VariTrane
VAV Terminal Unit

Single-Duct
Series Fan-Powered
Parallel Fan-Powered

Contents

VAV System Overview

System Introduction

In a Variable Air Volume (VAV) system, air delivery volume varies directly with the changing cooling or heating load, thus saving energy at part load conditions. Another benefit that makes VAV a popular choice in HVAC design is its capability to control temperature in multiple zones. Compared to conventional constant volume system, VAV system has multiple VAV terminal boxes each serving a zone controlling air flow to that zone and maintaining the set-point temperature.

Trane leads in VAV technology with its innovative range of VariTrane units (Single-duct and Fan-powered types) that are designed for diverse applications and environments. Applications include office space, hospitals, hotels, retail stores, malls and educational facilities. VariTrane provides the most reliable and flexible products available, further enhanced by Trane DDC controls in implementing systems-level control strategies like ventilation reset and Static Pressure Optimization to improve systems performance and efficiency.

VAV System Features and Benefits

VAV systems have the following features and benefits:

1. Economical Operation

VAV systems can change the supply air volume according to the cooling and heating load variation to enable the cooling, heating capacity and fan power to meet actual load requirement. Therefore, the system energy consumption can be significantly reduced. Meanwhile, if compared with traditional air conditioning systems, VAV systems can utilize the outdoor fresh air as much as possible during transitional seasons, which not only saves energy consumption, but also improves indoor air quality. It is estimated that over 30% of the annual energy consumption can be saved and 10-30% of total equipment capacity can be reduced by using VAV system.

2. Improved Indoor Air Quality and Comfort

With the integrated DDC control, VariTrane VAV terminal units can keep room temperature and air volume within the pre-set range per actual cooling or heating load requirement and enhance control accuracy of the terminal unit. It allows room temperature to be adjusted per application requirement. Supply air of VAV system can be remote and centralized controlled to improve the system efficiency and room air quality.

3. Reliable Operation, Simple Construction

VAV system is an all-air system. There is no water piping passing through the ceiling of the room, which can avoid problems such as condensation, water leakage and bacteria breeding which may happen in the fan coil system. In addition, VariTrane VAV boxes have simple casing construction, which makes installation simple and easy.

4. Flexible System

Renovation always occurs in modern buildings. By using flexible duct connection, modification of VariTrane VAV terminal unit position can be done according to the room partition and requirement with minimum field modification cost, labor and time.

5. Compatible System

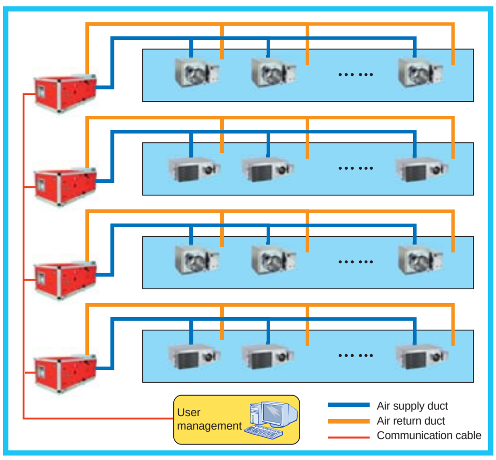
VAV systems can be integrated with other air conditioning systems to optimize performance efficiency. For example, when integrated with ice storage system, the application of cold air distribution can reduce the initial investment of ice storage system effectively; when integrated with heat pump system it can reduce the initial investment, reducing the noise level by installing several water heat pumps in central location and avoid costly installation of heat pump at each floor.

6. Easy to get integrated with Building Automation (BA) system

VAV systems can be integrated to BA system via DDC control. System optimization and monitoring of the whole system can be achieved by computerized control.

VAV System Structure

A typical VAV System consists of:
1.Air handling units
2.Air duct system
3.VariTrane VAV terminal nuit



VAV System Schematic

VAV System Overview

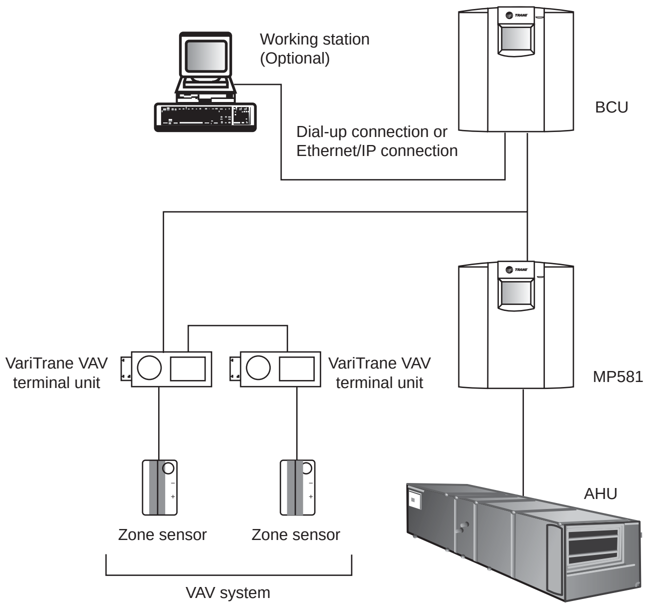
System Control Introduction

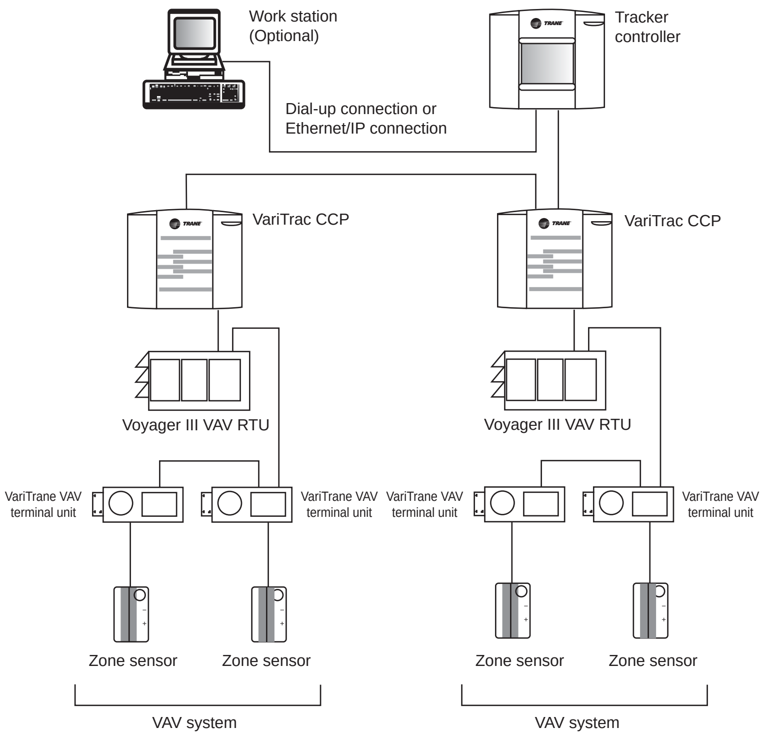
The VariTrane VAV box can be connected to Trane's Building Automation System through two types of control systems.

Tracer System

In Tracer, the work station using Tracer Summit software monitors the whole system and has many functions such as operating parameter setting, data acquisition, alarming, reports, clock, etc. The Building control Unit (BCU) provides control logic for the whole system and coordinates the operation between equipment level controllers, VAV controllers are connected to each other and then connect to BCU.

The whole control system structure is simple, compatible and designed to accommodate future extension requirements.





VariTrane VAV Terminal Unit Overview

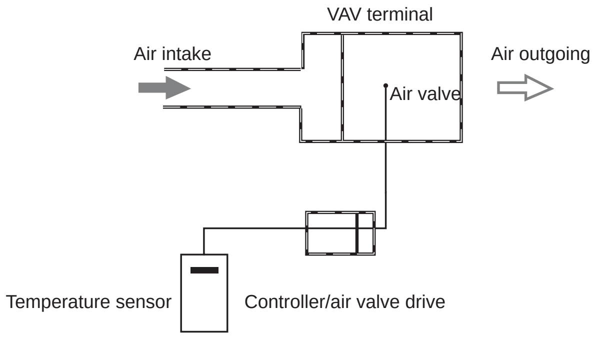
VAV Terminal Unit Classification

A VAV terminal unit controls the air valve opening and regulates the air volume in the room by measuring the temperature difference between room and set point. There are two basic working principles of a VAV box: pressure-dependent and pressure-independent.

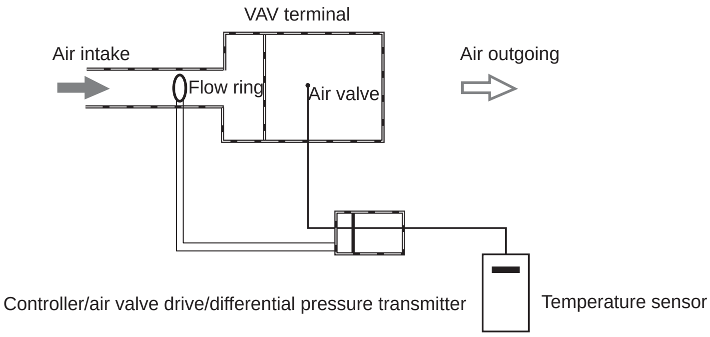
A pressure-dependent VAV control scheme uses the space temperature sensor to control the position of the modulating device directly. The actual airflow delivered to the space depends on the duct system static pressure at the inlet of the terminal unit. Although the space temperature sensor will continually correct the position of the modulating device, the response can be sluggish and cause unacceptable temperature variations within the space.

In contrast, a pressure-independent VAV control scheme controls the actual volume of primary air that flows to the space. An airflow-measuring device on the terminal unit makes it possible. The position of the modulation device is not directly controlled and is basically a by-product of regulating the airflow through the unit. Because the airflow delivered to the space is directly controlled, it is independent of inlet static pressure.

Pressure-independent control increases the stability of airflow control and allows minimum and maximum airflow settings to become actual airflows rather than physical positions of the modulation device. It is clearly most popular in all VAV terminal unit controls.



Pressure-dependent



Pressure-independent

There are three basic types of VariTrane VAV terminal units, Single-duct (without fan), Series Fan-Powered and Parallel Fan-Powered.

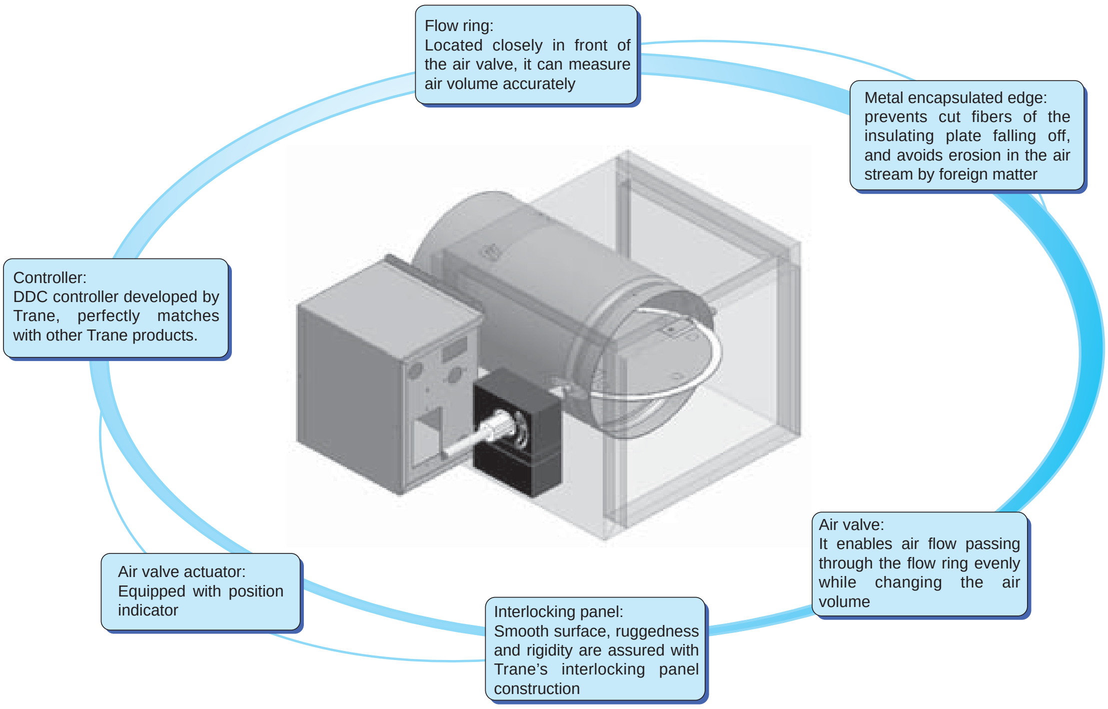
Single-duct

Series fan-powered

Parallel fan-powered

VariTrane VAV Terminal Unit Overview

Features and Benefits



Energy Efficiency

VAV systems can save energy significantly, comply with ventilation requirements, and provide reliable and personalized occupant control.

