

Other Strada Products

Strada Trench Convector

2No. Models, Hot Water and Electric

Strada Flat Panel Range

Aluminium & Steel for ceiling & wall mounting

Strada Radiant Skirting

For L.T.H.W & Electrical use.

Strada Heated & Chilled Ceilings

Economic and comfortable heating & cooling systems.

Strada Electrical Products

Heating appliances for all applications.

Strada Electric Underfloor & Ceiling Systems

Underfloor & Ceiling heating, Cable Mats & Kits.



Radiant Heating & Cooling Panels

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Stradaflair

New!

Strada iRAD

New!

Strada iRAD81



Radiant Heating & Cooling Panels



Strada Associates Ltd was formed in 1987 with the specific purpose of introducing new and innovative ideas within the radiant panel industry and re-designing and upgrading conventional products.

Strada announce two innovative radiant heating and cooling products to compliment our existing Stradaflair Panel.

In conjunction with our partner, Frenger Systemen BV of Germany and The Netherlands, two additional lightweight design styles have been introduced with increased efficiency and outputs.

As founder member of EMCP (European manufacturer of Ceiling Panels) Strada panel systems have been accredited and tested in accordance with the new European Standard to ensure conformity and compatibility with leading panel manufacturers within the European Union, **EN 14037 72:2003**.

Authority: HLK Stuttgart University. Strada Accreditation Number: DAP-PL3139.00

Panel Systems:

- 1. Stradaflair - Traditional linear flat panel concept; available in widths 400-1,600mm in 200mm increments.**
- 2. NEW! Strada iRAD - New panel design, with angular panel infills affording increased outputs. Panel widths are 310mm to 1,510mm.**
- 3. NEW! Strada iRAD81 - Similar to iRAD but the introduction of down turned panel edges increases the radiant output to 81%. (standard panel 68%).**

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Criteria:

- 3 Lightweight construction
- 3 Join on-site with pressfittings
- 3 Integrated light fittings available
- 3 Plain or perforated infil panels
- 3 Panels can be supported at stretcher tubes allowing more freedom of suspension
- 3 Flat surface with concealed tubes or angular profiles
- 3 Additional energy saving due to increased radiant output
- 3 Hi-Rad & Hi-Rad Plus are pre-assembled saving fitting time
- 3 Continuous length up to 70M
- 3 Can be used with LTHW, MTHW & LP steam as heating medium

Stradaflair can be used for low pressure steam applications and normal disciplines for venting, trapping and draining should be employed.

The table shows total output (w/metre linear) from Stradaflair operating on steam for widths from 400 mm (2 tube) to 1,200 mm (6 tube).

Stradaflair operating on steam must always be installed in the horizontal plane.

Stretcher tubes using steam are heavy duty, 2.50mm tube wall thickness.

When using LP steam as a heating medium panels should be broken into shorter lengths, rather than continuous runs, in order to minimise expansion.

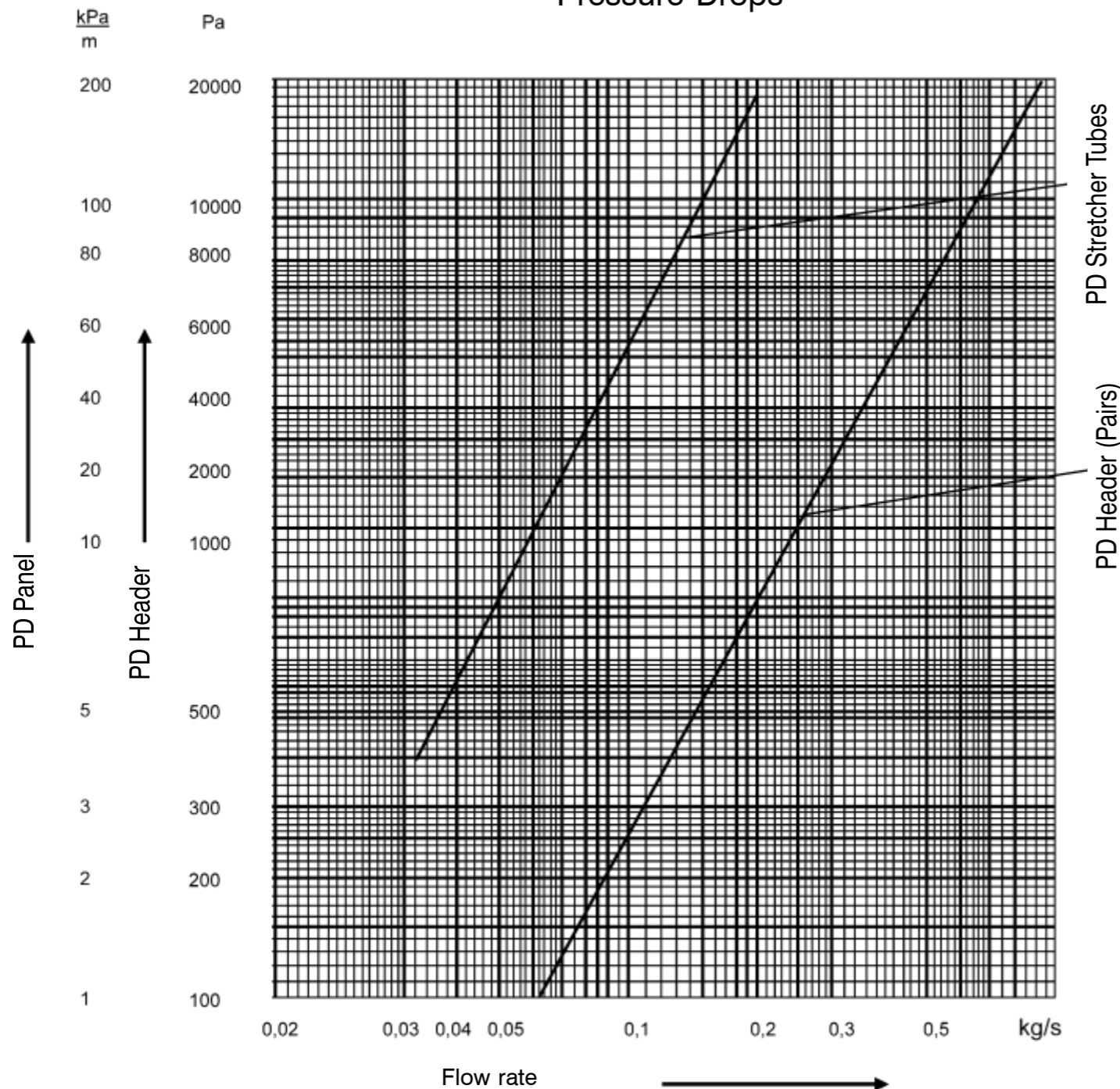
Steam and condense distribution mains should have suitable anchors and guides with flexible loops to the panels in order to prevent undue stress.

