

**THERMAL**

Heating Systems

Manufacturers of Commercial Heating Products

FAN CONVECTORS • PERIMETER HEATING • TRENCH HEATING • L.S.T. HEATING



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# GENERAL DESCRIPTION

Apart from the “specials” which are designed for specific applications the following are the main types of fan convector produced by Thermal.

**G-Units** **Fan Convectors**, “chassis type” to be used as replacement power packs or incorporated into builders work cabinets / enclosures or existing casings. Jacking / levelling bolts are located in the base of the unit.

**QM-Units** **Fan Convectors**, “free standing” or low level wall mounted, with heavy duty powder coated metal casings, rounded corners and lockable access panels. 100mm high jackable plinth would normally be supplied with this model.

**QW-Units** **Fan Convectors**, “free standing” or low level wall mounted, with quality timber surround, rounded corners and lockable access panels. 100mm high jackable plinth would normally be supplied with this model. (Special order stipulating type of veneer or coating).

**K-Units** **Fan Convectors**, ceiling or high level wall mounted, powder coated metal casings with rounded corners and hinged lockable access panels.  
Type TT tapered profile at each end incorporating discharge and return air grille.  
Type TF tapered profile at one end incorporating discharge grille flat panel at the opposite end with return air grille located in access panel on the underside.

**C-Units** **Fan Convectors**, “chassis type” to be used within special enclosures or ceiling voids several duct variations are available.

**Grilles & Fascias** Made to order to suit client applications.

All fan convectors produced by Thermal are based on the cross-flow fan assembly with external rotor motor configuration and has been proven over many years of laboratory and site tests to be both reliable and quiet. The motors have Class B insulation and comply with VDE0530/11.72 regulations and DIN 40050.

All heater batteries/coils are subject to air under water leak test of 315 kPa (450psi) and hydraulic burst test to 1400 kPa (2000psi).

When installed in acoustically average rooms fans running at normal speed are within NC40 those running at slow speed are within NC30.

All units are supplied with integrally wired low temperature cut outs, but will require remote wall mounted control thermostats either one or two stage with the facility of summer-winter control if required. Facility to link into the customers Building Management System or similar is also available.

Strict quality control is an established part of our production process; all units are test run on final assembly before despatch.



# MAINTENANCE PACKAGING & CONNECTIONS

## MAINTENANCE

**General** - Routine maintenance on all Thermal fan convectors is restricted to cleaning/replacement of air filters, all motor and fan bearings are lubricated and sealed for life and do not require any routine maintenance.

The same size of motor is used throughout the range with the exception of size 4 which is 10mm longer.

Washable filters used are recommended to be cleaned at least twice a year, but the precise timing will be dictated by the application and local conditions.

**G-Units** - Routine maintenance access to filters and air vents will be largely governed by the design of the cabinet, the units are themselves designed to accommodate front and rear access to the fan assembly / filter by removal of the relevant cover plate of the plenum box.

**QM / QW-Units** - Routine maintenance of filters, and air vents is obtained by unlocking and removing the access panel which incorporates discharge and return air grilles, the fan assembly /filter can be reached by the removal of the relevant cover plate of the plenum box.

**K-Units** - Routine maintenance of filters, air vents or removal of fan assemblies is obtained by unlocking the hinged access panel.

**C-Units** - Routine maintenance of filters, air vents and fan assemblies is obtained by removing whatever access has been designed for the installation ie ceiling tile or panel.

## PACKAGING

All units are despatched fully assembled and packed in strong corrugated cardboard cartons which may be replaced over the installed unit to provide protection during the continuation of site works.

## CONNECTIONS

Flow and return headers are manufactured from 28mm copper tube, and are each fitted with reducing adaptors to 3/4" BSP Male Iron at one end / and vent/drain facility at the opposite end .

Electrical supply required is 1-phase, 240V, 50 Hz, Input is approx 100 watts per fan unit.

The Customer Connection Box is located on each unit with internal connector block and 20mm stuffing gland for incoming electrical supply.

The relevant wiring diagram will also be supplied with each unit.



## USE OF G&C UNITS FOR MAINTENANCE, REFURBISHMENT AND UPGRADING OF HEATING SYSTEMS

re no longer adequate for the intended use. In some cases the original specification needs to be updated, for a variety of reasons; in others the system is no longer able to provide the output required.

**C-Units** - Were designed for use within ceiling voids and other special enclosures and should be used in applications where surface mounted, free standing or builder's work units cannot be accommodated.

**G-Units** - Were specifically designed for upgrading existing fan convectors of any manufacture. In many instances they can simply be dropped into the existing enclosure and connected; in others special transformation ducts, maybe a new grille or even casings are required.

Thermal can manufacture and supply all these items as well as the units.

In addition Thermal is in a position to offer a comprehensive survey and advise on the heat output required equipment needed and suitability or otherwise of the existing units and controls.

Where a building is to be completely refurbished Thermal can design and manufacture enclosures, casings or bulkheads that may be required to blend the system into the proposed new décor.

