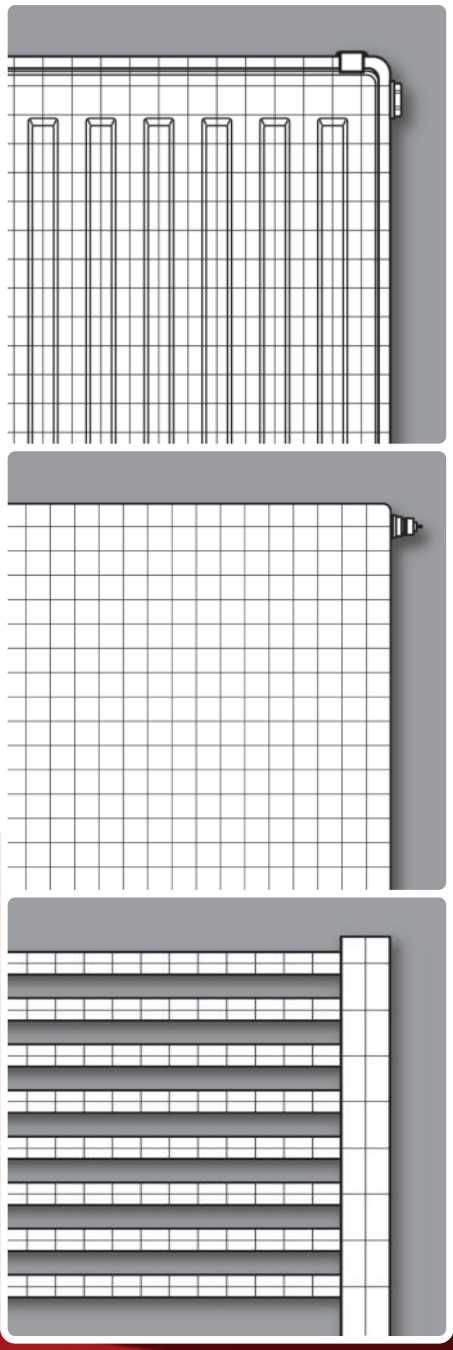
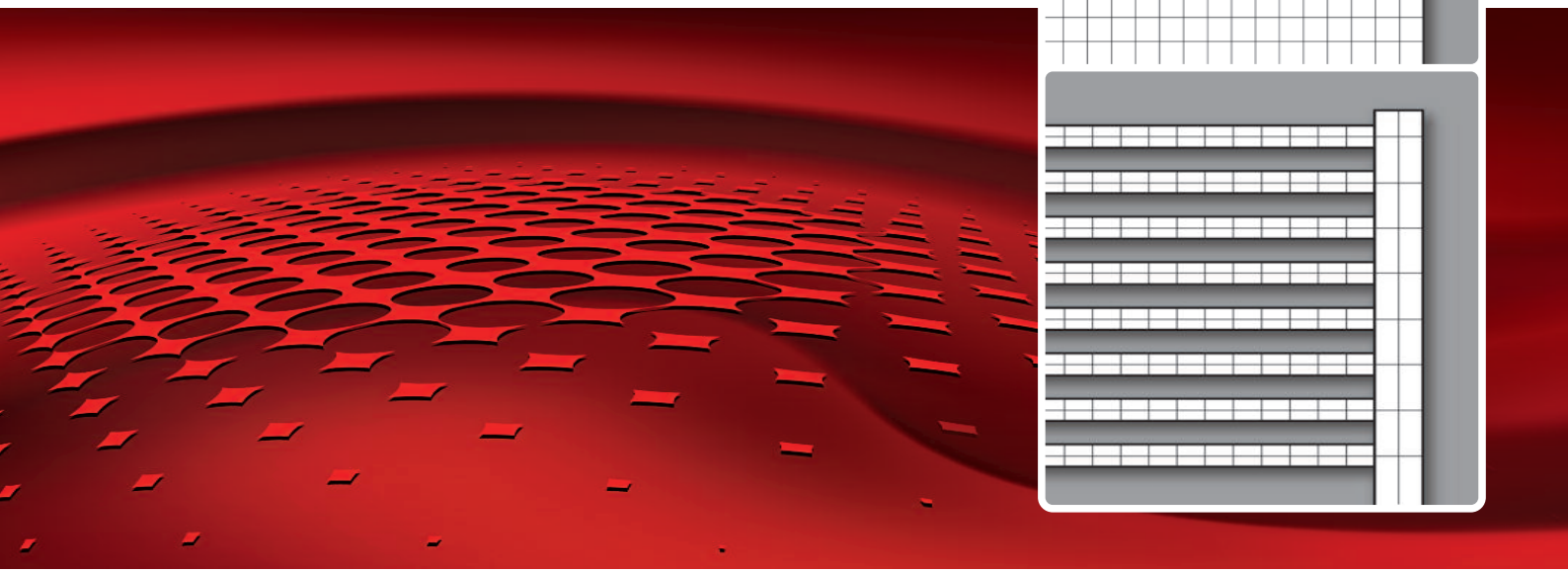
VOGEL&NOOT

PANEL RADIATORS
DESIGN RADIATORS
TOWEL WARMERS.

TECHNICAL GUIDE

JANUARY 2017





heatingthroughinnovation.

CE

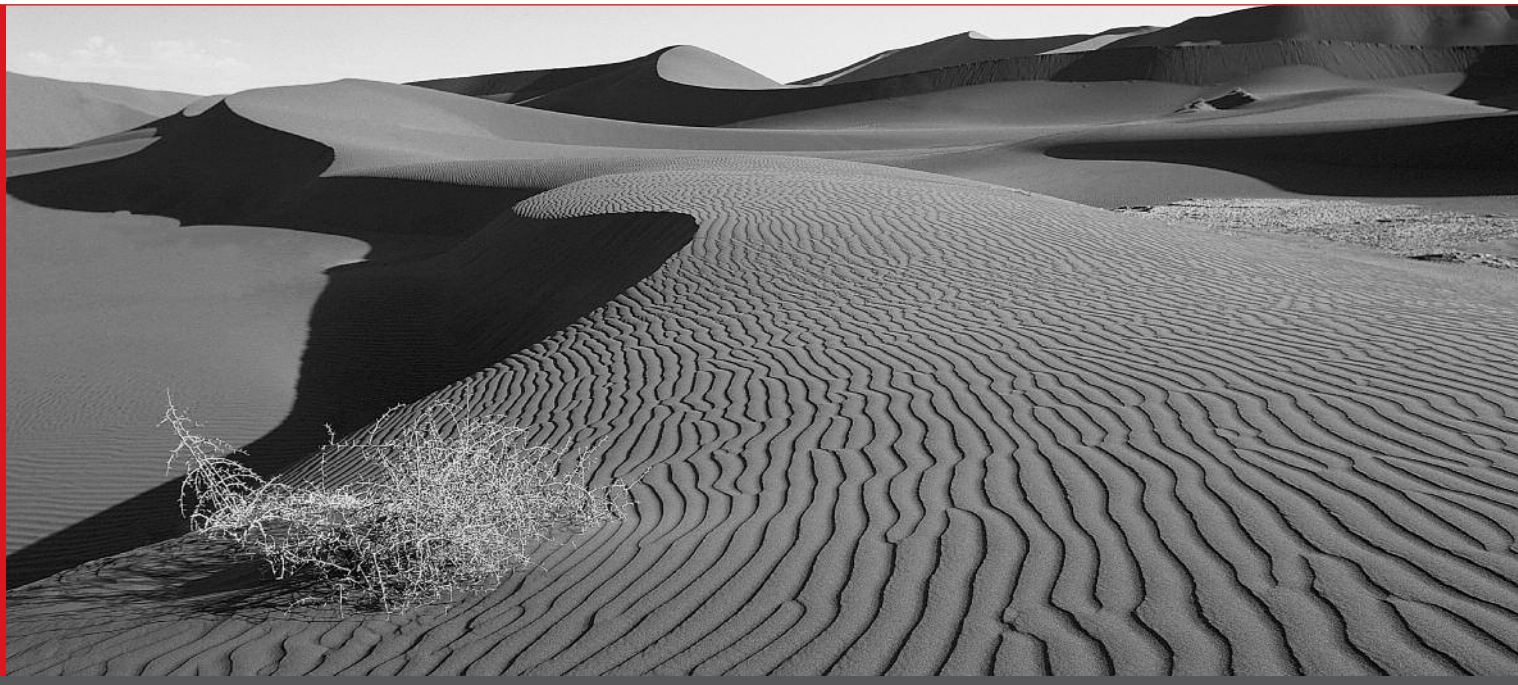
ECO RENEWABLE ENERGY COMPATIBLE

In accordance with our policy of continual product improvement we reserve the right to amend the specification of these products or discontinue products without prior notification. We have compiled the content of this literature to the best of our knowledge. Any typographical, clerical or other error or emission in any literature issued by us will be subject to correction without liability being incurred by us. All rights reserved. No part of this document may be reproduced by any means without prior written consent.

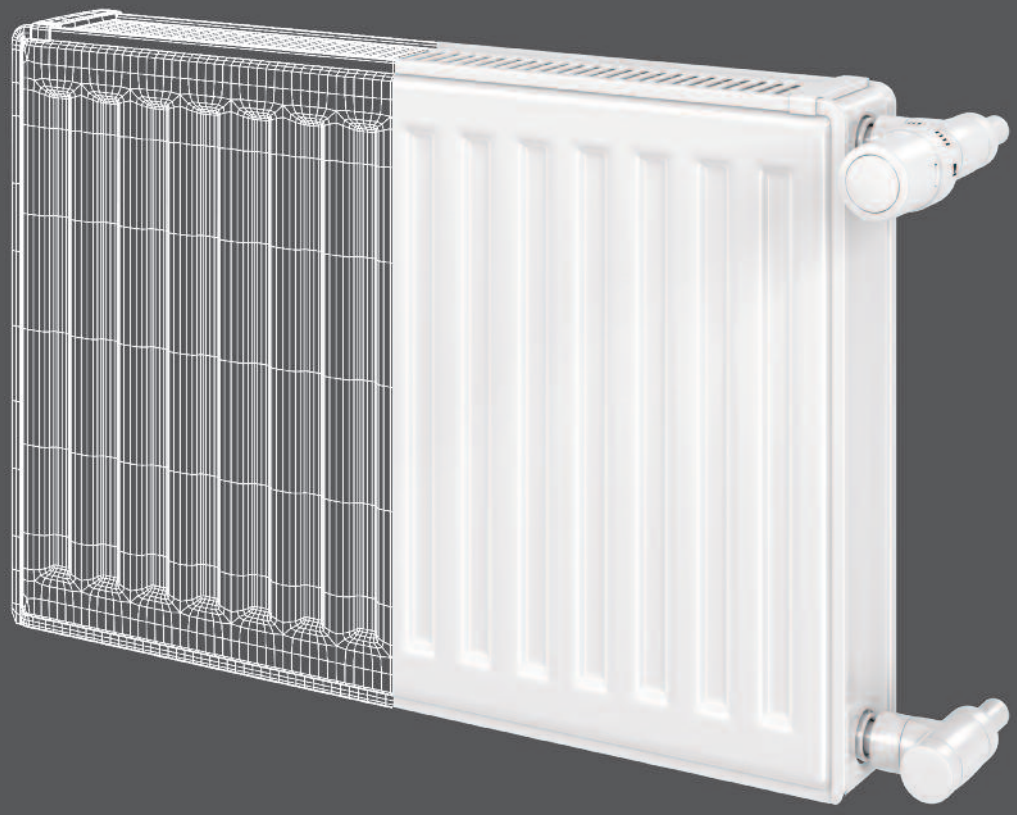
Please note: due to print restrictions exact colour match is not always possible, however every effort has been made to ensure as much accuracy as possible.

1. Panel Radiators.

2. Design Radiators & Towel Warmers.



VIENNALINE Compact.



General Specifications

Approval and Certification

VOGEL&NOOT offers strong products that meet the highest quality standards during manufacture and operation. All information on the quality and performance of **VOGEL&NOOT** panel radiators is verified and confirmed by recognised European institutions on an ongoing basis, thereby guaranteeing the highest level of heating performance and optimum product quality.

When used in systems designed and installed in accordance with the good practice recommendations given in the 'Application' section, the **VOGEL&NOOT VIENNALINE Compact** range carries a ten year guarantee from date of purchase against defects caused by faulty materials or manufacture. However, failure to pay attention to these recommendations (in new or existing systems) may invalidate the manufacturer's warranty.

Material and Paint Finish

Every **VIENNALINE Compact** radiator is subjected to a thorough painting process involving degreasing, phosphating and primer coating (stoved) prior to the final finishing coat of white semi-gloss epoxy paint, which is cured at 210°C. Colour options are available, see pages 36 & 37, for a small extra charge and with a 6-8 week delivery lead time. This means that **VIENNALINE Compact** radiators can be installed without further painting, although if desired (e.g. colour change), overpainting can be carried out using a good quality, oil-based gloss paint. Additionally, white touch-up paint is available.

VIENNALINE Compact radiators are made of cold-rolled sheet steel, and in accordance with EN 442-1, with stylish and robust waterways at 40 mm intervals.

Packaging

All our radiators are individually wrapped in heavy duty polythene shrink-wrapping and are clearly marked externally with type and size. The radiator panels are also wrapped in cardboard and all corners are further protected with preformed caps.

The packaging is designed to enable full fitting and assembly of radiators into the heating system, without removal of the protective packaging - a real plus point for new building installations. Radiators left protected in this way can be filled and run up to 40°C during initial cleaning and commissioning of the heating system.

Fixings

All **VIENNALINE Compact** radiators are supplied with concealed wall mounting brackets. The table of dimensions on page 8 gives further details.

For the correct installation of radiators it is essential that the fixing of the radiator is carried out in such a way that it is suitable for intended use AND predictable misuse. A number of elements need to be taken into consideration including the fixing method used to secure the radiator to the wall, the type and condition of the wall itself, and any additional potential forces or weights that may happen to be applied to the radiator, prior to finalising installation. **IN ALL CASES IT IS STRONGLY RECOMMENDED THAT A SUITABLY QUALIFIED PROFESSIONAL INSTALLER OR SIMILAR TRADESPERSON CARRIES OUT THE INSTALLATION.**

PLEASE NOTE: The fixing materials provided are only intended for installation on walls made of solid wood, bricks, concrete or on timber-frame stud walls where the fixing is into the timber. All walls being considered should have no more than a maximum of 3mm wall finishing. For walls made of other materials, for example hollow bricks, please consult your installer and/or specialist supplier. **ONCE AGAIN, IF YOU ARE UNSURE, IT IS STRONGLY RECOMMENDED THAT A SUITABLY QUALIFIED PROFESSIONAL INSTALLER OR SIMILAR TRADESPERSON CARRIES OUT THE INSTALLATION.**

Each radiator is supplied complete with wall fixing brackets, blanking plug, air vent plug and vent key.

Connections

All **VIENNALINE Compact** radiators are fitted with 4 x 1/2" BSP connections.

Operating Pressures

Every **VIENNALINE Compact** radiator is tested to a pressure of 13 bar (189 psi) and is suitable for a working pressure of up to 10 bar (145 psi).

Application

VIENNALINE Compact radiators are for use in indirect or closed circuit heating systems only, which have been properly designed and installed in accordance with the recommendations of BS EN 12828:2003 or BS EN 12831:2003. In open-vented systems, special attention should be paid to the correct location of the pump in relation to the cold feed and vent pipe connections, to avoid ingress of air or water discharge through the open vent.

All installation work should be carried out in accordance with recognised good practice to ensure long life. In particular, careful attention should be paid to the following:

- Soldered joints should be made with a minimum amount of solder and flux. Choose a flux which is readily soluble in water.
- Copper pipes should be cut and cleaned in such a way as to avoid small copper particles being left in the system (this can lead to electrolytic action and eventual corrosion in the radiator).
- Corrosion inhibitors should be used strictly in accordance with the manufacturer's instructions.

Individual installation instructions are supplied in each radiator package.

Safety Precautions

Radiators are hot when in use, and as such, present a risk of burns to users on prolonged contact. The temperature of a radiator is dependent on the temperature of the system water, as set by the system installer or user. Installers and users should ensure that those who may come into close proximity to hot radiators are aware of the risk of burns. Installers and users should take all necessary steps to minimise the risks of burns. If the risk is significant, consideration should be given to installing low surface temperature radiators, or to placing guards in front of the radiators.

General Specifications (continued...)

Distinguished by the ECO seal of quality

The panel radiators from **VOGEL&NOOT** bear the ECO seal of quality, which stands for all-round compatibility with all (renewable) energy sources. It guarantees that the radiators can be operated in an economical and ecologically-sound manner, with significant savings on heating costs (an average of 15%*) and an enormous reduction in CO_2 emissions.

*On average, in comparison with old sectional radiators, test results based on data from Pinkafeld University of Applied Sciences.

Heat Output

The **VIENNALINE Compact** range has an advanced design giving high efficiency characteristics. The high outputs per unit surface area for the convector models have been achieved by ensuring excellent contact between the convector plates and both the water channels and dividing metal of the radiator panels. The convector surface is spot-welded to the metal channels and fits neatly into grooves on the water channels, thus ensuring high heat transfer rates.

The radiator outputs quoted in this brochure are based on a mean water temperature in the radiator of 70°C (158°F) and a room temperature of 20° (68°F) - Delta T50.

For other operating conditions - i.e. differences between mean water temperature and room temperature other than 50°C - the correction factors below should be applied (see example right).

Centigrade	Factor	Fahrenheit
15°C	0.21	27°F
20°C	0.30	36°F
25°C	0.41	45°F
30°C	0.51	54°F
35°C	0.63	63°F
40°C	0.75	72°F
45°C	0.87	81°F
50°C	1.00	90°F
55°C	1.13	99°F
60°C	1.27	108°F
65°C	1.41	117°F
70°C	1.55	126°F

An example of radiator selection at a non-standard temperature difference is given below:

Example:

Heat emission required: 2000 Watts
Room air temperature required: 20°C
Mean water temperature in radiator: 65°C

1. Temperature difference = 65-20 = 45°C

2. From Factor Table 45°C gives a factor of: 0.87

3. Divide required heat emission by factor $= \frac{2000}{0.87}$ = 2298 Watts

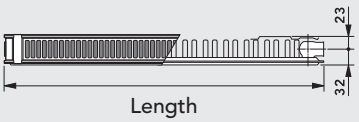
4. From selection tables choose any radiator rated at 2298 Watts or more.

