

ONIX 40 to 200 LITERS

Buffer tank / Decoupling buffer

For heating and cooling installation

40 liters wall hung 4 connections 1"

100 & 200 liters on the ground and wall hung

8 connections 1"1/4



Installation and User manual

Onix 40 CF4 MR

Ref. 422312

Onix 100 CF8 MSR / 2

Ref. 422316

Onix 200 CF8 MSR / 2

Ref. 422317



The information contained in this document is non-contractual. The manufacturer reserves the right to modify any technical specifications and equipment of any appliances without prior notice.

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**Made in
France**



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1 - INTRODUCTION

1.1 - General



BUFFER TANKS aren't planned to be equipped with an electric heating resistance immersed in the device (immersion heater or any other electric heating system).

- Must be integrated on the device or on the installation but in the immediate vicinity of the latter :

- 1) **A safety valve calibrated at 3 bar** (= maximum operating pressure of the device) and installed in such a way that no valve or any hydraulic device can accidentally isolate it from the device which is equipped with a electric heating resistance.

The **buffer tank** makes it possible, by increasing the volume of water in the installation, to reduce the number of start-ups of the boiler (and / or the heat pump) in order to make it sustainable. For heat pumps, the buffer tank also serves as a heat reserve for the defrost cycles.

Used in a **decoupled system**, it allows the circulator that equips each circuit (boiler, heat pump, radiator and underfloor heating) to flow independent of each other.

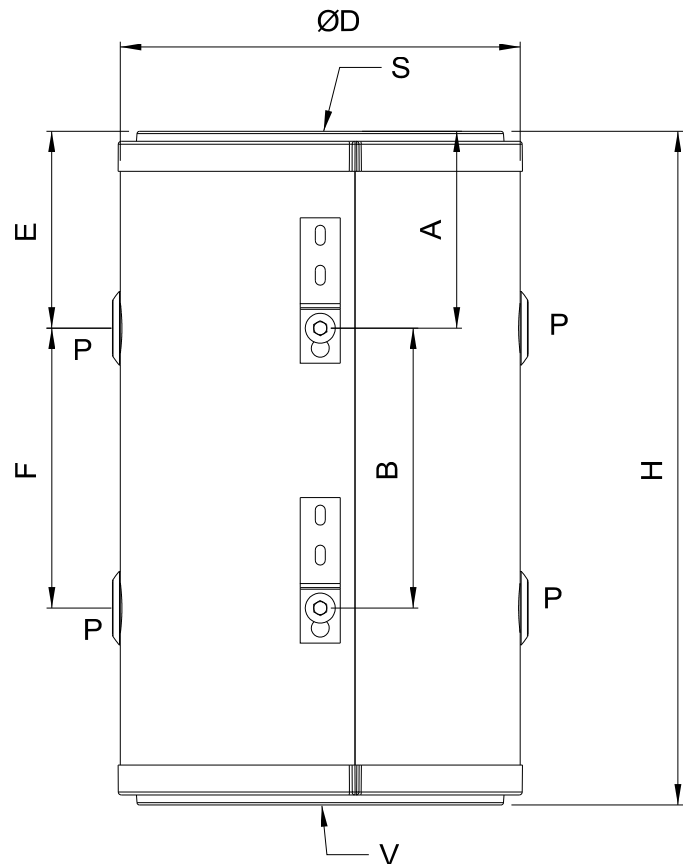
By greatly reducing the speeds, it also allows **the settling of the sludge** and **the purging of the air** of the installation.

- **Steel** construction
- **1 connection** 1/2" for thermowell (Thermowell not supplied for Onix 100 and 200 liters)
- **1 connection** 1/2" for air purge (air purge not supplied)
- **1 connection for draining 1/2"** (Onix 40 liters) **and 1"1/4** (100 et 200 liters)
- Injected polyurethane foam insulation in a rigid polypropylene jacket.
- Energy efficiency class ErP : **Class C**
- Maximum working pressure : **3 bars**
- Maximum temperature of use : **90°C**
- Tank warranty : **3 years**
- **Accessories :**
 - Onix 40 liters supplied with :
 - . 2 wall mounting brackets.
 - Onix 100 et 200 liters supplied with :
 - . 2 wall mounting bars.

