

## User Manual of the Families



# BIM

FAMILIES AIRTÈCNICS

ZEN MG, BB

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- 1. DESCRIPTION OF THE DOCUMENT**
- 2. TECHNICAL DATA OF THE FAMILIES**

## 1. DESCRIPTION OF THE DOCUMENT

This document has been written as a user manual of the families of AIRTECNICS, with a wide vision on how the BIM families available by the manufacturer shall be used and focusing on one of the products (ZEN) with the aim to see an example.

To follow correctly this document, datasheets of every product of AIRTECNICS must be at disposal (available on the web<sup>1</sup>) to know about the product, the available sizes, the accessories and its compatibility, ...

## 2. TECHNICAL DATA OF THE FAMILIES OF AIRTECNICS

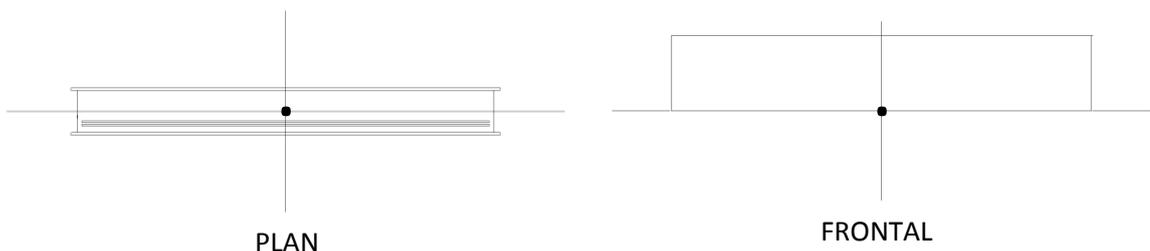
These are some data that the user shall know before using these families:

1. **Software used:** Software Revit 2016 of Autodesk
2. **Language families:** English
3. **Template of family:** Metric Generic Model.rft
4. **Nomenclature to be used for each family:**

Brand **type of product** **type of heating**

(Curtain ZEN): *AIRTECNICS\_ZEN\_AIR CURTAIN (P)*

5. **Insertion point of the family:** By default, a family *metrical generic model* has two reference planes created. The plan view plane, and a base plane called reference level. Regarding the location of the family in plan it will be in the centre of the cross of these two planes, what will define the insertion point of the family in the project. In a front view, the lower part of the family will be positioned above the base level. See the example:



6. **Materials:** There is a library **of** AIRTECNICS with the materials pre-configured, so the user can use it when a concrete material is required. If the material were not available in the library, a new one can be created, just duplicate an existing one. There is a texture that shall be copied in a concrete address so the instructions of the file ReadMe.txt shall be followed.

