QUINN merriott

BATHROOM RADIATORS TECHNICAL INFORMATION

July 2009

QUINN radiators

CONTENTS

Bathroom Radiator Specifications

Paint
Quinn Merriott uses a painting process developed for the automobile industry. In pre-treatment, the radiators go through a series of washes which degrease the steel. An iron phosphate rinse passivates the surface prior to painting. The primer coat is applied by immersion in an electrophoretic bath to give total cover of the bare steel and maximum corrosion protection. This coat is baked at 200°C. The durable topcoat (epoxy polyester powder) is electrostatically applied and stove enamel baked at 200°C. This process is monitored to ensure continuous achievement of optimum adhesion, opacity and gloss levels

Colour
Our standard finish for the QRT and the QRC is semi-gloss RAL 9016 (white) in epoxy polyester powder. The Venus, Ares and Crystal bathroom radiators are available in chrome.

All chrome bathroom radiators are polished to a high quality finish.

Sizing & Heat Emissions
Quinn Merriott bathroom radiators offer emissions from 200 Watts to 1400 Watts at ΔT50°C

Height
The heights range from 800mm to 1800mm for the QRT and the QRC. The heights range from 688mm to 1720mm for the Venus, Ares. The heights range from 730mm to 1730mm for the Crystal bathroom radiators.

Width
The Width ranges from 500mm to 750mm for the QRT, the QRC, the Venus, and the Ares bathroom radiators. The Width ranges from 450mm to 600mm for the Crystal bathroom radiators.

Dimensional Tolerances
Dimensional Tolerances are in accordance with **EN442**.

Materials
Bathroom radiators are made from 1.25mm and 1.5mm thick steel tubes.

Operating Pressures
Each bathroom radiator is tested to 1.3 times its maximum allowable working pressure. The maximum allowable working pressure for all the towel radiators is 5.38 Bar

Connections
Standard connections on all bathroom radiators are 4 x 1/2"" (15mm) BSP connections at E, F, G and H.

Electric Power Option
All bathroom radiators can befitted with an electrical element and can be used when your central heating is off. This enables you to have warm dry towels without the need to heat the rest of your house.

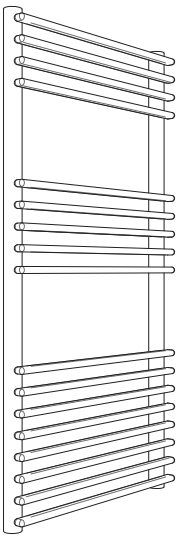
Bathroom Radiators Overview

QRT

Available in white as Standard

3xHeights:
800mm, 1200mm and 1800mm.

3xWidths:
500mm, 600mm and 750mm.

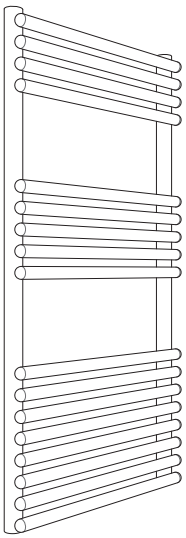


QRC

Available in white as Standard

3xHeights:
800mm, 1200mm and 1800mm.

3xWidths:
500mm, 600mm and 750mm.

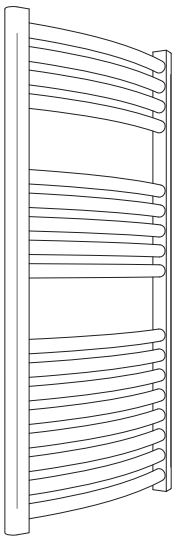


ARES

Available in both white and chrome

3xHeights:
688mm, 1118mm and 1720mm.

3xWidths:
500 mm, 600mm, 750 mm

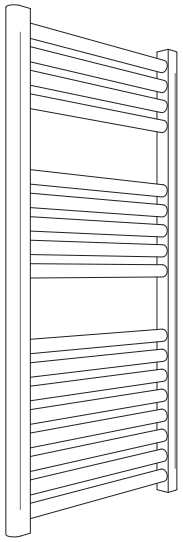


VENUS

Available curved in both white and chrome

3xHeights:
688mm, 1118mm and 1720mm.

