

Eurotec®
The specialist for fastening technology

OVERVIEW

WOOD CONSTRUCTION SCREWS



www.eurotec.team/en

ECS CALCULATION PROGRAM



The professional Eurotec Calculation Software (abbr.: ECS) is used for the **static pre-dimensioning of Eurotec** fastening and connecting means and supports you in configuring your individual projects. We are happy to save planners and implementing parties the pre-dimensioning work by providing a free design service.

The ECS design software covers the areas of **structural timber construction, timber-concrete connections and timber engineering**. The software also serves as a useful foundation for the fastening of wood-steel attachments. The dimensioning of objects, junctions or details takes place in the corresponding modules. You can request access credentials for the software's use free of charge on our website at www.eurotec.team/en.



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WE ALSO TRAIN YOUR EMPLOYEES!

In order to continue to meet any requirement, we always strive to offer our customers a comprehensive range of services.

We love to share our subject-specific expertise and many years of practical experience. We offer you and your customers both online and in-house seminars and also like to occasionally provide training on site.



OUR TECHNICAL TEAM WILL BE HAPPY TO ADVISE YOU!

Do you have any questions
about our Eurotec wood
construction screws?
Contact our specialists now!



1 STRUCTURE OF A WOOD CONSTRUCTION SCREW

MILLING RIBS

For easy countersinking into all types of timber



RIDGED SHANK

For pre-milling the wood for the shank

THREAD TYPES

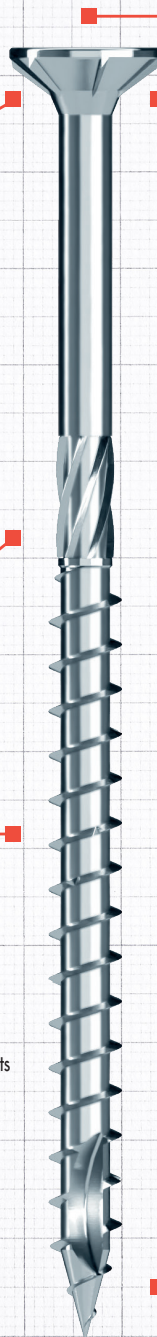
Double thread – maintains space between structural timber components



Full thread – for absorbing high tensile and compressive forces



Partial thread – for non-positive connections between several structural timber components



TX DRIVE

- No hitting of the screws during screwing in
- High torque transmission



HEAD TYPES

Countersunk head



- Disappears into the timber
- Sits flush with the surface

Washer head



- Increases the surface area, so higher head pull-through values are possible

Ornamental head



- Small inconspicuous head
- Ideal for visible screw fittings

Cylinder head



- Disappears into the timber
- Inconspicuous head for double and fully threaded screws

SCREW TIPS

Self-clearing groove



- Quick and easy screwing in

AG



- Reduced screw-in torque
- Reduced splitting effect

DAG



- Reduced screw-in torque
- Reduced splitting effect
- The screw "grips" better

Drill tip



- Reduced screw-in torque
- No pre-drilling required



2 MATERIAL AND COATING

Eurotec invests in high-quality materials and surface coatings to ensure long-term durability and corrosion resistance. These properties are of critical importance as they extend the fasteners' service life and improve their performance in a variety of applications – for long-lasting connections in anything from wood construction projects to industrial use cases.



HARDENED CARBON STEEL + BLUE/YELLOW GALVANISED FINISHES

- Suitable for service classes 1 and 2 in accordance with DIN EN 1995 (Eurocode 5)
- Good resistance to mechanical stress
- Not suitable for timbers that contain tannins



HARDENED CARBON STEEL + SPECIAL COATING 1000

- Suitable for service classes 1 and 2 in accordance with DIN EN 1995 (Eurocode 5)
- Withstands up to 1,000 hours of salt-spray testing in accordance with DIN EN ISO 9227 NSS
- Corrosion category C4 long/C5-M long in accordance with DIN EN ISO 12944-6
- Good resistance to mechanical stress
- Not suitable for timbers that contain tannins



