

Gulf O Flex

INSTALLATION MANUAL ▶

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G GULF-O-FLEX

ALUGLASS

INSTALLATION CHECK LIST

1. Review Work Order / Specifications

Read through the work order to identify all areas requiring insulation and confirm the specified materials and thicknesses.

Confirm insulation types: Check if the job calls for Tube or Sheet roll with Plain or facing like Alu glass, Alu clad, Clad or with Self-adhesive.

Check thickness requirements as per the specification.

Prioritize areas for insulation based on accessibility and critical.

2. Ensure All Materials Are On Site

Confirm delivery of insulation materials and accessories (adhesives, tapes, jacketing, fittings, etc.) by reviewing the project's materials list.

All materials should be stored in a clean, dry room to prevent damage or contamination.

Schedule material deliveries ahead of time: Ensure that all materials are delivered on time and organized by area to avoid delays.

Inspect material storage at the start and end of each day to ensure it is in a safe environment away from construction traffic or weather.

3. Check Materials for Proper Size/Thickness

Verify that the materials match the specified sizes and thicknesses, and organize them based on size (ID) and thickness.

4. Job Site Conditions

Coordinate with other trades: Check the schedules of other trades to avoid conflicts.

Ensure access points for insulation installation are clear of obstructions. Arrange for lifts or scaffolding if needed.

Note: Insulation for outdoor use must be protected from potential damage and UV exposure, using solutions such as coatings, jacketing, or cladding.

5. Check Equipment/Tools

Conduct a tool check the day before starting work to ensure that all necessary equipment and tools (e.g., lifts, scaffolding, cutting tools) are operational and that there are no delays due to missing equipment.

6. Check Manpower & Review Worker Experience

Evaluate manpower availability and review the workers' experience to develop an appropriate manpower allocation plan.

7. Review Manufacturer's Installation Procedures

Ensure installation teams are familiar with manufacturer guidelines before starting, and keep these instructions readily accessible. Contact suppliers if there are any uncertainties regarding installation methods.

8. Ensure the condition of Service System and Equipment.

Confirm that the piping system or equipment being insulated is turned off and Verify that pipes, ducts, or any other systems to be insulated are free of dirt, moisture, and any contaminants that could impair the installation process.

9. Install Fittings First

For most installations, it is advisable to start by fitting the elbows first. This will make it easier to ensure tight, clean fits. For any complex setups, consult the manufacturer for guidance.

INSTALLATION

CHECK LIST

10. Inspect Workmanship

Inspect work during installation to ensure that insulation is being applied properly, with no gaps or voids. Ensure that insulation seams are sealed, no material is wasted, and no damage occurs.

11. End of Day Procedures

At the end of each workday, ensure all materials are stored in a clean, dry area and that the completed sections of the job are securely sealed to prevent damage from other trades or weather exposure. Ensure all cutting scraps are either returned to the appropriate boxes to retain size identification or discarded properly.

12. Cold Application Procedures

For cold applications, confirm that all seams are glued and sealed, and vapor stops are installed when necessary (refer to the "Practical Tips" section of this manual for details).

13. Final Inspection

Upon completion of the job, conduct a final inspection to ensure everything has been done correctly.

TOOLS FOR INSTALLING

GULF O FLEX



RIGID AND FLEXIBLE TAPE MEASURE for measuring and tracing lines to cut.



SCISSORS to facilitate cutting insulating material.



Short blade knife



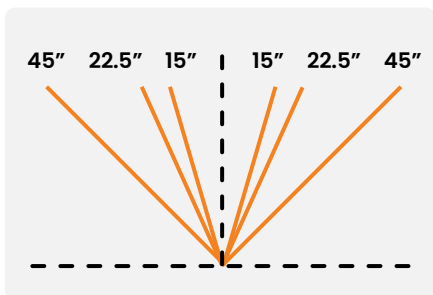
BRUSHES (VARIOUS) AND FLEXIBLE SPATULA for spreading contact adhesive and coating.



CHALK, MARKER PEN AND COMPASS to draw reference lines for measurements and cuts.



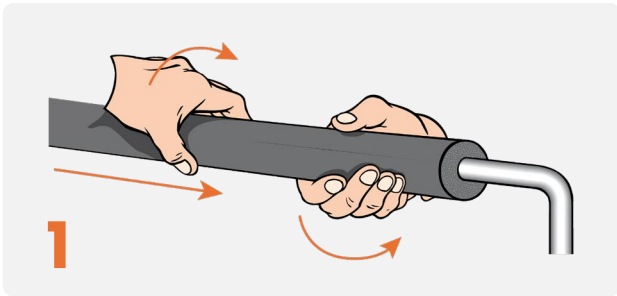
Long blade knife to facilitate cutting insulating material.



