

CONNECTING ELEMENT

WOOD CONNECTOR SCREWS/THREADED NAILS/ROD DOWELS



GH SCREWS AND THREADED NAILS

TECHNICAL FEATURES

Geometry

$\varnothing_{[mm]}$	Diameter of connecting element
$L_{[mm]}$	Length of connecting element

Load directions

$F_v \downarrow$	Value of load capacity for shearing per shear joint of the connecting element [kN]
$F_{ax} \rightarrow$	Value of load capacity when pulling out the connecting element [kN]

Design

R_d	Design value of load capacity [kN]
R_k	Characteristic value of load capacity [kN]
KLED	Classes of load impact duration according to EN 1995-1-1, chapter 2.3.1.2



Galvanised steel



Stainless steel with material number



Usage class 1
Moisture content in the building materials that corresponds to a temperature of 20° C and a relative humidity of the ambient air that only exceeds a value of 65% for a few weeks per year, e.g. in the case of buildings that are closed on all sides and heated.
Comment: In UC 1, the average moisture content of most softwoods does not exceed 12 %.



Usage class 2
Moisture content in the building materials that corresponds to a temperature of 20° C and a relative humidity of the ambient air that only exceeds a value of 85% for a few weeks per year, e.g. in the case of open buildings covered by a roof.
Comment: In UC 2, the average moisture content of most softwoods does not exceed 20 %.



Usage class 3
Includes climatic conditions that lead to higher moisture contents than in UC 2, e.g. structures that are exposed to the weather without protection. Eurocode 5 / DIN EN 1995-1-1 section 2.3.1.3

GH SCREWS AND THREADED NAILS

APPLICATIONS

Application:

Connections in timber with steel sheet formed parts up to 6.0 [mm] Material thickness. GH threaded nails and GH wood connection screws are used for connections of two- or three-dimensional timber connectors up to 6.0 [mm] material thickness, in load-bearing timber constructions without pre-drilling in compliance with the edge and centre spacing according to Eurocode 5, or the corresponding ETA of the connector.

Design

Threaded nail Ø 4.0 [mm]
Design as a thick sheet: $Ab\ t_{thick} \geq 1.5$ [mm]
Design as a thin sheet: $Ab\ t_{thin} \geq 0.9$ to 1.5 [mm]

Threaded nail Ø 6.0 [mm]
Design as a thick sheet: $Ab\ t_{thick} \geq 3.0$ [mm]
Design as a thin sheet: $Ab\ t_{thin} \geq 2.0$ to 3.0 [mm]

GH wood connection screws Ø 5.0 [mm]
Design as a thick sheet: $Ab\ t_{thick} \geq 2.0$ [mm]
Design as a thin sheet: $Ab\ t_{thin} \geq 1.5$ to 2.0 [mm]
Linear interpolation can take place between t_{thin} and t_{thick}

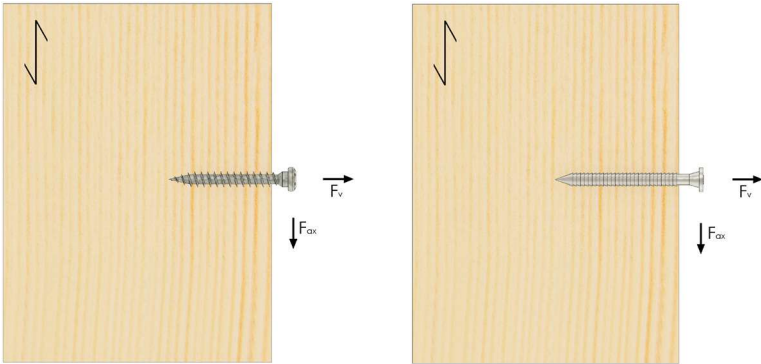
For use in usage classes



Timber qualities

Construction beech
GH threaded nails 4.0 x 35 mm is approved for fixing in construction beech, without pilot drilling.