All panel interconnections should be welded and suitably tested.

Abs. steam Pressure (bar)	Room Temperature °C	Heat Emission w/metre run of strip				
		2T	3T	4T	5T	6T
0.5	13	272	408	544	680	816
0.5	16	258	386	516	645	774
0.5	19	244	365	487	609	731
1.0	13	362	542	724	904	1086
1.0	16	348	522	696	870	1044
1.0	19	332	498	664	830	996
1.5	13	419	630	840	1050	1260
1.5	16	403	605	808	1010	1212
1.5	19	388	582	777	971	1166
2.0	13	465	698	931	1164	1397
2.0	16	451	677	903	1131	1355
2.0	19	435	653	871	1089	1307
2.5	13	502	754	1005	1256	1507
2.5	16	487	730	973	1216	1459
2.5	19	471	708	942	1178	1415
3.0	13	540	812	1082	1352	1623
3.0	16	523	787	1047	1308	1572
3.0	19	507	762	1015	1267	1523
3.5	13	567	852	1136	1419	1705
3.5	16	549	826	1103	1376	1654
3.5	19	533	801	1069	1335	1604
4.0	13	592	891	1186	1485	1782
4.0	16	577	867	1156	1446	1733
4.0	19	559	841	1120	1403	1682



Pressure Drops



STRADA

Example:

24M long Stradaflair Panel, 800mm wide (4 tube).

A splitter would be fitted in the flow header, plus flow would be by 2No tubes to end header then returning by 2No tubes (same end connection)

Economic - Saves energy

A main advantage of our ceiling systems is the saving of energy. This is based on the concept of radiant heating: it is possible to lower the air temperature up to 3K without any loss of comfort.

This saves energy. By quick calculation there is a saving of 6% per 1K of lower air temperature.

Prevents pollution

A principle advantage of the systems energy saving capability is the lowering of environmental pollution

Saving Room Space

The heating or cooling system is installed in situations, where free space is available - at the ceiling. You can use the whole area for other services. Walls can be used for the integration of other furniture etc.

Similar temperature profile

The floor to ceiling temperature is almost constant, resulting in a comfortable environment.

Higher wall and floor temperatures

Radiation emitted by the ceiling reaches the walls, floor, furniture and people in the room. The walls and the floors are large places, which absorbs radiation and gets warmer. Many ailments are caused by cold walls or floors.

No Noise

Our ceiling systems are designed in a way that there are no moving parts and no noise is produced.

Hygienic

Because of minimum air movement, there is very low air circulation and hence movement of dust. This is an important for asthmatics.

Integration of light fittings

It is possible to integrate many different types of lights and dif-fusers into the ceiling.

Low maintenance and running costs

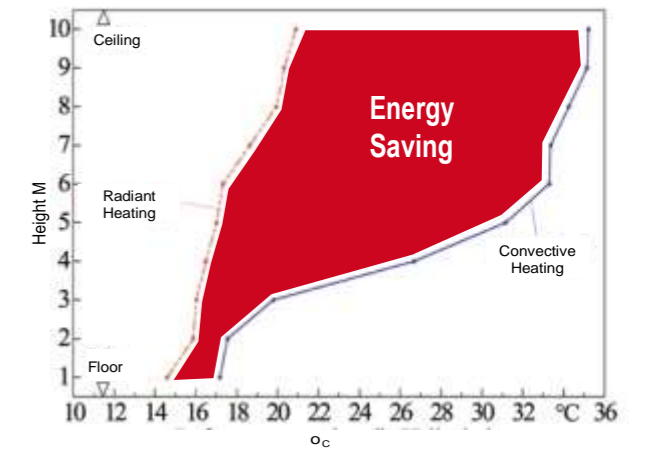
The ceiling system has low service costs, because there are no working parts. Only the boiler, the circulating pump etc. have to be maintained normally

Ball resistance

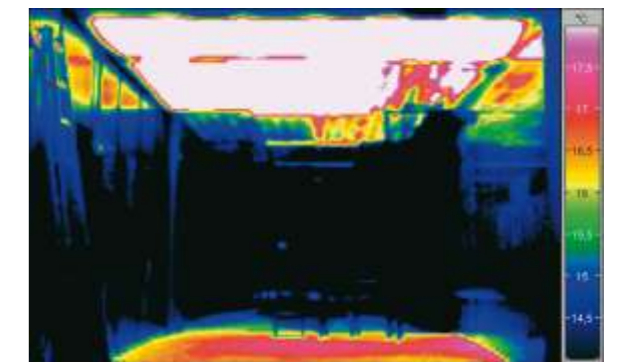
All products have been tested in accordance with DIN 18032 Part 3 for ball impact resistance.

