

zehnder *project range*
low surface temperature radiators

zehnder

Introduction

Zehnder Project Low Temperature (ZPL):

The Zehnder Project Range of Low Surface Temperature heaters has been designed and developed to offer a quality product to meet tight budgetary requirements.

This has been achieved by rationalising the options of style and depths whilst still maintaining a comprehensive range of lengths and outputs.

Consideration has also been made to reduce the installation costs: The Zehnder ZPL requires no on-site assembly and the single fix bracket system ensures installation is simple and cost-effective.

Key Features:

- 2 basic styles
- single depth option - 140mm
- individual case lengths up to 2911mm
- satin anodised aluminium grilles
- robust steel front panel
- experienced technical support

Applications:

The Zehnder ZPL is suitable for any application where a low surface touch temperature is required.

Typical installations include:

- hospitals and all associated wards
- nursing homes
- nurseries
- schools
- all public buildings
- special care units

Product Specification

General:

LST Casing:

Constructed from a front panel of 75mm individual 1.2mm thick zinc coated steel panels, spot welded together on double profiled return bends to create a robust panel. End casings formed from a 1.2mm zinc coated steel. Removable and self-hinging aluminium grilles secured by Allen key cap head screws.

Heat Emitter:

15mm copper water bearing tubes with aluminium convector plates nominally spaced at 7.5mm intervals.

All production to ISO 9002:1994

Suitable for use on closed water heating systems.



Operating Parameters: (BS EN442-1: 1996)

Standard Working Pressure: 5.0 bar

Standard Test Pressure: 7.0 bar

Outputs:

All heat emitter outputs have been previously tested by BSRIA in accordance with BS3528: 1197, and have been adjusted to BS EN442. Outputs are stated at $\Delta T=50K$ as required by EN442, and at $\Delta T=56K$ & $\Delta T=60K$ for convenience.

Outputs at different ΔT values may be calculated using the correction factor table from the base outputs stated at $\Delta T=50K$.

Finishes:

Heat emitters are natural finish copper and aluminium.

LST cases are factory finished with an anti-bacterial coating to RAL 9010 semi-gloss.

LST grilles finished with an anti-bacterial clear coat in satin anodised aluminium.

Other finishes available upon request.

Brackets:

Supplied with 'single fix' fully adjustable brackets which mount both the emitter and the case. No site assembly of the unit is required.

Special Options (extra cost):

- powder coat finish to RAL, BS or NCS colour
- cut-outs for valves, pipework and skirtings
- remote adjuster TRV
- integrated valve assemblies

Please consult the Zehnder Technical Office for any other special requirements.

Manufactured in the UK.

Model Overview



Style A

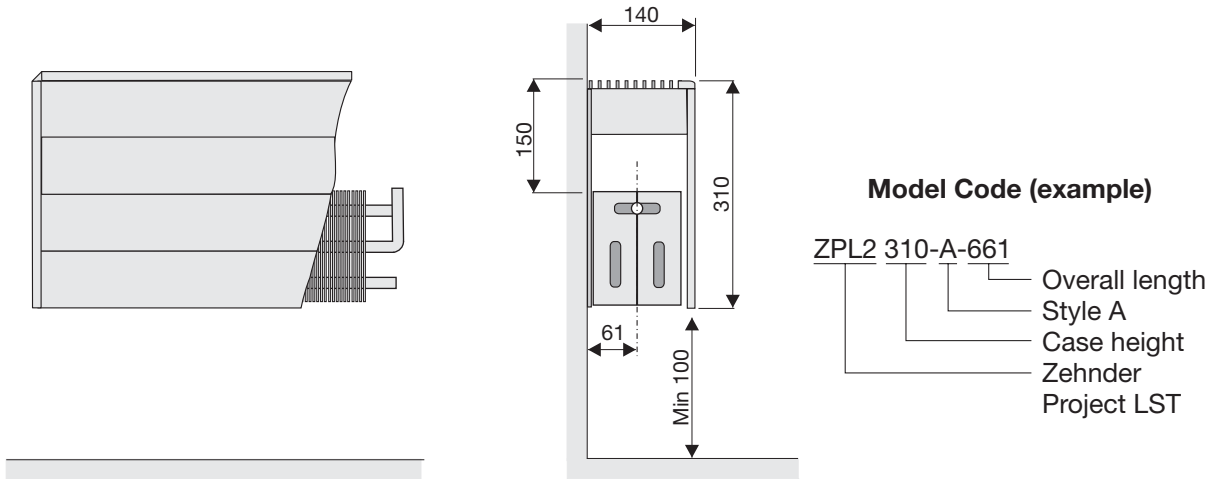
Grilles: top horizontal
Depth: A: 140mm
Height: 310, 460 & 610mm
Length: 661 - 2911mm
Output: see pages 4 - 6



