



DS-600 SHORT MIXING DUAL DUCT AIR TERMINAL UNIT

The Metalaire DS-600 Short Mixing Dual Duct Terminals are designed to regulate the flow of conditioned air and/or outside air in air distribution systems. (Both heated and cooled conditioned air are provided to the air terminal and mixed in an integral plenum to reach the desired discharge temperature.) The model DS-600 has been engineered to provide superior mixing at a 1:20 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.
- Damper constructed of double layer 18 ga. equivalent galvanized steel with integral blade seal to provide tight seal (<1% at 3" w.g. static pressure).
- METALAIRE multi-quadrant averaging flow sensor in each inlet provides highly accurate (+/-5%) flow readings once a certified balancer has calibrated the sensor.
- Easy access, external balancing taps on flow sensors.
- External control cabinets for hot and cold deck with offset mounting plate as standard.
- 3 structural beads machine formed into each inlet connection tube for added rigidity and secure duct connections.
- ½" thick, dual density (1.5 lb. min.) fiberglass insulation with edges coated. Meets NFPA 90A and UL 181.
- Rectangular discharge for flanged duct connection.
- Independently tested and certified laboratory performance data.
- Full range of options and accessories available.
- Full range of optional liners/insulation available.

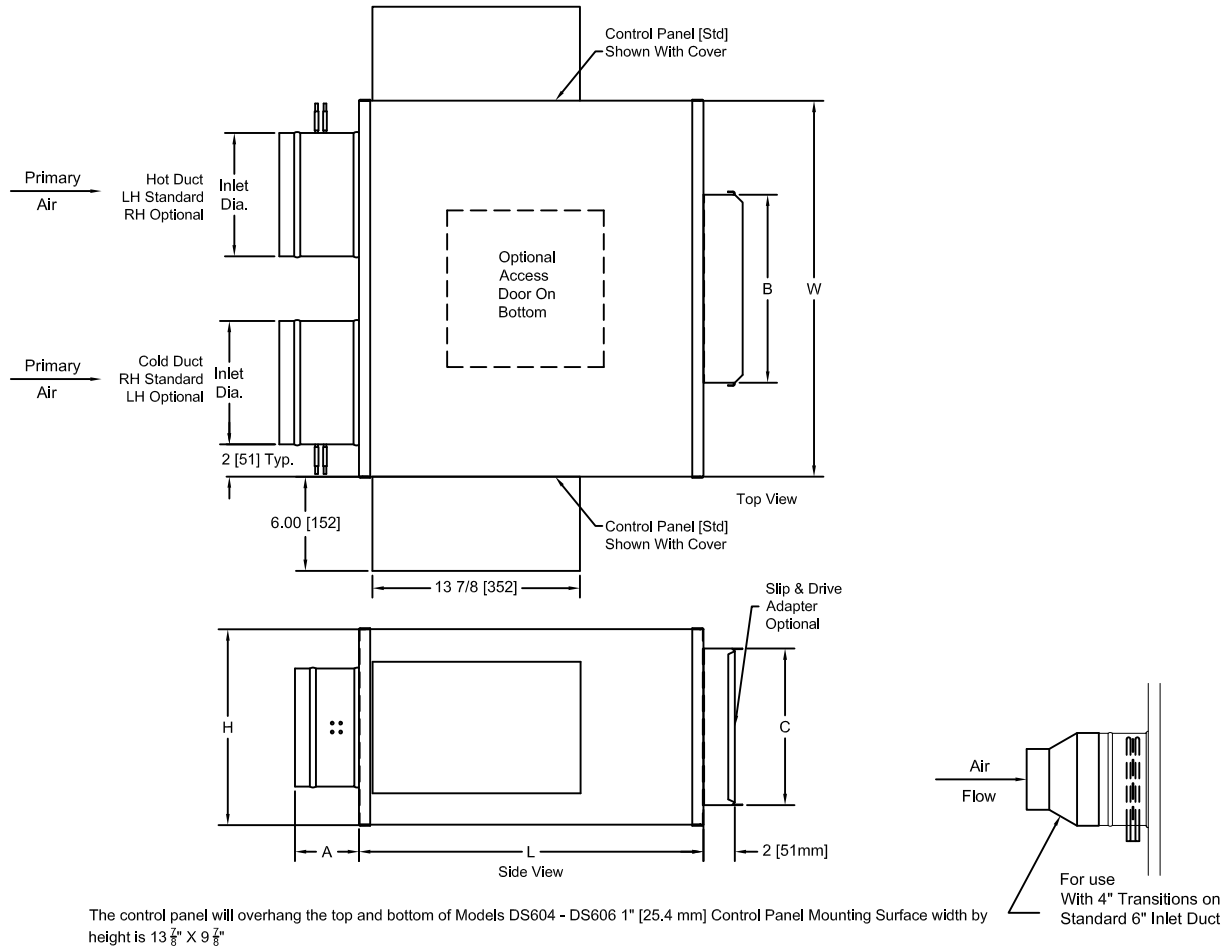


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FEATURES AND BENEFITS

- 1** NEMA TYPE 1 rated control enclosures for both hot and cold decks with stand-off to prevent penetration of casing.
- 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** DS-600 includes a 1:20 mixing ratio.

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

Unit Size	Inlet Diameter		Max CFM	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	–	300	10	254	20	508	10	254	22	559	12	305	8	203	30	14
5	5	–	375	5	127	20	508	10	254	22	559	12	305	8	203	30	14
6	6	–	540	5	127	20	508	10	254	22	559	12	305	8	203	30	14
7	7	6	760	5	127	24	610	12 1/2	318	26	660	12	305	10	254	41	19
8	8	6	990	5	127	24	610	12 1/2	318	26	660	12	305	10	254	41	19
9	9	6,8	1250	5	127	28	711	12 1/2	318	30	762	14	356	12 1/2	318	50	23
10	10	6,8	1640	5	127	28	711	12 1/2	318	30	762	14	356	12 1/2	318	50	23
12	12	6,8,10	2350	5	127	32	813	15	381	34	864	16	406	15	381	62	28
14	14	6,8,10,12	3250	5	127	36	914	17 1/2	445	38	965	20	508	17 1/2	445	84	38
16	16	6,8,10,12,14	4100	5	127	40	1016	18	457	42	1067	24	610	18	457	100	45



DS-600 AHRI CERTIFIED RATING POINTS



RADIATED SOUND

Power Levels @ 1.5" w.g. ΔPs

Unit Size	CFM	Min ΔPs	Octave Band					
			2	3	4	5	6	7
4	150	0.09	59	53	47	47	36	32
5	250	0.20	60	54	47	47	38	35
6	400	0.45	62	54	47	47	40	38
7	550	0.47	63	54	47	47	43	42
8	700	0.49	64	54	47	47	45	45
9	900	0.49	66	59	50	50	45	44
10	1100	0.50	68	63	52	52	45	42
12	1600	0.50	68	63	52	52	45	42
14	2100	0.43	68	62	54	55	48	47
16	2800	0.58	70	63	55	55	48	47

DISCHARGE SOUND

Power Levels @ 1.5" w.g. ΔPs

Unit Size	CFM	Min ΔPs	Octave Band					
			2	3	4	5	6	7
4	150	0.09	70	66	58	57	48	45
5	250	0.20	73	67	59	58	49	46
6	400	0.45	77	68	60	59	50	47
7	550	0.47	77	70	61	61	52	49
8	700	0.49	78	71	62	62	53	50
9	900	0.49	79	72	63	62	55	51
10	1100	0.50	79	72	63	62	56	52
12	1600	0.50	80	72	64	63	57	54
14	2100	0.43	80	73	64	64	58	57
16	2800	0.58	81	73	66	66	59	57

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 10⁻¹² 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



DS-600 RECOMMENDED MIN/MAX AIRFLOW RANGES

DS-600 Recommended Minimum and Maximum Airflow Ranges						
Unit Size	Pneumatic / Analog		Digital Controls - DDC			
			Transducer Min ΔP / Min CFM		Transducer Max ΔP / 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, ΔP , 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. wg.
- 5) $CFM = (\sqrt{\Delta P}) * K$ Factor
- 6) K Factor is the airflow at 1" ΔP
- 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 ANSI / ASHRAE Standard 130.
- All model sizes certified in accordance with AHRI 880 certification program.
- ETL listed to meet requirements of UL 1995 and CSA 236.
- Dual-density fiberglass insulation meets UL 181 and NFPA 90A requirements.
- Insulation meets ASHRAE 62.1 requirements for resistance to mold growth and erosion.

DS-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.