CFW500

Variable Speed Drive



CFN500 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, Pump Genius, which adds dedicated functions for pumping systems and selectable plug-in modules, that *provide a flexible and optmized solution* for any application.





Current range from 1,0 to 56 A (0,25 kW / 0,33 HP to 30 kW / 40 HP) with supply voltages 200-240, 380-480 or 500-600 V

Built-in braking IGBT (optional)

Fieldbus communication modules for the most used industrial networks, like CANopen, DeviceNet, Profibus-DP, EtherNet-IP, Profinet-IO or Modbus-RTU

Operating ambient temperature up to 50 °C without derating

Ideal for machinery manufacturer

Free WLP and SuperDrive G2 programming softwares available at <u>www.weg.net</u>

Conformal Coating class 3C2 for greater protection of electronic boards against corrosive atmospheres

Internal RFI filter to reduce high-frequency electromagnetic interference signals

Dedicated functions for pumping systems using Pump Genius

Single or three-phase power supply in 200-240 V, 380-480 V or 500-600 V

Memory card for data transfers without the necessity to power the CFW500 up

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



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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 15.

Remote Operating Interface (HMI)

Solutions for machine consoles and panels.



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.





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 WLP programming software is available at: <u>www.weg.net</u>.



Connectivity



Features

- Special engineering units (RPM, °C, 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)

- 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





Using the SuperDrive G2 software, it is possible to change, monitor and view graphically the variables of the CFW500 on a personal computer.

Trend Function

Trend charts for online monitoring of parameters and other variables within the SuperDrive G2 software.

Pump Genius

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.



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.

Applications



Centrifugal pumps



Process dosing pumps





Conveyor belts

Granulators / palletizers



Stirrers / mixers





Cutting and welding machines



Rotary filters





Dryers and rotary ovens



Winding machines / uncoiling machines













Coding



1 - CFW500 variable speed drive

2 - Size of the CFW500, according to table 1 below

3 - Rated output current, according to table 1 below

Rated output current of the	Number of phases	Rated voltage	Frame size	Internal dynamic braking ¹⁾	Degree of protection	Internal RFI filter ²⁾
01P6 = 1.6 A 02P6 = 2.6 A						Blank or C2
04P3 = 4.3 A			A	NB		Diamento
07P0 = 7.0 A	Single-phase					Blank or C3
07P3 = 7.3 A			P	ng		C2
10P0 = 10.0 A			D	80		02
01P6 = 1.6 A						
02P6 = 2.6 A	Single-phase		A	NB		Blank
04P3 = 4.3 A	or three-phase	200 240 V				(not available)
0/P3 = 7.3 A 10P0 = 10.0 A		200-240 V	В	DB		
07P0 = 7.0 A						
09P6 = 9.6 A			A	NB		Blank
16P0 = 16 A			В	DB		(not available)
24P0 = 24 A	Three-phase		С	DB	IP20 or N1	, , ,
28P0 = 28 A	111100-011030		D	DB		
33P0 = 33 A						Blank or C3
47P0 = 47 A						Diant of 00
56P0 = 56.0 A			E E	DR		
01P0 = 1.0 A 01P6 = 1.6 A						
02P6 = 2.6 A			Δ	NB		Blank or C2
04P3 = 4.3 A						
06P1 = 6.1 A						Blank or C3
02P6 = 2.6 A						
04P3 = 4.3 A			В	DB		Blank or C2
06P5 = 6.5 A	Three-phase	380-480 V				Diasta 200
10P0 = 10.0 A						Blank or C3
14P0 = 14.0 A 16P0 - 16.0 A			С	DB		Blank or C2
24P0 = 24.0 A						
31P0 = 31.0 A			D	DB		Blank or C3
39P0 = 39.0 A				DD		Plenk or C2
49P0 = 49.0 A			E	DR		BIANK OF US

4 - Number of phases

S	Single-phase power supply						
В	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

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

7- Protection degree

 20
 IP20 protection degree

 N1
 NEMA1 protection degree

8 - RFI filter

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

9 - Special hardware versions - H xx

9.1 - Plug-in module

Blank	With standard plug-in module							
H00	Without plug-in module							
9.2 Coating for barsh anvironments								

Blank	Class 3C2 - Standard conformal coating

EC	Class 3C3 - Extra coating								
10 - Special software version - S xx									

Blank	Standard software
XX	Special software

Notes: 1) Braking resistor not included.

2) 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.

For RFI filters installed externally, refer to the CFW500 user manual.

