

# **BAY OIL COMPANY**

38 PAINFIELD STREET  
CHICOPEE, MA 01013

TEL. (413) 737-7728

## **AQUA-SAFE Concrete Sealer** **Waterproofing Concrete Sealer**

### **Description**

AQUA-SAFE is a ready to use, solvent free, semi-mastic, water base water proofing sealer for all concrete above and below ground surfaces

### **Benefits**

- VOC Compliant
- Easy clean up with water
- Non Flammable- no fire risk
- Dries quickly
- Bonds with damp or green concrete or green concrete

### **Surface Preparation**

All surfaces must be free of oil, grease, rust scale, loose paint and dirt.

### **Application**

AQUA-SAFE should be mixed well. Apply with roller, brush or suitable sprayer. Coating will depend on condition or porosity of surfaces. Approximately 1 gallon per 200 sq. ft. Temperature above 50 degrees Fahrenheit.

### **Clean up**

Fresh coating can be removed with water. Kerosene or mineral spirits if coating has started to dry. Keep application in water.

### **Physical Properties**

Weight per gallon 8.4-8.9 Ib.  
Typical solids 45% wt.  
Coverage approximately 2 gal/100 sq. ft.  
Film Thickness 1/16" wet- depends on porosity  
Non Flammable-wet  
Solids approximately 45% Wet  
Drying Time Touch - 4 hours

### **Regulatory Data**

Volatile Organic Compound (VOC) - 0 gr./liter  
HMIS rating H2,F-1,R-1, PP-X  
RCRA Hazardous Substances-none  
Sara Title III listing- RQ Value 100 Ib.

### **Compliance**

ASTMD 1187 Type 1  
ASTM D 1227 Type El class 1.

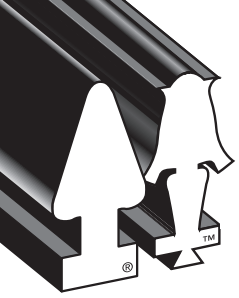
### **Shipping**

5 gallon can  
55 gallon drum  
Bulk container

### **Caution**

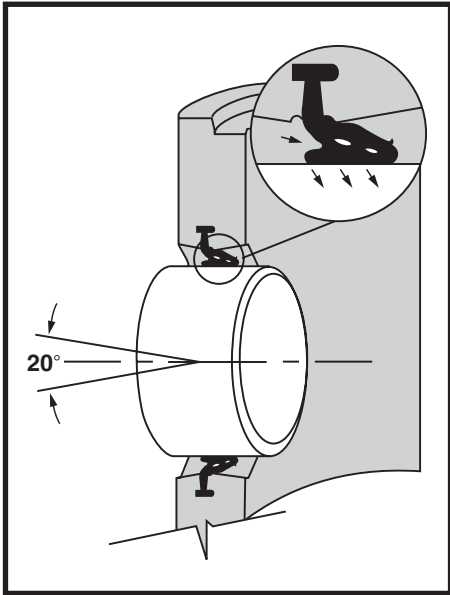
Keep from freezing

**Note:** See MSDS for further environmental information



# A•LOK® X-CEL

## PIPE TO MANHOLE CONNECTOR FOR SANITARY SYSTEMS



### PART 1 - GENERAL

The **A-LOK X-CEL** is a maximum performance flexible pipe to manhole connector designed to produce a watertight seal between a pipe and concrete structure.

The profile of the **A-LOK X-CEL** is based on the traditional A-LOK connector, but with enhanced features to improve performance. One example of this is the patented "water pocket". This unique design utilizes the untapped pressure of ground water to exert a clamping force about the connector and pipe allowing the connector to operate in deeper installations. This design has been proven in tests beyond 15 psi of hydrostatic water pressure and provides 45% more rubber contact with the pipe, allowing greater pipe deflection to be achieved.

### PART 2 - MATERIAL

The standard rubber connector is molded or extruded from compounds formulated for wastewater applications and engineered to conform with the requirements of section 4.1.1 of ASTM C-923. Alternative compounds are available upon special request.

### PART 3 - ADVANTAGES

The **A-LOK X-CEL Connector** functions on pure compression, making field installation quick and easy. Just clean and lubricate the

connector and pipe, center the pipe in the connector and insert. This rapid installation permits immediate backfilling, enhancing project safety, and overcomes the normal problems encountered with water, running sand and other unstable trench conditions.

The **A-LOK X-CEL** with its enhanced profile giving the connector 45% greater rubber contact with the pipe. This allows the pipe to be deflected in excess of 10° of omnidirectional deflection while still maintaining a watertight seal. These enhancements improve the connector's ability to compensate for shear due to settlement or ground movement.

On larger diameter pipe when size prohibits a gasket from being installed in a flat plane, an **A-LOK X-CEL Connector** can be configured to be cast in a curve with the connector staying perpendicular to the center line of the pipe. This design has resulted from years of extensive research and development and causes no loss of compression or deflection.

