

INFASET VE102 VINYLESTER TECHNICAL DATA



Impact-A Infaset VE102 Vinylester Styrene Free Injection System (420ml)

PART NUMBER

29108 - Includes 1 x VE102 with 2 x Static Mixers.

(Box QTY - 12 x VE102 & 24 Static Mixers.)

ASSOCIATED PRODUCT

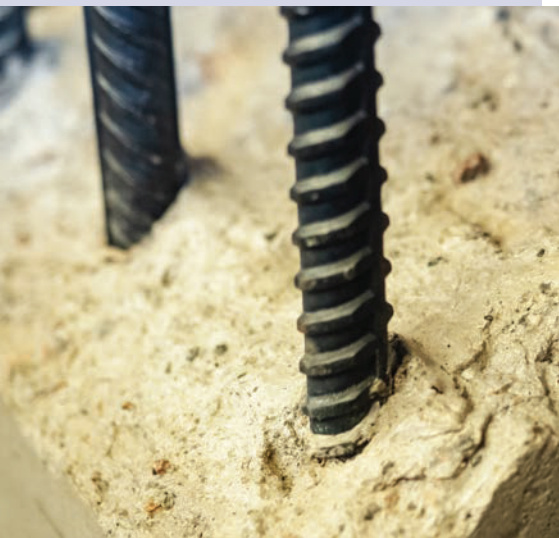
Infaset Hand Applicator Tool.

PART NUMBER

10081

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Product description

InFaSet VE102 Vinylester is a Styrene-free 2-component reaction Vinylester resin. This cost-effective product may be used in combination with a hand, battery or pneumatic injection tool and a static mixer. It was designed especially for the anchoring of threaded rods or reinforcing bars into concrete. Based on the excellent standing behaviour the usability for overhead application is proven. The InFaSet VE102 Vinylester is characterised, by a huge range of applications including seismic C1 + C2 with an installation temperature from -5°C and an installation concrete temperature range of -5° to +40°C. The InFaSet VE102 Vinylester has been tested and assessed for use in concrete base materials up to 80°C (once fully cured).

Properties and benefits

- European Assessment acc. to EAD 330499-01-0601 (Option 1): ETA-20/0131
- European Assessment acc. to EAD 330087-00-0601 (post-installed rebar): ETA-20/0130
- For heavy anchoring - anchoring and post-installed rebar connection
- Overhead application
- Suitable for attachment points with small edge and axial distances due to an anchoring free of expansion forces
- Standard chemical resistance
- Low odour
- High bending and pressure strength
- Made in the EU

Applications

Suitable for the fixation of facades, roofs, wood constructions, metal constructions, metal profiles, columns, beams, consoles, railings, sanitary devices, cable trays, piping, post-installed rebar connection (reconstruction or reinforcement), etc.

Handling and storage

- **Storage:** store in a cold and dark place, storage temperature: from +5°C up to +25 °C
- **Shelf life:** 18 months for cartridges

Impact-A brand is owned and distributed by CSS.
www.constructionsupply.com.au

Mechanical properties (Mortar)

PROPERTIES	TEST METHOD	RESULT
UV resistance		Pass
Watertightness	DIN EN 12390-8	0 mm
Temperature stability		≤ 120 °C
Density		1.77 kg / dm ³
Compressive strength	DIN EN 196-1	100 N / mm ²
Flexural strength	DIN EN 196-1	15 N / mm ²
E modulus	DIN EN ISO 527-2	14000 N / mm ²
Shrinkage		< 0.3 %
Hardness Shore D		90
Electrical resistance	IEC 93	3,6 109 W m
Thermal conductivity	IEC 60093	0.65 W/m·K

