TRUTEK TSC-V GLASS CAPSULES

Features:

- Installation of threaded studs
- Approved for cracked & non-crack concrete
- Can be used in dry wet and flooded holes
- High loading capaity
- Class A1 reaction to fire

Benefits:

- No waste
- Suitable for concrete from c20/25 to c50/60
- High loads

For use with:

- Cracked Concrete
- Non Cracked Concrete
- Flooded Holes

VOC CLASSIFICATION* A+ (A+ A B C)

ETA-21/1079

DesignFiX®

Resin setting times									
Substrate temperature	°C	-5	0	5	10	15	20	30	40
Minimum Curing Time	min.	480	240	150	120	90	45	20	10

The temperature of the resin container must be ≥20°C

Concrete Ranges:	C20/25 to C0/60 according to EN 206:2013+A1:2016
Certification:	European Technical Assessment ETA 21/1078 issued 30/12/2021

Installation Data

Threaded Stud Diameter			M8	M10	M12	M16	M20	M24
Nominal drill hole diameter	d_o	[mm]	10	12	14	18	24	28
Diameter of steel brush	d_b	[mm]	10	12	14	18	24	28
Capsule Length	L_c	[mm]	85	85	95	98	180	210
Capsule Diameter	d_c	[mm]	9.25	10.75	12.75	16.75	21.5	23.5
Effective Anchorage Depth	$h_{ef,std}$	[mm]	85	90	110	125	180	210
Drill Hole Depth	h_o	[mm]	90	95	115	130	185	215
Installation Torque	T_{inst}	[Nm]	10	20	40	80	120	200
Minimum Concrete Thickness	h_{min}	[mm]	120	130	140	180	230	270
Spacing - Tension	S_{std}	[mm]	185	235	275	370	490	630
Edge Distance - Tension	$c_{N,std}$	[mm]	95	120	140	185	245	315
Edge Distance - Shear 5.8 Stud	$c_{V,std}$	[mm]	75	100	125	155	285	415
Edge Distance - Shear 8.8 Stud	$c_{V,std}$	[mm]	105	145	180	320	495	715
Edge Distance - Shear A4-70 Stud	$c_{V,std}$	[mm]	80	110	140	215	325	475
Minimum Spacing	s_{min}	[mm]	40	40	50	65	80	100
Minimum Edge Distance	c_{min}	[mm]	40	40	50	65	80	100

Edge Distances are based on minimum concrete thickness

For variations in Concrete Thickness, Spacing and Edge Distance refer to DesignFix for calculations

Load Data

Standard Embedment Depth **Grade 5.8 Studs** **Zinc plated and Hot Dipped Galvanised**

(Non-Cracked concrete, Hammer Drilling and Compressed Air Drilling) ***(Dry and Wet Holes)***

Threaded Stud Diameter			M8	M10	M12	M16	M20	M24
Characteristics Resistance								
Tensile	N_{Rk}	[kN]	21.3	28.2	41.4	62.8	113.0	149.7
Shear	V_{Rk}	[kN]	9.2	14.5	21.1	29.3	61.3	88.3
Design Resistance								
Tensile	N_{Rd}	[kN]	11.8	15.7	23.0	34.9	62.8	83.1
Shear	V_{Rd}	[kN]	7.3	11.6	16.8	23.4	49.0	70.6
Recommended Resistance								
Tensile	N_{rec}	[kN]	8.4	11.2	16.4	24.9	44.9	59.4
Shear	V_{rec}	[kN]	5.2	8.3	12.0	16.7	35.0	50.4

Standard Embedment **Grade 8.8 Zinc Plated Studs**

(Non-Cracked concrete, Hammer Drilling and Compressed Air Drilling) ***(Dry and Wet Holes)***

Threaded Stud Diameter			M8	M10	M12	M16	M20	M24
Characteristics Resistance								
Tensile	N_{Rk}	[kN]	21.3	28.2	41.4	62.8	113.0	149.7
Shear	V_{Rk}	[kN]	14.6	23.2	33.7	62.8	98.0	141.2
Design Resistance								
Tensile	N_{Rd}	[kN]	11.8	15.7	23.0	34.9	62.8	83.1
Shear	V_{Rd}	[kN]	11.6	18.5	26.9	50.2	78.4	112.9
Recommended Resistance								
Tensile	N_{rec}	[kN]	8.4	11.2	16.4	24.9	44.9	59.4
Shear	V_{rec}	[kN]	8.3	13.2	19.2	35.9	56.0	80.6

