

State of Vermont  
PDD/Structures Design Section  
National Life Building – Drawer 33  
Montpelier, VT 05633-5001  
[www.aot.state.vt.us](http://www.aot.state.vt.us)

Agency of Transportation

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[ttd] 800-253-0191

**June 17, 2015**

J. A. McDonald, Inc.  
PO Box 132  
Lyndon Center, VT 05850

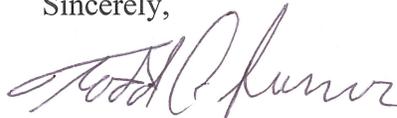
**Project Name: Lincoln BRF 0188(8)**

**Structure Identification: TH 1, Bridge 19**

The precast reinforced concrete drop inlet fabrication drawings associated with Items 604.18, Precast Reinforced Concrete Drop Inlet with Cast Iron Grate, have been reviewed and are being returned herewith.

Please incorporate all review comments and resubmit.

Sincerely,



Todd A. Sumner P.E.  
Project Manager

File 5.1.2

Contractor:	J.A. McDonald		
Job Name:	Lincoln BRF 0188 (8)		
Location:	Lincoln, Vt.		
Job #	167-15	Date:	5/26/2015



CAMP Precast Concrete Products, Inc.  
78 Precast Road, Milton, VT 05468  
Phone (802) 893-2401 Fax (802) 893-

**Product I.D.** DI 501 + 69.00 LT Diameter: 48"

Invert: No Ladders: No Coating: No Access Size: 24" x 24"

Cast Iron / Hatch: Neenah R-3405 Frame & Type E Cascade Grate (4-flange)

997.55  
993.37  
4.18  
0.53  
4.71  
4.21  
0.21

Rim:	999.00	Cone:		Riser#1:		Riser#4:	
Inv. Out:	994.70	Cover:	12"	Riser#2:		Riser#5:	
Diff:	4.30	Base:	3'	Riser#3:		Riser#6:	
Sump:	0.50						
Gross V.F.:	4.80	Angle	0				
C.I. Height:	0.50	Boot:	28S				
Net V.F.:	4.30	Dist. Up:	1"				
Brick Space:	0.30	Pipe Type:	RCP HDPE				
Actual V.F.	4.00	Pipe Size:	18"				

Quality Control	Prepour	Form Cleaning:		Form Release:	
		Rein. Steel:	Std. Spec.	Form Closure:	
		Block Out:		Rein. Size:	
		Comments:		Q.C. by/date:	
	Postpour	Finish:		Bricking:	
		Invert:		Ladders:	
		Coating:		Boots:	
		Comments:		Q.C. by/date:	
Special Info. / Comments:		<b>**VT AOT Specs including 8" thick base**</b>			
Mold #:		YDS <sup>3</sup>		Wt.	

**BASE**

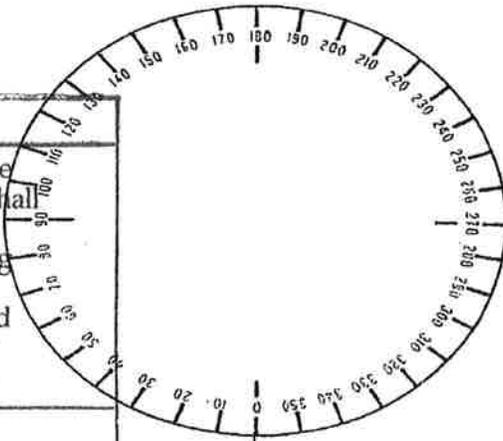
**SUBMITTAL REVIEW**

Review is only for general conformity to the contract drawings and specifications and shall not relieve the contractor of his entire responsibility under the contract, including among other things, dimensions to be confirmed and correlated at the job site, and information that pertains to the fabrication processes or to techniques of construction.

NO EXCEPTIONS TAKEN  
 MAKE CORRECTIONS NOTED  
 RESUBMITTAL NOT REQUIRED  
 AMEND AND RESUBMIT  
 REJECTED - SEE REMARKS

BY: JMR  
 DATE: 6/17/15

PB AMERICAS, INC.



18" RCP Up 1" (6" pipe sump)  
 elev. ~~994.7~~

993.37

Please note that this submission does not include the structure and culvert at Station 506+14. This still needs to be submitted for approval.

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**RECEIVED**  
 ON: **May 27, 2015**  
 and Checked for  
**CONFORMANCE**  
 BY: Todd A. Sumner DATE: 06/17/2015

File 5.1.2

Contractor:	J.A. McDonald		
Job Name:	Lincoln BRF 0188 (8)		
Location:	Lincoln, Vt.		
Job #	167-15	Date:	5/26/2015



CAMP Precast Concrete Products, Inc.  
 78 Precast Road, Milton, VT 05468  
 Phone (802) 893-2401 Fax (802) 893-

**Product I.D. DI 504+53.46 RT**

Size: 24" x 24" ✓

Invert: **No** Ladders: **No** Coating: **No** Access Size: **24" x 24"**  
 Cast Iron / Hatch: **Neenah R-3405 Frame & Type E Cascade Grate, (4-flange)**

Rim:	998.71	Cover:		Riser#1:		Riser#4:	
Inv. Out:	995.50	Base:	3'	Riser#2:		Riser#5:	
Diff:	3.21			Riser#3:		Riser#6:	
Sump:	0.50						

Gross V.F.:	3.71	Angle	0				
C.I. Height:	0.50	Boot:	8022				
Net V.F.:	3.21	Dist. Up:	15" to ctr				
Brick Space:	0.21	Pipe Type:	HDPE				
Actual V.F.	3.00	Pipe Size:	18"				

