

Centurion LST

Convactor heating



BSRIA

Certificate No. 52068

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Contents	Page
General information	1
Technical Data	2
Dimensions	2
Emission rates	3 - 6
Connection configuration	7
Installation	8 - 9

Performance Tested by BSRIA in accordance with BS EN 442 and
and assessed against requirements in NHS Estates Health
Guidance Note 'Safe hot water and surface temperatures' 1998

Engineering Data Sheet 812/1

March 2010

General information

Manufacture

Clyde Centurion Low Surface Temperature heat emitters combine a steel and aluminium finned convector with a one piece flat steel cover with top and bottom grilles finished in RAL 9010 white. Pipework connection size is R Flow and Return. A wide range of pipework connection options are available to suit any application (see page 7), and there is a choice of thermostatic controls for the combination valve (see below). The Centurion is designed for use with LTHW with a maximum flow temperature of 90°C and a maximum allowable pressure of 6 bar. The convector heat exchanger itself is suitable for MTHW with a maximum flow temperature of 130°C and 10 bar pressure rating is available to special order.

A convector is especially suitable for this type of emitter, where heat exchange by convection is more desirable than radiation. Typically, covering a radiator and so restricting radiant heat transfer will reduce heat emissions by up to 60% (NHS Estates Health Guidance Note 'Safe' hot water and surface temperatures, 1998).

The one-piece cover is manufactured from 1mm electrolytically galvanised steel to EN 101052 and polyester/epoxy powder coated for a high quality finish. It is easy to clean and a poor harbour for dust and micro-organisms.

Application and Testing

These heat emitters provide protection against physical contact with hot surfaces and consequential burning. They will assist an employer to meet his legal duty of care in respect of the risk of scalding and burning from hot water and hot surfaces.

Clyde Centurion LSTs are tested in accordance with BS EN 442-1:1995. As required by this standard, emission rates are quoted for the standard thermal output of ΔT_{50} (Flow temperature 75°C / Return temperature 65°C / Room temperature 20°C) with the relevant exponent of excess temperature (1.42).

Centurion models have been Performance Tested by BSRIA in accordance with BS EN 442 and assessed against requirements in NHS Estates Health Guidance note 'Safe hot water and surface temperatures' 1998 - see back page for additional information.

Guarantee

Subject to correct handling, installation and operation in accordance with manufacturer's instructions, Clyde Centurion heat emitters are guaranteed for a period of five years from the date of delivery.



Thermostatic radiator valves and controls

The Herz combination valve, shown below, is the standard configuration valve offered by Clyde (see pages 2 and 7). The standard valve from Clyde is for 2-pipe systems. A 1-pipe system valve is available to special order. The Herz valve is exceptionally versatile with connections for copper, steel or plastic pipe. Pipe connections are nominal 15mm.

A choice of four alternative valve heads are available for the combination valve and are shown below;

- Herz standard TRV valve head
- Herzcules anti-tamper TRV valve head
- Herz TRV valve with a remote sensing bulb
- Herz T5 manual wheelhead if thermostatic control is not required



