

Zehnder Alumline

Technical brochure for heating and cooling ceiling modules

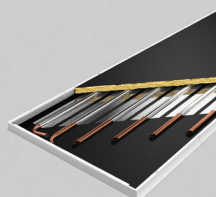


Zehnder Alumline: for optimal comfort and energy saving whatever the season

With the reduction of CO₂ emissions and tightening of thermal regulations, the construction industry plays an important role in the fight against global warming. Of course, these changes affect thermal insulation and building design, but also heating and cooling systems. This is why the position of the heat exchanger and the operating temperatures, for example, play a critical role in reducing energy consumption.

SPECIAL FEATURES OF ZEHNDER ALUMLINE

Due to a short response time to temperature changes, energy efficiency and architectural freedom, Zehnder Alumline enables functional solutions for heating and cooling.



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MOUNTING AND INSTALLATION

The installation stage is made easier, due to a flexible system and professional support from Zehnder.

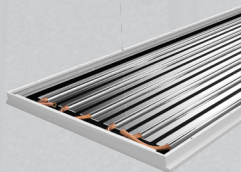


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TECHNICAL SPECIFICATION

- Calculation of pressure loss and minimum mass flow
- Heating and cooling performance
- Technical specification

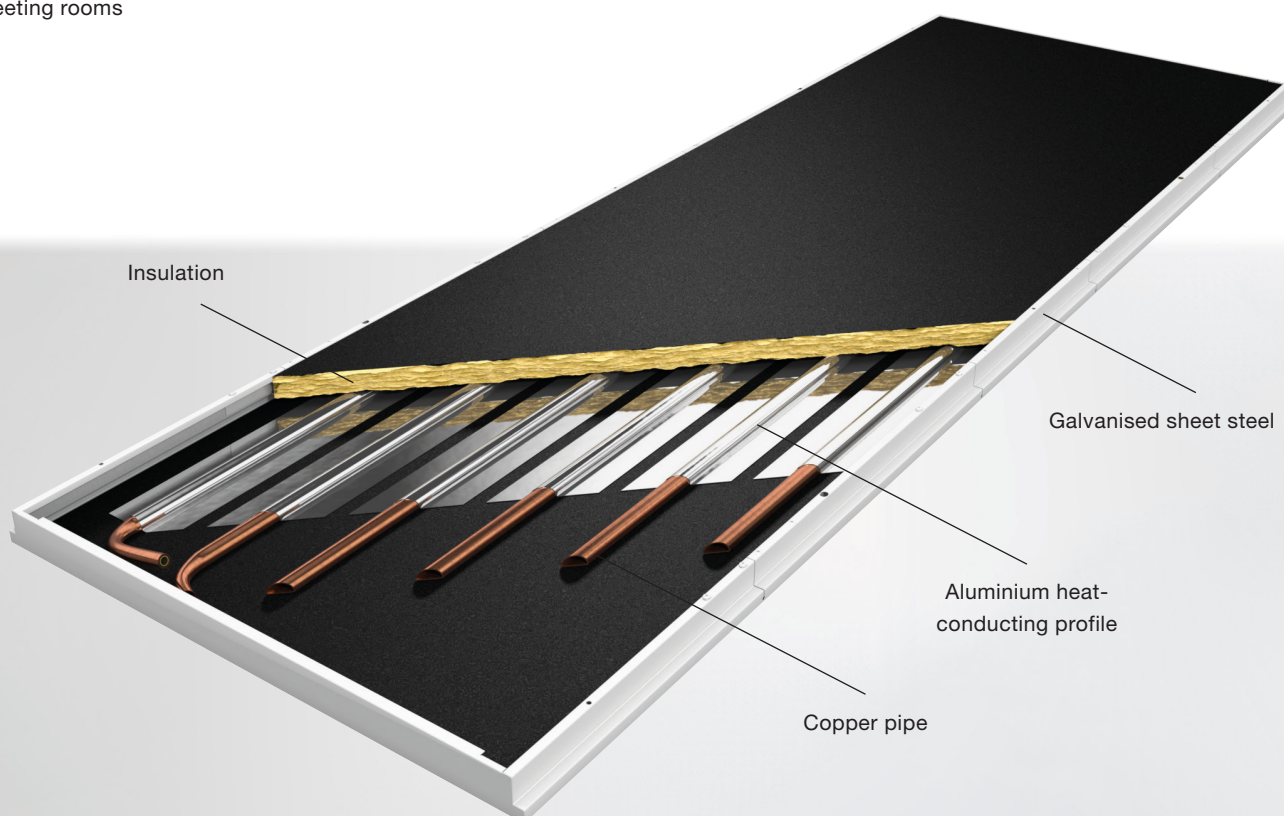


Special features of Zehnder Alumline

Due to a short response time to temperature changes, energy efficiency and architectural freedom, Zehnder Alumline enables functional solutions for heating and cooling.

Areas of application

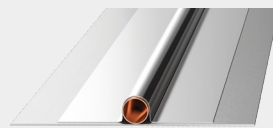
- Offices and meeting rooms
- Schools
- Nurseries
- Hospitals



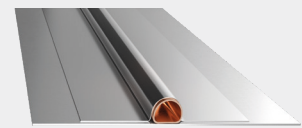
+ ADVANTAGE

- Energy saving thanks to a short system response time to temperature changes
- Operating temperatures perfectly suitable for low temperature system
- Can be installed in the suspended ceiling or as a freely suspended installation
- Simple installation: lightweight, delivered ready to install, simple hydraulic connection
- Integrated sound insulation (optional)
- The high-quality paint on the surface of the radiant ceiling panels guarantees the system's long service life
- Efficient thermal transfer leads to high energy savings
- Lightweight and long service life due to the aluminium profiles

The radiant panel system is activated by aluminium heat-conducting profiles and a D-shape meandering copper pipe.

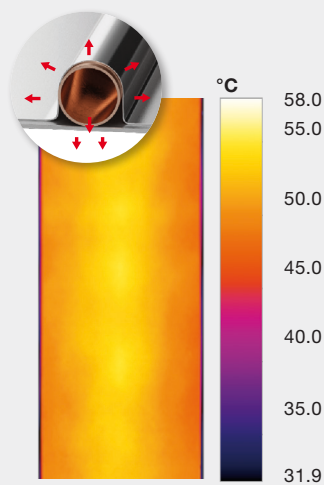


Round tube

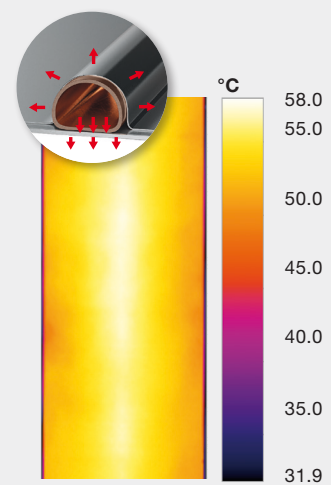


D-pipe

The special D-shape of the copper pipe increases the surface area for thermal transfer to the aluminium heat-conducting profile and to the sheet steel. Moreover, the D-pipe ensures a turbulent flow even with a low mass flow, which enables optimal thermal transfer.



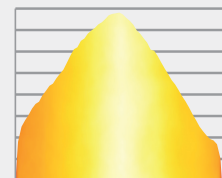
Heat flow characteristics of conventional round tube



D-pipe heat flow characteristics



Maximum value: 53.2 °C
Average value: 47.5 °C



Maximum value: 55.8 °C
Average value: 49.5 °C

The thermograph shows that the D-pipe produces a more even and more pronounced thermal transfer than a conventional 12 mm round tube. This is achieved thanks to better encapsulation of the pipe in the aluminium profile and on account of the large contact area of the pipe on the heating and cooling module. With the combination of the D-pipes and the aluminium profiles, a performance increase of 5% is possible depending on heat flow and application.

Together with Zehnder's expertise in the development and production of radiant ceiling panels for heating and cooling, these special properties enable very powerful systems that can easily be integrated into all spatial configurations.

The ideal system for every project

The surface of the Zehnder Alumline radiant ceiling panels has a high-quality powder coating and can be delivered in a smooth or perforated design.

The modules are available in the standard white colour (RAL 9016); further RAL colours available on request.

