EASY GUIDE

XCHEM® PRO

Complies with
AS 5216 and **NCC**
(National Construction Code)

FAQS:

CHEMICAL ANCHORING

XCHEM® PRO RANGE

2504292FGP

EASY GUIDE

FAQS

CHEMICAL ANCHORING

XCHEM® PRO RANGE

2504292FGP

HOBSON ENGINEERING

XCHEM® PRO

FAQ | CHEMICAL ANCHORING

E701	H501	V401	P201
EPOXY	HYBRID	VINYLESTER	POLYESTER

How is Hobson Chemical Anchoring simple?

In Hobson's **XCHEM® PRO** range, a **higher product number indicates better performance**. Each chemical product is easily identified by its **unique number and color**. While cure times may vary among products in the same task category, their **performance levels** and **European Technical Assessment** (ETA) approvals are differentiated on the packaging, making comparison and selection straightforward.

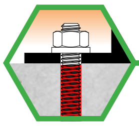
GO TO INDEX

2504292FGP

XCHEM® PRO

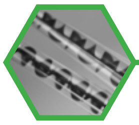
FAQ | CHEMICAL ANCHORING

E701 EPOXY | **H501** HYBRID | **V401** VINYLESTER | **P201** POLYESTER



How does Hobson Chemical Adhesive work?

All **XCHEM® PRO** products utilise a two-component system: **a resin and a hardener.** Both components mix together as they pass through the provided nozzle. This mixing process initiates a chemical reaction, resulting in a **powerful bond** between the concrete and the steel within the drilled hole.



Why is the nozzle necessary?

The nozzles that come with **XCHEM® PRO** tubes are essential. They are specifically designed to **properly mix the chemical components**, which is crucial for achieving the load capacities and the correct gel and cure times detailed in the ETA. **Without the nozzle, the chemical won't mix or cure correctly.** Different chemical types are made with components that have varying viscosities and reaction times. **Using the incorrect nozzle will not mix the chemical properly.**

Every XCHEM® PRO tube includes **two nozzles**. Further nozzles are available and sold separately.

GO TO INDEX

XCHEM® PRO

FAQ | CHEMICAL ANCHORING

What are the applications of chemical anchors in construction?

Chemical anchors are used for fixing rebar, allthread, and anchor studs into concrete. They find diverse applications in construction, including securing:

- **Structural elements:** stands, posts, facades, base plates, structural connections, and dowelling with rebar.
- **Safety and barrier systems:** bollards, balustrading, safety railing, and car park fencing.
- **Infrastructure and landscaping:** light towers, landscaping features, tunnelling components, speed bumps, and large road signs (like highway exit signs).
- **Special applications:** heritage-listed buildings (due to compatibility with older bricks and materials).

Chemical anchors are preferred over mechanical anchors for installation close to edges (e.g., roof tie-downs, concrete footings, and safety barriers) and are used in weaker substrates, such as hollow blocks/bricks and aerated concrete, where the expansion of mechanical anchors could cause cracking.

GO TO INDEX

2504292FGP

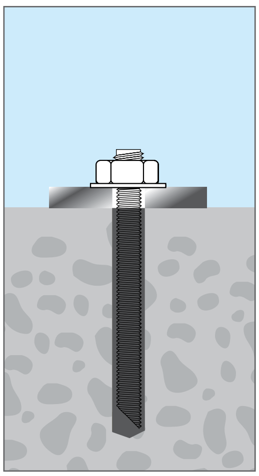
XCHEM® PRO

FAQ | CHEMICAL ANCHORING

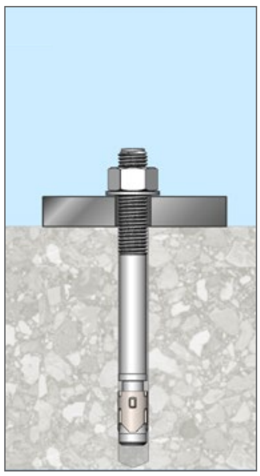
E701 EPOXY | **H501** HYBRID | **V401** VINYLESTER | **P201** POLYESTER

What is the difference between chemical and mechanical anchoring?