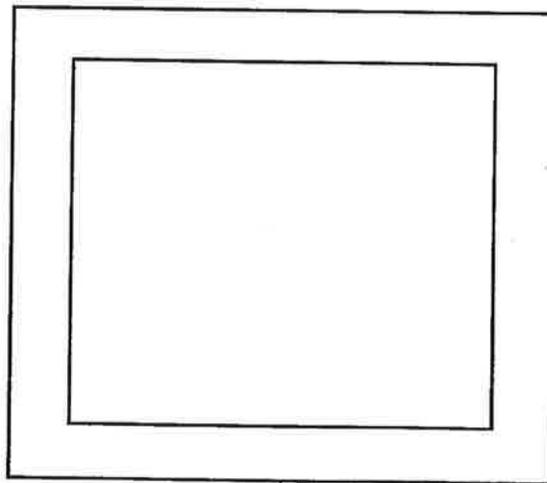
Quality Control	Prepour	Form Cleaning:		Form Release:	
	Postpour	Rein. Steel:	Std. Spec.	Form Closure:	
		Block Out:		Rein. Size:	
		Comments:		Q.C. by/date:	
		Finish:		Bricking:	
		Invert:		Ladders:	
		Coating:		Boots:	
		Comments:		Q.C. by/date:	

Special Info. / Comments: **\*\*VT AOT Specs including 8" thick base\*\***

Mold #: YDS<sup>3</sup> Wt.

**FLIPPED**

**BASE**



18" HDPE Up 15" To CTR. (6" pipe sump)  
 elev. 995.5

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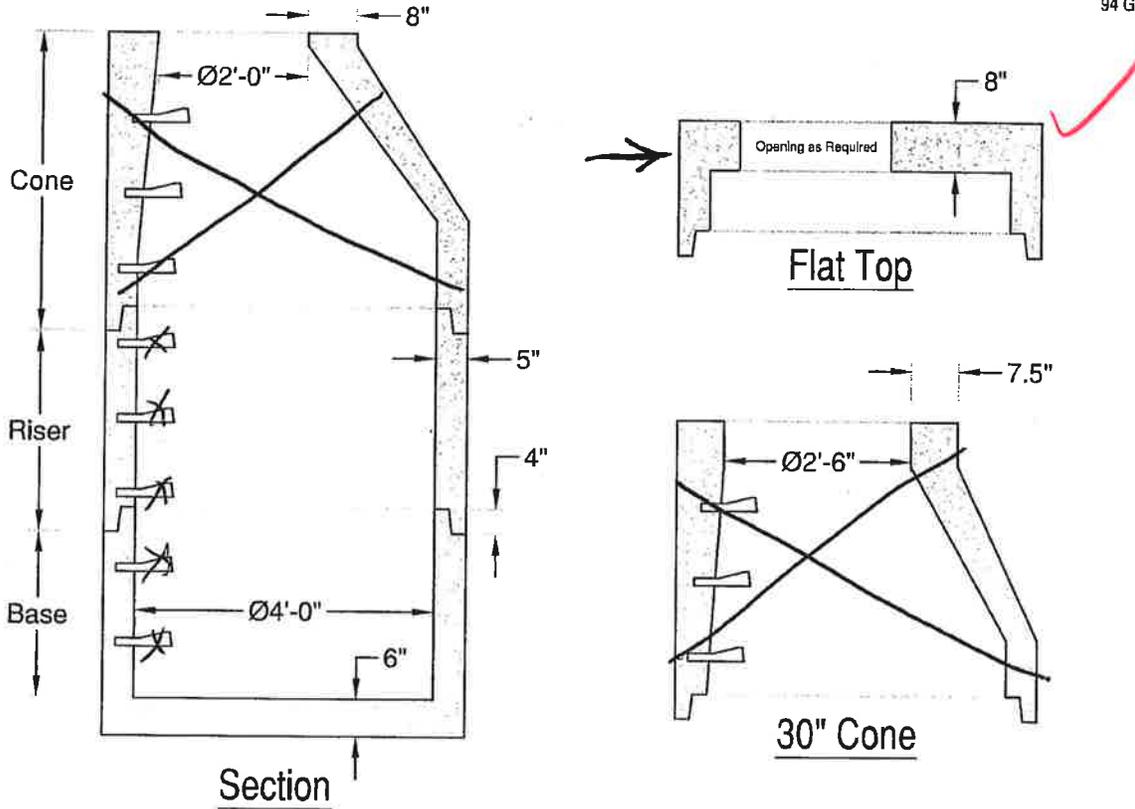
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BY: Todd A. Sumner DATE: 06/17/2015

# 48" Diameter Manhole

94 Gal. / Vertical ft.



**FLAT TOP SECTION**

Height	Item #	Weight
1'-0"	MH48-12FT	1,650 lbs
1'-6"	MH48-18FT	2,080 lbs

Standard Heights Shown - Other Heights Available

**RISER SECTION**

Height	Item #	Weight
1'-0"	MH48-12R	860 lbs
2'-0"	MH48-24R	1,710 lbs
3'-0"	MH48-36R	2,570 lbs
4'-0"	MH48-48R	3,420 lbs

Standard Heights Shown - Other Heights Available

**BASE SECTION**

Height	Item #	Weight
2'-0"	MH48-24B	3,070 lbs
3'-0"	MH48-36B	3,880 lbs
4'-0"	MH48-48B	4,720 lbs
5'-0"	MH48-60B	5,560 lbs
6'-0"	MH48-72B	6,400 lbs

Standard Heights Shown - Other Heights Available

**24" Cone**

Height	Item #	Weight
3'-0"	MH48-24C36	2,680 lbs
3'-6"	MH48-24C42	3,120 lbs
4'-0"	MH48-24C48	3,560 lbs
4'-6"	MH48-24C54	4,000 lbs
5'-0"	MH48-24C60	4,440 lbs

