B&P Elektromotoren

CFW500 - VARIABLE SPEED DRIVE

High performance and reliability to improve your production process


CFW500
VECTOR INVERTER
P0002
60.0

CFW500
Variable Speed Drive

Summary

CFW500

Machinery Drive

Endless possibilities

With modern design, the variable speed drive CFW500 is a ***high performance*** VSD for applications that require speed and torque control of three-phase induction motors. The equipment has ***sensorless vector control, closed loop vector control or scalar V/F***. It also has SoftPLC, which adds PLC (programmable logic controller) functions, safety functions (STO and SS1) - making easier to comply the machine and application safety requirements, Pump Genius, which adds dedicated functions for pumping systems and selectable plug-in modules, that ***provide a flexible and optimized solution*** for any application.

- **High performance**
  - Safety functions via accessory STO / SS1
  - Wide power range and high overload capacity
  - High performance control methods
- **Flexible**
  - Connectivity
  - Advanced resources and functions
  - Assembly options
- **Robust**
  - Version with IP66 / NEMA type 4x
- **Innovative**
  - SoftPLC - built-in PLC functionalities
  - Free programming softwares
- **Reliable**
  - WEG Quality
  - Protection against ground fault, short circuit, over temperature and others
  - Internal RFI filter to reduce high-frequency electromagnetic interference

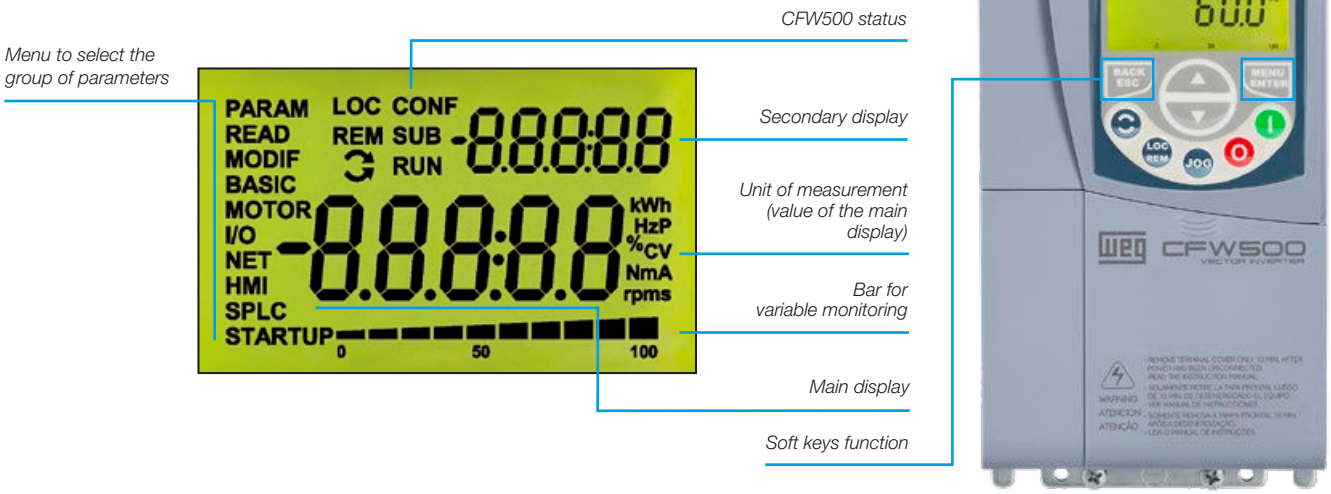
Integrated STO (Safe Torque Off) and SS1 (Safe Stop 1) fulfils requirements for safety performance SIL 3 / PL e, according to IEC 61800-5-2, EN ISO 13849-1, EN 62061, IEC 61508 and IEC 60204-1	Provides machine builders a cost-effective solution to design protective measures to reduce the risk from unexpected and hazardous movement in industrial machines
Models from 1.0 to 211 A (0.25 kW / 0.33 HP to 132 kW / 175 HP) at supply voltages 200-240, 380-480 or 500-600 V	Allows the CFW500 to be used in a large variety of applications, improving their overall performance
Sensorless or closed loop vector control, VVW or Scalar V/F and permanent magnet motor control: VVW PM	
USB and fieldbus communication modules for the most used industrial networks, like CANopen, DeviceNet, Profibus-DP, EtherNet/IP, PROFINET IO or Modbus-RTU	Full integration with process network
Pump Genius software	Dedicated functions ideal for pumping systems
Surface or DIN rail mounting, including side-by-side installation	Saves space and cabling, reducing installation costs
Complete protection against contact with internal live parts, avoiding the entrance of dust or water coming from jets	The high protection degree dispenses the panel, reducing installation costs
The VSD, motor and application can work in an interactive way, because it is possible to make customized logic and applications	Ideal for machinery manufacturer
WPS softwares available at www.weg.net	
100% of the VSDs are tested at the factory under full load and maximum temperature	High reliability
Conformal Coating (Tropicalization) as standard, class 3C2 according to IEC 60721-3-3 and 3C3 as an option, to protect against corrosive gases in harsh environments	VSD lifetime is extended
It prevents damage to the inverter which can be caused by adverse situations, normally external factors	

Certifications

Simplified Programming and Operation

Operating Interface (HMI)

- Monitoring, setting of all parameters as well as commands
- Up to three parameters indication on the display, according to user selection
- Oriented start-up and grouped parameters



Note: the operating interface (HMI) of the CFW500 is not removable. For remote operation of the HMI, use the CFW500-HMIR accessory, according to the accessory table on page 21.

Remote Operating Interface (HMI)[1)]

Solutions for machine consoles and panels.

Accessory
IHM-01

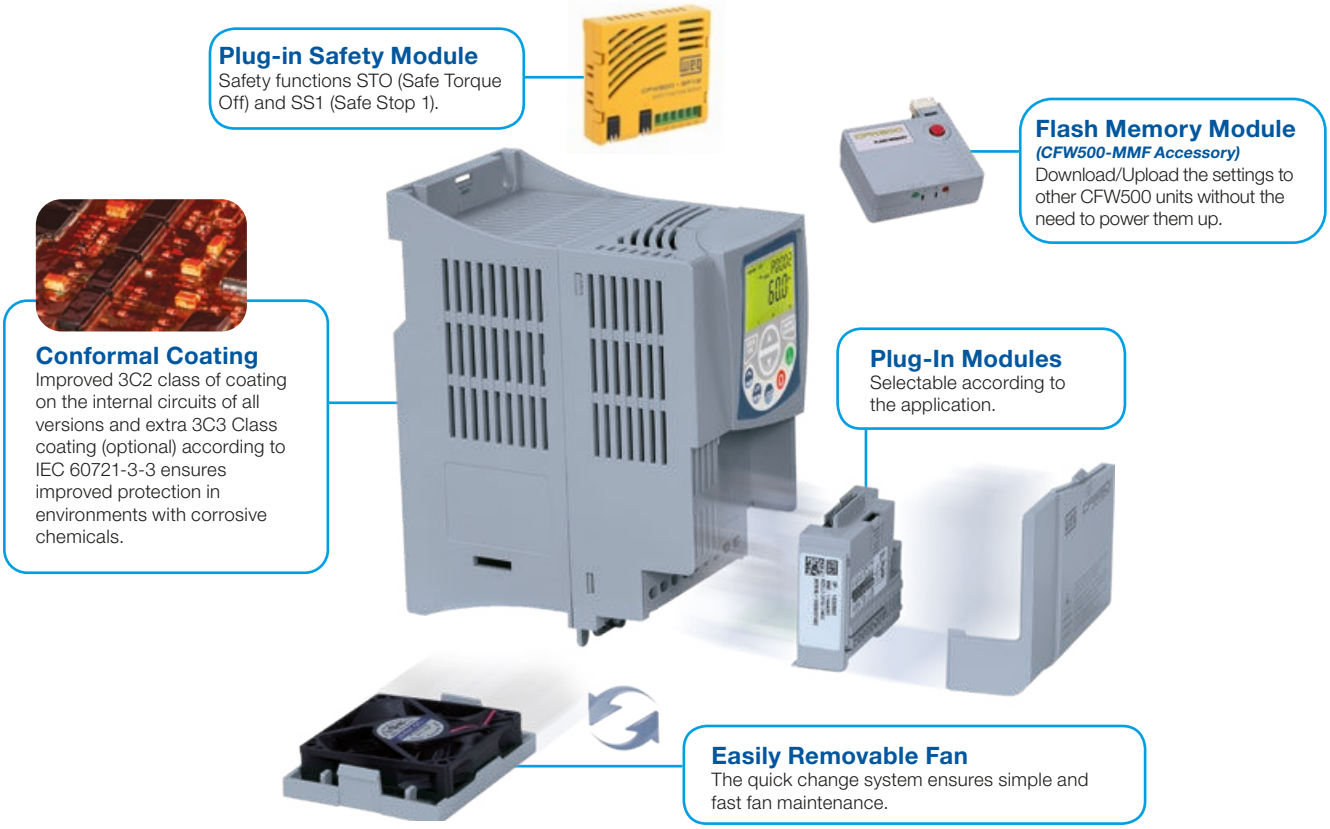
Interface Tools

- Graphic display with backlight
- Soft Keys for easy operation
- Real time clock (RTC)
- Language selection
- Remote keypad

Note: 1) Accessories HMI-01 and CFW500-RHMIF must only be used with the main software version equal to or above version 3.5x.

Flexibility and Performance

The CFW500 has a modern design and it can be selected according to the application requirements, providing flexibility with excellent performance. The VSD gives the user the possibility to choose the plug-in module that best fits his application, or to use the standard version, that comes with the CFW500-IOS plug-in module. All plug-in modules comes with one RS485 port as standard.
The installation of the CFW500 is simple and its configuration and operation is intuitive with the navigation menus of the operating interface (HMI) with built-in LCD display. By using the flash memory module, it is possible to download the existing setting from one CFW500 to other units without powering them up.



