



SABIANA
IL CLIMA AMICO



A leading brand of **AFG**



Duck Strip Radiant Panels

Sabiana is the leading European manufacturer in the design, production and sale of **radiant panels** operating on hot water, high temperature hot water and steam.

Since 1971, **over 30.000 installations** have been made in all types of environments (small, medium and large industry, shopping centres, aircraft hangars, sporting and recreation facilities, zootechnical facilities), demonstrating the soundness of the product and in new and highly innovative applications, such as the increasingly widespread air-conditioning of production areas that guarantees maximum comfort and consistent productivity all year round, even in the hotter summer months.



Heating by radiation means absolute silence, no forced movement of the air, uniform temperatures throughout the environment, and no risk of fire. It means energy savings, as people, the walls



and the floor are heated directly, while the air is only heated indirectly, with consequent minimum stratification of the heat. It means constant operation over time and no routine maintenance on the product, with the peace of mind that, year after year, at the start of each season, this product will continue to provide incomparable comfort.

8 different models are available in 2 standard colours and other colours upon request. The heating emission values have been certified by the leading European certification laboratory, the University of Stuttgart in Germany. The values have been obtained by applying the harmonised European standard EN 14037.



Duck Strip Radiant Panels

Technical specifications:

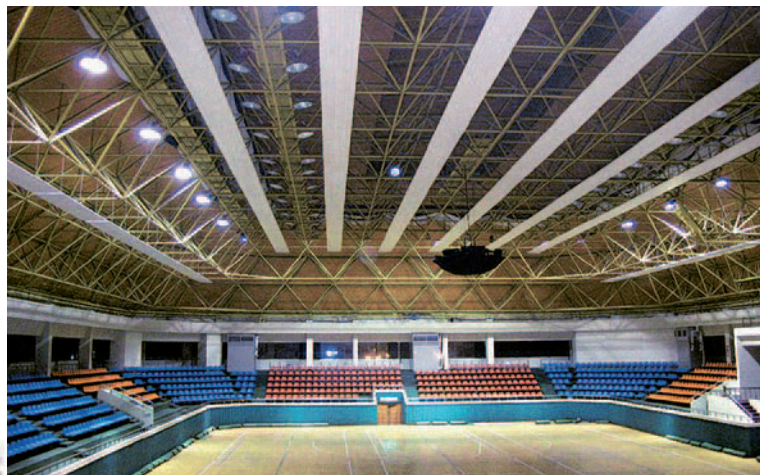
- Quality steel radiant panel, 0.8 mm thick, cold formed by mechanical forming procedure. The 300, 600, 900 and 1200 mm wide panels in 6 and 4 m lengths (3 and 5 m upon request), have semicircular self-locking sockets, spaced 100 or 150 mm apart depending on the models that are used to hold the pipes that carry the hot water.

- Steel pipes pressed into the semicircular sockets on the panel.

Standard Version: panels fitted with 1.5mm thick pipes, outside diameter 1/2", made by electric welding from high-quality cold rolled steel strips. The pipes are electronically tested by the manufacturer. The standard version panels are suitable for operating pressures up to 4 bars and maximum hot water temperature up to 120°C. Upon request, panels can be supplied for operation between 4 and 10 bars.

Special Version: panels fitted with 2.35mm thick seamless pipes (or with equivalent features), outside diameter 1/2", suitable for use in systems with operating pressures up to 16 bars and high temperature hot water temperatures from 120°C to 180°C.

The pipes have belled ends at one side to ease the longitudinal connection of the strips with welding. Alternatively, the pipes can be supplied without belled ends for connections using pressfittings.



- Angle brackets for hanging the panel.
- First header and end header,
made by connecting the various pipes in parallel into welded headers,
factory welded and tested to the required operating pressure.
- Sized fibreglass insulation (thickness 30-40-50 mm) protected
at the top by aluminium sheet (*). Other thickness or configurations upon request.
- Side edging strips made from pre-painted plate sections,
to retain the edges of the insulation (*).
- Pre-painted retaining clips (one each metre) to hold the insulation (*).
- Shaped and painted make-up joints,
with fastening bars, to cover the joint areas (*).
- Protection with special phosphate de-greasing procedure
and epoxy polyester coat, dried in a furnace at 180°C.
Colour RAL 9002 (light grey) or RAL 9016 (white). Other RAL colours upon request.
The treatment is not suitable
for the outdoor installation of the radiant panels.
- Reaction to fire class: A1.
- Emission of the radiant surface $\epsilon = 0,96$.
- The painting complies to the European Standard 76/769/EEC.