Style B

Grilles: top horizontal, bottom vertical
Depth: B: 140mm
Height: 450, 600 & 750mm
Length: 661 - 2911mm
Output: see pages 7 - 9

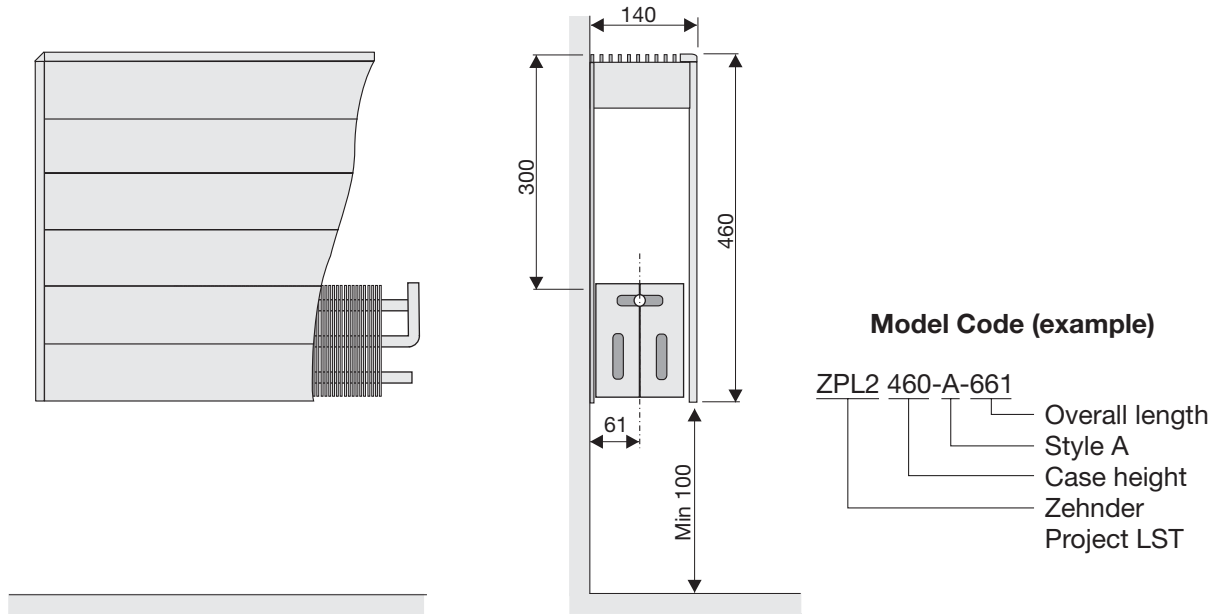
ZPL2 310-A



Technical Data

Case Mass kg	Emitter Mass (dry) kg	Volume V litres	Emitter Length mm	Case Length mm	Model	Output BS EN442 $\Delta T=50K$ Watts	Output $\Delta T=56K$ Watts	Output $T=60K$ Watts
3.83	2.60	0.63	490	661	ZPL2 310-A-661	480	557	609
4.43	3.07	0.74	600	763	ZPL2 310-A-763	584	678	741
5.02	3.53	0.85	700	865	ZPL2 310-A-865	687	798	872
5.62	3.97	0.96	805	968	ZPL2 310-A-968	785	911	996
6.21	4.41	1.06	900	1070	ZPL2 310-A-1070	882	1024	1119
6.80	4.87	1.17	1010	1172	ZPL2 310-A-1172	986	1145	1251
7.39	5.33	1.29	1110	1274	ZPL2 310-A-1274	1089	1264	1382
7.98	5.77	1.39	1215	1377	ZPL2 310-A-1377	1187	1378	1506
8.58	6.21	1.50	1310	1479	ZPL2 310-A-1479	1284	1491	1629
9.17	6.65	1.60	1410	1581	ZPL2 310-A-1581	1383	1606	1755
9.77	7.09	1.71	1510	1684	ZPL2 310-A-1684	1481	1719	1879
10.36	7.53	1.82	1615	1786	ZPL2 310-A-1786	1581	1836	2006
10.95	7.97	1.92	1715	1888	ZPL2 310-A-1888	1681	1952	2133
11.54	8.43	2.03	1815	1990	ZPL2 310-A-1990	1782	2069	2261
12.13	8.90	2.14	1920	2092	ZPL2 310-A-2092	1882	2185	2388
12.73	9.35	2.25	2025	2195	ZPL2 310-A-2195	1983	2302	2516
13.32	9.80	2.36	2125	2297	ZPL2 310-A-2297	2083	2418	2643
19.92	10.24	2.47	2220	2400	ZPL2 310-A-2400	2182	2533	2769
14.51	10.68	2.57	2325	2502	ZPL2 310-A-2502	2280	2647	2893
15.69	11.58	2.79	2530	2706	ZPL2 310-A-2706	2481	2880	3148
16.88	12.46	3.00	2740	2911	ZPL2 310-A-2911	2688	3121	3411

