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iNDUSTRIAL

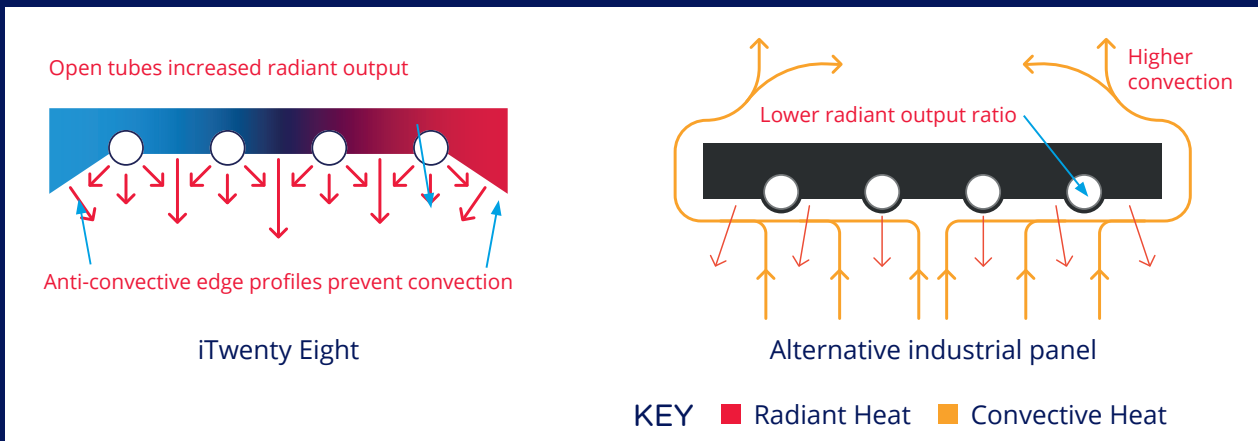
Contents

	Page
1 iTwenty Eight Radiant Panels	3
1.1 Construction	4
1.2 Outputs	5
2 CiRRUS Unit Heaters	6
2.1 Performance Data	6
2.2 Electric Heated Units	7
2.3 Dimensions	7
2.4 Mounting Height/Coverage	8
2.5 Noise Data	8
2.6 Electrical Data	8
2.7 Control Options	8
3 iForce Industrial Air Curtains	9
3.1 Performance Data	9
3.2 Dimensions	10
3.3 Mounting Height	11
3.4 Noise Data	11
3.5 Electrical Data	11
3.6 Control Options	11