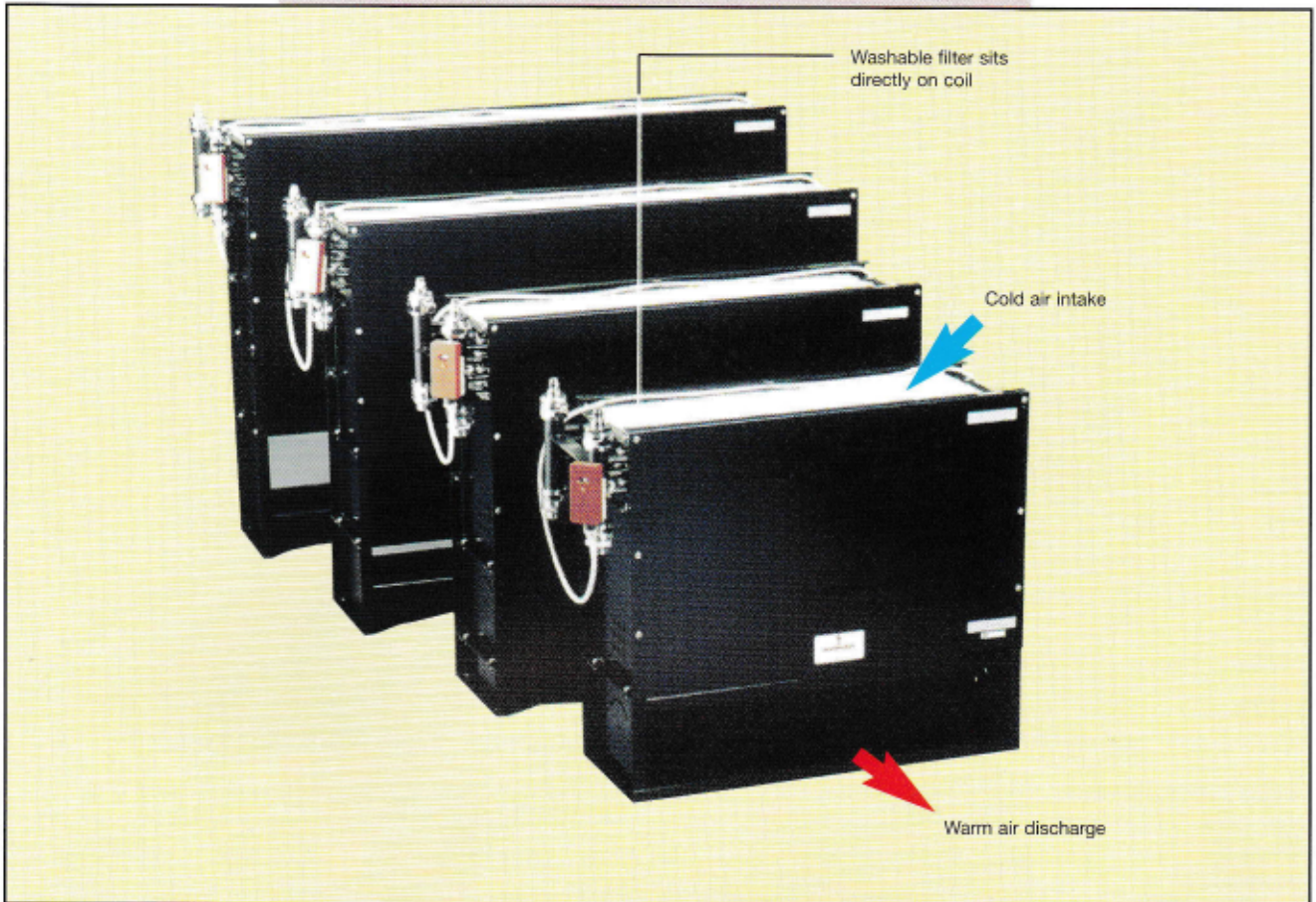
While Thermal is predominantly a production unit, we are often asked for and indeed offer advice to the contractor to familiarize his operatives with our products – a good installation is ultimately to everyone's benefit.

### PRODUCT IMPROVEMENT

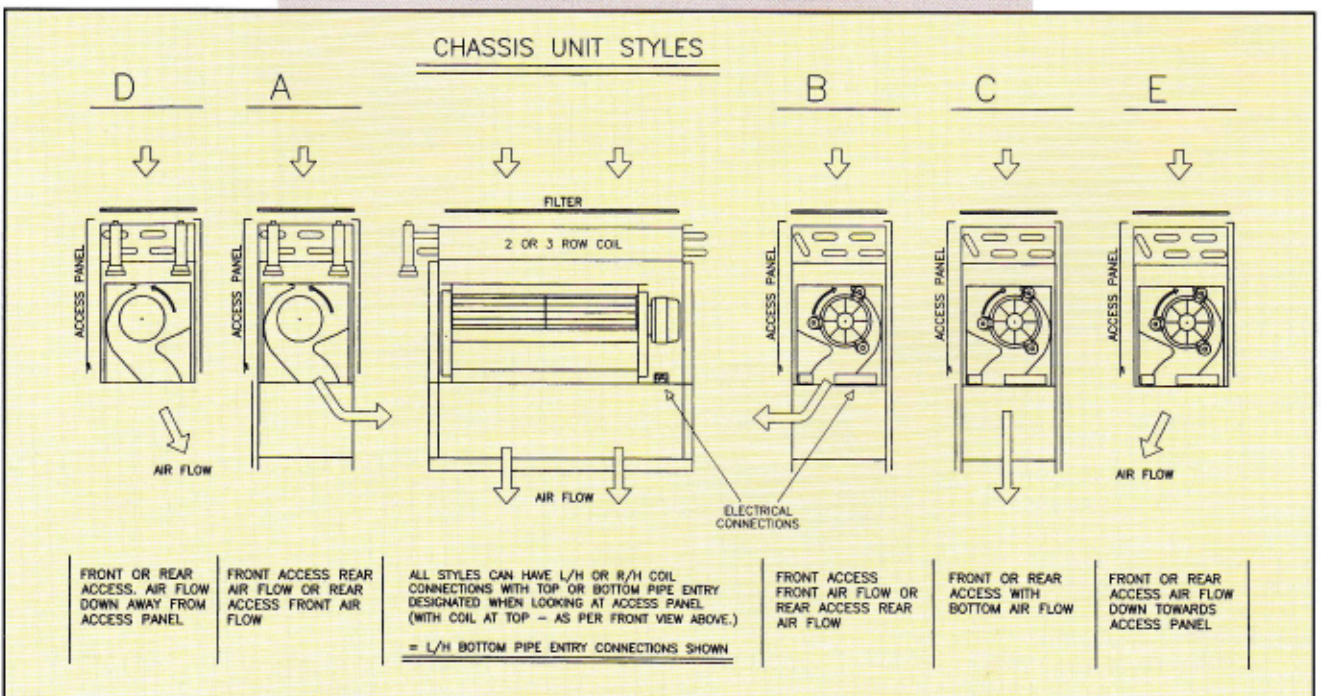
To facilitate continuing product improvement, design changes may be made during the life of this brochure. We recommend that all data be verified before proceeding with any design application.



# G UNIT ASSEMBLY

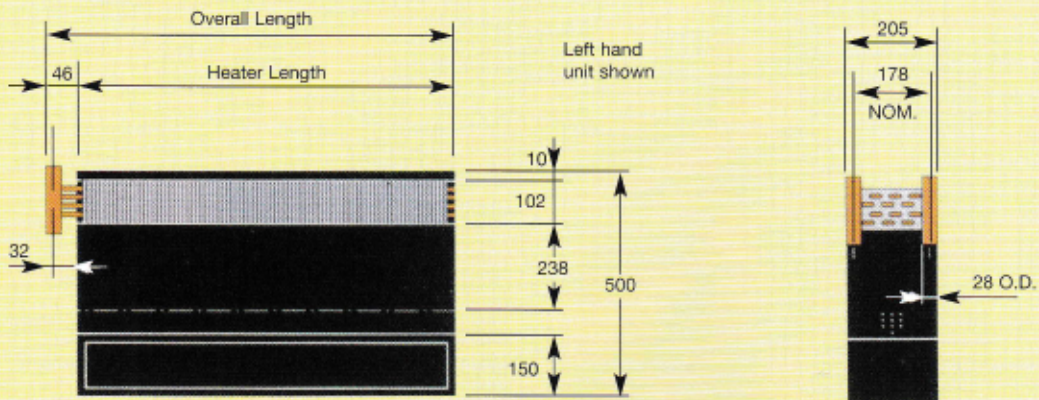


Left-hand unit is shown: Coil may be reversed to give right-hand unit.





