



Pulsar Ceiling Mounted Radiant Panels

The **Pulsar ceiling mounted radiant panels** are made in 4 sizes, with a width of 600 mm and a length between 1.2 and 3 m, in 2 standard colours, and others upon request. The panel has a very elegant design, perfectly matching the false ceiling, features simple maintenance, very long life and can be connected in series or in parallel to others panels using flexible pipes supplied upon request.

The panels feature a very interesting construction: modern welding units, without leaving any visible traces, press the copper pipes into the thick electro-galvanised steel panel, guaranteeing an optimum heat output and a uniform temperature across the entire radiating surface. The product is ideal for many types of environment, especially schools and hospitals.

The panel can be supplied with hot or cold water: in the summer, it should be used together with a primary air system, as only sensible cooling is provided.

The heating capacity values have been certified by the leading European laboratory in the sector (University of Stuttgart), applying the European EN 14037 standard.

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.

Technical Specifications:

The Sabiana Pulsar radiant panels are supplied in four sizes, which can be perfectly integrated into any false ceiling.

Indeed, the lengths of 1.20, 1.80, 2.40 and 3.00 m ensure optimum integration into 600 x 600 mm modular ceilings, the standard dimension for false ceiling panels in Europe.

The visible side is perfectly flat, meaning that the Pulsar radiant panels can match all types of false ceiling panels available on the market.

As standard, the panels are supplied in the colour RAL 9010, with a satin finish created by an epoxy-polyester coat dried in a furnace at 180°C. Other RAL colours are also available for the architect to choose from.

The Pulsar radiant panels are made of a radiating galvanized steel plate, 1 mm thick.

On the panel is fixed a copper pipe, 1 mm thick and with 22 mm of external diameter. The pipe is oblong-shaped in order to optimize the contact surface with the radiant panel.

The galvanized hanging strips welded to the panels hold the correct spacing of the tubes and secure the best surface contact between the tube and the panel.

The painting complys to the European Standard 76/769/EEC.

Class of reaction to fire: A1

Emission of the radiant surface: $\epsilon = 0,96$

With the Pulsar is supplied an insulating layer of mineral wool (30 mm thick) protected by an aluminium sheet (25 micron thick) to be mounted on the top of the panel.

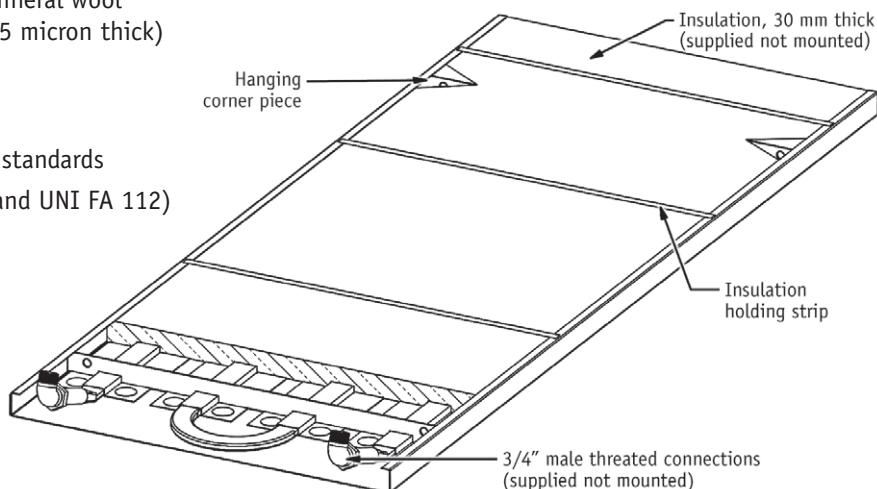
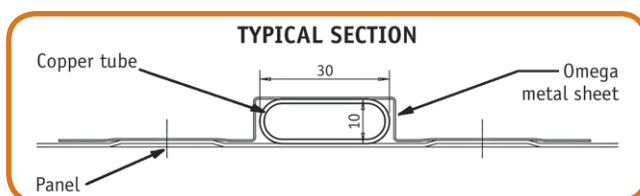
Mineral wool insulation specifications:

Reaction to fire: class A1 according to EN 13501-1 standards

Thermal conductivity: 0,037 W/mK (UNI CTI 7745 and UNI FA 112)

Density: 14 kg/m³

Thermal resistance: 0,81 m²K/W

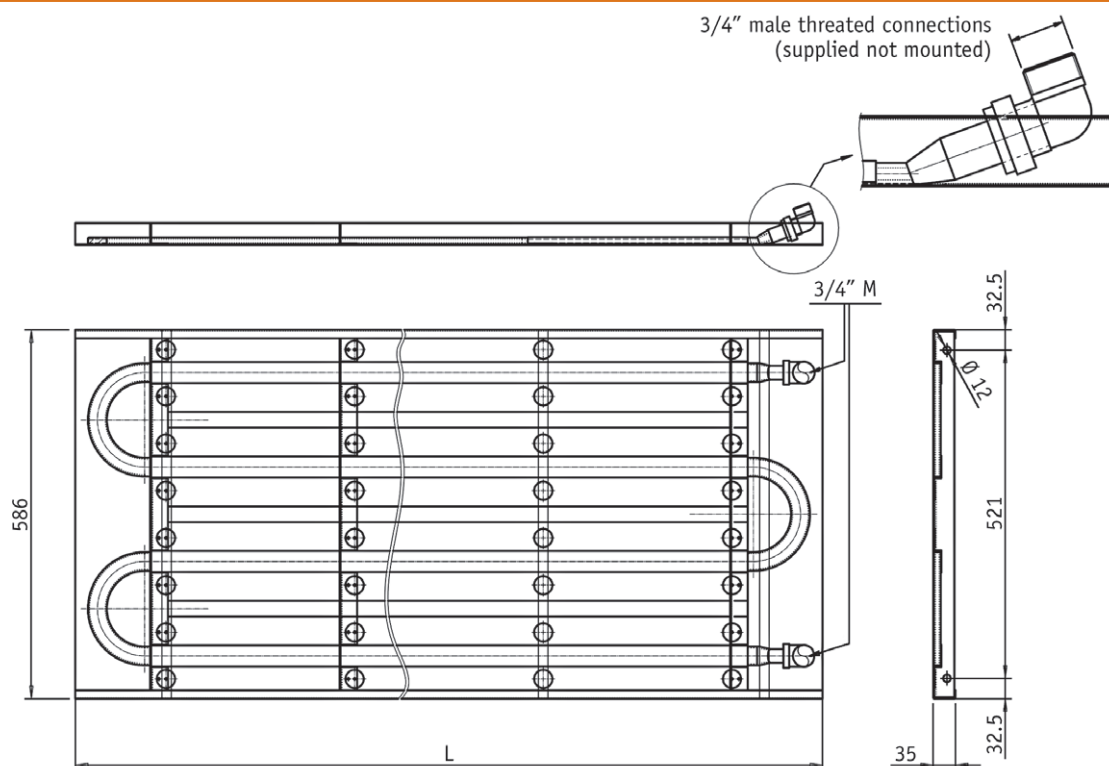


**SABIANA**

ENVIRONMENTAL COMFORT



Dimensions, weight and water content



		MODEL			
		Pulsar P.1	Pulsar P.2	Pulsar P.3	Pulsar P.3
Length	(mm)	1186	1786	2386	2986
WEIGHT	(kg)	13,8	20,7	27,6	34,5
WATER CONTENT	(l)	1,3	2,0	2,8	3,5

Thermal emission:

Characteristic curves of the product taken from tests carried out as per the EN 14037 standard:

$$Q = K \cdot (\Delta T_m)^n$$

Q = emission W/m

K = heating coefficient of the unit = 3,28086 W/m

ΔT_m = difference between the mean water temperature and the room temperature

n = heating exponent of the unit = 1,1536

The emission of the Sabiana **Pulsar radiant panels** have been certified by the laboratory at the University of Stuttgart H.L.K. applying the harmonised European Standard EN 14037, with the report number DC205 D12.2108

In accordance to part 2 of the standard, the K coefficient is equal to the above one divided by 1.1.

