



# SUBMITTAL DATA

**Order #:** **Date:** 10/30/2025

**Project:** Steamboat Ski Shop - 646639

**Project #:**

**Submitter:** Mike Schwenk  
CFM COMPANY  
1440 South Lipan Street  
Denver Colorado 80223

	Drawing No.	Title
1.	00-80011	VP Code 36, 37- 0.5, 0.75, 1.0in diam
2.	00-80011	VP Code 36, 37 Notes
3.	35-80032	Horizontal DDBC Unit, Discharge Arrangement-3
4.	35-80045	Horizontal DDBC - External Space Requirement
5.	35-80048	DDBC - Standard Flat Filter-Rack
6.	35-80051	Horizontal DDBC - Alternate Control Enclosure Location
7.	70-35-11	Horizontal DDBC Alternate CE Location
8.	88-50000	DDBC 3Ph Select 1 Motor
9.	CCC-016	DDBC - 1-Row HW, Coil Connection Locations

Unit Tag	Quantity	User	Model	Coil Version
OAU-1	1	Mike Schwenk	AHD	8.12



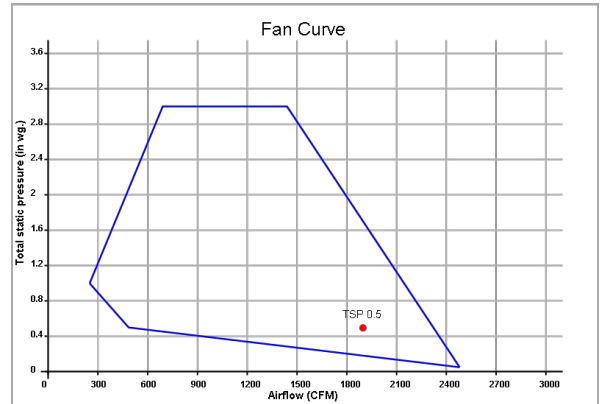
### General

Model	AHD: Horizontal Direct Drive
Unit Size	20
Elevation	6700
Unit Airflow	1900 (CFM)
Unit Voltage	208/3/60 ECM
Motor HP	1 (HP)
Motor Speed	Max
MCA / MSCP	4.62 / 15 (AMP)
Fan RPM	974 (RPM)
Fan Watts	527 (Watts)
Fan Quantity	1
Filter Type	2 Inch Pleated (MERV 8)
Weight	241 (LBS)
(Fans) Speed	Max
Total FLA	3.7 (AMP)

### Options and Accessories

Ship Cycle - 15 Day Quick Ship  
 Unit Arrangement - Fan Arr. 3 (Horiz. Top Front)  
 Insulation Type - Closed Cell Foam  
 Access Door - Hinged with Lift & Turn Fasteners  
 Coil Casing Material - Galvanized  
 External Vibration Isolator Type - Spring  
 External Vibration Isolator Mount - Ceiling Hung  
 Drain Pan Material - Galvanized Drain Pan  
 Drain Pan Handing - Left Hand  
 Control Enclosure Location - Alternate 1  
 Control Enclosure Handing - Left Hand  
 Disconnect Switch - Non-Fused Door Interlock Disconnect (40 Amp)  
 Spare 2 Inch Filter Set Qty - 0  
 Spare 4 Inch Filter Set Qty - 0  
 Motor Type - ECM  
 Motor Voltage - 208/3/60 ECM  
 Motor Qty - 1  
 Motor HP - 1  
 Total Motors FLA - 3.7  
 Motor Handing - Left Hand  
 Motor Control - Select (3-Speed Adjustable)  
 Flow Index - 55.64  
 Coil 1 Handing - Left Hand  
 Coil 1 Air Vent - Manual  
 Coil 1 Valve Package Type - Code 37 (3-Way, BV, FC)  
 Coil 1 Valve Package Size - 1/2 Inch  
 Coil 1 Fixed Flow Control GPM - 7  
 Coil 1 Y-Strainer - Yes  
 Coil 1 PT Ports - Yes  
 Coil 1 Unions - Yes  
 Coil 1 Stainless Hose - Yes  
 Coil 1 Actuator - Normally Closed - 2 Pos Close-Off

### Fan Curve



### Hot Water Coil Performance

EAT DB	30	(°F)
LAT DB	67.9	(°F)
EWT / LWT	180 / 160	(°F)
Sensible Capacity	65.58	(MBH)
Fluid Flow	6.75	(GPM)
Rows / FPI / Circuits	1 Row / 8 FPI / 5 Ckt	
Fluid PD	0.96	(FT.WG)
Fluid Velocity	2.91	(FPS)
Tube Wall	0.016	(IN.)
Coil Connection Size	5/8	(IN.)
Tube Diameter	1/2	(IN.)

