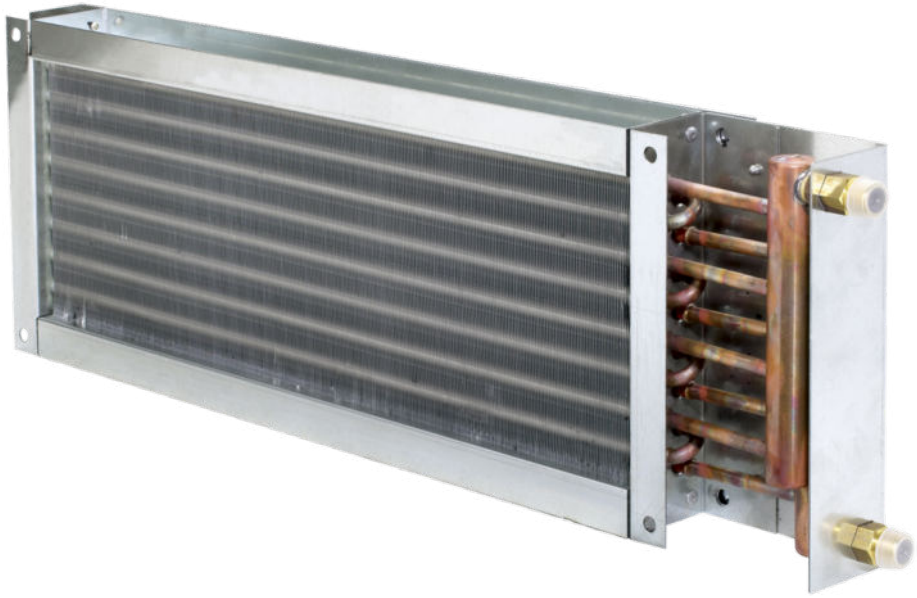
Heat exchanger with copper tubes and aluminium fins

Heat exchanger

WT



For the reheating of airflows in rectangular ducting

Rectangular hot water heat exchanger for the reheating of airflows, suitable for air terminal units type TVZ, TZ-Silenzio, TVJ, TVT and mechanically self-powered CAV terminal units type EN

- Only for hot water operation up to 100 °C
- Horizontal water connection
- Copper tubes are arranged in two rows with aluminium blades
- Maximum water-side operating pressure is 16 bar
- Casing air leakage according to EN 15727, class D; class C applies for H ≤ 400

General information

Application

Hot water heat exchanger for reheating the airflow in rectangular ducts
For VAV terminal units TVZ, TZ-Silenzio, TVJ, and TVT, and for CAV controllers EN
Only for hot water operation up to 100 °C
Construction not designed for and performance data not applicable to cold water operation

Nominal sizes

125, 160, 200, 250, 315, 400 for TZ-Silenzio and TVZ
46 nominal sizes from 200 x 100 to 1000 x 1000 for TVJ, TVT and EN

Parts and characteristics

Ready-to-install heat exchanger
Copper tubes arranged in two rows

Construction features

- Rectangular casing
- Flanges on both ends for the connection to ductwork
- Maximum water-side operating pressure is 16 bar
- Horizontal water connection
- Water connection with external thread

Material and surfaces

- Casing made of galvanised sheet steel
- Copper pipes
- Aluminium fins

Standards and guidelines

- Casing air leakage according to EN 15727, class D; class C applies for H ≤ 400

Maintenance

- Maintenance-free as construction and materials are not subject to wear

Technical data

For basic device TZ-Silenzio and TVZ

Nominal sizes for TZ-Silenzio and TVZ	125 – 400 mm
Volume flow rate range	15 – 6000 l/s or 54 – 21600 m³/h
Thermal output	0.4 – 117 kW
Maximum hot water temperature	100 °C
Maximum water-side operating pressure	16 bar
Water-side differential pressure	0.1 – 25 kPa
Air-side static differential pressure	25 – 210 Pa

For basic device TVJ, TVT and EN

Nominal sizes for TVJ, TVT and EN	200 × 100 – 1000 × 1000 mm
Volume flow rate range	15 – 6000 l/s or 54 – 21600 m³/h
Heating capacity	0.4 – 117 kW
Maximum hot water temperature	100 °C
Maximum water-side operating pressure	16 bar
Water-side differential pressure	0,2 – 44 kPa
Air-side static differential pressure	7 – 291 Pa

