



SABIANA
IL CLIMA AMICO

A leading brand of  **AFG**



Duck Up Vacuum Steam Heating System

The **Duck Up** radiant heating panels have been designed to respond to the need to ensure optimum comfort from a radiant system in all industrial environments where a traditional heating plant is not feasible.

One or more steam generators under vacuum, or VAS, installed in a sheltered location outside, cause the steam to expand inside the suitably modified pipes of the radiant heating panels, with condensate return by gravity. The circuit is closed and sealed, there is no consumption of steam and consequently no need to top up the water.

The vacuum system allows steam to be produced at a maximum temperature of 110°C corresponding to a relative pressure of 0.45 bar (1.45 bar absolute).



The main advantages involve exceptionally uniform temperature in the environment, fast stabilisation of the operating conditions, and a particularly simple and long lasting system with reduced energy consumption (almost no power consumption).



The **Duck Up** radiant panels are produced in 6 different models, with 2 standard colours, and others upon request. Each model features elements measuring 4 and 6 metres in length (3 and 5 metres upon request). Each element can be easily connected by welding the pipes supplied with belled ends.

The first and last elements are fitted with welded headers and tested in the factory using advanced automated processes.

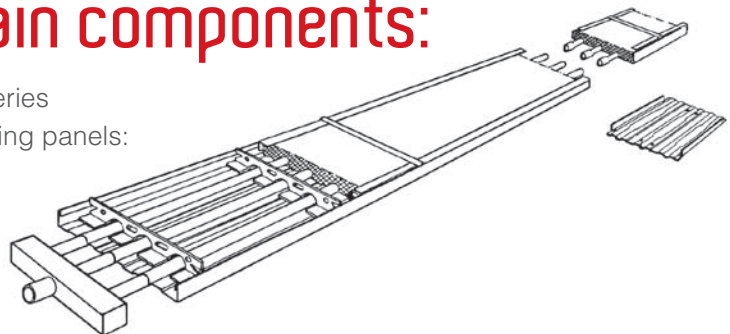
The painting process, using an epoxypolyester resin powder coat dried in a furnace at 180°C, ensures high resistance over time, in compliance with the international standard ISO 2409, certified by tests performed at the Milan Polytechnic University.



Duck Vap Vacuum Steam Heating System

Technical characteristics of the main components:

- Duck Vap series
radiant heating panels:

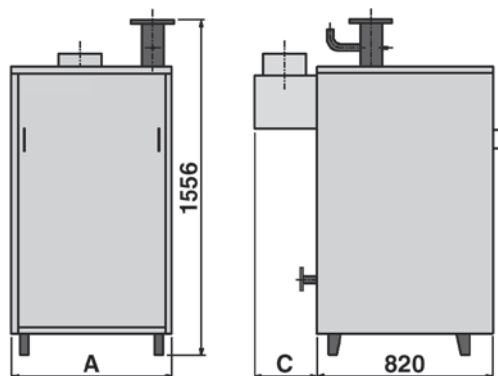


| MODEL | EMISSION |
|----------------|-----------------------------|
| | Ambient temperature 18°C |
| VAP 203 | 304 |
| VAP 206 | 543 |
| VAP 209 | 766 |

| MODEL | EMISSION |
|----------------|-----------------------------|
| | Ambient temperature 18°C |
| VAP 303 | 374 |
| VAP 306 | 665 |
| VAP 309 | 966 |

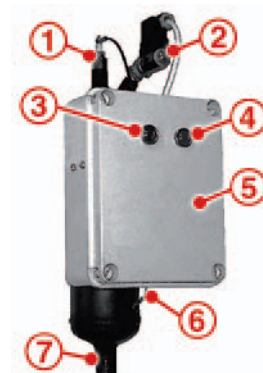
- VAS series steam generators:

| MODEL | RATED FLOW-RATE Q _n Hi | RATED OUTPUT | MAXIMUM PRESSURE | MAX. STEAM TEMPERATURE | DIMENSIONS | |
|----------------|--------------------------------------|-----------------|---------------------|---------------------------|------------|-----|
| | | | | | A | C |
| | kW | kW | bar | °C | mm | mm |
| VAS 63 | 70 | 63,7 | 0,45 | 110 | 590 | 245 |
| VAS 95 | 105 | 95,5 | 0,45 | 110 | 750 | 295 |
| VAS 143 | 157,5 | 143,3 | 0,45 | 110 | 994 | 320 |



