



# USER MANUAL

## Exper-teK



**Please follow the instructions in order to successfully use this advanced Exper-teK tool.**

Start on the home page: <http://www.exper-tek.online/Home.aspx> and follow the steps:

## 1. Choose your language

## 2. Choose the version you wish:

- Pro version is recommended: more features, project management and data saving, multiple diameter for pipes, CO2 emission savings and condensation.
- Light version (if you do not want to register), this version lets you do simple calculations but you cannot save the calculation files.

*Warning: this version will not be maintained.*

Language  
English ▼

**KNAUF INSULATION**  
Technical Solutions

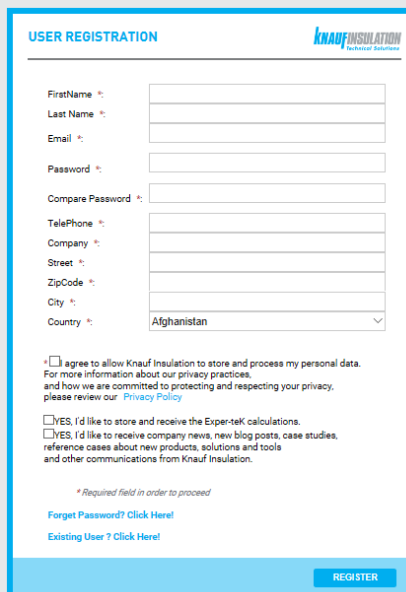
WELCOME TO KNAUF INSULATION **Exper-teK**

**Exper-teK LIGHT**  
Calculation of heat losses and energy costs.  
Simple and intuitive, according to EN ISO/BS  
and VDI certified calculation methods.  
**No Registration Needed**  
**START** ➔

**Exper-teK PRO**  
Additional to LIGHT version (registration  
needed) :  
**Project management, multiple diameters  
calculation for Pipe Sections.  
Condensation, CO2 emissions.**  
**START** ➔

### 3. Registration :

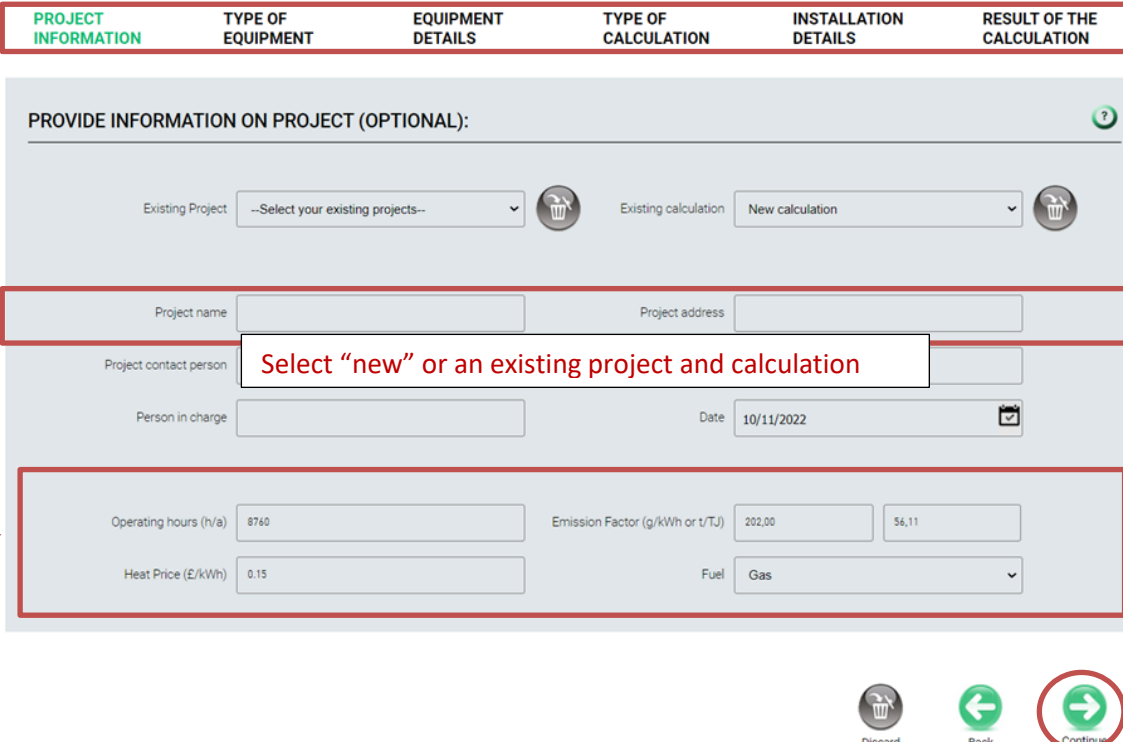
Please fill in the fields and save.