# G UNIT DIMENSIONS OUTPUTS & ORDERING



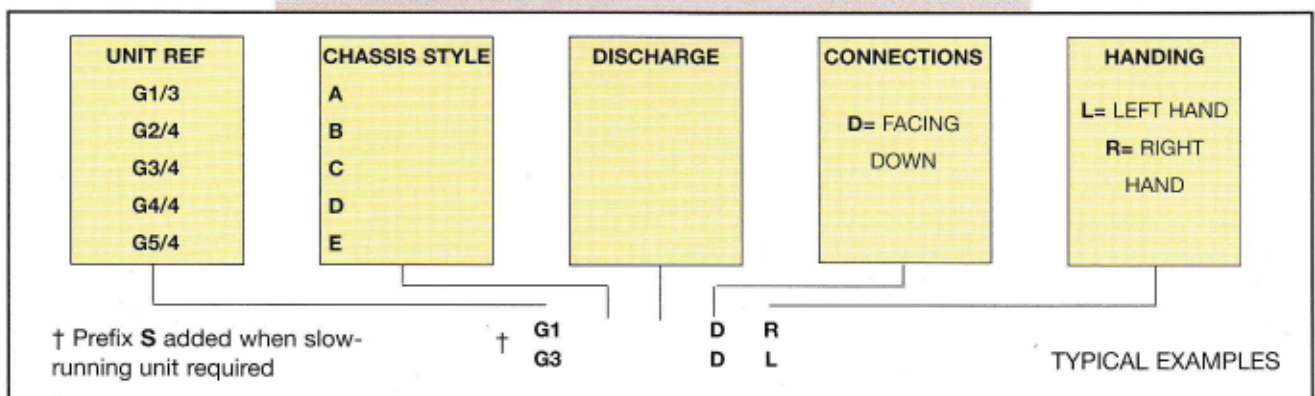
**DIMENSIONS** in millimeters

UNIT REFERENCE	G1	G2	G3	G4	G5
HEATER LENGTH	600	700	875	1005	1305
OVERALL LENGTH	646	746	921	1051	1351

**HEAT OUTPUTS** with LPHW @ 82°C, EAT @ 20°C and water flows corresponding to 16°C temperature drop.

UNIT REF.	NORMAL SPEED			SLOW SPEED			WATER FLOW RATE kg/s	HYDRAULIC RESISTANCE kPa
	OUTPUT WATTS	AIRFLOW m³/hr	O.A.T. °C	OUTPUT WATTS	AIRFLOW m³/hr	O.A.T. °C		
G1	5,580	630	45	4,180	437	47	0.083	2.7
G2	8,400	731	53	6,290	510	55	0.126	3.1
G3	11,180	978	53	8,380	680	55	0.169	5.6
G4	13,350	1,122	54	10,000	780	57	0.200	8.3
G5	15,610	1,320	54	11,540	929	57	0.233	13.3

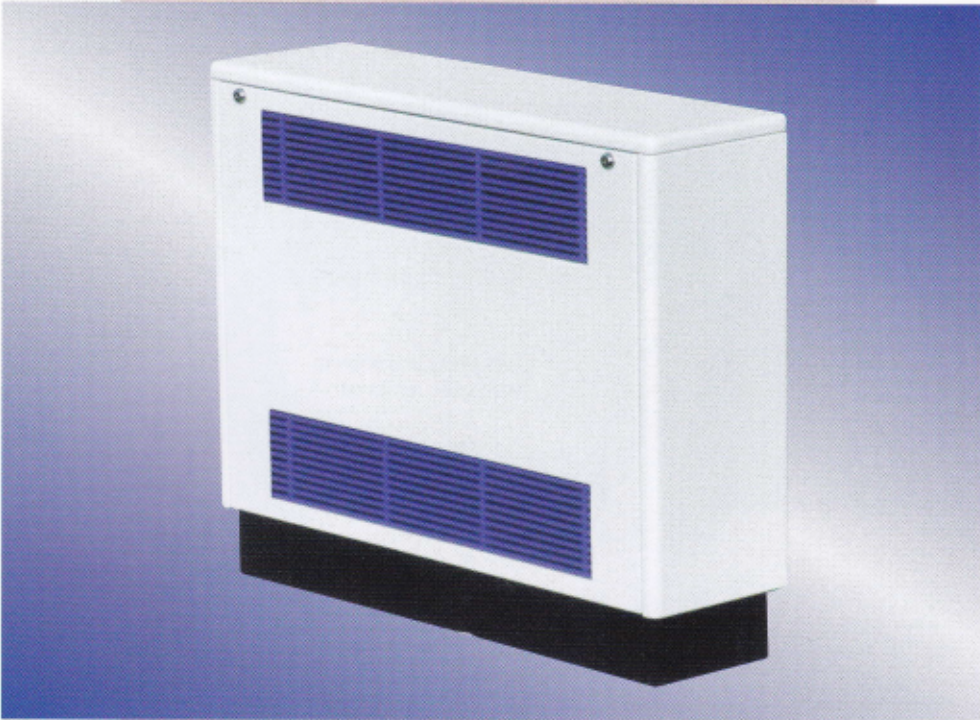
## ORDERING PROCEDURE



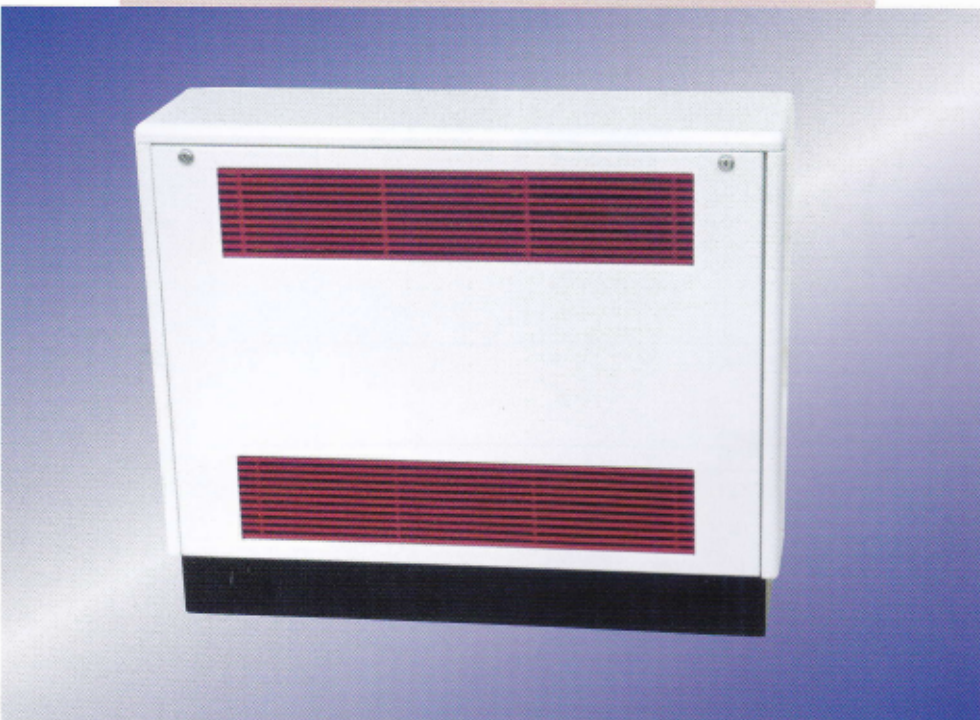
For correction factors please see page 15.



