

LEVAJOINT WATERSTOP

TPV/ TPE - R

CENTRALLY & EXTERNALLY PLACED TPE-R WATERSTOP

MODEL
PLAIN WEB
CENTER BULB

CENTRALLY PLACED
PW
CB

EXTERNALLY PLACED
EPW
ECB

LEVAJOINT TPV / TPE-R Waterstop's raw materials, referred to as "thermoplastic rubbers", are a copolymer or a physical mix of polymers (pvc and a rubber) which consist of materials with both thermoplastic and elastomeric properties. LEVAJOINT TPV / TPE-R Waterstops show both advantages typical of rubbery materials and plastic materials. The principal advantage of LEVAJOINT TPV / TPE-R Waterstops is the type of cross linking bond in their structures. In fact, cross linking is a critical structural factor which contributes to impart high elastic properties. The crosslink in thermoset polymers is a molecular bond created during the vulcanization process. LEVAJOINT TPV / TPE-R Waterstops is unaffected by concrete additives and most water solutions of organic chemicals. resist a wide range of oils, solvents and aggressive chemicals and are not readily soluble in any common solvent. Alcohols, ketones, glycols, esters and aqueous solutions of acids, bases and salts have little effect on LEVAJOINT TPV / TPE-R Waterstop.

USES

- Water/Waste Water Treatment Plants
- Lock and Dam Systems
- Reservoirs and Aqueducts
- Flood Walls
- Retaining Walls
- Foundations
- Tunnels and Culverts
- Bridge Abutments
- Containment Structures and Tanks
- Slabs-on-Ground

CENTRALLY PLACED LEVAJOINT TPE-R WATERSTOPS

The centrally placed waterstop concept gives a guarantee against water leaks across all joints in concrete structures by following the exact shape of adjacent concrete components. LEVAJOINT TPV / TPE-R centrally placed waterstops are mainly suitable for use in water retaining and water excluding structures, having the capabilities of holding out against water pressure from both internal and external face.

Centrally placed LEVAJOINT TPV / TPE-R Waterstops are available in 2 types:

PLAIN WEB



Plain Web PVC LEVAJOINT
Waterstops for use in
Construction & Contraction joints

CENTRE BULB



Center Bulb PVC LEVAJOINT
Waterstops for use in
Contraction & Expansion joints

EXTERNALLY PLACED LEVAJOINT TPV / TPE-R WATERSTOPS

The externally placed waterstop concept is designed for use in basements, foundations, floor slabs, parking, and garages constructions in both vertical and horizontal joints.

As the centrally placed Levajoint Waterstops, Externally placed Waterstops comprise a nailing outside rim for safe fixing to formwork (mould).

EXTERNALLY PLACED WATERSTOPS are available in two types:



External Plain Web LEVAJOINT
Waterstops for use in construction and
Construction & Contraction joints



External Center Bulb LEVAJOINT
Waterstops for use in
Expansion & Contraction joints

WHICH LEVAJOINT TPV / TPE-R WATERSTOPS? FOR WHICH PURPOSE?

LEVAJOINT Centrally and Externally placed Waterstops are designed for use in the majority of building situations, where waterstops are required to be resistant to concrete additives, and most water solutions of organic chemicals.

LEVAJOINT Waterstops have proved their technical advantages and resistance to long term effects over many years.

LEVAJOINT Waterstops comply with the technical data given hereafter.

CENTRALLY PLACED WATERSTOPS

They are specially designed to prevent the passage of water through the joint from either face, because of their location mid way in the slab or wall thickness across the joints in the concrete structure.

They are also specifically designed for water retaining structures, for walls and slabs where a difference of pressure may occur such as "reservoir walls ".

They equally suit for joints in suspended slabs, ground floor slabs, vertical and lift joints.

EXTERNALLY PLACED WATERSTOPS

Their main property is to be easy to install in basement and foundation construction in order to be firmly supported against back pressure such as in "water excluding" structures.

CHOICE OF WATERSTOP'S SIZE

In order to choose the appropriate width of **LEVAJOINT** Waterstop, concrete thickness, position of reinforcement and aggregate size and plasticizers uses are concerned. It is essential that concrete is properly englobing it.

As a general rule, the concrete's thickness should be equal or bigger than the **LEVAJOINT** Centrally fixed waterstop's width.