Connecting clips for sail s

Cross clip



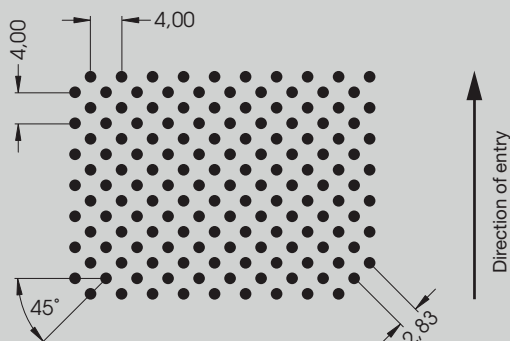
Transverse clip



Longitudinal clip



Sound-absorbing version, perforated plate



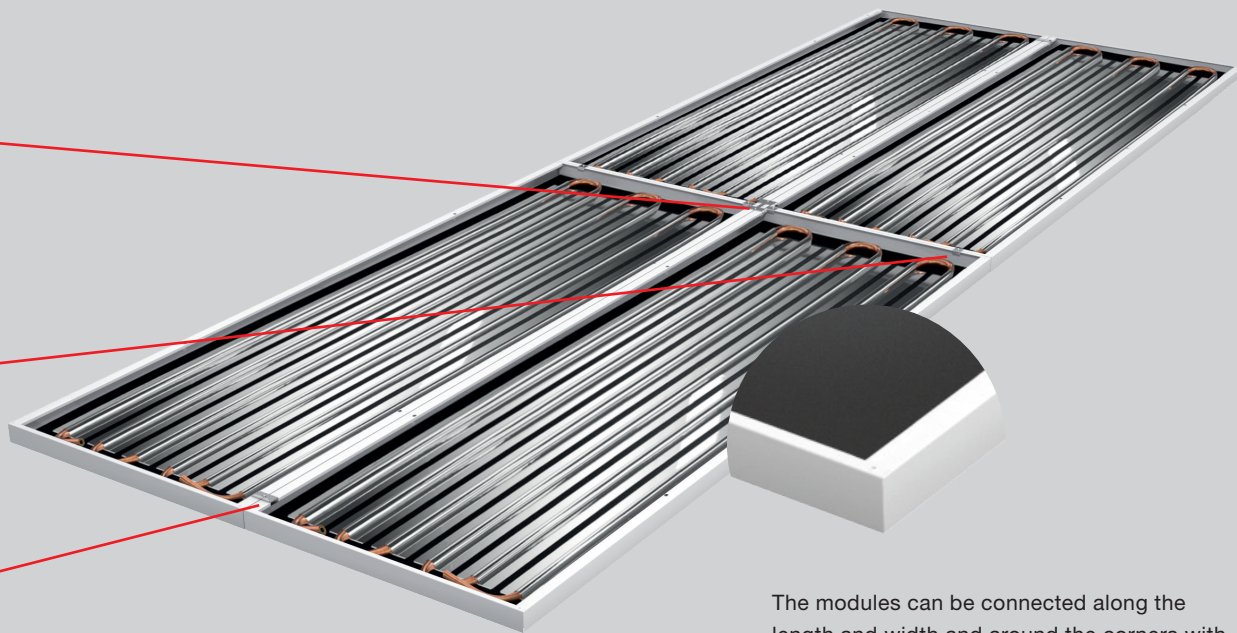
The Zehnder Alumline radiant ceiling panels can be perforated to provide optimised sound absorption. Sound waves pass through the perforations and are absorbed by the specially developed sound insulation. With sails, the sound waves are also absorbed by means of reverberation on the top of the product. This significantly reduces noise and the associated vibrations, especially in open-plan offices, call centres, schools, etc.

We will be happy to provide you with the acoustic calculation data on request.

Hole diameter	1.5 mm
Open cross section	22%

Variants	Ceiling sail perforation 1.5 mm Open cross section 22%	Ceiling sail perforation 1.5 mm Open cross section 22%	Ceiling sail perforation 1.5 mm Open cross section 22%	Smooth ceiling sail	Smooth ceiling sail	Smooth ceiling sail	Closed ceiling perforation 1.5 mm Open cross section 22%	Closed ceiling perforation 1.5 mm Open cross section 22%	Closed ceiling perforation 1.5 mm Open cross section 22%
	with mineral wool in LDPE foil	with mineral wool in LDPE foil	with mineral wool in LDPE foil	with mineral wool in LDPE foil	with mineral wool in LDPE foil	with mineral wool in LDPE foil	with mineral wool in LDPE foil	with mineral wool in LDPE foil	with mineral wool in LDPE foil
Activation	6 parallel pipes	4 parallel pipes	None	6 parallel pipes	4 parallel pipes	None	6 parallel pipes	4 parallel pipes	None
Sound absorption coefficient α_w (EN 11654)	1	1	1	0.45	0.4	0.4	0.55	0.85	1

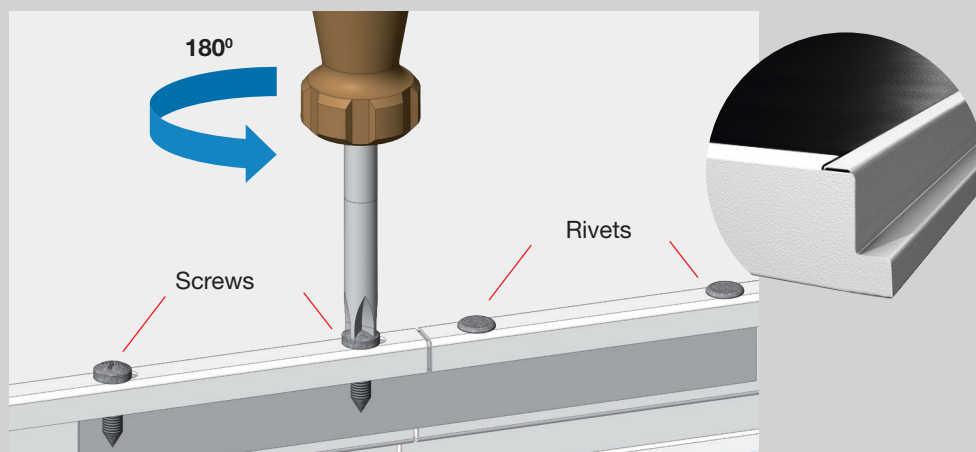
Surfaces



The modules can be connected along the length and width and around the corners with the help of clips.

Anti-flec technology for lay-in modules

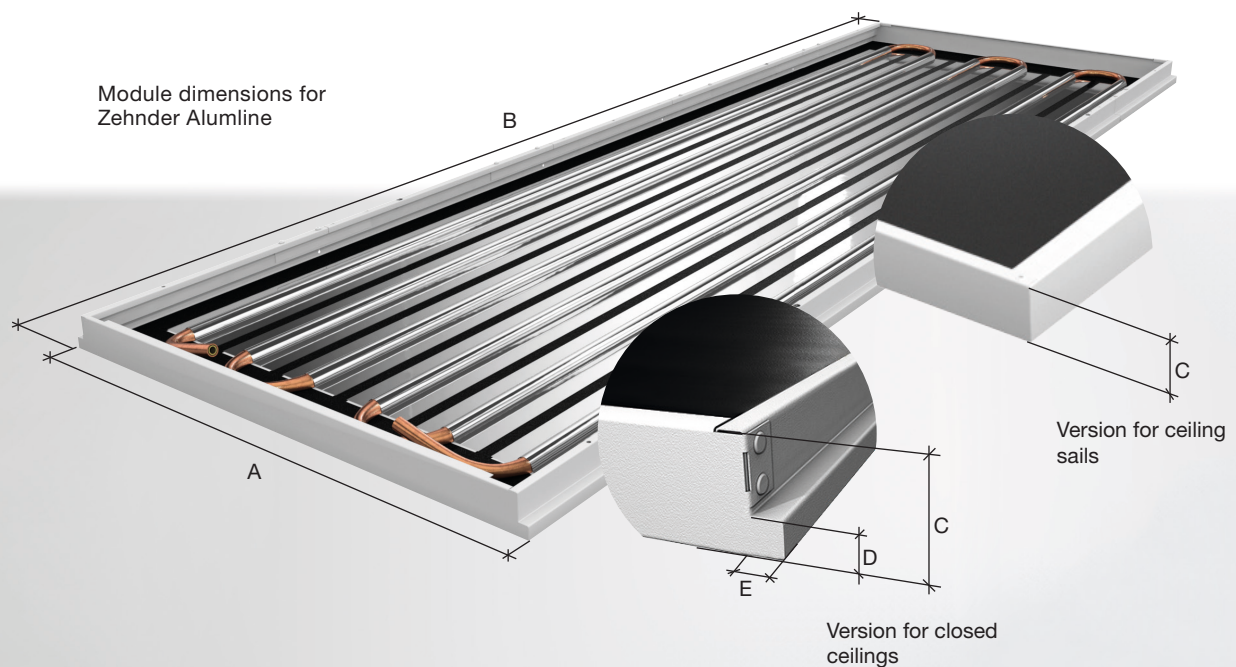
Not only for using Zehnder Alumline lay-in modules in high temperatures!



