



Vinylester Injection System with ETA Assessment Option 1 for Cracked & Non-Cracked Concrete. AS 5216:2018 Compliant



Use Conditions

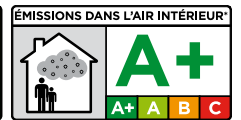
- Installation in Cracked & Non-Cracked Concrete C20/25 to C50/60 for rebar Ø12 - Ø32 mm
- For Static and quasi static loading & Seismic Action C1
- In Dry, Wet and Flooded Holes
- Structures subject to dry internal and permanent damp internal conditions.
- Structures subject to external atmospheric exposure.
- Overhead Installation allowed.

Typical Applications

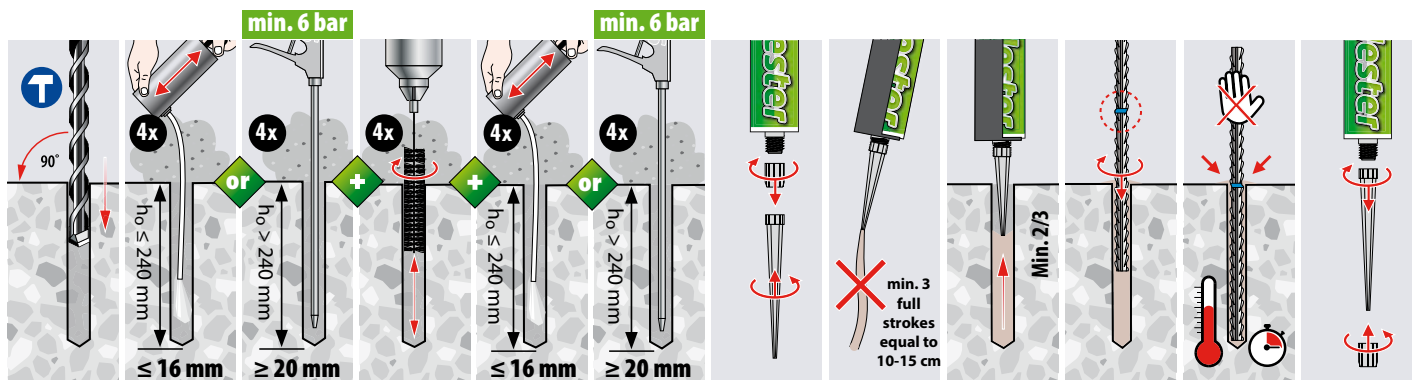
- Infrastructure Construction (Roads, Viaducts, Sound Barriers, Crash Barriers, Harbours, High Rise Construction, Steel Construction)
- Production Facilities (Installation of Cranes, Robots, Conveyor Lines etc.)

Approvals & Test Reports

1343	
B+B Tec	
Munterj 8, NL 4762AH, Zevenbergen	
14	
ETA	CE
1343-CPR-M 529-3	
ETA-14/0323	
ETAG 001-5 Option 1	
M8 - M30/Ø8 - 32 mm	
European Technical Assessment Option 1 for Cracked Concrete	



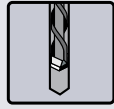
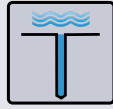
Installation Procedures