### PART 4 - REFERENCES

- A. **ASTM C-923** Resilient Connector Between Reinforced Concrete Manholes Structures, Pipe and Laterals.
- B. **ASTM C-1244** Standard Test Method For Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test
- C. **ASTM C-478C** Standard Specification for Precast Reinforced Concrete Manhole Sections

### PART 5 - PERFORMANCE

The **A-LOK X-CEL Connector** meets or exceeds all material and test requirements outlined in ASTM C-923 titled "Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals."

### 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

Copyright ASTM INTERNATIONAL  
Reprinted with permission

### PART 6 - DIMENSIONAL DATA

#### A•LOK X-CEL Cross Sections / Pipe Size OD's



92 Molded Series  
4.25" - 7.25"



93 Molded Series  
8.50" - 13.00"



93 Extruded Series  
13.25" - 29.00"



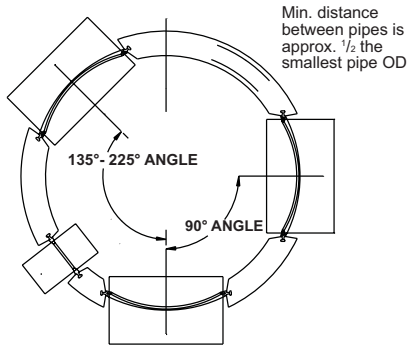
94 Extruded Series  
30.00" - 59.50"



95 Extruded Series  
60.00" - 87.50"

Larger Sizes Available  
Upon Special Request

## PART 6 - DIMENSIONAL DATA CONTINUED



### MAX. PIPE SIZE OD's

Manhole Diameter	135° - 225° Pipe Angle	90° Pipe Angle
42"	26.5"	22.0"
48"	31.5"	25.0"
60"	42.0"	32.0"
72"	51.5"	38.0"
84"	59.5"	44.0"
96"	73.5"	50.0"
108"	76.0"	56.0"
120"	85.0"	62.0"

## PART 7 - SPECIFICATIONS

A flexible pipe to manhole connector shall be used whenever a pipe penetrates into a pre-cast concrete manhole or structure.

The connector shall be the **A-LOK X-CEL CONNECTOR** as manufactured by A-LOK 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:

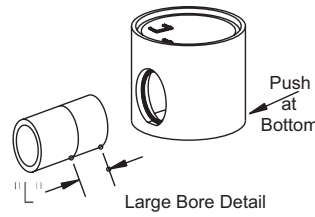
(1) The connector and the structure wall by casting the connector integrally with the structure wall during the manufacturing process in a manner that it will not pull out during pipe coupling. The connector shall also be capable of being cast into a round structure by curving the connector in a manner that allows it to remain centrally located within the structure wall and perpendicular to the pipe. This configuration will result in no loss of seal or deflection of pipe entering a concrete structure.

(2) The seal between the connector and the pipe shall be made by the compression of the connector between the outside circumference of the pipe and the hole opening of the struc-

# INSTALLATION INSTRUCTIONS

### STEP 1:

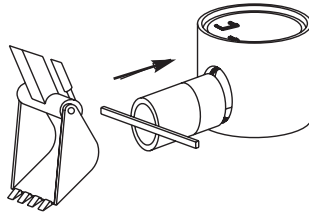
Confirm that the pipe surface is smooth, clean and free of foreign materials, chips, gouges and form seams due to manufacturing or handling. Slightly bevel any sharp or blunt edges caused by the cutting of the pipe.



### STEP 2:

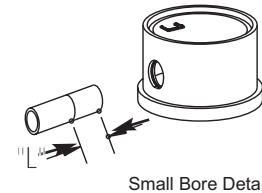
Lubricate the connector and the entire section of the pipe that will be inserted into the connector. The chart below lists A-LOK's minimum lubrication length "L".

PIPE SIZE	MIN. LUBRICATION LENGTH "L"
4" - 15"	12"
16" - 18"	18"
21" & Larger	24"



### STEP 3:

Center the pipe and connector square to each other and insert the pipe into the connector using a bar or back hoe depending on the size. Once the pipe is coupled with the connector, deflect the structure or pipe to achieve the proper angle.

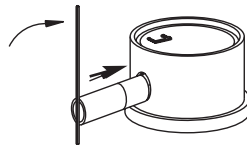


### WARNING

To ensure the A-LOK X-CEL Connector remains a flexible watertight connector, it is A-LOK Products, Inc. strong recommendation that no mortar be placed between the pipe and wall of the concrete structure. The use of mortar in this area would decrease the effectiveness of the connector to compensate for shear caused by settlement or ground movement.

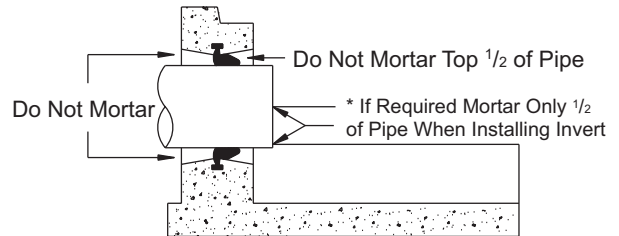
### NOTE:

To find approximate subgrade, measure from the outside base of the structure to the junction of the connector and flat spot. Then add the wall thickness of the pipe plus 1/4 inch.



