

Dual Duct Assemblies. Pressure Independent. Variable Volume. Separate Controls on Hot & Cold Decks.

The HDC series provides full variable volume control in both the hot deck and cold deck of a dual duct system. The air flow rate can be varied between a regulated pre-set minimum and a regulated pre-set maximum. See table on page 281G.

At any system static pressure above the minimum required for signaling the controller, the flow rate anywhere in the operating range is pressure independent. For example, if the thermostat is calling for $0.5 \text{ m}^3/\text{s}$ the HDC controls will hold the flow rate at $0.5 \text{ m}^3/\text{s}$, regardless of fluctuations in system pressure between the minimum and 500 Pa.

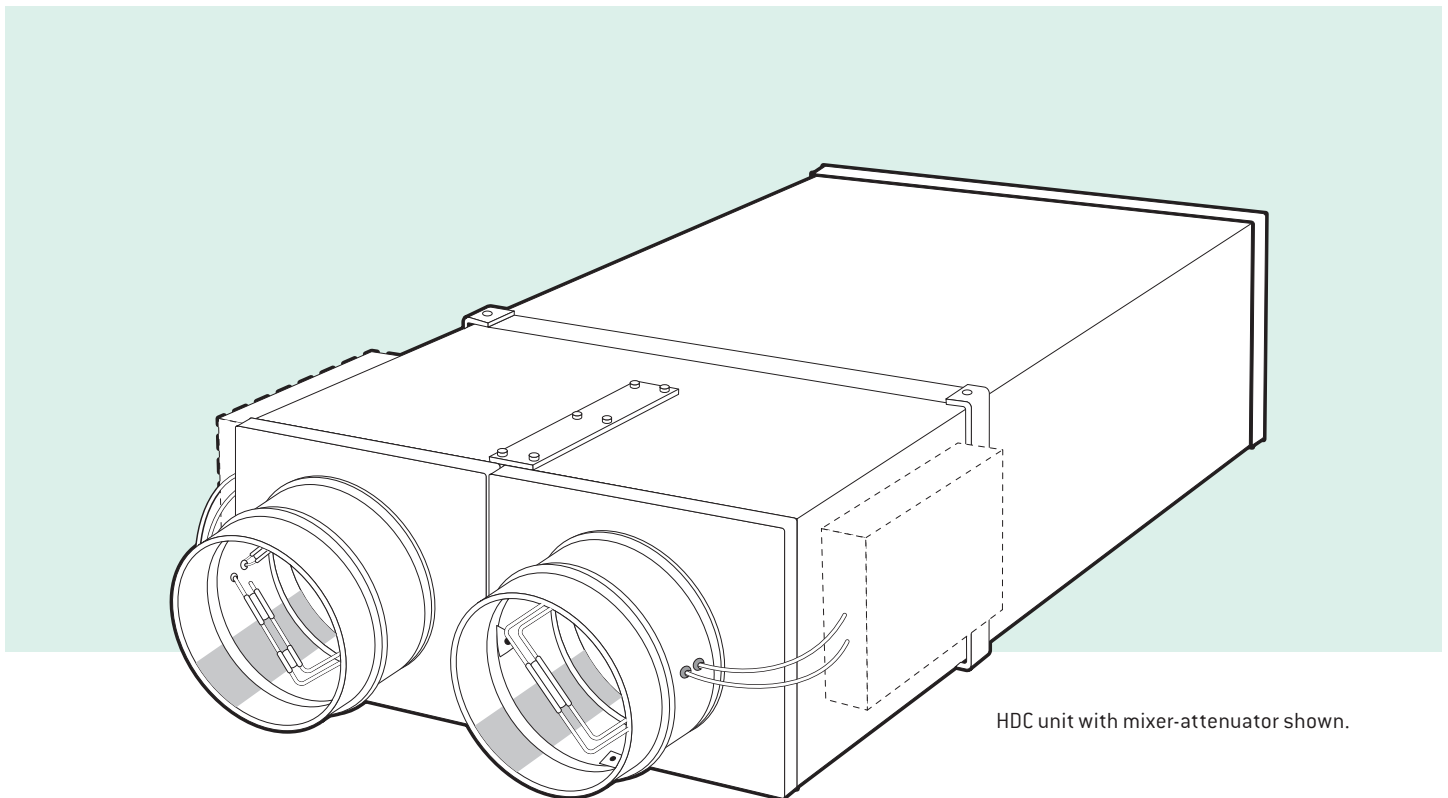
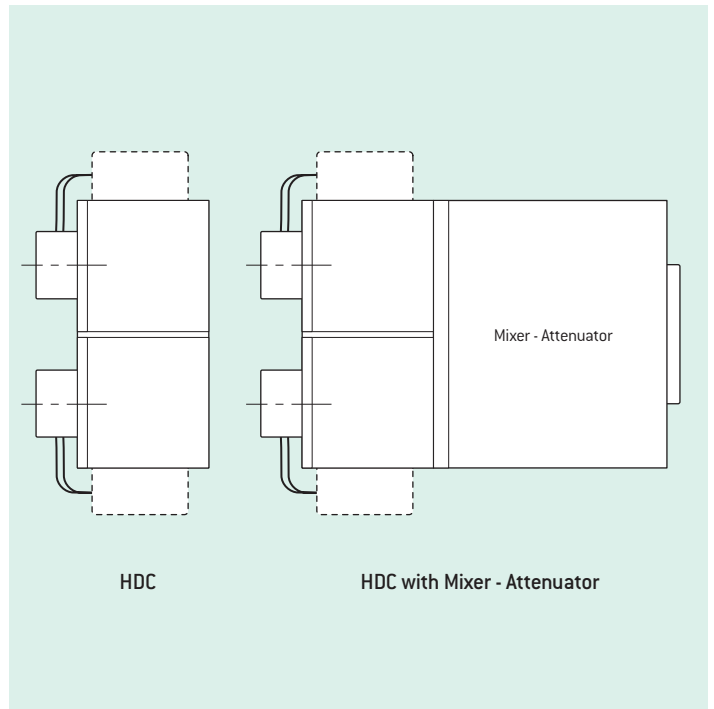
In addition to pressure independent variable volume, the HDC controls provide numerous combinations of settings for hot-cold air mixture proportions.

