





# TDR™ Ultra

## HDPE Corrugated Pipe

### 8" (200mm)

#### Product Description

HDPE Corrugated Pipe. Dual wall - corrugated exterior with reinforced double arch corrugations and smooth interior orange liner. Dual layer co-extruded integrated bell. 100% watertight bell-spigot joint with elastomeric seal included. Manning's *n* value for use in design shall be 0.010

Product standard     ▪ ASTM F2648                             ▪ AASHTO M252                             ▪ ASTM F477

#### General

Applications     ▪ Agriculture                             ▪ Storm Drainage                             ▪ Road and Highway  
                           ▪ Airports                                 ▪ Retention/Detention                             ▪ Golf and recreation  
                           ▪ Industrial and Mining                             ▪ Railroads                                     ▪ Waste management/Landfills

Effective Length     ▪ 20 ft. (6.10m) ± 1%     For regular truckload  
Does not include the bell length.     ▪ 19.1 ft. (5.81m) ± 1%     For intermodal container load

Raw Materials	Typical Value (Imperial)		Typical Value (SI)		Test Method
Classification	435420	C/E	435420	C/E	ASTM D3350
Carbon Black Content	< 4	%	< 4	%	ASTM D4218
Flexural Modulus	80,060 - 109,940	psi	552 - 758	MPa	ASTM D790
Tensile Strength	3,046 - 3480	psi	21 - 24	MPa	ASTM D638
Melt Index	1.0 - 0.4	g/10min	1.0 - 0.4	g/10min	ASTM D1238
Density	0.947 - 0.955	g/cm <sup>3</sup>	0.947 - 0.955	g/cm <sup>3</sup>	ASTM D1505
ESCR - 100% Igepal 24h <sup>1</sup>	122° ± 3.6°	°F	50° ± 2°	°C	ASTM D1693

Physical & Mechanical Properties	Typical Value (Imperial)		Typical Value (SI)		Test Method
Inside Diameter	8.00	in	203.1	mm	ASTM D2122
Wall Thickness	0.04	in	1.1	mm	ASTM D2122
Pipe Stiffness @5%	50	psi	345	kPa	ASTM D2412
Flattening	up to 40	%	up to 40	%	ASTM F2648, 7.6
Impact Resistance <sup>1</sup>	100	ft·lb	136	J	ASTM D2444
Watertight Joint	10.7	psi	74	kPa	ASTM D3212

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<sup>1</sup> Modified testing method for AASHTO standards



# TDR™ Ultra

## HDPE Corrugated Pipe

### 12" (300mm)

#### Product Description

HDPE Corrugated Pipe. Dual wall - corrugated exterior with reinforced double arch corrugations and smooth interior orange liner. Dual layer co-extruded integrated bell. 100% watertight bell-spigot joint with elastomeric seal included. Manning's *n* value for use in design shall be 0.010

Product standard	▪ ASTM F2306	▪ ASTM F2648	▪ AASHTO M294
	▪ ASTM F477		

#### General

Applications	▪ Agriculture	▪ Storm Drainage	▪ Road and Highway
	▪ Airports	▪ Retention/Detention	▪ Golf and recreation
	▪ Industrial and Mining	▪ Railroads	▪ Waste management/Landfills

Effective Length	▪ 20 ft. (6.10m) ± 1%	For regular truckload
<small>Does not include the bell length.</small>	▪ 19.2 ft. (5.86m) ± 1%	For intermodal container load

Raw Materials	Typical Value (Imperial)		Typical Value (SI)		Test Method
Classification	435420	C/E	435420	C/E	ASTM D3350
Carbon Black Content	< 4	%	< 4	%	ASTM D4218
Flexural Modulus	109,940 - 160,000	psi	758 - 1103	MPa	ASTM D790
Tensile Strength	3,046 - 3480	psi	21 - 24	MPa	ASTM D638
Melt Index	0.4 - 0.15	g/10min	0.4 - 0.15	g/10min	ASTM D1238
Density	0.947 - 0.955	g/cm <sup>3</sup>	0.947 - 0.955	g/cm <sup>3</sup>	ASTM D1505
ESCR - 100% Igepal 24h <sup>1</sup>	122° ± 3.6°	°F	50° ± 2°	°C	ASTM D1693

