

**VARIABLE SPEED PUMPING SYSTEMS**  
**PRODUCT DATA BULLETIN**

AC ADJUSTABLE  
 FREQUENCY DRIVES

***AC Tech MCH Series***  
***Pulse-Width Modulation (PWM)***  
***Variable Frequency Drive***

**STANDARD FEATURES**

- 3-250 Horsepower
- NEMA 1 Enclosure
- Input Disconnect Switch
- Input Line Reactors
- Hand-Off-Auto Switch
- I<sup>2</sup>T Electronic Motor Overload Protection
- Input Fuses
- 32 Character LCD Display
- % Speed and % Load Display



**CURRENT RATINGS**

**240 VAC**

HP	AMPS
3	9.6
5	15.2
7.5	22
10	28
15	42
20	54
25	68
30	80
40	104
50	130
60	154

**480 VAC**

HP	AMPS
3	4.8
5	7.6
7.5	11
10	14
15	21
20	27
25	34
30	40
40	52
50	65
60	77
75	96
100	124
125	156
150	180
200	240
250	300

**590 VAC**

HP	AMPS
3	3.9
5	6.1
7.5	8.8
10	11
15	16.9
20	21.5
25	26.9
30	31.9
40	40.8
50	51.8
60	61.7
75	77
100	99
125	125
150	144
200	192

## AFD SPECIFICATIONS

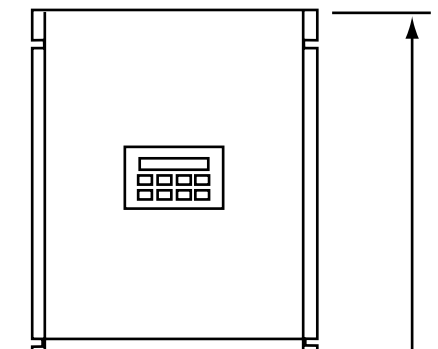
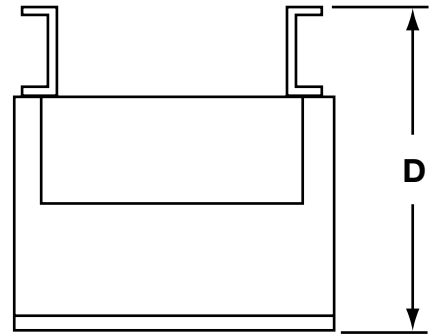
• Input Voltage	200/240, 480 and 590 VAC
• Voltage Tolerance	+/-10%, -15% of nameplate
• Ambient Operating Temperature	-10° to 40°C
• Storage Temperature	-20° to 70°C
• Ambient Humidity	95% non-condensing
• Altitude	To 3300 feet above sea level
• Displacement Power Factor	Near unity at all speeds
• Typical Efficiency	97% at full load
• Carrier Frequency	Up to 8 kHz
• Service Factor	1.0
• Overload Current Capacity	120% for 1 minute
• Power Loss Ride Through	700 milliseconds
• Over Voltage Protection	Standard
• Under Voltage Protection	Standard
• Output Short Circuit Protection	Standard
• Motor Overload Protection	Electronic (I <sup>2</sup> T) Thermal overloads included with bypass option
• Input Fuses	Standard
• Phase to Phase Fault Protection	Standard
• Ground Fault Protection	Standard
• Display	32 Character Backlit LCD – Run Status – Commanded and actual speed – Speed (Hz, RPM, %) – Load in Percent – Hand/Off/Auto Status – Fault Conditions – Output Voltage
• Agency Approval	UL and CSA
• Warranty	24 mos. from ship date or 18 mos. from start-up, whichever occurs first. <b>PARTS ONLY.</b>

# DIMENSIONAL DRAWING

## STANDARD DRIVE WITH DISCONNECT

HP	VOLTAGE	H	W	D	HP	VOLTAGE	H	W	D
3	240	24.80	8.30	8.25	30	24.0	47.75	12.45	12.10
	480	24.80	8.30	8.25		480	36.75	12.45	10.60
	590	24.80	8.30	8.25		590	36.75	12.45	10.60
5	240	30.18	10.00	9.90	40	240	55.00	19.60	13.00
	480	24.80	8.30	8.25		480	39.75	12.45	10.60
	590	30.18	10.00	9.90		590	39.75	12.45	10.60
7.5	240	31.68	10.00	9.90	50	240	59.00	19.60	13.00
	480	31.68	10.00	9.90		480	51.75	12.45	12.10
	590	31.68	10.00	9.90		590	51.75	12.45	12.10
10	240	33.55	10.00	9.90	60	240	59.00	19.60	13.00
	480	31.68	10.00	9.90		480	51.75	12.45	12.10
	590	31.68	10.00	9.90		590	51.75	12.45	12.10
15	240	35.05	10.00	9.90	75-100	480	59.00	19.60	13.00
	480	33.55	10.00	9.90		590	59.00	19.60	13.00
	590	35.05	10.00	9.90	125-150	480	59.00	27.00	13.00
20	240	36.75	12.45	10.60		590	59.00	27.00	13.00
	480	35.05	10.00	9.90	200-250	480	59.00	39.25	13.00
	590	35.05	10.00	9.90		590	59.00	39.25	13.00
25	240	47.75	12.45	12.10					
	480	36.75	12.45	10.60					
	590	36.75	12.45	10.60					

