# DATASHEET
## Variable Speed Drives

## Main Features

| | |
|---|---|
| Product coding | : CFW500B16P0T4DB66G2 |
| Product code | : 14977552 |
| Product reference | : CFW500 G2 |
| Accessory module (control) | : CFW500-IOS |

### Basic data

| | |
|---|---|
| Power supply | : 380-480 V |
| Input minimum-maximum voltage | : 323-528 V |
| - In | : 3 |
| - Out | : 3 |

| Supply voltage range | 380-480 V | |
|---|---|---|
| Overload cicle | Normal Overload (ND) | Heavy Overload (HD) |
| Rated current | | 16 |
| Overload current for 60 sec | Not applicable | 24 |
| Overload current for 3 sec | Not applicable | 30 |

Maximum applicable motor:

| Voltage/Frequency | Power (HP/kW) [1] | |
|---|---|---|
| | Normal Overload (ND) | Heavy Overload (HD) |
| 380V / 50Hz | Not applicable | 10 / 7,5 |
| 380V / 60Hz | Not applicable | 10 / 7,5 |
| 400V / 50Hz | Not applicable | 10 / 7,5 |
| 400V / 60Hz | Not applicable | 10 / 7,5 |
| 440V / 50Hz | Not applicable | 12,5 / 9,2 |
| 440V / 60Hz | Not applicable | 12,5 / 9,2 |
| 460V / 60Hz | Not applicable | 12,5 / 9,2 |
| 480V / 60Hz | Not applicable | 12,5 / 9,2 |

| | |
|---|---|
| Accessory module (control) | : CFW500-IOS |
| Dynamic braking [2] | : Standard with braking |
| External electronic suply 24Vcc | : Not available |
| Safety Stop | : Prepared to use the safety module (G2) |
| Internal RFI filter | : Without filter |
| External RFI filter | : Not available |
| Link Inductor | : No |
| Memory card | : Not included in the product |
| USB port | : Only with plug-in |
| Line frequency | : 50/60Hz |
| Line frequency range (minimum - maximum) | : 48-62 Hz |
| Phase unbalance | : Less or equal to 3% of input rated line voltage |
| Transient voltage and overvoltage | : Category III |
| Single-phase input current [3] | : Not applicable |
| Three-phase input current [3] | : 19,5 A |
| Power factor | : 0,75 |
| Displacement factor | : 0,98 |
| Rated efficiency | : ≥ 97% |
| Maximum connections (power up cycles - on/off) per hour | : 10 (1 each 6 minutes) |
| DC power supply | : Allow |
| Standard switching frequency | : 5 kHz |
| Selectable switching frequency | : 2,5 and 15 kHz |
| Real-time clock | : Not available |
| COPY Function | : Yes, by MMF |

Dissipated power:

| Mounting type | Overload | |
|---|---|---|
| | ND | HD |
| Surface | 270 W | 270 W |
| Flange | Not applicable | Not applicable |

### Source available to the user

| | |
|---|---|
| Output voltage | : 24 Vcc |
| Maximum capacity | : 150 mA |

### Control/performance data

| | |
|---|---|
| Power supply | : Switched-mode power supply |
| Control method | : V/f, VVW, Sensorless and Encoder |
| Encoder interface | : Only with plug-in |
| Control output frequency | : 0-500 Hz |
| Frequency resolution | : 0,015 Hz |

**Control/performance data**

V/F Control
- Speed resolution : 1% of rated speed
- Speed range : 1:20

VVW Control
- Speed resolution : 1% of rated speed
- Speed range : 1:30

Sensorless vector control
- Speed resolution : 0,5% of rated speed
- Speed range : 1:100

Vector control with Encoder
- Speed resolution : 0,1% of nominal speed
- Speed range : Up to 0 rpm

**Analog Inputs**

| | |
|---|---|
| Quantity (standard) | : 1 |
| Levels | : 0-10V, 0-20mA and 4-20mA |
| Impedance for voltage input | : 100 kΩ |
| Impedance for current input | : 500 Ω |
| Function | : Programmable |
| Maximum allowed voltage | : 30 Vcc |

