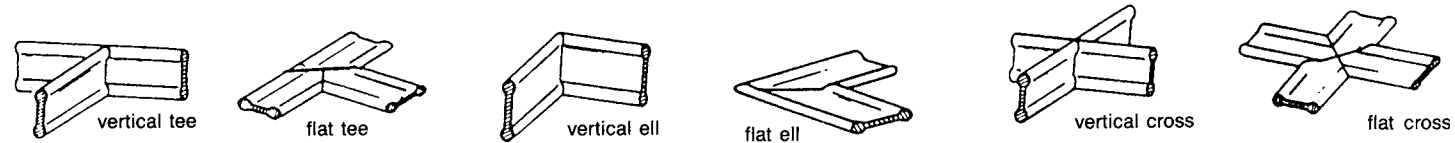
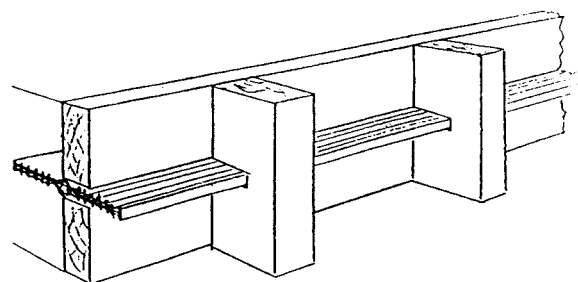


### Factory Made Splices Available on Request

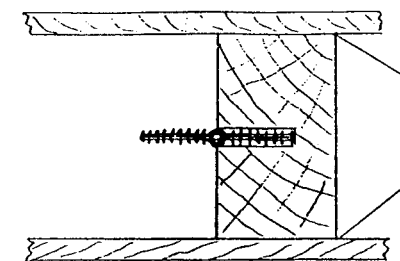


When splicing in the field, use a thermostatically controlled Splicing Iron

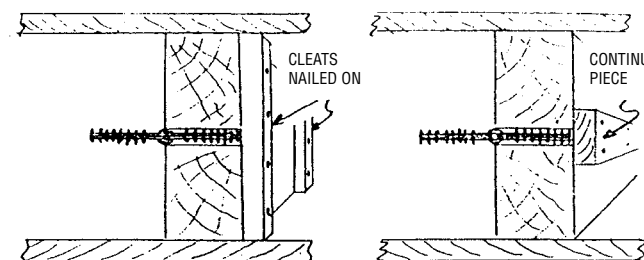
### Suggested Form Construction Details for Waterstop Installation



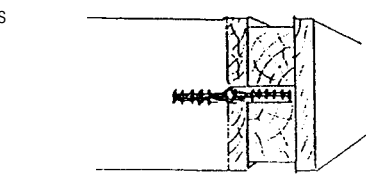
GROOVED CLEATS TO HOLD WATERSTOPS



GROOVE IN FORMWORK



DIVIDED FORMWORK



SPLIT PLANK FORM

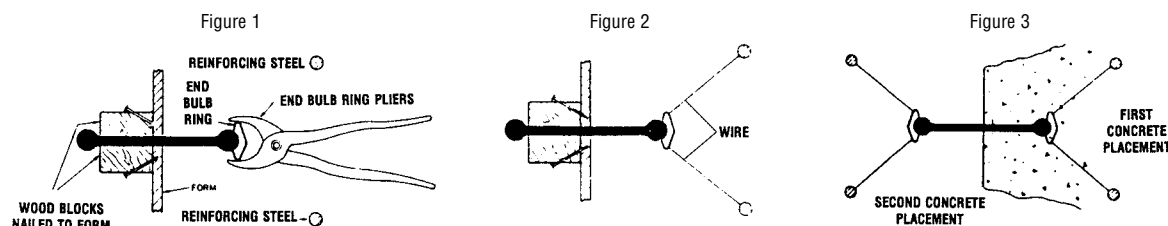
### Waterstop Installation Using End Bulb Rings

Unless waterstops are supported to resist the weight of concrete, they may be bent or flattened and form a less effective water barrier.