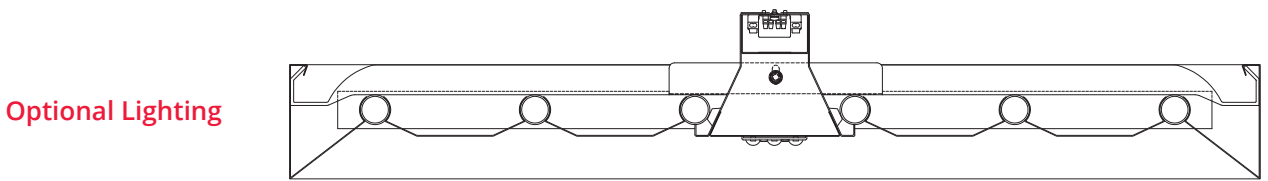
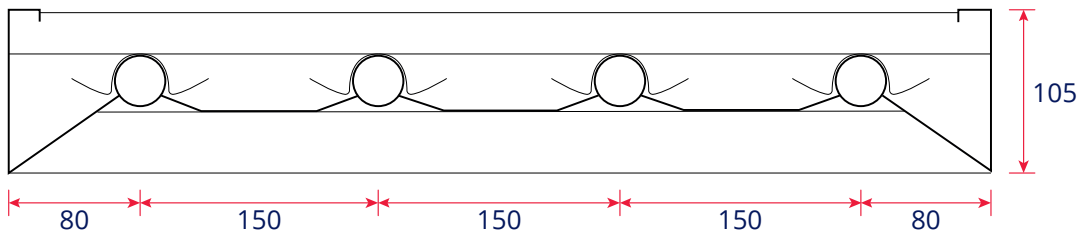
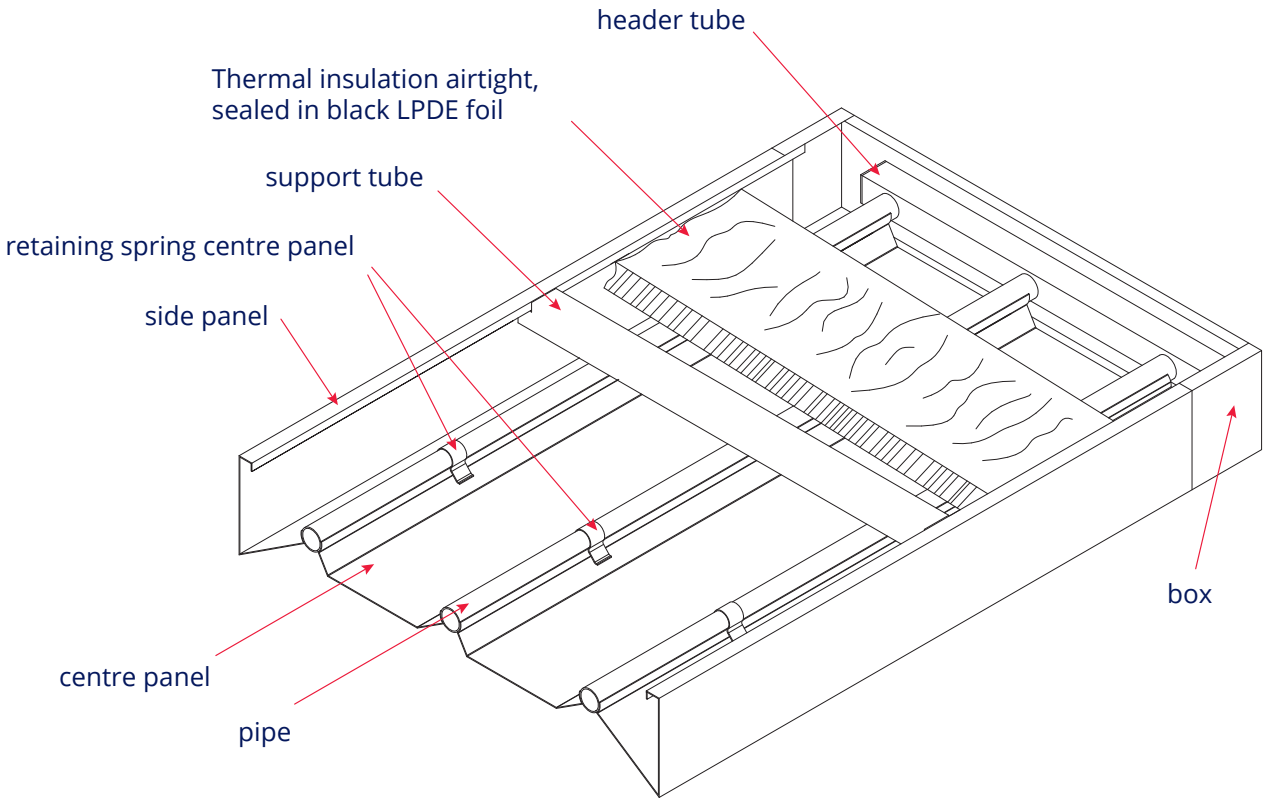
iTwenty Eight Radiant Panels

Perfect for heat pumps and low water temperature systems, our iTwenty Eight Industrial Radiant Panels with anti-convective side walls deliver an impressive 81% radiant output. This ensures efficient and effective heating for a variety of applications.

iTwenty Eight Industrial Radiant Panels have large bore waterways (28mm x 1.5mm thick) and incorporate header arrangements for flow splitting/joining. Individual modules of up to six metres offer opportunities for long panel runs of up to 70m with low-pressure drops.