Energy saving features of VariTrane VAV terminal units include:

1. System strategies like Ventilation Reset, and Static Pressure Optimization, etc
2. Demand controlled ventilation
3. EarthWise System utilizing low temperature air and system energy optimization.

Advanced Control

With years of working experience and understanding of VAV system characteristic, Trane has developed a reliable DDC controller for VAV system which has unique functions:

1. Advanced system integration–VariTrane VAV terminal unit DDC controller uses pressure-independent control mode, which can obtain precise air valve opening by doing two-time PID calculation according to the temperature and air flow to control air volume accurately and provide excellent indoor air quality and comfort control. It can also be integrated with Trane Tracer Summit Building Automation System. It is the most advanced VAV control system in the field. This system has a series of unique control modes such as fresh air volume / ventilation reset, static pressure optimization control which can meet the current industry regulations and standards, able to adjust air duct static pressure effectively and reduce energy consumption of the fan to improve the whole VAV system efficiency.

2. Superior product quality–Both VariTrane VAV system terminal units and control devices are provided by Trane, which ensures the product quality, system compatibility and perfect system integration.

VAV Terminal Unit Overview

Controls Parts and Options

UCM4 is a microprocessor-based DDC controller using pressure-independent control mode to control the supply air volume accurately to make room temperature reach the set condition. In addition, UCM4 also has additional functions, such as optional CO_2 sensor, wireless sensor, to fulfill various customer and application requirements.

UCM4

CO_2 sensor is used to measure CO_2 concentration in the air, converts it into electrical signal and then transmit the signal to the controller which will reset fresh air volume accordingly to ensure indoor air quality and comfort.

Wall mounted

Duct mounted

Trane VAV box provides a DDC conrtroller It is a dedicated VAV controller based on BACnet protocol, programable and supporting wireless sensors with BTL, UL certification. Now available for duct VAV box.

Standard DDC controller

Auxiliary temperature sensor helps VariTrane VAV terminal unit changeover between heating and cooling mode automatically without the system controller. Terminal unit controller will compare the temperature differences between the supply air temperature provided by auxiliary temperature sensor and the room temperature provided by zone sensor. It will determine the working mode automatically according to the result without manual adjustment.

Wireless sensor eliminates the wiring difficulty at the field and provides more flexibility for layout and sensor positioning. Trane wireless sensor is based on wide spectrum technology, This enhances system security greatly and avoids interference problem when using different system with the same frequency in the same area.

Wireless sensor

Auxiliary temperature sensor

Area sensor

Model	Zone sensor		Occupied / Unoccupied Mode		LCD
	Temperature setting	Internal sensor	ON	CANCEL	
4190 1090	√	√	√	√	
4190 1120	√	√	√	√	√
Wired sensor with LCD	√	√	√	√	√

4190 1090

4190 1120

Wired sensor with LCD

VariTrane Model Description Single-Duct

V	C	C	T	0	6	0	0	0	A	0	D	D	0	1	D	0	0	0	0	0	L	0	0	0	0	0	0	0	0	0	0
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Digit 1~2— Unit Type

VC Single duct

Digit 3— Terminal Heating Mode

C None
E Electric heating
W Hot water heating

Digit 4— Development Series No.

T China plant

Digit 5~6— Dimension of Primary Air Valve Inlet

05 5"
06 6"
08 8"
10 10"
12 12"
14 14"
16 16"

Digit 7~8— Reserved

00 N/A

Digit 9 —Reserved

0 N/A

Digit 10~11— Design No.

A0 Initial development
A1 First development

Digit 12~15— Control Mode

DD00 Trane elec actuator only
DD01 DDC cooling only
DD02 DDC N.C. on/off water valve
DD03 DDC prop hot water valve
DD04 DDC on/off electric heat control
DD11 LonTalk DDC cooling only
DD12 LonTalk DDC N.C. on/off water valve
DD13 LonTalk DDC prop hot water valve
DD14 LonTalk DDC on/off electric heat control
DD21 Bacnet DDC cooling only
DD22 Bacnet DDC N.C. on/off water valve
DD23 Bacnet DDC prop hot water valve
DD24 Bacnet DDC on/off electric heat control
FM00 Customers supply the air valve actuator and controller by themselves
DD31 Factory default controller (Basic version)

Digit 16 —— Insulation

B 1" Matte-faced
D 1" foil faced
F 1" Double-wall
G 3/4" Closed-cell

Digit 17— Reserved

0 N/A

Digit 18— Reserved

0 N/A

Digit 19—Reserved

0 N/A

Digit 20— Reserved

0 N/A

Digit 21— Hot Water Coil

0 N/A
1 1 row
2 2 rows

Digit 22—Electric Connection

L Left type
R Right type

Digit 23— Transformer

0 N/A
1 115VAC/24V AC transformer
3 230VAC/24V AC transformer

Digit 24— Power Disconnect

0 N/A
W With

Digit 25— Power Fuse

0 N/A
W With

Digit 26— Electric Heating Voltage

0 N/A
C Single-phase 220V
J Three-phase 380V

Digit 27~29— Electric Heating Power

000 N/A
010 1.0kW
020 2.0kW
300 30kW

Note: For detailed specification, refer to the electric heater information

Digit 30— Electric Heat Stage

0 N/A
1 1 stage
2 2 stages
3 3 stages

Digit 31— Reserved

0 N/A

Digit 32— Reserved

0 N/A

Note: Heating options are not available for first development design.

VariTrane Model Description Fan-Powered

V	S	C	T	0	6	0	0	P	A	0	D	D	0	1	D	D	5	2	0	0	L	0	0	0	0	0	0	0	0	0	0
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Digit 1~2— Unit Type

VP Parallel fan-powered
VS Series fan-powered

Digit 3— Terminal Heating Mode

C None
E Electric heating
W Hot water heating

Digit 4—Development Series No

T China plant

Digit 5~6— Primary Air Valve

05 5"
06 6"
08 8"
10 10"
12 12"
14 14"
16 16"

Digit 7~8— Reserved

00 N/A

Digit 9— Fan model

P 02SQ
Q 03SQ
R 04SQ
S 05SQ
T 06SQ
U 07SQ

Digit 10~11— Design No.

A0 Initial development

Digit 12~15— Control Mode

DD00 Trane elec actuator only
DD01 DDC cooling only
DD02 DDC N.C. on/off water valve
DD03 DDC prop hot water valve
DD04 DDC on/off electric heat control
DD11 LonTalk DDC cooling only
DD12 LonTalk DDC N.C. on/off water valve
DD13 LonTalk DDC prop hot water valve
DD14 LonTalk DDC on/off electric heat control
DD21 Bacnet DDC cooling only
DD22 Bacnet DDC N.C. on/off water valve
DD23 Bacnet DDC prop hot water valve
DD24 Bacnet DDC on/off electric heat control
FM00 Customers supply the air valve actuator and controller by themselves

Digit 16— Thermal Insulation

B 1" Matte-faced
D 1" foil faced
F 1" Double-wall
G 3/4" Closed-cell

Digit 17— Motor Type

D Standard motor

Digit 18— Motor Voltage

1 115V/60Hz/1P
4 230V/60Hz/1P
5 230V/50Hz/1P

Digit 19— Outlet Connection

1 Flange connection
2 Slip & Drive

Digit 20— Attenuator

0 N/A
W With

Digit 21— Hot Water Coil

0 N/A
1 1 row – inlet (only for parallel fan-powered)
2 2 rows – inlet (only for parallel fan-powered)
3 1 row —Outlet—Left
5 2 rows—Outlet—Left

Digit 22—Electrical Connections

L left

Digit 23— Reserved

0 N/A

Digit 24— Power Disconnect

0 N/A
W with

Digit 25— Power Fuse

0 N/A
W with

Digit 26— Electric Heating Voltage

0 N/A
C Single-phase 220V
J Three-phase 380V

Digit 27~29— Electric Heating Power

000 N/A
010 1.0kW
020 2.0kW
~ ~
200 20kW

Note: For detailed specification, refer to the electric heater information

Digit 30—Electric Heat Stage

0 N/A
1 1 stage
2 2 stages
3 3 stages

Digit 31— Reserved

0 N/A

Digit 32— Airflow Switch

0 N/A
W With

Performance Data
VariTrane Single-Duct

VCCT single-duct terminal device (cooling only)

VCWT heating-water heating terminal device

VCET electric heating terminal device

Performance Data

Air valve	Inlet diameter mm	Airflow range m^3/h	Min. airflow m^3/h	Dimension mm(L × W × H)	Weight (kg)
05	127	68-595	68	443×433×241	7.5
06	152	101-850	101	411×433×241	7.5
08	203	180-1530	180	398×458×292	7.9
10	254	277-2380	277	424×534×343	11.5
12	305	400-3400	400	449×610×394	14.2
14	356	544-5100	544	475×661×495	17.7
16	406	713-7200	713	500×763×495	19.4

Air Pressure Drop (Pa)

Single-duct VAV terminal device					
Air valve	Airflow (m^3/h)	Casing	Heating coil		Electric heater
			1 row	2 row	
05	162	3	5	8	5
	342	3	9	18	8
	504	3	19	38	10
	595	4	25	50	15
06	162	3	5	8	5
	432	13	16	30	8
	594	26	29	53	10
	850	55	57	100	15
08	342	3	5	10	5
	684	4	21	39	10
	1008	9	40	74	15
	1530	21	78	148	15
10	846	3	13	26	10
	1350	3	34	60	15
	1872	3	64	107	20
	2380	3	101	162	20
12	1350	3	21	44	10
	2034	3	44	85	20
	2718	3	73	135	20
	3400	3	108	192	25
14	2520	3	23	52	15
	3402	3	37	86	20
	4248	3	53	124	20
	5100	3	71	168	25
16	3384	3	25	70	20
	4248	3	37	111	20
	5094	3	51	159	25
	7200	3	93	314	25

Note: The air pressure drops in the table refer to the pressure drops of the parts.