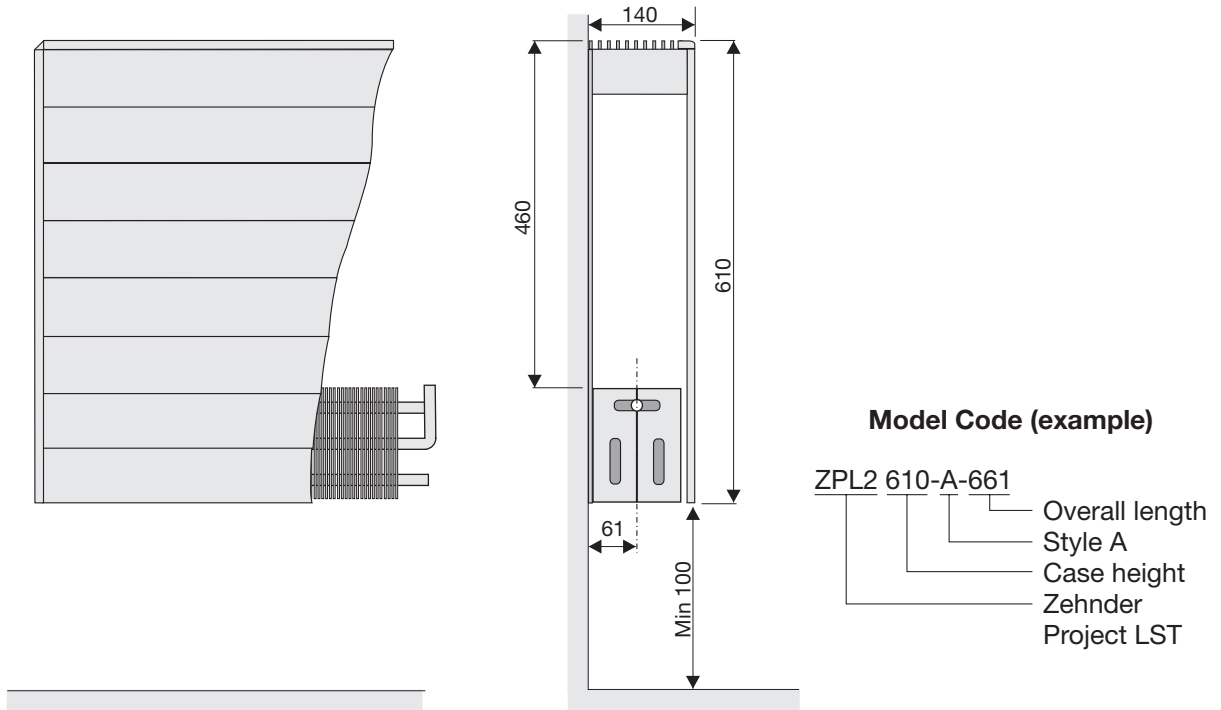
ZPL2 460-A



Technical Data

Case Mass kg	Emitter Mass (dry) kg	Volume V litres	Emitter Length mm	Case Length mm	Model	Output BS EN442 $\Delta T=50K$ Watts	Output $\Delta T=56K$ Watts	Output $T=60K$ Watts
5.35	2.60	0.63	490	661	ZPL2 460-A-661	519	603	659
6.18	3.07	0.74	600	763	ZPL2 460-A-763	634	736	805
7.01	3.53	0.85	700	865	ZPL2 460-A-865	749	870	950
7.84	3.97	0.96	805	968	ZPL2 460-A-968	865	1004	1098
8.67	4.41	1.06	900	1070	ZPL2 460-A-1070	980	1138	1244
9.50	4.87	1.17	1010	1172	ZPL2 460-A-1172	1097	1274	1392
10.32	5.33	1.29	1110	1274	ZPL2 460-A-1274	1210	1405	1535
11.15	5.77	1.39	1215	1377	ZPL2 460-A-1377	1328	1542	1685
11.98	6.21	1.50	1310	1479	ZPL2 460-A-1479	1440	1672	1827
12.81	6.65	1.60	1410	1581	ZPL2 460-A-1581	1558	1809	1977
13.64	7.09	1.71	1510	1684	ZPL2 460-A-1684	1674	1944	2124
14.46	7.53	1.82	1615	1786	ZPL2 460-A-1786	1786	2074	2266
15.29	7.97	1.92	1715	1888	ZPL2 460-A-1888	1904	2211	2416
16.12	8.43	2.03	1815	1990	ZPL2 460-A-1990	2016	2341	2558
16.95	8.90	2.14	1920	2092	ZPL2 460-A-2092	2133	2476	2707
17.78	9.35	2.25	2025	2195	ZPL2 460-A-2195	2249	2611	2854
18.61	9.80	2.36	2125	2297	ZPL2 460-A-2297	2364	2745	3000
19.44	10.24	2.47	2220	2400	ZPL2 460-A-2400	2480	2879	3147
20.27	10.68	2.57	2325	2502	ZPL2 460-A-2502	2595	3013	3293
21.92	11.58	2.79	2530	2706	ZPL2 460-A-2706	2825	3280	3585
23.58	12.46	3.00	2740	2911	ZPL2 460-A-2911	3056	3548	3878