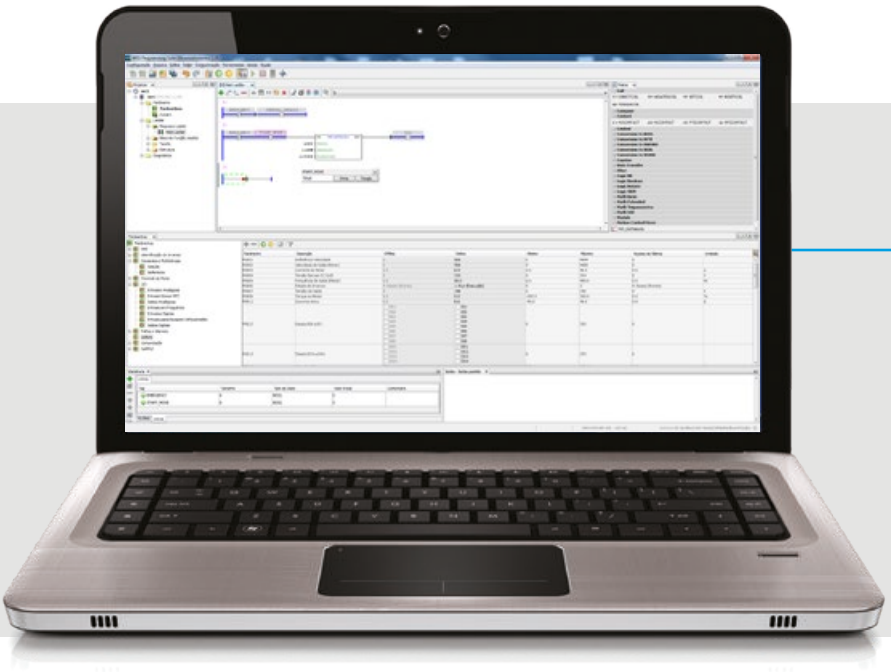
Plug-in Safety Module
Safety functions STO (Safe Torque Off) and SS1 (Safe Stop 1).

Flash Memory Module
(CFW500-MMF Accessory)
Download/Upload the settings to other CFW500 units without the need to power them up.

Conformal Coating
Improved 3C2 class of coating on the internal circuits of all versions and extra 3C3 Class coating (optional) according to IEC 60721-3-3 ensures improved protection in environments with corrosive chemicals.

Plug-In Modules
Selectable according to the application.

Easily Removable Fan
The quick change system ensures simple and fast fan maintenance.



SoftPLC
It is a software resource added to the CFW500 which allows the user to implement and debug logic projects equivalent to a small PLC (Programmable Logic Controller), customizing and integrating the CFW500 to the application. The free WPS programming software is available at: *www.weg.net*.

Connectivity

Remote operating interface (IHM-01 accessory)

The CFW500 can be connected to the main fast industrial Fieldbus communication networks, with protocols used worldwide such as CANopen, Profibus-DP, DeviceNet, PROFINET IO, EtherNet/IP and Modbus-TCP, according to the plug-in module selected.

In addition, all plug-in modules come with serial interface RS485 Modbus-RTU built-in.

Selectable plug-in modules

I/O expansion:
IOS (standard, included in the version with plug-in), IOD, IOAD, IOR

Functionality expansion:
Incremental encoder
USB

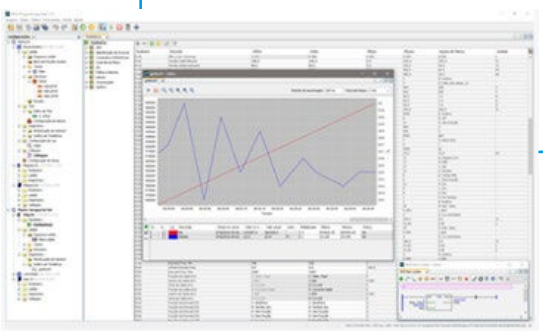
Fieldbus communication protocols:
CANopen
DeviceNet
RS232
RS485
Profibus-DP
EtherNet/IP
Modbus-TCP
PROFINET IO
BACnet
SymbiNet

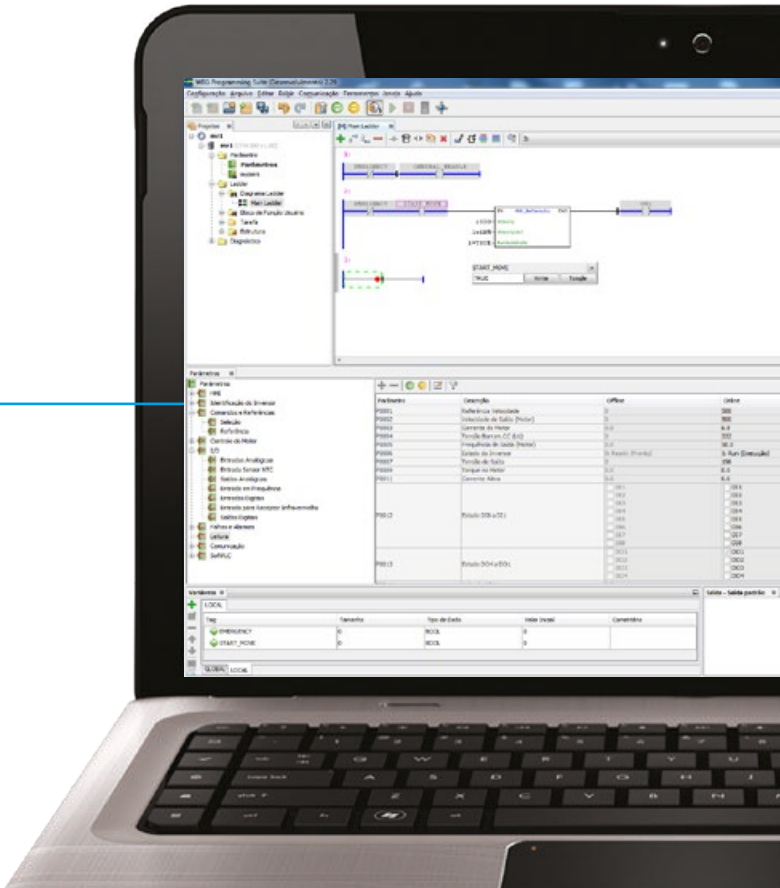
Easy operation and view

Free at www.weg.net

USB Connection (CFW500-CUSB accessory)

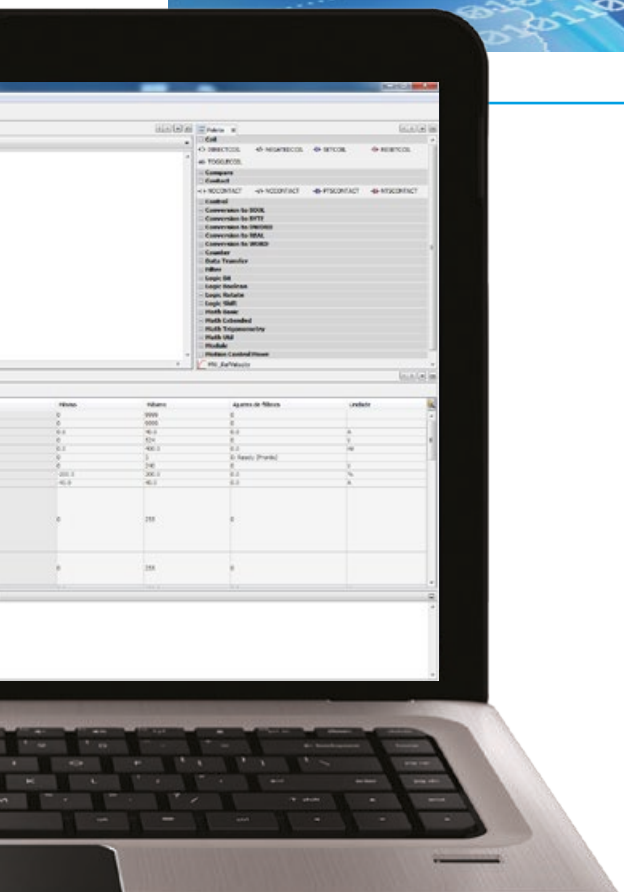
Software WPS





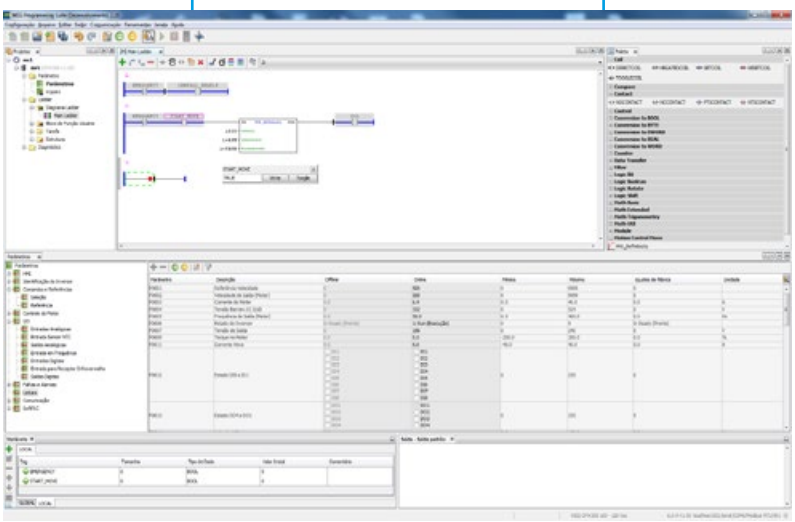
Features

- Special engineering units (RPM, ºC, Nm, mA, %, kW, kWh, among others)
- Password to protect the parameters
- Backup of all parameters (via SuperDrive G2 software, or plugin memory MMF)
- Possibility to save up to two different settings on the memory of the CFW500
- Setting of the switching frequency according to the application requirements
- Speed reference via electronic potentiometer
- Multispeed with up to eight programmable speeds
- Slip compensation
- Manual or automatic torque boost (V/F scalar mode) or self-adjustment (VVW and vector modes)
- Fire Mode
- Permanent magnet motor control: VVW PM
- Acceleration/deceleration ramps
- “S” type ramp
- DC braking
- Internal dynamic braking (except frame size A)
- PID controller to control processes in closed loop
- Flying start / Ride-through
- Sleep mode
- Skip frequencies or frequency ranges function adjustable
- Overload and overtemperature protection
- Overcurrent protection
- DC link voltage supervision
- Fault log
- Safety functions: STO and SS1



Easy and intuitive environment

Free at www.weg.net



Embedded Safety Functions[1)]

Used to reduce risk and to guarantee the safety of personnel and environment if there is a hazardous event due to a fault in operating machines. The embedded safety functions ***STO and SS1*** provide machine builders a cost-effective solution to design protective measures and reduce the risk from unexpected and hazardous movement in industrial machines and processes.