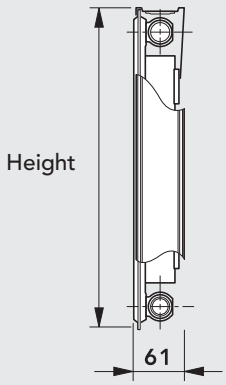
In accordance with BSEN 442: 1997, the heat output figures in this leaflet have been derived from tests made with top and bottom same side connection (T.B.S.E.). When bottom opposite end connections are used (B.O.E.), there will be a small reduction in heat output.

Weight and Water Content per Metre Length (approx.)

	Height (mm)									
	300		400		500		600		750	
Type	Water Content (l)	Weight (kg)	Water Content (l)	Weight (kg)	Water Content (l)	Weight (kg)	Water Content (l)	Weight (kg)	Water Content (l)	Weight (kg)
K1SPG	2.00	10.52	2.60	13.93	3.30	15.81	3.70	17.57	4.40	22.56
P+	3.90	15.81	5.00	20.92	6.10	24.63	7.10	28.14	8.60	35.63
K2	3.90	18.83	5.00	25.39	6.10	29.14	7.10	32.68	8.60	42.47
K3	6.00	28.10	7.60	38.14	9.40	43.75	10.80	49.07	N/A	N/A

Model Overview

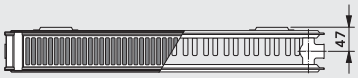


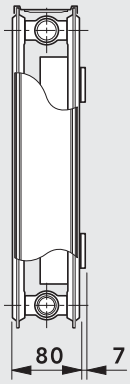


K1SPG

(Single Panel, Single Convector with Factory Fitted Top Grille and Side Panels)

Height (mm)	300	400	500*	600*	750*
Length (mm)	up to 2000		up to 2600		up to 2000
Steps	All lengths start at 400mm and are in increments of 200mm. *Also available in some lengths of 520, 720, 920, 1120 and 1320mm.				

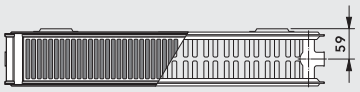


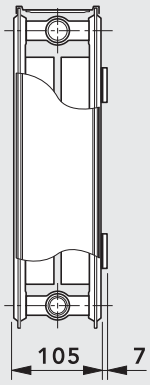


P+

(Double Panel, Single Convector with Factory Fitted Top Grille and Side Panels)

Height (mm)	300	500*	600*	750*
Length (mm)	up to 2000	up to 2200		up to 2000
Steps	All lengths start at 400mm and are in increments of 200mm. *Also available in some lengths of 520, 720, 920, 1120 and 1320mm.			

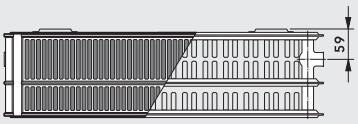


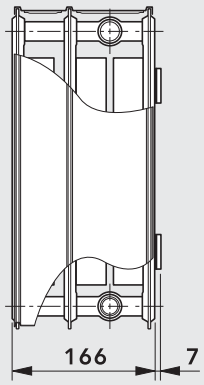


K2

(Double Panel, Double Convector with Factory Fitted Top Grille and Side Panels)

Height (mm)	300	400	500*	600*	750*
Length (mm)	up to 3000	up to 2000	up to 2600		up to 2000
Steps	All lengths start at 400mm and are in increments of 200mm. *Also available in some lengths of 520, 720, 920, 1120 and 1320mm.				





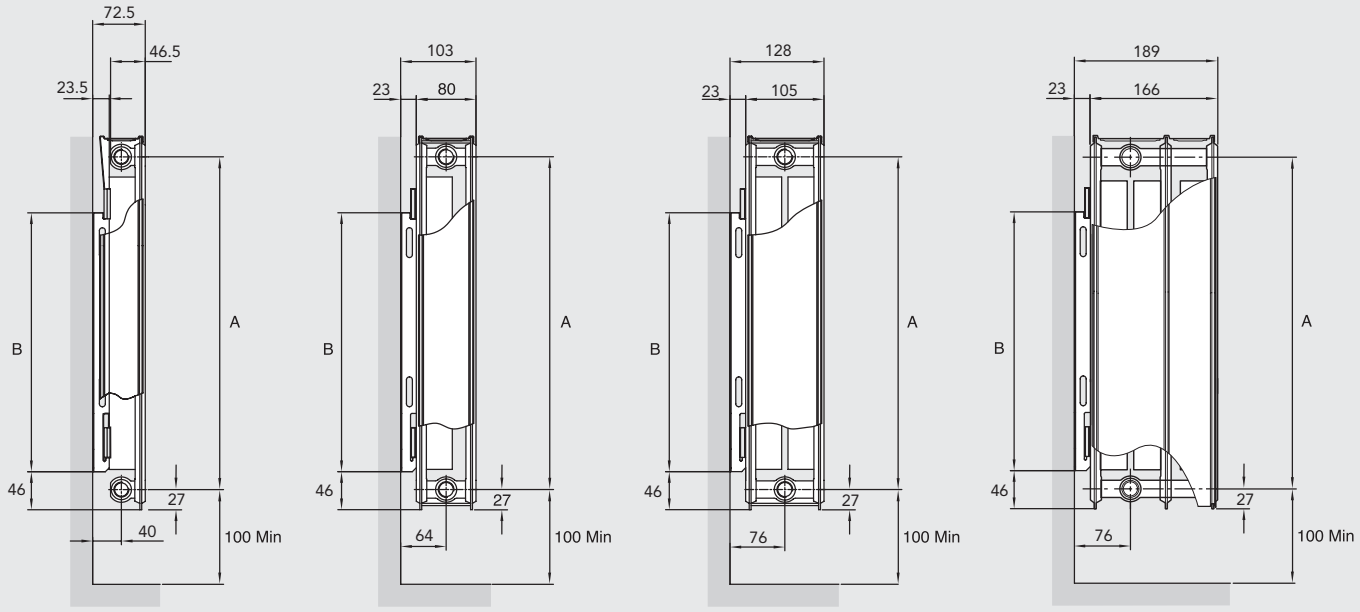
**VIENNALINE Compact K3 radiators are available to order only. Additional sizes are also available. Please call Customer Services for details.

K3**

(Triple Panel, Triple Convector with Factory Fitted Top Grille and Side Panels)

Height (mm)	300	400	500*	600*
Length (mm)	up to 3000	up to 2000	up to 2200	up to 2000
Steps	All lengths start at 400mm and are in increments of 200mm. *Also available in some lengths of 520, 720, 920, 1120 and 1320mm.			

Mounting Positions and Dimensions

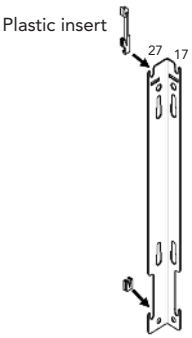


Nominal Height (mm)	A (mm)	B (mm)
300	246	153
400	346	253
500	446	353
600	546	453
750	696	603

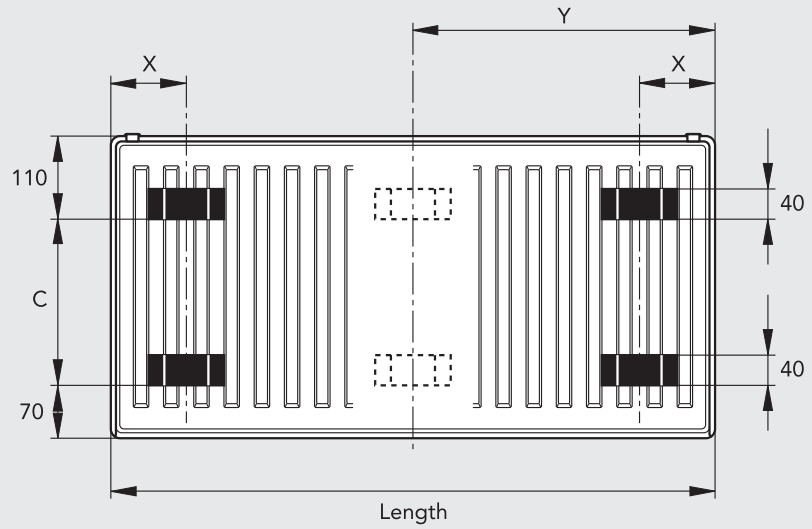
Wall Brackets

The brackets supplied are suitable for mounting all types of radiators of the same height.

The bracket position diagrams shown above are based on the wide flange being fixed to the wall.



Bracket Positions and Installation

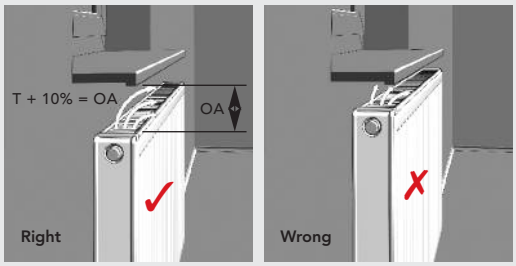


Dimension Y = $\frac{\text{Overall Length}}{2}$

For all radiators with an overall length of 1800mm and above.

Type	X (mm)
K1SPG	93
P+	100
K2	100
K3	100

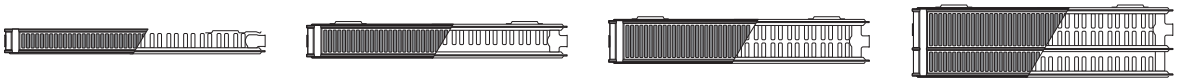
Installation



T = Depth of radiator.