The HDC control functions are the same as those described for the HCV single duct assembly on preceding pages. Standard construction includes a mixer-attenuator. Basic units without this component are available.

Flow averaging ΔP velocity sensors are standard. Single point sensing as required by some control types can be substituted where necessary.

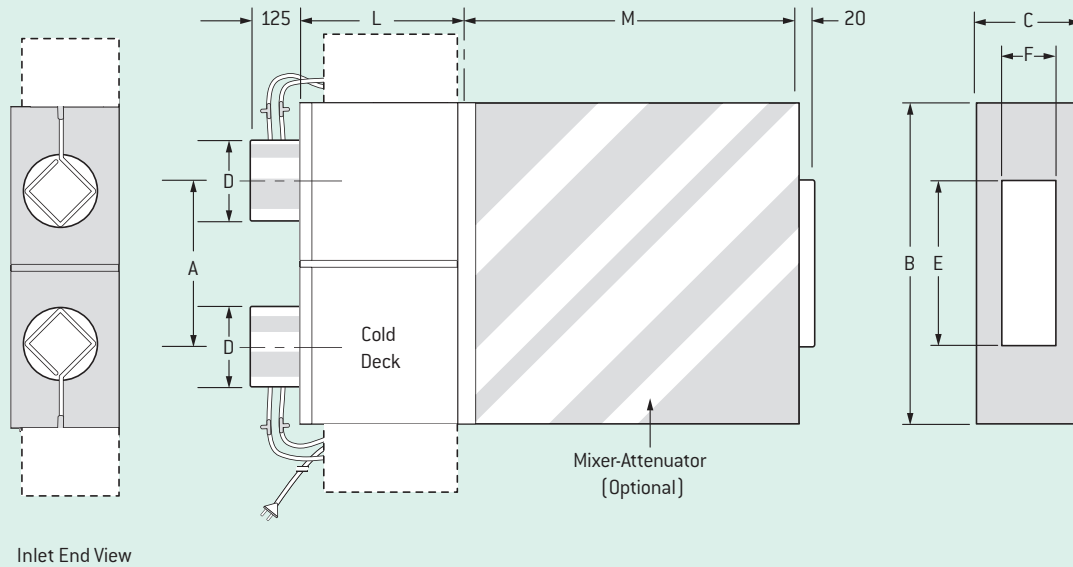
Note

The control capabilities are dependent on the type of controls specified.



