

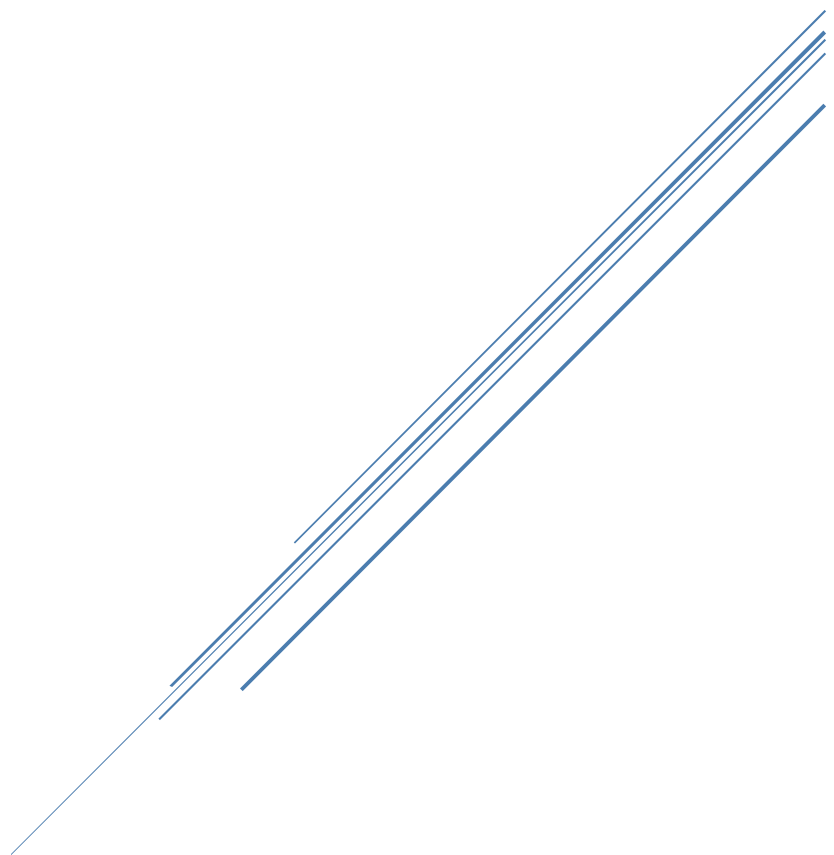


**AeroSet**

User Manual

# Analytical System AeroSet

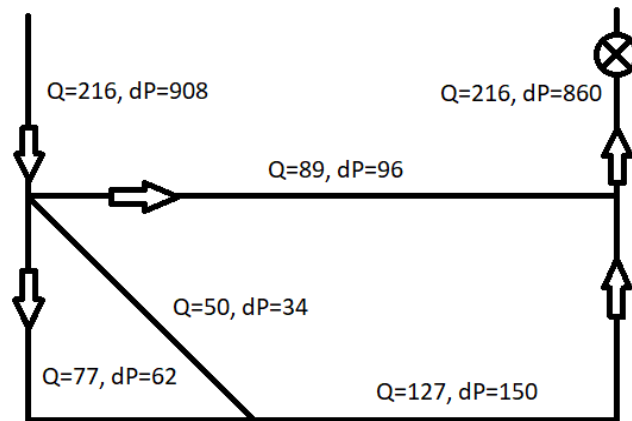
Getting Started



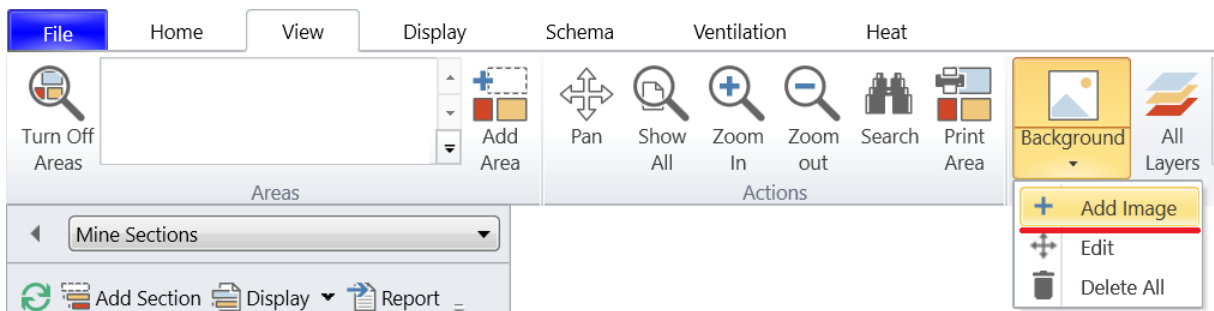
06.06.2017

## Quick Start

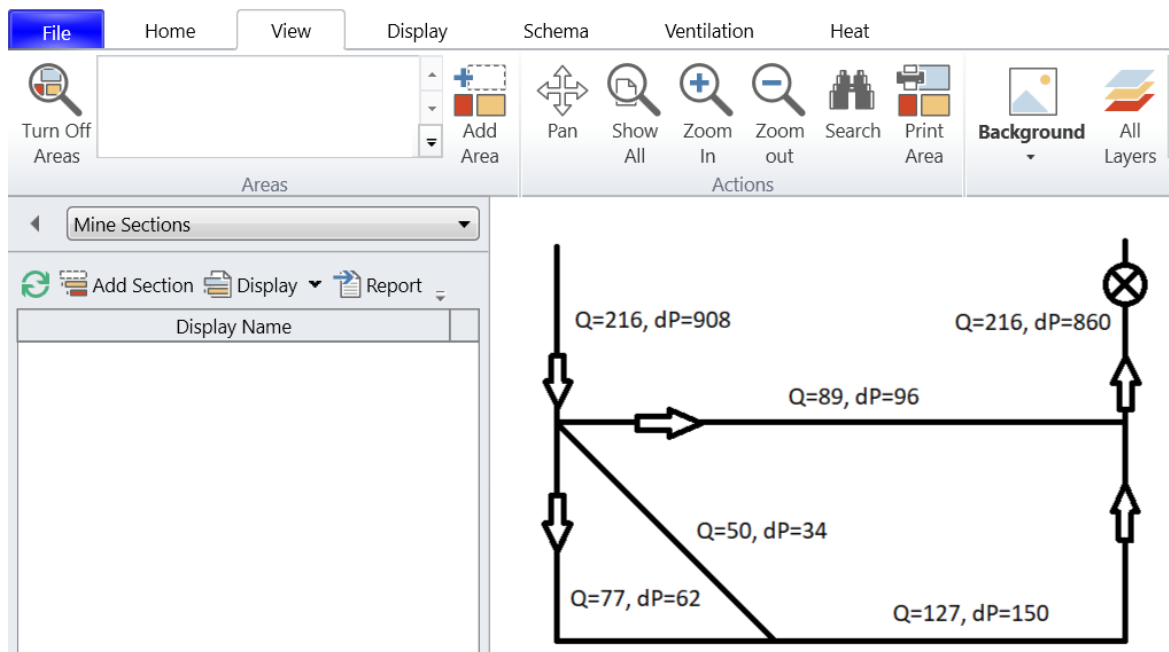
Let us consider an example of designing a ventilation schema from scratch. Usually, there is an image file with airways and measured air quantities and pressure drops.



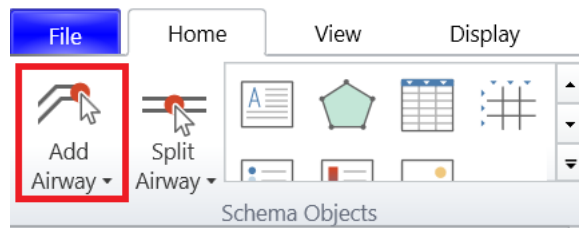
In that case, that file can be added to AeroSet with the *Add Image* command on the *View* ribbon tab.