Nominal Height (mm)	C (mm)
300	120
400	220
500	320
600	420
750	570

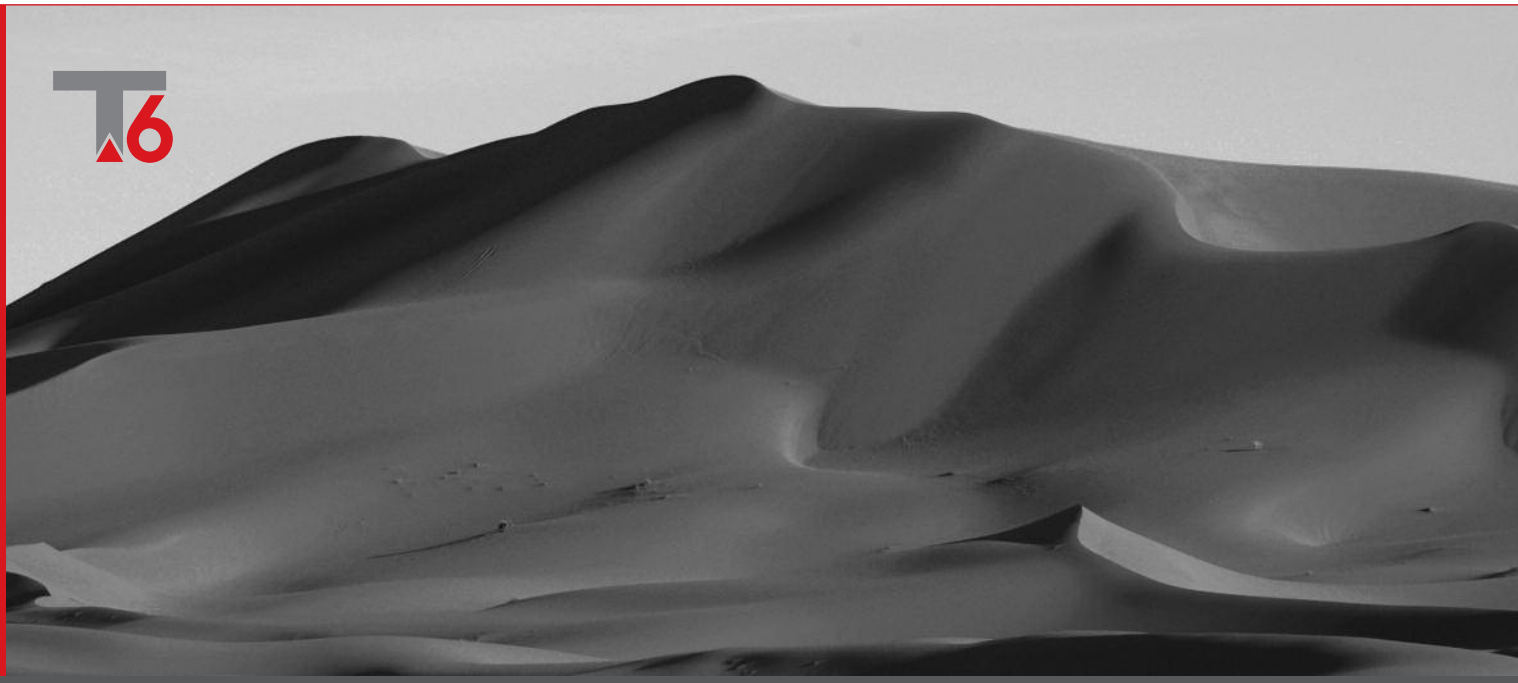
Heat Outputs



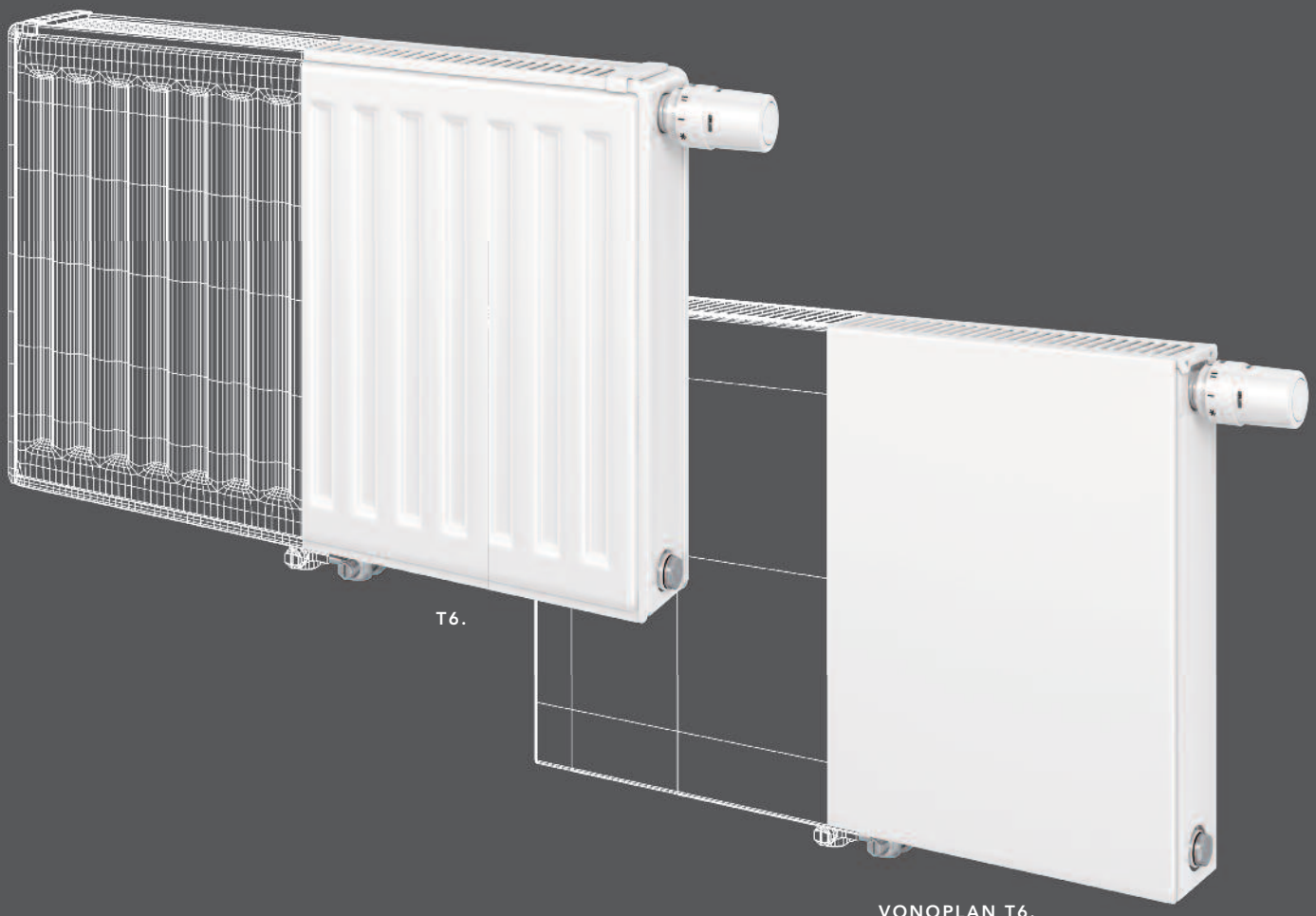
	Nominal Length (mm - inches)	K1SPG Output (watts)	K1SPG Output (Btu/h)	K1SPG Order Code	P+ Output (watts)	P+ Output (Btu/h)	P+ Order Code	K2 Output (watts)	K2 Output (Btu/h)	K2 Order Code	K3* Output (watts)	K3* Output (Btu/h)	K3* Order Code
Height 300mm - 12in	400 - 15.7	226	771	K1SPG 030 040	335	1144	P+ 030 040	438	1495	K2 030 040	624	2129	K3 030 040
	600 - 23.6	339	1157	K1SPG 030 060	503	1716	P+ 030 060	657	2242	K2 030 060	937	3197	K3 030 060
	800 - 31.5	452	1542	K1SPG 030 080	670	2287	P+ 030 080	876	2989	K2 030 080	1249	4262	K3 030 080
	1000 - 39.4	565	1928	K1SPG 030 100	838	2859	P+ 030 100	1095	3736	K2 030 100	1561	5326	K3 030 100
	1200 - 47.2	678	2313	K1SPG 030 120	1006	3431	P+ 030 120	1314	4484	K2 030 120	1873	6391	K3 030 120
	1400 - 55.1	791	2699	K1SPG 030 140	1173	4003	P+ 030 140	1533	5231	K2 030 140	2185	7455	K3 030 140
	1600 - 63.0	904	3085	K1SPG 030 160	1341	4575	P+ 030 160	1752	5978	K2 030 160	2498	8523	K3 030 160
	1800 - 70.9	1017	3470	K1SPG 030 180	1508	5147	P+ 030 180	1971	6725	K2 030 180	2810	9588	K3 030 180
	2000 - 78.7	1130	3856	K1SPG 030 200	1676	5719	P+ 030 200	2190	7473	K2 030 200	3122	10652	K3 030 200
	2200 - 86.6							2409	8220	K2 030 220			
	2400 - 94.5							2628	8967	K2 030 240	3746	12781	K3 030 240
	2600 - 102.4							2847	9714	K2 030 260			
	2800 - 110.2							3066	10462	K2 030 280	4371	14914	K3 030 280
	3000 - 118.1							3285	11209	K2 030 300	4683	15978	K3 030 300
Height 400mm - 16in	400 - 15.7	283	966	K1SPG 040 040				543	1852	K2 040 040	774	2641	K3 040 040
	600 - 23.6	425	1449	K1SPG 040 060				814	2778	K2 040 060	1162	3965	K3 040 060
	800 - 31.5	566	1933	K1SPG 040 080				1086	3704	K2 040 080	1549	5285	K3 040 080
	1000 - 39.4	708	2416	K1SPG 040 100				1357	4630	K2 040 100	1936	6606	K3 040 100
	1200 - 47.2	850	2899	K1SPG 040 120				1628	5556	K2 040 120	2323	7926	K3 040 120
	1400 - 55.1	991	3382	K1SPG 040 140				1900	6482	K2 040 140	2710	9247	K3 040 140
	1600 - 63.0	1133	3865	K1SPG 040 160				2171	7408	K2 040 160	3098	10570	K3 040 160
	1800 - 70.9	1274	4348	K1SPG 040 180				2443	8334	K2 040 180	3485	11891	K3 040 180
	2000 - 78.7	1416	4832	K1SPG 040 200				2714	9261	K2 040 200	3872	13211	K3 040 200
Height 500mm - 20in	400 - 15.7	337	1151	K1SPG 050 040	491	1675	P+ 050 040	617	2106	K2 050 040	891	3040	K3 050 040
	520 - 20.4	438	1496	K1SPG 050 052	638	2177	P+ 050 052	802	2738	K2 050 052	1159	3955	K3 050 052
	600 - 23.6	506	1726	K1SPG 050 060	736	2512	P+ 050 060	926	3159	K2 050 060	1337	4562	K3 050 060
	720 - 28.3	607	2071	K1SPG 050 072	883	3014	P+ 050 072	1111	3791	K2 050 072	1604	5473	K3 050 072
	800 - 31.5	674	2301	K1SPG 050 080	982	3349	P+ 050 080	1234	4212	K2 050 080	1782	6080	K3 050 080
	920 - 36.2	776	2646	K1SPG 050 092	1129	3852	P+ 050 092	1420	4844	K2 050 092	2050	6995	K3 050 092
	1000 - 39.4	843	2876	K1SPG 050 100	1227	4187	P+ 050 100	1543	5265	K2 050 100	2228	7602	K3 050 100
	1120 - 44.1	944	3222	K1SPG 050 112	1374	4689	P+ 050 112	1728	5897	K2 050 112	2495	8513	K3 050 112
	1200 - 47.2	1012	3452	K1SPG 050 120	1472	5024	P+ 050 120	1852	6318	K2 050 120	2674	9124	K3 050 120
	1320 - 52.0	1113	3797	K1SPG 050 132	1620	5526	P+ 050 132	2037	6950	K2 050 132	2941	10035	K3 050 132
	1400 - 55.1	1180	4027	K1SPG 050 140	1718	5861	P+ 050 140	2160	7371	K2 050 140	3119	10642	K3 050 140
	1600 - 63.0	1349	4602	K1SPG 050 160	1963	6699	P+ 050 160	2469	8424	K2 050 160	3565	12164	K3 050 160
	1800 - 70.9	1517	5178	K1SPG 050 180	2209	7536	P+ 050 180	2777	9477	K2 050 180	4010	13682	K3 050 180
	2000 - 78.7	1686	5753	K1SPG 050 200	2454	8373	P+ 050 200	3086	10530	K2 050 200	4456	15204	K3 050 200
	2200 - 86.6	1855	6328	K1SPG 050 220	2699	9211	P+ 050 220	3395	11583	K2 050 220	4902	16726	K3 050 220
	2400 - 94.5	2023	6903	K1SPG 050 240				3703	12636	K2 050 240			
	2600 - 102.4	2192	7479	K1SPG 050 260				4012	13689	K2 050 260			
Height 600mm - 24in	400 - 15.7	376	1282	K1SPG 060 040	543	1852	P+ 060 040	685	2338	K2 060 040	981	3347	K3 060 040
	520 - 20.4	488	1666	K1SPG 060 052	706	2408	P+ 060 052	891	3039	K2 060 052	1276	4354	K3 060 052
	600 - 23.6	563	1922	K1SPG 060 060	814	2778	P+ 060 060	1028	3507	K2 060 060	1472	5022	K3 060 060
	720 - 28.3	676	2307	K1SPG 060 072	977	3334	P+ 060 072	1233	4208	K2 060 072	1766	6026	K3 060 072
	800 - 31.5	751	2563	K1SPG 060 080	1086	3704	P+ 060 080	1370	4676	K2 060 080	1962	6694	K3 060 080
	920 - 36.2	864	2948	K1SPG 060 092	1248	4260	P+ 060 092	1576	5377	K2 060 092	2257	7701	K3 060 092
	1000 - 39.4	939	3204	K1SPG 060 100	1357	4630	P+ 060 100	1713	5845	K2 060 100	2453	8370	K3 060 100
	1120 - 44.1	1052	3588	K1SPG 060 112	1520	5186	P+ 060 112	1919	6546	K2 060 112	2747	9373	K3 060 112
	1200 - 47.2	1127	3845	K1SPG 060 120	1628	5556	P+ 060 120	2056	7014	K2 060 120	2944	10045	K3 060 120
	1320 - 52.0	1239	4229	K1SPG 060 132	1791	6112	P+ 060 132	2261	7715	K2 060 132	3238	11048	K3 060 132
	1400 - 55.1	1315	4486	K1SPG 060 140	1900	6482	P+ 060 140	2398	8183	K2 060 140	3434	11717	K3 060 140
	1600 - 63.0	1502	5126	K1SPG 060 160	2171	7408	P+ 060 160	2741	9352	K2 060 160	3925	13392	K3 060 160
	1800 - 70.9	1690	5767	K1SPG 060 180	2443	8334	P+ 060 180	3083	10521	K2 060 180	4415	15064	K3 060 180
	2000 - 78.7	1878	6408	K1SPG 060 200	2714	9261	P+ 060 200	3426	11690	K2 060 200	4906	16739	K3 060 200
	2200 - 86.6	2066	7049	K1SPG 060 220	2985	10187	P+ 060 220	3769	12859	K2 060 220			
	2400 - 94.5	2254	7690	K1SPG 060 240				4111	14028	K2 060 240			
	2600 - 102.4	2441	8330	K1SPG 060 260				4454	15197	K2 060 260			
Height 750mm - 30in	400 - 15.7	451	1540	K1SPG 075 040	653	2229	P+ 075 040	820	2797	K2 075 040			
	600 - 23.6	677	2309	K1SPG 075 060	980	3343	P+ 075 060	1229	4195	K2 075 060			
	720 - 28.3	812	2771	K1SPG 075 072	1176	4012	P+ 075 072	1475	5034	K2 075 072			
	800 - 31.5	902	3079	K1SPG 075 080	1306	4458	P+ 075 080	1639	5593	K2 075 080			
	920 - 36.2	1038	3541	K1SPG 075 092	1502	5126	P+ 075 092	1885	6432	K2 075 092			
	1000 - 39.4	1128	3849	K1SPG 075 100	1633	5572	P+ 075 100	2049	6991	K2 075 100			
	1120 - 44.1	1263	4311	K1SPG 075 112	1829	6241	P+ 075 112	2295	7830	K2 075 112			
	1200 - 47.2	1354	4619	K1SPG 075 120	1960	6686	P+ 075 120	2459	8390	K2 075 120			
	1320 - 52.0	1489	5081	K1SPG 075 132	2156	7355	P+ 075 132	2705	9229	K2 075 132			
	1400 - 55.1	1579	5388	K1SPG 075 140	2286	7801	P+ 075 140	2869	9788	K2 075 140			
	1600 - 63.0	1805	6158	K1SPG 075 160	2613	8915	P+ 075 160	3278	11186	K2 075 160			
	1800 - 70.9	2030	6928	K1SPG 075 180	2939	10030	P+ 075 180	3688	12585	K2 075 180			
	2000 - 78.7	2256	7698	K1SPG 075 200	3266	11144	P+ 075 200	4098	13983	K2 075 200			

*Type K3 radiators are available to order only.

N.B. The tabulated heat outputs are quoted at a mean water to air temperature difference of 50°C.



T6 - Centrally Connected & VONOPLAN T6.



T6.

VONOPLAN T6.

General Specifications

Approval and Certification

VOGEL&NOOT offers strong products that meet the highest quality standards during manufacture and operation. All information on the quality and performance of **VOGEL&NOOT** panel radiators is verified and confirmed by recognised European institutions on an ongoing basis, thereby guaranteeing the highest level of heating performance and optimum product quality.

When used in systems designed and installed in accordance with the good practice recommendations given in the 'Application' section, the **VOGEL&NOOT T6** centrally connected and **VONOPLAN T6** radiators carry a ten year guarantee from date of purchase against defects caused by faulty materials or manufacture. However, failure to pay attention to these recommendations (in new or existing systems) may invalidate the manufacturer's warranty.

Material and Paint Finish

T6 centrally connected and **VONOPLAN T6** radiators are subjected to a thorough painting process involving degreasing, phosphating and primer coating (stoved) prior to the final finishing coat of white semi-gloss epoxy paint, which is cured at 210°C. Colour options are available, see pages 36 & 37, for a small extra charge and with a 6-8 week delivery lead time. This means that **T6** centrally connected and **VONOPLAN T6** radiators can be installed without further painting, although if desired (e.g. colour change), overpainting can be carried out using a good quality, oil-based gloss paint. Additionally, white touch-up paint is available.

T6 centrally connected radiators are made of cold-rolled sheet steel, and in accordance with EN 442-1, with stylish and robust waterways at 40 mm intervals. **VONOPLAN T6** has a galvanised front panel (1mm thick).

Packaging

All our radiators are individually wrapped in heavy duty polythene shrink-wrapping and are clearly marked externally with type and size. The radiator panels are also wrapped in cardboard and all corners are further protected with preformed caps.

The packaging is designed to enable full fitting and assembly of radiators into the heating system, without removal of the protective packaging - a real plus point for new building installations. Radiators left protected in this way can be filled and run up to 40°C during initial cleaning and commissioning of the heating system.

Fixings

Each **T6** centrally connected and **VONOPLAN T6** radiator is equipped with an integrated valve insert set and is suitable for double-pipe and single-pipe systems with a single-pipe manifold. Each radiator is supplied with a fitted valve top with a pre-set k_v-value. A range of thermostatic heads can be fitted directly to the built in valve by removing the protective cap. All radiators are supplied with welded suspension brackets on the back, drain plug, pivoting special vent plug and the dummy plug which are all fitted with seals. All types of radiator are equipped with a detachable top cover and two closed side panels.

For the correct installation of radiators it is essential that the fixing of the radiator is carried out in such a way that it is suitable for intended use AND predictable misuse. A number of elements need to be taken into consideration including the fixing method used to secure the radiator to the wall, the type and condition of the wall itself, and any additional potential forces or weights that may happen to be applied to the radiator, prior to finalising installation. **IN ALL CASES IT IS STRONGLY RECOMMENDED THAT A SUITABLY QUALIFIED PROFESSIONAL INSTALLER OR SIMILAR TRADESPERSON CARRIES OUT THE INSTALLATION.**

PLEASE NOTE: The fixing materials provided are only intended for installation on walls made of solid wood, bricks, concrete or on timber-frame stud walls where the fixing is into the timber. All walls being considered should have no more than a maximum of 3mm wall finishing. For walls made of other materials, for example hollow bricks, please consult your installer and/or specialist supplier. **ONCE AGAIN, IF YOU ARE UNSURE, IT IS STRONGLY RECOMMENDED THAT A SUITABLY QUALIFIED PROFESSIONAL INSTALLER OR SIMILAR TRADESPERSON CARRIES OUT THE INSTALLATION.**

Accessories

Accessories are available for the **T6** centrally connected and **VONOPLAN T6** radiators. Please visit www.vogelandnoot.co.uk or call for more information.

Connections

All **T6** centrally connected and **VONOPLAN T6** radiators are fitted with 4 x 1/2" BSP connections and 2 x external thread 3/4" BSP bottom centre connections.

Our valve radiators' connections (external thread 3/4" BSP) comply in construction and tolerance with the specifications, in accordance with DIN V 3838. If conically sealed drain cocks are used (single-pipe operation), where an adjustment of tolerance of distance to the centre is not possible, we must repudiate liability for any damage connected to this.

Therefore we recommend to use only flat sealed drain cocks, or drain cocks where an adjustment of tolerance of the distance to the centre is possible.

Operating Pressures

Every **T6** centrally connected and **VONOPLAN T6** radiator is tested to a pressure of 13 bar (189 psi) and is suitable for a working pressure of up to 10 bar (145 psi). They also have a maximum operating temperature of 110°C. With single-pipe installations, a cycle's maximum radiator power of about 10kW at $T = T_1-T_2 = 20$ K (at $T_1 = 90°C$) has to be taken into account.

General Specifications (continued...)

Application

T6 centrally connected and **VONOPLAN T6** radiators are for use in indirect or closed circuit heating systems only, which have been properly designed and installed in accordance with the recommendations of BS EN 12828:2003 or BS EN 12831:2003. In open-vented systems, special attention should be paid to the correct location of the pump in relation to the cold feed and vent pipe connections, to avoid ingress of air or water discharge through the open vent.

All installation work should be carried out in accordance with recognised good practice to ensure long life. In particular, careful attention should be paid to the following:

- Soldered joints should be made with a minimum amount of solder and flux. Choose a flux which is readily soluble in water.
- Copper pipes should be cut and cleaned in such a way as to avoid small copper particles being left in the system (this can lead to electrolytic action and eventual corrosion in the radiator).
- Corrosion inhibitors should be used strictly in accordance with the manufacturer's instructions.

Individual installation instructions are supplied in each radiator package.

Safety Precautions

Radiators are hot when in use, and as such, present a risk of burns to users on prolonged contact. The temperature of a radiator is dependent on the temperature of the system water, as set by the system installer or user. Installers and users should ensure that those who may come into close proximity to hot radiators are aware of the risk of burns. Installers and users should take all necessary steps to minimise the risks of burns. If the risk is significant, consideration should be given to installing low surface temperature radiators, or to placing guards in front of the radiators.

Heat Output

The **T6** centrally connected and **VONOPLAN T6** radiators have an advanced design giving high efficiency characteristics. The high outputs per unit surface area for the convector models have been achieved by ensuring excellent contact between the convector plates and both the water channels and dividing metal of the radiator panels. The convector surface is spot-welded to the metal channels and fits neatly into grooves on the water channels, thus ensuring high heat transfer rates.

The radiator outputs quoted in this brochure are based on a mean water temperature in the radiator of 70°C (158°F) and a room temperature of 20° (68°F) - Delta T50.

For other operating conditions - i.e. differences between mean water temperature and room temperature other than 50°C - the correction factors in the following table should be applied (see example right).

Centigrade	Factor	Fahrenheit
15°C	0.21	27°F
20°C	0.30	36°F
25°C	0.41	45°F
30°C	0.51	54°F
35°C	0.63	63°F
40°C	0.75	72°F
45°C	0.87	81°F
50°C	1.00	90°F
55°C	1.13	99°F
60°C	1.27	108°F
65°C	1.41	117°F
70°C	1.55	126°F

An example of radiator selection at a non-standard temperature difference is given below:

Example:

Heat emission required: 2000 Watts
Room air temperature required: 20°C
Mean water temperature in radiator: 65°C

1. Temperature difference = 65-20 = 45°C
2. From Factor Table 45°C gives a factor of: 0.87
3. Divide required heat emission by factor $= \frac{2000}{0.87}$ = 2298 Watts
4. From selection tables choose any radiator rated at 2298 Watts or more.

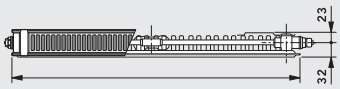
Distinguished by the ECO seal of quality

The panel radiators from **VOGEL&NOOT** bear the ECO seal of quality, which stands for all-round compatibility with all (renewable) energy sources. It guarantees that the radiators can be operated in an economical and ecologically-sound manner, with significant savings on heating costs (an average of 15%*) and an enormous reduction in CO_2 emissions.

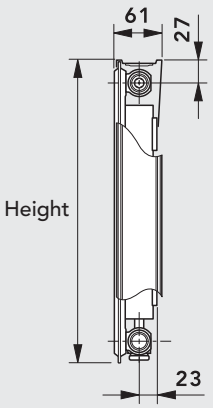
*On average, in comparison with old sectional radiators, test results based on data from Pinkafeld University of Applied Sciences.

Model Overview

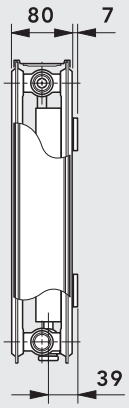
T6



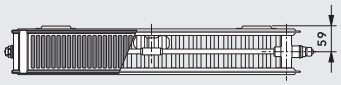
Length

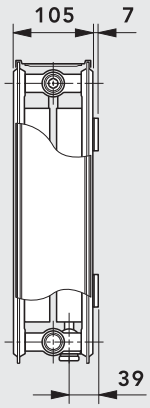


T6

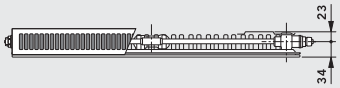


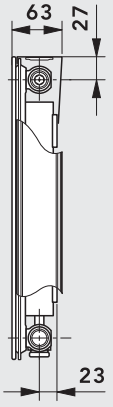
T6



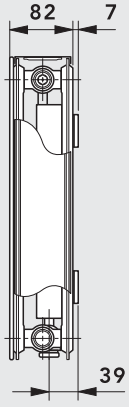


VONOPLAN T6

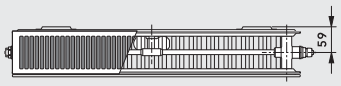


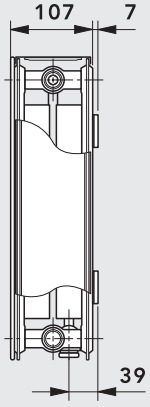


VONOPLAN T6



VONOPLAN T6





		K1SPG (Single Panel, Single Convector with Factory Fitted Top Grille and Side Panels)				P+ (Double Panel, Single Convector with Factory Fitted Top Grille and Side Panels)	K2 (Double Panel, Double Convector with Factory Fitted Top Grille and Side Panels)			
T6	Height (mm)	300	400	500*	600*	600*	300	400*	500*	600*
	Length (mm)	up to 2000				up to 2000	up to 2000			
VONOPLAN T6	Height (mm)	300	400	500*	600*	600*	300	400*	500*	600*
	Length (mm)	up to 2000				up to 2000	up to 2000			
Steps		All lengths start at 400mm and are in increments of 200mm. *Also available in some lengths of 520, 720, 920, 1120 and 1320mm.								

