



European Industrial Insulation Foundation

# Thermal Energy Auditor

Become an EiiF certified TIPCHECK engineer



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Offer thermal energy audits in line with EN 16247/ISO 50002

| Become an expert in analysing the performance of insulation systems

| Help industry to save money, energy and reduce emissions

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**WE POWER SUSTAINABILITY**

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“

You don't know  
what you don't know,  
until you know.

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”

Typical reaction of a client recognizing  
how much money and energy he is wasting  
when reading the results of a TIPCHECK  
thermal energy audit report.

# Get yourself certified as a TIPCHECK engineer

EiiF trained Thermal Energy Auditors help industry to save energy, reduce CO<sub>2</sub> emissions and production costs

The industrial sector accounts for about 37% of the total final energy consumption and around one third of the global GHG emissions, with 60% of the energy efficiency still to be realized. Not only will industry continue to remain one of the major final energy consuming sectors, but its share in the total final global energy consumption will be higher than present levels.

The European Industrial Insulation Foundation (EiiF) aims to secure commitments by industrial corporations, trade associations, and utilities to drive the adoption of insulation as a means to improve industrial sustainability.

Within the framework of its TIPCHECK (Technical Insulation Performance Check) Programme, the EiiF organizes qualification and training courses for insulation engineers to become EiiF certified thermal energy auditors, so called: TIPCHECK engineers. TIPCHECK engineers are trained to ensure high quality thermal energy audits focusing on the thermal performance of insulation systems, and are able to calculate - through the TIPCHECK tools - a facility's savings potential in terms of money, energy, and CO<sub>2</sub> emissions.

The TIPCHECK Programme has already resulted in EU-wide annual energy savings of more than **550.000 MWh/year** and reductions of more than **450.000 t CO<sub>2</sub>** (the equivalent to the annual energy consumption of 44.000 households and the greenhouse gas emissions of 90.000 cars)

## EVALUATE

The amount of money and energy a facility is losing in its current state

## QUANTIFY

The multiple benefits of a cost-effective and sustainable insulation system

## DEMONSTRATE

All the benefits of a more efficient insulation system

More than 100 experts are already certified TIPCHECK engineers.

 [See the list here](#)



# Why TIPCHECKS offer multiple benefits to industry

The TIPCHECK Programme is a non-invasive investigative tool that delivers multiple energy and non-energy benefits to the energy user, supply system and the economy

*"You don't know what you don't know, until you know".*

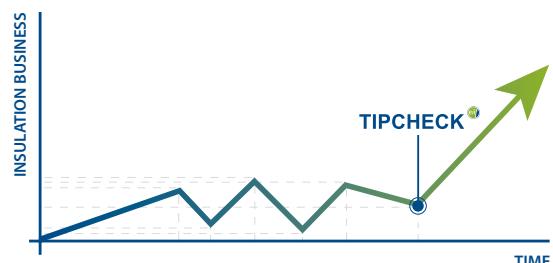
In any industry, the three top operating expenses are often found to be energy (both electrical and thermal), labour and materials. If one were to assess the manageability of the cost or potential cost savings in each of the above components, energy would invariably emerge as a top ranker, and thus energy management function constitutes a strategic area for cost reduction. However clients are not necessarily and always aware how much energy they are wasting, as they usually are not aware how easy and quick it is to stop the energy waste with properly insulated systems/installations.

Industrial insulation is a proven technology delivering multiple benefits:

- › reduces energy and production costs
- › increases energy efficiency
- › reduces CO<sub>2</sub> emissions
- › improves process efficiency
- › reduces safety risks for personnel and equipment
- › increases competitiveness

The aim of the TIPCHECK Programme is to provide industry with a standardized, high quality thermal energy audit tool in line with EN 16247 and ISO 50002 focusing on the thermal performance of technical insulation systems.

In 2016 a first evaluation of 180 TIPCHECKs carried out across several energy intensive industrial sectors (chemical plants, refineries, processing plants, food and beverage, etc.) has already underlined the power of the TIPCHECK programme.



