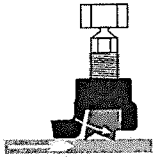
One Lok™



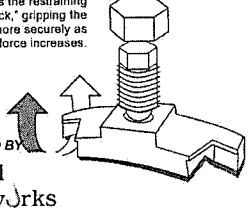
Contoured-Lug Restraint for Ductile Iron Pipe

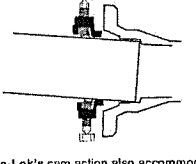
SIGMA One-Lok is a mechanical joint restraining gland that implements a series of individually activated lugs that locate around the circumference of ductile iron pipe. When the lug-stem assembly is tightened down onto the pipe, the teeth (edges) on the bottom of each lug lock onto the pipe wall. Pipe thrust causes the primary contact edge to "grab" and restrain the pipe surface. Our unique "cam action" design allows the One-Lok to increase its restraining capabilities under increased line pressures or surges. Under both normal operating circumstances and high-pressure surges, One-Lok restrainers provide full deflection of the mechanical joint.

One-Lok's CONTOURED LUGS provide up to 80% contact with the circumference of the carrier pipe (sizes 8 through 24). The lugs provide a wide arc or contour that evenly matches the curvature of each nominal size in ductile iron pipe. In addition to providing a more secure grip, One-Lok eliminates the concern of pipe wall damage or harm to the integrity of the internal lining – even on the thinnest classifications of ductile iron pipe.

One-Lok offers a **BREAK-OFF LUG STEM** assembly that provides the installer a "visual torque indicator," eliminating guesswork in the trench with bolted assemblies. The twist-off top is sized exactly to the standard T-bolt and nut assembly in the mechanical joint, so there are no additional tools needed for installation. After twist-off, the One-Lok stem provides a residual hex shank for easy removal of One-Lok in service and maintenance areas.

One-Lok's unique cam action allows the restraining lugs to "rock," gripping the pipe wall more securely as thrust force increases.





One-Lok's cam action also accommodates deflection of the joint during installation, and also allows for subsidence, seismic or other forces after installation, up to the maximum allowed deflection.

PROVIDED BY

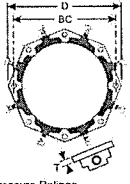
National Waterworks

"Local Service, Nationwide"
11665 Lackland Rd. St. Louis, MO 63146
314.432.4750

One Lok™

SIGMA

Size	Item No.	Wt.	Dimensions				Bolts & Inserts		
			Pipe O.D.	B.C.	D	T	No.	Size	Length
3	SLD3	6.5	3.96	6.19	7.69	0.62	2	7/8	2
4	SLD4	7	4.80	7.50	9.12	0.75	2	7/8	2
6	SLD6	12	6.90	9.50	11.12	0.88	3	7/8	2
8	SLD8	18	9.05	11.75	13.37	1.00	6	7/8	2
10	SLD10	26	11.10	14.00	15.62	1.00	8	7/8	2
12	SLD12	34	13.20	16.25	17.88	1.00	8	7/8	2
14	SLD14	50	15.30	18.75	20.25	1.25	10	7/8	2
16	SLD16	56	17.40	21.00	22.50	1.31	12	7/8	2½
18	SLD18	60	19.50	23.25	24.75	1.38	12	7/8	2½
20	SLD20	75	21.60	25.50	27.00	1.44	14	7/8	2½
24	SLD24	140	25.80	30.00	31.50	1.56	16	7/8	2½
30	SLD30	200	32.00	36.88	39.12	2.00	20	1.0	3.0
36	SLD36	225	38.30	43.75	46.00	2.00	24	1.0	3.0

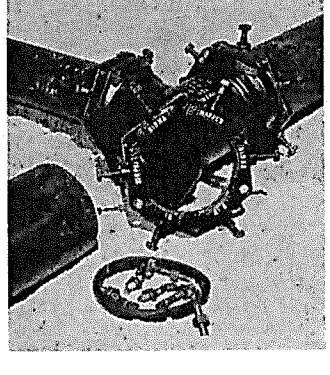


Pressure Ratings
DI Pipe: 350 psi 3" through 16"
250 psi 18" through 24"
200 psi 30" through 36"

