

# SILL-LINE

## PERIMETER HEATING LTD



### Product Range 2016

Sill-Line Perimeter Casing



Warmline Trench Heating



Vectair Natural and  
Fan Assisted Convectors



Spirally Wound Gilled Tubing



*Providing Natural Solutions to Heating*

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At the beginning of 2015, and following almost a quarter of a century of successful growth, Sill-Line Perimeter Heating Ltd. relocated to its current, state of the art manufacturing facility, based in Daventry. Founded in 1992, and following the successful acquisition of the perimeter heating business of Copperad from Myson RCM the company then acquired the Warmline Perimeter Heating business from Biddle Air Systems two years later.

In 2002 Sill-Line Perimeter Heating Ltd further acquired the natural convector business of Lennox Industries and during this period of rapid growth the original Daventry facilities were doubled in size. In 2006 to compliment its rapidly expanding natural convection businesses, Sill-Line Perimeter Heating Ltd acquired the Spiral Wound Tubing business of Gunning Engineering, which added heavy duty steel heat emitters to its already comprehensive range of commercial products.

Sill-Line Perimeter Heating Ltd is unique in its UK business model by focussing exclusively on the sales, production and development of British made perimeter wall mounted and trench heating systems. The company is able to draw upon a great heritage of product lines established by the likes of Myson, Biddle, Copperad and Lennox, providing over 100 years of design experience within the present workforce.

Since commencing trading Sill-Line Perimeter Heating Ltd has supplied thousands of kilometres of heating systems and is justly proud of its position as a leading high-quality company in this specialist sector. Sill-Line Perimeter Heating Ltd prides itself in being able to offer bespoke solutions that meet and exceed our clients specific and individual design requirements.



**Table 1. Heat Outputs**

| Casing Height (mm) | Air Outlet Position     | Casing Depth (mm) | Single 22mm ECU Watts/metre |         | Twin 22mm ECU Watts/metre |           | Twin Tube 22mm WSCU Watts/metre |         | Single 22mm XCU Watts/metre |         | Stacked 22mm XCU Watts/metre |   |
|--------------------|-------------------------|-------------------|-----------------------------|---------|---------------------------|-----------|---------------------------------|---------|-----------------------------|---------|------------------------------|---|
|                    |                         |                   | Single                      | Stacked | Twin                      | Twin Tube | Single                          | Stacked | Single                      | Stacked |                              |   |
| 165                | Sill Line Top & Sloping | 75                | 620                         | -       | -                         | -         | -                               | -       | -                           | -       | -                            | - |
|                    |                         | 130               | -                           | -       | 1190*                     | -         | 860*                            | -       | -                           | -       | -                            | - |
| 300                | Sill Line Front         | 75                | 600                         | -       | -                         | 740       | -                               | -       | -                           | -       | -                            | - |
|                    |                         | 130               | -                           | -       | 1165                      | -         | 1010                            | -       | -                           | -       | -                            | - |
|                    | Sill Line Top & Sloping | 75                | 710                         | 735*    | -                         | 790       | -                               | -       | -                           | -       | -                            | - |
|                    |                         | 130               | -                           | -       | 1350                      | -         | 1080                            | -       | -                           | -       | -                            | - |
| 400                | Sill Line Front         | 75                | 690                         | 800     | -                         | 830       | -                               | -       | -                           | -       | -                            | - |
|                    |                         | 130               | -                           | -       | 1330                      | -         | 1130                            | -       | -                           | -       | -                            | - |
|                    | Sill Line Top & Sloping | 75                | 755                         | 895     | -                         | 880       | -                               | -       | -                           | -       | -                            | - |
|                    |                         | 130               | -                           | -       | 1445                      | -         | 1200                            | 1560    | -                           | -       | -                            | - |
| 500                | Sill Line Front         | 75                | 735                         | 925     | -                         | 900       | -                               | -       | -                           | -       | -                            | - |
|                    |                         | 130               | -                           | -       | 1420                      | -         | 1230                            | 1600    | -                           | -       | -                            | - |
|                    | Sill Line Top & Sloping | 75                | 810                         | 1040    | -                         | 950       | -                               | -       | -                           | -       | -                            | - |
|                    |                         | 130               | -                           | -       | 1550                      | -         | 1290                            | 1680    | -                           | -       | -                            | - |
| 600                | Sill Line Front         | 75                | 755                         | 1025    | -                         | 960       | -                               | -       | -                           | -       | -                            | - |
|                    |                         | 130               | -                           | -       | 1480                      | -         | 1300                            | 1700    | -                           | -       | -                            | - |
|                    | Sill Line Top & Sloping | 75                | 820                         | 1060    | -                         | 1010      | -                               | -       | -                           | -       | -                            | - |
|                    |                         | 130               | -                           | -       | 1575                      | -         | 1370                            | 1780    | -                           | -       | -                            | - |
| 700                | Sill Line Front         | 75                | 780                         | 1070    | -                         | 1060      | -                               | -       | -                           | -       | -                            | - |
|                    |                         | 130               | -                           | -       | 1525                      | -         | 1370                            | 1770    | -                           | -       | -                            | - |
|                    | Sill Line Top & Sloping | 75                | 840                         | 1140    | -                         | 1070      | -                               | -       | -                           | -       | -                            | - |
|                    |                         | 130               | -                           | -       | 1620                      | -         | 1430                            | 1840    | -                           | -       | -                            | - |

\* Not available in Sloping style.

1. The above outputs are for casings fitted with Aluminium Linear Grille.

The outputs are based on the following conditions:

- Mean Water temperature 76.5 °C
- Ambient temperature 18.0 °C
- Water velocity 0.92 m/s

2. Single finned tube plus plain pipe. Apply factor 1.04.  
Output from one or two plain pipes, only within the casing.  
(Mean water temperature 76.5 °C)

3.

|         | 15mm pipe (w/m) | 22mm pipe (w/m) | 28mm pipe (w/m) | 35mm pipe (w/m) |
|---------|-----------------|-----------------|-----------------|-----------------|
| 1 Pipe  | 30              | 40              | 50              | 60              |
| 2 Pipes | 50              | 70              | 90              | 110             |

(One directly above the other)

4. Heat outputs derived from tests in accordance with EN442. For outputs on different operating conditions, element configurations or diameter of tube please contact our sales office or see our website at [www.sill-line.com](http://www.sill-line.com)

5. The ECU range of elements are constructed from 0.25mm Aluminium with closed sides to the 86mm elevation of the fin, the copper tube is expanded into collars in the centre of the fins. The tube is male at both ends to BS2871 Part 1 suitable for both end feed and compression fittings.

6. The WSCU and XCU Elements are constructed from 0.5mm Aluminium. The fins are open on all sides, the tube is male at both ends to BS2871 Part 1. The tube is suitable for both end feed and compression

7. The WSCU and XCU range of elements have the facility of varying the fin spacing thus allowing the heat output to be drawn out over a larger area if required, ask our technical department for details.

**Table 2. Variation of Heat Output with Water and Ambient Temperatures**

| Ambient Temp | Mean Water Temperature, Degrees C |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------|-----------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
|              | 35                                | 40   | 45   | 50   | 55   | 60   | 65   | 70   | 75   | 76.5 | 80   | 85   | 90   | 95   | 100  | 110  | 120  |
| 16           | 0.21                              | 0.29 | 0.37 | 0.47 | 0.59 | 0.68 | 0.79 | 0.9  | 1.01 | 1.06 | 1.20 | 1.24 | 1.36 | 1.48 | 1.61 | 1.9  | 2.17 |
| 18           | 0.18                              | 0.26 | 0.34 | 0.43 | 0.52 | 0.64 | 0.75 | 0.85 | 0.96 | 1.00 | 1.07 | 1.19 | 1.31 | 1.43 | 1.56 | 1.84 | 2.12 |
| 20           | 0.16                              | 0.23 | 0.31 | 0.39 | 0.50 | 0.60 | 0.70 | 0.80 | 0.92 | 0.95 | 1.03 | 1.14 | 1.26 | 1.39 | 1.51 | 1.79 | 2.06 |
| 22           | 0.13                              | 0.20 | 0.28 | 0.36 | 0.46 | 0.57 | 0.66 | 0.77 | 0.88 | 0.91 | 0.99 | 1.10 | 1.22 | 1.34 | 1.46 | 1.73 | 2.00 |