Chemical anchoring uses the chemical adhesive to bond the anchor to the concrete, whereas **mechanical anchoring** relies on a mechanical interlock.



CHEMICAL ANCHORING



MECHANICAL ANCHORING

GO TO INDEX

2504292FGP

EASY GUIDE

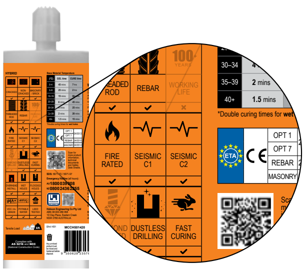
XCHEM® PRO

FAQ | CHEMICAL ANCHORING

E701	H501	V401	P201
EPOXY	HYBRID	VINYLESTER	POLYESTER

What factors should be considered when choosing chemical anchoring?

- When selecting chemical anchoring, several critical factors come into play. The main considerations include **approvals, load capacities, and cure times.**
- Beyond these primary aspects, crucial performance requirements such as **seismic resistance, fire rating, and specific build requirements** must be evaluated.
- Furthermore, various installation-related factors significantly influence the choice. These encompass the **application** itself, **environmental conditions** (including substrate and temperature), **installation constraints** (like edge distance and embedment depth), **hole preparation** (core-drilled vs other methods, wet or dry conditions), and the **anchor's performance characteristics** (shear and pull-out strengths). It is also vital to verify that the ETA rating applies to the intended anchor size.



Product specifications can be found on the back of the product label or through relevant documents at www.hobson.com.au

GO TO INDEX

XCHEM® PRO

FAQ | CHEMICAL ANCHORING

E701 EPOXY | **H501** HYBRID | **V401** VINYLESTER | **P201** POLYESTER

What are the common ETA approval options for Anchors?

ETA approvals provide crucial information on an anchor's performance and suitability for various conditions.

Here are some common options:

Option 1: applies to anchors designed for installation in both **cracked and non-cracked concrete conditions**. These anchors undergo the most extensive testing.

Option 7: applies to anchors designed exclusively for installation in **non-cracked concrete only**.

Part 6 (Multiple Use for Non-Structural Applications): This refers to anchors used in **redundant fastening systems** for **non-structural** components. The principle here is that if one anchor fails, the overall structure will not collapse because the load can be redistributed to neighbouring anchors. This implies that the system is not solely reliant on a single anchor for stability.

Continued on next page

GO TO INDEX

XCHEM® PRO

FAQ | CHEMICAL ANCHORING

E701 EPOXY | **H501** HYBRID | **V401** VINYLESTER | **P201** POLYESTER

Here is a breakdown of the **Australian Engineered Fasteners and Anchors Council** (AEFAC) definitions for concrete conditions:

Cracked concrete:
Refers to concrete that is anticipated to develop cracks during its lifespan. If **uncracked properties are adopted** for a design, **justification should be provided.**

Non-cracked concrete:
It is concrete that, via stress analysis, has demonstrated it will **remain crack-free in the vicinity of the anchor** throughout its design life under all design load considerations.

AEFAC
Australian Engineered
Fasteners and Anchors Council

GO TO INDEX

XCHEM PRO

FAQ | CHEMICAL ANCHORING

E701 EPOXY | **H501** HYBRID | **V401** VINYLESTER | **P201** POLYESTER

What is the difference between seismic C1 and C2 ratings?

Seismic ratings differentiate the performance of anchors under earthquake conditions:

C1: non-structural components (but can still be safety critical). They are tested in laboratory conditions using a crack width of 0.5 mm.

C2: structural components (failure has high risk of further structural collapse). They are tested in laboratory conditions using a crack width of 0.8 mm.

Having C1 or C2 approval does not automatically mean the highest loads can be used in designs. Going from uncracked concrete to cracked concrete and from C1 to C2 significantly reduces the maximum load the anchor can hold.