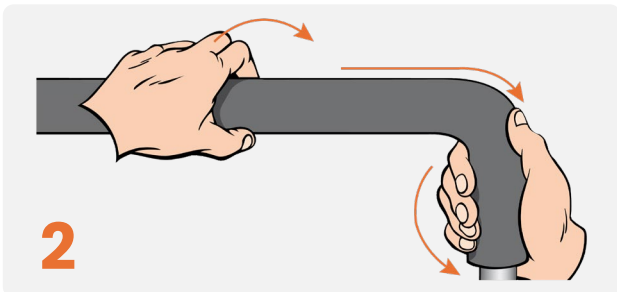
Gulf O Flex Templates

SMALL DIAMETER PIPES

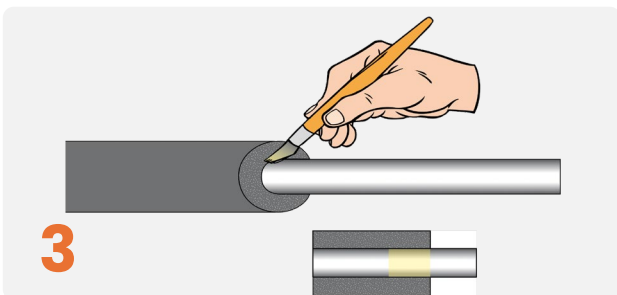
GULF O FLEX® NON-SLIT TUBES



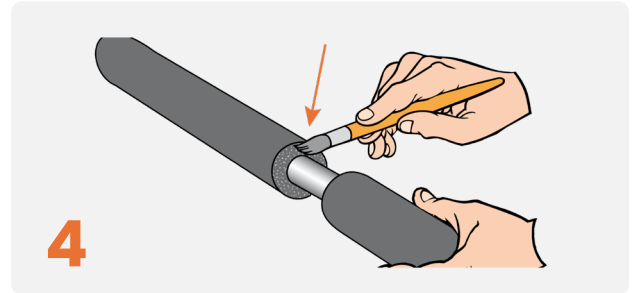
Insulating the tubes before installing the pipes saves time and makes the most of the flexibility of the elastomeric material.



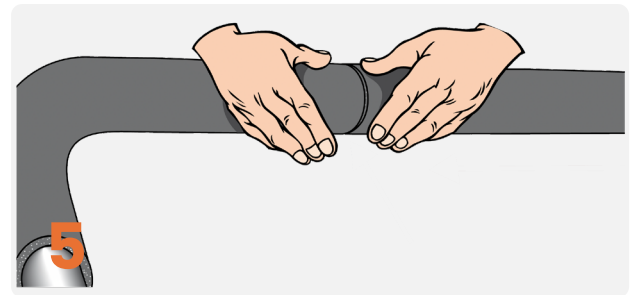
Exerting excessive force during installation can cause the tube to deform. Instead, apply smooth, even pressure to allow the material to conform naturally to the pipe, particularly around curved sections.



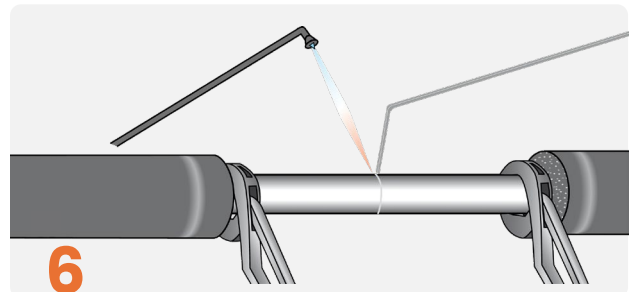
Once a section of tubing is properly positioned, secure at least one end to the pipe using GULF O FLEX® Contact Adhesive.



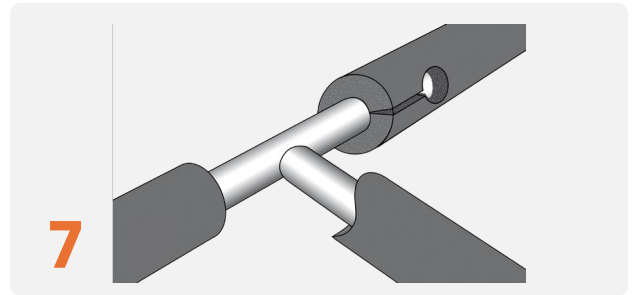
Apply adhesive/glue to the edges of the installed tubing and the adjacent section to be positioned. This will ensure proper alignment of the butt joints.



Align the edges of the tubing to be glued and press them firmly together.



If the underlying pipe requires brazing or welding, ensure a 50 cm clearance between the soldering area and the edge of the tubing. Once the pipe has cooled, proceed with completing the insulation.



Before applying adhesive, test the strength at critical stress points in the pipes, such as elbow joints and branches, to ensure stability.