HARDENED STAINLESS STEEL

- Stainless steel in accordance with DIN 10088 (magnetisable)
- Limited acid resistance
- 10 years of experience without corrosion problems using suitable timbers
- 50% higher breaking torque than A2 and A4
- Suitable for service classes 1, 2 and 3
- Not suitable for timbers that are high in tannins such as cumaru, oak, Merbau, robinia etc.
- Not suitable for saline or chlorous atmospheres



STAINLESS STEEL A2

- Limited suitability for saline atmospheres
- Limited acid resistance
- Not suitable for chlorous atmospheres
- Suitable for service classes 1, 2 and 3
- Limited suitability for timbers that are high in tannins



STAINLESS STEEL A4

- Suitable for timbers that contain tannins
- Suitable for saline atmospheres
- Acid resistant
- Suitable for service class 1, 2 and 3
- Not suitable for chlorous atmospheres





3 SCREW PRODUCTION

OUR PRODUCTION CAPABILITIES

Whatever your requirements are, you can get everything from a single source from us. We use a variety of production processes such as **punching and stamping, cold forming, injection moulding and extrusion technologies**. Screws in lengths of up to 4000 mm are manufactured using **fully automatic machines**.



PRODUCTION POSSIBILITIES

- Screws from 40-4000 mm, with diameters between 3-14 mm
- Single, double or reduced thread
- Milling tips
- A range of materials
- A variety of coatings
- Individual customer requirements



ENVIRONMENTAL AWARENESS

No oil on the floor, no exhaust fumes in the air and energy that is generated on our own roof. We are committed to compliance with the legal and regulatory requirements within an economic framework and the promotion of environmentally conscious behaviours.





4 OUR WOOD CONSTRUCTION SCREWS

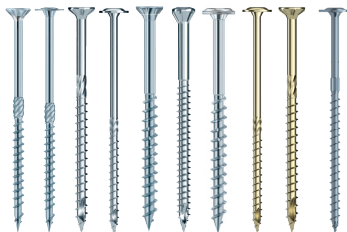
OUR BESTSELLERS



PANELTWISTEC

OUR VERSATILE SCREW

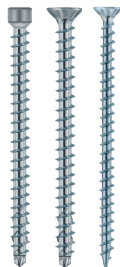
Paneltwistec are **wood construction screws with a special screw tip and milling ribs** above the thread. The **cutting notch** on the screw tip ensures that it **grips quickly and reduces the splitting effect during screwing in**. Paneltwistec AG on the other hand features a **folded-down thread**, which **reduces the screw-in resistance**. Paneltwistec wood screws are available with countersunk, ornamental or washer heads as well as in coated carbon steel and a number of stainless steels.



KONSTRUX FULLY THREADED SCREW

THE POWERFUL SOLUTION FOR BOTH NEW CONSTRUCTIONS AND RENOVATIONS

KonstruX fully threaded screws **maximise the load-bearing capacity of the connections** thanks to the high thread-extraction resistance present in both structural components. When partially threaded screws are used, the significantly lower head pull-through resistance in the attachment part limits the connection's load-bearing capacity. KonstruX fully threaded screws **represent a cost-saving alternative to traditional connections** or timber connectors such as joist and beam hangers.



KonstruX 13 mm



KonstruX DUO



TOPDUO ROOFING SCREW

THE WOOD CONSTRUCTION SCREW FOR EVERY ABOVE-RAFTER INSULATION SYSTEM

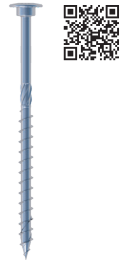
With the Topduo roofing screw, both **pressure- and non-pressure-resistant rafter insulations can be fastened**. The high extraction resistance in both connecting timbers is what also makes the Topduo attractive for many other wood construction applications. The screw has a **double thread** and is available with washer and cylinder head.



SAWTEC

WOOD CONSTRUCTION SCREW MADE OF HARDENED CARBON STEEL

The SawTec screw is a wooden construction screw **with a special screw tip and saw teeth** under the head. The screw has a **two-stage cylinder head**. The special geometry of the screw tip ensures a **reduction in the screw-in torque** and also leads to a **reduced splitting effect** during installation.



