



## Vinylester Injection System with ETA Approval for Post Installed Rebar



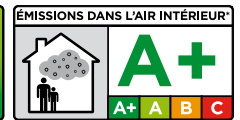
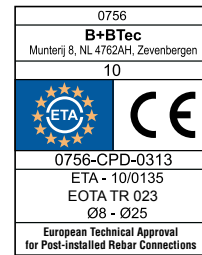
### Use Conditions

- Installation in Non-Cracked Concrete C20/25 to C50/60
- In Dry and Wet Holes
- Not to be installed in flooded holes.
- Fire Rated

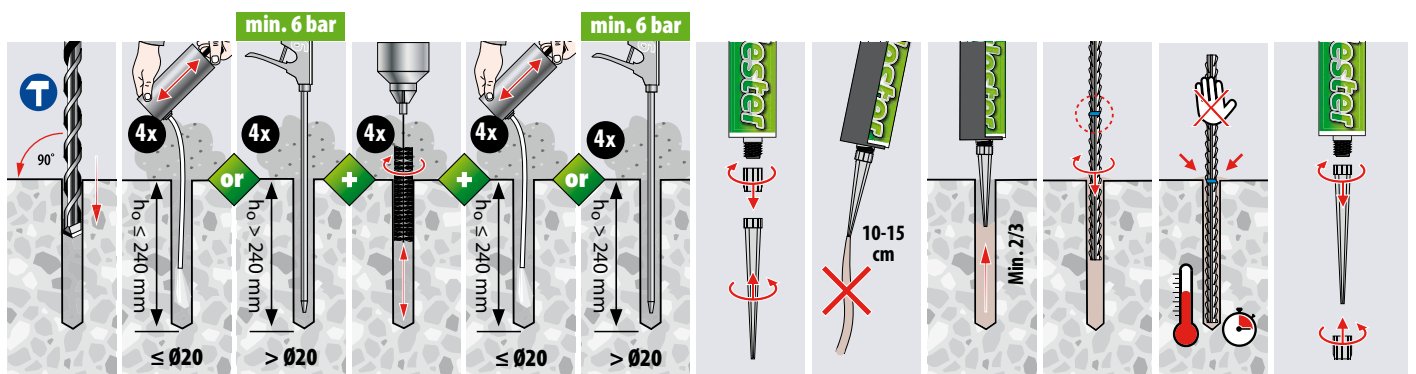
### Typical Applications

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

### Approvals & Test Reports



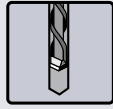
### Installation Procedures



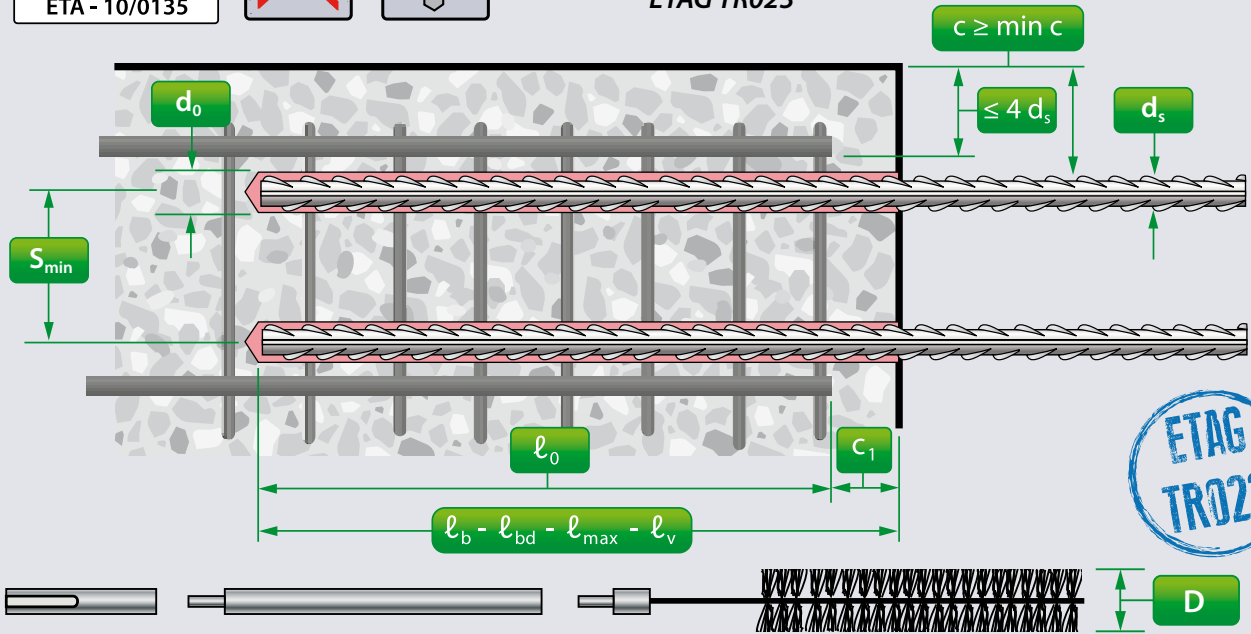
### Curing Times

Temperature <sup>1)</sup>	°C	-10 <sup>2)</sup>	-5	0	+5	+10	+20	+30 <sup>3)</sup>	+35 <sup>3)</sup>	+40 <sup>3)</sup>
Processing 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 Uncracked Concrete and Hammer/Air Drilled Holes according to EC2 and ETAG TR023



## Installation Dimensions

Rebar Size	$d_s$		Ø10	Ø12	Ø16	Ø20	Ø24
Hole Diameter	$d_0$	[mm]	14	16	20	25	32
Min. Anchorage Depth	$l_{b,min}$	[mm]	213	255	340	425	510
Min. Lap Length	$l_{0,min}$	[mm]	300	300	360	450	540
Design Anchorage Length	$l_{bd}$	[mm]	473	567	756	945	1134
Max. Anchorage Length	$l_{,max}$	[mm]	1000	1200	1600	2000	2000
Min. Spacing	$s_{min}$	[mm]	50	60	80	100	120
Required Volume per cm Embedment Depth	$v_s$	[ml/cm]	0,90	1,06	1,36	2,12	4,22

## Steel Brush & Piston Plug Dimensions

Rebar Size	$d_s$		Ø10	Ø12	Ø16	Ø20	Ø24
Brush Diameter	$D$	[mm]	16	18	22	27	34
Min. Brush Diameter	$D_{min}$	[mm]	14,5	16,5	20,5	25,5	32,5
Piston Plug	#	--	14	16	20	25	32

## Performance Data<sup>1)</sup>

- Performance Data:** Loads in kN for a single Rebar Dowel in Compressed Air Cleaned Holes and Concrete C20/C25. Temperature 50°C/80°C for long/short term. No influence of Edge- or Center to Center Distances.