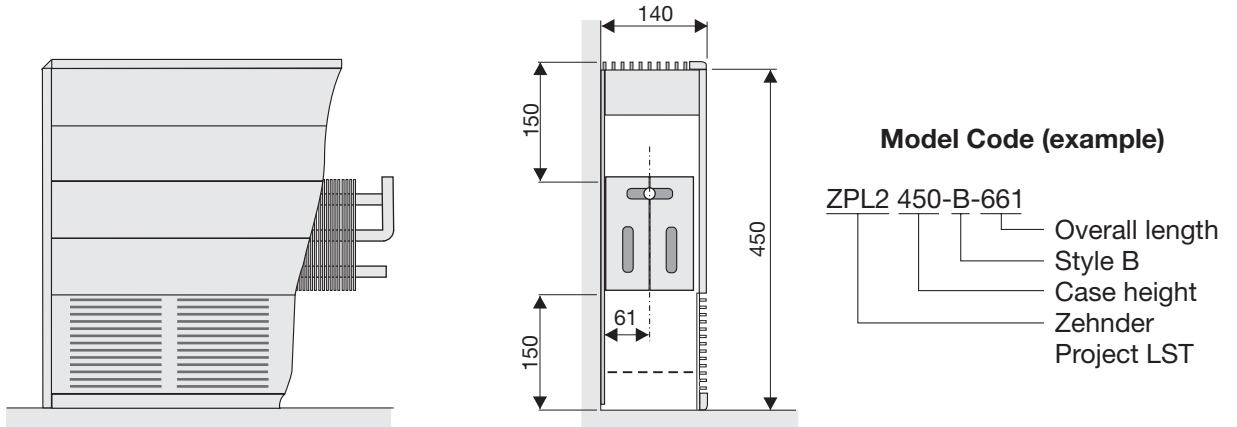
ZPL2 610-A



Technical Data

Case Mass kg	Emitter Mass (dry) kg	Volume V litres	Emitter Length mm	Case Length mm	Model	Output BS EN442 $\Delta T=50K$ Watts	Output $\Delta T=56K$ Watts	Output $T=60K$ Watts
7.27	2.60	0.63	490	661	ZPL2 610-A-661	540	627	685
8.40	3.07	0.74	600	763	ZPL2 610-A-763	659	765	836
9.52	3.53	0.85	700	865	ZPL2 610-A-865	779	904	989
10.64	3.97	0.96	805	968	ZPL2 610-A-968	899	1044	1141
11.77	4.41	1.06	900	1070	ZPL2 610-A-1070	1019	1183	1293
12.89	4.87	1.17	1010	1172	ZPL2 610-A-1172	1141	1325	1448
14.01	5.33	1.29	1110	1274	ZPL2 610-A-1274	1258	1461	1596
15.14	5.77	1.39	1215	1377	ZPL2 610-A-1377	1381	1603	1752
16.27	6.21	1.50	1310	1479	ZPL2 610-A-1479	1498	1739	1901
17.39	6.65	1.60	1410	1581	ZPL2 610-A-1581	1620	1881	2056
18.52	7.09	1.71	1510	1684	ZPL2 610-A-1684	1740	2020	2208
19.65	7.53	1.82	1615	1786	ZPL2 610-A-1786	1858	2157	2358
20.77	7.97	1.92	1715	1888	ZPL2 610-A-1888	1979	2298	2511
21.89	8.43	2.03	1815	1990	ZPL2 610-A-1990	2097	2435	2661
23.01	8.90	2.14	1920	2092	ZPL2 610-A-2092	2218	2575	2815
24.14	9.35	2.25	2025	2195	ZPL2 610-A-2195	2339	2716	2968
25.27	9.80	2.36	2125	2297	ZPL2 610-A-2297	2459	2855	3120
26.40	10.24	2.47	2220	2400	ZPL2 610-A-2400	2579	2994	3273
27.52	10.68	2.57	2325	2502	ZPL2 610-A-2502	2699	3134	3425
29.77	11.58	2.79	2530	2706	ZPL2 610-A-2706	2938	3411	3728
32.02	12.46	3.00	2740	2911	ZPL2 610-A-2911	3178	3690	4033

