



# 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.
- 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.*

exper-tek.online/login.aspx

Language English

**KNAUF INSULATION**  
Technical Solutions

WELCOME TO KNAUF INSULATION **Exper-teK**

**exper-teK**

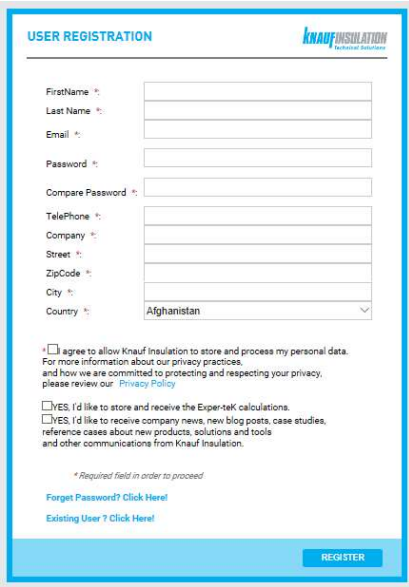
**Exper-teK LIGHT**  
Calculation of heat losses and energy costs – simply and intuitively according to VDI-Certified calculation methods.  
**No Registration Needed**  
**START**

**Exper-teK PRO**  
Additional to LIGHT version (registration needed):  
**Project management: saving and loading, incl. project summary Multiple diameters calculation for Pipe Sections**  
**START**

challenge. create. care.

### 3. Registration :

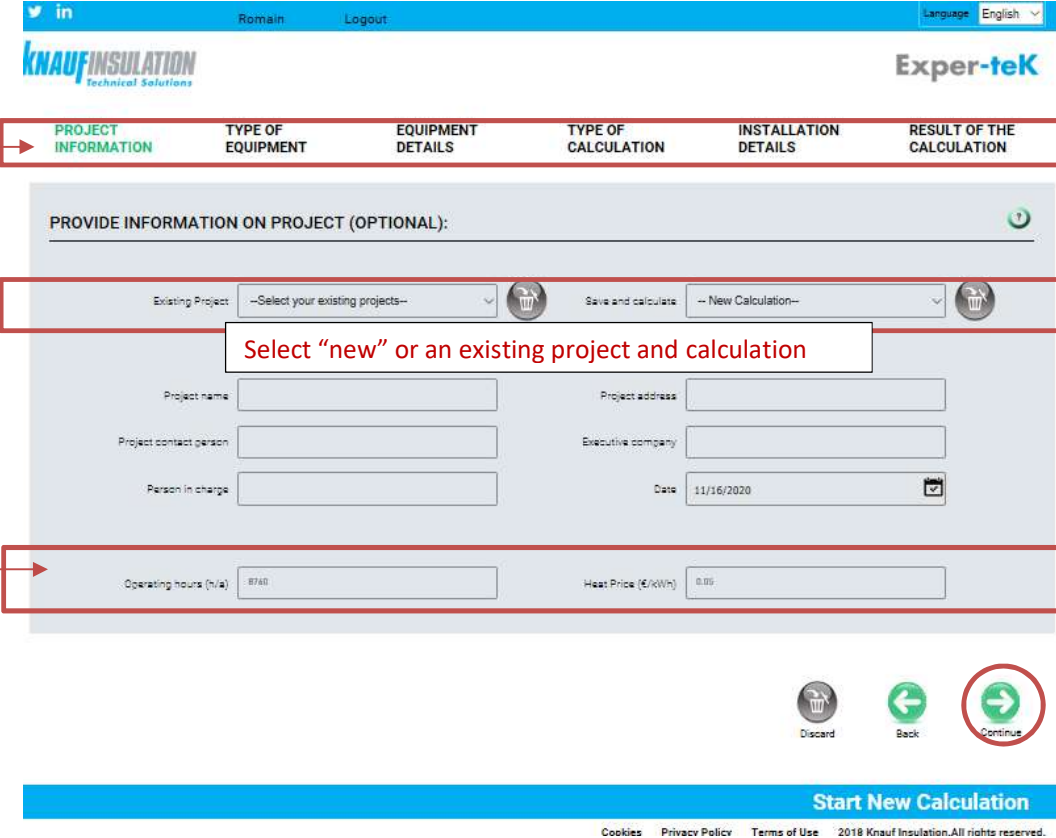
Please fill in the fields and save.



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, there are two checkboxes for terms and conditions, followed by links for "Forgot Password?" and "Existing User? Click Here!". A "REGISTER" button is located at the bottom right.

### 4. Project data tab

Navigation tabs between the different steps of the calculation



The interface shows a navigation bar with 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 is a section titled "PROVIDE INFORMATION ON PROJECT (OPTIONAL):". This section contains a form with fields for "Existing Project" (a dropdown menu), "Save and calculate" (a button), "New Calculation" (a dropdown menu), "Project name", "Project address", "Project contact person", "Executive company", "Person in charge", "Date" (11/16/2020), "Operating hours (h/a)" (BT40), and "Heat Price (€/kWh)" (0.09). At the bottom, there are three buttons: "Discard", "Back", and "Continue". A blue bar at the bottom says "Start New Calculation".

