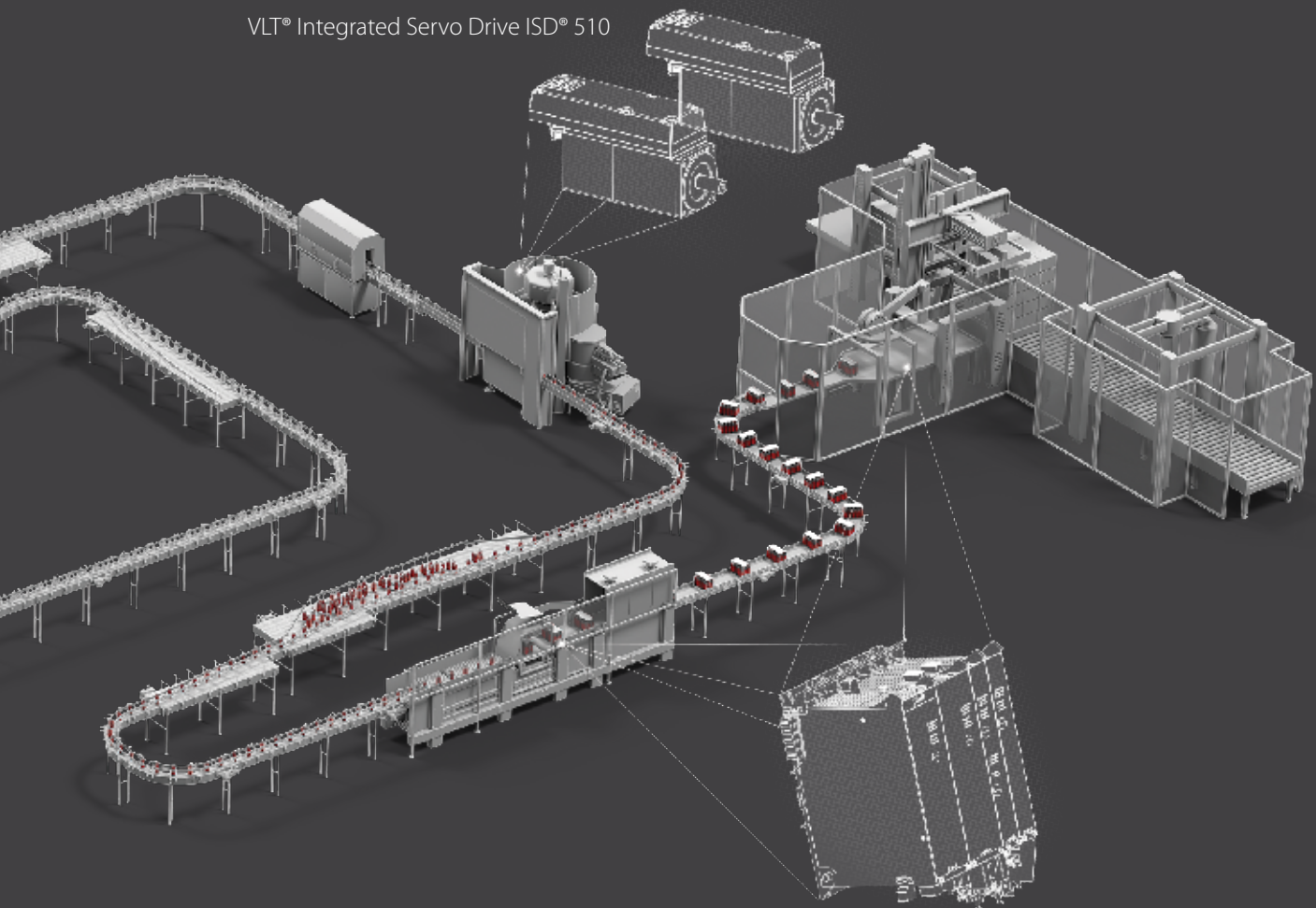
All in all, this system gives you the ultimate freedom in machine design.



VLT® Decentral Servo Drive DSD 510

# SCALABLE OPEN FAST RELIABLE

VLT® Integrated Servo Drive ISD® 510



VLT® Multiaxis Servo Drive MSD 510

# Let **flexibility flourish** in your machine design

Danfoss can help you wherever you are in your 'machines for smart manufacturing' journey. You can achieve a whole new degree of customization and precision – enabling you to get more from less. The combination of central and decentral modules in VLT® FlexMotion™ ensures you achieve maximum flexibility in machine design and system integration.

Be smart. Build your machine to meet tomorrow's requirements.

**Let Danfoss support your business.**



## Build modular machines using a versatile system **Scalable concept**

Modern machine systems need to be extremely flexible in terms of adaptability and extensions. This criterion also applies for all the system components used in the VLT® FlexMotion™ machine design – it is specially designed to give you the ultimate freedom in your design projects.

Each module allows machine builders to sustain maximum flexibility in case the need arises to add a new line – or extend an existing line with additional drives.

Combine these VLT® FlexMotion™ modules according to your needs:

- 1 VLT® Multiaxis Servo Drive MSD 510
- 2 VLT® Integrated Servo Drive ISD® 510
- 3 VLT® Decentral Servo Drive DSD 510

Use the VLT® Multiaxis Servo Drive MSD 510 as a servo hub and combine with standard servo motors, decentral servo drives or even motors with integrated servo drives. This concept minimizes cabinet space occupied, cable length, and installation time. At the same time it maximizes performance, precision and modularity.

The VLT® Integrated Servo Drive ISD® 510 system serves a wide range of applications, such as turntable applications, labeling, capping, food packaging and pharmaceutical packaging.

You can tailor the drive to meet specific customer requirements thanks to:

- standard and advanced drive variants
- 4 flange sizes
- optional mechanical brake
- customization options

The VLT® Decentral Servo Drive DSD 510 improves your system flexibility by providing a wide range of feedback options and permanent-magnet servo motor compatibility.

All of these features support you in creating easily extendable and adaptable machines.

## Specify the rest of the system as you please Free choice thanks to **open platform**

We respect that you are in the best position to decide what technologies are optimal for your system. Therefore, we leave all your options open and do not lock you into one protocol. We don't expect you to switch protocols to fit the drive – on the contrary, these drives fit into any system you prefer. Feel free to choose the communication and engineering platforms you prefer.

