



Families User Manual



BIM

AIRTÈCNICS REVIT FAMILIES
ROTOWIND

CONTENT

1.	DESCRIPTION OF THE DOCUMENT	4
2.	TECHNICAL DATA OF THE FAMILIES OF AIRTÈCNICS	4
3.	FAMILY WINDBOX MG (P).....	7
	3.1 Diagram of the product	7
	3.2 Product description	9
	3.3 Load of the family in the project	9
	3.4 Placement of the families in the project.....	10
	3.5 Selection and configuration of the product in the project	11
	3.6 <i>Product Reference</i> and <i>Product Heating</i>	14
4.	LOGICAL CONNECTION OF THE CONNECTORS	16
	4.1 Water Connectors.....	16
	4.2 Electrical Connector.....	17
5.	SCHEDULES	19

- 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 (ROTOWIND) 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 web¹) to know about the product, the available sizes, the accessories and its compatibility, ...

2. TECHNICAL DATA OF THE FAMILIES OF AIRTECNICS

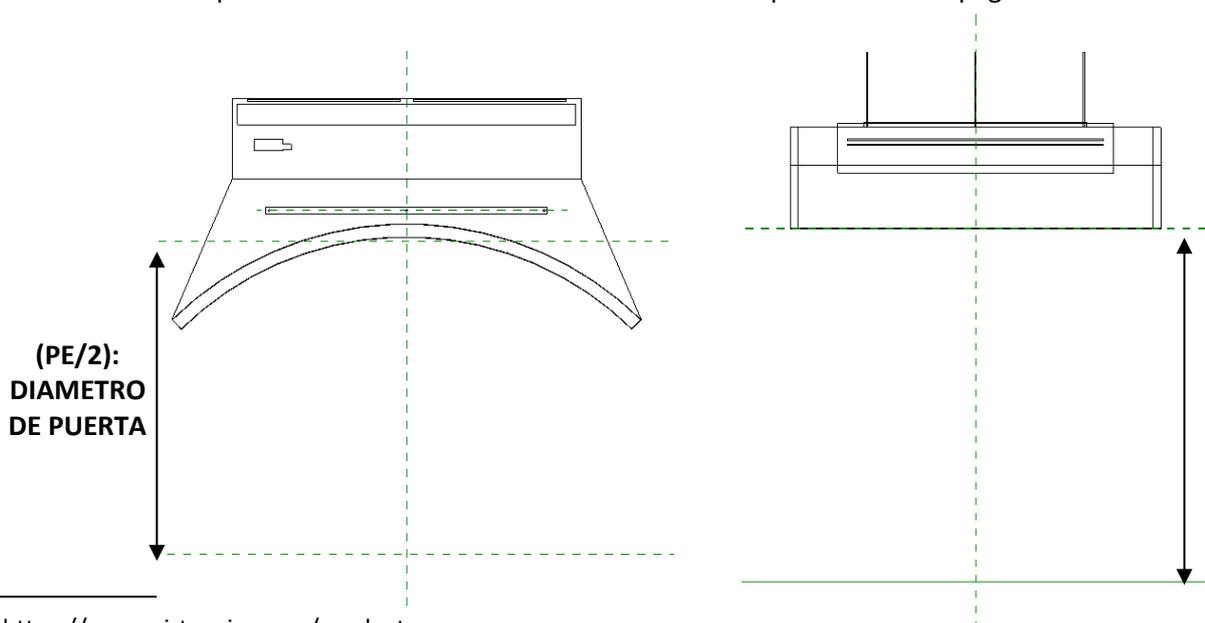
These are some data that the user shall know before using these families:

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:**

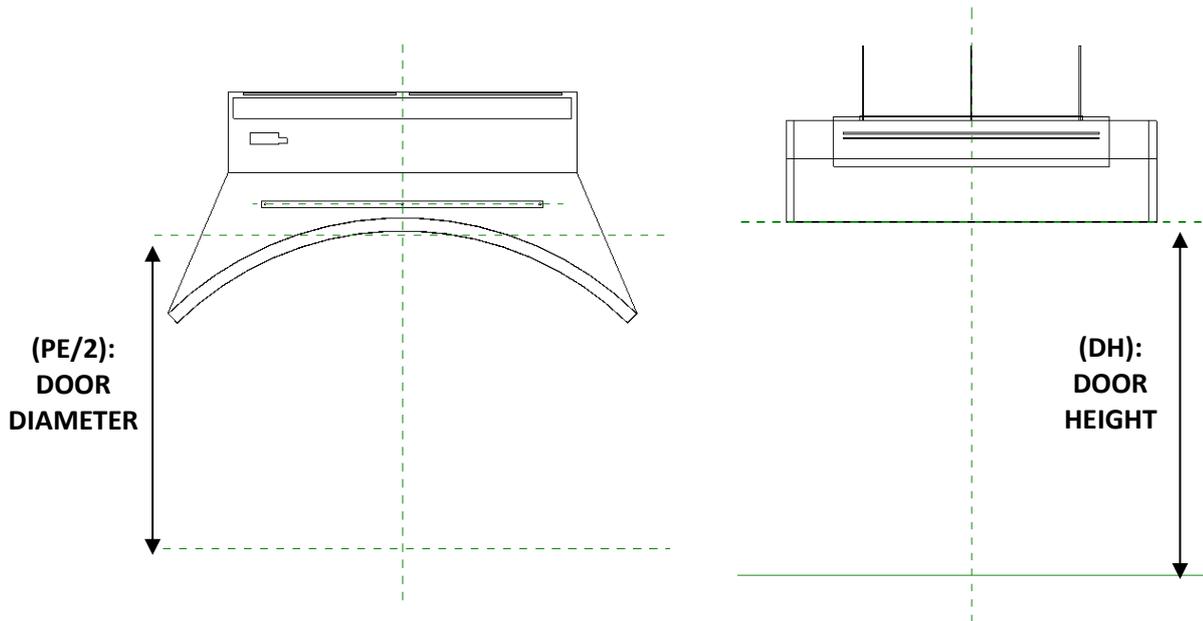
Brand_type of product_type of heating – type of installation

(ROTOWIND Air Curtain): AIRTECNICS_AIR CURTAIN_ROTOWIND_WATER HEATED (P) – (False Ceiling Installation)

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 on the next page:



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



- 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.

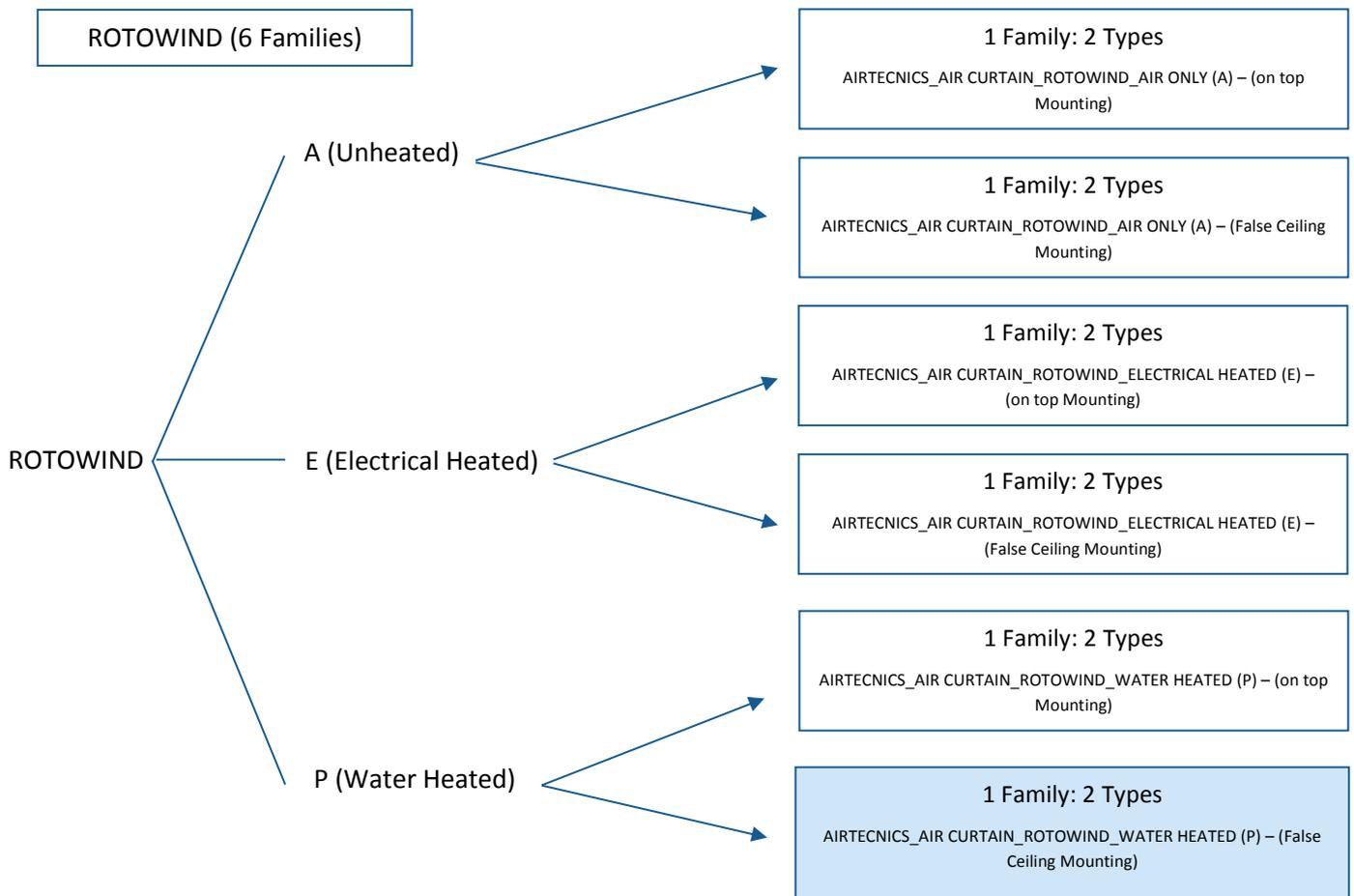
3. FAMILY ROTOWIND (P)