### CAUTION:

When installing pipe stubs for future pipeline installation, all stubs must be properly restrained to prevent any movement by means other than the **A-LOK X-CEL Connector**.



ture. The connector shall be the only component to affect the seal between the pipe and structure.

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.

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.

Any questions regarding the A•LOK X-CEL Connector, please call 1-800-822-2565



© 2002 A•LOK Products, Inc. Supercedes all previous literature COVERED BY ISSUED AND/OR PENDING PATENTS

A-LOK PRODUCTS INC.  
P.O. BOX 1647, 697 MAIN STREET • TULLYTOWN, PA 19007  
800-822-2565 • 215-547-3366 • 215-547-5260 FAX  
Website: <http://www.a-lok.com> E-mail: [info@a-lok.com](mailto:info@a-lok.com)

 **A•LOK® PRODUCTS, INCORPORATED**  
**DIMENSIONAL DATA SHEET**

A•LOK® Ring NO.	Nominal Pipe O.D. ± 0.25"	Ring Dia. --- A•LOK® I.D.	<b>USE AS A GUIDE ONLY</b> <b>CHECK PIPE O.D. WITH MANUFACTURE</b> <b>PIPE TYPES</b>
*140	4.25"	3.25"	4" PVC (SDR 35), (D 3034)
*150	4.50"	3.50"	4" PVC (SDR 21), (SDR 26) (SDR 40), (A-2000)
*160	4.75"	3.75"	4" PVC (SDR 25); 4" DUCTILE IRON (DI)
*165	5.00"	4.00"	4" VITRIFIED CLAY (VC)
*170	5.25"	4.25"	4" (VC)
*200	6.25"	5.25"	6" PVC (SDR 35), (SDR 41), (D 3034)
*210	6.50"	5.50"	6" PVC (SDR 21), (SDR 26), (SDR 40)
*225	6.875"	5.875"	6" DI, 6" PVC (A-2000), 6" PVC (SDR 25), 6" TRUSS
*235	7.25"	6.25"	6" VC
240	7.50"	6.50"	6" VC
255	7.82"	6.82"	6" VC
*285	8.50"	7.00"	8" PVC (SDR 35), (SDR 41), (SDR 26), (SDR 21), (SDR 40), (D 3034)
*300	9.00"	7.50"	8" DI, 8" PVC (SDR 25)
*310	9.25"	7.75"	8" TRUSS, 8" PVC (A-2000)
*320	9.50"	8.00"	8" VC, 8" TRUSS
325	9.75"	8.25"	8" VC
330	10.00"	8.50"	8" VC
340	10.25"	8.75"	8" REINFORCED CONCRETE (RC)
*350	10.50"	9.00"	10" PVC (SDR 35), (SDR 41), (SDR 21), (D3034)
355	10.75"	9.25"	10" SPECIAL
*370	11.25"	9.75"	10" DI, 10" PVC (SDR 25)
380	11.50"	10.00"	10" PVC (A-2000)
*385	11.75"	10.25"	10" TRUSS
390	12.00"	10.50"	10" VC
400	12.25"	10.75"	10" VC
*410	12.50"	11.00"	12" PVC (SDR 35), (SDR 41), (SDR 21), (D 3034)
415	12.75"	11.25"	12" SPECIAL
*425	13.00"	11.50"	12" DI, 12" PVC (SDR 25)
440	13.25"	11.75"	12" A-2000
455	14.00"	12.50"	12" TRUSS
470	14.25"	12.75"	12" VC
475	14.375"	12.825"	12" VC
480	14.75"	13.25"	12" VC

**\* MOLDED GASKETS AVAILABLE**

MARCH 1, 2000—SUPERSEDES ALL PREVIOUS INFORMATION AND IS SUBJECT TO CHANGE WITHOUT NOTICE.  
ALL DIMENSIONS ARE SUBJECT TO MANUFACTURES TOLERANCES.