Standard Embedment **Grade A4-70 Stainless Steel Studs**

(Non-Cracked concrete, Hammer Drilling and Compressed Air Drilling) ***(Dry and Wet Holes)***

Threaded Stud Diameter			M8	M10	M12	M16	M20	M24
Characteristics Resistance								
Tensile	N_{Rk}	[kN]	21.3	28.2	41.4	62.8	113.0	149.7
Shear	V_{Rk}	[kN]	12.8	20.3	29.5	55.0	85.8	123.6
Design Resistance								
Tensile	N_{Rd}	[kN]	11.8	15.7	23.0	34.9	62.8	83.1
Shear	V_{Rd}	[kN]	8.2	13.0	18.9	35.2	55.0	79.2
Recommended Resistance								
Tensile	N_{rec}	[kN]	8.4	11.2	16.4	24.9	44.9	59.4
Shear	V_{rec}	[kN]	5.9	9.3	13.5	25.1	39.3	56.6

Recommended Resistance Includes Partial Safety Factor $\gamma = 1.4$ in the absence of national regulations and type of loading
Data is for Static and Quasi Static Loads for a single anchor

Load Data

Standard Embedment Depth **Grade 5.8 Studs** **Zinc plated and Hot Dipped Galvanised**

(Cracked concrete, Hammer Drilling and Compressed Air Drilling) ***(Dry and WetHoles)***

Threaded Stud Diameter			M8	M10	M12	M16	M20	M24
Characteristics Resistance								
Tensile	N_{Rk}	[kN]	-	-	16.5	31.4	56.5	79.1
Shear	V_{Rk}	[kN]	-	-	21.1	29.3	61.3	88.3
Design Resistance				-				
Tensile	N_{Rd}	[kN]	-	-	9.2	17.4	31.4	43.9
Shear	V_{Rd}	[kN]	-	-	16.8	23.4	49.0	70.6
Recommended Resistance								
Tensile	N_{rec}	[kN]	-	-	6.6	12.4	22.4	31.4
Shear	V_{rec}	[kN]	-	-	12.0	16.7	35.0	50.4

Standard Embedment **Grade 8.8 Zinc Plated Studs**

(Cracked concrete, Hammer Drilling and Compressed Air Drilling) ***(Dry and Wet Holes)***

Threaded Stud Diameter			M8	M10	M12	M16	M20	M24
Characteristics Resistance								
Tensile	N_{Rk}	[kN]	-	-	16.5	31.4	56.5	79.1
Shear	V_{Rk}	[kN]	-	-	33.7	62.8	98.0	141.2
Design Resistance				-				
Tensile	N_{Rd}	[kN]	-	-	9.2	17.4	31.4	43.9
Shear	V_{Rd}	[kN]	-	-	26.9	50.2	78.4	112.9
Recommended Resistance								
Tensile	N_{rec}	[kN]	-	-	6.6	12.4	22.4	31.4
Shear	V_{rec}	[kN]	-	-	19.2	35.9	56.0	80.6

Standard Embedment **Grade A4-70 Stainless Steel Studs**

(Cracked concrete, Hammer Drilling and Compressed Air Drilling) ***(Dry and Holes)***

Threaded Stud Diameter			M8	M10	M12	M16	M20	M24
Characteristics Resistance								
Tensile	N_{Rk}	[kN]	-	-	16.5	31.4	56.5	79.1
Shear	V_{Rk}	[kN]	-	-	29.5	55.0	85.8	123.6
Design Resistance				-				
Tensile	N_{Rd}	[kN]	-	-	9.2	17.4	31.4	43.9
Shear	V_{Rd}	[kN]	-	-	18.9	35.2	55.0	79.2
Recommended Resistance								
Tensile	N_{rec}	[kN]	-	-	6.6	12.4	22.4	31.4
Shear	V_{rec}	[kN]	-	-	13.5	25.1	39.3	56.6

