



## DH-500 HIGH PERFORMANCE DUAL DUCT AIR TERMINAL UNIT

The METALAIRE DH-500 high performance air terminal units are designed to regulate the flow of conditioned air in dual duct air distribution systems. Both heated and cooled air are provided to the air terminal and mixed in an integral plenum to reach the desired discharge temperature. The DH-500 has been engineered to provide a 1:30 mixing ratio.

### STANDARD FEATURES

- Available in multiple unit sizes to handle 30–5020 CFM.
- Unequal inlet sizes are available as an option.
- Variable or constant volume applications.
- 22 ga. galvanized steel casing, mechanically sealed, low leakage construction.
- Mechanically fastened damper assembly is double layer, 18 gauge equivalent, galvanized steel with integral blade seal. (<1% at 3" static pressure).
- Optional factory calibrated controls per each job requirement.
- Multi-quadrant, averaging flow sensor for highly accurate (+/-5%) flow readings with varying inlet duct configurations after certified balancer has balanced terminal.
- Externally accessible, steel balancing taps.
- External control cabinets for hot and cold deck with offset mounting plate.
- 3-beaded inlet connection tube for added rigidity and secure flex duct connections.
- 1/2" thick, dual density (1.5lb / ft<sup>3</sup> min.) fiberglass insulation with edges coated. Meets NFPA 90A and UL 181.
- Rectangular discharge with optional slip and drive cleat duct connection.
- Independently tested and certified laboratory performance data.
- Integral mixing box with 1:30 mixing ratio.
- Full range of liners / insulation available.

