

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

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European Technical Assessment

ETA-17/0322
of 28 September 2020

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General Part

Technical Assessment Body issuing the
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

KDF 4.8, KDH1 4.8, KDH2 4.2, KDH2 4.8, KDH2 5.5,
KDH3 5.5, KDH5 5.5, KDT1 4.8, KDT2 5.5, KDHB1,
TSH2, KDH2A, KDH2A 4,5, KDH2A 6,0

Product family
to which the construction product belongs

Fastening Screws for Metal Members and Sheeting

Manufacturer

ROSETER INFO TRADE CO., LTD
11F., No.213, Fu-Nong Rd.
Gu-Shan Dist.
KAOHSIUNG CITY 80454
TAIWAN R.O.C

Manufacturing plant

Plant 1
Plant 2
Plant 3
Plant 4
Plant 5

This European Technical Assessment
contains

26 pages including 21 annexes which form an integral
part of this assessment

This European Technical Assessment is
issued in accordance with Regulation (EU)
No 305/2011, on the basis of

EAD 330046-01-0602

This version replaces

ETA-17/0322 issued on 19 June 2017

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Specific part

1 Technical description of the product

The products are fastening screws (self-drilling and self-tapping screws) made of steel. The fastening screws are normally completed with a metallic washer and an EPDM sealing washer. The fastening screws are made of austenitic stainless steel or a bimetal combination with drill bits made of galvanised/painted carbon steel. The fastening screws and the corresponding connections are subject to tension and/or shear forces. Samples of fastenings screws are shown in Figure 1.

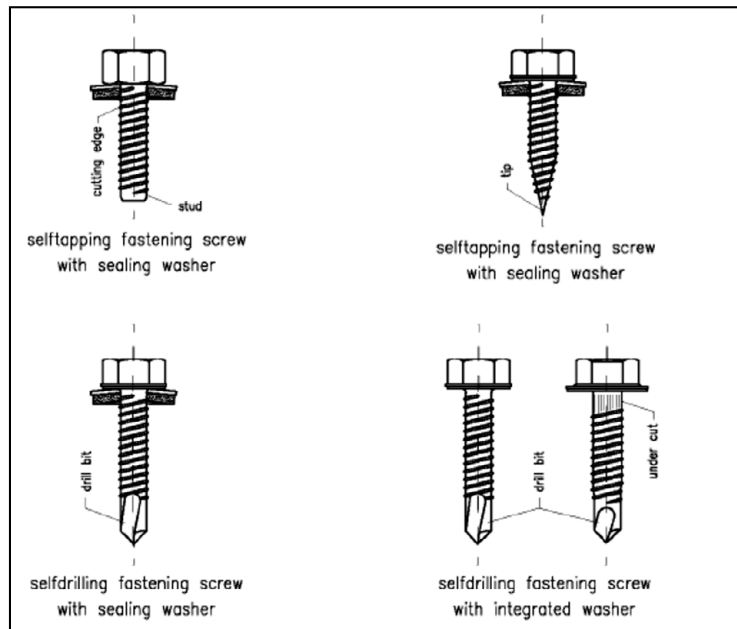


Figure 1: Fastening screws

The fastening screws which are content of this ETA are shown in the following Table 1. The components and the system setup of the product are given in Annex (1-21).

Table 1 Summary of the fastenings screws for metal members and sheeting

Annex	Fastening screw
4	KDF 4,8 x L
5	KDH1 4,8 x L
6	KDH2 4,2 x L
7	KDH2 4,8 x L
8	KDH2 5,5 x L

Table 1 - Continuation

Annex	Fastening screw
9	KDH3 5,5 x L
10	KDH5 5,5 x L
11	KDT1 4,8 x L
12	KDT2 5,5 x L
13	KDT2 5,5 x L
14	KDH2 5,5 x L KDT2 5,5 x L
15	KDH2 5,5 x L KDT2 5,5 x L
16	KDH3 5,5 x L
17	KDH3 5,5 x L
18	TSH2 6,5 x L
19	KDHB1 6,7 x L
20	KDH2A 4,5 x L
21	KDH2A 6,0 x L

2 Specification of the intended use in accordance with the applicable European Assessment Document 330046-01-0602

The fastening screws are intended to be used for fastening metal sheeting to metal or timber supporting substructures. The sheeting can either be used as wall or roof cladding or as load bearing wall and roof element. The fastening screws can also be used for the fastening of any other thin gauge metal members. The intended use comprises fastening screws and connections for indoor and outdoor applications. Fastening screws which are intended to be used in external environments with $\geq C2$ corrosion according to the standard EN ISO 12944-2 are made of stainless steel. Furthermore the intended use comprises connections with predominantly static loads (e.g. wind loads, dead loads). The fastening screws for metal members and sheeting are not intended for re-use.

The performances given in Section 3 are only valid if the fastening screws are used in compliance with the specifications and conditions given in Annex 1-21.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the fastening screws of at least 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

3 Performance of the product and references to the methods used for its assessment

3.1 Mechanical resistance and stability (BWR 1)

Essential characteristic	Performance
Shear Resistance of the Connection	see Annexes
Tension Resistance of the Connection	see Annexes
Design Resistance in case of combined Tension and Shear Forces (interaction)	see Annexes
Check of Deformation Capacity in case of constraining forces due to temperature	No performance assessed
Durability	see Annexes

3.2 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Performance Class A1 in accordance with EC decision 96/603/EC (as amended)

4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

In accordance with EAD No. 330046-01-0602, the applicable European legal act is Decision 1998/214/EC, amended by 2001/596/EC.

The system to be applied is: 2+

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

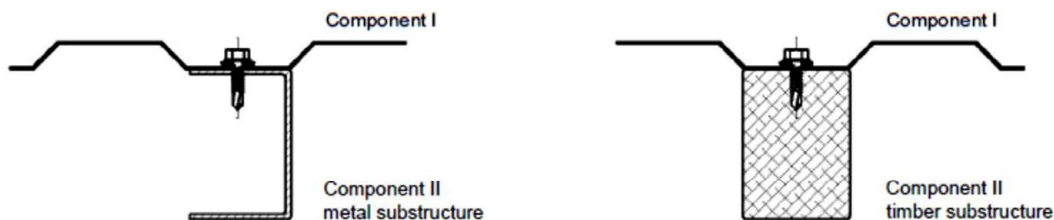
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 28 September 2020 by Deutsches Institut für Bautechnik

BD Dipl.-Ing. Andreas Kummerow
Head of Department

beglaubigt:
Hahn

Examples of execution of a connection



Terms for materials

Fastener	Fastening screw
Washer	Sealing washer
Component I	Metal member or sheeting
Component II	Substructure

Terms for dimensions

t_I	Thickness of metal member or sheeting
t_{II}	Thickness of metal substructure
l_{ef}	Effective screw-in length in timber substructure (without drill point)
d_{dp}	Pre-drill diameter of metal member or sheeting and substructure
$d_{dp,I}$	Pre-drill diameter of metal member or sheeting

Terms for performances

$V_{R,k}$	Characteristic value of shear resistance of the connection
$N_{R,k}$	Characteristic value of tension resistance of the connection
$V_{R,I,k}$	Characteristic value of shear resistance of metal member or sheeting
$N_{R,I,k}$	Characteristic value of tension resistance (pull-through) of metal member or sheeting
$N_{R,II,k}$	Characteristic value of tension resistance (pull-out) of the substructure

Additionally for timber substructure the following terms are used:

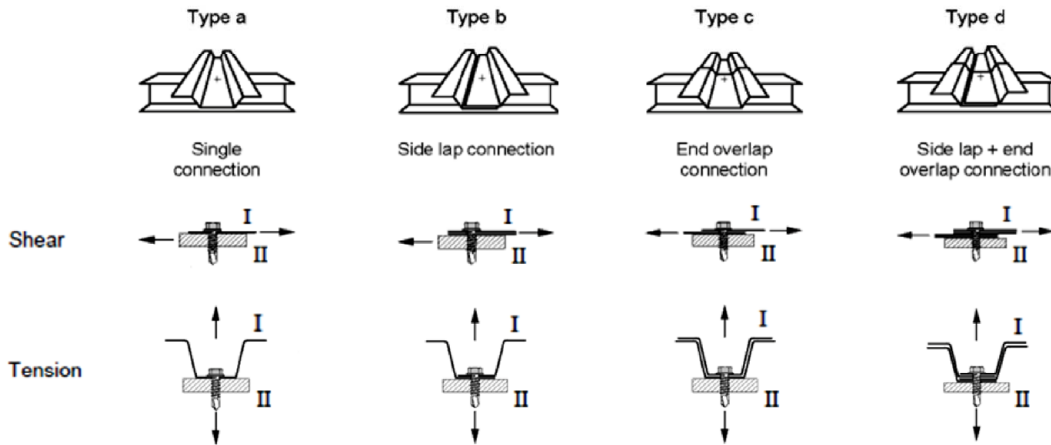
$M_{y,Rk}$	Characteristic value of yield moment
$f_{ax,k}$	Characteristic value of withdrawal strength
$f_{h,k}$	Characteristic value of embedding strength

Used terms in the Annexes

Fastening screws for metal members and sheeting

Annex 1

Types of connection and occurred loadings



Determination of Design Values

The design value of tension and shear resistance has to be determined as follows:

$$N_{R,d} = \frac{N_{R,k}}{\gamma_M}$$

$$V_{R,d} = \frac{V_{R,k}}{\gamma_M}$$

The characteristic values $N_{R,k}$ and $V_{R,k}$ are given in the Annexes. For intermediate dimension of metal member or substructure the characteristic value of the thinner dimension is used.

The recommended partial safety factor $\gamma_M = 1,33$ is used, provided no partial safety factor is given in national regulations or national Annexes to Eurocode 3.

For the types of connection (a, b, c, d) listed in the Annexes it is not necessary to take into account the effect of constrains due to temperature. Otherwise this has to be considered unless constrains due to temperature do not occur or are not significant (e.g. sufficient flexibility of the substructure).

For asymmetric metal substructures with thickness $t_{II} < 5$ mm (for instance Z- or C-shaped profiles), the characteristic value $N_{R,k}$ given in the Annexes has to be reduced to 70%.

In case of combined tension and shear forces the following interaction equation is taken into account:

$$\frac{N_{S,d}}{N_{R,d}} + \frac{V_{S,d}}{V_{R,d}} \leq 1,0$$

$N_{S,d}$ and $V_{S,d}$ indicates the design values of applied tension and shear forces.

Installation conditions

The installation is carried out according to the manufacturer's instructions.

The fastening screws are screwed-in with electric screw driver. The use of impact wrenches is not allowed.

The fastening screws are fixed rectangular to the surface of the metal member or sheeting.