### Your preferred protocol

The open system architecture of VLT® FlexMotion™ supports the real-time Ethernet protocols PROFINET®, POWERLINK® and EtherCAT®. It also allows you to use third-party master controllers. Program masters via IEC 61131-3 and PLCopen-conformant motion libraries make the system even more flexible and easy to integrate into diverse engineering environments.

Gateway-free fieldbus communication contributes to seamless communication with less equipment. You can plug other fieldbus devices mounted in the machine directly into the advanced decentral drives.

### Your optimal motor

Whatever the need, you can choose the motor technology that best fits your application. Whether it's an

ISD® 510 with torque up to 13 Nm, a combination of DSD 510 and permanent-magnet (PM) motor up to 4.4 kW power, or even a motor up to a power rating of 20 kW combined with one of the central servo drive modules (SDM 511 or SDM 512); by supporting a wider range of feedback encoders, your choice is completely open and allows you to select the best motor for the application.





# Save time in installation

## Fast and fail-safe

Save time with effective measures the system electrician will appreciate. With a fresh and inventive approach, the VLT® FlexMotion™ concept reduces the complexity of mounting and commissioning. And there are no compromises – the result meets the highest of safety and quality standards.

### Click and Lock mounting

Enjoy easy mounting and fail-safe installation thanks to the unique Click and Lock concept where DC-link and control voltage supply are integrated in the backplate of each module. Save time – there is no need to use additional components like wires or bus bars to connect the DC-link or control voltage.

### Intelligent user interface

Enjoy the effective all-in-one interface, VLT® Servo Toolbox software: It's streamlined, intuitive, and offers a wealth of integrated tools for commissioning, CAM editing, debugging and test runs.

Commission, troubleshoot and complete service tasks faster, with the VLT® Local Control Panel LCP 102. It adds the power of speed in accessing the advanced decentral servo drives and all central modules of the concept. For fast working routines, it features a graphical display, quick access menus and a clear parameter structure as well as easy-to-read status LEDs

### Streamlined, fail-safe cabling

The decentralization of drives in the VLT® FlexMotion™ concept reduces the number of cables required. The VLT® Decentral Access Module DAM 510 connects to the first servo drive via a pre-configured hybrid

cable. This single cable combines the 565-680 V DC power supply, the 24/48 V DC, the STO signal and the bus communication. The hybrid cable loops these signals to further servo drives connected in the daisy chain concept.

This streamlined cabling infrastructure eliminates the need for extra equipment, such as separate feedback cables and connection boxes. The Plug and Twist cabling concept ensures fast and fail-safe installation.



# When your name is at stake, integrity is critical

## Reliable performance

With your name on the machine it's essential to deliver quality. We recognize and respect your need to maintain the integrity you have established over long relationships with your customers. Save time on researching complex combinations of different equipment to achieve exactly the performance you require. With VLT® FlexMotion™ you tap into a coherent concept of building blocks with proven compatibility and performance. For any system you choose to build, the outcome is fuss-free reliability with maximum uptime.

### Resistance in demanding environments

After years of working with the food and beverage industry, we understand the need for robust performance based on well-protected construction. Therefore, the decentral servo drives ISD® 510 and DSD 510 are available with enclosures rated up to IP67\*. A completely smooth and easy-to-clean surface, free of cooling fins or fans, makes these drives hygienically fully reliable and chemical-resistant. Vibration class 3M7 ensures trouble-free operation and renders these drives ideal for rotating machine parts.

### Time-saving straightforward design

Maintenance costs can be kept to a minimum because the VLT® FlexMotion™ modules are virtually maintenance-free – they're built for robust reliability. The drives use high-quality bearings, and the only spare part needed is the shaft seal. You save time because no tools are required to work with the hybrid cables.

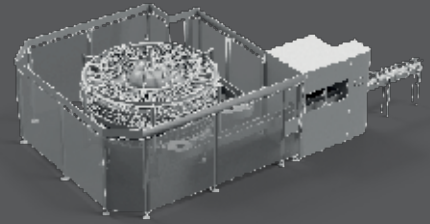
Detect errors quickly via LEDs on all central and decentral modules.

The advanced user interface provides three extra ports for:

- I/Os and external encoder; for example, homing or limit switches
- User interface: VLT® Local Control Panel LCP 102
- Fully functional Ethernet (for direct connection of third-party fieldbus devices)

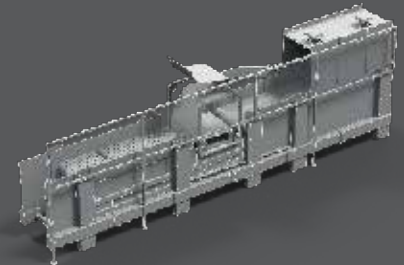
*\* for details please check ordering type codes on pages 15 and 17*

## Typical applications



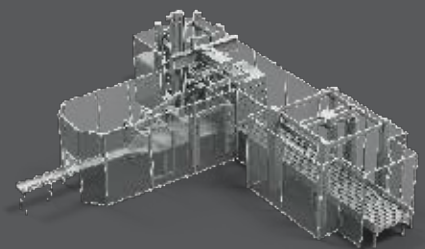
### Beverage

- Labeling
- Capping
- PET blow-moulding
- Digital bottle printing



### Food and beverage packaging

- Flow wrapping
- Bag maker
- Tray sealing
- Shrink wrapping



### Industrial and pharmaceutical packaging

- Palletization
- Top loader
- Cartoning
- Tube filling
- Blister machine
- Liquid filling
- Solid dosing

# VLT® Multiaxis Servo Drive MSD 510

The MSD 510 system is a generic central servo solution and the fundamental part of the VLT® FlexMotion™ concept. Its flexibility and modularity in hardware and software gives you the freedom to design machines according to the application needs.

The MSD 510 system comprises these modules:

- VLT® Power Supply Module PSM 510
- VLT® Servo Drive Module SDM 511 for single axis and SDM 512 for double axis
- VLT® Decentral Access Modules DAM 510
- VLT® Auxiliary Capacitor Module ACM 510

To optimize the space requirements, some of the modules are available in two enclosure sizes, either 50 mm [1.97 inch] or 100 mm [3.94 inch] wide.

