



Materials

The material requirements for PE conduit shall be classified in accordance with ASTM Standard D 3350 “Standard Specification for Polyethylene Plastic Pipe and Fittings Materials”. ASTM D 3350 defines important physical properties of HDPE materials into ranges, or cell classes, so that each property can be defined within a range that is appropriate for the application. For HDPE conduit according to ASTM F 2160, the High Density Polyethylene material is defined as noted below:

Property	Range or Minimum Requirement	Units	Cell Class	Test Method
Density	0.941-0.955	g/cc	3	ASTM D 792 or 1505
Melt Index ^a	<0.25-0.40	g/10 minutes	3or4	ASTM D 1238
Flexural Modulus	110,000-160,000	Psi	4or5	ASTM D 790
Tensile Strength	3000-4000	Psi	4or5	ASTM D 638
Environmental Stress Crack Resistance ^b	F20>192	Hours (condition C)	3or4	ASTM D 1693
HDB	Not Defined		0,1,2,3,or 4	ASTM D2837

^a A melt index of up to 0.55 g/10 minutes is allowable provided that all other material requirements are met.

^b A ESCR, condition B, 10% Igepal of F10 >96 hours is allowable provided that all other material requirements are met.

Print line

The duct product shall be sequentially marked and identified along its outer length in contrasting color. The print interval shall be every two feet and shall include the following:

MANUFACTURER'S NAME: United Poly Systems

PRODUCT SIZE/SDR

PRODUCTION CODE (Date, Location, Period)

SPECIFICATION

LENGTH OF CONDUIT (in feet) on reel

Optional custom print lines are available and may include customer name, project name, application etc.

Minimum Order Quantities

Minimum order quantities are as follows:

<i>Size (in)</i>	<i>Color</i>	<i>Minimum (ft)</i>
¾"	Any	2500
1"	Any	2500
1 ¼"	Orange or Black	2000
1 ¼"	Other	3000
1 ½"	Orange or Black	1500
1 ½"	Other	2500
2"	Orange or Black	1000
2"	Other	2000
2 ½"	Orange or Black	2500
2 ½"	Other	5000
3"	Orange or Black	1000
3"	Other	2000
4"	Orange or Black	500
4"	Other	750
	Ducts larger than 4" diameter offered in black or w/stripes only	
5"		1000
6"		900
8"		560
10"		560
12"		480
14"		560
16"		480

Reel Dimensions

Standard dimensions for United Poly Systems reels are as follows:

All reels come in a standard 48" width unless otherwise requested by customer. Standard common reel diameters are 48", 66", 72", 83", 96", 102", 114" and 120".

Segmented reels are also available in 2-way, 3-way or 4-way configurations. United Poly Systems does not currently parallel wrap duct.

$\frac{3}{4}$ " and 1" size ducts are wrapped to a preferred diameter reel size of 48", 66" or 72".

6" duct is offered on 450' 120" reels or in coils of 500'

United Poly Systems will not coil 4" schedule 40 HDPE pipe due to the potential for compromise of product integrity.

Options

- Straight longitudinal internal ribbing is available for all pipes 2" and below.
- Optional custom print lines are available and may include customer name, project name, application, lightning bolt etc.
- Pull tape is offered in a number of tensile strengths. United Poly Systems standard pull tape is an 1130# strength, while other options include strengths from 200# to 2500#.
- Segmented reels are available in 2-way, 3-way or 4-way configurations. United Poly Systems does not currently parallel wrap duct.
- A number of colors and stripes are offered to customize the product to the customer's needs. United Poly Systems offers orange, blue, black, red, gray, white, green, yellow, terracotta, violet, brown, lilac, and custom colors upon customer's request.



