

news

11/05/2016

Adiabatic Systems Platform



New humiSonic Ventilation support structure

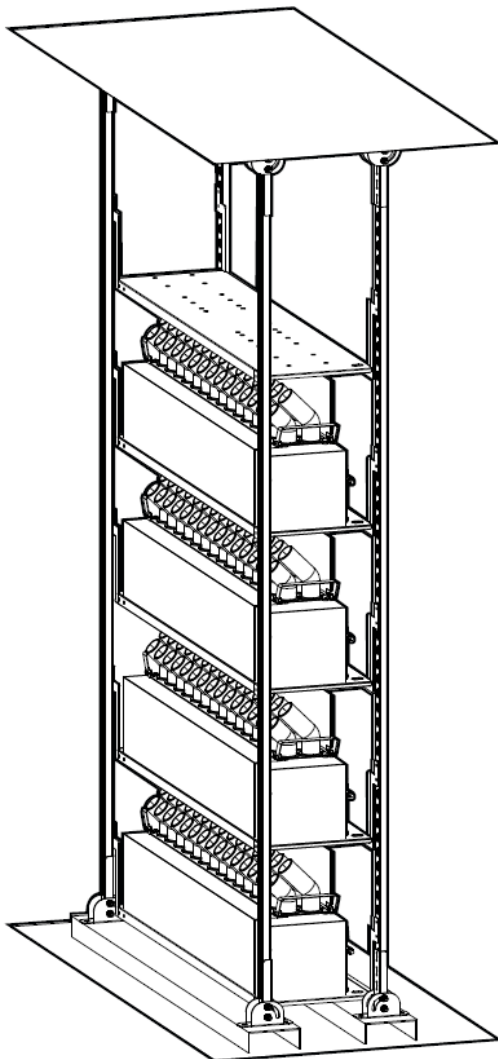
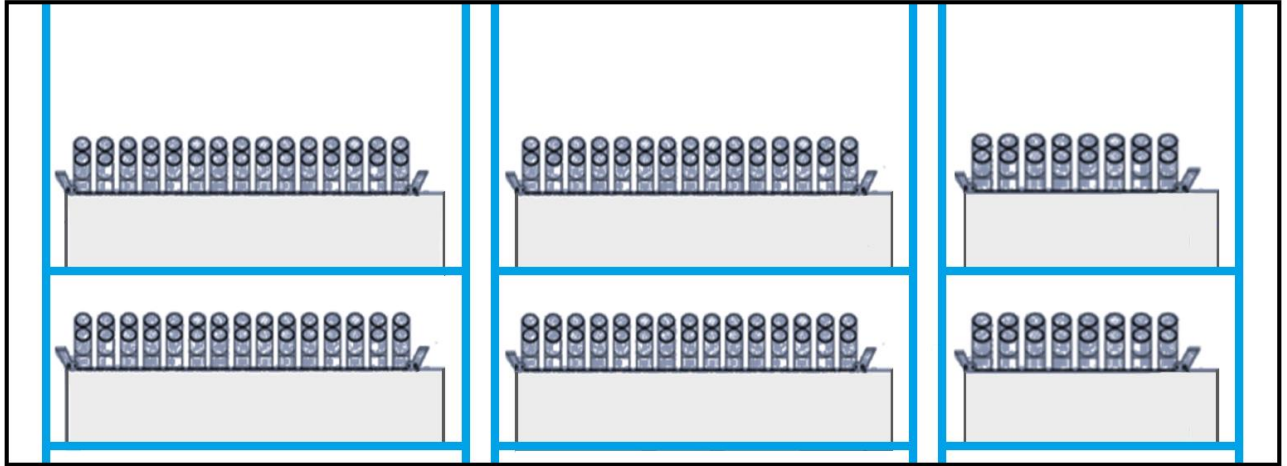
Purpose

The new support structure for humiSonic Ventilation fulfils the requirement to provide customers a complete solution, without them needing to worry about how to install the humidifiers inside the air duct.



humiSonic Ventilation solutions are proposed by the selection tool, with the following configuration:

- the units are arranged in a series of side-by-side "columns" (maximum 3);
- all the units in each "column" are the same size;
- all the "columns" have the same number of units, maximum 8.



Together with each of these humiSonic "columns", a support structure is always proposed, which is independent of the adjacent structures. This supports the humiSonic units and ensures they are positioned at the correct height in the duct.

