zehnder
always the best climate

Zehnder Timia

Sales International – Prices and Technology 2021

ALWAYS THE BEST CLIMATE

“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.

WE ARE THE SPECIALISTS FOR A HEALTHY, COMFORTABLE AND ENERGY-EFFICIENT

The broad and clearly structured portfolio from the Zehnder Group is split into four 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.

Decorative radiators
Our individual decorative radiators for living and bathrooms make a home not only warmer but also more attractive. Created by renowned designers, they impress with excellent functionality.

OUR BRANDS REPRESENT INNOVATION, QUALITY AND DESIGN

zehnder

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

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

INNOVATION OVER 4 GENERATIONS

MANUFACTURER OF THE WORLD'S **1st** STEEL AND BATHROOM RADIATORS

REPRESENTED IN MORE THAN **70** COUNTRIES

AROUND **3,500** EMPLOYEES

16 OF OUR OWN PRODUCTION PLANTS IN EUROPE, NORTH AMERICA AND CHINA

INNOVATION SINCE **1895**

1,200 PATENTS AND DESIGN RIGHTS THROUGHOUT THE WORLD

AROUND **20,000** TRAINED CUSTOMERS PER YEAR

INDOOR CLIMATE

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.

Heating and cooling ceiling systems
Zehnder ceiling systems are convenient and energy-efficient for heating and cooling. They are perfectly attuned to the relevant environment.

Clean air solutions
Clean air systems from Zehnder reduce the level of dust in the air, create a healthier working environment and reduce the amount of cleaning required.

BEST QUALITY CERTIFICATES

Zehnder Group products are frequently awarded prizes for design and innovative technology.

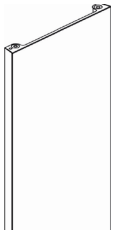
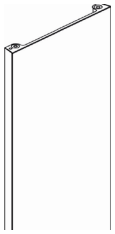
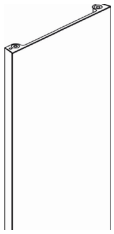
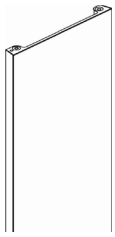
iF DESIGN AWARD 2018

reddot design award winner 2018

Zehnder Timia

Zehnder Timia

Zehnder Timia Vertical

Length mm	Height mm			
	1400	1700	1850	2000
520	ROHT-140-052	ROHT-170-052		
520	ROHTX-140-052	ROHTX-170-052		
520	ROHET-140-052/GF	ROHET-170-052/GF		
620			ROHT-185-062	
620			ROHTX-185-062	
620			ROHET-185-062/GF	
720				ROHT-200-072
720				ROHTX-200-072
720				ROHET-200-072/GF

Zehnder Timia

Zehnder Timia, hot water central heating operation

Product description hot water central heating operation

Perfect symbiosis of living space and radiator. The new Zehnder Timia impresses with its purist and unobtrusive design, which subordinates itself to the living space and thus elegantly supports the room concept. Thanks to the ingenious construction of the radiator's fixing system, where the technical elements disappear completely behind the heating surface, nothing disturbs the design-oriented eye.
At the same time, the large heating surface quickly provides pleasant comfort and guarantees maximum hygiene thanks to easy-to-clean surfaces.
Available in almost all colors and surfaces of the Zehnder color chart.

Operating pressure	max. 4,0 bar
High pressure (optional)	max. 10,0 bar
Operating temperature	max. 110°C
Height	.....mm
Length	.....mm
Model	

Benefits

- Innovative radiator with flat design
- Large proportion of radiation
- Light, airy look
- Elegant valve integration as option
- Flexible connection options enable simple and individual installation in any room situation

Zehnder Timia, electric only

Product description electric operation

Zehnder Timia electric decorative radiator with smooth front panel in elegant and slim design, even surface. Thanks to the ingenious construction of the radiator's fixing system, where the technical elements disappear completely behind the heating surface, nothing disturbs the design-oriented eye. With CE marking. With integrated electric heating element RACY-C in right hand header tube at bottom. Degree of protection IP44 (splashproof), for mains supply of 230 V. Connection cable (1,2 m) without plug. Decorative radiator filled with heat transfer fluid. Separate, battery-operated remote control device model 2 for controlling the room temperature. Radiator with powder coating, in colour RAL 9016 as standard, in special colour on request. Delivered ready to install with matching wall brackets in colour of radiator.

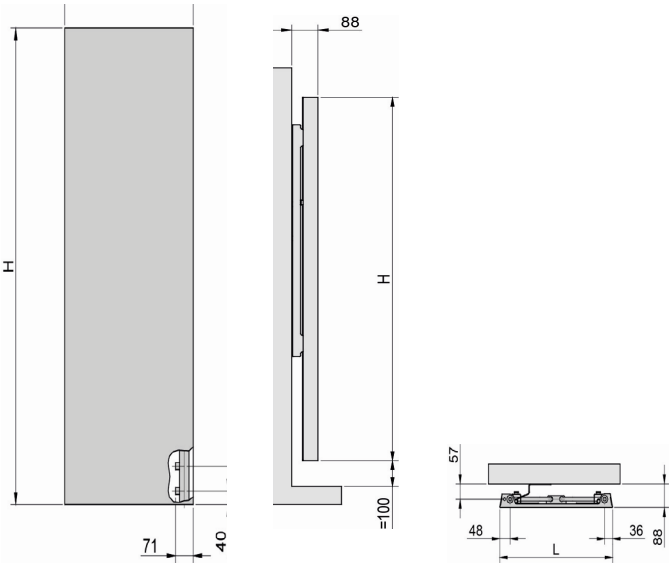
Output	..... Watt
Height	..... mm
Length	..... mm
Model	

Special benefits for electric operation with RACY-C

- Remote control device can be positioned as required
- Regulated room temperature
- Comfortable operation as needed by customisable daily and weekly programmes
- Energy-efficient and comfortable heating via innovative open window detection
- Low energy consumption in stand-by mode (≤ 0,5 W)
- Keylock can be activated as required
- Timer function for up to 2 hours

Zehnder Timia

Vertical models



H = Height
L = Length
N = Boss spacing = L - 80
T = Depth of radiator
ST = Stabilising brace
V = Water content
M = Weight
s_k = Proportion of radiation
q_{ms} = Nominal flow rate
n = Exponent
Φ_S = Nominal heat output according to EN 442 (75/65/20 °C)
Φ = Thermal output at system temperatures

Dimensions in mm

Prices and technical specifications per radiator- hot water central heating operation

Model	**Price**[1] **RAL 9016** **€**	H mm	L mm	T mm	V dm^3	M kg	s_k %	q_{ms} kg/h	Exp. n	Φ_s=ΔT 50 K EN442 Watt	Φ 70/55/20 °C Watt	Φ 55/45/20 °C Watt
ROHT-140-52	**886,00**	1411	517	64	7,8	29,3	0,5	56,7	1,21	658	503	355
ROHT-170-52	**963,00**	1707	517	64	9,4	35,7	0,5	67,1	1,21	778	593	418
ROHT-185-62	**1.051,00**	1855	617	64	11,6	44,4	0,5	85,6	1,21	988	755	533
ROHT-200-72	**1.161,00**	2003	717	64	13,8	53,4	0,5	95,7	1,21	1172	632	895
ROHTX-140-52	**759,00**	1411	517	64	7,8	29,3	0,5	56,5	1,21	659	503	355
ROHTX-170-52	**836,00**	1707	517	64	9,4	35,7	0,5	64,1	1,22	787	600	423
ROHTX-185-62	**930,00**	1855	617	64	11,6	44,4	0,5	86,2	1,22	982	749	528
ROHTX-200-72	**1.048,00**	2003	717	64	13,8	53,4	0,5	97,3	1,25	1122	849	593

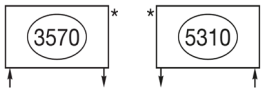
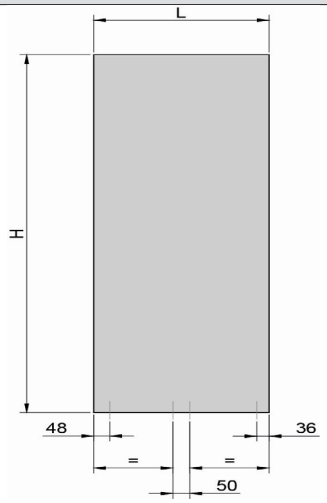
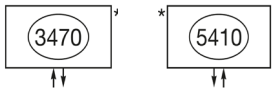
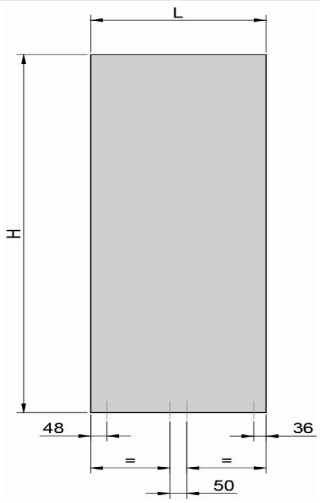
Prices and technical specifications per radiator- electric operation

Model	**Price**[1] **RAL 9016** **€**	H mm	L mm	T mm	Classification Electric heating element Watt
ROHET-140-52/GF	**1.017,00**	1427	517	64	750
ROHET-170-52/GF	**1.093,00**	1723	517	64	1000
ROHET-185-62/GF	**1.191,00**	1871	617	64	1500
ROHET-200-72/GF	**1.183,00**	2019	717	64	2000

[1] Surcharge for special colour, category 1 = 20%; category 2 = 30%

Zehnder Timia

Vertical design

Connection type	Price €	Dimensional drawings: front view, side view and top view (bottom)
Connection 2-tube with external valve		
from bottom to bottom 	**No additional charge**	
Middle connection, 50 mm 	**No additional charge**	

When an order is placed without indication of the connection type, connection S012 is delivered with connection option at bottom outside or bottom centre.