Enjoy easy mounting and fail-safe installation thanks to a unique Click and Lock concept where DC-link and control voltage supply are integrated in the backplate of each module. Depending on the machine architecture, you can use the MSD 510 as a stand-alone central concept or in a mixed system together with the VLT® Integrated Servo Drive ISD® 510 and VLT® Decentral Servo Drive DSD 510. Extensions or adjustments to the machine are easy to implement – just add or swap modules accordingly.



> VLT® Power Supply Module PSM 510

> VLT® Servo Drive Modules SDM 511 and SDM 512

> VLT® Decentral Access Module DAM 510

> VLT® Auxiliary Capacitors Module ACM 510

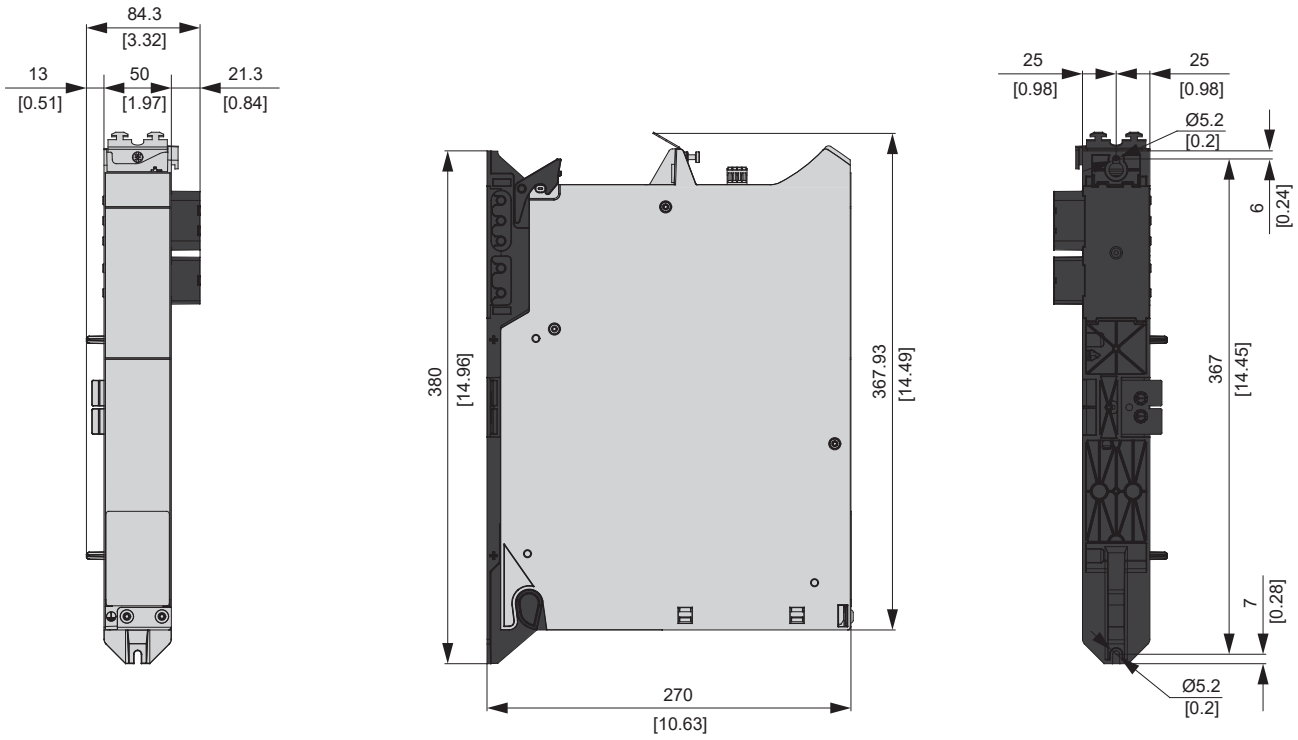
## Specifications

Nominal input voltage	3 ~ 400-480 V AC +/-10%
Mains frequency	50/60 Hz
DC-link voltage	565-680 V DC +/-10%
Control voltage	24/48 V DC +/-10%
Ambient temperature	5-40 °C, max 55 °C with derating [41-104 °F, max 131 °F with derating]
Fieldbus	PROFINET®, POWERLINK®, EtherCAT®
IP protection class	IP20
Modular construction with 2 enclosure sizes	FS1 50 mm [1.97 inch] or FS2 100 mm [3.94 inch]
Mounting	Wall-mounting on backplate – click & lock
EMC according 61800-3	C3, C2 with external filter
Certificates/Approvals	CE, UL
Functional safety	STO SIL 2 Pl d