The metal member or sheeting and substructure are in contact to each other. The use of compression resistant thermal insulation strips up to a thickness of 3 mm is allowed.

The thickness (or minimum thickness) of metal substructure needs to be covered by the clamping length of the fastening screw. Otherwise only the screwed-in clamping length of the fastening screw may be considered.

Basics for the design

Fastening screws for metal members and sheeting

Annex 2

Timber substructures

Characteristic values of tension and shear resistance of the connection for other k_{mod} or ρ_k as indicated in the Annexes can be determined as follows:

$$N_{R,k} = \min \left\{ \begin{array}{l} N_{R,I,k} \\ F_{ax,Rk} * k_{mod} \end{array} \right. \quad V_{R,k} = \min \left\{ \begin{array}{l} V_{R,I,k} \\ F_{v,Rk} * k_{mod} \end{array} \right.$$

The characteristic values $N_{R,I,k}$ and $V_{R,I,k}$ are given in the corresponding Annex of the fastening screw.

$F_{ax,Rk}$ indicates the characteristic value of tension resistance of timber substructure. The value has to be determined according to EN 1995-1-1:2004 + A1:2008, equation (8.40a) with $f_{ax,k}$ given in the corresponding Annex of the fastening screw.

$F_{v,Rk}$ indicates the characteristic shear resistance of timber substructure. The value has to be determined according to EN 1995-1-1:2004 + A1:2008, equation (8.9) with $M_{y,Rk}$ and $f_{h,k}$ given in the corresponding Annex of the fastening screw.

Aluminium members and sheeting

Characteristic values of tension resistance of the connection can be determined as follows:

$$N_{R,k} = \min \left\{ \begin{array}{l} N_{R,I,k} \\ N_{R,II,k} \end{array} \right.$$

The characteristic value $N_{R,I,k}$ has to be determined according to EN 1999-1-4:2007 + AC:2009, equation (8.13).

The characteristic value $N_{R,II,k}$ is given in the corresponding Annex of the fastening screw.

Perforated steel members and sheeting

Characteristic values of tension and shear resistance of the connection can be determined as follows:

$$N_{R,k} = \min \left\{ \begin{array}{l} N_{R,I,k} \\ N_{R,II,k} \end{array} \right. \quad V_{R,k} = \min \left\{ \begin{array}{l} V_{R,I,k} \\ V_{R,k} \end{array} \right.$$

The characteristic values $N_{R,I,k}$ and $V_{R,I,k}$ are given in Annex 4 and 5.

The characteristic values $N_{R,II,k}$ and $V_{R,k}$ are given in the corresponding Annex of the fastening screw.

Specific notes to the Annexes

Fastening screws for metal members and sheeting

Annex 3

	<p>Materials</p> <p>Fastener: Stainless steel 1.4301- EN 10088</p> <p>Washer: Stainless steel 1.4301- EN 10088 with vulcanized EPDM-seal</p> <p>Component I: S280GD to S350GD - EN 10346</p> <p>Component II: S280GD to S350GD - EN 10346 Timber – EN 14081</p>
	<p>Drilling-capacity $\Sigma(t_i + t_{ii}) \leq 1.50$ mm</p>
	<p>Characteristics</p> <p>$M_{y,Rk} = 5.46$ Nm</p> <p>$f_{ax,k} = 10.56$ N/mm² ($l_{ef} = 29$ mm, $\rho_a = 350$ kg/m³)</p> <p>$f_{h,0,k} = 31.6$ N/mm² ($\rho_a = 350$ kg/m³)</p> <p>$f_{h,90,k} = 17.3$ N/mm² ($\rho_a = 350$ kg/m³)</p>

		Component II								Timber ≥ C24 L _g ≥ 29 mm	
		S280 GD to S350 GD - 10346 t II [mm]									
		0,40	0,50	0,55	0,63	0,75	0,88	1,00			
Component I S280 GD to S350 GD - 10346 t I [mm]	V _{R,k} [kN]	0,40	0,60 -	0,60 -	0,60 -	0,60 -	0,60 -	0,60 -	0,60 -	1,15	Failure of component I
		0,50	0,60 -	0,86 ¹⁾ -	0,86 ¹⁾ -	0,86 ¹⁾ -	0,86 ¹⁾ -	0,86 ¹⁾ -	0,86 ¹⁾ -	1,15	
		0,55	0,60 -	0,86 ¹⁾ -	1,01 -	1,01 -	1,01 -	1,01 -	- -	1,24	
		0,63	0,60 -	0,86 ¹⁾ -	1,01 -	1,26 -	1,26 -	- -	- -	1,37	
		0,75	0,60 -	0,86 ¹⁾ -	1,01 -	1,26 -	1,62 -	- -	- -	1,58	
		0,88	0,60 -	0,86 ¹⁾ -	1,01 -	- -	- -	- -	- -	1,58	
		1,00	0,60 -	0,86 ¹⁾ -	- -	- -	- -	- -	- -	1,58	
	N _{R,k} [kN]	0,40	0,38 -	0,54 ¹⁾ -	0,61 -	0,73 -	0,91 -	1,12 -	1,31 -	1,38	Failure of component I
		0,50	0,38 -	0,54 ¹⁾ -	0,61 -	0,73 -	0,91 -	1,12 -	1,31 -	1,85	
		0,55	0,38 -	0,54 ¹⁾ -	0,61 -	0,73 -	0,91 -	1,12 -	- -	2,08	
		0,63	0,38 -	0,54 ¹⁾ -	0,61 -	0,73 -	0,91 -	- -	- -	2,44	
		0,75	0,38 -	0,54 ¹⁾ -	0,61 -	0,73 -	0,91 -	- -	- -	2,99	
		0,88	0,38 -	0,54 ¹⁾ -	0,61 -	- -	- -	- -	- -	2,99	
		1,00	0,38 -	0,54 ¹⁾ -	- -	- -	- -	- -	- -	2,99	
	N _{R,k,II}	0,38 -	0,54 ¹⁾ -	0,61 -	0,73 -	0,91 -	1,12 -	1,31 -			

¹⁾ if component I and component II are made of S320GD to S350GD the values may be increased by 8.3%.

Self-drilling screw	Annex 4
KDF 4,8 x L	

	<p>Materials</p> <p>Fastener: Stainless steel 1.4301- EN 10088</p> <p>Washer: Stainless steel 1.4301- EN 10088 with vulcanized EPDM-seal</p> <p>Component I: S280GD to S350GD - EN 10346</p> <p>Component II: S280GD to S350GD - EN 10346 S235 – EN 10025-2</p>
	<p>Drilling-capacity $\Sigma(t_i + t_{ii}) \leq 2.20$ mm</p>

		Component II											
		S280 GD to S350 GD – EN 10346, S235 – EN 10025-2											
		t II [mm]											
		0,40	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	1,50	1,75	
Component I S280 GD to S350 GD - 10346	V _{R,k} [kN]	0,40	0,65	0,65	0,65	0,65	0,65	0,65	0,65	0,65	0,65	0,65	0,65
		0,50	0,65	1,04 ¹⁾	1,04 ¹⁾	1,04 ¹⁾	1,04 ¹⁾	1,04 ¹⁾	1,04 ¹⁾	1,04 ¹⁾	1,04 ¹⁾	1,04 ¹⁾	-
		0,55	0,65	1,04 ¹⁾	1,22	1,22	1,22	1,22	1,22	1,22	1,22	1,22	1,22
		0,63	0,65	1,04 ¹⁾	1,22	1,51	1,51	1,51	1,51	1,51	1,51	1,51	1,51
		0,75	0,65	1,04 ¹⁾	1,22	1,51	1,95	1,95	1,95	1,95	1,95	-	-
		0,88	0,65	1,04 ¹⁾	1,22	1,51	1,95	2,40	2,40	2,40	2,40	-	-
		1,00	0,65	1,04 ¹⁾	1,22	1,51	1,95	2,40	2,82 ¹⁾	2,82 ¹⁾	-	-	-
		1,13	0,65	1,04 ¹⁾	1,22	1,51	1,95	2,40	2,82 ¹⁾	-	-	-	-
		1,25	0,65	1,04 ¹⁾	1,22	1,51	1,95	2,40	-	-	-	-	-
		1,50	0,65	1,04 ¹⁾	1,22	1,51	-	-	-	-	-	-	-
	1,75	0,65	-	-	-	-	-	-	-	-	-	-	
	N _{R,k} [kN]	0,40	0,40	0,61 ¹⁾	0,70	0,84	1,06	1,33	1,55	1,55	1,55	1,55	1,55
		0,50	0,40	0,61 ¹⁾	0,70	0,84	1,06	1,33	1,57 ¹⁾	1,57 ¹⁾	1,57 ¹⁾	1,57 ¹⁾	-
		0,55	0,40	0,61 ¹⁾	0,70	0,84	1,06	1,33	1,57 ¹⁾	1,57 ¹⁾	1,57 ¹⁾	1,57 ¹⁾	-
		0,63	0,40	0,61 ¹⁾	0,70	0,84	1,06	1,33	1,57 ¹⁾	1,57 ¹⁾	1,57 ¹⁾	1,57 ¹⁾	-
		0,75	0,40	0,61 ¹⁾	0,70	0,84	1,06	1,33	1,57 ¹⁾	1,57 ¹⁾	1,57 ¹⁾	-	-
		0,88	0,40	0,61 ¹⁾	0,70	0,84	1,06	1,33	1,57 ¹⁾	1,57 ¹⁾	1,57 ¹⁾	-	-
		1,00	0,40	0,61 ¹⁾	0,70	0,84	1,06	1,33	1,57 ¹⁾	1,57 ¹⁾	-	-	-
		1,13	0,40	0,61 ¹⁾	0,70	0,84	1,06	1,33	1,57 ¹⁾	-	-	-	-
1,25		0,40	0,61 ¹⁾	0,70	0,84	1,06	1,33	-	-	-	-	-	
1,50		0,40	0,61 ¹⁾	0,70	0,84	-	-	-	-	-	-	-	
1,75	0,40	-	-	-	-	-	-	-	-	-	-		
N _{R,k,II}		0,40	0,61 ¹⁾	0,70	0,84	1,06	1,33	1,57 ¹⁾	1,57 ¹⁾	1,57 ¹⁾	1,57 ¹⁾	1,57 ¹⁾	

¹⁾ if component I and component II are made of S320GD to S350GD the values may be increased by 8.3%.

