

PRODUCT DATA SHEET

KONSTRUX ST A4

PRODUCT DESCRIPTION

KonstruX ST A4 **maximise a joint's load-bearing capacity with a high thread-extraction resistance in both components.** If partially threaded screws are used, the joint's load-bearing capacity is limited by the considerably lower head-pullthrough resistance in the attached part.


Suitable for use in wood/wood joints, both indoors and outdoors. The application areas of KonstruX ST A4 can be found on **playgrounds, balconies**, in sun protection in the form of a pergola as well as in **hydraulic engineering**, e.g. jetties and piers outdoors.

CERTIFICATION

- Regulated by European Technical Certification ETA-11/0024



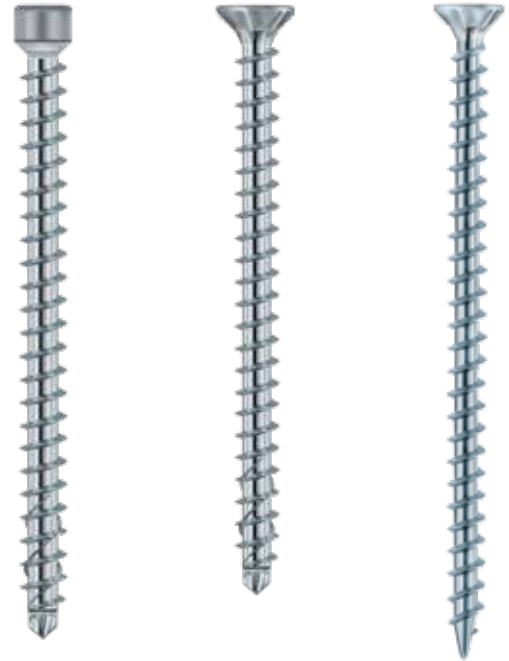
ADVANTAGES

- Can be used in service classes 1 to 3 according to DIN EN 1995 - Eurocode 5 (A4 T5/CRCIII. **Suitable for heavily polluted urban and industrial areas and > 0.25 km from the coastline.**) 
- Suitable for woods containing tannins and salty atmospheres
- Corrosion-resistant and conditionally acid-resistant
- Good resistance in moderately aggressive environments that do not contain chlorine

APPLICATION IMAGE



Application example KonstruX ST A4



KonstruX ST A4,
cylinder head

KonstruX ST A4,
countersunk head
Ø 8 mm

KonstruX A4,
countersunk head
Ø 10 mm

MATERIAL

- Austenitic high-grade steel A4 1.4401



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PRODUCT TABLE

Art. no.	Dimensions Ø d x L [mm]	Drive	PU
KonstruX ST A4 countersunk head Ø 8 mm			
944795	8,0 x 95	TX40 ●	50
944792	8,0 x 125	TX40 ●	50
944793	8,0 x 155	TX40 ●	50
944794	8,0 x 195	TX40 ●	50
KonstruX A4 countersunk head Ø 10 mm			
905750	10,0 x 160	TX50 ●	25
905751	10,0 x 200	TX50 ●	25
905752	10,0 x 220	TX50 ●	25
905753	10,0 x 240	TX50 ●	25
905754	10,0 x 260	TX50 ●	25
905755	10,0 x 280	TX50 ●	25
905756	10,0 x 300	TX50 ●	25
905757	10,0 x 350	TX50 ●	25
905758	10,0 x 400	TX50 ●	25
905759	10,0 x 450	TX50 ●	25
905760	10,0 x 500	TX50 ●	25
KonstruX ST A4 cylinder head			
944780	6,5 x 140	TX30 ●	100
944781	6,5 x 160	TX30 ●	100
944782	6,5 x 195	TX30 ●	100
944783	8,0 x 155	TX40 ●	50
944784	8,0 x 195	TX40 ●	50
944785	8,0 x 220	TX40 ●	50
944786	8,0 x 245	TX40 ●	50
944787	8,0 x 270	TX40 ●	50
944788	8,0 x 295	TX40 ●	50
944789	8,0 x 330	TX40 ●	50
944790	8,0 x 375	TX40 ●	50
944791	8,0 x 400	TX40 ●	50

i APPLICATION INFORMATION

The KonstruX A4 screws do not need to be pre-drilled into the softwood. However, for longer screws, it is recommended to drill a pilot hole of approx. $\frac{1}{3}$ of the screw length in order to prevent the (long) screws from running too far into the wood.

