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# Submittal Package Cast Iron Extra Heavy System

[Updated July 18, 2018]

SUBMITTAL PACKAGE

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# SUBMITTAL FOR CHARLOTTE PIPE® EXTRA HEAVY CAST IRON SOIL PIPE AND FITTINGS

Date: \_\_\_\_\_

Job Name: \_\_\_\_\_

Location: \_\_\_\_\_

Engineer: \_\_\_\_\_

Contractor: \_\_\_\_\_

**Scope:**

This specification covers Extra Heavy Cast Iron pipe, fittings, and compression gaskets used in sanitary drain, waste and vent (DWV), sewer, and storm drainage applications. This system is intended for use in non-pressure applications.

**Specification:**

Pipe and fittings shall comply with ASTM A 74. Compression gaskets shall comply with ASTM C 564. All pipe and fitting shall be made in the United States, and marked with the collective trademark of the Cast Iron Soil Pipe Institute, ©. Extra heavy cast iron pipe and fittings are listed by NSF® International to the UP Code.

**Installation:**

Installation shall comply with the latest installation instructions published by Charlotte Pipe and Foundry Company® and shall conform to all applicable plumbing, fire, and building code requirements. The system shall be hydrostatically tested after installation to 10 ft. of head (4.3 psi maximum).

**WARNING!** Never test with or transport/store compressed air or gas in Cast Iron pipe or fittings. Doing so can result in explosive failures and cause severe injury or death.

**Referenced Standards:**

ASTM A 74: Cast Iron Soil Pipe and Fittings

ASTM C 564: Rubber Gaskets for Cast Iron Soil Pipe and Fittings



*Not all fitting patterns shown*

Size	PIPE - EXTRA-HEAVY					Nominal Thickness
	Telescoping Length Y	Hub I.D. A	O.D. J	Barrel I.D. B	T	
2"	2.50	3.06	2.38	2.00	0.19	
3"	2.75	4.19	3.50	3.00	0.25	
4"	3.00	5.19	4.50	4.00	0.25	
5"	3.00	6.19	5.50	5.00	0.25	
6"	3.00	7.19	6.50	6.00	0.25	
8"	3.50	9.50	8.62	8.00	0.31	
10"	3.50	11.62	10.75	10.00	0.37	
12"	4.25	13.75	12.75	12.00	0.37	
15"	4.25	16.95	15.88	15.00	0.44	

# CHARLOTTE PIPE AND FOUNDRY COMPANY®

## Certifications

**This is to verify that products manufactured by Charlotte Pipe and Foundry, Cast Iron Division, are manufactured in the United States and conform to the following standards:**

### **SERVICE HUB AND SPIGOT PIPE AND FITTINGS**

All cast iron soil pipe and fittings shall be marked with the collective trademark of the Cast Iron Soil Pipe Institute (CISPI).  
ASTM A 74  
Listed by NSF® International to the UP Code  
ISO 9001:2008 Certified

### **EXTRA HEAVY HUB AND SPIGOT PIPE AND FITTINGS**

All cast iron soil pipe and fittings shall be marked with the collective trademark of the Cast Iron Soil Pipe Institute (CISPI).  
ASTM A 74  
Listed by NSF® International to the UP Code  
ISO 9001:2008 Certified

### **HUBLESS PIPE AND FITTINGS**

All cast iron soil pipe and fittings shall be marked with the collective trademark of the Cast Iron Soil Pipe Institute (CISPI).  
CISPI Standard 301  
ASTM A 888  
Listed by NSF® International to the UP Code  
ISO 9001:2008 Certified

### **HUBLESS COUPLINGS**

CISPI Standard 310  
ASTM C 1277  
Certified by NSF® International

### **HUBLESS HEAVY DUTY COUPLINGS**

Meets ASTM C 1540

### **COMPRESSION GASKETS**

ASTM C 564  
CISPI HSN 85

Very truly yours,



Hooper Hardison, President



Notary Public  
My commission expires July 02, 2022

TERRI L WILSON  
NOTARY PUBLIC  
UNION COUNTY, NC  
My Commission Expires 7-2-2022

LC-CI (7-18-18)



## Reference Standards Cast Iron

### AMERICAN SOCIETY FOR TESTING AND MATERIALS

ASTM	TITLE
A 74	SPECIFICATION FOR CAST IRON SOIL PIPE AND FITTINGS HUB AND SPIGOT (SERVICE AND EXTRA HEAVY)
SCOPE:	THIS SPECIFICATION COVERS CAST IRON PIPE AND FITTINGS USED IN SANITARY DRAIN, WASTE, AND VENT (DWV), SEWER, AND STORM DRAINAGE APPLICATION. THIS SYSTEM IS INTENDED FOR USE IN NONPRESSURE APPLICATIONS.
C 564	SPECIFICATION FOR RUBBER GASKETS FOR CAST IRON SOIL PIPE AND FITTINGS
SCOPE:	THIS SPECIFICATION COVERS PREFORMED RUBBER GASKETS USED TO SEAL JOINTS IN CAST IRON SOIL PIPE AND FITTINGS.
C 1277	SPECIFICATION FOR COUPLING FOR USE IN CONNECTION WITH HUBLESS CAST IRON PIPE AND FITTINGS FOR SANITARY AND STORM DRAIN, WASTE, AND VENT PIPING APPLICATION (REGULAR HUBLESS COUPLING)
SCOPE:	THE PURPOSE OF THIS SPECIFICATION IS TO ESTABLISH CRITERIA FOR MATERIAL DIMENSIONS AND TOLERANCES FOR ONE TYPE OF COUPLING USED IN HUBLESS CAST IRON SOIL PIPE AND FITTING FOR SANITARY AND STORM DRAIN, WASTE AND VENT PIPING APPLICATIONS.
C 1540	SPECIFICATION FOR SHIELDED COUPLINGS JOINING HUBLESS CAST IRON SOIL PIPE AND FITTINGS (HEAVY DUTY COUPLINGS)
SCOPE:	THIS SPECIFICATION COVERS THE EVALUATION OF THE PERFORMANCE OF SHIELDED HUBLESS COUPLINGS TO JOIN CAST IRON SOIL PIPE AND FITTINGS.

### CAST IRON SOIL PIPE INSTITUTE

CISPI	TITLE
301	SPECIFICATION FOR HUBLESS CAST IRON SOIL PIPE AND FITTINGS FOR SANITARY AND STORM DRAIN, WASTE, AND VENT PIPING APPLICATIONS
SCOPE:	THE PURPOSE OF THIS STANDARD IS TO ESTABLISH STANDARDS COVERING MATERIAL, DIMENSIONS, AND TOLERANCE FOR PIPE AND FITTINGS FOR HUBLESS CAST IRON SANITARY AND STORM DRAIN, SANITARY WASTE, AND VENT PIPING APPLICATIONS.
310	SPECIFICATION FOR COUPLING FOR USE IN CONNECTION WITH HUBLESS CAST IRON PIPE AND FITTINGS FOR SANITARY AND STORM DRAIN, WASTE, AND VENT PIPING APPLICATION (REGULAR HUBLESS COUPLING)
SCOPE:	THE PURPOSE OF THIS SPECIFICATION IS TO ESTABLISH CRITERIA FOR MATERIAL DIMENSIONS AND TOLERANCES FOR ONE TYPE OF COUPLING USED IN HUBLESS CAST IRON SOIL PIPE AND FITTING FOR SANITARY AND STORM DRAIN, WASTE AND VENT PIPING APPLICATIONS.

