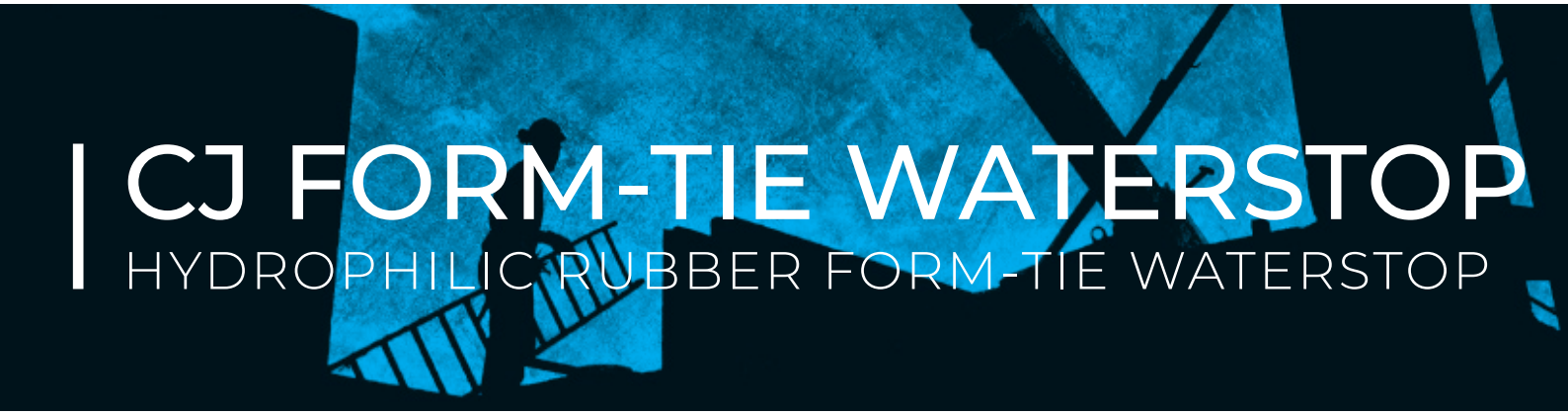
ROCKBOND
MAKING CONCRETE STRONGER



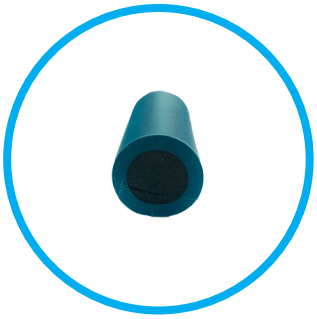
CJ FORM-TIE WATERSTOP

HYDROPHILIC RUBBER FORM-TIE WATERSTOP

PRODUCT DESCRIPTION

CJ Form-Tie Waterstops are produced from a unique hydrophilic rubber sealing compound which expands in a controlled fashion when exposed to moisture. This forms a compression seal inside or around the form-tie system in the concrete structure, giving a permanent flexible watertight seal.

Available in a number of different sizes and profiles to suit the form-tie system. Once installed, **CJ Form-Tie Waterstops** forms a continuous barrier, making it ideal for preventing water penetration or egress.



CJ FORM-TIE PLUG

CJ FORM-TIE RING

ADVANTAGES

- Excellent sealing capabilities and available in many different sizes, shapes and profiles to suit the formwork form-tie system to be used. Custom profiles available upon request.
- Provides a permanent, flexible gasket and compression seal inside the concrete.
- High quality, non-biodegradable compounded hydrophilic rubber that provides long-term durability and integrity.
- Ability to expand up to 200% in contact with potable water and over 150% expansion in salt water.
- Has been tested to withstand over 50 metres of hydrostatic water head pressure. (Test report available upon request)
- For use in many different types of applications but especially suited for water retaining structures where direct water pressure is applied against the concrete and the form-tie system.
- Non-toxic and can be used in potable water structures.
- Unaffected by repeated wet and dry cycles.
- Fast and simple to install.
- Expansion is controlled via the built-in expansion delay system. The product does not pre-expand from the water in the freshly laid concrete of the wall, allowing the concrete to gain strength first.