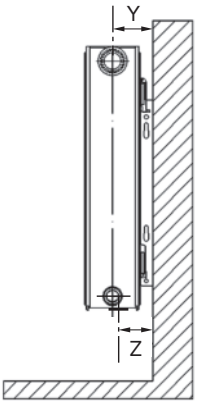
T6 - Weight and Water Content per Metre Length (approx.)

Type	Height (mm)							
	300		400		500		600	
	Water Content (l)	Weight (kg)	Water Content (l)	Weight (kg)	Water Content (l)	Weight (kg)	Water Content (l)	Weight (kg)
K1SPG	2.00	11.35	2.60	14.78	3.30	16.61	3.70	18.41
P+	N/A	N/A	N/A	N/A	N/A	N/A	7.10	28.82
K2	3.90	19.45	5.00	26.03	6.10	29.79	7.10	33.36

VONOPLAN T6 - Weight and Water Content per Metre Length (approx.)

Type	Height (mm)							
	300		400		500		600	
	Water Content (l)	Weight (kg)	Water Content (l)	Weight (kg)	Water Content (l)	Weight (kg)	Water Content (l)	Weight (kg)
K1SPG	2.00	14.20	2.60	18.54	3.30	21.29	3.70	24.00
P+	N/A	N/A	N/A	N/A	N/A	N/A	7.10	34.41
K2	3.90	22.30	5.00	29.79	6.10	34.47	7.10	38.95

Mounting Positions, Dimensions and Wall Brackets

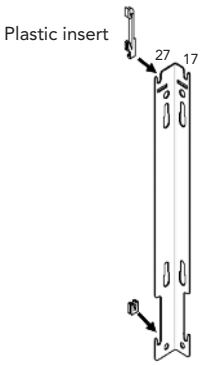


T6 & VONOPLAN T6

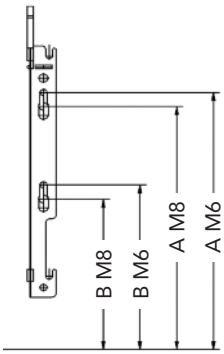
Type	Nominal Height (mm)	Y (mm)	Z (mm)
K1SPG	300 - 600	50	50
P+	300 - 600	74	66
K2	300 - 600	86	66

Y = Wall to side connection.
Z = Wall to centre bottom connection.

Wall Bracket for 300mm high

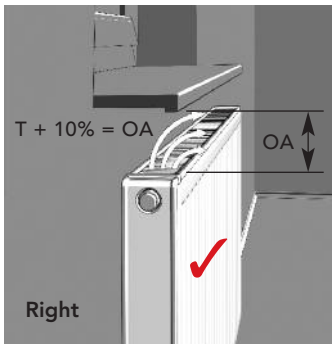


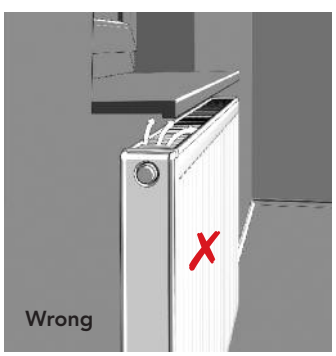
Wall Bracket for 400 - 600mm high



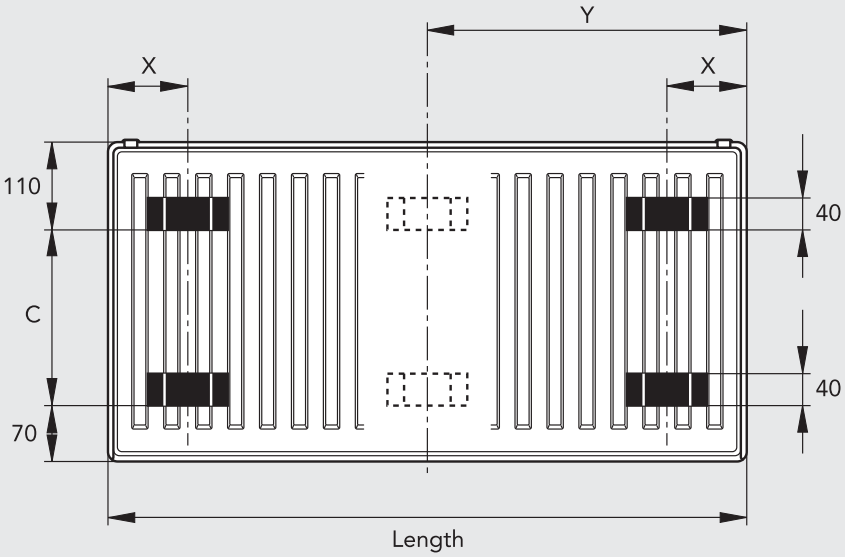
Nominal Height (mm)	M8		M6	
	A (mm)	B (mm)	A (mm)	B (mm)
300	138	-	152.5	-
400	238	143	252.5	157.5
500	338	143	352.5	157.5
600	438	143	452.5	157.5

Installation





Bracket Positions and Dimensions



Type	X (mm)
K1SPG	93
P+	100
K2	100

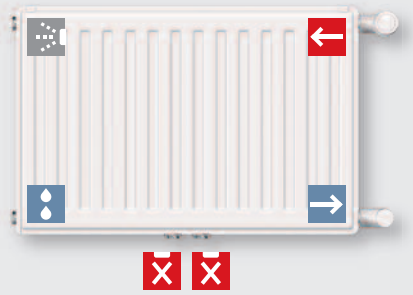
Nominal Height (mm)	C (mm)
300	120
400	220
500	320
600	420

$$\text{Dimension Y} = \frac{\text{Overall Length}}{2}$$

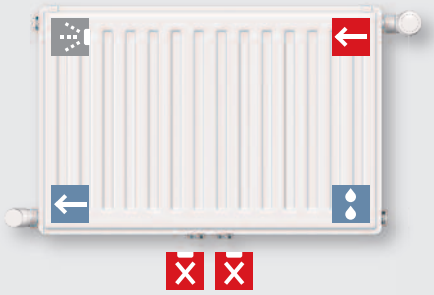
For all radiators with an overall length of 1800mm and above.

Connection Modes - Double-pipe System

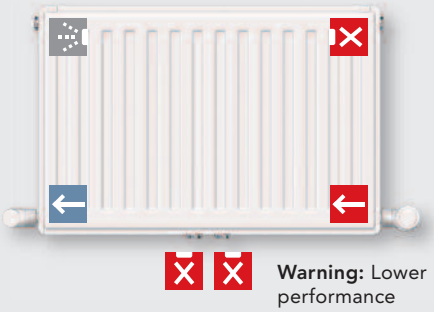
A: Single-sided connection



B: Connection both sides



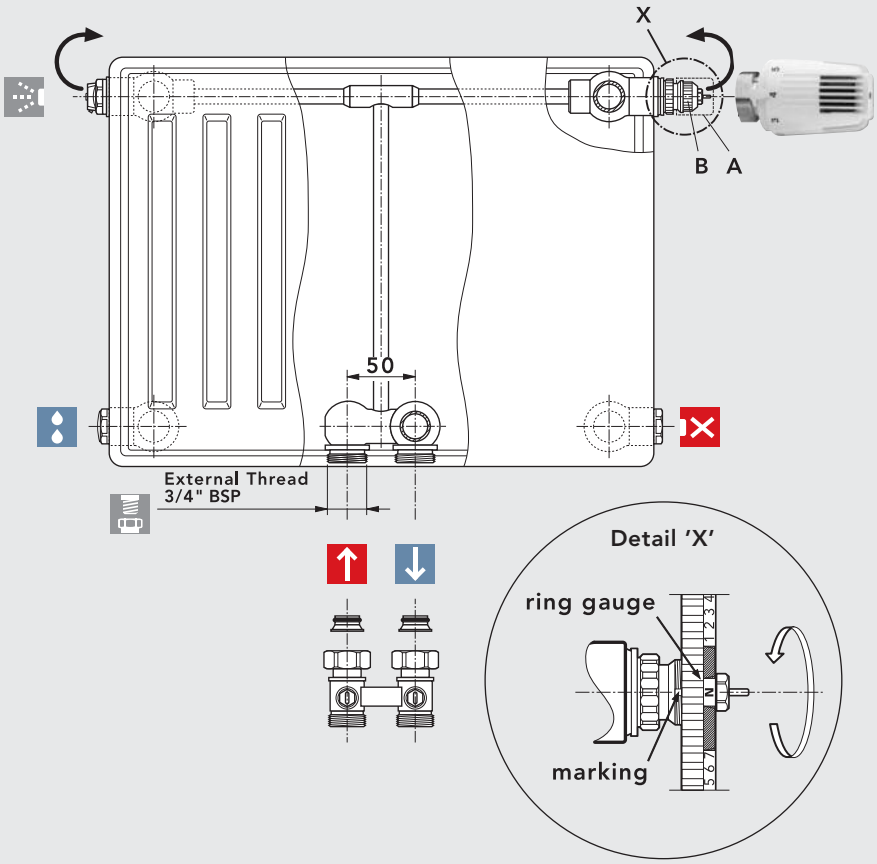
C: Connection on bottom



Warning: Lower performance

Caution: When using the T6 & VONOPLAN T6 radiator as a compact radiator, the 3/4" plastic screwing caps must be replaced by 3/4" chrome caps (accessory code: BPC). The plastic part of the special vent plug also has to be removed. Further information on double and single pipe operation is provided on pages 16 - 17.

Double-pipe Operation - Adjustment Tips for Built-in Valve



Setting instructions:

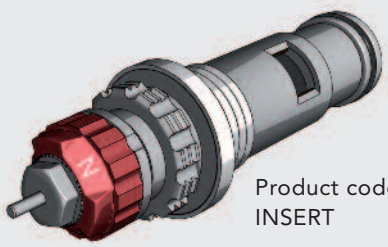
VOGEL&NOOT valve radiators are factory-fitted for double-pipe installations. Each individual radiator is fitted with a pre-adjusted valve insert, appropriate to the radiator output. The pre-set k_v-value is also marked in colour on the front surface.

Please note:

Should customised adjustments be required, the pre-set k_v-values can be altered as necessary.

Swapping the right-hand side built-in valve to the left-hand side is a simple operation at any time.

Radiators are delivered with protective caps. After removing the protective cap (position A) the following thermostat heads can be fitted directly to the built-in valve (position B).



Product code:
INSERT


HTS

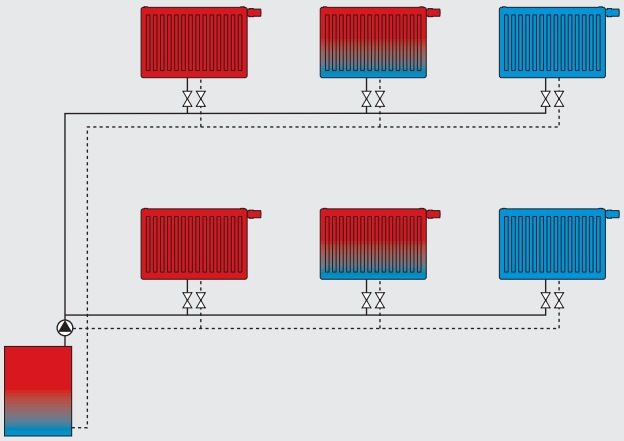

HDS


HDC

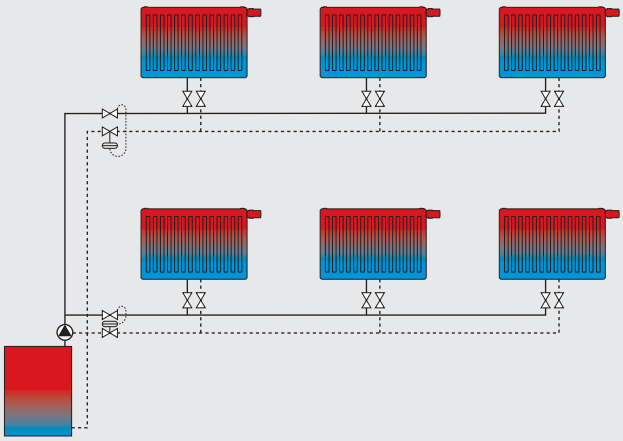
The Advantages of Hydraulic Calibration

- Up to 6% energy saving
- CO_2 reduction
- Increased comfort
- Complies with Energy-Efficiency regulations

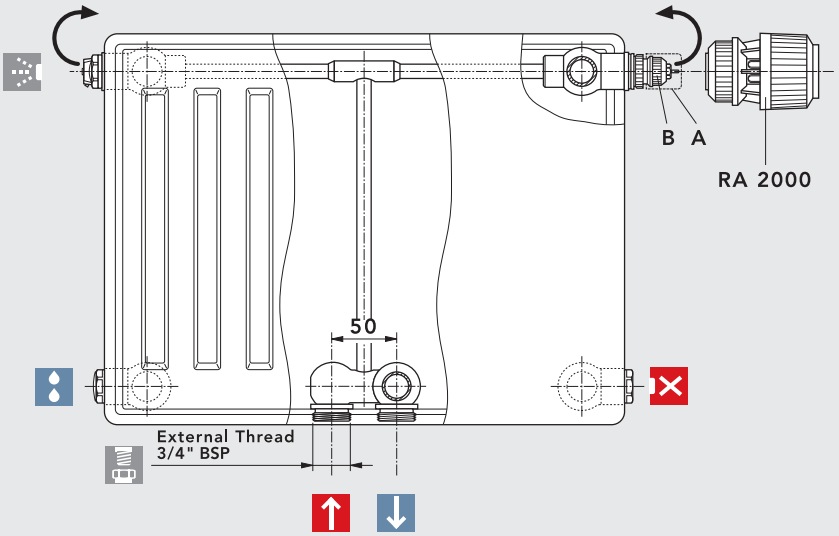
A system without hydraulic calibration



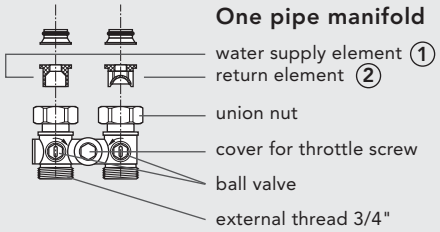
A system with hydraulic calibration



Single-pipe Operation - Factory-adjusted Built-in Valve



The radiator will be delivered with a protective cap. After removing the protective cap (position A) the following thermostat heads can be installed directly onto the built-in valve (position B): **"RA 2000" and "RAW" by Danfoss, "VK" by Heimeier, "theraDA" by MNG, as well as "UNI XD" by Oventrop.**



Caution:

During installation, take care that the return element ② has been installed at the water return and the supply element ① at the water supply.

Changing the built-in valve from the right-hand side to the left-hand side is an easy operation at any time.

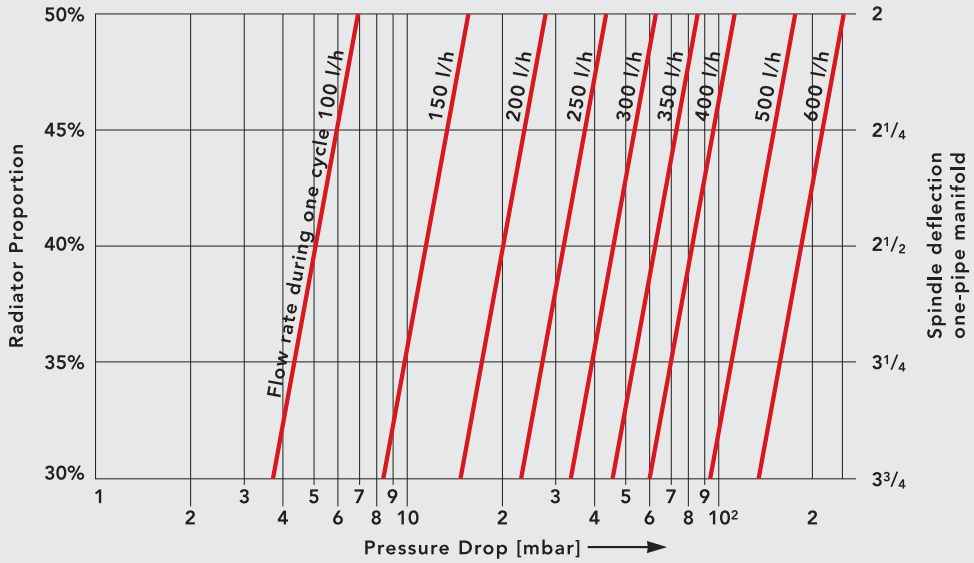


Chart 2
Pressure drop (mbar) - single-pipe operation with a proportional deviation of 2K.

Default Setting:

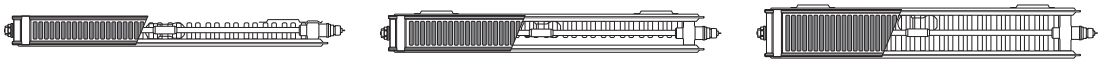
radiator proportion 30%: 3.75 revolutions *
radiator proportion 35%: 3.25 revolutions *
radiator proportion 40%: 2.50 revolutions *
radiator proportion 45%: 2.25 revolutions *
radiator proportion 50%: 2.00 revolutions *

*when starting, turn the bypass spindle of the one-pipe manifold **to the right** as far as it will go.

It is also possible to change the pre-adjusted valve setting when the equipment is operating at pressure.