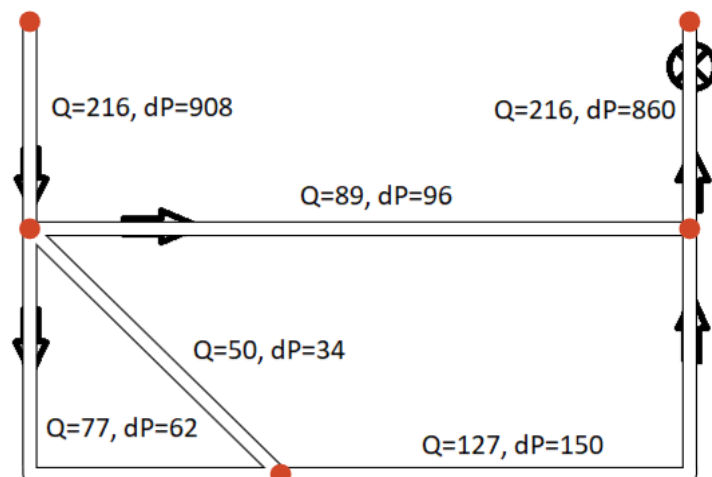
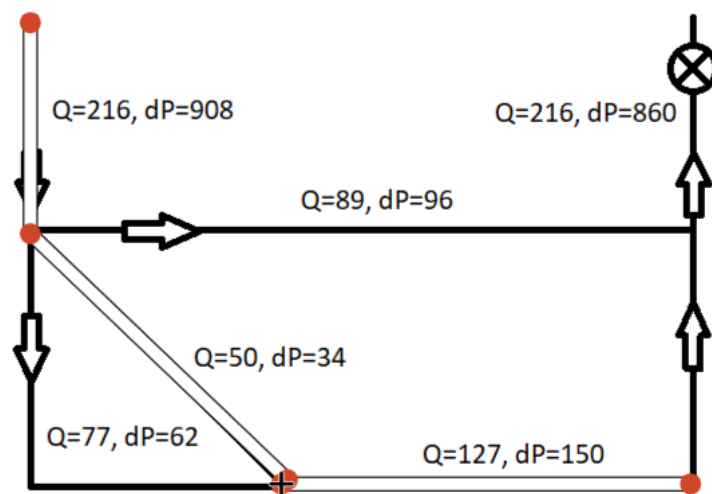
As a result, the image will be displayed inside the empty area of the main window.



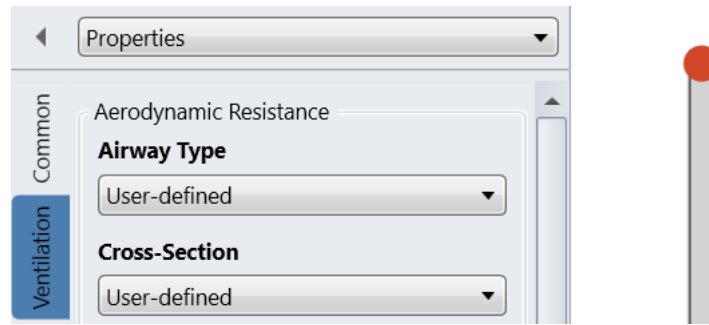
Then a user can add some airways drawing them over the ones visible on the background image. This can be done by the *Add Airway* command on the *Home* ribbon tab.



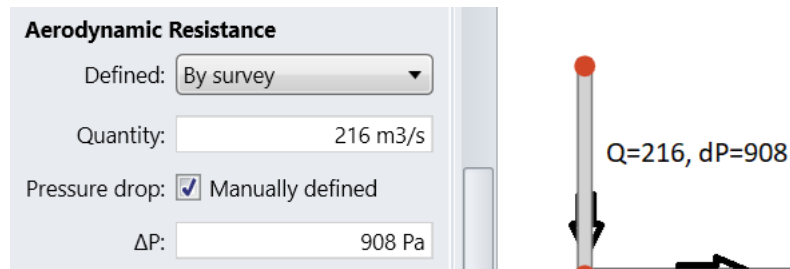
Creating an airway is performed by clicking at such places where the nodes of the airway should be. If a new end node is placed over the end node of existing airway, then these two airways are connected.



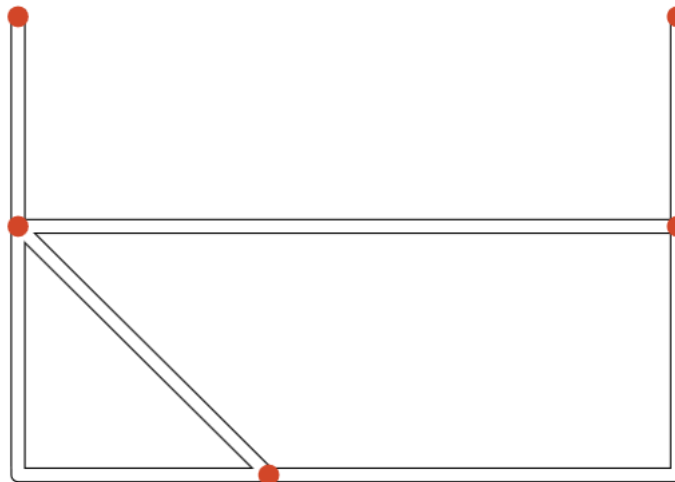
When the network is created, a user should set aerodynamic resistances of airways. In our case they are defined by measured air quantities and pressure drops. Therefore, a user should select each airway and open its properties panel either by the *Edit* command on the *Home* ribbon tab, or by double clicking on the airway.