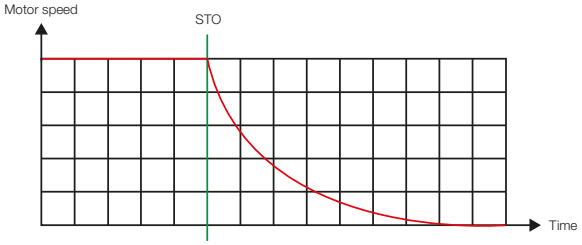
Advantages

- Safety functions integrated in the CFW500 drive, making easier to comply with the machine and application safety requirements
- Less components, no need for additional wiring, saving space and installation costs
- Easier installation, commissioning and maintenance
- No electromechanical components, meaning faster responses and higher degree of productivity
- Due to the high safety performance level SIL3, the CFW500 with Safety module may avoid the use of external safety relays for cables and emergency pushbuttons monitoring

Safety Functions

STO (Safe Torque Off)

This function immediately switches off the drive output to the motor, disabling the supply of torque-generating energy. STO is also used to prevent an unexpected startup of machinery or for an emergency stop, fulfilling stop category 0 (IEC 60204-1). It is applicable if the motor can be brought to a standstill in a sufficiently short time by the load torque or friction or where motor coast to a stop is not relevant to safety.



STO behavior

SS1 (Safe Stop 1)

This function enables motor deceleration and then, after a delay time, activates the STO function. SS1 can be used to implement a controlled stop and then removal of power, fulfilling stop category 1 according to IEC 60204-1. This function is used when, in the event of a safety related fault, the drive must stop as quickly as possible and then enter the STO state.
The stopping of a drive by means of SS1 function reduces the risk of danger, eliminates the need of external safety timers, increases the productivity of a machine and allows safety clearances in a machine to be reduced. The reason is the active stopping of the drive as compared with the use of the STO function only.

SS1 behavior

Note: 1) Safety Functions STO and SS1 are available in CFW500 G2 with the CFW500-SFY2 plug-in module. It fulfils requirements for safety performance SIL 3 / PL e, according to IEC 61800-5-2, EN ISO 13849-1, EN 62061, IEC 61508 and IEC 60204-1.

Pump Genius

The Pump Genius is a customizable feature of WEG drives that enables your standard CFW500 to become dedicated for pumping systems. It ensures accurate pressure / flow control throughout the processing cycle, starting with raw water and its usage, ending on wastewater treatment. With an easy-to-use programming wizard, Pump Genius helps you to minimize downtime and maximize energy savings. Everything you need is selecting one option that best fits your application:

simplex

The Pump Genius Simplex software adds ideal features to the VSD for single pump control.

multipump

Pump Genius Multipump allows driving two or more pumps with only one inverter.

multiplex

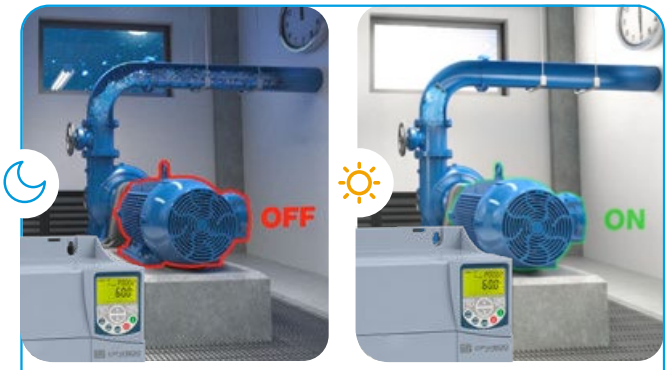
Pump Genius Multiplex allows the VSDs to control, monitor and manage the entire system on their own, eliminating the need of external PLC.

Energy Savings

The use of the CFW500 with the Pump Genius Multipump improves the performance and provides electric energy savings.
Using this solution together with WEG W22 Premium motors, and reducing the pump speed even if slightly, it is possible to reduce the electric energy consumption by approximately 15%, thus contributing to the sustainable development of the planet.

Broken Pipe Alarm

Pump Genius detects when the pump is consuming more electric energy than it should, by means of information on the pump load and speed, automatically generating an alarm warning of leaky pipes. In addition, with the monitoring of the system pressure, a clogging condition may be detected by configuring the maximum pressure to trigger the alarm of clogged pipe.



Sleep and Wake up Function

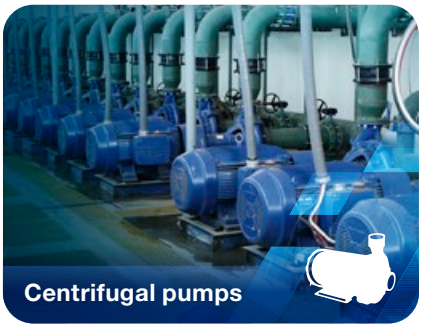
The sleep function keeps the pump in the standby mode when the demand or flow is below the minimum, avoiding that it runs at low speed for long periods, providing electric energy savings and increasing the lifetime of the pump. The wake up function restarts the drive automatically when the pressure falls below the set point.

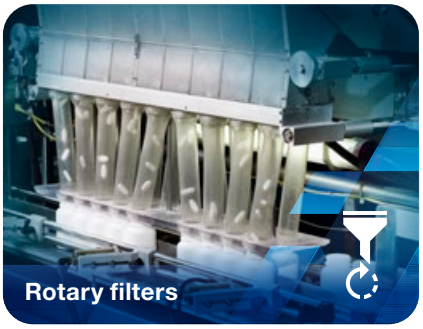
Pipe Charging Function

It allows lubrication and smooth initial charging of the pipes, making the pump operate at a lower preset speed for a certain time, avoiding “Water Hammers”, which may damage the piping system.

Note: find out more about Pump Genius visiting our website www.weg.net.

Applications





Coding[1)]

1	2	3	4	5	6	7	8	9	10	11	12	13
CFW500	A	02P6	T	4	NB	20	C2	---	---	---	---	---

1 - CFW500 variable speed drive
2 - Size of the CFW500, according to table 1 below
3 - Rated output current, according to table 1 below

Power supply	Single-phase (S)	Single-phase or three-phase (B)	Three-phase (T)		
	200-240 V ac	200-240 V ac	200-240 V ac	380-480 V ac	500-600 V ac
Voltage	01P6 = 1.6 A 02P6 = 2.6 A 04P3 = 4.3 A 07P0 = 7.0 A 07P3 = 7.3 A 10P0 = 10.0 A	01P6 = 1.6 A 02P6 = 2.6 A 04P3 = 4.3 A 07P3 = 7.3 A 10P0 = 10.0 A	07P0 = 7.0 A 09P6 = 9.6 A 16P0 = 16 A 24P0 = 24 A 28P0 = 28 A 33P0 = 33 A 47P0 = 47 A 56P0 = 56 A 77P0 = 77 A 88P0 = 88 A 0105 = 105 A 0145 = 145 A 0180 = 180 A 0211 = 211 A	01P0 = 1.0 A 01P6 = 1.6 A 02P6 = 2.6 A 04P3 = 4.3 A 06P1 = 6.1 A 02P6 = 2.6 A 04P3 = 4.3 A 06P5 = 6.5 A 10P0 = 10.0 A 14P0 = 14.0 A 16P0 = 16.0 A 24P0 = 24.0 A 31P0 = 31.0 A 39P0 = 39.0 A 49P0 = 49.0 A 77P0 = 77.0 A 88P0 = 88.0 A 0105 = 105 A 0142 = 142 A 0180 = 180 A 0211 = 211 A	01P7 = 1.7 A 03P0 = 3.0 A 04P3 = 4.3 A 07P0 = 7.0 A 10P0 = 10.0 A 12P0 = 12.0 A

4 - Number of phases

S	Single-phase power supply
B	Single or three-phase power supply
T	Three-phase power supply

5 - Rated voltage

2	200-240 V
4	380-480 V
5	500-600 V

6 - Internal dynamic braking[2)]

NB	Without internal dynamic braking IGBT
DB	With internal dynamic braking IGBT

7- Protection degree

20	IP20 protection degree
N1	Cabinet type 1 protection degree
66	IP66 protection degree (Type 4x)

8 - RFI filter[3)]

Blank	Without internal RFI filter
C2	With internal RFI filter - category 2
C3	With internal RFI filter - category 3

9 - Disconnect switch[4)]

Blank	Without disconnect switch
DS	With disconnect switch

10 - Safety function[5)]

Blank	Without safety function
Y2	With safety function (STO and SS1-t) as per EN 61800

11 - Special hardware versions - H xx

11.1 - Plug-in module

Blank	With standard plug-in module
H00	Without plug-in module

11.2 - Coating for harsh environments

Blank	Class 3C2 - Standard conformal coating
EC	Class 3C3 - Extra coating

12 - Special software version - S xx

Blank	Standard software
Sxx	Special software

13 - Generation

Blank	First generation
G2	Second generation

Notes: 1) Other configurations available upon request.
2) Braking resistor not included. Braking IGBT is available as standard for the whole CFW500 line, except for frame size A of IP20 version.
3) Conducted emission level (IEC 61800-3).
In order to minimize such problem, WEG variable speed drives contain common-mode capacitive filters, which are enough to avoid this type of interference in most cases. If necessary, our inverters also have radio frequency (RFI) filters to reduce even more those high-frequency electromagnetic interference signals. Item 8 of the table above shows how to select the models of internal RFI filters for the CFW500.
Definitions of IEC/EN 61800-3 standard. Categories:
Category C1: variable speed drives with voltage rating below 1,000 V and intended for application in the "First Environment".
Category C2: inverters with voltage rating below 1,000 V not provided with plugs or movable installations, and, when applied in the "First Environment", they must be installed and commissioned by a professional.
Category C3: inverters with voltage ratings below 1,000 V developed for application in the "Second Environment" and not designed for application in the "First Environment".
Environments: First Environment: environments that include domestic installations, such as establishments directly connected without intermediate transformers to the low voltage power line, which supplies buildings used for domestic purposes.
Second environment: environments that include all the buildings other than those directly connected to the low voltage power line, which supplies buildings used for domestic purposes.
4) Only for IP66 version.

