

2010 EDITION

4"-64"

TYTON JOINT[®] Pipe

DUCTILE IRON



FOR WATER & WASTEWATER, FIRE PROTECTION & INDUSTRIAL APPLICATIONS

**MORE
THAN
JUST
PIPE.**

**U.S.
PIPE**

866.DIP.PIPE

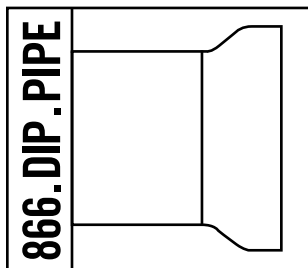

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TYTON JOINT Pipe

TYTON JOINT is U.S. Pipe's trademark for pipe with a push-on type connection. Simplicity, sturdiness and water-tightness of the system are built into the system by design. Convincing proof of its worldwide acceptance is shown by the fact that more than 95% of the pipe now sold by U.S. Pipe is TYTON JOINT Pipe.

TYTON JOINT Pipe is available in sizes 4" through 64". Sizes 4" through 42" are available in nominal 18-foot laying lengths. 6" through 24" sizes along with sizes 48" through 64" are available in nominal 20-foot laying lengths.

TYTON JOINT Pipe in sizes 4" through 36" are UL Listed and sizes 4" through 16" are FM Approved.

When TYTON JOINT Pipe are used for bridge crossings or other above-ground installations, each length of pipe must be supported in a manner to restrict both vertical and horizontal movement.

TYTON® Gasket is the only accessory required when installing TYTON JOINT Pipe. It is a circular rubber gasket which has a modified bulb shape in cross section. Gaskets are furnished in accordance with ANSI/AWWA C111/A21.1. Composition and dimensions of the gasket have been carefully engineered to ensure a water-tight and lasting seal. The standard TYTON Gasket is manufactured of SBR - styrene butadiene rubber. Gaskets of special elastomers may be ordered for special applications. The gasket contour and bell socket contour ensure that the gasket will remain seated during proper assembly of the pipe. When joint restraint is required for push-on joint pipe, two options are available from U.S. Pipe. For joint restraint of 4" through 24", FIELD LOK 350® Gaskets may be used and for joint restraint for 30" and 36", FIELD LOK® Gaskets may be used. FIELD LOK 350 Gaskets are rated for 350 psi in sizes 4" through 24". In addition, for 4" through 64" sizes, TR FLEX® Pipe and Fittings may be used. TR FLEX Pipe and Fittings are rated for working pressures for 350 psi in 4" through 24" sizes, 250 psi in sizes 30" through 48", and 200 psi in sizes 54" through 64". For higher pressure applications contact your U.S. Pipe representative. Complete details on both FIELD LOK 350 Gaskets and TR FLEX Pipe and Fittings can be found on our website, www.uspipe.com.

NOTE: U.S. Pipe qualifies for Federal Procurement under Public Law No. 94-580, Section 6002, known as the Resource Recovery Act of 1976, since, due to modern technology, recycled iron and steel scrap is used to a large degree in our Ductile Iron Pipe production.

The plain end of the pipe is furnished beveled or with a quarter ellipse on the edge to allow assembly. More than 40 years of successful experience have proved its sealing capabilities. Hydrostatic tests have shown that the system will withstand pressures far in excess of rated pressures.

TYTON®, TYTON JOINT®, TR FLEX® and FIELD LOK 350® are Registered Trademarks of U.S. Pipe and Foundry Company, LLC.

ANSI/AWWA Standards

ANSI/AWWA C151/A21.5, Ductile-Iron Pipe, Centrifugally Cast for Water.

Ductile Iron TYTON JOINT Pipe is centrifugally cast in metal molds in accordance with ANSI/AWWA C151/A21.5.

The asphaltic outside coating is in accordance with ANSI/AWWA C151/A21.51.

As specified in ANSI/AWWA C151/A21.51, pipe weights have been calculated using standard barrel weights and weights of bells being produced.

ANSI/AWWA C104/A21.4, Cement-Mortar Lining For Ductile-Iron Pipe and Fittings For Water.

The cement-mortar lining and inside coating are in accordance with ANSI/AWWA C104/ A21.4. Special linings and/or coatings can be furnished for specific conditions.

ANSI/AWWA C111/A21.11, Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.

TYTON® Gaskets are furnished in accordance with ANSI/AWWA C111/A21.11.

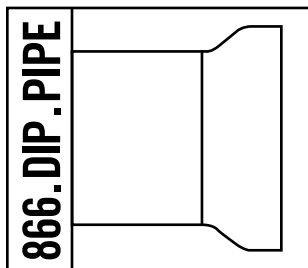
ANSI/AWWA C105/A21.5, Polyethylene Encasement for Ductile Iron Pipe Systems.

If specifiers and users believe that corrosive soils will be encountered where our products are to be installed, please refer to ANSI/AWWA C105/A21.5, for proper external protection procedures.

ASTM A746-03 "Standard specification for Ductile Iron Gravity Sewer Pipe."

ASTM A716-08 "Standard Specification for Ductile Iron Culvert Pipe."

ASTM A536 "Standard Specification for Ductile Iron Castings."



