irus SmartTank

Prefect

Conventional cylinders use 1.5x more energy than SmartTank.

A practical investment case for Energy and Asset Managers

Simple payback:	**1.4 years**
Total Capital Cost:	**£221K**
Cost to replace like-for-like failing tanks:	**£144K**
Cost up-lift:	**£77k**

Annual savings	**Consumption** Before	After	**Saving**
Energy:	**196,893**kWh	**145,017**kWh	**£13,280**
Water:	**23,028**M³	**10,149**M³	**£32,198**
Labour*:	**384**hrs	0	**£7,680**
Annual Carbon Reduction (Energy)**			**6.4 Tonnes**
Annual Carbon Reduction (Water)***			**13.5 Tonnes**

Overview

Integrating a high-performance hot water cylinder with intelligent controls, **SmartTank** continuously monitors the water system to reduce energy use, water waste, and maintenance effort in multi-occupancy residential buildings.

Designed for energy managers seeking carbon and cost reductions without major disruption, SmartTank offers a fast-payback upgrade to traditional immersion tank systems.

Why upgrade to SmartTank?

Built on the trusted Gledhill cylinder platform, SmartTank units are factory pre-plumbed and pre-wired with integrated Prefect controls. They connect directly to electricity, water supplies, and the Prefect IRUS building services management system.

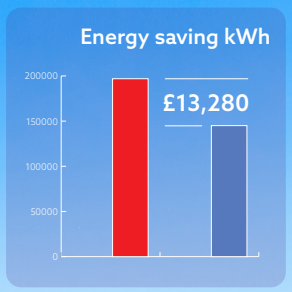
Through precise control, real-time monitoring, and automated data analysis, SmartTank provides full system visibility and intelligent responses to changing demand.

In practice, **conventional immersion tanks can consume up to 1.5× more energy to deliver the same hot-water service**.

SmartTank provides a practical, high-performance upgrade that reduces utilities consumption, operating costs, and environmental impact while improving compliance and building performance.

Building A example

For the purposes of this example we are using real data from an anonymised property. Building A is 393-bed student accommodation building in the East Midlands.



ASSUMPTIONS USED IN THIS EXAMPLE FOR BUILDING A

This example uses the 2024-25 academic year for the analysis period as this timeframe saw more standard occupancy, as the property is currently seeing reduced occupancy from September 2025 onwards.

Electricity: *25.6p/kWh* ***Water:*** *£2.50/m³* ***Annual inflation:*** *5%* ****Labour:*** *£20/hour*

*****Annual Carbon Reduction (Scope 2)*** *– 6.4 Tonnes (at 2024 UK grid intensity of 124gCO2/kWh)*

******Annual Carbon Reduction (Scope 3)*** *– 13.5 Tonnes (at 2025 BEIS/Defra intensity of 1.05kgCO2 per m3)*

Prefect Controls Limited, Unit 2, Church Field Business Park, Church Field Road, Sudbury CO10 2YF **01787 320604** | **mail@prefectcontrols.com** | **prefectcontrols.com**

irus SmartTank

Prefect

Energy Savings

Current monitoring shows the hot water system at Building A consumes 501 kWh per bed per year.

Benchmarking against comparable student accommodation sites where SmartTank has been operating for several years indicates that a long-term achievable performance level is 369 kWh per bed per year.

This represents an estimated 26% reduction in energy use per bed. Across a 393-bed building this reduction equates to tens of thousands of kilowatt-hours saved annually, producing substantial operational cost and carbon savings.

Water Waste Reduction

Water consumption in student accommodation is typically benchmarked at 125 litres per person per occupied day*.

SmartTank enhances water efficiency through an array of integrated sensors capable of detecting:

- **Leaks and persistent drips**
- **Stuck or passing valves**
- **Continuously running outlets**
- **Tundish discharge or other abnormal water escape**

By identifying faults early, maintenance teams can intervene before minor issues escalate into significant water losses or property damage.

This benchmark has been applied alongside occupancy data captured via the system. It estimates the volume of water that would have been consumed had SmartTank been in place and identified faults, rectifying them in a timely manner. The difference between actual and benchmark-adjusted consumption forms the basis of the projected water savings.

Operational and Compliance Efficiency

SmartTank continuously records temperature data and system performance, automatically generating compliance and audit reports.

This provides several operational benefits:

- **Reduced manual temperature checks**
- **Automated compliance reporting for water hygiene regimes**
- **Exception-based maintenance rather than routine inspections**

For example, removing a monthly 15-minute manual inspection per tank can save thousands of pounds per year in labour costs across medium-to-large residential sites.

Carbon and ESG Benefits

Typical annual savings from a SmartTank upgrade can be seen overleaf. These measurable reductions support ESG reporting, carbon-reduction commitments, and long-term net-zero strategies.

Additional Benefits

SmartTank can also:

- **Participate in demand-side flexibility programmes**
- **Shift heating away from peak grid periods**
- **Enable continuous optimisation of temperature setpoints**
- **Provide granular data for portfolio-wide energy management**

These benefits are often treated as intangible and therefore not included in base ROI calculations.

A Smarter Upgrade

SmartTank is particularly well suited to buildings with:

- **Immersion-based hot water systems**
- **Multi-occupancy with variable usage patterns**
- **Ageing hot-water infrastructure**
- **Strong sustainability or carbon-reduction targets**

By reducing energy consumption, preventing water waste, simplifying compliance, and lowering operating costs, SmartTank provides a high-performance, future-ready upgrade for modern residential buildings.

* CIBSE guidance

Prefect Controls Limited, Unit 2, Church Field Business Park, Church Field Road, Sudbury CO10 2YF **01787 320604** | **mail@prefectcontrols.com** | **prefectcontrols.com**