1.2 - Technical data

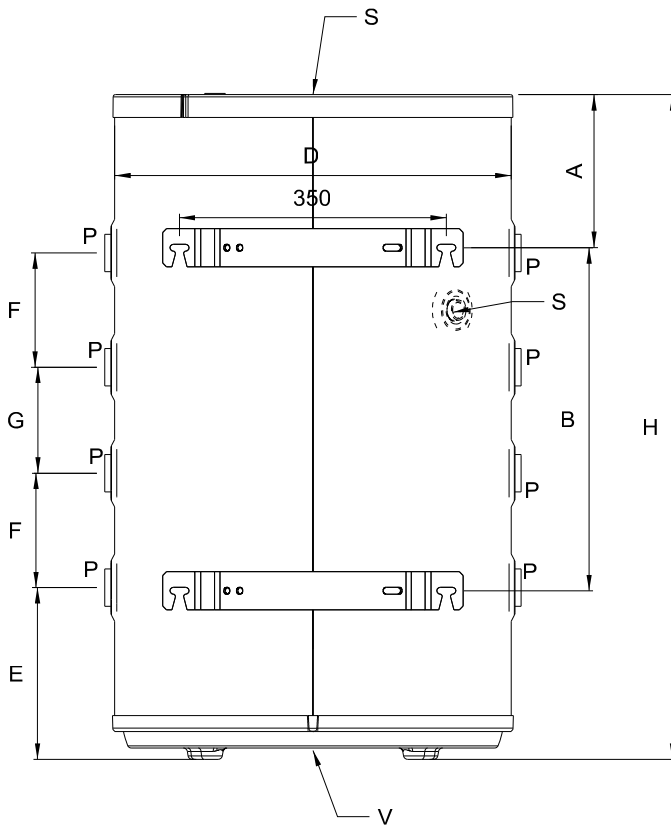
1.2.1 - Dimensions

1.2.1.1 - ONIX 40 CF4 MR



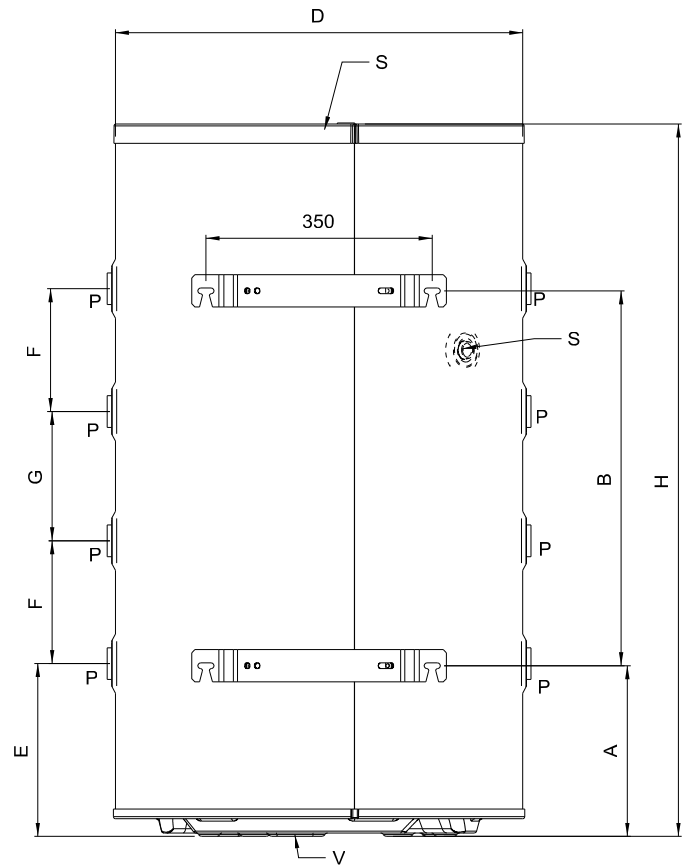
Item	Description	Dimension
P	Connections (F sleeve number)	4 x 1"
V	Draining (F sleeve)	1/2"
S	Air purge connection (F sleeve)	1/2"
A	Wall mounting position	197 mm
B	center distance (Wall mounting)	280 mm
E	1st connection	157 mm
F	Center distance between connections	280 mm
H	Height	674 mm