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Assembly

Figure 1. Insertion of Gasket

All foreign matter in the socket must be removed, i.e., mud, sand, cinders, gravel, pebbles, trash, frozen material, etc. The gasket seat should be thoroughly inspected to be certain it is clean. Foreign matter in the gasket seat may cause a leak. The gasket must be wiped clean with a clean cloth, flexed, and then placed into the socket with the rounded bulb end entering first. Looping the gasket in the initial insertion will facilitate seating the gasket heel evenly around the retainer seat. 4" through 12" sizes require only one loop. For larger sizes, additional loops may be required: 14" through 36", two to three loops; 42" through 54", four to six loops; 60" and 64", six or more loops. When installing TYTON JOINT Pipe in sub-freezing weather, the gaskets, prior to their use, must be kept at a temperature of at least 40°F by suitable means, such as storing in a heated area or keeping them immersed in a tank of warm water. If the gaskets are kept in warm water, they should be dried before placing in the pipe socket.

Figure 2. Application of Lubricant

A thin film of TYTON JOINT® Lubricant should be applied to the inside surface of the gasket, which will come in contact with the plain end of the pipe. In warm, dry weather conditions, the lubricant can dry out, especially when applied to warm or hot pipe, it will be necessary to add a small amount of water to hydrate the lubricant. Only TYTON JOINT Lubricant should be used. Spray-on lubricants should not be used as it may not provide sufficient lubricity. The plain end of the pipe must be cleaned of all foreign matter on the outside from the end to the stripes. Frozen materials may cling to the pipe in cold weather and must be removed. A thin film of lubricant is applied to the outside of the plain end for about 3" back from the end. Do not allow the plain end to touch the ground or trench side after lubricating since foreign matter may adhere to the plain end and cause a leak.

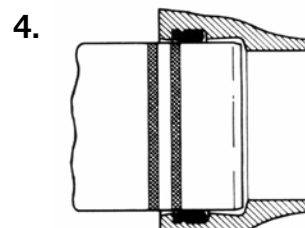
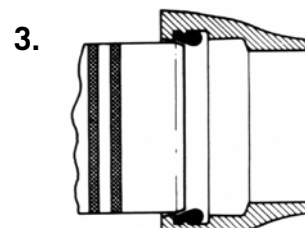
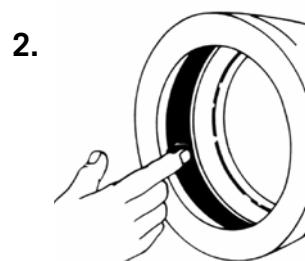
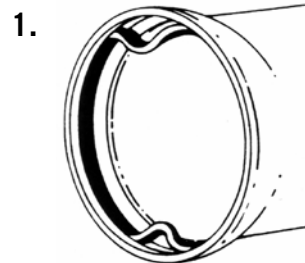
Figure 3. Initial Entry of Plain End in Socket

The plain end of the pipe should be aligned and carefully entered into the socket until it just makes contact with the gasket. This is the starting position for the final assembly of the joint. Note the two painted stripes on the plain end.

Figure 4. Completely Assembled Joint

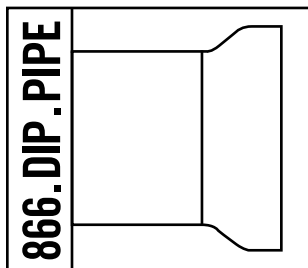
Joint assembly should be completed by forcing the plain end of the entering pipe past the gasket (which is thereby compressed) until the plain end makes contact with the bottom of the socket. Note that the first painted stripe will have disappeared into the socket and the front edge of the second stripe will be approximately flush with the bell face. Joint deflection may be achieved after the pipe is fully inserted. If assembly is not accomplished with the application of reasonable force by the methods indicated, the plain end of the pipe should be removed to check for the proper positioning of the gasket, adequate lubrication, and removal of foreign matter in the joint.

A feeler gage may be inserted between the bell and the plain end of the assembled joint to verify the position of the gasket. When the gage encounters the gasket, increased resistance will be felt. Note the depth of insertion of the gage. Continue probing around the periphery of the joint, noting the depth to resistance each time. If the depth of insertion is uniform, the gasket has remained in place. If, at any point, the depth of insertion increases significantly, this indicates a dislodged gasket. The joint should be disassembled, thoroughly cleaned with water, and examined for any condition that might have caused the gasket to become dislodged before attempting to reassemble the joint.



NOTE: When using FIELD LOK 350® Gaskets or pipe with special linings, assemble the joint until the inside edge of the first painted stripe (or the assembly mark) is flush with the bell face.

CAUTION: The inside of the socket, the gasket, and the plain end to be inserted must be kept clean through-out the assembly. Joints are only as water-tight as they are clean. If the joint is somewhat difficult to assemble, inspect for proper gasket positioning, adequate lubrication, and foreign matter in the joint.



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Alternate Methods of Assembly

Procedures outlined in figures 1-3 on page 3, showing the assembly of TYTON JOINT Pipe, should be followed before proceeding with the methods shown below.

Backhoe Method of Assembly

A backhoe may be used to assemble pipe of intermediate and larger sizes. The plain end of the pipe should be carefully guided by hand into the bell of the previously assembled pipe. The bucket of the backhoe may then be used to carefully push the pipe until fully seated. A timber header should be used between the pipe and the backhoe bucket to avoid damage to the pipe. Caution: Avoid "slamming" the pipe home to prevent damage to lining material inside the bell at the back of the socket.

Crowbar Method of Assembly

Smaller sizes of pipe may be assembled using a crowbar as a lever and pushing against the face of the bell.



Come-along Method of Assembly

Installers may prefer to use come-alongs to assemble pipe of all sizes. Two (2) 3/4 ton chain hoists, 24 feet of chain and two (2) bell choker slings for 4"-24" sizes or two (2) 1-1/2 ton (minimum) chain hoists for 30"-64" sizes.