HDC unit with mixer-attenuator shown.

Dual Duct Assemblies



Casing Size	Inlet Size	Max. Air Flow, m ³ /s		A	B(1)	C(1)	D	E	F	L	M
		[per deck]									
		Controllable	Rated								
A	100	0.105	0.100	289	575	223	95	283	170	301	762
	125	0.166	0.150	289	575	223	120	283	170	301	762
	150	0.239	0.200	289	575	223	145	283	170	301	762
B	175	0.343	0.300	289	575	296	170	283	243	301	762
	200	0.454	0.350	289	575	296	195	283	243	301	762
	225	0.574	0.500	289	575	296	220	283	243	301	762
C	250	0.733	0.625	431	859	296	245	425	243	301	762
D	300	1.076	1.000	431	859	369	295	425	316	371	762
E	350	1.498	1.400	515	1027	398	345	509	345	371	915
F	400	1.976	1.900	639	1275	442	395	633	389	371	1220

Case Size	Guide Product Weights	
	Description	Approximate Weight in Kg.
125	HDC Dual Duct (Inc Round Flange)	20

Notes

- Model HDC (without attenuator) discharge opening is B x C.
- Drawing above depicts Model HDC with mixer-attenuator included. Assembly can be furnished either as shown, or as basic Model HDC without attenuator.
- Standard units are furnished right handed as shown. Opposite handing can be furnished at no extra cost if order is detailed accordingly. Handing is determined by location of the cold deck.
- For dimensional details of each deck, not shown on this sheet, refer to single duct assembly data, page 264G.
- Also available with square inlets.

Due to a policy of continuous development and improvement the right is reserved to supply products which may differ slightly from those illustrated and described in this publication.

Inlet Dia. mm	Flow m ³ /s	Minimum ΔPs		Minimum	Room N.C. at Nominated ΔΔPs											% Flow for N.C. [Note 3]
		Basic Unit Only Pa	With Mixer Atten. Pa	ΔPt	Min.		125 Pa			250 Pa			500 Pa			
				Basic Unit Only Pa	Basic Unit Only	With Mixer Atten.	Basic Unit Only	With Mixer Atten.	Radiated	Basic Unit Only	With Mixer Atten.	Radiated	Basic Unit Only	With Mixer Atten.	Radiated	
100	0.040	9	19	23	-	-	31	-	15	34	-	16	36	-	16	100
	0.070	27	49	72	20	-	35	-	17	39	19	24	44	24	24	100
	0.085	39	79	106	26	-	36	-	18	41	22	25	47	26	28	100
	0.100	54	113	146	29	-	36	17	19	42	23	26	47	27	31	100
125	0.050	5	15	13	-	-	26	-	-	32	-	17	38	24	18	100
	0.075	12	29	31	-	-	31	-	17	34	18	18	45	26	22	100
	0.100	22	57	56	18	-	34	17	18	39	20	21	46	29	25	100
	0.150	44	94	121	28	-	36	18	22	41	22	23	49	31	30	100
150	0.080	8	15	17	-	-	27	-	15	31	-	17	40	21	21	50
	0.110	14	34	31	16	-	28	-	19	32	-	20	40	23	22	50
	0.170	28	60	70	22	-	31	-	23	35	18	26	42	25	27	50
	0.200	37	77	95	27	-	33	-	25	36	19	29	43	26	31	50
175	0.120	5	28	16	-	-	25	-	17	33	-	19	41	27	21	50
	0.165	10	45	31	-	-	28	-	19	35	19	22	42	28	25	50
	0.210	15	65	49	15	-	30	-	20	37	19	26	43	29	29	50
	0.300	27	94	96	22	-	33	-	24	39	21	30	45	30	35	50
200	0.150	4	21	13	-	-	26	-	-	33	19	16	39	27	18	40
	0.200	8	43	23	-	-	28	-	15	35	22	19	41	29	21	40
	0.250	12	60	36	-	-	30	-	18	37	22	23	43	30	25	40
	0.350	22	82	69	23	-	33	-	24	39	23	26	45	31	30	40
225	0.200	4	17	11	-	-	28	-	13	36	21	22	42	26	25	40
	0.350	12	42	35	16	-	32	-	20	39	24	24	45	31	30	40
	0.425	16	66	49	20	-	34	-	22	40	24	25	46	32	30	40
	0.500	22	99	68	25	-	36	22	24	41	24	27	47	33	31	40
250	0.350	13	38	32	-	-	31	-	23	37	23	26	44	32	28	30
	0.450	19	61	50	18	-	33	-	25	40	25	27	46	33	34	30
	0.550	27	90	74	24	-	36	19	26	41	26	30	47	34	38	30
	0.625	35	127	96	28	21	37	21	28	42	27	32	47	35	39	30
300	0.400	4	27	15	-	-	26	-	17	33	21	20	40	31	25	20
	0.550	8	50	28	-	-	29	-	21	35	24	23	42	32	28	20
	0.850	19	92	68	24	-	35	18	27	40	25	31	45	34	35	20
	1.000	26	135	93	29	22	37	21	33	42	27	33	46	35	36	20
350	0.825	6	48	26	20	-	33	21	25	38	27	27	44	35	29	15
	1.050	9	82	41	27	-	35	21	29	41	29	28	46	36	32	15
	1.275	13	122	61	31	25	36	23	35	42	30	37	46	36	40	15
	1.500	20	172	86	33	27	37	29	38	44	31	41	47	38	43	15
400	0.750	3	38	15	15	-	29	18	23	35	26	27	39	33	29	10
	1.000	5	82	27	21	16	31	21	26	37	29	29	40	35	32	10
	1.500	13	120	62	28	23	34	26	35	40	31	38	42	36	38	10
	1.900	25	159	104	31	25	37	28	38	42	32	42	44	37	43	10