<sup>1</sup> <https://www.airtecnics.com/products>

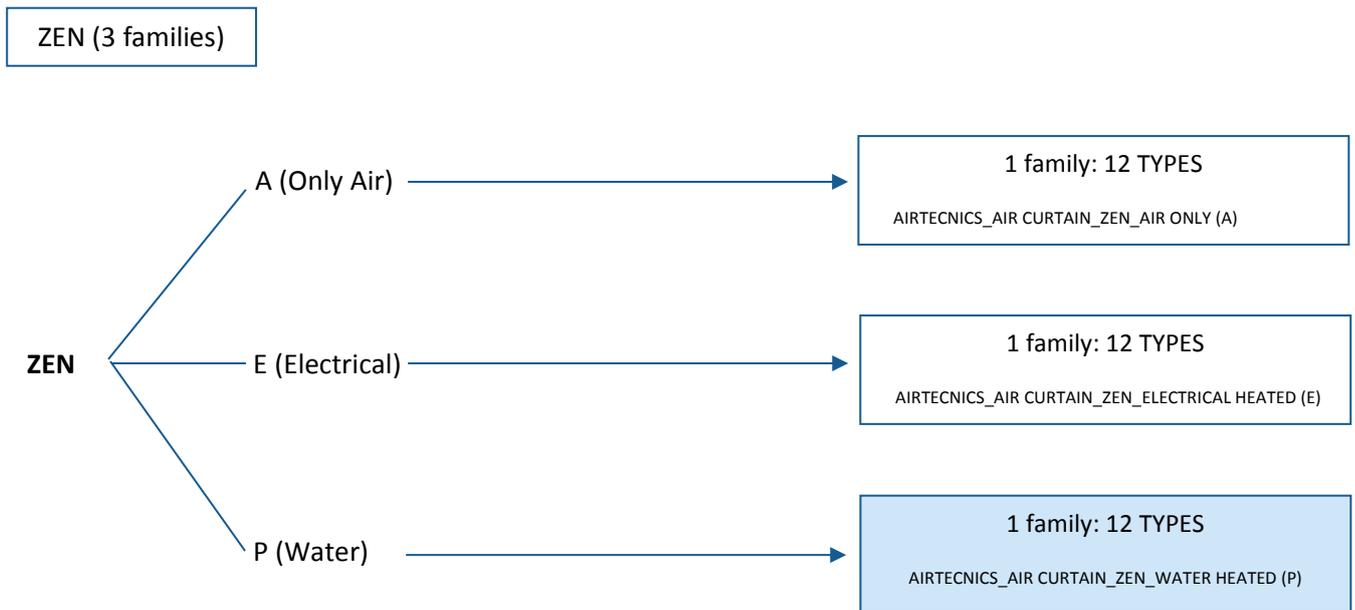
### **3. FAMILY ZEN (P)**

- 3.1 Diagram of the product
- 3.2 Description of the product
- 3.3 Load of the family in the project
- 3.4 Selection and configuration of the product in the project
- 3.5 Placement of the families in the project
- 3.6 *Product Reference*

### 3. FAMILY ZEN (P)

#### 3.1 Diagram of the product

The product ZEN is used as an example of family for the development of this document, specifically the family *AIRTECNICS\_AIR CURTAIN\_ZEN\_WATER HEATED (P)*. This product is composed by three families with their respective types. The families are defined according to the heating (only air, electrical and water) and the types are defined depending on the length of the curtain and the ventilation power. The families and types of the product are defined hereafter:



This family has 12 types:

- AIRTECNICS\_AIR CURTAIN\_ZEN\_WATER HEATED (P)
  - ..... ZEN ECG 1000 P
  - ..... ZEN ECG 1500 P
  - ..... ZEN ECG 2000 P
  - ..... ZEN ECG 2500 P
  - ..... ZEN G 1000 P
  - ..... ZEN G 1500 P
  - ..... ZEN G 2000 P
  - ..... ZEN G 2500 P
  - ..... ZEN M 1000 P
  - ..... ZEN M 1500 P
  - ..... ZEN M 2000 P
  - ..... ZEN M 2500 P

It is categorised in Revit as a Mechanical Equipment.

Regarding instances, the following configurations are available selecting an option of each instances parameters subgroup. It will depend on each air curtain:

**ZEN**

| <b>A (Only Air)</b>   | <b>E (Electrical)</b>  | <b>P (Water)</b>   |
|---|--|--|
| <ul style="list-style-type: none"> <li>· Position                             <ul style="list-style-type: none"> <li>- Horizontal</li> <li>- Vertical Left</li> <li>- Vertical Right</li> </ul> </li> <br/> <li>· Others                             <ul style="list-style-type: none"> <li>- Supports</li> <li>- Materials and Finishes</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>· Position                             <ul style="list-style-type: none"> <li>- Horizontal</li> <li>- Vertical Left</li> <li>- Vertical Right</li> </ul> </li> <br/> <li>· Heating                             <ul style="list-style-type: none"> <li>- E Standard</li> <li>- E Limited 1/3</li> <li>- E Limited 2/3</li> </ul> </li> <br/> <li>· Others                             <ul style="list-style-type: none"> <li>- Supports</li> <li>- Materials and Finishes</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>· Position                             <ul style="list-style-type: none"> <li>- Horizontal</li> <li>- Vertical Left</li> <li>- Vertical Right</li> </ul> </li> <br/> <li>· Heating                             <ul style="list-style-type: none"> <li>- P54 - 50/40°C - 4 ROWS</li> <li>- P64 - 60/40°C - 3 ROWS</li> <li>- P86 - 80/60°C - 2 ROWS</li> </ul> </li> <br/> <li>· Water pipes position                             <ul style="list-style-type: none"> <li>- Water Pipes_P1</li> <li>- Water Pipes_P2</li> <li>- Water Pipes_P3</li> <li>- Water Pipes_P4</li> </ul> </li> <br/> <li>· Others                             <ul style="list-style-type: none"> <li>- Supports</li> <li>- Materials and Finishes</li> </ul> </li> </ul> |

### 3.2 Description of the product

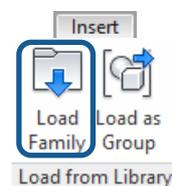
The product ZEN of AIRTÈCNICS is a decorative air curtain composed by two customizable panels. The models “P” include a hot water coil. The models “E” include an electrical heating element with three stages and regulation. The models “A” do not have heating, only air. The models “EC” include low consumption efficient EC fans.

This product may have several finishing. The most requested materials for the housing and the panels of the curtain are included in the families. More materials are created for the panels for being customizable. If the user cannot find the requested material, it can be created in the materials library of AIRTÈCNICS and assign it to the respective parameter. It can be seen in following sections of this manual.

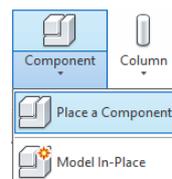
### 3.3 Load of the family in the project

The process between the acquisition of the RFA family and the positioning and configuration inside a Revit project are shown in this section:

1. The families of AIRTÈCNICS are available in the web of the manufacturer.
2. Open a Revit Project and select an appropriate view for the insertion of the family.
3. Select the tab “Insert” and click the “Load family” icon. Select the family that has been previously downloaded.



