

Plumbing Performance Solution for the use of FastBend® and FastBend® DT



FastBend and FastBend DT – Copyright 2026 M&B Product Innovation Pty Ltd

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Performance-Based Design Brief

Scope

This performance solution will demonstrate that the use of a DN100 FastBend® or FastBend® DT when installed is a performance solution for sanitary drainage systems that exceed the equivalent requirements for the Deemed-to-Satisfy provisions of the Plumbing Code of Australia, Volume Three of the National Construction Code, when used according to the manufacturer's instructions, to eliminate the need for bends used the vertical plane to be supported by a concrete pad.

Background

DN100 FastBend®

Bends in drains installed in the vertical position are required to be supported with a concrete pad. AS/NZS 3500.2 *Clause 5.3 Concrete support for drains* states: Concrete pads used to support drains shall be a minimum of 100mm thick and be laid - (c) under all bends greater than DN 65 forming risers from the main drain (Victoria varies this clause to all risers, not just the main drain).

There is no guidance on how to install this pad, but its purpose is only to provide support for the drain, as stated in the clause. Clause 5.3 (e) alluded to a junction in the vertical plane having to be supported up to the sides of the junction and 100mm below the junction, but this is not specified for the bend. To properly place a bend, it takes two bags of premixed concrete. This requirement, from experience, is rarely, if ever, achieved.

This concrete, as per the requirements of AS/NZS 3500.3 *Clause 2.9.1*, requires that premixed concrete shall have a minimum characteristic compressive strength of 20MPa.

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However, from my experience, the concrete's additional purpose is to support and protect the bend from damage during maintenance and installation. AS/NZS 3500.3 Clause 5.3 states that the concrete is only required for support.

FastBend® DT

When installed, gullies have particular installation requirements and are different from the bend as the placement of the concrete is prescriptive in the standard.

AS/NZS 3500.3 Clause 4.6.2 (c)(i) prescribes that a gully be supported on a concrete footing of a thickness of not less than 100mm, with a width not less than 100mm beyond the sides of the trap and extending upwards to not less than 100mm above the base of the gully.

AS/NZS 3500.2 *Clause 5.3 Concrete support for drains* states: Concrete pads used to support drains shall be a minimum of 100mm thick and be laid - (a) under gully traps and boundary traps of material other than cast iron.

This additional protection provides stability for the gully during installation and, in a similar fashion to a bend, protects the pipe from the impact of any drain cleaning equipment or plunging of the drain. Historically, this would have been required to preserve the vitrified clay pipework used in the drain before uPVC. The requirements in AS/NZS 3500.3 are not just for uPVC pipework but also apply to other materials.

This performance solution included a requirement for specific impact testing to demonstrate that repeated impacts of a force of more than 20MPa do not damage the pipework, as the FastBend® DT is reinforced at the point of impact, as well as additional compressive strength testing.

Proposal

This performance solution proposes testing and examining FastBend's® proprietary features to show that they can provide the equivalent support provided by 20MPa concrete. This verification testing includes impact and compression testing to 20MPa.

The FastBend® products provides additional environmental benefits, and eliminating the use of concrete provides significant environmental benefits, including a reduction in CO2 emissions by eliminating the use of concrete and premixed concrete packaging.

The FastBend® products are WaterMarked and comply with AS/NZS 1260 *PVC-U pipes and fittings for drain, waste and vent applications*.

The identified performance requirement in the PCA NCCv3 is C2P1 Disposal. This is achieved by compliance with C2D4, which states that the performance requirements are satisfied by following the Deemed-to-Satisfy requirements of AS/NZS 3500.3-2022 specifically:

- AS/NZS 3500.2 *Clause 5.3 Concrete support for drains* states: Concrete pads used to support drains shall be a minimum of 100mm thick and be laid - (c) under all bends greater than DN 65 forming risers from the main drain (Victoria varies this clause to all risers, not just the main drain).
- AS/NZS 3500.2 Clause 4.6.2 (c)(i) prescribes that a gully be supported on a concrete footing of a thickness of not less than 100mm, with a width not less than 100mm beyond the sides of the trap and extending upwards to not less than 100mm above the base of the gully.
- AS/NZS 3500.2 *Clause 5.3 Concrete support for drains* states: Concrete pads used to support drains shall be a minimum of 100mm thick and be laid - (a) under gully traps and boundary traps of material other than cast iron.

There are no listed verification methods for testing this requirement. The determined verification methods to be used to establish compliance are:

1. Drop Hammer Impact Test
2. High-Temperature Electric Blast Test
3. Compressive Strength Test



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Stakeholder Acknowledgement of the use of the FastBend® Performance Solution

This acknowledges that you accept that a plumbing performance solution is being used at the specified address.