1.1 Construction



Width (mm)	310	460	610	760	910	1060	1210	1360	1510
Weight inc. water (kg/m)	4.6	6.6	8.7	10.7	12.7	14.8	16.8	18.8	20.8
No. of tubes	2	3	4	5	6	7	8	9	10

1.2 Outputs

Heating Outputs

Width (mm)	310	460	610	760	910	1060	1210	1360	1510
Excess temperature (K)	Heat output W/m acc. to DIN EN 14037 T2:2003								
70	225	305	385	466	547	628	709	790	872
68	218	295	373	451	529	607	685	764	843
66	211	285	360	435	511	586	662	738	814
64	204	276	348	420	493	566	639	712	785
62	197	266	335	405	475	546	616	686	757
60	190	256	323	390	458	525	593	660	728
58	182	247	311	376	440	505	570	635	700
56	175	237	299	361	423	485	547	610	672
54	168	227	286	346	406	465	525	584	644
52	161	218	274	331	388	445	502	559	616
50	154	208	262	317	371	426	480	534	588
48	148	199	250	302	354	406	458	509	561
46	141	190	239	288	337	387	436	485	534
44	134	180	227	274	321	367	414	460	507
42	127	171	215	260	304	348	392	436	480
40	120	162	203	245	287	329	371	412	453
38	113	153	192	231	271	310	349	388	427
36	107	144	180	218	255	291	328	365	401
34	100	135	169	204	238	273	307	341	375
32	94	126	158	190	222	254	286	318	349
30	87	117	147	177	206	236	266	295	324
28	81	108	135	163	191	218	245	272	299
26	74	99	125	150	175	200	225	250	274
24	68	91	114	137	160	182	205	227	250
22	61	82	103	124	145	165	185	206	226
20	55	74	92	111	130	148	166	184	202

Cooling Outputs

Width (mm)	310	460	610	760	910	1060	1210	1360	1510
Excess temperature (K)	Heat output W/m acc. to DIN EN 14037 T2:2003								
8	30	44	58	72	87	101	115	130	144
10	38	56	74	93	111	129	147	166	184
12	46	68	91	113	135	158	180	202	225

CiRRUS Unit Heaters

CiRRUS Unit Heaters consist of a powerful axial fan with an EC motor which draws in space air, blows it across an optimised heat exchanger (coil) and discharges the air through a series of adjustable, angled louvre blades. The casing is powder-coated steel and holds the motor/fan basket grille on the back and the coil towards the front with the pipe connections protruding through the casing. The electrical box is located on the side of the unit and several hanging bracket options are available.

The EC fan is continuously controllable via a 0-10V signal allowing the fan to rotate and move air at a rate commensurate with the height at which the units are required to be mounted.



2.1 Performance Data

Size	Ci5			Ci6			Ci7			Ci8		
Speed	Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High
Airflow (m3/s)	0.23	0.35	0.46	0.40	0.60	0.79	0.55	0.81	1.10	0.85	1.26	1.69
Output (kW)	6.6	8.2	9.2	12.4	15.1	17.2	17.1	20.8	24.0	26.6	32.4	37.0
Water flow (kg/s)	0.16	0.20	0.22	0.30	0.36	0.41	0.41	0.50	0.57	0.63	0.77	0.88
Water pressure drop (kPa)	5.2	7.7	9.3	23.4	33.5	42.2	8.7	12.5	15.6	24.2	34.4	44.0

Table 1. Performance of units fitted with the standard 2 row coil and operating against conventional boiler flow and return temperatures of 80/70°C and an air temperature of 18°C.

Size	Ci5*			Ci6			Ci7			Ci8		
Speed	Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High
Airflow (m3/s)	0.22	0.33	0.44	0.38	0.57	0.75	0.53	0.77	1.05	0.81	1.20	1.61
Output (kW)	3.4*	4.7*	5.6*	6.9	8.9	10.2	11.5	14.1	16.4	15.3	19.5	22.7
Water flow (kg/s)	0.05	0.07	0.09	0.08	0.11	0.12	0.14	0.17	0.20	0.18	0.23	0.27
Water pressure drop (kPa)	0.4	0.6	1.0	1.1	2.1	2.3	3.9	5.5	7.2	1.5	2.1	2.8

Table 2. Performance of units fitted with the 3 row coil and operating against flow and return temperatures of 60/40°C and an air temperature of 18°C.

*Ci5 at 60/45°C

Size	Ci5*			Ci6			Ci7			Ci8		
Speed	Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High
Airflow (m3/s)	0.21	0.31	0.42	0.36	0.54	0.71	0.51	0.73	1.00	0.77	1.14	1.53
Output (kW)	4.0*	5.1*	6.0*	5.9	7.7	9.1	9.5	11.8	14.1	14.9	18.8	22.1
Water flow (kg/s)	0.19	0.24	0.29	0.14	0.18	0.22	0.23	0.28	0.34	0.36	0.45	0.53
Water pressure drop (kPa)	2.7	3.9	5.6	2.2	3.3	4.8	6.0	8.8	12.0	18.0	26.6	35.3

Table 3. Performance of units fitted with the 4 row coil and operating against flow and return temperatures of 45/35°C and an air temperature of 18°C.