(*) with separate packaging.

Characteristics of the insulation

Description

Mineral wool insulation treated with heat setting resins,
coated on the outside face with 25 micron aluminium foil.

Reaction to fire

Class A1 according to EN 13501-1 standards.

Thickness	30 mm	50 mm
Thermal conductivity according to UNI CTI 7745 and UNI FA 112 standard	0,037 W/mK	0,037 W/mK
Density	14 kg/m ³	14 kg/m ³
Resistance	0,81 m ² K/W	1,35 m ² K/W

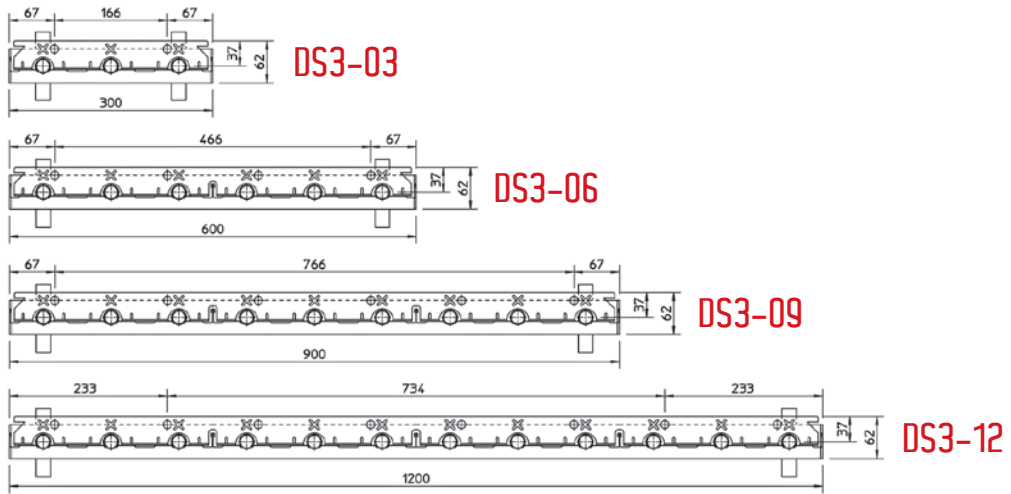
Technical specifications

The totally inorganic nature of the mineral wool ensures
the following characteristics: maintenance of the performance over time,
resistance to parasites and rodents, not hygroscopic, rot-proof.