4. Once inserted, the family can be incorporated to the project. Select the tab “Architecture”, select “Component” and click “Place a component”.



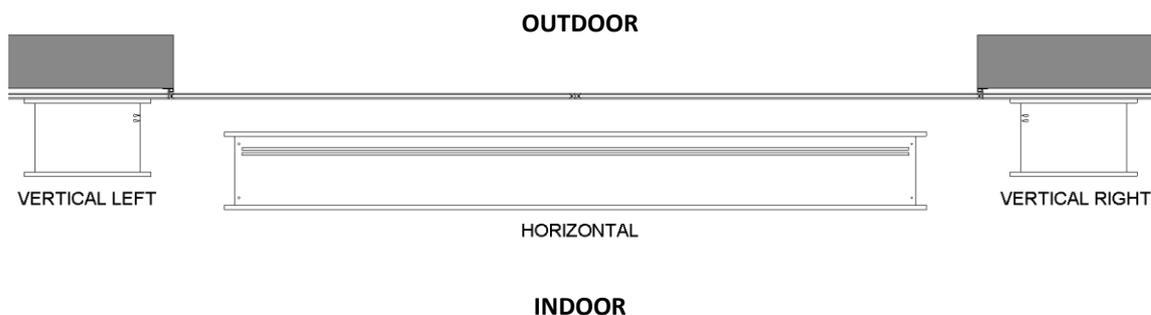
### 3.4 Placement of the families in the project

The families are created with no face or host, so they can be freely placed in the project. In the case of curtains Zen, there are three types of installation available:

- 1- Horizontal (by default). Select a Level before placing the family, and once placed select an *Offset* from the palette. If it were zero, it will be placed over the selected level. In case of the user would like to place also the support, only a length value regarding the parameter *Support Length* must be given. This support length starts from the housing of the curtain.
- 2- Vertical left or Vertical right. Select one of the two options in the palette Properties (*Vertical Left*, *Vertical Right*) before placing the family, according to the side of the door where the curtain will be installed (view from inside the building), select a Level and it will be placed over it

In the following picture an example of the three possible positions of installation are shown:

| Dimensions                   |                                     |
|------------------------------|-------------------------------------|
| Supports Length              | 467.0                               |
| Angle                        | 0.000°                              |
| A                            | 236.5                               |
| Mainfolds                    | 2x3/4" F                            |
| D_Pipping_Connector          | 20.0 mm                             |
| Identity Data                |                                     |
| Product Description          | Self-supporting casing cons...      |
| Product Reference            | ZEN ECG 2500 P86                    |
| Product Heating              | P86 - 80/60°C - 2 ROWS              |
| Image                        |                                     |
| Comments                     |                                     |
| Mark                         | 4                                   |
| Phasing                      |                                     |
| Phase Created                | Nueva construcción                  |
| Phase Demolished             | None                                |
| General                      |                                     |
| - HEATING -                  | -/ Select Heating /-                |
| P54 - 50/40°C - 4 ROWS       | <input type="checkbox"/>            |
| P64 - 60/40°C - 3 ROWS       | <input type="checkbox"/>            |
| P86 - 80/60°C - 2 ROWS       | <input checked="" type="checkbox"/> |
| - POSITION -                 | -/ Select Curtain Position /-       |
| Horizontal                   | <input checked="" type="checkbox"/> |
| Vertical Left                | <input type="checkbox"/>            |
| Vertical Right               | <input type="checkbox"/>            |
| PIPES POSITION               | -/ Select Pipes Position /-         |
| Water Pipes_P1               | <input type="checkbox"/>            |
| Water Pipes_P2 (Std)         | <input type="checkbox"/>            |
| Water Pipes_P3               | <input checked="" type="checkbox"/> |
| Water Pipes_P4               | <input type="checkbox"/>            |
| - OTHERS -                   | -/ Select Supports - Inst.Mai...    |
| Supports (Horizontal)        | <input checked="" type="checkbox"/> |
| Aspiration/Maintenance Space | <input checked="" type="checkbox"/> |

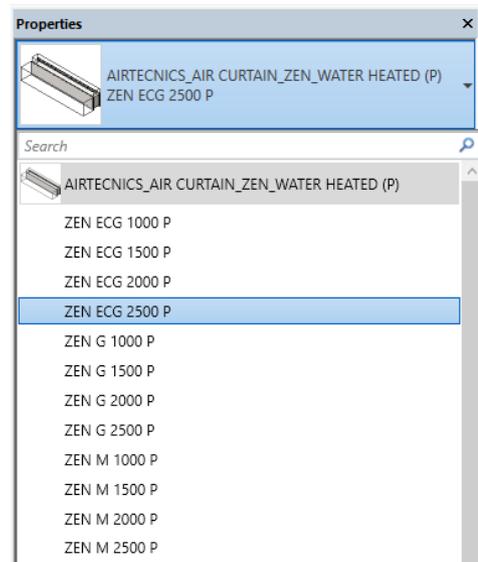


In addition, the needed space for the inlet air and the maintenance of the curtain can be selectable to be shown, with the aim to be placed correctly and not collide with any other object. The parameter *Aspiration/Maintenance Space* can be activated or deactivated for each air curtain.