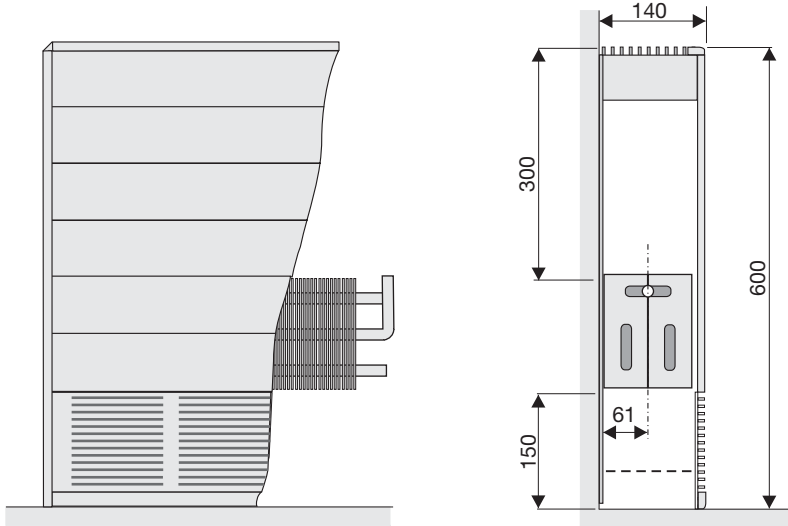
ZPL2 450-B



Technical Data

Case Mass kg	Emitter Mass (dry) kg	Volume V litres	Emitter Length mm	Case Length mm	Model	Output BS EN442 ΔT= 50K Watts	Output ΔT=56K Watts	Output T=60K Watts
5.02	2.60	0.63	490	661	ZPL2 450-B-661	453	526	575
5.80	3.07	0.74	600	763	ZPL2 450-B-763	551	640	699
6.57	3.53	0.85	700	865	ZPL2 450-B-865	648	752	822
7.35	3.97	0.96	805	968	ZPL2 450-B-968	740	859	939
8.13	4.41	1.06	900	1070	ZPL2 450-B-1070	832	966	1056
8.91	4.87	1.17	1010	1172	ZPL2 450-B-1172	930	1080	1180
9.68	5.33	1.29	1110	1274	ZPL2 450-B-1274	1027	1192	1303
10.46	5.77	1.39	1215	1377	ZPL2 450-B-1377	1119	1299	1420
11.24	6.21	1.50	1310	1479	ZPL2 450-B-1479	1211	1406	1537
12.02	6.65	1.60	1410	1581	ZPL2 450-B-1581	1304	1514	1655
12.80	7.09	1.71	1510	1684	ZPL2 450-B-1684	1397	1622	1773
13.57	7.53	1.82	1615	1786	ZPL2 450-B-1786	1491	1731	1892
14.35	7.97	1.92	1715	1888	ZPL2 450-B-1888	1586	1841	2013
15.12	8.43	2.03	1815	1990	ZPL2 450-B-1990	1681	1952	2133
15.90	8.90	2.14	1920	2092	ZPL2 450-B-2092	1776	2062	2254
16.68	9.35	2.25	2025	2195	ZPL2 450-B-2195	1871	2172	2374
17.46	9.80	2.36	2125	2297	ZPL2 450-B-2297	1965	2281	2494
18.24	10.24	2.47	2220	2400	ZPL2 450-B-2400	2059	2390	2613
19.02	10.68	2.57	2325	2502	ZPL2 450-B-2502	2151	2497	2730
20.57	11.58	2.79	2530	2706	ZPL2 450-B-2706	2341	2718	2971
22.12	12.46	3.00	2740	2911	ZPL2 450-B-2911	2536	2944	3218