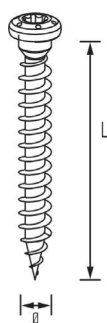
Load directions



Minimum spacing

Spacing		Minimum spacing			
		Without pilot drilling		With pilot drilling	
		Parallel to the grain	Right-angle to the grain	Parallel to the grain	Right-angle to the grain
a ₁	in grain direction	10d	5d	5d	4d
a ₂	Right angle to the grain direction	5d	5d	3d	4d
a _{3,t}	End grain with stress	15d	10d	12d	7d
a _{3,c}	End grain without stress	10d	10d	7d	7d
a _{4,t}	Loaded edge	5d	7d	3d	5d
a _{4,c}	Unloaded edge	5d	7d	3d	3d

For other brackets than those specified between force and grain see EN 1995-1-1 Tab. 8.2



GH SCREWS

FOR TIMBER CONNECTORS

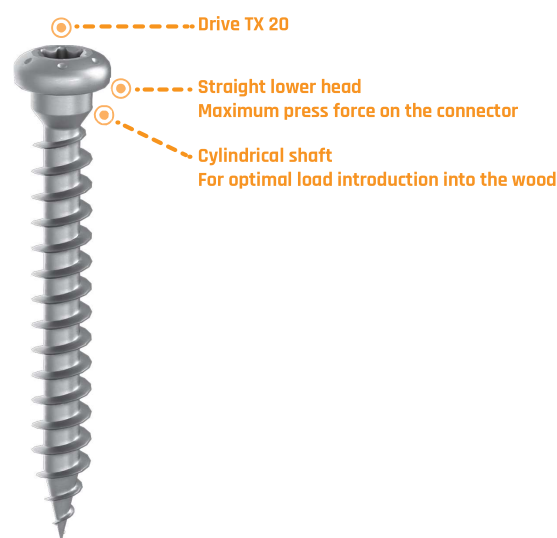
Art. No.	Dimensions [mm]			TX	EAN	Weight kg	Pallet	PU
	Ø	x	L					
505025	5,0	x	25	TX20	400050	0.231	145000	500
505035	5,0	x	35	TX20	400005	0.323	145000	500
505040	5,0	x	40	TX20	400012	0.356	145000	500
505050	5,0	x	50	TX20	400029	0.427	72000	200
505060	5,0	x	60	TX20	400036	0.480	58000	200
505070	5,0	x	70	TX20	400043	0.554	58000	200

The **GH timber connector screw** can be used as an alternative to anchor/threaded nails due to its special geometry with approval for fastening to timber connectors. In solid timber and board plywood, the GH wood connector screw achieves higher load-bearing capacity values than anchor or threaded nails.

Special features of the GH wood connector screw

- Approved for fixing GH wood connectors as an alternative to the threaded nail
- Special head geometry with cylindrical lower head for optimum load distribution
- Only screw with approval in OSB (from 12 mm plate thickness)
- Connection can be released again
- This is the only screw to be used for a wide range of connections to timber components:
 - Plywood according to EN 636 or ETA
 - Solid wood boards according to EN 13353 and EN 13986
 - Board plywood according to ETA
 - Veneered wood according to EN 14374 or ETA
 - Timber material according to ETA¹
 - Tensioning plates of technical classes P4 to P7 according to EN 312 or ETA
 - OSB/3 and OSB/4 according to EN 300 or ETA

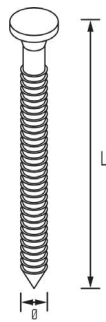
¹ If the ETA of the product contains specifications for the use of self-cutting screws, the specifications of the ETA for the timber material shall apply.



Art. No.	Dimensions [mm]			Rk [kN]		Design value Rd according to KLED [kN]				
	Ø	X	L			Constant	Long	Medium	Short	Very short
505025	5	X	25	F _v	1,41	0,65	0,76	0,87	0,98	1,19
				F _{ox}	1,10	0,51	0,59	0,68	0,76	0,93
505035	5	X	35	F _v	1,83	0,84	0,98	1,12	1,26	1,55
				F _{ox}	1,63	0,75	0,88	1,00	1,13	1,38
505040	5	X	40	F _v	2,00	0,93	1,08	1,23	1,39	1,70
				F _{ox}	1,89	0,87	1,02	1,16	1,31	1,60
505050	5	X	50	F _v	2,14	0,99	1,15	1,31	1,48	1,81
				F _{ox}	2,42	1,11	1,30	1,49	1,67	2,04
505060	5	X	60	F _v	2,27	1,05	1,22	1,39	1,57	1,92
				F _{ox}	2,94	1,36	1,58	1,81	2,04	2,49
505070	5	X	70	F _v	2,40	1,11	1,29	1,48	1,66	2,03
				F _{ox}	3,47	1,60	1,87	2,13	2,40	2,93

