



BI FIX

PRODUCT DESCRIPTION

BI FIX is an amphibious two-component chemical anchor, vinyl ester without styrene, for quick high-performance fastening of connectors and iron tools even in damp or fully wet environments, made of two components (A+B) which are mixed using the special nozzle at the time of extrusion.



PRODUCT APPLICATION

- High performance chemical anchoring of connectors for structural cracked and non-cracked concrete reinforcement
- Anchoring of iron tools in the casting
- Anchoring of metal bars in a wet environment or subject to permanent humidity, even in marine or industrial environment, on vertical or horizontal surfaces
- Anchoring of various metal elements in the plant engineering, medical, industrial, construction sector, etc...

ADVANTAGES

- Fast, solid and resolute anchoring
- It can be fastened on horizontal, vertical, inclined or overhead axis
- Also suitable for fixing on intact or cracked concrete supports, solid and perforated masonry, stone, wood...
- Applicable on dry, wet or flooded concrete
- Also suitable for applications in poorly ventilated environments thanks to the absence of styrene
- Easy and quick to use with traditional silicone guns
- Applicable with surface temperatures up to -10 °C

PREPARATION AND APPLICATION Preparation in case of solid substrate

Drill the substrate (see table 1) with rotating or rotary percussion tools according to the degree of material strength, possibly using suction tips that independently clean the hole or with subsequent vacuuming

Otherwise remove dust and loose parts from inside the hole with pressurised air, then clean using a long-bristle brush and then again with pressurised air.

Preparation in case of water flooded hole

If the hole is water flooded after drilling, proceed as described in the previous point if the flooding times allow it, otherwise if the water quickly fills the hole not allowing time for dry preparations, use the pipe cleaner inside the hole and remove water with loose residues by means of a liquid vacuum or blower pump.

Preparation in case of hollow bricks

Drill the substrate (see table 1) with rotating or rotary percussion tools removing dust and loose parts in the hole with pressurised air and insert a suitably sized reticulated bush in it.



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Application

The minimum product temperature for application MUST NOT BE LESS THAN +5°.

After removing the stopper, extract the yellow strip, mount the mixing nozzle and engage the cartridge on a traditional silicone gun.

Eliminate the first 2/3 of pumped resin because they may not be well mixed.

Extrude BI FIX inside the hole starting from the substrate and insert the connector or metal bar by turning it slightly on itself until the bottom of the hole is reached, checking that excess resin comes out.

Degrease and clean the metal bar or element from oxides or anything else before fixing it in the substrate.

If the package is partially used, the remainder can be reused by replacing the mixer nozzle.

WARNINGS - IMPORTANT NOTES

Do not use on dusty or loose surfaces.

Do not use on surfaces with presence of oils or greases which could affect adhesion.

Do not apply at surface temperatures below -10°C or above +40°C.

PACKAGING AND STORAGE

Box with no. 2 300 ml/each cartridges + no. 2 nozzles

The products can be stored for a maximum of 12 months in a dry area protected from sunlight and humidity with temperatures between +5°C and +30°C.

CONSUMPTION AND YIELD

They are in relation to the filling volume that it varies according to the hole/bar diameters, see Table 1.

1 x 300 cc cartridge every 55 holes approximately in case of STEEL CONNECTORS 20 (Ø 12 mm, 65 mm deep hole).

1 x 300 cc cartridge every 25 holes approximately in case of STEEL CONNECTORS 38 (Ø 12 mm, 153 mm deep hole).

PHYSICAL AND TECHNICAL SPECIFICATIONS

| Specification | Declared performance |
|----------------------------|----------------------|
| Appearance | Thixotropic paste |
| Colour | Light grey |
| Application temperature | -10°C + 40°C |
| Setting start T_{gel} | See table |
| Final hardening T_{cure} | See table |
| Chemical resistance | Excellent |
| Water resistance | Excellent |
| Working temperature | -10°C + 40°C |

| Surface temperature (°C) | Product application time | | |
|--------------------------|--------------------------|----------------------------------|----------------------------------|
| | Setting start T_{gel} | Final hardening T_{cure} (min) | Final hardening T_{cure} (min) |
| - | - | | |