Quick sizing

Technical data of the heat exchanger
Basic units: TZ-Silenzio and TVZ

NS	q_v		Δ_{pv} [Pa]	PWW 50/40, te = 16 °C			
	[l/s]	[m³/h]		Φ [W]	ta [°C]	square metre [l/h]	Dpw [kPa]
125	14	50	3	447	42.2	39	0.3
125	34	123	12	837	36	73	0.9
125	54	196	24	1,118	32.7	97	1.5
125	75	269	39	1,345	30.7	117	2.1
125	95	342	57	1,539	29.2	134	2.7
160	24	83	3	737	41.6	63	0.1
160	56	203	13	1,353	35.5	118	0.5
160	90	324	27	1,803	32.3	157	0.9
160	123	444	43	2,164	30.3	188	1.2
160	156	564	62	2,473	28.9	215	1.6
200	37	133	2	1,241	43.4	108	0.1
200	89	321	8	2,343	37.4	204	0.4
200	142	510	18	3,153	34.1	274	0.6
200	194	698	29	3.810	32	331	0.9
200	246	886	41	4,373	30.5	380	1.2
250	58	208	3	1,841	42	160	0.3
250	140	504	12	3,399	35.8	296	0.8
250	222	800	25	4,523	32.6	393	1.4
250	304	1,095	40	5,431	30.5	472	2
250	386	1,391	58	6.210	29.1	540	2.6
315	96	344	3	3,053	42	266	0.6
315	226	812	12	5,551	36.1	483	1.7
315	356	1,280	24	7,368	32.9	641	2.8
315	486	1,748	38	8,845	30.8	769	3.9
315	615	2,216	54	10,111	29.4	879	5
400	157	563	3	4,972	41.7	429	0.8

NS	q_v		Δ_{pv} [Pa]	PWW 50/40, te = 16 °C			
	[l/s]	[m³/h]		Φ [W]	ta [°C]	square metre [l/h]	Dpw [kPa]
400	366	1,318	12	8,925	35.9	776	2.3
400	576	2,073	24	11,818	32.7	1,028	3.9
400	786	2,828	39	14,169	30.7	1,232	5.4
400	995	3,583	56	16,185	29.2	1,407	6.9

Φ: Thermal output
PPW/heating coil: Pumped hot water heating system, flow temperature/return temperature
te: Inlet airflow temperature
ta: Outlet airflow temperature
qv: Volume flow rate
qm: Mass flow rate
Δpv: Water-side differential pressure
Δpst: Static differential pressure
Note: Performance data not applicable to cold water operation.

Technical data of the heat exchanger
Basic units: TVJ, TVT and EN

NS	q_v		Δ_{pv} [Pa]	PWW 50/40, te = 16 °C			
	[l/s]	[m³/h]		Φ [W]	t_a [°C]	square metre [l/h]	Dpw [kPa]
200 × 100	17	58	7	443	38.4	39	0.2
200 × 100	88	317	97	1,225	27.3	106	1.3
200 × 100	160	576	291	1,664	24.5	145	2.3
200 × 200	33	116	7	886	38.4	77	1.2
200 × 200	176	634	97	2,449	27.3	213	8.3
200 × 200	320	1,152	291	3,328	24.5	289	14.7
300 × 100	25	87	7	665	38.4	58	0.5
300 × 100	132	476	97	1,838	27.3	160	3.4
300 × 100	240	864	291	2,496	24.5	217	5.9
300 × 150	83	296	25	1,682	32.7	146	4
300 × 150	221	796	117	2,920	26.8	254	11.2
300 × 150	360	1,296	291	3,744	24.5	326	17.7
300 × 200	49	173	7	1,324	38.4	115	0.6
300 × 200	264	950	97	3,672	27.3	319	3.9
300 × 200	480	1,728	291	4,992	24.5	434	7
300 × 300	167	600	25	3,390	32.6	295	4.6
300 × 300	443	1,596	118	5,847	26.7	508	12.7
300 × 300	720	2,592	291	7,489	24.5	651	20.2
400 × 100	69	245	22	1,432	33.1	125	2.5
400 × 100	194	698	115	2,577	26.8	224	7.5
400 × 100	320	1,152	291	3,328	24.5	289	12
400 × 200	65	231	7	1,767	38.4	154	1.2
400 × 200	352	1,268	97	4,899	27.3	426	7.8
400 × 200	640	2,304	291	6,657	24.5	579	13.9
400× 250	201	720	28	3,943	32.1	343	6.2
400 × 250	500	1,800	121	6,548	26.7	569	15.9
400 × 250	800	2,880	291	8,321	24.5	724	24.9
400 × 300	223	800	25	4,520	32.6	393	3.2
400 × 300	591	2,128	118	7,796	26.7	678	8.8
400 × 300	960	3,456	291	9,985	24.5	868	13.9

