

# THE PERIMETER HEATING COMPANY



TRENCH HEATING PRODUCT BROCHURE

Trench heaters are installed under perimeter glazing to form a continuous thermal barrier, preventing the formation of condensation and from cold air reaching the building occupants. Originally designed as a secondary heat source to combat draughts from full height glazing, larger trench heaters are becoming more popular as the greater heat output reduces the requirement for additional heating appliances within the space.

In addition to this, the combination of architects' requirements for the slimline, unobtrusive grilles they had come accustomed too and consultant requirements to produce all heating needs from a single product, fan assisted models were developed. Product capabilities were then pushed further with the creation of heating and cooling models.

The Perimeter Heating Company's range of trench heating is a high performance, energy efficient solution for use in front of full height glazing, suited for use in offices, retail outlets, reception areas and domestic properties and are available as Fan Assisted, Natural Convection and Heating & Cooling models.



Our wide range of standard heights and widths will fit with most site requirements and on occasion where standard models will not suit the site parameters, our experienced engineers will design a bespoke system for you.

The Perimeter Heating Company recognises that trench heating is a product which, more than most, must be tailored to meet the parameters of each specific project. If you require a grille oversail to avoid obstacles within the floor void, The Perimeter Heating Company can accommodate. We will work tirelessly to perform as well as our products, combining technical requirements with design aesthetics to produce results that are exquisite to look at and perform as expected.

Within this brochure you will find cross sections for all standard models for your information. Please call 07803 307 373 to discuss your specific project requirements or forward an enquiry to [sales@perimeterheating.com](mailto:sales@perimeterheating.com) along with as much information as possible for a specification document and/or quotation.

## Contents

TPHC-01 To -06 Natural Convection Trench Heating	2
TPHC-01 To -06 Product Selection, correction factors and finishes	3
TPHC-07 Natural Convection Trench Heating Modules	4
TPHC-08 Fan Assisted Trench Heating Modules	5
TPHC-E7 & E8 Electric Trench Heating Modules	6
TPHC-09 Heating & Cooling Trench Modules	7
Easy Connect and Grille Options for -07/E7, -08/E8 and 09	9

# TPHC-01 To -06 Natural Convection Trench Heating

This versatile range of trench heating units is unsurpassed in its strength and reliability, using only premium materials to produce high output natural convection units. The casings are manufactured from 1.2mm Zintec sheet. The heating coils are finned with 0.5mm H14 aluminium, specifically manufactured for its peak heat transference properties. The grilles are manufactured from T6 Hardened aluminium for optimal strength and anodised to AA15 for a hard finish suitable for heavy interior use, assembled onto black corrosion proof flexible rods.

Trench sections are installed on site with telescopic joints offering the ability to accommodate almost any site changes that are made during manufacture or even as late as installation itself. Casing end plates offer 0-15mm adjustment and the telescopic joining straps offer 0-45mm adjustment. *(For example, casings supplied for a 10 metre run length would fit in a space 125mm shorter or 85mm longer, without the requirement to re-make sections).* The aluminium grille frame profile, which is manufactured to the same high specification finish as the grille, is then fitted in 3m lengths wherever possible to reduce the visible joins.

Height adjustment can range from 0-25mm with the standard levelling feet and up to 80mm with longer options selected. Larger floor voids can be accommodated with Raised Floor Top Hats, please advise floor depth during enquiry to ensure the correct levelling option is selected during quotation.

Heating coils for this model are supplied with plain copper ends in standard 15 or 22mm tubes for joining on site, allowing for continuous runs of indefinite length. It is recommended that continuous runs over 10 metres in length should incorporate expansion bellows within the trench heater. Valves, joints and expansion bellows are supplied and fitted by others.

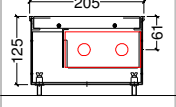
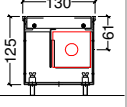
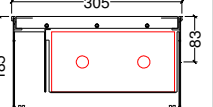
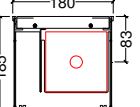
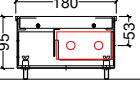
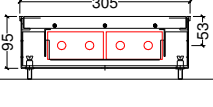
Curved units, corners and cut outs are available along with a range of anodised and wood finish grilles.





