

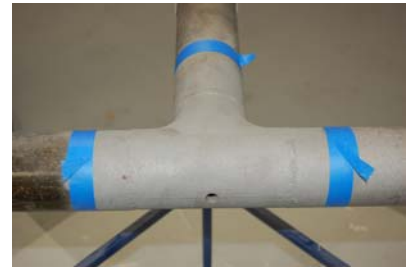
# Installation Procedure

Read and understand all instructions before starting installation. Contact HydraTech if any clarification is required (513) 827-9169.



## Prep Surface

Identify and mark area for repair. Prep surface to give clean dry white metal with rough profile. All sharp edges are to be removed and any voids filled with putty.



## Measure Fabric

Measure fabric around area to be repaired providing at least two layers of fabric. Cut fabric to desired length.

## Combine and Mix Primer

Segregate Primer containers from Wet-Out containers. Pour contents of one container of A side Primer into one container of B side Primer. Scrape out A side container ensuring any residual contents are combined with B side. Mix with jiffy mixer until color is uniform throughout. 1-2 minutes



## Apply Primer

Apply primer using supplied spreader to the prepped surface ensuring complete coverage and no drips or runs.



## Combine and Mix Wet-Out

Combine Wet-Out using same procedure as was used for Primer. Thoroughly mix with Jiffy mixer for 2 minutes.

## Apply Wet-Out to Fabric

Lay out dry fabric on clean non porous surface (table covered in plastic) and saturate with Wet-Out using supplied spreader. Ensure fabric is completely saturated then squeegee out excess resin. Role fabric on cardboard tube or roller.



## Install Saturated Fabric

Center fabric over repair and wrap around with consistent uniform pressure ensuring fabric is snug around pipe. Two wraps will give the minimal two required layers of fabric. Additional layers will provide additional structural support. Leave 1" exposed primer on either side of fabric. Any entrapped air is to be worked out of the fabric by applying pressure via spreader.



## Cure

A top coat can be applied to the repair after 3 hours. HydraWrap will develop full physical properties within 24 hours of application.



## Specifications

### Storage and Handling

- All materials shall be properly stored. Water contamination, temperatures below 32F and above 100F should be avoided.
- Fabric boxes should not be stored on end, be in contact with moisture or left open in direct sunlight.
- Epoxy system can cause skin irritation and severe irritation to eyes. Skin and eye protection must be worn at all times when working with epoxies.
- MSDS information shall be made available to installation personnel
- Inspect and certify that all required materials are available, identified by lot numbers, correctly labeled and have not reached their expiration date. Inspect containers for leaks. If leaking contact HydraTech. Inspect resins for crystals. If crystals exist heat material (150°F or microwave) to melt crystals and use once cool.
- Fabric materials should be visually checked for damage or defects that may affect performance or installation.
- Ensure required tools and equipment are available.

### Surface Prep

- The surface preparation method is dependent on the substrate and component(s) which the HydraWrap System will be applied to. The performance of all coatings is dictated by the ability to bond to the substrate which is controlled by the degree of surface prep. Generally the surface should be accessible to facilitate wrapping, clean, dry and free of extremely low or high areas.
- The surface must be prepared at least 2" on each side of where fabric will be applied.
- Mark the locations on the prepared surface to clearly define the installation positions or locations.
- Surface preparation of the substrate shall be free of sharp edges. Protrusions shall be removed and large voids shall be filled.
- All sharp edges and corners are rounded to a minimum ½ inch radius. This can also be accomplished by thickened epoxy resin build-up.
- All high/low surface imperfections (including dirt, scale, and other debris) running axially through or part way through the installation surface must be removed.
- Any joint gaps or deep imperfections must be properly filled with approved joint filler and rendered smooth.
- Required repairs or patch work shall be completed and cured prior to application of primer.
- Temperature and humidity should be monitored to ensure surface is >5°F above the dew point during installation.
- All components shall be evenly and completely mixed at the proper ratios specified.

### Priming

- Surface preparation shall be completed prior to application of primer.
- Primer B hardener is thoroughly poured into the Primer A resin container.
- Mix the primer components thoroughly until there is no marbling and color is even with a power drill or other mixer, typically taking about 1-2 minutes.
- Prime by spraying, rolling, toweling or brushing. The Primer acts as an adhesive and also a filler between the substrate and the fabric. Typically applying a 20-40 mil thick layer of primer evenly over the prepared substrate is required.
- The primer should fully cover the prepared areas with a smooth surface filling voids and other surface irregularities.
- The primer shall be applied a minimum of 2" beyond welds of Elbow and Tee repairs.
- Working time for primer once mixed is 20 minutes.

### Wet-Out

- All manual fabric wet-out saturation work shall be conducted in an environment free of contamination and that has easy access to installation area.
- Lay out the carbon fiber cloth on a non porous clean surface.
- Wet-out B hardener is thoroughly poured into the Wet-out A resin container
- Mix thoroughly for 1 to 2 minutes with jiffy mixer.
- Pour equal amounts of resin onto the fabric.
- Using a clean spreader apply the wet out over the entire fabric on both sides.
- Verify that the entire fabric is completely wetted out.
- Use of a small section of clean plastic pipe to wrap the wetted out fabric to the application area.
- Fabrics may be saturated by constructing a basin for immersion.
- Working time for Wet-Out once mixed is 20 Minutes.

