



EARTH SHIELD®



Metallic Waterstop for Extreme Chemical & Heat Resistance



All Earth Shield® Stainless Steel Waterstop profiles are available with factory fabricated change of directions, or Shop Made Fittings.

Waterstops play a critical role in the integrity of concrete structures. They provide a fluid-tight diaphragm when embedded in, and running through concrete joints. Earth Shield® Metallic Waterstop can stop even the most corrosive fluids in their tracks, even at severely elevated temperatures.

J P Specialties, Inc. is the leading manufacturer of chemical resistant waterstop and related concrete accessories. Our NSF 61 certified Earth Shield® line of chemical resistant waterstop is used throughout the world by major engineering firms and project owners for primary and secondary containment applications, as well as industrial wastewater treatment and ozone contactor structures. We invented and hold the patent on the technology used to mechanically weld thermoplastic waterstops.

Services offered include free blueprint take-off and shop drawings, on-site welding certification, and individual corrosion resistance certification for the project owner.

Earth Shield® Chemical Resistant Waterstop
Phone: 800-821-3859; 951-763-7077
Fax: 951-763-7074

www.earthshield.com



Earth Shield® Stainless Steel (SS)

Waterstop Basic Use

Earth Shield® Stainless Steel Waterstop is used as a fluid-tight diaphragm, embedded in concrete, across and along the joint, for primary and secondary containment structures. Earth Shield® Stainless Steel Waterstop can stop even the most corrosive fluids in their tracks, even at severely elevated temperatures.

A variety of metals, grades, and gauges are available. Earth Shield® utilizes 20 gauge 316 low carbon as our standard alloy, which offers broad spectrum corrosion resistance to most aggressive media, and is virtually untouched by the deleterious effects of ozone, making it an ideal choice for ozone contactor structures used in modern water treatment plants.

Earth Shield® Stainless Steel Waterstop is available in many standard shapes and sizes including profiles for new construction and retrofit. All change of direction fabrications (shop made fittings) can be premanufactured leaving only straight butt welding for the Contractor in the field.

Typical Applications

- Primary and secondary containment
- Refineries
- Ozone contactor structures
- Fuel storage (AST)
- LNG facilities
- Chemical plants

Earth Shield® Advantages

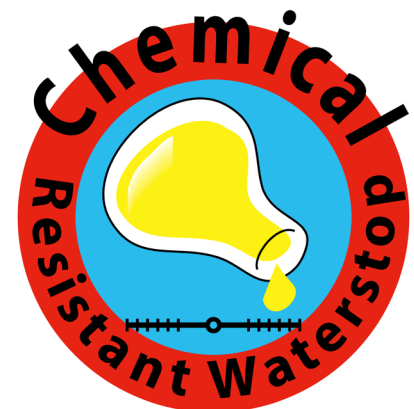
- Outstanding fluid resistance to a wide range of aqueous-based fluids, oils, solvents, and hydrocarbons
- Extreme heat resistance (approx. 3,000°F)
- Extreme cold resistance, perfect for LNG
- Superior ozone and weathering

Basic Use

Install Earth Shield® SS Waterstop in all concrete joints. Waterstop should be centered in, and run the extent of the joint. All changes of directions should be prefabricated (Shop Made Fittings), leaving only butt-welding for the field. *If installing in an expansion joint, keep center "V" unembedded to allow it to accommodate movement as designed.*

Property	Test Method	Required Results
Tensile Strength	ASTM A240	90,000 psi
Elongation in 2" min.	ASTM A240	45%
Yield Strength	ASTM A240	45,000 psi
Rockwell B Hardness	ASTM A240	95
High Temperature Resistance		2,552°F

Splices in stainless steel waterstop shall be welded using a TIG (recommended) or MIG process utilizing a weld rod to match the stainless (weld rod: 316L; diameter — .035 to 045). Dam-



aged waterstops shall be repaired by removing the damaged portions and patching. Patches shall overlap a minimum of 1 inch onto undamaged portion of the waterstop. Weld all straight run material edge-to-edge (no overlapping).

Preparation

1. Position waterstop to ensure proper distance from steel reinforcing bars to prevent rock pocket and honey comb.
2. Protect waterstop from damage during progress of work.
3. Clean waterstop after first pour to remove debris and dirt.

Examination and Inspection

1. Prior to placement of concrete notify Engineer for field inspection approval.
2. Upon inspection of waterstop installation, replace any damaged or unacceptable waterstop and dispose of defective material.

Installation

1. Position waterstop as indicated on drawings.
2. Center waterstop on joint, with approximately one-half of waterstop width to be embedded in concrete on each side of the joint.
3. Allow clearance between waterstop and reinforcing steel a minimum of one and a half times the largest aggregate size. (This prevents rock pockets and air voids caused by aggregate bridging.)
4. Carefully place concrete without displacing waterstop from proper position.
5. Thoroughly and systematically vibrate concrete in the vicinity of the joint and to maximize intimate contact between concrete and waterstop.
6. After first concrete pour, clean unembedded waterstop leg to ensure full contact of second concrete pour. Remove laitance, spillage, form oil and dirt.

Technical Assistance

Qualified technical assistance is available during any phase of your construction project.

Specifications

Standard 3-part Specifications are available at

our website in Microsoft® Word and Adobe® PDF format, and upon request in printed and a variety of computer word processor formats. Call our Technical Sales Staff for additional help with your specification.