UL Sizes 3" - 12" are UL Listed for 350 psi on DI Pipe

FM Sizes 4" - 12" are FM Approved for 175 psi on DI Pipe

Sample Specification: Restraint for standard mechanical joint fittings shall be incorporated in the design of the follower gland and shall utilize multiple lugs that act against the pipe, increasing their resistance as the line pressure increases. The assembled joint shall maintain the maximum flexibility and deflection of all nominal pipe sizes after burial. Restraining glands shall be manufactured of high strength ductile iron conforming to the requirements of ASTM A536, Grade 60-42-10. Lug inserts shall be manufactured of ductile iron, heat treated to a hardness of 350 BHN minimum. Dimensions of the glands shall be consistent with the standardized mechanical joint bell and T-head bolts conforming to the requirements AWWA C111/ANSI A21.11 and AWWA C153/ANSI 21.53 (latest revision). Twist off nuts shall be incorporated in the design of the lug-activating screws to insure proper visual torque. The mechanical joint restraining device shall have a water working pressure rating of 250 psi minimum and provide no less than a safety factor of 2.1. Restraining device shall be SIGMA One-Lok or approved equal.

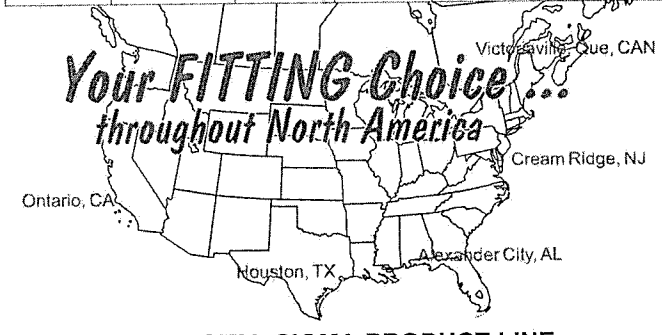


One-Lok Installation Instructions

1. Clean fitting socket and pipe end. Lubricate gasket and pipe end with soapy water (or approved pipe lubricant meeting AWWA C111). Install One-Lok restrainer on the pipe with the lip extension facing the pipe end, followed by the gasket, tapered side toward end of pipe.
2. Insert pipe into the fitting outlet and seat the gasket firmly and evenly into the gasket cavity. Maintain a straight joint during assembly.
3. Push the One-Lok gland toward the fitting and center it around the pipe with the lip evenly against the gasket. Insert the T-bolts and hand-tighten the nuts. If deflection is required, make up after joint assembly but before tightening T-bolts.
4. Tighten T-bolts in an alternating manner maintaining an even gap between the gland and the fitting face at all points around the socket. Repeat until all the T-bolts are within the recommended torque value of AWWA C111.
5. Following proper assembly of the mechanical joint, hand tighten all wedges until complete contact is made with the pipe.
6. Tighten each wedge bolt in a clockwise direction, alternating between the bolts until all the break-off tops have been removed. Never tighten a wedge bolt more than 180 degrees before moving to the next bolt.

SIGMA

WAREHOUSE & SALES LOCATIONS	Cream Ridge, NJ Warehouse, Sales & Corp. Office	Houston, TX Warehouse & Sales Office	Ontario, CA Warehouse & Sales Office	Alexander City, AL (Russell Pipe) Warehouse & Sales Office	Victoriaville, Que., CAN (SIGMA-MAG) Warehouse & Sales Office
PHONE	(609) 758-0800	(281) 987-1200	(909) 983-7944	(256) 234-2514	(819) 758-2222
TOLL FREE	(800) 999-2550	(800) 999-0109	(800) 688-6230	(800) 824-4513	(888) 744-6262
FAX	(609) 758-1158/1159	(281) 987-0200	(909) 391-2033	(256) 234-4956	(819) 758-1153