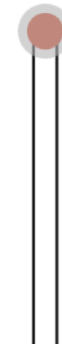
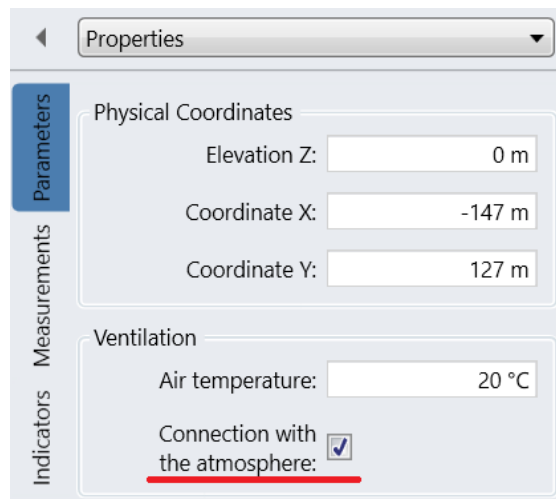
On the *Ventilation* tab, a user can specify that the airway resistance be defined by a ventilation survey and set the measured air quantity and pressure drop.



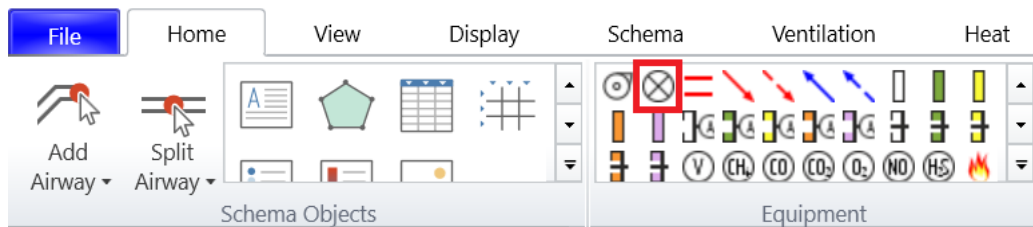
When all aerodynamic resistances are specified, the background image can be hidden by the *Background* command on the *View* ribbon tab.



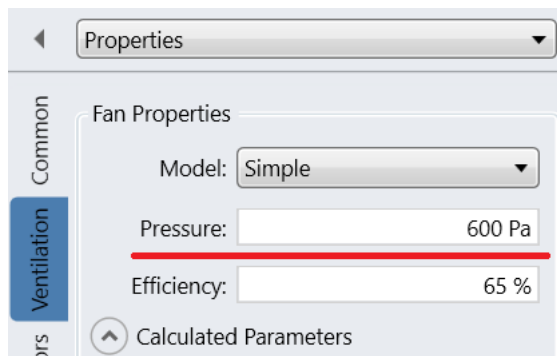
Then a user should indicate which end nodes are connected to the atmosphere by setting the corresponding checkbox on the properties panel of these end nodes.



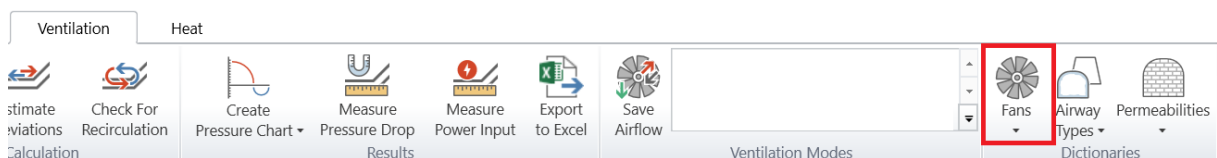
In order to complete the ventilation design, a user should add a fan by clicking on an item of the same name in the equipment gallery on the *Home* ribbon tab and then clicking on some airway.