*Minimum product temperature: +5°C

Table of number of fastenings for 300 ml cartridge
for threaded bar inserted in solid materials

| Bar diameter d (mm) | Hole diameter d_0 (mm) | Effective anchor depth (h_{ef}) | No. of fastenings per cartridge |
|---------------------|--------------------------|-------------------------------------|---------------------------------|
| M8 | 10 | 80 | ± 60.5 |
| M10 | 12 | 90 | ± 37.5 |
| M12 | 14 | 110 | ± 23 |
| M14 | 16 | 115 | ± 17 |
| M16 | 18 | 125 | ± 12 |
| M18 | 20 | 150 | ± 8.5 |
| M20 | 24 | 170 | ± 5 |
| M22 | 26 | 190 | ± 4 |
| M24 | 28 | 210 | ± 3 |
| M27 | 30 | 240 | ± 2.5 |





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| Bar diameter d (mm) | Hole diameter d ₀ (mm) | Effective anchor depth (h _{ef}) | No. of fastenings per cartridge |
|---------------------|-----------------------------------|---|---------------------------------|
| M30 | 35 | 270 | ± 1.5 |
| M33 | 37 | 300 | ± 1 |
| M36 | 40 | 330 | ± 1 |
| M39 | 42 | 360 | ± 1 |

**Table of number of fastenings for 300 ml cartridge
for improved adhesion bar inserted in solid materials**

| Bar diameter d (mm) | Hole diameter d ₀ (mm) | Effective anchor depth (h _{ef}) | No. of fastenings per cartridge |
|---------------------|-----------------------------------|---|---------------------------------|
| Ø 8 | 12 | 80 | ± 42 |
| Ø 10 | 14 | 100 | ± 25 |
| Ø 12 | 16 | 120 | ± 16 |
| Ø 14 | 18 | 140 | ± 11 |
| Ø 16 | 20 | 160 | ± 8 |
| Ø 18 | 22 | 180 | ± 6 |
| Ø 20 | 25 | 200 | ± 4 |
| Ø 22 | 26 | 220 | ± 3.5 |
| Ø 24 | 28 | 240 | ± 2.5 |
| Ø 25 | 30 | 250 | ± 2 |
| Ø 26 | 32 | 260 | ± 2 |
| Ø 28 | 34 | 280 | ± 1.5 |
| Ø 30 | 37 | 300 | ± 1 |
| Ø 32 | 40 | 320 | ± 1 |

PLEASE NOTE: Refer to the tables attached at the end of the data sheet for further technical data.

SAFETY

It is recommended to use gloves while working.
In case of accidental contact with skin or eyes, wash thoroughly with water and consult a doctor.

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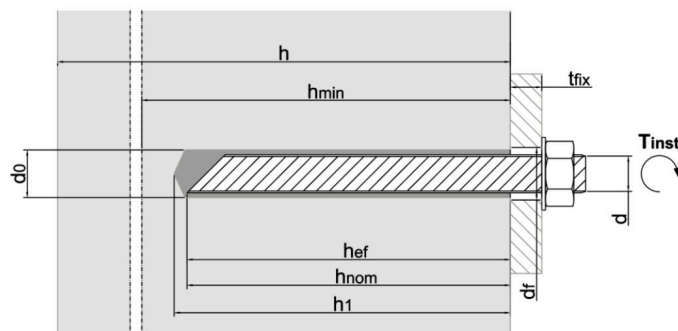
ANNEXES





BI FIX

Dati installazione Installation data



LEGENDA

| | Materiale - Material |
|------------------------------|--|
| d [mm] | Diametro barra - Rod diameter Tipologia di barra - Type of rod |
| h_{min} [mm] | Spessore minimo del supporto - Minimum thickness of base material |
| d₀ [mm] | Diametro foro - Hole diameter |
| h₁ [mm] | Profondità del foro - Hole depth |
| h_{nom} [mm] | Profondità di inserimento - Embedment depth |
| h_{ef} [mm] | Profondità effettiva ancoraggio - Effective anchorage depth |
| S_{cr} [mm] | Interasse caratteristico - Characteristic spacing |
| C_{cr} [mm] | Distanza dal bordo caratteristica - Characteristic edge distance |
| S_{min} [mm] | Interasse minimo - Minimum allowable spacing |
| C_{min} [mm] | Distanza minima dal bordo - Minimum allowable edge distance |
| t_{fix} [mm] | Spessore fissabile - Fixture thickness |
| df [mm] | Diametro foro spessore fissabile - Diameter of clearance hole in the fixture |
| S_w [mm] | Chiave - Key |
| T_{inst} [Nm] | Coppia di serraggio - Installation torque |