# Product Selection

TABLE 1

MODEL	TPHC-01	TPHC-02	TPHC-03	TPHC-04	TPHC-05	TPHC-06
DIMENSIONS WxH(mm)	205x125	130x125	305x185	180x185	180x95	305x95
CROSS SECTION						
ELEMENT TYPE	22-WSCU	22-SLS	22-XCT	22-XCU	15-SLE	2 x 15-SLE
OUTPUT (w/m)	690	430	1180	790	250	350

Stated outputs at 82/71/18°C and flow rate of 0.92m/s, Watts/metre based on finned length. For MWT and Flow Rate correction factors refer to Tables 2 and 3.

Correction Factor applied to outputs in TABLE 1

TABLE 2

Room Temp. °C	Mean Water Temperature (°C)										
	35	40	45	50	55	60	65	70	75	76.5	80
16	0.21	0.29	0.37	0.47	0.59	0.68	0.79	0.90	1.10	1.06	1.20
18	0.18	0.26	0.34	0.43	0.52	0.64	0.75	0.85	0.96	1.00	1.07
20	0.16	0.23	0.31	0.39	0.50	0.60	0.70	0.80	0.92	0.95	1.03
22	0.13	0.20	0.28	0.36	0.46	0.57	0.66	0.77	0.88	0.91	0.99

TABLE 3

Flow Rate l/s		Correction Factor	Water Velocity m/s
15mm Pipe	22mm Pipe		
0.007	0.017	0.84	0.05
0.014	0.034	0.90	0.10
0.036	0.085	0.94	0.25
0.072	0.170	0.97	0.50
0.130	0.310	1.00	0.92
0.290	0.680	1.03	2.00



## Grille Options (Models TPHC-01 to -06 only)

TABLE 4

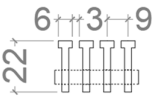
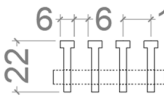
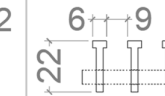
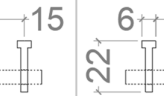
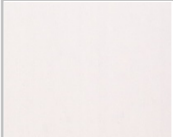
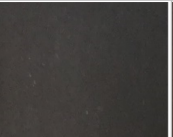
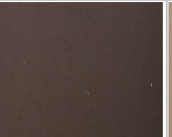

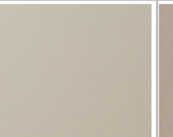
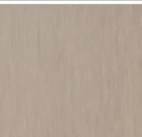
FREE AREA	30%	50%	60%	70%
CROSS SECTION				
TPHC-01	0.79	0.93	1.00	1.07
TPHC-02	0.87	0.95	1.00	1.05
TPHC-03	0.68	0.89	1.00	1.11
TPHC-04	0.82	0.93	1.00	1.06
TPHC-05	0.82	0.93	1.00	1.06
TPHC-06	0.68	0.89	1.00	1.11

TABLE 5

FINISH	SILVER	BLACK	BRONZE	IVORY	CHAMPAGNE	BRUSHED STAINLESS STEEL
						

Gold, Copper, Blue, Green & Grey anodised finishes available on special order.