Please take into account the maximum power per cycle (regarding single-pipe installations) of about 10 kW
$\Delta T = T_1 - T_2 = 20$ K (at $T_1 = 90°C$).

T6 - Centrally Connected Heat Outputs



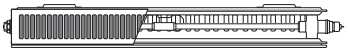
		K1SPG			P+			K2		
	Nominal Length (mm - inches)	Output (watts)	Output (Btu/h)	Order Code	Output (watts)	Output (Btu/h)	Order Code	Output (watts)	Output (Btu/h)	Order Code
Nominal Height 300 mm - 12 in	600 - 23.6	339	1157	H11 030 060				657	2242	H22 030 060
	1000 - 39.4	565	1928	H11 030 100				1095	3736	H22 030 100
	1400 - 55.1	791	2699	H11 030 140				1533	5231	H22 030 140
	2000 - 78.7	1130	3856	H11 030 200				2190	7473	H22 030 200
Nominal Height 400 mm - 16 in	400 - 15.7	283	966	H11 040 040				543	1852	H22 040 040
	600 - 23.6	425	1449	H11 040 060				814	2778	H22 040 060
	800 - 31.5	566	1933	H11 040 080				1086	3704	H22 040 080
	920 - 36.2							1248	4260	H22 040 092
	1000 - 39.4	708	2416	H11 040 100				1357	4630	H22 040 100
	1200 - 47.2	850	2899	H11 040 120				1628	5556	H22 040 120
	1400 - 55.1	991	3382	H11 040 140				1900	6482	H22 040 140
	1600 - 63.0	1133	3865	H11 040 160				2171	7408	H22 040 160
	1800 - 70.9	1274	4348	H11 040 180				2443	8334	H22 040 180
	2000 - 78.7	1416	4832	H11 040 200				2714	9261	H22 040 200
Nominal Height 500 mm - 20 in	400 - 15.7	337	1151	H11 050 040				617	2106	H22 050 040
	520 - 20.4	438	1496	H11 050 052				802	2738	H22 050 052
	600 - 23.6	506	1726	H11 050 060				926	3159	H22 050 060
	720 - 28.3	607	2071	H11 050 072				1111	3791	H22 050 072
	800 - 31.5	674	2301	H11 050 080				1234	4212	H22 050 080
	920 - 36.2	776	2646	H11 050 092				1420	4844	H22 050 092
	1000 - 39.4	843	2876	H11 050 100				1543	5265	H22 050 100
	1200 - 47.2	1012	3452	H11 050 120				1852	6318	H22 050 120
	1400 - 55.1	1180	4027	H11 050 140				2160	7371	H22 050 140
	1600 - 63.0	1349	4602	H11 050 160				2469	8424	H22 050 160
	1800 - 70.9	1517	5178	H11 050 180				2777	9477	H22 050 180
	2000 - 78.7	1686	5753	H11 050 200				3086	10530	H22 050 200
Nominal Height 600 mm - 24 in	400 - 15.7	376	1282	H11 060 040	543	1852	H21 060 040	685	2338	H22 060 040
	520 - 20.4	488	1666	H11 060 052	706	2408	H21 060 052	891	3039	H22 060 052
	600 - 23.6	563	1922	H11 060 060	814	2778	H21 060 060	1028	3507	H22 060 060
	720 - 28.3	676	2307	H11 060 072	977	3334	H21 060 072	1233	4208	H22 060 072
	800 - 31.5	751	2563	H11 060 080	1086	3704	H21 060 080	1370	4676	H22 060 080
	920 - 36.2	864	2948	H11 060 092	1248	4260	H21 060 092	1576	5377	H22 060 092
	1000 - 39.4	939	3204	H11 060 100	1357	4630	H21 060 100	1713	5845	H22 060 100
	1120 - 44.1	1052	3588	H11 060 112				1919	6546	H22 060 112
	1200 - 47.2	1127	3845	H11 060 120	1628	5556	H21 060 120	2056	7014	H22 060 120
	1400 - 55.1	1315	4486	H11 060 140	1900	6482	H21 060 140	2398	8183	H22 060 140
	1600 - 63.0	1502	5126	H11 060 160	2171	7408	H21 060 160	2741	9352	H22 060 160
	1800 - 70.9	1690	5767	H11 060 180	2443	8334	H21 060 180	3083	10521	H22 060 180
	2000 - 78.7	1878	6408	H11 060 200	2714	9261	H21 060 200	3426	11690	H22 060 200

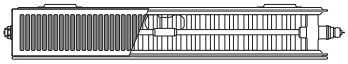
N.B. The tabulated heat outputs are quoted at a mean water to air temperature difference of 50°C.

PLEASE NOTE:
Brackets need to be ordered separately

Nominal Height	Order Code
300	BH300
400	BH400
500	BH500
600	BH600

VONOPLAN T6 Heat Outputs



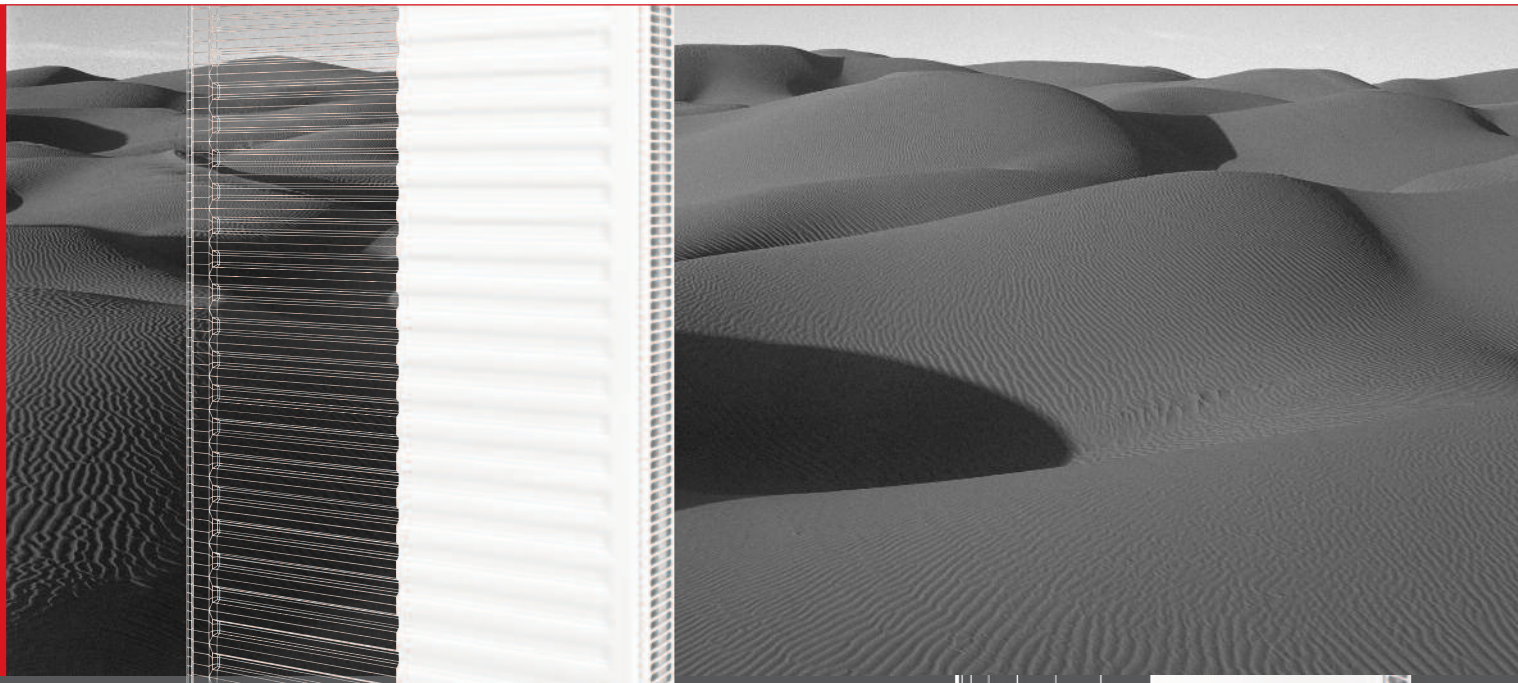


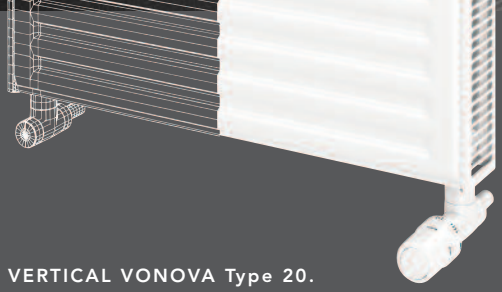
	Nominal Length (mm - inches)	K1SPG Output (watts)	K1SPG Output (Btu/h)	K1SPG Order Code	P+ Output (watts)	P+ Output (Btu/h)	P+ Order Code	K2 Output (watts)	K2 Output (Btu/h)	K2 Order Code
Nominal Height 300 mm - 12 in	600 - 23.6	319	1089	K11 030 060				643	2192	K22 030 060
	1000 - 39.4	532	1815	K11 030 100				1071	3654	K22 030 100
	1400 - 55.1	745	2541	K11 030 140				1499	5116	K22 030 140
	2000 - 78.7	1064	3630	K11 030 200				2142	7308	K22 030 200
Nominal Height 400 mm - 16 in	400 - 15.7	264	901	K11 040 040				534	1824	K22 040 040
	600 - 23.6	396	1351	K11 040 060				802	2735	K22 040 060
	800 - 31.5	528	1802	K11 040 080				1069	3647	K22 040 080
	920 - 36.2							1299	4194	K22 040 092
	1000 - 39.4	660	2252	K11 040 100				1336	4559	K22 040 100
	1200 - 47.2	792	2702	K11 040 120				1603	5471	K22 040 120
	1400 - 55.1	924	3153	K11 040 140				1870	6383	K22 040 140
	1600 - 63.0	1056	3603	K11 040 160				2138	7294	K22 040 160
	1800 - 70.9	1188	4054	K11 040 180				2405	8206	K22 040 180
	2000 - 78.7	1320	4504	K11 040 200				2672	9118	K22 040 200
Nominal Height 500 mm - 20 in	400 - 15.7	314	1070	K11 050 040				608	2074	K22 050 040
	520 - 20.4	408	1391	K11 050 052				790	2697	K22 050 052
	600 - 23.6	470	1605	K11 050 060				912	3112	K22 050 060
	720 - 28.3	564	1926	K11 050 072				1094	3734	K22 050 072
	800 - 31.5	627	2140	K11 050 080				1216	4149	K22 050 080
	920 - 36.2	721	2461	K11 050 092				1398	4771	K22 050 092
	1000 - 39.4	784	2675	K11 050 100				1520	5186	K22 050 100
	1200 - 47.2	941	3210	K11 050 120				1824	6223	K22 050 120
	1400 - 55.1	1098	3745	K11 050 140				2128	7260	K22 050 140
	1600 - 63.0	1254	4280	K11 050 160				2432	8298	K22 050 160
	1800 - 70.9	1411	4815	K11 050 180				2736	9335	K22 050 180
	2000 - 78.7	1568	5350	K11 050 200				3040	10372	K22 050 200
Nominal Height 600 mm - 24 in	400 - 15.7	338	1152	K11 060 040	520	1776	K21 060 040	668	2278	K22 060 040
	520 - 20.4	439	1498	K11 060 052	677	2308	K21 060 052	868	2961	K22 060 052
	600 - 23.6	506	1728	K11 060 060	781	2663	K21 060 060	1001	3417	K22 060 060
	720 - 28.3	608	2074	K11 060 072	937	3196	K21 060 072	1202	4100	K22 060 072
	800 - 31.5	675	2304	K11 060 080	1041	3551	K21 060 080	1335	4556	K22 060 080
	920 - 36.2	776	2650	K11 060 092	1197	4084	K21 060 092	1535	5239	K22 060 092
	1000 - 39.4	844	2880	K11 060 100	1301	4439	K21 060 100	1669	5695	K22 060 100
	1120 - 44.1	945	3226	K11 060 112				1869	6378	K22 060 112
	1200 - 47.2	1013	3456	K11 060 120	1561	5327	K21 060 120	2003	6834	K22 060 120
	1400 - 55.1	1182	4032	K11 060 140	1821	6215	K21 060 140	2337	7973	K22 060 140
	1600 - 63.0	1350	4608	K11 060 160	2082	7102	K21 060 160	2670	9112	K22 060 160
	1800 - 70.9	1519	5184	K11 060 180	2342	7990	K21 060 180	3004	10251	K22 060 180
	2000 - 78.7	1688	5760	K11 060 200	2602	8878	K21 060 200	3338	11390	K22 060 200

N.B. The tabulated heat outputs are quoted at a mean water to air temperature difference of 50°C.

PLEASE NOTE:
Brackets need to be ordered separately

Nominal Height	Order Code
300	BH300
400	BH400
500	BH500
600	BH600





VERTICAL VONOVA Type 20.

VERTICAL VONOVA & VERTICAL VONOPLAN.

VERTICAL VONOPLAN Type 20.

General Specifications

Approval and Certification

VOGEL&NOOT offers strong products that meet the highest quality standards during manufacture and operation. All information on the quality and performance of **VOGEL&NOOT** panel radiators is verified and confirmed by recognised European institutions on an ongoing basis, thereby guaranteeing the highest level of heating performance and optimum product quality.

When used in systems designed and installed in accordance with the good practice recommendations given in the 'Application' section, the **VOGEL&NOOT VERTICAL VONOVA & VONOPLAN** radiators carry a ten year guarantee from date of purchase against defects caused by faulty materials or manufacture. However, failure to pay attention to these recommendations (in new or existing systems) may invalidate the manufacturer's warranty.

Material and Paint Finish

Every **VERTICAL VONOVA & VONOPLAN** radiator is subjected to a thorough painting process involving degreasing, phosphating and primer coating (stoved) prior to the final finishing coat of white semi-gloss epoxy paint, which is cured at 210°C. Colour options are available, see pages 36 & 37, for a small extra charge and with a 6-8 week delivery lead time. This means that **VERTICAL VONOVA & VONOPLAN** radiators can be installed without further painting, although if desired (e.g. colour change), overpainting can be carried out using a good quality, oil-based gloss paint. Additionally, white touch-up paint is available.

VERTICAL VONOVA & VONOPLAN radiators are manufactured from cold-rolled sheet steel in line with EN 442-1 and have an elegant, stable profile with 40 mm waterways.

Packaging

All our radiators are individually wrapped in heavy duty polythene shrink-wrapping and are clearly marked externally with type and size. The radiator panels are also wrapped in cardboard and all corners are further protected with preformed caps.

The packaging is designed to enable full fitting and assembly of radiators into the heating system, without removal of the protective packaging - a real plus point for new building installations. Radiators left protected in this way can be filled and run up to 40°C during initial cleaning and commissioning of the heating system.

Fixings

All **VERTICAL VONOVA & VONOPLAN** radiators are supplied with suspension brackets welded onto the rear side. The Type 20 radiator model is also supplied with two side grilles.

For the correct installation of radiators it is essential that the fixing of the radiator is carried out in such a way that it is suitable for intended use AND predictable misuse. A number of elements need to be taken into consideration including the fixing method used to secure the radiator to the wall, the type and condition of the wall itself, and any additional potential forces or weights that may happen to be applied to the radiator, prior to finalising installation. **IN ALL CASES IT IS STRONGLY RECOMMENDED THAT A SUITABLY QUALIFIED PROFESSIONAL INSTALLER OR SIMILAR TRADESPERSON CARRIES OUT THE INSTALLATION.**

PLEASE NOTE: The fixing materials provided are only intended for installation on walls made of solid wood, bricks, concrete or on timber-frame stud walls where the fixing is into the timber. All walls being considered should have no more than a maximum of 3mm wall finishing. For walls made of other materials, for example hollow bricks, please consult your installer and/or specialist supplier. **ONCE AGAIN, IF YOU ARE UNSURE, IT IS STRONGLY RECOMMENDED THAT A SUITABLY QUALIFIED PROFESSIONAL INSTALLER OR SIMILAR TRADESPERSON CARRIES OUT THE INSTALLATION.**

Each radiator is supplied complete with wall fixing brackets, blanking plug, air vent plug and vent key.

Connections

All **VERTICAL VONOVA & VONOPLAN** radiators are fitted with 4 x 1/2" BSP connections.

Operating Pressures

Every **VERTICAL VONOVA & VONOPLAN** radiator is tested to a pressure of 13 bar (189 psi) and is suitable for a working pressure of up to 10 bar (145 psi). They also have a maximum operating temperature of 110°C.

Application

VERTICAL VONOVA & VONOPLAN radiators are for use in indirect or closed circuit heating systems only, which have been properly designed and installed in accordance with the recommendations of BS EN 12828:2003 or BS EN 12831:2003. In open-vented systems, special attention should be paid to the correct location of the pump in relation to the cold feed and vent pipe connections, to avoid ingress of air or water discharge through the open vent.

All installation work should be carried out in accordance with recognised good practice to ensure long life. In particular, careful attention should be paid to the following:

- Soldered joints should be made with a minimum amount of solder and flux. Choose a flux which is readily soluble in water.
- Copper pipes should be cut and cleaned in such a way as to avoid small copper particles being left in the system (this can lead to electrolytic action and eventual corrosion in the radiator).
- Corrosion inhibitors should be used strictly in accordance with the manufacturer's instructions.

Individual installation instructions are supplied in each radiator package.

Safety Precautions

Radiators are hot when in use, and as such, present a risk of burns to users on prolonged contact. The temperature of a radiator is dependent on the temperature of the system water, as set by the system installer or user. Installers and users should ensure that those who may come into close proximity to hot radiators are aware of the risk of burns. Installers and users should take all necessary steps to minimise the risks of burns. If the risk is significant, consideration should be given to installing low surface temperature radiators, or to placing guards in front of the radiators.

General Specifications (continued...)

Heat Output

The **VERTICAL VONOVA** & **VONOPLAN** radiators have an advanced design giving high efficiency characteristics. The high outputs per unit surface area for the convector models have been achieved by ensuring excellent contact between the convector plates and both the water channels and dividing metal of the radiator panels. The convector surface is spot-welded to the metal channels and fits neatly into grooves on the water channels, thus ensuring high heat transfer rates.

The radiator outputs quoted in this brochure are based on a mean water temperature in the radiator of 70°C (158°F) and a room temperature of 20° (68°F) - Delta T50.

