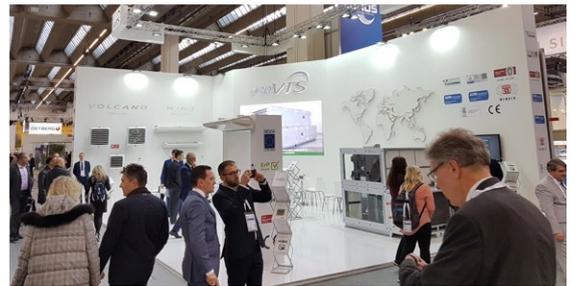




# THE GLOBAL PLAYER

Newsletter 1/2019



- Compact structure
- Small footprint
- High quality of the workmanship
- High energy efficiency

## 2019 VTS Global Expo Tour - SUMMARY

- | VENTUS S-type - new suspended air-handling units available in VTS offer
- | VENTUS Compact air-handling units with a polystyrene recuperator
- | Novelties in WING and VOLCANO devices

VTS

## ▶ Introduction



Dear Ladies and Gentlemen,

I have the pleasure of encouraging you to become acquainted with the next edition of our corporate newsletter.

The beginning of the year was very intensive for us. Since VTS participated again in the most important HVAC fair of the sector in the world. This year we were in Atlanta (a place that is special for us in view of location of our factory in the USA), Riyadh and in Frankfurt am Main. All these events were very important to us. In the USA, apart from presence at the fair, we organized a special event for our most significant business partners in our factory where guests could see and test VTS units. In Saudi Arabia, we presented a lot of novelties which appear in the MEA region. In turn, the ISH fair means "crème de la crème" in the HVAC sector. An event at which all the most important manufacturers in the world are present. Therefore, we had to be there as well.

In this edition, we would also like to present a few novelties to you, available in our offer - a new generation of suspended air-handling units VENTUS S-type, VENTUS Compact air-handling units with a plastic exchanger as well as improvements introduced by us in WING and VOLCANO units.

Enjoy reading our newsletter.

Hanna Siek-Zagórska, VTS Group President

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## | 2019 VTS Global Expo Tour

In line with the adopted development strategy, just as last year, also in 2019 VTS took part in the most important HVAC expos in the world.

### | AHR Expo

The first expo, which we participated in, was held in Atlanta (USA). That a place is special for us due to the fact that less than 40 miles from the fair there is VTS America factory.

During the expo, we presented American VENTUS air-handling unit equipped with a heat wheel exchanger and American VENTUS Lite air-handling unit dedicated to simple ventilation systems.

Customers could also familiarize themselves with WING air curtains and VOLCANO air heaters (both devices were equipped with highly-efficient EC motors).



The second day of the expo was particularly important to us. We organized a special event in the factory for our most significant clients. Designers, consultants, investors had an opportunity not only to become acquainted with theory but

also had a chance to see how production of our units looks like in practice as well as they could participate in tests, specially prepared for this occasion, of American VENTUS air-handling units.



## | HVAC R Saudi Expo

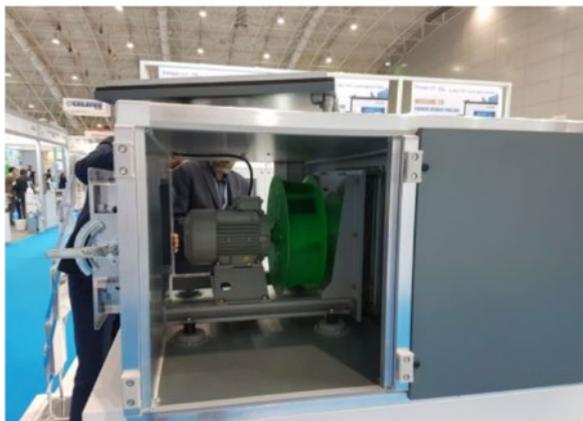
In January, we were present at the HVAC R Saudi Expo too, which this year was held in Riyadh, a capital of Saudi Arabia.

We presented 3 new products which this year will appear on the MEA market:

- > VENTUS S-type air-handling unit,
- > VENTUS Compact air-handling unit,
- > VENTUS VVS air-handling unit, equipped with two heat wheel exchangers.

Like an year ago, our guests were able to familiarize themselves with WING air curtains and Fan Coil Units.

Our stand was very popular, which is evidenced inter alia by the fact that Mr. Mansour Al-Shathri, deputy president of the Chamber of Commerce and Industry in Riyadh (RCCI) visited us.



## ISH Expo

The ISH fair is the biggest HVAC event in Europe. This year the fair was visited by more than 190,000 people. Total exhibition area came to 275,000 m<sup>2</sup> - for comparison it is equal to area of 38 football fields.

At the stand with size of over 100 m<sup>2</sup> we presented novelties which will appear at midyear in VENTUS Compact air-handling units as well as WING air curtains and VOLCANO heaters. Visualization of work of VENTUS air-handling units, which will occur in automation options of these devices soon, was also very popular.

Please watch a short film from the ISH 2019 fair.