*Ci5 at 45/40°C

2.2 Electric Heated Units

A version of the Ci5 unit is available with a direct electric heating element rather than hot water coil. This is only available for horizontal mounting. The heating element is rated at 9kW (3 phase) and is available with a two speed medium/high switch.

Size	Ci5	
Supply	400V/3Ph/50Hz	
Speed	Medium	High
Airflow (m3/s)	0.35	0.46
Output (kW)	9.0	9.0
Max power draw/phase (kW)	3.1	3.2
Max current/phase (A)	13.5	13.9

Table 4. Ci5 electric heated unit

2.3 Dimensions

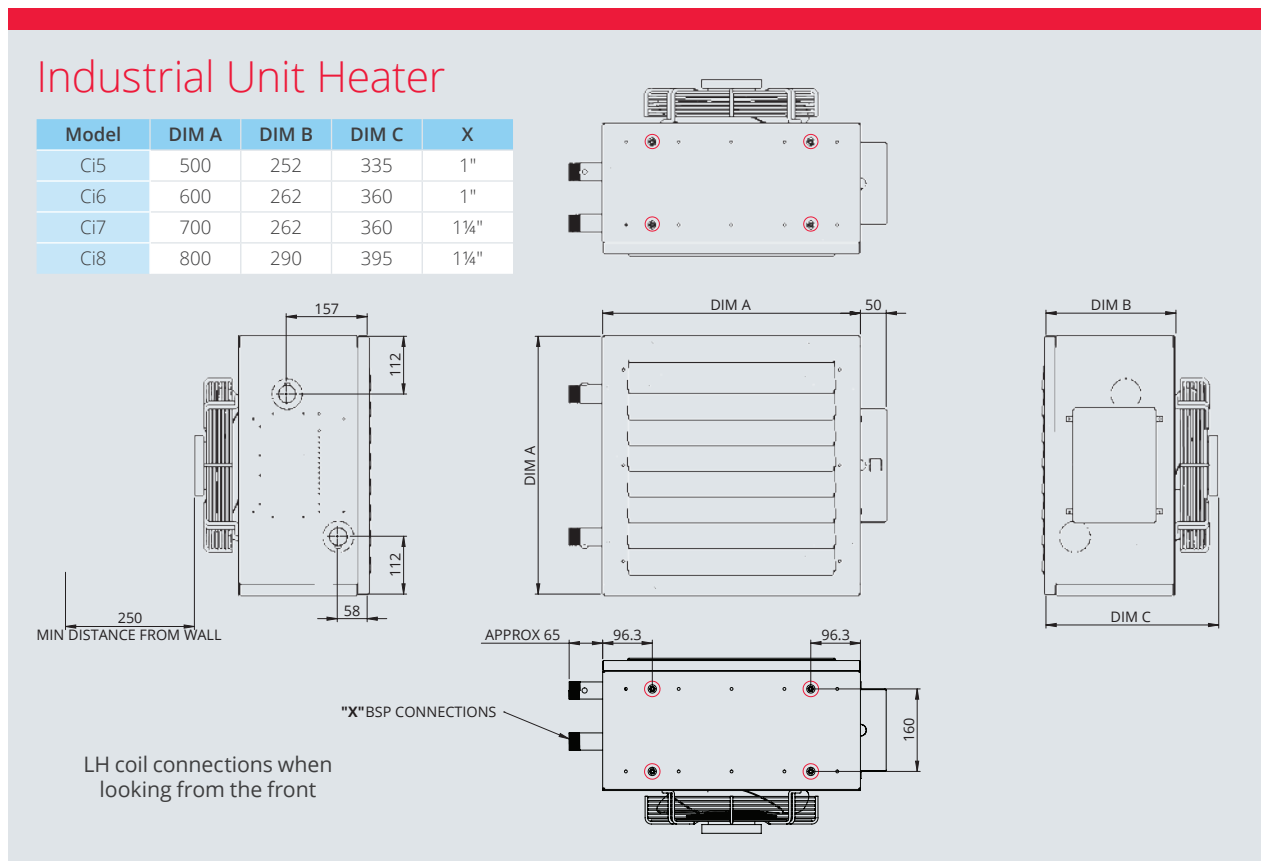


Figure 1. Major dimensions

Unit weights are approximate as given in the table below, depending on bracketry arrangement and optional extras.