**IMPORTANT -- TYPE OF PIPE OUTSIDE DIAMETERS REQUIRED WHEN ORDERING A•LOK® CONNECTORS AND EQUIPMENT.**

 **A•LOK® PRODUCTS, INCORPORATED**  
**DIMENSIONAL DATA SHEET**

A•LOK® RING NO.	NOM. PIPE O.D. ± 0.25"	RING DIA. --- A•LOK® I.D.	USE AS A GUIDE ONLY CHECK PIPE O.D. WITH MANUFACTURE PIPE TYPES
490	15.25"	13.75"	14" DI, 15" PVC (SDR 35), (SDR 41), (D3034)
500	15.50"	14.00"	15" SPECIAL
520	16.00"	14.50"	12" RC'B
525	16.25"	14.75"	12" SPECIAL
540	16.25"	14.75"	12" SPECIAL
570	17.50"	16.00"	12" RC'C, 15" TRUSS, 16" DI
580	18.00"	16.50"	15" VC, 16" (PSCP) Type B, 18" Steel
600	18.50"	17.00"	15" VC
610	18.75"	17.25"	18" TRUSS, 18" PVC (F679)
620	19.125"	17.625"	18" PVC (F794)
630	19.50"	18.00"	15" RC'B, 18" DI
640	20.00"	18.50"	15" RC, 20" STEEL
650	20.25"	18.75"	18" (PSCP) TYPE B
675	21.00"	19.50"	15" RC'C, 18" VC
690	21.375"	19.875"	20" DI
700	21.437"	19.937"	18" VC
710	22.00"	20.50"	18" VC, 21" PVC (F679), 20" (PSCP)
720	22.50"	21.00"	21" PVC (F794)
740	23.00"	21.50"	18" RC'B
750	23.50"	22.00"	21" SPECIAL
770	24.00"	22.50"	24" STEEL
780	24.50"	23.00"	18" RC'C
800	24.75"	23.25"	24" PVC (F679)
805	25.00"	23.50"	18" RC'(C+ 0.25"), 24" PVC
815	25.50"	24.00"	24" PVC (F794)
820	25.75"	24.25"	24" DI
840	26.00"	24.50"	21" VC
850	26.50"	25.00"	21" RC'B
855	26.75"	25.25"	24" A-2000
860	27.00"	25.50"	24" (PSCP) TYPE B
890	28.00"	26.50"	21" RC'C, 27 PVC (F679)
900	28.25"	26.75"	21" RC (SPECIAL)
915	28.50"	27.00"	24" VC
920	28.75"	27.25"	27" PVC (F794)
930	29.00"	27.50"	24" VC

MARCH 1, 2000—SUPERSEDES ALL PREVIOUS INFORMATION AND IS SUBJECT TO CHANGE WITHOUT NOTICE.  
ALL DIMENSIONS ARE SUBJECT TO MANUFACTURES TOLERANCES.

**IMPORTANT -- TYPE OF PIPE OUTSIDE DIAMETERS REQUIRED WHEN ORDERING A•LOK® CONNECTORS AND EQUIPMENT.**

 **A•LOK® PRODUCTS, INCORPORATED**  
**DIMENSIONAL DATA SHEET**

A•LOK® Ring NO.	NOM. PIPE O.D. ± 0.25"	RING DIA. --- A•LOK® I.D.	USE AS A GUIDE ONLY CHECK PIPE O.D. WITH MANUFACTURE PIPE TYPES
970	30.00"	28.00"	24" RC'B
980	30.50"	28.50"	24" SPECIAL
1000	30.75"	28.75"	24" RC (B + 0.375")
1020	31.25"	29.25"	30" PVC
1030	31.50"	29.50"	24" RC'C
1035	31.625"	29.625"	24" SPECIAL
1040	32.00"	30.00"	30" PVC (F794), 30" DI
1050	32.375"	30.375"	27" VC
1070	32.875"	30.875"	24" RC (C + 0.750")
1090	33.50"	31.50"	27" RC'B
1100	33.80"	31.75"	30" PVC (A-2000)
1110	34.25"	32.25"	27" RC (B + 0.375")
1130	35.00"	33.00"	27" RC'C
1140	35.25"	33.25"	27" RC; 33" PVC (F679)
1160	35.75"	33.75"	30" SP 5
1200	37.00"	35.00"	30" RC'B
1210	37.50"	35.50"	30" RC (B + 0.25")
1220	37.70"	35.70"	36" PVC
1230	38.00"	36.00"	30" RC (B + 0.50")
1235	38.375"	36.375"	36" PVC (F794)
1240	38.50"	36.50"	30" RC'C, 36" DI
1250	38.75"	36.75"	30" RC
1260	39.00"	37.00"	30" RC (C + 0.25"); 36" PVC (F679)
1280	39.50"	37.50"	30" RC
1310	40.50"	38.50"	33" RC'B, 36" (PSCP) Type B
1320	40.75"	38.75"	36" PSCP
1330	41.125"	39.125"	36" SP
1350	42.00"	40.00"	33" RC'C
1360	42.25"	40.25"	33" RC'(C + 0.25")
1370	42.50"	40.50"	36" SP 5
1390	43.25"	41.25"	42" FIBERGLASS
1420	44.00"	42.00"	36" RC'B, 42" PVC
1430	44.50"	42.50"	42" DI
1470	45.50"	43.50"	36" RC'C

MARCH 1, 2000—SUPERSEDES ALL PREVIOUS INFORMATION AND IS SUBJECT TO CHANGE WITHOUT NOTICE.  
ALL DIMENSIONS ARE SUBJECT TO MANUFACTURES TOLERANCES.