# TPHC-07 Natural Convection Trench Heating

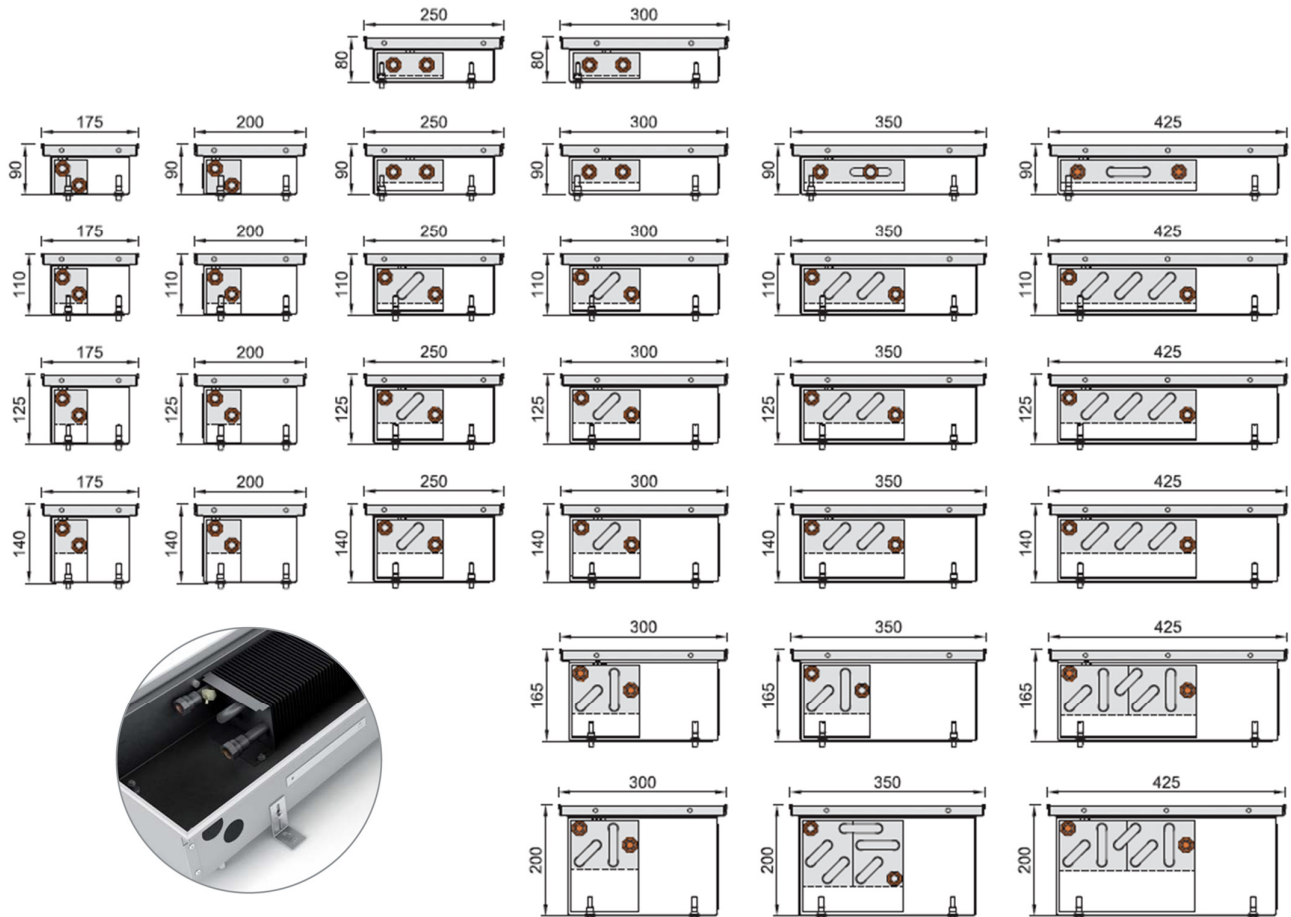
This extensive modular range of natural convection trench heating units offers fast and efficient installation. These pre-assembled units come complete, the factory fitted coils are finned with 0.35mm aluminium, come with ½" female fittings, air vents and drain points fitted and all factory tested. We also offer the option of easy connect on this product, see page 9 for details.

The roll up grilles are manufactured from quality aluminium and anodised to AA10 for a hard finish suitable for regular interior use, linked with loaded springs and hardened plastic spacers. Grilles are available as natural satin silver as standard, with alternative anodised options for black, bronze and stainless steel. Stainless steel and wood options are also available.

The aluminium grille frame profile, which is manufactured to the same high specification finish as the grilles, is factory fitted.