Unit size	Ci5	Ci6	Ci7	Ci8
Approx. dry weight (kg)	30	45	55	70
Int. vol. 2 row coil (l)	0.9	1.5	2.7	3.7
Int. vol. 3 row coil (l)	1.2	2.0	3.5	4.9
Int. vol. 4 row coil (l)	1.5	2.5	4.3	6.0

Table 5. Unit weights/volumes

2.4 Mounting Height/Coverage

Unit heaters are intended to be mounted outside the occupied area of the conditioned space and to blow a jet of warm air into the area(s) where it is required. The performance and comfort levels achieved are a function of the positions in which the units are installed and in particular their heights above floor level. Higher fan speeds generate greater volumes of airflow and higher momentum jets which will cover greater areas. Smaller units are more suited to mounting in limited areas with reasonably low mounting

heights while the larger units lend themselves to greater mounting heights covering greater floor areas. If units are selected with excess airflow then there will be greater than necessary levels of draught and noise.

The figures shown in the table below are for guidance/indication only and should not be considered inflexible. If the application falls close to the range indicated then satisfactory operation will result.

Size	Ci5			Ci6			Ci7			Ci8		
Speed	Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High
Minimum height (m)	2.0	2.5	2.5	2.5	2.5	3.0	2.5	3.0	3.0	2.5	3.0	3.5
Maximum height (m)	3.0	3.5	3.5	3.5	4.5	4.5	3.5	5.0	5.5	4.0	5.0	6.0
Throw (m)	7	9	13	10	13	19	13	16	25	15	18	27
Coverage (mxm)	6	7	12	9	12	18	11	13	23	12	15	25

Table 6. Recommended mounting heights

Throw represents the range of effectiveness of horizontal units mounted against a wall and blowing downwards at a 30 to 45° angle. If horizontal units are mounted along opposite walls it is helpful to stagger their positions to maximise and homogenise the field of effect. Coverage represents the corresponding area of effect for vertical units blowing downwards.

As mentioned, the figures in the above tables only provide guidance and coverage/throw is affected

by mounting height, leaving air temperature and any special outlet louvre arrangements. Ideal leaving air temperatures for unit heaters are in the range of 30 to 45°C. Leaving air temperature is calculated in line with the equation below:

$$LAT(^{\circ}C) = EAT(^{\circ}C) + [Output(kW)/Airflow(m^3/s)/1.2]$$

LAT = leaving air temperature, EAT = entering air temperature

2.5 Noise Data

Size	Ci5			Ci6			Ci7			Ci8		
Speed	Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High
dBA	41	47	57	41	50	60	43	52	62	48	54	66

Table 7. Noise levels

2.6 Electrical Data

All hot water heated units are suitable for operation against a 230V/1Ph/50Hz supply. The power draw figures for the units at various speeds are shown below.

Size	Ci5			Ci6			Ci7			Ci8		
Speed	Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High
Power draw (W)	70	110	200	90	150	300	100	180	380	230	420	700

Table 8. Unit electrical power consumption

*See section 2.2 above for the electric heated unit which requires a 3 phase, 400V, 50Hz supply.

2.7 Control Options

SPC offer a wide range of options for local and automatic controls. Please contact SPC for more information.

iForce Industrial Air Curtains

iForce Industrial Air Curtains are designed to protect door-ways up to 6m in height and can be mounted either horizontally above the door or vertically along the sides of the door. We offer units in widths of 1.5m, 2.0m, and 2.5m. Horizontal units can be installed side by side to cover doorways of any length, while vertical units can be in-stalled on the left, right, or both sides of the doorway and can be stacked.

We have three versions available:

- Ambient units without heat exchangers
- Units with electric heating elements
- Units with low-pressure hot water coil heat ex-changers

The latter can come with a 2-row coil to suit conventional boiler temperatures or an en-hanced 3-row coil to suit lower water temperatures associated with condensing boilers or heat pumps, ideal for decarbonisation efforts.



Our casings are made from heavy gauge, powder-coated steel, and our units come with a range of mounting and control options.

