# HORNE OPTITHERM THERMOSTATIC BIB TAP

Below are outlined the features and benefits of the Horne Optitherm. We have highlighted in blue those features that we understand to be totally unique among thermostatic taps.

## [1] User Features & Benefits

**¦¦ Feature 1.1 ¦¦** **Accurate control of hot water temperature under all operating conditions.**

**- Benefit -** **Tap performs in accordance with BS7942 and D 08 (TMV3 Scheme Approval No. BC405/0508)**

The tap has been designed to perform totally in accordance with BS7942 and NHS Model Engineering Specification D08 – the most stringent safety requirements for thermostatic taps.

The Horne Optitherm meets both the HP-WE (washbasin) and HP-T44 (bath fill) designation of the D08 specification.

**¦¦ Feature 1.2 ¦¦** **No cold start transient spike. (i.e. when turning on the tap from cold, the mixed water temperature never exceeds the set temperature -- 41°C -- even for a very short time)**

*- Unique Benefit -* *There is no suggestion of scalding. Good for vulnerable patients.*

If a transient spike (very hot water being delivered for a brief duration) is detected, some users/patients may want to withdraw their hand from the water stream in fear that the water will soon become painfully hot. This will thus lessen their confidence in the tap, and reduce their desire to wash. The Horne Optitherm exhibits no such cold-start transient spike.

**¦¦ Feature 1.3 ¦¦**

**When the "cold" lever is opened, cold water by-passes the thermostatic mechanism**

*- Unique Benefit -*

*The cold water is potable (provided that the tap is supplied with potable water).*

There does not need to be a separate tap provided for drinking water, thus reducing the number of taps required on a ward. Any tap can provide drinking water, thus reducing the workload on nursing staff to go and fetch water from a distant point. This feature also allows for the same tap to be used in all clinical, surgical and patient en-suite areas for cold water hand washing, drinking and teeth cleaning. Standardising throughout a healthcare building means initial capital cost per unit is lowered and fewer spares need to be held in store.

Complies with HFN 30: Infection Control in the Built Environment
Section 4.78: 'Health and Safety regulations [The Workplace (Health, Safety and Welfare) Regulations, 1992] require that both hot and cold running water should be available in areas where employees are expected to wash their hands'.

**¦¦ Feature 1.4 ¦¦**

**There is no cold deadleg**

**- Benefit -**

**Drinking water does not stand in the pipe for long periods if water is not drawn for a while**

Whenever hot water is drawn from the tap, the cold pipe is drawn from as well; hence a tap used frequently for washing, but used less frequently for drinking water will not have drinking water sitting in the pipe for a long time. i.e. two taps serving a single outlet increases the turnover of cold water, reducing stagnation.

Complies with HTM 04-01, 'The control of Legionella, hygiene, safe hot water, cold water and drinking water, cold water and drinking systems Part A', Section 1.8: 'The design of systems must ensure that sufficient reserve storage water is available to minimise the consequences of disruption, while at the same time ensuring an adequate turnover of water to prevent stagnation in storage vessels and distribution systems'.

Section 9, Table 4, Note 1: 'It is preferable that thermostatic mixing devices are fitted directly to the mixed temperature outlet or be integral with it, and be the method of temperature and flow control, i.e. the mixing device should not be separate and supply water via a second tap or manual mixer since there will be many cases where draw off of cold water will not occur.'

**¦¦ Feature 1.5 ¦¦** **Low surface temperature**

**- Benefit -** **No risk of burns from hot parts of tap**

Other thermostatic taps have surfaces at the temperature of the supplied hot water (usually between 60-70C to reduce Legionella), which presents an obvious hazard to vulnerable users. The Horne Optitherm has all exposed surfaces near or below the set safe water temperature, thus there is no risk of accidental burning.

Complies with HGN 'Safe hot water and surface temperatures' section 10.6 states 'surface mounted pipe work, which is exposed at low level, that is within 2 m of the floor, presents an additional risk if it is carrying water above 43 °C and should be securely insulated or boxed in'.

**¦¦ Feature 1.6 ¦¦** **Horne Dual Levers available (patent applied for)**

*- Unique Benefit -* *Prevents re-contamination of hands when turning off the tap*

In a hand-washing situation the Horne Optitherm is designed to be turned on using the short lever arm. In doing so this may become contaminated by dirt or bacteria from the fingers. However, the Horne Optitherm also has a separate long lever with which to turn the flow off. This can be done either with the hand (the lever is clean as it has not been touched by a contaminated hand) or with the elbow or forearm.