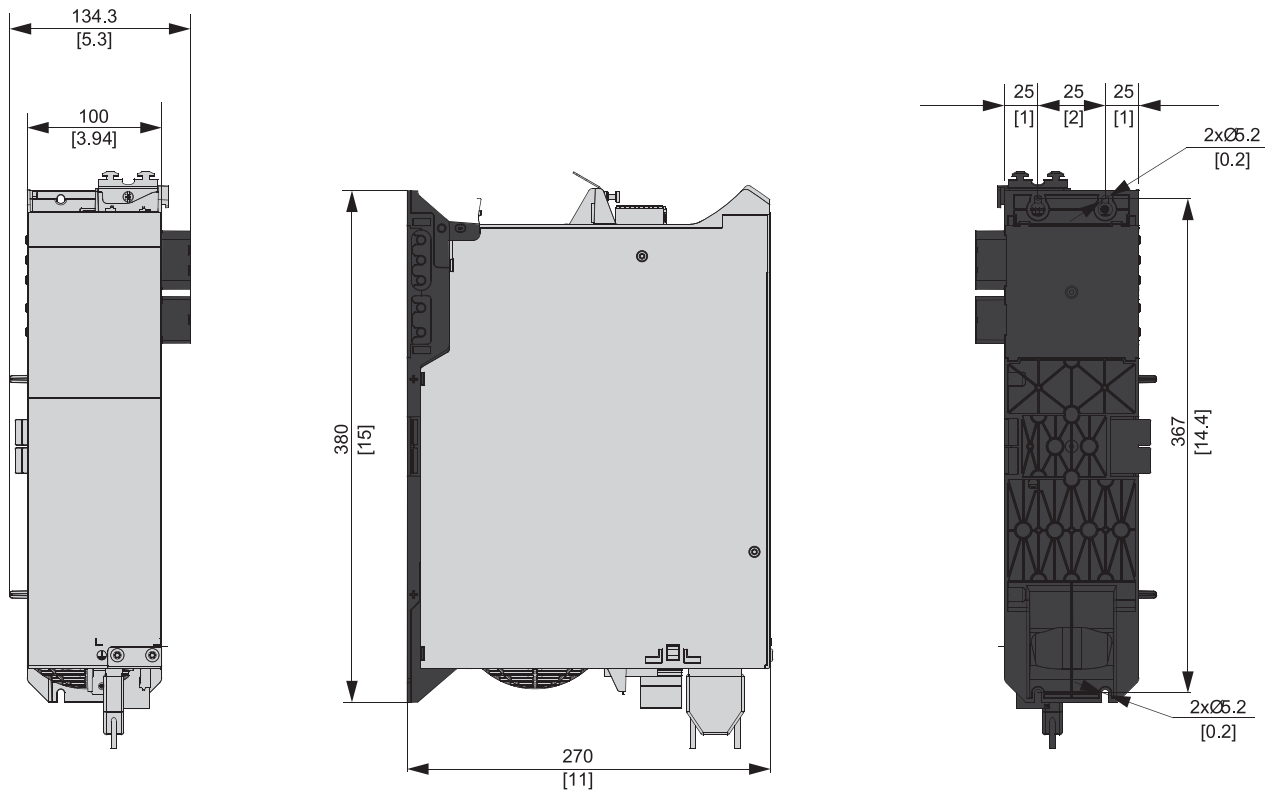


# Dimensions

## Enclosure size 1 (FS1)



## Enclosure size 2 (FS2)



Dimensions are in mm [inch]



## VLT® Power Supply Module PSM 510



The PSM 510 module generates a 565-680 DC-link voltage and is available in 3 power sizes with either 10, 20 or 30 kW and 200% overload capability. To achieve a nominal output up to 60 kW, install two PSM 510 units in parallel.

### Specifications

		PSM 510 10 kW	PSM 510 20 kW	PSM 510 30 kW
Ordering number related to fieldbus variant	PROFINET®	175G0162	175G0165	175G0168
	POWERLINK®	175G0160	175G0163	175G0166
	EtherCAT®	175G0161	175G0164	175G0167
Nominal input voltage	V AC	3 x 400-480 +/-10%		
DC-link voltage	V DC	565-680 +/-10%		
Rated output current	A	20	40	60
Rated output power	kW [hp]	10 [13.4]	20 [26.8]	30 [40.2]
Peak current $i_{max}$	A	40	80	120
Peak power $P_{max}$	kW [hp]	20 [26.8]	40 [53.6]	60 [80.4]
Braking power nominal continuous ( <i>intern</i> )	kW [hp]	0.15 [0.20]		
Braking power max	kW [hp]	8 [10.7]		
Minimum resistance	Ohm	10		
Cooling		Integrated fan		
Module width ( <i>enclosure size</i> )	mm [inch]	100 [3.94]		
Enclosure size		FS 2		
Weight	kg [lbs]	6 [13.2]		

# VLT® Servo Drive Modules SDM 511 and SDM 512



The SDM 511 module is a single axis servo drive, available in 5 power sizes. The SDM 512 is a double axis servo drive, available in 3 power sizes.

A wide range of feedback options allows you to choose your preferred PM motor. Furthermore, the drive modules are equipped with digital I/Os, relay outputs and integrated Safe Torque Off (STO).

## Specifications

		SDM511-xx	SDM511-xx	SDM511-xx	SDM511-xx	SDM511-xx	SDM512-xx	SDM512-xx	SDM-512xx	
DC-link	V DC	565-680 +/-10%								
Rated current I <sub>n</sub>	A	2.5	5	10	20	40	2 x 2.5	2 x 5	2 x 10	
Rated power P <sub>n</sub>	kW [hp]	1.4 [1.9]	2.8 [3.8]	5.7 [7.6]	11.3 [15.2]	22.6 [30.3]	2 x 1.4 [1.9]	2 x 2.8 [3.8]	2 x 5.7 [7.6]	
Peak current	A	10	20	30	40	80	2 x 10	2 x 15	2 x 20	
Peak power	kW [hp]	5.7 [7.6]	11.3 [15.2]	17.0 [22.8]	22.6 [30.3]	45.2 [60.6]	2 x 5.7 [7.6]	2 x 8.4 [11.3]	2 x 11.3 [15.2]	
Nominal switching frequency	kHz	4/5								
Possible switching frequency	kHz	8/10								
Maximum output frequency	Hz	590								
Number of motor connections		1					2			
Cooling		Integrated fan								
Module width	mm [inch]	50 [1.97]				100 [3.94]		50 [1.97]		
Frame size		FS 1				FS 2		FS 1		
Weight	kg [lbs]	3.9 [8.6]				6.4 [14.1]		3.9 [8.6]		

## Ordering type code

[1-6]	[7-12]	[13-14]	[15-16]	[17-21]	[22-23]	[24-26]	[27-29]	[30-31]	[32-34]	[35]	[36-38]	[39-40]			
MSD510	-	-	-	-	-	D6	-	E20	-	-	-	-	SXXX	-	XX

<b>Product group</b> (character 1-6)	
MSD510	VLT® Multiaxis Servo Drive MSD
<b>Product variant</b> (character 7-12)	
SDM511	MSD 510 Servo Drive Module 511
SDM512	MSD 510 Servo Drive Module 512
<b>Drive variant</b> (character 13-14)	
SA	Single axis servo drive
DA	Double axis servo drive
<b>Enclosure size</b> (character 15-16)	
F1	Enclosure size 1 (50 mm)
F2	Enclosure size 2 (100 mm)
<b>Current rating</b> (character 17-21)	
C02A5	2.5 A <sub>RMS</sub> rated current
C005A	5 A <sub>RMS</sub> rated current
C010A	10 A <sub>RMS</sub> rated current
C020A	20 A <sub>RMS</sub> rated current
C040A	40 A <sub>RMS</sub> rated current