Performance Data
VariTrane Single-Duct

Heating Capacity of Hot Water Coil (kW)

Air Valve	Coil Rows	Water volume (L/s)	Water pressure drop (kPa)	Air volume (m^3/h)									
				76	102	153	170	255	340	425	595	680	850
05/ 06	1 Row	0.03	1.57	1.20	1.38	1.66	1.73	2.05	2.30	2.52	2.86	3.01	3.26
		0.06	5.26	1.27	1.49	1.82	1.91	2.31	2.64	2.93	3.41	3.63	4.01
		0.09	10.72	1.30	1.53	1.88	1.98	2.42	2.78	3.10	3.65	3.91	4.35
		0.13	17.82	1.32	1.55	1.91	2.02	2.47	2.86	3.20	3.78	4.06	4.54
		0.16	26.47	1.32	1.56	1.93	2.04	2.51	2.91	3.26	3.87	4.16	4.67
	2 Row	0.06	1.85	1.48	1.88	2.54	2.73	3.53	4.14	4.61	5.29	5.58	6.00
		0.13	6.39	1.52	1.94	2.68	2.90	3.84	4.60	5.22	6.15	6.56	7.19
		0.19	13.28	1.53	1.96	2.72	2.95	3.96	4.77	5.45	6.49	6.96	7.69
		0.25	22.39	1.54	1.97	2.75	2.98	4.01	4.86	5.57	6.68	7.18	7.96
		0.32	33.61	1.54	1.98	2.76	3.00	4.05	4.92	5.65	6.80	7.32	8.14

Scope Size 05
Size 06

Air Valve	Coil Rows	Water volume (L/s)	Water pressure drop (kPa)	Air volume (m^3/h)								
				280	340	510	680	850	1019	1189	1359	1530
08	1 Row	0.03	2.12	2.47	2.66	3.12	3.47	3.75	3.99	4.18	4.35	4.50
		0.06	7.05	2.81	3.06	3.68	4.18	4.61	4.99	5.33	5.63	5.90
		0.09	14.35	2.94	3.22	3.92	4.49	4.99	5.44	5.84	6.22	6.56
		0.13	23.82	3.01	3.31	4.05	4.67	5.22	5.71	6.15	6.56	6.93
		0.16	35.35	3.06	3.37	4.13	4.78	5.36	5.88	6.35	6.79	7.20
	2 Row	0.13	0.98	4.40	4.97	6.25	7.18	7.88	8.44	8.89	9.26	9.58
		0.25	3.48	4.54	5.18	6.67	7.79	8.69	9.42	10.03	10.55	11.01
		0.38	7.37	4.65	5.33	6.92	8.16	9.16	9.99	10.70	11.30	11.83
		0.50	12.56	4.70	5.40	7.06	8.36	9.42	10.31	11.07	11.72	12.29
		0.63	19.04	4.74	5.45	7.15	8.49	9.59	10.51	11.30	11.99	12.59
		0.79	28.90	4.77	5.49	7.22	8.60	9.73	10.68	11.50	12.22	12.84

Air Valve	Coil Rows	Water volume (L/s)	Water pressure drop (kPa)	Air volume (m^3/h)									
				595	765	934	1104	1274	1444	1699	1869	2209	2380
10	1 Row	0.04	5.29	4.36	4.83	5.21	5.54	5.83	6.08	6.41	6.61	6.94	7.09
		0.06	9.81	4.74	5.27	5.75	6.17	6.54	6.88	7.33	7.60	8.07	8.28
		0.09	19.90	5.09	5.71	6.26	6.75	7.21	7.63	8.21	8.55	9.18	9.47
		0.13	33.00	5.28	5.96	6.56	7.10	7.60	8.07	8.71	9.11	9.84	10.17
		0.16	48.93	5.40	6.11	6.75	7.33	7.87	8.37	9.06	9.48	10.28	10.64
	2 Row	0.13	2.07	7.87	8.98	9.87	10.59	11.20	11.72	12.36	12.73	13.34	13.60
		0.25	7.53	8.64	10.06	11.23	12.23	13.10	13.85	14.81	15.37	16.34	16.75
		0.38	16.15	8.93	10.46	11.76	12.88	13.86	14.72	15.83	16.49	17.62	18.12
		0.50	27.83	9.07	10.68	12.05	13.23	14.27	15.19	16.40	17.10	18.34	18.88
		0.63	42.50	9.17	10.81	12.22	13.45	14.53	15.49	16.75	17.50	18.80	19.38

Air Valve	Coil Rows	Water volume (L/s)	Water pressure drop (kPa)	Air volume (m^3/h)								
				680	1019	1359	1699	2039	2379	2718	3058	3400
12	1 Row	0.06	2.04	5.30	6.19	6.88	7.44	7.90	8.29	8.64	8.93	9.20
		0.13	7.08	6.08	7.28	8.25	9.10	9.85	10.51	11.11	11.65	12.14
		0.19	14.79	6.40	7.74	8.86	9.84	10.71	11.50	12.23	12.90	13.52
		0.25	25.04	6.57	8.00	9.20	10.26	11.22	12.09	12.89	13.63	14.33
		0.32	37.73	6.68	8.16	9.42	10.54	11.55	12.48	13.33	14.13	14.87
	2 Row	0.13	0.74	9.27	11.32	12.71	13.71	14.47	15.07	15.56	15.97	16.30
		0.32	4.12	10.42	13.37	15.59	17.33	18.74	19.92	20.91	21.77	22.51
		0.50	10.01	10.82	14.09	16.63	18.68	20.37	21.80	23.03	24.10	25.04
		0.69	18.35	11.01	14.44	17.15	19.35	21.20	22.77	24.13	25.32	26.38
		0.88	29.06	11.12	14.65	17.46	19.77	21.71	23.37	24.81	26.08	27.21
		1.10	44.53	11.21	14.81	17.70	20.08	22.10	23.83	25.34	26.67	27.86

Performance Data
VariTrane Single-Duct

Air Valve	Coil Rows	Water volume (L/s)	Water pressure drop (kPa)	Air volume (m³/h)									
				1189	1529	1869	2209	2549	2888	3398	3908	4417	5100
14	1 Row	0.13	3.69	9.31	10.31	11.21	11.99	12.68	13.30	14.12	14.84	15.47	16.20
		0.19	7.67	10.07	11.26	12.31	13.24	14.11	14.91	15.98	16.94	17.80	18.82
		0.25	12.93	10.49	11.80	12.97	14.01	14.97	15.86	17.08	18.20	19.21	20.43
		0.32	19.43	10.76	12.15	13.39	14.52	15.55	16.51	17.83	19.04	20.16	21.52
		0.38	27.13	10.95	12.40	13.69	14.88	15.97	16.98	18.39	19.67	20.85	22.31
		0.44	36.01	11.09	12.58	13.92	15.14	16.28	17.33	18.80	20.15	21.40	22.92
	2 Row	0.32	3.24	16.31	18.74	20.71	22.34	23.71	24.89	26.38	27.62	28.66	29.83
		0.57	9.93	17.50	20.41	22.85	24.92	26.72	28.28	30.31	32.03	33.51	35.20
		0.82	20.07	18.00	21.13	23.78	26.06	28.06	29.82	32.12	34.08	35.80	37.76
		1.07	33.61	18.27	21.52	24.30	26.71	28.82	30.70	33.16	35.28	37.14	39.28
		1.32	50.49	18.45	21.78	24.64	27.13	29.32	31.28	33.85	36.07	38.02	40.28
		1.42	57.67	18.50	21.85	24.73	27.25	29.47	31.44	34.05	36.30	38.28	40.58

Air Valve	Coil Rows	Water volume (L/s)	Water pressure drop (kPa)	Air volume (m³/h)									
				1529	2039	2549	3058	3398	4078	4757	5437	6116	7200
16	1 Row	0.13	4.10	11.21	12.61	13.75	14.72	15.29	16.29	17.14	17.87	18.52	19.38
		0.19	8.48	12.26	13.90	15.31	16.57	17.33	18.68	19.86	20.90	21.83	22.91
		0.25	14.26	12.86	14.68	16.25	17.65	18.52	20.11	21.51	22.77	23.90	25.16
		0.32	21.39	13.25	15.20	16.89	18.41	19.34	21.06	22.62	24.03	25.32	27.38
		0.38	29.83	13.52	15.56	17.35	18.95	19.95	21.77	23.42	24.95	26.35	28.1
		0.47	44.89	13.80	15.94	17.82	19.53	20.59	22.54	24.32	25.94	27.45	29.91
	2 Row	0.32	3.44	20.13	23.37	25.88	27.88	29.00	30.89	32.41	33.67	34.73	36.59
		0.57	10.45	21.84	25.85	29.08	31.76	33.30	35.94	38.14	39.99	41.59	43.96
		0.82	21.07	22.55	26.92	30.50	33.50	35.25	38.28	40.84	43.02	44.91	47.51
		1.07	35.21	22.95	27.52	31.30	34.50	36.37	39.64	42.41	44.79	46.87	49.61
		1.32	52.82	23.20	27.90	31.82	35.14	37.10	40.53	43.45	45.97	48.18	51.00
		1.42	60.31	23.27	28.01	31.97	35.33	37.31	40.79	43.75	46.32	48.56	51.41

Note: 1, EAT= 12.8°C, EWT= 82.2°C.
2, Capacity based on 12.8°C entering air temperature and 82.2°C entering water temperature. Refer to correction factors for different entering conditions.
Actual Heating capacity = Data in the above table x Temperature Conrection factor

Entering water temperature minus entering air temperature EWT-EAT	22	28	33	39	44	56	69	78	83	89	100	111
Temperature correction factor	032	0.40	0.48	0.56	0.64	0.80	1.0	1.12	1.20	1.29	1.45	1.61

Please use the following equation to calculate the leaving air temperature and the difference between entering water temperature and leaving water temperature.

$$LAT = EAT + \left[\frac{KW \times 2988}{M^3/H \text{ (Air volume)}} \right]$$

LAT: Outlet air temperature; EAT: Inlet air temperature

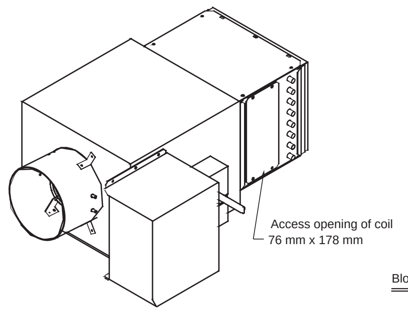
$$WTD = EWT - LWT = \left[\frac{KW}{4.19 \times L/S \text{ (Water volume)}} \right]$$

WTD: Difference between inlet water and outlet water; EWT: Inlet water temperature; LWT: Outlet water temperature

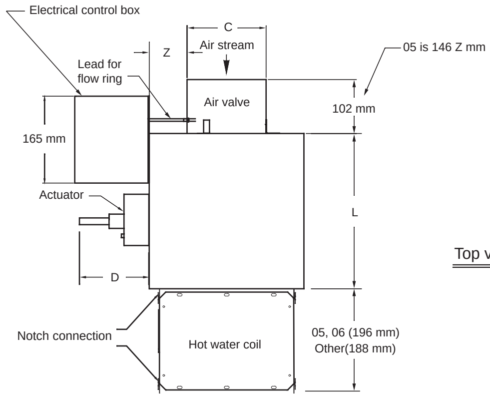
Dimensional Data
VariTrane Single-Duct

Dimension for Single Duct with Hot Water Coil

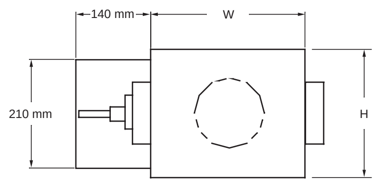
Air Valve	Overall dimension (mm)						
	L	H	W	D	Z	Air outlet dimension	
						A (h)	B (w)
05	292	241	292	127	70	203	254
06	292	241	292	127	70	203	254
08	279	292	318	140	57	254	279
10	305	343	394	127	70	305	356
12	330	394	470	114	83	356	432
14	356	495	521	114	83	457	483
16	381	495	622	89	108	457	584



Block view



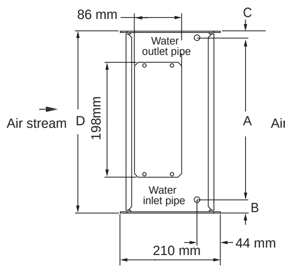
Top view



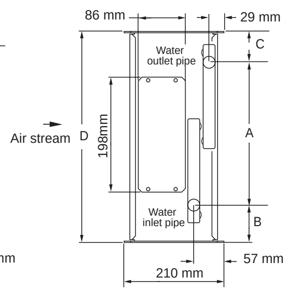
Rear view

Air Valve	Dimension of coil (mm)								
	1 Row						2 Row		
		A	B	C	D	W		A	B
05	without coil header	178	17	13	203	254	with coil header	158	211
06		178	17	13	203	254		158	211
08		229	22	11	254	279		210	257
10		279	22	11	203	356		260	308
12	with coil header	248	64	53	356	432		311	359
14		400	38	27	457	482		413	460
16		400	38	27	457	584		413	460

