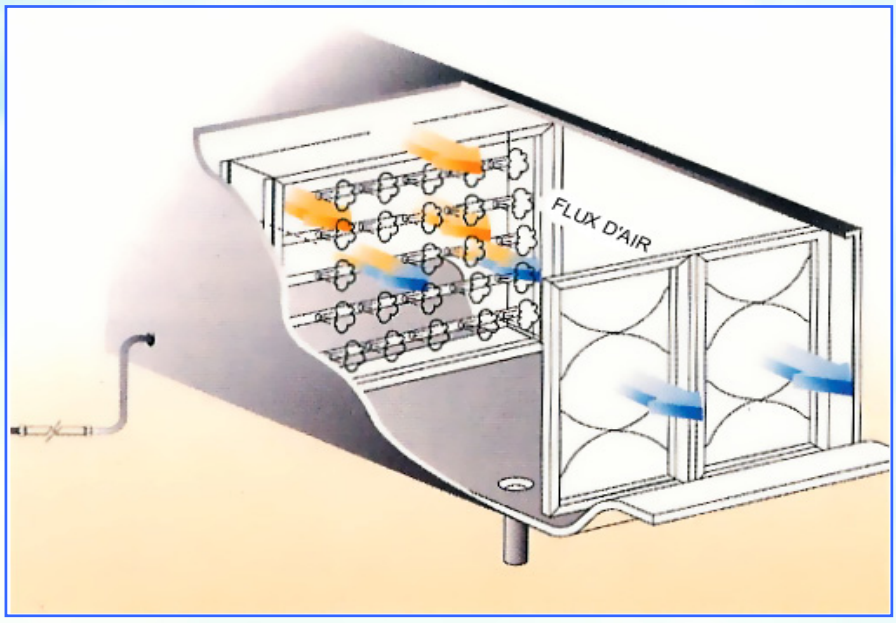
FogSystem

WATER ATOMIZER SYSTEM





HUMIDIFICATION - COOLING

IN A.H.U

HygroTemp
DE SPECIALIST IN BEVOCHTIGING EN CONDENSAATAFVOER

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FogSystem
BUS Nozzle in A.H.U.

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FogSystem
BUS Nozzles in A.H.U.

Basic composition



Bar length on request



Manifold



Regulation cabinet

Optional component parts



Flexible connecting hose
1m long 1/2″ FF (blue & grey)



Water filter
NW18 25µ 3/4″



Air filter
3/4″



UV Sterilizer
with 1µ filter
3/4" inlet



Hygrostat



Proportional sensor

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BUS Nozzles in A.H.U

Ultrasonic BUS Nozzles

DRY AIR ? HIGH TEMPERATURE ? LOW QUALITY ? MACHINERY STOPS ?...

One solution, humidification by ***FogSystem***

The ***FogSystem*** enables to solve problems of hygrometry in the industries and services, at low installation and maintenance costs.

Functionning :

The Ultrasonic nozzle BUS uses compressed air to eject water that splashes against an Ultrasonic resonator, atomising the jet of water.
Once broken down into particules, the fog is quickly absorbed by the air.
This nozzle can be used in any air flow (air handling units, air ducts, cold storage rooms, etc…)

In a cold storage room, the BUS nozzle is fixed on a bracket and located in the evaporator flow.
The fog pattern must be in the air flow.



The fog is so misty that it is fastly absorbed by the air

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BUS Nozzles in A.H.U

The Legionnaires' disease

The legionnaires' disease only occurs when there are still waters in pipes.

It is obvious that as soon as there is a demand in hygrometry on a **water compressed air ultrasonic humidifier**, the water is constantly renewed so there is no bacterium.

During the so called humidification period, the machines work without long stopping so there is no risk of bacterium in the water tank.

However, during a long stopping, there are risks (mid-season or summer time).

On the regulation cabinet is installed an automatic draining system which operates when the regulation or the system stops . All the pipes are drained out preventing the stagnation of water.

A **UV sterilizer** is installed at the manifold water inlet.

So, there is no risk of the legionnaires' desease with our BUS compressed air system if the automatic draining is correctly connected and if the UV sterilizer option is set up.

Water qualities



Heavy WATER : nozzle maintenance compulsory

Demineralized WATER : nozzle maintenance not required

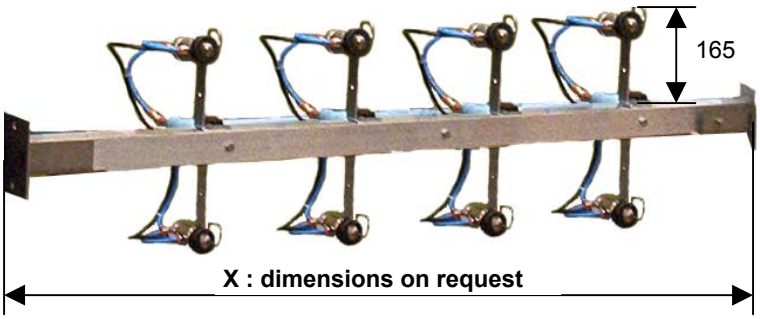
Softened WATER : we do not recommend the use of softened waters

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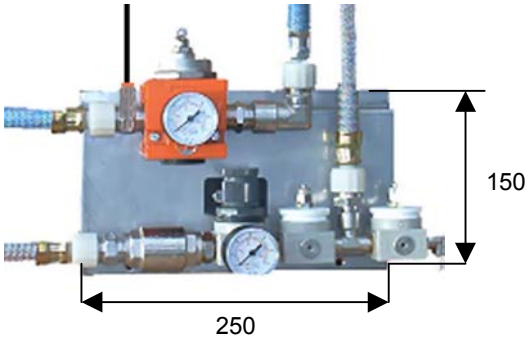
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BUS Nozzle in A.H.U.

Dimensions (mm)