Reactivity

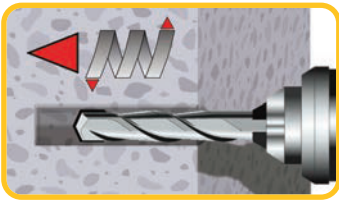
CONCRETE TEMPERATURE	INFASET VE102 VINYLESTER MAX. WORKING TIME	INFASET VE102 VINYLESTER MIN. CURING TIME
-5°C to -1° Celcius	90 minutes	6 hours
0°C to +4° Celcius	45 minutes	3 hours
+5°C to +9° Celcius	25 minutes	2 hours
+10°C to +14° Celcius	20 minutes	100 minutes
+15°C to +19° Celcius	15 minutes	80 minutes
+20°C to +29° Celcius	6 minutes	45 minutes
+30°C to +34° Celcius	4 minutes	25 minutes
+35°C to +39° Celcius	2 minutes	20 minutes
Cartridge temperature	+5°C to +40° Celcius	

Applications

- **Base material:** cracked and non-cracked concrete.
- **Anchor elements:** threaded rods (zinc plated or hot dip, stainless steel and high corrosion resistance steel), reinforcing bars.
- **Temperature range:** -5°C up to +40°C installation temperature
- **Cartridge temperature min.** +5°C; optimal +20°C.
- **-40°C to +80°C** base material temperature after full curing.

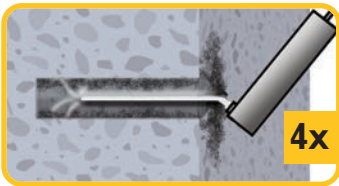


INFASET VE102 VINYLESTER **INSTALLATION INSTRUCTIONS**

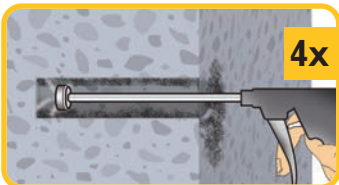


1. Drill with hammer drill a hole into the base material to the size and embedment depth required by the selected anchor (see page 7). In case of aborted drill hole, the drill hole shall be filled with mortar.

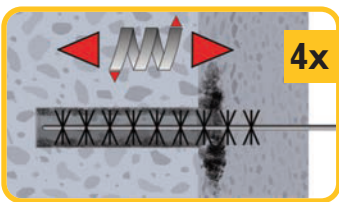
Attention! Standing water in the bore hole must be removed before cleaning.



2a. Starting from the bottom or the back of the bore hole, blow the hole clean with compressed air (min. 6 bar) or a hand pump, a minimum of four times. If the bore hole ground is not reached an extension shall be used.

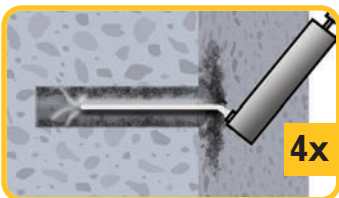


or Hand-pump can be used for anchor sizes up to bore hole diameter 20 mm.



For bore holes larger than 20 mm or deeper 240 mm, compressed air (min. 6 bar) must be used.

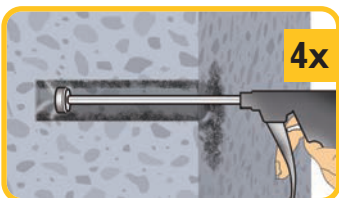
2b. Check the brush diameter (see page 6) and attach the brush to a drilling machine or a battery screwdriver. Brush the hole with an appropriate sized wire brush $> d_{b,min}$ (see page 6) a minimum of four times. If the borehole ground is not reached with the brush, a brush extension must be used (see page 6).



2c. Finally blow the hole clean again with compressed air (min. 6 bar) or a hand pump (see page 6) a minimum of four times. If the bore hole ground is not reached an extension shall be used.

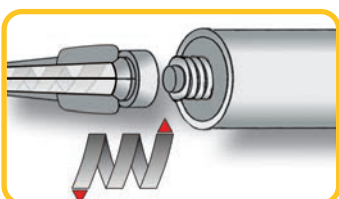
The hand pump can be used for anchor sizes up to bore hole diameter 20 mm. For bore holes larger than 20 mm or deeper 240 mm, compressed air (min. 6 bar) must be used.

or



After cleaning, the hole has to be protected against re-contamination in an appropriate way, until dispensing the mortar in the bore hole. If necessary, the cleaning must be repeated directly before dispensing the mortar.