# Q U N I T S



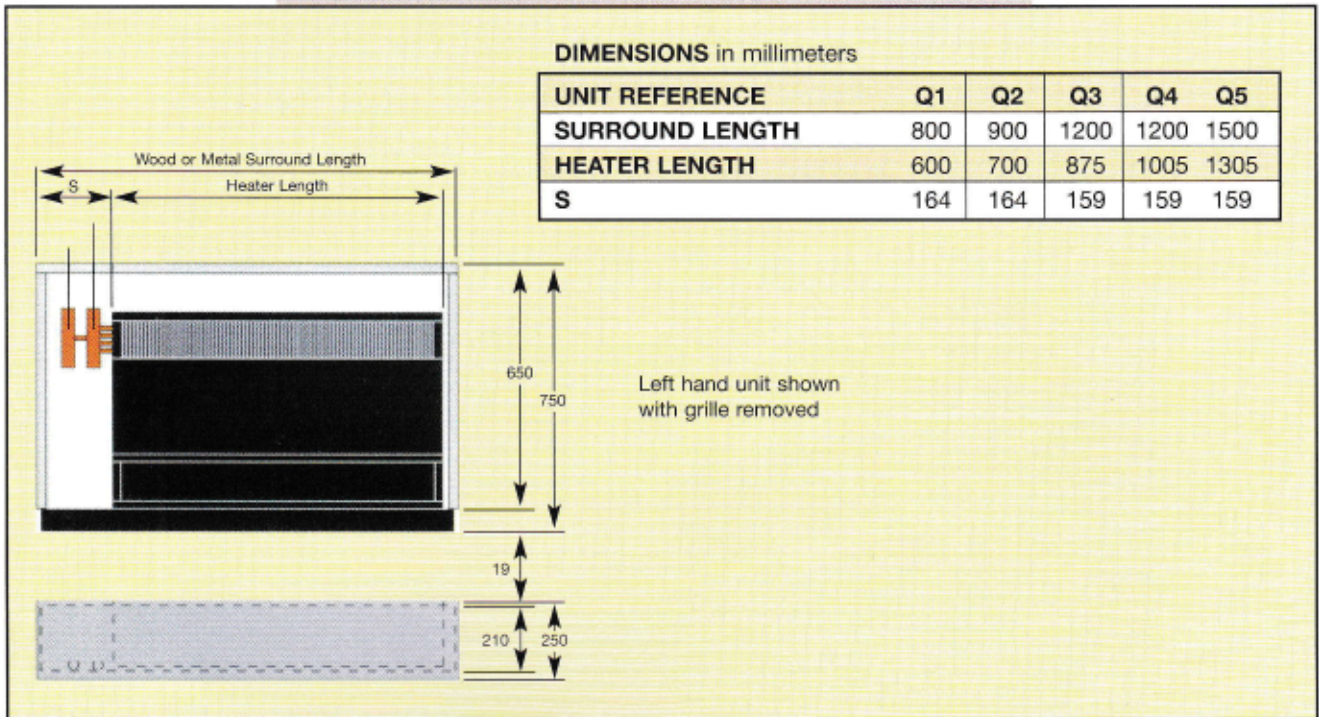
**MODEL QM** - metal surround powder coated.



**MODEL QW** - wood surround steamed beech veneer.



# Q UNIT DIMENSIONS OUTPUTS & ORDERING



**HEAT OUTPUTS** with LPHW @ 82°C, EAT @ 20°C and water flows corresponding to 16°C temperature drop.

UNIT REF.	NORMAL SPEED			SLOW SPEED			WATER FLOW RATE kg/s	HYDRAULIC RESISTANCE kPa
	OUTPUT WATTS	AIRFLOW m <sup>3</sup> /hr	O.A.T. °C	OUTPUT WATTS	AIRFLOW m <sup>3</sup> /hr	O.A.T. °C		
Q1	5,580	630	45	4,180	437	47	0.083	2.7
Q2	8,400	731	53	6,290	510	55	0.126	3.1
Q3	11,180	978	53	8,380	680	55	0.169	5.6
Q4	13,350	1,122	54	10,000	780	57	0.200	8.3
Q5	15,610	1,320	54	11,540	929	57	0.233	13.3