Suggested Proprietary Short Form Guide Specification Section 03150 (Master Format 2004 – 03 15 13)

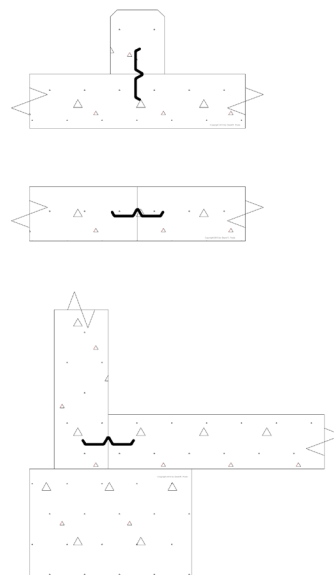
Stainless Steel Chemical Resistant Waterstop Waterstop indicated in drawings and specifications for contraction (control), expansion and construction joints shall be Earth Shield® Stainless Steel Chemical Resistant Waterstop Part No. ##### [Designer insert appropriate part number here] as manufactured by J P Specialties, Inc.; Murrieta, CA 92562; Phone 951-763-7077; www.earthshield.com

1. *Stainless Steel (SS) Waterstop shall conform to EPA Title 40 CFR Section 265.193. The suitability of the waterstop for a specific application should be determined by specific testing for that particular requirement. Project-specific certification to be provided by the manufacturer.*
2. *No equals or substitutions allowed.*

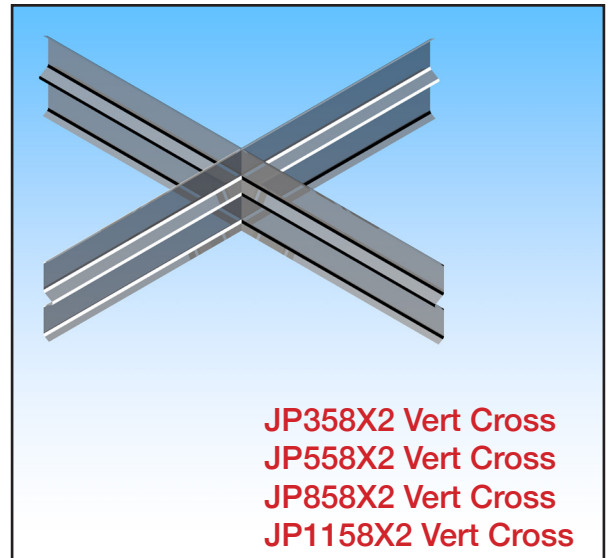
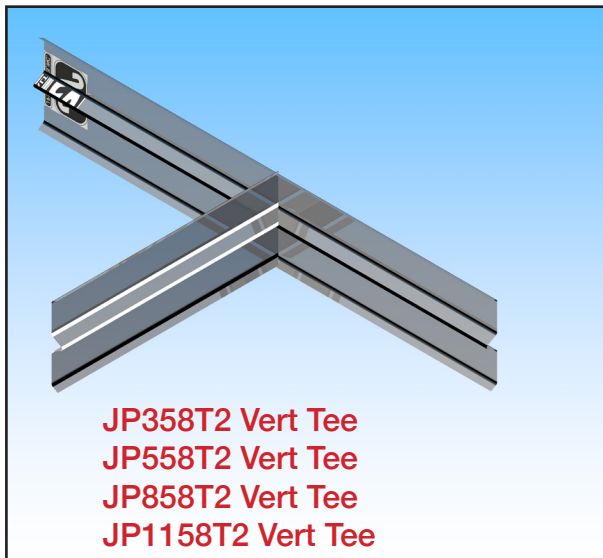
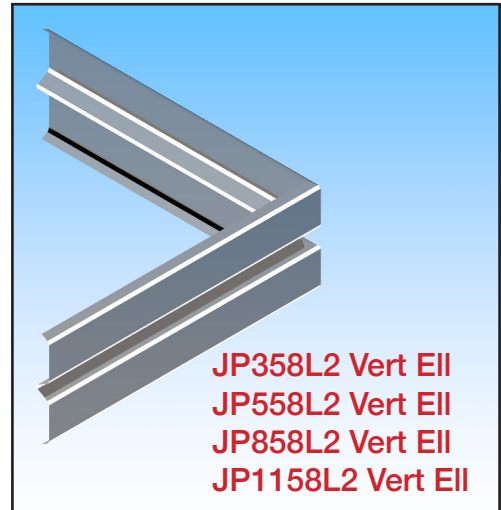
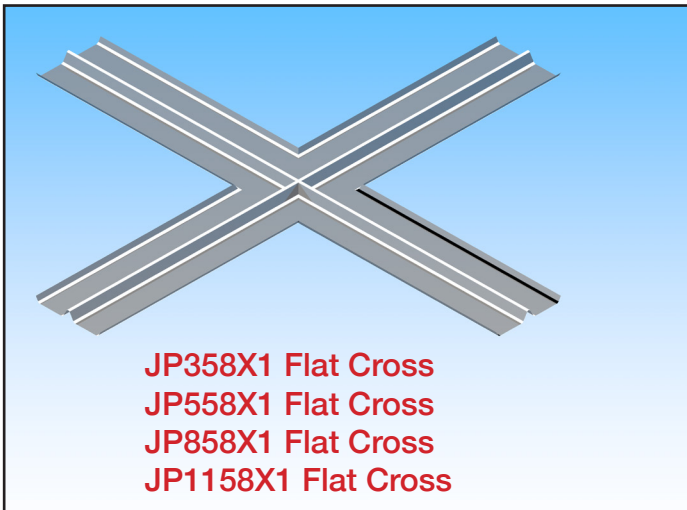
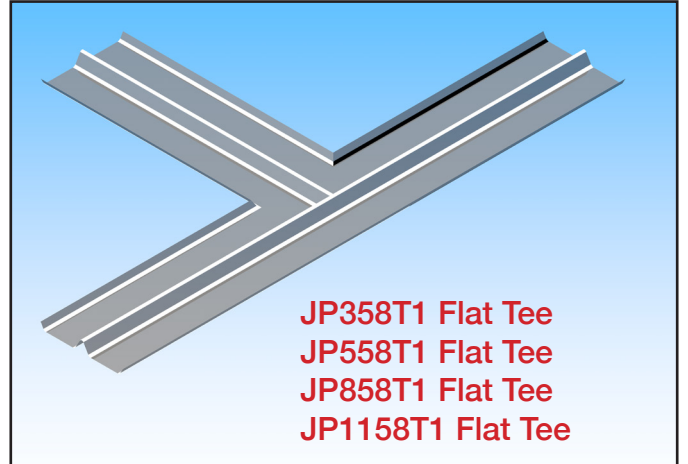
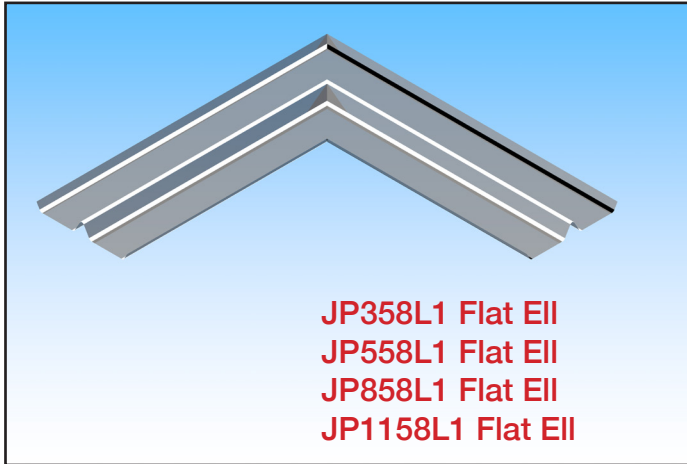
Shop Made Fittings

