BPC Building and Plumbing Commission

Practitioner Education Series

AS/NZS 3500.1:2025 Plumbing and Drainage

Part 1: Water Services

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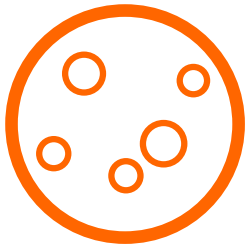
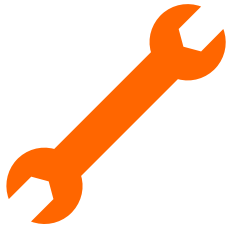
2025 edition of AS/NZS 3500.1

Major changes since the 2021 edition

New requirements specifying the use of certain classes of flexible hose assemblies in cold water applications (clause 2.3)



Minor changes to the backflow prevention provisions for atmospheric vacuum breakers (clauses 4.4 and 4.6)



New requirement for an isolating valve to be installed immediately before each flexible hose assembly is connected to a mixer valve, tap outlet or cistern (clause 5.4.2)

New requirements for the connection of miscellaneous devices and appliances to the drinking water supply (Clause 5.20)

Editorial changes that make the standard easier to read

2025 edition of AS/NZS 3500.1

Major changes since the 2021 edition

1.3 Normative references

The standards below (called up in the relevant clause) must be complied with:

- AS 1397, Continuous hot-dip metallic coated steel sheet and strip – Coatings of zinc and zinc alloyed with aluminium and magnesium.
- AS 1432, Copper tubes for plumbing, gasfitting and drainage applications.
- AS 3688, Water supply and gas systems – Metallic fittings and end connectors.
- AS 3735, Concrete structures for retaining liquids.

2025 edition of AS/NZS 3500.1

Major changes since the 2021 edition

1.3 Normative references

The standards below (called up in the relevant clause) must be complied with:

- AS/NZS 1546.1, On-site domestic wastewater treatment units, Part 1: Septic tanks.
- AS/NZS 4020, Testing of products for use in contact with drinking water.
- AS/NZS 4129, Fittings for polyethylene (PE) pipes for pressure applications.
- AS/NZS 4766, Rotationally moulded buried, partially buried and non-buried storage tanks for water and chemicals.

‘Normative’ references used in the standard are mandatory while ‘informative’ is for information and guidance.

2025 edition of AS/NZS 3500.1

Major changes since the 2021 edition

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2.3.1 Pipes, fittings and connectors – General limitations

Clause 2.3.1 Pipes and fittings (Update to clause)

This change accommodates the different pipe description methods – some 100mm pipes are referred to by internal, nominal, or external diameter. As a result, 110 mm has now been included instead of 100mm.

The pipe size range has changed:

- For allowable operating pressure of at least 1,200 kPa at 20° C, the pipe size range has increased from ≤ 100mm to ≤ 110mm.
- Pipes larger than DN110 must be selected to suit the operating pressure and temperature for the system.

Explanatory note: Provided it does not contradict the requirements of this standard, limitations on the use of pipes and fittings should include the manufacturer's installation specifications and scope of use.

Explanatory note: Installation method of pipes and fittings should avoid exposing pipes and fittings to excessive ambient heat or to excessive heat from a device or appliance.

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Major changes since the 2021 edition

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Clause 2.3.2.1 Accessibility (new clause)

Flexible hose assemblies must –

(a) Only be used in accessible locations; and

(b) Not be buried.

Accessible being defined as; capable of being reached for the purposes of inspection, maintenance, repair or replacement, but may first require removal of an access panel, cover, door or similar obstruction.

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2025 edition of AS/NZS 3500.1

Major changes since the 2021 edition

Clause 2.3.2.2 Classification and Table 2.3.2.2 Flexible hose assembly classification (new clause and new table)

Flexible hose assemblies are categorised into four different classes based on their application:

Class 1 are end of line flexible hoses with an open end (i.e. no isolation device after the inlet of the hose). Class 1 must only be used for dynamic pressure applications (i.e. must not be used for static pressure applications).

Classes 2 or 3 are flexible hoses used to connect between fixed points. Classes 2 or 3 are used for static pressure applications.