Self-drilling screw	Annex 5
KDH1 4,8 x L	

	<p>Materials</p> <p>Fastener: Stainless steel 1.4301- EN 10088</p> <p>Washer: no washer</p> <p>Component I: S280GD to S350GD - EN 10346</p> <p>Component II: S280GD to S350GD - EN 10346 S235 – EN 10025-2</p>
	<p>Drilling-capacity $\Sigma(t_I + t_{II}) \leq 3.50$ mm</p>

		Component II											
		S280 GD to S350 GD – EN 10346, S235 – EN 10025-2											
		t II [mm]											
		0,40	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	1,50	2,00	
Component I S280 GD to S350 GD - 10346	V _{R,k} [kN]	0,40	0,58	0,58	0,58	0,58	0,58	0,58	0,58	0,58	0,58	0,58	0,58
		0,50	0,58	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96
		0,55	0,58	0,96	1,10	1,10	1,10	1,10	1,10	1,10	1,10	1,10	1,10
		0,63	0,58	0,96	1,10	1,33	1,33	1,33	1,33	1,33	1,33	1,33	1,33
		0,75	0,58	0,96	1,10	1,33	1,67	1,67	1,67	1,67	1,67	1,67	1,67
		0,88	0,58	0,96	1,10	1,33	1,67	2,11	2,11	2,11	2,11	2,11	2,11
		1,00	0,58	0,96	1,10	1,33	1,67	2,11	2,52	2,52	2,52	2,52	2,52
		1,13	0,58	0,96	1,10	1,33	1,67	2,11	2,52	2,95	2,95	2,95	2,95
		1,25	0,58	0,96	1,10	1,33	1,67	2,11	2,52	2,95	3,34	3,34	3,34
		1,50	0,58	0,96	1,10	1,33	1,67	2,11	2,52	2,95	3,34	4,16	4,16
		1,75	0,58	0,96	1,10	1,33	1,67	2,11	2,52	2,95	3,34	4,16	-
		2,00	0,58	0,96	1,10	1,33	1,67	2,11	2,52	2,95	3,34	4,16	-
		Component I S280 GD to S350 GD - 10346	N _{R,k} [kN]	0,40	0,31	0,40	0,45	0,54	0,67	0,85	1,01	1,01	1,01
0,50	0,31			0,40	0,45	0,54	0,67	0,85	1,01	1,01	1,01	1,01	1,01
0,55	0,31			0,40	0,45	0,54	0,67	0,85	1,01	1,01	1,01	1,01	1,01
0,63	0,31			0,40	0,45	0,54	0,67	0,85	1,01	1,01	1,01	1,01	1,01
0,75	0,31			0,40	0,45	0,54	0,67	0,85	1,01	1,01	1,01	1,01	1,01
0,88	0,31			0,40	0,45	0,54	0,67	0,85	1,01	1,01	1,01	1,01	1,01
1,00	0,31			0,40	0,45	0,54	0,67	0,85	1,01	1,01	1,01	1,01	1,01
1,13	0,31			0,40	0,45	0,54	0,67	0,85	1,01	1,01	1,01	1,01	1,01
1,25	0,31			0,40	0,45	0,54	0,67	0,85	1,01	1,01	1,01	1,01	1,01
1,50	0,31			0,40	0,45	0,54	0,67	0,85	1,01	1,01	1,01	1,01	1,01
1,75	0,31			0,40	0,45	0,54	0,67	0,85	1,01	1,01	1,01	1,01	-
2,00	0,31			0,40	0,45	0,54	0,67	0,85	1,01	1,01	1,01	1,01	-
N _{R,k,II}	0,31			0,40	0,45	0,54	0,67	0,85	1,01	1,01	1,01	1,01	1,01

Self-drilling screw	Annex 6
KDH2 4,2 x L	

	<p>Materials</p> <p>Fastener: Stainless steel 1.4301- EN 10088</p> <p>Washer: Stainless steel 1.4301- EN 10088 with vulcanized EPDM-seal</p> <p>Component I: S280GD to S350GD - EN 10346</p> <p>Component II: S280GD to S350GD - EN 10346 S235 – EN 10025-2</p>
	<p>Drilling-capacity $\Sigma(t_i + t_{II}) \leq 3.50$ mm</p>

		Component II											
		S280 GD to S350 GD – EN 10346, S235 – EN 10025-2											
		t II [mm]											
		0,40	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	1,50	2,00	
Component I S280 GD to S350 GD - 10346 t I [mm]	V _{R,k} [kN]	0,40	0,56 -	0,56 -	0,56 -	0,56 -	0,56 -	0,56 -	0,56 -	0,56 -	0,56 -	0,56 -	0,56 -
		0,50	0,56 -	0,85 -	0,85 -	0,85 -	0,85 -	0,85 -	0,85 -	0,85 -	0,85 -	0,85 -	0,85 -
		0,55	0,56 -	0,85 -	0,97 -	0,97 -	0,97 -	0,97 -	0,97 -	0,97 -	0,97 -	0,97 -	0,97 -
		0,63	0,56 -	0,85 -	0,97 -	1,17 -	1,17 -	1,17 -	1,17 -	1,17 -	1,17 -	1,17 -	1,17 -
		0,75	0,56 -	0,85 -	0,97 -	1,17 -	1,47 -	1,47 -	1,47 -	1,47 -	1,47 -	1,47 -	1,47 -
		0,88	0,56 -	0,85 -	0,97 -	1,17 -	1,47 -	2,13 -	2,13 -	2,13 -	2,13 -	2,13 -	2,13 -
		1,00	0,56 -	0,85 -	0,97 -	1,17 -	1,47 -	2,13 -	2,74 -	2,74 -	2,74 -	2,74 -	2,74 -
		1,13	0,56 -	0,85 -	0,97 -	1,17 -	1,47 -	2,13 -	2,74 -	3,30 -	3,30 -	3,30 -	3,30 -
		1,25	0,56 -	0,85 -	0,97 -	1,17 -	1,47 -	2,13 -	2,74 -	3,30 -	3,82 -	3,82 -	3,82 -
		1,50	0,56 -	0,85 -	0,97 -	1,17 -	1,47 -	2,13 -	2,74 -	3,30 -	3,82 -	4,90 -	4,90 -
	1,75	0,56 -	0,85 -	0,97 -	1,17 -	1,47 -	2,13 -	2,74 -	3,30 -	3,82 -	4,90 -	- -	
	2,00	0,56 -	0,85 -	0,97 -	1,17 -	1,47 -	2,13 -	2,74 -	3,30 -	3,82 -	4,90 -	- -	
	N _{R,k} [kN]	0,40	0,31 -	0,33 -	0,41 -	0,47 -	0,57 -	0,82 -	1,06 -	1,06 -	1,06 -	1,06 -	1,06 -
		0,50	0,31 -	0,33 -	0,41 -	0,47 -	0,57 -	0,82 -	1,06 -	1,06 -	1,06 -	1,06 -	1,06 -
		0,55	0,31 -	0,33 -	0,41 -	0,47 -	0,57 -	0,82 -	1,06 -	1,06 -	1,06 -	1,06 -	1,06 -
		0,63	0,31 -	0,33 -	0,41 -	0,47 -	0,57 -	0,82 -	1,06 -	1,06 -	1,06 -	1,06 -	1,06 -
		0,75	0,31 -	0,33 -	0,41 -	0,47 -	0,57 -	0,82 -	1,06 -	1,06 -	1,06 -	1,06 -	1,06 -
		0,88	0,31 -	0,33 -	0,41 -	0,47 -	0,57 -	0,82 -	1,06 -	1,06 -	1,06 -	1,06 -	1,06 -
		1,00	0,31 -	0,33 -	0,41 -	0,47 -	0,57 -	0,82 -	1,06 -	1,06 -	1,06 -	1,06 -	1,06 -
		1,13	0,31 -	0,33 -	0,41 -	0,47 -	0,57 -	0,82 -	1,06 -	1,06 -	1,06 -	1,06 -	1,06 -
1,25		0,31 -	0,33 -	0,41 -	0,47 -	0,57 -	0,82 -	1,06 -	1,06 -	1,06 -	1,06 -	1,06 -	
1,50		0,31 -	0,33 -	0,41 -	0,47 -	0,57 -	0,82 -	1,06 -	1,06 -	1,06 -	1,06 -	1,06 -	
1,75	0,31 -	0,33 -	0,41 -	0,47 -	0,57 -	0,82 -	1,06 -	1,06 -	1,06 -	1,06 -	- -		
2,00	0,31 -	0,33 -	0,41 -	0,47 -	0,57 -	0,82 -	1,06 -	1,06 -	1,06 -	1,06 -	- -		
N _{R,k,II}		0,31 -	0,33 -	0,41 -	0,47 -	0,57 -	0,82 -	1,06 -	1,06 -	1,06 -	1,06 -	1,06 -	

Self-drilling screw	Annex 7
KDH2 4,8 x L	

	<p>Materials</p> <p>Fastener: Stainless steel 1.4301- EN 10088</p> <p>Washer: Stainless steel 1.4301- EN 10088 with vulcanized EPDM-seal</p> <p>Component I: S280GD to S350GD - EN 10346</p> <p>Component II: S280GD to S350GD - EN 10346 S235 to S355 – EN 10025-2</p>
	<p>Drilling-capacity $\Sigma(t_I + t_{II}) \leq 3.50$ mm</p>

		Component II											
		S280 GD to S350 GD – EN 10346, S235 – EN 10025-2											
		t II [mm]											
		0,40	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	1,50	≥ 2,00	
Component I S280 GD to S350 GD - 10346	V _{R,k} [kN]	0,40	0,59	0,59	0,59	0,59	0,59	0,59	0,59	0,59	0,59	0,59	0,59
		0,50	0,59	0,77	0,77	0,77	0,77	0,77	0,77	0,77	0,77	0,77	0,77
		0,55	0,59	0,77	0,92	0,92	0,92	0,92	0,92	0,92	0,92	0,92	0,92
		0,63	0,59	0,77	0,92	1,16	1,16	1,16	1,16	1,16	1,16	1,16	1,16
		0,75	0,59	0,77	0,92	1,16	1,52	1,52	1,52	1,52	1,52	1,52	1,52
		0,88	0,59	0,77	0,92	1,16	1,52	2,03	2,03	2,03	2,03	2,03	2,03
		1,00	0,59	0,77	0,92	1,16	1,52	2,03	2,50	2,50	2,50	2,50	2,50
		1,13	0,59	0,77	0,92	1,16	1,52	2,03	2,50	3,03	3,03	3,03	3,03
		1,25	0,59	0,77	0,92	1,16	1,52	2,03	2,50	3,03	3,52	3,52	3,52
		1,50	0,59	0,77	0,92	1,16	1,52	2,03	2,50	3,03	3,52	4,54	4,54
	1,75	0,59	0,77	0,92	1,16	1,52	2,03	2,50	3,03	3,52	4,54	-	
	2,00	0,59	0,77	0,92	1,16	1,52	2,03	2,50	3,03	3,52	4,54	-	
	N _{R,k} [kN]	0,40	0,34	0,47	0,52	0,60	0,72	0,95	1,16	1,45	1,52	1,52	1,52
		0,50	0,34	0,47	0,52	0,60	0,72	0,95	1,16	1,45	1,73	1,86	1,86
		0,55	0,34	0,47	0,52	0,60	0,72	0,95	1,16	1,45	1,73	2,21	2,21
		0,63	0,34	0,47	0,52	0,60	0,72	0,95	1,16	1,45	1,73	2,29	2,76
		0,75	0,34	0,47	0,52	0,60	0,72	0,95	1,16	1,45	1,73	2,29	3,13
		0,88	0,34	0,47	0,52	0,60	0,72	0,95	1,16	1,45	1,73	2,29	3,13
		1,00	0,34	0,47	0,52	0,60	0,72	0,95	1,16	1,45	1,73	2,29	3,13
		1,13	0,34	0,47	0,52	0,60	0,72	0,95	1,16	1,45	1,73	2,29	3,13
1,25		0,34	0,47	0,52	0,60	0,72	0,95	1,16	1,45	1,73	2,29	3,13	
1,50		0,34	0,47	0,52	0,60	0,72	0,95	1,16	1,45	1,73	2,29	3,13	
1,75	0,34	0,47	0,52	0,60	0,72	0,95	1,16	1,45	1,73	2,29	-		
2,00	0,34	0,47	0,52	0,60	0,72	0,95	1,16	1,45	1,73	2,29	-		
N _{R,k,II}		0,34	0,47	0,52	0,60	0,72	0,95	1,16	1,45	1,73	2,29	3,13	