BLUE-POWER SYSTEM SCREW*

FOR THE FASTENING OF WOODEN SUBSTRUCTURES TO CONCRETE OR MASONRY

The Blue-Power facade fastening system offers an efficient solution for the **quick fastening of wooden substructures to concrete or masonry**. The system screws effortlessly cope with the tensile and shear forces, especially in applications involving facade insulations. The insulation material takes up some of the shear forces and requires a **compressive strength** of at least **50 kPa at 10 % compression**. For **maximum stability**, the **C24 batten cross-section** should measure at least **30 x 50 mm**.



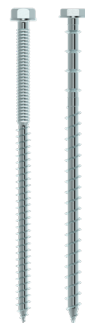
*Not regulated by ETA

TIMBER-CONCRETE CONNECTION SCREW TCC

FOR THE STRUCTURAL UPGRADING OF FLOOR SLABS IN NEW CONSTRUCTIONS AND RENOVATIONS

Construction projects with **large spans and high service loads** require a **high degree of rigidity**. Wood-beamed ceilings quickly reach their limits here. Innovative timber-concrete connections created with connection screws enable the effective use of the best properties of both wood and reinforced concrete, which results in structures with a high load-bearing capacity.

The system is used in **new buildings** for increased spans and in **renovations** for buildings with changes of use. Advantages include **the increased load-bearing capacity, higher degree of stiffness, improved sound insulation and increased fire resistance**. Renovations benefit from the preservation of the existing beams and often also the formwork – which is economically and ecologically advantageous. The **timber-concrete connection system** is a pioneering choice for demanding construction projects.



4 OUR WOOD CONSTRUCTION SCREWS

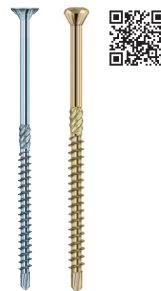
MORE WOOD CONSTRUCTION SCREWS



HOBOTEC

FOR CLEAN CONNECTIONS BETWEEN WOOD AND WOOD

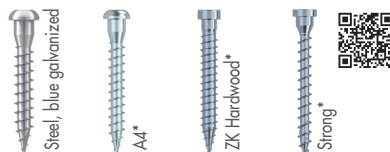
Hobotec screws enable the simple, fast and clean joining of **timber-timber connections**. These screws are particularly suitable for **applications with an increased risk of cracking and splitting**. The novel thread and **innovative drill-point tip** bit ensure a **clean fit as well as high extraction values**. The Hobotec screws are available in hardened stainless steel and galvanised steel.



ANGLE-BRACKET SCREWS

FOR QUICK AND EASY SCREWING IN

Angle-bracket screws are generally used in conjunction with corner connectors, angles or other fittings to ensure stable and durable timber constructions.



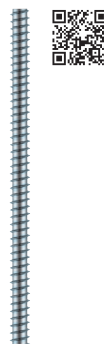
*Not regulated by ETA yet

BRUTUS THREADED ROD

FULLY THREADED ROD FOR THE TRANSVERSE TENSILE REINFORCEMENT OF LAMINATED WOOD

BRUTUS threaded rods are used both in **new constructions** (in the production of binders) and during **renovations**. While they enable **larger spans or slimmer wood cross-sections** in new constructions, during renovations, they help to **secure the existing structures**. This means that many beams do not have to be replaced or duplicated in a time-consuming manner, even though they are riddled with obvious cracks. However, expert assessment is required here in any case.

BRUTUS threaded rods can be **shortened to any desired length** and are predrilled to 13 mm. When creating the drill holes, care must be taken to ensure that the screw maintains the correct direction. The BRUTUS threaded rod is **used for transverse tension reinforcements on notches and openings, on transverse connections and hall trusses**.



LBS CONSTRUCTION SCREW

HARDWOOD SCREW FOR THE FASTENING OF ELEMENTS MADE OF BEECH
LAMINATED VENEER TIMBER

The Eurotec LBS construction screw is a wood screw used to connect **components made of beech laminated veneer timber to each other** or to connect attachment parts made of other **timbers, timber-based materials and steel to them**. The LBS construction screw is suitable for **use in load-bearing structures in the service classes 1 and 2**. Due to the optimised **antifriction coating**, it is ideally suited for use in hardwood. The special thread geometry and particularly high breaking torque mean the screw can be installed without pre-drilling.