NS	q_v		Δ_{pv} [Pa]	PWW 50/40, te = 16 °C			
	[l/s]	[m³/h]		Φ [W]	t_a [°C]	square metre [l/h]	Dpw [kPa]
400 × 400	309	1,112	27	6,178	32.3	537	3.3
400 × 400	794	2,860	120	10,438	26.7	908	8.8
400 × 400	1,280	4,608	291	13,313	24.5	1,158	13.9
500 × 100	86	306	22	1,789	33.2	156	4.4
500 × 100	243	873	115	3,222	26.8	280	13
500 × 100	400	1,440	291	4,160	24.5	362	20.8
500 × 200	81	288	7	2,205	38.5	192	2
500 × 200	440	1,584	97	6,121	27.3	532	13.5
500 × 200	800	2,880	291	8,321	24.5	724	23.8
500 × 250	236	846	26	4,751	32.5	413	3.6
500 × 250	618	2,223	119	8,133	26.7	707	9.7
500 × 250	1,000	3,600	291	10,401	24.5	905	15.4
500 × 300	278	1,000	25	5,650	32.6	491	2.6
500 × 300	739	2,660	118	9,745	26.7	847	7.1
500 × 300	1,200	4,320	291	12,481	24.5	1,085	11.3
500 × 400	361	1,296	24	7,407	32.8	644	5.3
500 × 400	980	3,528	117	12,957	26.8	1,127	15
500 × 400	1,600	5,760	291	16,642	24.5	1,447	23.8
500 × 500	448	1,611	24	9,228	32.8	802	5.3
500 × 500	1,224	4,406	117	16,189	26.8	1,408	14.9
500 × 500	2,000	7,200	291	20,802	24.5	1,809	23.8
600 × 100	102	367	22	2,146	33.2	187	1.3
600 × 100	291	1,048	115	3,867	26.8	336	3.9
600 × 100	480	1,728	291	4,992	24.5	434	6.3
600 × 100	97	346	7	2,648	38.4	230	0.5
600 × 200	528	1,901	97	7,346	27.3	639	3.5
600 × 200	960	3,456	291	9,985	24.5	868	6.3
600 × 250	301	1,080	28	5,914	32.1	514	6
600 × 250	750	2,700	121	9,821	26.7	854	15.4
600 × 250	1,200	4,320	291	12,481	24.5	1,085	23.9
600 × 300	334	1,200	25	6,780	32.6	590	4.1
600 × 300	887	3,192	118	11,694	26.7	1,017	11.1
600 × 300	1,440	5,184	291	14,977	24.5	1,302	17.6
600 × 400	451	1,620	26	9,108	32.5	792	2.9
600 × 400	1,185	4,266	118	15,611	26.7	1,358	7.9
600 × 400	1,920	6,912	291	19,970	24.5	1,737	12.4
600 × 500	537	1,933	24	11,073	32.8	963	5.3
600 × 500	1,468	5,286	117	19,425	26.8	1,689	15.1
600 × 500	2,400	8,640	291	24,962	24.5	2,171	23.9
600 × 600	667	2,400	25	13,561	32.6	1,179	4.1
600 × 600	1,773	6,384	118	23,388	26.7	2,034	11.1
600 × 600	2,880	10,368	291	29,955	24.5	2,605	17.6
700 × 200	238	855	22	5,003	33.2	435	1.9
700 × 200	679	2,444	115	9,021	26.8	784	5.6
700 × 200	1,120	4,032	291	11,649	24.5	1,013	9.1
700 × 300	389	1,400	25	7,910	32.6	688	5.9
700 × 300	1,034	3,724	118	13,643	26.7	1,186	16.2

