

LST i PLUS

The Stelrad LST i Plus completes the popular LST range and offers improved heat outputs. It's simple and quick to install with an attractive, flat panel outer casing, which is totally reversible to allow for piping flexibility. All specified components are supplied in one robust package and the smooth surface is coated in anti-bacterial paint as standard.

| | |
|----------------------------|---------------|
| <i>RANGE</i> | 72 |
| <i>TYPES</i> | K1, P+, K2 |
| <i>CASING HEIGHTS (MM)</i> | 500, 650, 800 |
| <i>CASING LENGTHS (MM)</i> | 650 - 2050 |
| <i>OUTPUTS (WATTS)</i> | 196 - 2767 |
| <i>OUTPUTS (BTU/HR)</i> | 669 - 9441 |
| <i>WORKING PRESSURE</i> | 10 bar |





Stelrad has created a range of Low Surface Temperature radiators which provide the perfect solution for all specification requirements in safety critical environments.

The complete choice

Stelrad LST range offers you the flexibility you need

- The LST Standard leaves you free to specify your preferred controls
- The LST i Plus offers an integral remote sensing thermostatic valve, the highly specified Danfoss RAS-D Remote Sensor
- The LST Vertical is ideal where space is at a premium
- An arthritic adaptor is supplied as standard for less able environments - along with a lockshield valve which can only be adjusted with a 6mm Allen key, hidden with a neat metal dust cover to discourage unauthorised tampering. (excludes LST Standard)

The complete package

- Every Stelrad LST radiator is supplied with an attractive, flat panel outer casing, which is totally reversible to allow piping flexibility
- Simple and quick to install, the casing is held by security fittings with a unique seam fixing bracket system to prevent unauthorised access to the emitter accommodated inside
- For added protection, the smooth surface is coated in anti-bacterial paint
- The emitter provides high outputs through convection for outstanding heating performance
- Controlled independent laboratory testing ensures that each emitter is guaranteed to perform to a maximum working pressure of 116 psi (8 bar) and conform to BS EN 442, the European Standard for radiators
- All specified components required supplied in one robust package

Anti-bacterial paint

- Every LST emitter is subjected to a multi-stage cleaning process before the paint is applied. This involves several rinsing stages, including an iron phosphate and demineralisation phase. The first coat of paint is applied by electrophoresis and the radiator is then stoved and cooled
- Followed by a second powder coat in warm white, the emitter then goes through a final curing stage. It is then allowed to cool prior to packaging
- All exposed painted surfaces are finished in a long lasting anti-bacterial coating

LST i Plus

Remote sensing thermostatic valve

- The Danfoss RAS-D Remote Sensor is designed specifically for commercial heating systems and can be pre-set to allow adjustment of room temperature between 5°C and 26°C
- Special tools are not required, as the valve is gland seal removable
- Suitable for both ½" steel and 15mm copper piping, with left or right hand, same end connections for flow and return, gives flexibility of installation

Lockshield valve

- Able to withstand 10 bar static pressure, the valve has a drain tap adaptor available, which can also be used as a filling point
- Mandatory fittings should be used in order to comply with current water regulations

Connections

- 2 x ½" connections as standard, complete with Danfoss remote sensing thermostatic radiator valve, pre-piped with 2 x ½" BSP connections at 50mm centres positioned at either left or right of the casing



For further information and advice call 0844 543 6200

LST Standard, LST i Plus & LST Vertical temperature table

For systems not operating at Δt_{50} the factors in the table below should be applied. The output of a given radiator can be obtained by multiplying the quoted Δt_{50} output

by the operating factor. Conversely, to derive a non Δt_{50} output, divide the heat output required by the relevant operation factor. This ' Δt_{50} equivalent output' can then be used to select a radiator from the standard tables.

