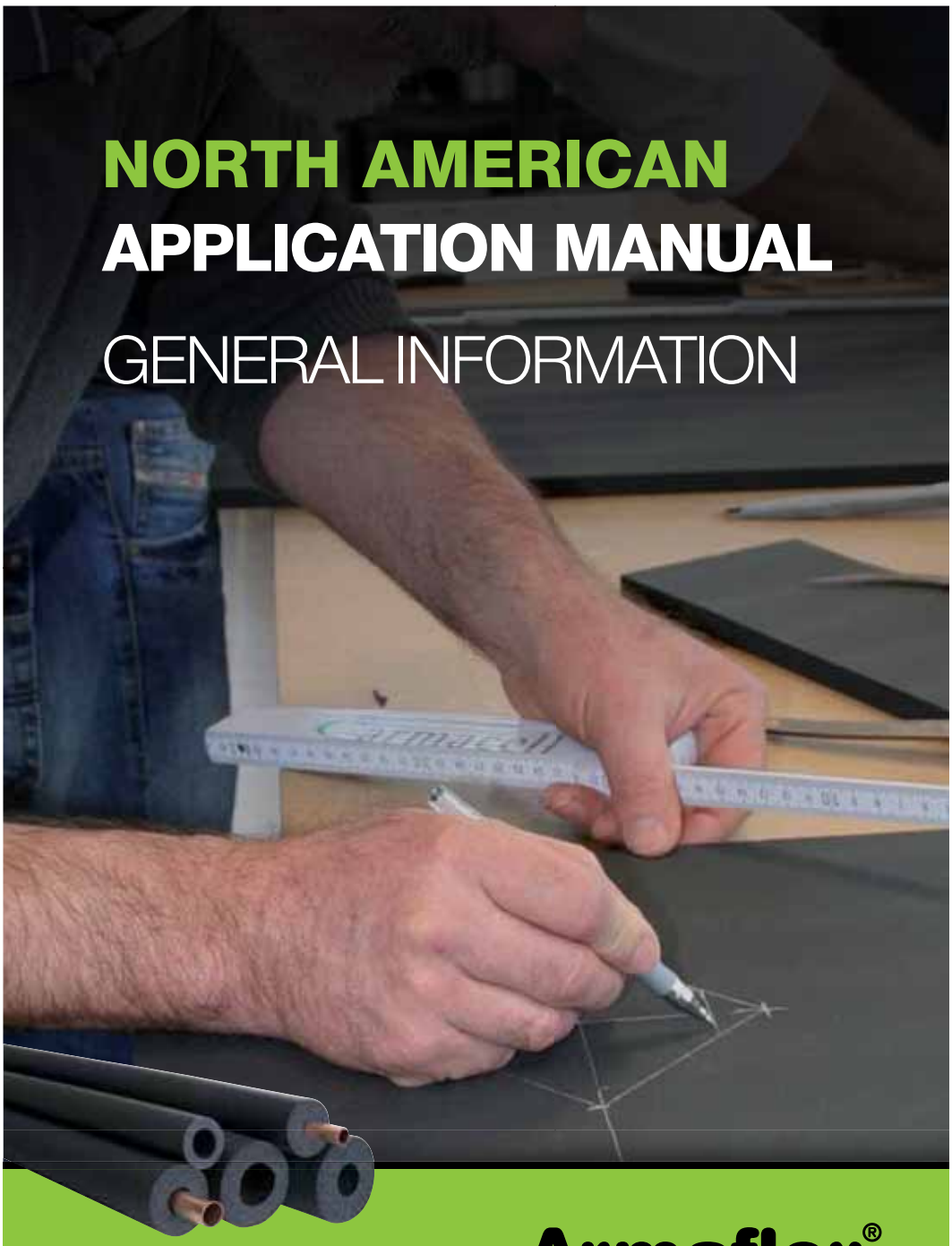
NORTH AMERICAN
APPLICATION MANUAL
GENERAL INFORMATION



Armaflex®

armacell®
Tel.: 919.304.3846
info.us@armacell.com
www.armacell.us

Content

General Information

Working with Armaflex

- Use good quality tools, in particular a sharp, non-serrated knife, fresh Armaflex adhesive, denatured alcohol and a good, short, firm bristle brush.
- Oval tubes should always be split on the flat side.
- Use clean Armaflex material – with no dust, dirt, oil or water on the surface. If present, clean with denatured alcohol.
- Use correctly dimensioned material! Never pull glued joints when sealing them; always push them together.
- Turn systems off if running. Never insulate plant and systems that are in operation! Wait 36 hours before restarting insulated plant – the adhesive is then fully cured.
- In general, an additional use of Armaflex tape is not necessary. Self-adhesive Armaflex tape should not be used as the only connection for butt and longitudinal joints and seams. If required, it should only be applied to joints and seams that have previously been glued with Armaflex adhesive and only after 36 hours to allow complete outgassing of the adhesive solvent.
- WB Finish paint can be applied immediately after the insulation has been installed, with a second coat applied within a minimum of 4 hours, to provide UV protection (see **Outdoor use of Armaflex** on page 14). Two coats is the minimum requirement.

Tools for installing Armaflex

	Folding rule / tape measure		Straight edge
	Chalk for marking irregular shapes		Template (printed on every Armaflex carton)
	Silver ink marker pen		Scissors

 See videos at www.armacell.us

	Dividers		Brushes with short, firm bristles
	Calipers		Smooth spatula
	Short knife 3 inches		Sharpened pipe ends for the most common pipe diameters
	Long knife 10 inches		Rollers for surface gluing
	Sharpening stone or hand-held sharpener		Gluemaster

The correct use of Armaflex adhesives

ARMAFLEX 520 ADHESIVES

All Armaflex 520 Adhesives were specially developed to bond Armaflex foam insulation. It joins the surfaces reliably and safely at medium temperatures of up to +220°F. The bond is resistant to weathering and aging.

ARMAFLEX ADHESIVE HT625