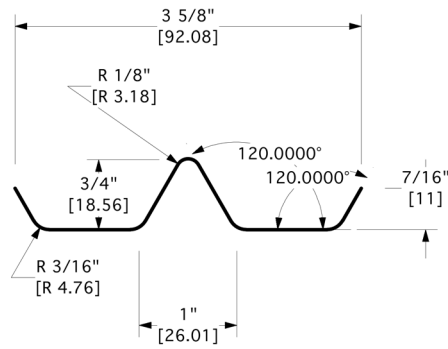
Intersection and change of direction stainless steel waterstops shall be shop fabricated as manufactured by J P Specialties, Inc.; Murrieta, CA 92562; Phone 951-763-7077; www.earthshield.com

1. *No equals or substitutions allowed.*

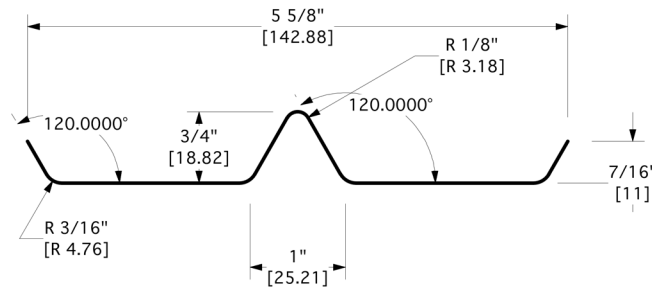


Stainless Steel Waterstop and Standard Fabrications

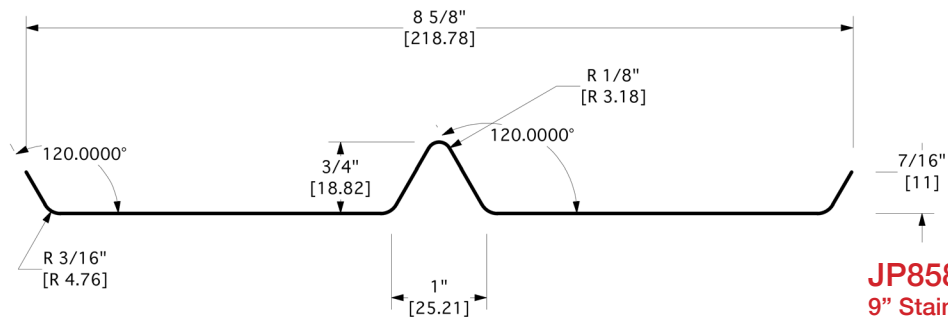




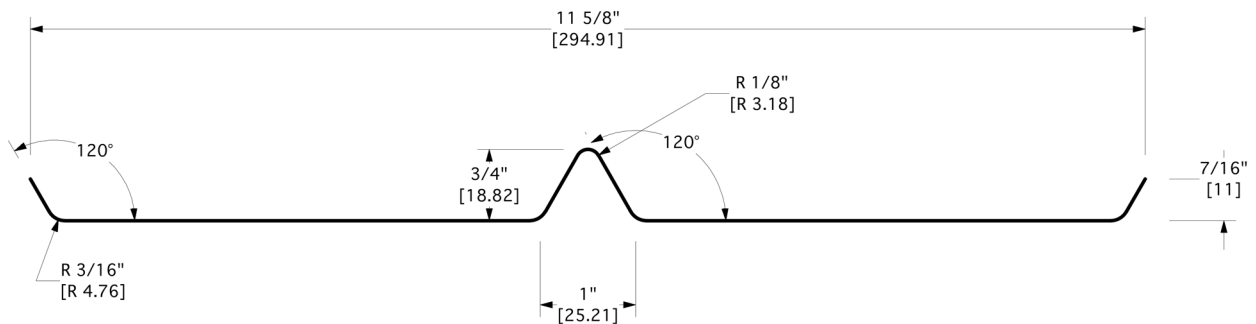
JP358
4" Stainless Steel Waterstop
 50 ft Head of H₂O



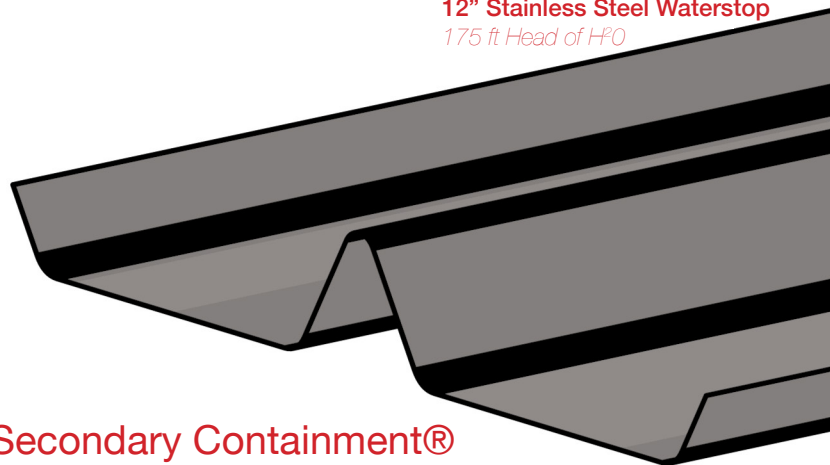
JP558
6" Stainless Steel Waterstop
 75 ft Head of H₂O



