VTS GROUP – The manufacturer of technologically advanced devices for the HVAC industry applying innovative technologies in the field of design research, production and logistics.

OUR MISSION

24/7 IMMEDIATE AVAILABILITY

* - Logistics center
3 constituents of success

The highest quality of products. The best prices on the market. The shortest delivery times. These three pillars of our market policy are why VTS is always one step ahead worldwide.

Following the best world practices from the automotive industry, VTS has created a network of 5 efficient production & logistics centers (Atlanta, Dubai, Moscow, Shanghai, Warsaw, Bangalore) to guarantee the shortest delivery time on the market, regardless of your location.

Mass production scale of universally repeatable devices allows VTS to offer them in the most competitive prices, while maintaining the highest quality.

A multi-level control system allows VTS to offer a 3-year warranty for devices as a standard.
WING is the new generation device created from a passion for a light and modern design representing characteristics of gliders. A minimal casing with a streamlined form of a wing that seems to float in the air. The diamond style side panels hide the excellent components in an innovative curtain body to set new standards for air curtains. WING combines the unique design and excellent efficiency to redefine the air curtain image.
Silence and power

- **LOW RESISTANCE OF THE AIR INLET**
  A larger surface of the air inlet allows the heat exchanger to be fully utilized.

- **OPTIMAL AIR FLOW RATE**
  The special design of the blades ensures an increase in the air stream range by 20% compared to conventional approaches. Larger air intake area makes it possible to take full advantage of heat exchanger power.

- **CONFIGURED TO BUILDING SPECIFICATIONS**
  The Electronically Controlled motor allows an easy adjustment of the Wing to any protected entryway requirements.

- **QUIET OPERATION**
  The device design supports the air flow and effectively reduces the level of sound emitted to the environment.
COMBINATION OF FUNCTIONALITY AND DESIGN

A characteristic diamond-shaped element of the side cover not only protects the inlet of the engine cooling system but also fulfills an inspective function.
Quality and design

SIMPLE CLEANING
Thanks to the optimized construction of the covers, cleaning the curtain is comfortable and does not require the disassembly of any part, always ensuring hygienic operation.

GALVANIZED STEEL CASING
Double coating (galvanization + powder paint) provides long-term protection against corrosion and consistent aesthetic qualities.

HIGH EFFICIENCY
High power output is a result of applying a heater with large heat exchange surface arranged in a uniform air stream.

ELECTRICITY SAVINGS
Modern design of the engine and fan saves up to 60% of energy compared to conventional solutions.
Product range

**WATER HEAT EXCHANGER**
- HEATING POWER RANGE: 4 – 47 kW
- EXHAUST FLOW RATE: 1850 – 4400 m³/h
- MAXIMUM AIR COVERAGE: 3.7 m

**ELECTRIC HEATER**
- HEATING POWER RANGE: 2 – 15 kW
- EXHAUST FLOW RATE: 1850 – 4400 m³/h
- MAXIMUM AIR COVERAGE: 3.7 m

**WITHOUT HEAT EXCHANGER (AMBIENT)**
- HEATING POWER RANGE: 2 – 15 kW
- EXHAUST FLOW RATE: 1950 – 4600 m³/h
- MAXIMUM AIR COVERAGE: 4 m

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**STREAM RANGE**

- Vertical air stream range (maximum installation height)
- Horizontal air stream range (for vertical installation)

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**Accessories**

- **HMI WING EC controller**
  - modern and compact design
  - high contrast and clear screen
  - advanced calendar for each day in the week
  - door sensor cooperation
  - BMS systems compatibility
  - preset 3-levels speed control
  - build-in thermostat
  - 3 levels of heating power
  - up to 8 air curtains connected with one controller

- **Door Optimum function**
  - Door Optimum function allows to maintain full protection of the door opening and at the same time optimize costs associated with its operation. It keeps the air curtain operating on minimum speed, and when the doors are going to be open protect the door opening from the first moment, against access of the outside air. Opening the door increases also the speed of air by +1 or +2 levels, depending on user’s preferences.

