

DATASHEET

Variable Speed Drives



Main Features

| | |
|--------------|-------------------|
| Reference | : NACFW110370T4SZ |
| Product code | : 11411164 |
| Product line | : CFW11 |

Basic data

| | |
|-------------------------------|-------------|
| Power supply | : 380-480 V |
| Input minimum-maximum voltage | : 323-528 V |
| Number of phases | |
| Input | : 3 |
| Output | : 3 |

| Supply voltage range | 380-480 V | |
|--------------------------|-------------|------------|
| Overload regime | Normal (ND) | Heavy (HD) |
| Rated current | 370 A | 312 A |
| Overload current at 60 s | 407A | 468A |
| Overload current at 3 s | 555A | 624A |

Maximum applicable motor

| Voltage/Frequency | Power (HP / kW) [1] | |
|-------------------|----------------------|---------------------|
| | Normal Overload (ND) | Heavy Overload (HD) |
| 380V / 50Hz | 250 / 185 | 220 / 160 |
| 380V / 60Hz | 250 / 185 | 200 / 150 |
| 400V / 50Hz | 270 / 200 | 220 / 160 |
| 400V / 60Hz | 250 / 185 | 200 / 150 |
| 440V / 50Hz | 300 / 220 | 250 / 185 |
| 440V / 60Hz | 300 / 220 | 250 / 185 |
| 460V / 60Hz | 300 / 220 | 270 / 200 |
| 480V / 60Hz | 300 / 220 | 270 / 200 |

| | |
|---|---|
| Dynamic braking [2] | : Standard without braking |
| Electronic supply | : Internal |
| Safety Stop | : No |
| RFI internal filter [3] | : With filter (C3 category) |
| External filter | : Not available |
| Link Inductor | : Yes |
| Memory card | : Included in the product |
| USB port | : Standard in the product |
| 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 |
| Rated current of single-phase input | |
| - Overload (ND) | : |
| - Overload (HD) | : |
| Rated current of three-phase input | |
| - Overload (ND) | : 370A |
| - Overload (HD) | : 312A |
| Typical input power factor | : 0,94 |
| Displacement factor | : 0,98 |
| Rated efficiency | : ≥ 98% |
| Maximum connections (power up cycles - on/off) per hour | : 60 |
| DC power supply | : Not allow |
| Standard switching frequency | |
| - Overload ND | : 2,5 kHz |
| - Overload HD | : 2,5 kHz |
| Selectable switching frequency | : 1,25; 2 and 5 kHz |
| Real-time clock | : Yes, in the HMI |
| Copy Function | : Yes, by HMI/MMF |
| Dissipated power: | |

| Mounting type | Overload | | Overload (*) | |
|---------------|----------|--------|----------------|----------------|
| | ND | HD | ND | HD |
| Surface | 4578 W | 3829 W | Not applicable | Not applicable |
| Flange | 900 W | 722 W | Not applicable | Not applicable |

Source available to the user

| | |
|------------------|----------|
| Output voltage | : 24 Vcc |
| Maximum capacity | : 500 mA |

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|------------|---|------------|
| 28/03/2024 | The information contained are reference values. Subject to change without notice. | Page 1 / 4 |
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Control/performance data

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|----------------------------------|---------------------------------|
| Power supply | : Switched-mode power supply |
| Control method - induction motor | : V/f, VVW, Vector and PM motor |
| Encoder interface | : Only with 'Slot 2' accessory |
| Control output frequency [5] | : 0 to 300 Hz |
| Frequency resolution | : Equivalent to 1 rpm |
| V/F Control | |
| - Speed regulation | : 1% of rated speed |
| - Speed variation | : 1:20 |
| VVW Control | |
| - Speed regulation | : 1% of rated speed |
| - Speed variation | : 1:30 |
| Sensorless vector control | |
| - Speed regulation | : 0,5% of rated speed |
| - Speed variation | : 1:100 |
| Vector control with encoder | |
| - Speed regulation | : 0,05% of rated speed |
| - Speed variation | : Up to 0 rpm |

Analog inputs

| | |
|-------------------------------|--------------------------------|
| Quantity (standard) | : 2 |
| Levels | : 0-10V, 0/4-20mA and -10-+10V |
| Impedance | |
| - Impedance for voltage input | : 400 kΩ |
| - Impedance for current input | : 500 Ω |
| Function | : Programmable |
| Maximum allowed voltage | : ± 30 Vcc |

Digital inputs

| | |
|-------------------------|-----------------------|
| Quantity (standard) | : 6 |
| Activation | : Active low and high |
| Maximum low level | : 3 V |
| Minimum high level | : 18 V |
| Input current | : 11 mA |
| Maximum input current | : 13,5 mA |
| Function | : Programmable |
| Maximum allowed voltage | : 30 Vcc |

Analog outputs

| | |
|-----------------------|-------------------------------------|
| Quantity (standard) | : 2 |
| 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

| | |
|---------------------|------------------|
| Quantity (standard) | : 3 NO/NC relays |
| Maximum voltage | : 240 Vca |
| Maximum current | : 1 A |
| Function | : Programmable |

Communication

- Modbus-RTU (with accessory: RS485-01; RS485-05; CAN/RS485-01; RS232-01 or RS232-05)
- Modbus/TCP (with accessory: MODBUSTCP-05)
- Profibus DP (with accessory: PROFDP-05)
- Profibus DPV1 (with accessory: PROFIBUS DP-01)
- Profinet (with accessory: PROFINETIO-05)
- CANopen (with accessory: CAN/RS485-01 or CAN-01)
- DeviceNet (with accessory: DEVICENET-05; CAN/RS485-01 or CAN-01)
- EtherNet/IP (with accessory: ETHERNET/IP-05 or ETHERNETIP-2P-05)
- EtherCAT (with accessory: ETHERCAT-01)
- BACnet (with accessory: RS485-01 or CAN/RS485-01)