3xWidths:
500 mm, 600mm, 750 mm

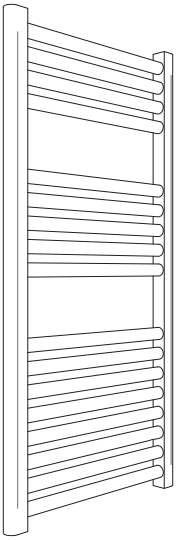


Crystal Straight

Available in both white and chrome

3xHeights:
730mm, 1160mm, 1730mm.

2xWidths:
450mm, 600mm.

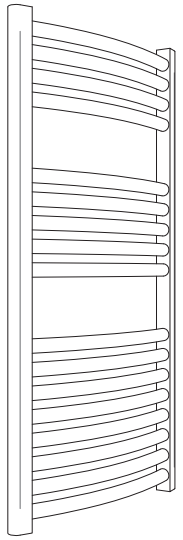


Crystal Curved

Available curved in both white and chrome

3xHeights:
730mm, 1160mm, 1730mm.

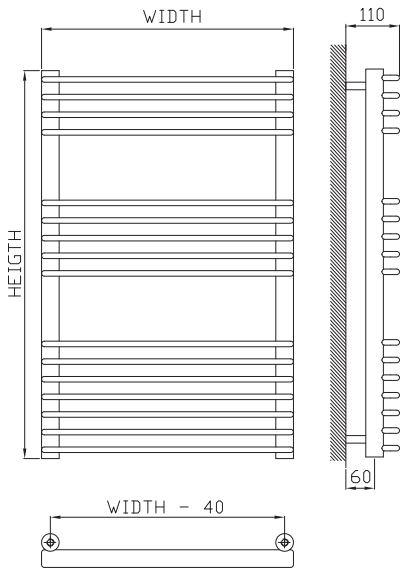
2xWidths:
450mm, 600mm.



Heat Emissions / Data Charts

QRT	800mm			1200mm			1800mm		
Width	500	600	750	500	600	750	500	600	750
Dry weight (kgs)	9.3	10.7	12.9	13.8	16	19.3	22	25.6	30.9
Water content (L)	3.3	3.6	4	4.8	5.2	6	7.7	8.5	9.8
Number of elements	16	16	16	24	24	24	39	39	39
	Output (Watts)			Output (Watts)			Output (Watts)		
ΔT50	403	483	604	589	707	884	938	1126	1408
ΔT56	463	555	694	676	811	1015	1077	1292	1615

QRT



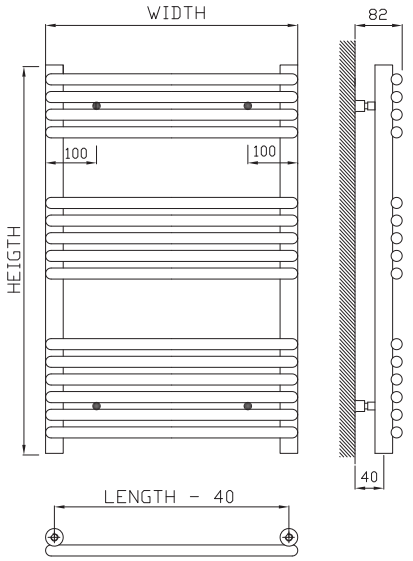
Electrical Elements			
Height	800mm	1200mm	1800mm
Element	200 Watts	300 Watts	500 Watts

All of the above Bathroom Radiators are available from stock
These Bathroom Radiators must only be used on an indirect or closed heating system

Heat Emissions / Data Charts

QRC	800mm			1200mm			1800mm		
Width	**500**	**600**	**750**	**500**	**600**	**750**	**500**	**600**	**750**
Dry weight (kgs)	9	10.4	12.6	13.1	15.7	18.9	20.8	24	30
Water content (L)	3.6	4	4.6	5.4	6	6.9	8.1	9	10.5
Number of elements	16	16	16	24	24	24	37	37	37
	Output (Watts)			**Output (Watts)**			**Output (Watts)**		
ΔT50	367	441	551	536	644	804	811	973	1217
ΔT56	420	504	630	614	737	922	931	1117	1396