## Gray Iron Physical Properties

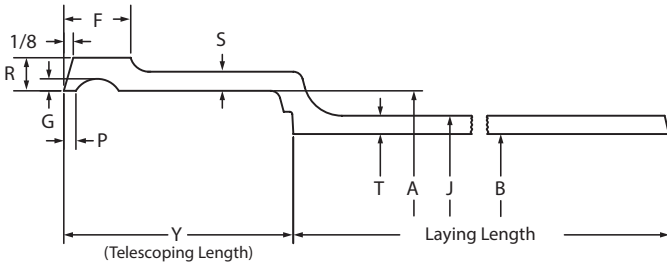
Tensile Strength	20,000 p.s.i. — 60,000 p.s.i. (21,000 p.s.i.)
Elastic Modulus (Young's modulus)	10 - 23 x 10 <sup>6</sup> p.s.i.
Hardness (Brinell)	150 - 250 BHN
Thermal Conductivity	0.110 - 0.137 calories/cm <sup>2</sup> /Sec/cm/ °C
Thermal Expansion	10 x 10 <sup>-6</sup> / °C 6 x 10 <sup>-6</sup> / °F
Density	0.25 - 0.28 lb./in <sup>3</sup> 6.95 - 7.35 gm/cm <sup>3</sup>
Specific Heat	0.13 BTU / lb / °F 0.13 cal / gm / °C

## Composition of Gray Iron

The following are typical ranges of elements present in unalloyed gray cast iron normally produced in commercial practice:

Carbon (C)	2.60 - 3.85%
Silicon (Si)	1.25 - 2.90%
Manganese (Mn)	0.40 - 1.00%
Phosphorus (P)	0.02 - 0.90%
Sulfur (S)	0.04 - 0.20%

# Extra Heavy Cast Iron



**⚠ WARNING**

Testing with or use of compressed air or gas in Cast Iron pipe or fittings can result in explosive failures and cause severe injury or death.

**AIR/GAS**

- NEVER test with or transport/store compressed air or gas in Cast Iron pipe or fittings.
- NEVER test Cast Iron pipe or fittings with compressed air or gas.
- ONLY use Cast Iron pipe and fittings for drain, waste and vent or sanitary sewer applications.

## Extra Heavy Cast Iron Soil Pipe and Fittings:

Size <sup>A</sup> Availability <sup>B</sup>	Inside Diameter of Hub <sup>B</sup>	Outside Diameter of Barrel <sup>B</sup>	Telescoping Length <sup>B</sup>	Inside Diameter of Barrel <sup>B</sup>	Thickness of Barrel <sup>B</sup>	
	A	J	Y	B	T	
					Nom	Min
2"	3.06	2.38	2.50	2.00	0.19	0.16
3"	4.19	3.50	2.75	3.00	0.25	0.22
4"	5.19	4.50	3.00	4.00	0.25	0.22
5"	6.19	5.50	3.00	5.00	0.25	0.22
6"	7.19	6.50	3.00	6.00	0.25	0.22
8"	9.50	8.62	3.50	8.00	0.31	0.25
10"	11.62	10.75	3.50	10.00	0.37	0.31
12"	13.75	12.75	4.25	12.00	0.37	0.31
15"	16.95	15.88	4.25	15.00	0.44	0.38

Size <sup>A</sup>	Thickness of Hub		Width of Hub Bead <sup>B</sup>	Distance from Lead Groove to End, Pipe and Fittings <sup>B</sup>	Depth of Lead Groove	
	Hub Body	Over Bead			G	
	S (min)	R (min)	F	P	G (min)	G (max)
2"	0.18	0.37	0.75	0.22	0.10	0.19
3"	0.25	0.43	0.81	0.22	0.10	0.19
4"	0.25	0.43	0.88	0.22	0.10	0.19
5"	0.25	0.43	0.88	0.22	0.10	0.19
6"	0.25	0.43	0.88	0.22	0.10	0.19
8"	0.34	0.59	1.19	0.38	0.15	0.22
10"	0.40	0.65	1.19	0.38	0.15	0.22
12"	0.40	0.65	1.44	0.47	0.15	0.22
15"	0.46	0.71	1.44	0.47	0.15	0.22

<sup>A</sup>Nominal inside diameter.

<sup>B</sup>For tolerances, please refer to the chart Dimensional Tolerances for Extra Heavy and Service Cast Iron Soil Pipe and Fittings.

**⚠ WARNING**

Cast Iron pipe and fittings are only intended for DWV (drain, waste and vent) non-pressure applications. Using cast iron pipe and fittings in pressure applications could result in explosive failures, causing serious injury or death or property damage.

# Extra Heavy Cast Iron

## Extra Heavy Cast Iron Soil Pipe

### Part No. XH 1 Pipe, 5' Lengths, Single Hub



Size	Weight
2"x5'	25.0
3"x5'	44.4
4"x5'	59.6
5"x5'	73.7
6"x5'	81.4
8"x5'	141.1
10"x5'	196.7
12"x5'	245.2
15"x5'	350.0

### Part No. XH 3 Pipe, 10' Lengths, Single Hub



Size	Weight
2"x10'	45.3
3"x10'	83.9
4"x10'	104.9
5"x10'	134.3
6"x10'	156.6
8"x10'	246.1
10"x10'	375.4
12"x10'	471.0
15"x10'	676.4

### Part No. XH 1A Pipe, 30" Lengths, Single Hub



Size	Weight
8"x30"	75.9
10"x30"	112.6
12"x30"	136.0
15"x30"	197.0

### Part No. XH 4 Pipe, 30" Lengths, Double Hub



Size	Weight
2"x30"	15.0
3"x30"	26.0
4"x30"	33.0

### Part No. XH 2 Pipe, 5' Lengths, Double Hub



Size	Weight
2"x5'	26.3
3"x5'	44.6
4"x5'	60.4
5"x5'	80.3
6"x5'	85.3

## **WARNING**

Testing with or use of compressed air or gas in Cast Iron pipe or fittings can result in explosive failures and cause severe injury or death.

AIR/GAS

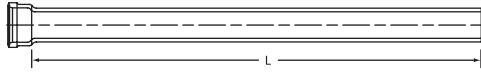


- NEVER test with or transport/store compressed air or gas in Cast Iron pipe or fittings.
- NEVER test Cast Iron pipe or fittings with compressed air or gas.
- ONLY use Cast Iron pipe and fittings for drain, waste and vent or sanitary sewer applications.



# Extra Heavy Cast Iron

**PART NO. XH 1**

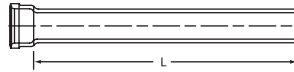


**Pipe, 5' Lengths, Single Hub**

Size	L	Weight
2" x 5'	5'	25.0
3" x 5'	5'	44.4
4" x 5'	5'	59.6
5" x 5'	5'	73.7
6" x 5'	5'	81.4
8" x 5'	5'	141.1
10" x 5'	5'	196.7
12" x 5'	5'	245.2
15" x 5'	5'	350.0

Weights are approximate and are for shipping purposes only.