H = Height
L = Length
N = Boss spacing
* = Venting
Δ = Draining
• = Internal installations

Dimensions in mm

Standard scope of delivery for hot water central heating operation

- Powder coating acc. to DIN 55900, RAL 9016
- Connections 4 x ½" for flow/return, Boss spacing 50 mm or outside left/right
- Connection for directional air vent ½"
- Mounting accessories in colour of radiator
- Packaging

Standard scope of delivery for electric operation

- Powder coating to DIN 55900, RAL 9016
- Filled with non-flammable heat-transfer fluid (frost-proof to -10°C)
- With integrated electric heating element RACY-C, with remote control device, incl. battery, with selectable operating modes: manual (above room temperature), weekly programme, timer, off
- Mounting accessories in colour of radiator
- Packaging

Rails and hooks

Description		Version	Article number	**Price €**	Application
Towel rail High-quality towel bar in brass, chrome-plated, with 2-point magnetic holder; max. load 5 kg		Length 399 (297) mm 432 (330) mm 531 (429) mm	 471108 471118 471128	 215,59 224,84 247,32	Zehnder Timia
Towel hook High-quality double hook in brass, chrome-plated, with 1-point magnetic holder; max. load 5 kg		Length 100 mm	470328	108,43	Zehnder Timia

Thermostats

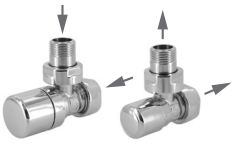
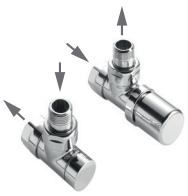
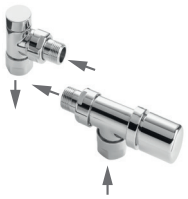
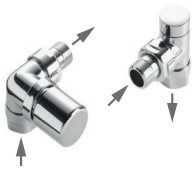
Description		Version	Article number	**Price €**	Application
Zehnder thermostat “LH2” Thermostat with integrated fluid sensor, tested according to EN 215. Can be restricted and locked to individual reference value of 7 to 28 °C. Version with zero setting and threaded connection for thermostat M 30 x 1,5		White Chrome	819140 819148	**28,06** **48,36**	For all radiators with threaded connection M 30 x 1,5 mm
Zehnder thermostat “DH” Thermostat with integrated expansion material sensor, reference value range 7 to 28 °C. Version with zero setting		White Chrome	819050 819058	**28,06** **42,76**	
Zehnder thermostat “SH” Elegant thermostat with integrated fluid sensor, tested according to EN 215, reference value range 7 to 28 °C. Version with zero setting. Thermostat threaded connection M 30 x 1,5 with coupling nut in chrome		White Chrome Stainless steel	819080 819088 819082	**30,52** **42,84** **42,84**	
Zehnder thermostat „Design Line“ Thermostat with integrated fluid sensor. Can be restricted and locked to individual reference value of 6,5 - 28 ° C, connection for thermostat M 30 x 1,5		White Chrome Stainless steel optic	841271 841278 853720	**51,38** **74,22** **133,58**	

All fittings etc. suitable for operating temperature max. 110 °C and operating pressure max. 10 bar, unless indicated otherwise.

Miscellaneous

Description		Version	Article number	**Price €**	Application
Adaptor nippel From ½" female thread to ¾" external thread for screwing with O-ring seal	No illustration		837110	**7,22**	For all radiators
Directional air vent, nickel-plated, self-sealing		¼" ⅜" ½" ⅛"	816010 816020 816030 816040	**3,34** **3,34** **3,34** **3,34**	For all radiators
Directional air vent, chrome-plated, self-sealing Suitable for max. operating pressure of 18 bar		½"	816070	**5,68**	
Blanking plug, nickel-plated, self-sealing		½"	974020	**1,91**	For all radiators
Blanking plug, chrome-plated Suitable for operating pressure up to max. 18 bar		½"	974058	**5,03**	
Angle adapter for thermostat M 30 x 1,5		White	819500	**11,16**	For all radiators with threaded connection M 30 x 1,5 mm
Lacquer aerosol Original paint, air-drying For improving the surface finish, 150 ml RAL 9001 (Cream White) RAL 9002 (Grey White) RAL 9010 (Pure White) RAL 9016 (Traffic White)		Colour: RAL 9001 RAL 9002 RAL 9010 RAL 9016	 977020 977050 977080 977090	 **24,64** **24,64** **24,64** **24,64**	
Lacquer pens Original paint, air-drying For repairing minor damage RAL 9010 (Pure White) RAL 9016 (Traffic White)		Colour: RAL 9010 RAL 9016 On request	 675020 675130 675000	 **20,98** **20,98** **20,98**	

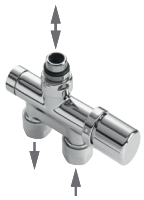
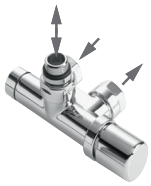
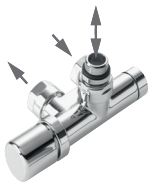
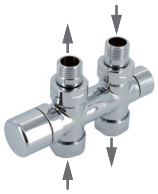
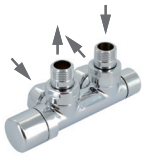
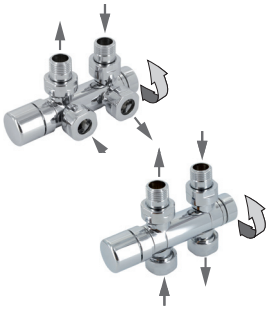
Zehnder Design Line Valve

Description		Version	Article number	**Price €**	Application
Valve set type A Angled flow and lockshield, themostatic insert M 30 x 1,5 mm with pre-setting 1-7, manual handwheel, including 2 pcs ¾" Eurocone nuts Ø 16,8 mm in finish of valve body, without adaptors for pipes		Chrome	838888	**61,26**	For all radiators with ½" female thread
Valve set type **B** Angled flow and lockshield, manual handwheel thermostatic insert M 30 x 1,5 mm with pre-setting 1-7, including 2 pcs ¾" Eurocone nuts Ø 16,8 mm in finish of valve body, without adaptors for pipes		White Chrome	838891 838898	**95,90** **95,90**	
Valve set type C Straight flow and lockshield, manual handwheel themostatic insert M 30 x 1,5 mm with pre-setting 1-7, including 2 pcs ¾" Eurocone nuts Ø 16,8 mm in finish of valve body, without adaptors for pipes		White Chrome	838941 838948	**95,90** **95,90**	
Valve set type D Reverse flow and angled lockshield, manual handwheel themostatic insert M 30 x 1,5 mm with pre-setting 1-7, including 2 pcs ¾" Eurocone nuts Ø 16,8 mm in finish of valve body, without adaptors for pipes		White Chrome	838951 838958	**100,47** **100,47**	
Valve set type G Angled-angled flow head to the left, thermostatic insert M 30 x 1,5 mm with pre-setting 1-7, manual handwheel, lockshield angled, including 2 pcs ¾" Eurocone nuts Ø 16,8 mm in finish of valve body, without adaptors for pipes		White Chrome	838981 838988	**106,92** **106,92**	
Ventilset Typ I Angled-angled flow head to the right, manual handwheel, themostatic insert M 30 x 1,5 mm with pre-setting 1-7, lockshield angled, including 2 pcs ¾" Eurocone nuts Ø 16,8 mm in finish of valve body, without adaptors for pipes		White Chrome	838991 838998	**106,92** **106,92**	

→ Direction of flow
All valves etc. suitable for operating temperature max. 110 °C and operating pressure max. 10 bar, if not indicated differently.
For further information, please see information in the keyword list.

All valves respectively connection fittings are delivered with handwheels as protection caps (thermostatic heads to be ordered separately) and union nuts as transition to the tube (matching adaptors and connection sets are to be ordered separately!) --> see page 20

Zehnder Design Line

Description		Version	Article number	**Price €**	Application
Valve type J Single entry/monotube valve vertical, straight, with by-pass, thermostatic insert M 30 x 1,5 mm with pre-setting 1-7, turnable for manual handwheel to the left or right, including 2 pcs ¾" Eurocone nuts Ø 16,8 mm in finish of valve body and dip tube, without adaptors for pipes		White Chrome	839001 839008	**106,18** **106,18**	For all radiators with ½" female thread
Valve type K Single entry/monotube valve vertical, angled, with by-pass, thermostatic insert M 30 x 1,5 mm with pre-setting 1-7, manual handwheel to the right, including 2 pcs ¾" Eurocone nuts Ø 16,8 mm in finish of valve body and dip tube, without adaptors for pipes		White Chrome	839011 839018	**103,59** **103,59**	
Valve type M Single entry/monotube valve vertical, angled, with by-pass, thermostatic insert M 30 x 1,5 mm with pre-setting 1-7, manual handwheel to the left, including 2 pcs ¾" Eurocone nuts Ø 16,8 mm in finish of valve body and dip tube, without adaptors for pipes		White Chrome	839021 839028	**103,59** **103,59**	
Valve type N Single entry/monotube valve horizontal, straight, with by-pass, thermostatic insert M 30 x 1,5 mm with pre-setting 1-7, manual handwheel to the top, including 2 pcs ¾" Eurocone nuts Ø 16,8 mm in finish of valve body and dip tube, without adaptors for pipes		White Chrome	839031 839038	**139,29** **139,29**	
Valve type O 50 mm straight, thermostatic insert M 30 x 1,5 mm with pre-setting 1-7 and by-pass, turnable for manual handwheel to the left or right, including 2 pcs ¾" Eurocone nuts Ø 16,8 mm in finish of valve body, without adaptors for pipes		White Chrome	839041 839048	**106,18** **106,18**	
Valve type P 50 mm angled, with by-pass, to the right thermostatic insert M 30 x 1,5 mm, with pre-setting 1-7 and by-pass, manual handwheel, including 2 pcs ¾" Eurocone nuts Ø 16,8 mm in finish of valve body, without adaptors for pipes		White Chrome	839051 839058	**106,18** **106,18**	
Valve type Q 50 mm angled, with by-pass, to the left thermostatic insert M 30 x 1,5 mm with pre-setting 1-7 and by-pass, manual handwheel, including 2 pcs ¾" Eurocone nuts Ø 16,8 mm in finish of valve body, without adaptors for pipes		White Chrome	839101 839108	**106,18** **106,18**	
Valve type U 50 mm swiveling design valve straight or angled, with by-pass, thermostatic insert M 30 x 1,5 mm with pre-setting 1-7, manual handwheel to the left or to the right, including 2 pcs ¾" Eurocone nuts Ø 16,8 mm in finish of valve body, without adaptors for pipes		White Chrome	839171 839178	**194,09** **194,09**	