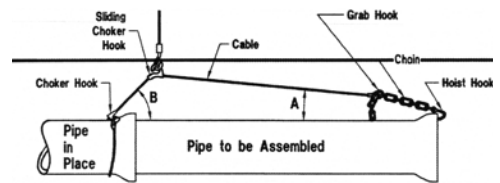
Alternate Methods of Assembly (cont.)

The most common field method of assembling larger diameter TYTON JOINT Pipe is to use a backhoe to push against the face of the bell end of the pipe to be assembled. Occasionally, there are installations where a backhoe cannot be located in line with the pipe and it is, therefore, difficult to develop enough axial force to assemble the pipe. In such cases, it may be possible to use the method described below to assemble the pipe from the side of the trench. With this method, the weight of the pipe is used to provide the axial force required for assembly. In general, a choker chain or cable is hooked around the bell of the previously laid pipe. The spigot end of the pipe to be assembled is first inserted as far as possible into the bell end of the previously laid pipe. The end of the choker is then hooked into the bell end of the pipe to be laid.

One such rigging is made from a long cable with a choker on one end and a chain grab hook on the other end with a sliding choker hook between the two other hooks. A second section of the rigging is a shorter chain with a wide throat hoisting hook on one end. The cable is first "choked" around the bell of the previously laid pipe using the fixed choker hook. The chain is hooked into the bell end of the pipe to be laid. The cable is hooked to the chain with the grab hook. The connected length of the rigging can thus be adjusted with the connection between the cable grab hook and the chain. The pipe assembly is made by lifting up on the sliding choker hook.

A few rules of thumb:

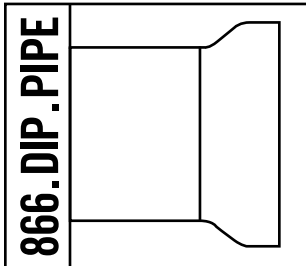
1. Angle 'A' should be no greater than 15 degrees.
2. Angle 'B' should be from 45 to 60 degrees.
3. The sliding choker hook should be located from 2 to 8 feet from the bell of the previously laid pipe.
4. Trial assembly may be made to get a "feel" for the correct amount of slack to be left in the rigging and the proper location of the sliding choker hook.



A few precautions:

1. The smaller the angle (A), the larger will be the assembly force and the tension in the rigging. The assembly force and the tension will generally range from 2 to 10 times the weight of the pipe being assembled. These forces are at a maximum when the assembly is bottomed out and lift is still being applied to the rigging. To minimize the loads on the rigging, it is recommended that the assembly be made slowly and the assembly stopped as soon as the joint is bottomed out.
2. The rigging should be properly designed to accommodate the diameter, length, and weight of the pipe on the job and the loads previously described.

NOTE: This method should not be employed when installing FIELD LOK 350® Gaskets since alignment of the joint cannot be assured. For the proper installation practice, refer to U.S. Pipe Brochure FIELD LOK 350® Gasket Joint Restraint for 4"-24" Ductile Iron Pipe for Water, Wastewater, Fire Protection and Industrial Applications.



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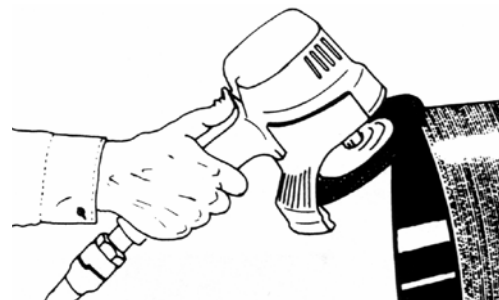
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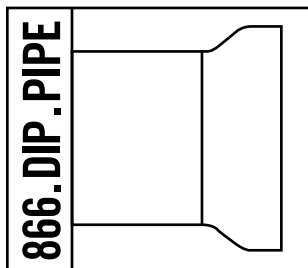
Field Cut Pipe

When pipe are cut in the field, the cut end may be readily conditioned so that it can be used to make up the next joint. The outside of the cut end should be beveled with a portable grinder about 1/4 - inch at an angle of about 30 degrees. This operation removes any sharp, rough edges which otherwise might damage the gasket.

When Ductile Iron pipe 14" and larger is to be cut in the field, the material should be ordered as "GAUGED FULL LENGTH." A *Full Length Gauged Pipe* is a pipe whose barrel outside diameter is within the spigot diameter dimensional specifications as determined by diameter tape measurements over the pipe's length to within approximately two feet of the bell chime. Pipe that is "gauged full length" is specially marked to avoid confusion. ANSI/AWWA C151 Standard for Ductile Iron pipe requires factory gauging of the spigot end. Accordingly, pipe selected for field cutting should also be field gauged in the location of the cut and ensured to be within the tolerances shown in the table on page 8. In the field a mechanical joint gland can be used as a gauging device.



NOTE: When necessary, pipe may be rounded in accordance with U.S. Pipe's Brochure, *Recommended Methods For Rounding The Cut Ends Of Out-Of-Round 14" And Larger Diameter Ductile Iron Pipe*.



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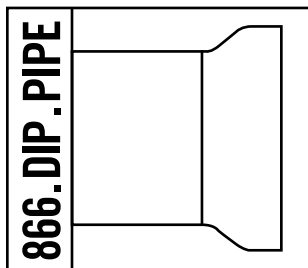
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Pipe Diameters

Suitable Pipe Diameters for Field Cuts and Restrained Joint Field Fabrication.