1.2.1.2 - ONIX 100 CF8 MSR /2



Item	Description	Dimension
P	Connections (F sleeve number)	8 x 1" 1/4
V	Draining (F sleeve)	1" 1/4
S	Air purge connection (F sleeve)	1/2"
A	Wall mounting position	200 mm
B	center distance (Wall mounting)	450 mm
E	1st connection	200 mm
F	Center distance between connections	150 mm
H	Height	834 mm
G	Center distance connection P	150 mm

1.2.1.3 - ONIX 200 CF8 MSR /2



Item	Description	Dimension
P	Connections (F sleeve number)	8 x 1" 1/4
V	Draining (F sleeve)	1" 1/4
S	Air purge connection (F sleeve)	1/2"
A	Wall mounting position	255 mm
B	center distance (Wall mounting)	580 mm
E	1st connection	255 mm
F	Center distance between connections	190 mm
H	Height	1102 mm
G	Center distance connection P	200 mm

1.2.2 - Technical specifications and performances

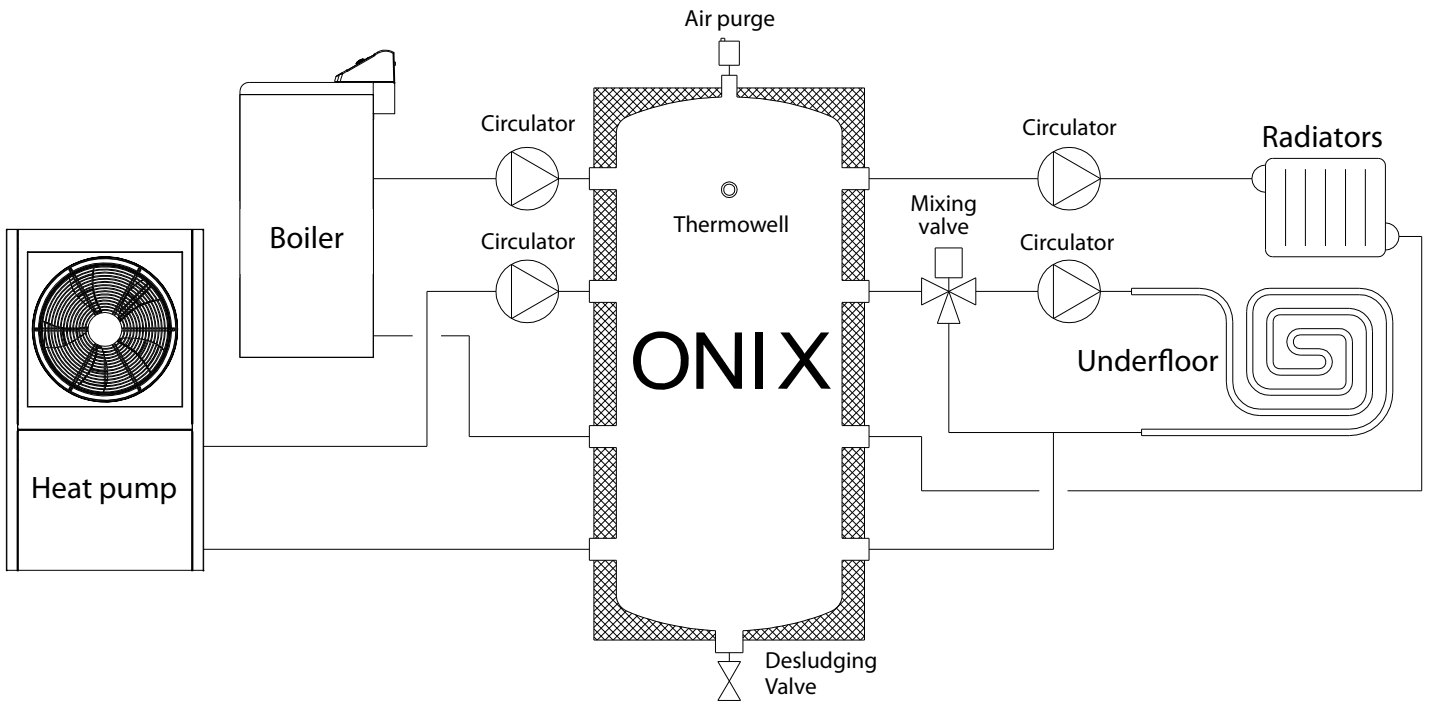
	ONIX 40 CF4 MR	ONIX 100 CF8 MSR/2	ONIX 200 CF8 MSR /2
Installation	wall hung or tripod	wall hung or tripod	wall hung or tripod
Capacity	40L	100L	200L
D (single diameter)	400 mm	520 mm	630 mm
H (Overall height)	674 mm	834 mm	1102 mm
Weight when empty	18	25	42
Static losses ⁽¹⁾	45w	54w	64w
Energy efficiency class	C	C	C
Maintenance consumption ⁽²⁾	1,08kWh / 24h	1,3kWh / 24h	1,53kWh / 24h
Maximum flow rate per connection	2500 l/h	4100 l/h	4100 l/h