QRC



Electrical Elements			
Height	800mm	1200mm	1800mm
Element	200 Watts	300 Watts	500 Watts

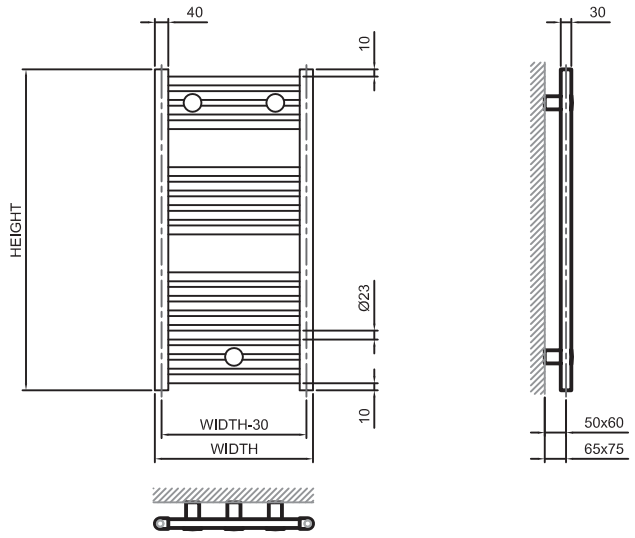
All of the above Bathroom Radiators are available from stock
These Bathroom Radiators must only be used on an indirect or closed heating system

Venus

Heat Emissions / Data Charts & Applications

Venus	688mm			1118mm			1720mm		
Width	**500**	**600**	**750**	**500**	**600**	**750**	**500**	**600**	**750**
Dry weight (kgs)	6	6.9	8.2	9.4	10.9	13	14.5	16.7	20
Water content (L)	3.2	3.6	4.4	5.1	5.8	6.8	7.8	8.9	10.6
Number of elements	14	14	14	22	22	22	34	34	34
	Output (Watts)			**Output (Watts)**			**Output (Watts)**		
ΔT50	349	405	488	526	617	753	818	957	1166
ΔT56	399	467	563	566	711	865	938	1098	1337

Venus Chrome	688mm			1118mm			1720mm		
Width	**500**	**600**	**750**	**500**	**600**	**750**	**500**	**600**	**750**
Dry weight (kgs)	6	6.9	8.2	9.4	10.9	13	14.5	16.7	20
Water content (L)	3.2	3.6	4.3	5.1	5.8	6.8	7.8	8.9	10.6
Number of elements	14	14	14	22	22	22	34	34	34
	Output (Watts)			**Output (Watts)**			**Output (Watts)**		
ΔT50	219	253	304	346	408	500	538	636	783
ΔT56	252	292	351	399	470	576	620	733	902



Element table for Venus			
Height/Width	**688mm**	**1118mm**	**1720mm**
500mm	300 Watt	400 Watt	400 Watt
600mm	400 Watt	700 Watt	700 Watt
750mm	700 Watt	1000 Watt	1000 Watt

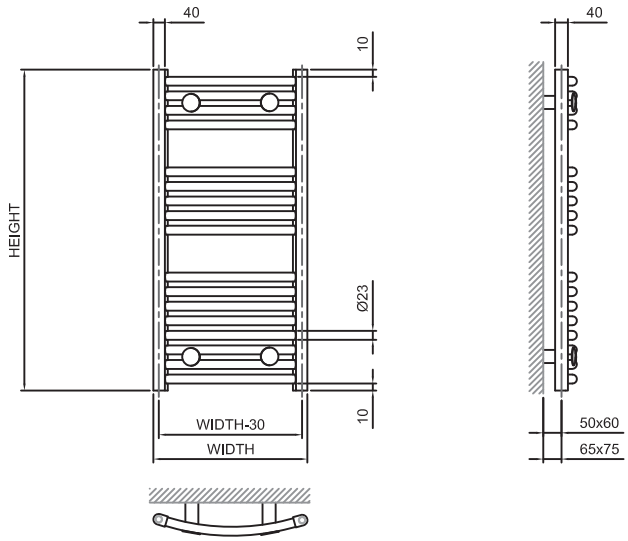
Element table for Venus Chrome			
Height/Width	**688mm**	**1118mm**	**1720mm**
500mm	-	-	300 Watt
600mm	400 Watt	400 Watt	600 Watt
750mm	600 Watt	800 Watt	1000 Watt