| °C | | °F | |
|------------|------------------|------------|------------------|
| Δt | Operating Factor | Δt | Operating Factor |
| 5 | 0.050 | 10 | 0.057 |
| 10 | 0.123 | 20 | 0.142 |
| 15 | 0.209 | 30 | 0.240 |
| 20 | 0.304 | 40 | 0.348 |
| 25 | 0.406 | 50 | 0.466 |
| 30 | 0.515 | 60 | 0.590 |
| 35 | 0.629 | 70 | 0.721 |
| 40 | 0.748 | 80 | 0.858 |
| 45 | 0.872 | 90 | 1.000 |
| 50 | 1.000 | 100 | 1.147 |
| 55 | 1.132 | 110 | 1.298 |
| 60 | 1.267 | 120 | 1.454 |
| 65 | 1.406 | 130 | 1.613 |
| 70 | 1.549 | 150 | 1.776 |
| 75 | 1.694 | - | - |

Example: Exact output at $\Delta t_{50} = 2000$ Btu/hr
 Output at $\Delta t_{30} = 2000 \times 0.515 = 1030$ Btu/hr
 Average coefficient of 130 is used in the example above

Testing and operating pressures

All models are high pressure tested to withstand 152.3 psi (10.5 bar). Strictly controlled independent laboratory testing ensures that all Stelrad radiators are guaranteed to perform to a maximum working pressure of 116 psi (8 bar) at a maximum temperature of 95°C. All conform to BS EN 442 - the European Standard for radiators.

Caution

To ensure that the emitter complies with all aspects of the NHS guidance for "Safe hot water and surface temperature", Stelrad recommends that a maximum flow temperature of 80° be used with a 20° drop across the system.

When designing for domestic systems we recommend that the Stelrad LST range be used only in heating systems complying with the British Standard Code of Practice for Central Heating for Domestic Premises BS EN 12828:2003 and BS EN 12831:2003. Single feed, indirect cylinders are not recommended as should interchange of water occur, fresh aerated water would enter the heating system, resulting in corrosion.

Water treatment

On completion of the installation, the system should be properly flushed and filled in accordance with the British Standard Code of Practice BS 7593:2006 for the Treatment of Water in Domestic Hot Water Central Heating Systems, Part L of Building Regulations and Good Practice Guidance for Scotland.

After installation of a new Stelrad radiator the central heating system should be cleaned and flushed with cleaner to remove existing contaminants, flux residue and other installation debris which, if left, can cause damage to the new radiator. Afterwards, treat the system with an inhibitor to ensure long term protection against corrosion and limescale.

A comprehensive range of quality chemicals including inhibitors, cleaners, leak sealers and noise reducers that protect and maintain central heating systems can be obtained from:

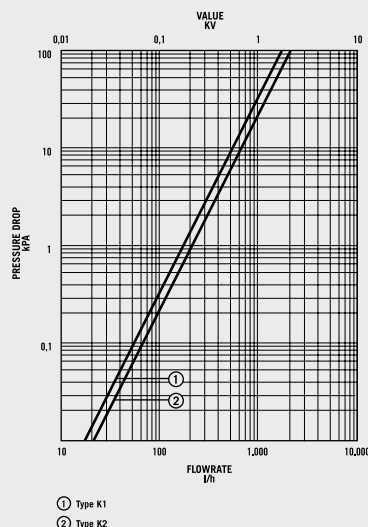
Sentinel Performance Solutions Ltd

7650 Daresbury Park,
 Warrington, Cheshire, WA4 4BS,
www.sentinelprotects.com

Fernox

Unit 2 Genesis Business Park, Albert Drive,
 Sheerwater, Woking, Surrey, GU21 5RW
www.fernox.com

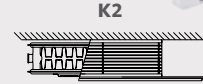
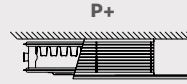
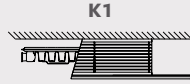
Pressure drops