The registration form is titled "USER REGISTRATION" and features the Knauf Insulation logo. It contains several input fields: First Name, Last Name, Email, Password, Compare Password, Telephone, Company, Street, Zip Code, City, and a Country dropdown menu (currently set to Afghanistan). Below the fields are three checkboxes for consent: one for allowing data storage, one for receiving calculations, and one for receiving company news. A "REGISTER" button is at the bottom right. Links for "Forgot Password?" and "Existing User?" are also present.

### 4. Project data tab

Navigation tabs between the different steps of the calculation



The interface shows a series of navigation tabs: "PROJECT INFORMATION", "TYPE OF EQUIPMENT", "EQUIPMENT DETAILS", "TYPE OF CALCULATION", "INSTALLATION DETAILS", and "RESULT OF THE CALCULATION". The "PROJECT INFORMATION" tab is active. Below the tabs, there's a section titled "PROVIDE INFORMATION ON PROJECT (OPTIONAL):". It includes dropdowns for "Existing Project" and "Existing calculation", both with "New calculation" selected. Below these are input fields for "Project name", "Project address", "Project contact person", "Person in charge", and "Date" (set to 10/11/2022). A red box highlights the "Operating hours (h/a)" field (8760), "Emission Factor (g/kWh or t/TJ)" field (202.00), "Heat Price (£/kWh)" field (0.15), and the "Fuel" dropdown (set to Gas). At the bottom, there are three buttons: "Discard", "Back", and "Continue" (highlighted with a red circle).

These data will be used to calculate the energy savings in the relevant currency and CO2 savings according to the fuel and emission factor you use.

For the emission factor, the default data depends on the fuel you use. You can change the value either in g/kWh or in t/TJ if you have more precise data according to your energy source and mix.

5. Type of equipment tab



- PROJECT  
INFORMATION
- TYPE OF  
EQUIPMENT
- EQUIPMENT  
DETAILS
- TYPE OF  
CALCULATION
- INSTALLATION  
DETAILS
- RESULT OF THE  
CALCULATION

TYPE OF EQUIPMENT

Select the equipment for which you want to calculate



Piping  
horizontal



Wall  
horizontal



Equipment round  
horizontal



Duct Horizontal



Piping  
vertical



Wall  
vertical



Equipment round  
vertical



Duct Vertical



Discard



Back




Continue

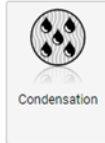
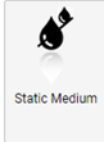
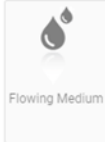
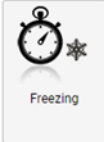
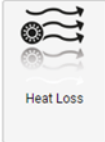

Select material and dimensions


Note : tick the "all diameters" box for multiple diameter calculation in pipes

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## 7. Type of calculation tab


TYPE OF CALCULATION 



CALCULATE OR CHECK INSULATION THICKNESS 

CALCULATE INSULATION THICKNESS

CHECK INSULATION THICKNESS

CHOOSE THE CALCULATION STANDARD 

VDI 2055-1

ISO 12241 (BS 5422)

a. "Type of calculation"

