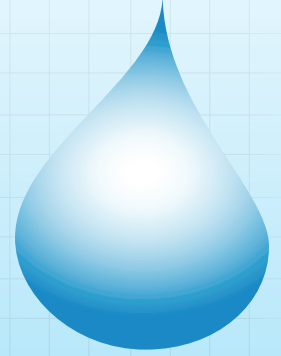


POTABLE WATER PIPE

TITAN SUPREME

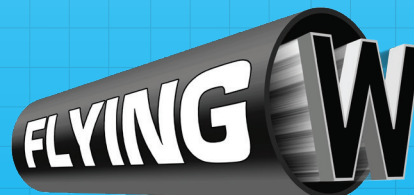


Potable & Non-Potable High-Density Polyethylene Water Pipe & Tubing

PRODUCT SPECIFICATIONS



- Residential
- Commercial



PLASTICS, INC.
www.flyingwplastics.com

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304.462.5779 ph • 800.327.4735 sales • 304.462.7657 fx



OVERVIEW

Titan Supreme is manufactured in accordance with ASTM D-2239 specifications, and is designed for use in pressure applications for potable water. This is an inside diameter (I.D.) controlled pipe (IDR) with operating water pressures of 125psi, 160psi, 200psi, and 250psi at 23 °C (73 °F), depending on wall thickness. Titan Supreme has NSF Standard 14 certification and meets AWWA C901 specifications, as well as NSF/ANSI standard 61 certification. Titan Supreme is also available in copper tubing size (C.T.S.) O.D. controlled DR9 made to ASTM D2737, and is available made from PE3608 material on special orders. It is manufactured with a PE4710 Class C high density polyethylene resin (see ASTM D-2239, and/or ASTM D-3350 for detailed specifications) and is available in various sizes and lengths.

Titan Supreme is color-coded by wrapping each coil with color tape to indicate the pressure rating (PSI) and the exact footage of the coil. This same color is also found on the print line of the pipe itself, eliminating costly inventory and shipping problems. Color codes are Blue (125 PSI), Red (160 PSI), White (200 PSI), Yellow (250 PSI), and Orange (250 PSI [C.T.S.]).

50-Year Limited Warranty

Flying W Plastics warrants its Titan Supreme, Titan Supreme C.T.S., Spec I, and Spec II pipe against rot, rust, material flaws, structural weaknesses and electrolytic corrosion and warrants it to be free from defect in materials and workmanship for a period of fifty (50) years from date of purchase by and to the original purchaser only. Flying W Plastics expressly limits its responsibility under this Limited Warranty to the following:

1. Flying W Plastics Inc., will provide an equivalent amount of plastic pipe of like size and grade to that amount which it acknowledges to be defective, to the original installer only.
2. Flying W Plastics, Inc., will pay up to one dollar (\$1.00) per lineal foot for labor charges actually incurred by the original purchaser in replacement of pipe warranted hereby, which pipe is acknowledged to be defective within five (5) years of the date of purchase by the original installer only, with a pro rata reduction of said amount thereafter for the remaining forty-five (45) years of this Limited Warranty.

A sample measuring a minimum of twenty-four inches (24") in length, bearing the Flying W Plastics trademark, for any segment of pipe alleged by the original purchaser only to be defective, must be submitted to Flying W Plastics for inspection and testing. Any plastic pipe of Flying W Plastics thereafter acknowledged to be defective shall be exchanged as aforesaid, and Flying W Plastics shall assume the reasonable costs of transportation thereof to the point of the original delivery.

Purchaser and/or installer assumes all risk and liability for loss, damages or injury to persons or property of buyer or other parties arising out of use or possession of materials and products of Flying W Plastics, Inc.

Exclusions:

There are no warranties which extend beyond the description on the face thereof. Flying W Plastics disclaims any express or implied warranties of merchantability and fitness for a particular purpose. Flying W Plastics shall not be liable for special, indirect, incidental or consequential damages related to a defect of the pipe.