AREAS OF APPLICATION

Water retaining structures :

- Water Tanks
- Reservoirs
- Dams
- Water Treatment Plants
- Sewage Treatment Plants
- Swimming Pools
- Bund Walls

Water excluding structures :

- Basement areas
- Underground Car Parks
- Tunnels
- Stations & Subways
- Retaining Walls
- Pits & Manholes

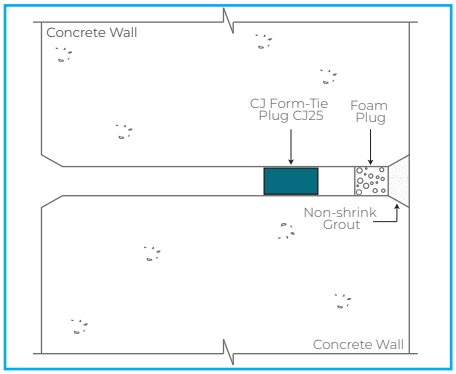
Note : The product's design and performance, its intended use, installation and final confirmation and approval for use, must be provided by the project's Design Engineer and Project Manager.

LIMITATIONS

- Due to the expansive forces of the hydrophilic rubber compound, **CJ Form-Tie** Rings need to be installed with a minimum concrete cover of 75mm from any outside edge.
- Increase concrete cover when using lightweight or low strength concrete.
- Expansion rate can vary in potable water and salt water environments.

TYPICAL APPLICATIONS

1. FORM-TIE CONDUIT SPACER HOLE



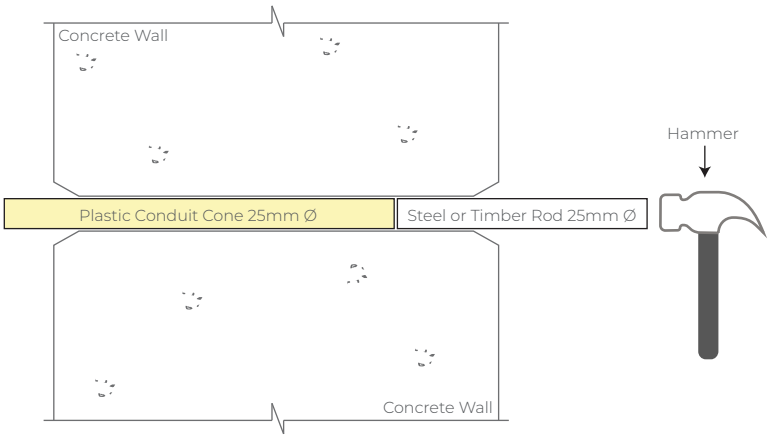
Insert **CJ Form-Tie** Plug into the hole to a minimum depth of 75mm. Apply an application of a non-shrink grout flush to the outer surface of the concrete.

2. FORM-TIE RODS

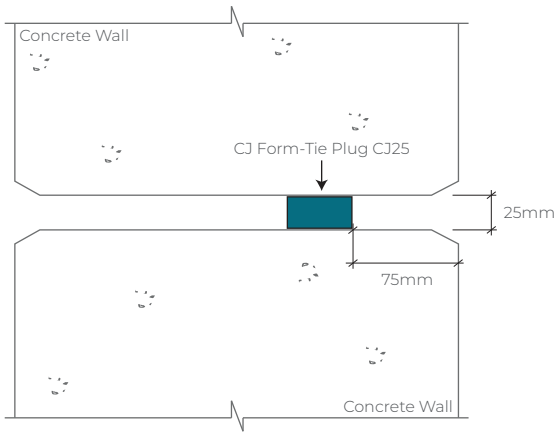
Place the **CJ Form-Tie** Ring over the outside of the metal form-tie rod and position it approximately in the middle section.