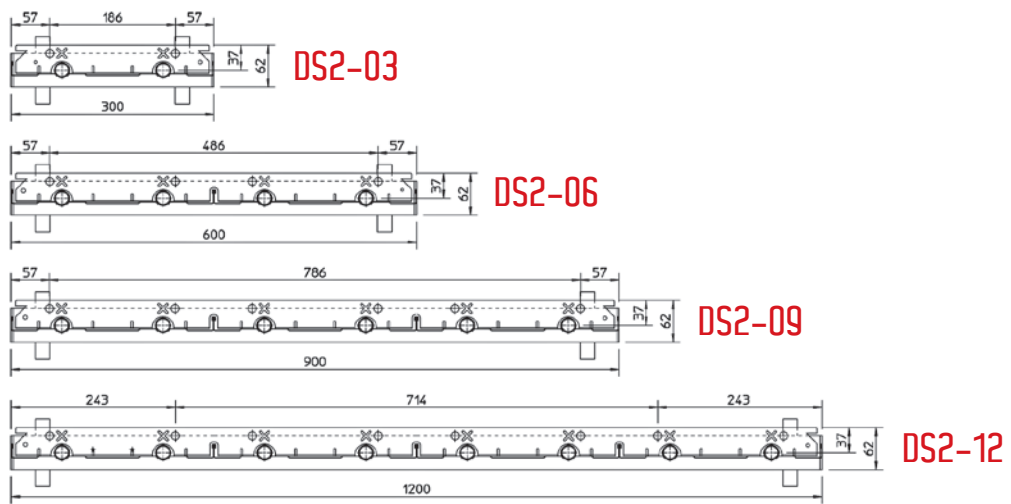
Models and Dimensions

Modular widths

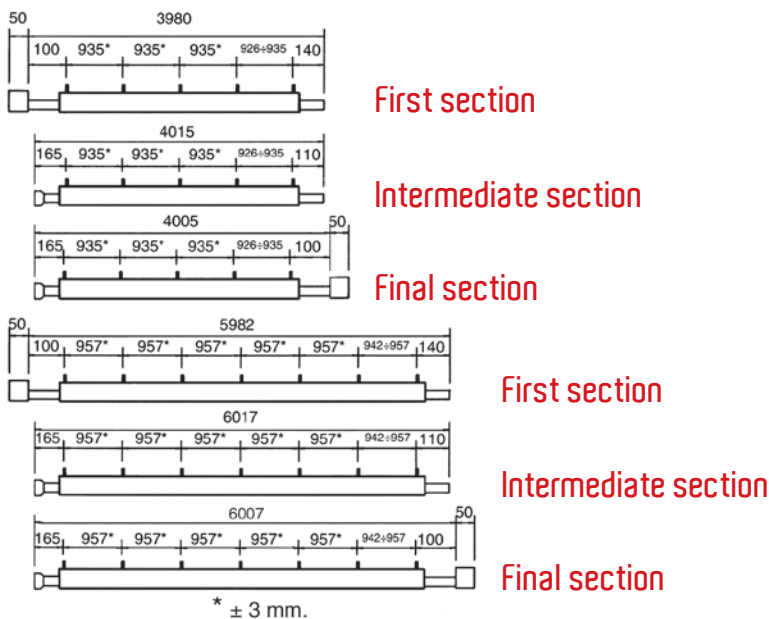
Mod. **DS3** - Ø 1/2" pipes spaced 100 mm apart



Mod. **DS2** - Ø 1/2" pipes spaced 150 mm apart

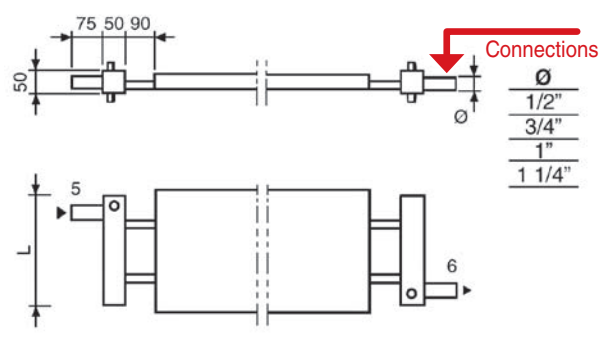


Modular lengths *(odd lengths are available on request)*



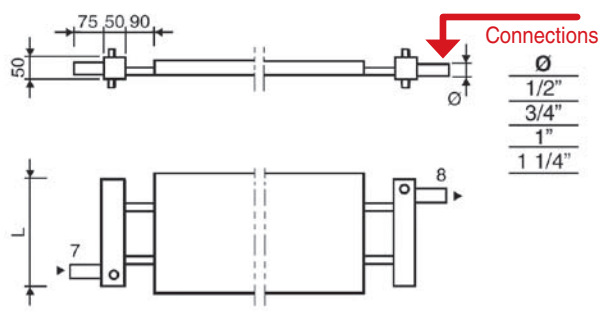
Headers and Connections

Model **B** – Connections 5-6

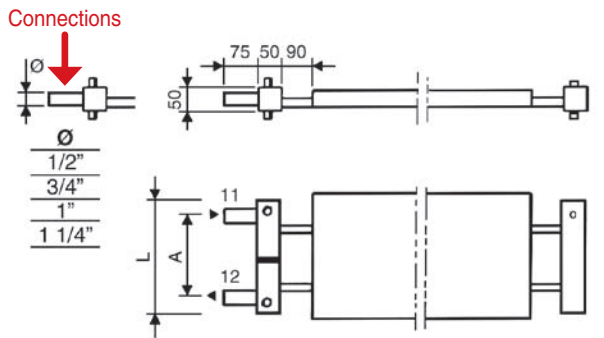


MODEL	L
03	300
06	600
09	900
12	1200

Model **B** – Connections 7-8

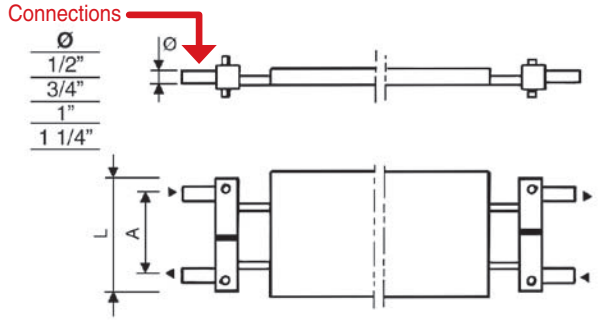


Model **D**



MODEL	L	A
03	300	200
06	600	500
09	900	800
12	1200	1100

Model **D+D**



D and D+D headers:

Distance between the connections mod. 03 = 200 mm mod. 06 = 500 mm
 mod. 09 = 800 mm mod. 12 = 1100 mm

D and D+D headers are not suitable for high temperature hot water or steam.