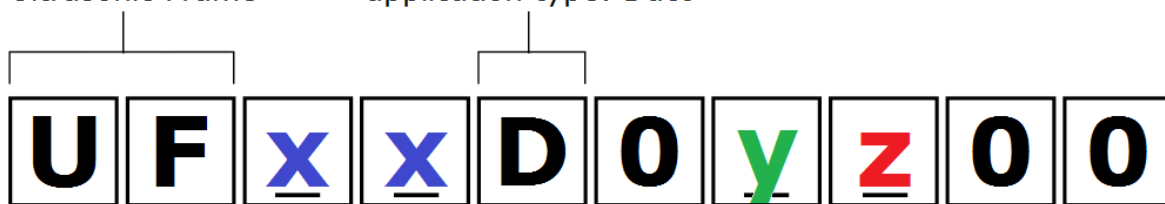
Code and dimensions

There are a total of 90 possible structures, each with its own code. These have the following layout:

code root:

Ultrasonic Frame

application type: Duct



flow rate:

$$Q_2 = 2,4 \text{ l/h}$$
$$05 = 4,8 \text{ l/h}$$
$$07 = 7,2 \text{ l/h}$$

09 = 9,6 l/h

$$14 = 14,4 \text{ l/h}$$
$$18 = 18 \text{ l/h}$$

uprights height:

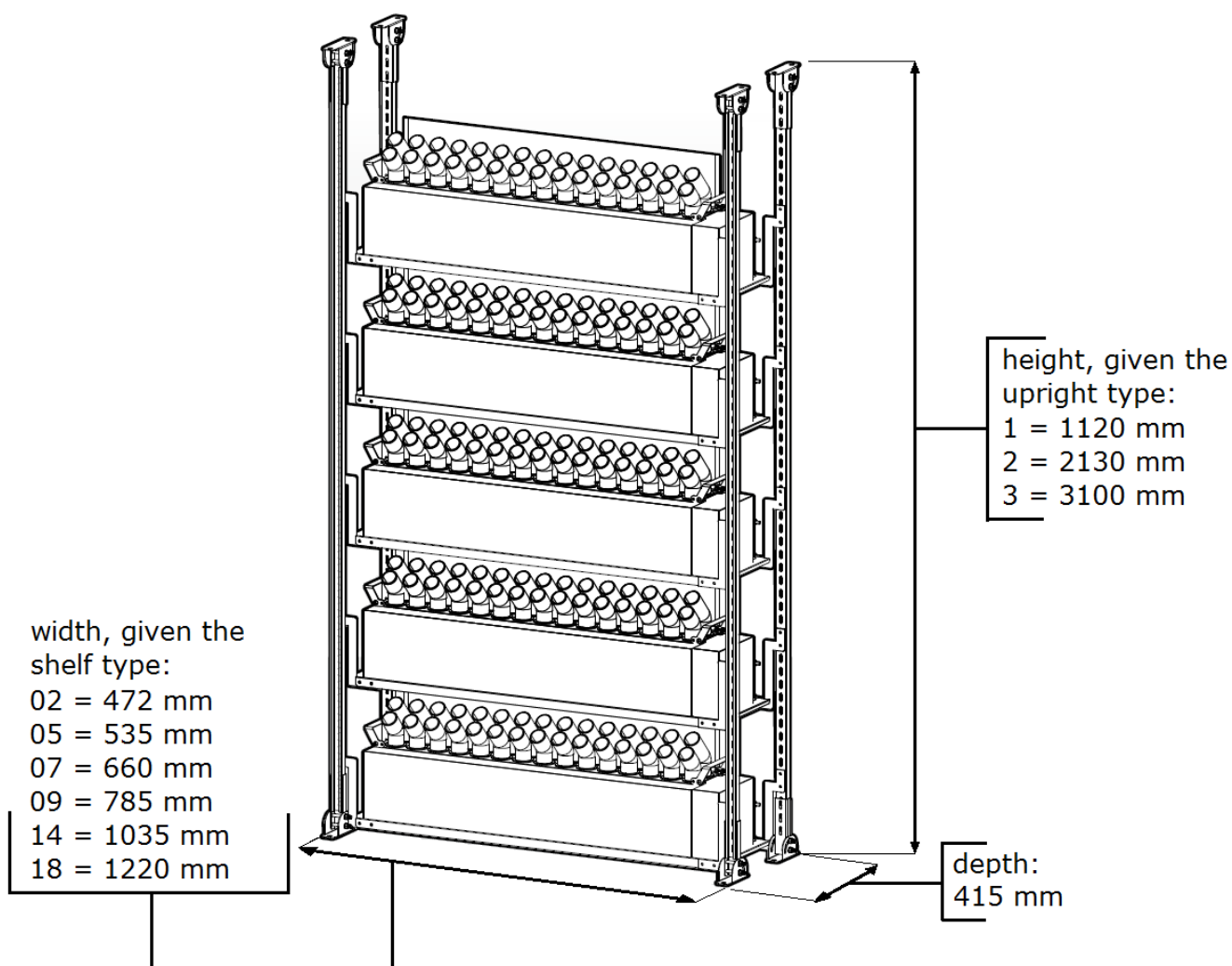
$$1 = 1 \text{ m}$$
$$2 = 2 \text{ m}$$
$$3 = 3 \text{ m}$$

