Pure Epoxy Injection System with ETA Assessment for Post Installed Rebar

Use Conditions

- Installation in Non-Cracked Concrete C20/25 to C50/60 according to EN 206-1:2000
- For Static and quasi static loading
- In Dry, and Wet Holes
- Not to be installed in flooded holes
- Fire exposure

Typical Applications

- Infrastructure Construction (Roads, Viaducts, Sound Barriers, Crash Barriers, Harbours, High Rise Construction, Steel Construction)

Approvals & Test Reports

1343
B+BTec
Munterij 8, NL 4762AH, Zevenbergen
14
CE
1343-CPR-M 529-4
ETA-14/0321
EOTA TR 023
Ø8 - 40 mm
European Technical Assessement for Post-installed Rebar Connections

F120 MPA BRAUNSCHWEIG 3785/695/14

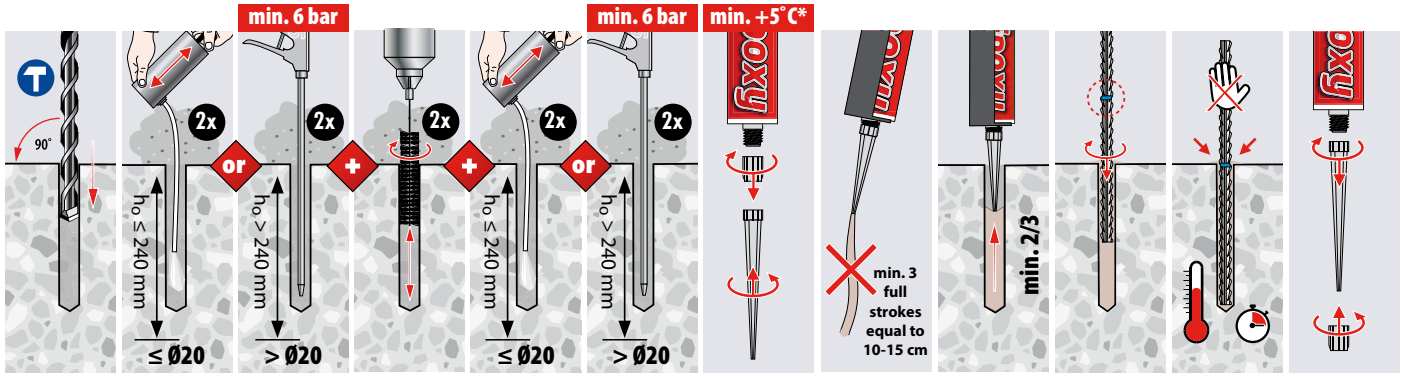
C1 C2 SEISMIC
C1: M12 - M30/Ø12- 32
C2: M12 - M16

NCC TM NATIONAL CODE COMPLIANT

LEED Tested

ÉMISSIONS DANS L'AIR INTÉRIEUR* A+ A+ A B C

Installation Procedures



*Cartridge Temperature **must** be min. +5°C. Optimal Cartridge Temperature +20°C.

