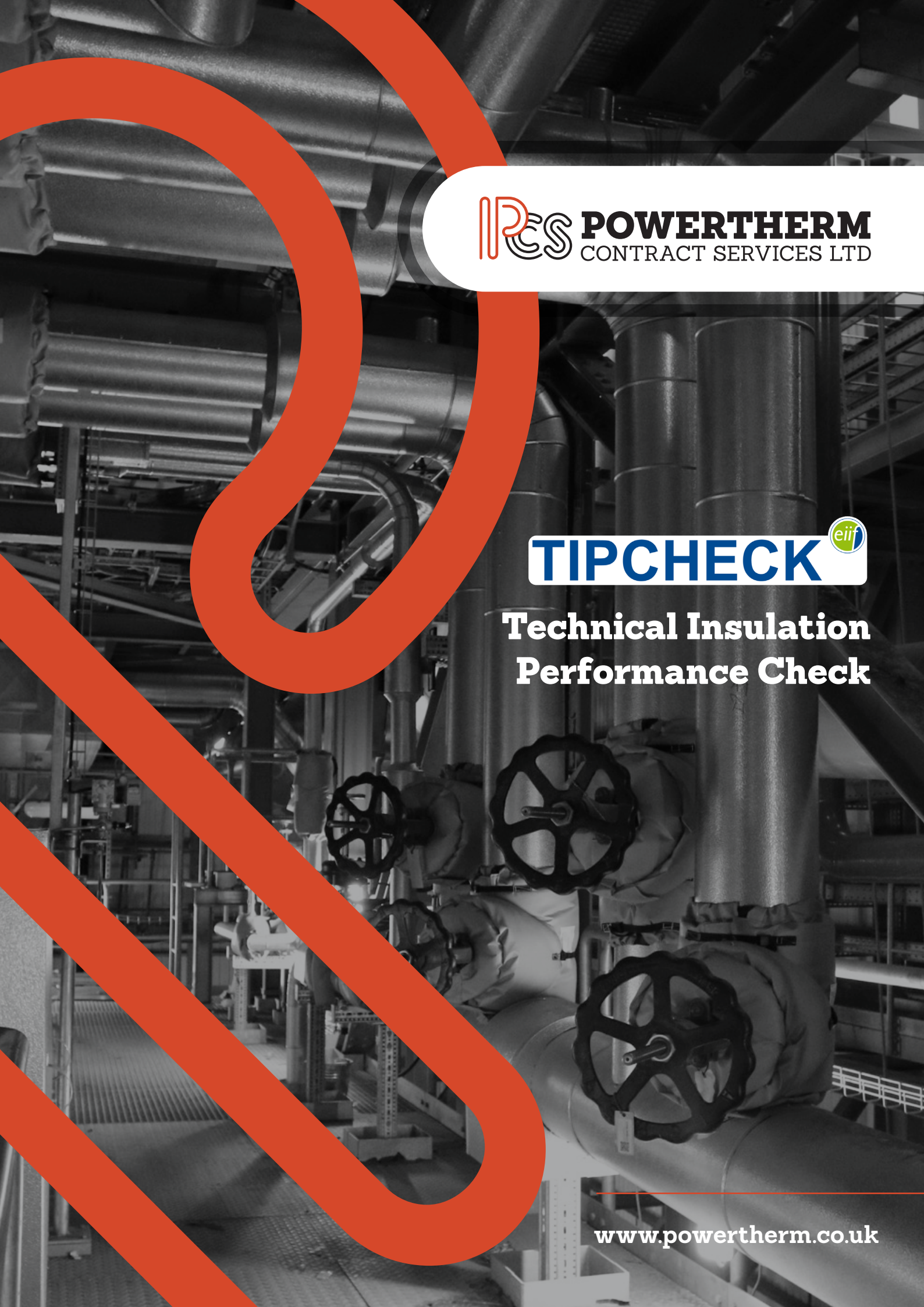


POWERTHERM
CONTRACT SERVICES LTD

TIPCHECK

Technical Insulation Performance Check

www.powertherm.co.uk

POWERTHERM
CONTRACT SERVICES LTD

TIPCHECK

Technical Insulation Performance Check

At Powertherm Contract Services Ltd, we have in-house Engineers who are certified in delivering TIPCHECK services - TIPCHECK Experts.