**Parametri d'installazione barre filettate**
Threaded rod installation parameters

| SPECIFICA TECNICA ARMONIZZATA / HARMONIZED TECHNICAL SPECIFICATION: EAD 330499-01-0601 | | | | | | | | | |
|--|-----|---|-----|-----|-----|-----|-----|-----|-----|
| PRESTAZIONE IN ACCORDO A / PERFORMANCE ACCORDING TO ETA -20/0532 | | | | | | | | | |
| Utilizzo previsto Generic type and use | | Ancorante chimico per l'ancoraggio di barre filettate / Chemical anchoring for threaded rods | | | | | | | |
| Misure / Size | | M8 | M10 | M12 | M16 | M20 | M24 | M27 | M30 |
| h _{ef} [mm] | min | 60 | 70 | 80 | 100 | 120 | 145 | 145 | 145 |
| | max | 160 | 200 | 240 | 320 | 400 | 480 | 540 | 600 |
| d ₀ [mm] | | 10 | 12 | 14 | 18 | 24 | 28 | 30 | 35 |
| d _{fix} [mm] | | 9 | 12 | 14 | 18 | 22 | 26 | 30 | 33 |
| h ₁ [mm] | | h _{ef} + 5 mm | | | | | | | |
| h _{min} [mm] | | MAX { h _{ef} + 30 mm; ≥ 100 mm; h _{ef} + 2d ₀ } | | | | | | | |
| T _{Fix} [Nm] | | 10 | 20 | 40 | 80 | 130 | 200 | 250 | 280 |
| S _{min} e C _{min} [mm] | | 40 | 50 | 60 | 75 | 100 | 115 | 120 | 140 |
| γ _{inst} [-] Categoria I1 | | 1,00 | | | | | | | |
| γ _{inst} [-] Categoria I2 | | 1,20 | | | | | | | |

Parametri d'installazione per barre ad aderenza migliorata
Reinforcing bar installation parameters

| SPECIFICA TECNICA ARMONIZZATA / HARMONIZED TECHNICAL SPECIFICATION: EAD 330499-01-0601 | | | | | | | | | | |
|--|-----|---|--------|--------|-----|-----|-----|-----|-----|-----|
| PRESTAZIONE IN ACCORDO A / PERFORMANCE ACCORDING TO ETA -20/0532 | | | | | | | | | | |
| Utilizzo previsto Generic type and use | | Ancorante chimico per l'ancoraggio di barre ad aderenza migliorata / Chemical anchoring for reinforcing bars | | | | | | | | |
| Misure - Size | | Ø8 | Ø10 | Ø12 | Ø14 | Ø16 | Ø20 | Ø25 | Ø28 | Ø32 |
| h _{ef} [mm] | min | 60 | 70 | 80 | 80 | 100 | 120 | 150 | 180 | 200 |
| | max | 160 | 200 | 240 | 280 | 320 | 400 | 500 | 560 | 640 |
| d [mm] | | 8 | 10 | 12 | 14 | 16 | 20 | 25 | 28 | 32 |
| d ₀ [mm] | | 10*-12 | 12*-14 | 14*-16 | 18 | 20 | 25 | 30 | 35 | 40 |
| h ₁ [mm] | | h _{ef} + 5 mm | | | | | | | | |
| h _{min} [mm] | | MAX { h _{ef} + 30 mm; ≥ 100 mm; h _{ef} + 2d ₀ } | | | | | | | | |
| S _{min} e C _{min} [mm] | | 50 | 60 | 65 | 75 | 80 | 100 | 120 | 140 | 160 |
| γ _{inst} [-] Categoria/Category I1 | | 1,00 | | | | | | | | |
| γ _{inst} [-] Categoria/Category I2 | | 1,20 | | | | | | | | |