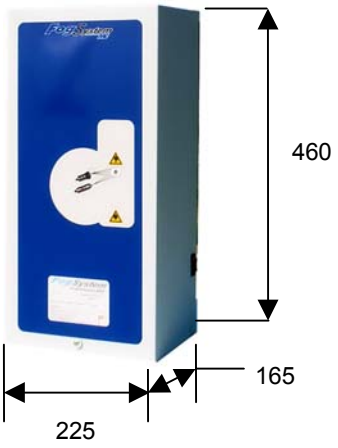
BUS nozzle bar



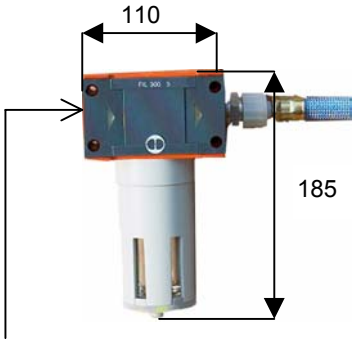
Manifold



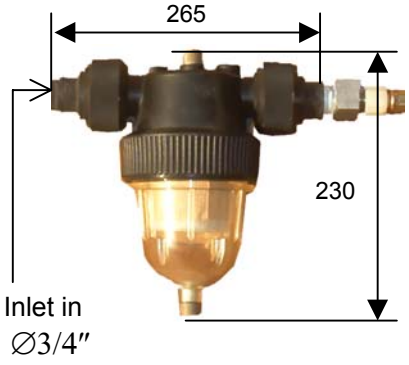
Regulation cabinet



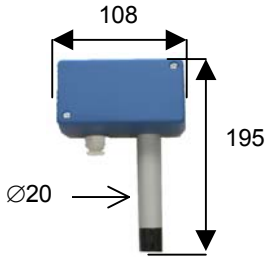
Air filter

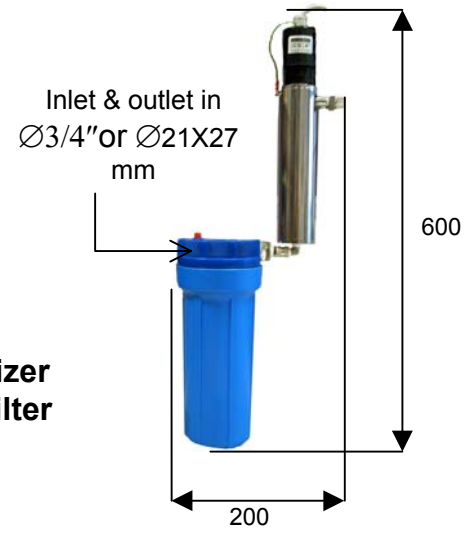


Water filter



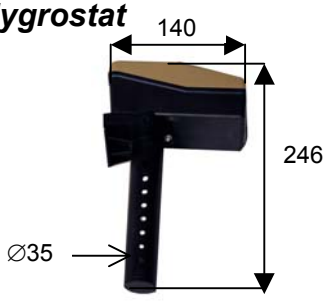
Proportional sensor





UV sterilizer with 1µ filter

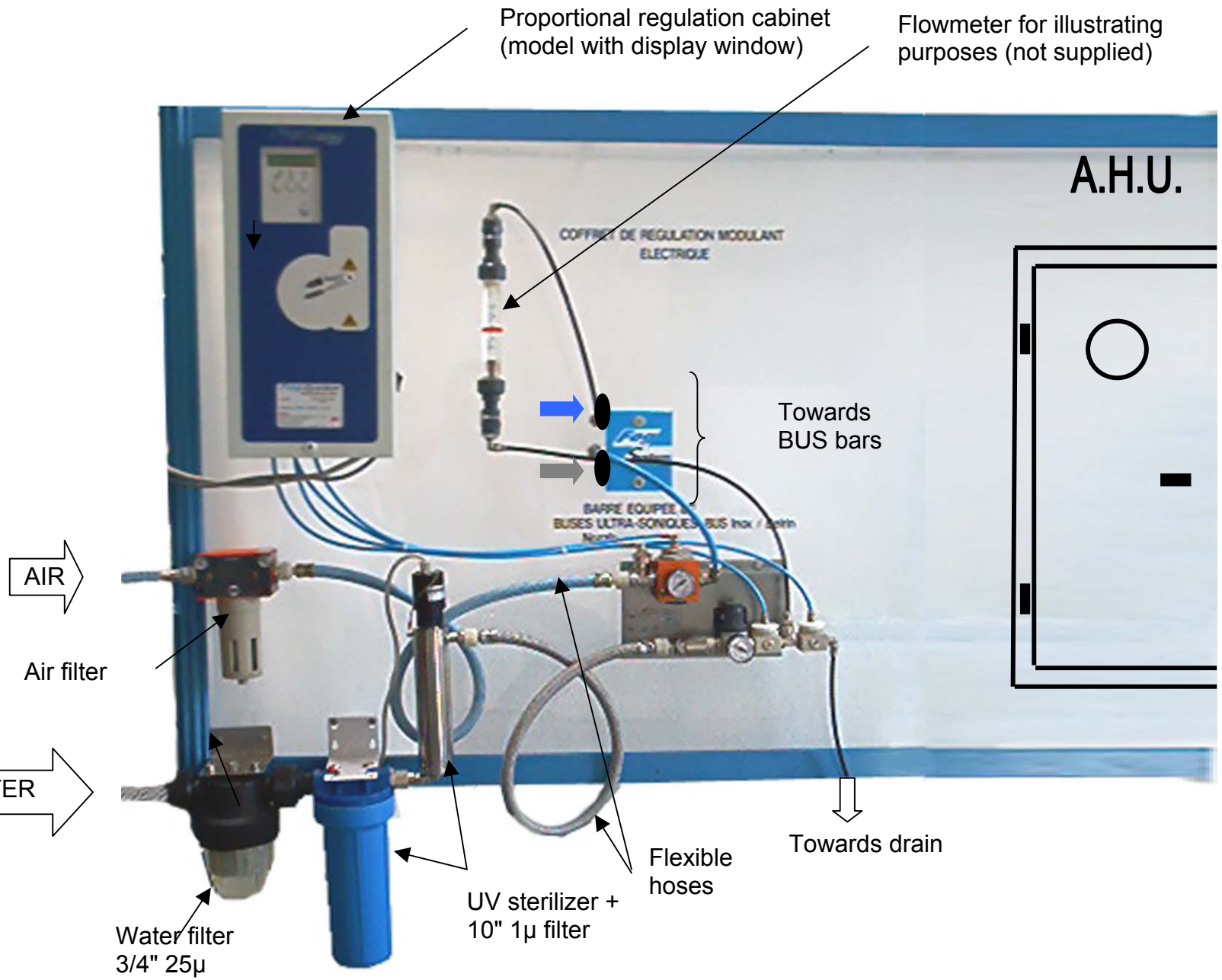
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BUS Nozzle in A.H.U.
Example of installation



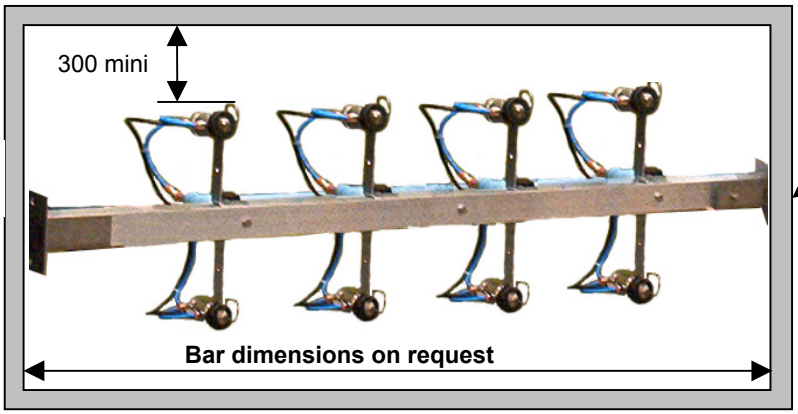
Picture for illustrating purposes

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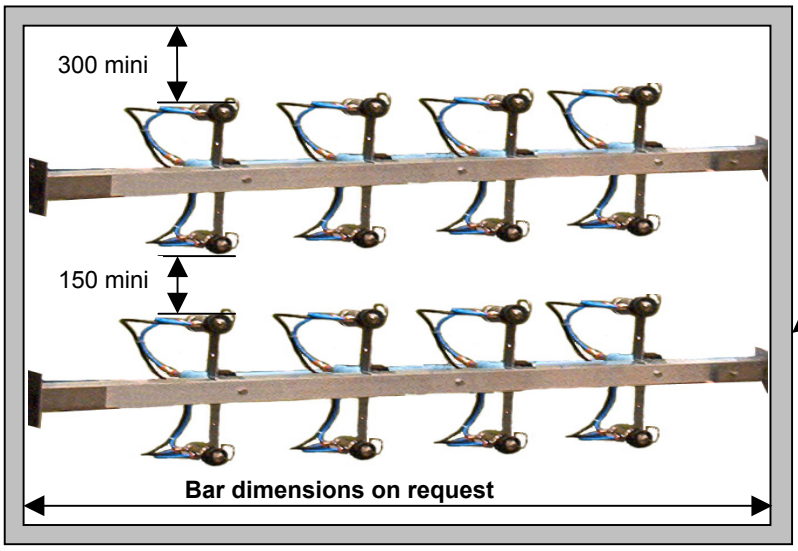
FogSystem
BUS Nozzle in A.H.U