Standard Herz valve for 2-pipe system, shown with T5 manual wheelhead

Standard TRV valve

Anti-tamper TRV valve

Remote TRV valve

Dimensions & Technical Data

Centurion LST Heat Emitter Dimensions

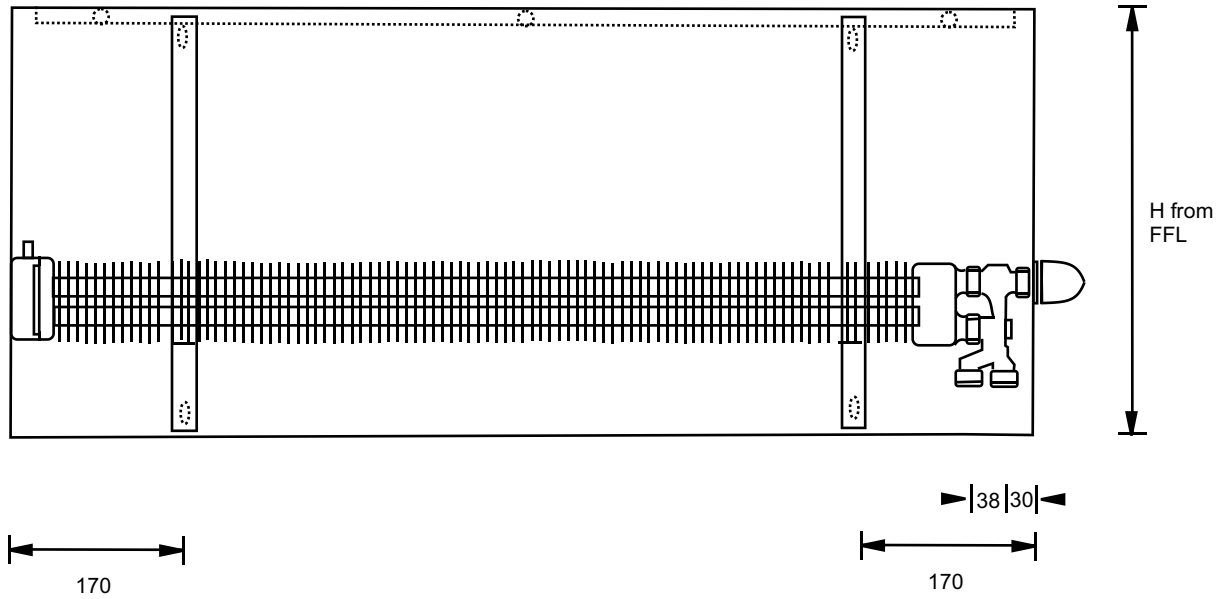


Fig 1 Centurion dimensions in mm, including pipe centres for Herz 2-pipe system valve. For height 'H' refer to data tables on pages 3 to 6

Centurion depth	Dimension A (mm)
80	42.5
125	65
175	90
225	115
275	140

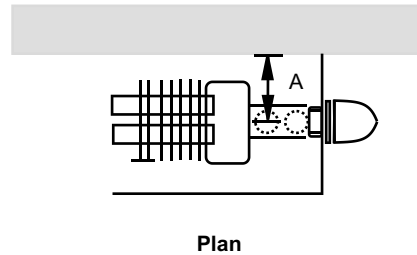


Fig 2 Distance of pipe centre from wall (dimension 'A') for each Centurion model

Heat emission rates

For convenience, the emission rates are quoted for typical United Kingdom applications of $dT_{55.5}$ (82/71/21°C) and dT_{60} (90/70/20°C) in addition to the BS EN 442-1 conditions of dT_{50} . Different water or room temperatures will change the emission rate of a radiator. The method of calculation and correction factors for various temperatures are given in the Clyde radiator emission guide EDS 732, available on request. The emission rates and exponent of excess temperature are specific to a convection-only heat exchanger.

Radiator selection

The Centurion is available in an extensive range of sizes and outputs that make it suitable for almost any application;

- 6 heights from 400mm to 900mm
- 5 depths from 80mm to 275mm.
- 16 standard lengths from 400mm to 2600mm. Other lengths up to a maximum of 2600 are available to special order.
- The standard connection configuration is TBSE (Top Bottom Same End) is illustrated in fig 1, which permits the use of the Herz radiator valve with the choice of thermostatic controls shown on page 1. If one of the other connection configurations shown on page 7 is selected, Clyde can offer a suitable choice of valve. A special 'change-fix' spanner is available from Clyde for Herz valves.
- A cut-out in the casing for the valve head is provided bottom right as standard. Alternative positions are bottom left, top right or top left (for the remote sensing valve) or no cut-out (for bottom entry connections)

Further information on radiator selection and model designation is given on page 3.

Dimensions & Technical Data

Radiator models and codes

The following tables give outputs for each model height and at 3 popular dTs in each shaded column for easy reference. The first column gives the model reference (see below) and the second column gives the standard length and depth. Bespoke lengths are available to special order to perfectly match any application.

The model designation in the left hand column is an amalgamation of the model name, length, depth and height, and 'H' should be suffixed with the required height. To illustrate;

CENT4027H3

CENT = Centurion

40 = 400 Long

27 = 275 Deep

H3 = 300 High

To select your Centurion LST;

- ✓ Select model, height, length, depth and output as above
- ✓ Select the valve connection configuration from page 7. If no preference is stated, standard configuration B (TBSE) will be supplied.
- ✓ Select the optionally available valve and TRV valve head from page 1.
- ✓ Select the casing cut-out as page 2. If no preference is stated, a standard bottom right cut-out will be supplied.