The Zehnder Alumline lay-in modules for grid ceilings are produced from a length of 1,500 mm with anti-flec technology. This ensures an even contact surface on the ceiling grid, even when heating.

After laying the modules in the grid, the anti-flec profiles are loosened in the ceiling grid by opening the screw pairs.

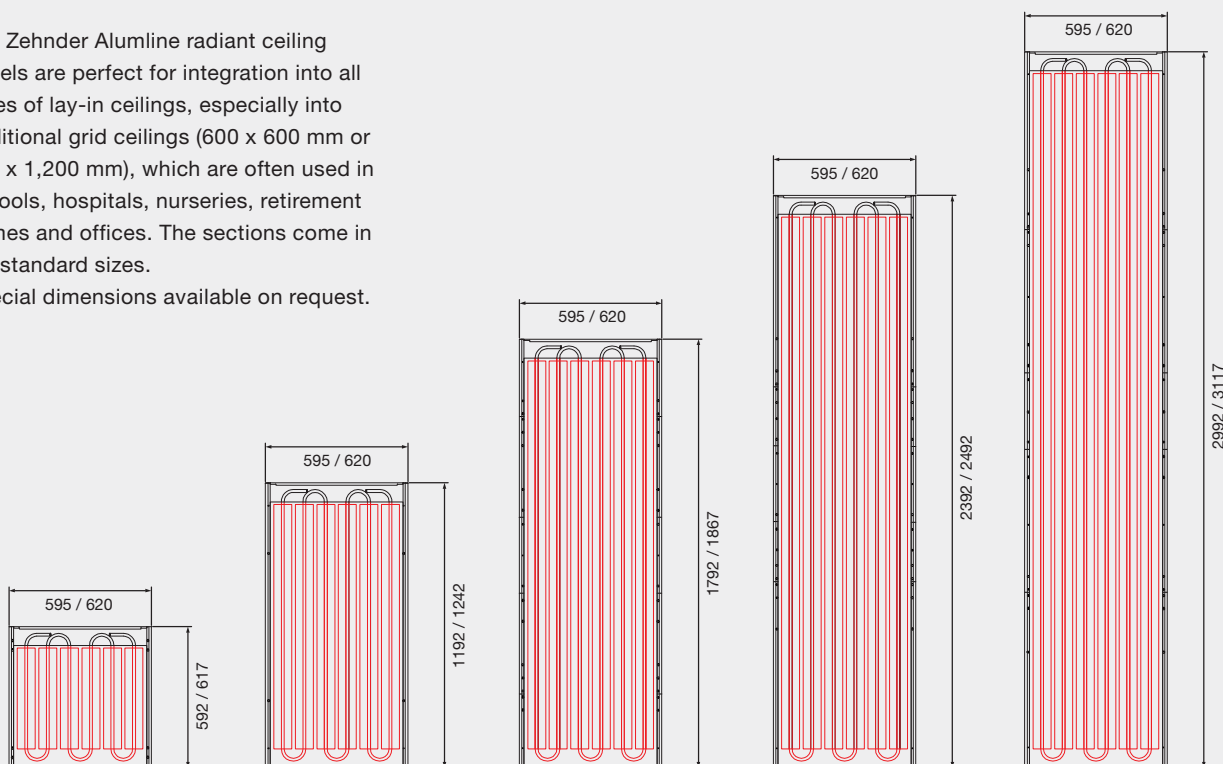
Flexible installation options



Dimension	Description	Closed ceiling	Ceiling sails
Module 600		Dimension in mm	Dimension in mm
A	Total width	595 / 620	600
B	Total length	592 - 2,992 / 617 - 3,117	600 - 3,000
C	Total height	40	40
D	Height of the supporting edge	14	-
E	Width of the supporting edge	10 / 16	-

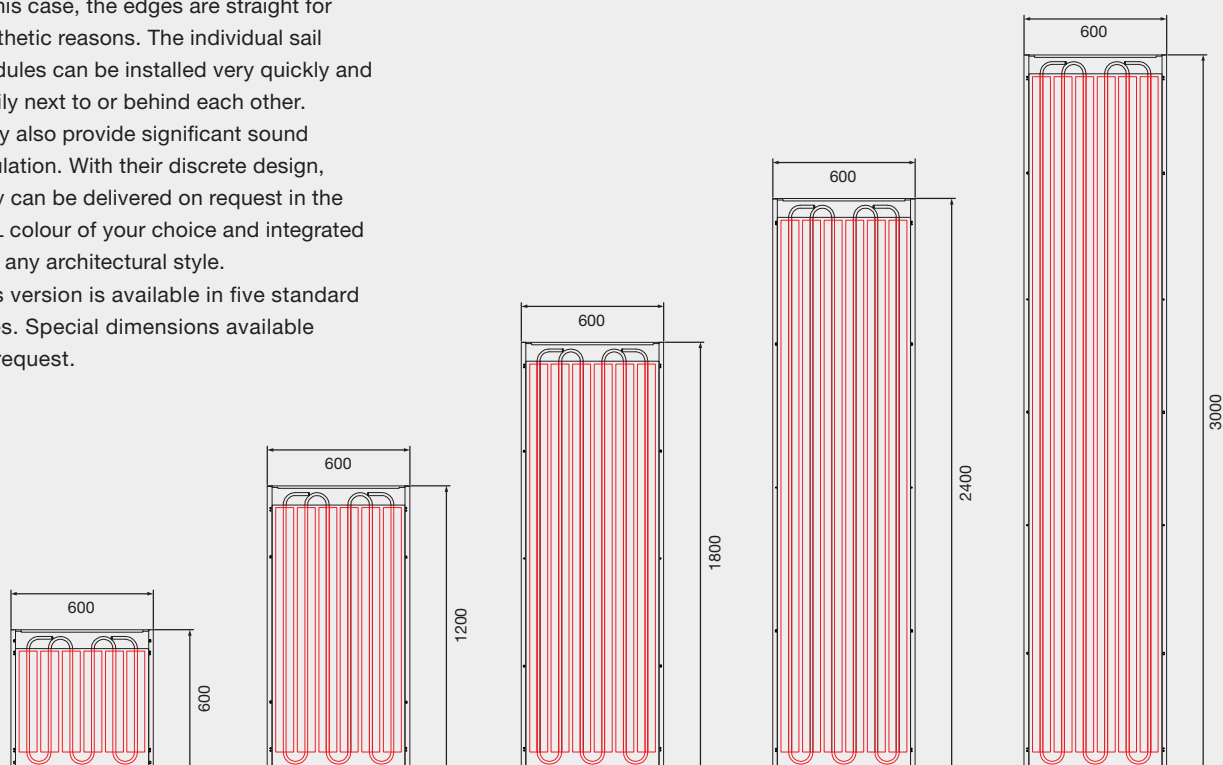
Modules for closed ceilings

The Zehnder Alumline radiant ceiling panels are perfect for integration into all types of lay-in ceilings, especially into traditional grid ceilings (600 x 600 mm or 600 x 1,200 mm), which are often used in schools, hospitals, nurseries, retirement homes and offices. The sections come in ten standard sizes. Special dimensions available on request.



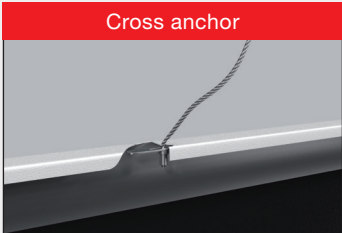
Modules for ceiling sails

The Zehnder Alumline radiant ceiling panels can also be installed freely suspended. In this case, the edges are straight for aesthetic reasons. The individual sail modules can be installed very quickly and easily next to or behind each other. They also provide significant sound insulation. With their discrete design, they can be delivered on request in the RAL colour of your choice and integrated into any architectural style. This version is available in five standard sizes. Special dimensions available on request.