INSTALLATION PROCEDURES

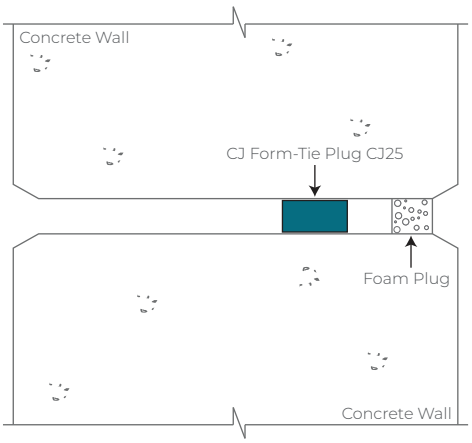
1. FORM-TIE CONDUIT SPACER HOLE



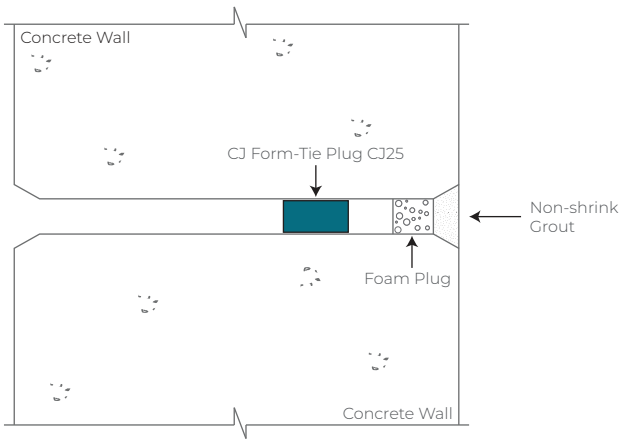
a. Fully remove the Form-Tie Conduit Cone and Conduit Sleeve.



b. Insert **CJ Form-Tie** Plug CJ25 into the hole to a minimum depth of 75mm.



c. Insert a low-density foam plug to a minimum depth of 20mm.



d. Apply an application of a non-shrink grout flush to the outer surface of the concrete.

2. FORM-TIE RODS

a. Thoroughly clean the outside surface of the form-tie rod, free of any dust, debris & foreign matter.

b. Place the **CJ Form-Tie** Ring over the outside face of the form-tie rod and slide it along to approximately the middle section.

c. A minimum concrete cover of 75mm from any outside edge of the concrete to the **CJ Form-Tie** Ring should be followed.

d. Check and make sure that the **CJ Form-Tie** Ring has a tight and secure fit around the sleeve or rod. If it is loose, then a smaller diameter ring should be used.

e. The **CJ Form-Tie** Ring is now ready for the concrete to be placed.

PROFILE SELECTION

TYPE OF PROFILE	FORM-TIE SYSTEM USE
CJ Form-Tie Plug	Externally inserted into the Form-Tie Conduit Sleeve hole
CJ Form-Tie Ring	Externally applied around the Form-Tie Conduit Sleeve or the Form-Tie Rod

CJ20

CJ25

CJ FORM-TIE PLUGS

CJ3512

CJ4016

CJ FORM-TIE RINGS

PROFILE TYPE & CODE	SIZE OF PRODUCT	APPLICATION SEALING SIZE
CJ Form-Tie Plug CJ20	O.D 20mm x 40mm long	Conduit sleeve with O.D 20mm
CJ Form-Tie Plug CJ25	O.D 25mm x 40mm long	Conduit sleeve with O.D 25mm
CJ Form-Tie Ring CJ3512	O.D 35mm x I.D 12mm	Sleeve or rod O.D 12mm to 15mm
CJ Form-Tie Ring CJ4016	O.D 40mm x I.D 16mm	Sleeve or rod O.D 16mm to 20mm

The above profile types are standard and custom profiles are available upon request to suit the form-tie system to be used. Selecting the profile type is dependent upon the type of form-tie system being used and if needed, please consult Rockbond for further information.

