



***creating comfort ....***

**Heaters & Air Curtains for .....**

**warehouses**

**factories**

**industrial buildings**

**ENERGY EFFICIENT HVAC SOLUTIONS**



## creating comfort .....

As a long established UK manufacturer of HVAC products Biddle have expertise in not just providing comfort solutions for commercial, retail and public buildings but also to the industrial sector.

Our range of heaters and air curtains for warehouses, factories and industrial buildings have been used in a variety of applications – from odour prevention in waste recycling plants to heating mail sorting centres. In some instances Noz or Uniflow heaters are used to warm the building and InduAC or InduForce air curtains are used to prevent heat loss to the outside, and ingress of cold air, when the loading bay doors are opened.

Product quality and support is synonymous with the Biddle name. All of our products have been carefully developed by our in-house team of experienced engineers, and incorporate features and technology which lead to an improved comfort solution and, in many cases, reduced energy consumption.



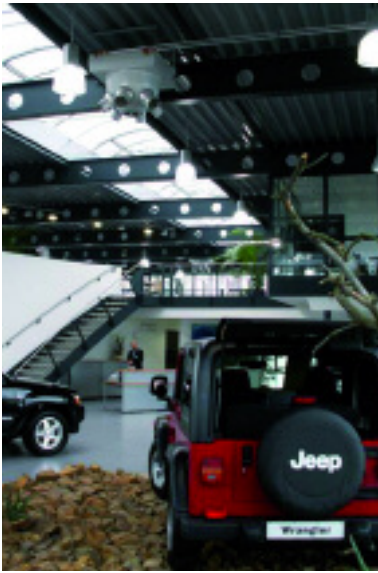
### Uniflow

- 'Traditional' space/unit heater
- Water or steam heating
- Horizontal or downward discharge
- Five physical sizes
- Two speeds
- Single or three phase
- Up to 85kW output

**LTHW Emissions:  
in kW for 82.2°C Flow  
71.1°C Return.  
EAT 18°C**



3 Phase electric supply							1 Phase electric supply						
Model No.	Element depth Rows	Fan speed rpm	Approx noise level dBA	Air volume m <sup>3</sup> /s	Heat emission kW	L.A.T. °C	Model No.	Element depth Rows	Fan speed rpm	Approx noise level dBA	Air volume m <sup>3</sup> /s	Heat emission kW	L.A.T. °C
7-132L3	2	1200	51	0.430	10.09	37.4	7-132L1	2	850	48	0.326	8.60	39.9
7-132N3	2	1390	55	0.520	11.22	35.9	7-132N1	2	1385	54	0.520	11.22	35.9
7-133L3	3	1200	51	0.370	13.00	47.1	7-133L1	3	850	48	0.292	11.20	49.8
7-133N3	3	1390	55	0.460	15.00	45.0	7-133N1	3	1385	54	0.460	15.00	45.0
7-162L3	2	1060	55	0.595	14.70	38.5	7-162L1	2	900	50	0.500	13.30	40.0
7-162N3	2	1340	58	0.750	16.75	36.5	7-162N1	2	1360	58	0.750	16.75	36.5
7-163L3	3	1060	55	0.515	18.78	48.2	7-163L1	3	900	50	0.430	16.70	50.2
7-163N3	3	1340	58	0.675	22.43	45.5	7-163N1	3	1360	58	0.675	22.43	45.5
7-182L3	2	1075	57	0.795	19.00	37.8	7-182L1	2	790	52	0.580	15.80	40.6
7-182N3	2	1320	61	0.995	21.63	36.0	7-182N1	2	1310	60	0.995	21.63	36.0
7-183L3	3	1075	57	0.695	24.80	47.6	7-183L1	3	790	52	0.510	20.25	50.9
7-183N3	3	1320	61	0.908	29.35	44.8	7-183N1	3	1310	60	0.908	29.35	44.8
7-212L3	2	930	58	1.125	26.35	37.4	7-212L1	2	870	56	1.000	24.60	38.4
7-212N3	2	1270	64	1.357	29.35	35.9	7-212N1	2	1276	63	1.357	29.35	35.9
7-213L3	3	930	58	0.930	34.00	48.3	7-213L1	3	870	56	0.865	32.40	49.0
7-213N3	3	1270	64	1.222	40.30	45.3	7-213N1	3	1276	63	1.222	40.30	45.3
7-242L3	2	1040	64	1.515	36.30	37.9	7-242L1	2	885	49	1.285	33.15	39.4
7-242N3	2	1350	69	2.007	42.65	35.6	7-242N1	2	1270	68	2.007	42.65	35.6
7-243L3	3	1040	64	1.370	47.95	47.0	7-243L1	3	885	49	1.140	42.70	49.0
7-243N3	3	1350	69	1.869	58.10	43.8	7-243N1	3	1270	68	1.869	58.10	43.8