The pre-drill diameters in softwood $d_{0,NH}$ here are:

- KonstruX ST 6.5 mm → almost never necessary in softwood
- KonstruX ST 8.0 mm → $d_{0,NH} = 5.0$ mm
- KonstruX ST 10.0 mm → $d_{0,NH} = 6.0$ mm

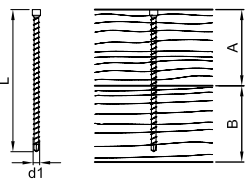
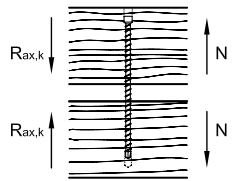
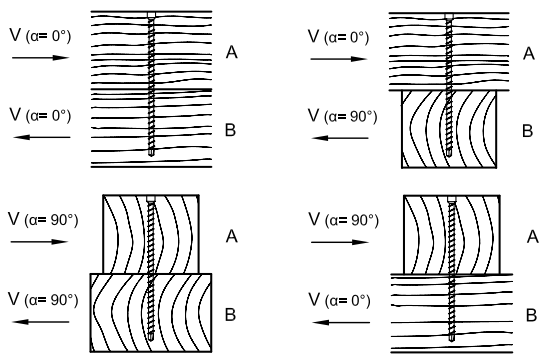
Pre-drilling is required for use in hardwood. The pre-drill diameters in hardwood $d_{0,LH}$ here are:

- KonstruX ST 6.5 mm → $d_{0,LH} = 5.0$ mm
- KonstruX ST 8.0 mm → $d_{0,LH} = 6.0$ mm
- KonstruX ST 10.0 mm → $d_{0,LH} = 8.0$ mm

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KONSTRUX ST A4

KONSTRUX ST A4 WITH CYLINDER HEAD AND DRILL TIP 6.5 TO 8.0 MM: WOOD / WOOD CONNECTION

Dimensions		Extraction resistance	Shearing	
				
		Characteristic load-bearing capacity value of the connection $R_{ax,k}$ according to ETA-11/0024	Characteristic load-bearing capacity value of the connection R_k according to ETA-11/0024	

d1 x L [mm]	A [mm]	B [mm]	$R_{ax,k}^{a)}$ - [kN]	$R_k^{a)}$ - [kN]		$R_k^{a)}$ - [kN]	
				$\alpha = 0^\circ$	$\alpha = 90^\circ$	$\alpha_A = 0^\circ$	$\alpha_B = 90^\circ$
						$\alpha_A = 90^\circ$	$\alpha_B = 0^\circ$
6,5 x 140	80	80	4,75	3,43	3,05	3,05	3,43
6,5 x 160	80	100	6,33	3,82	3,44	3,82	3,44
6,5 x 195	100	100	7,52	4,12	3,72	3,72	4,12
8,0 x 155	80	80	7,11	4,89	4,35	4,35	4,89
8,0 x 195	100	100	9,01	5,37	4,82	4,82	5,37
8,0 x 220	120	120	9,48	5,49	4,94	4,94	5,49
8,0 x 245	120	140	11,38	5,96	5,14	5,96	5,14
8,0 x 295	140	160	13,28	6,23	5,14	6,23	5,14
8,0 x 330	160	180	14,00	6,23	5,14	6,23	5,14
8,0 x 375	180	200	14,00	6,23	5,14	6,23	5,14
8,0 x 400	200	220	14,00	6,23	5,14	6,23	5,14

Calculation according to ETA 11/0024. Gross density $\rho_k = 380 \text{ kg/m}^3$. All mechanical values indicated should be viewed as subject to the assumptions that have been made and represent example calculations. All values are calculated minimum values and are subject to typesetting and printing errors.

^{a)}The characteristic values of the load-bearing capacity R_k should not be treated as equivalent to the max. possible load (the max. force). Characteristic values of the load-bearing R_k shall be reduced to the design values R_d with respect to the service class and load duration class: $R_d = R_k \times k_{mod} / \gamma_M$. The design values of the load-bearing capacity R_d should be compared to the design values of the loads E_d ($R_d \geq E_d$).