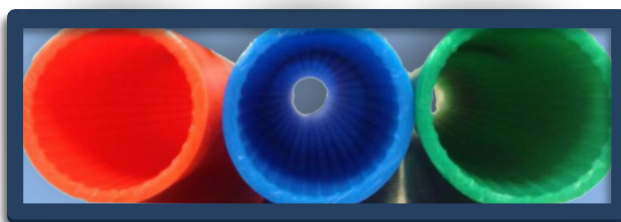
Custom colors available upon request

Coil Sizes

Standard coil lengths are as follows:

<i>Size (in)</i>	<i>Standard Coil Footages (ft)</i>	<i>Quantity per pallet</i>	<i>Coil ID(in)</i>	<i>Coil Width (in)</i>
¾"	500 - 1000	8	30	10 - 20
1"	500 - 1000	7 - 5	30	11 - 20
1 ¼"	500 - 1000	5 - 3	30	16 - 29.5
1 ½"	500 - 1000	8 - 6	51 - 51	13.5 - 16
2"	500 - 1000 - 1500 - 2000	7 - 4 - 3 - 3	51 - 51 - 51 - 51	14 - 22.5 - 28 - 32
3"	500 - 1000	4 - 2	69.5 - 69.5	23.5 - 45
4"	500 - 600 - 800	3 - 2 - 2 - 2	69.5 - 70 - 69.5	31 - 48 - 49
5"	500	2	84	50
6"	450	2	84	50

Internal Ribbing



United Poly Systems is proud to offer HDPE duct with longitudinal internal ribbing for ¾" to 2" diameters. Ribbed duct offers a way to maximize the distance cable may be pulled and jetted into conduit. The internal ribs help to reduce the coefficient of friction within that particular pipe. Air may flow more readily around the cable and contact with the wall of the duct is reduced thereby reducing friction and simplifying installation. Inside ribbed duct is available up to 6' diameter conduit. Ribbed conduit is offered on segmented reels with or without any of our pre-installed pull tape options and can be manufactured in any solid color or striping.



Custom colors available upon request

Notes

– Ovality of 2 inch and smaller conduit shall not exceed 7% off the coil. Coiled conduit larger than 2 inch through 3 inch IPS shall not exceed 10%. Ovality in coiled 4 inch and greater diameter conduit and casing is largely a packaging condition where greater than 15% ovality shall be corrected in

the field by processing the roundable conduit through re-rounding and straightening equipment during installation. Straight lengths of conduit shall have ovality of 5% or less.

PPI. *HDPE Solid Wall Conduit Model Specification Power and Communications Conduit and Casing*. Tech. no. MS-5. 2008.

– HDPE conduit will ovalize when it is coiled, and after a period of time, will set into the coiled state. A residual curve is normal for all coiled HDPE duct products. Since larger duct is coiled into a relatively tighter bending radius, residual curvature and ovality is greater for larger diameters. Some couplers may be affected by ovalized duct, along with installations where cable-fill ratios reach near capacity, or where larger diameter cables are being placed. Residual curvature and ovality may be corrected in the field by running the entire coil through rerounding and straightening equipment during installation.

– **Schedule 40 HDPE conduit through 3” has a wall thickness greater than SDR 15.5. Schedule 40 HDPE conduits in diameters above 3” and Schedule 80 in 6” have wall thickness ranges that are less than SDR 15.5. United Poly Systems will not offer these sizes in continuous coils to preserve pipe integrity and limit ovality.**

– “All HDPE pipes produced under ASTM D3035, F714, D2447, D2239 and D2737 specifications are suitable for the transport of liquids, including water, fluid chemicals, effluents, municipal sewage, etc. The user should consult with the HDPE pipe manufacturer to determine whether the composition of the liquid material being transported is compatible with polyethylene pipe so as not to affect the service life below limits acceptable to the user.”

PPI. *Resistance of Solid Wall Polyethylene Pipe to a Sanitary Sewage Environment*. Tech. no. 15. 2009.

➤ **Pressure Rating (psig) Comparison Between PE 4710 and PE 3408
for Water Applications**

	DR 9	DR 11	DR 13.5	DR 17
PE 4710	252	202	161	126
PE 3408	200	160	128	100

➤ **RECOMMENDED COLOR CODE**

This color code is only intended for solid wall pipe used outside of buildings

Color or Stripe Color	Solid Wall Piping Application
Red	Electric power lines, cable, conduit, and lighting cables
Orange	Telecommunication, alarm or signal lines, cables, or conduit
Yellow	Fuel gas (methane or propane), oil, petroleum, steam, or gaseous materials
Green	Sewers and drain lines
Blue	Potable water
Violet(Purple)	Reclaimed water, irrigation, and slurry lines

The recommended color code provided in this document is consistent with the American Public Works Association (APWA) Uniform Color Code.