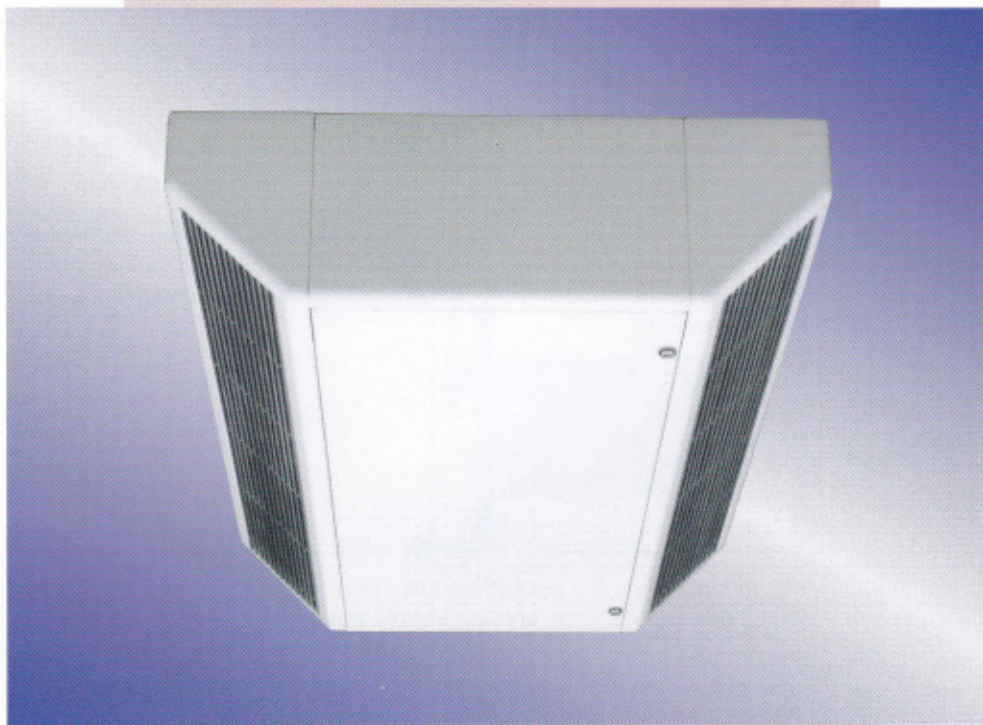
### ORDERING PROCEDURE

<b>UNIT REF</b> QM = Steel Casing QW = Wood Surround	<b>SIZE</b> 1/3 2/4 3/4 4/4 5/4	<b>DISCHARGE</b>	<b>CONNECTIONS</b>  D= FACING DOWN	<b>HANDING</b>  L= LEFT HAND R= RIGHT HAND
† Prefix <b>S</b> added when slow-running unit required				
† QW 1 1 D L QM 4 1 D R				
<b>TYPICAL EXAMPLES</b>				

For correction factors please see page 15.

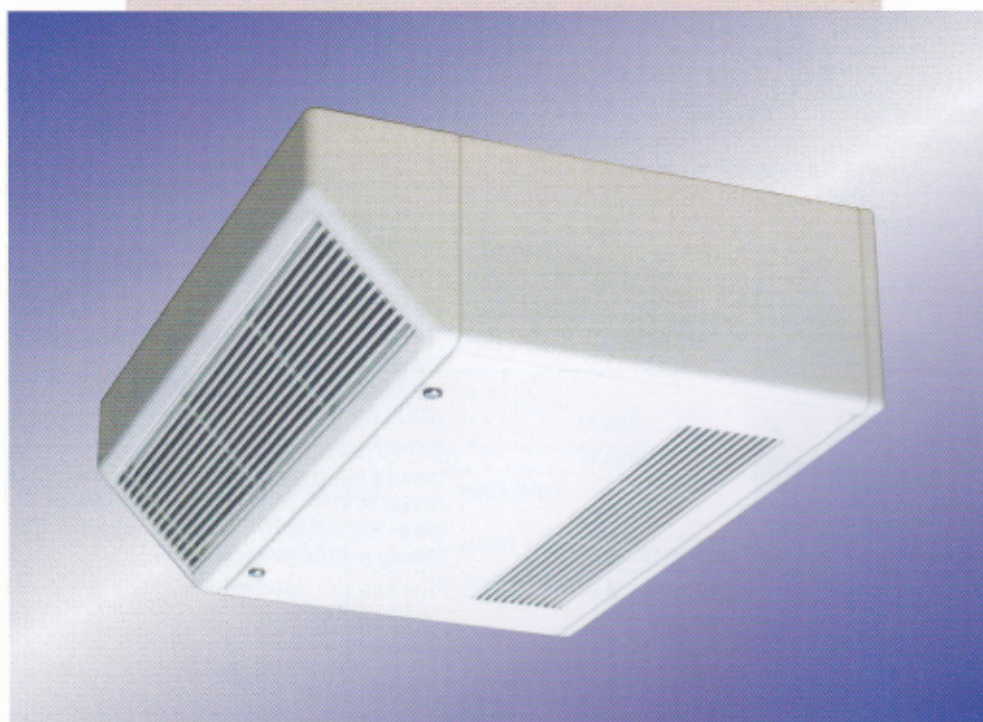


# K U N I T S



**TYPE TT**

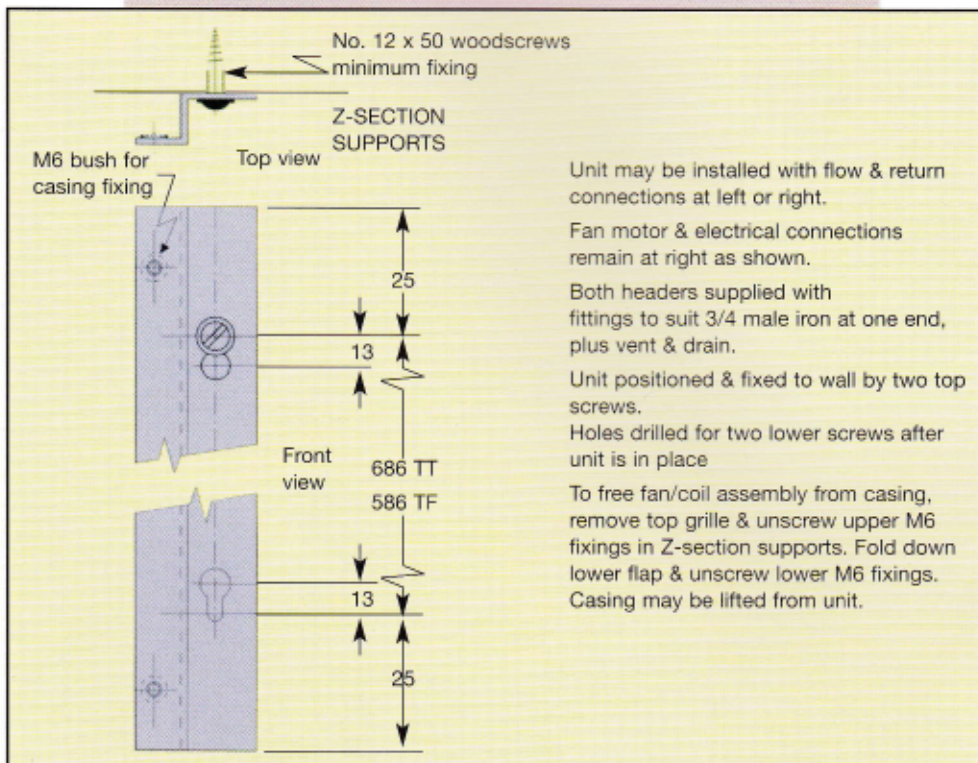
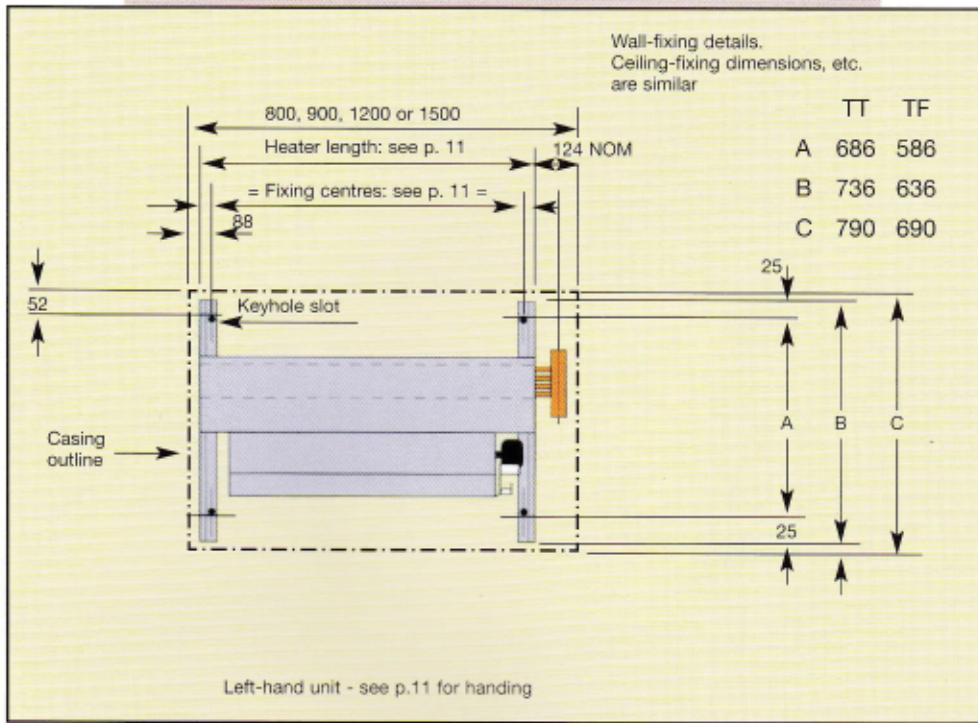
There are units suitable for horizontal or vertical mounting and are ideal for applications where wall space is at a premium e.g. sports halls, gymnasiums, laboratories and production areas.