Complies with HFN 30: Infection Control in the Built Environment, Section 4.81: Taps should be easy to turn on and off without contaminating the hands.

Hand Decontamination Guidelines published by the Infection Control Nurses Association states that when hand washing 'a good technique covering all surfaces of the hands at the right time is more important than the agent used of the length of time taken to perform it'. We believe that the dual lever is conductive to good hand washing practice.

**¦¦ Feature 1.7 ¦¦**

## Large endcaps in red and blue with robust and attractive iridescent anodised finish for 'hot' and 'cold'

*- Unique Benefit -*

*Ease of use*

The 'hot' and 'cold' levers are more intuitive than the controls on other thermostatic taps as they are the same as the controls on ordinary (non-thermostatic) taps.
The anodized aluminium endcaps are also much more resistant to vandalism than plastic endcaps. They cannot be 'picked' off like plastic push-fit tops as they are screwed on tightly and require a special tool for removal.

BS 8300 design of buildings and their approaches to meet the needs of disabled people – Code of practice Section 12.4.5.1 Hand rinse basin and tap, states 'A hand rinse basin should be fitted with a mixer tap with an up and down action to control water flow so that a wheelchair user or an ambulant disabled person with poor grip can operate the tap using the flat of the hand or the wrist…….. Wash basins should contrast in colour and luminance with walls and surfaces around them so that they can be easily distinguished by visually impaired people'.

## [2] Maintenance Features & Benefits

**¦¦ Feature 2.1 ¦¦** **The maximum hot water temperature is controlled by the integral thermostatic mixing valve.**

**- Benefit -** **Hot water at safe and comfortable temperatures is always available, with minimal deadleg for legionella growth and the valve easily accessible for servicing.**

Having the thermostatic mechanism integral to the tap minimises deadleg (and thus legionella growth) and also ensures that the thermostatic mechanism is easily accessible for servicing.

HTM 04-01, 'The control of Legionella, hygiene, safe hot water, cold water and drinking systems, Part A' Executive Summary says 'It is preferable that the thermostatic mixing devices are fitted directly to the mixed temperature outlet or be integral with it, and be the method of temperature and flow control…….' 9.49 states 'Particular attention should be given to ensuring that pipework containing blended water is kept to the minimum'.

**¦¦ Feature 2.2 ¦¦** **Adjustment of temperature setting is by concealed screw.**

**- Benefit -** **Temperature setting cannot be tampered with and adjustments can only be made by someone in authority.**

A strap-wrench and 4mm hexagon key are required to adjust the temperature. Thus the Horne Optitherm is therefore protected from incidental unauthorised adjustments.

NHS model engineering specification D08 calls for thermostatic mixing devices to be tamperproof – 'Having obtained the required settings, the means provided by the manufacturer for limiting the maximum mixed water temperature, locking the mixed water temperature adjustment, or otherwise rendering the adjustment tamper-proof, shall be utilized'.

**¦¦ Feature 2.3 ¦¦** **Thermostatic mixing valve in an easily removable cartridge.**

**- Benefit -** **Ease of maintenance with little down time.**

All four valve faces, thermostat element, seals and springs are contained within the easily replaceable thermostatic cartridge. Any likely fault is easily cured without expert diagnosis by changing the thermostatic cartridge

**¦¦ Feature 2.4 ¦¦** **Smooth external surfaces**

**- Benefit -** **Easy to clean.**

Cleanliness is of prime importance in all healthcare environments. The absence of crevices, screwheads, prise-off plastic covers and other dirt traps assists in this end.

HTM 64 Sanitary assemblies:- 2.8 Components should be easy to clean: 'There should be no inaccessible recesses, rough surfaces or projections, sharp edges etc, which may retain dirt, snag cleaners hands or equipment, or be difficult to reach'.

HFN 30: Infection Control in the Built Environment: Equipment that is within the immediate patient environment has been shown to be a potential source of cross-infection. Fixtures and fittings, if difficult to access or clean on a regular basis, fall into this category and must be included as a potential reservoir for infection when risk assessment is undertaken. Design should ensure that surfaces are easily accessed, will not be physically affected by detergents and disinfectants and will dry quickly.