Coding

CFW500 IP20 or NEMA1 - 200-240 V

Coding (available options for each model)									
1, 2, 3, 4 and 5	6	7	8	9	10	11.1	11.2	12	13
CFW500A01P6S2	NB	20 or N1	Blank or C2	Blank	Blank	Blank or H00	Blank or EC	Blank or Sxx	G2
CFW500A02P6S2									
CFW500A04P3S2									
CFW500A07P0S2			Blank or C3						
CFW500B07P3S2	DB		C2						
CFW500B10P0S2									
CFW500A01P6B2	NB		Blank						
CFW500A02P6B2									
CFW500A04P3B2									
CFW500B07P3B2	DB								
CFW500B10P0B2									
CFW500A07P0T2	NB								
CFW500A09P6T2									
CFW500B16P0T2	DB								
CFW500C24P0T2									
CFW500D28P0T2			Blank or C3						
CFW500D33P0T2									
CFW500D47P0T2									
CFW500E56P0T2									
CFW500F77P0T2									
CFW500F88P0T2									
CFW500F0105T2									
CFW500G0145T2	NB or DB								
CFW500G0180T2									
CFW500G0211T2									

CFW500 IP20 or NEMA1 - 380-480 V

Coding (available options for each model)									
1, 2, 3, 4 and 5	6	7	8	9	10	11.1	11.2	12	13
CFW500A01P0T4	NB	20 or N1	Blank or C2	Blank	Blank	Blank or H00	Blank or EC	Blank or Sxx	G2
CFW500A01P6T4									
CFW500A02P6T4									
CFW500A04P3T4									
CFW500A06P1T4			Blank or C3						
CFW500B02P6T4	DB		Blank or C2						
CFW500B04P3T4									
CFW500B06P5T4									
CFW500B10P0T4			Blank or C3						
CFW500C14P0T4			Blank or C2						
CFW500C16P0T4									
CFW500D24P0T4			Blank or C3						
CFW500D31P0T4									
CFW500E39P0T4									
CFW500E49P0T4									
CFW500F77P0T4									
CFW500F88P0T4									
CFW500F0105T4									
CFW500G0142T4	NB or DB								
CFW500G0180T4									
CFW500G0211T4									

CFW500 IP20 or NEMA1 - 500-600 V

Coding (available options for each model)									
1, 2, 3, 4 and 5	6	7	8	9	10	11.1	11.2	12	13
CFW500C01P7T5	DB	20 or N1	Blank	Blank	Blank	Blank or H00	Blank or EC	Blank or Sxx	Blank
CFW500C03P0T5									
CFW500C04P3T5									
CFW500C07P0T5									
CFW500C10P0T5									
CFW500C12P0T5									

Coding

CFW500 IP66 (NEMA 4x) - 200-240 V

Coding (available options for each model)									
1, 2, 3, 4 and 5	6	7	8	9	10	11.1	11.2	12	13
CFW500A01P6S2	DB	66	C3	Blank or DS	Blank	Blank or H00	Blank or EC	Blank or Sxx	G2
CFW500A02P6S2									
CFW500A04P3S2									
CFW500A07P3S2									
CFW500A10P0S2									
CFW500A01P6B2			Blank						
CFW500A02P6B2									
CFW500A04P3B2									
CFW500A07P3B2									
CFW500A10P0B2									
CFW500A16P0T2									
CFW500B24P0T2									
CFW500B28P0T2			Blank or C3						
CFW500B33P0T2									

CFW500 IP66 (NEMA 4x) - 380-480 V

Coding (available options for each model)									
1, 2, 3, 4 and 5	6	7	8	9	10	11.1	11.2	12	13
CFW500A01P0T4	DB	66	Blank or C3	Blank or DS	Blank	Blank or H00	Blank or EC	Blank or Sxx	G2
CFW500A01P6T4									
CFW500A02P6T4									
CFW500A04P3T4									
CFW500A06P1T4									
CFW500A02P6T4									
CFW500A04P3T4									
CFW500A06P5T4									
CFW500A10P0T4									
CFW500B14P0T4									
CFW500B16P0T4									
CFW500B24P0T4									
CFW500B31P0T4									

CFW500 IP66 (NEMA 4x) - 500-600 V

Coding (available options for each model)									
1, 2, 3, 4 and 5	6	7	8	9	10	11.1	11.2	12	13
CFW500B01P7T5	DB	66	Blank	Blank or DS	Blank	Blank or H00	Blank or EC	Blank or Sxx	Blank
CFW500B03P0T5									
CFW500B04P3T5									
CFW500B07P0T5									
CFW500B10P0T5									
CFW500B12P0T5									

Specification

CFW500 IP20 or NEMA Type 1 - 200-240 V

CFW500 variable speed drive						Maximum applicable motor[1)]									
Reference	Power supply (V)		Frame size	Rated current (A)		Normal duty (ND)					Heavy duty (HD)				
						IEC				UL	IEC				UL
						60 Hz		50 Hz		60 Hz	60 Hz		50 Hz		60 Hz
						220 V ac		220 V ac		230 V ac	220 V ac		220 V ac		230 V ac
				ND	HD	HP	kW	HP	kW	HP	HP	kW	HP	kW	HP
CFW500A01P6S2	Single-phase	220-240	A	-	1.6	-	-	-	-	-	0.25	0.18	0.33	0.25	0.33
CFW500A02P6S2				-	2.6	-	-	-	-	-	0.5	0.37	0.75	0.55	0.75
CFW500A04P3S2				-	4.3	-	-	-	-	-	1.0	0.75	1.5	1.1	1.5
CFW500A07P0S2				-	7.0	-	-	-	-	-	2.0	1.5	2.0	1.5	2.0
CFW500B07P3S2			B	-	7.3	-	-	-	-	-	2.0	1.5	2.0	1.5	2.0
CFW500B10P0S2				-	10	-	-	-	-	-	3.0	2.2	3.0	2.2	3.0
CFW500A01P6B2	Single-phase or three-phase	220-240	A	-	1.6	-	-	-	-	-	0.25	0.18	0.33	0.25	0.33
CFW500A02P6B2				-	2.6	-	-	-	-	-	0.5	0.37	0.75	0.55	0.75
CFW500A04P3B2				-	4.3	-	-	-	-	-	1.0	0.75	1.5	1.5	1.5
CFW500B07P3B2			B	-	7.3	-	-	-	-	-	2.0	1.5	2.0	1.5	2.0
CFW500B10P0B2				-	10	-	-	-	-	-	3.0	2.2	3.0	2.2	3.0
CFW500A07P0T2	Three-phase	220-240	A	-	7.0	-	-	-	-	-	2.0	1.5	2.0	1.5	2.0
CFW500A09P6T2				-	9.6	-	-	-	-	-	3.0	2.2	3.0	2.2	3.0
CFW500B16P0T2			B	-	16	-	-	-	-	-	5.0	3.7	5.5	4.0	5.5
CFW500C24P0T2			C	-	24	-	-	-	-	-	7.5	5.5	7.5	5.5	7.5
CFW500D28P0T2			D	-	28	-	-	-	-	-	10	7.5	10	7.5	10
CFW500D33P0T2				-	33	-	-	-	-	-	12.5	9.2	12.5	9.2	12.5
CFW500D47P0T2				-	47	-	-	-	-	-	15	11	15	11	15
CFW500E56P0T2			E	-	56	-	-	-	-	-	20	15	20	15	20
CFW500F77P0T2			F	77	64	30	22	30	22	30	25	18.5	25	18.5	25
CFW500F88P0T2				88	75	30	22	30	22	30	30	22	30	22	30
CFW500F0105T2				105	88	40	30	40	30	40	30	22	30	22	30
CFW500G0145T2			G	145	115	50	37	50	37	50	40	30	40	30	40
CFW500G0180T2				180	145	60	45	60	45	60	50	37	50	37	50
CFW500G0211T2				211	180	75	55	75	55	75	60	45	60	45	60

Note: 1) The power values for maximum applicable motor shown in the tables above are reference values and valid for WEG motors. IEC motor powers are based on motor WEG four-pole W22 High Effciency IE2 three-phase induction motors with power supply of 220 V, 230 V, 380, 400 V, 525 or 575 V. NEMA motor power are based on WEG four pole W22 Premium. Motor rated currents may vary with speed and manufacturer, therefore, use the motor power ratings above only as a guidance. The proper sizing of the CFW500 to be used must be determined as a function of the rated current of the motor used.

Specification

CFW500 IP20 or NEMA1 - 380-480 V

CFW500 variable speed drive					Maximum applicable motor[1]									
Reference	Power supply (V)		Frame size	Rated current (A)	Normal duty (ND)					Heavy duty (HD)				
					IEC				UL	IEC				UL
					60 Hz		50 Hz		60 Hz	60 Hz		50 Hz		60 Hz
					380 V ac		400 V ac		460 V ac	380 V ac		400 V ac		460 V ac
				ND	HD	HP	kW	HP	kW	HP	HP	kW	HP	kW	HP
CFW500A01P0T4	Three-phase	380-480	A	-	1.0	-	-	-	-	-	0.25	0.18	0.5	0.37	0.5
CFW500A01P6T4				-	1.6	-	-	-	-	-	0.5	0.37	0.75	0.55	0.75
CFW500A02P6T4				-	2.6	-	-	-	-	-	1.5	1.1	1.5	1.1	1.5
CFW500A04P3T4				-	4.3	-	-	-	-	-	2.0	1.5	2.0	1.5	3.0
CFW500A06P1T4				-	6.1	-	-	-	-	-	3.0	2.2	4.0	3.0	4.0
CFW500B02P6T4			B	-	2.6	-	-	-	-	-	1.5	1.1	1.5	1.1	1.5
CFW500B04P3T4				-	4.3	-	-	-	-	-	2.0	1.5	2.0	1.5	2.0
CFW500B06P5T4				-	6.5	-	-	-	-	-	3.0	2.2	4.0	3.0	5.0
CFW500B10P0T4				-	10	-	-	-	-	-	5.0	3.7	5.5	4.0	7.5
CFW500C14P0T4			C	-	14	-	-	-	-	-	7.5	5.5	7.5	5.5	10
CFW500C16P0T4				-	16	-	-	-	-	-	10	7.5	10	7.5	10
CFW500D24P0T4			D	-	24	-	-	-	-	-	15	11	15	11	15
CFW500D31P0T4				-	31	-	-	-	-	-	20	15	20	15	25
CFW500E39P0T4			E	-	39	-	-	-	-	-	25	18.5	30	22	30
CFW500E49P0T4				-	49	-	-	-	-	-	30	22	30	22	40
CFW500F77P0T4			F	77	61	50	37	60	45	60	40	30	40	30	50
CFW500F88P0T4				88	73	60	45	60	45	75	50	37	50	37	60
CFW500F0105T4				105	88	75	55	75	55	75	60	45	60	45	75
CFW500G0142T4			G	142	115	100	75	100	75	125	75	55	75	55	75
CFW500G0180T4				180	142	150	110	150	110	150	100	75	100	75	125
CFW500G0211T4				211	180	175	132	175	132	175	150	110	150	110	150

Note: 1) The power values for maximum applicable motor shown in the tables above are reference values and valid for WEG motors. IEC motor powers are based on motor WEG four-pole W22 High Effciency IE2 three-phase induction motors with power supply of 220 V, 230 V, 380, 400 V, 525 or 575 V. NEMA motor power are based on WEG four pole W22 Premium. Motor rated currents may vary with speed and manufacturer, therefore, use the motor power ratings above only as a guidance. The proper sizing of the CFW500 to be used must be determined as a function of the rated current of the motor used.