### Pressure Drop

TSP	0.5	(IN.WG)
Filter SP	0.144	(IN.WG)
ESP	0.25	(IN.WG)

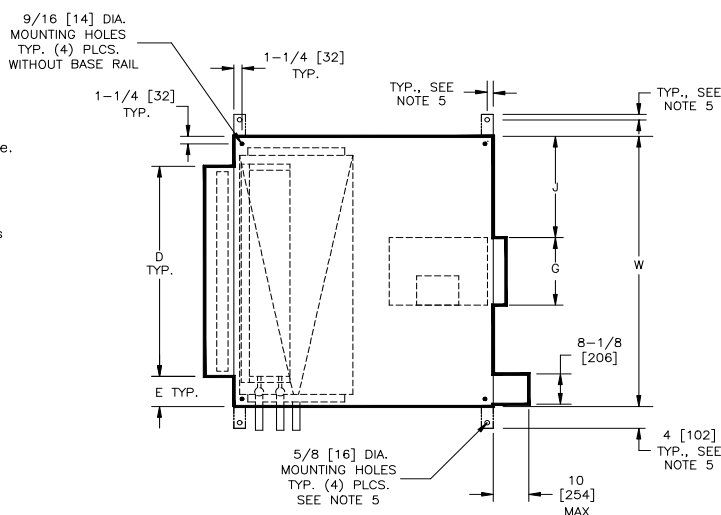
### Sound Data Calculated at 1900 CFM, 0.5 in.wg, and 974 RPM

Band	OB1	OB2	OB3	OB4	OB5	OB6	OB7	OB8
Freq.	63H Z	125H Z	250H Z	500H Z	1KHz	2KHz	4KHz	8KHz
Ducted Dis.	83	84	73	71	72	68	70	66
Ducted Inlet	74	71	62	55	53	51	47	41
Casing Rad.	61	62	61	54	54	48	42	37

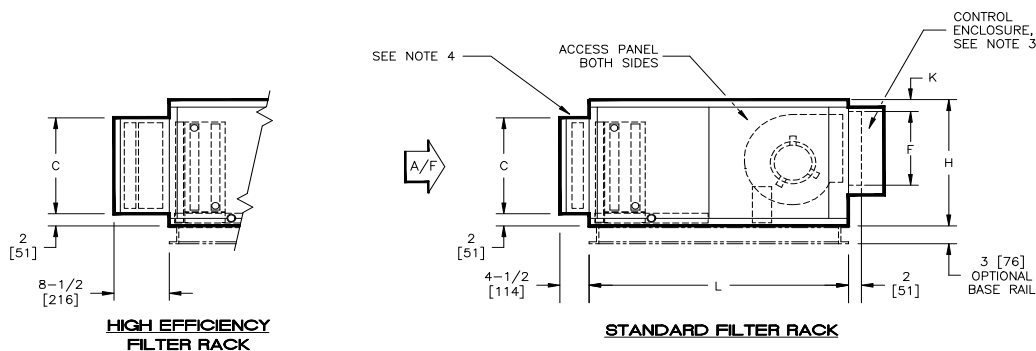
Sound data tested in accordance with AHRI-260-2012., Total sound power level calculations are based on a Size 20 AHD: Horizontal Direct Drive with a 1 HP motor at 1900 CFM, 0.5 in.wg, and 974 RPM.

NOTES:

1. All dimensions are Inches [millimeters].  
All dimensions are  $\pm 1/4"$  [6mm]. Metric values are soft conversion.
2. Right hand unit shown, left hand unit opposite.  
Motor/drive location may be specified Left or Right Hand. Standard control enclosure location matches motor/drive position.
3. Provide sufficient clearance to permit access to controls and comply with applicable codes and ordinances.
4. See drawing 35-80048 for filter rack details.
5. Base rail is optional on the base unit. See drawing 35-80050. Base rails must be used with mixing box.
6. See coil connection detail drawings for coil connection sizes and locations.



TOP VIEW



## SIDE VIEWS

## DIMENSIONS

SIZE	FAN SIZE	L	W	H	C	D	E	F	G	J	K
08	$\frac{9}{229} \times \frac{6}{152}$	$\frac{40}{[1016]}$	$\frac{30}{[762]}$	$\frac{21}{[533]}$	$\frac{16}{[406]}$	$\frac{20}{[508]}$	$\frac{5}{[127]}$	$\frac{10-3/8}{[264]}$	$\frac{8-3/8}{[213]}$	$\frac{10-7/8}{[276]}$	$\frac{2}{[51]}$
12	$\frac{9}{229} \times \frac{6}{152}$	$\frac{40}{[1016]}$	$\frac{36}{[914]}$	$\frac{21}{[533]}$	$\frac{16}{[406]}$	$\frac{25}{[635]}$	$\frac{5-1/2}{[140]}$	$\frac{10-3/8}{[264]}$	$\frac{8-3/8}{[213]}$	$\frac{13-7/8}{[352]}$	$\frac{2}{[51]}$
16	$\frac{10}{254} \times \frac{8}{203}$	$\frac{40}{[1016]}$	$\frac{44}{[1118]}$	$\frac{21}{[533]}$	$\frac{16}{[406]}$	$\frac{39-1/2}{[1003]}$	$\frac{2-1/4}{[57]}$	$\frac{11-1/2}{[292]}$	$\frac{10-5/8}{[270]}$	$\frac{16-5/8}{[422]}$	$\frac{2}{[51]}$
20	$\frac{10}{254} \times \frac{8}{203}$	$\frac{40}{[1016]}$	$\frac{50}{[1270]}$	$\frac{22-1/2}{[572]}$	$\frac{16}{[406]}$	$\frac{44-1/2}{[1130]}$	$\frac{2-3/4}{[70]}$	$\frac{11-1/2}{[292]}$	$\frac{10-5/8}{[270]}$	$\frac{19-5/8}{[498]}$	$\frac{2}{[51]}$
30	$\frac{10}{254} \times \frac{8}{203}$	$\frac{46}{[1168]}$	$\frac{59}{[1499]}$	$\frac{30}{[762]}$	$\frac{25}{[635]}$	$\frac{51}{[1295]}$	$\frac{4}{[102]}$	$\frac{11-1/2}{[292]}$	$\frac{10-5/8}{[270]}$	$\frac{24-1/4}{[616]}$	$\frac{9-3/4}{[248]}$
40	$\frac{10}{254} \times \frac{8}{203}$	$\frac{46}{[1168]}$	$\frac{68}{[1727]}$	$\frac{30}{[762]}$	$\frac{25}{[635]}$	$\frac{59}{[1499]}$	$\frac{4-1/2}{[114]}$	$\frac{11-1/2}{[292]}$	$\frac{10-5/8}{[270]}$	$\frac{28-5/8}{[727]}$	$\frac{9-3/4}{[248]}$