Physical & Mechanical Properties	Typical Value (Imperial)		Typical Value (SI)		Test Method
Inside Diameter	12.28	in	312	mm	ASTM D2122
Wall Thickness	0.07	in	1.7	mm	ASTM D2122
Pipe Stiffness @5%	50	psi	345	kPa	ASTM D2412
Flattening	up to 40	%	up to 40	%	ASTM F2648, 7.6
Impact Resistance	100	ft·lb	136	J	ASTM D2444
Watertight Joint	10.7	psi	74	kPa	ASTM D3212

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<sup>1</sup> Modified testing method for AASHTO standards

# TDR™ Ultra

## HDPE Corrugated Pipe

### 15" (375mm)

#### Product Description

HDPE Corrugated Pipe. Dual wall - corrugated exterior with reinforced double arch corrugations and smooth interior orange liner. Dual layer co-extruded integrated bell. 100% watertight bell-spigot joint with elastomeric seal included. Manning's *n* value for use in design shall be 0.010

Product standard	▪ ASTM F2306	▪ ASTM F2648	▪ AASHTO M294
	▪ ASTM F477		

#### General

Applications	▪ Agriculture	▪ Storm Drainage	▪ Road and Highway
	▪ Airports	▪ Retention/Detention	▪ Golf and recreation
	▪ Industrial and Mining	▪ Railroads	▪ Waste management/Landfills

Effective Length	▪ 20 ft. (6.10m) ± 1%	For regular truckload
<small>Does not include the bell length.</small>	▪ 18.8 ft. (5.73m) ± 1%	For intermodal container load

Raw Materials	Typical Value (Imperial)		Typical Value (SI)		Test Method
Classification	435420	C/E	435420	C/E	ASTM D3350
Carbon Black Content	< 4	%	< 4	%	ASTM D4218
Flexural Modulus	109,940 - 160,000	psi	758 - 1103	MPa	ASTM D790
Tensile Strength	3,046 - 3480	psi	21 - 24	MPa	ASTM D638
Melt Index	0.4 - 0.15	g/10min	0.4 - 0.15	g/10min	ASTM D1238
Density	0.947 - 0.955	g/cm <sup>3</sup>	0.947 - 0.955	g/cm <sup>3</sup>	ASTM D1505
ESCR - 100% Igepal 24h <sup>1</sup>	122° ± 3.6°	°F	50° ± 2°	°C	ASTM D1693

Physical & Mechanical Properties	Typical Value (Imperial)		Typical Value (SI)		Test Method
Inside Diameter	15.04	in	382	mm	ASTM D2122
Wall Thickness	0.08	in	2	mm	ASTM D2122
Pipe Stiffness @5%	42	psi	290	kPa	ASTM D2412
Flattening	up to 40	%	up to 40	%	ASTM F2648, 7.6
Impact Resistance	100	ft·lb	136	J	ASTM D2444
Watertight Joint	10.7	psi	74	kPa	ASTM D3212

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<sup>1</sup>Modified testing method for AASHTO standards

# TDR™ Ultra

## HDPE Corrugated Pipe

### 18" (450mm)

#### Product Description

HDPE Corrugated Pipe. Dual wall - corrugated exterior with reinforced double arch corrugations and smooth interior orange liner. Dual layer co-extruded integrated bell. 100% watertight bell-spigot joint with elastomeric seal included. Manning's *n* value for use in design shall be 0.010

Product standard	▪ ASTM F2306	▪ ASTM F2648	▪ AASHTO M294
	▪ ASTM F477		

#### General

Applications	▪ Agriculture	▪ Storm Drainage	▪ Road and Highway
	▪ Airports	▪ Retention/Detention	▪ Golf and recreation
	▪ Industrial and Mining	▪ Railroads	▪ Waste management/Landfills