CFW500 with IOS Plug-In Module Built-In

CFW500 variable speed drive						Maximum applicable motor ¹⁾												
				Internal		IEC UL				UL								
Reference ²⁾	Power su	pply (V)	Frame size	dynamic braking (IGBT)	Rated current (A)	Power supply (V) 50 Hz	kW	Power supply (V) 60 Hz	HP	Power supply (V) 60 Hz	HP							
CFW500A01P6S2NB20					1.60		0.25		0.33		0.33							
CFW500A02P6S2NB20		200.240		N/A	2.60	220	0.55	220	0.5		0.75							
CFW500A04P3S2NB20	Sillyle-pildse	200-240		N/A	4.30	230	1.1	220	1.0	230	1.5							
CFW500A07P0S2NB20					7.00		1.5		2.0		2.0							
CFW500A01P6B2NB20					1.60		0.25		0.33		0.33							
CFW500A02P6B2NB20	Single-phase		A	N/A	2.60		0.55		0.5]	0.75							
CFW500A04P3B2NB20	or	200-240			4.30	230	1.1	220	1.0	230	1.5							
CFW500B07P3B2DB20	three-phase			Duilt in	7.30		1.5		2.0]	2.0							
CFW500B10P0B2DB20			В	Bulit-In	10.00		2.2		3.0		3.0							
CFW500A07P0T2NB20				NI/A	7.00		1.5		2.0		2.0							
CFW500A09P6T2NB20	 Three-phase 		A	N/A	9.60		2.2		3.0]	3.0							
CFW500B16P0T2DB20			В		16.00		4.0		5.0	000	5.0							
CFW500C24P0T2DB20		200.240	С		24.00	220	5.5		7.5		7.5							
CFW500D28P0T2DB20		inree-phase	Three-phase	Three-phase	-pnase 200-240		Built-in	28.00	230	7.5		10.0	230	10.0				
CFW500D33P0T2DB20						D		33.00		9.2		12.5		10.0				
CFW500D47P0T2DB20					47.00		11.0		15.0	1	15.0							
CFW500E56P0T2DB20			E		56.00		15.0		20.0	1	20.0							
CFW500A01P0T4NB20					1.00		0.37		0.5		0.5							
CFW500A01P6T4NB20					1.60		0.75		1.0		0.75							
CFW500A02P6T4NB20	-									A	N/A	2.60		1.1		1.5] [2.0
CFW500A04P3T4NB20											4.30		1.5	3.0		3.0		
CFW500A06P1T4NB20	1				6.10		3.0		4.0	-	5.0							
CFW500B02P6T4DB20	1				2.60		1.1				2.0							
CFW500B04P3T4DB20	1				4.30		1.5	3.0	3.0		3.0							
CFW500B06P5T4DB20	Three-phase	380-480	В		6.50	415	3.0	460	4.0	460	5.0							
CFW500B10P0T4DB20					10.00		4.0		7.5		7.5							
CFW500C14P0T4DB20				D. III. I.	14.00		7.5		10.0		10.0							
CFW500C16P0T4DB20			L C	Bulit-In	16.00		7.5		12.5		10.0							
CFW500D24P0T4DB20					24.00		11.0		15.0		15.0							
CFW500D31P0T4DB20					31.00		15.0		25.0		25.0							
CFW500E39P0T4DB20			_		39.00		18.5		30.0		30.0							
CFW500E49P0T4DB20			E		49.00		22.0		40.0		40.0							
CFW500C01P7T5DB20					1.70		0.75		1.5		1.0							
CFW500C03P0T5DB20	1				3.00		1.5		2.0		2.0							
CFW500C04P3T5DB20]	500.000		D	4.30	505	2.2		4.0		3.0							
CFW500C07P0T5DB20	Ihree-phase	500-600	C	Built-in	7.00	525	4.0	575	6.0	575	5.0							
CFW500C10P0T5DB20	1				10.00		5.5		10.0		7.5							
CFW500C12P0T5DB20]				12.00		7.5		12.5		10.0							

Notes: 1) The power values for maximum applicable motor shown in the table above are reference values and valid for WEG motors. IEC motor powers are based on motor WEG four-pole W22 High Efficiency IE2 three-phase induction motors with power supply of 220 V, 230 V, 415 V, 460, 525 or 575 V. NEMA motor power are based on WEG four pole W22 Premium. Motor rated currents may vary with speed and manufacturer, use the motor power ratings below 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.

2) Included in this reference the CFW500-IOS standard plug-in module. Smart code without "H00".

Ń/A = Not applicable.



CFW500 without Plug-In Module

You must select the smart code of the CFW500 without plug-in module (CFW500 xxx H00) + smart code of the desired plug-in module.