Example of installation in an AHU

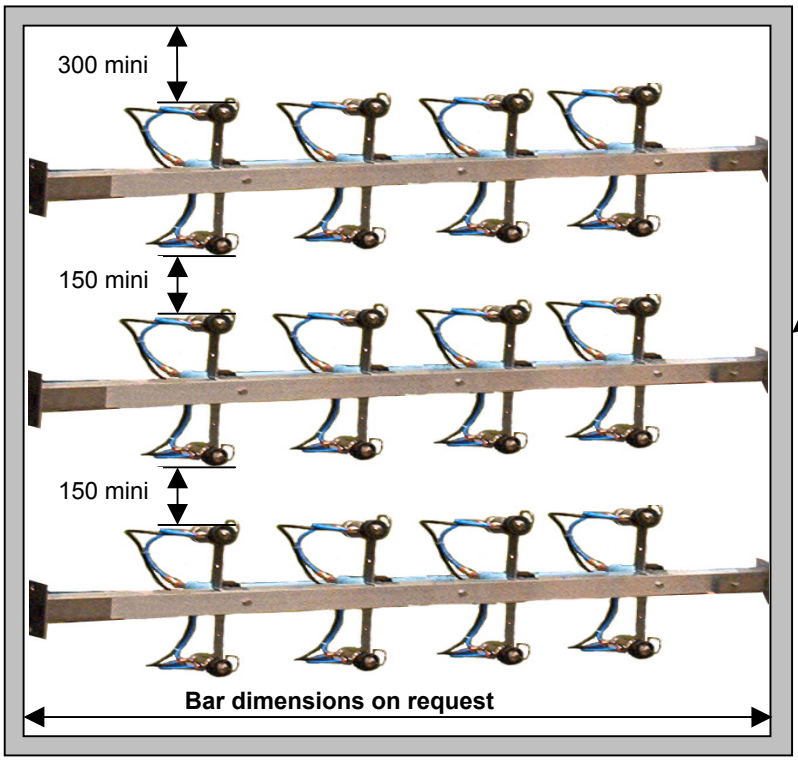
Example for 1 bar



Example for 2 bars



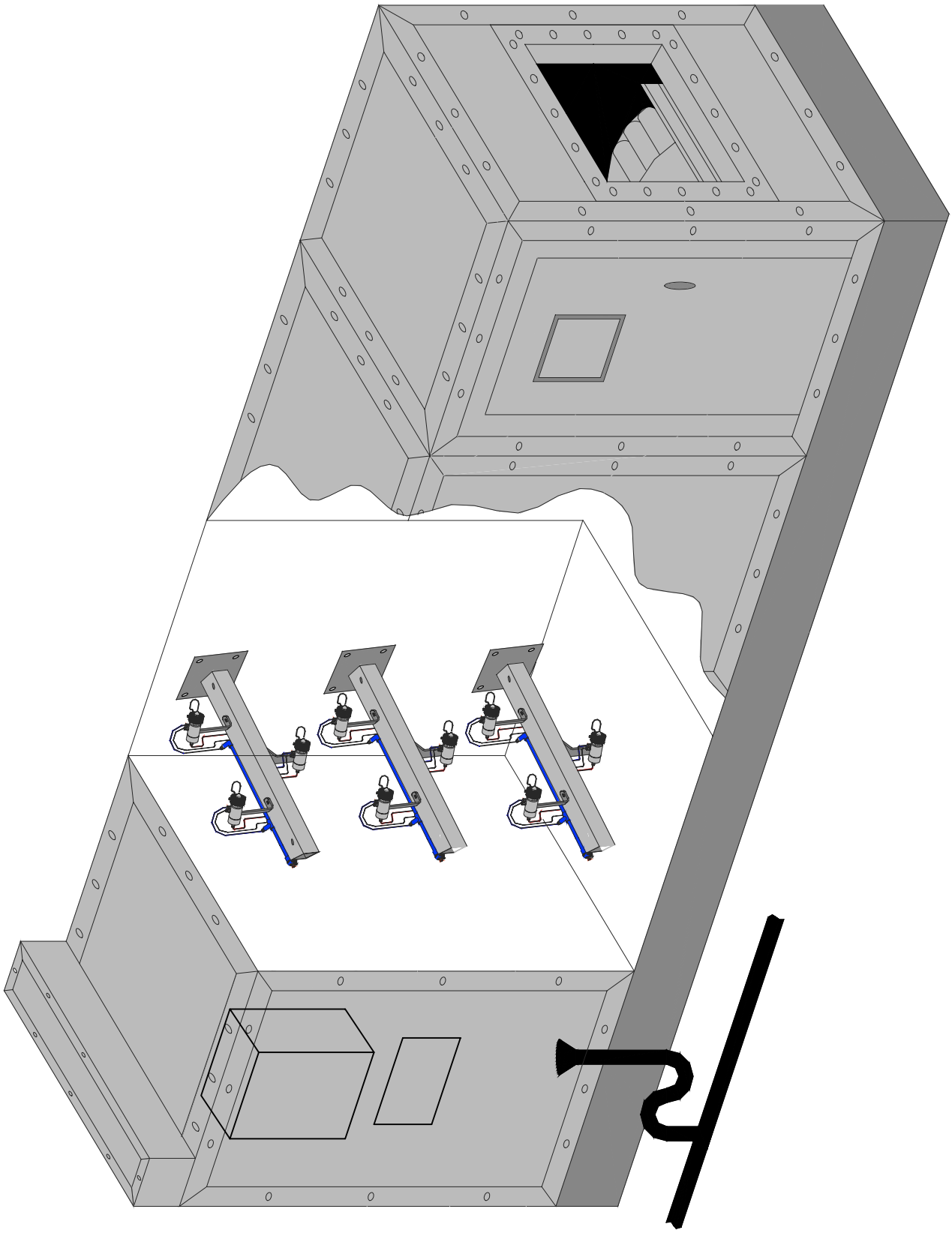
Example for 3 bars



FogSystem

BUS Nozzle in A.H.U

Example of installation in a AHU

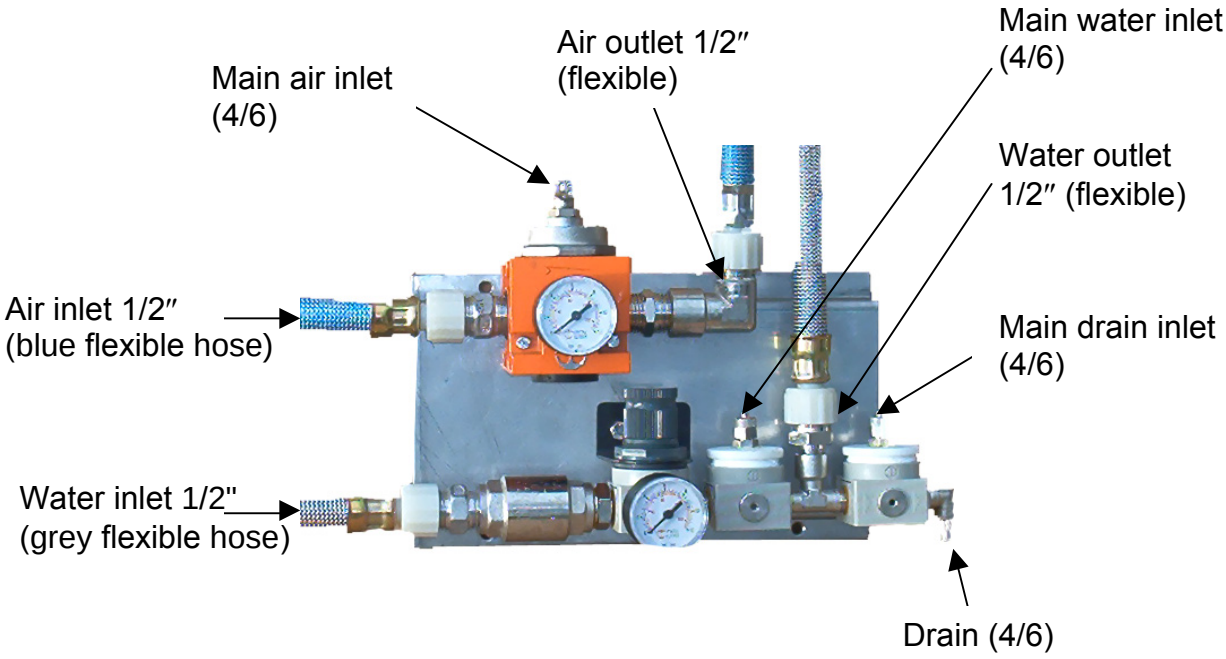


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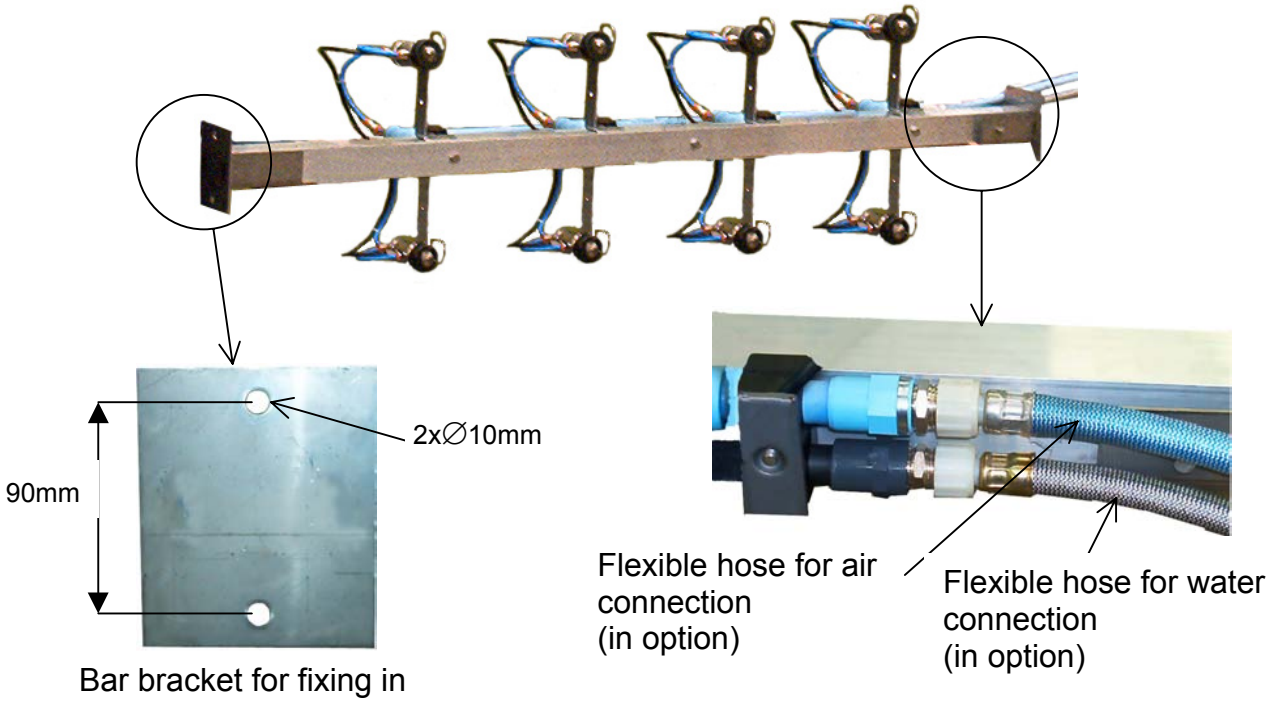
FogSystem
BUS Nozzle in AHU

Components

Manifold



BUS bar :



Pictures for illustrating purposes only

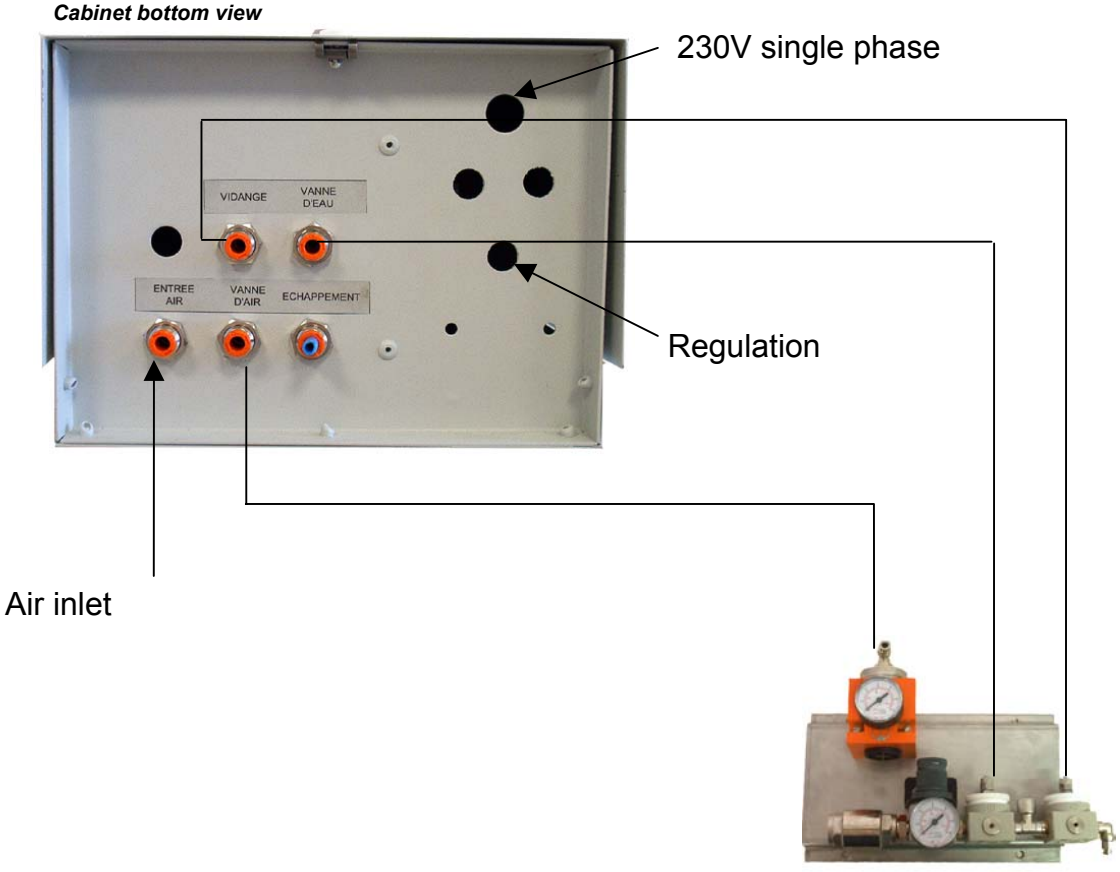
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BUS ultrasonic nozzle for A.H.U.
Proportional regulation cabinet

Identification :