For concrete slabs having a thickness of less than 250 mm, a smaller section similar to the slab thickness will be more adequate.

TECHNICAL DATA

LEVAJOINT Waterstop Characteristics

LEVAJOINT TPV / TPE-R has three essential characteristics:

- The ability to be stretched to moderate elongations and, upon the removal of stress, return to something close to its original shape.
- Processable as a melt at elevated temperature.
- Absence of significant creep.

| PROPERTY | STANDARDS & NORMS | NOMINAL VALUES |
|------------------------------|-------------------|----------------------|
| Hardness Shore A (±3) | ASTM D-2240 | 85 |
| Tensile Strength | ASTM D- 412 | 2100 psi (14.47 MPa) |
| Ultimate Elongation | ASTM D-638 | 480% |
| 100% Modulus | ASTM D-638 | 1050 psi (7.24 MPa) |
| Brittle Point | ASTM D-746 | -69°F (-56°C) |
| Stress@ 100% Elongation, psi | ASTM D-638 | 1000 |
| Ozone Resistance | ASTM D-1171 | Passed 460 pphm |
| Peel Strength @ 23°C | ASTM D-816 mod. | 22 pli |

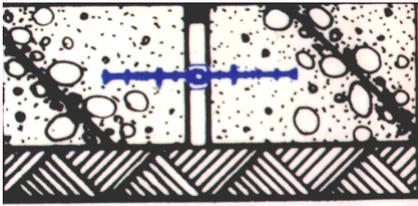
SPLICING

LEVAJOINT PVC Waterstop may be butt-spliced on the job, with an electrical splicing iron. There is no need for skilled labor to do it. Crimping, shaping, brazing or vulcanizing is not necessary.

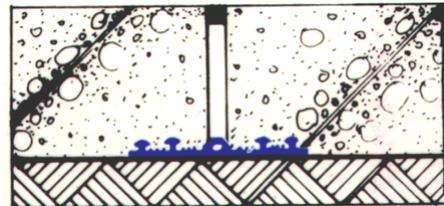
The following figures illustrate the splicing method to produce strong water-tight butt weld. Elbows tees and crosses can also be produced using this method.

A splicing iron is the recommended tool for splicing PVC Waterstops . In most instances, although a hot metal plate is still usable where an electric outlet is not available. Where the number and type of welds warrant it, the use of a hot air welding gun and vinyl welding rod is recommended. *Complete **LEVAJOINT** welding kits, comprising **LEVAJIGS** and **LEVAKNIFE** are available on request.*

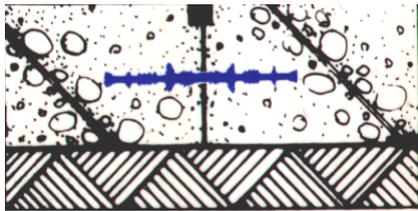
POSITIONING



LJ-CB
Centrally Placed LEVAJOINT



LJ-ECB
Externally Placed LEVAJOINT

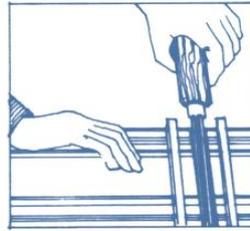
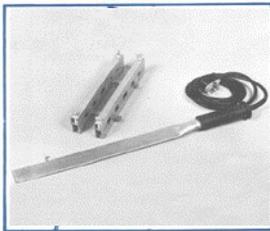


LJ-PW
Centrally Placed LEVAJOINT



LJ-EPW
Externally Placed LEVAJOINT

WELDING PROCEDURE



Be sure that: The LEVAKNIFE is clean, plug it into the correct voltage (220V) electricity supply and let it warm up.

The ends of LEVAJOINT Waterstop to be welded are identical, clean them with water or a solvent without oil, and dry them.

Clamp the ends of LEVAJOINT to be welded in the LEVAJIGS and cut both ends with a sharp cutter, flush with the faces of the LEVAJIGS.

Open the LEVAJIGS and slide them back, leaving around 10mm of each end appearing, clamp the LEVAJIGS tightly in position, then locate the projecting bars of one jig in the holes of the other.

Place the LEVAKNIFE on the bars between the jigs and slide them together until the LEVAJOINT Waterstop ends are pressed firmly against of the LEVAKNIFE's blades.

The LEVAJOINT should melt without burning or carbonizing.