LST i Plus

50 Δt

(75/65/20°C)



| | Casing Height mm | Casing Length mm | Emitter Height mm | Emitter Length mm | K1 | | | P+ | | | K2 | | |
|------------|------------------|------------------|-------------------|-------------------|-------------|-------------------|--------|-------------|-------------------|--------|-------------|-------------------|--------|
| | | | | | Stelrad UIN | Heat output Watts | Btu/hr | Stelrad UIN | Heat output Watts | Btu/hr | Stelrad UIN | Heat output Watts | Btu/hr |
| 500 | 650 | 650 | 300 | 400 | 145200 | 196 | 669 | 145248 | 284 | 969 | 145224 | 348 | 1187 |
| | 850 | 850 | 300 | 600 | 145201 | 293 | 1000 | 145249 | 426 | 1454 | 145225 | 522 | 1781 |
| | 1050 | 1050 | 300 | 800 | 145202 | 391 | 1334 | 145250 | 568 | 1938 | 145226 | 696 | 2375 |
| | 1250 | 1250 | 300 | 1000 | 145203 | 489 | 1668 | 145251 | 710 | 2423 | 145227 | 870 | 2968 |
| | 1450 | 1450 | 300 | 1200 | 145204 | 587 | 2003 | 145252 | 852 | 2907 | 145228 | 1044 | 3562 |
| | 1650 | 1650 | 300 | 1400 | 145205 | 685 | 2337 | 145253 | 994 | 3392 | 145229 | 1218 | 4156 |
| | 1850 | 1850 | 300 | 1600 | 145206 | 782 | 2668 | 145254 | 1136 | 3876 | 145230 | 1392 | 4750 |
| | 2050 | 2050 | 300 | 1800 | 145207 | 880 | 3003 | 145255 | 1278 | 4361 | 145231 | 1566 | 5343 |
| 650 | 650 | 650 | 450 | 400 | 145208 | 290 | 989 | 145256 | 386 | 1317 | 145232 | 478 | 1631 |
| | 850 | 850 | 450 | 600 | 145209 | 435 | 1484 | 145257 | 580 | 1979 | 145233 | 717 | 2446 |
| | 1050 | 1050 | 450 | 800 | 145210 | 580 | 1979 | 145258 | 773 | 2637 | 145234 | 956 | 3262 |
| | 1250 | 1250 | 450 | 1000 | 145211 | 725 | 2474 | 145259 | 966 | 3296 | 145235 | 1195 | 4077 |
| | 1450 | 1450 | 450 | 1200 | 145212 | 870 | 2968 | 145260 | 1159 | 3955 | 145236 | 1434 | 4893 |
| | 1650 | 1650 | 450 | 1400 | 145213 | 1015 | 3463 | 145261 | 1352 | 4613 | 145237 | 1673 | 5708 |
| | 1850 | 1850 | 450 | 1600 | 145214 | 1160 | 3958 | 145262 | 1546 | 5275 | 145238 | 1912 | 6524 |
| | 2050 | 2050 | 450 | 1800 | 145215 | 1305 | 4453 | 145263 | 1739 | 5933 | 145239 | 2151 | 7339 |
| 800 | 650 | 650 | 600 | 400 | 145216 | 365 | 1245 | 145264 | 501 | 1709 | 145240 | 615 | 2098 |
| | 850 | 850 | 600 | 600 | 145217 | 548 | 1870 | 145265 | 751 | 2562 | 145241 | 922 | 3146 |
| | 1050 | 1050 | 600 | 800 | 145218 | 730 | 2491 | 145266 | 1002 | 3419 | 145242 | 1230 | 4197 |
| | 1250 | 1250 | 600 | 1000 | 145219 | 913 | 3115 | 145267 | 1252 | 4272 | 145243 | 1537 | 5244 |
| | 1450 | 1450 | 600 | 1200 | 145220 | 1096 | 3740 | 145268 | 1502 | 5125 | 145244 | 1844 | 6292 |
| | 1650 | 1650 | 600 | 1400 | 145221 | 1278 | 4361 | 145269 | 1753 | 5981 | 145245 | 2152 | 7343 |
| | 1850 | 1850 | 600 | 1600 | 145222 | 1461 | 4985 | 145270 | 2003 | 6834 | 145246 | 2459 | 8390 |
| | 2050 | 2050 | 600 | 1800 | 145223 | 1643 | 5606 | 145271 | 2254 | 7691 | 145247 | 2767 | 9441 |