<b>DC voltage</b> (character 22-23)	
D6	600 V DC-link voltage
<b>Protection rating</b> (character 24-26)	
E20	IP20
<b>Drive feedback</b> (character 27-29)	
FXX	Without feedback
FRX	Resolver/Sensorless*
FS1	BiSS ST feedback 17-bit
FM1	BiSS MT feedback 17-bit
FE1	EnDat 2.1
FE2	EnDat 2.2
FHF	Hiperface*
FHD	Hiperface DSL*
<b>Bus system</b> (character 30-31)	
PN	PROFINET®
PL	POWERLINK®
EC	EtherCAT®

<b>Firmware</b> (character 32-34)	
SXX	Standard
SC0	Customized
<b>Safety</b> (character 35)	
T	Safe Torque Off
<b>Reserved</b> (character 36-38)	
SXXX	Reserved
<b>Reserved</b> (character 39-40)	
XX	Reserved

\*In preparation

Please be aware that not all combinations are possible. Use the online configurator located here to configure your drive: [driveconfig.danfoss.com](http://driveconfig.danfoss.com)





## VLT® Decentral Access Module DAM 510



The DAM 510 module connects the VLT® Integrated Servo Drive ISD® 510 and VLT® Decentral Servo Drive DSD 510 through a hybrid feed-in cable to the MSD 510 system. This gives you great flexibility, the freedom to design the servo system according to your application needs and supports modular machine architectures.

### Specifications

		DAM 510 15 A	DAM 510 25 A
Ordering number related to fieldbus variant	PROFINET®	175G0171	175G0174
	POWERLINK®	175G0169	175G0172
	EtherCAT®	175G0170	175G0173
DC-link	V DC	565-680 +/-10%	
Output current DC-link	A	15	25
Module width	mm [inch]	50 [1.97]	
Enclosure size		FS 1	
Weight	kg [lbs]	3.1 [6.8]	

## VLT® Auxiliary Capacitors Module ACM 510



Connect the ACM 510 to the system to store energy. This allows you to make a controlled machine stop in emergency situations.

### Specifications

ACM 510		
Ordering number per fieldbus variant	PROFINET®	175G0177
	POWERLINK®	175G0175
	EtherCAT®	175G0176
DC-link	V DC	565-680 +/-10%
Storable energy	J	> 770
Module width	mm [inch]	50 [1.97]
Enclosure size		FS 1
Weight	kg [lbs]	3.1 [6.8]



# VLT® Integrated Servo Drive ISD® 510

The VLT® Integrated Servo Drive ISD® 510 combines a servo motor and servo drive in one compact unit. It offers great benefits in diverse applications, such as turntables, labeling, capping, and packaging of food and pharmaceuticals.

The ISD 510 is supplied by the VLT® Decentral Access Module DAM 510 which is part of the MSD 510 system. The Plug and Twist hybrid cabling concept, including supply and control voltage as well as functional safety and fieldbus wires, makes the installation fast, easy, fail-safe and cost-efficient. Since multiple decentral drive units can be powered by just one VLT® Decentral Access Module DAM 510 through simple daisy-chain wiring, no distribution boxes are needed and cables can be reduced to a minimum.

A completely smooth and easy-to-clean surface together with high protection IP67\*\* enclosure and vibration resistance class 3M7 ensure the perfect fit for all kinds of rotating applications in demanding environments.