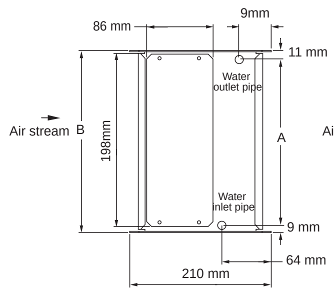
Note: Outer diameter of coil connection for without coil head is 10mm; and Outer diameter of coil for with coil head is 10mm



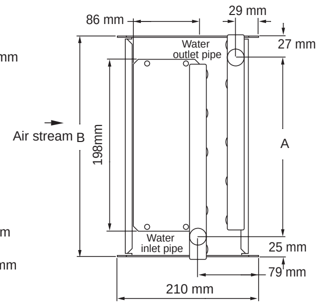
without coil header



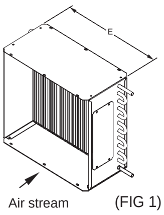
with coil header



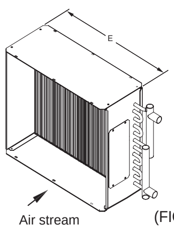
without coil header



with coil header

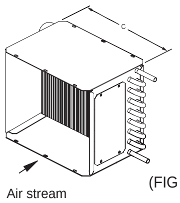


(FIG 1)

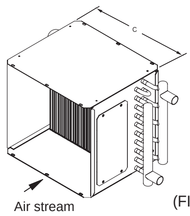


(FIG 2)

Single row



(FIG 1)



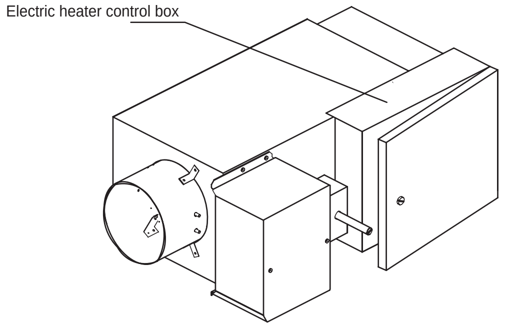
(FIG 2)

Double row

Dimensional Data
VariTrane Single-Duct

Dimension for Single Duct with Electric Heating

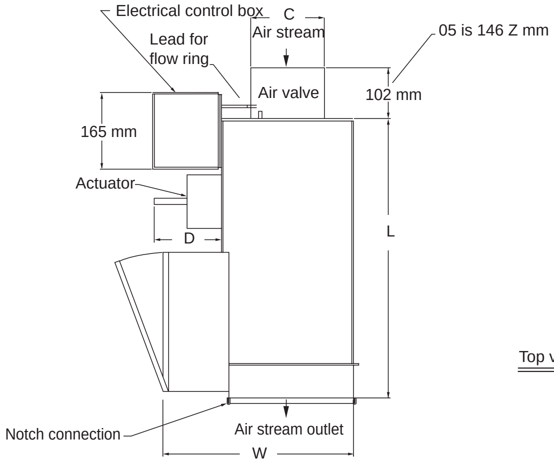
Air Valve	Overall dimension (mm)					
	L	H	W	D	Air outlet dimension	
					A (h)	B (w)
05	1156	241	406	140	203	254
06	1156	241	406	140	203	254
08	1105	292	532	140	254	279
10	1105	343	508	127	305	356
12	1105	394	584	114	356	432
14	1105	495	635	114	457	483
16	1105	495	737	89	457	584



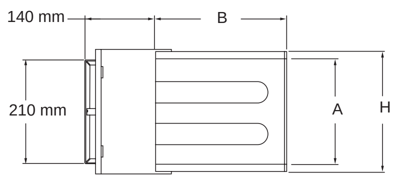
Block view

Electric Heater (kW)

Model	Heating Stages	220V	380V
05	1	1/2/3	2
	2	-	-
	3	-	-
06	1	1/2/3/4	4
	2	-	-
	3	-	-
08	1	1/2/3/4	1/2/4
	2	6/7	6
	3	-	7
10	1	1/2/3/4	1/2/4
	2	6/8	6/8
	3	9	10
12	1	1/2/3/4	1/2/4
	2	6/8	6/8/1
	3	9	12/16
14	1	1/2/3/4	2/4/6
	2	6/8	8/10/12
	3	9	16/18/22
16	1	1/2/3/4	2/4/6
	2	6/8	8/10/12/16
	3	9	18/22/26/30



Top view



Rear view

Left

Performance Data
VariTrane Series Fan-Powered

Performance Data

VSCT Series Fan-powered terminal device for cooling only

VSWT Series Fan-Powered terminal device with hot water coil

VSET Series Fan-Powered terminal device with Electric heating

Air Valve	Inlet diameter (mm)	Fan model	Air volume of fan m³/h	Air volume range for primary air m³/h	Overall dimension mm (L × W × H)	Weight (kg)
05	127	02SQ	920	595	994×699×394	35
06	152	02SQ	920	850	994×699×394	35
		03SQ	1580	850	1146×750×445	39
08	203	02SQ	920	920	994×699×394	35
		03SQ	1580	1530	1146×750×445	39
		04SQ	2180	1530	1146×750×445	39
10	254	02SQ	920	920	994×699×394	35
		03SQ	1580	1580	1146×750×445	39
		04SQ	2180	2180	1146×750×445	39
		05SQ	2660	2380	1146×902×445	45
		06SQ	3700	2380	1146×902×546	53
		07SQ	4180	2380	1146×902×546	57
12	305	03SQ	1580	1580	1146×750×445	39
		04SQ	2180	2180	1146×750×445	39
		05SQ	2660	2660	1146×902×445	45
		06SQ	3700	3400	1146×902×546	53
		07SQ	4180	3400	1146×902×546	57
14	356	04SQ	2180	2180	1146×750×445	39
		05SQ	2660	2660	1146×902×445	45
		06SQ	3700	3700	1146×902×546	53
		07SQ	4180	4180	1146×902×546	57
16	406	06SQ	3700	3700	1146×902×546	53
		07SQ	4180	4180	1146×902×546	57

Hot Water Coil (kW)

Fan model	Coil Rows	Water volume (L/s)	Water pressure drop (kPa)	Air volume (m³/h)								
				255	340	425	510	595	680	765	850	920
02SQ	1 Row	0.06	1.59	2.68	3.03	3.32	3.58	3.80	4.01	4.20	4.38	4.52
		0.13	5.52	2.91	3.34	3.70	4.02	4.32	4.59	4.84	5.08	5.27
		0.19	11.51	3.00	3.46	3.85	4.20	4.52	4.82	5.10	5.37	5.58
		0.25	19.45	3.05	3.52	3.93	4.30	4.63	4.95	5.25	5.53	5.75
		0.32	29.27	3.08	3.56	3.98	4.36	4.71	5.03	5.34	5.63	5.86
	2 Row	0.06	3.00	3.69	4.46	5.10	5.63	6.08	6.46	6.80	7.09	7.30
		0.13	10.21	3.93	4.86	5.67	6.37	6.99	7.54	8.03	8.47	8.81
		0.19	21.07	4.02	5.01	5.87	6.64	7.33	7.95	8.51	9.02	9.41
		0.25	35.33	4.06	5.08	5.98	6.78	7.51	8.16	8.76	9.31	9.73
		0.32	52.84	4.09	5.12	6.04	6.87	7.62	8.30	8.92	9.50	9.94

Performance Data
VariTrane Series Fan-Powered

Hot Water Coil (kW) - contiune

Fan model	Coil Rows	Water volume (L/s)	Water pressure drop (kPa)	Air volume (m^3/h)								
				340	510	680	934	1189	1444	1580	1954	2180
03SQ /04SQ	1 Row	0.13	3.02	4.40	5.33	6.04	6.91	7.62	8.23	8.53	9.29	9.70
		0.19	6.56	4.60	5.64	6.45	7.45	8.29	9.03	9.39	10.30	10.79
		0.25	11.39	4.71	5.80	6.67	7.75	8.67	9.49	9.89	10.91	11.47
		0.32	17.49	4.77	5.91	6.81	7.94	8.92	9.79	10.21	11.31	11.92
		0.38	24.86	4.82	5.98	6.91	8.08	9.09	10.00	10.44	11.60	12.24
		0.44	33.49	4.85	6.03	6.98	8.18	9.22	10.16	10.62	11.81	12.48
		0.50	43.36	4.88	6.08	7.04	8.26	9.32	10.28	10.75	11.98	12.66
		0.57	54.46	4.90	6.11	7.08	8.32	9.40	10.38	10.86	12.12	12.81
		0.63	66.80	4.92	6.13	7.12	8.37	9.47	10.46	10.94	12.22	12.94
	2 Row	0.13	4.22	5.55	7.50	9.07	10.90	12.31	13.42	13.90	15.06	15.61
		0.19	8.99	5.70	7.83	9.61	11.78	13.52	14.94	15.57	17.13	17.90
		0.25	15.41	5.78	8.00	9.89	12.25	14.18	15.79	16.52	18.33	19.24
		0.32	23.45	5.83	8.10	10.06	12.54	14.60	16.33	17.13	19.12	20.12
		0.38	33.07	5.86	8.17	10.18	12.74	14.88	16.71	17.55	19.67	20.75
		0.44	44.26	5.88	8.22	10.26	12.88	15.09	16.99	17.86	20.07	21.21
		0.50	57.00	5.90	8.26	10.33	12.99	15.25	17.20	18.10	20.39	21.57

Fan model	Coil Rows	Water volume (L/s)	Water pressure drop (kPa)	Air volume (m^3/h)							
				595	850	1104	1359	1699	2039	2379	2660
05SQ	1 Row	0.13	3.22	6.35	7.40	8.23	8.94	9.76	10.49	11.12	11.59
		0.19	6.95	6.75	7.95	8.94	9.78	10.77	11.64	12.42	13.03
		0.25	12.04	6.96	8.26	9.33	10.27	11.37	12.34	13.23	13.90
		0.32	18.46	7.10	8.46	9.59	10.58	11.76	12.81	13.77	14.50
		0.38	26.20	7.19	8.60	9.77	10.80	12.03	13.14	14.15	14.93
		0.44	35.23	7.26	8.70	9.90	10.97	12.24	13.39	14.44	15.26
		0.50	45.57	7.32	8.78	10.01	11.09	12.40	13.58	14.67	15.51
	2 Row	0.13	4.16	8.78	11.05	12.78	14.16	15.58	16.69	17.57	18.17
		0.19	8.85	9.20	11.83	13.94	15.68	17.57	19.10	20.35	21.23
		0.25	15.17	9.42	12.23	14.56	16.52	18.69	20.48	21.99	23.06
		0.32	23.09	9.55	12.48	14.95	17.04	19.41	21.38	23.07	24.28
		0.38	32.57	9.63	12.65	15.21	17.40	19.90	22.01	23.83	25.14
		0.44	43.60	9.70	12.77	15.39	17.67	20.26	22.48	24.39	25.78
		0.50	56.16	9.74	12.86	15.54	17.87	20.54	22.83	24.82	26.27

Fan model	Coil Rows	Water volume (L/s)	Water pressure drop (kPa)	Air volume (m^3/h)									
				1189	1529	1869	2209	2549	2888	3228	3568	4060	4180
06SQ /07SQ	1 Row	0.13	4.10	9.15	10.11	10.98	11.74	12.41	13.00	13.54	14.03	14.67	14.82
		0.19	8.46	9.91	11.07	12.07	12.97	13.80	14.58	15.29	15.94	16.81	17.01
		0.25	14.22	10.34	11.61	12.73	13.73	14.66	15.51	16.30	17.07	18.08	18.32
		0.32	21.30	10.61	11.96	13.15	14.23	15.23	16.15	17.02	17.83	18.93	19.19
		0.38	29.68	10.80	12.20	13.45	14.59	15.64	16.62	17.54	18.40	19.57	19.84
	2 Row	0.13	7.71	14.01	15.83	17.23	18.33	19.23	19.97	20.59	21.11	21.75	21.89
		0.19	15.74	15.27	17.61	19.49	21.04	22.33	23.43	24.38	25.20	26.21	26.44
		0.25	26.24	15.94	18.58	20.75	22.58	24.14	25.49	26.67	27.71	29.00	29.29
		0.32	39.08	16.34	19.18	21.55	23.58	25.32	26.85	28.19	29.38	30.88	31.23
		0.38	54.19	16.62	19.59	22.11	24.27	26.15	27.80	29.27	30.58	32.24	32.62