**30" Cone**

Height	Item #	Weight
3'-0"	MH48-30C36	2,660 lbs
3'-6"	MH48-30C42	3,100 lbs
4'-0"	MH48-30C48	3,540 lbs
5'-0"	MH48-30C60	4,420 lbs

**SPECIFICATIONS:**

- Concrete Minimum Strength 5000psi @ 28 days
- Joints sealed with Butyl sealant
- Monolithic Construction
- Meets ASTM C478
- H-20 Loading
- Weights Subject to Variation



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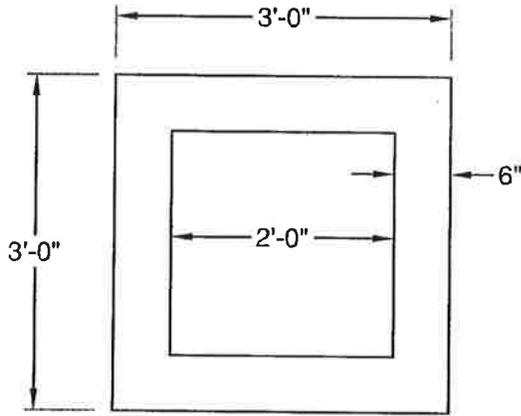
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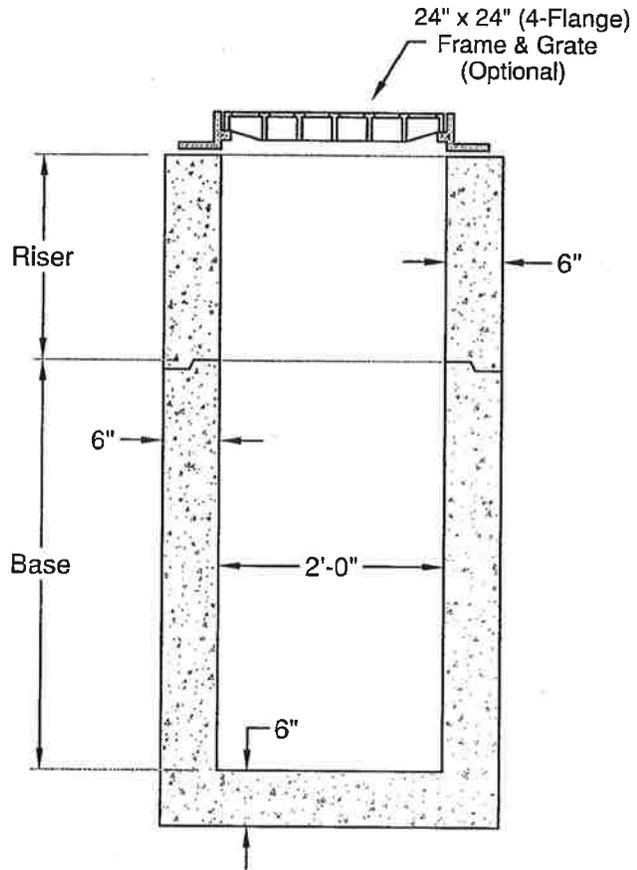
BY: Todd A. Sumner DATE: 06/17/2015

# 24" Square Catch Basin (SQCB24)

30 Gal. / Vertical ft.



Plan



Section

**BASE SECTION**

Height	Item #	Weight
2'-6"	SQCB24B-30	2,800 lbs
3'-0"	SQCB24B-36	3,200 lbs
4'-0"	SQCB24B-48	4,000 lbs
5'-0"	SQCB24B-60	4,800 lbs

Standard Heights Shown - Other Heights Available

**RISER SECTION**

Height	Item #	Weight
1'-0"	SQCB24R-12	800 lbs
2'-0"	SQCB24R-24	1,600 lbs
3'-0"	SQCB24R-36	2,400 lbs
4'-0"	SQCB24R-48	3,200 lbs
5'-0"	SQCB24R-60	4,000 lbs

Standard Heights Shown - Other Heights Available

**SPECIFICATIONS:**

- Concrete Minimum Strength 5000psi @ 28 days
- Steel Reinforcement grade 60 - H-20 Design
- Joints sealed with Butyl sealant
- Monolithic Construction
- Pipe Penetrations supplied per Specifications
- Weights Subject to Variation



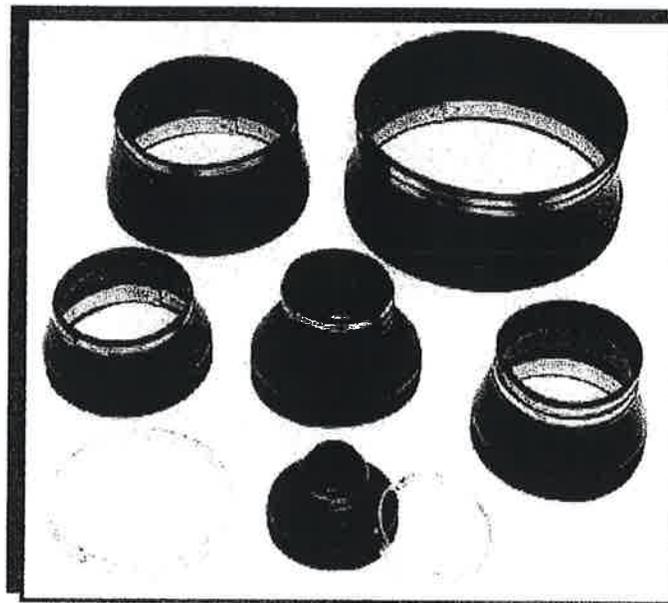
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# PSX

Providing products and services that protect our planet's clean water supply.