shelves number:

from 1 to 2 with 1 m uprights

from 1 to 5 with 2 m uprights

from 1 to 8 with 3 m uprights



Components

Each structure comprises:

- **4 steel uprights**, available in different heights, (approximately) 1 m, 2 m or 3 m, which are adapted to fit the actual size of the duct by cutting them on site.
- **8 feet** to be fixed to both ends of each upright (4 at the top and 4 at the bottom), which are used to anchor the structure to the duct, both at the top and bottom.



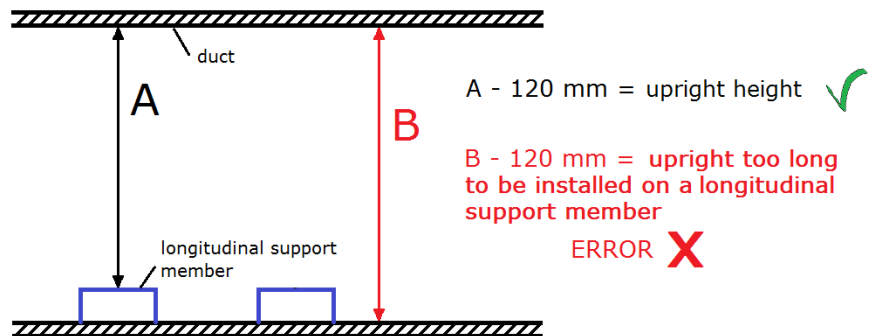
- A number of **shelves** that house the humiSonic units, one on each shelf. Each size of humiSonic has its own specific shelf width. Each structure can only house same-sized humiSonic units.
- **“L” brackets** that connect the shelves to the uprights.



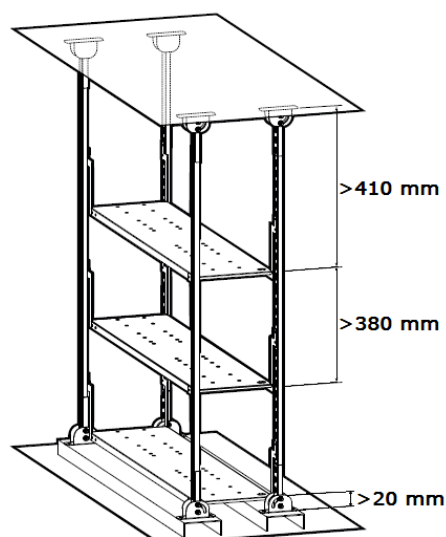
Assembly critical issues

To assemble the structure, refer to the illustrated quick guide (see code +050000885 – rel. 1.0 – 05/04/2016, available on KSA). Some of the more critical points are described below:

- The most delicate step in the assembly procedure involves **cutting the uprights** to the right height, determined by subtracting 120 mm (height of the feet) from the height of the duct at the point where the structure is installed (and making sure to take into account any longitudinal support members).



- If errors are made when measuring or cutting the uprights, there is a certain **flexibility in adjusting the overall height of the structure**, due to how the feet are coupled to the uprights. In the most stable configuration, it is recommended to attach the two feet so that the height of the upright is extended by 12 cm, however if needed, these can be fully extended to increase the overall height by a further 8 cm, giving a total of 20 cm.
- The structure must be fixed to the duct at the top and bottom, however take care at the bottom **not to drill into the condensate collection basin**.
- When determining the **height of the shelves**, leave adequate space between them (minimum 380 mm). Leave at least 20 mm between the bottom shelf and the base of the feet. Leave at least 410 mm between the top shelf and the top wall of the duct (see the quick guide and the image below).