Recommended Resistance Includes Partial Safety Factor $\gamma = 1.4$ in the absence of national regulations and type of loading
Data is for Static and Quasi Static Loads for a single anchor

Load Data

Standard Embedment Depth **Grade 5.8 Studs** **Zinc plated and Hot Dipped Galvanised**
(Non-Cracked concrete, Hammer Drilling and Compressed Air Drilling) ***(Flooded Holes)***

Threaded Stud Diameter			M8	M10	M12	M16	M20	M24
Characteristics Resistance								
Tensile	N_{Rk}	[kN]	21.3	28.2	41.4	62.8	113.0	149.7
Shear	V_{Rk}	[kN]	9.2	14.5	21.1	29.3	61.3	88.3
Design Resistance								
Tensile	N_{Rd}	[kN]	10.1	13.4	19.7	29.9	53.8	71.2
Shear	V_{Rd}	[kN]	7.3	11.6	16.8	23.4	49	70.6
Recommended Resistance								
Tensile	N_{rec}	[kN]	7.2	9.6	14.1	21.4	38.4	50.9
Shear	V_{rec}	[kN]	5.2	8.3	12.0	16.7	35.0	50.4

Standard Embedment **Grade 8.8 Zinc Plated Studs**
(Non-Cracked concrete, Hammer Drilling and Compressed Air Drilling) ***(Flooded Holes)***

Threaded Stud Diameter			M8	M10	M12	M16	M20	M24
Characteristics Resistance								
Tensile	N_{Rk}	[kN]	21.3	28.2	41.4	62.8	113.0	149.7
Shear	V_{Rk}	[kN]	14.6	23.2	33.7	62.8	98.0	141.2
Design Resistance								
Tensile	N_{Rd}	[kN]	10.1	13.4	19.7	29.9	53.8	71.2
Shear	V_{Rd}	[kN]	11.6	18.5	26.9	50.2	78.4	112.9
Recommended Resistance								
Tensile	N_{rec}	[kN]	7.2	9.6	14.1	21.4	38.4	50.9
Shear	V_{rec}	[kN]	8.3	13.2	19.2	35.9	56.0	80.6

Standard Embedment **Grade A4-70 Stainless Steel Studs**
(Non-Cracked concrete, Hammer Drilling and Compressed Air Drilling) ***(Flooded Holes)***

Threaded Stud Diameter			M8	M10	M12	M16	M20	M24
Characteristics Resistance								
Tensile	N_{Rk}	[kN]	21.3	28.2	41.4	62.8	113.0	149.7
Shear	V_{Rk}	[kN]	12.8	20.3	29.5	55.0	85.8	123.6
Design Resistance								
Tensile	N_{Rd}	[kN]	10.1	13.4	19.7	29.9	53.8	71.2
Shear	V_{Rd}	[kN]	8.2	13.0	18.9	35.2	55	79.2
Recommended Resistance								
Tensile	N_{rec}	[kN]	7.2	9.6	14.1	21.4	38.4	50.9
Shear	V_{rec}	[kN]	5.9	9.3	13.5	25.1	39.3	56.6

Recommended Resistance Includes Partial Safety Factor γ = 1.4 in the absence of national regulations and type of loading
Data is for Static and Quasi Static Loads for a single anchor

Load Data

Standard Embedment Depth **Grade 5.8 Studs** **Zinc plated and Hot Dipped Galvanised**

(Cracked concrete, Hammer Drilling and Compressed Air Drilling) ***(Flooded Holes)***

Threaded Stud Diameter			M8	M10	M12	M16	M20	M24
Characteristics Resistance								
Tensile	N_{Rk}	[kN]	-	-	16.5	31.4	56.5	79.1
Shear	V_{Rk}	[kN]	-	-	21.1	29.3	61.3	88.3
Design Resistance				-				
Tensile	N_{Rd}	[kN]	-	-	7.9	14.9	26.9	37.7
Shear	V_{Rd}	[kN]	-	-	16.8	23.4	49.0	70.0
Recommended Resistance								
Tensile	N_{rec}	[kN]	-	-	5.6	10.6	19.2	26.9
Shear	V_{rec}	[kN]	-	-	12.0	16.7	35.0	50.0