Model	Length mm	Depth mm	Height and Output (w)								
			Height = 400mm			Height = 500mm			Height = 600mm		
			dT50	dT55.5	dT60	dT50	dT55.5	dT60	dT50	dT55.5	dT60
CENT4008H	400	80	187	217	240	212	246	274	238	276	308
CENT4012H	400	125	341	396	437	393	456	506	445	516	576
CENT4017H	400	175	489	567	640	565	655	734	628	728	811
CENT4022H	400	225	655	760	861	747	867	976	821	952	1064
CENT4027H	400	275	810	940	1064	930	1079	1213	1035	1201	1342
CENT5008H	500	80	234	271	300	266	309	342	298	346	386
CENT5012H	500	125	426	494	547	491	570	633	556	645	720
CENT5017H	500	175	612	710	801	706	819	918	785	911	1014
CENT5022H	500	225	819	950	1076	934	1083	1220	1027	1191	1331
CENT5027H	500	275	1012	1174	1330	1162	1348	1617	1294	1501	1677
CENT6008H	600	80	280	325	359	319	370	410	358	415	463
CENT6012H	600	125	511	593	656	589	683	760	667	774	864
CENT6017H	600	175	734	851	961	847	983	1102	942	1093	1217
CENT6022H	600	225	982	1139	1291	1121	1300	1463	1232	1429	1597
CENT6027H	600	275	1214	1408	1596	1394	1617	1820	1553	1801	2012
CENT7008H	700	80	327	379	419	372	432	479	417	484	540
CENT7012H	700	125	596	691	765	687	797	886	778	902	1008
CENT7017H	700	175	856	993	1121	988	1146	1285	1099	1275	1420
CENT7022H	700	225	1146	1329	1506	1308	1517	1707	1437	1667	1863
CENT7027H	700	275	1417	1644	1862	1627	1887	2123	1812	2102	2348
CENT8008H	800	80	374	434	479	425	493	547	477	553	617
CENT8012H	800	125	682	791	874	786	912	1013	890	1032	1152
CENT8017H	800	175	978	1134	1281	1130	1311	1469	1256	1457	1622
CENT8022H	800	225	1310	1520	1722	1494	1733	1951	1642	1905	2129
CENT8027H	800	275	1619	1878	2128	1859	2156	2426	2070	2401	2683
CENT9008H	900	80	420	487	539	478	554	616	536	622	694
CENT9012H	900	125	767	890	984	884	1025	1139	1001	1161	1296
CENT9017H	900	175	1101	1277	1441	1271	1474	1652	1413	1639	1825
CENT9022H	900	225	1473	1709	1937	1681	1950	2195	1848	2144	2395
CENT9027H	900	275	1822	2114	2394	2092	2427	2730	2329	2702	3019
CENT1008H	1000	80	467	542	599	531	616	684	596	691	771
CENT1012H	1000	125	852	988	1093	982	1139	1266	1112	1290	1440
CENT1017H	1000	175	1223	1419	1601	1412	1638	1836	1570	1821	2028
CENT1022H	1000	225	1637	1899	2152	1868	2167	2439	2053	2381	2661
CENT1027H	1000	275	2024	2348	2660	2324	2696	3033	2588	3002	3354
CENT1108H	1100	80	514	596	659	584	677	752	656	761	848
CENT1112H	1100	125	937	1087	1202	1080	1253	1393	1223	1419	1584
CENT1117H	1100	175	1345	1560	1761	1553	1801	2020	1727	2003	2231
CENT1122H	1100	225	1801	2089	2367	2055	2384	2683	2258	2619	2927
CENT1127H	1100	275	2226	2582	2926	2556	2965	3336	2847	3303	3689

