

# DuroMaxx<sup>®</sup> – Steel Reinforced Polyethylene Technology



# Key Performance Advantages

» **Manufactured in accordance with ASTM F2562 and AASHTO MP-20.**

## The Strength of Steel. The Durability of Plastic.

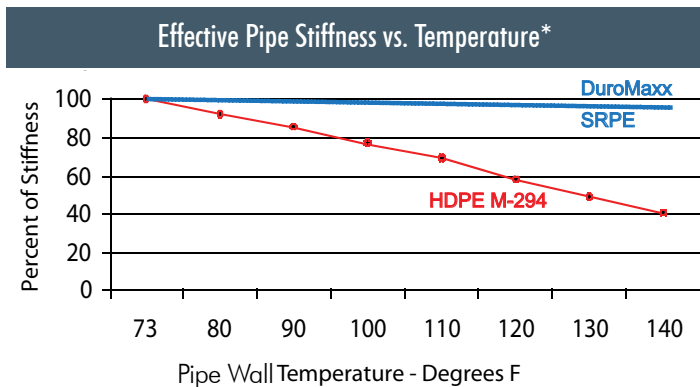
It's the ideal combination of materials that makes DuroMaxx an exceptional pipe. 80 ksi steel reinforcing ribs provide the strength, and pressure rated Polyethylene Resin (PE) provides the durability. This combination of materials results in an extraordinarily strong and durable pipe. DuroMaxx is designed with a smooth inner wall for outstanding hydraulic capacity and provides the properties you can count on for long-term service and performance in the most demanding environments.

## Lifelong Performance

DuroMaxx steel reinforced ribbed profile wall construction will not creep or buckle. The built-in capacity of the high strength steel eliminates concerns that have long plagued profile wall HDPE pipe. Today, it is possible to design with confidence to meet the long-term structural demands of the most difficult **sanitary & storm sewer, reline, irrigation, detention and wastewater** projects.

## Temperature Effects on Strength

All flexible pipes must be designed to have adequate pipe stiffness to resist handling, installation and construction loads and to minimize deflection, ensuring a successful installation. Published pipe stiffness levels are measured at 73°F in a laboratory. The actual or apparent field pipe stiffness due to the effects of sunlight and a modest 80° temperature can produce results that are very different in the field – where it counts. A pipe wall temperature in excess of 110° results in a loss of pipe stiffness greater than 30% for a non-reinforced profile wall polyethylene pipe. Steel reinforced DuroMaxx pipe loses less than 1% of its stiffness under the same conditions because the steel provides the pipe stiffness, not the PE plastic. As a result, DuroMaxx can be twice as stiff as non-steel reinforced HDPE pipe.



\*The information in this graph is an average stiffness loss observed over several diameters of one AASHTO M-294 HDPE profile wall product.

## High Strength Steel & High Performance Pressure Rated Resins

Predictable service life demands predictable material properties. DuroMaxx uses only high quality pressure rated PE resin that provides predictable engineering properties including crack resistance, tensile strength and modulus of elasticity. Hydrostatic Design Basis (HDB) testing verifies and documents important 50 and 100 year design properties that aid the professional engineer when designing piping systems.

Unlike unreinforced plastic pipes which rely fully on time/strain sensitive materials for their structural performance, DuroMaxx's steel reinforcement provides 100% of the load carrying capacity. Therefore the strength of DuroMaxx does not diminish over time, nor is it significantly impacted by elevated summertime temperatures.

## Steel Reinforced Watertight Joints

DuroMaxx's steel reinforced bell and spigot achieves a level of watertight joint performance that sets it apart from conventional pipe products. The DuroMaxx joint is designed to meet, exceed and maintain the highest standards of performance when tested in accordance with ASTM D3212. Tested to 15 psi, DuroMaxx steel reinforced high performance (HP) joints greatly exceed D3212 10.8 psi requirement. For lower performance applications, 3 psi low head (LH) or soil tight (ST) joints are available. Welded coupler (WC) and electrofusion (EF) joints tested to 30 psi are also an option.



# Environmental Benefits

Contech is an environmentally conscious company committed to shaping the future of green building and design. Contech offers a wide range of site solutions that respond to green building and construction needs and can contribute towards LEED® and NAHB green credits. DuroMaxx has the potential to contribute to a variety of LEED credits in the categories for sustainable sites, water efficiency, materials and resources, innovation in design and regional priority. DuroMaxx consumes 35% less of the natural resources required to produce AASHTO M-294 pipe. The steel reinforcing ribs in the profile wall that provide the structural integrity for the pipe are made out of steel with recycled content levels ranging from 55-80%.

## Savings

**High flow rates** are achieved with a smooth polyethylene waterway wall for optimal savings. Target flow rates can be assured with DuroMaxx by contacting your local Contech sales engineer for the appropriate information. Manning's "n" values will range between 0.011 to 0.013, depending on velocity and flow rate.