Through the European Industrial Insulation Foundation (EiiF) programme, our professionals have acquired the expertise needed to conduct comprehensive thermal energy audits on industrial insulation systems. This proficiency enables us to assess both existing facilities and planned projects, empowering us to advise our clients on enhancing the energy efficiency of their insulation systems and reduce costs.

European Industrial Insulation Foundation
Member

Optimise your insulation systems; reduce costs, energy consumption and carbon emissions through Powertherm's TIPCHECK provision.

TIPCHECK Energy Audits

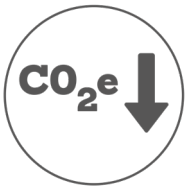
In line with EN 16247 and ISO 50002, the TIPCHECK Energy Audit is a standardised thermal energy auditing tool to evaluate the performance of industrial insulation systems.

TIPCHECKs assess the insulation systems of existing facilities, planned construction projects, or retrofits. TIPCHECKs also support energy management systems like ISO 50001 and can identify process efficiency improvements.

The assessment demonstrates how improving insulation efficiency can:

- **save energy**
- **save money**
- **contribute to a cleaner environment through reducing CO_2e emissions**
- **contribute to decarbonising industrial processing sectors**
- **contribute to achieving Net Zero**

Additionally, our TIPCHECK experts excel in identifying potential safety risks to personnel and equipment, enabling us to swiftly eliminate any hazards.



Our audits are typically carried out on uninsulated lines, and damaged lines, where it is clear the insulation system has been compromised. Experts also undergo audits on what may appear to be undamaged insulated lines to ensure that the insulation system installed is fit-for-purpose and performing as expected regarding energy consumption and carbon emissions.

Following the on-site inspection, TIPCHECK Experts calculate and analyse results before providing clients with a report of the audit and any suggested remedial works to improve the efficiency of the insulation systems, along with an energy class rating (EN 17956).

By having certified TIPCHECK Experts in-house, Powertherm can pinpoint areas with the highest energy-saving potential; savings that will be passed onto clients. The correct implementation of these measures can lead to rapid payback times, often within a year or even less.

POWERTHERM
CONTRACT SERVICES LTD

TIPCHECK Tool

Reports are generated using the TIPCHECK Tool which calculates the energy savings of upgraded insulation systems on the audited lines. The EiiF tool has been developed with the following methodology:

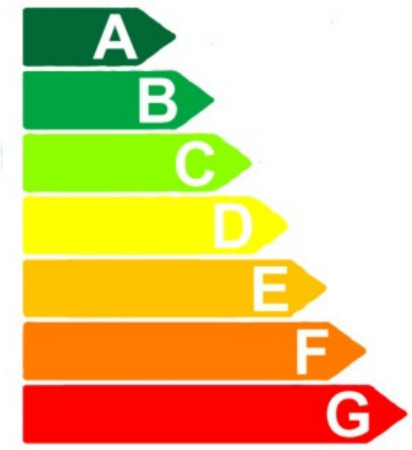
1. Current energy losses are calculated per component using heat transfer formulas from the ISO EN12241:2022. The calculations are based on the data reported by the user from the on-site insulation inspection: process parameters, geometry, ambient conditions, and surface temperature.

2. The calculated density of heat flow rate per component is compared with the maximum allowed density of heat flow rate defined by the selected Insulation Energy Efficiency Class according to the EN 17956.

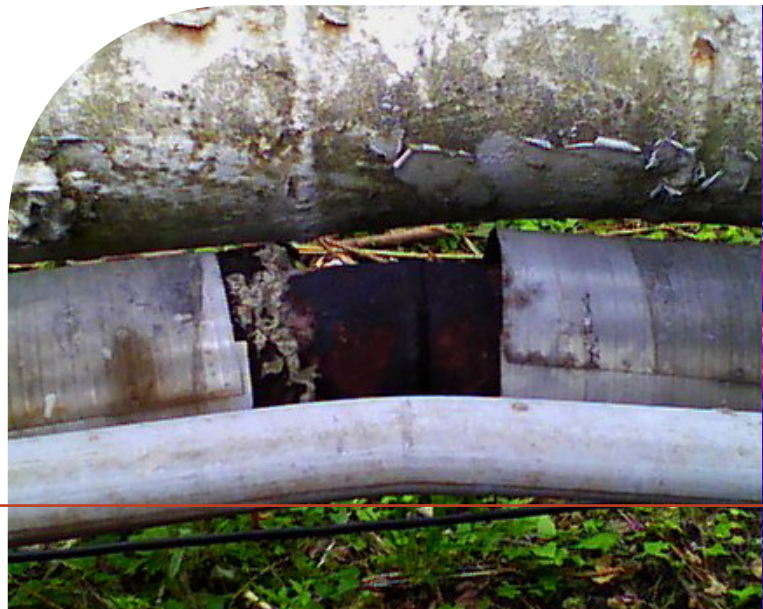
3. The difference between the densities of heat flow rates enables the user to calculate the energy savings potential, the CO2e emissions reduction and cost savings, provided that the inspected components are insulated with insulation solutions which conform to the selected Insulation Energy Efficiency Class at the minimum.