JP858
9" Stainless Steel Waterstop
 125 ft Head of H₂O



JP1158
12" Stainless Steel Waterstop
 175 ft Head of H₂O



The Primary Choice for Secondary Containment®

Retrofit Waterstop Systems

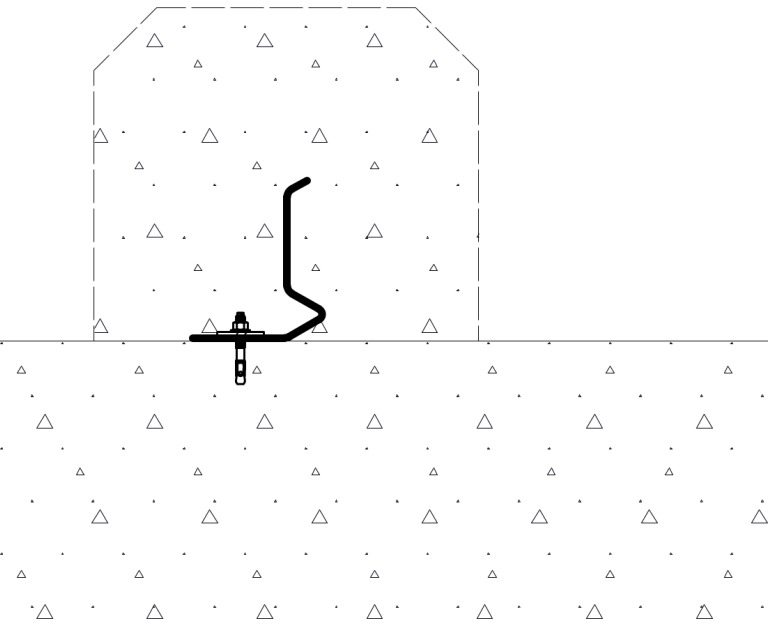
for New to Existing Concrete Joints

Retrofit waterstop is designed to provide a fluid-tight seal between existing and new concrete construction, without resorting to the labor-intensive and structurally destructive saw-cut-and-grout method. It is ideal for constructing a new containment curb or wall to an existing slab, or joining a new slab to an existing wall. Special profile fabrications are available for columns and pipe penetrations.

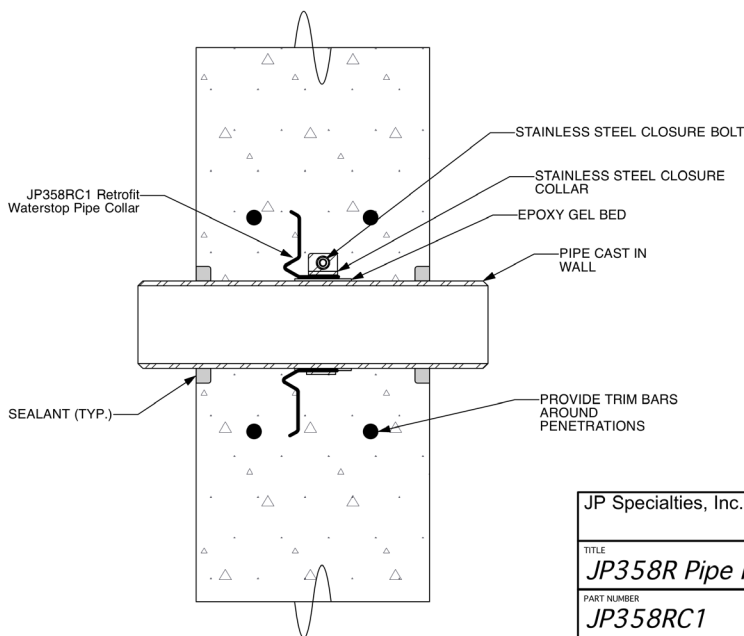
All of our retrofit waterstops are sold as a system, and include all the necessary stainless steel bars and bolts. We also offer a high-quality chemical resistant novolac epoxy — VEN 1000. Earth Shield® retrofit waterstops are manufactured with grade 316L (low carbon) stainless steel, which provides for unsurpassed chemical resistance.

Like all our stainless steel waterstops, Earth Shield® retrofit can be heat-welded using a standard TIG (or MIG) welding method. This allows for

easy field fabrications, and allows the waterstop to function as a continuous, homogeneous, fluid-tight diaphragm. Waterstop change of directions can be purchased along with straight stock, and custom, fit-to-print waterstop modules are produced to order. Prefabricated ells, tees, tank pads, column fittings, and many others are in stock and ready to ship.

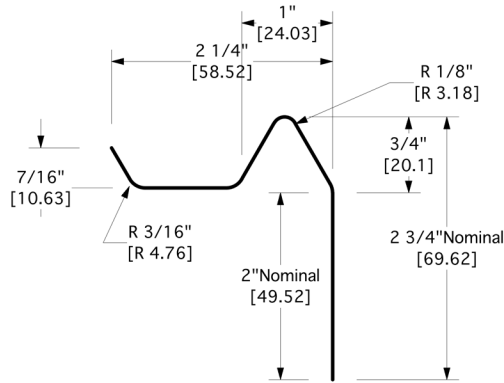


Containment Curb

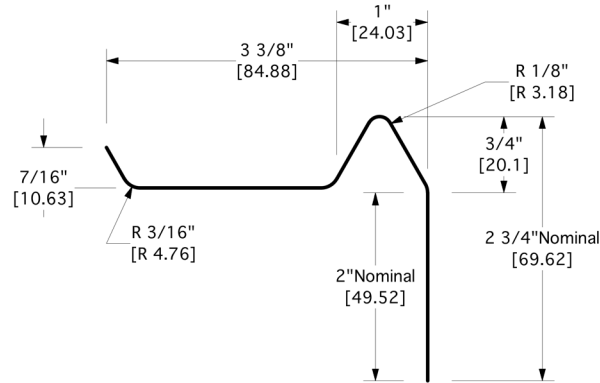


JP Specialties, Inc. / Earth Shield®		
TITLE <i>JP358R Pipe Fitting</i>		
PART NUMBER <i>JP358RC1</i>	DRAWN BY <i>DRP</i>	DATE <i>04/11</i>
CAD FILE NAME JP358R Pipe Fitting	APPROVALS	SIZE A