GO TO INDEX

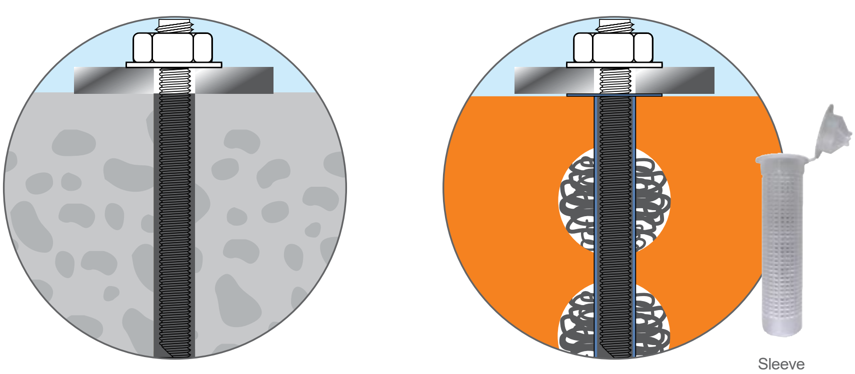
2504292FGP

XCHEM PRO

FAQ | CHEMICAL ANCHORING

How do chemical anchors achieve load-bearing capacity in concrete or masonry?

In **solid concrete and masonry**, chemical adheres to the substrate walls and anchor. In **hollow masonry**, the sleeve acts as containment system that allows the liquid chemical to solidify into a shape that **effectively grips** the internal structure of the hollow masonry, transferring the load from the anchor to the wall.



GO TO INDEX

XCHEM® PRO

FAQ | XCHEM® PRO RANGE

E701	**H501**	**V401**	**P201**
EPOXY	HYBRID	VINYLESTER	POLYESTER

What are the main differences between the products in XCHEM® PRO range?

The main differences between the products lie in their **chemical composition,** suitability for different concrete conditions (**cracked or non-cracked**), **load capacities, curing times, and specific certifications** for applications like seismic activity or fire resistance.

Continued on next page

GO TO INDEX

XCHEM® PRO

FAQ | XCHEM® PRO RANGE

E701	H501	V401	P201
EPOXY	HYBRID	VINYLESTER	POLYESTER

P201

XCHEM® PRO P201 Polyester

Generally suitable for lighter loads and **general-purpose applications** in non-cracked concrete. It's a more economical option for less demanding projects.

V401

XCHEM® PRO V401 Vinylester

Greater versatility, approved for both cracked and non-cracked concrete, as well as masonry and reinforcing steel. It often includes added fire ratings, making it a good choice for **general-purpose engineered designs**.

H501

XCHEM® PRO H501 Hybrid

High load capacity and fast curing times. It boasts approvals for cracked and non-cracked concrete, masonry, seismic categories C1 and C2, and fire ratings, making it ideal for **urban projects with higher demands**.

E701

XCHEM® PRO E701 Epoxy

The top-tier product in the range, offering all the approvals of the hybrid product, but with the significant addition of a 100-year design life. It's specifically designed for **major infrastructure projects and warmer climates where a longer working time is required to set the anchor.** It also offers excellent performance in wet or flooded holes and diamond-drilled holes.

GO TO INDEX

EASY GUIDE

HOBSON ENGINEERING

XCHEM® PRO

FAQ | XCHEM® PRO RANGE

E701 EPOXY | **H501** HYBRID | **V401** VINYLESTER | **P201** POLYESTER

E701

Why is XCHEM® PRO Epoxy E701 not called 'pure epoxy'?

The designation "pure epoxy" is avoided for XCHEM® PRO **Epoxy E701** due to the industry's shifting and often ambiguous definition of "pure." While this epoxy contains no aggregates, classifying it as "pure" could be misleading, especially given that **epoxy formulations can have different chemical ratios**.

H501

What components are in XCHEM® PRO Hybrid H501 and why is it called this?

Hybrid H501 is simply a **blend of vinylester and urethane**. This distinct name helps differentiate it from pure vinylester, highlighting its **enhanced performance and superior load capacity**.

V401

Why does XCHEM® PRO not have a seismic-rated vinylester product?