This necessary support is easily created by using end bulb rings and wire to secure the waterstop to the reinforcing steel rebar.

When the waterstop is positioned in the split form, wooden blocks should be nailed to one side to hold the waterstop in place until the end bulb rings are in place on the other side of the form, and wiring from the end bulb rings to the rebar is completed.

Figure 1 below shows an end bulb ring clamped to the end bulb of the waterstop. Wires are then attached to the end bulb ring and secured to the rebar in Figure 2. Then, in Figure 3, the first concrete placement is complete and the end bulb ring and wiring are in place awaiting the second pour.



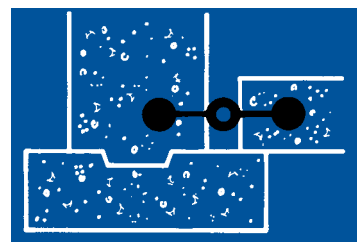
### Typical Properties (PVC)

(CRD-C-572-74)

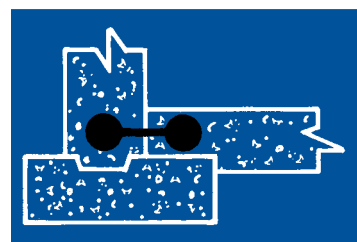
	Typical Value	Test Method
Tensile Strength	2050 psi	CRD-C 573
Ultimate Elongation	366%	CRD-C 573
Stiffness in Flexure	775 psi	CRD-C 571
Tear Resistance	380 lbs./in.	ASTM D-624
Ozone Resistance	passed	ASTM D-1149
Low Temperature Brittleness (-35°F)	No Cracking or Splitting	CRD-C 570
Accelerated Extraction		CRD-C 572
Ultimate Elongation	350%	Par 7.1
Tensile Strength	2000 psi	Par 7.1
Effects of Alkalies	Loss in Weight 0.10% Max. Gain in Weight 0.25% Max.	CRD-C 572 Par 7.2

### Suggested Specification

All waterstop shall be Durajoint PVC Waterstop as manufactured by Durajoint. It shall be an extrusion of virgin polyvinyl chloride and additional resins, plasticizers and stabilizers which meet or exceed the requirements of the Corps of Engineers specifications. Types and dimensions of waterstop shall be those shown in the project specifications.



EXPANSION JOINTS

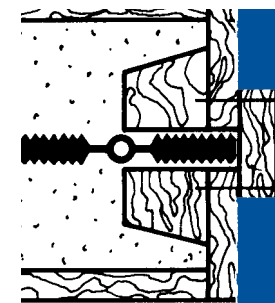


CONSTRUCTION JOINTS

### How to make keyed split forms

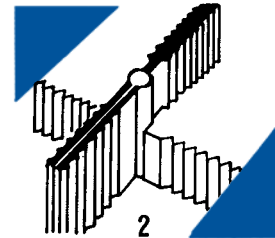
2x4 lumber should be chamfered and ripped, and waterstop placed between the split sections. Center the waterstop at the edge of the 2x4.

Three pieces of lumber are required for the bulkhead, as shown in the drawing.



### How to eliminate split forms

Use Durajoint split ribbed waterstop with centerbulb. Spread open split flange and staple or nail to bulkhead (1). After forms from the first pour have been removed, join split flange (2) using hog rings.

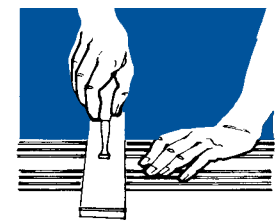


### How to splice Durajoint PVC Waterstop

1. PVC Waterstop is spliced by cutting the two ends to be joined so that they will butt smoothly together. Use a miter box, or overlap and cut through both pieces at once.

2. Heat both ends to be joined, using an electric splicing iron, until the material melts. For best results, there should be about 1/8" of melted material at the end of each piece, but do not overheat to the point that the waterstop becomes a dark color.