Note: Leaving water temperature of hot water coil LWT should not exceed 60°C.
Heating capacity is based on entering air temperature of 21°C and entering water temperature of 82°C. Refer to correction factors different entering condifions, actual heating capacity = data in the table above × temperature correction factor

Entering water temperature minus entering air temperature EWT-EAT	22	27	33	38	44	50	55	61	67	72
Correction factor	0.355	0.446	0.537	0.629	0.722	0.814	0.907	1.000	1.093	1.187

By using the following equation, Leaving air temperature LAT and difference between entering water temperature and leaving water WTD temperature can be calculated.

$$LAT = EAT + \left[\frac{KW \times 2988}{M^3/H \text{ (Air volume)}} \right]$$

LAT: Outlet air temperature; EAT: Inlet air temperature

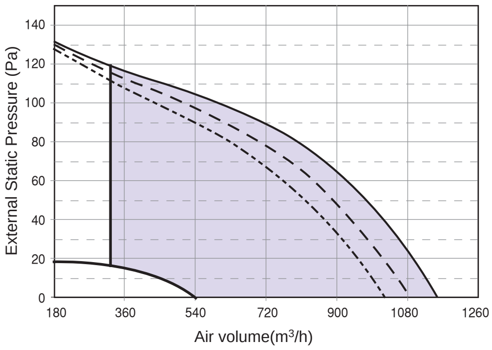
$$WTD = EWT - LWT = \left[\frac{KW}{4.19 \times L/S \text{ (Water volume)}} \right]$$

WTD: Difference between inlet water and outlet water; EWT: Entering water temperature; LWT: Leaving water temperature

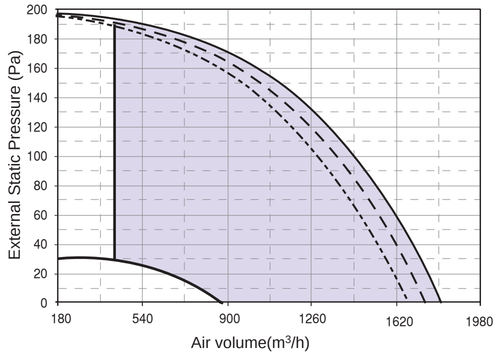
Performance Data
VariTrane Series Fan-Powered

Series Fan Curve

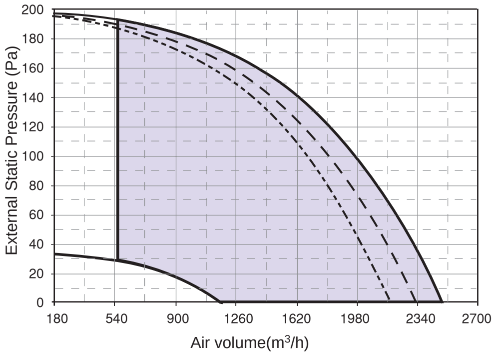
Series 02SQ-50 Hz



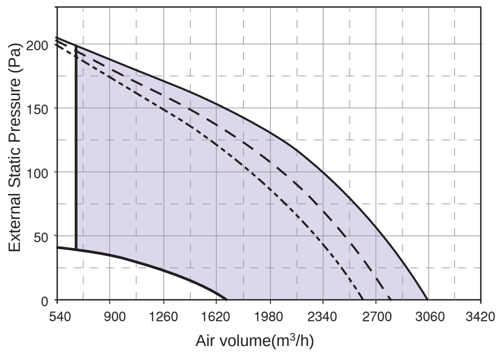
Series 03SQ-50 Hz



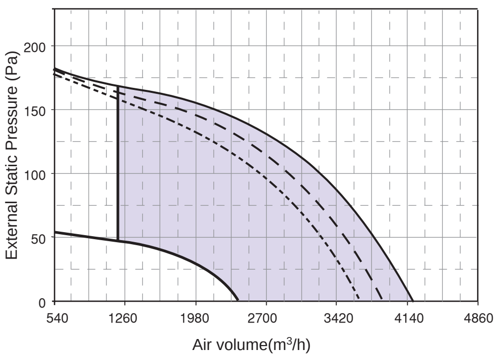
Series 04SQ-50 Hz



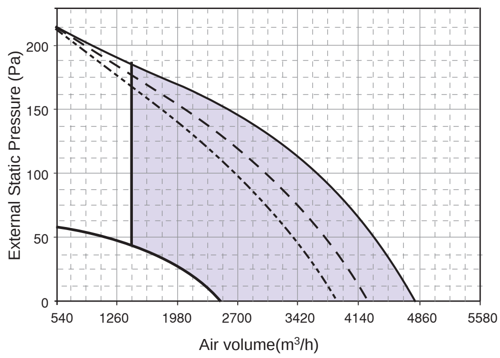
Series 05SQ-50 Hz



Series 06SQ-50 Hz



Series 07SQ-50 Hz

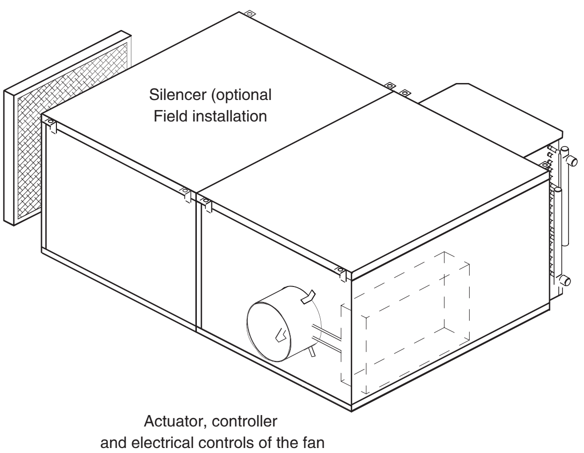


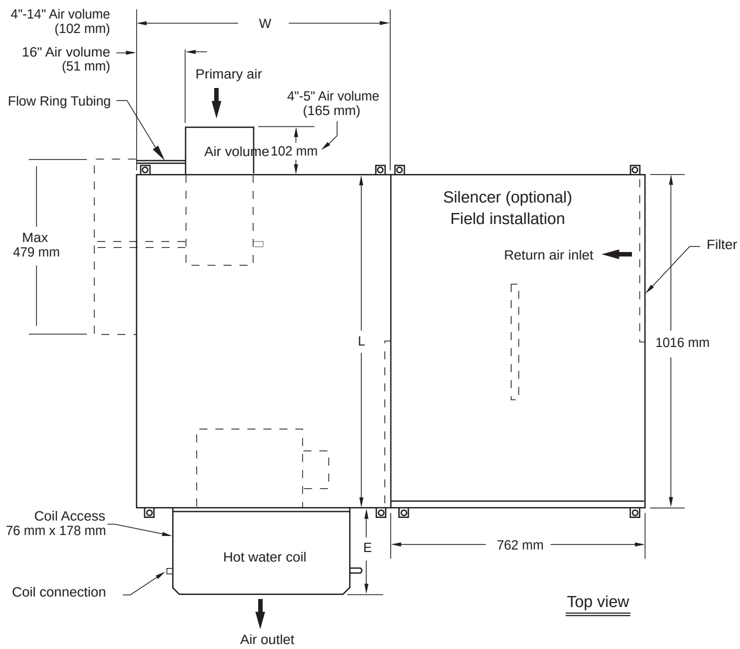
Max. air volume
Min. air volume
Max. air volume for 1 row coil
Max. air volume for 2 row coil

Dimensional Data
VariTrane Series Fan-Powered

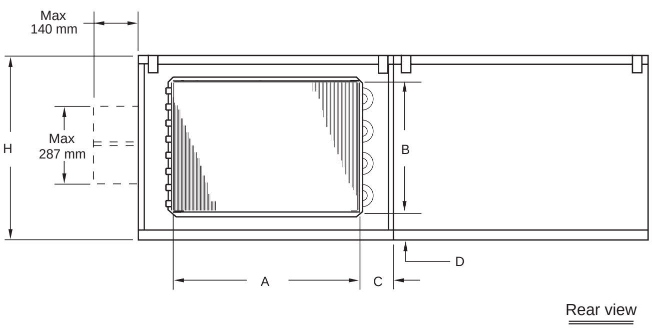
Dimension for Series Fan Powered with Hot Water Coil

Fan model	Overall dimension (mm)							
	L	H	W	Air outlet dimension		C	D	E
				A (h)	B (w)			
02SQ	864	394	559	305	356	127	17	171
03SQ	1016	445	610	483	406	64	19	273
04SQ	1016	445	610	483	406	64	19	273
05SQ	1016	445	762	610	406	76	19	273
06SQ	1016	546	762	610	457	76	42	171
07SQ	1016	546	762	610	457	76	42	171





Fan model	Filter Size (standard configuration)
02SQ	356 mm x 356 mm x 15 mm
03SQ 04SQ 05SQ	406 mm x 508 mm x 15 mm
06SQ 07SQ	508 mm x 508 mm x 15 mm

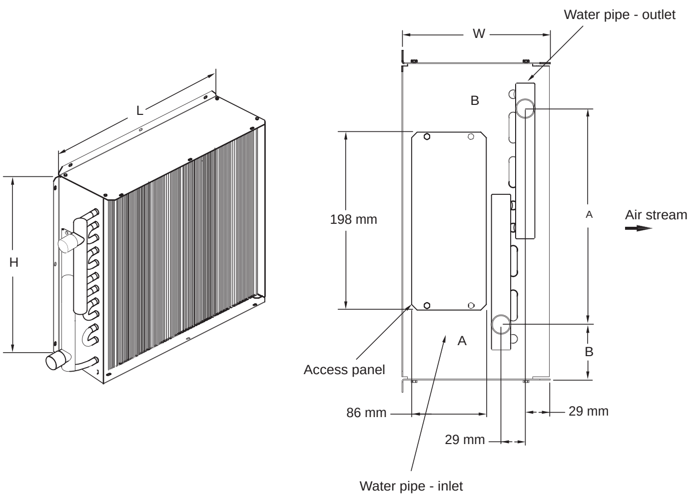


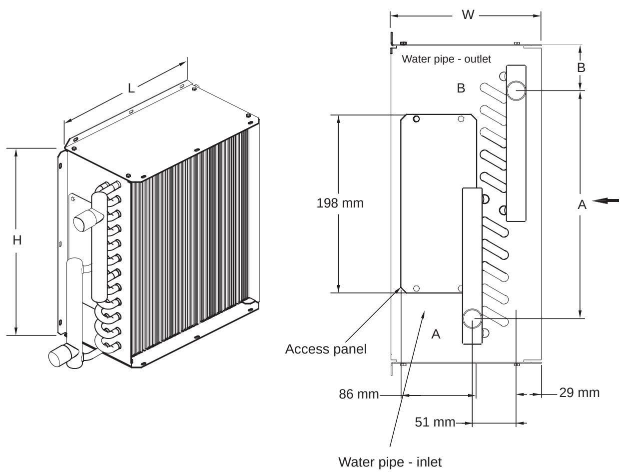
![TRANE]

Dimensional Data
VariTrane Series Fan-Powered

Dimension for Hot Water Coil

Fan model	Dimension of coil (mm)									
	1 Row					2 Row				
	A	B	L	H	W	A	B	L	H	W
02SQ	248	51	310	356	171	260	51	310	356	171
03SQ	349	51	533	406	273	349	51	533	406	273
04SQ	349	51	533	406	273	349	51	533	406	273
05SQ	349	51	610	406	273	349	51	610	406	273
06SQ	400	25	610	457	171	400	25	610	457	171
07SQ	400	25	610	457	171	400	25	610	457	171