The TOTAL SIGMA PRODUCT LINE:

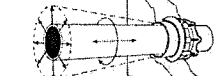
Compact DI MJ Fittings
Gland Packs
CI MJ Fittings
Retainer Glands
Compact DI Push-On Fittings
CI/DI Flanged Fittings

Threaded Flanges
Hydrant Buries and Extensions
Steel Weld Flanges and Fittings
Adapter Flanges, Manhole Covers
Valve Boxes and Meter Boxes
ISO Fittings

Please call for Information on these other exclusive Sigma Products:

PV LOK™

A superior restraint for PVC Pipe, featuring Improved Gripping Surface, Improved High Strength Clamp Ring, Locking Head Bolt Design. Restrains PVC Pipes to MJ Fittings. Also restrains PVC Bell and Spigot Joints.



omni*sleeve*

An all-in-one patented wall sleeve that installs easily, seals, restrains and allows adjustment and realignment of carrier pipe.
All the advantages of wall pipes and wall sleeves with none of the drawbacks.

One-Lok, PV-LOK and Omni*Sleeve are trademarks of Sigma Corporation

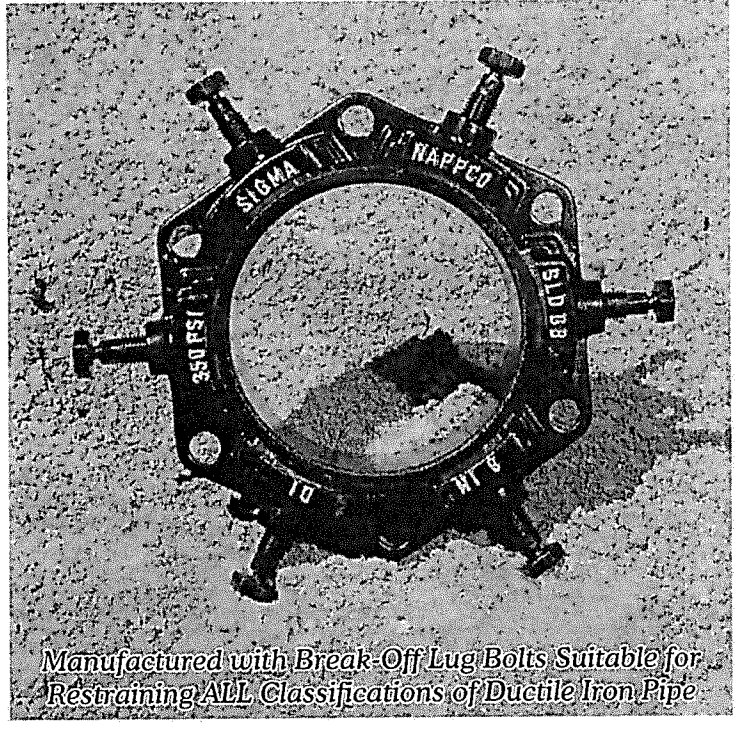
SIGMA Corporation
700 Goldman Drive, PO Box 300 • Cream Ridge, NJ 08514

SLD4P-904-5M

SIGMA

One-Lok™

Contoured Wedge Action Retainer Gland



Manufactured with Break-Off Lug Bolts Suitable for Restraining ALL Classifications of Ductile Iron Pipe

WM TAO & ASSOCIATES
CONSULTING ENGINEERS

Shop Drawing Submittal Review

Transmitted To: Cannon Design

Date: April 3, 2017

Attention: **stl-cac@cannondesign.com**

Contact Person / WTA Field Inspector: Patrick Garner

Project Name: Webster University-**ISB**

Reviewed by: Mike Whitworth (WES)

Project No. WT 14127.01
WES 607

[ ] UPS [ ] Courier [X] **Email**

Copies	No.	Description
1 PDF	211119 F02	(Submittal No. 211119-002) Underground Pipe Product Data
		Fire Department Connections

*Remarks: See Submittal Review from Webb Enginnering.

c: **Kelvin Patel**
Kpatel@cannondesign.com

[X] ***Reviewed**

[ ] *No Exceptions Taken

[ ]

[ ] *Make Corrections As Noted, No Resubmittal Required

Corrections or comments made on shop drawings during this review do not relieve contractor from compliance with requirements of drawings and specifications. This check is only for review of general conformance with the design concept of project and general compliance with information given in contract documents. Contractor is responsible for: confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner.