Dimensions & Technical Data

Model	Length mm	Depth mm	Height and Output (w)								
			Height = 700mm			Height = 800mm			Height = 900mm		
			dT50	dT55.5	dT60	dT50	dT55.5	dT60	dT50	dT55.5	dT60
CENT4008H	400	80	248	288	317	254	295	324	271	314	344
CENT4012H	400	125	466	541	600	478	554	611	510	592	646
CENT4017H	400	175	682	791	878	711	825	912	770	893	984
CENT4022H	400	225	881	1022	1137	907	1052	1164	971	1126	1240
CENT4027H	400	275	1091	1266	1407	1117	1296	1433	1188	1378	1516
CENT5008H	500	80	308	357	398	317	368	405	339	393	430
CENT5012H	500	125	583	676	760	598	694	763	637	739	808
CENT5017H	500	175	853	989	1098	889	1031	1140	962	1116	1230
CENT5022H	500	225	1102	1278	1421	1134	1315	1456	1214	1408	1550
CENT5027H	500	275	1364	1582	1759	1396	1619	1791	1486	1724	1896
CENT6008H	600	80	370	429	476	380	441	486	407	472	516
CENT6012H	600	125	700	812	900	717	832	916	764	886	970
CENT6017H	600	175	1023	1187	1317	1067	1238	1368	1154	1339	1475
CENT6022H	600	225	1322	1534	1706	1381	1602	1747	1456	1689	1859
CENT6027H	600	275	1636	1898	2111	1676	1944	2149	1783	2068	2275
CENT7008H	700	80	431	500	554	444	515	567	475	551	602
CENT7012H	700	125	818	949	1050	837	971	1069	892	1035	1131
CENT7017H	700	175	1194	1385	1537	1245	1444	1596	1347	1563	1721
CENT7022H	700	225	1542	1789	1989	1588	1842	2038	1699	1971	2169
CENT7027H	700	275	1909	2214	2463	1954	2267	2507	2080	2413	2654
CENT8008H	800	80	493	572	634	507	588	648	542	629	688
CENT8012H	800	125	933	1082	1200	956	1109	1221	1019	1182	1293
CENT8017H	800	175	1364	1582	1756	1423	1651	1824	1539	1785	1967
CENT8022H	800	225	1762	2044	2274	1815	2105	2329	1942	2253	2479
CENT8027H	800	275	2182	2531	2814	2234	2591	2865	2377	2757	3033
CENT9008H	900	80	554	643	713	571	662	729	610	708	774
CENT9012H	900	125	1049	1217	1350	1076	1248	1374	1147	1331	1454
CENT9017H	900	175	1535	1781	1978	1600	1856	2052	1732	2009	2213
CENT9022H	900	225	1983	2300	2558	2042	2369	2620	2184	2533	2789
CENT9027H	900	275	2454	2847	3166	2513	2915	3223	2674	3102	3412
CENT1008H	1000	80	616	715	792	634	735	809	678	786	860
CENT1012H	1000	125	1166	1353	1500	1196	1387	1527	1274	1478	1616
CENT1017H	1000	175	1705	1978	2196	1778	2062	2280	1924	2232	2459
CENT1022H	1000	225	2203	2555	2842	2269	2632	2911	2427	2815	3099
CENT1027H	1000	275	2727	3163	3518	2792	3239	3581	2971	3446	3791
CENT1108H	1100	80	678	786	871	697	809	890	746	865	946
CENT1112H	1100	125	1283	1488	1660	1315	1525	1680	1401	1625	1778
CENT1117H	1100	175	1876	2176	2416	1956	2269	2509	2116	2455	2705
CENT1122H	1100	225	2423	2811	3126	2496	2895	3202	2670	3097	3409
CENT1127H	1100	275	3000	3480	3870	3071	3562	3940	3268	3791	4170

Dimensions & Technical Data

Radiator models and codes

The following tables give outputs for each model height and at 3 popular dTs in each shaded column for easy reference. The first column gives the model reference (see below) and the second column gives the standard length and depth. Bespoke lengths are available to special order to perfectly match any application.

The model designation in the left hand column is an amalgamation of the model name, length, depth and height, and 'H' should be suffixed with the required height. To illustrate;

CENT4027H3

CENT = Centurion

40 = 400 Long

27 = 275 Deep

H3 = 300 High

To select your Centurion LST;

- ✓ Select model, height, length, depth and output as above
- ✓ Select the valve connection configuration from page 7. If no preference is stated, standard configuration B (TBSE) will be supplied.
- ✓ Select the optionally available valve and TRV valve head from page 1.
- ✓ Select the casing cut-out as page 2. If no preference is stated, a standard bottom right cut-out will be supplied.

