

SUBMITTAL FOR CHARLOTTE PIPE® HUBLESS CAST IRON SOIL PIPE AND FITTINGS

Date: _____

Job Name: _____

Location: _____

Engineer: _____

Contractor: _____

► Scope:

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

► Specification:

Hubless Cast Iron pipe and fittings shall be manufactured from gray cast iron and shall conform to ASTM A 888 and CISPI Standard 301. All pipe and fittings shall be marked with the collective trademark of the Cast Iron Soil Pipe Institute® and listed by NSF® International. Hubless Couplings shall conform to CISPI Standard 310, shall be manufactured in the United States, and be certified by NSF® International. Heavy Duty and Medium Duty couplings shall conform to ASTM C 1540, shall be manufactured in the United States, and shall be used if indicated.

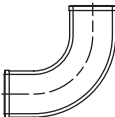

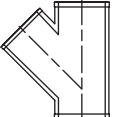

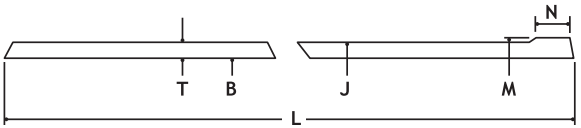
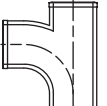
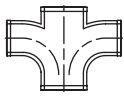

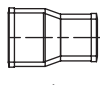


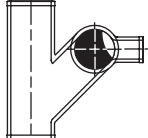
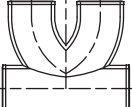
► Installation:

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 C 564: Rubber Gaskets for Cast Iron Soil Pipe and Fittings
- CISPI 301: Hubless Cast Iron Soil Pipe and Fittings
- CISPI 310: Hubless Couplings for Cast Iron Soil Pipe and Fittings
- ASTM C 1277: Hubless Couplings
- ASTM C 1540: Hubless Medium Duty and Heavy Duty Couplings



 1/4 Bend	 1/8 Bend	 Wye	 Combination	 TABLE 1 DIMENSIONS AND TOLERANCES (IN INCHES) OF SPIGOTS AND BARRELS FOR NO-HUB PIPE AND FITTINGS																																																																																			
 San Tee	 San Cross	 Test Tee	 Reducer																																																																																				
 "P" Trap	 Blind Plug	 Figure Eight	 Two-Way Cleanout	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Size</th> <th>Inside Barrel Diameter</th> <th>Outside Diameter Barrel</th> <th>Outside Diameter Spigot</th> <th>Width Spigot Bead N</th> <th>Thickness of Barrel</th> <th>Gasket Positioning Lug</th> </tr> <tr> <th>B</th> <th>J</th> <th>M</th> <th>(± .13)</th> <th>T-Nom. T-Min.</th> <th>W</th> </tr> </thead> <tbody> <tr> <td>1 1/2</td> <td>1.50 ± .09</td> <td>1.90 ± .06</td> <td>1.96 ± .06</td> <td>.25</td> <td>.16</td> <td>.13</td> </tr> <tr> <td>2</td> <td>1.96 ± .09</td> <td>2.35 ± .09</td> <td>2.41 ± .09</td> <td>.25</td> <td>.16</td> <td>.13</td> </tr> <tr> <td>3</td> <td>2.96 ± .09</td> <td>3.35 ± .09</td> <td>3.41 ± .09</td> <td>.25</td> <td>.16</td> <td>.13</td> </tr> <tr> <td>4</td> <td>3.94 ± .09</td> <td>4.38 ± .09</td> <td>4.44 ± .09</td> <td>.31</td> <td>.19</td> <td>.15</td> </tr> <tr> <td>5</td> <td>4.94 ± .09</td> <td>5.30 ± .09</td> <td>5.36 ± .09</td> <td>.31</td> <td>.19</td> <td>.15</td> </tr> <tr> <td>6</td> <td>5.94 ± .09</td> <td>6.30 ± .09</td> <td>6.36 ± .09</td> <td>.31</td> <td>.19</td> <td>.15</td> </tr> <tr> <td>8</td> <td>7.94 ± .13</td> <td>8.38 ± .09</td> <td>8.44 ± .09</td> <td>.31</td> <td>.23</td> <td>.17</td> </tr> <tr> <td>10</td> <td>10.00 ± .13</td> <td>10.56 ± .09</td> <td>10.62 ± .09</td> <td>.31</td> <td>.28</td> <td>.22</td> </tr> <tr> <td>12</td> <td>11.94 ± .09</td> <td>12.50 ± .13</td> <td>12.62 ± .13</td> <td>.31</td> <td>.28</td> <td>.22</td> </tr> <tr> <td>15</td> <td>15.11 ± .09</td> <td>15.83 ± .13</td> <td>16.12 ± .13</td> <td>.31</td> <td>.36</td> <td>.30</td> </tr> </tbody> </table>	Size	Inside Barrel Diameter	Outside Diameter Barrel	Outside Diameter Spigot	Width Spigot Bead N	Thickness of Barrel	Gasket Positioning Lug	B	J	M	(± .13)	T-Nom. T-Min.	W	1 1/2	1.50 ± .09	1.90 ± .06	1.96 ± .06	.25	.16	.13	2	1.96 ± .09	2.35 ± .09	2.41 ± .09	.25	.16	.13	3	2.96 ± .09	3.35 ± .09	3.41 ± .09	.25	.16	.13	4	3.94 ± .09	4.38 ± .09	4.44 ± .09	.31	.19	.15	5	4.94 ± .09	5.30 ± .09	5.36 ± .09	.31	.19	.15	6	5.94 ± .09	6.30 ± .09	6.36 ± .09	.31	.19	.15	8	7.94 ± .13	8.38 ± .09	8.44 ± .09	.31	.23	.17	10	10.00 ± .13	10.56 ± .09	10.62 ± .09	.31	.28	.22	12	11.94 ± .09	12.50 ± .13	12.62 ± .13	.31	.28	.22	15	15.11 ± .09	15.83 ± .13	16.12 ± .13	.31	.36	.30
Size	Inside Barrel Diameter	Outside Diameter Barrel	Outside Diameter Spigot	Width Spigot Bead N		Thickness of Barrel	Gasket Positioning Lug																																																																																
	B	J	M	(± .13)	T-Nom. T-Min.	W																																																																																	
1 1/2	1.50 ± .09	1.90 ± .06	1.96 ± .06	.25	.16	.13																																																																																	
2	1.96 ± .09	2.35 ± .09	2.41 ± .09	.25	.16	.13																																																																																	
3	2.96 ± .09	3.35 ± .09	3.41 ± .09	.25	.16	.13																																																																																	
4	3.94 ± .09	4.38 ± .09	4.44 ± .09	.31	.19	.15																																																																																	
5	4.94 ± .09	5.30 ± .09	5.36 ± .09	.31	.19	.15																																																																																	
6	5.94 ± .09	6.30 ± .09	6.36 ± .09	.31	.19	.15																																																																																	
8	7.94 ± .13	8.38 ± .09	8.44 ± .09	.31	.23	.17																																																																																	
10	10.00 ± .13	10.56 ± .09	10.62 ± .09	.31	.28	.22																																																																																	
12	11.94 ± .09	12.50 ± .13	12.62 ± .13	.31	.28	.22																																																																																	
15	15.11 ± .09	15.83 ± .13	16.12 ± .13	.31	.36	.30																																																																																	