WEBB
ENGINEERING
SERVICES INC.

1400 S. 3rd Street, Suite 201
St. Louis, Missouri 63104
Phone: (314) 588-0600
Fax: (314) 588-0604

Letter of Transmittal

To: wtashop@wmtao.com

From: Mike Whitworth

Date: April 03, 2017

Re: Webster University ISB

WES No: 607

☐ For your Files ☐ For Review ☐ Please Comment ☐ Please Reply

Item No.	Description	No. of Copies	Date
1	Shop Drawing Review – (211119-002) 21 1119 Fire Department Connections	1	04/03/17

•Signature: Mike Whitworth

WEBB ENGINEERING SERVICES INC.
1400 S. 3rd Street, Suite 201 • St. Louis, Missouri 63104 • 314.588.0600 • *fax* 314.588.0604
www.webb-engineering.com

The review of this submittal is limited to the general conformance with the designated design concept and intent of this project and with the general compliance of the information provided in the contract documents. All comments, remarks and notations made on the submittal(s) as a result of this review do not relieve the contractor from full compliance with requirements of the contract documents. Approval for a specific item shall not include approval of an assembly of which the item is not a component. The contractor is solely responsible for rough-in and installation confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordination of this work with that of other trades on this project; and in a safe and satisfactory manner. All work shall be installed in full compliance with the manufacturer's recommendation, Federal, State and Local rules and regulation and the Authority Having Jurisdiction (AHJ) and applicable adopted codes and standards.

PROJECT NAME:	Webster University ISB
LOCATION:	St. Louis Missouri
CLIENT PROJ. NO.:	N/A
WES PROJ. NO.:	607
SPECIFICATION SECTION:	211119 Fire Department Connections
SUBMITTAL ITEM:	See Below -

CONTRACTOR:	J.F. Ahern Co.
CTR. SUBMITTAL #:	21 1119-002
SUBMITTAL DATE:	March 29, 2017
DATE RECEIVED:	March 30, 2017
RECEIVED VIA:	E-Mail
RECEIVED FROM:	WTA
DATE RETURNED:	APRIL 03, 2017
RETURNED VIA:	E-MAIL
RETRURNED TO:	WTASHOP@WMTAO.COM

STATUS KEY:

NO EXCEPTION TAKEN
MAKE CORRECTIONS NOTED, NO RESUBMITTAL:
AMEND AND RESUBMIT
REJECTED, SEE REMARKS:
REVIEWED ONLY

NEC	MCN	AAR	REJ	REV	ITEM	REMARKS
X					Ductile Iron Pipe Tyton Joint Pipe Model – Class 52-6 inch	
X					Mechanical Joint Compact Fittings SIGMA Model - C153	
X					Contoured-Lug Restraint SIGMA Model – SIGMA One-Lok	
X					Pipe Wrap AA Thread Seal Tape, Inc Model - 72002	

REVIEWED BY: Michael R. Whitworth DATE: April 03, 2017

THESE COMMENTS ARE TO BE ATTACHED TO ALL COPIES OF THE SHOP DRAWING REFERENCED ABOVE.

CANNONDESIGN

SUBMITTAL IDENTIFICATION SHEET

To be completed by Contractor/CM

WEBSTER UNIVERSITY ISB
PROJECT NAME

8274 BIG BEND BLVD
ADDRESS

NUMBER

WEBSTER UNIVERSITY
OWNER

CANNON DESIGN
ARCHITECT / ENGINEER

Joe Voypick
SUBMITTED BY

211119-002
CONTRACTOR / CM SUBMITTAL NO.