	CFW500 variable speed drive						Maximum applicable motor ¹⁾								
				Internal			IE	C			UL				
Reference ²⁾	Power su	pply (V)	Frame size	dynamic braking (IGBT)	Rated current (A)	Power supply (V) 50 Hz	kW	Power supply (V) 60 Hz	HP	Power supply (V) 60 Hz	HP				
CFW500A01P6S2NB20H00					1.60		0.25		0.33		0.33				
CFW500A02P6S2NB20H00	Single phone	200 240		NI/A	2.60	220	0.55	220	0.5	220	0.75				
CFW500A04P3S2NB20H00	Sillyle-pildse	200-240		N/A	4.30	230	1.1	220	1.0	230	1.5				
CFW500A07P0S2NB20H00					7.00		1.5		2.0		2.0				
CFW500A01P6B2NB20H00					1.60		0.25		0.33		0.33				
CFW500A02P6B2NB20H00	Single-phase		A	N/A	2.60		0.55		0.5		0.75				
CFW500A04P3B2NB20H00	or	200-240			4.30	230	1.1	220	1.0	230	1.5				
CFW500B07P3B2DB20H00	three-phase		Р	Puilt in	7.30		1.5		2.0		2.0				
CFW500B10P0B2DB20H00			D	Duiit-III	10.00		2.2		3.0		3.0				
CFW500A07P0T2NB20H00				N/A	7.00		1.5		2.0		2.0				
CFW500A09P6T2NB20H00			A	N/A	9.60		2.2		3.0		3.0				
CFW500B16P0T2DB20H00	- - Three-phase -		В		16.00		4.0	5.	5.0	220	5.0				
CFW500C24P0T2DB20H00		000 040	С		24.00		5.5		7.5		7.5				
CFW500D28P0T2DB20H00		Inree-phase	Inree-phase	Three-phase	ee-pnase 200-240		Duilt in	28.00	230	7.5	10.0	230	10.0		
CFW500D33P0T2DB20H00							D	Bulit-In	33.00		9.2		12.5		10.0
CFW500D47P0T2DB20H00				_	47.00		11.0		15.0		15.0				
CFW500E56P0T2DB20H00			E		56.00		15.0		20.0		20.0				
CFW500A01P0T4NB20H00	-				1.00		0.37		0.5		0.5				
CFW500A01P6T4NB20H00						1.60		0.75		1.0		0.75			
CFW500A02P6T4NB20H00								А	N/A	2.60		1.1		1.5	
CFW500A04P3T4NB20H00					4.30		1.5	3.0		3.0					
CFW500A06P1T4NB20H00						6.10		3.0		4.0		5.0			
CFW500B02P6T4DB20H00					2.60		1.1		1.5		2.0				
CFW500B04P3T4DB20H00					4.30		1.5	3.0	3.0		3.0				
CFW500B06P5T4DB20H00	Three-phase	380-480	В		6.50	415	3.0	460	4.0	460	5.0				
CFW500B10P0T4DB20H00					10.00		4.0		7.5		7.5				
CFW500C14P0T4DB20H00				Duilt in	14.00		7.5		10.0		10.0				
CFW500C16P0T4DB20H00	1			Bulit-In	16.00		7.5		12.5		10.0				
CFW500D24P0T4DB20H00	1				24.00		11.0		15.0		15.0				
CFW500D31P0T4DB20H00	1				31.00		15.0		25.0		25.0				
CFW500E39P0T4DB20H00	1		_		39.00		18.5		30.0		30.0				
CFW500E49P0T4DB20H00			E		49.00		22.0		40.0		40.0				
CFW500C01P7T5DB20H00					1.70		0.75		1.5		1.0				
CFW500C03P0T5DB20H00					3.00		1.5		2.0		2.0				
CFW500C04P3T5DB20H00	Three shore	500.000		Duill	4.30	505	2.2		4.0		3.0				
CFW500C07P0T5DB20H00	Three-phase	500-600	C	Built-in	7.00	525	4.0	575	6.0	575	5.0				
CFW500C10P0T5DB20H00					10.00		5.5		10.0		7.5				
CFW500C12P0T5DB20H00					12.00		7.5	12	12.5	-	10.0				

Notes: 1) The power values for maximum applicable motor shown in the table above are reference values and valid for WEG motors. IEC motor powers are based on motor WEG four-pole W22 High Efficiency IE2 three-phase induction motors with power supply of 220 V, 230 V, 415 V, 460, 525 or 575 V. NEMA motor power are based on WEG four pole W22 Premium. Motor rated currents may vary with speed and manufacturer, use the motor power ratings below 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.

2) No plug-in module included in this reference. A plug-in module must be added according to the table on page 15.

N/A = Not applicable.