**IMPORTANT -- TYPE OF PIPE OUTSIDE DIAMETERS REQUIRED WHEN ORDERING A•LOK® CONNECTORS AND EQUIPMENT.**

 **A•LOK® PRODUCTS, INCORPORATED**  
**DIMENSIONAL DATA SHEET**

A•LOK® Ring NO.	NOM. PIPE O.D. ± 0.25"	RING DIA. --- A•LOK® I.D.	USE AS A GUIDE ONLY CHECK PIPE O.D. WITH MANUFACTURE PIPE TYPES
1475	45.75"	43.75"	36" NEPTUNE
1480	46.00"	44.00"	36" RC
1520	47.25"	45.25"	42"(PSCP) TYPE B
1530	47.50"	45.50"	Special PVC
1540	48.00"	46.00"	36" RC (SPECIAL)
1570	49.00"	47.00"	42" RC (SPECIAL)
1625	50.50"	48.50"	48" PVC
1670	52.00"	50.00"	42" RC (SPECIAL)
1690	52.50"	50.50"	42" RC'C
1700	52.75"	50.75"	42" RC (SPECIAL)
1705	53.00"	51.00"	42" RC (SPECIAL)
1710	54.00"	52.00"	48" (PSCP) Type B
1745	54.50"	52.50"	48" SPECIAL
1790	56.00"	54.00"	42" RC (SPECIAL)
1820	56.875"	54.875"	54" DI
1830	57.00"	55.00"	54" FIBERGLASS
1840	57.50"	55.50"	54" DI
1860	58.00"	56.00"	48" RC'B
1910	59.50"	57.50"	48" RC'C
1920	60.00"	57.50"	48" RC SPECAIL
1930	61.50"	59.00"	60" DI
1940	62.00"	59.50"	54" PSCP
1970	63.00"	60.50"	60" FIBERGLASS, 60" PRESSURE PIPE
2040	65.00"	62.50"	54" RC'B
2080	66.50"	64.00"	54" RC'C
2140	67.00"	64.50"	64" RC (SPECIAL)
2300	72.00"	69.50"	60" RC'B
2360	73.50"	71.00"	60" RC'C
2560	80.50"	78.00"	66" RC'C
2750	86.25"	83.75"	72" RC'(B + 0.25")
2800	87.50"	85.00"	72" RC'C

MARCH 1, 2000—SUPERSEDES ALL PREVIOUS INFORMATION AND IS SUBJECT TO CHANGE WITHOUT NOTICE.  
ALL DIMENSIONS ARE SUBJECT TO MANUFACTURES TOLERANCES.

**IMPORTANT -- TYPE OF PIPE OUTSIDE DIAMETERS REQUIRED WHEN ORDERING A•LOK® CONNECTORS AND EQUIPMENT.**



# KOR-N-SEAL® I — STAINLESS STEEL WEDGE

## Recommended Installation Procedure

Refer to reverse side *Kor-N-Seal® I - Wedge Korbond Installation Chart* for Hole Size Range, Connector Dimensions, and Suggested Pipe O.D. Range.

### CONNECTOR INSTALLATION:

1. Check to be sure Korbond is properly located in Connector groove. (Fig. 1)
2. Insert Connector Assembly into hole with Wedge Expander at top of hole. (Fig. 2)
3. Position Connector so it is square to manhole both vertically and horizontally. (Fig. 3)
4. Tighten Wedge Expander using 1/2" [13 mm] socket with a preset torque limiter for each. For each size connector use torque limiter preset to proper torque. (Fig. 4) Retorquing is not required prior to shipment.

**CAUTION: DO NOT USE IMPACT WRENCH.**

### IMPORTANT

RECOMMENDED TORQUE		TORQUE LIMITER
Connector Inches [mm]	Foot Pounds [Newton Meters]	P/N
10 - 24 [254 - 610]	12 [16]	91440-12

