

# EAC80 VINYLESTER

## STYRENE FREE INJECTION SYSTEM



### FEATURES

- Single cartridges with self mixing action.
- Flexible embedment depth.
- Suitable with any 300ml sealant caulking gun.
- Close anchor spacing and edge distance applications.
- Excellent resistance to dynamic and cyclic loadings.
- Chemical resistance to many types of contaminant agents.
- Can apply to all directional holes.

### APPLICATIONS

- Starter bar installation for structural extension and rectification works.
- Chemical anchoring for curtain walling/cladding.
- All types of machines installation where dynamic loading is high.
- Hold down bolts for steel structure fixing.
- Tie back for temporary structures or permanent fixings.
- Decorative panel fixings or architectural finishes.

### SHELF LIFE

- Shelf life is 18 months with the cartridges stored in their original packing, the correct way up and in cool dry conditions (+5°C to +25°C) out of direct sunlight.

### RANGE OF CONCRETE QUALITY

C20/25 ~ C50/60

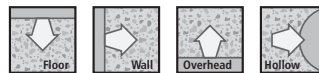
### RANGE OF LOADING

5.1 kN ~ 80.6 kN (SWL)



Medium loads

### HOLE ORIENTATION



### BASE MATERIALS



Concrete



Concrete block solid stone



Solid brick



Hollow block


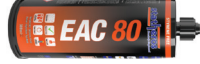




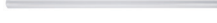
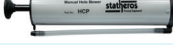


### VA RODS AVAILABILITY



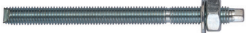

### APPROVAL GOVERNING BODIES





## ► ORDERING DETAILS

PRODUCT DESCRIPTION	PACKING CONTENT (PCs.)	PRODUCT PART NO.	
EAC80 - 300ml (Single Cartridge System)	12	EAC80	
EAC80 - 380ml (Co-axial Cartridge System)	20	EAC80-380	
Applicator Handgun - 300ml (For 300ml Cartridge)	1	GZ30	
Applicator Handgun - 380ml (For 380ml Cartridge)	1	GZ80	
Mixing Nozzle - 215mm	Bulk	NZ30	
	Bulk	NZ80	
Nozzle Extension - 220mm	Bulk	NE20	
Hole Blower	1	HCP	
<b>Hole Cleaning Brush</b>			
Cleaning Brush - 10mm	1	CB10	
Cleaning Brush - 12mm	1	CB12	
Cleaning Brush - 18mm	1	CB18	
Cleaning Brush - 28mm	1	CB28	
<b>Hollow Sleeve</b>			
M15 x 85mm	Bulk	HBS15	
M20 x 85mm	Bulk	HBS20	

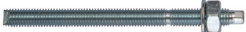

## VA CHEMICAL STUD RODS - STEEL CLASS 5.8 ZINC GALVANISED

PRODUCT DESCRIPTION	FIXTURE HOLE DIAMETER (mm)	MAX. FIXTURE THICKNESS (mm)	PACKING CONTENT (PCs.)	PRODUCT PART NO.	
M8 x 110mm	9	15	10	VA8110	 
M10 x 130mm	12	20	10	VA10130	
M12 x 160mm	14	30	10	VA12160	
M16 x 190mm	18	40	10	VA16190	
M20 x 260mm	22	50	6	VA20260	
M24 x 300mm	28	55	6	VA24300	

## VA CHEMICAL STUD RODS - STEEL CLASS 5.8 HOT-DIPPED GALVANISED

PRODUCT DESCRIPTION	FIXTURE HOLE DIAMETER (mm)	MAX. FIXTURE THICKNESS (mm)	PACKING CONTENT (PCs.)	PRODUCT PART NO.	
M8 x 110mm	9	15	10	VA8110GH	 
M10 x 130mm	12	20	10	VA10130GH	
M12 x 160mm	14	30	10	VA12160GH	
M16 x 190mm	18	40	10	VA16190GH	
M20 x 260mm	22	50	6	VA20260GH	
M24 x 300mm	28	55	6	VA24300GH	