Certified Heat output

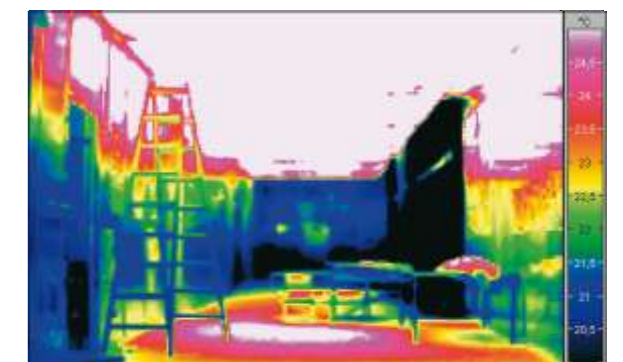
The heat output shown in the brochure have been measured in accordance with the new European Standard EN 14037 by the celebrated testing laboratory at University of Stuttgart.



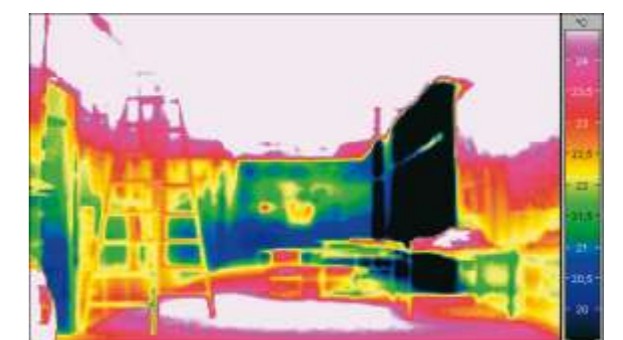
Comparable Energy Graph



Room after 10 mins

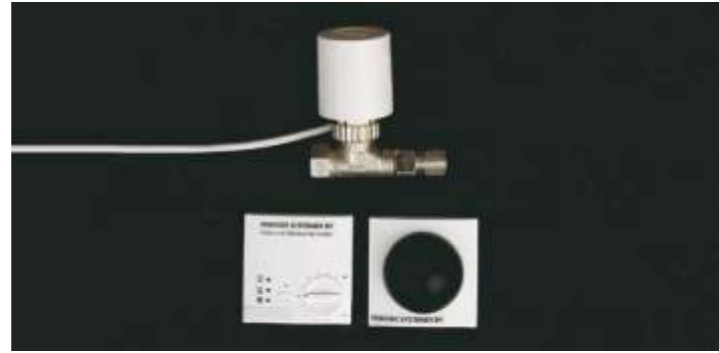


Room after 20 mins



Room after 40 mins

Typical control system with black bulb SENSORS



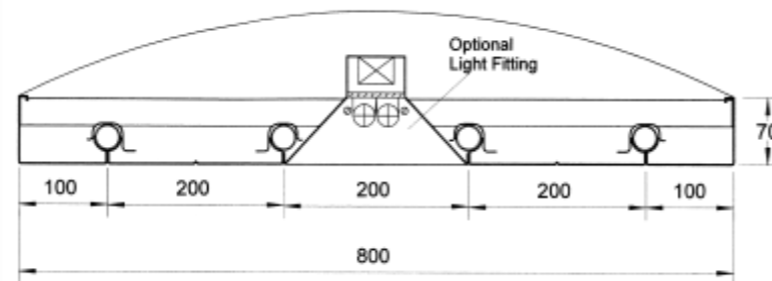
Flexible stainless steel connections



Integrated light fittings



Stradaflair Panel with ball deflectors



Stradaflair

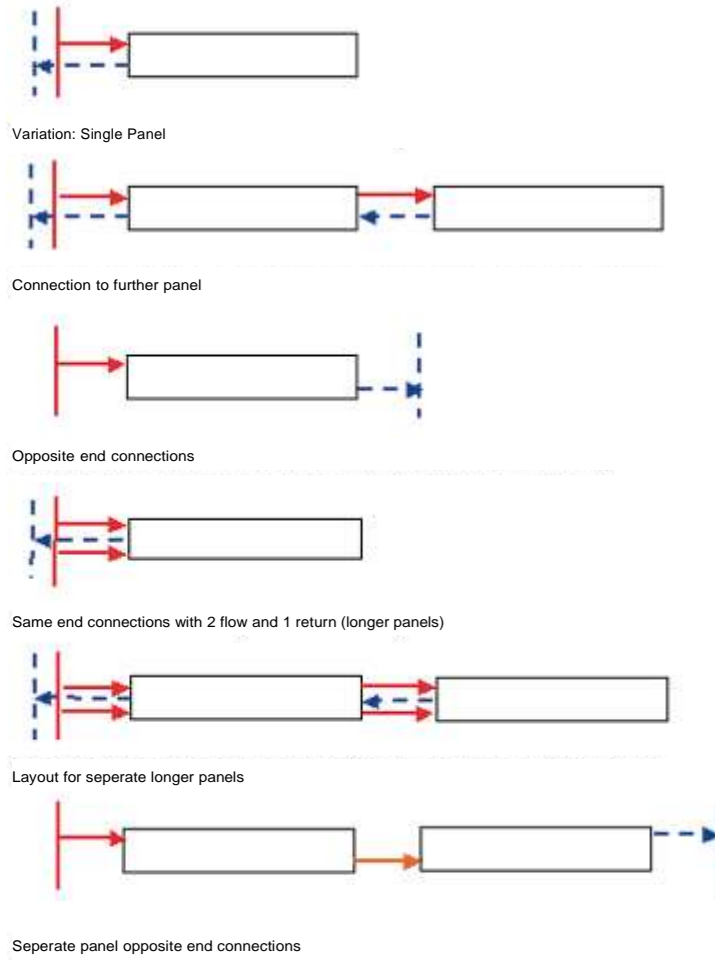
output (K) W/m.Lin	Width (mm)	No of tubes					
		2	3	4	5	6	7
70	400	312	425	537	623	690	769
68	600	302	411	520	603	668	745
66	800	292	397	502	583	646	720
64	1000	281	383	484	562	624	696
62	1200	271	369	466	542	602	671
60	1400	261	355	449	522	580	647
58	400	251	341	431	502	558	623
56	600	241	327	414	482	536	599
54	800	231	314	397	462	515	575
52	1000	221	300	380	443	493	551
50	1200	211	287	363	423	472	528
48	1400	201	273	346	404	451	504
46	400	191	260	329	385	429	481
44	600	181	247	312	365	408	457
42	800	172	234	296	346	388	434
40	1000	162	221	279	327	367	411
38	1200	153	208	263	309	346	388
36	1400	143	195	247	290	326	365
34	400	134	183	231	272	305	343
32	600	125	170	215	253	285	320
30	800	116	158	199	235	265	298
28	1000	107	145	184	217	245	276
26	1200	98	133	169	200	225	254
24	1400	89	121	154	182	206	232
22	400	81	110	139	165	187	210
20	600	72	98	124	148	168	189

