



**On-rafter insulation
with HECO-TOPIX®-plus:
Well-planned and reliable!**

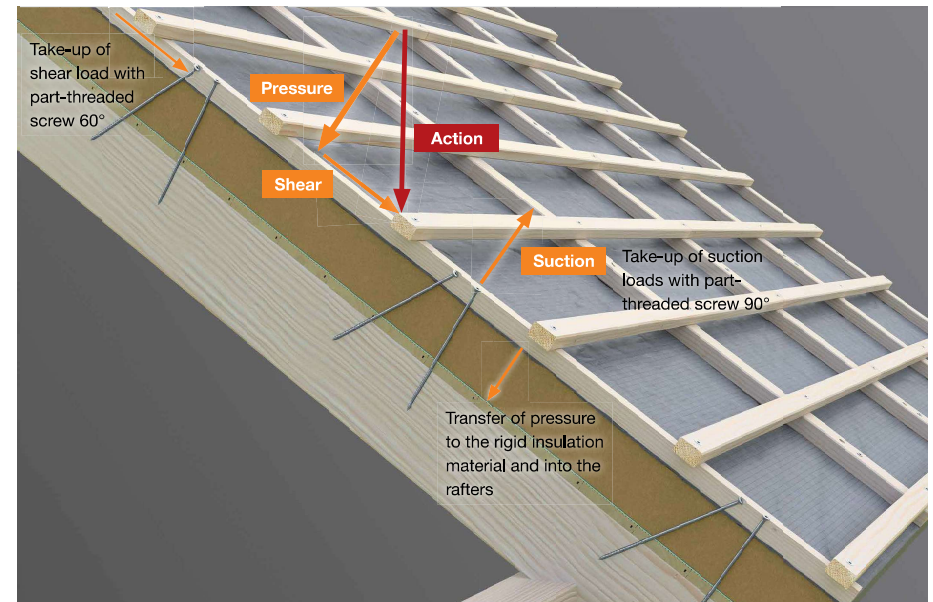
Assessing loads correctly and securing reliably.

When it comes to implementing and planning on-rafter insulation systems, a wide range of factors need to be considered. Actions on the structure from the dead weight, snow loads and wind loads (wind suction + wind pressure) can be divided into vertical and lateral forces. They need to be assessed individually for each project. Additional structures, such as PV systems and snow guards, must not be forgotten either.

A distinction is generally made between soft ($< 50\text{kPa}/< 0.05\text{ N/mm}^2$) and rigid ($\geq 50\text{ kPa}$) insulation materials. Each roof project is different, so exact calculation is essential. Depending on the roof design, region and location, the roof is subjected to different load impacts. We therefore recommend using the free HECO calculation software HCS for each project. The screws and calculation methods required are covered by ETA-19/0553 technical assessment.



Transmission of compressive and shear loads with rigid insulation materials



The right solution for your project!

Depending on the compressive strength of the insulation material, different screws need to be used. The HECO-TOPIX®-plus part-threaded screw is suitable for rigid insulation. The HECO-TOPIX®-plus Therm, on the other hand, is the screw for soft insulation and higher loads. For fastening shear blocks, the HECO-TOPIX®-plus CombiConnect is the ideal choice. Correct advance planning and using the right screws saves time and the quantity of screws required. So you get the job done more efficiently.

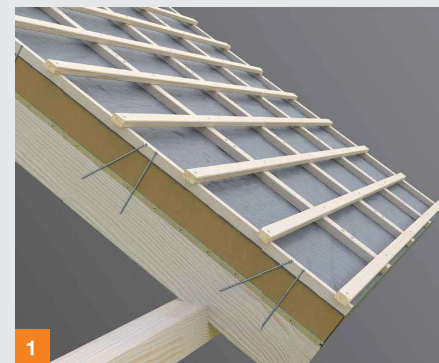
Design values Number of screws Example of a detached house
(9x12m, DN 30°, region: 78713, roof area: 143 m²)

		Suction screws	Shear screws	Number of screws Total	Insulation	Insulation thickness [mm]	Screw recommendation
1	90°-60° fastening	119	258	377	Rigid	120	HECO-TOPIX-plus, countersunk head, part threaded
2	With shear block and abutted counter batten	157	76	233	Rigid	120	HECO-TOPIX-plus, countersunk head, part threaded, CombiConnect
3	With shear block and traversing counter batten	157	266	423	Rigid	120	HECO-TOPIX-plus, countersunk head, part threaded, Therm
4	V fastening	258	258	516	Soft	120	HECO-TOPIX-plus Therm
5	90°-60° fastening	514	514	1028	Soft	120	HECO-TOPIX-plus Therm

This table shows minimum screw lengths for 90°- 60° fastening, 40/60 mm counter batten cross section, 60 mm minimum embedment depth in the rafters.

	Insulation thickness	[mm]	40	60	80	100	120	140	160	180	200
Without boarding	Suction screw	[mm]	140	160	180	200	220	240	260	280	300
	Shear screw	[mm]	160	180	200	240	260	280	300	320	340
Boarding 19 mm	Suction screw	[mm]	160	180	200	220	240	260	280	300	320
	Shear screw	[mm]	180	200	240	260	280	300	320	340	360
Boarding 24 mm	Suction screw	[mm]	180	200	220	240	260	280	300	320	340
	Shear screw	[mm]	200	220	240	260	280	300	320	360	380

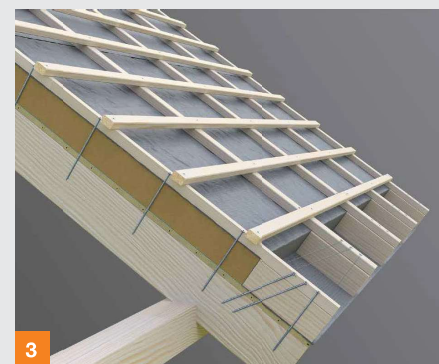
Eaves details with and without shear block



1
90° - 60° fastening with rigid insulation



2
With shear block and impacting counter batten counter batten, rigid insulation



3
With shear block and continuous counter batten, rigid insulation



4
V fastening with soft insulation



5
90° - 60° fastening with soft insulation

Which products do we recommend for your roof insulation?

HECO-TOPIX®-plus Therm

Countersunk head with milling pockets

For easy countersinking of the head into the wood

Underhead thread

Transmits compressive forces directly into the rafter

HECO-TOPIX®-plus tip

Reduces the risk of the wood splitting



GripFit®

HECO-Drive allows you to work one-handed



PerfectPitch®

Optimum thread pitch for every screw length



HECO-TOPIX®-plus Therm

Product information

- Compressive forces are conducted by the underhead thread directly into the rafters
- Calculation certificates via HECO HCS or calculation service
- Underhead thread gives increased load capacity
- Suitable for widely used insulation materials
- Approved and monitored product, CE mark
- Better sound insulation compared to part-threaded screws

Use for on-rafter insulation

- Shear screw for all insulation materials, especially if soft < 50kPa, suction and pressure loads



HECO-TOPIX®-plus Flange screw, part-threaded

Flange head

For high power transmission suitable



HECO-TOPIX®-plus tip

Reduces the risk of the wood splitting

PerfectPitch®

Optimum thread pitch for every screw length



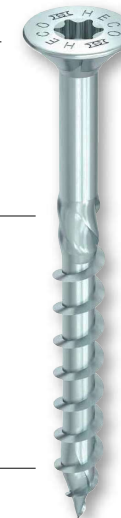
HECO-TOPIX®-plus Countersunk head part-threaded

Countersunk head

For flush countersinking of the head into the wood

Shank ribs

Make for easy, stress-free driving-in



GripFit®

HECO-Drive allows you to work one-handed



PerfectPitch®

Optimum thread pitch for every screw length



HECO-TOPIX®-plus Flange screw

Product information

- Higher load transmission provided by increased clamping surface of the head
- Calculation certificates via HECO HCS or calculation service
- High thread pitch for fast driving
- Chromium (VI)-free coating
- Approved and monitored product, CE mark

Use for on-rafter insulation

- Shear screw for rigid insulation materials, Suction screw



HECO-TOPIX®-plus Countersunk head part-threaded

Product information

- Shank ribs mean low driving torque
- Countersunk head with milling grooves and HD drive
- High thread pitch for fast driving
- Approved and monitored product, CE mark

Use for on-rafter insulation

- Shear screw for rigid insulation materials, suction screw



HECO-TOPIX®-plus CombiConnect

Cylindrical head

For countersinking the head with no splitting of the timber, even with close spacing. Concealed installation is possible.

Clamping effect

Made possible by different thread pitches

HECO-TOPIX®-plus tip

Reduces the risk of the wood splitting



PerfectPitch®
Optimum thread pitch for every screw length



HECO-TOPIX®-plus CombiConnect

Product information

- Transfer of high tensile and compressive forces via the CC thread
- Pulls the components being joined together
- For universal use in new builds and refurbishment work
- Countersinking into the wood is made easy
- Calculation certificates via HECO HCS or calculation service
- Approved and monitored product, CE mark

Use for on-rafter insulation

- Fastening of shear blocks to the eaves



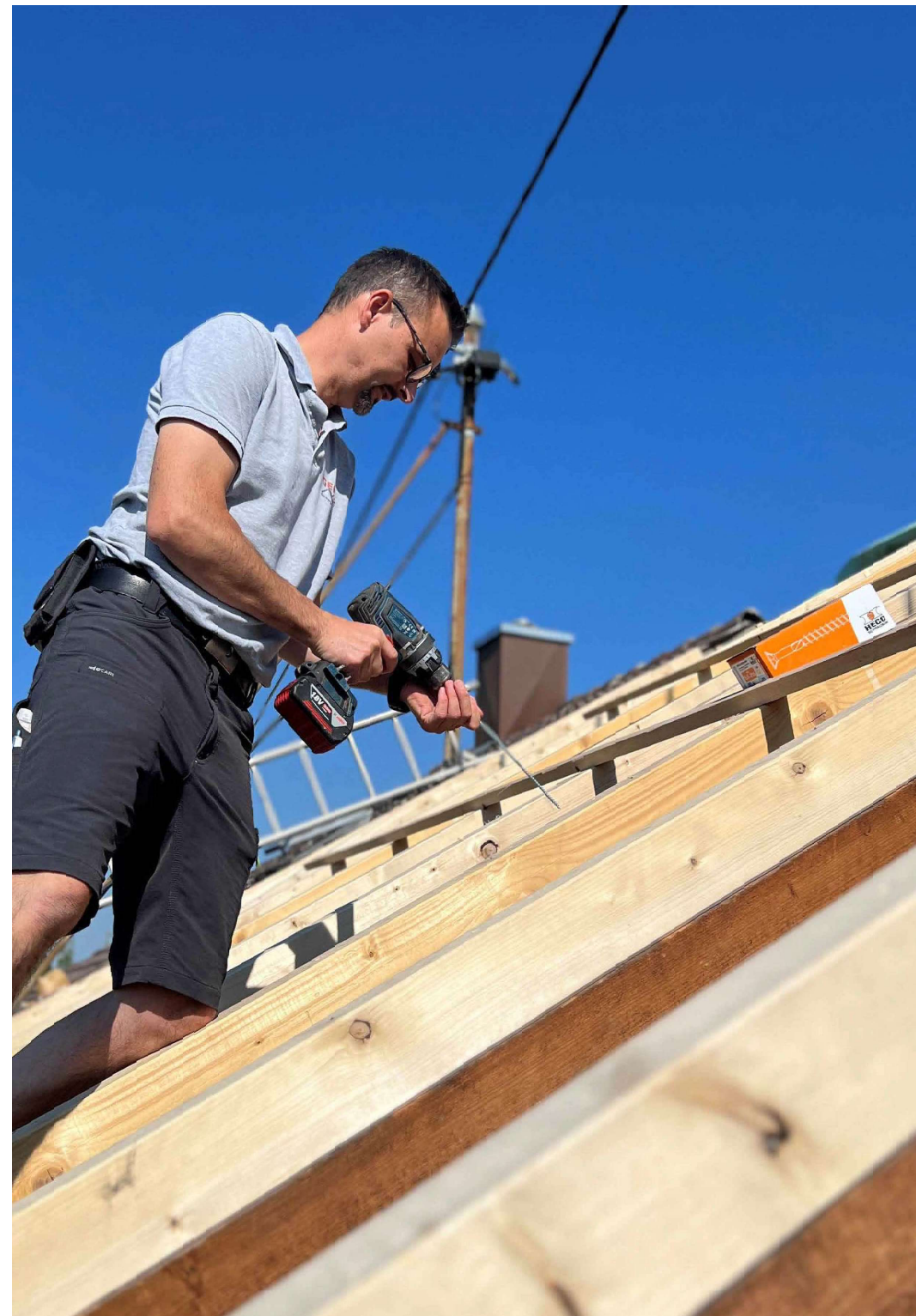
**OUR
TIP**

HECO setting tool for HECO-TOPIX®-plus wood screws

Product information

- Driving aid for easier insertion of wood screws
- 60° and 45° to the surface
- 45° fastening near the edge is also possible
- Scale on base of the driving aid
- Ribs prevent tool from slipping

All product information also available in the online catalogue:
<https://www.heco-schrauben.com/Products/Screws-accessories/>



What factors influence this application?

The wide range of different construction types, load impacts and insulation materials mean that there can be no single calculation recommendation for on-rafter insulation.

For **reliable and efficient planning and calculation**, we therefore recommend using the free HECO calculation software HCS.

Our specialists are able to perform your individual calculation for each on-rafter application.

The calculation forms can be found on the HECO website at

<https://www.heco-schrauben.com/Service/Dimensioning/>

HECO® calculation software HCS

The modules of the HECO calculation software enable you to carry out cost-optimised project planning, and help you to execute your construction job expertly.

- Intuitive user interface
- Quick and clear data input
- Display of the complete range
- Conformity with current standards
- Detailed display of results
- Easy-to-understand evaluation

Simply send the completed calculation forms by e-mail to:

anwendungsberatung@heco-schrauben.de Please remember to give your contact details (telephone number and e-mail address) for any queries you may have.



Load impact of solar panels



Load impact of snow guard



Load impact of snow (dependent on region)



Load impact of roof covering

Service from professionals, for professionals.

We aim to provide you with the best possible support for your requirements. Whether you need advice for your next on-rafter insulation project, or have technical problems to solve, or questions about our innovative "HCS" calculation software – we are here for you. Our dedicated team of experts with their wide range of knowledge and years of experience are at your disposal. We understand that your time is valuable, so we attach great importance to providing a quick response and efficient solutions. You can contact us by phone, e-mail or chat, and we're always ready to help with your issue, usually within one working day. In addition to responding to your questions and solving problems, our range of services also include individual training courses to make sure that you are fully prepared with all the knowledge you need for your next project.





HECO Academy: Our training courses

- Numerous exciting seminars on various subjects
- Online, in-house and on-site seminars
- All the information and the complete range at:
www.heco-schrauben.de/akademie



Contact us!

-  Hotline +49 (0)7422/989-300
-  anwendungsberatung@heco-schrauben.de

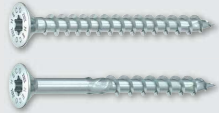

















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**Always the correct
product at hand.**

Whatever the job, the extensive and well-designed HECO-TOPIX®-plus range has the right screw for every application. HD or T drive, head geometries and thread versions for a wide range of applications, full or part threaded, blue galvanised or stainless steel. The galvanised coatings, with a thickness of 8 µm, are generally chromium(VI)-free. In other words: HECO-TOPIX®-plus is as varied as your working day.

Range overview

	Blue galvanised		HECO-TOPIX®-plus countersunk head with milling pockets Full/part threaded PZD, lengths (mm): 10 to 200 Diameters (mm): 2.5 / 3.0 / 3.5 / 4.0 / 4.5 / 5.0 / 6.0 HD, lengths (mm): 12 to 500 Diameters (mm): 3.0 / 3.5 / 4.0 / 4.5 / 5.0 / 6.0 / 8.0 / 10.0		 
	Yellow galvanised				
	Stainless steel A2				
	Blue galvanised		HECO-TOPIX®-plus flange head Full/part threaded T-drive, lengths (mm): 40 to 500 Diameters (mm): 6.0 / 8.0 / 10.0		
	Stainless steel A2				
	Blue galvanised		HECO-TOPIX®-plus flange head XL part-threaded T-drive, lengths (mm): 160 to 400 Diameters (mm): 8.0		
	Blue galvanised		HECO-TOPIX®-plus Therm, countersunk head with milling pockets Underhead thread HD, lengths (mm): 160 to 600 Diameters (mm): 8.0 / 10.0		
	Blue galvanised		HECO-TOPIX®-plus CombiConnect, cylindrical head T-drive, lengths (mm): 100 to 400 Diameters (mm): 6.5 / 8.5		
			HECO-ClickFix Quick-change holder Magnetic anodised aluminium		
			HECO-MagicFlip Magnetic bit holder Holds heavy wood screws securely to the bit		



HECO setting tool
suitable for HECO-TOPIX®-plus wood screws



www.heco-schrauben.com

HECO-Schrauben GmbH & Co. KG

Dr.-Kurt-Steim-Strasse 28, 78713 Schramberg, Germany
Tel. +49 (0) 7422 / 989-0, Fax +49 (0) 7422 / 989-200

A partner of **SFS**



For over 20 years, Ecological Building Systems has been at the forefront of environmental and sustainable building products supplying a range of innovative airtightness solutions and natural insulations backed up with expert technical support.

As product suppliers in the UK and Ireland, we're happy to assist you with your projects and have expert technical and sales advice on hand.



Call us

Great Britain +44 (0)1228 711511

Ireland +353 46 9432104



Email us

info@ecologicalbuildingsystems.com



Find us

Great Britain Ecological Building Systems UK Ltd.,
Cardewlees, Carlisle, Cumbria, CA5 6LF,
United Kingdom

Ireland Ecological Building Systems Ltd.,
Main Street, Athboy. Co. Meath, C15 Y678,
Republic of Ireland