## 2019 VTS Global Expo Tour



**3**  
Continents



**3500**  
Total number of guests who visited our stands



**24**  
Total number of nationalities of guests visiting our stands



**250 m<sup>2</sup>**  
Total area of our stands



**2200**  
Total number of distributed marketing materials



**83**  
Total number of planned meetings with potential customers

## | New suspended air-handling units available in VTS offer

**VENTUS**  
S-TYPE

VTS has launched a new generation of ducted air handling units – VENTUS S-type (SVS). In the initial period the devices will be available in India and later in the MEA region, in China and in South America.



### The most important advantages of the newest VENTUS S-type units are:

- > optimization of the unit size to the installation parameters - series of 5 sizes with efficiency from 900 CFM to 5600 CFM,
- > competitive height – one of the lowest on the market,
- > excellent work parameters – energy-saving and performance flexibility,
- > wide range of work and parameter adjustments,
- > trouble-free and practically maintenance-free operation of fans,
- > high durability and tightness of the structure,
- > 40 mm, double skin casing,
- > excellent anti-corrosion protection.

### The newest SVS units are characterized by such technical solutions as:

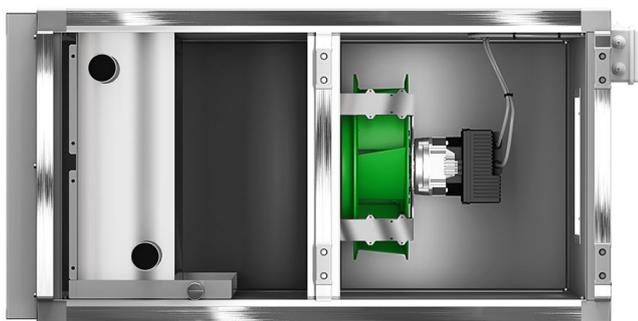
- 1) **Fan sets of PLUG type** – VENTUS S-type is equipped in PLUG type fans with direct drive. The fan sets in the new SVS units are available with AC and EC motors. AC motors are manufactured as standard with class F winding insulation, which ensures their trouble-free operation when supplied from VFDs. EC motors are PM (Permanent Magnet) motors, different from classic asynchronous AC ones mainly by their higher energy performance, especially while running at wide range of revolutions. The EC motor requires a 0-10V or ModBus control signal.

2) **Air coolers and air filters** - in VENTUS S-type units are available water heat exchangers, as well as DX heat exchangers designed to work with refrigerants commonly met on the market. In the range of available air cooler options, 4 and 6 rows coil are available for chilled water and DX coils. The whole device is protected by the section of air filters of EU4 class, removable from the outside.

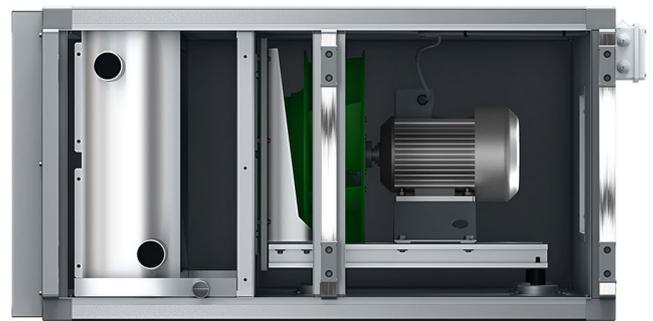
3) **The casing** – the casing is made of a 40 mm thick PUF panel coated on both sides with galvanized sheet metal. What distinguishes it is: excellent tightness and rigidity, very high corrosion resistance and perfect thermal insulation.

4) **Inspection panels** – the AHU has functional inspection panels. Their biggest advantage is that they are normally mounted on both sides of the unit. Each panel is equipped with handles and hinges ensuring safe and easy use.

EC motor



AC motor



Please watch a short movie about VENTUS S-type unit. Just click on the graphics below.

- Compact structure
- Small footprint
- High quality of the workmanship
- High energy efficiency





# | Test of VENTUS air-handling units

**Modular or compact units?**

**Units with manufacturer's controls or without?**

**Factory cabled units or with an option of cabling by an external company?**

These questions are very often asked by our clients who wonder which device will meet design requirements and at the same time will be ideally adapted to their needs.

In response to these queries, we prepared a video material presenting the most important advantages of both units.

The film shows VENTUS VVS and VENTUS Compact units. Both units have the same efficiency of 5,500 m<sup>3</sup>/h, both have the same functionalities too - heat recovery, heating and cooling.

Mr Zbigniew Wnukowicz, VTS Board Product Advisor, is a person who tells about advantages of both devices.

We encourage you to watch a test of the units. Just click on the graphics below.



## | VENTUS Compact air-handling units with a plastic recuperator

The VTS offer has been enriched with an option of hexagonal exchangers made of High Impact Polystyrene (HIPS). The option is available for suspended VENTUS Compact units.

Heat exchangers made of plastics are more and more popular among ventilation and air conditioning manufacturers. This results mainly from the flexibility of creating useful features of these materials followed by functionality of components made of them. The plastic heat exchangers are especially popular among small units, but can be also met in large ones handling (even 30 000 m<sup>3</sup>/h).