$\Delta t50$ is the UK's industry standard for heating outputs, which has an operating temperature of 75/65/20°C. If you have a low temperature heat source you may wish to consider $\Delta t40$ or $\Delta t30$ output (see your installer or system designer or download from www.stelrad.com).

EN 442 CERTIFICATION DATA - CETIAT TESTED IN ACCORDANCE WITH BS EN 442

| Type | K1 | | | P+ | | | K2 | | |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 500 | 650 | 800 | 500 | 650 | 800 | 500 | 650 | 800 |
| Casing height | 500 | 650 | 800 | 500 | 650 | 800 | 500 | 650 | 800 |
| Emitter height | 300 | 450 | 600 | 300 | 450 | 600 | 300 | 450 | 600 |
| W/m at 75/65/20 | 489 | 725 | 913 | 710 | 966 | 1252 | 870 | 1195 | 1537 |
| n-coefficients | 1.19 | 1.25 | 1.34 | 1.24 | 1.27 | 1.31 | 1.27 | 1.30 | 1.32 |
| Heated surface area (m ² /m) | 2.09 | 3.37 | 4.66 | 2.44 | 3.84 | 5.24 | 3.51 | 5.62 | 7.74 |
| Weight (kg/m) | 17.80 | 23.50 | 29.40 | 22.70 | 30.72 | 38.40 | 24.40 | 33.30 | 42.50 |
| Water contents (l/m) | 1.89 | 2.57 | 3.25 | 3.70 | 5.15 | 6.60 | 3.70 | 5.15 | 6.60 |

LST i Plus

COMPONENTS



LST i Plus front case view.



LST i Plus inside the casing showing the emitter.



LST i Plus oblong knockout for pipe.



Optional cover cap to discourage unauthorised tampering.



An arthritic adaptor is supplied as standard for special needs environments.



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Includes Danfoss RA-2000 TRV and copper pipe configuration.

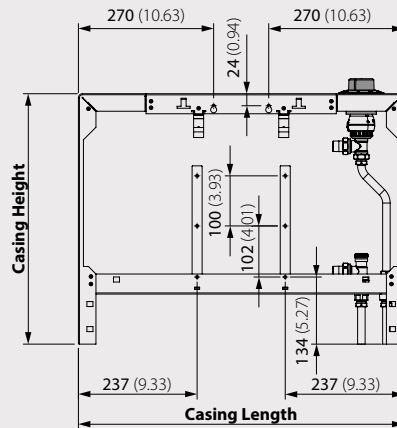


The remote sensing thermostatic valve gives accuracy of operation and the limiting device is completely hidden to prevent the maximum temperature being exceeded.

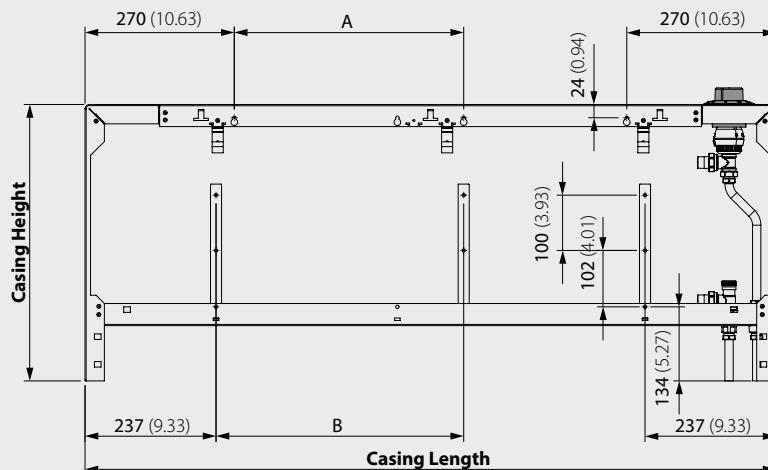
WALL FIXINGS AND BRACKET POSITIONS

All dimensions in mm. Inches in brackets.

