

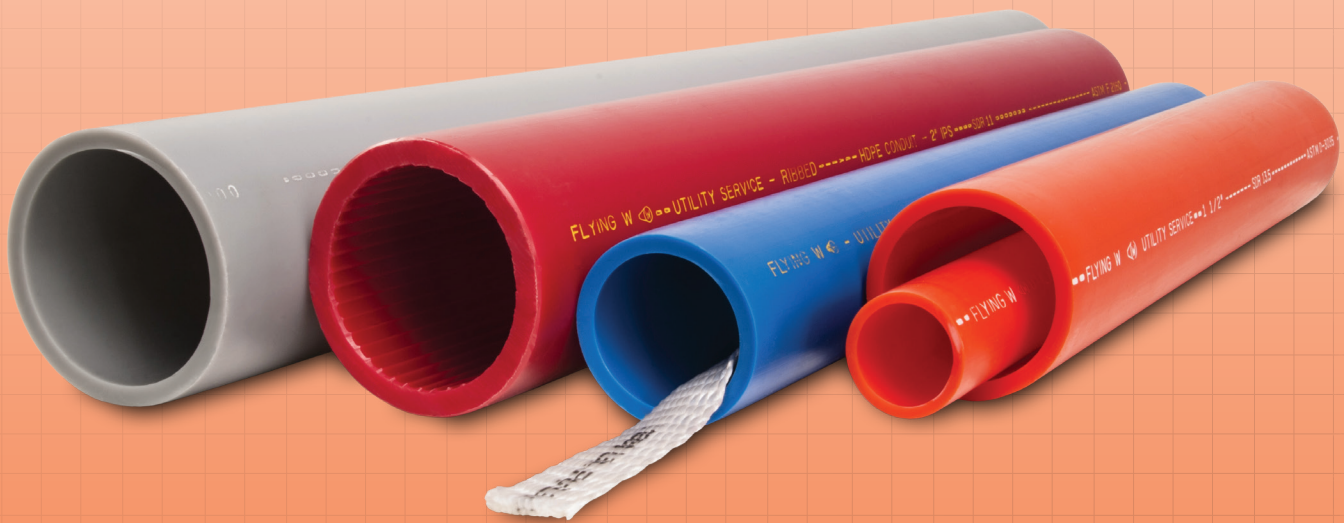


YOUR CONDUIT CONNECTION

Flying W Plastics, Inc.

High-Density Polyethylene Utility Service Conduit

PRODUCT SPECIFICATIONS

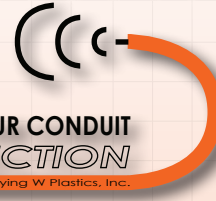


Electrical Duct • Telephone Duct
Television Cable Duct



PLASTICS, INC.
www.flyingwplastics.com

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OVERVIEW

Flying W Plastics manufactures Utility Service Conduit from High-Density Polyethylene in accordance with the specifications of ASTM F-2160 and/or NEMA TC 7. Other dimensional requirements may be acceptable upon request.

Utility Service Conduit offers excellent characteristics that make it ideal for conduit, including:

- *High strength to endure heavy external loads.*
- *Its flexibility, toughness, lightness and impact-resistance help lower installation cost.*
- *Resists corrosive chemicals and aggressive soils.*
- *Long-term strength for increased life and performance.*
- *Moisture-proof and water-tight.*
- *Coils provide for fewer joints and lower installation costs.*
- *Does not support biological growth.*
- *Available in several colors or stripes.*
- *Can be manufactured with pre-installed pull tape in various tensile strengths.*

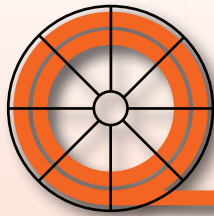
To decrease costly shoring and hazardous working conditions, the duct can be assembled above the ditch, plowed in, buried in open ditches or pulled through existing conduit.

Utility Service Conduit shall be joined by either heat-fusion or mechanical fittings. Flying W Plastics offers Utility Service Conduit in various sizes and wall thickness, some of which are covered in the charts on the following pages. The duct may be ordered in continuous coils, with or without steel reels, or produced in straight lengths up to 50 feet.

Flying W Plastics stocks a vast supply of Utility Service Conduit to meet most applications. Special orders are also accepted, with one of the quickest turn-arounds in the business. We have our own truck fleet and ship anywhere in the continental United States. Less-than-truckload orders are shipped on common carriers that offer cost-effective and timely service. Hot Shot services for quick delivery needs are also available.

The physical properties of Utility Service Conduit are covered on page 6. For more information, contact us for a distributor in your area, or visit us on the web at flyingwplastics.com.