Correction Factor applied to outputs in Table 1

**Table 3. Variation of Heat Output with Water Flow Rate**

| Flow Rate, kg/s |           |           |           |                   |                     |
|-----------------|-----------|-----------|-----------|-------------------|---------------------|
| 15mm Pipe       | 22mm Pipe | 28mm Pipe | 35mm Pipe | Correction Factor | Water Velocity, m/s |
| 0.007           | 0.017     | 0.028     | 0.044     | 0.84              | 0.05                |
| 0.014           | 0.034     | 0.056     | 0.087     | 0.90              | 0.10                |
| 0.036           | 0.085     | 0.14      | 0.22      | 0.94              | 0.25                |
| 0.072           | 0.17      | 0.28      | 0.44      | 0.97              | 0.50                |
| 0.13            | 0.31      | 0.51      | 0.80      | 1.00              | 0.92                |
| 0.29            | 0.68      | 1.10      | 1.70      | 1.03              | 2.00                |

Correction Factor applied to outputs in Table 1  
Below 0.05m/s there is a sharp reduction in performance due to the flow becoming laminar

**Example**

Given the following:

- Window mullions module:..... 1200mm
- Sill Height: ..... 600mm
- Water temperatures: ..... 82/71°C
- Ambient temperature: ..... 21°C
- Heat loss in room: ..... 5450w
- Available wall length: ..... 9.6m
- Casing style: ..... Sill-Line Sloping

All pipework to be within casing

$$\text{Output per meter} = \frac{5450w}{9.6m} = 568w/m \text{ minimum}$$

The flow rate at a temperature drop of 11°C will be

$$\frac{5450}{4180 \times 11} = 0.118 \text{ kg/s}$$

At this flow rate 22mm ECU elements would generally be used. (The specific heat of water is 4180 j/kg). From Table 1, output from 500mm high Sill-Line Sloping Casing is 810 w/m, exceeding the minimum requirement. The approximate length of element will be

$$\frac{5450}{810} = 6.73m$$

Determine the cumulative factor thus:

- Mean water temperature 76.5 °C and ambient temperature 21°C See Table 2 Factor 0.93
- Flow rate 0.118kg/s. See Table 3 Factor 0.95
- Return pipe within casing Factor 1.04
- Cumulative factor = 0.93 x 0.95 x 1.04 = 0.918

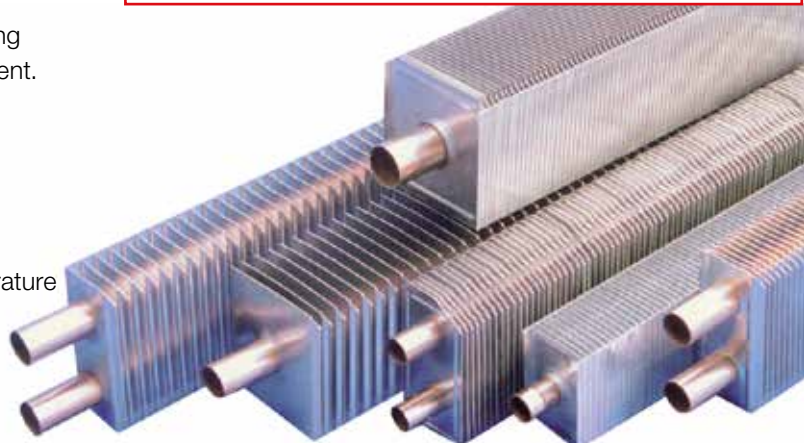
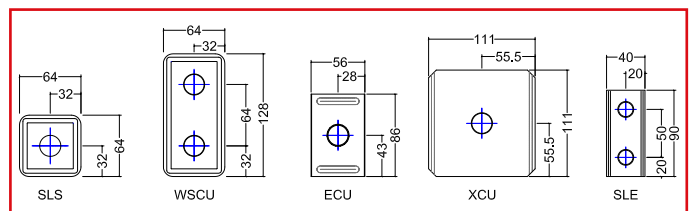
Thus: Corrected output is 810 x 0.918 = 744 w/m  
Element required will now be

$$\frac{5450}{744} = 7.5m$$

'Finned length could for example comprise of 3 @ 2000mm and 1 @ 1500mm.

Each element has a 50mm plain tail at each end so the overall length of element would be 7.9 metres, fitting easily into the 9.6 metres of casing'

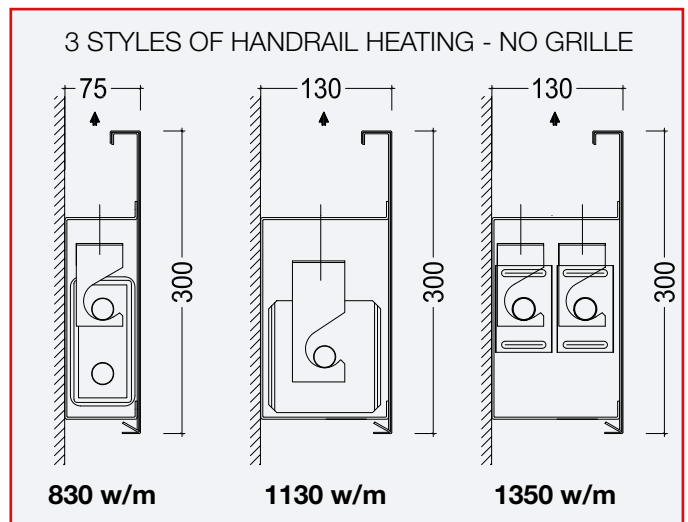
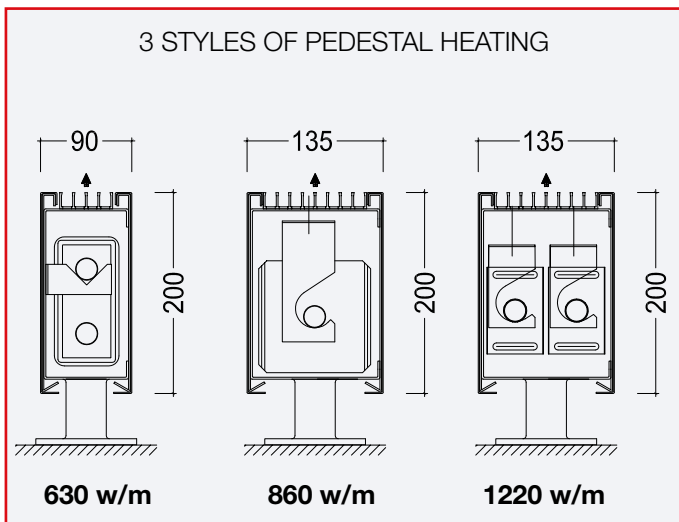
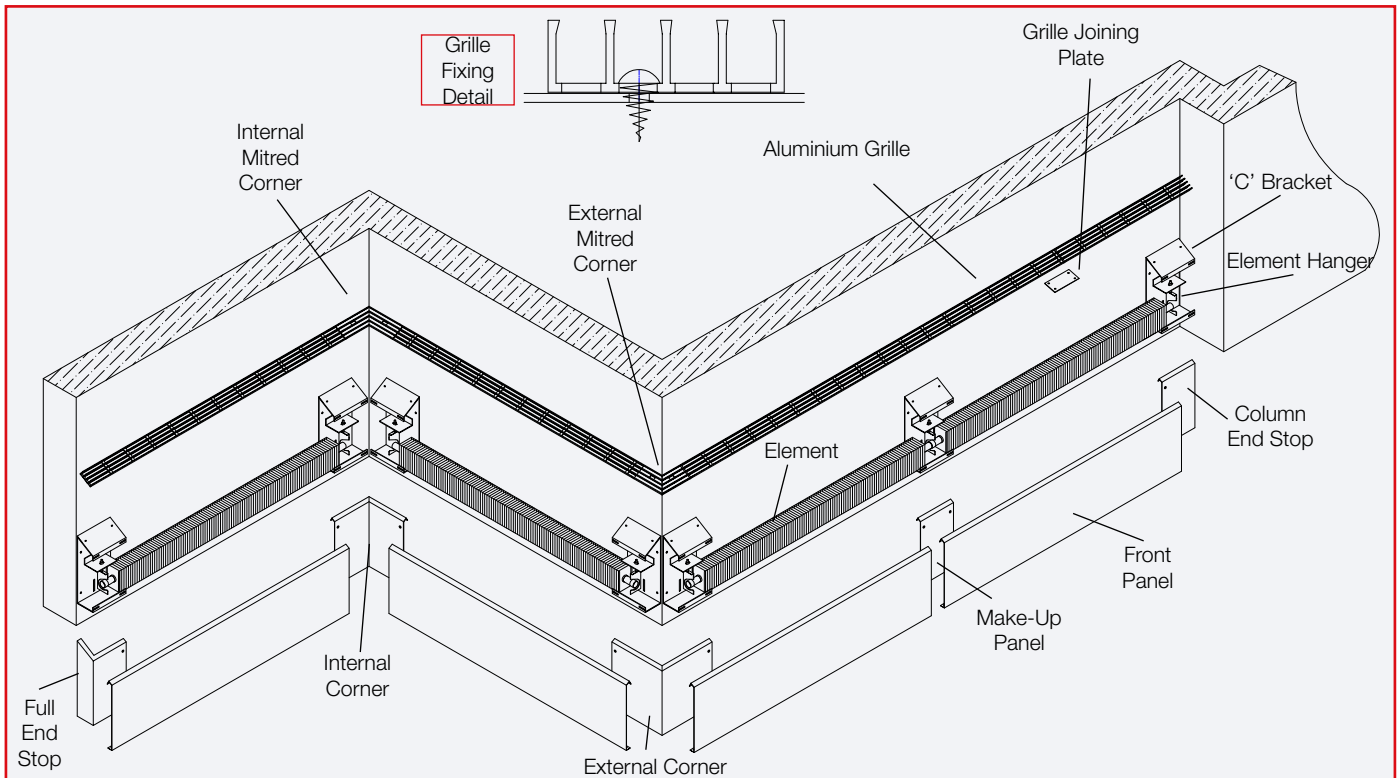
**Element Schedule**



