

Fact Sheet

# VLT® Soft Starter MCD 500



Adaptive Acceleration Control (AAC) automatically employs the best starting and stopping profiles for the application.

Adaptive Acceleration Control means that for each start and stop, the soft starter compares and adapts the process to the chosen profile fitting to the application.

VLT® Soft Starter MCD 500 has a four line graphical display and a logical

keypad, making programming easy. Advanced setup is possible displaying operational status.

Three menu systems: Quick Menu, Application Setup and Main Menu provide the optimum programming approach.

### Power range

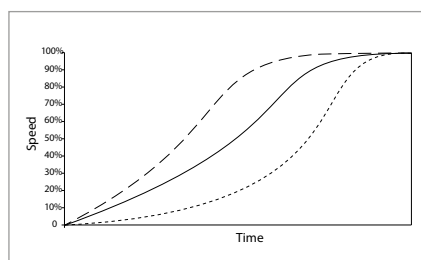
21 – 1600 A, 7.5 – 850 kW  
(1.2 MW inside Delta Connection)  
Versions for 200 – 690 VAC

VLT® Soft Starter MCD 500 is a total motor starting solution. Current transformers measure motor current and provide feedback for controlled motor ramp profiles.

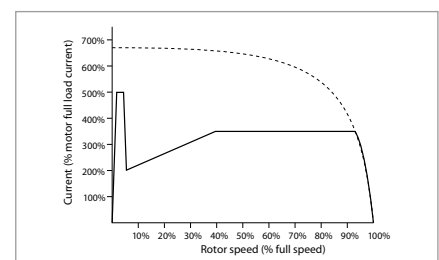
## Integrated

bypass delivers all-round cost savings

| Feature  | Benefit  |
|--|--|
| AAC Adaptive Acceleration Control  | – Automatically adapts to the chosen starting and stopping profile   |
| Adjustable bus bars allow for both top and bottom entry (360–1600 A, 160–850 kW)       | – Space saving, less cable cost and easy retrofitting  |
| DC injection braking distributed evenly over three phases                              | – Less installation cost and less stress on the motor  |
| Inside Delta (6-wire connection)   | – Smaller soft starter can be selected for the application   |
| Log menus, 99 events and trip log provide information on events, trips and performance | – Eases analysis of the application  |
| Auto Reset   | – Less down-time   |
| Jog (slow-speed operation)   | – Application flexibility  |
| Second-order thermal model   | – Allows motors to be used to their full potential without damage from overloading   |
| Internal bypass contactors (21–215 A, 7.5–110 kW)                                      | – Saves space and wiring compared to external bypass<br>– Very little heat dissipates when running. Eliminates costly external fans, wiring or bypass contactors |
| Auto-start/stop clock  | – Application flexibility  |
| Compact size – amongst the smallest in its class                                       | – Saves space in cabinets and other application setups   |
| 4-line graphical display   | – Optimum programming approach and setup for viewing operational status  |
| Multiple programming setup (Standard Menu, Extended Menu, Quick Set)                   | – Simplifies the programming, but still holding to maximum flexibility   |
| Multiple languages   | – Serving the whole world  |



Three Adaptive Acceleration Control (AAC) start profiles; early, constant and late acceleration



Constant current/ current ramp – here shown with kickstart

## Fully-equipped soft starter for motors up to 850 kW

- Total motor starting solution
- Advanced start, stop and protection features
- Adaptive Acceleration Control
- Inside Delta connection
- 4-line graphical display
- Multiple programming setup menus

## Options

- Modules for serial communication:
  - DeviceNet
  - EtherNet/IP
  - PROFIBUS
  - Modbus RTU
  - USB
- VLT® Control Panel LCP 501
- PC software:
  - WinMaster
  - WinStart
  - VLT® Motion Control Tool MCT 10



## VLT® Control Panel LCP 501

- A full-function HMI interface – everything you can do on the VLT® Soft Starter MCD 500 is possible via the LCP 501
- Danfoss “FC” menu structure and button interface concept
- Multiple language selection – incl. Russian and Chinese
- Full graphics
- Real language in 4 lines
- Full parameter list, Quick Menu and application setup
- Adjustable multiple monitoring views
- A “copy-paste” function allows the user to copy parameter settings in the LCP and load to other units.
- IP65, NEMA 12
- 3 m cable and mounting kit included