Model	Length mm	Depth mm	Height and Output (w)								
			Height = 400mm			Height = 500mm			Height = 600mm		
			dT50	dT55.5	dT60	dT50	dT55.5	dT60	dT50	dT55.5	dT60
CENT1208H	1200	80	560	650	719	637	739	821	715	829	925
CENT1212H	1200	125	1022	1186	1312	1178	1366	1519	1334	1547	1728
CENT1217H	1200	175	1488	1726	1921	1694	1965	2203	1884	2185	2434
CENT1222H	1200	225	1964	2278	2582	2242	2601	2927	2464	2858	3193
CENT1227H	1200	275	2429	2818	3192	2789	3235	3640	3106	3603	4025
CENT1408H	1400	80	654	759	839	743	862	958	834	967	1079
CENT1412H	1400	125	1193	1384	1530	1375	1595	1772	1557	1806	2016
CENT1417H	1400	175	1712	1986	2241	1977	2293	2570	2198	2550	2839
CENT1422H	1400	225	2292	2659	3013	2615	3033	3415	2874	3334	3725
CENT1427H	1400	275	2834	3287	3724	3254	3775	4246	3623	4203	4696
CENT1608H	1600	80	747	867	958	850	986	1094	954	1107	1234
CENT1612H	1600	125	1363	1581	1749	1571	1822	2026	1779	2064	2304
CENT1617H	1600	175	1957	2270	2562	2259	2620	2938	2512	2914	3245
CENT1622H	1600	225	2619	3038	3443	2989	3467	3902	3285	3811	4258
CENT1627H	1600	275	3238	3756	4256	3718	4313	4853	4141	4804	5366
CENT1808H	1800	80	841	976	1078	956	1109	1231	1073	1245	1388
CENT1812H	1800	125	1534	1779	1967	1768	2051	2279	2002	2322	2592
CENT1817H	1800	175	2201	2553	2882	2542	2949	3305	2826	3278	3650
CENT1822H	1800	225	2947	3419	3874	3362	3900	4390	3695	4286	4790
CENT1827H	1800	275	3643	4226	4788	4183	4852	5459	4658	5403	6037
CENT2008H	2000	80	934	1083	1198	1062	1232	1368	1192	1383	1542
CENT2012H	2000	125	1704	1977	2186	1964	2278	2532	2224	2580	2880
CENT2017H	2000	175	2446	2837	3202	2824	3276	3672	3140	3642	4056
CENT2022H	2000	225	3274	3798	4304	3736	4334	4878	4106	4763	5322
CENT2027H	2000	275	4048	4696	5320	4648	5392	6066	5178	6006	6708
CENT2208H	2200	80	1027	1191	1318	1168	1355	1505	1311	1521	1696
CENT2212H	2200	125	1874	2174	2405	2160	2506	2785	2446	2837	3168
CENT2217H	2200	175	2691	3122	3522	3106	3603	4039	3454	4007	4462
CENT2222H	2200	225	3601	4177	4734	4110	4768	5366	4517	5240	5854
CENT2227H	2200	275	4453	5165	5852	5113	5931	6673	5694	6605	7379
CENT2408H	2400	80	1121	1300	1438	1274	1478	1642	1430	1659	1850
CENT2412H	2400	125	2045	2372	2623	2357	2734	3038	2669	3096	3456
CENT2417H	2400	175	2935	3405	3842	3389	3931	4406	3768	4371	4867
CENT2422H	2400	225	3929	4558	5165	4483	5200	5854	4927	5715	6386
CENT2427H	2400	275	4858	5635	6384	5578	6470	7279	6211	7205	8050
CENT2608H	2600	80	1214	1408	1557	1381	1602	1778	1550	1798	2005
CENT2612H	2600	125	2215	2569	2842	2553	2961	3292	2891	3354	3744
CENT2617H	2600	175	3180	3689	4163	3671	4258	4774	4082	4735	5273

