HIGHLY EFFECTIVE THERMAL DISINFECTION. SIMPLIFIED
INTRODUCTION

Horne Engineering Ltd are pioneers in the field of thermostatic control engineering, inventing, in 1909, the self-acting control valve to regulate the temperature of steam calorifiers – a world first. Another world first came in the early 1920s with the invention of the Thermostatic Mixing Valve (TMV) to accurately blend hot water with cold to provide safe and comfortable water for bathing and showering.

With the discovery of Legionella bacteria and its associated respiratory disease, Legionnaires Disease, a thermal regime, paired with point-of-use TMVs was determined the most effective method to mitigate the problem whilst also addressing the scald risk. In recent years, a new problem has emerged that relates to antibiotic resistant and opportunistic microorganisms and their proliferation in domestic water supplies of institutional environments – especially in healthcare, but also education, prison accommodation and sport and leisure facilities.

The ‘deadleg’ drop to every tap or shower outlet between the TMV and the terminal fitting ranges in temperature from ambient to that of the TMV setting – favourable conditions for bacteria to multiply. The unavoidable air-water interface of the terminal fitting is also inherently vulnerable to retrograde contamination from the local environment. Now, Horne Engineering has developed yet another World First with the invention of the In-Line Thermal Disinfection Unit (ILTDU), which specifically addresses this problem.

EXTENDING THE THERMAL REGIME

PROBLEM

Via the incoming water supply and by retrograde contamination, Psuedomonas, Legionellae and other pathogens can colonise the last two metres of domestic water supply pipework, including the outlet fitting (TMV, tap or shower). This problem is specifically described in the UK Department of Health’s Addendum to Health Technical Memorandum 04-01 and in the enHealth (2015) Guidelines for Legionella control in the operation and maintenance of water distribution systems in health and aged care facilities, published by the Australian Government.

SOLUTION

The In-Line Thermal Disinfection Unit (ILTDU) facilitates periodic high temperature thermal disinfection using the readily available hot water supply. Now the thermal regime can be extended to the point of water discharge: therefore, the wetted surfaces of all downstream components, including the TMV and the outlet fitting, can be raised to system temperature.
HOW IT WORKS

When not in use (Passive Mode), hot and cold water flows to the mixing valve and downstream fittings uninterrupted. The operation key transfers the mechanism into Disinfection Mode; diverting hot water at system temperature to the cold water supply pipe drop. Simultaneously, the cold water supply is closed. Hot water at system temperature is now able to permeate all wetted parts of the system downstream of the ILTDU until such times as the key is turned back to the passive position.

DUTY OF CARE

Thermal disinfection of outlets should be conducted by an appointed Responsible Person. The ILTDU is operated using a unique key, which has a large red warning notice indicating the hazard of scalding hot water. During disinfection, it is not possible to remove the key from the device – ensuring the warning notice is visible throughout the process. Only on returning the device to Passive Mode will the key be removable. Immediate removal of the key following disinfection is good practice. A local risk assessment should be conducted to ascertain the temperature and duration required for effective thermal disinfection. For maximum effectiveness in improving water quality and minimising the rate of contamination, thermal disinfection should be conducted in combination (but not simultaneously) with elevated velocity flushing via the drain points of any downstream thermostatic mixing valve.
TECHNICAL INFORMATION

PRODUCTS

- **94339**  
  HORNE ILTDU  
  VALVE ONLY

- **94697**  
  HORNE ILTDU  
  VALVE + KEY

- **42501**  
  HORNE ILTDU  
  IN BOX*

- **42511**  
  HORNE ILTDU  
  + TMV IN BOX*

- **42551**  
  HORNE ILTDU  
  + TMV IN BOX*

- **42556**  
  HORNE ILTDU  
  + TMV IN BOX*

- **42557**  
  HORNE ILTDU  
  + TMV IN BOX*

* All boxed configurations are supplied with lockable hinged lids

DIMENSIONS

**CAPACITY CHART**

MAX BORE (PASSIVE MODE)  
TRANSVERSE BORE (DISINFECTION MODE)

- **G 1/2” External Thread**

MATERIALS

- Body: DZR brass
- Seals: Nitrile/PTFE
- Four way link mechanism: stainless steel
- Connections: compression fitting 15mm pipe
- Weight: 1.0kg

OPERATING CONDITIONS

- Max working pressure (static): 1000KPA
- Max temperature: 85°C

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Horne® ILTDU  
In-Line Thermal Disinfection Unit  
distributed by

**Australia**  
Zip Water  
1800 638 633  
zipwater.com

**New Zealand**  
Zenith Water  
0800 558 055  
zenithwater.co.nz