### 3.5 Selection and configuration of the product in the project

Once the family has been positioned in the project, the type, materials, heating type and the pipe position can be configurable. Select the family and the following box will be displayed in Properties.

In this picture, all the selectable types are shown, which depends on the length (L) of the curtain and on the fan power.



| Properties                                      |                                     |
|---|-------------------------------------|
|   |                                     |
| Mechanical Equipment (1) <span>Edit Type</span> |                                     |
| <b>Constraints</b>                              |                                     |
| Level   | Nivel 1                             |
| Host  | Level : Nivel 1                     |
| Offset  | 2500.0                              |
| <b>Materials and Finishes</b>                   |                                     |
| Material Curtain                                | AIRTECNICS_Black Forge              |
| Material Panels                                 | AIRTECNICS_Stainless Steel ...      |
| <b>Electrical - Loads</b>                       |                                     |
| Current Fans                                    | 6.65 A                              |
| Power Fans                                      | 1.49800 kW                          |
| Apparent Load                                   | 15285.71 VA                         |
| Power Factor                                    | 0.979405                            |
| Panel   |                                     |
| Circuit Number                                  |                                     |
| <b>Mechanical</b>                               |                                     |
| System Classification                           | Hydronic Supply,Power               |
| System Name                                     | Suministro hidrónico 4,Sum...       |
| <b>Mechanical - Flow</b>                        |                                     |
| Airflow   | 5250.0000 m³/h                      |
| Heating Capacity                                | 26.61000 kW                         |
| Water Drop Pressure                             | 5060.00 Pa                          |
| Water Coil Rows                                 | 3                                   |
| Water Coil Volume                               | 3.9 L                               |
| Water Flow Connector                            | 0.31 L/s                            |
| Weight  | 96.000 kg                           |
| Noise Level (dB(A))                             | 60.000000                           |
| <b>Dimensions</b>                               |                                     |
| Supports Lenght                                 | 0.0                                 |
| Angle   | 0.000°                              |
| A   | 236.5                               |
| Mainfolds                                       | 2x3/4" F                            |
| D_Pipping_Connector                             | 20.0 mm                             |
| <b>Identity Data</b>                            |                                     |
| Product Description                             | Self-supporting casing cons...      |
| Product Reference                               | ZEN G 2500 P64                      |
| Product Heating                                 | P64 - 60/40°C - 3 ROWS              |
| Image   |                                     |
| Comments  |                                     |
| Mark  | 10                                  |
| <b>Phasing</b>                                  |                                     |
| Phase Created                                   | Nueva construcción                  |
| Phase Demolished                                | None                                |
| <b>General</b>                                  |                                     |
| · HEATING ·                                     | -/ Select Heating /-                |
| P54 - 50/40°C - 4 ROWS                          | <input type="checkbox"/>            |
| P64 - 60/40°C - 3 ROWS                          | <input checked="" type="checkbox"/> |
| P86 - 80/60°C - 2 ROWS                          | <input type="checkbox"/>            |
| · POSITION ·                                    | -/ Select Curtain Position /-       |
| Horizontal                                      | <input checked="" type="checkbox"/> |
| Vertical Left                                   | <input type="checkbox"/>            |
| Vertical Right                                  | <input type="checkbox"/>            |
| PIPES POSITION                                  | -/ Select Pipes Position /-         |
| Water Pipes_P1                                  | <input type="checkbox"/>            |
| Water Pipes_P2 (Std)                            | <input checked="" type="checkbox"/> |
| Water Pipes_P3                                  | <input type="checkbox"/>            |
| Water Pipes_P4                                  | <input type="checkbox"/>            |
| · OTHERS ·                                      | -/ Select Supports - Inst.Mai...    |
| Supports (Horizontal)                           | <input type="checkbox"/>            |
| Aspiration/Maintenance Space                    | <input checked="" type="checkbox"/> |

Keeping in the same box, all the instance parameters every family has can be seen:

**Materials and Finishes:** Allows to choose a finish for the housing and other one for the panels of the curtain. There is a library of materials where the new materials can be added/created if it were necessary.