Ares

Heat Emissions / Data Charts & Applications

Ares	688mm			1118mm			1720mm		
Width	**500**	**600**	**750**	**500**	**600**	**750**	**500**	**600**	**750**
Dry weight (kgs)	6	6.9	8.3	9.5	11	13.2	14.6	16.8	20.3
Water content (L)	3.2	3.7	4.4	5.1	5.8	6.9	7.9	9	10.7
Number of elements	14	14	14	22	22	22	34	34	34
	Output (Watts)			**Output (Watts)**			**Output (Watts)**		
ΔT50	349	405	488	526	617	753	818	957	1166
ΔT56	399	467	563	566	711	865	938	1098	1337

Ares Chrome	688mm			1118mm			1720mm		
Width	500	600	750	500	600	750	500	600	750
Dry weight (kgs)	6	6.9	8.3	9.5	11	13.2	14.6	16.8	20.3
Water content (L)	3.2	3.7	4.4	5.1	5.8	6.9	7.9	9	10.7
Number of elements	14	14	14	22	22	22	34	34	34
	Output (Watts)			**Output (Watts)**			**Output (Watts)**		
ΔT50	219	253	304	346	408	500	538	636	783
ΔT56	252	292	351	399	470	576	620	733	902



Element table for Ares			
Height/Width	**688mm**	**1118mm**	**1720mm**
500mm	300 Watt	400 Watt	400 Watt
600mm	400 Watt	700 Watt	700 Watt
750mm	700 Watt	1000 Watt	1000 Watt

Element table for Ares Chrome			
Height/Width	**688mm**	**1118mm**	**1720mm**
500mm	-	-	300 Watt
600mm	400 Watt	400 Watt	600 Watt
750mm	600 Watt	800 Watt	1000 Watt

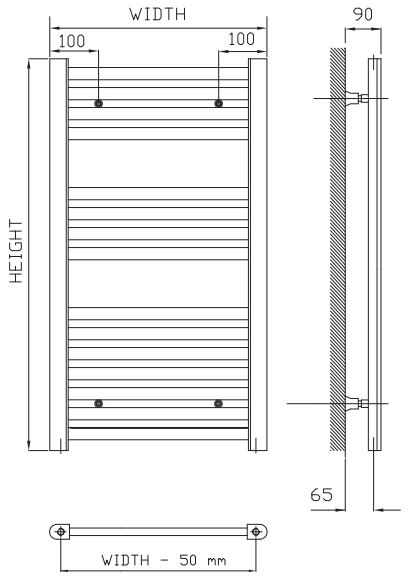
Crystal Straight

Heat Emissions / Data Charts & Applications

Crystal	730mm		1160mm		1730mm	
Width	**450**	**600**	**450**	**600**		**600**
Dry weight (kgs)	4.8	5.85	7.88	9.54	-	13.7
Water content (L)	2.9	3.54	4.74	5.38	-	8.47
Number of elements	15	15	25	25	-	36
	Output (Watts)		**Output (Watts)**		**Output (Watts)**	
ΔT50	313	397	490	643	-	930
ΔT56	363	461	569	747	-	1079

Crystal Chrome	730mm		1160mm		1730mm	
Width	**450**	**600**	**450**	**600**		**600**
Dry weight (kgs)	4.8	5.85	7.88	9.54	-	13.7
Water content (L)	2.9	3.54	4.74	5.38	-	8.47
Number of elements	15	15	25	25	-	36
	Output (Watts)		**Output (Watts)**		**Output (Watts)**	
ΔT50	203	265	327	429	-	620
ΔT56	236	307	379	498	-	720