Example: Characteristic value for constant load (dead load) $G_k = 2.00 \text{ kN}$ and variable load (e.g. snow load) $Q_k = 3.00 \text{ kN}$. $k_{mod} = 0.9$. $\gamma_M = 1,3$.

→ rated value of the load $E_d = 2.00 \cdot 1.35 + 3.00 \cdot 1.5 = 7.20 \text{ kN}$.

Load-bearing capacity of the connection is proved if $R_d \geq E_d$. → $\min R_k = R_d \cdot \gamma_M / k_{mod}$

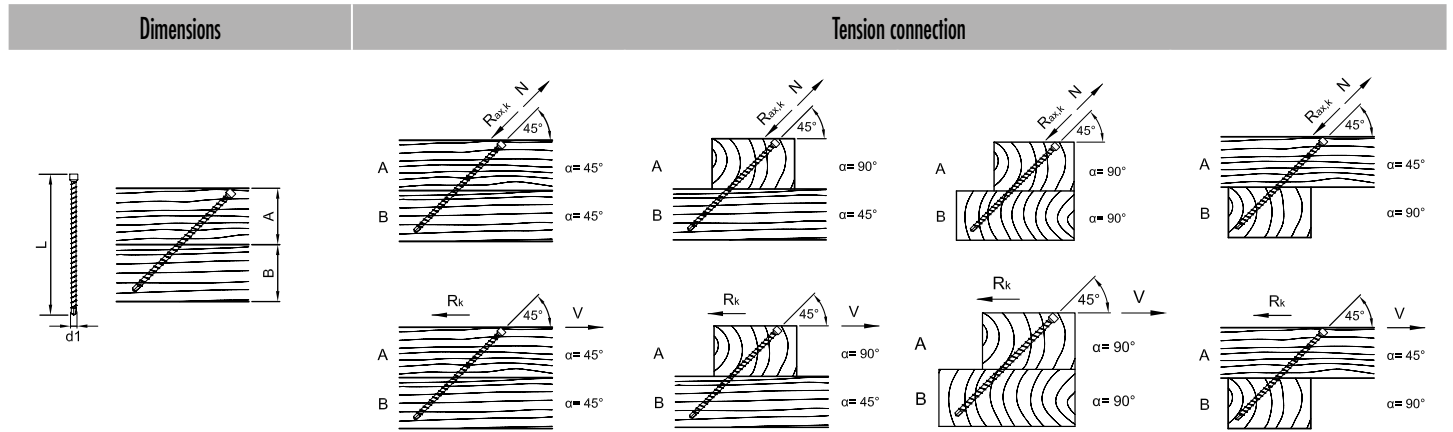
This means the characteristic minimum value of the load-bearing capacity should be measured as: $\min R_k = R_d \cdot \gamma_M / k_{mod} \rightarrow R_k = 7.20 \text{ kN} \cdot 1.3 / 0.9 = 10.40 \text{ kN}$ → Comparison with table values.

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PRODUCT DATA SHEET

KONSTRUX ST A4

KONSTRUX ST A4 WITH CYLINDER HEAD AND DRILL TIP 6.5 TO 8.0 MM: WOOD / WOOD CONNECTION



Characteristic load-bearing capacity value of the connection $R_{ax,k}$ or R_k according to ETA-11/0024