Header “D” should be used with hot water supply for strips up to 50 m (with slow and gradual opening of the water valve).

For strips longer than 50 m a special “D” header is recommended, please contact Sabiana Technical Department.

Weight and Water content

MODEL	STANDARD	SPECIAL	WATER CONTENT		VOLUME ONE HEADER	WEIGHT FULL HEADER
	kg/m	kg/m	Standard lt/m	Special lt/m	lt	kg
DS2-03	4,6	5,6	0,53	0,43	0,63	1,9
DS2-06	9,2	11,2	1,05	0,87	1,27	3,7
DS2-09	13,8	16,8	1,58	1,30	1,90	5,1
DS2-12	18,4	22,4	2,10	1,74	2,54	6,5
DS3-03	5,6	7,1	0,79	0,65	0,63	2,1
DS3-06	11,2	14,2	1,58	1,30	1,27	3,9
DS3-09	16,8	21,3	2,37	1,95	1,90	5,3
DS3-12	22,4	28,4	3,16	2,60	2,54	6,7



THERMAL EMISSION OF THE PANELS

Table of thermal emission for each meter of the different models of **radiant panels**
in accordance to the European Standard EN 14037

Δtm	DS2-03	DS2-06	DS2-09	DS2-12
(K)	W/m	W/m	W/m	W/m
20	51	90	126	170
22	57	100	141	189
24	63	111	155	209
26	69	122	171	229
28	75	133	186	250
30	81	144	201	270
32	87	155	217	291
34	93	166	233	312
36	100	177	249	333
38	106	189	265	355
40	112	200	281	376
42	119	212	297	398
44	125	223	314	420
46	132	235	330	442
48	139	247	347	464
50	145	259	364	486
52	152	271	380	509
54	159	283	397	531
55	162	289	406	543
56	165	295	415	554
58	172	307	432	577
60	179	319	449	600
62	186	331	466	623
64	193	344	484	646
65	196	350	493	657
66	200	356	501	669
68	207	368	519	692
70	214	381	537	716
72	221	394	555	739
74	228	406	572	763
76	235	419	590	787
78	242	432	608	810
80	249	444	627	834
82	256	457	645	858
84	263	470	663	883
86	271	483	681	907
88	278	496	700	931
90	285	509	718	955
92	292	522	737	980
94	300	535	755	1004
96	307	548	774	1029
98	314	561	792	1054
100	322	575	811	1078
102	329	588	830	1103
104	336	601	849	1128
106	344	614	868	1153
108	351	628	887	1178
110	359	641	906	1203
112	366	655	925	1228
114	374	668	944	1253
116	381	682	963	1279
118	389	695	983	1304
120	396	709	1002	1330
122	404	723	1021	1355
124	412	736	1041	1381
126	419	750	1060	1406
128	427	764	1080	1432
130	435	777	1099	1458
132	442	791	1119	1483
134	450	805	1138	1509
136	458	819	1158	1535
138	465	833	1178	1561
140	473	847	1198	1587

Δtm	DS3-03	DS3-06	DS3-09	DS3-12
(K)	W/m	W/m	W/m	W/m
20	59	105	152	194
22	66	117	170	217
24	73	130	188	241
26	80	142	207	265
28	88	155	226	289
30	95	169	245	313
32	103	182	265	338
34	110	195	284	363
36	118	209	304	388
38	126	223	324	413
40	134	237	344	439
42	141	251	365	465
44	149	265	385	491
46	157	279	406	518
48	165	293	427	544
50	174	308	448	571
52	182	323	469	598
54	190	337	491	625
55	194	345	501	639
56	198	352	512	652
58	207	367	534	680
60	215	382	556	707
62	224	397	578	735
64	232	412	600	763
65	236	420	611	777
66	241	427	622	791
68	249	442	644	820
70	258	458	667	848
72	267	473	689	877
74	275	489	712	905
76	284	504	735	934
78	293	520	757	963
80	302	536	780	992
82	311	552	803	1021
84	320	568	827	1051
86	329	584	850	1080
88	338	600	873	1110
90	347	616	897	1139
92	356	632	920	1169
94	365	648	944	1199
96	374	664	968	1229
98	383	681	992	1259
100	393	697	1016	1290
102	402	714	1040	1320
104	411	730	1064	1351
106	420	747	1088	1381
108	430	763	1112	1412
110	439	780	1137	1443
112	449	797	1161	1474
114	458	813	1186	1505
116	468	830	1210	1536
118	477	847	1235	1567
120	487	864	1260	1598
122	496	881	1284	1629
124	506	898	1309	1661
126	515	915	1334	1692
128	525	932	1359	1724
130	535	950	1384	1756
132	544	967	1410	1788
134	554	984	1435	1819
136	564	1001	1460	1851
138	574	1019	1486	1883
140	583	1036	1511	1916

Δtm = difference between the mean water temperature and the room temperature.