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**HMI WING EC controller**

- **Wall controller WING/VOLCANO**
- **Door sensor ( Reed switch)**
- **Valve with actuator (VA-VHE/01/1/1)**
- **Flex. connecting hoses (set)**

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**Heater**

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Every WING Air Curtain can be mounted horizontally and vertically, except for electric. Electric is the only air curtain that cannot be mounted vertically. Due to the slim design, very small height of the housing and the inclined air inlet, the device may be mounted in a limited space above the door, without any effect on performance.

3.2 INSTALLATION EXAMPLE

HORIZONTAL INSTALLATION

VERTICAL INSTALLATION

Electric curtain cannot be mounted vertically!
### TECHNICAL PARAMETERS

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Unit</th>
<th>WATER AIR CURTAIN</th>
<th>ELECTRIC AIR CURTAIN</th>
<th>AMBIENT AIR CURTAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTS article No.</td>
<td></td>
<td>Wing E100</td>
<td>Wing E150</td>
<td>Wing E200</td>
</tr>
<tr>
<td>maximum door width</td>
<td>m</td>
<td>1</td>
<td>1.5</td>
<td>2</td>
</tr>
<tr>
<td>maximum door height (vertical stream range)</td>
<td>m</td>
<td>3.7</td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td>maximum exhaust flow rate***</td>
<td>m³/h</td>
<td>1850</td>
<td>3100</td>
<td>4400</td>
</tr>
<tr>
<td>heating power range</td>
<td>kW</td>
<td>4-17</td>
<td>10-32</td>
<td>17-47</td>
</tr>
<tr>
<td>maximum temperature of heating agent</td>
<td>°C</td>
<td>95</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>maximum operating pressure</td>
<td>MPa</td>
<td>1.6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>water volume</td>
<td>dm³</td>
<td>1.6</td>
<td>2.6</td>
<td>3.6</td>
</tr>
<tr>
<td>number of heat exchanger rows</td>
<td>pcs</td>
<td>2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>supply voltage</td>
<td>V/ph/Hz</td>
<td>~230/1/50</td>
<td>~230/1/50 for 2/4/6kW</td>
<td>~400/3/50 for 2/4/6kW</td>
</tr>
<tr>
<td>electric heating coil power</td>
<td>kW</td>
<td>-</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>electric heating coil current draw</td>
<td>A</td>
<td>-</td>
<td>max 9</td>
<td>6/11,3/17,3</td>
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<tr>
<td>motor power</td>
<td>kW</td>
<td>0.235</td>
<td>0.2</td>
<td>0.375</td>
</tr>
<tr>
<td>rated current</td>
<td>A</td>
<td>1.2</td>
<td>1.1</td>
<td>1.7</td>
</tr>
<tr>
<td>weight (without water)</td>
<td>kg</td>
<td>23</td>
<td>21.5</td>
<td>22</td>
</tr>
<tr>
<td>protection rating</td>
<td>IP</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>casing colour</td>
<td></td>
<td>RAL 9016, outlet grid: RAL 9022</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** available heating power in the control option configuration: Wing E100 2/6 kW or 4/6 kW, for Wing E150 4/12 kW or 8/12 kW, for Wing C200 6/15 kW or 9/15 kW

*** air stream range depends on curtain operation speed

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**SAMPLE CONNECTION DIAGRAM FOR THE AIR CURTAIN**

1. Power supply 230V/50 Hz
2. Main switch, fuses
3. WING W100/150/200
4. Wall controller WING/VOLCANO
5. Valve with actuator

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**TECHNICAL PARAMETERS**

1. Power supply 230V/50 Hz
2. Main switch, fuses
3. WING W100/150/200
4. Wall controller WING/VOLCANO
5. Valve with actuator