Suspension system for lay-in module and sail

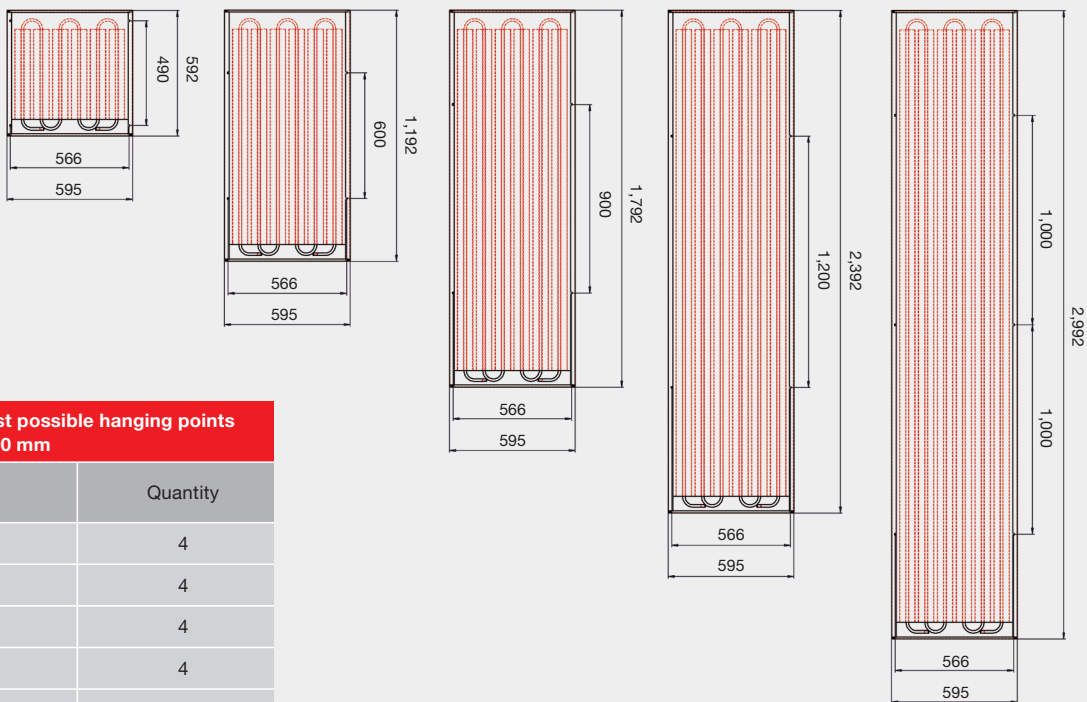
Standard lay-in modules



Plasterboard frames

Zehnder Alumline ceiling panels can be integrated into Plasterboard ceilings using the purpose made Zehnder Plasterboard Frame or utilising a suitably built aperture in the ceiling.

The substructure of the grid ceiling bears the weight of the modules. Cables can be used to secure the modules.



**Number of highest possible hanging points
Nominal width 600 mm**

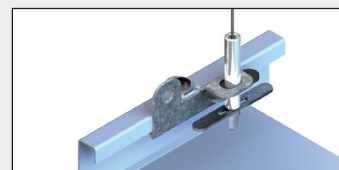
Nominal length	Quantity
600 mm	4
1,200 mm	4
1,800 mm	4
2,400 mm	4
3,000 mm	6

Suspension system using multi-clips (sails)

The multi-clip is pushed into the lateral edge of the module.
The suspension points can therefore be varied.
*See the areas specified at the bottom of the drawings.



Multi-clip with carabiner



Multi-clip with wire cable and fine adjustment

Standard sail

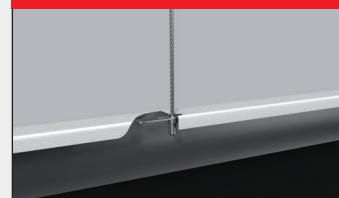


The suspension system must be at a right angle to the module on all planes.

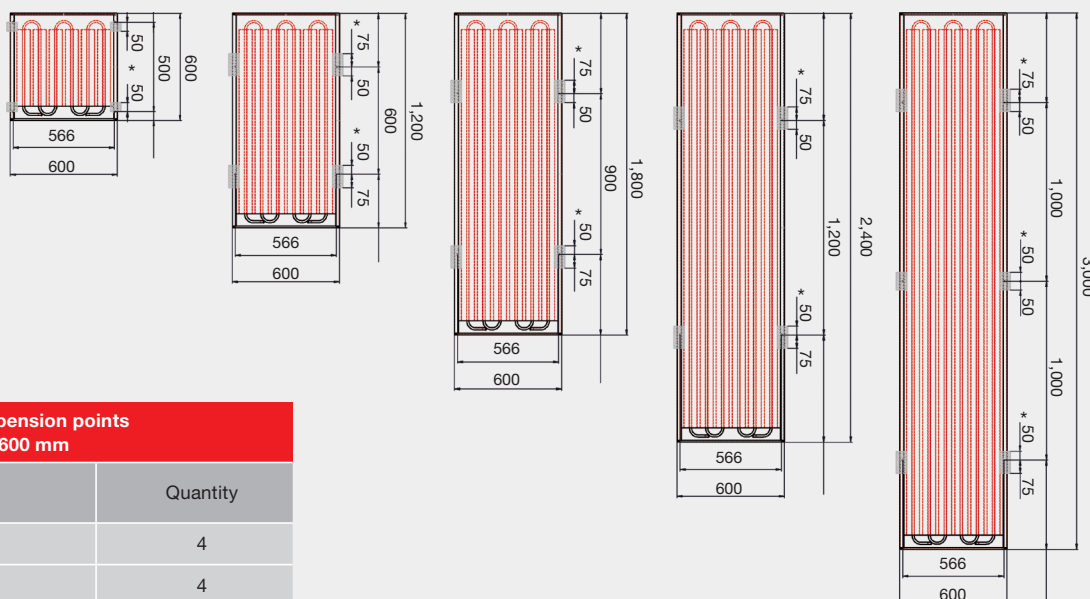
Long hole with fine adjustment



Cross anchor



Fine adjustments enable the module to be aligned exactly, which makes installation easier.



Number of suspension points Nominal width 600 mm

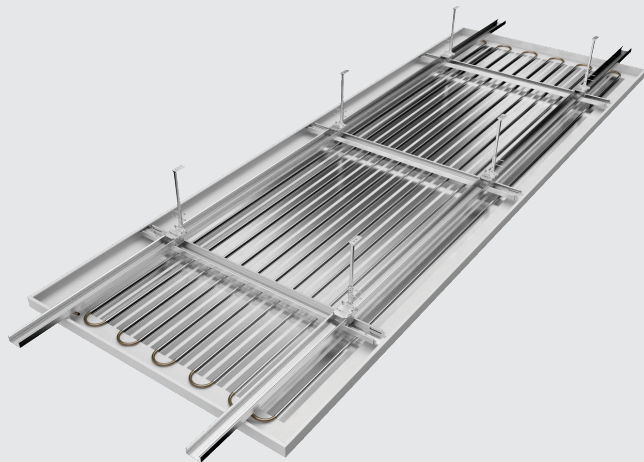
Nominal length	Quantity
600 mm	4
1,200 mm	4
1,800 mm	4
2,400 mm	4
3,000 mm	6

Special solutions

The Zehnder Alumline ceiling modules are extremely adaptable: in addition to the wide standard range, there are also a number of special solutions available. Therefore, whatever the room and whatever the project, we have exactly what you need.

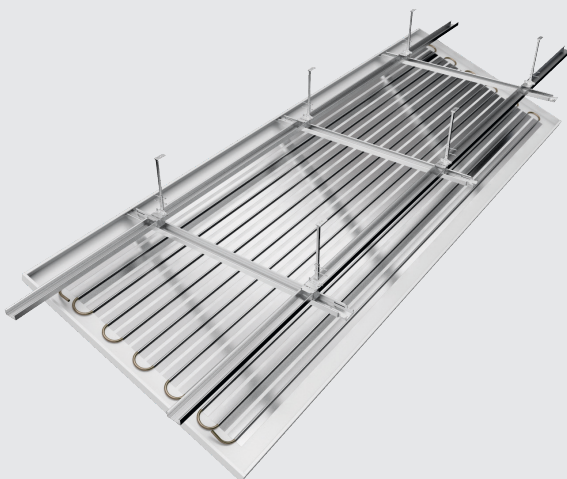
LARGE SAILS

Zehnder Alumline large sails are available in widths up to 1,250 mm and lengths up to 3,600 mm. The modules are fixed to threaded bars or wire cable suspensions with suspension axes.