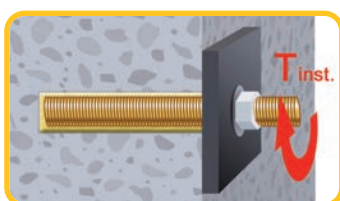
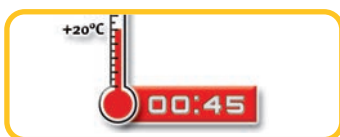
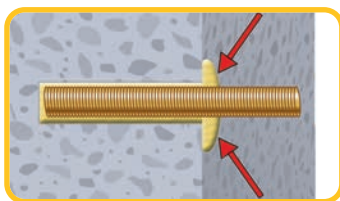
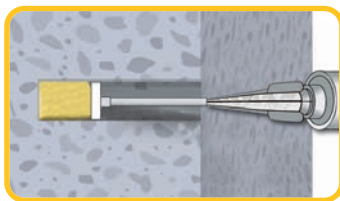
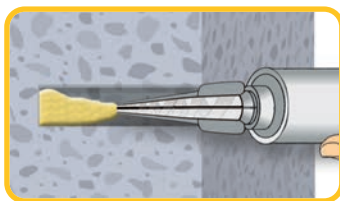
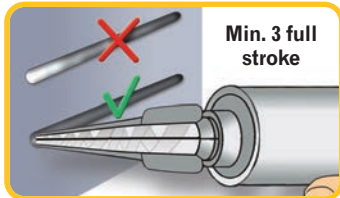
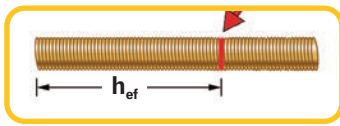
In-flowing water must not contaminate the bore hole again.



3. Attach the supplied static-mixing nozzle to the cartridge and load the cartridge into the correct dispensing tool.

For every working interruption longer than the recommended working time (see page 3) as well as for new cartridges, a new static-mixer shall be used.

INFASET VE102 VINYLESTER **INSTALLATION INSTRUCTIONS**



4. Prior to inserting the anchor rod into the filled bore hole, the position of the embedment depth shall be marked on the anchor rods.
5. Prior to dispensing into the anchor hole, squeeze out separately a minimum of three full strokes and discard non-uniformly mixed adhesive components until the mortar shows a consistent grey or blue (InFaSet VE102 Vinylester) colour.
6. Starting from the bottom or back of the cleaned anchor hole, fill the hole up to approximately two-thirds with adhesive. Slowly withdraw the static mixing nozzle as the hole is filled, avoids creating air pockets. If the bottom or back of the anchor hole is not reached, an appropriate extension nozzle must be used. Observe the gel-/ working times given on page 3.
7. Piston plugs and mixer nozzle extensions shall be used according to page 6 for the following applications:
 - Horizontal assembly (horizontal direction) and ground erection (vertical downwards direction):
Drill bit- \varnothing $d_0 \geq 18$ mm and embedment depth $h_{ef} \geq 250$ mm
 - Overhead assembly (vertical upwards direction):
Drill bit- \varnothing $d_0 \geq 18$ mm
8. Push the threaded rod or reinforcing bar into the anchor hole, while turning slightly to ensure positive distribution of the adhesive, until the embedment depth is reached. The anchor should be free of dirt, grease, oil or other foreign material.
9. Be sure that the anchor is fully seated at the bottom of the hole and that excess mortar is visible at the top of the hole. If these requirements are not maintained, the application has to be renewed. For overhead applications, the anchor rod shall be fixed (e.g. wedges).
10. Allow the adhesive to cure to the specified time prior to applying any load or torque. Do not move or load the anchor until it is fully cured (see page 3).
11. After full curing, the add-on part can be installed with up to the max. torque (see page 7) by using a calibrated torque wrench. It can be optional filled the annular gap between anchor and fixture with mortar. Therefore substitute the washer by the filling washer and connect the mixer reduction nozzle to the tip of the mixer. The annular gap is filled with mortar, when mortar oozes out of the washer.