NOMINAL PIPE SIZE Inches	PIPE DIAMETER Inches		PIPE CIRCUMFERENCE Inches	
	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM
4	4.74	4.86	14-29/32	15-9/32
6	6.84	6.96	21-1/2	21-7/8
8	8.99	9.11	28-1/4	28-5/8
10	11.04	11.16	34-11/16	35-1/16
12	13.14	13.26	41-9/32	41-21/32
14	15.22	15.35	47-13/16	48-7/32
16	17.32	17.45	54-13/32	54-13/16
18	19.42	19.55	61	61-13/32
20	21.52	21.65	67-19/32	68
24	25.72	25.85	80-13/16	81-7/32
30	31.94	32.08	100-11/32	100-25/32
36	38.24	38.38	120-1/8	120-9/16
42	44.44	44.58	139-5/8	140-1/16
48	50.74	50.88	159-13/32	159-27/32
54	57.46	57.60	180-17/32	180-31/32
60	61.51	61.65	193-1/4	193-11/16
64	65.57	65.71	206	206-7/16

Above table based on ANSI/AWWA C151/A21.51 guidelines for push-on joints.



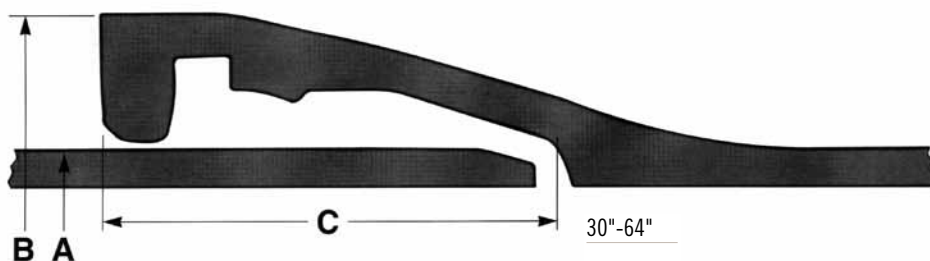
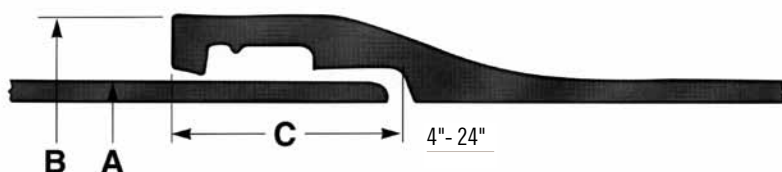
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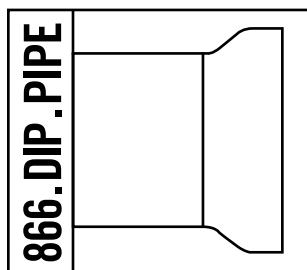
Bell Dimensions



NOTE: Actual bell configuration may vary from illustration shown.

SIZE Inches	A PIPE OUTER DIAMETER Inches	B BELL OUTER DIAMETER Inches	C SOCKET DEPTH Inches
4	4.80	6.52	3.15
6	6.90	8.66	3.38
8	9.05	10.82	3.69
10	11.10	12.91	3.75
12	13.20	15.05	3.75
14	15.30	17.67	5.00
16	17.40	19.79	5.00
18	19.50	21.91	5.00
20	21.60	24.03	5.50
24	25.80	28.21	5.95
30	32.00	35.40	6.55
36	38.30	41.84	7.00
42	44.50	49.36	7.90
48	50.80	55.94	8.60
54	57.56	63.38	9.40
60	61.61	67.38	10.10
64	65.67	71.56	10.65

*Subject to manufacturing tolerances. Dimensions in inches.



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Pressure Class

Nominal Thickness for Standard Pressure Classes of Ductile Iron Pipe

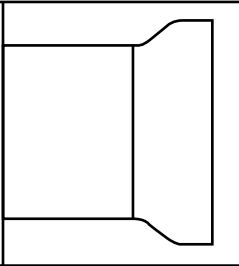
SIZE Inches	OUTSIDE DIAMETER Inches	NOMINAL THICKNESS Inches					CASTING TOLERANCES Inches
		PRESSURE CLASS*					
		150	200	250	300	350	
3	3.96	—	—	—	—	0.25**	0.05
4	4.80	—	—	—	—	0.25**	0.05
6	6.90	—	—	—	—	0.25**	0.05
8	9.05	—	—	—	—	0.25**	0.05
10	11.10	—	—	—	—	0.26	0.06
12	13.20	—	—	—	—	0.28	0.06
14	15.30	—	—	0.28	0.30	0.31	0.07
16	17.40	—	—	0.30	0.32	0.34	0.07
18	19.50	—	—	0.31	0.34	0.36	0.07
20	21.60	—	—	0.33	0.36	0.38	0.07
24	25.80	—	0.33	0.37	0.40	0.43	0.07
30	32.00	0.34	0.38	0.42	0.45	0.49	0.07
36	38.30	0.38	0.42	0.47	0.51	0.56	0.07
42	44.50	0.41	0.47	0.52	0.57	0.63	0.07
48	50.80	0.46	0.52	0.58	0.64	0.70	0.08
54	57.56	0.51	0.58	0.65	0.72	0.79	0.09
60	61.61	0.54	0.61	0.68	0.76	0.83	0.09
64	65.67	0.56	0.64	0.72	0.80	0.87	0.09

NOTE: Per ANSI/AWWA C150/A21.50 the thicknesses in above table include the 0.08" service allowance and the casting tolerance by size ranges.