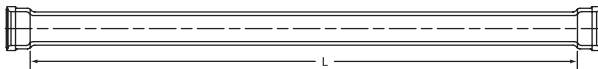
**PART NO. XH 1A**



**Pipe, 30" Lengths, Single Hub**

Size	L	Weight
8" x 30"	30"	75.9
10" x 30"	30"	112.6
12" x 30"	30"	136.0
15" x 30"	30"	197.0

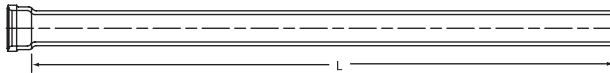
**PART NO. XH 2**



**Pipe, 5' Lengths, Double Hub**

Size	L	Weight
2" x 5'	4' 9 1/2"	26.3
3" x 5'	4' 9 1/4"	44.6
4" x 5'	4' 9"	60.4
5" x 5'	4' 9"	80.3
6" x 5'	4' 9"	85.3

**PART NO. XH 3**



**Pipe, 10' Lengths, Single Hub**

Size	L	Weight
2" x 10'	10'	45.3
3" x 10'	10'	83.9
4" x 10'	10'	104.9
5" x 10'	10'	134.3
6" x 10'	10'	156.6
8" x 10'	10'	246.1
10" x 10'	10'	375.4
12" x 10'	10'	471.0
15" x 10'	10'	676.4

**PART NO. XH 4**



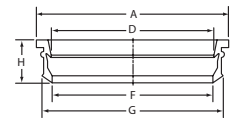
**Pipe, 30" Lengths, Double Hub**

Size	L	Weight
2" x 30"	25"	15.0
3" x 30"	24 1/2"	26.0
4" x 30"	24"	33.0

**PART NO. XH 900**

**Extra Heavy Charlotte Seal Gasket**

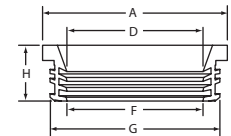
Size	A	D	F	G	H	Weight
2	3 1/2	2 3/8	2 9/32	3 3/16	1 7/8	0.3
3	4 15/16	3 1/2	3 1/2	4 1/2	2 1/4	0.4
4	5 3/4	4 7/32	4 13/32	5 7/16	2 1/4	0.6
5	6 3/4	5 1/2	5 1/2	6 3/16	2 1/2	0.7
6	8	6 1/2	6 1/2	7 3/8	2 1/2	0.9
8	10	8 1/2	8 5/16	9 1/2	3	1.6
10	12 1/2	10 3/4	10 1 1/32	11 1/2	3	2.0
12	14 7/16	12 5/8	12 5/8	14	3	2.8



**PART NO. XH 950**

**Extra Heavy Quick-Tite Gasket**

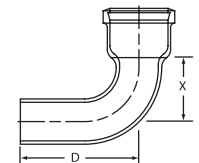
Size	A	D	F	G	H	Weight
4	6 1/8	4 1/4	4 13/32	5 1 1/16	1 13/16	0.6
15	17 3/4	15 13/32	15	16 7/8	3 1/4	5.0



**PART NO. XH 5**

**Quarter Bend**

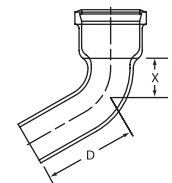
Size	D	X	Weight
2	6	3 1/4	6.3
3	7	4	11.1
4	8	4 1/2	15.5
5	8 1/2	5	18.5
6	9	5 1/2	25.8
8	11 1/2	6 5/8	47.0
10	12 1/2	7 5/8	80.0
12	15	8 3/4	142.0
15	16 1/2	10 1/4	173.9



**PART NO. XH 7**

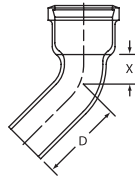
**Sixth Bend**

Size	D	X	Weight
2	4 3/4	2	6.0
3	5 1/2	2 1/2	7.2
4	6 5/16	2 13/16	14.0
6	6 7/8	3 3/8	21.0



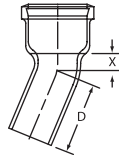
**PART NO. XH 8**

Eighth Bend			
Size	D	X	Weight
2	4 <sup>1</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>2</sub>	4.7
3	4 <sup>15</sup> / <sub>16</sub>	1 <sup>15</sup> / <sub>16</sub>	8.8
4	5 <sup>1</sup> / <sub>16</sub>	2 <sup>3</sup> / <sub>16</sub>	12.4
5	5 <sup>7</sup> / <sub>8</sub>	2 <sup>3</sup> / <sub>8</sub>	15.0
6	6 <sup>1</sup> / <sub>16</sub>	2 <sup>9</sup> / <sub>16</sub>	18.9
8	8	3 <sup>1</sup> / <sub>8</sub>	36.2
10	8 <sup>3</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>2</sub>	59.7
12	10 <sup>9</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>16</sub>	90.0
15	10 <sup>15</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>16</sub>	122.0



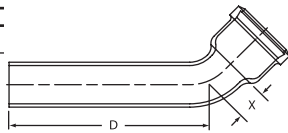
**PART NO. XH 9**

Sixteenth Bend			
Size	D	X	Weight
2	3 <sup>5</sup> / <sub>8</sub>	7 <sup>7</sup> / <sub>8</sub>	4.6
3	4 <sup>9</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>16</sub>	9.1
4	4 <sup>13</sup> / <sub>16</sub>	1 <sup>5</sup> / <sub>16</sub>	9.5
5	4 <sup>7</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>8</sub>	13.8
6	5	1 <sup>1</sup> / <sub>2</sub>	16.0
8	6 <sup>11</sup> / <sub>16</sub>	1 <sup>13</sup> / <sub>16</sub>	31.8
10	6 <sup>7</sup> / <sub>8</sub>	2	53.0
12	8 <sup>5</sup> / <sub>8</sub>	2 <sup>3</sup> / <sub>8</sub>	65.0
15	8 <sup>7</sup> / <sub>8</sub>	2 <sup>5</sup> / <sub>8</sub>	103.0



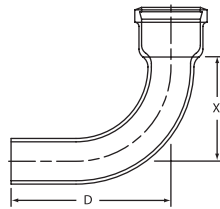
**PART NO. XH 26**

Long Eighth Bend			
Size	D	X	Weight
4 x 18	18	2 <sup>3</sup> / <sub>16</sub>	26.0



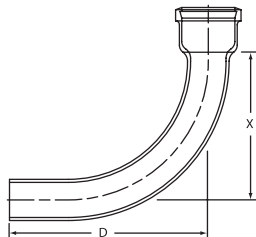
**PART NO. XH 29**

Short Sweep Bend			
Size	D	X	Weight
2	8	5 <sup>1</sup> / <sub>4</sub>	7.2
3	9	6	13.0
4	10	6 <sup>1</sup> / <sub>2</sub>	18.2
5	10 <sup>1</sup> / <sub>2</sub>	7	23.8
6	11	7 <sup>1</sup> / <sub>2</sub>	28.4
8	13 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>8</sub>	57.0
10	14 <sup>1</sup> / <sub>2</sub>	9 <sup>5</sup> / <sub>8</sub>	90.0
12	17	10 <sup>3</sup> / <sub>4</sub>	136.0



