

Australian Patent No 2002313921

INFFUSER™ IDL20e

Technical Data

1200 x 110mm 2-Slot Linear Grille
2-Way Blow with External Entrainment

Release V.2 June 2009

INFFUSER

Table 1: Zone Sensible Capacity [W]

Floor Area [m ²]	Zone Load [W/m ²]																		
	15	30	35	40	45	50	60	70	80	90	100	110	120	130	140	150	160	180	200
8	120	240	280	320	360	400	480	560	640	720	800	880	960	1040	1120	1200	1280	1440	1600
10	150	300	350	400	450	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1800	2000
12	180	360	420	480	540	600	720	840	960	1080	1200	1320	1440	1560	1680	1800	1920	2160	2400
14	210	420	490	560	630	700	840	980	1120	1260	1400	1540	1680	1820	1960	2100	2240	2520	2800
16	240	480	560	640	720	800	960	1120	1280	1440	1600	1760	1920	2080	2240	2400	2560	2880	3200
18	270	540	630	720	810	900	1080	1260	1440	1620	1800	1980	2160	2340	2520	2700	2880	3240	3600
20	300	600	700	800	900	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200	3600	4000
22	330	660	770	880	990	1100	1320	1540	1760	1980	2200	2420	2640	2860	3080	3300	3520	3960	4400
24	360	720	840	960	1080	1200	1440	1680	1920	2160	2400	2640	2880	3120	3360	3600	3840	4320	4800
26	390	780	910	1040	1170	1300	1560	1820	2080	2340	2600	2860	3120	3380	3640	3900	4160	4680	5200
28	420	840	980	1120	1260	1400	1680	1960	2240	2520	2800	3080	3360	3640	3920	4200	4480	5040	5600
30	450	900	1050	1200	1350	1500	1800	2100	2400	2700	3000	3300	3600	3900	4200	4500	4800	5400	6000

Table 2: Primary Air Flow [L/s]

Sensible Capacity [W]	Temperature Differential (room air - primary air) [°C]										
	7	8	9	10	11	12	13	14	15	16	17
2000	236	206	183	165	150	137	127	118	110	103	97
1900	224	196	174	157	142	131	120	112	104	98	92
1800	212	185	165	148	135	124	114	106	99	93	87
1700	200	175	156	140	127	117	108	100	93	88	82
1600	188	165	147	132	120	110	101	94	88	82	78
1500	177	155	137	124	112	103	95	88	82	77	73
1400	165	144	128	115	105	96	89	82	77	72	68
1300	153	134	119	107	97	89	82	77	71	67	63
1200	141	124	110	99	90	82	76	71	66	62	58
1100	130	113	101	91	82	76	70	65	60	57	53
900	106	93	82	74	67	62	57	53	49	46	44
800	94	82	73	66	60	55	51	47	44	41	39
750	88	77	69	62	56	52	48	44	41	39	36
700	82	72	64	58	52	48	44	41	38	36	34
650	77	67	60	54	49	45	41	38	36	33	32
600	71	62	55	49	45	41	38	35	33	31	29
550	65	57	50	45	41	38	35	32	30	28	27
500	59	52	46	41	37	34	32	29	27	26	24
450	53	46	41	37	34	31	29	26	25	23	22
400	47	41	37	33	30	27	25	24	22	21	19
350	41	36	32	29	26	24	22	21	19	18	17
300	35	31	27	25	22	21	19	18	16	15	15
250	29	26	23	21	19	17	16	15	14	13	12
200	24	21	18	16	15	14	13	12	11	10	10

Figures in blue indicate pressures greater than 65Pa for the highest number of nozzles

Quick Selection Procedure

1. If the actual zone sensible load is unknown then use table 1 for a nominated zone load and floor area.
2. When the sensible capacity is known use table 2 to achieve a primary air flow for the designed temperature difference.
3. Table 3 can be used to determine the required total supply air flow for the required air circulation rate.
4. Use table 4 to select the nozzle configuration that best satisfies your design criteria.
5. Table 5 & 6 can be used to check the mixed supply air temperature delivered to the zone.
6. Check heating requirements using tables 7, 4 and 6.

Table 3: Total Supply Air Flow [L/s]

Floor Area [m ²]	Air Circulation Rate [L/s/m ²]															
	1.5	2	2.5	3	3.5	4	4.5	5	6	7	8	9	10	12.5	15	20.0
8	12	16	20	24	28	32	36	40	48	56	64	72	80	100	120	160
10	15	20	25	30	35	40	45	50	60	70	80	90	100	125	150	200
12	18	24	30	36	42	48	54	60	72	84	96	108	120	150	180	240
14	21	28	35	42	49	56	63	70	84	98	112	126	140	175	210	280
16	24	32	40	48	56	64	72	80	96	112	128	144	160	200	240	320
18	27	36	45	54	63	72	81	90	108	126	144	162	180	225	270	360
20	30	40	50	60	70	80	90	100	120	140	160	180	200	250	300	400
22	33	44	55	66	77	88	99	110	132	154	176	198	220	275	330	440
24	36	48	60	72	84	96	108	120	144	168	192	216	240	300	360	480
26	39	52	65	78	91	104	117	130	156	182	208	234	260	325	390	520
28	42	56	70	84	98	112	126	140	168	196	224	252	280	350	420	560
30	45	60	75	90	105	120	135	150	180	210	240	270	300	375	450	600