Dimensions and weights of Special Classes (Thickness Classes) are found on pages 13, 14, 15 and 16.

* Pressure Classes are defined as the rated water pressure of the pipe in psi. The thicknesses shown are adequate for the rated water working pressure plus a surge allowance of 100 psi. Calculations are based on a minimum yield strength of 42,000 and a 2.0 safety factor times the sum of the working pressure and 100 psi surge allowance.

** Calculated thickness for these sizes and pressure ratings are less than those shown above. Presently these are the lowest nominal thicknesses available in these sizes.



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Pressure Class – Thickness, Dimensions and Weight

SIZE Inches	PRESSURE CLASS psi	THICKNESS Inches	OUTSIDE DIAMETER* Inches	18-FOOT LAYING LENGTH		20-FOOT LAYING LENGTH	
				WEIGHT PER LENGTH† Pounds	AVG. WEIGHT PER FOOT†† Pounds	WEIGHT PER LENGTH† Pounds	AVG. WEIGHT PER FOOT†† Pounds
4	350	0.25	4.80	205	10.9	—	—
6	350	0.25	6.90	305	16.0	335	16.0
8	350	0.25	9.05	400	21.1	445	21.1
10	350	0.26	11.10	515	27.1	570	27.1
12	350	0.28	13.20	660	34.8	730	34.8
14	250	0.28	15.30	780	40.4	865	40.4
14	300	0.30	15.30	920	43.3	1010	43.3
14	350	0.31	15.30	860	44.7	945	44.7
16	250	0.30	17.40	950	49.3	1050	49.3
16	300	0.32	17.40	1010	52.5	1115	52.5
16	350	0.34	17.40	1065	55.8	1175	55.8
18	250	0.31	19.50	1095	57.2	1210	57.2
18	300	0.34	19.50	1195	62.6	1320	62.6
18	350	0.36	19.50	1260	66.2	1390	66.2
20	250	0.33	21.60	1285	67.5	1420	67.5
20	300	0.36	21.60	1395	73.5	1540	57.2
20	350	0.38	21.60	1465	77.5	1620	73.5
24	200	0.33	25.80	1550	80.8	1710	77.5
24	250	0.37	25.80	1725	90.5	1905	80.8
24	300	0.40	25.80	1855	97.7	2050	90.5
24	350	0.43	25.80	1985	104.9	2195	97.9
30	150	0.34	32.00	2005	103.5	—	—
30	200	0.38	32.00	2220	115.5	—	—
30	250	0.42	32.00	2595	127.5	—	—
30	300	0.45	32.00	2810	136.5	—	—
30	350	0.49	32.00	2685	148.4	—	—
36	150	0.38	38.30	2945	138.5	—	—
36	200	0.42	38.30	2940	152.9	—	—
36	250	0.47	38.30	3265	170.9	—	—
36	300	0.51	38.30	3525	185.3	—	—
36	350	0.56	38.30	3845	203.2	—	—

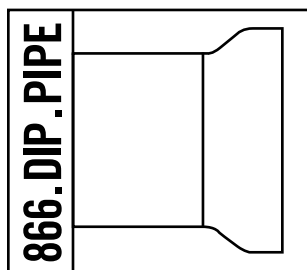
NOTE: Thicknesses and dimensions of 4" through 64" Ductile Iron pipe conform to ANSI/AWWA C151/A21.51.
Weights may vary from the standard because of differences in bell weights.

*Tolerance of O.D. of spigot end: 4-12 in., ± 0.06 in.; 14-24 in., $+0.05$ in., -0.08 in.; 30-48 in., $+0.08$ in., -0.06 in.; 54-64 in., $+0.04$ in., -0.10 in.

† Including bell; calculated weight of pipe rounded off to nearest 5 lbs.

†† Including bell; average weight, per foot, based on calculated weight of pipe before rounding.

Table continued on next page.



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Pressure Class – Thicknesses, Dimensions and Weight (cont.)

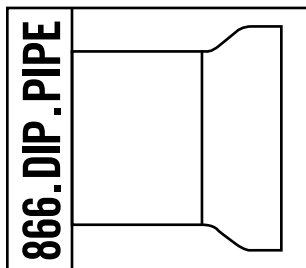
SIZE Inches	PRESSURE CLASS psi	THICKNESS Inches	OUTSIDE DIAMETER* Inches	18-FOOT LAYING LENGTH		20-FOOT LAYING LENGTH	
				WEIGHT PER LENGTH† Pounds	AVG. WEIGHT PER FOOT†† Pounds	WEIGHT PER LENGTH† Pounds	AVG. WEIGHT PER FOOT†† Pounds
42	150	0.41	44.50	3505	173.8	—	—
42	200	0.47	44.50	3960	198.9	—	—
42	250	0.52	44.50	4335	219.9	—	—
42	300	0.57	44.50	4710	240.7	—	—
42	350	0.63	44.50	5160	265.7	—	—
48	150	0.46	50.80	—	—	4950	222.6
48	200	0.52	50.80	—	—	5525	251.3
48	250	0.58	50.80	—	—	6095	280.0
48	300	0.64	50.80	—	—	6670	308.6
48	350	0.70	50.80	—	—	7240	337.1
54	150	0.51	57.56	—	—	6430	279.7
54	200	0.58	57.56	—	—	7190	317.7
54	250	0.65	57.56	—	—	7945	355.6
54	300	0.72	57.56	—	—	8700	393.4
54	350	0.79	57.56	—	—	9455	431.1
60	150	0.54	61.61	—	—	7305	317.0
60	200	0.61	61.61	—	—	8120	357.7
60	250	0.68	61.61	—	—	8935	398.3
60	300	0.76	61.61	—	—	9860	444.6
60	350	0.83	61.61	—	—	10665	485.0
64	150	0.56	65.67	—	—	8100	350.5
64	200	0.64	65.67	—	—	9090	400.1
64	250	0.72	65.67	—	—	10080	449.6
64	300	0.80	65.67	—	—	11065	498.9
64	350	0.87	65.67	—	—	11925	542.0

NOTE: Thicknesses and dimensions of 4" through 64" Ductile Iron pipe conform to ANSI/AWWA C151/A21.51.
Weights may vary from the standard because of differences in bell weights.