## VAH CHEMICAL STUD RODS - STEEL CLASS 8.8 ZINC GALVANISED

PRODUCT DESCRIPTION	FIXTURE HOLE DIAMETER (mm)	MAX. FIXTURE THICKNESS (mm)	PACKING CONTENT (PCs.)	PRODUCT PART NO.	
M8 x 110mm	9	15	10	VAH8110	 
M10 x 130mm	12	20	10	VAH10130	
M12 x 160mm	14	30	10	VAH12160	
M16 x 190mm	18	40	10	VAH16190	
M20 x 260mm	22	50	6	VAH20260	
M24 x 300mm	28	55	6	VAH24300	

## VAH CHEMICAL STUD RODS - STEEL CLASS 8.8 HOT-DIPPED GALVANISED

PRODUCT DESCRIPTION	FIXTURE HOLE DIAMETER (mm)	MAX. FIXTURE THICKNESS (mm)	PACKING CONTENT (PCs.)	PRODUCT PART NO.
M8 x 110mm	9	15	10	VAH8110GH
M10 x 130mm	12	20	10	VAH10130GH
M12 x 160mm	14	30	10	VAH12160GH
M16 x 190mm	18	40	10	VAH16190GH
M20 x 260mm	22	50	6	VAH20260GH
M24 x 300mm	28	55	6	VAH24300GH



## VAR CHEMICAL STUD RODS - STAINLESS STEEL CLASS 304 (A2)

PRODUCT DESCRIPTION	FIXTURE HOLE DIAMETER (mm)	MAX. FIXTURE THICKNESS (mm)	PACKING CONTENT (PCs.)	PRODUCT PART NO.
M8 x 110mm	9	15	10	VAR8110
M10 x 130mm	12	20	10	VAR10130
M12 x 160mm	14	30	10	VAR12160
M16 x 190mm	18	40	10	VAR16190
M20 x 260mm	22	50	6	VAR20260
M24 x 300mm	28	55	6	VAR24300



## VAS CHEMICAL STUD RODS - STAINLESS STEEL CLASS 316 (A4)

PRODUCT DESCRIPTION	FIXTURE HOLE DIAMETER (mm)	MAX. FIXTURE THICKNESS (mm)	PACKING CONTENT (PCs.)	PRODUCT PART NO.
M8 x 110mm	9	15	10	VAS8110
M10 x 130mm	12	20	10	VAS10130
M12 x 160mm	14	30	10	VAS12160
M16 x 190mm	18	40	10	VAS16190
M20 x 260mm	22	50	6	VAS20260
M24 x 300mm	28	55	6	VAS24300



## ► INSTALLATION PERIMETER & LOADING DATA

### EAC80 WITH VA (STEEL CLASS 5.8) RODS - ZINC GALVANISED & HOT DIPPED GALVANISED

ANCHOR SIZE	HOLE DIAMETER (mm)	ANCHORAGE DEPTH (mm)	MINIMUM CONCRETE THICKNESS (mm)	TIGHTENING TORQUE (Nm)	RECOMMENDED SPACING & EDGE DISTANCE TO FULL LOAD (mm)		ABSOLUTE MINIMUM SPACING & EDGE DISTANCE (mm)		RECOMMENDED LOAD <sup>1</sup> (kN)	
					TENSION	SHEAR	TENSION	SHEAR	TENSION	SHEAR
M8	10	80	110	10	160	80	40	40	8.0	5.1
M10	12	90	120	20	180	90	45	45	9.0	8.6
M12	14	110	140	40	220	110	55	55	14.8	12.0
M16	18	125	155	80	250	125	65	65	23.7	22.3
M20	24	170	220	150	340	170	85	85	36.0	34.9
M24	28	210	270	200	420	210	105	105	53.4	50.3

<sup>1</sup> Loading based on non-cracked concrete,  $f_{ck,cube} = 25 \text{ N/mm}^2$  (C20/25).