Calculations are based on the inputs introduced during the inspection and reference values from the Insulation Energy Efficiency Classes. The results shall be taken as estimations, not as guaranteed values.

The TIPCHECK Tool doesn't provide any recommended insulation solutions. This is where Powertherm's specialist industrial insulation team are on-hand to be consulted after the audit to define the final insulation solution(s) to be installed to achieve the savings outlined in the report.



European Energy Efficiency Class



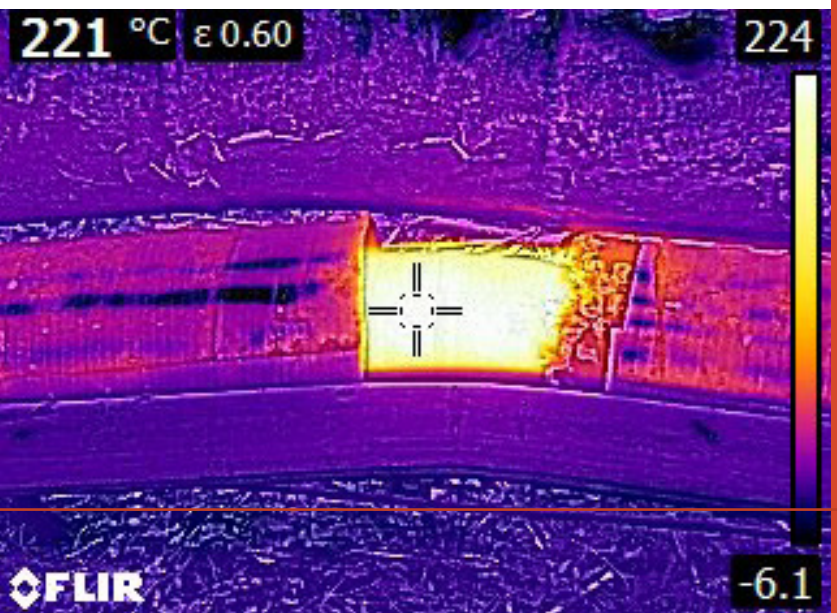
Equipment/ Training

Along with certified training from the EiiF, our TIPCHECK Experts utilise the very latest equipment to carry out the on-site insulation inspection.

Professional infrared cameras provide data in real-time allowing teams to quickly identify problem areas and where improvements can be made.

Cost savings are based on operational temperatures rather than temperatures measured by the equipment as this data provides a precise figure to base calculations from, removing any potential inaccuracies in the measuring equipment.

Training is also regularly refreshed to coincide with any new findings and improved ways of carrying out TIPCHECKs.



POWERTHERM
CONTRACT SERVICES LTD

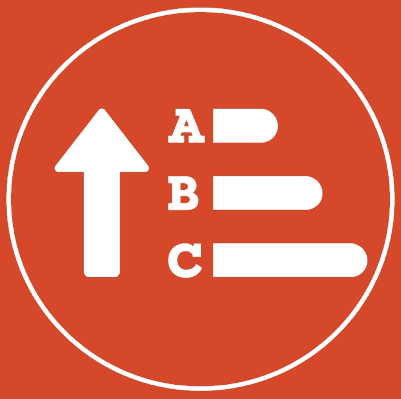
TIPCHECKs benefits to industry

The TIPCHECK programme provides numerous benefits, both energy-related and non-energy-related, to energy users, supply systems, and the economy.

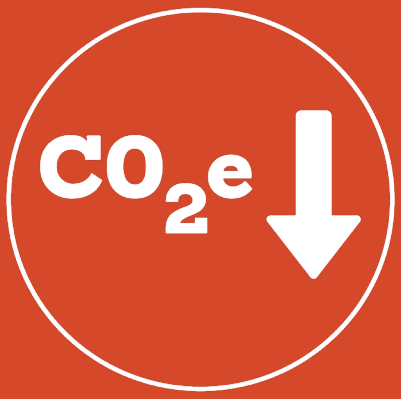
In any industry, the top three operating expenses are typically energy (both electrical and thermal), labour, and materials. When evaluating the manageability of costs or potential savings within these components, energy consistently ranks highest. Consequently, energy management is a strategic area for cost reduction.