TITLE:

### Model: AHD

Horizontal DDBC Unit, Discharge Arrangement-3



DATE:

06/14/2021

ECR#:

REV:  
B

DRAWING NO:

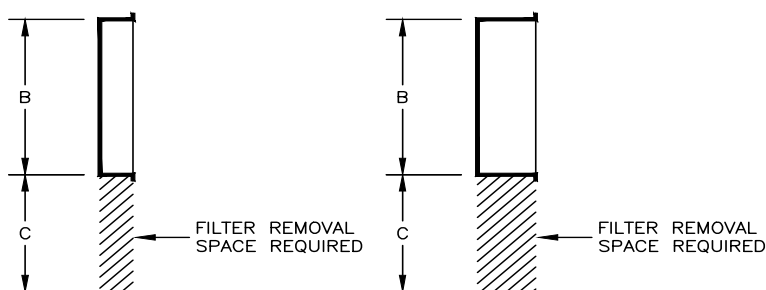
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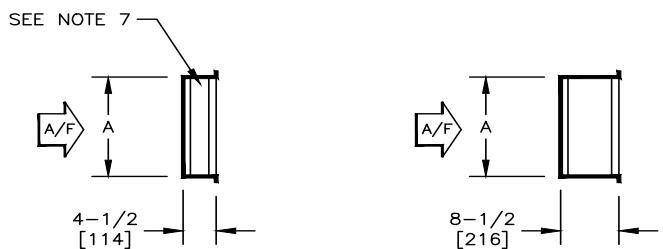
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NOTES:

1. All dimensions are Inches [millimeters].  
All dimensions  $\pm 1/4"$  [6mm].  
Metric values are soft conversion.
2. Flat filter rack may be located at unit inlet as required.
3. Standard rack will accept nominal 1" or 2" thick filters.
4. High eff. rack will accept nominal 2" and/or 4" thick filters.
5. High eff. rack not available on "HM" and "VM" units.
6. 1" duct connection space provided on entering side of rack for connection of field ductwork.
7. Hinged cover provided on both sides of externally mounted filter racks. Internal standard filter racks have pivoting bar type filter retainer.
8. See individual unit submittal drawings for location of filter rack on unit.



**TOP VIEWS**



**STANDARD**

**HIGH EFFICIENCY**

**SIDE VIEWS**

**DIMENSIONS - In [mm]**

UNIT SIZE	A	B	C	QTY & SIZE FILTERS
08	16 [406]	20 [508]	20 [508]	(1) 16 X 20
12	16 [406]	25 [635]	25 [635]	(1) 16 X 25
16	16 [406]	39-1/2 [1003]	20 [508]	(2) 16 X 20
20	16 [406]	44-1/2 [1130]	25 [635]	(1) 16 X 20 (1) 16 X 25
30	25 [635]	51 [1295]	25 [635]	(2) 16 X 25 (1) 20 X 25
40	25 [635]	59 [1499]	25 [635]	(3) 20 X 25

TITLE:

**Model: AHD**  
**DDBC - Standard Flat Filter-Rack**



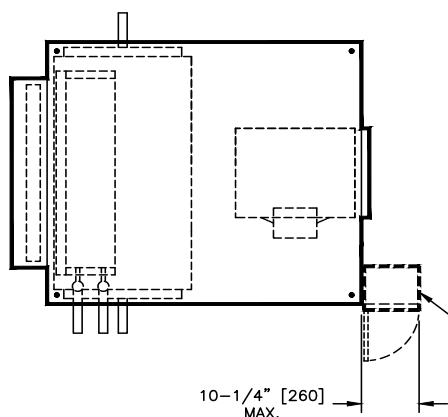
DATE:  
05/09/2018

DRAWING NO:  
**35-80048**

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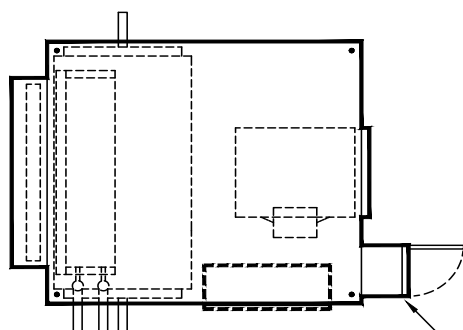
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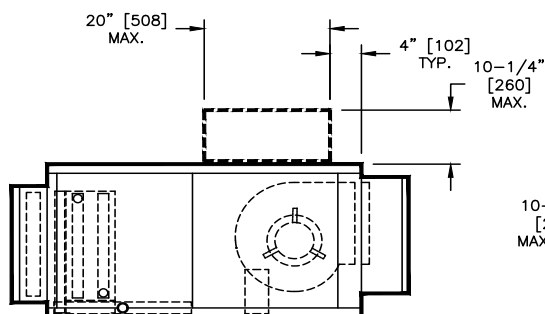


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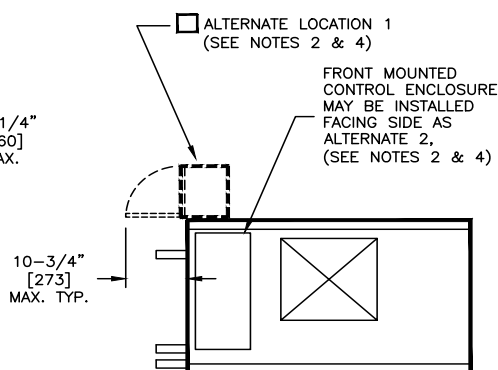
1. All dimensions are inches [millimeters]. All dimensions are  $\pm 1/4"$  [6mm]. Metric values are soft conversion.
2. Right hand unit shown, left hand unit opposite. Motor/drive location may be specified Left or Right Hand. Standard control enclosure and alternate control enclosure locations match motor/drive position.
3. Provide sufficient clearance to permit access to controls and comply with applicable codes and ordinances.
4. Enclosure may overhang unit cabinet up to 1/2" [13].
5. Enclosure cover hinging direction may vary.
6. Model HDD unit shown.



TOP VIEWS



SIDE VIEW



FRONT VIEW

TITLE:

Model: AHD  
Horizontal DDBC - Alternate Control Enclosure Location



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01/10/2020

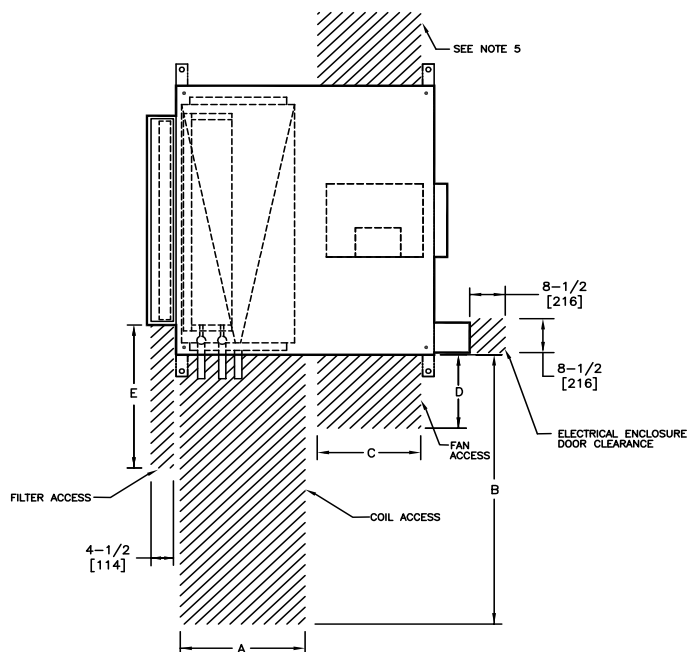
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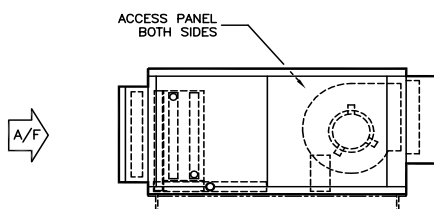
DRAWING NO:  
35-80051

NOTES:

1. All dimensions are Inches [millimeters].  
All dimensions are  $\pm 1/4"$  [6mm]. Metric values are soft conversion.
2. Right hand unit shown, left hand unit opposite.  
Motor/drive location may be specified Left or Right Hand. Standard control enclosure location matches motor/drive position.
3. Provide sufficient clearance to permit access to controls and comply with applicable codes and ordinances.
4. Flat filter rack may be located at unit inlet as required. See drawing 35-80048 for filter rack details.
5. Dual Blower units require service access to both side access panels for motor/blower removal.