NS	q_v		Δ_{pv} [Pa]	PWW 50/40, te = 16 °C			
	[l/s]	[m³/h]		Φ [W]	t_a [°C]	square metre [l/h]	Dpw [kPa]
700 × 300	1,680	6,048	291	17,474	24.5	1,520	25.6
700 × 400	541	1,945	27	10,808	32.3	940	7
700 × 400	1,390	5,004	120	18,265	26.7	1,588	18.4
700 × 400	2,240	8,064	291	23,298	24.5	2,026	28.9
700 × 500	627	2,255	24	12,918	32.8	1,123	3.6
700 × 500	1,713	6,168	117	22,664	26.8	1,971	10.1
700 × 500	2,800	10,080	291	29,123	24.5	2,533	16
700 × 600	778	2,800	25	15,821	32.6	1,376	5.9
700 × 600	2,069	7,448	118	27,286	26.7	2,373	16.2
700 × 600	3,360	12,096	291	34,947	24.5	3,039	25.6
700 × 700	930	3,345	26	18,720	32.4	1,628	9.1
700 × 700	2,424	8,728	119	31,908	26.7	2,775	24.3
700 × 700	3,920	14,112	291	40,772	24.5	3,546	38.3
800 × 200	272	977	22	5,718	33.2	497	1
800 × 200	776	2,792	115	10,307	26.8	896	3
800 × 200	1,280	4,608	291	13,313	24.5	1,158	4.9
800 × 300	445	1,600	25	9,040	32.6	786	2.9
800 × 300	1,182	4,256	118	15,592	26.7	1,356	7.9
800 × 300	1,920	6,912	291	19,970	24.5	1,737	12.5
800 × 400	618	2,223	27	12,352	32.3	1,074	6.1
800 × 400	1,589	5,720	120	20,876	26.7	1,815	16
800 × 400	2,560	9,216	291	26,627	24.5	2,316	25
800 × 500	716	2,577	24	14,763	32.8	1,284	5
800 × 500	1,958	7,048	117	25,899	26.8	2,252	14
800 × 500	3,200	11,520	291	33,283	24.5	2,894	22.2
800 × 600	889	3,200	25	18,081	32.6	1,572	5.8
800 × 600	2,364	8,512	118	31,184	26.7	2,712	15.8
800 × 600	3,840	13,824	291	39,940	24.5	3,473	25
800 × 700	1,062	3,822	26	21,391	32.4	1,860	9.1
800 × 700	2,771	9,975	119	36,466	26.7	3,171	24.2
800 × 700	4,480	16,128	291	46,597	24.5	4,052	38.1
800 × 800	1,235	4,445	27	24,701	32.3	2,148	6.1
800 × 800	3,177	11,438	120	41,748	26.7	3,630	16
800 × 800	5,120	18,432	291	53,253	24.5	4,631	25
900 × 300	501	1,800	25	10,170	32.6	884	3.9
900 × 300	1,330	4,788	118	17,541	26.7	1,525	10.6
900 × 300	2,160	7,776	291	22,466	24.5	1,954	16.7
900 × 400	695	2,501	27	13,897	32.3	1,208	4.1
900 × 400	1,787	6,434	120	23,484	26.7	2,042	10.7
900 × 400	2,880	10,368	291	29,955	24.5	2,605	16.7
900 × 500	806	2,899	24	16,607	32.8	1,444	6.7
900 × 500	2,203	7,930	117	29,139	26.8	2,534	18.7
900 × 500	3,600	12,960	291	37,444	24.5	3,256	29.7
900 × 600	1,000	3,599	25	20,338	32.6	1,769	11.2
900 × 600	2,660	9,576	118	35,082	26.7	3,051	30.3
900 × 600	4,320	15,552	291	45,291	24.1	3,721	43.6
900 × 700	1,195	4,300	26	24,066	32.4	2,093	12.2