Zehnder Design Line Accessories

Description		Version	Article number	**Price €**	Application
Nut ½", 2 pcs Fe - ¾" Eurocone		White Chrome	842001 842008	**19,42** **19,42**	Adaptor for screw fittings with ½" external thread
Adaptors, 2 pcs Multilayer Ø 14 mm		Brass	842160	**9,14**	
Adaptors, 2 pcs Multilayer 16 x 2,0 mm		Brass	842060	**9,14**	Matching to Zehnder Design Line valves and union nuts (2 x ¾" Eurocone Ø 16,8 mm) which are in the scope of delivery
Adaptors, 2 pcs PEX 12 x 1,0 mm		Brass	842070	**9,14**	
Adaptors, 2 pcs Multilayer Ø 16 x 2,25 mm		Brass	842170	**9,14**	
Adaptors, 2 pcs Copper Ø 10 mm Copper Ø 12 mm Copper Ø 14 mm Copper Ø 15 mm Copper Ø 16 mm		 Brass Brass Brass Brass Brass	 842080 842090 842100 842110 842120	 **5,72** **5,72** **5,72** **5,72** **5,72**	
Nuts Ø 18 mm - ¾" Eurocone **+** **adaptors** copper Ø 18 mm **2 pcs**		Chrome / Brass	842140	**28,55**	
Nuts Ø 20,8 mm - ¾" Eurocone **+** **adaptors** multilayer Ø 20 x 2 mm **2 pcs**		Chrome / Brass	842150	**28,55**	
Universal Adaptor set (without nuts ¾" Eurocone - Ø 16,8 mm) - 2 pcs Alu/Pex multilayer 16 x 2,0 mm - 2 pcs PEX 12 x 1 mm - 2 pcs CU 12 mm - 2 pcs CU 14 mm - 2 pcs CU 15 mm		Brass	842180	**31,97**	

Zehnder Design Line Accessories

Description		Version	Article number	**Price €**	Application
Sleeving kit					
L = 70 mm		Chrome	853738	**19,42**	For radiator installation
L = 160 mm		Chrome	853668	**25,11**	
Collar Ø45 mm					
for Ø ½"		White	816241	**2,28**	For existing connections
		Chrome	816248	**5,72**	
for Ø 10 mm		White	816251	**2,28**	
		Chrome	816258	**5,72**	
for Ø 12 mm		White	816261	**2,28**	
		Chrome	816268	**5,72**	
for Ø 14 mm		White	816271	**2,28**	
		Chrome	816278	**5,72**	
for Ø 15 mm		White	816281	**2,28**	
		Chrome	816288	**5,72**	
for Ø 16 mm		White	816291	**2,28**	
		Chrome	816298	**5,72**	
for Ø 18 mm		White	816301	**2,28**	
		Chrome	816308	**5,72**	

Keyword list

Accessories
A wide range of accessories are available for various additional uses, such as hanging up towels. For more information, see the section on “Accessories”.

Accessory set
To make accessories simple to choose, accessory sets are offered for each radiator. Detailed information is provided in the relevant section.

Baffle
To avoid reduced output, e.g. with a riding connection, internal installations, e.g. baffles, deflector plates, guide plates, are required. Detailed information is available on request.

Advantages
See “Product description”.

Brackets
Appropriate brackets are offered as an accessory set for the respective radiators. Detailed information is given alongside the relevant products and in the “Accessories” section.
Also see notes under “Fixings”.

CE marking
The CE marking on Zehnder radiators shows that they are manufactured in accordance with the prevailing European standard EN 442 and that the product has been subjected to the prescribed conformity evaluation procedure.

CE

The following parameters, which allow the CE mark to be shown, can be found in the respective product section:
- Model designation
- Max. operating pressure
- Nominal heat output

Product/product family	CE - Year
Zehnder Timia	CE - 20

Clear Lacquer Version (Technoline)
See “Colours”

Connections
Each Zehnder radiator is supplied complete with connections. Unless stated otherwise, all connections are female threads. Unless a different dimension is specified, the supplied connections are ½”. Orders without a connection type number will always be delivered with the respective standard connection. Plastic plugs inserted to protect the thread must be removed and replaced with an directional air vent / draining valve or blind plug.

Conversion
Factor for converting the nominal heat output to thermal outputs at other system temperatures, see “Thermal output”.

Corrosion protection
See “Finish” and “Surface protection”.

Colours
Zehnder radiators are available in almost every colour conceivable. From all possible colours, the Zehnder colour chart shows a selection of colours from various colour systems, such as RAL colours, sanitary colours or colours from the NCS-S system.
The standard paint for the entire Zehnder radiator programme is the colour RAL 9016, Traffic White.
17 common colours make up Zehnder colour category 1, with an additional charge of 20%, 30 others colour make up category 2, with an additional charge of 30% on the standard finish. All other paintable colours are available for a surcharge on request. These colour deviations are not a fault and are therefore not subject to claims under warranty as described in our “General Sales and Delivery Conditions”.
Structural paints (structured paint surface) are possible on Zehnder radiators and also fall under category 2.
The Zehnder colour chart is printed on the inside of the rear catalogue cover.
For more information, see “Finish”.

Description
The description for a product contains all the information needed to create a specification or tender. The text-block structure simplifies the composition of all necessary features according to on-site requirements.

Dimensions
The dimensions indicated in the documentation are correct at the time of printing. Subject to change without notice.

Electric radiators and EcoDesign guidelines
The electric guidelines define fixed units consisting of a corpus, a filling medium (heat transfer liquid), a heating insert and a matching control device. This unit is the base for a function test and it may not be modified.
The heat transfer liquid is frost proof up to -20 °C, if there are no further restrictions listed in the standard scope of delivery for the corresponding radiator.
Electric radiators are subject to the EcoDesign guidelines. Aim of this guideline is the reduction of environmental impacts of relevant energy consumption production taking the product lifecycle into consideration. The fulfillment of the guideline is rated according a specific points system. Different functions are e.g. stand-by mode ≤ 05 W weekly program or open-window detection contribute in fulfilling the minimum requirements. The electrical radiators in this price-list match the EcoDesign guidelines.
Please note:
- The electrical installations need to be accordance with local guidelines.
- For fixed installations (without plug) a switch needs to be installed. (All poles of the power supply with min 3m contact distance.)
- The filling capacity may not be altered.
- The electric heating element and connection cable may only be opened and replaced by the manufacturer.
- When installing an electrical radiator, a qualified electrician is the competent person to contact.
- Follow the user manual precisely.

Environment
The certification of our environmental management system to DIN EN ISO 14 001 by an independent institution obliges us to make continuous improvements to our environmental services through reducing or avoiding environmental burdens and waste, encouraging the utilisation and protection of resources as well as observing all environmental laws and regulations applicable to us.

Finish
Ready-painted radiators in this price list have a two-coat finish (to DIN 55900, Part 1 and 2, comprising primer and top coat).
The top coat is a powder coating. The high-quality Zehnder powder coating produces an especially smooth and extremely durable surface. Further information on the applications and limits of radiators is contained in information sheet number 7 of the BDH (Bundesindustrieverband Deutschland, Haus-, Energie- und Umwelttechnik e.V.).
Please always use the original RAL, NCS colour samples or original colour charts of the sanitary manufacturers for exact colour matching. For technical production reasons, minor colour deviations are possible in paints on steel surfaces, also when taking the prevailing lighting conditions into account. Deviations can also occur when

Keyword list

comparing painted steel surfaces (radiators) with ceramic products. The colours shown here (see inside of rear cover) are not binding for printing reasons. Radiators in metallic colours, e.g. RAL 9006, RAL 9007 and Anthracite are unique products and visual differences may appear in the colour, depending on the radiator.

Fins
To increase the convective thermal output, convection fins are used.

Fixings
To ensure that radiators are fitted safely, the weight of the radiator and other aspects must be considered when choosing the right quality and quantity of fixings. Additional loads and foreseeable misuse of a radiator must be considered or ruled out by planning and implementation in line with the known building use. The installation situation and accessibility are just as important criteria as wall material, bracket shape, location of the suspension points, locking device, add-on elements and the like.
Detailed information on the required number of fixing axes in accordance with VDI 6036 requirements class 2 is given for the respective products in the section on “Installation accessories”. Recommendations for additional requirements classes on request. See also the key word VDI 6036.

Flow connection
This concerns the connection on the radiator through which the hot water flows into the radiator.

Galvanising

Product/product family	Maximum dimension galvanised
Zehnder Timia	-

Only ½" connections or larger are possible. Curved or angled radiators cannot be galvanised. Galvanisation creates structures on the surface. These are caused by the technological process and therefore are not a fault. We cannot guarantee a clean, smooth surface. Galvanised radiators are generally delivered with a top coat. For explanation, see “Surface protection”.

Grille
Grilles can be ordered for various radiators. Detailed information is given alongside the relevant products. See keyword “Reduced output”.

Ground clearance
A reduction in the distance between the radiator and the floor can result in reduced output. For more information, see “Reduced output”.

Guide plate
See “Baffle”.

High pressure
Even with suitable radiators and accessory parts, pressure loads up to a maximum of 18 bar are only permitted if pressure surges can be excluded.

Hydraulic balancing
By hydraulic balancing the various system resistances are set so that the radiators are supplied with the necessary quantity of water at all operational points, in order to achieve the desired thermal output.

Hygiene version
Numerous Zehnder radiators are suitable for use in hygienically sensitive areas.

Product/product family	Hygiene
Zehnder Timia	X

[1] only without fins

Immersion tube
Some types of connection require the installation of an immersion tube to achieve optimal heat distribution.

Inlet and outlet resistance
The resistance coefficient (zeta value) is used to calculate the pressure loss. For more information, see “Pressure loss”.

Installation in series
The installation in series of radiators refers to the series connection of several radiators. Detailed information is given alongside the relevant products.

Joining
Zehnder radiators in lengths above the set maximum number of elements are supplied in sub-blocks and must be joined together on site.

Lance valve
The lances must be shortened or extended, depending on the radiator and connection types. Detailed information is available on request. See keyword “Single-tube systems”.

Length restrictions
Avoiding damage during transport significantly increases the cost of packaging, which must be charged for accordingly.