For other operating conditions - i.e. differences between mean water temperature and room temperature other than 50°C - the correction factors below should be applied (see example right).

Centigrade	Factor	Fahrenheit
15°C	0.21	27°F
20°C	0.30	36°F
25°C	0.41	45°F
30°C	0.51	54°F
35°C	0.63	63°F
40°C	0.75	72°F
45°C	0.87	81°F
50°C	1.00	90°F
55°C	1.13	99°F
60°C	1.27	108°F
65°C	1.41	117°F
70°C	1.55	126°F

An example of radiator selection at a non-standard temperature difference is given below:

Example:

Heat emission required:	2000 Watts
Room air temperature required:	20°C
Mean water temperature in radiator:	65°C

1. Temperature difference = 65-20 = 45°C

2. From Factor Table 45°C gives a factor of: 0.87

3. Divide required heat emission by factor $= \frac{2000}{0.87}$ = 2298 Watts

4. From selection tables choose any radiator rated at 2298 Watts or more.

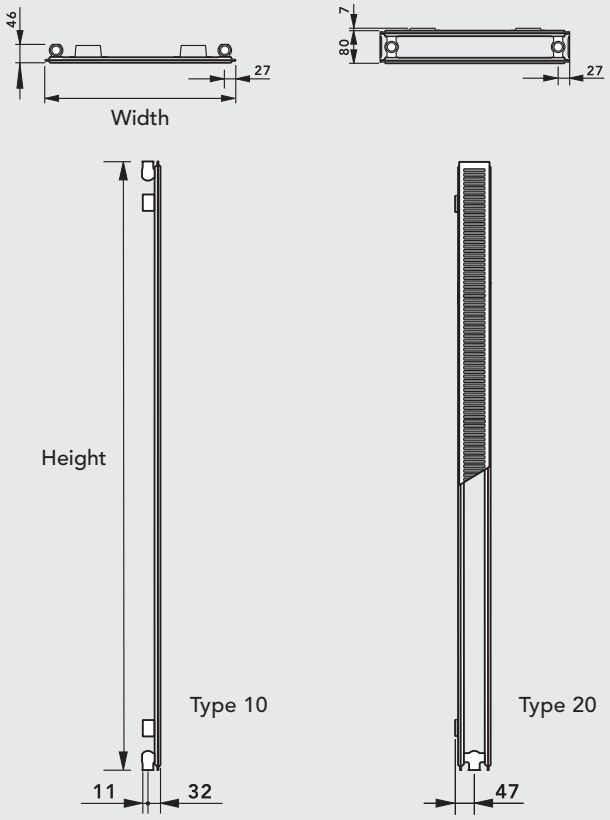
Distinguished by the ECO seal of quality

The panel radiators from **VOGEL&NOOT** bear the ECO seal of quality, which stands for all-round compatibility with all (renewable) energy sources. It guarantees that the radiators can be operated in an economical and ecologically-sound manner, with significant savings on heating costs (an average of 15%*) and an enormous reduction in CO_2 emissions.

*On average, in comparison with old sectional radiators, test results based on data from Pinkafeld University of Applied Sciences.

Model Overview

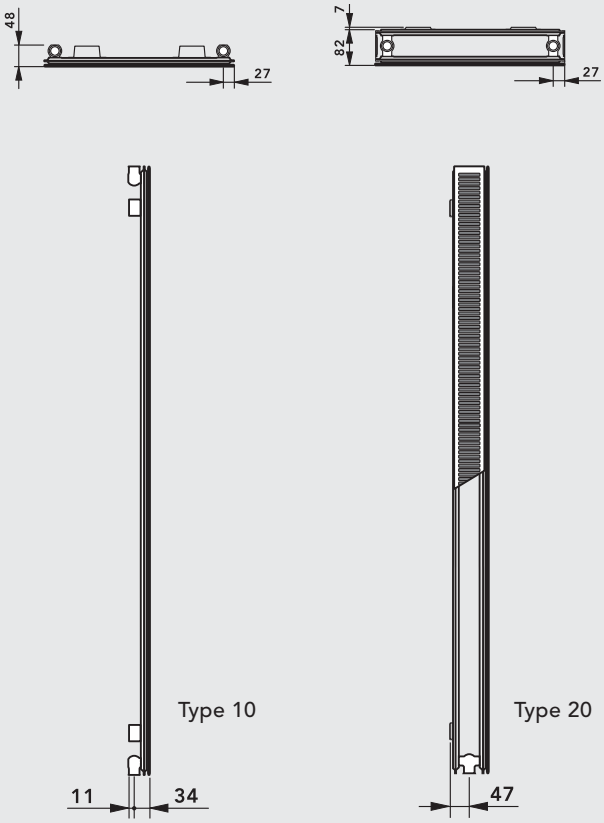
VERTICAL VONOVA



	Type 10*		Type 20	
Height (mm)	1800		1800	
Width (mm)	500	600	500	600
Wall Mount Type	WA 11			

*No grilles supplied with Type 10.

VERTICAL VONOPLAN



	Type 10*		Type 20	
Height (mm)	1800		1800	
Width (mm)	500	600	500	600
Wall Mount Type	WA 11			

*No grilles supplied with Type 10.

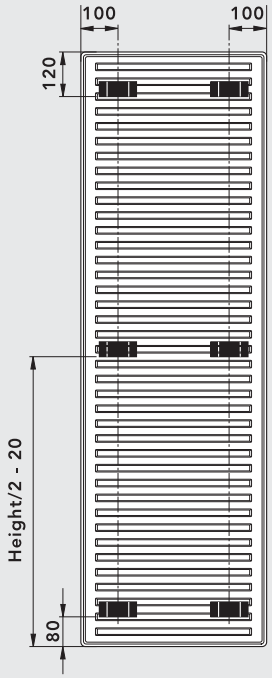
VERTICAL VONOVA - Weight and Water Content (per radiator)

Type	Width (mm)			
	500		600	
	Water Content (l)	Weight (kg)	Water Content (l)	Weight (kg)
10	5.94	18.60	6.66	21.69
20	10.98	36.31	12.78	42.77

VERTICAL VONOPLAN - Weight and Water Content (per radiator)

Type	Width (mm)			
	500		600	
	Water Content (l)	Weight (kg)	Water Content (l)	Weight (kg)
10	5.94	19.43	6.66	23.06
20	10.98	37.76	12.78	44.81

Bracket Positions and Dimensions

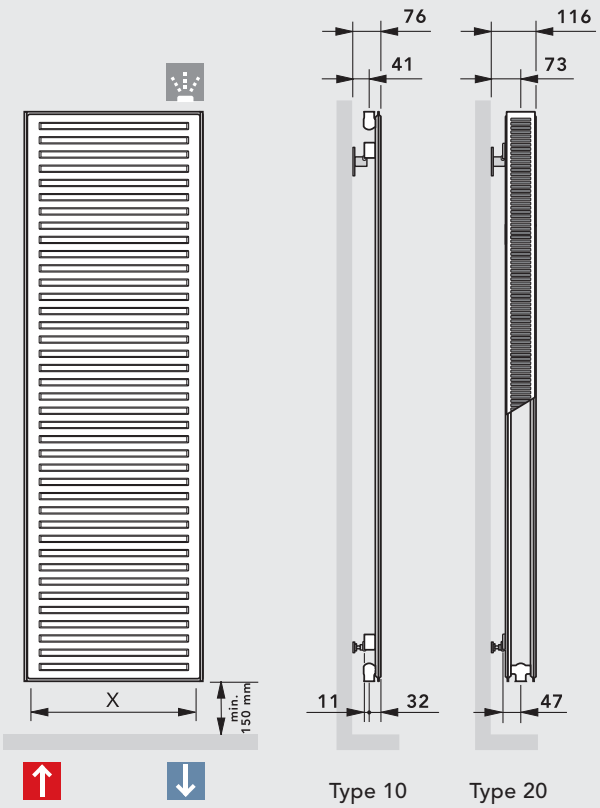


VERTICAL VONOVA &
VERTICAL VONOPLAN

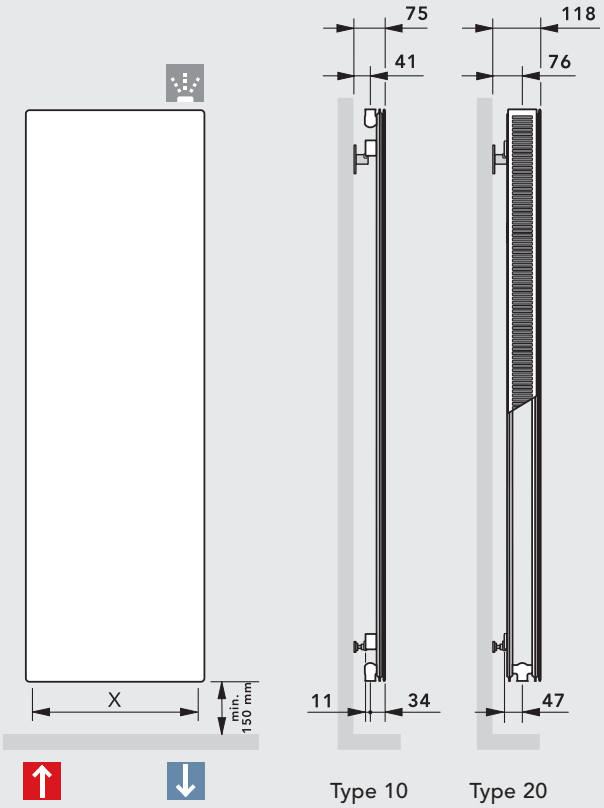
Type 10 & Type 20

Mounting Positions and Dimensions

VERTICAL VONOVA



VERTICAL VONOPLAN



Length (mm)	X (mm)
500	446
600	546

VERTICAL VONOVA Heat Outputs

Nominal Height 1800 mm - 70.9 in	Type 10				Type 20		
Width (mm - inches)	Output (watts)	Output (Btu/h)	Order Code		Output (watts)	Output (Btu/h)	Order Code
500 - 20	751	2562	M10 180 050		1255	4282	M20 180 050
600 - 24	901	3074	M10 180 060		1506	5139	M20 180 060

N.B. The tabulated heat outputs are quoted at a mean water to air temperature difference of 50°C.

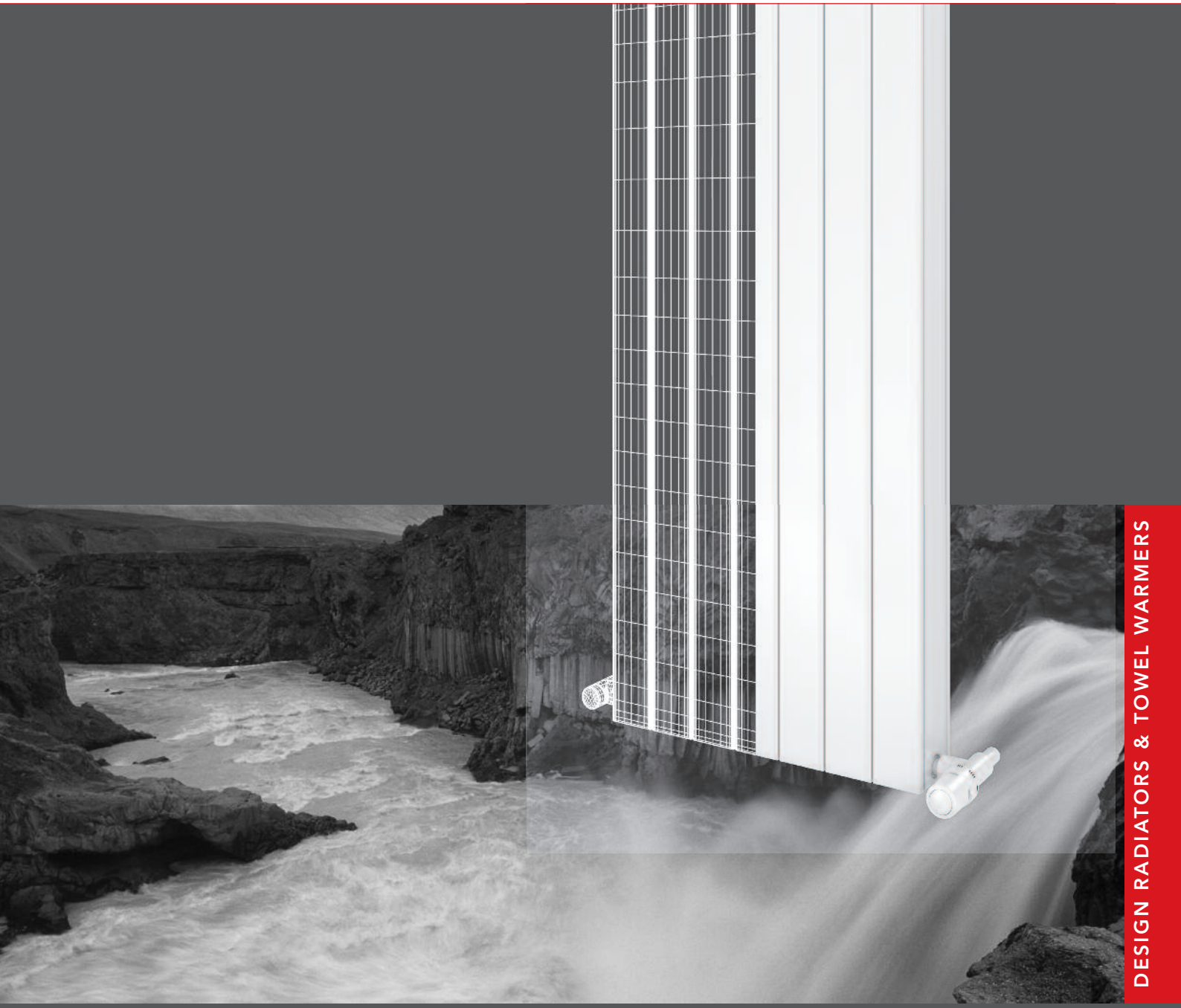
PLEASE NOTE: Brackets need to be ordered separately - Order Code: VB2

VERTICAL VONOPLAN Heat Outputs

Nominal Height 1800 mm - 70.9 in	Type 10				Type 20		
Width (mm - inches)	Output (watts)	Output (Btu/h)	Order Code		Output (watts)	Output (Btu/h)	Order Code
500 - 20	696	2375	N10 180 050		1174	4006	N20 180 050
600 - 24	835	2849	N10 180 060		1408	4804	N20 180 060

N.B. The tabulated heat outputs are quoted at a mean water to air temperature difference of 50°C.

PLEASE NOTE: Brackets need to be ordered separately - Order Code: VB2



DESIGN RADIATORS & TOWEL WARMERS

KONTEC.

V&N PANEL RADIATORS, DESIGN RADIATORS
& TOWEL WARMERS TECHNICAL GUIDE
01.01.2017

General Specifications

Approval and Certification

VOGEL&NOOT offers strong products that meet the highest quality standards during manufacture and operation. All information on the quality and performance of **VOGEL&NOOT** radiators is verified and confirmed by recognised European institutions on an ongoing basis, thereby guaranteeing the highest level of heating performance and optimum product quality.

When used in systems designed and installed in accordance with the good practice recommendations given in the 'Application' section, the **VOGEL&NOOT KONTEC** design radiators carry a ten year guarantee from date of purchase against defects caused by faulty materials or manufacture. However, failure to pay attention to these recommendations (in new or existing systems) may invalidate the manufacturer's warranty.

Paint Finish

Every **KONTEC** design radiator is subjected to a thorough painting process involving degreasing, phosphating and primer coating (stoved) prior to the final finishing coat of white semi-gloss epoxy paint, which is cured at 210°C. Colour options are available, see pages 36 & 37, for a small extra charge and with a 6-8 week delivery lead time. This means that **KONTEC** design radiators can be installed without further painting, although if desired (e.g. colour change), overpainting can be carried out using a good quality, oil-based gloss paint. Additionally, white touch-up paint is available.

Packaging

All our radiators are individually wrapped in heavy duty polythene shrink-wrapping and are clearly marked externally with type and size. The radiator panels are also wrapped in cardboard and all corners are further protected with preformed caps.

The packaging is designed to enable full fitting and assembly of radiators into the heating system, without removal of the protective packaging - a real plus point for new building installations. Radiators left protected in this way can be filled and run up to 40°C during initial cleaning and commissioning of the heating system.

Fixings

All **KONTEC** design radiators are supplied with welded mounting brackets.

For the correct installation of radiators it is essential that the fixing of the radiator is carried out in such a way that it is suitable for intended use AND predictable misuse. A number of elements need to be taken into consideration including the fixing method used to secure the radiator to the wall, the type and condition of the wall itself, and any additional potential forces or weights that may happen to be applied to the radiator, prior to finalising installation.

IN ALL CASES IT IS STRONGLY RECOMMENDED THAT A SUITABLY QUALIFIED PROFESSIONAL INSTALLER OR SIMILAR TRADESPERSON CARRIES OUT THE INSTALLATION.

PLEASE NOTE: The fixing materials provided are only intended for installation on walls made of solid wood, bricks, concrete or on timber-frame stud walls where the fixing is into the timber. All walls being considered should have no more than a maximum of 3mm wall finishing. For walls made of other materials, for example hollow bricks, please consult your installer and/or specialist supplier. **ONCE AGAIN, IF YOU ARE UNSURE, IT IS STRONGLY RECOMMENDED THAT A SUITABLY QUALIFIED PROFESSIONAL INSTALLER OR SIMILAR TRADESPERSON CARRIES OUT THE INSTALLATION.**

Each radiator is supplied complete with factory sealed drain plugs and pivotable vent plugs. (Exception: bottom-opposite-end connection models come with a dummy plug instead of the drain plug).

Connections

All **KONTEC** design radiators are fitted with 2 x internal thread 1/2" BSP connections.

Operating Pressures

Every **KONTEC** design radiator is tested to a pressure of 6.5 bar (95 psi) and is suitable for a working pressure of up to 5 bar (73 psi). Radiators also available for working at high pressure - 8 bar, please call for details. They also have a maximum operating temperature of 110°C.

Application

KONTEC design radiators are for use in indirect or closed circuit heating systems only, which have been properly designed and installed in accordance with the recommendations of BS EN 12828:2003 or BS EN 12831:2003. In open-vented systems, special attention should be paid to the correct location of the pump in relation to the cold feed and vent pipe connections, to avoid ingress of air or water discharge through the open vent.