Controlled Volume Assemblies/HDC

Notes

- Ratings are for one deck (hot or cold) of a dual duct assembly.
- For octave band sound power data refer to pages 267G and 268G of this section.
- NC values are based on a room served by one diffuser handling the listed percentage of total flow.
- ΔPs is the difference between inlet and discharge static pressure.
- Minimum ΔPs is the lowest inlet to discharge static pressure for pressure independent flow control.
- ΔPt is the total pressure difference between inlet and discharge.
- Room N.C. listed is the N.C. curve which will not be exceeded by the assembly due to noise generated by it and transmitted along the downstream ductwork, based on:
 - 10 dB room absorption re 10⁻¹² watts.
 - 250 mm dia. lined discharge duct, 1.5 m long.
- Radiated NC listed is the NC curve which will not be exceeded by noise generated by the assembly and transmitted through the casing, based on:
 - 10 dB room absorption re 10⁻¹² watts.
 - Ceiling sound transmission class 35-39.
- If the assembly is exposed, add 13 NC to radiated N.C. ratings listed.

Circular Inlet

CASE SIZE	VOLUME m³/s	MIN ΔPs						125 ΔPs						250 ΔPs						500 ΔPs					
		SOUND POWER Lw						SOUND POWER Lw						SOUND POWER Lw						SOUND POWER Lw					
		OCTAVE BANDS						OCTAVE BANDS						OCTAVE BANDS						OCTAVE BANDS					
		125	250	500	1K	2K	4K	125	250	500	1K	2K	4K	125	250	500	1K	2K	4K	125	250	500	1K	2K	4K
HCV 100	0.040	44	37	32	26	21	19	56	50	40	30	24	21	57	51	42	36	31	28	58	50	38	37	33	29
	0.055	49	41	36	30	24	23	57	51	41	31	25	23	58	53	44	37	32	30	59	53	42	39	34	30
	0.070	59	47	43	38	31	32	59	51	41	32	27	27	59	58	47	39	35	34	62	58	49	43	34	31
	0.085	59	50	44	39	36	37	58	53	43	33	30	33	63	59	47	41	33	36	63	61	52	45	35	33
	0.100	59	53	47	43	40	41	59	54	45	36	33	36	63	60	49	42	35	38	64	64	54	46	37	35
HCV 125	0.050	40	33	29	23	18	17	54	45	34	28	20	18	58	52	41	36	31	24	60	47	39	36	29	28
	0.075	44	35	29	24	18	18	59	49	40	30	22	19	58	53	44	38	26	24	60	56	48	43	35	35
	0.100	51	37	31	26	22	20	59	50	41	30	26	22	61	55	45	38	30	26	62	59	50	43	39	34
	0.125	60	42	33	29	28	27	61	52	42	33	29	27	62	56	47	38	32	29	64	61	53	46	39	35
	0.150	60	47	37	33	33	33	63	54	44	36	34	34	64	57	48	38	34	32	66	63	54	47	39	37
HCV 150	0.080	48	37	30	24	18	17	57	45	33	27	22	20	59	51	42	35	30	26	59	56	48	41	39	39
	0.110	51	39	30	24	20	17	60	47	35	28	23	20	61	51	42	36	31	28	62	56	49	42	39	39
	0.140	60	46	32	27	24	19	63	49	39	29	27	22	64	53	43	36	32	31	65	58	49	42	39	39
	0.170	63	49	36	30	28	24	64	51	41	32	30	27	66	55	44	36	35	33	67	59	49	43	40	40
	0.200	64	51	42	34	33	33	65	53	43	35	33	33	68	57	46	37	37	36	70	61	51	44	41	41
HCV 175	0.120	50	36	30	23	18	18	59	49	36	30	27	23	61	51	43	37	35	32	61	56	48	43	42	42
