EndCap

EFFICIENT - SAFE - SOLUTIONS

PREPARED FOR: Marketing

PREPARED BY: Concrete Accessories Australia

REPORT NUMBER: CAA_Products_Endcap_2025

DATE: 2025 April

Concrete Accessories Australia
Design Innovate Create
Melbourne VIC 3000
E:concreteaa@rvce.com.au

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WHAT IS THE PURPOSE OF THE EndCap?

The EndCap facilitates a grout tube connection point for the “dead end” of a Post Tensioning duct, allowing for grouting of the duct and securing of the strand after the tensioning stress has been applied.

The SleeveCap assembly maintains an air void near the “dead end” of the post tensioning strand whilst securing the grouting tube in a vertical orientation.

WHY DO POST TENSIONED STRUCTURES REQUIRE GROUTING?

Post Tensioning duct provides an air void within a concrete element, allowing post tensioning strand to be tensioned after concrete has sufficiently cured; the strand then exerts internal forces on the structure. Once the strand is fully tensioned it requires grouting to provide the necessary mechanical connection between the strand and the concrete (bonded post tensioned system). Grouting also protects the strand from corrosion and provides additional safety in the event where a tendon is compromised during service, renovations or demolition.

In order to deliver a structure that performs in accordance with the engineering models, engineers rely on grouting to ensure mechanical connection, and serviceability design life is achieved.

Grouting is required where:

- A bonded Post Tensioned system has been designed.
- A corrosive Environment is present.
- Designing to Australian Standard AS3600.

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HOW WERE GROUT TUBES INSTALLED BEFORE?

Duct taped into position with the hope that nobody steps on the tube and dislodges it during the concrete pour.

	Grout tubes are pushed into the dead end after strand installation. Penetration varies with each installation. Duct tape is used at the duct end in an attempt to keep the grout tube in place.
	More often than not grout tubes are installed during the day of the pour, to prevent damage by other trades. Manipulation of the steel duct is required where a five strand system is installed, requiring cutting, bending and taping.
	Manipulation of the duct is required where a tube is required for venting (mid run), duct tape is applied in an attempt to seal the joint. Venting is often required to aid in grouting of long runs.

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WHAT ARE THE ISSUES WITH THE WAY SLEEVES WERE PREVIOUSLY INSTALLED?

Faults discovered on a regular basis include:

- Grout does not pass through the dead end of the tube. Usually concrete has entered the tube during the pour or the grout tube has dislodged , rendering it useless. The slab needs to be drilled to locate the air void within the sleeve to allow grouting; man-hours wasted.
- The grouting tube is missing. Either the tube wasn't installed properly and has dislodged during the concrete pour or it wasn't installed at all. Installation during the pour will prevent damage by other trades but an inefficient install can mean some tubes are missed due to time constraints.
- Can't locate the tendon. A blocked tube requires drilling through the slab and into the PT duct to allow grouting. The inconsistent installation means that the duct may not be aligned with the grout tube; man-hours wasted and/or costly scanning required to locate and correct the blockage.

ARE THERE ANY OTHER INNOVATIVE OPTIONS?

Maybe but we couldn't find anything made in or readily available in Australia.

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WHAT ARE THE BENEFITS OF THE EndCap?

The EndCap slides straight onto the end of a standard slab PT duct. Both a 16 or 20mm grout tube can be easily installed to the top of the EndCap. The tube remains aligned with the PT duct below, thus strand location can be easily identified post pour. Installation is easy and consistent every time, allowing for quick installation of the grout tube just prior to the pour (prevents damage from other trades), that can be verified with confidence.

ALTERNATIVE USE CASE FOR THE EndCap?

At CAA we love multi-use products, the EndCap can be used at mid-run (duct high point) as a relief valve, allowing an additional grouting connection point if required for those long runs.

In addition to being a grout tube connector the EndCap can be used to secure strand ends at the live end, preventing abrasion injuries until the tendons can be fully stressed and cut flush.

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EndCap INSTALLATION PHOTOS AND COMMENTS

	EndCap installed on a typical Post-Tensioning duct; snug fit, allows easy central positioning of the grouting tube without the need for manipulating the PT duct. Efficiency of installation allows for the grout tube to be installed the day of the pour, preventing damage by other trades.
	Grout tube exits the duct at 90 degrees, allowing easy location of PT duct after the pour. EndCap grouting tube is less likely to be stepped on, than a traditional horizontal connection point. Supports typical 16 and 20mm grouting tubes.
	Alternative use case, installed to secure strand ends and reduce the risk of abrasion and cuts to site workers. Reuse as needed.

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MORE INFORMATION

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Sincerely,

Charlie Ritsikos & Ari Schupak

Concrete Accessories Australia

Website: concreteaa.com.au

Email: concreteaa@rvce.com.au