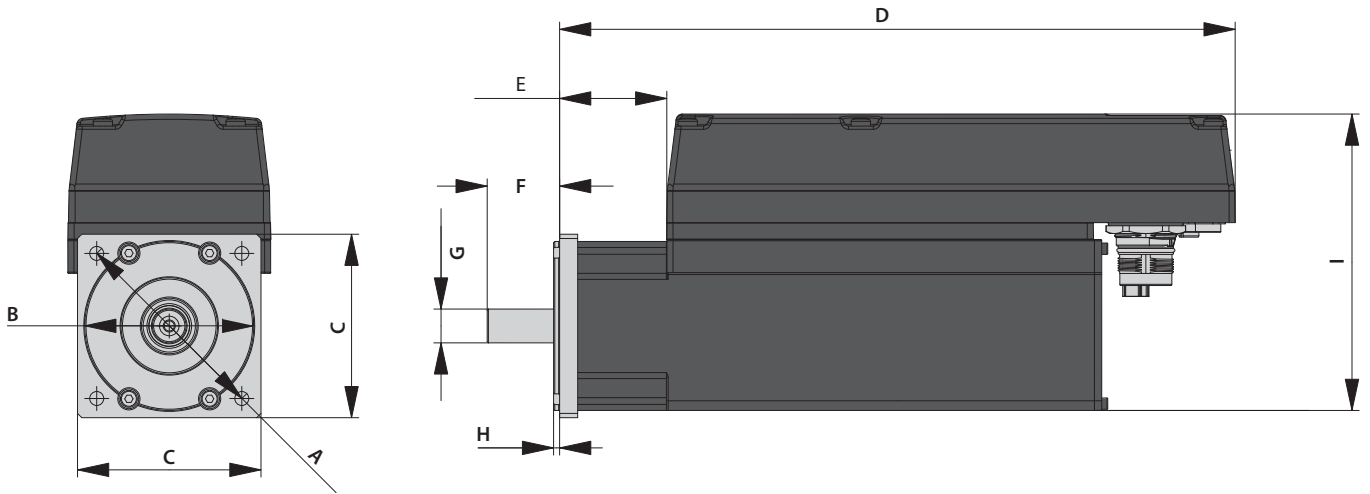


## Specifications

		Size 1 1.5 Nm	Size 2 2.1 Nm	Size 2 2.9 Nm	Size 2 3.8 Nm	Size 3 5.2 Nm	Size 3 6.0 Nm	Size 4 11.2 Nm	Size 4 13 Nm
Rated speed $n_N$	rpm	4600	4000	2900	2400	3000	3000	2000	*
Rated torque $M_N$	Nm	1.5	2.1	2.9	3.8	5.2	6.0	11.2	*
Rated current $I_N$	A	1.4	1.7		1.8	3.6	3.4	4.7	*
Rated power $P_N$	kW [hp]	0.72 [0.98]	0.88 [1.20]		0.94 [1.28]	1.6 [2.18]	1.9 [2.58]	2.3 [3.13]	*
Standstill (Stall) torque $M_0$	Nm	2.3	2.8	3.6	4.6	6.6	8.6	13.3	*
Standstill (Stall) current $I_0$	A	2.1	2.3	2.1	2.2	4.6	4.9	5.6	*
Peak torque $M_{max}$	Nm	6.1	7.8	10.7	12.7	21.6	29.9	38.6	*
Peak current (rms value) $I_{max}$	A	5.7	6.4			17.7	19.8	21.2	*
Nominal switching frequency	kHz	4/5							
Possible switching frequency	kHz	8/10							
Rated voltage	V DC	560-680 +/-10%							
Inductance L 2 ph	mH	18.5	26.8	32.6	33.9	11.9	11.4	18.0	*
Resistance R 2 ph	$\Omega$	9.01	7.78	8.61	8.64	2.35	2.10	2.26	*
Voltage constant EMK	V/krms	70.6	80.9	111.0	132.0	92.7	112.0	158.8	*
Torque constant Kt	Nm/A	1.10	1.26	1.72	2.04	1.22	1.51	1.82	*
Inertia	kgm <sup>2</sup>	0.000085	0.00015	0.00021	0.00027	0.00062	0.00091	0.0024	*
Shaft diameter	mm [inch]	14 [0.55]	19 [0.75]			24 [0.94]		32 [1.26]	
Pole pairs		4	5				5		
Flange size	mm [inch]	76 [2.99]	84 [3.31]			108 [4.25]		138 [5.43]	
Weight	kg [lbs]	3.5 [7.7]	4.0 [8.8]	5.0 [11.0]	6.0 [13.2]	8.3 [18.3]	10.0 [22.0]	13.8 [30.4]	*
Brake inertia	kgm <sup>2</sup>	0.0000012	0.0000068			0.000021		0.000072	
Brake weight	kg [lbs]	0.34 [0.75]	0.63 [1.39]			1.1 [2.42]		2.0 [4.41]	

See the Design Guide for further technical data  
\* In preparation

# Dimensions



	A		B		C		D		E		F		G		H		I	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
Size 1 (1.5 Nm)	85	3.35	70	2.76	76	2.99	280	11.02	44.4	1.75	30	1.18	14	0.55	2.5	0.10	123	4.84
Size 2 (2.1 Nm)	100	3.94	80	3.15	84	3.31	252	9.92	16.2	0.64	40	1.57	19	0.75	3	0.12	137	5.39
Size 2 (2.9 Nm)	100	3.94	80	3.15	84	3.31	281	11.06	45.2	1.78	40	1.57	19	0.75	3	0.12	137	5.39
Size 2 (3.8 Nm)	100	3.94	80	3.15	84	3.31	310	12.2	74.2	2.92	40	1.57	19	0.75	3	0.12	137	5.39
Size 3 (5.2 Nm)	130	5.12	110	4.33	108	4.25	276.3	10.88	21.3	0.84	50	1.97	24	0.94	3	0.12	179	7.05
Size 3 (6.0 Nm)	130	5.12	110	4.33	108	4.25	307.3	12.10	52.3	2.06	50	1.97	24	0.94	3	0.12	179	7.05
Size 4 (11.2 Nm)	165	6.5	130	5.12	138	5.43	301.5	11.87	46.5	1.83	58	2.28	32	1.26	3.5	0.14	209	8.23
Size 4 (13 Nm)										*								

\*In preparation

## Ordering type code

[1-3]	[4-6]	[7]	[8]	[9-12]	[13-14]	[15-17]	[18-20]	[21-22]	[23-24]	[26]	[27-30]	[31-32]	[33-35]	[36]	[37]	[38]	[39-40]
ISD	- 510	-	T	-	D6	-	-	-	-	-	T	-	SX	-	-	-	-

Product group (character 1-3)	
ISD	VLT® Integrated Servo Drive
Product variant (character 4-6)	
510	ISD® 510
Hardware configuration (character 7)	
A	Advanced
S	Standard
Drive torque (character 8)	
T	Torque
Torque (character 9-12)	
01C5	1.5 Nm
02C1	2.1 Nm
02C9	2.9 Nm
03C8	3.8 Nm
05C2	5.2 Nm
06C0	6.0 Nm
11C2	11.2 Nm
13C0	13 Nm*
DC voltage (character 13-14)	
D6	600 V DC-link voltage
Protection rating (character 15-17)	
E54	IP54
E67	IP67 (shaft IP65**)

Drive feedback (character 18-20)	
FRX	Resolver
FS1	Single-turn feedback (17 bit)
FMI	Multi-turn feedback (17 bit)
Bus system (character 21-22)	
PN	PROFINET®
PL	POWERLINK®
EC	EtherCAT®
Firmware (character 23-25)	
SXX	Standard
SCO	Customized
Safety (character 26)	
T	Safe Torque Off (STO)
Flange size (character 27-30)	
F076	76 mm
F084	84 mm
F108	108 mm
F138	138 mm
Flange type (character 31-32)	
SX	Standard

Motor rated speed (character 33-35)	
N46	4600 rpm
N40	4000 rpm
N29	2900 rpm
N24	2400 rpm
N30	3000 rpm
N20	2000 rpm
Mechanical brake (character 36)	
X	Without brake
B	With brake
Motor shaft (character 37)	
S	Standard smooth shaft
K	Standard fitted key
Motor sealing (character 38)	
X	Without sealing
S	With sealing
Surface coating (character 39-40)	
SX	Standard
CX	Customized

\* In preparation  
 \*\* Shaft either IP65 with optional shaft seal, or IP54, depending on mounting position

Please be aware that not all combinations are possible. Use the online configurator located here to configure your drive: [driveconfig.danfoss.com](http://driveconfig.danfoss.com)

# VLT® Decentral Servo Drive DSD 510

The VLT® Decentral Servo Drive DSD 510 extends the decentral servo drive concept. With rated power up to 4.4 kW and supporting a wide range of feedback encoders, its architecture is completely open and allows you to choose your preferred PM servo motor.