- ASA air venting device:

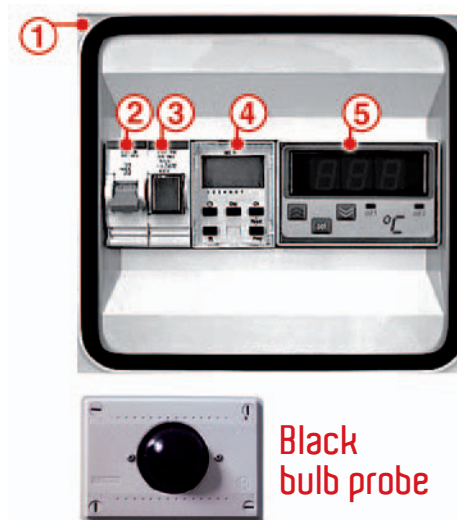
- 1) Level sensor
- 2) Air vent solenoid valve
- 3) System pressure indicator light
- 4) Vent in progress indicator light
- 5) Box for the control equipment
- 6) Temperature probe
- 7) 3/4" gas fitting



- Control panel

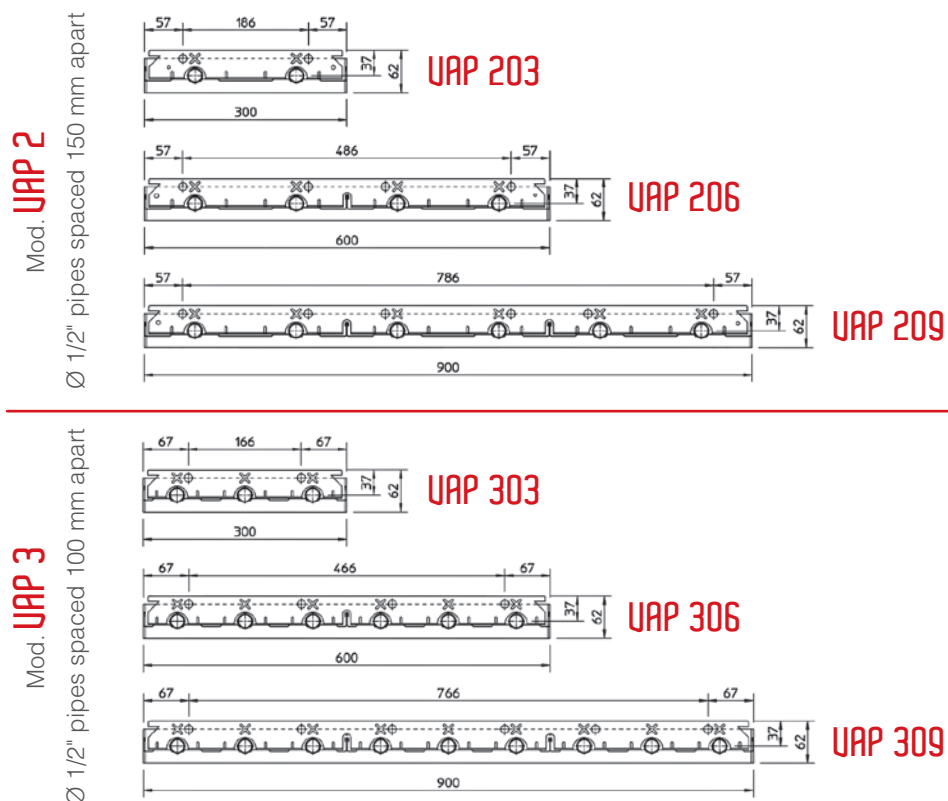
with black bulb probe:

- 1) Control unit for wall mounting
- 2) Main on/off switch
- 3) Button with indicator light to signal burner shutdown and reset
- 4) Digital weekly on/off timer
- 5) Digital electronic thermostat with two temperature thresholds, "day" (comfort) and "night" (reduced)