CFW500 IP20 or NEMA1 - 500-600 V

CFW500 variable speed drive					Maximum applicable motor[1]			
					Heavy Duty (HD)			
Reference	Power supply (V)		Frame size	Rated current (A)	IEC			UL
					60 Hz		60 Hz	60 Hz
					575 V ac		575 V ac	575 V ac
				HD	HP		kW	HP
CFW500C01P7T5	Three-phase	600	C	1.7	1.0		0.75	1.5
CFW500C03P0T5				3.0	2.0		1.5	2.0
CFW500C04P3T5				4.3	3.0		2.2	3.0
CFW500C07P0T5				7.0	5.0		3.7	5.0
CFW500C10P0T5				10	7.5		5.5	10
CFW500C12P0T5				12	10		7.5	10

Note: 1) The power values for maximum applicable motor shown in the tables above are reference values and valid for WEG motors. IEC motor powers are based on motor WEG four-pole W22 High Effciency IE2 three-phase induction motors with power supply of 220 V, 230 V, 380, 400 V, 525 or 575 V. NEMA motor power are based on WEG four pole W22 Premium. Motor rated currents may vary with speed and manufacturer, therefore, use the motor power ratings above only as a guidance. The proper sizing of the CFW500 to be used must be determined as a function of the rated current of the motor used.

Specification

CFW500 IP66 (NEMA 4X) - 200-240 V

CFW500 variable speed drive					Maximum applicable motor[1)]				
					Heavy duty (HD)				
Reference	Power supply (V)		Frame size	Rated current (A)	IEC				UL
					60 Hz		50 Hz		60 Hz
					220 V ac		220 V ac		230 V ac
				HD	HP	kW	HP	kW	HP
CFW500A01P6S2DB66	Single-phase	200-240	A	1.6	0.25	0.18	0.33	0.25	0.33
CFW500A02P6S2DB66				2.6	0.5	0.37	0.75	0.55	0.75
CFW500A04P3S2DB66				4.3	1.0	0.75	1.50	1.10	1.5
CFW500A07P3S2DB66				7.3	2.0	1.5	2.0	1.5	2.0
CFW500A10P0S2DB66				10	3.0	2.2	3.0	2.2	3.0
CFW500A01P6B2DB66	Single-phase or three-phase			1.6	0.25	0.18	0.33	0.25	0.33
CFW500A02P6B2DB66				2.6	0.5	0.37	0.75	0.55	0.75
CFW500A04P3B2DB66				4.3	1.0	0.75	1.50	1.50	1.5
CFW500A07P3B2DB66				7.3	2.0	1.5	2.0	1.5	2.0
CFW500A10P0B2DB66				10	3.0	2.2	3.0	2.2	3.0
CFW500A16P0T2DB66	Three-phase			16	5.0	3.7	5.5	4.0	5.5
CFW500B24P0T2DB66			B	24	7.5	5.5	7.5	5.5	7.5
CFW500B28P0T2DB66				28	10	7.5	10.0	7.5	10
CFW500B33P0T2DB66				33	12.5	9.2	12.5	9.2	12.5

Note: 1) The power values for maximum applicable motor shown in the tables above are reference values and valid for WEG motors. IEC motor powers are based on motor WEG four-pole W22 High Effciency IE2 three-phase induction motors with power supply of 220 V, 230 V, 380, 400 V, 525 or 575 V. NEMA motor power are based on WEG four pole W22 Premium. Motor rated currents may vary with speed and manufacturer, therefore, use the motor power ratings above only as a guidance. The proper sizing of the CFW500 to be used must be determined as a function of the rated current of the motor used.

Specification

CFW500 IP66 (NEMA 4X) - 380-480 V

CFW500 variable speed drive					Maximum applicable motor[1]				
					Heavy duty (HD)				
Reference	Power supply (V)		Power supply (V)	Rated current (A)	IEC				UL
					60 Hz		50 Hz		60 Hz
					380 V ac	380 V ac	400 V ac	400 V ac	460 V ac
				HD	HP	kW	HP	kW	HP
CFW500A01P0T4DB66	Three-phase	380-480	A	1.0	0.25	0.18	0.5	0.37	0.5
CFW500A01P6T4DB66				1.6	0.5	0.37	1.0	0.75	0.75
CFW500A02P6T4DB66				2.6	1.5	1.1	1.5	1.1	1.5
CFW500A04P3T4DB66				4.3	2.0	1.5	3.0	2.2	3.0
CFW500A06P1T4DB66				6.1	3.0	2.2	4.0	3.0	4.0
CFW500BA02P6T4DB66				2.6	1.5	1.1	1.5	1.1	1.5
CFW500A04P3T4DB66				4.3	2.0	1.5	3.0	2.2	2.0
CFW500A06P5T4DB66				6.5	3.0	2.2	4.0	3.0	5.0
CFW500A10P0T4DB66				10	6.0	4.5	6.0	4.5	7.5
CFW500B14P0T4DB66			B	14	7.5	5.5	10	7.5	10
CFW500B16P0T4DB66				16	10	7.5	12.5	9.2	10
CFW500B24P0T4DB66				24	15	11	15	11	15
CFW500B31P0T4DB66				31	20	15	20	15	25

Note: 1) The power values for maximum applicable motor shown in the tables above are reference values and valid for WEG motors. IEC motor powers are based on motor WEG four-pole W22 High Effciency IE2 three-phase induction motors with power supply of 220 V, 230 V, 380, 400 V, 525 or 575 V. NEMA motor power are based on WEG four pole W22 Premium. Motor rated currents may vary with speed and manufacturer, therefore, use the motor power ratings above only as a guidance. The proper sizing of the CFW500 to be used must be determined as a function of the rated current of the motor used.

CFW500 IP66 (NEMA 4X) - 500-600 V

CFW500 variable speed drive					Maximum applicable motor[1]		
					Heavy duty (HD)		
Reference	Power supply (V)		Power supply (V)	Rated current (A)	IEC		UL
					60 Hz	60 Hz	60 Hz
					575 V ac	575 V ac	575 V ac
				HD	HP	kW	HP
CFW500B01P7T5DB66	Three-phase	600	B	1.7	1.0	0.75	1.5
CFW500B03P0T5DB66				3.0	2.0	1.5	2.0
CFW500B04P3T5DB66				4.3	3.0	2.2	3.0
CFW500B07P0T5DB66				7.0	5.0	3.7	5.0
CFW500B10P0T5DB66				10	7.5	5.5	10
CFW500B12P0T5DB66				12	10	7.5	10

Note: 1) The power values for maximum applicable motor shown in the tables above are reference values and valid for WEG motors. IEC motor powers are based on motor WEG four-pole W22 High Effciency IE2 three-phase induction motors with power supply of 220 V, 230 V, 380, 400 V, 525 or 575 V. NEMA motor power are based on WEG four pole W22 Premium. Motor rated currents may vary with speed and manufacturer, therefore, use the motor power ratings above only as a guidance. The proper sizing of the CFW500 to be used must be determined as a function of the rated current of the motor used.

Specification

Optional Items

These are hardware resources added to the CFW500 in the manufacturing process, and they should be requested via smart code.

Internal Dynamic Braking (IGBT)

Used for quick stop of the motor with external[1)] braking resistor.
The braking IGBT is available as standard for the whole line, except for frame A of IP20 version.

Note: 1) External braking resistor not included. To specify the correct braking resistor, please refer to the CFW500 User's Manual.

NEMA1 Protection Kit[3)] (N1)

Insert ".N1" in field 7 of the smart code frame sizes A, B, C, D, E, F or G.
According to the National Electrical Manufacturers Association (NEMA) standard, Type 1.

- Protects[2)] against penetration of foreign solid objects (falling dust)
- Prevents access to hazardous parts
- Can also be acquired as an accessory (see accessories)

Notes: 2) Not recommended for external use, only indoor applications or inside enclosures. The models of frames A to E with protection degree NEMA type 1 are not compatible with safety function.
3) Image of frame size A with NEMA1 kit.

3)

Disconnect Switch[4)]

Built-in disconnect switch for in the product for easy and safe maintenance or switching the mains off.

Note: 4) Only available for models with IP66 protection degree.

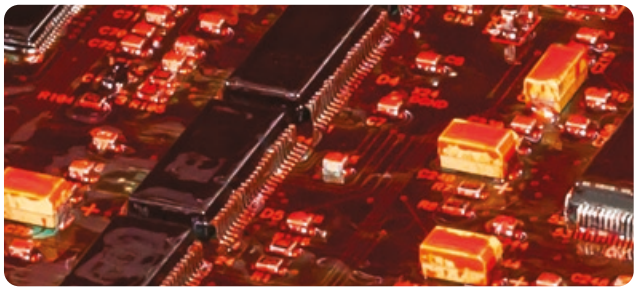
Internal RFI Filter

Inverters with internal RFI filter (code C2 or C3) when installed, maintained and used on the application they were designed for, and in compliance with the relevant installation standards and manufacturer's instructions, reduce conducted disturbance from the inverter to the main power supply in high frequency band (>150 kHz), complying to the relevant EMC standards, such as EN 61800-3 and EN 55011.

