

Keyfix VE30

Vinylester styrene free resin anchoring system



DESCRIPTION

Keyfix VE30 is high strength, fast cure, styrene free, vinylester resin anchoring grout supplied in a pre-packed cartridge system.

It is suitable for use with different type of substrates such as uncracked concrete, solid and hollow masonry, hard natural stone, solid rock, voided stone or rock.

APPLICATIONS

Keyfix VE30 is ideally designed for use in the following applications:

- » Anchoring threaded rods and post installed rebars in masonry and uncracked concrete.
- » Permanent installation of reinforcing and starter bars.
- » Suspended ventilation systems.
- » Safety barriers.
- » Machinery and heavy machinery.
- » Racking.
- » Rolling cranes.

ADVANTAGES

- » Suitable for dry, wet and flooded holes.
- » Use standard sealant application gun.
- » Exceptional rapid strength development.
- » Styrene free.
- » Exceptional bond to concrete and steel surfaces.
- » High ultimate and early strengths.
- » Low waste, reusable and easily recycled cartridge.

STANDARDS

Keyfix VE30 complies with the following standards:

- » ETA according to EAD 330499-00-0601 (Option 7: Uncracked Concrete).
- » ETA according to EAD 330076-00-0604 (Masonry).
- » ETA according to EAD 330087-00-0601 (TR023: Rebar Connections).

METHOD OF USE

SUBSTRATE PREPARATION

Substrate should be sound, clean and free from grease or any contaminants. Bars should be free from any loose rust deposits. Holes can be drilled using a hammer drill to produce a rough surface or by coring to produce a smooth surface.

TECHNICAL PROPERTIES @ 20°C:

Density: ASTM C1875	1.7 g/cm ³
Compressive strength: BS 6319	≥ 65 MPa @ 24 hr ≥ 75 MPa @ 7 days
Flexural strength: ASTM D790	≥ 25 MPa @ 7 days
Tensile strength: ASTM D638	≥ 10 MPa @ 24 hr ≥ 11 MPa @ 7 days
Elongation at break: ASTM D638	≥ 0.15% @ 7 days

Deformed or ribbed bars will give a higher performance than smooth or other bar types. After drilling, holes should be brushed and blown out twice, to remove all drilling debris.

APPLICATION

- » Unscrew the protective cap, remove the insert plug and attach the static mixing nozzle.
- » Insert the cartridge into the cartridge gun and dispense sufficient material until an even colour is achieved.
- » Usually 10 ml of extruded material should be adequate.
- » Insert the nozzle into the base of the hole, apply pressure to the gun and slowly withdraw the nozzle as the hole fills.
- » Normally, it is enough to fill the hole approximately two-third full.
- » Insert the stud/steel bar into the hole with a twisting action, ensuring that is fully embedded.
- » Allow the resin to cure fully before loading.

When filling holes overhead or in porous block work, the use of plastic sleeves is recommended.

Partly used cartridge are reusable, Remove the static mixer and surplus base and catalyst components from the cartridge nozzle, insert the plug and screw on the protective cap.

WORKING AND LOADING TIMES

Resin Cartridge Temperature	Working Time	Base Material Temperature	Loading time
Min. 5°C	18 min	Min. 5°C	145 min
5 to 10°C	10 min	5 to 10°C	145 min
10 to 20°C	6 min	10 to 20°C	85 min
20 to 25°C	5 min	20 to 25°C	50 min
25 to 30°C	4 min	25 to 30°C	40 min
30°C	4 min	30 to 35°C	35 min

*Notes: Working time is set at the highest base material temperature in the range.
Loading time is set at the lowest base material temperature in the range.*

CLEANING

All tools should be cleaned immediately after finishing. Hardened materials can be cleaned mechanically.

ESTIMATING

The required quantity of Keyfix VE30 depends on the hole diameter and depth. Normally, it is enough to fill the hole two-third full. The estimated volume of Keyfix VE30 can be calculated using the following equation:

$$\text{Volume (ml)} = (\pi/6000) \cdot \Phi_h^2 \cdot H_D$$

Where:

Φ_h : Hole diameter (mm).

H_D : Hole depth (mm).

TABLE I

Bar diameter (mm)	Hole diameter (mm)	Embedded length (mm)	Bar area (mm ²)	Maximum pull out force (kN)	Needed quantity of Keyfix VE30 per hole (ml)
8	12	113	50	11.5	8.4
10	14	141	79	16.8	14.5
12	16	170	113	23.1	22.6
14	18	198	154	30.2	33.3
16	20	226	201	38.4	47.1
20	25	284	314	51.3	92.0

DESIGN CONSIDERATION

Table I summarizes the design values of the ultimate bond resistance f_{bd} in N/mm² for rotary hammer drilling and compressed air drilling for good bond conditions.

These were calculated in accordance with EOTA TR023 "Assessment of post-installed rebars connections", considering that the yield strength of the steel is 500 MPa and the compressive strength of concrete is 25 MPa cube.

Design bond strength is considered 2.7 MPa for all bar diameters except the 20 mm diameter with a design bond strength of 2.3 MPa.

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PACKAGING

Keyfix VE30 is available in 300 ml single-piston foil pack cartridges.

STORAGE

Keyfix VE30 has a shelf life of 12 months when stored in their original packaging, the correct way up, in cool conditions (5°C to 25°C) out of direct sunlight.

If these conditions are exceeded, DCP Technical Department should be contacted for advise.

CAUTIONS

HEALTH AND SAFETY

Keyfix VE30 is irritant to eyes, skin and respiratory system. Wear suitable gloves and eye protection.

For further information refer to the Material Safety Data Sheet.

FIRE

Keyfix VE30 is flammable, and should be kept in a cool place.

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Note:

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