### EAC80 WITH VAH (STEEL CLASS 8.8) RODS - ZINC GALVANISED & HOT DIPPED GALVANISED

ANCHOR SIZE	HOLE DIAMETER (mm)	ANCHORAGE DEPTH (mm)	MINIMUM CONCRETE THICKNESS (mm)	TIGHTENING TORQUE (Nm)	RECOMMENDED SPACING & EDGE DISTANCE TO FULL LOAD (mm)		ABSOLUTE MINIMUM SPACING & EDGE DISTANCE (mm)		RECOMMENDED LOAD <sup>1</sup> (kN)	
					TENSION	SHEAR	TENSION	SHEAR	TENSION	SHEAR
M8	10	80	110	10	160	80	40	40	8.0	8.6
M10	12	90	120	20	180	90	45	45	9.0	13.1
M12	14	110	140	40	220	110	55	55	14.8	19.4
M16	18	125	155	80	250	125	65	65	23.7	36.0
M20	24	170	220	150	340	170	85	85	36.0	56.0
M24	28	210	270	200	420	210	105	105	53.4	80.6

<sup>1</sup> Loading based on non-cracked concrete,  $f_{ck,cube} = 25 \text{ N/mm}^2$  (C20/25).

## EAC80 WITH VAR & VAS (STAINLESS STEEL) RODS - CLASS 304 (A2) & CLASS 316 (A4)

ANCHOR SIZE	HOLE DIAMETER (mm)	ANCHORAGE DEPTH (mm)	MINIMUM CONCRETE THICKNESS (mm)	TIGHTENING TORQUE (Nm)	RECOMMENDED SPACING & EDGE DISTANCE TO FULL LOAD (mm)		ABSOLUTE MINIMUM SPACING & EDGE DISTANCE (mm)		RECOMMENDED LOAD <sup>1</sup> (kN)	
					TENSION	SHEAR	TENSION	SHEAR	TENSION	SHEAR
M8	10	80	110	10	160	80	40	40	8.0	6.0
M10	12	90	120	20	180	90	45	45	9.0	9.2
M12	14	110	140	40	220	110	55	55	14.8	13.7
M16	18	125	155	80	250	125	65	65	23.7	25.2
M20	24	170	220	150	340	170	85	85	36.0	39.4
M24	28	210	270	200	420	210	105	105	53.4	56.8

<sup>1</sup> Loading based on non-cracked concrete,  $f_{ck,cube} = 25 \text{ N/mm}^2$  (C20/25).

## LOADING DATA FOR HOLLOW & SOLID BRICKWORK OR BLOCKWORK

ANCHOR SIZE	HOLE DIAMETER (mm)		MINIMUM ANCHORAGE DEPTH (mm)	MINIMUM WALL THICKNESS (mm)	HOLLOW SUBSTRATE (< 7 N/mm <sup>2</sup> )		SOLID SUBSTRATE							
	HOLLOW <sup>1</sup>	SOLID			(< 2.8 N/mm <sup>2</sup> )		(< 3.5 N/mm <sup>2</sup> )		(< 7 N/mm <sup>2</sup> )		(< 14 N/mm <sup>2</sup> )			
					TENSION	SHEAR	TENSION	SHEAR	TENSION	SHEAR	TENSION	SHEAR		
M8	12	10	75	100	0.3	0.2	0.4	0.3	0.5	0.5	0.6	0.7	1.4	1.0
M10	15	12	85	110	0.5	0.3	0.7	0.3	0.9	0.5	1.3	0.7	2.9	1.2
M12	20	14	85	110	0.5	0.4	0.9	0.3	1.1	0.5	1.5	0.7	3.5	1.5

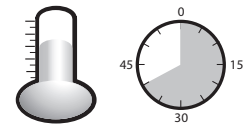
<sup>1</sup> Hole diameter is inclusive of the recommended perforated sleeve.