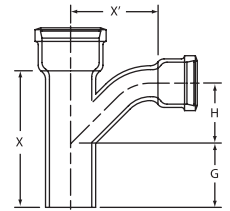
**PART NO. XH 30**

Long Sweep Bend			
Size	D	X	Weight
2	11	8 <sup>1</sup> / <sub>4</sub>	9.0
3	12	9	16.6
4	13	9 <sup>1</sup> / <sub>2</sub>	23.6
5	13 <sup>1</sup> / <sub>2</sub>	10	30.0
6	14	10 <sup>1</sup> / <sub>2</sub>	38.2
8	16 <sup>1</sup> / <sub>2</sub>	11 <sup>5</sup> / <sub>8</sub>	58.6
10	17 <sup>1</sup> / <sub>2</sub>	12 <sup>5</sup> / <sub>8</sub>	109.0
12	20	13 <sup>3</sup> / <sub>4</sub>	136.0
15	21 <sup>1</sup> / <sub>2</sub>	15 <sup>1</sup> / <sub>4</sub>	213.3



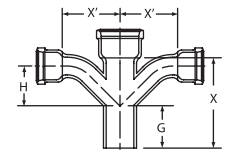
**PART NO. XH 33**

Combination Wye & Eighth Bend (Long Turn Pattern)					
Size	G	H	X	X'	Weight
2 x 2	4	3 <sup>3</sup> / <sub>8</sub>	8	4 <sup>7</sup> / <sub>8</sub>	9.7
3 x 2	4 <sup>3</sup> / <sub>16</sub>	4	9	5 <sup>3</sup> / <sub>4</sub>	16.0
3 x 3	5	5 <sup>1</sup> / <sub>16</sub>	10 <sup>1</sup> / <sub>2</sub>	7	18.2
4 x 2	3 <sup>1</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>2</sub>	9	6 <sup>1</sup> / <sub>4</sub>	18.9
4 x 3	4 <sup>1</sup> / <sub>2</sub>	5 <sup>9</sup> / <sub>16</sub>	10 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>2</sub>	22.0
4 x 4	4 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>2</sub>	12	9	28.1
5 x 4	4 <sup>1</sup> / <sub>4</sub>	7 <sup>5</sup> / <sub>16</sub>	12	9 <sup>1</sup> / <sub>2</sub>	29.3
5 x 5	5 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>8</sub>	13 <sup>1</sup> / <sub>2</sub>	11	33.7
6 x 2	2 <sup>1</sup> / <sub>16</sub>	5 <sup>1</sup> / <sub>2</sub>	9	7 <sup>1</sup> / <sub>4</sub>	22.0
6 x 3	3 <sup>1</sup> / <sub>8</sub>	6 <sup>9</sup> / <sub>16</sub>	10 <sup>1</sup> / <sub>2</sub>	8 <sup>1</sup> / <sub>2</sub>	30.4
6 x 4	4 <sup>1</sup> / <sub>4</sub>	7 <sup>13</sup> / <sub>16</sub>	12	10	38.5
6 x 6	5 <sup>3</sup> / <sub>4</sub>	10 <sup>5</sup> / <sub>16</sub>	15	12 <sup>7</sup> / <sub>8</sub>	53.5
8 x 4	4 <sup>3</sup> / <sub>4</sub>	8 <sup>13</sup> / <sub>16</sub>	13 <sup>1</sup> / <sub>2</sub>	11	54.0
8 x 6	6 <sup>5</sup> / <sub>16</sub>	11 <sup>5</sup> / <sub>16</sub>	16 <sup>1</sup> / <sub>2</sub>	13 <sup>7</sup> / <sub>8</sub>	70.5
8 x 8	7 <sup>1</sup> / <sub>16</sub>	13 <sup>7</sup> / <sub>8</sub>	19 <sup>1</sup> / <sub>2</sub>	17	107.4



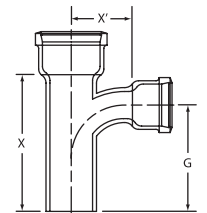
**PART NO. XH 35F**

Double Combination Wye & Eighth Bend (Long Turn Pattern)					
Size	G	H	X	X'	Weight
4 x 4	5 <sup>1</sup> / <sub>4</sub>	6 <sup>13</sup> / <sub>16</sub>	12	9	44.0
6 x 4	4 <sup>1</sup> / <sub>4</sub>	7 <sup>13</sup> / <sub>16</sub>	12	10	43.0



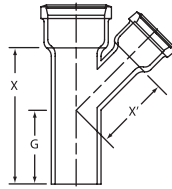
**PART NO. XH 43**

Sanitary Tee					
Size	G	X	X'	Weight	
2 x 2	6 <sup>1</sup> / <sub>4</sub>	8	2 <sup>7</sup> / <sub>8</sub>	8.7	
3 x 2	7	9	4	14.2	
3 x 3	7 <sup>1</sup> / <sub>2</sub>	10	4	17.1	
4 x 2	7	9	4 <sup>1</sup> / <sub>2</sub>	17.4	
4 x 3	7 <sup>1</sup> / <sub>2</sub>	10	4 <sup>1</sup> / <sub>2</sub>	18.3	
4 x 4	8	11	4 <sup>1</sup> / <sub>2</sub>	22.5	
5 x 5	8 <sup>1</sup> / <sub>2</sub>	12	5	28.0	
6 x 3	7 <sup>1</sup> / <sub>2</sub>	10	5 <sup>1</sup> / <sub>2</sub>	24.4	
6 x 4	8	11	5 <sup>1</sup> / <sub>2</sub>	28.0	
6 x 6	9	13	5 <sup>1</sup> / <sub>2</sub>	35.4	
8 x 4	9 <sup>3</sup> / <sub>4</sub>	13	6 <sup>1</sup> / <sub>2</sub>	51.0	
8 x 6	10 <sup>3</sup> / <sub>4</sub>	15	6 <sup>1</sup> / <sub>2</sub>	54.5	
8 x 8	11 <sup>3</sup> / <sub>4</sub>	17	6 <sup>5</sup> / <sub>8</sub>	72.0	
10 x 6	10 <sup>3</sup> / <sub>4</sub>	15	7 <sup>1</sup> / <sub>2</sub>	77.0	
10 x 8	11 <sup>3</sup> / <sub>4</sub>	17	7 <sup>5</sup> / <sub>8</sub>	95.0	
10 x 10	12 <sup>3</sup> / <sub>4</sub>	19	7 <sup>5</sup> / <sub>8</sub>	115.0	
12 x 8	13	18 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>8</sub>	126.0	
12 x 12	15	22 <sup>1</sup> / <sub>2</sub>	8 <sup>3</sup> / <sub>4</sub>	173.0	
15 x 8	13	18 <sup>1</sup> / <sub>2</sub>	10 <sup>1</sup> / <sub>8</sub>	180.0	
15 x 15	16 <sup>1</sup> / <sub>2</sub>	25 <sup>1</sup> / <sub>2</sub>	10 <sup>1</sup> / <sub>4</sub>	280.0	