TOP VIEW



SIDE VIEW

DIMENSIONS

SIZE	A	B	C	D	E
08	18-3/4 [476]	30 [762]	17-3/4 [451]	17-3/4 [451]	20 [508]
12	18-3/4 [476]	36 [914]	17-3/4 [451]	17-3/4 [451]	25 [635]
16	18-3/4 [476]	44 [1118]	17-3/4 [451]	17-3/4 [451]	20 [508]
20	18-3/4 [476]	50 [1270]	17-3/4 [451]	17-3/4 [451]	20 [508]
30	27-3/4 [705]	59 [1499]	27-3/4 [705]	27-3/4 [705]	20 [508]
40	27-3/4 [705]	68 [1727]	27-3/4 [705]	27-3/4 [705]	20 [508]

TITLE:

**Model: AHD**  
Horizontal DDBC - External Space Requirement



DATE:  
06/11/2018

DRAWING NO:  
35-80045

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ECR#: REV:  
A

# 1 ROW WATER COIL

Heating Only

## DIMENSIONS - In [mm]

See Dwg.  
CCC-001, Fig. 1

STANDARD CIRCULATION					
UNIT SIZE	COIL CONNEX	A	B	C	D
08	5/8 [16]	4-1/2 [115]	2-5/8 [67]	4-1/8 [105]	15-3/4 [401]
12					
16					15-7/8 [404]
20					20-7/8 [531]
30	7/8 [23]	4-5/8 [117]	2-3/8 [60]		23-3/8 [594]
40	1-1/8 [29]				

"LO GPM" CIRCULATION						"HIGH GPM" CIRCULATION					
UNIT SIZE	COIL CONNEX	A	B	C	D	UNIT SIZE	COIL CONNEX	A	B	C	D
08	5/8 [16]	4-1/4 [108]	2-3/4 [70]	3-3/8 [86]	17-1/8 [435]	08	7/8 [23]	4-1/2 [114]	2-5/8 [67]	4-1/8 [105]	15-3/4 [401]
12						12					
16						16					15-7/8 [404]
20						20					20-7/8 [531]
30	7/8 [23]	4-1/2 [115]	2-5/8 [67]	4-1/8 [105]	23-3/8 [594]	30	1-1/8 [29]	4-1/2 [114]	2-1/2 [64]		23-3/8 [594]
40						40					

**NOTES:**

1. All dimensions are Inches [millimeters].  
All dimensions are  $\pm 1/2"$  [13mm].  
Metric values are soft conversion.
2. All connections are ODM copper sweat unless otherwise noted.
3. Field piping should be based on job requirements, not unit connection size.

**TITLE:**

**Model: AHD**  
DDBC - 1-Row HW, Coil Connection Locations



DATE:  
12/03/2019

DRAWING NO:  
CCC-016

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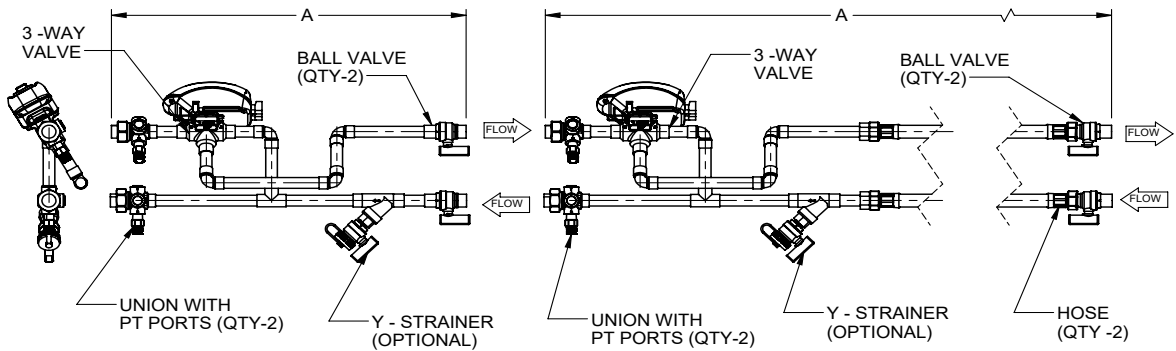
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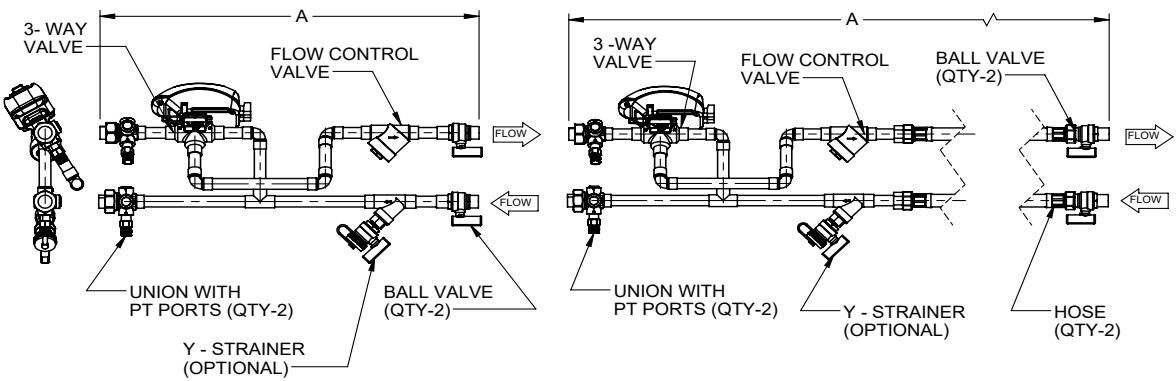
**1/2", 3/4" AND 1" VP**

