

AS/NZS 1462.22:2017 METHODS OF TEST FOR PLASTICS PIPES AND FITTINGS, METHOD 22: METHOD FOR DETERMINATION OF PIPE STIFFNESS – NEW ISO ADOPTION

PUBLISHED: 02 FEBRUARY 2024

Summary

AS/NZS 1462.22:2017 Methods of test for plastics pipes and fittings, Method 22: Method for determination of pipe stiffness was revised as of December 2023 to adopt the ISO 9969 Thermoplastics pipes – determination of ring stiffness test method in full. This standard specifies a test method for determining the ring stiffness of thermoplastics pipes having a circular cross section.

The new standard is now called:

AS/NZS 1462.22:2023 Methods of test for plastic pipes and fittings, Method 22: Thermoplastics pipes – Determination of ring stiffness (ISO 9969:2016, IDT)

It should be noted that this standard identically (IDT) adopts the ISO standard.

This change now means that only one test method for pipe ring stiffness is called up by the various AS/NZS plastic pipe standards. Previously, some AS/NZS pipe Standards referenced the AS/NZS 1462.22:2017 method and others referenced the ISO 9969 method.

Prior to the adoption of ISO 9969, testing was carried out by PIPA members to confirm the reported pipe ring stiffness (SN) values from both test methods are same, despite some key differences in testing methodology.

Key changes include:

The following summary highlights only the key differences between the previous standard and the new standard and is not a complete listing of all the changes to the test method.

It is recommended users of the standard undertake their own review of AS/NZS 1462.22:2023 to understand the changes in full to ensure correct implementation.

1) Stiffness calculation: change to deflection percentage and units

AS/NZS 1462.22:2017: Stiffness calculated using the force required to deflect the pipe by 5%

Units: N/m/m

AS/NZS 1462.22:2023: Stiffness calculated using the force required to deflect the pipe by **3%**

Units: **kN/m²**

2) Test Temperature: minor change to temperature range

AS/NZS 1462.22:2017: 20 ± 2°C

AS/NZS 1462.22:2023: 23 ± 2°C

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3) Test Method: change to deflection speed

Deflection speeds for the compressive testing machine have changed across the nominated pipe inside diameter ranges. This was previously expressed in terms of nominal diameter DN.

The deflection speed tolerances in the new standard are significantly tighter:

| Pipe inside diameter (mm) | Deflection speed mm/min as per the standard | |
|---------------------------|---|---------------------------|
| | AS/NZS 1462.22:2017 | AS/NZS 1462.22:2023 |
| $d_i \leq 100$ | 5 ± 1 | 2 ± 0.1 |
| $100 < d_i \leq 200$ | 10 ± 2 | 5 ± 0.25 |
| $200 < d_i \leq 400$ | 20 ± 2 | 10 ± 0.5 |
| $400 < d_i \leq 710$ | 50 ± 5 | 20 ± 1 |
| $d_i > 710$ | 50 ± 5 | $0.03 \times d_i \pm 5\%$ |

4) Conditioning of test specimens: change to conditioning time and media

The method in AS/NZS 1462.22:2023 only allows for test samples to be conditioned in air at the required test temperature for at least 24 hours immediately prior to testing. Previously, conditioning times were defined for varying total pipe wall thickness and conditioning media i.e., still air, or moving air / water.

5) Test Procedure: change to include more requirements

In AS/NZS 1462.22:2023 the test procedure method now includes a requirement to apply a defined pre-load force, F_0 to hold the test specimen in position.

6) Test Reporting: more information to be reported

The test reporting method in AS/NZS 1462.22:2023 requires more details to be reported. It is also more prescriptive in defining identification details of the pipe sample tested.

Identification of the thermoplastic pipe tested shall include the following:

- Manufacturer
- Type of pipe (including material)
- Dimensions
- Nominal stiffness and / or pressure class
- Product date
- Lengths of test pieces
- Mass per metre length of the pipe