**Digital inputs**

| | |
|---|---|
| Quantity (standard) | : 4 |
| Activation | : Active low and high |
| Maximum low level | : 5 V (low) e 15 V (high) |
| Minimum high level | : 9 V (low) e 20 V (high) |
| Input current | : 4,5 mA |
| Maximum input current | : 5,5 mA |
| Function | : Programmable |
| Maximum allowed voltage | : 30 Vcc |

**Analog outputs**

| | |
|---|---|
| Analogic outputs - Quantity (standard) | : 1 |
| Levels | : 0 to 10V, 0 to 20mA and 4 to 20mA |
| RL for voltage output | : 10 kΩ |
| RL for current output | : 500 Ω |
| Function | : Programmable |

**Digital outputs**

| | |
|---|---|
| Digital outputs - Quantity (standard) | : 1 NO/NC relay and 1 transistor |
| Maximum voltage | : 240 Vca and 24 Vcc |
| Maximum current | : 0,5 A and 150 mA |
| Function | : Programmable |

**Communication**

- Modbus-RTU (with accessory: Any plug-in module)
- Modbus/TCP (with accessory CFW500-CEMB-TCP)
- Profibus DP (with accessory: CFW500-CPDP)
- Profibus DPV1 (with accessory: CFW500-CPDP)
- Profinet (with accessory CFW500-CEPN-IO)
- CANopen (with accessory: CFW500-CCAN)
- DeviceNet (with accessory: CFW500-CCAN)
- EtherNet/IP (with accessory CFW500-CETH-IP)
- EtherCAT (Not available)
- BACnet (Not aplicable)

**Available protection**

- Output phase-phase overcurrente/Short
- Overcurrent/Short circuit phase-ground
- Under/Overvoltage in power
- Heat sink overtemperature
- Motor overload
- IGBT's modules overload
- Fault/External alarm
- Programming error

**Operation interface (HMI)**

| | |
|---|---|
| Avaliability | : Included in the product |
| Installation | : Fixed HMI |
| Number of HMI buttons | : 9 |
| Display | : Numeric LCD |
| Indication accuracy | : 5% of rated current |
| Speed resolution | : 0,1 Hz |
| Standard HMI degree of protection | : IP66 |

**Operation interface (HMI)**

| | |
|---|---|
| HMI battery type | : Not applicable |
| HMI battery life expectancy | : Not applicable |
| Remote HMI type | : Accessory |
| Remote HMI frame | : Not applicable |
| Remote HMI degree of protection | : IP54 |

**Ambient conditions**

| | |
|---|---|
| Enclosure | : IP66 |
| Degree of pollution | : 2 |

Temperature around the inverter: of -10 °C / 14 °F to 40 °C / 104 °F. For temperatures above the specified is necessary to apply current reduction of 2 % per °C of 40 (104) to 50 °C (122 °F).

Relative humidity: 5% to 95% without condensation.

Altitude: up to 1000 m (3281 ft) under normal conditions. Of 1000 m (3281 ft) to 4000 m (13123 ft) reduce the current in 1% for each 100 m above of 1000 m (3281 ft). Reduce the maximum voltage (240 V for models 200...240 V, 480 V for models 380...480 V and 600 V for models 500...600 V) in 1,1% for each 100 m above of 2000 m.