Fig. 4

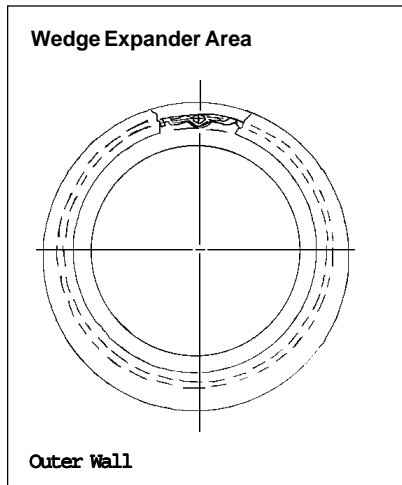


Fig. 1

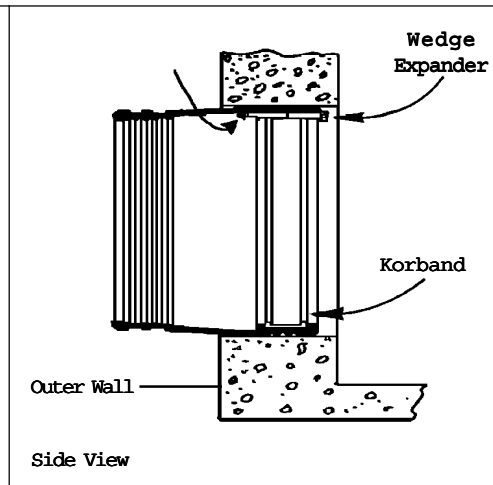


Fig. 2

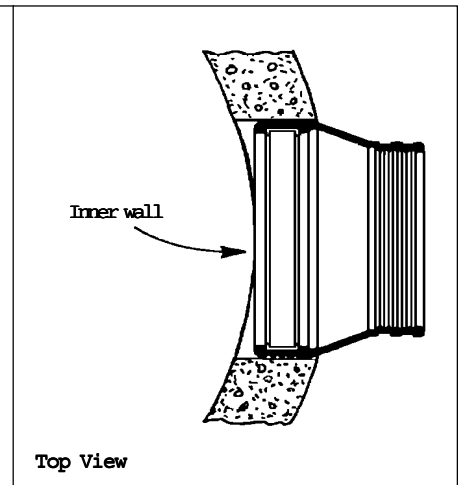


Fig. 3

### PIPE INSTALLATION:

1. Center pipe in Connector opening.
2. On maximum pipe O.D. installations, use a pipe lubricant on the outside barrel of the pipe and/or the inside ridges of the Connector (under the Pipe Clamp area) to allow the pipe to slide into place more easily.
3. Position the Pipe Clamp in the Connector's Pipe Clamp groove with the screw at the top.
4. Tighten the Pipe Clamp screw to 60 inch pounds [7 Newton Meters] with a T-handle Torque Wrench, P/N 80090.
5. On minimum pipe O.D. installations, lift the rubber up underneath the Pipe Clamp screw so that the Connector contacts the bottom surface of the pipe while the Pipe Clamp screw is being tightened. Application of pipe lubrication on the underside of the clamp will also help assure that an even contraction of rubber is maintained throughout the clamping area.
6. After the Pipe Clamp has been tightened down firmly, move the pipe horizontally and/or vertically to bring it to grade.

**CAUTION:** Pipe must **NOT** rest on Connector Korbond.



[www.npc.com](http://www.npc.com)

250 Elm Street • P.O. Box 301  
Milford, NH 03055, U.S.A.

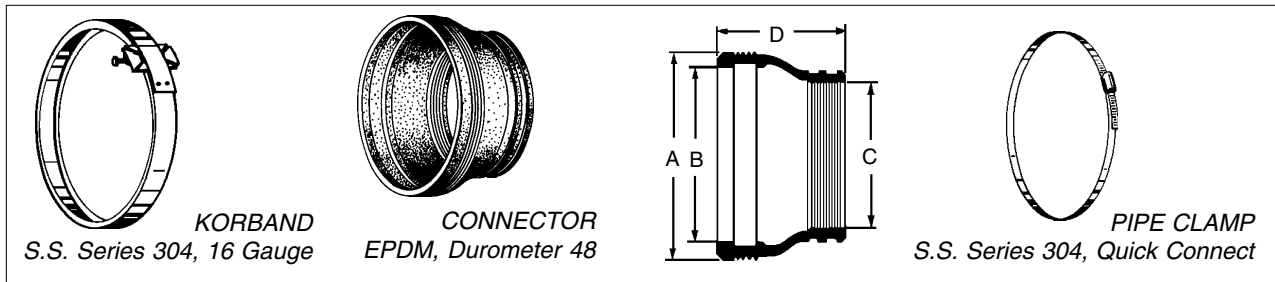
Tel: 603-673-8680 • 800-626-2180 • Fax: 603-673-7271





# KOR-N-SEAL® I — STAINLESS STEEL WEDGE

## Installation Chart



### Kor-N-Seal® S106 Series

(106 Series Wall Thickness .375" [10 mm])

Connector P/N	Suggested Pipe O.D. Range Inches	Hole Size Range Inches	Connector Dimensions Inches			Pipe Clamp P/N
		A	B	C	D	
S106-12BWS	5.75 — 7.00	12.00 — 12.20	10.30	6.50	8	I-128
S106-12AWS	7.00 — 8.50	12.00 — 12.20	10.30	8.00	8	I-180
S106-12WS	8.25 — 9.75	12.00 — 12.20	10.30	9.25	8	I-180
S106-14AWS	9.50 — 11.25	14.00 — 14.20	12.25	10.50	8	I-190
S106-16BWS	9.50 — 11.25	15.95 — 16.15	14.30	10.50	8	I-190
S106-16AWS	11.25 — 13.00	15.95 — 16.15	14.30	12.25	8	I-218
S106-16WS	13.00 — 14.20	15.95 — 16.15	14.30	14.00	8	I-242
S106-20BWS	14.00 — 15.50	19.95 — 20.10	18.25	15.00	8	I-306
S106-20AWS	15.50 — 17.00	19.95 — 20.10	18.25	16.50	8	I-306
S106-20WS	17.00 — 18.15	19.95 — 20.10	18.25	18.00	8	I-306
S106-22WS	17.75 — 19.25	21.95 — 22.10	20.25	18.75	8	I-318
S106-24WS	19.60 — 21.10	23.95 — 24.10	22.25	20.60	8	I-348