All installation work should be carried out in accordance with recognised good practice to ensure long life. In particular, careful attention should be paid to the following:

- Soldered joints should be made with a minimum amount of solder and flux. Choose a flux which is readily soluble in water.
- Copper pipes should be cut and cleaned in such a way as to avoid small copper particles being left in the system (this can lead to electrolytic action and eventual corrosion in the radiator).
- Corrosion inhibitors should be used strictly in accordance with the manufacturer's instructions.

Individual installation instructions are supplied in each radiator package.

Safety Precautions

Radiators are hot when in use, and as such, present a risk of burns to users on prolonged contact. The temperature of a radiator is dependent on the temperature of the system water, as set by the system installer or user. Installers and users should ensure that those who may come into close proximity to hot radiators are aware of the risk of burns. Installers and users should take all necessary steps to minimise the risks of burns. If the risk is significant, consideration should be given to installing low surface temperature radiators, or to placing guards in front of the radiators.

General Specifications (continued...)

Heat Output

The radiator outputs quoted in this brochure are based on a mean water temperature in the radiator of 70°C (158°F) and a room temperature of 20° (68°F) - Delta T50.

For other operating conditions - i.e. differences between mean water temperature and room temperature other than 50°C - the correction factors below should be applied (see example below).

Centigrade	Factor	Fahrenheit
15°C	0.21	27°F
20°C	0.30	36°F
25°C	0.41	45°F
30°C	0.51	54°F
35°C	0.63	63°F
40°C	0.75	72°F
45°C	0.87	81°F
50°C	1.00	90°F
55°C	1.13	99°F
60°C	1.27	108°F
65°C	1.41	117°F
70°C	1.55	126°F

An example of radiator selection at a non-standard temperature difference is given below:

Example:

Heat emission required: 2000 Watts
Room air temperature required: 20°C
Mean water temperature in radiator: 65°C

1. Temperature difference = 65-20 = 45°C

2. From Factor Table 45°C gives a factor of: 0.87

3. Divide required heat emission by factor $= \frac{2000}{0.87}$ = 2298 Watts

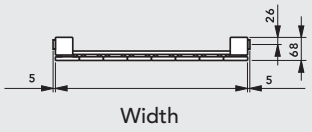
4. From selection tables choose any radiator rated at 2298 Watts or more.

Distinguished by the ECO seal of quality

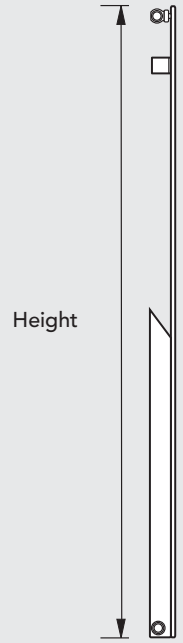
All design radiators from **VOGEL&NOOT** bear the ECO seal of quality, which stands for all-round compatibility with all (renewable) energy sources. It guarantees that the radiators can be operated in an economical and ecologically-sound manner, with significant savings on heating costs (an average of 15%*) and an enormous reduction in CO_2 emissions.

*On average, in comparison with old sectional radiators, test results based on data from Pinkafeld University of Applied Sciences.

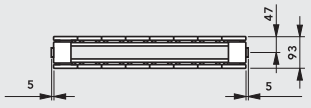
Model Overview



Width

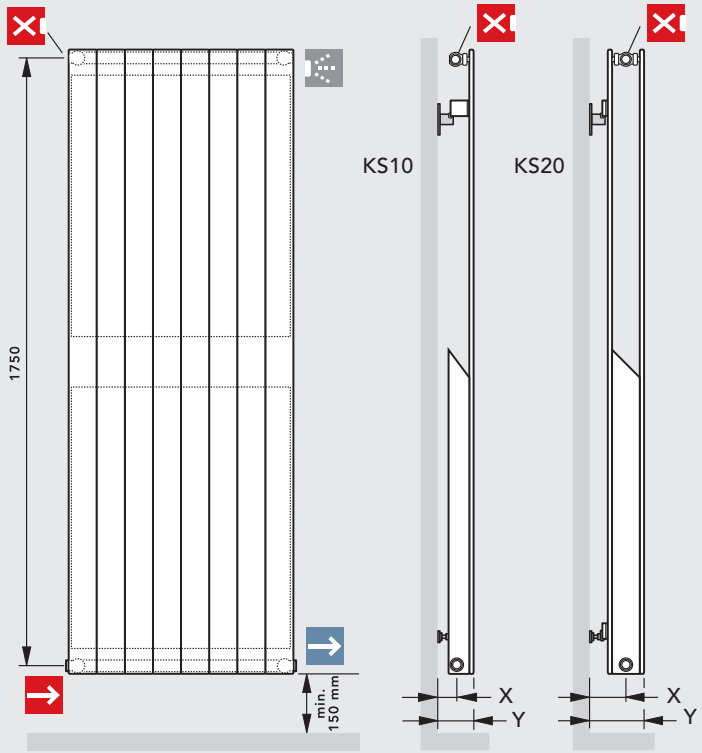


	KS10						
Height (mm)	1800						
Width (mm)	214	286	358	430	502	574	646
Wall Mount Type	WA 10	WA 11					



	KS20		
Height (mm)	1800		
Width (mm)	214	358	502
Wall Mount Type	WA 10	WA 11	

Mounting Positions and Dimensions

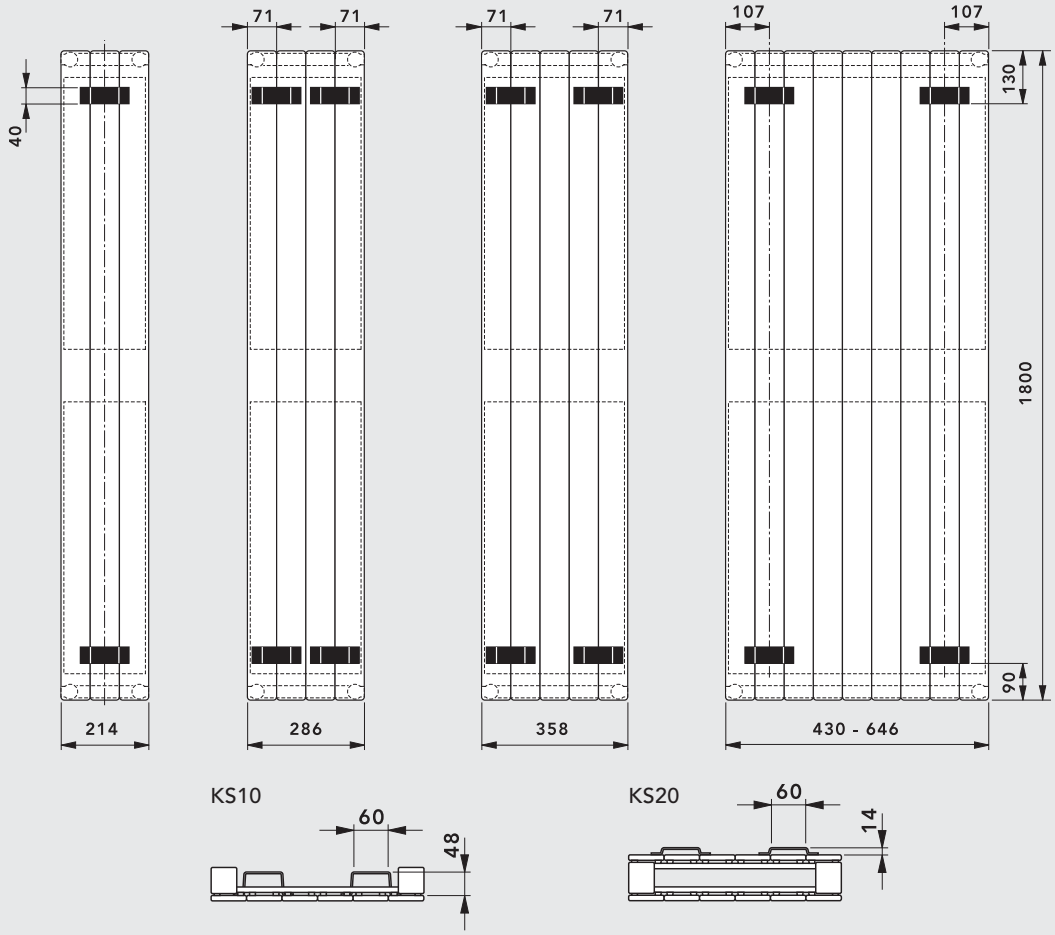


Type	Width (mm)	X (mm)	Y (mm)
KS10	214	35	78.5
	286 - 646	45	88.5
KS20	214	79.5	126
	358 - 502	89.5	136

The water flow to the radiator must be connected on the bottom left hand side and the return on the bottom right hand side.

Radiator valves are not supplied.

Connection Dimensions and Wall Distances



KONTEC - Weight and Water Content (per radiator)

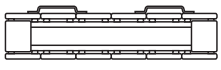
	KS10		KS20	
Width (mm)	Water Content (l)	Weight (kg)	Water Content (l)	Weight (kg)
214	2.67	10.61	5.21	20.43
286	3.57	14.19		
358	4.46	17.76	8.71	34.17
430	5.36	21.33		
502	6.26	24.90	12.22	47.92
574	7.16	28.47		
646	8.06	32.04		

Heat Outputs

Nominal Height
1800 mm - 70.9 in

KS10

KS20



Width (mm - inches)	Output (watts)	Output (Btu/h)	Order Code	Output (watts)	Output (Btu/h)	Order Code
214 - 8.4	424	1447	KS10 1800 0214	706	2409	KS20 1800 0214
286 - 11.2	566	1931	KS10 1800 0286			
358 - 14.1	708	2416	KS10 1800 0358	1182	4033	KS20 1800 0358
430 - 16.9	851	2904	KS10 1800 0430			
502 - 19.8	993	3388	KS10 1800 0502	1657	5654	KS20 1800 0502
574 - 22.6	1136	3876	KS10 1800 0574			
646 - 25.4	1278	4361	KS10 1800 0646			

N.B. The tabulated heat outputs are quoted at a mean water to air temperature difference of 50°C.

PLEASE NOTE: Brackets need to be ordered separately - Order Code: NABRKT

DESIGN RADIATORS & TOWEL WARMERS

VIENNARAIL.

V&N PANEL RADIATORS, DESIGN RADIATORS
& TOWEL WARMERS TECHNICAL GUIDE
01.01.2017

General Specifications

Approval and Certification

VOGEL&NOOT offers strong products that meet the highest quality standards during manufacture and operation. All information on the quality and performance of **VOGEL&NOOT** towel warmers are verified and confirmed by recognised European institutions on an ongoing basis, thereby guaranteeing the highest level of heating performance and optimum product quality.

When used in systems designed and installed in accordance with the good practice recommendations given in the 'Application' section, the **VIENNARAIL** towel warmer carries a five year guarantee from date of purchase against defects caused by faulty materials or manufacture. However, failure to pay attention to these recommendations (in new or existing systems) may invalidate the manufacturer's warranty.

Paint Finish

Unlike other manufactures, all our plating is carried out in-house, hence our attention to detail can be meticulous and perfect quality is ensured every time. A four layer plating process is applied to steel; pre nickel, bright copper, bright nickel and chrome plate layers. A further nineteen processes are applied to obtain a perfect hard-wearing, non-rusting and easy-to-clean smooth finish.

Packaging

All our towel warmers are individually wrapped in heavy duty polythene shrink-wrapping and are clearly marked externally with type and size.

Fixings

All **VIENNARAIL** towel warmers are supplied with mounting brackets.

For the correct installation of radiators it is essential that the fixing of the radiator is carried out in such a way that it is suitable for intended use AND predictable misuse. A number of elements need to be taken into consideration including the fixing method used to secure the radiator to the wall, the type and condition of the wall itself, and any additional potential forces or weights that may happen to be applied to the radiator, prior to finalising installation. **IN ALL CASES IT IS STRONGLY RECOMMENDED THAT A SUITABLY QUALIFIED PROFESSIONAL INSTALLER OR SIMILAR TRADESPERSON CARRIES OUT THE INSTALLATION.**

PLEASE NOTE: The fixing materials provided are only intended for installation on walls made of solid wood, bricks, concrete or on timber-frame stud walls where the fixing is into the timber. All walls being considered should have no more than a maximum of 3mm wall finishing. For walls made of other materials, for example hollow bricks, please consult your installer and/or specialist supplier. **ONCE AGAIN, IF YOU ARE UNSURE, IT IS STRONGLY RECOMMENDED THAT A SUITABLY QUALIFIED PROFESSIONAL INSTALLER OR SIMILAR TRADESPERSON CARRIES OUT THE INSTALLATION.**

Connections

All **VIENNARAIL** towel warmers are fitted with 2 x internal thread 1/2" BSP connections.

Operating Pressures

Every **VIENNARAIL** towel warmer is tested to a pressure of 6.9 bar and is suitable for a working pressure of up to 5.3 bar.

Application

VIENNARAIL towel warmers are for use in indirect or closed circuit heating systems only, which have been properly designed and installed in accordance with the recommendations of BS EN 12828:2003 or BS EN 12831:2003. In open-vented systems, special attention should be paid to the correct location of the pump in relation to the cold feed and vent pipe connections, to avoid ingress of air or water discharge through the open vent.

All installation work should be carried out in accordance with recognised good practice to ensure long life. In particular, careful attention should be paid to the following:

- Soldered joints should be made with a minimum amount of solder and flux. Choose a flux which is readily soluble in water.
- Copper pipes should be cut and cleaned in such a way as to avoid small copper particles being left in the system (this can lead to electrolytic action and eventual corrosion in the radiator).
- Corrosion inhibitors should be used strictly in accordance with the manufacturer's instructions.

Individual installation instructions are supplied in each radiator package.

Safety Precautions

Towel warmers are hot when in use, and as such, present a risk of burns to users on prolonged contact. The temperature of a towel warmer is dependent on the temperature of the system water, as set by the system installer or user. Installers and users should ensure that those who may come into close proximity to hot towel warmers are aware of the risk of burns. Installers and users should take all necessary steps to minimise the risks of burns.

Distinguished by the ECO seal of quality

All towel warmers from **VOGEL&NOOT** bear the ECO seal of quality, which stands for all-round compatibility with all (renewable) energy sources. It guarantees that the radiators can be operated in an economical and ecologically-sound manner, with significant savings on heating costs (an average of 15%*) and an enormous reduction in CO_2 emissions.

*On average, in comparison with old sectional radiators, test results based on data from Pinkafeld University of Applied Sciences.

General Specifications (continued...)

Heat Output

The radiator outputs quoted in this brochure are based on a mean water temperature in the radiator of 70°C (158°F) and a room temperature of 20° (68°F) - Delta T50.

For other operating conditions - i.e. differences between mean water temperature and room temperature other than 50°C - the correction factors below should be applied (see example right).

Centigrade	Factor	Fahrenheit
15°C	0.21	27°F
20°C	0.30	36°F
25°C	0.41	45°F
30°C	0.51	54°F
35°C	0.63	63°F
40°C	0.75	72°F
45°C	0.87	81°F
50°C	1.00	90°F
55°C	1.13	99°F
60°C	1.27	108°F
65°C	1.41	117°F
70°C	1.55	126°F

An example of radiator selection at a non-standard temperature difference is given below:

Example:

Heat emission required: 2000 Watts
Room air temperature required: 20°C
Mean water temperature in radiator: 65°C

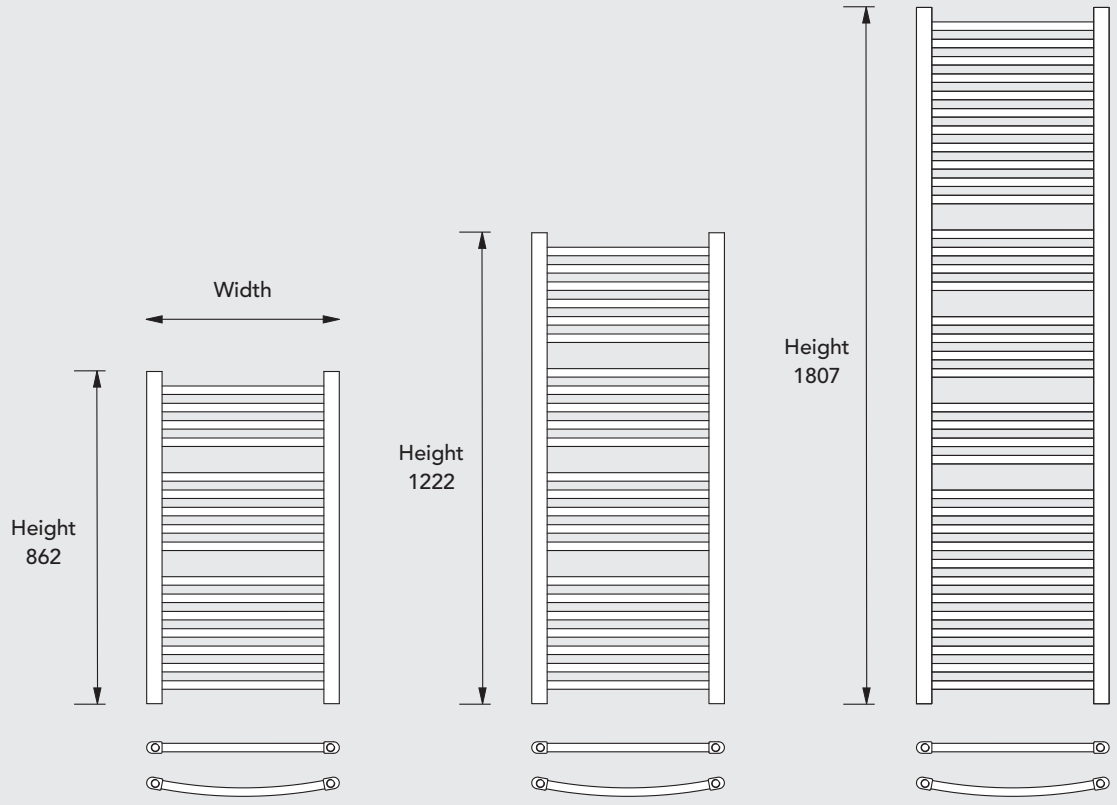
1. Temperature difference = 65-20 = 45°C