*Tolerance of O.D. of spigot end: 4-12 in., ± 0.06 in.; 14-24 in., $+0.05$ in., -0.08 in.; 30-48 in., $+0.08$ in., -0.06 in.; 54-64 in., $+0.04$ in., -0.10 in.

† Including bell; calculated weight of pipe rounded off to nearest 5 lbs.

†† Including bell; average weight, per foot, based on calculated weight of pipe before rounding.



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TYTON JOINT® Pipe



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Thickness Class – Thicknesses, Dimensions and Weight

SIZE Inches	THICKNESS CLASS	THICKNESS Inches	OUTSIDE DIAMETER* Inches	18-FOOT LAYING LENGTH		20-FOOT LAYING LENGTH	
				AVG. WEIGHT LENGTH† Pounds	WEIGHT PER FOOT†† Pounds	AVG. WEIGHT LENGTH† Pounds	WEIGHT PER FOOT†† Pounds
4	51	0.26	4.80	215	11.3	—	—
4	52	0.29	4.80	235	12.6	—	—
4	53	0.32	4.80	260	13.8	—	—
4	54	0.35	4.80	280	15.0	—	—
4	55	0.38	4.80	300	16.1	—	—
4	56	0.41	4.80	320	17.3	—	—
6	50	0.25	6.90	305	16.0	335	16.0
6	51	0.28	6.90	335	17.8	370	17.8
6	52	0.31	6.90	370	19.6	410	19.6
6	53	0.34	6.90	400	21.4	445	21.4
6	54	0.37	6.90	435	23.2	480	23.2
6	55	0.40	6.90	465	25.0	515	25.0
6	56	0.43	6.90	495	26.7	550	26.7
8	50	0.27	9.05	430	22.8	475	22.8
8	51	0.30	9.05	475	25.2	525	25.2
8	52	0.33	9.05	520	27.7	575	27.7
8	53	0.36	9.05	560	30.1	620	30.1
8	54	0.39	9.05	605	32.5	670	32.5
8	55	0.42	9.05	650	34.8	720	34.8
8	56	0.45	9.05	690	37.2	765	37.2
10	50	0.29	11.10	570	30.1	630	30.1
10	51	0.32	11.10	625	33.2	690	33.2
10	52	0.35	11.10	680	36.2	750	36.2
10	53	0.38	11.10	730	39.2	810	39.2
10	54	0.41	11.10	785	42.1	870	42.1
10	55	0.44	11.10	840	45.1	930	45.1
10	56	0.47	11.10	890	48.0	990	48.0

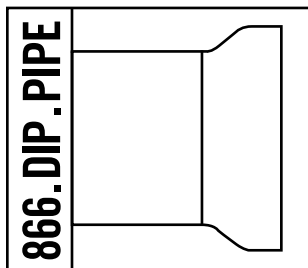
NOTE: Thicknesses and dimensions of 4" through 64" Ductile Iron pipe conform to ANSI/AWWA C151/A21.51.
Weights may vary from the standard because of differences in bell weights.

*Tolerance of O.D. of spigot end: 4-12 in., ± 0.06 in.; 14-24 in., $+0.05$ in., -0.08 in.; 30-48 in., $+0.08$ in., -0.06 in.; 54-64 in., $+0.04$ in., -0.10 in.

† Including bell; calculated weight of pipe rounded off to nearest 5 lbs.

†† Including bell; average weight, per foot, based on calculated weight of pipe before rounding.

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TYTON JOINT® Pipe



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Thickness Class – Thicknesses, Dimensions and Weight (cont.)

SIZE Inches	THICKNESS CLASS	THICKNESS Inches	OUTSIDE DIAMETER* Inches	18-FOOT LAYING LENGTH		20-FOOT LAYING LENGTH	
				AVG. WEIGHT LENGTH† Pounds	WEIGHT PER FOOT†† Pounds	AVG. WEIGHT LENGTH† Pounds	WEIGHT PER FOOT†† Pounds
12	50	0.31	13.20	725	38.4	800	38.4
12	51	0.34	13.20	790	42.0	875	42.0
12	52	0.37	13.20	855	45.6	945	45.6
12	53	0.40	13.20	920	49.2	1015	49.2
12	54	0.43	13.20	985	52.8	1090	52.8
12	55	0.46	13.20	1045	56.3	1160	56.3
12	56	0.49	13.20	1110	59.9	1230	59.9
14	50	0.33	15.30	910	47.5	1005	47.5
14	51	0.36	15.30	985	51.7	1090	51.7
14	52	0.39	15.30	1060	55.9	1170	55.9
14	53	0.42	15.30	1135	60.1	1255	60.1
14	54	0.45	15.30	1210	64.2	1340	64.2
14	55	0.48	15.30	1285	68.4	1420	68.4
14	56	0.51	15.30	1360	72.5	1505	72.5
16	50	0.34	17.40	1065	55.8	1175	58.8
16	51	0.37	17.40	1150	60.6	1275	60.6
16	52	0.40	17.40	1240	65.4	1370	65.4
16	53	0.43	17.40	1325	70.1	1465	70.1
16	54	0.46	17.40	1410	74.9	1560	74.9
16	55	0.49	17.40	1495	79.7	1655	79.7
16	56	0.52	17.40	1580	84.4	1750	84.4
18	50	0.35	19.50	1225	64.4	1355	64.4
18	51	0.38	19.50	1325	69.8	1465	69.8
18	52	0.41	19.50	1420	75.2	1570	75.5
18	53	0.44	19.50	1520	80.6	1680	80.6
18	54	0.47	19.50	1615	86.0	1785	86.0
18	55	0.50	19.50	1710	91.3	1895	91.3
18	56	0.53	19.50	1805	96.7	2000	96.7