CFW500 with IOS Plug-In Module and RFI Filter Built-In

CFW500 variable speed drive						Maximum applicable motor ¹⁾								
				Internal			IE	C			UL			
Reference ²⁾	Power su	pply (V)	Frame size	dynamic braking (IGBT)	Rated current (A)	Power supply (V) 50 Hz	kW	Power supply (V) 60 Hz	HP	Power supply (V) 60 Hz	HP			
CFW500A01P6S2NB20C2					1.60		0.25		0.33		0.33			
CFW500A02P6S2NB20C2			Δ	N/A	2.60		0.55		0.5		0.75			
CFW500A04P3S2NB20C2	Single-phase	200-240		N/A	4.30	220	1.1	220	1.0	230	1.5			
CFW500A07P0S2NB20C3		200 240			7.00	200	1.5		2.0	200	2.0			
CFW500B07P3S2DB20C2			B	Built-in	7.30		1.5		2.0		2.0			
CFW500B10P0S2DB20C2				Duite in	10.00		2.2		3.0		3.0			
N/A					1.60		0.25		0.33		0.33			
N/A	Single-phase or three-phase		A	N/A	2.60		0.55		0.5		0.75			
N/A		200-240			4.30	230	1.1	220	1.0	230	1.5			
N/A			в	Built_in	7.30		1.5		2.0	-	2.0			
N/A				Dunt-In	10.00		2.2		3.0		3.0			
N/A	Three-phase						N/A	7.00		1.5		2.0		2.0
N/A				N/A	9.60	230	2.2		3.0		3.0			
N/A			B C	Built-in	16.00		4.0		5.0		5.0			
N/A		200-240			24.00		5.5	220	7.5	230	7.5			
CFW500D28P0T2DB20C3		200-240			28.00		7.5		10.0		10.0			
CFW500D33P0T2DB20C3				D		33.00		9.2	-	12.5		10.0		
CFW500D47P0T2DB20C3					47.00		11.0	-	15.0		15.0			
CFW500E56P0T2DB20C3			E		56.00		15.0		20.0		20.0			
CFW500A01P0T4NB20C2					1.00		0.37		0.5		0.5			
CFW500A01P6T4NB20C2					1.60		0.75]	1.0		0.75			
CFW500A02P6T4NB20C2			A	N/A	2.60		1.1		1.5		2.0			
CFW500A04P3T4NB20C2					4.30		1.5		3.0		3.0			
CFW500A06P1T4NB20C3					6.10		3.0		4.0		5.0			
CFW500B02P6T4DB20C2					2.60		1.1		1.5		2.0			
CFW500B04P3T4DB20C2			B		4.30		1.5		3.0		3.0			
CFW500B06P5T4DB20C2	Three-phase	380-480			6.50	415	3.0	460	4.0	460	5.0			
CFW500B10P0T4DB20C3					10.00		4.0		7.5		7.5			
CFW500C14P0T4DB20C2	-		0	Built in	14.00		7.5		10.0		10.0			
CFW500C16P0T4DB20C2			0	Duilt-III	16.00		7.5		12.5		10.0			
CFW500D24P0T4DB20C3			D		24.00		11.0		15.0		15.0			
CFW500D31P0T4DB20C3					31.00		15.0		25.0	F	25.0			
CFW500E39P0T4DB20C3			F		39.00		18.5		30.0		30.0			
CFW500E49P0T4DB20C3			Ē		49.00		22.0		40.0		40.0			

Notes: 1) The power values for maximum applicable motor shown in the table above are reference values and valid for WEG motors. IEC motor powers are based on motor WEG four-pole W22 High Efficiency IE2 three-phase induction motors with power supply of 220 V, 230 V, 415 V, 460, 525 or 575 V. NEMA motor power are based on WEG four pole W22 Premium. Motor rated currents may vary with speed and manufacturer, use the motor power ratings below 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.
2) Included in this reference the CFW500-IOS standard plug-in module. Smart code without "H00".

 $\dot{N}/A = Not applicable.$



CFW500 without Plug-In Module And RFI Filter Built-In

You must select the smart code of the CFW500 without plug-in module + smart code of the desired plug-in module (according to the selection table on page 15).

