



Technical Insulation



# ISOVER TechCalc Thermal Calculation software

For energy efficiency and CO<sub>2</sub> savings in Industry and HVAC applications

**ISOVER**  
SAINT-GOBAIN



# TechCalc – Setting new standards in thermal calculation

SAINT-GOBAIN ISOVER has offered insulation systems and guidelines for the optimisation of technical installations for more than 120 years. The company first introduced thermal calculation software tools in the early 1990's. Our long experience and proven competence has enabled us to take the next step, with the launch of TechCalc – a unique international thermal calculation software package that sets completely new standards.



**Thermal calculations** for personal safety and process stability are key tasks. It is essential that planners and engineers choose the right insulation system for industrial and HVAC applications. With rising energy prices and awareness of energy efficiency and CO2 emission savings, thermal calculations are increasingly important tools in meeting our demands for optimisation of energy costs and sustainable design in existing and new installations. Therefore new software tools for thermal calculations must adapt to the changing needs and reflect economic and ecological demands in addition to the standard process calculations.

Easy, efficient and precise planning tool for all Industry and HVAC insulation scenarios.

- Calculation of complete insulated installations and easy comparison of insulation alternatives.
- Based on latest international calculation standards and technical guidelines.
- Intuitive interface with realtime graphical and text-based output.
- Adaptable to any customised needs through open databases for different insulation materials and products.



## Eiif - promoting sustainability through Industrial insulation

ISOVER is one of the first founding members of EiiF, the European Industrial Insulation Foundation. The EiiF was established in 2009 and comprises Europe's leading insulation contractors and manufacturers. As a neutral and non-profit institution it promotes insulation as a top-of-mind method of enhancing sustainability and profitability. Its programme raises awareness of the growing, much needed benefits of insulation and is open for new members.

Industrial insulation is a powerful contributor to a sustainable future. Industry consumes about 26% of the world's energy and produces about 50% of all CO<sub>2</sub> emissions. By employing technical and industrial insulation systems, industries worldwide can reduce energy use, reduce CO<sub>2</sub> emissions, reduce costs, reduce noise radiation and extend plant lifetime.

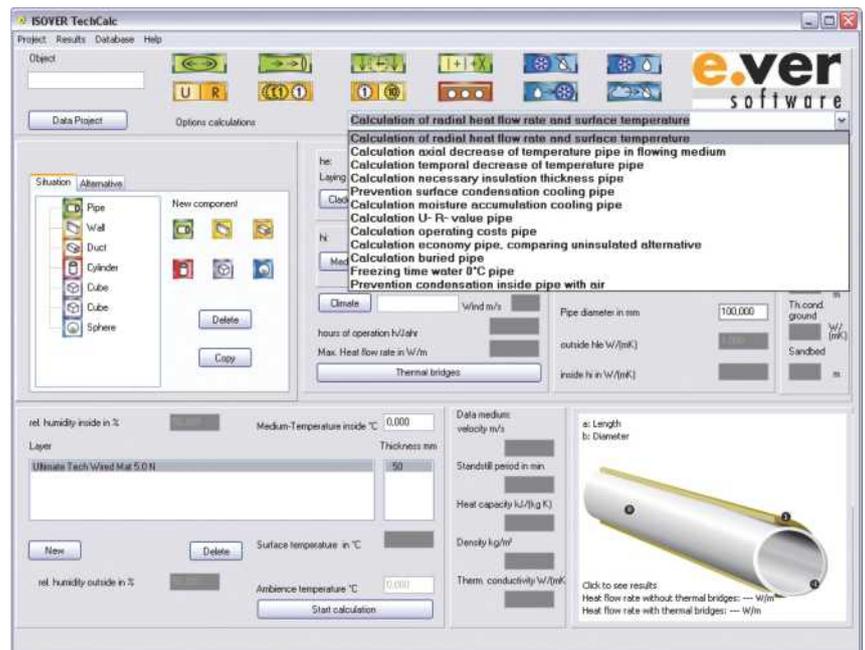
# TechCalc – Covering all thermal calculation scenarios

**Calculating thermal performances** for complex installations is a very demanding and time-consuming task. ISOVER has therefore developed ISOVER TechCalc, a thermal calculation tool to help industrial planners, specifiers and insulation contractors to design thermally efficient constructions quickly, easily and with reliable results.