Effective Length	▪ 20 ft. (6.10m) ± 1%	For regular truckload
<small>Does not include the bell length.</small>	▪ 18.8 ft. (5.73m) ± 1%	For intermodal container load

Raw Materials	Typical Value (Imperial)		Typical Value (SI)		Test Method
Classification	435420	C/E	435420	C/E	ASTM D3350
Carbon Black Content	< 4	%	< 4	%	ASTM D4218
Flexural Modulus	109,940 - 160,000	psi	758 - 1103	MPa	ASTM D790
Tensile Strength	3,046 - 3480	psi	21 - 24	MPa	ASTM D638
Melt Index	0.4 - 0.15	g/10min	0.4 - 0.15	g/10min	ASTM D1238
Density	0.947 - 0.955	g/cm <sup>3</sup>	0.947 - 0.955	g/cm <sup>3</sup>	ASTM D1505
ESCR - 100% Igepal 24h <sup>1</sup>	122° ± 3.6°	°F	50° ± 2°	°C	ASTM D1693

Physical & Mechanical Properties	Typical Value (Imperial)		Typical Value (SI)		Test Method
Inside Diameter	18.11	in	460	mm	ASTM D2122
Wall Thickness	0.09	in	2.2	mm	ASTM D2122
Pipe Stiffness @5%	40	psi	275	kPa	ASTM D2412
Flattening	up to 40	%	up to 40	%	ASTM F2648, 7.6
Impact Resistance	100	ft·lb	136	J	ASTM D2444
Watertight Joint	10.7	psi	74	kPa	ASTM D3212

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<sup>1</sup>Modified testing method for AASHTO standards

# TDR™ Ultra

## HDPE Corrugated Pipe

### 24" (600mm)

#### Product Description

HDPE Corrugated Pipe. Dual wall - corrugated exterior with reinforced double arch corrugations and smooth interior orange liner. Dual layer co-extruded integrated bell. 100% watertight bell-spigot joint with elastomeric seal included. Manning's *n* value for use in design shall be 0.010

Product standard	▪ ASTM F2306	▪ ASTM F2648	▪ AASHTO M294
	▪ ASTM F477		

#### General

Applications	▪ Agriculture	▪ Storm Drainage	▪ Road and Highway
	▪ Airports	▪ Retention/Detention	▪ Golf and recreation
	▪ Industrial and Mining	▪ Railroads	▪ Waste management/Landfills

Effective Length	▪ 20 ft. (6.10m) ± 1%	For regular truckload
<small>Does not include the bell length.</small>	▪ 18.6 ft. (5.7m) ± 1%	For intermodal container load

Raw Materials	Typical Value (Imperial)		Typical Value (SI)		Test Method
Classification	435420	C/E	435420	C/E	ASTM D3350
Carbon Black Content	< 4	%	< 4	%	ASTM D4218
Flexural Modulus	109,940 - 160,000	psi	758 - 1103	MPa	ASTM D790
Tensile Strength	3,046 - 3480	psi	21 - 24	MPa	ASTM D638
Melt Index	0.4 - 0.15	g/10min	0.4 - 0.15	g/10min	ASTM D1238
Density	0.947 - 0.955	g/cm <sup>3</sup>	0.947 - 0.955	g/cm <sup>3</sup>	ASTM D1505
ESCR - 100% Igepal 24h <sup>1</sup>	122° ± 3.6°	°F	50° ± 2°	°C	ASTM D1693

Physical & Mechanical Properties	Typical Value (Imperial)		Typical Value (SI)		Test Method
Inside Diameter	24.25	in	616	mm	ASTM D2122
Wall Thickness	0.10	in	2.5	mm	ASTM D2122
Pipe Stiffness @5%	34	psi	235	kPa	ASTM D2412
Flattening	up to 40	%	up to 40	%	ASTM F2648, 7.6
Impact Resistance	100	ft·lb	136	J	ASTM D2444
Watertight Joint	10.7	psi	74	kPa	ASTM D3212

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<sup>1</sup>Modified testing method for AASHTO standards