	Maximum applicable motor ¹⁾										
				Internal		IEC UL					UL
Reference ²⁾	Power supply (V)		Frame dynamic size braking (IGBT)		Rated current (A)	Power supply (V) 50 Hz	kW	Power supply (V) 60 Hz	HP	Power supply (V) 60 Hz	HP
CFW500A01P6S2NB20C2H00					1.60		0.25		0.33		0.33
CFW500A02P6S2NB20C2H00				N/A	2.60		0.55		0.5		0.75
CFW500A04P3S2NB20C2H00	Single phase	200.240		N/A	4.30	220	1.1		1.0	220	1.5
CFW500A07P0S2NB20C3H00	Sillyie-pilase	200-240			7.00	230	1.5	220	2.0	230	2.0
CFW500B07P3S2DB20C2H00			P	Built in	7.30		1.5		2.0		2.0
CFW500B10P0S2DB20C2H00				Duiit-iii	10.00		2.2		3.0		3.0
N/A					1.60		0.25		0.33		0.33
N/A	Single-phase		A	N/A	2.60		0.55	220	0.5	230	0.75
N/A	or	200-240			4.30	230	1.1		1.0		1.5
N/A	three-phase		Р	Built-in	7.30	-	1.5		2.0		2.0
N/A					10.00		2.2		3.0		3.0
N/A				A N/A B C B Built-in E	7.00	230	1.5	- 220	2.0		2.0
N/A	- - - Three-phase		A		9.60		2.2		3.0		3.0
N/A			В		16.00		4.0		5.0		5.0
N/A		200.240	С		24.00		5.5		7.5	220	7.5
CFW500D28P0T2DB20C3H00		200-240			28.00		7.5		10.0	200	10.0
CFW500D33P0T2DB20C3H00			D		33.00		9.2		12.5		10.0
CFW500D47P0T2DB20C3H00					47.00		11.0		15.0		15.0
CFW500E56P0T2DB20C3H00			E		56.00		15.0		20.0		20.0
CFW500A01P0T4NB20C2H00					1.00		0.37	-	0.5	-	0.5
CFW500A01P6T4NB20C2H00					1.60		0.75		1.0		0.75
CFW500A02P6T4NB20C2H00			A	N/A	2.60		1.1		1.5		2.0
CFW500A04P3T4NB20C2H00					4.30		1.5		3.0		3.0
CFW500A06P1T4NB20C3H00					6.10		3.0		4.0		5.0
CFW500B02P6T4DB20C2H00	Three-phase				2.60		1.1		1.5		2.0
CFW500B04P3T4DB20C2H00					4.30		1.5		3.0		3.0
CFW500B06P5T4DB20C2H00		380-480	D		6.50	415	3.0	460	4.0	460	5.0
CFW500B10P0T4DB20C3H00					10.00		4.0	1	7.5		7.5
CFW500C14P0T4DB20C2H00				Duilt in	14.00		7.5	1	10.0		10.0
CFW500C16P0T4DB20C2H00			C	Built-in	16.00		7.5		12.5		10.0
CFW500D24P0T4DB20C3H00			D		24.00		11.0		15.0		15.0
CFW500D31P0T4DB20C3H00			D		31.00		15.0		25.0		25.0
CFW500E39P0T4DB20C3H00			-		39.00		18.5		30.0		30.0
CFW500E49P0T4DB20C3H00					49.00		22.0		40.0		40.0

Notes: 1) The power values for maximum applicable motor shown in the table above are reference values and valid for WEG motors. IEC motor powers are based on motor WEG four-pole W22 High Efficiency IE2 three-phase induction motors with power supply of 220 V, 230 V, 415 V, 460, 525 or 575 V. NEMA motor power are based on WEG four pole W22 Premium. Motor rated currents may vary with speed and manufacturer, use the motor power ratings below 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. 2) No plug-in module included in this reference, only RFI filter. A plug-in module must be added according to the table on page 15. N/A = Not applicable.

Plug-In Module Selection

On the CFW500, it is possible leave to choose later the model of the internal plug-in module by entering H00 in item 9 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 9 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.

Poforonco	Description	Illustrative figures		
neierence	Input and output (I/O) expansion			
CFW500-I0S1)	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	Relay output expansion plug-in module	1.1		
	Functionality expansion			
CFW500-ENC	Plug-in module with encoder input	Lawrence		
CFW500-CUSB	Plug-in module with USB port	· · · ·		
	Communication on Fieldbus network	MARCOLANDER		
CFW500-CCAN	CAN communication plug-in module (CANopen/DeviceNet)	Lanna contact		
CFW500-CRS232	RS232 communication plug-in module	the state of the s		
CFW500-CRS485	RS485 communication plug-in module	mana and		
CFW500-CPDP	Profibus-DP communication plug-in module	land the second s		
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			

Note: 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.

