

# VLT® AutomationDrive

For Industrial Constant Torque Applications



## Perfect

for industrial  
automation,  
high dynamic  
applications, and  
safety installations

### Power range:

3 x 240 VAC.....1/3 to 50 HP

3 x 480 VAC.....1/2 to 1200 HP

3 x 575 VAC.....1 to 100 HP

3 x 575/690 VAC.....11 to 1200 kW

Available in a wide range of industrial enclosures from protected chassis to IP 66 (NEMA 4x Indoor).

The VLT AutomationDrive is a single drive concept that covers the entire range of applications. This concept provides a major benefit in commissioning, operating and maintaining the equipment.

Features	Benefits
<b>Dedicated features</b>	
Modular Product concept with a wide variety of options	Lower initial investment - maximum flexibility field upgradeable possible
Dedicated Synchronizing, Positioning, and Center Winding Options	Simplifies programming and commissioning
Smart Logic Controller	Eliminates ancillary equipment reducing installed cost
Optional Motion Controller	Lower equipment costs
Safe Stop	Lower installed costs safe operation
Wide variety of I/O Options	Adaptable to most demanding applications
Wide variety of Industrial Fieldbus	Ease of connection to any Industrial Network
Integrated DC Link	Eliminates external filter requirements
Intelligent Heat Management	Removes excessive heat promotes longer life
<b>Energy saving</b>	
VLT® efficiency	Saves energy
Automatic Energy Optimisation	Reduces energy consumption 3% to 8%
<b>Reliable</b>	
NEMA 1, NEMA 12, and NEMA 4X Indoor enclosures	Suitable for harsh wash down environments without the need for customized panels
Ambient temperature rating of 50° C without derating	Eliminates the need for expensive cooling solutions
Main disconnects and integral fusing	Reduces installed cost by eliminating panel space
Optional, built-in RFI suppression	Eliminates the need for external filtering devices
One Wire Safe Stop	Safe operation less wiring
Password protection	Reduce operator error
<b>User-friendly</b>	
Plug and Play Design	Easy upgrade and changeovers
Intuitive user interface	Time saved
Multiple language support	Displays all info in native language
Modular design	Enables fast installation of options
Auto tuning of PI-controllers	Eliminates errors
<b>Less operation cost</b>	
<b>Maximum uptime</b>	
<b>Save initial and operation cost</b>	

### Dimensions [Inches]

	A2	A2	A3	A4	A5	B1	B2	B3	B4	C1	C2	C3	C4	D1h	D2h	D3h	D4h	E1	E2	F1	F2	F3	F4
H	7.9	10.5		15.3	16.5	19.4	25.5	15.7	17.7	26.8	30.3	21.6	26.0	33.2	41.3	33.2	41.3	33.0	32.8	91.5	91.5	91.5	91.5
W	2.9	3.5	5.1	7.9	9.5			6.5	9.1	12.1	14.5	12.1	14.5	12.8	16.5	9.8	13.8	86.5	67.1	61.8	77.2	85.0	85.0
D	8.1	8.1		6.9	7.9	10.2		9.8		12.2	13.2	13.1		14.9		14.8		28.9	28.9	36.5	36.5	36.5	36.5
H+	14.7					18.7						29.7	37.4										
W+	3.5		5.1			6.5						12.9	15.3										

Adding Brake IGBT, or Mains Option changes the frame size to D5h or D7h. Dimensions for these frames are: D5h: 50.3x12.8x15.0 and D7h: 76.0x16.5x15.2

## Options

The following options are available:

### Fieldbus options

- MCA 101 Profibus
- MCA 104 DeviceNet
- MCA 105 CAN Bus
- MCA 120 ProfiNet
- MCA 121 Ethernet IP
- MCA 122 Modbus TCP