NOTE: Thicknesses and dimensions of 4" through 64" Ductile Iron pipe conform to ANSI/AWWA C151/A21.51.
Weights may vary from the standard because of differences in bell weights.

*Tolerance of O.D. of spigot end: 4-12 in., ± 0.06 in.; 14-24 in., $+0.05$ in., -0.08 in.; 30-48 in., $+0.08$ in., -0.06 in.; 54-64 in., $+0.04$ in., -0.10 in.

† Including bell; calculated weight of pipe rounded off to nearest 5 lbs.

†† Including bell; average weight, per foot, based on calculated weight of pipe before rounding.

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TYTON JOINT[®] Pipe



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Thickness Class – Thicknesses, Dimensions and Weight (cont.)

SIZE Inches	THICKNESS CLASS	THICKNESS Inches	OUTSIDE DIAMETER* Inches	18-FOOT LAYING LENGTH		20-FOOT LAYING LENGTH	
				AVG. WEIGHT LENGTH† Pounds	WEIGHT PER FOOT†† Pounds	AVG. WEIGHT LENGTH† Pounds	WEIGHT PER FOOT†† Pounds
20	50	0.36	21.60	1395	73.5	1540	73.5
20	51	0.39	21.60	1505	79.5	1660	79.5
20	52	0.42	21.60	1610	85.5	1780	85.5
20	53	0.45	21.60	1720	91.5	1900	91.5
20	54	0.48	21.60	1825	97.5	2020	97.5
20	55	0.51	21.60	1935	103.4	2140	103.4
20	56	0.54	21.60	2040	109.3	2260	109.3
24	50	0.38	25.80	1765	92.9	1955	92.9
24	51	0.41	25.80	1895	100.1	2095	100.1
24	52	0.44	25.80	2025	107.3	2240	107.3
24	53	0.47	25.80	2155	114.4	2385	114.4
24	54	0.50	25.80	2285	121.6	2530	121.6
24	55	0.53	25.80	2415	128.8	2670	128.8
24	56	0.56	25.80	2540	135.9	2815	135.9
30	50	0.39	32.00	2275	118.5	—	—
30	51	0.43	32.00	2490	130.5	—	—
30	52	0.47	32.00	2705	142.5	—	—
30	53	0.51	32.00	2920	154.4	—	—
30	54	0.55	32.00	3135	166.3	—	—
30	55	0.59	32.00	3350	178.2	—	—
30	56	0.63	32.00	3560	190.0	—	—
36	50	0.43	38.30	3010	156.5	—	—
36	51	0.48	38.30	3330	174.5	—	—
36	52	0.53	38.30	3655	192.4	—	—
36	53	0.58	38.30	3975	210.3	—	—
36	54	0.63	38.30	4295	228.1	—	—
36	55	0.68	38.30	4615	245.9	—	—
36	56	0.73	38.30	4935	263.7	—	—

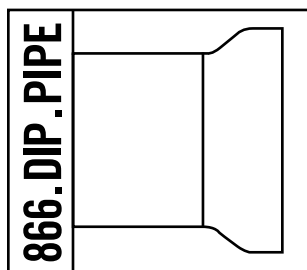
NOTE: Thicknesses and dimensions of 4" through 64" Ductile Iron pipe conform to ANSI/AWWA C151/A21.51.
Weights may vary from the standard because of differences in bell weights.

*Tolerance of O.D. of spigot end: 4-12 in., ±0.06 in.; 14-24 in., +0.05 in., -0.08 in.; 30-48 in., +0.08 in., -0.06 in.; 54-64 in., +0.04 in., -0.10 in.

† Including bell; calculated weight of pipe rounded off to nearest 5 lbs.

†† Including bell; average weight, per foot, based on calculated weight of pipe before rounding.