LEGENDA SIMBOLI - LEGEND OF SYMBOLS

| | |
|-------------------|---|
| d | Diametro del bullone o della parte filettata / Rod diameter |
| d ₀ | Diametro del foro / Drill hole diameter |
| d _{fix} | Diametro del foro nell'oggetto da fissare/Hole diameter of the object to be fixed |
| h _{ef} | Profondità effettiva di ancoraggio / Effective anchorage depth |
| h ₁ | Profondità del foro / Hole depth |
| h _{min} | Spessore minimo del supporto in calcestruzzo / Minimum thickness of base material |
| T _{Fix} | Coppia di serraggio / Installation torque |
| t _{fix} | Spessore fissabile / Fixture thickness |
| S _{min} | Minimo interasse / Minimum allowable spacing |
| C _{min} | Minima distanza dai bordi / Minimum allowable edge distance |
| γ _{inst} | Coefficiente parziale di sicurezza relativo all'installazione dell'ancoraggio / Partial safety factor related to the anchoring installation |
| S _{cr,N} | Interasse per assicurare la trasmissione del carico caratteristico per formazione del cono di calcestruzzo per un singolo ancoraggio / Interaxle spacing to ensure the transmission of the characteristic load due to formation of the concrete cone for a single anchoring |
| C _{cr,N} | Distanza dal bordo per assicurare la trasmissione del carico caratteristico per formazione del cono di calcestruzzo per un singolo ancoraggio / Distance from the edge to ensure the transmission of the characteristic load due to formation of the concrete cone for a single anchoring |

*Per ulteriori e più completi dati tecnici e meccanici richiedere la Dichiarazione di Prestazione del prodotto a Volteco S.p.A. /
For further and more complete technical and mechanical data, please request the relevant Declaration of Performance from Volteco S.p.A.

**Dati di carico ammissibile trazione per barre filettate**
Maximum permissible tensile load for threaded rods

| | Temperatura di esercizio Service temperature range | | Unità Unit | M8 | M10 | M12 | M16 | M20 | M24 | M27 | M30 | |
|---|---|----------------------------|--------------------|----|-----|------|------|------|------|------|------|------|
| Trazione Tensile load | -40°C/40°C 24 °C (T _{LP}) | Non fessurato Uncracked | N _{Res} | kN | 9.0 | 12.0 | 17.0 | 24.0 | 31.6 | 41.9 | 42.0 | |
| | | Fessurato Cracked | | | - | 9.1 | 12.2 | 17.1 | 22.5 | - | - | |
| | -40°C/80°C 50 °C (T _{LP}) | Non fessurato Uncracked | | | 8.2 | 8.6 | 12.2 | 20.3 | 25.3 | 36.2 | 37.6 | 41.0 |
| | | Fessurato Cracked | | | - | 6.5 | 9.3 | 14.0 | 17.1 | - | - | |
| Taglio Shear (M=0) | -40°C/40°C 24 °C (T _{LP}) | Non fessurato Cracked | V _{Res} | kN | 5.4 | 8.6 | 12.5 | 23.3 | 36.3 | 52.5 | 68.2 | 83.4 |
| | | Fessurato Cracked | | | - | 8.6 | 12.5 | 23.3 | 34.3 | - | - | |
| | -40°C/80°C 50 °C (T _{LP}) | Non fessurato Uncracked | | | 5.4 | 8.6 | 12.5 | 23.3 | 36.3 | 52.5 | 68.2 | 83.4 |
| | | Fessurato Cracked | | | - | 8.6 | 12.5 | 23.3 | 34.3 | - | - | |
| Profondità effettiva ancoraggio / Effective anchorage depth | | | h _{efMIN} | mm | 60 | 70 | 80 | 100 | 120 | 145 | 145 | 145 |
| Distanza dal bordo caratteristica / Characteristic edge distance | | | C _{cr,N} | mm | 90 | 105 | 120 | 150 | 180 | 218 | 218 | 218 |
| Interasse caratteristico / Characteristic spacing | | | S _{cr,N} | mm | 180 | 210 | 240 | 300 | 360 | 435 | 435 | 435 |
| Coppia di serraggio / Installation torque | | | T _{inst} | Nm | 10 | 20 | 40 | 80 | 130 | 200 | 250 | 280 |

Note:

- Calcestruzzo **C20/25** / Concrete **C20/25**
- Qualità barre filettate **≥ 5.8** Threaded rod quality **≥ 5.8**
- Carichi validi per singolo ancorante senza influenza di interasse e distanza dal bordo / Loads for single anchor with no influence of spacing and edge distance
- Per evitare rottura per splitting lo spessore del supporto di calcestruzzo dovrà essere **h ≥ 2 h_{ef}** / To avoid splitting failure, the thickness of the concrete member shall be **h ≥ 2 h_{ef}**
- 1kN = 100 kg
- $\Psi_{sus} = 1.0$
- Azione di taglio non diretta verso il bordo / Shear directed away from the edge
- Coefficiente di sicurezza globale incluso / General safety factor included
- Coefficiente lato carichi utilizzato = **1,4** / Load increasing safety coefficient used = **1,4**
- Riduzione consigliata del carico con foro allagato **20%** / With flooded hole, reduction of the recommended load of **20%**



Dati di carico ammissibile trazione per barre aderenza migliorata
Maximum permissible tensile load for rebars

| | Temperatura di esercizio / Service temperature range | | | Unità Unit | Ø8 | Ø10 | Ø12 | Ø14 | Ø16 | Ø20 | Ø25 | Ø28 | Ø32 |
|--|--|-------------------------|------------------|------------|---------|---------|---------|------|------|------|------|------|-------|
| Trazione/ Tensile load | -40°C/40°C 24 °C (T _{LF}) | Non fessurato Uncracked | N _{Rec} | kN | 10.1 | 13.5 | 17.2 | 17.2 | 24.0 | 31.6 | 44.2 | 58.1 | 68.0 |
| | -40°C/80°C 50 °C (T _{LF}) | Non fessurato Uncracked | | | 7.2 | 9.7 | 13.0 | 14.6 | 18.1 | 25.2 | 41.3 | 47.2 | 52.2 |
| Taglio/ Shear (M=0) | -40°C/40°C 24 °C (T _{LF}) | Non fessurato Uncracked | V _{Rec} | kN | 7.8 | 12.1 | 17.4 | 23.8 | 31.0 | 48.5 | 75.7 | 95.0 | 124.1 |
| | -40°C/80°C 50 °C (T _{LF}) | Non fessurato Uncracked | | | 7.8 | 12.1 | 17.4 | 23.8 | 31.0 | 48.5 | 75.7 | 95.0 | 124.1 |
| Profondità ancoraggio barre / Anchorage depth of rods | | | H _{af} | mm | 60 | 70 | 80 | 80 | 100 | 120 | 150 | 180 | 200 |
| Diametro foro / Hole diameter | | | d ₀ | mm | 10**-12 | 12**-14 | 14**-16 | 18 | 20 | 25 | 30 | 35 | 40 |
| Distanza dal bordo / Edge Distance | | | c _{min} | mm | 50 | 60 | 65 | 75 | 80 | 100 | 120 | 140 | 160 |
| Interasse minimo tra le barre / Interaxle spacing among rebars | | | s _{min} | mm | 50 | 60 | 65 | 75 | 80 | 100 | 120 | 140 | 160 |

Note:

(**) Consigliata perforazione con diametro ridotto fino ad una lunghezza di 250 mm / Perforation with reduced hole is suggested for setting depth up to 250 mm

- Calcestruzzo **C20/25** / Concrete **C20/C25**
- Qualità barre aderenza migliorata **B450C**, **BST 500** / Quality of rebars **B450C**, **BST 500**
- Carichi validi per singolo ancorante senza influenza di interasse e distanza dal bordo / Loads for single anchor with no influence of spacing and edge distance
- Per evitare rottura per splitting lo spessore del supporto di calcestruzzo dovrà essere $h \geq 2 h_{ef}$ / To avoid splitting failure, the thickness of the concrete member shall be $h \geq 2 h_{ef}$
- 1kN = 100 kg
- $\Psi_{sus} = 1.0$
- Azione di taglio non diretta verso il bordo / Shear directed away from the edge
- Coefficiente di sicurezza globale incluso / General safety factor included
- Coefficiente lato carichi utilizzato = 1,4 / Load increasing safety coefficient used = 1,4
- Riduzione consigliata del carico con foro allagato **20%** / With flooded hole, reduction of the recommended load of **20%**

LEGENDA

| | |
|-----------------------|---|
| N _{rec} [kN] | Carico ammissibile a trazione / Admissible tensile load |
| V _{rec} [kN] | Carico ammissibile a taglio / Admissible shear load |