Crystal Straight



Radiator Height	Element Order Code	Output Watts
All Heights	EE002	200

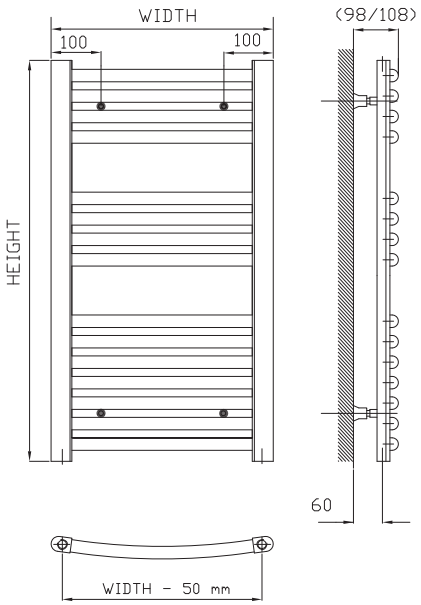
Crystal Curved

Heat Emissions / Data Charts & Applications

Crystal	730mm		1160mm		1730mm	
Width	450	600	450	600		600
Dry weight (kgs)	4.88	5.93	8.01	9.67	-	13.88
Water content (L)	2.94	3.58	4.81	5.87	-	8.57
Number of elements	15	15	25	25	-	36
	Output (Watts)		Output (Watts)		Output (Watts)	
ΔT50	327	380	533	675	-	959
ΔT56	380	414	618	784	-	1113

Crystal Chrome	730mm		1160mm		1730mm	
Width	450	600	450	600		600
Dry weight (kgs)	4.88	5.93	8.01	9.67	-	13.88
Water content (L)	2.94	3.58	4.81	5.87	-	8.57
Number of elements	15	15	25	25	-	36
	Output (Watts)		Output (Watts)		Output (Watts)	
ΔT50	-	276	355	450	-	640
ΔT56	218	320	412	505	-	742

Crystal Curved

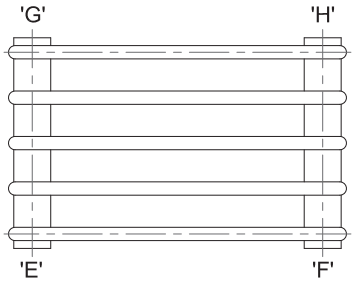


Radiator Height	Element Order Code	Output Watts
All Heights	EE002	200

Features & Options

Dip Tubes

Standard connections on all bathroom radiators are 4 x 1/2" (15mm) connections at **E**,**F**,**G** and **H**. Normal application means the radiator is connected up at the **E** and **F** connection, with 2 x 1/2"(15mm) airvents at the **G** and **H** locations. It is possible, using a dip tube, to pipe up the unit from the top (i.e. at **G** and **H**) to ensure overall water distribution. These can be inserted into the stock product and can be retrofit if required.



Dual Adaptor Kit

See Figure 1 or 2

A dual adaptor kit (electric element plus T-piece) is available to facilitate the running of QRT and QRC bathroom radiators from the electrical supply. This is used when the central heating system is not in use (during the summer months for example). Dual adaptor kits can be retrofit if required, see fig 1 and fig 2.

Both the Venus and Ares models also have the mixed function option.

Please note that type of heating element to be used with each radiator differs according to height and width. Please consult with a member of the Quinn radiator technical team for further information.