For the warranty to be valid pipe must be installed in accordance with accepted and approved industry guidelines and procedures.

Warranty does not apply to any fusion joining process or any other method or device used to join the pipe.

Warranty does not apply to the design or installation of the system or any other component of the system.

There are no warranties which extend beyond the description on the face thereof.



NSF LISTINGS DESIGN CRITERIA

NSF International (NSF) Official Listing

Potable Water Pipe

The following products are certified by NSF to conform to the requirements of NSF Standard 14 – Plastics Piping Components and Related Materials & NSF/ANSI Standard 61- Health Effects Requirements.

Material Class: PE3608 or PE4710; **Trade Designation:** Flying W Titan Supreme

Performance Standard: ASTM D2239

½" thru 2" IDR 5.3

½" thru 2" IDR 7

½" thru 2" IDR 9

½" thru 6" IDR 11.5

½" thru 6" IDR 15

½" thru 6" IDR 19

Material Class: PE3608 or PE4710; **Trade Designation:** Flying W Spec I

Performance Standard: ASTM D3035

½" thru 6" DR 7

½" thru 6" DR 9

½" thru 6" DR 11

½" thru 6" DR 13.5

½" thru 6" DR 17

½" thru 6" DR 21

Material Class: PE3608 or PE4710; **Trade Designation:** Flying W Titan Supreme

Performance Standard: ASTM D2737

½" thru 2" (C.T.S.) DR 9

½" thru 2" (C.T.S.) DR 11

Material Class: PE3608 or PE4710; **Trade Designation:** Flying W Spec II

Performance Standard: ASTM F14

3" thru 18" (IPS or DIPS) DR 7.3

3" thru 18" (IPS or DIPS) DR 9

3" thru 18" (IPS or DIPS) DR 9.3

3" thru 18" (IPS or DIPS) DR 11

3" thru 18" (IPS or DIPS) DR 13.5

3" thru 18" (IPS or DIPS) DR 15.5

3" thru 18" (IPS or DIPS) DR 17

3" thru 18" (IPS or DIPS) DR 21

3" thru 18" (IPS or DIPS) DR 26

3" thru 18" (IPS or DIPS) DR 32.5

Flying W Plastics & PPI

Flying W Plastics, Inc. is a member in good standing with the Plastics Pipe Institute (PPI). PPI is the major trade association representing all segments of the plastics piping industry. As an association, PPI focuses collaborative efforts to accumulate data, concentrate facts and target resources toward advancements in plastics piping application and usage. PPI promotes contemporary use of plastics piping for water and gas distribution, sewer and wastewater, oil and gas production, industrial and mining uses, power and communications, and ducting and irrigation.

PPI's vision and leadership have resulted in the establishment of uniform testing and design criteria that has become the foundation for all current applications of plastics piping. As PPI members, Flying W Plastics recommends PPI's *Handbook of Polyethylene Pipe, Second Edition* for testing and design criteria of all HDPE pipe manufactured by Flying W Plastics. This handbook is available for purchase online (www.plasticpipe.org). The individual chapters can be downloaded free of charge (www.plasticpipe.org/publications/pe_handbook.html). Many case studies, technical bulletins, and pipe calculations can also be found at the PPI web site.



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PROPERTIES & PRODUCT SPECS

Material Properties PE4710

The PE4710 materials offer higher working pressures in most applications than PE3608. Flying W certifies that its PE4710 Titan Supreme Potable Water Pipes are manufactured from high-quality HDPE copolymers having the typical properties listed. These copolymers have NSF 14 and AWWA C901 certification for potable water applications, comply with ANSI/NSF Standard 61 health effects requirement, and are recognized by the Plastics Pipe Institute as having a pipe material designation code of PE4710 & PE100.