- (Note: fixed points are either between rigid supply lines and a fixture, fitting, valve, tap, appliance or similar; or
- fixed points are between supply line to supply line to allow for expansion or movement.)

Class 4 are end of line flexible hoses with an integral stop valve or trigger. Class 4 are used for static pressure applications.

Flexible hose assemblies must meet the requirements in Table 2.3.2.2.
The requirements are summarised in the next slide.

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2025 edition of AS/NZS 3500.1

Major changes since the 2021 edition

For the following application	Class of hose – description	Class of hose - limitations
Class 1 Hoses that have no isolation device after the inlet of the hose. Class 1 hoses must not be used under static pressure.	**Class 1** End of line hoses with an open end.	**Class 1** • Max operating pressure: < <250 kPa (for use under dynamic pressure) • Max length: 10m
Class 2 Connections between fixed points	**Class 2** Flexible connectors ≤ 20mm	**Class 2** • Max operating pressure: 1,400 kPa (for use under static pressure) • Max length: 2m
Class 3 Connections between fixed points	**Class 3** Flexible connectors > 20mm and ≤ 32mm	**Class 3** • Max operating pressure: 25mm = 1,400 kPa 32mm = 1,350 kPa (for use under static pressure) • Max length: 10m
Class 4 Hoses for wash down tapware or hoses that have an isolation device After the inlet of the hose	**Class 4** End of line hoses with shut-off devices, pressurized	**Class 4** • Max operating pressure: 1,400 kPa (for use under static pressure) • Max length: 10m for <25mm 2m for ≥25mm

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2025 edition of AS/NZS 3500.1

Major changes since the 2021 edition

Clause 2.3.2.3 Operating temperature And **Clause 2.3.2.4 Submerged applications** **(new clauses)**

Plumbing practitioners must use the flexible hose suited to the application.

The marking on the flexible hose specifies the suitable application.

The requirements are summarised below.

For the following application	Use the following
Up to 70° 	Hoses marked with 70°c or “**L**”
Up to 90° 	Hoses marked with 90°c or “**H**”
Submerged 	Rated for submersion and hoses marked with “**S**”

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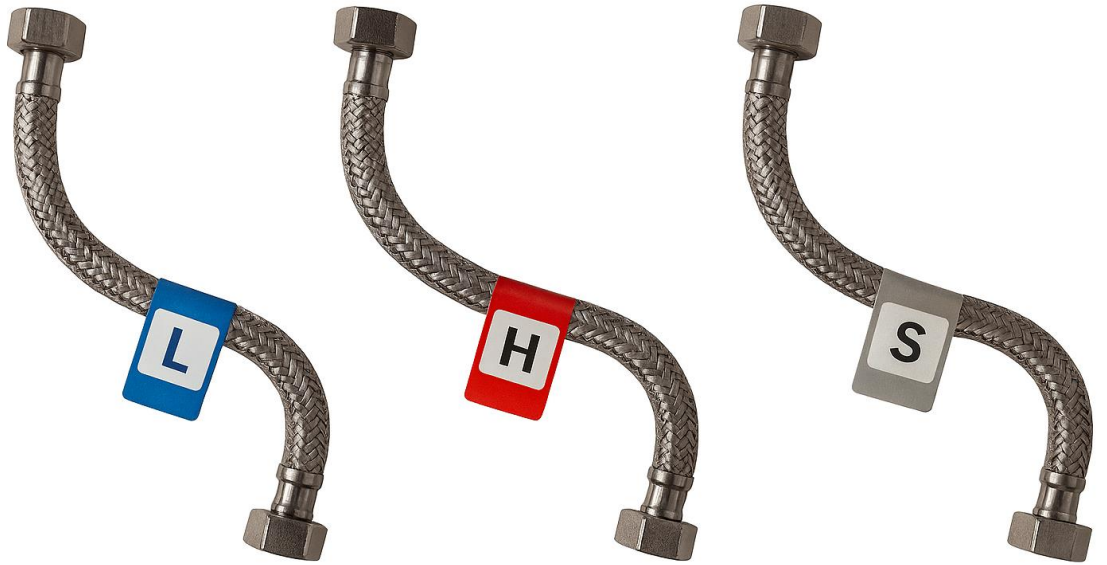
Major changes since the 2021 edition



Applications up to 70°C	Applications up to 90°C	Applications submerged

Disclaimer: Hoses shown are for reference only and may not reflect actual specifications.