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TYTON JOINT[®] Pipe

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P 16

Thickness Class – Thicknesses, Dimensions and Weight

SIZE Inches	THICKNESS CLASS	THICKNESS Inches	OUTSIDE DIAMETER* Inches	18-FOOT LAYING LENGTH		20-FOOT LAYING LENGTH	
				AVG. WEIGHT LENGTH† Pounds	WEIGHT PER FOOT†† Pounds	AVG. WEIGHT LENGTH† Pounds	WEIGHT PER FOOT†† Pounds
42	50	0.47	44.50	3960	198.9	—	—
42	51	0.53	44.50	4410	224.0	—	—
42	52	0.59	44.50	4860	249.1	—	—
42	53	0.65	44.50	5310	274.0	—	—
42	54	0.71	44.50	5760	298.9	—	—
42	55	0.77	44.50	6205	323.7	—	—
42	56	0.83	44.50	6650	348.4	—	—
48	50	0.51	50.80	—	—	5430	246.6
48	51	0.58	50.80	—	—	6095	280.0
48	52	0.65	50.80	—	—	6765	313.4
48	53	0.72	50.80	—	—	7430	346.6
48	54	0.79	50.80	—	—	8095	379.8
48	55	0.86	50.80	—	—	8755	412.9
48	56	0.93	50.80	—	—	9415	445.9
54	50	0.57	57.56	—	—	7080	312.3
54	51	0.65	57.56	—	—	7945	355.6
54	52	0.73	57.56	—	—	8810	398.8
54	53	0.81	57.56	—	—	9670	411.9
54	54	0.89	57.56	—	—	10530	484.9
54	55	0.97	57.56	—	—	11390	527.7
54	56	1.05	57.56	—	—	12240	570.4

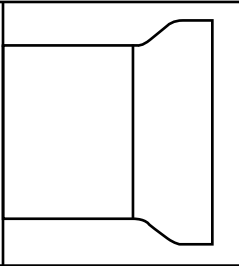
NOTE: Thicknesses and dimensions of 4" through 64" Ductile Iron pipe conform to ANSI/AWWA C151/A21.51.
Weights may vary from the standard because of differences in bell weights.

60" and 64" classified as pressure class only.

*Tolerance of O.D. of spigot end: 4-12 in., ± 0.06 in.; 14-24 in., $+0.05$ in., -0.08 in.; 30-48 in., $+0.08$ in., -0.06 in.; 54-64 in., $+0.04$ in., -0.10 in.

† Including bell; calculated weight of pipe rounded off to nearest 5 lbs.

†† Including bell; average weight, per foot, based on calculated weight of pipe before rounding.



TYTON JOINT® Pipe

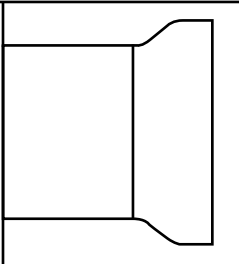


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Maximum Deflection – Full Length Pipe

SIZE Inches	MAXIMUM JOINT DEFLECTION Degrees	DEFLECTION Inches		PRODUCED BY SUCCESSION OF JOINTS Feet	
		18 FT. LENGTH	20 FT. LENGTH	18 FT. LENGTH	20 FT. LENGTH
4	5°	19	—	206	—
6	5°	19	—	206	—
8	5°	19	21	206	229
10	5°	19	—	206	—
12	5°	19	21	206	229
14	5°	19	21	206	229
16	5°	19	21	206	229
18	5°	19	21	206	229
20	5°	19	21	206	229
24	5°	19	21	206	229
30	5°	19	—	206	—
36	5°	19	—	206	—
42	4°	15	—	258	—
48	4°	—	17	—	287
54	4°	—	17	—	287
60	4°	—	17	—	287
64	4°	—	17	—	287



TYTON JOINT® Pipe



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P 18

Products for Water, Wastewater and Fire Protection

Ductile Iron Pipe	SIZE RANGE
TYTON JOINT® Pipe	4"-64" Ductile Iron
Mechanical Joint Pipe	4"-12" Ductile Iron
TR FLEX® Pipe	4"-36" Ductile Iron
HP LOK® Pipe	30"-64" Ductile Iron
Flanged Pipe	3"-64" Ductile Iron
Grooved Pipe	4"-36" Ductile Iron
USIFLEX® Boltless Ball Joint Pipe For Subaqueous Installations	4"-48" Ductile Iron
Restrained Joints	
TR FLEX® Restrained Joint	4"-36" Ductile Iron
HP LOK® Restrained Joint	30"-64" Ductile Iron
MJ FIELD LOK® Gaskets	4"-24"
FIELD LOK 350® Gaskets	4"-24"
FIELD LOK® Gasket	30" & 36"
TR FLEX GRIPPER® Rings	4"-36" Ductile Iron
TR TELE FLEX® Assemblies	4"-24" Ductile Iron
Fittings	
TYTON® Fittings	14"-24" Ductile Iron
TRIM TYTON® Fittings	4"-12" Ductile Iron
TR FLEX® Fittings and TR FLEX® Telescoping Sleeves	4"-36" Ductile Iron
HP LOK® Fittings and HP LOK® Telescoping Sleeves	30"-64" Ductile Iron
Mechanical Joint Fittings	30"-48" Ductile Iron
Flanged Fittings	30"-64" Ductile Iron
XTRA FLEX® Couplings	4"-24" Ductile Iron
Miscellaneous Products	
PROTECTO 401™ Lined Ductile Iron Pipe for Domestic Sewage and Industrial Wastes	4"-64" Ductile Iron
GLASS Lined Ductile Iron Pipe for Wastewater Treatment Plants	4"-30" Ductile Iron
RING FLANGE-TYTE® Gaskets	4"-36"
FULL FACE FLANGE-TYTE® Gaskets	4"-64"
MJ Harness-Lok	4"-48" Ductile Iron
Saddle Outlets	Various Ductile Iron
Welded Outlets	Various Ductile Iron
Polyethylene Encasement	4"-64"

Our products are manufactured in conformance with National Standards so that our customers may be assured of getting the performance and longevity they expect. Use of accessories or other appurtenances that do not comply with recognized standards may jeopardize the performance and longevity of the project.

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