| Casing Length mm | Casing Height mm |
|---------------------|---------------------|
| 650 | 500 |
| 850 | 650 |
| 1050 | 800 |



| Casing Length mm | A mm | B mm | Casing Height mm |
|---------------------|---------|---------|---------------------|
| 1250 | 415 | 448 | 500 |
| 1450 | 515 | 548 | 650 |
| 1650 | 615 | 648 | 800 |
| 1850 | 715 | 748 | |
| 2050 | 815 | 848 | |



LST i Plus

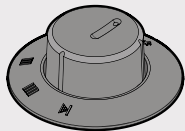
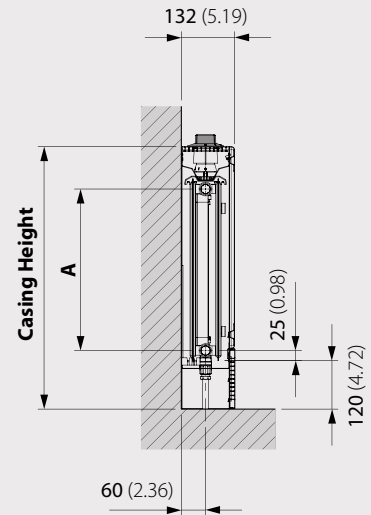
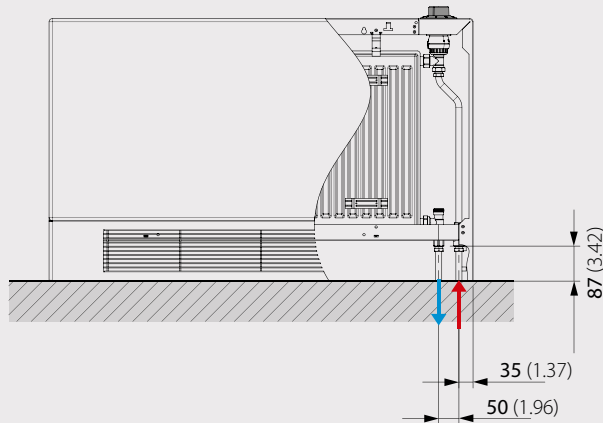
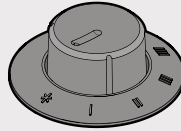
 **Stelrad** Safety Series



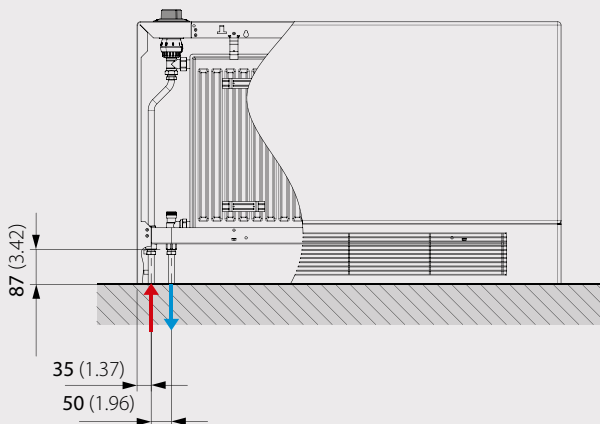
CONNECTION OPTIONS

Each radiator comes with 1/2" inlet connections as standard.
All dimensions in mm. Inches in brackets.

CONTROL ON RIGHT-HAND SIDE



CONTROL ON LEFT-HAND SIDE



PIPE CONFIGURATIONS