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2025 edition of AS/NZS 3500.1

Major changes since the 2021 edition

Clause 2.3.3 Semi-flexible hose assemblies (new clause)

Semi-flexible hoses must:

- only be used in accessible locations;
- not be buried; and
- not be used where repeated movement is expected.

(i.e. Fully flexible hoses must be used in this situation.)

Explanatory note: Semi-flexible hoses are commonly called ‘semi-rigid hoses.’

- Examples of installations of semi-flexible hoses include connections of appliances, tapware, water heaters, expansion joints, seismic joints, or offset connectors.

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2025 edition of AS/NZS 3500.1

Major changes since the 2021 edition

4.4 Backflow prevention devices
Clause 4.4.1 General and **Table 4.4.1 Suitability of backflow prevention devices (update to clauses)**

Atmospheric vacuum breakers (AVB) have been reclassified from “non-testable devices” (2021 edition) to “registered testable devices” in the 2025 edition (see Table 4.4.1). There is no change to the hazard rating for AVB – AVBs can be used for high, medium or low applications.

Explanatory note: Field testing and maintenance procedures for backflow prevention devices are specified in AS 2845.3.

Clause 4.4.6 Commissioning (Update to clause)
In the 2025 edition, atmospheric vacuum breakers (AVBs) are testable backflow prevention devices that must be commissioned and tested as specified in AS/NZS 2845.3.

- AVBs must only be used in conjunction with a maintenance program for device registration and test certification.

*Practitioners must hold the appropriate accreditation to carry out the associated plumbing works

2025 edition of AS/NZS 3500.1

Major changes since the 2021 edition

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4.6 Installation of backflow prevention devices

Clause 4.6.1 General installation requirements (update to clause)

Except for fire services, AVBs must be fitted with line strainers when a backflow prevention device is installed.

Explanatory note: AVBs should not be installed with downstream isolating valves.

Clause 4.6.2.2 Accessibility (update to clause)

If backflow prevention devices are fitted with test taps, or if dismantling of backflow prevention devices is required for testing – the location of the device needs to enable the test procedure or maintenance to be performed.

Clause 4.6.3.2 Testable devices

Atmospheric vacuum breakers (AVB) installation requirements have been relocated from “non-testable devices (clause 4.6.3.3 in the 2021 edition)” to “testable devices (clause 4.6.3.2) in the 2025 edition”.

Clause 4.6.3.3 Non-testable devices

The requirements for the installation of AVBs have not changed.

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Major changes since the 2021 edition

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5.4 Isolation valves

Clause 5.4.2 Location (update to clause)

Isolation valves must be installed immediately before each flexible hose assembly that is connected to a mixer valve, tap outlet or cistern.

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2025 edition of AS/NZS 3500.1

Major changes since the 2021 edition

Clause 5.20 Miscellaneous devices and appliances (new clause)

Devices and appliances connected to the drinking water supply must meet the requirements below.

- Pipework and fittings must be sized to provide adequate water supply to the device or appliance as specified in Section 3.
- A backflow protection device must be installed as specified in Section 4.
- An isolation valve shall be installed as specified in Clause 5.4.
- If a lower pressure is required to prevent damage to the device or appliance, a pressure limiting or reducing device must be installed. Refer to product specifications for pressure requirements.
- Pipework and fittings must enable the disconnection and maintenance of devices or appliances.

Explanatory note: See Appendix B of this standard for information regarding demonstrating that products and materials are fit for purpose.

Example – A miscellaneous device or appliance could be a dental console.

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2025 edition of AS/NZS 3500.1

Major changes since the 2021 edition

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9 Non-drinking water services
Clause 9.1 Scope of section (update to clause)

Explanatory note: Figure 9.1 shows the typical installation of non-drinking water from a reticulated non-drinking water system.

Plumbing practitioners should consult the network utility operator (water authority), because the network utility operator may require the non-drinking water meter assembly to be in a different location to Figure 9.1.