<sup>2</sup> Safety factor of 5.0 is recommended.

## GEL AND CURING TIME<sup>1</sup>

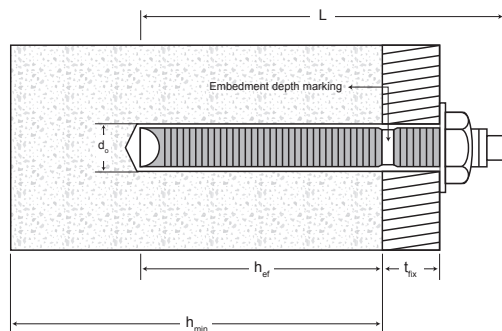
BASE MATERIAL TEMPERATURE $T_{\text{base material}} (\text{°C})$	GEL TIME (WORKING TIME) $t_{\text{gel}} (\text{mins})$	CURING TIME $t_{\text{cure}} (\text{mins})$
min. +5	18	145
+5 ≤ $T_{\text{base material}} < +10$	10	145
+10 ≤ $T_{\text{base material}} < +20$	6	85
+20 ≤ $T_{\text{base material}} < +25$	5	50
+25 ≤ $T_{\text{base material}} < +30$	4	40
+30 & above	4	35

Note: If during the installation of the rod the temperature drop below -6°C or rises above 60°C, please contact our Engineers for the proper procedures.

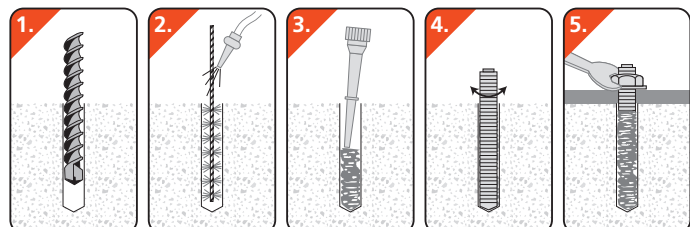


<sup>1</sup> The curing time after are for dry base material only. In wet base material, the curing time must be doubled.

## SETTING DIAGRAM



## INSTALLATION PROCEDURE



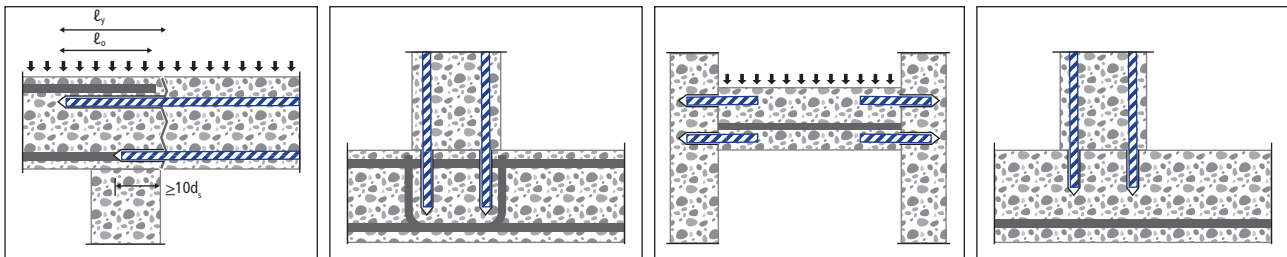
## EAC80 VINYLESTER STYRENE FREE INJECTION SYSTEM FOR POST-INSTALLED REBAR APPLICATIONS (Design Load Approach with BS8110 Bond Strength Method)