Perimeter heating, as its name suggests, supplies warmth just where it's needed. Its ability to silently provide heat evenly and, thus prevent draughts from chilly glazing and walls, creates a comfortable working environment. Additionally the sleek continuous casing can be used to conceal irregular walls, pipework, power and data trunking, transforming a dysfunctional collection of work areas into an ultra modern and user friendly operational environment.

The system comprises of steel casing which houses high efficiency heating elements. As hot water is passed through the pipe, air enters the casing at the bottom, as the air is drawn through the fins heat is transferred from the water to the air. The warm air rises and discharges into the room via the extruded aluminium outlet grille which is positioned on top of the casing in a front or sloping configuration.

Our comprehensive product component design provides any number of options allowing a wide choice of product styles, finishes and heating performances.

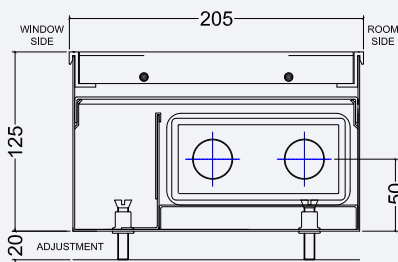


A rapid increase in the number of raised floor installations and the desire to maximise lettable floor area, has caused a corresponding increase in the demand for perimeter 'Warmline Trench Heating'. Sill-Line recognises that trench heating is a product which, more than most, must be purpose designed to meet the parameters of the project.

Sill-Line manufactures trench heating systems in standard sizes which are detailed below. As well as our standard models we can manufacture to customers specifications or work with the customer to resolve problems caused by obstacles in the course of the trench heating. The customer also has the choice of Gold, Bronze or Black anodised grille and frame or grille in the wood finish of their choice.

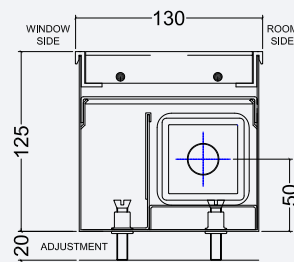
## DASH - 01

205 W x 125 D  
22 WSCU - 690 w/m



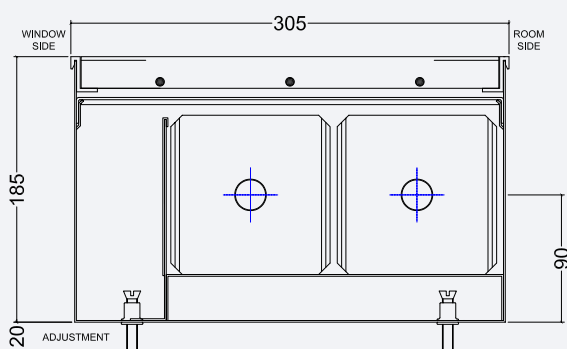
## DASH - 02

130 W x 125 D  
22 SLS - 430 w/m



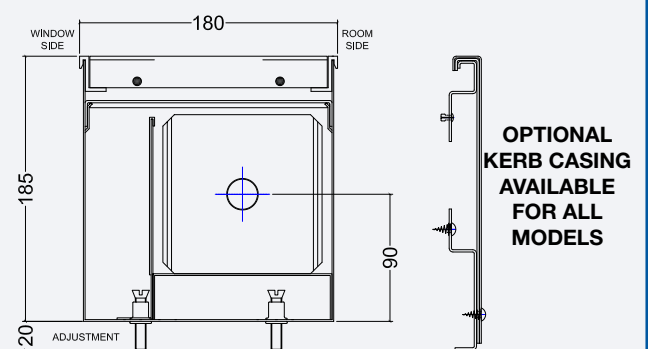
## DASH - 03

305 W x 185 D  
2 x 22 XCU - 1180 w/m



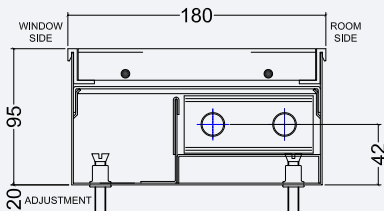
## DASH - 04

180 W x 185 D  
22 XCU - 790 w/m



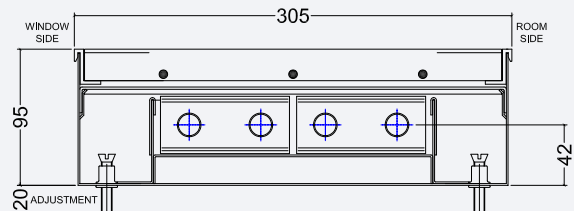
## DASH - 05

180 W x 95 D  
15 SLE - 250 w/m



## DASH - 06

305 W x 95 D  
15 SLE - 350 w/m

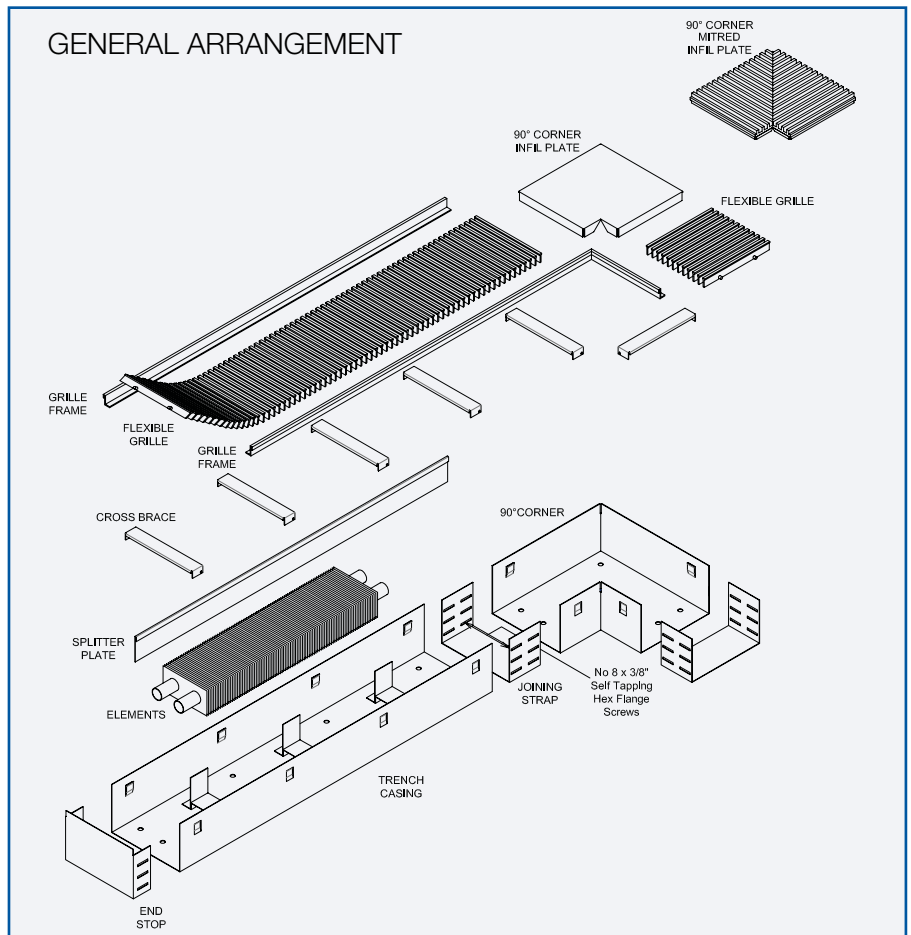


The outputs stated are based on LPHW 82/71°C, EAT 18°C and a water velocity 0.92m/s. For other operating conditions refer to page 5.