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CONNECTION**
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PRODUCT SPECS

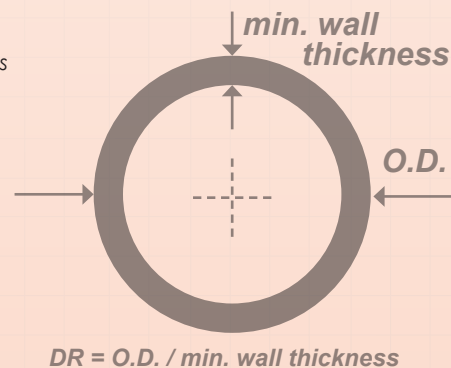
Reeled/Coiled HDPE Utility Service Conduit

The following table represents the specifications of ASTM F-2160 and NEMA TC-7 for O.D. controlled conduit sizes 1"-6" that are available in reels or coils.

	Wall	Nominal	Nominal	Minimum	Nominal	Standard	Standard	Steel Reel
<u>Sizes</u>	<u>Thickness</u>	<u>O.D.</u>	<u>I.D.</u>	<u>in. Wall</u>	<u>lbs/ft</u>	<u>Coil/Reel</u>	<u>Truck</u>	<u>Size FxTxD*</u>
1"	DR 9	1.315"	1.00"	.146"	0.23	500'	117000'	Coils
	DR 11	1.315"	1.07"	.120"	0.20	5000'	80000'	70x38x30
	DR 13.5	1.315"	1.12"	.097"	0.17	8000'	96000'	84x43x36
1 ¼"	DR 9	1.660"	1.26"	.184"	0.37	500'	78000'	Coils
	DR 11	1.660"	1.34"	.151"	0.31	2000'	32000'	70x28x30
	DR 13.5	1.660"	1.39"	.123"	0.26	5000'	70000'	84x42x36
	DR 15.5	1.660"	1.44"	.107"	0.23	8000'	96000'	96x45x36
1 ½"	DR 9	1.900"	1.45"	.211"	0.49	500'	36000'	Coils
	DR 11	1.900"	1.53"	.173"	0.41	4000'	56000'	84x42x36
	DR 13.5	1.900"	1.60"	.141"	0.34	6000'	72000'	96x45x36
2"	DR 9	2.375"	1.81"	.264"	0.76	500'	24500'	Coils
	DR 11	2.375"	1.91"	.216"	0.64	1000'	18000'	70x42x36
	DR 13.5	2.375"	2.00"	.176"	0.53	2500'	35000'	84x42x36
	DR 15.5	2.375"	2.04"	.153"	0.47	3000'	36000'	96x38x36
	DR 17	2.375"	2.07"	.140"	0.43	4000'	48000'	96x45x36
2 ½"	DR 11	2.875"	2.32"	.261"	0.94	1500'	18000'	96x38x55
	DR 13.5	2.875"	2.42"	.213"	0.78			
3"	DR 11	3.500"	2.86"	.318"	1.39	500'	12000'	Coils
	DR 13.5	3.500"	2.98"	.259"	1.15	1000'	12000'	96x45x70
	DR 15.5	3.500"	3.04"	.226"	1.02	1250'	15000'	96x45x55
4"	DR 9	4.500"	3.50"	.500"	2.77	500'	6000'	Coils
	DR 11	4.500"	3.68"	.409"	2.29	550'	6600'	
	DR 13.5	4.500"	3.83"	.333"	1.90	750'	9000'	
	DR 15.5	4.500"	3.92"	.290"	1.68			
5"	DR 11	5.563"	4.55"	.506"	3.50	500'	4000'	114x45x80
	DR 13.5	5.563"	4.73"	.412"	2.91	500'		
6" **	DR 11	6.625"	5.42"	.602"	4.97	450'	3600'	120x45x84
	DR 13.5	6.625"	5.64"	.491"	4.13	450'		

* Flange x Internal Traverse x Drum (in inches)

** Coiled duct truckloads may require special state permits
Other reel and coil sizes are available upon request





PRODUCT SPECS

I.D. Controlled (IDR) HDPE Utility Service Conduit

The following table represents the dimensional specifications of ASTM D-2239, and ASTM F-2160 for I.D.