Made to measure
Zehnder radiators can be customised (e.g. angled, curved, with welded brackets). Special shapes require templates to be made from solid materials (cardboard, packing paper) in order to guarantee quick and trouble-free processing. The support of the area manager can be used for a small charge.
Where necessary, the customer will receive a scale drawing of the version to be installed and final pricing for inspection and approval, after which the order will be manufactured. The order cannot be cancelled once placed.

Minimum water flow
If the flow of water through a radiator is heavily reduced, the heat output can fall far below the calculated or indicated value. For this reason, a minimum water flow should always be ensured.
The following table shows the approximate minimum water flows $q_{m\,min}$ in % of the nominal flow rate q_{ms} which does not cause the thermal output to deviate from the standard characteristic curve by more than 5%.
For some radiators, similar conditions can be reached through additional installations, even at lower water flows as shown in the following table. More information is available on request.

Product/product family	$q_{m\,min}$ in % of q_{ms}
Zehnder Timia	27%

Keyword list

Operating pressure
The maximum permissible operating pressure of a radiator depends on its geometry, the material used and the finish. The permissible operating pressure varies according to the product, see table: Suitable fittings, plugs and directional air vents must be ensured in connection with high pressure applications in excess of 10 bar. See “High pressure”.

Product/product family	Standard version [bar]	High pressure version [bar]
Zehnder Timia	4,0	10,0

Operating temperature
The coating of Zehnder radiators can be used for central heating systems up to 110 °C. It is suitable for use in district heating, low temperature and condensing systems.

Packaging
The packaging of Zehnder radiators serves as protection against damage during transport and on building sites. It must be removed before starting the system for the first time in order to avoid any damage caused by condensation.

Pressure loss
The pressure loss is determined using a zeta value of 2,5 per radiator for connection sizes from 3/8” to ¾” and a flow velocity of 1 m/sec. The inherent resistance of a radiator can be ignored. In special cases (e.g. where an integrated valve is fitted), information on pressure losses is provided.

Prices
Terms of delivery for quoted prices are: FCA Lahr. All prices are gross prices. Where prices are not stated or only shown with the proviso ‘current list price’, the valid list prices will be calculated on the day of delivery. Also see General Sales and Delivery Conditions.

Quality check
Zehnder Group Deutschland GmbH is certified to DIN ISO 9001 and is therefore subject to stringent quality controls carried out by independent institutions in the areas of design/development, production, assembly and customer service.

Reduced output
The thermal output can be affected depending on where the radiator is installed. The standard thermal output is measured in an unobstructed setting with a ground clearance of 110 mm and a wall clearance of 50 mm. Any reduction in these clearances, as well as installation in alcoves and the application of covers and grilles can, depending on the model, lead to a reduction in thermal output. In the case of grilles, this reduction can differ between 5 and 12%, depending on the radiator.

Reflective cover plates
The disadvantage of installing a radiator in front of external glazing is that heat is lost directly through the glass. The back of a radiator emits heat in the form of thermal radiation in the same way as the front. For wall mounted radiators, the thermal radiation is reflected or absorbed by the wall, whereas this long-wave radiation radiates almost unimpeded through the pane of glass when radiators are installed in front of windows, even at greater distances.
In order to avoid this unnecessary loss of heat and energy, radiators are available with a reflective cover plate fitted to the side of the radiator facing the window.
The requirement for thermal radiation shields previously anchored in the Federal Heat Insulation Ordinance (WVO) is also fulfilled as a result of this.
The installation of thermal radiation shields in front of external glazing is also expedient in times of the Energy Saving Ordinance (EnEV) and is recommended especially with low overall heat transfer resistance on the part of the windows.

Returns
Radiators and accessories cannot be returned.

Return connection
This concerns the connection on the radiator through which the hot water leaves the radiator and passes along the return line to the heat generator.

Safety
See “Statutory Accident Insurer”.

Scope of delivery
The scope of delivery for the standard version of a radiator can be found in the respective product description.

Seal
In the case of sealed connections and plugs, it may be necessary to tighten up the connection and blind plugs depending on the water quality, e.g. in a remote heating connection, after testing the pressure or heating the system for the first time. The sealing materials supplied or used by Zehnder are intended for use in closed heating systems.

Single-tube system
We recommend using single-tube valves with an adjustable bypass or a ballast system (riser), i.e. with an adjustable water volume over the radiator. Essentially, a reduced output of at least 25% must be considered when using single-tube lance valves. Function is often guaranteed only for certain models and up to specific lengths. Maximum lengths and an indication of how the radiators function with various makes of valve is available on request.

Special finish
See “Finish” and “Colours”.

Special versions

Product/product family	angled	bevelled	curved	Galva-nised
Zehnder Timia	-	-	-	-

Standard thermal output
The standard thermal output of a radiator is determined in an independent, certified test laboratory according to standard EN 442 at the standard operating temperatures of 75/65/20 °C. The conversion of the thermal output to other system temperatures is done on the basis of the standard thermal output according to EN 12831.
For easy dimensioning, additional outputs for frequently used temperatures are shown alongside the standard thermal output:
• 70/55/20 °C
• 55/45/20 °C

[1] Only horizontal, single-layer models
[2] Height max. 420 mm
[3] Only models with 4 mm gap
[4] Only vertical models
[5] Only single-layer models without fins

Standard colour/finish
The standard colour for Zehnder radiators is RAL 9016. Exceptions: Zehnder Fare Tech, Zehnder Alura Tech RAL 9010. For more information, see “Painting”.
Storage

Keyword list

Zehnder radiators must be stored for the long-term or temporarily in dry and chemical-free rooms.

Structural finish
See “Finish”.

Surface protection
We recommend that installation areas affected by damp or chemicals are only fitted with radiators that are galvanised and then given a powder coating. A polyzinc coating with subsequent powder-coating increases the corrosion protection of the radiator, depending on the surface geometry. Possible applications are available on request. (see also Galvanising)

System temperatures
These are the temperatures at which the hot water heating system is operated (flow, return and room temperature).

Technical specifications
The dimensions indicated in the documentation are correct at the time of printing. We reserve the right to make amendments that improve the product.

Technoline
See “Colours”

Test pressure
Each radiator is checked for leaks by subjecting it to 1,3 times its rated maximum operating pressure before delivery. For orders that do not indicate the required operating pressure, the radiator will be delivered with the operating pressure of the standard version.

Thermal output Φ
The thermal output of a radiator model is given by the standard characteristic curve:

$$\Phi = K_M \cdot \Delta T^n$$

EN 442 defines the test procedure and the measurement method in identically arranged test laboratories. A single, pan-European measuring method therefore replaces the previous measurements that varied from country to country.

The output given under the following conditions in accordance with EN 442 applies as the nominal heat output Φ_s:

Flow temperature	t_1	= 75 °C
Return temperature	t_2	= 65 °C
Mean water temperature	t_m	= 70 °C
Room temperature	t_r	= 20 °C
Excess temperature (t_m - t_r)	ΔT	= 50 K

Thermal outputs Φ (different ΔT than 50 K)
For all excess temperatures other than ΔT_n = 50 K, the thermal output is calculated in accordance with the formulae

$$\Phi = \Phi_s \times f_1 \text{ or } \Phi = \Phi_s \times \left(\frac{\Delta T}{\Delta T_n}\right)^n$$

ΔT is to be calculated logarithmically as follows:

$$\Delta T = \frac{(t_1 - t_r) - (t_2 - t_r)}{\ln\left(\frac{t_1 - t_r}{t_2 - t_r}\right)} = \frac{t_1 - t_2}{\ln\left(\frac{t_1 - t_r}{t_2 - t_r}\right)}$$

The excess temperature ΔT_n under standard conditions (75/65/20 °C) is, as a logarithmic excess temperature

$$\Delta T_n = \frac{75 - 65}{\ln\left(\frac{75 - 20}{65 - 20}\right)} = 49{,}83 \text{ K}$$

The entire calculation process can be avoided by using the tables on page 28/29.
These can be used to directly read off the f1 factor for known system temperatures (t_1, t_2, t_r) and radiator exponents. For other system temperatures, f_1 must be determined mathematically according to the specified formulae.

Examples for the dimensioning of radiators

1. Example of Zehnder Timia:

Model ROHT-185-062, length 617 mm
Φs = 988 W, exponent n = 1,21
t1 = 70 °C, t2 = 50 °C, tr = 22 °C
Determine the f1 factor from the table on page 28/29.
Φ = 988 W x 0,702 = 694 W

Tolerances
Industry standard tolerances and tolerances based on production technology are subject to change for all indicated dimensions and fall within the tolerances defined in EN 442. The maximum tolerance must be considered during pre-assembly of the pipework or fixing materials. We reserve the right to make technical amendments during the validity of the documentation as part of product improvement.

VDI 6036
Application of the directive VDI 6036 assists all participants in the process to make a comprehensive and comparable assessment of the installation situation. As an accepted rule of technology, this directive and the resulting assessment can also be drawn on for regulation purposes in the event of damages. Directive VDI 6036 classifies applications for radiator fastenings into various requirements classes with different loads. Additional loads for various intensities of misuse can be added to the net weight and water content of the radiator as required. Zehnder issues standard assignment recommendations for requirements class 2, and for stable wall constructions (e.g. concrete) for selected fixing pieces - unless otherwise marked. Assignment recommendations for requirements class 3 and for special custom applications (requirements class 4) on request.
Example applications from VDI 6036:

Requirements class 2 (normal and increased requirements): owner-occupied homes, rented flats, kindergartens, hospitals, retirement and nursing homes, office buildings, doctors’ surgeries/ lawyers offices, retail outlets.
Requirements class 3 (high-level requirements): schools, sports facilities, youth centres, meeting places, railway stations, barracks
Requirements class 4 (very high-level requirements or special burdens): prisons, psychiatric institutions, special agreements

Wall clearance
This is the distance between the wall and the back of the radiator. For more information, see “Reduced output”.

Warranty
The warranty period shall be sixty (60) months from date of delivery to Buyer. Excluded are electrical radiators, electrical and electronic components. The warranty period for these products is twenty-four (24) months.

Water quality
Operating conditions and water quality according to VDI 2035 must be maintained. Claims under guarantee will be rejected if substances (e.g. chemicals, antifreeze, etc.) are added to the heating water which have an aggressive effect on the sealing material.