# Noz

- High efficiency multi-directional space/unit heater
- Water heating, recirculation or ventilation
- Can be installed up to 10m high due to mixed flow fan inducing movement of high volumes of air at high velocity
- Two physical sizes
- Up to 75kW output



## Performance Data at 82/71°C & EAT 18°C

NOZ 25-W2-E (230v/1ph/50Hz)	Fan Speed					NOZ 25-W2-E (230v/1ph/50Hz)	Fan Speed				
	1	2	3	4	5		1	2	3	4	5
Tapping (V)	95	115	130	155	230	Tapping (V)	95	115	130	155	230
Air volume (m3/s) *	0.536	0.699	0.772	0.902	1.016	Air volume (m3/s) *	0.519	0.647	0.747	0.875	0.986
NR level 5M from unit discharge	41	47	50	53	57	NR level 5M from unit discharge	41	47	50	53	57
Heating capacity (KW)	17.2	19.6	21.3	23.3	24.9	Heating capacity (KW)	22.6	26.1	28.6	31.6	34.0
L.A.T. (°C)	44	42	41	39	38	L.A.T. (°C)	54	51	49	48	46

NOZ 25-W2-D (400v/3ph/50Hz)	Low fan speed (Y-connection)					NOZ 25-W2-D (400v/3ph/50Hz)	High fan speed (Δ-connection)				
	1	2	3	4	5		1	2	3	4	5
Tapping (V)	155	195	240	300	400	Tapping (V)	155	195	240	300	400
Air volume (m3/s) *	0.319	0.400	0.488	0.613	0.750	Air volume (m3/s) *	0.538	0.666	0.780	0.911	1.022
NR level 5M from unit discharge	28	33	38	44	50	NR level 5M from unit discharge	40	45	50	53	56
Heating capacity (KW)	12.3	14.3	16.2	18.6	21.3	Heating capacity (KW)	17.2	19.6	21.5	23.4	25.0
L.A.T. (°C)	50	47	45	43	41	L.A.T. (°C)	44	42	41	39	38

NOZ 25-W3-D (400v/3ph/50Hz)	Low fan speed (Y-connection)					NOZ 25-W3-D (400v/3ph/50Hz)	High fan speed (Δ-connection)				
	1	2	3	4	5		1	2	3	4	5
Tapping (V)	155	195	240	300	400	Tapping (V)	155	195	240	300	400
Air volume (m3/s) *	0.308	0.386	0.472	0.594	0.744	Air volume (m3/s) *	0.522	0.644	0.755	0.883	0.988
NR level 5M from unit discharge	28	33	38	44	50	NR level 5M from unit discharge	40	45	50	53	56
Heating capacity (KW)	15.6	18.4	21.1	24.7	28.5	Heating capacity (KW)	22.6	26.0	28.8	31.8	34.0
L.A.T. (°C)	60	57	55	52	49	L.A.T. (°C)	54	51	49	47	46