- > Where high hygienic standards must be maintained, eg. food industry.
- > Wherever aluminium exchangers cannot be applied due to highly corrosive contamination of the processed air without high-temperature applications.
- > Where attractive price is a key to win the project.

### Counterflow Heat Exchangers made of HIPS

#### Where to be used:

- > In ventilation systems where highest air stream separation between supply and exhaust is critical. The HIPS exchangers can secure almost 100% of separation thanks to ultrasonic welding and sticking of the plates.
- > All standard application of ventilation systems.
- > Where high humidity of processed air occurs, followed by intense condensation, eg. balneology and bathrooms ventilation.

#### What we need to keep in mind where choosing the HIPS exchangers?

- > The range of air temperatures to be processed by the HIPS exchanger must be within the limit of (-20°C) , (+50°C). That's why, for ambient air temperatures lower than -20°C, application of pre-heater located upstream the energy recovery section is recommended.
- > The HIPS exchangers should not be applied where chlorine compounds and fat can be met in the processed air.

More details pertaining to the plastic exchangers in VTS units are available in the following film





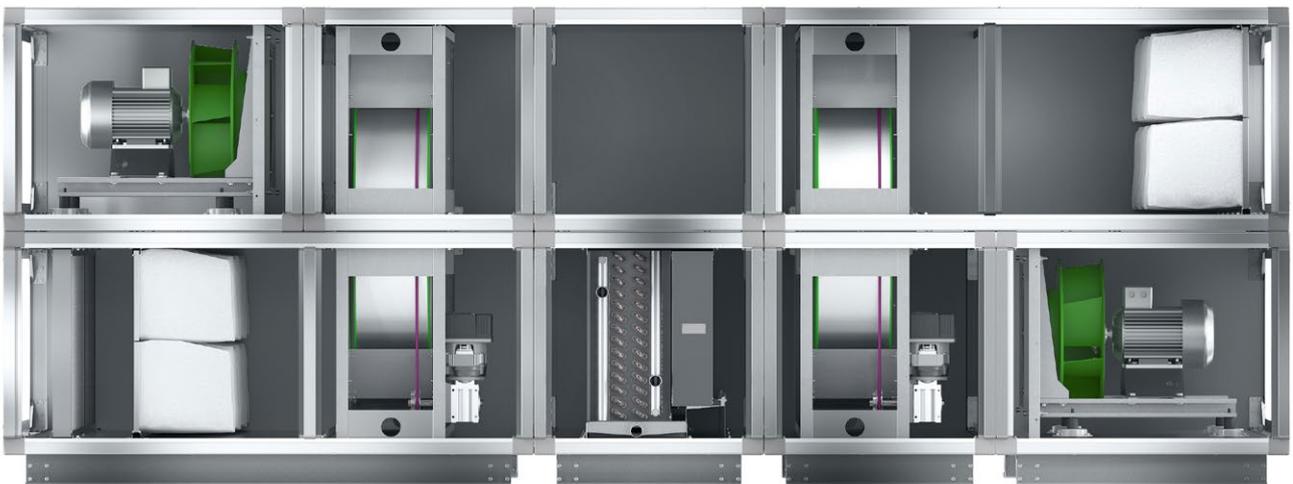
AHUs with counterflow core made of HIPS can be **cheaper by dozen or so percent** then same unit equipped with aluminum exchanger.

Depending on size and configurations, AHUs where HIPS core is applied can be cheaper for the ones with aluminum exchanger even by dozen or so percent.

## | Air drying with the use of two rotating exchangers

The double wheel system is one of the most effective systems for air dehumidifying with energy recovery. This concept perfectly combines energy recovery with dehumidification.

This system uses both total-sorption thermal wheel and a non-hygroscopic thermal wheel with a cooling coil in between.



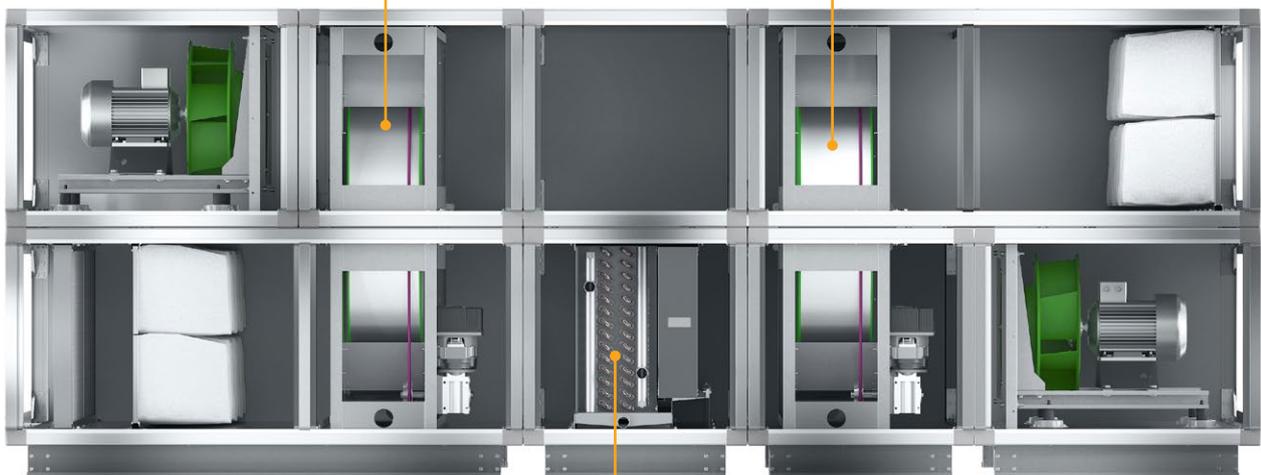
**The Double Wheel Concept saves up to 60% of the total cooling capacity and requires lower investment and running costs compared to traditional systems.**