CANNON DESIGN SUBMITTAL NO.

DRAWING / DETAIL REFERENCE

211119
SPECIFICATION SECTION / PARAGRAPH

MANUFACTURER / SUPPLIER

ITEM / PRODUCT ID

REQUIRED DATE

PRIORITY

◯ CRITICAL

ITEM BEING SUBMITTED (check only one)

- ◯ Shop Drawings
- ◯ Samples (_____ copies)
- ◯ LEED Submittal
- ◯ Certification / Qualifications
- ◯ Record Documents
- ◉ Product Data
- ◯ Coordination Drawing
- ◯ Calculations
- ◯ Schedules
- ◯ O&M Manuals
- ◯ Other _____

ITEM BEING SUBMITTED FOR (check only one)

◉ Action ◯ Information Only ◯ Record

REMARKS OR DEVIATIONS

CONTRACTOR / CM CERTIFICATION
(SUBMITTALS NOT CERTIFIED WILL BE RETURNED WITHOUT REVIEW)

PARIC

PARIC CORPORATION
SUBMITTAL STAMP

THIS SHOP DRAWING HAS BEEN REVIEWED BY PARIC CORPORATION

Subcontractor remains responsible for dimensions, quantities, coordination with other trades and compliance with contract documents.

By:
Devin D. Gates

Joe Voypick
REVIEWED BY

3/29/17
DATE

To be completed by Reviewer

21 1119-002
CANNON DESIGN SUBMITTAL NUMBER

3/30/17
RECEIVED DATE

- ◯ A. No Exceptions Taken
  No further review of submittal is required.
- ◯ B. Make Corrections Noted
  Incorporate corrections in work; resubmission is not required.
- ◯ C. Revise and Resubmit
  Revise as noted, and resubmit for review.
- ◯ D. Rejected
  Submittal is not in compliance with Contract Documents; provide new submittal.
- ◯ E. For Record / Information Only
  Submittal was reviewed for Record / Information purposes only.
- ◯ F. Not Required for Review
  Submittal is not required by Contract Documents and has not been reviewed.

Review is for conformance with the design concept of this project and for general compliance with contract documents. Contractor is responsible for quantities, dimensions and compliance with contract documents and for information that pertains to fabrication processes, construction techniques and coordination of this work with all trades which will be affected thereby. This review is null and void if submittal deviates from contract documents and does not indicate or note deviations.

A/E COMMENTS ◯ See attached sheet(s) for additional comments

REVIEWED BY

DATE

77 Westport Plaza
Suite 250
St. Louis, MO 63146

TRANSMITTAL

No. 15051-0541

Paric Corporation

PROJECT: 15051-Webster University Interdisciplinary Science Building

DATE: 03/29/2017

TO: Cannon Design
1100 Clark Ave
St Louis MO 63102

Fax;
314-241-2203

RE: FP Underground Pipe Product Data

ATTN: Kelvin Patel

JOB: 15051

WE ARE SENDING:	SUBMITTED FOR:	ACTION TAKEN:
☐ Shop Drawings	☑ Approval	☐ Approved as Submitted
☐ Letter	☐ Your Use	☐ Approved as Noted
☐ Prints	☐ As Requested	☐ Returned After Loan
☐ Change Order	☐ Review and Comment	☐ Resubmit
☐ Plans		☐ Submit
☐ Samples	**SENT VIA:**	☐ Returned
☐ Specifications	☐ Attached	☐ Returned for Corrections
☑ Other: Produt Data	☐ Separate Cover Via:	☐ Due Date:

Item	*Package*	*Code*	*Rev.*	*Copies*	*Date*	*Description*	*Status*
Submittal		211119-002	1		03/29/2017	FP Underground Pipe Product Data	Submitted

NOTES:

CC:

Signed: _____

Devin Gates