Dimensions & Technical Data

Model	Length mm	Depth mm	Height and Output (w)								
			Height =700mm			Height = 800mm			Height = 900mm		
			dT50	dT55.5	dT60	dT50	dT55.5	dT60	dT50	dT55.5	dT60
CENT1208H	1200	80	739	857	950	761	883	971	814	944	1032
CENT1212H	1200	125	1399	1623	1800	1435	1665	1832	1529	1774	1939
CENT1217H	1200	175	2048	2376	2634	2134	2475	2737	2309	2678	2951
CENT1222H	1200	225	2644	3067	3410	2722	3158	3493	2912	3378	3719
CENT1227H	1200	275	3272	3796	4222	3350	3886	4298	3565	4135	4549
CENT1408H	1400	80	862	1000	1109	888	1030	1133	949	1101	1204
CENT1412H	1400	125	1632	1893	2100	1874	2174	2138	1784	2069	2262
CENT1417H	1400	175	2387	2769	3073	2489	2887	3193	2694	3125	3443
CENT1422H	1400	225	3084	3577	3979	3176	3684	4076	3398	3942	4339
CENT1427H	1400	275	3818	4429	4929	3909	4534	5014	4159	4824	5307
CENT1608H	1600	80	988	1146	1267	1014	1176	1295	1085	1259	1376
CENT1612H	1600	125	1866	2165	2400	1913	2219	2443	2038	2364	2586
CENT1617H	1600	175	2728	3164	3612	2845	3300	3649	3078	3570	3934
CENT1622H	1600	225	3525	4089	4547	3630	4211	4658	3883	4504	4958
CENT1627H	1600	275	4363	5061	5629	4467	5182	5730	4754	5515	6066
CENT1808H	1800	80	1109	1286	1428	1141	1324	1457	1220	1415	1548
CENT1812H	1800	125	2099	2435	2700	2162	2508	2748	2293	2660	2909
CENT1817H	1800	175	3069	3560	3951	3201	3713	4105	3463	4017	4426
CENT1822H	1800	225	3965	4599	5116	4084	4737	5240	4389	5091	5578
CENT1827H	1800	275	4909	5694	6332	5026	5830	6447	5348	6204	6824
CENT2008H	2000	80	1232	1429	1584	1268	1471	1619	1356	1573	1720
CENT2012H	2000	125	2332	2705	3000	2391	2774	3054	2548	2956	3232
CENT2017H	2000	175	3410	3956	4390	3556	4125	4561	3848	4464	4918
CENT2022H	2000	225	4406	5111	5684	4537	5263	5822	4854	5631	6198
CENT2027H	2000	275	5454	6327	7036	5584	6477	7163	5942	6893	7582
CENT2208H	2200	80	1355	1572	1742	1395	1618	1781	1492	1731	1892
CENT2212H	2200	125	2565	2975	3300	2630	3051	3359	2803	3251	3555
CENT2217H	2200	175	3761	4363	4829	3912	4538	5017	4233	4910	5410
CENT2222H	2200	225	4847	5623	6252	4991	5790	6404	5339	6193	6818
CENT2227H	2200	275	5999	6959	7740	6142	7125	7879	6536	7582	8340
CENT2408H	2400	80	1478	1714	1901	1522	1766	1943	1627	1887	2064
CENT2412H	2400	125	2798	3246	3600	2869	3328	3664	3058	3547	3878
CENT2417H	2400	175	4092	4747	5268	4268	4951	5473	4618	5357	5902
CENT2422H	2400	225	5287	6133	6821	5445	6316	6987	5825	6757	7438
CENT2427H	2400	275	6546	7593	8443	6701	7773	8595	7130	8271	9098
CENT2608H	2600	80	1602	1858	2059	1649	1913	2105	1763	2045	2236
CENT2612H	2600	125	3032	3517	3900	3109	3606	3970	3312	3842	4202
CENT2617H	2600	175	4433	5142	5707	4623	5363	5929	5002	5802	6393

Connection configurations

Pipework and valve connection

The available connection configurations are shown below. All connections are R $\frac{1}{2}$.

