# Chemical Anchor EV2

Vinylester Styrene Free Low Odour Resin is a high performance, rapid curing two part chemical anchoring system. Applied through attached mixing nozzle directly into fixing hole. Product can be extruded with use of standard extruder for silicones. It is designed as a fast curing, high strength resin fixing anchor for very high loads and critical fixings especially in corrosive environments or damp conditions.

## APPLICATIONS

| |
|---|
| Non-cracked and cracked concrete |
| Various solid substrates |
| Balcony |
| Pool ladder |
| Rebar and threaded installations |
| Heavy poles, lanterns |

## BENEFITS

| |
|---|
| Suitable for use in hollow wall, masonry & concrete |
| Medium and heavy duty load applications |
| Can be used in dry and wet conditions |
| Can be used under water |
| Suitable for critical applications |
| Chemical resistant |
| Fire resistant |
| Styrene free with low odour |
| Low shrinkage enables large diameter installation |

## APPLICATION CONDITIONS

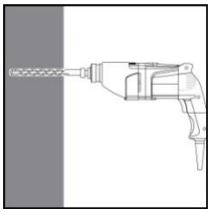
| | |
|---|---|
| Application temperature [°C] | -10* ÷ +35 |

*Cartridge temperature must be at least 20°C

## DIRECTIONS FOR USE

### 1. SOLID SUBSTRATE

#### 1. Bore hole drilling



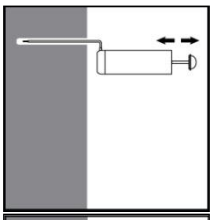
Drill hole in the substrate to the required embedment depth using the appropriately sized carbide drill bit.



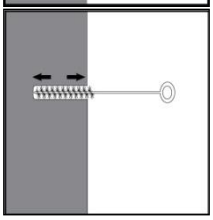
Selena Iberia S.L.U.
Centro Empresarial Rivas Futura, Calle Marie Curie 19, planta 6.1,
28521 Rivas - Madrid - España, e-mail: info@quilosa.es, www.quilosa.com

## 2. Bore hole cleaning

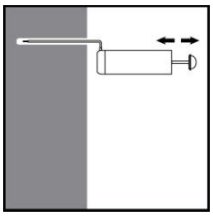
**a) Manual air cleaning (MAC)** for all bore hole diameters do ≤ 24mm and bore hole depth ho ≤ 10d.



The manual pump shall be used for blowing out bore holes up to diameters $d_o$ ≤ 24mm and embedment depths up to $h_{ef}$ ≤ 10d. Blow out at least 4 times from the back of the bore hole, using an extension if needed.

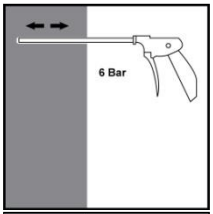


Brush 4 times with the specified brush size (see Table 1) by inserting the **Selena** steel brush to the back of the hole (if needed with an extension) in a twisting motion and removing it.

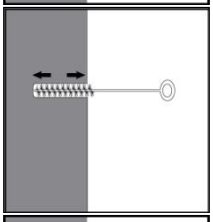


Blow out again with manual pump at least 4 times.

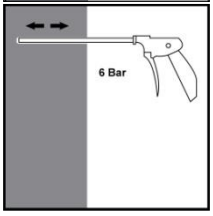
**b) Compressed air cleaning (CAC)** for all bore hole diameters do and all bore hole depths




Blow 2 times from the back of the hole (if needed with a nozzle extension) over the whole length with oil-free compressed air (min. 6 bar at 6m³/h).



Brush 2 times with the specified brush size (see Table 1) by inserting the **Selena** steel brush to the back of the hole (if needed with an extension) in a twisting motion and removing it.

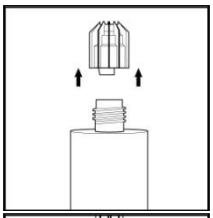



Blow out again with compressed air at least 2 times.

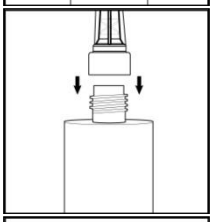


Selena Iberia S.L.U.
Centro Empresarial Rivas Futura, Calle Marie Curie 19, planta 6.1,
28521 Rivas - Madrid - España, e-mail: info@quilosa.es, www.quilosa.com

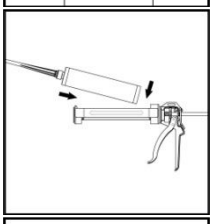
## 3. Installation



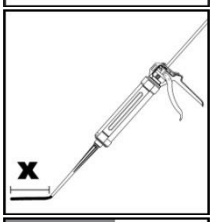
Remove the threaded cap from the cartridge.



Tightly attach the standard or mixing nozzle. Do not modify the mixer in any way. Made sure the mixing element is inside the mixer. Use only the supplied mixer.

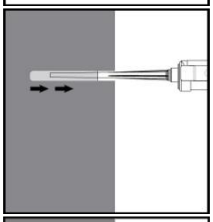


Insert the cartridge into the **Selena** dispenser gun.

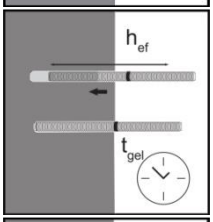



Discard the initial trigger pulls of adhesive. Depending on the size of the cartridge, an initial amount of adhesive mix must be discarded. Discard quantities are:

- 5cm for between 150ml, 300ml & 400ml Foil Pack
- 10cm for all other cartridges

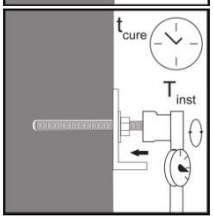


Inject the adhesive starting at the back of the hole, slowly withdrawing the mixer with each trigger pull.
Fill holes approximately 2/3 full, to ensure that the annular gap between the anchor and the concrete is completely filled with adhesive along the embedment depth.