3. Press the melted edges firmly together and hold for 15 to 30 seconds until the material cools. Stress should not be put on the spliced joint until the waterstop has completely cooled.

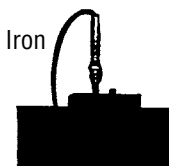


### Electrical Splicing Tools

2" x 14" Small Iron with Teflon Cover  
6' Power Cord  
Weight 3 Lbs.  
UL Listed, 110V 600 Watts



4-1/2" x 14" Large Iron with Teflon Cover  
6' Power Cord  
Weight 6 Lbs.  
110V 600 Watts



**Durajoint**  
Concrete Accessories  
**Corporate Office**  
10426 Industrial Drive • Garrettsville, OH 44231  
(888) 833-8308 (Toll-Free)  
or (330) 527-4308  
Fax: (330) 527-2440  
**For Technical Service**  
call (888) 833-8778 (Toll-Free)

**LIMITED WARRANTY:** Durajoint warrants that its products will be free from defects and will perform in accordance with each product profile's specifications, subject to the following conditions: first, the product is applied in accordance with Durajoint's recommendations, and second, the Buyer has selected the proper product profile for the specific application. Durajoint disclaims any responsibility for Buyer's selection of a particular product profile. Product profile selection is the sole responsibility and decision of the Buyer. The suitability of any profile for a specific application requiring fluid resistance is best determined by specific testing for that application. Durajoint encourages the Buyer to conduct its own site application testing. **LIMITATION ON LIABILITY:** Therefore, Durajoint's liability to the Buyer or any third party for any losses or damages, whether direct or otherwise, arising out of the purchase of its product shall be limited to a full refund of the purchase price to the Buyer. In no event shall Durajoint be liable for any incidental or consequential damages.

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**Durajoint**<sup>®</sup>  
Concrete Accessories



The Original  
PVC Waterstop



**DESCRIPTION** Durajoint PVC Waterstop is a product designed for use in concrete construction containing joints, one side of which is subject to hydrostatic pressure. The material is gray in color. Durajoint is used as a barrier within the joint to prevent the passage of liquid through or across the joint. It is embedded in the concrete on both sides of the joint and spans the joint. It is designed to accommodate lateral and transverse movement which can cause a joint to open, close or misalign.

**USE** Durajoint is used in portland cement concrete construction to prevent the passage of water through expansion joints and construction joints, particularly in on grade and below grade structures, where water has to be kept out, or kept in.

**COMPOSITION AND MATERIAL** Durajoint is extruded from an elastomeric plastic compound consisting of virgin polyvinyl chloride and additional resins, plasticizers and stabilizers to meet or exceed the requirements and performance criteria of the Corps of

Engineers Specification CRD-C 572-74. An arctic grade is available on request to meet Ontario Hydro Standard M-264-81.

Durajoint is chemically inert, contains no materials leachable by water, and is highly resistant to ozone and oxygen, and to waterborne chemicals. It is fungus resistant, as tested against the specifications outlined in Military Standard 810B, Method 508, will not fatigue on repeated flexure, and retains its strength and elasticity through a temperature range from -35°F to +175°F.

**TYPES OF JOINTS**

- **Working Joints** – Large amount of movement occurs.
- **Non-Working Joints** – Little or no movement occurs.
- **Control Joints** – Purposely created planes of weakness to predetermine the location of cracks caused by contraction during the curing of concrete. Usually these joints have lateral movement.
- **Expansion or Isolation Joints** - Separates or isolates abutting concrete structures, such as walls, slabs, columns or footings. Movement can be both lateral and transverse.
- **Construction Joints** - Placed at the interruptions in the placement of concrete.

**TYPES OF WATERSTOP**

- **Ribbed with Centerbulb** – the most common and versatile type used. It is used in expansion, contraction and construction joints, particularly where a large amount of movement is expected. The greater the expected movement, the larger the bulb that should be used.
- **Ribbed w/o Centerbulb** – used in construction joints where little or no movement is expected. The ribs provide better watertight sealing than do non-ribbed types.

