

A.C.T. PIPE AND SUPPLY

*1400 Grand Avenue Parkway
Pflugerville, Texas 78660*

WASTEWATER SUBMITTALS

Project:

JARO NORTH UNIT 1
SEGUIN, TX

Prepared For:

V K KNOWLTON

Submitted By: Hannah Thompson
If you have any questions please call (512) 252-7030

WASTEWATER

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PVC GRAVITY SEWER PIPE -
(6" - 15" DIAMETER)
(JM-EAGLE)

GravitySewer

NON-PRESSURE-RATED PVC PIPE



ASTM D3034 / F679

CSA B182.2

ASTM D1784 Cell Class 12454/12364

Gaskets: ASTM F477

Joints: ASTM D3212



DELIVERING GOOD WATER TO YOU

MARKETS



Sewer

DESCRIPTION



GRAVITYSEWER

Ring-Tite Joint

- Flexible elastomeric Rieber® locked-in gasket provides a tight seal that protects and compensates for expansion, contraction, vibration or other movements.
- Quick and easy to assemble with a simple push, there's no field mixing or application of cement.
- Meets or exceeds ASTM D3219 for joint tightness, including a 22-inch Hg vacuum and a 25-foot head pressure test.

Nominal Laying Length: 14/20 feet
(Laying length tolerances are in accordance with ASTM and CSA standards)

Color: Green

ASTM D3034 TYPE PSM SIZES:

4", 6", 8", 10", 12", 15"

ASTM F679 SIZES:

18", 21", 24", 27", 30", 36", 42", 48"

Rieber® sealing ring provides tight, flexible seal.

Spigot pipe ends are supplied from the factory with bevels.

The bell is an integral part of the pipe length with the same strength.

CSA B182.2

SDR 35 (PS 46)

ASTM D3034

SDR 35 (PS 46)

SDR 26 (PS 115)

ASTM F679

PS 46

PS 115

BENEFITS

INSTALLATION

Lightweight, great for manual installation.

Field-cut with a power saw or handsaw; bevel without complicated machinery.

Does not need lining, wrapping, coating, or cathodic protection to prevent galvanic corrosion.

FEATURES

Unaffected by corrosive elements, sewer gas, sulfuric acid, alkaline, or acidic soils.

Resistance to abrasion, gouging and scouring.

GravitySewer

NON-PRESSURE RATED PVC PIPE



DELIVERING GOOD WATER TO YOU

SUBMITTAL AND DATA SHEET

ASTM D3034 TYPE PSM GRAVITY SEWER PIPE

PIPE SIZE (IN)	AVG. O.D. (IN)	NOM. I.D. (IN)	MIN. T. (IN)	AVG. E. (IN)	APX. D ⁹ (IN)	APX. WGT (LBS/FT)
SDR 35						
PIPE STIFFNESS: 46 psi						
4	4.215	3.975	0.120	3.75	4.695	1.05
6	6.275	5.915	0.180	2.37	6.995	2.36
8	8.400	7.920	0.240	5.00	9.360	4.24
10	10.500	9.900	0.300	6.25	11.700	6.64
12	12.500	11.780	0.360	6.50	13.940	9.50
15	15.300	14.426	0.437	7.50	17.048	14.19
SDR 26						
PIPE STIFFNESS: 115 psi						
4	4.215	3.891	0.162	3.75	4.863	1.40
6	6.275	5.793	0.241	2.37	7.239	3.11
8	8.400	7.754	0.323	5.00	9.692	5.63
10	10.500	9.692	0.404	6.25	12.116	8.84
12	12.500	11.538	0.481	6.50	14.424	12.56
15	15.300	14.124	0.588	7.50	17.652	18.90

Product Standard:

ASTM D3034 Type PSM (4"-15")

ASTM F679 (18" - 48")

CSA B182.2 (PS46, 4" - 21")

Pipe Compound: ASTM D1784 Cell Class 12454/12364

Gasket: ASTM F477

Integral Bell Joint: ASTM D3212

Nominal Laying Length: 14/20 feet

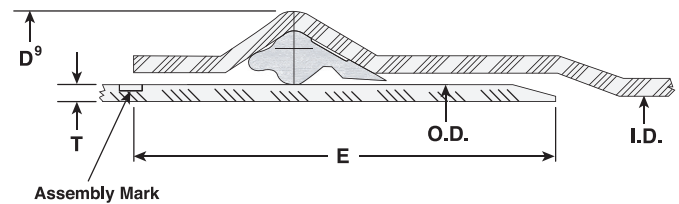
(Laying length tolerances are in accordance with ASTM and/or CSA standards.)

Installation: JM Eagle™ Gravity Sewer Installation Guide.

Manning Coefficient (n) = 0.009

Hazen-Williams Coefficient (c) = 150

*Please call prior to order regarding availability.



I.D.: Inside Diameter

O.D.: Outside Diameter

T.: Minimum Wall Thickness

D⁹: Bell Outside Diameter

E: Distance between Assembly Mark and the end of the spigot.

ASTM F679 GRAVITY SEWER PIPE

PIPE SIZE (IN)	AVG. O.D. (IN)	NOM. I.D. (IN)	MIN. T. (IN)	AVG. E. (IN)	APX. D ⁹ (IN)	APX. WGT (LBS/FT)
PIPE STIFFNESS: 46 psi						
18	18.701	17.564	0.536	7.37	20.845	21.43
21	22.047	20.707	0.632	8.25	24.575	29.88
24	24.803	23.295	0.711	9.12	27.647	38.96
27	27.953	26.254	0.801	10.00	31.157	49.47
30 CIOD	32.000	30.055	0.917	12.75	35.612	64.18
36 CIOD	38.300	35.972	1.098	13.87	42.816	93.00
42 CIOD	44.500	41.794	1.276	15.75	49.604	128.83
48 CIOD	50.800	47.713	1.456	16.62	56.624	168.31
PIPE STIFFNESS: 115 psi						
18	18.701	17.174	0.720	7.37	21.581	28.49
21	22.047	20.247	0.849	8.25	25.443	39.83
24	24.803	22.776	0.956	9.12	28.627	50.74
27	27.953	25.669	1.077	10.00	32.261	64.78
30 CIOD	32.000	29.386	1.233	12.75	36.348	86.55
36 CIOD	38.300	35.173	1.475	13.87	45.438	125.35
42 CIOD	44.500	40.866	1.714	15.75	51.356	171.30
48 CIOD	50.800	46.651	1.957	16.62	58.628	223.92



IPS Pressure | Ring-Tite

PRESSURE-RATED PVC PIPE



ASTM D2241
ASTM D1784 Cell Class 12454
ANSI/NSF 61/14, Uniform Plumbing Code

Gasket: ASTM F477
Joint: ASTM D3139



DELIVERING GOOD WATER TO YOU

MARKETS



Irrigation



Reclaim



Sewer



Plumbing

DESCRIPTION



Available Pipe Sizes

IPS: 1½", 2", 2½", 3", 4", 5", 6", 8", 10", 12"

Nominal Laying Length: 20/22 feet (Laying length tolerances are in accordance with ASTM standards)

Color:

☒ Blue

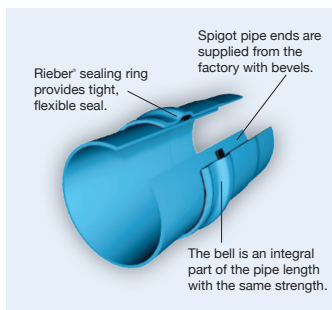
☐ Green

☐ Purple

☐ White

Ring-Tite Joint

- Flexible elastomeric Rieber® locked-in gasket provides a tight seal that protects and compensates for expansion, contraction, vibration or other movements.
- Quick and easy to assemble with a simple push, there's no field mixing or application of cement.
- Meets or exceeds ASTM D3219 for joint tightness, including a 22-inch Hg vacuum and a 25-foot head pressure test.



ASTM D2241

63 psi	SDR 64
100 psi	SDR 41
125 psi	SDR 32.5
160 psi	SDR 26
200 psi	SDR 21
250 psi	SDR 17

BENEFITS

INSTALLATION



Lightweight, great for manual installation.

Field-cut with a power saw or handsaw; bevel without complicated machinery.

Does not need lining wrapping, coating, or cathodic protection to prevent galvanic corrosion.

FEATURES



Unaffected by corrosive elements: sewer gas, sulfuric acid, alkaline, or acidic soils.

Consistency in carrying capacity (flow coefficient, C=150), for savings in pumping and material costs.

Made in America

IPS Pressure | Ring-Tite

PRESSURE-RATED PVC PIPE



DELIVERING GOOD WATER TO YOU

SUBMITTAL AND DATA SHEET

PIPE SIZE (IN)	AVERAGE O.D. (IN)	NOM. I.D. (IN)	MIN. T. (IN)	AVG. E (IN)	APPROX. D' (IN)	APPROX. WGT (LBS/FT)
PRESSURE CLASS 250 psi (SDR 17)*						
PIPE STIFFNESS: 437 psi						
1½	1.900	1.641	0.112	3.575	2.39	0.58
2	2.375	2.078	0.140	3.825	2.94	0.66
2½	2.875	2.517	0.169	4.075	3.55	—
3	3.500	3.063	0.206	4.325	4.32	1.42
4	4.500	3.938	0.265	4.625	5.56	2.36
6	6.625	5.803	0.390	5.325	8.19	5.11
8	8.625	7.553	0.508	6.025	10.66	8.69
10	10.750	9.410	0.632	6.825	13.28	13.55
12	12.750	11.160	0.750	8.225	15.75	19.20
PRESSURE CLASS 200 psi (SDR 21)*						
PIPE STIFFNESS: 224 psi						
1½	1.900	1.709	0.090	3.575	2.26	0.44
2	2.375	2.135	0.113	3.825	2.83	0.54
2½	2.875	2.585	0.137	4.075	3.42	0.79
3**	3.500	3.146	0.167	4.325	4.17	1.17
4**	4.500	4.046	0.214	4.625	5.36	1.93
6**	6.625	5.955	0.316	5.325	7.89	4.23
8**	8.625	7.754	0.410	6.025	10.27	7.18
10	10.750	9.667	0.511	6.825	12.79	11.20
12	12.750	11.465	0.606	8.225	15.17	15.82
PRESSURE CLASS 160 psi (SDR 26)*						
PIPE STIFFNESS: 115 psi						
1½	1.900	1.745	0.073	3.575	2.19	0.28
2	2.375	2.182	0.091	3.825	2.74	0.44
2½	2.875	2.642	0.110	4.075	3.32	0.64
3	3.500	3.214	0.135	4.325	4.04	0.95
4	4.500	4.133	0.173	4.625	5.19	1.58
5	5.563	5.109	0.214	4.750	6.42	2.40
6	6.625	6.084	0.255	5.325	7.65	3.44
8	8.625	7.921	0.332	6.025	9.95	5.85
10	10.750	9.874	0.413	6.825	12.40	9.12
12	12.750	11.711	0.490	8.225	14.71	12.89
PRESSURE CLASS 125 psi (SDR 32.5)*						
PIPE STIFFNESS: 57 psi						
1½	1.900	1.773	0.060	3.575	2.14	—
2	2.375	2.220	0.073	3.825	2.67	—
2½	2.875	2.688	0.088	4.075	3.23	—
3	3.500	3.271	0.108	4.325	3.93	0.77
4	4.500	4.207	0.138	4.625	5.05	1.28
5	5.563	5.200	0.171	4.750	6.25	2.00
6	6.625	6.193	0.204	5.325	7.44	2.79
8	8.625	8.063	0.265	6.025	9.69	4.70
10	10.750	10.048	0.331	6.825	12.07	7.35
12	12.750	11.919	0.392	8.225	14.32	10.36

PIPE SIZE (IN)	AVERAGE O.D. (IN)	NOM. I.D. (IN)	MIN. T. (IN)	AVG. E (IN)	APPROX. D' (IN)	APPROX. WGT (LBS/FT)
PRESSURE CLASS 100 psi (SDR 41)*						
PIPE STIFFNESS: 28 psi						
3	3.500	3.320	0.085	4.325	3.84	—
4	4.500	4.267	0.110	4.625	4.94	1.03
5	5.563	5.27	0.136	4.750	6.10	1.60
6	6.625	6.282	0.162	5.325	7.27	2.23
8	8.625	8.180	0.210	6.025	9.47	3.75
10	10.750	10.195	0.262	6.825	11.80	5.86
12	12.750	12.091	0.311	8.225	13.99	8.28
PRESSURE CLASS 63 psi (SDR 64)*						
PIPE STIFFNESS: 7 psi						
6	6.625	6.40	0.104	5.325	7.20	1.60
8	8.625	8.33	0.135	6.025	9.30	2.40
10	10.750	10.39	0.168	6.825	11.50	3.80
12	12.750	12.32	0.199	8.225	13.80	5.30

Product Standard: ASTM D2241

Pipe Compound: ASTM D1784 Cell Class 12454

Gasket: ASTM F477

Integral Bell Joint: ASTM D3139

Certifications: ANSI/NSF 61, ANSI/NSF 14*, Uniform Plumbing Code*

Nominal Laying Length: 20/22 feet

(Laying length tolerances are in accordance with ASTM standards)

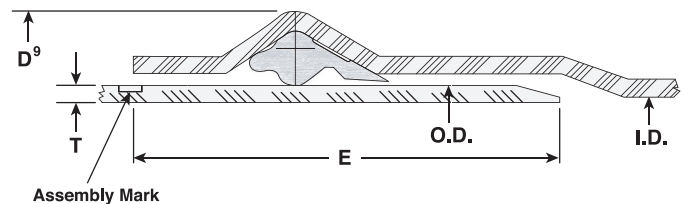
Installation: JM Eagle™ IPS Pressure Installation Guide

Manning Coefficient (n) = 0.009

Hazen-Williams Coefficient (c) = 150

*Supply may vary based on plant location. Please call regarding availability.

**This item is also available with an Eagle Loc Joint. Please call for more details.



I.D.: Inside Diameter

O.D.: Outside Diameter

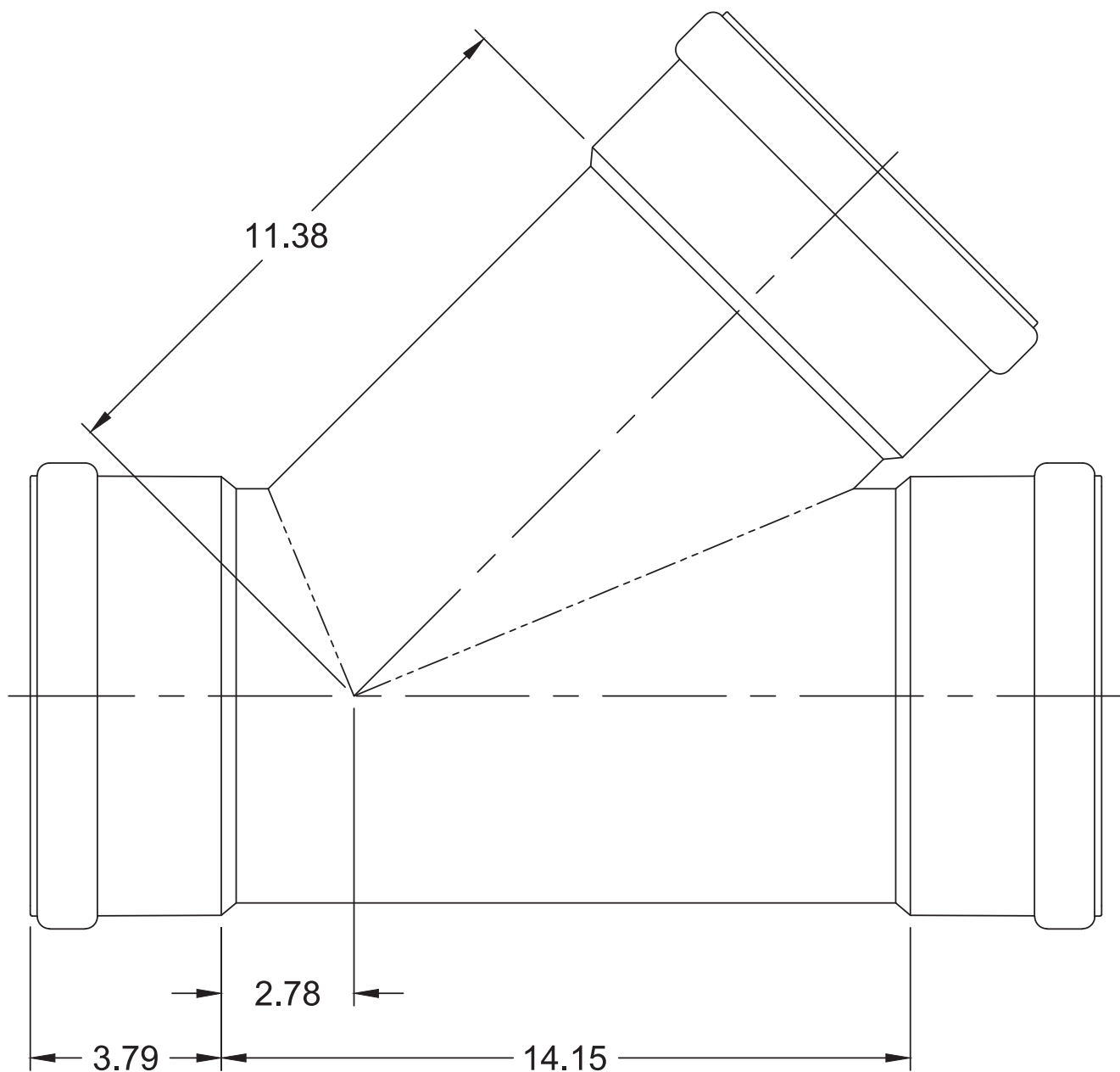
T: Wall Thickness

D9: Bell Outside Diameter

E: Distance between Assembly Mark and the end of the spigot.

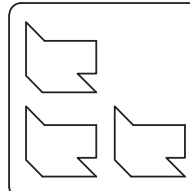


**PVC WASTEWATER LINE
FITTINGS
(GPK PRODUCTS)**



FOR REFERENCE ONLY

DIMENSIONS SUBJECT TO CHANGE



GPKE
PRODUCTS, INC.

TITLE

8" WYE GxGxG
D3034/F1336 SDR 26 PSM PVC

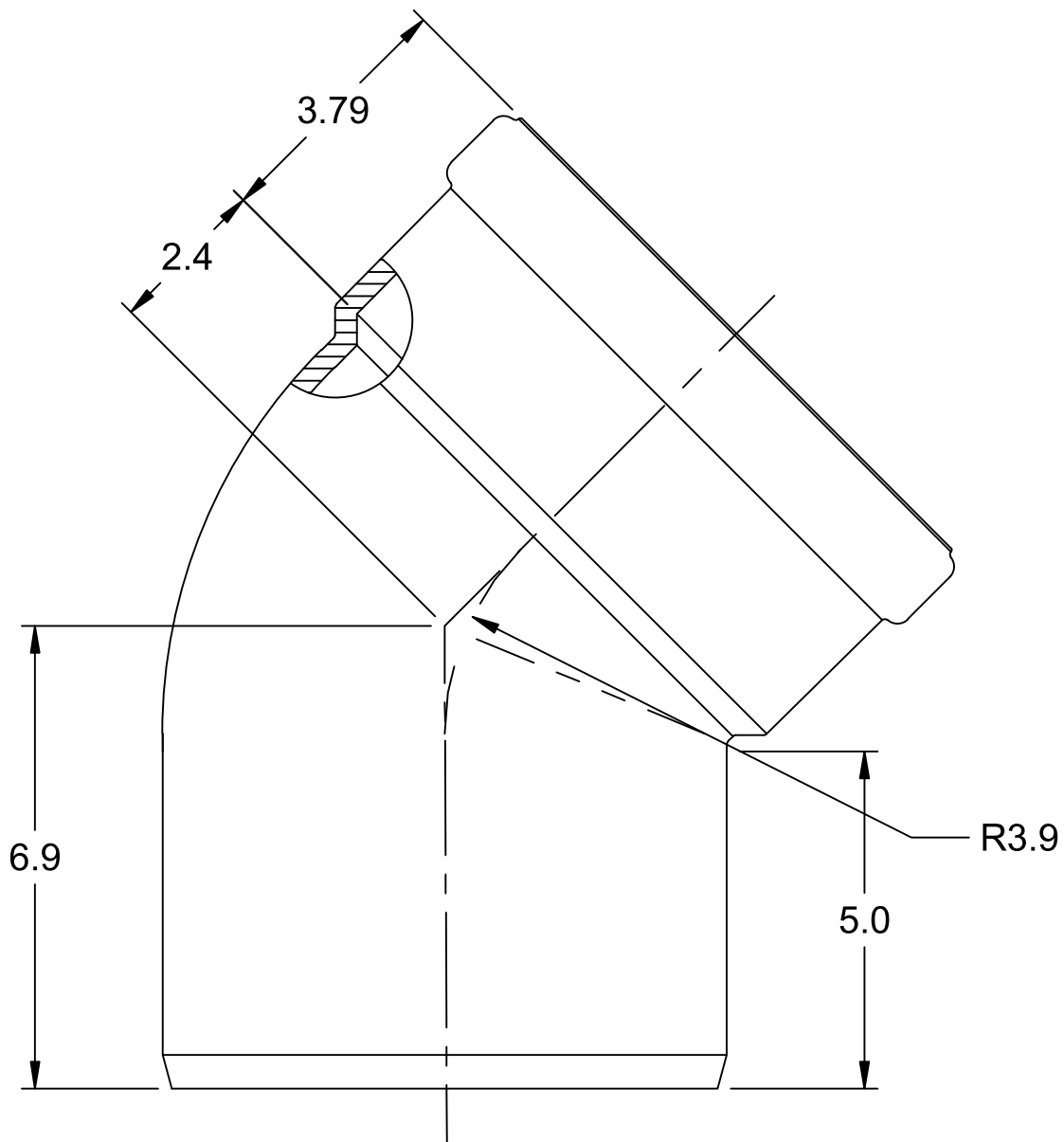
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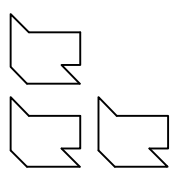
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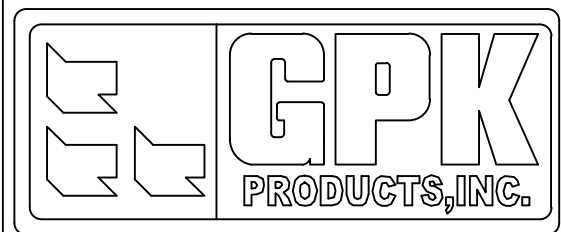
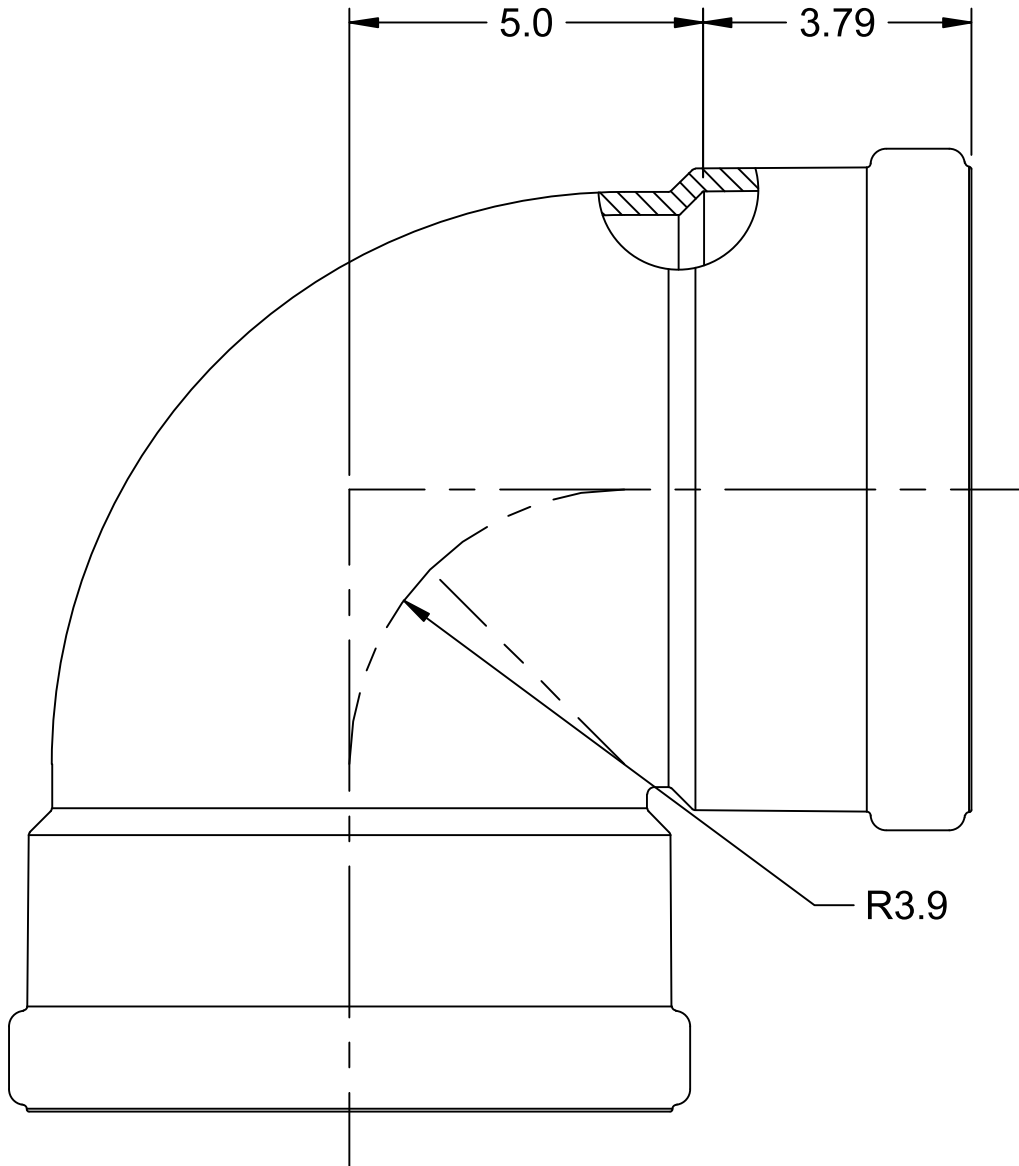
DATE 10-28-15

SCALE NONE

PART NO. 907-0088



 GP&K PRODUCTS, INC.		FOR REFERENCE ONLY DIMENSIONS SUBJECT TO CHANGE	
		TITLE 8" x 45 DEGREE EL SxG D3034/F1336 SDR 26 PSM PVC	
1-800-437-4670	FARGO, ND	DATE 11-06-13	SCALE NONE PART NO. 922-0008



FOR REFERENCE ONLY

DIMENSIONS SUBJECT TO CHANGE

TITLE

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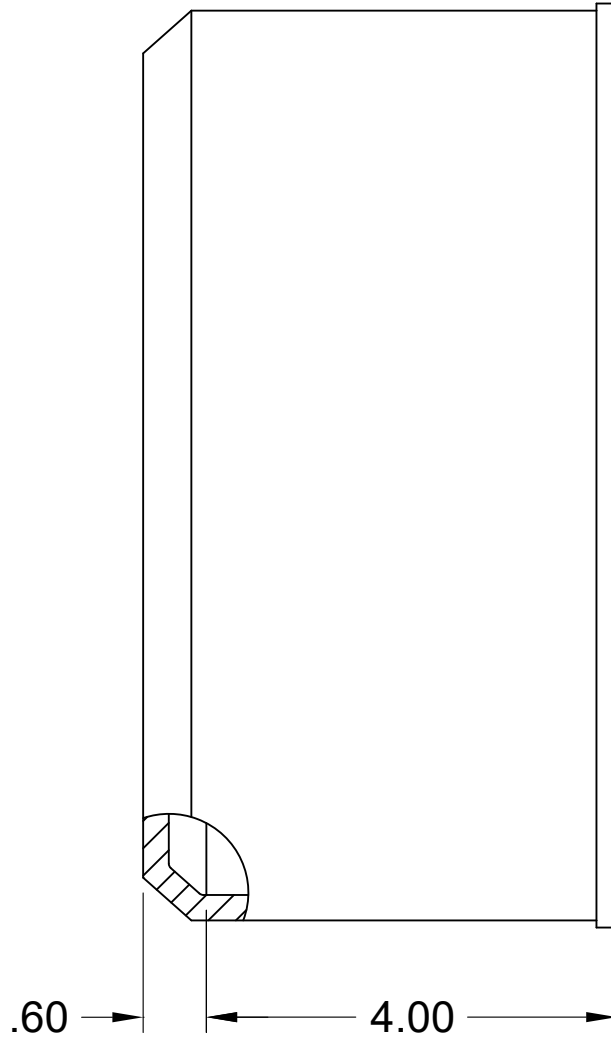
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FARGO, ND

DATE 11-06-13

SCALE NONE

PART NO. 923-0008



FOR REFERENCE ONLY DIMENSIONS SUBJECT TO CHANGE

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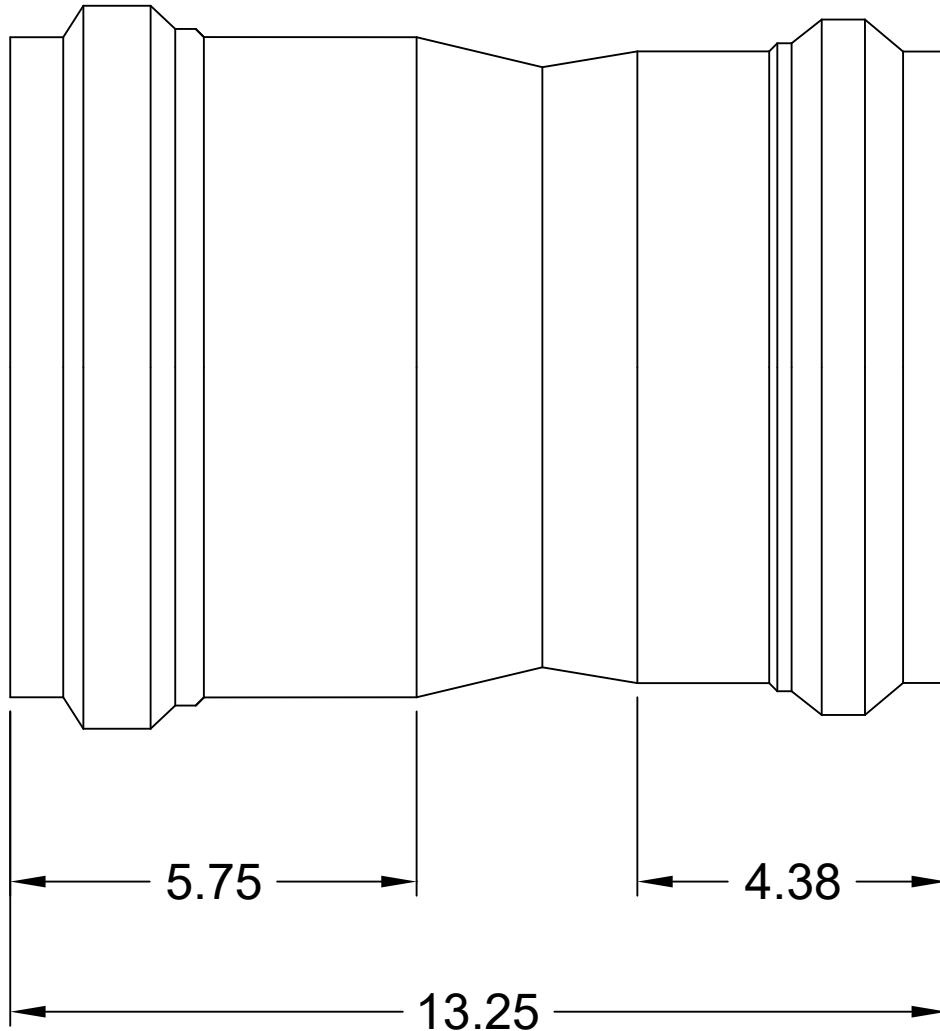
8" CAP H
D3034/F1336 SDR 35 PSM PVC

1-800-437-4670 FARGO, ND

DATE 07-08-09

SCALE NONE

PART NO. 211-0008



FOR REFERENCE ONLY

DIMENSIONS SUBJECT TO CHANGE

TITLE

8" IPS G x HWS G ADAPTER

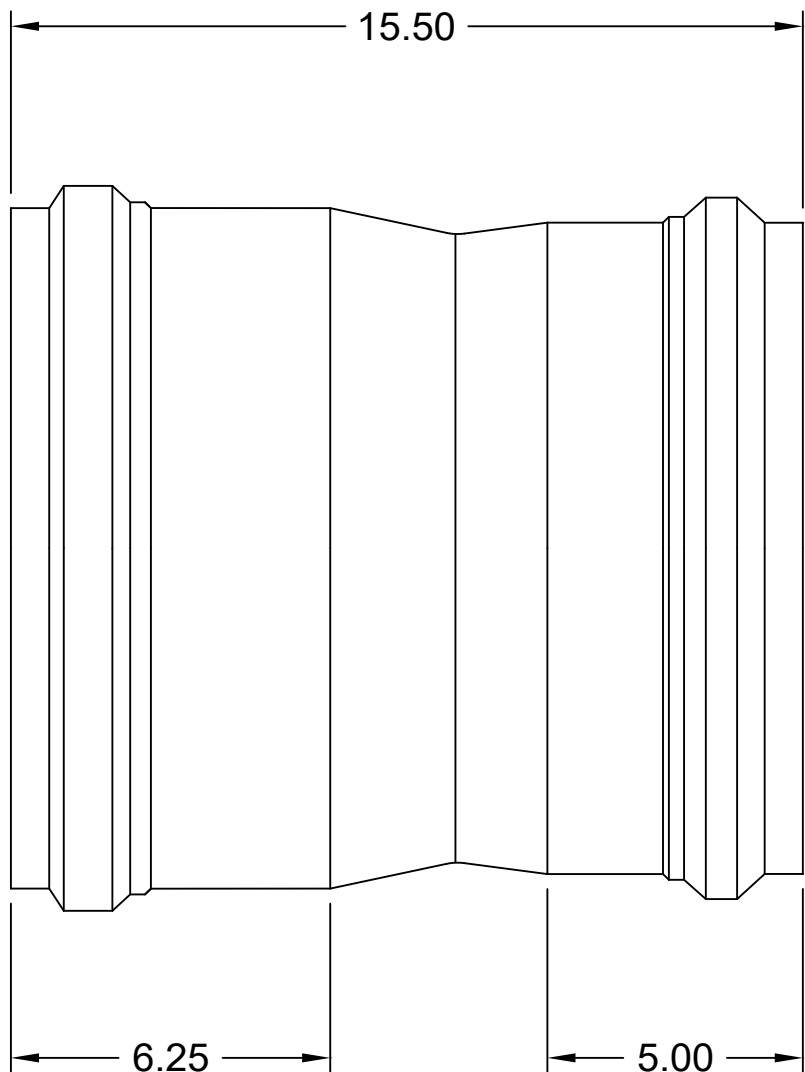
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FARGO, ND

DATE 04-21-12

SCALE NONE

PART NO. G332-0008



FOR REFERENCE ONLY DIMENSIONS SUBJECT TO CHANGE

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12" IPS G x SEWER G ADAPTER

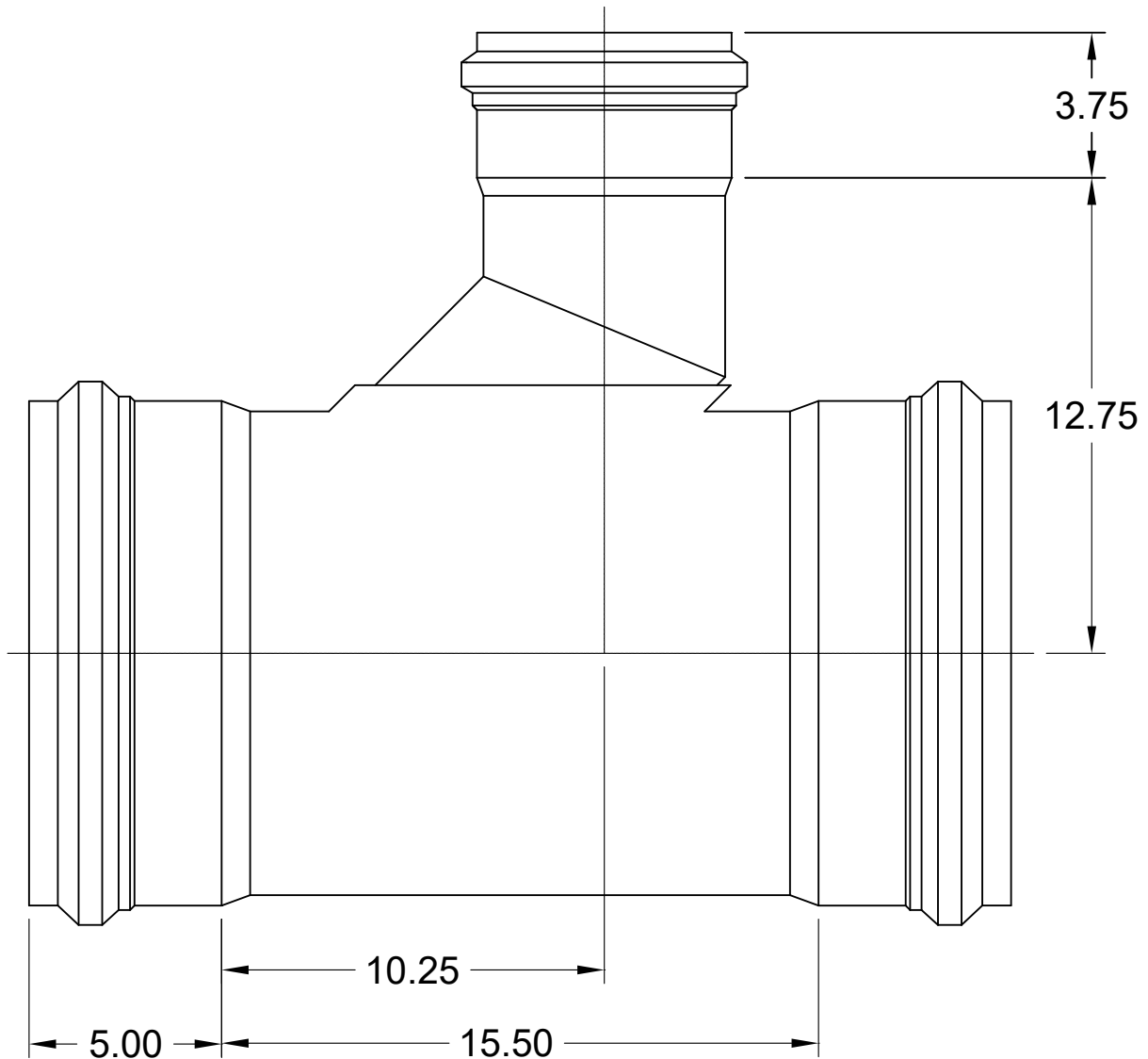
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FARGO, ND

DATE 04-21-12

SCALE NONE

PART NO. G332-0012



FOR REFERENCE ONLY

DIMENSIONS SUBJECT TO CHANGE

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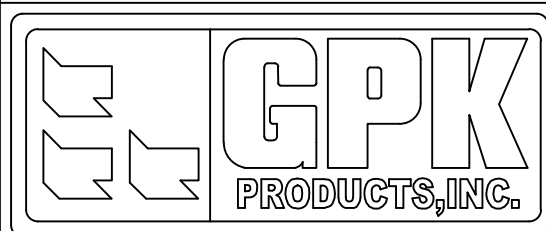
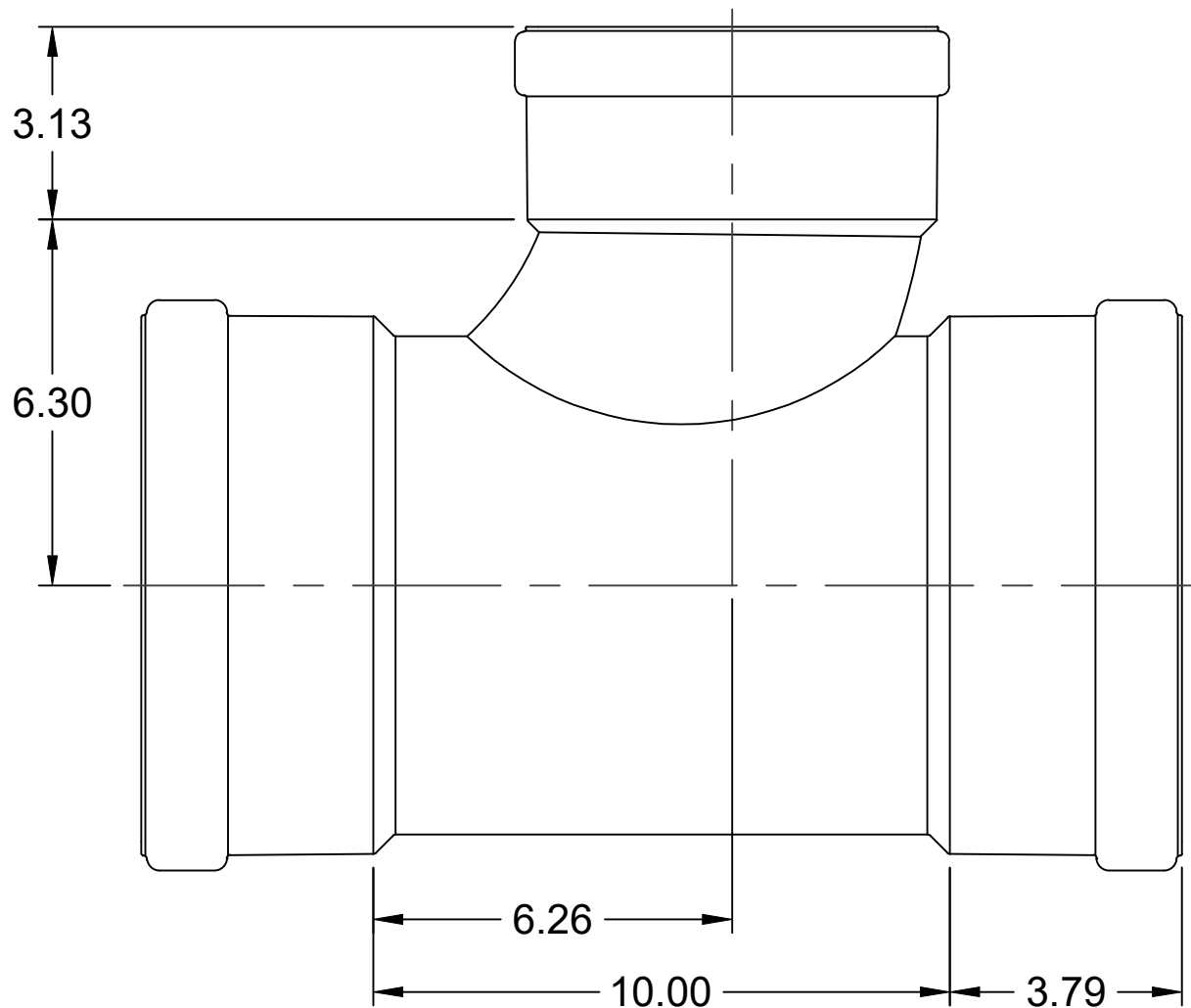
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FARGO, ND

DATE 09-24-13

SCALE NONE

PART NO. 913-0126



FOR REFERENCE ONLY

DIMENSIONS SUBJECT TO CHANGE

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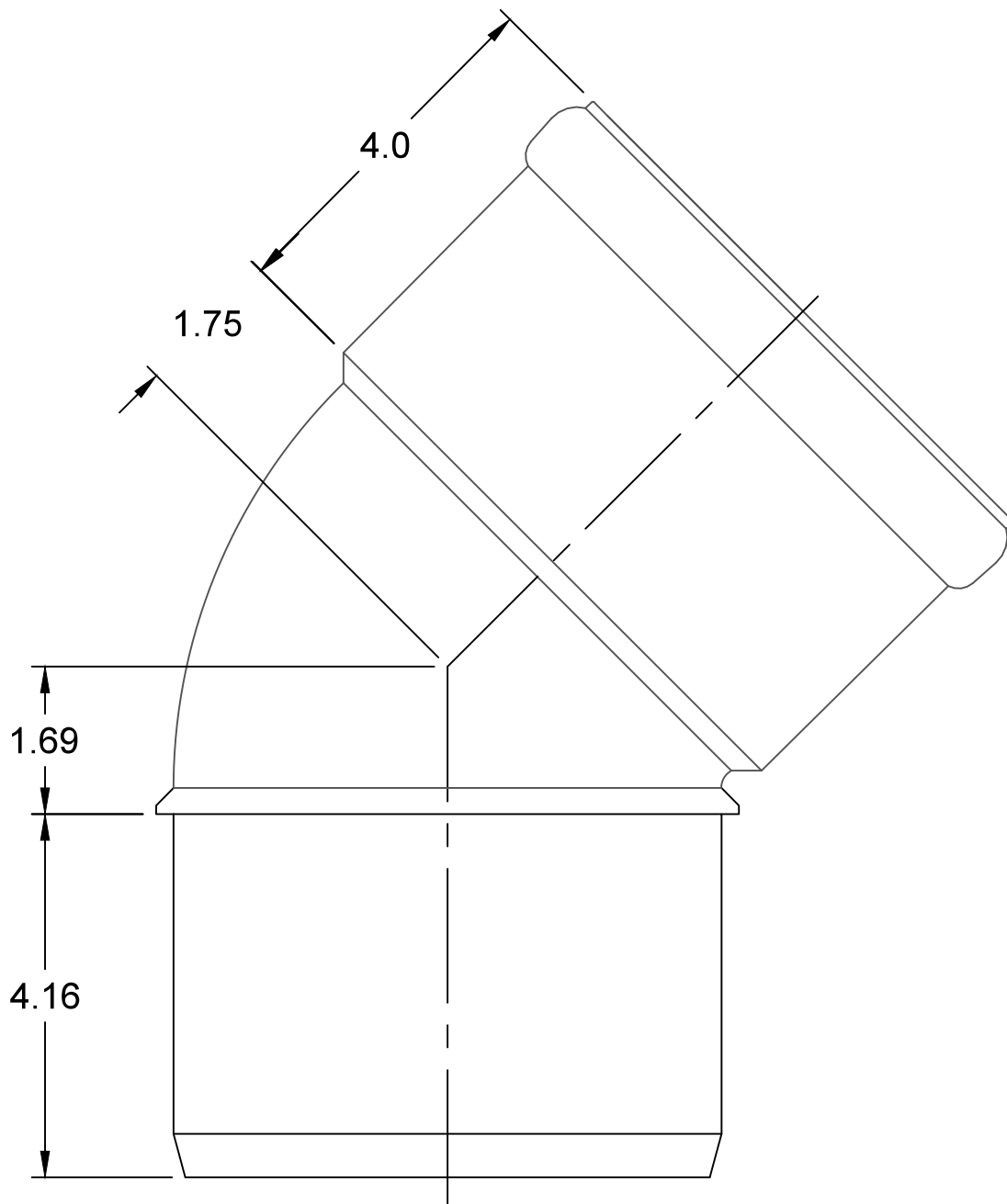
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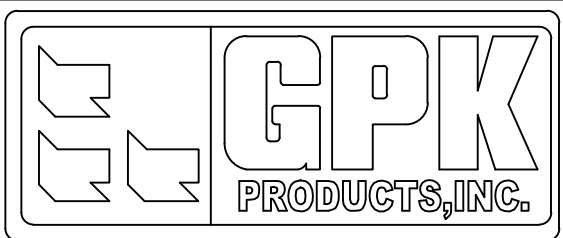
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FOR REFERENCE ONLY DIMENSIONS SUBJECT TO CHANGE

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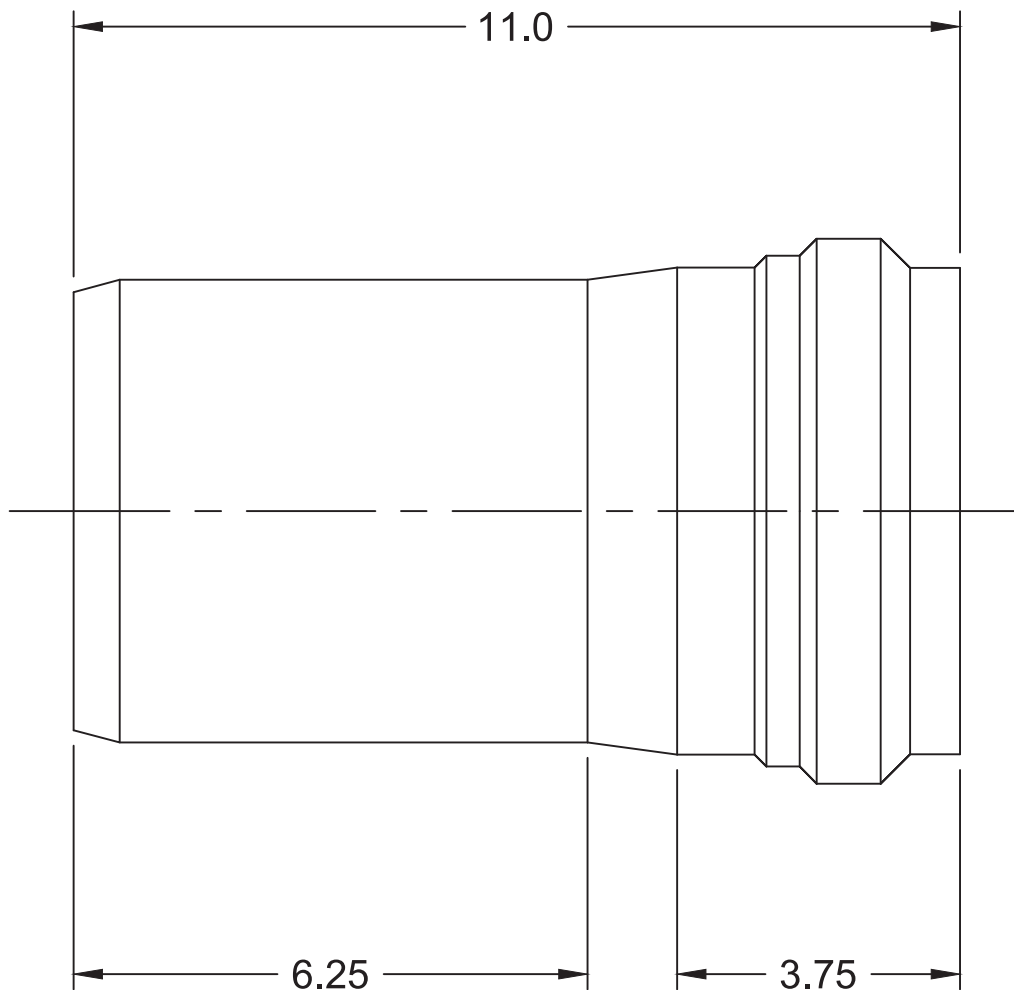


1-800-437-4670 FARGO, ND

DATE 1-20-2009

SCALE NONE

PART NO. 922-0006



FOR REFERENCE ONLY DIMENSIONS SUBJECT TO CHANGE

TITLE

6" IPS SPIGOT x SEWER G ADAPTER

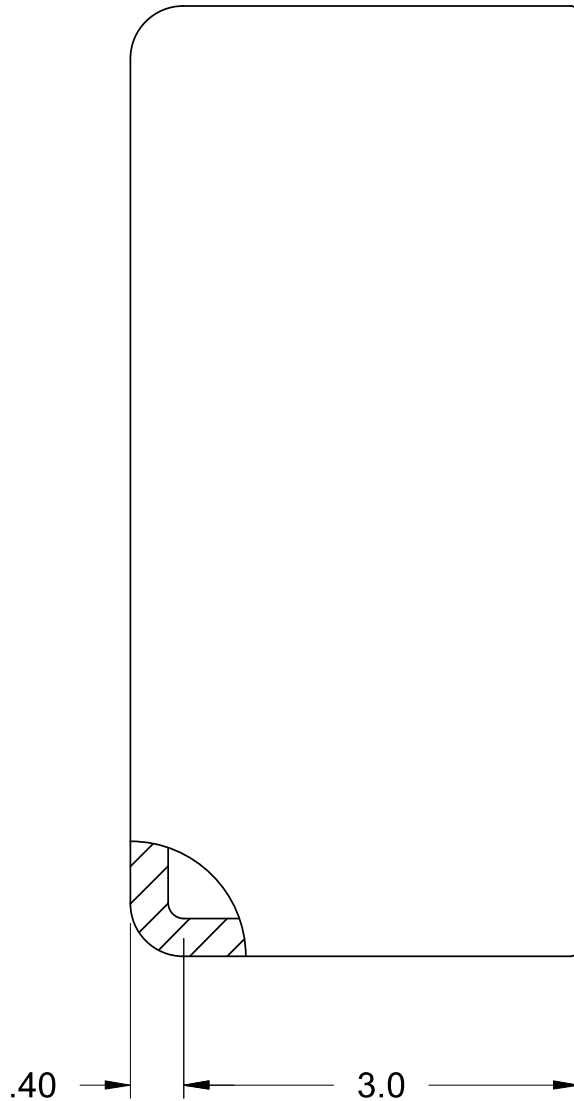


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DATE 07-17-12

SCALE NONE

PART NO. G331-0006



FOR REFERENCE ONLY

DIMENSIONS SUBJECT TO CHANGE

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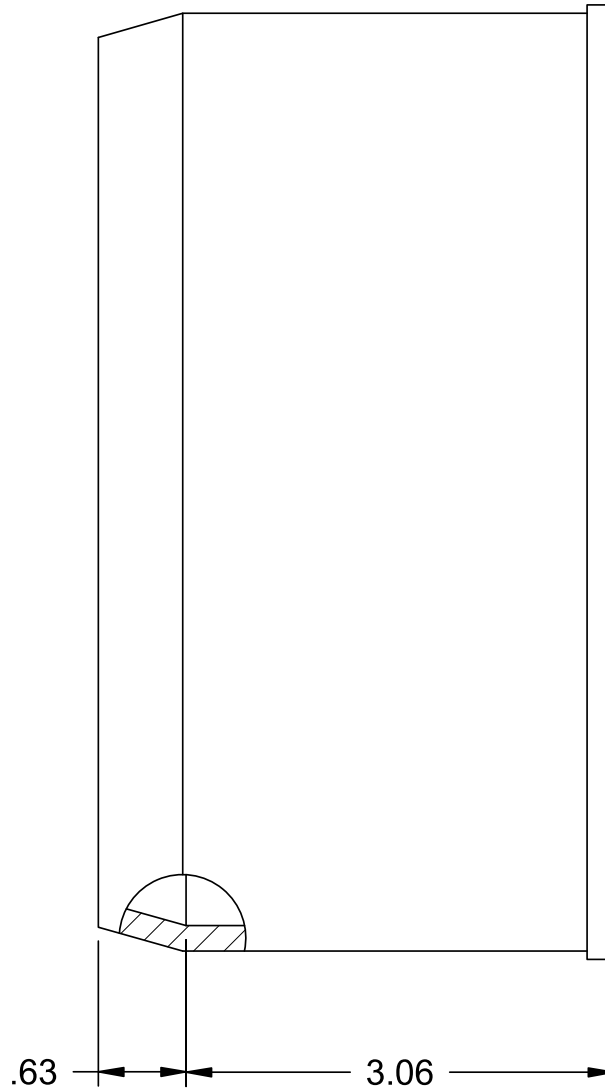
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DATE 6-05-09

SCALE NONE

PART NO. 311-0006



FOR REFERENCE ONLY

DIMENSIONS SUBJECT TO CHANGE

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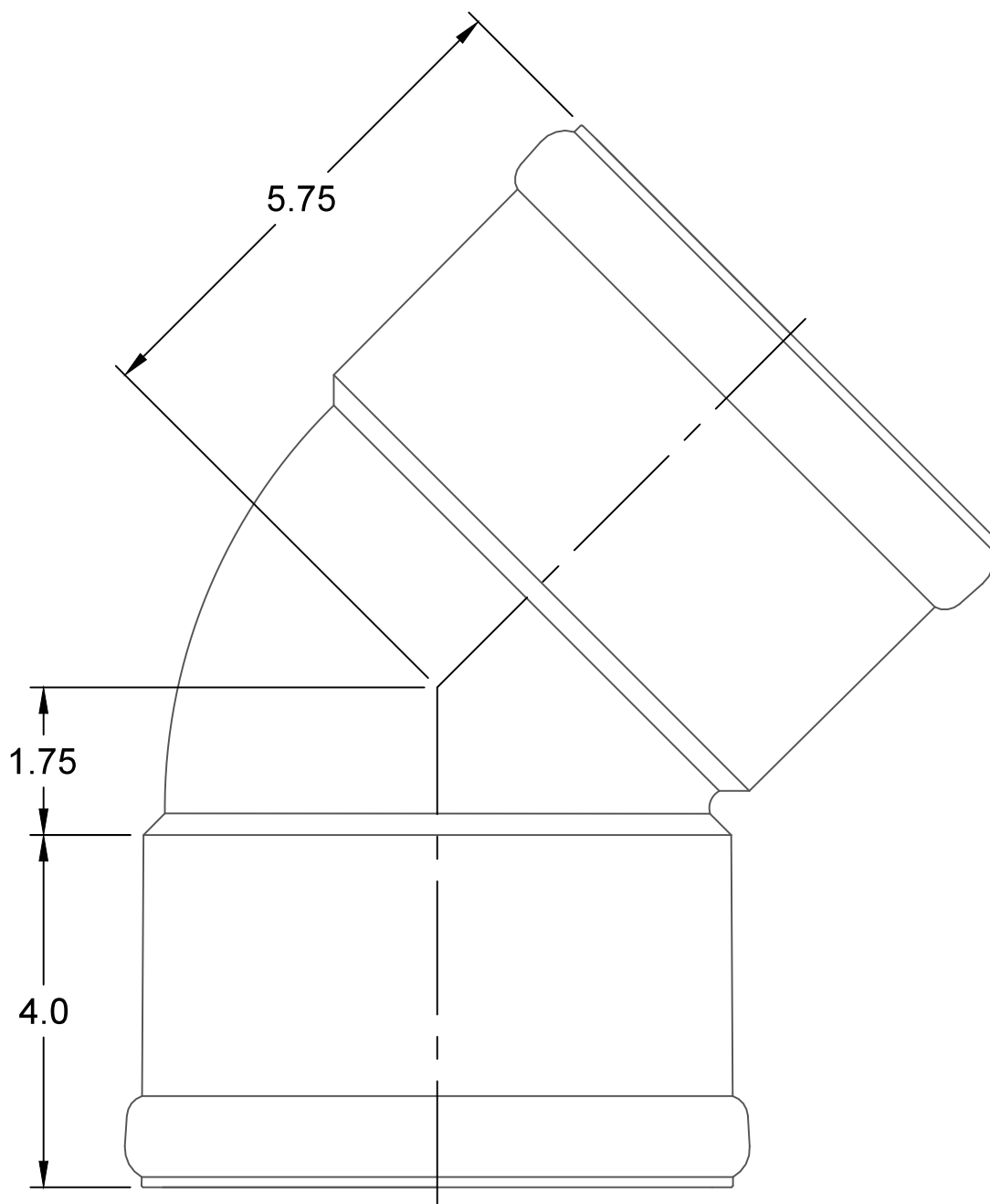
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DATE 11-29-10

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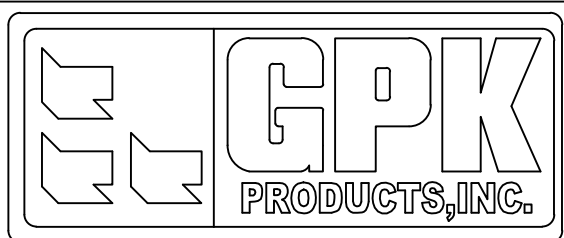
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FOR REFERENCE ONLY DIMENSIONS SUBJECT TO CHANGE

TITLE

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D3034/F1336 SDR 26 PSM PVC

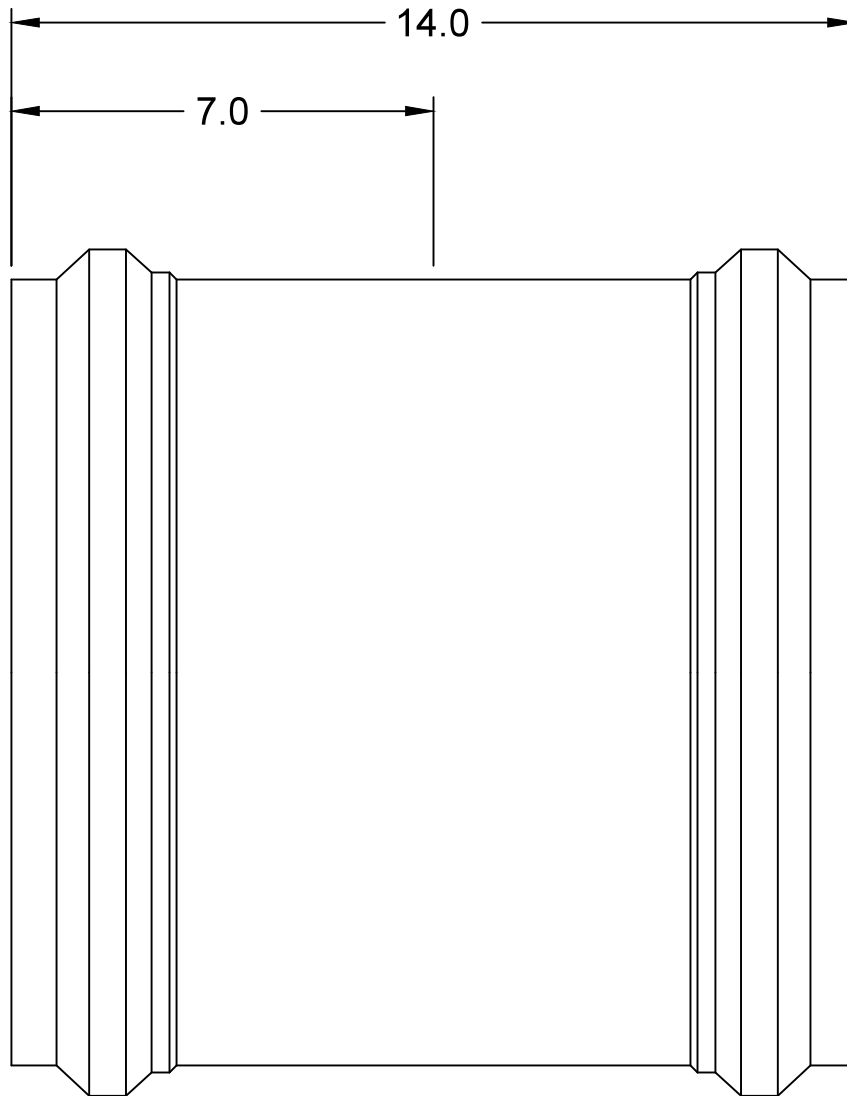


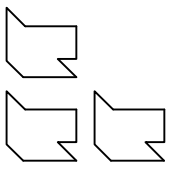
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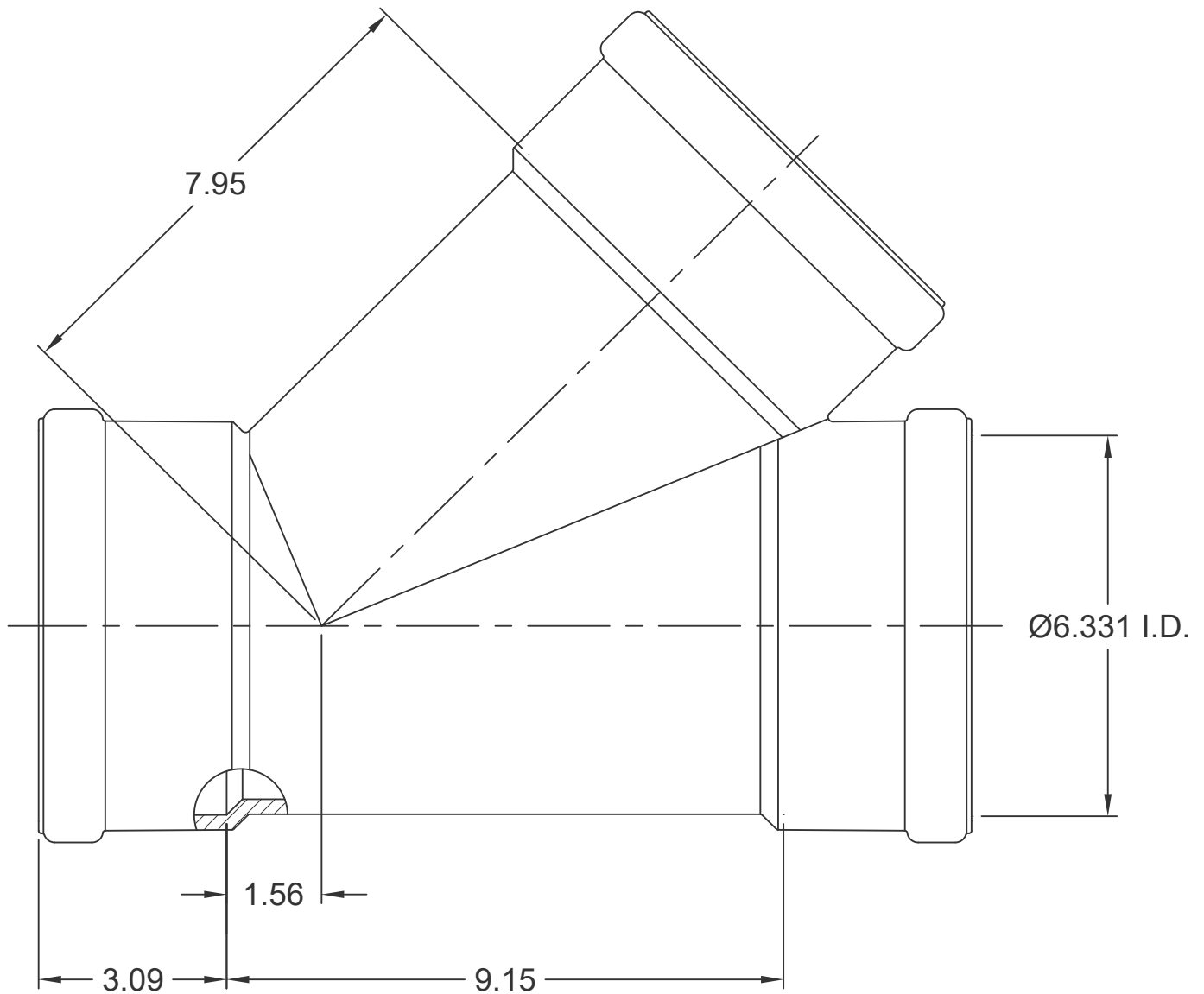
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SCALE NONE

PART NO. 921-0006



 GP&K PRODUCTS, INC.		FOR REFERENCE ONLY DIMENSIONS SUBJECT TO CHANGE		
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1-800-437-4670 FARGO, ND	DATE 09-25-13	SCALE NONE	PART NO. 906-0012	



FOR REFERENCE ONLY DIMENSIONS SUBJECT TO CHANGE



TITLE

6" WYE G x G x G
D3034/F1336 SDR 26 HWS PVC

1-800-437-4670

FARGO, ND

DATE

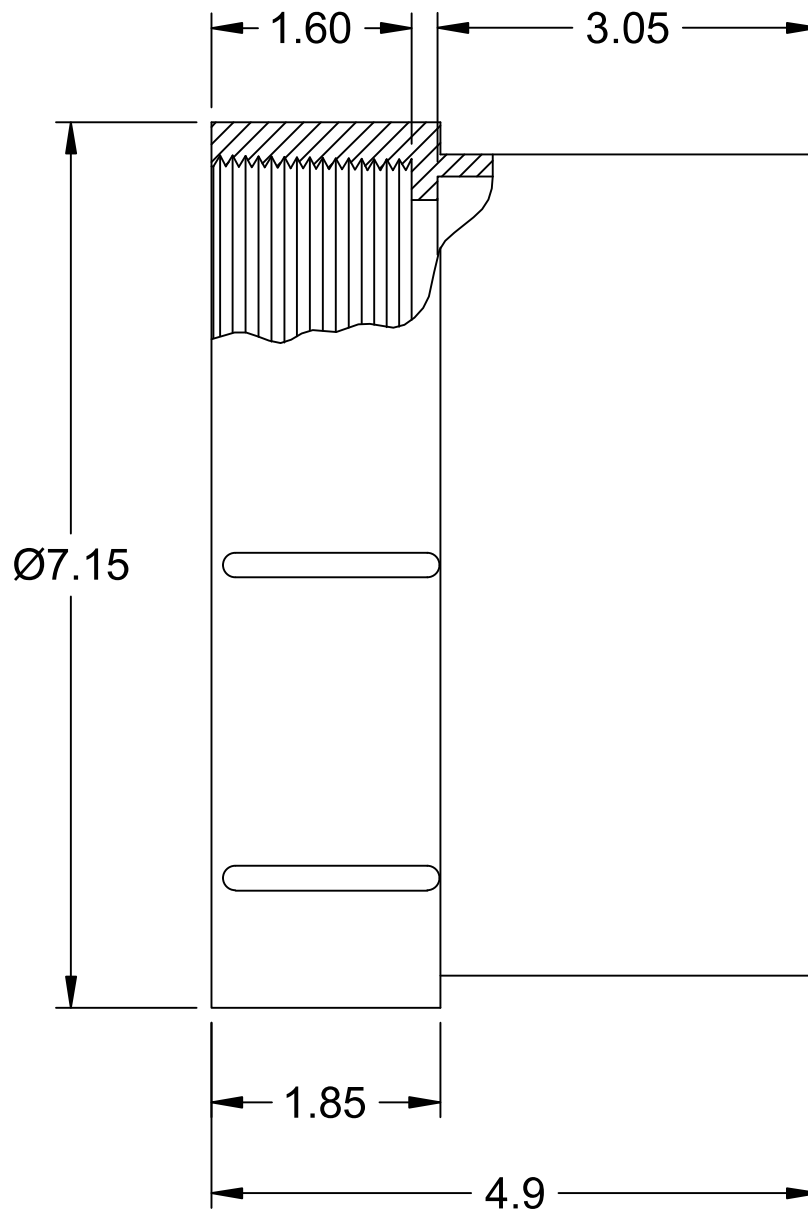
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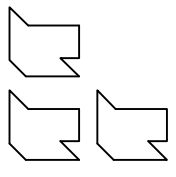
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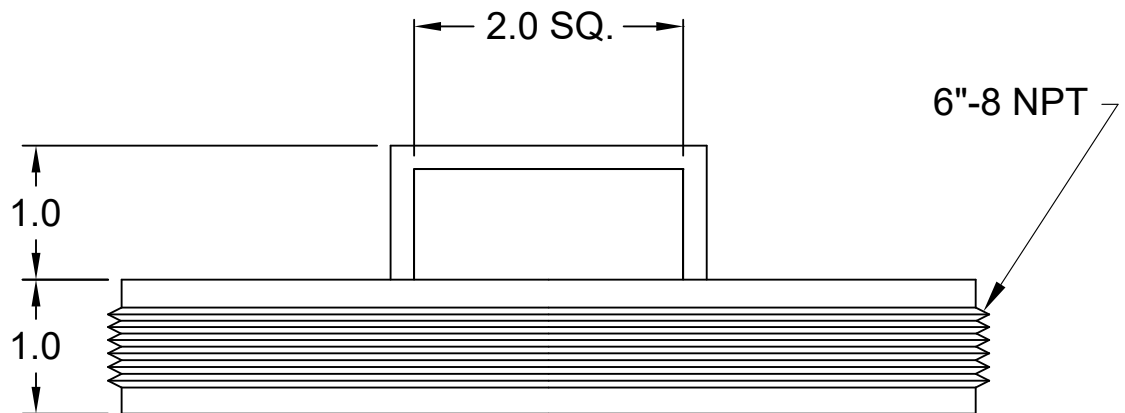
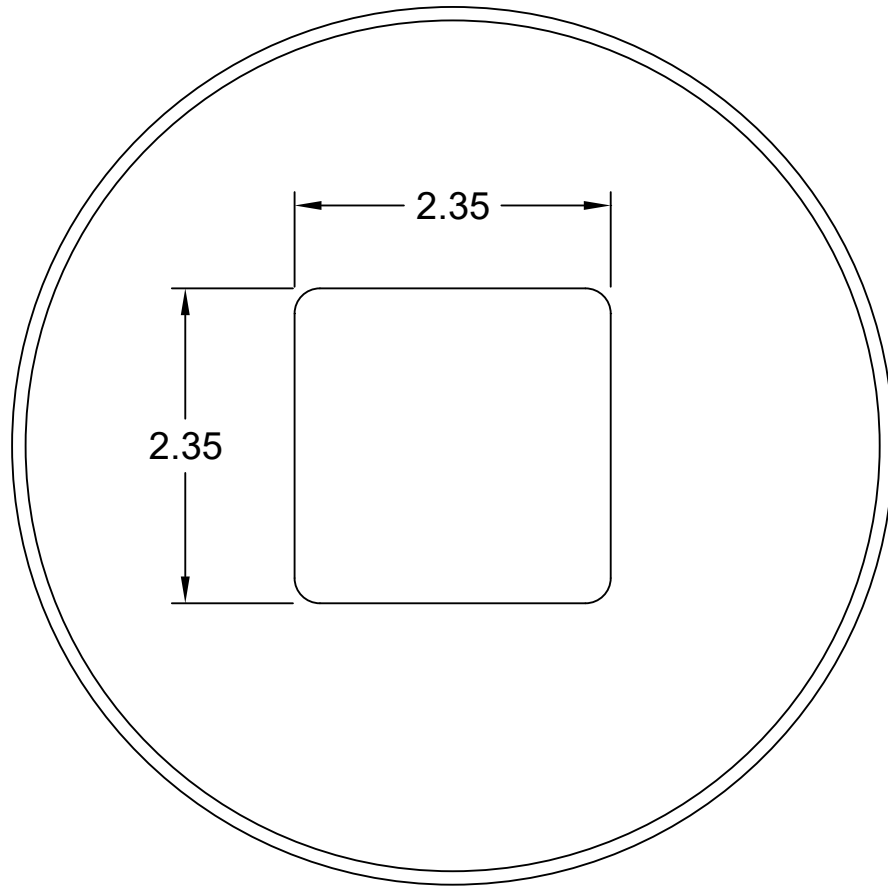
NONE

PART NO.

907-0066



 GP&K PRODUCTS, INC.		FOR REFERENCE ONLY DIMENSIONS SUBJECT TO CHANGE			
		TITLE 6" FIPT x SEWER H ADAPTER D3034/F1336 SDR 35 PSM PVC			
1-800-437-4670 FARGO, ND	DATE 05-31-13	SCALE NONE	PART NO. 227-0006		



FOR REFERENCE ONLY DIMENSIONS SUBJECT TO CHANGE

TITLE

6" RAISED MIPT PLUG
D3034/F1336 SDR 35 PSM PVC

1-800-437-4670 FARGO, ND

DATE 10-11-13

SCALE NONE

PART NO. 228-0006



SDR 26 D-3034/PS115 F-679 "HWS" FITTING SPECIFICATIONS

- 1.0 **GPK PVC Heavy Wall Sewer Fittings** shall be manufactured in accordance with ASTM Standards D-3034 and F-1336 and F-679. Heavy Wall Sewer Fittings (HWS) are produced in sizes 4" through 36" diameter.
- 2.0 **The Purpose of GPK Heavy Wall Sewer Fittings** is to convey municipal sanitary and industrial wastes, storm water run-off and many other related applications. They are designed to be used in gravity flow and low pressure applications not to exceed 10.8 psi. Heavy Wall Sewer Fittings are typically used when a higher degree of strength is desired to give an added assurance of product reliability.
- 3.0 **Injection Molded Fittings** are produced in sizes 4" through 8" diameter. **Fabricated Fittings** are produced in sizes 4" through 36" diameter. A fabricated fitting is considered any fitting made from pipe or a combination of pipe and molded components.
- 4.0 **Chemical Resistance.** GPK fittings resist attack from certain alcohols, alkalies, salt solutions, acids and other types of chemicals. Refer to chemical resistance chart for suitability.
- 5.0 **Marking.** GPK fittings shall be marked with company name or logo, applicable size, "PVC", "PSM", the Heavy Wall Sewer designation "HWS" and the ASTM specification number (D-3034/F-1336/F-679). The fittings and/or packaging shall also include the manufacturer's date and shift code.
- 6.0 **Testing.** A test after installation of either low pressure air (Uni-B-6) or a water infiltration-exfiltration test is recommended.
- 7.0 **Backfilling and Tamping.** Backfilling should follow closely after assembly of pipe and fittings.
 - 7.1 **Backfilling** with proper material is important to achieve desired density in haunching area which enables pipe, fittings and soil to work together to meet designed load requirements. This eliminates excess deflection and shear breaks due to heavy loads. Approved material shall be used properly, compacted continuously above and around the pipe and fittings as well as between the fitting and trench wall. A cushion of approved material up to a minimum of 12" over the fittings and between the trench walls shall be done in accordance with the engineers' specifications.
 - 7.2 **Tamping.** This shall be done by hand tamping of the embedment material between the trench wall of the service line fitting and riser connection. Tamping can also be done by mechanical tampers or by using water to consolidate the embedment material.
Extreme unstable ground conditions may require wider trenches to enable you to compact a larger area around the pipe and fittings to the density consistent of the original ground surface conditions.
- 8.0 **Service Lines.** Normally, service lines from the property line to the collection sewer should be a minimum depth of 3 feet at the property line and should be laid in straight alignment and uniform slope of not less than 1/4" per foot for 4" nominal pipe and 1/8" per foot for 6" pipe. Where collection sewers are deeper than 7 feet a vertical standpipe of stack is permitted but not recommended, consult the project engineer for proper installation details. Deep sewer chimney and risers necessitate extreme care during backfilling. Where surface loading is anticipated the final backfill must be compacted to a density compatible with those surface loads to be encountered.
 - 8.1 **Backfilling around pipe service laterals on slope.** Extra attention should be given on slopes to prevent the newly backfilled trench from becoming a "French Drain." Before backfilling completely there is a tendency for ground and surface water to follow the direction of the looser soil. This flow may wash out soil from under or around pipe and branch line fittings, reducing or eliminating the support needed. To avoid this problem the backfilling should be of greater compaction. Tamping should be done in 4" layers and continued in this manner all the way up to ground or surface line of the trench. Concrete collars or other concrete poured around the fitting to stabilize unwanted movement is recommended to prevent water from undercutting the underside of the pipe and fittings.

SUMMARY: Due to various ground conditions and different situations, installation techniques vary widely. We warranty our products to be free of manufacturer's defects. We will not replace the products that are installed or used incorrectly. The design of the systems that our product is used in is a factor that cannot be overlooked.

GPB FITTING SUBMITTAL SHEET

Intro: GPB manufactures PVC HWS Fittings in accordance with ASTM D-3034 and F-1336 and F-679 to be used in gravity flow or low pressure applications. Fabricated fittings are produced in sizes 4" through 36" diameter. Injection molded fittings produced in sizes 4" through 8" diameter.

Material: Fabricated fittings are manufactured from PVC pipe and meeting all the requirements of ASTM D-3034, SDR 26 and F-679 PS115 for workmanship, extrusion quality, stiffness, impact resistance, dimensions and structural performance.

Extruded pipe components are made from PVC material with a minimum cell classification of 12454, 13343 or 12364 as defined in ASTM D-1784.

Injection molded fittings are made from PVC material with a minimum cell classification of 12454 or 13343 as defined in ASTM D1784.

Extrusion Quality: Extruded components are tested in accordance with and meet all requirements of ASTM D-2152 for properly fused PVC.

Impact Resistance: Extruded components are tested in accordance with ASTM D-2444 using a 20 lb. Tup A and a Flat Plate Holder B. The strength shall equal or exceed the values shown below:

4" - 5"	150 Ft-Lbf
6" - 8"	210 Ft-Lbf
10" - 36"	220 Ft-Lbf

Impact Resistance: Injection molded fittings are tested in accordance with ASTM D 2444 using a 20 lb. Tup A and a Flat Plate Holder B. The strength shall equal or exceed the values shown below:

4"	50 Ft-Lbf	6"	75 Ft-Lbf	8"	75 Ft-Lbf
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Pipe Stiffness: Extruded components are tested in accordance with ASTM D-2412. The stiffness equals or exceeds the requirements of ASTM D-3034 and F-679.

Pipe Flattening: Extruded components are flattened as described in ASTM D-3034 and F-679 until the distance between the plates is 40% of the outside diameter of the pipe. There shall be no splitting, cracking or breaking.

Pressure/Pressure Deflection: Gasketed joints are tested in accordance with ASTM D-3212.
Pressure: 10 minutes @ 10.8 psi + 10 minutes deflected @ 10.8 psi.
Vacuum: 10 minutes @ 22" Hg + 10 minutes deflected @ 22" Hg.

Branch Bending: The chemically fused areas around the fabricated branches of tee, wye and tee-wye fittings are tested to ASTM F-1336 to verify their strength and integrity.

Pipe Stop Support: Tee and tee-wye fittings are tested to requirements of ASTM F1336 for pipe stop load support. No cracking or splitting shall occur and pipe spigot shall not protrude into waterway of the fitting.

Joining Methods: Chemically Fused Solvent Weld Joints
Solvent cement is handled and tested in accordance with ASTM D-2564 and D-2855. The Lap Shear Strength shall equal or exceed 900 psi @ 72 hours.

Heat Fusion Welded Joints (Butt Fusion Welds)

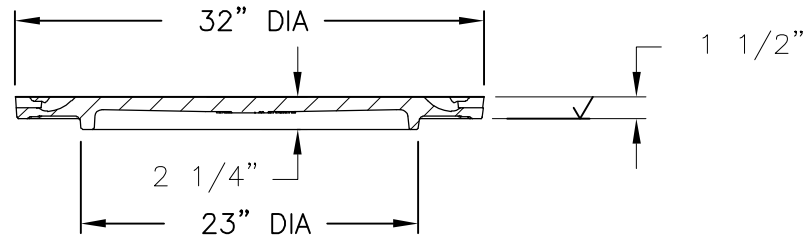
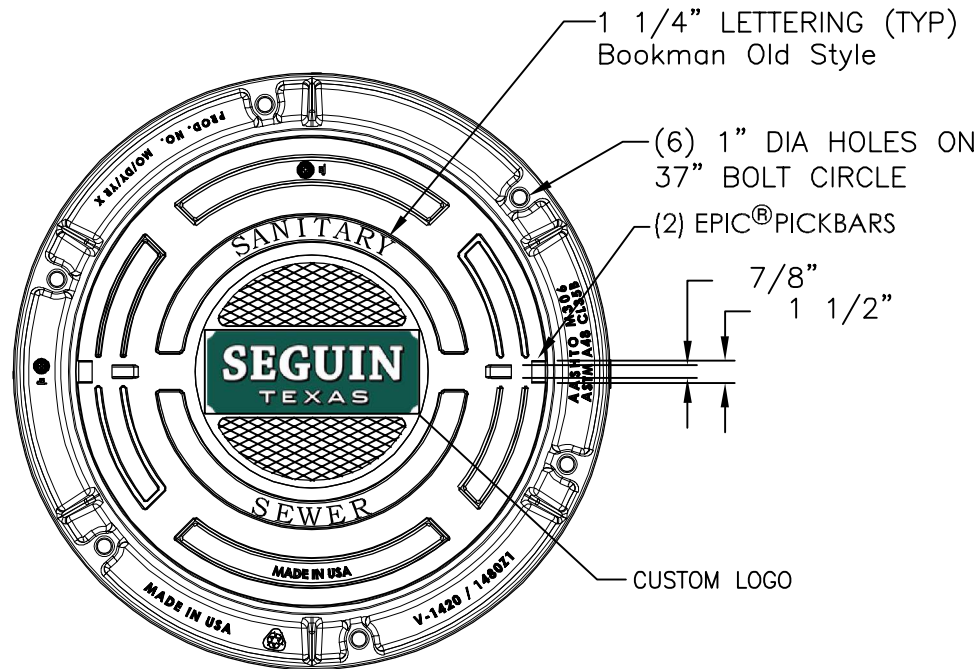
Elastomeric Seals (Gaskets)

Must meet all requirements of ASTM F-477 and D-3212.

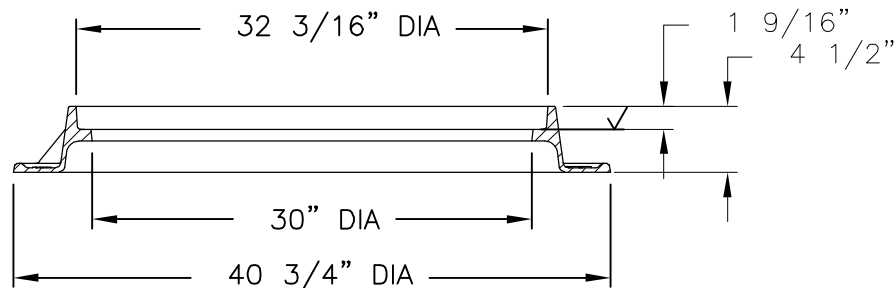
Epoxy Reinforced Welds.

32-INCH MANHOLE COVER CASTING SETS (EJCO)

V1420 V1430 Assembly



COVER SECTION



FRAME SECTION

Product Number

414300046A01

Design Features

- Materials
 - Frame
 - Gray Iron (CL35B)
 - Cover
 - Gray Iron (CL35B)

- Load Rating
 - Heavy Duty
- Open Area
 - n/a
- Coating
 - Undipped
- ✓ Designates Machined Surface

Certification

- ASTM A48
- Country of Origin: USA

Major Components

41420012
414300046

Drawing Revision

5/16/2017 Designer: MAH
5/31/2023 Revised By: DAE

Disclaimer

Weights (lbs./kg) dimensions (inches/mm) and drawings provided for your guidance. We reserve the right to modify specifications without prior notice.

CONFIDENTIAL: This drawing is the property of EJ GROUP, Inc., and embodies confidential information, registered marks, patents, trade secret information, and/or know how that is the property of EJ GROUP, Inc. Copyright © 2012 EJ GROUP, Inc. All rights reserved.

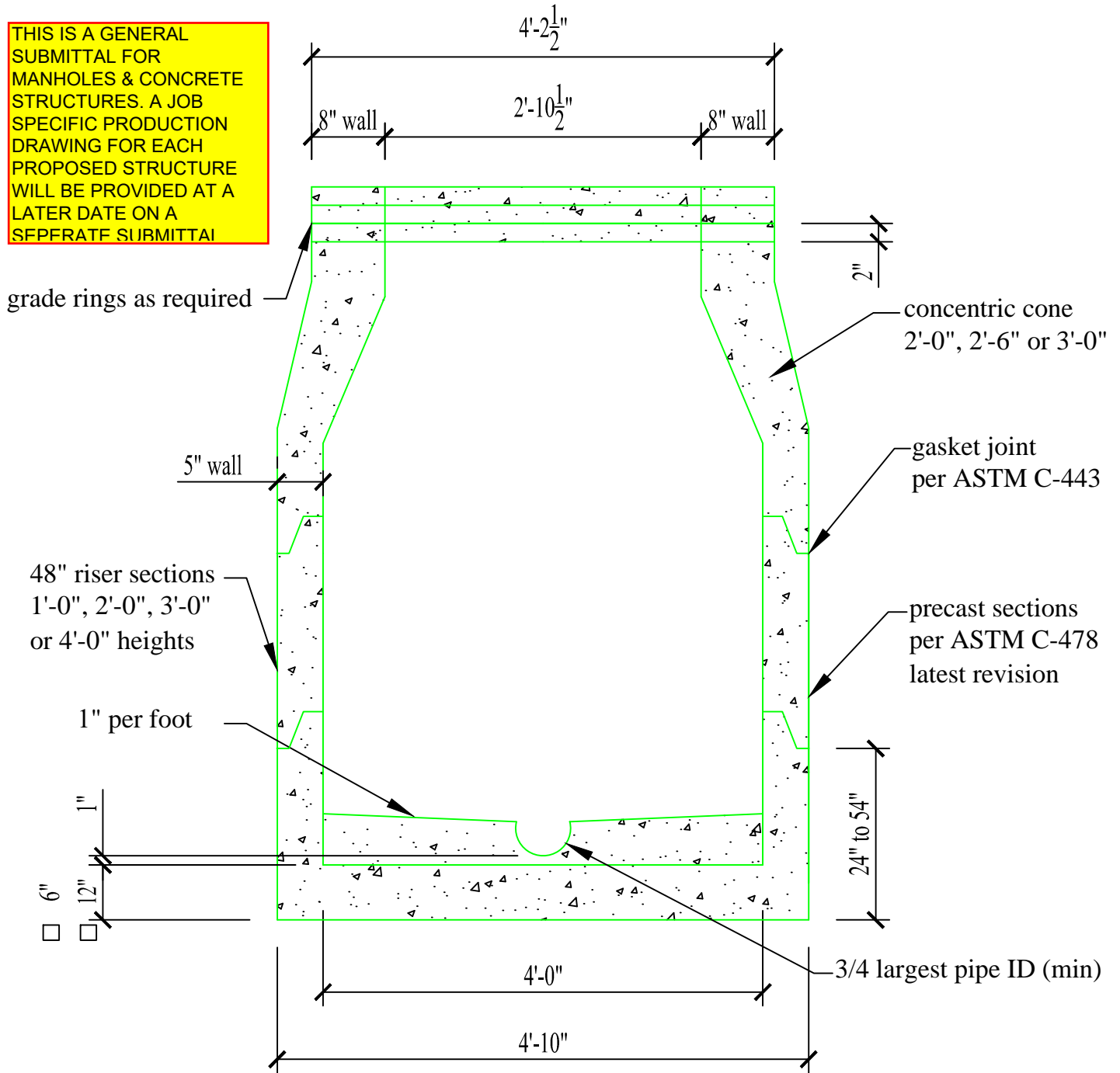
Contact

800 626 4653
ejco.com

CONCRETE MANHOLE SECTIONS (CAPITAL PRECAST)

48" Precast Manhole with Base

THIS IS A GENERAL SUBMITTAL FOR MANHOLES & CONCRETE STRUCTURES. A JOB SPECIFIC PRODUCTION DRAWING FOR EACH PROPOSED STRUCTURE WILL BE PROVIDED AT A LATER DATE ON A SEPARATE SUBMITTAL



Specifications:

- Concrete has a 28 day strength of 5,000 psi
- Steel reinforcement is ASTM A615 Grade 60

Notes:

- Consult manufacturer before handling



CAPITAL PRECAST, INC.

6905 SOUTH OLD BASTROP HWY
SAN MARCOS, TEXAS 78666
PH. (830) 606-6200

FOR 48" Manhole with Base

JOB

DRAWN

RW

DATE

12/1/2015

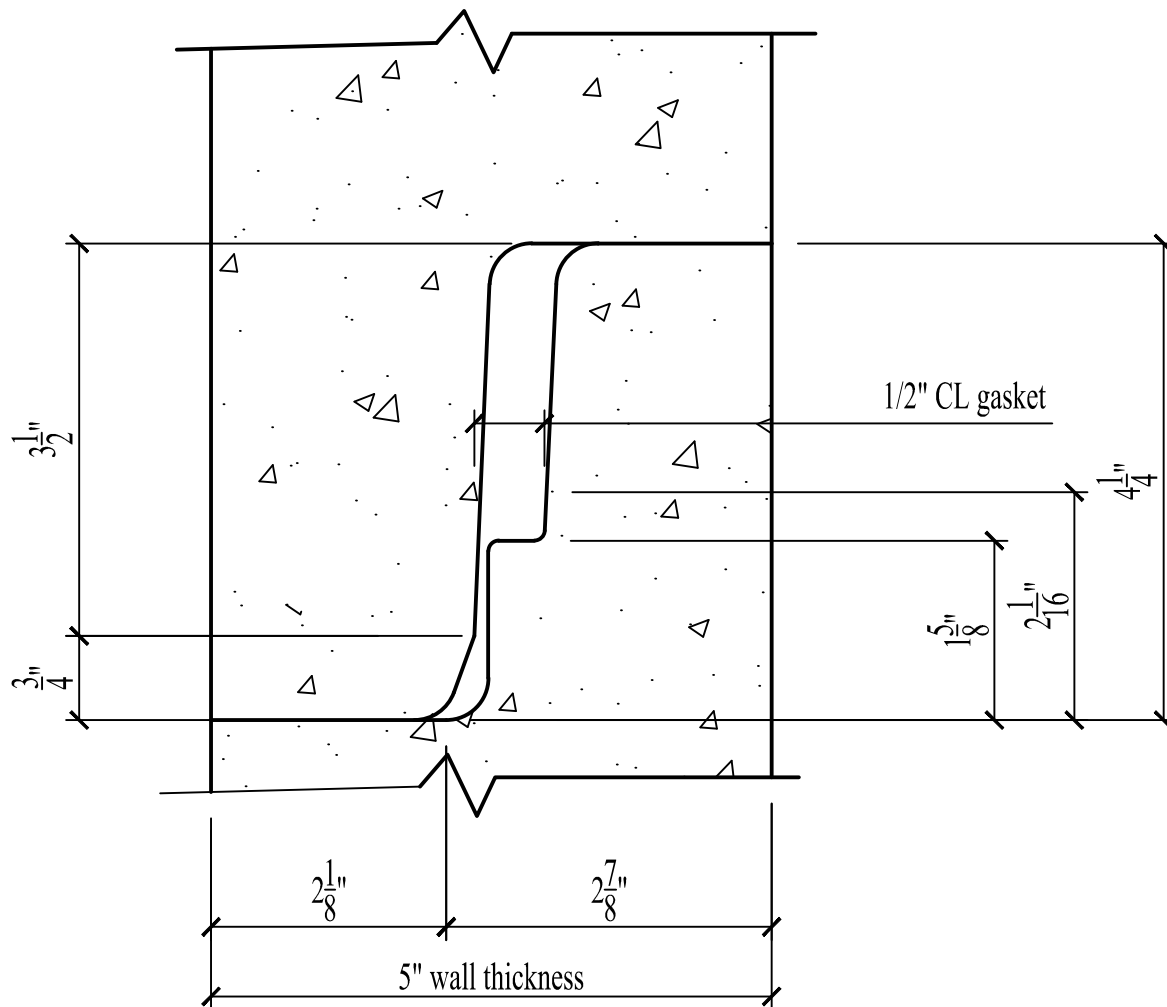
Rev. No.

SHEET

FILE

catalog/sanitary/48 Manhole with Base

1 OF 1



48" Joint Detail

Specifications:

- Concrete has a 28 day strength of 5,000 psi
- Steel reinforcement is ASTM A615 Grade 60

Notes:

- The structure shall be placed on a compacted granular base
- Consult Manufacturer before handling



CAPITAL PRECAST, INC.

800 WATSON LANE EAST
NEW BRAUNFELS, TEXAS 78130
PH. (830) 606-6200

FOR

48" Joint Detail

JOB

Capital Precast

DRAWN

RW

DATE

4/18/2008

ENG. No.

SHEET

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f:/users/renee/autoCAD/48jointdetail

1 OF 1

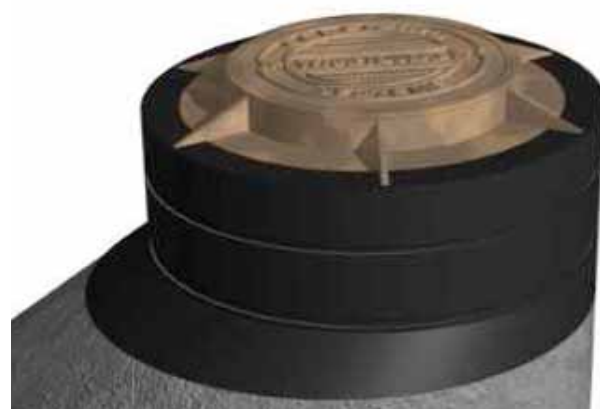
MANHOLE SEALS

(CANUSA)

WrapidSeal

Manhole Encapsulation System

WrapidSeal is a wrap around heat shrinkable sheet that has been specifically designed for protection of buried and exposed manhole structures. WrapidSeal is supplied in bulk rolls of varying widths and consists of a crosslinked polyolefin backing, coated with a protective heat activated adhesive. A separate closure is used to create a complete sleeve with the adhesive effectively bonding to the substrate, providing corrosion protection and adhesion for the impermeable backing.



Heat activated, high shrink membrane

- Torch applied, shrinks to fit profile

High tensile & elongation

- Accommodates movement

Excellent abrasion resistance

- Tough product, resists soil stress

Bulk roll

- Fits any size manhole

Complete coverage

- Reduces ground water infiltration

Provides corrosion protection

- Extends service life

Long Term Protection

- Once installed, the system creates a barrier to water infiltration and effectively protects the manhole support structure and frame from ground moisture, preventing corrosion and freeze-thaw damage. In below grade vaults or concrete lines, WrapidSeal is used to minimize water infiltration, reducing dewatering costs and loads on waste water treatment facilities.

Applications



Manhole Encapsulation



Water Pipelines



Repair & Rehab




Step-Down Joints



WrapidSeal

Manhole Encapsulation System

Adhesive Properties	Test Method	Typical Properties
Softening Point	ASTM E28	100°C
Lap Shear Strength	DIN 30 672	8 N/cm ²
Backing Properties		
Tensile Strength	ASTM D638	20 MPa
Elongation	ASTM D638	600%
Hardness	ASTM D2240	46 Shore D
Abrasion Resistance	ASTM D1044	45 mg
Sleeve Properties		
Peel Strength	ASTM D1000	15 N/cm
Water Absorption	ASTM D570	0.05%
Low Temp. Flexibility	ASTM D2671D	-40°C
Application		
		

Since 1967, Canusa-CPS has been a leading developer and manufacturer of specialty pipeline coatings for the sealing and corrosion protection of pipeline joints and other substrates. Canusa-CPS high performance products are manufactured to the highest quality standards and are available in a number of configurations to accommodate many specific project applications.

The product information shown here is intended as a guide for standard products.

Consult your Canusa representative for specific projects or unique applications at info@canusacps.com.

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Tel: +1 587-754-8701

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SealForLife Industries
Nijverheidsstraat 13
B-2260 Westerlo
Belgium

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SFL Canusa Middle East PPTS LLC
KLP5, Block B, Unit B-01,
Sector no.: KHIA8, Al Ma'mourah
PO Box 2621, Abu Dhabi,
The United Arab Emirates

**Quality Management
system registered to
ISO 9001**

Canusa warrants that the product conforms to its chemical and physical description and is appropriate for the use stated on the product data sheet when used in compliance with Canusa's written instructions. Since many installation factors are beyond our control, the user shall determine the suitability of the products for the intended use and assume all risks and liabilities in connection therewith. Canusa's liability is stated in the standard terms and conditions of sale. Canusa makes no other warranty either expressed or implied. All information contained in this data sheet is to be used as a guide and is subject to change without notice. This data sheet supersedes all previous data sheets on this product. E&OE

PDS_WrapidSeal_rev012

**PIPE TO MANHOLE
CONNECTORS - NORMAL
SERVICE
(PRESS-SEAL)**



HIGH-PERFORMANCE PIPE-TO-MANHOLE CONNECTOR

What It Is

PSX: Direct Drive is a high-performance flexible pipe- to-manhole connector that offers easy installation and long-term performance in one convenient product. Whether you core or cast your holes, **PSX:Direct Drive** fits right into your production methods, ready to seal your toughest applications every time.



How It Works

PSX:Direct Drive has superior materials and technology

- Specially developed synthetic rubber is continuously tested and lab-certified
- Power Sleeve made from tempered Series 304 stainless steel
- Installation Mechanism made from Series 300 stainless steel
- Installation Mechanism is infinitely adjustable
- Installation tools are calibrated and certified
- Take-up clamps made from Series 304 stainless steel with quick-adjusting screws



Why It's Better

- Installs quickly and easily from outside the manhole
- Requires no retightening or adjustment
- All stainless-steel components
- No plastic parts to crack or break
- Accurately compensates for hole size variation
- Available for pipes from 1.7"- 44" OD
- Additional torque and multiple adjusters on larger diameters
- Use in manholes, wet wells, pump and lift stations, stormwater structures, on-site treatment structures, grease interceptors, or any application requiring a flexible watertight connector

How It Performs

PSX:Direct Drive meets or exceeds all requirements of the following Specifications and/or Test Methods:

ASTM C 923
ASTM C 1244
ASTM C 1478
ASTM F 2510

Protected by one or more of the following patents: 6805359, 7146689, 7263746

Press-Seal believes all information is accurate as of its publication date. Information, specifications, and prices are all subject to change without notice. Press-Seal is not responsible for any inadvertent errors. Copyright 2007



PRESS-SEAL GASKET CORPORATION

Providing Products and Services That Protect Our Planet's Clean Water Supply



Submittal Specification

A watertight flexible pipe-to-manhole connector shall be employed in the connection of the sanitary sewer and/or stormwater pipe to precast manholes or other structures.

The connector shall be PSX:DIRECT DRIVE as manufactured by Press-Seal Gasket Corporation, Fort Wayne, Indiana, or approved equal.

The connector assembly shall be the sole element relied on to assure a flexible watertight seal of the pipe to the structure. The connector shall consist of a rubber gasket, an internal expansion sleeve, and one or more external compression take-up clamps. Approved materials for the connector shall be natural or synthetic rubber and Series 300 non-magnetic stainless steel. No plastic components shall be permitted.

The rubber gasket element shall be constructed solely of synthetic or natural rubber, and shall meet/exceed the requirements of ASTM C 923, and shall have a minimum tensile strength of 1600 PSI. Minimum thickness of the cross-section shall be 0.275 inches.

The internal expansion sleeve components shall be made of Series 300 non-magnetic stainless steel and shall utilize no welds in their construction.

Installation shall be performed using a calibrated installation tool available from the connector manufacturer. Installation of the sleeve shall require no retightening after the initial installation.

The external compression take-up clamp(s) shall be constructed of Series 300 non-magnetic stainless steel and shall utilize no welds in its constructions. The clamp(s) shall be installed by torquing the adjusting screw using a torque-setting wrench available from the connector manufacturer.

Selection of the proper size connector for the manhole and pipe requirement, and installation thereof, shall be in strict conformance with the recommendations of the connector manufacturer. Any dead end pipe stubs installed in connectors shall be restrained from movement per ASTM C 923.

The finished connection shall provide sealing to 13 psi (minimum), and shall accommodate deflection of pipe to 7 degrees (minimum) without loss of seal.

Vacuum testing shall be conducted in strict conformance with ASTM C 1244 prior to backfill. Other testing shall be conducted in strict conformance with the requirements of the connector manufacturer.

PRODUCT PERFORMANCE

PSX:Direct Drive meets and/or exceeds all requirements of ASTM C 923, including physical properties of materials and performance testing. Performance testing includes:

- 13 psi minimum in straight alignment
- 10 psi at minimum 7° angle
- 10 psi minimum under shear load of 150 lbs/in. pipe diameter

PSX:Direct Drive meets and/or exceeds the following specifications:

- ASTM C 923 *Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals*
- ASTM C 1478 *Standard Specification for Storm Drain Resilient Connectors Between Reinforced Concrete Storm Sewer Structures, Pipes and Laterals*
- ASTM F 2510 *Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures and Corrugated High Density Polyethylene Drainage Pipes*
- ASTM C 1244 *Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test*

TYPICAL TEST RESULTS for PSX:Direct Drive (as in ASTM C 923 and C 1478)

Test	ASTM Test Method	Test Requirements	Typical Result
CHEMICAL RESISTANCE; 1N SULFURIC ACID and 1N HYDROCHLORIC ACID	D 534, AT 22°C FOR 48 HRS	NO WEIGHT LOSS NO WEIGHT LOSS	NO WEIGHT LOSS NO WEIGHT LOSS
TENSILE STRENGTH	D 412	1200 PSI, MIN.	2100 PSI
ELONGATION AT BREAK	D 412	350%, MIN.	525%
HARDNESS	D 2240 (SHORE A DUROMETER)	±5 FROM THE MANUFACTURER'S SPECIFIED HARDNESS	<2
ACCELERATED OVEN-AGING	D 573, 70± 1°C FOR 7 DAYS	DECREASE OF 15%, MAX. OF ORIGINAL TENSILE STRENGTH, DECREASE OF 20%, MAX. OF ELONGATION	-13% TENSILE CHANGE, -14% ELONGATION CHANGE
COMPRESSION TEST	D 395, METHOD B, AT 70°C FOR 22 HRS	DECREASE OF 25%, MAX. OF ORIGINAL DEFLECTION	13%
WATER ABSORPTION	D 471 IMMERSE 0.75 BY 2-IN. SPECIMEN IN DISTILLED WATER AT 70°C FOR 48 hrs	INCREASE OF 10%, MAX. OR ORIGINAL BY WEIGHT	3.50%
OZONE RESISTANCE	D 1171	RATING 0	PASS
LOW-TEMP, BRITTLE POINT	D 746	NO FRACTURE AT -40°C	PASS
TEAR RESISTANCE	D 624, METHOD B	200 LBF/IN. (MIN.)	450 LBF/IN.

Protected by one or more of the following patents: 6805359, 7146689, 7263746

Press-Seal believes all information is accurate as of its publication date. Information, specifications, and prices are all subject to change without notice. Press-Seal is not responsible for any inadvertent errors. Copyright 2007



HDPE GRADE RINGS

(LADTECH)



LADTECH INCORPORATED

Product Information Sheet

Item Number	Use for Manhole Size	Adjustment Height	Pallet Count	Part Weight oz./lbs.	Pallet Weight Lbs.	Size in Cubic Feet	Stack Height	Pallet Dimensions
24R125	24"	1 1/4"	69	69.76 oz. (4 lbs. 6 oz.)	321	61.5	91"	34x34x94
24R150	24"	1 1/2"	58	76.64 oz. (4 lbs. 13 oz.)	299	61.5	92"	34x34x95
24R200	24"	2"	43	92.32 oz. (5 lbs. 12 oz.)	268	61.5	91"	34x34x94
24AL200	24"	2" Recessed Lip	43	73.28 oz. (4 lbs. 10 oz.)	217	61.5	91"	34x34x94
24R400	24"	4"	21	172.96 oz. (10 lbs. 13 oz.)	247	60.9	89"	34x34x92
24S150	24"	3/4" to 1 1/2"	79	67.36 oz. (4 lbs. 4 oz.)	353	62.9	92"	34x34x95
SP24FS-025	Final Grade	24" x 1/4"	100	51.52 oz. (3 lbs. 4 oz.)	342			34x34

27R125	27"	1 1/4"	69	72.64 oz. (4 lbs. 9 oz.)	333	72.9	91"	37x37x94
27R150	27"	1 1/2"	58	80.64 oz. (5 lbs. 1 oz.)	312	73.7	92"	37x37x95
27R200	27"	2"	43	96.96 oz. (6 lbs. 1 oz.)	281	72.9	91"	37x37x94
27R400	27"	4"	21	179.2 oz. (11 lbs. 3 oz.)	255	72.1	89"	37x37x92
27S150	27"	3/4" to 1 1/2"	79	74.56 oz. (4 lbs. 11 oz.)	388	74.5	92"	37x37x95
SP27FS-025	Final Grade	27" x 1/4"	100	60.48 oz. (3 lbs. 13 oz.)	398			37x37

30F150	30"	1 1/2"	58	80.96 oz. (5 lbs. 1 oz.)	314	86.1	92"	40x40x95
30F225	30"	2 1/4"	38	115.2 oz. (7 lbs. 3 oz.)	294	86.1	90"	40x40x93
30F400	30"	4"	21	182.72 oz. (11 lbs. 7 oz.)	260	84.3	89"	40x40x92
30S225	30"	1 1/2" to 2 1/4"	47	104 oz. (6 lbs. 8 oz.)	326	85.2	91"	40x40x94
SP30FS-025	Final Grade	30" x 1/4"	100	63.68 oz. (3 lbs. 15 oz.)	418			40x40

32F200	32"	2"	43	116.16 oz. (7 lbs. 4 oz.)	332	93.9	91"	42x42x94
32F300	32"	3"	29	153.6 oz. (9 lbs. 10 oz.)	298	93.9	92"	42x42x95
32RFG300	32"	3" Fiber Glass	29	142.08 oz. (8 lbs. 14 oz.)	278	93.9	92"	42x42x95
32S225	32"	1 1/2" to 2 1/4"	51	102.08 oz. (6 lbs. 6 oz.)	346	93.9	91"	42x42x94
SP32FS-025	Final Grade	32" x 1/4"	100	68.96 oz. (4 lbs. 5 oz.)	451			42x42

34F200	34"	2"	43	105.6 oz. (6 lbs. 10 oz.)	304	93.9	91"	42x42x94
34F300	34"	3"	29	133.44 oz. (8 lbs. 6 oz.)	262	93.9	92"	42x42x95
34S225	34"	1 1/4" to 2 1/4"	51	90.24 oz. (5 lbs. 10 oz.)	308	93.9	91"	42x42x94
SP34FS-025	Final Grade	34" x 1/4"	100	62.72 oz. (3 lbs. 15 oz.)	412			42x42

2424F150	24"x24"	1 1/2"	58	112 oz. (7 lbs. 0 oz.)	426	62.2	92"	34x34x95
2424F200	24"x24"	2"	43	141.12 oz. (8 lbs. 13 oz.)	399	62.2	91"	34x34x94
2424F275	24"x24"	2 3/4"	32	181.76 oz. (11 lbs. 6 oz.)	384	61.5	93"	34x34x96
2424S125	24"x24"	1 1/4" to 2 3/4"	44	128.64 oz. (8 lbs. 1 oz.)	374	61.5	93"	34x34x96
2424S275	24"x24"	2" to 2 3/4"	38	155.2 oz. (9 lbs. 11 oz.)	389	63.6	94"	34x34x97
SP2424FS-025	Final Grade	24" x 24" 1/4" sq.	100	75.84 oz. (4 lbs. 12 oz.)	494			34x34

2436F150	24"x36"	1 1/2"	58	138.56 oz. (8 lbs. 11 oz.)	522	83.3	92"	34x46x95
2436F200	24"x36"	2"	43	169.28 oz. (10 lbs. 9 oz.)	475	83.3	91"	34x46x94
2436F275	24"x36"	2 3/4"	32	218.24 oz. (13 lbs. 10 oz.)	457	83.3	93"	34x46x96
2436SX175	24"x36" Slope	1 1/4" to 1 3/4"	58	133.12 oz. (8 lbs. 5 oz.)	503	83.3	92"	34x46x95
2436SX275	24"x36" Slope	3" leg	44	162.56 oz. (10 lbs. 3 oz.)	467	83.3	93"	34x46x96
24S36X275	24" Slope x 36"	2" leg	44	157.12 oz. (9 lbs. 13 oz.)	452	83.3	93"	34x46x96
SP2436FS-025	Final Grade	24" x 36" 1/4" rec.	100	95.04 oz. (5 lbs. 15 oz.)	614			34x46

ALL ORDERS ARE FOB SPARTA, WI 54656

PALLET ARE APPROXIMATELY 4.5' HIGH

Pallets weigh approximately 20 lbs. Weight is included in stack weight.



www.ladtech.com
Phone: 651-415-1252
Fax: 651-415-1090

Specifying the LADTECH, Inc. Injection Molded Recycled High Density Polyethylene Adjusting Rings

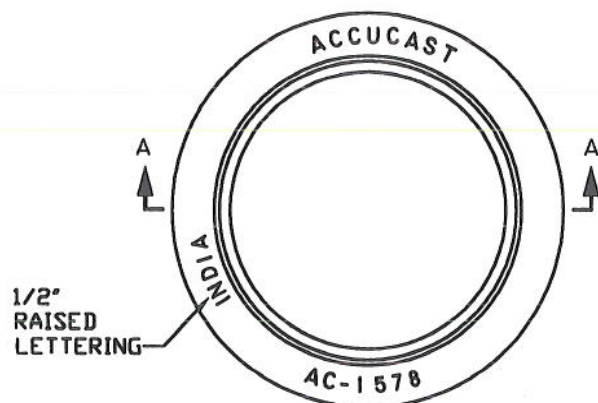
There are several ways in which **LADTECH®** adjusting rings may be written into a job specification. Various engineering firms and municipalities have utilized the examples given below. You may use these examples as guides or item number five can be used in its entirety to firmly specify the **LADTECH, Inc.** product.

1. In lieu of round concrete rings, all castings shall be raised using round high-density polyethylene (HDPE) rings or an approved equal.
2. All adjusting rings shall be injection molded-recycled HDPE as manufactured by **LADTECH, Inc.** or approved equal and installed as per manufacture's recommendations.
3. Sanitary sewer and storm sewer manholes:
 - The city is changing from concrete adjusting rings to high-density polyethylene (HDPE) rings for all manholes.
4. The city is requiring that in lieu of concrete adjusting rings, all manholes shall utilize the round high-density polyethylene (HDPE) recycled adjusting rings.
 - The complete adjustment system utilizing the HDPE rings shall consist of the rings, sealed to the manhole structure, casting and one another by means of an approved butyl sealant.
 - The manhole adjusting rings shall be molded from high-density polyethylene as defined in ASTM Specification D-4976. The contractor shall utilize flat and sloping units to match the required slope and or grade of the structure.
5. All final grade adjustment of manhole covers and frame assemblies shall be completed utilizing injection molded high-density polyethylene (HDPE) adjustment rings as manufactured by **LADTECH, Inc.** or an approved equal.
 - 5.1 The adjustment rings shall be manufactured from polyethylene plastic as identified in ASTM Designation D-4976 (Standard Specification for Polyethylene Plastic Molding and Extrusion Materials).

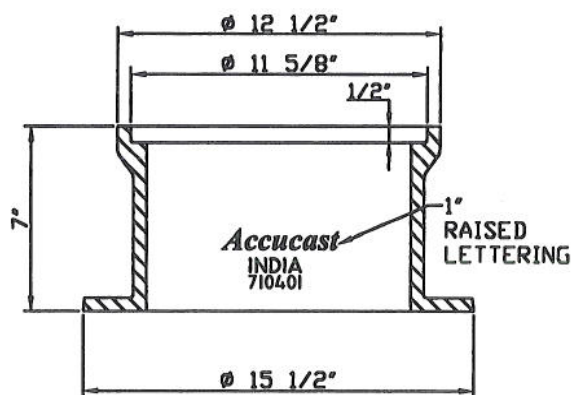
- 5.2 Material properties shall be tested and qualified for usage per the ASTM Test Methods referenced in the above ASTM standard
- 5.3 The adjustment rings shall be molded from 100% recycled material.
- 5.4 The plastic rings shall be manufactured utilizing the injection molding process as defined by SPE (Society of Plastic Engineers).
- 5.5 The adjustment rings shall be tested to assure compliance with impact and loading requirements per the ASSHTO Standard Specification for Highway Bridges.
- 5.6 Installation shall be per manufacture's recommendations only
- 5.7 The annular space between the individual rings and cone basin and the rings and cover frame shall be sealed per manufacturers instruction utilized with ASTM C990 approved butyl sealant.
- 5.8 All adjustment for matching road grade shall be made utilizing a molded indexed slope ring.
- 5.9 All grade rings shall be covered by the LADTECH, Inc. warranty or one of equal terms and duration

CLEANOUT CASTINGS

(ACCUCAST)

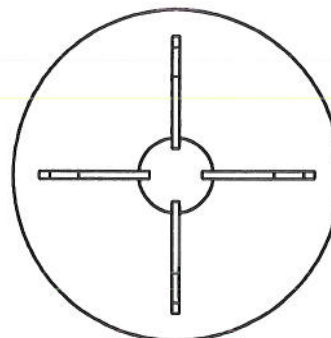


PLAN

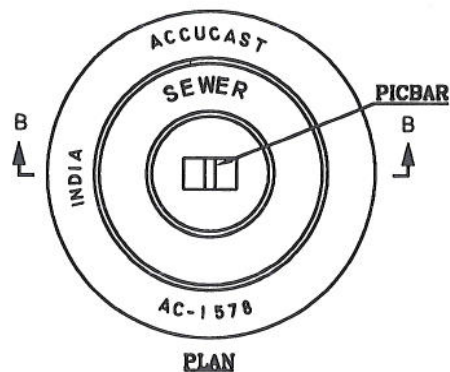


SECTION 'AA'
RING

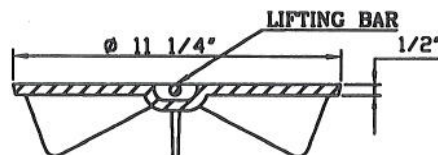
WT = 44 Lbs.



BOTTOM VIEW OF COVER



PLAN



SECTION 'BB'
COVER

WT = 18 Lbs.

Accucast

415 S. 21st. STREET
WACO, TX 76708

Phone 1-254-756-3200

Fax 1-254-756-0200

Watts 1-800-433-6865

DRAWN BY : DATE :

APPROVED :

REVISION :

SCALE : NOT TO SCALE

LOAD RATING

MATERIAL SPECIFICATION
ASTM A 48 CLASS 30

COATING
BITUMINOUS TAR COATED
(UNCOATED ON REQUEST)

ESTIMATED WEIGHT - LBS.

62 Lbs.

PART/DWG NUMBER

AC-1578

CATALOG NUMBER
710401

CLEAN OUT