PRACTICAL TIPS

SMALL DIAMETER PIPES

(GULF O FLEX® SELF-ADHESIVE TUBES)

Insulating a system involves many repetitive tasks. To optimize efficiency and achieve the best results, we have provided key guidelines that streamline the process, saving both time and effort. Three essential principles should be followed for all insulation products, while ten specific guidelines apply when using GULF O FLEX Self-Adhesive Tubes:

- Ensure the insulation is correctly sized.
 - Push the insulation into place rather than pulling it.
 - Seal all seams, butt joints, termination points, and open ends. Install vapor stops as required.
1. It is recommended by GULF O FLEX that both the air temperature and insulation temperature remain below 35°C during installation.
 2. To ensure proper installation, do not stretch the insulation. Instead, gently push it into place. All butt joints should be fitted under slight compression to ensure secure adhesion.
 3. Effective sealing is vital for condensation control and can be accomplished with basic installation methods. All seams, butt joints, cutouts, and termination points should be sealed with an adhesive that is approved by the manufacturer to prevent the entry of air or moisture.

To prevent moisture accumulation in below-ambient applications, vapor stops must be installed at every insulation termination or interruption, including locations such as supports, valves, and flanges. A 2-inch (50mm) strip of contact adhesive or sealant should be applied directly to the pipe to ensure a proper seal, or insulation tape can be used as an alternative. On straight runs, vapor stops should be positioned every 5.5 meters to minimize the risk of moisture-related issues.

4. To adhere the butt ends of tubular insulation, contact adhesive is the preferred method. However, it is essential to allow the solvent in the adhesive to fully evaporate before joining the materials. This is particularly critical when using closed-cell foam insulations. If the solvent has not flashed off completely, it will be trapped under the impermeable surface, preventing further evaporation. As a result, the adhesive may remain soft, fail to cure, and ultimately lose its bonding strength when force is applied to separate the surfaces.
5. When using contact adhesive in cold weather, it is essential for the installer to understand how temperature affects the flash time. Lower temperatures increase the time needed for the solvent to evaporate, and extremely low temperatures can prevent the solvent from flashing altogether. In such conditions, it may be necessary to warm the adhesive to ensure proper curing.
6. When installing self-adhesive insulation products in cold weather, it is crucial for the installer to understand how temperature affects the pressure needed for proper sealing. To ensure optimal performance, it is recommended that the insulation be stored in a warm, enclosed space—such as a room or trailer—until just before installation.
7. PSA (Pressure-Sensitive Adhesive) is temperature-sensitive and performs best when both the air and substrate temperatures are above 20°C. While it can still be applied at temperatures as low as 10°C, achieving a proper bond will require significantly more pressure.

8. Exposure to higher temperatures causes a PSA (Pressure-Sensitive Adhesive) to soften and become more tacky, while lower temperatures make the adhesive harden and reduce its tackiness.
9. The ideal installation temperature for the pre-applied PSA on the longitudinal seam is around 24°C. A general guideline for determining the pressure needed for proper sealing is to double the required pressure for every 10°C decrease in temperature. For example, as illustrated in the table below, installing PSA at 7°C requires eight times the pressure compared to installation at 24°C.

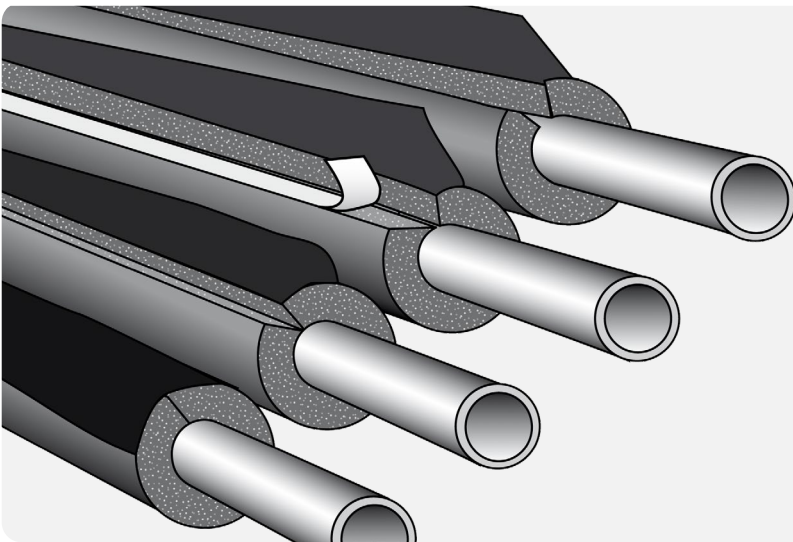
Temperature	Relative Pressure Required
35° C	1X
24° C	2X
15° C	4X

10. It is not recommended to use self-sealing insulations at temperatures below 5°C, as this would require excessive pressure for proper sealing.

The installation environment must be clean, dry and less than 30°C Ambient.