$d1 \times L$ [mm]	A [mm]	B [mm]	$R_{ax,k}^{a)}$ - [kN]	$R_k^{a)}$ - [kN]	$R_{ax,k}^{a)}$ - [kN]	$R_k^{a)}$ - [kN]	$R_{ax,k}^{a)}$ - [kN]	$R_k^{a)}$ - [kN]	$R_{ax,k}^{a)}$ - [kN]	$R_k^{a)}$ - [kN]
			$\alpha = 45^\circ$		$\alpha_A = 90^\circ$ $\alpha_B = 45^\circ$		$\alpha_A = 90^\circ$ $\alpha_B = 90^\circ$		$\alpha_A = 45^\circ$ $\alpha_B = 90^\circ$	
6,5 x 160	60	80	5,95	4,21	5,95	4,21	5,95	4,21	5,95	4,21
6,5 x 195	80	80	6,48	4,58	6,48	4,58	6,48	4,58	6,48	4,58
8,0 x 155	60	60	6,65	4,70	6,65	4,70	6,65	4,70	6,65	4,70
8,0 x 195	80	80	7,76	5,49	7,76	5,49	7,76	5,49	7,76	5,49
8,0 x 220	80	100	10,13	7,17	10,13	7,17	10,13	7,17	10,13	7,17
8,0 x 245	100	100	9,82	6,95	9,82	6,95	9,82	6,95	9,82	6,95
8,0 x 295	120	100	11,88	8,40	11,88	8,40	11,88	8,40	11,88	8,40
8,0 x 330	120	140	14,00	9,90	14,00	9,90	14,00	9,90	14,00	9,90
8,0 x 375	140	140	14,00	9,90	14,00	9,90	14,00	9,90	14,00	9,90
8,0 x 400	160	140	14,00	9,90	14,00	9,90	14,00	9,90	14,00	9,90

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Example: Characteristic value for constant load (dead load) $G_k = 2.00 \text{ kN}$ and variable load (e.g. snow load) $Q_k = 3.00 \text{ kN}$. $k_{mod} = 0.9$. $\gamma_M = 1,3$.

→ rated value of the load $E_d = 2.00 \cdot 1.35 + 3.00 \cdot 1.5 = 7.20 \text{ kN}$.

Load-bearing capacity of the connection is proved if $R_d \geq E_d$. → $\min R_k = R_d \cdot \gamma_M / k_{mod}$

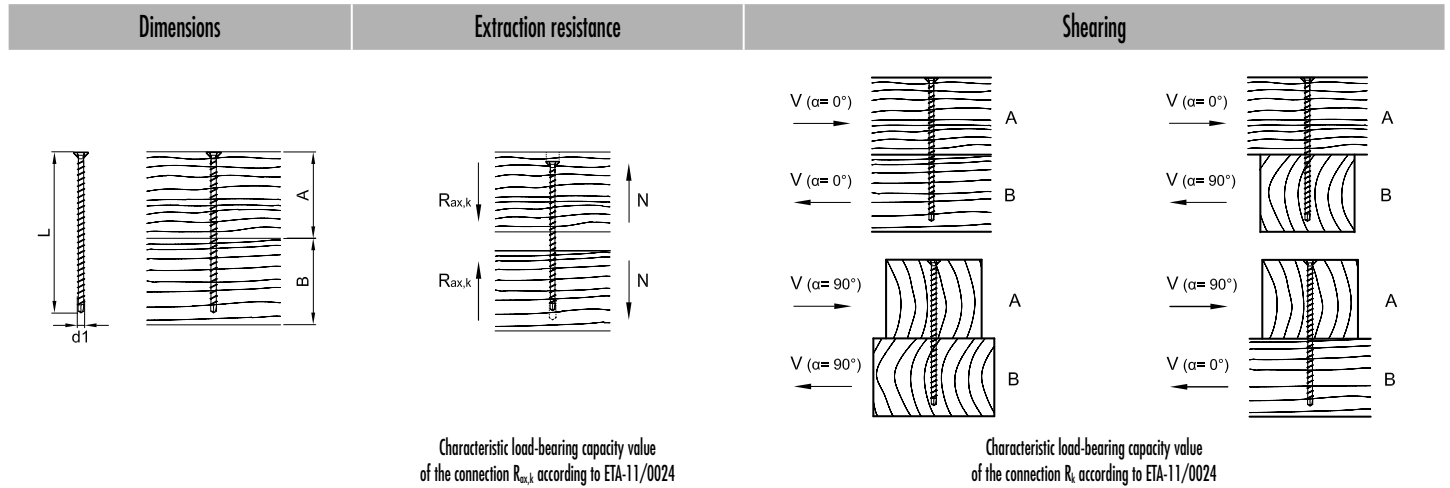
This means the characteristic minimum value of the load-bearing capacity should be measured as: $\min R_k = R_d \cdot \gamma_M / k_{mod} \rightarrow R_k = 7.20 \text{ kN} \cdot 1.3 / 0.9 = 10.40 \text{ kN} \rightarrow$ Comparison with table values.