The DSD 510 is supplied by the VLT® Decentral Access Module DAM 510 which is part of the VLT® Multiaxis Servo Drive MSD 510 system. The Plug and Twist hybrid cabling concept, including supply and control voltage as well as functional safety and fieldbus wires, makes the installation fast, easy, fail-safe and cost-efficient. Since multiple decentral drive units can be powered by just one VLT® Decentral Access Module DAM 510 module through simple daisy chain wiring, no distribution boxes are needed and you can reduce cabling to a minimum.

A completely smooth and easy-to-clean surface together with high-protection IP67 enclosure and vibration resistance class 3M7 ensure the perfect fit for all kinds of rotating applications in demanding environments.

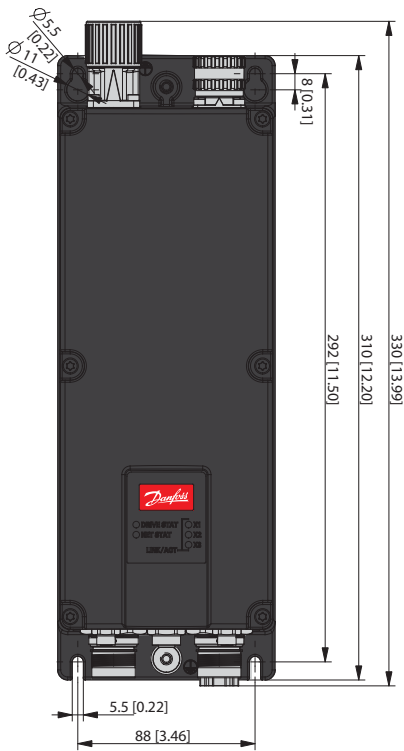


## Specifications

DSD 510		
Rated voltage	V DC	560-680 +/-10%
Rated current $I_N$	A	12.25 with mounting plate* 8.8 standalone
Maximum current $I_{max}$	A	21.5
Rated power $P_N$	kW [hp]	4.4 [5.9]
Nominal switching frequency	kHz	4/5
Possible switching frequency	kHz	8/10
Protection rating		IP67
Weight	kg [lbs]	2.85 [6.28]

\* Mounting plate size: 470 x 270 x 10 mm [18.5x10.6x0.4 inch]

# Dimensions



Dimensions are in mm [inch]

# Ordering type code

[1-3] [4-6] [7] [8] [13-14] [15-17] [18-20] [21-22] [23-25] [26] [27-38] [39-40]  
**DSD - 510 - [ ] - C08C8 - D6 - E67 - [ ] - [ ] - SXX - T - XXXXXXXXXXXXX - [ ]**

Product group (character 1-3)	
DSD	VLT® Decentral Servo Drive
Product variant (character 4-6)	
510	DSD 510
Hardware configuration (character 7)	
A	Advanced
S	Standard
Current rating (character 8-12)	
C08C8	8.8 A continuous current
DC voltage (character 13-14)	
D6	600 V DC-link voltage
Protection rating (character 15-17)	
E67	IP67

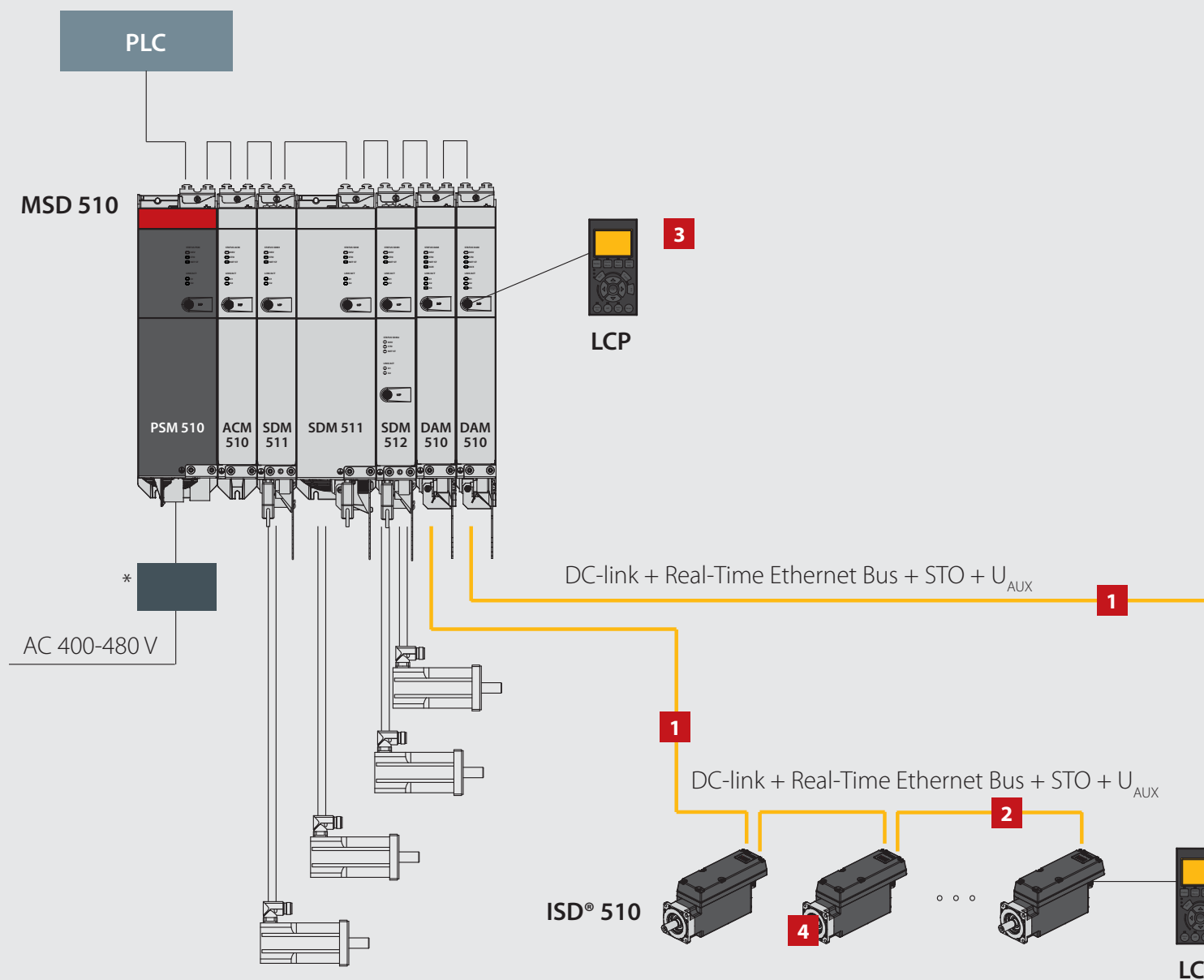
Drive feedback (character 18-20)	
FXX	Without feedback/Sensorless*
FRX	Resolver
FS1	BiSS ST Feedback 17bit
FM1	BiSS MT Feedback 17bit
FE1	EnDat 2.1
FE2	EnDat 2.2
FHF	Hiperface*
FHD	Hiperface DSL*
Bus system (character 21-22)	
PN	PROFINET®
PL	POWERLINK®
EC	EtherCAT®