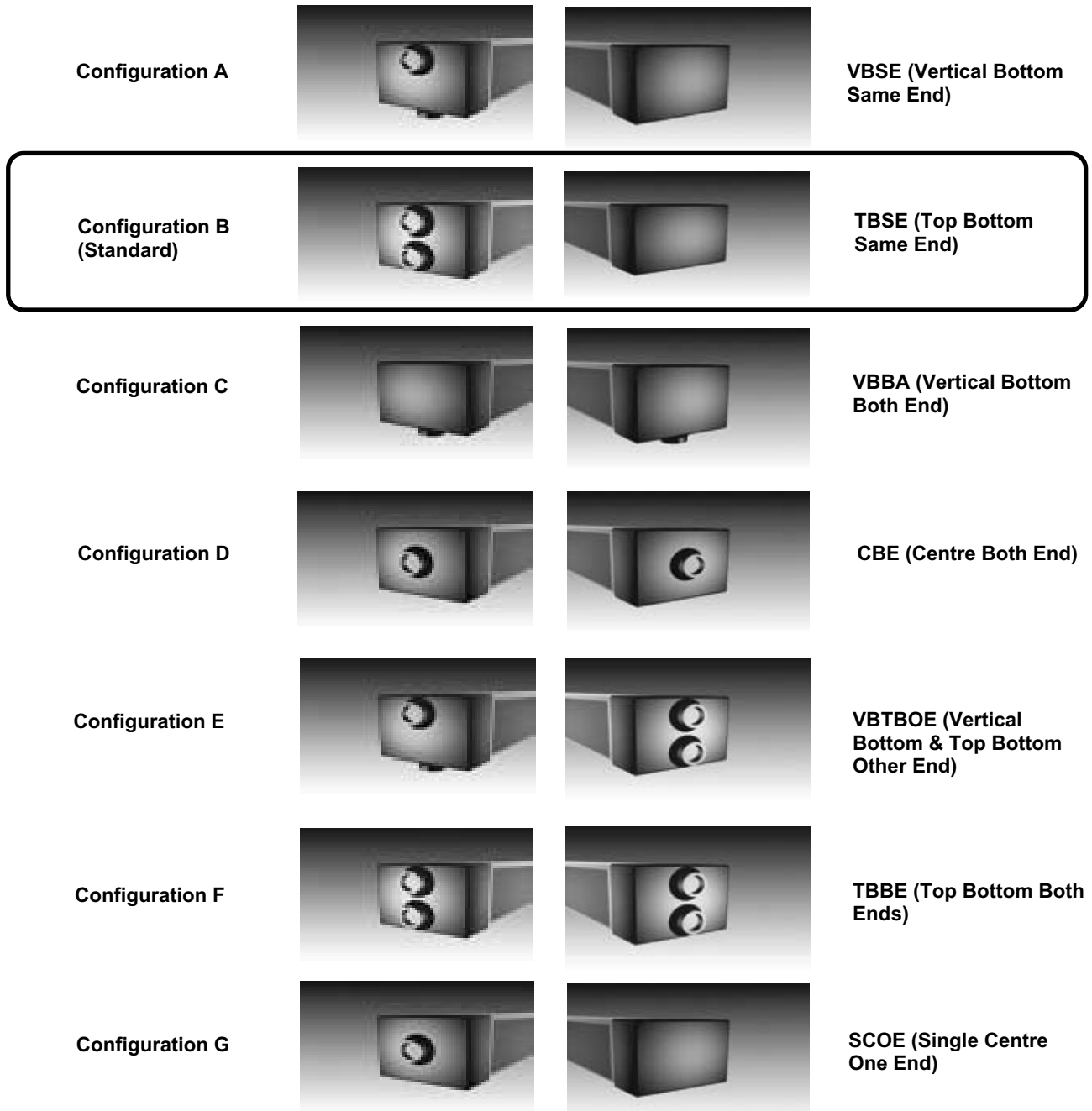


Fig 3 Connection configurations

Please note that standard configuration B, highlighted in Fig 3, would be used with the Herz valves supplied by Clyde.

Installation

Preliminary

Before unpacking, please ensure that the delivered sizes and quantity are correct. Any shortages or damages must be notified to Clyde in writing within 7 days.

