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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.

**O**ne 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.

**T**he 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).



**T**he 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).

**T**he **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.

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

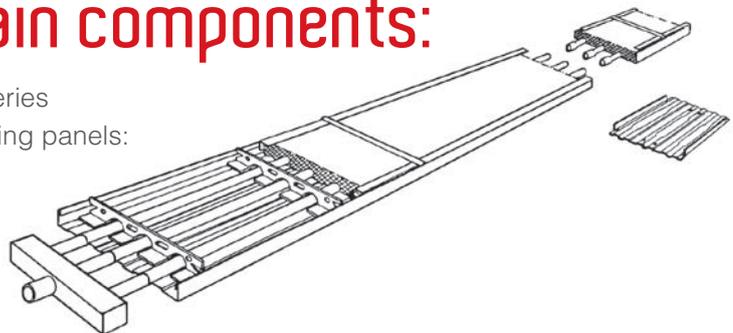
**T**he painting process, using an epoxypolyester resin powder coat dried in a furnace at 180°C, ensures high resistance over time, in compliance with the international standard ISO 2409, certified by tests performed at the Milan Polytechnic University.



# Duck Vap Vacuum Steam Heating System

## Technical characteristics of the main components:

- Duck Vap series  
radiant heating panels:

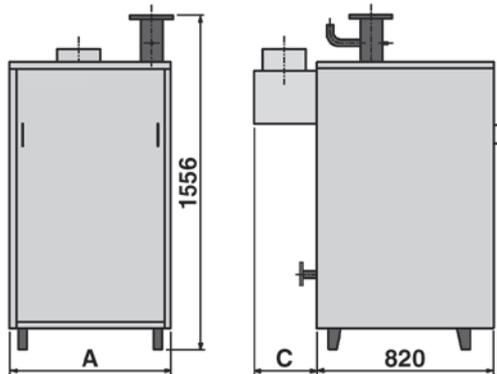


MODEL	EMISSION
	Ambient temperature 18°C
VAP 203	304
VAP 206	543
VAP 209	766

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

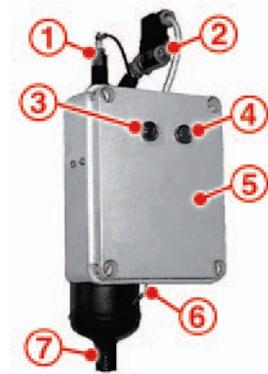
- VAS series steam generators:

MODEL	RATED FLOW-RATE Q <sub>n</sub> Hi	RATED OUTPUT	MAXIMUM PRESSURE	MAX. STEAM TEMPERATURE	DIMENSIONS	
	kW	kW	bar	°C	A mm	C mm
<b>VAS 63</b>	70	63,7	0,45	110	590	245
<b>VAS 95</b>	105	95,5	0,45	110	750	295
<b>VAS 143</b>	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