## POSITIVE SEAL GASKET SYSTEM WITH POWER SLEEVE EXPANSION



Vermont Agency of Transportation

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**PRESS-SEAL GASKET CORPORATION**

P.O. Box 10482, Fort Wayne, Indiana 46852

Phone: (260) 436-0521 (800) 348-7325 Fax: (260) 436-1908 E-mail: sales@press-seal.com Web: www.press-seal.com

# PSX

Our original PSX; POSITIVE SEAL pipe-to-manhole flexible connector system. PSX is available for 8" and larger holes to seal the most commonly used pipe types and sizes.

## PSX ADVANTAGES

- \* Meets and/or exceeds Material Specifications of ASTM C-923.
- \* Type 304 Stainless Steel Compression Power Sleeve is one piece with no welds. Made with 10 and 11 gauge steel.
- \* Highest installation pressures, 2500 to 6000 PSI. The more PSI force, the better the initial and long term seal.
- \* Gasket is made of high quality Polyisoprene rubber. Provides greater deflection capabilities and greater tear resistance.
- \* Type 304 Stainless Steel Take-Up Clamps.
- \* For use with cored holes, or our fiberglass, or Pro-Former Hole Formers.

TEST	ASTM METHOD	TEST REQUIREMENTS	TEST RESULTS
CHEMICAL RESISTANCE; 1N SULFURIC ACID 1N HYDROCHLORIC ACID	D 534, AT 22°C FOR 48 HRS	NO WEIGHT LOSS NO WEIGHT LOSS	NO WEIGHT LOSS NO WEIGHT LOSS
TENSILE STRENGTH	D 412	1200 PSI, MIN.	2600 PSI
ELONGATION AT BREAK	D 412	350%, MIN.	675%
HARDNESS	D 2240 (SHORE A DUROMETER)	±5 FROM THE MANUFACTURER'S SPECIFIED HARDNESS	45
ACCELERATED OVEN-AGING	D 573, 70± 1°C FOR 7 DAYS	DECREASE OF 15%, MAX. OF ORIGINAL TENSILE STRENGTH, DECREASE OF 20%, MAX. OF ELONGATION	-13% TENSILE CHANGE, -14% ELONGATION CHANGE
COMPRESSION TEST	D 395, METHOD B, AT 70°C FOR 22 HRS	DECREASE OF 25%, MAX. OF ORIGINAL DEFLECTION	13.20%
WATER ABSORPTION	D 471 IMMERSE 0.75 BY 2-IN. SPECIMEN IN DISTILLED WATER AT 70°C FOR 48 HOURS	INCREASE OF 10%, MAX. OR ORIGINAL BY WEIGHT	3.50%
OZONE RESISTANCE	D 1171	RATING 0	PASS
LOW-TEMP, BRITTLE POINT	D 746	NO FRACTURE AT -40°C	PASS
TEAR RESISTANCE	D 624, METHOD B	200 LBF/IN. (MIN.)	318 LBF/IN.

## PIPE INSTALLATION

1. Clean pipe and boot to ensure no dirt or foreign materials are present.
2. Clamping surface on pipe must be clean and smooth.
3. Center pipe in opening and insert until pipe breaks the inside plane of manhole.
4. Attach take-up clamp(s) and stagger screw(s) of clamp(s) around the groove of the gasket so that take-up pressure will be equalized. Make sure each clamp is completely in the correct groove.
5. Using a torque ratchet or torque wrench, gradually tighten all screw(s) of clamp(s) in an alternating pattern to 60lbs/in torque.
6. After reaching 60lbs/in torque on final screw, check all screws again to ensure equal compression of all clamps.
7. Vacuum testing shall be conducted in accordance with ASTM C-1244-02.
8. Adjust pipe to line and grade. Use proper bedding, backfill materials and techniques so that pipe deflection and deformation is minimized. Installation of the concrete structure shall be such that differential settlement between the structure and the pipeline shall be less than 10% of pipe diameter for pipes less than 20" and shall be less than 5% of pipe diameter for pipes between 20 and 60 inches in diameter.
9. Any pipe stubs installed in the manhole must be positively restrained from movement per ASTM C-923. Press-Seal is not responsible for blow outs due to unrestrained pipe stub or future lateral connections.

Before using the PSX-POSITIVE SEAL system for any custom applications, contact our Customer Service Department for more information.

U.S. Patent No.'s 4215868, 4478437  
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# POSITIVE SEAL SYSTEM & SERIES SIX CONNECTOR CROSS REFERENCE