Hold the LEVAJIGS firmly in position until molten PVC beads appear along both sides of the LEVAKNIFE.

Slide the LEVAJIGS back a little and remove the LEVAKNIFE up so that it takes as little PVC as possible with it. Join the molten ends of the LEVAJOINT by sliding the jigs together by exerting pressure holding the ends firmly together for around 25 seconds to allow molten PVC to fuse completely. Put the LEVAKNIFE off. As it is still hot, clean well the LEVAKNIFE preparing it for the next joint welding.

Without bending the LEVAJOINT, unfasten the LEVAJIGS and remove carefully the LEVAJOINT Waterstop.

When the LEVAJOINT becomes cold, test it by bending it several times, in order to be sure of the melting procedure success.

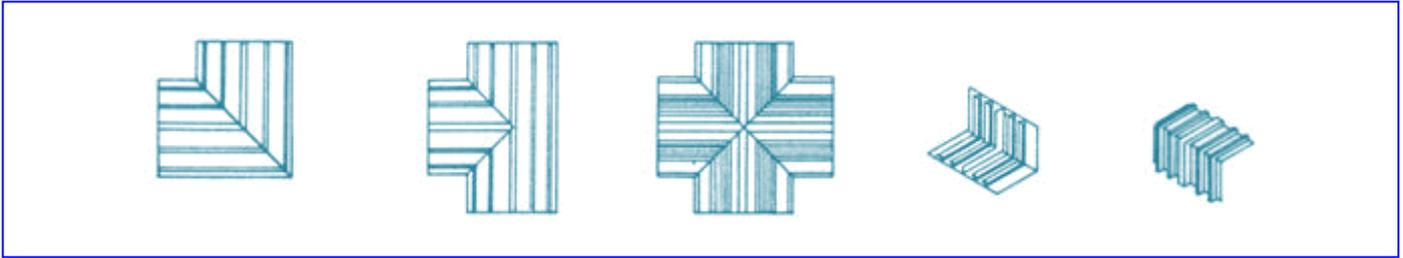
P.S. Where an electrical outlet is not available, the use of a hot metal blade is possible, provided this blade is heated with a clean flame.

When the required temperature is reached, the LEVAJOINT will melt easily when touched against the blade.

Keep attention to the blade's temperature, if it is too hot, the LEVAJOINT will carbonize.

INTERSECTION FORMS

Many kinds of intersection pieces may be prepared, here follow some forms:



HEALTH AND SAFETY

Hot weld site jointing of PVC LEVAJOINT Waterstops results in the liberation of hydrochloric acid fumes. Therefore, good ventilation must be provided or a suitable respirator used in closed places. In open places, such precautions are not necessary as no danger to health exists.

PRECAUTIONS

Avoid drive nails through center of waterstop when forming.

Never lap waterstop .

All joints must be sealed with a heat sealing method.

Avoid embedding center bulb in concrete. It must be positioned in the center of the joint to insure freedom of movement and proper expansion.

PROFILE DATA

| LEVAJOINT | Section Width in cm. | Minimum Radius on Flat in Meters | Roll Length Meter |
|-------------------------------------|-------------------------|-------------------------------------|----------------------|
| CENTER BULB LJ - CB | 30 | 15.0 | 25.0 |
| | 25 | 15.0 | 25.0 |
| | 20 | 14.0 | 25.0 |
| | 15 | 12.0 | 25.0 |
| PLAIN WEB LJ - PW | 30 | 15.0 | 25.0 |
| | 25 | 15.0 | 25.0 |
| | 20 | 14.0 | 25.0 |
| | 15 | 12.0 | 25.0 |
| EXTERNAL CENTER BULB LJ - ECB | 30 | 15.0 | 25.0 |
| | 25 | 15.0 | 25.0 |
| | 20 | 14.0 | 25.0 |
| | 15 | 12.0 | 25.0 |
| EXTERNAL PLAIN WEB LJ - EPW | 30 | 15.0 | 25.0 |
| | 25 | 15.0 | 25.0 |
| | 20 | 14.0 | 25.0 |
| | 15 | 12.0 | 25.0 |



Bauchrieh - Industrial City - Saffar Building
P.O.Box 11-9737 - Beirut – LEBANON

Phone Factory: 00 961 1 690594 – 3 260989
Fax : 00 961 1 690594
E.Mail: info@barakeh.com
www.barakeh.com
www.waterstop.construction