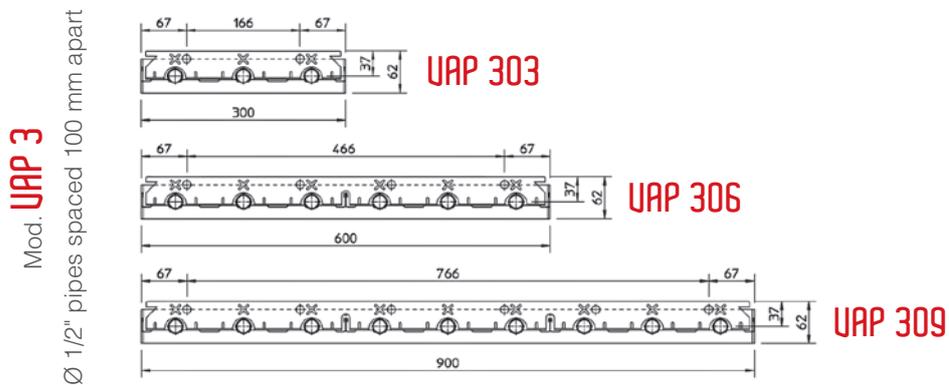
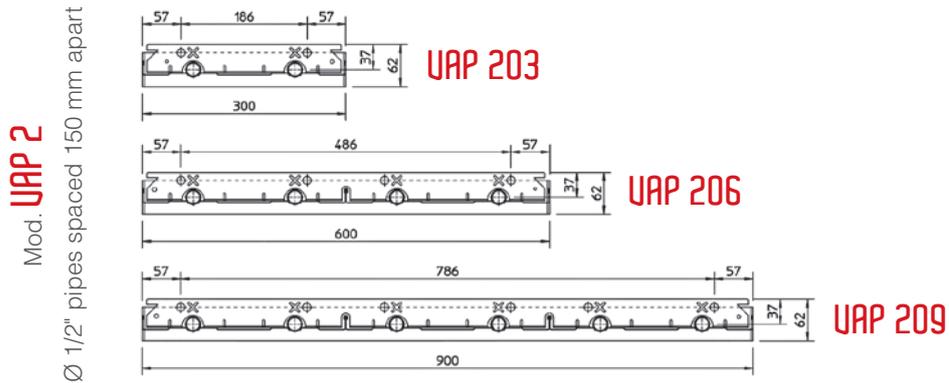
with black bulb probe:

- 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)

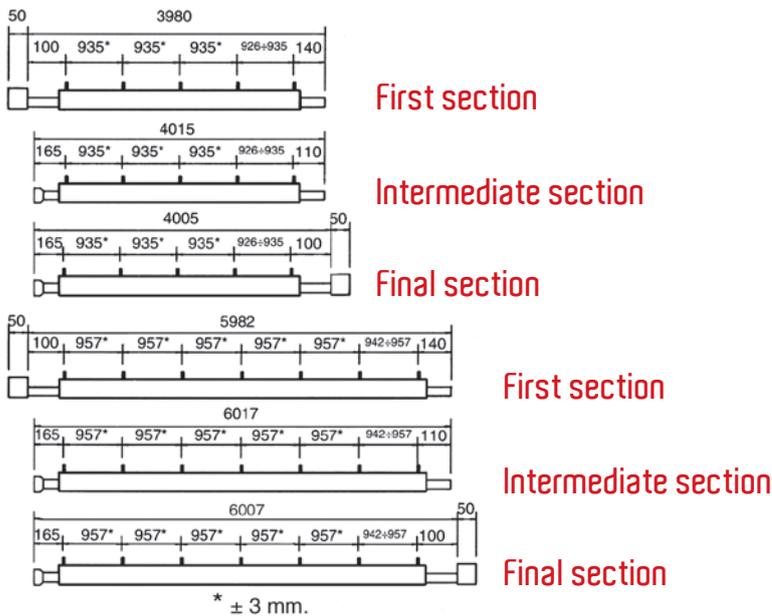


# Models and Dimensions

## Modular widths



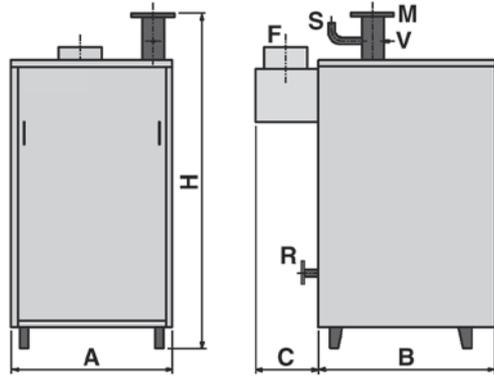
## Modular lengths



## 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 1/2" 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 1/4" 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 <sub>ROOM</sub> = 16°C	T <sub>ROOM</sub> = 18°C	T <sub>ROOM</sub> = 20°C
	W/m	W/m	W/m
<b>VAP 203</b>	312	304	296
<b>VAP 206</b>	556	543	529
<b>VAP 209</b>	785	766	747
<b>VAP 303</b>	383	374	364
<b>VAP 306</b>	680	664	647
<b>VAP 309</b>	991	966	942

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