Typical Properties ⁽¹⁾	English	SI Units	ASTM Method
Density Black	-	.959 g/cc	D 4883
Melt Index ²	-	8.0 g/10 min	D 1238
Tensile Strength			
@ Yield (2 in/min)	3625 psi	25.0 MPa	D 638
@ Break (2 in/min)	5500 psi	38.0 MPa	D 638
Elongation @ Break (2 in/min)	>600%	>600%	D 638
Flexural Modulus ³	150,000 psi	1.035 MPa	D 790
Notched Izod Impact Strength	9 ft-lbf/in	0.49 kJ/m	D 256
Hardness (Shore D)	66	66	D 2240
Vicat Softening Point	259 °F	126 °C	D1525
Brittleness Temperature	<-180 °F	<-118 °C	D 746
Hydrostatic Design Basis			
@ 23 °C	1600 psi	11.0 MPa	D 2837
@ 60 °C	1000 psi	6.9 MPa	D 2837
Minimum Required Strength	-	100 MPa	ISO 9080
Environmental Stress Crack Resistance ⁴	>5000 hrs	>5000 hrs	D 1693
Notch Tensile (PENT)	>5,000 hrs	>5,000hr	F 1473
Carbon Black Concentration	2.3%	2.3%	D 1603
Cell Classification	445574C	445574C	D 3350

(1) Typical properties will vary within specification limits;

(2) 190 °C / 21,100g;

(3) 2% Secant-Method 1

(4) Condition C



PRODUCT SPECS

ASTM D2239 POLYETHYLENE PLASTIC PIPE

Based on controlled inside diameter water pipe; Meets or exceeds NSF Standard 14 and AWWA C901.

125 PSI TITAN SUPREME IDR 15 PE4710	Sizes	Part Number	Nominal I.D.	Wall Thickness	Weight Per 100'	Coil/Joint Length/ft	Max. ft. Truckload	List Per 100'
other lengths available on request	1/2"	W47121100 W47121200 W47121400	0.622"	0.060"	6.1#	100' 200' 400'	180,000'	\$12.68
	3/4"	W47122100 W47122200 W47122400	0.824"	0.060"	7.9#	100' 200' 400'	110,000'	\$16.28
	1"	W47123100 W47123200 W47123300	1.049"	0.070"	10.9#	100' 200' 300'	90,000'	\$24.18
	1 1/4"	W47124100 W47124300	1.380"	0.092"	18.8#	100' 300'	50,000'	\$41.80
	1 1/2"	W47125100 W47125250 W47125300	1.610"	0.107"	25.6#	100' 250' 300'	32,000'	\$63.78
	2"	W47126100 W47126200	2.067"	0.138"	42.2#	100' 200'	28,000'	\$102.83
160 PSI TITAN SUPREME IDR 11.5 PE4710	Sizes	Part Number	Nominal I.D.	Wall Thickness	Weight Per 100'	Coil/Joint Length/ft	Max. ft. Truckload	List Per 100'
other lengths available on request	1/2"	W47161100 W47161200 W47161300 W47161400	0.622"	0.060"	6.1#	100' 200' 300' 400'	180,000'	\$14.25
	3/4"	W47162100 W47162400	0.824"	0.072"	8.9#	100' 400'	110,000'	\$19.90
	1"	W47163100 W47163300 W47163500	1.049"	0.091"	14.5#	100' 300' 500'	90,000'	\$31.65
	1 1/4"	W47164100 W47164300	1.380"	0.120"	25.0#	100' 300'	50,000'	\$54.70
	1 1/2"	W47165100 W47165250	1.610"	0.140"	34.1#	100' 250'	32,000'	\$78.85
	2"	W47166100 W47166200	2.067"	0.180"	56.2#	100' 200'	28,000'	\$132.98
200 PSI TITAN SUPREME IDR 9 PE4710	Sizes	Part Number	Nominal I.D.	Wall Thickness	Weight Per 100'	Coil/Joint Length/ft	Max. ft. Truckload	List Per 100'
other lengths available on request	1/2"	W47201100 W47201200 W47201300 W47201400	0.622"	0.069"	6.7#	100' 200' 300' 400'	180,000'	\$15.30
	3/4"	W47202100 W47202400	0.824"	0.092"	11.7#	100' 400'	110,000'	\$24.38
	1"	W47203100 W47203300 W47203500	1.049"	0.117"	18.9#	100' 300' 500'	90,000'	\$39.40
	1 1/4"	W47204100 W47204300	1.380"	0.153"	32.7#	100' 300'	50,000'	\$68.00
	1 1/2"	W47205100 W47205250	1.610"	0.179"	44.6#	100' 250'	32,000'	\$109.00
	2"	W47206100 W47206200	2.067"	0.230"	73.5#	100' 200'	28,000'	\$180.20