**Electrical - Loads:** Gives the electrical information related to the selected product.

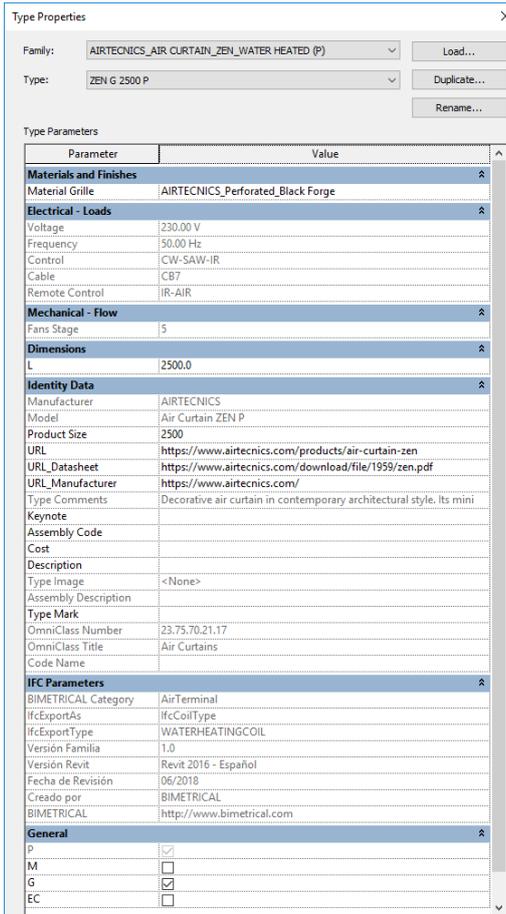
**Mechanical - Flow:** Gives the heating information, the airflow and, also, the weight and the noise level of the selected product.

**Dimensions:** In addition to the dimensional information, it allows to give a length to the supports when the curtain is positioned horizontally, in the parameter *Supports Lenght*.

**Identity Data:** A description of the instance, the concrete reference and the type of heating selected are shown in this group.

**General:** The configuration of the product is completed in this group. There are four groups:

1. · HEATING ·: The user shall choose the type of heating, which depends on each family.
2. · POSITION ·: Allows to choose the position of the curtain, while it is being positioned or once positioned.
3. · PIPES POSITION ·: Allows to choose one of the four possible positions for the two water pipes (only for the family of water heating).
4. · OTHERS ·: If it is necessary, the space for the inlet and the maintenance can be shown (or hidden) when choosing the parameter.



The type parameters the family has are shown in *Edit Type*, inside the *Properties* box. These are the main groups:

**Electrical/Mechanical:** In this group there are some common technical data for the instances such as the voltage, frequency or the type of control and cable.

**Identity Data:** This group of parameters shows information regarding the manufacturer, the concrete model, description of the product, URLs, classifications, ...

**IFC Parameters:** Information regarding the classification IFC of the family, control data, reviews,...

### 3.6 Product Reference and Product Heating

The following **instance parameters** generate automatically the complete reference of the product according to the selected type and the chosen heating configuration:

Selected type:



Selected configuration:

| General                |                                     |
|------------------------|-------------------------------------|
| - HEATING -            | - / Select Heating / -              |
| P54 - 50/40°C - 4 ROWS | <input type="checkbox"/>            |
| P64 - 60/40°C - 3 ROWS | <input type="checkbox"/>            |
| P86 - 80/60°C - 2 ROWS | <input checked="" type="checkbox"/> |

#### References

|                   |                        |
|-------------------|------------------------|
| Product Reference | ZEN G 2500 P86         |
| Product Heating   | P86 - 80/60°C - 2 ROWS |

When an incompatibility exists between the selected accessories, the following message will be displayed:



## **4. LOGICAL CONNECTION OF THE CONNECTORS**

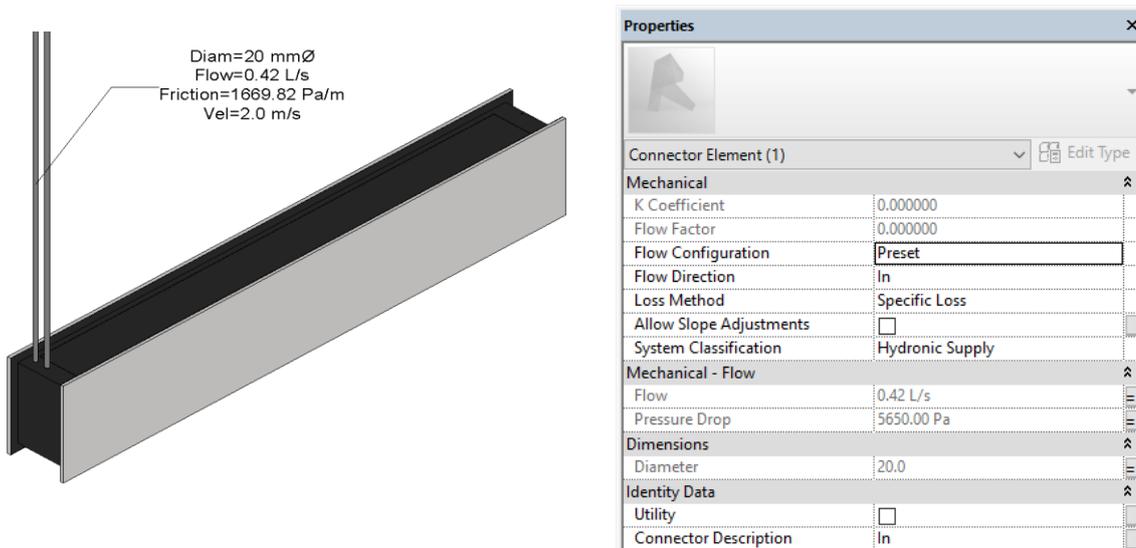
**4.1 Water connectors**

**4.2 Electrical connectors**

## 4. LOGICAL CONNECTION OF THE CONNECTORS

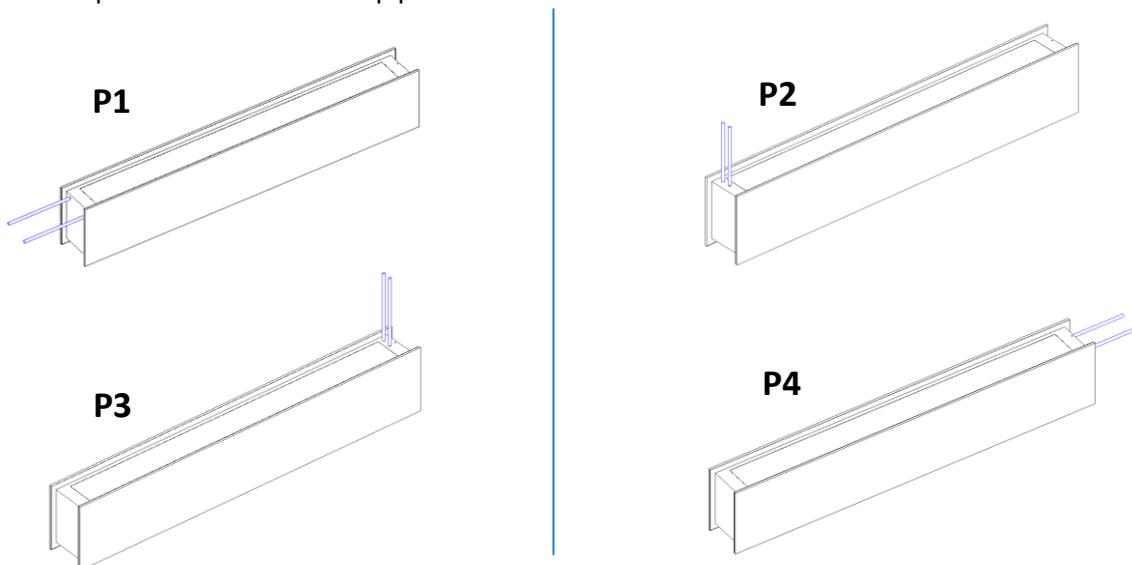
### 4.1 Water connectors

The connectors are basically logical entities which allows to dimension the facilities of a project. The products of AIRTECNICS already have the connectors configured by default. For example, and following the example of the family *AIRTECNICS\_AIR CURTAIN\_ZEN\_WATER HEATED (P).rfa*, the type of connector is *Pipe Connector* and, in the case of the family water (P) ZEN, it is configured as below:



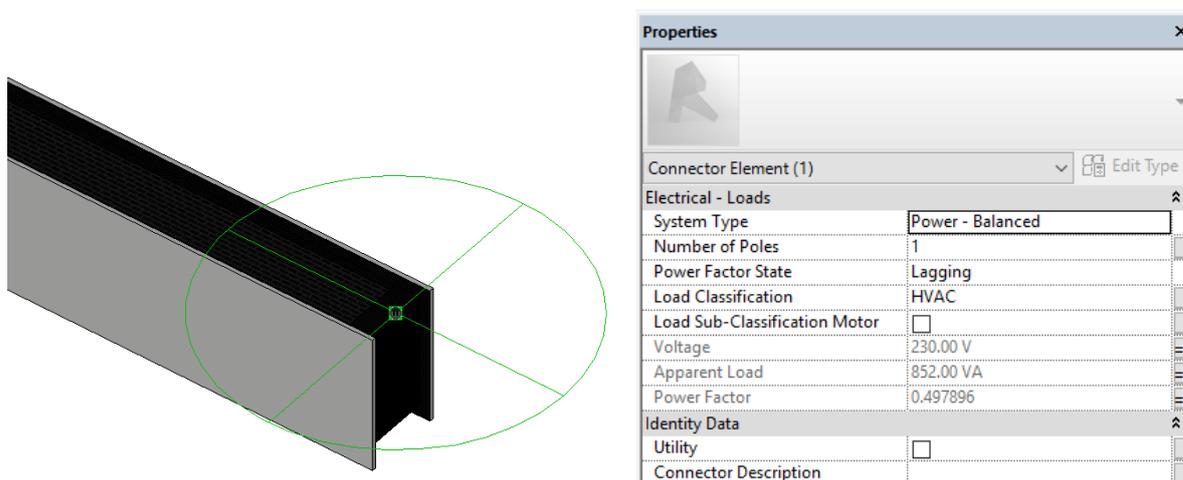
- **Flow configuration:** *Predefined*. Because of calculation reasons, the waterflow value which demands the curtain is predefined. Also, the outlet connector (with the same flow).
- **Direction of the flow:** *Inlet*. The flow enters through the connector because it is water supply.
- **Classification of the system:** *Hydronic Supply*.
- **Loss method:** *Specific loss*. It is specified depending on the flow.
- **Load loss:** Total load loss, associated to the parameter *Water Drop Pressure*.
- **Flow:** Total Flow inside the air curtain, associated to the parameter *Water Flow Connector*.