Not all fitting patterns shown

Note: Charlotte Pipe does not recommend or warrant installations joined with unshielded hubless couplings.

Charlotte Pipe and Foundry Company • P.O. Box 35430 Charlotte, NC 28235 • (800) 438-6091 • www.charlottepipe.com

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

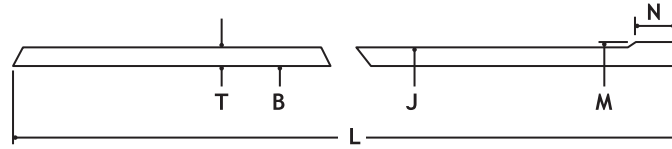
Tensile Strength	20,000 p.s.i. — 60,000 p.s.i. (21,000 p.s.i.)
Elastic Modulus (Young's modulus)	10 - 23 x 10 ⁶ p.s.i.
Hardness (Brinell)	150 - 250 BHN
Thermal Conductivity	0.110 - 0.137 calories/cm ² /Sec/cm/ °C
Thermal Expansion	10 x 10 ⁻⁶ / °C 6 x 10 ⁻⁶ / °F
Density	0.25 - 0.28 lb./in ³ 6.95 - 7.35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

Hubless Cast Iron



DIMENSIONS AND TOLERANCES (IN INCHES) OF SPIGOTS AND BARRELS FOR HUBLESS PIPE AND FITTINGS

Size	Inside Barrel Diameter	Outside Diameter Barrel	Outside Diameter Spigot	Width Spigot Bead N	Thickness of Barrel		Gasket Positioning Lug
	B	J	M	(± .13)	T-Nom.	T-Min.	W
1½	1.50 ± .09	1.90 ± .06	1.96 ± .06	.25	.16	.13	1.13
2	1.96 ± .09	2.35 ± .09	2.41 ± .09	.25	.16	.13	1.13
3	2.96 ± .09	3.35 ± .09	3.41 ± .09	.25	.16	.13	1.13
4	3.94 ± .09	4.38 ± .09	4.44 ± .09	.31	.19	.15	1.13
5	4.94 ± .09	5.30 ± .09 - .05	5.36 ± .09	.31	.19	.15	1.50
6	5.94 ± .09	6.30 ± .09 - .05	6.36 ± .09	.31	.19	.15	1.50
8	7.94 ± .13	8.38 ± .09	8.44 ± .09	.31	.23	.17	2.00
10	10.00 ± .13	10.56 ± .09	10.62 ± .09	.31	.28	.22	2.00
12	11.94 ± .09	12.50 ± .13	12.62 ± .13	.31	.28	.22	2.75
15	15.11 ± .09	15.83 ± .13	16.12 ± .13	.31	.36	.30	2.75

! 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.