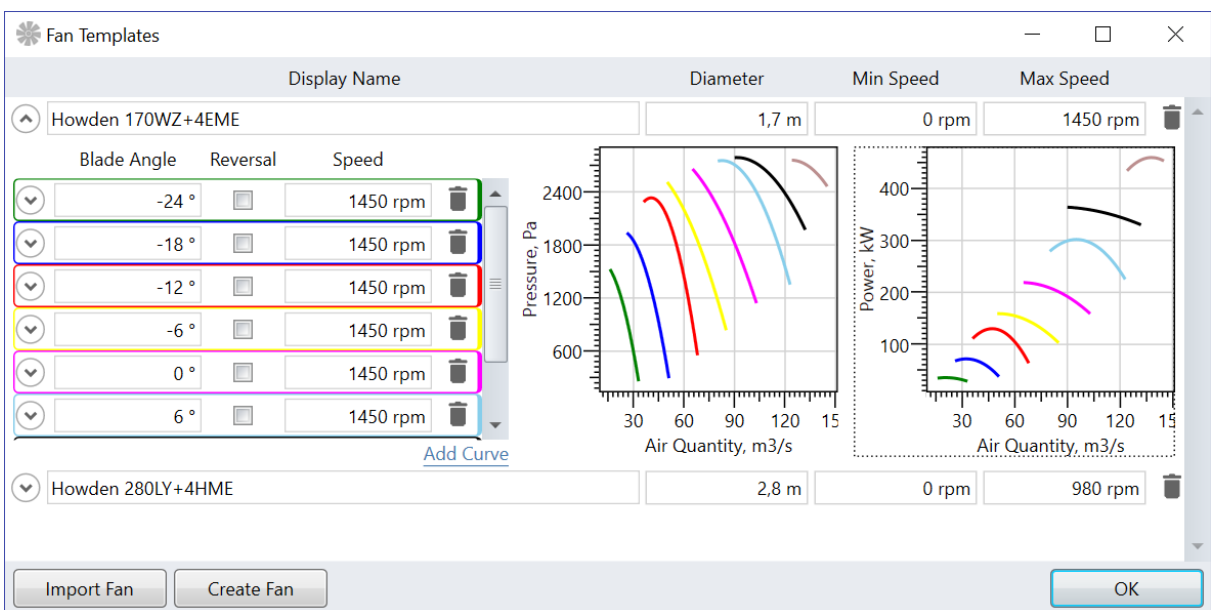
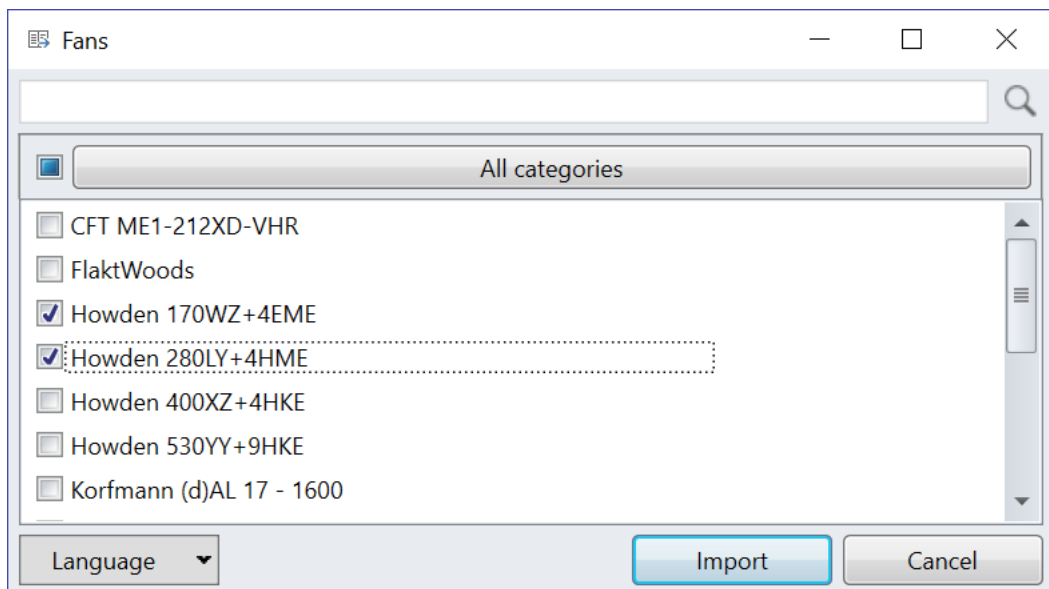
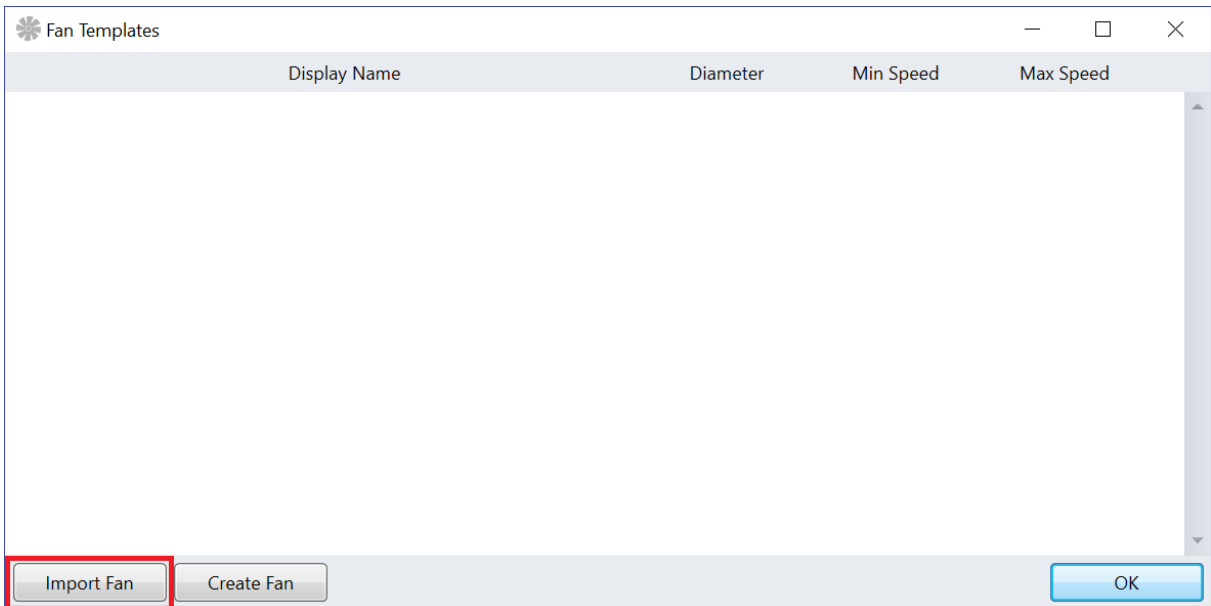