**TYPE TF**

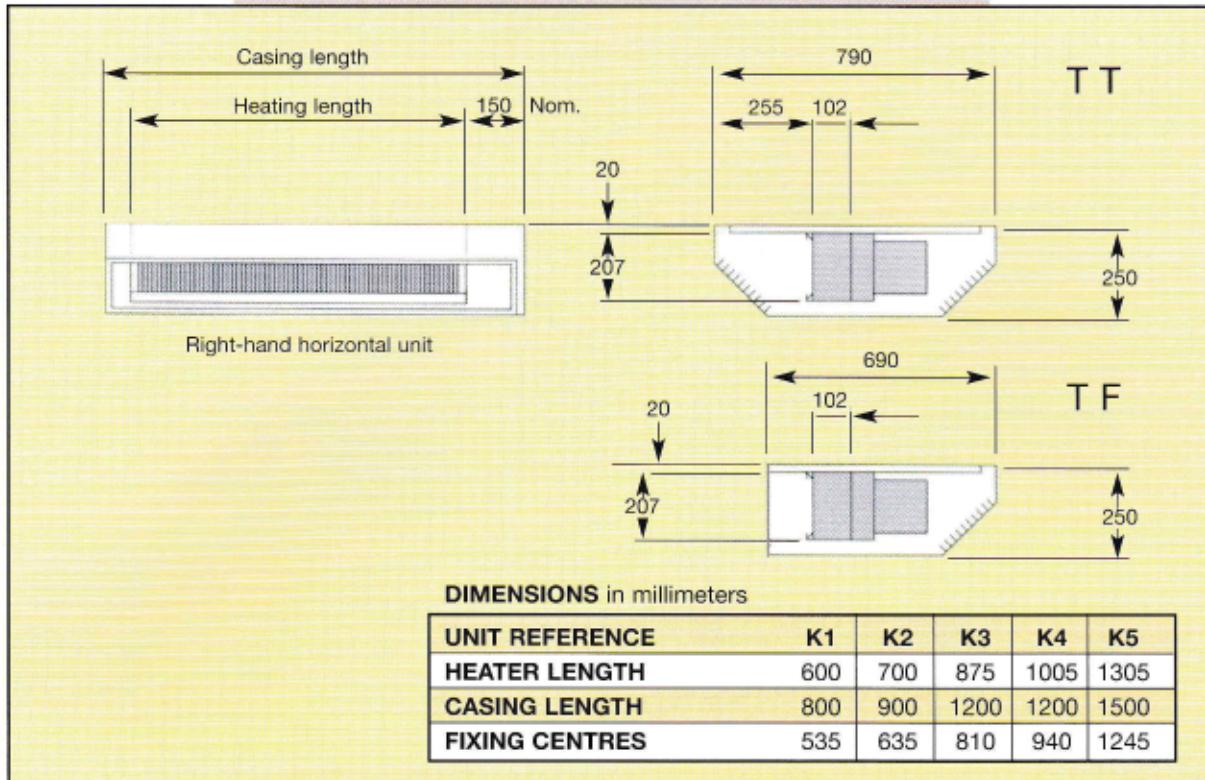


# K UNIT DIMENSIONS & FIXING





# K UNIT DIMENSIONS OUTPUTS & ORDERING



**HEAT OUTPUTS** with LPHW @ 82°C, EAT @ 20°C and water flows corresponding to 16°C temperature drop.

UNIT REF.	NORMAL SPEED			SLOW SPEED			WATER FLOW RATE kg/s	HYDRAULIC RESISTANCE kPa
	OUTPUT WATTS	AIRFLOW m³/hr	O.A.T. °C	OUTPUT WATTS	AIRFLOW m³/hr	O.A.T. °C		
K1	5,580	662	45	4,390	459	47	0.083	2.7
K2	8,820	771	53	6,605	536	55	0.126	3.1
K3	11,740	1,027	53	8,800	714	55	0.169	5.6
K4	14,020	1,178	54	10,500	819	57	0.200	8.3
K5	16,390	1,380	54	12,000	975	57	0.233	13.3

### ORDERING PROCEDURE

**UNIT REF**

K1/3  
K2/4  
K3/4  
K4/4  
K5/4

**HORIZONTAL OR VERTICAL**

H = HORIZONTAL  
V = VERTICAL

**HANDING**

L = LEFT HAND  
R = RIGHT HAND

Handing is always determined looking on discharge with unit in installed position.

