TRUTEK TCM 400/600 PE INJECTION RESIN

Usage:

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

VOC CLASSIFICATION A+ (A+ A B C)

ETA-20/0059

DesignFiX®

WRAS APPROVED MATERIAL

Advantages:

- Transfer of the highest loads in cracked and non-cracked concrete
- High adhesion and low shirnkage ensures maximum bond strength
- Does not react with chemicals and water after bonding
- WRAS certificate allows the use of resin for fastening drinking water installations
- Ageing resistant resin
- Oderless resin - does not contain Stryene
- Extended gel and bonding time allows deep bonding of threaded rods and reinforcing bars

Resin setting times								
Substrate temperature	°C	5	10	15	20	25	30	40
Gel time	min.	70	32	28	25	22	20	18
Cure time in dry concrete	hour.	60	40	30	18	17	16	12

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 20/0059 Issued 15/01/2020

Installation Data

Threaded Stud Diameter			M8	M10	M12	M16	M20	M24
Nominal drill hole diameter	d_o	[mm]	10	12	14	18	22/24	28
Diameter of steel brush	d_b	[mm]	10	12	14	18	22/24	28
Minimum Effective Anchorage Depth	$h_{,ef,min}$	[mm]	60	60	70	80	90	96
Maximum Effective Anchorage Depth	$h_{ef,max}$	[mm]	160	200	240	320	400	480
Standard Effective Anchorage Depth	$h_{ef,std}$	[mm]	80	90	110	125	170	210
Minimum Concrete Thickness	h_{min}	[mm]	h_{ef} + 30mm ≥ 100mm			h_{ef} + 2d_o		
Spacing - Tension (Standard Embedment)	S_{std}	[mm]	180	230	330	375	510	630
Edge Distance - Tension (Standard Embedment)	$c_{N,std}$	[mm]	155	175	220	250	340	420
Edge Distance - Shear (Standard Embedment) 5.8 Stud	$c_{V,std}$	[mm]	75	120	150	270	350	445
Edge Distance - Shear (Standard Embedment) 8.8 Stud	$c_{V,std}$	[mm]	130	195	265	465	610	775
Edge Distance - Shear (Standard Embedment) A4-70 Stud	$c_{V,std}$	[mm]	85	130	175	310	400	515
Minimum Spacing	s_{min}	[mm]	40	40	60	80	100	120
Minimum Edge Distance	c_{min}	[mm]	40	40	60	80	100	120

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**

(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]	18.1	28.3	56.7	68.7	109.0	149.7
Shear	V_{Rk}	[kN]	9.0	15.0	21.0	39.0	61.0	88.0
Design Resistance								
Tensile	N_{Rd}	[kN]	8.6	13.4	27.0	38.2	60.6	83.2
Shear	V_{Rd}	[kN]	7.2	12.0	16.8	31.2	48.8	70.4
Recommended Resistance								
Tensile	N_{rec}	[kN]	6.1	9.6	19.3	27.3	43.3	59.4
Shear	V_{rec}	[kN]	5.1	8.6	12.0	22.3	34.9	50.3

(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]	18.1	28.3	56.7	68.7	109.0	149.7
Shear	V_{Rk}	[kN]	9.0	15.0	21.0	39.0	61.0	88.0
Design Resistance								
Tensile	N_{Rd}	[kN]	8.6	13.4	27.0	32.7	51.9	71.3
Shear	V_{Rd}	[kN]	7.2	12.0	16.8	31.2	48.8	70.4
Recommended Resistance								
Tensile	N_{rec}	[kN]	6.1	9.6	19.3	23.4	37.1	50.9
Shear	V_{rec}	[kN]	5.1	8.6	12.0	22.3	34.9	50.3

(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]	N/A	N/A	29.0	47.0	76.3	144.8
Shear	V_{Rk}	[kN]	N/A	N/A	21.0	39.0	61.0	88.0
Design Resistance								
Tensile	N_{Rd}	[kN]	N/A	N/A	13.8	26.1	42.4	58.2
Shear	V_{Rd}	[kN]	N/A	N/A	16.8	31.2	48.8	70.4
Recommended Resistance								
Tensile	N_{rec}	[kN]	N/A	N/A	9.9	18.6	30.3	41.6
Shear	V_{rec}	[kN]	N/A	N/A	12.0	22.3	34.9	50.3