Keyword list

In case of non compliance, no liability can be accepted in accordance with point 8 of our “General Sales and Delivery Conditions” for sealing material, nor for any resulting defects and consequences. Claims under guarantee in accordance with point 8 of our “General Sales and Delivery Conditions” will also be rendered invalid in case of:
- Operation with steam,
- Periodical or long-term draining of the system,
- Excessive sludge in the radiators and
- Occasional or constant seepage of oxygen into the system.

Wetrooms
See “Surface protection”

Legend

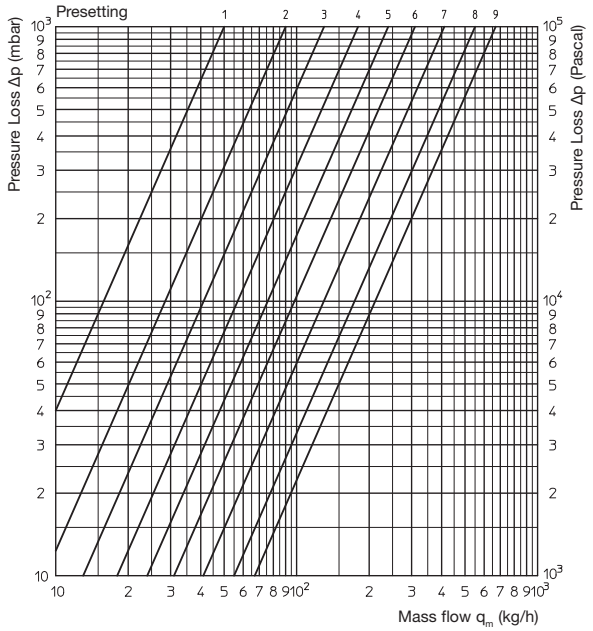
	Unit	
H	mm	Height
L	mm	Length
T	mm	Depth
H Lam.	mm	Height of fins
N	mm	Boss spacing
A	m^2	Surface
V	dm^3	Water content
M	kg	Empty weight
N_s	-	Number of elements
t_1	°C	Flow temperature
t_2	°C	Return temperature
t_r	°C	Room air temperature
t_m	°C	Mean water temperature $(t_1+t_2)/2$
ΔT	K	Excess temperature t_m - t_r
Φ	W=(J/s)	Thermal output
$Φ_s$	W	Nominal heat output
$Φ_L$	W	Nominal heat output of the module
C_p	J/(kg K)	Specific heat capacity
n	-	Radiator indicator, exponent
S_k	%	Proportion of radiation
C_k	-	Conversion factor to $Φ_s$
q_m	kg/h/(kg/s)	Water flow
q_{ms}	kg/h/(kg/s)	Nominal flow rate
v	m/s	Velocity
Δp	kPa	Pressure loss, pressure drop
ζ	-	Resistance coefficientNatural
ln	-	Natural logarithm

-Physical unit

°C	Degrees, Celsius
K	Kelvin, unit for temperature difference
m	Metres
mm	Millimetres
m/s	Metres/second, flow rate
Pa	Pascal, 1 Pa = 0,102 mmWS
mmWS	mm water column
W	Watt, unit of power 1 W = 0,6 kilocalories/hour old unit of power, 1 kcal/h = 1,163 W
c	Specific heat capacity of water = 1 kcal/kg K = 4,187 kJ/kg K
kJ	Kilojoule, 1 kJ = 0,239 kcal

Pressure loss diagram valves

Thermostatic valve (presetting Oventrop) AV9 for Metropolitan



Presetting	1	2	3	4	5	6	7	8	9
kv-value	0,05	0,09	0,14	0,20	0,26	0,32	0,43	0,57	0,67

Conversion table, f_1 factor

t_1	t_2 / t_r / n	75					70					65					60					55				
		1,20	1,25	1,30	1,35	1,40	1,20	1,25	1,30	1,35	1,40	1,20	1,27	1,30	1,35	1,40	1,20	1,25	1,30	1,35	1,40	1,20	1,25	1,30	1,35	1,40
90	10	1,562	1,591	1,621	1,651	1,682	1,491	1,516	1,542	1,568	1,594	1,419	1,449	1,462	1,483	1,505	1,346	1,363	1,380	1,397	1,414	1,270	1,283	1,296	1,309	1,322
	15	1,432	1,454	1,476	1,498	1,521	1,363	1,380	1,398	1,416	1,435	1,291	1,311	1,319	1,333	1,347	1,218	1,228	1,238	1,248	1,259	1,142	1,149	1,155	1,162	1,168
	18	1,356	1,373	1,390	1,408	1,426	1,286	1,300	1,313	1,327	1,341	1,215	1,229	1,235	1,245	1,255	1,142	1,148	1,155	1,161	1,168	1,066	1,069	1,072	1,075	1,078
	20	1,305	1,319	1,334	1,349	1,364	1,236	1,247	1,258	1,269	1,280	1,165	1,175	1,180	1,187	1,195	1,092	1,096	1,100	1,104	1,108	1,016	1,017	1,017	1,018	1,019
	22	1,254	1,266	1,278	1,290	1,303	1,185	1,194	1,202	1,211	1,220	1,115	1,122	1,125	1,130	1,135	1,042	1,043	1,045	1,047	1,049	0,966	0,964	0,963	0,962	0,960
	24	1,204	1,214	1,223	1,233	1,242	1,136	1,142	1,148	1,154	1,160	1,065	1,069	1,071	1,073	1,076	0,992	0,992	0,991	0,991	0,991	0,916	0,913	0,909	0,906	0,903
85	10	1,501	1,526	1,552	1,579	1,606	1,432	1,454	1,476	1,498	1,521	1,363	1,387	1,398	1,416	1,435	1,291	1,305	1,319	1,333	1,347	1,218	1,228	1,238	1,248	1,259
	15	1,372	1,391	1,409	1,428	1,447	1,305	1,319	1,334	1,349	1,364	1,236	1,251	1,258	1,269	1,280	1,165	1,172	1,180	1,187	1,195	1,092	1,096	1,100	1,104	1,108
	18	1,296	1,311	1,325	1,339	1,354	1,229	1,240	1,251	1,261	1,272	1,160	1,171	1,175	1,182	1,190	1,090	1,094	1,098	1,102	1,105	1,017	1,017	1,018	1,019	1,020
	20	1,246	1,258	1,269	1,281	1,293	1,179	1,187	1,196	1,204	1,212	1,111	1,118	1,121	1,125	1,130	1,040	1,042	1,044	1,045	1,047	0,967	0,966	0,964	0,963	0,962
	22	1,196	1,205	1,214	1,223	1,233	1,130	1,135	1,141	1,147	1,153	1,061	1,065	1,067	1,069	1,072	0,991	0,991	0,990	0,990	0,989	0,918	0,915	0,911	0,908	0,905
	24	1,147	1,153	1,160	1,166	1,173	1,080	1,084	1,087	1,091	1,094	1,012	1,013	1,013	1,014	1,014	0,942	0,940	0,937	0,935	0,933	0,869	0,864	0,859	0,854	0,849
80	10	1,439	1,461	1,483	1,505	1,528	1,372	1,391	1,409	1,428	1,447	1,305	1,325	1,334	1,349	1,364	1,236	1,247	1,258	1,269	1,280	1,165	1,172	1,180	1,187	1,195
	15	1,312	1,326	1,342	1,357	1,372	1,246	1,258	1,269	1,281	1,293	1,179	1,191	1,196	1,204	1,212	1,111	1,116	1,121	1,125	1,130	1,040	1,042	1,044	1,045	1,047
	18	1,236	1,247	1,258	1,270	1,281	1,171	1,179	1,187	1,195	1,203	1,105	1,111	1,114	1,119	1,124	1,037	1,038	1,040	1,041	1,043	0,966	0,965	0,964	0,962	0,961
	20	1,187	1,195	1,204	1,212	1,221	1,122	1,127	1,133	1,138	1,144	1,056	1,059	1,061	1,063	1,066	0,988	0,987	0,987	0,986	0,986	0,918	0,914	0,911	0,908	0,904
	22	1,137	1,143	1,149	1,156	1,162	1,073	1,076	1,079	1,082	1,086	1,007	1,008	1,008	1,008	1,008	0,939	0,937	0,934	0,932	0,930	0,869	0,864	0,859	0,854	0,849
	24	1,088	1,092	1,096	1,100	1,103	1,024	1,025	1,026	1,027	1,028	0,959	0,956	0,955	0,954	0,952	0,891	0,887	0,883	0,878	0,874	0,821	0,814	0,808	0,801	0,794
75	10						1,312	1,326	1,342	1,357	1,372	1,246	1,262	1,269	1,281	1,293	1,179	1,187	1,196	1,204	1,212	1,111	1,116	1,121	1,125	1,130
	15						1,187	1,195	1,204	1,212	1,221	1,122	1,130	1,133	1,138	1,144	1,056	1,058	1,061	1,063	1,066	0,988	0,987	0,987	0,986	0,986
	18						1,113	1,118	1,122	1,127	1,133	1,049	1,051	1,053	1,055	1,057	0,983	0,982	0,981	0,981	0,980	0,915	0,912	0,908	0,905	0,902
	20						1,064	1,066	1,069	1,072	1,075	1,000	1,000	1,000	1,000	1,000	0,935	0,932	0,929	0,927	0,924	0,867	0,862	0,857	0,852	0,847
	22						1,015	1,016	1,016	1,017	1,018	0,952	0,949	0,948	0,946	0,944	0,887	0,882	0,878	0,874	0,869	0,820	0,813	0,806	0,799	0,793
	24						0,967	0,966	0,964	0,963	0,962	0,904	0,899	0,897	0,893	0,889	0,839	0,833	0,827	0,821	0,815	0,772	0,764	0,756	0,748	0,740
70	10											1,187	1,198	1,204	1,212	1,221	1,122	1,127	1,133	1,138	1,144	1,056	1,058	1,061	1,063	1,066
	15											1,064	1,068	1,069	1,072	1,075	1,000	1,000	1,000	1,000	1,000	0,935	0,932	0,929	0,927	0,924
	18											0,991	0,991	0,990	0,990	0,990	0,928	0,925	0,922	0,919	0,917	0,863	0,858	0,853	0,847	0,842
	20											0,943	0,940	0,939	0,936	0,934	0,880	0,876	0,871	0,867	0,862	0,816	0,809	0,802	0,795	0,789
	22											0,896	0,890	0,887	0,883	0,879	0,833	0,827	0,821	0,815	0,808	0,769	0,761	0,752	0,744	0,736
	24											0,848	0,840	0,837	0,831	0,826	0,787	0,779	0,771	0,763	0,756	0,723	0,713	0,703	0,694	0,684
65	10																1,064	1,066	1,069	1,072	1,075	1,000	1,000	1,000	1,000	1,000
	15																0,943	0,941	0,939	0,936	0,934	0,880	0,876	0,871	0,867	0,862
	18																0,872	0,867	0,862	0,857	0,852	0,810	0,803	0,796	0,789	0,782
	20																0,825	0,818	0,812	0,805	0,799	0,763	0,755	0,746	0,738	0,730
	22																0,779	0,770	0,762	0,755	0,747	0,717	0,707	0,698	0,688	0,679
	24																0,733	0,723	0,714	0,705	0,696	0,672	0,661	0,650	0,639	0,629
60	10																					0,943	0,941	0,939	0,936	0,934
	15																					0,825	0,818	0,812	0,805	0,799
	18																					0,755	0,747	0,738	0,729	0,721
	20																					0,710	0,700	0,690	0,680	0,670
	22																					0,664	0,653	0,642	0,631	0,621
	24																					0,620	0,607	0,595	0,584	0,572