Cabinet bottom view

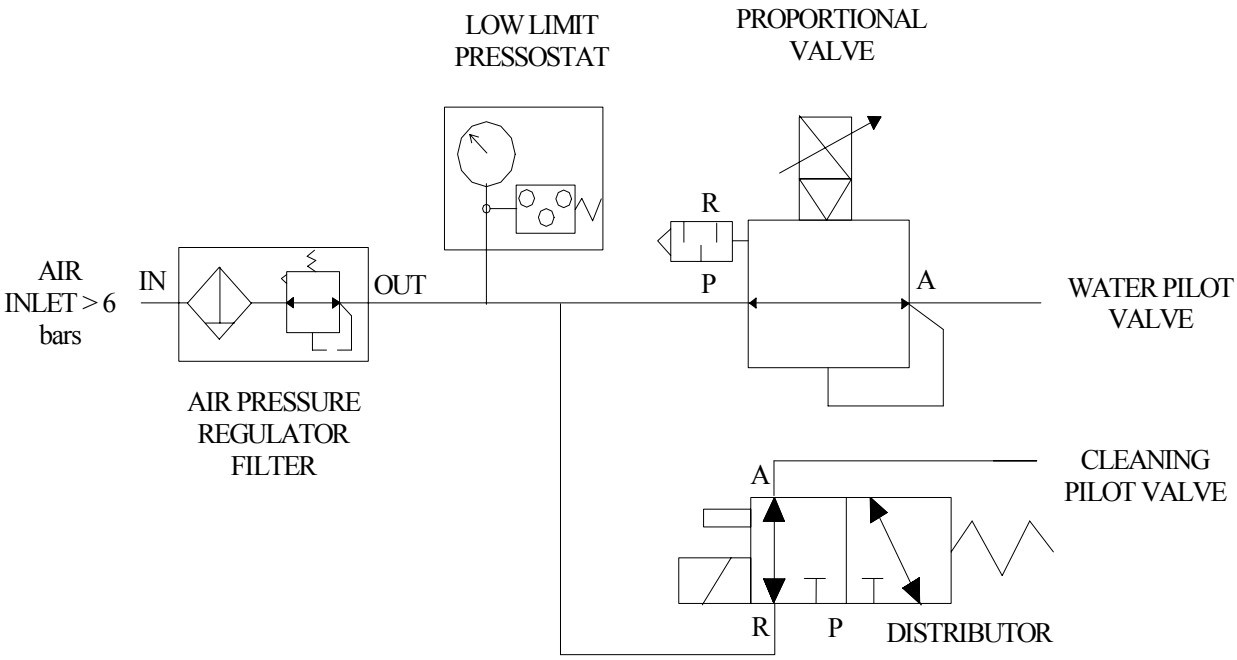


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FogSystem
BUS Nozzle in A.H.U.
Proportional regulation cabinet

Pneumatical scheme :

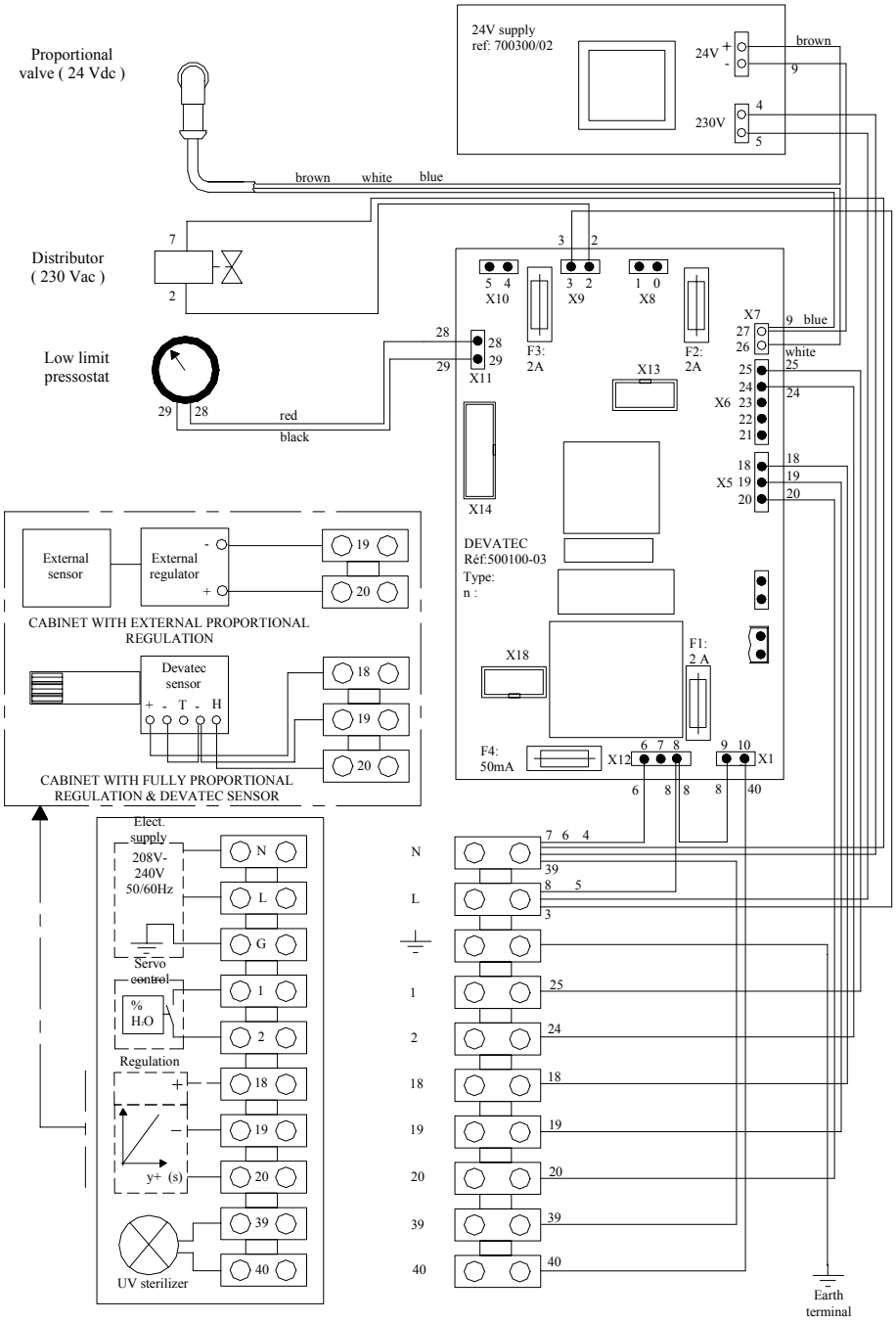


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FogSystem
BUS Nozzle for A.H.U.

Proportional regulation cabinet

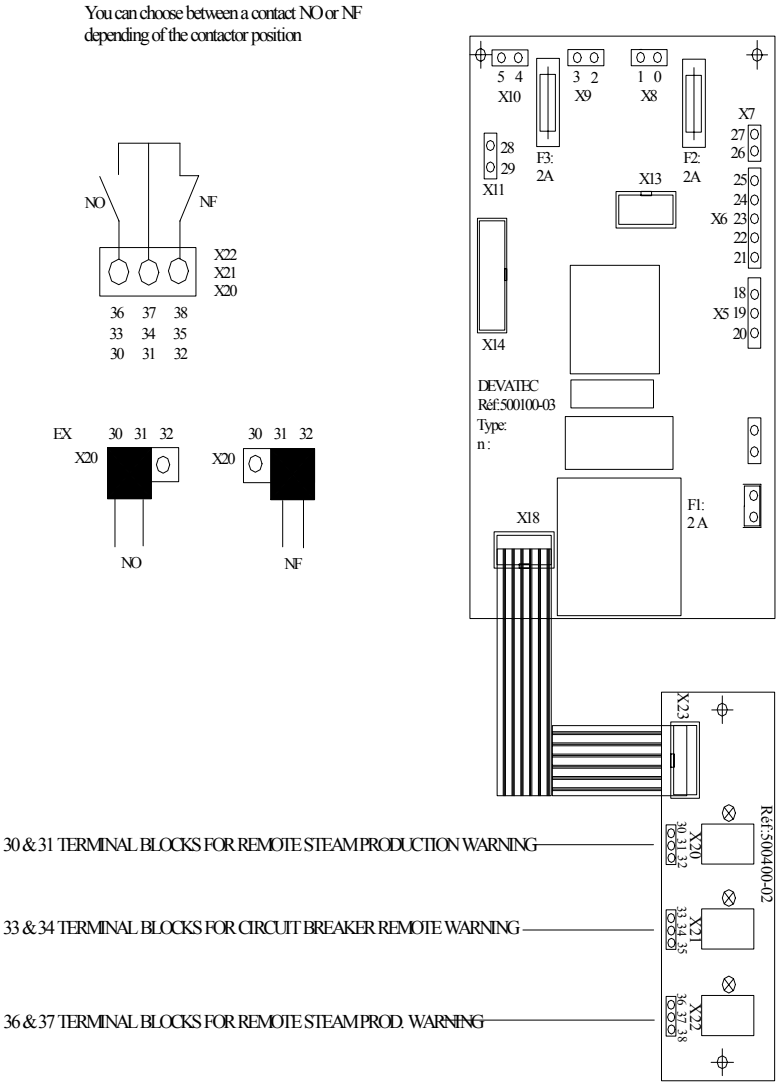
Wiring scheme



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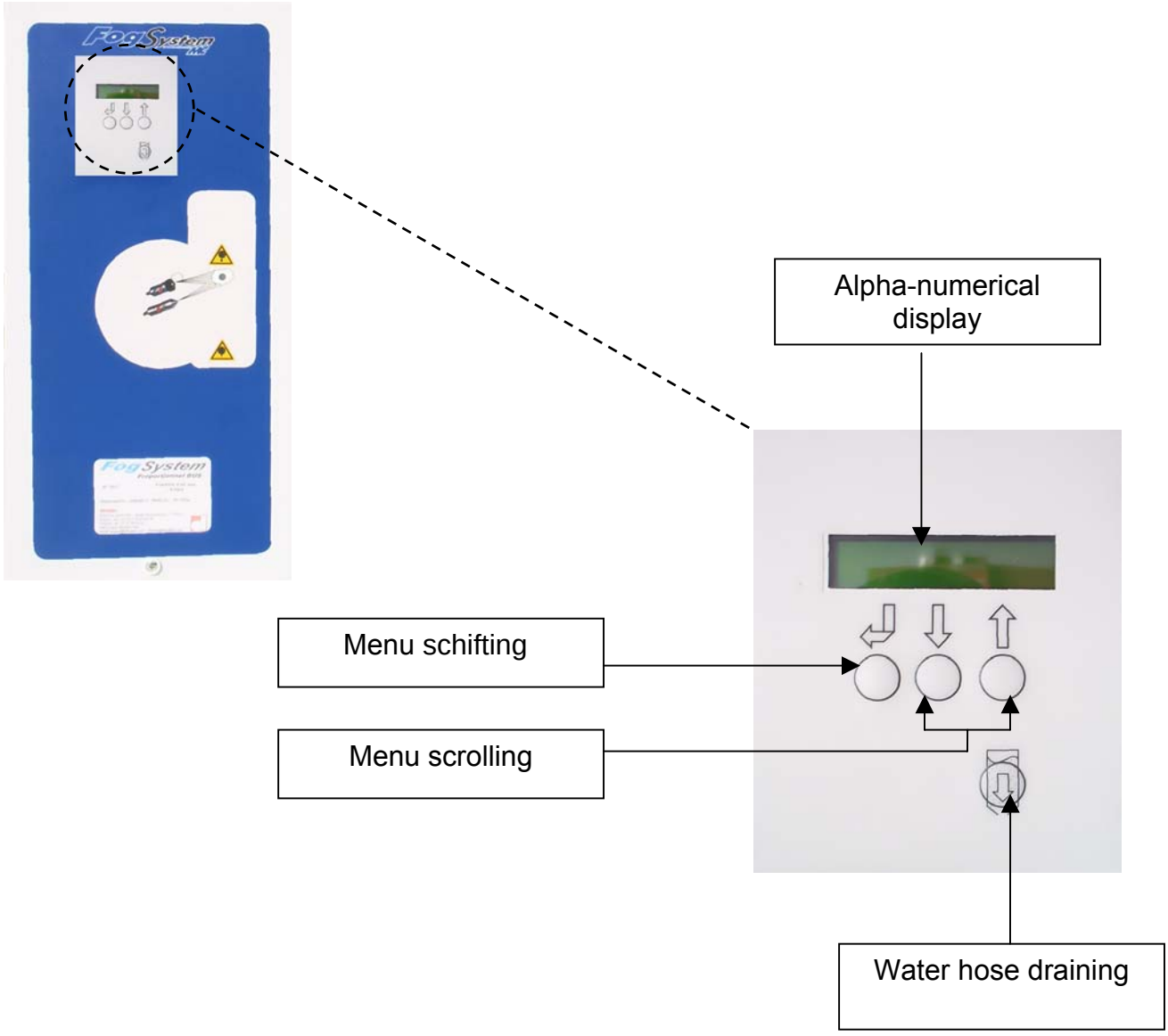
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BUS Nozzle in A.H.U.
Proportional regulation cabinet