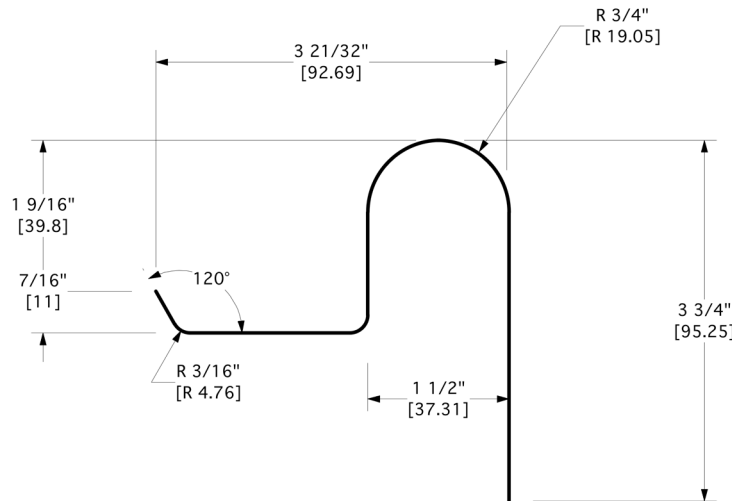
The Primary Choice for Secondary Containment®



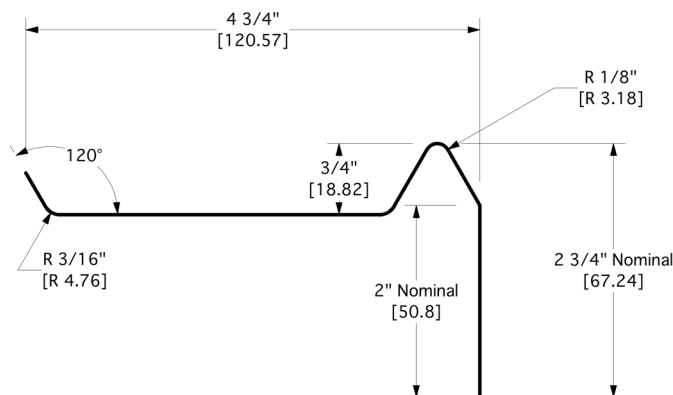
JP358R
4" Retrofit Waterstop System
(Includes all anchors)
 50 ft Head of H₂O



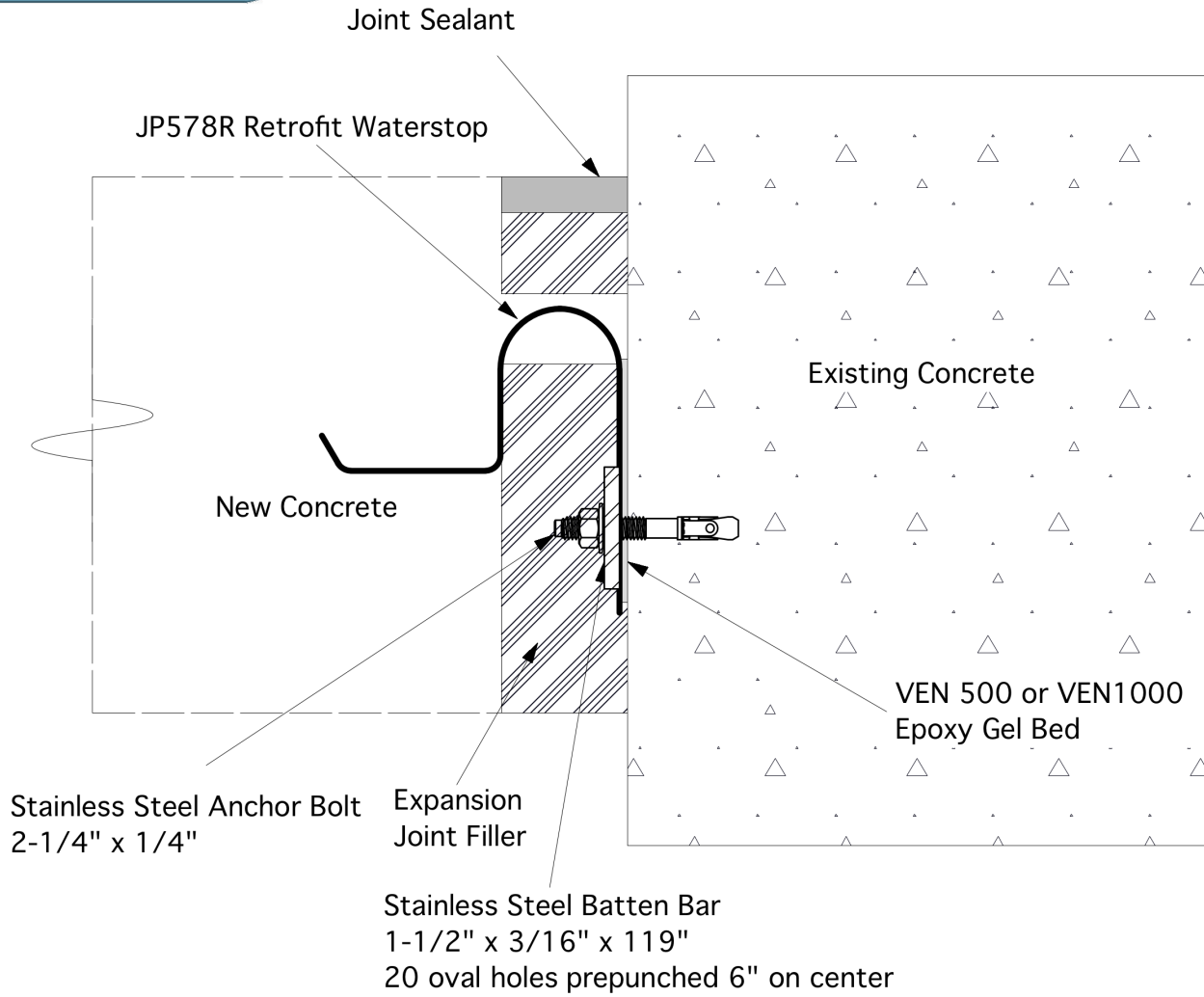
JP558R
6" Retrofit Waterstop System
(Includes all anchors)
 75 ft Head of H₂O