Fig.1

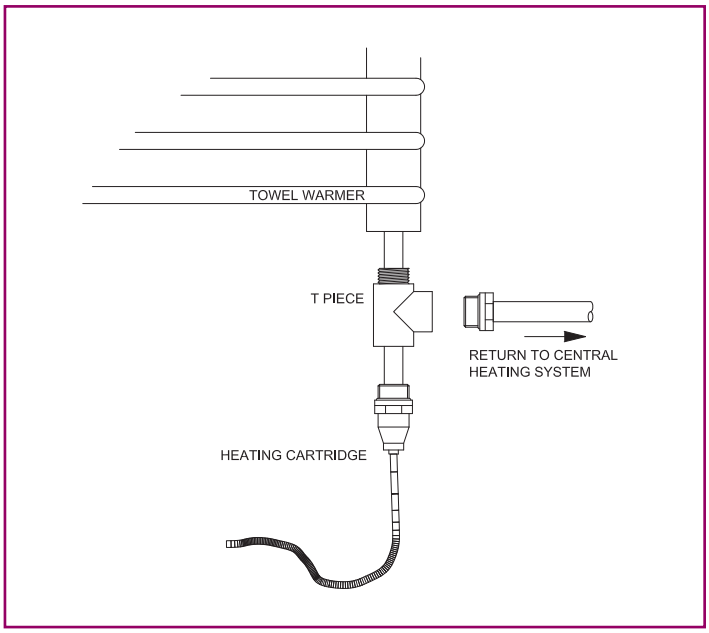
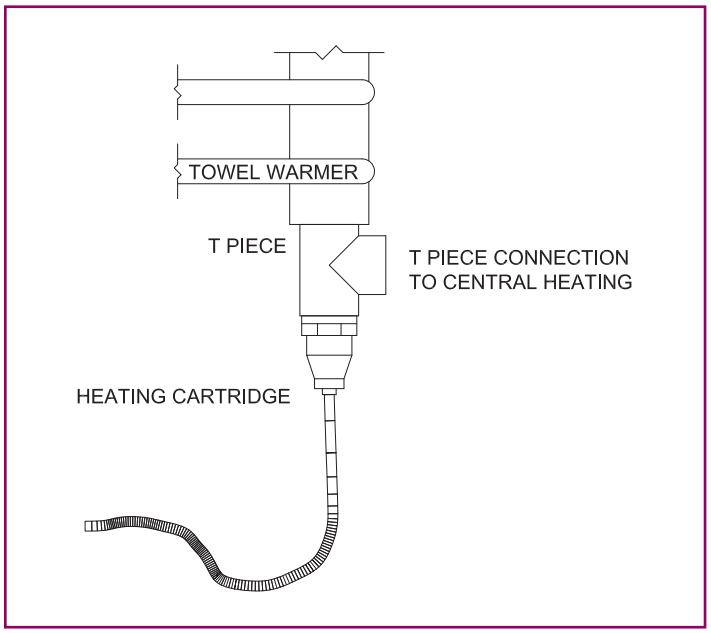


Fig.2



Applications - Bracket Details

Surface mounting brackets insitu and exploded

QRT Bracket

Use the bracket shown in Fig 5 and Fig 6 with the QRT range.

Fig.5

Fig.6

QRC and VENUS Brackets

Use the bracket shown in Fig 7 and Fig 8 with the QRC and VENUS ranges.

Fig.7

Fig.8

Correction Factors

Emissions at two separate delta TCs (ΔT°Cs) are provided in the heat emission charts in this catalogue.

Listed below are the correction factors needed to calculate the emission at other delta T°s (ΔTs) between 20° and 60°C.
This is done by correcting your heat emission with the appropriate correction factor selected from here.

Example

Say, required room temperature = 21°C, flow temperature = 86°C, return temperature = 72°C
How is the emission found?