As rule of thumb, the additional cost of the sensible wheel can be saved in the lower investment compared to traditional system components, coils, chillers, cold and hot water piping installation, pumps, valves, controls and electric power supply costs. Accurate total investment costs analyze of the complete installation will show major savings in initial costs. Both cooling and heating energy savings will be additional profit of the investment.

When outdoor air is warmer than the exhaust airflow there is a need for cooling. The total/sorption rotor then reduces temperature of the incoming air. Simultaneously it transfers moisture from the inbound to the outbound air flows (in cases where absolute humidity is higher outdoors)

The dehumidified and cooled air continues to the sensible rotor, where heat from exhaust air is recovered and used to reheat it. The air then is supplied to the building, with controlled levels on both temperature and humidity.

Note that the temperature exchange in the sensible rotor, where exhaust air is cooled, further improves the cooling recovery of exhaust air in the hygroscopic rotor!



After passing through the hygroscopic rotor the air passes through the cooling coil, where the temperature is reduced further and moisture is condensed down to required levels. Since the air has already been cooled by the hygroscopic rotor, the demand for cooling is lowered. The saving can be up to 50% of the nominal required cooling effect, while at the same time the need for a following re-heating battery in most cases disappear.

## Constant development as a key to success. The same WING curtain with a perfected structure.

Constant development is one of the factors which allows the VTS company to be always one step ahead of the competition, in every corner of the world. When in May 2016 the company demonstrated the WING curtain to the world, there were endless positive comments. Unique appearance of the device combined with functionality was a bull's eye. VTS did not rest on its laurels at that time. Listening to remarks and suggestions from the market, in IIIQ of 2018 engineers of the company faced a task aimed at perfecting the WING curtain.

A number of talks and meetings, preceded by market opinion research, allowed to prepare assumptions of the project. The WING curtain has undergone a number of technical tests in VTS's Research & Development Centre, as a result of which improvement works were planned. Some internal elements of the curtain were revised and external appearance remained unchanged in line with the assumptions.

The major point of the project was a change in shape of the fan chamber (Fig. 1.). By re-designing the existing and adding new elements, the change contributed to a considerable improvement of the device working culture, including, to reduction of the noise level. It also ensures increased rigidity of the whole device.

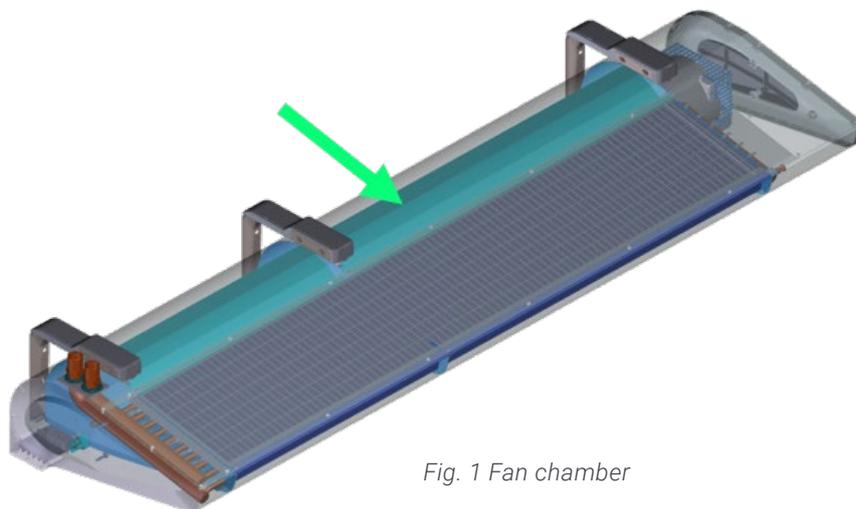


Fig. 1 Fan chamber

Apart from the fan chamber, other small elements of the curtain were modified such as particular sizes of openings in the internal metal sheet or shifting (for construction reasons) of openings of the curtain internal structure. The changes, apparently slight, had a considerable influence on work of the curtain. While looking at the entire project from a broader perspective, these modifications

also show how significant pursuit of perfection and improvement of details in the offered devices are for VTS.