NOZ 50-W2-D (400v/3ph/50Hz)	Low fan speed (Y-connection)					NOZ 50-W2-D (400v/3ph/50Hz)	High fan speed (Δ-connection)				
	1	2	3	4	5		1	2	3	4	5
Tapping (V)	155	195	240	300	400	Tapping (V)	155	195	240	300	400
Air volume (m3/s) *	0.713	0.883	1.108	1.375	1.872	Air volume (m3/s) *	1.263	1.538	1.883	2.161	2.425
NR level 5M from unit discharge	32	39	44	49	55	NR level 5M from unit discharge	47	52	56	59	60
Heating capacity (KW)	26.4	30.2	34.8	39.6	47.2	Heating capacity (KW)	27.6	42.2	47.4	51.1	54.3
L.A.T. (°C)	48	46	44	42	39	L.A.T. (°C)	42	40	39	37	36

NOZ 50-W3-D (400v/3ph/50Hz)	Low fan speed (Y-connection)					NOZ 50-W3-D (400v/3ph/50Hz)	High fan speed (Δ-connection)				
	1	2	3	4	5		1	2	3	4	5
Tapping (V)	155	195	240	300	400	Tapping (V)	155	195	240	300	400
Air volume (m3/s) *	0.691	0.855	1.075	1.333	1.813	Air volume (m3/s) *	1.225	1.491	1.825	2.094	2.350
NR level 5M from unit discharge	32	39	44	49	55	NR level 5M from unit discharge	47	52	56	59	60
Heating capacity (KW)	34.0	39.5	46.2	53.2	64.5	Heating capacity (KW)	50.3	57.1	64.8	70.0	75.0
L.A.T. (°C)	58	56	56	51	47	L.A.T. (°C)	52	49	47	45	44

\* The stated air volumes may be reduced for full or partial fresh air application



# Invisidor IndAC

- High performance air curtain with patented double rectifier technology
- Ambient, water or electric heating
- Two physical sizes, which in combination suit any doorway
- Suitable for mounting up to 6m high
- Vertical or horizontal configurations



## Technical Data Water Heating

IndAC S-150		W1 LPHW 82/71 °C					IndAC S-150		W3 LPHW 60/40 °C				
	Speed	1	2	3	4	5		Speed	1	2	3	4	5
Air displacement	m <sup>3</sup> /s	0.51	0.79	1.01	1.19	1.43	Air displacement	m <sup>3</sup> /s	0.51	0.79	1.01	1.19	1.43
Air outlet temperature	°C	45	40	38	36	34	Air outlet temperature	°C	41	37	35	33	32
Heating capacity	kW	18.8	24.5	28.3	31.3	34.2	Heating capacity	kW	16.0	21.3	24.7	27.3	30.1
Water flow rate	l/s	0.42	0.55	0.63	0.69	0.76	Water flow rate	l/s	0.19	0.26	0.30	0.33	0.36
Water pressure loss	kPa	2.3	3.8	5.0	5.9	7.0	Water pressure loss	kPa	0.6	1.0	1.3	1.5	1.8
Sound pressure level at 5m	dB(A)	34	44	50	54	59	Sound pressure level at 5m	dB(A)	34	44	50	54	59
Weight	kg	92					Weight	kg	97				

IndAC S-200		W1 LPHW 82/71 °C					IndAC S-200		W3 LPHW 60/40 °C				
	Speed	1	2	3	4	5		Speed	1	2	3	4	5
Air displacement	m <sup>3</sup> /s	0.68	1.05	1.35	1.60	1.91	Air displacement	m <sup>3</sup> /s	0.68	1.05	1.35	1.60	1.91
Air outlet temperature	°C	46	41	39	37	35	Air outlet temperature	°C	43	39	37	35	34
Heating capacity	kW	26.1	34.2	39.5	43.5	47.9	Heating capacity	kW	23.0	30.8	35.9	39.8	44.0
Water flow rate	l/s	0.58	0.76	0.88	0.97	1.06	Water flow rate	l/s	0.28	0.37	0.43	0.48	0.53
Water pressure loss	kPa	4.9	8.2	10.7	12.9	15.4	Water pressure loss	kPa	1.3	2.2	2.9	3.5	4.3
Sound pressure level at 5m	dB(A)	35	45	52	56	61	Sound pressure level at 5m	dB(A)	35	45	52	56	61
Weight	kg	119					Weight	kg	126				