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AS/NZS 3500.4:2025 Plumbing and Drainage

Part 4: Heated Water Services

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2025 edition of AS/NZS 3500.4

Major changes since the 2021 edition

New requirements specifying the use of certain classes of flexible hose assemblies in heated water applications (clause 2.3)

New requirement for an isolating valve to be installed immediately before each flexible hose assembly is connected to a mixer valve or tap outlet (clause 10.10.2)

Editorial changes that make the standard easier to read

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Practitioner Education Series

2025 edition of AS/NZS 3500.4

Major changes since the 2021 edition

2.3 Pipes, fittings and connectors – General limitations

Clause 2.3.1 Pipes and fittings (Update to clause)
This change accommodates the different pipe description methods – some 100mm pipes are referred to by internal, nominal or external diameter. As a result, 110mm has now been included instead of 100mm.

2.3.2 Flexible hose assemblies
Clause 2.3.2.1 Accessibility (New clause)
The requirements regarding flexible hoses have been relocated to this clause (previously in Clause 2.3(c) of the 2021 edition).
The requirements have not changed.

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2025 edition of AS/NZS 3500.4

Major changes since the 2021 edition

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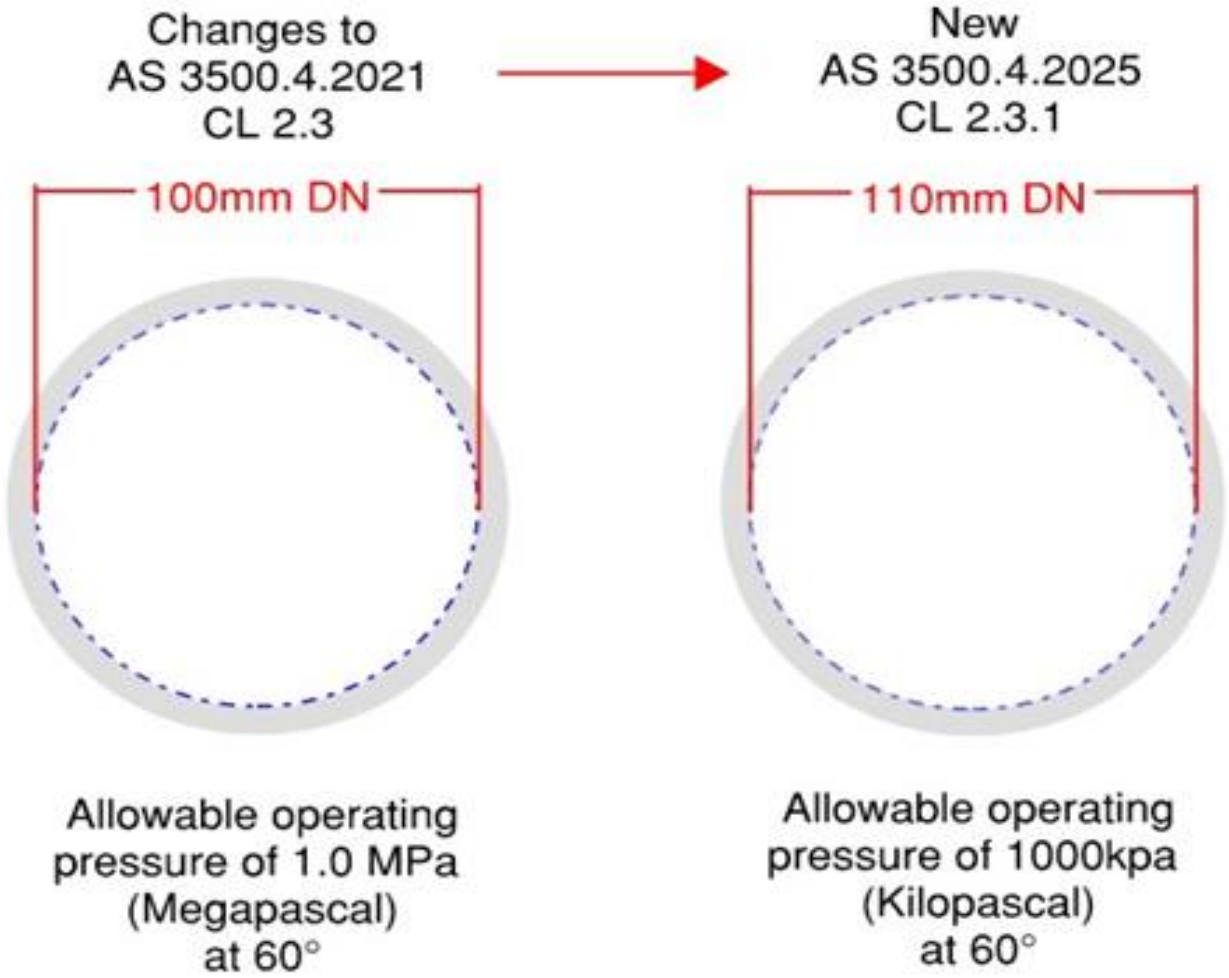