- 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 and Heating Product

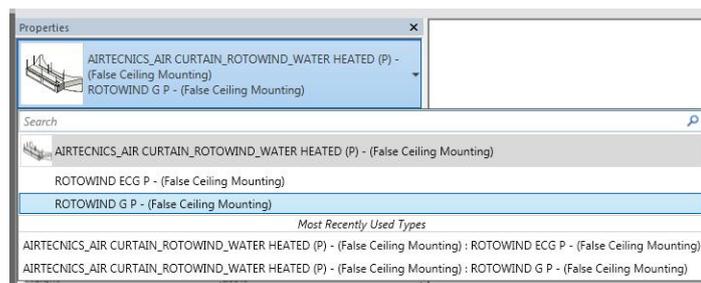
3. FAMILY WINDBOX MG (P)

3.1 Diagram of the product

The product ROTOWIND is used as an example of family for the development of this document, specifically the family *AIRTECNICS_AIR CURTAIN_ROTOWIND_WATER HEATED (P) – False Ceiling Installation*. This product is composed by six families with their respective types. The families are defined according to the heating (only air, electrical and water) and the type of installation (On top Mounting and False Ceiling Installation) 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 2 Types:



It is categorised in Revit as a *Mechanical Equipment*.

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

WINBOX MG

A (Only Air) – On Top Mounting or False Ceiling	E (Electrical) – On Top Mounting or False Ceiling	P (Water) – On Top Mounting or False Ceiling
<ul style="list-style-type: none"> · Air Curtain Length <ul style="list-style-type: none"> - 1000 - 1500 - 2000 - 2500 · Others <ul style="list-style-type: none"> - Supports - Materials and Finishes 	<ul style="list-style-type: none"> · Air Curtain Length <ul style="list-style-type: none"> - 1000 - 1500 - 2000 - 2500 · Heating <ul style="list-style-type: none"> - E Standard - E Limited 1/3 - E Limited 2/3 · Others <ul style="list-style-type: none"> - Supports - Materials and Finishes 	<ul style="list-style-type: none"> · Air Curtain Length <ul style="list-style-type: none"> - 1000 - 1500 - 2000 - 2500 · Heating <ul style="list-style-type: none"> - P54 - 50/40°C - 4 ROWS - P64 - 60/40°C - 3 ROWS - P86 - 80/60°C - 2 ROWS · Water pipes position <ul style="list-style-type: none"> - Water Pipes_P1 - Water Pipes_P2* - Water Pipes_P3* - Water Pipes_P4 * Only On Top Mounting · Others <ul style="list-style-type: none"> - Supports - Materials and Finishes

3.2 Product description

Rotowind air curtains for revolving doors are designed to fit perfectly with the curvature of the revolving door. Therefore, it could be said that each air curtain is unique. They are mounted discreetly above the revolving door in two possible configurations and are usually painted with the same colour as the revolving door to combine with the internal or external aesthetics of the building. 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 of the curtain are included in the families. 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

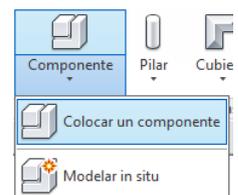
The process between the acquisition of the RFA family and the positioning and configuration inside a Revit project are shown in this section:

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

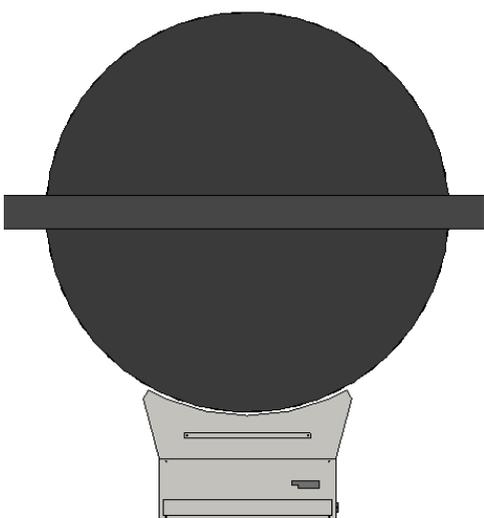
The families are created with no face or host, so they can be freely placed in the project. In the case of curtains Windbox, there are seven types of installation available:

1. **On Top Mounting.** Select a Level before placing the family, after that, the air curtain is placed at a certain Height “*Door Height*”. This type of installation has two different supports available (silentblocks on top of the door or threaded bars) which can be changed by a selector. Also, the bar length can be changed using the parameter “*Support Length*”. This support length starts from the housing of the curtain.
2. **False Ceiling Installation.** The colocation process is the same as On Top Mounting with the only difference that this model only has the threaded bars subjection system.

