

Quickmast Anchor AE15

Epoxy acrylate anchoring system in cracked and uncracked concrete under seismic conditions (C1) [Formerly known as Keyfix AE15]



DESCRIPTION

Quickmast Anchor AE15 is high strength, fast cure, styrene free, epoxy acrylate resin anchoring grout supplied in a pre-packed cartridge system. It is suitable for use with different type of substrates such as cracked concrete, uncracked concrete, solid and hollow masonry, hard natural stone, solid rock, voided stone or rock.

Quickmast Anchor AE15 is available in three different grades depending on the installation environment:

- » Quickmast Anchor AE15: Standard grade
- » Quickmast Anchor AE15-T: for high-temperature environments
- » Quickmast Anchor AE15-W: for cold-temperature environments

APPLICATIONS

Quickmast Anchor AE15 is ideally designed for use in the following applications:

- » Structural applications in cracked and non cracked 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.
- » Resistant to dynamic loading.
- » Exceptional bond to concrete and steel surfaces.
- » High ultimate and early strengths
- » Low waste, reusable and easily recycled cartridge.

STANDARDS

Quickmast Anchor AE15 complies with the following standards:

- » ETA according ETAG 001, Part 5, Option 1 for anchoring of threaded bars into cracked and uncracked concrete, and under seismic conditions (C1).
- » EOTA according to TR023 for post-installed rebar connections.
- » ETA according to ETAG029 for masonry installations.
- » WRAS - Approved Material.
- » Fire resistance F120.

TECHNICAL PROPERTIES @ 68°F (20°C):

| | |
|------------------------------------|--------------------------------|
| Compressive strength: ASTM D695 | ≥ 10,800 psi (75 MPa) @ 7 days |
| Flexural strength: ASTM D790 | ≥ 3,600 psi (25 MPa) @ 7 days |
| Tensile strength: ASTM D638 | ≥ 1,700 psi (12 MPa) @ 7 days |
| Tensile modulus: ASTM D638 | ≥ 507,600 psi (3500 MPa) |
| Elongation at break: ASTM D638 | ≥ 5% @ 7 days |

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.

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, cut the film to remove the metal clip and attach the static mixing nozzle.
- » Insert the cartridge into the cartridge gun and dispense sufficient material until an even colour is achieved.
- » Usually 0.34 fl. oz. (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 half to two thirds 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.

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CLEANING

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

ESTIMATING

The required quantity of Quickmast Anchor AE15 depends on the hole diameter and depth. Normally, it is enough to fill the hole two-third full.

WORKING AND LOADING TIMES

Quickmast Anchor AE15 Standard Grade

| Resin Cartridge Temperature | Working Time | Base material temperature | Loading time |
|-----------------------------|--------------|----------------------------|--------------|
| 41 to 50°F (5 to 10°C) | 10 min | 41 to 50°F (5 to 10°C) | 145 min |
| 50 to 59°F (10 to 15°C) | 8 min | 50 to 59°F (10 to 15°C) | 85 min |
| 59 to 68°F (15 to 20°C) | 6 min | 59 to 68°F (15 to 20°C) | 75 min |
| 68 to 77°F (20 to 25°C) | 5 min | 68 to 77°F (20 to 25°C) | 50 min |
| 77 to 86°F (25 to 30°C) | 4 min | 77 to 86°F (25 to 30°C) | 40 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.

Quickmast Anchor AE15-T

| Resin Cartridge Temperature | Working Time | Base material temperature | Loading time |
|-----------------------------|--------------|-----------------------------|--------------|
| 59 to 68°F (15 to 20°C) | 15 min | 59 to 68°F (15 to 20°C) | 5 hours |
| 68 to 77°F (20 to 25°C) | 10 min | 68 to 77°F (20 to 25°C) | 145 min |
| 77 to 86°F (25 to 30°C) | 7.5 min | 77 to 86°F (25 to 30°C) | 85 min |
| 86 to 95°F (30 to 35°C) | 5 min | 86 to 95°F (30 to 35°C) | 50 min |
| 95 to 104°F (35 to 40°C) | 3.5 min | 95 to 104°F (35 to 40°C) | 40 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.