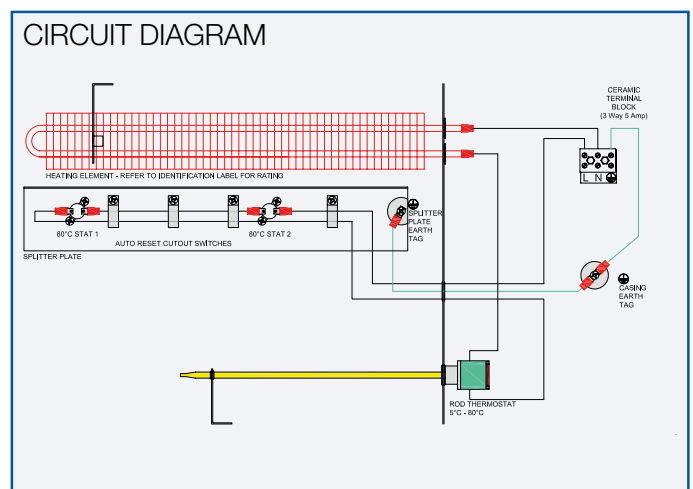
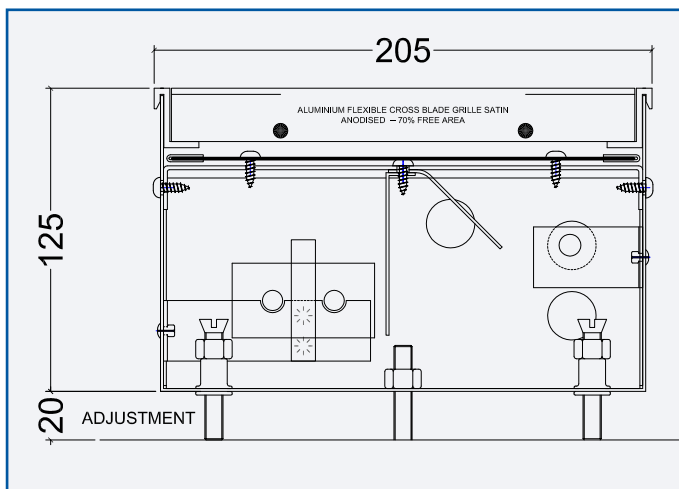
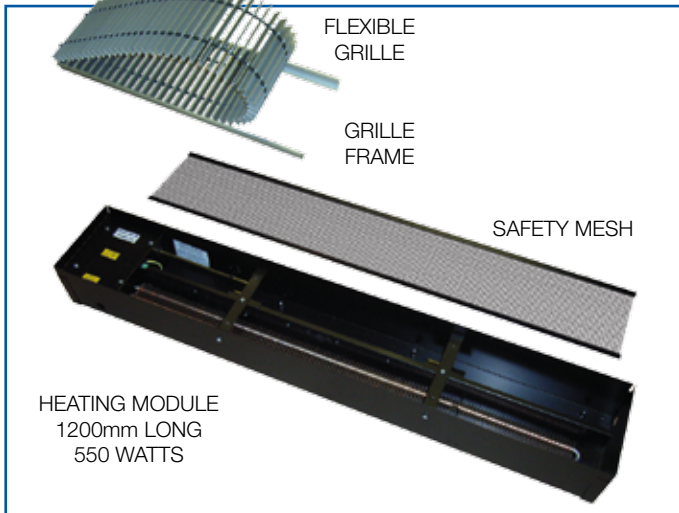
The Trench Casing is manufactured from 1.2mm zintec sheet as are all components, and painted black internally. The heating elements are 22mm diameter copper tube with aluminium fins locked for excellent heat transfer. The aluminium flexible grille will be durable natural satin anodised to AA15 finish with solid nylon rods to SAM 66 and T6 grille blades will be spaced for 60% Free Area as standard. 30%, 50% and 70% free area

grilles can also be supplied if required. The framework of the grille 'L' section will also be durable in natural anodised AA15 finish and fixed to the Trench Casing.

The Trench Casing is fitted with levelling screws to adjust height as required. Joining Straps and End Stops allow for 50mm and 75mm horizontal adjustment respectively. Our dedication to provide bespoke solutions that incorporate flexibility and reliability, quality, competitiveness and rapid delivery make Warmline Trench Heating an unrivalled product.







The casing is manufactured from 1.2mm zintec steel sheet and includes a matt black powder paint finish to the inside face. Levelling bolts are fitted through the base of the casing to allow up to 20mm height adjustment if required. A single module is 1200mm long producing 550 watts per unit.

Where casings are required to form continuous runs we provide fixings so that several units can be connected together, along with 'dummy' sections to make up the exact length required.

There are 20mm cable entry holes at each end allowing for the continuous feed of power supply to run through the air intake chamber. Provision of earth continuity links between casings is also allowed for. Where casings are supplied as individual units the grille and frame is factory fitted.

Heating elements are of steel hairpin construction and have steel fins bronze welded to the core. This method of construction offers excellent heat transfer and an even temperature along the active length. The heating elements have a 50mm cold zone at the connection end and are fitted into a wiring control box using gland nut and shake proof washers.

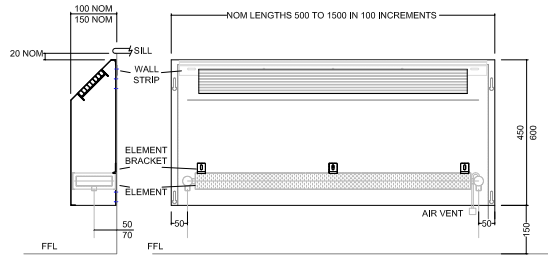
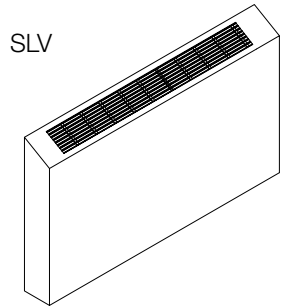
Within the casing there are two high temperature limit thermostats fitted to the splitter plate, which are fitted centrally in each half of the casing.

In the event of the casing grille being partly covered by a carpet, clothing or similar obstruction, preventing the air circulating through the casing causing the temperature to rise above the desired maximum, the heating will be switched off until the cause of the temperature rise has been investigated by a competent person and rectified. The thermostat can then be manually re-set by pressing the reset button. Alternative types of thermostats can be incorporated if required.

There are safety shields fitted over the thermostats to prevent spilled liquids coming directly into contact with the stat wiring terminals. There is a wire safety mesh fitted over the entire heating chamber to prevent the ingress of items which may be dropped through the grille, the mesh has a free area of 96% which allows maximum air flow through the unit. Above the mesh there is an aluminium grille frame into which a "70% free area" cross bladed flexible grille is fitted, both grille and frame have a durable silver satin anodised finish.

**Type SLV and SLV (1)**

Sill Line ‘Vectair Natural Convectors’ are available as types SLV and SLV (1). The aesthetics of this range may appeal to Architects and Designers for general use in Public Buildings, Office and Reception Areas etc. Consequently the Specification is such that it can be tailored within reason to suit various applications.



**Specification**

**Types**

SLV - Wall mounted, available in 2 casing heights of 450 and 600mm, 2 casing depths of 100 and 150mm nominal, and 11 casing lengths 500 to 1500mm in 100mm increments. This arrangement has one grille only, on the discharge.

SLV (1) - Floor standing, available in 1 casing height only, 600mm, 2 depths and 11 lengths as type SLV incorporating inlet and discharge grilles.

**Casing**

The cabinets are of the sloping top style having a one piece front and top panel constructed from 1.2mm thick zinc coated sheet steel, and are supplied with metal ends. Standard cabinets are of the backless type, hung on the wall by means of a wall strip at the top and secured at the bottom.

**Grilles**

The standard grille is an extruded aluminium section anodised to AA15 to a natural satin finish. Optional mesh can be fitted to underside of outlet grille.