ISOVER TechCalc uses procedures laid down in **ISO 12241**, and supporting engineering rules such as the **VDI 2055**, as the basis for its thermal insulation calculations. The software brings together decades of practical experience and offers detailed calculation procedures with an easy-to-use interface covering a full range of different scenarios:

## Calculation possibilities

- Thermal heat flow and surface temperature.
- Required insulation thickness depending on thermal heat flow and/or surface temperature.
- Calculation of operating costs, CO<sub>2</sub> savings and amortisation of insulation work.
- Calculation of economic insulation compared to uninsulated alternative.
- Minimum insulation levels required to prevent condensation.
- Drop in temperature over time for inactive/stored media.
- Temperature drop along pipe lines.
- Effect of moisture accumulation on U-values and R-values in cooling and refrigeration pipework.
- Prevention of freezing in water pipes.
- Calculation of heat loss of buried pipes.





# TechCalc – from theory to practice

TechCalc has been specially developed for technical planners and insulation engineers based on the knowhow of ISOVER. TechCalc is perfect for thermal calculation of pipes, ducts, containers, columns and tanks. Secure and trustworthy, it will do what you want, when you want it – quickly and easily.

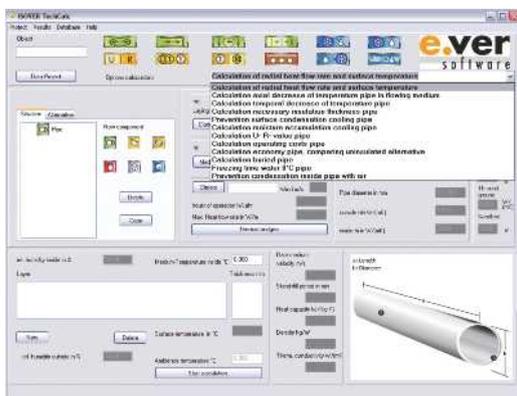
TechCalc is really very easy and intuitive to use. All required inputs are on one single window. The graphical interface is based on the latest international standards and technical guidelines such as ISO, VDI and AGI-Q. Thus, the tool allows very complex calculations with reliable results.



## 1. Choose your profile

With TechCalc you can calculate all standard profiles:

- pipes
- ducts
- walls
- tanks (cylinders, spheres, cubes)

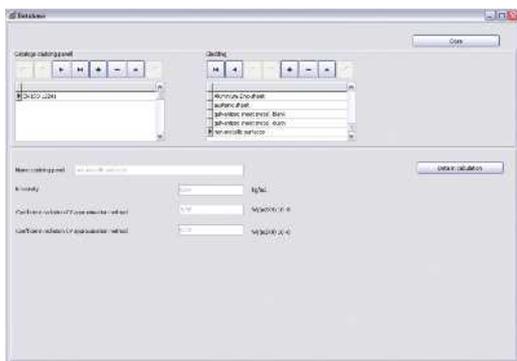


## 2. Choose your calculation method

With TechCalc you can use all standard thermal calculation methods depending on chosen profile.