These data will be used to calculate the energy savings in €

5. Type of equipment tab



Exper-teK

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



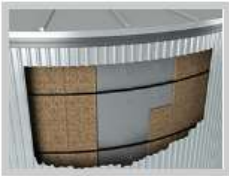
Equipment round  
horizontal



Duct Horizontal



Piping  
vertical



Wall  
vertical



Equipment round  
vertical



Duct Vertical



Discard



Back



Continue

## 6. Equipment details tab

### Select material and dimensions

in
Romain Logout
Language English

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Technical Solutions

Exper-tek

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

### FOR CHANGING THE EQUIPMENT

**Piping horizontal**

**Wall horizontal**

**Equipment round horizontal**

**Duct Horizontal**

**Piping vertical**

**Wall vertical**

**Equipment round vertical**

**Duct Vertical**

EQUIPMENT DETAILS

**Steel**

**Stainless steel**

**Copper**

**Plastic**

Material of the object

No cleamer

DN

100

oD (mm)

114.3


Length (m)

Length (m)

Wall thickness (mm)

3A

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

 ☐ Cylinder From   To

## 7. Type of calculation tab

The screenshot shows the 'Type of Calculation' tab in the Exper-teK software. The interface includes a top navigation bar with social media icons, a user name 'Romain', a 'Logout' button, and a language dropdown set to 'English'. Below the navigation bar, the 'TYPE OF CALCULATION' tab is selected, highlighted in green. The main content area is divided into two sections. The left section, titled 'TYPE OF CALCULATION', contains five icons: 'Surface Temperature' (highlighted in green), 'Heat Loss', 'Freezing', 'Flowing Medium', and 'Static Medium'. Below these icons are two buttons: 'CALCULATE INSULATION THICKNESS' (highlighted in green) and 'CHECK INSULATION THICKNESS'. The right section, titled 'Summary of important data', shows a 3D rendering of a pipe with insulation and lists the following details: Equipment: Piping horizontal, Calculation type: Surface temperature. At the bottom, there are three buttons: 'Discard', 'Back', and 'Continue'.

Twitter LinkedIn Romain Logout Language English

**KNAUF INSULATION** Technical Solutions **Exper-teK**

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

TYPE OF CALCULATION

Surface Temperature Heat Loss Freezing Flowing Medium Static Medium

CALCULATE OR CHECK INSULATION THICKNESS

CALCULATE INSULATION THICKNESS CHECK INSULATION THICKNESS

CHOOSE THE CALCULATION STANDARD

VDI 2055-1 ISO 12241 (BS 5422)

Summary of important data

Equipment: Piping horizontal  
Calculation type: Surface temperature

Discard Back Continue

a. "Type of calculation"

- Surface temperature : Calculation of the surface temperature.
- Heat losses : Calculation of heat losses in W/m or W/m<sup>2</sup> for energy savings
- Freezing : Calculation of the freezing time of water 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.

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 or EN ISO/BS : 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 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 (%)
26.54432282514284216891 Cooling time (h)		

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  
Aluminum foil, bright  
Aluminium, oxidiert  
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  
0.050



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

The first screenshot shows the 'Sub-construction' tab with the 'SUB-CONSTRUCTION' section active. It includes fields for 'Type of construction', 'Material type', 'Welded', 'Distance heat bridges' (in mm), and 'Supplementary' (in W/mK). A dropdown menu for 'Type of construction' is open, showing options: 'No Heat Bridges', 'Spacer, 30 x 3 mm with thermal separation', 'Spacer, 30 x 3 mm spring-mounted', 'Spacer, 30 x 3 mm with rebate', and 'Double support ring, 30 x 3 mm'.

The second screenshot shows the 'Sub-construction' tab with the 'AIR GAP' section active. It includes fields for 'Type of installation', 'Inner / outer air gap', and 'Convection barriers'. A dropdown menu for 'Type of installation' is open, showing options: 'No air gap between insulant and object and surface', 'Air gap only between object and insulant', 'Air gap only between insulant and cladding', 'Contour-following insulation with local cavities', and 'Insulation without facing, both insulation layer bordering to a cavity'.

#### d. Project management

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

The 'SAVE N CALCULATE' section contains a 'Selected Project' dropdown, a 'Calculation Name' dropdown, and three buttons: 'SAVE AND CALCULATE', 'PROJECT SUMMARY', and 'CALCULATE'.

In the first option, If you enter a project name and calculation name, you will be able to restore your data later.

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

The first screenshot shows the 'PROVIDE INFORMATION ON PROJECT (OPTIONAL):' section. It includes a dropdown for 'Existing Project' with a list of projects: 'Romain test 9 8', 'SAIT Genève', 'TEST 1', 'Test Romain 30 6', and 'Test Romain 30 2'. There is also a 'Project name' field with 'Test Romain 30 6' and a 'Project address' field. A 'Save and calculate' dropdown is set to 'C'.

The second screenshot shows the same section with 'Test Romain 30 6' selected in the 'Existing Project' dropdown. The 'Save and calculate' dropdown is open, showing options: 'A', 'B', 'C', and 'New Calculation--'.

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	Fuel Saving	Co2 Cost Saving	Saving \$	Heat Loss	Heat Loss Saving in W	Cost Saving \$	Total Cost \$
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	1557.03
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 general mail: [expertek@knaufinsulation.com](mailto:expertek@knaufinsulation.com) or directly our Knauf Insulation Exper-teK professionals:  
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*Manual prepared by Romain Carayol, November 2020*

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