By means of the WING project, VTS proves how important development is to it. The foregoing changes were introduced on 24 May 2019 and will certainly contribute to increased sales on all markets.

# | New line of EC motors in VOLCANO heaters. We reduce to achieve more.

VTS company has commenced introducing modifications in EC motors from the smallest heater in the portfolio - VR MINI. The implemented changes were positively accepted by the market. Now, it is time for the other devices from VOLCANO series.

Below we remind you what features and benefits arising out of them were introduced along with the new motors:

- > The motor generates a signal +10 V DC – a user can

activate the heater without a controller. Fig. 1a, 1b present comparative connection of the heater with the previous and the new motor.

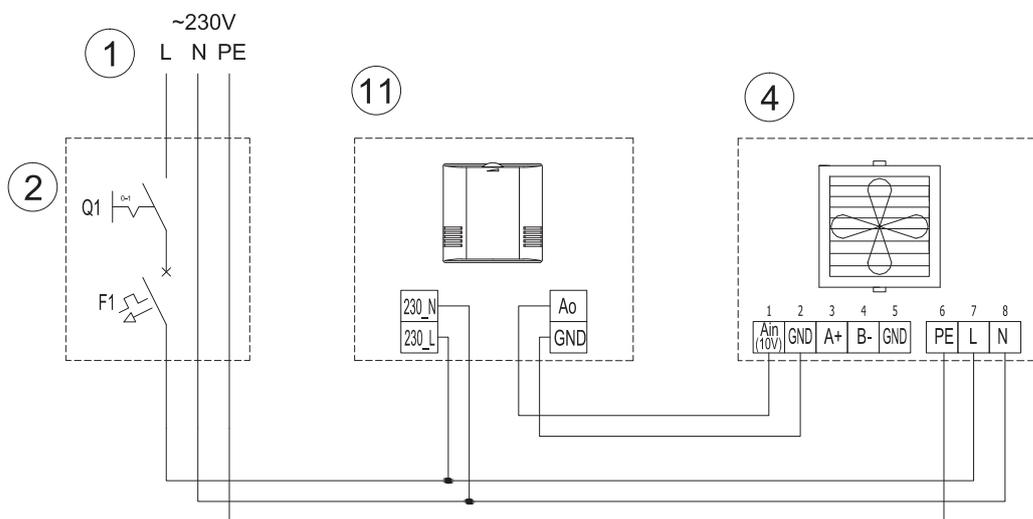


Fig. 1a. Connection of the VR heater equipped with the previous EC motor, with a potentiometer

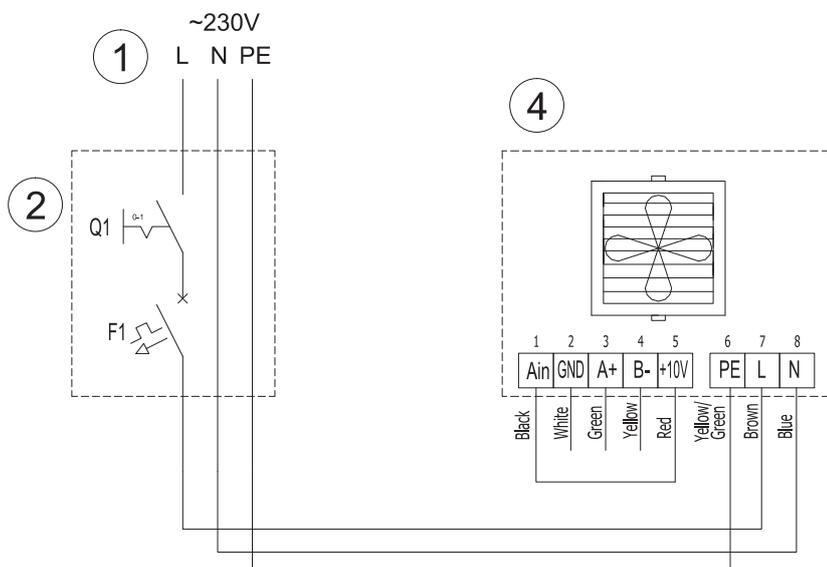


Fig. 1b. Connection of the VR heater equipped with the new EC motor, without automation