ECOTEC/ECO-BLACK-TEC

CHIPBOARD SCREW FOR INDOOR APPLICATIONS

The EcoTec **chipboard screw** is a wood construction screw that is mainly used in **indoor settings**. It is available in galvanised, hardened carbon steel and in A2. In addition, it is available both with partial threads for non-positive connections between several structural timber components as well as with full threads for absorbing high tensile and compressive forces.



WING-TIPPED PROFILE DRILLING SCREW*

FOR THE FASTENING OF NARROW PROFILES

The wing-tipped profile drilling screw made of hardened stainless steel or carbon steel is a screw that has been **specially designed for the fastening of narrow profiles**. The screw has a **drill tip with special wings** and a countersunk head with TX drive. These screws are characterised by the option of being used **without pre-drilling**, since the wings create a drill hole size that is bigger than the thread diameter. The wings drill both the core hole and the counter thread in the steel itself.



*Not regulated by ETA

4 OUR WOOD CONSTRUCTION SCREWS

MORE WOOD CONSTRUCTION SCREWS



SPACER SCREW/SPACER SCREW MINI

FOR THE FASTENING OF WOODEN SUBSTRUCTURES FOR WALL AND CEILING CLADDINGS

The spacer screw is suitable for the fastening of wooden substructures for wall and ceiling claddings as well as for ridge and hip batten installations. In contrast to conventional screws, the spacer screw features **two separate threads at the head and tip**. Thanks to the head thread, the counter batten to be fastened is held (at a distance). **The thinner tip thread is used for fastening the screw to the substructure**. To prevent the counter batten from splitting, we recommend predrilling the counter batten (drilling diameter = \varnothing dh – 2 mm).



JUSTITEC

FOR SECURING WOOD SUBSTRUCTURES IN WALL AND CEILING CLADDING

The Justitec screw is a **self-drilling screw** designed for **wood-to-wood connections at a distance**. After installation, the distance between the drilled component and the anchoring base can be continuously adjusted. The Justitec screw is made of hardened, galvanized, and lubricated carbon steel, **featuring a cutting notch** at the screw tip and a countersunk head.



OSB FIX

YELLOW GALVANISED CARBON SCREW

The OSB Fix is a **yellow galvanised carbon steel screw** with a countersunk head and full thread. The fully threaded screw has a 60° countersunk head with **milling ribs** and **TX drive** as well as a so-called tip with a cutting notch (Type 17). The screw's special geometry ensures a **reduced splitting effect** during screwing in.



CHOICE OF SCREW STEELS ACCORDING TO THEIR CORROSION RESISTANCE

STEP BY STEP

Choose the right screw material for your project by following these principles. Follow the three points one after the other. For points 1 and 2, the appropriate material is labelled with at least an (X) or better still with an X. Where there are additional chemical stresses, point 3 must also show a corresponding match.

1. How is the component positioned? Is it exposed to the weather (fence), or is it protected (ceiling beams)?
2. Which timber type is being attached? Is it problem-free construction timber or tropical timber that is rick in tannins?
3. Are additional corrosive stresses present on site? Is the construction site near the sea? Heavy industry etc.?

Example: Attaching a facade made of Douglas fir

1. Usage class = 3, as constantly exposed to the weather.
Facade = visual requirements → at least C1
 2. Douglas fir → at least C1 but A2 or A4 are preferable
 3. This point is omitted because there are no further external stresses.
- Selection: C1 is possible but A2 or A4 are preferable.

Steel group	Carbon steel		Corrosion-resistant steel, martensitic	Corrosion-resistant steel, austenitic	
	Electrogalvanised	Specially coated	C1; hardened stainless steel	Stainless steel A2	Stainless steel A4
Product examples	Panelwister AG Panelwister blue/yellow	Panelwister 1000	Panelwister ES hardened	Panelwister A2	Panelwister A4
1. Component position?					
NKL 1 ^{a)}	X	X	X	X	X
NKL 2 ^{a)}	X	X	X	X	X
NKL 3 ^{a)}	-	(X) ^{b)}	X	X	X
2. Timber type? ^{d)}					
Construction timber wood-based materials ^{e)}	X	X	X	X	X
Beech (red beech)	X	X	X	X	X
Douglas fir	-	-	(X) ^{e)}	X	X
Spruce	X	X	X	X	X
Pine	X	X	X	X	X
Larch	-	-	(X) ^{e)}	X	X
Coniferous wood, pressure-treated	(X) ^{b)}	(X) ^{b)}	(X) ^{b)}	(X) ^{b)}	X
Fir	X	X	X	X	X
3. Additional chemical stresses?					
Persistent condensation ^{f)}	-	-	-	(X) ^{b)}	X
Salt load ^{g)}	-	-	-	(X) ^{b)}	X
Aggressive atmospheres ^{h)}	-	-	-	-	(X) ⁱ⁾
Chlorinated atmospheres ^{j)}	-	-	-	-	-