### I/O and feedback options

- MCA 101 General Purpose I/O
- MCB 102 Encoder Feedback
- MCB 103 Resolver Feedback
- MCB 105 Relay Expander
- MCB 107 24 V input option for control voltage
- MCB 108 SAFE PLC Interface
- MCB 112 PTC Thermister Input
- Motion Control Options for Synchronizing, Positioning, and Center Winding applications

### Safety options

- Safe Stop Function EN 954-1 Cat 3
- Brake IGBT

### Power options

- Brake resistors
- Sine-Wave Filters
- dV/dt Filters
- Harmonic Filters (AHF)
- Integrated Low Harmonic Filters

### Other accessories

- IP 21/NEMA 1 Kits (convert IP 20 enclosures to IP 21)
- Sub-D9 Connector
- Decoupling plate for fieldbus cables
- USB connection cable to PC
- Panel Through option

### Software

**MCT 10:** Ideal for commission and servicing the drive including guided programming of motion controller parameters and the smart logic controller. Scope function, alarm log and other real-time functions help trouble shooting and commissioning the system.

## Specifications

### Mains supply (L1, L2, L3)

Supply voltage	200 – 240 V $\pm 10\%$ FC 301: 380 – 480 V $\pm 10\%$ FC 302: 380 – 500 V $\pm 10\%$ , 525 – 600 V $\pm 10\%$ 525 – 690 V $\pm 10\%$
Supply frequency	50/60 Hz
True Power Factor ( $\lambda$ )	0.92 nominal at rated load
Displacement Power Factor ( $\cos \phi$ ) near unity	(> 0.98)
Switching on input supply L1, L2, L3	Maximum 2 times/min.

### Output data (U, V, W)

Output voltage	0–100% of supply voltage
Output frequency	FC 301: 0.2 – 590 Hz (1/3 – 100 HP) FC 302: 0 – 590 Hz (1/3 – 100 HP) 0 – 590 Hz (125 to 1600 HP) 0 – 300 Hz (Flux mode)
Switching on output	Unlimited
Ramp times	1–3600 sec.

*Note: 160% current can be provided for 1 minute.  
Higher overload rating is achieved by oversizing the drive.*

### Digital inputs

Programmable digital inputs	FC 301: 4 (5) / FC 302: 4 (6)
Logic	PNP or NPN
Voltage level	0–24 VDC

*Note: One/two digital inputs can be programmed as digital output for FC 301/FC 302.*

### Analog input

Analog inputs	2
Modes	Voltage or current
Voltage level	FC 301: 0 to +10 V FC 302: -10 to +10 V (scaleable)
Current level	0/4 to 20 mA (scaleable)

### Pulse/encoder inputs

Programmable pulse/encoder inputs	FC 301: 1 / FC 302: 2
Voltage level	0 – 24 V DC (PNP positive logic)

### Digital output\*

Programmable digital/pulse outputs	FC 301: 1 / FC 302: 2
Voltage level at digital/frequency output	0 – 24 V

### Analog output\*

Programmable analog outputs	1
Current range	0/4 – 20 mA

### Relay outputs\*

Programmable relay outputs	FC 301: 1 / FC 302: 2
----------------------------	-----------------------

### Cable lengths

Max. motor cable lengths	FC 301: 150 ft / FC 302: 500 ft (screened/armoured) FC 301: 225 ft / FC 302: 1000 ft (unscreened/unarmoured)
--------------------------	---

*\*More analog and digital inputs/outputs can be added by options.*

## Danfoss Drives

4401 N. Bell School Road  
Loves Park, IL 61111, USA  
Phone: 1 (800) 432-6367  
1 (815) 639-8600  
Fax: 1 (815) 639-8000  
Email: [salesinformation@danfoss.com](mailto:salesinformation@danfoss.com)  
**[www.danfossdrives.com](http://www.danfossdrives.com)**

## Danfoss Drives

8800 W. Bradley Road  
Milwaukee, WI 53224, USA  
Phone: 1 (800) 621-8806  
1 (414) 355-8800  
Fax: 1 (414) 355-6117