



# EARTH SHIELD®

## Waterstops for Railroad and Fuel Terminal Applications

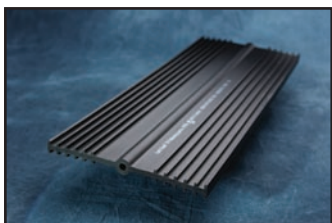


Earth Shield® is proud to be the chosen performance product of Union Pacific, Burlington Northern Santa Fe, CSX, and myriad fuel terminals and loading stations throughout the world. In many cases, Earth Shield® is a key component in the rail company's Environmental Advocacy Program.

Contact our National Sales Manager — Mr. Tom Nelson at 713-857-3941 (tom@jpspecialties.com) and see how we can help with your regulatory requirements.

Waterstops play a critical role in the integrity of concrete structures. Earth Shield® Thermoplastic Vulcanizate (TPV) Waterstop is used as a fluid-tight diaphragm, embedded in concrete, across and along the joint, for primary and secondary containment structures such as tank storage and transloading areas. Earth Shield® Chemical Resistant Waterstops are ideally suited for railroad and fuel terminal applications, as they are resistant to a wide range of fuels, oils, solvents, and aggressive chemicals. Diesel fuel, JP-4 and JP-8 jet fuel, and aromatic hydrocarbons have little effect on Earth Shield® Thermoplastic Vulcanizate Waterstop.

Unlike inferior polyvinyl chloride (PVC) waterstop, Earth Shield® waterstop contains no plasticizer, stabilizer, or filler to leech out when exposed to fuels. Also, unlike PVC waterstop, Earth Shield® can withstand prolonged exposure to high and low temperatures (-164°F to 275°F long term) without detrimental effect.



Property	Test Method	Required Results
Specific Gravity	ASTM D792	.96
Shore A Hardness (5 sec.)	ASTM D2240	90±3 at 25°C (77°F)
Tensile Strength	ASTM D412	2,300 psi
Ultimate Elongation	ASTM D412	530%
100% Modulus	ASTM D746	1,000 psi
Tear Strength	ASTM D624	278 pli at 25°C (77°F)
Compression Set	ASTM D395	29% at 25°C (77°F)
Brittle Point	ASTM D746	-73°C (-164°F)
Drinking Water Safe	NSF/ANSI 61	Waterstop certified by NSF for use in potable water
Ozone Resistance	ASTM D1171	Passed, no cracking at 500 pphm
Chemical Resistance	ASTM D471	Meet or exceed specific testing standards for contained fluids as required by Owner and certified by Manufacturer
Green Certification	GreenSpec	Approved

Earth Shield® Chemical Resistant Waterstop  
P.O. Box 1507, Lake Elsinore, CA 92531  
Phone: 888-836-5778; International: 951-674-6869  
Fax: 951-674-1315





## Earth Shield® Thermoplastic Vulcanizate (TPV / TPER) Waterstop Basic Use

Earth Shield® TPV Waterstop is NSF Standard 61 Certified for use in drinking water and is made of a recyclable polymer, so it's good for health and the environment.

[http://www.earthshield.com/earth\\_shield\\_waterstop/waterstop\\_tpv/waterstop\\_tpv.html](http://www.earthshield.com/earth_shield_waterstop/waterstop_tpv/waterstop_tpv.html)

The superior chemical resistance of Earth Shield® Thermoplastic Vulcanizate Waterstop is enhanced by the use of a ribbed centerbulb configuration, which is available in a 4, 6, and 9-inch width. This provides for greater mechanical bonding with the concrete and a barrier against migration of liquid flow around the waterstop. The ribbed centerbulb style also allows for joint movement and may be used in above or below grade applications. Additional shapes are available for retrofit, extreme expansion, stainless steel and base seal applications.

Different varieties and grades of thermoplastic elastomers (TPE) are commercially available. On the low-end there is thermoplastic polyolefin (TPO), which has a rubber phase that is not cross-linked. On the high-end there is thermoplastic vulcanizate (TPV)... *Earth Shield® has chosen a fully cross-linked TPV as our standard elastomer compound*, which provides superior mechanical properties, retention, and chemical resistance. In fact, when compared side-by-side, no competitive product is even close to achieving the physical properties of Earth Shield®.