The casings are manufactured from 0.8mm Zintec sheet. All internal components are painted black. Height adjustment can range from 0-35mm with the standard levelling feet. Larger floor voids can be accommodated with Raised Floor Top Hats, please advise floor depth during enquiry to ensure the correct levelling option is selected during quotation. Active casing sections are available in lengths from 700mm to 4800mm in 100mm increments, though made to measure sections as well as curved, corner sections, dummy casing, grille cut outs and units with integrated power supplies are all available to suit requirements.

TABLE 6



For output selection please contact the office [sales@perimeterheating.com](mailto:sales@perimeterheating.com)

# TPHC-08 Fan Assisted Trench Heating

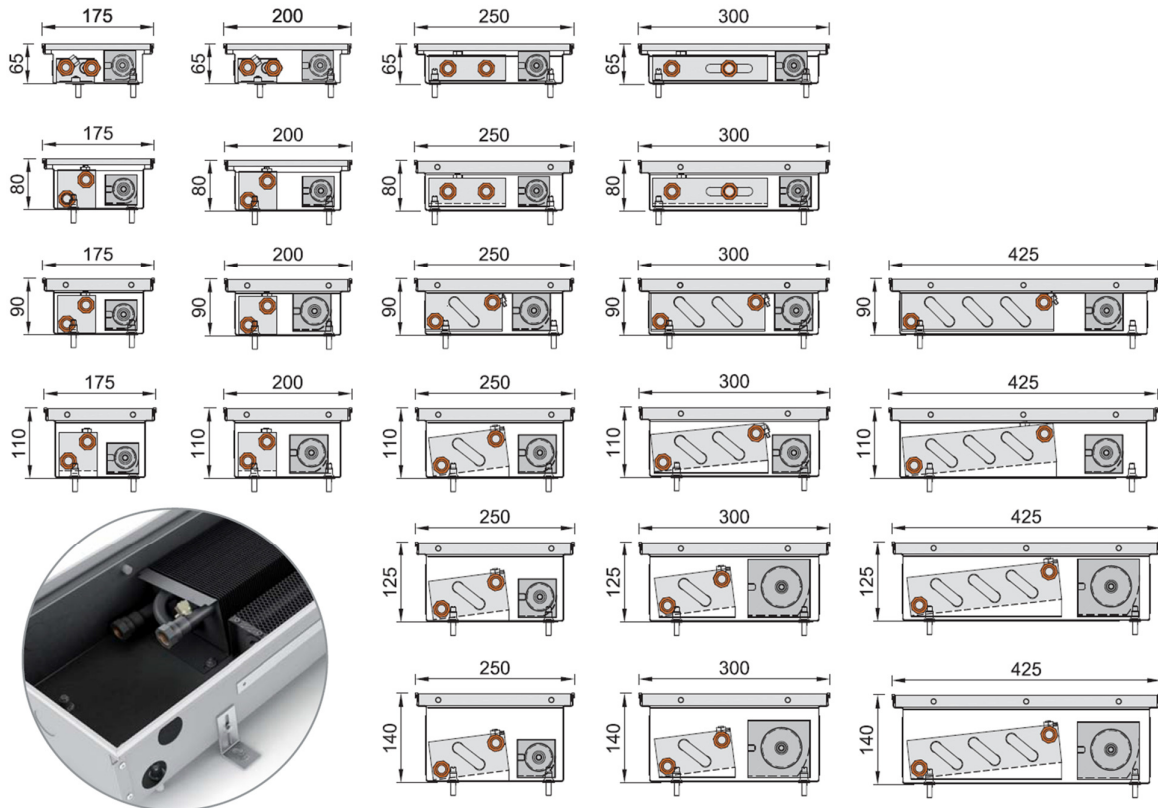
Another vast range, our modular fan assisted trench heating offers the same fast and efficient installation as the TPCH-07. They are also pre-assembled units that come complete, the factory fitted coils are finned with 0.35mm aluminium, come with ½" female fittings, air vents and drain points fitted and all factory tested. We also offer the option of easy connect on this product, see page 9 for details.