**¦¦ Feature 2.5 ¦¦** **Integral isolating valves.**

**- Benefit -** **Quick and easy access to the thermostatic mixing valve cartridge and strainer baskets.**

The Horne Optitherm thermostatic tap can be isolated individually. There is no need to trace pipework to find the correct place to isolate, and no need to isolate other outlets while the tap is being worked on.

HTM 04-01, 'The control of Legionella, hygiene, safe hot water, cold water and drinking systems Part A' Section 9.62 Service Isolation Valves;- 'Service isolation valves should be fitted to all pipework preceding sanitary tapware and WCs etc for servicing, repair and replacement'.

**¦¦ Feature 2.6 ¦¦** **High specification chromium plating**

**- Benefit -** **Good longevity and wear resistance of chromium plated components**

Horne has insisted on the highest available specification for the chromework on the Horne Optitherm. This means that years of cleaning will leave the Horne Optitherm looking pristine where other thermostatic taps may start to look tired.

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**¦¦ Feature 2.7 ¦¦** **No external plastic parts**

*- Unique Benefit -* *Small parts cannot be 'picked' off and lost to leave recesses where dirt and pathogens can flourish*

There are no external plastic parts on the Horne Optitherm. All access covers are screwed on and made of metal. The Horne Optitherm should look the same after years of service as it does when new.

**¦¦ Feature 2.8 ¦¦** **Torque release device for levers**

*- Unique Benefit -* *Prevents breakage of levers if a user is heavy-handed or malicious.*

At time of writing the Horne Optitherm is the only thermostatic tap that provides a torque release device to prevent a malicious user breaking off the long lever. Market research indicates that this is a common problem on long-lever taps; therefore this feature could save the organisation a lot of money.

## Ease of servicing features uncommon in other thermostatic taps

These servicing features are not unique, but no thermostatic tap we have seen even has most of them…

**¦¦ Feature 2.9 ¦¦** **Flushing of the hot and cold water supply pipework prior to commissioning or as part of routine maintenance can be achieved via the spigot or with the Optitherm in situ.**

**- Benefit -** **Commissioning and maintenance personnel can flush the supply pipework at full bore to completely remove any debris and/or biofilm held within the pipes.**

A simple flushing boot can be fitted over the spigot to flush the hot and cold pipework - even before hot water is available on site. For routine flushing of the pipework, a special flushing adaptor can be fitted into the body of the Optitherm, upstream of the thermostatic mechanism. This flushing kit can also be used for periodic temperature testing and sampling of the water supplies.

HTM 04-01, The control of Legionella, hygiene, safe hot water, cold water and drinking systems, Part A, 12.6: 'Pipework distribution networks should be divided into sections by the provision of isolating valves in accessible locations to facilitate isolation for repairs, maintenance and flushing'.

**¦¦ Feature 2.10 ¦¦** **The working parts of the Optitherm tap can be flushed with mains hot water for in situ sanitizing**

**- Benefit -** **Maintenance personnel can flush all of the tap with very hot water killing potentially dangerous bacteria.**

Using a simple and easy to use adaptor from Horne, water from the hot supply to the Optitherm can be flushed through all of the working parts.

HTM 04-01, 'The control of Legionella, hygiene, safe hot water, cold water and drinking systems, Part B OPERATIONAL MANAGEMENT' 7.9 Thermal disinfection (of hot water service systems) 'each tap or outlet should be run sequentially, with the draw-off at the furthermost tap or outlet being for a period of 5 minutes. Then each tap should be flushed back to source for the same period of time'.

**¦¦ Feature 2.11 ¦¦** **Thermostatic mixing valve cartridge easily removable from the tap without substantial dismantling or removal of the tap.**

**- Benefit -** **No need to uncouple or disturb the hot and cold water supply pipe work**

All common service items on the Horne Optitherm are accessible by removing only one screwed cover

- there is no requirement to remove a large number of parts from the tap.

**¦¦ Feature 2.12 ¦¦** **Integral strainers, at hot and cold water inlets. Again, easily removable from the tap without major dismantling or removal of the tap.**

**- Benefit -** **Easy access to strainer baskets for cleaning without uncoupling or disturbing hot and cold water supply pipe work.**

All common service items on the Horne Optitherm are accessible by removing only one screwed cover

- there is no requirement to remove the tap from its mounting.