Possible positions for the water pipes:



## 4.2 Electrical Connector

The electrical connector of the three families of the product ZEN is always located in the same point of the air curtain. Following the same example that with the water connectors:



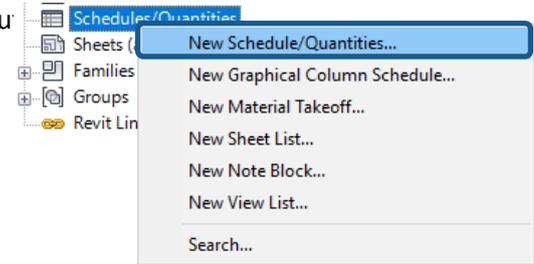
- **Type of system:**
  - o Electrical heating family: Power – Unbalanced (only ventilation line)
  - o Without heating and water heating families: Power – Balanced
- **Number of poles:**
  - o Electrical heating family: 3 poles
  - o Without heating and water heating families: 1 pole
- **Status of the power factor:** Phase delay.
- **Classification of load:** HVAC has been defined as a constant calculation method and a demand factor of the 100%.
- **Voltage:**
  - o Electrical heating family: 400V
  - o Without heating and water heating families: 230V
- **Phase 1,2,3 of apparent load:** Depending on the parameter(s) of apparent load.
- **Power factor:** Value of the relation between the fan power (kW) and the apparent load of them (VA). In case of electrical type this field can be empty, and an informative field is added with the fan power factor.

## 5. SCHEDULES

## 5. SCHEDULES

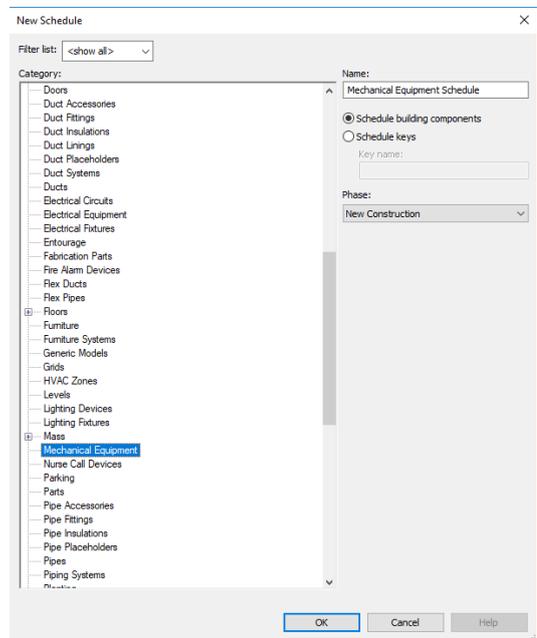
Once the modelling is finished, the information can be extracted by different means. One of them is with the “Schedules”. Hereafter, some examples of schedules that the user can create following the steps are shown:

1. Go to the “Project browser” and click with the right button option “New Schedule/Quantities”.

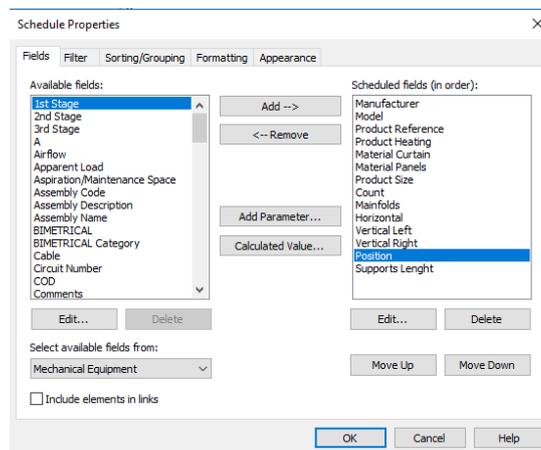


2. First, the user must choose the category. In this case, “Mechanical Equipment”.

Once the schedule has been created, the parameters from which the information must be extracted shall be configured. The parameter in the list on the left side must be selected, and then click in the icon “Add->”. It allows to filter, order and classify the parameters, and to change the appearance of the schedule or change the units of the parameters. In short, it allows to adapt the schedule according to the information the user wants to present.