**75%** of the TIPCHECKs lead to insulation investments

**~30 million EUR** was the total insulation contract volume generated by the first 300 TIPCHECKs

The payback periods for the initiated TIPCHECK insulation projects were in most cases **2 years or even less**

 [“Climate protection with rapid payback”](#)  
Energy and CO<sub>2</sub> savings potential of industrial insulation in EU 27 - Ecofys Study 2012

 [“Harnessing the potential of industrial insulation”](#)  
Survey of 180 energy audits - EiF Report 2016



# The proof: Case Studies (3 out of 300)

## # 1. Refinery | Oil storage tank roof

Storage temperature: 60°C / 140°F

### Before

Old and damaged insulation on the roof

CUI problems: roof sheets heavily corroded

The roof had to be replaced

### After the TIPCHECK<sup>®</sup>

Saved ~9.500 MWh of energy / year (**↑80% energy**)

Saved € 430.000 per year

Payback time less than **2 years**

CO<sub>2</sub> emission reduction potential **3.620 t/year**

*Results against uninsulated with an optimised insulation applied with a technical solution avoiding CUI problems*

## # 2. Chemical Plant

Process temperature: from 75°C/ 167°F to 150°C/ 302°F

### Before

650 m of piping with missing or damaged insulation

300 uninsulated pairs of flanges

160 uninsulated valves

3 uninsulated tanks

### After the TIPCHECK<sup>®</sup>

Saved ~11.100 MWh of energy / year (**↑95% energy**)

Saved € 200.000 per year

Payback time less than **1 year**

CO<sub>2</sub> emission reduction potential **2.240 t/year**

## # 3. Refinery

Process temperature: 260°C/ 500°F

### Before

1 uninsulated valve 12'

### After the TIPCHECK<sup>®</sup>

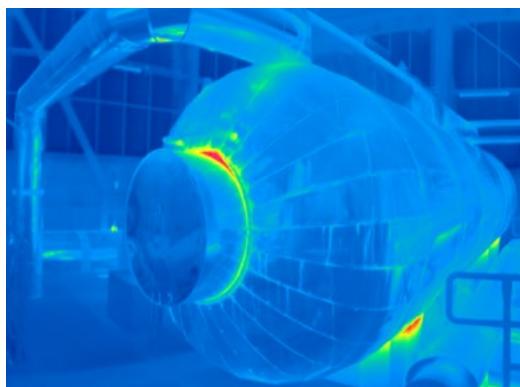
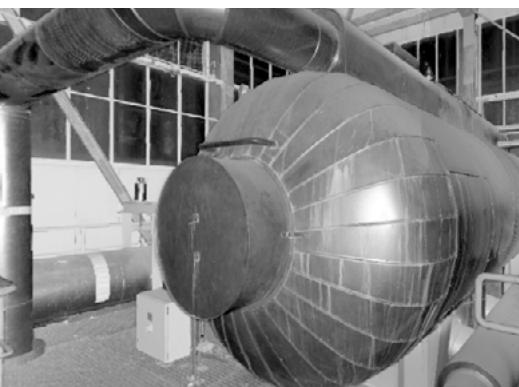
Saved ~114 MWh of energy per year (**↑98% energy**)

Saved € 3.200 per year

Payback time less than **1 year**

CO<sub>2</sub> emission reduction potential **51 t/year**

 [See more Case Studies here](#)



# Structure and contents TIPCHECK Training Package

Since 2010 EiiF has trained more than 100 professionals from some of Europe's most successful insulation related companies.

Our courses are designed to give a competitive advantage: attendees gain the skills, knowledge, and insights to better understand the principles of heat loss calculations and the organisation of an EN 16247/ISO 50002 aligned and standardized thermal energy audit.

Besides the training offers an inspiring and fruitful interaction with some of the best experts and technical insulation professionals: all courses are practical, and 'hands-on', taught by industry experts, in a collaborative and open environment enabling industry peers to exchange ideas and knowledge.