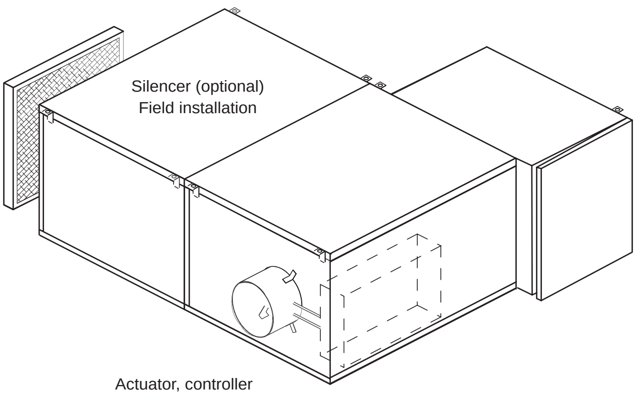




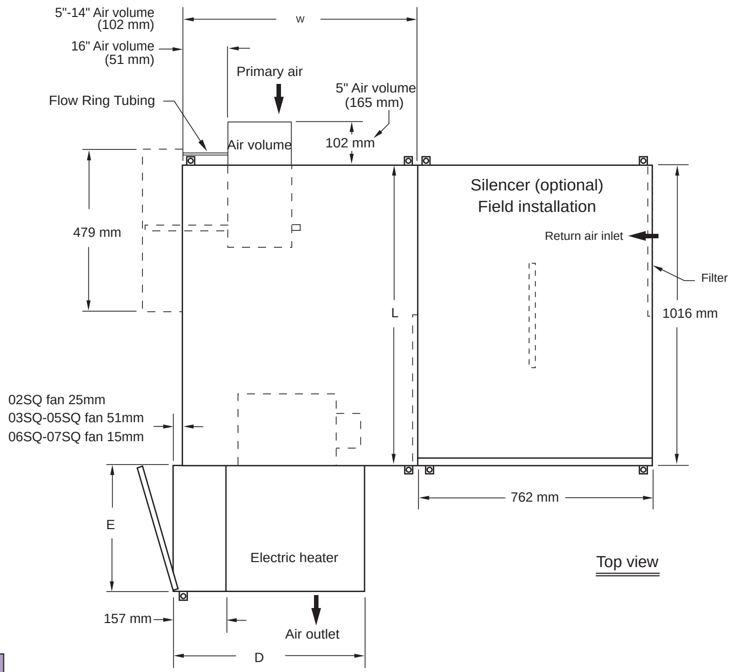
Dimensional Data
VariTrane Series Fan-Powered

Dimension for Series Fan-Powered with Electric Heating

Fan model	Overall dimension (mm)							
	L	H	W	Air outlet dimension A (h)	Air outlet dimension B (w)	C	D	E
02SQ	864	394	559	305	254	127	457	470
03SQ	1016	445	610	305	305	102	457	470
04SQ	1016	445	610	406	305	102	559	470
05SQ	1016	445	762	406	305	254	559	470
06SQ	1016	546	762	483	356	140	635	432
07SQ	1016	546	762	483	356	140	635	432

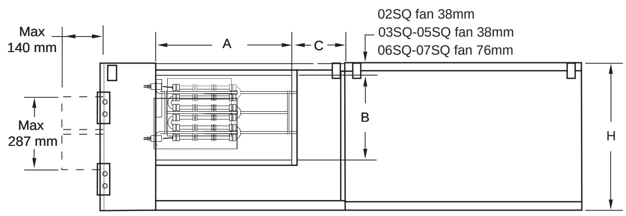


Actuator, controller
and electrical controls of the fan



Electric Heater (kW)

Model	Heating Stages	220V	380V
02SQ	1	1/2/3/4	1/2/3/4
	2	6	6
03SQ	1	1/2/3/4	1/2/3/4
	2	6/8	6/8/10
04SQ	1	1/2/3/4	1/2/3/4
	2	6/8	8/10/12/14
05SQ	1	1/2/3/4	2/4/6/8
	2	6/8	10/12/14/16
06SQ	1	1/2/3/4	2/4/6/8
	2	6/8	10/12/14/16/20
07SQ	1	1/2/3/4	2/4/6/8
	2	6/8	10/12/16/20



Rear view

Fan model	Filter Size (standard configuration)
02SQ	356 mm x 356 mm x 15 mm
03SQ 04SQ 05SQ	406 mm x 508 mm x 15 mm
06SQ 07SQ	508 mm x 508 mm x 15 mm

Performance Data
VariTrane Parallel Fan-Powered

Performance Data

VPCT Parallel Fan-Powered terminal device for cooling only

VPWT Parallel Fan-Powered terminal device with hot water coil

VPET Parallel Fan-Powered terminal device with electric heating

Air valve	Inlet diameter (mm)	Fan model	Air volume of fan m³/h	Air volume range for primary air m³/h	Overall dimension mm (L × W × H)	Weight (kg)
05	127	02SQ	320	68-595	864×1156×394	35
06	152	02SQ	320	101-850	864×1156×394	35
		03SQ	1470	101-850	927×1156×445	43
08	203	02SQ	320	180-1530	864×1156×394	35
		03SQ	1470	180-1530	927×1156×445	43
		04SQ	1830	180-1530	927×1156×445	44
10	254	02SQ	320	277-2380	64×1156×394	35
		03SQ	1470	277-2380	927×1156×445	43
		04SQ	1830	277-2380	927×1156×445	44
		05SQ	1900	277-2380	927×1156×445	50
		06SQ	2300	277-2380	1118×1156×546	53
		07SQ	2550	277-2380	1118×1156×546	57
12	305	03SQ	1470	400-3400	927×1156×445	43
		04SQ	1830	400-3400	927×1156×445	44
		05SQ	1900	400-3400	927×1156×445	50
		06SQ	2300	400-3400	1118×1156×546	53
		07SQ	2550	400-3400	1118×1156×546	57
14	356	04SQ	1830	544-5100	927×1156×445	44
		05SQ	1900	544-5100	927×1156×445	50
		06SQ	2300	544-5100	1118×1156×546	53
		07SQ	2550	544-5100	1118×1156×546	57
16	406	06SQ	2300	713-6800	1118×1156×546	53
		07SQ	2550	713-6800	1118×1156×546	57

Performance Data
VariTrane Parallel Fan-Powered

Hot Water Coil Performance Data (kW)

Fan model	Coil Rows	Water volume (L/s)	Water pressure drop (kPa)	Air volume (m^3/h)										
				170	255	340	425	510	595	680	765	850	934	1020
02SQ	1 Row	0.03	0.66	2.41	2.67	3.24	3.51	3.73	3.92	4.07	4.20	4.32	4.42	4.51
		0.06	2.26	2.69	3.37	3.85	4.24	4.56	4.84	5.09	5.32	5.55	5.76	5.95
		0.13	7.91	2.87	3.66	4.26	4.74	5.16	5.53	5.87	6.18	6.47	6.75	7.00
		0.19	16.57	2.93	3.77	4.41	4.93	5.39	5.80	6.18	6.52	6.85	7.16	7.46
		0.25	28.08	2.97	3.83	4.49	5.04	5.52	5.95	6.34	6.71	7.06	7.39	7.71
		0.32	42.34	2.99	3.87	4.54	5.10	5.59	6.04	6.45	6.83	7.19	7.53	7.86
	2 Row	0.06	3.89	2.92	4.05	5.00	5.80	6.49	7.07	7.58	8.02	8.40	8.74	9.05
		0.13	13.19	3.02	4.27	5.39	6.38	7.27	8.08	8.80	9.46	10.06	10.60	11.11
		0.19	27.13	3.05	4.35	5.52	6.58	7.55	8.43	9.24	9.99	10.68	11.32	11.92
		0.25	45.38	3.06	4.38	5.58	6.68	7.69	8.62	9.47	10.27	11.01	11.70	12.35
		0.32	67.73	3.07	4.40	5.62	6.74	7.77	8.73	9.61	10.44	11.21	11.93	12.61

Fan model	Coil Rows	Water volume (L/s)	Water pressure drop (kPa)	Air volume (m^3/h)										
				255	510	765	1019	1274	1529	1784	2039	2294	2549	2804
03SQ /04SQ /05SQ	1 Row	0.06	0.82	3.49	4.72	5.45	6.03	6.49	6.86	7.18	7.45	7.69	7.90	8.09
		0.13	3.06	3.85	5.46	6.51	7.33	8.02	8.62	9.17	9.67	10.12	10.53	10.91
		0.19	6.63	3.99	5.77	6.97	7.93	8.75	9.48	10.14	10.74	11.29	11.81	12.31
		0.25	11.51	4.07	5.94	7.22	8.27	9.17	9.97	10.71	11.38	12.01	12.60	13.15
		0.32	17.68	4.11	6.05	7.39	8.48	9.44	10.30	11.08	11.81	12.49	13.13	13.73
		0.38	25.13	4.15	6.12	7.50	8.64	9.63	10.53	11.35	12.12	12.84	13.51	14.15
		0.44	33.83	4.17	6.18	7.58	8.75	9.77	10.70	11.55	12.35	13.09	13.80	14.47
		0.50	43.79	4.19	6.22	7.65	8.83	9.88	10.83	11.71	12.52	13.29	14.02	14.71
		0.57	55.00	4.20	6.25	7.70	8.90	9.97	10.93	11.83	12.67	13.46	14.20	14.91
		0.63	67.45	4.21	6.28	7.74	8.96	10.04	11.02	11.93	12.78	13.59	14.35	15.08
	2 Row	0.06	1.06	4.10	6.52	8.01	9.06	9.78	10.31	10.70	11.02	11.27	11.48	11.65
		0.13	3.83	4.42	7.58	9.88	11.60	12.93	14.00	14.87	15.59	16.20	16.73	17.18
		0.19	8.20	4.50	7.91	10.53	12.60	14.27	15.65	16.81	17.80	18.66	19.40	20.07
		0.25	14.11	4.54	8.08	10.88	13.14	15.01	16.58	17.92	19.09	20.11	21.01	21.81
		0.32	21.52	4.57	8.18	11.09	13.47	15.47	17.17	18.64	19.92	21.06	22.07	22.97
		0.38	30.42	4.58	8.25	11.23	13.70	15.79	17.58	19.14	20.51	21.73	22.82	23.81
		0.44	40.78	4.60	8.30	11.33	13.87	16.02	17.88	19.51	20.95	22.23	23.39	24.43
		0.50	52.59	4.61	8.33	11.41	13.99	16.20	18.12	19.80	21.29	22.62	23.82	24.91
		0.57	65.84	4.61	8.36	11.47	14.09	16.34	18.30	20.02	21.56	22.93	24.17	25.30
		0.63	80.52	4.62	8.39	11.52	14.17	16.45	18.45	20.21	21.77	23.18	24.46	25.62

Fan model	Coil Rows	Water volume (L/s)	Water pressure drop (kPa)	Air volume (m^3/h)										
				1529	1699	1869	2039	2209	2379	2549	2718	2888	3058	3230
06SQ /07SQ	1 Row	0.03	0.33	5.18	5.27	5.35	5.42	5.48	5.54	5.59	5.64	5.68	5.72	5.76
		0.06	1.09	7.74	7.98	8.20	8.41	8.59	8.76	8.91	9.06	9.20	9.32	9.44
		0.13	3.71	9.43	9.85	10.24	10.60	10.94	11.26	11.57	11.86	12.13	12.39	12.64
		0.19	7.68	10.29	10.77	11.23	11.66	12.06	12.46	12.84	13.21	13.56	13.90	14.22
		0.25	12.92	10.78	11.31	11.82	12.30	12.75	13.19	13.61	14.01	14.40	14.78	15.15
		0.32	19.39	11.10	11.66	12.20	12.71	13.20	13.67	14.13	14.57	14.99	15.40	15.79
		0.38	27.04	11.32	11.91	12.47	13.01	13.52	14.02	14.50	14.96	15.40	15.84	16.26
		0.44	35.84	11.48	12.09	12.67	13.23	13.76	14.27	14.77	15.25	15.72	16.17	16.61
	2 Row	0.06	2.02	11.26	11.57	11.84	12.06	12.26	12.43	12.58	12.71	12.83	12.93	13.03
		0.13	6.70	14.96	15.64	16.25	16.80	17.28	17.72	18.12	18.48	18.82	19.12	19.40
		0.19	13.65	16.60	17.51	18.33	19.07	19.74	20.36	20.93	21.45	21.94	22.39	22.81
		0.25	22.70	17.51	18.54	19.49	20.36	21.15	21.89	22.57	23.20	23.80	24.35	24.87
		0.32	33.76	18.07	19.20	20.23	21.18	22.06	22.88	23.64	24.35	25.02	25.64	26.23
		0.38	46.74	18.46	19.65	20.75	21.76	22.70	23.58	24.39	25.16	25.88	26.56	27.20
		0.44	61.61	18.75	19.98	21.12	22.18	23.17	24.09	24.95	25.76	26.52	27.24	27.93

Note: Leaving water temperature of hot water coil LWT should not exceed 60°C.