**Finish**

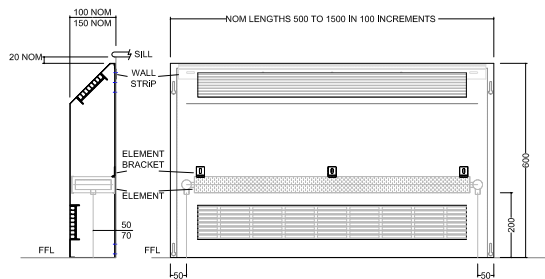
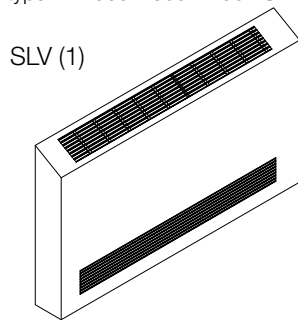
Casings are finished with Epoxy Polyester powder coating producing a textured finish. Standard colour is White Textured colour code RAL 9010.

**Elements**

Constructed from seamless copper tubes, mechanically bonded to aluminium fins and brazed into tubular copper headers, terminating in vertical 1/2" BSP female connections. One header would be fitted with a manual air vent, located below the element to facilitate venting the type SLV without removing the casing. Element support brackets are supplied loose to enable elements to be handed on site. All elements are tested suitable for a working pressure of 10 Bars gauge.

| EMMISSIONS IN WATTS FOR ENTERING AIR TEMPERATURE |                 |      |                |      |                |      |                |      |                |      |                |      |
|--|-----------------|------|----------------|------|----------------|------|----------------|------|----------------|------|----------------|------|
| Length mm  | 15°C            |      |                |      | 18°C           |      |                |      | 21°C           |      |                |      |
|  | 100mm Deep Nom. |      | 150mm Deep Nom |      | 100mm Deep Nom |      | 150mm Deep Nom |      | 100mm Deep Nom |      | 150mm Deep Nom |      |
|  | Height mm       |      | Height mm      |      | Height mm      |      | Height mm      |      | Height mm      |      | Height mm      |      |
|  | 450             | 600  | 450            | 600  | 450            | 600  | 450            | 600  | 450            | 600  | 450            | 600  |
| 500  | 407             | 422  | 511            | 585  | 379            | 393  | 476            | 546  | 353            | 366  | 443            | 507  |
| 600  | 536             | 585  | 705            | 810  | 500            | 546  | 658            | 756  | 464            | 507  | 611            | 703  |
| 700  | 665             | 736  | 899            | 1032 | 620            | 686  | 838            | 962  | 576            | 638  | 779            | 894  |
| 800  | 813             | 889  | 1094           | 1254 | 759            | 829  | 1020           | 1169 | 705            | 771  | 949            | 1087 |
| 900  | 952             | 1036 | 1288           | 1475 | 888            | 966  | 1201           | 1375 | 826            | 898  | 1116           | 1279 |
| 1000   | 1098            | 1187 | 1483           | 1697 | 1024           | 1107 | 1383           | 1583 | 952            | 1029 | 1286           | 1471 |
| 1100   | 1222            | 1331 | 1684           | 1925 | 1140           | 1241 | 1571           | 1795 | 1060           | 1154 | 1460           | 1669 |
| 1200   | 1350            | 1470 | 1886           | 2158 | 1259           | 1371 | 1758           | 2012 | 1170           | 1275 | 1635           | 1871 |
| 1300   | 1481            | 1614 | 2089           | 2390 | 1381           | 1505 | 1948           | 2228 | 1284           | 1399 | 1811           | 2072 |
| 1400   | 1617            | 1761 | 2293           | 2622 | 1508           | 1642 | 2138           | 2445 | 1402           | 1527 | 1987           | 2273 |
| 1500   | 1758            | 1915 | 2502           | 2862 | 1639           | 1758 | 2333           | 2669 | 1524           | 1660 | 2169           | 2481 |

Emissions listed above are based on LTHW 82°C flow 71°C return. See below for multiplying factors for other water operating conditions. The full model identification is: Length - Height - Depth type viz 1500 x 600 x 150 SLV (1) 600 High only. Give 15% reduction in output.



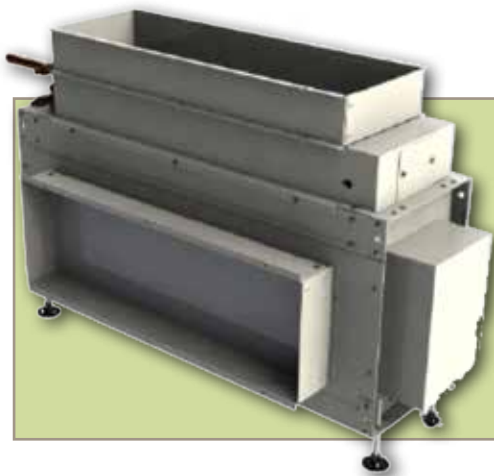
**Correction Factors**

| Water flow temp °C | Water temperature drop 11.1°C |       |       |       | Water temperature drop 16.7°C |       |       |       | Water temperature drop 22.2°C |       |       |       |
|--------------------|-------------------------------|-------|-------|-------|-------------------------------|-------|-------|-------|-------------------------------|-------|-------|-------|
|                    | Entering air temperature °C   |       |       |       | Entering air temperature °C   |       |       |       | Entering air temperature °C   |       |       |       |
|                    | 12                            | 15    | 18    | 21    | 12                            | 15    | 18    | 21    | 12                            | 15    | 18    | 21    |
| 50                 | 0.437                         | 0.379 | 0.326 | 0.277 | 0.360                         | 0.310 | 0.262 | 0.217 | 0.295                         | 0.250 | 0.207 | 0.167 |
| 55                 | 0.532                         | 0.473 | 0.416 | 0.363 | 0.448                         | 0.395 | 0.343 | 0.294 | 0.374                         | 0.326 | 0.280 | 0.236 |
| 60                 | 0.634                         | 0.572 | 0.512 | 0.456 | 0.541                         | 0.485 | 0.430 | 0.377 | 0.459                         | 0.408 | 0.358 | 0.311 |
| 65                 | 0.741                         | 0.676 | 0.613 | 0.554 | 0.639                         | 0.580 | 0.522 | 0.466 | 0.549                         | 0.495 | 0.442 | 0.391 |
| 70                 | 0.853                         | 0.785 | 0.719 | 0.657 | 0.741                         | 0.679 | 0.619 | 0.560 | 0.643                         | 0.586 | 0.531 | 0.477 |
| 75                 | 0.969                         | 0.899 | 0.830 | 0.765 | 0.848                         | 0.783 | 0.720 | 0.659 | 0.741                         | 0.681 | 0.624 | 0.567 |
| 80                 | 1.089                         | 1.017 | 0.946 | 0.878 | 0.958                         | 0.892 | 0.826 | 0.762 | 0.843                         | 0.781 | 0.721 | 0.662 |
| 82.2               | 1.144                         | 1.070 | 1.000 | 0.929 | 1.008                         | 0.940 | 0.874 | 0.809 | 0.888                         | 0.826 | 0.765 | 0.705 |
| 85                 | 1.214                         | 1.139 | 1.067 | 0.995 | 1.073                         | 1.004 | 0.936 | 0.870 | 0.948                         | 0.884 | 0.822 | 0.761 |
| 90                 | 1.342                         | 1.264 | 1.191 | 1.116 | 1.191                         | 1.119 | 1.050 | 0.981 | 1.057                         | 0.991 | 0.927 | 0.863 |
| 95                 | 1.473                         | 1.394 | 1.318 | 1.241 | 1.312                         | 1.239 | 1.167 | 1.096 | 1.169                         | 1.101 | 1.035 | 0.969 |

1. Factors to be applied to emissions listed against entering air temperature 18°C only

### Vectair Universal

One heating solution for a variety of applications suitable for high, low or ceiling mounted installation. Incorporating EC motor technology, the Universal delivers heat quickly and effectively. Heat outputs up to 14.5kW EC motor technology.



### Vectair Concealed

Designed for concealed spaces, this is a highly versatile unit. It can be floor mounted or suspended from the ceiling. A variety of adjustable accessories enable it to be configured in dozens of innovative ways. Outputs up to 14.5kW. EC motor technology.

### Vectair High

Designed for unobtrusive fixing at high level, Vectair rapid response heating is ideal for heating large areas such as schools, churches, care homes, libraries, offices and hospitals when floor space is at a premium. Heat outputs up to 14.5kW. AC motors only.