Self-drilling screw	Annex 8
KDH2 5,5 x L	

English translation prepared by DIBt

	<p>Materials</p> <p>Fastener: Stainless steel 1.4301- EN 10088</p> <p>Washer: Stainless steel 1.4301- EN 10088 with vulcanized EPDM-seal</p> <p>Component I: S280GD to S350GD - EN 10346</p> <p>Component II: S280GD to S350GD - EN 10346 S235 – EN 10025-2</p>
	<p>Drilling-capacity $\Sigma(t_I + t_{II}) \leq 6.00$ mm</p>

		Component II						
		S280 GD to S350 GD – EN 10346, S235 – EN 10025-2						
		t II [mm]						
		1,50	2,00	2,50	3,00	4,00	2x1,50	
Component I S280 GD to S350 GD - 10346	t I [mm]	0,40	1,36 ac	1,36 ac	1,36 ac	1,36 ac	1,36 ac	1,36 ac
		0,50	1,76 ac	1,76 ac	1,76 ac	1,76 ac	1,76 ac	1,76 ac
		0,55	1,96 ac	1,96 ac	1,96 ac	1,96 ac	1,96 ac	1,96 ac
		0,63	2,28 ac	2,28 ac	2,28 ac	2,28 ac	2,28 ac	2,28 ac
		0,75	2,76 ac	2,76 ac	2,76 ac	2,76 ac	2,76 ac	2,76 ac
		0,88	2,96 ac	2,96 ac	2,96 ac	2,96 ac	2,96 ac	3,24 ac
		1,00	3,15 ac	3,15 ac	3,15 ac	3,15 ac	3,15 ac	3,68 ac
		1,13	3,15 -	3,15 -	3,15 -	3,15 -	3,15 -	3,68 -
		1,25	3,15 -	3,15 -	3,15 -	3,15 -	3,15 -	3,68 -
		1,50	3,15 -	3,15 -	3,15 -	3,15 -	3,15 -	3,68 -
	1,75	3,15 -	3,15 -	3,15 -	3,15 -	3,15 -	3,68 -	
	2,00	3,15 -	3,15 -	3,15 -	3,15 -	3,15 -	3,68 -	
	N _{R,k} [kN]	0,40	1,91 ac	1,92 ac	1,92 ac	1,92 ac	1,92 ac	1,92 ac
		0,50	1,91 ac	1,95 ac	1,95 ac	1,95 ac	1,95 ac	1,95 ac
		0,55	1,91 ac	2,36 ac	2,36 ac	2,36 ac	2,36 ac	2,36 ac
		0,63	1,91 ac	3,02 ac	3,02 ac	3,02 ac	3,02 ac	3,02 ac
		0,75	1,91 ac	3,07 ac	4,01 ac	4,01 ac	4,01 ac	4,01 ac
		0,88	1,91 ac	3,07 ac	4,01 ac	4,01 ac	4,01 ac	4,01 ac
		1,00	1,91 ac	3,07 ac	4,01 ac	4,01 ac	4,01 ac	4,01 ac
		1,13	1,91 -	3,07 -	4,01 -	4,01 -	4,01 -	4,01 -
1,25		1,91 -	3,07 -	4,01 -	4,01 -	4,01 -	4,01 -	
1,50		1,91 -	3,07 -	4,01 -	4,01 -	4,01 -	4,01 -	
1,75	1,91 -	3,07 -	4,01 -	4,01 -	4,01 -	4,01 -		
2,00	1,91 -	3,07 -	4,01 -	4,01 -	4,01 -	4,01 -		
N _{R,k,II}		1,91 -	3,07 -	4,09 -	5,10 -	5,10 -	4,26 -	

Self-drilling screw	Annex 9
KDH3 5,5 x L	

English translation prepared by DIBt

	<p>Materials</p> <p>Fastener: Stainless steel 1.4301- EN 10088</p> <p>Washer: Stainless steel 1.4301- EN 10088 with vulcanized EPDM-seal</p> <p>Component I: S280GD to S350GD - EN 10346</p> <p>Component II: S280GD to S350GD - EN 10346 S235 – EN 10025-2</p>
	<p>Drilling-capacity $\Sigma(t_I + t_{II}) \leq 12.50$ mm</p>

		Component II				
		S280 GD to S350 GD – EN 10346, S235 – EN 10025-2 t II [mm]				
		4,00	6,00	8,00	10,00	
Component I S280 GD to S350 GD - 10346	V _{R,k} [kN]	0,40	1,10 abcd	1,10 abcd	1,10 abcd	1,10 abcd
		0,50	2,04 abcd	2,04 abcd	2,04 abcd	2,04 abcd
		0,55	2,24 abcd	2,24 abcd	2,24 abcd	2,24 abcd
		0,63	2,55 abcd	2,55 abcd	2,55 abcd	2,55 abcd
		0,75	3,02 abcd	3,02 abcd	3,02 abcd	3,02 abcd
		0,88	3,88 abcd	3,88 abcd	3,88 abcd	3,88 abcd
		1,00	4,68 abcd	4,68 abcd	4,68 abcd	4,68 abcd
		1,13	4,68 -	4,68 -	4,68 -	4,68 -
		1,25	4,68 -	4,68 -	4,68 -	4,68 -
		1,50	4,68 -	4,68 -	4,68 -	4,68 -
	N _{R,k} [kN]	0,40	1,55 abcd	1,55 abcd	1,55 abcd	1,55 abcd
		0,50	1,78 abcd	1,78 abcd	1,78 abcd	1,78 abcd
		0,55	2,26 abcd	2,26 abcd	2,26 abcd	2,26 abcd
		0,63	3,03 abcd	3,03 abcd	3,03 abcd	3,03 abcd
		0,75	4,19 abcd	4,19 abcd	4,19 abcd	4,19 abcd
		0,88	4,19 abcd	4,19 abcd	4,19 abcd	4,19 abcd
		1,00	4,19 abcd	4,19 abcd	4,19 abcd	4,19 abcd
		1,13	4,19 -	4,19 -	4,19 -	4,19 -
		1,25	4,19 -	4,19 -	4,19 -	4,19 -
		1,50	4,19 -	4,19 -	4,19 -	4,19 -
N _{R,k,II}		5,42 -	5,42 -	5,42 -	5,42 -	

Self-drilling screw	Annex 10
KDH5 5,5 x L	

	<p>Materials</p> <p>Fastener: Stainless steel 1.4567- EN 10088</p> <p>Washer: Stainless steel 1.4301- EN 10088 with vulcanized EPDM-seal</p> <p>Component I: S280GD to S350GD - EN 10346</p> <p>Component II: S280GD to S350GD - EN 10346 S235 – EN 10025-2</p>
	<p>Drilling-capacity $\Sigma(t_i + t_{ii}) \leq 2.20$ mm</p>