Solution

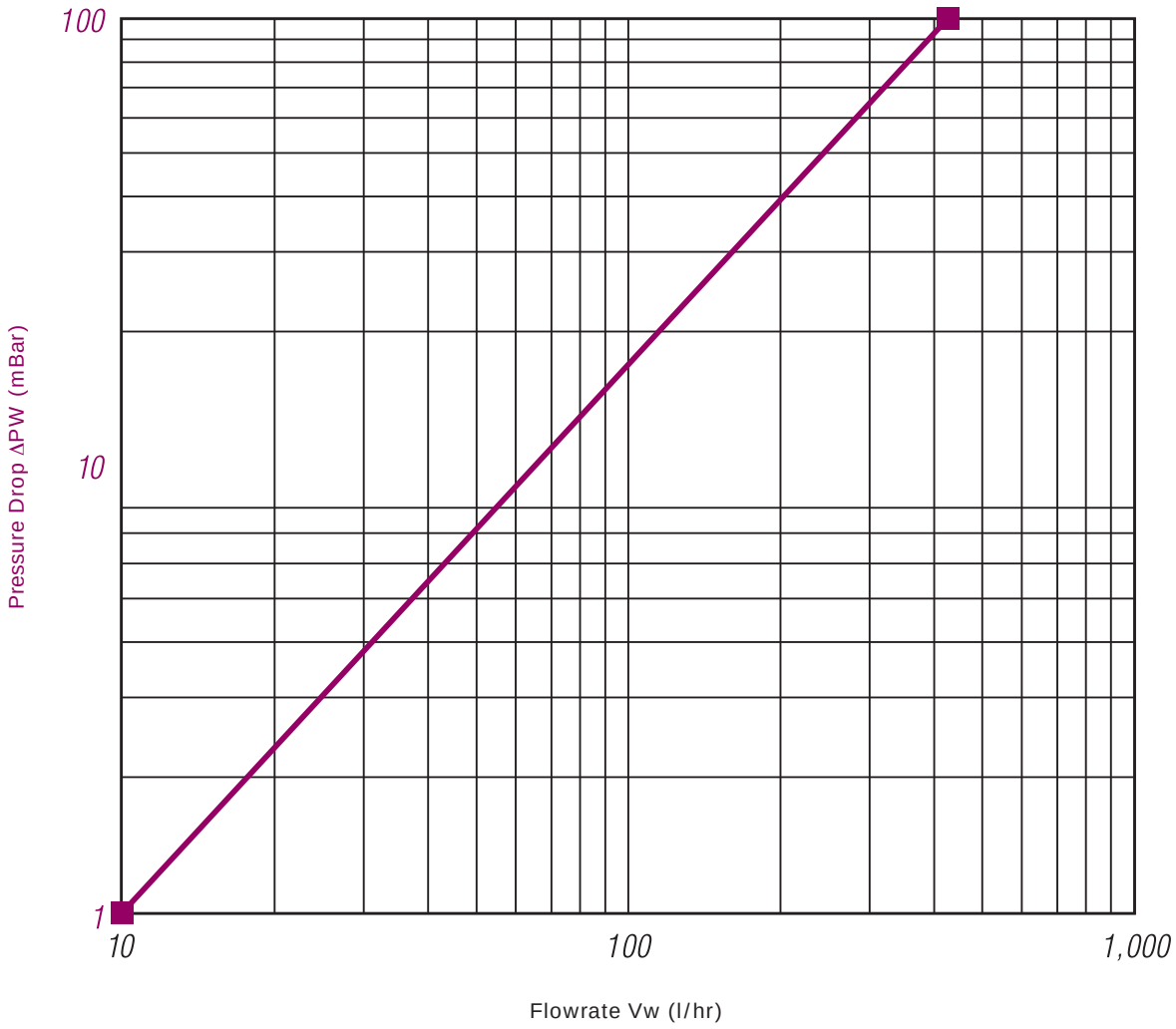
Mean water temperature = (T° flow + T° return)/2 = (86 + 72)/2 = 79°C
DeltaT° = mean water temp - required room temp = 79 - 21 = 58°C

Thus, from the tables below, the emission for a QRT 800 x 600 is 0.962 times the emission given in the output tables e.g 483W @ Length 600mm = 465 watts @ΔT50°

ΔT(°C)P	Based on	Based on
	ΔT50	ΔT56
20	0.280	0.271
21	0.296	0.287
22	0.312	0.303
23	0.329	0.319
24	0.345	0.336
25	0.362	0.353
26	0.379	0.370
27	0.396	0.387
28	0.413	0.404
29	0.430	0.421
30	0.448	0.438
31	0.465	0.456
32	0.482	0.473
33	0.500	0.491
34	0.517	0.509
35	0.535	0.527
36	0.553	0.545
37	0.571	0.563
38	0.589	0.581
39	0.607	0.599
40	0.625	0.617