NOMINAL HOLE SIZE	PSX SIZE DESIGNATION	PSX GASKET I.D. (INCHES)	PSX PIPE O.D. ACCOMMODATION RANGE (INCHES)	PSX TAKE-UP CLAMP		MINIMUM SIZE ROUND STRUCTURE (INCHES)	MINIMUM SPAN/RISE STRAIGHT WALL (INCHES)
				(QTY)	PART #		
18	18L	14.10	13.20 TO 14.50	(2)	600-296	36	26
	18M	15.35	14.60 TO 15.85	(2)	600-296		
	18B	16.42	15.60 TO 16.50	(2)	600-296		
20	20L	15.92	15.00 TO 16.25	(2)	600-296	36	28
	20A	16.92	16.00 TO 17.20	(2)	600-296		
	20B	18.17	17.30 TO 18.50	(2)	600-376		
22	22L	17.80	17.00 TO 18.15	(2)	600-376	42	30
	22M	18.70	18.00 TO 19.50	(2)	600-376		
	22B	20.05	19.15 TO 20.40	(2)	600-376		
24	24L	19.55	18.60 TO 19.75	(2)	600-376	48	32
	24A	21.93	21.00 TO 22.10	(2)	600-376		
	24B	22.43	21.50 TO 22.50	(2)	600-376		
26	26L	22.18	21.30 TO 22.40	(2)	600-376	48	34
	26A	23.12	22.25 TO 23.40	(2)	600-456		
	26B	24.31	23.40 TO 24.50	(2)	600-456		
28	28L	24.31	23.40 TO 24.60	(2)	600-456	48	36
	28A	25.13	24.25 TO 25.50	(2)	600-456		
	28B	26.32	25.50 TO 26.50	(2)	600-456		
30	30L	26.32	25.40 TO 26.60	(2)	600-456	60	42
	30A	27.12	26.25 TO 27.40	(2)	600-456		
	30B	28.32	27.40 TO 28.40	(2)	600-456		
32	32L	28.32	27.40 TO 28.60	(4)	600-296	60	44
	32A	29.13	28.25 TO 29.40	(4)	600-296		
	32B	29.83	28.90 TO 30.20	(4)	600-296		
34	34L	30.33	29.50 TO 30.70	(4)	600-296	60	46
	34A	31.58	30.75 TO 31.75	(4)	600-296		
	34B	32.08	31.20 TO 32.30	(4)	600-296		
36	36A	32.08	31.20 TO 32.40	(4)	600-296	72	48
	36B	33.59	32.60 TO 33.80	(4)	600-296		
	36L	31.30	30.25 TO 31.75	(4)	600-296		
38	38A	33.59	32.70 TO 33.80	(4)	600-296	72	50
	38B	35.15	34.25 TO 35.50	(4)	600-296		
40	40L	35.13	34.25 TO 35.50	(4)	600-376	72	50
	40A	37.22	36.25 TO 37.50	(4)	600-376		
	40B	38.35	37.45 TO 38.50	(4)	600-376		
42	42A	38.35	37.45 TO 38.65	(4)	600-376	72	50
	42B	40.35	39.45 TO 40.50	(4)	600-376		

28S  
18" RCP  
HDPE →

24" →  
HDPE

U.S. Patent No.'s 4215868 & 4478437  
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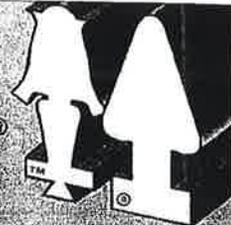
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BY: Todd A. Sumner DATE: 06/17/2015



The Company With Connections®



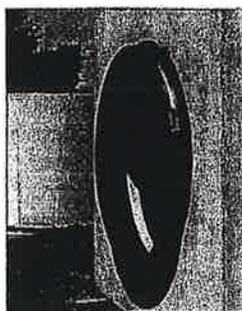
A BOOT STYLE CONNECTOR FOR CORRUGATED OR SMOOTH WALL PIPE

# Z•LOK STM

## Z•LOK STM

The **Z•LOK STM CONNECTOR** was designed by A-LOK Products, Inc. to address the need for a boot style connector for large diameter pipe. This makes it ideally suited for stormwater application. Available for 6"-102" pipes.

The **Z•LOK STM Pipe to Manhole Connector** is a flexible connector specifically engineered to produce a positive watertight seal for pipes entering precast concrete structures and the structure itself.



**Z•LOK STM Connector cast into storm structure.**

## MATERIAL

The **Z•LOK STM CONNECTOR** is molded from an EPDM compound engineered to conform with the requirements of section 4.1.1 of ASTM C-923. Alternative compounds are available for unusual applications upon special order.

All stainless steel hardware is in compliance with section 4.2, "Mechanical Devices" of ASTM C-923.

## KEY ADVANTAGES

The **Z•LOK STM CONNECTOR** assures a positive watertight connection and provides up to 15° of omnidirectional deflection and 1.50" of vertical or horizontal movement without loss of seal, providing greater flexibility in the design and installation of pipelines and structures. These design features of the **Z•LOK STM CONNECTOR** prevent infiltration due to shear caused by settlement or ground movement.

Once fastened, immediate backfilling is possible enhancing project safety and overcomes the normal problems encountered with water, running sand and other unstable trench conditions.

When casting the **Z•LOK STM CONNECTOR** into the structure, making it an integral part of the wall, 50% of the opportunity for infiltration is eliminated.

## PRODUCT REFERENCES

### A.) ASTM C-923

Resilient Connector Between Reinforced Concrete Manholes Structures, Pipe and Laterals.

### B.) ASTM C-1478

Resilient Connectors Between Reinforced Concrete Storm Sewers Structures, Pipes and Laterals.

### C.) ASTM C-1244

Standard Test Method For Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test.

## PERFORMANCE STANDARD

The **Z•LOK STM Connector** meets or exceeds all material and test requirements of ASTM C-923-00: "Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals".

See following chart:

### RESILIENT TEST REQUIREMENTS OF A.S.T.M. C-923

TEST	RESULTS	ASTM METHOD
Chemical resistance 1 N Sulfuric acid 1 N Hydrochloric Acid	no weight loss no weight loss	at 22°C for 48h
Tensile strength	1200 psi or 8.5 MPa, min	D 412
Elongation at break	350% min.	
Hardness	±5 from mfg's. specified hardness	D 2240 (Shore A durometer)
Accelerated oven-aging	decr. of 15%, max. of original tensile strength, decr. of 20% max. of elongation	D 573, 70±1°C for 7 days
Compression set	decr. of 25%, max. of original deflection	D 395, Method B, at 70°C for 22h
Water absorption	increase of 10%, max. of original by weight	D 471, immerse 0.75 by 2-in. or 19 by 25-mm Specimen in distilled water at 70°C for 48h
Ozone resistance	rating 0	D 1171
Low-temp brittle point	no fracture at -40°C	D 746
Tear resistance	200 lbf/in. or 34 kn/m	D 624, Method B

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BY: Todd A. Sumner DATE: 06/17/2015

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**CONFORMANCE**

BY: **Taylor Products, Inc. 06/17/2015**

A flexible pipe to manhole connector shall be used whenever a pipe passes into or out of a manhole or structure.