Nominal emission for a meter of P.1 ÷ P.4 Pulsar panels with $\Delta T_m = 55^\circ\text{C}$: 334 W/m

Total nominal emission of Pulsar panels with $\Delta T_m = 55^\circ\text{C}$

Pulsar P.1	Pulsar P.2	Pulsar P.3	Pulsar P.4
L = 1186 mm	L = 1786 mm	L = 2386 mm	L = 2986 mm
396 W	596 W	797 W	997 W

**05**

EN 14037 Standard - Ceiling radiant panels



Thermal emissions in accordance to the European Standard EN 14037

Δt_m	Emission	Δt_m	Emission	Δt_m	Emission	Δt_m	Emission	Δt_m	Emission
°C	W/ml	°C	W/ml	°C	W/ml	°C	W/ml	°C	W/ml
89	582	75	478	61	376	47	279	33	185
88	574	74	470	60	369	46	272	32	179
87	567	73	463	59	362	45	265	31	172
86	559	72	456	58	355	44	258	30	166
85	552	71	448	57	348	43	251	29	160
84	544	70	441	56	341	42	245	28	153
83	537	69	434	55	334	41	238	27	147
82	529	68	427	54	327	40	231	26	141
81	522	67	419	53	320	39	225	25	134
80	515	66	412	52	313	38	218	24	128
79	507	65	405	51	306	37	211	23	122
78	500	64	398	50	299	36	205	22	116
77	492	63	391	49	292	35	198	21	110
76	485	62	383	48	285	34	192	20	104

Δt_m = difference between the mean water temperature and the room temperature

Cooling emissions in accordance to the European Standard EN 14240

Cooling emission				
Δt_m	With insulation		Without insulation	
°C	W/ml	W/m ²	W/ml	W/m ²
5	22	38	30	52
6	28	47	37	63
7	32	55	43	74
8	38	64	50	86
9	43	73	57	98
10	47	81	64	110
11	53	90	71	122
12	58	99	79	134
13	63	108	86	146
14	69	117	93	158
15	74	127	100	171

Δt_m = difference between the mean water temperature and the room temperature

Lowest water flow

Lowest water flow to be supplied in order to obtain the correct emission.

Average water temperature (°C)	40	60	80	100
Lowest water flow (l/h)	65	48	37	32

Operating limits

Water circuit	Maximum water pressure: 4 bar	Maximum entering water temperature: +90°C
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Suggested lowest installation height (in m above the floor)

Maximum water temperature (°C)	m
50	2,5
60	2,7
70	2,9
80	3,1
90	3,3

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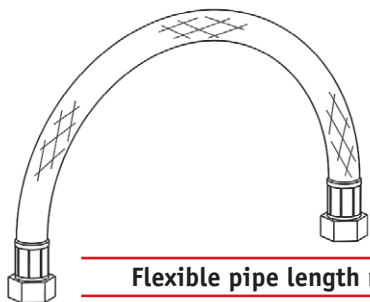


Accessories: Flexible connection pipe

FLEXIBLE PIPE

- Diameter 1/2"
- Made of: EPDM rubber
- With external stainless steel layer
- Operation between -20°C and +110°C

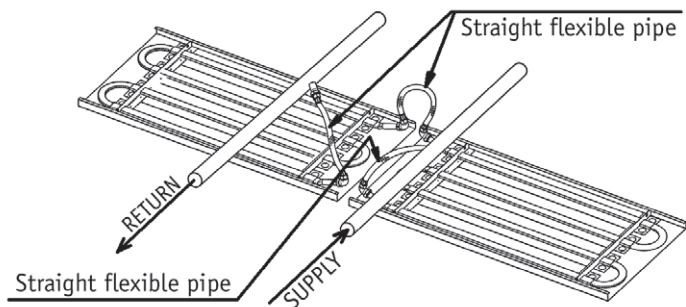
Assembly of 2 panels

**Flexible pipe length mm**

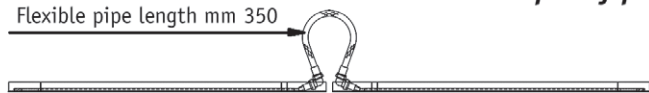
350

1200

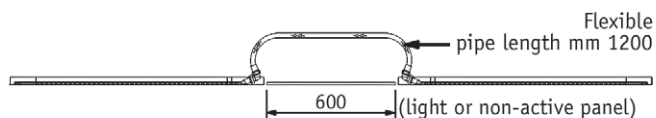
STRAIGHT FLEXIBLE PIPE - 3/4" FEMALE FITTINGS