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Quickmast Anchor AE15-W

| Resin Cartridge Temperature | Working Time | Base material temperature | Loading time |
|-----------------------------|--------------|---------------------------|--------------|
| Min 32°F (0°C) | 50 min | 14 to 32°F (-10 to -5°C) | 12 hours |
| | 15 min | 23 to 32°F (-5 to 0°C) | 100 min |
| 32 to 41°F (0 to 5°C) | 10 min | 32 to 41°F (0 to 5°C) | 75 min |
| 41 to 68°F (5 to 20°C) | 5 min | 41 to 68°F (5 to 20°C) | 50 min |
| +68°F (+20°C) | 100 seconds | +68°F (+20°C) | 20 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.

DESIGN CONSIDERATION

Table I summarizes the forces that each deformed steel reinforcement bar can withstand at each specified holes depth.

These forces were calculated in accordance with EOTA TR023 "Assessment of post-installed rebars connection", considering that the yield strength of the steel is 60,900 psi (420 MPa) and the compressive strength of concrete is 3625 psi (25 MPa) cube.

TABLE I

| Bar diameter | | Hole diameter | | Embedded length | | Bar area | | Maximum pull out force* | | Needed quantity of Quickmast Anchor AE15 per hole | |
|--------------|----|---------------|----|-----------------|-----|----------|-----------------|-------------------------|-----|---|-------|
| Inch | mm | Inch | mm | Inch | mm | sq in. | mm ² | lb | kN | fl. oz. | ml |
| 3/8" | 10 | 7/16" | 12 | 4-3/8" | 110 | 0.12 | 79 | 8093 | 36 | 0.28 | 8.3 |
| 7/16" | 12 | 9/16" | 14 | 5-1/8" | 130 | 0.18 | 113 | 11465 | 51 | 0.45 | 13.3 |
| 1/2" | 13 | 19/32" | 15 | 5-3/4" | 145 | 0.21 | 135 | 13488 | 60 | 0.585 | 17.4 |
| 9/16" | 14 | 5/8" | 16 | 6-3/8" | 160 | 0.24 | 154 | 15512 | 69 | 0.72 | 21.4 |
| 5/8" | 16 | 3/4" | 20 | 7-7/16" | 190 | 0.31 | 201 | 21132 | 94 | 1.35 | 39.8 |
| 3/4" | 20 | 1-1/8" | 26 | 9-3/8" | 240 | 0.49 | 314 | 31473 | 140 | 2.87 | 84.9 |
| 1" | 25 | 1-3/16" | 31 | 11-3/8" | 290 | 0.76 | 491 | 45861 | 204 | 4.93 | 145.9 |

*Maximum pull out force that yield a concrete splitting failure pattern.



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PACKAGING

Quickmast Anchor AE15 is available in 10.1 fl. oz. (300 ml).

STORAGE

Quickmast Anchor AE15 has a shelf life of 12 months from the date of manufacture if stored in its original packaging, the correct way up and in cool dry conditions at temperatures between 40°F - 75°F (5°C - 25°C) out of direct sunlight.

The technical properties and usages of this product may be adversely affected if these conditions are exceeded. Technical Department should be contacted for advise.

CAUTIONS

HEALTH AND SAFETY

Quickmast Anchor AE15 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

Quickmast Anchor AE15 is flammable, and should be kept in a cool place.

WARRANTY

Unless expressly stated otherwise in the Sales Documents, the Limited Warranty shall expire on the expiry date listed on the Product's label or packaging. The full text of DCP's limited warranty is found in DCP's standard terms and conditions of sale (the "Terms"), which are available at [DCP Website/USA – Terms & Conditions](#). DCP's limited warranty is in all cases subject to, and conditioned upon, the Terms.

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