Conversion factor f_1 for converting the standard thermal output to EN 442 at 75/65/20 °C for other system temperatures: $\Phi = \Phi_s \cdot f_1$

$$f_1 = \left[\frac{(t_1 - t_2)}{\ln\left(\frac{t_1 - t_r}{t_2 - t_r}\right) \cdot 49{,}83\ \mathrm{K}} \right]^n$$

The radiator exponent depends on the model and type of radiator and can therefore be found in the table containing the technical specifications for the respective radiator. For exponents other than those given, the correction factor can be interpolated or precisely calculated according to the above formulae. An exponent of 1,3 can be used for the approximate calculation.

System temperatures not shown must be mathematically determined using the formulae given, or can be made available on request.

For more information about thermal outputs, see keyword list.

Legend

Icon	Unit	Description
t_1	°C	Flow temperature
t_2	°C	Return temperature
t_r	°C	Room air temperature
Φ	W = (J / s)	Thermal output
Φ_s	W	Nominal heat output
n	-	Radiator indicator, exponent
ln	-	Natural logarithm

Physical unit

K	Kelvin, unit for temperature difference

Conversion table, f_1 factor

t_1	t_r \ t_2 / n	50					45					40					35					30				
		1,20	1,25	1,30	1,35	1,40	1,20	1,25	1,30	1,35	1,40	1,20	1,25	1,30	1,35	1,40	1,20	1,25	1,30	1,35	1,40	1,20	1,25	1,30	1,35	1,40
90	10	1,193	1,201	1,210	1,219	1,228	1,112	1,117	1,122	1,127	1,132	1,028	1,029	1,030	1,031	1,032	0,939	0,937	0,934	0,932	0,929	0,844	0,839	0,833	0,827	0,821
	15	1,064	1,067	1,070	1,073	1,075	0,983	0,982	0,981	0,981	0,980	0,897	0,893	0,889	0,885	0,881	0,805	0,798	0,791	0,784	0,777	0,706	0,696	0,686	0,676	0,666
	18	0,988	0,987	0,987	0,986	0,986	0,906	0,902	0,898	0,894	0,891	0,819	0,812	0,805	0,798	0,792	0,725	0,715	0,706	0,696	0,687	0,621	0,608	0,596	0,585	0,573
	20	0,937	0,935	0,932	0,930	0,927	0,854	0,849	0,843	0,838	0,832	0,766	0,758	0,749	0,741	0,733	0,670	0,659	0,648	0,638	0,627	0,562	0,549	0,536	0,523	0,511
	22	0,887	0,882	0,878	0,874	0,869	0,803	0,796	0,789	0,781	0,774	0,714	0,704	0,694	0,684	0,675	0,615	0,603	0,591	0,579	0,567	0,502	0,487	0,473	0,460	0,447
	24	0,836	0,830	0,824	0,818	0,812	0,752	0,743	0,734	0,726	0,717	0,661	0,650	0,638	0,628	0,617	0,559	0,546	0,533	0,520	0,507	0,438	0,423	0,408	0,395	0,381
85	10	1,142	1,149	1,155	1,162	1,168	1,064	1,067	1,070	1,073	1,075	0,983	0,982	0,981	0,981	0,980	0,897	0,893	0,889	0,885	0,881	0,805	0,798	0,791	0,784	0,777
	15	1,016	1,017	1,017	1,018	1,019	0,937	0,935	0,932	0,930	0,927	0,854	0,849	0,843	0,838	0,832	0,766	0,758	0,749	0,741	0,733	0,670	0,659	0,648	0,638	0,627
	18	0,941	0,939	0,936	0,934	0,931	0,862	0,856	0,851	0,846	0,840	0,778	0,770	0,761	0,754	0,746	0,687	0,677	0,666	0,656	0,646	0,587	0,574	0,562	0,550	0,537
	20	0,891	0,887	0,883	0,878	0,874	0,811	0,804	0,797	0,790	0,784	0,726	0,717	0,707	0,698	0,689	0,634	0,622	0,611	0,599	0,588	0,531	0,517	0,503	0,490	0,477
	22	0,842	0,836	0,830	0,824	0,818	0,761	0,753	0,744	0,736	0,727	0,675	0,664	0,653	0,643	0,632	0,581	0,568	0,555	0,543	0,530	0,472	0,457	0,443	0,430	0,416
	24	0,792	0,785	0,777	0,770	0,762	0,711	0,701	0,691	0,682	0,672	0,624	0,612	0,600	0,588	0,577	0,526	0,512	0,499	0,486	0,473	0,410	0,395	0,381	0,367	0,354
80	10	1,092	1,096	1,100	1,104	1,108	1,016	1,017	1,017	1,018	1,019	0,937	0,935	0,932	0,930	0,927	0,854	0,849	0,843	0,838	0,832	0,766	0,758	0,749	0,741	0,733
	15	0,967	0,966	0,964	0,963	0,962	0,891	0,887	0,883	0,878	0,874	0,811	0,804	0,797	0,790	0,784	0,726	0,717	0,707	0,698	0,689	0,634	0,622	0,611	0,599	0,588
	18	0,893	0,889	0,885	0,881	0,877	0,817	0,810	0,803	0,797	0,790	0,736	0,727	0,718	0,709	0,700	0,649	0,638	0,627	0,615	0,604	0,554	0,540	0,527	0,514	0,502
	20	0,844	0,839	0,833	0,827	0,821	0,768	0,759	0,751	0,743	0,735	0,686	0,676	0,665	0,655	0,644	0,598	0,585	0,573	0,561	0,549	0,499	0,484	0,471	0,457	0,444
	22	0,796	0,788	0,781	0,773	0,766	0,719	0,709	0,699	0,690	0,680	0,636	0,624	0,613	0,601	0,590	0,546	0,532	0,519	0,506	0,494	0,442	0,427	0,413	0,399	0,386
	24	0,748	0,739	0,730	0,721	0,712	0,670	0,659	0,648	0,637	0,627	0,586	0,573	0,561	0,548	0,536	0,493	0,479	0,465	0,452	0,438	0,383	0,368	0,353	0,340	0,326
75	10	1,040	1,042	1,044	1,045	1,047	0,967	0,966	0,964	0,963	0,962	0,891	0,887	0,883	0,878	0,874	0,811	0,804	0,797	0,790	0,784	0,726	0,717	0,707	0,698	0,689
	15	0,918	0,914	0,911	0,908	0,904	0,844	0,839	0,833	0,827	0,821	0,768	0,759	0,751	0,743	0,735	0,686	0,676	0,665	0,655	0,644	0,598	0,585	0,573	0,561	0,549
	18	0,845	0,839	0,833	0,827	0,822	0,772	0,763	0,755	0,747	0,739	0,694	0,684	0,673	0,663	0,653	0,611	0,599	0,587	0,575	0,563	0,520	0,506	0,492	0,479	0,466
	20	0,797	0,789	0,782	0,775	0,767	0,723	0,714	0,704	0,695	0,685	0,645	0,634	0,622	0,611	0,600	0,561	0,548	0,535	0,522	0,510	0,467	0,452	0,438	0,424	0,411
	22	0,749	0,740	0,732	0,723	0,714	0,676	0,665	0,654	0,643	0,633	0,597	0,584	0,572	0,560	0,548	0,511	0,497	0,483	0,470	0,457	0,412	0,397	0,383	0,369	0,355
	24	0,702	0,692	0,682	0,672	0,662	0,628	0,616	0,604	0,592	0,581	0,548	0,535	0,521	0,508	0,496	0,460	0,445	0,431	0,417	0,404	0,355	0,340	0,326	0,312	0,299
70	10	0,988	0,987	0,987	0,986	0,986	0,918	0,914	0,911	0,908	0,904	0,844	0,839	0,833	0,827	0,821	0,768	0,759	0,751	0,743	0,735	0,686	0,676	0,665	0,655	0,644
	15	0,867	0,862	0,857	0,852	0,847	0,797	0,789	0,782	0,775	0,767	0,723	0,714	0,704	0,695	0,685	0,645	0,634	0,622	0,611	0,600	0,561	0,548	0,535	0,522	0,510
	18	0,796	0,788	0,781	0,773	0,766	0,726	0,716	0,707	0,697	0,688	0,652	0,640	0,629	0,618	0,607	0,572	0,559	0,546	0,534	0,522	0,485	0,471	0,457	0,443	0,430
	20	0,749	0,740	0,731	0,722	0,713	0,678	0,668	0,657	0,646	0,636	0,604	0,592	0,579	0,567	0,555	0,524	0,510	0,496	0,483	0,470	0,434	0,419	0,405	0,391	0,378
	22	0,702	0,692	0,682	0,672	0,662	0,632	0,620	0,608	0,596	0,585	0,557	0,543	0,530	0,517	0,505	0,475	0,460	0,446	0,433	0,420	0,382	0,367	0,352	0,338	0,325
	24	0,656	0,644	0,633	0,622	0,611	0,585	0,572	0,560	0,547	0,535	0,509	0,495	0,482	0,468	0,455	0,426	0,411	0,397	0,383	0,369	0,327	0,312	0,298	0,284	0,272
65	10	0,935	0,932	0,929	0,927	0,924	0,867	0,862	0,857	0,852	0,847	0,797	0,789	0,782	0,775	0,767	0,723	0,714	0,704	0,695	0,685	0,645	0,634	0,622	0,611	0,600
	15	0,816	0,809	0,802	0,795	0,789	0,749	0,740	0,731	0,722	0,713	0,678	0,668	0,657	0,646	0,636	0,604	0,592	0,579	0,567	0,555	0,524	0,510	0,496	0,483	0,470
	18	0,746	0,737	0,728	0,719	0,710	0,679	0,668	0,657	0,647	0,636	0,608	0,596	0,584	0,572	0,560	0,533	0,519	0,506	0,493	0,480	0,450	0,436	0,421	0,408	0,394
	20	0,699	0,689	0,679	0,669	0,659	0,633	0,621	0,609	0,597	0,586	0,562	0,549	0,536	0,523	0,511	0,486	0,472	0,458	0,444	0,431	0,401	0,386	0,372	0,358	0,344
	22	0,654	0,642	0,631	0,620	0,609	0,587	0,574	0,561	0,549	0,537	0,516	0,502	0,488	0,475	0,462	0,439	0,424	0,410	0,396	0,382	0,351	0,336	0,321	0,308	0,295
	24	0,608	0,596	0,584	0,572	0,560	0,542	0,528	0,515	0,502	0,489	0,470	0,456	0,441	0,428	0,415	0,391	0,376	0,362	0,348	0,335	0,299	0,284	0,270	0,257	0,244
60	10	0,880	0,876	0,871	0,867	0,862	0,816	0,809	0,802	0,795	0,789	0,749	0,740	0,731	0,722	0,713	0,678	0,668	0,657	0,646	0,636	0,604	0,592	0,579	0,567	0,555
	15	0,763	0,755	0,746	0,738	0,730	0,699	0,689	0,679	0,669	0,659	0,633	0,621	0,609	0,597	0,586	0,562	0,549	0,536	0,523	0,511	0,486	0,472	0,458	0,444	0,431
	18	0,694	0,684	0,674	0,664	0,654	0,631	0,619	0,607	0,596	0,584	0,564	0,551	0,538	0,525	0,513	0,493	0,479	0,465	0,451	0,438	0,415	0,400	0,386	0,372	0,358
	20	0,649	0,638	0,626	0,615	0,604	0,586	0,573	0,560	0,548	0,536	0,519	0,505	0,492	0,478	0,465	0,447	0,433	0,418	0,405	0,391	0,368	0,353	0,338	0,324	0,311
	22	0,604	0,592	0,579	0,567	0,556	0,541	0,528	0,514	0,501	0,489	0,474	0,460	0,446	0,432	0,419	0,402	0,387	0,372	0,359	0,345	0,319	0,305	0,290	0,277	0,264
	24	0,560	0,546	0,533	0,521	0,508	0,497	0,483	0,469	0,455	0,442	0,430	0,415	0,401	0,387	0,374	0,356	0,341	0,327	0,313	0,300	0,270	0,256	0,242	0,229	0,217
55	10	0,825	0,818	0,812	0,805	0,799	0,763	0,755	0,746	0,738	0,730	0,699	0,689	0,679	0,669	0,659	0,633	0,621	0,609	0,597	0,586	0,562	0,549	0,536	0,523	0,511
	15	0,710	0,700	0,690	0,680	0,670	0,649	0,638	0,626	0,615	0,604	0,586	0,573	0,560	0,548	0,536	0,519	0,505	0,492	0,478	0,465	0,447	0,433	0,418	0,405	0,391
	18	0,642	0,630	0,619	0,607	0,596	0,582	0,569	0,556	0,544	0,532	0,519	0,505	0,491	0,478	0,465	0,452	0,437	0,423	0,409	0,396	0,379	0,364	0,350	0,336	0,322
	20	0,597	0,585	0,572	0,560	0,548	0,538	0,524	0,511	0,498	0,485	0,475	0,461	0,447	0,433	0,420	0,408	0,393	0,379	0,365	0,351	0,334	0,319	0,304	0,291	0,278
	22	0,553	0,540	0,527	0,514	0,501	0,494	0,480	0,466	0,453	0,440	0,432	0,417	0,403	0,389	0,375	0,364	0,349	0,335	0,321	0,308	0,288	0,273	0,259	0,246	0,234
	24	0,510	0,496	0,482	0,469	0,456	0,451	0,437	0,422	0,409	0,395	0,389	0,374	0,359	0,346	0,332	0,320	0,306	0,291	0,278	0,265	0,241	0,227	0,214	0,202	0,190
50	10						0,710	0,700	0,690	0,680	0,670	0,649	0,638	0,626	0,615	0,604	0,586	0,573	0,560	0,548	0,536	0,519	0,505	0,492	0,478	0,465
	15						0,597	0,585	0,572	0,560	0,548	0,538	0,524	0,511	0,498	0,485	0,475	0,461	0,447	0,433	0,420	0,408	0,393	0,379	0,365	0,351
	18						0,532	0,518	0,504	0,491	0,478	0,473	0,458	0,444	0,430	0,417	0,410	0,395	0,381	0,367	0,354	0,342	0,327	0,313	0,299	0,286
	20						0,488	0,474	0,460	0,447	0,433	0,430	0,415	0,401	0,387	0,374	0,368	0,353	0,338	0,324	0,311	0,299	0,284	0,270	0,257	0,244
	22						0,446	0,431	0,417	0,403	0,390	0,388	0,373	0,358	0,345	0,331	0,325	0,311	0,296	0,283	0,270	0,255	0,241	0,228	0,215	0,203
	24						0,404	0,389	0,375	0,361	0,347	0,346	0,331	0,317	0,303	0,290	0,284	0,269	0,255	0,242	0,230	0,211	0,198	0,186	0,174	0,163
45	10											0,597	0,585	0,572	0,560	0,548	0,538	0,524	0,511	0,498	0,485	0,475	0,461	0,447	0,433	0,420
	15											0,488	0,474	0,460	0,447	0,433	0,430	0,415	0,401	0,387	0,374	0,368	0,353	0,338	0,324	0,311
	18											0,425	0,410	0,396	0,382	0,368	0,367	0,352	0,338	0,324	0,311	0,304	0,290	0,276	0,262	0,250
	20											0,383	0,368	0,354	0,340	0,327	0,326	0,311	0,297	0,283	0,270	0,263	0,249	0,235	0,223	0,210
	22											0,342	0,327	0,313	0,299	0,286	0,285	0,271	0,257	0,244	0,232	0,222	0,208	0,196	0,184	0,173
	24											0,302	0,288	0,274	0,260	0,248	0,246	0,232	0,218	0,206	0,194	0,181	0,168	0,157	0,146	0,136
40	10																0,488	0,474	0,460	0,447	0,433	0,430	0,415	0,401	0,387	0,374
	15																0,383	0,368	0,354	0,340	0,327	0,326	0,311	0,297	0,283	0,270
	18																0,322	0,307	0,293	0,280	0,267	0,265	0,251	0,238	0,225	0,213
	20																0,283	0,268	0,254	0,241	0,229	0,226	0,212	0,200	0,188	0,176
	22																0,244	0,230	0,217	0,204	0,193	0,187	0,175	0,163	0,152	0,142
	24																0,206	0,193	0,180	0,169	0,158	0,149	0,138	0,127	0,117	0,108