- **Dumbbell w/o Centerbulb** – primarily used in below-grade joints where little or no movement is anticipated.
- **Dumbbell with Centerbulb** – used for selected applications where movement, even if transverse or longitudinal, is present.
- **Split Ribbed and Dumbbell** – used to eliminate split form work.
- **Baseal® Type Joint Seals** – designed for ongrade installation at the bottom of concrete slabs to prevent upward seepage of ground water through joints, or in thin slab construction, or to waterproof joints at wall/slab junctions.

**NOTE: Head pressure ratings are for reference only. Actual ability to resist head pressure depends on the quality of concrete and placement.**

Ribbed Type with Centerbulb		
	APPROX. WT. LBS. LIN. FT.	HEAD OF WATER FT.
<b>Type 3</b> <b>Type 3A</b> Construction joints.	<b>0.50</b> <b>0.40</b>	<b>65</b>
<b>Type 4</b> Construction joints. For higher heads of water or larger movement than Type 3.	<b>0.89</b>	<b>100</b>
<b>Type 4B</b> Similar to Type 4, however tapered for economical but effective water stoppage.	<b>0.70</b>	<b>100</b>
<b>Type 5</b> Heavier duty than Type 4. Will resist displacement during concrete pour.	<b>1.14</b>	<b>125</b>
<b>Type 5A</b> Similar to Type 5. Recommended for small dams and hydro projects.	<b>1.65</b>	<b>125</b>
<b>Type 5BR</b> Extra heavy duty. Will also resist displacement during pour.	<b>1.14</b>	<b>125</b>
<b>Type 6</b> For large expansion joints in retaining walls or roof slabs.	<b>1.07</b>	<b>150</b>
<b>Type 7</b> For large heads of water – dams, major reservoirs, sewage plants or locks.	<b>1.62</b>	<b>150+</b>
<b>Type 7BR</b> Use when extra movement in both shear and expansion is expected.	<b>2.65</b>	<b>150+</b>
<b>Type 7C</b> Will accommodate extra movement in both expansion and shear.	<b>2.24</b>	<b>150+</b>
<b>Type 7D1</b> For larger heads of water – dams, reservoirs, sewage plants or locks with larger movement.	<b>2.10</b>	<b>150+</b>

Ribbed Type with Centerbulb		
	APPROX. WT. LBS. LIN. FT.	HEAD OF WATER FT.
<b>Type 7F</b> For large transverse and shear movements in major structures.	<b>3.01</b>	<b>150+</b>
<b>Type 8</b> For exceptionally high heads of water and application in major structures, dams, power houses, etc.	<b>2.70</b>	<b>150+</b>
<b>Type 9</b> Extra heavy duty for higher heads of water and will resist displacement during pour.	<b>1.64</b>	<b>150</b>
<b>Type 10</b> Will accommodate extra movement in both expansion and shear.	<b>2.34</b>	<b>150</b>
<b>Type 31</b> For extra high dams.	<b>3.18</b>	<b>250+</b>
<b>Type M3</b> Economical shape for use in expansion joints of 1" or less.	<b>1.50</b>	<b>150</b>

Split Ribbed Type with Centerbulb		
	APPROX. WT. LBS. LIN. FT.	HEAD OF WATER FT.
<b>Type 300</b> Same as Type 3 but has one split flange.	<b>0.50</b>	<b>65</b>
<b>Type 400</b> Same as Type 4 but has one split flange.	<b>0.89</b>	<b>100</b>
<b>Type 500</b> Same as Type 5 but has one split flange.	<b>1.26</b>	<b>125</b>
<b>Type 700</b> Same as Type 7 but has one split flange.	<b>1.62</b>	<b>150+</b>
<b>Type 3100</b> For extra high dams.	<b>3.18</b>	<b>250+</b>