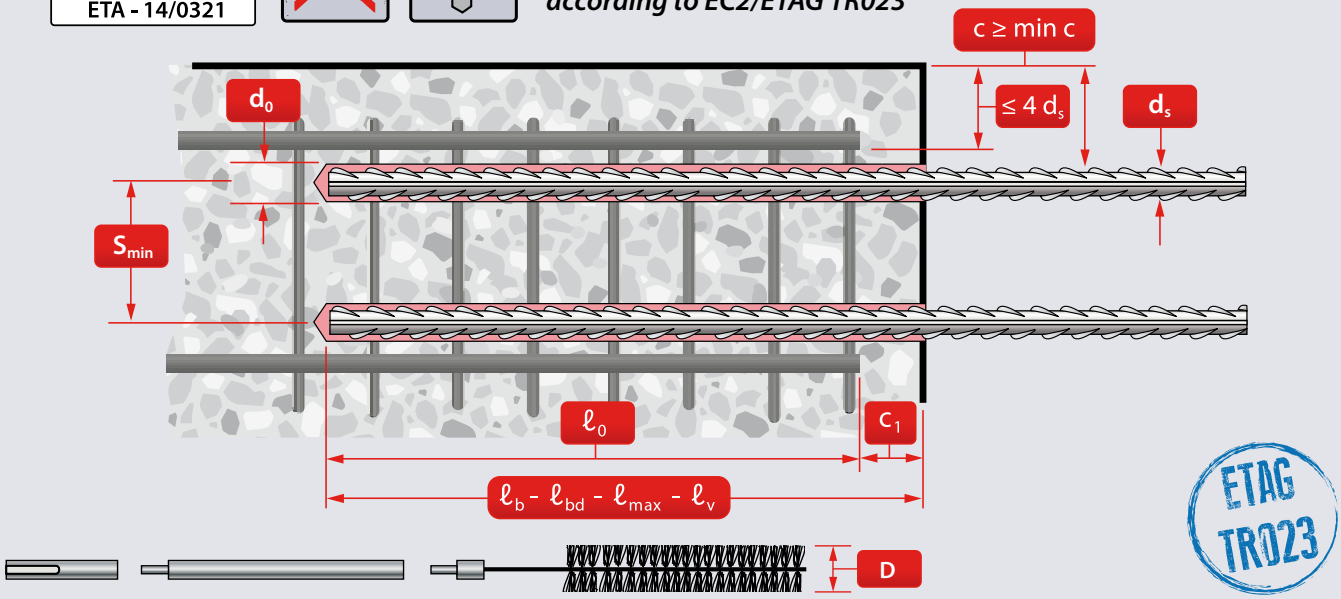
Curing Times

Temperature*	°C	+5	+10	+20	+30	+40
Processing / Working Time		2 h	1,5 h	30 min	20 min	12 min
Curing Time Dry Holes		50 h	30 h	10 h	6 h	4 h
Curing Time Wet Holes		100 h	60 h	20 h	12 h	8 h

* Concrete Temperature

ETA - 14/0321

Specification Data for the use in Uncracked Concrete and Hammer/Air Drilled Holes according to EC2/ETAG TR023



Installation Dimensions

2

Rebar Size	ds		10	12	16	20	24	28	32	36	40
Hole Diameter	**do**	[mm]	14	16	20	25	32	35	40	45	55
Min. Embedment Depth	**ℓb,min**	[mm]	142	170	227	284	340	397	454	534	621
Min. Lap Length	**ℓo,min**	[mm]	200	200	240	300	360	420	480	540	621
Design Anchorage Length	**ℓ,bd**	[mm]	473	567	756	945	1134	1323	1512	1779	2070
Max. Embedment Depth	**ℓ,max**	[mm]	1000	1200	1600	2000	2000	2000	2000	2000	2000
Min. Spacing	**S,min**	[mm]	50	60	80	100	120	140	160	180	200
Required Volume per cm Embedment Depth	**Vs**	[ml/cm]	0,90	1,06	1,36	2,12	4,22	4,16	5,43	6,87	10,4

Steel Brush & Piston Plug Dimensions

Rebar Size	ds		10	12	16	20	24	28	32	36	40
Brush Diameter	**D**	[mm]	16	18	22	27	34	37	42	47	58
Min. Brush Diameter	**Dmin**	[mm]	14,5	16,5	20,5	25,5	32,5	35,5	40,5	45,5	55,5
Piston Plug		[#]	14	16	20	25	32	35	40	45	55

Min. Concrete Cover[1)]

Drilling Method			ds [mm]	Without Drilling Guide [mm]	With Drilling Guide [mm]
Hammer Drilling	**HD**		<25	30 + 0,06·ℓv ≥ 2ds	30 + 0,02·ℓv ≥ 2ds
			=25	40 + 0,06·ℓv ≥ 2ds	40 + 0,02·ℓv ≥ 2ds
Air Drilling	**AD**		<25	50 + 0,08·ℓv	50 + 0,02·ℓv
			=25	60 + 0,08·ℓv	60 + 0,02·ℓv