2. From Factor Table 45°C gives a factor of: 0.87

3. Divide required heat emission by factor $= \frac{2000}{0.87}$ = 2298 Watts

4. From selection tables choose any radiator rated at 2298 Watts or more.

Model Overview

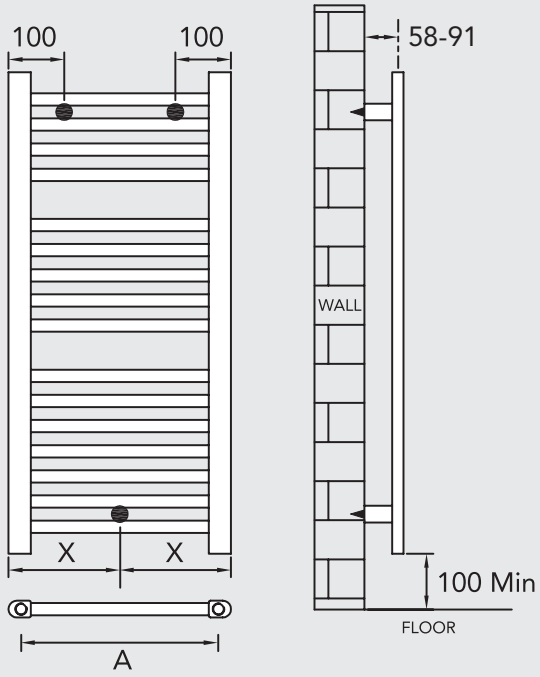


	Straight								
Height (mm)	862			1222			1807		
Width (mm)	400	500	600	400	500	600	400	500	600

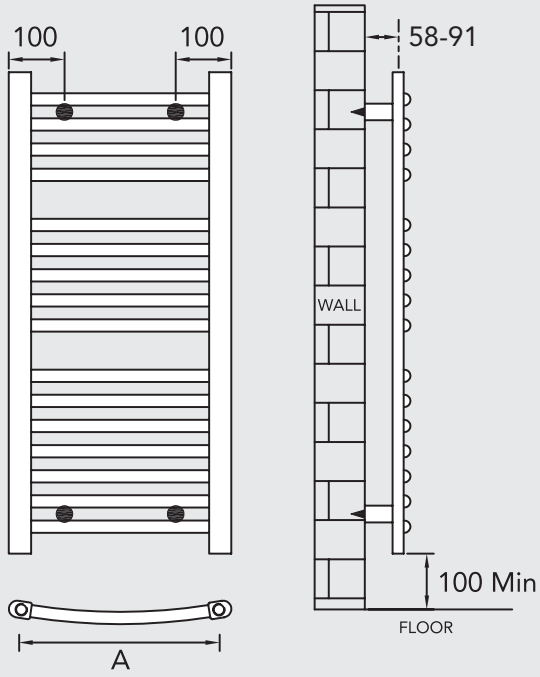
	Curved					
Height (mm)	862		1222		1807	
Width (mm)	500	600	500	600	500	600

Mounting and Bracket Positions and Dimensions

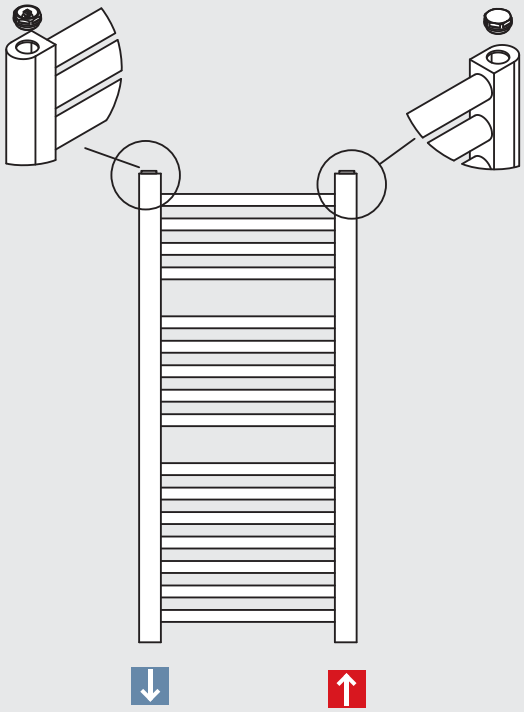
Straight



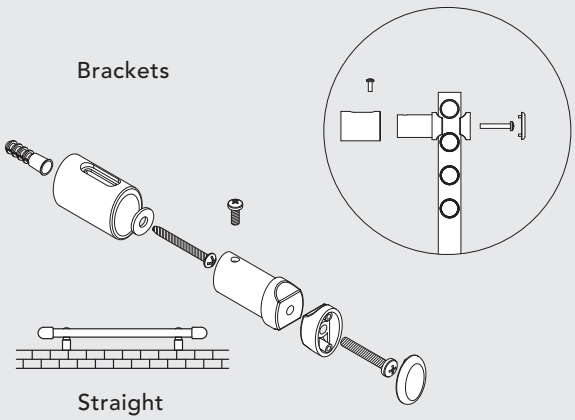
Curved



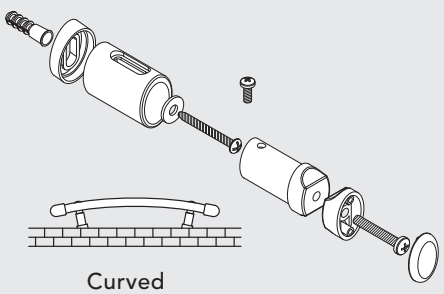
Width (mm)	A (mm)	X (mm)
400	355	200
500	455	250
600	555	300



Brackets



Straight



Curved

Weight and Water Content per Metre Length

Height (mm)	Width (mm)											
	400				500				600			
	Straight		Curved		Straight		Curved		Straight		Curved	
	Water Content (l)	Weight (kg)	Water Content (l)	Weight (kg)	Water Content (l)	Weight (kg)	Water Content (l)	Weight (kg)	Water Content (l)	Weight (kg)	Water Content (l)	Weight (kg)
862	3.37	7.50	N/A	N/A	3.90	8.00	3.90	8.40	4.43	9.00	4.43	9.36
1222	4.81	10.14	N/A	N/A	5.58	11.25	5.58	11.90	6.33	13.20	6.33	13.50
1807	7.23	15.00	N/A	N/A	8.39	15.85	8.39	16.85	9.54	17.48	9.54	18.95

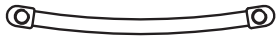
Heat Outputs

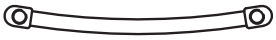
Straight Chrome / Straight White

Nominal Height	Width (mm - inches)	Output (watts)	Output (Btu/h)	Order Code	Output (watts)	Output (Btu/h)	Order Code
862 mm - 33 in	400 - 16	207	706	HL84CS			
	500 - 20	249	850	HL85CS	370	1262	HL85WS
	600 - 24	289	986	HL86CS	427	1457	HL86WS
1222 mm - 48 in	400 - 16	285	972	HL124CS			
	500 - 20	343	1170	HL125CS	511	1744	HL125WS
	600 - 24	398	1358	HL126CS	590	2013	HL126WS
1807 mm - 71 in	400 - 16	433	1477	HL184CS			
	500 - 20	520	1774	HL185CS	768	2620	HL185WS
	600 - 24	603	2057	HL186CS	886	3023	HL186WS

N.B. The tabulated heat outputs are quoted at a mean water to air temperature difference of 50°C.

Curved Chrome / Curved White





Nominal Height	Width (mm - inches)	Output (watts)	Output (Btu/h)	Order Code	Output (watts)	Output (Btu/h)	Order Code
862 mm - 33 in	500 - 20	249	850	HL85CC	370	1262	HL85WC
	600 - 24	289	986	HL86CC	427	1457	HL86WC
1222 mm - 48 in	500 - 20	343	1170	HL125CC	511	1744	HL125WC
	600 - 24	398	1358	HL126CC	590	2013	HL126WC
1807 mm - 71 in	500 - 20	520	1774	HL185CC	768	2620	HL185WC
	600 - 24	603	2057	HL186CC	886	3023	HL186WC

N.B. The tabulated heat outputs are quoted at a mean water to air temperature difference of 50°C.

Transfer Table - Simplified procedure for the domain of standard and low-temperature (ST/LT)

The conversion factors in the table state how much the heat emission has to be altered under operating conditions other than the following standard-design data:

supply temperature t_1 75 °C
return temperature t_2 65 °C
room temperature t_r 20 °C

Because an average exponent of 1.3 has been used for both calculation of the performance data and the specification of the conversion factor, a slight performance variation from the calculated value is possible.

The standard heat emission Φ_S of a radiator covering the required heat $\Phi_{HL,i}$ at the chosen operating conditions, is calculated according to the formula:

$$\Phi_S = \Phi_{HL,i} \times f$$

Φ_S = standard heat emission, in accordance with EN 442

$\Phi_{HL,i}$ = required heat, in accordance with EN 12831

f = conversion factor from the table

Example:
The required heat of a room is 1000 Watts, in accordance with EN 12831.
Design data: t_1 50°C
t_2 40°C
t_r 20°C

Factor **f** according to the table = **2.50**

Supply Temperature °C	Return Temperature °C	Room Temperature °C 12	15	18	20	22	24	26
90	80	0.61	0.64	0.68	0.71	0.74	0.77	0.81
	70	0.67	0.72	0.76	0.80	0.83	0.87	0.91
80	70	0.74	0.79	0.84	0.88	0.93	0.97	1.03
	60	0.83	0.89	0.96	1.01	1.07	1.13	1.20
	50	0.96	1.04	1.13	1.20	1.28	1.37	1.47
75	65	0.82	0.88	0.95	1.00	1.05	1.12	1.18
	60	0.88	0.94	1.02	1.08	1.14	1.21	1.29
	55	0.94	1.01	1.10	1.17	1.24	1.32	1.42
70	65	0.87	0.94	1.01	1.07	1.13	1.19	1.27
	60	0.93	1.00	1.08	1.15	1.22	1.30	1.39
	55	0.99	1.08	1.17	1.25	1.33	1.42	1.53
	50	1.07	1.17	1.28	1.37	1.47	1.58	1.71
65	60	0.98	1.07	1.16	1.23	1.31	1.40	1.50
	55	1.05	1.15	1.26	1.34	1.43	1.54	1.66
	50	1.14	1.25	1.37	1.47	1.59	1.71	1.86
	45	1.24	1.37	1.52	1.64	1.78	1.94	2.13
60	55	1.13	1.23	1.36	1.45	1.56	1.68	1.82
	50	1.22	1.34	1.48	1.60	1.73	1.87	2.05
	45	1.33	1.47	1.65	1.78	1.94	2.13	2.36
	40	1.47	1.64	1.86	2.03	2.24	2.50	2.80
55	50	1.31	1.45	1.62	1.75	1.90	2.07	2.28
	45	1.43	1.60	1.80	1.96	2.15	2.37	2.64
	40	1.59	1.78	2.03	2.24	2.48	2.78	3.15
	35	1.78	2.03	2.36	2.64	2.99	3.43	4.02
50	45	1.56	1.75	1.98	2.17	2.40	2.67	3.00
	40	1.73	1.96	2.25	2.50	2.79	3.15	3.61
	35	1.94	2.24	2.63	2.96	3.38	3.92	4.64
	30	2.24	2.64	3.20	3.70	4.39	5.39	6.99
45	40	1.90	2.17	2.53	2.83	3.19	3.66	4.25
	35	2.15	2.50	2.96	3.37	3.89	4.58	5.52

$$\Phi_S = \Phi_{HL,i} \times f = 1000 \text{ Watt} \times 2.50 = 2500 \text{ Watt}$$

A radiator has to be installed that emits 2500 W under the standard design (75/65/20).

Exact method for the performance calculation

Using the formula $\Phi = \Phi_s \left[\frac{\Delta T}{\Delta T_s}\right]^n$,

any performance differing from the standard can be calculated.

Φ = Radiator power [W]

Φ_s = Standard radiator power in accordance with EN 442 [W]

ΔT = Arithmetic radiator excess temperature [K]

ΔT_s = Arithmetic radiator excess temperature 50 K, at a standard state of 75°C / 65°C / 20°C

n = Radiator exponent

Please note: If the condition

$$c = \frac{t_2 - t_r}{t_1 - t_r} < 0.7$$

is met, the excess temperatures will be specified logarithmically.

$$\Delta T_{arithmetic} = \frac{t_1 + t_2}{2} - tr$$

$$\Delta T_{logarithmic} = \frac{t_1 - t_2}{\ln \frac{t_1 - t_r}{t_2 - t_r}}$$

Technical information subject to change.

Colour Options

All products featured in this brochure (excluding Viennarail) are available in other RAL and special colours on request (see below and right). The colours shown here are available for a small extra charge and have a 6 - 8 week delivery lead time. Please call Customer Services for more details.

STANDARD RAL COLOURS

VOGEL&NOOT offers the following RAL colours. If the colour you require is not included in this colour chart, please contact our customer services for availability.

Traffic White RAL 9016	Azure Blue RAL 5009	Red Violet RAL 4002	Window Grey RAL 7040
Pure White RAL 9010	Sky Blue RAL 5015	Purple Violet RAL 4007	Silver Grey RAL 7001
Cream RAL 9001	Traffic Blue RAL 5017	Signal Violet RAL 4008	Dusty Grey RAL 7037
Jasmine S0075	Night Blue RAL 5022	Pastel Violet RAL 4009	Stone Grey RAL 7030
Pergamon S0091	Ultramarine Blue RAL 5002	Light Pink RAL 3015	Brown Grey RAL 7013
Natural S0094	Green Blue RAL 5001	Antique Pink RAL 3014	Slate Grey RAL 7015
Bahama Beige S0087	Jet Black RAL 9005	Pastel Green RAL 6019	Anthracite Grey RAL 7016
Traffic Yellow RAL 1023	Black Grey RAL 7021	Mint Turquoise RAL 6033	Graphite Grey RAL 7024
Lemon Yellow RAL 1012	Dahlia Yellow RAL 1033	Blue Green RAL 6004	White Aluminium RAL 9006
Golden Yellow RAL 1004	Pastel Orange RAL 2003	Chocolate Brown RAL 8017	Grey Aluminium RAL 9007
Curry Yellow RAL 1027	Pure Orange RAL 2004	Grey Brown RAL 8019	
Pastel Turquoise RAL 6034	Flame Red RAL 3000	Manhatten S0088	
Pigeon Blue RAL 5014	Wine Red RAL 3005	Light Grey RAL 7035	

Please note: due to print restrictions exact colour match is not always possible, however every effort has been made to ensure as much accuracy as possible.

Colour Options (continued...)

SPECIAL COLOURS

VOGEL&NOOT also offers the following textured, metallic and shimmer metallic colours.

TEXTURED


Black Textured
S0141

White Textured
S0142

METALLIC

Cream White
S0145


Light Grey
S0143


Brown Grey
S0144


Anodic Natural
S0149


Anodic Bronze
S0146


Anodic Brown
S0147


Anodic Black
S0148

SHIMMER METALLIC


Metal Alu
S0201


Metal Black
S0104

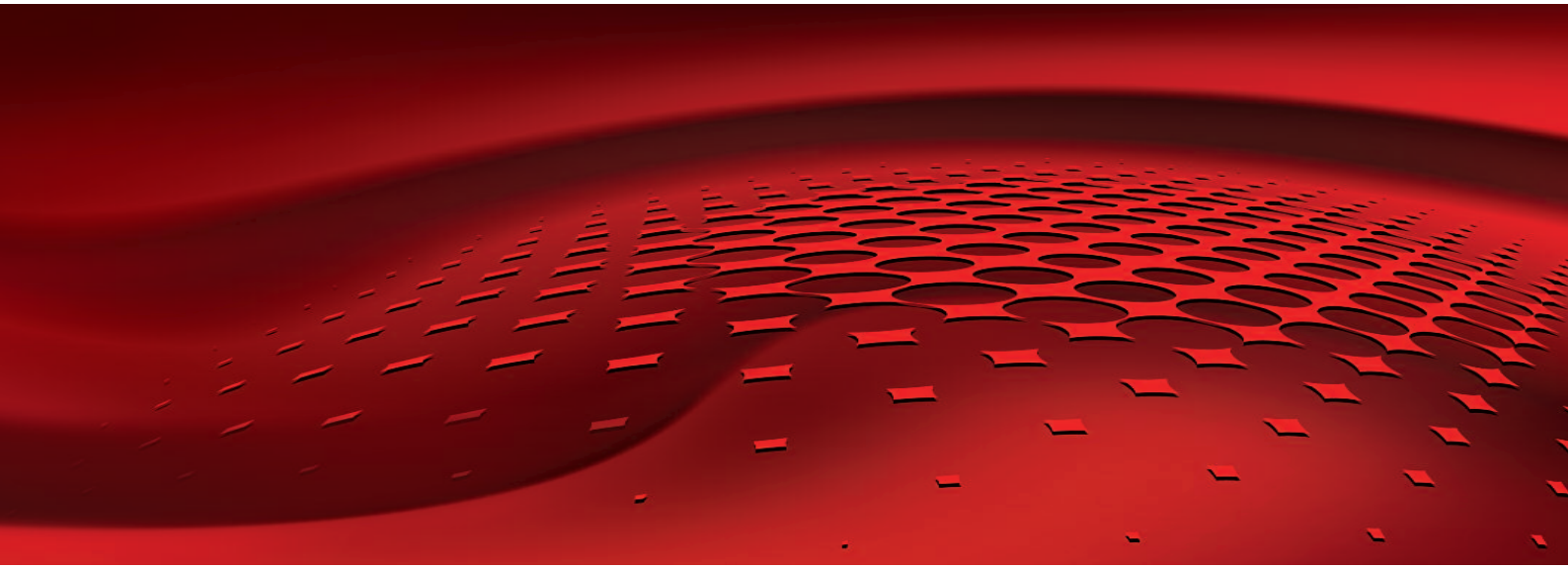

Metal Grey
S0102

All our non-stocked and special colour items are made to order. Should an order be cancelled after it has been placed with the factory an administration fee of 30% of the product value may be applied.

Please note: due to print restrictions exact colour match is not always possible, however every effort has been made to ensure as much accuracy as possible.

VOGEL&NOOT

VOGEL & NOOT Eastern Avenue, Team Valley, Gateshead, Tyne & Wear NE11 0PG, UK
T: 0845 017 8672, F: 0845 017 8673, sales@vogelandnoot.co.uk, www.vogelandnoot.co.uk



heatingthrough**innovation.**