## Earth Shield® Advantages

- Outstanding fluid resistance to a wide range of aqueous-based fluids, oils, and hydrocarbons

- Excellent retention of physical properties at elevated temperatures
- Superior ozone and weather resistance



## Installation

Install Earth Shield® TPV Waterstop in all concrete joints. Waterstop should be centered in, and run the extent of the joint. All changes of directions should be prefabricated (see Shop Made Fittings), leaving only butt-welding for the field. If installing in an expansion joint, keep center bulb unembedded to allow it to accommodate movement as designed. Use optional factory installed brass eyelets (or #3 hog rings) and tie wire to secure waterstop to reinforcing steel to avoid displacement during the concrete pour. Splice straight lengths of waterstop, and Shop Made Fittings to straight lengths, with an ST-10® In Line Waterstop Splicer with the iron temperature set to 410°F to 430°F.

*More detailed installation instructions can be found in our Standard 3-part Specifications.*

## 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.

[http://www.earthshield.com/earth\\_shield\\_waterstop/waterstop\\_tpv/waterstop\\_tpv.html](http://www.earthshield.com/earth_shield_waterstop/waterstop_tpv/waterstop_tpv.html)

## Suggested Proprietary Short Form Guide Specification Section 03150

### (Master Format 2004 — 03 15 13)

#### TPV Chemical Resistant Waterstop

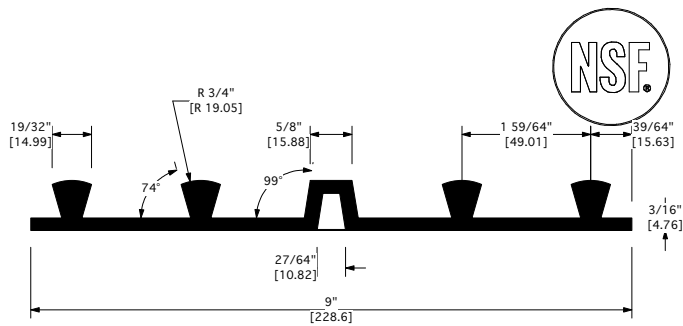
Waterstop indicated in drawings and specifications for contraction (control), expansion and construction joints shall be Earth Shield® TPV Chemical Resistant Waterstop Part No. ##### [Designer insert appropriate part number here] as manufac-



tured by JP Specialties, Inc.; 551 Birch Street, Lake Elsinore, CA 92530; Phone 951-674-6869

1. Thermoplastic Vulcanizate (TPV) 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 per ASTM D471. Project-specific certification will be provided by the manufacturer.
2. Thermoplastic Vulcanizate (TPV) Waterstop shall be independently certified for use in potable water per NSF/ANSI Standard 61. Third-party certified documentation to be provided by the manufacturer.
3. No equals or substitutions allowed.

## Suggested Waterstop Profiles for Railroad and Fuel Terminal Applications



Suggested Short Form Spec

### Flexible Waterstop

Waterstop indicated in drawings and specifications for contraction (control), expansion and construction joints to be Earth Shield® Thermoplastic Vulcanizate (TPV) Part No. JP211 as manufactured by JP Specialties, Inc., 551 Birch Street, Lake Elsinore, CA 92530 - Phone 888-836-5778; International 951-674-6869; Fax 951-674-1315; Web [www.earthshield.com](http://www.earthshield.com); E-mail [davidp@earthshield.com](mailto:davidp@earthshield.com)

1. Thermoplastic Vulcanizate (TPV) Waterstop shall be certified for use in potable water per NSF/ANSI Standard 61. Third-party certified documentation to be provided by manufacturer.