The addition of a 24v high efficiency EC crossflow fan to boost the output of the standard coil, allows for smaller unobtrusive units. The additional output can compensate for a lack of available floor depth or an aesthetic requirement for a narrower grille than achieved through natural convection models and reduced flow and return temperatures. Or a combination of all three.

The roll up grilles are manufactured from quality aluminium and anodised to AA10 for a hard finish suitable for heavy interior use, linked with loaded springs and hardened plastic spacers. Grilles are available as natural satin silver as standard, with alternative anodised options for black, bronze and stainless steel. Stainless steel and wood options are also available.

The casings are manufactured from 0.8mm Zintec sheet. All internal components are painted black. Height adjustment can range from 0-35mm with the standard levelling feet. Larger floor voids can be accommodated with Raised Floor Top Hats, please advise floor depth during enquiry to ensure the correct levelling option is selected during quotation. Active casing sections are available in lengths from 700mm to 4800mm in 100mm increments, though made to measure sections as well as curved, corner sections, dummy casing, grille cut outs and units with integrated power supplies are all available to suit requirements.

TABLE 7



For output selection please contact the office [sales@perimeterheating.com](mailto:sales@perimeterheating.com)

# Electric Trench Heating

Electric trench heaters are normally installed directly in front of large glass surfaces. The advantage of electric-only heaters lies in their independence of forced-circulation heating systems. The heat output produced by trench heaters is sufficient to be used either as the primary or secondary heat source. They make a perfect fit in the existing building space, in contemporary low-energy and passive homes, in electric-only houses, in buildings under construction and wherever connection to the heating system is not possible or desirable.

The family of electric trench heaters includes the TPHC-E7 model with natural convection and a fan-operated TPHC-E8 model. The trench heater includes a built in electric heating unit controlled by an electronic regulator. Fan assisted models feature a shrouded crossflow fan, designed to force air through the heating unit. The heaters utilise efficient EC motors supplied with safe 24 V DC voltage. The motors have very low power consumption. The fan speed is continuously regulated by a control voltage in the range from 0 to 10 V DC.

## Function

The trench heater is controlled via a room thermostat or 0-10 V DC higher-level regulation. The room thermostat ensures correct functioning, adjusts the difference between the pre-set and actual room temperature, activates the heating unit and regulates the fan speed based on the temperature difference and the set operation mode.



Operation of the heater is regulated by an electronic power controller located in each unit. The output of the heater (both the heating unit and the fan) is smoothly regulated ensuring that any changes in room temperature are continuously monitored and adjusted. This in turn significantly increases the room's thermal comfort. The same applies when using an appropriate control device such as the RTD201 digital thermostat.

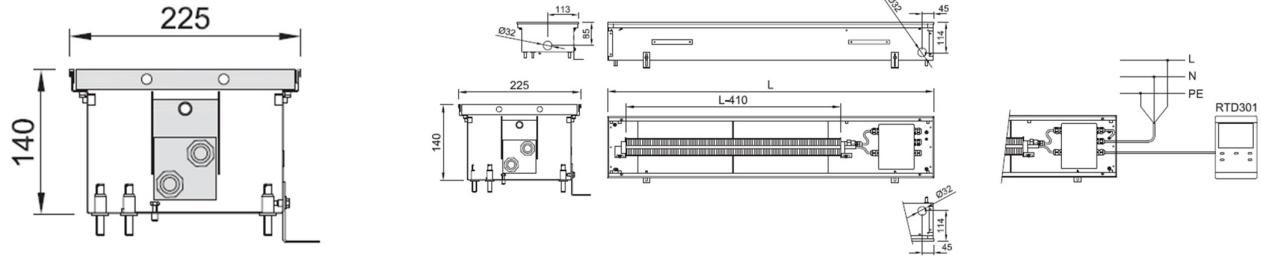
## Safety

The power electronics are placed in an IP44 aluminium box connected to the heating unit with the same degree of protection. The fan is powered by safe 24 V DC voltage. The electronics feature a multi-stage function control, including sensors installed above the heat exchanger. The regulating mechanism responds promptly to any changes in conditions if it detects a deviation from normal operation. Especially if the heater is accidentally covered by a rug or if the free air flow through the grille is otherwise impeded, it immediately switches the unit into a stand-by mode or shuts the heater down.