† Prefix **S** added when slow-running unit required

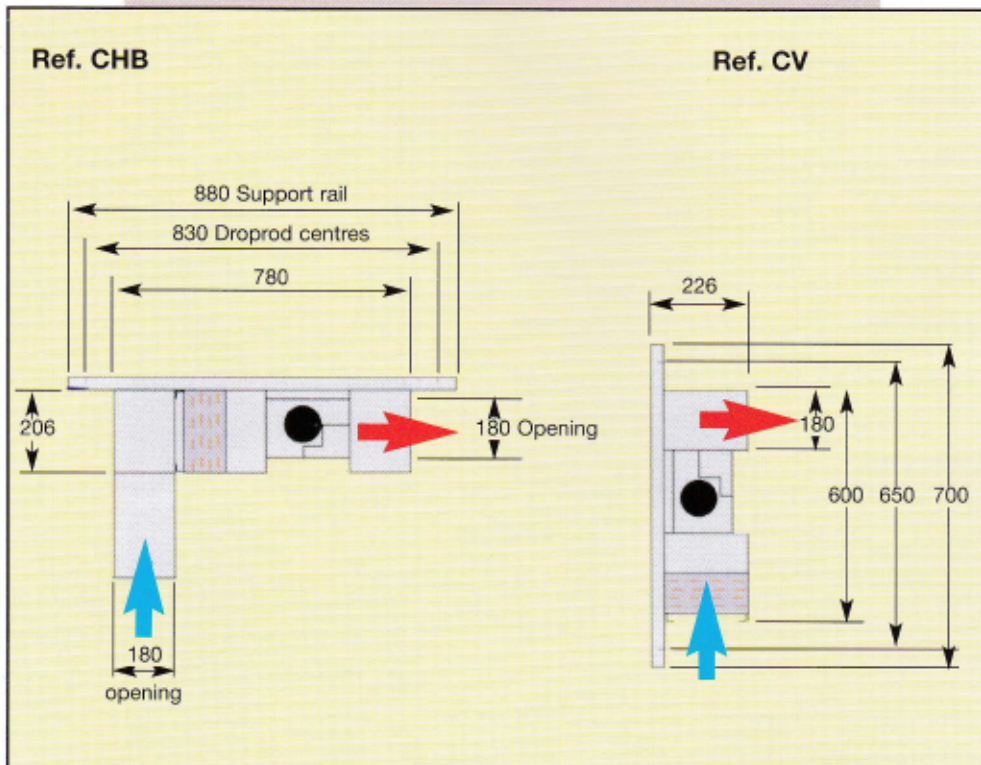
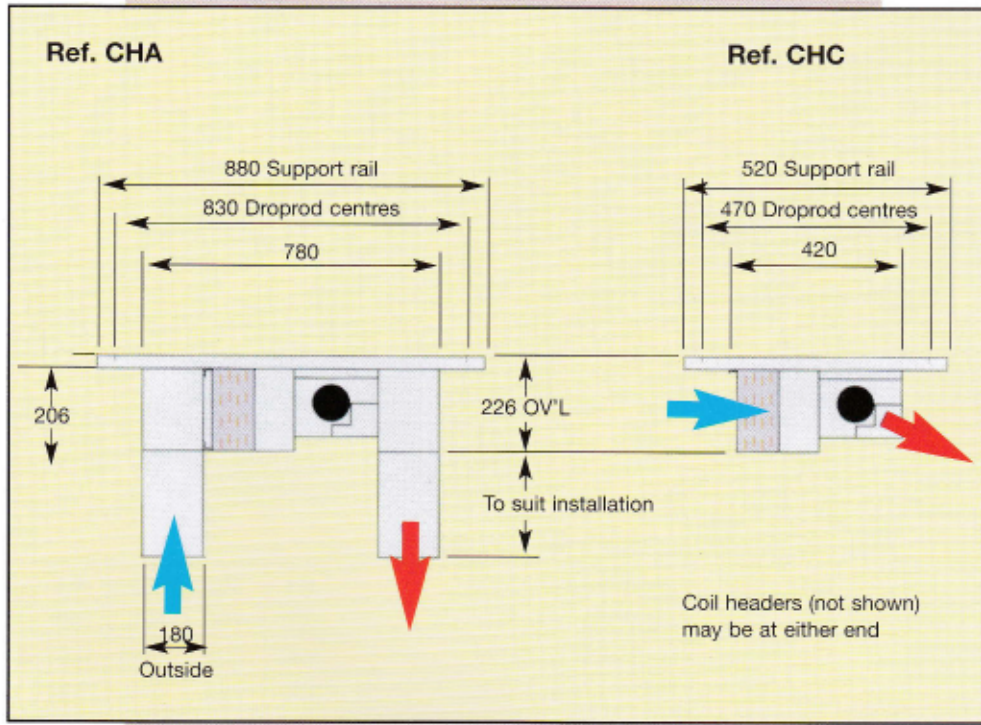
† K4 H R  
K2 V L

TYPICAL EXAMPLES

For correction factors please see page 15.



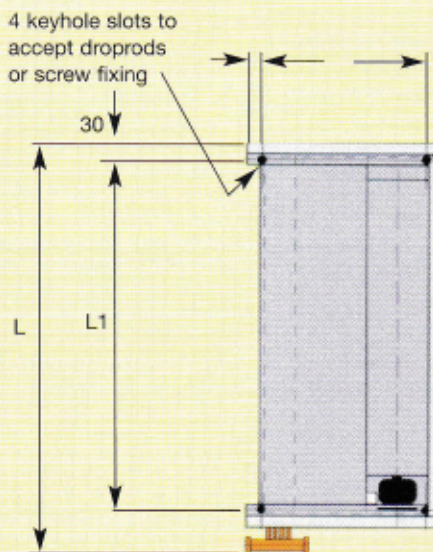
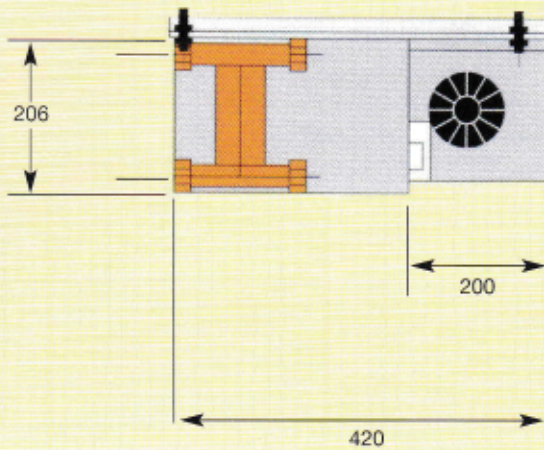
# C UNIT DIMENSIONS





# C UNIT DIMENSIONS

## Header Arrangement C-Units



APPLIES TO CHA, CHB, CHC & CV units.