- a) Usage classes according to EN 1995. NKL 1 components in partially heated buildings that are enclosed on all sides NKL 2 components in covered, open structures without direct exposure to the weather. NKL 3 constructions that are exposed to the weather.
- b) Only recommended for fastening points that are of minor importance or for temporary objects or where there are no visual requirements.
- c) It is generally recommended to pre-drill and, if necessary, pre-countersink in hardwoods. In terrace and facade constructions, this also applies to softwoods.
- d) Untreated: spruce, fir, pine. Glue-laminated timber, KVH®, solid structural timber, laminated veneer timber, solid wood, etc. Plywood, OSB, fibreboard, cement and gypsum fibreboards etc.
- e) In our experience, there are no problems with corrosion or wood discolouration when using this wood and C1. Depending on the

wood's origin, however, this cannot be completely ruled out. Please speak to your timber merchant for advice.

- f) Persistent condensation in a water vapour atmosphere with only a minor degree of contamination.
- g) Components near roads that are heavily affected by winter services, in coastal areas, in offshore or other industrial facilities.
- h) E.g. components in road tunnels, pigsties or other aggressive atmospheres possibly with additional high humidity levels.
- i) Components near indoor swimming pools or in other chlorine-containing atmospheres.
- j) Every application must be checked on a case-by-case basis.

This overview cannot cover all use cases. In individual cases, materials can also be assigned to unfavourable environmental conditions.

5 ADVANTAGES OF OUR WOOD CONSTRUCTION SCREWS

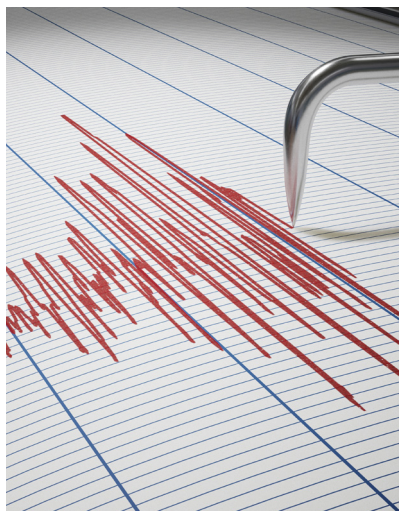
EARTHQUAKE BEHAVIOUR

EUROTEC PANELTWISTEC 8.0 MM AND TOPDUO IN TOP "EARTHQUAKE CLASS" S3

For use in earthquake areas, connection means may be assigned to so-called **low-cycle ductility classes**. Depending on their "earthquake performance", the class designations are S1, S2 or S3 in ascending performance order.

For this purpose, the screws are installed in **up to 3 cycles** and alternately bent at a certain angle. For each cycle, it is checked whether at least 80% of the mean yielding moment ^{a)} of an **unbent screw** of the same type is still achieved. If this is the case, the screws may be classified in accordance with the respective ductility class. **Despite their high strength, these screws are ductile, i.e., flexible enough** to be "bent back and forth" several times without this resulting in a brittle failure. In the event of an earthquake, this increases the likelihood that a timber-to-timber connection, for example, would yield "softly" **rather than fail abruptly**. This can be a deciding factor as to whether potential damage to life, limb and property occurs.

^{a)} The yielding moment describes the screw's resistance to bending, i.e., its bending stiffness.