Design Values of Ultimate Bond Resistance[2] f_{bd} in N/mm²

Rebar	Concrete Class								
	C12/15	C16/20	C20-25	C25-30	C30/37	C35/45	C40/50	C45/55	C50/60
Ø8 - 32 mm	1,6	2,0	2,3	2,7	3,0	3,4	3,7	4,0	4,3
Ø36 mm	1,6	1,9	2,2	2,6	2,9	3,3	3,6	3,8	4,1
Ø40 mm	1,5	1,8	2,1	2,5	2,8	3,1	3,4	3,7	4,0

Design Resistance Dry/Wet Holes (Post Installed Rebar Anchorage) Nrd

Rebar Size ▶ d_s	10	12	16	20	24	28	32	36	40
▼ Embedment Depth $\ell_{,b}$									
113									
142	10,3								
170	12,3	14,7							
190	13,7	16,5							
198	14,3	17,2							
213	15,4	18,5							
227	16,4	19,7	26,2						
255	18,4	22,1	29,5						
284	20,5	24,6	32,8	41,0					
298	21,5	25,8	34,5	43,1					
312	22,5	27,1	36,1	45,1					
340	24,6	29,5	39,3	49,1	59,0				
354	25,6	30,7	40,9	51,2	61,4				
397	28,7	34,4	45,9	57,4	68,8	80,3			
425	30,7	36,9	49,1	61,4	73,7	86,0			
454	32,8	39,4	52,5	65,6	78,7	91,9			
468	33,8	40,6	54,1	67,6	81,2	94,7	108,2		
482	34,1	41,8	55,7	69,7	83,6	97,5	111,4		
510		44,2	59,0	73,7	88,4	103,2	117,9		
534		46,3	61,7	77,2	92,6	108,0	123,5	132,9	
595		49,2	68,8	86,0	103,2	120,4	137,6	148,0	
621			71,8	89,7	107,7	125,6	143,6	154,5	163,9
681			78,7	98,4	118,1	137,8	157,5	169,4	179,7
723			83,6	104,5	125,4	146,3	167,2	179,9	190,8
800			87,4	115,6	138,7	161,9	185,0	199,1	211,1
932				134,7	161,6	188,6	215,5	231,9	245,9
1000				136,6	173,4	202,3	231,2	248,8	263,9
1100					190,8	222,6	254,3	273,7	290,3
1200					196,7	242,8	277,5	298,6	316,7
1400						267,7	323,7	348,3	369,5
1600							349,7	398,1	422,2
2000								442,6	527,8
Nrd,s Design Yield Load[4]	34,1	49,2	87,4	136,6	196,7	267,7	349,7	442,6	546,4

1) Use drilling aid to ensure bore holes are parallel to existing surface within 2%.
2) Ultimate Bond Resistance: Valid for all drilling methods for good conditions. For all other bond conditions multiply by 0,7
3) Rebar Yield Strength 500N/mm2
4) Includes Rebar Safety Factor γM = 1,15 (Steel)

ICCONS®
Serious Connections

Pure-Epoxy 3:1

INNOVATIVE SOFTWARE – ANCHOR DESIGN MADE EASY

- Innovative 3d visual user interface, ETAG-001 & SA TS 101:2015 compliant
- SEISMIC DESIGN under earthquake loads according to ETAG-001, Annex E, TR045
- Finite element analysis steel baseplate design

ICCONS® DesignFiX Software is simple, intuitive and FREE to DOWNLOAD anchor design program for Design Engineers, Project Managers, Site Engineers and End Users. Complex mechanical or chemical heavy duty anchor arrangements can be calculated in minutes. All designs are ETA based and qualify under the newly released SA TS 101:2015 now directly referenced in the 2016 National Construction Code.