Heating capacity is based on entering air temperature of 21°C and entering water temperature of 82°C. Refer to correction factors for different entering condifions, actual heating capacity = data in the table above × temperature correction factor

In case the data required by customer exceeds the range in the table, please contact our technical support.

Entering water temperature minus entering air temperature EWT-EAT	22	27	33	39	44	50	55	61	67	72
Correction factor	0.355	0.446	0.537	0.629	0.722	0.814	0.907	1.000	1.093	1.187

By using the following equation, Leaving air temperature LAT and difference between entering water temperature and outlet water temperature WTD can be calculated.

$$LAT = EAT + \left[\frac{KW \times 2988}{M^3/H \text{ (Air volume)}} \right]$$

LAT: Outlet air temperature; EAT: Inlet air temperature

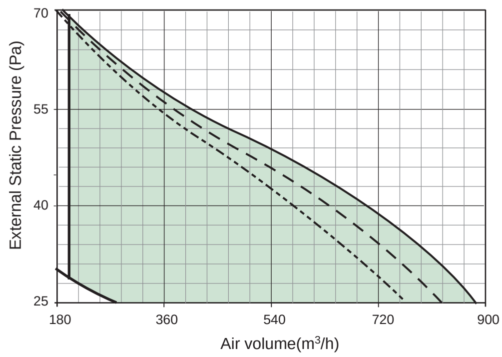
$$WTD = EWT - LWT = \left[\frac{KW}{4.19 \times L/S \text{ (Water volume)}} \right]$$

WTD: Difference between inlet water and outlet water; EWT: Entering water temperature; LWT: Leaving water temperature

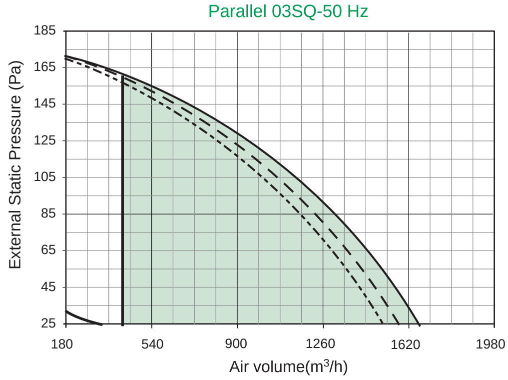
Performance Data
VariTrane Parallel Fan-Powered

Parallel Fan Curve

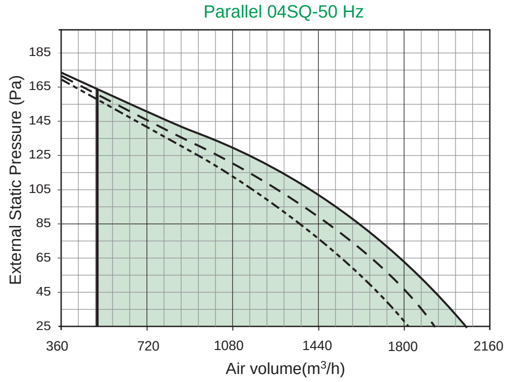
Parallel 02SQ-50 Hz



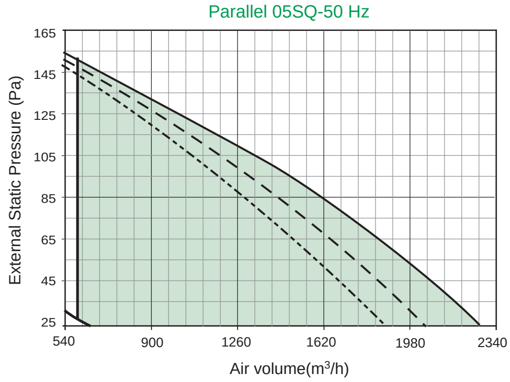
Parallel 03SQ-50 Hz



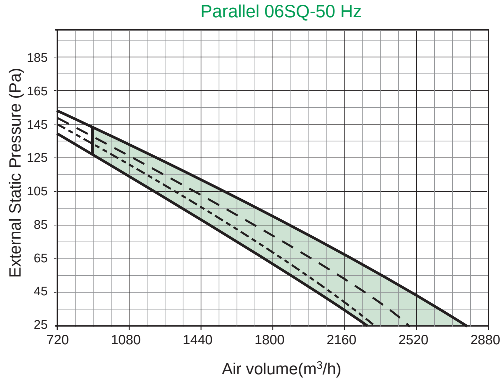
Parallel 04SQ-50 Hz



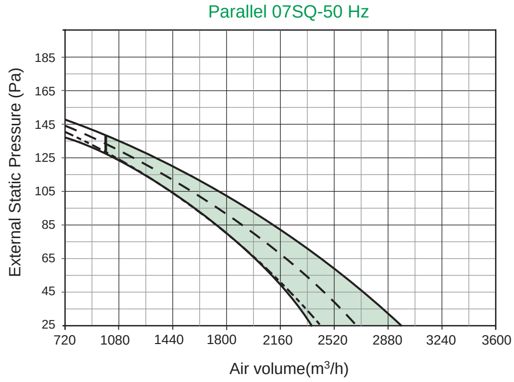
Parallel 05SQ-50 Hz



Parallel 06SQ-50 Hz



Parallel 07SQ-50 Hz

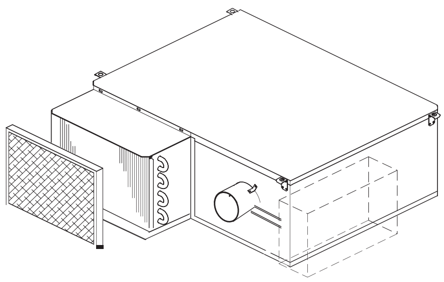


Max. air volume
Min. air volume
Max. air volume for 1 row
Max. air volume for 2 row

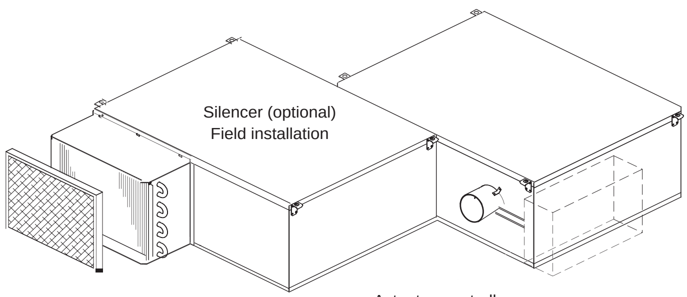
Dimensional Data
VariTrane Parallel Fan-Powered

Dimension for Parallel Fan-Powered with Hot Water Coil – Coil at Return Air Inlet

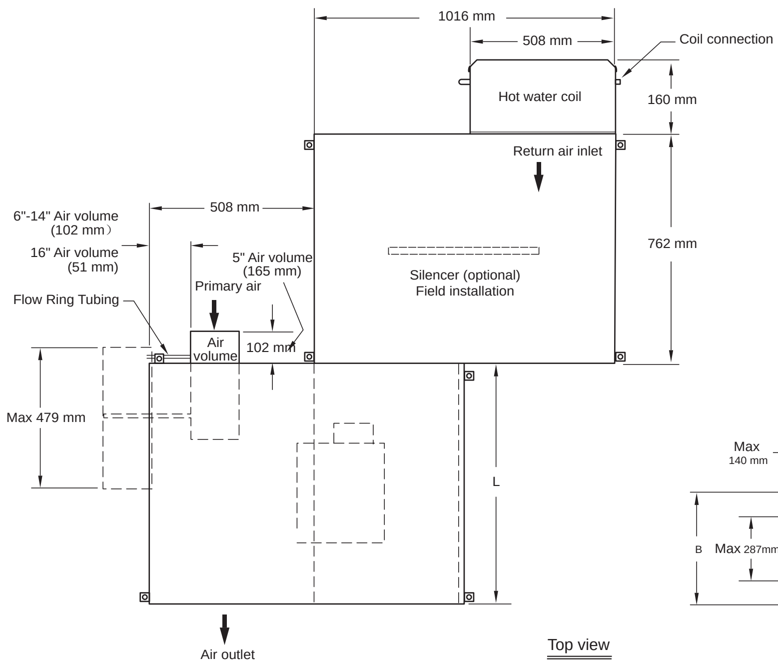
Fan model	Overall dimension (mm)				
	L	H	W	Air outlet dimension	
				A (h)	B (w)
02SQ	762	394	1016	489	356
03SQ	826	445	1016	489	406
04SQ	826	445	1016	489	406
05SQ	826	445	1016	489	406
06SQ	1016	546	1016	489	508
07SQ	1016	546	1016	489	508



Actuator, controller
and electrical controls of the fan

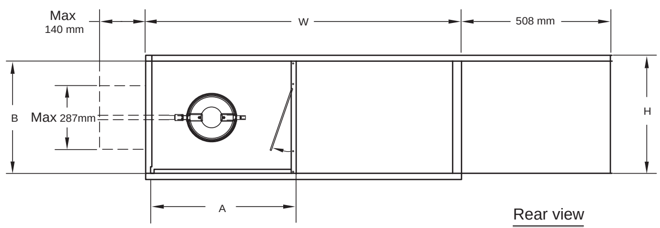


Actuator, controller
and electrical controls of the fan



Top view

Fan model	Filter Size (standard configuration)
02SQ	356 mm x 508 mm x 15 mm
03SQ 04SQ 05SQ	406 mm x 508 mm x 15 mm
06SQ 07SQ	508 mm x 508 mm x 15 mm

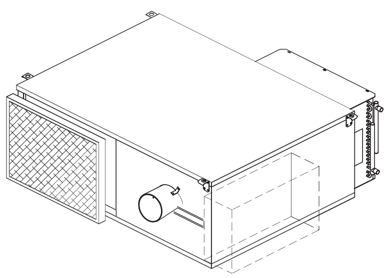


Rear view

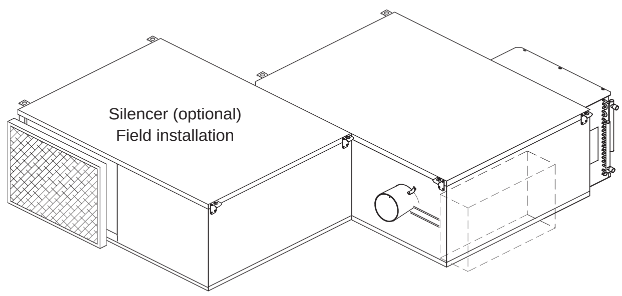
Dimensional Data
VariTrane Parallel Fan-Powered