### Kor-N-Seal® S406 Series

(406 Series Wall Thickness .312" [8 mm])

S406-10AWS	6.00 — 6.75	10.00 — 10.20	8.30	6.50	6	I-128
S406-10WS	7.50 — 8.20	10.00 — 10.20	8.30	8.50	6	I-180
S406-10.5AWS	6.00 — 6.75	10.50 — 10.70	8.80	6.50	6	I-128
S406-10.5WS	7.50 — 8.70	10.50 — 10.70	8.80	8.50	6	I-180
S406-11BWS	6.00 — 7.00	11.00 — 11.20	9.30	6.00	6	I-128
S406-11AWS	7.50 — 9.00	11.00 — 11.20	9.30	8.00	6	I-180
S406-12CWS	6.00 — 7.00	12.00 — 12.20	10.30	6.50	6	I-128
S406-12BWS	6.25 — 7.50	12.00 — 12.20	10.30	7.00	6	I-128
S406-12AWS	7.50 — 9.00	12.00 — 12.20	10.30	8.50	6	I-180
S406-12WS	9.00 — 10.20	12.00 — 12.20	10.30	10.00	6	I-180

Suggested pipe O.D. range comes from field experience. Refer to *Recommended Pipe Installation Procedure*.

#### CAUTION:

- All capped stubs awaiting pipe installation at a later date must be restrained.
- Assure that a proper backfill material is used in adverse conditions.
- Prior to any critical usage, contact NPC Customer Service 800-626-2180.



Manufactured under the following patents:  
 U.S.: 5,431,459 CAN: 2,004,749  
 EU/Germany: EP 049811B

[www.npc.com](http://www.npc.com)

250 Elm Street • P.O. Box 301  
 Milford, NH 03055, U.S.A.

Tel: 603-673-8680 • 800-626-2180 • Fax: 603-673-7271



# 7" & 8" KOR-N-SEAL CONNECTOR

## Toggle, Nylon Plastic Wedge & Stainless Steel Wedge

### RECOMMENDED INSTALLATION PROCEDURE

**CAUTION: DO NOT USE IMPACT WRENCH**

#### Connector Installation for Wedge Korband:

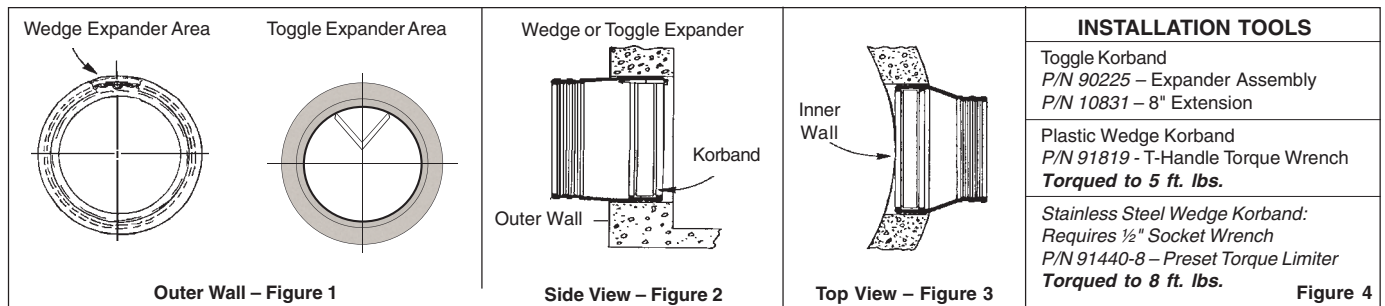
1. Check to be sure Korband is properly located in Connector groove (fig. 1).
2. Insert Connector Assembly into hole with Wedge Expander at top of hole (fig. 2).
3. Position Connector so it is square to manhole both vertically and horizontally (fig. 3).
4. Wedge Expander for 7" & 8" holes should be tightened as follows:  
Plastic Wedge — **5 ft. lbs.** [60 in. lbs.]  
Stainless Steel Wedge — **8 ft. lbs.** [94 in. lbs.] (fig. 4). Retorquing is not required prior to shipment.

#### Connector Installation for Toggle Korband:

1. Insert the Korband Expander Assembly (P/N 90225) under the Korband Toggle and rotate the hex rod by hand to ensure that the Expander is properly engaged (fig. 1). (**The 8" Toggle requires an extension (P/N 10831)**)
2. Insert the Connector and Expander into the cored or formed opening from inside the manhole (fig. 2).
3. Using a wrench, rotate the hex rod until the Korband toggle is expanded well past center and is firmly seated against the Connector.

#### CAUTION:

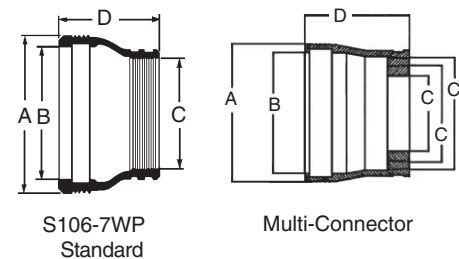
1. All capped stubs awaiting pipe installation at a later date must be restrained.
2. Assure that a proper backfill material is used in adverse conditions.
3. Recommended maximum 2° taper for formed holes. Prior to any critical usage, contact NPC Customer Service 800-626-2180.