# TDR™ Ultra

## HDPE Corrugated Pipe

### 30" (750mm)

#### Product Description

HDPE Corrugated Pipe. Dual wall - corrugated exterior with reinforced double arch corrugations and smooth interior orange liner. Dual layer co-extruded integrated bell. 100% watertight bell-spigot joint with elastomeric seal included. Manning's *n* value for use in design shall be 0.010

Product standard	▪ ASTM F2306	▪ ASTM F2648	▪ AASHTO M294
	▪ ASTM F477		

#### General

Applications	▪ Agriculture	▪ Storm Drainage	▪ Road and Highway
	▪ Airports	▪ Retention/Detention	▪ Golf and recreation
	▪ Industrial and Mining	▪ Railroads	▪ Waste management/Landfills

Effective Length	▪ 20 ft. (6.10m) ± 1%	For regular truckload
<small>Does not include the bell length.</small>	▪ 18.5 ft. (5.63m) ± 1%	For intermodal container load

Raw Materials	Typical Value (Imperial)		Typical Value (SI)		Test Method
Classification	435420	C/E	435420	C/E	ASTM D3350
Carbon Black Content	< 4	%	< 4	%	ASTM D4218
Flexural Modulus	109,940 - 160,000	psi	758 - 1103	MPa	ASTM D790
Tensile Strength	3,046 - 3480	psi	21 - 24	MPa	ASTM D638
Melt Index	0.4 - 0.15	g/10min	0.4 - 0.15	g/10min	ASTM D1238
Density	0.947 - 0.955	g/cm <sup>3</sup>	0.947 - 0.955	g/cm <sup>3</sup>	ASTM D1505
ESCR - 100% Igepal 24h <sup>1</sup>	122° ± 3.6°	°F	50° ± 2°	°C	ASTM D1693

Physical & Mechanical Properties	Typical Value (Imperial)		Typical Value (SI)		Test Method
Inside Diameter	30.04	in	763	mm	ASTM D2122
Wall Thickness	0.10	in	2.5	mm	ASTM D2122
Pipe Stiffness @5%	29	psi	200	kPa	ASTM D2412
Flattening	up to 40	%	up to 40	%	ASTM F2648, 7.6
Impact Resistance	100	ft·lb	136	J	ASTM D2444
Watertight Joint	10.7	psi	74	kPa	ASTM D3212

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<sup>1</sup>Modified testing method for AASHTO standards

# TDR™ Ultra

## HDPE Corrugated Pipe

### 36" (900mm)

#### Product Description

HDPE Corrugated Pipe. Dual wall - corrugated exterior with reinforced double arch corrugations and smooth interior orange liner. Dual layer co-extruded integrated bell. 100% watertight bell-spigot joint with elastomeric seal included. Manning's *n* value for use in design shall be 0.010

Product standard	▪ ASTM F2306	▪ ASTM F2648	▪ AASHTO M294
	▪ ASTM F477		

#### General

Applications	▪ Agriculture	▪ Storm Drainage	▪ Road and Highway
	▪ Airports	▪ Retention/Detention	▪ Golf and recreation
	▪ Industrial and Mining	▪ Railroads	▪ Waste management/Landfills

Effective Length	▪ 20 ft. (6.10m) ± 1%	For regular truckload
<small>Does not include the bell length.</small>	▪ 18.9 ft. (5.75m) ± 1%	For intermodal container load

Raw Materials	Typical Value (Imperial)		Typical Value (SI)		Test Method
Classification	435420	C/E	435420	C/E	ASTM D3350
Carbon Black Content	< 4	%	< 4	%	ASTM D4218
Flexural Modulus	109,940 - 160,000	psi	758 - 1103	MPa	ASTM D790
Tensile Strength	3,046 - 3480	psi	21 - 24	MPa	ASTM D638
Melt Index	0.4 - 0.15	g/10min	0.4 - 0.15	g/10min	ASTM D1238
Density	0.947 - 0.955	g/cm <sup>3</sup>	0.947 - 0.955	g/cm <sup>3</sup>	ASTM D1505
ESCR - 100% Igepal 24h <sup>1</sup>	122° ± 3.6°	°F	50° ± 2°	°C	ASTM D1693