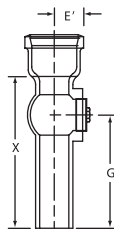
**PART NO. XH 44**

Wye				
Size	G	X	X'	Weight
2 x 2	4	8	4	9.0
3 x 2	4 <sup>3</sup> / <sub>16</sub>	9	5	13.2
3 x 3	5	10 <sup>1</sup> / <sub>2</sub>	5 <sup>1</sup> / <sub>2</sub>	17.2
4 x 2	3 <sup>5</sup> / <sub>8</sub>	9	5 <sup>3</sup> / <sub>4</sub>	16.8
4 x 3	4 <sup>7</sup> / <sub>16</sub>	10 <sup>1</sup> / <sub>2</sub>	6 <sup>1</sup> / <sub>4</sub>	20.6
4 x 4	5 <sup>1</sup> / <sub>4</sub>	12	6 <sup>3</sup> / <sub>4</sub>	23.7
5 x 3	3 <sup>7</sup> / <sub>8</sub>	10 <sup>1</sup> / <sub>2</sub>	7	23.7
5 x 4	4 <sup>1</sup> / <sub>16</sub>	12	7 <sup>1</sup> / <sub>2</sub>	28.3
5 x 5	5 <sup>1</sup> / <sub>2</sub>	13 <sup>1</sup> / <sub>2</sub>	8	31.6
6 x 3	3 <sup>3</sup> / <sub>8</sub>	10 <sup>1</sup> / <sub>2</sub>	7 <sup>3</sup> / <sub>4</sub>	26.8
6 x 4	4 <sup>3</sup> / <sub>16</sub>	12	8 <sup>1</sup> / <sub>4</sub>	31.9
6 x 5	4 <sup>15</sup> / <sub>16</sub>	13 <sup>1</sup> / <sub>2</sub>	8 <sup>3</sup> / <sub>4</sub>	33.8
6 x 6	5 <sup>3</sup> / <sub>4</sub>	15	9 <sup>1</sup> / <sub>4</sub>	41.2
8 x 4	4 <sup>9</sup> / <sub>4</sub>	13 <sup>1</sup> / <sub>2</sub>	9 <sup>1</sup> / <sub>2</sub>	50.2
8 x 6	6 <sup>5</sup> / <sub>16</sub>	16 <sup>1</sup> / <sub>2</sub>	10 <sup>1</sup> / <sub>2</sub>	61.5
8 x 8	7 <sup>1</sup> / <sub>16</sub>	19 <sup>1</sup> / <sub>2</sub>	11 <sup>13</sup> / <sub>16</sub>	86.6
10 x 4	3 <sup>9</sup> / <sub>16</sub>	13 <sup>1</sup> / <sub>2</sub>	11 <sup>1</sup> / <sub>8</sub>	72.0
10 x 6	5 <sup>1</sup> / <sub>8</sub>	16 <sup>1</sup> / <sub>2</sub>	12 <sup>1</sup> / <sub>8</sub>	84.0
10 x 8	6 <sup>1</sup> / <sub>2</sub>	19 <sup>1</sup> / <sub>2</sub>	13 <sup>7</sup> / <sub>16</sub>	101.7
10 x 10	8	22 <sup>1</sup> / <sub>2</sub>	14 <sup>1</sup> / <sub>2</sub>	137.0
12 x 6	5 <sup>1</sup> / <sub>16</sub>	18	13 <sup>7</sup> / <sub>16</sub>	108.0
12 x 8	7 <sup>1</sup> / <sub>16</sub>	21	14 <sup>3</sup> / <sub>4</sub>	140.0
12 x 10	8 <sup>9</sup> / <sub>16</sub>	24	15 <sup>13</sup> / <sub>16</sub>	180.0
12 x 12	10 <sup>1</sup> / <sub>8</sub>	27	16 <sup>7</sup> / <sub>8</sub>	198.0
15 x 4	6 <sup>7</sup> / <sub>8</sub>	15	15	153.0
15 x 8	5 <sup>3</sup> / <sub>8</sub>	21	17 <sup>1</sup> / <sub>16</sub>	219.0
15 x 10	6 <sup>7</sup> / <sub>8</sub>	24	18 <sup>1</sup> / <sub>8</sub>	229.0
15 x 12	8 <sup>7</sup> / <sub>16</sub>	27	19 <sup>3</sup> / <sub>16</sub>	236.0
15 x 15	10 <sup>3</sup> / <sub>4</sub>	31 <sup>1</sup> / <sub>2</sub>	20 <sup>3</sup> / <sub>4</sub>	309.4



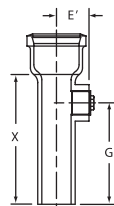
**PART NO. XH 79**

Washington Test Tee					
Size	IPS Tap	E'	G	X	Weight
3	4	2 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>8</sub>	10 <sup>3</sup> / <sub>4</sub>	13.9
4	4	3 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>4</sub>	10 <sup>5</sup> / <sub>8</sub>	19.9
5	5	3 <sup>5</sup> / <sub>8</sub>	7	11	24.4
6	6	4	8 <sup>3</sup> / <sub>4</sub>	13	42.2
8	8	5	11	16 <sup>3</sup> / <sub>8</sub>	58.5



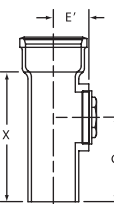
**PART NO. XH 80**

Cleanout Tee with Brass Plug					
Size	IPS Tap	E'	G	X	Weight
3	2	2 <sup>1</sup> / <sub>2</sub>	7	9	11.3
4	3	3	8	11	15.5
5	4	3 <sup>1</sup> / <sub>2</sub>	8 <sup>1</sup> / <sub>2</sub>	12	22.9
6	4	4 <sup>1</sup> / <sub>4</sub>	9	13	26.9



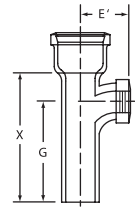
**PART NO. XH 81S**

Miami Test Tee					
Size	IPS Tap	E'	G	X	Weight
4	4	3	7 <sup>1</sup> / <sub>4</sub>	11	16.0



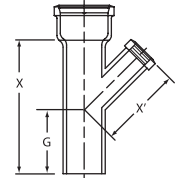
**PART NO. XH 84**

Sanitary Tapped Tee				
Size	E'	G	X	Weight
4 x 2	4 <sup>1</sup> / <sub>16</sub>	7	9	14.3