	0.165	61	38	32	26	21	18	61	51	41	34	30	23	63	56	47	38	36	34	65	59	51	45	43	42
	0.210	62	44	35	30	28	23	62	54	43	35	33	30	65	59	50	41	37	35	66	63	55	47	44	43
	0.255	62	50	40	35	33	30	62	55	45	37	36	32	66	62	50	43	40	36	67	65	57	48	45	43
	0.300	64	56	42	40	38	36	64	58	48	42	39	36	66	63	52	44	41	39	72	67	59	50	46	44
HCV 200	0.150	41	33	28	22	17	15	55	41	34	28	27	22	58	48	41	34	32	29	59	53	47	40	34	33
	0.200	43	35	30	24	19	17	57	44	37	30	29	25	60	51	43	36	34	31	62	56	49	42	37	35
	0.250	45	36	32	26	22	18	59	46	40	32	31	27	63	53	45	38	36	32	65	58	51	43	40	37
	0.300	51	38	35	30	27	22	63	50	43	35	34	30	65	55	46	40	37	35	68	60	53	45	42	41
	0.350	56	41	39	33	32	28	64	52	46	37	36	33	66	56	48	42	39	37	69	61	54	46	43	42
HCV 225	0.200	39	34	30	24	18	17	56	41	35	35	31	29	63	52	43	40	39	38	63	58	50	45	44	46
	0.275	43	36	32	26	21	18	59	44	38	36	33	31	64	52	44	41	39	39	67	59	51	46	45	47
	0.350	50	38	37	30	26	21	61	47	42	36	34	33	65	52	45	42	40	41	69	60	52	47	46	48
	0.425	57	41	43	34	32	26	63	50	45	37	36	35	65	53	47	42	42	42	69	61	53	48	47	49
	0.500	61	46	46	39	37	31	64	53	48	40	38	38	67	55	50	42	44	44	70	61	54	48	48	50
HCV 250	0.250	43	35	30	24	18	17	57	47	36	30	29	28	65	52	44	35	34	35	65	57	50	44	40	42
	0.350	46	37	33	28	22	18	63	49	41	32	31	30	66	55	46	39	36	37	68	59	52	45	42	44
	0.450	57	42	37	34	30	23	65	51	44	36	34	34	67	57	49	39	39	40	72	62	54	47	44	46
	0.550	59	46	41	39	37	31	66	55	48	41	38	38	69	59	51	42	41	42	75	64	56	50	46	48
	0.625	63	51	44	43	41	36	67	57	50	43	42	42	70	60	53	45	43	45	76	66	58	52	48	49
HCV 300	0.400	49	37	33	29	24	20	59	48	38	32	28	31	62	54	44	35	33	39	62	58	51	44	41	46
	0.550	58	43	38	36	33	28	62	52	42	38	35	35	62	57	48	40	37	42	66	61	54	45	43	49
	0.700	63	48	44	42	40	36	65	55	46	43	41	39	65	59	51	44	41	45	70	63	56	47	44	51
	0.850	67	53	48	47	46	42	67	60	49	48	46	43	70	62	54	48	46	47	72	66	57	49	47	53
	1.000	70	60	51	51	50	47	70	66	52	51	50	48	71	66	55	52	50	49	74	68	60	53	51	55
HCV 350	0.600	55	47	41	36	31	26	62	51	42	39	34	36	64	55	47	42	38	38	65	58	51	46	41	45
	0.825	64	51	44	40	36	29	65	55	47	44	41	40	66	58	50	46	47	48	68	61	55	51	47	48
	1.050	67	53	48	44	40	33	68	59	50	48	46	46	69	61	53	49	49	48	70	63	58	52	50	50
	1.275	70	58	50	46	42	36	71	67	52	49	48	46	72	69	54	50	50	51	73	66	60	53	51	52
	1.500	71	65	52	49	44	37	73	70	55	52	50	48	74	72	57	53	51	52	75	68	61	55	52	53
HCV 400	0.750	57	48	42	37	32	29	63	53	44	40	35	36	66	56	48	43	39	40	68	59	52	48	43	44
	1.000	65	53	46	42	37	31	66	57	50	47	42	42	68	58	52	48	46	47	70	61	57	52	49	48
	1.250	69	56	50	44	39	33	70	62	53	50	48	47	70	63	54	51	49	49	72	65	60	54	52	51
	1.500	71	61	52	46	41	36	72	67	56	52	50	48	73	70	56	54	52	51	74	71	62	56	54	53
	1.900	74	66	54	48	43	40	74	70	62	55	52	50	75	73	60	57	55	55	76	74	65	59	58	57