Physical & Mechanical Properties	Typical Value (Imperial)		Typical Value (SI)		Test Method
Inside Diameter	36.02	in	915	mm	ASTM D2122
Min. Wall Thickness	0.12	in	3.0	mm	ASTM D2122
Pipe Stiffness @5%	22	psi	155	kPa	ASTM D2412
Flattening	up to 40	%	up to 40	%	ASTM F2648, 7.6
Impact Resistance	100	ft·lb	136	J	ASTM D2444
Watertight Joint	10.7	psi	74	kPa	ASTM D3212

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<sup>1</sup>Modified testing method for AASHTO standards

# TDR™ Ultra

## HDPE Corrugated Pipe

### 42" (1050mm)

#### Product Description

HDPE Corrugated Pipe. Dual wall - corrugated exterior with reinforced double arch corrugations and smooth interior orange liner. Dual layer co-extruded integrated bell. 100% watertight bell-spigot joint with elastomeric seal included. Manning's *n* value for use in design shall be 0.010

Product standard	▪ ASTM F2306	▪ ASTM F2648	▪ AASHTO M294
	▪ ASTM F477		

#### General

Applications	▪ Agriculture	▪ Storm Drainage	▪ Road and Highway
	▪ Airports	▪ Retention/Detention	▪ Golf and recreation
	▪ Industrial and Mining	▪ Railroads	▪ Waste management/Landfills

Effective Length	▪ 20 ft. (6.10m) ± 1%	For regular truckload
<small>Does not include the bell length.</small>	▪ 18.9 ft. (5.75m) ± 1%	For intermodal container load

Raw Materials	Typical Value (Imperial)		Typical Value (SI)		Test Method
Classification	435420	C/E	435420	C/E	ASTM D3350
Carbon Black Content	< 4	%	< 4	%	ASTM D4218
Flexural Modulus	109,940 - 160,000	psi	758 - 1103	MPa	ASTM D790
Tensile Strength	3,046 - 3480	psi	21 - 24	MPa	ASTM D638
Melt Index	0.4 - 0.15	g/10min	0.4 - 0.15	g/10min	ASTM D1238
Density	0.947 - 0.955	g/cm <sup>3</sup>	0.947 - 0.955	g/cm <sup>3</sup>	ASTM D1505
ESCR - 100% Igepal 24h <sup>1</sup>	122° ± 3.6°	°F	50° ± 2°	°C	ASTM D1693

Physical & Mechanical Properties	Typical Value (Imperial)		Typical Value (SI)		Test Method
Inside Diameter	42.05	in	1068	mm	ASTM D2122
Min. Wall Thickness	0.13	in	3.2	mm	ASTM D2122
Pipe Stiffness @5%	21	psi	145	kPa	ASTM D2412
Flattening	up to 40	%	up to 40	%	ASTM F2648, 7.6
Impact Resistance	100	ft·lb	136	J	ASTM D2444
Watertight Joint	10.7	psi	74	kPa	ASTM D3212

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<sup>1</sup>Modified testing method for AASHTO standards

# TDR™ Ultra

## HDPE Corrugated Pipe

### 48" (1200mm)

#### Product Description

HDPE Corrugated Pipe. Dual wall - corrugated exterior with reinforced double arch corrugations and smooth interior orange liner. Dual layer co-extruded integrated bell. 100% watertight bell-spigot joint with elastomeric seal included. Manning's *n* value for use in design shall be 0.010

Product standard	▪ ASTM F2306	▪ ASTM F2648	▪ AASHTO M294
	▪ ASTM F477		

#### General

Applications	▪ Agriculture	▪ Storm Drainage	▪ Road and Highway
	▪ Airports	▪ Retention/Detention	▪ Golf and recreation
	▪ Industrial and Mining	▪ Railroads	▪ Waste management/Landfills