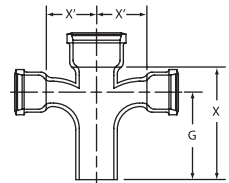
**PART NO. XH 85**

Tapped Wye				
Size	G	X	X'	Weight
4 x 2	4 <sup>1</sup> / <sub>4</sub>	9	6	13.8



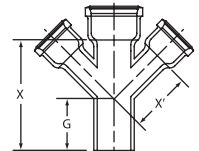
**PART NO. XH 109**

Sanitary Cross				
Size	G	X	X'	Weight
4	8	11	4 <sup>1</sup> / <sub>2</sub>	27.0



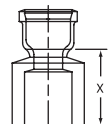
**PART NO. XH 110**

Double Wye				
Size	G	X	X'	Weight
2	4	8	4	13.1
4 x 3	4 <sup>7</sup> / <sub>16</sub>	10 <sup>1</sup> / <sub>2</sub>	6 <sup>1</sup> / <sub>4</sub>	26.9
4	5 <sup>1</sup> / <sub>4</sub>	12	6 <sup>3</sup> / <sub>4</sub>	28.2
6 x 4	4 <sup>3</sup> / <sub>16</sub>	12	8 <sup>1</sup> / <sub>4</sub>	39.8
6	5 <sup>3</sup> / <sub>4</sub>	15	9 <sup>1</sup> / <sub>4</sub>	45.0
8	7 <sup>1</sup> / <sub>16</sub>	19 <sup>1</sup> / <sub>2</sub>	11 <sup>13</sup> / <sub>16</sub>	119.0
10	8	22 <sup>1</sup> / <sub>2</sub>	14 <sup>1</sup> / <sub>2</sub>	182.0
12	10 <sup>1</sup> / <sub>8</sub>	27	16 <sup>7</sup> / <sub>8</sub>	295.0
15	10 <sup>3</sup> / <sub>4</sub>	31 <sup>1</sup> / <sub>2</sub>	22	384.8



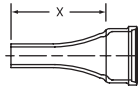
**PART NO. XH 143**

Reducer		
Size	X	Weight
3 x 2	4 <sup>3</sup> / <sub>4</sub>	6.0
4 x 2	5	7.0
4 x 3	5	8.9
5 x 3	5	11.0
5 x 4	5	11.0
6 x 3	5	12.0
6 x 4	5	12.2
6 x 5	5	12.6
8 x 4	6	19.1
8 x 5	6	19.5
8 x 6	6	19.0
10 x 4	6	28.0
10 x 6	6	30.0
10 x 8	6	35.0
12 x 4	6 <sup>1</sup> / <sub>2</sub>	36.8
12 x 6	6 <sup>1</sup> / <sub>2</sub>	46.0
12 x 8	6 <sup>1</sup> / <sub>2</sub>	43.0
12 x 10	6 <sup>1</sup> / <sub>2</sub>	50.0
15 x 8	6 <sup>1</sup> / <sub>2</sub>	55.5
15 x 10	6 <sup>1</sup> / <sub>2</sub>	57.0
15 x 12	6 <sup>1</sup> / <sub>2</sub>	62.0



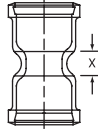
**PART NO. XH 144**

Reducer Insealer		
Size	X	Weight
4 x 6	9	15.8
6 x 8	12	33.8



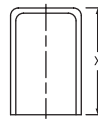
**PART NO. XH 153**

Double Hub Fitting		
Size	X	Weight
2	1 1/4	5.0
4	1 1/2	9.4
5	1 1/2	12.0
6	1 1/2	14.0
8	1 1/2	28.0
10	1 1/2	43.0
12	1 1/2	54.0
15	1 1/2	80.0



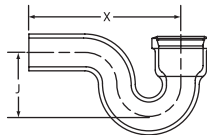
**PART NO. XH 155**

Pipe Plug		
Size	X	Weight
2	3 1/2	1.4
4	4	4.7
6	4	8.0
8	4 1/2	15.0
10	4 1/2	29.0
12	5 1/4	32.0
15	5 1/4	44.0



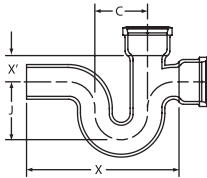
**PART NO. XH 169**

"P" Trap			
Size	J	X	Weight
2	4	9 1/2	7.9
3	5 1/2	12	17.2
4	6 1/2	14	27.2
6	8 1/2	17	45.2
8	10 1/2	22 1/16	120.0



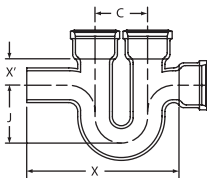
**PART NO. XH 174**

Running Trap with Single Hub Vent						
Vent						
Size	Size	C	J	X	X'	Weight
3	3	5	5 1/2	15	2 1/2	22.8
4	4	6	6 1/2	17 1/2	3	35.6
5	4	7	7 1/2	19 1/2	3 1/2	46.0
6	4	8	8 1/2	21 1/2	4	59.0



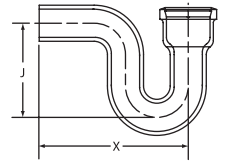
**PART NO. XH 175**

Running Trap with Double Hub Vent						
Vent						
Size	Size	C	J	X	X'	Weight
3	3	5	5 1/2	15	2 1/2	30.0
4	4	6	6 1/2	17 1/2	3	37.4
5	4	7	7 1/2	19 1/2	3 1/2	50.0
6	4	8	8 1/2	21 1/2	4	65.5
6	6	8	8 1/2	21 1/2	4	71.0
8	4	10	11	27 5/8	5 1/4	127.0
8	6	10	11	27 5/8	5 1/4	119.6
10	8	12	13	31 5/8	6 1/4	193.0
12	6	15	15	38 3/4	7 1/4	274.0



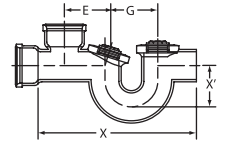
**PART NO. XH 180**

Deep Seal "P" Trap			
Size	X	J	Weight
2	9 1/2	6	9.8
3	12	7	20.3
4	14	8	29.0



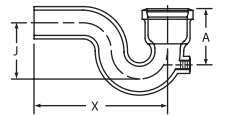
**PART NO. XH 184<sup>(T)</sup>**

Improved Running Trap with Double Cleanout and Tee Branch						
Vent						
Size	Size	E	G	X	X'	Weight
4	3	5 1/4	6 1/4	20 1/2	5 1/2	41.8
4	4	5 3/8	6 1/4	20 1/2	5 1/2	42.9



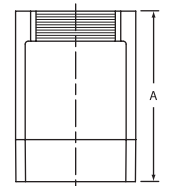
**PART NO. XH 198**

"P" Trap with 1/2" Heel Tap				
Size	X	J	A	Weight
2	9 1/2	4	4	9.0
3	12	5 1/2	4 5/8	17.0
4	14	6 1/2	4 5/8	27.0



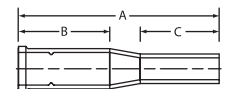
**PART NO. XH 230**

Iron Body Cleanout, Body Only, Less Brass Plug			
Size	Tap Size	A	Weight
2 <sup>(S)</sup>	1 1/2	3 1/2	1.7
3 <sup>(S)</sup>	2 1/2	3 3/4	3.2
4	3 1/2	4 1/4	4.3
5 <sup>(S)</sup>	4	4 1/4	6.5
6	5	4 1/4	6.6
8	6	4 1/2	13.1
10	6	4 1/2	21.0
12	6	5 1/4	38.0
15	6	5 1/4	52.8



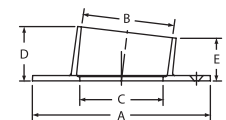
**PART NO. XH 253**

Sission Insertable Joint				
Size	A	B	C	Weight
4	14 1/2	7	6	17.1
6	16 3/16	8 1/2	6	26.2