#### Pipe Installation for Wedge or Toggle:

1. Center pipe in Connector opening (if using the Multi-Connector, cut and remove ring(s) for applicable pipe O.D.)
2. On maximum pipe O.D. installations, use a pipe lubricant on the outside barrel of the pipe and/or the inside ridges of the Connector (under the Pipe Clamp area) to allow the pipe to slide into place more easily.
3. Position the Pipe Clamp in the Connector's Pipe Clamp groove with the screw at the top.
4. Tighten the Pipe Clamp screw to 60 inch pounds with a T-handle Torque Wrench, P/N 80090. On minimum pipe O.D. installations, lift the rubber up underneath the Pipe Clamp screw so that the Connector contacts the bottom surface of the pipe while the Pipe Clamp screw is being tightened. Application of pipe lubrication on the underside of the clamp will also help assure that an even contraction of rubber is maintained throughout the clamping area.
6. After the Pipe Clamp has been tightened down firmly, move the pipe horizontally and/or vertically to bring it to grade.  
**Caution:** Pipe must **NOT** rest on Connector Korband.

P/N	Pipe O.D. Range (Inches)	Hole Size Range (Inches)	Connector Dimensions Inches				Pipe Clamp P/N
			A	B	C	D	
*S106-7SWP *S106-7SWS *S106-7ST	1.8 - 4.8	6.995 - 7.055	6.125	1.9 2.4 2.9 3.5 4.8	6	I-128	
S106-7WP S106-7WS S106-7T	3.50 - 4.50	6.995 - 7.055	6.125	4.5	6	I-80	
*S106-8SWP *S106-8SWS *S106-8ST	4.2 - 6.4	7.995 - 8.055	7.125	4.3 5.5 6.4	6	I-128	
*S106-8MWP *S106-8MWS	1.7 - 4.8	7.995 - 8.055	6.83	2.25 3.59 4.68	6.37	I-80	



#### IN THE MODEL NUMBERS:

- "T" designates Toggle "V" Style
- "WP" designates Plastic Wedge Style
- "WS" designates Steel Wedge Style

The number(s) after the dash indicates the hole size required (S106-7WS)

\* Recommended maximum 10 feet of head pressure.

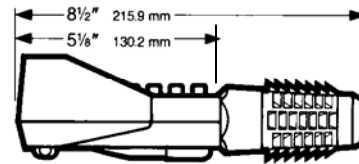
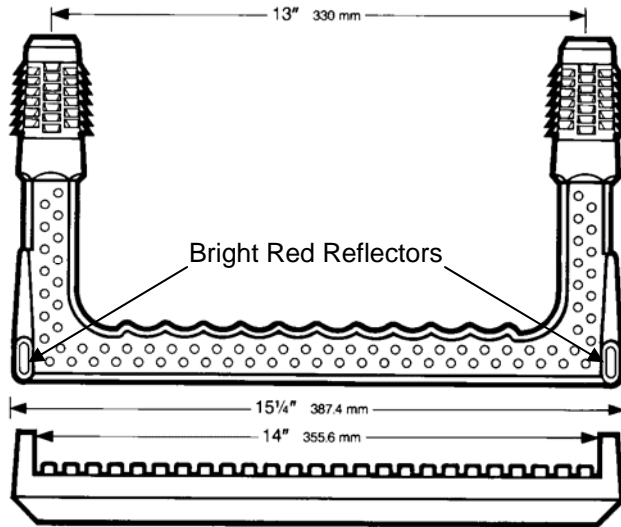


[www.npc.com](http://www.npc.com)

250 Elm Street • P.O. Box 301  
Milford, NH 03055, U.S.A.

Tel: 603-673-8680 • 800-626-2180 • Fax: 603-673-7271

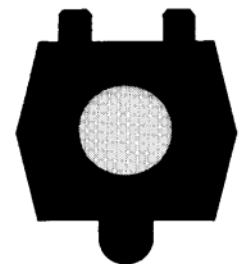
# P-14850-OS



**Step #  
P-14850-OS**

## SPECIFICATIONS

All Lane Poly Steps meet the requirements of ASTM C-478 and AASHTO M-199. The polypropylene conforms to ASTM D-4101. The 1/2" Grade 60 deformed reinforcing bar meets ASTM A-615.



**RUNG**  
1/2" Grade 60 Rebar

***LANE POLYPROPYLENE MANHOLE STEPS***

***LANE*** INTERNATIONAL  
CORPORATION

P.O. Box 925 • 18067 S.W. Lower Boones Ferry Rd. • Tualatin, OR 97062 • 503-684-0077 • 800-666-0076  
Fax 503-684-0078 • [www.laneinternational.com](http://www.laneinternational.com)