HCV – Discharge Noise Levels

Circular Inlet

CASE SIZE	VOLUME m ³ /s	MIN ΔPs						125 ΔPs						250 ΔPs						500 ΔPs					
		SOUND POWER Lw						SOUND POWER Lw						SOUND POWER Lw						SOUND POWER Lw					
		OCTAVE BANDS						OCTAVE BANDS						OCTAVE BANDS						OCTAVE BANDS					
		125	250	500	1K	2K	4K	125	250	500	1K	2K	4K	125	250	500	1K	2K	4K	125	250	500	1K	2K	4K
HCV 100	0.040	44	45	36	26	18	18	56	50	56	48	43	39	55	59	59	53	51	45	56	61	58	56	52	53
	0.055	47	47	40	29	21	21	58	58	57	49	45	41	57	60	61	54	51	47	58	63	62	59	54	55
	0.070	54	52	47	36	28	26	62	63	60	51	48	45	61	62	64	55	53	51	61	66	68	65	59	58
	0.085	59	56	52	41	35	31	63	66	61	52	51	49	67	68	65	58	55	54	65	68	71	66	60	59
	0.100	61	59	54	45	39	36	65	66	61	53	50	49	67	68	67	58	56	56	67	68	71	67	62	61
HCV 125	0.050	42	38	32	24	17	17	50	53	52	48	43	38	54	56	57	51	48	47	54	57	57	57	53	55
	0.075	47	42	35	26	19	18	54	58	57	50	46	42	59	61	59	55	54	50	60	65	65	64	66	62
	0.100	51	48	44	36	28	22	59	61	59	51	48	46	61	65	63	58	54	53	62	68	67	65	64	62
	0.125	58	55	49	42	35	30	61	63	60	52	50	48	63	64	64	59	56	55	64	69	71	66	62	63
	0.150	62	59	54	47	41	35	62	65	61	54	51	49	65	65	66	60	56	56	67	69	73	67	63	64
HCV 150	0.080	48	47	35	26	18	18	55	58	56	48	45	43	59	59	58	56	52	51	61	62	62	60	59	60
	0.110	52	52	39	31	23	19	58	60	56	48	46	44	60	60	57	56	52	52	62	63	62	61	60	60
	0.140	57	57	46	38	31	23	61	61	57	50	48	46	62	63	58	56	53	54	64	65	64	64	60	62
	0.170	58	57	51	43	37	32	62	62	59	52	49	48	64	64	59	57	55	55	66	67	65	64	60	62
	0.200	59	59	56	48	42	38	63	62	61	54	51	50	65	64	59	58	56	56	67	68	67	65	61	63
HCV 175	0.120	43	39	32	25	20	19	56	55	52	48	48	45	58	59	57	54	54	53	62	62	62	60	60	62
	0.165	45	44	39	29	23	20	59	58	55	50	50	48	58	59	60	56	55	55	61	63	64	62	61	62
	0.210	48	47	44	38	31	25	60	59	57	52	52	50	63	64	62	57	57	57	66	66	68	64	62	63
	0.255	54	50	46	43	36	32	61	60	58	54	54	52	65	66	63	59	58	58	67	67	68	65	63	64
	0.300	59	53	51	47	41	38	63	62	59	56	56	54	66	68	64	60	60	59	69	70	70	66	65	66
HCV 200	0.150	43	37	35	25	18	16	57	56	52	47	47	46	59	60	56	53	53	54	61	62	61	60	58	60
	0.200	46	41	38	29	21	19	59	58	54	50	50	49	61	62	58	55	55	56	63	64	63	62	60	62
	0.250	53	47	44	37	30	23	61	59	56	52	51	50	63	64	60	57	56	57	66	67	64	63	62	64