Armaflex HT625 Adhesive was specially developed to bond UT Solaflex insulation for medium temperatures of up to +350°F. When using UT Solaflex only Armaflex HT625 Adhesive should be used, but can also be used for Armacell elastomeric insulation material.

LOW VOC SPRAY ADHESIVE

Low VOC Spray Adhesive was developed for use with Armaflex sheet and roll insulation and can be used to bond duct liner and exterior duct wrap applications. The adhesive should be applied when temperatures are between 60°F and 80°F using the appropriate spray gun and hose. The spray adhesive has a shelf life of one year.

PREPARING FOR WORK

Check condition of Armaflex 520 adhesives. Cans of Armaflex adhesive should have been stored in a cool environment wherever possible. Cans must also have been kept free from frost.

For detailed information about transport, storage and shelf-life see the product data sheet.

1. Be sure there is proper ventilation.
2. Where installation surfaces are soiled with dust, dirt, oil or water, all of these contaminants must be removed and, where applicable, the surfaces must be cleaned with denatured alcohol before starting work. In addition, all surfaces to be joined must be dry before gluing begins.
3. Pay close attention to the installation instructions on the adhesive can. Use small cans during work so that the adhesive does not thicken too quickly. Refill from larger cans when necessary and keep closed when not in use to avoid thickening.
4. The ideal installation temperature is 40°F to 100°F. Do not use adhesive under 32°F. If the adhesive is too cold, it can be warmed in a bucket of hot water. At temperatures below 40°F, condensation can appear on the surfaces to be glued or the adhesive film. If this occurs, it is very difficult to glue the materials.
5. Shake can well before opening, and stir adhesive well after opening. If left to stand for long periods of time, heavier components in the adhesive may settle on the bottom of the can. These must be periodically mixed thoroughly before use in order to effectively activate the adhesive.

PIPES WITH CORROSION PROTECTION

Check that the adhesive will adhere to any rust-inhibiting primer that has been used to protect pipes.

Standard Armaflex adhesives should be compatible with all coating systems based on epoxy resin or polyurethane. Armaflex adhesive may not adhere to asphalt, bitumen or red lead.