**CODE 36 ON/OFF ACTUATORS**




DIAMETER	LENGTH A	
	WITHOUT HOSE	HOSE
1/2	19 1/8	37 3/4
3/4	23 1/4	42 7/8
1	29 5/8	-

**CODE 37 ON/OFF ACTUATORS**



DIAMETER	LENGTH A	
	WITHOUT HOSE	HOSE
1/2	20 3/8	39
3/4	25 1/8	48 7/8
1	29 3/4	-

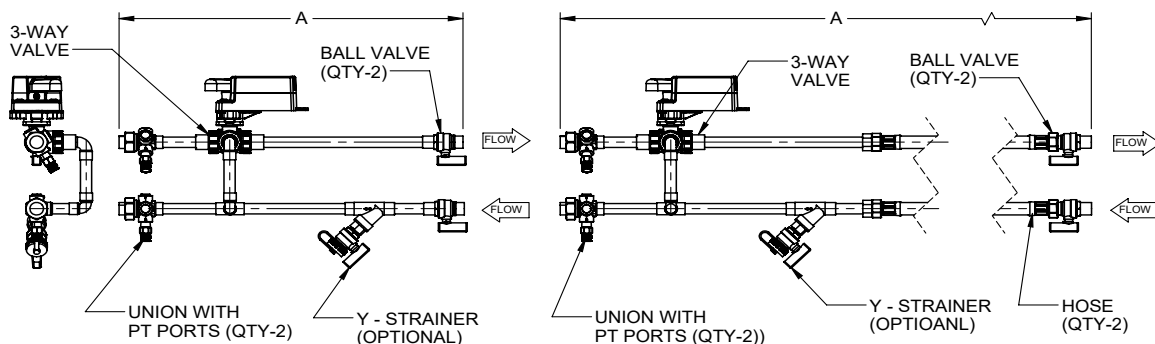
- NOTES:
1. All dimensions are in inches
  2. All dimensions may vary  $\pm 1/8$

TITLE:  Model: AHD  VP Code 36, 37- 0.5, 0.75, 1.0in diam		<div>Johnson Controls</div>	
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		ECR#:	



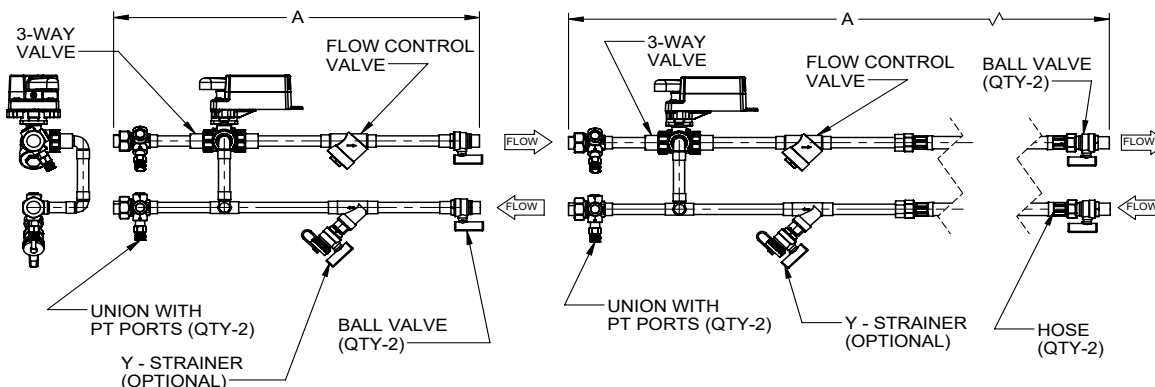
# 1/2", 3/4" AND 1" VP

## CODE 36 MODULATING, PROPORTIONAL ACTUATORS



DIAMETER	LENGTH A	
	WITHOUT HOSE	HOSE
1/2	19 1/8	37 3/4
3/4	17 3/4	37 3/8
1	21 1/2	-

## CODE 37 MODULATING, PROPORTIONAL ACTUATORS



DIAMETER	LENGTH A	
	WITHOUT HOSE	HOSE
1/2	20 3/8	39
3/4	19	42 7/8
1	21 1/2	-

### NOTES:

1. All dimensions are in inches
2. All dimensions may vary  $\pm 1/8$

TITLE:

**Model: AHD**  
VP Code 36, 37- 0.5, 0.75, 1.0in diam



DATE:  
11/02/2020

DRAWING NO:  
00-80011

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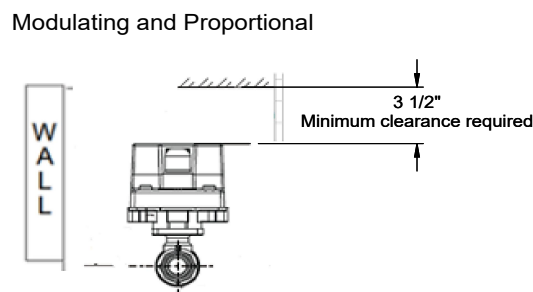
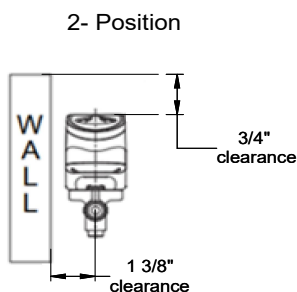
**NOTES:**