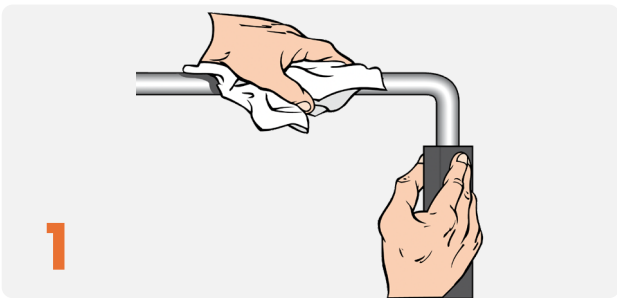
SMALL DIAMETER PIPES

(GULF O FLEX® SELF-ADHESIVE TUBES WITH OVERLAP)

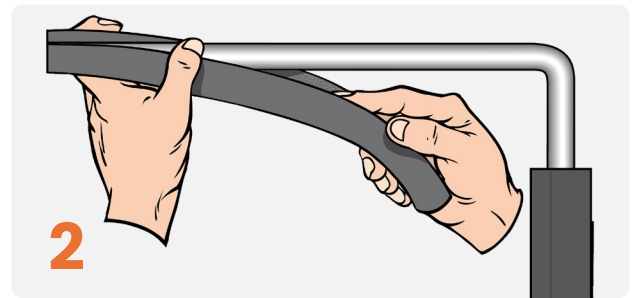


GULF O FLEX® self-adhesive insulation is ideal for applications where piping is already in place. Its ease of application helps accelerate the installation process.

Once installed, the longitudinal seam should be positioned facing downward at the bottom of the pipe.



1 Ensure that the surfaces to be insulated are thoroughly clean, free of grease, and dry.



2 The pre-cut design makes it easy to position the tube accurately.

LARGE DIAMETER PIPES/ ROUND DUCTS

RWI recommends using sheets or rolls for insulating large diameter pipes and round ducts. GULF O FLEX 1-meter wide sheets/rolls are available in thicknesses from 6 mm to 50 mm. Note: For outdoor applications, a protective coating or jacketing should be applied. Factory-applied Gulf O Flex CLAD® / ALUCLAD Sheets are best suited for flat surfaces. For large round ducts or pipes, ALUCLAD® rolls should be applied in the field to the insulation as described in this manual. For specific design considerations, please contact RWI Technical Support. Refer to the "Practical Tips" section for additional guidance on all applications.

Given the variety of outdoor environments, GULF O FLEX is unable to provide universal installation instructions for all systems. For specific applications, including those involving process fluids below 0°C, please contact RWI Technical Support.

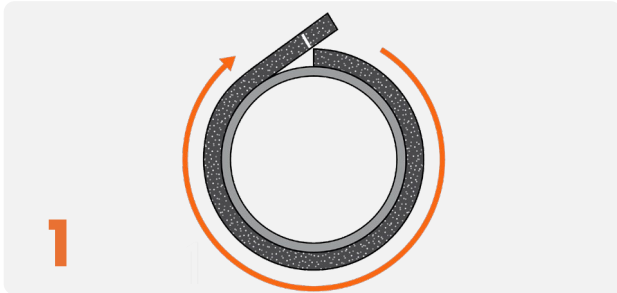
SHEET YIELD CHART

PIPE SIZE (ACTUAL O.D.,)	INSULATION THICKNESS (IN.)	WIDTH (IN.) PIPE CIRCUMFERENCE*	SHEET LENGTH (IN) (CONFIGURATION)	YIELD, LINEAR FEET OF PIPE WORK PER 3' X 4' SHEET
5" IPS (~4-9/16")	1/2	20-5/8	36	6
	3/4	22-1/4	36	6
	1	23-3/4	36	6
6" IPS (6-5/8")	1/2	24	36	6
	3/4	25-5/8	48	4
	1	27-1/8	48	4
8" IPS (8-5/8")	1/2	30-1/4	48	4
	3/4	31-7/8	48	4
	1	33-3/8	48	4
10" IPS (10-3/4")	1/2	37	36	3
	3/4	38-1/2	36	3
	1	40-1/8	36	3
12" IPS (12-3/4")	1/2	43-1/4	36	3
	3/4	44-3/4	36	3
	1	46-3/8	36	3
14" IPS (14")	1/2	46-1/2 Rolls Rolls	36	3
	3/4			
	1			

The above recommendations are based on the following formula: (Pipe O.D. + 2 × insulation thickness) × 3.14 = sheet length. Rolls generally provide better yield compared to sheets. This formula calculates the outer circumference of the insulation once installed on the pipe. For a looser fit, add 1/2" (which may impact yield).

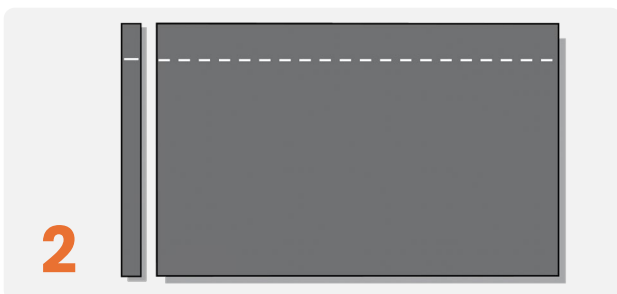
For pipe sizes under 5" IPS, RWI recommends using tube insulation. This method speeds up installation, reduces the number of seams (eliminating the longitudinal seam that can cause separation), and helps prevent tension and stress cracks that may develop when using sheet insulation on smaller pipes.

