Bell & Gossett
a xylem brand

TECHNICAL BROCHURE
D-154E

ABB ACH 550

PULSE WIDTH MODULATION AC DRIVE (PWM)

3-100 HP 200-240V, 3PH, 48-63 HZ
3-550 HP 380-480V, 3PH, 48-63 HZ

*ACTUAL FULL LOAD CURRENT OF MOTOR SHOULD BE USED TO PROPERLY SIZE AFD.

POWERSAV®
VARIABLE SPEED PUMPING SYSTEMS

STANDARD FEATURES

- Multilingual Alphanumeric Display for:
  Output Frequency (Hz)
  Output Voltage
  Motor Current
  KWh Meter
  Fault Indication with Text
  % Torque
  % Power (kW)
  Speed (RPM)
  Real Time Clock
- NEMA 1 Enclosure
- Automatic Current Limit
- Protection Circuits
  UL 508C Electronic Motor Overload
  Ground Fault
  Short Circuit
  Over/Under Voltage
  Over Temperature
  Overcurrent
- Hand/Off/Auto Buttons
- Analog Output
- Automatic Restart
- Critical Frequency Avoidance
- UL and cUL listed; CE Labeled
- RS-485 Communications: Modbus, Johnson Metasys N2, Seimens FLN

OPTIONS

- Electronic Manual Bypass
- Thermal Motor Overloads
- NEMA 12 Enclosure
- Various Communication Protocols: Bacnet, Lonworks, Ethernet, Profibus

CURRENT RATINGS

HP @ 200-240V	AMPS
3	11.8
5	16.7
7.5	24.2
10	30.8
15	46.2
20	59.4
25	74.8
30	88
40	114
50	143
60	178
75	221
100*	285

*Available in 230V only.

HP @ 380V-480V	AMPS
3	6.9
5	8.8
7.5	11.9
10	15.4
15	23
20	31
25	38
30	44
40	59
50	72
60	77
75	96
100	124
125	157
150	180
200	245
250	316
300	368
400	486
450	526
500	602
550	645

AFD SPECIFICATIONS

Input Voltage	• 200-240V and 380-480V, 3Ø, 48-63 Hertz
Voltage Tolerance	• ±10%
Ambient Operating Temperature	• 0°C to 40°C
Storage Temperature	• -20°C to 70°C
Ambient Humidity	• To 95% non-condensing
Altitude	• 3,300 feet above sea level without derating
Power Factor	• .98 Regardless of speed or load
Efficiency	• 98% or greater at rated load
Carrier Frequency	• 4 or 8 kHz
Adjustments	• Minimum/maximum speed • Acceleration/Deceleration • Current Limit • Critical bypass frequencies with adjustable bandwidths • Analog inputs/outputs
Drive Protection	• Phase to phase short circuit • Overtemperature • Overcurrent • Under/Over Voltage • Motor Overload (I^2T) • Thermal overloads included with bypass option
Display	• Drive Enabled • Motor Amps • Power On • Ground Fault • Over Temperature • Motor Speed • Output Volts • Overcurrent • Motor Trip • Over/Under voltage
Analog Outputs	• Motor Current • Motor Speed
Agency Approval	• UL and cUL listed • CE labeled
Warranty	• 30 months from ship date or 24 months from start-up, Whichever occurs first. Parts, labor, travel time, and expenses.

DIMENSIONAL DRAWING

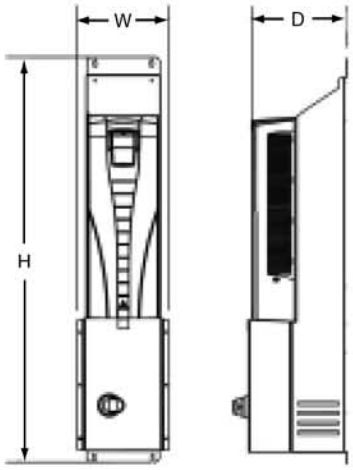
NOTE: All Dimensions are approximate and in inches.

DRIVE WITH DISCONNECT

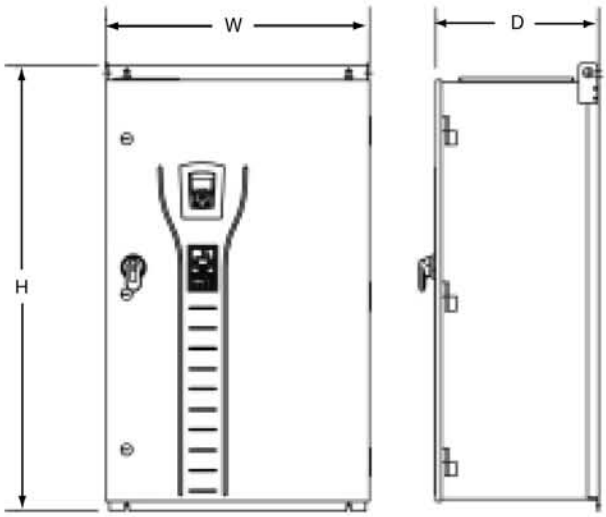
VOLTAGE	HP	Dwg.#	H	W	D	Drive Wt.
200-240	3-5	1	28.7	7.8	8.4	28
200-240	7.5-10	1	32.6	7.8	8.9	37
200-240	15-20	1	39.8	10.2	9.2	100
200-240	25-40	1	45.2	10.2	10.6	121
200-240	50-100	2	47.7	28.1	19.1	360
480	3-7.5	1	28.7	7.8	8.4	28
480	10-15	1	32.6	7.8	8.9	37
480	20-25	1	39.8	10.2	9.2	100
480	30-50	1	45.2	10.2	10.6	121
480	60-75	2	47.7	28.1	19.1	266
480	100-150	2	47.7	28.1	19.1	360
480	200	3	81.3	31.7	25.9	668
480	250-550	3	81.3	31.7	25.9	1000