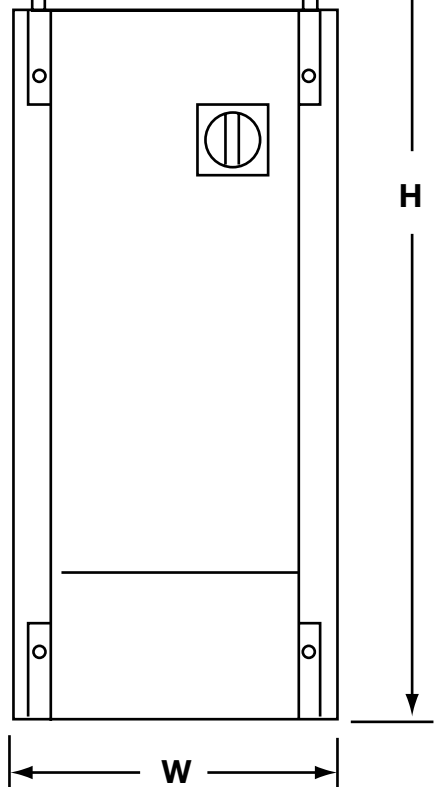
NOTE: ALL DIMENSIONS ARE APPROXIMATE AND IN INCHES.



## DRIVE WITH MANUAL BYPASS

HP	VOLTAGE	H	W	D	HP	VOLTAGE	H	W	D
3	240	24.50	11.50	8.25	30	24.0	37.75	18.00	12.25
	480	24.50	11.50	8.25		480	36.75	16.00	10.75
	590	24.50	11.50	8.25		590	36.75	16.00	10.75
5	240	29.88	13.50	9.90	40	240	54.50	24.00	11.86
	480	24.50	11.50	8.25		480	39.75	16.00	10.75
	590	29.88	13.50	9.90		590	39.75	16.00	10.75
7.5	240	31.38	13.50	9.90	50	240	54.50	24.00	11.86
	480	31.38	13.50	9.90		480	51.75	18.00	12.25
	590	31.38	13.50	9.90		590	51.75	18.00	12.25
10	240	33.25	13.50	9.90	60	240	69.50	36.00	13.01
	480	31.38	13.50	9.90		480	51.75	18.00	12.25
	590	31.38	13.50	9.90		590	51.75	18.00	12.25
15	240	34.75	13.50	9.90	75-100	480	58.50	24.00	11.86
	480	33.25	13.50	9.90		590	58.50	24.00	11.86
	590	34.75	13.50	9.90	125-150	480	69.50	36.00	13.01
20	240	36.75	16.00	10.75		590	69.50	36.00	13.01
	480	35.25	13.50	9.90	200-250	480	81.50	36.00	16.00
	590	34.75	13.50	9.90		590	81.50	36.00	16.00
25	240	37.75	18.00	12.25					
	480	36.75	16.00	10.75					
	590	36.75	16.00	10.75					

NOTE: ALL DIMENSIONS ARE APPROXIMATE AND IN INCHES.



# Powersav AFD Specification

## AC Tech MCH Series

1. The adjustable frequency drive(s) shall be pulse width modulation (PWM) type, utilizing intelligent power modules. Units shall be Series MCH manufactured by AC Tech Corporation.
2. The AFD, including all factory options, shall have UL and CSA approval.
3. Enclosure shall be NEMA 1 ventilated for installation as a wall mounted unit. Drive shall be equipped with an input disconnect switch and input fuses. A hand-off-auto switch shall be mounted on the front of the enclosure.
4. The VFD shall produce an adjustable AC voltage/frequency output. It shall consist of a full-wave diode bridge to convert incoming fixed voltage/frequency to a fixed DC voltage. The inverter output shall be generated by an IGBT-based Intelligent Power Module. The VFD shall have continuous output rating of 100% motor nameplate current, with an overload rating of 120% VFD nameplate rating for 1 minute.
5. Protective Features and Circuits
  - A. Phase-to-ground or phase-to-phase short circuit shall cause fault trip
  - B. High and low line voltage shall cause a fault trip
  - C. Electronic thermal overload shall cause a fault trip
  - D. VFD shall be insensitive to incoming power phase sequence
  - E. DC bus discharge circuit
  - F. Input line noise suppression
  - G. 0.5 second power loss logic ride through
6. The AFD shall have capability to provide automatic restart after a power outage or fault trip condition resulting from overcurrent, overvoltage, undervoltage or overtemperature. It shall resume control of a spinning motor by matching frequency and then accelerating or decelerating the motor to the commanded speed.
7. The AFD shall be suitable for elevations to 3300 feet above sea level without derating. Maximum operating ambient temperature shall not be less than 104° F. AFD shall be suitable for operation in environments up to 95% non-condensing humidity.
8. Speed Reference signal shall be customer selectable for:
  - A. 4-20 mA
  - B. 0-10 VDC
9. The AFD shall be capable of displaying the following information on the door mounted operator interface:
  - A. Percent speed
  - B. Percent load
  - C. Output frequency
  - D. Fault identification
  - E. Motor RPM
  - F. Run status
10. All AFDs shall be warranted for a period of 24 months after shipment or 18 months after start-up, whichever occurs first. This warranty shall cover parts only.

**Authorized Representative**



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