2. No equals or substitutions allowed.

JP Specialties, Inc. / Earth Shield® 551 Birch Street - Lake Elsinore, CA 92530 <a href="http://www.jp-specialties.com">www.jp-specialties.com</a> phone 800-621-3859 • International 951-674-6869 • fax 951-674-1315			
TITLE <b>9" Base Seal TPV Waterstop</b>			
PART NUMBER JP211	DRAWN BY DRP	DATE 04/00	SIZE A
CAD FILE NAME JP211	APPROVALS		

Suggested Short Form Spec

### Flexible Retrofit Waterstop

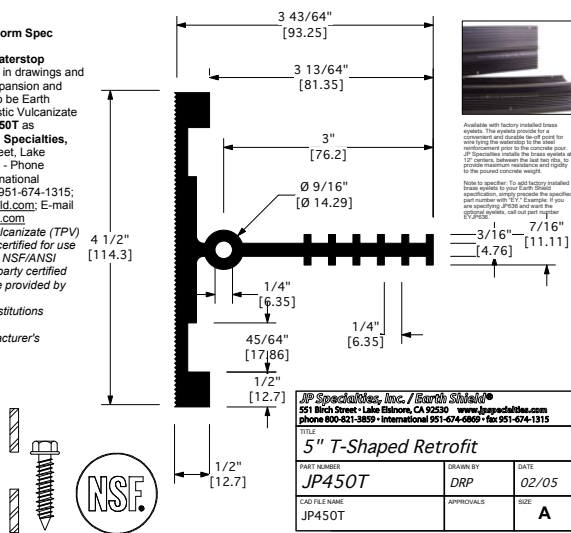
Waterstop indicated in drawings and specifications for expansion and construction joints to be Earth Shield® Thermoplastic Vulcanizate (TPV) Part No. JP450T as manufactured by JP Specialties, Inc., 551 Birch Street, Lake Elsinore, CA 92530 - Phone 888-836-5778; International 951-674-6869; Fax 951-674-1315; Web [www.earthshield.com](http://www.earthshield.com); E-mail [davidp@earthshield.com](mailto:davidp@earthshield.com)

1. Thermoplastic Vulcanizate (TPV) Waterstop shall be certified for use in potable water per NSF/ANSI Standard 61. Third-party certified documentation to be provided by manufacturer.

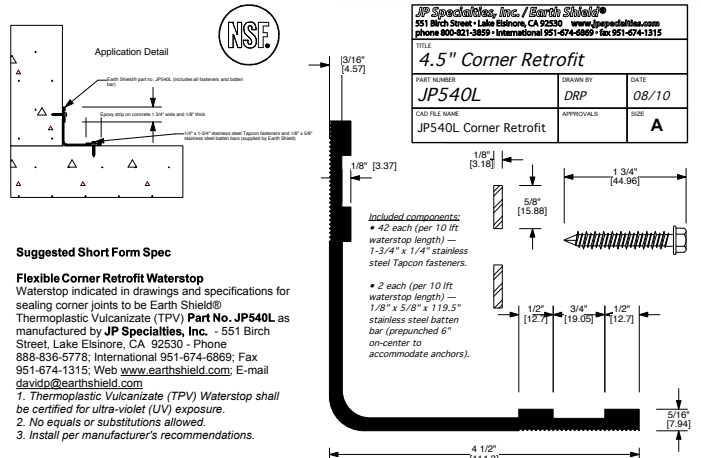
2. No equals or substitutions allowed.

3. Install per manufacturer's recommendations.

Included components:  
• 42 each (per 10 ft waterstop length) — 1-1/4" x 5/8" x 119.5" Cimsical coated Tapcon anchors.  
• 2 each (per 10 ft waterstop length) — 1/8" x 5/8" x 119.5" stainless steel batten bar (pre-punched 6" on-center to accommodate anchors).



JP Specialties, Inc. / Earth Shield® 551 Birch Street - Lake Elsinore, CA 92530 <a href="http://www.jp-specialties.com">www.jp-specialties.com</a> phone 800-621-3859 • International 951-674-6869 • fax 951-674-1315			
TITLE <b>5" T-Shaped Retrofit</b>			
PART NUMBER JP450T	DRAWN BY DRP	DATE 02/05	SIZE A
CAD FILE NAME JP450T	APPROVALS		



Suggested Short Form Spec

### Flexible Corner Retrofit Waterstop

Waterstop indicated in drawings and specifications for sealing corner joints to be Earth Shield® Thermoplastic Vulcanizate (TPV) Part No. JP540L as manufactured by JP Specialties, Inc., 551 Birch Street, Lake Elsinore, CA 92530 - Phone 888-836-5778; International 951-674-6869; Fax 951-674-1315; Web [www.earthshield.com](http://www.earthshield.com); E-mail [davidp@earthshield.com](mailto:davidp@earthshield.com)