The connector shall be the **Z•LOK STM CONNECTOR** as manufactured by Taylor Products, Inc., Tullytown, PA or approved equal.

The design of the connector shall provide a flexible, watertight seal between the pipe and concrete structure. The connector shall assure that a seal is made between:

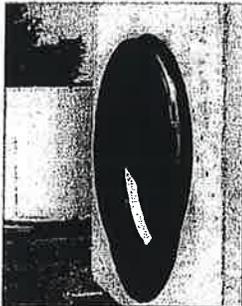
(1) The connector and the structure wall by casting the connector integrally with the structure wall during the manufacturing process in a manner that it will not pull out during pipe coupling.

(2) The seal between the connector and the pipe shall be made by compressing the connector against the outside circumference of the smooth wall pipe or against the inside walls of the valley of the corrugated pipe by means of a stainless steel take-down clamp.

The connector shall be made from materials that conform to the physical and chemical requirements outlined in Section 4, "Materials and Manufacture" of ASTM C-923 "Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals", and the overall design will meet or exceed Section 7, "Test Methods and Requirements" of ASTM C-923 and ASTM C-1478.

The connector shall be sized specifically for the type of pipe being used and shall be installed in accordance with the recommendations of the manufacturer.

**FIELD INSTALLATION INSTRUCTIONS**



**CORRUGATED PIPE**

**FIELD INSTALLATION**

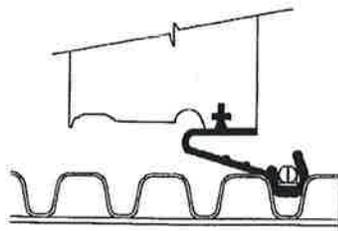
**STEP 1:**  
Z•LOK STM Connector cast into storm structure.



**STEP 2:**  
Pipe is centered through the connector. The Stainless Steel Clamp is centered above the valley of pipe making sure the fastening points are positioned in the two cutout areas of the rubber connector.



**STEP 3:**  
Stainless Steel Clamp is tightened equally about the take-up point to 60 in./lbs. This action compresses the rubber against the side walls of the pipe valley and a watertight connection is formed.



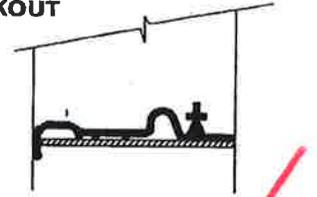
**SECTION VIEW WITH PIPE INSTALLED**

**IMPORTANT:** After groove of pipe is centered in gasket tighten stainless steel clamp equally to 60 in. lbs. with an A•LOK Torque Wrench.

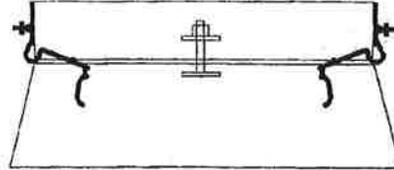
**PRECAST INSTALLATION INSTRUCTIONS**

**ONE-PIECE WEDGE KNOCKOUT For 6" Flatwall**

Pull connector over one-piece Wedge Knockout Hole Former as shown.

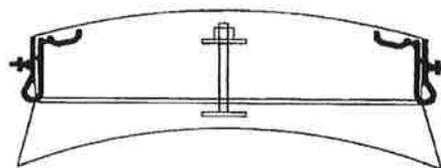


**TWO-PIECE MANDREL For 8" Flatwall and above**

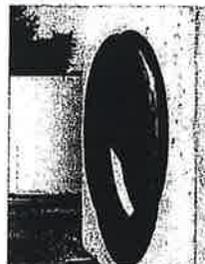


1. Stretch gasket over outside mandrel half, with cut-outs positioned at 3 and 9 o'clock.
2. Force gasket down inside mandrel before installing in form.
3. Use coil nut to tighten gasket and mandrels together.

**TWO-PIECE MANDREL For Round Manholes**



**FIELD INSTALLATION INSTRUCTIONS**



**END-OTE WALL PIPE**

**FIELD INSTALLATION**

**STEP 1:**  
Z•LOK STM Connector cast into storm structure.

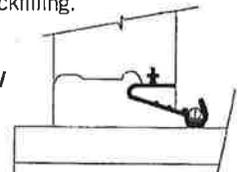


**STEP 2:**  
Pipe is inserted and centered within the connector to obtain proper mechanical seal.



**STEP 3:**  
Stainless Steel Clamp is tightened equally about the take-up point to 60 in./lbs, insuring a watertight connection. This should be done prior to any pipe deflection or backfilling.

**SECTION VIEW WITH PIPE INSTALLED**



**DIMENSIONAL DATA**

**Z-LOK STM CONNECTORS  
CORRUGATED PIPE DATA**

FLATWALL CONNECTORS ARE MARKED (C-F)      ROUNDWALL CONNECTORS ARE MARKED (C-R)  
CORRUGATED Z-LOK STM CONNECTORS HAVE NOTCHES LOCATED AT 3 & 9 FOR TAKE-DOWN CLAMP ADJUSTMENT.