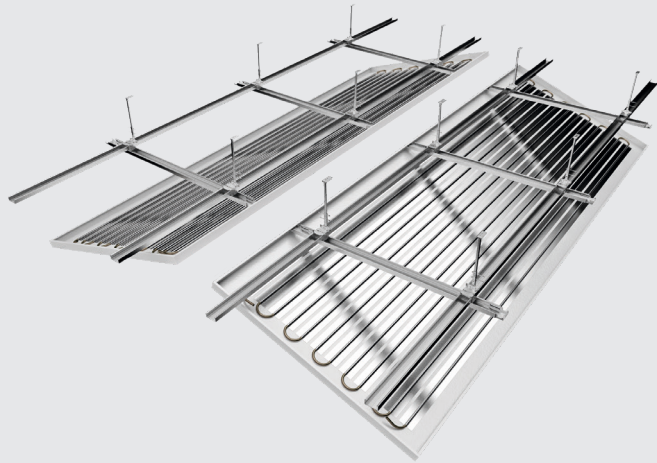
LARGE SAILS THAT CAN BE HINGED DOWN

Zehnder holding brackets also make it possible to individually hinge down large sails connected in series. Holding brackets can be combined with standard ceiling accessories currently on the market.



LARGE SAILS THAT CAN BE HINGED DOWN - AS A SYSTEM

Zehnder offers various special solutions for large sails that can be hinged down.



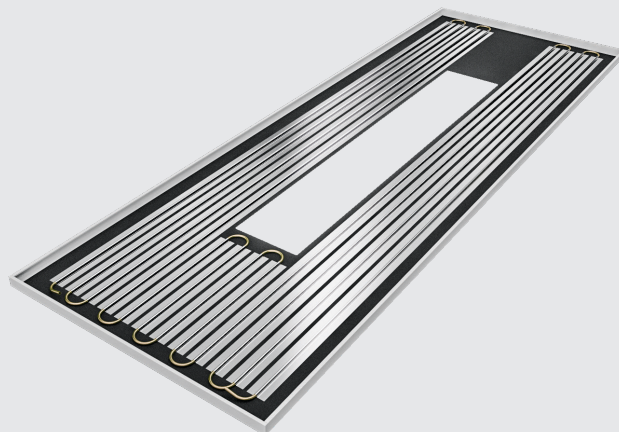
SAILS WITH HOOK SUSPENSION

Zehnder hook suspensions make it possible to take down sails individually. During installation they are characterised by easy handling for suspension and ability to align the modules next to each other.



SPECIAL SOLUTIONS TAILORED TO CUSTOMER REQUIREMENTS

We supply individual customer solutions – cut-outs, special perforations and special shapes. We will find a project-specific solution by working together with you and will gladly advise you. The figure shows cut-outs for lights.



Connection technology

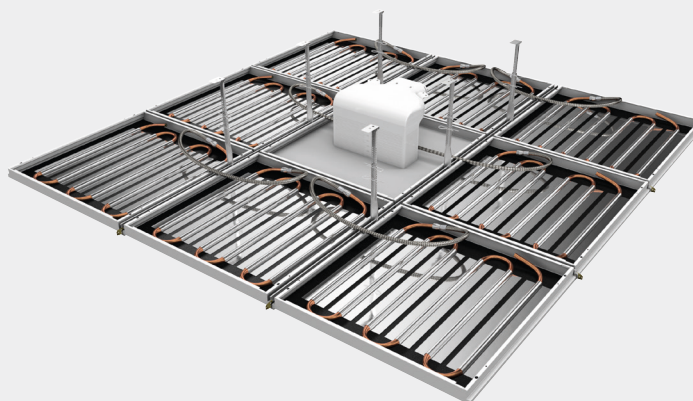
6 parallel pipes

The Zehnder Alumline radiant ceiling panels can be installed as strips up to a maximum of 9 metres in length. In this case, the front-facing radiant ceiling panels have 2 serpentine circuits with hydraulic couplings on both sides of the panels, which enable a series connection.

Two modules next to each other with same-end connection.



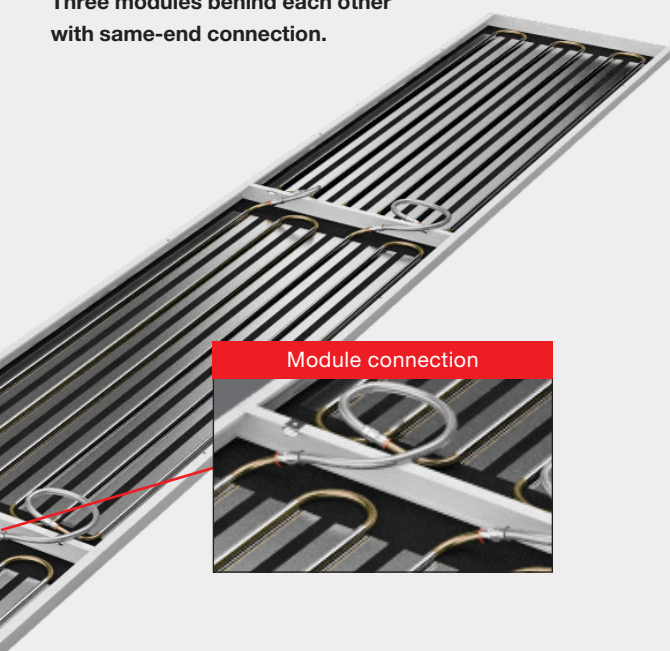
Special solution



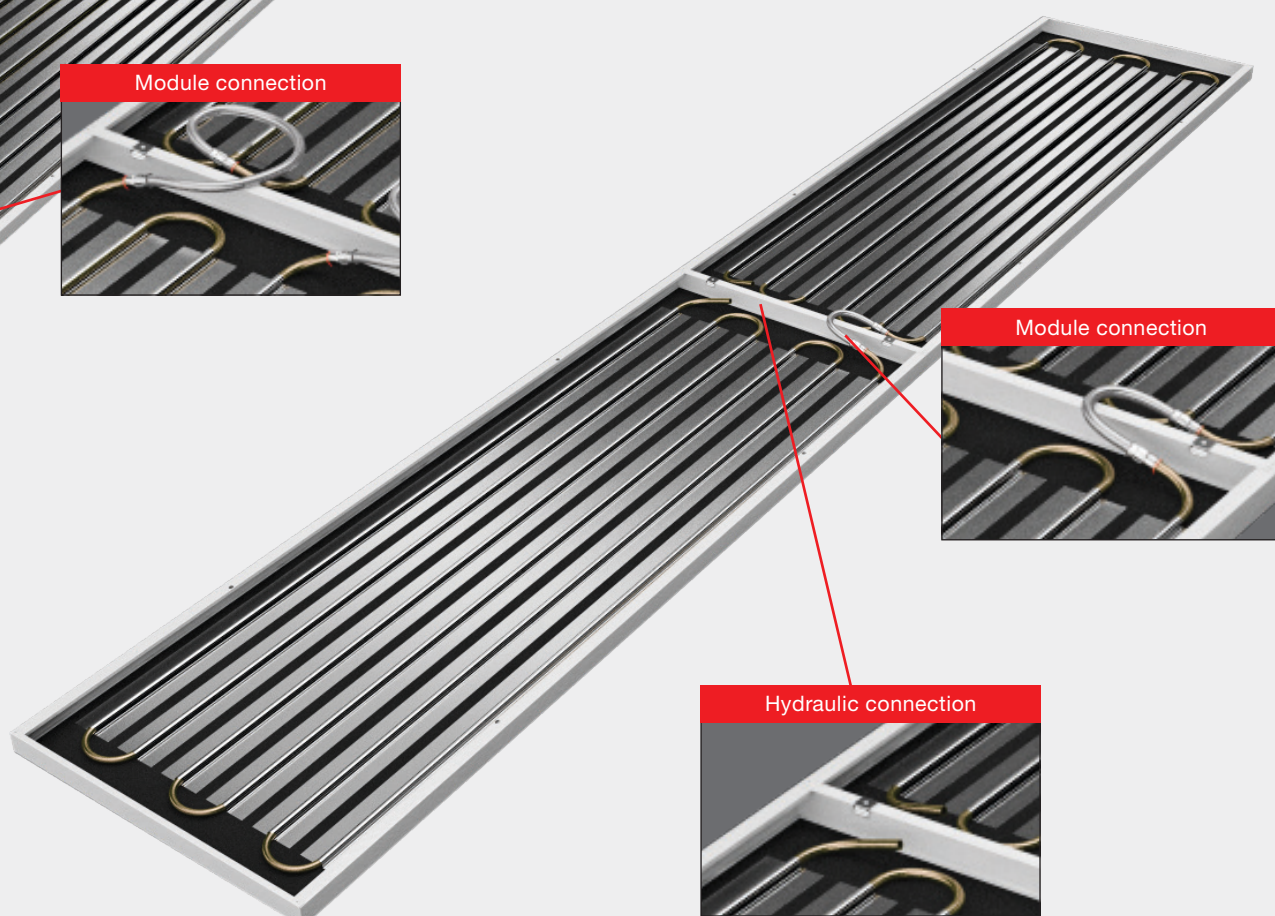
Cut-outs can be made in the Zehnder radiant ceiling panels in order to integrate external wall grilles, projectors, fire alarms, lights and other equipment.