Stradaflair							
Width	400	600	800	1000	1200	1400	
No. of tubes	2	3	4	5	6	7	
Weight using water	6.2	7.8	9.4	11	12.6	14.2	
Weight of water	1.96	2.45	2.94	3.43	3.92	4.41	
Exponent	1.17	1.17	1.17	1.15	1.13	1.12	
Constant	2.167	2.948	3.729	4.708	5.676	6.6	

Strada iRAD & Strada iRAD81							
Width	310	460	610	760	910	1060	1210
No. of tubes	2	3	4	5	6	7	8
Weight using water iRAD	3.4	5	6.5	8	9.6	11.1	12.7
Weight using water iRAD81	3.6	5.2	6.7	8.2	9.8	11.3	12.9
Weight of water	0.98	1.47	1.96	2.45	2.94	3.43	3.92
Exponent iRAD	1.967	2.609	3.2142	3.805	4.3904	4.972	5.5761
Constant iRAD	1.145	1.1521	1.1591	1.1601	1.1611	1.1621	1.1631
Exponent iRAD81	1.9046	2.489	3.034	3.597	4.138	4.659	5.158
Constant iRAD81	1.1236	1.1319	1.1401	1.1448	1.1495	1.1541	1.1588

Pressure drop (for all styles)							
No. of tubes	2	3	4	5	6	7	8
Same end connection	m=m	m=m/1,5	m=m/2	m=m/2,5	m=m/2	m=m/3	m=m/4
Opposite end connections	m=m/2	m=m	m=m/1,5	m=m/1	m=m/3	m=m/2,5	m=m/3

Connection Variations



Connections: Sockets 3/4" bsp

Position: Vertical on top of header or Horizontal

Note:

For information on calculation of resistances, please refer to page 14,



Output Tables

Strada iRAD

Width (mm)	310	460	610	760	910	1060	1210	1360	1510
output (K) W/m.Lin	No of tubes								
	2	3	4	5	6	7	8	9	10
70	255	349	442	526	609	693	777	860	944
68	247	337	428	508	589	670	751	832	912
66	238	326	413	491	569	647	725	803	881
64	230	314	399	474	549	624	700	775	850
62	222	303	384	457	529	602	674	747	819
60	214	292	370	440	509	579	649	719	789
58	206	281	356	423	490	557	624	691	758
56	197	270	342	406	470	535	599	663	728
54	189	258	327	389	451	513	574	636	698
52	181	247	313	372	431	491	550	609	668
50	173	237	299	356	412	469	525	581	638
48	166	226	286	339	393	447	501	554	608
46	158	215	272	323	374	425	477	528	579
44	150	204	258	307	355	404	453	501	549
42	142	193	245	291	337	383	429	475	520
40	134	183	231	275	318	362	405	448	492
38	127	172	218	259	300	341	382	422	463
36	119	162	205	243	282	320	358	397	435
34	112	152	192	228	263	299	335	371	407
32	104	141	179	212	246	279	312	346	379
30	97	131	166	197	228	259	290	321	352
28	89	121	153	182	210	239	267	296	325
26	82	111	140	167	193	219	245	272	298
24	75	102	128	152	176	200	224	247	271
22	68	92	116	137	159	181	202	224	245
20	61	82	104	123	142	162	181	200	219
Output of Heaters	37	58	80	95	111	127	143	158	174

Strada iRAD81

P	310	460	610	760	910	1060	1210	1360	1510
70	225	305	385	466	547	628	709	790	872
68	218	295	373	451	529	607	685	764	843
66	211	285	360	435	511	586	662	738	814
64	204	276	348	420	493	566	639	712	785
62	197	266	335	405	475	546	616	686	757
60	190	256	323	390	458	525	593	660	728
58	182	247	311	376	440	505	570	635	700
56	175	237	299	361	423	485	547	610	672
54	168	227	286	346	406	465	525	584	644
52	161	218	274	331	388	445	502	559	616
50	154	208	262	317	371	426	480	534	588
48	148	199	250	302	354	406	458	509	561
46	141	190	239	288	337	387	436	485	534
44	134	180	227	274	321	367	414	460	507
42	127	171	215	260	304	348	392	436	480
40	120	162	203	245	287	329	371	412	453
38	113	153	192	231	271	310	349	388	427
36	107	144	180	218	255	291	328	365	401
34	100	135	169	204	238	273	307	341	375
32	94	126	158	190	222	254	286	318	349
30	87	117	147	177	206	236	266	295	324
28	81	108	135	163	191	218	245	272	299
26	74	99	125	150	175	200	225	250	274
24	68	91	114	137	160	182	205	227	250
22	61	82	103	124	145	165	185	206	226
20	55	74	92	111	130	148	166	184	202
Output of Heaters	67	100	133	170	206	242	279	315	351