APPLICATION OF 520, 520 BLACK AND HT625 ADHESIVE

1. Be sure there is proper ventilation
2. Do not leave can open during use, fabricate a lid from scrap cardboard, or sheet insulation, and insert brush into lid, this will allow the adhesive to remain liquefied, and prevent fumes into the air or causing adhesive to become viscous.
3. Use a brush with short, stiff bristles and keep clean. For larger areas an adhesive roller may be used to speed up application, and prevent the adhesive from drying too quickly.
4. Always apply material under compression. Avoid tension on the seams.
5. Apply Armaflex adhesive thinly and evenly onto both surfaces to be glued.
6. When adhering Armaflex to other materials (e.g. metal), first apply the adhesive to the Armaflex and then to the other clean surface.
7. Allow the adhesive to tack dry. The time required will vary according to the ambient conditions. The correct initial drying time may be determined by the fingernail test: touch the surface with a fingernail, if the fingernail does not adhere to the surface and the surface itself does not feel tacky, the joint may be closed. The maximum adhesive force will be obtained when two tack-dry surfaces are brought together.
8. The glued surfaces should be pressed together, not stretched. Do not leave glued seams on the top of the insulation in external locations. When working outdoors, always turn the glued seams away from the sun.
9. When gluing joints under compression, with no gaps present, the wet adhesive method should be used. Pull the seam apart slightly and apply Armaflex adhesive thinly and evenly with the brush to both surfaces and press together. No open time is needed in this case.
10. Use Goof OffTM or denatured alcohol to clean your tools, contaminated metal surfaces and surfaces where talc has been applied.
11. Curing time for 520 / HT625 Adhesive: 36 hours.
12. Note: Do not add anything to thin the adhesives. To make the adhesive easier to apply in cold environments, warm it over a bowl of hot water. See MSDS for further information.

APPLICATION OF 520 BLV ADHESIVE

1. Be sure there is proper ventilation
2. Shake and stir can of adhesive prior to use, to ensure a good mixing of solids.
3. Use a short, stiff bristle brush to apply the adhesive.
4. When applying 520 BLV, be certain to brush onto the Armaflex from the inside of the tube joint, or longitudinal seam, outward. This will reduce the chance of getting adhesive on outside of tube.
5. Be sure to apply a thin, uniform coat along entire surface area.
6. When applying adhesive to a longitudinal joint, apply 6-8" down one side of the tube wall, then alternate to the opposite side of the wall, alternating back and forth until completely covering a 3' section at a time. Pinch the 3' section closed completely, and then repeat the process to finish the balance of the tube length
7. When applying to a tube butt joint, apply the adhesive to both surfaces with 100% coverage.
8. After the adhesive has been completely applied to both surfaces, allow approximately 3-4 minutes before joining both surfaces together (the adhesive must be dry to the touch). The adhesive will bond after the tack has diminished, up to 6 minutes of open time. In conditions where the ambient temperature is high, these times may be shortened.
9. Join both surfaces evenly together, making sure to line up the outside edges, and apply even pressure. Hold seam together for a period of approximately 5 seconds. This time may vary depending on ambient temperature at the time; the critical point is that the adhesive must not be wet.
10. Because 520 BLV is a low VOC adhesive, the application is different than traditional Armaflex 520 Adhesive

APPLICATION OF LOW VOC SPRAY ADHESIVE

1. Be sure there is proper ventilation
2. **Surface Preparation:** Surfaces to be bonded should be clean, dry and free of any dust, loose paint, wax, moisture, dirt, grease, oil, rust or other contaminants. Clean the surfaces if necessary with denatured alcohol.
3. **Adhesive Preparation:** The recommended installation temperature should be between 60° to 80°F. Securely attach spray gun (SG200) to hose (MH973) then hose to canister, be certain that all fitting connections are tightened properly. Use Teflon® tape on threads as needed. Fully open the valve on the canister, **Do not close until canister is empty.** Remove the dry adhesive from the orifice of the spray gun in between use.
4. **Adhesive Application:** Before operating the spray adhesive, be sure to protect all surrounding areas against overspray of the adhesive, use cardboard, or poly sheeting, and tape off areas to be protected. Hold spray gun approximately 8 to 12 inches from the substrate, allow a uniform coat of adhesive to both surfaces. Adjust the numerical knob on the spray gun behind the trigger for desired width of spray pattern. Use Armaflex 520 adhesive with compression fit method for sealing all seams, and in areas where spraying adhesive is not possible. Do not allow the adhesive to puddle, a thin, uniform coat is required. Do not apply adhesive in direct sunlight. Spray and dry the adhesive in an area with approved and adequate ventilation to exhaust the solvent vapor. Do not breathe dust, vapors or spray mist. See MSDS for further safety information. Prevent static buildup. Properly bond and ground all containers and components. Do not smoke. Extinguish all flames and pilot lights, and turn off stoves, heaters, electric motors and other sources of ignition during use and until all vapors are gone. Use precaution when using adhesive in windy conditions.
5. **Drying:** Both surfaces must be allowed to be tacky to touch prior to bonding; tack is achieved when touched with your fingernails and no adhesive is lifted off the substrate. This will usually take from 2 to 5 minutes under normal conditions. Heat and humidity or cold weather can cause change in tack times. Cold temperature and higher humidity increases tack time, whereas higher temperature and low humidity decreases tack time.