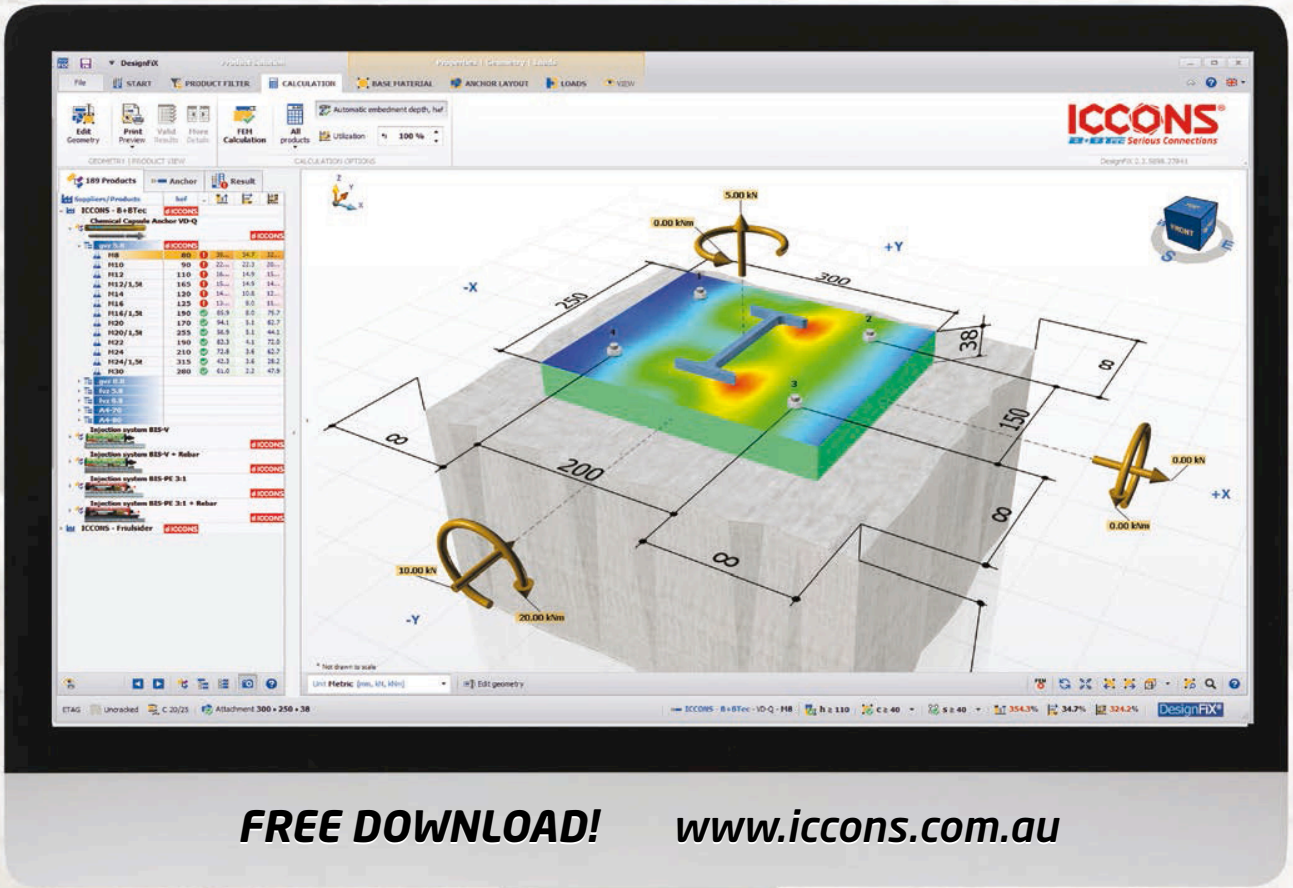
With input Freedom & 3D user Interface ICCONS® DesignFiX offers complete freedom to select an anchor pattern and base plate configuration, as well as the position and direction of load combinations. Changes are made directly into the 3D user interface.

Anchor Type Comparison

ICCONS® DesignFiX displays the usability of the various anchor types (according to ETAG-001, Annex C, TR029), including the values for each load type. This allows you to compare the calculation result of the different anchor types in a single easy to read panel.

Optimum BIS Injection System Anchorage Depth when selecting a BIS Injection Mortar.

ICCONS® DesignFiX allows for the automatic calculation of the most effective anchorage depth, taking in consideration the minimal and maximum values of the ETA.
The integrated FEM-Calculation Method (Finite Element Method) in ICCONS® DesignFiX allows you to calculate the base plate thickness based upon the stresses in the base plate combination with the base plate configuration.



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