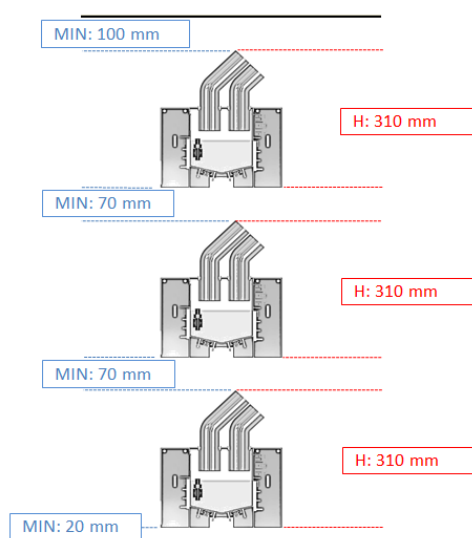


Alternative height configurations

The humiSonic Ventilation selection tool offers as solutions a series of units arranged into a certain number of side-by-side "columns". In order to fit a solution even in smaller ducts, alternative configurations are available which allow to shrink the size of the support structure and exploit a few extra centimetres, either in height or width.

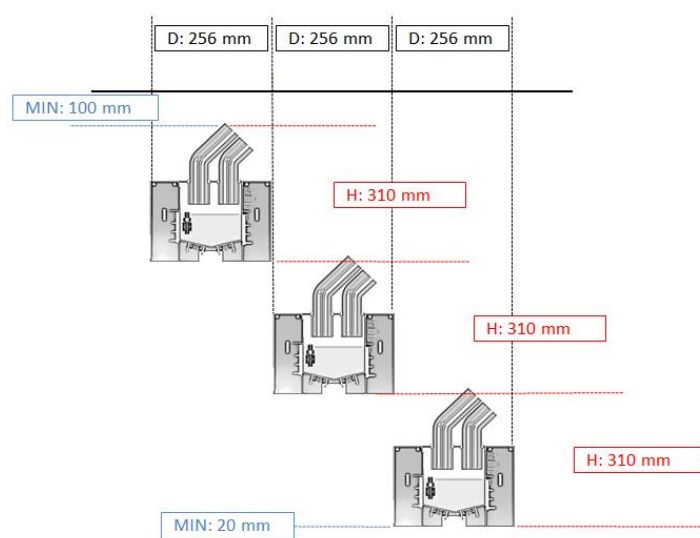
In-line or offset layout

The **in-line layout** is the standard solution, in which the humiSonic units forming one "column" are placed one on top of the other, with a minimum spacing of 70 mm. With the **offset layout**, on the other hand, each single unit is supported by its own structure, and these structures are positioned one behind the other. In this way, the minimum height between one humiSonic unit and the next is 0.



In-line layout

disadvantage: minimum height for 3 units = 1190 mm
advantage: just 1 structure with 3 shelves



Offset layout

advantage: minimum height for 3 units = 1050 mm
disadvantage: 3 separate structures with 1 shelf each

EXAMPLE

Assuming that the height of the duct is 1100 mm, with 3 units per column.

The in-line layout with 3 units occupies a height of:

$$\underbrace{20}_{\text{distance from the base of the feet}} + \underbrace{310}_{\text{H humiSonic}} + \underbrace{70}_{\text{distance between humiSonic}} + \underbrace{310}_{\text{H humiSonic}} + \underbrace{70}_{\text{distance between humiSonic}} + \underbrace{310}_{\text{H humiSonic}} + \underbrace{100}_{\text{distance from the upper wall of the duct}} = 1190 \text{ mm} > 1100 \text{ mm}$$

SOLUTION NOT AVAILABLE ❌

The offset layout on the other hand occupies a height of:

$$\underbrace{20}_{\text{distance from the base of the feet}} + \underbrace{310}_{\text{H humiSonic}} + \underbrace{310}_{\text{H humiSonic}} + \underbrace{310}_{\text{H humiSonic}} + \underbrace{100}_{\text{distance from the upper wall of the duct}} = 1050 \text{ mm} < 1100 \text{ mm}$$

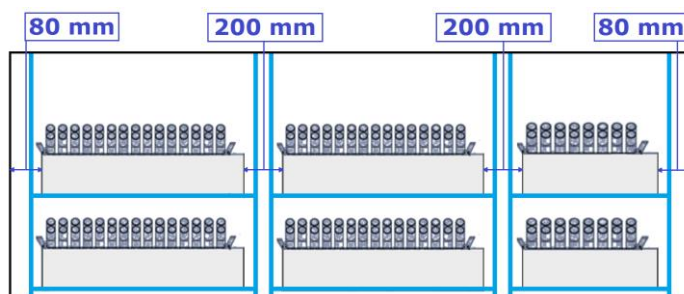
SOLUTION AVAILABLE ✅

and consequently a solution can be offered, however the customer needs to purchase 3 structures instead of 1, i.e. 2 more.