DuroMaxx pipe is lightweight and can be easily handled and quickly installed, often eliminating the need to use heavy construction equipment. The outside diameter (OD) of DuroMaxx is smaller than other conventional pipe materials, resulting in less trench excavation. As the two main cost drivers to install water conveyance products are manpower and machinery, DuroMaxx provides the opportunity to save in both, resulting in less overall spending. The longer lengths and easy joint assembly are just some of the DuroMaxx installation advantages. DuroMaxx should be installed in accordance with nationally accepted ASTM D2321 installation practices. Contact your local Contech representative for the DuroMaxx Installation Guide.

## Fittings

DuroMaxx pipe is available with a full range of fabricated fittings such as elbows, tees, wyes, slope junctions and reducers. Both standard and custom fittings can be readily fabricated, which can result in fewer concrete structures and lower project costs.

## Sizes

Available in diameters from 30 to 120 inches and manufactured in standard lengths of 14 or 24 feet with bell and spigot joints, DuroMaxx has fewer joints to assemble on site, resulting in faster installation rates for the contractor. If your project requires custom lengths, contact your Contech representative for details and availability.

Pipe Dimensions & Handling Weights						
Nom. Pipe Dia.(in)	Pipe OD (in)	Pipe ID (in)	Bell OD (in)	Min. Cover (ft)	Max. Cover (ft)	Approx. Weight (lbs/ft)
30	30.9	29.5	34.0	1.0	50	18.8
36	37.1	35.4	39.9	1.0	50	23.6
42	43.2	41.3	45.8	1.0	50	27.0
48	49.5	47.2	52.3	1.0	30	30.8
54	55.5	53.2	58.2	1.0	30	36.1
60	61.4	59.1	64.1	1.0	30	42.9
66	67.8	65.0	71.6*	1.5	30	56.9
72	73.7	70.9	77.6	1.5	30	65.6
84	85.9	82.7	88.9*	2.0	30	76.3
96	97.8	94.5	NA**	2.0	30	87.0
108	111.3	108	NA**	2.5	25	99.7
120	121.9	118.1	NA**	3.0	25	109.0

\* Low head (LH) joints only.  
 \*\* Currently available with welded coupler (WC) and electrofusion (EF) joints or plain ended with or without soil tight (ST) joints.

## About LEED

A third party certification program, U.S. Green Building Council's LEED (Leadership in Energy and Environmental Design) Green Building Rating System™ is based on points and evaluates the overall performance of a green building project by assessing each of the materials and systems used in aggregate.



# Sanitary Sewer Conveyance & Yard Piping

Large diameter sanitary sewer projects can be tough to deal with for many agencies. These long interceptors or trunk lines can run for miles, from manhole to manhole, eating away at an already constrained budget. Much of the costs can be contributed to installation realities for large quantities of very large diameters. These costs can include:

- Freight and number of trucks needed
- Number of picks and weight of those picks
- Number of joints and procedure to meet watertight standard
- Other material costs

DuroMaxx provides real answers that help make the agency's and engineer's job easier. Outstanding performance and value are clearly evident when comparing DuroMaxx to a wide variety of other products such as RCP, HDPE, Polypropylene, PVC and fiberglass pipe.

## Benefits

- Large diameters up to 120'.
- Predictable, high strength for deep covers, shape and deflection control.
- Joint tightness that meets initial testing requirements and long-term infiltration/exfiltration needs.
- Resistant to corrosive effluent.
- Smooth inner walls allow for minimum slope designs and longer runs.
- Lightweight for installation efficiency



Shelley, Idaho  
14 miles installed up  
to 48" diameter

DuroMaxx  
Sanitary System





Barker Ranch,  
Washington  
3 miles  
54" & 60" diameter

DuroMaxx  
Irrigation System

## Irrigation Applications

Agriculture and irrigation agencies are in need of more dependable and cost effective solutions to conserve their most valuable resource, water. Many are enclosing ditches and canals with pipe conveyance systems in remote areas of the country. These projects can be challenging to any engineer or project manager, especially when hydraulic parameters require larger diameter pipe sizes. DuroMaxx has proven solutions to these problems.

## Benefits

- HDB pressure rated PE resins provide superior corrosion resistance.
- A variety of joint configurations and joint tightness levels are available to meet your specific project needs. See page 2 for more details.
- Installation cost advantages important for remote locations.
- Versatile fabrication supports unique fittings and components.
- Excels in short and long-term cost analysis for irrigation applications.



### 100-Year Gravity Flow Capabilities 50-Year Pressurized Service Period

Diameters (in)	9 Months	Continuous (50 years)
30-42	9.5 psi	6.75 psi
48-60	12.0 psi	8.5 psi
66-120	15.0 psi*	15.0 psi

\* The use of welded coupler (WC) and eletrofusion (EF) joints may allow for higher pressure.

# Storm Sewer/Culvert Direct Bury & Reline Applications

DuroMaxx drainage pipe is ideally suited for the collection and removal of stormwater from highway, urban, industrial and residential projects. Its unique combination of steel reinforcement and pressure rated PE resin allows it to perform like no other drainage pipe on the market.

