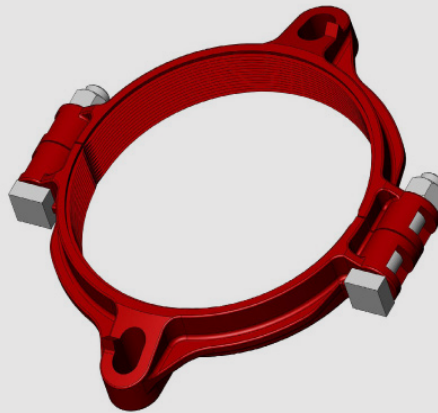
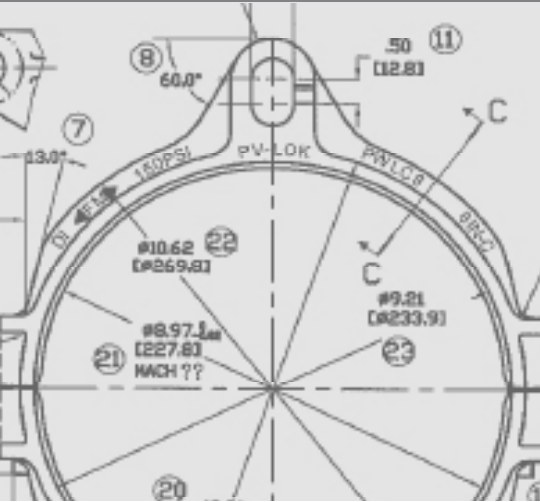


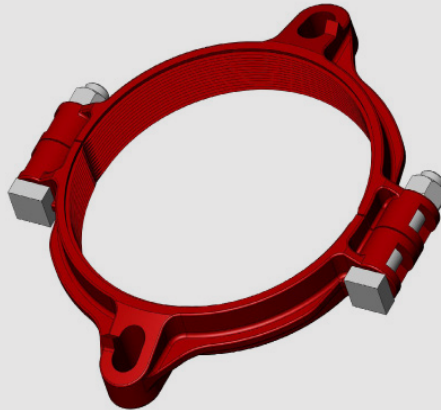
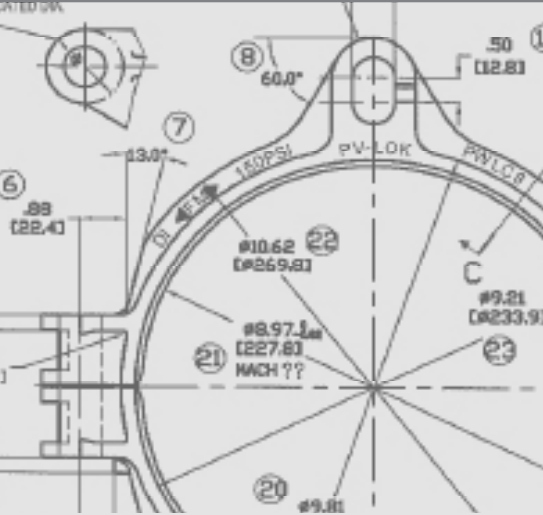
# PV-LOK™ MODEL PWM SERRATED RESTRAINT FOR DUCTILE IRON FITTING & AWWA C900/905 PVC PIPE



## PRODUCT SPECIFICATIONS

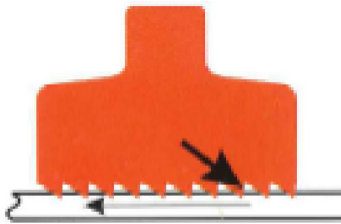
- MATERIAL:**
- Machine-serrated clamping ring is manufactured of high strength ductile iron in accordance with ASTM A536, Grade 65-45-12.
  - Side clamping bolts and hex nuts are manufactured of high strength steel in accordance with ASTM A449 and zinc-plated to B663, Type III Sec.1 for corrosion resistance.
- SIZE RANGE:**
- 4" through 48"
- DIMENSION:**
- Conform to ANSI/AWWA C153/A21.53, ANSI/AWWA C111/A21.11 & ANSI/AWWA C110/A21.10 standards.
- PRESSURE RATINGS:**
- Equal to the water working pressure rating of the pipe upon which it is installed with a minimum 2:1 factor of safety.
- COATING:**
- Red Allkyd paint
  - Electro-deposition "CORRSafe™" available upon request. For further information, please refer to our CORRSafe Product Information sheet at <http://www.sigmaco.com/pipe-restraint-product-coatings-linings/>
- APPROVALS:**
- Factory Mutual approved in sizes 4"-10"
- DEFLECTION:**
- 5° on 3"-12", 2° on 14"-16", 1.5° on 18"-30" and 1° on 36"-48"
- TRACEABILITY:**
- Machine-serrated clamping rings are individually cast with exact heat code Information.
- INSTALLATION:**
- In accordance with manufacturer's recommendation and applicable AWWA standards.