Configuration of the Plug-In Modules¹⁾

		Functions														
Plug-in module	In	iputs		Outputs				Fieldbus networks							Sup	ply
	Digital	Analog	Analog	Digital relay	Digital transistor	port	Encoder ³⁾	CANopen DeviceNet	RS232	RS485	Profibus-DP	EtherNet-IP	Modbus-TCP	Profinet-IO	10 V	24 V
CFW500-IOS	4	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	5 ²⁾	1	1	4	1	-	-	-	-	1	-	-	-	-	1	1
CFW500-ENC	5 ²⁾	1	1	4	1	-	1	-	-	1	-	-	-	-	1	1
CFW500-CUSB	4	1	1	1	1	1	-	-	-	1	-	-	-	-	1	1
CFW500-CCAN	2	1	1	1	1	-	-	1	-	1	-	-	-	-	1	-
CFW500-CRS232	2	1	1	1	1	-	-	-	1	1	-	-	-	-	-	1
CFW500-CRS485	4	2	1	2	1	-	-	-	-	2	-	-	-	-	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-I0	2	1	1	1	1	-	-	-	-	1	-	-	-	1	-	1

Note: 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 inputs are 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



Optional Items

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

Internal Dynamic Braking (IGBT)¹⁾

Used for quick stop of the motor with external²⁾ braking resistor.

The braking IGBT is available as standard in frames B, C, D and E ("DB" must be inserted in the item 8 of the smart code).

Notes: 1) Not available for frame size A. 2) External braking resistor not included. To specify the correct braking resistor, please reder to the CFW500 User's Manual.

NEMA1 Protection Kit (N1)

Insert "O...N1" in item 7 of the smart code, in frame sizes A, B, C, D and E. According to the National Electrical Manufacturers Association (NEMA)³⁾ standard, Type 1. Protecting against penetration of foreign solid objects (falling dust)

- Prevents access to hazardous parts
- Can also be added separately (see accessories)

Notes: 3) Not recommended for external use, only indoor applications or inside enclosures. 4) Image of frame size A with NEMA1 kit.



Internal RFI Filter

The RFI filters installed on the CFW500 inverters are used to reduce the disturbance conducted from the inverter to the power line in the high frequency band (>150 kHz). If it is necessary to comply with the maximum emission levels of the electromagnetic compatibility standards, such as EN 61800-3 and EN55011, it is necessary to add an internal RFI filter to the CFW500, by means of filling C2 or C3 in item 8 of the smart code.



Optional Items

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 9 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 9 of the smart code.

Pump Genius

To use CFW500 with the Pump Genius Simplex or Multipump, contact the WEG Automation sales department.

Accessories

The accessories are hardware resources that may be added to the CFW500 in the application, according to the table below:

Reference	Description Memory	Illustrative figures							
CFW500-MMF	Flash memory module	C.							
Interfaces									
CFW500-HMIR	Remote operating interface (HMI)								
CFW500-CCHMIR1M	1-meter cable set for remote operating interface (HMI)	in an in							
CFW500-CCHMIR2M	2-meter cable set for remote operating interface (HMI)	PODDE							
CFW500-CCHMIR3M	3-meter cable set for remote operating interface (HMI)								
CFW500-CCHMIR5M	5-meter cable set for remote operating interface (HMI)	2000							
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	NEMA 1 Kit - size A (standard for option N1)	instance.							
CFW500-KN1B	NEMA 1 Kit - size B (standard for option N1)	A TENT							
CFW500-KN1C	NEMA 1 Kit - size C (standard for option N1)	and the second							
CFW500-KN1D	NEMA 1 Kit - size D (standard for option N1)								
CFW500-KN1E	NEMA 1 Kit - size E (standard for option N1)	84							
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)	and the							
CFW500-KPCSE	Shielding kit for the power cables - size E (standard for option C2 and C3)								