PRODUCT SPECS

ASTM D2239 POLYETHYLENE PLASTIC PIPE

Based on controlled inside diameter water pipe; Meets or exceeds NSF Standard 14 and AWWA C901.

250 PSI TITAN SUPREME IDR 7 PE4710

Sizes	Part Number	Nominal I.D.	Wall Thickness	Weight Per 100'	Coil/Joint Length/ft	Max. ft. Truckload	List Per 100'
1/2"	W47251100 W47251400	0.622"	0.089"	8.8#	100' 400'	180,000'	\$20.45
other lengths available on request	W47252100 W47252400 W47252500 W472521000	0.824"	0.118"	15.5#	100' 400' 500' 1000'	110,000'	\$32.00
1"	W47253100 W47253300 W47253500 W472531000	1.049"	0.150"	25.1#	100' 300' 500' 1000'	90,000'	\$51.28
1 1/4"	W47254100 W47254300 W47254500	1.380"	0.197"	43.4#	100' 300' 500'	50,000'	\$87.93
1 1/2"	W47255100 W47255250 W47255500	1.610"	0.230"	59.0#	100' 250' 500'	32,000'	\$144.85
2"	W47256100 W47256200 W47256500	2.067"	0.295"	97.3#	100' 200' 500'	28,000'	\$230.38

ASTM D2737 POLYETHYLENE PLASTIC TUBING - BLUE

Copper Tube Sized (C.T.S.) BLUE water pipe; Based on controlled outside diameter; Meets or exceeds NSF Standard 14 and AWWA C901.

250 PSI TITAN SUPREME C.T.S. BLUE DR 9 PE4710

Sizes	Part Number	Nominal O.D.	Wall Thickness	Weight Per 100'	Coil/Joint Length/ft	Max. ft. Truckload	List Per 100'
1/2"	C47251100 C47251400	0.625"	0.069"	5.5#	100' 400'	160,000'	\$20.85
3/4"	C47252100 C47252400 C47252500	0.875"	0.097"	10.4#	100' 400' 500'	100,000'	\$23.96
other lengths available on request	C47253100 C47253300 C47253500 C472531000	1.125"	0.125"	17.2#	100' 300' 500' 1000'	85,000'	\$36.38
1 1/4"	C47254100 C47254300 C47254500	1.375"	0.153"	25.7#	100' 300' 500'	42,000'	\$54.70
1 1/2"	C47255100 C47255250 C47255500	1.625"	0.181"	35.8#	100' 250' 500'	28,000'	\$83.55
2"	C47256100 C47256200 C47256500	2.125"	0.236"	61.3#	100' 200' 500'	23,000'	\$142.63



NON-POTABLE WATER PIPE

NON-POTABLE WATER POLYETHYLENE PLASTIC PIPE (IDR)

Pioneer Utility HDPE

Based on controlled inside diameter water pipe; Made from selected non-potable-rated resins.