The selection can be easily done:

- with the help of graphical icons or
- by choosing from the list

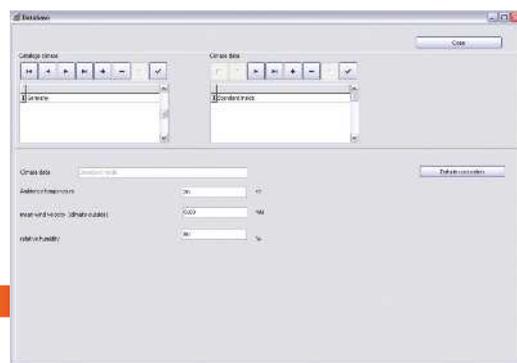


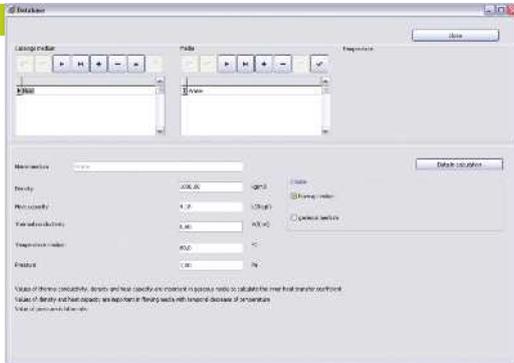
## 3. Choose your claddings

A databank provides you with emissivity values for standard cladding types. Alternatively you can use also a free or predefined emissivity value given by the specification.

## 4. Choose your ambient conditions

TechCalc offers a supporting database with climatic data for various regions and locations. Alternatively it is also possible to use free or predefined values given by the specification.





## 5. Choose your media

A preset of standard media characteristics depending on temperature and/or pressure is available as a supporting database. Alternatively it is also possible to use free or predefined values given by the specification.

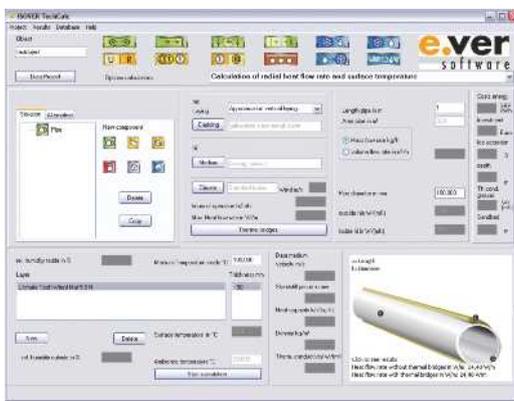


## 6. Choose your insulation

TechCalc includes all ISOVER technical insulation standard products as well as a range of other insulation materials with general values of thermal conductivity and other key performance data. With an open product database the user can easily customise and add other insulation products from a manufacturer's technical datasheet with only a few simple clicks.

## 7. Calculate results

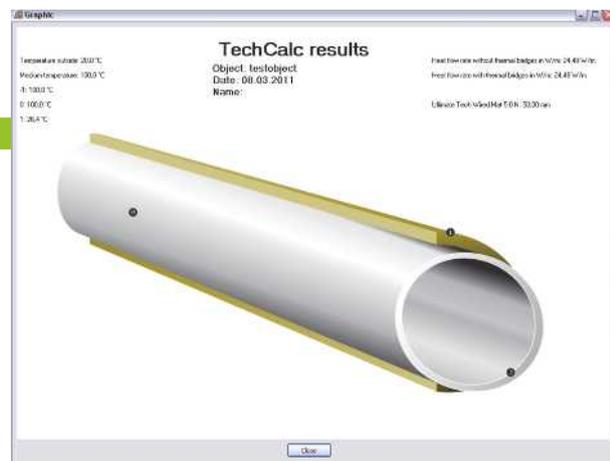
Press "calculate" to get realtime calculation results. Results can be easily modified in the same screen by changing any of the conditions and/or by changing insulation products, thicknesses, layers etc.... By clicking on the graphic, the result can be enlarged.



## 8. Result / output

The final result can be extracted either as a PDF file, graphical display and/or an unformatted text file which can be easily copied into a quotation letter.

Additionally by using the "alternative" function all previous calculations of different profiles are copied. By simply changing the type of installation, a full set of process components or systems can be quickly and easily compared and optimized on thermal efficiency and economic criterias.