The designer grille is securely fixed to the unit and cannot be removed without the appropriate tool. Heat and safety sensors monitor the output temperature from the trench heater. The grille temperature will not exceed 45°C above the ambient temperature. (in accordance with EN 603335-1 and 603335-2-30).

## TPHC-E7 Natural Convection Electric Trench Heating

- 0.8mm galvanised steel construction, painted black internally.
- 0-35mm vertical adjustment. (Longer feet are available on request for larger floor voids).
- Independent operation on the central heating system.
- Silent operation.
- Heating element 230 V AC / 1 Phase / 50 Hz.
- Cable connections to the control regulation with IP44.
- Safety sensors along the entire length of the heating element.
- Galvanized steel casing with black spray layer inside, black cover plates of connection Room thermostat.
- Heating element with Al-Cu ribs and pipe with control and safety sensors, painted black.
- Design rigid walkable grille (AA10).
- Grille frame to match grille (AA10).
- Levelling screws for setting up the casing.
- Manual for the progress of work during installation and user manual.
- Electrical wiring diagram of the trench heaters.
- Transport package for protection against damage during transportation and handling.

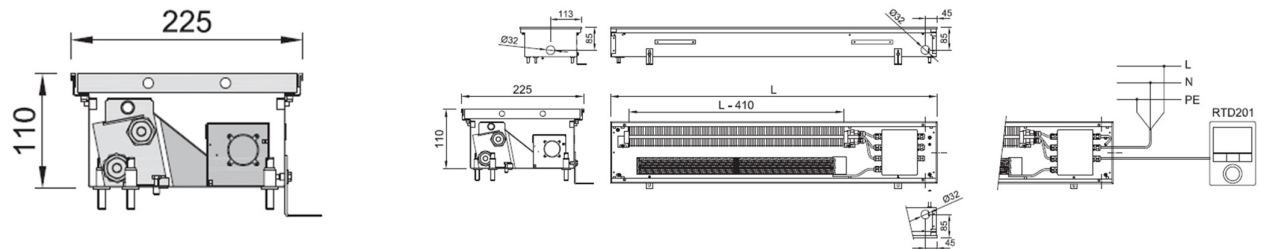


Length (mm)	Heat Output @ Specified Fan Speed Maximum
800	250
1200	500
1600	750
2000	1000

Heat Output can be continuously controlled with 0-10v output

## TPHC-E8 Fan Assisted Electric Trench Heating

- 0.8mm galvanised steel construction, painted black internally.
- 0-35mm vertical adjustment. (Longer feet are available on request for larger floor voids).
- Independent operation on the central heating system.
- Quiet operation.
- Heating element 230 V AC / 1 Phase / 50 Hz.
- Cable connections to the control regulation with IP44.
- Safety sensors along the entire length of the heating element.
- Galvanized steel casing with black spray layer inside, black cover plates of connection Room thermostat.
- Heating element with Al-Cu ribs and pipe with control and safety sensors, painted black.
- Design rigid walkable grille (AA10).
- Grille frame to match grille (AA10).
- Levelling screws for setting up the casing.
- Manual for the progress of work during installation and user manual.
- Electrical wiring diagram of the trench heaters.
- Transport package for protection against damage during transportation and handling.



Length (mm)	Heat Output @ Specified Fan Speed		
	Low	Medium	High
800	90	340	550
1200	165	620	1000
1600	260	990	1600
2000	360	1360	2200

Heat Output can be continuously controlled with 0-10v output



# TPHC-09 Heating & Cooling Trench

Our range of modular fan assisted heating and cooling trench offers fast and efficient installation. They are pre-assembled units that come complete, the factory fitted coils are finned with 0.35mm aluminium, come with ½" female fittings, air vents and drain points fitted and all factory tested. We also offer the option of easy connect on this product, see page 9 for details.