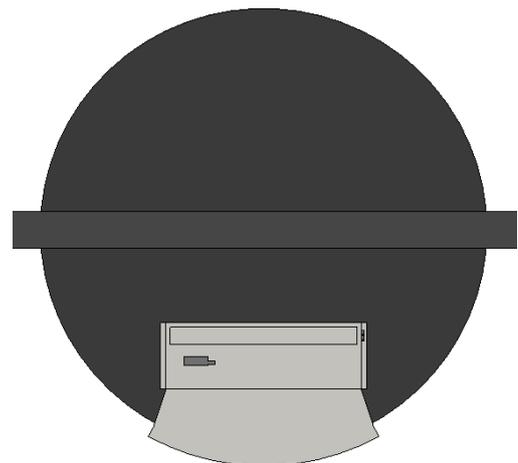
In the following picture an example of the three possible positions of installation are shown:

Dimensions	
- DIMENSIONS CONFIGURATION -	
PE (Door Diameter)	2400.0
DW (Door Opening)	1074.0
DH (Door Height)	2050.0
CH (Canopy Height)	400.0
- AUTOMATIC DIMENSIONS -	
-/ Auto-Set Dimensions /-	
L	1050.0
WS	845.0
Depth	360.0
Height	285.0
Length	1050.0
L nozzle support	750.0
Mainfolds	2x3/4" M
D_Pipping_Connector	20.0 mm
General	
- 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"/>
- PIPES POSITION -	
-/ Select Pipes Position /-	
Water Pipes_P1	<input type="checkbox"/>
Water Pipes_P2	<input type="checkbox"/>
Water Pipes_P3	<input type="checkbox"/>
Water Pipes_P4	<input checked="" type="checkbox"/>
- SUPPORTS -	
-/ Select Supports /-	
Fixed onto the Door	<input checked="" type="checkbox"/>
Hanging from the Ceiling	<input type="checkbox"/>
Supports Length	0.0
- OTHERS -	
-/ Select Inst.Maint. Space /-	
Aspiration/Maintenance Space	<input type="checkbox"/>

OUTDOOR OF THE BUILDING



Instalación en Falso Techo

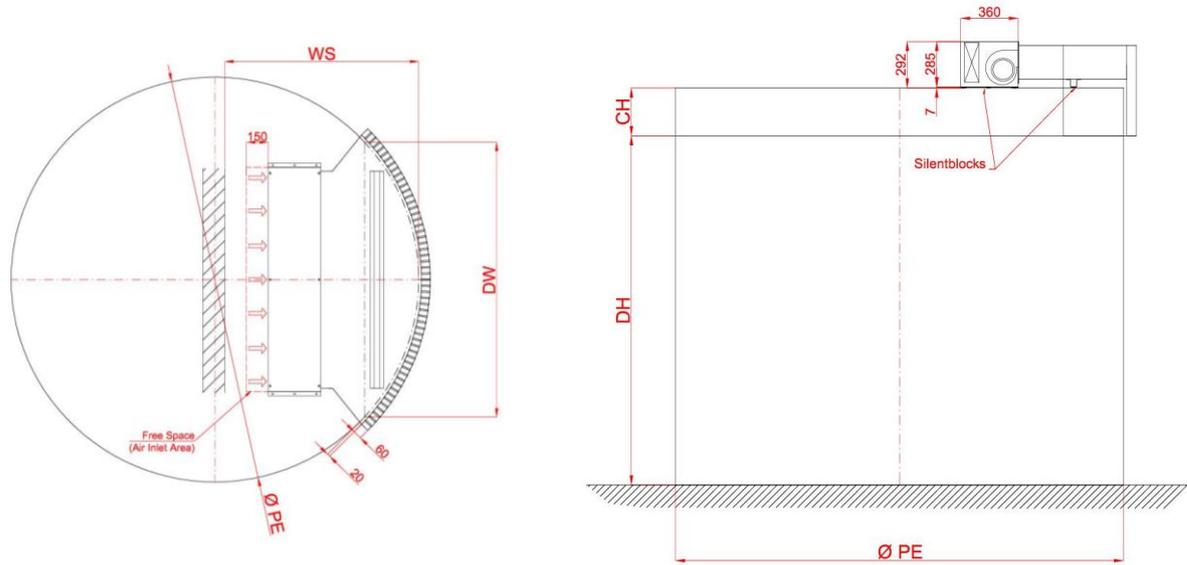


Instalación Sobre Puerta

INDOOR OF THE BUILDING

To be able to configure the air Curtains length and to adapt it to the revolving door where should be installed, the “*Dimensions Configuration*” parameters must be modified:

- PE (Door Diameter): External door diameter.
- DW (Door Opening): Traffic zone, door width.
- DH (Door Height): From the floor to the beginning of the canopy.
- CH (Canopy Height): From the top of the door up to the higher point on the door structure.



