



## Toyota Showroom Dubai, UAE

### Building characteristics

**Purpose:** Car Showroom

**Area:** 18 000m<sup>2</sup>

**Cubic measure being handled by VTS units:** 102 282m<sup>3</sup>

### The conception of ventilation system

As in typical trade centers, the ventilation system is focused on guarantying heat comfort for all visitors and employees of the whole space of the building. Because of climate conditions and big number of walls made of glass, a huge load of sensible heat has to be exhausted by installed air handling units. Above mentioned aspects causes, that cooling is a main task given to the air handling units.

The HVAC design incorporates a special design unique to showrooms where the airflow supplied to the air-conditioned space is carried in a duct network hidden below the flooring and in the pillars of the structure. Thanks to this, installation is mostly not visible.

The need of intensive cooling has determined the air distribution method as 'down-top'. This allows providing cool air directly to the zone where the visitors and employees are present, and reduces need for cooling energy supplied to the air handling units. Thanks to such organization of airflow, the temperature difference can be lower than in 'top-top' type, usually implemented for commercial buildings.

### Solution provided by VTS

The designer's requirement was to use two stages air cooling. First stage is the pre-cooling of fresh air taken from outside and its supplying to the recirculation system. Second – secondary



cooling of the air, earlier mixed with the stream exhausted from showroom.

Due to problems with acquiring the area destined for air handling units installation, one of the most important features taken into account while choosing the provider was total length of particular devices. VTS was able to place units in a smaller area as the plug fans, which reduced the unit's length were used. Therefore, any problems with unit's installation in the machinery room was avoided.

The most of delivered units are supply systems with cooler installed, with total airflow over 238 000m<sup>3</sup>/h. VTS has delivered AHUs in three different sizes – CV-A 2, CV-A 6,5 and CV-A 8,5. Implementation of big size units has also enabled to configure the whole system to work with low energy consumption, necessary for providing the fans with power. The average SFP ratio is about 0,44[W/m<sup>3</sup>/h], which is a one of better results taking into consideration range of air treatment functions.



General characteristics of used devices	
Number of AHUs	12
AHUs type	CV-A
Configuration	Filter, Cooler, Fan
Operational parameters	
Total AHUs cooling capacity [kW]	1177
Total supply AHUs electric power consumption [kW]	94
Total supply Air Flow Rate [m <sup>3</sup> /h]	238 860
Average SFP [kW/m <sup>3</sup> /s]/[W/m <sup>3</sup> /h]	1,42      0,39
Noise parameters for loudest unit at 250 Hz	
	Supply
Inlet [dB]	82
Outlet [dB]	87
Environment [dB]	58



**Al-Futtaim engineering**

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To,  
VTS Clima FZCO,  
P.O.Box 18061,  
Jebel Ali,  
UAE.

Kind Attn: Mr. Fazal Rashid,

Subject: VTS Air handling units.

Project: Al Futtaim Toyota Showroom at Festival City, Dubai

Dear Fazal,

We have commissioned the VTS air handling units for our above mentioned project and are satisfied with the quality and performance of the units.

We wish you the very best for the future.

Best Regards

For Al Futtaim Engineering,

  
S.S. Murali  
Projects Manager