Flexible pipe length mm 350

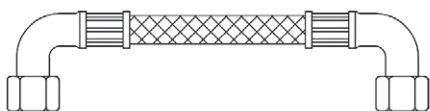


Example of possible connections



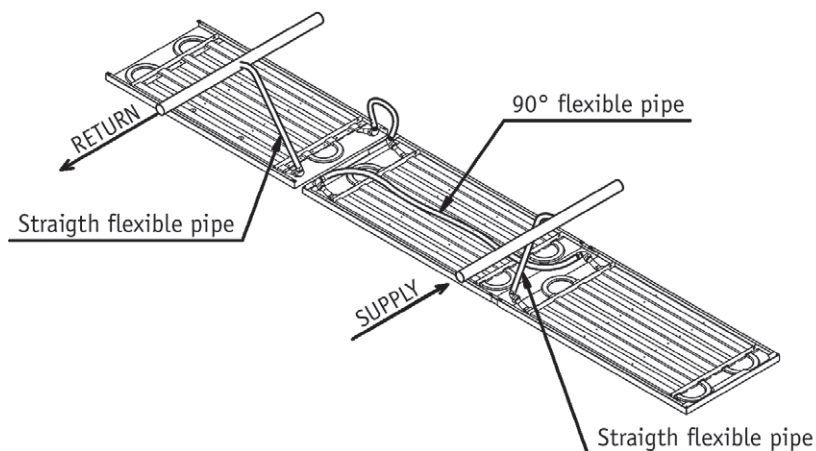
Assembly of 3 panels

FOR CONNECTIONS UP TO 2 M: 90° FLEXIBLE PIPE - 3/4" FEMALE FITTINGS

**Flexible pipe length mm**

1450

2000

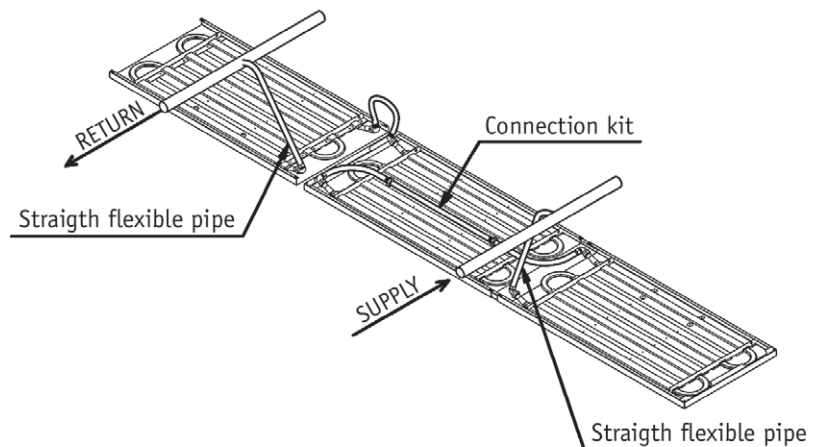


FOR CONNECTIONS LONGER THAN TO 2 M: CONNECTION KIT - 3/4" FEMALE FITTINGS

**Flexible pipe length mm**

2800

3300



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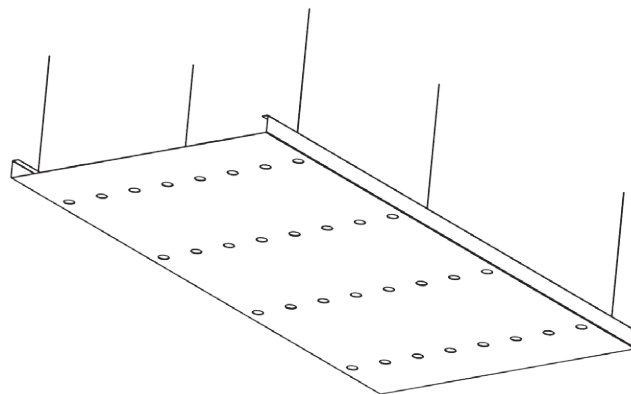
Non-active aesthetic panel

The aesthetic panels are used when the active panels do not need to be installed and when, for aesthetic reasons or local specifications, a non-active panel has to be installed.