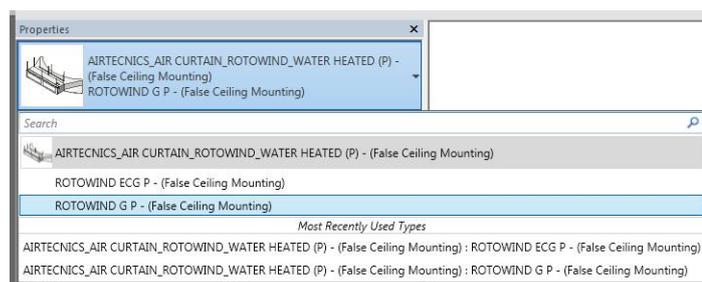
In addition, the needed space for the inlet air and the maintenance of the curtain can be selectable to be shown, with the aim to be placed correctly and not collide with any other object. The parameter *Aspiration/Maintenance Space* can be activated or deactivated for each air curtain.

· OTHERS ·	- / Select Supports - Inst.Mai...
Aspiration/Maintenance Space	<input checked="" type="checkbox"/>

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	
	AIRTECNICS_AIR CURTAIN_ROTOWIND_WATER HEATED (P) - (On Top Mounting) ROTOWIND G P - (On Top Mounting)
Mechanical Equipment (1) Edit Typ	
Constraints	
Level	Level 1
Host	Level : Level 1
Offset	0.0
Materials and Finishes	
Material Curtain	AIRTECNICS_White RAL 9016
Material Decorative Front Cover	AIRTECNICS_White RAL 9016
Electrical - Loads	
Current Fans	2.85 A
Power Fans	642.00 W
Voltage	230.00 V
Apparent Load	655.00 VA
Power Fans Factor	0.980000
Control	CW-5AW-IR
Panel	
Circuit Number	
Mechanical	
System Classification	Hydronic Return,Hydronic Supply,P...
System Name	
Mechanical - Flow	
Airflow	625.00 L/s
Heating Capacity	10420.00 W
Water Drop Pressure	6190.00 Pa
Water Coil Rows	3
Water Coil Volume	1.4 L
Water Flow Connector	0.11 L/s
Dimensions	
- DIMENSIONS CONFIGURATION -	- / Set Dimensions / -
PE (Door Diameter)	2400.0
DW (Door Opening)	1074.0
DH (Door Height)	2050.0
CH (Canopy Height)	400.0
- AUTOMATIC DIMENSIONS -	- / Auto-Set Dimensions / -
L	1050.0
WS	845.0
Depth	360.0
Height	285.0
Length	1050.0
L nozzle support	750.0
Mainfolds	2x3/4" M
D_Pipping_Connector	20.0 mm

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: Allows to configure the door dimensions and get the air curtain. 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 Length*.

Identity Data	
Product Description	Specially designed to be installe...
Product Heating	P64 - 60/40°C - 3 ROWS
Product Reference	ROTO G 1000 P64
Product Size	1000
Image	
Comments	
Mark	2
Phasing	
Phase Created	New Construction
Phase Demolished	None
General	
- 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"/>
- PIPES POSITION -	- / Select Pipes Position / -
Water Pipes_P1	<input type="checkbox"/>
Water Pipes_P2	<input type="checkbox"/>
Water Pipes_P3	<input type="checkbox"/>
Water Pipes_P4	<input checked="" type="checkbox"/>
- SUPPORTS -	- / Select Supports / -
Fixed onto the Door	<input checked="" type="checkbox"/>
Hanging from the Ceiling	<input type="checkbox"/>
Supports Length	0.0
- OTHERS -	- / Select Inst.Maint. Space / -
Aspiration/Maintenance Space	<input type="checkbox"/>
Data	
Noise Level (dB(A))	57.000000
Nozzle Overture	57.939°
Blades Number	26
Arc Length	1294.4

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. **PIPES POSITION:** Allows to choose one of the four possible positions for the two water pipes (only for the family of water heating).
3. **SUPPORTS:** On Top Mounting has two selectors to choose the type supports and on False Ceiling Installation, there is only one selector to hide or show the threaded bars. It also has a parameter where the bar length can be changed.
4. **OTHERS:** If it is necessary, the space for the inlet and the maintenance can be shown (or hidden) when choosing the parameter.