1. Dimension between supply and return connections are 4" center-to-center. 3-way bypass can be cut and length changed to facilitate installation must allow space to insert instruments into PT ports.
2. Y-Strainer is optional item. Reference order summary for actual valve package configuration.
3. Hoses are optional items for 1/2" and 3/4" valve packages. Reference order summary for actual valve package configuration.
4. Hoses are not available for 1" valve packages.
5. Valve package ships with all parts of union. The union is attached to the coil in the field by others.
6. Valve packages are available with the following actuators.
  - a) ON/OFF
  - b) Fail in Place Modulating and Proportional
  - c) NC Spring Return Modulating and Proportional
  - d) NO Spring Return Modulating and Proportional
7. Wire harness length from 8 to 10 ft. Reference order summary for actual valve package configuration.
8. VP is shipped loose with wire harness, individually packaged.

**INSTALLATION & SERVICE:**

1. Additional piping may be required for installation. The factory is not responsible for additional piping.
2. Control actuators are removable, and may be serviced or replaced without removal of the valve body.
3. Installation and clearance requirements for actuators, see below. Refer to VP catalog for more information.
4. The stationary side of any union or swivel connection must be prevented from twisting during tightening by the use of a "backup" wrench.
5. Pressure test all joints before applying water.

External space required for actuators:



**TITLE:**

**Model: AHD**  
VP Code 36, 37 Notes



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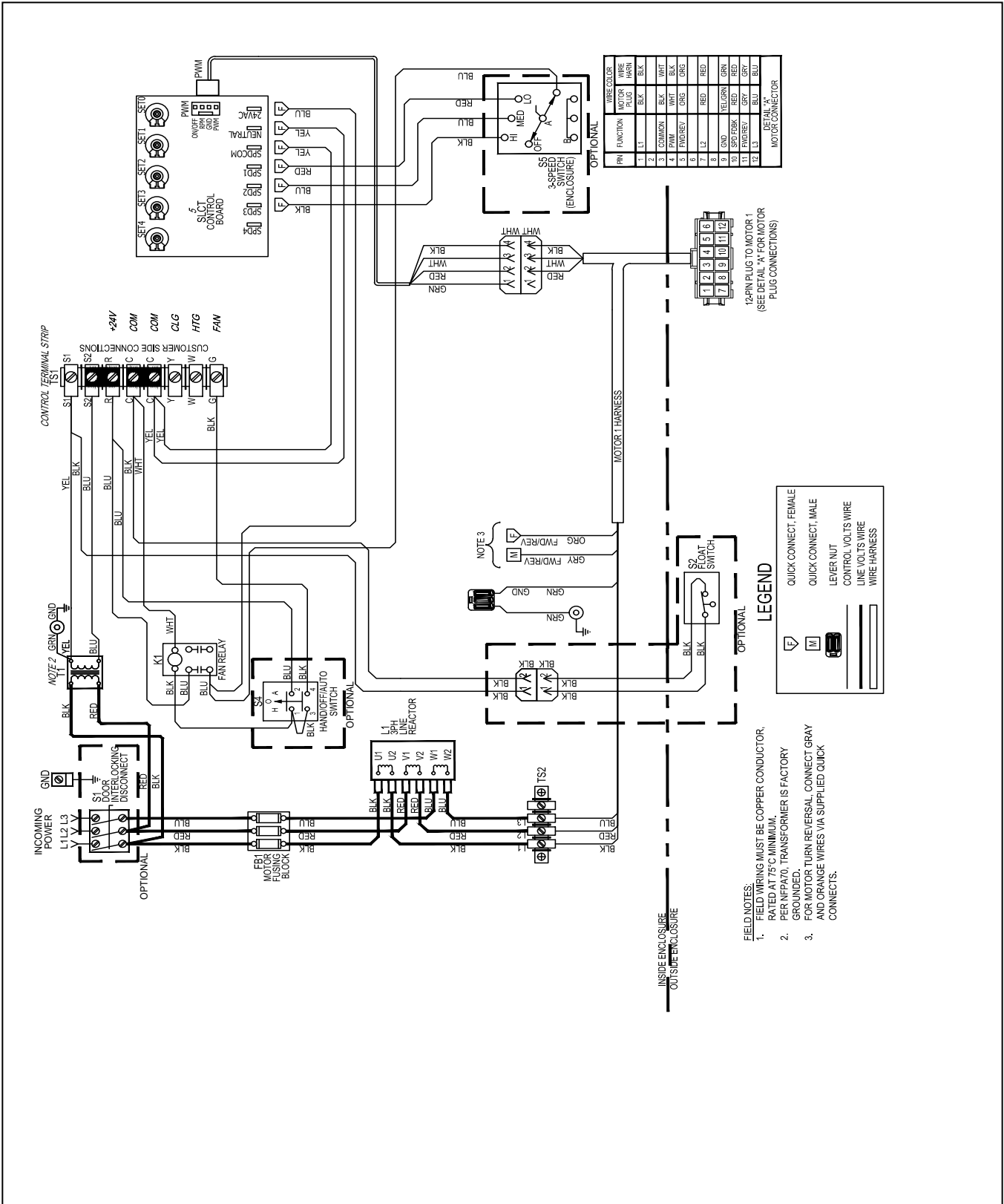
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11/02/2020