Z-LOK STM PART #	PIPE SIZE	MAX. O.D.	Z-LOK STM MANDREL PART#	Z-LOK STM CLAMP SIZE
ZS-8016-C-F ZS-8016-C-R	12" CPP	15.00"	SM-8016-F SM-8016-R	CL-EV12L
ZS-8019-C-F ZS-8019-C-R	15" CPP	17.75"	SM-8019-F SM-8019-R	CL-EV15-18L
ZS-8022-C-F ZS-8022-C-R	18" CPP	21.47"	SM-8022-F SM-8022-R	CL-EV15-18L
ZS-8029-C-F ZS-8029-C-R	24" CPP	27.80"	SM-8029-F SM-8029-R	CL-EV24L
ZS-8031-C-F ZS-8031-C-R	24" HANCOR ONLY	28.40"	SM-8031-F SM-8031-R	CL-EV24H
ZS-8039-C-F ZS-8039SCR	30" CPP	35.50"	SM-8039-F SM-8039-R	CL-EV30H
ZS-8045-C-F ZS-8045-C-R	36" CPP	41.75"	SM-8045-F SM-8045-R	CL-EV36H

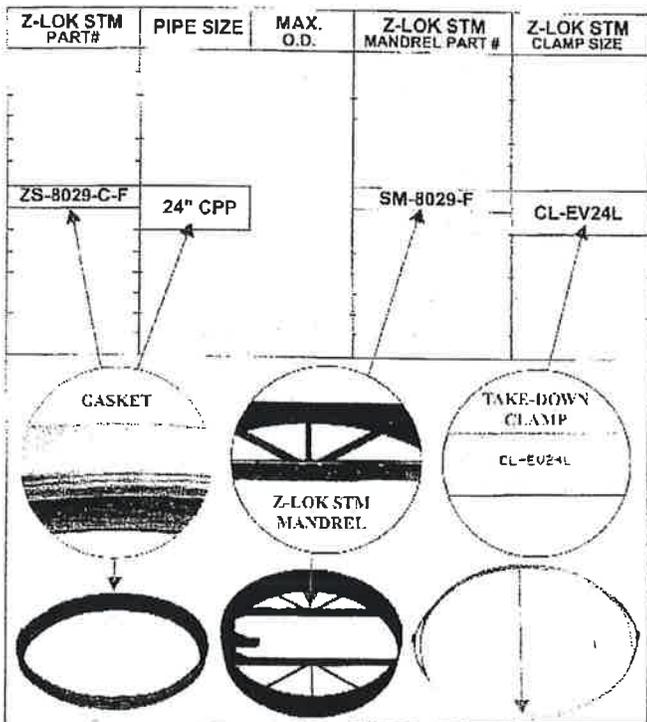
**CORRUGATED POLYETHYLENE PIPE (CPP) NEEDS THE EV CLAMP DESIGN.**

NOTE: NEED TO INDICATE WHEN ORDERING IF GASKETS ARE FOR ROUND OR FLATWALL  
EXAMPLE: ZS-XXXX-C-F = CORRUGATED FOR FLATWALL STRUCTURES  
              ZS-XXXX-C-R = CORRUGATED FOR ROUND STRUCTURES  
NOTE: ZS-8031 WOULD BE FOR 24" HANCOR PIPE BECAUSE OF THE LARGER VALLEY ON THE PIPE.

18" HDPE

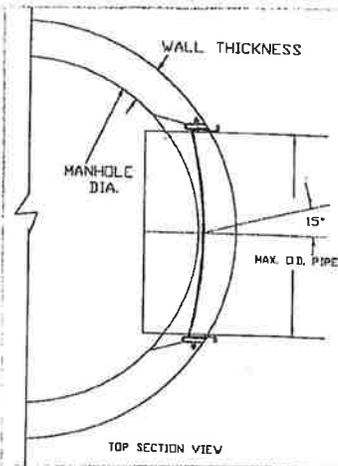
24" HDPE

**COMPONENT IDENTIFICATION  
FOR Z-LOK STM CONNECTORS**



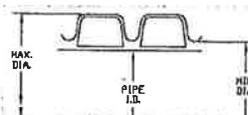
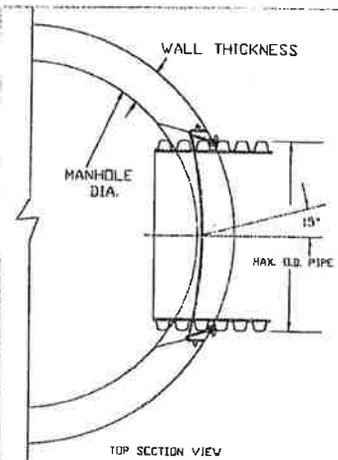
**Small Wall Pipe**

MANHOLE DIA.	MAX. O.D. PIPE
48" DIA. 5" WALL	28 IN.
60" DIA. 6" WALL	30 IN.
72" DIA. 7" WALL	37 IN.
84" DIA. 8" WALL	44 IN.
96" DIA. 9" WALL	51 IN.

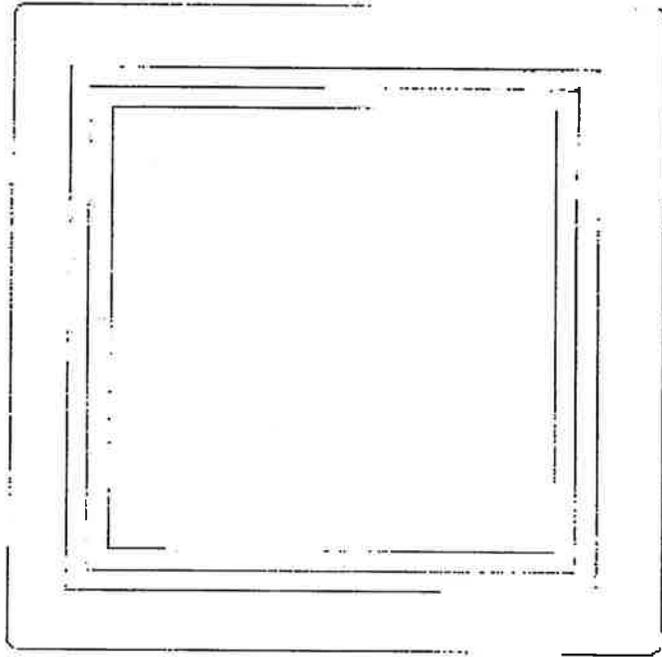


**Corrugated Pipe**

MANHOLE DIA.	MAX. O.D. PIPE
48" DIA. 5" WALL	28 IN.
60" DIA. 6" WALL	30 IN.
72" DIA. 7" WALL	37 IN.
84" DIA. 8" WALL	44 IN.
96" DIA. 9" WALL	51 IN.