A simple model of fan is used by default when the fan pressure is constant whatever the air quantity.

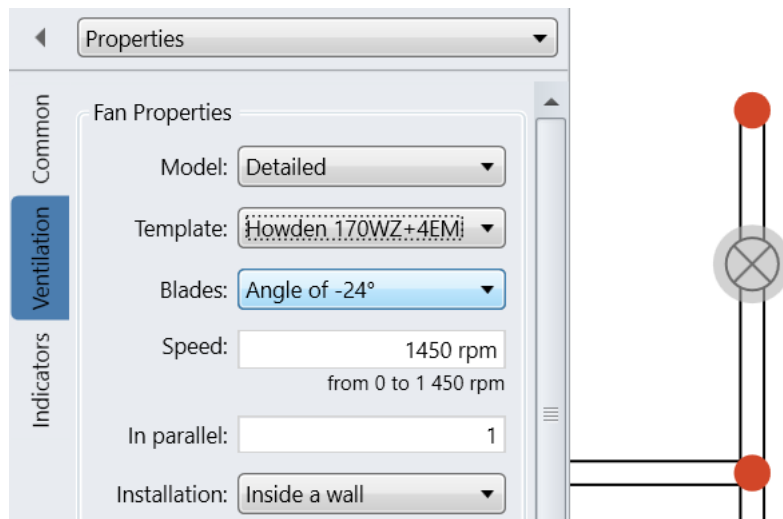


If there is a need to simulate some specific fan model, then this model should be imported into the list of fans on the *Ventilation* ribbon tab.