⁽¹⁾ Storage at 65°C - Ambient temperature at 20°C - In accordance with RT2012.

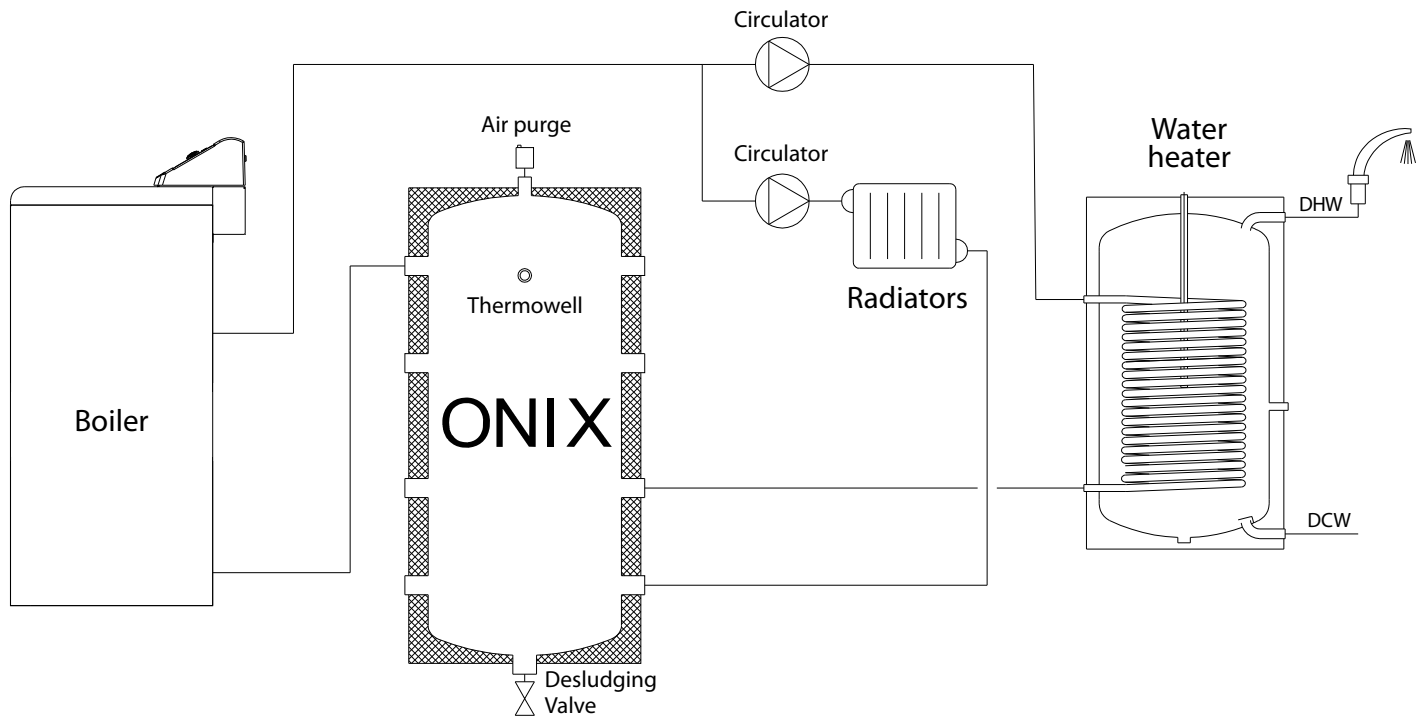
⁽²⁾ Maintenance consumption in accordance with EN12897:2016 (for a temperature differential of 45 K).