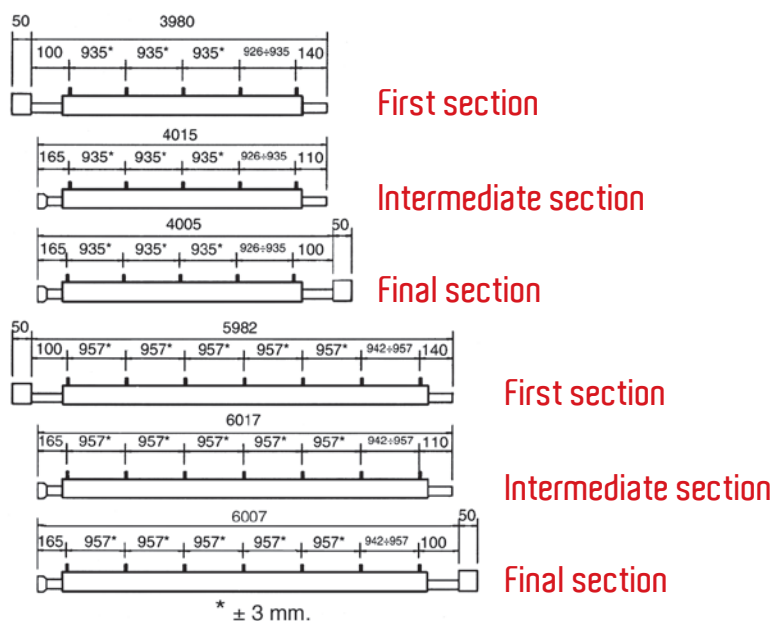


Models and Dimensions

Modular widths



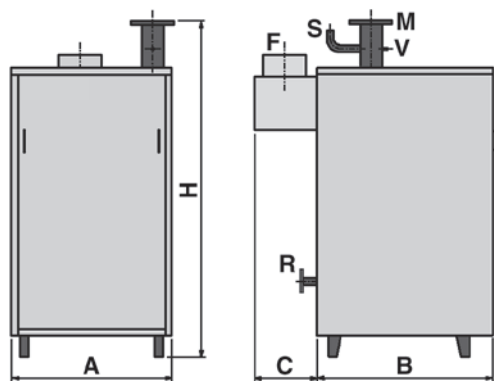
Modular lengths



Unit weights

| MODEL | VAP 203 | VAP 206 | VAP 209 | VAP 303 | VAP 306 | VAP 309 |
|---------------------|---------|---------|---------|---------|---------|---------|
| UNIT WEIGHT kg/m | 4 | 8 | 12 | 6 | 12 | 18 |

VAS series steam generators



| MODEL | | VAS 63 | VAS 95 | VAS 143 |
|-----------------------------|----|-----------|------------|------------|
| Overall dimensions: A | mm | 590 | 750 | 994 |
| B | mm | 820 | 820 | 820 |
| C | mm | 245 | 295 | 320 |
| H | mm | 1556 | 1556 | 1556 |
| Steam outlet: ØM | | DN65 PN16 | DN100 PN16 | DN100 PN16 |
| Condensate return: ØR | | DN25 PN16 | DN25 PN16 | DN32 PN16 |
| Safety valve attachment: ØS | | M 3/4" G | M 1" G | M 1 ½" G |
| Vacuum valve attachment: ØV | | F 1/4" G | F 1/4" G | F 1/4" G |
| Rated flue diameter: ØF | mm | 180 | 200 | 250 |
| Gas supply attachment | | F 1/2" G | F 1" G | F 1 ¼" G |
| Empty weight | kg | 225 | 290 | 385 |
| Water content | lt | 115 | 140 | 180 |

*Due to the special constructional characteristics,
these steam generators can be configured as modules to achieve higher heat outputs.*

THERMAL EMISSION OF THE PANELS

| MODEL | CARRIER FLUID: STEAM AT 110°C (P = 0,45 bar) | | |
|----------------|--|--------------------------|--------------------------|
| | T _{ROOM} = 16°C | T _{ROOM} = 18°C | T _{ROOM} = 20°C |
| | W/m | W/m | W/m |
| VAP 203 | 312 | 304 | 296 |
| VAP 206 | 556 | 543 | 529 |
| VAP 209 | 785 | 766 | 747 |
| VAP 303 | 383 | 374 | 364 |
| VAP 306 | 680 | 664 | 647 |
| VAP 309 | 991 | 966 | 942 |

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