Notes

Functional principle

ComfoFond
Geothermal heat exchanger (optional)

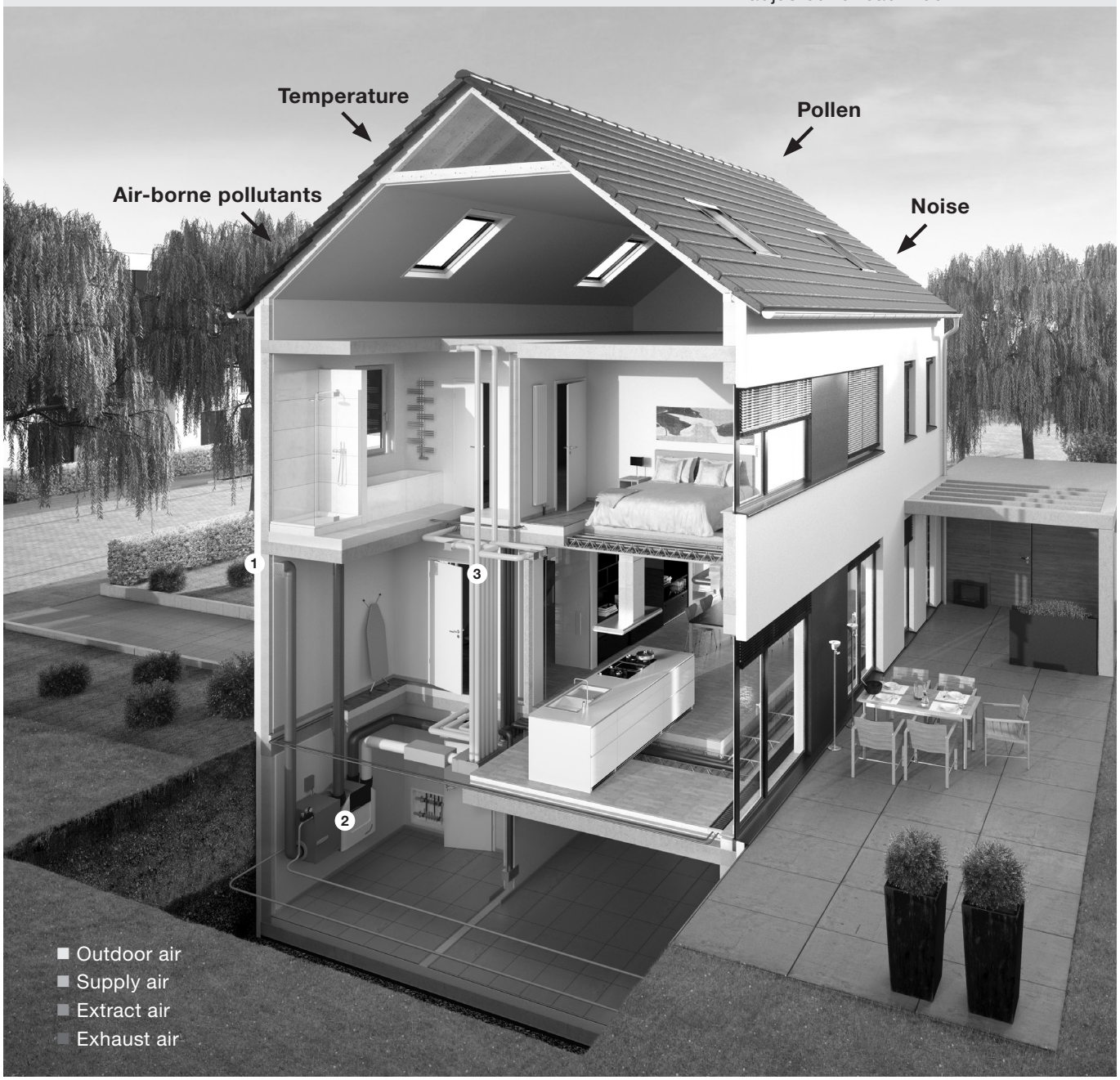
ComfoUnit
Ventilation units

ComfoFresh
Air distribution

1. Fresh air is fed into the system via an external wall vent. The fresh outdoor air can optionally flow through the Zehnder ComfoFond-L sub-soil heat exchanger, which uses geothermal energy to pre-temper the outdoor air.