EXCERPT FROM THE TEST REPORT OF THE KARLSRUHE INSTITUTE OF TECHNOLOGY (KIT)

Torque load capacity in Nm, Paneltwistec Countersunk head AG Ø 6,0 x 120 mm

No.	Testing S3		Criterion 1		Criterion 2	
	Monotone	Cyclical	$M_{0,8}$	Compliant	α_{max}	Compliant
1	15,2	13,6	12,0	Yes	45°	Yes
2	15,0	12,7		Yes		Yes
3	14,8	13,4		Yes		Yes
Mean value	15,0	13,2				

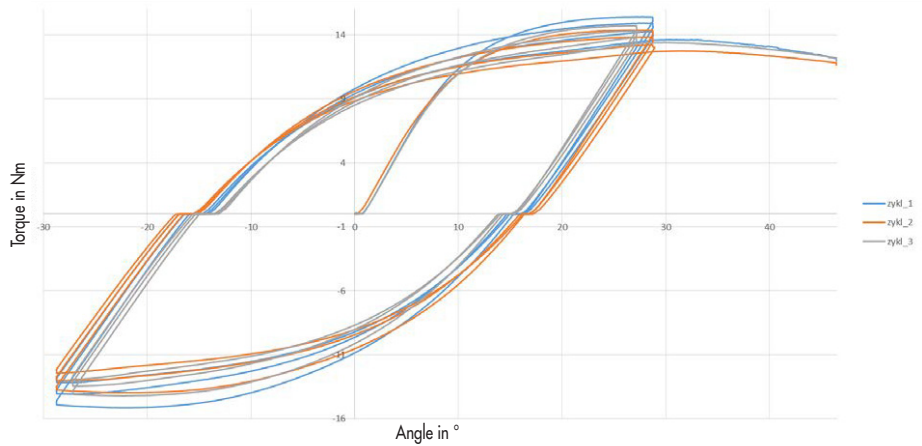
$M_{0,8} = 0.8 \times \text{mean value of the monotonic test}$

Torque load capacity in Nm, Paneltwistec Countersunk head AG Ø 8,0 x 160 mm

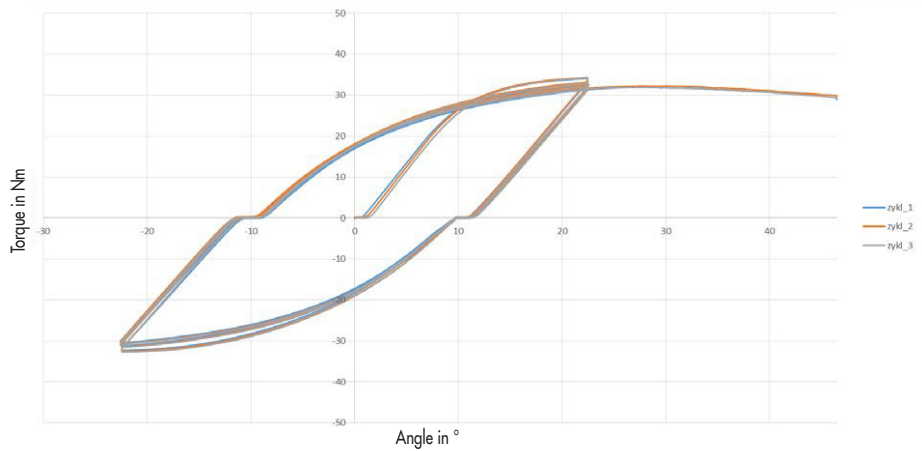
No.	Testing S3		Criterion 1		Criterion 2	
	Monotone	Cyclical	$M_{0,8}$	Compliant	α_{max}	Compliant
1	33,0	31,9	26,6	Yes	45°	Yes
2	33,4	32,3		Yes		Yes
3	33,4	31,9		Yes		Yes
Mean value	33,3	32,0				

$M_{0,8} = 0.8 \times \text{mean value of the monotonic test}$

LOAD DISPLACEMENT DIAGRAM
PANELTWISTEC COUNTERSUNK HEAD AG Ø 6,0 X 120 MM



LOAD DISPLACEMENT DIAGRAM
PANELTWISTEC COUNTERSUNK HEAD AG Ø 8,0 X 160 MM



5 ADVANTAGES OF OUR WOOD CONSTRUCTION SCREWS

IMPACT WRENCH

PERMISSIBILITY FOR WOOD CONSTRUCTION SCREWS

Is the installation of the screws by means of an impact wrench permissible?