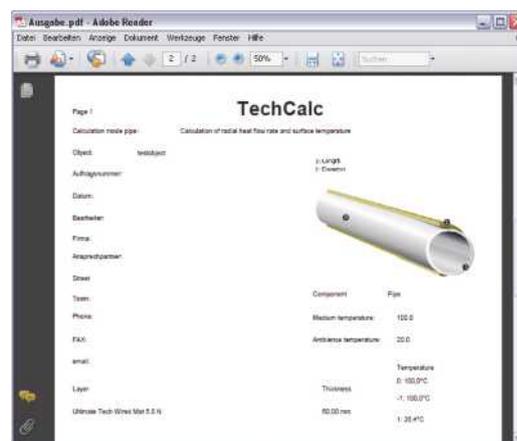
# TechCalc – in brief

## Software layout

- Easy to use graphical interface.
- Complex thermal calculations based on the ISO Norm DIN EN 12'241 and on the VDI 2055 and AGI Q 112 guidelines.
- Open product database and dynamic input. The database is a useful tool for product management. The full product catalogue of ISOVER Technical Insulation products and standard values for other insulation materials is already built-in.

## Calculation scale

- 12 calculation methods (heat flow rate, axial temperature decrease, freezing time, prevention of condensation, required thickness, U value ...).
- 6 profiles (pipe sections, walls, cylinders, spheres, cubes, ducts) that allow all type of volume calculation by combination.
- Easy comparison of different insulation materials and optimisation of insulation systems.
- Allows for up to 5 layers of insulation outside.
- Allows for up to 2 layers of insulation inside.
- Also enables insulation effect of container material to be calculated.
- Different components with different profiles can be added to thermally design a full installation system.
- Easy alternative function allows comparison and optimization of insulation for all installation components.



## Supporting databases:

### Insulation

- open product database
- preset of all ISOVER technical insulation products
- additional standard values of different insulation material

### Climate

- preset of various local climate data such as average temperatures and humidity
- easy to extend and customise

### Medium

- preset of thermal characteristics of frequently used media such as air, water, steam, oil depending on temperature and pressure

### Extensive help

- help function provides background information on calculation principals, calculation methods used and user input required
- software check input automatically indicates errors or irregular input

### Thermal bridges

- extensive catalogue on thermal bridges and their thermal effects
- differentiation of thermal bridges in the installation (e.g. joints) and structures (supports, spacers)

### Cladding

- predefined set of different cladding materials and their emissivity values
- ability to add own cladding materials or free values e.g. given by specification

### Test TechCalc free for 30 days

If you're not satisfied, neither are we.. To understand the full benefits of TechCalc and how it can help you, we invite you to test it for 30 days. To do so:

- 1) Simply go on [www.isover-technical-insulation.com](http://www.isover-technical-insulation.com) and look for the calculation software dedicated web-page to order an unrestricted test licence
- 2) Send an email with your contact details to [Technical-insulation-software@saint-gobain.com](mailto:Technical-insulation-software@saint-gobain.com). You'll receive by return a free test licence number for 30 days.

### Alternatively, to buy the full version straight away:

- 1) Simply go on [www.isover-technical-insulation.com](http://www.isover-technical-insulation.com) and look for the calculation software dedicated web-page, fill the order form and submit or
- 2) Simply fill the order form below and send by fax or email ([Technical-insulation-software@saint-gobain.com](mailto:Technical-insulation-software@saint-gobain.com)). After ordering you will receive an invoice by email. Our licence will be sent as soon as payment is received.

## Order per Fax: Fill in, copy and fax your order to +49 6204 705 404

**Yes, I want to get a great result easily and also to simplify my planning & calculation for technical insulation.**

Please send me: (please choose)

- a full version of TechCalc Version 1.0 for a price of EUR 249,00 (plus VAT)
- update version for a price of EUR 99,00 (plus VAT) (I already have a TechCalc version or other ISOVER calculation tool)

Please indicate your current licence number: \_\_\_\_\_

- I am :  a contractor  a planner for HVAC  a designer for Industry
- a mechanical engineer  a technical distributor  other, please specify: \_\_\_\_\_

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company / position

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