DRIVE WITH ELECTRONIC BYPASS

VOLTAGE	HP	Dwg.#	H	W	D	Drive Wt.
200-240	3-5	2	33.4	17.4	12.6	78
200-240	7.5	2	33.4	17.4	12.6	84
200-240	10-20	2	37.7	20.5	14.4	120
200-240	25	2	37.7	20.5	14.4	138
200-240	30-40	2	47.7	28.1	19.1	266
200-240	50-75	2	47.7	28.1	19.1	360
240	100	2	47.7	28.1	19.1	360
480	3-7.5	2	33.4	17.4	12.6	78
480	10-15	2	33.4	17.4	12.6	84
480	20-25	2	37.7	20.5	14.4	120
480	30-50	2	37.7	20.5	14.4	138
480	60-75	2	47.7	28.1	19.1	266
480	100-150	2	47.7	28.1	19.1	360
480	200	3	81.3	31.7	25.9	668
480	250-550	3	81.3	31.7	25.9	1000



DWG #1



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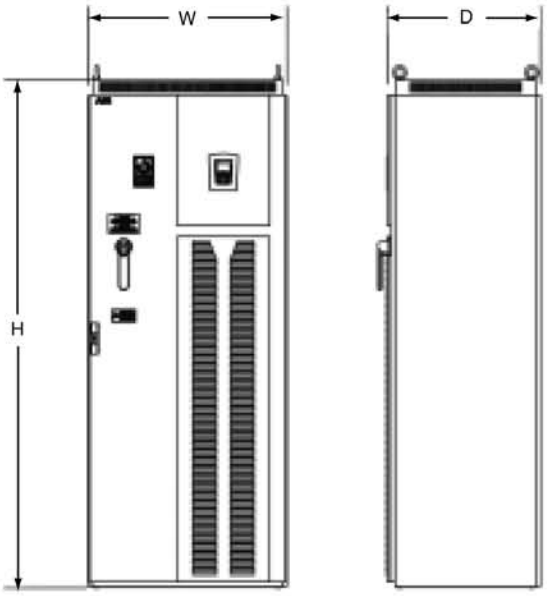

DWG #3

ABB ACH 550 AFD

1. The adjustable frequency drive(s) shall be pulse width modulation (PWM) type, microprocessor controlled design, AFD shall be capable of operating in voltage ranges of 200 to 240V and 380 to 480V AC, +/- 10%, three phase; at frequencies of 48 to 63 Hz. Unit shall be the ABB ACH 550 Series manufactured by ABB Drives & Power Products.
2. The AFD, including all factory-installed options, shall have UL and cUL approval.
3 Enclosure shall be NEMA 1 ventilated for installation as a wall mounted or freestanding unit, depending on the amp rating. Drive shall be equipped with an input disconnect switch, padlockable in the open position for safety during maintenance, and fuses to protect against ground faults.
4. An electronic manual bypass option shall be available to enable the operator to select normal or manual bypass of the drive. The electronic bypass includes two contactors. One contactor is the bypass contactor that connects the motor directly to the incoming power line in the event that the drive is out of service. The other is the drive output contactor that disconnects the drive from the motor when the motor is operating in the bypass mode. The drive output contactor and the bypass contactor are electrically interlocked to prevent "back feeding."
5. AFD shall utilize a full wave rectifier to convert three phase AC to a fixed DC voltage. Power factor shall remain above 0.98 regardless of speed or load. AFDs employing power factor correction capacitors shall not be acceptable.
6. Insulated gate bipolar transistors shall be used in the inverter section to convert to fixed DC voltage to a three phase, adjustable frequency, AC output.
7. The output switching frequency shall be selectable at 4 or 8 kHz. AFDs with an operable carrier frequency above 10 kHz shall not be acceptable.
8. An internal line reactor (5% impedance) shall be provided to lower harmonic distortion of the power line and to increase the fundamental power factor.
9. 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.
10. The AFD shall be capable of displaying the following information in plain English via an alphanumeric display:
    a. Output Frequency
    b. Output Voltage
    c. Motor Current
    d. Kilowatts per hour
    e. Fault identification with text
    f. Percent torque
    g. Percent power
    h. RPM
11. All AFDs shall be warranted for a period of 30 months from date of shipment or 24 months from date of start-up, whichever comes first. This warranty shall cover parts, labor, travel time, and expenses.

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