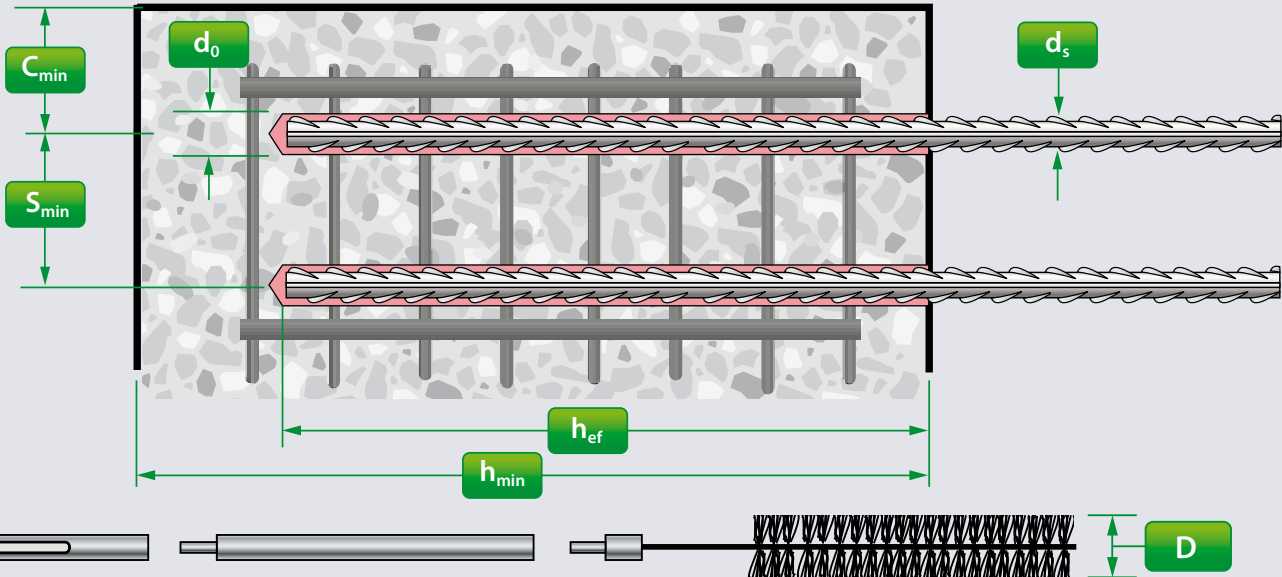
Curing Times

Temperature ¹⁾	°C	-10 ²⁾	-5	0	+5	+10	+20	+30 ³⁾	+35 ³⁾	+40 ³⁾
Processing / Working Time		90 min	90 min	45 min	25 min	15 min	6 min	4 min	2 min	1,5 min
Curing Time Dry Holes		24 h	14 h	7 h	2 h	80 min	45 min	25 min	20 min	15 min
Curing Time Wet Holes		48 h	28 h	14 h	4 h	160 min	90 min	50 min	40 min	30 min

1) Concrete Temperature 2) Cartridge Temperature must be min. +15°C. 3) Cartridge Temperature **must** be under +20°C.



Specification Data for the use in Cracked & Uncracked Concrete and Hammer/Air Drilled Holes according to EN1992-4 & AS 5216:2018



Installation Dimensions

Rebar Size	d_{nom}		Ø12	Ø14	Ø16	Ø20	Ø24	Ø28	Ø32
Min. Eff. Anchorage Depth	$h_{ef, min}$	[mm]	70	75	80	90	96	112	128
Max. Eff. Anchorage Depth	$h_{ef, max}$	[mm]	240	280	320	400	480	540	640
Hole Diameter	d_0	[mm]	16	18	20	24	32	35	40
Required Volume per cm Embedment Depth	V_s	[ml/cm]	1,06	1,21	1,36	2,12	3,76	4,20	5,50

Member Thickness, Edge Distance & Spacing

Rebar Size	d_{nom}		Ø12	Ø14	Ø16	Ø20	Ø24	Ø28	Ø32
Min. Member Thickness	h_{min}	[mm]	$h_{ef} + 2d_0$						
Min. Edge Distance	C_{min}	[mm]	60	70	80	100	120	140	160
Min. Spacing	S_{min}	[mm]	60	70	80	100	120	140	160

Steel Brush Dimensions

Rebar Size	d_{nom}		Ø12	Ø14	Ø16	Ø20	Ø24	Ø28	Ø32
Brush Diameter	D	[mm]	18	20	22	26	34	37	41,5
Min. Brush Diameter	D_{min}	[mm]	16,5	18,5	20,5	24,5	32,5	35,5	40,5
Piston Plug	#	--	no plug required			24	32	35	38



Performance Data¹⁾

- 1) **Performance Data:** Loads in kN for a single Rebar Dowel in Concrete C20/C25*. Temperature 24°C/40°C for long/short term. No influence of Edge- or Center to Center Distances.
- 2) **Shear Loads:** Steel strength in kN without bending moment.
- 3) **Recommended Loads** incl. Safety factor $\gamma_G = 1,4$.