Protections available

- Output overcurrent/short circuit
- Power supply phase loss
- Under/Overvoltage in power
- Overtemperature
- Motor overload
- IGBT's modules overload
- Fault/External alarm
- Breaking resistor overload
- CPU or memory failure
- Output phase-ground short circuit

Operation interface (HMI)

| | |
|-----------------------|---------------------------|
| Availability | : Included in the product |
| HMI installation | : Local |
| Number of HMI buttons | : 9 |

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Operation interface (HMI)

| | |
|-----------------------------------|------------------------------|
| Display | : Graphic LCD |
| Indication accuracy | : 5% of rated current |
| Speed resolution | : 1 rpm |
| Standard HMI degree of protection | : IP56 |
| HMI battery type | : CR2032 |
| HMI battery life expectancy | : 10 years |
| Remote HMI type | : Detachable of the inverter |
| Remote HMI frame | : Accessory |
| Remote HMI degree of protection | : IP56 |

Ambient conditions

| | |
|------------------------------------|--|
| Enclosure | : IP20 |
| Pollution degree | : 2 (EN50178 and UL508C) |
| Temperature | <ul style="list-style-type: none"> - Minimum : -10 °C / 14 °F - Nominal [4] : 45 °C / 113 °F |
| Current reduction factor [5] | : 2 % per °C of 45 (113) to 55 °C (131 °F) |
| Relative humidity (non-condensing) | <ul style="list-style-type: none"> - Minimum : 5% - Maximum : 90% |
| Altitude | <ul style="list-style-type: none"> - Rated conditions : 1000 m (3281 ft) - Maximum allowed for operation (with derating factor) : 4000 m (13123 ft) |
| Current Reduction factor[6] | <ul style="list-style-type: none"> - Current derating factor (for altitudes above rated) : 1% for each 100 m above (0,3% for each 100 ft above) - Voltage derating factor (for altitudes above 2000 m / 6562 ft) : 1,1% for each 100 m above (0,33% for each 100 ft above) |

Sustainability policies

| | |
|-------------------|----------------------------|
| RoHS | : Yes |
| Conformal Coating | : 3C2 (IEC 60721-3-3:2002) |

Dimensions

| | |
|--------|---------------------|
| Size | : F |
| Height | : 1234 mm / 48.6 in |
| Width | : 430 mm / 16.9 in |
| Depth | : 360 mm / 1.18 in |
| Weight | : 135 kg / 297.6 lb |

Mechanical installation

| | |
|-------------------------------------|------------------------|
| Mounting position | : Surface or flange |
| Fixing screw | : M10 |
| Tightening torque | : 37 N.m / 27.31 lb.ft |
| Allows side-by-side assembly | : No |
| Minimum spacing around the inverter | |
| - Top | : 150 mm / 5.91 in |
| - Bottom | : 250 mm / 9.84 in |
| - Front | : 20 mm / 0.78 in |
| - Between inverters (IP20) | : 80 mm / 3.15 in |

Electrical connections

Cable gauges and tightening torque:

| | Recommended cable gauge to 75 °C (167 °F) | Recommended tightening torque |
|-----------|---|--|
| Power | 2x 95 mm ² (2x 3/0 AWG) HD | Power 60,0 N.m (44.28 lb.ft) and braking 10,0 N.m (7.38 lb.ft) |
| Braking | Not applicable | Power 60,0 N.m (44.28 lb.ft) and braking 10,0 N.m (7.38 lb.ft) |
| Grounding | 120 mm ² (4/0 AWG) | 10 N.m / 7.38 lb.ft |
| Control | 0,5 to 1,5 mm ² (20 to 14 AWG) | 0,5 N.m / 0.37 lb.ft |

Additional specifications

| | |
|---|------------------|
| Maximum breaking current | : Not available |
| Minimum resistance for the brake resistor | : Not available |
| Recommended aR fuse [6] | : FNH2-710K-A |
| Recommended aR fuse [6] | : Not applicable |
| Recommended circuit breaker [6] | : To define |
| Recommended circuit breaker [6] | : Not applicable |

Standards

| | |
|--------|--|
| Safety | <ul style="list-style-type: none"> - 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: To have a machine in accordance with this |
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| | <p>standard, the machine manufacturer is responsible for installing an emergency stop device and supply disconnecting device.</p> <ul style="list-style-type: none">- 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 | <p>EN 61800-3 - Adjustable speed electrical power drive systems - Part 3: EMC product standard including specific test methods.</p> <ul style="list-style-type: none">- EN 55011 - Limits and methods of measurement of radio disturbance characteristics 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 (EMC) - Part 4: Testing and measurement techniques - Section 3: Radiated, radio-frequency, electromagnetic field immunity test.- EN 61000-4-4 - Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques - Section 4: Electrical fast transient/burst immunity test.- EN 61000-4-5 - Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques - Section 5: Surge immunity test.- 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 | <ul style="list-style-type: none">- EN 60529 - Degrees of protection provided by enclosures (IP code).- UL 50 - Enclosures for electrical equipment.- EN 60529 e UL 50 |

Certifications

Notes

- 1) Orientative motor power, valid for WEG Motors standard of 4 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) With category for emission level conducted;
- 4) Without derating and with minimum spaces;
- 5) For temperatures above the nominal and maximum temperature (with derating of current and minimum spaces);
- 6) For altitude over of specified;
- 7) All images are merely illustrative;
- 8) For more information, see the users manual of the CFW-11 (size F).