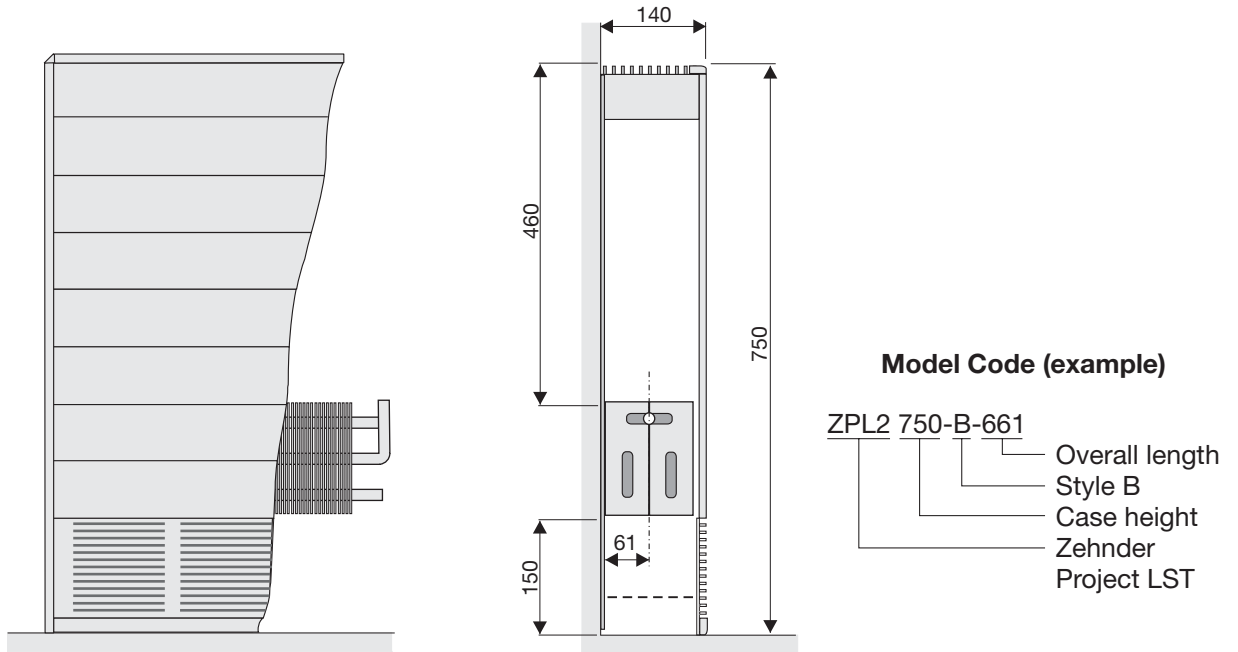
ZPL2 600-B



Technical Data

Case Mass kg	Emitter Mass (dry) kg	Volume V litres	Emitter Length mm	Case Length mm	Model	Output BS EN442 $\Delta T=50K$ Watts	Output $\Delta T=56K$ Watts	Output $T=60K$ Watts
6.48	2.60	0.63	490	661	ZPL2 600-B-661	485	563	615
7.48	3.07	0.74	600	763	ZPL2 600-B-763	592	687	751
8.48	3.53	0.85	700	865	ZPL2 600-B-865	700	813	888
9.49	3.97	0.96	805	968	ZPL2 600-B-968	808	938	1025
10.49	4.41	1.06	900	1070	ZPL2 600-B-1070	916	1063	1162
11.49	4.87	1.17	1010	1172	ZPL2 600-B-1172	1025	1190	1301
12.49	5.33	1.29	1110	1274	ZPL2 600-B-1274	1130	1312	1434
13.49	5.77	1.39	1215	1377	ZPL2 600-B-1377	1241	1441	1575
14.49	6.21	1.50	1310	1479	ZPL2 600-B-1479	1346	1563	1708
15.50	6.65	1.60	1410	1581	ZPL2 600-B-1581	1456	1690	1848
16.50	7.09	1.71	1510	1684	ZPL2 600-B-1684	1564	1816	1985
17.50	7.53	1.82	1615	1786	ZPL2 600-B-1786	1669	1938	2118
18.50	7.97	1.92	1715	1888	ZPL2 600-B-1888	1779	2065	2258
19.50	8.43	2.03	1815	1990	ZPL2 600-B-1990	1884	2187	2391
20.50	8.90	2.14	1920	2092	ZPL2 600-B-2092	1994	2315	2530
21.52	9.35	2.25	2025	2195	ZPL2 600-B-2195	2102	2440	2667
22.51	9.80	2.36	2125	2297	ZPL2 600-B-2297	2210	2566	2804
23.52	10.24	2.47	2220	2400	ZPL2 600-B-2400	2318	2691	2942
24.52	10.68	2.57	2325	2502	ZPL2 600-B-2502	2425	2815	3077
26.52	11.58	2.79	2530	2706	ZPL2 600-B-2706	2640	3065	3350
28.53	12.46	3.00	2740	2911	ZPL2 600-B-2911	2856	3316	3624