- Surface temperature: Calculation of the surface temperature.
- Heat losses : Calculation of heat losses in  $\text{W/m}$  or  $\text{W/m}^2$  for energy savings
- Freezing : Calculation of the freezing time of the fluid in a pipe
- Flowing medium: Calculation of temperature change between start and end of a pipe or duct with flowing medium.
- Static medium: Calculation of temperature change of a static medium in pipes, vessels and containers.
- Condensation: Check if there is surface condensation or interstitial condensation for a cold medium.

b. "Calculate or check insulation thickness"

Are you looking for thickness optimization or do you want to calculate the losses and temperature with a given insulation thickness?

c. "Choose the calculation standard"

VDI 2055-1 or EN ISO/BS 12241: depending on the norm required in the country of your project.

## 8. Installation details tab

a. Depending on the type of calculation, different data are needed.

- Surface temperature :

-10 Ambient temperature (°C)	Outdoor Inside The Building	0 Wind (m/s)
Water Medium	30 Medium temperature (°C)	1000.00 Density (kg/m³)
4186.00 Heat capacity (J/kgK)	60 Surface temperature (°C)	

- Heat losses :

-10 Ambient temperature (°C)	Outdoor Inside The Building	0 Wind (m/s)
Water Medium	30 Medium temperature (°C)	1000.00 Density (kg/m³)
4186.00 Heat capacity (J/kgK)	0 [W/m] Heat flow density	

- Freezing :

-10 Ambient temperature (°C)	Outdoor Inside The Building	0 Wind (m/s)
Water Medium	30 Medium temperature (°C)	1000.00 Density (kg/m³)
4186.00 Heat capacity (J/kgK)	0.00 Freezing point medium(°C)	50 Freezing time (h)

- Flowing medium :

-10 Ambient temperature (°C)	Outdoor Inside The Building	0 Wind (m/s)
Water Medium	1000.00 Density (kg/m³)	4186.00 Heat capacity (J/kgK)
Medium velocity (m/s)	Start Inlet temperature (°C)	End End temperature (°C)

- Static medium :

-10 Ambient temperature (°C)	Outdoor Inside The Building	0 Wind (m/s)
Water Medium	Medium temperature (°C)	1000.00 Density (kg/m³)
4186.00 Heat capacity (J/kgK)	End End temperature (°C)	% Fill level (%)
26.544322825142842168916 Cooling time (h)		

- Condensation:

INFORMATION ON AMBIENT AND OPERATING CONDITIONS

25 Ambient temperature (°C)	Outdoor Inside The Building	0 Wind (m/s)
Water Medium	10 Medium temperature (°C)	1000.00 Density (kg/m³)
4196.00 Heat capacity (J/kgK)	60 Relative humidity	

b. "Insulant": Exper-tek suggests the most suitable product. You can change it if needed

INSULANT

As you have selected pipe insulation, we suggest the **Thermo-teK PS Pro ALU**, which is already preselected (You can still change the product in the bottom selection box)

	TYPE OF INSULANT	PRODUCT NAME	TDS
1ST LAYER	Pipe section	Thermo-teK PS Pro ALU	

INSULANT

As you have selected pipe insulation, we suggest the **Thermo-teK PS Pro ALU**, which is preselected (You can still change the product in the bottom selection box)

	TYPE OF INSULANT	PRODUCT NAME
1ST LAYER	<div> Lamella mat, resistance  Lamella mat  Mat  <b>Pipe section</b>  Wire mat  x-CMS (über 600 °C) </div>	Thermo-teK PS Pro ALU

INSULANT

As you have selected pipe insulation, we suggest the **Thermo-teK PS Pro ALU**, which is already preselected (You can still change the product in the bottom selection box)


	TYPE OF INSULANT	PRODUCT NAME	TDS
1ST LAYER	Pipe section	<div> Power-teK PB 640 ALU  Power-teK PB 680 ALU  Power-teK PB Sys WM1  Power-teK PC 600  Power-teK PS 450  Power-teK PS 680  Thermo-teK PS Eco  Thermo-teK PS Eco ALU  <b>Thermo-teK PS Pro ALU</b> </div>	