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KONSTRUX ST A4 WITH COUNTERSUNK HEAD AND DRILL TIP 8.0 AND 10.0 MM: WOOD / WOOD CONNECTION



d1 x L [mm]	A [mm]	B [mm]	$R_{ax,k}^{a)}$ - [kN]	$R_k^{a)}$ - [kN]		$R_k^{a)}$ - [kN]	
				$\alpha = 0^\circ$	$\alpha = 90^\circ$	$\alpha_A = 0^\circ$	$\alpha_A = 90^\circ$
						$\alpha_B = 90^\circ$	$\alpha_B = 0^\circ$
8,0 x 95	40	60	3,09	3,89	3,34	3,58	3,09
8,0 x 125	60	80	4,61	4,54	3,99	4,54	3,99
8,0 x 155	80	80	7,11	4,89	4,35	4,35	4,89
8,0 x 195	100	100	9,01	5,37	4,82	4,82	5,37
10,0 x 160	80	100	9,23	6,70	5,89	6,70	5,89
10,0 x 200	100	120	11,53	7,28	6,47	7,28	6,47
10,0 x 220	120	120	11,53	7,28	6,47	7,28	6,47
10,0 x 240	120	140	13,84	7,85	7,05	7,85	7,05
10,0 x 260	140	140	13,84	7,85	7,05	7,05	7,85
10,0 x 280	140	160	16,15	8,43	7,17	8,43	7,17
10,0 x 300	160	160	16,15	8,43	7,17	7,17	8,43
10,0 x 350	180	180	19,61	8,78	7,17	7,17	8,78
10,0 x 400	200	220	20,00	8,78	7,17	8,78	7,17
10,0 x 450	220	240	20,00	8,78	7,17	8,78	7,17
10,0 x 500	240	280	20,00	8,78	7,17	8,78	7,17

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Load-bearing capacity of the connection is proved if $R_d \geq E_d$. → $\min R_k = R_d \cdot \gamma_M / k_{mod}$

This means the characteristic minimum value of the load-bearing capacity should be measured as: $\min R_k = R_d \cdot \gamma_M / k_{mod} \rightarrow R_k = 7.20 \text{ kN} \cdot 1.3 / 0.9 = 10.40 \text{ kN}$ → Comparison with table values.

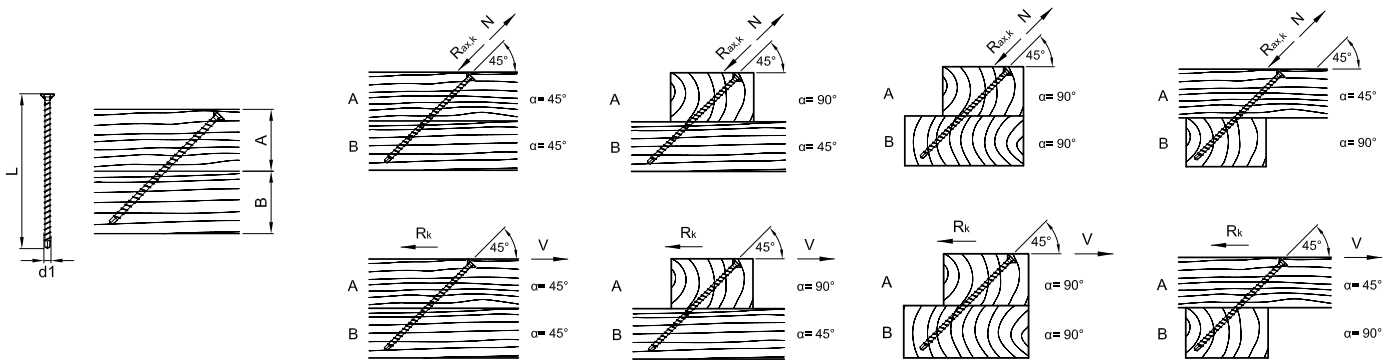
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KONSTRUX ST A4