# PV-LOK™ Series PWM for DI Fitting Restraint (CIOD)



## Features & Advantages:

The PV-LOK™ Series PWM restrainer incorporates a series of machined, serrations that effectively engage PVC pipe walls, to provide positive joint security and full support of the pipe. The PV-LOK Series PWM is designed for use with ductile iron fittings meeting AWWA/ANSI C153/A21.53 and C110/A21.10 having either a mechanical joint or a push-on joint with ear lugs. The Series PWM incorporates a PV-LOK clamping ring, and elongated T-bolts or restraining rods depending on nominal size.



Cross Section of PV-LOK illustrates directional grip of serrations to maximize restraint of PVC pipe.

## Sample Specification:

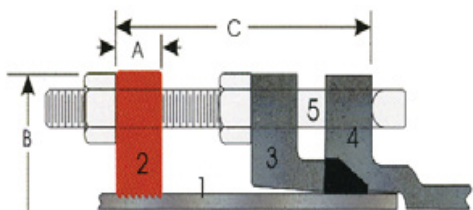
Restraint devices for joining plain end PVC pipe to either mechanical joint or push-on joint with ear lug watermain fittings shall consist of a split retainer ring that incorporates a series of machined serrations (not "as cast") that provide positive restraint, exact fit and full support of the pipe wall. The restraint device shall provide the necessary bolts and nuts to complete the watermain fitting assembly. Devices shall carry a minimum 2:1 safety factor and meet or exceed the recognized testing for restrained joints on PVC pressure pipe and offer factory certification and independent test results. Restraint devices for securing PVC pipe to mechanical joint/push-on joint watermain fittings shall be SIGMA PV-LOK™ Series PWM or approved equal.

## Material:

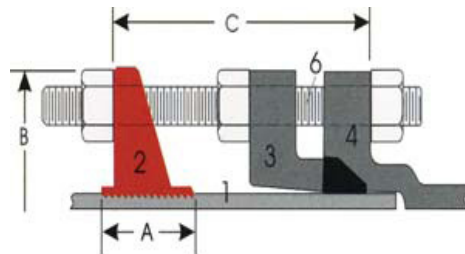
- Clamping ring is manufactured of high strength ductile iron in accordance with ASTM A536, grade 65-45-12.
- Side clamping bolt and hex nuts are high strength steel in accordance with ASTM A449 and zinc plated to B633, Type III Sc.1 for corrosion resistance.
- Extra long T-head bolts and nuts are high strength, low alloy steel in accordance with AWWA/ANSI C111/A21.11. Restraining rods and heavy hex nuts are of high strength, low alloy steel in accordance with AWWA/ANSI C111/A21.11. T-head bolts and restraining rods provide minimum 45,000 psi yield and 60,000 psi tensile strength.