Conformal Coating

The standard version of the CFW500 offers protection class 3C2 - according to IEC 60721-3-3, ensuring greater protection for applications in environments with corrosive chemicals.
It is possible to request an extra coating on the internal circuit boards, protection class 3C3 - according to IEC 60721-3-3, by adding EC to item 11.2 of the smart code, ensuring even greater protection for applications in harsh corrosive environment.

Note: in order to select the CFW500 without plug-in module (H00) and with extra coating on the internal circuit boards (HEC), H00EC must be filled in item 11 of the smart code.



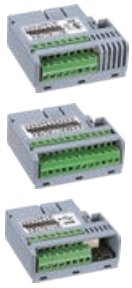
Pump Genius

To use CFW500 with the Pump Genius contact WEG Automation sales department.

Accessories

Plug-In Module

On the CFW500, it is possible leave to choose later the model of the internal plug-in module by entering H00 in item 11 of the smart code. In this case, it is necessary to select the plug-in module as an accessory, according to the table bellow.
In case H00 is not selected in item 11 of the smart code, the CFW500 will be supplied with the CFW500-IOS plug-in. You must always use one plug-in module per CFW500.
Due to the different connections, when equipped with the plug-in module with the STO / SS1 safety functions, the inverter will still be able to connect another plug-in module at the user's choice.

Reference	Description	Illustrative figures
	Input and output (I/O) expansion	
CFW500-IOS[1)]	Standard plug-in module (included in the version with plug-in module)	
CFW500-IOD	Digital input and output (I/O) expansion plug-in module	
CFW500-IOAD	Digital and analog input and output (I/O) expansion plug-in module	
CFW500-IOR-B	Relay output expansion plug-in module	
	Functionality expansion	
CFW500-ENC	Plug-in module with encoder input	
CFW500-CUSB	Plug-in module with USB port	
CFW500-SFY2[2)]	Plug-in module with security function STO e SS1	
	Communication on Fieldbus network	
CFW500-CCAN	CAN communication plug-in module (CANopen/DeviceNet)	
CFW500-CRS232	RS232 communication plug-in module	
CFW500-CRS485-B	RS485 communication plug-in module	
CFW500-CPDP	Profibus-DP communication plug-in module	
CFW500-CETH-IP	EtherNet/IP communication plug-in module	
CFW500-CEMB-TCP	Modbus-TCP communication plug-in module	
CFW500-CEPN-IO	PROFINET IO communication plug-in module	
	Memory	
CFW500-MMF	Flash memory module	
	Interfaces	
CFW500-HMIR	Remote operating interface (HMI)	
HMI-01	Alphanumeric HMI	
CFW500-RHMIF	Frame for remote HMI	
CFW500-CCHMIR1M	1-meter cable set for remote operating interface (HMI)	
CFW500-CCHMIR2M	2-meter cable set for remote operating interface (HMI)	
CFW500-CCHMIR3M	3-meter cable set for remote operating interface (HMI)	
CFW500-CCHMIR5M	5-meter cable set for remote operating interface (HMI)	
CFW500-CCHMIR75M	7.5-meter cable set for remote operating interface (HMI)	
CFW500-CCHMIR10M	10-meter cable set for remote operating interface (HMI)	
	Description	
CFW500-KN1A	NEMA1 kit - size A (standard for option N1)	
CFW500-KN1B	NEMA1 kit - size B (standard for option N1)	
CFW500-KN1C	NEMA1 kit - size C (standard for option N1)	
CFW500-KN1D	NEMA1 kit - size D (standard for option N1)	
CFW500-KN1E	NEMA1 kit - size E (standard for option N1)	
CFW500 -KN1F	NEMA1 kit - frame F (standard for option N1)	
CFW500 -KN1G	NEMA1 kit - frame G (standard for option N1)	
CFW500-KPCSA	Shielding kit for the power cables - size A (standard for option C2 and C3)	
CFW500-KPCSB	Shielding kit for the power cables - size B (standard for option C2 and C3)	
CFW500-KPCSC	Shielding kit for the power cables - size C (standard for option C2 and C3)	
CFW500-KPCSD	Shielding kit for the power cables - size D (standard for option C2 and C3)	
CFW500-KPCSE	Shielding kit for the power cables - size E (standard for option C2 and C3)	
CFW500-KPCSF	Shielding kit for the power cables - size F (standard for option C3)	
CFW500-KPCSG	Shielding kit for the power cables - size G (standard for option C3)	

Notes: 1) Accessory already included if the CFW500 version with the standard plug-in module is selected.
The plug-in modules can also be sold separately as an accessory item or spare part.
2) Due to the different connections, when equipped with the plug-in module with the STO / SS1 safety functions, the inverter will still be able to connect another plug-in module at the user's choice.

Accessories

Configuration of the Plug-In Modules[1)]

Plug-in module	Functions																	
	Inputs		Outputs			STO/SS1	USB port	Input for Encoder[3)]	Fieldbus networks								Supply	
	Digital	Analog	Analog	Digital relay	Digital transistor				CANopen DeviceNet	RS232	RS485	Profibus-DP	EtherNet/IP	Modbus-TCP	PROFINET IO	BACnet [5)]	10 V	24 V
CFW500-IOS	4	1	1	1	1	-	-	-	-	-	1	-	-	-	-	1	1	1
CFW500-IOD	8	1	1	1	4	-	-	-	-	-	1	-	-	-	-	-	1	1
CFW500-IOAD	6	3	2	1	3	-	-	-	-	-	1	-	-	-	-	-	1	1
CFW500-IOR-B	5[2)]	1	1	4	1	-	-	-	-	-	1	-	-	-	-	-	1	1
CFW500-ENC	5[2)]	1	1	4	1	-	-	1	-	-	1	-	-	-	-	-	1[6)]	1
CFW500-CUSB	4	1	1	1	1	-	1	-	-	-	1	-	-	-	-	-	1	1
CFW500-SFY2[4)]	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
CFW500-CCAN	2	1	1	1	1	-	-	-	1	-	1	-	-	-	-	-	1	-
CFW500-CRS232	2	1	1	1	1	-	-	-	-	1	1	-	-	-	-	-	-	1
CFW500-CRS485-B	4	2	1	2	1	-	-	-	-	-	2	-	-	-	-	1	1	1
CFW500-CPDP	2	1	1	1	1	-	-	-	-	-	1	1	-	-	-	-	-	1
CFW500-CETH-IP	2	1	1	1	1	-	-	-	-	-	1	-	1	-	-	-	-	1
CFW500-CEMB-TCP	2	1	1	1	1	-	-	-	-	-	1	-	-	1	-	-	-	1
CFW500-CEPN-IO	2	1	1	1	1	-	-	-	-	-	1	-	-	-	1	-	-	1

Notes: 1) All plug-in models have at least one RS485 port. The CFW500-CRS485 plug-in module has two RS485 ports.
The CFW500 allows the installation of one plug-in module per unit.
2) The digital input DI5 is always NPN, and it cannot be configured for PNP like the others.
3) Incremental Encoder (A/A - B/B).
See the installation guides of the plug-in modules on the website www.weg.net.
4) Due to the different connections, when equipped with the plug-in module with the STO / SS1 safety functions, the inverter will still be able to connect another plug-in module at the user's choice.
5) For products with software version above 3.7x.
6) Power supply of the enconder.

Dimensions and Weights

IP20 Version

Front view

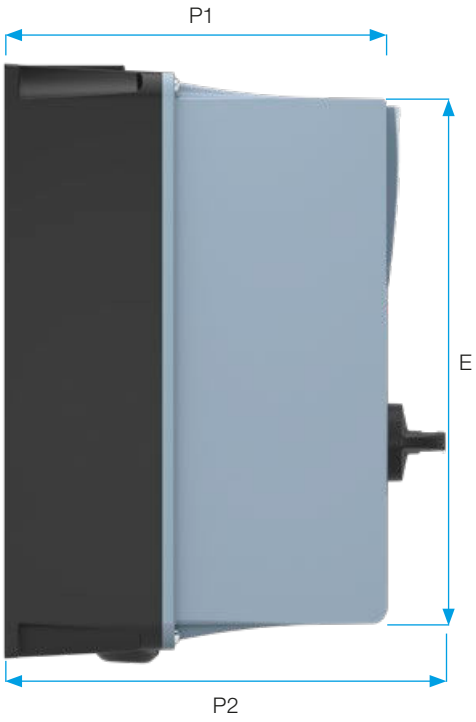
Side view

Size	A	B	C	D	H	L	P	Weight
	mm [in]	mm [in]	mm [in]	mm [in]	mm [in]	mm [in]	mm [in]	kg [lb]
A	50 [1.97]	175 [6.89]	11.9 [0.47]	7.2 [0.28]	189 [7.44]	75 [2.95]	150 [5.91]	0.8 [1.76]
B	75 [2.95]	185 [7.3]	11.8 [0.46]	7.3 [0.29]	199 [7.83]	100 [3.94]	160 [6.3]	1.2 [2.65]
C	100 [3.94]	195 [7.7]	16.7 [0.66]	5.8 [0.23]	210 [8.27]	135 [5.31]	165 [6.5]	2 [4.4]
D	125 [4.92]	290 [11.41]	27.5 [1.08]	10.2 [0.4]	306.6 [12.1]	180 [7.08]	166.5 [6.55]	4.3 [9.48]
E	150 [5.9]	330 [13]	34 [1.34]	10.6 [0.4]	350 [13.8]	220 [8.7]	191.5 [7.5]	10 [22.05]
F	200 [7.87]	525 [20.67]	42.5 [1.67]	15 [0.59]	550 [21.65]	300 [11.81]	254 [10]	26 [57.3]
G	200 [7.87]	650 [25.59]	57 [2.24]	15 [0.59]	675 [26.57]	335.3 [13.2]	314 [12.36]	52 [114.64]

Note: for the dimensions in the NEMA type 1 version, refer to the user manual.

