



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

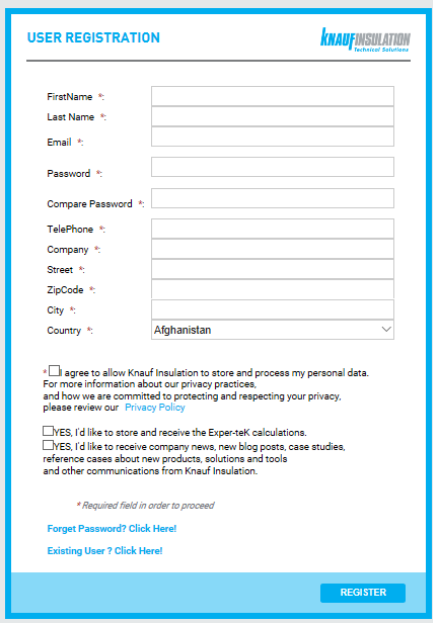
Exper-teK LIGHT
Calculation of heat losses and energy costs – simply and intuitively according to VDI-Certified calculation methods.
No Registration Needed
START →

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 :

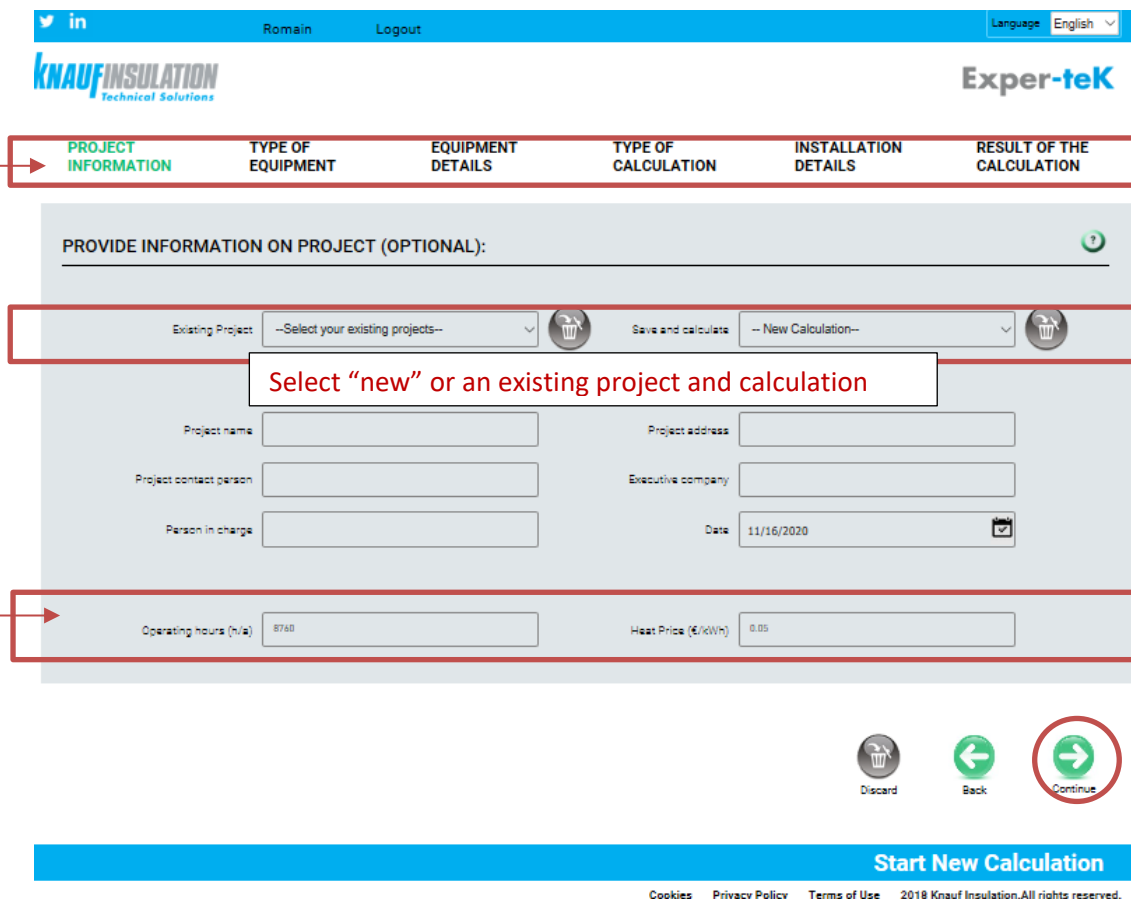
Please fill in the fields and save.



The registration form is titled "USER REGISTRATION" and features the Knauf Insulation logo. It contains several input fields: First Name, Last Name, Email, Password, Confirm Password, Telephone, Company, Street, Zip Code, City, and a Country dropdown menu (currently set to Afghanistan). Below the fields, there are two checkboxes: one for agreeing to data storage and processing, and another for receiving newsletters and updates. At the bottom, there are links for "Forgot Password? Click Here!" and "Existing User? Click Here!", and a "REGISTER" button.

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 two main input areas. The first area has a dropdown for "Existing Project" (with a trash icon) and a "Save and calculate" button, followed by a dropdown for "New Calculation" (with a trash icon). A red box highlights this area with the text "Select 'new' or an existing project and calculation". Below this, there are input fields for "Project name", "Project address", "Project contact person", "Executive company", "Person in charge", and "Date" (set to 11/16/2020). The second input area has fields for "Operating hours (h/a)" (set to 8760) and "Heat Price (€/kWh)" (set to 0.05). At the bottom, there are three buttons: "Discard", "Back", and "Continue" (which is circled in red). A blue bar at the very bottom says "Start New Calculation".

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

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



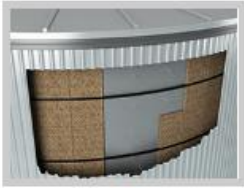
Equipment round
horizontal



Duct Horizontal



Piping
vertical



Wall
vertical



Equipment round
vertical



Duct Vertical



Discard



Back



Continue

6. Equipment details tab

Select material and dimensions

Romain
Logout

Language English ▼

Exper-teK

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

Material of the object

☐ All diameter ON OD (mm)

Length (m)

Length (m)

Wall thickness (mm)

Summary of important data

Equipment
Piping horizontal

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

 ☒ All Diameter From To

7. Type of calculation tab

Twitter LinkedIn Romain Logout Language English

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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^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.

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 Heat flow density (W/m²)	

- 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)		

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)

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

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 Thermo-teK PS Pro ALU</div>
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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, oxidiert
Aluminium-zinc, smooth polished
Aluminium-zinc, smooth polished lightly oxidized
Mineral wool
Paint-coated sheet metal
Plastic casing
Stainless, austenitic steel
Steel, galvanized bright
Steel, galvanized dusted

ϵ

Emissivity
0.050

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

Sub-construction

SUB-CONSTRUCTIONMATS HOLDERAIR GAP

Type of constructionNo Heat Bridges
Spacer, 30 x 3 mm with thermal separation
Spacer, 30 x 3 mm spring-mounted
Spacer, 30 x 3 mm with rebate
Double support ring, 30 x 3 mm

Material type

Welded

Distance heat bridges (mm)

Supplementary (W/mK)

Sub-construction

SUB-CONSTRUCTIONMATS HOLDERAIR GAP

Type of installationNo 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
Insulation without facing, both insulation layer bordering to a cavity

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 AND CALCULATE

Selected Project

Calculation Name

SAVE AND CALCULATE

PROJECT SUMMARY

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

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

[PROJECT SUMMARY](#) [SAVE AND CALCULATE](#) [CALCULATE](#)

Projektname: **Test Romain 30 6**

Projektadresse:

Ausführende Firma:

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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	1557.01
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 general mail: 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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