Sizes	Wall Thickness	Nominal O.D.	Nominal I.D.	Minimum in. Wall	Nominal lbs/ft	Standard Coil Reel Lengths	Standard Truck	Steel Reel Size FxTxD*
1"	IDR 11.5 IDR 15	1.231" 1.189"	1.049" 1.049"	.091" .070"	0.15 0.11	5000' 8000'	80000' 96000'	70x38x30 84x43x36
1 1/4"	IDR 9 IDR 11.5	1.690" 1.627"	1.380" 1.380"	.153" .120"	0.33 0.25	5000' 8000'	70000' 96000'	84x42x36 96x43x30
1 1/2"	IDR 11.5 IDR 15	1.890" 1.825"	1.610" 1.610"	.140" .107"	0.34 0.26	4000' 6000'	56000' 72000'	84x42x36 96x45x36
2"	IDR 11.5	2.427"	2.067"	.180"	0.56	2500'	35000'	84x42x36
4"	IDR 11.5	4.750"	4.026"	.350"	2.12	500' 700'	6000' 8400'	96x45x70 102x45x70

* Flange x Internal Traverse x Drum (in inches)

Ribbed HDPE Utility Service Conduit

Our Ribbed HDPE Utility Service Conduit is manufactured to specifications of ASTM F2160. It has a lower coefficient of friction when compared to smooth duct, and is available in a wide variety of colors, stripes and sizes.

Sizes	Wall Thickness	Nominal O.D.	Nominal I.D.	Minimum in. Wall	Nominal lbs/ft	Standard Coil Reel Lengths	Standard Truck	Steel Reel Size FxTxD*
1"	DR 13.5	1.315"	1.11"	.097"	.17	5000'	80000'	70x38x30
1 1/4"	DR 13.5	1.660"	1.41"	.123"	.26	5000'	70000'	84x42x36
1 1/2"	DR 13.5	1.900"	1.61"	.141"	.34	4000'	56000'	84x42x36
2"	DR 13.5	2.375"	2.02"	.176"	.53	2500'	35000'	84x42x36
3"	DR 13.5	3.500"	2.97"	.259"	1.15	1000'	12000'	96x38x55
4"	DR 13.5	4.500"	3.82"	.333"	1.90	550'	6600'	96x45x70

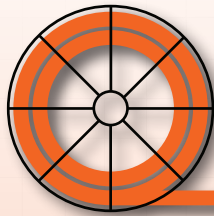
NOTE: also available in DR 9 & DR 11

* Flange x Internal Traverse x Drum (in inches)

HDPE Larger-Diameter Conduit

Larger-diameter conduit is available in 20-, 40- and 50-foot lengths in DR 9, 11, 13.5 and 17. These products meet ASTM F 2160 specifications.

Sizes	DR 9				DR 11			DR 13.5			DR 17		
	Nom. O.D.	Min. Wall	Avg. I.D.	Weight (lbs/ft)	Min. Wall	Avg. I.D.	Weight (lbs/ft)	Min. Wall	Avg. I.D.	Weight (lbs/ft)	Min. Wall	Avg. I.D.	Weight (lbs/ft)
4"	4.500	0.500	3.44	2.74	0.409	3.63	2.29	0.333	3.79	1.91	0.265	3.93	1.54
5"	5.563	0.618	4.25	4.18	0.506	4.49	3.51	0.412	4.68	2.91	0.327	4.86	2.35
6"	6.625	0.736	5.06	5.93	0.602	5.34	4.97	0.491	5.58	4.13	0.390	5.79	3.34
8"	8.625	0.958	6.59	10.05	0.784	6.96	8.43	0.639	7.27	7.00	0.507	7.54	5.66
10"	10.750	1.194	8.21	15.62	0.977	8.67	13.09	0.796	9.06	10.88	0.632	9.40	8.79
12"	12.750	1.417	9.74	21.97	1.159	10.29	18.41	0.944	10.74	15.30	0.750	11.16	12.36
14"	14.000	1.556	10.70	26.49	1.273	11.30	22.20	1.037	11.80	18.45	0.824	12.25	14.90
16"	16.00	1.778	12.23	34.60	1.455	12.91	28.99	1.185	13.48	24.09	0.941	14.00	19.49
18"	18.00	2.000	13.76	43.79	1.636	14.53	36.70	1.333	15.17	30.49	1.059	15.75	24.64