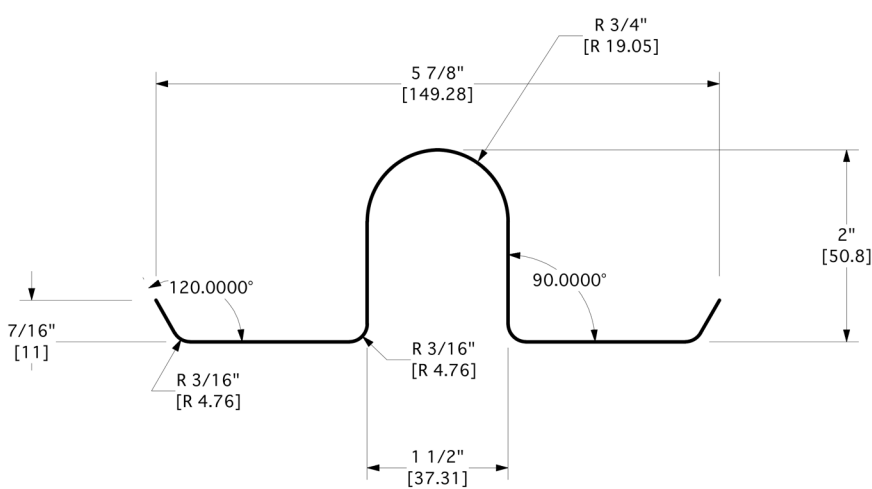
JP578R
Movement Retrofit Waterstop System
(Includes all anchors)
 75 ft Head of H₂O



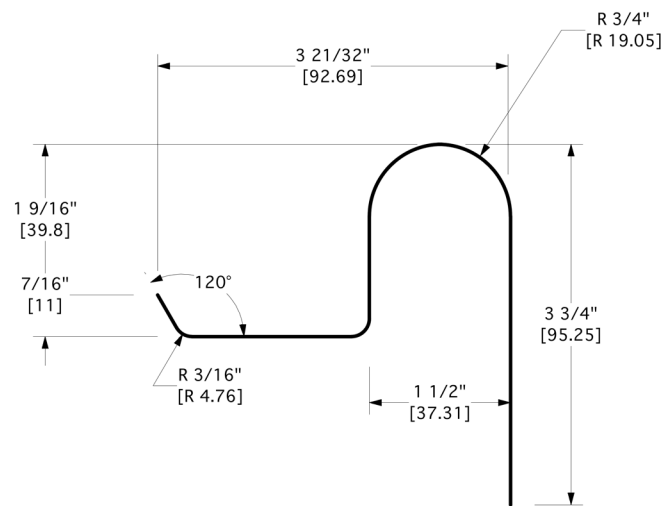
JP858R
8" Retrofit Waterstop System
(Includes all anchors)
 125 ft Head of H₂O



Movement Joint Systems



JP578
Movement Waterstop System
 75 ft Head of H₂O



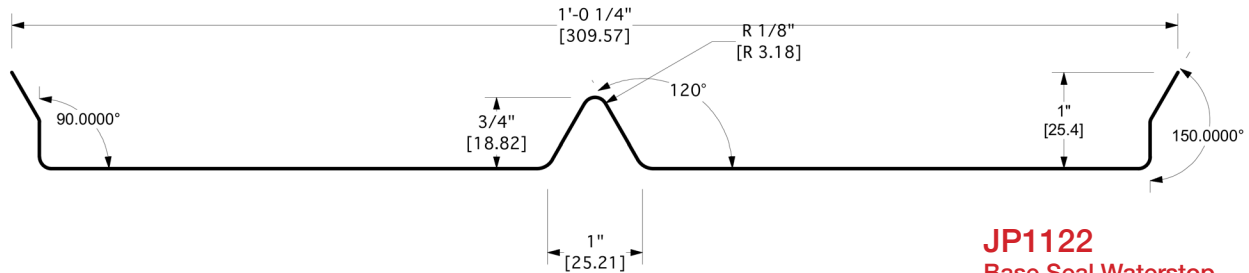
JP578R
Movement Retrofit Waterstop System
(Includes all anchors)
 75 ft Head of H₂O

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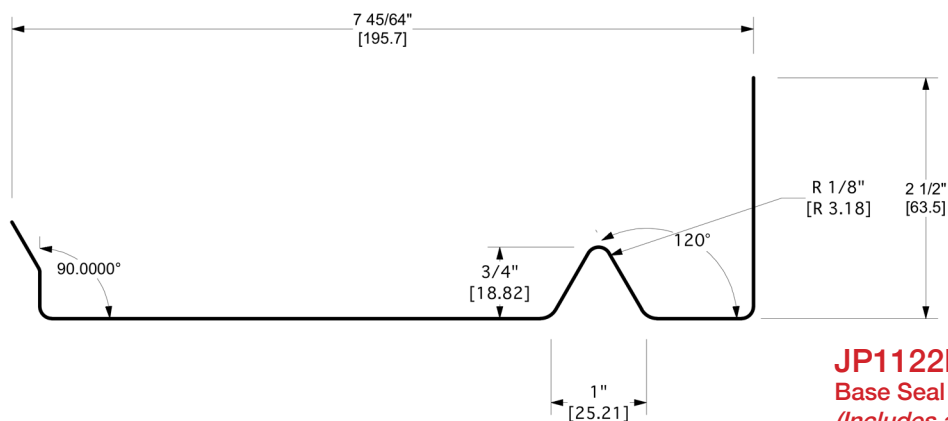
Base Seal Waterstop Systems

Easy to Install, Lay Flat on Subgrade

Base seal (aka Rear Guard) waterstop is ideal for flat pavement jobs such as runways, large containment slabs, etc. Base seal waterstop is by far the easiest waterstop to install... Simply lay the waterstop directly on the compacted subgrade, place and finish concrete, and create control joint using saw cut or other method. The base seal provides a permanent, life-of-structure seal at the bottom of the joint. Base seal is suitable for construction, contraction (control), and expansion joints.