Thermal Emission of the Headers

Table of thermal emission of a couple of headers of the different models in accordance to the European Standard EN 14037

Δt_m	DS2-03	DS2-06	DS2-09	DS2-12	Δt_m	DS3-03	DS3-06	DS3-09	DS3-12
(K)	W	W	W	W	(K)	W	W	W	W
20	29	57	86	108	20	32	57	91	115
22	33	64	96	121	22	35	64	101	129
24	37	71	107	135	24	39	71	113	144
26	40	78	118	148	26	44	78	124	158
28	44	86	129	162	28	48	86	135	173
30	48	93	140	176	30	52	93	147	189
32	52	101	152	191	32	56	101	158	204
34	56	109	163	205	34	60	109	170	220
36	60	117	175	220	36	65	116	182	236
38	64	125	187	235	38	69	124	194	252
40	68	133	199	250	40	74	132	206	268
42	72	141	211	266	42	78	140	218	285
44	76	150	224	281	44	83	149	231	301
46	80	158	236	297	46	87	157	243	318
48	85	167	249	313	48	92	165	256	335
50	89	175	261	328	50	97	174	268	353
52	93	184	274	344	52	101	182	281	370
54	97	193	287	361	54	106	191	294	387
55	100	197	294	369	55	109	195	301	396
56	102	202	300	377	56	111	199	307	405
58	106	211	313	393	58	116	208	320	423
60	111	220	327	410	60	121	217	333	441
62	115	229	340	427	62	126	226	346	459
64	120	238	353	443	64	131	235	360	477
65	122	242	360	452	65	133	239	366	486
66	124	247	367	460	66	136	244	373	495
68	129	256	380	477	68	141	253	386	514
70	133	266	394	495	70	146	262	400	532
72	138	275	408	512	72	151	271	414	551
74	142	284	422	529	74	156	280	427	570
76	147	294	436	547	76	161	289	441	588
78	152	303	450	564	78	167	299	455	607
80	156	313	464	582	80	172	308	469	627
82	161	323	478	599	82	177	318	482	646
84	166	333	492	617	84	182	327	496	665
86	171	342	507	635	86	188	337	510	685
88	175	352	521	653	88	193	346	525	704
90	180	362	536	671	90	198	356	539	724
92	185	372	550	689	92	204	365	553	743
94	190	382	565	708	94	209	375	567	763
96	195	392	579	726	96	215	385	581	783
98	200	402	594	745	98	220	395	596	803
100	204	412	609	763	100	226	405	610	823
102	209	423	624	782	102	231	414	625	843
104	214	433	639	800	104	237	424	639	864
106	219	443	654	819	106	242	434	654	884
108	224	454	669	838	108	248	444	669	905
110	229	464	684	857	110	254	454	683	925
112	234	474	699	876	112	259	464	698	946
114	239	485	714	895	114	265	475	713	966
116	244	495	730	914	116	271	485	728	987
118	250	506	745	933	118	276	495	743	1008
120	255	517	761	952	120	282	505	757	1029
122	260	527	776	972	122	288	516	772	1050
124	265	538	792	991	124	294	526	788	1071
126	270	549	807	1011	126	299	536	803	1092
128	275	560	823	1030	128	305	547	818	1114
130	280	570	839	1050	130	311	557	833	1135
132	286	581	854	1069	132	317	568	848	1156
134	291	592	870	1089	134	323	578	863	1178
136	296	603	886	1109	136	329	589	879	1199
138	301	614	902	1129	138	335	599	894	1221
140	307	625	918	1149	140	340	610	909	1243

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

The descriptions and illustrations provided in this publication are not binding: Sabiana reserves the right, whilst maintaining the essential characteristics of the types described and illustrated, to make, at any time, without the requirement to promptly update this piece of literature, any changes that it considers useful for the purpose of improvement or for any other manufacturing or commercial requirements.



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