3.1 Performance Data

Size	IAC15			IAC20			IAC25		
Speed	Low	Medium	High	Low	Medium	High	Low	Medium	High
Airflow (m3/s)	1.00	1.47	1.83	1.22	1.72	1.95	1.83	2.58	2.93
Output (kW)	29.6	35.7	39.5	38.4	45.8	49.0	54.1	63.9	67.9
Water flow (kg/s)	0.71	0.85	0.94	0.92	1.09	1.17	1.29	1.53	1.62
Water pressure drop (kPa)	32.9	46.5	55.9	30.0	41.9	47.7	35.3	48.0	53.7

Table 9. Details of airflows and heat outputs using conventional hot water temperatures of 80/70°C. These are based on an air temperature of 18°C and the standard 2 row coil.

Size	IAC15			IAC20			IAC25		
Speed	Low	Medium	High	Low	Medium	High	Low	Medium	High
Airflow (m3/s)	0.95	1.40	1.74	1.16	1.63	1.85	1.74	2.45	2.79
Output (kW)	20.1	24.5	27.4	25.9	30.8	33.1	36.7	43.8	46.7
Water flow (kg/s)	0.24	0.29	0.33	0.31	0.37	0.39	0.44	0.52	0.56
Water pressure drop (kPa)	6.6	9.5	11.6	5.3	7.3	8.3	6.8	9.4	10.5

Table 10. Performance of units equipped with a 3 row heat exchanger. Performance is based on 18°C air temperature and 60/40°C hot water temperatures typical of a condensing boiler.

Size	IAC15			IAC20			IAC25		
Speed	Low	Medium	High	Low	Medium	High	Low	Medium	High
Airflow (m ³ /s)	0.95	1.40	1.74	1.16	1.63	1.85	1.74	2.45	2.79
Output (kW)	14.1	17.3	19.3	17.9	21.7	23.1	25.8	30.5	32.7
Water flow (kg/s)	0.34	0.41	0.46	0.43	0.52	0.55	0.62	0.73	0.78
Water pressure drop (kPa)	12.7	18.3	22.4	9.9	14.1	15.7	13.0	17.7	20.1

Table 11. Performance of units equipped with a 3 row heat exchanger. Performance is based on 18°C air temperature and 45/35°C hot water temperatures typical of an air source heat pump.