IndAC M-150		W1 LPHW 82/71 °C					IndAC M-150		W3 LPHW 60/40 °C				
	Speed	1	2	3	4	5		Speed	1	2	3	4	5
Air displacement	m <sup>3</sup> /s	0.76	1.16	1.45	1.61	2.10	Air displacement	m <sup>3</sup> /s	0.76	1.16	1.45	1.61	2.10
Air outlet temperature	°C	41	36	34	33	31	Air outlet temperature	°C	37	34	32	31	29
Heating capacity	kW	24.1	30.5	34.4	36.3	41.1	Heating capacity	kW	20.9	26.7	30.3	32.0	36.3
Water flow rate	l/s	0.54	0.68	0.77	0.81	0.91	Water flow rate	l/s	0.25	0.32	0.37	0.39	0.44
Water pressure loss	kPa	3.7	5.7	7.2	8.0	10.0	Water pressure loss	kPa	0.9	1.5	1.8	2.0	2.6
Sound pressure level at 5m	dB(A)	40	48	53	57	62	Sound pressure level at 5m	dB(A)	40	48	53	57	62
Weight	kg	99					Weight	kg	104				

IndAC M-200		W1 LPHW 82/71 °C					IndAC M-200		W3 LPHW 60/40 °C				
	Speed	1	2	3	4	5		Speed	1	2	3	4	5
Air displacement	m <sup>3</sup> /s	1.02	1.54	1.94	2.14	2.74	Air displacement	m <sup>3</sup> /s	1.02	1.54	1.94	2.14	2.74
Air outlet temperature	°C	42	37	35	34	32	Air outlet temperature	°C	39	36	34	33	31
Heating capacity	kW	33.6	42.6	48.3	50.9	57.7	Heating capacity	kW	30.2	38.9	44.3	46.9	53.5
Water flow rate	l/s	0.75	0.95	1.07	1.13	1.28	Water flow rate	l/s	0.36	0.47	0.53	0.57	0.64
Water pressure loss	kPa	7.9	12.4	15.6	17.3	21.9	Water pressure loss	kPa	2.1	3.4	4.3	4.8	6.1
Sound pressure level at 5m	dB(A)	41	49	55	58	63	Sound pressure level at 5m	dB(A)	41	49	55	58	63
Weight	kg	128					Weight	kg	136				



# Invisidor InduForce

- Compact air curtain with patented rectifier
- Ambient or water heating
- Three physical sizes, which in combination suit any doorway
- Suitable for mounting up to 10m high
- Vertical or horizontal configurations

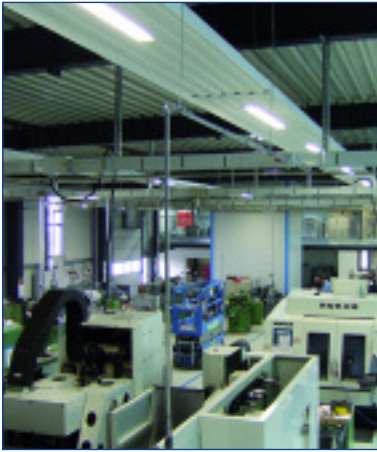
## Technical Data Water Heating

InduForce IF2		W1 LPHW 82/71°C					InduForce IF2		W3 LPHW 60/40°C				
	Speed	1	2	3	4	5		Speed	1	2	3	4	5
Air displacement	m <sup>3</sup> /h	1720	2580	3520	4370	5800	Air displacement	m <sup>3</sup> /h	1720	2580	3520	4370	5800
Air outlet temperature	°C	41	37	35	33	31	Air outlet temperature	°C	39	37	35	33	31
Heating capacity	kW	15.2	19.6	23.9	27.3	32.3	Heating capacity	kW	14.4	13.1	23.5	27.0	32.2
Water flow rate	l/h	1217	1572	1912	2183	2582	Water flow rate	l/h	625	830	1021	1173	1398
Water pressure loss	kPa	2.6	4.1	5.9	7.6	10.3	Water pressure loss	kPa	0.4	0.6	0.9	1.2	1.6
Sound pressure level at 5m	dB(A)	39	48	55	59	65	Sound pressure level at 5m	dB(A)	39	48	55	59	65
Weight	kg			58			Weight	kg			71		