JP1122
Base Seal Waterstop
75 ft Head of H₂O



JP1122R
Base Seal Retrofit Waterstop System
(Includes all anchors)
75 ft Head of H₂O

The Buncefield Incident (right). On December 11, 2005 a series of explosions rocked the Hertfordshire Oil Storage Terminal, located near Hemel Hempstead in Hertfordshire, England. The plastic waterstops that were in the fuel terminal joints all failed due to the high heat of the fire. The Health Protection Agency and the Major Incident Investigation Board provided advice to prevent incidents such as these from happening again, including the utilization of stainless steel waterstop in place at all concrete joints to prevent fuel from escaping the bund walls.

In July of 2014, J P Specialties, Inc. was contracted to provide our Earth Shield® Stainless Steel Waterstop (part nos. JP1122 and JP1122R) in the reconstruction and rehabilitation of the Hertfordshire Oil Storage Terminal.



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Waterstop for Che & Environments

Manufactured
with pride by



J P SPECIALTIES, INC.

www

the U.S.A.

J P Specialties, Inc. manufactures a wide range of high-quality waterstop and waterstop accessories for the concrete construction industry. Our Earth Shield® line of chemical resistant waterstop is designed to offer solutions for today's unique regulatory compliance needs. Our waterstop welding equipment is used industry-wide as the standard for quality, high tensile strength waterstop welds. Knowing that a waterstop will only offer a fluid-tight barrier if change of directions are done properly, J P Specialties has been a leader since 1954 in Prefabricated Waterstop Modules and Shop Made Fittings.

Chemical, Industrial, and Applications

WWW.EARTHSHIELD.COM

Availability

National and International Warehouses

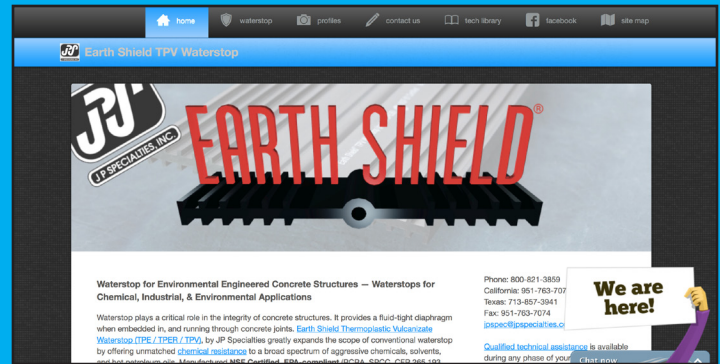
Earth Shield® Stainless Steel Waterstop is readily available from a variety of sources:

- **Preferred Regional Stocking Partners** — *We are partners with some of the very best Concrete Accessories Distributors in the world. All our preferred partners have large stocking inventories and are factory trained to provide the utmost in on-site assistance.*
- **Distributor Sales** — *Earth Shield® can be special ordered from many distributor sales channels throughout the world.*
- **Factory Direct** — *Earth Shield® may be contacted directly for project quotation and product purchase (call 800-821-3859).*
- **Web Store** — *Earth Shield® products can be ordered directly on our web store at <http://waterstop.enstore.com>*

Services

- **Project and Product Certification** — *We assist the Design Engineer and Project Owner with individual project and product certification. When you specify our waterstop, you can be assured it is the correct product for your application.*
- **Take-off Assistance** — *For the Contractor.*
- **Shop Drawings**— *3-D isometric and 2-D CAD details are available to assist the project.*
- **On-site waterstop welding certification class** — *\$500.00 flat fee*
- **On-site waterstop installation assistance** — *\$1,000.00 per day*
- **Telephone and Web-based assistance** — *Always FREE*

Distributed by:



Visit Earth Shield® on the Web at www.earthshield.com

Earth Shield® Waterstop Limited Warranty

J P Specialties, Inc. warrants to the Buyer that this product is new and will be free from defects and will perform as represented in writing subject to the two (2) following conditions: First, the application of the product and the concrete construction practices used in the application are in accordance with J P Specialties, Inc. recommendations; and, Second, the Buyer has selected the proper product for the specific application required.

Any information supplied in good faith by J P Specialties, Inc. with respect to its products is believed to be correct. J P Specialties, Inc. Makes no representation or warranties, expressed or implied, as to the accuracy or completeness of such information.

The exclusive remedies of the Buyer and the limit of the liability of J P Specialties, Inc. from any and all losses or damages resulting from the use of this product shall be either full refund of the purchase price to the Buyer of this product or the replacement of the quantity of product purchased by the Buyer at the discretion of J P Specialties, Inc.

All supplied testing data has been performed by independent testing laboratories.

Earth Shield® Chemical Resistant Waterstop
Phone: 800-821-3859; 951-763-7077
Fax: 951-763-7074

www.earthshield.com



www.facebook.com/waterstop

Suggested Long Form Guide Specification**PART 1 GENERAL**

1. Provision Includes

- A. The use of metallic waterstops for use in concrete joints subjected to corrosive effects of aggressive chemicals, ozone and high temperatures, which would destroy other types of waterstops.

2. References

The publications listed below form a part of this specification to the extent referenced.

The publications are referred to in the text by basic designation only.