KONSTRUX ST A4 WITH COUNTERSUNK HEAD AND DRILL TIP 8,0 AND 10,0 MM: WOOD / WOOD CONNECTION

Dimensions	Tension connection
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Characteristic load-bearing capacity value of the connection $R_{ax,k}$ or R_k according to ETA-11/0024

d1 x L [mm]	A [mm]	B [mm]	$\alpha = 45^\circ$		$\alpha_A = 90^\circ, \alpha_B = 45^\circ$		$\alpha_A = 90^\circ, \alpha_B = 90^\circ$		$\alpha_A = 45^\circ, \alpha_B = 90^\circ$	
			$R_{ax,k}^{a)}$ - [kN]	$R_k^{a)}$ - [kN]	$R_{ax,k}^{a)}$ - [kN]	$R_k^{a)}$ - [kN]	$R_{ax,k}^{a)}$ - [kN]	$R_k^{a)}$ - [kN]	$R_{ax,k}^{a)}$ - [kN]	$R_k^{a)}$ - [kN]
8,0 x 95	40	60	3,09	2,19	3,09	2,19	3,09	2,19	3,09	2,19
8,0 x 125	60	60	3,8	2,69	3,8	2,69	3,8	2,69	3,8	2,69
8,0 x 155	60	60	6,65	4,70	6,65	4,70	6,65	4,70	6,65	4,70
8,0 x 195	80	80	7,76	5,49	7,76	5,49	7,76	5,49	7,76	5,49
10,0 x 220	80	100	12,33	8,72	12,33	8,72	12,33	8,72	12,33	8,72
10,0 x 160	60	80	8,67	6,13	8,67	6,13	8,67	6,13	8,67	6,13
10,0 x 200	80	80	10,02	7,08	10,02	7,08	10,02	7,08	10,02	7,08
10,0 x 220	80	100	12,33	8,72	12,33	8,72	12,33	8,72	12,33	8,72
10,0 x 240	100	80	11,37	8,04	11,37	8,04	11,37	8,04	11,37	8,04
10,0 x 260	100	100	13,68	9,67	13,68	9,67	13,68	9,67	13,68	9,67
10,0 x 280	100	120	15,98	11,30	15,98	11,30	15,98	11,30	15,98	11,30
10,0 x 300	120	120	15,03	10,63	15,03	10,63	15,03	10,63	15,03	10,63
10,0 x 350	140	120	17,53	12,40	17,53	12,40	17,53	12,40	17,53	12,40
10,0 x 400	160	140	20,00	14,14	20,00	14,14	20,00	14,14	20,00	14,14
10,0 x 450	160	180	20,00	14,14	20,00	14,14	20,00	14,14	20,00	14,14
10,0 x 500	180	200	20,00	14,14	20,00	14,14	20,00	14,14	20,00	14,14

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Example: Characteristic value for constant load (dead load) $G_k = 2.00 \text{ kN}$ and variable load (e.g. snow load) $Q_k = 3.00 \text{ kN}$. $k_{mod} = 0.9$. $\gamma_M = 1,3$.

→ rated value of the load $E_d = 2.00 \cdot 1.35 + 3.00 \cdot 1.5 = 7.20 \text{ kN}$.

Load-bearing capacity of the connection is proved if $R_d \geq E_d$ → $\min R_k = R_d \cdot \gamma_M / k_{mod}$

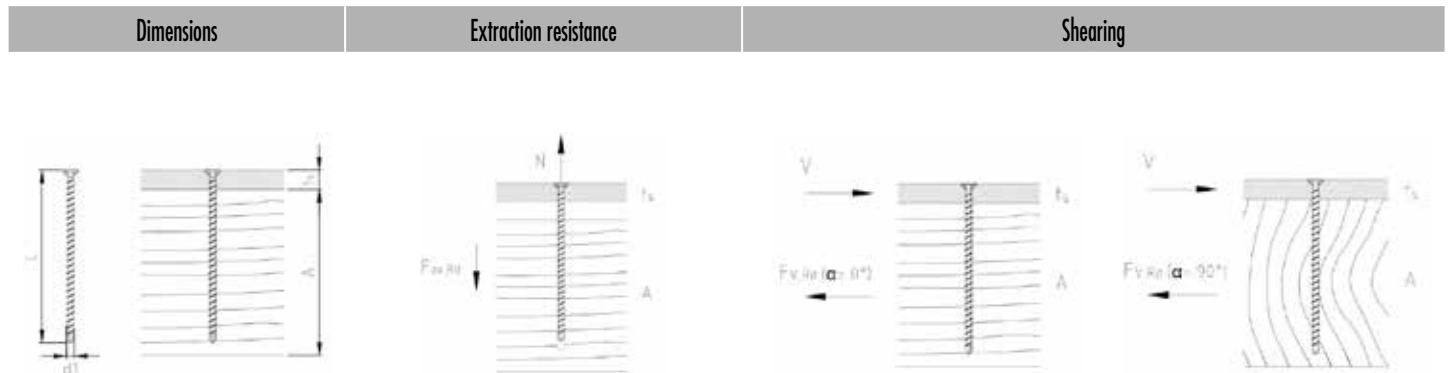
This means the characteristic minimum value of the load-bearing capacity should be measured as: $\min R_k = R_d \cdot \gamma_M / k_{mod} \rightarrow R_k = 7.20 \text{ kN} \cdot 1.3 / 0.9 = 10.40 \text{ kN}$ → Comparison with table values.