IP66 Version

Front view



Side view

Size	A	B	C	D	E	H	L	P		Weight
								P1	P2	
	mm [in]	mm [in]	mm [in]	mm [in]	mm [in]	mm [in]	mm [in]	mm [in]	mm [in]	kg [lb]
A	150 [5,9]	250 [9,83]	5,7 [0,22]	7,5 [0,3]	225 [8,86]	265 [10,43]	165 [6,5]	227 [8,93]	252,5 [9,94]	10 [22.05]
B	200 [7,86]	325 [12,79]	5,7 [0,22]	7,5 [0,3]	300 [11,82]	340 [13,39]	215 [8,46]	227 [8,93]	252,9 [9,96]	12 [26.5]

Notes: P1 = Measure without disconnect switch.
P2 = Measure with disconnect switch.

Standards

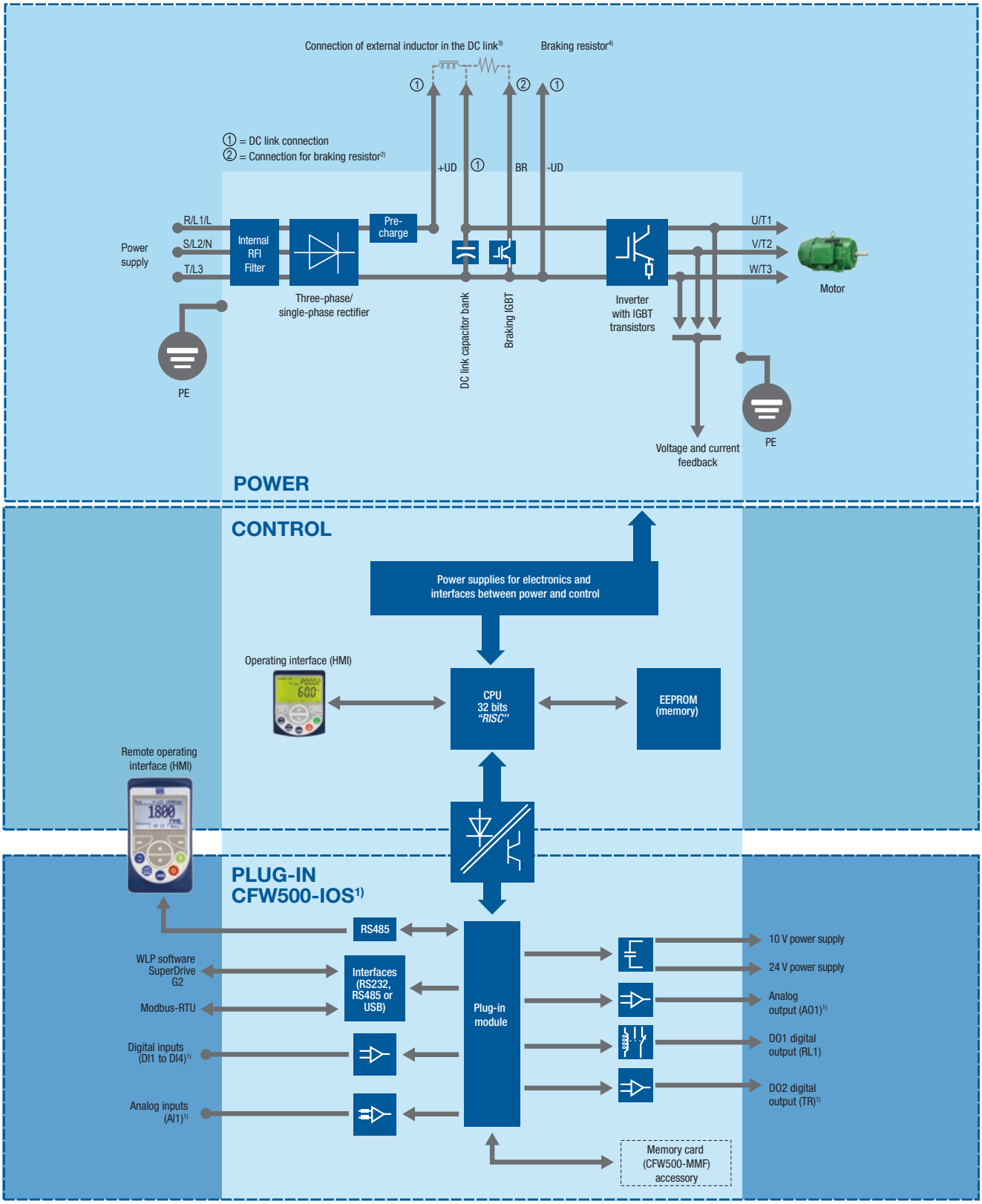
Standards	Safety standards	UL 508C - Power conversion equipment
		UL 840 - Insulation coordination including clearances and creepage distances for electrical equipment
		EN 61800-5-1 - Safety requirements electrical, thermal and energy
		EN 50178 - Electronic equipment for use in power installations
		EN 60204-1 - Safety of machinery. Electrical equipment of machines. Part 1: general requirements Note: In order to have a machine in accordance with this standard, the manufacturer of the machine is responsible for installing an emergency stop device and a device for disconnection from the power line
		EN 60146 (IEC 146) - Semiconductor converters
		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 standards	EN 61800-3 - Adjustable speed electrical power drive systems - Part 3: EMC product standard including specific test methods
		EN 55011 - Limits and methods of measurement of radio disturbance characteristcs of industrial, scientific and medical (ISM) radio-frequency equipment
		CISPR 11 - Industrial, scientific and medical (ISM) radio-frequency equipment - Electromagnetic disturbance characteristics - Limits and methods of measurement
		EN 61000-4-2 - Electromagnetic compatibility (EMC) - Part 4: testing and measurement techniques - Section 2: electrostatic discharge immunity test
		EN 61000-4-3 - Electromagnetic compatibility - Part 4: testing and measurement techniques - Section 3: ratiated, radio-frequency, electromagnetic field immunity test
		EN 61000-4-4 - Electromagnetic compatibility - Part 4: testing and measurement techniques - Section 4: electrical fast transient/burst immunity test
		EN 61000-4-5 - Electromagnetic compatibility - Part 4: testing and measurement techniques - Section 5: surge immunity test
		EN 61000-4-6 - Electromagnetic compatibility - Part 4: testing and measurement techniques - Section 6: immunity to conducted disturbances, induced by radio-frequency fields
	Mechanical construction standards	EN 60529 - Degrees of protection provided by enclosures (IP code)
		UL 50 - Enclosures for electrical equipment
		IEC 60721-3-3 - Classification of environmental conditions - part 3: classification of groups of environmental parameters and their severities - Section 3: stationary use at weather protected locations level 3M4.

Technical Specifications

Power rating	Power supply	Tolerance: -15 to +10%
		Frequency: 50/60 Hz (48 Hz to 62 Hz)
		Phase imbalance: ≤3% of the rated phase-phase input voltage
		Transient voltages and overvoltages according to Category III (EN 61010/UL 508C)
		Maximum of 10 (line) connections per hour (1 every 6 minutes)
		Typical efficiency: ≥97%
Control	Method	V/F (scalar) VVW: voltage vector control Vector without encoder (sensorless) and closed loop vector with encoder VVW PM vector control for permanent magnet motors
	Output frequency	0 to 500 Hz, resolution of 0.015 Hz
Performance	V/F Control	Speed regulation: 1% of the rated speed (with slip compensation) Speed variation range: 1:20
	Vector control (VVW)	Speed regulation: 1% of the rated speed Speed variation range: 1:30
	Sensorless	Speed regulation: 0.5% of the rated speed Speed variation range: 1:100
	Vector control with Encoder	Speed regulation: 0.1% of the rated speed Speed variation range: 1:100
	PM VVW Control[4]	Regulation: 0.1 % of the rated speed Speed variation range: 1:20
Environment conditions	Temperature around the CFW500	-10 °C to 40 °C - NEMA type 1 (sizes A to E) -10 °C to 40 °C - IP20 (sizes A to E) when installed by side and / or with RFI filter -10 °C to 50 °C - IP20 (sizes A to E) without RFI filter 0 °C to 40 °C - IP20 (size F) with or without RFI filter 0 °C to 45 °C - IP20 (size G) with or without RFI filter 0 °C to 40 °C - IP66 with or without RFI filter For sizes A to E, when operating temperatures are above the specification, it is necessary to apply 2% of current derating for each Celsius degree (°C), limited to an increase of 10 °C. For mechanics F and G: for temperatures surrounding the inverter higher than the specifications, it is necessary to apply of 1% of current derating for each Celsius degree, until 50 °C (122 °F) and 2% of current derating for each Celsius degree, until 60 °C (140 °F).
	Aggressive environments	Protection Class 3C2 - Standard coating on the internal circuits, according to IEC 60721-3-3 (standard model)
		Protection Class 3C3 - Extra coating - optional, according to IEC 60721-3-3 (optional)
	Air relative humidity	5% to 95% non-condensing
	Altitude	Up to 1,000 m (maximum altitude under normal conditions) 1,000 to 4,000 m: current derating of 1% for each 100 m above 1,000 m of altitude
	Pollution degree	2 (EN 50178 and UL 508C), with non-conductive pollution Condensation must not cause conduction of the accumulated residues
Inputs[1]	Analog	1 isolated input. Levels: (0 to 10) V or (0 to 20) mA or (4 to 20) mA Linearity error ≤0.25% Impedance: 100 kΩ for voltage input, 500 Ω for current input Programmable functions, including PTC input Maximum voltage accepted in the inputs: 30 V dc
	Digital	4 isolated inputs Programmable functions: Active high (PNP): maximum low level of 15 V dc; minimum high level of 20 V dc Active low (NPN): maximum low level of 5 V dc; minimum high level of 9 V dc Maximum input voltage of 30 V dc Input current: 4.5 mA Maximum input current: 5.5 mA
Outputs[1]	Analog	1 isolated output. Levels (0 to 10) V or (0 to 20) mA or (4 to 20) mA Linearity error ≤0.25% Programmable functions RL ≥10 kΩ (0 to 10 V) or RL ≤500 Ω (0 to 20 mA / 4 to 20 mA)
	Relay	1 relay with NO/NC contact Maximum voltage: 240 V ac Maximum current of 0.5 A Programmable functions
	Transistor	1 isolated open sink digital output (using as reference the 24 V dc power supply) Maximum current of 150 mA (maximum capacity of the 24 V dc power supply)[2] Programmable functions
	Power supply	24 V dc power supply. Maximum capacity: 150 mA[2] Power supply of 10 V dc. Maximum capacity: 2 mA
Communication	Selectable plug-in	Fieldbus: Modbus-RTU, CANopen, DeviceNet, Profibus-DP, EtherNet/IP, Modbus-TCP, PROFINET IO, BACnet, SymbiNet USB, RS485 and RS232 ports
Safety	Protection	Phase-phase overcurrent/short circuit in the output Phase-ground overcurrent/short circuit in the output Undervoltage/overvoltage in the power Overtemperature of the heatsink Motor overload Overload on the power module (IGBTs) External fault / alarm Programming error
Operating interface (HMI)	Standard (built in the CFW500)	9 keys: Run/Stop, Increment, Decrement, Direction of rotation, Jog, Local/Remote, Back/Esc and Enter/Menu LCD Display It allows accessing/changing all the parameters Accuracy of the indications: Current: 5% of the rated current Speed resolution: 0.1 Hz
Protection degree	IP20	Sizes A, B, C, D, E, F and G
	NEMA1/IP20	Sizes A, B, C, D, E, F and G with NEMA1 kit
	IP66	Sizes A and B (from 1.0 A to 31 A)