**Sustainability policies**

| | |
|---|---|
| RoHS | : Yes |
| Conformal Coating | : 3C2 |

**Dimensions and weigth**

| | |
|---|---|
| - Size | : B (IP66) |
| - Height | : 340 mm / 13.4 in |
| - Width | : 215 mm / 8.46 in |
| - Depth | : 252.9 mm / 9.96 in |
| - Weight | : 7.0 kg / 15.4 lb |

**Mechanical Installation**

| | |
|---|---|
| Mounting position | : Surface or DIN rail |
| Fixing screw | : M5 |
| Tightening torque | : 5 N.m / 3.69 lb.ft |
| Allows side-by-side assembly | : No |
| Minimum spacing around the inverter: | |
| - Top | : 50 mm / 1.97 in |
| - Bottom | : 60 mm / 2.36 in |
| - Front | : 50 mm / 1.97 in |
| - Side | : 40 mm / 1.57 in |

**Electrical connections**

Cable gauges and tightening torques:

| | Recommended cable gauge | Recommended tightening torque |
|---|---|---|
| Power | 4,0 mm² (12 AWG) | 1,8 N.m / 1,33 lb.ft |
| Braking | 6,0 mm² (10 AWG) | 1,8 N.m / 1,33 lb.ft |
| Grounding | 4,0 mm² (12 AWG) | 0,5 N.m / 0.37 lb.ft |
| Control | 0,5 to 1,5 mm² (20 to 14 AWG) | 0,5 N.m / 0.37 lb.ft |

| | |
|---|---|
| SoftPLC | : Yes, incorporated |
| Maximum breaking current | : 24,0 A |
| Minimum resistance for the brake resistor | : 33 Ω |
| Recommended aR fuse | : FNH00-35K-A |
| Recommended circuit breaker | : MPW40-3-U025 |
| Disconnect switch | : Without disconnect switch |
| Motor coupling box | : Not applicable |

**Standards**

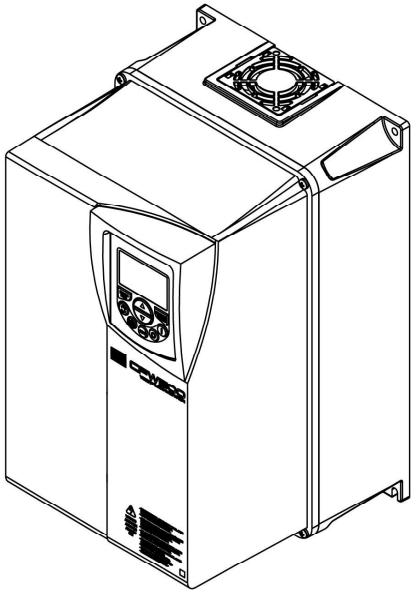
| | |
|---|---|
| Safety | - UL 508C - Power conversion equipment.<br>- UL 840 - Insulation coordination including clearances and creepage distances for electrical equipment.<br>- EN 61800-5-1 - Safety requirements electrical, thermal and energy.<br>- EN 50178 - Electronic equipment for use in power installations.<br>- EN 60204-1-Safety of machinery. Electrical equipment of machines. Part 1: General requirements. Note: To have a machine in accordance with that standard, the manufacturer of the machine is responsible for the installation of an emergency-stop device and a network switching equipment.<br>- EN 60146 (IEC 146) - Semiconductor converters.<br>- EN 61800-2 - Adjustable speed electrical power drive systems - Part 2: General requirements - Rating specifications for low voltage adjustable frequency AC power drive systems. |
| Electromagnetic Compatibility | - EN 61800-3 - Adjustable speed electrical power drive systems - Part 3: EMC product standard including specific test methods.<br>- EN 55011 - Limits and methods of measurement of radio disturbance characteristics of industrial, scientific and medical (ISM) radio-frequency equipment. |