Table 4: IDL20e Performance Data

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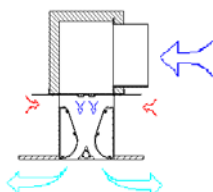
IDL20e (External Entrainment)									
									
Nozzles	Nozzle Configuration								
	38		58		88		132		
Spigot Size	150mm		200mm		200mm		250mm		
Pressure [Pa]	Primary Air [L/s]	Supply Air [L/s]	Primary Air [L/s]	Supply Air [L/s]	Primary Air [L/s]	Supply Air [L/s]	Primary Air [L/s]	Supply Air [L/s]	
5	9	27	14	35	21	41	31	48	
10	12	38	19	48	29	57	43	67	
15	15	46	23	59	35	69	53	82	
20	17	53	27	67	40	79	61	94	
25	19	59	30	75	45	88	68	105	
30	21	64	32	82	49	97	74	115	
35	23	69	35	88	53	104	80	124	
40	24	73	37	94	57	111	85	132	
45	26	78	39	100	60	117	90	140	
50	27	82	42	105	63	124	95	147	
55	28	86	43	110	66	129	99	154	
60	30	89	45	115	69	135	103	160	
65	31	93	47	119	72	140	107	167	
70	32	96	49	124	74	145	111	173	
75	33	100	51	128	77	150	115	179	
80	34	103	52	132	79	155	119	184	
85	35	106	54	136	81	160	122	190	
90	36	109	55	140	84	164	126	195	
95	37	112	57	143	86	169	129	200	
100	38	114	58	147	88	173	132	205	

Table 5: IDL20e Supply Air Temp (Cooling)

Nozzle Config.	Primary Air Temp [°C]	Room Air Temperature [°C]			
		22	23	24	25
38	8	17.3	18.0	18.7	19.4
	9	17.7	18.3	19.0	19.7
	10	18.0	18.7	19.3	20.0
	11	18.3	19.0	19.7	20.3
	12	18.7	19.3	20.0	20.7
	13	19.0	19.7	20.3	21.0
58	8	16.5	17.1	17.7	18.3
	9	16.9	17.5	18.1	18.7
	10	17.3	17.9	18.5	19.1
	11	17.7	18.3	18.9	19.5
	12	18.0	18.7	19.3	19.9
	13	18.4	19.0	19.7	20.3
88	8	14.9	15.3	15.8	16.3
	9	15.4	15.9	16.3	16.8
	10	15.9	16.4	16.9	17.3
	11	16.4	16.9	17.4	17.9
	12	16.9	17.4	17.9	18.4
	13	17.4	17.9	18.4	18.9
132	8	13.0	13.4	13.7	14.1
	9	13.7	14.0	14.4	14.7
	10	14.3	14.7	15.0	15.4
	11	14.9	15.3	15.7	16.0
	12	15.6	15.9	16.3	16.7
	13	16.2	16.6	16.9	17.3

Table 6: IDL20e Supply Air Temp (Heating)

Nozzle Config.	Primary Air Temp [°C]	Room Air Temperature [°C]			
		20	21	22	23
38	28	22.7	23.3	24.0	24.7
	30	23.3	24.0	24.7	25.3
	32	24.0	24.7	25.3	26.0
	34	24.7	25.3	26.0	26.7
	36	25.3	26.0	26.7	27.3
	38	26.0	26.6	27.3	28.0
58	28	23.2	23.8	24.4	25.0
	30	24.0	24.6	25.2	25.8
	32	24.7	25.3	26.0	26.6
	34	25.5	26.1	26.7	27.3
	36	26.3	26.9	27.5	28.1
	38	27.1	27.7	28.3	28.9
88	28	24.1	24.6	25.1	25.6
	30	25.1	25.6	26.1	26.6
	32	26.1	26.6	27.1	27.6
	34	27.1	27.6	28.1	28.6
	36	28.2	28.7	29.1	29.6
	38	29.2	29.7	30.2	30.7
132	28	25.1	25.5	25.8	26.2
	30	26.4	26.8	27.1	27.5
	32	27.7	28.1	28.4	28.8
	34	29.0	29.3	29.7	30.1
	36	30.3	30.6	31.0	31.3
	38	31.5	31.9	32.3	32.6

