

Rainwater Harvesting with HDPE Pipe Cisterns

N-12® HDPE pipe cistern systems are a cost-effective solution for the demand of usable water and storm water control. The reuse of rainwater is valuable in areas where water resources are at a premium. Rainwater harvesting takes runoff from lawns, roofs and pavement to collect and store rainwater in underground cisterns.

In combination with Inserta Tee®, fittings and other tap connections, N-12 creates a reclamation solution for any location and layout. In some situations, water reuse is being driven by regulatory requirements and the demand is increasing. The economic and environmental benefits make an ADS rainwater harvesting system an advantageous addition to any development.

Applications

- Storm water storage and reuse
- Residential & commercial run-off control
- Lawn, landscape, turf and garden irrigation

Features

- Durable high-density polyethylene
- Structurally sound to withstand H-20 traffic loading
- Lightweight, easy to install
- Layouts are customizable & expandable
- Unlimited capacity—can be constructed to hold any volume required.

Benefits

- Chemically resistant for a long service life
- Provides water resource management
- Easy installation provides cost-efficiency
- Underground installation supports multiple land uses



HDPE Pipe Cisterns for Rainwater Harvesting

Scope

This specification describes 36"-60" (900-1500 mm) N-12 Rainwater Harvesting Cistern for use in gravity-flow (non-pressure) rainwater harvesting applications.

Material Properties

Cistern shall be constructed of polyethylene pipe material meeting the requirements of ASTM F2306 and AASHTO M294.

Cistern Requirements

36"-60" (900-1500 mm) N-12 Rainwater Harvesting Cistern shall be fabricated from pipe meeting the requirements of ASTM F2306 and AASHTO M294. The inlet and by-pass outlet shall be 4"-12" (100-300 mm) diameter Inserta Tee tap connections as specified and located in the field. Inserta Tee tap connections may only be used at or near the top of the bulkhead to function as an inlet or overflow. For water equalization between multiple cisterns or for installing tap connections below the water storage level, the installer may use a commercially available threaded bulk head tank fitting at the bottom invert of the cistern. Cistern shall have at least one 24" (600 mm) diameter riser for maintenance purposes. Cisterns are available in configurations of 20' (6 m) lengths.

Quality

Cisterns shall be pressure or vacuum tested by the manufacturer prior to shipment to ensure weld quality. Testing report may be available by request prior to order.

Performance Testing

In lieu of an engineer's written specification, the integrity of the N-12 Rainwater Harvesting Cistern may be tested in accordance with ASTM F2487, with the exception that the cistern may not be filled past the invert of the by-pass outlet pipe. A maximum allowable leakage allowance of 0.12 gallons/ft-dia/ft pipe/24-hour may be applied to the cistern in lieu of written specification. Performance not meeting the requirements of this or the engineer's written specifications shall be remedied by the installer or other party. Appropriate safety precautions must be used when field testing any pipe material.

Installation

Installation shall be in accordance with ASTM D2321 and ADS recommended installation guidelines utilizing Class 1 or 2 (ASTM D2321) structural backfill materials. Minimum cover in traffic areas shall be 2' (0.6 m) as measured from top of pipe to top of rigid pavement or to bottom of flexible pavement and utilize a class 1 (ASTM D2321) backfill material. Maximum fill heights shall not exceed 8' (2.4 m). Inserta Tee bulk head tap connection as well as threaded bulk head tank fittings shall be installed by the installer as specified on the plans. For single or multiple parallel cisterns; connection pipes, valve boxes, pumps and accessories, shall be as specified on the plans and supplied by others.

N-12 Rainwater Harvesting Cistern Dimensions and Specifications

Capacity assumes 12" (300 mm) of free board

	Length	Cistern Capacity		
		gal	ft ³	L
36" (900 mm)	20' (6 m)	737	99	2790
42" (1050 mm)	20' (6 m)	1083	145	4100
48" (1200 mm)	20' (6 m)	1489	199	5636
60" (1500 mm)	20' (6 m)	2479	331	9384