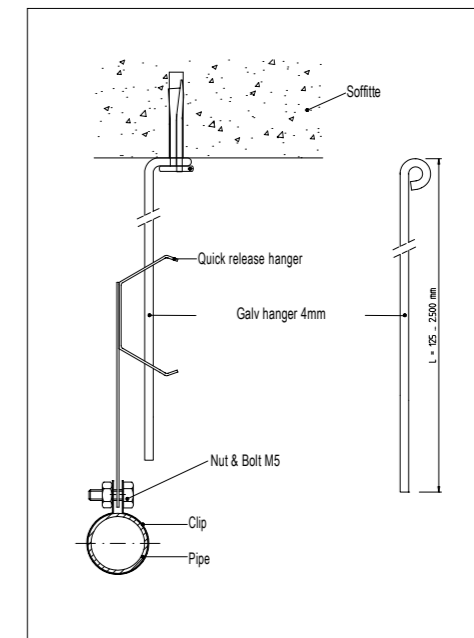
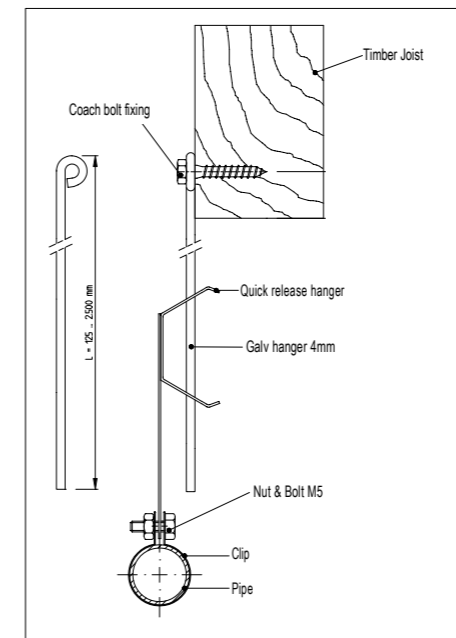
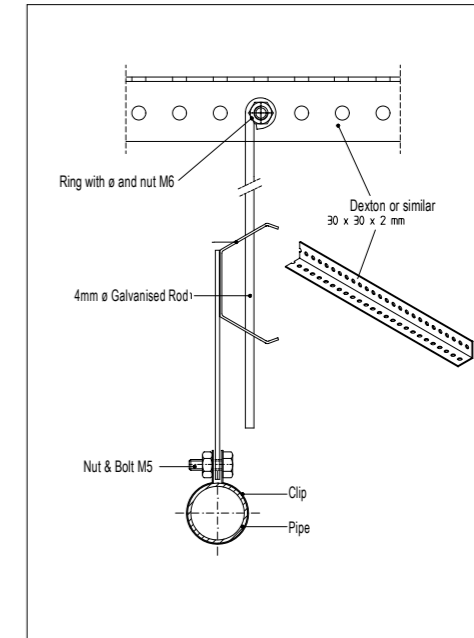
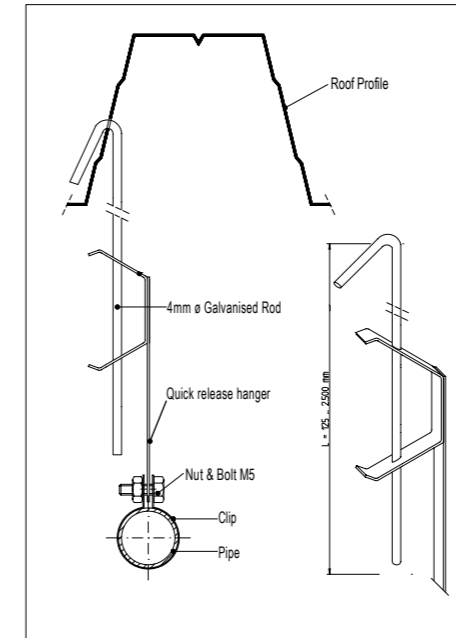
Increased radiant output --- additional energy savings.

Fixing Methods

Ceiling panels from Strada are manufactured in three No. modes. **iRAD** and **iRAD81** will be delivered to site in pre-assembled form. The panels need simply jointing on site, testing and addition of insulation.

Stradaflair will be delivered in components, allowing very easy installation of grids (thus minimising the risk of damage). Testing and fitting of infill panels and insulation are a second fixing operation.

Detailed fixing instructions will be provided.