ΔT(°C)P	Based on	Based on
	ΔT50	ΔT56
41	0.643	0.636
42	0.661	0.654
43	0.679	0.673
44	0.698	0.691
45	0.716	0.710
46	0.735	0.729
47	0.753	0.748
48	0.772	0.767
49	0.791	0.786
50	0.809	0.805
51	0.828	0.824
52	0.847	0.843
53	0.866	0.863
54	0.885	0.882
55	0.904	0.902
56	0.923	0.921
57	0.942	0.941
58	0.962	0.960
59	0.981	0.980
60	1.000	1.000

Resistance Diagram



Resistance

The following is how to calculate the Resistance of a Bathroom Radiator

The following is how to and the resistance of a bathroom radiator type QRT 1800 mm high X 600 mm wide:

First, establish what the output of the bathroom radiator is.
This is found in the catalogue. (For this particular example please see page 4.)
Output from the Catalogue is 1292 Watts

In this example the system is operating at ΔT56°C (Flow@82°C, Return 71°C).

(If the output is for a ΔT°C other than what is indicated in the emission tables (ΔT50°C or ΔT56°C)
please use the correction factor tables indicated to get the corrected output.)
C is the Specific Heat Constant (always 4187J/Kg°C)

Calculate the flow rate as follows:

Q = (m) x (C) x (ΔT)

Output = (Flow Rate) (Constant) (Difference between flow and return temperature)

Watts = (l/s) (J/Kg°C) (°C)

1292 = (m) (4187) (11)

Therefore

m = 1292/((4187)x(11))

m = 0.028052196 Litres per Second (l/s) multiply by 3600 to convert to litres per hour

m = 100.98 litres per hour (l/hr)

Now, look up the Resistance Diagram:

Reading from the chart this gives a value of 18.2 mBar or 1.82 Kpa.

All bathroom radiators use the same resistance diagram.

Please note:
All models supplied with a dual adaptor kit will have a flow rate when operating on a central heating system, when these radiators are operating as a electric towel radiator they do not have a flowrate.

How to Order
Towel Rails

Type QRT		
Height 800mm		
Heat Emission (watts)		
Width mm	ΔT50	ΔT56
500	403	463
600	483	555
750	604	694

Type QRT		
Height 1200mm		
Heat Emission (watts)		
Width mm	ΔT50	ΔT56
500	589	676
600	707	811
750	884	1015

Type QRT		
Height 1800mm		
Heat Emission (watts)		
Width mm	ΔT50	ΔT56
500	938	1077
600	1126	1292
750	1408	1615

Type QRC		
Height 800mm		
Heat Emission (watts)		
Width mm	ΔT50	ΔT56
500	367	420
600	441	504
750	551	630

Type QRC		
Height 1200mm		
Heat Emission (watts)		
Width mm	ΔT50	ΔT56
500	536	614
600	644	737
750	804	922

Type QRC		
Height 1800mm		
Heat Emission (watts)		
Width mm	ΔT50	ΔT56
500	811	931
600	973	1117
750	1217	1396

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Tel : +44 (0) 28 6774 2606
Fax: +353 (0) 49 9525231

Orders:
Tel : +44 (0) 28 6774 2503
Fax: +353 (0) 49 9525231

UK Enquires
Quotes:
Tel : +44 (0) 28 6774 2549
Fax: +353 (0) 49 9525231

Orders:
Tel : +44 (0) 28 6774 2182
+44 (0) 1942 262466
Fax: +353 (0) 49 9525231
+44 (0) 1942 260684

Notes


AERATED THERMAL BLOCKS

CEMENT


CONCRETE ROOFTILES

QUINN THERM (PIR)


QUINN LITE PAC


PRESTRESSED


QUARRY


TARMAC


ENERGY


FINANCIAL SERVICES


GLASS


HOTELS


PACKAGING


PLASTICS


PROPERTY


RADIATORS

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