Concrete Compressive Strength:  $f_{ck,cube} = 30 \text{ N/mm}^2$

Rebar Size, $d_s$		$\phi 8$	$\phi 10$	$\phi 12$	$\phi 16$	$\phi 20$	$\phi 25$
Design Steel Resistance, $N_{Rd,s}$	[kN]	20.1	31.4	45.2	80.4	125.7	196.4
Design Bond Stress, $\tau_{Rd}$	[N/mm <sup>2</sup> ]	5.9	4.7	5.3	5.6	5.0	5.0
Drilled Hole Diameter, $d_o$	[mm]	10 ~ 12	13 ~ 14	15 ~ 16	20 ~ 22	25 ~ 28	30 ~ 32
Bar Spacing, $s$	[mm]	50	50	65	80	100	125
Edge Distance, $c$	[mm]	40	40	40	40	50	65
$L_{b,reqd} / \text{Rebar } \phi$		17	21	19	18	20	20
Anchorage Length, $L_b$ [mm]		Design Tensile Bonding Capacity, $N_{Rd}$ [kN]					
80	11.8	<i>"Minimum depth to develop full steel shear"</i>					
100	14.8						
120	17.8						
160	<b>20.1</b>						
200	29.6						
210	<b>31.4</b>						
250	<b>45.2</b>						
285	<b>80.4</b>						
350							
400							
425							
500							
Length to Develop Steel Yield, $L_{b,reqd}$ [mm]		136	212	226	286	400	500

- 1) Safety factor for design tensile steel resistance:  $\gamma_{Ms,N} = 1.15$  (based on steel yield strength of 460 N/mm<sup>2</sup>).
- 2) Safety factor for design tensile pull-out resistance:  $\gamma_{Mc,N} = 1.8$ .
- 3) Loading applicable to non-cracked concrete with design comply in accordance to BS8110.
- 4) Loading data conformed to ETA-17/0409 ETAG 001 Part 1 & Part 5 Option 7.
- 5) Safety factor for design tensile concrete cone resistance:  $\gamma_{Mc,N} = 1.5$
- 6) Minimum spacing shall be  $4d_s$  bar to bar or  $5d_s$  centre-to-centre.
- 7) Minimum edge distance shall be  $2d_s$  bar to bar or  $2.5d_s$  centre-to-centre.

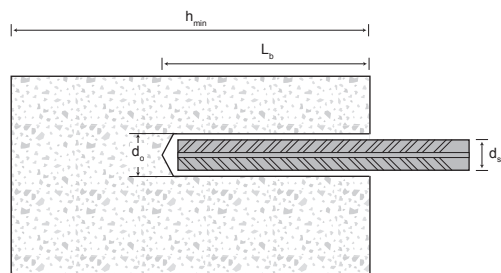
### SUGGESTED APPLICATIONS



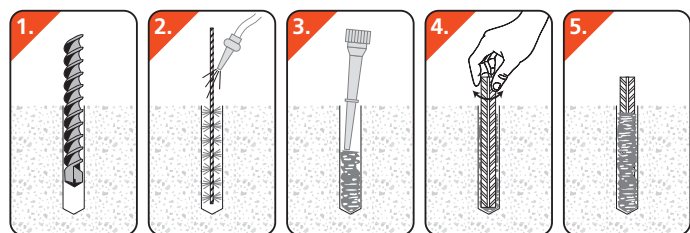
Overlap joints for slabs and beams or foundation column or wall; rebar connection for simply supported slabs or beams; shear connector or compression component joints.

Important note: Architect or design engineer must conduct final checked with the actual site condition for any variations against tabulated data.