ECR#:

REV:  
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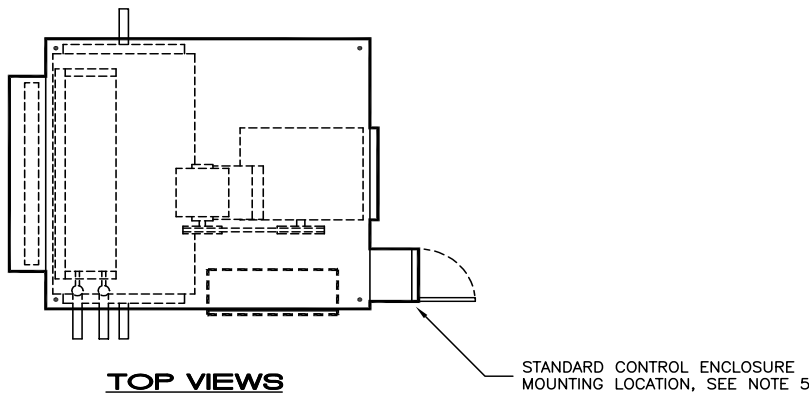
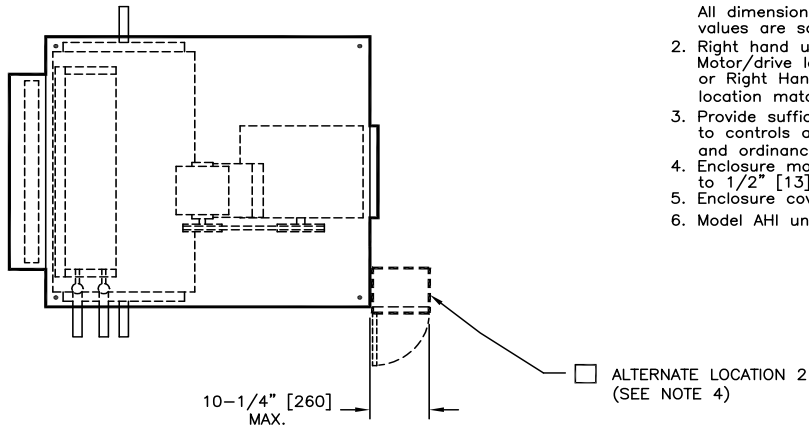
DRAWING NO:  
**00-80011**



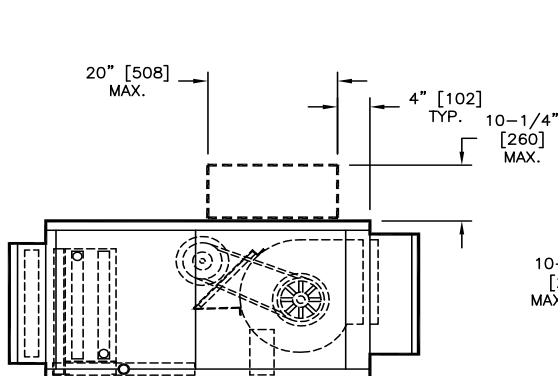
<b>TITLE:</b>  <b>Model: AHD</b> <b>DDBC 3Ph Select 1 Motor</b>			
<b>THIS DRAWING CONTAINS PROPRIETARY DATA, UNAUTHORIZED DISCLOSURE, REPRODUCTION, OR USE IS STRICTLY PROHIBITED WITHOUT WRITTEN PERMISSION</b>		<b>DRAWING DO NOT SCALE</b> DIMENSIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE. CONTACT FACTORY FOR CERTIFIED DRAWINGS.	
DATE: 07/22/2018		DRAWING NO: 88-50000	
ECR#: 3255		REV: C	

NOTES:

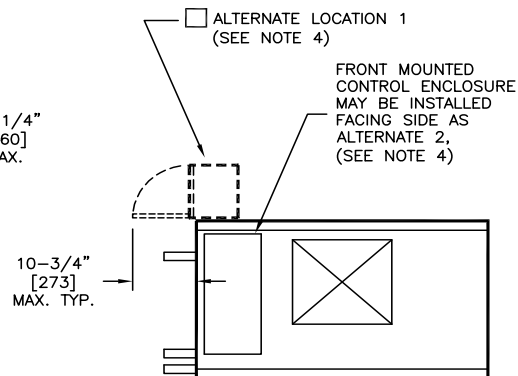
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2. Right hand unit shown, left hand unit opposite. Motor/drive location may be specified Left or Right Hand. Standard control enclosure location matches motor/drive position.
3. Provide sufficient clearance to permit access to controls and comply with applicable codes and ordinances.
4. Enclosure may overhang unit cabinet up to  $1/2"$  [13].
5. Enclosure cover hinging direction may vary.
6. Model AHI unit shown.



TOP VIEWS



SIDE VIEW



FRONT VIEW

TITLE:

**Model: AHD**  
Horizontal DDBC Alternate CE Location



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DATE:  
02/02/2010

ECR#: REV:  
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