		Component II											
		S280 GD to S350 GD – EN 10346, S235 – EN 10025-2											
		t II [mm]											
		0,40	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	1,50	1,75	
Component I S280 GD to S350 GD - 10346	V _{R,k} [kN]	0,40	0,71 - 0,71	0,71 - 0,71	0,71 - 0,71	0,71 - 0,71	0,71 - 0,71	0,71 - 0,71	0,71 - 0,71	0,71 - 0,71	0,71 - 0,71	0,71 - 0,71	0,71 - 0,71
		0,50	0,71 - 0,81 ¹⁾	0,81 ¹⁾ - 0,81 ¹⁾	0,81 ¹⁾ - 0,81 ¹⁾	0,81 ¹⁾ - 0,81 ¹⁾	0,81 ¹⁾ - 0,81 ¹⁾	0,81 ¹⁾ - 0,81 ¹⁾	0,81 ¹⁾ - 0,81 ¹⁾	0,81 ¹⁾ - 0,81 ¹⁾	0,81 ¹⁾ - 0,81 ¹⁾	0,81 ¹⁾ - 0,81 ¹⁾	- -
		0,55	0,71 - 0,81 ¹⁾	0,95 - 0,95	0,95 - 0,95	0,95 - 0,95	0,95 - 0,95	0,95 - 0,95	0,95 - 0,95	0,95 - 0,95	0,95 - 0,95	0,95 - 0,95	- -
		0,63	0,71 - 0,81 ¹⁾	0,95 - 0,95	1,17 - 1,17	1,17 - 1,17	1,17 - 1,17	1,17 - 1,17	1,17 - 1,17	1,17 - 1,17	1,17 - 1,17	- -	- -
		0,75	0,71 - 0,81 ¹⁾	0,95 - 0,95	1,17 - 1,17	1,51 - 1,51	1,51 - 1,51	1,51 - 1,51	1,51 - 1,51	1,51 - 1,51	1,51 - 1,51	- -	- -
		0,88	0,71 - 0,81 ¹⁾	0,95 - 0,95	1,17 - 1,17	1,51 - 1,51	2,20 - 2,20	2,20 - 2,20	2,20 - 2,20	2,20 - 2,20	2,20 - 2,20	- -	- -
		1,00	0,71 - 0,81 ¹⁾	0,95 - 0,95	1,17 - 1,17	1,51 - 1,51	2,20 - 2,20	2,84 ¹⁾ - 2,84 ¹⁾	2,84 ¹⁾ - 2,84 ¹⁾	- -	- -	- -	- -
		1,13	0,71 - 0,81 ¹⁾	0,95 - 0,95	1,17 - 1,17	1,51 - 1,51	2,20 - 2,20	2,84 ¹⁾ - 2,84 ¹⁾	- -	- -	- -	- -	- -
		1,25	0,71 - 0,81 ¹⁾	0,95 - 0,95	1,17 - 1,17	1,51 - 1,51	2,20 - 2,20	- -	- -	- -	- -	- -	- -
		1,50	0,71 - 0,81 ¹⁾	0,95 - 0,95	1,17 - 1,17	- -	- -	- -	- -	- -	- -	- -	- -
	1,75	0,71 - 0,71	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	
	N _{R,k} [kN]	0,40	0,41 - 0,59 ¹⁾	0,68 - 0,68	0,81 - 0,81	1,02 - 1,02	1,28 - 1,28	1,28 - 1,28	1,28 - 1,28	1,28 - 1,28	1,28 - 1,28	1,28 - 1,28	1,28 - 1,28
		0,50	0,41 - 0,59 ¹⁾	0,68 - 0,68	0,81 - 0,81	1,02 - 1,02	1,30 - 1,30	1,56 ¹⁾ - 1,56 ¹⁾	1,56 ¹⁾ - 1,56 ¹⁾	1,56 ¹⁾ - 1,56 ¹⁾	1,56 ¹⁾ - 1,56 ¹⁾	- -	- -
		0,55	0,41 - 0,59 ¹⁾	0,68 - 0,68	0,81 - 0,81	1,02 - 1,02	1,30 - 1,30	1,56 ¹⁾ - 1,56 ¹⁾	1,56 ¹⁾ - 1,56 ¹⁾	1,56 ¹⁾ - 1,56 ¹⁾	1,56 ¹⁾ - 1,56 ¹⁾	- -	- -
		0,63	0,41 - 0,59 ¹⁾	0,68 - 0,68	0,81 - 0,81	1,02 - 1,02	1,30 - 1,30	1,56 ¹⁾ - 1,56 ¹⁾	1,56 ¹⁾ - 1,56 ¹⁾	1,56 ¹⁾ - 1,56 ¹⁾	- -	- -	- -
		0,75	0,41 - 0,59 ¹⁾	0,68 - 0,68	0,81 - 0,81	1,02 - 1,02	1,30 - 1,30	1,56 ¹⁾ - 1,56 ¹⁾	1,56 ¹⁾ - 1,56 ¹⁾	1,56 ¹⁾ - 1,56 ¹⁾	- -	- -	- -
		0,88	0,41 - 0,59 ¹⁾	0,68 - 0,68	0,81 - 0,81	1,02 - 1,02	1,30 - 1,30	1,56 ¹⁾ - 1,56 ¹⁾	1,56 ¹⁾ - 1,56 ¹⁾	1,56 ¹⁾ - 1,56 ¹⁾	- -	- -	- -
		1,00	0,41 - 0,59 ¹⁾	0,68 - 0,68	0,81 - 0,81	1,02 - 1,02	1,30 - 1,30	1,56 ¹⁾ - 1,56 ¹⁾	1,56 ¹⁾ - 1,56 ¹⁾	- -	- -	- -	- -
		1,13	0,41 - 0,59 ¹⁾	0,68 - 0,68	0,81 - 0,81	1,02 - 1,02	1,30 - 1,30	1,56 ¹⁾ - 1,56 ¹⁾	- -	- -	- -	- -	- -
1,25		0,41 - 0,59 ¹⁾	0,68 - 0,68	0,81 - 0,81	1,02 - 1,02	1,30 - 1,30	- -	- -	- -	- -	- -	- -	
1,50		0,41 - 0,59 ¹⁾	0,68 - 0,68	0,81 - 0,81	- -	- -	- -	- -	- -	- -	- -	- -	
1,75	0,41 - 0,41	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -		
N _{R,k,II}		0,41 - 0,59 ¹⁾	0,68 - 0,68	0,81 - 0,81	1,02 - 1,02	1,30 - 1,30	1,56 ¹⁾ - 1,56 ¹⁾	1,56 ¹⁾ - 1,56 ¹⁾	1,56 ¹⁾ - 1,56 ¹⁾	1,56 ¹⁾ - 1,56 ¹⁾	1,56 ¹⁾ - 1,56 ¹⁾	1,56 ¹⁾ - 1,56 ¹⁾	

¹⁾ if component I and component II are made of S320GD S350GD the values may be increased by 8.3%.

Self-drilling screw	Annex 11
KDT1 4,8 x L	

	<p>Materials</p> <p>Fastener: Stainless steel 1.4567- EN 10088</p> <p>Washer: Stainless steel 1.4301- EN 10088 with vulcanized EPDM-seal</p> <p>Component I: S280GD to S350GD - EN 10346</p> <p>Component II: S280GD to S350GD - EN 10346 S235 to S355 – EN 10025-2</p>
	<p>Drilling-capacity $\Sigma(t_I + t_{II}) \leq 3.50$ mm</p>

		Component II											
		S280 GD to S350 GD – EN 10346, S235 – EN 10025-2											
		t II [mm]											
		0,40	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	1,50	2,00	
Component I S280 GD to S350 GD - 10346 t I [mm]	V _{R,k} [kN]	0,40	0,64 -	0,64 -	0,64 -	0,64 -	0,64 -	0,64 -	0,64 -	0,64 -	0,64 -	0,64 -	0,64 -
		0,50	0,64 -	0,87 -	0,87 -	0,87 -	0,87 -	0,87 -	0,87 -	0,87 -	0,87 -	0,87 -	0,87 -
		0,55	0,64 -	0,87 -	1,02 -	1,02 -	1,02 -	1,02 -	1,02 -	1,02 -	1,02 -	1,02 -	1,02 -
		0,63	0,64 -	0,87 -	1,02 -	1,27 -	1,27 -	1,27 -	1,27 -	1,27 -	1,27 -	1,27 -	1,27 -
		0,75	0,64 -	0,87 -	1,02 -	1,27 -	1,63 -	1,63 -	1,63 -	1,63 -	1,63 -	1,63 -	1,63 -
		0,88	0,64 -	0,87 -	1,02 -	1,27 -	1,63 -	2,03 -	2,03 -	2,03 -	2,03 -	2,03 -	2,03 -
		1,00	0,64 -	0,87 -	1,02 -	1,27 -	1,63 -	2,03 -	2,40 -	2,40 -	2,40 -	2,40 -	2,40 -
		1,13	0,64 -	0,87 -	1,02 -	1,27 -	1,63 -	2,03 -	2,40 -	2,40 -	2,40 -	2,40 -	2,40 -
		1,25	0,64 -	0,87 -	1,02 -	1,27 -	1,63 -	2,03 -	2,40 -	2,40 -	2,40 -	2,40 -	2,40 -
		1,50	0,64 -	0,87 -	1,02 -	1,27 -	1,63 -	2,03 -	2,40 -	2,40 -	2,40 -	2,40 -	2,40 -
	1,75	0,64 -	0,87 -	1,02 -	1,27 -	1,63 -	2,03 -	2,40 -	2,40 -	2,40 -	2,40 -	- -	
	2,00	0,64 -	0,87 -	1,02 -	1,27 -	1,63 -	2,03 -	2,40 -	2,40 -	2,40 -	2,40 -	- -	
	N _{R,k} [kN]	0,40	0,37 -	0,49 -	0,56 -	0,66 -	0,82 -	1,05 -	1,27 -	1,27 -	1,27 -	1,27 -	1,27 -
		0,50	0,37 -	0,49 -	0,56 -	0,66 -	0,82 -	1,05 -	1,27 -	1,27 -	1,27 -	1,27 -	1,27 -
		0,55	0,37 -	0,49 -	0,56 -	0,66 -	0,82 -	1,05 -	1,27 -	1,27 -	1,27 -	1,27 -	1,27 -
		0,63	0,37 -	0,49 -	0,56 -	0,66 -	0,82 -	1,05 -	1,27 -	1,27 -	1,27 -	1,27 -	1,27 -
		0,75	0,37 -	0,49 -	0,56 -	0,66 -	0,82 -	1,05 -	1,27 -	1,27 -	1,27 -	1,27 -	1,27 -
		0,88	0,37 -	0,49 -	0,56 -	0,66 -	0,82 -	1,05 -	1,27 -	1,27 -	1,27 -	1,27 -	1,27 -
		1,00	0,37 -	0,49 -	0,56 -	0,66 -	0,82 -	1,05 -	1,27 -	1,27 -	1,27 -	1,27 -	1,27 -
		1,13	0,37 -	0,49 -	0,56 -	0,66 -	0,82 -	1,05 -	1,27 -	1,27 -	1,27 -	1,27 -	1,27 -
1,25		0,37 -	0,49 -	0,56 -	0,66 -	0,82 -	1,05 -	1,27 -	1,27 -	1,27 -	1,27 -	1,27 -	
1,50		0,37 -	0,49 -	0,56 -	0,66 -	0,82 -	1,05 -	1,27 -	1,27 -	1,27 -	1,27 -	1,27 -	
1,75	0,37 -	0,49 -	0,56 -	0,66 -	0,82 -	1,05 -	1,27 -	1,27 -	1,27 -	1,27 -	- -		
2,00	0,37 -	0,49 -	0,56 -	0,66 -	0,82 -	1,05 -	1,27 -	1,27 -	1,27 -	1,27 -	- -		
N _{R,k,II}		0,37 -	0,49 -	0,56 -	0,66 -	0,82 -	1,05 -	1,27 -	1,27 -	1,27 -	1,27 -	1,27 -	

Self-drilling screw	Annex 12
KDT2 5,5 x L	

	<p>Materials</p> <p>Fastener: Stainless steel 1.4567- EN 10088</p> <p>Washer: Stainless steel 1.4301- EN 10088 with vulcanized EPDM-seal</p> <p>Component I: S280GD to S350GD - EN 10346</p> <p>Component II: S280GD to S350GD - EN 10346 S235 – EN 10025-2</p>
	<p>Drilling-capacity $\Sigma(t_I + t_{II}) \leq 3.50$ mm</p>