- Ultimate Bond Resistance:** Valid for all drilling methods for good conditions. For all other bond conditions multiply by 0,7
- Rebar Yield Strength** 500 N/mm<sup>2</sup>.
- Rebar Safety Factor  $\gamma_M = 1,15$  (Steel)



## Min. Concrete Cover

Drilling Method		d <sub>s</sub> [mm]	Without Drilling Guide [mm]	With Drilling Guide [mm]
Hammer Drilling	<b>HD</b>	<25	30 + 0,06·ℓ <sub>v</sub> ≥ 2d <sub>s</sub>	30 + 0,02·ℓ <sub>v</sub> ≥ 2d <sub>s</sub>
		=25	40 + 0,06·ℓ <sub>v</sub> ≥ 2d <sub>s</sub>	40 + 0,02·ℓ <sub>v</sub> ≥ 2d <sub>s</sub>
Air Drilling	<b>AD</b>	<25	50 + 0,08·ℓ <sub>v</sub>	50 + 0,02·ℓ <sub>v</sub>
		=25	60 + 0,08·ℓ <sub>v</sub>	60 + 0,02·ℓ <sub>v</sub>

## Design Values of Ultimate Bond Resistance<sup>2)</sup> f<sub>bd</sub> in N/mm<sup>2</sup>

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

## Design Resistance Dry/Wet Holes

Rebar Size ▶	d <sub>s</sub>	Ø10	Ø12	Ø16	Ø20	Ø24
<b>▼ Embedment Depth ℓ<sub>b</sub></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
425		30,7	36,9	49,1	61,4	73,7
454		32,8	39,4	52,5	65,6	78,7
468		33,8	40,6	54,1	67,6	81,2
482		34,1	41,8	55,7	69,7	83,6
520			45,1	60,1	75,1	90,2
532			46,1	61,5	76,9	92,3
595			49,2	68,8	86,0	103,2
681				78,7	98,4	118,1
728				84,2	105,2	126,2
800				87,4	115,6	138,7
932					134,7	161,6
1000					136,6	173,4
1100						190,8
1200						196,7
1400						
1600						
2000						
<b>Design Yield Load<sup>4)</sup></b>		34,1	49,2	87,4	136,6	196,7



**INNOVATIVE SOFTWARE - ANCHOR DESIGN MADE EASY**

- Innovative 3d visual user interface, ETAG-001 & SA TS 101:2015 compliant
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