Unpack carefully and inspect the convector, cover and fittings. The following items should be identified;

- Convector
- Casing with selected valve head cut-outs
- Brackets and hanging straps. The number of these is dependent upon the convector dimensions.
- Air vent
- Herz valve, TRV thermostatic valve head and changefix spanner if ordered

Fig 4 below is a diagram of the Centurion. Refer to figs 1 and 2 on page 2 for bracket fixing dimensions and pipe centres.

Installation

The Centurion LST is quick and easy to install, as shown in the six steps on page 9. The convector can be installed and connected to the system during first fix, and the cover and TRV thermostatic control head fitted during second fix.

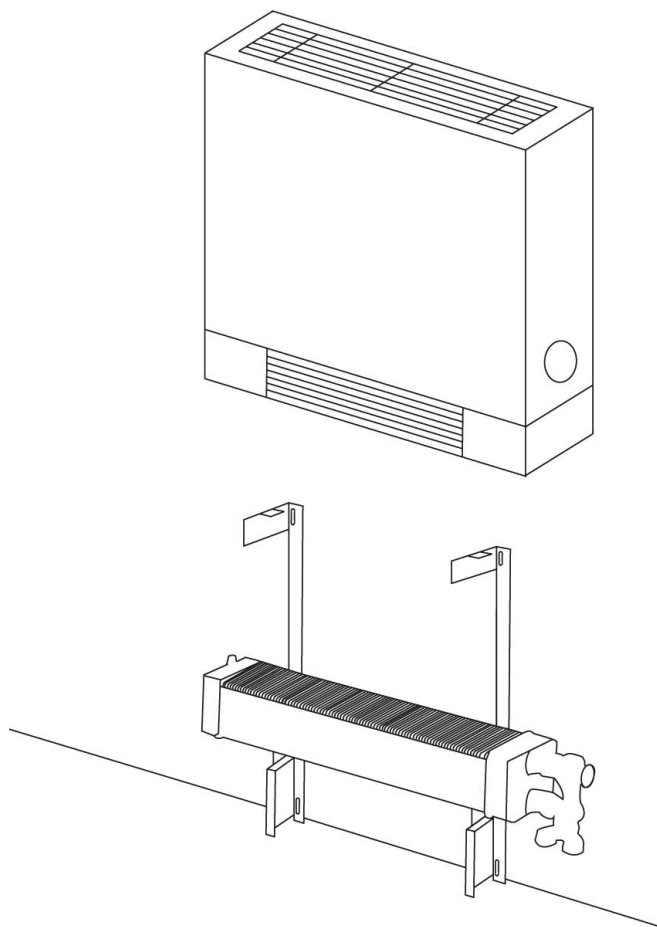


Fig 4 Centurion diagram

Installation



STEP 1

Measure and fit wall brackets using suitable fixings (not supplied)

Refer to figs 1 and 2 on page 2 for fixing dimensions, minimum clearances and pipe centres. The bottom of the brackets should be at FFL



STEP 2

Fit the valve body and locate the convector onto the brackets. Upright holding plates lock the convector into position



STEP 3

Connect pipework to valves



STEP 4

Locate the casing onto the brackets with the valve head cut out aligned with the valve body



STEP 5

Fit selected valve head. The optionally available changefix spanner ensures ease of access



STEP 6

Secure the casing to the wall brackets at top and bottom with self-tapping screws and a magnetic PH2 screwdriver

LST performance

NHS Estates Health Guidance Note 'Safe' hot water and surface temperatures, 1998, states that 'wherever patients, residents and visitors have access, the maximum surface temperature of space heating devices should not exceed 43°C when the system is running at the maximum design output'. However, certain system design and operating parameters (eg a water flow temperature greater than 82°C) may increase the surface temperature of the LST. Contact Clyde's Technical Department for more specific advice regarding any project.



Performance Tested by BSRIA in accordance with BS EN 442 and
and assessed against requirements in NHS Estates Health
Guidance Note 'Safe hot water and surface temperatures' 1998

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Clyde Energy Solutions Ltd

Units 13 - 14 Charwoods Rd
East Grinstead
West Sussex RH19 2HU
t : 01342 305550
f : 01342 305560
e : info@clyde4heat.co.uk
w : clyde4heat.co.uk

**EDS 812/1
March 2010**