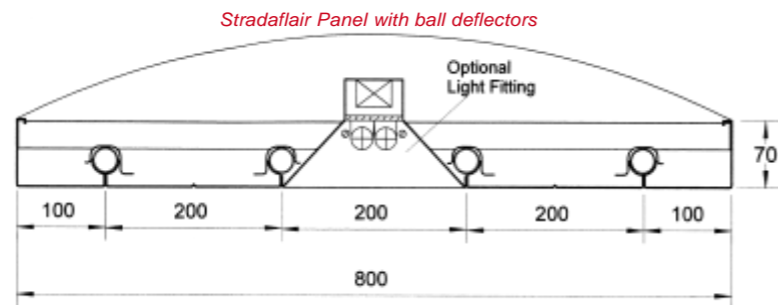
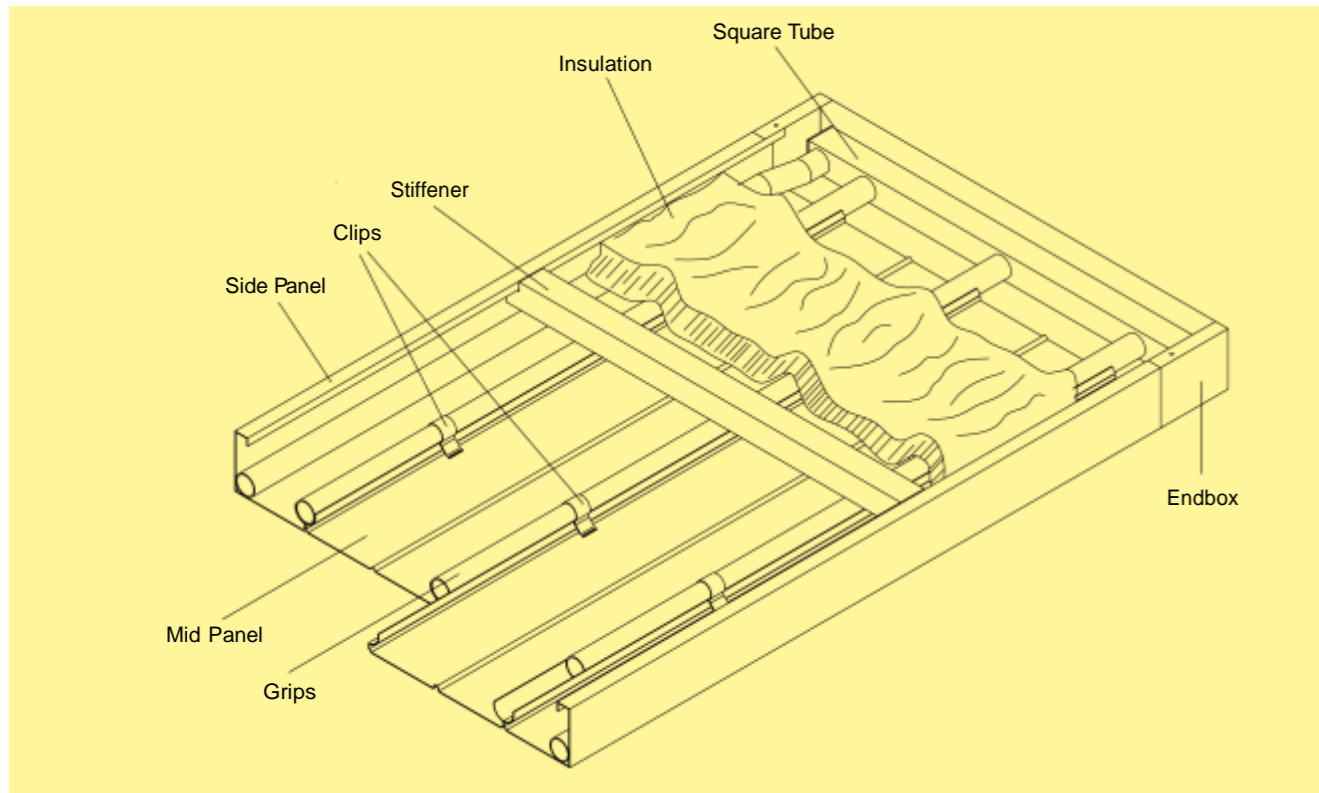
Maximum distance between fixing points: 3.0 m - Recommended distance: 1.6 m

No. of fixing positions in panel width:

- Panel width up to 1,000 mm 2 No.
- From 1,000 mm: to 1,600 3 No
- From 1,600 mm upwards 4 No.

Fixing points are tested at the factory during the manufacturing process

Traditional Radiant Panel Having a flat surface with Linear Strip Profiles



- Grids: 28mm steel tubes according to DIN 2394 and internal Strada standard, wall thickness 1.5mm (2.50mm wall thickness MTHW + Steam)
- Distance between tubes 200 mm
- Width in 200 mm increments from 400 to 1.600 mm length from 1.000 to 70.000 mm Panel depth of 70mm
- Endboxes to cover headers and connection positions
- Grid stiffeners fitted which can also be used as fixing positions
- Insulation: Mineral wool, encapsulated in LDPE bags, 30 mm thick, Density 25kg/m³, =0.04 W/mK, installed from above, fire resistance in accordance with EN 13501: B1

- Flat surface with concealed tubes
- Aluminium infill panels, thickness 0.7 mm fitted by spring clips (4 No. per m and length of panel)
- Perforated centre and side panels available
- Standard colour similar to RAL 9010 matt, painting according to DINPLUS-certification: Level 4 (suitable for heating & cooling, also in wet rooms)
- Integration of light fittings - **Strada lit strip** - (LTHW only) possible
- Emission coefficient: 0.95
- Low operating weight:
- Use of pressfittings for joining

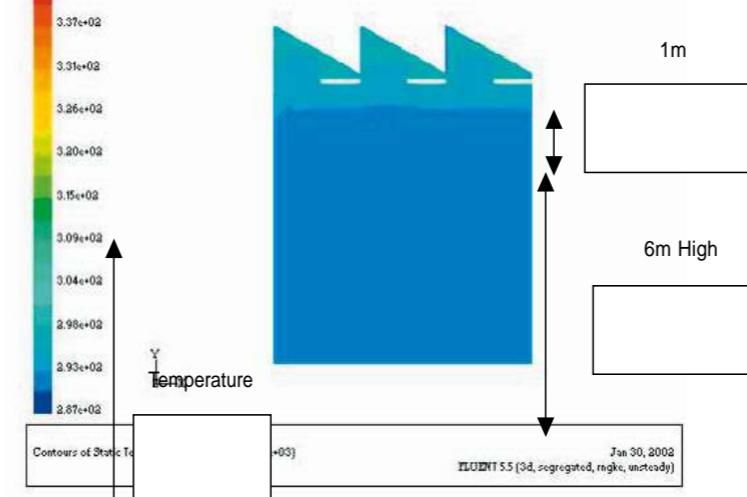
Width (mm)	400	600	800	1000	1200	1400
Weight inc. water (kg/m)	8.2	10.3	12.4	14.5	16.6	18.7