3.2 Dimensions

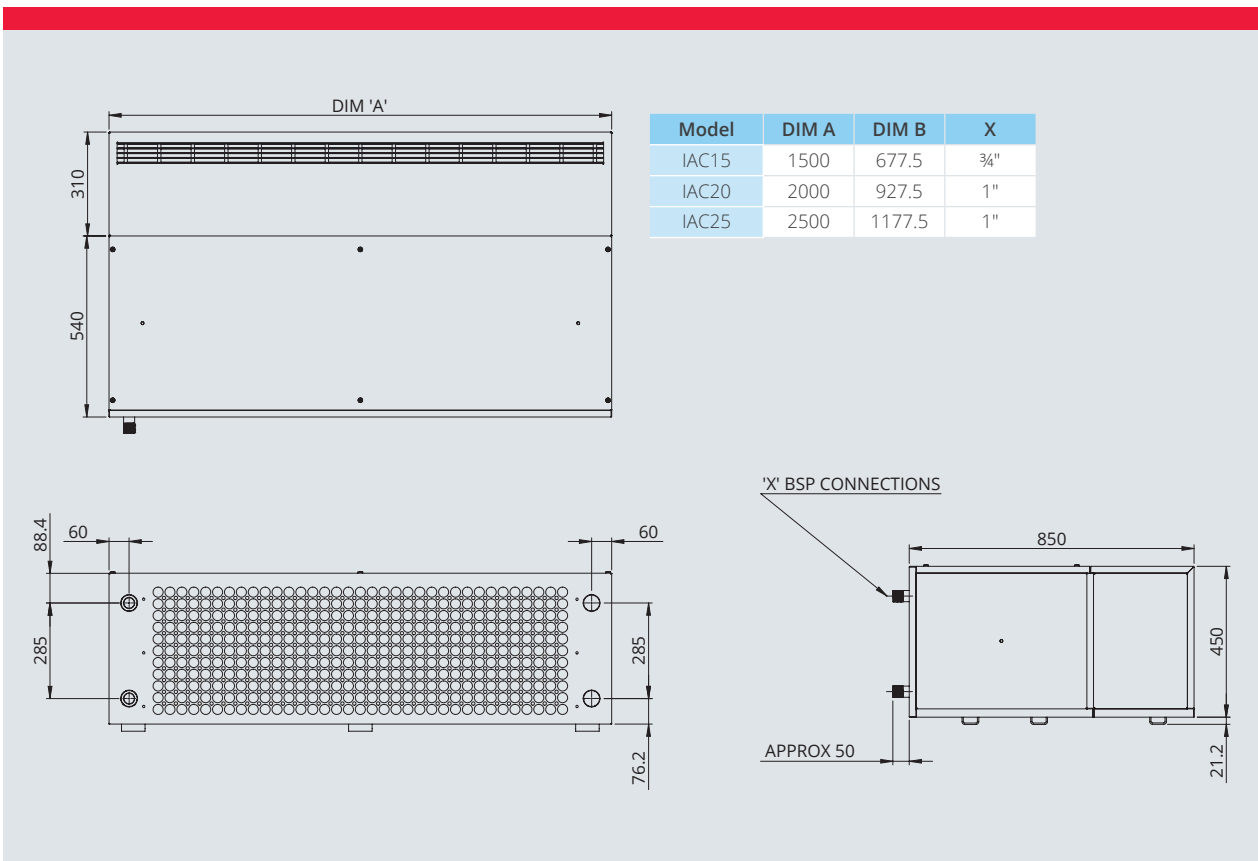


Figure 2. Major dimensions

Unit weights are approximately as given in the table below:

Unit size	IAC15	IAC20	IAC25
Approx. dry weight (kg)	125	155	200
Int. vol. 2 row coil (l)	3.2	4.4	6.0
Int. vol. 3 row coil (l)	4.7	6.4	8.6

Table 12. Unit weights/volumes

3.3 Mounting Height

Size	Speed		
Speed	Low	Medium	High
Minimum height (m)	3.0	3.5	4.0
Maximum height (m)	4.5	5.0	6.0

Table 13. Recommended mounting heights

The mounting heights shown above are for guidance only. Minimum mounting heights are intended to prevent excessive discomfort when walking below the curtain and to prevent excessive heat loss to the outside for a heated curtain. Maximum mounting heights are those recommended to provide an effective curtain to floor level; units can be mounted at higher levels but some ingress of cold air at floor level will be experienced despite the curtain still providing protection across most of its height.

If air curtains are mounted vertically then the mounting height becomes the effective range of the curtain from the side of the door. For particularly wide doors curtains may be mounted at both sides.

3.4 Noise Data

Industrial air curtains are intended to blow powerful jets of air over considerable distances. As such they handle high flowrates of air and the fans generate considerable levels of noise. The noise is high in the immediate vicinity of the curtain and falls away with distance from the door. If the area to be protected is noise sensitive then high

powered curtains should not be used and physical barriers will need to be considered but as this is rarely the case in industrial applications curtains can just be selected based on door sizes and heating requirements. The various noise levels are a consequence of the rate at which air is moved to protect doors of varying sizes.

Size	IAC15			IAC20			IAC25		
Speed	Low	Medium	High	Low	Medium	High	Low	Medium	High
dBA	45	53	61	47	55	63	50	58	66

Table 14. Noise levels

The figures shown for noise levels in the table above are for indication/guidance only and represent what should be expected based on

free field conditions and at a distance of 5m from the curtain. Actual noise levels will depend on the reverberant nature of the installation.

3.5 Electrical Data

Size	IAC15			IAC20			IAC25		
Speed	Low	Medium	High	Low	Medium	High	Low	Medium	High
Power draw (W)	250	750	1300	300	900	1500	450	1350	2250

Table 15. The above table is valid for ambient and low pressure hot water units. All 230V/1Ph/50Hz.

Size	IAC15		IAC20		IAC25	
Speed	Medium	High	Medium	High	Medium	High
Fan power draw (W)	750	1300	900	1500	1350	2250
Heating element power (kW)	12	18	18	24	24	36
Heating element current/phase (A)	18	26	26	35	35	53

Table 16. The above table is valid for electric heated units. All 400V/3Ph/50Hz.

3.6 Control Options

SPC offer a wide range of options for local and automatic controls. Please contact SPC for more information.



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