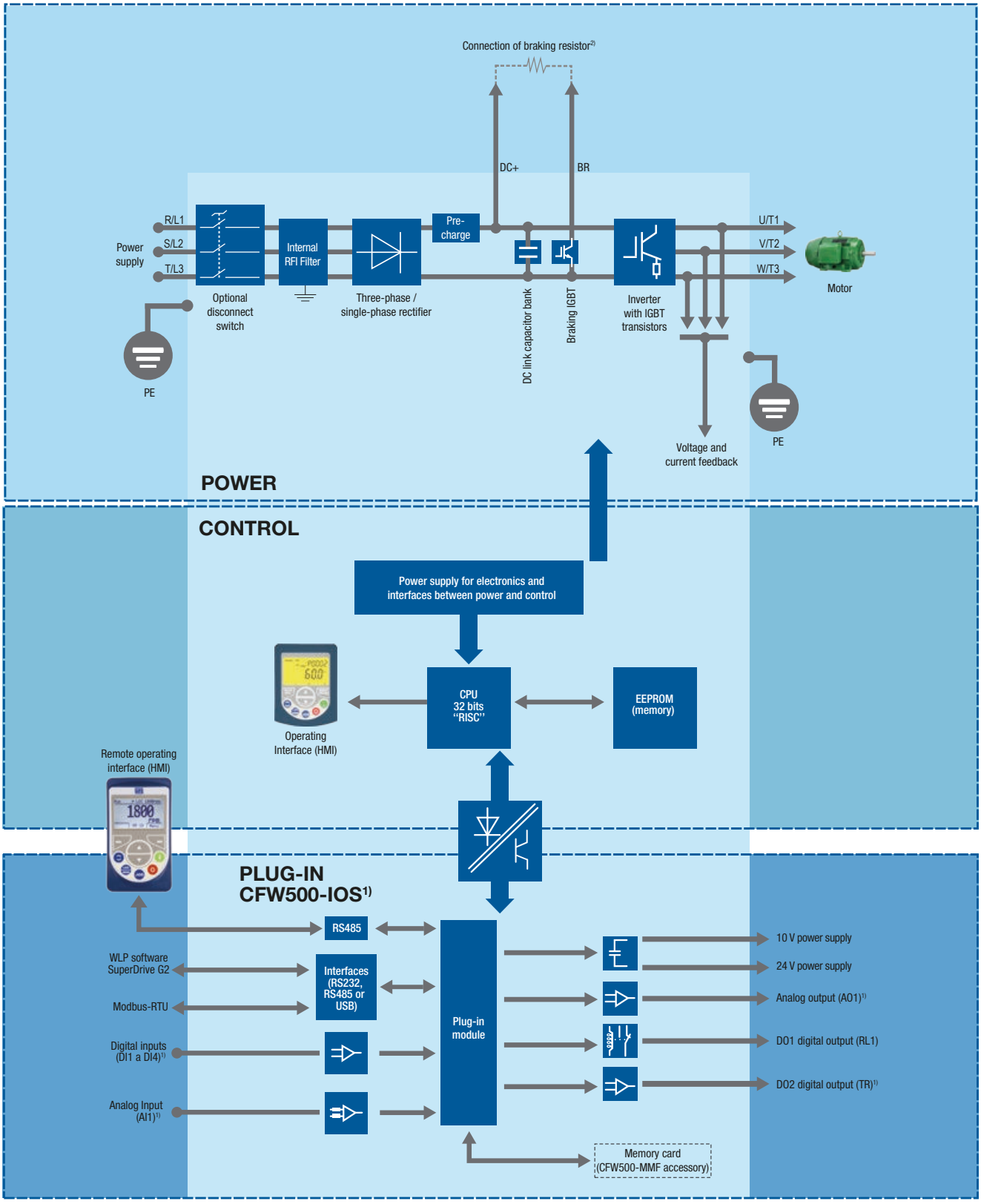
Notes: 1) The number and/or types of analog/digital inputs/outputs may vary according to the plug-in module (accessory) used. In the table above, the standard plug-in module (CFW500-IOS) was taken into account. For further information, refer to the CFW500 user manual.
2) The maximum capacity of 150 mA considers the load of the 24 V power supply plus the transistor output, that is, the sum of the consumption of both must not exceed 150 mA.
3) Designed for exclusive industrial or professional use.
4) The VVW PM function is available for all inverters with firmware version V2.2x or higher, except for size A models in IP20.

Block Diagram of IP20 or NEMA Type 1 Version

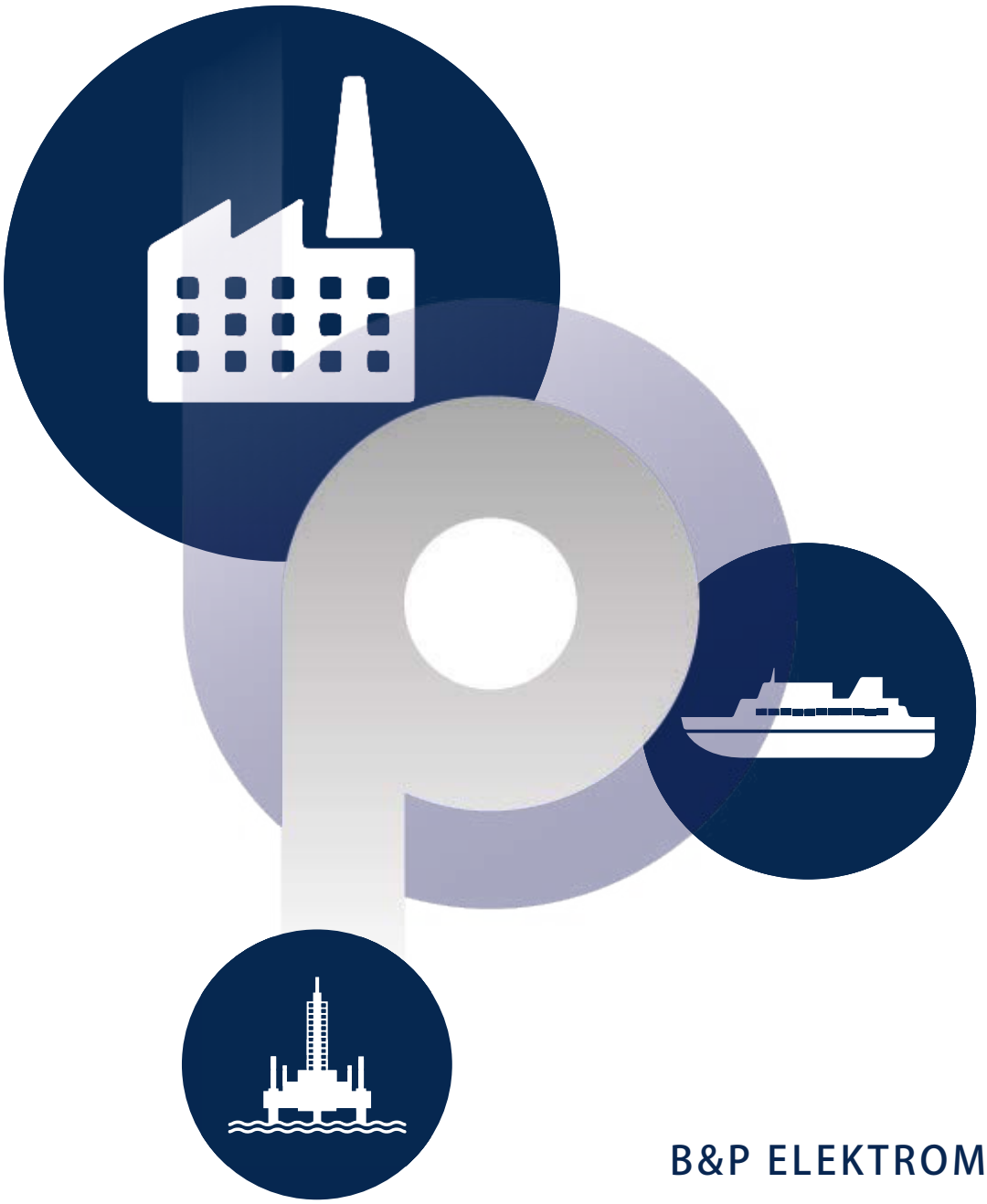


Notes: 1) The number of inputs and outputs (analog and digital), as well as other resources, may vary according to the plug-in module used. For further information, refer to the CFW500 user manual.
2) Not available for size A.
3) Connection available for sizes D and E only. Inductor on the DC link not included. Sizes F and G have DC link inductor built-in as standard, to protect the drive against current spikes.
4) Resistor not included. Internal dynamic braking (IGBT) built-in the whole line, except for frame size A of IP20 version. Optional for size G of IP20 version.

Block Diagram of IP66 / NEMA Type 4x Version



Notes: 1) The number of inputs and outputs (analog and digital), as well as other resources, may vary according to the plug-in module used. For further information, refer to the CFW500 user manual.
2) Resistor not included. Internal dynamic braking (IGBT) built-in in the whole CFW500 IP66 version.



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