### c. Surface and sub-construction

Enter the surface material if any, or 'mineral wool' if there is no cladding or facing

**SURFACE** ?



- Aluminium bright-rolled
- Aluminium foil, bright
- Aluminium, oxidized
- Aluminum-zinc, smooth polished
- Aluminum-zinc, smooth polished lightly oxidized
- Mineral wool
- Paint-coated sheet metal
- Plastic casing
- Stainless, austenitic steel
- Steel, galvanized bright
- Steel, galvanized dusted

 Emissivity

Then you can –if needed, enter the sub construction, mat holder or air gap data.

**Sub-construction**

SUB-CONSTRUCTION	MATS HOLDER	AIR GAP
Type of construction	<div><div>No Heat Bridges</div><div>Spacer, 30 x 3 mm with thermal separation</div><div>Spacer, 30 x 3 mm spring-mounted</div><div>Spacer, 30 x 3 mm with rebate</div><div>Double support ring, 30 x 3 mm</div></div>	
Material type		
Welded		
Distance heat bridges	<input type="text"/>	(mm)
Supplementary	<input type="text"/>	(W/mK)

**Sub-construction**

SUB-CONSTRUCTION	MATS HOLDER	AIR GAP
Type of installation	<div><div>No air gap between insulant and object and surface</div><div>Air gap only between object and insulant</div><div>Air gap only between insulant and cladding</div><div>Contour-following insulation with local cavities</div><div>Insulation without facing, both insulation layer bordering to a cavity</div></div>	
Inner / outer air gap		
Convection barriers		

### d. Project management


After entering all parameters, you have a choice to either “Calculate and save” or “Calculate”


**SAVE N CALCULATE**

Selected Project

Calculation Name

**SAVE AND CALCULATE**

**PROJECT SUMMARY** 

**CALCULATE** 

In the first option, the project name is the one that was entered in Project tab, and you can select the calculation name on the installation detail tab, then you will be able to restore your data later.

Coming back at the Project tab, you will find all saved projects and calculations

PROVIDE INFORMATION ON PROJECT (OPTIONAL):

Existing Project:

Save and calculate:

Project name:

Project address:

PROVIDE INFORMATION ON PROJECT (OPTIONAL):

Existing Project:

Save and calculate:

You will be able to access a project summary with all calculations related to your project:

SAVE N CALCULATE

Selected Project:  Calculation Name:

Projektname: Test Romain 30 6

Projektadresse:

Ausführende Firma:

**Results**

Heat Loss	0.94 kW
Heat Loss Saving	9.81 kW
Fuel Saving	5,969.11
Co2 Saving	22.88 t/a
Co2 Cost Saving	343.26
Energy Cost Saving	4,295.00

**Components**

description	FuelSaving	Co2 Cost Saving	Saving \$	HeatLoss	HeatLoss Saving in W	Cost Saving \$	TotalCost \$
A	1985.06	7.61	114.15	320.75	3261.05	1428.30	1542.41
B	2003.78	7.68	115.23	290.00	3291.80	1441.80	1557.01
C	1980.27	7.59	113.88	328.63	3253.18	1424.90	1538.71

For further information and clarifications, don't hesitate to contact us on our mail:  
[expertek@knaufinsulation.com](mailto:expertek@knaufinsulation.com) or directly our Knauf Insulation Exper-teK professionals:

LAURA RAGGI: [Laura.Raggi@knaufinsulation.com](mailto:Laura.Raggi@knaufinsulation.com) (Italy, Spain, Latin America and UK)  
DOMINIK LENSING: [Dominik.Lensing@knaufinsulation.com](mailto:Dominik.Lensing@knaufinsulation.com) (Germany, Switzerland, Netherlands and Flanders)  
ROMAIN CARAYOL: [Romain.carayol@knaufinsulation.com](mailto:Romain.carayol@knaufinsulation.com) (France, Wallonie, Bruxelles and Luxembourg)

Manual prepared by Romain Carayol, October 2022

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