Screws d=5 mm according to EN 1995-1-1 + ETA

THREADED NAILS

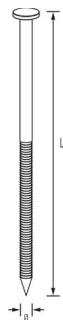


Art. No.	Dimensions [mm]			EAN	Weight	Pallet	Outer box	PU
	Ø	x	L					
				4019346	kg			
403	4,0	x	35*	210093	3.400	120000	3000	250
404	4,0	x	40	210017	4.200	120000	3000	250
405	4,0	x	50	210024	5.200	120000	3000	250
406	4,0	x	60	210031	6.100	120000	3000	250
407	4,0	x	75	210048	7.600	120000	2000	250
408	4,0	x	100	210055	10.200	90000	2000	250
606	6,0	x	60	210062	14.500	50000	1000	250
608	6,0	x	80	210079	19.000	50000	1000	250
601	6,0	x	100	210086	23.000	40000	1000	250

GH threaded nails with embossed information on the nail head for static verification.

* Approval for fixing in construction beech, without pilot drilling

RAFTER NAILS



Art. No.	Dimensions [mm]			EAN	Weight	Pallet	PU
	Ø	x	L				
				4019346	kg		
39600080	6,0	x	80	230008	0.019	20000	250
39600110	6,0	x	110	230015	0.026	20000	250
39600150	6,0	x	150	230022	0.035	10000	250
39600180	6,0	x	180	230039	0.042	10000	100
39600210	6,0	x	210	230046	0.049	10000	100
39600230	6,0	x	230	230053	0.053	10000	100
39600260	6,0	x	260	230060	0.060	10000	100
39600280	6,0	x	280	230077	0.065	10000	100
39600300	6,0	x	300	230084	0.069	10000	100
39600330	6,0	x	330	230091	0.076	10000	100
39600360	6,0	x	360	230107	0.082	10000	100

Art. No.	Ø	X	L	Rk [kN]		Design value Rd according to KLED [kN]				
						Constant	Long	Medium	Short	Very short
403	4	X	35	F_v	1,68	0,77	0,90	1,03	1,16	1,42
				F_{ox}	0,75	0,35	0,40	0,46	0,52	0,63
404	4	X	40	F_v	1,88	0,87	1,01	1,16	1,30	1,59
				F_{ox}	0,90	0,42	0,48	0,55	0,62	0,76
405	4	X	50	F_v	2,21	1,02	1,19	1,36	1,53	1,87
				F_{ox}	1,20	0,55	0,65	0,74	0,83	1,02
406	4	X	60	F_v	2,36	1,09	1,27	1,45	1,64	2,00
				F_{ox}	1,50	0,69	0,81	0,92	1,04	1,27
407	4	X	75	F_v	2,51	1,16	1,35	1,55	1,74	2,13
				F_{ox}	1,80	0,83	0,97	1,11	1,25	1,52
408	4	X	100	F_v	2,81	1,30	1,52	1,73	1,95	2,38
				F_{ox}	2,40	1,11	1,29	1,48	1,66	2,03
606	6	X	60	F_v	3,96	1,83	2,13	2,44	2,74	3,35
				F_{ox}	2,25	1,04	1,21	,38	1,56	1,90
608	6	X	80	F_v	4,75	2,19	2,56	2,93	3,29	4,02
				F_{ox}	3,15	1,45	1,70	1,94	2,18	2,67
601	6	X	100	F_v	4,98	2,30	2,68	3,06	3,45	4,21
				F_{ox}	3,60	1,66	1,94	2,22	2,49	3,05

Threaded nails according to EN 1995-1-1 + ETA