2025 edition of AS/NZS 3500.4

Major changes since the 2021 edition

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2.3 Pipes, fittings and connectors – General limitations

Clause 2.3.2.1 Accessibility (new clause)
Flexible hose assemblies must –
(a) Only be used in accessible locations; and
(b) Not be buried.

Accessible being defined as; capable of being reached for the purposes of inspection, maintenance, repair or replacement, but may first require removal of an access panel, cover, door or similar obstruction

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2025 edition of AS/NZS 3500.4

Major changes since the 2021 edition

2.3.2 Flexible hose assemblies
Clause 2.3.2.2 Classification and Table 2.3.2.2 Flexible hose assembly classification (New clause and new table)

Flexible hose assemblies are categorised into four different classes based on their application, as follows:

Class 1 are end of line flexible hoses with an open end (i.e. no isolation device after the inlet of the hose). Class 1 must only be used for dynamic pressure applications (i.e. must not be used for static pressure applications).

Classes 2 or 3 are flexible hoses used to connect between fixed points. Classes 2 or 3 are used for static pressure applications.

- (Note: fixed points are between rigid supply lines and a fixture, fitting, valve, tap, appliance or similar, or
- fixed points are between supply line to supply line to allow for expansion or movement.)

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2025 edition of AS/NZS 3500.4

Major changes since the 2021 edition

2.3.2 Flexible hose assemblies
Clause 2.3.2.2 Classification and Table 2.3.2.2 Flexible hose assembly classification (New clause and new table) continued

Class 4 are end of line flexible hoses with an integral stop valve or trigger. Class 4 are used for static pressure applications.

Flexible hose assemblies must meet the requirements in Table 2.3.2.2.

The requirements are summarized in the next slide.

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2025 edition of AS/NZS 3500.4

Major changes since the 2021 edition

For the following application	Class of hose – description	Class of hose - limitations
Class 1 Hoses that have no isolation device after the inlet of the hose. Class 1 hoses must not be used under static pressure.	**Class 1** End of line hoses with an open end.	**Class 1** • Max operating pressure: < <250 kPa (for use under dynamic pressure) • Max length: 10m
Class 2 Connections between fixed points	**Class 2** Flexible connectors ≤ 20mm	**Class 2** • Max operating pressure: 1,400 kPa (for use under static pressure) • Max length: 2m
Class 3 Connections between fixed points	**Class 3** Flexible connectors > 20mm and ≤ 32mm	**Class 3** • Max operating pressure: 25mm = 1,400 kPa 32mm = 1,350 kPa (for use under static pressure) • Max length: 10m
Class 4 Hoses for wash down tapware or hoses that have an isolation device After the inlet of the hose	**Class 4** End of line hoses with shut-off devices, pressurized	**Class 4** • Max operating pressure: 1,400 kPa (for use under static pressure) • Max length: 10m for <25 mm 2m for ≥25mm

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2025 edition of AS/NZS 3500.4

Major changes since the 2021 edition

2.3.2 Flexible hose assemblies
Clause 2.3.2.3 Operating temperature and **Clause 2.3.2.4 Submerged applications (New clauses)**
Plumbing practitioners must use the flexible hose suited to the application. The marking on the flexible hose specifies the suitable application.

The requirements are summarized below.