### Lay up

- The combination of fabric and epoxy materials shall be applied to a prepared surface using methods that provide a uniform surface across the width of the fabric.
- Saturated fabric is to be installed in a fashion that promotes fabric installation tight on surface and free of voids in an even consistent manner.
- A minimum of two layers of fabric is required over entire area of repair.

HydraTech offers complete product support through engineering and technical resources. Contact HydraTech for support regarding the details of any HydraWrap installation.

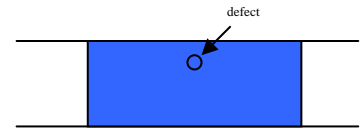


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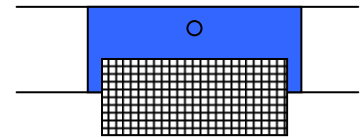


# Wrap Techniques for Standard Shapes

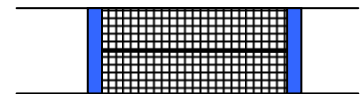
## Weld Repair



Center the carbon fabric over the area to be wrapped. Press the fabric into the primer.



Unroll the fabric and wrap it around the pipe keeping it centered on the pipe and overlapping at the end. Tug gently to ensure that the wrap is tight.



Using a spreader, notched roller, or gloved hands remove all air, wrinkles and smooth ends from the fabric.

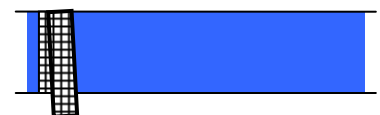
## Spiral Repair



Commence repair with one full circumferential wrap.



Form a spiral wrap by overlapping each turn by no less than 50%. Tug gently during the spiral process to ensure the wrap is tight and that no wrinkles or air bubbles are present

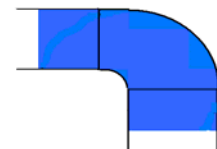


Terminate repair with one full circumferential wrap



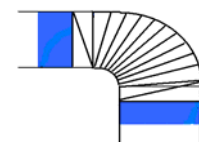
Using a spreader, notched roller, or gloved hands remove all air, wrinkles and smooth ends from the fabric. For additional layers, start at the completed end and spiral in the opposite direction.

## Elbow Repair



Begin with one complete wrap of fabric overlapping the weld.

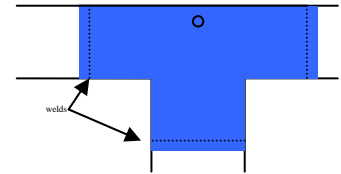
Press the fabric into the primer and then spiral the fabric so that each successive pass covers 50% of the fabric on the external arc of the bend. Tug gently during the spiral process to ensure the wrap is tight and that no wrinkles or air bubbles are present. Terminate repair with one full circumferential wrap overlapping weld.



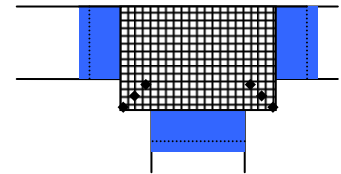
Using a spreader, notched roller, or gloved hands remove all air, wrinkles and smooth ends from the fabric. For additional layers, start at the completed end and spiral in the opposite direction.



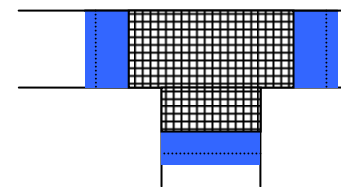
## Tee Repair



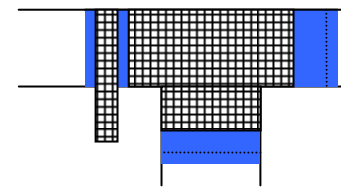
Tees require four pieces of fabric for the legs and two wider pieces of fabric (four times as long as the pipe is wide) called a Diaper. This diaper is wrapped under the straight portion of the tee up to the branch



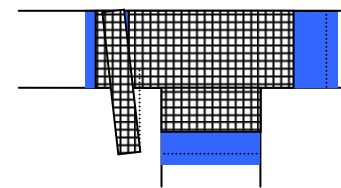
The diaper piece is installed first. The diaper is centered over the straight run of the tee covering the body of the tee with the fabric wrapped up the side of the tees. To prevent wrinkles the cloth must be cut or notched at the base of the side outlet.



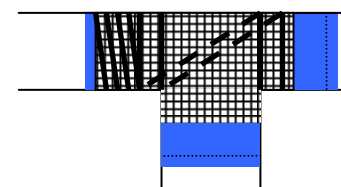
At each leg, begins with the fabric overlapping the weld. Make one complete wrap over the weld, pressing the fabric into the primer and then spiral the fabric so that each successive pass covers 50% of the fabric.



Tug gently during the spiral process to ensure the wrap is tight and that no wrinkles or air bubbles are present.



At the outlet end of the leg, complete one full turn, then wrap fabric across the tee and complete one wrap around the opposite end of the tee to terminate. After completion of first two legs, apply second diaper and use remaining two pieces of fabric to wrap third leg (lateral) both starting on lateral but terminating one on each of the first two legs.



Using a spreader, notched roller, or gloved hands remove all air, wrinkles and smooth ends from the fabric.