CFW500 Recommended WEG Protections

					IEC protections ¹⁾						
CFW500 reference	Power s	Power supply (V)		Frame size	Recommended WEG semicondutor fuse and switch-disconnector protective circuit bre						
					l ² t (A ² s)	Current (A)	Refer	ence	Current (A)	WEG reference	
CFW500A01P6S2			1.60		373	20	FNH00-20K-A	FSW160-3	6.30	MPW18-3-D063	
CFW500A02P6S2			2.60		373	20	FNH00-20K-A	FSW160-3	10.00	MPW18-3-U010	
CFW500A04P3S2	Cingle phone	200 240	4.30		373	25	FNH00-25K-A	FSW160-3	16.00	MPW18-3-U016	
CFW500A07P0S2	Single-phase	200-240	7.00]	800	40	FNH00-40K-A	FSW160-3	25.00	MPW40-3-U025	
CFW500B07P3C2S2			7.30		450	40	FNH00-40K-A	FSW160-3	25.00	MPW40-3-U025	
CFW500B10P0C2S2			10.00	B	450	63	FNH1-63K-A	FSW250-3	32.00	MPW40-3-U032	
CFW500A01P6B2			1.60		680	20	FNH00-20K-A	FSW160-3	6.30 / 2.5 ³⁾	MPW18-3-D063 / MPW18-3-D025 ³⁾	
CFW500A02P6B2	Cingle phone		2.60	A	680	20	FNH00-20K-A	FSW160-3	4.00 ³⁾	MPW18-3-U010 / MPW18-3-U004 ³⁾	
CFW500A04P3B2	Or three-phase	200-240	4.30		680	25/20 ³⁾	FNH00-25K-A / FNH00-20K-A ³⁾	FSW160-3	16.00 / 6.30 ³⁾	MPW18-3-U016 / MPW18-3-D063 ³⁾	
CFW500B07P3B2			7.30	P	450	40/20 ³⁾	FNH00-40K-A / FNH00-20K-A ³⁾	FSW160-3	25.00 / 16.00 ³⁾	MPW40-3-U025 / MPW18-3-U016 ³⁾	
CFW500B10P0B2			10.00		450	63/25 ³⁾	FNH1-63K-A / FNH00-25K-A ³⁾	FSW250-3 / FSW160-3 ³⁾	32.00 / 16.00 ³⁾	MPW40-3-U032 / MPW18-3-U016 ³⁾	
CFW500A07P0T2		200-240	7.00	- A	680	20	FNH00-20K-A	FSW160-3	10.00	MPW18-3-U010	
CFW500A09P6T2			9.60		1,250	25	FNH00-25K-A	FSW160-3	16.00	MPW18-3-U016	
CFW500B16P0T2			16.00	В	1,000	40	FNH00-40K-A	FSW160-3	25.00	MPW40-3-U025	
CFW500C24P0T2	Three-phase		24.00	C	1,000	63	FNH00-63K-A	FSW160-3	40.00	MPW40-3-U040	
CFW500D28P0T2		200 210	28.00	- D - E	2,750	63	FNH00-63K-A	FSW160-3	40.00	MPW65-3-U040	
CFW500D33P012			33.00		2,750	80	FNH00-80K-A	FSW160-3	50.00	MPW65-3-U050	
CFW500E47P012	-		47.00		2,750	100	FNH00-100K-A	FSW160-3	65.00	MPW80-3-0080	
CFW500E56P012			56.00		6,600	125	FNH00-125K-A	FSW160-3	80.00	MPW65-3-0065	
CFW500A01P014	-		1.00	-	450	20	FNHU0-20K-A	FSW160-3	1.60	MPW18-3-D016	
	-		1.00		450	20		F5W100-3	2.50	MDW10-3-D023	
CEW500A02F014	-		2.00	A	450	20		FSW100-3	6.20	MDW18 2 D062	
CEW500A04F314			6.10	-	450	20	FNH00-20K-A	FSW160-3	10.00	MPW18-3-11010	
CFW500R02P6T4			2.60		450	20	FNH00-20K-Δ	ESW160-3	4 00	MPW18-3-11004	
CFW500B04P3T4	1		4 30	-	450	20	FNH00-20K-A	ESW160-3	6.30	MPW18-3-D063	
CFW500B06P5T4	Three-phase	380-480	6.50	В	450	20	FNH00-20K-A	FSW160-3	10.00	MPW18-3-U010	
CFW500B10P0T4		000 100	10.00		1.000	25	FNH00-25K-A	FSW160-3	16.00	MPW18-3-U016	
CFW500C14P0T4			14.00		1.000	35	FNH00-35K-A	FSW160-3	20.00	MPW40-3-U020	
CFW500C16P0T4			16.00	C	1,000	35	FNH00-35K-A	FSW160-3	25.00	MPW40-3-U025	
CFW500D24P0T4			24.00		1,800	63	FNH00-63K-A	FSW160-3	40.00	MPW65-3-U040	
CFW500D31P0T4			31.00		1,800	63	FNH00-63K-A	FSW160-3	50.00	MPW65-3-U050	
CFW500E39P0T4			39.00	E	2,100	80	FNH00-80K-A	FSW160-3	50.00	MPW65-3-U050	
CFW500E49P0T4			49.00		13,000	100	FNH00-100K-A	FSW160-3	55.00	MPW65-3-U065	
CFW500C01P7T5			1.70		495	20	FNH00-20K-A	FSW160-3	2.50	MPW18-3-U025	
CFW500C03P0T5			3.00	-	495	20	FNH00-20K-A	FSW160-3	4.00	MPW18-3-U004	
CFW500C04P3T5	Three-phase	500-600	4.30	С	495	20	FNH00-20K-A	FSW160-3	6.30	MPW18-3-U063	
CFW500C07P0T5	-	500 000	7.00		495	20	FNH00-20K-A	FSW160-3	10.00	MPW18-3-U010	
CFW500C10P0T5	-		10.00	-	495	25	FNH00-25K-A	FSW160-3	16.00	MPW18-3-U016	
CFW500C12P015			12.00		495	25	FNH00-25K-A	FSW160-3	16.00	MPW18-3-U016	

Notes: 1) For UL protections, consult WEG Automation sales department.
2) Protection of the electrical circuit only. In order to protect the VSDs, use the recommended semiconductor fuses.
3) The first value refers to the single-phase power supply and the second value to the three-phase power supply.
4) Designed for exclusive industrial or professional use.