Dimension for Parallel Fan-Powered Hot Water Coil – Coil at Air Outlet

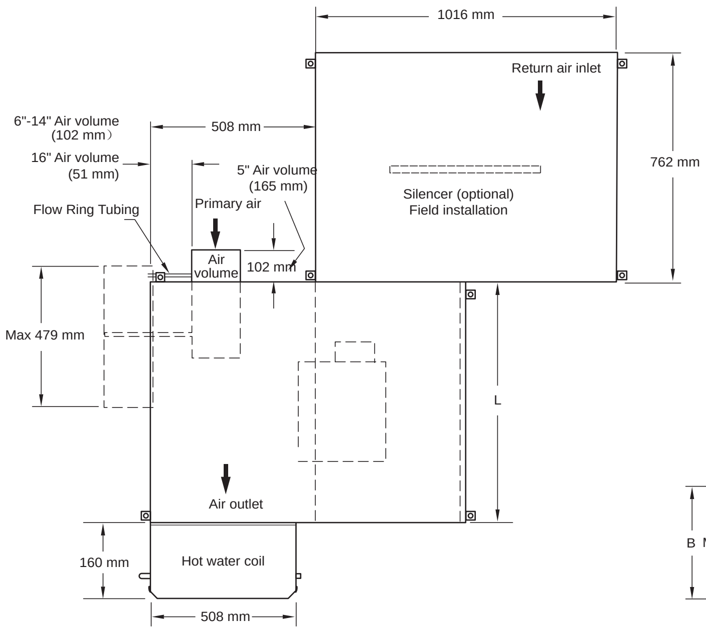
Fan model	Overall dimension (mm)				
	L	H	W	Air outlet dimension	
				A (h)	B (w)
02SQ	762	394	1016	508	356
03SQ	826	445	1016	508	406
04SQ	826	445	1016	508	406
05SQ	826	445	1016	508	406
06SQ	1016	546	1016	508	508
07SQ	1016	546	1016	508	508



Actuator, controller
and electrical controls of the fan

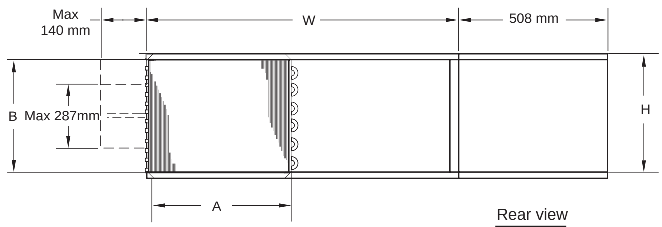


Actuator, controller
and electrical controls of the fan



Top view

Fan model	Filter size (standard configuration)
02SQ	356 mm x 508 mm x 15 mm
03SQ 04SQ 05SQ	406 mm x 508 mm x 15 mm
06SQ 07SQ	508 mm x 508 mm x 15 mm

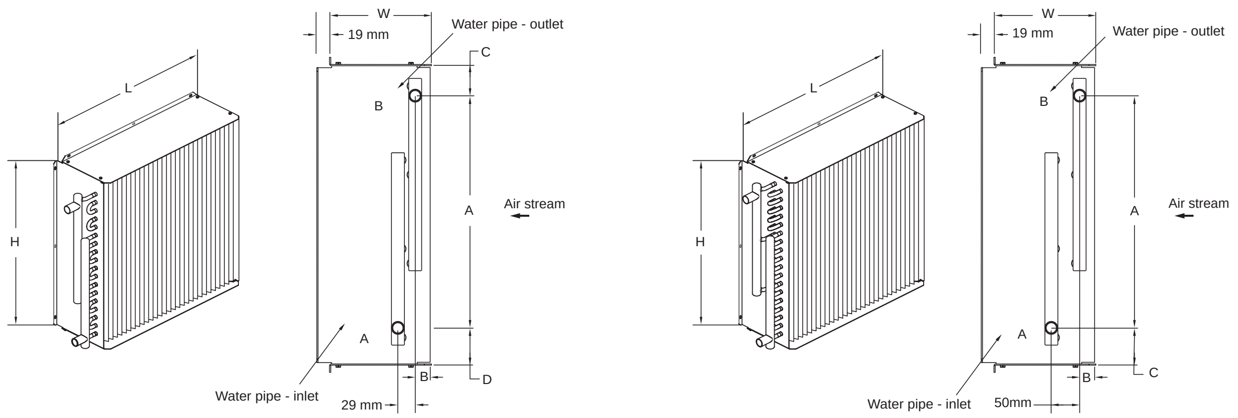


Rear view

Dimensional Data
VariTrane Parallel Fan-Powered

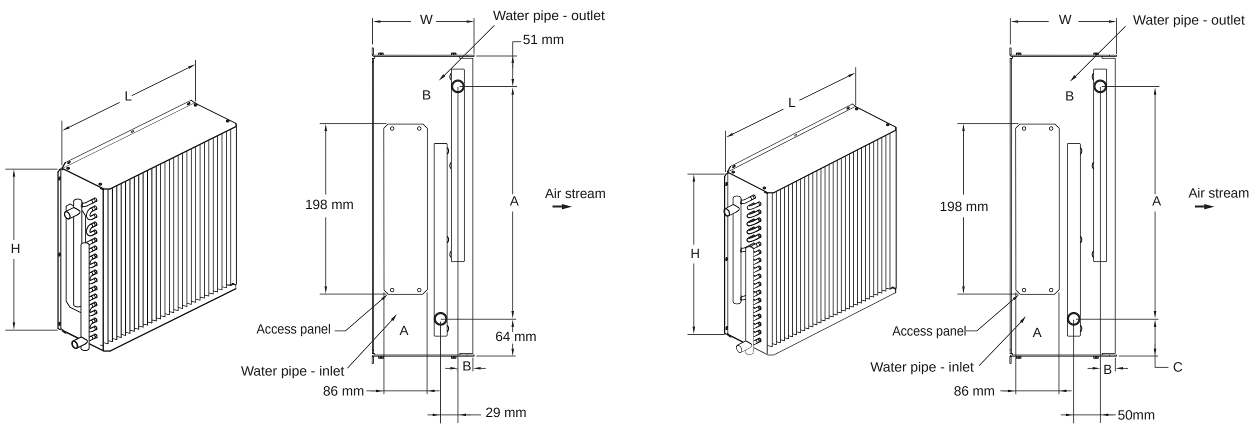
Dimension for Hot Water Coil at Air Inlet

Fan model	Dimension of coil (mm)												
	1 Row							2 Row					
	A	B	C	D	L	H	W	A	B	C	L	H	W
02SQ	248	33	51	64	513	359	171	260	32	173	513	359	171
03SQ	349	25	25	38	508	406	160	349	25	170	508	406	160
04SQ	349	25	25	38	508	406	160	349	25	170	508	406	160
05SQ	349	25	25	38	508	406	160	349	25	170	508	406	160
06SQ	400	32	51	64	513	513	171	400	28	173	513	513	171
07SQ	400	32	51	64	513	513	171	400	28	173	513	513	171



Dimension for Hot Water Coil at Air Outlet

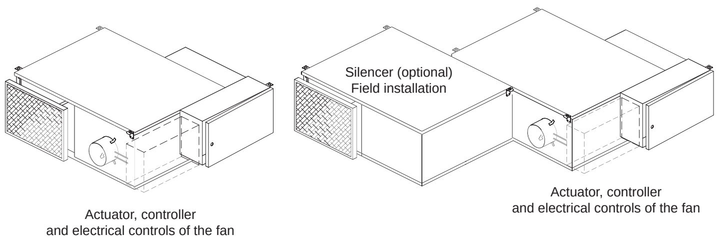
Fan model	Dimension of coil (mm)											
	1 Row					2 Row						
	A	B	L	H	W	A	B	C	D	L	H	W
02SQ	248	41	513	359	171	248	41	173	51	513	359	171
03SQ	349	41	508	406	160	349	25	170	25	508	406	160
04SQ	349	41	508	406	160	349	25	170	25	508	406	160
05SQ	349	41	508	406	160	349	25	170	25	508	406	160
06SQ	400	41	513	513	171	400	32	173	51	513	513	171
07SQ	400	41	513	513	171	400	32	173	51	513	513	171

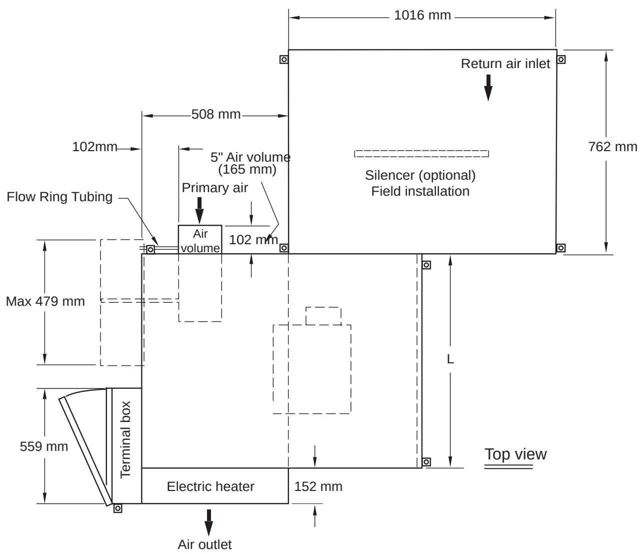


Dimensional Data
VariTrane Parallel Fan-Powered

Dimension of Parallel Fan-Powered with Heater

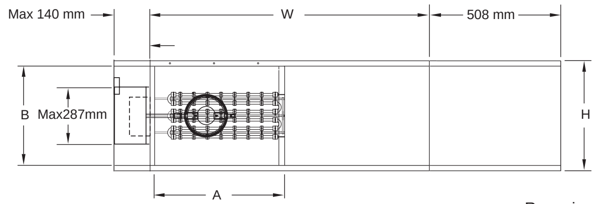
Fan model	Overall dimension (mm)				
	L	H	W	Air outlet dimension	
				A (h)	B (w)
02SQ	762	394	1016	508	356
03SQ	826	445	1016	508	406
04SQ	826	445	1016	508	406
05SQ	826	445	1016	508	406
06SQ	1016	546	1016	508	508
07SQ	1016	546	1016	508	508





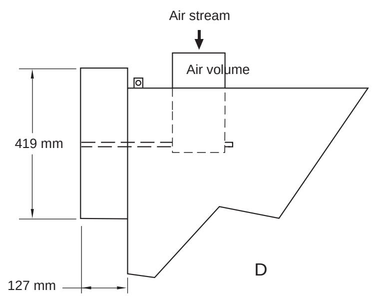
Top view

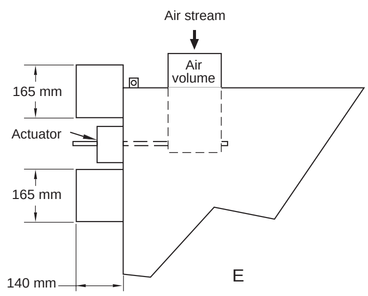
Fan model	Filter Size (standard configuration)
02SQ	356 mm x 508 mm x 15 mm
03SQ 04SQ 05SQ	406 mm x 508 mm x 15 mm
06SQ 07SQ	508 mm x 508 mm x 15 mm



Rear view

Outline Schematic of Electrical Control Box





Control type		DD01-DD04	DD011-DD014	FM00
Fan model	02SQ	D	D	D
	03SQ 04SQ 05SQ	D	D	D
	06SQ 07SQ	E	D	D

Electric Heater (kW)

Model	Heating stages	220V	380V
02SQ	1	1/2/3	1/2/3
	2	-	-
03SQ	1	1/2/3/4	1/2/3/4
	2	6/8	6/8
04SQ	1	1/2/3/4	1/2/4/6
	2	6/8	8/10/12
05SQ	1	1/2/3/4	1/2/4/6
	2	6/8	8/10/12/14
06SQ	1	1/2/3/4	1/2/4/6
	2	6/8	8/10/12
07SQ	1	1/2/3/4	2/4/6/8
	2	6/8	10/12/14/16

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For more information, contact your local Trane office or e-mail us at comfort@trane.com

Literature Order Number	VAV-PRC010-EN
Date	Mar 2024
Supersedes	Mar 2013