(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]	N/A	N/A	29.0	47.1	76.3	104.8
Shear	V_{Rk}	[kN]	N/A	N/A	21.0	39.0	61.0	88.0
Design Resistance								
Tensile	N_{Rd}	[kN]	N/A	N/A	13.8	22.4	36.3	49.9
Shear	V_{Rd}	[kN]	N/A	N/A	16.8	31.2	48.8	70.4
Recommended Resistance								
Tensile	N_{rec}	[kN]	N/A	N/A	9.9	16.0	25.9	35.6
Shear	V_{rec}	[kN]	N/A	N/A	12.0	22.3	34.9	50.3

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 **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]	18.1	28.3	56.7	68.7	109.0	149.7
Shear	V_{Rk}	[kN]	15.0	23.0	34.0	63.0	98.0	141.0
Design Resistance								
Tensile	N_{Rd}	[kN]	8.6	13.4	27.0	38.2	60.6	83.2
Shear	V_{Rd}	[kN]	12.0	18.4	27.2	50.4	78.4	112.8
Recommended Resistance								
Tensile	N_{rec}	[kN]	6.1	9.6	19.3	27.3	43.3	59.4
Shear	V_{rec}	[kN]	8.6	13.1	19.4	36.0	56.0	80.6

(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]	18.1	28.3	56.7	68.7	109.0	149.7
Shear	V_{Rk}	[kN]	15.0	23.0	34.0	63.0	98.0	141.0
Design Resistance								
Tensile	N_{Rd}	[kN]	8.6	13.4	27.0	32.7	51.9	71.3
Shear	V_{Rd}	[kN]	12.0	18.4	27.2	50.4	78.4	112.8
Recommended Resistance								
Tensile	N_{rec}	[kN]	6.1	9.6	19.3	23.4	37.1	50.9
Shear	V_{rec}	[kN]	8.6	13.1	19.4	36.0	56.0	80.6

(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]	N/A	N/A	29.0	47.0	76.3	144.8
Shear	V_{Rk}	[kN]	N/A	N/A	34.0	63.0	98.0	141.0
Design Resistance								
Tensile	N_{Rd}	[kN]	N/A	N/A	13.8	26.1	42.4	58.2
Shear	V_{Rd}	[kN]	N/A	N/A	27.2	50.4	78.4	112.8
Recommended Resistance								
Tensile	N_{rec}	[kN]	N/A	N/A	9.9	18.6	30.3	41.6
Shear	V_{rec}	[kN]	N/A	N/A	19.4	36.0	56.0	80.6

(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]	N/A	N/A	29.0	47.1	76.3	104.8
Shear	V_{Rk}	[kN]	N/A	N/A	34.0	63.0	98.0	141.0
Design Resistance								
Tensile	N_{Rd}	[kN]	N/A	N/A	13.8	22.4	36.3	49.9
Shear	V_{Rd}	[kN]	N/A	N/A	27.2	50.4	78.4	112.8
Recommended Resistance								
Tensile	N_{rec}	[kN]	N/A	N/A	9.9	16.0	25.9	35.6
Shear	V_{rec}	[kN]	N/A	N/A	19.4	36.0	56.0	80.6

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 **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]	18.1	28.3	56.7	68.7	109.0	149.7
Shear	V_{Rk}	[kN]	13.0	20.0	30.0	55.0	86.0	124.0
Design Resistance								
Tensile	N_{Rd}	[kN]	8.6	13.4	27.0	38.2	60.6	83.2
Shear	V_{Rd}	[kN]	8.3	12.8	19.2	35.3	55.1	79.5
Recommended Resistance								
Tensile	N_{rec}	[kN]	6.1	9.6	19.3	27.3	43.3	59.4
Shear	V_{rec}	[kN]	6.0	9.2	13.7	25.2	39.4	56.8

(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]	18.1	28.3	56.7	68.7	109.0	149.7
Shear	V_{Rk}	[kN]	13.0	20.0	30.0	55.0	86.0	124.0
Design Resistance								
Tensile	N_{Rd}	[kN]	8.6	13.4	27.0	32.7	51.9	71.3
Shear	V_{Rd}	[kN]	8.3	12.8	19.2	35.3	55.1	79.5
Recommended Resistance								
Tensile	N_{rec}	[kN]	6.1	9.6	19.3	23.4	37.1	50.9
Shear	V_{rec}	[kN]	6.0	9.2	13.7	25.2	39.4	56.8

(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]	N/A	N/A	29.0	47.0	76.3	144.8
Shear	V_{Rk}	[kN]	N/A	N/A	30.0	55.0	86.0	124.0
Design Resistance								
Tensile	N_{Rd}	[kN]	N/A	N/A	13.8	26.1	42.4	58.2
Shear	V_{Rd}	[kN]	N/A	N/A	19.2	35.3	55.1	79.5
Recommended Resistance								
Tensile	N_{rec}	[kN]	N/A	N/A	9.9	18.6	30.3	41.6
Shear	V_{rec}	[kN]	N/A	N/A	13.7	25.2	39.4	56.8

