PROVEN TO BE A BETTER SOLUTION FOR ENDWALLS.

In Thousands of Installations, The Hartman Endwall System was faster, safer, easier, and more economical

Interested in saving up to 75% of labor costs and reducing conventional endwall costs by as much as 60%? With the Hartman EndWall System, you can. With over 600 installations, the Hartman EndWall System is a proven, perfect alternative to today's time consuming, back-breaking methods. The lightweight, pre-formed sections are made of highly durable polymer with UV inhibitors, and are safe, attractive and easy to install.

Best of all, the Hartman EndWall System is DOT approved and has been reviewed and OK'd by the FHWA as part of the DOT approval process. Our product meets the standards of most state and township maintenance specs and can be adapted easily to meet any needs for endwall and headwall installations.

HARTMAN PRODUCTS, LP

Order yours today! Call us at 412-968-5774 or visit our website www.hartmanew.com for more information.

Manufacturer Representative and Distributor Territories Available.

HARTMAN EW

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ENDWALL – THE FINISHING TOUCH

With today's NPDES requirements and other regulatory agencies closely monitoring sedimentation at outfalls of drainage pipes, endwalls or headwalls are being required at every inlet and outfall of storm drain pipes.

Compared to traditional endwall solutions, this new design takes less than half of the time to install. Our four pre-formed pieces are as easy to transport as they are to assemble. With a total unit weight of less than 100 pounds, it is lighter and easier to move and there are no special skills or equipment required to install. This results in a cost savings in labor and equipment as well as reduced possibility of worker injury during installation. After positioning on the end of the drain pipe and completion of assembly the wall is filled with your material of choice: sand, gravel, soil, concrete, or reclaimed waste materials such as anti-skid materials or glass. This gives the wall the required weight to hold it in place.

The Hartman Endwall System is a versatile system that can be adjusted to accommodate 12", 15", 18" or 24" pipe with the use of adapters. There is also a 1 foot high sectional piece to adjust the height of the wall for the depth of the pipe. These sectional pieces can also be used along with a lid to create a park bench or stacked to create a small retaining wall behind a fire hydrant or light standard.

Features

- Lightweight and versatile
- Fits 12", 15", 18" and 24" pipe
- Works with HDPE, CMP and RCCP
- Available in three colors

Benefits

- Easily assembled
- Lower installation costs
- Low maintenance
- Reduced possibility of worker injury
- Aesthetically pleasing

Meets ASTM D 7082-04

The HARTMANEW™ System

A PLASTIC S.I.P. FORM FOR ENDWALLS
LIGHTWEIGHT, EASY TO INSTALL

OTHER INSTALLATIONS

Washington County, PA

Hartford County, MD

Rock Creek, Ohio

Woodcock Township, PA

Gulfport, Mississippi

Firestone Golf Course, Ohio

DOT FOREMAN'S ACADEMY

Preparing the Ditch

Shooting Elevations

HartmanEW End Wall with Pipe - 1

HartmanEW End Wall with Pipe - 2

Filling End Wall with Material

End Wall with Backfill Material Behind It

The HartmanEW™ System
Installation Instructions

1. Excavate trench and place pipe as you normally would. NOTE: Proper compaction of material is essential for best results.

1a. FOR RETROFITS ON EXISTING PIPE: Remove old endwall. Excavate around pipe so that the Hartman Endwall can be installed. (6'-0" wide x 2'-0" deep). NOTE: Proper compaction of material is essential for best results.

2. OPTIONAL: Use of adapters may be needed for smaller pipe sizes. If so, slide adapter into base unit, matching male to female plug on the bottom back of the base unit's collar. Attach with 3 galvanized screws at spaces provided on the collar, *before* sliding base unit over the pipe.

3. Slide the base unit of the endwall over the pipe and position it where you want. Attach the base unit to the pipe with 3 galvanized screws in back collar at spaces provided.

4. Fill the base unit with material. NOTE: Leave some room at the top for possible expansion of material due to freezing.