Note: Due to varying environmental conditions, such as temperature fluctuations, outdoor round piping and ductwork require special attention during insulation. It's important to account for the interaction between the insulation's normal expansion and contraction and the jacketing. As pipe diameters and insulation thicknesses increase, greater care is needed to ensure proper installation.

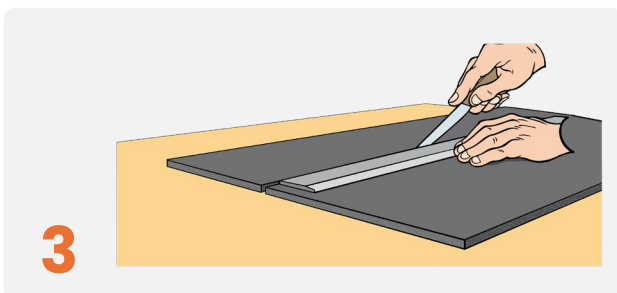


To determine the correct length, wrap a strip of GULF O FLEX material, matching the specified thickness, around the pipe. The insulation should be loosely fitted, with a small gap of approximately 1/4" between the pipe and the insulation. Ensure that the seam is not under any stress. Avoid stretching the insulation to fit.

For chilled water or refrigerant systems in demanding conditions, apply a band of contact adhesive to the pipe and the inner surface of the sheet insulation, extending at least 1/2" on both sides of all butt joints.



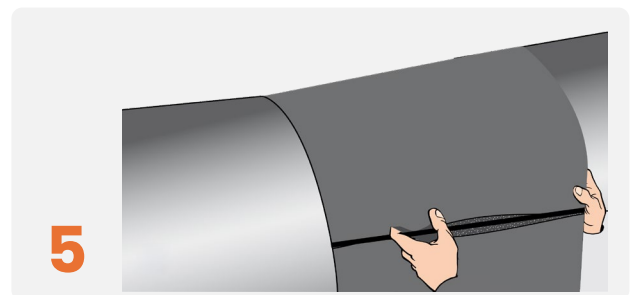
Measure and mark the required length on the GULF O FLEX® sheet.



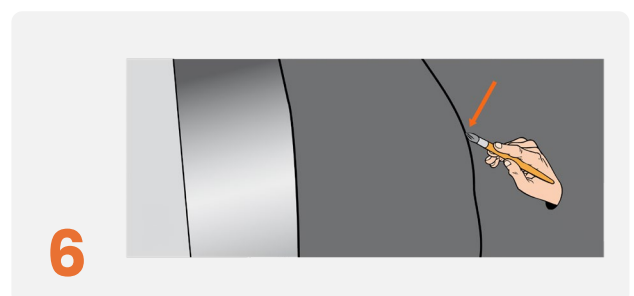
Cut along the marked line carefully, using a metal ruler for greater accuracy.



Brush a coat of GULF O FLEX® Contact Adhesive onto both seams. Avoid fully adhering the sheet to the pipe or duct. For pipes or ducts with an O.D. of 12" or more, the adhesive should cover the bottom third of the horizontal surface to prevent the insulation from sagging.



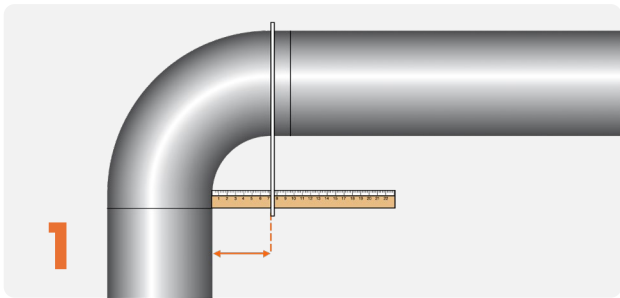
To minimize the effects of temperature changes on insulation expansion and contraction, install the insulation at a temperature between the normal operating temperature and the ambient range. Wrap the insulation around the duct, pressing the seams together securely. Start by joining the opposite ends, then work towards the center to ensure straight edges at the ends, allowing for cleaner butt joints.



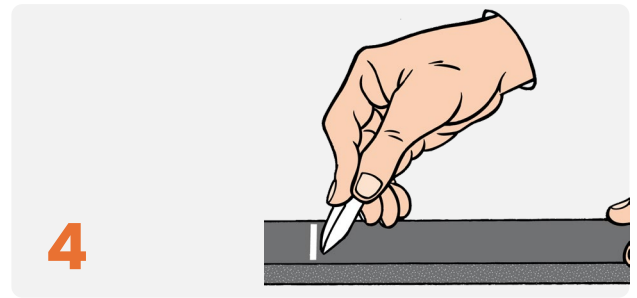
Apply GULF O GLUE® Contact Adhesive to butt joints and press adjoining insulation sections firmly together.

To prevent sagging and buckling on vertical piping or ductwork, it is recommended to adhere the insulation at key points. Apply adhesive around each butt joint along the circumference, using 4" of adhesive on both sides of the joint.