		Component II																								
		S280 GD to S350 GD – EN 10346, S235 – EN 10025-2																								
		t II [mm]																								
		2x0,50	2x0,55	2x0,63	2x0,75	2x0,88	2x1,00	2x1,13	2x1,25	2x1,50																
Component I S280 GD to S350 GD - 10346	V _{R,k} [kN]	0,40	1,19	-	1,19	-	1,19	-	1,19	-	1,19	-	1,19	-	1,19	-	1,19	-	1,19	-	1,19	-	1,19	-		
		0,50	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-		
		0,55	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	-	-		
		0,63	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	-	-		
		0,75	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	-	-		
		0,88	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	-	-		
		1,00	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	-	-		
		1,13	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	-	-	-	-		
		1,25	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	-	-	-	-	-	-		
		1,50	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	1,62	-	-	-	-	-	-	-	-	-	-	-		
		1,75	1,62	-	1,62	-	1,62	-	1,62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		2,00	1,62	-	1,62	-	1,62	-	1,62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		Component I S280 GD to S350 GD - 10346	N _{R,k} [kN]	0,40	1,03	-	1,19	-	1,46	-	1,51	-	1,51	-	1,51	-	1,51	-	1,51	-	1,51	-	1,51	-	1,51	-
				0,50	1,03	-	1,19	-	1,46	-	1,55	-	1,55	-	1,55	-	1,55	-	1,55	-	1,55	-	1,55	-	1,55	-
0,55	1,03			-	1,19	-	1,46	-	1,85	-	2,04	-	2,04	-	2,04	-	2,04	-	2,04	-	-	-	-	-		
0,63	1,03			-	1,19	-	1,46	-	1,85	-	2,29	-	2,69	-	2,69	-	2,69	-	2,69	-	-	-	-	-		
0,75	1,03			-	1,19	-	1,46	-	1,85	-	2,29	-	2,69	-	2,69	-	2,69	-	2,69	-	-	-	-	-		
0,88	1,03			-	1,19	-	1,46	-	1,85	-	2,29	-	2,69	-	2,69	-	2,69	-	2,69	-	-	-	-	-		
1,00	1,03			-	1,19	-	1,46	-	1,85	-	2,29	-	2,69	-	2,69	-	2,69	-	2,69	-	-	-	-	-		
1,13	1,03			-	1,19	-	1,46	-	1,85	-	2,29	-	2,69	-	2,69	-	2,69	-	-	-	-	-	-	-		
1,25	1,03			-	1,19	-	1,46	-	1,85	-	2,29	-	2,69	-	2,69	-	2,69	-	-	-	-	-	-	-		
1,50	1,03			-	1,19	-	1,46	-	1,85	-	2,29	-	2,69	-	-	-	-	-	-	-	-	-	-	-		
1,75	1,03			-	1,19	-	1,46	-	1,85	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
2,00	1,03			-	1,19	-	1,46	-	1,85	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
N _{R,k,II}	1,03			-	1,19	-	1,46	-	1,85	-	2,29	-	2,69	-	2,69	-	2,69	-	2,69	-	2,69	-	2,69	-		

Self-drilling screw	Annex 13
KDT2 5,5 x L	

	<p>Materials</p> <p>Fastener: Stainless steel 1.4301 or 1.4567- EN 10088</p> <p>Washer: Stainless steel 1.4301- EN 10088 with vulcanized EPDM-seal</p> <p>Component I: Aluminum alloy – EN 573 $R_m \geq 165 \text{ N/mm}^2$</p> <p>Component II: Aluminum alloy – EN 573 $R_m \geq 165 \text{ N/mm}^2$</p>
	<p>Drilling-capacity $\Sigma(t_i + t_{ii}) \leq 4.20 \text{ mm}$</p>

		Component II				
		Aluminum alloy – EN 573 $R_m \geq 165 \text{ N/mm}^2$ t II [mm]				
		1,50	2,00	2,50	3,00	
Component I Aluminum alloy – EN 573 $R_m \geq 165 \text{ N/mm}^2$ t I [mm]	$V_{R,k}$ [kN]	0,50	0,47 abcd	0,47 abc	0,47 abc	0,47 abc
		0,60	0,57 abcd	0,57 abc	0,57 abc	0,57 abc
		0,70	0,68 abcd	0,68 abc	0,68 abc	0,68 a
		0,80	0,78 abcd	0,78 abc	0,78 abc	0,78 a
		0,90	0,92 abc	0,92 abc	0,92 a	0,92 a
		1,00	1,06 abc	1,06 abc	1,06 a	1,06 a
		1,20	1,31 abc	1,31 a	1,31 a	1,31 a
		1,50	1,69 abc	1,69 a	1,69 a	- -
	2,00	1,69 -	2,64 a	- -	- -	
	$N_{R,k}$ [kN]	0,50	0,41 abcd	0,41 abcd	0,41 abc	0,41 abc
		0,60	0,49 abcd	0,49 abc	0,49 abc	0,49 abc
		0,70	0,56 abcd	0,56 abc	0,56 abc	0,56 a
		0,80	0,64 abcd	0,64 abc	0,64 abc	0,64 a
		0,90	0,68 abc	0,68 abc	0,68 a	0,68 a
		1,00	0,70 abc	0,71 abc	0,71 a	0,71 a
		1,20	0,70 abc	1,00 a	1,03 a	1,03 a
1,50		0,70 abc	1,00 a	1,52 a	- -	
2,00	0,70 -	1,00 a	- -	- -		
$N_{R,k,II}$		0,70 -	1,00 -	1,69 -	2,38 -	

Self-drilling screw	Annex 14
KDH2 5,5 x L - Aluminum KDT2 5,5 x L - Aluminum	

English translation prepared by DIBt

	<p>Materials</p> <p>Fastener: Stainless steel 1.4301 or 1.4567- EN 10088</p> <p>Washer: Stainless steel 1.4301- EN 10088 with vulcanized EPDM-seal</p> <p>Component I: Aluminum alloy – EN 573 $R_m \geq 215 \text{ N/mm}^2$</p> <p>Component II: Aluminum alloy – EN 573 $R_m \geq 215 \text{ N/mm}^2$</p>
	<p>Drilling-capacity $\Sigma(t_I + t_{II}) \leq 4.20 \text{ mm}$</p>

		Component II					
		Aluminum alloy – EN 573 $R_m \geq 215 \text{ N/mm}^2$ $t_{II} [\text{mm}]$					
		1,50	2,00	2,50	3,00		
Component I Aluminum alloy – EN 573 $R_m \geq 215 \text{ N/mm}^2$ $t_I [\text{mm}]$	$V_{R,k} [\text{kN}]$	0,50	0,62 abcd	0,62 abcd	0,62 abc	0,62 abc	
		0,60	0,75 abcd	0,75 abc	0,75 abc	0,75 abc	
		0,70	0,89 abcd	0,89 abc	0,89 abc	0,89 a	
		0,80	1,02 abcd	1,02 abc	1,02 abc	1,02 a	
		0,90	1,21 abc	1,21 abc	1,21 a	1,21 a	
		1,00	1,39 abc	1,39 abc	1,39 a	1,39 a	
		1,20	1,71 abc	1,71 a	1,71 a	1,71 a	
	$N_{R,k} [\text{kN}]$	1,50	2,20 abc	2,20 a	2,20 a	-	-
		2,00	2,20 -	3,44 a	-	-	-
		0,50	0,53 abcd	0,53 abcd	0,53 abc	0,53 abc	
		0,60	0,63 abcd	0,63 abc	0,63 abc	0,63 abc	
		0,70	0,73 abcd	0,73 abc	0,73 abc	0,73 a	
		0,80	0,83 abcd	0,83 abc	0,83 abc	0,83 a	
		0,90	0,87 abc	0,87 abc	0,87 a	0,87 a	
1,00	0,91 abc	0,91 abc	0,91 a	0,91 a			
1,20	0,91 abc	1,30 a	1,34 a	1,34 a			
1,50	0,91 abc	1,30 a	1,98 a	-	-		
2,00	0,91 -	1,30 a	-	-	-		
$N_{R,k,II}$		0,91 -	1,30 -	2,20 -	3,10 -		

Self-drilling screw	Annex 15
KDH2 5,5 x L - Aluminum KDT2 5,5 x L - Aluminum	

	Materials Fastener: Stainless steel 1.4301- EN 10088 Washer: Stainless steel 1.4301- EN 10088 with vulcanized EPDM-seal Component I: Aluminum alloy – EN 573 $R_m \geq 165 \text{ N/mm}^2$ Component II: Aluminum alloy – EN 573 $R_m \geq 165 \text{ N/mm}^2$
	Drilling-capacity $\Sigma(t_I + t_{II}) \leq 6.50 \text{ mm}$

		Component II				
		Aluminum alloy – EN 573 $R_m \geq 165 \text{ N/mm}^2$ $t_{II} [\text{mm}]$				
		2,00	2,50	3,00	4,00	
Component I Aluminum alloy – EN 573 $R_m \geq 165 \text{ N/mm}^2$ $t_I [\text{mm}]$	$V_{R,k} [\text{kN}]$	0,50	0,44 -	0,44 -	0,44 -	0,44 -
		0,60	0,61 -	0,61 -	0,61 -	0,61 -
		0,70	0,78 -	0,78 -	0,78 -	0,78 -
		0,80	0,95 -	0,95 -	0,95 -	0,95 -
		0,90	1,12 -	1,12 -	1,12 -	1,12 -
		1,00	1,28 -	1,28 -	1,28 -	1,28 -
		1,20	1,52 -	1,52 -	1,52 -	1,52 -
	1,50	1,89 -	1,89 -	1,89 -	1,89 -	
	2,00	2,35 -	2,35 -	2,35 -	2,35 -	
	$N_{R,k} [\text{kN}]$	0,50	0,54 -	0,54 -	0,54 -	0,54 -
		0,60	0,71 -	0,71 -	0,71 -	0,71 -
		0,70	0,89 -	0,89 -	0,89 -	0,89 -
		0,80	0,91 -	1,06 -	1,06 -	1,06 -
		0,90	0,91 -	1,15 -	1,15 -	1,15 -
1,00		0,91 -	1,23 -	1,23 -	1,23 -	
1,20		0,91 -	1,45 -	1,47 -	1,47 -	
1,50	0,91 -	1,45 -	1,83 -	1,83 -		
2,00	0,91 -	1,45 -	1,98 -	3,00 -		
	$N_{R,k,II}$	0,91 -	1,45 -	1,98 -	3,24 -	

Self-drilling screw	Annex 16
KDH3 5,5 x L - Aluminum	

English translation prepared by DIBt

	<p>Materials</p> <p>Fastener: Stainless steel 1.4301- EN 10088</p> <p>Washer: Stainless steel 1.4301- EN 10088 with vulcanized EPDM-seal</p> <p>Component I: Aluminum alloy – EN 573 $R_m \geq 215 \text{ N/mm}^2$</p> <p>Component II: Aluminum alloy – EN 573 $R_m \geq 215 \text{ N/mm}^2$</p>
	<p>Drilling-capacity $\Sigma(t_I + t_{II}) \leq 6.50 \text{ mm}$</p>