Maximum Working Water Pressure - 100 PSI

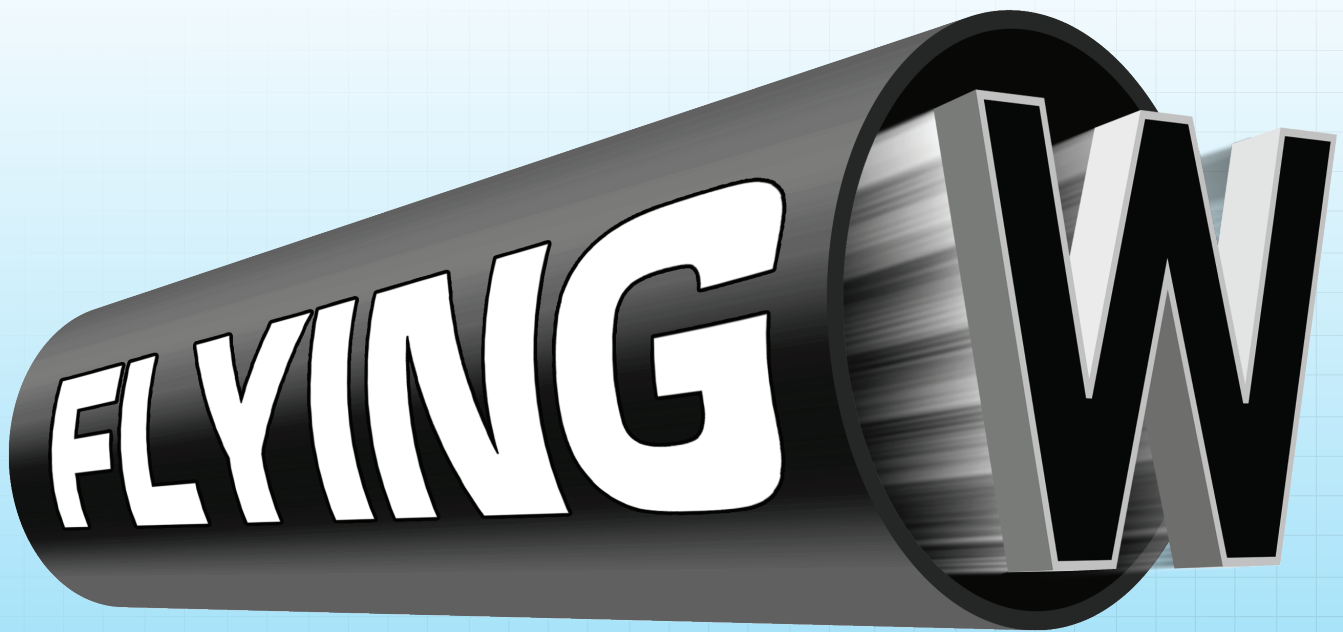
<u>Sizes</u>	<u>Part Number</u>	<u>Nominal I.D.</u>	<u>Wall Thickness</u>	<u>Weight Per 100'</u>	<u>Coil/Joint Length/ft</u>	<u>List Per 100'</u>
½"	UP1011 UP1014	0.622"	0.060"	5.8#	100' 400'	\$9.41
¾"	UP1021 UP1024	0.824"	0.060"	7.5#	100' 400'	\$12.09
1"	UP1031 UP1032 UP1033	1.049"	0.070"	10.8#	100' 200' 300' 500' 1000'	\$17.97
1 ¼"	UP1041 UP1043	1.380"	0.092"	18.7#	100' 400'	\$31.08

Maximum Working Water Pressure - 100 PSI

<u>Sizes</u>	<u>Part Number</u>	<u>Nominal I.D.</u>	<u>Wall Thickness</u>	<u>Weight Per 100'</u>	<u>List Per 100'</u>
1½"	UP1051 UP1052 UP1053	1.610"	0.107"	25.4#	\$46.14
2"	UP1061 UP1062	2.067"	2.067"	41.6#	\$75.56
3"	UP1071	3.068"	3.068"	90.5#	\$164.45



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