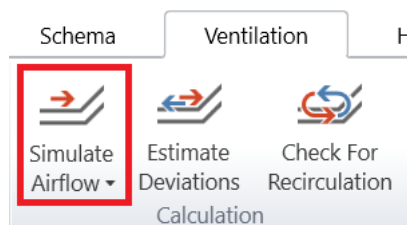




When fan templates are imported, their templates can be selected on the fan properties panel.



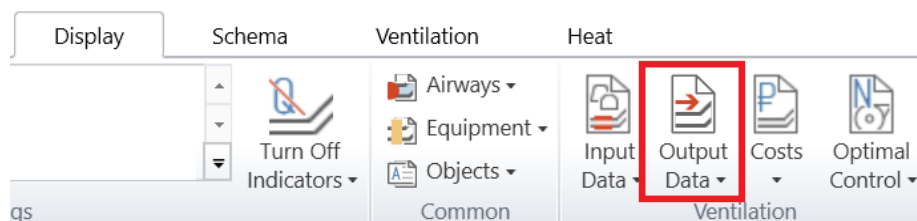
Finally, a user can start the simulation by the *Simulate Airflow* command on the *Ventilation* ribbon tab.

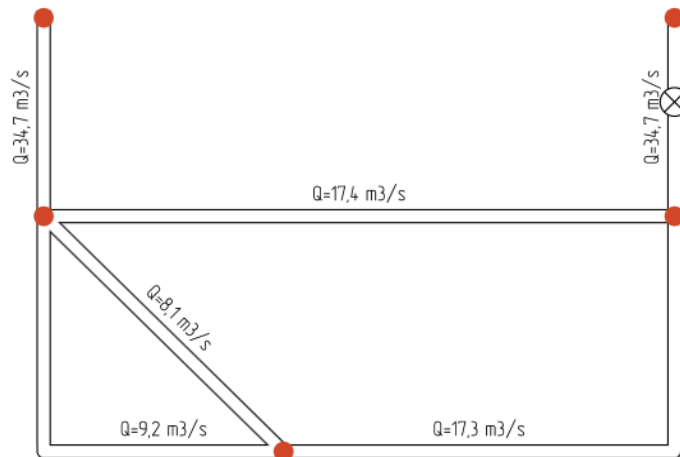
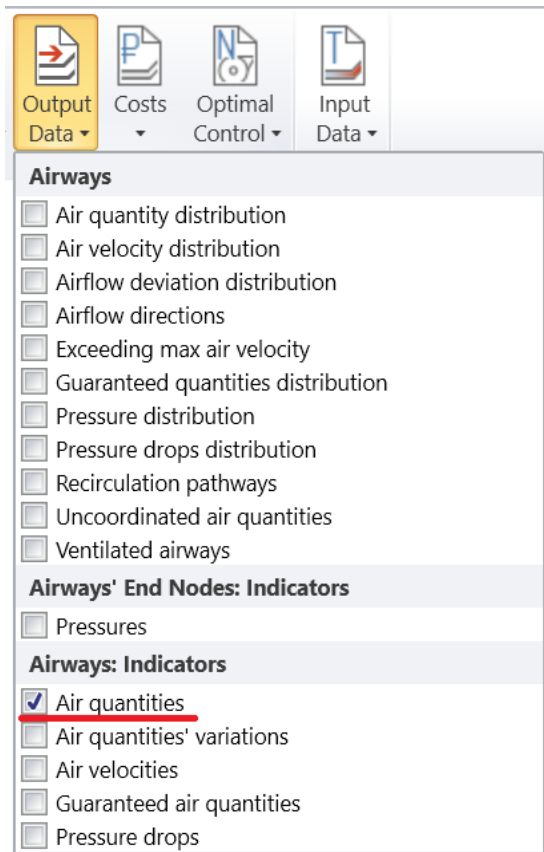


As a result, each airway will receive a calculated air quantity, which is displayed on the airway properties panel.

Calculated Parameters	
Resistance:	0,0184 N.s <sup>2</sup> /m <sup>8</sup>
Quantity:	34,7 m <sup>3</sup> /s
Air velocity:	3,5 m/s
Deviation:	0 %
ΔP:	-27 Pa
Power cost:	772 W

However, there is a more convenient way to display the calculation results by enabling the air quantity indicator on the *Display* ribbon tab.





A duty point is displayed on the fan properties panel. If the duty point is not located in a working range of air quantities, then it is painted in red.