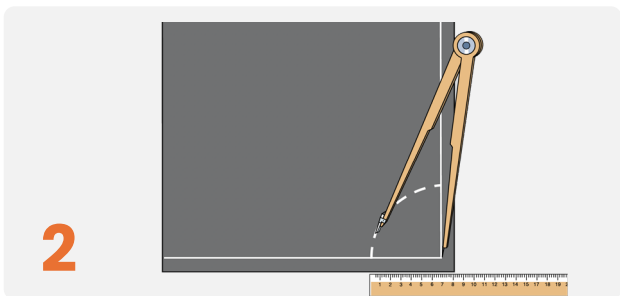
BENDS – LARGE PIPES



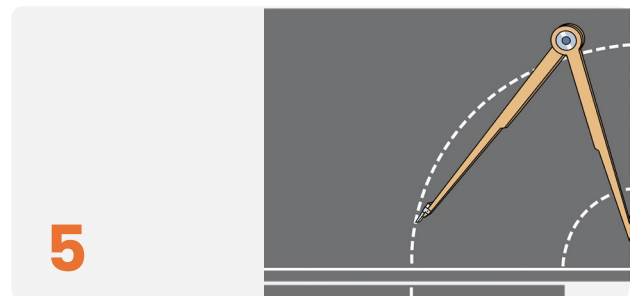
1 First, measure the internal radius of the curve using a ruler placed perpendicular to the pipe. Next, calculate the radius and mark it on a GULF O FLEX® sheet to insulate the bend on the large-diameter pipe.



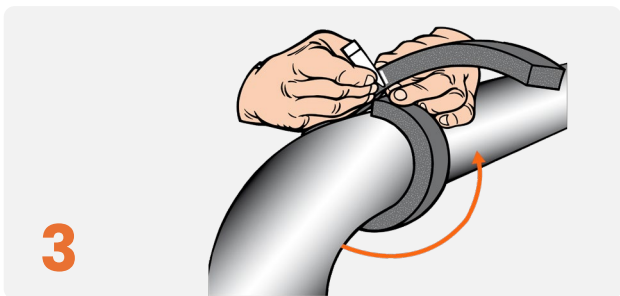
4 Calculate half of the circumference and mark the midpoint of the strip accordingly.



2 With a compass, trace the outline of the internal radius on the GULF O FLEX® sheet, using the corner of the square marked on the insulation as the center point.



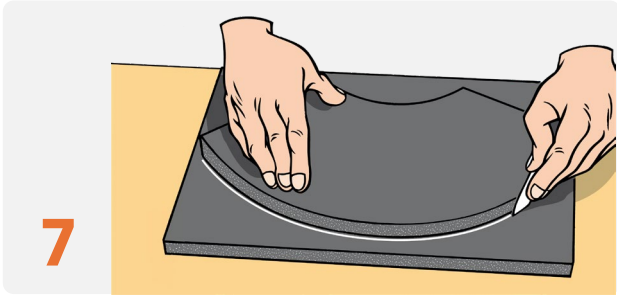
5 Combine the inner and outer radius measurements, then, using the same axis, use a compass to draw a semicircle on the sheet.



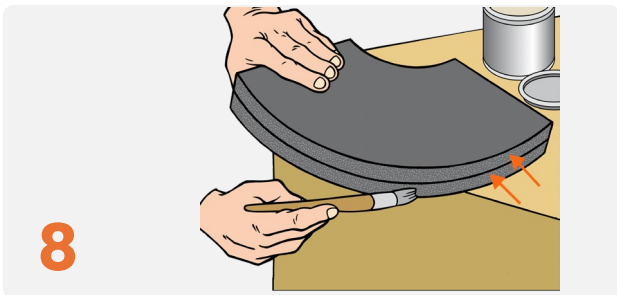
3 Using a strip of GULF O FLEX® sheet of the correct thickness, measure the exact circumference of the pipe, ensuring the strip is not stretched.



6 Carefully cut the sheet along the arc of the circle. If any imperfections are present along the cut edges, gently smooth them to ensure a more precise fit.



Position the cut section on the reverse side of another sheet and use it as a template to cut out a second section.



Align the two sections with the smooth surfaces facing outward, then apply glue to the outer edges.



Allow the glue to dry, then press the edges together, beginning at the two ends.



Press down firmly in the center.



Coat the edge of the installed tubing and the edge of the next section with glue before positioning it.



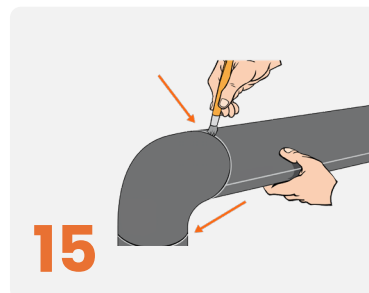
Then, spread the glue along the inner edges and let it dry.



Wrap the GULF O FLEX insulation around the pipe and press the edges tightly together.



Use the metal band as a guide to trim the ends.



... so that they butt precisely up against the tubing to be fitted on either side.