## Specifications

| Mains voltage (L1, L2, L3)  |   |
|---|---|
| MCD5-xxxx-T5  | 200 VAC ~ 525 VAC (± 10%)                                   |
| MCD5-xxxx-T7  | 380 VAC ~ 690 VAC (± 10%) (in-line connection)              |
| MCD5-xxxx-T7  | 380 VAC ~ 600 VAC (± 10%) (inside delta connection)         |
| Control voltage (terminals A4, A5, A6)                              |   |
| CV1 (A5, A6)  | 24 VAC/VDC (± 20%)  |
| CV2 (A5, A6)  | 110~120 VAC (+ 10% / - 15%)                                 |
| CV2 (A4, A6)  | 220~240 VAC (+ 10% / - 15%)                                 |
| Mains frequency   | 50/60 Hz (± 10%)  |
| Rated insulation voltage to earth                                   | 600 VAC   |
| Rated impulse withstand voltage                                     | 4 kV  |
| Form designation  | Bypassed or continuous, semiconductor motor starter form 1  |
| Short circuit capability  |   |
| Coordination with semiconductor fuses                               | Type 2  |
| Coordination with HRC fuses   | Type 1  |
| MCD500-0021B to 0215B   | Prospective current of 65 kA                                |
| MCD500-0245C  | Prospective current of 85 kA                                |
| MCD500-1200C to 1600C   | Prospective current of 100 kA                               |
| Electromagnetic capability (compliant with EU Directive 89/336/EEC) |   |
| EMC Emissions (Terminals 13 & 14)                                   | IEC 60947-4-2 Class B and Lloyds Marine No. 1 Specification |
| EMC Immunity  | IEC 60947-4-2   |
| Outputs   |   |
| Relay outputs   | 10A @ 250 VAC resistive, 5A @ 250 VAC AC15 pf 0.3           |
| Programmable outputs  |   |
| Relay A (13, 14)  | Normally open   |
| Relay B (21, 22, 24)  | Changeover  |
| Relay C (33, 34)  | Normally open   |
| Analog Output (07, 08)  | 0-20 mA or 4-20 mA (selectable)                             |
| Maximum load  | 600 Ω (12 VDC @ 20 mA) (accuracy ± 5%)                      |
| 24 VDC Output (16, 08) Maximum load                                 | 200 mA (accuracy ± 10%)                                     |
| Environmental   |   |
| Protection MCD5-0021B ~ MCD5-0105B                                  | IP 20 & NEMA, UL Indoor Type 1                              |
| Protection MCD5-0131B ~ MCD5-1600C                                  | IP 00, UL Indoor Open Type                                  |
| Operating temperature   | -10° C to 60° C, above 40° C with derating                  |
| Storage temperature   | - 25° C to + 60° C  |
| Operating altitude  | 0 – 1000 m, above 1000 m with derating                      |
| Humidity  | 5% to 95% relative humidity                                 |
| Pollution degree  | Pollution Degree 3  |
| Heat Dissipation  |   |
| During start  | 4.5 watts per ampere  |

## Dimensions

| Current rating [A]              | Weight [kg] | Height [mm] | Width [mm] | Depth [mm] | Enclosure size |
|---------------------------------|-------------|-------------|------------|------------|----------------|
| 21, 37, 43 and 53               | 4.2         | 295         | 150        | 183        | G1             |
| 68                              | 4.5         |             |            | 213        |                |
| 84, 89 and 105                  | 4.9         | 438         | 275        | 250        | G2             |
| 131, 141, 195 and 215           | 14.9        |             |            |            |                |
| 245                             | 24          | 440         | 424        | 296        | G3             |
| 331 and 396                     | 30.2        |             |            |            |                |
| 469, 525, 632, 744, 826 and 961 | 60          | 640         | 433        | 295        | G4             |
| 1200, 1410 and 1600             | 120         |             |            |            |                |