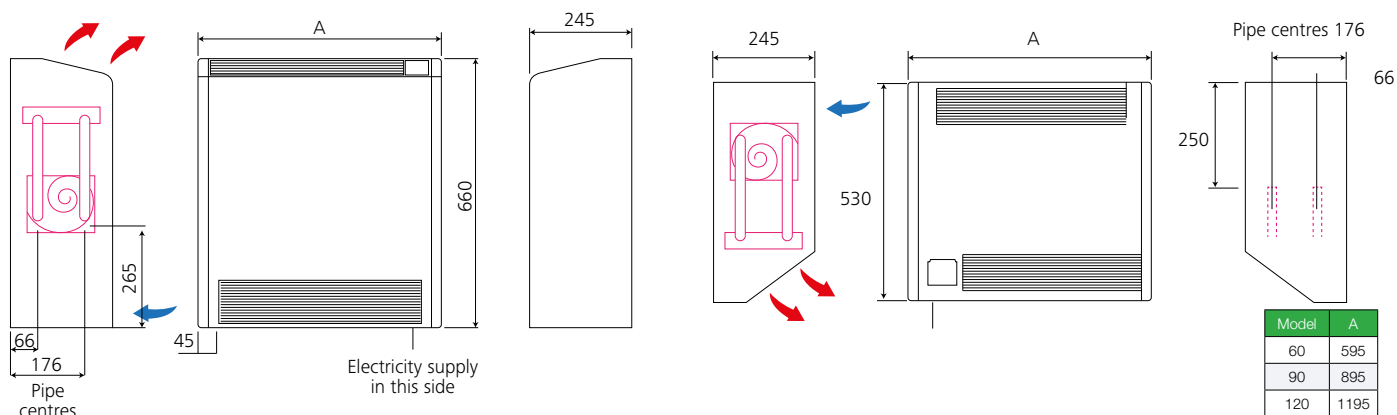


### Vectair Low

A floor or wall mounted fan convector developed for a range of applications in commercial installations. The low surface temperature casing enhances safe operation of the model. Available in three model sizes. AC motors only.

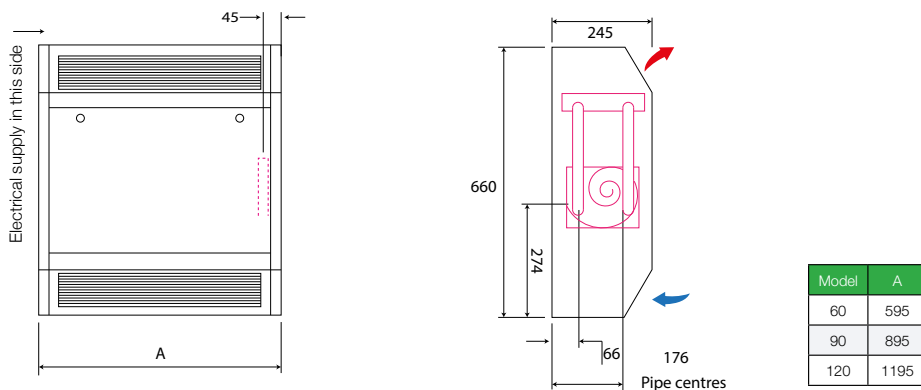


# Vectair Fan Convector



| Vectair Model | Heat output @ 80°C |              |               | Heat output @ 75°C |              |               | Heat output @ 70°C |              |               |
|---------------|--------------------|--------------|---------------|--------------------|--------------|---------------|--------------------|--------------|---------------|
|               | Low (KW/BTU)       | Med (KW/BTU) | High (KW/BTU) | Low (KW/BTU)       | Med (KW/BTU) | High (KW/BTU) | Low (KW/BTU)       | Med (KW/BTU) | High (KW/BTU) |
| High/Low 120  | 11.4/39000         | 13.4/45800   | 14.5/49200    | 10.4/35500         | 12.2/41600   | 13.1/44700    | 9.3/31600          | 10.9/37000   | 11.7/39800    |
| High/Low 90   | 6.8/23300          | 7.7/26300    | 8.6/29300     | 6.2/21200          | 7.0/23900    | 7.8/26600     | 5.5/18800          | 6.2/21300    | 6.9/23700     |
| High/Low60    | 4.0/13500          | 4.5/15400    | 5.1/17300     | 3.6/12300          | 4.1/14000    | 4.6/15700     | 3.2/10900          | 3.6/12500    | 4.1/14000     |
| Vectair Model | Heat output @ 65°C |              |               | Heat output @ 60°C |              |               | Heat output @ 55°C |              |               |
| High/Low 120  | 8.2/32900          | 9.6/32900    | 10.3/35300    | 7.2/24500          | 8.4/28700    | 9.0/30800     | 6.2/21300          | 7.3/25000    | 7.9/26800     |
| High/Low 90   | 4.9/16700          | 5.5/18900    | 6.2/21000     | 4.3/14600          | 4.8/16500    | 5.4/18400     | 3.7/12700          | 4.2/14300    | 4.7/16000     |
| High/Low60    | 2.8/9700           | 3.2/11000    | 3.6/12400     | 2.5/8500           | 2.8/9700     | 3.2/10800     | 2.2/7300           | 2.5/8400     | 2.8/9400      |
| Vectair Model | Heat output @ 50°C |              |               | Heat output @ 45°C |              |               | Heat output @ 40°C |              |               |
| High/Low 120  | 5.3/18100          | 6.2/21200    | 6.7/22800     | 4.2/14200          | 4.9/16700    | 5.2/17900     | 3.2/11000          | 3.8/12900    | 4.1/13900     |
| High/Low 90   | 3.2/10800          | 3.6/12200    | 4.0/13600     | 2.5/8500           | 2.8/9600     | 3.1/10600     | 1.9/6600           | 2.2/7400     | 2.4/8300      |
| High/Low60    | 1.8/6250           | 2.1/7100     | 2.3/8000      | 1.4/4900           | 1.6/5650     | 1.8/6300      | 0.9/3050           | 1.0/3400     | 1.1/3600      |

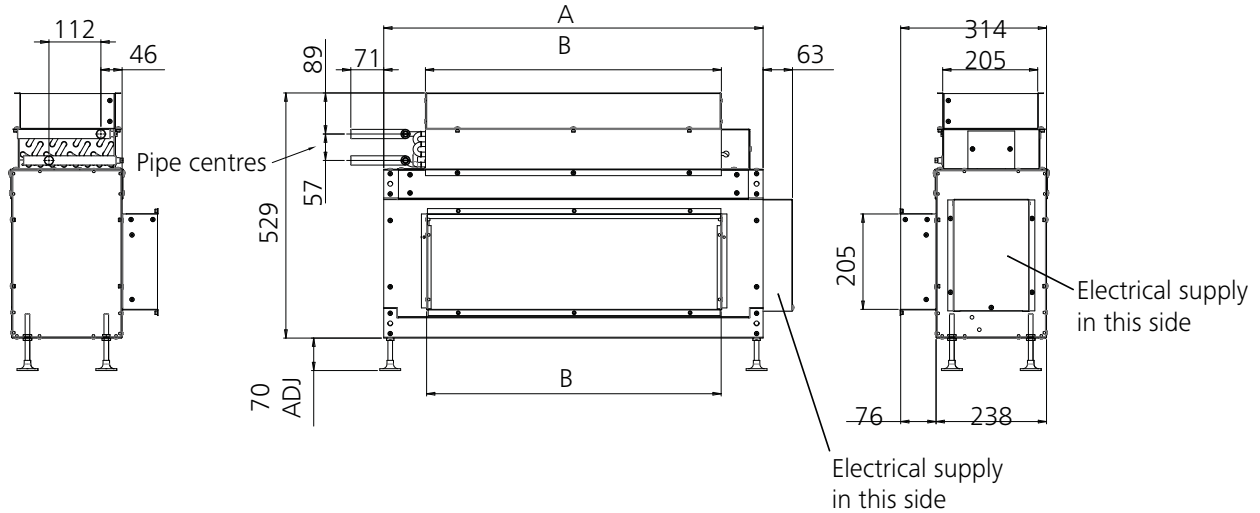
Heat outputs tested in accordance with BS4856 using mean water temperatures, as shown in the table above, 18°C entering air temperature, 10°C temperature drop and a flow rate of 340 litres/h.