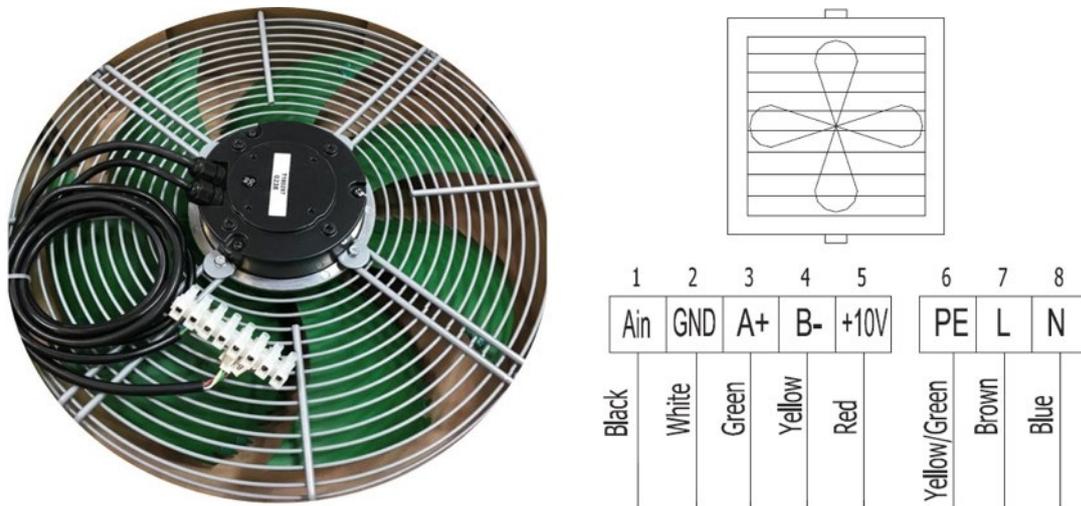


Fig. 2 EC motor equipped with the cable and markings of the clamps

- > The motor protection rating: IP 54. Pursuant to standard PN-EN 60529:2003, the first characteristic digit 5 means that the electric device casing ensures protection against dust penetration in amounts disturbing proper work of the equipment, whereas the second digit 4 means that the casing ensures protection against water splashes from all sides of the casing. Thanks to this, the VOLCANO device may be used in rooms with more demanding conditions e.g. in washes.
- > As a standard, the motor is equipped with a routed cable with the described clamps. This makes connection of the motor itself even simpler and intuitive. An installer does not have to unscrew the motor casing any more, and its factory-set protection rating is maintained at the same time. An installer user the cable (Fig. 2) provided by VTS which minimizes the risk of erroneous connection.

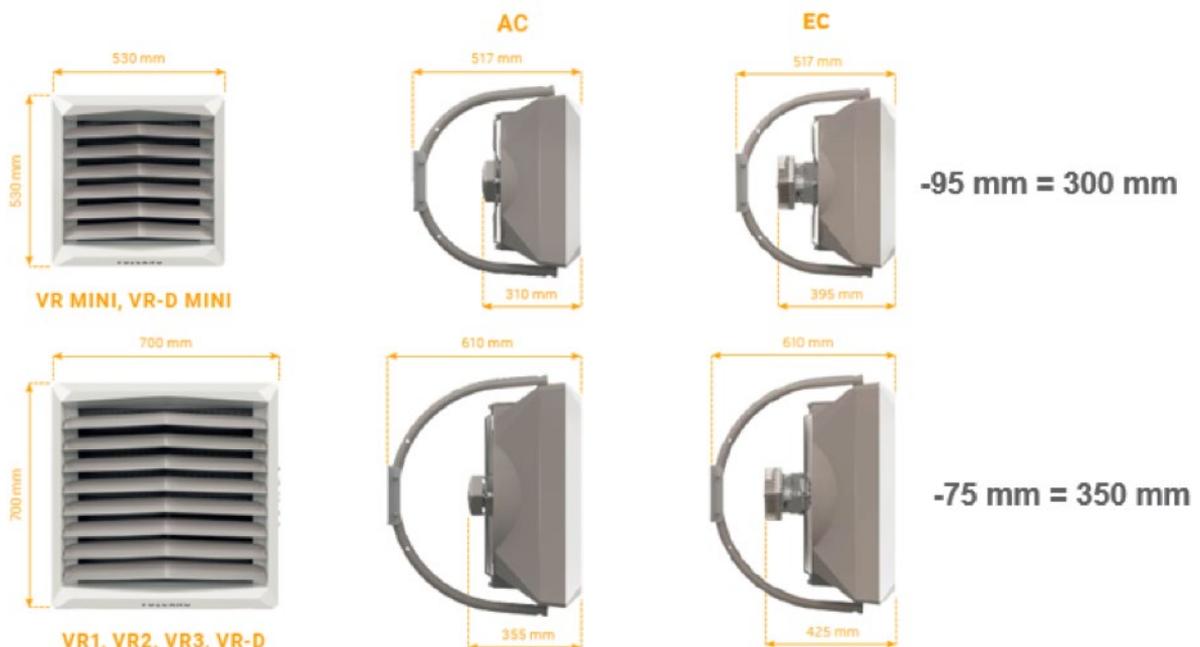


Fig. 3. New motors vs. previous motors

> The last change, but equally significant, which translates into benefits comes down to reduction of the motor size, with maintenance of all elements of its predecessor (Fig. 3). 95 mm of gain in space behind the heater with regard to VR MINI, VR-D MINI devices; and 75 mm of gain with regard to the other larger devices, enable even greater availability of air, which guarantees undisturbed suction of air by the fan. It must also be noticed that thanks to the smaller size of the

motor, its weight is also less and this makes assembly and installation easier. Optimization of carton boxes into which VOLCANO devices are packed is a consequence of smaller sizes. Thanks to this, one europallet can contain up to 12 VR MINI and VR-D MINI devices, and not as it was 8 (Fig. 4.) With regard to VOLCANO VR 1, 2, 3, -D, it is 6 instead of previous 5 devices.