Before use, verify that the threaded rod is dry and free of contaminants.

Install the threaded rod to the required embedment depth during the open gel time $t_{gel}$ has elapsed. The working time $t_{gel}$ is given in Table 2.




The anchor can be loaded after the required curing time $t_{cure}$ (see Table 2).



Selena Iberia S.L.U.
Centro Empresarial Rivas Futura, Calle Marie Curie 19, planta 6.1,
28521 Rivas - Madrid - España, e-mail: info@quilosa.es, www.quilosa.com

# TECHNICAL DATA

**Table 1. Bore hole cleaning method with steel brush**

| Threaded rod and rebar | Size | Nominal drill bit diameter $d_o$ [mm] | Steel brush [mm] | Cleaning methods | |
|---|---|---|---|---|---|
| | | | | Manual cleaning (MAC) | Compressed air cleaning (CAC) |
| Studs | M8 | 10 | 12 | Yes … hef ≤ 80 mm | Yes |
| | M10 | 12 | 14 | Yes … hef ≤ 100mm | |
| | M12 | 14 | 16 | Yes … hef ≤ 120mm | |
| | M16 | 18 | 20 | Yes … hef ≤ 160mm | |
| | M20 | 24 | 26 | Yes … hef ≤ 200mm | |
| | M24 | 28 | 30 | Yes … hef ≤ 240mm | |
| Rebar | Ø8 | 12 | 14 | Yes … hef ≤ 80 mm | Yes |
| | Ø10 | 14 | 16 | Yes … hef ≤ 100mm | |
| | Ø12 | 16 | 18 | Yes … hef ≤ 120mm | |
| | Ø14 | 18 | 20 | Yes … hef ≤ 140mm | |
| | Ø16 | 20 | 22 | Yes … hef ≤ 160mm | |
| | Ø20 | 25 | 28 | Yes … hef ≤ 200mm | |
| | Ø25 | 32 | 34 | Yes … hef ≤ 240mm | |

**Table 2. Curing conditions**

| Minimum base material temperature | Gel time (working time) In dry/wet concrete | Cure time |
|---|---|---|
| -10°C to -5°C | 125 min | 8 hours |
| -5°C to 0°C | 80 min | 160 min |
| 0°C to 5°C | 25 min | 90 min |
| 5°C to 10°C | 17 min | 70 min |
| 10°C to 20°C | 12 min | 65 min |
| 20°C to 30°C | 6 min | 60 min |
| 20°C to 30°C | 3 min | 45 min |

The temperature of the bond material must be ≥ 20°C.

**Table 3. Consumption of resin**

| Size | Hole diameter (mm) | Hole depth (mm) | Yield (300ml)* | Yield (380ml)* |
|---|---|---|---|---|
| M8 | 10 | 80 | <71 | <90 |
| M10 | 12 | 90 | <44 | <56 |
| M12 | 14 | 110 | <26 | <33 |
| M16 | 18 | 125 | <14 | <18 |

*Hole filling: 2/3 full

**Table 4. Typical tensile (kN) performance data at standard embedment depth**

| Size | Concrete, fck, cube = 25N/mm² (C20/25) 5.8 Grade Steel Studding | | | | | |
|---|---|---|---|---|---|---|
| | Characteristic Resistance (kN) | Recommended Load (kN) | Spacing | Hole ø Drill | Hole ø In Fixing | Setting Depth |



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Centro Empresarial Rivas Futura, Calle Marie Curie 19, planta 6.1,
28521 Rivas - Madrid - España, e-mail: info@quilosa.es, www.quilosa.com

| | Tension (Nrk) | Shear (Vrk) | Tension (Nrec) | Shear (Nrec) | (mm) | (mm) | (mm) | (mm) |
|---|---|---|---|---|---|---|---|---|
| M8 | 19.0 | 9.0 | 9.1 | 5.1 | 160 | 10 | 9 | 80 |
| M10 | 30.2 | 15.0 | 14.4 | 8.6 | 200 | 12 | 11 | 90 |
| M12 | 43.8 | 21.0 | 20.9 | 12.0 | 240 | 14 | 13 | 110 |
| M16 | 67.8 | 39.0 | 32.3 | 22.3 | 320 | 18 | 17 | 125 |
| M20 | 104.6 | 61.0 | 49.9 | 34.9 | 400 | 24 | 22 | 170 |
| M24 | 133.0 | 88.0 | 63.3 | 50.3 | 480 | 28 | 26 | 210 |

Detailed technical information can be found in the European Technical Approval No. ETA-12/0123.

## NORMS / APPROVALS / CERTIFICATES

1. European Technical Approval, ETA-12/0123, Bonded injection type anchor for use in non-cracked concrete: sizes M8 to M24, rebar 8 to 25mm.

## TRANSPORT / STORAGE

The chemical anchors should be stored between +5°C and +25°C. The shelf life of the product is 18 months from the manufacturer date. Cartridge can be open up to 3 months. During this time the chemical anchor can be used – you only have to change mixer before use.

Chemical anchors in cartridge are resistant to low temperatures. The minimum temperature of transportation is -40˚C and the maximum time of transportation in temperatures below zero is 6 weeks. The product is resistant to 100 cycles of freezing / thawing out.

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