---

1. Power supply 230V/50 Hz
2. Main switch, fuses
3. WING W100/150/200
4. HMI WING EC controller

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**ALL EC AIR CURTAINS ARE CHARACTERIZED BY EASE AND SIMPLICITY OF CONNECTION**
### Technical parameters

**AIR CURTAINS WITH WATER HEATERS**

#### WING W100 (WATER AIR CURTAIN)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>T/T°</th>
<th>90/70°C</th>
<th>80/60°C</th>
<th>70/50°C</th>
<th>60/40°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>T°</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qw [kW]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qp [kW]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Δp [kPa]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### WING W200 (WATER AIR CURTAIN)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>T/T°</th>
<th>90/70°C</th>
<th>80/60°C</th>
<th>70/50°C</th>
<th>60/40°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>T°</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qw [kW]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qp [kW]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Δp [kPa]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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</table>

#### AMBIENT AIR CURTAINS

#### WING C100, C150, C200 (AMBIENT CURTAINS)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>WING C100</th>
<th>WING C150</th>
<th>WING C200</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAN SPEED</td>
<td>I</td>
<td>II</td>
<td>III</td>
</tr>
<tr>
<td></td>
<td>I</td>
<td>II</td>
<td>III</td>
</tr>
<tr>
<td>Op [m³/h]</td>
<td>1050</td>
<td>1500</td>
<td>1950</td>
</tr>
<tr>
<td></td>
<td>1500</td>
<td>2250</td>
<td>3200</td>
</tr>
<tr>
<td></td>
<td>2340</td>
<td>3400</td>
<td>4600</td>
</tr>
</tbody>
</table>

*measuring conditions: semi-open space, horizontal mounting on the wall, the measurement performed at the distance of 5m from the device*
## TECHNICAL PARAMETERS

### WING E100 (ELECTRIC AIR CURTAIN)

<table>
<thead>
<tr>
<th>$T_p$</th>
<th>$Q_p$ [m³/h]</th>
<th>$P_g$ [kW]</th>
<th>$T_{p2}$ [°C]</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>1850</td>
<td>2/4/6</td>
<td>8/11/15</td>
</tr>
<tr>
<td></td>
<td>1400</td>
<td>2/4/6</td>
<td>9/12/16</td>
</tr>
<tr>
<td></td>
<td>920</td>
<td>2/4/6</td>
<td>11/16/21</td>
</tr>
<tr>
<td>10</td>
<td>1850</td>
<td>2/4/6</td>
<td>13/16/20</td>
</tr>
<tr>
<td></td>
<td>1400</td>
<td>2/4/6</td>
<td>14/17/21</td>
</tr>
<tr>
<td></td>
<td>920</td>
<td>2/4/6</td>
<td>16/21/26</td>
</tr>
<tr>
<td>15</td>
<td>1850</td>
<td>2/4/6</td>
<td>19/23/26</td>
</tr>
<tr>
<td></td>
<td>1400</td>
<td>2/4/6</td>
<td>21/26/31</td>
</tr>
<tr>
<td></td>
<td>920</td>
<td>2/4/6</td>
<td>23/26/30</td>
</tr>
<tr>
<td>20</td>
<td>1850</td>
<td>2/4/6</td>
<td>26/31/36</td>
</tr>
<tr>
<td></td>
<td>1400</td>
<td>2/4/6</td>
<td>24/27/31</td>
</tr>
<tr>
<td></td>
<td>920</td>
<td>2/4/6</td>
<td>24/27/30</td>
</tr>
</tbody>
</table>