Zehnder makes the required cut-outs in the radiant ceiling panels following your instructions.

Three modules behind each other with same-end connection.



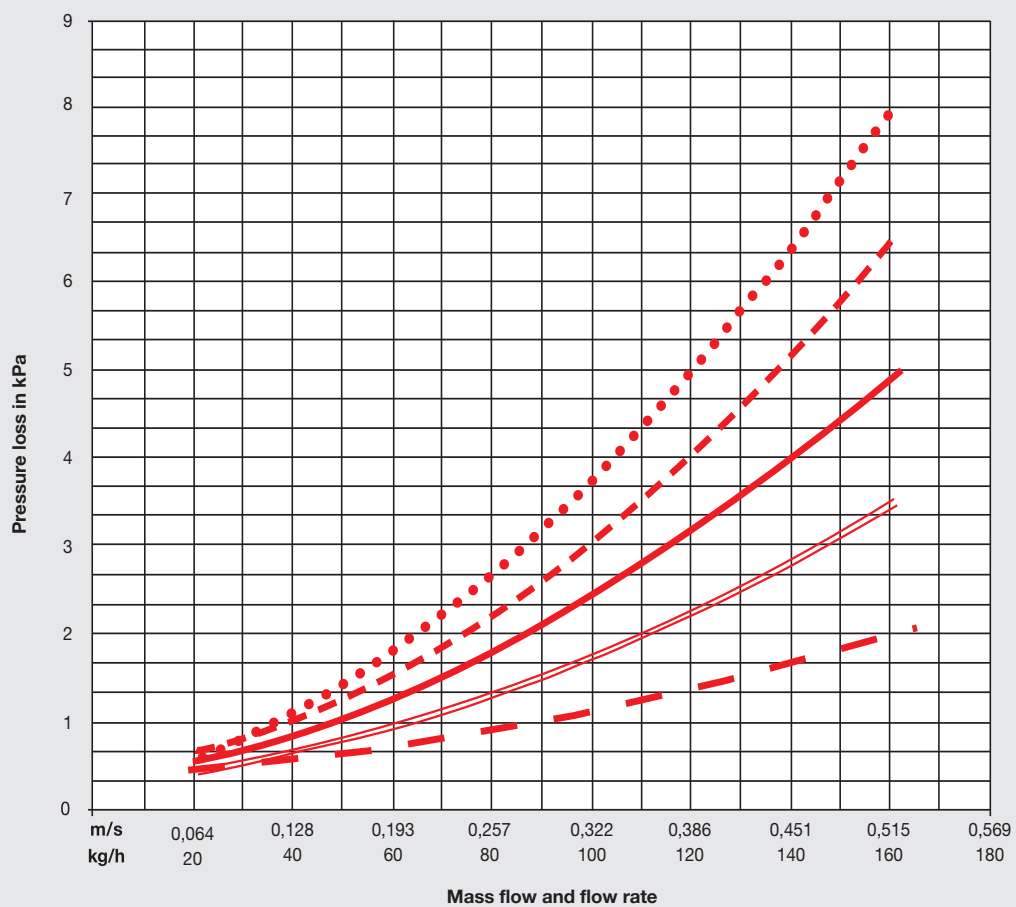
Two modules behind each other with centre connection.



Pressure loss calculation

The pressure loss, depending on the module size and mass flow, is shown in the diagram. The maximum permitted flow speed is 0.5 m/s.

Pressure loss graph 6 parallel pipes

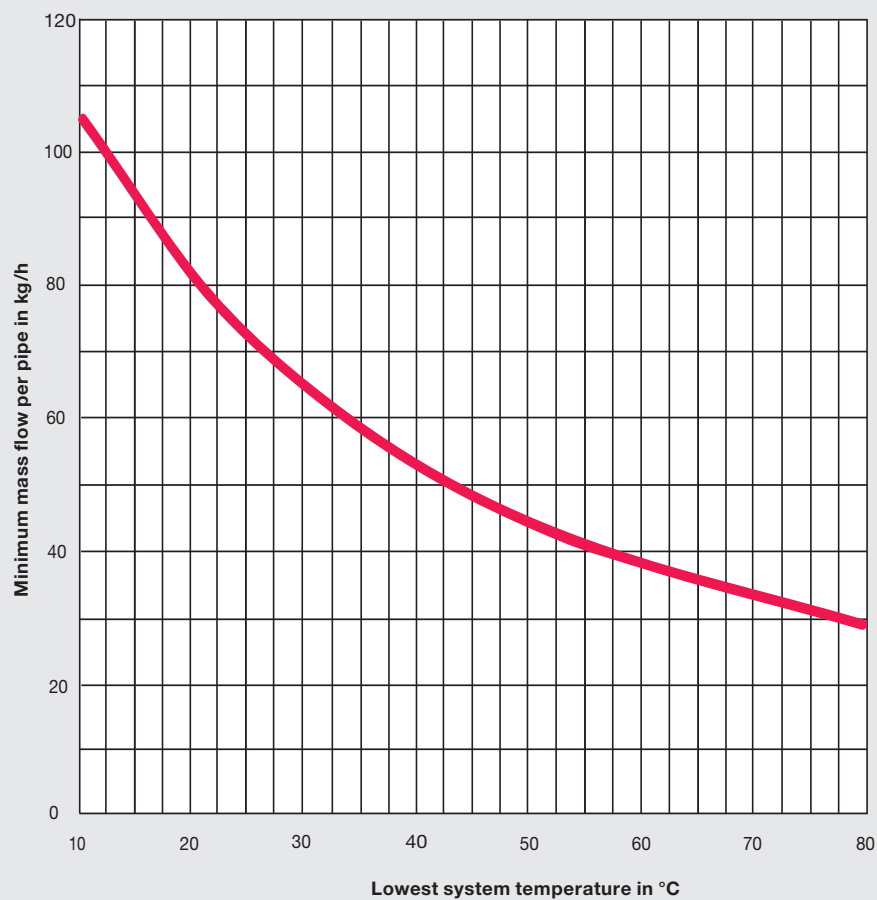


- 600 x 3,000
- 600 x 2,400
- 600 x 1,800
- ===== 600 x 1,200
- 600 x 600

Series connections available on request.

Minimum mass flow

To maintain the outputs shown in the tables on pages 20 - 25, a turbulent flow must be ensured within the pipes in the radiant panel system. This minimum mass flow depends on the lowest system temperature. When heating, this corresponds to the return temperature. When cooling or in a combined cooling/heating mode, this corresponds to the cold water flow temperature. If the minimum mass flow per pipe is not achieved, this can result in a drop in performance of around 15%.



Heating and cooling performance

The following tables show the heating and cooling performance of Zehnder Alumline. The given heating and cooling performance values are measured based on EN 14037 (heating) and EN 14240 (cooling).