Dumbbell Type – Split without Centerbulb		
	APPROX. WT. LBS. LIN. FT.	HEAD OF WATER FT.
<b>Type DB-200</b> For expansion joints 1/2" or less in width.	<b>1.54</b>	<b>100</b>
<b>Type DB-300</b> For expansion joints 1" or less in width.	<b>2.21</b>	<b>100</b>

Ribbed Type without Centerbulb		
	APPROX. WT. LBS. LIN. FT.	HEAD OF WATER FT.
<b>Type 2</b> For construction joints.	<b>0.39</b>	<b>65</b>
<b>Type 11</b> Construction joints in foundation walls and footings where greater hydrostatic pressure is anticipated.	<b>1.46</b>	<b>125</b>
<b>Type 11A</b> For deep embedment in construction and expansion joints where shear movement is not anticipated.	<b>2.14</b>	<b>150</b>
<b>Type 11B</b> Durajoint flat ribbed waterstops are used in construction joints where little or no movement is expected. Found generally in below grade footings, walls and slabs.	<b>0.83</b>	<b>100</b>
<b>Type 11C</b>	<b>1.14</b>	<b>150</b>

<b>Type 12</b> Construction joints in foundation walls and footings.	<b>1.07</b>	<b>65</b>
<b>Type 13</b> Construction joints in foundation walls and footings where greater hydrostatic pressure is anticipated.	<b>1.59</b>	<b>125</b>
<b>Type 14</b> For deep embedment in construction and expansion joints where shear movement is not anticipated.	<b>2.24</b>	<b>150</b>
<b>Type 15</b> Construction joints in foundation walls and footings.	<b>1.29</b>	<b>125</b>

**Post Applied Durajoint**

**Type 18**  
Post Applied Durajoint was designed to attach new concrete structure to existing concrete. Providing watertight joint with limited movements.

Kit includes:  
10 ft piece type 18  
2-10 ft steel bars  
40 bolts & anchors

Dumbbell Type without Centerbulb		
	APPROX. WT. LBS. LIN. FT.	HEAD OF WATER FT.
<b>Type DB-1</b> For construction joints.	<b>0.83</b>	<b>65</b>
<b>Type DB-2</b> For expansion joints 1/2" or less in width.	<b>1.53</b>	<b>100</b>
<b>Type DB-3</b> For expansion joints 1" or less in width.	<b>2.21</b>	<b>100</b>
<b>Type DB-4</b> For expansion joints 1" or less in width.	<b>2.34</b>	<b>100</b>
<b>Type DB-5</b> For composition joints below grade where little or no movement is expected.	<b>0.76</b>	<b>90</b>
<b>Type DB-7</b> Same as Type DB-5 but will take higher head of water.	<b>0.98</b>	<b>100</b>
<b>Type DB-8</b> Economical shape for construction joints below grade.	<b>0.50</b>	<b>65</b>

Dumbbell Type with Centerbulb		
	APPROX. WT. LBS. LIN. FT.	HEAD OF WATER FT.
<b>Type DB-6</b> For expansion joints up to 1-1/2" in width. Will accommodate both transverse and longitudinal movements.	<b>2.92</b>	<b>150</b>
<b>Type DB-9</b> For expansion joints 1" or less in width.	<b>2.10</b>	<b>100</b>
<b>Type DB-10</b> For horizontal and vertical expansion joints where reinforcing steel does not allow use of 9" waterstop.	<b>1.25</b>	<b>125</b>
<b>Type DB-11</b> To be used in large pours with expected movements, floodwalls, large treatment plants.	<b>3.65</b>	<b>150</b>

\*Available in TPR - Durajoint Thermoplastic Rubber Waterstop

Special Shapes		
	APPROX. WT. LBS. LIN. FT.	HEAD OF WATER FT.
<b>Type 16</b> Bridge deck joint to meet California State Hwy. Dept. specifications.	<b>1.10</b>	<b>NA</b>
<b>Type 17</b> For greater embedment in construction joints or thin walls and slabs.	<b>1.25</b>	<b>50</b>
<b>Type 27</b> For construction joints on highways and bridges.	<b>0.78</b>	<b>NA</b>
<b>Type 28</b> For construction joints on highways and bridges.	<b>1.00</b>	<b>NA</b>
<b>Type 29</b> Used to attach new concrete structure to existing concrete. Providing watertight construction joint with little or no movements.	<b>0.82</b>	<b>NA</b>
<b>Type M1</b> Used as construction joint in thin walls and slabs.	<b>0.58</b>	<b>NA</b>
<b>Type M2</b> Bridge and highway construction joints between deck and curbing or parapet abutments.	<b>1.70</b>	<b>NA</b>