### WING E150 (ELECTRIC AIR CURTAIN)

<table>
<thead>
<tr>
<th>$T_p$</th>
<th>$Q_p$ [m³/h]</th>
<th>$P_g$ [kW]</th>
<th>$T_{p2}$ [°C]</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>3150</td>
<td>4/8/12</td>
<td>9/12/15</td>
</tr>
<tr>
<td></td>
<td>2050</td>
<td>4/8/12</td>
<td>10/14/19</td>
</tr>
<tr>
<td></td>
<td>1450</td>
<td>4/8/12</td>
<td>13/19/26</td>
</tr>
<tr>
<td>10</td>
<td>3150</td>
<td>4/8/12</td>
<td>14/17/20</td>
</tr>
<tr>
<td></td>
<td>2050</td>
<td>4/8/12</td>
<td>15/19/24</td>
</tr>
<tr>
<td></td>
<td>1450</td>
<td>4/8/12</td>
<td>18/24/31</td>
</tr>
<tr>
<td>15</td>
<td>3150</td>
<td>4/8/12</td>
<td>19/22/25</td>
</tr>
<tr>
<td></td>
<td>2050</td>
<td>4/8/12</td>
<td>20/24/29</td>
</tr>
<tr>
<td></td>
<td>1450</td>
<td>4/8/12</td>
<td>23/29/36</td>
</tr>
<tr>
<td>20</td>
<td>3150</td>
<td>4/8/12</td>
<td>24/27/30</td>
</tr>
<tr>
<td></td>
<td>2050</td>
<td>4/8/12</td>
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</tr>
<tr>
<td></td>
<td>1450</td>
<td>4/8/12</td>
<td>28/34/41</td>
</tr>
</tbody>
</table>

### WING E200 (ELECTRIC AIR CURTAIN)

<table>
<thead>
<tr>
<th>$T_p$</th>
<th>$Q_p$ [m³/h]</th>
<th>$P_g$ [kW]</th>
<th>$T_{p2}$ [°C]</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4500</td>
<td>6/9/15</td>
<td>9/10/14</td>
</tr>
<tr>
<td></td>
<td>3200</td>
<td>6/9/15</td>
<td>10/12/16</td>
</tr>
<tr>
<td></td>
<td>2150</td>
<td>6/9/15</td>
<td>12/15/21</td>
</tr>
<tr>
<td>10</td>
<td>4500</td>
<td>6/9/15</td>
<td>14/15/19</td>
</tr>
<tr>
<td></td>
<td>3200</td>
<td>6/9/15</td>
<td>15/17/21</td>
</tr>
<tr>
<td></td>
<td>2150</td>
<td>6/9/15</td>
<td>17/20/26</td>
</tr>
<tr>
<td>15</td>
<td>4500</td>
<td>6/9/15</td>
<td>19/20/24</td>
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<td></td>
<td>3200</td>
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<td>6/9/15</td>
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<td></td>
<td>3200</td>
<td>6/9/15</td>
<td>25/27/31</td>
</tr>
<tr>
<td></td>
<td>2150</td>
<td>6/9/15</td>
<td>27/30/36</td>
</tr>
</tbody>
</table>

**LEGEND**

- $T_{p1}$: air temperature at the inlet to the device
- $T_{p2}$: air temperature at the outlet from the device
- $P_g$: heating power of the device
- $Q_p$: air flow

* available heating capacities in the configuration of control options: Wing E100 2/6kW or 4/6kW, for Wing E150 4/12kW or 8/12kW. For Wing E200 6/15kW or 9/15kW.
### FAQ

1. **HOW TO CHOOSE A PROPER AIR CURTAIN?**
The width of the air outlet from the air curtain should be wider than or equal to the width of the door opening. In order to ensure effective protection, set the fan speed to such a level that regardless of the mounting height, the air speed near the floor is not less than 2 m/s.

2. **CAN ALL KINDS OF WING AIR CURTAINS BE MOUNTED IN A VERTICAL AND HORIZONTAL POSITION?**
All devices, regardless of the length, are designed to be installed both ways: horizontally (WING W/E/C) and vertically (WING W/C). In the case of vertical installation it is possible to mount the motor pointing upwards or downwards. The mounting method does not affect system stability in any way. Please note that the air curtains with electrical heaters (WING E100-E200) are not suitable for vertical mounting.