Remote information board wiring scheme:



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BUS Nozzle in A.H.U.

Model with display panel



Alpha-numerical display enabling to parameter and providing information on the working of the regulation cabinet

Never use solvent for cleaning the cabinet

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BUS Nozzle in A.H.U.

Model with display panel

The display window shows the following menus :

- **Humidifier status**

The "User information" menu provides information on the operating status of the unit. No parameters can be changed from within this menu.

- **Humidification configuration**

The humidifer configuration menu provides information only regarding the unit set up. No parameters can be changed from within this menu.

- **Changing unit configuration**

The "Changing Parameter System" menu allows the modification and adjustment of the operating pre-set parameters. The level 1 access code is required to gain entry.

Alert and warning systems :

LOW AIR PRESSURE P1

This alert is shown on the display and a red lamp is lighted on the front panel of the regulation cabinet.
Only the red lamp is activated on the proportional regulation cabinet in case the latter is used only.

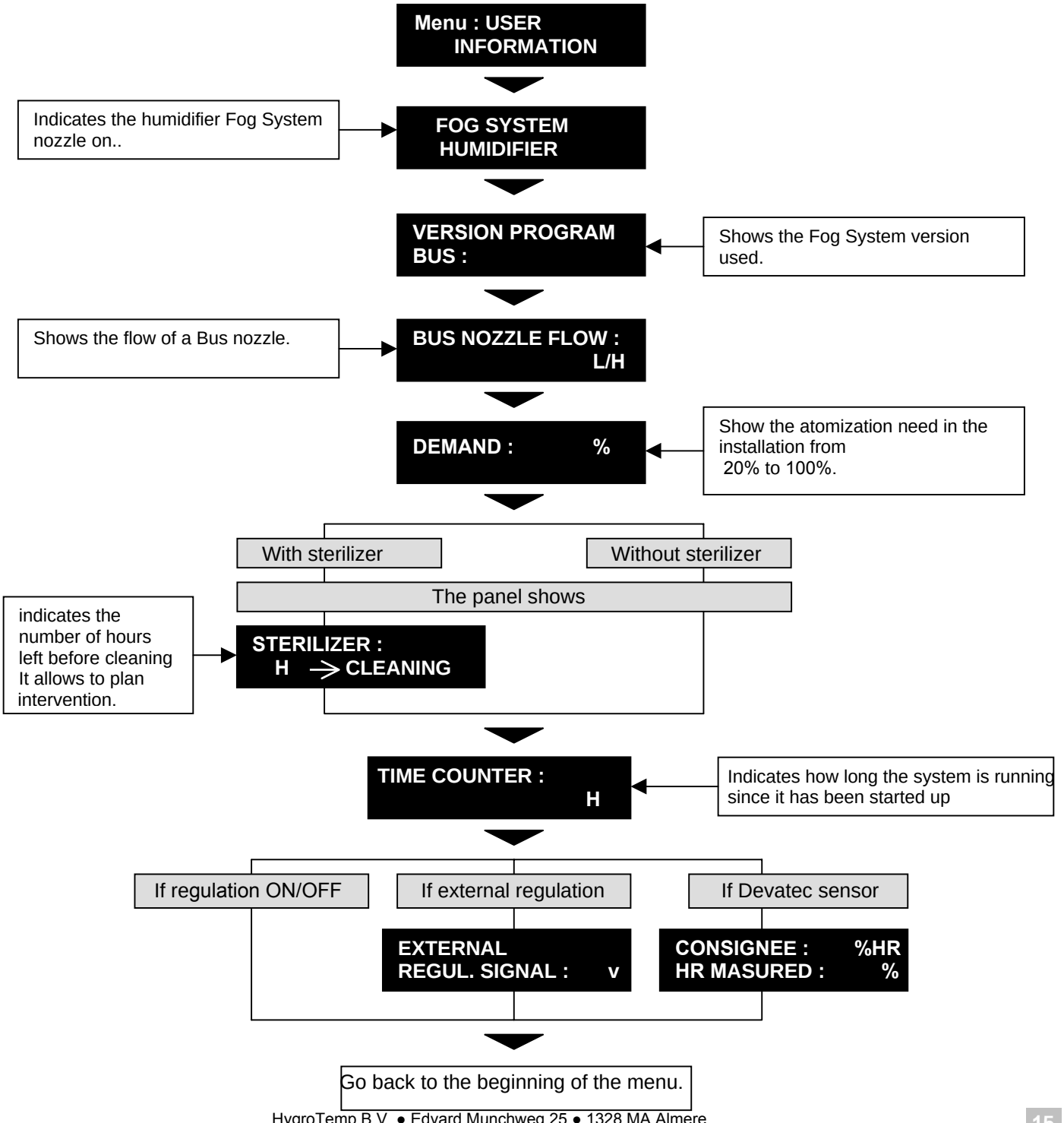
Possible causes :

- The inlet air pressure may be lower than 2.5 bar. Don't exceed 4 bar max. in adjustment
- The pressure gauge filter may be chocked
- The air supply may be cut off
- The air compressor may be faulty