For the following application	Use the following
Up to 70° 	Hoses marked with 70°c or “**L**”
Up to 90° 	Hoses marked with 90°c or “**H**”
Submerged 	Rated for submersion and hoses marked with “**S**”

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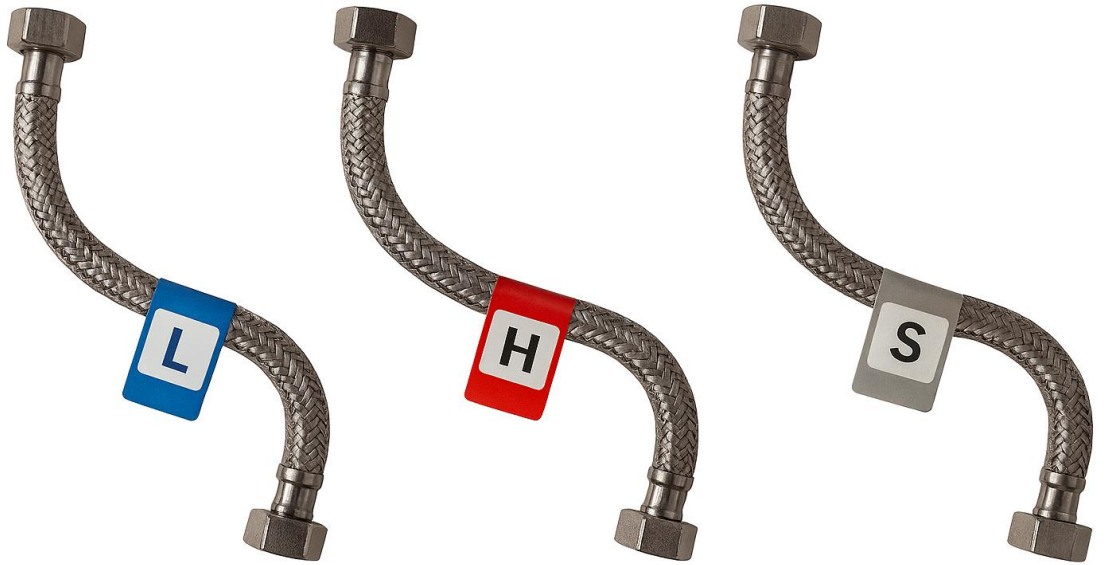
2025 edition of AS/NZS 3500.1

Major changes since the 2021 edition



Applications up to 70°C	Applications up to 90°C	Applications submerged

Disclaimer: Hoses shown are for reference only and may not reflect actual specifications.

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2025 edition of AS/NZS 3500.4

Major changes since the 2021 edition

2.3.3 Flexible hose assemblies
Clause 2.3.3 Semi-flexible hose assemblies (New clause)

Semi-flexible hoses must:

- Only be used in accessible locations;
- Not be buried; and
- Not be used where repeated movement is expected.

Explanatory note: semi-flexible hoses are commonly called ‘semi-rigid hoses.’

- Examples of installations of semi-flexible hoses include connections of appliances, tapware, water heaters, expansion joints, seismic joints, or offset connectors.

2025 edition of AS/NZS 3500.4

Major changes since the 2021 edition

5.4 Protection against damage from leaking water
Clause 5.4.2 Unconcealed water storage tanks (Update to clause).

No change in requirements. The clause has been re-worded to clarify the following:

All unconcealed water storage tanks that are installed inside buildings must be installed with safe trays (as specified in Clause 5.4.3) and safe wastes (as specified in Clause 5.4.4), except for:

- Unconcealed water storage tanks installed inside buildings on or above a floor surface that is impervious to water and suitably drained to a trapped or untrapped floor drain or an external doorway (which do not require safe trays).
- A mains pressure water heater with a leak protection device fitted adjacent to the cold-water inlet and upstream of any expansion control valve which does not require a safe waste.

Safe trays are not required for:

- Free outlet-type storage water heaters up to 13.5 L capacity.
- Instantaneous or continuous flow water heaters.

2025 edition of AS/NZS 3500.4

Major changes since the 2021 edition

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Clause 10.10.2 Location (update to clause)
Isolation valves must be installed immediately before each flexible hose assembly that is connected to a mixer valve, tap outlet or cistern.

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