## COURSE CURRICULUM

### 1. About EiiF and TIPCHECK

### 2. TIPCHECK training & simulation

- » TIPCHECK marketing & sales
- » TIPCHECK execution and project management (EN 16247/ISO 50002)
- » How to measure (incl. an introduction to thermography)
- » How to calculate heat losses with the TIPCHECK calculator software
- » Rules of Thumb to quickly estimate saving potentials
- » How to write and present a TIPCHECK report

### 3. TIPCHECK insulation theory

- » Thermal conductivity and basic principles of heat loss calculations
- » Insulation materials and their application (overview)
- » Processes & components offering saving potentials

### 4. Guided tour: FIW München laboratories

## FEATURES

The course offers a range of benefits including:

- › Face-to-face interactive training
- › Complete simulation of a TIPCHECK
- › Practical workshops
- › Small class sizes
- › Industry professionals as trainers
- › Checklists, guidelines and templates
- › Post-training support
- › Regular refreshing online trainings



Candidates who successfully complete the program and pass the final exam receive the **TIPCHECK engineer Certificate**



## WHO CAN ATTEND?

Our training is open to all industrial businesses - from small businesses to large corporations - and are designed for:

- insulation experts with at least 2 years experience in industrial insulation projects
- asset owners and their senior management, their sustainability and environmental staff, operations and facilities managers
- certified energy auditors and energy managers
- consultants

Our courses are also suitable for energy efficiency service providers, industry associations, business groups, local councils and not-for-profit organisations.

## REQUIREMENTS & TITLES

### TIPCHECK assistant

An engineering degree or similar.  
Ability to calculate and design industrial insulation systems. No previous insulation experience is required.

### TIPCHECK engineer

An engineering degree or similar.  
Ability to calculate and design industrial insulation systems. At least 2 years of insulation experience.

### TIPCHECK senior engineer

A TIPCHECK engineer who participated in TIPCHECK Refresher courses, has more than 7 years of insulation experience and did at least 3 big or 5 small TIPCHECKS.

### TIPCHECK ambassador

Sales and marketing specialists of EiF member companies who are joining either the engineer or a tailored communications & sales training (no exam).

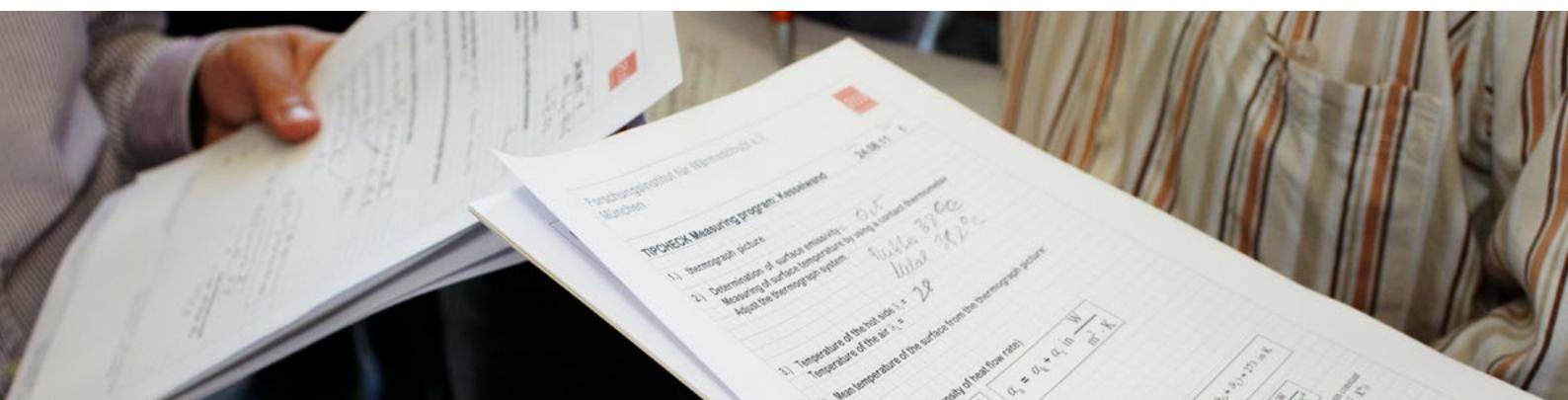
### TIPCHECK auditor

TIPCHECK trainings are also open to non-EiF members if candidates are: certified energy auditors, certified energy managers or employees of an energy-related department of insulation users (exam).

