

Installation Procedure

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



Prepare Surface

Identify and mark area for repair. Active leaks must be isolated prior to installation. Prepare surface according to NACE/SSPC specifications. All sharp edges are to be removed and any voids filled with putty. The better the surface preparation, the better the overall performance.

Measure Fabric

Calculate the required fabric for the area to be repaired providing at least two layers of fabric.



Combine and Mix Wet-Out

Separate Primer containers from Wet-Out containers. Pour contents of one container of A side Wet-Out into one container of B side Wet-Out. Scrape out A side container ensuring any residual contents are combined with B side. Mix with jiffy mixer until it is uniform throughout (1-2 minutes). Mixed Wet-Out will provide a 20-25 minute working time at 75°F.



Apply Wet-Out

Apply wet-out using supplied spreader or brush to one side of the fabric ensuring complete coverage.

Combine and Mix Primer

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



Apply Primer to Fabric

Turn fabric over (table covered in plastic) and brush or spread with Primer. Ensure fabric is completely saturated. Roll fabric on plastic tube or roller. Mixed Primer will provide a 30 minute working time at 75°F. Use lengths of fabric that are conducive to working time. (Quart of Wet-Out for each 8-12ft piece of 12" wide fabric).

Install Saturated Fabric

Apply saturated fabric to surface with Primer side facing the surface and previous applied layers. Center fabric over repair and wrap around with consistent uniform pressure ensuring fabric is snug around pipe. Two wraps will give the required layers of fabric. Additional layers will provide additional structural support. Any entrapped air is to be worked out of the fabric by applying pressure via spreader or gloved hands



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 *SubSea* 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, 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.
- Acceptable methods of prep are that which provides a similar clean textured surface.
- 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.
- Required repairs or patch work shall be completed and cured prior to application of *SubSea*.
- All components shall be evenly and completely mixed at the proper ratios specified.
- Active leaks must be isolated prior to HydraWrap installation.

Wet-Out

- Surface preparation shall be completed prior to application.
- 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 cloths on a non porous clean surface.
- Wet-Out A Side is thoroughly poured into the Wet-Out B Side 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 side of the fabric.
- Verify that the entire fabric is completely wetted out and remove excess resin.
- Working time for Wet-Out once mixed is 20 minutes at 75F. Working time is dependent on material and environmental temperatures. Higher temperatures will create shorter working times and cooler temperatures will provide longer working times.
- After applying Wet-Out, turn pieces over.

Priming

- Primer A Side is thoroughly poured into the Primer B Side container.
- Mix the primer components thoroughly with a power drill or other mixer until there is no marbling and color is even, typically taking about 1-2 minutes.
- Prime by rolling, toweling or brushing on one side of the fabric. The Primer acts as an adhesive and also a filler between the substrate and the fabric. Typically applying a 20-30 mil thick layer of primer evenly over the fabric is required.
- The primer should fully cover the fabric with a smooth surface.
- Working time for primer once mixed is 30 minutes at 75F. Working time is dependant on material and environmental temperatures. Higher temperatures will create shorter working times and cooler temperatures will provide longer working times.

Lay up

- 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.

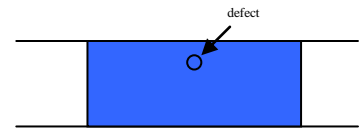


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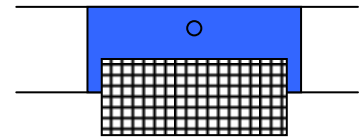


Wrap Techniques for Standard Shapes

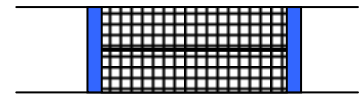
Weld Repair



Center the carbon fabric over the area to be wrapped. Press the fabric onto the substrate.



Unroll the fabric and wrap it around the pipe keeping it centered on the pipe. Wrap pipe a minimum of two times to provide at least two layers of fabric. 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 two full circumferential wraps.



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. Next apply single wrap following overlapping procedure from opposite direction.

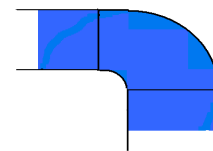


Terminate repair with two full circumferential wraps.



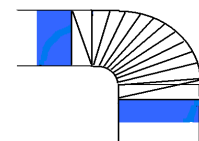
Using a spreader, notched roller, or gloved hands remove all air, wrinkles and smooth ends from the fabric. All wraps are started at the completed end and spiraled in the opposite direction.

Elbow Repair



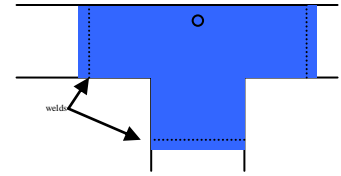
Begin with one complete wrap of fabric overlapping the weld.

Press the fabric onto the surface 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.

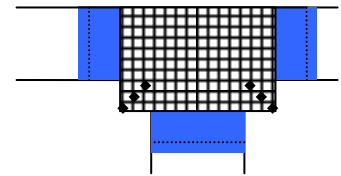


Using a spreader, notched roller, or gloved hands remove all air, wrinkles and smooth ends from the fabric. Second wrap is started at the completed end and spiraled in the opposite direction.

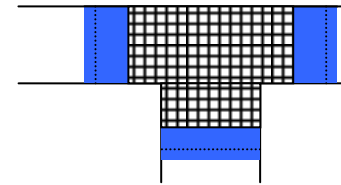
Tee Repair



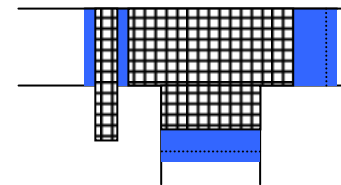
Tees require four pieces of fabric for the legs and two wider pieces of fabric (four times as long as the pipe is wide) called a Diaper. This diaper is wrapped under the straight portion of the tee up to the branch. All pieces have primer and Wet-Out applied.



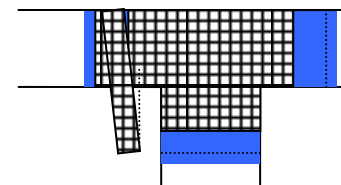
The diaper piece is installed first. The diaper is centered over the straight run of the tee covering the body of the tee with the fabric wrapped up the side of the tees. To prevent wrinkles the cloth must be cut or notched at the base of the side outlet.



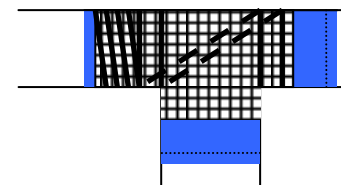
At each leg, begin with the fabric overlapping the weld. Make one complete wrap over the weld, pressing the fabric into the primer and then spiral the fabric so that each successive pass covers 50% of the fabric.



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. Repeat above process.