2 - INSTALLATION

2.1 - In decoupling buffer (example)



2.2 - In heating buffer tank (example)



3 - MANDATORY TREATMENT OF THE HEATING CIRCUIT

Central heating installations (radiators, underfloor heating, etc...), must be **desludged** (existing installations older than 6 months before the boiler is replaced, or after any work is carried out) and **rinsed** (both new and existing installations). Use an appropriate product to eliminate the debris (soldering waste, copper, filings, metallic particles, etc...) associated with the set-up of the installation and from chemical reactions between the different metals.

Furthermore, it is important to **protect** (in both new and existing installations), the central heating installations from risks of corrosion, limescale and microbiological development by using a corrosion inhibitor which is suitable for all installation types (cast iron radiators, PEX underfloor heating, ...).

3.1 - Treatment



We recommend the use of products in the **SENTINEL** range for preventative and curative treatment of the heating circuits:

• For new installations (less than 6 months) :

- I. **Clean** the installation with a universal cleaner to eliminate debris caused by the installation process (copper, fibres, filings, soldering waste, etc...).
Example: SENTINEL X300 or SENTINEL X800
- II. **Thoroughly rinse** the installation until the water runs clear, with no traces of impurities left.
- III. **Protect** the installation against corrosion with a corrosion inhibitor
Example : SENTINEL X100
Or against corrosion and frost with a corrosion inhibitor with an anti-freeze additive.
Example : SENTINEL X500 or SENTINEL R600

• For existing installations (older than 6 months) :

- I. **Desludge** the installation with a desludging product to eliminate any sludge from the installation.
Example: SENTINEL X400 or SENTINEL X800
- II. **Thoroughly rinse** the installation until the water runs clear, with no traces of impurities left.
- III. **Protect** the installation against corrosion with a corrosion inhibitor.
Example: SENTINEL X100
Or against corrosion and frost with a corrosion inhibitor with an anti-freeze additive.
Example: SENTINEL X500 or SENTINEL R600

The corrosion inhibitor allows to:

- protect against the formation of limescale,
- prevents different types of corrosion (galvanic oxidation, «pitting» or «pin-hole», acidic pH),
- prevents, in new installations, the formation of sludge and prevents against the formation of bacteriological proliferation (algae in the low temperature network)
- prevents the formation of hydrogen and limescale (lowers the sound made by the generators).