PRODUCT SPECS

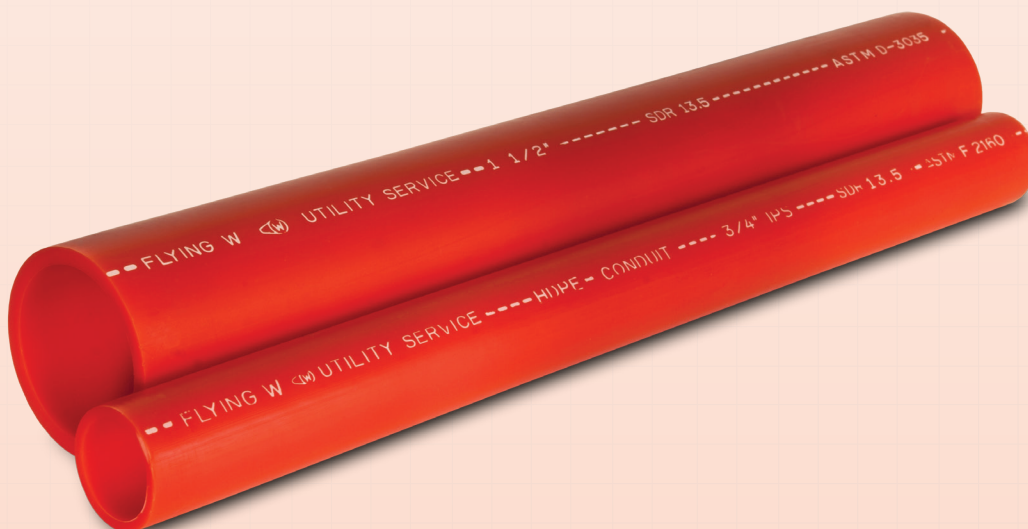
Schedule 40 & Schedule 80 HDPE Conduit

The following table represents the specifications of ASTM F-2160 for O.D. controlled.

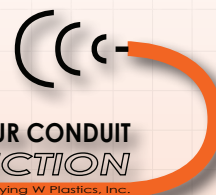
Sizes	Wall Thickness	Nominal O.D.	Nominal I.D.	Minimum in. Wall	Nominal lbs/ft	Standard Coil Reel Lengths	Standard Truck	Steel Reel Size FxTxD*
1"	SCH 40 SCH 80	1.315" 1.315"	1.04" 0.95"	.133" .179"	0.22 0.28	5000' 8000'	80000' 96000'	70x38x30 84x43x36
1 1/4"	SCH 40 SCH 80	1.660" 1.660"	1.38" 1.27"	.140" .191"	0.29 0.39	5000' 8000'	70000' 96000'	84x42x36 96x43x30
1 1/2"	SCH 40 SCH 80	1.900" 1.900"	1.61" 1.50"	.145" .200"	0.35 0.47	4000' 6000'	56000' 72000'	84x42x36 96x45x36
2"	SCH 40 SCH 80	2.375" 2.375"	2.06" 1.93"	.154" .218"	0.47 0.64	2500' 4000'	35000' 48000'	84x42x36 96x45x36
2 1/2"	SCH 40 SCH 80	2.875" 2.875"	2.46" 2.32"	.203" .276"	0.75 0.99	1500'	18000'	96x38x55
3"	SCH 40 SCH 80	3.500" 3.500"	3.06" 2.90"	.216" .300"	0.98 1.32	1000' 1250'	12000' 15000'	96x38x55 96x45x55
4"	SCH 40 SCH 80	4.500" 4.500"	4.02" 3.82"	.237" .337"	1.39 1.92	20' & 40' 550'	16240' 6600'	Sticks Only 96x45x70
5"	SCH 40 SCH 80	5.563" 5.563"	5.04" 4.81"	.258" .375"	1.89 2.69	20' & 40'	12160'	Sticks Only
6"	SCH 40 SCH 80	6.625" 6.625"	6.03" 5.70"	.280" .432"	2.44 3.67	20' & 40'	7280'	Sticks Only
8"	SCH 40	8.625"	7.94"	.322"	3.68	40' & 50'	4480'	Sticks Only
10"	SCH 40	10.75"	9.97"	.365"	5.21	40' & 50'	2880'	Sticks Only
12"	SCH 40	12.75"	11.89"	.406"	6.90	40' & 50'	2240'	Sticks Only

* Flange x Internal Traverse x Drum (in inches)

Other reel and coil sizes available upon request. Contact us for more information.



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PRODUCT SPECS

ELT Listed to UL 651A HDPE Electrical Conduit

Manufactured to specifications of ASTM F2160 and NEMA TC-7. Available in 1-6" sizes and in SCH 40, SCH 80 and DR 13.5 (EPEC-B).

