

# PKS Civil – Field testing of PKS products, including hydrostatic and pneumatic evaluations for non-pressure applications

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This section includes excerpts from AS/NZS 2566.2 and AS/NZS 2033. Please note that AS/NZS 2566.2 was last reviewed in 2016, whereas AS/NZS 2033 has been fully updated in 2024.



Test	AS/NZS 2566.2:20022	Definition	PKS Civil Notes	AS/NZS 2033:2024	Definition	PKS Civil Notes
Low pressure air test	A-Low pressure air testing – Appendix N, Paragraph N2	The test length shall be acceptable where the gauged pressure exceeds 18kPa (or 7 Kpa less than at the pressure at the start of the test) for the time interval specified in Table 6.1 $T = 1.02 \cdot D_i \cdot K / q$ T=Time for a 7 kPa pressure drop D <sub>i</sub> =Pipe internal diameter in metres Q=allowable volume loss in cubic meter/minute/square metre taken as 0.0009 m <sup>3</sup> /min.m <sup>2</sup> K=0.054·D <sub>i</sub> ·L (but not less than 1) L=test length in metres	It is industry standard not to perform this test on pipes 500 mm and larger due to safety risks associated with potential inflatable plug failure. Additionally, in the event of a leak, locating the source by process of elimination becomes significantly more difficult.	8.11.3 Method 2 – Low pressure air test	Air shall be introduced slowly by suitable means until a pressure of 50 kPa is obtained. This pressure shall then be maintained for a period of at least 3 min. If no leaks are apparent at the end of 3 min, the air supply shall be shut off and, provided that the pressure of air contained in the pipes under test does not fall below 35kPa within 60 s, the pipeline shall be considered satisfactory. If groundwater is present, the test pressure should be increased to compensate for the depth of groundwater at a rate of 10 kPa for every 1m of groundwater depth up to a maximum 60 kPa.	A test pressure of 50 kPa is considered satisfactory if the pressure drop remains below 15 kPa.
Vacuum test	B-Vacuum testing – Appendix N, Paragraph N3	The test length shall be acceptable where the vacuum does not decrease in magnitude below (-) 18kPa (Than is the maximum drop in vacuum of 7 kPa) over the time in Table 6.1	This method is similar to the low-pressure test but without the associated safety concerns. However, if a leak occurs in the line, identifying its exact location through elimination remains difficult.	8.11.4 Method 3 – Vacuum testing	An initial test vacuum pressure (negative pressure) of approximately 27kPa shall be applied. The air pressure shall be allowed to stabilize for at least 3 min to identify any initial leakage. When the pressure has stabilized and is at or below the starting test vacuum of 23.6 kPa, the test shall commence by allowing the gauge pressure drop to 23.6 kPa, at which point time recording shall be initiated. The drop in vacuum over the test period shall be recorded. The length of pipeline under test shall be accepted if the test vacuum loss is < 7 Kpa.	
Hydrostatic test	C-Hydrostatic testing – Appendix N, Paragraph N4	The test length shall be acceptable where the specified allowable make up water is not exceeded. Where not specified, the allowable make up water shall be 0.5L/hour per metre length per metre diameter	This method can be used when the pipeline is laid at a shallow grade. It is moderately expensive and provides only a pass/fail outcome, without identifying the exact leak location, which limits the ability to plan targeted remediation. Although it does not require confined-space entry, it presents challenges related to water supply and discharge management	8.11.2 Method 1 – Hydrostatic test	The pipeline shall be filled with water to a height of not less than 1m above the natural ground level at the highest point of the section being tested, or to the flood level of the lowest sanitary fixture but not exceeding 5m at the lowest point of the test section. The pressure shall be maintained without leakage for at least 15 min. If groundwater is present, the test pressure should be increased to compensate for the depth of groundwater at a rate of 10 kPa for every 1m of groundwater depth above the pipe.	This method can be used when the pipeline is laid at a shallow grade. It is moderately expensive and provides only a pass/fail outcome, without identifying the exact leak location, which limits the ability to plan targeted remediation. Although it does not require confined-space entry, it presents challenges related to water supply and discharge management.
	D-Infiltration testing – Appendix N, Paragraph N5	The test length shall be acceptable where there is no infiltration over a 24-h period. – where a freestanding water table is present at a level of at least 1.5m above the test section, and 150mm above any sideline connections, the absence of infiltration can eliminate the need for any of the previous tests.	This method is only applicable when the pipeline is located below the groundwater table			
	PKS Civil – Air bellow A-Low pressure air testing – Appendix N, Paragraph N2	The cavity created by the bellows seal is calculated as: $V_{bs} = 0.005 \times DN$ (in meters) < 0.02m <sup>3</sup> . The test duration is significantly reduced to 1 minute, with a maximum allowable pressure drop of 15 kPa, regardless of the pipe diameter. See AS/NZS 2033:2024-8.11.3 Low pressure test below.	Air-bellows joint testing is carried out progressively as you go.			

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