With the offset layout, more structures are needed and hence the cost is higher, yet at the same time **less height is occupied** for the same number of units.

Alternative width configurations

The minimum horizontal distances between humiSonic units in the standard configuration are as follows (these distances are needed to house the structures):



Double brackets

If there is more than one "column" and the duct is too small for the standard configuration, the double brackets solution can be used, in which **the "columns" installed side-by-side are brought nearer**, thus reducing the width occupied.

The double bracket is a special bracket used to **fix the shelves in two side-by-side "columns" to the same upright**. In this way, there is only 1 upright between the two sets of shelves, rather than 2 uprights as in the standard configuration.

The tool can therefore provide solutions to customers whose ducts would otherwise be around ten or so centimetres too narrow.



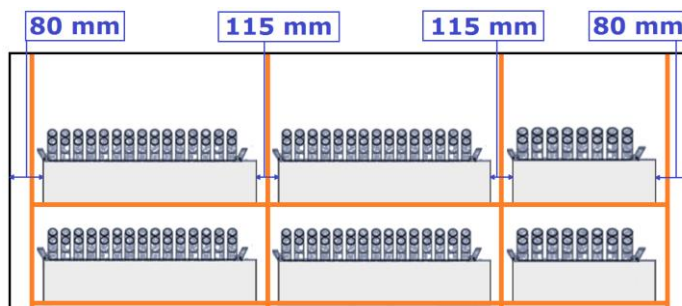
DOUBLE BRACKETS KIT

code: **14C743A462**

purpose: bring nearer the side-by-side columns
(The space saving compared to the standard configuration is **85 mm** if there are 2 columns, **170 mm** if there are 3)

The correct amount of double brackets kits is automatically selected by the tool

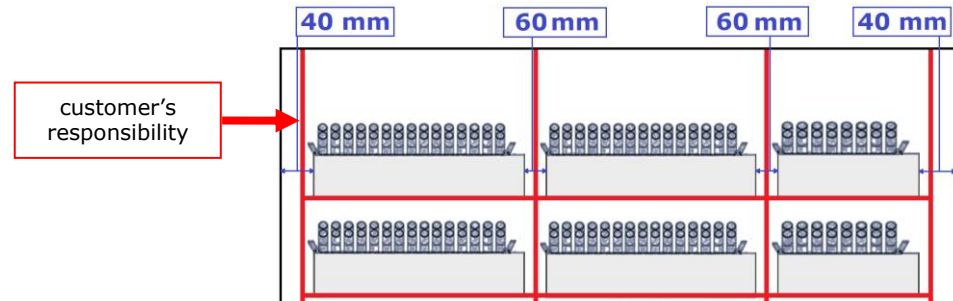
The distances between the humiSonic and the duct in the configuration with double brackets are as follows:



Double brackets are accessories that need to be ordered separately and **in addition to the structure**. Their installation involves removing a pair of uprights for each side-by-side "column", which must be purchased in any case, yet are redundant.

No structure

The final possibility involves not supplying the Carel structure and allowing the customer to fix the humidifiers in the duct as they please. This assumes that the customer uses a very simple and compact support structure, occupying minimum width. **The structure is NOT supplied**, and the estimated distances are as follow:



Selection tool logic

The tool uses the following logic to select the structure:

- Initially it tries to provide solutions with the complete structure and with the selected layout (in line or offset layout)
- If no solution can be found, it looks for a structure with double brackets, i.e. narrower.
- If still no solution is found, the structure is ignored, and the minimum dimensions needed to install the humiSonic are considered; an alert notifies the customer that no structure is available:

THE ONLY SOLUTIONS AVAILABLE ARE WITHOUT THE SUPPORT FRAME

- If no solution can be found even in this case, due to the small size of the duct compared to the humidification load, one of the following alerts is shown:

THERE ARE NO SOLUTIONS AVAILABLE WITH THE IN-LINE LAYOUT

The currently selected layout is the in line layout, and there is a solution with the offset layout.

THERE ARE NO SOLUTIONS AVAILABLE

There isn't any solution, with any layout.

- In cases where the structure is available, the customer can still choose not to purchase it; in this case, an alert will highlight that the customer is responsible for fixing the humidifiers in the duct:

THE SUPPORT FRAME IS NOT SELECTED: THE CLIENT IS RESPONSIBLE FOR FASTENING THE HUMISONIC TO THE DUCT