Treatment products from other manufacturers can be used if they guarantee that the product is appropriate for all the materials used in the appliance, and if they offer an efficient resistance to corrosion. To find this information, refer to the user manual.

The products used for the treatment of the heating water must be in compliance with the local regulations in effect or the regulations in effect in the country of installation and use.

3.2 - Frost protection

If the boiler(s) and/or heat pump(s) must be turned off during the winter period (ex: accidental stop; secondary residence; etc...), frost protection is necessary to avoid having to drain the hydraulic circuit of the heat pump which is located outside of the residence.

For frost protection use a «mono propylene glycol» anti-freeze with a corrosion inhibitor additive.

In case the HRC⁷⁰ heat pump is not working, (exterior temperature < - 20°C) it is automatically protected from freezing as the heat pump controls the circulator so as to maintain heat in the heating circuit which then has its temperature maintained by the Pilot's electrical back-up or back-up boiler.

3.3 - Quality of filling water

Filling using rain or well water is prohibited.

Filling of the heating circuit must be done only using untreated water (no water softener) from the drinking water network :

1. Clear water without any deposits.
2. **Ideally 15°F < TH < 20 °F** (or french °).
3. Chlorides (Cl^-) < 50mg/liter.
4. Sulphates (SO_4^{2-}) < 50mg/liter.

Chlorides and sulphates naturally present in the water cause pitting (a phenomenon of localized corrosion that eventually leads to perforation of metals).

The water in the drinking system generally has a hydrogen potential (pH that determines its acidity or alkalinity level) close to neutrality (pH≈7) and therefore contains almost no dissolved carbon dioxide or carbonates.

As soon as the filling water of the installation rises in temperature the decomposition of the bicarbonates produces carbon dioxide which will be evacuated from the installation by the air traps increasing the pH value accordingly.

3.4 - Facility degassing

Dissolved oxygen in heating water is a powerful vector of corrosion by oxidation of metals.

This aeration also contributes to the proliferation of organic sludge.

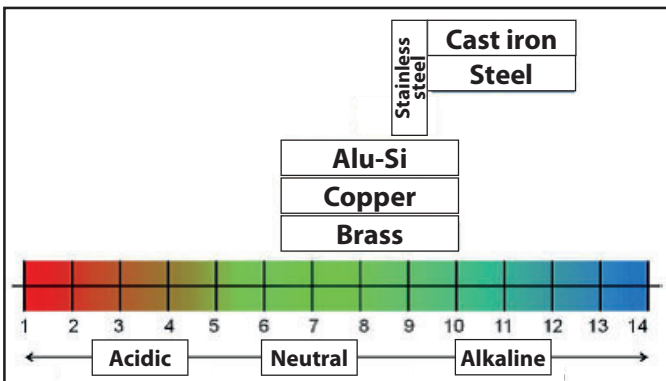
Particular attention must be paid to the control of the non-aeration of the heating system: expansion tank and in particular to the synthetic materials used.

4 - ANNUAL MAINTENANCE OF THE HEATING CIRCUIT (and cleaning of filters after first use)



It is **MANDATORY** to carry out an annual inspection of the **quality of water** :

1. Cloudiness : visual test of the quality of water in the heating circuit which informs on the general state of the installation.
2. Sludge levels : desludge if necessary.
3. Limescale: Descale if necessary.
4. **pH** must be between **8.5** and **10** for installations made of **steel**. If the pH is higher than the limits shown, the metal will corrode.
The **pH** of metals in their natural state is the following :



5. Water conductivity < 800 $\mu\text{S}/\text{cm}$ (micro Siemens per centimetre) that provides information on total water mineralization

Clean the filter several times:

1. After the first use of the appliance (take care to stop the circulators before cleaning).
2. Annually.
Replace the filter if necessary.