Consider that calculated values of the parameters to be inserted in the schedules can also be created. For example, to obtain the *Position* of the curtain according to the selectors selected:



Formula: `if(Horizontal, "Horizontal", if(and(Vertical Left, not(Horizontal)), "Vertical Left", "Vertical Right"))`

### 3. Examples

#### Schedule: Quantities

| <01-AIRTECNICS-Air Curtains_Quantities> |                   |                     |                        |                        |                                     |              |       |           |                |                 |
|---|-------------------|---------------------|------------------------|------------------------|-------------------------------------|--------------|-------|-----------|----------------|-----------------|
| A                                       | B                 | C                   | D                      | E                      | F                                   | G            | H     | I         | J              | K               |
| Manufacturer                            | Model             | Product Reference   | Product Heating        | Material Curtain       | Material Panels                     | Product Size | Count | Mainfolds | Position       | Supports Length |
| AIRTECNICS                              | Air Curtain ZEN E | ZEN M 2000 E        | E Limited 1/3          | AIRTECNICS_Black Forge | AIRTECNICS_Stainless Steel Polished | 2000         | 1     |           | Vertical Right | 0 mm            |
| AIRTECNICS                              | Air Curtain ZEN P | ZEN ECG 2500 P64    | P64 - 60/40°C - 3 ROWS | AIRTECNICS_Black Forge | AIRTECNICS_Stainless Steel Polished | 2500         | 1     | 2x3/4" F  | Horizontal     | 467 mm          |
| AIRTECNICS                              | Air Curtain ZEN A | ZEN ECG 2000 A      | Air                    | AIRTECNICS_Black Forge | AIRTECNICS_Stainless Steel Polished | 2000         | 1     |           | Vertical Left  | 0 mm            |
| AIRTECNICS                              | Air Curtain ZEN E | ZEN M 2000 E        | E Limited 1/3          | AIRTECNICS_Black Forge | AIRTECNICS_Stainless Steel Polished | 2000         | 1     |           | Vertical Right | 0 mm            |
| AIRTECNICS                              | Air Curtain ZEN P | Consult Manufacture | Consult Manufacturer   | AIRTECNICS_Black Forge | AIRTECNICS_Stainless Steel Polished | 2500         | 1     | 2x1" M    | Horizontal     | 0 mm            |

#### Schedule: Technical Data

| <02-AIRTECNICS-Air Curtains_Technical Data> |                   |                   |                        |       |              |            |                           |                      |                     |           |                     |           |         |        |                |
|---|-------------------|-------------------|------------------------|-------|--------------|------------|---------------------------|----------------------|---------------------|-----------|---------------------|-----------|---------|--------|----------------|
| A   | B                 | C                 | D                      | E     | F            | G          | H                         | I                    | J                   | K         | L                   | M         | N       | O      | P              |
| Manufacturer                                | Model             | Product Reference | Product Heating        | Count | Current Fans | Power Fans | Electrical - Current Fans | Water Flow Connector | Water Drop Pressure | Mainfolds | Noise Level (dB(A)) | Weight    | Control | Cable  | Remote Control |
| AIRTECNICS                                  | Air Curtain ZEN E | ZEN M 2000 E      | E Limited 1/3          | 1     | 1.88 A       | 0.42 kW    | 27.86 A                   |                      |                     | 57        | 75.00 kg            | CE-SAW-IR | CB7     | IR-AIR |                |
| AIRTECNICS                                  | Air Curtain ZEN P | ZEN ECG 2500 P86  | P86 - 80/60°C - 2 ROWS | 1     | 4.34 A       | 0.50 kW    |                           | 0.42 L/s             | 5650.0 Pa           | 64        | 96.00 kg            | CW-SAW-IR | CB7     | IR-AIR |                |
| AIRTECNICS                                  | Air Curtain ZEN A | ZEN ECG 2000 A    | Air                    | 1     | 3.72 A       | 0.43 kW    |                           |                      |                     | 63        | 80.00 kg            | CA-SAW-IR | CB7     | IR-AIR |                |
| AIRTECNICS                                  | Air Curtain ZEN E | ZEN M 2000 E      | E Limited 1/3          | 1     | 1.88 A       | 0.42 kW    | 27.86 A                   |                      |                     | 57        | 75.00 kg            | CE-SAW-IR | CB7     | IR-AIR |                |
| AIRTECNICS                                  | Air Curtain ZEN P | ZEN G 2500 P86    | P86 - 80/60°C - 2 ROWS | 1     | 6.65 A       | 1.50 kW    |                           | 0.39 L/s             | 4930.0 Pa           | 60        | 96.00 kg            | CW-SAW-IR | CB7     | IR-AIR |                |



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