Sizes



Front view

Side view

Size	A	В	С	D	Н	L	Р	Weight
	mm	mm	mm	mm	mm	mm	mm	kg
A	50.0	175.0	11.9	7.2	189.0	75.0	150.0	0.8
В	75.0	185.0	11.8	7.3	199.0	100.0	160.0	1.2
С	100.0	195.0	16.7	5.8	210.0	135.0	165.0	2.0
D	125.0	290.0	27.5	10.2	306.6	180.0	166.5	4.3
E	150.0	330.0	34.0	10.6	350.0	220.0	191.5	10.0

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

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
	Safety standards	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
Stanuarus		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	EN 60529 - Degrees of protection provided by enclosures (IP code)
	standards	UL 50 - Enclosures for electrical equipment



Technical Specifications

		Tolerance: -15 to +10%
Power rating		Frequency: 50/60 Hz (48 Hz to 62 Hz)
	Power supply	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%
		V/F (scalar)
Control	Method	Vector without encoder (sensorless) and closed loop vector with encoder
		PWM SVM (space vector modulation)
	Output frequency	0 to 500 Hz, resolution of 0.015 Hz
	V/F Control	Speed regulation: 1% of the rated speed (with slip compensation)
		Speed regulation: 1% of the rated speed
Performance	Vector control (VVW)	Speed variation range: 1:30
renormance	Sensorless	Speed regulation: 0.5% of the rated speed Speed variation range: 1:100
	Vector control with Encoder	Speed regulation: ±0.01% of the rated speed Speed variation range: 1:100
		0 °C to 40 °C - NEMA1
		0 °C to 40 °C - IP20 side by side and / or with RFI filter
	Temperature around the CFW500	0 °C to 50 °C - IP20 without RFI filter For temperatures above the specification, it is necessary to apply a 2% of current derating for each degree Celsius (°C), limited to an
		increase of 10 °C
	Annressive environments	Protection Class 3C2 - Standard coating on the internal circuits, according to IEC 60721-3-3 (standard model)
Environment conditions	Aggrosolve environmento	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
	Analog	Linearity error $\leq 0.25\%$
		Impedance: 100 k Ω for voltage input, 500 Ω for current input
		Programmable functions Maximum voltage accented in the inputs: 30 V dc
Inputa ¹⁾		4 isolated inputs
inputs*		Programmable functions:
	Digital	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
	Digitai	Maximum input voltage of 30 V dc
		Input current: 4.5 mA
		Maximum input current: 5.5 mA
		Linearity error $\leq 0.25\%$
	Analog	Programmable functions
		RL ≥10 kΩ (0 to 10 V) or RL ≤500 Ω (0 to 20 mA / 4 to 20 mA)
		1 relay with NU/NC contact Maximum voltage: 240 V ac
	Relay	Maximum current of 0.5 A
Outputs ¹⁾		Programmable functions
	Transistor	1 isolated open sink digital output (using as reference the 24 V dc power supply)
	11 011315101	Programmable functions
		24 V dc power supply.
	Power supply	Maximum capacity: 150 mA ²⁾ Power supply of 10 V dc
		Maximum capacity: 2 mA
Communication	Selectable plug-in	Fieldbus: CANopen, DeviceNet, Profibus-DP, EtherNet-IP, Modbus-TCP, Profinet-IO
		Phase-phase overcurrent/short circuit in the output
Safety		Phase-ground overcurrent/short circuit in the output
		Undervoltage/overvoltage in the power Overtemperature of the beatsink
	Protection	Motor overload
		Overload on the power module (IGBTs)
		Programming error
		9 keys: Run/Stop, Increment, Decrement, Direction of rotation, Jog, Local/Remote, Back/Esc and Enter/Menu
	Chandrad	LCD Display
Operating interface (HMI)	(built in the CFW500)	Accuracy of the indications:
		Current: 5% of the rated current
		Speed resolution: 0.1 Hz
Protection degree	IP20	Sizes A, B, C, D and E
	NEMA1/IP20	Sizes A, B, C, D and E with NEMA1 kit

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.

Block Diagram



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) Available for sizes D and E only. Inductor on the DC link not included.

4) Resistor not included. Internal dynamic braking (IGBT) built-in on sizes B, C, D and E.

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