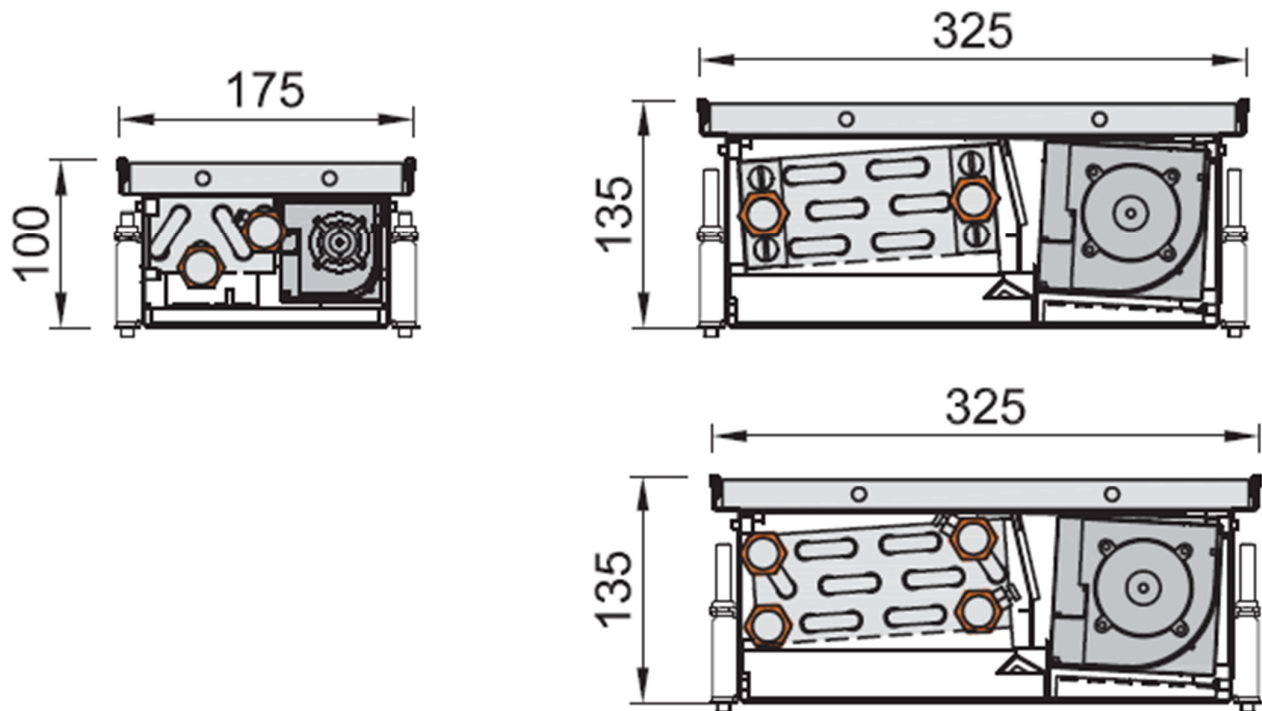
The 24v high efficiency EC crossflow fans allow for efficient heating and cooling through the coil with 2 and 4 pipe options available to suit design requirements.

The roll up grilles are manufactured from quality aluminium and anodised to AA10 for a hard finish suitable for heavy interior use, linked with loaded springs and hardened plastic spacers. Grilles are available as natural satin silver as standard, with alternative anodised options for black, bronze and stainless steel. Stainless steel and wood options are also available.

The aluminium grille frame profile, which is manufactured to the same high specification finish as the grilles, is factory fitted.