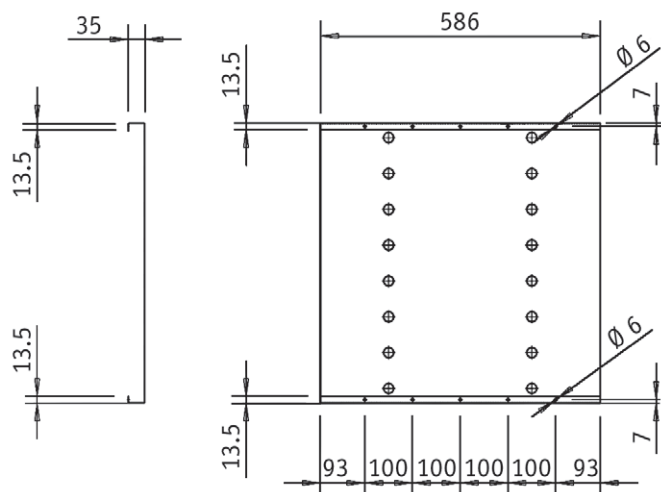
Available in 2 models:

Size	Length mm
1	586
2	1186

Can be cut to measure on site.

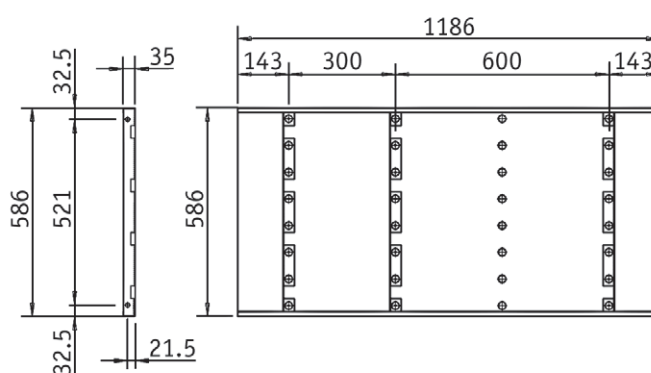


600 NON-ACTIVE PANEL



Hanging holes on the lateral sides of the panel (every 100 mm).