(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]	N/A	N/A	29.0	47.1	76.3	104.8
Shear	V_{Rk}	[kN]	N/A	N/A	30.0	55.0	86.0	124.0
Design Resistance								
Tensile	N_{Rd}	[kN]	N/A	N/A	13.8	22.4	36.3	49.9
Shear	V_{Rd}	[kN]	N/A	N/A	19.2	35.3	55.1	79.5
Recommended Resistance								
Tensile	N_{rec}	[kN]	N/A	N/A	9.9	16.0	25.9	35.6
Shear	V_{rec}	[kN]	N/A	N/A	13.7	25.2	39.4	56.8

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 Factor

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

Threaded Stud Diameter		M8	M10	M12	M16	M20	M24
Ψc C25/30	[-]	1.04					
Ψc C30/37	[-]	1.08					
Ψc C35/45	[-]	1.11					
Ψc C40/50	[-]	1.15					
Ψc C45/55	[-]	1.18					
Ψc C50/60	[-]	1.21					

Increasing factor for cracked concrete (all types of drilling)

Threaded Stud Diameter		M8	M10	M12	M16	M20	M24
Ψc C25/30	[-]	1.00		1.08			
Ψc C30/37	[-]	1.00		1.17			
Ψc C35/45	[-]	1.00		1.24			
Ψc C40/50	[-]	1.00		1.32			
Ψc C45/55	[-]	1.00		1.37			
Ψc C50/60	[-]	1.00		1.42			

When using increasing factors care must be taken not to exceed steel limits

Steel Limits

Grade 5.8

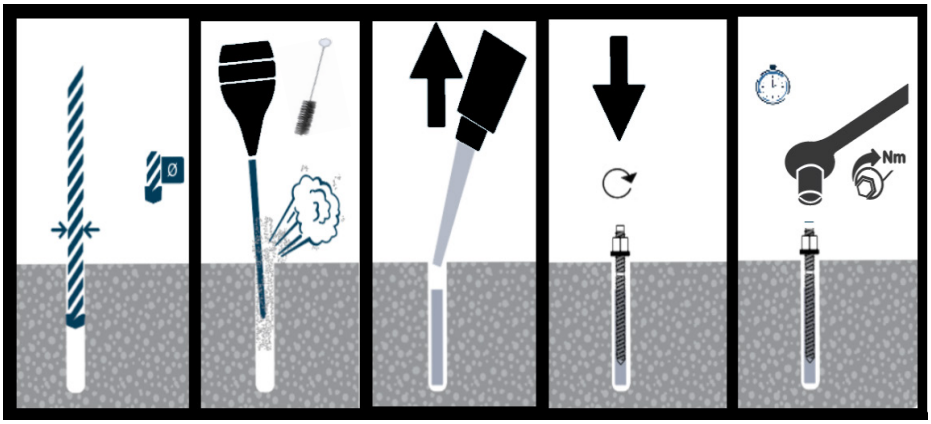
Threaded Stud Diameter			M8	M10	M12	M16	M20	M24
Characteristic Tensile Resistance	$N_{Rk,s}$	[kN]	18	29.0	42.0	78.0	122.0	176.0
Partial safety factor	γ_{MsN}	[-]	1.5					
Characteristic Shear Resistance	$V_{Rk,s}$	[kN]	9	15	21	39	61	88.0
Partial Safety Factor	γ_{MsV}	[-]	1.25					

Grade 8.8

Threaded Stud Diameter			M8	M10	M12	M16	M20	M24
Characteristic Tensile Resistance	$N_{Rk,s}$	[kN]	29.0	46.0	67.0	125.0	196.0	282.0
Partial safety factor	γ_{MsN}	[-]	1.5					
Characteristic Shear Resistance	$V_{Rk,s}$	[kN]	15.0	23.0	34.0	63.0	98.0	141.0
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]	26.0	41.0	59.0	110.0	171.0	247.0
Partial safety factor	γ_{MsN}	[-]	1.87					
Characteristic Shear Resistance	$V_{Rk,s}$	[kN]	13.0	20.0	30.0	55.0	86.0	124.0
Partial Safety Factor	γ_{MsV}	[-]	1.56					



Accessories:

Cartridge Nozzle
& Extension
TCN01 & TCN03

TCM400MTP