| Vectair Model | Heat output @ 80°C |              |               | Heat output @ 75°C |              |               | Heat output @ 70°C |              |               |
|---------------|--------------------|--------------|---------------|--------------------|--------------|---------------|--------------------|--------------|---------------|
|               | Low (KW/BTU)       | Med (KW/BTU) | High (KW/BTU) | Low (KW/BTU)       | Med (KW/BTU) | High (KW/BTU) | Low (KW/BTU)       | Med (KW/BTU) | High (KW/BTU) |
| Universal 120 | 6.7/22700          | 10.6/36000   | 14.5/49400    | 6.1/90937          | 9.6/32968    | 13.2/45000    | 5.6/19100          | 8.7/29800    | 11.8/40400    |
| Universal 90  | 5.2/17700          | 7.8/26500    | 10.3/35200    | 4.8/16300          | 7.2/24600    | 9.6/32800     | 4.4/15000          | 6.7/22700    | 8.9/30400     |
| Universal 60  | 3.2/10900          | 4.5/15500    | 5.9/20000     | 2.9/9900           | 4.1/14000    | 5.3/18100     | 2.6/8800           | 3.7/12500    | 4.8/16200     |
| Vectair Model | Heat output @ 65°C |              |               | Heat output @ 60°C |              |               | Heat output @ 55°C |              |               |
| Universal 120 | 4.9/16600          | 7.7/26400    | 10.6/36000    | 4.1/14100          | 6.7/23000    | 9.4/32000     | 3.4/11600          | 5.8/19700    | 8.1/27700     |
| Universal 90  | 3.9/13500          | 6.0/20400    | 8.0/27300     | 3.5/11900          | 5.3/18000    | 7.1/24200     | 3.0/10400          | 4.6/15800    | 6.2/21100     |
| Universal 60  | 2.3/7800           | 3.2/10900    | 4.2/14300     | 2.0/6800           | 2.8/9600     | 3.6/12400     | 1.7/5800           | 1.9/8200     | 2.0/10600     |
| Vectair Model | Heat output @ 50°C |              |               | Heat output @ 45°C |              |               | Heat output @ 40°C |              |               |
| Universal 120 | 2.7/9000           | 4.8/16300    | 6.9/23500     | 2.0/6700           | 3.7/12600    | 5.4/18400     | 1.3/4400           | 2.6/8900     | 3.9/13400     |
| Universal 90  | 2.6/8800           | 3.9/13400    | 5.3/18000     | 1.9/6500           | 3.1/10500    | 4.1/14000     | 1.5/5100           | 2.2/7500     | 2.9/10000     |
| Universal 60  | 1.4/4800           | 2.0/6800     | 2.5/8700      | 1.1/3800           | 1.5/5100     | 1.9/6300      | 0.8/2700           | 1.0/3400     | 1.2/4000      |

Heat outputs tested in accordance with BS4856 using mean water temperatures, as shown in the table above, 18°C entering air temperature, 10°C temperature drop and a flow rate of 340 litres/h.

UVC90 A = 818  
 B = 638  
 UVC 120 A = 1118  
 B = 938



| Vectair Model | Heat output @ 80°C |              |               | Heat output @ 75°C |              |               | Heat output @ 70°C |              |               |
|---------------|--------------------|--------------|---------------|--------------------|--------------|---------------|--------------------|--------------|---------------|
|               | Low (KW/BTU)       | Med (KW/BTU) | High (KW/BTU) | Low (KW/BTU)       | Med (KW/BTU) | High (KW/BTU) | Low (KW/BTU)       | Med (KW/BTU) | High (KW/BTU) |
| Concealed 120 | 6.7/22700          | 10.6/36000   | 14.5/49400    | 6.1/90937          | 9.6/32968    | 13.2/45000    | 5.6/19100          | 8.7/29800    | 11.8/40400    |
| Concealed 90  | 5.2/17700          | 7.8/26500    | 10.3/35200    | 4.8/16300          | 7.2/24600    | 9.6/32800     | 4.4/15000          | 6.7/22700    | 8.9/30400     |
| Vectair Model | Heat output @ 65°C |              |               | Heat output @ 60°C |              |               | Heat output @ 55°C |              |               |
| Concealed 120 | 4.9/16600          | 7.7/26400    | 10.6/36000    | 4.1/14100          | 6.7/23000    | 9.4/32000     | 3.4/11600          | 5.8/19700    | 8.1/27700     |
| Concealed 90  | 3.9/13500          | 6.0/20400    | 8.0/27300     | 3.5/11900          | 5.3/18000    | 7.1/24200     | 3.0/10400          | 4.6/15800    | 6.2/21100     |
| Vectair Model | Heat output @ 50°C |              |               | Heat output @ 45°C |              |               | Heat output @ 40°C |              |               |
| Concealed 120 | 2.7/9000           | 4.8/16300    | 6.9/23500     | 2.0/6700           | 3.7/12600    | 5.4/18400     | 1.3/4400           | 2.6/8900     | 3.9/13400     |
| Concealed 90  | 2.6/8800           | 3.9/13400    | 5.3/18000     | 1.9/6500           | 3.1/10500    | 4.1/14000     | 1.5/5100           | 2.2/7500     | 2.9/10000     |

Heat outputs tested in accordance with BS4856 using mean water temperatures, as shown in the table above, 18° C entering air temperature, 10° C temperature drop and a flow rate of 340 litres/h.

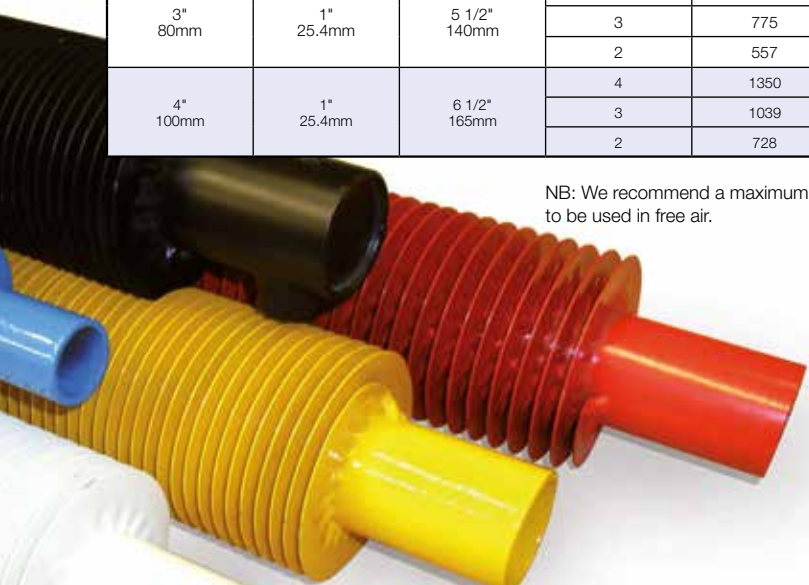
| Model         | Flow & Return Connection | Fused Spur | Power Consumption (watts) |     |      | Sound Levels (dBa) |     |      | Correction Factors |                             |                     |      |      |      |      |
|---------------|--------------------------|------------|---------------------------|-----|------|--------------------|-----|------|--------------------|-----------------------------|---------------------|------|------|------|------|
|               |                          |            | Low                       | Med | High | Low                | Med | High | EAT °C             | Mean Water Temp °C 80 to 40 | Temperature Drop °C |      |      |      |      |
|               |                          |            |                           |     |      |                    |     |      |                    |                             | 20                  | 15   | 10   | 5    |      |
| Universal 60  | 22mm                     | 3A         | 8                         | 24  | 40   | 33                 | 42  | 50   | 15                 | 1.10                        | Fac-<br>tor         | 0.89 | 0.95 | 1.00 | 1.04 |
| Universal 90  | 22mm                     | 3A         | 15                        | 43  | 70   | 34                 | 42  | 53   |                    |                             |                     |      |      |      |      |
| Universal 120 | 22mm                     | 3A         | 13                        | 62  | 110  | 35                 | 46  | 58   |                    |                             |                     |      |      |      |      |
| Concealed 90  | 22mm                     | 3A         | 13                        | 43  | 70   | 34                 | 42  | 53   |                    |                             |                     |      |      |      |      |
| Concealed 120 | 22mm                     | 3A         | 15                        | 62  | 110  | 35                 | 46  | 58   |                    |                             |                     |      |      |      |      |
| High/Low 60   | 22mm                     | 3A         | 29                        | 36  | 51   | 32                 | 35  | 38   |                    |                             |                     |      |      |      |      |
| High/Low 90   | 22mm                     | 3A         | 53                        | 60  | 98   | 37                 | 40  | 43   |                    |                             |                     |      |      |      |      |
| High/Low 120  | 22mm                     | 3A         | 99                        | 135 | 151  | 42                 | 46  | 48   |                    |                             |                     |      |      |      |      |
|               |                          |            |                           |     |      |                    |     |      | 21                 | 0.93                        |                     |      |      |      |      |

Sound readings taken from 3m in front of the units.