HTM 04-01, 'The control of Legionella, hygiene, safe hot water, cold water and drinking systems Part A'. Section 7.47 'Strainers should be fitted within the water pipework system to protect thermostatic valves etc against ingress of particulate matter. The installation of these fittings should allow adequate access for maintenance / replacement, and they should be provided with means of upstream and down stream isolation. Strainers can be a source of Legionella bacteria and should be included in routine cleaning, maintenance and disinfection procedures'.

**¦¦ Feature 2.13 ¦¦** **Dirt removed from the pipework collects on the **inside** of the strainers**

**- Benefit -** **Strainers are easily removed from the tap without the dirt falling back into the tap**

On many thermostatic taps, the dirt collected from the pipework gathers on the outside of the strainer baskets. This is problematic in that it can allow the dirt to fall back into the tap, thus allowing the possibility of damage to the thermostatic mechanism.

**¦¦ Feature 2.14 ¦¦** **Thermostatic Tap can be removed from the mounting spigot**

**- Benefit -** **Possible to quickly and simply swap taps for servicing – no need to access the void behind the wall panelling.**

Some maintenance technicians may prefer to service the Horne Optitherm in the workshop – this may be especially beneficial in secure mental patient units. Taps which may have been damaged or vandalized can be quickly brought online again by simply replacing the unit, allowing the original unit to be repaired at leisure.

- as far as we are aware, this feature is unique among thermostatic bib taps.

HTM 04-01, 'The control of Legionella, hygiene, safe hot water, cold water and drinking systems Part B OPERATIONAL MANAGEMENT'. Assists operational managers in meeting their legal requirement with respect of maintenance of thermostatic mixing valves.

**¦¦ Feature 2.15 ¦¦** **Integral check valves mounted within the tap and protected by fine-mesh strainer. All check-valves easily removable from the tap without major dismantling or removal of the tap.**

**- Benefit -** **Prevents cross flow of hot and cold water supplies. Strainer protection prevents check-valves being rendered inoperable by contamination.**

In the Horne Optitherm ALL of the check valves are easily accessible and protected by the strainers. This is very important, because a check valve that is not protected by a strainer is likely to become contaminated and a contaminated check valve will not close and could:-

- allow cold water into the hot supply causing Legionella growth or….
- allow hot water into the cold supply and cause scalding

A check valve that is not accessible will require removal of the tap and mounting to repair it. All check valves on the Horne Optitherm are easily accessible without demounting the tap.

HTM 04-01, 'The control of Legionella, hygiene, safe hot water, cold water and drinking systems Part A' Section 8.2 Cold Water Distribution System, 'The system should be designed and installed so that each risk is adequately protected against back flow, either by means of the design or by use of back flow prevention devices'.

## [3] Specifier Features & Benefits

In addition to all of the features and benefits mentioned above, specifiers may be interested to know the following…

**¦¦ Feature 3.1 ¦¦** **Option of Horne Dual Levers or short single levers**

**- Benefit -** **The same tap can be used in surgical/medical or patient areas.**
This reduces the number of tap variants required, with benefits in cost and efficiency.

**¦¦ Feature 3.2 ¦¦** **Choice of straight or swivel spouts, with or without flow regulator**

*- Unique Benefit -* *Can be used in a variety of situations.*
For example, swivel spouts could be useful for janitorial sinks. Unregulated outlets would be useful for bathfill.

HFN 30 Infection Control in the built environment: 'taps must not be aligned to run directly into the drain aperture as this can cause contaminated aerosols to be dispersed'.

**¦¦ Feature 3.3 ¦¦** **Flow regulator is at outlet to the valve**

*- Unique Benefit -* *Better control of flowrate. (Competitors put the flow-regulators at the inlets because the poorly designed thermostatic mechanisms need them there to control transients).*
Flowrate from the Horne Optitherm is controlled to 6l/min ±10% (washbasin version) regardless of the required mix of hot and cold water. This has good implications for water economy.

HTM 04-01, 'The control of Legionella, hygiene, safe hot water, cold water and drinking systems Part A', Section 14.2 Water Economy, 'Measures to minimise water consumption that should be considered at design stage include; provisions of water flow restrictors at hot and cold water taps, these must not be used in conjunction with thermostatic mixing valves unless approved by the manufacturer of such valves; restrictors or regulators should not be installed at the inlets of thermostatic mixing valves'. Also see 'Untapped savings: water services in the NHS'.