Setting parameter - concrete (threaded rod)

ANCHOR SIZE (THREADED ROD)			M8	M10	M12	M16	M20	M24
Diameter of element	$d = d_{nom}$	[mm]	8	10	12	16	20	24
Nominal drill hole diameter	d_0	[mm]	10	12	14	18	22	28
Effective embedment depth	$h_{ef,min}$	[mm]	60	60	70	80	90	96
	$h_{ef,max}$	[mm]	160	200	240	320	400	480
Diameter of clearance hole in the fixture	Prepositioned installation d_f	[mm]	9	12	14	18	22	26
	Push through installation d_f	[mm]	12	14	16	20	24	30
Thickness of fixture	$t_{fix,min}$	[mm]	0					
	$t_{fix,max}$	[mm]	1500					
Maximum torque moment	$T_{inst} \leq$	Nm]	10	20	40	80	120	160
Minimum thickness of member	h_{min}	[mm]	$h_{ef} + 30mm \geq 100mm$			$h_{ef} + 2d_0$		
Minimum spacing	S_{min}	[mm]	40	50	60	80	100	120
Minimum edge distance	C_{min}	[mm]	40	50	60	80	100	120

Setting parameter - concrete (rebar)

ANCHOR SIZE (REBAR)			Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25
Diameter of element	$d = d_{nom}$	[mm]	8	10	12	14	16	20	25
Nominal drill hole diameter	d_0	[mm]	12	14	16	18	20	25	32
Effective embedment depth	$h_{ef,min}$	[mm]	60	60	70	75	80	90	100
	$h_{ef,max}$	[mm]	160	200	240	280	320	400	500
Minimum thickness of member	h_{min}	[mm]	$h_{ef} + 30mm \geq 100mm$			$h_{ef} + 2d_0$			
Minimum spacing	S_{min}	[mm]	50	55	65	70	80	100	130
Minimum edge distance	C_{min}	[mm]	50	55	65	70	80	100	130

Recommended loads - concrete (Threaded rod)

The recommended loads are only valid for single anchors, if the following conditions are valid:

- Concrete edge distance $\geq 1.5 \times h_{ef}$
Anchor spacing $\geq 3.0 \times h_{ef}$
Concrete member thickness $\geq 2 \times h_{ef}$
- $\psi_{sus} = 1,0$; percentage of dead load $\leq \psi_{sus}^0$ see table below.
- Cleaning: Compressed Air Cleaning - CAC (for uncracked MAC as well)
- The recommended loads have been calculated using the partial safety factors for resistances stated in ETA(s) and with a partial safety factor for actions of $f = 1.4$.
The partial safety factor for seismic action is $\gamma = 1,0$.
- Only for dry and wet concrete and flooded bore hole.

If the conditions are not fulfilled the loads must be calculated acc. to AS 5216:2018.

For further details observe ETA-20/0131.

ANCHOR SIZE (STEEL QUALITY 5.8) - CONCRETE C20/25					M8	M10	M12	M16	M20	M24	
RECOMMENDED TENSION LOAD	40°C/24°C ¹⁾	$\psi_{sus}^0 = 0.60$	uncracked concrete	$N_{Rec,stat}$	[kN]	6.8	9.0	13.2	19.9	33.9	50.3
			cracked concrete	$N_{Rec,stat}$		3.6	5.0	7.4	11.2	NPA	
				$N_{Rec,eq,C1}$		2.6	3.5	5.3	7.7		
	$N_{Rec,eq,C2}$	NPA		1.7	3.3						
	80°C/50°C ¹⁾	$\psi_{sus}^0 = 0.65$	uncracked concrete	$N_{Rec,stat}$	[kN]	5.2	6.7	9.9	15.0	25.4	37.7
			cracked concrete	$N_{Rec,stat}$		2.8	3.9	5.8	8.7	NPA	
$N_{Rec,eq,C}$				2.1		2.8	4.1	6.1			
$N_{Rec,eq,C2}$	NPA		1.4	2.6							
Recommended shear load without lever arm ^{2) 3)}	uncracked concrete	$V_{Rec,stat}$	[kN]	6.3	9.7	14.3	23.4	38.4	54.1		
				6.3	9.4	13.2	16.6	NPA			
	cracked concrete	$V_{Rec,eq,C1}^{3)}$	4.2	5.8	8.5	12.5					
		$V_{Rec,eq,C2}^{3)}$	NPA		2.8	5.3					
Embedment depth		h_{ef}	[mm]	80	90	110	125	170	210		
Edge distance		$c \geq$	[mm]	120	135	165	190	255	315		
Anchor spacing		$s \geq$	[mm]	240	270	330	375	510	630		

