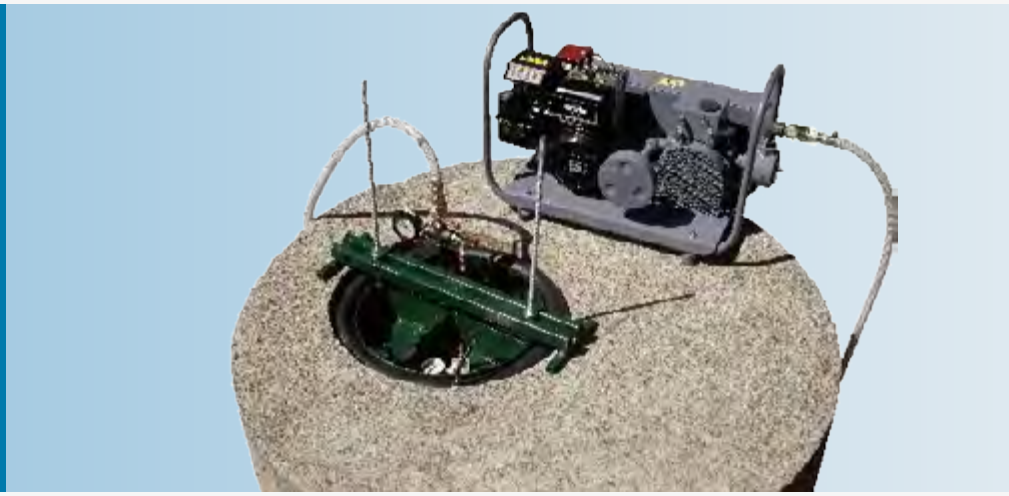
Portable Manhole Vacuum Tester

Quick, easy and accurate vacuum testing



None of the other available methods for testing manhole integrity are as quick, easy, or accurate as vacuum testing.

Vacuum Testing establishes a differential pressure between the inside and outside of the manhole structure by reducing the internal pressure of the manhole. This simulates the same differential condition as having increased pressure on the outside of the manhole which is exactly the condition that you want to ensure it can withstand once it is put into service. As a vacuum is drawn on the manhole each joint is pulled tighter together and the flexible connectors are stretched inward, providing a realistic simulation of external groundwater head pressure. This provides for a far more dynamic test of the structure than a simple water exfiltration test.

If the manhole fails the test, leaks can be easily located by spraying water on the exterior while still drawing a vacuum, and looking for areas that dry quickly on the outside or wet areas inside the manhole. Once the leak is identified, repairs can be made by applying a quick setting patching material.

By making the repair while continuing to draw a vacuum, the patching material is pulled into the wall of the structure creating a far more effective seal.

ADVANTAGES OF VACUUM TESTING

Tests manholes in less than 15 minutes

Instantly finds leaks allowing for quick repair

Draws patching mortar into leaks, making repairs far more effective

Equally tests the entire manhole structure

Ensures compliance with ASTM C1244

Draws joints together during test

PREPARING THE MANHOLE FOR TESTING

Testing should be done prior to backfilling so that leaks can be easily located and repaired.

All lift holes need to be plugged with a non-shrinking mortar.

Plug all pipes entering the manhole, taking care to securely brace the pipes and plugs.

VACUUM TESTING THE MANHOLE

Place the test head in the manhole and inflate the vacuum bladder to 40 psi maximum

Connect the vacuum pump to the outlet port, with the valve open.

Draw a vacuum until the gauge indicates 10 inches Hg., close the valve and turn off the pump.

Begin measuring the time it takes for the gauge to drop from 10 to 9 inches Hg.

The manhole passes if it meets or exceeds the time shown on the chart for the corresponding manhole size.

	Manhole Diameter in Inches								
Manhole Depth in Feet	30	33	36	42	48	54	60	66	72
	Minimum Test Time in Seconds for Each Manhole Depth and Diameter								
8	11	12	14	17	20	23	26	29	33
10	14	15	18	21	25	29	33	36	41
12	17	18	21	25	30	35	39	43	49
14	20	21	25	30	35	41	46	51	57
16	22	24	28	34	40	46	52	58	67
18	25	27	32	38	45	52	59	65	73
20	28	30	35	42	50	53	65	72	81
22	31	33	39	46	55	64	72	79	89
24	33	36	42	51	59	64	78	87	97
26	36	39	46	55	64	75	85	94	105
28	39	42	49	59	69	81	91	101	113
30	42	45	53	63	74	87	98	108	121

This table is taken from ASTM C1244-93 Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test.

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