Effective Length	▪ 20 ft. (6.10m) ± 1%	For regular truckload
<small>Does not include the bell length.</small>	▪ 18.4 ft. (5.6m) ± 1%	For intermodal container load

Raw Materials	Typical Value (Imperial)		Typical Value (SI)		Test Method
Classification	435420	C/E	435420	C/E	ASTM D3350
Carbon Black Content	< 4	%	< 4	%	ASTM D4218
Flexural Modulus	109,940 - 160,000	psi	758 - 1103	MPa	ASTM D790
Tensile Strength	3,046 - 3480	psi	21 - 24	MPa	ASTM D638
Melt Index	0.4 - 0.15	g/10min	0.4 - 0.15	g/10min	ASTM D1238
Density	0.947 - 0.955	g/cm <sup>3</sup>	0.947 - 0.955	g/cm <sup>3</sup>	ASTM D1505
ESCR - 100% Igepal 24h <sup>1</sup>	122° ± 3.6°	°F	50° ± 2°	°C	ASTM D1693

Physical & Mechanical Properties	Typical Value (Imperial)		Typical Value (SI)		Test Method
Inside Diameter	48.74	in	1238	mm	ASTM D2122
Min. Wall Thickness	0.14	in	3.5	mm	ASTM D2122
Pipe Stiffness @5%	20	psi	135	kPa	ASTM D2412
Flattening	up to 40	%	up to 40	%	ASTM F2648, 7.6
Impact Resistance	100	ft·lb	136	J	ASTM D2444
Watertight Joint	10.7	psi	74	kPa	ASTM D3212

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<sup>1</sup>Modified testing method for AASHTO standards

# TDR™ Ultra

## HDPE Corrugated Pipe

### 60" (1500mm)

#### Product Description

HDPE Corrugated Pipe. Dual wall - corrugated exterior with reinforced double arch corrugations and smooth interior orange liner. Dual layer co-extruded integrated bell. 100% watertight bell-spigot joint with elastomeric seal included. Manning's *n* value for use in design shall be 0.010

Product standard	▪ ASTM F2306	▪ ASTM F2648	▪ AASHTO M294
	▪ ASTM F477		

#### General

Applications	▪ Agriculture	▪ Storm Drainage	▪ Road and Highway
	▪ Airports	▪ Retention/Detention	▪ Golf and recreation
	▪ Industrial and Mining	▪ Railroads	▪ Waste management/Landfills

Effective Length	▪ 20 ft. (6.10m) ± 1%	For regular truckload
<small>Does not include the bell length.</small>	▪ 18.4 ft. (5.6m) ± 1%	For intermodal container load

Raw Materials	Typical Value (Imperial)		Typical Value (SI)		Test Method
Classification	435420	C/E	435420	C/E	ASTM D3350
Carbon Black Content	< 4	%	< 4	%	ASTM D4218
Flexural Modulus	109,940 - 160,000	psi	758 - 1103	MPa	ASTM D790
Tensile Strength	3,046 - 3480	psi	21 - 24	MPa	ASTM D638
Melt Index	0.4 - 0.15	g/10min	0.4 - 0.15	g/10min	ASTM D1238
Density	0.947 - 0.955	g/cm <sup>3</sup>	0.947 - 0.955	g/cm <sup>3</sup>	ASTM D1505
ESCR - 100% Igepal 24h <sup>1</sup>	122° ± 3.6°	°F	50° ± 2°	°C	ASTM D1693

Physical & Mechanical Properties	Typical Value (Imperial)		Typical Value (SI)		Test Method
Inside Diameter	60.04	in	1525	mm	ASTM D2122
Min. Wall Thickness	0.16	in	4.0	mm	ASTM D2122
Pipe Stiffness @5%	15	psi	105	kPa	ASTM D2412
Flattening	up to 40	%	up to 40	%	ASTM F2648, 7.6
Impact Resistance	100	ft·lb	136	J	ASTM D2444
Watertight Joint	10.7	psi	74	kPa	ASTM D3212

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<sup>1</sup>Modified testing method for AASHTO standards