**PART NO. XH 549**

Roof Iron						
Size	A	B	C	D	E	Weight
4	10 7/16	5 3/8	4 13/16	3 3/16	2 1/2	8.2



<sup>(T)</sup> Note: 3 1/2" IPS tap

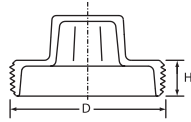
<sup>(S)</sup> Size available only with Southern Raised-Head Brass Plug installed

# Plugs

**PART NO. PLG 410**

**Ohio Code Brass Plug**

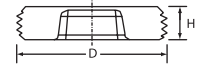
Size	D	H	Weight
10	10 <sup>23/32</sup>	2 <sup>1/32</sup>	10.6



**PART NO. PLG 440**

**Southern Code Countersunk Brass Plug**

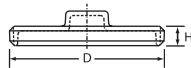
Size	D	H	Weight
1 1/2	1 <sup>57/64</sup>	1 <sup>13/32</sup>	0.2
2	2 <sup>23/64</sup>	7/16	0.3
3	3 <sup>15/32</sup>	3 <sup>3/64</sup>	0.6
3 1/2	3 <sup>63/64</sup>	3 <sup>3/64</sup>	0.8
4	4 <sup>31/64</sup>	3 <sup>5/64</sup>	0.9
5	5 <sup>35/64</sup>	1 <sup>1/16</sup>	1.7
6	6 <sup>19/32</sup>	1 <sup>1/16</sup>	2.3



**PART NO. PLG 430**

**Southern Code Brass Plug**

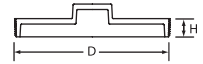
Size	D	H	Weight
1 1/2	1 <sup>57/64</sup>	4 <sup>9/64</sup>	0.2
2	2 <sup>23/64</sup>	4 <sup>9/64</sup>	0.3
2 1/2	2 <sup>55/64</sup>	5 <sup>1/64</sup>	0.4
3	3 <sup>15/32</sup>	5 <sup>7/64</sup>	0.6
3 1/2	3 <sup>63/64</sup>	5 <sup>7/64</sup>	0.7
4	4 <sup>31/64</sup>	6 <sup>1/64</sup>	1.1
5	5 <sup>35/64</sup>	6 <sup>1/64</sup>	1.5
6	6 <sup>19/32</sup>	1 <sup>7/32</sup>	2.5
8	8 <sup>39/64</sup>	1 <sup>9/32</sup>	4.0



**PART NO. PLG 450**

**Cast Iron Plug**

Size	D	H	Weight
6	6 <sup>35/64</sup>	1 <sup>17/64</sup>	4.2
10	10 <sup>39/64</sup>	1 <sup>31/32</sup>	9.0



# SUBMITTAL FOR CHARLOTTE® SEAL AND QUIK-TITE COMPRESSION GASKETS

## ▶ Charlotte Seal Gasket

Charlotte Seal Gaskets are used for joining Hub and Spigot Cast Iron pipe and fittings conforming to ASTM A 74.

### Material:

Charlotte Seal Gaskets are a molded one-piece gasket made from Neoprene. Neoprene is one of the few elastomers that is well suited for direct burial because it has the ability to withstand the natural corrosive components of soil as well as sanitary effluent. Neoprene has a maximum operating temperature of 212°F and has a maximum joint deflection of 5 degrees.

### Gasket Specification:

Charlotte Seal Gaskets are produced in conformance with ASTM C 564.

### Features:

The molded bead design locks into the lead bead groove on Charlotte Pipe® Hub and Spigot Cast Iron Pipe and Fittings to provide a secure, leak free seal.

## ▶ Quik-Tite Gasket

Quik-Tite Gaskets are used for joining Hub and Spigot Cast Iron pipe and fittings conforming to ASTM A 74.

### Material:

Quik-Tite Gaskets are a molded one-piece gasket made from Neoprene. Neoprene is one of the few elastomers that is well suited for direct burial because it has the ability to withstand the natural corrosive components of soil as well as sanitary effluent. Neoprene has a maximum operating temperature of 212°F and has a maximum joint deflection of 5 degrees.

### Gasket Specification:

Quik-Tite Gaskets are produced in conformance with ASTM C 564.



Molded Bead

### Charlotte Seal Gasket

Available for 2"-10" Service and 2"-15"  
Extra Heavy Cast Iron Systems



### Quik-Tite Gasket

Available for 2"-12" Service and 4"-15"  
Extra Heavy Cast Iron Systems



For more information, call us at 1-800-438-6091 or log on to [www.charlottepipe.com](http://www.charlottepipe.com).

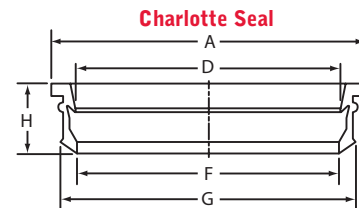
# SUBMITTAL FOR CHARLOTTE® SEAL AND QUIK-TITE COMPRESSION GASKETS

## Installation

1. Clean the hub and spigot so they are free of all dirt, mud, sand, gravel, and other foreign materials.
2. Remove sharp edges by filing or tapping with a ball-peen hammer. Insert the gasket into the hub.
3. The gasket must be completely inserted into the hub. Only the gasket's flange that shows identification information should remain exposed outside the hub.
4. Lubricate the gasket following the pipe joint lubrication manufacturer's recommendations. For small-diameter pipe and fittings (2" - 4"), coat the inside of the gasket with lubricant using a paint brush or rag, and then coat the outside of the spigot. For large-diameter pipe and fittings (5" - 15"), we recommend that an adhesive lubricant be used to ensure a water-tight seal. Adhesive lubricants should be applied to the inside of the gasket, the outside of the spigot and the inside of the hub.
5. Align the pipe so that it is straight, then push or pull the spigot through all the sealing rings of the gasket. Charlotte plain-end pipe is manufactured with beveled ends to make insertion easy. As the spigot barrel is forced into the gasket, the gasket is compressed and completely seals the joint in both displacement and compression. When seated correctly, you will feel the spigot end of the pipe "bottom" in the hub.