ZPL2 750-B



Technical Data

Case Mass kg	Emitter Mass (dry) kg	Volume V litres	Emitter Length mm	Case Length mm	Model	Output BS EN442 $\Delta T=50K$ Watts	Output $\Delta T=56K$ Watts	Output $T=60K$ Watts
7.93	2.60	0.63	490	661	ZPL2 750-B-661	504	585	640
9.16	3.07	0.74	600	763	ZPL2 750-B-763	616	715	782
10.38	3.53	0.85	700	865	ZPL2 750-B-865	728	845	924
11.61	3.97	0.96	805	968	ZPL2 750-B-968	840	975	1066
12.84	4.41	1.06	900	1070	ZPL2 750-B-1070	952	1105	1208
14.06	4.87	1.17	1010	1172	ZPL2 750-B-1172	1066	1238	1353
15.29	5.33	1.29	1110	1274	ZPL2 750-B-1274	1175	1364	1491
16.52	5.77	1.39	1215	1377	ZPL2 750-B-1377	1290	1498	1637
17.75	6.21	1.50	1310	1479	ZPL2 750-B-1479	1400	1625	1777
18.98	6.65	1.60	1410	1581	ZPL2 750-B-1581	1514	1758	1921
20.21	7.09	1.71	1510	1684	ZPL2 750-B-1684	1627	1889	2065
21.44	7.53	1.82	1615	1786	ZPL2 750-B-1786	1736	2015	2203
22.66	7.97	1.92	1715	1888	ZPL2 750-B-1888	1850	2148	2348
23.88	8.43	2.03	1815	1990	ZPL2 750-B-1990	1959	2274	2486
25.10	8.90	2.14	1920	2092	ZPL2 750-B-2092	2073	2407	2631
26.33	9.35	2.25	2025	2195	ZPL2 750-B-2195	2186	2538	2774
27.56	9.80	2.36	2125	2297	ZPL2 750-B-2297	2298	2668	2916
28.79	10.24	2.47	2220	2400	ZPL2 750-B-2400	2410	2798	3058
30.02	10.68	2.57	2325	2502	ZPL2 750-B-2502	2522	2928	3200
32.47	11.58	2.79	2530	2706	ZPL2 750-B-2706	2746	3188	3485
34.93	12.46	3.00	2740	2911	ZPL2 750-B-2911	2970	3448	3769