Fig. 4. Comparison of the number of VOLCANO heaters that go on one pallet

VTS has commenced implementation of the new motors gradually - from the smallest heaters. The change was successful and positively accepted by the market. Now, the changes were also made in the other heaters from the series i.e. VOLCANO VR1, VR2, VR3 and VR-D destratification fan which appeared in a smaller version too as VR-D MINI. The goal is to provide customers with the most effective solutions, characterized by perfect design and quality, at a competitive price accessible to clients. Thereby, the company's role in creation of the heating environment in Europe became even greater and VTS strengthened its position as market leader.

## | Royal quality, predatory price.

VTS introduces heaters and curtains with AC motors in alarmingly low prices.



A huge comeback of heaters with a classic 3-gear motor! Easy assembly and installation, simple operation and AC motors so well-known to installers come back in a royal style and at a predatory price. They proudly enter the VTS offer and are already available in the best wholesales and in VTS's eshop as an alternative to the technologically advanced devices with EC motors.

In May, the VTS offer will also include WING air curtains with AC motors.

### Why did VTS decide to come back to AC motors?

VTS always attentively listens to how the market responds

to introduced modifications. Although wholesales and users positively reacted to the modern, energy-saving motors, a big group of customers who have an influence on a decision on selection of devices are still guided by the price to a large degree. Thus, we fill the market gap, proposing a less technically advanced solution at a much lower price, which will allow us to effectively offer products to clients for whom the price is a decisive argument.

We will not let our customers resign from quality even if they do not need advanced control functions. VOLCANO and WING AC will be approx. 20% cheaper, which will make them the most attractive offer on a lot of markets among the local competition.



### Promotional campaign - Royal quality, predatory price

Since April, we have been communicating information about changes by means of a campaign under the slogan of *Royal quality, predatory price*. In May, we will continue the campaign informing customers also about availability of the curtains in cheaper versions.

### Green recommendation

You should remember that VTS is still the sole company whose offer includes the technologically advanced EC motors. The courageous step towards energy-saving solutions has considerably raised awareness among our users. We still

recommend solutions that are more advanced and better for our planet but we leave free choice for our clients.

Now, customers can choose between the AC motor which is simple in use and cheap and the modern EC motor that is energy-saving and brings financial benefits during exploitation. Do you expect a low price and simple control? Choose the classic solution with a 3-gear motor. Do you need smooth control and low exploitation costs? The EC motors are your suggested choice.

## Corporate VTS competitions - a perfect opportunity to become a globetrotter

Travels are one of the passions of people working at VTS. Taking account of this fact, we have decided to issue an exceptional tourist guidebook based on knowledge, opinions and experiences of our staff members.

Within this task, we announced a competition aimed at sending descriptions and photos from the most interesting places which were visited by our colleagues and which they recommend to visit in their countries. If a competition,

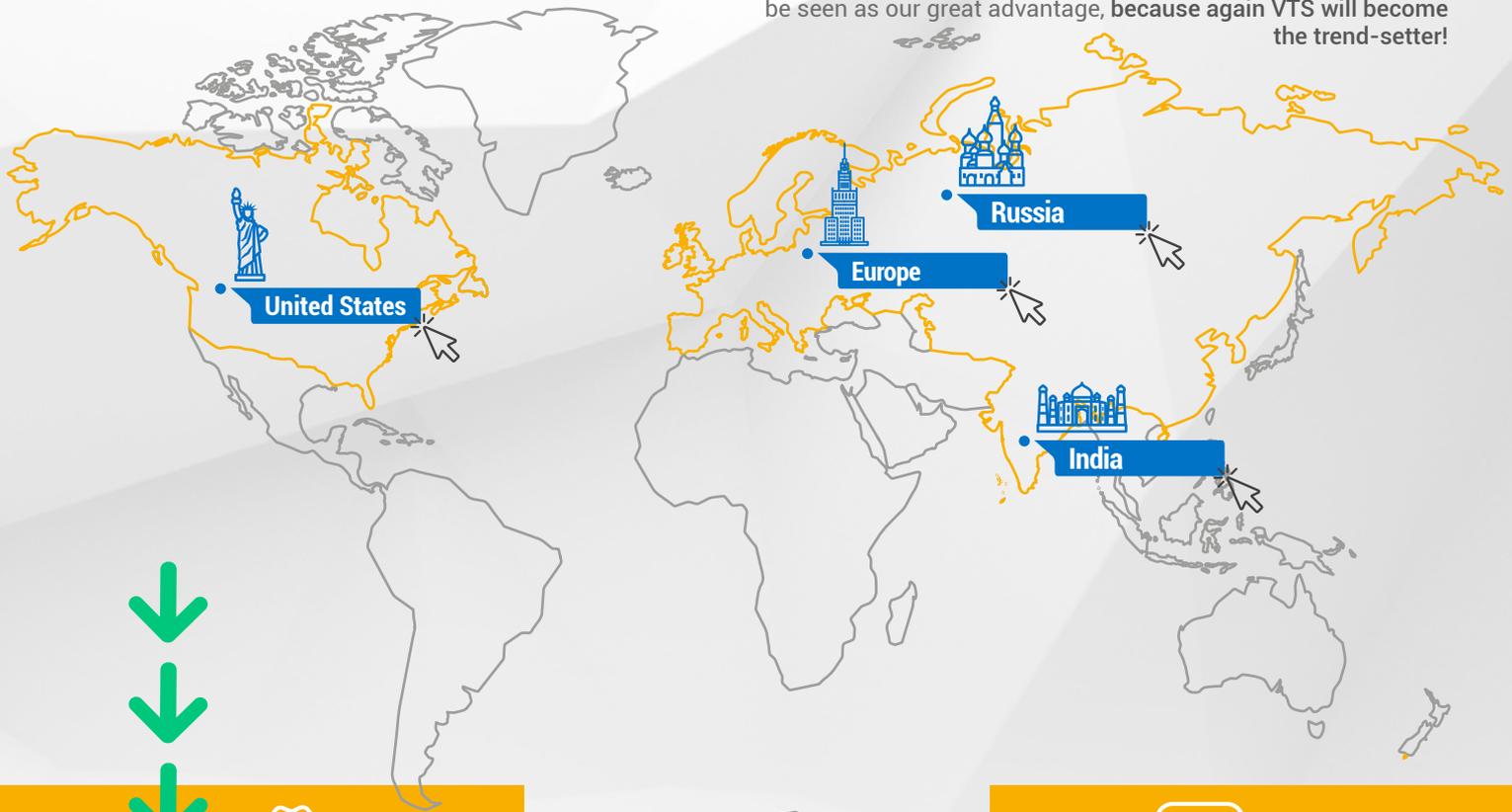
then prizes too... And those were unique by far and worth the effort. One person chosen by the jury from each country received a holiday trip voucher. Below you can find several photos from the trips won by our two employees.