Baseal® Type Joint Seals		
	APPROX. WT. LBS. LIN. FT.	HEAD OF WATER FT.
<b>Type 60</b> For construction joints in slabs and walls.	<b>0.80</b>	<b>NA</b>
<b>Type 60A</b> For construction joints in slabs and walls.	<b>0.80</b>	<b>NA</b>
<b>Type 61</b> Heavy duty for construction joints in slabs and walls.	<b>1.51</b>	<b>NA</b>
<b>Type 62</b> Heavy duty for expansion joints.	<b>1.64</b>	<b>NA</b>
<b>Type 66</b> Base seal for wall and slab construction joints.	<b>0.83</b>	<b>NA</b>

**Hydrophilic Waterstop • EXPAND-Tite**

Durajoint EXPAND-Tite is a flexible concrete construction joint waterstop that is easy to install in **non-moving joints**. It is composed of bentonite clay and butyl rubber to withhold its physical integrity after expanding.

EXPAND-Tite expands in a controlled fashion when exposed to moisture and will not expand beyond a point where the hydration process reduces the effectiveness of the waterstop.

When installing EXPAND-Tite the concrete surface needs to be dry and free of contamination. EXPAND-Tite Primer is also recommended before the placement of the waterstop.

Available in three sizes:  
**Part #EXP100**  
3/4" x 1" x 16'8" roll (6 rolls/carton) - 100 linear ft./carton  
**Part #EXP200**  
3/8" x 3/4" x 25' roll (8 rolls/carton) - 200 linear ft./carton  
**Part #EXP150**  
1/2" x 1-1/4" x 16'8" roll (6 rolls/carton) - 100 linear ft./carton

Typical Physical Properties		
Description	Method	EXPAND-Tite
Color		Black
Specific Gravity	ASTM D-71	1.35±5
Hydrocarbon Content	ASTM D-4	47% min.
Volatile Matter	ASTM D-6	1% max
Penetration, cone @77°F, 150gm; 5 sec	ASTM D-217	40±5
Application Temp.		-10° to 125°F (-22° to 52°C)
Service Temp.		-30° to 180°F (-34° to 82°C)

**Non-Hydrophilic Waterstop • SEAL-Tite**

Durajoint SEAL-Tite is a flexible concrete construction joint waterstop that is easy to install. SEAL-Tite will not shrink, oxidize, or harden with age and is rugged in temperatures from 30°F to +200°F.

When installing SEAL-Tite the concrete surface needs to be clean, dry and free of contamination. SEAL-Tite Primer is also recommended when installing on wet concrete, when temperatures are below 40°F, on in vertical joints

Available in two sizes:  
**Part #SEA100**  
3/4" x 1" x 16'8" roll (6 rolls/carton) - 100 linear ft./carton  
**Part #SEA200**  
1" x 36" strips (30 strips/carton) - 90 linear ft./carton

Typical Physical Properties		
Description	Method	SEAL-Tite
Color		Black
Specific Gravity	ASTM D-71	1.15-1.50
Hydrocarbon Content	ASTM D-4	50% min.
Volatile Matter	ASTM D-6	2% max.
Penetration, cone @77°F, 150gm; 5 sec	ASTM D-217	50-100
Flash Point, C.O.C., °F	ASTM D92	350°F min.
Fire Point, C.O.C., °F	ASTM D92	375°F min.
Ductility, °F	ASTM D113	5.0 min.
Inert Mineral filler % by weight	AASHTO	30% min.