FogSystem
BUS nozzle in AHU

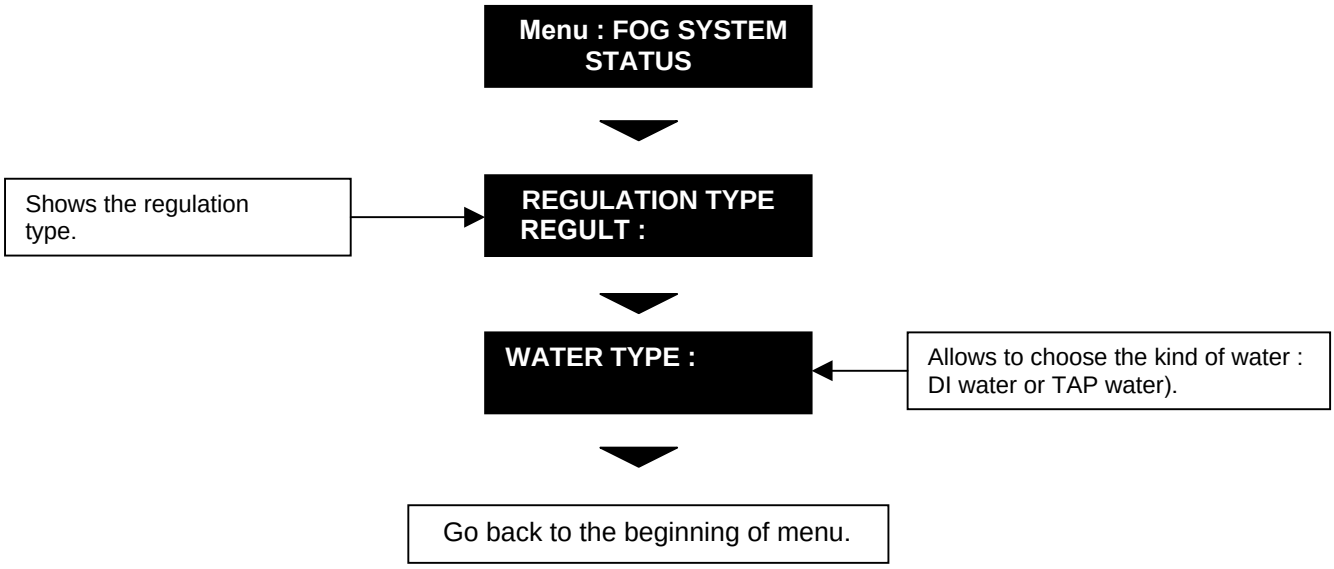
User information menu

Caution : to scroll the menu ⬆⬇, press ? key once ↵ to change menu



FogSystem
BUS nozzle in AHU
HUMIDIFIER STATUS MENU

Caution : to scroll the menu ⬆⬇, press ? key once ↵ to change menu

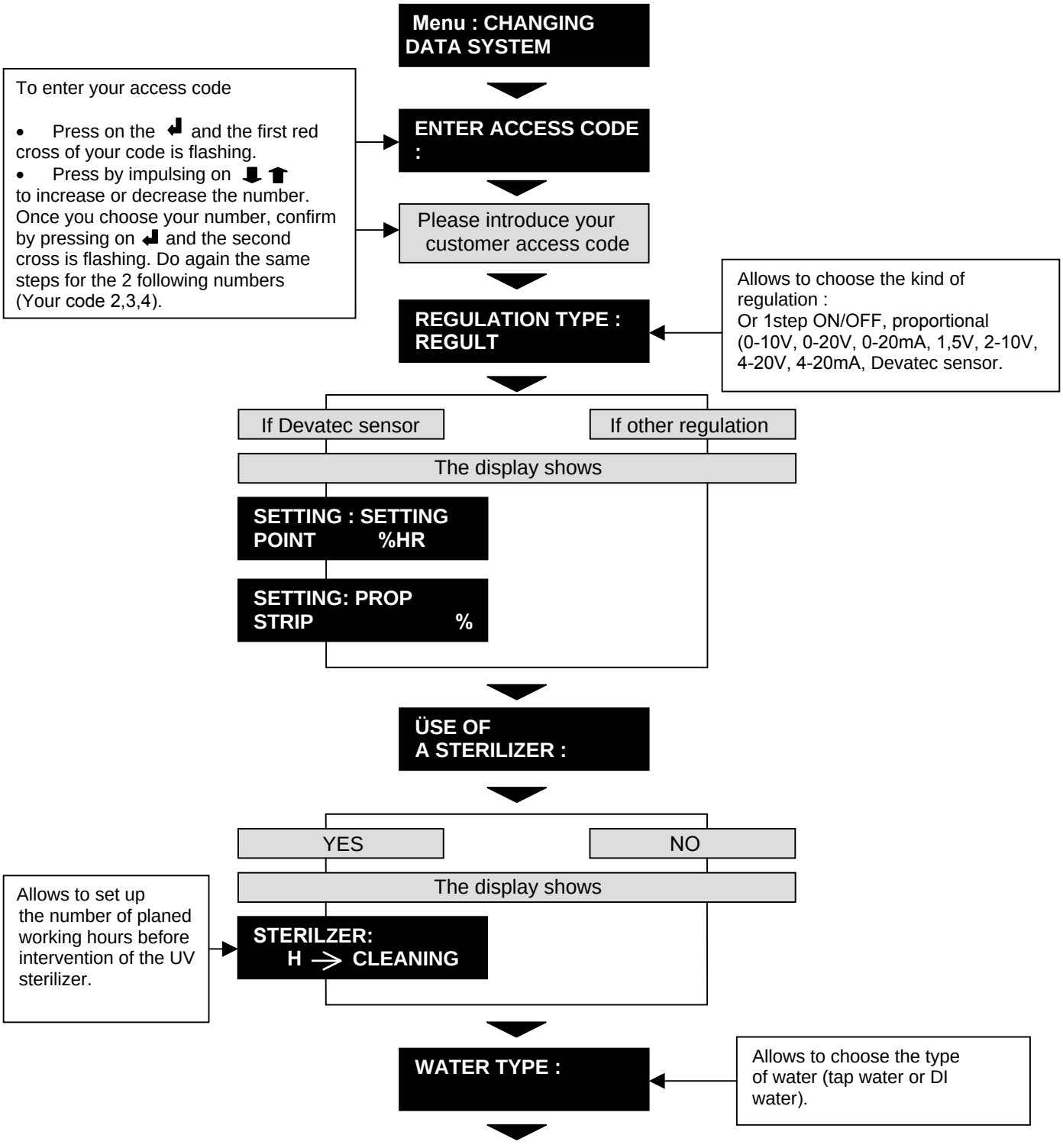


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BUS nozzle in AHU

Changing data menu (customer)

Caution : to scroll the menu pressing ⬇⬆, an impulse at any time on ↵ allows you to change menu.

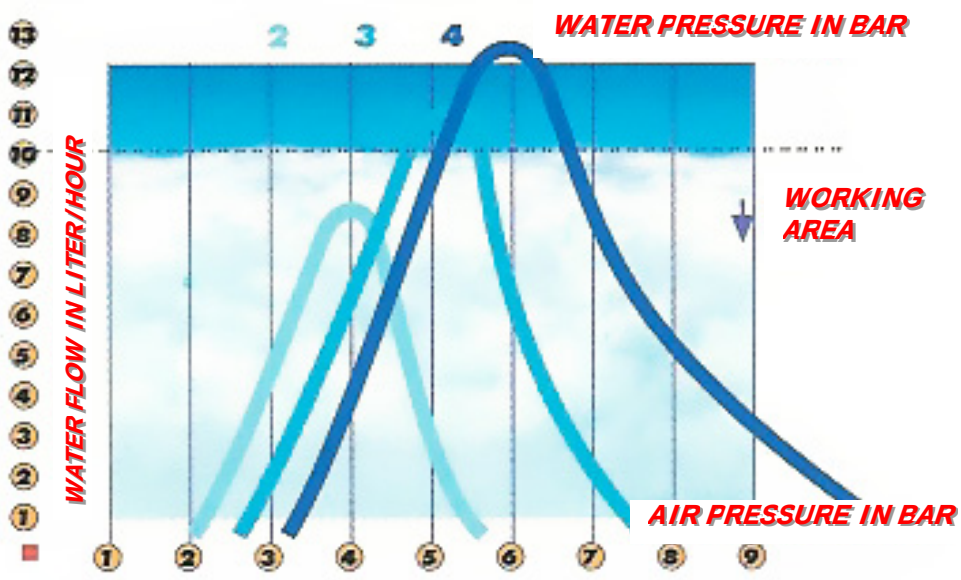


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BUS Nozzle in A.H.U

Consumptions

Atomisation curve :



Compressed air consumption per nozzle

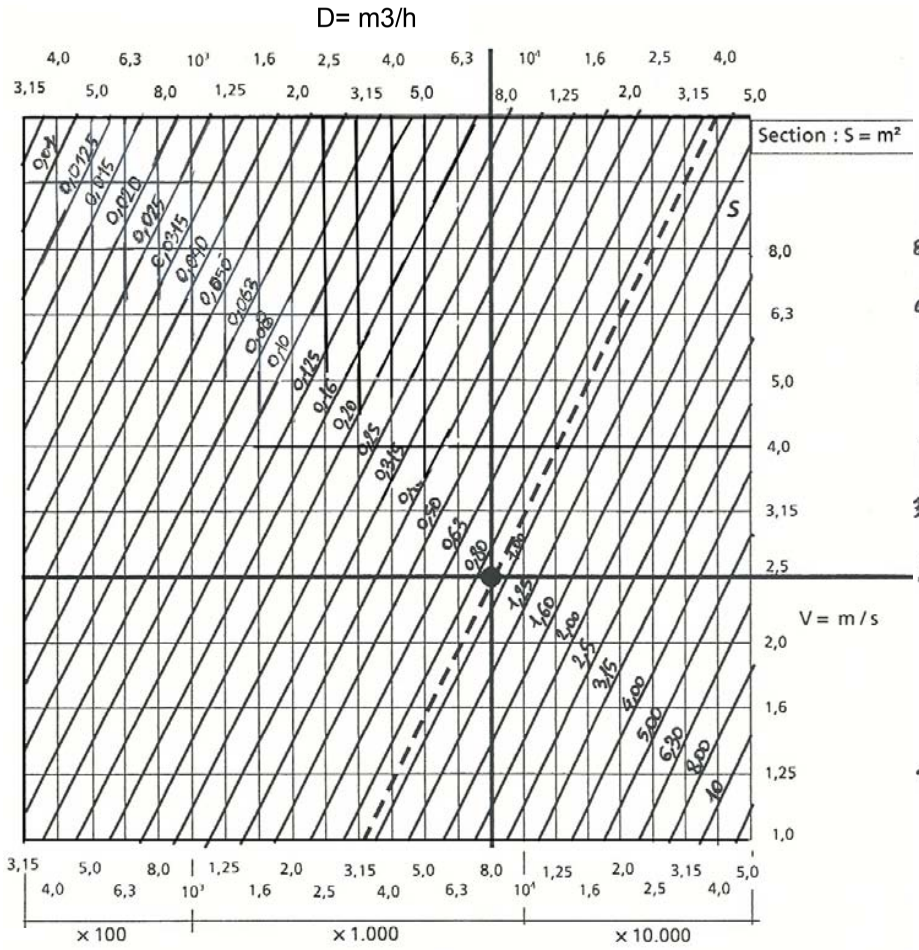
Air pressure (in bar)	Water pressure (in bar)				
	1 (b)	2 (b)	3 (b)	4 (b)	5(b)
2 (b)	68 L/min 4,08 m3/h				
3 (b)		78 L/min 4,68 m3/h			
4 (b)			80 L/min 4,80 m3/h		
5 (b)				88 L/min 5,25 m3/h	
6 (b)					98 L/min 5,88 m3/h

Air pressure must be 1 bar higher than water pressure

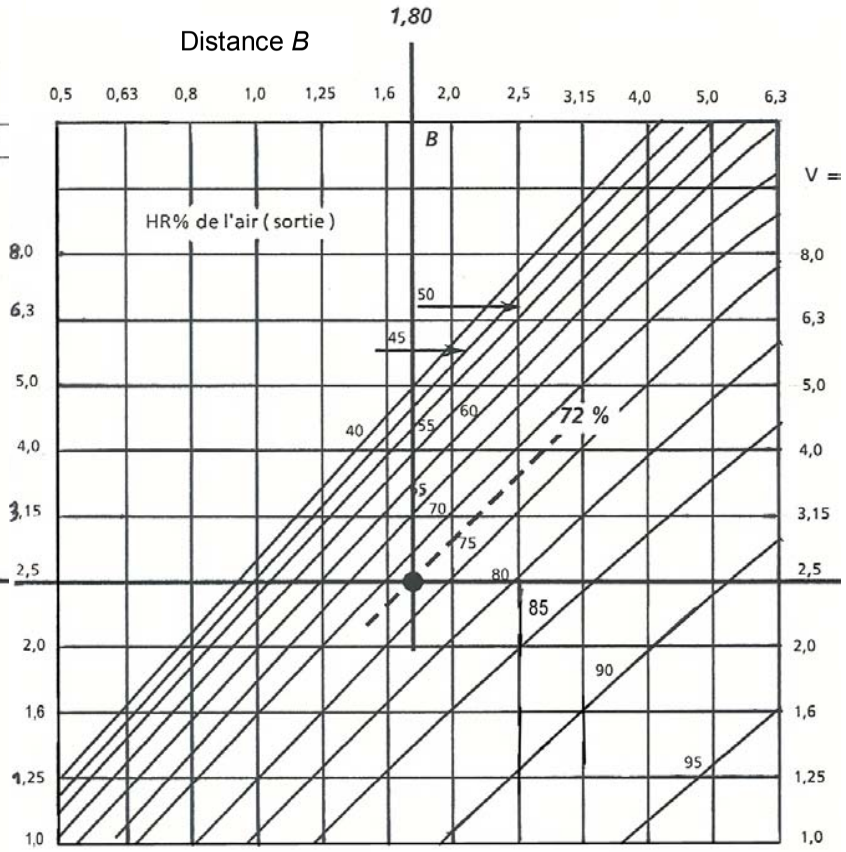
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FogSystem
BUS Nozzle in A-H-U
Absorption distance