Firmware (character 23-25)	
SXX	Standard
Safety (character 26)	
T	Safe Torque Off (STO)
Reserved (character 27-38)	
-	Reserved
Surface coating (character 39-40)	
SX	Standard
CX	Customized

\*In preparation

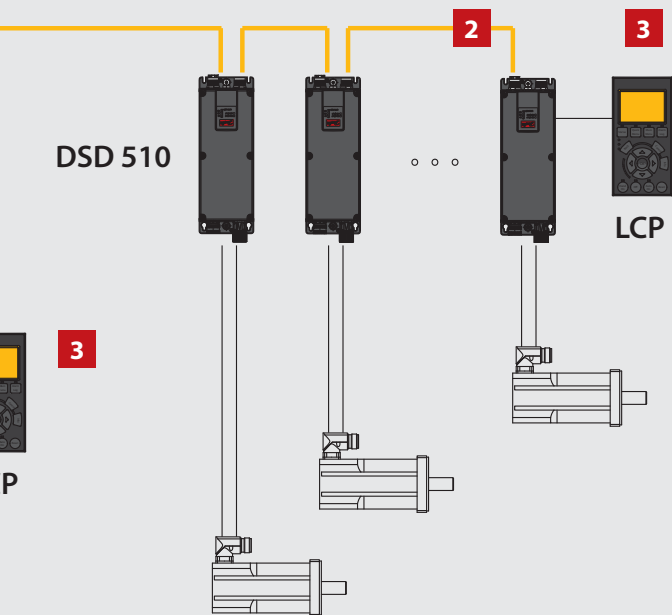
Please be aware that not all combinations are possible. Use the online configurator located here to configure your drive: [driveconfig.danfoss.com](http://driveconfig.danfoss.com)

# Accessories and options



\*It is mandatory to use a 3-phase AC line choke close to the PSM 510. For technical details please refer to the MSD 510 Operating Guide.





## 1 Hybrid feed-in cable

Description	Length		Ordering number
	[m]	[ft]	
Hybrid feed-in cable M23, 90° angled connector	2	6.6	175G8920
	4	13.1	175G8921
	6	19.7	175G8922
	8	26.2	175G8923
	10	32.8	175G8924
	15	49.2	175G8925
	20	65.6	175G8926
	25	82.0	175G8927
	30	98.4	175G8928
	40	131.2	175G8929
Hybrid feed-in cable M23, straight connector	2	6.6	175G8930
	4	13.1	175G8931
	6	19.7	175G8932
	8	26.2	175G8933
	10	32.8	175G8934
	15	49.2	175G8935
	20	65.6	175G8936
	25	82.0	175G8937
	30	98.4	175G8938
	40	131.2	175G8939

## 2 Hybrid loop cable

Description	Length		Ordering number
	[m]	[ft]	
Hybrid loop cable M23, 90° angled connector	0.5	1.6	175G8900
	1	3.3	175G8901
	2	6.6	175G8902
	4	13.1	175G8903
	6	19.7	175G8904
	8	26.2	175G8905
	10	32.8	175G8906
	15	49.2	175G8907
	20	65.6	175G8908
	25	82.0	175G8909
Hybrid loop cable M23, straight connector	0.5	1.6	175G8910
	1	3.3	175G8911
	2	6.6	175G8912
	4	13.1	175G8913
	6	19.7	175G8914
	8	26.2	175G8915
	10	32.8	175G8916
	15	49.2	175G8917
	20	65.6	175G8918
	25	82.0	175G8919

## 3 VLT® Local Control Panel LCP 102

Description	Ordering number
VLT® Local Control Panel LCP 102 (Graphical)	130B1107
LCP Cable (SUB-D to M8), 3 m [9.8 ft] cable	175G8942
LCP remote mounting kit (IP21) including LCP, fasteners, 3 m [9.8 ft] cable, and gasket	130B1170
LCP remote mounting kit (IP21) without LCP, but including fasteners, 3 m [9.8 ft] cable, and gasket	130B1117

## 4 Shaft seal for ISD® 510

Description	Ordering number
Set for size 1 servo drive (10 pieces)	175G8192
Set for size 2 servo drive (10 pieces)	175G8191
Set for size 3 servo drive (10 pieces)	*
Set for size 4 servo drive (10 pieces)	*

\*In preparation



## General-purpose **servo drive solution**

VLT® FlexMotion™ is a multi-purpose universally compatible servo drive concept, designed to meet the requirements of tomorrow's machine architecture, today.

Combine central and decentral modules for ultimate flexibility when it comes to machine design and system integration. The smart platform concept ensures identical user interfaces and makes installation, programming and

maintenance quick and easy. The modular system even facilitates trouble-free machine extensions or adaptations at a later stage.

Open connectivity to common real-time Ethernet systems, IEC 61131-3-based programming and PLCopen Motion Function Blocks makes the system even more versatile and easy to integrate into diverse engineering environments.



Discover more about VLT® FlexMotion™ here:  
[drives.danfoss.com/flexmotion](https://drives.danfoss.com/flexmotion)

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