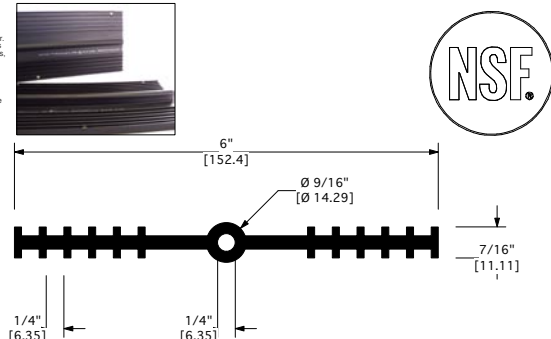
1. Thermoplastic Vulcanizate (TPV) Waterstop shall be certified for ultra-violet (UV) exposure.

2. No equals or substitutions allowed.

3. Install per manufacturer's recommendations.

Available with factory installed brass eyelets. The eyelets provide for a convenient and durable tie-off point for wire tying the waterstop to the steel reinforcement prior to the concrete pour. JP Specialties installs the brass eyelets at 12" centers, between the last two ribs, to provide maximum resistance and rigidity to the poured concrete weight.

Note to specifier: To add factory installed brass eyelets to your Earth Shield specification, simply precede the specified part number with "EY". Example: If you are specifying JP636 and want the optional eyelets, call out part number EYJP636.



Suggested Short Form Spec

### Flexible Waterstop

Waterstop indicated in drawings and specifications for contraction (control), expansion and construction joints to be Earth Shield® Thermoplastic Vulcanizate (TPV) Part No. JP636 as manufactured by JP Specialties, Inc., 551 Birch Street, Lake Elsinore, CA 92530 - Phone 888-836-5778; International 951-674-6869; Fax 951-674-1315; Web [www.earthshield.com](http://www.earthshield.com); E-mail [davidp@earthshield.com](mailto:davidp@earthshield.com)

1. Thermoplastic Vulcanizate (TPV) Waterstop shall be certified for use in potable water per NSF/ANSI Standard 61. Third-party certified documentation to be provided by manufacturer.

2. No equals or substitutions allowed.

JP Specialties, Inc. / Earth Shield® 551 Birch Street - Lake Elsinore, CA 92530 <a href="http://www.jp-specialties.com">www.jp-specialties.com</a> phone 800-621-3859 • International 951-674-6869 • fax 951-674-1315			
TITLE <b>6" RCB TPV Waterstop</b>			
PART NUMBER JP636	DRAWN BY DRP	DATE 02/00	SIZE A
CAD FILE NAME JP636	APPROVALS		

Covered by U.S. Patent No. 5,375,386

Additional Profiles Available at [www.earthshield.com](http://www.earthshield.com)



The Primary Choice for Secondary Containment®

# Availability

## National and International Warehouses

Earth Shield® Chemical Resistant 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 888-836-5778).
- **Web Store** — Earth Shield® products can be ordered directly on our web store at <http://waterstop.enstore.com>

# Services

## We Offer the Following Services, Free of Charge

- **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.

Distributed by:



Visit Earth Shield® on the Web at  
[www.earthshield.com](http://www.earthshield.com)

## Earth Shield® Waterstop Limited Warranty

*JP 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 JP Specialties, Inc. recommendations; and, Second, the Buyer has selected the proper product for the specific application required.*

*Any information supplied in good faith by JP Specialties, Inc. with respect to its products is believed to be correct. JP 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 JP 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 JP Specialties, Inc.*

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

**Earth Shield® Chemical Resistant Waterstop**  
P.O. Box 1507, Lake Elsinore, CA 92531  
Phone: 888-836-5778; International: 951-674-6869  
Fax: 951-674-1315



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

JP SPECIALTIES, INC.

[www.facebook.com/waterstop](http://www.facebook.com/waterstop)

*Publication Date March, 2012 • Earth Shield®, The Primary Choice for Secondary Containment®, and CAPwrap® are registered trademarks of JP Specialties, Inc. • All material copyright 2012 JP Specialties, Inc. • All rights reserved*