6. **Assembly:** Align one edge of sprayed Armaflex insulation onto the other substrate carefully since no shifting is possible once contact is made. Apply even and uniform pressure until the entire section is installed. Apply uniform pressure over 100% of the bonded area.
7. **Handling and Storage:** After initial assembly, leave the hose and spray gun attached to the canister with the **valve open**. Detach spray gun and hose from canister only when transferring to a new canister. Transfer spray gun and hose to a new canister immediately to keep the product from drying in the hose. Store in a cool, well-ventilated area, out of direct sunlight. Avoid storing canister directly on the floor or against an outside wall. Do not store at temperatures above 120° F.
8. **Disposal:** Observe all labeled hazard precautions. After all the material in the canister is used, close valve and remove hose and spray gun. Transfer spray gun and hose to a new canister immediately to keep the product from drying in the hose. Open the valve on the new canister. Open the valve on the old canister and leave the canister for a few hours to make sure residual vapors are dispersed. Remove the valve from the canister. Dispose of according to all federal, state and local regulations.

APPLICATION IN HOT AND HUMID ENVIRONMENTS

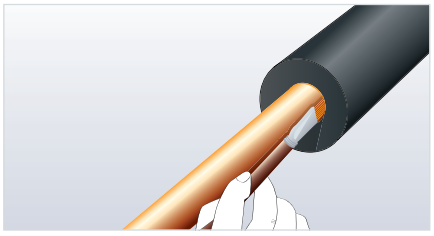
High atmospheric humidity and high temperatures lead to faster evaporation of the solvent in Armaflex adhesive. This means that a film of moisture may appear on the surface of the adhesive. Consequently the reliability of the adhesive seam cannot be assured as the surfaces to be joined may not bond together.

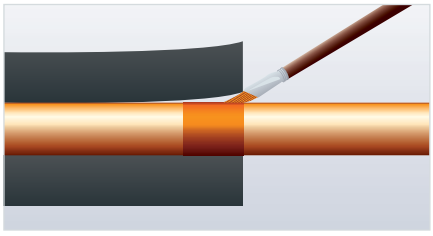
Under these conditions, the following points may be observed as an alternative to our installation instructions:

- Apply Armaflex adhesive as normal in a thin uniform film on both surfaces.
- Unlike normal bonding, the surfaces to be glued should be held together under pressure while wet.

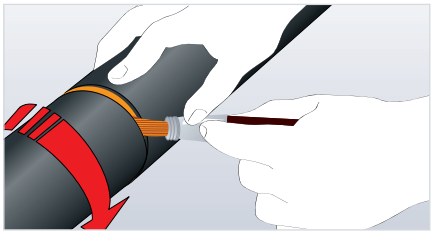
Note: Due to the shorter curing time, adhesive can only be applied to a limited area at a time. Depending on the atmospheric humidity, temperature, material thickness and practical installation conditions, we recommend a maximum tube length of around 3' as a guideline.

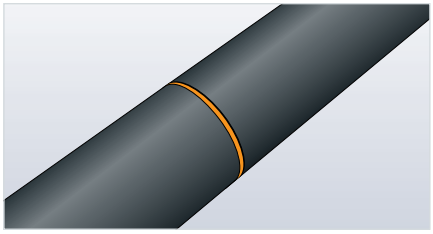
Wet sealing butt joints





1. On all cold lines, use Armaflex adhesive to glue the ends of the Armaflex sheets/tubes to the pipe surface every 18'.
2. The adhesive should be applied in a width at least equal to the insulation thickness.