DUCT WRAPS – RECTANGULAR

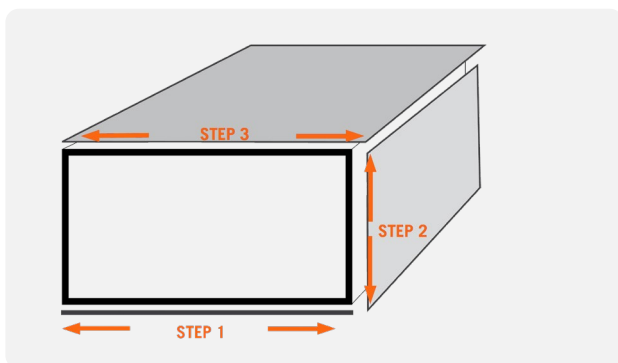
GULF O FLEX® SHEETS & GULF O FLEX CLAD®



Note: Insulation for outdoor ductwork must be protected from mechanical damage and UV exposure, such as with GULF O FLEX® CLAD or cladding. For outdoor applications, GULF O FLEX CLAD® Sheet with PSA offers quicker installation and eliminates odors from contact adhesive fumes. Additionally, GULF O FLEX CLAD® is more flexible and easier to handle than metal, requiring no specialized labor.

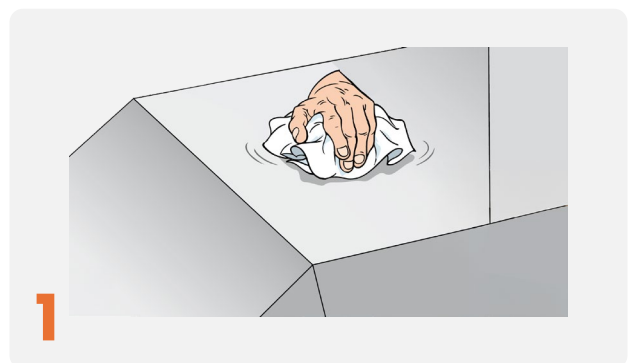
To prevent water accumulation on horizontal ducts, create a pitch as directed by the system designer. In areas prone to heavy moisture, such as washdown zones, RWI advises sealing all seams with caulk. For additional assistance, please reach out to RWI technical support.

CUTTING INSTRUCTIONS



- STEP 1** Start by cutting the bottom piece, ensuring it is flush with the edge.
- STEP 2** Cut the side pieces so that they overlap the bottom section of insulation and align flush with the top of the duct.
- STEP 3** Cut the top piece to extend over the side sections, creating a water-resistant overlap.

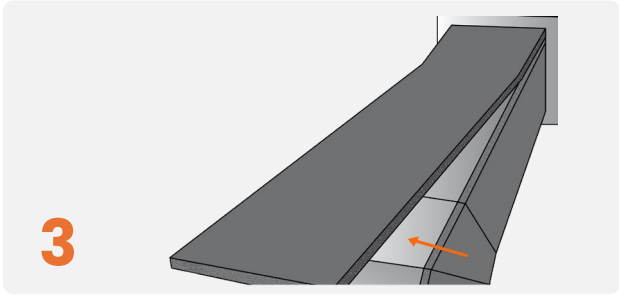
GULF O FLEX® OR GULF O FLEX CLAD®



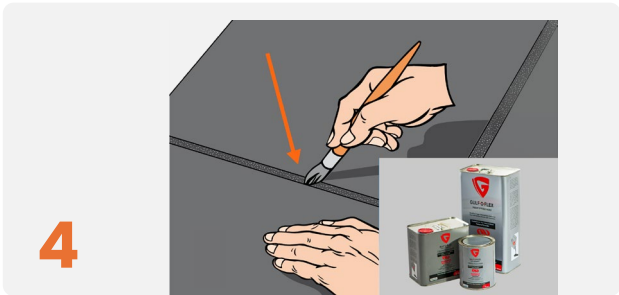
Ensure the surface to be insulated is thoroughly cleaned. Insulation should not be applied if there is any buildup or imperfections that could prevent the sheet from adhering properly.



Mark the dimensions of the surfaces to be insulated on the sheet, then cut the appropriate size from the roll.



3 Apply GULF O FLEX® Contact Adhesive to both the conduit surface and the area to be insulated. For best results, begin by insulating the lower surface of the conduit, then proceed with the side walls, and finish with the top. This sequence helps to prevent moisture from penetrating.

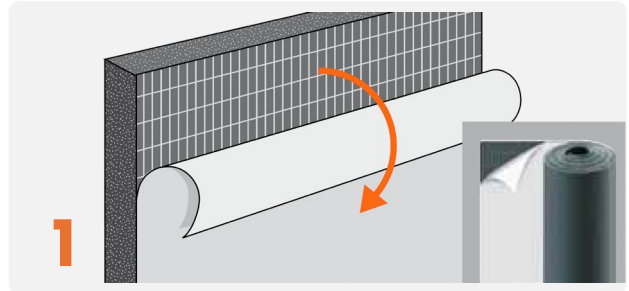


4 Apply GULF O GLUE® Contact Adhesive to bond the edges together.

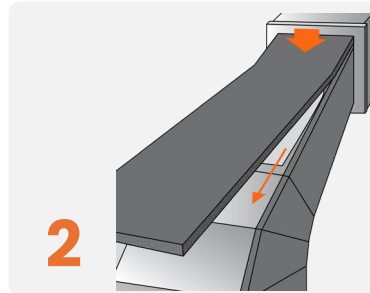
Recommended tape sizes for edges and corners vary depending on thickness of insulation used:

INSULATION THICKNESS	TAPE WIDTH
1/2"	4"
1"	6"
1-1/2"	6"
2"	6"

GULF O FLEX® SHEET WITH SA OR GULF O FLEX CLAD®

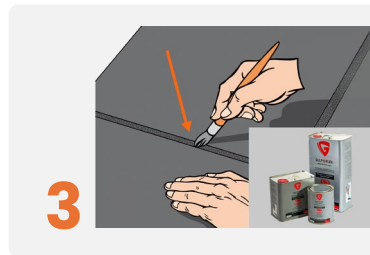


1 Follow the same cleaning and cutting procedures for self-adhesive sheets as you would for standard sheets. Before applying to the conduit surface, peel off the backing paper from the adhesive side. Begin by gently pinching the foam and removing 1-2" of the liner.



2 Align the exposed edge at the starting point. Slowly peel off the backing paper, pressing the material firmly and evenly as you move along.

RWI recommends insulating the lower surface of the conduit first, then the side walls, and finally the top. This approach helps to prevent moisture from penetrating.



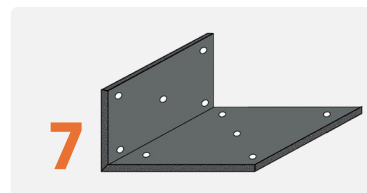
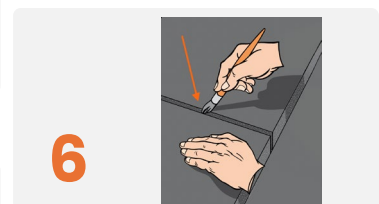
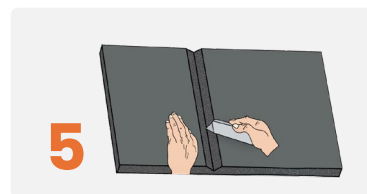
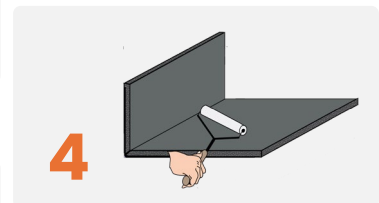
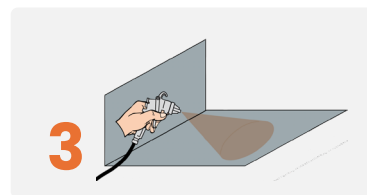
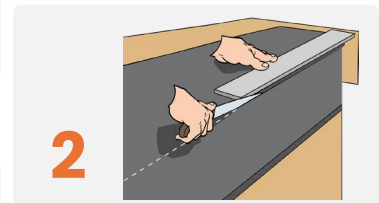
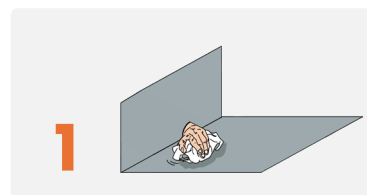
3 Apply GULF O GLUE® Contact Adhesive to bond the edges together.

DUCT LINING - RECTANGULAR

GULF O FLEX®

Using Contact or Hot Melt Adhesive

1. Clean the surface to be insulated thoroughly.
2. Cut GULF O FLEX® to the appropriate size, ensuring to leave it slightly oversized (about 1/8") for a tight compression fit. Do not stretch the material. The flexibility and ease of cutting elastomeric sheet make it ideal for insulating irregular shapes.
3. Apply a suitable contact or hot melt adhesive to both surfaces using a brush, roller, or spray. For best results, we recommend using our Self-Adhesive insulation, ensuring a minimum coverage of 90%. Allow the adhesive to become tacky before pressing the surfaces together. Note: Certain spray adhesives may provide sufficient bonding when applied to just one surface (such as the sheet metal). We advise testing this method to verify its effectiveness.
4. For optimal results, use a roller to apply consistent pressure, ensuring complete adhesion to the sheet metal once the insulation is in place.
5. To avoid over-compressing the insulation at bends, a v-groove cut, half the depth of the insulation, can be made at the point of the bend. In some coil lines, the insulation material can be bent along with the sheet metal itself.
6. When installing liner to individual sections, use an approved adhesive to join adjacent liner sections.
7. Install mechanical fasteners following the HVAC DUCT CONSTRUCTION STANDARDS for both metal and flexible ducts.



Using Rolls with Self Adhesive

1. Start by cleaning and cutting the material as instructed. Peel back 8-10 inches of the release liner and align the adhesive on the sheet metal. Press the adhesive into place, then remove the remaining release liner. Follow the steps in items 4-6 to smooth and complete the installation.
2. Apply mechanical fasteners as outlined above.