The casings are manufactured from 0.8mm Zintec sheet. All internal components are painted black. Height adjustment can range from 0-35mm with the standard levelling feet. Larger floor voids can be accommodated with Raised Floor Top Hats, please advise floor depth during enquiry to ensure the correct levelling option is selected during quotation. Active casing sections are available in lengths from 800mm to 2800mm in 400mm increments, though made to measure sections as well as curved, corner sections, dummy casing, grille cut outs and units with integrated power supplies are all available to suit requirements.

TABLE 8



For output selection please contact the office [sales@perimeterheating.com](mailto:sales@perimeterheating.com)

# Easy Connect

The Easy Connect system allows for the simplest installation possible. All valves\* and pipe connections are made and tested in the factory! By having all the internal pipe connections made to the front face of the trench heater prior to delivery, there is a vast reduction of work carried out on site especially when it comes to large 4 pipe heating and cooling systems. \*This system is used within raised floor projects with permanent accessibility as in some cases the casing size does not allow for fitment of valves, requiring their placement outside of the trench heater. Individual project requirements should be discussed with an engineer before selection.



## Grille Options (Models TPHC-07 to -09 / E7 to E8 only)

FREE AREA	53%	65%	70%	FINISH			
CROSS SECTION				SILVER	BLACK	IVORY	BRIGHT STAINLESS STEEL
USAGE	Flexible Grille Used on TPHC-08 175x65, 200x65, 250x65, 300x65, 175x80 & 200x80mm Models only.	Rigid Grille Used on Electric TPHC-E7 & E8 Models only.	Roll Up Grille Used on all other TPHC-07, 08 & 09 Models.				

### Digital Room Thermostat



- RTD201 Digital room thermostat with backlit LCD display
- 2 and 4 pipe heating/cooling circuits
- Week program 8 time blocks/day
- Manual or automatic switching of speeds
- Operating modes: Comfort, Economy and Protection
- Colour of front cover: white RAL9003

### Remote Control



- Operating mode selection: Comfort, Automatic with a time mode or Protective mode
- Change of the setting of required spatial temperature in the Comfort mode
- Selection of the fan's operating mode: Automatic or manual selection of the fan's speed
- Operating distance (infrared transceiver), distance  $\leq 7.5$  m, angle  $\leq \pm 30^\circ$

### Power Supply



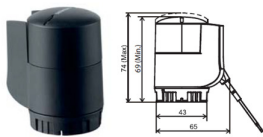
- For the placement of the source provide sufficient space in the switchboard
- Size the output to fit the input of installed bodies and cabling, provide 5% output reserve on the source
- DR60-24 and DR100-24 may be installed in a box for wall installation

### Power Supply Box



- Option of installation of DR60-24 and DR100-24
- Attachment to DIN bar
- Installation under plaster, hidden in the wall
- 234×176×79 mm
- For the case when more supplies need to be installed
- When the space in the switchboard is not sufficient

### Electrothermal Actuator



- Input voltage: 24 V DC
- Power consumption: at switch-on 6 VA, input at operation: 2,5 W
- Opening/closing time: 270s
- Degree of protection: IP54 cover of the casing
- Connection to valve: M30×1,5 mm
- Total height at max. lift : 74 mm
- Colour of actuator and cable: black RAL9005
- Cable length 3m or 5m

### Thermostatic Valve



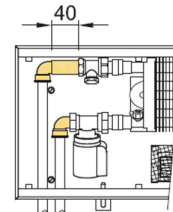
- Size: DN15, NF standard
- Connecting thread: M30×1,5 mm
- Max. operating temperature 120°C
- Max. operating pressure PN10
- Option to change pre-setting of kv-value
- kv value (m<sup>3</sup>/h) range 0.10-0.89
- kv value (m<sup>3</sup>/h) for zone 2K 0.52

### Lockshield Valve



- Size: DN15
- Value kvs
- direct 0.30-1.80
- corner 0.30-3.00
- Max. operating temperature: 110°C
- Max. operating overpressure: 10 bar

### Connection Extension Set



- 2 No. 90° Elbow s
- 1 No. Extension
- Aligns pipe centres with knockouts in front face of trench heater

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