Part 1



Part 2



- Draw a vertical line at the air flow value.
- At the point where the air flow line meets the section value, draw an horizontal line upto drawing part 2. The figure shows the airspeed in m/s.
- On drawing part 2 , at the meeting point between the horizontal line and the selected humidity line, draw a vertical line.
  The figure shows the absorption distance *B*

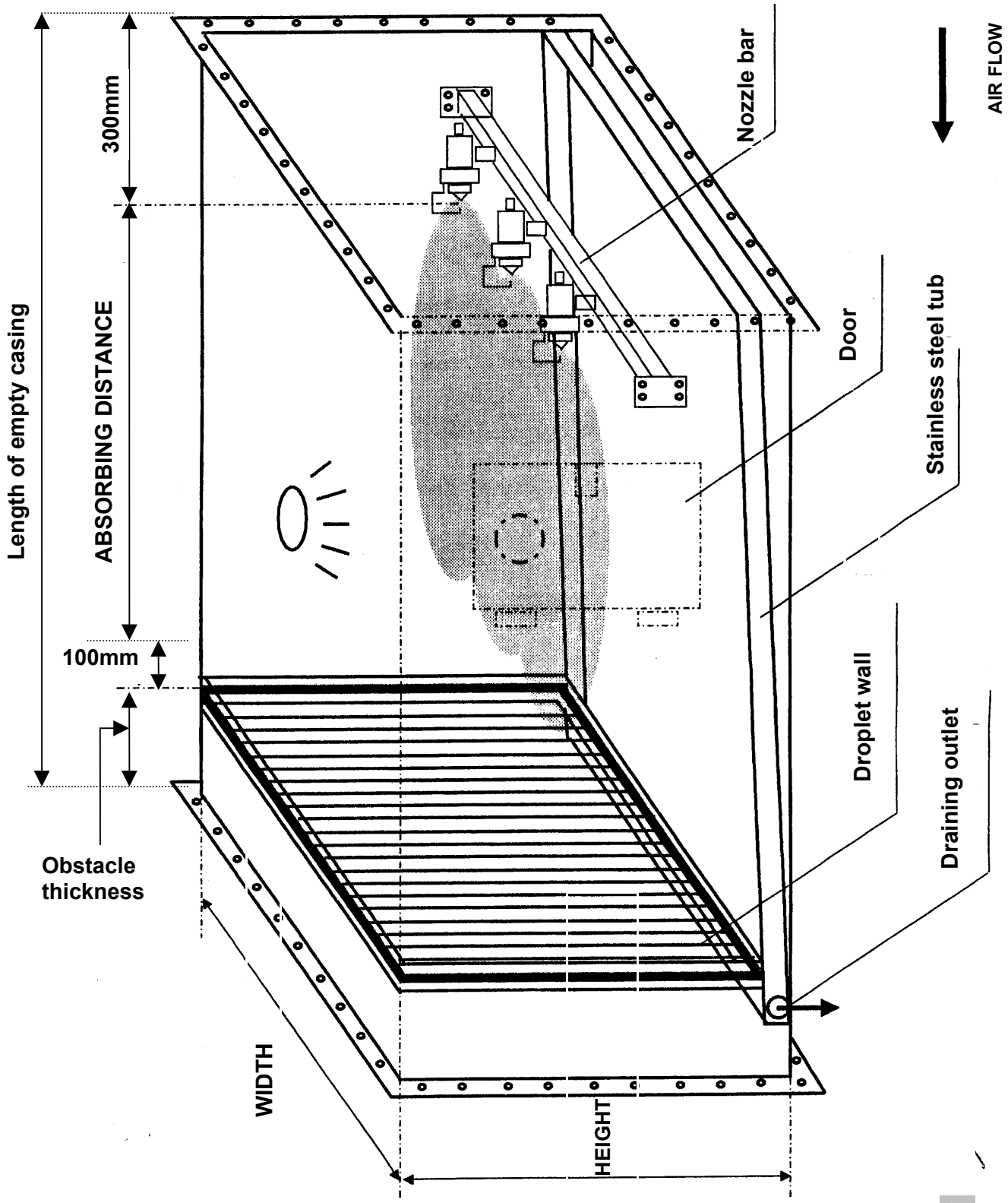
Symbol description :
D= Air flow
V= Air speed
B= Absorption range

EXAMPLE : Speed = 2,5m/s, HR= 72%,
Distance *B* = 1,80 meter

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Absorbtion distance

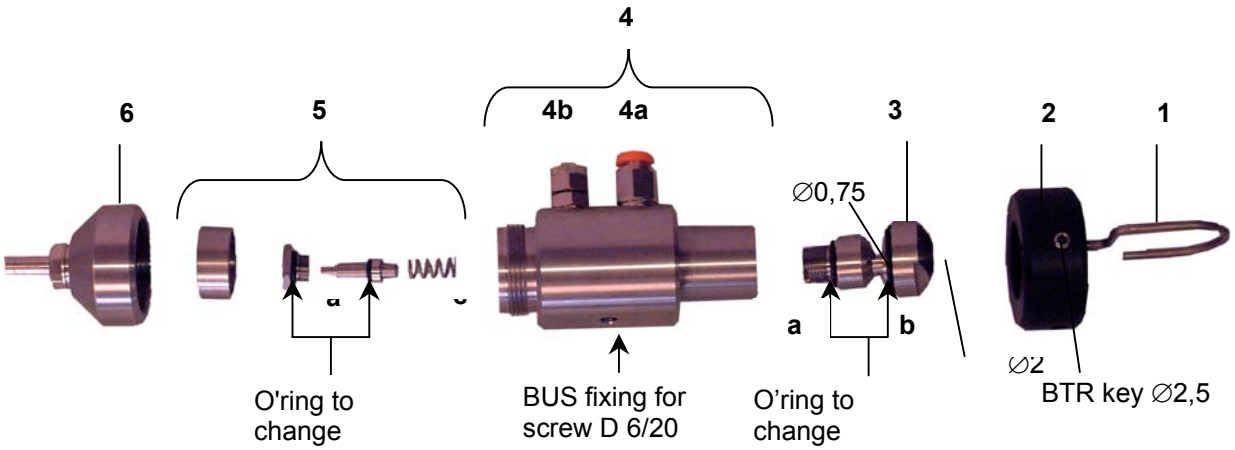


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BUS Nozzle in A.H.U

Nozzle maintenance

Splitted view :



Nomenclature :

1 – Resonator
2 – Ring
3 – Jet spray + o'ring : a (7,65X1,78) + b (14X1,78). (Gasket per 10)
4 – Main body. 4a et 4b= raccords air/eau 4-6 1/8
5 –Needle+seat+spring+piston+gasket a (7,65X1,78) + c (3,68X1,78).
(Joints par lot de 10)
6 – Back body

Cleaning : (Only with hard water)

Is it recommended to change the gasket of the jet spray(3) and of the needle (5), to clean the resonator(1) and also the holes diam 2mm and diam 0.75 mm of the jet spray(3).

Proceed as follows to clean the jet spray (page 22).

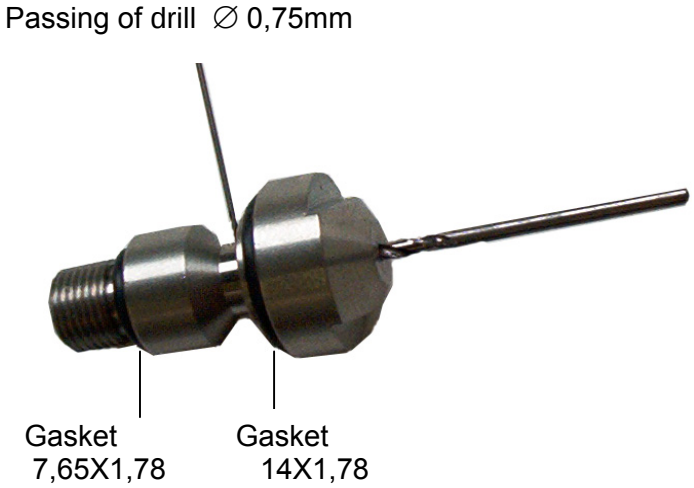
Pictures for illustrating purposes only

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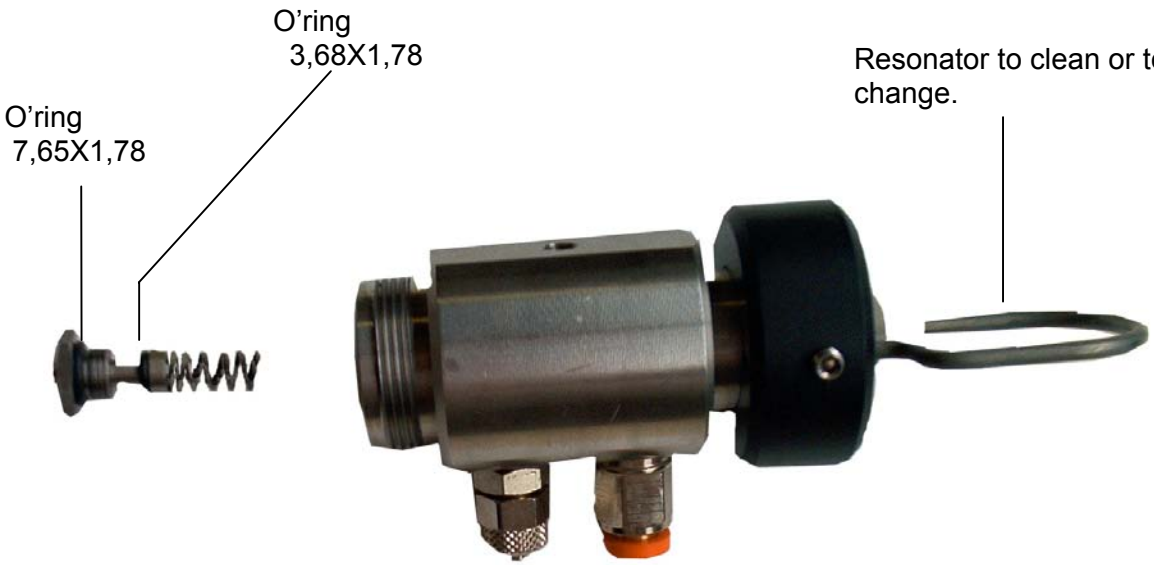
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BUS Nozzle in A.H.U

Nozzle maintenance

Maintenance of the jet spray : (with hard water only)



Maintenance of the main body : (with hard water only)



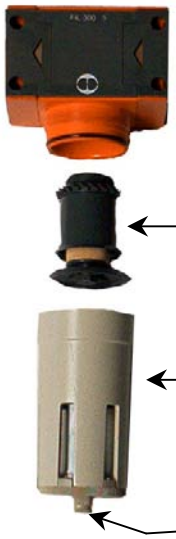
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Filters maintenance

Air filter:



Filtration component to clean or to change.