! 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.

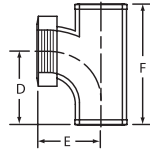


- NEVER test with or transport/store compressed air or gas in Cast Iron pipe or fittings.
- NEVER test Cast Iron pipe or fittings with compressed air or gas.
- ONLY use Cast Iron pipe and fittings for drain, waste and vent or sanitary sewer applications.

PART NO. NH 34

Sanitary Tapped Tee

Size	D	E	F	Weight
1 1/2 x 1 1/4	3 1/4	2 9/16	5 11/16	2.3
1 1/2 x 1 1/2	3 1/4	2 9/16	5 11/16	2.5
2 x 1 1/4	3 1/4	2 13/16	5 11/16	2.8
2 x 1 1/2	3 1/4	2 13/16	5 11/16	3.1
2 x 2	3 3/4	3 1/16	6 3/8	3.8
3 x 1 1/4	3 1/4	3 5/16	5 11/16	3.7
3 x 1 1/2	3 1/4	3 5/16	5 11/16	3.6
3 x 2	3 3/4	3 9/16	6 3/8	4.9
3 x 3	4 7/8	4 1/8	8	7.3
4 x 1 1/4	3 1/4	3 13/16	5 11/16	4.0
4 x 1 1/2	3 1/4	3 3/4	5 11/16	4.8
4 x 2	3 3/4	4 1/16	6 3/8	5.8
4 x 3	4 1/2	4 3/8	8	8.4
5 x 1 1/2	3 3/4	4 5/16	7 3/16	6.5
5 x 2	4 1/4	4 9/16	8	9.3
6 x 1 1/2	3 3/4	4 13/16	6 3/4	8.4
6 x 2	4 1/4	5 1/16	7 7/16	9.2



PART NO. EZS 17

2" x 22 7/8" Extended Tapped Sanitary Tee

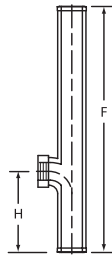
Size	H	F	Weight
2 x 1 1/2 x 22 7/8	3 1/4	22 7/8	9.6
2 x 2 x 22 7/8	3 3/4	22 7/8	9.2



PART NO. EZS 27

Sanitary Tapped Tee

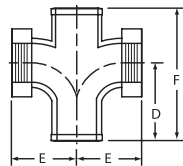
Size	H	F	Weight
2 x 1 1/2 x 31	11 1/4	31	12.6
2 x 2 x 31	11 1/4	31	13.6



PART NO. NH 35

Sanitary Tapped Cross

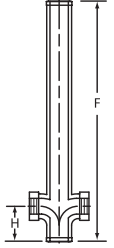
Size	D	E	F	Weight
1 1/2 x 1 1/2	3 1/4	2 9/16	5 11/16	3.4
2 x 1 1/4	3 1/4	2 13/16	5 11/16	3.9
2 x 1 1/2	3 1/4	2 13/16	5 11/16	4.0
2 x 2	3 3/4	3 1/16	6 3/8	5.3
3 x 1 1/2	3 1/4	3 5/16	5 11/16	4.3
3 x 2	3 3/4	3 9/16	6 3/8	6.1
4 x 1 1/2	3 1/4	3 3/4	5 11/16	5.5
4 x 2	3 3/4	4 1/16	6 3/8	6.9



PART NO. EZS 18

2" x 22 7/8" Extended Tapped Sanitary Cross

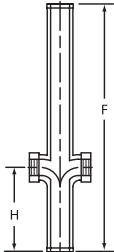
Size	H	F	Weight
2 x 1 1/2 x 22 7/8	3 1/4	22 7/8	10.0
2 x 2 x 22 7/8	3 3/4	22 7/8	11.9



PART NO. EZS 28

Sanitary Tapped Cross

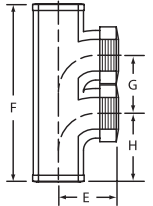
Size	H	F	Weight
2 x 1 1/2 x 31	11 1/4	31	15.0
2 x 2 x 31	11 1/4	31	15.0



PART NO. NH 35B

Double Vertical Sanitary Tapped Tee

Size	E	F	G	H	Weight
2 x 1 1/2	2 13/16	9 3/4	4 1/2	3 1/4	4.8



PART NO. NH 36

Test Tee Less Plug

and PART NO. NH 36S

Test Tee with Southern Raised-Head Brass Plug Installed (2" through 8" only)

Size	IPS Tap	E	F	D	D'	Weight
2	2	2	6 3/8	3 3/16	3 3/16	3.0
3	3	2 11/16	7 3/4	3 7/8	3 7/8	5.8
4	4	3	8 7/8	4 7/16	4 7/16	9.2
5	5	4 1/2	11 1/2	5 3/4	5 3/4	15.2
6	6	5	12 1/2	6 1/4	6 1/4	22.0
8	8	6	15 1/4	7 5/8	7 5/8	37.1
10	10	6 1/2	20	10	10	59.7
4 x 3	3 1/2	2 7/8	9 1/2	5	4 1/2	8.0