### TIPCHECK scout

TIPCHECK trainings are also open to non-EiF members if candidates are: certified energy auditors, certified energy managers or employees of an energy-related department of insulation users (no exam).

	TIPCHECK assistant	TIPCHECK engineer	TIPCHECK senior engineer	TIPCHECK ambassador	TIPCHECK auditor	TIPCHECK scout
EiF member	●	●	●	●		
Ability to calculate and design industrial insulation systems	●	●	●			
Insulation experience		≥ 2-4 years	≥ 7 years			
Engineering degree or similar	●	●	●			
TIPCHECK course	● with final exam	● with final exam	● with final exam	●	● with final exam	●
TIPCHECK experience			3-5 TIPCHECKs			
Refresher course			●			



## TIMETABLE EXAMPLE: DAY # 2

TIME	SUBJECT	
08.00-09.30	<b>Insulation Theory II</b>	Conductivity & thermal bridges
9.30-10.15	<b>Insulation Theory III</b>	Insulation materials: introduction. CE, standards, thermal conductivity, materials
10.15-10.30	Coffee Break	
10.30-11.30	<b>Laboratory I</b>	Insulation materials. Guided tour FIW, testing applications and material memory
11.30-12.15	<b>Insulation Theory IV</b>	Consequences for calculations depending on the testing methodology
12.15-12.45	Lunch Break	
12.45-13.30	<b>TIPCHECK calculator II</b>	Material import
13.30-14.15	<b>How to TIPCHECK I</b>	TIPCHECK execution & writing of the TIPCHECK report
14.15-15.00	<b>How to TIPCHECK II</b>	Rules of Thumb to quickly estimate saving potentials
15.00-15.30	<b>Q&amp;A</b>	Use of the TIPCHECK calculator
15.30-15.45	Coffee Break	
15.45-16.45	<b>EiiF &amp; Marketing II</b>	Advocacy & insulation marketing strategies for energy efficiency. General background including legislation and standardisation
16.45-17.00	<b>Q&amp;A</b>	EiiF & Marketing

## TRAINING

### 5 day Training schedule

Monday to Friday

### Location

FIW München Laboratories  
Lochhamer Schlag 4  
D-82166 Gräfelfing, GERMANY

### Training fee

**2'000 EUR** (TIPCHECK engineer, assistant, scout/auditor)  
**1'000 EUR** (TIPCHECK ambassador)\*

\* The TIPCHECK ambassador participation is limited to sales and marketing specialists of EiiF member companies who are joining the training together with one or more engineers from the same department / company.



### Upcoming courses

Check the dates of the next  
TIPCHECK Training courses



### Book your place

Download the TIPCHECK  
Registration Form





# WE POWER SUSTAINABILITY

The European Industrial Insulation Foundation (EiiF) is a Foundation headquartered in Switzerland.

As a neutral and non-profit institution, it promotes insulation as a top-of-mind method of enhancing sustainability and profitability.

Since its foundation, the EiiF has established itself as a resource for industries that need to reduce CO<sub>2</sub> emissions and save energy. Its programme raises awareness of the growing, much needed benefits of insulation.

The EiiF was established in 2009 by 12 Founding Partners. Nowadays, it comprises more than 50 leading industrial insulation companies from global player size to small and medium-sized companies.



EiiF Founding Partners & Membership Members  
[See the list here](#)



EiiF also cooperates with a network of institutes, initiatives and organisations.  
[Learn more](#)

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