Filter tank to clean.

Drain of the tank.

Water filter :



Air draining

FW 18 filter to change.

Bundle of 5 filters

Drain of the tank.

Air filter unlock key :



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Water treatment

Water treatment for compressed air and water humidification system

Humidification by compressed air/water has the drawback to make a dust deposit from the the mineral salts in the premises or on the products when used with heavy or softened waters.

Mineral salts must be eliminated before they enter the humidifier.

To demineralize water, you can use a demineralizing resins process or a membrane filtering one.

The initial investment is quite the same, but the exploitation cost with ion exchanging resins is prohibitive, whereas it is trivial with the membrane filtering.

For instance, a humidifier with a water maximum flow of 60 litres per hour needs about 600 litres a day on average, that is to say 219 m3 per year in order to maintain a 55% hygrometric rate.

In Paris, the water mineralization is about 40°F (400-700uSiemens). **To demineralize 219 m3 at 40° F, you have to saturate 4.380 litres of resins and the regeneration would aproximatively cost € 11200.** Indeed, the price of regenerating products, caustic soda and hydrochloric acid explain why this method is almost discontinued today.

With the membrane filtering, the annual explotation cost is about € 800 and mainly comes from the changing of pre-filters and membranes.

Another advantage of this process is that **the produced water is absolutely sterile** which is not the case in the exchanging resins system. What is more, the rejected water needs no neutralisation and does not pollute which is not the case when demineralizing with resins.

Your choice will be function of the humidifier maximum flow rate per hour. Moreover, the TH of the water to treat must be known because if it exceeds 20°F, you must schedule a softening imperatively to scheduled a softening post above, in order to protect the membranes of the unit in order to protect the membranes of the osmosers.

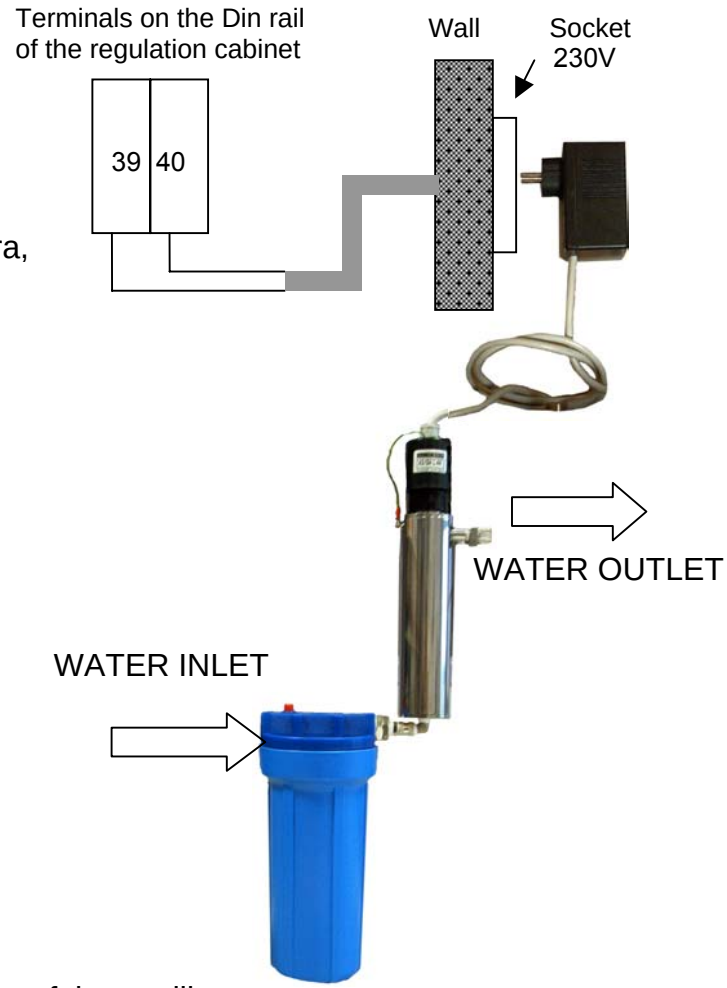
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Water treatment

Standard anti-bacteria system :

When the water supply is shut off or when the regulation is stopped, some air is injected into water pipes to drain out all the piping and the nozzles.



UV sterilizer :

The ultraviolet rays are able to destroy bactera, virus and other pathogenic microorganisms.
Single light ultraviolet sterilizer with polished stainless steel chamber.
1µ pre-filtration necessary.

Avantages of the UV sterilizer :

- Immediate bactericidal action.
- No tank in contact.
- No chemical product added.
- No alteration of the water quality.
- Low cost maintenance.
- 7000 hours duration UV light.

Caution : Do not exceed the maximum output of the sterilizer

If a sample of water must be taken, you shoud :

- not exceed the max. output
- Use a sterile tank
- Drain where the sample has been taken

Pictures for illustration

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RV3 / RV4



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ELMC et bain vapeur



HLK / OEM



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Our units **ELMC** *or* **FogSystem** *are listed or in conformity with:*
Nos appareils **ELMC** ou **FogSystem** sont homologués ou certifiés aux normes suivantes :

- **Germany / Allemagne : TÜV**
- **Austria / Autriche : ÖVE**
- **U.K. / Grande Bretagne : WRC**
- **USA : UL**
- **Canada : CSA**
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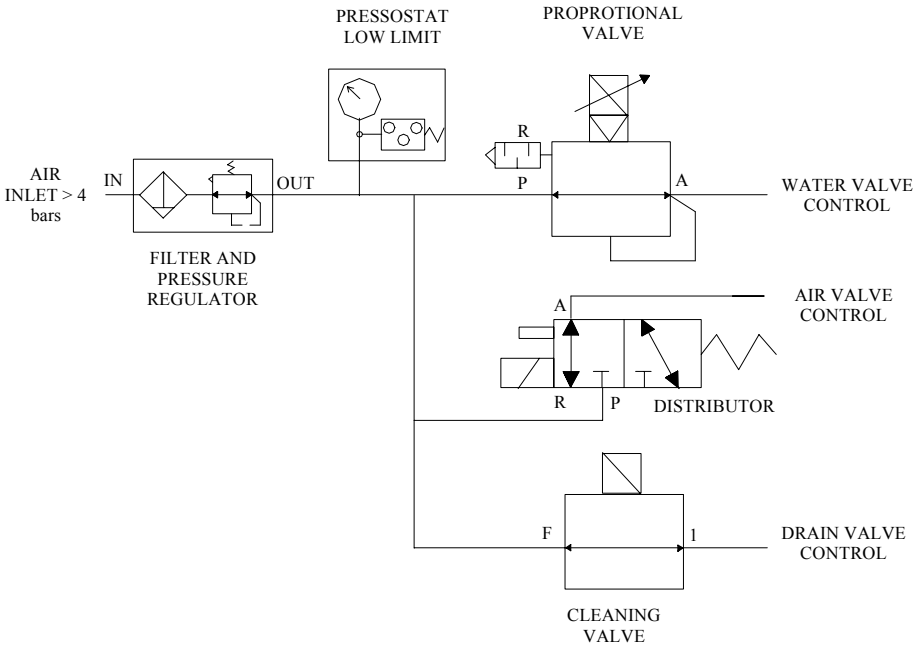
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Proportional regulation cabinet

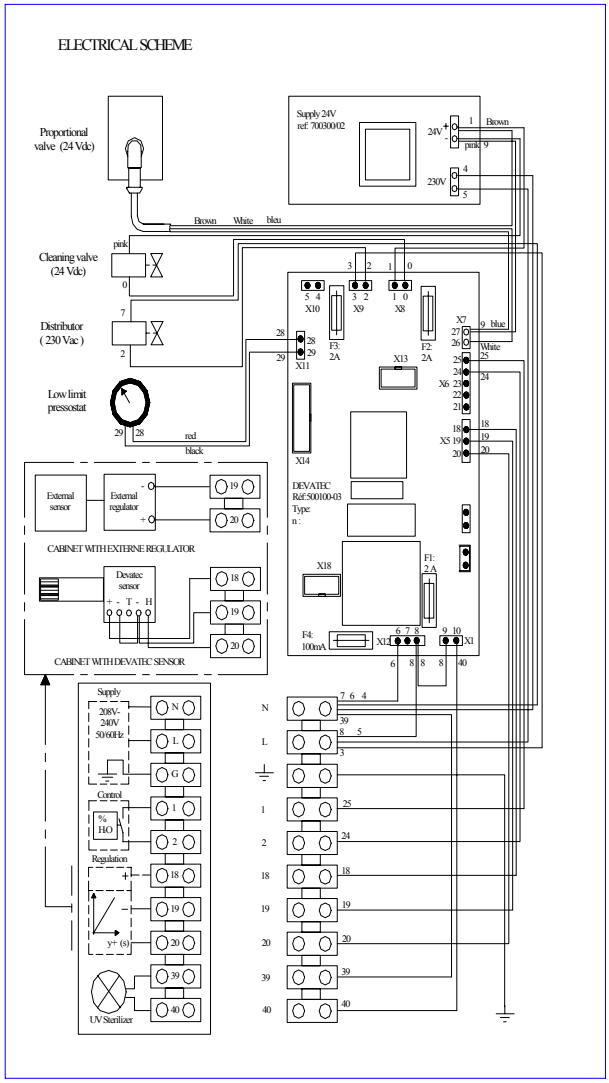
Pneumatical scheme :



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Wiring scheme :



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