	0.300	57	51	49	42	36	31	63	60	58	54	53	52	64	65	61	58	58	59	68	68	65	64	63	65
	0.350	59	55	53	46	41	37	65	61	59	56	55	54	66	65	62	60	59	60	68	69	67	66	64	66
HCV 225	0.200	51	37	30	26	17	17	59	55	51	49	51	49	61	60	59	55	56	57	63	62	62	63	60	63
	0.275	55	43	39	34	26	21	61	56	53	51	52	51	62	61	60	56	57	58	64	63	63	63	62	65
	0.350	58	48	47	41	34	28	62	59	56	54	54	53	64	62	61	58	59	60	66	65	64	64	63	66
	0.425	60	52	51	47	41	37	65	61	58	56	56	55	66	63	63	60	60	61	69	68	67	65	65	67
	0.500	62	56	53	52	47	43	67	63	60	59	58	57	67	66	65	62	62	62	70	69	68	66	66	68
HCV 250	0.250	49	45	38	28	20	18	59	56	54	52	50	50	63	62	59	58	55	58	65	65	65	65	64	64
	0.350	51	47	44	37	31	22	60	59	59	54	52	52	65	63	62	60	59	59	67	66	66	65	65	66
	0.450	60	53	50	44	40	34	62	61	60	57	56	55	66	65	64	62	61	62	68	67	67	66	66	68
	0.550	62	57	55	50	46	41	64	62	61	59	58	58	68	67	66	64	63	63	70	69	68	68	67	69
	0.625	64	60	58	54	50	46	66	63	61	60	58	59	70	69	67	65	64	65	72	70	69	69	69	69
HCV 300	0.400	54	42	35	26	19	17	61	58	55	52	52	50	63	62	61	58	57	56	67	67	68	66	63	64
	0.550	59	49	45	39	32	29	63	60	58	55	55	53	66	64	63	60	59	59	69	69	68	67	65	66
	0.700	63	55	52	48	43	39	65	61	61	58	57	56	68	66	65	62	61	62	70	70	69	69	66	68
	0.850	66	59	56	54	49	46	67	64	63	61	60	59	70	68	67	65	63	64	72	71	71	70	68	69
	1.000	69	62	60	59	54	51	70	65	64	64	62	61	71	70	69	67	65	66	73	72	72	72	69	70
HCV 350	0.600	58	49	43	39	38	34	65	60	58	55	56	53	69	66	65	60	60	60	71	70	72	68	65	66
	0.825	63	54	50	48	45	44	67	63	61	59	59	57	72	68	68	64	63	63	74	73	73	70	68	69
	1.050	66	59	55	53	50	51	70	64	62	63	61	60	74	70	69	66	65	66	76	74	76	71	70	71
	1.275	69	62	60	58	55	56	73	67	64	64	62	61	75	73	71	68	67	67	77	75	77	73	71	70
	1.500	72	65	64	63	60	58	74	68	66	66	64	62	76	74	72	70	69	69	78	76	78	74	73	72
HCV 400	0.750	62	51	49	46	43	41	69	63	61	59	56	55	71	69	67	64	63	62	72	70	70	68	67	66
	1.000	66	57	52	50	49	47	72	65	63	62	59	58	74	72	69	67	66	64	74	73	71	69	68	67
	1.250	69	60	57	54	52	50	74	66	65	63	61	59	76	74	71	69	67	66	77	75	73	71	69	68
	1.500	71	64	60	59	56	55	75	68	67	64	63	61	77	74	72	71	68	67	78	76	74	72	71	69
	1.900	75	68	65	63	60	58	77	70	68	67	65	64	79	76	74	73	70	69	80	78	76	74	73	71