Refilling the water in the circuit dilutes the corrosion inhibitors. The water added must be limited to 5% of the total volume of the circuit. The total amount of water added to the circuit (filling and refilling) must be accounted for. Automatic refilling is prohibited.

If the hydraulic circuit is protected using an anti-freeze product:

1. Regularly **inspect** the **pH** level and the % of glycol in the installation.
2. Never top up the glycol in an existing installation before having **verified**, by measuring the **pH** level, that the drop in the % of glycol is not due to a deterioration of the glycol.
3. When the **pH** becomes acidic (**pH < 7**), **replace** all of the glycol after having already drained and **rinsed** the installation.

5 - EXCLUSION FROM WARRANTY



Any deterioration of the equipment resulting from inadequate filling water quality and/or corrosion phenomena in the absence of treatment products as described above and/or poor degassing of the installation will result in the cancellation of the warranty.

The warranty does not apply to the absence, inadequacy or improper maintenance of the appliance.

Regular annual maintenance of your equipment and installation is essential for sustainable use and operation.

This maintenance should be performed by your installer or by a technical post approved by intuis. Otherwise, the warranty cannot apply.

5.1 - Heating circuit water

Cases (not limited to) where the warranty is void :

- No defrosting of the heating circuit (existing installations of more than 6 months)
- No flushing of the heating circuit (existing installations of more than 6 months and new installations of less than 6 months)
- Use of rainwater or wells as fill water and not from the drinking water system, treated water (with softener)
- Lack of corrosion treatment of heating system
- Lack of annual water quality monitoring

5.2 - Maintenance

Cases (not limited to) where the warranty is void :

- Failure to comply with the maintenance requirements of the technical instructions.
- Not maintaining the appliance :
 1. Abnormal sludge ;
 2. Abnormal scaling ;
 3. No cleaning of protective filter(s).

6 - ENVIRONMENT AND RECYCLING

Thank you for helping to preserve our environment.

After use, dispose of materials according to national regulations.

APPENDIX

Help for the sizing of the buffer volume

Depending on the water capacity of the hydraulic installation, it may be necessary to add a buffer volume to prevent the operation of the boiler (s) or the heat pump with short cycles and thus to preserve them.

Boilers and heat pumps which operate "on or off" have a minimum operating time "**tmini**" and an operating differential "**ΔT**" (temperature difference between on and off).

The minimum total volume that the hydraulic installation must satisfy is :

$$V_{\text{mini}} (\text{liters}) = \frac{P (\text{kW}) \times \text{time mini. (minutes)} \times 1000}{1,163 \times \Delta T (^{\circ}\text{K}) \times 60}$$

Count the volume of the following items for the total volume of the installation :

1. the boiler (only the one with maximum power in the case of a coupling)
2. the buffer (or decoupling) bottle
3. the pipes (...)
4. the volume of the emitters of the circuit (s) which are permanently irrigated (without thermostatic valves or mixing valve)

For information, the volume of water contained in the installation to be taken into account depending on the type of emitters **permanently irrigated** is given in the table below as an indication :

Type of transmitters	Equivalent volume of water (liters / kW of installed power)
Cast iron radiator	13
Steel radiator	10
Convactor	7
Air heater	5
Floor Ø 13x16	12
Floor Ø 16x20	17

For boilers, take the power of the highest stage, or even the total power of the boiler if it operates on all or nothing. Usually the minimum running time is around 6 minutes and the operating differential is around 7 ° K.

For heat pumps, take the power at the lowest speed (30% for example for an inverter heat pump) or the power at + 7 ° C (outside) and 35 ° C (water outlet). For heat pumps with 2 compressors, take the power of the compressor which operates at + 7 ° C (outside) and 35 ° C (water flow). Usually the minimum running time is around 6 minutes and the operating differential is around 5 ° K.



When several boilers or heat pumps are coupled, only the power of a single boiler (that of maximum power) should be taken into account and not the power of all the generators.

NOTES :



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