Thermal outputs for 6-pipe activation										
Sail module / ceiling sail with insulation						Sail module / ceiling sail without insulation				
Dimensions	600 x 600	600 x 1200	600 x 1800	600 x 2400	600 x 3000	600 x 600	600 x 1200	600 x 1800	600 x 2400	600 x 3000
K	2,328	4,962	7,587	10,213	12,845	2,708	5,765	8,821	11,876	14,933
n			1,094					1,094		
Δ t (K)	W	W	W	W	W	W	W	W	W	W
70	243	518	792	1066	1340	283	602	921	1240	1559
68	236	501	767	1033	1299	274	583	892	1201	1510
66	228	485	742	1000	1257	265	564	863	1162	1461
64	221	469	718	967	1215	256	546	835	1124	1413
62	213	453	693	934	1174	248	527	806	1085	1365
60	206	437	669	901	1132	239	508	778	1047	1317
58	198	421	645	868	1091	230	490	749	1009	1269
56	191	405	620	835	1050	222	471	721	971	1221
55	187	399	610	821	1032	218	463	709	955	1200
54	183	390	596	803	1009	213	453	693	933	1173
52	176	374	572	770	968	204	435	665	895	1126
50	168	358	548	738	928	196	416	637	858	1079
48	161	343	524	706	887	187	398	609	820	1031
46	154	327	500	673	847	179	380	582	783	985
44	146	311	476	642	807	170	362	554	746	938
42	139	296	453	610	767	162	344	527	709	891
40	132	281	429	578	727	153	326	499	672	845
38	125	265	406	546	687	145	308	472	635	799
36	118	250	383	515	648	137	291	445	599	753
34	110	235	359	484	608	128	273	418	563	707
32	103	220	336	453	569	120	256	391	527	662
30	96	205	313	422	530	112	238	364	491	617
28	89	190	291	391	492	104	221	338	455	572
26	82	175	268	361	454	96	204	312	420	527
24	75	160	246	331	416	88	187	285	384	483
22	69	146	223	301	378	80	170	260	349	439
20	62	131	201	271	340	72	153	234	315	396
18	55	117	179	241	303	64	136	208	281	353
16	48	103	158	212	267	56	120	183	247	310
14	42	89	136	183	230	49	103	158	213	268
12	35	75	115	155	195	41	87	134	180	226
10	29	62	94	127	160	34	72	110	148	185

Heat outputs may vary if ceiling panels are integrated within ceiling grid.

Note: the following data was measured using smooth surfaces; a perforated surface will reduce the capacity slightly. Removing the insulation has a positive effect on the cooling capacity (see table).

However, this increase can only be calculated with an open ceiling.

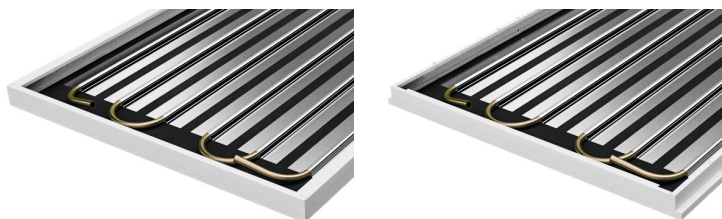
Removing the insulation increases the thermal output; however, this can lead to heat accumulation under higher ceilings.

Caution: Zehnder has developed a special construction for smooth and perforated versions for system temperatures between 50 °C and 83 °C!

Cooling capacities for 6-pipe activation

Sail module / ceiling sail with insulation						Sail module / ceiling sail without insulation				
Dimensions	600 x 600	600 x 1200	600 x 1800	600 x 2400	600 x 3000	600 x 600	600 x 1200	600 x 1800	600 x 2400	600 x 3000
K	3,194	6,803	10,392	13,999	17,597	3,224	6,907	10,574	14,210	17,893
n			1,069					1,090		
Δ t (K)	W	W	W	W	W	W	W	W	W	W
15	58	123	188	253	319	62	131	200	270	339
14	54	114	175	235	296	57	122	186	250	315
13	50	106	161	217	273	53	112	172	231	290
12	46	97	148	200	251	48	103	157	212	266
11	42	88	135	182	229	44	94	143	193	242
10	38	80	122	164	206	40	84	129	174	218
9	34	71	109	147	184	35	75	115	155	195
8	30	63	96	129	163	31	66	101	136	171
7	26	54	83	112	141	27	57	88	118	148
6	22	46	71	95	120	23	48	74	100	125
5	18	38	58	78	98	19	40	61	82	103
4	14	30	46	62	78	15	31	48	64	81
3	10	22	34	45	57	11	23	35	47	59
2	7	14	22	29	37	7	15	22	30	38
1	3	7	10	14	18	3	7	11	14	18

Technical specifications for 6-pipe activation



		Sail module for the ceiling sail					Lay-in module				
Dimensions	Unit of measurement										
Width type ²⁾	-	600					600 / 625				
Length type ²⁾	-	600	1,200	1,800	2,400	3,000	600 / 625	1,200 / 1,250	1,800 / 1,875	2,400 / 2,500	3,000 / 3,125
Total width ²⁾	mm	600					595 / 620				
Total length ²⁾	mm	600	1,200	1,800	2,400	3,000	592 / 617	1,192 / 1,242	1,792 / 1,867	2,392 / 2,492	2,992 / 3,117
Number of suspension points per module	Piece	4	4	4	4	6	4	4	4	4	6
No. of parallel pipes	Piece	6					6				
Tube spacing	mm	90					90				
Pipe material / dimension (outside ø)	- / mm	D copper pipe / 12					D copper pipe / 12				
Panel material	-	Galvanised steel					Galvanised steel				

Parameters

Max. operating temperature – standard version	°C	50					50				
Max. operating temperature – special version	°C	83					83				
Max. operating pressure ¹⁾	bar	6					6				

Weight

Operating weight with water, without insulation	kg	4.04	7.78	11.53	15.27	19.01	3.61 / 3.86	6.99 / 7.48	10.82 / 11.56	14.20 / 15.19	19.36 / 20.59
Operating weight with water, with insulation ³⁾	kg	4.19	8.12	12.04	15.96	19.88	3.77 / 4.03	7.33 / 7.66	11.33 / 12.13	14.90 / 15.97	20.24 / 21.58
Water content	kg	0.39	0.75	1.11	1.47	1.83	0.39	0.75	1.11	1.47	1.83

¹⁾ Higher operating pressure available on request.

²⁾ Intermediate lengths available on request.

³⁾ Insulation made of mineral wool in LDPE foil, mass per unit area = 0.84 kg/m², λ = 0.03 - 0.04 W/(m.K)

Plasterboard Frames

The Zehnder Plasterboard frames are available as standard to fit the standard Zehnder Alumline ceiling panel range (600 width x 600, 1,200, 1,800, 2,400 or 3,000mm lengths). The frame consists of a white powder-coated Aluminium T-section sides and ends which are joined at the corners with an internal bracket. The frame is secured by fixing through the upstand of the T-section into the subframe of the aperture of the plasterboard ceiling.

Bespoke plasterboard frames are available to order.

Tender specification

Ceiling sail – free-hanging modules

Alumline sail version ... x ... mm, active (standard modules:
600 x 600 mm; 600 x 1,200 mm; 600 x 1,800 mm;
600 x 2,400 mm; 600 x 3,000 mm)

Alumline sail version ... x ... mm, active (bespoke version)

Metal ceiling panels according to the TAIM e.V. quality standard, version: November 1998, material: galvanised sheet steel, minimum thickness 0.6 mm, lip on longitudinal side in line with static requirements.

Surface similar to RAL ... (9016),

smooth surface similar to RAL ... (9016),

perforated, hole pattern ... RD - L30 (1.5 mm - 22% - 45°),

surrounding non-perforated edge, approx. 10 mm wide.

A special heat-conducting acoustic fleece has been force-fitted to the back of the perforated version, without pleats, to improve sound absorption. The supplier must present test results to prove that sound absorption is achieved in conjunction with the metal ceiling panels on offer.

Sound absorption measured according to EN ISO 345.

Fixing:

Fixing to the bare ceiling via metal anchors approved by the building authorities, with a maximum load of at least 0.5 kN per anchor. Suspension via galvanised nonius suspending brackets and transverse profiles, can be folded down.

Suspension height from bottom edge of reinforced concrete ceiling to bottom edge of metal cassette approx. 300 mm.

All parts made of galvanised sheet steel.