UNIT REFERENCE	1	2	3	4	5
OVERALL LENGTH L	665	765	940	1070	1500
FIXING CENTRES L1	535	635	810	940	1245



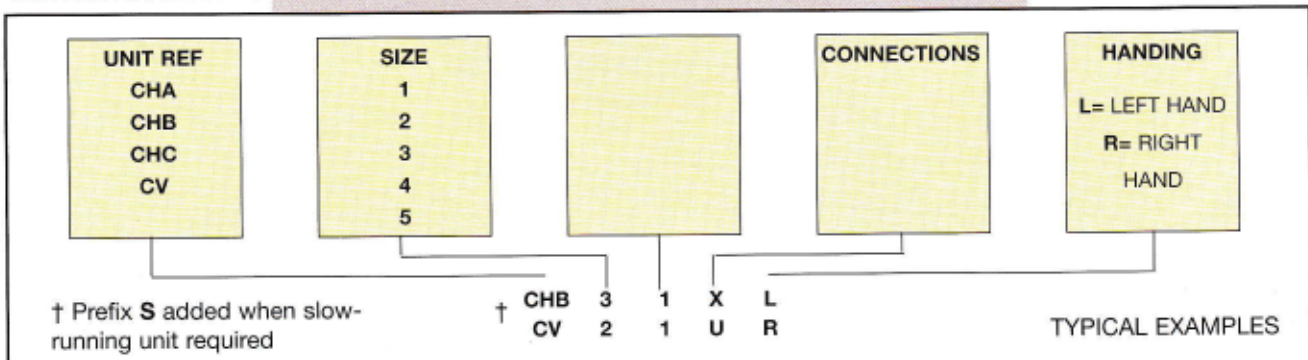
# C UNIT OUTPUTS & ORDERING

HEAT OUTPUTS with LPHW @ 82°C, EAT @ 20°C and water flows corresponding to 16°C temperature drop.

UNIT REF.	NORMAL SPEED			SLOW SPEED			WATER FLOW RATE kg/s	HYDRAULIC RESISTANCE kPa
	OUTPUT WATTS	AIRFLOW m <sup>3</sup> /hr	O.A.T. °C	OUTPUT WATTS	AIRFLOW m <sup>3</sup> /hr	O.A.T. °C		
CHC1,CV1	5,860	662	45	4,390	459	47	0.083	2.7
CHC2,CV2	8,820	771	53	6,605	536	55	0.126	3.1
CHC3,CV3	11,740	1,027	53	8,800	714	55	0.169	5.6
CHC4,CV4	14,020	1,178	54	10,500	819	57	0.200	8.3
CHC5,CV5	16,390	1,380	54	12,000	975	57	0.233	13.3

UNIT REF.	NORMAL SPEED			SLOW SPEED			WATER FLOW RATE kg/s	HYDRAULIC RESISTANCE kPa
	OUTPUT WATTS	AIRFLOW m <sup>3</sup> /hr	O.A.T. °C	OUTPUT WATTS	AIRFLOW m <sup>3</sup> /hr	O.A.T. °C		
CHA1,CHB1	5,300	600	45	3,970	415	47	0.083	2.7
CHA2,CHB2	7,980	690	53	5,980	485	55	0.126	3.1
CHA3,CHB3	10,621	930	53	7,960	650	55	0.169	5.6
CHA4,CHB4	12,680	1,060	54	9,500	740	57	0.200	8.3
CHA5,CHB5	14,840	1,249	54	10,860	883	57	0.233	13.3

## ORDERING PROCEDURE



For correction factors please see page 15.



# CORRECTION FACTORS

MEAN WATER TEMP. °C	ROOM TEMPERATURE											
	16°C	17°C	18°C	19°C	20°C	21°C	22°C	23°C	24°C	25°C	26°C	27°C
55	0.722	0.704	0.685	0.667	0.648	0.630	0.611	0.593	0.574	0.556	0.537	0.519
56	0.741	0.722	0.704	0.685	0.667	0.648	0.630	0.611	0.593	0.574	0.556	0.537
57	0.759	0.741	0.722	0.704	0.685	0.667	0.648	0.630	0.611	0.593	0.574	0.556
58	0.778	0.759	0.741	0.722	0.704	0.685	0.667	0.648	0.630	0.611	0.593	0.574
59	0.796	0.778	0.759	0.741	0.722	0.704	0.685	0.667	0.648	0.630	0.611	0.593
60	0.815	0.796	0.778	0.759	0.741	0.722	0.704	0.685	0.667	0.648	0.630	0.611
61	0.833	0.815	0.796	0.778	0.759	0.741	0.722	0.704	0.685	0.667	0.648	0.630
62	0.852	0.833	0.815	0.796	0.778	0.759	0.741	0.722	0.704	0.685	0.667	0.648
63	0.870	0.852	0.833	0.815	0.796	0.778	0.759	0.741	0.722	0.704	0.685	0.667
64	0.889	0.870	0.852	0.833	0.815	0.796	0.778	0.759	0.741	0.722	0.704	0.685
65	0.907	0.889	0.870	0.852	0.833	0.815	0.796	0.778	0.759	0.741	0.722	0.704
66	0.926	0.907	0.889	0.870	0.852	0.833	0.815	0.796	0.778	0.759	0.741	0.722
67	0.944	0.926	0.907	0.889	0.870	0.852	0.833	0.815	0.796	0.778	0.759	0.741
68	0.963	0.944	0.926	0.907	0.889	0.870	0.852	0.833	0.815	0.796	0.778	0.759
69	0.981	0.963	0.944	0.926	0.907	0.889	0.870	0.852	0.833	0.815	0.796	0.778
70	1.000	0.981	0.963	0.944	0.926	0.907	0.889	0.870	0.852	0.833	0.815	0.796
71	1.019	1.000	0.981	0.963	0.944	0.926	0.907	0.889	0.870	0.852	0.833	0.815
72	1.037	1.019	1.000	0.981	0.963	0.944	0.926	0.907	0.889	0.870	0.852	0.833
73	1.056	1.037	1.019	1.000	0.981	0.963	0.944	0.926	0.907	0.889	0.870	0.852
74	1.074	1.056	1.037	1.019	1.000	0.981	0.963	0.944	0.926	0.907	0.889	0.870
75	1.093	1.074	1.056	1.037	1.019	1.000	0.981	0.963	0.944	0.926	0.907	0.889
76	1.111	1.093	1.074	1.056	1.037	1.019	1.000	0.981	0.963	0.944	0.926	0.907
77	1.130	1.111	1.093	1.074	1.056	1.037	1.019	1.000	0.981	0.963	0.944	0.926
78	1.148	1.130	1.111	1.093	1.074	1.056	1.037	1.019	1.000	0.981	0.963	0.944
79	1.167	1.148	1.130	1.111	1.093	1.074	1.056	1.037	1.019	1.000	0.981	0.963
80	1.185	1.167	1.148	1.130	1.111	1.093	1.074	1.056	1.037	1.019	1.000	0.981



# THERMAL

H e a t i n g   S y s t e m s

**Manufacturers of Commercial Heating Products**

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6 Doman Road, Yorktown Industrial Estate, Camberley, Surrey GU15 3DF  
Tel & Fax: 01753 571077 • Mobile: 0773 8474956