# PV-LOK™ Series PWM for DI Fitting Restraint (CIOD)



1. Plain end Pipe.
2. Restrainer Clamp
3. MJ Gland
4. MJ Bell
5. Long T-Bolt
6. Threaded Rod



## Dimensions in Inches, Weights in Pounds:

Pipe Size	Item #	PVC pipe w DI Pipe OD	A	B	C (max)	Restraining Rods		Nuts for Res Rods		Clamping Bolts			Weight
						No.	Size	No.	Size	No.	Size	Min Torque	
4	PWM-C4	4.80	1.20	9.00	6.00	2	3/4x7	4	3/4	2	5/8x3 3/8	85	7.48
6	PWM-C6	6.90	1.20	11.52	6.00	2	3/4x7	4	3/4	2	5/8x3 3/8	85	8.62
8	PWM-C8	9.05	1.75	12.81	6.00	2	3/4x7	4	3/4	2	3/4x3 7/8	100	13.90
10	PWM-C10	11.10	1.75	16.88	8.00	4	3/4x9	8	3/4	2	7/8x4 3/8	125	21.83
12	PWM-C12	13.20	1.75	19.12	8.00	4	3/4x9	8	3/4	2	7/8x4 3/8	125	24.95
14	PWM-C14	15.30	3.50	21.10	15.00	6	3/4x17	18	3/4	4	7/8x6 1/4	130	52.43
16	PWM-C16	17.40	3.50	23.58	15.00	6	3/4x17	18	3/4	4	7/8x6 1/4	130	58.70
18	PWM-C18	19.50	4.25	25.80	15.00	8	3/4x17	24	3/4	4	1.00x6 1/4	130	86.25
20	PWM-C20	21.60	5.00	29.06	22.00	8	3/4x24	24	3/4	4	1-1/4x6-1/2	130	123.17
24	PWM-C24	25.80	5.00	34.64	22.00	10	3/4x24	30	3/4	4	1-1/4x6-1/2	130	151.00
30	PWM-C30	32.00	5.50	41.80	22.00	10	1x24	30	1	4	1-1/4x8-1/2	130	240.95
36	PWM-C36	38.30	5.50	49.04	22.00	12	1x24	36	1	4	1-1/4x8-1/2	130	269.80
42	PWM-C42	44.50	6.26	57.18	32.00	16	1 1/4x36	48	1 1/4	4	1 1/2x9	175	563.88
48	PWM-C48	50.80	6.26	63.48	32.00	16	1 1/4x36	48	1 1/4	12	1 1/2x9	175	601.75

PV-LOK Products are rated with a working pressure equal to that of the PVC pipe to which they are applied.

\*When calculating clearance for pipe in a casing, add a minimum of 1-1/2" to the "B" dimension above.

## Pressure Rating:

Nominal Pipe Size	Item #	Pressure Rating												
		C900			ASTM D2241			C905						
		DR14	DR18	DR25	SDR17	SDR21	SDR26	DR18	DR21	DR25	DR32.5	DR41	DR51	DR14
4	PWM-C4	305	235	165	250	200	160	-	-	-	-	-	-	-
6	PWM-C6	305	235	165	250	200	160	-	-	-	-	-	-	-
8	PWM-C8	305	235	165	250	200	160	-	-	-	-	-	-	-
10	PWM-C10	305	235	165	250	200	160	-	-	-	-	-	-	-
12	PWM-C12	305	235	165	250	200	160	-	-	-	-	-	-	-
14	PWM-C14	-	-	-	-	-	-	235	200	165	125	100	-	305
16	PWM-C16	-	-	-	-	-	-	235	200	165	125	100	-	305
18	PWM-C18	-	-	-	-	-	-	235	200	165	125	100	80	-
20	PWM-C20	-	-	-	-	-	-	235	200	165	125	100	80	-
24	PWM-C24	-	-	-	-	-	-	235	200	165	125	100	80	-
30	PWM-C30	-	-	-	-	-	-	-	165	165	125	100	80	-
36	PWM-C36	-	-	-	-	-	-	-	165	165	125	100	80	-
42	PWM-C42	-	-	-	-	-	-	-	-	-	125	100	80	-
48	PWM-C48	-	-	-	-	-	-	-	-	-	125	100	80	-

**Installation Instructions (4-12”):**

1. Install plain-end pvc pipe into the mechanical joint bell. Insert one of the extra-long T-bolts provided with Series PWM through one of the bolt holes, marking a reference line on the pipe approximately 1 to 2 inches from the end of the bolt.
2. Assemble the MJ gland, gasket and bolts to AWWA standards. Assemble PWM clamping ring on the pipe at the reference line. Tighten the side clamping bolts to recommended torque (pad to pad). The protrusions on the restrainer ears must face the fitting to insure proper direction of the angled serrations. Line up the ears with the corresponding MJ bolt holes.
3. Insert the extra-long T-bolts and install one nut each between the gland and the clamping ring. Tighten the nuts against the MJ gland to AWWA standards to complete the gasketed assembly.
4. Snug the retaining nuts behind the restrainer ears (against the flat surface). Do not over-tighten retaining nuts, approximately one turn with a wrench.