See page 13 for certified heat outputs

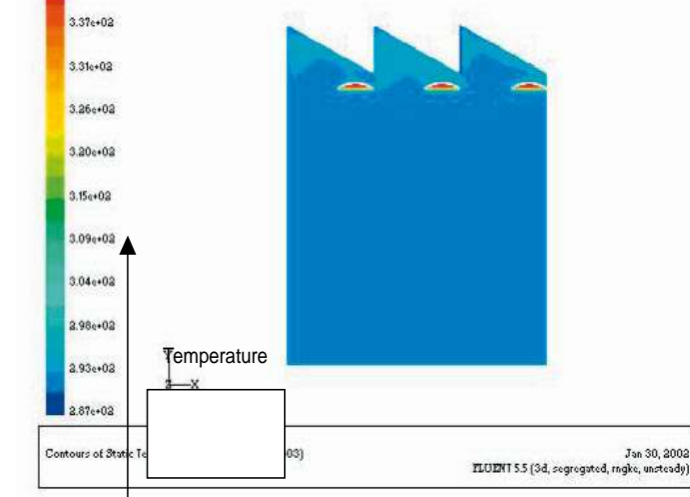


Strada Hi-Rad Plus in warehouse area

Standard ceiling panels

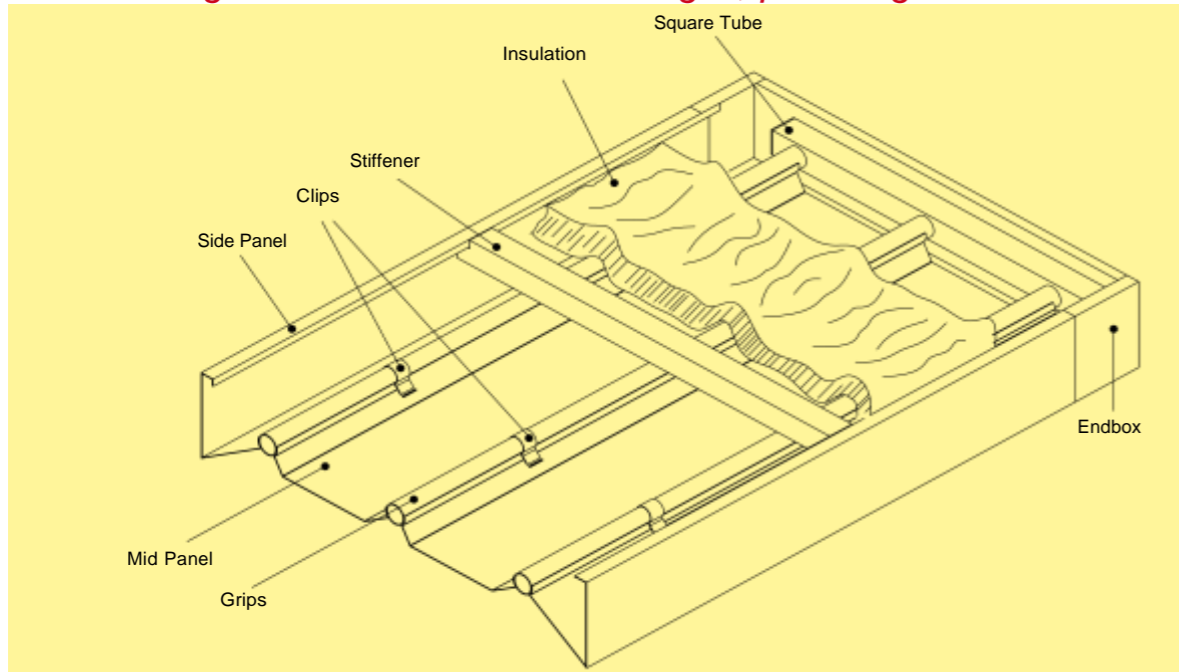


Strada iRAD81.

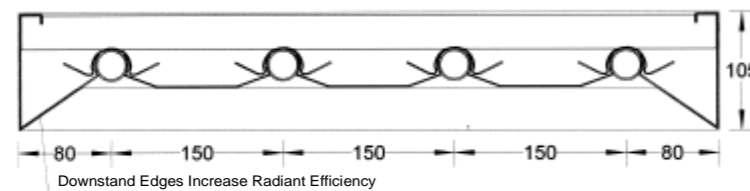


The unique construction of this product incorporating downstand edges has the benefit of reducing local convection at high level and greatly increasing the radiant effect at the workplace. This is particularly important in high bay areas and can result in up to 10% energy and operating cost savings

Angular Panel Design with downturned outer edges, providing Increased Radiant Effect