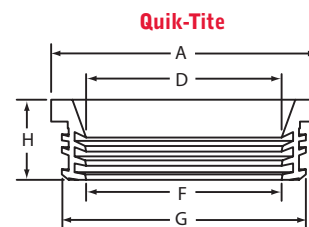


## Dimensional Diagrams



Service								
	2"	3"	4"	5"	6"	8"	10"	
A	3½	4½	5½	6½	7½	9¾	12 <sup>7</sup> / <sub>16</sub>	
D	2 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>16</sub>	5 <sup>1</sup> / <sub>16</sub>	6 <sup>3</sup> / <sub>16</sub>	8 <sup>13</sup> / <sub>32</sub>	10½	
F	2 <sup>1</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>8</sub>	6 <sup>1</sup> / <sub>8</sub>	8 <sup>3</sup> / <sub>16</sub>	10 <sup>1</sup> / <sub>16</sub>	
G	3 <sup>3</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>8</sub>	5¼	6¼	7¼	9 <sup>5</sup> / <sub>32</sub>	11 <sup>11</sup> / <sub>16</sub>	
H	1 <sup>3</sup> / <sub>32</sub>	2 <sup>1</sup> / <sub>16</sub>	2 <sup>5</sup> / <sub>32</sub>	2 <sup>5</sup> / <sub>32</sub>	2¼	3	2¾	

Extra Heavy								
	2"	3"	4"	5"	6"	8"	10"	12"
A	3½	4 <sup>15</sup> / <sub>16</sub>	5¾	6¾	8	10	12½	14 <sup>7</sup> / <sub>16</sub>
D	2 <sup>3</sup> / <sub>8</sub>	3½	4 <sup>3</sup> / <sub>32</sub>	5½	6½	8½	10¾	12 <sup>3</sup> / <sub>8</sub>
F	2 <sup>7</sup> / <sub>32</sub>	3½	4 <sup>13</sup> / <sub>32</sub>	5½	6½	8 <sup>3</sup> / <sub>16</sub>	10 <sup>11</sup> / <sub>32</sub>	12 <sup>3</sup> / <sub>8</sub>
G	3 <sup>3</sup> / <sub>16</sub>	4½	5 <sup>1</sup> / <sub>16</sub>	6 <sup>3</sup> / <sub>16</sub>	7 <sup>3</sup> / <sub>8</sub>	9½	11½	14
H	1 <sup>7</sup> / <sub>8</sub>	2¼	2¼	2½	2½	3	3	3



Service								
	2"	3"	4"	5"	6"	8"	10"	12"
A	3½	4 <sup>7</sup> / <sub>8</sub>	5¾	6¾	8	10	12¼	14 <sup>3</sup> / <sub>8</sub>
D	2 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	4	5	6 <sup>5</sup> / <sub>16</sub>	8 <sup>3</sup> / <sub>16</sub>	10¾	12¼
F	2	3 <sup>1</sup> / <sub>16</sub>	4	5	6 <sup>5</sup> / <sub>16</sub>	8 <sup>3</sup> / <sub>16</sub>	10	12
G	3¾	4 <sup>3</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>16</sub>	6	7 <sup>1</sup> / <sub>32</sub>	8½	11½	14
H	1 <sup>1</sup> / <sub>32</sub>	1¼	1¼	2 <sup>1</sup> / <sub>16</sub>	2 <sup>5</sup> / <sub>32</sub>	2½	2½	2 <sup>7</sup> / <sub>8</sub>

Extra Heavy		
	4" XH	15" XH
A	6 <sup>3</sup> / <sub>8</sub>	17¾
D	4¾	15 <sup>13</sup> / <sub>32</sub>
F	4 <sup>13</sup> / <sub>32</sub>	15
G	5 <sup>11</sup> / <sub>16</sub>	16 <sup>7</sup> / <sub>8</sub>
H	1 <sup>13</sup> / <sub>16</sub>	3¼

## NOTICE

Charlotte Pipe and Foundry Company strongly recommends that its cast iron hub and spigot pipe and fittings be joined with compression gaskets sold by our Company. Our hub and spigot pipe and fittings are manufactured to very specific manufacturing tolerances which conform to ASTM A 74. Our gaskets, produced in conformance with ASTM C 564, are especially designed to work with our pipe and fitting tolerances.

## NOTICE

Service Weight gaskets should only be used with Service Weight pipe and fittings, where Extra Heavy gaskets should be used with Extra Heavy pipe and fittings. Due to dimensional variances between systems, the two are not interchangeable.

For more information, call us at 1-800-438-6091 or log on to [www.charlottepipe.com](http://www.charlottepipe.com).



## Limited Warranty

Charlotte Pipe and Foundry Company® (Charlotte Pipe®) Products are warranted to be free from manufacturing defects and to conform to currently applicable ASTM standards for a period of five (5) years from date of delivery. Buyer's remedy for breach of this warranty is limited to replacement of, or credit for, the defective product. This warranty excludes any expense for removal or reinstallation of any defective product and any other incidental, consequential, or punitive damages. **This limited warranty is the only warranty made by seller and is expressly in lieu of all other warranties, express and implied, including any warranties of merchantability and fitness for a particular purpose.** No statement, conduct or description by Charlotte Pipe or its representative, in addition to or beyond this Limited Warranty, shall constitute a warranty. This Limited Warranty may only be modified in writing signed by an officer of Charlotte Pipe.

This Limited Warranty will not apply if:

- 1) The Products are used for purposes other than their intended purpose as defined by local plumbing and building codes, and the applicable ASTM standard.
- 2) The Products are not installed in good and workmanlike manner consistent with normal industry standards; installed in compliance with the latest instructions published by Charlotte Pipe and good plumbing practices; and installed in conformance with all applicable plumbing, fire and building code requirements.
- 3) This limited warranty does not apply when the products of Charlotte Pipe are used with the products of other manufacturers that do not meet the applicable ASTM or CISPI standards or that are not marked in a manner to indicate the entity that manufactured them.
- 4) In hubless cast iron installations, this warranty will not apply if products are joined with unshielded hubless couplings. Charlotte Pipe requires that its hubless cast iron pipe and fittings be joined only with shielded hubless couplings manufactured in accordance with CISPI 310, ASTM C 1277 and certified by NSF® International or with Heavy Duty Couplings meeting ASTM C 1540.

- 5) The Products fail due to defects or deficiencies in design, engineering, or installation of the piping system of which they are a part.
- 6) The Products have been the subject of modification; misuse; misapplication; improper maintenance or repair; damage caused by the fault or negligence of anyone other than Charlotte Pipe; or any other act or event beyond the control of Charlotte Pipe.
- 7) The Products fail due to the freezing of water in the Products.
- 8) The Products fail due to contact with chemical agents, fire stopping materials, thread sealant, plasticized vinyl products, or other aggressive chemical agents that are not compatible.
- 9) Pipe outlets, sound attenuation systems or other devices are permanently attached to the surface of Charlotte® PVC, ABS or CPVC products with solvent cement or adhesive glue.

Charlotte Pipe products are manufactured to the applicable ASTM or CISPI standard. Charlotte Pipe and Foundry **cannot** accept responsibility for the performance, dimensional accuracy, or compatibility of pipe, fittings, gaskets, or couplings not manufactured or sold by Charlotte Pipe and Foundry.

Any Charlotte Pipe products alleged to be defective **must** be made available to Charlotte Pipe at the following address for verification, inspection and determination of cause:

Charlotte Pipe and Foundry Company  
Attention: Technical Services  
2109 Randolph Road  
Charlotte, North Carolina 28207

**Purchaser must obtain a return materials authorization** and instructions for return shipment to Charlotte Pipe of any product claimed defective or shipped in error. Please refer to the **Return Material Policy** on the back of this page for specific instructions on returning materials to Charlotte Pipe.

Any Charlotte Pipe product **proved** to be defective in manufacture will be replaced F.O.B. point of original delivery, or credit will be issued, at the discretion of Charlotte Pipe.

4/24/15

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All products manufactured by  
Charlotte Pipe and Foundry Company  
are proudly made in the U.S.A.