Correction Factors

Outputs are shown at $\Delta T=50$, 56 and 60K.

For other ΔT values, a correction factor must be used: this is a factor to convert the output from $\Delta T=50$ K to the design ΔT .

e.g For model ZPL2 460-A-1070 output @ $\Delta T=50$ K = 980W. For $\Delta T=58$ K, correction factor (from table below) = 1.215, so corrected value = $980 \times 1.215 = 1191$ W @ $\Delta T=58$ K.

Correction Factors for $\Delta T=30 - 50$ K

Model	n	30	32	34	36	38	40	42	44	46	48	50
All	1.31	0.512	0.557	0.603	0.650	0.698	0.747	0.796	0.846	0.897	0.948	1.000

Correction Factors for $\Delta T=50 - 70$ K

Model	n	50	52	54	56	58	60	62	64	66	68	70
All	1.31	1.000	1.053	1.106	1.161	1.215	1.269	1.326	1.382	1.439	1.496	1.554

Where the design conditions fall outside of the tabulated values, the correction factor is easily calculated using the following formula:

$$\text{Correction factor} = (\text{Design } \Delta T / \text{Reference } \Delta T)^n \text{ where: } \begin{array}{l} n = \text{exponential} \\ \text{Reference } \Delta T = 50\text{K} \end{array}$$

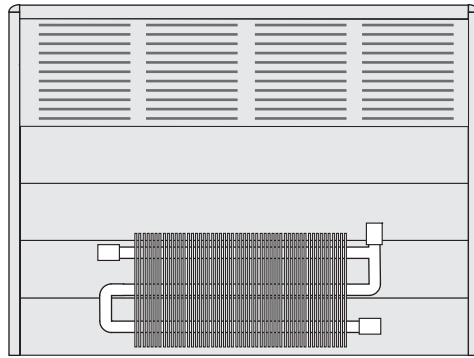
e.g. Correction factor for any ZPL2 radiator at design condition $\Delta T = 75$ K:

$$cf = (75/50)^{1.31} = 1.701$$

Valve Kits

Description	Configuration and Code	Kit Contents	Notes
Enclosed TRV with Remote Sensor		<p>½"angle pattern TRV body</p> <p>Remote sensor TRV</p> <p>½"angle pattern lockshield</p> <p>Nuts and olives</p>	<p><i>Suitable for all models</i></p>
RemoteAdjuster TRV		<p>½"angle pattern TRV body</p> <p>Remote Adjuster TRV Control</p> <p>½"angle pattern lockshield</p> <p>Nuts and olives</p>	<p><i>Suitable for all models</i></p> <p><i>Side panel drilled to suit at factory</i></p> <p><i>Handing to be specified</i></p>
Large, Robust Remote Adjuster TRV		<p>½"angle pattern TRV body</p> <p>Remote Transmitter TRV Head (robust or standard)</p> <p>½"angle pattern lockshield</p> <p>Nuts and olives</p>	<p><i>Suitable for all models</i></p> <p><i>Side panel drilled to suit at factory</i></p> <p><i>Handing to be specified</i></p>

Standard Connections



Emitter can be fitted for flow in either direction.

All emitters are supplied complete with 1/8" BSP air vents.

Configurations suitable for single pipe heating systems are available for all styles and sizes on request.

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