5. OPTIONAL: Place the sectional piece onto the base unit and attach with 4 galvanized screws inside at the 4 corners.

6. Fill the sectional piece with material. NOTE: Concrete should not be used as a fill material in the sectional piece. Leave some room at the top for possible expansion of material due to freezing.

7. Place the cap on and attach with 4 galvanized screws at the corners to secure it. NOTE: High winds can pull the cap off if it is not secured properly.

8. OPTIONAL: Place reflective tape in recessed area on cap. Attach delineator sticks at protruding locations provided on the back corners.

9. Backfill around pipe and the Hartman Endwall. NOTE: Use proper compaction for best results.

10. ENVIRONMENTAL: Put large stone in tail ditch below the pipe and seed all around excavated area to minimize soil erosion.

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April 11, 2003

Formosa Plastics™

Formolene™ LLDPE

Formolene L63550U4

Melt Index – 5.0
Density – 0.935

Linear Low Density Polyethylene
Hexene Copolymer for Rotational Molding

Formolene L63550U4 is a general-purpose rotational molding linear low density resin made using the BP Gas Phase Process™. The resin exhibits excellent ESCR and low temperature impact strength. The resin is also fully UV stabilized.

Formolene L63550U4 meets all requirements of the U.S. Food and Drug Administration as specified in 21 CFR 177.1520, covering safe use of polyolefin articles intended for direct food contact.

Suggested Applications

Toys
Playground Equipment
Agricultural and Chemical Storage Tanks
Medium Tanks
Drums

Nominal Physical Properties

PROPERTY	TEST METHOD	UNIT	VALUE
Density	D1505	g/cc	0.935
Melt Index, Condition E, 190°C/2.16 kg	D1238	g/10 min.	5.0
Flexural Modulus (1.3 mm/min)	D790	psi.	100,000
Tensile Strength at Yield, (50 mm/min)	D638	psi.	2,700
Tensile Elongation at Yield, (50 mm/min)	D638	%	11.8
Heat Deflection Temperature, (66 psi.)	D648	°C	50
Low Temperature Impact*	ARM	ft-lbs.	45
Environmental Stress Crack Resistance, ESCR**, Condition A, F_{50}	D1693		
100% Igepal		hrs	>1,000
10% Igepal		hrs	300

* Tested using 1/8 inch specimen at 40°C
** ESCR values were obtained using compression molded samples

Published 08/04

ISO 9002, ISO 14001 & QS9000
FM 31429, EMS 35710, FM46020*
(*Applies to specific impact copolymers)

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ENDWALL COST COMPARISON

HARTMAN ENDWALL SYSTEM	MATERIALS	LABOR-HRS x	LABOR COSTS =	EQUIPMENT COSTS	TOTAL LABOR & EQUIPMENT	BEST VALUE
FORMED CONCRETE	Base & Lid $425.00 Sand 10.00 TOTAL $435.00 Wood $ 75.00 Concrete 100.00 TOTAL $175.00	1 HOUR 28 HOURS	$37.50 $50.00	0 $25.00	$472.50 $1600.00	↘
PRE-CAST CONCRETE UNITS	Unit $350.00 TOTAL $350.00	2 HOURS	$37.50	2 Hrs x $75 = $150 including operator	$ 575.00	
CONCRETE BLOCK	50 Blocks x $2.00 = $100.00	16 HOURS	$37.50	0	$ 700.00	
FIELD STONE	$0	16 HOURS	$37.50	0	$ 600.00	
RAILROAD TIES	10 Ties x $10.00 = $100.00	16 HOURS	$50.00	$25.00	$ 900.00	
CONCRETE SACKS	25 Sacks x $4.00 = $100.00	16 HOURS	$37.50	0	$ 700.00	
GABION BASKET	Baskets $ 50.00 Stone $ 50.00 $100.00	24 HOURS	$37.50	2 Hrs x $75 = $150.00	$1150.00	