### SETTING DIAGRAM



### INSTALLATION PROCEDURE



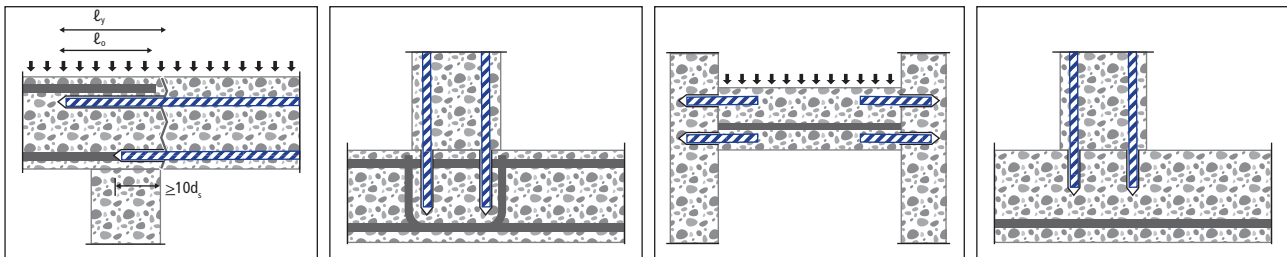
## EAC80 VINYLESTER STYRENE FREE INJECTION SYSTEM FOR POST-INSTALLED REBAR APPLICATIONS (Design Load Approach with BS8110 Bond Strength Method)

Concrete Compressive Strength:  $f_{ck,cube} = 35 \text{ N/mm}^2$

Rebar Size, $d_s$		$\phi 8$	$\phi 10$	$\phi 12$	$\phi 16$	$\phi 20$	$\phi 25$
Design Steel Resistance, $N_{Rd,s}$	[kN]	20.1	31.4	45.2	80.4	125.7	196.4
Design Bond Stress, $\tau_{Rd}$	[N/mm <sup>2</sup> ]	6.2	4.9	5.6	5.9	5.2	5.2
Drilled Hole Diameter, $d_o$	[mm]	10 ~ 12	13 ~ 14	15 ~ 16	20 ~ 22	25 ~ 28	30 ~ 32
Bar Spacing, $s$	[mm]	50	50	65	80	100	125
Edge Distance, $c$	[mm]	40	40	40	40	50	65
$L_{b,reqd} / \text{Rebar } \phi$		18	22	20	19	21	21
Anchorage Length, $L_b$ [mm]		Design Tensile Bonding Capacity, $N_{Rd}$ [kN]					
80	12.4	<i>"Minimum depth to develop full steel shear"</i>					
100	15.5						
120	18.6						
160	<b>20.1</b>						
200	31.0						
205	<b>31.4</b>						
250	<b>45.2</b>						
275	<b>80.4</b>						
380	<b>125.7</b>						
400							
425						175.0	
475						<b>196.4</b>	
Length to Develop Steel Yield, $L_{b,reqd}$ [mm]		130	203	216	273	382	477

- 1) Safety factor for design tensile steel resistance:  $\gamma_{Ms,N} = 1.15$  (based on steel yield strength of 460 N/mm<sup>2</sup>).
- 2) Safety factor for design tensile pull-out resistance:  $\gamma_{Mc,N} = 1.8$ .
- 3) Loading applicable to non-cracked concrete with design comply in accordance to BS8110.
- 4) Loading data conformed to ETA-17/0409 ETAG 001 Part 1 & Part 5 Option 7.
- 5) Safety factor for design tensile concrete cone resistance:  $\gamma_{Mc,N} = 1.5$
- 6) Minimum spacing shall be  $4d_s$  bar to bar or  $5d_s$  centre-to-centre.
- 7) Minimum edge distance shall be  $2d_s$  bar to bar or  $2.5d_s$  centre-to-centre.

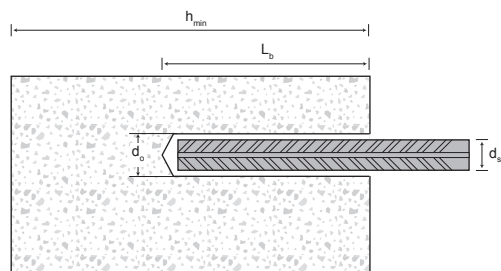
### SUGGESTED APPLICATIONS



Overlap joints for slabs and beams or foundation column or wall; rebar connection for simply supported slabs or beams; shear connector or compression component joints.

Important note: Architect or design engineer must conduct final checked with the actual site condition for any variations against tabulated data.

### SETTING DIAGRAM



### INSTALLATION PROCEDURE