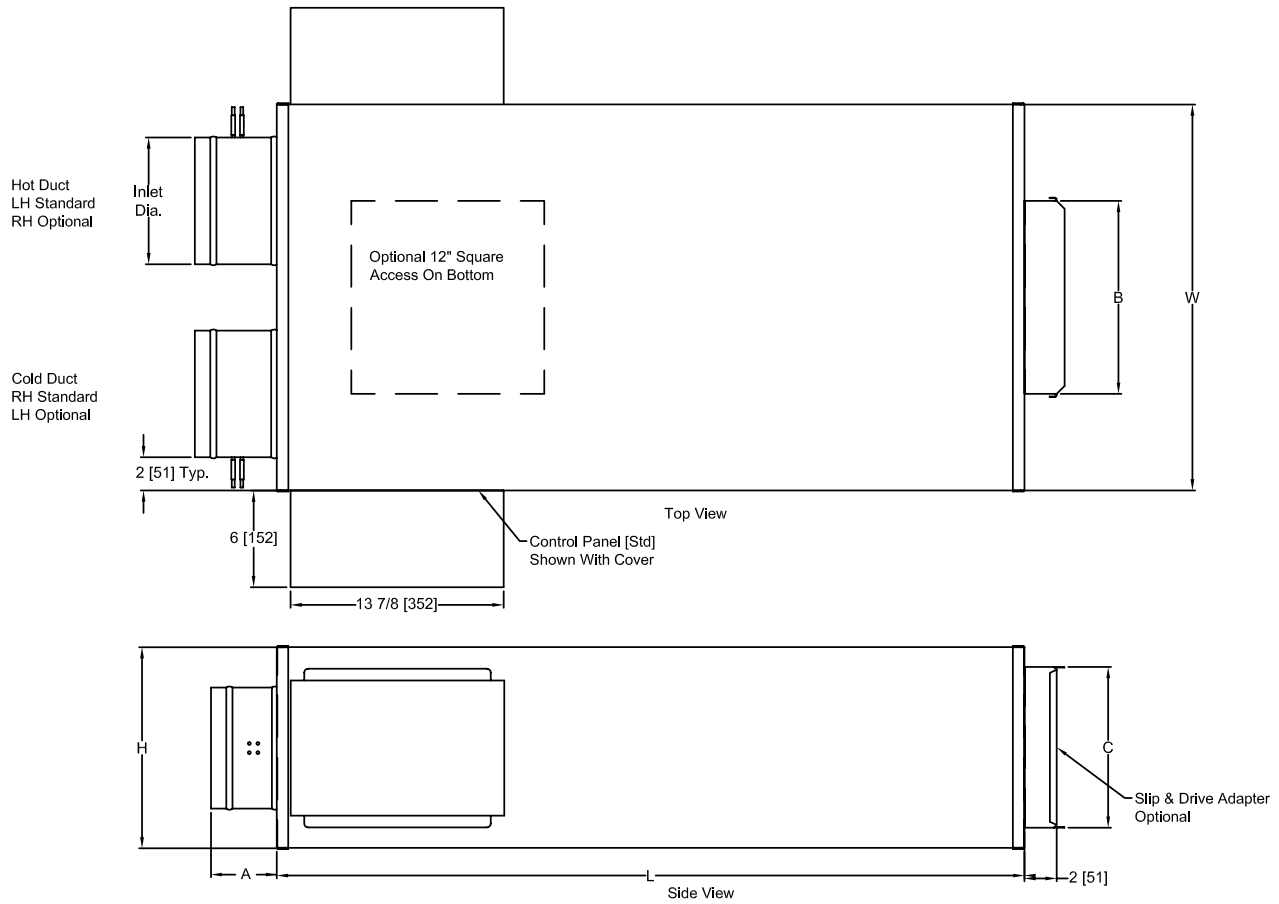


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### FEATURES AND BENEFITS

- 1** NEMA TYPE 1 rated control enclosures for both hot and cold decks with stand-off to prevent penetration of casing are standard on all terminal units.
- 2** Galvanized steel casing, mechanically sealed for low leakage construction.
- 3** All metal constructed inlet flow sensors with extra balancing taps.
- 4** Damper rotates in a self-lubricating, long life, low friction thermoplastic bearing.
- 5** Continuous welded primary inlet duct to minimize leakage with three stiffening beads for added rigidity.
- 6** Integral mixing sound attenuator to help reduce discharge sound.
- 7** DH-500 includes mixing section designed to provide a 1:30 mixing ratio.

## DH-500 DUAL DUCT AIR TERMINAL UNIT HIGH EFFICIENCY MIXING



The standard location for control panel is Right Hand on Model DH.  
Looking in the direction of airflow, the control panel is on the right.

The control panel will overhang the top and bottom of Models DH504–DH506 1 13 x 16" (46 mm). Control Panel Mounting Surface width by height is 13 7/8" x 9 3/4".

Unit Size	Inlet Diameter		Inlet Duct Length A		Unit Width W		Unit Height H		Unit Length L		Discharge Width B		Discharge Height C		Shipping Weight	
	Standard Both Ducts	Optional Hot Duct	in.	mm.	in.	mm.	in.	mm.	in.	mm.	in.	mm.	in.	mm.	lbs.	kg
4	4	–	10	254	20	508	10	254	40	1016	12	305	8	203	55	25
5	5	–	5	127	20	508	10	254	40	1016	12	305	8	203	55	25
6	6	–	5	127	20	508	10	254	40	1016	12	305	8	203	55	25
7	7	6	5	127	24	610	12 1/2	318	48	1219	12	305	10	254	72	33
8	8	6	5	127	24	610	12 1/2	318	48	1219	12	305	10	254	72	33
9	9	6,8	5	127	28	711	12 1/2	318	58	1473	14	356	12 1/2	318	94	43
10	10	6,8	5	127	28	711	12 1/2	318	58	1473	14	356	12 1/2	318	94	43
12	12	6,8,10	5	127	32	813	15	381	72	1829	16	406	15	381	124	55
14	14	6,8,10,12	5	127	36	914	17 1/2	445	72	1829	20	508	17 1/2	445	140	64
16	16	6,8,10,12,14	5	127	40	1016	18	457	72	1829	24	610	18	457	164	75



## DH-500 AHRI CERTIFIED RATING POINTS



### RADIATED SOUND

Power Levels @ 1.5" w.g. ΔPs

Unit Size	CFM	Min Ps	Octave Band					
			2	3	4	5	6	7
4	150	0.05	54	49	38	33	33	25
5	250	0.13	58	51	41	37	35	28
6	400	0.33	62	55	48	44	37	32
7	550	0.26	61	54	43	39	38	32
8	700	0.42	64	57	46	42	41	36
9	900	0.24	66	58	47	42	40	35
10	1100	0.36	68	60	50	45	38	34
12	1600	0.49	68	62	52	49	46	44
14	2100	0.27	68	64	58	52	47	42
16	2800	0.41	72	66	59	52	46	42

### DISCHARGE SOUND

Power Levels @ 1.5" w.g. ΔPs

Unit Size	CFM	Min Ps	Octave Band					
			2	3	4	5	6	7
4	150	0.05	71	65	56	48	38	36
5	250	0.13	72	68	58	50	40	36
6	400	0.33	74	69	56	52	43	39
7	550	0.26	74	63	42	39	33	30
8	700	0.42	76	66	45	42	36	34
9	900	0.24	74	66	45	42	38	35
10	1100	0.36	76	68	47	44	40	38
12	1600	0.49	69	54	52	51	47	43
14	2100	0.27	75	68	54	54	54	51
16	2800	0.41	77	66	61	58	54	50