Strada iRAD81 Panel



Radiant output up to 81% - additional energy saving of 10%

- Grids: 28mm steel tubes according to DIN 2394 and internal Strada standard, wall thickness 1.5mm (2.50mm wall thickness MTHW + Steam)
- Ball resistance tested according to DIN 18032 Part 3
- Operating pressure (standard) 6 bars: special versions up to 20 bars possible, pressure level according DINPLUS-Certification: Level 2
- Maximum operating temperature: 120°C, Steam application up to 4 bars available
- Distance between tubes: 150mm
- Width in 150mm increments from 310 to 1.510mm
Length from 1.000 to 70.000 mm
Height: 70mm
- Endboxes to cover headers and connection positions
- Use of pressfittings for joining
- Grid stiffeners fitted which can also be used as fixing positions
- Insulation: Mineral wool, encapsulated in LDPE bags, 30 mm thick, Density 25kg/m³, =0.04 W/mK, installed from above, fire resistance in accordance with EN 13501: B1
- Profiled surface with part exposed tubes to increase radiant effect. Tubes can be painted contrasting or similar colour to infill panels
- Aluminium infill panels, thickness 0.7 mm fitted by spring clips (1 No. per m and length of panel)
- Perforated centre panels also available
- Standard colour similar to RAL 9010 matt, painting according to DINPLUS-certification: Level 4 (suitable for heating & cooling, also in wet rooms)
- Integration of light fittings - **Strada lit strip** - (LTHW only) possible
- Emission coefficient: 0.95
- Low operating weight:

Width (mm)	310	460	610	760	910	1060	1210	1360	1510
Weight inc. water (kg/m)	4.6	6.6	8.7	10.7	12.7	14.8	16.8	18.8	20.8

See page 12 for certified heat outputs



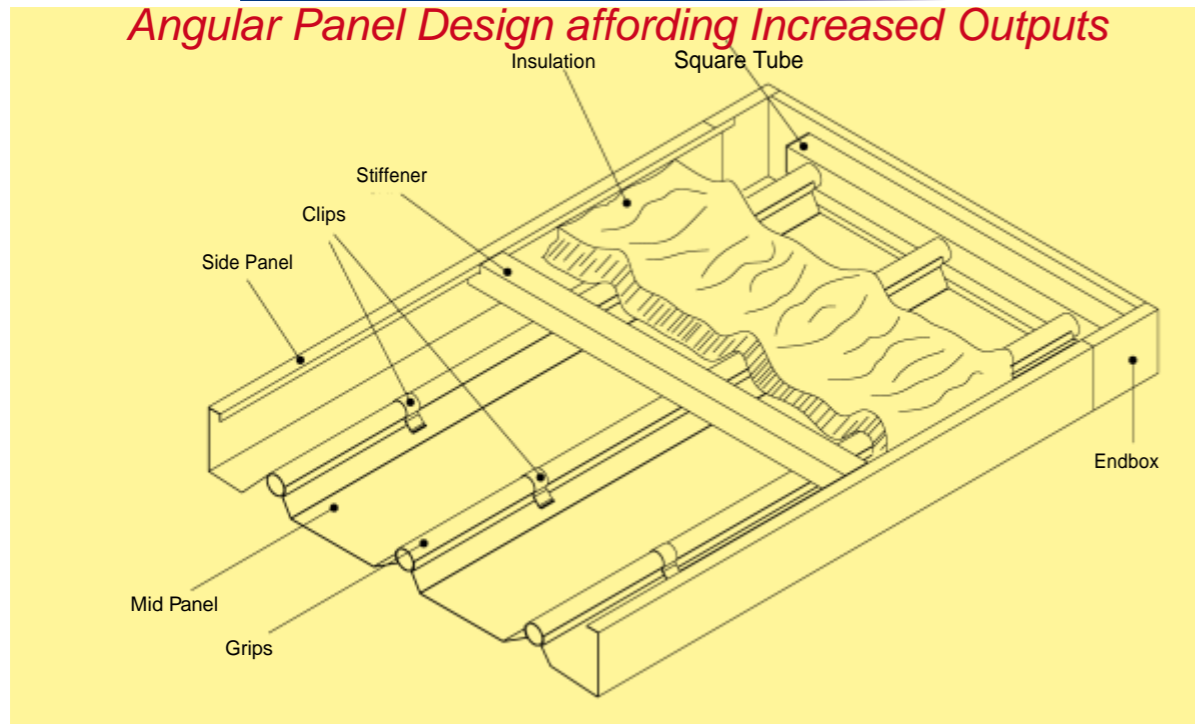
Stradaflair in Sports Halls 9M High



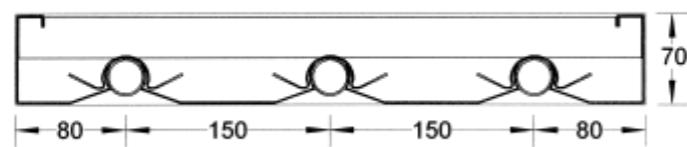
Stradaflair



Angular Panel Design affording Increased Outputs



Strada iRAD Panel



Radiant output up to 81% - additional energy saving of 10%

- Grids: 28mm steel tubes according to DIN 2394 and internal Strada standard, wall thickness 1.5mm (2.50mm wall thickness MTHW + Steam)
- Insulation: Mineral wool, encapsulated in LDPE bags, 30 mm thick, Density 25kg/m³, =0.04 W/mK, installed from above, fire resistance in accordance with EN 13501: B1
- Ball resistance tested according to DIN 18032 Part 3
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- Maximum operating temperature: 120°C application up to 4 bars available
- Perforated centre panels also available
- Distance between tubes: 150mm
- Standard colour similar to RAL 9010 matt, painting according to DINPLUS-certification: Level 4 (suitable for heating & cooling, also in wet rooms)
- Width in 150mm increments from 310 to 1.510mm Length from 1.000 to 70.000 mm Depth: 70mm
- Integration of light fittings - **Strada lit strip** - (LTHW only) possible
- Endboxes to cover headers and connection positions
- Emission coefficient: 0.95
- Use of pressfittings for joining
- Low operating weight:
- Grid stiffeners fitted which can also be used as fixing positions



iRAD in Assembly Hall



iRAD in Showroom

Width (mm)	310	460	610	760	910	1060	1210	1360	1510
Weight inc. water (kg/m)	4.4	6.4	8.5	10.5	12.5	14.6	16.6	18.6	20.6

See page 12 for certified heat outputs