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KONSTRUX ST A4

KONSTRUX ST A4 WITH COUNTERSUNK HEAD AND DRILL TIP 8,0 AND 10,0 MM: STEEL / WOOD CONNECTION



$t_s = 15 \text{ mm}$

d1 x L [mm]	A [mm]	$F_{ax,Rk}$	$F_{ax,Rd}$	$F_{v,Rk}$	$F_{v,Rd}$	$F_{v,Rk}$	$F_{v,Rd}$
8,0 x 95	95	7,58	4,66	6,3	3,87	5,53	3,4
8,0 x 125	125	10,43	6,42	7,01	4,31	6,24	3,84
8,0 x 155	155	13,28	8,17	7,73	4,76	6,95	4,28
8,0 x 195	195	14,00	10,51	7,91	4,87	7,13	4,39
10,0 x 160	160	16,72	10,29	10,39	6,39	9,25	5,69
10,0 x 200	200	20,00	13,13	11,21	6,90	10,07	6,20
10,0 x 220	220	20,00	14,55	11,21	6,90	10,07	6,20
10,0 x 240	240	20,00	15,38	11,21	6,90	10,07	6,20
10,0 x 260	260	20,00	15,38	11,21	6,90	10,07	6,20
10,0 x 280	280	20,00	15,38	11,21	6,90	10,07	6,20
10,0 x 300	300	20,00	15,38	11,21	6,90	10,07	6,20
10,0 x 350	350	20,00	15,38	11,21	6,90	10,07	6,20
10,0 x 400	400	20,00	15,38	11,21	6,90	10,07	6,20
10,0 x 450	450	20,00	15,38	11,21	6,90	10,07	6,20
10,0 x 500	500	20,00	15,38	11,21	6,90	10,07	6,20

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 → rated value of the load $E_d = 2.00 \cdot 1.35 + 3.00 \cdot 1.5 = 7.20 \text{ kN}$.

Load-bearing capacity of the connection is proved if $R_d \geq E_d$. → $\min R_k = R_d \cdot \gamma_M / k_{mod}$