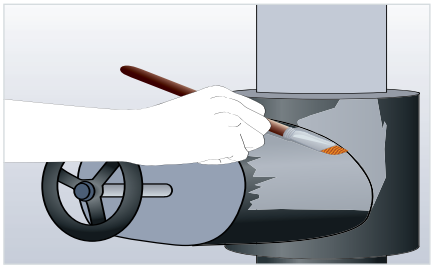


3. For the final wet sealing of the tube/sheet, use fingers to pull the joint apart and apply a thin, even film of adhesive to the two butt joint edges with a small brush.
4. Apply firm and even pressure to the glued joint using fingers and thumbs to finish.

Note: In addition, it is highly recommended that this procedure is followed for all other types of hot pipes located outdoors.

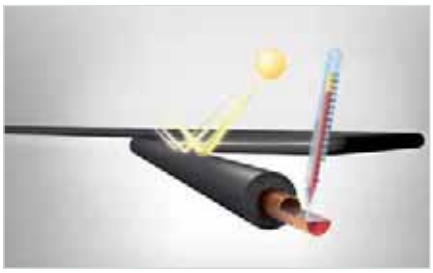
Outdoor use of Armaflex

Whenever used outdoors, Armaflex must either be painted, covered or clad.



Armaflex WB Finish is a water-based protective paint. To provide UV protection, two complete coats must be applied.

The first coat can be applied immediately after the insulation has been installed. The second coat should be applied no sooner than 4 hours later.



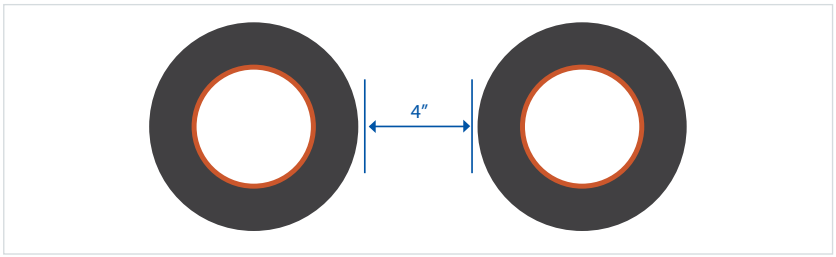
The UV-resistant **UT Solaflex** can be used for outdoor applications without any additional UV-protection. However, applying **Armaflex WB Finish** will minimize surface defects from prolonged exposure.

If additional mechanical protection or protection against severe weather conditions is required, **Arma-Chek covering systems** offer a non-metallic cladding option. For installation details please see the Arma-Chek installation manuals.

Advice for insulating refrigeration and AC equipment

- Surfaces of pipes and tanks must be sufficiently protected against corrosion before installing Armaflex. In general anti-corrosion systems based an epoxy and polyurethane resin are compatible with Armaflex adhesives. See the section **Pipes with corrosion protection** on page 8 for more details on compatibility.

- In the case of conventional insulation systems, slight damage to the water vapor barrier can allow moisture to permeate throughout and underneath the insulation material. When using Armaflex, this can easily be prevented by attaching each end of the Armaflex tube to the pipe with Armaflex adhesive, and making sure the adhesive joints are completely terminated at critical points such as flanges, T-sections, elbows, supports, etc.
- By regularly adhering Armaflex to the pipe in this way, the insulation system can be compartmentalized. Damage will therefore be limited to the specific section and can easily be detected. We recommend a maximum of 18', adhering the insulation to the pipe when practical.
- All connected items of equipment should be insulated with an equal thickness where practical.
- Never insulate chilled-water lines or refrigeration equipment if the sections to be insulated are too close together. Sufficient space should be allowed between insulated objects to ensure free convection, as air movement by free convection provides an additional safeguard against condensation on cold pipes.



Insulating stainless steel pipes

When insulating stainless steel with Armaflex please consult our Customer Service Department. Do not insulate stainless steel with AP Armaflex if the line temperature is over 125˚F. See Technical Bulletin #17.

Armacell LLC
7600 Oakwood Street Extension
Mebane, NC 27302
PH 919.304.3846 • FAX 919.304.3847
www.armacell.us • info.us@armacell.com