

# HF430 AC FLUX VECTOR DRIVES

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(V/F, Sensorless Vector and Closed-Loop Vector)



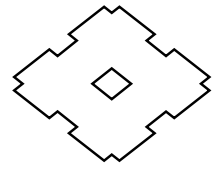
**HF4304-A75-W**  
**1 HP, 460V**

## Digital Operator Panel (DOP):

- Local Digital Operator – Standard
  - Removable
  - Remote Mountable
    - NEMA 12 Rated
  - Digital Frequency Setting with Resolution to 0.01 Hz
  - Run and Stop Keys
  - Function and Store Keys for Programming
  - Increase and Decrease Keys
    - Set Frequency (local mode)
    - Drive Programming
  - Speed Potentiometer
    - Standard (5 HP and under)
    - Optional (over 5 HP)
- Optional Deluxe Keypad with Parameter Copy & Parameter Download Capability

## FEATURES:

- 3 Operating Modes Provide Application Flexibility:
  - V/F (Volts-per-Hertz)
  - Sensorless Vector (SLV)
  - Closed-Loop Vector (CLV) (requires encoder feedback option)
- Space-Saving Compact Size
- Easy Maintenance of Cooling Fan(s) and DC Bus Capacitors
- Conforms to Global Standards (UL, cUL, CE)
- Serial Communications (RS-485 standard, DeviceNet & Profibus optional)
- High Starting Torque - 200% or Greater (in SLV or CLV control modes)
- Constant Torque Speed Range to Fit Application Requirements
  - (10:1 in V/F Mode, 120:1 in SLV mode and 1000:1 in CLV mode)
- Simultaneously Accommodates 2 Option Cards (Encoder Feedback & Communication)
- IP 20 (NEMA 1 Enclosure)



## HF430 Specifications

**Input Voltage: 200-240V (±10%), 3-Phase, 50/60 Hz**

| HF4302-   | A40-W | A75-W | 1A5-W | 2A2-W | 3A7-W | 5A5 | 7A5 | 011 | 015  | 022  | 030  | 037  | 045  | 055  |
|-----------|-------|-------|-------|-------|-------|-----|-----|-----|------|------|------|------|------|------|
| HP        | 0.5   | 1     | 2     | 3     | 5     | 7.5 | 10  | 15  | 20   | 30   | 40   | 50   | 60   | 75   |
| kW        | 0.4   | .75   | 1.5   | 2.2   | 3.7   | 5.5 | 7.5 | 11  | 15   | 22   | 30   | 37   | 45   | 55   |
| Current   | 3.0   | 5.0   | 7.5   | 10.5  | 16.5  | 24  | 32  | 46  | 64   | 95   | 121  | 145  | 182  | 220  |
| Wgt. (lb) | 7.7   | 7.7   | 7.7   | 7.7   | 7.7   | 7.7 | 11  | 11  | 26.4 | 26.4 | 44   | 66   | 66   | 110  |
| Loss (W)  | 70    | 88    | 125   | 160   | 235   | 325 | 425 | 600 | 800  | 1150 | 1550 | 1900 | 2300 | 2800 |

**Input Voltage: 380-480V (±10%), 3-Phase, 50/60 Hz**

| HF4304-   | A75-W | 1A5-W | 2A2-W | 3A7-W | 5A5 | 7A5 | 011 | 015  | 022  | 030  | 037  | 045  | 055  |
|-----------|-------|-------|-------|-------|-----|-----|-----|------|------|------|------|------|------|
| HP        | 1     | 2     | 3     | 5     | 7.5 | 10  | 15  | 20   | 30   | 40   | 50   | 60   | 75   |
| kW        | .75   | 1.5   | 2.2   | 3.7   | 5.5 | 7.5 | 11  | 15   | 22   | 30   | 37   | 45   | 55   |
| Current   | 2.5   | 3.8   | 5.3   | 8.6   | 12  | 16  | 23  | 32   | 48   | 58   | 75   | 90   | 110  |
| Wgt. (lb) | 7.7   | 7.7   | 7.7   | 7.7   | 7.7 | 11  | 11  | 26.4 | 26.4 | 44   | 66   | 66   | 66   |
| Loss (W)  | 88    | 125   | 160   | 235   | 325 | 425 | 600 | 800  | 1150 | 1550 | 1900 | 2300 | 2800 |

### General:

|                       |  |
|-----------------------|--|
| Control Method        | Sinusoidal PWM   |
| Output Freq. Range    | 0.1 to 400.0 Hz  |
| Frequency Resolution  | Digital: 0.01 Hz, Analog: Max. Frequency/4096  |
| Speed Regulation      | V/F Mode: Motor Slip<br>Sensorless Vector Mode: ±0.5% of Base Speed<br>Closed Loop Vector Mode: ±0.04% of Base Speed                                     |
| Accel/Decel Time      | 2 settings for each – 0.01 to 3600 Sec   |
| Accel/Decel Mode      | Linear, S-Curve or U-Curve   |
| Overload Capacity     | 150% for 60 Seconds, 200% for 0.5 Second   |
| Starting Torque       | 200% or better (in Vector Mode)  |
| Analog Inputs         | 3 Total: 12 bit resolution (Max. Frequency/4096)<br>(0 to 10 VDC, -10 to +10 VDC, 4 to 20 mADC)  |
| Digital Inputs        | 9 Total: 1 Fixed, 8 Programmable (Selectable Sinking or Sourcing)  |
| Analog Outputs        | 2 Total: (0 to 10 VDC, 4 to 20 mADC)   |
| Meter Output          | 10 VDC PWM or Pulse Train at Output Frequency  |
| Digital Outputs       | 6 Total: 1 Form C Relay, 5 Open Collector Transistors  |
| Carrier Frequency     | Programmable 0.5 to 15 kHz (5 kHz max. if ambient over 40°C)   |
| Enclosure             | IP20 (NEMA 1)  |
| Operating Environment | -10°C to 50°C (14°F to 122°F) Derate 2%/degree over 40°C (104°F)<br>Not subjected to corrosive or conductive atmospheres, spraying or splashing liquids. |
| Storage Environment   | -20°C to 65°C (-4°F to 149°F)<br>Not subjected to corrosive or conductive atmospheres, dripping liquids or excessive vibration.                          |
| Vibration             | 10 – 55 Hz, ≤ 30 HP; 0.6G (5.9m/s <sup>2</sup> ), > 30 HP: 0.3G (2.95 m/s <sup>2</sup> )   |
| Elevation             | 1000 m (3300 ft) Derate 1% per 100 m above 1000 m to 4000 m max.   |
| Communication Ports   | Standard: RS-485 & RS-422 for Local Keypad<br>Optional: DeviceNet, Profibus  |
| Encoder Feedback      | Option Board: Accepts 128 to 65000 PPR Encoder   |