Table 7: IDL20e Acoustic Data

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Nozzle Configuration	Primary Air Pressure [Pa]	Sound Power Level [dB]								dB[A]	NC	NR
		Octave Band Frequency [Hz]										
		63	125	250	500	1000	2000	4000	8000			
38	20	5	14	11	16	11	9	12	12	21	7	9
	40	10	18	20	22	20	15	13	12	26	19	21
	60	13	22	24	26	25	20	14	12	31	24	25
	80	15	24	27	30	30	26	17	14	35	28	30
	100	17	27	30	33	34	30	22	14	39	32	34
58	20	4	14	11	15	11	9	12	12	21	8	10
	40	8	17	16	23	20	16	13	10	26	19	22
	60	12	20	23	27	24	19	14	12	31	25	26
	80	14	25	26	30	28	24	17	12	34	28	30
	100	17	26	29	32	31	27	20	12	37	31	32
88	20	15	17	13	19	13	10	12	12	24	16	18
	40	9	15	19	25	19	15	12	12	28	22	24
	60	12	21	23	28	24	20	13	12	32	26	27
	80	16	24	26	32	29	26	17	12	36	30	31
	100	19	27	30	35	34	31	23	13	39	34	35
132	20	13	21	15	20	13	9	12	12	25	17	19
	40	9	17	24	29	24	21	13	12	32	26	28
	60	13	22	28	34	31	29	20	12	37	32	33
	80	16	25	32	37	35	34	26	14	41	37	37
	100	17	30	34	40	38	37	29	16	44	39	39

NOTE: The above tabulated noise data are based on tests taken in The University of Adelaide's Reverberation Chamber. Please contact DADANCO for further information on the parameters under which the noise data are measured.

Table 8: Air Throw data

INFFUSER™ IDL20e Diffuser Performance				
Supply Air Qty [L/s]	L/s per Side	Throw in Meters at Isothermal		
		0.25 m/s	0.50 m/s	0.75 m/s
80	40.0	4.0	2.4	N/A
96	48.0	4.6	3.2	0.7
113	56.5	5.3	4.0	1.4
136	68.0	5.8	4.4	2.4
161	80.5	6.4	4.9	3.4

Air Diffuser Performance

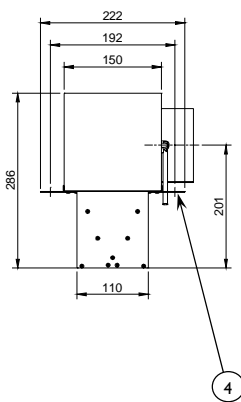
The air from the entrainment area is to discharge through the 2 – way diffuser, achieving the required Coanda effect across the ceiling. The INFFUSER™ IDL-20e is designed so the airflow 'hugs' the ceiling ('Coanda effect') and so discharges the supply air into the space gently and uniformly. The Coanda effect is maintained even when the primary air volume is reduced to below 50% of the design peak load value.

INFFUSER™ IDL-20e diffuser performance is expressed in meters of throw per side of the diffuser for isothermal air at given velocities for the range of applicable total supply air

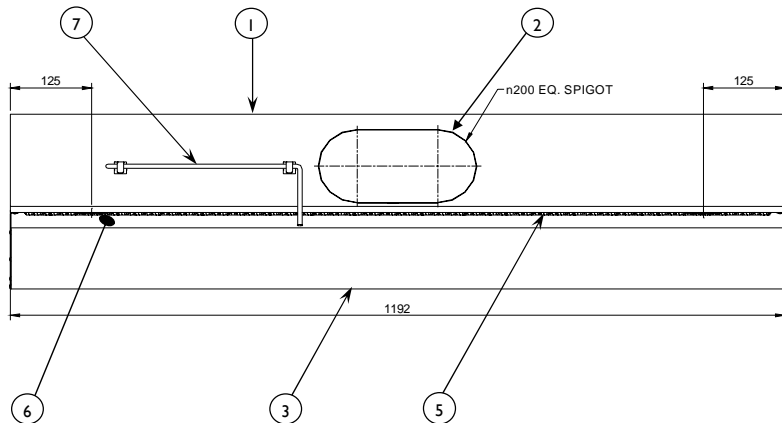
1) To determine throw for a given INFFUSER™ IDL-20e, determine the total supply air quantity from the performance selection table for the design primary air quantity and static pressure required to satisfy the design cooling load

2) From the left hand vertical column of total supply air quantity, read horizontally across the table to the design space velocity to determine throw in meters.

NOTE: Throw data is expressed as air throw per side of the Infuser for 50% of the total supply air quantity



- 1. Primary air plenum
- 3. Diffuser (2-slot)
- 5. Primary air nozzles
- 7. Commissioning tube



- 2. Oval inlet spigot, (200mm dia equivalent shown)
- 4. Support points (hanging brackets)
- 6. Secondary air opening

Approximate Unit Weight 8kg

For more information on INFFUSERS™, or other Dadanco solutions delivery, products, contact:



DISCLAIMER: While every effort is made to ensure the details contained herein are kept up to date, in the interest of ongoing product development, DADANCO reserves the right to alter the same without notice

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