**Installation Instructions (14-48”):**

1. Insert pipe and assemble the mechanical joint, installing gasket, gland and T-bolts to AWWA standards. Leave out the T-bolts corresponding to the “ears” on the Series PWM restrainer.
2. Using one of the restrainer rods provided with the Series PWM restrainer insert back through the fitting and gland, marking a reference line in from the rod approximately 2 to 3 inches. Tighten the side clamping bolts evenly to recommended torque – you should expect ¼” to ½” gap on each side of the restrainer. The flat side of the restrainer ear should face away from the fitting to insure proper direction of the angled serrations.
3. Connect the Series PWM restrainer to the fitting by inserting restrainer rods through remaining bolt holes. Install one nut behind the fitting bell, one nut against the gland (tighten this to AWWA standards to complete the MJ gasketed joint) and one behind the restrainer ear (against the washer that is provided with the hardware set). The retainer nuts should be snug. Do not over-tighten retainer nuts, approximately one turn with a wrench.



## LOCATIONS

### Northeast Region

#### Cream Ridge, New Jersey (HQ)

700 Goldman Drive  
Cream Ridge, NJ 08514  
Phone (800) 999-2550  
Fax (609) 758-1158  
crmcscr@sigmaco.com

### REPCO

970 DE LA Bastian  
Victoriaville, Quebec G6T 1Y2  
Phone (888) 744-6262  
Fax (819) 758-1153  
jboucher@repco.ca

### Concord Supply

2353 Bowman Street  
Innisfil, Ontario L9S 3V6  
Phone (877) 436-3800  
Fax (705) 436-6338  
tanya@concordsupply.ca

### Midwest Region

#### Sauk Village, Illinois

21699 Torrence Avenue  
Sauk Village, IL 60411  
Phone (888) 999-0420  
Fax (708) 758-6790  
chicrsr@sigmaco.com

### Southeast Region

#### Alexander City, Alabama

1500 Highway 22 W  
Alexander City, AL 35010  
Phone (800) 824-4513  
Fax (256) 234-4956  
alxcscr@sigmaco.com

### Southwest Region

#### Houston, Texas

5000 Askins Lane  
Houston, TX 77093  
Phone (800) 999-0109  
Fax (281) 987-0200  
htncscr@sigmaco.com

### Western Region

#### Ontario, California

4652 E. Guasti Road  
Ontario, CA 91761  
Phone (800) 688-6230  
Fax (909) 391-2033  
ontcsr@sigmaco.com

### Auburn, Washington (Branch)

902 W Main Street  
Auburn, WA 98001  
Phone (800) 688-6230  
Fax (909) 391-2033  
ontcsr@sigmaco.com

**www.sigmaco.com**

Terms and Conditions of Sales available at our website.

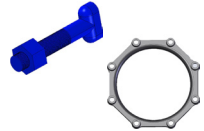
## AWWA Ductile Iron Fittings



- 2-64" C153 Ductile Iron Mechanical Joint Fittings
- 2-48" C110 Ductile Iron Mechanical Joint Fittings
- 2-64" C110 Ductile Iron Flanged Fittings
- 3-24" C153 Ductile Iron Push-On Fittings
- 4-24" C110 Ductile Iron Push-On Fittings
- 4-12" Ductile Iron Mechanical Joint Connector
- C116 Fusion Bonded Epoxy Lining Available
- PROTECTO 401® Ceramic Epoxy Lining Available

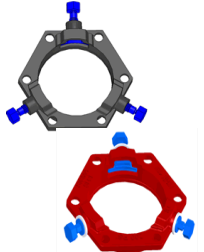
Visit our website for available special coatings. <http://www.sigmaco.com/fittings-coatings-linings/>