However, clients often are unaware of how much energy they are wasting. They may not realise how quickly and easily energy waste can be eliminated with properly insulated systems and installations.

Reduces energy & production costs



Increases energy efficiency



Reduces CO2 emissions

Improves process efficiency

Reduces safety risks to personnel & equipment

Increases competitiveness

POWERTHERM
CONTRACT SERVICES LTD

TIPCHECKs
how much can you really save?

Industrial processes are energy-intensive

Maintaining high process temperatures in industrial industries, often up to 600°C or higher, requires substantial energy input. These elevated temperatures result in significant heat losses, especially from uninsulated equipment or where the insulation system has become damaged, further increasing the process's overall energy consumption.

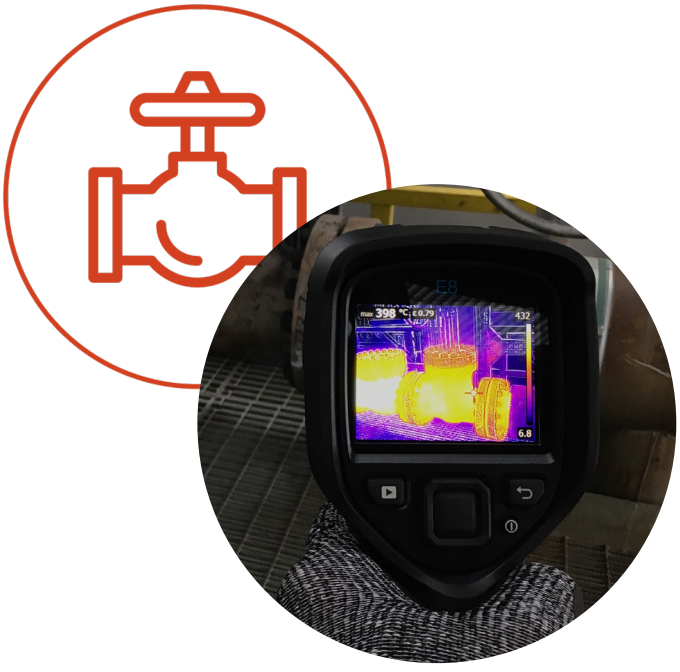
Typically, uninsulated equipment is a common issue. Experiences from TIPCHECK thermal energy audits shows that valves and flanges in industrial plants are often left uninsulated. Infrared thermography can detect and visually demonstrate the resulting energy losses.

1no Uninsulated Valve

So, how much can you really save?

Taking an example of a single uninsulated valve, which was identified during an inspection by one of our TIPCHECK Experts, let's look at what you can really save...

- **Size: DN 250/10"**
- **Operating temperature: 400°C**
- **Operational time: all year (8,760 hours)**
- **Energy consumption: 136,060 kWh/a**



POWERTHERM
CONTRACT SERVICES LTD

TIPCHECKs
how much can you really save?

kWh p.a.

133,018*
Energy saving

=

44,339
Boils of a kettle

443,393
Miles in an electric car

48
Year's supply of electricity for an average home (UK)

tCO2e p.a.

26.74*
Emissions saving

=

1215
Trees planted

6
Cars removed from the road

709
Boeing 737 air miles removed

£14,906*
Cost saving p.a.

5 days
Payback period

* Savings figures are based on the minimum standard (Class F) of the European Energy Efficiency Class. In regard to any suggested remedial insulation works, we would recommend a classification that was higher than this and in line with industry standards/ specifications.

POWERTHERM
CONTRACT SERVICES LTD

TIPCHECK success stories

2 months payback

TIPCHECKs executed on COMAH Tier 1 refinery in the UK.

We were tasked by our client to implement innovative techniques to contribute to their goal of reducing process carbon emissions.

TIPCHECK Experts conducted insulation inspections on the HP Steam Circuit, where uninsulated valves were identified.

Following the on-site inspections, teams utilised the TIPCHECK Tool to analyse data and calculate potential savings through the Insulation Energy Efficiency Classification method.

Experts evaluated that completing the suggested insulation works would eliminate approximately 35 tonnes of process CO_2e emissions p.a. being put into the atmosphere. As well as passing a £200k+ p.a. cost saving onto the client.