NS	q_v		Δ_{pv} [Pa]	PWW 50/40, te = 16 °C			
	[l/s]	[m³/h]		Φ [W]	t_a [°C]	square metre [l/h]	Dpw [kPa]
900 × 700	3,117	11,222	119	41,025	26.7	3,568	32.5
900 × 700	5,040	18,144	291	53,137	23.8	4,186	43.6
900 × 800	1,390	5,001	27	27,874	32.2	2,400	13
900 × 800	3,574	12,868	120	46,967	26.7	4,084	34.3
900 × 800	5,760	20,736	291	60,982	23.6	4,651	43.6
900 × 900	1,584	5,701	27	31,510	32.2	2,740	11.8
900 × 900	4,032	14,514	120	52,910	26.7	4,601	30.6
900 × 900	6,480	23,328	291	67,936	24.1	5,582	43.6
1000 × 300	556	2,000	25	11,301	32.6	983	5.1
1000 × 300	1,478	5,320	118	19,490	26.7	1,695	13.7
1000 × 300	2,400	8,640	291	24,962	24.5	2,171	21.7
1000 × 400	772	2,778	27	15,438	32.3	1,343	5.3
1000 × 400	1,986	7,149	120	26,093	26.7	2,269	13.9
1000 × 400	3,200	11,520	291	33,283	24.5	2,894	21.7
1000 × 500	895	3,221	24	18,452	32.8	1,605	4.9
1000 × 500	2,447	8,810	117	32,374	26.8	2,815	13.7
1000 × 500	4,000	14,400	291	41,604	24.5	3,618	21.7
1000 × 600	1,111	3,999	25	22,598	32.6	1,965	5.1
1000 × 600	2,956	10,640	118	38,980	26.7	3,390	13.7
1000 × 600	4,800	17,280	291	49,925	24.5	4,342	21.7
1000 × 700	1,328	4,778	26	26,740	32.4	2,325	4
1000 × 700	3,464	12,469	119	45,583	26.7	3,964	10.6
1000 × 700	5,600	20,160	291	58,246	24.5	5,065	16.6
1000 × 800	1,544	5,556	27	30,876	32.3	2,685	5.3
1000 × 800	3,972	14,298	120	52,186	26.7	4,538	13.9
1000 × 800	6,400	23,040	291	66,567	24.5	5,789	21.7
1000 × 900	1,760	6,335	27	35,013	32.2	3,045	4.4
1000 × 900	4,480	16,128	120	58,791	26.7	5,113	11.4
1000 × 900	7,200	25,920	291	74,887	24.5	6,512	17.9
1000 × 1000	1,976	7,113	28	39,144	32.1	3,404	5.4
1000 × 1000	4,988	17,956	121	65,392	26.7	5,687	13.9
1000 × 1000	8,000	28,800	291	83,208	24.5	7,236	21.7

Φ: Thermal output
PPW/heating coil: Pumped hot water heating system, flow temperature/return temperature
te: Inlet airflow temperature
ta: Outlet airflow temperature
qv: Volume flow rate
qm: Mass flow rate
Δpv: Water-side differential pressure
Δpst: Static differential pressure
Note: Performance data not applicable to cold water operation.

Specification text

This specification text describes the general characteristics of the product. Texts for variants can be generated with our Easy Product Finder design program.

Rectangular hot water heat exchangers for reheating the airflow in ventilation and air conditioning systems. Dimensions fit VAV terminal units TVZ, TZ-Silenzio, TVJ, and TVT as well as CAV terminal units EN. Both ends suitable for the connection of air duct profiles.Casing air leakage according to EN 15727, class D; class C applies for H ≤ 400

Material and surfaces

Casing made of galvanised sheet steel
Copper pipes
Aluminium fins

Technical data

- Volume flow rate range: 15 – 6000 l/s or 54 – 21600 m³/h
- Thermal output: 0.4 – 117 kW
- Maximum water temperature: 100 °C
- Maximum water-side operating pressure: 16 bar
- Water-side differential pressure: 0.1 – 25 kPa
- Static differential pressure: 25 – 210 Pa

Sizing data

- q_v (m³/h)
- t_e [°C]
- PWW [°C]
- Φ [kW]

Order code

WT / 160
| |
1 2

1 Type
WT Hot water heat exchanger for air terminal units type TZ-Silenzio and TVZ

2 Nominal size [mm]
125, 160, 200, 250, 315, 400

Order example: WT/200

Type	WT - Hot water heat exchanger
Nominal size [mm]	200

WT / 400 × 200
| |
1 2

1 Type
WT Hot water heat exchanger for CAV terminal units EN and for air terminal units TVJ, TVT and TVE-Q

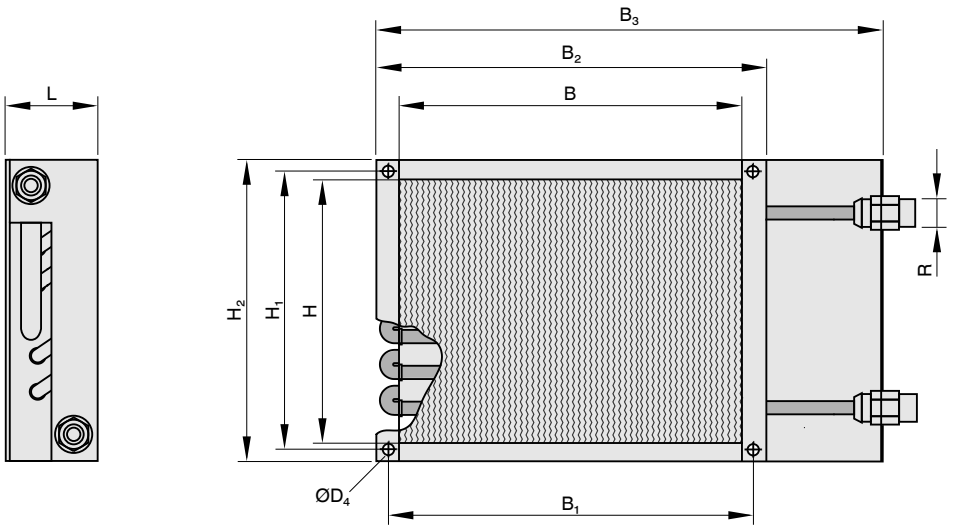
2 Nominal size [mm]
Specify width × height

Order example: WT/400×200

Type	WT - Hot water heat exchanger
Nominal size [mm]	Width 400, height 200

Dimensions and weight

WT, dimensions



Thread type R = external thread, tapered outer dimension

Dimensions and weights of WT for TZ-Silenzio and TVZ

NS	L	B	H	B_1	B_2	B_3	H_1	H_2	$ØD_4$	R ["]	m [kg]
125	70	198	152	232	258	328	186	212	10	½	2.4
160	70	308	152	342	368	478	186	212	10	½	3.3
200	70	458	210	492	518	628	244	270	10	½	4.8
250	70	598	201	632	658	768	235	261	10	½	6
315	70	798	252	832	858	968	286	312	10	½	8.7
400	70	898	354	932	958	1068	388	414	10	½	12.7

Dimensions and weights of WT for EN, TVJ and TVT

NS	L	B	H	B_1	B_2	B_3	H_1	H_2	$ØD_4$	R ["]	m [kg]
200 × 100	80	200	100	238	276	338	138	176	13	½	1.3
300 × 100	80	300	100	338	376	438	138	176	13	½	1.7
400 × 100	80	400	100	438	476	538	138	176	13	½	2.1
500 × 100	80	500	100	538	576	638	138	176	13	½	2.5
600 × 100	80	600	100	638	676	738	138	176	13	½	2.9
300 × 150	80	300	150	338	376	438	188	216	13	½	2.1
200 × 200	80	200	200	238	276	338	238	276	13	½	1.9
300 × 200	80	300	200	338	376	438	238	276	13	½	2.5
400 × 200	80	400	200	438	476	538	238	276	13	½	3
500 × 200	80	500	200	538	576	638	238	276	13	½	4
600 × 200	80	600	200	638	676	738	238	276	13	½	5
700 × 200	80	700	200	738	776	838	238	276	13	½	6
800 × 200	80	800	200	838	876	938	238	276	13	½	7
400 × 250	80	400	250	438	476	538	288	326	13	½	3.9
500 × 250	80	500	250	538	576	638	288	326	13	½	4.9
600 × 250	80	600	250	638	676	738	288	326	13	½	5.8
300 × 300	80	300	300	338	376	438	338	376	13	½	3.2
400 × 300	80	400	300	438	476	538	338	376	13	½	4.5
500 × 300	80	500	300	538	576	638	338	376	13	½	5.8
600 × 300	80	600	300	638	676	738	338	376	13	½	6.5
700 × 300	80	700	300	738	776	838	338	376	13	½	7.2
800 × 300	80	800	300	838	876	938	338	376	13	½	7.9
900 × 300	80	900	300	938	976	1038	338	376	13	½	8.5

NS	L	B	H	B_1	B_2	B_3	H_1	H_2	$ØD_4$	R ["]	m [kg]
1000 × 300	80	1000	300	1038	1076	1138	338	376	13	½	9.2
400 × 400	80	400	400	438	476	538	438	476	13	½	6.5
500 × 400	80	500	400	538	576	638	438	476	13	½	7.3
600 × 400	80	600	400	638	676	738	438	476	13	½	8.1
700 × 400	80	700	400	738	776	838	438	476	13	½	8.9
800 × 400	80	800	400	838	876	938	438	476	13	½	9.7
900 × 400	80	900	400	938	976	1038	438	476	13	½	10.5
1000 × 400	80	1000	400	1038	1076	1138	438	476	13	½	11.2
500 × 500	80	500	500	538	576	638	538	576	13	½	8.7
600 × 500	80	600	500	638	676	738	538	576	13	½	9.6
700 × 500	80	700	500	738	776	838	538	576	13	½	10.5
800 × 500	80	800	500	838	876	938	538	576	13	½	11.4
900 × 500	80	900	500	938	976	1038	538	576	13	½	12.3
1000 × 500	80	1000	500	1038	1076	1138	538	576	13	1	13.2
600 × 600	80	600	600	638	676	738	638	676	13	½	11.1
700 × 600	80	700	600	738	776	838	638	676	13	½	12.5
800 × 600	80	800	600	838	876	938	638	676	13	½	13.9
900 × 600	80	900	600	938	976	1038	638	676	13	1	14.9
1000 × 600	80	1000	600	1038	1076	1138	638	676	13	1	15.9
800 × 800	100	800	800	838	876	938	838	876	13	1	17.7
900 × 800	100	900	800	938	976	1038	938	976	13	1 ¼	19
1000 × 800	100	1000	800	1038	1076	1138	838	876	13	1 ¼	20.2
1000 × 1000	100	1000	1000	1038	1076	1138	1038	1076	13	1 ¼	27.9

Installation details

- Installation in horizontal or vertical ducts independent of airflow direction
- Water connection must be horizontal
- Capacity control and supply connections to be provided by others
- Vents and drainage by others
- Installation downstream of a volume flow controller is perfectly possible

Nomenclature

L [mm]; [in]
Length of unit including connecting spigot

L_1 [mm]; [in]
Length of casing or acoustic cladding

B [mm]; [in]
Duct width

B_1 [mm]; [in]
Screw hole pitch of flange (horizontal)

B_2 [mm]; [in]
Overall dimension of flange (width)

B_3 [mm]
Unit width

H [mm]; [in]
Duct height

H_1 [mm]; [in]
Screw hole pitch of flange (vertical)

H_2 [mm]; [in]
Overall dimension of flange (height)

H_3 [mm]
Unit height

R ["]
Diameter of connecting threaded pipes

m [kg]; [lb]
Unit weight including the minimum required attachments (control component)

q_v [m3/h]; [l/s]; [CFM]
Volume flow rate

q_m [kg/h]
Mass flow rate

Δp_v [kPa]
Water-side differential pressure

Δp_{st} [Pa]; [inWg]
Static differential pressure

$ØD_4$ [mm]
Inside diameter of the screw holes of flanges

Φ [kW]
Thermal output

PWW [°C]
Hot water heating system, flow temperature/return temperature

t_e [°C]
Inlet airflow temperature

t_a [°C]
Outlet airflow temperature

Lengths
All lengths are given in millimetres [mm] unless stated otherwise.