Standard Embedment **Grade 8.8 Zinc Plated Studs**

(Cracked concrete, Hammer Drilling and Compressed Air Drilling) ***(Flooded Holes)***

Threaded Stud Diameter			M8	M10	M12	M16	M20	M24
Characteristics Resistance								
Tensile	N_{Rk}	[kN]	-	-	16.5	31.4	56.5	79.1
Shear	V_{Rk}	[kN]	-	-	33.7	62.8	98.0	141.2
Design Resistance				-				
Tensile	N_{Rd}	[kN]	-	-	7.9	14.9	26.9	37.7
Shear	V_{Rd}	[kN]	-	-	26.9	50.2	78.4	112.9
Recommended Resistance								
Tensile	N_{rec}	[kN]	-	-	5.6	10.6	19.2	26.9
Shear	V_{rec}	[kN]	-	-	19.2	35.9	56.0	80.6

Standard Embedment **Grade A4-70 Stainless Steel Studs**

(Cracked concrete, Hammer Drilling and Compressed Air Drilling) ***(Flooded Holes)***

Threaded Stud Diameter			M8	M10	M12	M16	M20	M24
Characteristics Resistance								
Tensile	N_{Rk}	[kN]	-	-	16.5	31.4	56.5	79.1
Shear	V_{Rk}	[kN]	-	-	29.5	55.0	85.8	123.6
Design Resistance				-				
Tensile	N_{Rd}	[kN]	-	-	7.9	14.9	26.9	37.7
Shear	V_{Rd}	[kN]	-	-	18.9	35.2	55.0	79.2
Recommended Resistance								
Tensile	N_{rec}	[kN]	-	-	5.6	10.6	19.2	26.9
Shear	V_{rec}	[kN]	-	-	13.5	25.1	39.3	56.6

Recommended Resistance Includes Partial Safety Factor $\gamma = 1.4$ in the absence of national regulations and type of loading
Data is for Static and Quasi Static Loads for a single anchor

Increasing Factors

Increasing factor for non-cracked concrete (all types of drilling)

Threaded Stud Diameter		M8	M10	M12	M16	M20	M24
Ψc C30/37	[-]	1.04					
Ψc C40/50	[-]	1.07					
Ψc C50/60	[-]	1.10					

Increasing factor for cracked concrete (all types of drilling)

Threaded Stud Diameter		M8	M10	M12	M16	M20	M24
Ψc C30/37	[-]	-	-	1.04			
Ψc C40/50	[-]	-	-	1.07			
Ψc C50/60	[-]	-	-	1.10			

Steel Limits

Grade 5.8

Threaded Stud Diameter			M8	M10	M12	M16	M20	M24
Characteristic Tensile Resistance	$N_{Rk,s}$	[kN]	18.3	29.0	42.1	78.5	122.5	176.5
Partial safety factor	γ_{MsN}	[-]	1.25					
Characteristic Shear Resistance	$V_{Rk,s}$	[kN]	9.2	14.5	21.1	29.3	61.3	88.3
Partial Safety Factor	γ_{MsV}	[-]	1.25					

Grade 8.8

Threaded Stud Diameter			M8	M10	M12	M16	M20	M24
Characteristic Tensile Resistance	$N_{Rk,s}$	[kN]	29.3	46.4	67.4	125.6	196.0	282.4
Partial safety factor	γ_{MsN}	[-]	1.25					
Characteristic Shear Resistance	$V_{Rk,s}$	[kN]	14.6	23.2	33.7	62.8	98.0	141.2
Partial Safety Factor	γ_{MsV}	[-]	1.25					

Stainless Steel A4-70

Threaded Stud Diameter			M8	M10	M12	M16	M20	M24
Characteristic Tensile Resistance	$N_{Rk,s}$	[kN]	25.6	40.6	59.0	1.9.9	171.5	247.1
Partial safety factor	γ_{MsN}	[-]	1.56					
Characteristic Shear Resistance	$V_{Rk,s}$	[kN]	12.8	20.3	29.5	55.0	85.8	123.6
Partial Safety Factor	γ_{MsV}	[-]	1.56					