InduForce IF3		W1 LPHW 82/71°C					InduForce IF3		W3 LPHW 60/40°C				
	Speed	1	2	3	4	5		Speed	1	2	3	4	5
Air displacement	m <sup>3</sup> /h	2580	3870	5280	6555	8700	Air displacement	m <sup>3</sup> /h	2580	3870	5280	6555	8700
Air outlet temperature	°C	41	38	35	34	32	Air outlet temperature	°C	39	37	34	33	31
Heating capacity	kW	23.1	30.4	36.4	41.7	49.4	Heating capacity	kW	21.5	28.5	35.0	40.2	47.8
Water flow rate	l/h	1847	2431	2915	3332	3953	Water flow rate	l/h	933	1238	1519	1743	2073
Water pressure loss	kPa	5.8	9.7	13.5	17.3	23.8	Water pressure loss	kPa	1.0	1.6	2.3	3.0	4.1
Sound pressure level at 5m	dB(A)	41	50	56	61	67	Sound pressure level at 5m	dB(A)	41	50	56	61	67
Weight	kg			83			Weight	kg			101		

InduForce IF4		W1 LPHW 82/71°C					InduForce IF4		W3 LPHW 60/40°C				
	Speed	1	2	3	4	5		Speed	1	2	3	4	5
Air displacement	m <sup>3</sup> /h	3440	5160	7040	8740	11600	Air displacement	m <sup>3</sup> /h	3440	5160	7040	8740	11600
Air outlet temperature	°C	41	38	35	34	32	Air outlet temperature	°C	40	37	35	33	31
Heating capacity	kW	30.8	40.5	48.5	55.4	65.7	Heating capacity	kW	29.0	38.6	47.5	54.7	65.2
Water flow rate	l/h	2461	3238	3880	4434	5256	Water flow rate	l/h	1260	1675	2063	2371	2828
Water pressure loss	kPa	13.1	21.7	30.3	38.7	52.8	Water pressure loss	kPa	2.5	4.2	6.1	7.9	11.0
Sound pressure level at 5m	dB(A)	42	51	58	62	68	Sound pressure level at 5m	dB(A)	42	51	58	62	68
Weight	kg			109			Weight	kg			133		





# Heatwave Radiant Panels

- Tested and accredited to EN14037 72:2003 by HLK Stuttgart University
- Three alternative systems suitable for offices, factories, warehouses etc
- Heatwave, a flat panel designed to fit within the typical 'T' bar false ceiling grid
- Heatwave Eco, with a profiled surface and part exposed tubes to increase output and efficiency
- Heatwave Eco Plus, combines a profiled surface and part exposed tubes with a patented angled edge design to increase radiant output to 81% and provide 15% more energy savings

**LTHW**  
at **82/71°C & EAT 16°C**

Heatwave	600mm x 1200mm	600mm x 1800mm	600mm x 2400mm	600mm x 3000mm
	484W	725W	968W	1210W

Heatwave Eco	310mm	460mm	610mm	760mm	910mm	1060mm	1210mm	1360mm	1510mm
	214W/m	292W/m	370W/m	440W/m	509W/m	579W/m	649W/m	719W/m	789W/m

Heatwave Eco Plus	310mm	460mm	610mm	760mm	910mm	1060mm	1210mm	1360mm	1510mm
	190W/m	256W/m	323W/m	390W/m	458W/m	525W/m	593W/m	660W/m	728W/m



**biddle**  
CLIMATE SOLUTIONS

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