Vinylester V401 delivers high performance in cracked concrete but **does not require a seismic rating** as this capability is included in **Hybrid H501** and **Epoxy E701.** These products are all strategically priced based on their approvals for different applications.

GO TO INDEX

2504292FGP

EASY GUIDE

HOBSON ENGINEERING

XCHEM® PRO

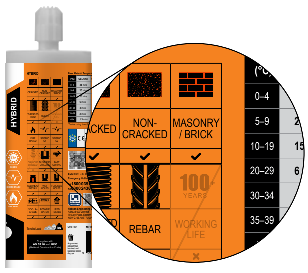
FAQ | XCHEM® PRO RANGE

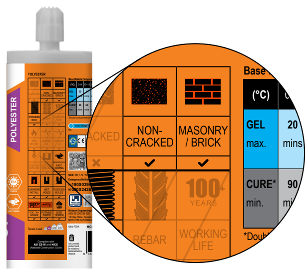
E701 EPOXY | **H501** HYBRID | **V401** VINYLESTER | **P201** POLYESTER

Why Epoxy E701 is not suitable for hollow masonry?

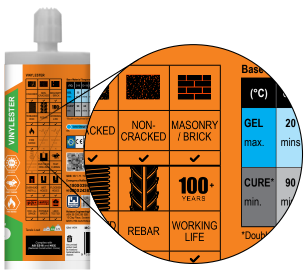
Sleeve

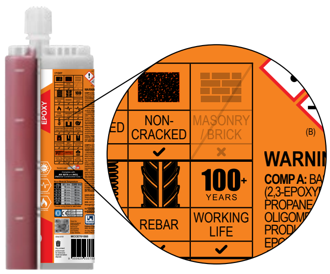
Epoxy E701 is not recommended for hollow masonry because of its smooth, non-viscous consistency. During its gel time, **it can simply drain out of the perforated sleeve**, preventing a secure fix. Therefore, **Epoxy E701** does not have an ETA for masonry, whereas **Hybrid H501**, **Vinylester V401**, and **Polyester P201** options do.





EASILY COMPARE SPECIFICATIONS CHARTS ACROSS XCHEM® PRO PRODUCT LABELS





GO TO INDEX

2504292FGP

HOBSON ENGINEERING

XCHEM® PRO

FAQ | XCHEM® PRO RANGE

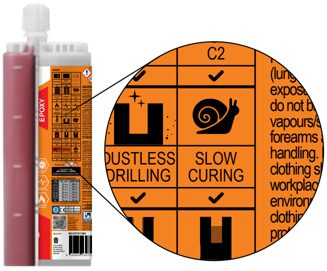
E701 EPOXY | **H501** HYBRID | **V401** VINYLESTER | **P201** POLYESTER

Slow-curing or fast-curing chemical anchors?

Slow-curing epoxy is essential for core-drilled holes. Its ability to leach into the smooth bore ensures strong adhesion, a key difference from the interlocking bonding achieved in rough-drilled holes. Therefore, fast-curing products are unsuitable for this application.

Fast-curing Hybrid H501 is often the preferred choice over slow-curing Epoxy E701 when installing in cold weather.

This is because **Epoxy E701** can take significantly longer to cure in low temperatures, sometimes extending to several days.



EASILY COMPARE SPECIFICATIONS CHARTS ACROSS XCHEM® PRO PRODUCT LABELS

GO TO INDEX

2504292FGP

XCHEM® PRO

FAQ | XCHEM® PRO RANGE

E701	H501	V401	P201
EPOXY	HYBRID	VINYLESTER	POLYESTER
100+ YEARS ETA		100+ YEARS ETA	

WORKING LIFE 100+ YEARS ETA

What is the expected lifespan of the product once used?

The **design life** for the product ranges from **50 to 100 years**, varying based on the specific product and its ETA. While the product is expected to last considerably longer than this period, reliable numbers for its load-bearing capacity beyond this point are currently unavailable.

Its strength is anticipated to begin a gradual decrease after reaching the end of its design life, but it **will not suddenly disintegrate**. The products are designed to operate at **full capacity for the entire duration of their stated design life.**

GO TO INDEX