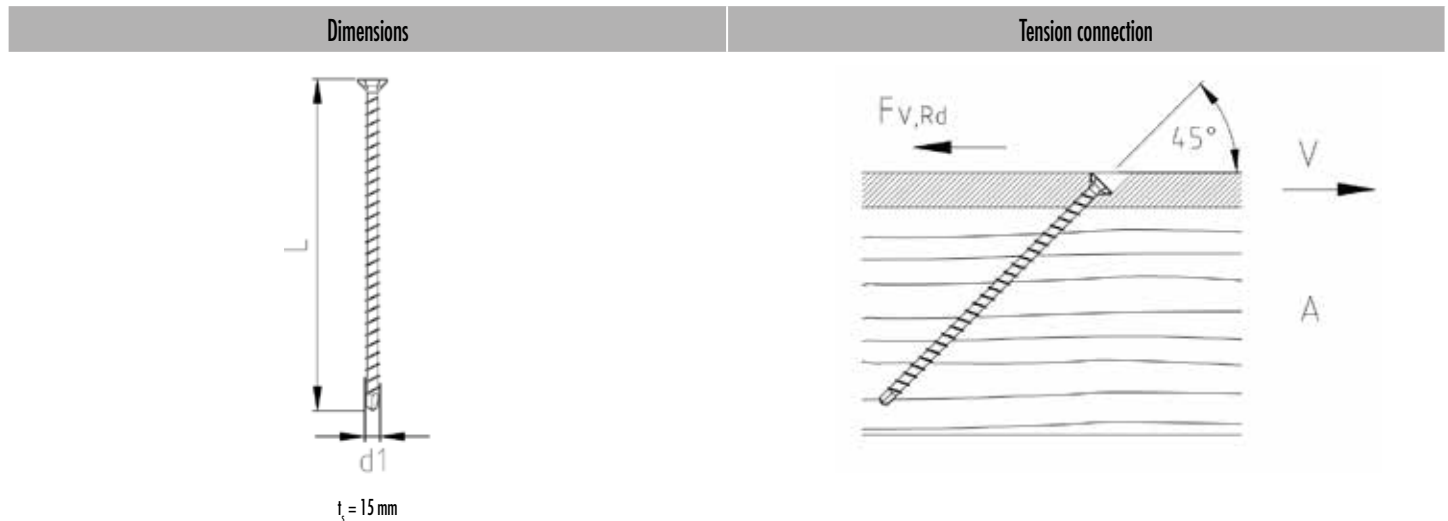
This means the characteristic minimum value of the load-bearing capacity should be measured as: $\min R_k = R_d \cdot \gamma_M / k_{mod} \rightarrow R_k = 7.20 \text{ kN} \cdot 1.3 / 0.9 = 10.40 \text{ kN} \rightarrow$ Comparison with table values.

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KONSTRUX ST A4

KONSTRUX ST A4 WITH COUNTERSUNK HEAD AND DRILL TIP 8,0 AND 10,0 MM: STEEL / WOOD CONNECTION



$d1 \times L$ [mm]	A [mm]	F_v, R_k	F_v, R_d
8,0 x 95	75	5,36	3,29
8,0 x 125	100	6,96	4,28
8,0 x 155	120	8,97	5,52
8,0 x 195	140	11,65	7,17
10,0 x 160	120	11,32	6,97
10,0 x 200	140	14,14	8,97
10,0 x 220	160	14,14	9,98
10,0 x 240	180	14,14	10,88
10,0 x 260	200	14,14	10,88
10,0 x 280	220	14,14	10,88
10,0 x 300	240	14,14	10,88
10,0 x 350	260	14,14	10,88
10,0 x 400	340	14,14	10,88
10,0 x 450	390	14,14	10,88
10,0 x 500	440	14,14	10,88

Calculation according to ETA 11/0024. Gross density $\rho_s = 380 \text{ kg/m}^3$. All mechanical values indicated should be viewed as subject to the assumptions that have been made and represent example calculations. All values are calculated minimum values and are subject to typesetting and printing errors.

^{a)}The characteristic values of the load-bearing capacity R_k should not be treated as equivalent to the max. possible load (the max. force). Characteristic values of the load-bearing R_k shall be reduced to the design values R_d with respect to the service class and load duration class: $R_d = R_k \times k_{mod} / \gamma_M$. The design values of the load-bearing capacity R_d should be compared to the design values of the loads E_d ($R_d \geq E_d$).

Example: Characteristic value for constant load (dead load) $G_k = 2.00 \text{ kN}$ and variable load (e.g. snow load) $Q_k = 3.00 \text{ kN}$. $k_{mod} = 0.9$. $\gamma_M = 1,3$.
 → rated value of the load $E_d = 2.00 \cdot 1.35 + 3.00 \cdot 1.5 = 7.20 \text{ kN}$.

Load-bearing capacity of the connection is proved if $R_d \geq E_d$. → $\min R_k = R_d \cdot \gamma_M / k_{mod}$

This means the characteristic minimum value of the load-bearing capacity should be measured as: $\min R_k = R_d \cdot \gamma_M / k_{mod} \rightarrow R_k = 7.20 \text{ kN} \cdot 1.3 / 0.9 = 10.40 \text{ kN} \rightarrow$ Comparison with table values.

Caution: These are planning aids. Projects must only be calculated by authorised persons.

If you are not familiar with the application of this product, and particularly with the product's intended use, please contact our Application Technology Department (technik@eurotec.team).