		Component II				
		Aluminum alloy – EN 573 $R_m \geq 215 \text{ N/mm}^2$ $t_{II} [\text{mm}]$				
		2,00	2,50	3,00	4,00	
Component I Aluminum alloy – EN 573 $R_m \geq 215 \text{ N/mm}^2$ $t_I [\text{mm}]$	$V_{R,k} [\text{kN}]$	0,50	0,57 -	0,57 -	0,57 -	0,57 -
		0,60	0,79 -	0,79 -	0,79 -	0,79 -
		0,70	1,01 -	1,01 -	1,01 -	1,01 -
		0,80	1,23 -	1,23 -	1,23 -	1,23 -
		0,90	1,45 -	1,45 -	1,45 -	1,45 -
		1,00	1,67 -	1,67 -	1,67 -	1,67 -
		1,20	1,99 -	1,99 -	1,99 -	1,99 -
	$N_{R,k} [\text{kN}]$	1,50	2,46 -	2,46 -	2,46 -	2,46 -
		2,00	3,06 -	3,06 -	3,06 -	3,06 -
		0,50	0,70 -	0,70 -	0,70 -	0,70 -
		0,60	0,93 -	0,93 -	0,93 -	0,93 -
		0,70	1,15 -	1,15 -	1,15 -	1,15 -
		0,80	1,19 -	1,38 -	1,38 -	1,38 -
		0,90	1,19 -	1,49 -	1,49 -	1,49 -
1,00	1,19 -	1,60 -	1,60 -	1,60 -		
1,20	1,19 -	1,89 -	1,92 -	1,92 -		
1,50	1,19 -	1,89 -	2,39 -	2,39 -		
2,00	1,19 -	1,89 -	2,58 -	3,92 -		
	$N_{R,k,II}$	1,19 -	1,89 -	2,58 -	4,22 -	

Self-drilling screw	Annex 17
KDH3 5,5 x L - Aluminum	

	<p>Materials</p> <p>Fastener: Stainless steel 1.4301- EN 10088</p> <p>Washer: Stainless steel 1.4301- EN 10088 with vulcanized EPDM-seal</p> <p>Component I: S280GD to S350GD - EN 10346</p> <p>Component II: Timber ≥ C24 – EN 14081</p>
	<p>Drilling-capacity $\Sigma(t_i) \leq 1.00$ mm</p>
	<p>Characteristics</p> <p>$f_{ax,k} = 13.04$ N/mm² ($l_{ef} = 26$ mm, $\rho_a = 350$ kg/m³)</p>

		Component II							
		Timber ≥ C24, $l_{ef} \geq 26,0$ mm, $l_g \geq 32,0$ mm							
		32,0	38,0	42,0	48,0	52,0	58,0	≥ 62,0	
Component I S280 GD to S350 GD - 10346	$V_{R,k}$ [kN]	0,50	1,16	1,16	1,16	1,16	1,16	1,16	1,16
		0,55	1,32	1,32	1,32	1,32	1,32	1,32	1,32
		0,63	1,59	1,59	1,59	1,59	1,59	1,59	1,59
		0,75	1,98	1,98	1,98	1,98	1,98	1,98	1,98
		0,88	2,02	2,02	2,02	2,02	2,02	2,02	2,02
	$N_{R,k}$ [kN]	1,00	2,06	2,06	2,06	2,06	2,06	2,06	2,06
		0,50	1,88	1,88	1,88	1,88	1,88	1,88	1,88
		0,55	1,98	2,21	2,21	2,21	2,21	2,21	2,21
		0,63	1,98	2,44	2,73	2,73	2,73	2,73	2,73
		0,75	1,98	2,44	2,75	3,20	3,50	3,50	3,50
	0,88	1,98	2,44	2,75	3,20	3,51	3,90	3,90	
	1,00	1,98	2,44	2,75	3,20	3,51	3,97	4,26	
	$N_{R,k,II}$	1,98	2,44	2,75	3,20	3,51	3,97	4,27	

Self-drilling screw	Annex 18
TSH2 6,5 x L	

	<p>Materials</p> <p>Fastener: Stainless steel 1.4301- EN 10088</p> <p>Washer: Stainless steel 1.4301- EN 10088 with vulcanized EPDM-seal</p> <p>Component I: S280GD to S350GD - EN 10346</p> <p>Component II: S280GD to S350GD - EN 10346 S235 to S355 – EN 10025-2</p>
	<p>Drilling-capacity $\Sigma(t_I + t_{II}) \leq 3.00$ mm</p>

		Component II												
		S280 GD to S350 GD – EN 10346, S235 – EN 10025-2												
		t II [mm]												
		0,40	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	1,50	2,00		
Component I S280 GD to S350 GD - 10346	V _{R,k} [kN]	0,40	0,70 -	0,70 -	0,70 -	0,70 -	0,70 -	0,70 -	0,70 -	0,70 -	0,70 -	0,70 -	0,70 -	
		0,50	0,70 -	1,05 -	1,05 -	1,05 -	1,05 -	1,05 -	1,05 -	1,05 -	1,05 -	1,05 -	1,05 -	
		0,55	0,70 -	1,05 -	1,26 -	1,26 -	1,26 -	1,26 -	1,26 -	1,26 -	1,26 -	1,26 -	1,26 -	
		0,63	0,70 -	1,05 -	1,26 -	1,59 -	1,59 -	1,59 -	1,59 -	1,59 -	1,59 -	1,59 -	1,59 -	
		0,75	0,70 -	1,05 -	1,26 -	1,59 -	2,09 -	2,09 -	2,09 -	2,09 -	2,09 -	2,09 -	2,09 -	
		0,88	0,70 -	1,05 -	1,26 -	1,59 -	2,09 -	2,28 -	2,28 -	2,28 -	2,28 -	2,28 -	2,28 -	
		1,00	0,70 -	1,05 -	1,26 -	1,59 -	2,09 -	2,28 -	2,46 ¹⁾ -	2,46 ¹⁾ -	2,46 ¹⁾ -	2,46 ¹⁾ -	2,46 ¹⁾ -	
		1,13	0,70 -	1,05 -	1,26 -	1,59 -	2,09 -	2,28 -	2,46 ¹⁾ -	3,15 -	3,15 -	3,15 -	-	
		1,25	0,70 -	1,05 -	1,26 -	1,59 -	2,09 -	2,28 -	2,46 ¹⁾ -	3,15 -	3,79 -	3,79 -	-	
		1,50	0,70 -	1,05 -	1,26 -	1,59 -	2,09 -	2,28 -	2,46 ¹⁾ -	3,15 -	3,79 -	5,11 -	-	
		2,00	0,70 -	1,05 -	1,26 -	1,59 -	2,09 -	2,28 -	2,46 ¹⁾ -	-	-	-	-	
		N _{R,k} [kN]	0,40	0,67 -	0,86 -	1,01 -	1,26 -	1,64 -	1,71 -	1,71 -	1,71 -	1,71 -	1,71 -	1,71 -
			0,50	0,67 -	0,86 -	1,01 -	1,26 -	1,64 -	1,86 -	2,05 ¹⁾ -	2,31 -	2,31 -	2,31 -	2,31 -
			0,55	0,67 -	0,86 -	1,01 -	1,26 -	1,64 -	1,86 -	2,05 ¹⁾ -	2,52 -	2,70 -	2,70 -	2,70 -
0,63	0,67 -		0,86 -	1,01 -	1,26 -	1,64 -	1,86 -	2,05 ¹⁾ -	2,52 -	2,95 -	3,32 -	3,32 -		
0,75	0,67 -		0,86 -	1,01 -	1,26 -	1,64 -	1,86 -	2,05 ¹⁾ -	2,52 -	2,95 -	3,85 -	4,25 -		
0,88	0,67 -		0,86 -	1,01 -	1,26 -	1,64 -	1,86 -	2,05 ¹⁾ -	2,52 -	2,95 -	3,85 -	4,48 -		
1,00	0,67 -		0,86 -	1,01 -	1,26 -	1,64 -	1,86 -	2,05 ¹⁾ -	2,52 -	2,95 -	3,85 -	4,69 ¹⁾ -		
1,13	0,67 -		0,86 -	1,01 -	1,26 -	1,64 -	1,86 -	2,05 ¹⁾ -	2,52 -	2,95 -	3,85 -	-		
1,25	0,67 -		0,86 -	1,01 -	1,26 -	1,64 -	1,86 -	2,05 ¹⁾ -	2,52 -	2,95 -	3,85 -	-		
1,50	0,67 -		0,86 -	1,01 -	1,26 -	1,64 -	1,86 -	2,05 ¹⁾ -	2,52 -	2,95 -	3,85 -	-		
2,00	0,67 -		0,86 -	1,01 -	1,26 -	1,64 -	1,86 -	2,05 ¹⁾ -	-	-	-	-		
N _{R,k,II}			0,67 -	0,76 -	1,01 -	1,26 -	1,64 -	1,86 -	2,05 ¹⁾ -	2,52 -	2,95 -	3,85 -	5,11 -	

¹⁾ if component I and component II are made of S320GD to S350GD the values may be increased by 8.3%.

Self-drilling screw	Annex 19
KDHB1 6,7 x L	

	<p>Materials</p> <p>Fastener: Stainless steel 1.4301- EN 10088</p> <p>Washer: Stainless steel 1.4301- EN 10088 with vulcanized EPDM-seal</p> <p>Component I: S280GD to S350GD - EN 10346</p> <p>Component II: S280GD to S350GD - EN 10346</p>
	<p>Drilling-capacity $\Sigma(t_i + t_{ii}) \leq 2.50 \text{ mm}$</p>