Design Resistance Dry/Wet Holes

Steel Failure

Non-Cracked Concrete		d _{nom}		Ø12	Ø14	Ø16	Ø20	Ø24	Ø28	Ø32
B500B	Tensile, Min.	N _{Rd,min}	[kN]	16,4	18,2	20,1	24,0	26,4	33,3	40,6
	Tensile Max.	N _{Rd,max}	[kN]	44,4	60,5	79,0	123,4	177,6	241,9	303,8
	Shear ²⁾	V _{Rd,max}	[kN]	20,7	28,2	36,9	57,6	82,9	112,9	147,4
Cracked Concrete		d _{nom}		Ø12	Ø14	Ø16	Ø20	Ø24	Ø28	Ø32
B500B	Tensile, Min.	N _{Rd,min}	[kN]	8,1	10,1	12,3	17,1	18,8	23,7	29,0
	Tensile Max.	N _{Rd,max}	[kN]	27,6	37,6	49,1	76,8	110,6	171,5	232,3
	Shear ²⁾	V _{Rd,max}	[kN]	20,7	28,2	36,9	57,6	82,9	112,9	147,4

Design Resistance Flooded Holes

Non-Cracked Concrete		d _{nom}		Ø12	Ø14	Ø16	Ø20	Ø24	Ø28	Ø32
B500B	Tensile, Min.	N _{Rd,min}	[kN]	10,7	13,4	16,3				
	Tensile Max.	N _{Rd,max}	[kN]	36,6	49,8	65,1				
	Shear ²⁾	V _{Rd,max}	[kN]	20,7	28,2	36,9				
Cracked Concrete		d _{nom}		Ø12	Ø14	Ø16	Ø20	Ø24	Ø28	Ø32
B500B	Tensile, Min.	N _{Rd,min}	[kN]	6,9	8,6	10,5				
	Tensile Max.	N _{Rd,max}	[kN]	23,7	32,3	42,1				
	Shear ²⁾	V _{Rd,max}	[kN]	20,7	28,2	36,9				

Recommended Loads Dry/Wet Holes

Non-Cracked Concrete		d _{nom}		Ø12	Ø14	Ø16	Ø20	Ø24	Ø28	Ø32
B500B	Tensile, Min.	N _{rec,min}	[kN]	11,7	13,0	14,3	17,1	18,9	23,8	29,0
	Tensile Max.	N _{rec,max}	[kN]	31,7	43,2	56,4	88,2	126,9	172,8	217,0
	Shear ²⁾	V _{rec,max}	[kN]	14,8	20,2	26,3	41,1	59,2	80,6	105,3
Cracked Concrete		d _{nom}		Ø12	Ø14	Ø16	Ø20	Ø24	Ø28	Ø32
B500B	Tensile, Min.	N _{rec,min}	[kN]	5,8	7,2	8,8	12,2	13,4	16,9	20,7
	Tensile Max.	N _{rec,max}	[kN]	19,7	26,9	35,1	54,9	79,0	122,5	166,0
	Shear ²⁾	V _{rec,max}	[kN]	14,8	20,2	26,3	41,1	59,2	80,6	105,3

Recommended Loads Flooded Holes

Non-Cracked Concrete		d _{nom}		Ø12	Ø14	Ø16	Ø20	Ø24	Ø28	Ø32
B500B	Tensile, Min.	N _{rec,min}	[kN]	7,6	9,5	11,6				
	Tensile Max.	N _{rec,max}	[kN]	26,2	35,6	46,5				
	Shear ²⁾	V _{rec,max}	[kN]	14,8	20,2	26,3				
Cracked Concrete		d _{nom}		Ø12	Ø14	Ø16	Ø20	Ø24	Ø28	Ø32
B500B	Tensile, Min.	N _{rec,min}	[kN]	4,9	6,2	7,5				
	Tensile Max.	N _{rec,max}	[kN]	16,9	23,0	30,1				
	Shear ²⁾	V _{rec,max}	[kN]	14,8	20,2	26,3				



INNOVATIVE SOFTWARE - ANCHOR DESIGN MADE EASY

- Innovative 3d visual user interface, EN 1992-4 & AS 5216:2018 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 AS 5216:2018 now directly referenced in the 2019 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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