3. **HOW TO ADJUST THE ROTATIONAL SPEED OF THE WING CURTAIN DEPENDING ON THE EXPECTED MOUNTING HEIGHT?**
Each model of WING curtains has three stages of fan speed forced by the controller.

4. **WHAT ARE AMBIENT CURTAINS?**
WING ambient curtains are air curtains without any function of air heating. Such curtains are not equipped with a water or electric heater. From the user’s point of view this means that regardless of the mounting height, the air speed near the floor is not less than 2 m/s.

5. **WHAT TEMPERATURE OF THE AIR AT THE INLET SHOULD BE TAKEN INTO ACCOUNT FOR CALCULATING THE HEATING POWER?**
The air temperature prevailing in the room or the temperature to be set and maintained by other heating systems.

6. **DO THE CONTROLLER WING AND WING EC HAVE THE POSSIBILITY OF ADJUSTING THE LEVEL OF THE CURTAIN’S HEATING POWER?**
Yes, the controller Wing EC allows adjustment of heating power of the WING E. For WING W equipped with a valve it is possible to enable or disable function of heating. Without a valve, the heat exchanger remains in the free flow of the heating agent.

7. **WHY IT IS NOT RECOMMENDED TO CONNECT THE DOOR SWITCH ALONG WITH THE VALVE AND ACTUATOR IN THE WING W CURTAIN?**
When connecting a door sensor it is not recommended to use a valve with an actuator due to increased inertia of the system. i.e. the heating time of the heat exchanger and the time it takes for the actuator to open the valve.

8. **WHERE IN THE CASING OF THE WING CURTAIN ARE THE ELECTRIC CABLE GLANDS LOCATED?**
The glands are located on the right side of the curtain behind the motor. The picture shows the placement of the cable glands: no. 1 - grommet of the control cables, no. 2 - grommet of the supply lines, no. 3 - outlet grill of the motor.

9. **CAN THE CONTROLLER WING BE CONNECTED TO ANY AMOUNT OF AIR CURTAINS?**
Due to the contact load, the wall-mounted WING controller can be used to supply only one WING curtain. In order to control more curtains with a single controller, use an additional contactor in the power supply circuit of the curtains. For more detailed information, please consult VTS technical support department.

10. **CAN THE AIR CURTAINS BE MOUNTED IN GROUPS?**
Yes, it is possible to mount the curtains in groups, which enables the security of the door opening of any length (e.g. 3 m, 3.5 m, 4 m, etc.).

11. **CAN THE DOOR SENSOR OFFERED BY VTS BE CONNECTED TO ANY TYPE OF THE AIR CURTAIN?**
The reed switch offered by VTS will be able to serve air curtains with EC motors only. There is a possibility to connect one reed switch to one controller WING EC. Controller can control up to 8 air curtains WING EC.

12. **HOW TO PERFORM A PROPER VERTICAL MOUNTING OF THE DEVICE?**
For vertical mounting use screws M8x70. Screw 2 or 3 handles through the flat washers to the threaded sleeves mounted at the top section of the housing. Keep a minimum distance of 10 cm from the floor in order to provide access to the water drain nozzles from the heat exchanger and the terminal strip.

13. **ARE THE WING CURTAINS WITH EC MOTORS QUIETER THAN THOSE WITH AC MOTORS?**
The noise generated by the air curtain is the result of the fan impeller operation and expeditious flow of air within the device. The motor itself, regardless of the type, generates very little noise, which is incomparably quieter than the noise of the impeller. Therefore, regardless of the motor type the difference in the noise generated by the entire device will be indistinguishable by the human ear.