# VTS E-COMMERCE CHANNEL

## RIPE FOR GROWTH

From 2016 we're developing the e-commerce channel in VTS, spreading the online offer in more and more countries. **After 3 years from the premiere of our first eShop for the European market we launched another 3 - in USA, Russia and India.** The e-commerce trend (or actually the way of selling) shows us that on each our market (although the clients and their needs are different) we should start to sell our small units and spare parts this way. On some markets we will be the very first (from HVAC branch) what actually should be seen as our great advantage, **because again VTS will become the trend-setter!**



**24/7  
AVAILABILITY**



**ATTRACTIVE  
PRICES**



**PROFESSIONAL  
SUPPORT**



**30 SEC TO MAKE  
AN ORDER**



**FOUR  
ESHOPS**



**INTUITIVE  
MOBILE VERSION**

### REVENUE GROWTH



2016

2017

218% REVENUE GROWTH

2018

689% REVENUE GROWTH



## ▶ THE LATEST REFERENCES



Name of the building: **Dream Island**  
Country: **Russia**  
City: **Moscow**



Name of the building: **Residential Complex (J One Tower)**  
Country: **UAE**  
City: **Dubai**



Name of the building: **Intel**  
Country: **India**  
City: **Bangalore**



Name of the building: **Bhartiya City Nikoo Homes**  
Country: **India**  
City: **Bangalore**



Name of the building: **Galeria Handlowa Tkalinia**  
Country: **Poland**  
City: **Pabianice**



Name of the building: **Lakhta Center**  
 Country: **Russia**  
 City: **Saint-Petersburg**



Name of the building: **Continental tire**  
 Country: **China**  
 City: **Tianjin**



Name of the building: **Institutul Magurele**  
 Country: **Romania**  
 City: **Magurele**



Name of the building: **(Al Thumama) Main Works for Fifth Precinct Stadium**  
 Country: **Qatar**  
 City: **Thumama**



Name of the building: **Hotel Mandarin**  
 Country: **Chile**  
 City: **Santiago**



Name of the building: **Transasia Cyber Park**  
Country: **India**  
City: **Bangalore**



Name of the building: **Samsung Manyata Tech Park**  
Country: **India**  
City: **Bangalore**



Name of the building: **Carlisle High School**  
Country: **USA**  
City: **Carlisle**



Name of the building: **Inova - ATS**  
Country: **USA**  
City: **Falls Church**



Name of the building: **Open Plaza Kennedy**  
Country: **Chile**  
City: **Santiago**



Name of the building: **ABB**  
Country: **India**  
City: **Bangalore**



Name of the building: **King David Complex**  
 Country: **Georgia**  
 City: **Tbilisi**



Name of the building: **Central Park Residential Building**  
 Country: **UAE**  
 City: **Abu Dhabi (AL Reem Island)**



Name of the building: **Gm Infinite E City Town**  
 Country: **India**  
 City: **Bangalore**



Name of the building: **King Salman Edu. for Employment Center**  
 Country: **Saudi Arabia**  
 City: **Riyadh**