Factoring in the costs of the remedial insulation works and the estimated cost savings, engineers calculated the payback period on the investments was, in this case, as short as 2 months.

The numbers:

£200,000.00+
Cost saving p.a.

35 tonnes
CO_2e emissions reduction p.a.

2 months
Payback period

+44 (0) 114 288 9119

POWERTHERM
CONTRACT SERVICES LTD

TIPCHECK success stories

15 months payback

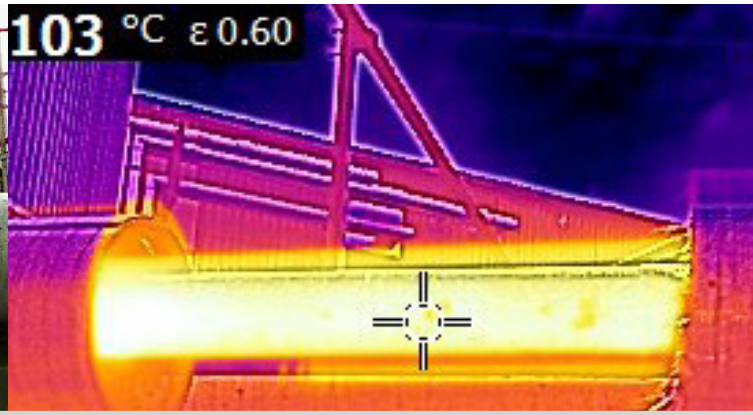
TIPCHECK Audit carried out within the Chemical Processing industry.

TIPCHECK Experts were called upon by a global petroleum products company to implement the TIPCHECK Audit process on the Steam and Condensate lines at their plant, to identify heat losses which contribute to additional CO2 usage.

The processing plant, which manufactures lubricants, is located in Yorkshire within the UK.

Overall, TIPCHECK teams surmised that the plant was mostly well insulated, however they did pinpoint some areas where a reduction in heat losses and, therefore a carbon footprint reduction, could be achieved. This was due to equipment being uninsulated or becauase the insulation system had sustained damage; Blank Ends, Valves, Flanges and various sized process piping were identified.

Engineers analysed the numbers and assessed that completing the proposed insulation works would save the client £8,446 and reduce CO_2e emissions by approximately 18 tonnes per annum. And they would see a return on this investment in just 15 months.



The numbers:

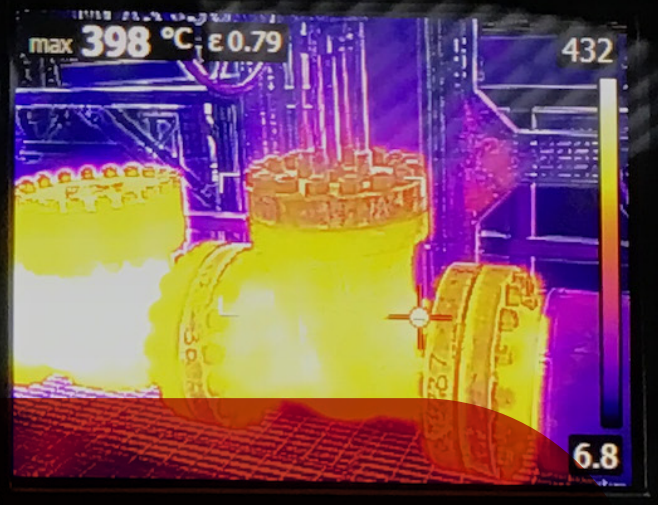
£8,446.00
Cost saving p.a.

18 tonnes
CO_2 emissions reduction p.a.

15 months
Payback period

POWERTHERM
CONTRACT SERVICES LTD

Powertherm Contract Services Ltd is a multidiscipline industrial service provider, that's committed to supporting leaders in decarbonising industrial processes through innovative solutions like Technical Insulation Performance Checks - TIPCHECKs.



Contact us today,

to optimise your insulation systems, and reduce energy consumption, CO2e emissions, & costs.

+44 (0) 114 288 9119

POWERTHERM
CONTRACT SERVICES LTD

Head Office
Francis House
52 Orgreave Drive
Sheffield
S13 9NR

Tel: +44 (0) 114 288 9119

Regional Offices:
Ellesmere Port, Cheshire
Saltend, Humberside
Teesside, Middlesbrough

Email: info@powertherm.co.uk
www.powertherm.co.uk

Our social media: