PRODUCT SUBMITTALS FOR:

WINDING CREEK U3

CONTRACTOR:

V.K.KNOWLTON

UTILITY PROVIDER:

GBRA (SEWER)

UNDERGROUND UTILITY MATERIAL SUPPLIED BY:

ACT PIPE & SUPPLY

4719 DODGE ST

SAN ANTONIO, TX 78217

210-946-6969

SEWER

UNDERGROUND UTILITY MATERIAL SUPPLIED BY:

ACT PIPE & SUPPLY

4719 DODGE ST

SAN ANTONIO, TX 78217

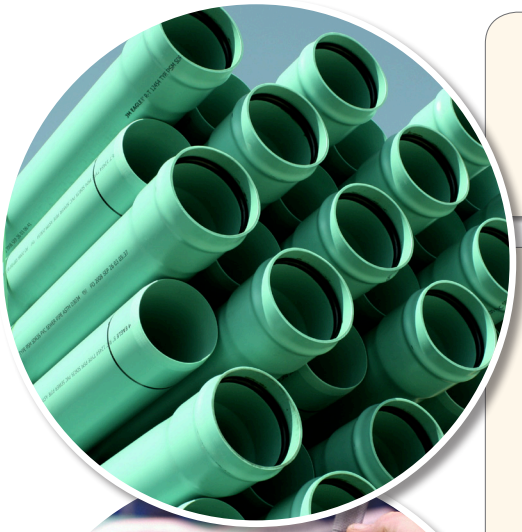
210-946-6969

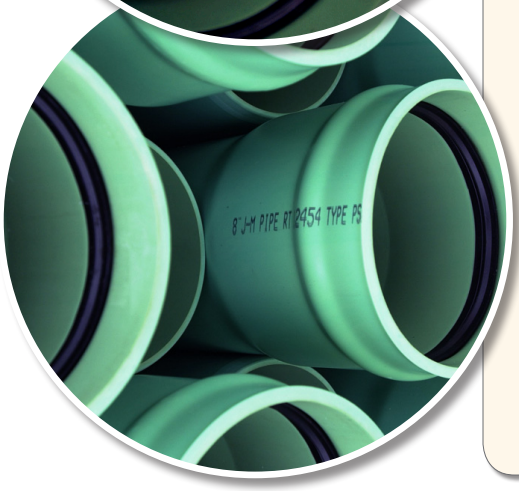
JM Eagle™

Building essentials for a better tomorrow™

GRAVITY SEWER

MEETS ASTM D3034 AND F679.





APPLICATIONS

JM Eagle's Ring-Tite PVC Gravity Sewer pipe is suitable for conveying domestic sanitary sewage, as well as certain industrial wastes.

DESCRIPTION

JM Eagle's Gravity Sewer pipe ASTM D3034 is available in SDR 35 and SDR 26 in 4- to 15-inch diameters and ASTM F679 is available in PS 46 and PS 115 in 18- to 48-inch diameters. It comes in 14- and 20-foot lengths.

The pipe can be directed to most existing sewer equipment. It can also be connected to IPS cast- or ductile-iron fittings with the appropriate adapters and/or transition gaskets.

JM Eagle Gravity Sewer pipe comes with Ring-Tite joints with locked-in gaskets. Joints meet or exceed ASTM D3212 for joint tightness, including a 22-inch Hg vacuum and a 25-foot head pressure test.

BENEFITS

JM Eagle's Ring-Tite Gravity Sewer pipe features an improved design for reserve strength and stiffness to increase load-bearing capacity, maximizing sewer system capacity at a reasonable cost.

- It is unaffected by the fluids found in ordinary domestic sewage; sewer gasses and the sulfuring acid generated by the completion of the hydrogen sulfide cycle; and corrosive soils both alkaline and acidic.
- Maintains performance against tuberculation, corrosion and external galvanic soil conditions without lining wrapping, coating or cathodic protection.
- It resists abrasion, gouging and scouring far better than most common piping materials.
- Its interiors stay smooth over long years of service while maximizing system capacity, allowing for savings in pumping costs, as well as savings on the size of the pipe required.
- The light weight of the pipe reduces manpower required for installation.
- It can be field-cut with a power saw or ordinary handsaw and be beveled without the use of expensive or complicated machinery.
- Gasketed tee and wye saddles for tapping into previously installed PVC sewer lines eliminate the need for field solvent welding.

Revised 5/14/2012. This information may have been updated. Please download the latest version at www.jmeagle.com/onesheets.

JM Eagle™

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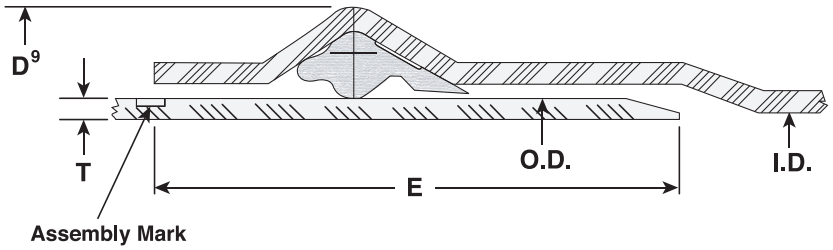
GRAVITY SEWER

SUBMITTAL AND DATA SHEET

JM EAGLE'S RING-TITE JOINT OFFERS ADDITIONAL BENEFITS.

- Seated in a deep groove, the flexible elastomeric Rieber gasket provides a tight seal that protects the line from shock, vibration and earth movement, and compensates for expansion and contraction of the pipe lengths.
- Quick and easy to assemble with a simple push, there's no field mixing or application of cement.
- The joint remains tight under normal operating conditions.

PIPE SIZE (IN)	AVERAGE O.D.(IN)	NOM. I.D. (IN)	MIN. T. (IN)	MIN. E (IN)	APPROX. D^9 (IN)	APPROX. WEIGHT (LBS/FT)
SDR 35 (PS46) ASTM D3034						
4	4.215	3.975	0.120	3.50	4.695	1.05
6	6.275	5.915	0.180	4.25	6.995	2.36
8	8.400	7.920	0.240	4.75	9.360	4.24
10	10.500	9.900	0.300	6.00	11.700	6.64
12	12.500	11.780	0.360	6.25	13.940	9.50
15	15.300	14.426	0.437	7.25	17.048	14.19
SDR 26 (PS115) ASTM D3034						
4	4.215	3.891	0.162	3.50	4.863	1.40
6	6.275	5.793	0.241	4.25	7.239	3.11
8	8.400	7.754	0.323	4.75	9.692	5.63
10	10.500	9.692	0.404	6.00	12.116	8.84
12	12.500	11.538	0.481	6.25	14.424	12.56
15	15.300	14.124	0.588	7.25	17.652	18.90
PS46, ASTM F679						
18	18.701	17.629	0.499	8.00	20.845	21.43
21	22.047	20.783	0.588	9.50	24.575	29.88
24	24.803	23.381	0.661	9.60	27.647	38.96
27	27.953	26.351	0.745	10.10	31.157	49.47
30 CIOD	32.000	30.194	0.853	16.75	35.612	64.18
36 CIOD	38.300	36.042	1.021	19.02	42.816	93.00
42 CIOD	44.500	41.948	1.187	22.43	49.604	—
48 CIOD	50.800	47.888	1.355	24.78	56.624	—
PS115, ASTM F679						
18	18.701	17.261	0.671	8.00	21.581	28.49
21	22.047	20.349	0.791	9.50	25.443	—
24	24.803	22.891	0.889	9.60	28.627	—
27	27.953	25.799	1.002	10.10	32.261	—
30 CIOD	32.000	29.070	1.148	16.75	36.348	—
36 CIOD	38.300	35.464	1.373	19.02	45.438	—
42 CIOD	44.500	41.072	1.596	22.43	51.356	—
48 CIOD	50.800	46.886	1.822	24.78	58.628	—



I.D. : Inside Dameter

O.D. : Outside Diameter

T. : Wall Thickness

D^9 : Bell Outside Diameter

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

Product Standard:	ASTM 3034 (4"–15") ASTM F679 (18"–48")
Pipe Compound:	ASTM D1784 Cells Class 12454 or 12364
Gasket:	ASTM F477
Integral Bell Joint:	ASTM D3212
Pipe Stiffness:	ASTM D2412 F/ΔY = 46 PSI or 115 PSI
Pipe Length:	14 or 20 feet laying length
Installation:	ASTM D 2321 JM Eagle™ Installation Guide

Sani-21™: PVC Sewer Pipe

SPECIFICATION DATA

Sani 21™ SANITARY SEWER PIPE FOR THE 21st CENTURY

D3034 & F679
SEWER SPECIFICATION DATA

Diamond gravity sewer pipe 4 inches through 48 inches shall be made of compounds conforming to material requirements of ASTM D3034 and ASTM F679 in accordance with ASTM D1784. Diamond PVC Sewer Pipe meets all the dimensional, chemical, and physical requirements as outlined in ASTM D3034 and ASTM F679.

The pipe sizes 4 inches through 48 inches are made with an integral bell "water-tight" joint that meets the requirements of ASTM D3212 and that utilizes a Rieber gasket system for sealing that meets the requirements of ASTM F477.

Each male end shall be beveled to facilitate joining and referencing marked for proper insertion depth. Diamond furnished lubricant is to be used in the joining process.

Physical Properties of ASTM D3034 & F679

Pipe Materials:
Pipe shall be made of PVC plastic having a minimum cell classification of 12454 or 12364 as defined in Specification D1784.

Property	ASTM Test	Minimum
Specific Gravity	D792	1.40
Tensile Strength, psi	D638	7,000
Tensile Modulus, psi	D638	400,000
IZOD Impact Strength,	D256	.65ft., lb./in.

Pipe Stiffness

Pipe	Modulus	
SDR	E = 400,000	E = 500,000
41	28	35
35	46	57
26	115	144

Standard laying lengths are 14 and 22 feet

SHORT FORM **Specification for Diamond PVC Solid-Wall Sewer Pipe SDR 26 or SDR 35 or PS 46 or PS 115**
Diamond PVC Solid-Wall Sewer PIpe shall be made of compounds conforming to ASTM D1784 manufactured in accordance with the material requirements of ASTM D3034 or ASTM F679. Diamond PVC Sewer Pipe must meet all dimensional, chemical, and physical requirements as outlined in ASTM D3034 orASTM F679. Diamond PVC Sewer Pipe shall be installed according to the requirements of ASTM D2321. Joints shall meet the requirements of ASTM D3212 and shall be formed using Rieber Technology. Uni-Bell UNI-PUB 6, "and the manufacturer's requirements."

DIAMOND PLASTICS® CORPORATION

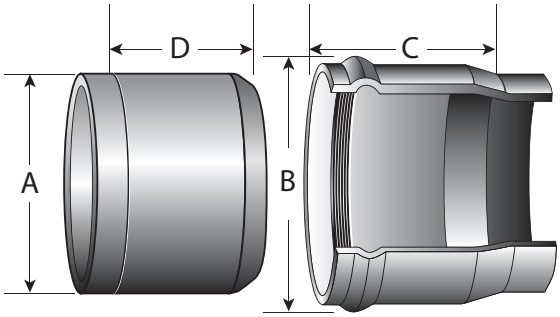
Corporate Headquarters • 1212 Johnstown Road • P.O. Box 1608 • Grand Island, NE 68802-1608

Sani-21™: PVC Sewer Pipe

SPECIFICATION DATA

Sani-21™ SANITARY SEWER PIPE FOR THE 21st CENTURY

Reiber Joint Illustration



Sani-21 is supplied in 14 foot and 22 foot laying lengths.

Sani-21™ D3034 & F679 SEWER SPECIFICATION DATA

Strength

Nominal Pipe Size Inches	Outside Diameter A Inches	Bell Socket Diameter B Inches	Socket Depth C Inches	Insert Mark D Inches	Wall Thickness SDR26/PS115 (t) Inches	Wall Thickness SDR35/PS46 (t) Inches
D-3034 Pipe Dimensions						
4	4.215	5-1/4	4-5/8"	4"	0.162	0.120
6	6.275	7-1/2	4-3/4"	4"	0.241	0.180
8	8.400	9-7/8	6-1/8"	5"	0.323	0.240
10	10.500	12-3/8	6-3/4"	6"	0.404	0.300
12	12.500	14-5/8	7-1/4"	6"	0.481	0.360
15	15.300	18	6-3/4"	6"	0.588	0.437
F-679 Pipe Dimensions						
18	18.701	21-3/4"	7-3/4"	7"	0.671	0.499
21	22.047	25-1/2"	7-3/4"	7"	0.791	0.588
24	24.803	28-3/4"	8-1/2"	7-1/4"	0.889	0.661
27	27.953	32-1/2"	8-1/2"	7-1/4"	1.002	0.745
30 ciod	32.000	37-1/4"	12"	10"	1.148	0.853
36 ciod	38.300	43-1/4"	12"	10"	1.373	1.021
42 ciod	44.500	53"	16"	13"		1.187
48 ciod	50.800	60"	16"	13"		1.355

Prices are subject to a firm policy of "Price in effect at time of shipment on regular purchases"

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JM Eagle *Building essentials for a better tomorrow™*

IPS PRESSURE

SUBMITTAL AND DATA SHEET

ALL IPS SIZED SEWER PIPING WILL BE WHITE IN COLOR FOR THIS PROJECT

PIPE SIZE (IN)	AVERAGE O.D. (IN)	NOM. I.D. (IN)	MIN. T. (IN)	MIN. E (IN)	APPROX. D[9] (IN)	APPROX. WEIGHT (LBS/FT)
Rated 63 psi (SDR 64)*						
6	6.625	6.40	0.104	5.50	7.20	1.60
8	8.625	8.33	0.135	6.25	9.30	2.40
10	10.750	10.39	0.168	6.75	11.50	3.80
12	12.750	12.32	0.199	8.00	13.80	5.30
Rated 100 psi (SDR 41)*						
3	3.500	3.320	0.085	4.20	3.84	—
4	4.500	4.267	0.110	4.50	4.94	1.03
5	5.563	5.27	0.136	4.65	6.10	1.60
6	6.625	6.282	0.162	5.20	7.27	2.23
8	8.625	8.180	0.210	5.90	9.47	3.75
10	10.750	10.195	0.262	6.70	11.80	5.86
12	12.750	12.091	0.311	8.10	13.99	8.28
Rated 125 psi (SDR 32.5)*						
1.5	1.900	1.773	0.060	3.45	2.14	—
2	2.375	2.220	0.073	3.70	2.67	—
2.5	2.875	2.688	0.088	3.95	3.23	—
3	3.500	3.271	0.108	4.20	3.93	0.77
4	4.500	4.207	0.138	4.50	5.05	1.28
5	5.563	5.200	0.171	4.65	6.25	2.00
6	6.625	6.193	0.204	5.20	7.44	2.79
8	8.625	8.063	0.265	5.90	9.69	4.70
10	10.750	10.048	0.331	6.70	12.07	7.35
12	12.750	11.919	0.392	8.10	14.32	10.36
Rated 160 psi (SDR 26)* (G) (P)						
1.5	1.900	1.745	0.073	3.45	2.19	0.28
2	2.375	2.182	0.091	3.70	2.74	0.44
2.5	2.875	2.642	0.110	3.50	3.32	0.64
3	3.500	3.214	0.135	4.10	4.04	0.95
4	4.500	4.133	0.173	4.50	5.19	1.58
5	5.563	5.109	0.214	4.65	6.42	2.40
6	6.625	6.084	0.255	5.20	7.65	3.44
8	8.625	7.921	0.332	5.90	9.95	5.85
10	10.750	9.874	0.413	6.70	12.40	9.12
12	12.750	11.711	0.490	8.10	14.71	12.89

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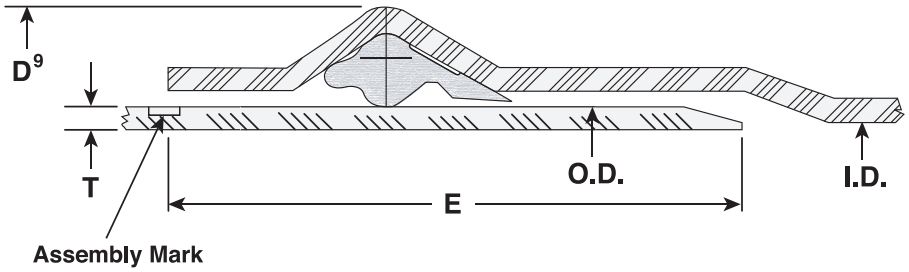
PIPE SIZE (IN)	AVERAGE O.D. (IN)	NOM. I.D. (IN)	MIN. T. (IN)	MIN. E (IN)	APPROX. D^9 (IN)	APPROX. WEIGHT (LBS/FT)
Rated 200 psi (SDR 21)* (G) (P)						
1.5	1.900	1.709	0.090	3.45	2.26	0.44
2	2.375	2.135	0.113	3.70	2.83	0.54
2.5	2.875	2.585	0.137	3.95	3.42	0.79
3	3.500	3.146	0.167	4.20	4.17	1.17
4	4.500	4.046	0.214	4.50	5.36	1.93
6	6.625	5.955	0.316	5.20	7.89	4.23
8	8.625	7.754	0.410	5.90	10.27	7.18
10	10.750	9.667	0.511	6.70	12.79	11.20
12	12.750	11.465	0.606	8.10	15.17	15.82
Rated 250 psi (SDR 17)* (G) (P)						
1.5	1.900	1.641	0.112	3.45	2.39	0.58
2	2.375	2.078	0.140	3.70	2.94	0.66
2.5	2.875	2.517	0.169	3.95	3.55	—
3	3.500	3.063	0.206	4.20	4.32	1.42
4	4.500	3.938	0.265	4.50	5.56	2.36
6	6.625	5.803	0.390	5.20	8.19	5.11
8	8.625	7.553	0.508	5.90	10.66	8.69
10	10.750	9.410	0.632	6.70	13.28	13.55
12	12.750	11.160	0.750	8.10	15.75	19.20

* Prior to ordering or specifying, consult JM Eagle™ for product and/or listing availability.
(G) Green pipe available in sizes 4”–12”
(P) Purple pipe available in sizes 2”–12”



I.D. : Inside Dameter
O.D. : Outside Diameter
T. : Wall Thickness
D^9 : Bell Outside Diameter
E : Distance between Assembly Mark to the end of spigot.

Product Standard:	ASTM D2241
Pipe Compound:	ASTM D1784 Cells Class 12454
Gasket:	ASTM F477
Integral Bell Joint:	ASTM D3139
Certifications:	ANSI/NSF Standard 61
Pipe Length:	20 feet laying length
Installation:	JM Eagle™ Installation Guide

ASTM D2241 IPS SPECIFICATION DATA

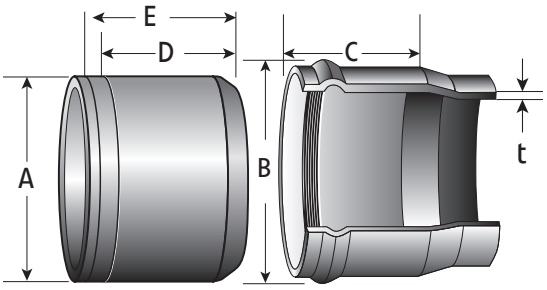
Diamond IPS pressure-rated PVC pipe is made of compounds conforming to material requirements of ASTM D2241 in accordance with ASTM D1784. Pipe sizes (1 ½" through 12") are made with an integral bell to utilize the Rieber gasket system for sealing, and meeting specifications defined in ASTM F477 which conforms to the requirements of ASTM D3139.

Diamond IPS pressure-rated PVC pipe meets all the dimensional, chemical, and physical requirements as outlined in ASTM D2241. Potable water pipe carries the mark of NSF, International in accordance with Standard 61. Some factory locations produce IPS pressure pipe bearing the mark of NSF-14.

Each male end shall be beveled to facilitate joining and reference marked to insure proper insertion depth. Diamond furnished lubricant is to be used in the joining process.

ALL IPS SIZED SEWER PIPING WILL BE WHITE IN COLOR FOR THIS PROJECT

RIEBER JOINT ILLUSTRATION



D2241

PHYSICAL PROPERTIES OF PVC 12454:

Property	ASTM Test	Minimum
Specific Gravity	D792	1.40
Tensile Strength, psi	D638	7,000
Tensile Modulus, psi	D638	400,000
IZOD Impact Strength	D256	.65ft., lb./in.

SHORT FORM Specification for Diamond PVC Water Pipe
Diamond PVC Water Pipe shall be made of compounds conforming to ASTM D1784 with a cell classification of 12454. Diamond PVC Water Pipe must meet all the dimensional, chemical, and physical requirements as outlined in ASTM D2241 and will be supplied in 20 and 22 foot laying lengths. Joints shall be formed using Rieber Technology. Potable water pipe shall be manufactured from NSF listed ingredients.

ASTM D2241

SPECIFICATION DATA. DIAMOND IPS PRESSURE-RATED PIPE IS SUPPLIED IN 20 AND 22 FOOT LAYING LENGTHS.

Nominal Pipe Size in. (mm)	B Bell Socket Diameter Inches	C Approximate Bell Depth Inches	D Insert Mark 1 Inches *	E Insert Mark 2 Inches *
2" (50)	3-1/8"	4"	2-3/4"	3-3/4"
2.5" (62.5)	4-3/8"	5"	2"	3"
3" (75)	4-7/16"	4-1/2"	3-5/8"	4-5/8"
4" (100)	5-1/2"	4-3/4"	4-1/4"	5-1/4"
6" (150)	8-1/4"	5-1/2"	4-3/4"	5-3/4"
8" (200)	10-1/4"	6"	4-7/8"	5-7/8"
10" (250)	12-7/8"	6-1/2"	5-1/2"	6-1/2"
12" (300)	15-1/8"	7"	5-7/8"	6-7/8"

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*Tolerance of +/- 1/4" allowed

ASTM D2241
SPECIFICATION DATA

Nominal Pipe Size in. (mm)	A Outside Diameter Inches	t SDR 13.5 315 psi Inches	t SDR 17 250 psi Inches	t SDR 21 200 psi Inches	t SDR 26 160 psi Inches	t SDR 32.5 125 psi Inches	t SDR 41 100 psi Inches
MINIMUM WALL THICKNESS = (t)							
1.5" (37.5)	1.900	0.141	0.112	0.090			
2" (50)	2.375	0.176	0.140	0.113	0.091		
2.5" (62.5)	2.875	0.213	0.169	0.137	0.110		
3" (75)	3.500	0.259	0.206	0.167	0.135		
4" (100)	4.500	0.333	0.265	0.214	0.173	0.138	0.110
6" (150)	6.625	0.491	0.390	0.316	0.255	0.204	0.162
8" (200)	8.625		0.508	0.410	0.332	0.265	0.210
10" (250)	10.750		0.632	0.511	0.413	0.331	0.262
12" (300)	12.750		0.750	0.606	0.490	0.392	0.311

ASTM D2241
ASTM D2241 LOADING CHART

Nominal Pipe Size in. (mm)	Outside Diameter	Joints Per Bundle	Feet Per Bundle 20' laying lengths	*Feet Per Truckload 20' laying lengths	Feet Per Bundle 22' laying lengths	*Feet Per Truckload 22' laying lengths
SDR-41 PRESSURE RATING 100 PSI						
4" (100)	4.500	63	1,260	20,160	1,386	22,176
6" (150)	6.625	35\40	560/640/700/800	8,400	770\880	9,240
8" (200)	8.625	20\24	300/360/400/480	4,840	440\528	5,324
10" (250)	10.750	12\15	240/300	3,240	264\330	3,564
12" (300)	12.750	9\12	120/160/180/240	1,960	198\264	2,156
SDR-32.5 PRESSURE RATING 125 PSI						
4" (100)	4.500	63	1,260	20,160	1,386	22,176
6" (150)	6.625	35\40	560/640/700/800	8,400	770\880	9,240
8" (200)	8.625	20\24	300/360/400/480	4,840	440\528	5,324
10" (250)	10.750	12\15	240/300	3,240	264\330	3,564
12" (300)	12.750	9\12	120/160/180/240	1,960	198\264	2,156
SDR-26 PRESSURE RATING 160 PSI						
2" (50)	2.375	215			4,730	75,680
2.5" (62.5)	2.875	131			2,882	46,112
3" (75)	3.500	88\95			1,936\2,090	32,208
4" (100)	4.500	63	1,260	20,160	1,386	22,176
6" (150)	6.625	35\40	560/640/700/800	8,400	770\880	9,240
8" (200)	8.625	20\24	300/360/400/480	4,840	440\528	5,324
10" (250)	10.750	12\15	240/300	3,240	264\330	3,564
12" (300)	12.750	9\12	120/160/180/240	1,960	198\264	2,156

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CONTINUED NEXT PAGE

DETECTABLE TAPE (5.0 MIL)

Solid Aluminum Foil Core • Virgin Clear Polypropylene Film Laminated Top Structure
Virgin Clear Polyethylene Film Laminated Base Structure • Reverse Printed Polypropylene Structure
Acid, Alkali, Chemical, and Oil Resistant • Direct Burial Rated • Made in the USA

Applications and Information

- **Pro-Line's Detectable Marking Tape** is used for detecting, locating, identifying, and protecting buried utility lines for gas, water, sewer, telecommunication, and electrical markets. The width of tape used, is determined by the size of, and depth at which the underground utility line is buried. The depth at which detectable tape is buried, is determined by the width of the tape used.
- **DETECT:** Aluminum core is detected through means of inductive locating.
- **LOCATE:** Line is located and marked after inductive locating is performed.
- **IDENTIFY:** Utility type is identified by both the APWA color-code and utility legend printed on the marking tape.
- **PROTECT:** Detectable tape works 24 hours a day and year round, even if tape is not inductively located during excavation, the tape provides a "stop-sign" effect that is highly visible.

Standards and References

Pro-Line's Detectable Marking Tape meets or exceeds all applicable ASTM specifications.

- ASTM D2103-08: Standard Specification for Polyethylene Films and Sheeting.
- ASTM D882-09: Standard Test Method for Tensile Properties and Elongation of Thin Plastic Sheeting.
- ASTM D2578-08: Standard Test Method for Wetting Tension of Polyethylene and Polypropylene Films.
- ASTM D792-08: Standard Test Methods for Density of Plastics by Displacement.
- ASTM D671-93: Standard Test Method for Flexural Fatigue of Plastics.

Construction

Pro-Line's Detectable Marking Tape consists of a minimum 5.0 mil overall thickness. Construction is 0.8 mil clear virgin polypropylene film, reverse printed and laminated to a 0.35 solid aluminum foil core and then laminated to a 3.75 mil clear virgin polyethylene film. Tape is printed with our APWA Color-Coded, patented "Diagonally Striped" design with big, bold, black lettering to identify a specific buried utility line.

Specifications

DETECTABLE UNDERGROUND MARKING TAPE
Underground marking tape shall be a (2", 3", 4", 6", or 12" width), detectable marking tape, with a minimum 5.0 mil overall thickness. Tape shall be manufactured using a 0.8 mil clear virgin polypropylene film, reverse printed and laminated to a **0.35 mil solid aluminum foil core**, and then laminated to a 3.75 mil clear virgin polyethylene film. Tape shall be printed using a diagonally striped design for maximum visibility, and meet the APWA Color-Code standard for identification of buried utilities. Detectable marking tape shall be **Pro-Line Safety Products** or approved equal and made in the USA.

DETECTABLE TAPE (5.0 MIL)

TABLE 1: DETECTABLE TAPE CONSTRUCTION (Polypropylene, Aluminum Foil, and Polyethylene)

PROPERTY	2" WIDTH	3" WIDTH	4" WIDTH	6" WIDTH	12" WIDTH
Nominal Overall Thickness	5.0 mil	5.0 mil	5.0 mil	5.0 mil	5.0 mil
Aluminum Foil Core Thickness	0.35 mil	0.35 mil	0.35 mil	0.35 mil	0.35 mil
Polyethylene Film Thickness	3.75 mil	3.75 mil	3.75 mil	3.75 mil	3.75 mil
Polypropylene Film Thickness	0.80 mil	0.80 mil	0.80 mil	0.80 mil	0.80 mil
Polypropylene Print Method	Reverse Printed	Reverse Printed	Reverse Printed	Reverse Printed	Reverse Printed
Print Design #1 (Patented)	**Diagional Striped**	**Diagional Striped**	**Diagional Striped**	**Diagional Striped**	**Diagional Striped**
Print Design #2 (Custom)	Solid Block	Solid Block	Solid Block	Solid Block	Solid Block
Print Design #3 (Custom)	Solid Flood	Solid Flood	Solid Flood	Solid Flood	Solid Flood
Print Design Color-Code	APWA Color-Code	APWA Color-Code	APWA Color-Code	APWA Color-Code	APWA Color-Code

Diagional striped design is a PATENTED design of Pro-Line Safety Products that enhances tape visibility for superior protection.

Please note that there may be a nominal + or - 10% difference throughout the overall thickness.

TABLE 2: TESTING SPECIFICATIONS (Physical and Mechanical Properties)

TEST DESCRIPTION	STANDARD	2" WIDTH	3" WIDTH	4" WIDTH	6" WIDTH	12" WIDTH
Aluminum Foil Core	MFG. SPECS	Virgin Grade	Virgin Grade	Virgin Grade	Virgin Grade	Virgin Grade
Polyethylene Film	MFG. SPECS	Virgin Grade	Virgin Grade	Virgin Grade	Virgin Grade	Virgin Grade
Polypropylene Film	MFG. SPECS	Virgin Grade	Virgin Grade	Virgin Grade	Virgin Grade	Virgin Grade
Adhesive Type	MFG. SPECS	AV1257/CA100	AV1257/CA100	AV1257/CA100	AV1257/CA100	AV1257/CA100
Adhesive Bond Strength	BOILING WATER	5 hrs W/O Peel	5 hrs W/O Peel	5 hrs W/O Peel	5 hrs W/O Peel	5 hrs W/O Peel
Printed Inks	MFG. SPECS	Chromabond	Chromabond	Chromabond	Chromabond	Chromabond
Print Repeat	MFG. SPECS	Varies by Legend	Varies by Legend	Varies by Legend	Varies by Legend	Varies by Legend
Coefficient Friction	ASTM D4521-96	0.247 Static	0.247 Static	0.247 Static	0.247 Static	0.247 Static
Density	ASTM D792-66	1.09 g/cm^3	1.09 g/cm^3	1.09 g/cm^3	1.09 g/cm^3	1.09 g/cm^3
Elongation (MD)	ASTM D882-80A	139%	139%	139%	139%	139%
Elongation (TD)	ASTM D882-80A	80%	80%	80%	80%	80%
Flexural Fatigue	ASTM D671-93	Pliable Hand	Pliable Hand	Pliable Hand	Pliable Hand	Pliable Hand
Printability	ASTM D2578-08	45 Dynes	45 Dynes	45 Dynes	45 Dynes	45 Dynes
Tensile Strength	ASTM D882-09	15,000 psi	15,000 psi	15,000 psi	15,000 psi	15,000 psi

WEIGHTS, MEASUREMENTS AND PACKAGING

PRODUCT PART NO.	SIZE (WIDTH)	NOMINAL OVERALL THICKNESS	NOMINAL THICKNESS OF STRUCTURAL MATERIALS			RECOMMENDED BURIAL DEPTHS FOR DETECTION	PRODUCT WEIGHT PER ROLL	STANDARD PACKAGING
			ALUMINUM FOIL THICKNESS	POLYETHYLENE THICKNESS	POLYPROPYLENE THCINKESS			
10311**XXX**3	2" x 1000'	5.0 MIL	0.35 MIL	3.75 MIL	0.80 MIL	6-9 inches	4.75 lbs	9 / CARTON
10312**XXX**3	3" x 1000'	5.0 MIL	0.35 MIL	3.75 MIL	0.80 MIL	9-12 inches	7.13 lbs	6 / CARTON
10313**XXX**3	4" x 1000'	5.0 MIL	0.35 MIL	3.75 MIL	0.80 MIL	12-15 inches	9.50 lbs	4 / CARTON
10314**XXX**3	6" x 1000'	5.0 MIL	0.35 MIL	3.75 MIL	0.80 MIL	15-18 inches	14.25 lbs	3 / CARTON
10316**XXX**3	12" x 1000'	5.0 MIL	0.35 MIL	3.75 MIL	0.80 MIL	18-24 inches	28.50 lbs	1 / CARTON

****FOR CUSTOM LEGENDS OR SIZES CALL 800.554.3424****

PRINT LEGEND	PART #
CAUTION BURIED CHILLED WATER LINE BELOW	103
CAUTION BURIED GEOTHERMAL LINE BELOW	128
CAUTION BURIED POTABLE WATER LINE BELOW	115
CAUTION BURIED WATER LINE BELOW	125
CAUTION BURIED FORCE MAIN BELOW	208
CAUTION BURIED FORCE MAIN BELOW	308
CAUTION BURIED SANITARY SEWER LINE BELOW	318
CAUTION BUIRED SEWER LINE BELOW	319
CAUTION BURIED STORM DRAIN LINE BELOW	321
CAUTION BURIED STORM SEWER LINE BELOW	322

PRINT LEGEND	PART #
CAUTION BURIED CATV LINE BELOW	402
CAUTION BURIED COMMUNICATION LINE BELOW	404
CAUTION BURIED FIBER OPTIC CABLE BELOW	406
CAUTION BURIED TELEPHONE LINE BELOW	423
CAUTION BURIED NON-POTABLE WATER LINE	512
CAUTION BURIED RECLAIMED WATER LINE BELOW	517
CAUTION BURIED ELECTRIC LINE BELOW	605
CAUTION BURIED HIGH VOLTAGE LINE BELOW	610
CAUTION BURIED GAS LINE BELOW	809
CAUTION BURIED PIPELINE BELOW	814

MARKING TAPE

DETECTABLE TAPE (5.0 MIL)

PRO-LINE SAFETY PRODUCTS
A DIVISION OF PRO-PAK IND. INC.

PRO-LINE SAFETY PRODUCTS COMPANY
1099 ATLANTIC DRIVE, UNIT 1 • WEST CHICAGO, IL 60185
TOLL FREE: 800.554.3424

MADE IN THE U.S.A. WITH PRIDE

FITTINGS

UNDERGROUND UTILITY MATERIAL SUPPLIED BY:

ACT PIPE & SUPPLY

4719 DODGE ST

SAN ANTONIO, TX 78217

210-946-6969

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.

GPK FITTING SUBMITTAL SHEET

Intro: GPK 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

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 thefabricated 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.

IPS SDR26 NON-PRESSURE FITTING SPECIFICATIONS

1.0 **GPK IPS SDR26 NON-PRESSURE FITTINGS** Shall be manufactured from pvc SDR26 Class 160 pipe that has a minimum cell classification of 12454 as defined in ASTM D 1784.

2.0 The **purpose** of GPK in-line fittings is to convey municipal sanitary and industrial wastes, storm water runoff and many other related applications. They are designed to be used in gravity flow and low pressure applications not to exceed 10.8 psi.

3.0 **Fabricated Fittings** are produced in sizes 4" through 12" 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 applicable size, "PVC", company name or logo, and IPS SDR26 Non-Pressure. The fittings and/or packaging shall 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, fitting 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 applied 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.

GPK FITTING SUBMITTAL SHEET

Intro: GPK manufactures IPS SDR26 drainage fittings to be used in gravity flow or low pressure applications. Fabricated fittings are produced in sizes 4" through 12" diameter.

Material: Fabricated fittings are manufactured from PVC pipe meeting the requirements of ASTM D 2241 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 as defined in ASTM D 1784.

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

Branch Bending: The fused areas around the fabricated branches of tee, wye and tee-wye fittings are tested to ASTM F 1866 to verify their strength and integrity.

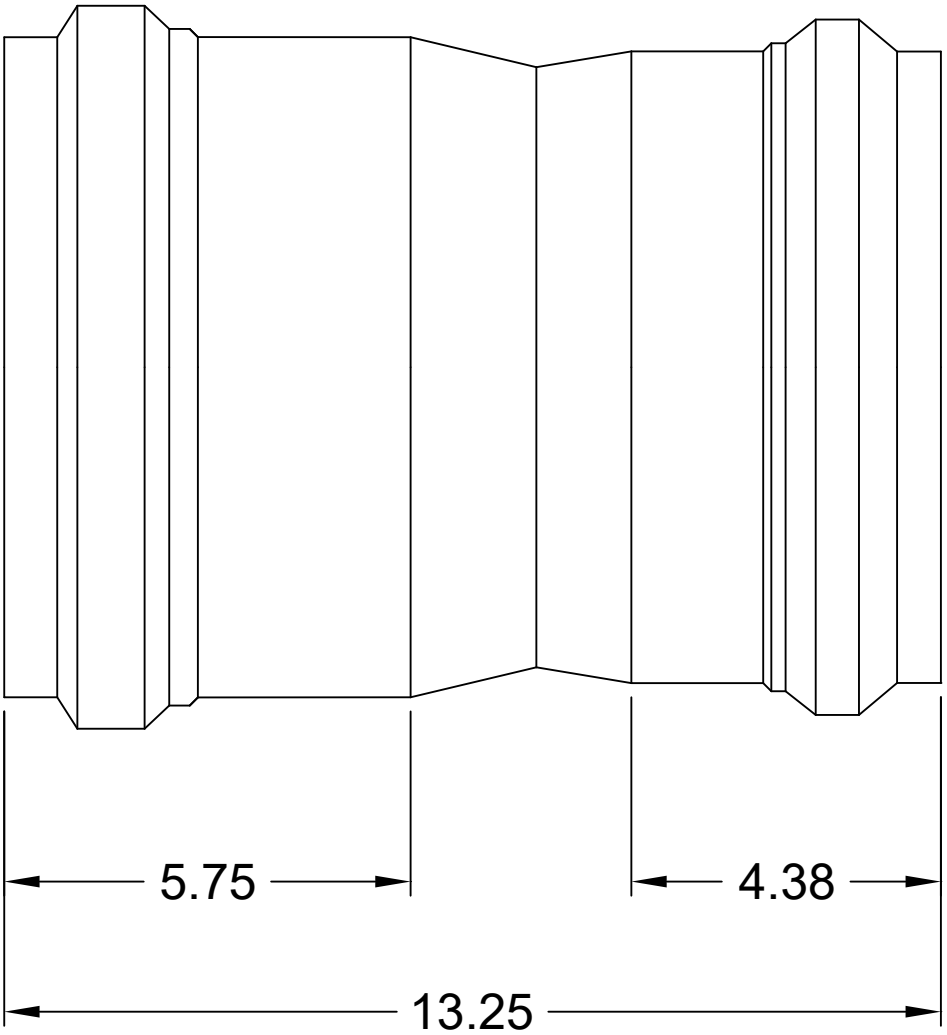
Joining Methods: Chemically Fused Solvent Weld Joints
Solvent cement is handled and tested in accordance with ASTM D 2564 and D 2855. The Lap Shear Strength shall equal or exceed 900 psi @ 72 hours.

Heat Fusion Welded Joints (Butt Fusion Welds)

Elastomeric Seals (Gaskets) Must meet all requirements of ASTM F 477 and D 3212.

Fabricated saddle tees and saddle wyes shall have skirts which can be bonded to pipe.

GPK does not recommend gasket skirts where air tests are required.



GPK PRODUCTS, INC.

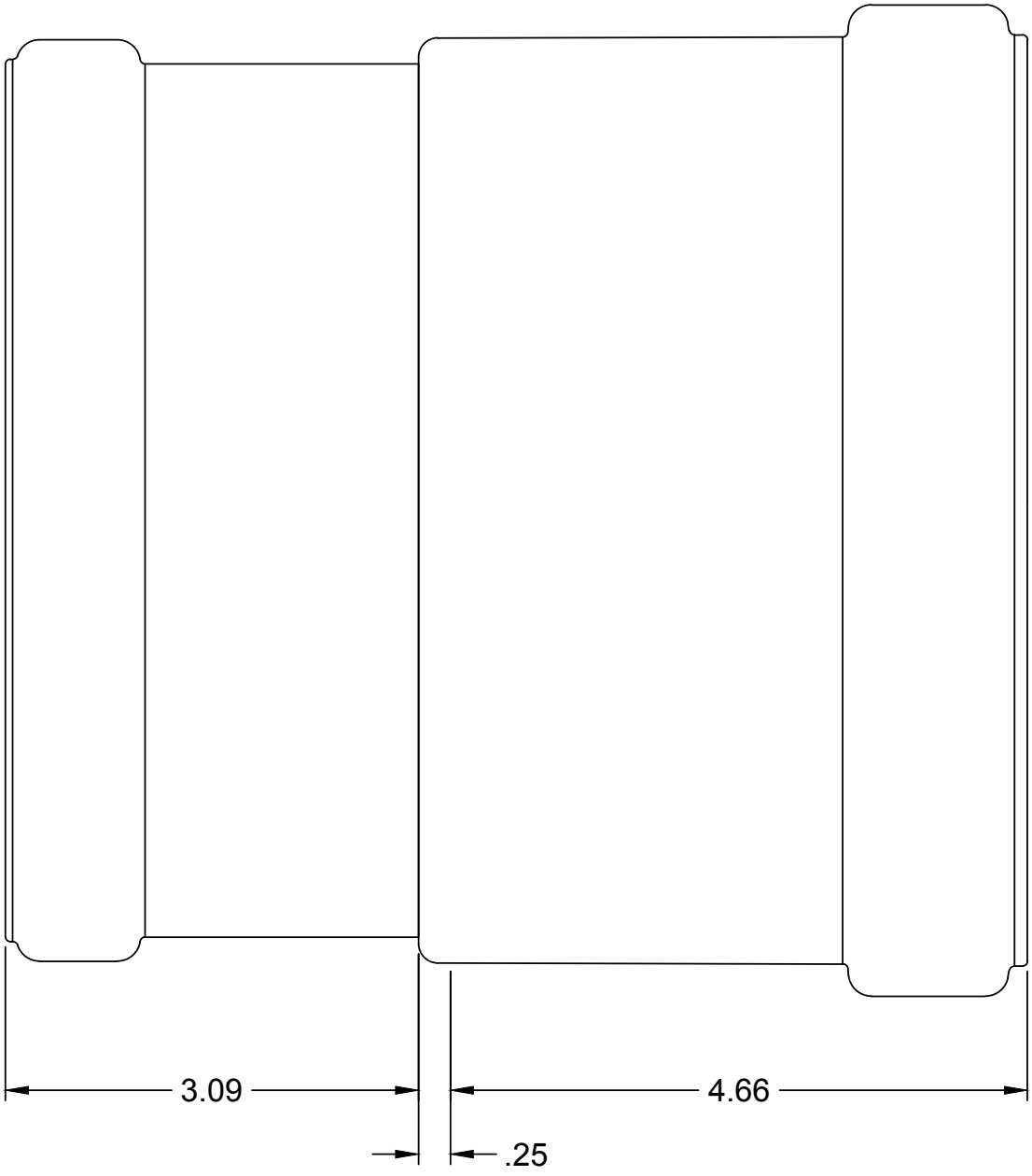
FOR REFERENCE ONLY DIMENSIONS SUBJECT TO CHANGE

TITLE

8" IPS G x HWS G ADAPTER

1-800-437-4670 FARGO, ND

DATE	SCALE	PART NO.
04-21-12	NONE	G332-0008



FOR REFERENCE ONLY DIMENSIONS SUBJECT TO CHANGE

TITLE

6" DWV G x HWS G ADAPTER
SCH 40 x SDR 26 PVC

GPK PRODUCTS,INC.

1-800-437-4670 FARGO, ND

DATE	SCALE	PART NO.
7-10-19	NONE	G332-0006

P.O. Box 2073
Bellaire, TX 77402-2073
713-672-9999
Email: ross@robinsonpipe.net

March 21, 2023

ACT Pipe & Supply
6950 West Sam Houston Pkwy
Houston, TX 77041

Re:

Attn:

This letter is to certify the specification for the following carbon steel casing being quoted to you by Robinson Pipe & Supply, Inc. The casing will be an ASTM A-252 Grade 2 which should be the equivalent or better grade than AWWA C200 or A-139 and will meet or exceed the specifications of AWWA C200 or A-139. This should provide a minimum psi yield of 36,000 and a tensile of 60,000 non-hydro. In addition, all material furnished will have a minimum wall thickness as shown below. If you need further assistance, please feel free to call me.

20” X .375 WALL CASING

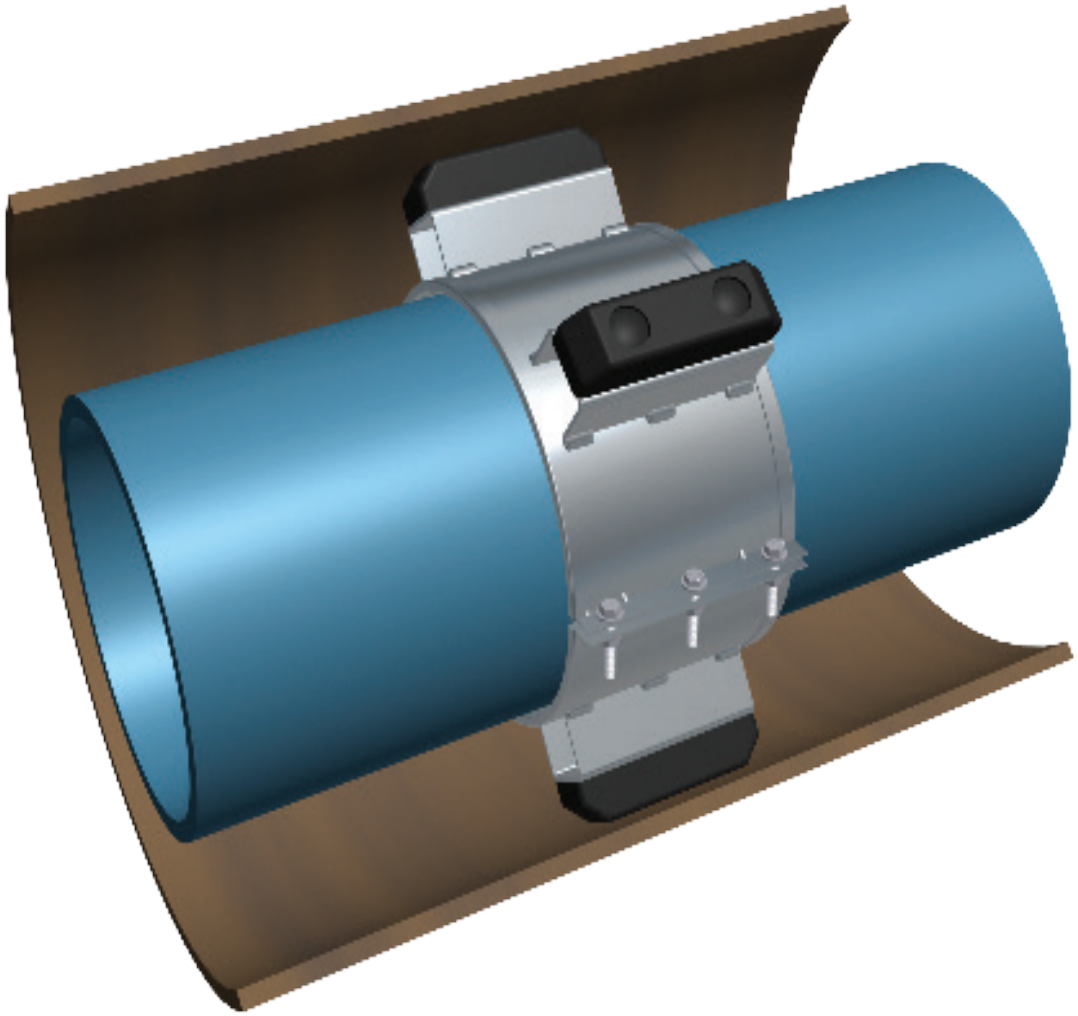
Best Regards,

Ross Robinson

Your specialist in Line Pipe, Casing, Tubing, & Supplies

Physical address: 915 McCarty Dr. Houston, TX 77029
Phone: 713-672-9999

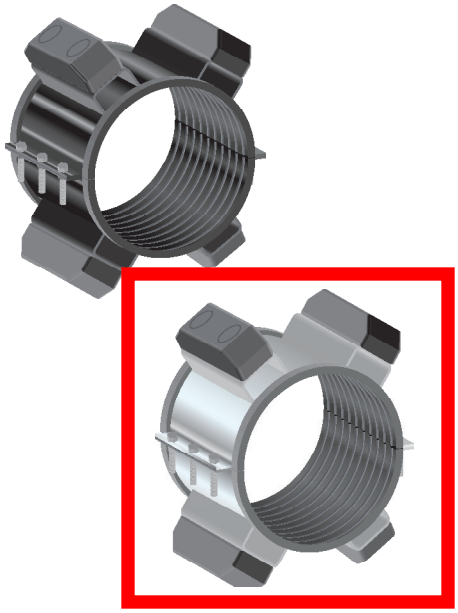
Casing Spacers
& End Seals



CCI Piping Systems
Pipe Protection Products
ccipipe.com • 800.867.2772

Casing Spacers & End Seals

Carbon Steel & Stainless Steel Spacers



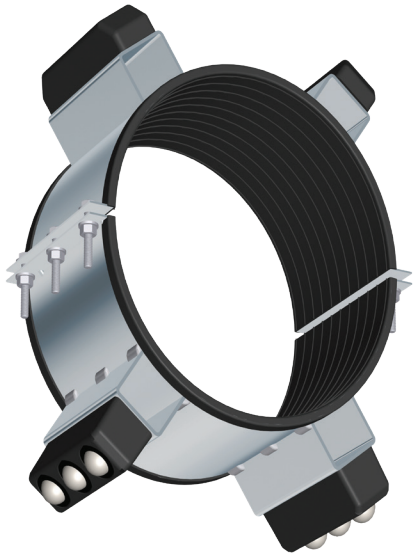
- Heavy duty two-piece T304 Stainless Steel or Carbon Steel Spacers with durable glass filled polymer runners
- Available in 8” and 12” widths (Recommend 8’’ widths through 36'' carrier pipe sizes)
- Fast and easy installation on various carrier pipe types within cased crossing applications
- Spacers are lined with ribbed PVC extrusion to prevent electrical contact between the carrier pipe and the metallic spacer.
- Carbon Steel Spacers are fabricated from pickled and oiled steel and then coated with a *fusion bonded copolymer based thermoplastic* for superior abrasion resistance and corrosion protection
- Spacers for bell & spigot joints, or large diameter applications, are designed and fabricated to ensure an extra margin of support
- CCI Piping Systems has the experience to design and manufacture virtually any configuration of casing spacer, including on-grade applications and multi-carrier clusters within a single casing.

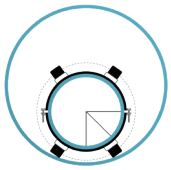
OmniRoller Spacers

The **NEW** CCI OmniRoller Casing Spacers are supplied with a patented runner equipped with an innovative multidirectional assembly designed for the following:

- Maintain cathodic protection between the carrier pipe and casing pipe to prevent premature corrosion
- Reduce the coefficient of friction within the casing pipe for ease of installation
- Allow for longer installations while maintaining the desired grade
- Prevent the carrier pipe from spiraling within the casing pipe during installation, unlike unidirectional rollers

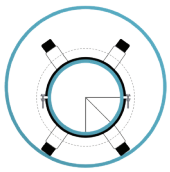
The CCI OmniRoller Casing Spacers are manufactured with an 8” wide Coated Carbon Steel or Stainless Steel shell for nominal carrier pipe sizes ranging from 4” to 24”. Each OmniRoller runner can be supplied with up to 3 multidirectional assemblies depending on the carrier pipe type and application.





CLEAR BELL

CENTERED



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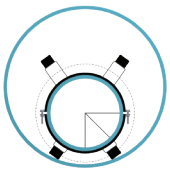

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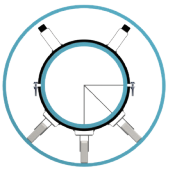
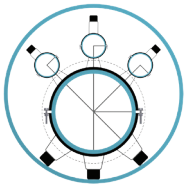
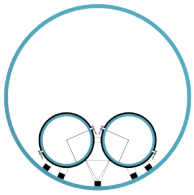


CASTER WHEEL



CLUSTERED
(PIGGY-BACK)



CLUSTERED
(SIDE-BY-SIDE)

Ordering Information

To place an order, refer to the Standard Ordering Options and provide the following:

1. Casing Spacer Material:
   - Choose from available options
2. Carrier Pipe Size:
   - Actual Barrel O.D. and Bell O.D.
   - Carrier Pipe Types (e.g. C900, C905, Ductile Iron, SDR35, HDPE, CMLC, etc)
   - Laying Length
3. Casing Pipe Size:
   - Actual I.D.
   - Casing Pipe Types (e.g. Smooth Steel, Spiral Welded Steel, Corrugated, Concrete, etc)
   - Laying Length
4. Configuration:
   - Choose from configuration options
5. Special Manufacturing Instructions:
   - Provide any Plan Detail Drawings
   - Provide any Municipal Specifications
   - Provide any Special or Additional Customer Requirements

For Carrier Pipe sizes over 48" nominal and Clustered Casing Spacers, the following additional information is required:

- *Weight per Foot of Carrier Pipe(s)*
- *Backfilling Annulus Once Installation Complete?*

To calculate the number of casing spacers required:

(Bore Length ÷ Carrier Pipe Laying Length) x Number of Spacers per Carrier Joint

Note: Round up to the nearest whole number

CCI reserves the right to recommend the number of casing spacers per carrier joint according to application.

CSS8 - 24 36 - CDI - CR - SP

- Special ▸
- Configuration ▸
- Carrier Pipe Type ▸
- Casing Pipe Size ▸
- Carrier Pipe Size ▸
- Casing Spacer Material ▸

Standard Ordering Options *Part Number Designation*
Special Manufacturing Instructions
CB - Clear Bell / **C** - Centered / **CR** - Centered-Restrained / **R** - Restrained / **TC** - True Centered / **GR** - On Grade / **RL** - Roller
Customer to Provide Carrier Pipe Type & Weight per Ft.
Customer to Provide Actual Casing Pipe I.D.
Customer to Provide Actual Carrier Pipe O.D. & Bell O.D.
CSC8 - 8" Wide Carbon Steel / **CSC12** - 12" Wide Carbon Steel
CSS8 - 8" Wide Stainless Steel / **CSS12** - 12" Wide Stainless Steel
CSCI - 8" Wide Carbon Steel Integral Runner
CSSI - 8" Wide Stainless Steel Integral Runner

CSPB 24 - 2.50 - EXT - 2.50 - SP

- Special ▸
- Extension Height ▸
- Extension ▸
- Runner Height ▸
- Carrier Pipe Size ▸
- Casing Spacer Material ▸

Standard Ordering Options *Part Number Designation*
Special Manufacturing Instructions
Height of Runner Extension to Center-Restrain (2.50" Max)
EXT - Used to Center-Restrain Carrier Pipe in Large Annular Spaces
Molded Height of Runner to Provide Required Top Gap
Customer to Provide Actual Carrier Pipe O.D. & Bell O.D.
CSPB - Polyethylene Casing Spacer

WARRANTY

CCI PIPING SYSTEMS warrants all products against defects in material and workmanship for a period of one year from receipt of order. There are no other warranties, expressed or implied. Customer assumes all liability in the handling, use and application of our products.

For detailed technical specifications contact CCI at:

ccipipe.com or

800-867-2772

CCI Piping Systems, LLC

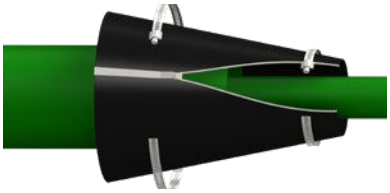
1026 O'Neal Drive • Breaux Bridge, LA 70517

ccipipe.com • sales@ccipipe.com

337.332.5808 • 800.867.2772

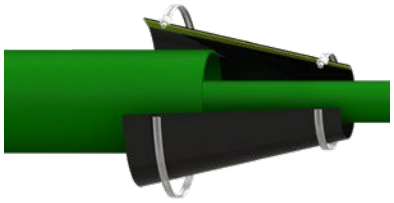
AMCE MOLDED CONE END SEAL

5 different sizes, 4.50”-24.00” OD, covers a range of carriers, closed cone feature - cut off end or use as a cap to keep debris or animals out.



AZ ZIPPER END SEAL

New construction & on existing casings that require modifications or extension. Produced as concentric & eccentric



AW WRAP-AROUND SEAL

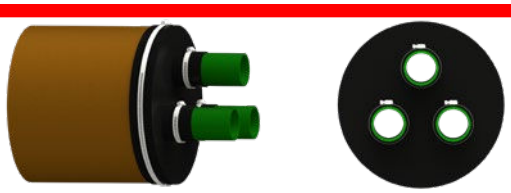
Installed when carrier line is already installed & pull is complete. Produced as concentric & eccentric

AM MOLDED END SEAL

Installed at the time of construction

AC PULL ON SEAL

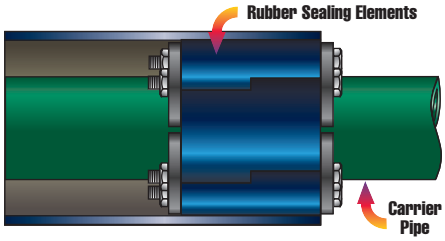
Installed at the time of construction
Produced as concentric & eccentric



APC CLUSTER

Available for multicarrier installations

INNERLYNX® MODEL END SEAL



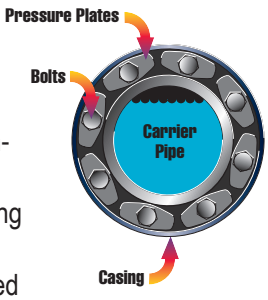
Types of Innerlynx®

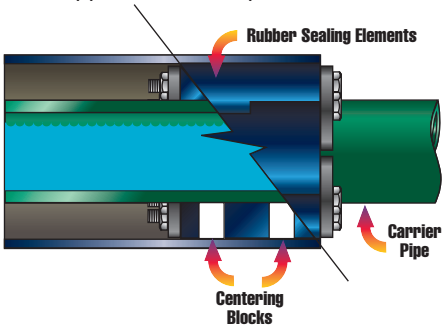
IL-C - Standard pipe Innerlynx® with insulating type plate.

IL-S316 - Pipe Innerlynx® with stain-less steel hardware.

IL-CB - Pipe Innerlynx® with centering block feature.*

IL-O Nitrile - Innerlynx® can be used for fuel applications in airports





*Centering Blocks are plastic reinforcements that assure a penetrating pipe will stay “centered” within its casing and adds extra support against heavy loads from back fill.

All APS End Seals are secured with stainless steel banding straps with a 100% non-magnetic worm gear mechanism to ensure the integrity of the clamp. Only a screwdriver is needed for installation.

APS manufactures full conical shaped end seals in the seamless pull-on, wrap-around, molded, molded cone, zipper and cluster styles. All six are made of 1/8" thick synthetic rubber assuring excellent chemical resistance and resiliency and can accommodate any combination of pipe sizes. APS offers end seals in various materials such as silicone, neoprene, and EPDM. These products outperform the costly and labor intensive brick and mortar method of sealing casing ends. While soil stress and pipe movement cause mortar to crack, the APS end seals move with the pipe insuring the integrity of your seal.

In addition, Innerlynx® form a mechanical seal between pipelines and casing. Innerlynx® form a hydrostatic seal and electrically isolate the carrier pipe from the casing. www Innerlynx ® can be installed by one person and require no special tools.

ORDER INSTRUCTIONS

Please Indicate The Following:
• Project Reference and Location

Metal Insulators
• Model number: SI (steel) or SSI (stainless steel)
• Carrier Pipe O.D. Including Coating Thickness
• O.D. of Bell or Mechanical Joint
• Casing O.D.
• Casing Wall Thickness
• Type or Size of Runner
• Height and Width of Runner
• Configuration: Clear Bell, Centered, Centered and Restrained, or Non-centered and Restrained

Plastic Insulators
• Carrier Pipe O.D. Including Coating Thickness
• O.D. of Bell or Mechanical Joint
• Casing O.D.
• Casing Wall Thickness
• Configuration: Clear Bell, Centered, Centered and Restrained, or Non-centered and Restrained

End Seals
• Model: AC (pull-on), AW (wrap-around), AZ (zipper), AM (molded), AMCE (molded cone), APC (cluster)
• Carrier Pipe O.D. Including Coating Thickness
• Casing O.D.
• Configuration: Centered or Non-centered

OTHER PRODUCTS AVAILABLE
- Flange Isolating Gasket Kits
- Integra® Series Gaskets
- Kleerband® Flange Band Protectors
- Kleergel® Corrosion Inhibiting Grease
- Radolid® Nut & Bolt Protection Caps
- Bore & Duct Bank Spacers
- Wall Sleeves
- Foreman Nite Caps
- UBolt-Cote® & Atlas Pipe Support® Pads
- IsoJoint® Monolithic Isolating Joints
- Safety Spray Shields

ADVANCE PRODUCTS & SYSTEMS, LLC

PO Box 60399
Lafayette, Louisiana 70596-0399
800-315-6009 • 337-233-6116 • Fax 337-232-3860
E-Mail: sales@apsonline.com • Website: www.apsonline.com

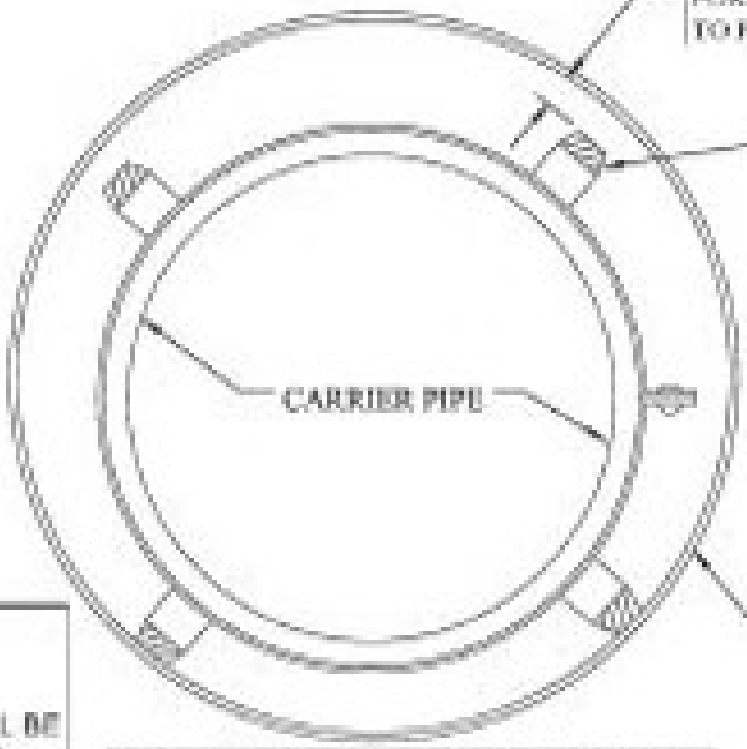
bsi. ISO 9001:2015 Quality Management

BBB ACCREDITED BUSINESS

Made in USA

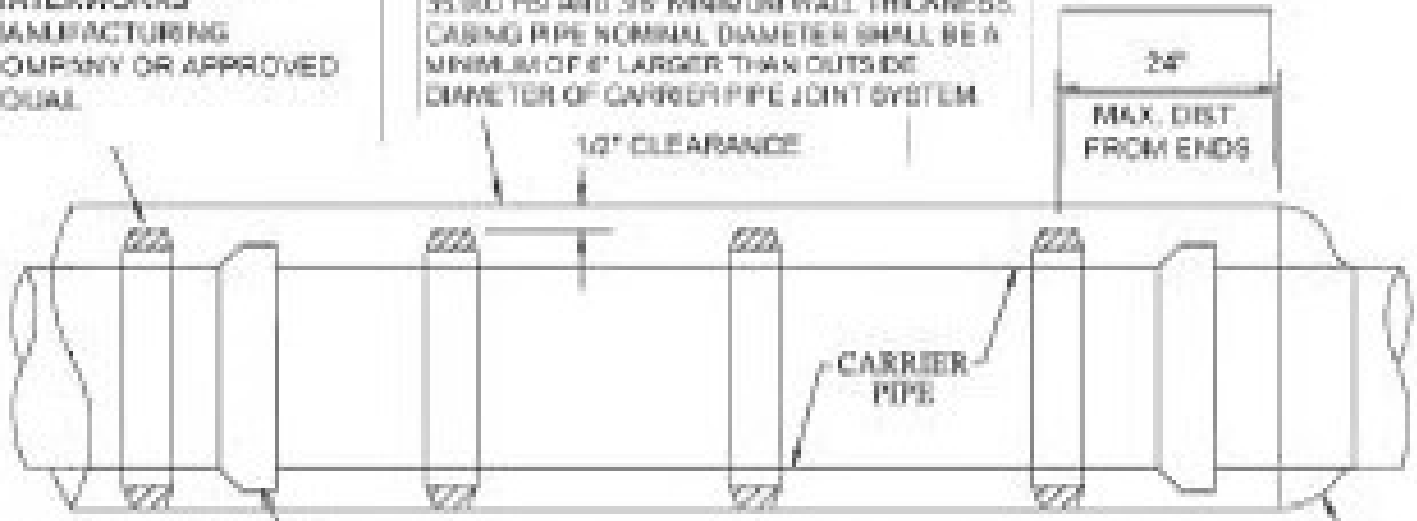
Distributed by:

REV 021924



CASING SPACERS SHALL BE STYLE CCS, CCS-ER OR CCS JR BY CASCADE WATERWORKS MANUFACTURING COMPANY OR APPROVED EQUAL

CASING PIPE SHALL BE STRUCTURAL GRADE STEEL WITH A MINIMUM YIELD STRENGTH OF 35,000 PSI AND 3/8" MINIMUM WALL THICKNESS. CASING PIPE NOMINAL DIAMETER SHALL BE A MINIMUM OF 6" LARGER THAN OUTSIDE DIAMETER OF CARRIER PIPE JOINT SYSTEM



CARRIER PIPE SHALL HAVE RESTRAINED JOINTS.

A MINIMUM OF THREE CASING SPACERS ARE REQUIRED PER FULL JOINT OF PIPE. MAXIMUM SPACING 8 FEET (O.C.). INSTALL SPACERS A MAXIMUM OF 2 FEET ON EACH SIDE OF BELLS OR MECHANICAL JOINTS.

CASING END SEALS SHALL BE SEAMLESS RUBBER PULL-ON TYPE WITH STAINLESS STEEL BAND CLAMPS

NOTE:
THE MATERIALS SHOWN APPLY TO JACK AND BORE INSTALLATIONS AND STREAM/RIVER CROSSINGS. OPEN CUT SLEEVING OF SUBDIVISION UTILITIES UNDER STORM SEWER MAY BE C900/905 DR18 CASING (COLOR TO MATCH CARRIER PIPE) AND HDPE SPACERS WITH STAINLESS STEEL HARDWARE. THE CLEARANCES AND DIMENSIONS SHOWN APPLY TO ALL INSTALLATIONS.

Guadalupe-Blanco River Authority

CASING AND SPACERS DETAIL

C. LEWIS

JAN. 05, 2016

THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

STANDARD NO.

CASING SPACER SPECIFICATIONS

MODEL : CSS8-0820-SDR-CR-SP

Please see attached submittal. I have worked with casing spacer manufacturer religiously on trying to get these spacers to the .50" clearance as outlined in the spec. The closest that they can get in order to maintain the integrity of the spacers would be .41". This is the best we can come up with.

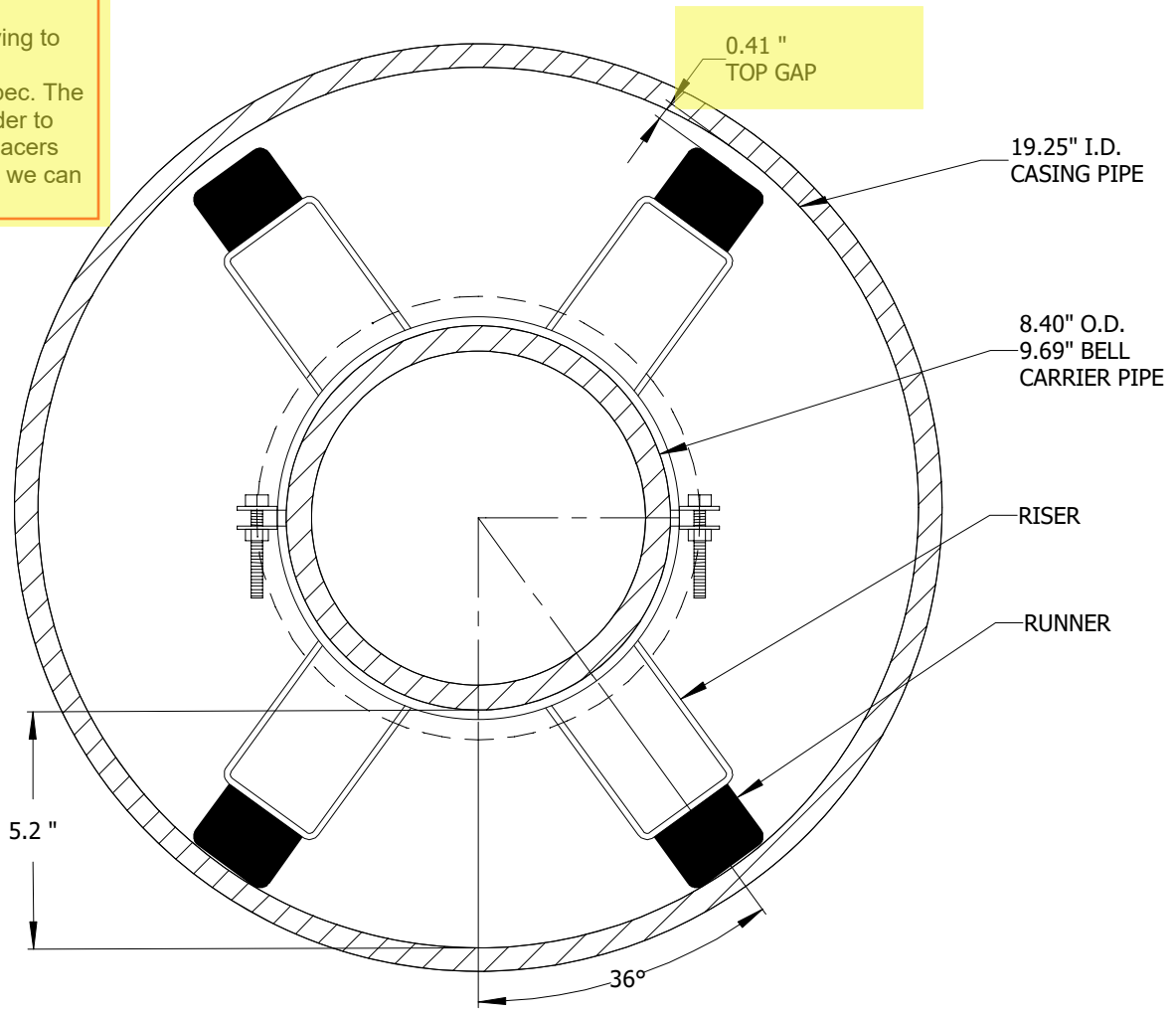
SHELL
8" WIDE
14 GA. (.074") STAINLESS STEEL
2B FINISH
RIBBED FLANGES

LINER
PVC RUBBER .090"-.120" THICK
HARDNESS DUROMETER 'A' 85-90
DIELECTRIC STRENGTH - 1,000 V/mil
WATER ABSORPTION - 1% MAX.

ASSEMBLY HARDWARE
3 SETS PER FLANGE
5/16 - 18UNC X 2" LONG S.S. BOLTS
5/16" S.S. WASHERS SAE 2330
5/16" S.S. HEX NUTS

RUNNER
2.0" WIDE X 1.5" TALL GLASS REINFORCED POLYMER
2 TOP, 2 BOTTOM

RISERS
10 GA. (.134") STAINLESS STEEL
MIG WELDED TO BAND
TOP = 3.50" TALL
BOTTOM = 3.50" TALL



NOTES:
1. RECOMMENDED SPACING BETWEEN CASING SPACERS IS NOT TO EXCEED 8 FT.
2. CASING SPACER DESIGNED PER CUSTOMER REQUEST.
3. CCI IS NOT RESPONSIBLE FOR ANY ISSUES THAT MAY ARISE DURING INSTALLATION.

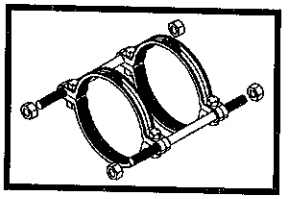
CCI PIPING SYSTEMS
1026 O'NEAL DRIVE
BREAUX BRIDGE, LA 70517
VOICE 337-332-5808 FAX 337-332-5809
Website: www.ccipipe.com Email: sales@ccipipe.com

Reference:
Act Pipe

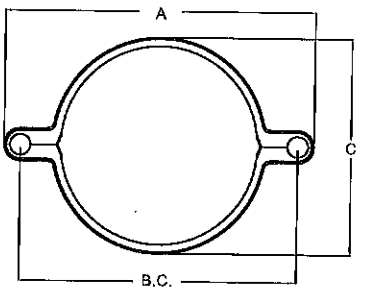
Rev:	Date:	Drawn By:	Checked By:	File Name:
A	26-JUL-24	BL	CW	8X20CR_177.TCW

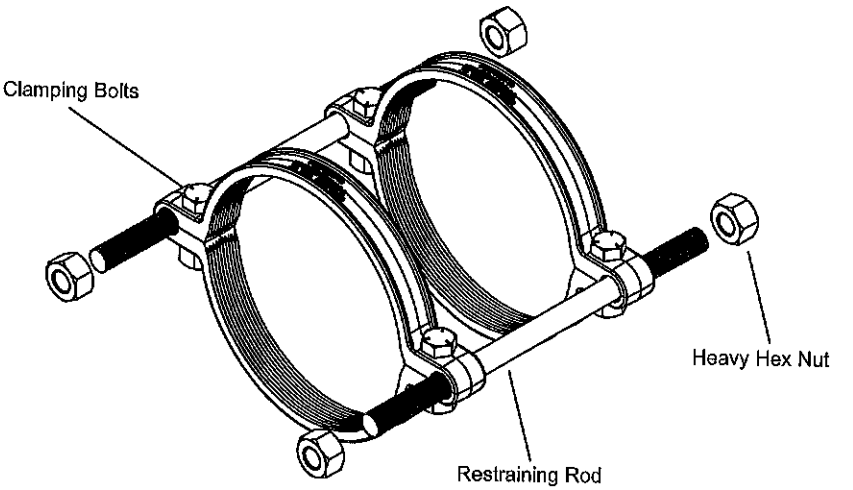
SUBMITTAL INFORMATION

Uni-Flange® Restraint - *(UFR1390-P-x-I style)*



SERIES 1390-P 4" - 12" RESTRAINT HARNESS FOR SEWER PIPE BELL JOINTS





Nom Pipe Size	Sewer Pipe OD Style 1390-P		A	B.C.	C	Restraints Bolts / Rods		Clamping Bolts Per Gland		Approx. Wt. Lbs.	✓ Submitted Items
	OD (in.)	Catalog No.				No.	Size	No.	Size		
4"	4.22	UFR1390-P-4-I	8-57/64"	7-1/2"	4-59/64"	2	3/4" x 17"	2	5/8" x 2-1/4"	9.4	
6"	6.28	UFR1390-P-6-I	10-57/64"	9-1/2"	6-63/64"	2	3/4" x 17"	2	5/8" x 2-1/4"	10.3	
8"	8.40	UFR1390-P-8-I	13-9/64"	11-3/4"	9-3/32"	2	3/4" x 17"	2	5/8" x 2-1/4"	11.3	
10"	10.50	UFR1390-P-10-I	15-23/64"	14"	11-29/64"	2	3/4" x 17"	2	5/8" x 2-1/4"	15.1	
12"	12.50	UFR1390-P-12-I	18"	16-1/4"	13-29/64"	2	3/4" x 17"	2	5/8" x 2-1/4"	17.5	

FEATURES

- Cast ductile iron per ASTM A536 grade 65-45-12, black e-coat
- Clamping bolts and nuts - Grade 5, zinc-plated
- 360° contact and support of the pipe wall
- T-bolts and nuts are high strength, low alloy steel per ASTM A242 and AWWA C111. Optional: stainless steel
- Rated at 50 psi with a 2:1 safety factor

The Ford Meter Box Company, Inc.
P.O. Box 443, Wabash, Indiana U.S.A. 46992-0443
Phone: 260-563-3171 / Fax: 800-826-3487
Overseas Fax: 260-563-0167
www.fordmeterbox.com

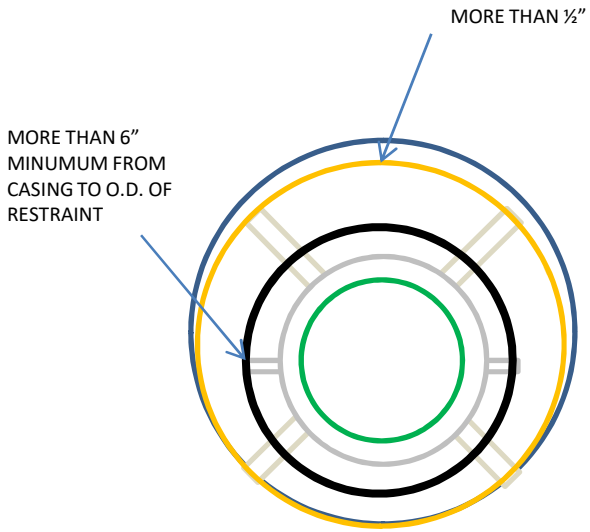
09/01/21

Submitted By:

SCALE: 1:10

18.30” O.D. CASING SPACER HAS A 1.7” DISTANCE FROM THE CASING TO THE MAX O.D. OF THE CASING SPACER MEETING THE ½” MIN. TOP GAP.

MAX O.D. (BEING WIDTH) OF THE UFR1390-P-8-1 IS 13-9/64”, MEETS THE 6” MINUMUM DISTANCE FROM SPACER TO CASING PIPE.



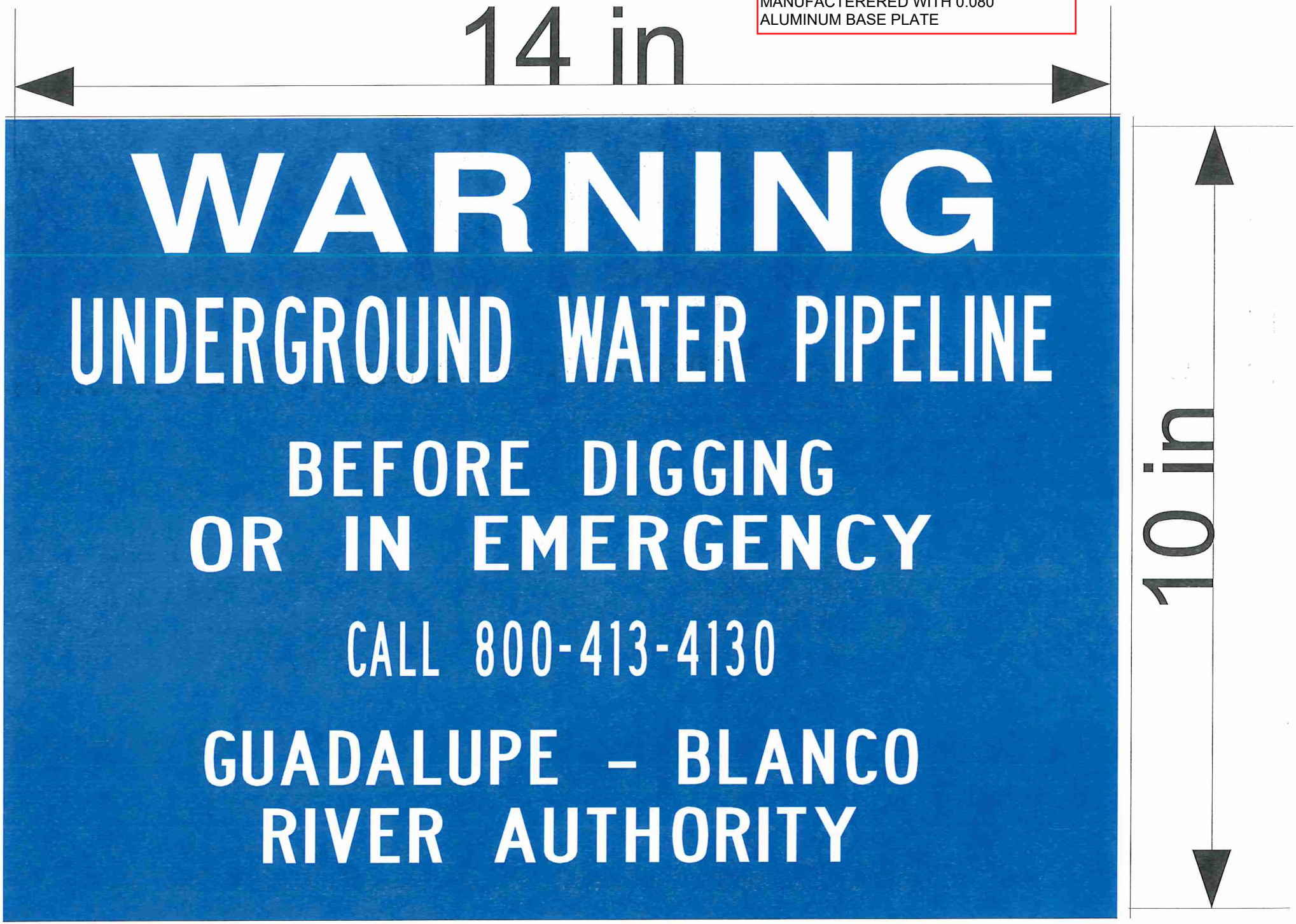
20” CASING PIPE .375 WALL MAX O.D. 20”

8” SDR26 PIPE MAX O.D. 8.40”

8” UFR1390-P-8-1 MAX O.D. 13-9/64”

8” CASING SPACER MAX O.D. 18.30”

PIPELINE MARKER DESIGN TO BE MANUFACTERERED WITH 0.080" ALUMINUM BASE PLATE



WW MANHOLE ACCESORIES

UNDERGROUND UTILITY MATERIAL SUPPLIED BY:

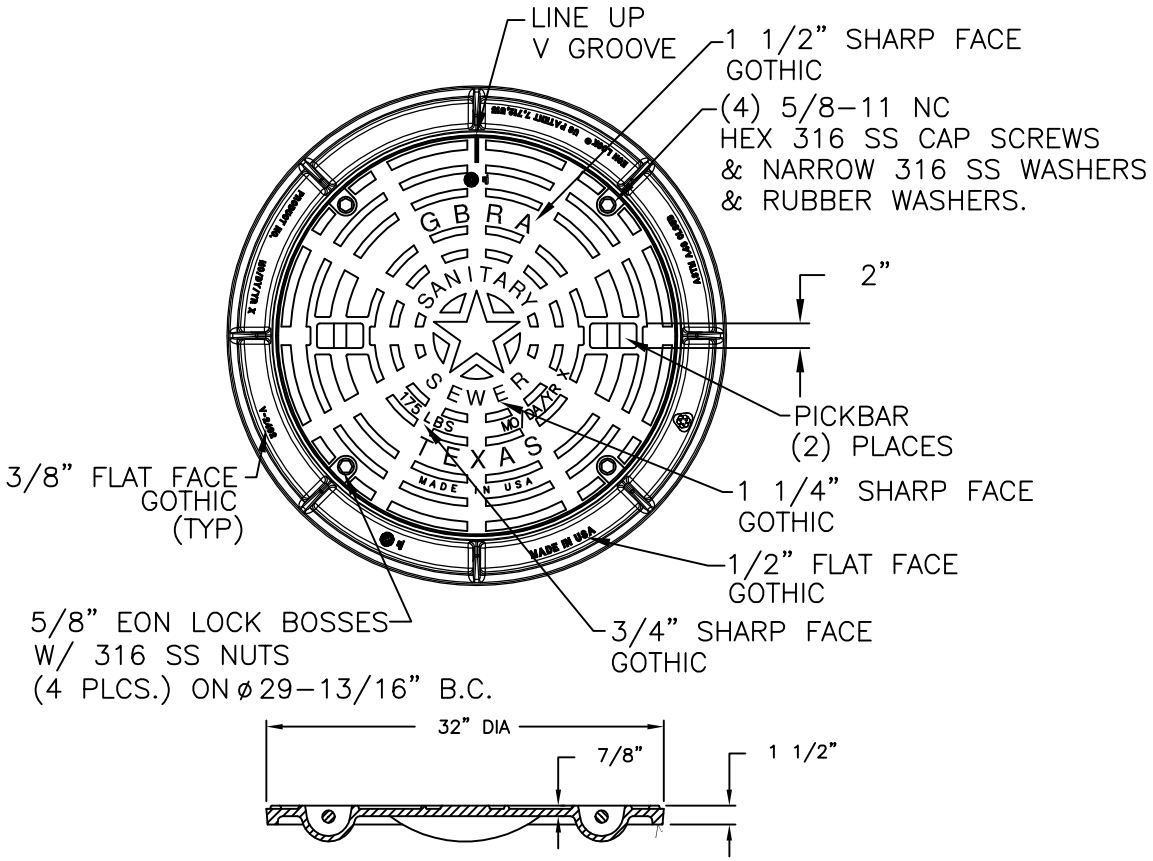
ACT PIPE & SUPPLY

4719 DODGE ST

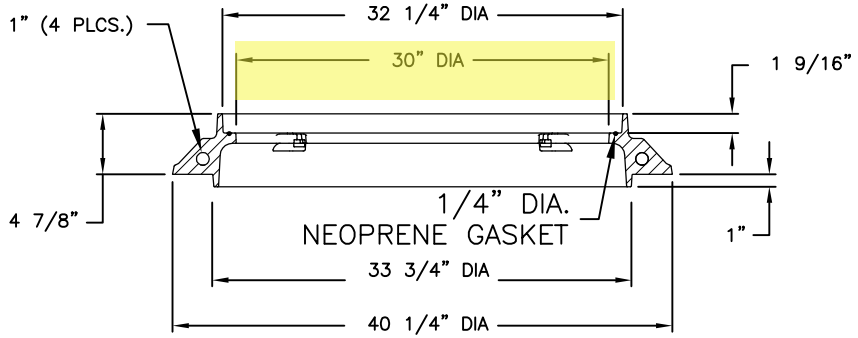
SAN ANTONIO, TX 78217

210-946-6969

V2432 V2432-1 Assembly



CROSS SECTION



FRAME SECTION

Product Number

42432109W01

Design Features

-Materials
  Frame
    Gray Iron (CL35B)
  Cover
    Ductile Iron (80-55-06)

-Design Load
  Heavy Duty
-Open Area
  n/a
-Coating
  Undipped
-√ Designates Machined Surface

Certification

- ASTM A48
- ASTM A536
-
-Country of Origin: USA

Major Components

42432009
42432109

Drawing Revision

10/5/2016 Designer: MAH
10/18/2016 Revised By: MAH

Disclaimer

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

Contact

800 626 4653
ejco.com

Specializing in Concrete Products Since 1999. That's 15 Years of Exceptional Service!

American MAATco, located in Richland Hills, Texas, has provided a line of quality products for the construction, utilities, and telecommunications industries since 1999.

Our goal for the past fifteen years has been to provide exceptional customer service. We maintain the necessary inventory and strive to be the best possible resource for every industry we serve.

Products we manufacture:

American MAATco Products:

- Grade rings
- Dobies
- Lift hole plugs
- Terminators
- Miscellaneous Concrete Products

American MAATco

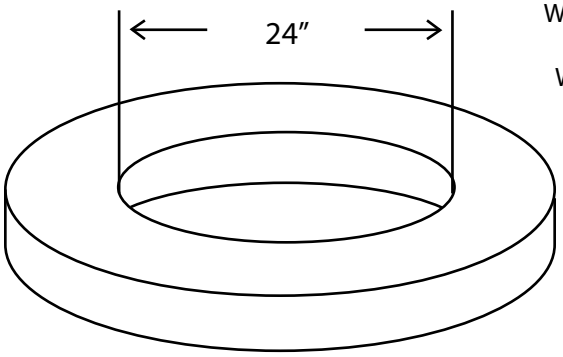
Grade Rings

Quality Products. American MAATCO is a manufacturer of drycast and wetcast concrete grade rings and lift hole plugs. We offer a wide variety of grade rings to suit your needs from manholes to frame riser installations. Our grade rings are used for new construction or rehab work.

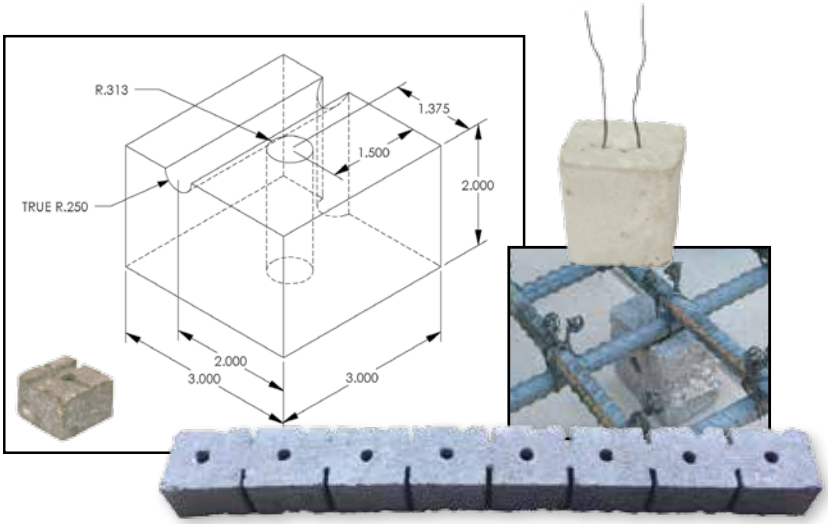
Sizes	Pcs/Cube	Sizes	Pcs/Cube
18x4x4	10	30x5x2	20
24x5x2	20	30x5x3	14
24x5x3	12	30x5x4	10
24x5x4	10	30x5x6	6
24x5x6	6	32x6x2	12
24x8x2	20	32x6x3	10
24x8x3	14	34x5x2	20
24x8x4	10	34x5x3	14
26x5x2	20	34x5x4	9
26x5x3	12	40x6x3	10
26x5x4	10	40x6x12	4
26x5x6	6		

All our grade rings meet ASTM C-478 standard.
Additional sizes available.

Concrete Grade Ring Sample Diagram



Diameter: 34”
Wall Thickness: 5”
Height: 2”
Weight: 116 lbs



Concrete Spacer Bricks

Application:	On-Grade or Below-Grade, Metal Decks, Side-Form Spacers
Cover Height:	From 2”-3”
Features:	Minimum of 4000 PSI. Additional strength available. Contact us for more details.

Order Code	Dimensions	Bricks Per Pallet
CWD233	2x3x3	2240
CWD333	3x3x3	1600
CWD333W	3x3x3 w/ wire	1521
CWD233W	2x3x3 w/wire	1521
C448	4x4x8	360

Pallet weighs 3058 lbs each, 14 pallets per truckload.

How can we help you?

American MAATCO Concrete Spacer Bricks are used for a variety of construction projects and meet the needs of concrete professionals. Our goal is to manufacture the highest quality concrete products to service the construction industry.

We exclusively manufacture concrete foundation products for 2000 Industries as well as lift hole plugs for the piping industry.

Ask us about specialized short runs or call us for a freighting quote!

Questions and Customer Care:

Stacy Watts, Director of Sales
817-480-4568 cell
817-284-3372 office
817-595-1506 fax
stacy@americanmaaatco.com

Raymond J. Peralez, Plant Manager:
raymond@americanmaatco.com

www.americanmaatco.com

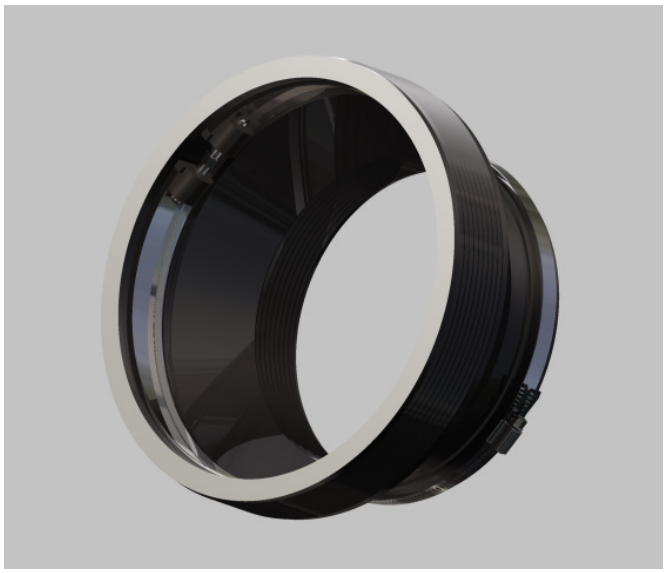
MAATcoBrochure/UTD01.28.15

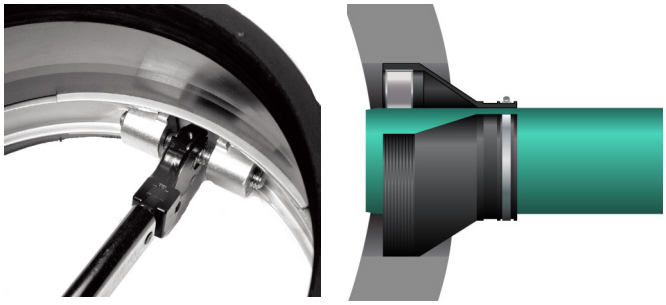
American MAATco

2499 Austin Road | Richland Hills, Texas 76118

PSX: DIRECT DRIVE

PIPE TO MANHOLE & TANK CONNECTOR





Press-Seal Corporation is the only boot style connector manufacturer that uses multiple mechanisms under 56” as a standard.

Press-Seal recommends installation between a 10:00 and 2:00 position.

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

- The connector fits into a cast or cored hole.
- A power sleeve made from tempered series 304 stainless steel expands with a certified installation wrench.
- Take-up clamps made from series 304 stainless steel with quick adjusting screws secure the connector to the pipe.

Where To Use

- Manholes
- Wet wells
- Square pump and lift stations
- Stormwater structures
- On-site treatment structures
- Junction chambers
- Grease interceptors
- Vaults

Why It’s Better

- Safely install from outside of the manhole preventing falls from crawling down into structures.
- All stainless-steel components with no welds or rivets creating a stronger product.
- Precision molding provides accurate compensation for hole size variations.
- Additional torque and multiple adjusters on larger diameters.
- Contractor can save time and money by backfilling immediately.

All connectors are made with either EPDM or ISOPRENE rubber which meet ASTM C-923. Connectors are available in NITRILE rubber upon request. Contact your territory manager for more information

Phone: 800-348-7325
Fax: (260) 436-1908

PRESS-SEAL CORPORATION
Protecting Our Planet’s Clean Water Supply
ISO 9001: Registered • Version 02.09.22.8.50

Email: sales @press-seal.com
Web: www.press-seal.com

PSX: DIRECT DRIVE
SUBMITTAL SPECIFICATIONS

Pipe-to-Manhole and Structure Connector Specification for Sanitary and Storm Sewer Applications:

All pipe-to-manhole and structure connections shall meet and or exceed ASTM C 923, Standard Specification for Resilient Connectors Between Reinforced Concrete Manholes, Structures, Pipes and laterals.

All mechanical devices, including castings, bolt assemblies, adjusters shall use non-magnetic 300 series stainless steel with no welds or rivets in its assemblies.

Connector sizes less than 28” shall employ one adjuster, 28” - 34” two adjusters and 36” and larger three adjusters.

If thermal plastic internal expansion rings are used, they must be heavy duty automotive grade material molded in one piece with an expansion installation mechanism made of a stainless steel threaded insert (not steel to plastic threads) and embedded as part of the expansion mechanism. Multiple plastic parts as part of the expansion mechanism are not allowed.

The installation of the connector shall be accomplished at one time and shall require no additional adjustments or installation at a later time to insure a watertight seal.

Take up clamps shall use non-magnetic 304 series stainless steel and be installed in the field using a T-Handle Torque wrench set to 60 inch-pounds and installation shall follow manufacturer’s instructions.

The connector shall be PSX: Direct Drive and PSX: Nylo Drive as manufactured by Press-Seal Corporation of Fort Wayne, IN or approved equal.

Product Performance

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

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

Phone: 800-348-7325
Fax: (260) 436-1908

PRESS-SEAL CORPORATION
Protecting Our Planet’s Clean Water Supply
ISO 9001: Registered • Version 02.09.22.8.50

Email: sales @press-seal.com
Web: www.press-seal.com

TYPE 4G & 4F PROFILE

CONCRETE PIPE AND MANHOLE GASKETS

Where To Use

- Manholes
- Wet wells
- Square pump and lift stations
- Stormwater structures
- On-site treatment structures
- Junction chambers
- Grease interceptors

CARE & STORAGE
PAGE 5

What It Is

The Type 4G & 4F profile gaskets were developed to specifically meet the needs of contemporary concrete pipe joint designs.

With the accurate profile dimensions and designs for a complete line of standard and specially designed concrete joint configurations.

How It Works

- The gasket is stretched over the spigot.
- The gasket is equalized around the entire circumference of the spigot.
- Bell joint is covered liberally with lubricant.
- Bell and spigot are homed creating a watertight seal.

Why It's Better

- Optimized profile designs for a wide variety of joint configurations.
- Accurate profile designs covering a variety of applications.
- Wide range of compounds that can be applied in multiple applications.
- Simple installation methods.

Product Performance

- ASTM C1619 Standard Specification for Elastomeric Seals for Joining Concrete Structures
- ASTM C443 Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets

Phone: 800-348-7325
Fax: (260) 436-1908

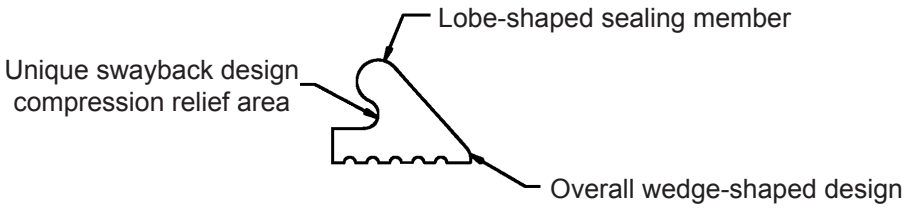
PRESS-SEAL CORPORATION
Protecting Our Planet's Clean Water Supply
ISO 9001: Registered • Version 11.20.20.1044

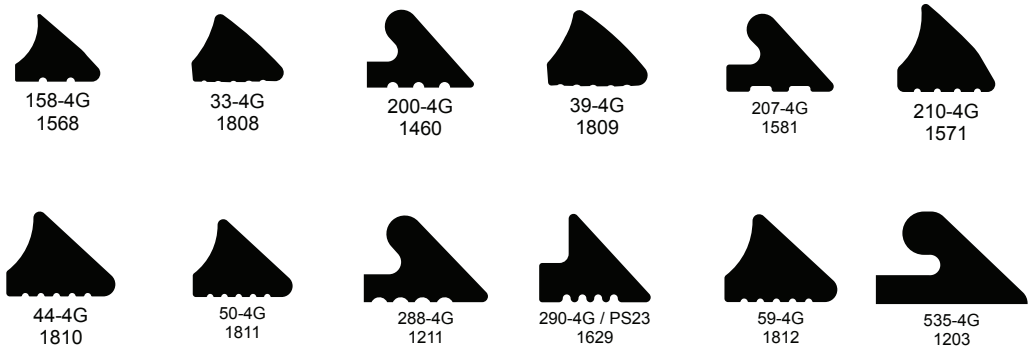
Email: sales @press-seal.com
Web: www.press-seal.com

TYPE 4G & 4F PROFILE
SELECTION GUIDE

FOR SINGLE-STEP PIPE AND MANHOLE JOINTS

Available for Concrete Pipe, Manholes and Box Culverts.





Gasket Type	Gasket Height (Inch)	Gasket Height (mm)	Typ. Annular Space (Inch)	Typ. Annular Space (mm)
158-4G	.608	15.4 mm	.326	8.3 mm
33-4G	.610	15.5 mm	.326	8.3 mm
39-4G	.685	17.4 mm	.380	9.6 mm
200-4G	.700	17.8 mm	.400	10.2 mm
207-4G	.818	20.8 mm	.446	11.3 mm
210-4G	.826	21.0 mm	.446	11.3 mm
44-4G	.732	18.6 mm	.446	11.3 mm
50-4G	.799	20.3 mm	.500	12.7 mm
288-4G	.908	23.1 mm	.500	12.7 mm
290-4F (PS-23)	.918	23.3 mm	.500	12.7 mm
59-4G	.890	22.6 mm	.600	15.2 mm
535-4G	.970	24.6 mm	.525	13.3 mm
1016-4G	1.040	26.4 mm	.640	16.3 mm

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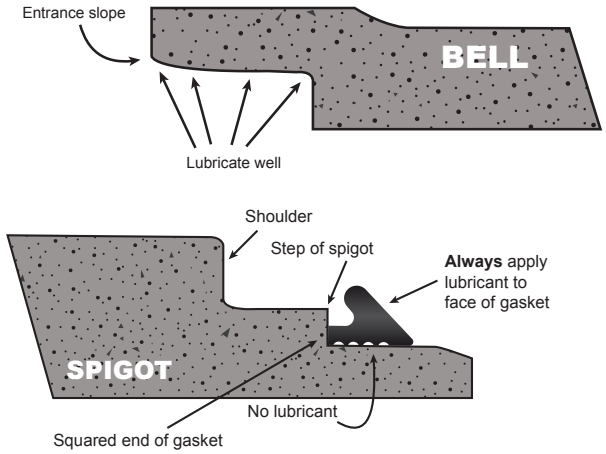
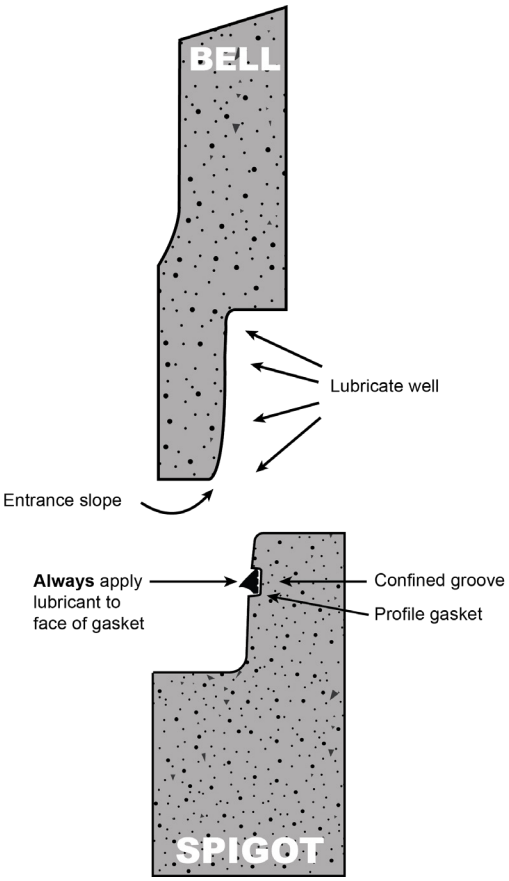
TYPE 4G & 4F
INSTALLATION INSTRUCTIONS

PIPE INSTALLATION



MANHOLE INSTALLATION



Type 4G and 4F gaskets manufactured by Press-Seal Corporation have proved to be one of the most reliable gasket systems ever developed for concrete pipe. It is easy to ensure the best performance of the 4G and 4F gaskets by following these simple installation steps.

1. The pipe should be handled with extreme caution to avoid chipping of the spigots or bell grooves.
2. Check for and remove any loose dirt, debris or foreign material from the inside surface of the bell, spigot and gasket.
3. Stretch the gasket over the spigot end of the pipe and move it back until it is seated against the step of the spigot. Always place squared area of gasket against pipe and step.
4. The gasket should be equalized by inserting a clean round metal object between the gasket and manhole and making at least 1 -1/2 revolutions around the manhole. The gasket can also be equalized by slightly tugging/ pinching the gasket at different points around the manhole.
5. After equalization, ensure the rear of the gasket is seated firmly against the spigot step, around the full circumference of the spigot.
6. Remove all dirt and other foreign matter from the inside surface of the bell. Using Press-Seal lubricant formulated especially for concrete pipe, lubricate the entire bell area of the joint. Be sure to coat the entrance slope of the bell thoroughly with lubricant. It is important that the gasket grips the spigot during installation, so that it is not displaced from the step.
7. Carefully align pipe sections squarely and bring home slowly, so that the gasket makes contact with the bell entrance slope evenly around the entire pipe joint.
8. Complete installation by following pipe manufacturer's recommended bedding and backfilling practices.

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Fax: (260) 436-1908
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ISO 9001: Registered • Version 11.20.20.1044
Email: sales @press-seal.com
Web: www.press-seal.com

KOPR-KOTE® ANTI SEIZE

Copper Anti-Seize & Thread Lubricant

DESCRIPTION

KOPR-KOTE® is a low-friction, anti-seize lubricant manufactured from a combination of micro-size copper flakes and graphite dispersed in a water resistant grease and fortified with antioxidants, plus rust and corrosion inhibitors. **KOPR-KOTE®** provides protection unequalled by competitive brands.

KOPR-KOTE® provides a shield against metal-to-metal contact, preventing seizure and corrosion. It fills irregularities and imperfections and resists welding, hardening, or setting. **KOPR-KOTE®** provides low friction and cushions impact and shock loads. Low shear between particles reduces stick-slip, allowing quick disassembly with minimum wrench torque. It will not squeeze out of the threads, gum up, or wash off.

- NSF Registered H2 (No. 120923)*
- Conforms to MIL-PRF-907F
- Conforms to RAYTHEON spec M8656839 Type II
- Service rating: -65°F (-54°C) to 1800° (982°C)
- Contains no lead or zinc
- Lowers friction; reduces wrench torque.
- Permits reuse of fittings; saves stud, bolt, and nut replacement.
- Not affected by contraction, expansion, or vibration.
- Will not run, drip, or settle out
- Also available in a convenient aerosol package
- Available in convenient aerosol form.

APPLICATIONS

KOPR-KOTE® is ideal for use on threaded connections, pump housings, flanges, studs, exhaust manifold bolts, compressor heads, autoclaves, lathe centers, etc.

**Aerosol package is not NSF Registered*

PRODUCT CHARACTERISTICS

Thickener	Complex Based
Fluid Type	Petroleum
Dropping Point (ASTM D-566)	450°F (232°C)
Specific Gravity	1.21 typical
Density (lb/gal)	10.1 typical
Oil Separation (ASTM D-6184) WT. % LOSS @ 212°F (100°C)	<3.0
Flash Point (ASTM D-92)	>450°F (232°C)
Nut-Factor* 1" B7 Studs @ 80,000 psi Contact Stress	0.15
Penetration @ 77°F (ASTM D-217)	310 - 330
Copper Strip Corrosion (ASTM D-4048)	1A
4-Ball (ASTM D-2596)	
Weld Point, kgf	620
Load Wear Index	125
VOC	0 g/L

*(T = K x D x F) where:

T = torque, K = nut factor, sometimes incorrectly called the friction factor, D = bolt diameter, and F = bolt tension generated during tightening.

For package types and part numbers
www.jetlube.com/resources/product-index/

Limited Warranty
www.jetlube.com/assets/documents/Jet-Lube_Warranty.pdf

ADEKA P-201

Technical Product Data Sheet

OCM

GENERAL DESCRIPTION

ADEKA ULTRASEAL® P-201 is a water-swelling, single component, elastic sealant. P201 is packaged in 320 ml (10.8 oz) cartridges or in 3.17 gallon bulk pails.

WATERSTOP FOR:

- Cold/construction/control joints
- Expanded metal forms
- Piping penetrations
- Crack / joint repair
- Sheet pile interlock sealant
- Precast segment sealant
  - Utility vaults
  - Manholes
  - Tunnels
  - Riser rings

P-201 is used as a waterstop in new construction and in repair applications. It can be placed on damp or uneven surfaces and functions in a wide range of temperatures and ground water conditions water.

TYPICAL USES

P-201 will expand up to 2 times (100%) by volume in the presence of water. It will expand in the direction of least resistance. When expansion is inhibited, the product will produce expansion pressure against the resisting substance. This expansion pressure will effectively seal off water penetration. The amount of concrete coverage required depends on bead size. The coverage may range from 2" (¼" bead) to 4" inside a double mat of rebar (½" bead). Bead size also determines hydrostatic head resistance

P-201 (3/16 x 3/4)	50 ft.	21.8	0.15
P-201 (3/8 x 3/4)	150 ft.	72.5	0.50

OCM, Inc.
1120 Peterson Road, Grayslake, IL 60030
Toll Free: 866-457-5710 • Phone: 847-462-4258
FAX: 847-462-4259
www.adeka.com • www.ocm-inc.com
sales@ocm-inc.com

PRODUCT DESCRIPTION

Single component hydrophilic grey paste	
Packaging	24 Cartridges per Case, 320 ml (10.8 oz) per Cartridge OR 3.17 Gallon Bulk Pails—Special Order

PROPERTIES

Expansion Information by Volume	Approximately 100% (2 Times by Volume)
HYDROPHILIC WATERSTOP IN A CARTRIDGE One of the most versatile Adeka products.	

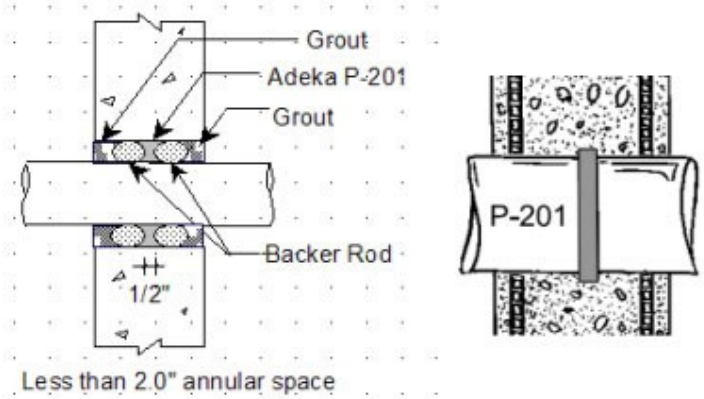
STAND ALONE WATERSTOP

Use in below grade cast-in-place concrete joints. P201 can replace conventional waterstop in nonmoving joints.

CAVEAT: P-201 must cure before placing second concrete. Curing time varies by bead size, temperature and humidity. Place concrete without displacing or deforming the bead of P-201.

PIPE PENETRATIONS

ADEKA ULTRASEAL® P-201 is an excellent product to seal CIP pipe penetrations or in "block out" pipe penetrations. Check www.adeka.com for details concerning annular spaces greater than 2".



PIPE PENETRATION WITH SMALL ANNULAR SPACE

ADEKA ULTRASEAL ® P-201

OCM

EXPANDED METAL WATERSTOP

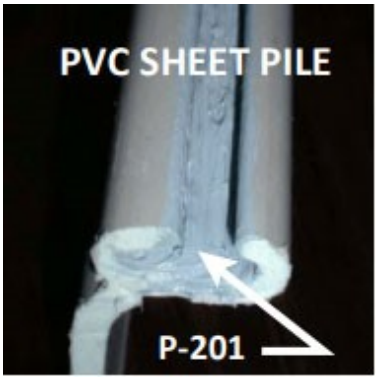
Use to waterproof expanded metal (stay in place) forms. Allow curing time before placing second concrete.

PRECAST SEGMENTS

Excellent product to seal joints between precast segments. Use on box culverts, manhole, utility vaults, riser rings and many other precast units. Apply bead of P-201 and place second segment before P-201 cures.

SEALING SHEET PILE INTERLOCKS

Use P-201 to seal PVC and AZ sheet pile interlocks.



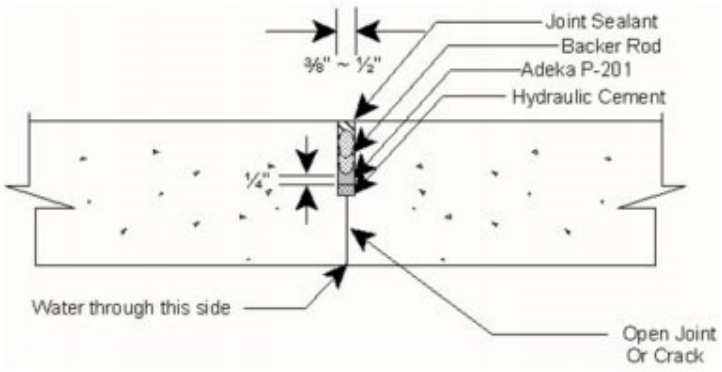
OTHER USES FOR P-201

Use to fill in rough areas when using Adeka strip products.

Apply on PVC waterstop weld seams.

Waterstop H-Piles

Waterstop Open Joints/Cracks



NOTE: The information contained herein is based on our present state of knowledge and is intended to provide general notes on Adeka Waterstops and their use. Any recommendations or suggestions, which may be made, are without guarantee, since the conditions of use are beyond our control. Furthermore, nothing contained in this publication shall be construed as a recommendation for any use that may infringe patent rights. Readers are cautioned to satisfy themselves as to the suitability of such goods for the purposes intended prior to use.

STANDARD CEMENT MATERIALS, INC.

MAXIMUM CA PLUS CEMENT – 10 YEAR LIMITED WARRANTY

Project Name: All Projects
Project Owner: Guadalupe-Blanco River Authority
Certified Installer: Droptine Utility Construction

This warranty extends to the OWNER of the structure to which Maximum CA Plus Cement is applied, effective as of the OWNER's final acceptance of the project: Standard Cement Materials warrants to the OWNER that the Maximum CA Plus Cement product is to be free of defects and made within the product specification tolerances; when installed in compliance with the manufacturer's recommended procedure, will stop active water infiltration, adhere to the existing substrate and protect sanitary wastewater structures from biogenic corrosion caused by exposure to sanitary sewerage environment.

Claims must be filed by the OWNER within 10 years of OWNER'S final acceptance of the project. Standard Cement Materials obligations hereunder extend only to providing labor and material to replace the defective material. This warranty excludes consequential and incidental damages; including, without limitation, damage to equipment and peripheral facilities, service interruption, and loss of use. This warranty applies to sanitary sewage exposure only. Exposure to effluent chemicals, contaminants from industrial discharge, mechanical abuse, or other maltreatment which is not customary use of the structure will void this limited warranty.

It is understood that some areas of delamination within the coating system may exist and will be inspected and may be remedied at the time of installation. At the discretion of the manufacturer and/or certified installer, some areas of delamination may be considered not to be detrimental to the coating system and will remain in-place and will be covered under this warranty. Repairing the delamination is a destructive repair method, often causing more delamination of the coating system. Therefore, only areas of delamination that are deemed detrimental to the coating system will be removed and replaced.

THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, TO OWNER EXCEPT AS PROVIDED IN THIS LIMITED WARRANTY. ALL OTHER WARRANTIES, INCLUDING WITHOUT LIMITATION THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE EXCLUDED. NO WARRANTY IS GIVEN FOR, OR MAY BE IMPLIED FROM, ANY TECHNICAL ADVICE OR RECOMMENDATIONS PROVIDED BY STANDARD CEMENT MATERIALS.

WARRANTY CLAIM PROCEDURE
Standard Cement Materials reserves the right to inspect and determine whether any claim is the result of a breach of warranty or is related to another cause; all other causes are expressly excluded from warranty coverage. Any claim under this limited warranty requiring an investigation may require laboratory testing. It is the responsibility of any party making a claim to make any product or structure requiring testing accessible and available to Standard Cement Materials within a reasonable period of time after a claim arises. Inspection, including thickness verification and the gathering of specimens for testing may require the removal of a portion of the cement lining in question or, if a structure requiring investigation cannot be made readily accessible, the removal of any frames, covers, or obstructions. At the manufacturer's option, technical investigations and testing may be performed by either Standard Cement Materials internal facilities or by an independent agency. It is the responsibility of the installer to maintain and document product installation and job acceptance reports in accordance with all applicable instructions including, without limitation, the location and date, weather and ambient temperature at time of installation, the quantities installed, the mixing methods, surface preparation procedures used, installation personnel, and existing conditions of the structure including H_2S concentrations and initial surface pH.

Product Manufacturer:
Mario Tamez Jr.

Mario Tamez, Jr.
President

Standard Cement Materials, Inc.
Chappell Hill, Texas USA

New Braunfels
2682 Wald Road
New Braunfels, TX 78132

06/26/2024

410 Rock

ASTM #57-1036892

Procedure	Sieve/Test	Average	Unit	TXDOT 4/57 (421-Crs)
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	99.9	%	95-100
	3/4" (19mm)	90.5	%	
	1/2" (12.5mm)	44.9	%	25-60
	3/8" (9.5mm)	19.7	%	≥0
	#4 (4.75mm)	3.7	%	0-10
	#8 (2.36mm)	1.5	%	0-5

Name/Title Robert E Latham / QC Manager

New Braunfels
2682 Wald Road
New Braunfels, TX 78132

06/26/2024

3 x 5 Bedding Stone-1420958

Procedure	Sieve/Test	Average	Unit	Lester Contracting
	6" (150mm)	100.0	%	100-100
	5" (125mm)	100.0	%	
	4" (100mm)	72.0	%	50-100
	3" (75mm)	43.0	%	
	2 1/2" (63mm)	31.3	%	
	2" (50mm)	22.7	%	15-50
	1 3/4" (45mm)	10.6	%	
	1 1/2" (37.5mm)	2.8	%	
	1" (25mm)	1.3	%	0-15

Name/Title Robert E Latham / QC Manager

New Braunfels
2682 Wald Road
New Braunfels, TX 78132

06/26/2024

Grade 5

Austin Type DF Blend-00026478130

Procedure	Sieve/Test	Average	Unit	Austin Type DF Specs
	1/2" (12.5mm)	100.0	%	100-100
	3/8" (9.5mm)	100.0	%	95-100
	#4 (4.75mm)	38.7	%	35-45
	#10 (2mm)	4.1	%	0-5
	#40 (.425mm)	2.5	%	
	#80 (.18mm)	0.4	%	
	#200 (75µm)	0.12	%	

Name/Title Robert E Latham / QC Manager

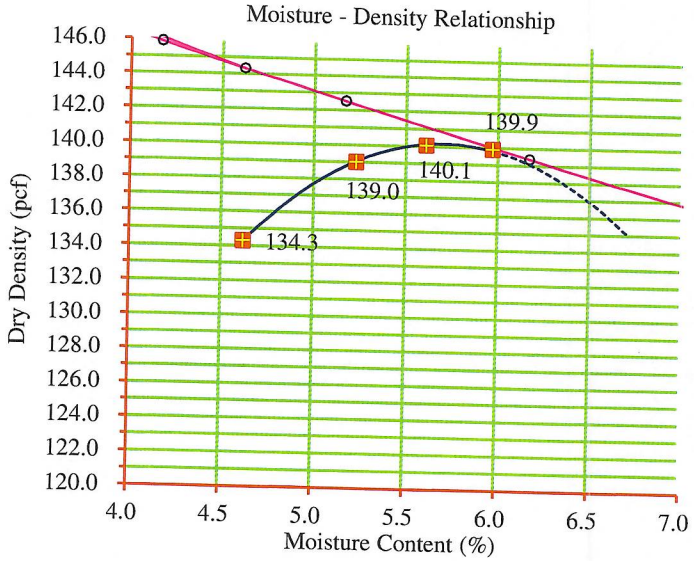
ATLAS
1211 Arion Parkway, Suite 100
San Antonio, Tx. 78216
210-257-9250

Client: CEMEX
Attn: Robert Latham

Report No: 240299
Date: 5/10/2024

Lab No:	240299
Project Name:	N/A
Contractor Name:	CEMEX
Lab Technician:	Various
Inspector:	N/A
Material Description:	Flex Base
Material Source:	CEMEX, SP-1071

Date Sampled:	4/18/2024
Sampled By:	Client
CSJ/ Task/ WO No:	N/A
Certification Type & No:	SB-Series
Report Of:	PI, Grad, Proct.,Wet Ball, Triaxial
Material Use Type:	FLEXBASE
Date Tested:	5/2/2024



Sieve Analysis			Retained Required			
			TxDOT			COA
Sieve Size	Passing (%)	Retained (%)	Gr 1-2	Gr 3	Gr 5	210S
2-1/2"	100.0	**0.0**	0	0	0	
1-3/4"	100.0	**0.0**	0-10	0-10	0-5	0
7/8"	86.1	**13.9**	10-35	--	10-35	10-35
3/8"	61.6	**38.4**	30-65	--	35-65	30-50
No. 4	44.5	**55.5**	45-75	45-75	45-75	45-65
No. 40	23.5	**76.5**	65-90	50-85	70-90	70-85

Atterberg Limits		Maximum Allowed			
Liquid Limit:	**19**	40	40	35	--
Plastic Limit:	**11**	--	--	--	--
Plasticity Index:	**8**	10	12	10	10

Soil Classification		
Unified:		Group Index
AASHTO:		
FAA:		

Test Method Used:	
Soil Sampling:	Tex-100-E
Soil Preparation:	Tex-101-E
Atterberg Limits:	Tex-104-6
Sieve Analysis:	Tex-110-E
Moisture-Density Relationship:	Tex-113-E
Wet Ball Mill & Soil Increase:	Tex-116-E
Triaxial Classification:	Tex-117-E

Estimated Specific Gravity:	2.59	Points on Graph:			4
Moisture Content (%):	**4.6**	**5.2**	**5.6**		**6.0**
Dry Density (pcf):	**134.3**	**139.0**	**140.1**		**139.9**
Max Density (kg/m3):	2245.8		Standard Error		Estimated Moisture
Maximum Density (pcf):	**140.2**				
Optimum Moisture (%):	**5.7**		0.05750		5.4

Wet Ball Mill & Soil Binder Increase		Maximum Allowed			
		TxDOT			COA
		Gr 1-2	Gr 3	Gr 5	210S
Wet Ball Mill Value (%):	**38**	40	--	40	42
Increase in - No. 40 (%):	**12**	20	--	20	20
Stockpile Size (cu. yd):					

Triaxial Classification		Minimum Required			
		TxDOT			COA
Compressive Strength:		Gr 1-2	Gr 3	Gr 5	210S
@ 0 Psi:	**44**	35	--	--	35
@ 3 Psi:	**81**	--	--	90	--
@ 15 Psi:	**177**	175	--	175	175

Technician	Cert#	Test
Travis Lowe	1410	Tex-104-6
Travis Lowe	833	Tex-113-E
Tyler Parisot	1856	Tex-110-E
Travis Lowe	1410	Tex-116-E
Chelsey Solis	495	Tex-117-E

STATE OF TEXAS
ISSA M. ISSA
146818
LICENSED
PROFESSIONAL ENGINEER

Report Reviewed by:

ISSA ISSA

Atlas Technical Consultants, LLC
Firm Registration No. F-19813

Ring & Cover :

*Note: Varies Per Customer Specs

35" x 3" Grade Ring

Weight : 145 Lbs.

24" x 3" Grade Ring

Weight : 105 Lbs.

48" Dia. Flat Slab

Weight : Varies

Flat Slab	
Access	Weight (Lbs.)
24"	2,265
35"	1,901

48" Dia. Conc. Cone

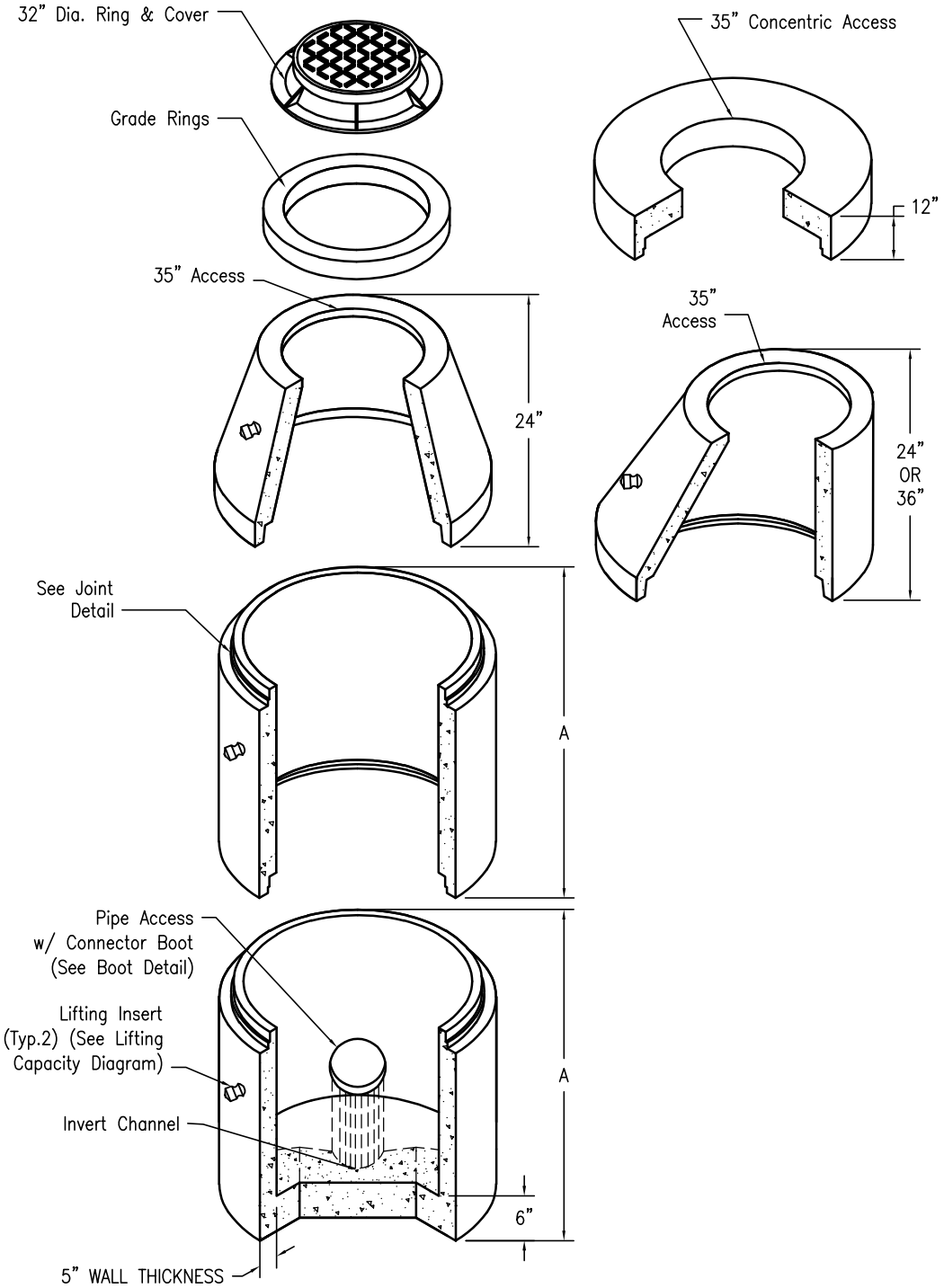
Weight : Varies

Cone	
Access	Weight (Lbs.)
24"	2,429
35"	2,429

48" Dia. Risers

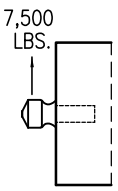
Weight : See Chart

Riser	
A	Weight (Lbs.)
12"	855
24"	1,722
36"	2,589
48"	3,457

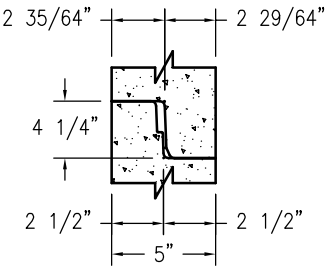


DESIGN NOTES

1) DESIGN CRITERIA IS MINIMUM USED UNLESS OTHERWISE SPECIFIED. DESIGN SPECIFICATION: ACI 318-2014; ASTM C478; AASHTO M199; MAG DETAIL No. 420-2
2) DESIGN LOADINGS:
   A. AASHTO HS-20, W/ IMPACT.
   B. DRAINED EARTH PRESSURE: 40 PCF
   C. SOIL WEIGHT: 120 PCF.
   D. DEPTH OF OVERBURDEN: 0'-0" MIN - 25'-6" MAX
   E. ASSUMED WATER TABLE: 5'-0" BELOW GRADE
   F. LIVE LOAD SURCHARGE: 80 PSF UP TO 8'-0" DEPTH
3) CONCRETE 28 DAY COMPRESSIVE STRENGTH 5000 PSI
4) STEEL REINFORCEMENT: ASTM
   REBAR: A-615 GRADE 60; MESH: A-1064 GRADE 65
5) CEMENT: ASTM C-150 SPECIFICATIONS.
6) JOINT CONNECTIONS TO BE GASKETS CONFORMING TO ASTM C-443 REQUIREMENTS.
7) RESILIENT CONNECTORS TO BE BOOTS CONFORMING TO ASTM C-923 REQUIREMENTS.



Lifting Capacity



Joint Detail

Oldcastle Infrastructure™
A CRH COMPANY
1900 Rilling Rd., San Antonio, TX 78214
(210) 923-4523 Phone#, (210) 921-0473 Fax#

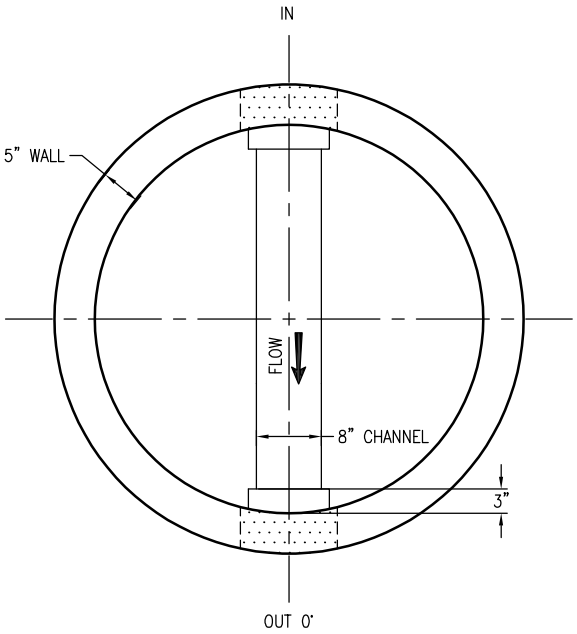
48" SANITARY MANHOLE

SUBMITTAL DRAWING

FILE: 48-SAN-DMM

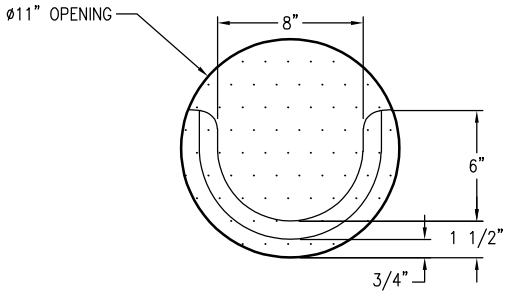
www.oldcastleinfrastructure.com

48" DIAMETER - 6" FLOOR SANITARY MANHOLE STANDARD BASE W/ CONE 24" OR SLAB



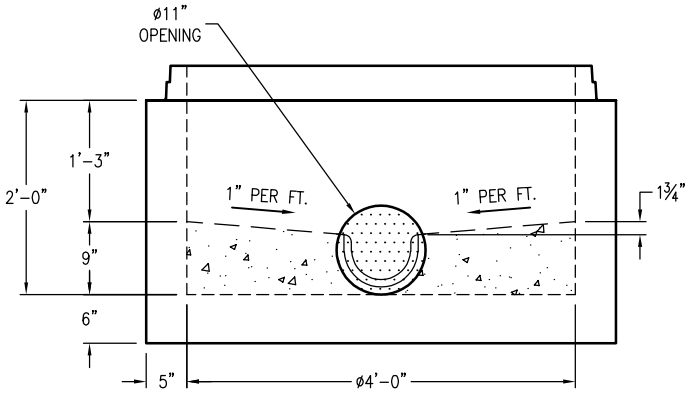
PLAN VIEW

SCALE: 1/2" = 1'-0"



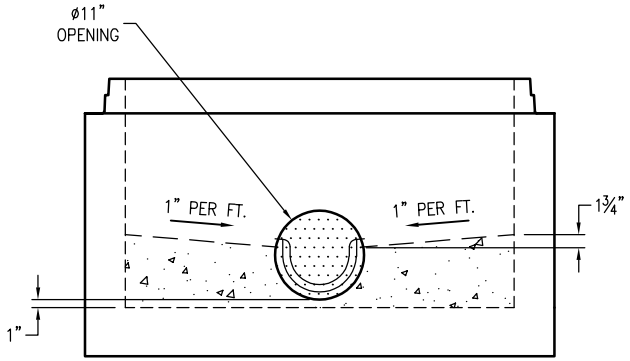
OPENING DETAIL

SCALE: N.T.S



OUT - ELEVATION VIEW

SCALE: 1/2" = 1'-0"



IN - ELEVATION VIEW

SCALE: 1/2" = 1'-0"

Oldcastle Infrastructure™
A CRH COMPANY

1900 Rilling Rd., San Antonio, TX 78214
(210) 923-4523 Phone#, (210) 921-0473 Fax#

48 DIA. SANITARY MANHOLE INVERT DETAIL

SUBMITTAL

1" SLOPED BENCH

CUSTOMER

OLDCASTLE - SAN ANTONIO

DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
---	-	GS	-	---	-----

DRAWING NUMBER: 0 TO 180 DEG INVERT 11 DIA HOLES - 1 IN SLOPE

REVISION: --- REV DATE: ---

SHEET: 1 OF 1

TYPE 4G & 4F PROFILE

CONCRETE PIPE AND MANHOLE GASKETS

Where To Use

- Manholes
- Wet wells
- Square pump and lift stations
- Stormwater structures
- On-site treatment structures
- Junction chambers
- Grease interceptors

CARE & STORAGE
PAGE 5

What It Is

The Type 4G & 4F profile gaskets were developed to specifically meet the needs of contemporary concrete pipe joint designs.

With the accurate profile dimensions and designs for a complete line of standard and specially designed concrete joint configurations.

How It Works

- The gasket is stretched over the spigot.
- The gasket is equalized around the entire circumference of the spigot.
- Bell joint is covered liberally with lubricant.
- Bell and spigot are homed creating a watertight seal.

Why It's Better

- Optimized profile designs for a wide variety of joint configurations.
- Accurate profile designs covering a variety of applications.
- Wide range of compounds that can be applied in multiple applications.
- Simple installation methods.

Product Performance

- ASTM C1619 Standard Specification for Elastomeric Seals for Joining Concrete Structures
- ASTM C443 Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets

Phone: 800-348-7325
Fax: (260) 436-1908

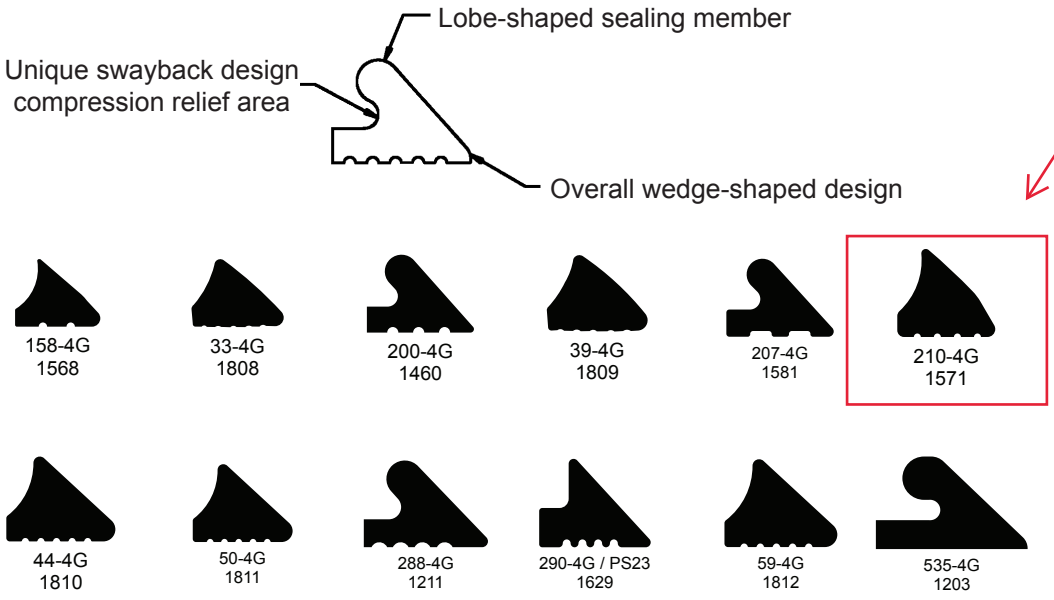
PRESS-SEAL CORPORATION
Protecting Our Planet's Clean Water Supply
ISO 9001: Registered • Version 11.20.20.1044

Email: sales @press-seal.com
Web: www.press-seal.com

TYPE 4G & 4F PROFILE
SELECTION GUIDE

FOR SINGLE-STEP PIPE AND MANHOLE JOINTS

Available for Concrete Pipe, Manholes and Box Culverts.



Gasket Type	Gasket Height (Inch)	Gasket Height (mm)	Typ. Annular Space (Inch)	Typ. Annular Space (mm)
158-4G	.608	15.4 mm	.326	8.3 mm
33-4G	.610	15.5 mm	.326	8.3 mm
39-4G	.685	17.4 mm	.380	9.6 mm
200-4G	.700	17.8 mm	.400	10.2 mm
207-4G	.818	20.8 mm	.446	11.3 mm
210-4G	.826	21.0 mm	.446	11.3 mm
44-4G	.732	18.6 mm	.446	11.3 mm
50-4G	.799	20.3 mm	.500	12.7 mm
288-4G	.908	23.1 mm	.500	12.7 mm
290-4F (PS-23)	.918	23.3 mm	.500	12.7 mm
59-4G	.890	22.6 mm	.600	15.2 mm
535-4G	.970	24.6 mm	.525	13.3 mm
1016-4G	1.040	26.4 mm	.640	16.3 mm

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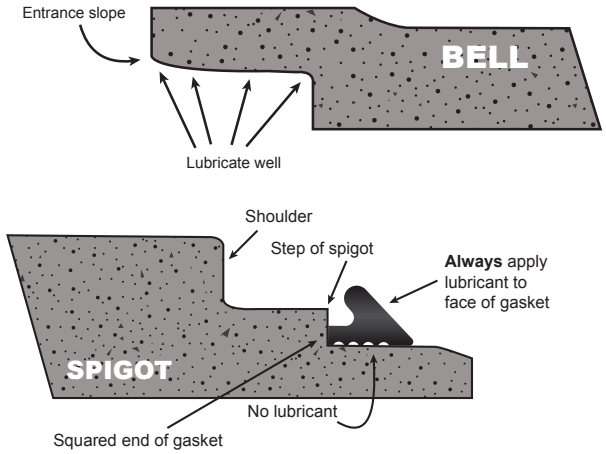
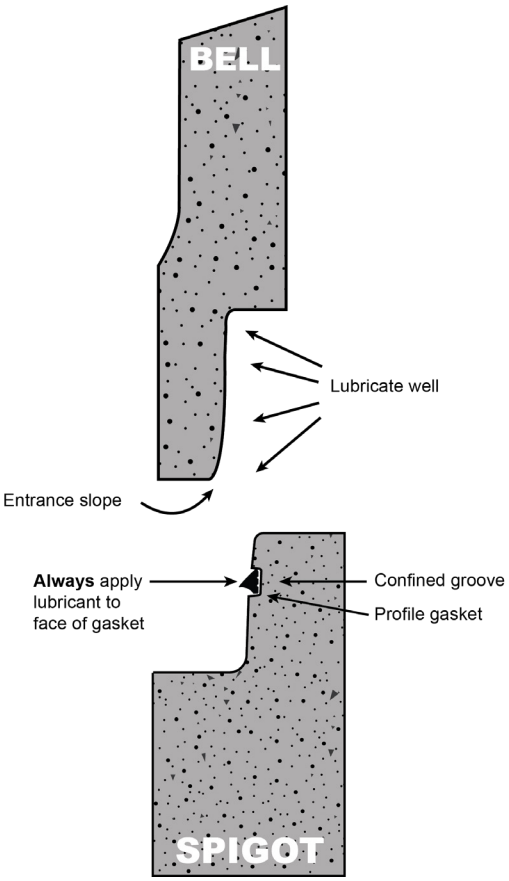
TYPE 4G & 4F
INSTALLATION INSTRUCTIONS

PIPE INSTALLATION



MANHOLE INSTALLATION



Type 4G and 4F gaskets manufactured by Press-Seal Corporation have proved to be one of the most reliable gasket systems ever developed for concrete pipe. It is easy to ensure the best performance of the 4G and 4F gaskets by following these simple installation steps.

1. The pipe should be handled with extreme caution to avoid chipping of the spigots or bell grooves.
2. Check for and remove any loose dirt, debris or foreign material from the inside surface of the bell, spigot and gasket.
3. Stretch the gasket over the spigot end of the pipe and move it back until it is seated against the step of the spigot. Always place squared area of gasket against pipe and step.
4. The gasket should be equalized by inserting a clean round metal object between the gasket and manhole and making at least 1 -1/2 revolutions around the manhole. The gasket can also be equalized by slightly tugging/ pinching the gasket at different points around the manhole.
5. After equalization, ensure the rear of the gasket is seated firmly against the spigot step, around the full circumference of the spigot.
6. Remove all dirt and other foreign matter from the inside surface of the bell. Using Press-Seal lubricant formulated especially for concrete pipe, lubricate the entire bell area of the joint. Be sure to coat the entrance slope of the bell thoroughly with lubricant. It is important that the gasket grips the spigot during installation, so that it is not displaced from the step.
7. Carefully align pipe sections squarely and bring home slowly, so that the gasket makes contact with the bell entrance slope evenly around the entire pipe joint.
8. Complete installation by following pipe manufacturer's recommended bedding and backfilling practices.

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Email: sales @press-seal.com
Web: www.press-seal.com

PSX: DIRECT DRIVE

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.

Scan (or click) Here To View More Info On This Product On The Web!

How It Works

PSX: Direct Drive
has superior materials and technology.

- Specially developed synthetic rubber is continuously tested and lab-certified to ASTM C-923.
- 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 (43 - 1118 mm).
- 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

Phone: 800-348-7325
Fax: (260) 436-1908

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Email: sales@press-seal.com
Web: www.press-seal.com

VERSION 2-16

PSX:DIRECT DRIVE

PRODUCT SPECIFICATION

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 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 (7 mm).

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 22ºC 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± 1ºC 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 70ºC 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 70ºC 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 -40ºC	PASS
TEAR RESISTANCE	D 624, METHOD B	200 LBF/IN. (MIN.)	450 LBF/IN.

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VERSION 2-16

STANDARD CEMENT MATERIALS, INC.

May 13, 2019

CERTIFICATION APPROVAL

INSTALLER: **DROPTINE UTILITY CONSTRUCTION**
New Braunfels, Texas

This certification is between Standard Cement Materials, Inc. [Manufacturer] and Droptine Utility Construction of New Braunfels, Texas [Installer]. The Manufacturer hereby gives Installer approval as a factory approved installer to use the Standard Lining System© Repair Products and supplemental packaged cement products. The Certification is effective on this day and continues indefinitely or until terminated, if applicable. The manufacturer will provide the Installer a source for consultation during project construction. The products approved are as follows:

1. Reliner MSP®
2. Maximum CA® Plus
3. Geocast® Geopolymer Mortar
4. FS Bench Repair Patcher
5. Custom Plug®

The Installer will follow the Manufacturer's Design Guidelines recommendations for surface preparation, mixing, application, finishing and curing of the cement compositions. The Installer shall use a Sewer Manhole Masters® Repair Trailer or approved equal to rehabilitate sewer manholes, lift station chambers, WWTP structures, pipes or other sewer structures. This certificate remains the property of the manufacturer and may be revoked should the above named firm withdraw, change or vary in any way from the specified application requirements. For details contact:

Mario Tamez Jr.
President
Standard Cement Materials, Inc.
Houston, Texas USA

STANDARD CEMENT MATERIALS, INC.

MAXIMUM CA PLUS CEMENT – 10 YEAR LIMITED WARRANTY

Installer: Droptine Utility Construction

This warranty extends to the OWNER of the structure to which Maximum CA Plus Cement is applied, effective as of the OWNER's acceptance of the work: Standard Cement Materials warrants to the OWNER that the Maximum CA Plus Cement product is to be free of defects and made within the product specification tolerances; when installed in compliance with the manufacturer's recommended procedure, will stop active water infiltration, adhere to the existing substrate and protect sanitary wastewater structures from biogenic corrosion caused by exposure to sanitary sewerage environment.

Claims must be filed by the OWNER within 10 years of acceptance of the work by OWNER. Standard Cement Materials obligations hereunder extend only to providing labor and material to replace the defective material. This warranty excludes consequential and incidental damages; including, without limitation, damage to equipment and peripheral facilities, service interruption, and loss of use. This warranty applies to sanitary sewage exposure only. Exposure to effluent chemicals, contaminants from industrial discharge, mechanical abuse, or other maltreatment which is not customary use of the structure will void this limited warranty.

Standard Cement Materials warrants to the INSTALLER of this product that, the product conforms to the specifications set forth in product data sheet. INSTALLER's claims under this warranty must be filed by the INSTALLER within 30 days of use of the product or 6 months of delivery to the INSTALLER, whichever comes first. The INSTALLER is responsible for poor workmanship and improper application techniques. Standard Cement Materials' sole obligation and the sole and exclusive remedy of INSTALLER under this warranty shall be the replacement of any defective product or, at Standard Cement Materials' option, the refund of the purchase price paid by the INSTALLER.

THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, TO OWNER OR INSTALLER EXCEPT AS PROVIDED IN THIS LIMITED WARRANTY. ALL OTHER WARRANTIES, INCLUDING WITHOUT LIMITATION THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE EXCLUDED. NO WARRANTY IS GIVEN FOR, OR MAY BE IMPLIED FROM, ANY TECHNICAL ADVICE OR RECOMMENDATIONS PROVIDED BY STANDARD CEMENT MATERIALS.

WARRANTY CLAIM PROCEDURE

Standard Cement Materials reserves the right to inspect and determine whether any claim is the result of a breach of warranty or is related to another cause; all other causes are expressly excluded from warranty coverage. Any claim under this limited warranty requiring an investigation may require laboratory testing. It is the responsibility of any party making a claim to make any product or structure requiring testing accessible and available to Standard Cement Materials within a reasonable period of time after a claim arises. Inspection, including thickness verification and the gathering of specimens for testing may require the removal of a portion of the cement lining in question or, if a structure requiring investigation cannot be made readily accessible, the removal of any frames, covers, or obstructions. At the manufacturer's option, technical investigations and testing may be performed by either Standard Cement Materials internal facilities or by an independent agency. It is the responsibility of the installer to maintain and document product installation and job acceptance reports in accordance with all applicable instructions including, without limitation, the location and date, weather and ambient temperature at time of installation, the quantities installed, the mixing methods, surface preparation procedures used, installation personnel, and existing conditions of the structure including H_2S concentrations and initial surface pH.

Product Manufacturer:

Mario Tamez Jr.

President

Standard Cement Materials, Inc.
Houston, Texas USA

Maximum CA™ Plus Cement

Repair Mortar for Sewer Infrastructure Protection

STANDARD CEMENT MATERIALS, INC©

Product Data Sheet

GENERAL DESCRIPTION

The dry packaged, Maximum CA™ Plus Cement is comprised of 100% pure-fused calcium aluminates with a calcium aluminate aggregate. Additionally, it's designed to withstand hydrogen sulfide induced corrosion and provide abrasion resistance in sewerage workings including manholes; lift station wet wells, concrete pipelines, water clarifier walls and headworks; and other existing structures.

CHARACTERISTICS

The fiber reinforced Maximum CA™ Plus Cement is spray applied at low pressure to produce a protective coating for both new and existing structures within the sewerage system. It provides toughness, durability and corrosion resistance to gases caused by hydrogen sulfide (H_2S), sulfates, salt water, chlorides, water vapor, oils, grease and dilute acids to pH 2-11.

APPLICATIONS

The Maximum CA™ Plus Cement is specially made to meet the requirements of low pH levels found in wastewater structures. Additionally, the cement may be dry gun applied as a protective coating to concrete and masonry surfaces. The thickness ranges from ½ to 4 inches. Please contact us if you are looking for something special.

PROTECTION LEVELS

Corrosion Resistance: composed primarily of pure fused calcium aluminates, the factory blended Maximum CA™ Plus Cement adds beneficial and distinctive properties to concrete including high early strength, controlled setting and hardening, improved workability, low permeability and biogenic corrosion resistance. Additionally, due to its production method, its chemical composition differs significantly from the common Portland calcium silicate hydrate cements. The fused calcium aluminates and aggregates will not corrode or attack the reinforcement steel. In contrast, it restores structural integrity, stops water infiltration and protects against substances such as fats, hydrostatic pressure and water vapor transmission.

Application: wet mixed shotcrete
Aggregate Size: 0-4 mm
Aggregate Density: 3.14 g /cm^3
Working Time at 70˚F: 75 minutes
Porosity: none
Temperature Range/ Thermal: 1150˚C to 2102˚C

CHEMICAL COMPOSITION

Maximum CA™ Plus is made of fused calcium aluminates typically used in a new and existing wastewater construction and rehabilitation applications including sewer manhole renewal.

Table 1 — Chemical Analysis of the Main Constituent

Al_2O_3	CaO	FeO + Fe_2O_3	SiO_2
38-40%	37-39%	15-18%	3-7%

TECHNICAL INFORMATION

Property	psi		
Compressive Strength ASTM C 109	24-hr >5,500	7-day >7,000	28-day >8,000
Tensile Strength ASTM C 190	*	*	>550
Flexural Strength ASTM C 293		*	>1,400
Bond Strength/ Slant Shear ASTM C 882			>2,100
Shrinkage at 90% RH ASTM C 596			0.0%
Chloride Permeability AASHTO T 277			<300
Freeze Thaw Durability-300 Cycles ASTM C 666			No Damage
Sulfides Resistance-90 days: 20,000 ppm (sulfuric acid) ASTM C 267			No Weight Loss
Applied Density (28 days)			135

*Test Results-obtained by an independent laboratory.

MIXING

Mix with clean, potable water to a uniform consistency. Do not add Portland cement or use any other admixtures with this product. The cement is stocked in a 50-lb plastic lined bag.

EQUIPMENT

The manufacturer or the certified [approved] applicator shall apply the cement using a **SEWER MANHOLE MASTERS™ REPAIR TRAILER** or approved equipment. The pump equipment must supply low pressure at 350-psi and 11 cfm at the nozzle.

PLACEMENT

Place immediately using a wet applied shotcrete method. Trail batches are always recommended. Follow ACI 302 "GUIDE FOR CONCRETE FLOORS AND SLAB CONSTRUCTION" and ACI 308 "STANDARD PRACTICE FOR CURING CONCRETE" to avoid potential problems due to shrinkage cracking.

CURING

Follow ACI 302, 308, 305 and hot weather concrete placement practices to minimize problems caused by decreased bleeding. Protect the cement mortar from hot weather extremes, air movement and dry conditions, and direct exposure to sunlight. Cure immediately as soon as the surface begins to harden, cover with plastic sheets or use an acceptable liquid membrane-forming curing compound per ASTM C 309. The curing compound shall contain a minimum of 25 % solids and prevent a maximum loss of water up to 0.4-kg/m^3 in 72 hours. Apply the curing compound in layers while the cement is still soft. Allow to cure approximately 4 ½ to 24 hours. The ambient temperatures and job conditions will govern specific cases. Normal curing is adequate, but, in some situations such as hot or cold weather, special care is sometimes needed. Therefore, it is important to keep the concrete moist and at a favorable temperature during the early hardening period. Make no application when the ambient temperatures are less than 40ºF or freezing temperature is expected within 24-hour.

SAFETY

Caution: the cement contains fused calcium aluminates—May Cause Eye and Skin Irritation. Clean up with soap and water. Avoid prolong exposure. Wash with water immediately after handling. If skin problems arise, flush with water and get medical help. Keep out of reach of children.

STORAGE

Store the product in a dry cool place.

TECHNICAL SERVICE

Standard Cement Materials Inc provides technical and on-site assistance within 48-hours notice.

WARRANTY INFORMATION

Standard Cement Materials, Inc offers this information for the user's consideration. The corporation warrants this product to be of good quality and performance as specified and is free from material defects within the warranty period. "Failure" will be determined (1) upon inspection of each sanitary sewer application (2) within each specific pH limit (3) maintain its adherence to the existing structure wall. If failure occurs within the specified period, the damage will be repaired to its previous state at no cost to the Owner (or within 30-days after written notification). "Failure" does not include consequential damage resulting from mechanical or chemical maltreatment or act of God. Mechanical or chemical abuse means exposing the cement liner surface to any mechanical force or action taken or chemical substance not customarily used in connection with normal wear and typical use of the structure. Report all product failures within one year from the application date. The manufacturer's liability and sole obligation and the Buyer's single remedy in connection with the product shall be limited, at its option, to either replacement of the product not conforming to this warranty only or credit to Buyer's account in the amount of the invoiced product. Standard Cement Materials Inc reserves the right to determine whether any claim is specifically related to another cause. The corporation makes no other warranties, either expressed or implied and in no event intends to infringe on any established patents or trademarks.

Standard Cement Materials, Inc.
Houston, TX 77092
Telephone: 1-888 278-1337 – Fax: (713) 680-1017
email: support@standardcement.com

TEC Services
Testing • Engineering • Consulting

May 7, 2019

Mr. Mario Tamez Jr.
Standard Cement Materials
5710 W. 34th Street, Suite A
Houston, TX 77092

Phone: 713-680-0482
Email: mtamez@standardcement.com

Subject: **Report of Results for Product Testing**
Product Name: CA Plus
TEC Services Project #: 17-1402
TEC Laboratory #: 19-236

Dear Mr. Tamez:

Testing, Engineering and Consulting Services, Inc. (TEC Services) is an AASTHO R18, ANS/ISO/IEC 17025:2005 and Army Corp of Engineers accredited laboratory. TEC Services is pleased to present this report of our test results on the submitted concrete repair product designated as "CA Plus". Our services were performed in accordance with the terms and conditions of our Service Agreement TEC-PRO-17-1402. The test results presented only pertain to the samples tested.

The CA Plus material was delivered to our Lawrenceville, GA facility on February 22, 2019. The mixing procedures were performed in accordance with the manufacture's recommendations. Mix proportions, reported in Table 1. A summary of the test results is reported in Table 2.

At the request of Standard Cement Materials, testing was performed in accordance with the following standards:

- ASTM C109-16a *Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens)*
- ASTM C190 *Standard Method of Test for Tensile Strength of Hydraulic Cement Mortars*
- ASTM C293-16 *Standard Test Method for Flexural Strength of Concrete (Using Simple Beam With Center-Point Loading)*
- ASTM C882-13a *Standard Test Method for Bond Strength of Epoxy-Resin Systems Used With Concrete By Slant Shear*

Table 1 – Mix Proportions

Material	CA Plus
Dry Material (lbs)	25
Water (lbs)	3.4
Water/Material Ratio	0.137
Mixing Time	3 minutes
Air Temperature (ºF)	73
Humidity (%)	60

Table 2 – Summary of Test Results for CA Plus Product Testing

Test Method	Test Property	Test Age	Average Test Result
ASTM C109	Compressive Strength (psi)	1 Day	**7,160**
		7 Days	**8,030**
		28 Days	**8,740**
ASTM C190	Tensile Strength (psi)	28 Days	**580**
ASTM C293	Flexural Strength (psi)	28 Days	**1,450**
ASTM C882	Slant Shear Bond Strength (psi)	28 Days	**2,140**

We appreciate the opportunity to provide our services to you on this project. Should you have any questions or comments regarding this report, please feel free to contact us.

Sincerely,

TESTING, ENGINEERING AND CONSULTING SERVICES, INC.

Dean T. Roosa
Project Manager

Shawn P. McCormick
Laboratory Principal

BRAUNTEX Materials, Inc.

CONCRETE MIX DESIGN

PROJECT: New Braunfels, TX
CONTRACTOR:
MIX DESIGN #: **2504F**
DESCRIPTION: "2500 psi" 376 lbs cementitious, WITH 20% Fly Ash, 1" aggregate
APPLICATION:

MIX PROPORTIONS PER CUBIC YARD

MATERIALS	SOURCE	SPECIFIC GRAVITY	WEIGHT (LBS.)*	YIELD (CU. FT.)	
CEMENT	Cemex Balcones Cement Type I	3.15	300.0	1.53	ASTM C150
FLY ASH	Boral- San Miguel Class F	1.80	76.0	0.68	ASTM C618
COARSE AGGREGATE	Brauntex Materials 1" Crushed Limestone	2.57	1650.0	10.29	ASTM C33
COARSE AGGREGATE	Brauntex Materials 1/2" Crushed Limestone	2.57	0.0	0.00	ASTM C33
FINE AGGREGATE 1	Brauntex Materials Manufactured Sand	2.57	1225.0	7.64	ASTM C33
FINE AGGREGATE 2	Brauntex Materials "Silica" Sand	2.62	270.0	2.05	ASTM C33
WATER	Municipal Water Supply Potable	32 GALLONS	267.0	4.28	
AIR	Entrapped	2.0% +/-		0.54	
			TOTAL	27.00	

ADMIXTURES**				
	Riteks A-Train PR- Air Entrainment	0.0 oz/cwt	0.0 OZ/CU. YD.	ASTM C260
	Riteks NexCrete 1200- Water Reducer	16.0 oz/cwt	60.2 OZ/CU. YD.	ASTM C494 TYPE A & G
	Riteks HydraStop - Hydration Stabilizer	2.0 oz/cwt	7.5 OZ/CU. YD.	ASTM C494 TYPE B & D

*AGGREGATE WEIGHTS SHOWN ARE FOR SATURATED SURFACE DRY CONDITIONS. CORRECTIONS FOR MOISTURE CONTENT IN THE AGGREGATES MUST BE MADE BY ADJUSTING THE MIXING WATER & SAND ACCORDINGLY AT TIME OF BATCHING.

**CHEMICAL ADMIXTURES ARE DOSED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND MAY BE ADJUSTED BASED ON JOBSITE AND WEATHER CONDITIONS.

CONCRETE PROPERTIES

SLUMP, INCHES:	5 +/- 1.0"
THEORETICAL UNIT WEIGHT OF PLASTIC CONCRETE (pcf):	140.3
CEMENTITOUS FACTOR, SACKS PER CUBIC YARD:	4.0
WATER CEMENTITIOUS RATIO:	0.71
PERCENT COARSE AGGREGATE:	52.5%

BRAUNTEX Materials, Inc.

CONCRETE MIX DESIGN

PROJECT: New Braunfels, TX
CONTRACTOR:
MIX DESIGN #: **3004NF**
DESCRIPTION: "3000 psi" 423 lbs cementitious, 1" aggregate
APPLICATION:

MIX PROPORTIONS PER CUBIC YARD

MATERIALS	SOURCE	SPECIFIC GRAVITY	WEIGHT (LBS.)*	YIELD (CU. FT.)	
CEMENT	Cemex Balcones Cement Type I	3.15	423.0	2.15	ASTM C150
FLY ASH	Boral- San Miguel Class F	1.80	0.0	0.00	ASTM C618
COARSE AGGREGATE	Brauntex Materials 1" Crushed Limestone	2.57	1710.0	10.66	ASTM C33
COARSE AGGREGATE	Brauntex Materials 1/2" Crushed Limestone	2.57	0.0	0.00	ASTM C33
FINE AGGREGATE 1	Brauntex Materials Manufactured Sand	2.57	1205.0	7.51	ASTM C33
FINE AGGREGATE 2	Brauntex Materials "Silica" Sand	2.62	270.0	2.09	ASTM C33
WATER	Municipal Water Supply Potable	30.25 GALLONS	252.3	4.04	
AIR	Entrapped	2.0% +/-		0.54	
			TOTAL	27.00	

ADMIXTURES**				
	Riteks A-Train PR- Air Entrainment	0.0 oz/cwt	0.0 OZ/CU. YD.	ASTM C260
	Riteks NexCrete 1200- Water Reducer	6.0 oz/cwt	25.4 OZ/CU. YD.	ASTM C494 TYPE A & G
	Riteks HydraStop - Hydration Stabilizer	2.3 oz/cwt	9.7 OZ/CU. YD.	ASTM C494 TYPE B & D

*AGGREGATE WEIGHTS SHOWN ARE FOR SATURATED SURFACE DRY CONDITIONS. CORRECTIONS FOR MOISTURE CONTENT IN THE AGGREGATES MUST BE MADE BY ADJUSTING THE MIXING WATER & SAND ACCORDINGLY AT TIME OF BATCHING.

**CHEMICAL ADMIXTURES ARE DOSED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND MAY BE ADJUSTED BASED ON JOBSITE AND WEATHER CONDITIONS.

CONCRETE PROPERTIES

SLUMP, INCHES:	5 +/- 1.0"
THEORETICAL UNIT WEIGHT OF PLASTIC CONCRETE (pcf):	143.0
CEMENTITOUS FACTOR, SACKS PER CUBIC YARD:	4.5
WATER CEMENTITIOUS RATIO:	0.60
PERCENT COARSE AGGREGATE:	53.7%

BRAUNTEX Materials, Inc.

CONCRETE MIX DESIGN

PROJECT: New Braunfels, TX
CONTRACTOR:
MIX DESIGN #: **3004F**
DESCRIPTION: "3000 psi" 450 lbs cementitious, WITH 18% Fly Ash, 1" aggregate
APPLICATION:

MIX PROPORTIONS PER CUBIC YARD

MATERIALS	SOURCE	SPECIFIC GRAVITY	WEIGHT (LBS.)*	YIELD (CU. FT.)	
CEMENT	Cemex Balcones Cement Type I	3.15	370.0	1.88	ASTM C150
FLY ASH	Boral- San Miguel Class F	1.80	80.0	0.71	ASTM C618
COARSE AGGREGATE	Brauntex Materials 1" Crushed Limestone	2.57	1775.0	11.07	ASTM C33
COARSE AGGREGATE	Brauntex Materials 1/2" Crushed Limestone	2.57	0.0	0.00	ASTM C33
FINE AGGREGATE 1	Brauntex Materials Manufactured Sand	2.57	1205.0	7.51	ASTM C33
FINE AGGREGATE 2	Brauntex Materials "Silica" Sand	2.62	270.0	0.94	ASTM C33
WATER	Municipal Water Supply Potable	32.5 GALLONS	271.1	4.34	
AIR	Entrapped	2.0% +/-		0.54	
			TOTAL	27.00	

ADMIXTURES**				
	Riteks NexCrete ES- WATER Reducer	4.0 oz/cwt	18.0 OZ/CU. YD.	ASTM C260
	Riteks NexCrete 1200- Water Reducer	4.0 oz/cwt	18.0 OZ/CU. YD.	ASTM C494 TYPE A & G
	Riteks HydraStop - Hydration Stabilizer	2.0 oz/cwt	9.0 OZ/CU. YD.	ASTM C494 TYPE B & D

*AGGREGATE WEIGHTS SHOWN ARE FOR SATURATED SURFACE DRY CONDITIONS. CORRECTIONS FOR MOISTURE CONTENT IN THE AGGREGATES MUST BE MADE BY ADJUSTING THE MIXING WATER & SAND ACCORDINGLY AT TIME OF BATCHING.

**CHEMICAL ADMIXTURES ARE DOSED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND MAY BE ADJUSTED BASED ON JOBSITE AND WEATHER CONDITIONS.

CONCRETE PROPERTIES

SLUMP, INCHES:	5 +/- 1.5"
THEORETICAL UNIT WEIGHT OF PLASTIC CONCRETE (pcf):	147.1
CEMENTITOUS FACTOR, SACKS PER CUBIC YARD:	4.8
WATER CEMENTITIOUS RATIO:	0.60
PERCENT COARSE AGGREGATE:	54.6%

BRAUNTEX Materials, Inc.

CONCRETE MIX DESIGN

PROJECT: New Braunfels, TX
CONTRACTOR:
MIX DESIGN #: **421C**
DESCRIPTION: "3600 PSI" 575 lbs cementitious, 20% Fly Ash, 1" Aggregate
APPLICATION:

MIX PROPORTIONS PER CUBIC YARD

MATERIALS	SOURCE	SPECIFIC GRAVITY	WEIGHT (LBS.)*	YIELD (CU. FT.)	
CEMENT	Cemex Balcones Cement Type I/II Cement	3.15	460.0	2.34	ASTM C150
FLY ASH	Boral- San Miguel Class F	1.80	115.0	1.02	ASTM C618
COARSE AGGREGATE	Cemex #57 Stone	2.66	1710.0	10.30	ASTM C33
COARSE AGGREGATE	Cemex 1/2" Crushed Limestone	2.57	0.0	0.00	ASTM C33
FINE AGGREGATE 1	Cemex Manufactured Sand	2.57	1380.0	8.61	ASTM C33
FINE AGGREGATE 2		2.62	0.0	0.00	
WATER	NBU City Water Supply Potable	31.4 GALLONS	261.6	4.19	
AIR	Entrapped	2.0% +/-		0.54	
			TOTAL	27.00	

ADMIXTURES**

Riteks A-Train PR- Air Entrainment	0.0 oz/cwt	0.0 OZ/CU. YD.	ASTM C260
Riteks NexCrete 1200- Water Reducer	4.0 oz/cwt	23.0 OZ/CU. YD.	ASTM C494 TYPE A & G
Riteks HydraStop - Hydration Stabilizer	6.5 oz/cwt	37.4 OZ/CU. YD.	ASTM C494 TYPE B & D

*AGGREGATE WEIGHTS SHOWN ARE FOR SATURATED SURFACE DRY CONDITIONS. CORRECTIONS FOR MOISTURE CONTENT IN THE AGGREGATES MUST BE MADE BY ADJUSTING THE MIXING WATER & SAND ACCORDINGLY AT TIME OF BATCHING.

**CHEMICAL ADMIXTURES ARE DOSED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND MAY BE ADJUSTED BASED ON JOBSITE AND WEATHER CONDITIONS.

CONCRETE PROPERTIES

SLUMP, INCHES:	5	+/- 1.0"
THEORETICAL UNIT WEIGHT OF PLASTIC CONCRETE (pcf):	145.4	
CEMENTITOUS FACTOR, SACKS PER CUBIC YARD:	6.1	
WATER CEMENTITIOUS RATIO:	0.45	
PERCENT COARSE AGGREGATE:	55.3%	

BRAUNTEX Materials, Inc.

CONCRETE MIX DESIGN

PROJECT: New Braunfels, TX
CONTRACTOR:
MIX DESIGN #: **3508FC**
DESCRIPTION: "3000 psi" 470 lbs cementitious, 20% Fly Ash, 3/8" aggregate
APPLICATION:

MIX PROPORTIONS PER CUBIC YARD

MATERIALS	SOURCE	SPECIFIC GRAVITY	WEIGHT (LBS.)*	YIELD (CU. FT.)	
CEMENT	Cemex Balcones Cement Type I	3.15	376.0	1.91	ASTM C150
FLY ASH	Boral- San Miguel Class F	1.80	94.0	0.84	ASTM C618
COARSE AGGREGATE	Brauntex Materials 3/8" Crushed Limestone	2.57	1550.0	9.67	ASTM C33
COARSE AGGREGATE	Brauntex Materials 1/2" Crushed Limestone	2.57	0.0	0.00	ASTM C33
FINE AGGREGATE 1	Brauntex Materials Manufactured Sand	2.57	1100.0	6.86	ASTM C33
FINE AGGREGATE 2	Brauntex Materials "Silica" Sand	2.62	454.1	2.78	ASTM C33
WATER	NBU City Water Supply Potable	31 GALLONS	258.2	4.14	
AIR	Entrapped	3.0% +/-		0.81	
			TOTAL	27.00	

ADMIXTURES**				
	Riteks A-Train PR- Air Entrainment	1.5 oz/cwt	7.1 OZ/CU. YD.	ASTM C260
	Riteks NexCrete 1200- Water Reducer	4.0 oz/cwt	18.8 OZ/CU. YD.	ASTM C494 TYPE A & G
	Riteks HydraStop - Hydration Stabilizer	2.0 oz/cwt	9.4 OZ/CU. YD.	ASTM C494 TYPE B & D

*AGGREGATE WEIGHTS SHOWN ARE FOR SATURATED SURFACE DRY CONDITIONS. CORRECTIONS FOR MOISTURE CONTENT IN THE AGGREGATES MUST BE MADE BY ADJUSTING THE MIXING WATER & SAND ACCORDINGLY AT TIME OF BATCHING.

**CHEMICAL ADMIXTURES ARE DOSED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND MAY BE ADJUSTED BASED ON JOBSITE AND WEATHER CONDITIONS.

CONCRETE PROPERTIES

SLUMP, INCHES:	3	+/- 1.0"
THEORETICAL UNIT WEIGHT OF PLASTIC CONCRETE (pcf):	141.9	
CEMENTITOUS FACTOR, SACKS PER CUBIC YARD:	5.0	
WATER CEMENTITIOUS RATIO:	0.55	
PERCENT COARSE AGGREGATE:	49.9%	

BRAUNTEX Materials, Inc.

CONCRETE MIX DESIGN

PROJECT:

CONTRACTOR:
MIX DESIGN #: **4004F**
DESCRIPTION: "4000 psi" 520 lbs cementitious, 20% Fly Ash, 1" aggregate
APPLICATION:

MIX PROPORTIONS PER CUBIC YARD

MATERIALS	SOURCE	SPECIFIC GRAVITY	WEIGHT (LBS.)*	YIELD (CU. FT.)	
CEMENT	Cemex Balcones Cement Type I	3.15	420.0	2.14	ASTM C150
FLY ASH	Boral- San Miguel Class F	1.80	110.0	0.98	ASTM C618
COARSE AGGREGATE	Cemex Balcones 1" Crushed Limestone	2.57	1710.0	10.66	ASTM C33
COARSE AGGREGATE	Brauntex Materials 1/2" Crushed Limestone	2.57	0.0	0.00	ASTM C33
FINE AGGREGATE 1	Cemex Balcones Manufactured Sand	2.57	1205.0	7.51	ASTM C33
FINE AGGREGATE 2	Brauntex Materials "Silica" Sand	2.62	146.3	0.90	ASTM C33
WATER	NBU City Water Supply Potable	32 GALLONS	266.6	4.27	
AIR	Entrapped	2.0% +/-		0.54	
			TOTAL	27.00	

ADMIXTURES**				
	Riteks Syads 75	2.5 oz/cwt	13.3 OZ/CU. YD.	ASTM C494 Type B
	Riteks NexCrete 1200- Water Reducer	6.0 oz/cwt	31.8 OZ/CU. YD.	ASTM C494 TYPE A & G
	Riteks HydraStop - Hydration Stabilizer	0.0 oz/cwt	0.0 OZ/CU. YD.	ASTM C494 TYPE B & D

*AGGREGATE WEIGHTS SHOWN ARE FOR SATURATED SURFACE DRY CONDITIONS. CORRECTIONS FOR MOISTURE CONTENT IN THE AGGREGATES MUST BE MADE BY ADJUSTING THE MIXING WATER & SAND ACCORDINGLY AT TIME OF BATCHING.

**CHEMICAL ADMIXTURES ARE DOSED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND MAY BE ADJUSTED BASED ON JOBSITE AND WEATHER CONDITIONS.

CONCRETE PROPERTIES

SLUMP, INCHES:	5 +/- 1.0"
THEORETICAL UNIT WEIGHT OF PLASTIC CONCRETE (pcf):	142.9
CEMENTITOUS FACTOR, SACKS PER CUBIC YARD:	5.6
WATER CEMENTITIOUS RATIO:	0.50
PERCENT COARSE AGGREGATE:	55.9%

CEMEX

2580 Wald Road
New Braunfels, TX 78132
Telephone (210) 250-4100
FAX (210) 250-4044
Customer Service
Telephone (800) 492-9004
FAX (210) 250-4153

CEMENT MILL TEST REPORT

TXDOT MPL # 99332
Material # 1442809

Cement Identified as: **Balcones Type I, Type II** **3/7/2024**

Plant: CEMEX Cement of Texas, LP
Location: New Braunfels, TX

Beginning Production Date: February 1, 2024
Ending Production Date: February 29, 2024

CHEMICAL REQUIREMENTS (ASTM C-114)	Spec. Limit (ASTM C-150)	TYPE I	TYPE II	TEST RESULTS
Silicon Dioxide (SiO_2), %	Min	---	---	20.5
Aluminum Oxide ($Al2O_3$), %	Max	---	6.0	4.4
Ferric Oxide (Fe_2O_3), %	Max	---	6.0	3.0
Calcium Oxide (CaO), %	---	---	---	64.9
Magnesium Oxide (MgO), %	Max	6.0	6.0	1.1
Sulfur Trioxide (SO_3), % [A]	---	---	---	2.7
Loss on Ignition (LOI), %	Max	3.5	3.5	2.6
Insoluble Residue (IR), %	Max	1.50	1.50	0.20
Free Lime, %	---	---	---	1.6
Alkalies (Na_2O equivalent), %	---	---	---	0.69
Na2O Equ. @ 95% Confidence Level	---	---	---	.59+/-0.02
CO_2 in Cement, %	---	---	---	1.6
Limestone in Cement, %	Max	5.0	5.0	3.5
$CaCO_3$ in Limestone, %	Min	70	70	95
Inorganic Processing Addition, % *	Max	5.0	5.0	0.2
POTENTIAL PHASE COMPOSITION **				
Tricalcium Silicate (C3S), %	Max	---	---	59
Tricalcium Aluminate (C3A), %	Max	---	8	7
Heat Index, C3S + (4.75 C3A)	Max	100	100	91
PHYSICAL REQUIREMENTS				
(ASTM C-204) Blaine Fineness, m^2/kg	Min	260	260	420
(ASTM C-430) 45 µm Mesh Fineness %-325				96
(ASTM C-191) *Time of Setting (Vicat)*				
Initial Set, mins	Min	45	45	110
Final Set, mins	Max	375	375	210
(ASTM C-185) Air Content, %	Max	12	12	6
(ASTM C-1038) Expansion, % 14 Day	---	---	---	0.007
(ASTM C-151) Autoclave Expansion, %	Max	0.80	0.80	
(ASTM C-109) *Compressive Strength*				
1-Day, psi	---	---	---	2100
3-Day, psi	Min	1740	1450	3700
7-Day, psi	Min	2760	2470	4500
(Previous) 28-Day, psi	---	---	---	6000
(ASTM C-1702) Heat of Hydration (3-Day), cal/g	*Test result is provided for information only*			75

A Reference C150-21 Sulfur allowance with supporting C-1038 data

** This cement contains processing additions which meet the requirements of ASTM C-465. Compliance documents are available upon request. Additional data for the Inorganic Processing Addition is located on page 2 of this certification.*

*** Potential Phase Composition adjusted per A1.6.*

CEMEX hereby certifies that this cement meets or exceeds the chemical and physical specifications of:

[X] ASTM C-150 for Type I
[X] ASTM C-150 for Type II

2580 Wald Road
New Braunfels, TX 78132
Telephone (210) 250-4100
FAX (210) 250-4044
Customer Service
Telephone (800) 492-9004
FAX (210) 250-4153

TXDOT MPL # 99332
Material # 1621660

CEMENT MILL TEST REPORT

Cement Identified as:

Plant: CEMEX Balcones Cement **TYPE IL (10) (MS)** **Date: 3/7/2024**
Location: New Braunfels, TX
Production Dates:

Beginning: January 2, 2024
Ending: January 30, 2024

STANDARD CHEMICAL REQUIREMENTS (ASTM C114)	TEST RESULTS		ASTM C595 Spec.	Type IL
Sulfur Trioxide (SO3), % A	2.6		Maximum	3.0
Loss on Ignition (LOI), %	5.1		Maximum	10
Limestone, %	11		Min. - Max.	5 - 15
$CaCO_3$ in Limestone, %	95		Minimum	70
Alkalies (Na2O equivalent), %	0.55			
PHYSICAL REQUIREMENTS				
(ASTM C 204) Blaine Fineness, cm^2/gm	5000			----
(ASTM C 188) Density	3.14			----
(ASTM C 430) -325 Mesh, %	96.0			----
(ASTM C 191) Time of Setting (Vicat)				
Initial Set, minutes	90		Min. - Max.	45 - 420
Final Set, minutes	190			----
(ASTM C 185) Air Content, %	6		Maximum	12
(ASTM C 151) Autoclave Expansion, %			Contraction	0.2
			Expansion	0.8
(ASTM C 1038) Expansion, % 14 Day				
(ASTM C 109) Compressive Strength, psi (MPa)	psi	MPa		
1 Day	2520	17.4		
3 Day	4110	28.3	Minimum	1890 (13.0)
7 Day	4910	33.8	Minimum	2900 (20.0)
28 Day	5870	40.5	Minimum	3620 (25.0)

A Reference C595-6.1.10 Table 1-B Sulfur allowance with supporting C-1038 data
MS Moderate Sulfate Resistance. Test results available on request.
CEMEX hereby certifies that this cement meets or exceeds the chemical and physical Specifications of:

ASTM C595 - 21 for Type IL Cement

Hunter John Martinez
Quality Control Manager
CEMEX - Balcones Cement Plant

Julia Spurgeon

NOTARY PUBLIC STATE OF TEXAS
Julia Spurgeon
My Commission Expires
10/9/2026
Notary ID 7070536

ECOMATERIAL TECHNOLOGIES

PO Box 38
Thompsons, TX 77481-0038
P: 281.343.0079

ASTM C618 / AASHTO M295 Testing of
Class "F" Fly Ash San Miguel Plant Christine, Texas Unit #1

Sample Date: November 2022
Sample Type: Monthly
Sample ID: #10-2022

Report Date: 1/4/23
MTRF ID: 2454SL

Chemical Analysis	Results		ASTM Limit Class F/C	AASHTO Limit Class F/C
Silicon Dioxide (SiO_2)	63.69	%		
Aluminum Oxide (Al_2O_3)	21.23	%		
Iron Oxide (Fe_2O_3)	1.92	%		
Sum (SiO_2+Al_2O_3+Fe_2O_3)	86.84	%	50.0 min	50.0 min
Sulfur Trioxide (SO_3)	0.37	%	5.0 max	5.0 max
Calcium Oxide (CaO)	5.02	%	18.0 max / >18.0	18.0 max / >18.0
Magnesium Oxide (MgO)	0.76	%		
Sodium Oxide (Na_2O)	3.14	%		
Potassium Oxide (K_2O)	1.96	%		
Sodium Oxide Equivalent (Na_2O+0.658K_2O)	4.43	%		
Moisture	0.08	%	3.0 max	3.0 max
Loss on Ignition	0.65	%	6.0 max	5.0 max
Physical Analysis				
Fineness, % retained on 45-µm sieve	26.01	%	34 max	34 max
Strength Activity Index - 7 or 28 day requirement				
7 day, % of control	83	%	75 min	75 min
28 day, % of control	90	%	75 min	75 min
Water Requirement, % control	98	%	105 max	105 max
Autoclave Soundness	0.00	%	0.8 max	0.8 max
Density	1.79	g/cm3		
Loose Bulk Density, ASTM C29	48.10	lbs/ft3		

AUTHORIZED SIGNATURE:

GENERAL OBSERVATION REPORT

Report Number: 90201625.0121
Service Date: 02/07/23
Report Date: 02/24/23
Task: Aggregates

Terracon
6911 Blanco Rd
San Antonio, TX 78216-6164
210-641-2112 Reg No: F-3272

Client
Brauntex Materials & FIscher Construction
Attn: Will Fischer
1504 Wald Rd
New Braunfels, TX 78132-5018

Project
Brauntex Materials Inc.-New Braunfels Miscellaneous Testing
1504 Wald Rd
New Braunfels, TX 78132

Project Number: 90201625

On February 7th 2023, Terracon technician picked up #57 Rock to perform gradation and specific gravity per ASTM C33,

1. Gradation:

Sieve Size	Cumulative percent passing	Gr.1 Required percent passing (ASTM C33 Size #57)
1.5"	100.0	100
1"	100.0	95-100
3/4"	100.0	NA
1/2"	43.9	25-60
No.4	0.6	0-10
No.8	0.5	0-5

2. Specific Gravity:

Bulk specific gravity:	2.539
Bulk specific gravity SSD:	2.579
Apparent specific gravity:	2.643
Absorption:	1.55 %

Services: Traveled to the project site to provide testing/observation services as requested.

Terracon Rep.: Abrego, Fernando
Reported To:
Contractor:
Report Distribution:
(1) Brauntex Materials & Fischer Construction,
(1) Terracon Consultants, Inc.,
Yash.Menaria@terracon.com

(1) Brauntex Materials & Fischer Construction,
(1) Terracon Consultants, Inc.,
yatish.jakatimath@terracon.com

Reviewed By:

Yash Menaria
Senior Staff Engineer

GENERAL OBSERVATION REPORT

Report Number: 90201625.0059
Service Date: 02/23/22
Report Date: 03/10/22
Task: Aggregates

Terracon
6911 Blanco Rd
San Antonio, TX 78216-6164
210-641-2112 Reg No: F-3272

Client
Brauntex Materials & Fischer Construction
Attn: Will Fischer
1504 Wald Rd
New Braunfels, TX 78132-5018

Project
Brauntex Materials Inc.-New Braunfels Miscellaneous Testing
1504 Wald Rd
New Braunfels, TX 78132

Project Number: 90201625

On February 23rd, 2022 Terracon technician picked up aggregates from the sample stockpiles as shown by "Austin with Brauntex Materials" for dry gradation as per ASTM C33 for client's reference,

1. 1.0 " rock

Sieve Size	Cumulative percent passing (%)
1.0 "	99.5
3/4 "	93.4
1/2 "	54.9
3/8 "	19.6
No. 4	1.2
No.8	0.9

2. 1/2 " rock

Sieve Size	Cumulative percent passing (%)
1/2 "	100.0
3/8 "	96.2
No.4	4.0
No.8	0.6
No. 16	0.4
No. 50	0.2

GENERAL OBSERVATION REPORT

Report Number: 90201625.0113
Service Date: 12/15/22
Report Date: 12/19/22 Revision 1 - rev1
Task: Aggregates

Terracon
6911 Blanco Rd
San Antonio, TX 78216-6164
210-641-2112 Reg No: F-3272

Client
Brauntex Materials & FIscher Construction
Attn: Will Fischer
1504 Wald Rd
New Braunfels, TX 78132-5018

Project
Brauntex Materials Inc.-New Braunfels Miscellaneous Testing
1504 Wald Rd
New Braunfels, TX 78132

Project Number: 90201625

Terracon technician brought 2 coarse aggregate samples (River Rock Gravel) and 1 fine aggregate sample from Brauntex materials. Client requested coarse aggregate gradation per ASTM C33 requirement and fine aggregate gradation per Item 421 requirement for information purposes.

1. Coarse Aggregate Gradation (Grade 8)

Sieve Size	Cumulative Percent Passing	Grade 8 Tolerance (percent passing)
1/2"	100.0	100
3/8"	99.0	85-100
No.4	13.0	10-30
No.8	0.0	0-10

2. Coarse Aggregate Gradation (57 Rock)

Sieve Size	Cumulative Percent Passing	57 Rock Tolerance (percent passing)
1.0"	100.0	95-100
3/4"	75.0	---
1/2"	43.0	25-60
No.4	0.0	0-10
No.8	0.0	0-5

GENERAL OBSERVATION REPORT

Report Number: 90201625.0113
Service Date: 12/15/22
Report Date: 12/19/22
Task: Aggregates

Terracon
6911 Blanco Rd
San Antonio, TX 78216-6164
210-641-2112 Reg No: F-3272

Client
Brauntex Materials & FIscher Construction
Attn: Will Fischer
1504 Wald Rd
New Braunfels, TX 78132-5018

Project
Brauntex Materials Inc.-New Braunfels Miscellaneous Testing
1504 Wald Rd
New Braunfels, TX 78132

Project Number: 90201625

3. Fine Aggregate Gradation (Manufactured sand)

Sieve Analysis
Tex-401-A

Sieve Size	Cumulative Weight Retained, (g)	Individual Weight Retained, (g)	Cumulative Percent Retained, %	Cumulative Percent Passing, %	Lower Passing Spec Limit, %	Upper Passing Spec Limit, %	Within Master Grading
3/8"	0.0	0.0	0	100	100	100	Yes
No.4	0.0	0.0	0	100	95	100	Yes
No.8	132.5	132.5	13	87	80	100	Yes
No.16	458.2	325.7	44	56	50	85	Yes
No.30	667.9	209.7	65	35	25	65	Yes
No.50	825.2	157.3	80	20	10	35	Yes
No.100	935.1	109.9	91	9	0	10	Yes
No.200	993.8	58.7	96	4	0	6	Yes
Total:	1,031.2						
		Does The Average Sand Equivalent Exceed 85?					

Fineness Modulus
Tex-402-A

Fineness Modulus:	2.93

Services: Traveled to the project site to provide testing/observation services as requested.

Terracon Rep.: Abrego, Fernando
Reported To:
Contractor:
Report Distribution:
(1) Brauntex Materials & Fischer Construction,
(1) Terracon Consultants, Inc., Yash.Menaria@terracon.com
(1) Brauntex Materials & Fischer Construction,
(1) Terracon Consultants, Inc., yatish.jakatimath@terracon.com

Reviewed By:
Yash Menaria
Senior Staff Engineer

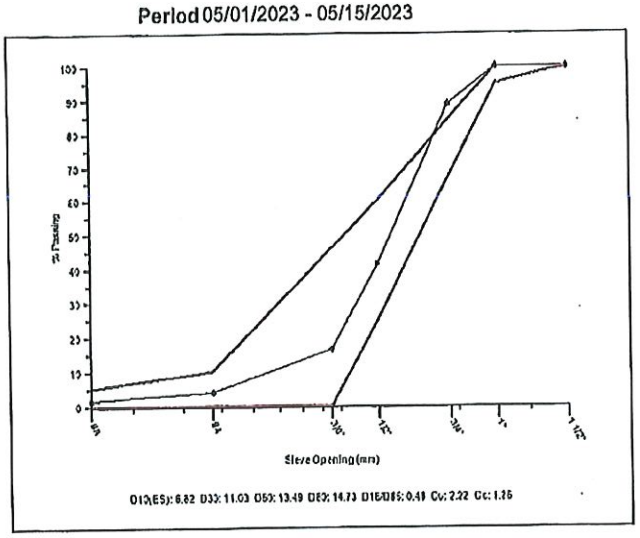
New Braunfels
2682 Wald Road
New Braunfels, TX 78132

Compliance Summary

Product Information

Plant Id	4200
Plant Name	New Braunfels
Product Id	1036892
Product Name	ASTM #57
Specification	TXDOT 4/57 (421-Crs)
Sample Type	Shipping

Period 05/01/2023 - 05/15/2023



Gradation Results			Quality Results				
Sieve	**% Passing**	**Tolerances**	**Test**	**Result**	**Unit**	**Tolerances**	**Method**
1 1/2" (37.5mm)	100.0	100-100	LA Abrasion (B,500)	26	%		LA Small
1" (25mm)	99.9	95-100	-#200 (75um)	0.72	%	0-1.5	Decant
3/4" (19mm)	88.9						
1/2" (12.5mm)	41.4	25-60					
3/8" (9.5mm)	16.5	≥0					
#4 (4.75mm)	4.0	0-10					
#8 (2.36mm)	1.8	0-5					

RITEKS

Technical Data Sheet

Construction Chemicals

NexCrete™ 1200

Non-Chloride Mid-Range Water Reducing Admixture

General Description

Riteks NexCrete™ 1200 is a non-chloride mid-range water-reducing concrete admixture. NexCrete 1200 is designed to offer: Superior workability and finishability, increased compressive and flexural strength (both initial and ultimate) with lower water-cement ratio and normal set times throughout the whole dosage range. NexCrete 1200 does not contain calcium chloride or any chloride-based components. It will not promote or contribute to corrosion of reinforcing steel in concrete.

Primary Applications

NexCrete™ 1200 can be used in all concrete applications where ease of placement, normal set times, and increased workability are desired. NexCrete 1200 is used in all flatwork, curb mixes and walls. NexCrete 1200 is compatible with a wide range of cements, fly ashes and aggregates.

NexCrete 1200 provides concrete with lower permeability, little or no bleeding and greater
workability at the surface.

- Increased pumpability
- Reduced segregation of mix; even with very high slumps
- Increased relative durability to freezing and thawing
- Superior finishing characteristics for flatwork, walls, curb and tilt-up
- Better retention of slump than conventional water-reducers

How to Use / Dosage

Mixing: NexCrete 1200 can be added with the initial batch water but delayed addition will generally result in optimum water reduction. Dosage: Rates will vary depending on the materials used, ambient conditions and the requirements of a specific project.

Recommended dosage rate: 3 to 12 fl. oz. per 100 lbs. of cementitious material.

Due to variations in concrete materials, job site conditions and applications, dosages outside of the recommended range may be required. In such cases, contact your local Riteks Construction Chemical Representative.

Features/Advantages

- Increased pumpability
- Reduced segregation of mix; even with very high slumps
- Increased relative durability to freezing and thawing
- Superior finishing characteristics for flatwork, walls, curb and tilt-up
- Better retention of slump than conventional water-reducers

Compatibilites

NexCrete 1200 is compatible with all types Portland cement, class C & F fly ash, silica fume, calcium chloride, fibers, and approved air entraining, accelerating, retarding, superplasticizing, & water-reducing admixtures. NexCrete 1200 can be used in white, colored and architectural concrete. For best results, each admixture must be dispensed separately into the concrete mix.

Packaging/Storage

5 gallon pail • 55 gallon drum
Totes • Bulk deliveries

Store between 32° F & 100° F. Product should be used within 12 months of delivery.

Health and Environmental Data

Before handling or using this product please refer to the Safety Data Sheet for complete health, safety and environmental information. Dispose of waste in accordance with local, state and federal regulations.

RITEKS

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www.riteks.com

Dallas Plant :
415 Interchange Street McKinney, TX 75071

V: 2019.8b

Technical Data Sheet

Construction Chemicals

NexCrete™ ES

High-Range Water Reducing Admixture

General Description

Riteks NexCrete™ ES is a normal setting multi-range water-reducing admixture for concrete utilizing next generation polycarboxylate technology. It is designed to facilitate the placing and finishing of ready mixed concrete that is highly flowable and workable for extended periods of time with normal setting characteristics. By varying the dosage rate, NexCrete™ ES can be used as a normal, mid-range and high-range water-reducing admixture.

Features/Advantages

- Improves the quality of concrete by decreasing water-cementitious ratio
- Increases high early and ultimate strengths both compressive and flexural
- High durability and increased density
- Reduces damage caused by freezing and thawing
- Reduces water content needed for a given workability (12-40%)
- Reduces surface bleeding, cracking, creep, and shrinkage
- Reduces segregation and increase cohesiveness
- Improves finishability, workability of concrete and pumpability of concrete
- Maintains slump life during extended mixing times
- Plasticity range of 8 to 11 inches
- Improves bond strength to the steel
- Reduces permeability and salt penetration

How to Use / Dosage

NexCrete ES should be added with the initial mixing water or incorporated with the final water at the end of the batch sequence. It is not unusual to experience significantly lower air entrainment dosage requirements (50-75%) when compared to conventional high-range water reducers.

- Dosage to meet ASTM C 494 Type F applications: 7 to 20 fl. oz. per 100 lbs.
- Dosage to meet: ASTM C 494 Type A applications: up to 3 fl. oz. per 100 lbs.
- Dosage to meet mid-range applications: 3 to 6 fl. oz. per 100 lbs.

Due to variations in concrete materials, job site conditions and applications, dosages outside of the recommended range may be required. In such cases, contact your local Riteks Construction Chemical Representative. Note: NexCrete ES does not contain calcium chloride or any chloride-based components. It will not promote or contribute to corrosion of reinforcing steel in concrete.

Specifications

Conforms to:

- ASTM C 494 Types A and F
- AASHTO M 194 Types A and F
- CRD C 87 Types A and F
- All other Federal & State specifications

Compatibilites

All types Portland cement, Type 1L, class C & F, fly ash, silica fume, fibers, approved air entraining, and water-reducing admixtures.

Can be used in white, colored, and architectural concrete. For best results, each admixture must be introduced separately into the concrete mix.

Packaging/Storage

5 gallon pail • 55 gallon drum
Totes • Bulk deliveries

Store between 32° F & 100° F. Product should be used within 18 months of delivery.

Health and Environmental Data

Before handling or using this product please refer to the Safety Data Sheet for complete health, safety and environmental information. Dispose of waste in accordance with local, state and federal regulations.

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V:2022.6c

RITEKS

Technical Data Sheet

Construction Chemicals

HydraStop™

Hydration Stabilizer

General Description

Riteks HydraStop™ is a hydration stabilizer which helps maintain slump and proper set times of freshly produced concrete over extended haul times and increased ambient temperatures. Hydra-Stop is used to offset issues caused by extended haul times, excess drum revolutions or the effects of temperature and time.

HydraStop is especially helpful in the summer months when hydration is accelerated due to higher ambient and mix temperatures. HydraStop aids in controlling concrete temperature when a maximum mix temperature is specified. Concrete performance properties are maintained while exceeding the requirements of ASTM, AASHTO and CRD specifications.

How to Use / Dosage

Follow these instructions carefully:

1. After fresh concrete has been thoroughly mixed, determine temperature of the concrete.
2. Determine the total cementitious content per yard of the concrete mix design. This is the total weight of the cement, fly ash, and all other pozzolans in the mix loaded into the mixer truck.
3. Calculate the dosage per cubic yard using the table on this page.
4. After HydraStop has been added; mix truck for 2 min. at fast mixing speed and 5 min. at normal mixing speed.
5. Complete addition of HydraStop within 15 minutes of initial contact of mixing water with dry cementitious materials.
6. Once mixing is finished, proceed to job site with mixer revolving as slow as possible.

*Extended Haul Dosage Chart - oz. per 100 lbs. of cementitious

Concrete Temperature (F)	Retardation (Hours)				
	.5 - 1 hrs.	>1 - 1.5 hrs.	>1.5 - 2 hrs	> 2 - 2.5 hrs.	2.5 - 3 hrs.
100 - 109° F	5.0	5.5	6.0	7.0	7.5
90 - 99° F	4.0	4.0	5.5	6.0	7.0
80 - 89° F	3.0	3.0	4.5	5.0	6.0
70-79° F	2.0	2.0	3.5	4.5	5.5
60-69° F	1.0	1.0	3.0	4.0	4.5

Over 3 hours, add 1 ounce/cwt. of HydraStop to chart above per each 30 minutes beyond 3 hrs. of retardation desired. * Due to variances in materials, this chart is for recommended purposes only, trial batches should be performed to determine exact dosage requirements.

Specifications

Conforms to:

- ASTM C 494 Types B and D
- AASHTO M 194 Types B and D
- CRD C 87 Types B and D

Packaging/Storage

5 gallon pail • 55 gallon drum
Totes • Bulk deliveries

Store between 32° F & 100° F. Product should be used within 12 months of delivery.

Health and Environmental Data

Before handling or using this product please refer to the Safety Data Sheet for complete health, safety and environmental information. Dispose of waste in accordance with local, state and federal regulations.

RITEKS

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V:
2023.2a

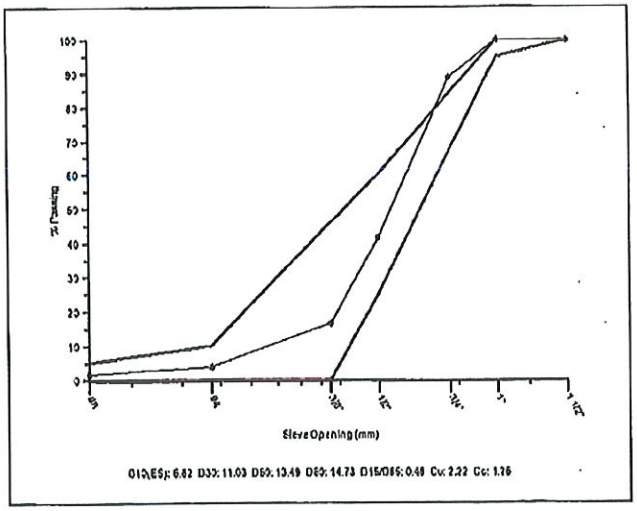
New Braunfels
2682 Wald Road
New Braunfels, TX 78132

Compliance Summary

Product Information

Plant Id	4200
Plant Name	New Braunfels
Product Id	1036892
Product Name	ASTM #57
Specification	TXDOT 4/57 (421-Crs)
Sample Type	Shipping

Period 05/01/2023 - 05/15/2023



Gradation Results

Sieve	% Passing	Tolerances
1 1/2" (37.5mm)	100.0	100-100
1" (25mm)	99.9	95-100
3/4" (19mm)	88.9	
1/2" (12.5mm)	41.4	25-60
3/8" (9.5mm)	16.5	≥0
#4 (4.75mm)	4.0	0-10
#8 (2.36mm)	1.8	0-5

Quality Results

Test	Result	Unit	Tolerances	Method
LA Abrasion (B,500)	26	%		LA Small
-#200 (75um)	0.72	%	0-1.5	Decant

StonemontQC 05/15/2023 **Cemex Technical Services**

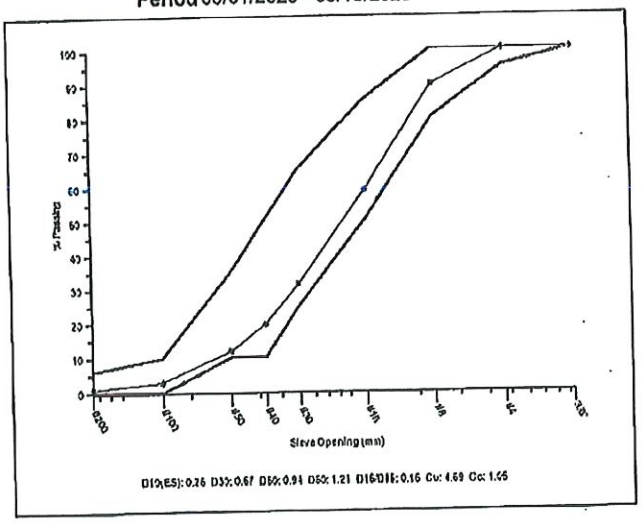
New Braunfels
2682 Wald Road
New Braunfels, TX 78132

Compliance Summary

Product Information

Plant Id	4200
Plant Name	New Braunfels
Product Id	1037202
Product Name	Concrete screenings
Specification	TXDOT Mn Snd Grading 1 (421-Fine)
Sample Type	Shipping

Period 05/01/2023 - 05/15/2023



Gradation Results			Quality Results				
Sieve	**% Passing**	**Tolerances**	**Test**	**Result**	**Unit**	**Tolerances**	**Method**
3/8" (9.5mm)	100.0	100-100	FM	3.06			
#4 (4.75mm)	99.9	95-100	SE	95	%		Sand Equivalent
#8 (2.36mm)	89.7	80-100	-#200 (75um)	5.44	%	0-6	Decant
#16 (1.18mm)	59.0	50-85					
#30 (.6mm)	31.7	25-65					
#40 (.425mm)	19.7	10-50					
#50 (.3mm)	12.0	10-35					
#100 (.15mm)	3.1	0-10					
#200 (75µm)	1.13	0-6					

StonemontQC 05/15/2023 Cemex Technical Services