1) Short term temperature/ Long term temperature.

2) Gap between anchor rod and clearance hole of fixture must be filled with mortar; if not a gap must be considered, see ETA-20/0131.

3) Shear loads are valid for the specified temperature ranges.

$N_{Rec,stat}, V_{Rec,stat}$ = Recommended load under static and quasi-static action

$N_{Rec,eq}, V_{Rec,eq}$ = Recommended load under seismic action

INFASET VE102 VINYLESTER RECOMMENDED LOADS

Recommended loads - concrete (Rebar)

The recommended loads are only valid for single anchors for general design, if the following conditions are valid:

- Concrete edge distance $\geq 1.5 \times h_{ef}$
Anchor spacing $\geq 3.0 \times h_{ef}$
Concrete member thickness $\geq 2 \times h_{ef}$
- $\psi_{sus} = 1,0$; percentage of dead load $\leq \psi_{sus}^0$ see table below.
- Cleaning: all methods.
- The recommended loads have been calculated using the partial safety factors for resistances stated in ETA(s) and with a partial safety factor for actions of $f = 1.4$.
- Only for dry and wet concrete and flooded bore hole.

If the conditions are not fulfilled the loads must be calculated acc. to AS 5216:2018.

For further details observe ETA-20/0131.

ANCHOR SIZE (BST 500) - CONCRETE C20/25				Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	
RECOMMENDED TENSION LOAD	40°C/24°C ¹⁾	$\psi_{sus}^0 = 0.60$	uncracked concrete	$N_{Rec,stat}$ [kN]	7.8	11.0	16.1	19.7	22.7	38.6	59.6
	80°C/50°C ¹⁾	$\psi_{sus}^0 = 0.65$		$N_{Rec,stat}$ [kN]	6.1	8.6	12.7	15.5	19.2	29.7	45.8
	Recommended shear load without lever arm ^{2) 3)}			$V_{Rec,stat}$ [kN]	6.7	10.5	14.8	20.3	23.4	38.4	54.4
Embedment depth			h_{ef} [mm]	80	90	110	115	125	170	210	
Edge distance			$c \geq$ [mm]	120	135	165	175	185	255	315	
Axial distance			$s \geq$ [mm]	240	270	330	345	375	510	630	

¹⁾ Short term temperature/ Long term temperature.

²⁾ Gap between anchor rod and clearance hole of fixture must be filled with mortar; if not a gap must be considered, see ETA-20/0131.

³⁾ Shear loads are valid for the specified temperature ranges.

$N_{Rec,stat}, V_{Rec,stat}$ = Recommended load under static and quasi-static action

$N_{Rec,eq}, V_{Rec,eq}$ = Recommended load under seismic action

Chemical resistance

CHEMICAL AGENT	CONCENTRATION	RESISTANT	NOT RESISTANT
Acetone	10		■
Beer		■	
Diesel oil		■	
Ethanol	50		■
Fuel Oil		■	
Gasoline (premium grade)		■	
Hydraulic fluid		■	
Hydrogen peroxide	10		■
Sea water, salty		■	

Results shown in the table are applicable to brief periods of chemical contact with full cured adhesive (e.g. temporary contact with adhesive during a spill).