The screw-in method (continuous rotation or tangential impact) of wood construction screws is regulated neither under EN 14592 nor by the European Technical Assessments (ETA). However, it is tedious for users to manually screw in long screws, so that the question arose whether the use of a tangential impact wrench might be permissible. To answer this question, Eurotec wood construction screws made of carbon steel with a nominal diameter of 8.0 mm **were subjected to comparative tests**. In each case, the screws were installed both manually and using a tangential impact wrench. Their pull-out resistance and tensile strength were then tested.

In doing so, it was demonstrated that the screw-in method used had no significant effect on the screw's load-bearing capacity or the pull-out resistance.

Eurotec wood construction screws made of carbon steel with a partial or full thread can therefore also be driven into solid wood, laminated timber, laminated beams or coniferous laminated veneer timber **using an impact wrench to create soft screw joints**.



PULL-OUT RESISTANCE FROM CONIFEROUS WOOD WITH $\alpha=90^\circ$

	No.	Konstruk 8,0 x 195 mm		Panelwistec SK® 8,0 x 300 mm	
		Screwdriver	Impact wrench	Screwdriver	Impact wrench
Individual values [kN]	1	16,4	18,7	13,0	13,4
	2	17,2	18,4	14,4	14,8
	3	15,7	15,6	12,2	12,6
	4	17,1	16,8	13,5	14,0
	5	17,9	21,4	17,6	13,8
	6	15,4	16,0	14,2	15,6
	7	18,8	18,6	12,6	12,5
	8	14,7	13,9	13,5	12,3
	9	17,1	17,4	12,6	12,9
	10	16,1	15,7	15,2	14,6
Mean value [kN]		16,6	17,3	13,8	13,7
Standard deviation [kN]		1,20	2,12	1,61	1,08
Coefficient of variation [%]		7,23	12,3	11,6	7,94
Installation depth [mm]			112		95

*Panelwistec Countersunk head

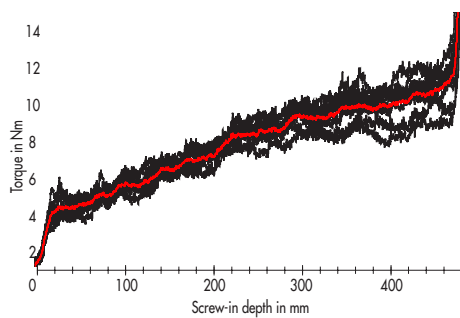
TENSILE LOAD CAPACITY

	No.	KonstruX 8,0 × 480 mm		Panelwistec TK [®] AG 8,0 × 600 mm	
		Screwdriver	Impact wrench	Screwdriver	Impact wrench
Individual values [kN]	1	31,3	30,8	25,9	26,0
	2	31,3	31,1	26,1	26,2
	3	31,5	31,2	26,2	26,0
	4	31,3	31,2	25,8	25,9
	5	31,2	31,2	25,8	26,1
	6	30,9	31,2	25,6	25,2
	7	31,2	30,6	26,2	25,9
	8	31,2	31,2	26,0	25,7
	9	31,3	31,3	26,2	26,1
	10	31,0	31,3	26,2	26,0
Mean value [kN]		31,2	31,1	26,0	25,9
Standard deviation [kN]		0,152	0,239	0,210	0,286
Coefficient of variation [%]		0,487	0,767	0,809	1,104

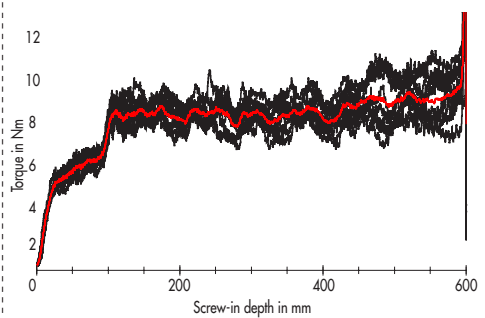
[®]Panelwistec washer head

SCREW-IN TORQUE DIAGRAM

KonstruX 8,0 × 480 mm



Panelwistec TK AG 8,0 × 600 mm



FOR MORE INFORMATION, SCAN THE QR CODE
AND TAKE A LOOK AT OUR CATALOGUE OF WOOD
CONSTRUCTION SCREWS!



Eurotec®

The specialist for fastening technology



25
OVER YEARS



DISCOVER
OUR PRODUCTS