## Benefits

- 80 ksi high strength steel provides maximum load carrying capabilities with allowable cover limits ranging from 30 to 50 feet.
- High strength steel provides exceptional shape and deflection control even on warm, sunny days where typical corrugated HDPE drainage pipes fall short.
- Pressure rated PE resin provides unmatched durability.
- Abrasion and chemical resistance is unaffected by water pH levels unlike reinforced concrete pipe, where abrasion resistance varies with water pH levels.
- Available with soil tight, 3 psi low head, steel reinforced 15 psi high performance and welded coupler joint options. If your project requires extreme joint tightness for the life of the system, then rely on DuroMaxx's steel reinforced high performance or welded coupler joints.
- While DuroMaxx may not be the least expensive storm sewer pipe on the market, it outperforms when other products fall short. Long-term, DuroMaxx's outstanding performance and durability generate value.
- The efficient wall profile makes DuroMaxx ideally suited for relining of deteriorating culverts.



Albuquerque, New Mexico  
2,400 lf  
96" diameter

DuroMaxx  
Storm Sewer System



Monticello, Indiana  
395,000 gal. storage  
96", 84" & 72"  
diameters

DuroMaxx  
CSO System

# Tank Applications

## Detention/Rainwater Harvesting/Combined Sewer Overflow

Detention systems are used to regulate stormwater flow through main pipelines by acting as a buffer during peak loads. DuroMaxx systems are designed to contain the water and slowly release it into the main system over a period of time. These systems are often custom made to watertight specifications in order to suit the project requirements.

DuroMaxx detention systems can incorporate a wide range of fittings such as bends, risers, bulk headed ends and inlet/outlet pipes. The systems can be custom manufactured to individual lengths in sizes and configurations that can be economically transported and assembled on site.

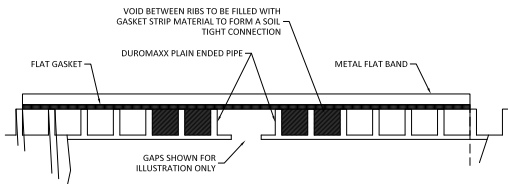
## Benefits

- Utilizing larger diameters whenever possible reduces storage cost per gallon. DuroMaxx is available up to 120 inches.
- Steel reinforcing results in smaller outside diameter dimensions when compared to corrugated HDPE pipe or reinforced concrete pipe. When maximum diameter selection is limited by minimal cover, DuroMaxx can typically be upsized by 6 inches or more, resulting in reduced overall water storage cost.
- Reinforced steel fittings create a stronger and more reliable system when compared to non-reinforced HDPE pipe materials.
- Available with perforations for retention and recharge applications.
- A variety of joint configurations and joint tightness levels are available to meet your specific project needs. See page 2 for more details.

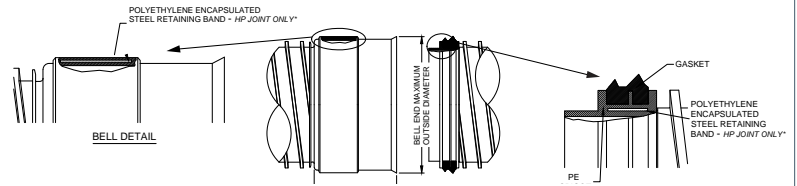


# THE DESIGN BEHIND THE PERFORMANCE

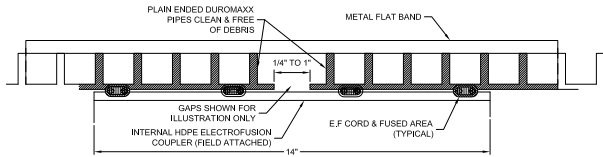
## Soil Tight (ST) Joint Detail



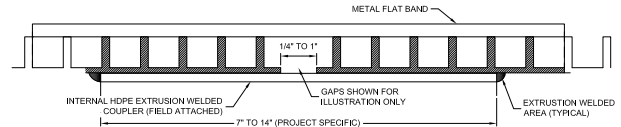
## High Performance (HP) and Low Head (LH) Joint Details



## Electrofusion (EF) Joint Detail



## Welded Coupler (WC) Joint Detail



Contech Engineered Solutions provides site solutions for the civil engineering industry. Contech's portfolio includes bridges, drainage, retaining walls, sanitary sewer, stormwater, erosion control, soil stabilization and wastewater treatment products.

**For more information, call one of Contech's Regional Offices located in the following cities:**

<b>Ohio (Corporate Office)</b>	<b>513-645-7000</b>
Colorado (Denver)	720-587-2700
Florida (Orlando)	321-348-3520
Maine (Scarborough)	207-885-9830
Maryland (Baltimore)	410-740-8490
Oregon (Portland)	503-258-3180
Texas (Dallas)	972-590-2000

Visit our web site: [www.ContechES.com](http://www.ContechES.com)  
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