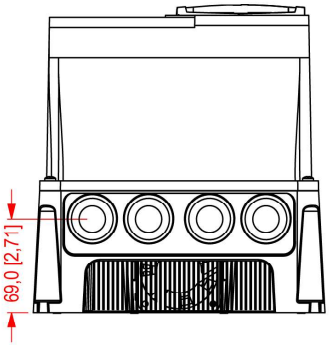
**Standards**

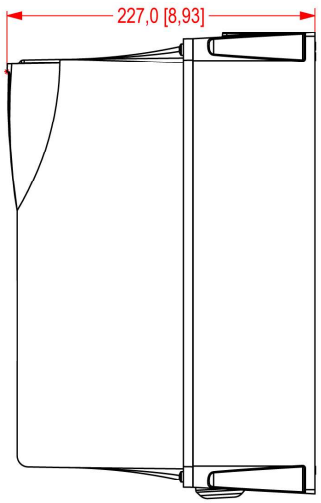
| | |
|---|---|
| | - CISPR 11 - Industrial, scientific and medical (ISM) radio-frequency equipment<br>- Electromagnetic disturbance characteristics - Limits and methods of measurement.<br>- EN 61000-4-2 - Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques - Section 2: Electrostatic discharge immunity test.<br>- EN 61000-4-3 - Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques - Section 3: Radiated, radio-frequency, electromagnetic field immunity test.<br>- EN 61000-4-4 - Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques - Section 4: Electrical fast transient/burst immunity test.<br>- EN 61000-4-5 - Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques - Section 5: Surge immunity test.<br>- EN 61000-4-6 - Electromagnetic compatibility (EMC)- Part 4: Testing and measurement techniques - Section 6: Immunity to conducted disturbances, induced by radio-frequency fields. |
| Mechanical Construction | - EN 60529 e UL 50 |

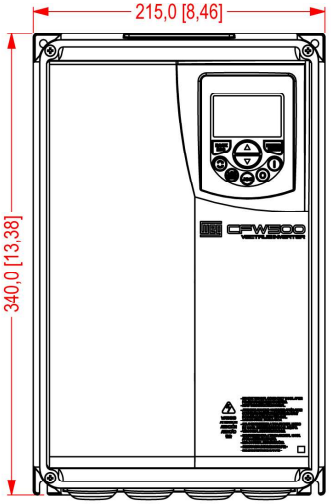
**Certifications**
UL, CE, RCM, CS/IRAM and EAC

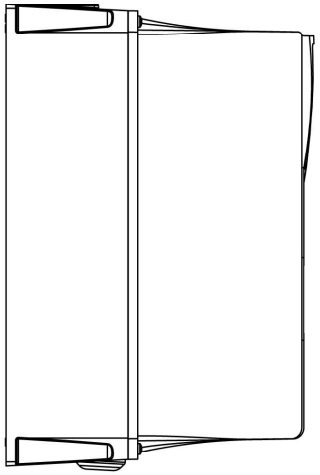
**Notes**
1) Motor power is orientative, valid for standard WEG Motors of IV poles. The correct sizing must be done according to the nominal current of the motor used, which must be less than or equal to the rated output current of the inverter;
2) Braking resistor is not included;
3) Considering minimum line impedance of 1%;
4) For more information, refer to the user manual of CFW500;
5) All images are merely illustrative.
6) For operation with switching frequency above nominal, apply derating to the output current (refer to the user manual).

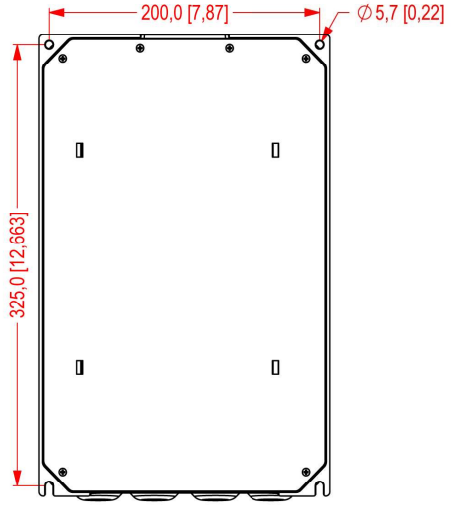


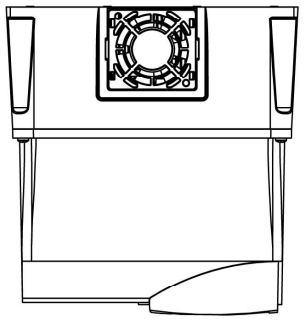




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| | | | | JEANCG | | | 27.08.2020 | 00 |
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