Controlled Volume Assemblies/HCV

HDC – Selection Code and Specification

Model: Number Key

HDC	X	X	X	X	X	X	X	XXX
	CONTROLLER MAKE.	CONTROL TYPE AND ACTION. COLD DECK.	CONTROL TYPE AND ACTION. HOT DECK.	MIXER ATTENUATOR.	INLET:	OUTLET ADAPTER.	CASE SIZE.	INLET SIZE.
Model:	1 Siemens.	1 Pneumatic.	1 Pneumatic.	0 None.	C Circular	0 None.	A	100
Pressure Independent Dual VAV Assembly.	2 Honeywell.	2 Electronic.	2 Electronic.	1 With Mixer Attenuator.	S Square*.	9 Special.	A	125
	3 Alerton.	9 Other.	9 Other.				A	150
	4 Belimo.						B	175
	5 KMC.						B	200
	6 Delta.						B	225
	7 Schneider Electric.						C	250
	8 CSI.						D	300
	9 Other Manufacturers (Please Specify).						E	350
							F	400

*Contact your local Holyoake branch if square inlets required.

Suggested Specifications

Dual duct assemblies shall be Holyoake Series HDC supplied with or without controls, as described elsewhere in this specification, fitted with matching mixer attenuator.

They shall be pressure independent and both hot and cold decks shall be capable of temperature controlled velocity re-set between zero and the maximum catalogued air flow.

At an inlet velocity of 10 m/s, the differential static pressure for any size shall not exceed 37 Pa for the basic unit, or 112 Pa, with mixer-attenuator included.

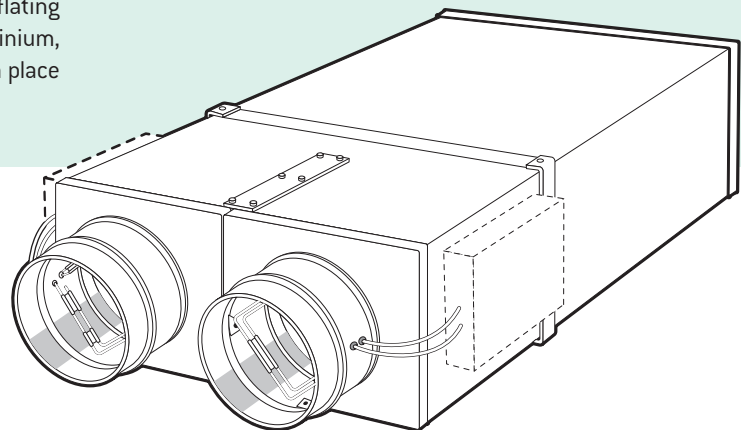
Each assembly shall be constructed to minimise noise generation and shall not exceed NC...at...Pa inlet static pressure.

Basic assemblies shall consist of two VAV elements locked together to form a single operating unit, and each of these elements shall consist of a casing insulated with 25 mm non-woven acoustic polyester fabric and constructed of 0.75 galvanised steel. The controlling damper shall have full air foil extruded aluminium blades with inflating edge seals. The damper shafts shall be bright anodised aluminium, pivoted in two piece acetal self-lubricating bearings locked in place with locating ribs.

The combined leakage of the closed damper and the high pressure casing shall not exceed 2% of maximum rated flow at 750 Pa inlet static pressure.

Assemblies shall be furnished with flow averaging ΔP velocity sensors of the PDI type as manufactured by Holyoake. Single point electronic sensors are not acceptable.

Each flow sensor shall be furnished with capped Tees for independent site measurement of ΔP . Each sensor shall be provided with a label showing its formula for flow calculation. Such calculated air flow shall be within $\pm 5\%$ of actual, provided inlet connections are in non-deforming rigid or semi rigid duct of the same size as the assembly inlet, irrespective of inlet angles from zero to 90°.



Due to a policy of continuous development and improvement the right is reserved to supply products which may differ slightly from those illustrated and described in this publication.