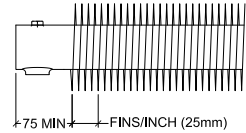
# Spirally Wound Gilled Tubes

| TUBE NOMINAL BORE | HEIGHT OF FINS | OVERALL DIAMETER OF GILLS | FINS PER INCH (25mm) | OUTPUT<br>82° C Flow<br>71° C Return<br>(Watts/Metre) | DRY Weight<br>(Kg's/Metre) |
|-------------------|----------------|---------------------------|----------------------|---|----------------------------|
| 1/2"<br>15mm      | 1/2"<br>12.7mm | 1 3/4"<br>45mm            | 7                    | 316   | 3.21                       |
|                   |                |                           | 6                    | 277   | 3.12                       |
|                   |                |                           | 5                    | 230   | 2.81                       |
|                   |                |                           | 4                    | 129   | 2.48                       |
| 3/4"<br>20mm      | 1/2"<br>12.7mm | 2"<br>51mm                | 7                    | 368   | 4.95                       |
|                   |                |                           | 6                    | 320   | 4.55                       |
|                   |                |                           | 5                    | 272   | 4.25                       |
|                   |                |                           | 4                    | 220   | 3.20                       |
| 1"<br>25mm        | 3/4"<br>19mm   | 3/4"<br>70mm              | 6                    | 640   | 7.44                       |
|                   |                |                           | 5                    | 535   | 6.49                       |
|                   |                |                           | 4                    | 435   | 5.95                       |
|                   |                |                           | 3                    | 335   | 4.76                       |
| 1 1/4"<br>32mm    | 3/4"<br>19mm   | 3 5/32"<br>80mm           | 6                    | 718   | 9.00                       |
|                   |                |                           | 5                    | 608   | 7.90                       |
|                   |                |                           | 4                    | 496   | 7.10                       |
|                   |                |                           | 3                    | 382   | 6.10                       |
| 1 1/4"<br>32mm    | 1"<br>25.4mm   | 3 5/8"<br>93mm            | 4                    | 640   | 7.86                       |
|                   |                |                           | 3                    | 490   | 6.70                       |
|                   |                |                           | 6                    | 775   | 10.47                      |
| 1 1/2"<br>40mm    | 3/4"<br>19mm   | 3 3/8"<br>86mm            | 5                    | 650   | 9.31                       |
|                   |                |                           | 4                    | 530   | 8.18                       |
|                   |                |                           | 3                    | 410   | 7.07                       |
|                   |                |                           | 4                    | 690   | 8.70                       |
| 1 1/2"<br>40mm    | 1"<br>25.4mm   | 3 7/8"<br>98mm            | 3                    | 530   | 7.40                       |
|                   |                |                           | 2                    | 370   | 6.12                       |
|                   |                |                           | 4                    | 608   | 10.42                      |
| 2"<br>50mm        | 3/4"<br>19mm   | 3 7/8"<br>98mm            | 3                    | 470   | 9.08                       |
|                   |                |                           | 2                    | 320   | 7.74                       |
|                   |                |                           | 4                    | 785   | 11.20                      |
| 2"<br>50mm        | 1"<br>25.4mm   | 4 3/8"<br>111mm           | 3                    | 550   | 9.65                       |
|                   |                |                           | 2                    | 391   | 8.20                       |
|                   |                |                           | 4                    | 710   | 14.90                      |
| 2 1/2"<br>65mm    | 3/4"<br>19mm   | 4 1/2"<br>111mm           | 3                    | 553   | 12.80                      |
|                   |                |                           | 2                    | 392   | 10.80                      |
|                   |                |                           | 4                    | 930   | 17.70                      |
| 2 1/2"<br>65mm    | 1"<br>25.4mm   | 5"<br>127mm               | 3                    | 710   | 14.80                      |
|                   |                |                           | 2                    | 475   | 12.20                      |
|                   |                |                           | 4                    | 735   | 18.20                      |
| 3"<br>80mm        | 3/4"<br>19mm   | 5"<br>127mm               | 3                    | 602   | 16.30                      |
|                   |                |                           | 2                    | 440   | 14.40                      |
|                   |                |                           | 4                    | 1037  | 21.30                      |
| 3"<br>80mm        | 1"<br>25.4mm   | 5 1/2"<br>140mm           | 3                    | 775   | 18.90                      |
|                   |                |                           | 2                    | 557   | 16.50                      |
|                   |                |                           | 4                    | 1350  | 25.94                      |
| 4"<br>100mm       | 1"<br>25.4mm   | 6 1/2"<br>165mm           | 3                    | 1039  | 22.52                      |
|                   |                |                           | 2                    | 728   | 19.14                      |

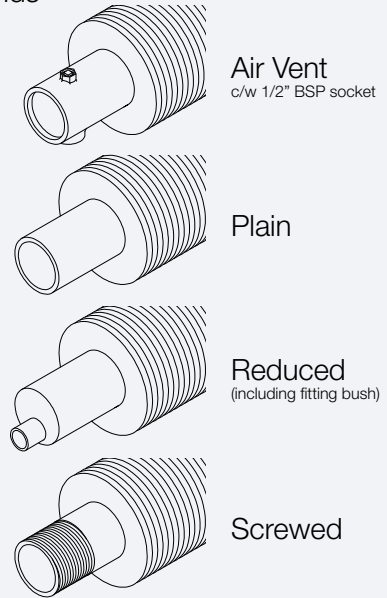
NB: We recommend a maximum 4 Fins/Inch to be used in free air.



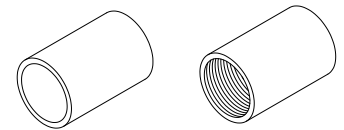
## Pitch



## Ends



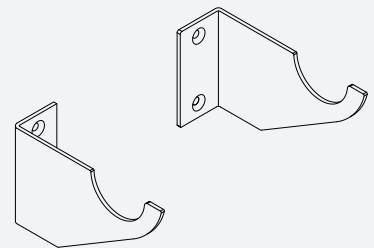
## Collars



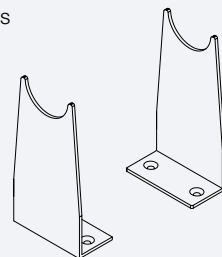
COLLARS OPTIONAL WITH PLAIN OR SCREWED ENDS

## Brackets

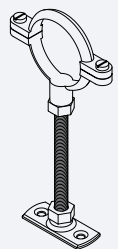
Left and Right Hand Wall Brackets



Floor Brackets



Munsen Rings



Used for wall & floor mounting.



### **Spirally Wound Gilled Tube**

Sill Line all-steel Gilled Tube provides the perfect all-purpose extended surface heat transfer medium of immense strength to withstand all nominal system temperatures and pressures.

### **Method of Manufacture**

Sill Line Gilled Tube is manufactured in our own works by special purpose machines which wind the strip onto the tube in a continuous spiral under considerable tension, leaving the fin of semi-flat profile with a regular crimped contact area. This results in a perfect mechanical bond with excellent heat transfer properties from tube to fin which will not deteriorate or loosen even in the most severe of conditions. The fin, having a crimped inner diameter offers a contact area to the tube equivalent to the outside diameter of the fin. The fins are welded to the tube at each end of the tube.

Sill Line Spirally Wound Gilled Tube can be supplied in straight lengths up to 3m. However consideration should be given to length limitations to ease transportation and site handling.

### **Class of Tube**

Standard steel tubes to B.S. 1387 are used in the manufacture which can be of Medium or Heavy weight quality. Only specially selected gilling tape manufactured within close specification limits is used to ensure perfect bonding and strength.

Lengths are sold subject to a working pressure recommended for the appropriate B.S.S. for that class of tube.

### **Features**

- Sizes 15mm to 100mm Nominal Bore
- Medium or Heavy Weight Tube
- Manufactured from Steel Tube to B.S. 1387.
- All steel continuous gilling
- Polyester Powder Coated
- Painted or Mill finish
- Perfect mechanical bonding of gills onto pipe
- Any length up to 3m





# SILL-LINE

## PERIMETER HEATING LTD



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Daventry, Northamptonshire NN11 4HB

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Designed and Manufactured in Great Britain