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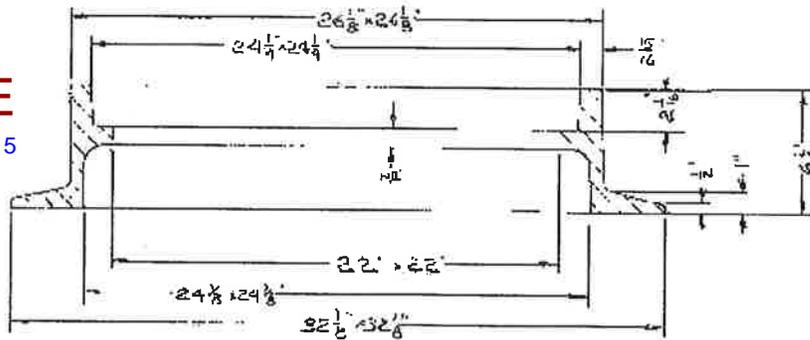
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MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B

WAS NF-13845-A

DR. LMA	SCALE	TITLE: R-3405-A FRAME
CH.	DN CHK.	NEENAH FOUNDRY COMPANY  NF- 34050003
APP.	DATE 10-24-2005	





## PRODUCT SPECIFICATIONS



**CONSEAL™**  
Concrete Sealants INC.

**CS102**

Butyl Rubber Sealant For All Precast Structures;  
Meets Specs.

### APPLICATIONS

For self-sealing joints in: Manholes, Concrete Vaults, Septic Tanks, Concrete Pipe, Box Culverts, Utility Vaults, Burial Vaults, and Vertical Panel Structures.

### SEALING PROPERTIES

- Provides permanently flexible watertight joints.
- Low to high temperature workability: 30°F to 120°F (-1°C to 48°C)
- Rugged service temperature: -30°F to +200°F (-34°C to +93°C)
- Excellent chemical and mechanical adhesion to clean, dry surfaces.
- Sealed Joints will not shrink, harden or oxide upon aging.
- No priming normally necessary. When confronted with difficult installation conditions, such as wet concrete or temperatures below 40°F (4°C), priming the concrete will improve the bonding action. Consult Concrete Sealants for the proper primer to meet your application.

### HYDROSTATIC STRENGTH

ConSeal CS-102 meets the hydrostatic performance requirement as set forth in ASTM C-990 section 10.1 (Performance requirement: 10psi for 10 minutes in straight alignment – in plant, quality control test for joint materials.)

### SPECIFICATIONS

ConSeal CS-102 meets or exceeds the requirements of Federal Specification SS-S-210 (210-A), AASHTO M-198B, and ASTM C-990-91.

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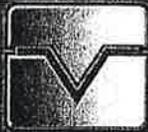
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P.O. Box 176, New Carlisle OH, 45344 • 937.845.8776 or 800.332.7325  
FAX 937-845-3587 • www.conseal.com

**PRODUCT SPECIFICATIONS**



**CONSEAL™**  
Concrete Sealants INC.

**CS102**

**Butyl Rubber Sealant For All Precast Structures;  
Meets Specs.**

**PHYSICAL PROPERTIES**

	<b>Spec</b>	<b>Required*</b>	<b>CS 102</b>
Hydrocarbon blend content % by weight	ASTM D4 (mod.)	50% min.	51%
Inert mineral filler % by weight	AASHTO T111	30% min.	35%
Volatile Matter % by weight	ASTM D6	2% max.	1.2
Specific Gravity, 77°F	ASTM D71	1.15-1.50	1.25
Ductility, 77°F	ASTM D113	5.0 min.	10
Penetration, cone 77°F, 150 gm. 5 sec.	ASTM D217	50-100	55-60
Penetration, cone 32°F, 150 gm. 5 sec.	ASTM D217	40 mm	40-65
Flash Point, C.O.C., °F	ASTM D92	350°F min.	450°F
Fire point, C.O.C., °F	ASTM D92	375°F min.	475°F

**IMMERSION TESTING**

- 30-Day Immersion Testing: No visible deterioration when tested in 5% Caustic Potash, 5% Hydrochloric Acid, 5% Sulfuric Acid, and 5% saturated Hydrogen Sulfide. \*
- One Year Immersion Testing: No visible deterioration when tested in 5% Formaldehyde, 5% Formic Acid, 5% Sulfuric Acid, 5% Hydrochloric Acid, 5% Sodium Hydroxide, 5% Hydrogen Sulfide and 5% Potassium Hydroxide.
- Requirements of ASTM C-990 Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.

**LIMITED WARRANTY**

This information is presented in good faith, but we cannot anticipate all conditions under which this information and our products, or the products of other manufacturers in combination with our products, may be used. We accept no responsibility for results obtained by the application of this information or the safety and suitability of our products, either alone or in combination with other products. Users are advised to make their own tests to determine the safety and suitability of each such product or product combinations for their own purposes. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for this own particular use. We sell this product without warranty, and buyers and users assume all responsibility and liability for loss or damage arising from the handling and use of this product, whether used alone or in combination with other products.

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