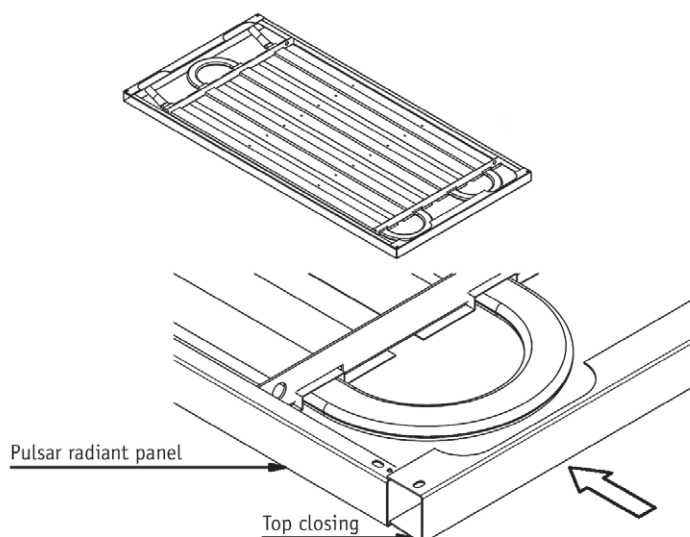
1200 NON-ACTIVE PANEL



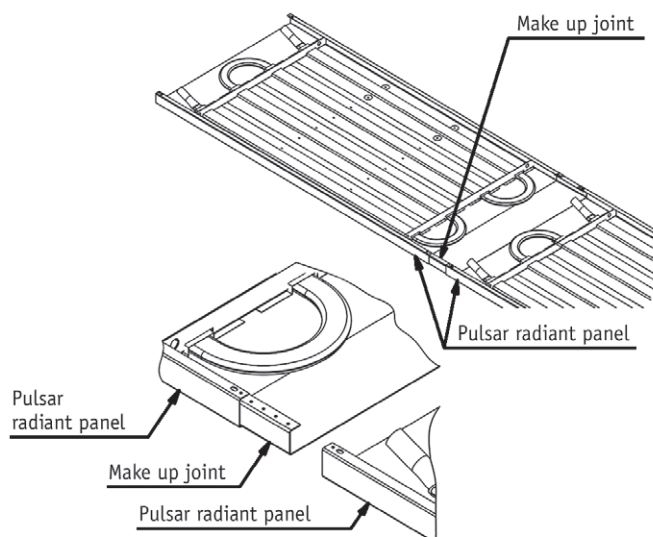
Hanging holes on the sides of the hanging brackets (distance 521 mm).

Accessories for panels not installed into false ceilings

TOP CLOSING KIT

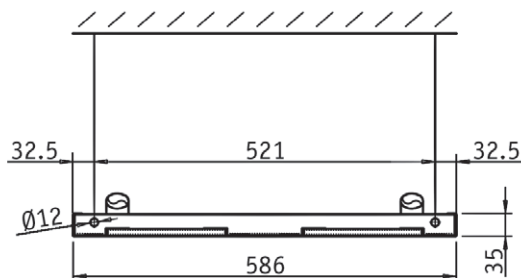
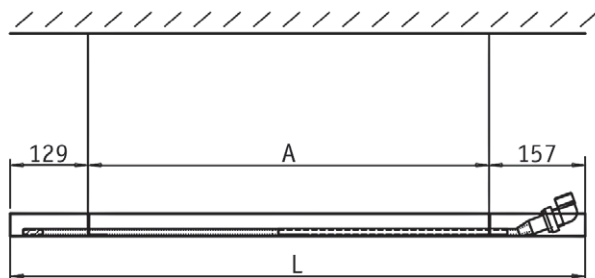


MAKE UP JOINTS

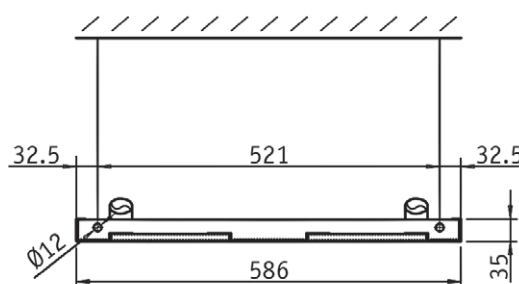
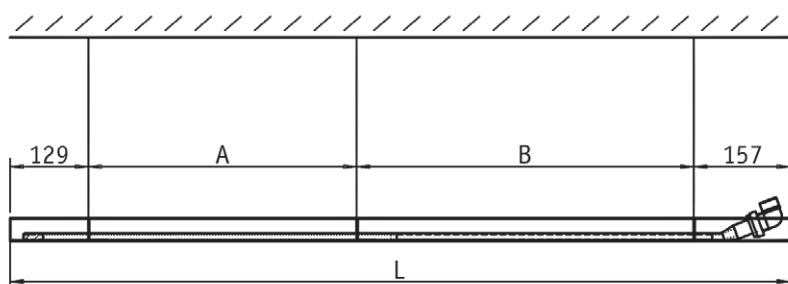


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HANGING BRACKETS**PULSAR P.1 AND P.2**

Description	L	A
Pulsar P.1	1186	900
Pulsar P.2	1786	1500

PULSAR P.3 AND P.4

Description	L	A	B
Pulsar P.3	2386	1200	900
Pulsar P.4	2986	1200	1500

The maximum vertical bendings f of the Pulsar radiant panels between two suspension points are lower than 2 mm.
The maximum bending from the longitudinal axis of the 3m panels is 5mm.

Hanging kits