Insulation:

Heat and sound-absorbing insulating layer based on mineral wool, coated with black fleece on one side and shrink-wrapped in LDPE foil.

Cooling register:

Factory-integrated copper pipe register (12 mm) with large-area aluminium heat-conducting profiles in the shape of the module with flow and return connections. Only D-pipes (12 mm) made of copper may be used for air-conditioning and refrigeration technology according to EN 12735-2. The copper pipe registers are glued into the linear panels at the factory using a special adhesive, thus ensuring optimum thermal transfer and, as such, optimum heating and cooling performance. The size of the meandering copper pipe is tailored to the ceiling module.

The centre distance and the number of heat-conducting profiles and copper pipes must be selected so that the given technical specification can be achieved.

The cooling ceilings must be hydraulically connected so there is a maximum pressure loss of 25 kPa per control circuit.

Heating technical specification:

For example:

Room temperature: 20 °C

Hot water flow: 40 °C

Hot water return: 36 °C

Thermal output smooth/perf. (incl. insulation): 166 / 160 W/m²
based on EN 14037

Cooling technical specification:

For example:

Room temperature: 26 °C

Cooling water flow: 16 °C

Cooling water return: 19 °C

Cooling capacity smooth / perf.: Approx. 88 / 85 W/m²
based on EN 14240

Sails consisting of module sizes: ... pieces ... x ... mm

Material: galvanised sheet steel, similar to RAL ... (9016), perforated or smooth, including insulation

Maximum operating temperature: 83 °C

Maximum operating pressure: 6 bar

Perforated version:

Maximum operating temperature: 50 °C

Maximum operating pressure: 6 bar

Hose connection 12 x 12 mm

Flexible connector, with oxygen barrier, with stainless steel braid, brass plug-in connectors pressed on both sides. Plastic plug-in connectors are not permitted. Plug-in connector on both sides for copper pipe (12 mm). The copper pipes used on site to connect the flexible connection pipes must meet the requirements of EN 1057. Only copper pipes in the conditions R220 (soft) and R250 (half hard) are permitted.

- Tight against diffusion according to DIN 4726
Maximum operating temperature: 80 °C
Maximum operating pressure: 6 bar

Length: ... mm (1,000 mm, 1,500 mm, ...)

Fixing:

Suspension system with auto-blocking zinc housing for concrete ceiling, wire cable 1.2 mm with cross brace (distance below concrete ceiling 1 m)
Anchorage in concrete: hexagon nut, drive-in anchor, eyelet screw, galvanised steel.

Fine adjustment consisting of:
M6 threaded bolt with 2.5 mm drill hole along the entire length and cross brace with M6 female thread 25 mm

Special fixing support, can be hinged down
Special fixing support for hinging down the ceiling panels, consisting of 2 additional cross braces on the ceiling panel, special suspension hooks, wire cables for suspension and a track substructure including small accessories.

Hose connection 12 x ½" female thread as coupler

Flexible connector, with oxygen barrier, with stainless steel braid, brass plug-in connector pressed on one side and ½" male thread, flat gasket. Plastic plug-in connectors are not permitted. Plug-in connector for copper pipe (12 mm). The copper pipes used on both sides to connect the flexible connection pipes must meet the requirements of EN 1057. Only copper pipes in the conditions R220 (soft) and R250 (half hard) are permitted.

- Tight against diffusion according to DIN 4726
Maximum operating temperature: 80 °C
Maximum operating pressure: 6 bar

Length: ... mm (500 mm, 750 mm, ...)

Tender specification

Lay-in modules for T24 grid ceiling

All positions below cover the materials supplied for a T24 ceiling construction.

Heating and cooling ceiling modules for a T24 grid ceiling

As flush lay-in metal cassettes for a visible T24 track supporting structure for heating and cooling, in a perforated / smooth version, for removing sensitive heat loads in an approximate ratio of 60% via radiation and 40% via convection.

A minimum suspension height of 350 mm (bottom edge of bare ceiling to upper edge of heating and cooling ceiling) is required.

Components and additional loads must be suspended from the bare ceiling separately; alternatively, they can be attached by means of reinforcements on the back of the panels, additional profiles and additional suspending brackets on the substructure. The supplementary work must be carried out professionally.

Tolerances and quality requirements according to TAIM e.V.

Hydraulic pipework for the individual metal cassettes as per the room-specific calculations. The Tichelmann ring is installed on the room side by others on the building site. Hoses connected to the outlet connectors of the pipework on the room side by 12 mm outlets.

Zehnder Alumline active

Metal ceiling panels according to the TAIM e.V. quality standard.

Version: November 1998, material: galvanised sheet steel, minimum thickness 0.6 mm, lip on longitudinal side in line with static requirements. Surface similar to RAL ... (9016), perforated, hole pattern RD - L30 (diameter 1.5 mm – open cross section 22% - 45°); surrounding non-perforated edge, approx. 10 mm wide.

A special heat-conducting acoustic fleece has been force-fitted to the back, without pleats, to improve sound absorption. The supplier must present test results to prove that sound absorption is achieved in conjunction with the metal ceiling panels on offer.

Sound absorption measured according to EN ISO 345.

Inserted thermal insulation as a heat and sound-absorbing insulating layer, based on mineral wool, flame-resistant, classified as Euroclass B1 and tested to DIN 13501-1. Placed over the entire copper pipe register.

Factory-integrated copper pipe register (12 mm) with large-area aluminium heat-conducting profiles in the shape of the module with flow and return connections. Only D-pipes (12 mm) made of copper may be used for air-conditioning and refrigeration technology according to EN 12735-2. The copper pipe registers are permanently glued into the linear panels, making direct contact with the acoustic fleece, at the factory using a special adhesive, thus ensuring optimum thermal transfer. The centre distance and the number of heat-conducting profiles must be selected so that the given technical specification can be achieved.

The cooling ceilings must be hydraulically connected so there is a maximum pressure loss of 25 kPa per control circuit.

In line with the pressure loss stated above, a corresponding number of radiant panel systems must be connected in series, then connected to the distribution pipe in parallel.

Cooling technical specification:

For example:

Room temperature: 26 °C

Cooling water flow: 16 °C

Cooling water return: 19 °C

Cooling capacity under
system design conditions: at least 80 W/m²
based on EN 14240

Heating technical specification:

For example:

Room temperature: 20 °C

Hot water flow: 34 °C

Hot water return: 30 °C

Thermal output under
system design conditions: at least 80 W/m²
based on EN 14037

Degree of activation stands at ... %

All given performance values must be verified by an official
test report from an independent institute.

Module size of the linear panel active: ... mm x ... mm

Standard width 595 mm (600 mm)

Standard width 620 mm (625 mm)

Material: galvanised sheet steel, similar to RAL ... (9016),
perforated or smooth

Maximum operating temperature: 83 °C

Maximum operating pressure: 6 bar

Perforated version:

Maximum operating temperature: 50 °C

Maximum operating pressure: 6 bar

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“We strive to improve the quality of life by providing the finest indoor climate solutions.”



Excellent team

Every day we combine passion, expert knowledge and commitment to give you the best results.



Great solutions, products and services

Great products and unique service for an energy-efficient, healthy and comfortable indoor climate.

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The broad and clearly structured portfolio from the Zehnder Group is split into five product lines. Consequently, we can provide our customers with the right product, perfect system and matching service for all types of projects – from new build to renovations, single or multi-occupancy homes, as well as commercial projects. This variety ensures that our wealth of experience is continuously expanding, providing tangible added value to our customers on a daily basis.



Comfortable indoor ventilation

Our comfortable indoor ventilation is energy-efficient and provides a healthy indoor climate. It promotes the wellbeing of the occupants and increases the value of the property.

OUR BRAND REPRESENTS INNOVATION, QUALITY AND DESIGN



The Zehnder brand offers excellent indoor climate solutions within the product lines of decorative radiators, comfortable indoor ventilation, climate ceiling solutions and clean air solutions.



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Always close to the needs of our customers, to grow with you and overcome all challenges together.

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Decorative radiators

Our individual decorative radiators make every room – whether at home or in commercial or public buildings – not only warmer, but also more attractive. They combine iconic design with outstanding comfort experience.



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The ceiling is the perfect place to supply a room with convenient heating and cooling. Energy-efficient climate via radiant panels work perfectly with our suite of solutions from office to manufacturing spaces.



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