14. **WHAT IS THE MOUNTING HOLE SPACING?**

<table>
<thead>
<tr>
<th>Curtain type</th>
<th>LxWxH [mm]</th>
<th>LxWxH [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>WING 100</td>
<td>1157 x 910</td>
<td>921 910</td>
</tr>
<tr>
<td>WING 150</td>
<td>1675 x 1040</td>
<td>1680 x 1040</td>
</tr>
</tbody>
</table>

15. **WHAT ARE THE DIMENSIONS OF THE DEVICE PACKAGE?**

<table>
<thead>
<tr>
<th>Curtain type</th>
<th>Pallet dimensions [mm]</th>
<th>Number of curtains on the pallet [pcs]</th>
</tr>
</thead>
<tbody>
<tr>
<td>WING 100</td>
<td>1160x1040</td>
<td>10</td>
</tr>
<tr>
<td>WING 150</td>
<td>1680x1040</td>
<td>10</td>
</tr>
<tr>
<td>WING 200</td>
<td>2200x1040</td>
<td>8</td>
</tr>
</tbody>
</table>

16. **WHAT TYPE OF WING CURTAINS ARE PACKED INTO THE PALLETS?**

17. **CAN I FEED WING AIR CURTAIN WITH A NON-FREEZE MEDIUM?**
Yes, you can. The most frequently used non-freeze medium is a water solution of ethylene glycol. The heaters mounted in WINGs can support up to 50% mixtures. Make sure to check, however, if other elements of the technological heat installation (valves, pump, etc.) are adapted to work on glycol mix. To do this, check the recommendations of the manufacturers of particular components used. Remember that the use of glycol mix, which are usually characterized by higher viscosity and lower thermal capacity, compared to water, increases the resistance of heating medium flow and reduces the heating power of the device.
The Volcano heating units are a new generation of devices combining innovative technical solutions with a modern pattern design. Our precise and light casing resembles the beautiful diamond shape - ideal in its simplicity. The character of the device is emphasized by the composition of the selected materials and dynamically shaped air guide vanes.

Check also in VTS offer

**VOLCANO**

**HEATING POWER RANGE**
- VR Mini: 3-20 kW
- VR1: 5-30 kW
- VR2: 8-50 kW
- VR3: 13-75 kW
- VR-D Mini: ~
- VR-D: ~

**MAXIMUM EXHAUST FLOW RATE**
- VR Mini: 2100 m³/h
- VR1: 5300 m³/h
- VR2: 4850 m³/h
- VR3: 5700 m³/h
- VR-D Mini: 2330 m³/h
- VR-D: 6500 m³/h

**VERTICAL RANGE (MAX.)**
- VR Mini: 8 m
- VR1: 12 m
- VR2: 11 m
- VR3: 12 m
- VR-D Mini: 10 m
- VR-D: 15 m

**HORIZONTAL RANGE (MAX.)**
- VR Mini: 14 m
- VR1: 23 m
- VR2: 22 m
- VR3: 25 m
- VR-D Mini: 16 m
- VR-D: 28 m

*0.5 m/s maximum speed

**EFFICIENT FANS**
Optimized profile and increased blade surfaces provide for low maintenance costs and quiet operation.

**HMI VOLCANO EC CONTROLLER**
- modern and compact design
- high contrast and clear screen
- advanced calendar for each day in the week
- ANTIFROST working mode
- BMS systems compatibility
- stepless fan speed regulation
- build-in thermostat and external temperature sensors cooperation
- valve with actuator connection possibility
- up to 8 heating units connected with the one controller

**ENERGY-SAVING REGULATION**
EC motors guarantee maximum unit efficiency even at reduced speed. Stepless rotation regulation is now available for EC motors allowing the unit to adapt to any requirements.

**MATERIAL**
Made of the highest class ABS with an anti-UV pigment mixture, the casing is characterized by high mechanical strength, durability, and resistance to high temperatures. The material provides for unchangeable aesthetics, easy to clean surfaces and long-term durability.
STAY WARM

FOR MORE INFORMATION CONTACT OUR SALES TEAM OR VISIT WWW.VTSGROUP.COM

WATER HEATER

STAY WARM

FOR MORE INFORMATION CONTACT OUR SALES TEAM OR VISIT WWW.VTSGROUP.COM