Note : The product's design and performance, its intended use, installation and final confirmation and approval for use, must be provided by the project's Design Engineer and Project Manager.

PACKAGING

PACKAGING	In sealed plastic bags and boxes
WEIGHT & QUANTITY	Dependent upon profile type and size

PHYSICAL PROPERTIES

DESCRIPTION	UNIT	HYDROPHILIC RUBBER		TEST METHOD
		SPEC.	RESULT	
Hardness	-	A45 ± 5	48	JIS K 6253
Tensile Strength	MPa	min. 4.9	7.9	JIS K 6251
Elongation	%	min. 600	790	JIS K 6251

Note: Above values are typical measured values and not specific values.

SWELLING PROPERTIES

Test water : Distilled Water
Temperature : 23°C & 50% RH
Immersion terms : 28 Days

DESCRIPTION	TEST METHOD	RESULT
Volume Expansion Rate (%)	In house test	200

Note : 100% indicates original size. Expansion can vary between batches up to 10% - 20%. Expansion rate can vary in salt or contaminated water.

TECHNICAL FEATURES

ITEM TYPE	DESCRIPTION & INFORMATION
Material Type - Rubber for plugs and rings	Chloroprene Rubber compound containing special hydrophilic polymers
Color - Rubber for plugs - Rubber for rings	Blue Black
Expansion Capability	200% in potable water and 150% in salt water
Hydrostatic Water Pressure Resistance	Over 5 Bar (50 metres)
Chemical Resistance	In general, good resistance to Acids, Alkalis and most Aqueous solutions. Be careful with solvents and hydrocarbons and refer to our chemical resistance chart.
Service Temperatures	-30°C to +90°C
Storage Conditions/Shelf Life	5 years from date of production if stored properly and in original unopened and undamaged sealed packaging in dry conditions, out of direct sunlight, not exposed to moisture and kept at temperatures between +10°C to +40°C.

TEST REPORTS - INDEPENDENT LABORATORY

- Exposure & Water Immersion Expansion in Potable Water
- Exposure & Hydrostatic Head Pressure (cyclic wet & dry) in Potable Water
- Water Immersion Expansion in Salt Water (In-house)

Note : The above test reports are available upon request.

WRITTEN SPECIFICATION

The Form-Tie Waterstop shall be **CJ Form-Tie Waterstop** (State profile number required) as supplied by Rockbond. The Form-Tie Waterstop shall be produced from Chloroprene Rubber and compounded with special hydrophilic polymers to be able to achieve a minimum expansion capability of 200% in potable water and a minimum of 150% expansion in salt water. The Form-Tie Waterstop must be able to withstand a hydrostatic water head pressure of not less than 5 Bar and an independent laboratory test report must be provided to prove the product material type, the water immersion expansion percentage and the hydrostatic water head pressure capabilities.

HEALTH AND SAFETY INFORMATION

For further information or advice on health and safety precautions, safe handling, storage and correct disposal of products, please refer to the most recent product Safety Data Sheet (SDS), which is available upon request.

DISCLAIMER

The information and the recommendations relating to the application and end use of this product are given in good faith and are based on the information provided by the manufacturer of the product and/or the Company's current knowledge and experience in connection with the product when properly stored, handled and applied under normal conditions and no liability of final function at the job site is assumed. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability of, or fitness for, particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written and/or oral recommendations, or from any other advice offered by the Company. The Company also has no express or implied knowledge of any particular purpose for which the product is required and any such information given will not be taken into account in the supply of this product. No responsibility or liability by the Company will be accepted for misuse, misreading or derivation from recommended guidelines in respect of this product and the user shall determine the suitability of the product for his intended use and assume all risks and liability in connection therewith. The information contained in our brochure may change at any time without notice. Any use of this product, **CJ Form-Tie Waterstop**, in any application should be approved as suitable for use/application by the Design Engineer and Project Manager.