Family: AIRTECNICS_AIR CURTAIN_ROTOWIND_WATER HEATED (P) - (False Ceiling Moun

Type: ROTOWIND ECG P - (False Ceiling Mounting)

Load... Duplicate... Rename...

Type Parameters

Parameter	Value
Electrical - Loads	
Frequency	50.00 Hz
Cable	CB7
Remote Control	IR-AIR
Mechanical - Flow	
Fans Stage	5
Dimensions	
Depth	360.0
Height	285.0
Identity Data	
Manufacturer	AIRTECNICS
Model	Air curtain Rotowind G (P)
URL	https://www.airtecnics.com/products/air-curtain-rotowind
URL_Datasheet	https://www.airtecnics.com/download/file/1947/rotowind.pdf
URL_Manufacturer	https://www.airtecnics.com
Type Comments	Specially designed to be installed in all type of revolving doors. Two possible layouts, tail
Assembly Code	
Type Image	<None>
Description	
Keynote	
Cost	
Assembly Description	
Type Mark	
OmniClass Number	23.75.70.21.17
OmniClass Title	Air Curtains
Code Name	
IFC Parameters	
IfcExportAs	IfcCoilType
IfcExportType	WATERHEATINGCOIL
Model Properties	
BIMETRICAL Categor	Coil
Family Version	1.0
Review Date	01/19
Revit Version	Revit 2016 - English
Created by	BIMETRICAL
BIMETRICAL	http://www.bimetric.com/

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.

Dimensions: Shows the Length of the product. This one will change depending on the type selected.

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

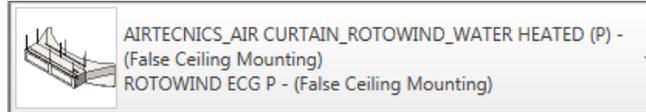
IFC Parameters: Information regarding the classification IFC of the family, control data, reviews,...

Model Properties: This group of parameters shows the information about the control of the Revit's Family: created by, versions and review date.

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:



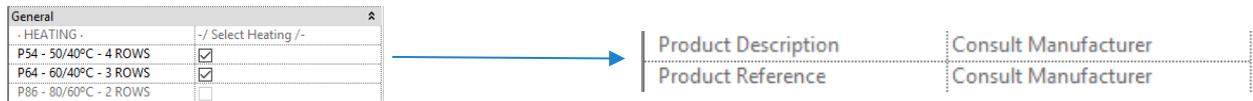
Selected Configuration:

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 Heating	P64 - 60/40°C - 3 ROWS
Product Reference	ROTO ECG 1000 P64

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



4. LOGICAL CONNECTION OF THE CONNECTORS

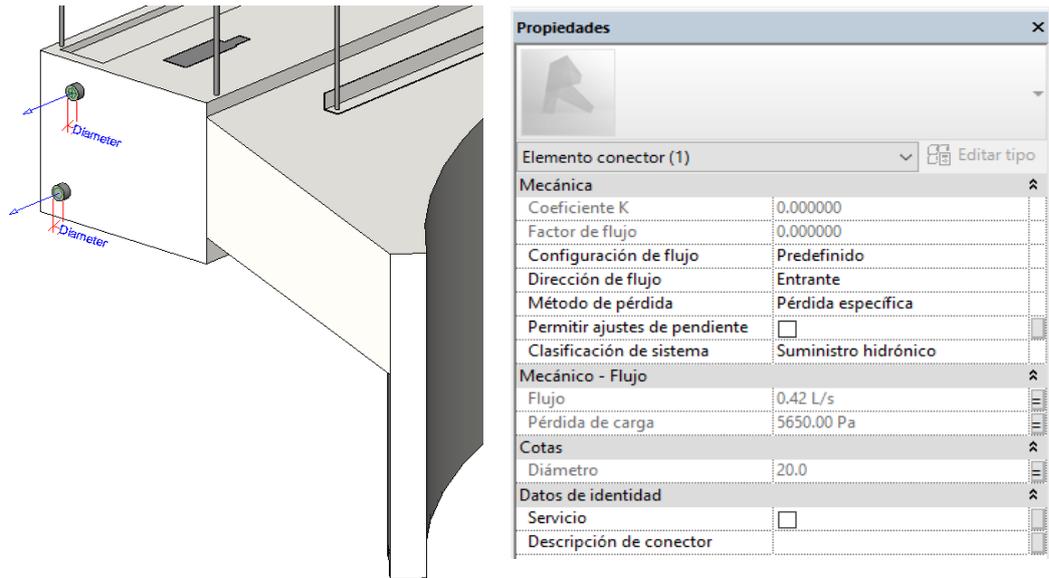
4.1 Water connectors

4.2 Electrical connectors

4. LOGICAL CONNECTION OF THE CONNECTORS

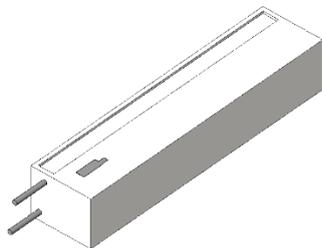
4.1 Water Connectors

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_ROTOWIND_WATER HEATED (P) – (False Ceiling Installation).rfa*, the type of connector is *Pipe Connector* and, in the case of the family water (P) ROTOWIND, it is configured as below:

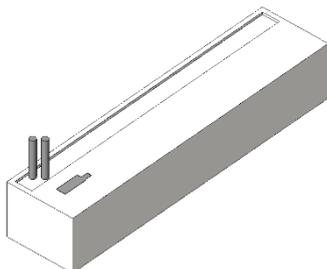


- **Flow configuration:** *Predefined*. Because of calculation reasons, the waterflow value which demands the curtain is predefined. Also, the outlet connector (with the same flow).
- **Direction of the flow:** *Inlet*. The flow enters through the connector because it is water supply.
- **Classification 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:

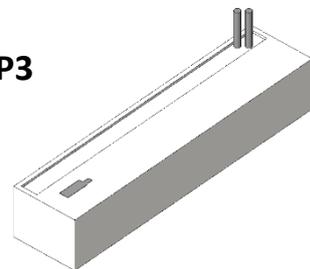
P1



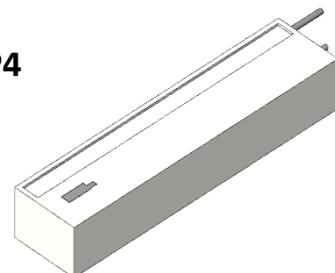
P2



P3



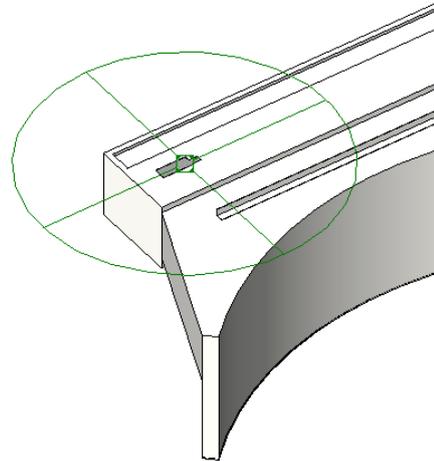
P4



4.2 Electrical Connector

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

Propiedades	
Elemento conector (1) Editar tipo	
Eléctrico - Cargas	
Tipo de sistema	Potencia - Equilibrada
Número de polos	1
Estado del factor de potencia	Retardo de fase
Clasificación de carga	HVAC
Cargar motor de subclasificación	<input type="checkbox"/>
Voltaje	230.00 V
Carga aparente	9940.00 VA
Factor de potencia	0.497896
Datos de identidad	
Servicio	<input type="checkbox"/>
Descripción de conector	



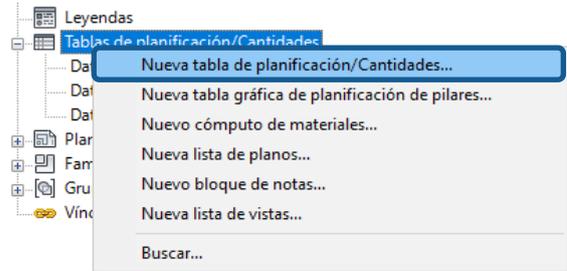
- **Type of system:**
 - o Electrical heating family: Power – Unbalanced (only ventilation line)
 - o Without heating and water heating families: Power – Balanced
- **Number of poles:**
 - o Electrical heating family: 3 poles
 - o Without heating and water heating families: 1 pole
- **Status of the power 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:

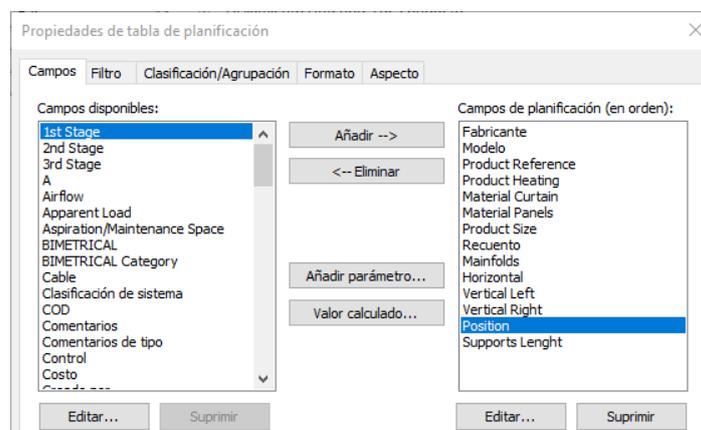
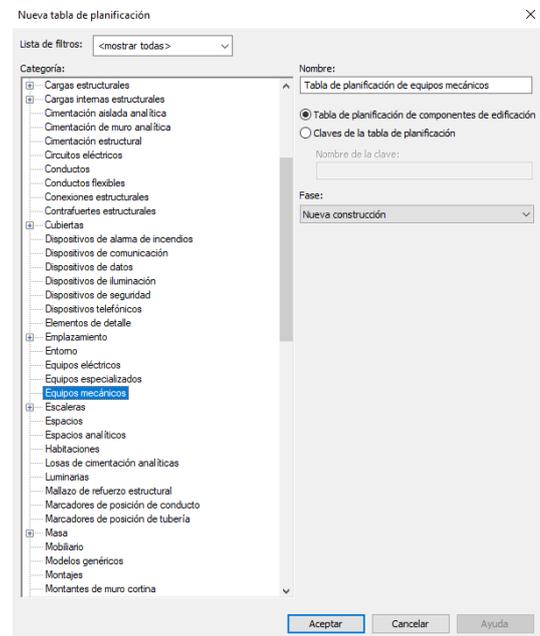
1. Go to the “Project browser” and click with the right button in “Schedules/Quantities” and chose de option “New Schedule/Quantities”.



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:



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

3. Examples

Schedule: Quantities

<01-AIRTECNICS - Air Curtains - ROTOWIND_Quantities>								
A	B	C	D	E	F	G	H	I
Manufacturer	Model	Product Reference	Product Heating	Material Curtain	Product Size	Mainfolds	Supports Length	Count
AIRTECNICS	Air curtain Rotowind G (P)	ROTO ECG 1000 P64	P64 - 60/40°C - 3 ROWS	AIRTECNICS_White RAL	1000	2x3/4" M	250	1
AIRTECNICS	Air curtain Rotowind G (P)	ROTO G 1000 P54	P54 - 50/40°C - 4 ROWS	AIRTECNICS_White RAL	1000	2x1" M	858	1
AIRTECNICS	Air curtain Rotowind G (P)	ROTO G 1500 P86	P86 - 80/60°C - 2 ROWS	AIRTECNICS_White RAL	1500	2x3/4" F	708	1
AIRTECNICS	Air curtain Rotowind G (P)	ROTO G 1000 P64	P64 - 60/40°C - 3 ROWS	AIRTECNICS_White RAL	1000	2x3/4" M	850	1
AIRTECNICS	Air curtain Rotowind G (P)	ROTO G 1000 P54	P54 - 50/40°C - 4 ROWS	AIRTECNICS_White RAL	1000	2x1" M	850	1
AIRTECNICS	Air curtain Rotowind G (P)	ROTO G 1500 P86	P86 - 80/60°C - 2 ROWS	AIRTECNICS_White RAL	1500	2x3/4" M	700	1

Schedule: Technical Data

<01-AIRTECNICS - Air Curtains - ROTOWIND_Technical Data>												
A	B	C	D	E	F	G	H	I	J	K	L	M
Manufacturer	Model	Product Reference	Product Heating	Current Fans	Power Fans	Water Flow Connector	Water Drop Pressure	Mainfolds	Noise Level (dB(A))	Control	Cable	Count
AIRTECNICS	Air curtain Rotowind G (P)	ROTO ECG 1000 P64	P64 - 60/40°C - 3 ROWS	2 A	213 W	0.1 L/s	7110.0 Pa	2x3/4" M	61	CW-SAW-IR	CB7	1
AIRTECNICS	Air curtain Rotowind G (P)	ROTO G 1000 P54	P54 - 50/40°C - 4 ROWS	3 A	642 W	0.3 L/s	1790.0 Pa	2x1" M	57	CW-SAW-IR	CB7	1
AIRTECNICS	Air curtain Rotowind G (P)	ROTO G 1500 P86	P86 - 80/60°C - 2 ROWS	4 A	856 W	0.2 L/s	940.0 Pa	2x3/4" F	58	CW-SAW-IR	CB7	1
AIRTECNICS	Air curtain Rotowind G (P)	ROTO G 1000 P64	P64 - 60/40°C - 3 ROWS	3 A	642 W	0.1 L/s	6190.0 Pa	2x3/4" M	57	CW-SAW-IR	CB7	1
AIRTECNICS	Air curtain Rotowind G (P)	ROTO G 1000 P54	P54 - 50/40°C - 4 ROWS	3 A	642 W	0.3 L/s	1790.0 Pa	2x1" M	57	CW-SAW-IR	CB7	1
AIRTECNICS	Air curtain Rotowind G (P)	ROTO G 1500 P86	P86 - 80/60°C - 2 ROWS	4 A	856 W	0.2 L/s	940.0 Pa	2x3/4" M	58	CW-SAW-IR	CB7	1



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