		Component II									
		S280 GD to S350 GD – EN 10346, S235 – EN 10025-2									
		t II [mm]									
		0,40	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	
Component I S280 GD to S350 GD - 10346	V _{R,k} [kN]	0,40	0,57 - 0,57	0,57 - 0,57	0,57 - 0,57	0,57 - 0,57	0,57 - 0,57	0,57 - 0,57	0,57 - 0,57	0,57 - 0,57	0,57 - 0,57
		0,50	0,57 - 0,75 ¹⁾	0,75 ¹⁾ - 0,75 ¹⁾	0,75 ¹⁾ - 0,75 ¹⁾	0,75 ¹⁾ - 0,75 ¹⁾	0,75 ¹⁾ - 0,75 ¹⁾	0,75 ¹⁾ - 0,75 ¹⁾	0,75 ¹⁾ - 0,75 ¹⁾	0,75 ¹⁾ - 0,75 ¹⁾	0,75 ¹⁾ - 0,75 ¹⁾
		0,55	0,57 - 0,75 ¹⁾	0,99 - 0,99	0,99 - 0,99	0,99 - 0,99	0,99 - 0,99	0,99 - 0,99	0,99 - 0,99	0,99 - 0,99	0,99 - 0,99
		0,63	0,57 - 0,75 ¹⁾	0,99 - 0,99	1,38 - 1,38	1,38 - 1,38	1,38 - 1,38	1,38 - 1,38	1,38 - 1,38	1,38 - 1,38	1,38 - 1,38
		0,75	0,57 - 0,75 ¹⁾	0,99 - 0,99	1,38 - 1,96	1,96 - 1,96	1,96 - 1,96	1,96 - 1,96	1,96 - 1,96	1,96 - 1,96	1,96 - 1,96
		0,88	0,57 - 0,75 ¹⁾	0,99 - 0,99	1,38 - 1,96	1,96 - 2,45	2,45 - 2,45	2,45 - 2,45	2,45 - 2,45	2,45 - 2,45	2,45 - 2,45
		1,00	0,57 - 0,75 ¹⁾	0,99 - 0,99	1,38 - 1,96	1,96 - 2,45	2,45 - 2,89	2,89 - 2,89	2,89 - 2,89	2,89 - 2,89	2,89 - 2,89
		1,13	0,57 - 0,75 ¹⁾	0,99 - 0,99	1,38 - 1,96	1,96 - 2,45	2,45 - 2,89	2,89 - 3,15	3,15 - 3,15	3,15 - 3,15	3,15 - 3,15
		1,25	0,57 - 0,75 ¹⁾	0,99 - 0,99	1,38 - 1,96	1,96 - 2,45	2,45 - 2,89	2,89 - 3,15	3,15 - 3,38	3,38 - 3,38	3,38 - 3,38
	N _{R,k} [kN]	0,40	0,52 - 0,76	0,87 - 1,04	1,29 - 1,52	1,73 ¹⁾ - 1,80	1,80 - 1,80	1,80 - 1,80	1,80 - 1,80	1,80 - 1,80	1,80 - 1,80
		0,50	0,52 - 0,76	0,87 - 1,04	1,29 - 1,52	1,73 ¹⁾ - 2,05	2,05 - 2,28	2,28 - 2,28	2,28 - 2,28	2,28 - 2,28	2,28 - 2,28
		0,55	0,52 - 0,76	0,87 - 1,04	1,29 - 1,52	1,73 ¹⁾ - 2,05	2,05 - 2,35	2,35 - 2,35	2,35 - 2,35	2,35 - 2,35	2,35 - 2,35
		0,63	0,52 - 0,76	0,87 - 1,04	1,29 - 1,52	1,73 ¹⁾ - 2,05	2,05 - 2,35	2,35 - 2,35	2,35 - 2,35	2,35 - 2,35	2,35 - 2,35
0,75		0,52 - 0,76	0,87 - 1,04	1,29 - 1,52	1,73 ¹⁾ - 2,05	2,05 - 2,35	2,35 - 2,35	2,35 - 2,35	2,35 - 2,35	2,35 - 2,35	
0,88		0,52 - 0,76	0,87 - 1,04	1,29 - 1,52	1,73 ¹⁾ - 2,05	2,05 - 2,35	2,35 - 2,35	2,35 - 2,35	2,35 - 2,35	2,35 - 2,35	
N _{R,k,II}	0,52 - 0,76	0,87 - 1,04	1,29 - 1,52	1,73 ¹⁾ - 2,05	2,05 - 2,35	2,35 - 2,35	2,35 - 2,35	2,35 - 2,35	2,35 - 2,35		

¹⁾ if component I and component II are made of S320GD to S350GD the values may be increased by 8.3%.

Self-drilling screw	Annex 20
KDH2A 4,5 x L	

	<p>Materials</p> <p>Fastener: Stainless steel 1.4301- EN 10088</p> <p>Washer: Stainless steel 1.4301- EN 10088 with vulcanized EPDM-seal</p> <p>Component I: S280GD to S350GD - EN 10346</p> <p>Component II: S280GD to S350GD - EN 10346</p>
	<p>Drilling-capacity $\Sigma(t_1 + t_{II}) \leq 2.50 \text{ mm}$</p>

		Component II										
		S280 GD to S350 GD – EN 10346, S235 – EN 10025-2										
		t II [mm]										
		0,40	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	1,50	
Component I S280 GD to S350 GD - 10346	V _{R,k} [kN]	0,40	0,61 - 0,61	0,61 - 0,61	0,61 - 0,61	0,61 - 0,61	0,61 - 0,61	0,61 - 0,61	0,61 - 0,61	0,61 - 0,61	0,61 - 0,61	0,61 - 0,61
		0,50	0,61 - 1,03 ¹⁾	1,03 ¹⁾ - 1,03 ¹⁾	1,03 ¹⁾ - 1,03 ¹⁾	1,03 ¹⁾ - 1,03 ¹⁾	1,03 ¹⁾ - 1,03 ¹⁾	1,03 ¹⁾ - 1,03 ¹⁾	1,03 ¹⁾ - 1,03 ¹⁾	1,03 ¹⁾ - 1,03 ¹⁾	1,03 ¹⁾ - 1,03 ¹⁾	1,03 ¹⁾ - 1,03 ¹⁾
		0,55	0,61 - 1,03 ¹⁾	1,21 - 1,21	1,21 - 1,21	1,21 - 1,21	1,21 - 1,21	1,21 - 1,21	1,21 - 1,21	1,21 - 1,21	1,21 - 1,21	1,21 - 1,21
		0,63	0,61 - 1,03 ¹⁾	1,21 - 1,21	1,49 - 1,49	1,49 - 1,49	1,49 - 1,49	1,49 - 1,49	1,49 - 1,49	1,49 - 1,49	1,49 - 1,49	1,49 - 1,49
		0,75	0,61 - 1,03 ¹⁾	1,21 - 1,21	1,49 - 1,49	1,91 - 1,91	1,91 - 1,91	1,91 - 1,91	1,91 - 1,91	1,91 - 1,91	1,91 - 1,91	1,91 - 1,91
		0,88	0,61 - 1,03 ¹⁾	1,21 - 1,21	1,49 - 1,49	1,91 - 1,91	2,66 - 2,66	2,66 - 2,66	2,66 - 2,66	2,66 - 2,66	2,66 - 2,66	2,66 - 2,66
		1,00	0,61 - 1,03 ¹⁾	1,21 - 1,21	1,49 - 1,49	1,91 - 1,91	2,66 - 2,66	3,35 ¹⁾ - 3,35 ¹⁾	3,35 ¹⁾ - 3,35 ¹⁾	3,35 ¹⁾ - 3,35 ¹⁾	3,35 ¹⁾ - 3,35 ¹⁾	3,35 ¹⁾ - 3,35 ¹⁾
		1,13	0,61 - 1,03 ¹⁾	1,21 - 1,21	1,49 - 1,49	1,91 - 1,91	2,66 - 2,66	3,35 ¹⁾ - 3,35 ¹⁾	4,09 - 4,09	4,09 - 4,09	-	-
		1,25	0,61 - 1,03 ¹⁾	1,21 - 1,21	1,49 - 1,49	1,91 - 1,91	2,66 - 2,66	3,35 ¹⁾ - 3,35 ¹⁾	4,09 - 4,09	4,78 - 4,78	-	-
	N _{R,k} [kN]	0,40	0,62 - 0,88	1,01 - 1,01	1,22 - 1,22	1,52 - 1,52	1,79 - 1,79	1,83 - 1,83	1,83 - 1,83	1,83 - 1,83	1,83 - 1,83	1,83 - 1,83
		0,50	0,62 - 0,88	1,01 - 1,01	1,22 - 1,22	1,52 - 1,52	1,79 - 1,79	2,03 - 2,03	2,03 - 2,03	2,03 - 2,03	2,03 - 2,03	2,03 - 2,03
		0,55	0,62 - 0,88	1,01 - 1,01	1,22 - 1,22	1,52 - 1,52	1,79 - 1,79	2,04 ¹⁾ - 2,04 ¹⁾	2,19 - 2,19	2,19 - 2,19	2,19 - 2,19	2,19 - 2,19
		0,63	0,62 - 0,88	1,01 - 1,01	1,22 - 1,22	1,52 - 1,52	1,79 - 1,79	2,04 ¹⁾ - 2,04 ¹⁾	2,41 - 2,41	2,45 - 2,45	2,45 - 2,45	2,45 - 2,45
0,75		0,62 - 0,88	1,01 - 1,01	1,22 - 1,22	1,52 - 1,52	1,79 - 1,79	2,04 ¹⁾ - 2,04 ¹⁾	2,41 ¹⁾ - 2,41 ¹⁾	2,74 ¹⁾ - 2,74 ¹⁾	2,85 - 2,85	2,85 - 2,85	
0,88		0,62 - 0,88	1,01 - 1,01	1,22 - 1,22	1,52 - 1,52	1,79 - 1,79	2,04 ¹⁾ - 2,04 ¹⁾	2,41 ¹⁾ - 2,41 ¹⁾	2,74 ¹⁾ - 2,74 ¹⁾	3,44 - 3,44	3,44 - 3,44	
N _{R,k,II}	1,00	0,62 - 0,88	1,01 - 1,01	1,22 - 1,22	1,52 - 1,52	1,79 - 1,79	2,04 ¹⁾ - 2,04 ¹⁾	2,41 ¹⁾ - 2,41 ¹⁾	2,74 ¹⁾ - 2,74 ¹⁾	3,44 ¹⁾ - 3,44 ¹⁾	3,44 ¹⁾ - 3,44 ¹⁾	
	1,13	0,62 - 0,88	1,01 - 1,01	1,22 - 1,22	1,52 - 1,52	1,79 - 1,79	2,04 ¹⁾ - 2,04 ¹⁾	2,41 ¹⁾ - 2,41 ¹⁾	2,74 ¹⁾ - 2,74 ¹⁾	-	-	
	1,25	0,62 - 0,88	1,01 - 1,01	1,22 - 1,22	1,52 - 1,52	1,79 - 1,79	2,04 ¹⁾ - 2,04 ¹⁾	2,41 ¹⁾ - 2,41 ¹⁾	2,74 ¹⁾ - 2,74 ¹⁾	-	-	
	N _{R,k,II}	0,62 - 0,88	1,01 - 1,01	1,22 - 1,22	1,52 - 1,52	1,79 - 1,79	2,04 ¹⁾ - 2,04 ¹⁾	2,41 ¹⁾ - 2,41 ¹⁾	2,74 ¹⁾ - 2,74 ¹⁾	3,44 ¹⁾ - 3,44 ¹⁾	3,44 ¹⁾ - 3,44 ¹⁾	

¹⁾ if component I and component II are made of S320GD to S350GD the values may be increased by 8.3%.

Self-drilling screw	Annex 21
KDH2A 6,0 x L	