## Mechanical Joint Accessories



- Prepackaged and Loose Mechanical Joint Accessories
- SIGMASEAL™ Improved Mechanical Joint Gasket
- Snap-On Multi-Purpose Gasket for Ductile Iron or PVC Pressure Pipes
- OMNI-SLEEVE™ Improved Wall Penetration Sleeve
- Specialty Bolts and Nuts for Mechanical Joint Assemblies

## ONE-LOK™ Wedge Action Restraints

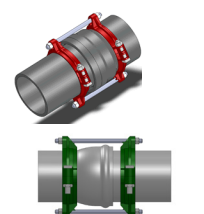


- 3-48" ONE-LOK D-SLDE Domestic Wedge Restraint for Ductile Iron Pipe
- 3-64" ONE-LOK SLDE Wedge Restraint for Ductile Iron Pipe (Import)
- 4-48" ONE-LOK T-SLDE Tandem Wedge Restraint for High Pressure Ductile Iron Pipe
- 3-36" ONE-LOK D-SLCE Domestic Wedge Restraint for PVC Pipe
- 3-36" ONE-LOK SLCE Wedge Restraint for PVC Pipe (Import)
- 3-36" ONE-LOK SLDEH Wedge Harness Restraint for Ductile Iron Pipe
- 4-12" / 20" ONE-LOK SLDM Wedge Restraint for Oversized Cast Iron Pipe
- 3-36" ONE-LOK SSLD Split Wedge Restraint for Installed Ductile Iron Pipe & Fitting
- 4-36" ONE-LOK SSLDH Split Wedge Harness Restraint for Installed Ductile Iron Pipe
- 4-12" ONE-LOK SLCEH Wedge Harness Restraint for AWWA C900 PVC Pipe

Visit our website for available special coatings.

<http://www.sigmaco.com/pipe-restraint-product-coatings-linings/>

## PV-LOK™ Serration Lock Restraints



- 4-48" PV-LOK PWM Serrated Restraint for Ductile Iron Fitting & AWWA C900/905 PVC Pipe
- 4-48" PV-LOK PWP Serrated Bell Joint Restraint for AWWA C900/905 PVC Pipe
- 4-12" PV-LOK D-PWP Domestic Serrated Bell Joint Restraint for AWWA C900 PVC Pipe
- 4-48" PV-LOK PWPF Restraint for AWWA C900/905 PVC Pipe & PVC Fitting
- 4-12" PV-LOK PWH Serrated Harness Restraint for AWWA C900 PVC Pipe
- 2-12" PV-LOK PVM Serrated Restraint for Ductile Iron & IPS OD PVC pipe
- 2-12" PV-LOK PVP Serrated Bell Joint Restraint for IPS OD PVC Pipe
- 4-8" PV-LOK PVPF Serrated Restraint for IPS OD PVC Pipe & PVC Fitting
- 4-12" PV-LOK PWP Serrated Bell Joint Restraint for Ductile Iron Pipe

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## Flange Adapters



- 3-36" SIGMAFLANGE Flange Adapter Sleeve for PVC and Ductile Iron Pipe
- 2-48" ZIP FLANGE Set Screw Style Flange Adapter

## Municipal Construction Castings



- Manhole Rings and Covers
- Curb and Meter Boxes
- Frames and Grates
- Storm Inlets
- Valve Boxes, Risers, and Extensions

## Products for the Ductile Iron Fabricator



- 3-64" High Hub Threaded Flanges
- 3-48" Tapped High Hub Threaded Flanges
- 3-36" Extra Heavy 250lb Drilled Threaded Flanges
- 3-48" Threaded MJ Bell Adapters
- 3-48" MJ x PE Bell adapter
- 3-48" Anchor Flanges
- 3-16" Filler Flanges

## Extended Range Products



- Flange-Pak™ Prepackaged Flange Accessory Sets
- Polyethylene Encasement for Ductile Iron Pipe
- Copper Tubing Products
- Tracer Wire & Detectable/Non-Detectable Marking Tape
- Pipe Joint Lubricant & Hydraulic Cement
- Socket Clamps and Tie Rod Accessories
- BoxLok Valve Box Alignment Device
- Cast Iron Companion Flanges