Address and Location of Performance Solution:

Stakeholders

Building Company Name: _____

Address: _____

Phone: _____

Signature: _____ Date: _____

Name of Representative: _____

Installing Plumber

Licensed Plumber Name: _____

Address: _____

Phone: _____

Signature: _____

VBA Licence Number: _____

Building Owner

Name: _____

Property Address: _____

Signature: _____ Date: _____

Plumbing Performance Solution for the use of FastBend®

• Final Report – Incorporating the Performance Based Design Brief

This final report verifies that the DN100 FastBend® and FastBend® DT meet the applicable performance requirements C2P1 Disposal and the associated Deemed-to-Satisfy requirements:

- For bends: AS/NZS 3500.2 *Clause 5.3 Concrete support for drains* states: Concrete pads used to support drains shall be a minimum of 100mm thick and be laid - (c) under all bends greater than DN 65 forming risers from the main drain (Victoria varies this clause to all risers, not just the main drain).
- For Gullies: AS/NZS 3500.3 *Clause 4.6.2 (c)(i)* prescribes that a gully be supported on a concrete footing of a thickness of not less than 100mm, with a width not less than 100mm beyond the sides of the trap and extending upwards to not less than 100mm above the base of the gully, and;
- AS/NZS3500.3 AS/NZS 3500.2 *Clause 5.3 Concrete support for drains* states: Concrete pads used to support drains shall be a minimum of 100mm thick and be laid - (a) under gully traps and boundary traps of material other than cast iron.

The FastBend® and FastBend DT® are WaterMarked with License Number WMK26376

Analysis and Verification

Analysis of the FastBend®

The FastBend has several key features that enable it to replace concrete as the primary means of bend's installed in the vertical plane:

1. The FastBend® and FastBend® DT have a WaterMark and complies with the material and dimension requirements of AS/NZS 1260.
2. A proprietary 200mm square grid base of PVC locks into the bedding material and distributes any downward pressure, remaining stable. (Extending a similar distance as the traditional concrete support.)
3. The FastBend®, with a proprietary 200mm wide base, stabilises lateral movement and reduces the need for support from the backfill material.

The FastBend® and FastBend® DT is a one-piece construction, so the bend or DT cannot be separated from the stabilisation grid structure. (This often occurs with concrete not adhering to smooth PVC)

4. The proprietary grid structure around the base of the FastBend® and FastBend® DT strengthens the base of the bend and DT. It, therefore, reduces the likelihood of any damage from any internal impacts or during any subsequent maintenance. [Refer to impact testing]
5. The proprietary grid base can be pinned to the trench base to provide further stability when required by specific ground conditions.
6. When covered, the proprietary 200mm wide base provides stability, if any upward force is applied to the riser pipe.
7. Therefore, due to its unique construction, the FastBend® and FastBend® DT is stabilised in the upward, downward, and lateral positions.
8. Foolproof installation requires no additional installation requirements other than placing it on a firm compacted base, of the same bedding material as the connected sanitary drainage pipework. The simple installation procedure ensures a consistent high quality installation, eliminating sub-standard non-compliant issues due to poor work practices.
9. Robust construction reduces the likelihood of damage during installation.

Verification

In comparison to the Deemed-to-Satisfy requirements, to determine whether the DN100 FastBend® and FastBend® DT compares to the use of concrete for support. The FastBend® and FastBend® DT were tested to the same compressive strength of concrete at 20MPa and subject to additional Drop Hammer Impact Testing and a High-Temperature Electric Blast Test.

Testing was undertaken at a **NATA-accredited** Laboratory.

1. Drop Hammer Impact Test
2. High-Temperature Electric Blast Test
3. Compressive Strength Test

The results and details of each test can be found here:

<https://drive.google.com/drive/folders/1XeJ7K73l9cJB-wso3EqhOdCouR4afQI9?usp=sharing>

The testing showed that the product exceeded the compressive pressure requirements by more than 20MPa, as well as the additional impact testing to 20MPa and the High-Temperature Electric Blast Test (longevity).

The testing and examination of the DN 100 FastBend and FastBend DT demonstrate that it is equivalent to the concrete pad requirements to provide stability to a product installed in the vertical plane. This assessment method compares the Deemed-to-Satisfy requirements with the testing results.

All other installation requirements remain Deem-to-Satisfy requirements.

Therefore, when installed in accordance with the manufacturer's instructions, the FastBend® and FastBend® DT provide an equivalent level of stability and protection to a concrete pad.

Compliance Confirmation

The FastBend® and FastBend® DT meet the requirements of the NCCv3 – PCA Performance Requirements C2P1 by demonstrating, by design and physical testing, that provides sufficient evidence FastBend® and FastBend® DT meet the equivalent requirements of the Deemed-to-Satisfy, when compared to the requirements of AS/NZS 3500.3. Therefore, a concrete pad is **NOT** required to support the drain when using a FastBend® and FastBend® DT. The NCCv3 Performance requirements have been satisfied, and the FastBend® and FastBend® DT are fit for their intended purpose.

Limitations: This Performance Solution report cannot be used after 01/01/2028

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