### PERFORMANCE NOTES

- 1) Radiated sound is the noise transmitted through the unit casing
- 2) Discharge sound is noise emitted from unit discharge into downstream ductwork
- 3) Sound power levels expressed in decibels, (dB) re 10<sup>-12</sup> Watts
- 4) Min ΔPs is the min. operating pressure requirement of the unit with the damper full open and is the static pressure drop from the unit inlet to the unit discharge
- 5) Performance data based on laboratory tests conducted in accordance with ASHRAE 130-2016 and AHRI 880-2017
- 6) Discharge sound power levels include duct end reflection corrections per AHRI Standard 880-2017
- 7) Sound performance based on units lined with standard dual density fiberglass insulation





## DH-500 RECOMMENDED MIN/MAX AIRFLOW RANGES

DH-500 Recommended Minimum and Maximum Airflow Ranges						
Unit Size	Pneumatic / Analog		Digital Controls - DDC			
			Transducer Min $\Delta P$ / Min CFM		Transducer Max $\Delta P$ / Max CFM	
	Min CFM	Max CFM	0.01	0.03	1	1.5
4	50	300	30	50	300	370
5	65	375	40	65	375	460
6	95	540	55	95	540	660
7	130	760	75	130	760	930
8	170	990	100	170	990	1210
9	220	1250	125	220	1250	1530
10	285	1640	165	285	1640	2010
12	410	2350	235	410	2350	2880
14	565	3250	325	565	3250	3980
16	710	4100	410	710	4100	5020

### PERFORMANCE NOTES

- 1) Actual minimum and maximum airflow ranges depend on the transducer differential pressure range and accuracy.
- 2) Contact the manufacturer of installed DDC equipment for transducer minimum and maximum differential pressure,  $\Delta P$ , limits.
- 3) Minimum CFM for Pneumatic and Analog controls are based on a sensor differential pressure of 0.03 in. w.g.
- 4) Maximum CFM for Pneumatic and Analog controls are based on a sensor differential pressure of 1.00 in. w.g.
- 5)  $CFM = (\sqrt{\Delta P}) * K$  Factor
- 6) K Factor is the airflow at 1"  $\Delta P$
- 7) Recommendations are for pressure independent units.
- 8) Pressure dependent units minimum CFM is always zero and there is no maximum.

### CERTIFICATIONS AND STANDARDS

- Units tested per ASHRAE Standard 130-2016.
- All model sizes certified in accordance with AHRI 880-2017 certification program.
- ETL listed to meet requirements of UL 1995 and CSA 236.
- Dual-density fiberglass insulation meets UL 181 and NFPA 90A/90B.
- Insulation meets ASHRAE 62.1 requirements for resistance to mold growth and erosion.
- Hot water coils are manufactured in accordance to AHRI Standard 410.



## DH-500 CONTROL SEQUENCE OFFERINGS



### PPD-PNEUMATIC PRESSURE DEPENDENT

- 210 Direct Acting / Normally Closed (DA/NC)
- 212 Reverse Acting / Normally Open (RA / NO)



### PPI-PNEUMATIC PRESSURE INDEPENDENT

- 238 NO Cold Duct – NC Hot Duct – DA Thermostat
- 239 NO Cold Duct – NC Hot Duct – RA Thermostat
- 240 NC Cold Duct – NO Hot Duct – DA Thermostat
- 241 NC Cold Duct – NO Hot Duct – RA Thermostat
- 242 NO Cold Duct – NC Hot Duct – DA Thermostat
- 243 NO Cold Duct – NC Hot Duct – RA Thermostat
- 244 NO Cold Duct – NC Hot Duct – DA Thermostat
- 245 NO Cold Duct – NC Hot Duct – RA Thermostat

*NO = Normally Open, NC = Normally Closed  
DA = Direct Acting, RA = Reverse Actin*



### EPD-ELECTRIC PRESSURE DEPENDENT

- 257 Actuator Only
- 258 Sensors in Hot / Cold inlets and actuator



### API-ANALOG PRESSURE INDEPENDENT

- 263 Hot and Cold actuators operate in sequence



### DDC-DIRECT DIGITAL CONTROL

BACnet

- Consult Factory for Direct Digital Controls (DDC)

*Refer to ACC 24 for complete description.*