Sizes	Wall Thickness	Nominal O.D.	Nominal I.D.	Minimum in. Wall	Nominal lbs/ft	Standard Coil Reel Lengths	Standard Truck	Steel Reel Size FxTxD*
1"	SCH 40 SCH 80 DR 13.5	1.315" 1.315" 1.315"	1.04" 0.95" 1.12"	.133" .179" .097"	0.22 0.28 0.17	5000' 8000' 8000'	80000' 96000' 96000'	70x38x30 84x43x36 84x43x36
1 1/4"	SCH 40 SCH 80 DR 13.5	1.660" 1.660" 1.660"	1.38" 1.27" 1.39"	.140" .191" .123"	0.29 0.39 0.26	5000' 8000' 5000'	70000' 96000' 70000'	84x42x36 96x43x30 84x42x36
1 1/2"	SCH 40 SCH 80 DR 13.5	1.900" 1.900" 1.900"	1.61" 1.50" 1.60"	.145" .200" .141"	0.35 0.47 0.34	4000' 6000' 6000'	56000' 72000' 72000'	84x42x36 96x45x36 96x45x36
2"	SCH 40 SCH 80 DR 13.5	2.375" 2.375" 2.375"	2.06" 1.93" 2.00"	.154" .218" .176"	0.47 0.64 0.53	2500' 4000' 2500'	35000' 48000' 35000'	84x42x36 96x45x36 84x42x36
2 1/2"	SCH 40 SCH 80 DR 13.5	2.875" 2.875" 2.875"	2.46" 2.32" 2.42"	.203" .276" .213"	0.75 0.99 0.78	1500'	18000'	96x38x55
3"	SCH 40 SCH 80 DR 13.5	3.500" 3.500" 3.500"	3.06" 2.90" 2.98"	.216" .300" .259"	0.98 1.32 1.15	1000' 1250' 1000'	12000' 15000' 12000'	96x38x55 96x45x55 96x45x70
4"	SCH 40 SCH 80 DR 13.5	4.500" 4.500" 4.500"	4.02" 3.82" 3.83"	.237" .337" .333"	1.39 1.92 1.90	20' & 40' 550' 550'	16240' 6600' 6600'	Sticks Only 96x45x70 96x45x70
5"	SCH 40 SCH 80 DR 13.5	5.563" 5.563" 5.563"	5.04" 4.81" 4.73"	.258" .375" .412"	1.89 2.69 2.91	20' & 40' 20' & 40' 500'	12160' 12160' 4000'	Sticks Only Sticks Only 114x45x80
6" **	SCH 40 SCH 80 DR 13.5	6.625" 6.625" 6.625"	6.03" 5.70" 5.64"	.280" .432" .491"	2.44 3.67 4.13	20' & 40' 20' & 40' 450'	7280' 7280' 3600'	Sticks Only Sticks Only 120x45x84

* Flange x Internal Traverse x Drum (in inches)

** Coiled duct truckloads may require special state permits
Other reel and coil sizes are available upon request





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CONNECTION**
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PROPERTIES & TECHNICAL INFO

Utility Service Conduit

Flying W Plastics certifies the above product to be manufactured from select high-density polyethylene copolymers (see typical properties below) and meet specifications set forth in ASTM D-3350, ASTM F-2160, and NEMA TC-7. The high-density polyethylene copolymers are selected specifically for use in telecommunications, electrical/power or telephone ducting applications, while keeping in mind the required properties to balance stiffness, ESCR and molecular weight to provide toughness and crush strength.

<u>Typical Properties</u> ⁽¹⁾	<u>English</u>	<u>SI Units</u>	<u>ASTM Method</u>
Density	-	0.948 g/cc	D 4883
Melt Index ²	-	0.22 g/10 min	D 1238
Tensile Strength			
@ Yield (2 in/min)	3400 psi	23.4 MPa	D 638
@ Break (2 in/min)	4500 psi	31.0 MPa	D 638
Elongation @ Break (2 in/min)	>800%	>800%	D 638
Flexural Modulus ³	130,000 psi	897 MPa	D 790
Hardness (Shore D)	68	68	D 2240
Deflection Temperature @ 66 psi	156 °F	69 °C	D 648
Brittleness Temperature	<-180 °F	<-118 °C	D 746
OIT @ 200 °C	>20 min.	>20 min.	D3895 Modified ⁴
Environmental Stress Crack Resistance ⁵	>96 hrs	>96 hrs	D 1693
Environmental Stress Crack Resistance ⁶	>192 hrs	>192 hrs	D 1693
Cell Classification	*335430E	*335430E	D 3350
* classification for colored conduit	†335430C	†335430C	D 3350
† classification for black conduit (with a minimum of 2% carbon black)			
UV Protection	Minimum 1 year outside storage on colors; black is manufactured with Carbon Black for added UV protection and additional storage life		

(1) Typical properties will vary within specification limits

(2) 190 °C / 2160g

(3) 2% Secant-Method 1

(4) Excludes Copper Mesh

(5) Condition B, 10% Igepal, F10

(6) Condition C, 100% Igepal, F20



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