2. The Zehnder ComfoAir ventilation unit recovers up to 95% of the energy from the extract air and returns it to the fresh air. This can be humidified, dehumidified and pre-tempered using optional components.

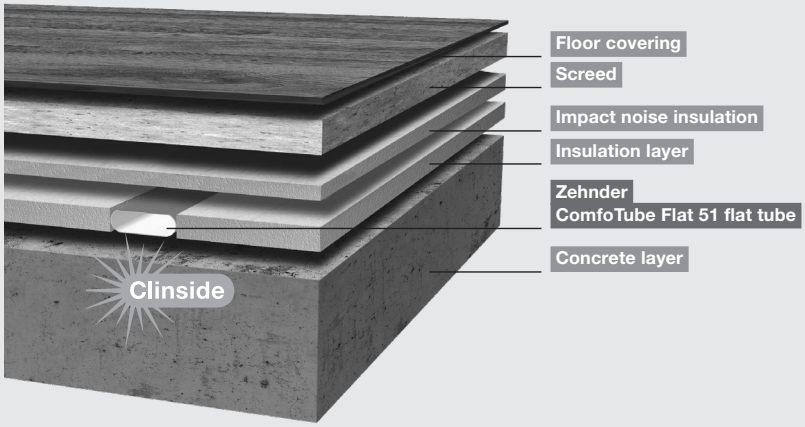
3. The Zehnder ComfoFresh air distribution system channels fresh air at the right temperature to individual rooms as needed and vents the extract air to the outside. The air volume can be individually adjusted for each room.



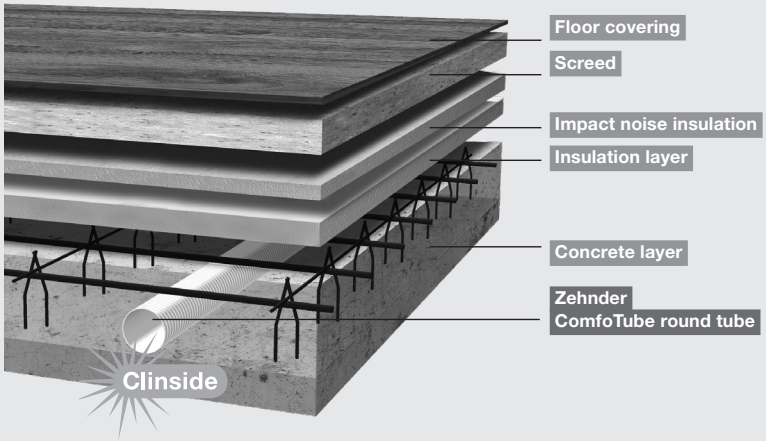
Air distribution system – effective and hygienic

There are two versions of air distribution systems available: Zehnder OnFloor and InFloor. In both cases, the volume of air is regulated as required. They are characterised by the ease with which they can be integrated into the building and their rapid installation. In the case of Zehnder OnFloor, fresh air flows through flat, oval ducts with an internal coating, which are installed in the insulation layer of the unfinished floor.
Zehnder InFloor functions on the same principle, only the round tubes are laid in the unfinished floor.
Both versions Zehnder InFloor and OnFloor can be combined and thus offer maximum versatility.

The air distribution system with flat tube for cover, wall and floor (Zehnder OnFloor)



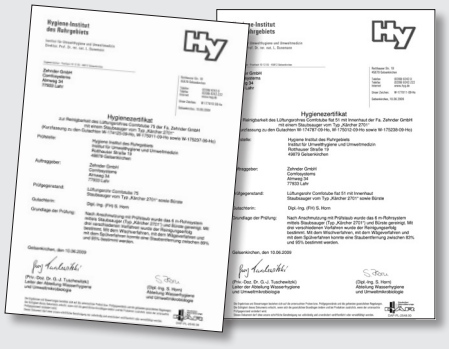
The air distribution system with round tube for cover, wall and floor (Zehnder InFloor)



- Easy to install, flexible pipes
- High-quality food grade plastic (HDPE)
- Clinside smooth inner skin for clean tubes
- Centrally and peripherally adjustable airflow rates
- Low pressure loss
- Easy to clean

Clean thanks to Clinside: The smooth inner skin prevents the build-up of dust. Cleaning is easy.

Tested cleaning ability



Certificates issued by a recognised hygiene institute.

Advantages

- Optimum oxygen and draught-free air supply promote your health
- Hypo-allergenic
- Filtering out pollutants
- Retention of the property's value by preventing mould from developing in the building's basic structure
- Energy saving through heat recovery
- Protects against outside noise

Zehnder ComfoAir ventilation units

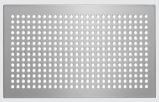
- For use in demanding residential and commercial buildings
- Up to 95% heat recovery by cross-counterflow heat exchanger
- Fans with extremely efficient EC motors
- 100% automatic bypass
- Option: Electric pre-heater or enthalpy exchanger

Zehnder ComfoAir Q350 TR

Passive house certified

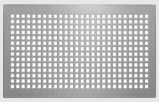
Zehnder designer grilles

- Elegant and discreet
- For every interior
- Surface-mounted and flush-mounted version
- Available in white or stainless steel
- Suitable for displacement ventilation

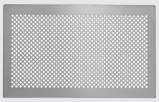


Zehnder Roma

Zehnder Pisa



Zehnder Torino



Zehnder Venezia

Zehnder Sans soucis

Zehnder Sacré coeur

Colour system - Design radiators made to measure

Standard

Traffic White
9016* / RAL 9016
EDI-Code: B1

Colour category 1

Includes the selection of special colours shown here, **surcharge on the standard finish: 20%**.

Architectural

Pure White
9010* / RAL 9010
EDI-Code: B4

Anthracite Grey
7016* / RAL 7016
EDI-Code: AW

Traffic Black (matt)
9217
EDI-Code: B5

Jet Black
9005* / RAL 9005
EDI-Code: B3

Natural

Edelweiss
0067
EDI-Code: 67

Cream
9001* / RAL 9001
EDI-Code: AZ

Pergamon
0081*
EDI-Code: AI

Jasmin
0072
EDI-Code: 72

Oyster White
1013* / RAL 1013
EDI-Code: AJ

Grey White
9002* / RAL 9002
EDI-Code: B2

Manhattan
0077*
EDI-Code: A8

Natura
0035*
EDI-Code: 35

Bahama
0054*
EDI-Code: 54

Chocolate Brown
8017* / RAL 8017
EDI-Code: AY

Tonic

Traffic Yellow
1023* / RAL 1023
EDI-Code: AL

Flame Red
3000* / RAL 3000
EDI-Code: AN

Ruby Red
3003* / RAL 3003
EDI-Code: AO

Colour category 2

Includes the following selection of colours, **surcharge on the standard finish: 30%**.
All other special colours in the RAL, RAL-D, NCS-S, Sanitary, DB colour systems are also available as required, surcharge on request.

Architectural

White Matt
0556
EDI-Code: DF

White Quartz
0521
EDI-Code: DC

White Aluminium
9006*
EDI-Code: A7

Titane
0335*
EDI-Code: A5

Grey Aluminium
9007*
EDI-Code: A3

Anthracite
0346
EDI-Code: A1

Volcanic
0336
EDI-Code: A6

Black Matt
0557
EDI-Code: DG

Black Quartz
0550
Code: DD

Traffic Black Matt (glossy finish)
RAL 9017

Natural

Chinchilla
0064
EDI-Code: 64

Petal
0510*
EDI-Code: D2

Sand Quartz
0522
EDI-Code: BA

Beige Quartz
0523
EDI-Code: BB

Caramel Quartz
0511
EDI-Code: D3

Terracotta Quartz
0512
EDI-Code: D4

Gold Look
0514*
EDI-Code: D5

Brown Quartz
0529
EDI-Code: BH

Dark Brown
0847
EDI-Code: BK

Tonic

Lemon
0515*
EDI-Code: D6

Orange Quartz
0528
EDI-Code: BG

Lichen
8723 / NCS-S-2010-G60Y
EDI-Code: BQ

Spring Green
0846
EDI-Code: BI

Mauve
0517*
EDI-Code: D8

Violet
0518*
EDI-Code: D9

Strawberry
3770 / NCS-S-2065-R20B
EDI-Code: BN

Dark Purple
0848
EDI-Code: BL

Amethyst Quartz
0516
EDI-Code: D7

Pacific Blue
0519
EDI-Code: DA

Horizon Blue
0520*
EDI-Code: DB

Prussian Blue
0555*
EDI-Code: DE

Explanation

Colour name
Zehnder no./Colour standard
Zehnder EDI code

* These colours have a glossy finish, all others are matt.

Due to different manufacturing techniques of the original colours, deviations can occur in colour and polish.
RAL and NCS are designations from the manufacturer. Special colours on request.

Z-SI-V0721-RAD-PRL-Timia, en, subject to change without notice

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