- A. American Society for Testing and Materials (ASTM)
 - 1. ASTM A 240 — Test Method for Stainless Steel Physical Properties.
- B. Federal Specifications
 - 1. COE CEGS-03250 July 1995 Guide Specification for Military Construction.
 - 2. EPA Title 40 CFR Section 265.193.
- C. Canadian Council of Ministers of the Environment
 - 1. Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products.
- D. Buncefield Standards Task Group
 - 1. Safety and Environmental Standards for Fuel Storage Sites — Final Report July 2007
- E. American Welding Society
 - 1. D1.6 (1999) Structural Welding Code — Stainless Steel

3. Submittal Procedures

A. Chemical Resistant Waterstops

- 1. Earth Shield® Stainless Steel Metallic Waterstop submittal shall contain the following:
 - a. Samples of each size and shape to be used.
 - b. Plate drawings of the waterstop profile indicating all dimensions.
 - c. Shop drawings of shop made fittings to be provided by the manufacturer or prepared by the contractor.
 - d. Sample field lap splice to be furnished with shipment.
 - e. Manufacturer's Literature, including MSDS sheets, installation instructions and splicing instructions.
 - f. Certificate of compliance to physical properties outlined in this specification using ASTM A 240 test method.

4. Delivery and Storage

Material delivered and placed in storage shall be stored off the ground and protected from moisture, dirt, and other contaminants.

PART 2 PRODUCTS

1. Waterstops

Intersection and change of direction waterstops shall be shop fabricated.

- A. Manufacturer: J P Specialties, Inc. — 25811 Jefferson Avenue, Murrieta, CA 92562 — Phone 800-821-3859; International 951-763-7077; Fax 951-763-7074; Web www.earthshield.com; E-mail davidp@earthshield.com
- B. Stainless Steel — Stainless Steel waterstops shall conform to ASTM A 240 (type 316ELC), be 20 gauge thick, and be manufactured specifically as a waterstop, with outer flanges and center “V”, as opposed to flat steel.

Stainless Steel Waterstop shall conform to the following minimum physical properties:

Property	Test Method	Required Results
Tensile Strength	ASTM A 240	90,000 psi
Elongation in 2" minimum	ASTM A 240	45%
Yield Strength	ASTM A 240	45,000 psi
Rockwell B Hardness	ASTM A 240	95
High Temp. Resistance		2,552°F

Unless otherwise specified or indicated on the drawings provide the following types:

1. **Part No. JP558** — 6", 20 gauge, 316 extra low carbon, “W” shaped, as manufactured by **J P Specialties, Inc.** (*all-purpose waterstop*)
2. **Part No. JP358** — 4", 20 gauge, 316 extra low carbon, “W” shaped, as manufactured by **J P Specialties, Inc.** (*all-purpose waterstop*)
3. **Part No. JP578** — 6", 20 gauge, 316 extra low carbon, “U” shaped, as manufactured by **J P Specialties, Inc.** (*large joint movement waterstop*)
4. **Part No. JP858** — 9", 20 gauge, 316 extra low carbon, “W” shaped, as manufactured by **J P Specialties, Inc.** (*all-purpose waterstop*)
5. **Part No. JP558R** — 6" retrofit, 20 gauge, 316 extra low carbon, joins to “W” shaped material (558), as manufactured by **J P Specialties, Inc.** (*for joining to concrete to existing surface*)
6. **Part No. JP1122** — 12", 20 gauge, 316 extra low carbon, “W” shaped base seal, as manufactured by **J P Specialties, Inc.** (*base seal waterstop*)
7. **Part No. JP1122R** — 12" retrofit, 20 gauge, 316 extra low carbon, joins to “W” shaped base seal material (1122), as manufactured by **J P Specialties, Inc.** (*for joining to concrete to existing surface*)
8. **Part No. JP1158** — 12", 20 gauge, 316 extra low carbon, “W” shaped, as manufactured by **J P Specialties, Inc.** (*all-purpose waterstop*)

C. Stainless Steel Waterstop Shop Made Fittings

1. Provide shop made fittings, which are T.I.G. welded to provide maximum tensile strength.
2. Shop made fittings shall maintain continuity of profile (center “V” and flanges). All directional changes shall be miter cut and welded.
3. All welds shall be nonporous and contaminant-free.

PART 3 EXECUTION

1. Waterstop, Installations and Splices — Waterstops shall be installed at the locations shown to form a continuous fluid-tight diaphragm. Adequate provision shall be made

to support and completely protect the waterstops during the progress of the work. Exposed waterstops shall be protected during application of form release agents to avoid being coated. Suitable guards shall be provided to protect exposed projecting edges and ends of partially embedded waterstops from damage when concrete placement has been discontinued. Splices shall be made by certified, trained personnel using approved equipment and procedures.

- A. Stainless Steel — Splices in stainless steel waterstops shall be welded using a TIG (recommended) or MIG process utilizing a weld rod to match the stainless (weld rod: 316ELC; diameter — .035 to .045). Damaged waterstops shall be repaired by removing damaged portions and patching. Patches shall overlap a minimum of 1 inch onto undamaged portion of the waterstop. Weld all straight run material edge-to-edge (no overlapping). If installed in expansion joint, assure backside (or open end of the center “V”) is covered completely with tape and the annulus (between tape and waterstop) is filled with 7/8” diameter backer rod prior to concrete pour. This allows the center “V” to remain open allowing for joint movement. (Tape and backer rod is not necessary in non-moving contraction and construction joints.)

2. Preparation

- A. Position waterstop to ensure proper distance from steel reinforcing bars to prevent rock pockets and honey comb (see installation section 3.04).
- B. Protect waterstop from damage during progress of work.
- C. Clean concrete joint after first pour to remove debris and dirt.

3. Examination/Inspection

- A. Prior to placement of concrete notify engineer for field inspection approval.
- B. Upon inspection of waterstop installation, replace any damaged or unacceptable waterstop and dispose of defective material.

4. Installation

- A. Position waterstop in joint as indicated on drawings.
- B. Center waterstop on joint, with approximately one-half of waterstop width to be embedded in concrete on each side of the joint.
- C. Allow clearance between waterstop and reinforcing steel of a minimum two times the largest aggregate size. Prevent rock pockets and air voids caused by aggregate bridging.
- D. Carefully place concrete without displacing waterstop from proper position.
- E. Thoroughly and systematically vibrate concrete in the vicinity of the joint, and to maximized intimate contact between concrete and waterstop.
- F. After first pour, clean unembedded waterstop leg to ensure full contact of second concrete pour. Remove laitance, spillage, form oil and dirt.

END OF SECTION